



METROPOLITAN
C O U N C I L



SOUTHWEST
Green Line LRT Extension

CIVIL WEST CONSTRUCTION

VOLUME 12

SYSTEMS

[illegible]

WARNING: THIS RECORD MAY CONTAIN SENSITIVE SECURITY INFORMATION THAT IS CONTROLLED UNDER 49 CFR PARTS 15 AND 1520. NO PART OF THIS RECORD MAY BE DISCLOSED TO PERSONS WITHOUT A "NEED TO KNOW", AS DEFINED IN 49 CFR PARTS 15 AND 1520, EXCEPT WITH THE WRITTEN PERMISSION OF THE ADMINISTRATOR OF THE TRANSPORTATION SECURITY ADMINISTRATION OR THE SECRETARY OF TRANSPORTATION. UNAUTHORIZED RELEASE MAY RESULT IN CIVIL PENALTY OR OTHER ACTION. FOR U.S. GOVERNMENT AGENCIES, PUBLIC DISCLOSURE IS GOVERNED BY 5 U.S.C. 552 AND 49 CFR PARTS 15 AND 1520.

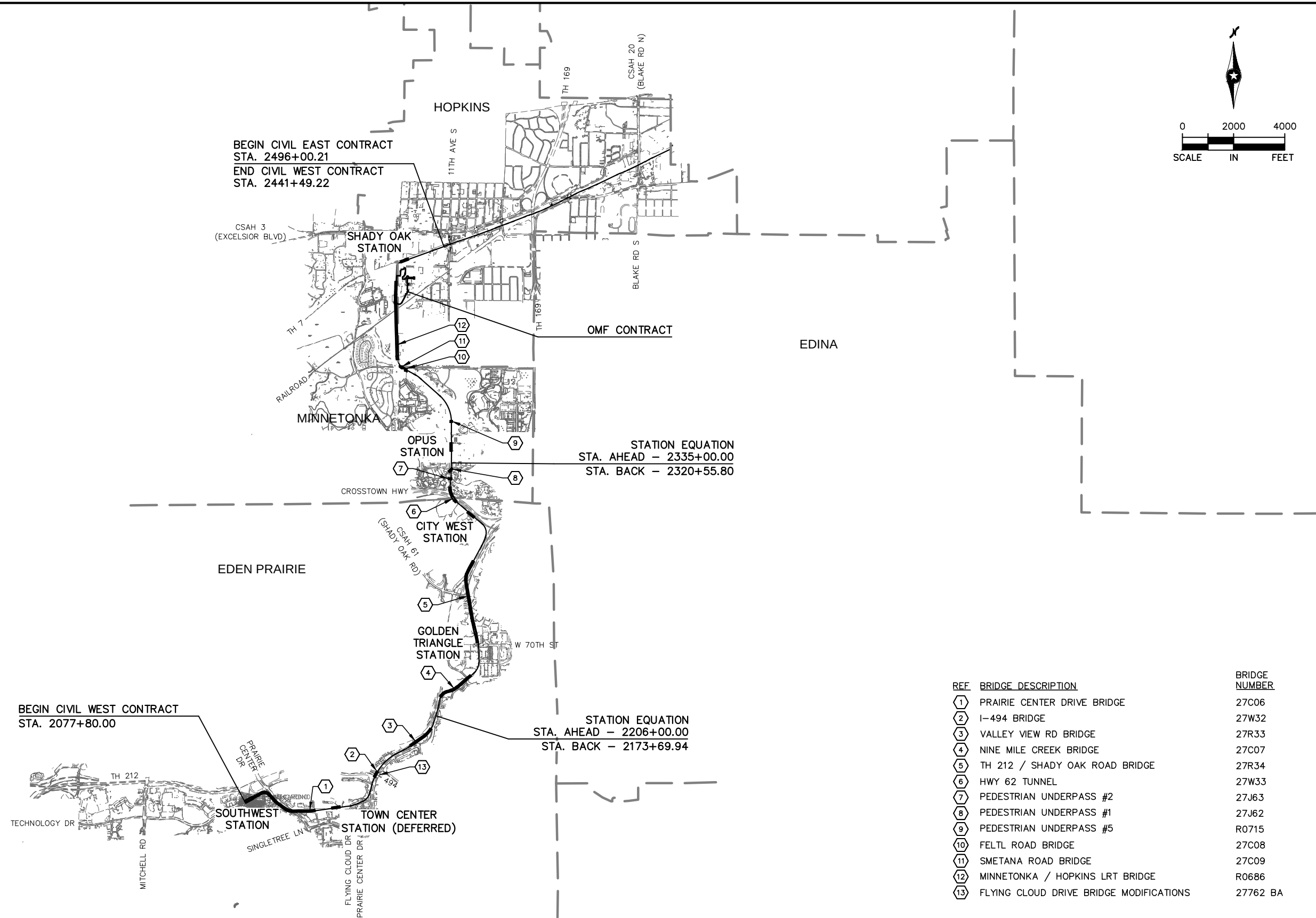
60% SUBMISSION
DATE : 09/28/15

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CIVIL WEST						CIVIL WEST						CIVIL WEST					
SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV	SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV	SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV
VOLUME 12 - SYSTEMS																	
1	W0-SYS-CVR-001	COVER SHEET				69	W2-SYS-SWE-PRF-014	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2295+00	2302+00		129	W0-SYS-SWE-DTL-019	SWITCH HEATER CASE - TYPICAL FOUNDATION INSTALLATION			
2	W0-SYS-SWE-IDX-001	VOLUME INDEX OF PLAN SHEETS				70	W2-SYS-SWE-SCH-014	SYSTEMWIDE ELECTRICAL SCHEDULE	2295+00	2302+00		130	W0-SYS-SWE-DTL-020	SINGLE IMPEDANCE BOND - BALLASTED TRACK INSTALLATION			
3	W0-GEN-KEY-001	GENERAL KEY MAP				71	W2-SYS-SWE-PRF-015	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2302+00	2308+50			W0-SYS-SWE-DTL-021	DOUBLE IMPEDANCE BOND - BALLASTED TRACK INSTALLATION			
4	W0-GEN-NTS-001	GENERAL LEGEND AND ABBREVIATIONS SHEET 1				72	W2-SYS-SWE-SCH-015	SYSTEMWIDE ELECTRICAL SCHEDULE	2302+00	2308+50			W0-SYS-SWE-DTL-022	MAINLINE SWITCH MACHINE - DIRECT FIXATION & BALLASTED TRACK INSTALLATION			
5	W0-GEN-NTS-002	GENERAL LEGEND AND ABBREVIATIONS SHEET 2				73	W2-SYS-SWE-PRF-016	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2308+50	2315+00		131	W0-SYS-SWE-DTL-021	DOUBLE IMPEDANCE BOND - BALLASTED TRACK INSTALLATION			
6	W0-SYS-SWE-LAY-001	SYSTEMWIDE ELECTRICAL PLAN SHEET LAYOUT SHEET 1				74	W2-SYS-SWE-SCH-016	SYSTEMWIDE ELECTRICAL SCHEDULE	2308+50	2315+00		132	W0-SYS-SWE-DTL-022	MAINLINE SWITCH MACHINE - DIRECT FIXATION & BALLASTED TRACK INSTALLATION			
7	W0-SYS-SWE-LAY-002	SYSTEMWIDE ELECTRICAL PLAN SHEET LAYOUT SHEET 2				75	W2-SYS-SWE-PRF-017	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2315+00	2320+55.80		133	W0-SYS-SWE-DTL-023	BOOTLEG JUNCTION BOX INSTALLATION			
8	W0-SYS-SWE-LAY-003	SYSTEMWIDE ELECTRICAL PLAN SHEET LAYOUT SHEET 3				76	W2-SYS-SWE-SCH-017	SYSTEMWIDE ELECTRICAL SCHEDULE	2315+00	2320+55.80		134	W0-SYS-SWE-DTL-COM-001	INTRUSION DETECTION CABINET - TYPICAL FOUNDATION INSTALLATION			
9	W0-SYS-SWE-LGD-001	SYSTEMWIDE ELECTRICAL SYMBOLS AND GENERAL NOTES				77	W3-SYS-SWE-PRF-001	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2335+00	2339+50		135	W0-SYS-OCS-PFS-001	OCS POLE FOUNDATION SCHEDULE - SHEET 1 OF 9			
10	W0-SYS-SWE-LGD-002	SYSTEMWIDE ELECTRICAL ABBREVIATIONS				78	W3-SYS-SWE-SCH-001	SYSTEMWIDE ELECTRICAL SCHEDULE	2335+00	2339+50		136	W0-SYS-OCS-PFS-002	OCS POLE FOUNDATION SCHEDULE - SHEET 2 OF 9			
11	W1-SYS-SWE-PRF-001	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2077+80	2084+00		79	W3-SYS-SWE-PRF-002	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2339+50	2345+50		137	W0-SYS-OCS-PFS-003	OCS POLE FOUNDATION SCHEDULE - SHEET 3 OF 9			
12	W1-SYS-SWE-SCH-001	SYSTEMWIDE ELECTRICAL SCHEDULE	2077+80	2084+00		80	W3-SYS-SWE-SCH-002	SYSTEMWIDE ELECTRICAL SCHEDULE	2339+50	2345+50		138	W0-SYS-OCS-PFS-004	OCS POLE FOUNDATION SCHEDULE - SHEET 4 OF 9			
13	W1-SYS-SWE-PRF-002	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2084+00	2089+50		81	W3-SYS-SWE-PRF-003	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2345+50	2352+50		139	W0-SYS-OCS-PFS-005	OCS POLE FOUNDATION SCHEDULE - SHEET 5 OF 9			
14	W1-SYS-SWE-SCH-002	SYSTEMWIDE ELECTRICAL SCHEDULE	2084+00	2089+50		82	W3-SYS-SWE-SCH-003	SYSTEMWIDE ELECTRICAL SCHEDULE	2345+50	2352+50		140	W0-SYS-OCS-PFS-006	OCS POLE FOUNDATION SCHEDULE - SHEET 6 OF 9			
15	W1-SYS-SWE-PRF-003	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2089+50	2096+00		83	W3-SYS-SWE-PRF-004	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2352+50	2359+50		141	W0-SYS-OCS-PFS-007	OCS POLE FOUNDATION SCHEDULE - SHEET 7 OF 9			
16	W1-SYS-SWE-SCH-003	SYSTEMWIDE ELECTRICAL SCHEDULE	2089+50	2096+00		84	W3-SYS-SWE-SCH-004	SYSTEMWIDE ELECTRICAL SCHEDULE	2352+50	2359+50		142	W0-SYS-OCS-PFS-008	OCS POLE FOUNDATION SCHEDULE - SHEET 8 OF 9			
17	W1-SYS-SWE-PRF-004	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2096+00	2103+00		85	W3-SYS-SWE-PRF-005	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2359+50	2366+50		143	W0-SYS-OCS-PFS-009	OCS POLE FOUNDATION SCHEDULE - SHEET 9 OF 9			
18	W1-SYS-SWE-SCH-004	SYSTEMWIDE ELECTRICAL SCHEDULE	2096+00	2103+00		86	W3-SYS-SWE-SCH-005	SYSTEMWIDE ELECTRICAL SCHEDULE	2359+50	2366+50		144	W0-SYS-OCS-FND-001	OCS POLE FOUNDATION ASSEMBLY - BALLASTED TRACK			
19	W1-SYS-SWE-PRF-005	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2103+00	2109+50		87	W3-SYS-SWE-PRF-006	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2366+50	2373+50		145	W0-SYS-OCS-FND-002	OCS POLE FOUNDATION ASSEMBLY - MEDIAN OR NEUTRAL AREA			
20	W1-SYS-SWE-SCH-005	SYSTEMWIDE ELECTRICAL SCHEDULE	2103+00	2109+50		88	W3-SYS-SWE-SCH-006	SYSTEMWIDE ELECTRICAL SCHEDULE	2366+50	2373+50		146	W0-SYS-OCS-FND-003	OCS GUY FOUNDATION ASSEMBLY			
21	W1-SYS-SWE-PRF-006	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2109+50	2114+00		89	W3-SYS-SWE-PRF-007	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2373+50	2378+50		147	W0-SYS-OCS-FND-004	OCS POLE FOUNDATION ASSEMBLY - MSE RETAINED FILL AT BRIDGE APPROACH			
22	W1-SYS-SWE-SCH-006	SYSTEMWIDE ELECTRICAL SCHEDULE	2109+50	2114+00		90	W3-SYS-SWE-SCH-007	SYSTEMWIDE ELECTRICAL SCHEDULE	2373+50	2378+50		148	W0-SYS-CORR-DTL-001	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 1			
23	W1-SYS-SWE-PRF-007	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2114+00	2120+50		91	W3-SYS-SWE-PRF-008	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2378+50	2384+50		149	W0-SYS-CORR-DTL-002	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 2			
24	W1-SYS-SWE-SCH-007	SYSTEMWIDE ELECTRICAL SCHEDULE	2114+00	2120+50		92	W3-SYS-SWE-SCH-008	SYSTEMWIDE ELECTRICAL SCHEDULE	2378+50	2384+50		150	W0-SYS-CORR-DTL-003	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 3			
25	W1-SYS-SWE-PRF-008	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2120+50	2126+50		93	W3-SYS-SWE-PRF-009	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2384+50	2391+00		151	W0-SYS-CORR-DTL-004	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 4			
26	W1-SYS-SWE-SCH-008	SYSTEMWIDE ELECTRICAL SCHEDULE	2120+50	2126+50		94	W3-SYS-SWE-SCH-009	SYSTEMWIDE ELECTRICAL SCHEDULE	2384+50	2391+00		152	W0-SYS-CORR-DTL-005	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 5			
27	W1-SYS-SWE-PRF-009	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2126+50	2133+50		95	W3-SYS-SWE-PRF-010	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2391+00	2397+50		153	W0-SYS-CORR-DTL-006	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 6			
28	W1-SYS-SWE-SCH-009	SYSTEMWIDE ELECTRICAL SCHEDULE	2126+50	2133+50		96	W3-SYS-SWE-SCH-010	SYSTEMWIDE ELECTRICAL SCHEDULE	2391+00	2397+50		154	W0-SYS-CORR-DTL-007	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 7			
29	W1-SYS-SWE-PRF-010	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2133+50	2140+50		97	W3-SYS-SWE-PRF-011	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2397+50	2404+00		155	W0-SYS-CORR-DTL-008	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 8			
30	W1-SYS-SWE-SCH-010	SYSTEMWIDE ELECTRICAL SCHEDULE	2133+50	2140+50		98	W3-SYS-SWE-SCH-011	SYSTEMWIDE ELECTRICAL SCHEDULE	2397+50	2404+00		156	W0-SYS-CORR-DTL-009	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 9			
31	W1-SYS-SWE-PRF-011	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2140+50	2147+50		99	W3-SYS-SWE-PRF-012	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2404+00	2410+50		157	W0-SYS-CORR-DTL-010	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 10			
32	W1-SYS-SWE-SCH-011	SYSTEMWIDE ELECTRICAL SCHEDULE	2140+50	2147+50		100	W3-SYS-SWE-SCH-012	SYSTEMWIDE ELECTRICAL SCHEDULE	2404+00	2410+50		158	W0-SYS-CORR-DTL-011	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 11			
33	W1-SYS-SWE-PRF-012	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2147+50	2154+50		101	W3-SYS-SWE-PRF-013	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2410+50	2417+00		159	W0-SYS-CORR-DTL-012	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 12			
34	W1-SYS-SWE-SCH-012	SYSTEMWIDE ELECTRICAL SCHEDULE	2147+50	2154+50		102	W3-SYS-SWE-SCH-013	SYSTEMWIDE ELECTRICAL SCHEDULE	2410+50	2417+00		160	W0-SYS-CORR-DTL-013	CONTROL STRAY CURRENT CONTROL DETAIL 13			
35	W1-SYS-SWE-PRF-013	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2154+50	2161+00		103	W3-SYS-SWE-PRF-014	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2417+00	2422+00		161	W0-SYS-CORR-DTL-014	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 14			
36	W1-SYS-SWE-SCH-013	SYSTEMWIDE ELECTRICAL SCHEDULE	2154+50	2161+00		104	W3-SYS-SWE-SCH-014	SYSTEMWIDE ELECTRICAL SCHEDULE	2417+00	2422+00		162	W0-SYS-CORR-DTL-015	CORROSION CONTROL STRAY CURRENT CONTROL DETAIL 15			
37	W1-SYS-SWE-PRF-014	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2161+00	2165+50		105	W3-SYS-SWE-PRF-015	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2422+00	2428+50							
38	W1-SYS-SWE-SCH-014	SYSTEMWIDE ELECTRICAL SCHEDULE	2161+00	2165+50		106	W3-SYS-SWE-SCH-015	SYSTEMWIDE ELECTRICAL SCHEDULE	2422+00	2428+50							
39	W1-SYS-SWE-PRF-015	SYSTEMWIDE ELECTRICAL PLAN AND PROFILE	2165+50	2169</													

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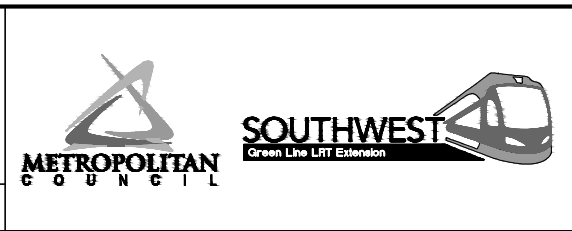


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CIVIL WEST - VOLUME 12 GENERAL KEY MAP		SHEET 3 OF 162
DISCIPLINE: GENERAL	SHEET NAME: W0-GEN-KEY - 001	

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TRACK 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 INTRUSION DETECTION

CIVIL LINETYPES

- ROADWAY
- TRACK (LRT)
- TRACK (FRT)
- RETAINING WALL
- BALLAST CURB
- TUNNEL WALL
- CONCRETE CURB AND GUTTER
- TRAIL
- SIDEWALK
- DRIVEWAY
- BRIDGE
- SAWCUT
- FENCE
- DELINEATED WETLAND
- WATER EDGE
- EX ROW
- PROP ROW
- PROP TCE
- PROP PE
- CROSSWALK
- STOP BAR
- MEDIAN NOSE

TRACK SYMBOLS

- PROPOSED DIRECTIONAL LANE USE
- EXISTING DIRECTIONAL LANE USE
- PEDESTRIAN FLASHER
- AUTOMATIC GATE
- RAIL TURNOUT
- RAIL CROSSOVER (DOUBLE)
- RAIL CROSSOVER (SINGLE)
- POINT OF SWITCH (PS)
- OCS POLE FOUNDATION
- RAIL LUBRICATOR
- POINT OF INTERSECTION (PI) OF TURNOUT (TO)
- RAILROAD CURVE NUMBER

NOTE:
ALL TURNOUTS AND CROSSOVERS TO BE EQUIPPED WITH POWER SWITCH MACHINES AND SWITCH HEATERS

CIVIL SYMBOLS

- ACCESSIBLE PEDESTRIAN CURB RAMP (DESIGN VARIES)
- PROPOSED DIRECTIONAL LANE USE
- EXISTING DIRECTIONAL LANE USE
- AUTOMATIC GATE
- HANDICAP PARKING STALL
- TACTILE WARNING STRIP
- TPSS BUILDING (TPSS-SW###)
- SIGNAL OR INTERMEDIATE OR PLATFORM OR XING OR TUNNEL HOUSE OR ANY COMBINATION OF THESE

SURVEY NOTES

- THE HORIZONTAL DATUM OF THIS MAP IS BASED ON THE HENNEPIN COUNTY COORDINATE SYSTEM WHICH IS RELATED TO THE MINNESOTA STATE PLANE COORDINATE SYSTEM NAD 83 (2007) ADJUSTMENT SOUTH ZONE.
- THE PLANIMETRIC FEATURES SHOWN ON THIS MAP ARE AS PREPARED BY AERO-METRIC, INC. FROM AERIAL DATA AND IMAGERY COLLECTED IN APRIL 2012, AS SUPPLEMENTED BY FIELD SURVEYS COMPLETED BY RANI ENGINEERING.
- HORIZONTAL POSITIONAL ACCURACY: USING THE NATIONAL STANDARD FOR SPATIAL DATA ACCURACY, THE DATA SET TESTED 0.14 FEET HORIZONTAL ACCURACY AT A 95% CONFIDENCE LEVEL.
- VERTICAL POSITIONAL ACCURACY: USING THE NATIONAL STANDARD FOR SPATIAL DATA ACCURACY, THE DATA SET TESTED 0.10 FEET VERTICAL ACCURACY AT 95% CONFIDENCE LEVEL.

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CIVIL WEST - VOLUME 12
GENERAL
LEGEND AND ABBREVIATIONS
SHEET 1

DISCIPLINE: GENERAL

SHEET NAME: W0-GEN-NTS - 001

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ABBREVIATIONS

AD	ALGEBRAIC DIFFERENCE
AVE	AVENUE
BGN	BEGIN
BP	BEGINNING POINT
BVCE	BEGINNING VERTICAL CURVE ELEVATION
BVCS	BEGINNING VERTICAL CURVE STATION
BLVD	BOULEVARD
BNSF	BURLINGTON NORTHERN SANTA FE RAILWAY
C&G	CURB AND GUTTER
☉	CENTERLINE
CIR	CIRCLE
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
DTL	DETAIL
DWY	DRIVEWAY
E	EAST
Ea	ACTUAL SUPERELEVATION (INCHES)
EB	EAST BOUND
EL or ELEV	ELEVATION
EP	END POINT
ESMT	EASEMENT
Eu	UNBALANCED SUPERELEVATION (INCHES)
EVCE	ENDING VERTICAL CURVE ELEVATION
EVCS	ENDING VERTICAL CURVE STATION
EX	EXISTING
HCRRRA	HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY
LH	LEFT HAND
LN	LANE
LRT	LIGHT RAIL TRANSIT
Lc	CURVE LENGTH (FEET)
Ls	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
OMF	OPERATIONS AND MAINTENANCE FACILITY
OCS	OVERHEAD CONTACT SYSTEM
OH	OVERHEAD
PC	POINT OF CURVE
PE	PERMANENT EASEMENT
PITO	POINT OF INTERSECTION OF TURNOUT
PKWY	PARKWAY
POT	POINT ON TANGENT
PROP	PROPOSED
PS	POINT OF SWITCH
PT	POINT OF TANGENT
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS (FEET)
RD	ROAD
RL	RAIL LUBRICATOR
r	RATE OF CHANGE VERTICAL CURVE
RH	RIGHT HAND
ROW	RIGHT OF WAY
S	SOUTH
SB	SOUTH BOUND
SC	SPIRAL TO CURVE
SIG-COMM	SIGNAL COMMUNICATION
ST	STREET
ST	SPIRAL TO TANGENT
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
W	WEST
WB	WEST BOUND

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	KENILWORTH TRAIL (SECONDARY)/WEST OF PENN STATION
TRAIL G	CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL H	10' CONNECTOR TRAIL/EAST OF PENN STATION TO KENWOOD PKWY
TRAIL I	NOT USED
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	NOT USED
TRAIL N	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO EDGEBROOK 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	NOT USED
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

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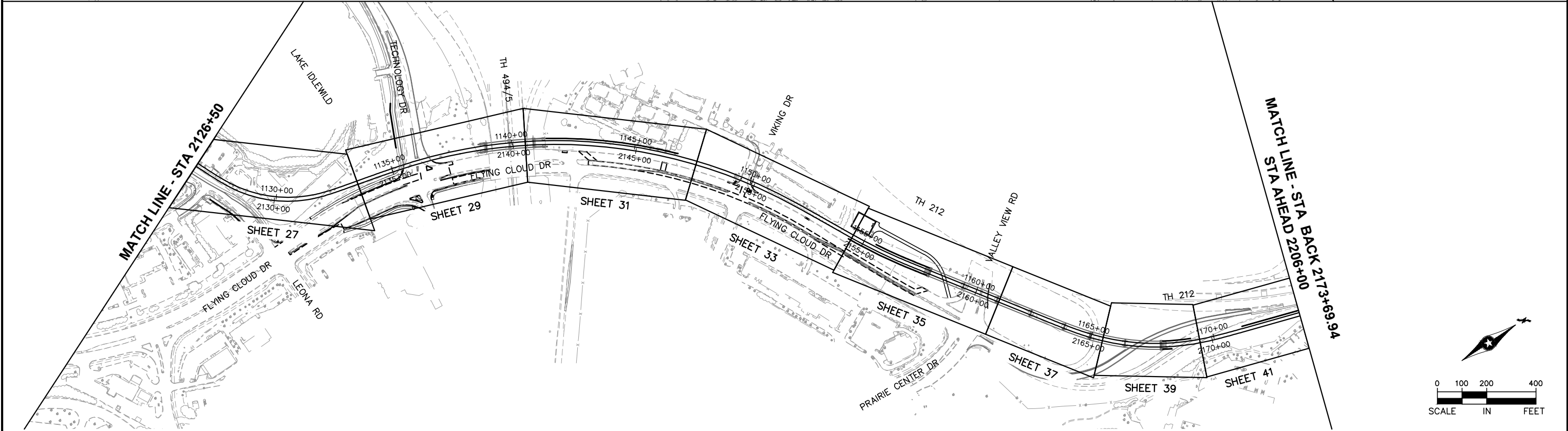
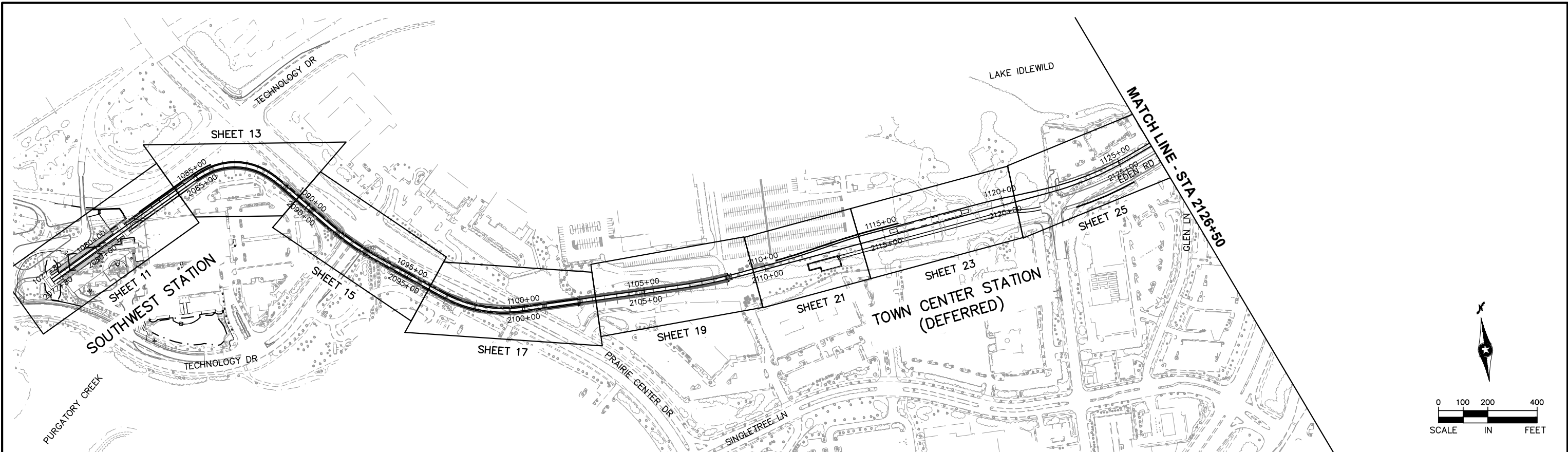




CIVIL WEST - VOLUME 12 GENERAL LEGEND AND ABBREVIATIONS SHEET 2	
DISCIPLINE: GENERAL	SHEET NAME: W0-GEN-NTS - 002

SHEET
5
OF
162

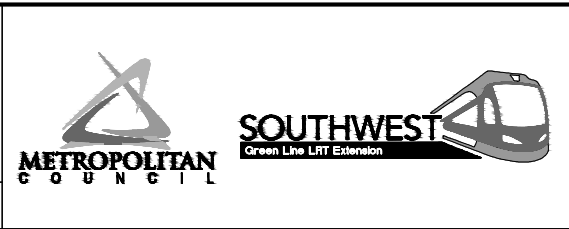
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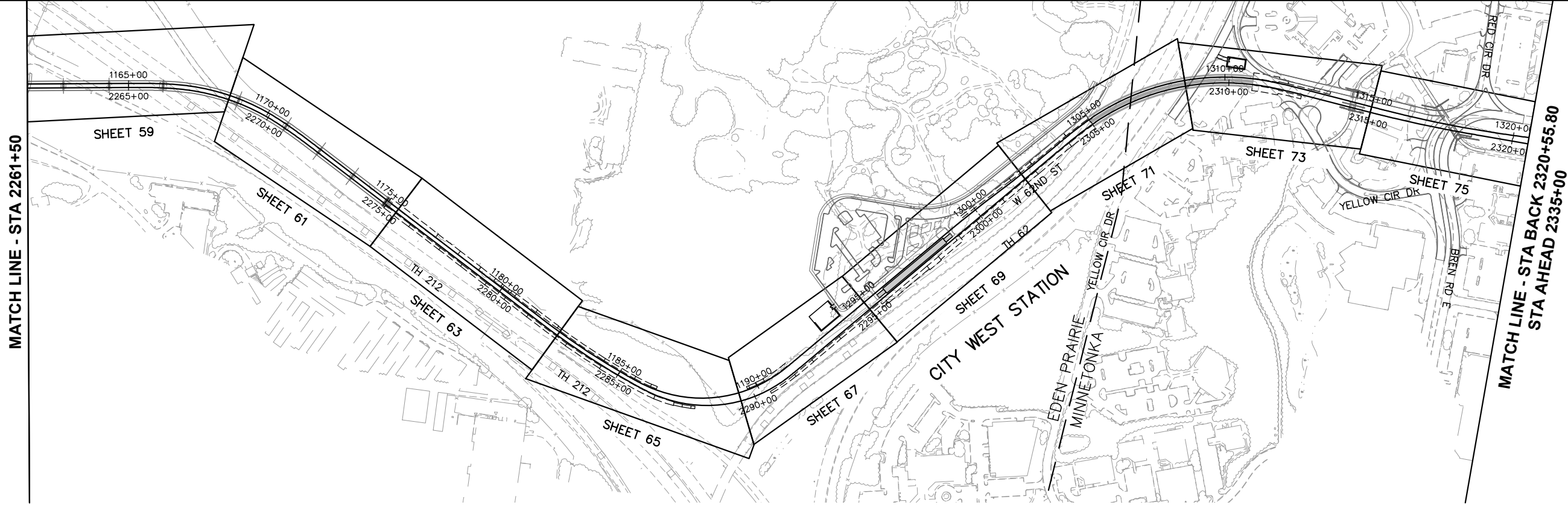


60% SUBMISSION - 9/28/15



CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN SHEET LAYOUT SHEET 1		SHEET 6 OF 162
DISCIPLINE: SYSTEMS	SHEET NAME: W0-SYS-SWE-LAY-001	

Sep. 17 2015 10:37 am V:\3400_ADC\CAD\CAD\SYSTEMS\PLAN SHEETS\SYSTEM WIDE ELECTRICAL\W2-SYS-SWE-IDX.dwg By: V-TranTT



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60% SUBMISSION - 9/28/15

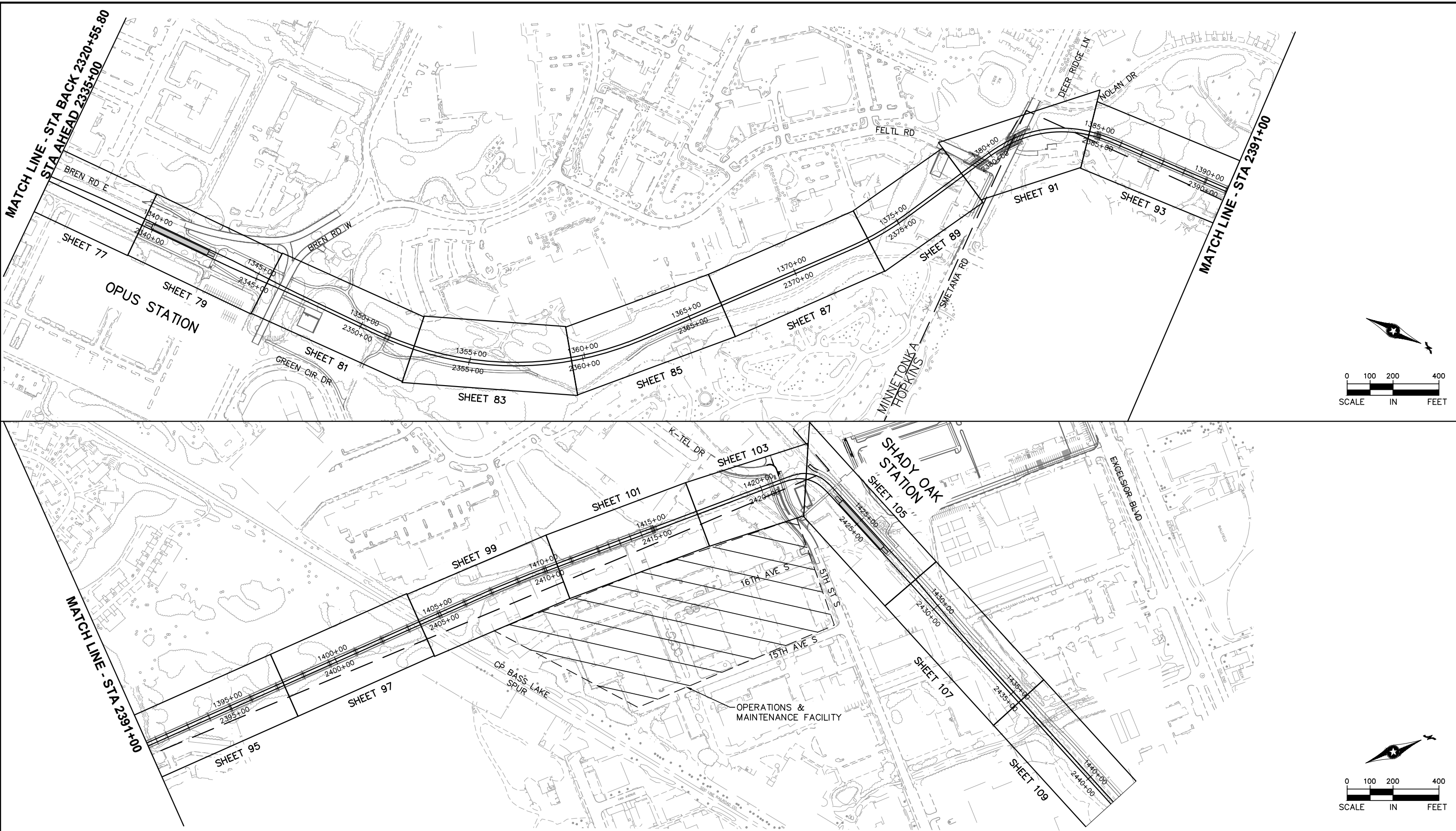


CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
PLAN SHEET LAYOUT
SHEET 2

DISCIPLINE: SYSTEMS
SHEET NAME: W0-SYS-SWE-LAY-002

SHEET
7
OF
162

Sep. 22 2015 10:05 am V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\SYSTEM WIDE ELECTRICAL\W3-SYS-SWE-IDX.dwg By: V-TranTT



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



60% SUBMISSION - 9/28/15



CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
PLAN SHEET LAYOUT
SHEET 3

DISCIPLINE: SYSTEMS

SHEET NAME: W0-SYS-SWE-LAY-003

SHEET 8 OF 162

SYSTEMWIDE ELECTRICAL SYMBOLS & GENERAL NOTES

SYMBOLS:

SC-MH-XXXX

SC MANHOLE XXXX ID

TE-MH-XXXX

TE MANHOLE XXXX ID

SC-HH-XXXX

SC HANDHOLE XXXX ID

ET-TBX-XXXX

ET TRANSITION BOX XXXX ID

ID-XXXX

INTRUSION DETECTION XXXX ID

MC-XXXX

MC DUCTBANK XXXX ID

ET-XXXX

MAINLINE EXPRESS TROUGH XXXX ID

SC-XXXX

MAINLINE SC DUCTBANK XXXX ID

TE-XXXX

MAINLINE TE DUCTBANK XXXX ID

SC-XXXX

SC CONDUIT/DUCTBANK XXXX ID

TE-XXXX

TE CONDUIT/DUCTBANK XXXX ID

LV-XXXX

LV CONDUIT/DUCTBANK XXXX ID

BURIED CONDUIT CONTINUED IN ANOTHER DESIGN PACKAGE AS SPECIFIED

CONCEALED CONDUIT OR DUCTBANK

CONDUIT STUBBED OUT HORIZONTALLY AND CAPPED

CSO-XXXX

CONDUIT, TURNED AWAY FROM OBSERVER

CONDUIT, TURNED TOWARDS OBSERVER (STUB-UP)

CSU-XXXX

EXPOSED CONDUIT

TPSS BUILDING (NIC)

LRT SIGNAL/COMM HOUSE (NIC)

FREIGHT SIGNAL HOUSE

IMPEDANCE BOND PLINTH MOUNTED ARRANGEMENT

ZBF-XXXX

WAYSIDE SIGNAL POLE FOUNDATION AND STUB-UP

SF-XXXX

IMPEDANCE BOND RAIL ACCESS

ZB-XXXX

SWITCH MACHINE (NIC)

TWC ANTENNA-BALASTED AND DF TRACK, JUNCTION BOX ONLY

JB-XXXX

TWC ANTENNA-EMBEDDED TRACK

TWC-XXXX

TYPICAL OCS POLE FOUNDATION

CONDUIT STUB-UP

CSU-XXXX

JUNCTION BOX

JB-XXXX

FREIGHT INTRUSION DETECTION FOUNDATION AND JUNCTION BOX

IDF-XXXX

FOUNDATION

FDN-XXXX

LRT CROSSING GATE FOUNDATION & STUB UP ONLY

GF-XXXX

LRT PEDESTRIAN FLASHER FOUNDATION & STUB UP ONLY

PF-XXXX

GENERAL NOTES:

1. ITEMS SHOWN SCREENED ARE EITHER NOT-IN-CONTRACT (NIC) OR ARE PART OF ANOTHER DESIGN PACKAGE.
2. DEPTH OF CONDUITS MAY VARY SLIGHTLY IN ORDER TO ACHIEVE ADEQUATE DRAINAGE INTO MANHOLES, HANDHOLES AND PULLBOXES. SEE SPECIFICATIONS.
3. ALL HANDHOLES AND MANHOLES SHALL BE LOCATED WITH LONG SIDE PARALLEL TO TRACKS UNLESS OTHERWISE NOTED
4. COORDINATE INSTALLATION OF DUCTBANKS AT TRACK DRAINS AND BELOW TRACK SLABS.
5. LOCATION OF KNOWN EXISTING UNDERGROUND UTILITIES IS INDICATED ON UTILITY DRAWINGS. FIELD VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING INSTALLATION OF THIS WORK.
6. PROVIDE CORROSION PROTECTION FOR ALL DIRECT-BURIED OR ENCASED GRS PER SPECIFICATIONS
7. FOR OCS FOUNDATION DETAILS SEE SHEETS W0-SYS-OCS-FDN-001 TO W0-SYS-OCS-FDN-004
8. SEE VOLUME 3 FOR TRACKWORK DESIGN
9. SEE VOLUME 8 FOR DRAINAGE DESIGN
10. SEE VOLUME 10 FOR TRAFFIC SIGNAL DESIGN
11. SEE VOLUME 11 FOR STATION ELECTRICAL DESIGN
12. SEE SYSTEMS & TUNNEL FACILITIES CONTRACT FOR SYSTEMS DESIGN.

A

SECTION

SCALE: NTS

SECTION A

1

XXXX

←

←

DETAIL No. 1 ON
XXXX = SHEET NO.

1

DETAIL

SCALE: NTS

DETAIL No. 1
(WHERE INDICATED OR SHOWN)

A

→

→

SECTION CROSS SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



60% SUBMISSION - 9/28/15

CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
SYMBOLS AND GENERAL NOTES

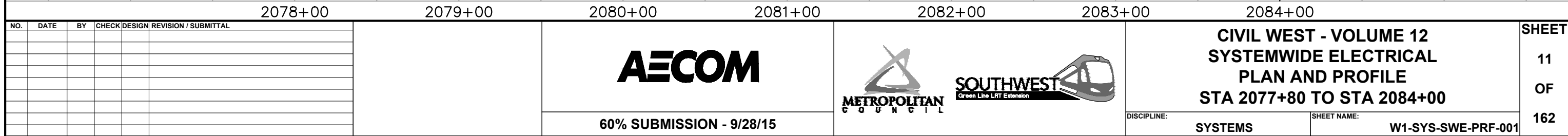
DISCIPLINE: SYSTEMS

SHEET NAME: W0-SYS-SWE-LGD-001

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A	ABD	ABANDON, ABANDONED	CONT	CONTINUATION, CONTINUOUS	HDPE	HIGH DENSITY POLYETHYLENE	NIC	NOT IN CONTRACT	SI	SECTION INSULATOR	X	
	ABUT	ABUTMENT	CR	CONDUIT RISER	HEX	HEXAGONAL	No	NUMBER	SIG	SIGNAL	XB	CROSS BOND
	ABV	ABOVE	CSAH	COUNTY-STATE-AID HIGHWAY	HH	HANDHOLE	NOM	NOMINAL	SOP	SET OUT POINT	XFMR	TRANSFORMER
	AC	ALTERNATING CURRENT	CSO	CONDUIT STUB OUT	HORIZ	HORIZONTAL	NR	NOT REGISTERED/	SP	SURGE PROTECTION	X-ING	CROSSING
	ACSR	ALUMINUM CONDUCTOR	CSU	CONDUIT STUB UP	HRL	HIGH RAIL LEVEL		NEGATIVE RETURN	SPEC	SPECIFICATION	XOVER	CROSSOVER
		STEEL REINFORCED	CTR	CENTER	H-SPAN	HEAD SPAN	NS	NEAR SIDE/	SQ	SQUARE	XPASS	CROSS PASSAGE
	ADJ	ADJACENT	CU	COPPER	HT	HEIGHT		NOT SUPPORTED	SQ FT	SQUARE FEET	X-SECT	CROSS SECTION
	A/G	AT GRADE	C/W	CONTACT WIRE	HV	HIGH VOLTAGE	NSR	NOT SUPPORTED OR	SQ IN	SQUARE INCHES	Z	
	AH	AHEAD	CWA	COUNTER WEIGHT ASSEMBLY	HWY	HIGHWAY	NTS	NOT TO SCALE	S-SPAN	STEADY SPAN	Z	IMPEDANCE
	AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	CY	CUBIC YARD	I		O		STA	STATION, STATIONING	ZB	IMPEDANCE BOND
			D		IC	INSTRUMENT CASE	OC	ON CENTER	STD	STANDARD	ZBF	IMPEDANCE BOND FOUNDATION
	AL	ALUMINUM	D	DEPTH	ID	INSIDE DIAMETER/ INTRUSION DETECTION	OCS	OVERHEAD CONTACT SYSTEM	STRUCT	STRUCTURE		
	AP	APPROACH	DB	DIRECT BURIAL			OD	OUTSIDE DIAMETER	SU	STUB-UP		
	APPROX	APPROXIMATE	DC	DIRECT CURRENT	IDF	INTRUSION DETECTION FOUNDATION	OH	OVERHEAD	SUSP	SUSPENDED		
	APT	AUXILIARY POWER TRANSFORMER	DEG	DEGREE	IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS	OHB	OVERHEAD BRIDGE	SW	SWITCH		
			DF	DIRECT FIXATION			O/L	OVERLAP	SWA	SINGLE WIRE ANCHOR		
	AREMA	AMERICAN RAILWAY ENGINEERING & MAINTENANCE OF WAY ASSOCIATION	DGA	DOWN GUY ANCHOR			OMF	OPERATIONS & MAINTENANCE FACILITY	SWH	SWITCH HEATER		
			DIA	DIAMETER	IJ	INSULATED JOINT		OUT OF RUNNING (NON-RIDING CONTACT WIRE)	SWHC	SWITCH HEATER CABINET		
	ASSY	ASSEMBLY	DIM	DIMENSION	IN	INCH, INCHES	O/R		SWLRT	SOUTHWEST LIGHT RAIL TRANSIT		
	ASTM	AMERICAN SOCIETY OF TESTING & MATERIAL	DISC	DISCONNECT	INC	INCOMING	P		T			
			DISC SW	DISCONNECT SWITCH	INCL	INCLUDE, INCLUDING	PAN	PANTOGRAPH	T	TIE SWITCH		
	ATM	ALONG TRACK MOVEMENT	DIST	DISTRIBUTION	INSUL	INSULATION	PB	PULLBOX	TB	TAP BOX, TERMINAL BLOCK		
	ATR	ABOVE TOP OF RAIL	DR	DRIVE	IP	INTERFACE PHASE	PED	PEDESTRIAN	TBD	TO BE DETERMINED		
	AVG	AVERAGE	DTL	DETAIL	J	JUMPER	PF	PEDESTRIAN FLASHER	TBR	TO BE REMOVED		
	AXC	AXLE COUNTER	DWG	DRAWING	JB	JUNCTION BOX	PGRS	PVC COATED GRSC	TBX	TRANSITION BOX		
B			E		JCT	JUNCTION	PH	PHASE	TE	TRACTION ELECTRIFICATION		
BARR	BARRIER		EA	EAST	K		PI	POINT OF INTERSECTION	TEMP	TEMPERATURE OR TEMPORARY		
B/B	BACK TO BACK		EB	EACH	kV	KILOVOLT	PITO	POINT OF INTERSECTION OF TURNOUT	TERM	TERMINAL, TERMINATION		
BC	BOLT CIRCLE/BATTERY CHARGER		ELEC	EASTBOUND	kVA	KILOVOLT AMPERE			TH	TRUNK HIGWAY		
BFA	BY-PASS FEEDER ANCHOR		ELEV	ELECTRICAL	kW	KILOWATT	PL	PLATE	THK	THICK		
BIL	BASIC INSULATION LEVEL		EPR	ELEVATION	L		PLAT	PLATFORM	T/F	TOP OF FOUNDATION		
BK	BACK		EQ	ETHYLENE PROPYLENE RUBBER	LA	LIGHTING ARRESTER	POS	POSITIVE	T/G	TOP OF GROUND LINE		
BLDG	BUILDING		EQN	EQUAL	LB	POUND, POUNDS	PRE-C	PRE-CAST CONCRETE	TL	TENSION LENGTH OR TRACK LIGHTING		
BL	BASELINE/ BLUE LINE		EQPT	EQUATION	LB /FT	POUND PER FOOT	PROP	PROPOSED	TOLR	TOP OF LOW RAIL		
BM	BEAM		ET	EQUIPMENT	LC	LINE CURRENT	PSF	POUNDS PER SQUARE FEET	TO	TURNOUT		
BOBP	BOTTOM OF BASE PLATE		ETS	EXPRESS TROUGH	LF	LINEAR FEET	PSI	POUNDS PER SQUARE INCH	TOC	TOP OF CONCRETE		
BOS	BOTTOM OF STEEL		EX	EMERGENCY TRIP STATION	LG	LONG, LENGTH	P/T	POCKET TRACK	TOR	TOP OF RAIL		
BR	BRIDGE		EXT	EXISTING	LGTS	LIGHTS	PUC	PUBLIC UTILITY COMMISSION	TORW	TOP OF RETAINING WALL		
BRKT	BRACKET		F	EXTERNAL	LOC	LOCATION	PVC	POLYVINYL CHLORIDE CONDUIT	TPSS	TRACTION POWER SUBSTATION		
BSF	BAR SIGNAL FOUNDATION		FA	FIXED ANCHOR	LTG	LIGHTING	PWR	POWER	TP	TRACTION POWER		
B-SPAN	BODY SPAN		FAC	FACE OF POLE	LPT	LOW POINT	PX	PEDESTRIAN CROSSING	TRANSF	TRANSFORMER		
BTM	BOTTOM		FDN	FOUNDATION	LRT	LIGHT RAIL TRANSIT	Q		TRK	TRACK		
BTWN	BETWEEN		FDR	FEEDER	LS	LUMP SUMLINE SECTION/ LINE SEGMENT	QTY	QUANTITY	TS	TANGENT TO SPIRAL		
B/W	BALANCE WEIGHT		FJ	FEEDER JUMPER	LV	LOW VOLTAGE	R		TSH	TUNNEL SYSTEM HOUSE		
BWA	BALANCE WEIGHT ANCHOR		FM	FRICTION MODIFIER	M		RAB	RAIL ACCESS BOX	TSH	TUNNEL SYSTEM HOUSE		
BZ	BRONZE		FOP	FACE OF POLE	M		RCC	RAIL CONTROL CENTER	TTC	TELEPHONE TERMINAL CABINET		
C			FOS	FACTOR OF SAFETY	M	METER	RD	ROAD	TVM	TICKET VENDING MACHINE		
C	CELSIUS, SIGNAL		FP	FEEDER POLE	MAX	MAXIMUM	RE	RUNNING EDGE OF RAIL	TWA	TIE WIRE ANCHOR		
CAB	CABINET		FP	FEEDER POLE	MC	MOTOR CONTROL	REF	REFERENCE	TWC	TRAIN-TO-WAYSIDE COMMUNICATIONS		
CANT	CANTILEVER		FREQ	FREQUENCY	MH	MANHOLE	REV	REVISE/REVISION				
CB	CIRCUIT BREAKER		FS	FAR SIDE	MIN	MINIMUM	REQD	REQUIRED	TYP	TYPICAL		
CF	CUBIC FEET		FT	FEET, FOOT	MISC	MISCELLANEOUS	ROW	RIGHT OF WAY	U			
CG	CROSSING GATE		F/T	FIXED TERMINATION	M/L	MAIN LINE	RT	RIGHT	UG	UNDERGROUND		
CHAM	CHAMFER		FTG	FOOTING	MnDOT	MINNESOTA DEPARTMENT OF TRANSPORTATION	RTU	REMOTE TERMINAL UNIT	UGB	UNDERGRADE BRIDGE		
CHGR	CHARGER		G		MOP	MOTOR OPERATED	RR	RAILROAD	U/S	UNDERSIDE		
CIP	CAST-IN-PLACE		GALV	GALVANIZED	MP	MILE POST	RRX	RAILROAD GRADE CROSSING	UTIL	UTILITY		
CISP	CAST IRON SEWER PIPE		GB	GROUND BUS	MPA	MID POINT ANCHOR	RW	RETAINING WALL	V			
CKT	CIRCUIT		GF	GATE FOUNDATION	MPH	MILES PER HOUR	S		V	VOLT		
CL TO CL	CENTERLINE TO CENTERLINE		G/L	GROUND LINE	MTG	MOUNTING	S	SOUTH	VA	VOLT AMPS		
CLR	CLEARANCE, CLEAR		GLY	GREEN LINE YARD	MT	METRO TRANSIT	SA	SURGE ARRESTOR	VERT	VERTICAL		
CND	CONDUIT		GND	GROUND	M/W	MESSANGER WIRE	SB	SOUTHBOUND OR SPLICE BOX	W			
COMM	COMMUNICATIONS		GRS	GALVANIZED RIGID STEEL	N	NORTH, NEUTRAL	SC	SIGNAL/COMMUNICATION SUPERVISORY CONTROL AND DATA ACQUISITION	W	WATT, WIDTH OR WIRE		
COMPT	COMPARTMENT		GRSC	GALVANIZED RIGID STEEL CONDUIT	N		SCADA		W/	WITH		
CONC	CONCRETE		GRX	GRADE CROSSING	NEC	NATIONAL ELECTRICAL CODE	SECT	SECTION	WB	WESTBOUND		
COND	CONDUCTOR		H		NEG	NEGATIVE	SEG	SEGMENT	WF	WIDE FLANGE		
			HDG	HOT DIPPED GALVANIZED					W/O	WITHOUT		

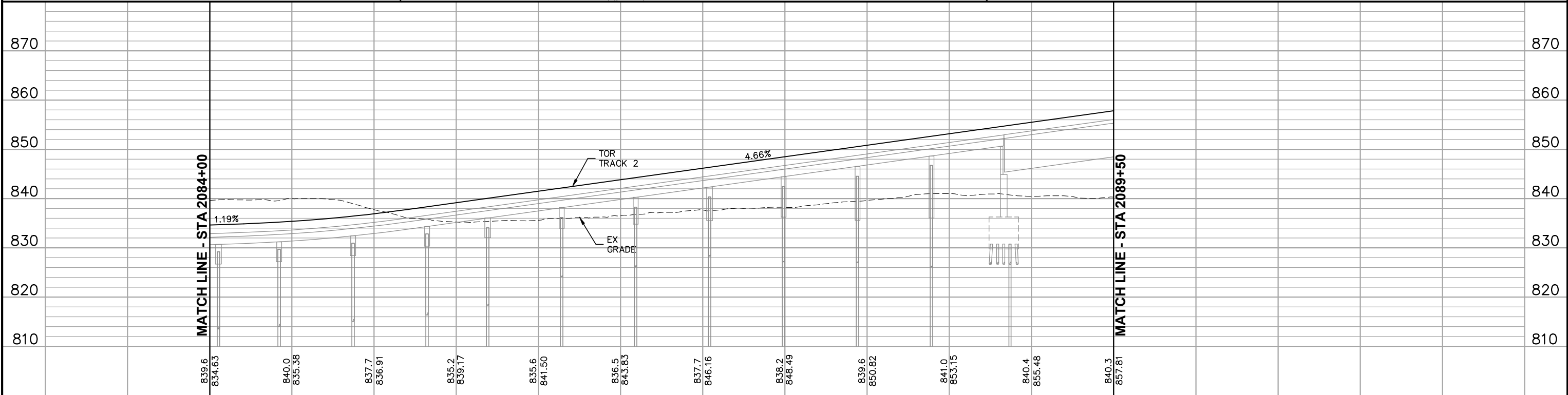
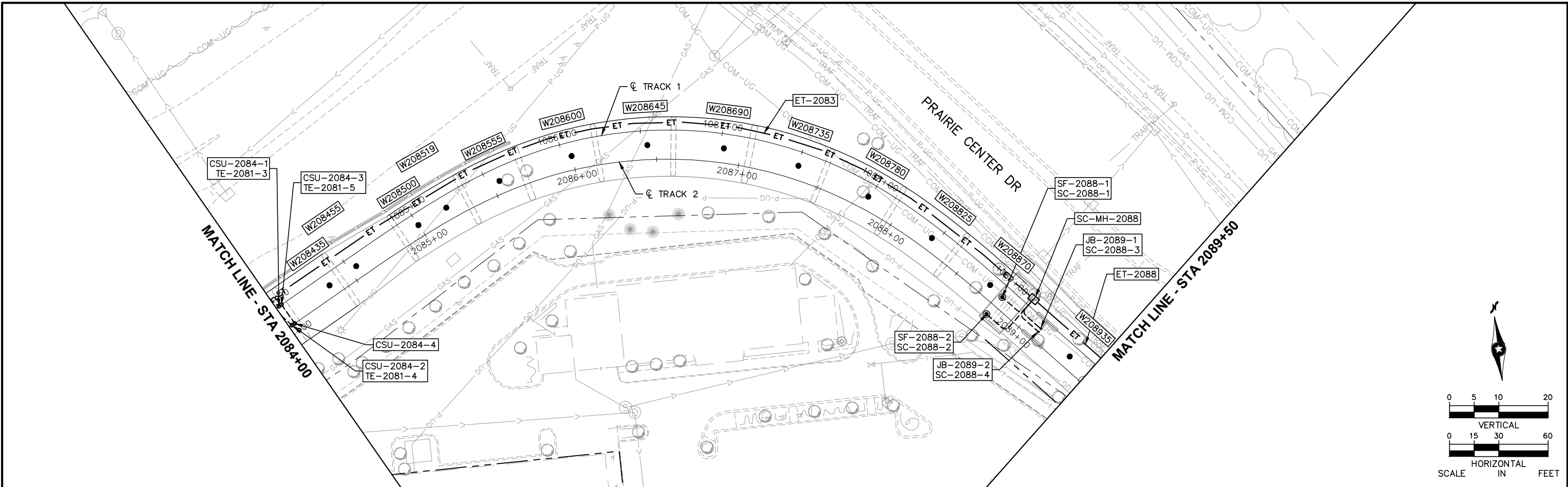
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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2077+80 TO STA 2084+00		SHEET 12 OF 162
					60% SUBMISSION - 9/28/15					

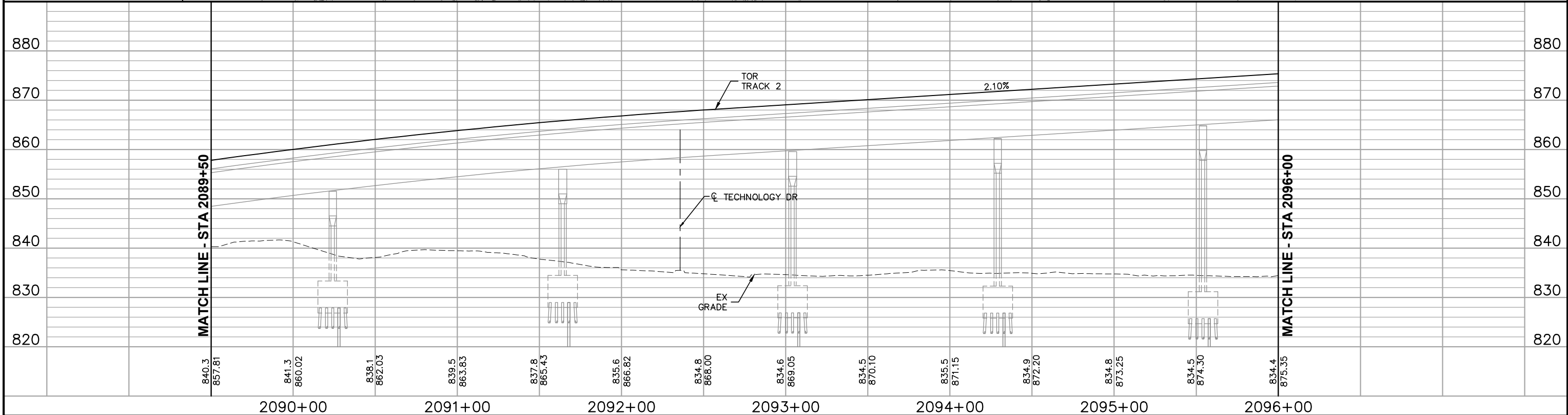
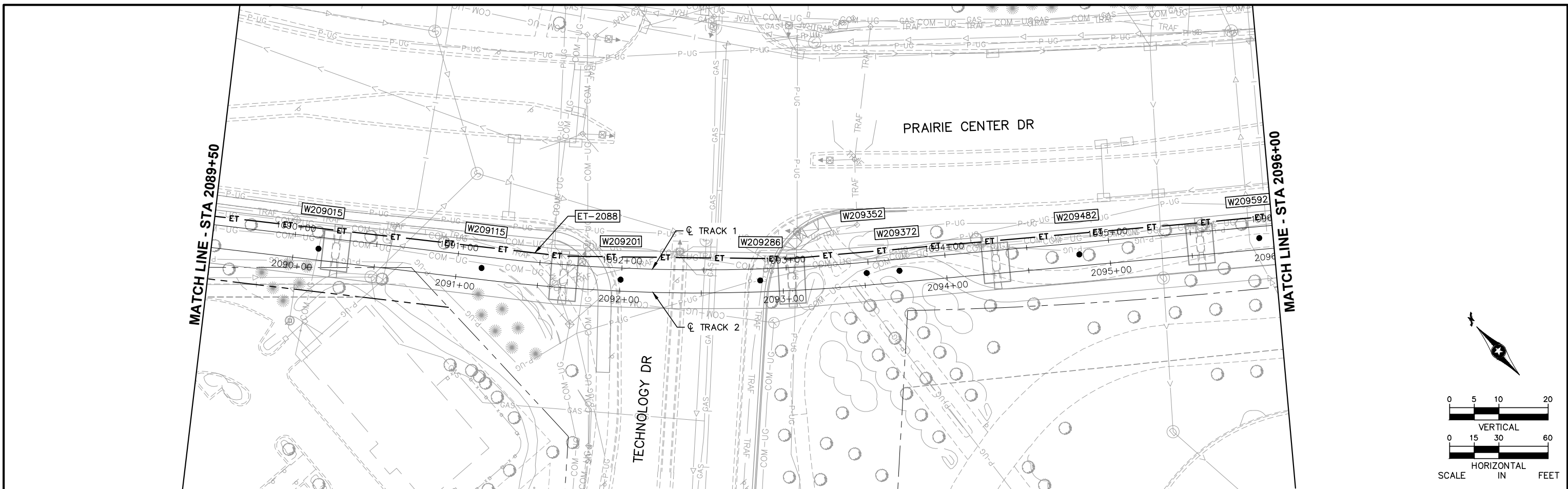
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2084+00						2085+00						2086+00						2087+00						2088+00						2089+00						2090+00					
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL							AECOM						 						CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2084+00 TO STA 2089+50						SHEET											
												60% SUBMISSION - 9/28/15												DISCIPLINE: SYSTEMS						SHEET NAME: W1-SYS-SWE-PRF-002						13 OF 162					

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 60% SUBMISSION - 9/28/15		CIVIL WEST - VOLUME 12		SHEET 14 OF 162	
					SYSTEMWIDE ELECTRICAL						
					SCHEDULE						
					STA 2084+00 TO STA 2089+50						
					DISCIPLINE:			SYSTEMS	SHEET NAME:		W1-SYS-SWE-SCH-002

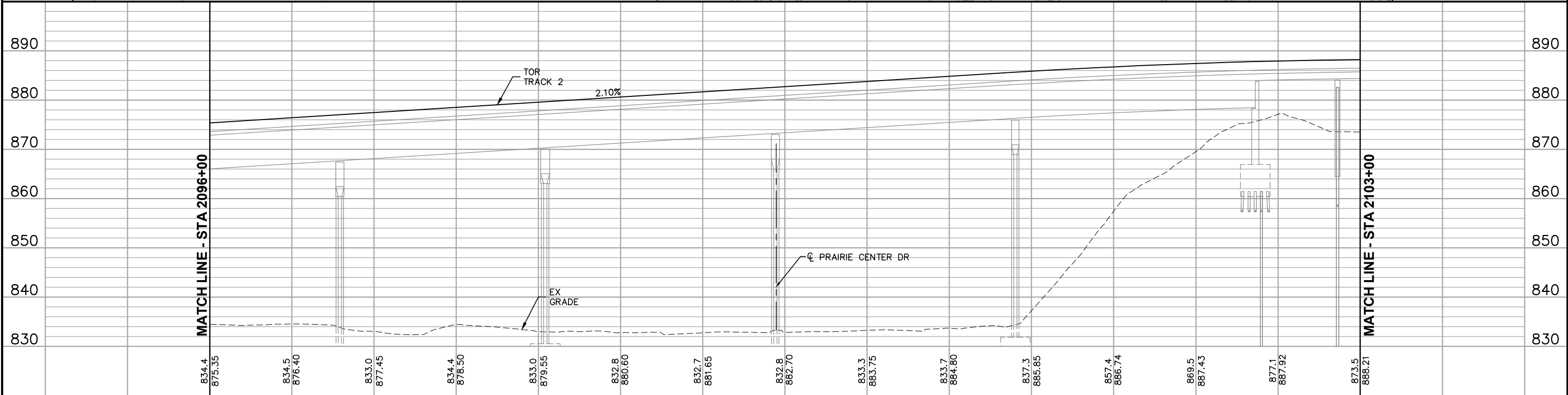
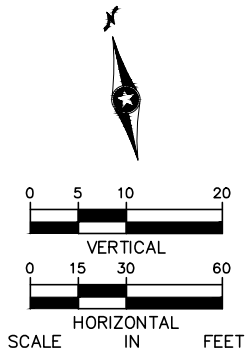
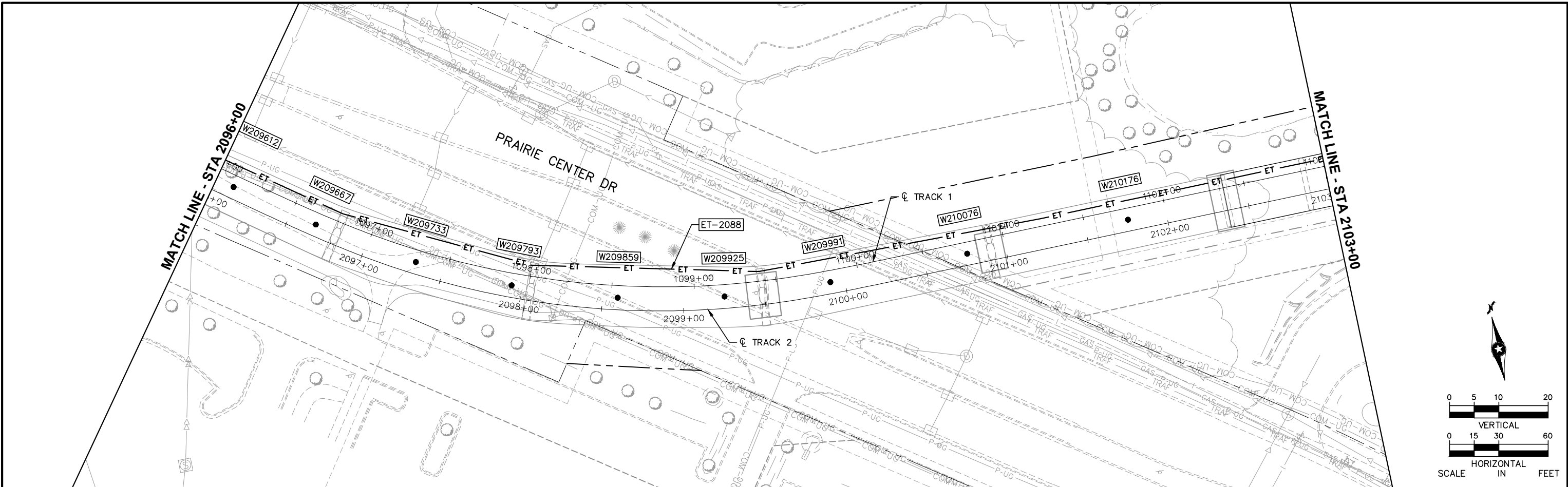


NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	AECOM	 METROPOLITAN COUNCIL  SOUTHWEST Green Line LRT Extension	CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2089+50 TO STA 2096+00		SHEET 15 OF 162
						60% SUBMISSION - 9/28/15	DISCIPLINE: SYSTEMS		SHEET NAME: W1-SYS-SWE-PRF-003	

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	AECOM	METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension	CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2089+50 TO STA 2096+00		SHEET 16 OF 162	
						60% SUBMISSION - 9/28/15	DISCIPLINE: SYSTEMS		SHEET NAME: W1-SYS-SWE-SCH-003		

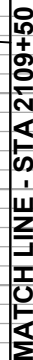
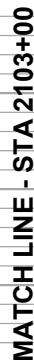
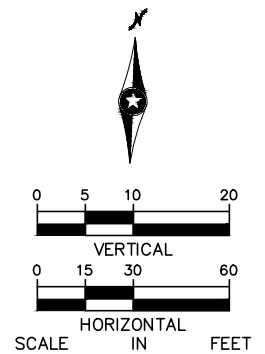
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2096+00						2097+00						2098+00						2099+00						2100+00						2101+00						2102+00						2103+00						SHEET	
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL							AECOM						 						CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2096+00 TO STA 2103+00						17		OF		162															
																														60% SUBMISSION - 9/28/15						DISCIPLINE: SYSTEMS						SHEET NAME: W1-SYS-SWE-PRF-004							

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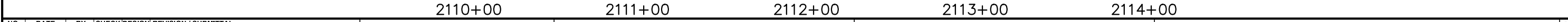
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						60% SUBMISSION - 9/28/15	DISCIPLINE: SYSTEMS		SHEET NAME: W1-SYS-SWE-SCH-004		



2103+00						2104+00	2105+00	2106+00	2107+00	2108+00	2109+00		SHEET	
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL							CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2103+00 TO STA 2109+50		19
					OF									
					162									
						60% SUBMISSION - 9/28/15				DISCIPLINE: SYSTEMS		SHEET NAME: W1-SYS-SWE-PRF-005		

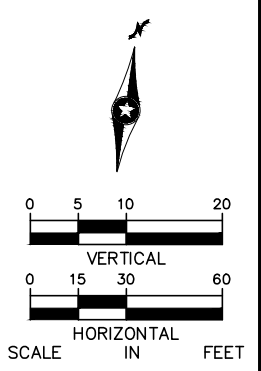
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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 60% SUBMISSION - 9/28/15				CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2103+00 TO STA 2109+50 DISCIPLINE: SYSTEMS SHEET NAME: W1-SYS-SWE-SCH-005		SHEET 20 OF 162
								</				



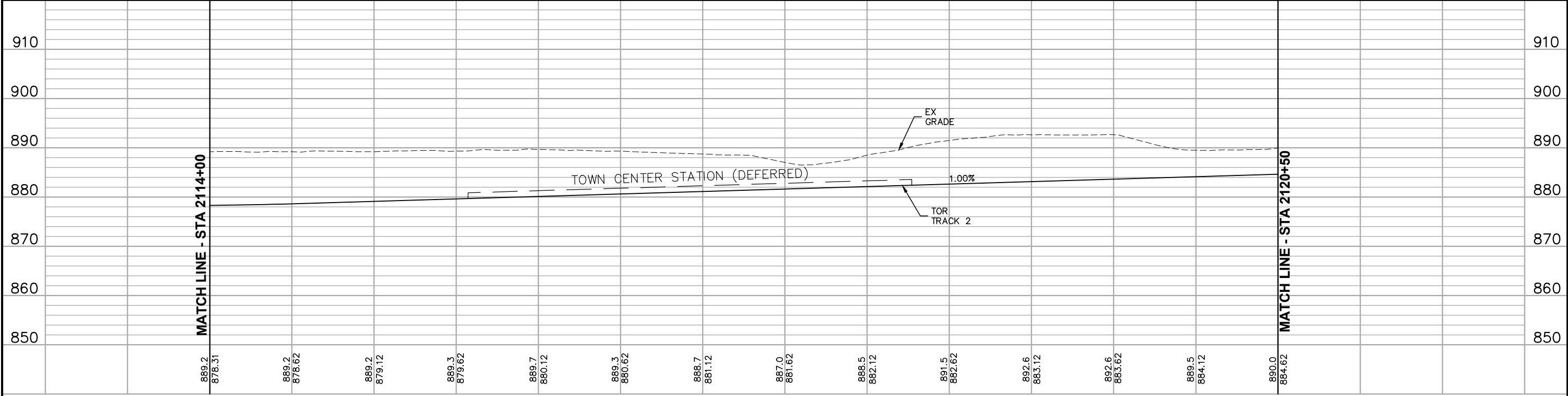
Circumstance	Percentage of Respondents (%)
Self-defense	85
To protect others	75
To protect property	65
To protect the community	55
To protect the environment	45

SHEET
21
OF
162



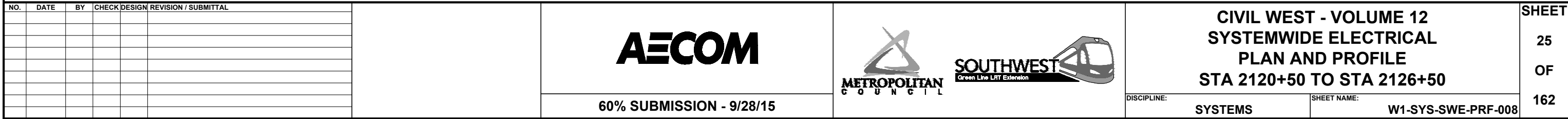
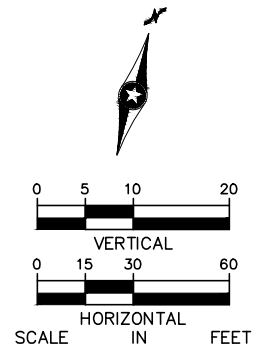
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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 60% SUBMISSION - 9/28/15				CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2109+50 TO STA 2114+00 DISCIPLINE: SYSTEMS SHEET NAME: W1-SYS-SWE-SCH-006		SHEET 22 OF 162



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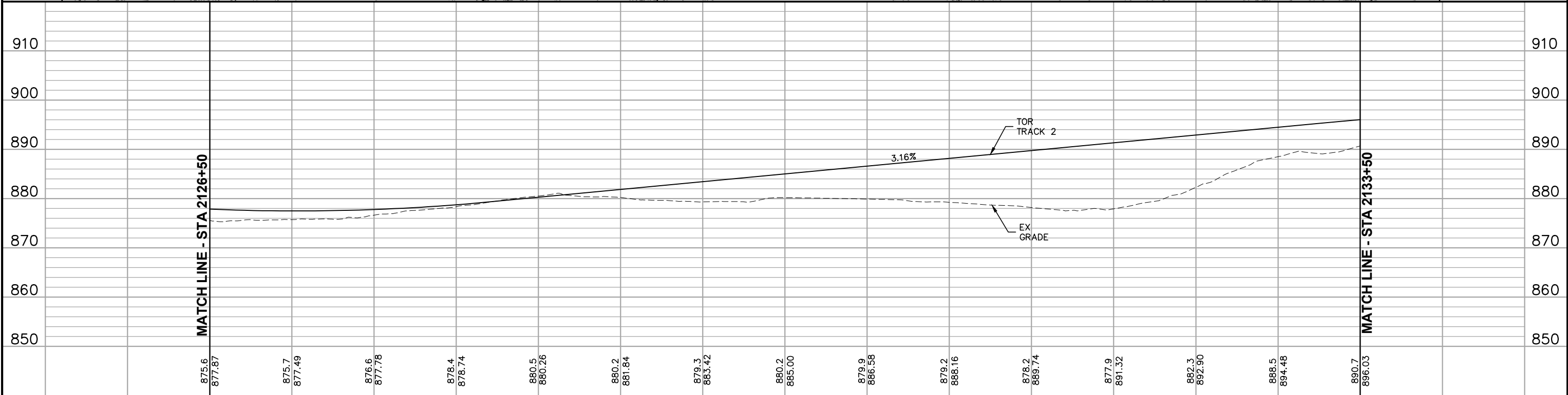
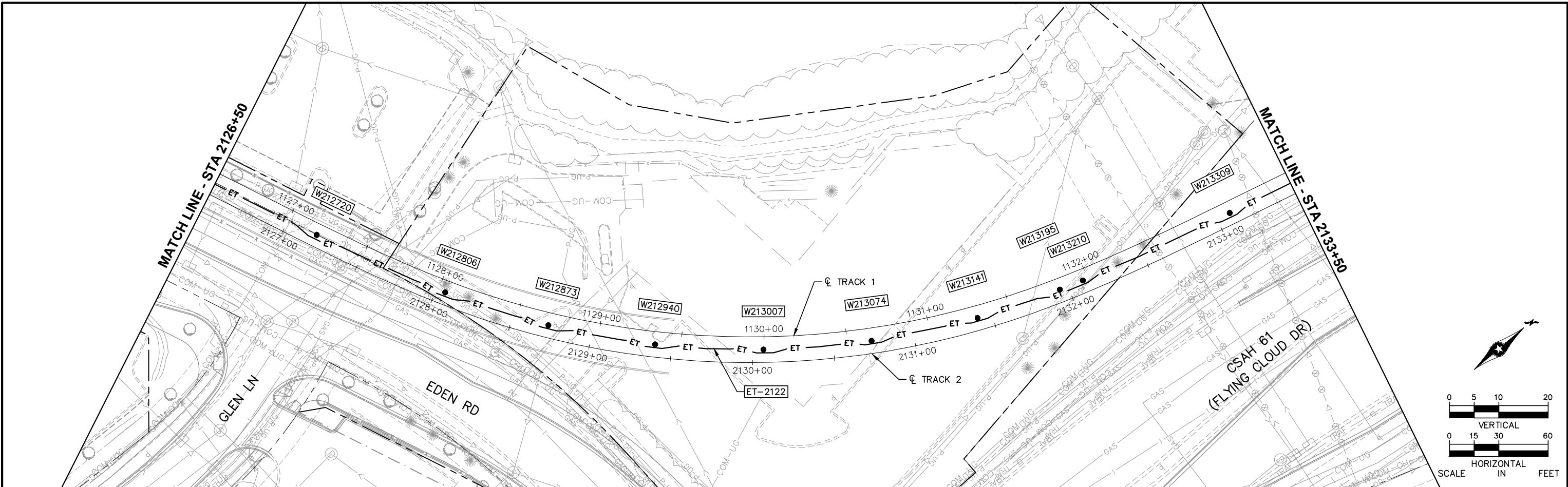
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					DISCIPLINE: SYSTEMS					



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 	CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2120+50 TO STA 2126+50		SHEET 26 OF 162
	DISCIPLINE: SYSTEMS	SHEET NAME: W1-SYS-SWE-SCH-008	

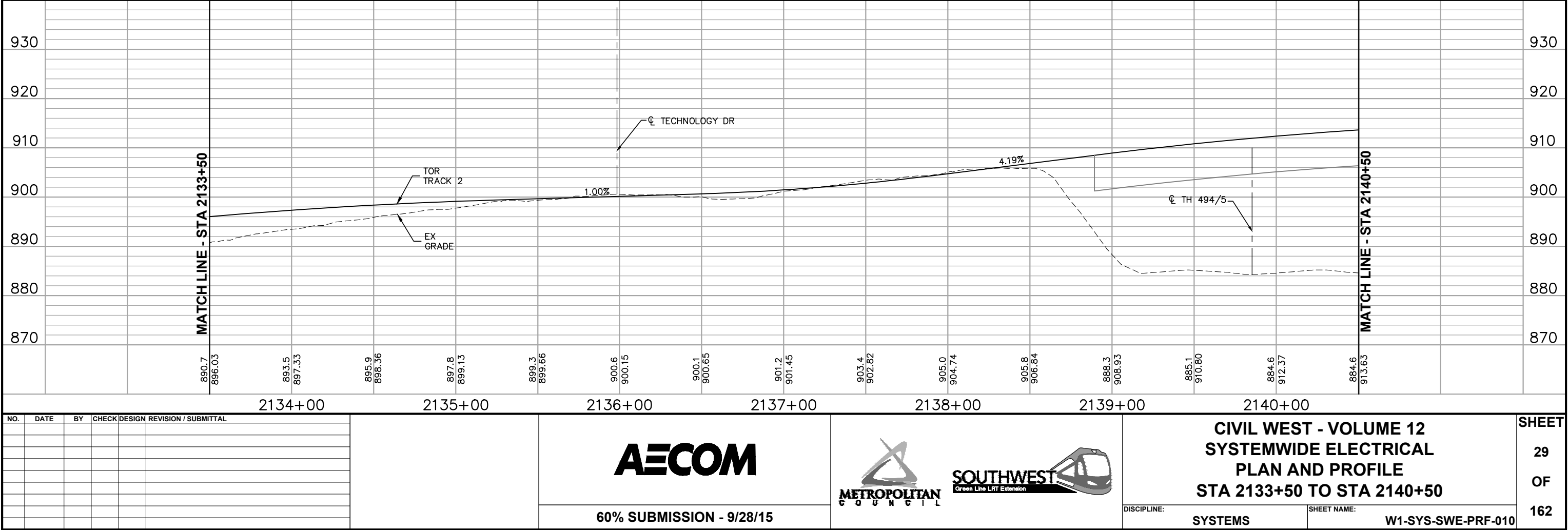
Sep. 21 2015 08:06 am V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\SYSTEM WIDE ELECTRICAL\W1-SYS-SWE-PRF.dwg By: V-TranTT



2127+00						2128+00		2129+00		2130+00		2131+00		2132+00		2133+00		SHEET			
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	AECOM				 				CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2126+50 TO STA 2133+50				27			
					OF																
										DISCIPLINE: SYSTEMS				SHEET NAME: W1-SYS-SWE-PRF-009				162			
					60% SUBMISSION - 9/28/15																

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 60% SUBMISSION - 9/28/15		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2126+50 TO STA 2133+50		SHEET 28 OF 162
								DISCIPLINE: SYSTEMS	SHEET NAME: W1-SYS-SWE-SCH-009	



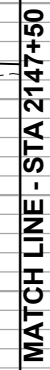
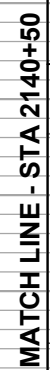
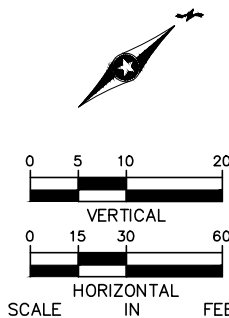


The bottom of the page features two logos. On the left is the Metropolitan Council logo, which includes a stylized triangle graphic above the text "METROPOLITAN COUNCIL". On the right is the Southwest Green Line LRT Extension logo, which includes a stylized train graphic above the text "SOUTHWEST Green Line LRT Extension".

SHEET
29
OF
162

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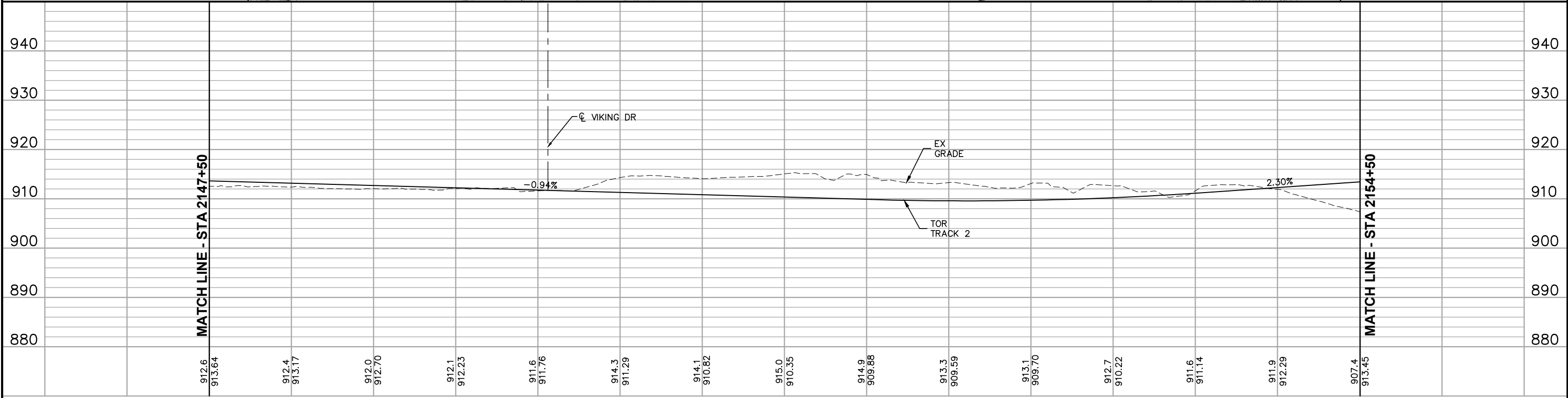
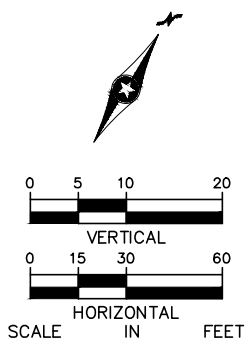
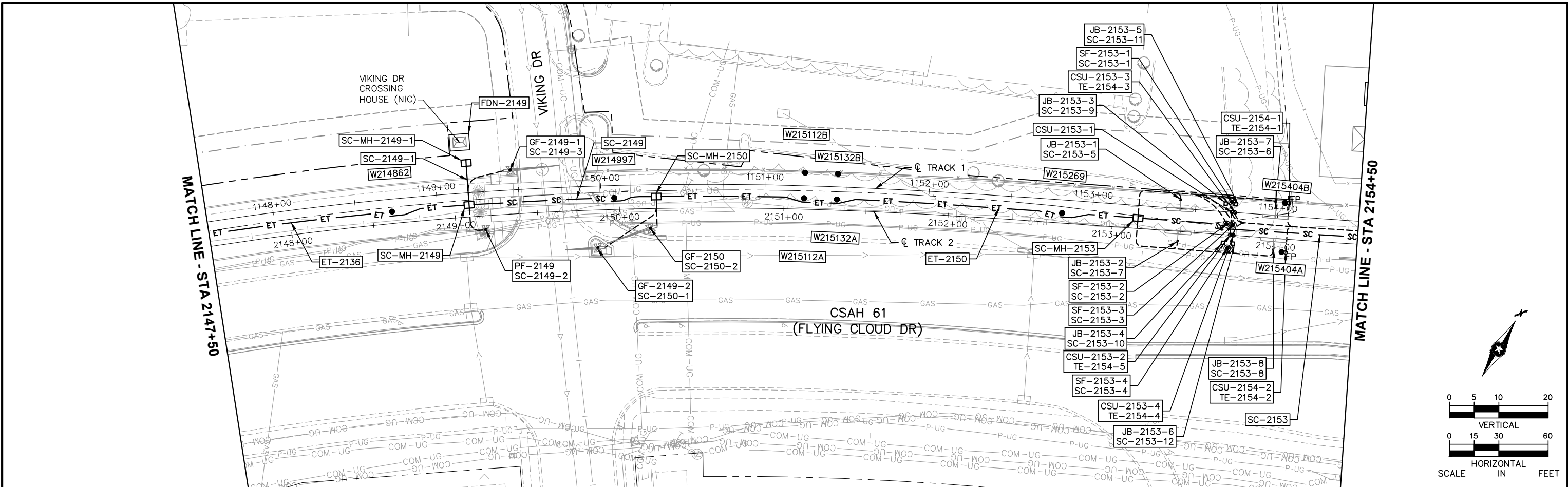
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						60% SUBMISSION - 9/28/15		DISCIPLINE: SYSTEMS	SHEET NAME: W1-SYS-SWE-SCH-010	



	SHEET
	31
	OF
1	162

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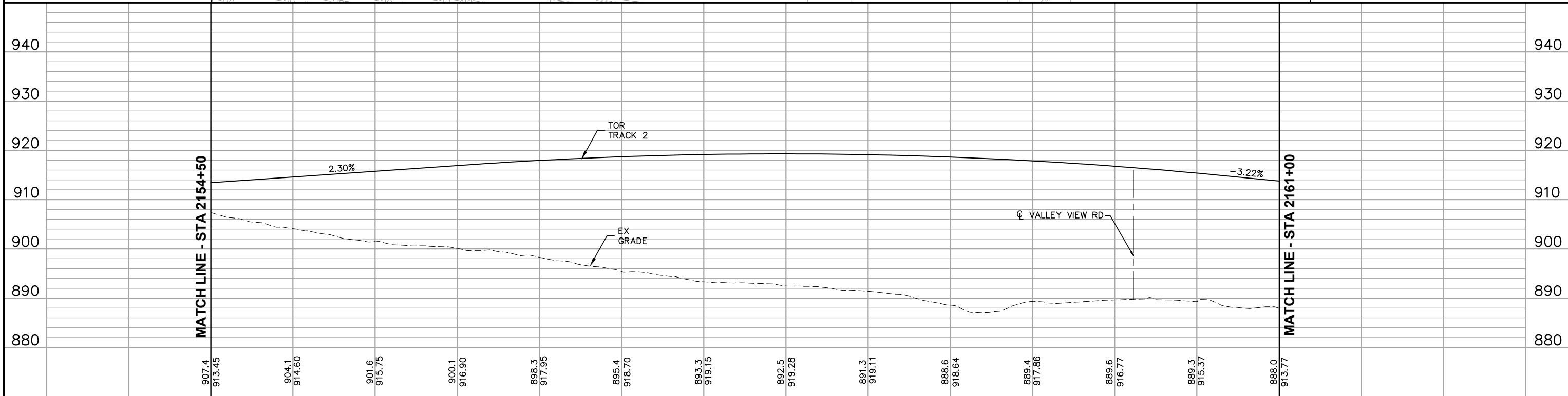
Sep. 21 2015 08:12 am V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\SYSTEM WIDE ELECTRICAL\W1-SYS-SWE-PRF.dwg By: V-TranTT



2148+00						2149+00						2150+00						2151+00						2152+00						2153+00						2154+00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	AECOM						 						CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2147+50 TO STA 2154+50 <th colspan="6">SHEET</th>						SHEET																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL		AECOM	METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension	CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2147+50 TO STA 2154+50		SHEET 34 OF 162
									60% SUBMISSION - 9/28/15	DISCIPLINE: SYSTEMS	



2155+00						2156+00						2157+00						2158+00						2159+00						2160+00						2161+00						SHEET 35 OF 162	
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	AECOM						METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension						CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2154+50 TO STA 2161+00																									
						60% SUBMISSION - 9/28/15						DISCIPLINE: SYSTEMS						SHEET NAME: W1-SYS-SWE-PRF-013																									

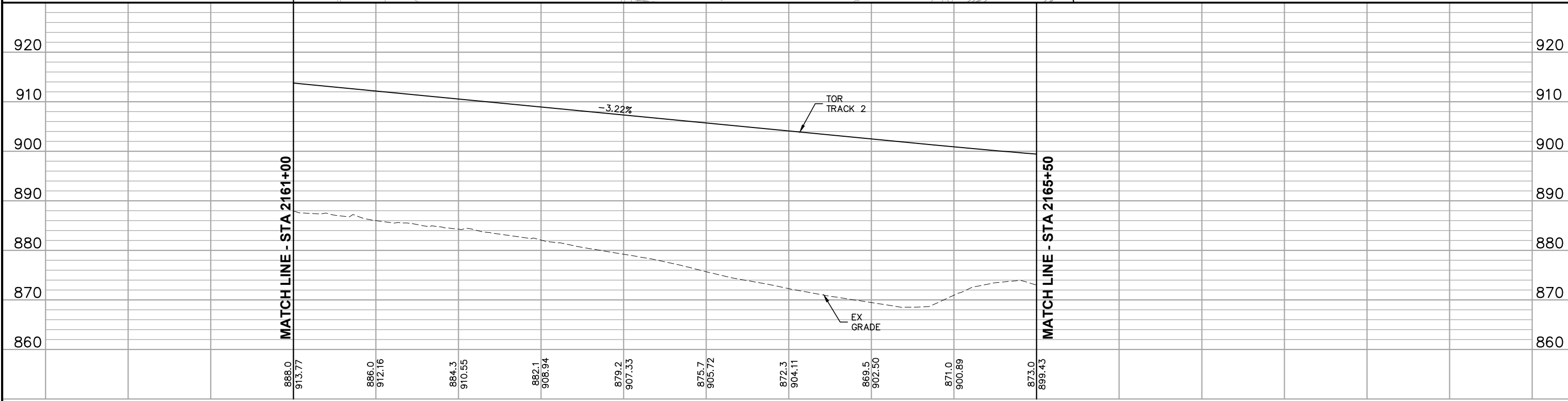
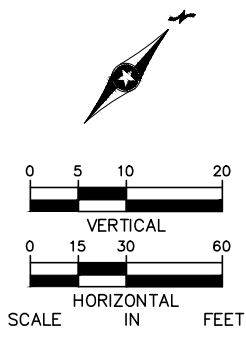
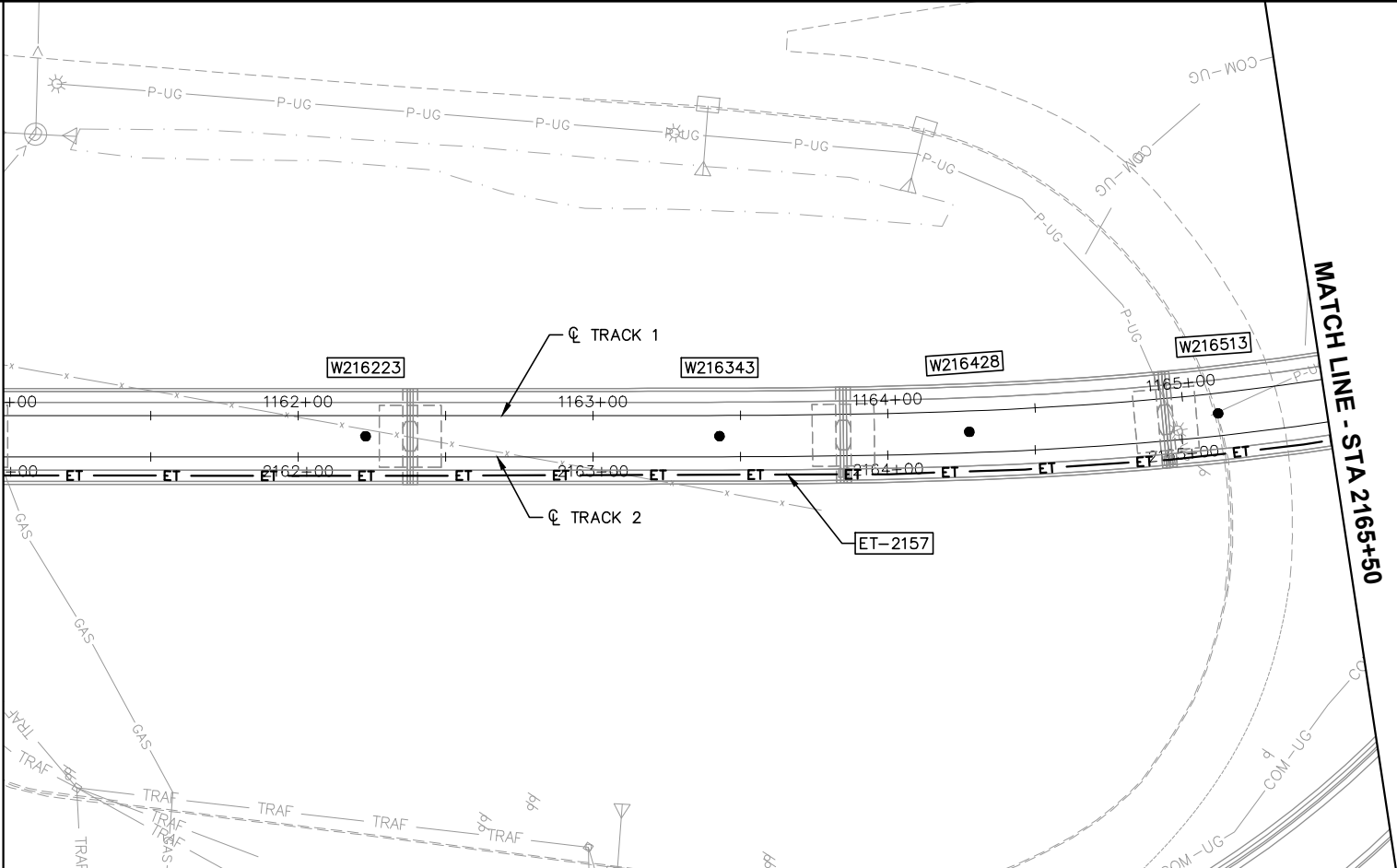
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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					 		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2154+50 TO STA 2161+00		SHEET 36 OF 162
						60% SUBMISSION - 9/28/15				DISCIPLINE: SYSTEMS		SHEET NAME: W1-SYS-SWE-SCH-013		

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MATCH LINE - STA 2161+00

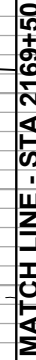
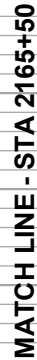
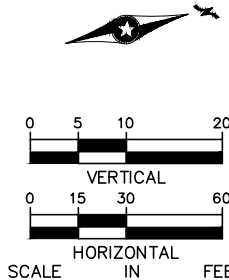
MATCH LINE - STA 2165+50



2161+00						2162+00						2163+00						2164+00						2165+00						2166+00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL							 60% SUBMISSION - 9/28/15						 						CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2161+00 TO STA 2165+50 DISCIPLINE: SYSTEMS SHEET NAME: W1-SYS-SWE-PRF-014						SHEET 37 OF 162																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 60% SUBMISSION - 9/28/15		CIVIL WEST - VOLUME 12		SHEET 38 OF 162
								SYSTEMWIDE ELECTRICAL		
								SCHEDULE		
								STA 2161+00 TO STA 2165+50		
						DISCIPLINE: SYSTEMS	SHEET NAME: W1-SYS-SWE-SCH-014			

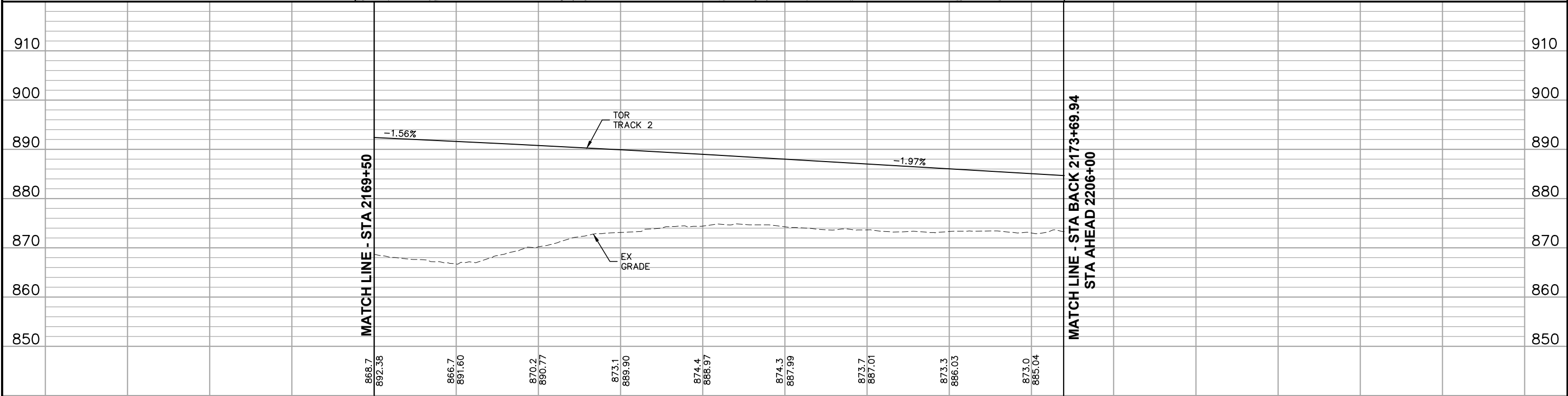
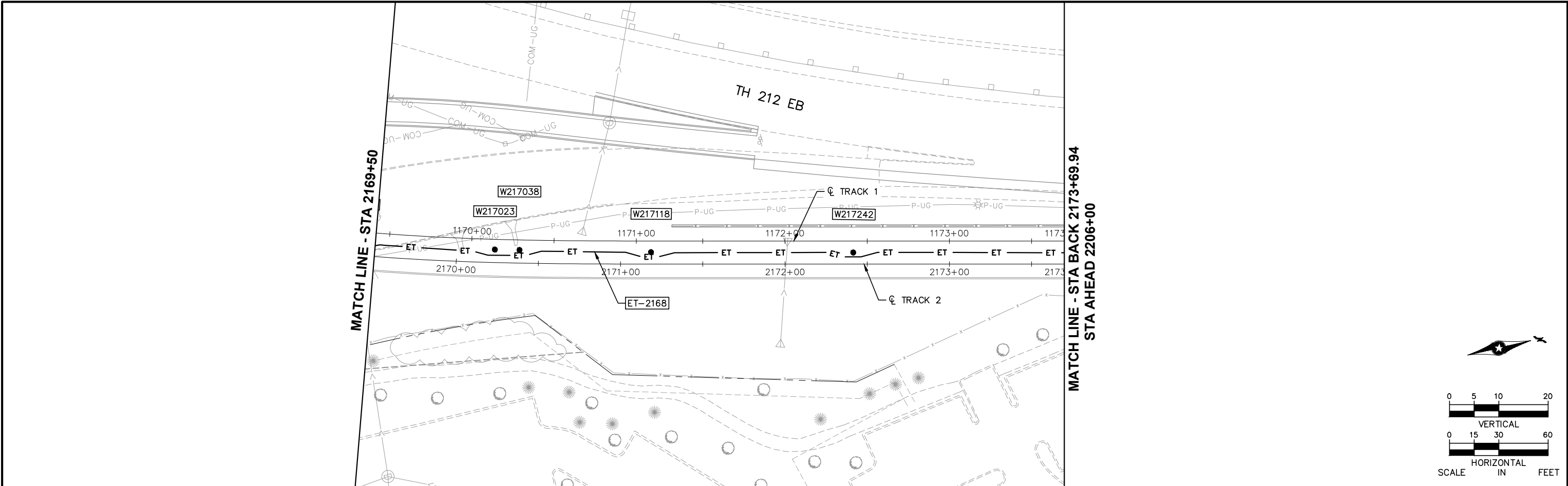


						2166+00	2167+00	2168+00	2169+00	CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2165+50 TO STA 2169+50		SHEET
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL				 	DISCIPLINE: SYSTEMS SHEET NAME: W1-SYS-SWE-PRF-015		39
						60% SUBMISSION - 9/28/15					OF	
											162	

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2165+50 TO STA 2169+50		SHEET 40 OF 162	
						60% SUBMISSION - 9/28/15	DISCIPLINE: SYSTEMS		SHEET NAME: W1-SYS-SWE-SCH-015		

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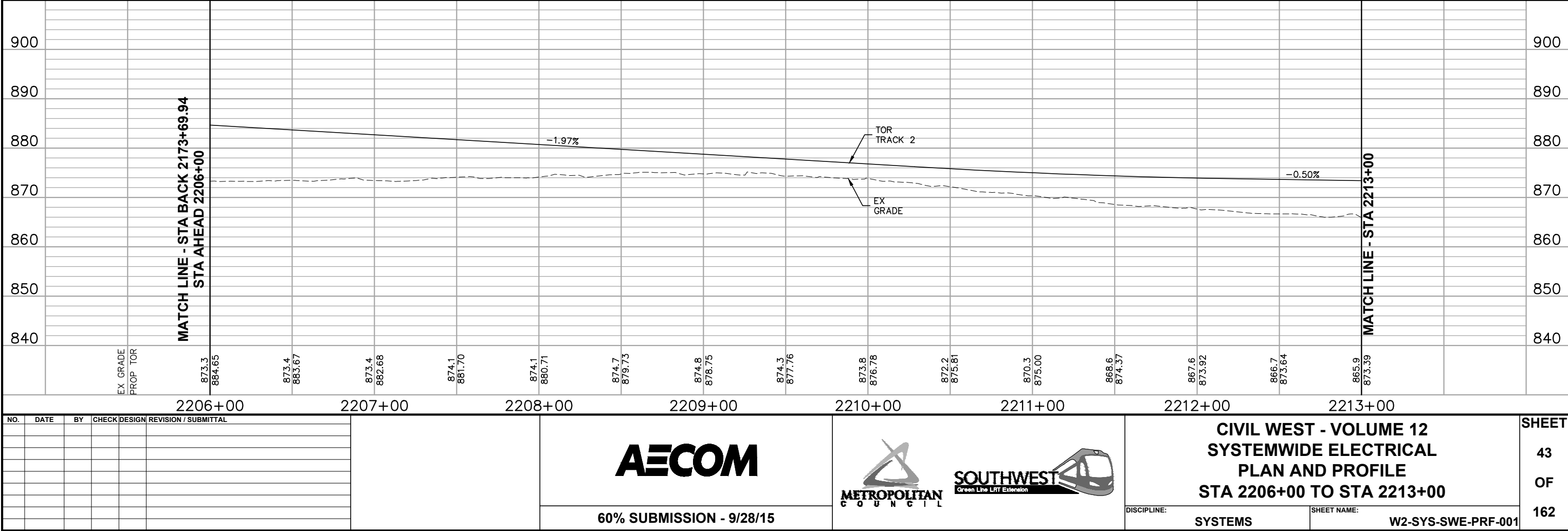
NO.						DATE		BY		CHECK/DESIGN		REVISION / SUBMITTAL	

2170+00		2171+00		2172+00		2173+00		2173+69.94	
868.7	892.38	866.7	891.60	870.2	890.77	873.1	889.90	874.4	888.97
						874.3	887.99	873.7	887.01
								873.3	886.03
								873.0	885.04

AECOM 60% SUBMISSION - 9/28/15										METROPOLITAN C O U N C I L SOUTHWEST Green Line Light Extension				CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2169+50 TO STA 2173+69.94				DISCIPLINE: SYSTEMS		SHEET NAME: W1-SYS-SWE-PRF-016		SHEET 41 OF 162	
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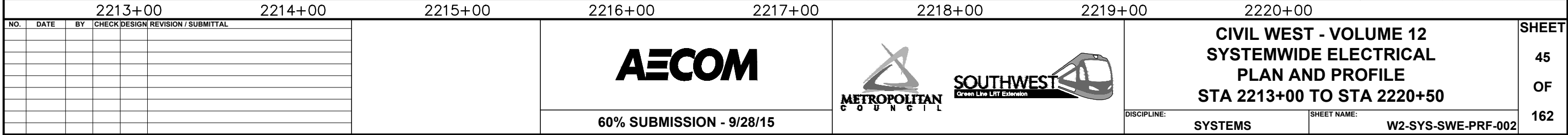
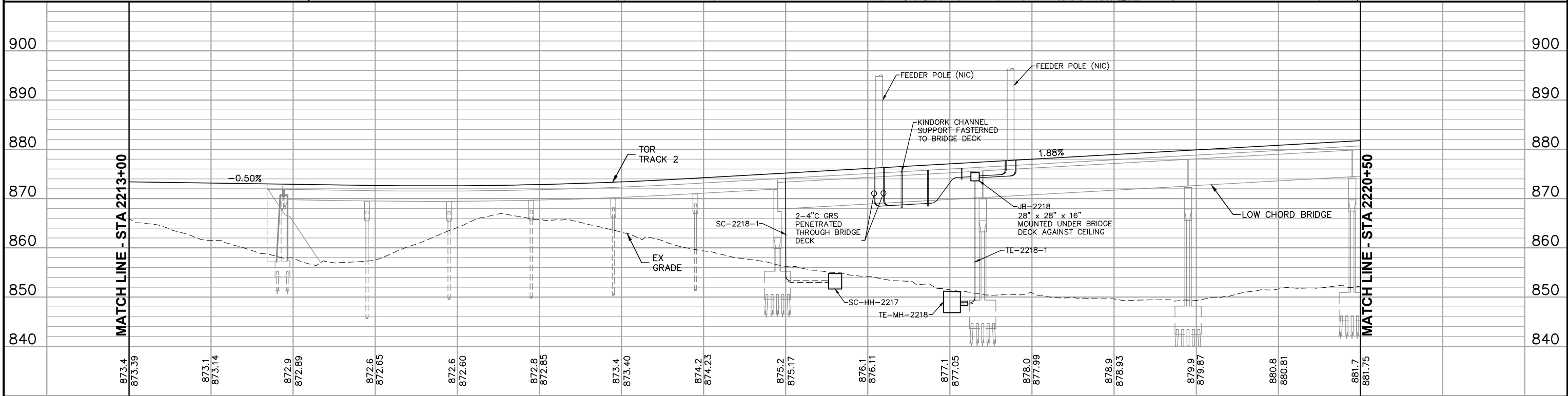
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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	  	CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2169+50 TO STA 2173+69.94		SHEET 42 OF 162
							60% SUBMISSION - 9/28/15		
							DISCIPLINE: SYSTEMS		
							SHEET NAME: W1-SYS-SWE-SCH-016		



[illegible][illegible]

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2206+00 TO STA 2213+00		SHEET 44 OF 162
					60% SUBMISSION - 9/28/15			DISCIPLINE: SYSTEMS	SHEET NAME: W2-SYS-SWE-SCH-001	

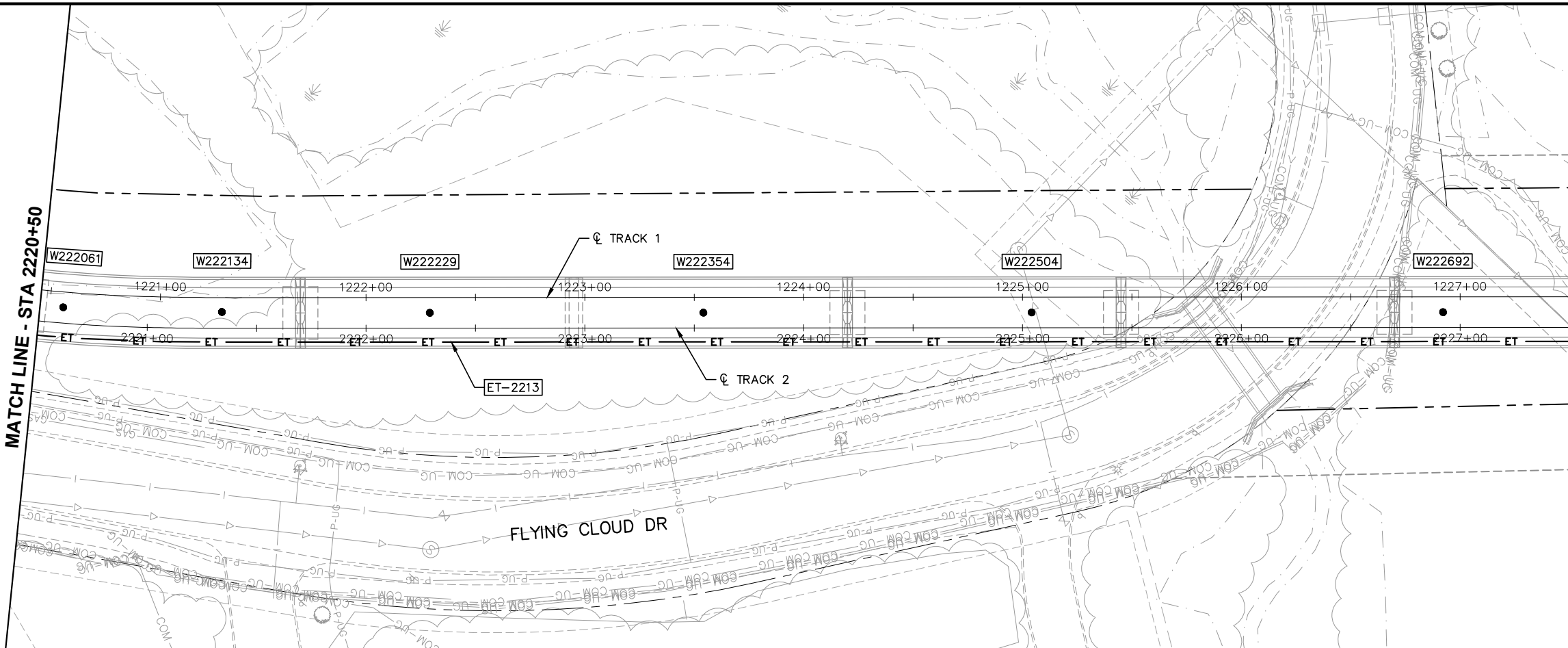


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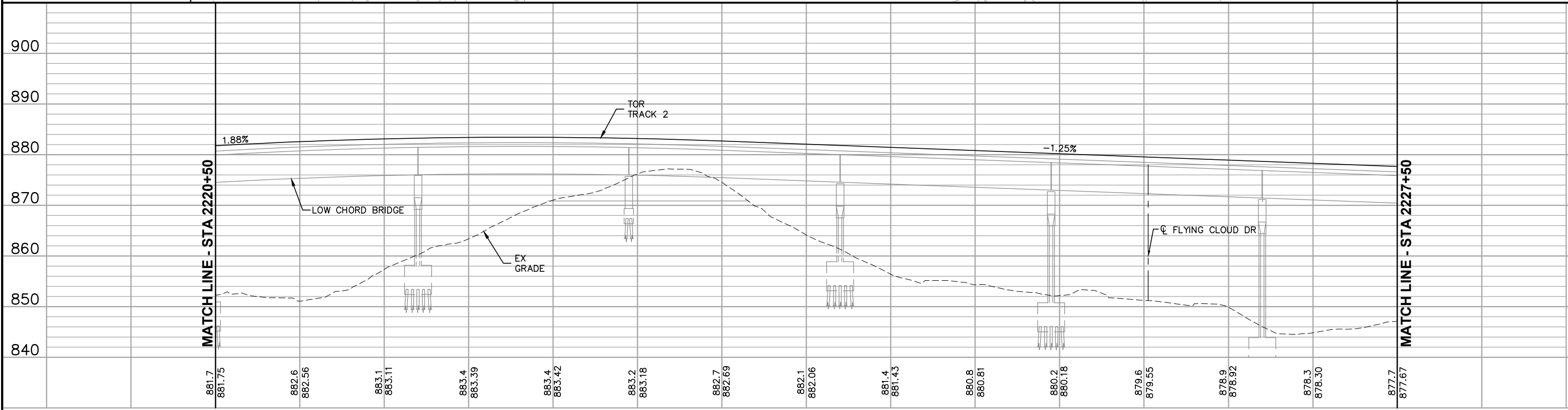
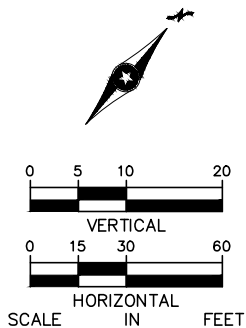
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2213+00 TO STA 2220+50		SHEET 46 OF 162	
						60% SUBMISSION - 9/28/15	DISCIPLINE: SYSTEMS SHEET NAME: W2-SYS-SWE-SCH-002				

Sep. 21 2015 08:40 am V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\SYSTEM WIDE ELECTRICAL\W2-SYS-SWE-PRF.dwg By: V-TranTT

MATCH LINE - STA 2220+50



MATCH LINE - STA 2227+50



2221+00 2222+00 2223+00 2224+00 2225+00 2226+00 2227+00

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



60% SUBMISSION - 9/28/15



CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
PLAN AND PROFILE
STA 2220+50 TO STA 2227+50

DISCIPLINE: SYSTEMS SHEET NAME: W2-SYS-SWE-PRF-003

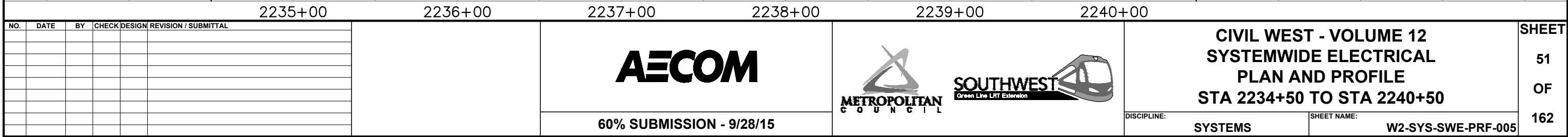
SHEET
47
OF
162

[illegible][illegible]

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 60% SUBMISSION - 9/28/15				CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2220+50 TO STA 2227+50 DISCIPLINE: SYSTEMS SHEET NAME: W2-SYS-SWE-SCH-003		SHEET 48 OF 162

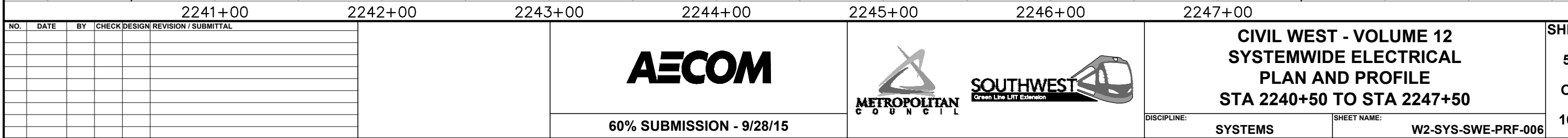
[illegible][illegible]

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2227+50 TO STA 2234+50		SHEET 50 OF 162
60% SUBMISSION - 9/28/15								DISCIPLINE: SYSTEMS	SHEET NAME: W2-SYS-SWE-SCH-004	



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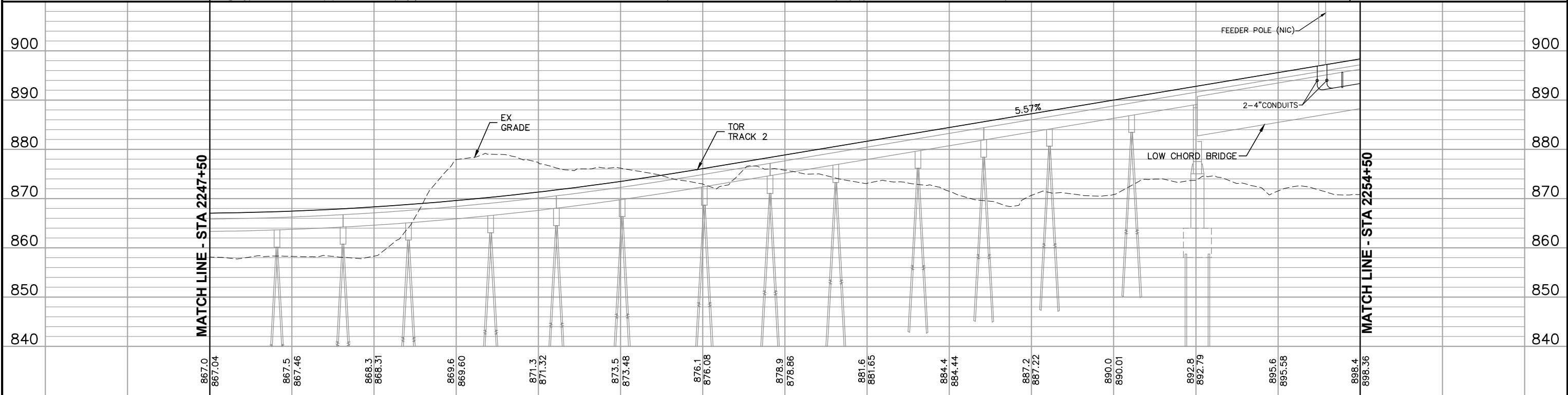
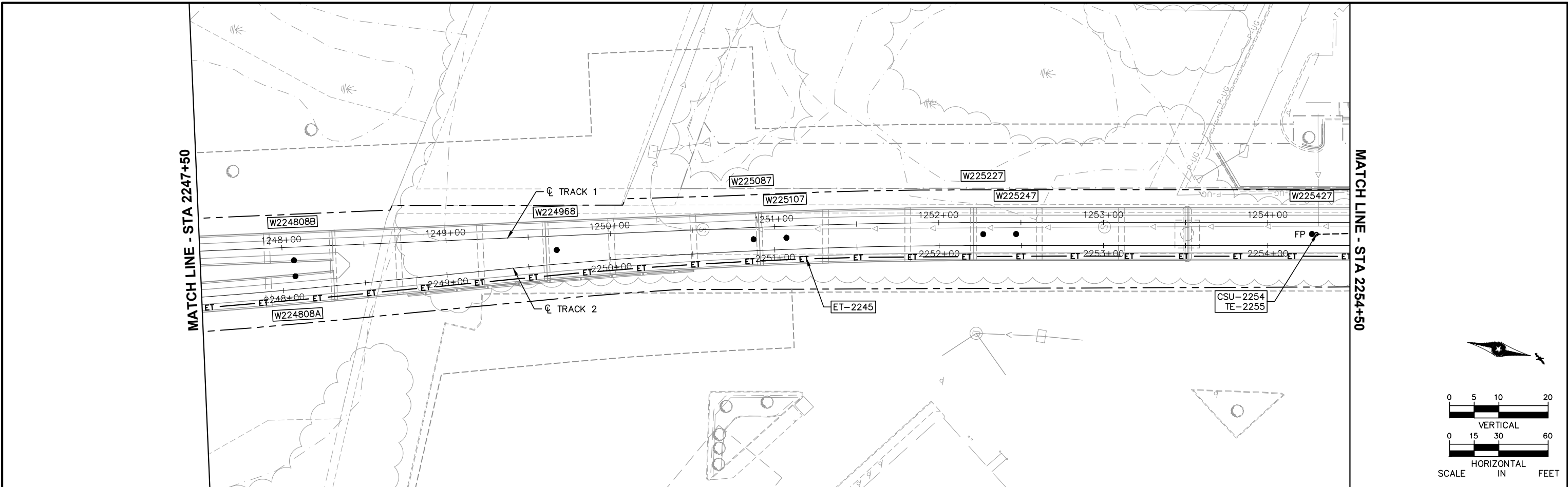
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2234+50 TO STA 2240+50		SHEET 52 OF 162	
						60% SUBMISSION - 9/28/15	DISCIPLINE: SYSTEMS		SHEET NAME: W2-SYS-SWE-SCH-005		



[illegible][illegible]

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL		AECOM	METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension	CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2240+50 TO STA 2247+50		SHEET 54 OF 162
						60% SUBMISSION - 9/28/15			DISCIPLINE: SYSTEMS	SHEET NAME: W2-SYS-SWE-SCH-006	

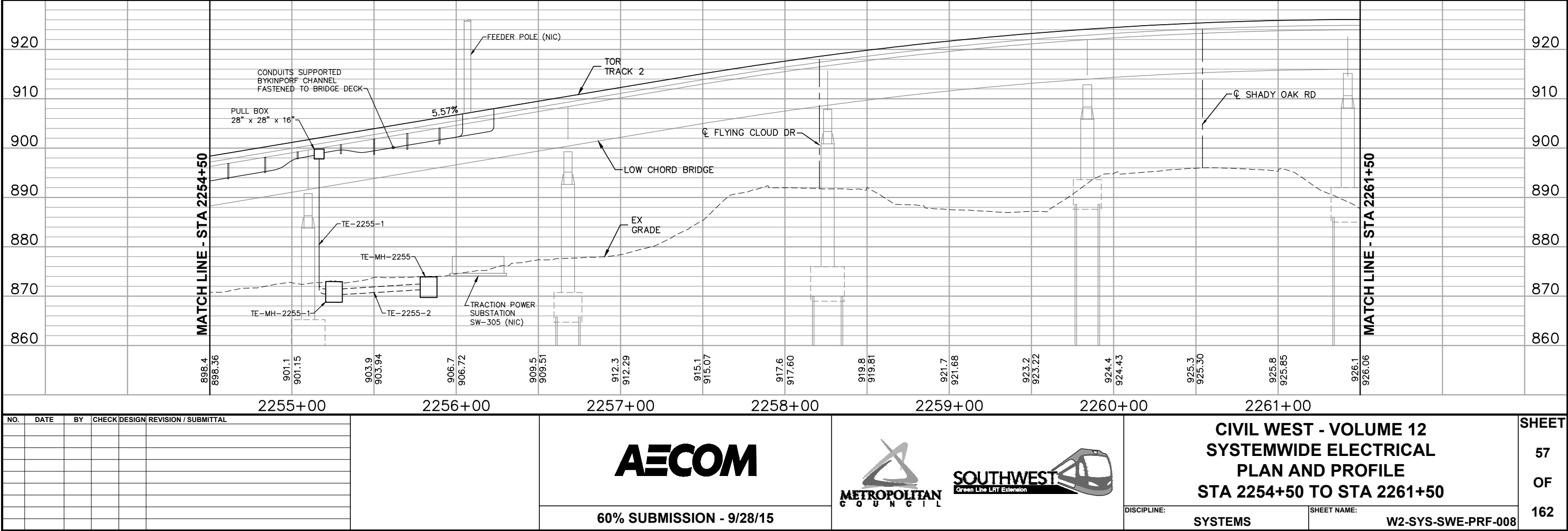
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2248+00						2249+00						2250+00						2251+00						2252+00						2253+00						2254+00					
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	AECOM 60% SUBMISSION - 9/28/15						 						CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2247+50 TO STA 2254+50 DISCIPLINE: SYSTEMS SHEET NAME: W2-SYS-SWE-PRF-007						SHEET																	

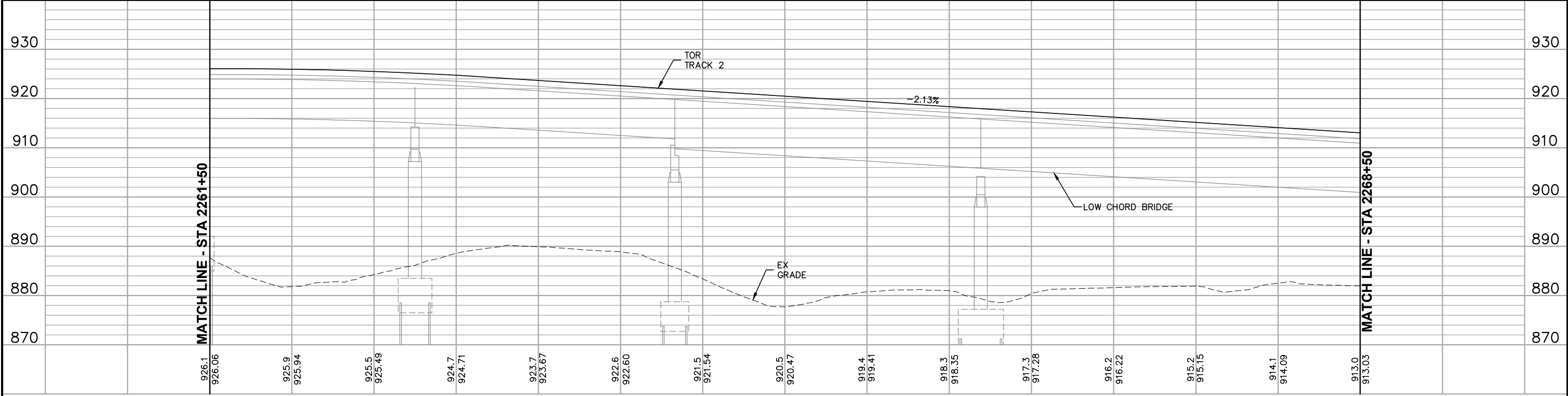
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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	AECOM	 METROPOLITAN COUNCIL  SOUTHWEST Green Line LRT Extension	CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2247+50 TO STA 2254+50		SHEET 56 OF 162	
									DISCIPLINE: SYSTEMS		SHEET NAME: W2-SYS-SWE-SCH-007
						60% SUBMISSION - 9/28/15					



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 	CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2254+50 TO STA 2261+50		SHEET 58 OF 162
	DISCIPLINE: SYSTEMS	SHEET NAME: W2-SYS-SWE-SCH-008	

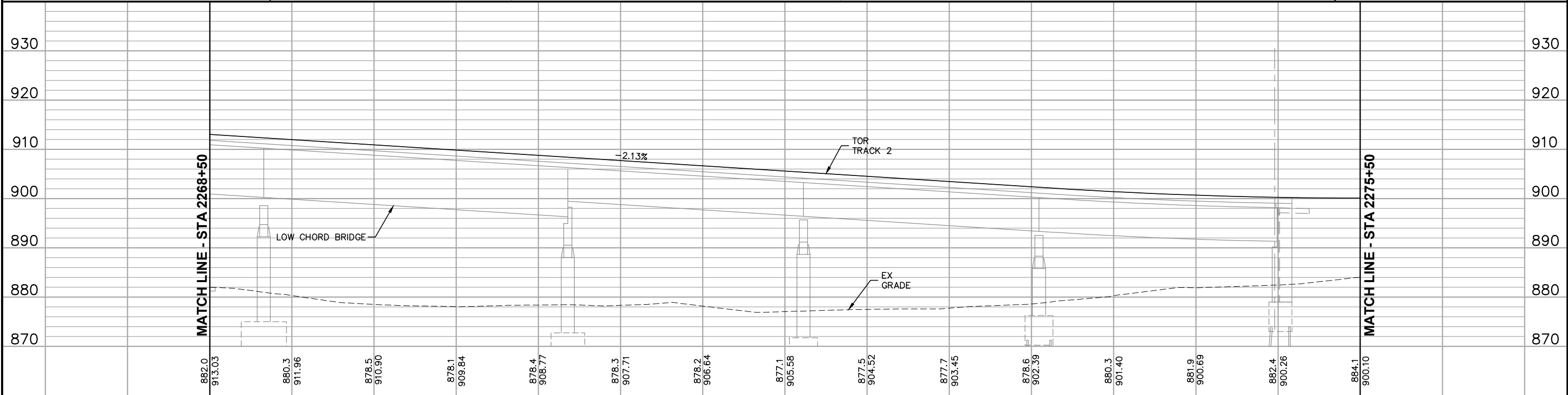
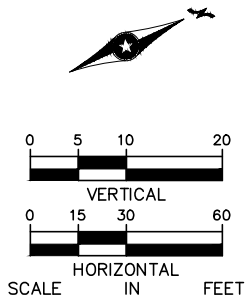
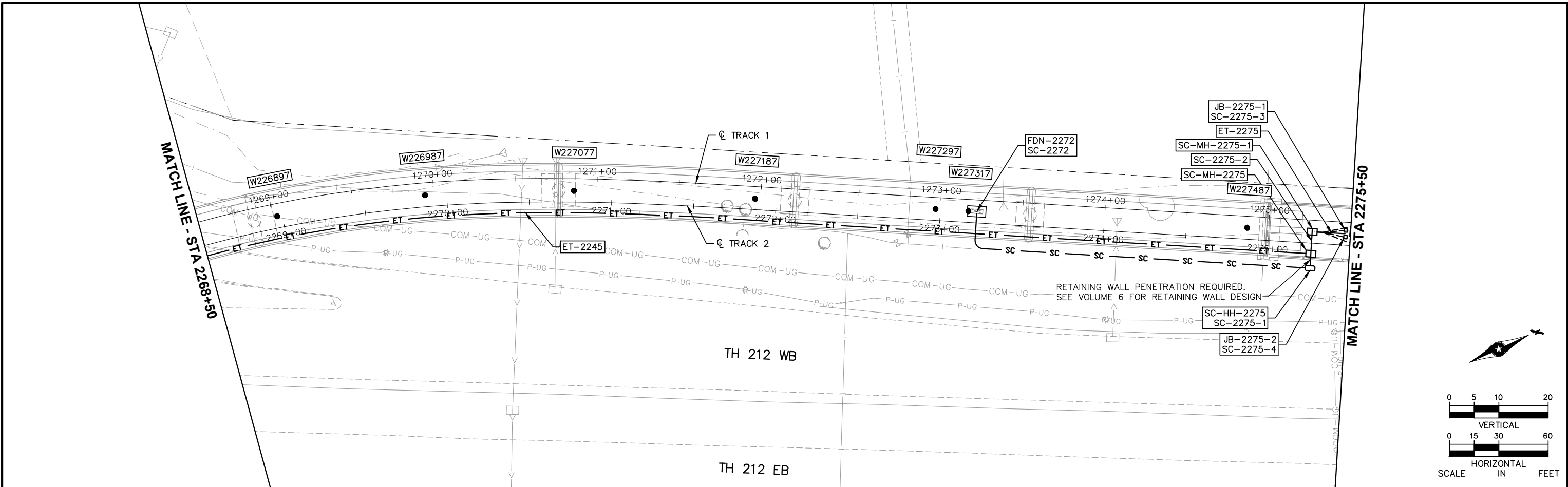


2262+00						2263+00						2264+00						2265+00						2266+00						2267+00						2268+00						SHEET																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL							AECOM						 						CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2261+50 TO STA 2268+50												59																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 	CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2261+50 TO STA 2268+50		SHEET 60 OF 162
						60% SUBMISSION - 9/28/15	DISCIPLINE: SYSTEMS	SHEET NAME: W2-SYS-SWE-SCH-009	

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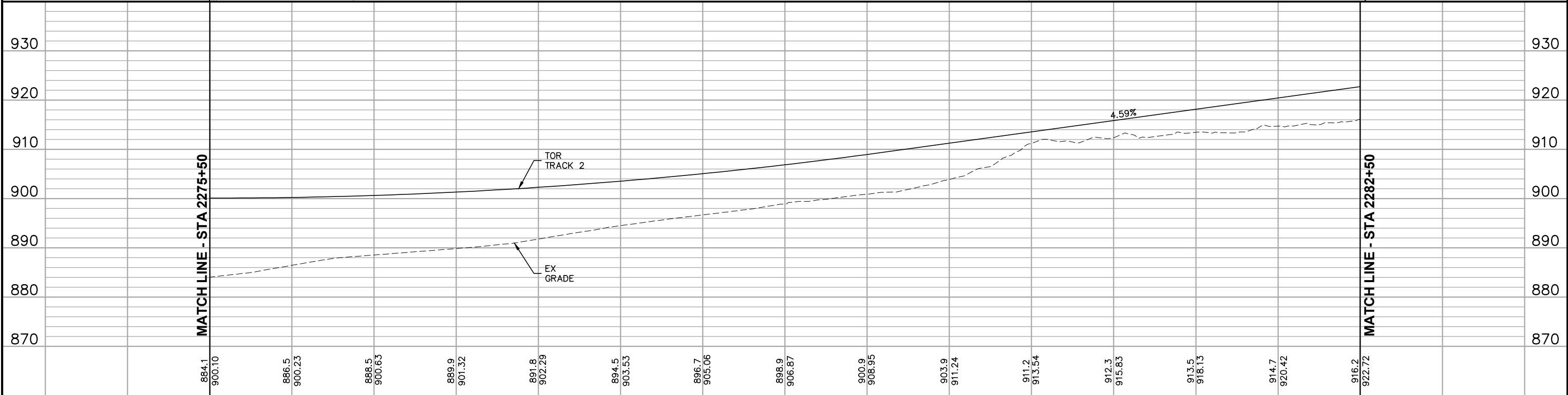
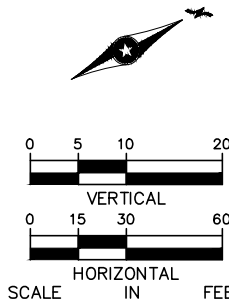
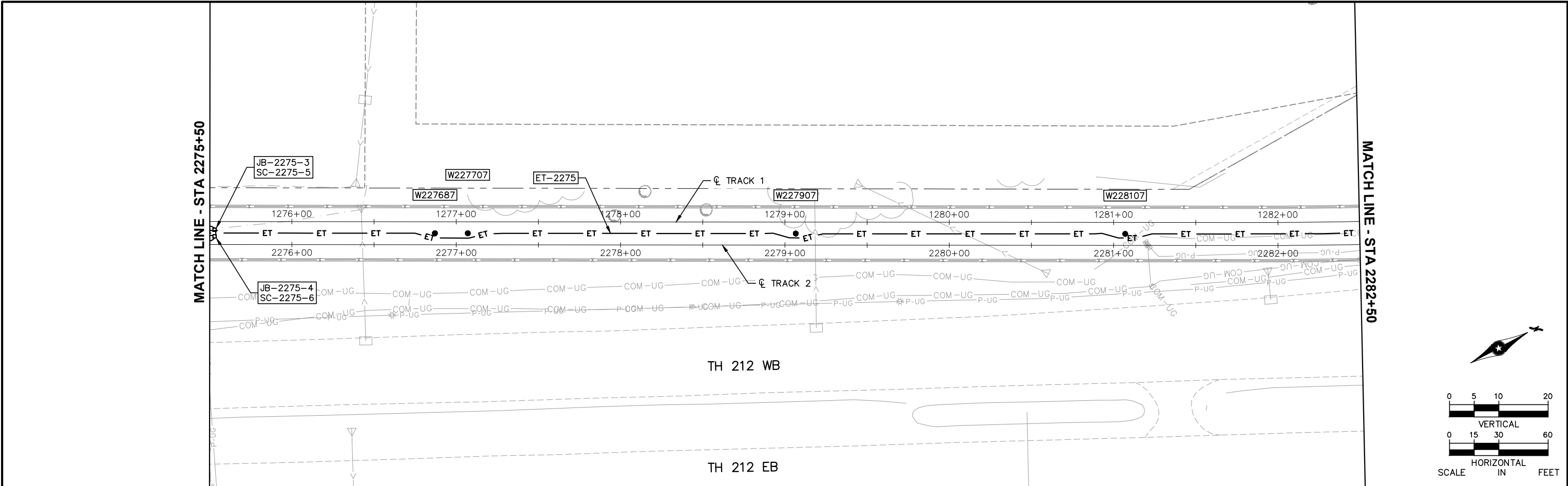


2269+00						2270+00						2271+00						2272+00						2273+00						2274+00						2275+00							
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL							AECOM						 						CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2268+50 TO STA 2275+50						SHEET													
												60% SUBMISSION - 9/28/15												DISCIPLINE: SYSTEMS						SHEET NAME: W2-SYS-SWE-PRF-010						61							
																																				OF							
																																										162	

[illegible][illegible]

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 60% SUBMISSION - 9/28/15		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2268+50 TO STA 2275+50		SHEET 62 OF 162
					DISCIPLINE:					
					SYSTEMS			W2-SYS-SWE-SCH-010		

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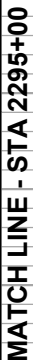
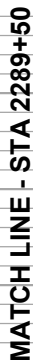
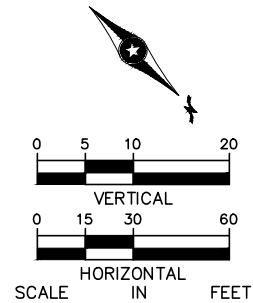
NO.						DATE		BY		CHECK		DESIGN		REVISION / SUBMITTAL	

2276+00		2277+00		2278+00		2279+00		2280+00		2281+00		2282+00			
				AECOM				 METROPOLITAN C O U N C I L		 SOUTHWEST Green Line LRT Extension		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2275+50 TO STA 2282+50		SHEET 63 OF 162	
				60% SUBMISSION - 9/28/15						DISCIPLINE: SYSTEMS		SHEET NAME: W2-SYS-SWE-PRF-011			

[illegible][illegible][illegible]

[illegible][illegible]

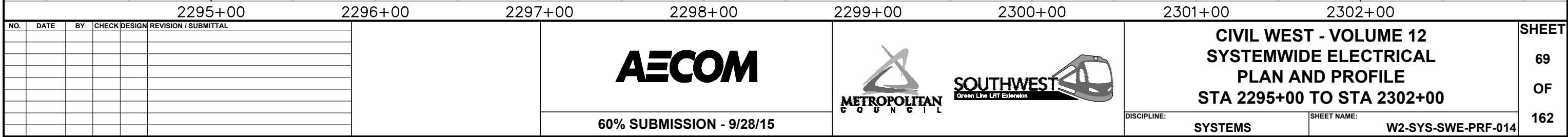
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 60% SUBMISSION - 9/28/15		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2282+50 TO STA 2289+50 DISCIPLINE: SYSTEMS SHEET NAME: W2-SYS-SWE-SCH-012		SHEET 66 OF 162



						2290+00	2291+00	2292+00	2293+00	2294+00	2295+00	
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2289+50 TO STA 2295+00		SHEET 67 OF 162
						60% SUBMISSION - 9/28/15				DISCIPLINE: SYSTEMS	SHEET NAME: W2-SYS-SWE-PRF-013	

[illegible][illegible]

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2289+50 TO STA 2295+00		SHEET 68 OF 162
						60% SUBMISSION - 9/28/15	DISCIPLINE: SYSTEMS		SHEET NAME: W2-SYS-SWE-SCH-013	

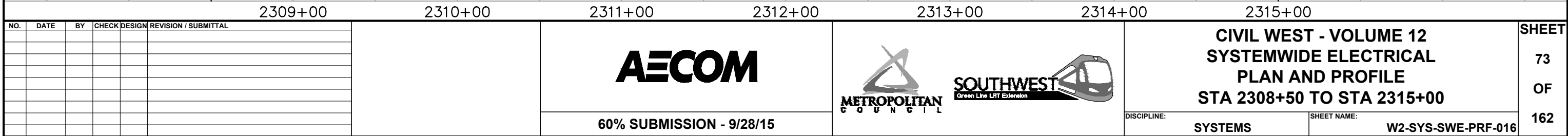


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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2295+00 TO STA 2302+00		SHEET 70 OF 162	
						60% SUBMISSION - 9/28/15	DISCIPLINE: SYSTEMS		SHEET NAME: W2-SYS-SWE-SCH-014		

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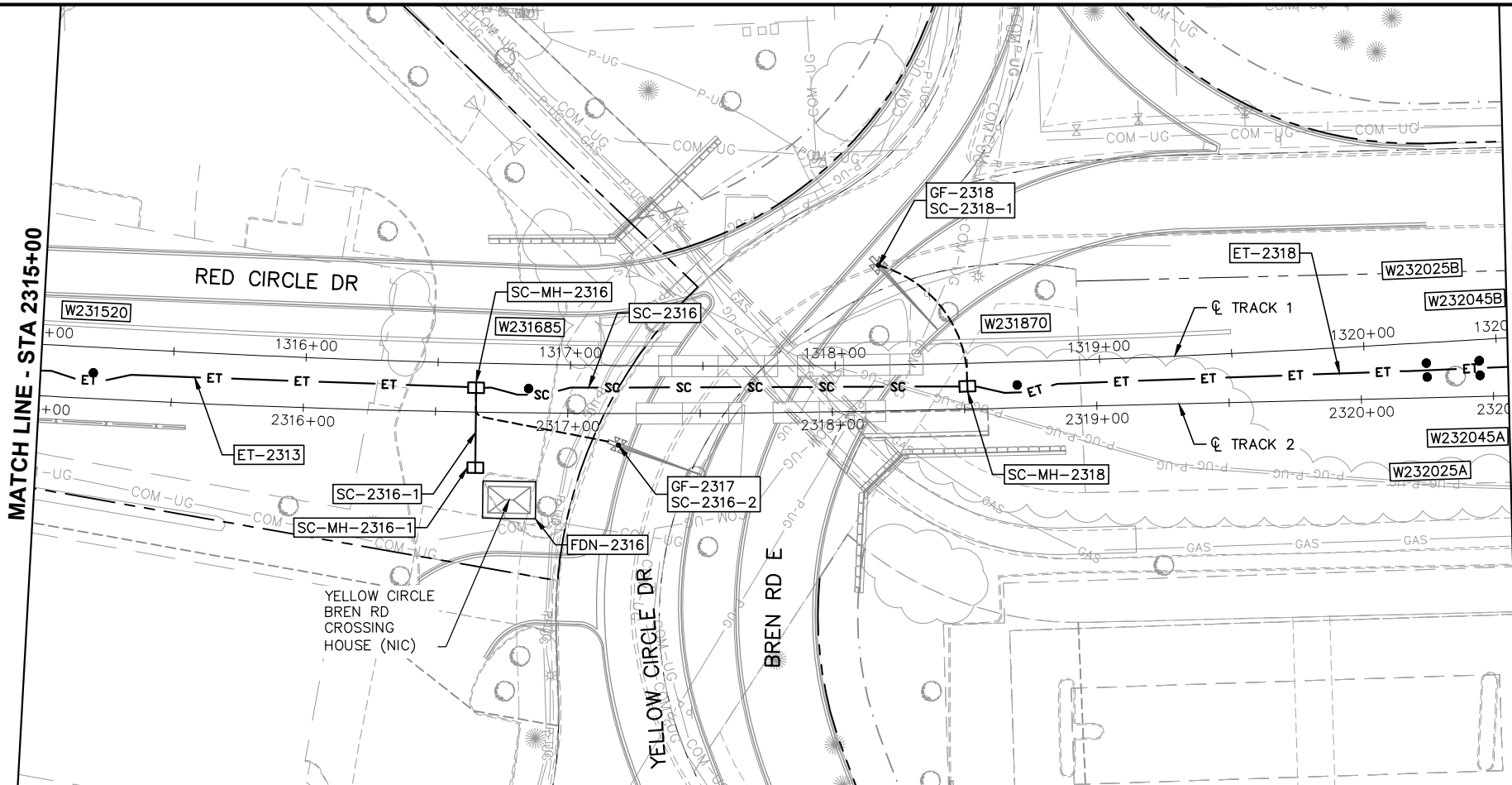
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 60% SUBMISSION - 9/28/15		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2302+00 TO STA 2308+50		SHEET 72 OF 162
								DISCIPLINE: SYSTEMS	SHEET NAME: W2-SYS-SWE-SCH-015	



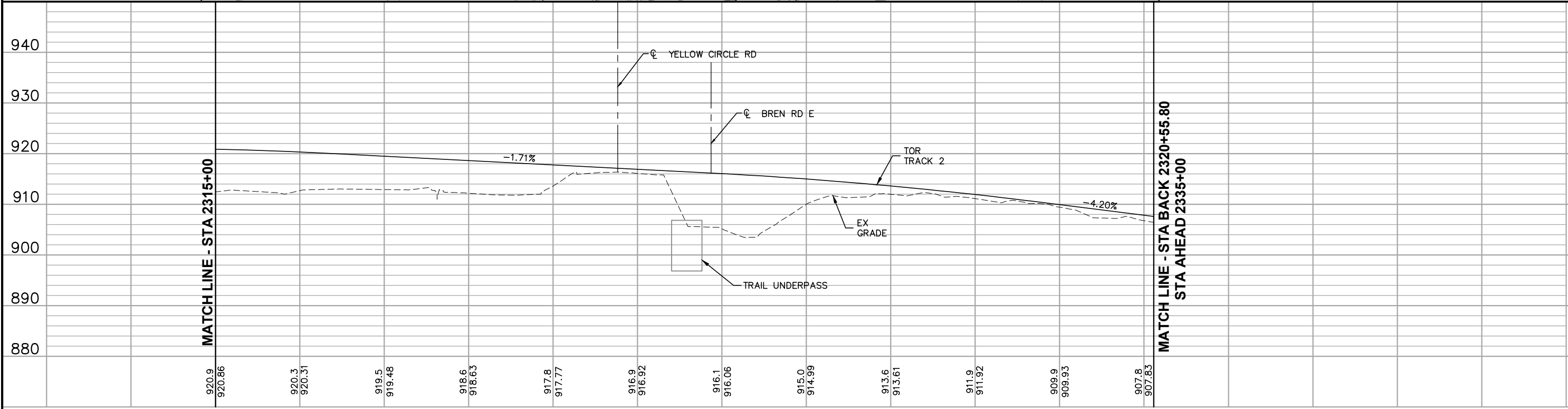
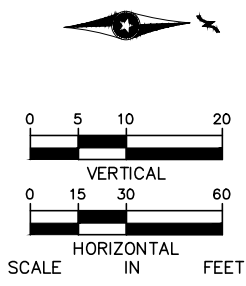
[illegible][illegible]

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					 		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2308+50 TO STA 2315+00		SHEET 74 OF 162
						60% SUBMISSION - 9/28/15				DISCIPLINE: SYSTEMS		SHEET NAME: W2-SYS-SWE-SCH-016		

Sep. 21 2015 09:10 am V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\SYSTEM WIDE ELECTRICAL\W2-SYS-SWE-PRF.dwg By: V-TranTT



MATCH LINE - STA BACK 2320+55.80
STA AHEAD 2335+00



MATCH LINE - STA BACK 2320+55.80
STA AHEAD 2335+00

2315+00 2316+00 2317+00 2318+00 2319+00 2320+00

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



60% SUBMISSION - 9/28/15



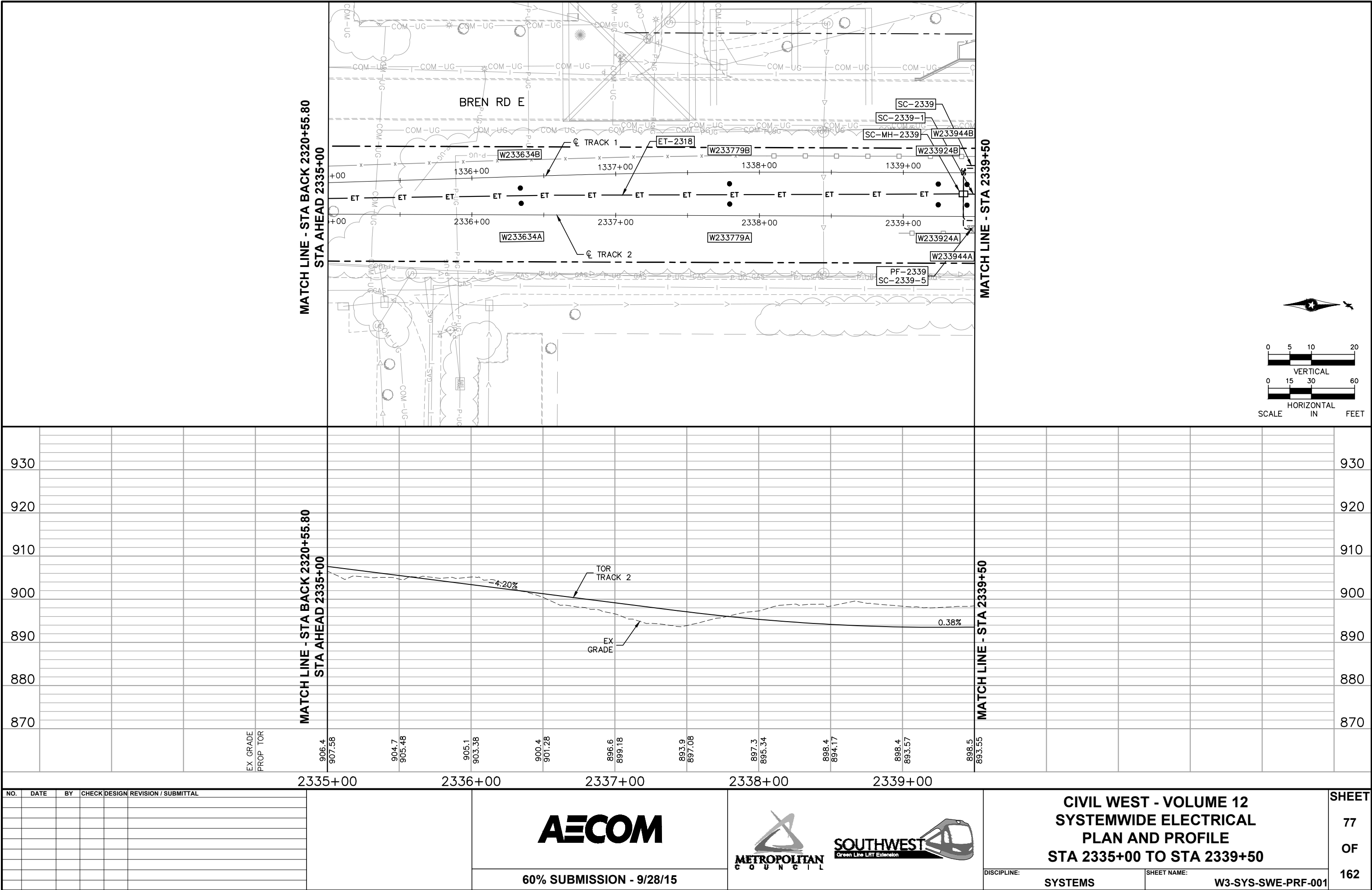
CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2315+00 TO STA 2320+55.80	
DISCIPLINE: SYSTEMS	SHEET NAME: W2-SYS-SWE-PRF-017

SHEET
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OF
162

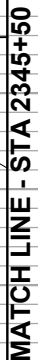
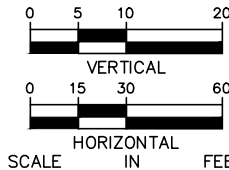
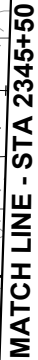
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 	CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2315+00 TO STA 2320+55.80		SHEET 76 OF 162
	DISCIPLINE: SYSTEMS	SHEET NAME: W2-SYS-SWE-SCH-017	

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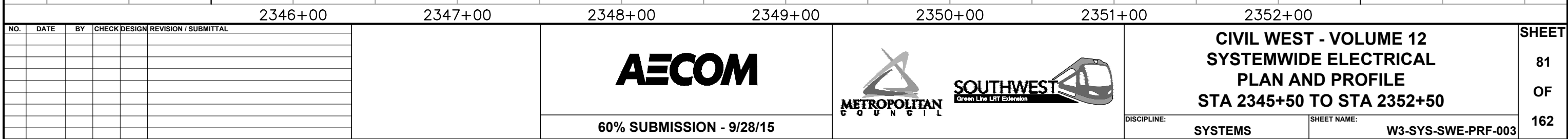
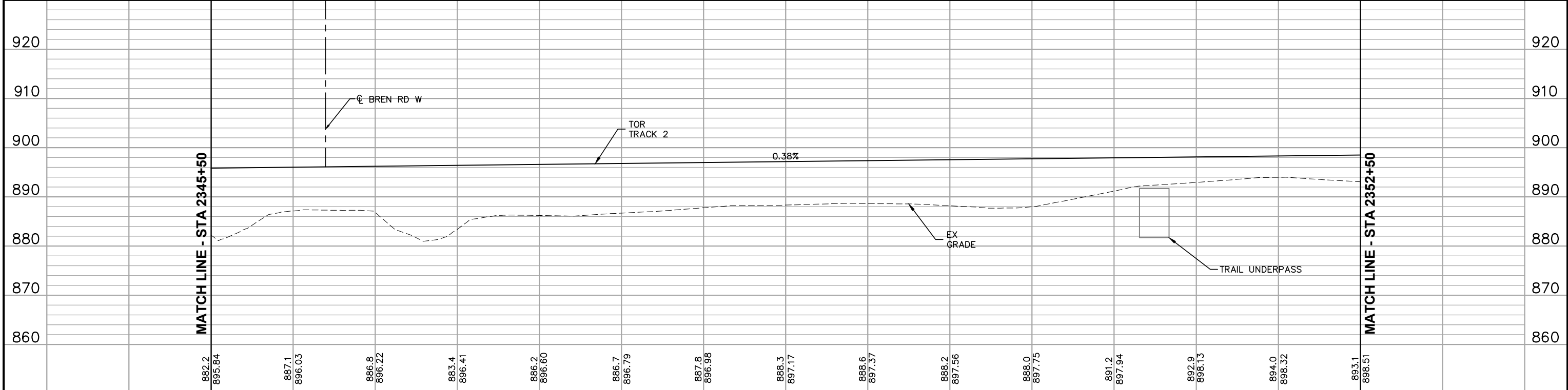
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						2340+00	2341+00	2342+00	2343+00	2344+00	2345+00	
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2339+50 TO STA 2345+50		SHEET
					79							
					OF							
					162							
						60% SUBMISSION - 9/28/15				DISCIPLINE: SYSTEMS	SHEET NAME: W3-SYS-SWE-PRF-002	

[illegible][illegible]

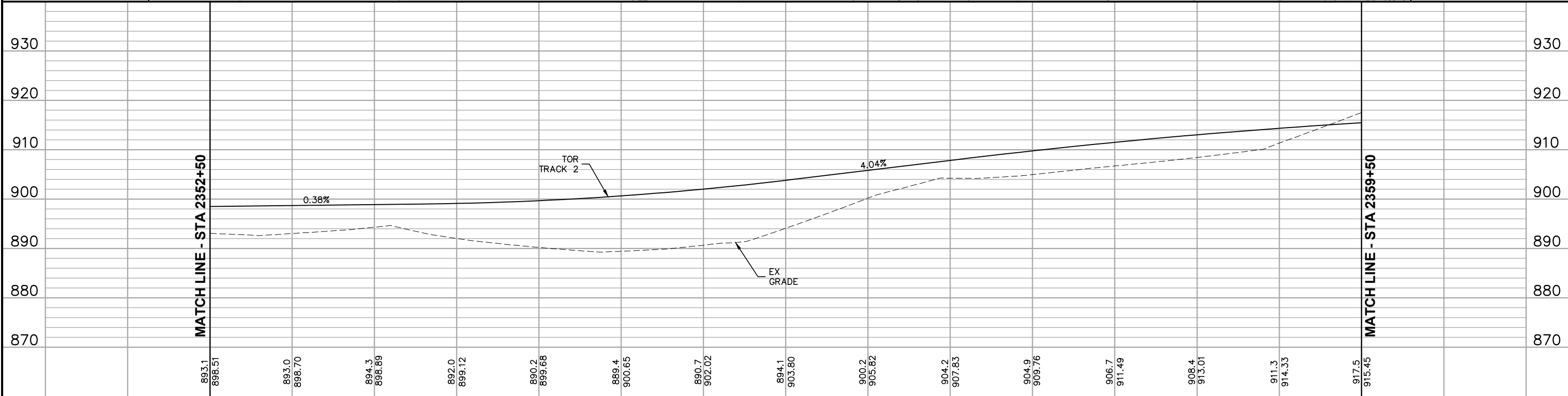
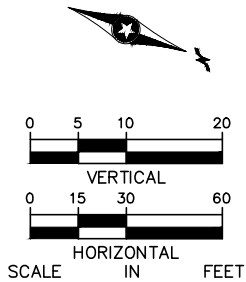
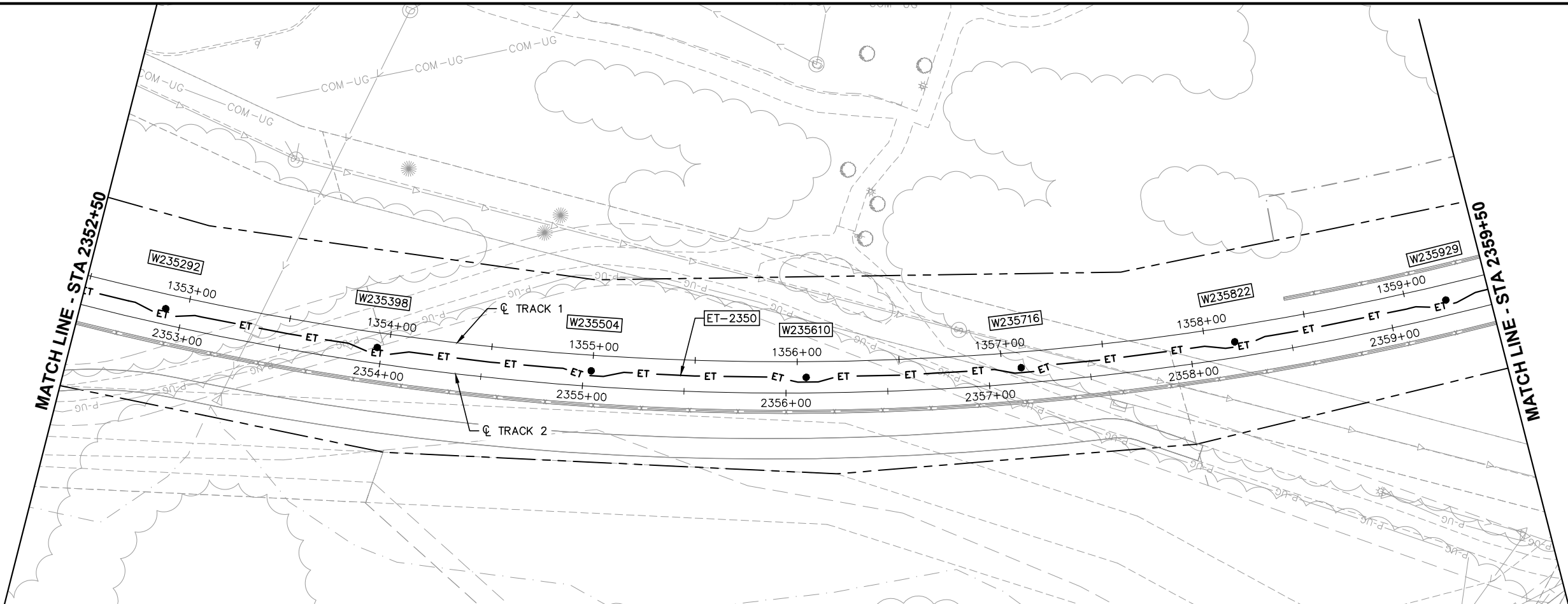
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 60% SUBMISSION - 9/28/15		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2339+50 TO STA 2345+50		SHEET 80 OF 162
								DISCIPLINE: SYSTEMS	SHEET NAME: W3-SYS-SWE-SCH-002	



[illegible][illegible]

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2345+50 TO STA 2352+50		SHEET 82 OF 162	
						60% SUBMISSION - 9/28/15	DISCIPLINE: SYSTEMS		SHEET NAME: W3-SYS-SWE-SCH-003		

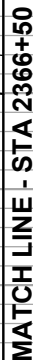
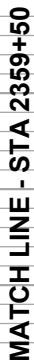
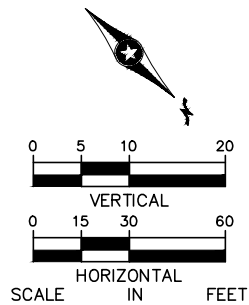
Sep. 21 2015 09:29 am v:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\SYSTEM WIDE ELECTRICAL\W3-SYS-SWE-PRF.dwg By: V-AltG



2353+00						2354+00						2355+00						2356+00						2357+00						2358+00						2359+00					
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	AECOM 60% SUBMISSION - 9/28/15						METROPOLITAN C O U N C I L SOUTHWEST Green Line LRT Extension						CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2352+50 TO STA 2359+50 DISCIPLINE: SYSTEMS SHEET NAME: W3-SYS-SWE-PRF-004												SHEET 83 OF 162											

[illegible][illegible]

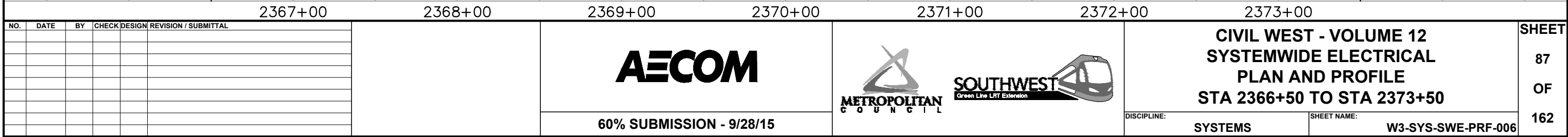
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2352+50 TO STA 2359+50		SHEET 84 OF 162
						60% SUBMISSION - 9/28/15		DISCIPLINE: SYSTEMS		SHEET NAME: W3-SYS-SWE-SCH-004		



2360+00						2361+00						2362+00						2363+00						2364+00						2365+00						2366+00						SHEET																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	AECOM						 						CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2359+50 TO STA 2366+50						85																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										

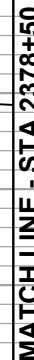
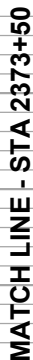
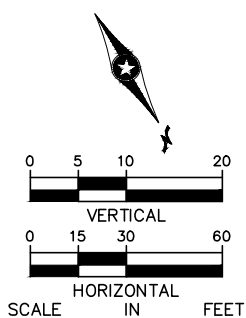
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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2359+50 TO STA 2366+50		SHEET 86 OF 162
						60% SUBMISSION - 9/28/15		DISCIPLINE: SYSTEMS		SHEET NAME: W3-SYS-SWE-SCH-005		



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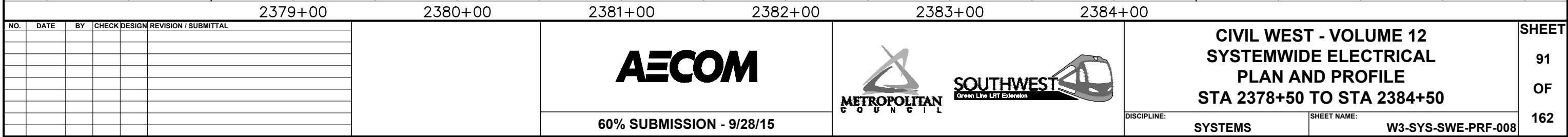
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			 		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2366+50 TO STA 2373+50		SHEET 88 OF 162
						60% SUBMISSION - 9/28/15				DISCIPLINE: SYSTEMS	SHEET NAME: W3-SYS-SWE-SCH-006	



SHEET
89
OF
162

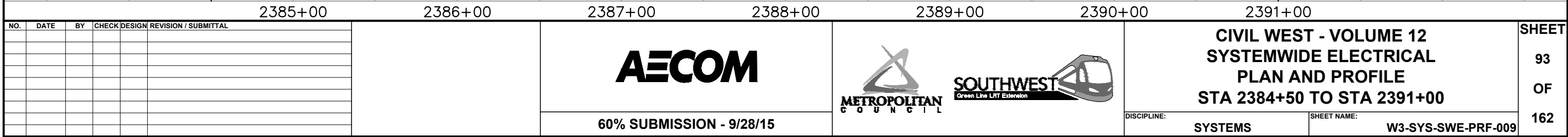
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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					 		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2373+50 TO STA 2378+50		SHEET 90 OF 162	
												DISCIPLINE: SYSTEMS			SHEET NAME: W3-SYS-SWE-SCH-007
						60% SUBMISSION - 9/28/15									



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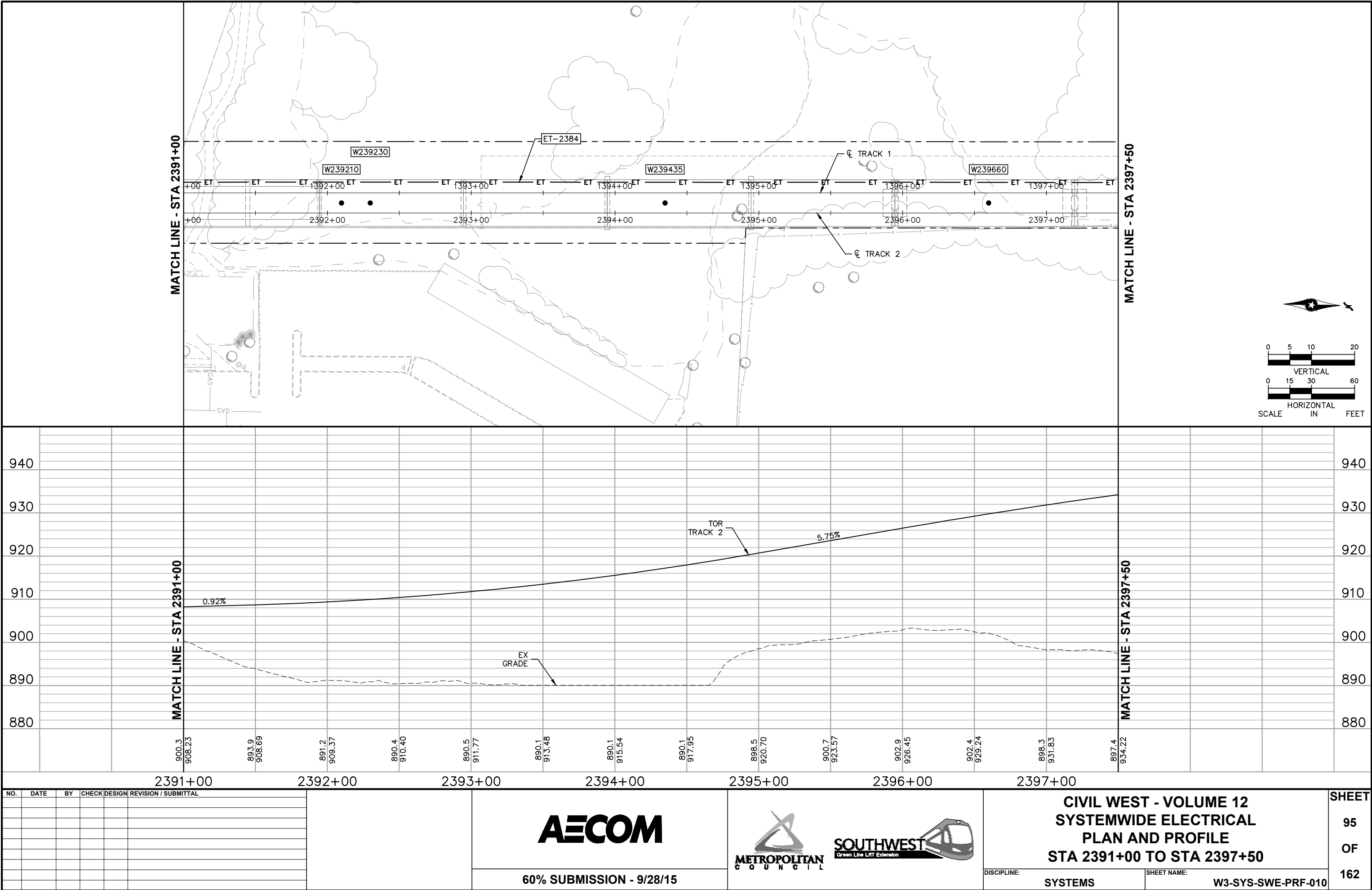
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[illegible]

	 METROPOLITAN COUNCIL	 SOUTHWEST Green Line LRTT Extension	CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2384+50 TO STA 2391+00		SHEET 94 OF 162
/15			DISCIPLINE: SYSTEMS	SHEET NAME: W3-SYS-SWE-SCH-009	

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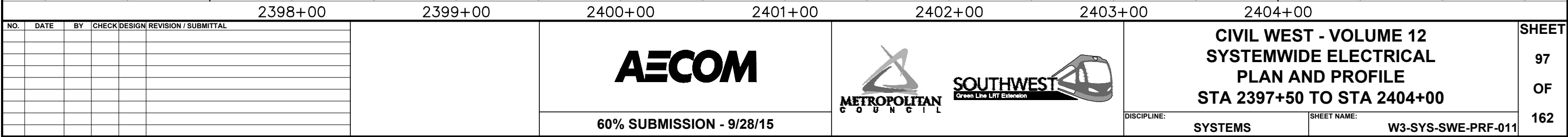


[illegible]**AECOM**

**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
SCHEDULE
STA 2391+00 TO STA 2397+50**

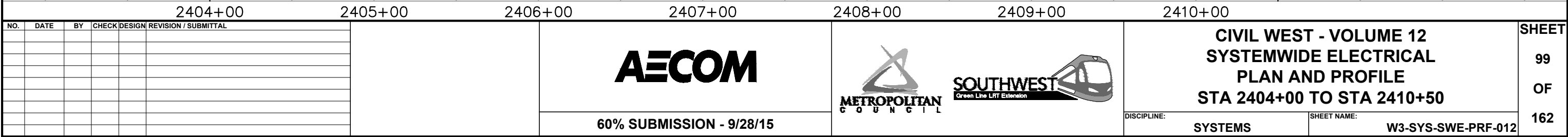
DISCIPLINE:	SYSTEMS	SHEET NAME:	W3-SYS-SWE-SCH-010
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SHEET
96
OF
162



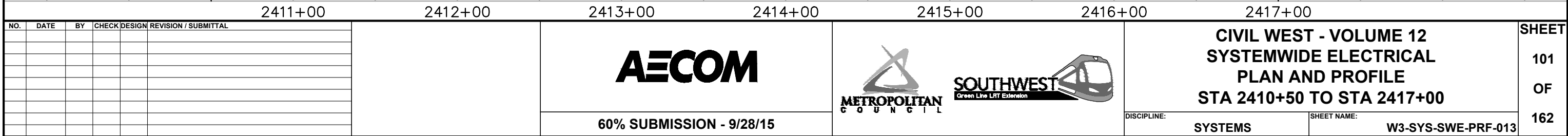
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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			CIVIL WEST - VOLUME 12		SHEET	
											98
											OF
											162
60% SUBMISSION - 9/28/15						DISCIPLINE: SYSTEMS		SHEET NAME: W3-SYS-SWE-SCH-011			



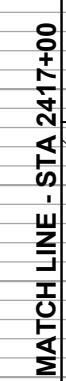
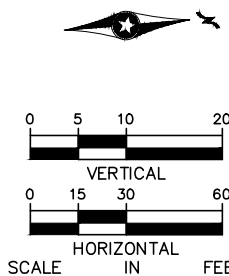
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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2404+00 TO STA 2410+50		SHEET 100 OF 162
						60% SUBMISSION - 9/28/15	DISCIPLINE: SYSTEMS		SHEET NAME: W3-SYS-SWE-SCH-012	



[illegible][illegible]

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	  		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2410+50 TO STA 2417+00		SHEET 102 OF 162
						60% SUBMISSION - 9/28/15		DISCIPLINE: SYSTEMS	SHEET NAME: W3-SYS-SWE-SCH-013	

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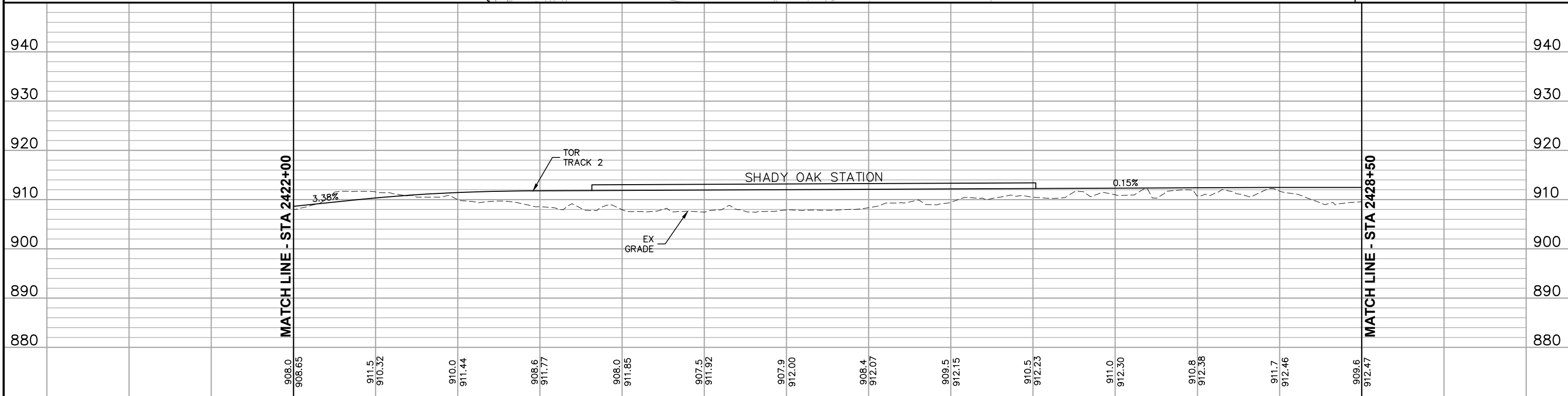
SOUTHWEST
Green Line LRT Extension

**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
PLAN AND PROFILE
STA 2417+00 TO STA 2422+00**

103
OF
162

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SHEET
104
OF
162

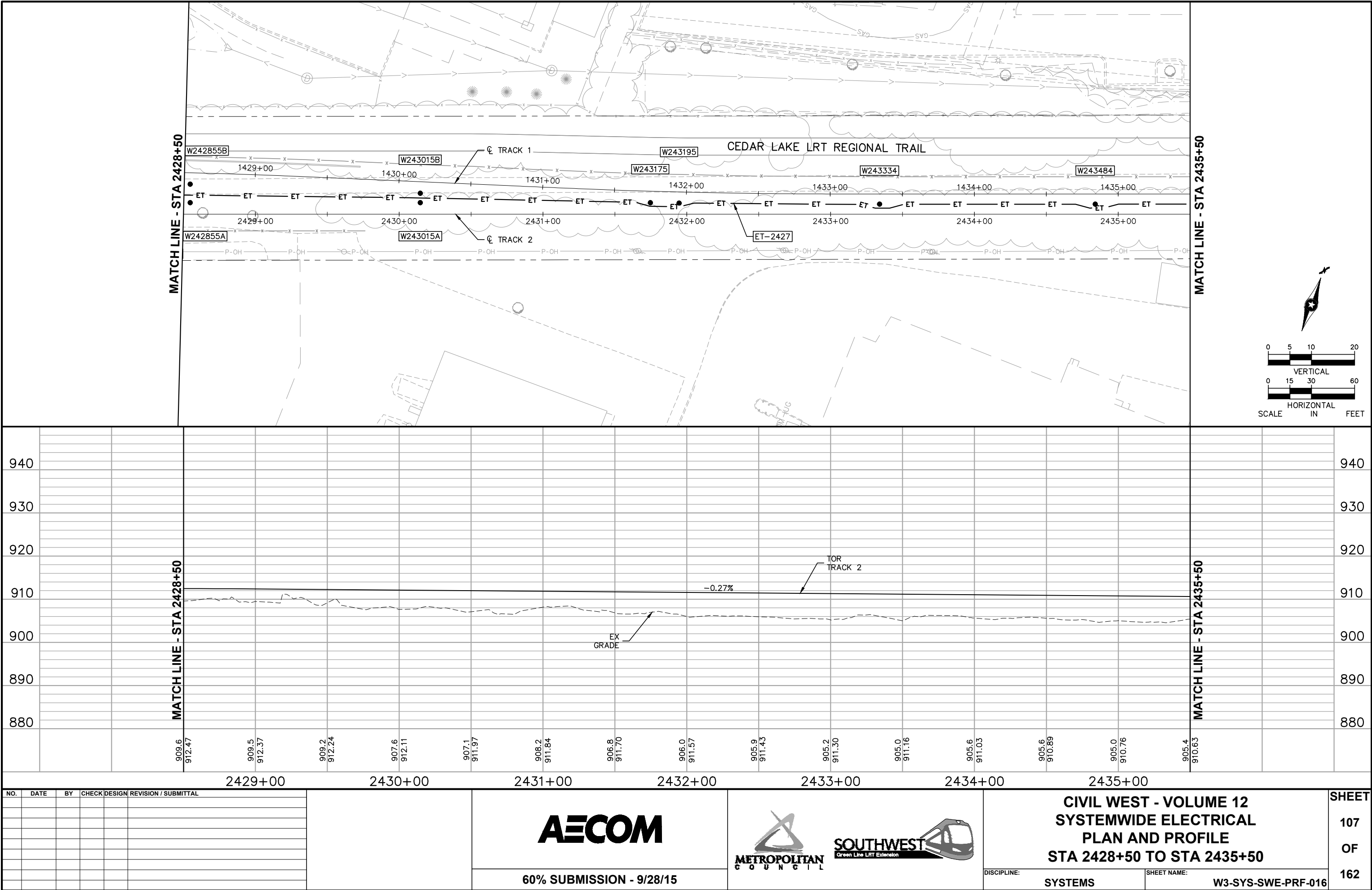


2422+00						2423+00						2424+00						2425+00						2426+00						2427+00						2428+00						SHEET									
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL																			CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2422+00 TO STA 2428+50						105																					
																																																		OF	
																																																		162	
						60% SUBMISSION - 9/28/15						DISCIPLINE: SYSTEMS						SHEET NAME: W3-SYS-SWE-PRF-015																																	

[illegible][illegible]

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	  		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2422+00 TO STA 2428+50		SHEET 106 OF 162
						60% SUBMISSION - 9/28/15		DISCIPLINE: SYSTEMS	SHEET NAME: W3-SYS-SWE-SCH-015	

Sep. 21 2015 09:39 am V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\SYSTEM WIDE ELECTRICAL\W3-SYS-SWE-PRF.dwg By: V-Allig



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



60% SUBMISSION - 9/28/15

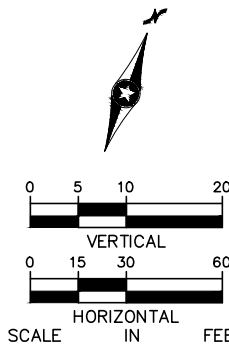


CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
PLAN AND PROFILE
STA 2428+50 TO STA 2435+50

DISCIPLINE: SYSTEMS
SHEET NAME: W3-SYS-SWE-PRF-016

SHEET
107
OF
162

[illegible][illegible][illegible]

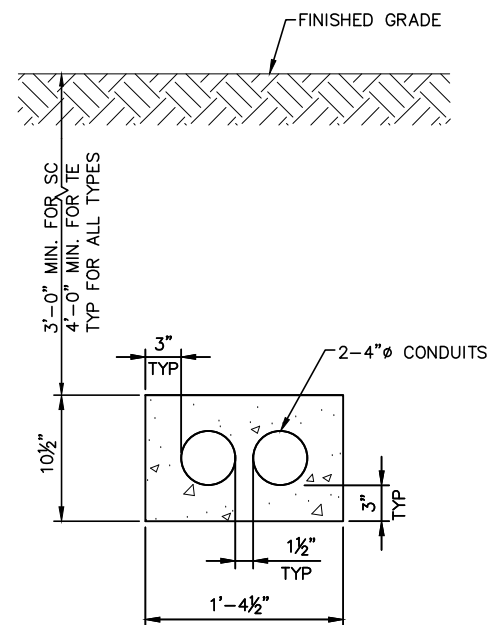


2436+00						2437+00						2438+00						2439+00						2440+00						2441+00						CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL PLAN AND PROFILE STA 2435+50 TO STA 2441+49.22 DISCIPLINE: SYSTEMS SHEET NAME: W3-SYS-SWE-PRF-017						SHEET 109 OF 162	
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL																																						
						AECOM						 																															
																		60% SUBMISSION - 9/28/15																									

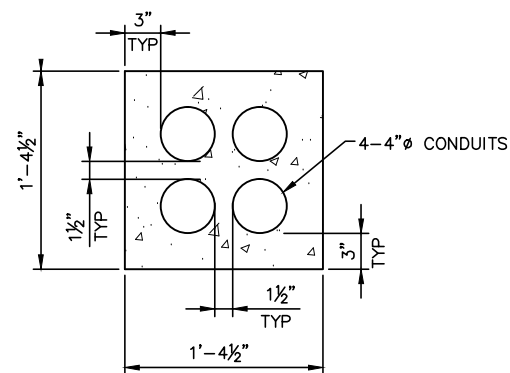
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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					 		CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL SCHEDULE STA 2435+50 TO STA 2441+49.22		SHEET 110 OF 162	
												DISCIPLINE: SYSTEMS			SHEET NAME: W3-SYS-SWE-SCH-017
						60% SUBMISSION - 9/28/15									

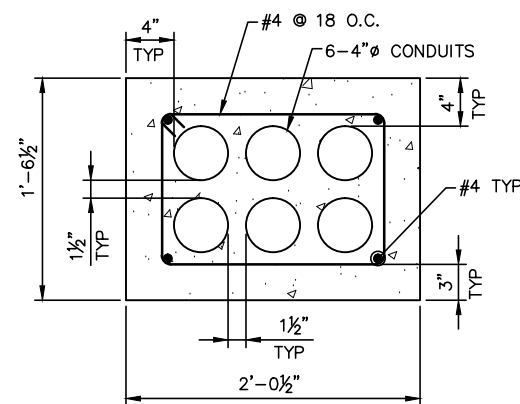
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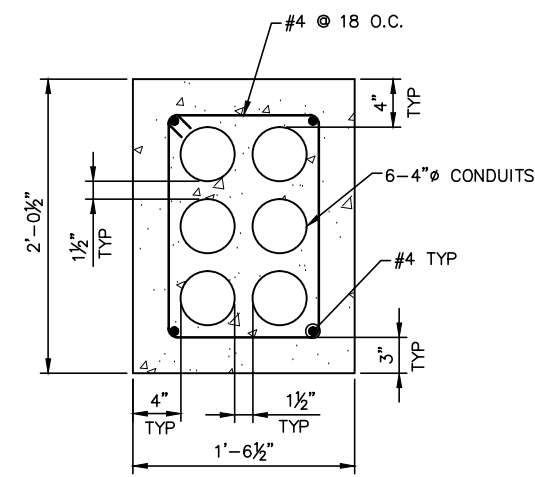
2 TYPE 2
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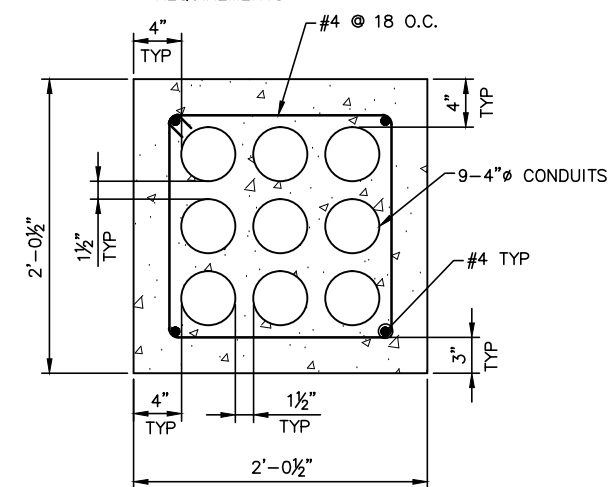
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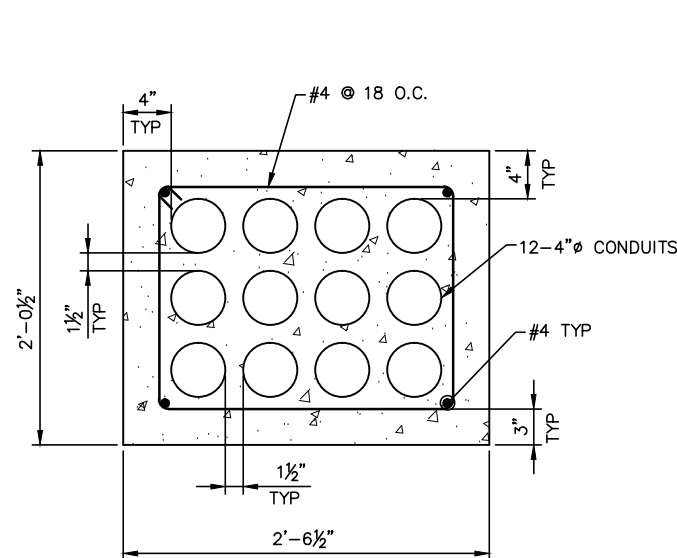
6 TYPE 6
SCALE: 1 1/2"=1'-0"



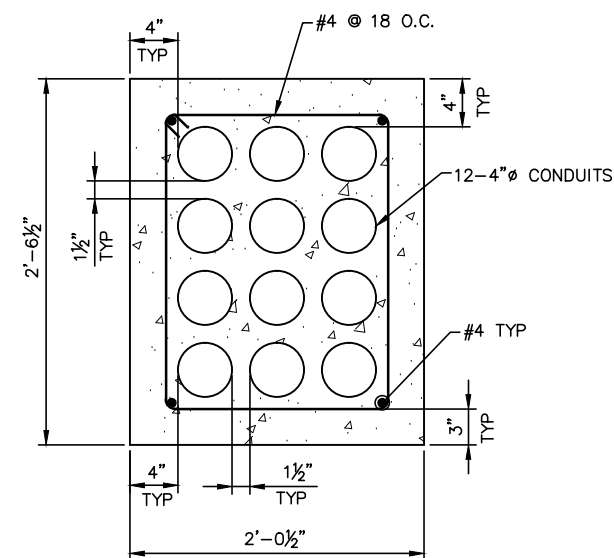
6V TYPE 6V
SCALE: 1 1/2"=1'-0"



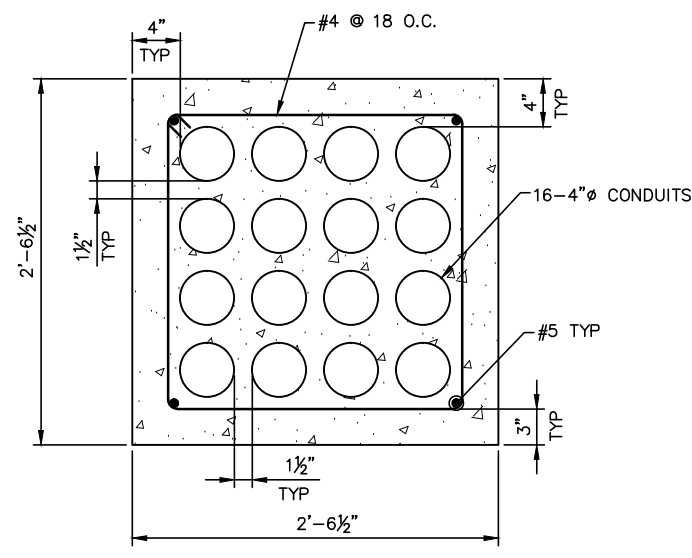
9 TYPE 9
SCALE: 1 1/2"=1'-0"



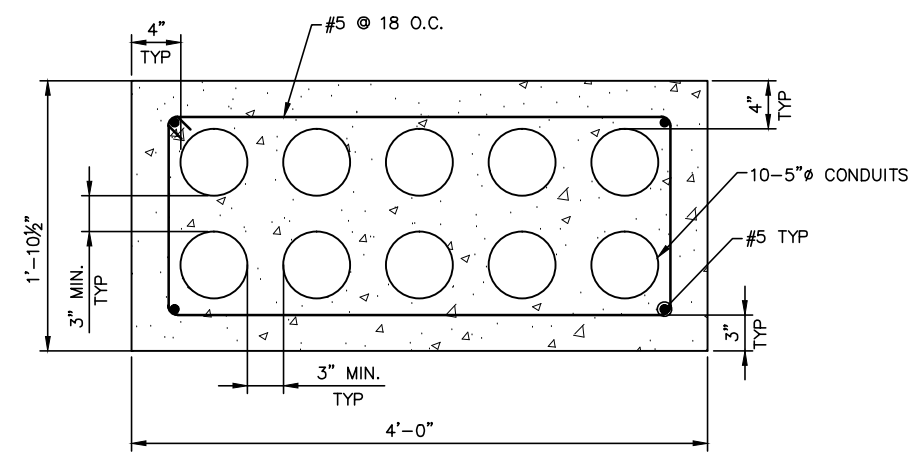
12 TYPE 12
SCALE: 1 1/2"=1'-0"



12V TYPE 12V
SCALE: 1 1/2"=1'-0"



16 TYPE 16
SCALE: 1 1/2"=1'-0"



10 TYPE 10
SCALE: 1 1/2"=1'-0"

- NOTES:
1. TOP OF DUCTBANK IS 3'-0" MIN. BELOW FINISHED GRADE FOR SC AND 4'-0" MIN. BELOW FINISHED GRADE FOR TE
 2. MINIMUM 3000 PSI CONCRETE COMPRESSIVE STRENGTH WITH ASTM A-615 GRADE 60 REINFORCING BARS
 3. LAP SPlice LENGTH PER ACI 318-11 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
 4. SEE SPECIFICATIONS FOR MORE DETAILED CONCRETE REQUIREMENTS

[illegible]**AECOM**

60% SUBMISSION - 09/28/15

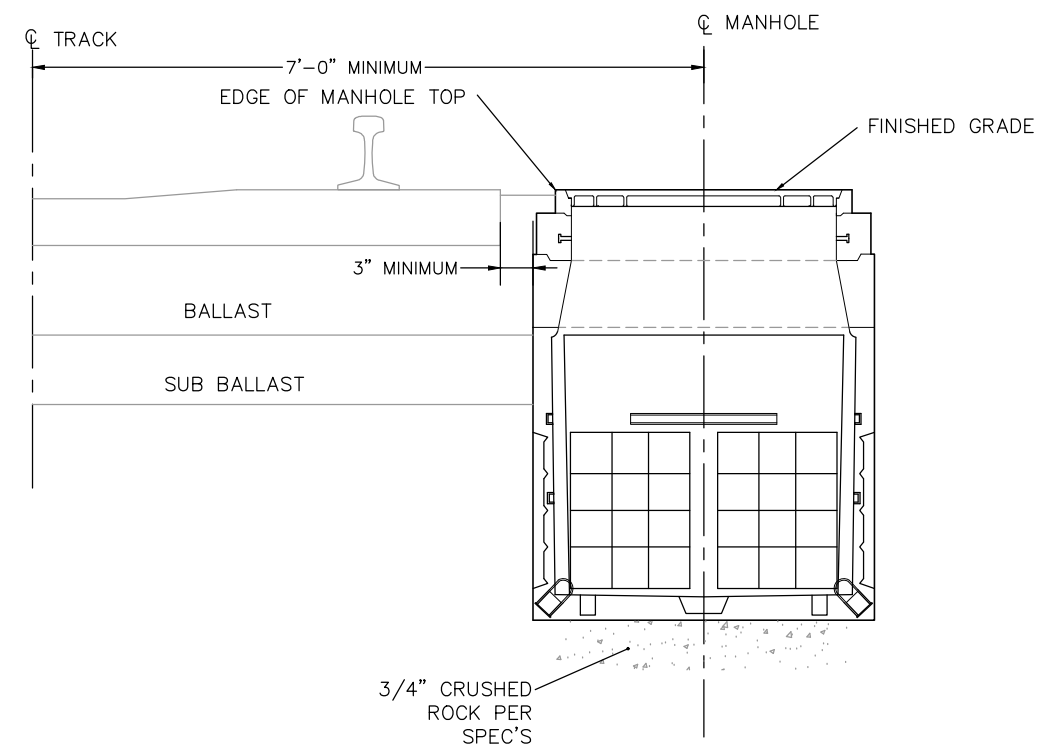


CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
DETAILS
DUCTBANK SECTIONS

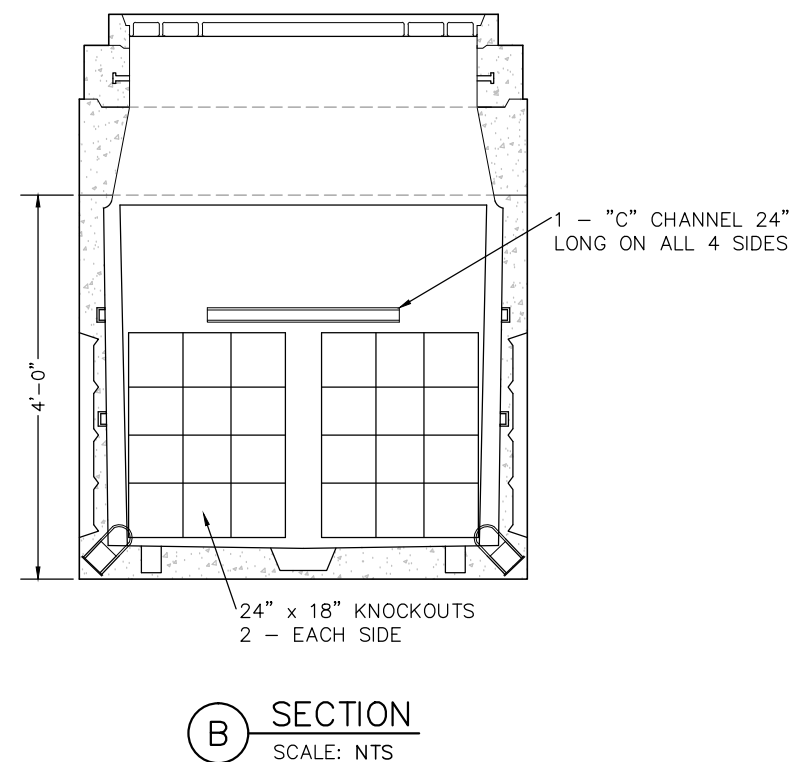
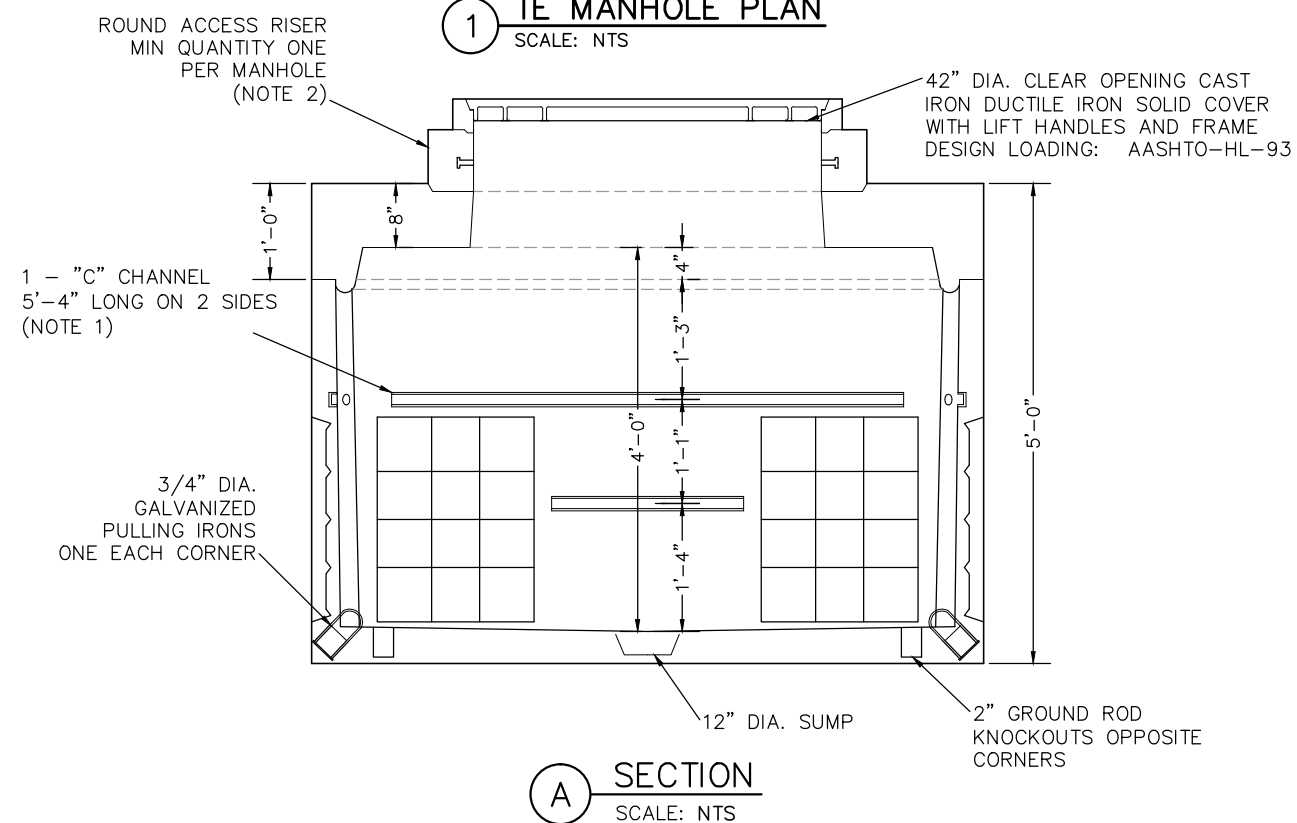
DISCIPLINE: **STRUCTURAL**

SHEET NAME:	W0-SYS-STU-DTL-001
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SHEET
111
OF
162



2 TE MANHOLE TYPICAL INSTALLATION



- NOTE:
1. INSTALL SIX CABLE RACKS WITH TWELVE INSULATORS PER MANHOLE.
 2. USE ROUND ACCESS RISERS (30" MAX) TO ACHIEVE FINAL ELEVATION.

[illegible]**AECOM**

60% SUBMISSION - 9/28/15



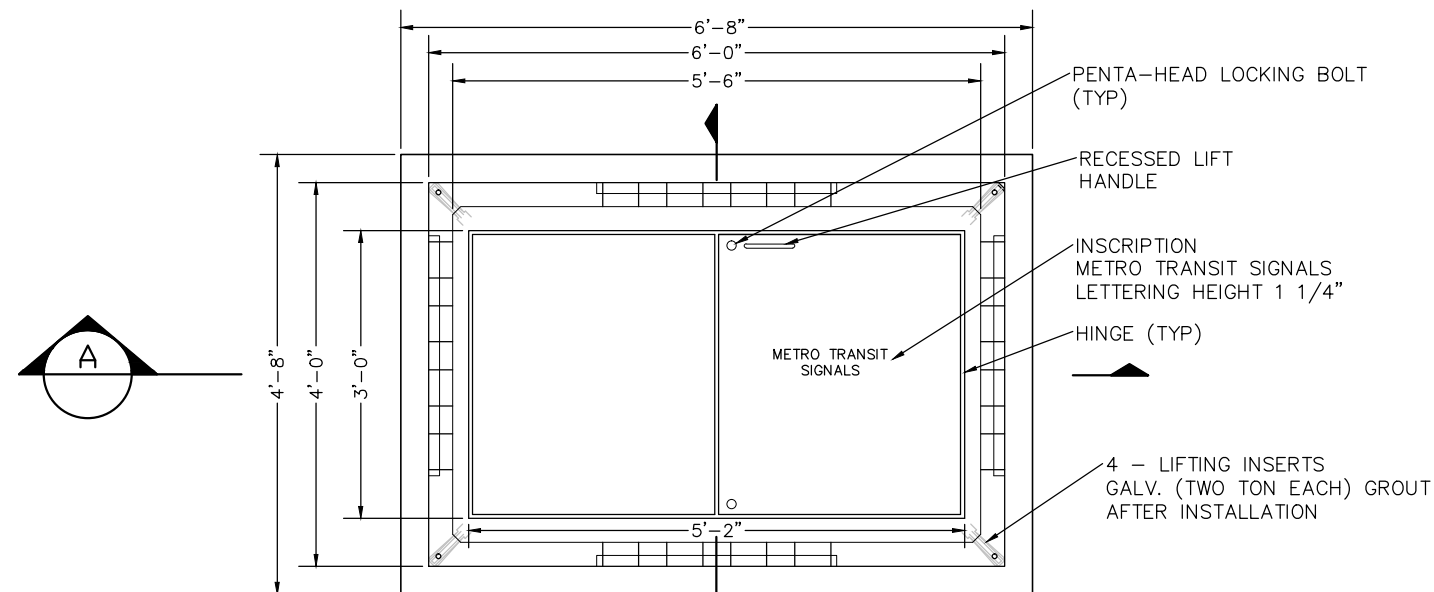
**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
DETAILS
TE MANHOLE**

DISCIPLINE: **SYSTEMS**

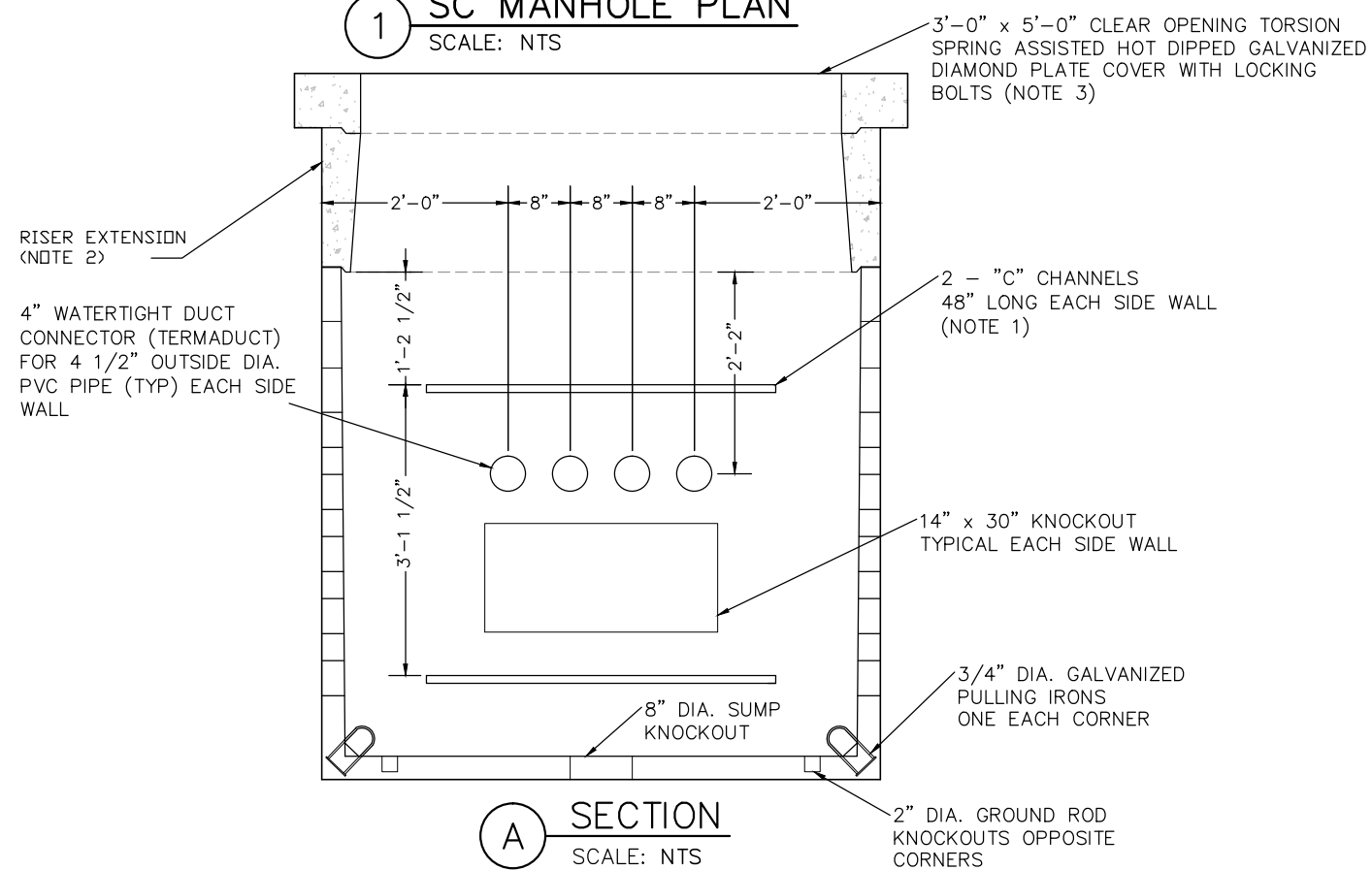
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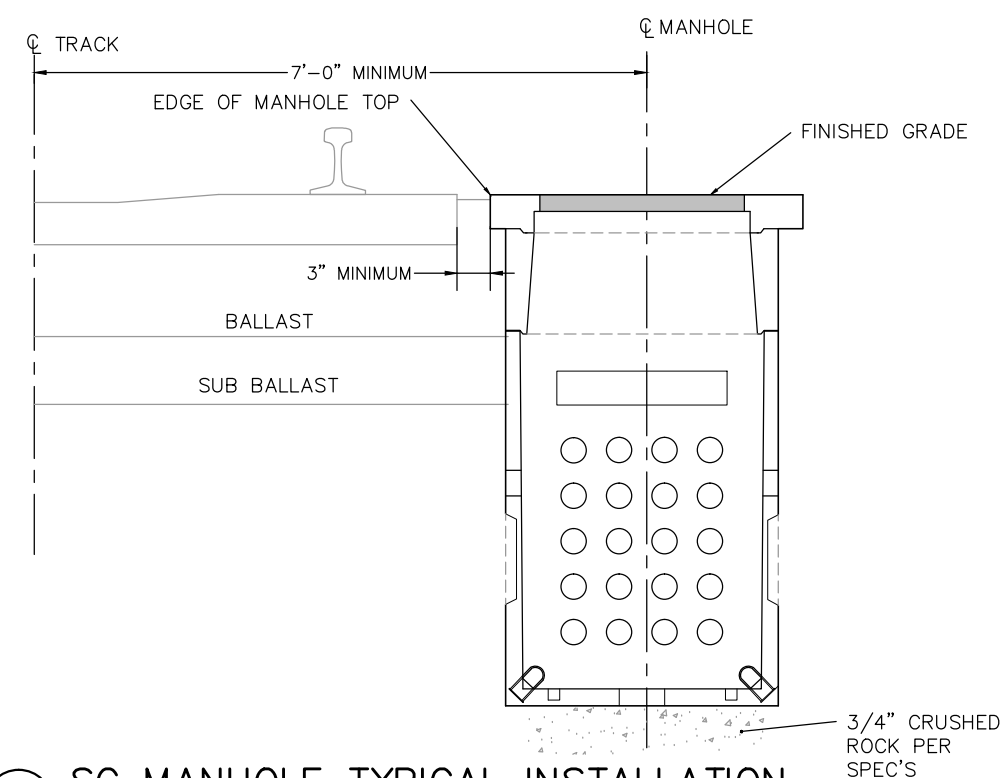
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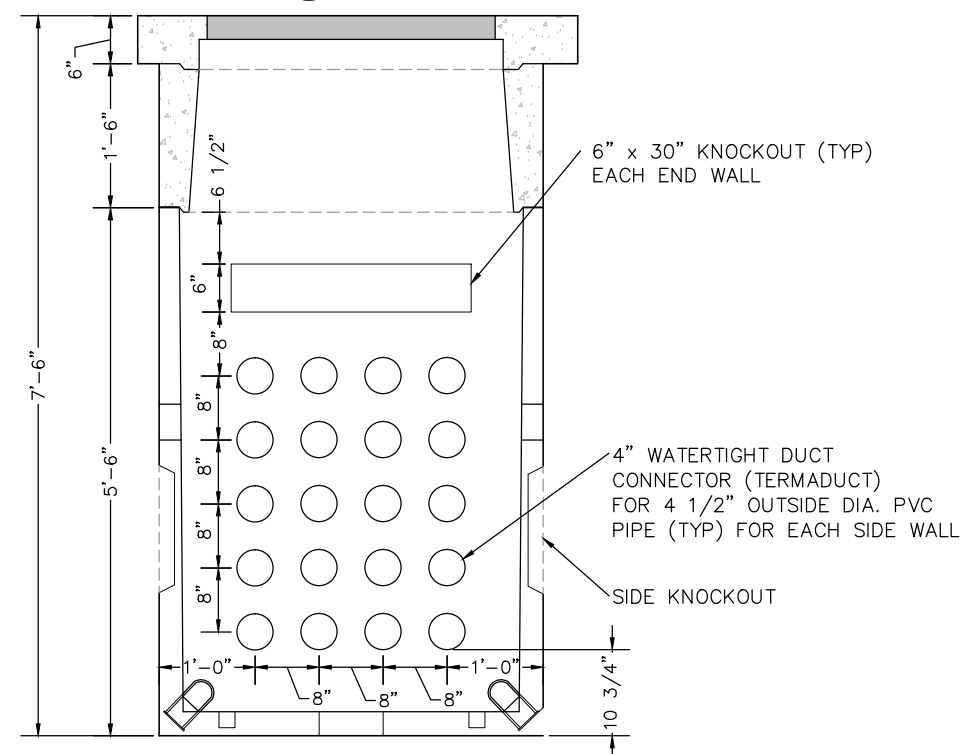
1 SC MANHOLE PLAN
SCALE: NTS



A SECTION
SCALE: NTS



2 SC MANHOLE TYPICAL INSTALLATION
SCALE: NTS



B SECTION
SCALE: NTS

- NOTE:
1. INSTALL EIGHT CABLE RACKS WITH SIXTEEN INSULATORS PER MANHOLE.
 2. USE RISER EXTENSIONS TO ACHIEVE FINAL ELEVATION.
 3. COVERS SHALL BE DESIGNED TO WITHSTAND AASHTO HL-93 WHEEL LOADINGS. SUITABLE FOR USE IN OFF STREET LOCATIONS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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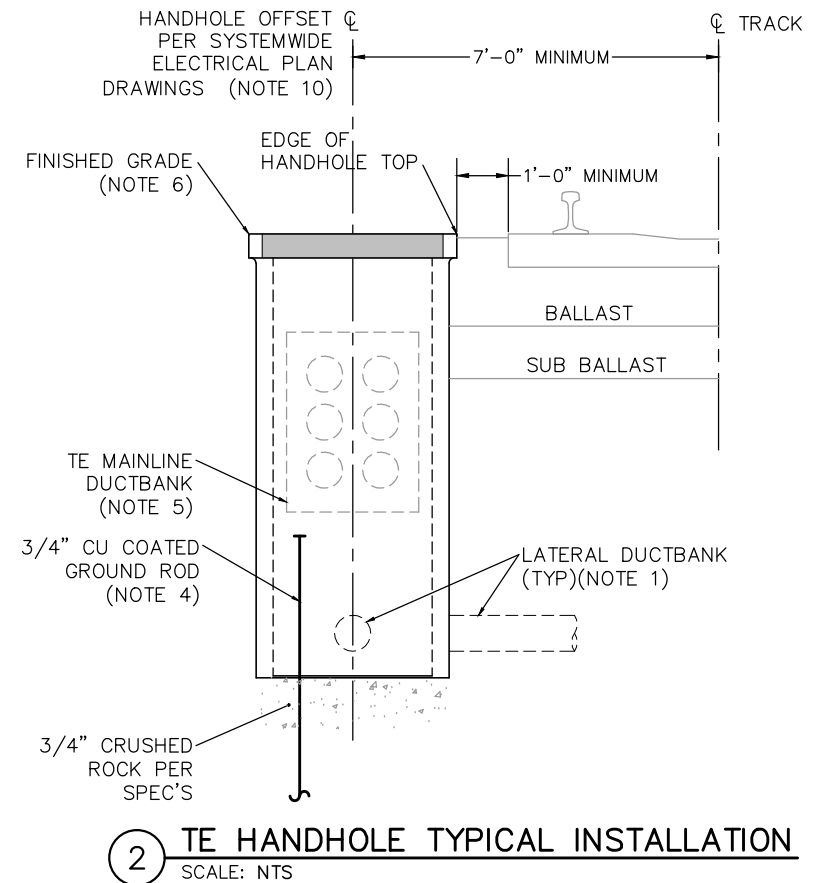
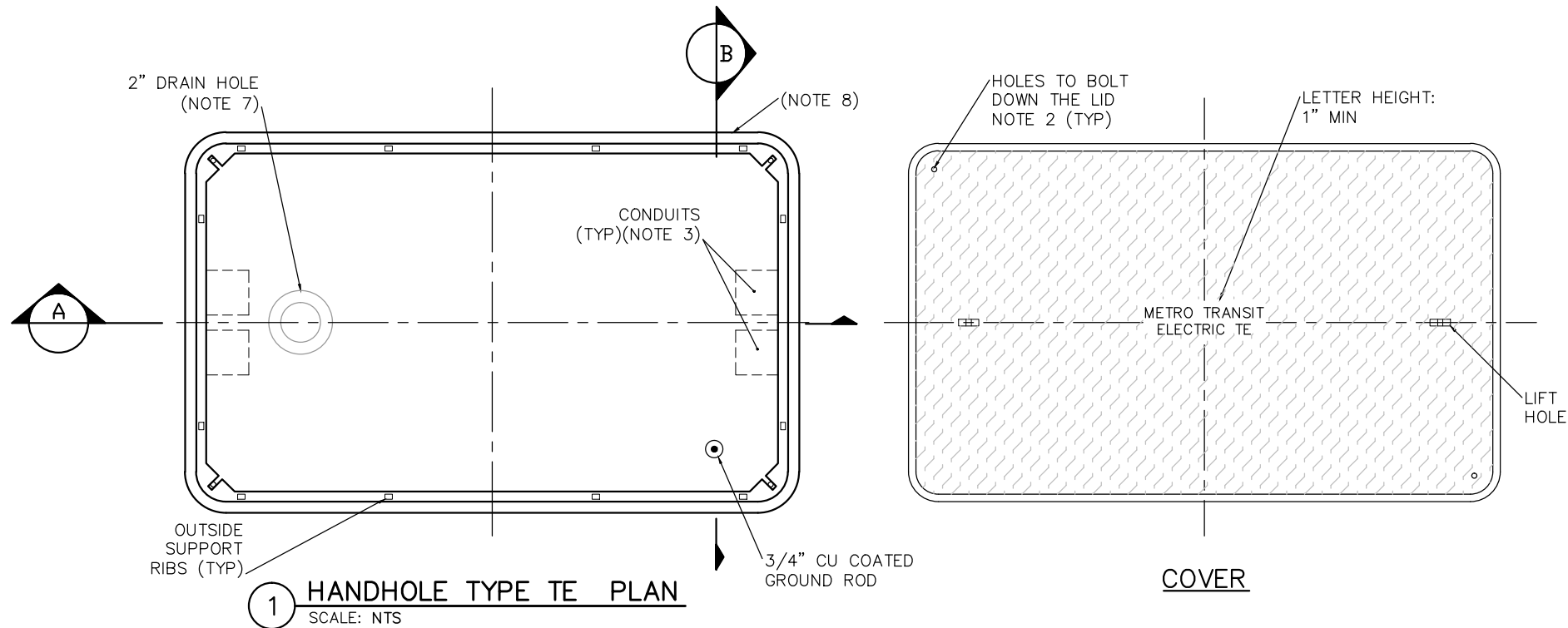
CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
DETAILS
SC MANHOLE

DISCIPLINE:
SYSTEMS

SHEET NAME:
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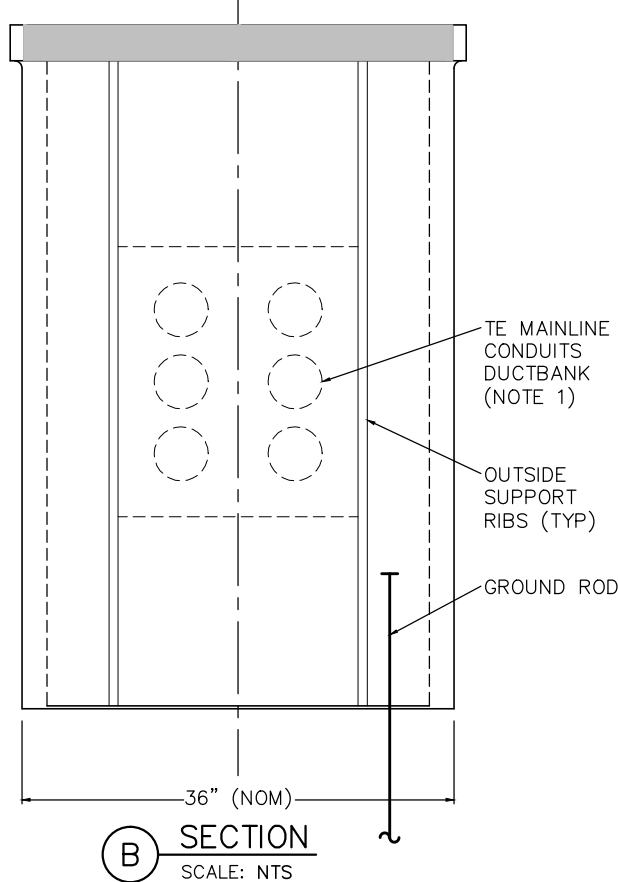
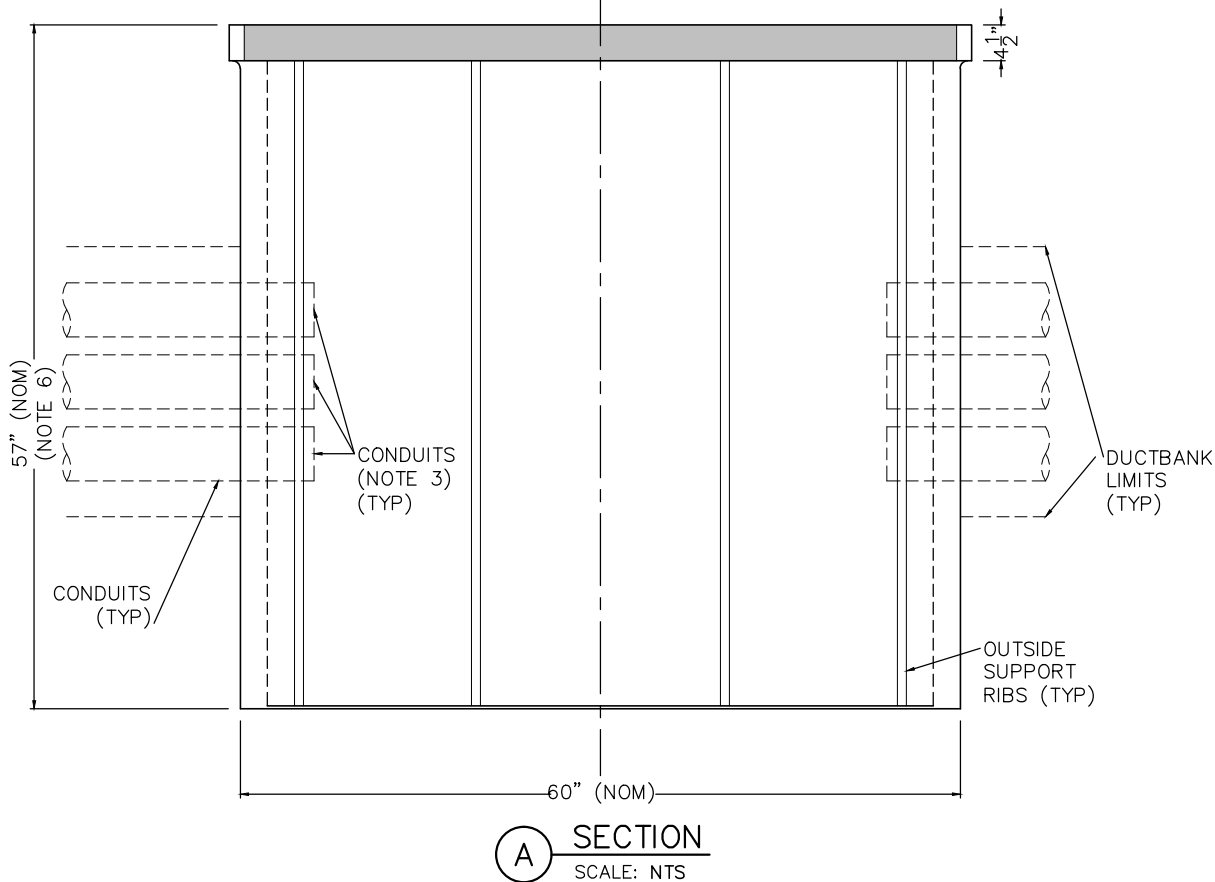
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113
OF
162

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NOTES:

1. CONDUITS SHOWN ARE FOR EXAMPLE ONLY. ADDITIONAL CONDUITS MAY BE REQUIRED AS SHOWN ON THE PLAN SHEETS.
2. SEE SPECIFICATIONS REGARDING HOLD-DOWN BOLTS FOR COVERS.
3. CONDUITS SHALL EXTEND INTO THE HANDHOLE A MAXIMUM OF 1" FROM THE INSIDE WALL AND TERMINATE WITH BELL END FITTINGS.
4. INSTALL GROUND ROD CAUTIOUSLY TO AVOID DAMAGE TO POSSIBLE UTILITY INSTALLATIONS.
5. ADJUST CONDUIT ENTRY INTO THE HANDHOLE TO CREATE POSITIVE CONDUIT DRAINAGE AND TO ENTER CENTER OF HANDHOLE.
6. ADJUST DEPTH OF HANDHOLE TO ASSURE THAT COVER IS FLUSH WITH FINISHED GRADE. FOR LOCATIONS ON BRIDGES AND LAND BRIDGES TOP OF HANDHOLE IS TO BE AT THE SAME ELEVATION AS TOP OF RAIL.
7. LOCATE DRAIN HOLE ON LOWER END OF HANDHOLE AND PROVIDE STAINLESS STEEL SNAP-IN TYPE GRATE.
8. HANDHOLE MANUFACTURER IS SYNERTECH, MODEL NO. S3660C60FA OR APPROVED EQUAL.
9. SPECIAL HANDHOLE TYPES MAY BE REQUIRED AT SOME LOCATIONS.
10. HANDHOLE OFFSET DIMENSION IS VARIABLE. FINAL PLACEMENT OF HANDHOLE SHALL ASSURE THAT HANDHOLE TOP DOES NOT CONFLICT WITH TRACK CONSTRUCTION.



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SOUTHWEST
Green Line Light Extension



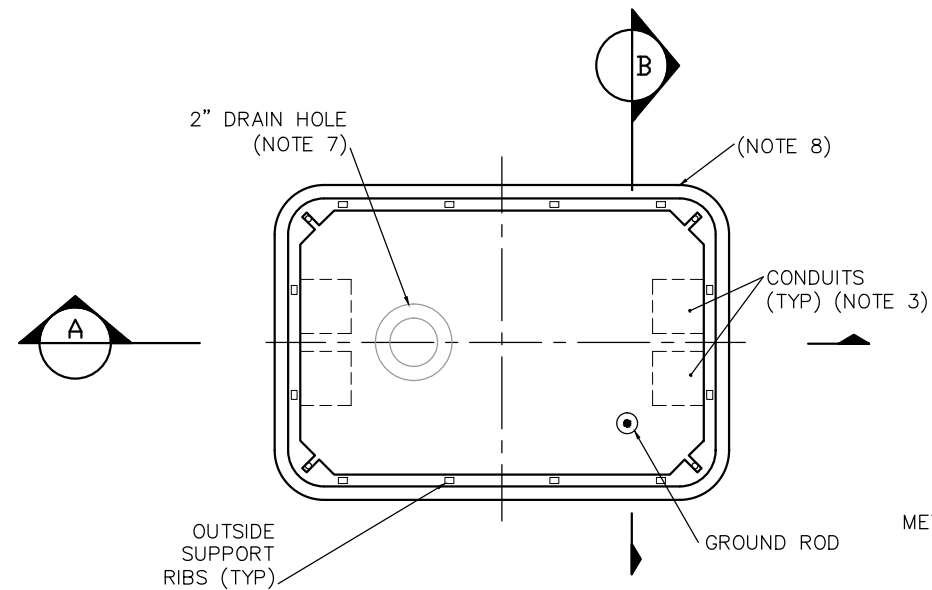
CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
DETAILS
TE HANDHOLE

DISCIPLINE:
SYSTEMS

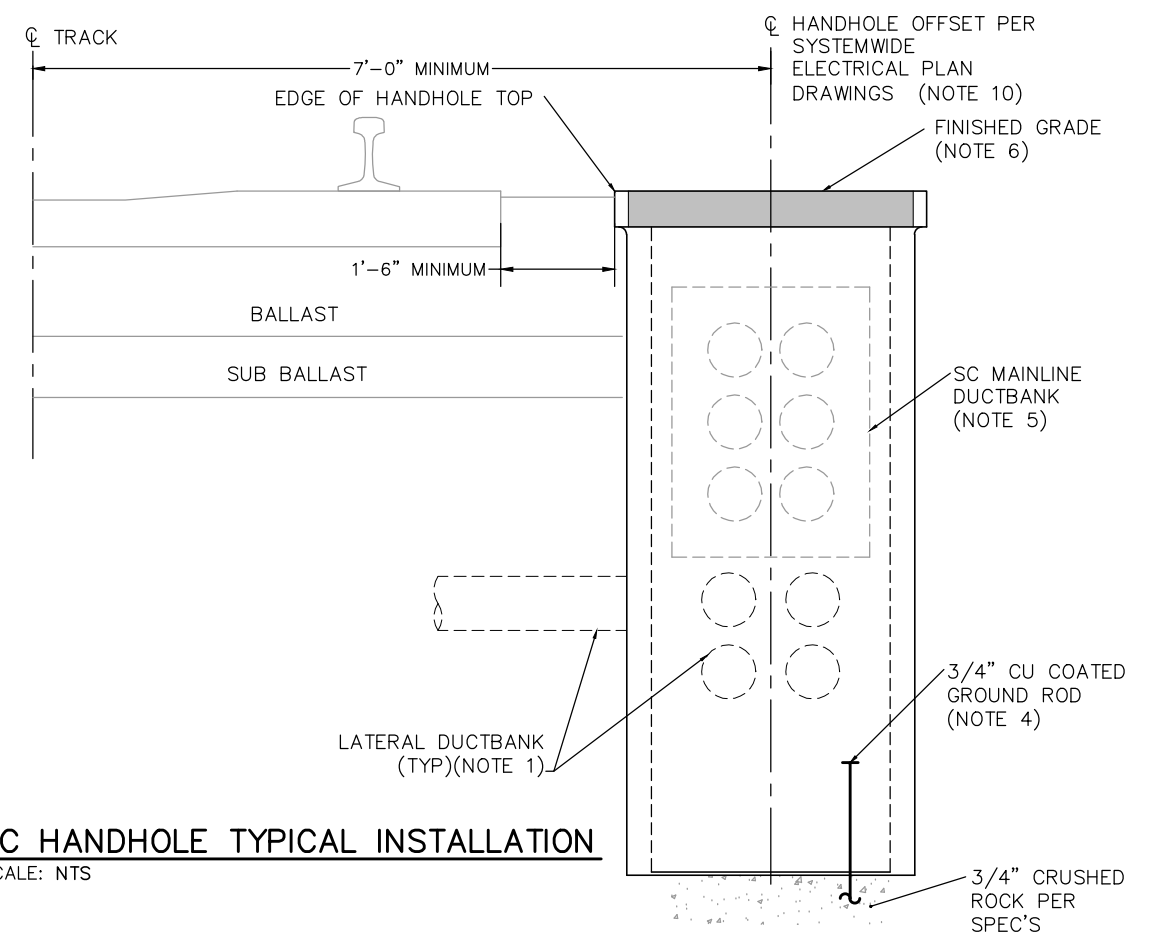
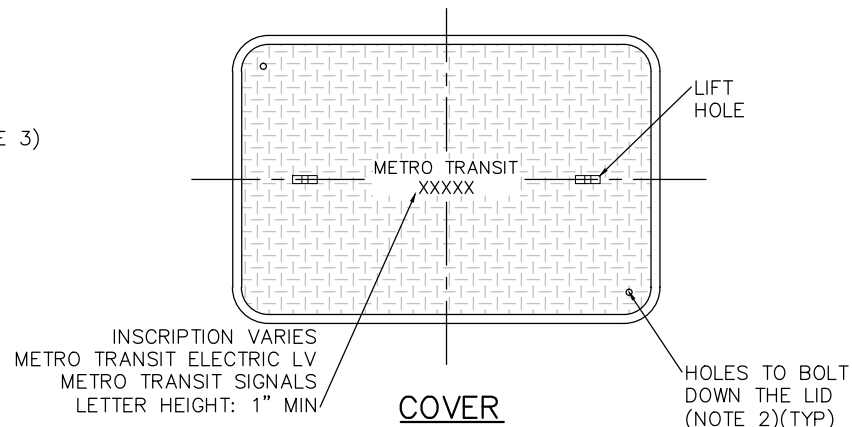
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114
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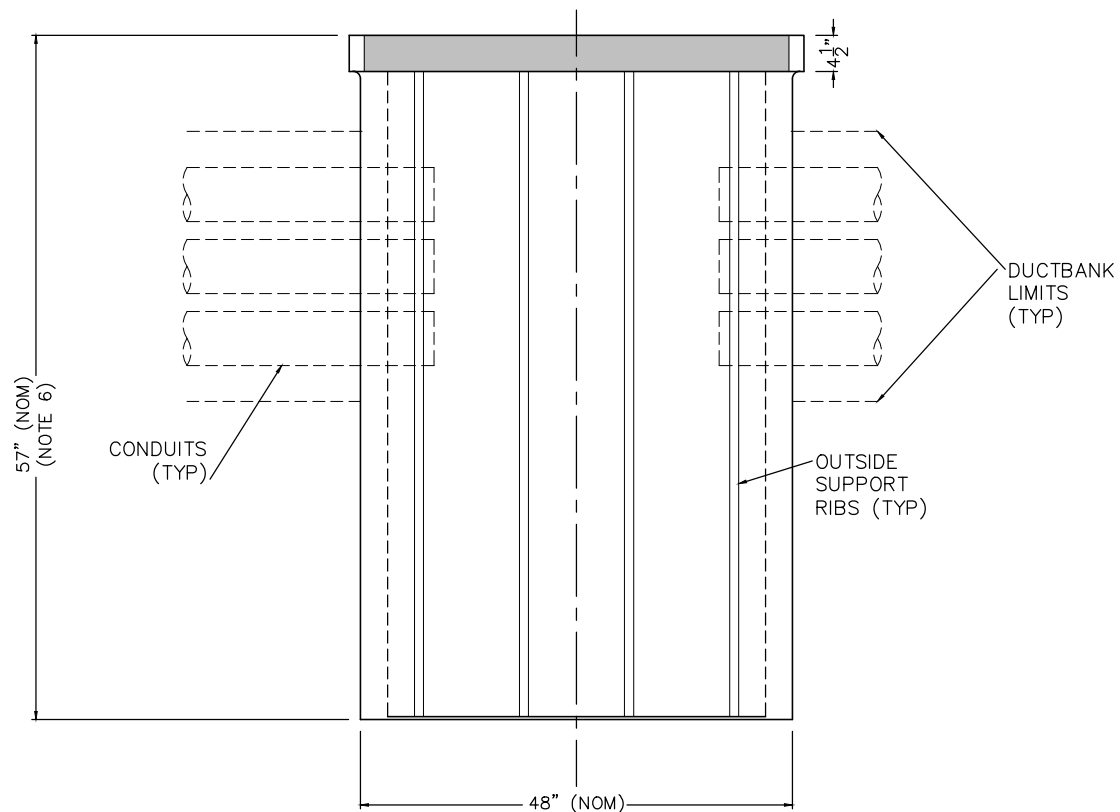
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SCALE: NTS



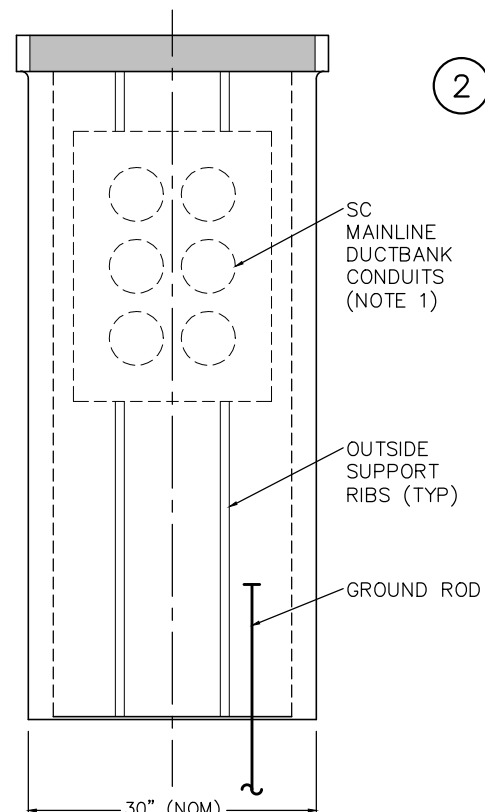
2 SC HANDHOLE TYPICAL INSTALLATION
SCALE: NTS

NOTES:

1. CONDUITS SHOWN ARE FOR EXAMPLE ONLY. ADDITIONAL CONDUITS MAY BE REQUIRED AS SHOWN ON THE PLAN SHEETS.
2. SEE SPECIFICATIONS REGARDING HOLD-DOWN BOLTS FOR COVERS.
3. CONDUITS SHALL EXTEND INTO THE HANDHOLE A MAXIMUM OF 1" FROM THE INSIDE WALL AND TERMINATE WITH BELL END FITTINGS.
4. INSTALL GROUND ROD CAUTIOUSLY TO AVOID DAMAGE TO POSSIBLE UTILITY INSTALLATIONS.
5. ADJUST CONDUIT ENTRY INTO THE HANDHOLE TO CREATE POSITIVE CONDUIT DRAINAGE AND TO ENTER CENTER OF HANDHOLE.
6. ADJUST DEPTH OF HANDHOLE TO ASSURE THAT COVER IS FLUSH WITH FINISHED GRADE. FOR LOCATIONS ON BRIDGES AND LAND BRIDGES TOP OF HANDHOLE IS TO BE AT THE SAME ELEVATION AS TOP OF RAIL.
7. LOCATE DRAIN HOLE ON LOWER END OF HANDHOLE AND PROVIDE STAINLESS STEEL SNAP-IN TYPE GRATE.
8. HANDHOLE MANUFACTURER IS SYNERTECH, MODEL NO. S3048C60FA OR APPROVED EQUAL.
9. SPECIAL HANDHOLE TYPES MAY BE REQUIRED FOR SOME LAYOUTS.
10. HANDHOLE OFFSET DIMENSION IS VARIABLE. FINAL PLACEMENT OF HANDHOLE SHALL ASSURE THAT HANDHOLE TOP DOES NOT CONFLICT WITH TRACK CONSTRUCTION.



A SECTION
SCALE: NTS



B SECTION
SCALE: NTS

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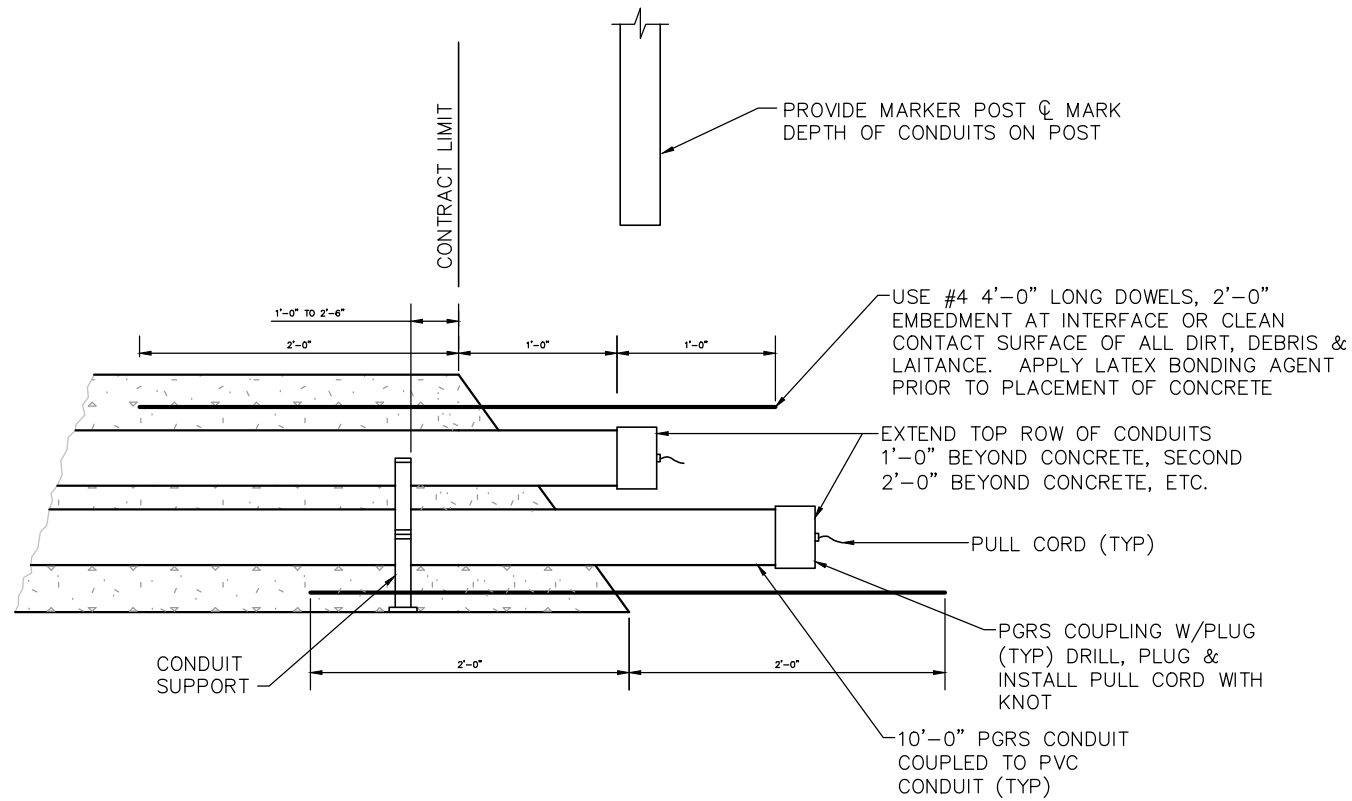
CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
DETAILS
SC HANDHOLE

DISCIPLINE:
SYSTEMS

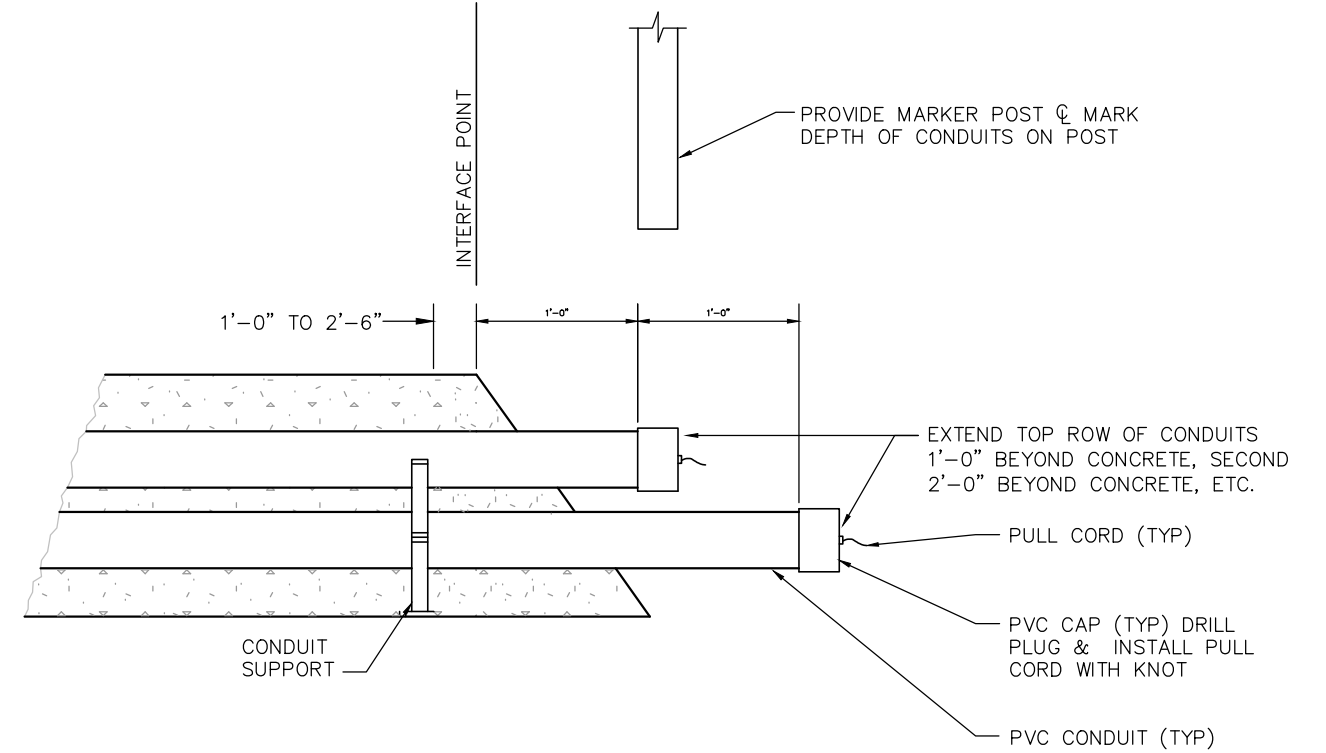
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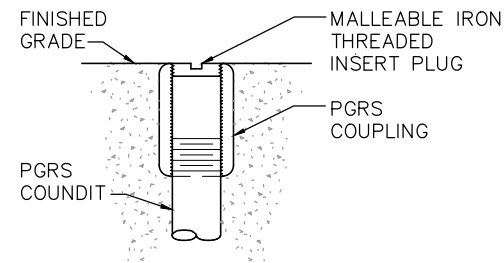
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1 TYPICAL DUCTBANK CONDUIT STUB-OUT AT CONTRACT LIMIT
SCALE: NTS



2 CONDUIT STUB-OUT AT INTERFACE
SCALE: NTS



3 FLUSH CONDUIT STUB-UP
SCALE: NTS

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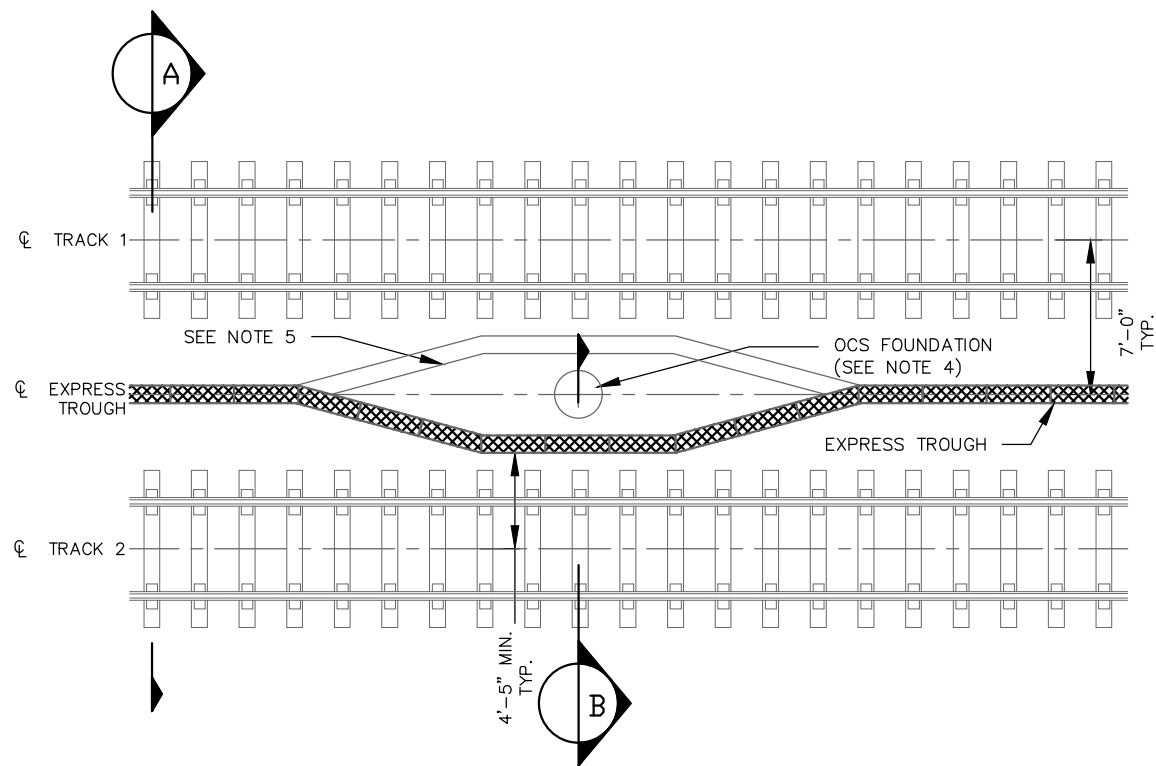
**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
DETAILS
CONDUIT STUB-OUT AND STUB-UP**

DISCIPLINE: **SYSTEMS**

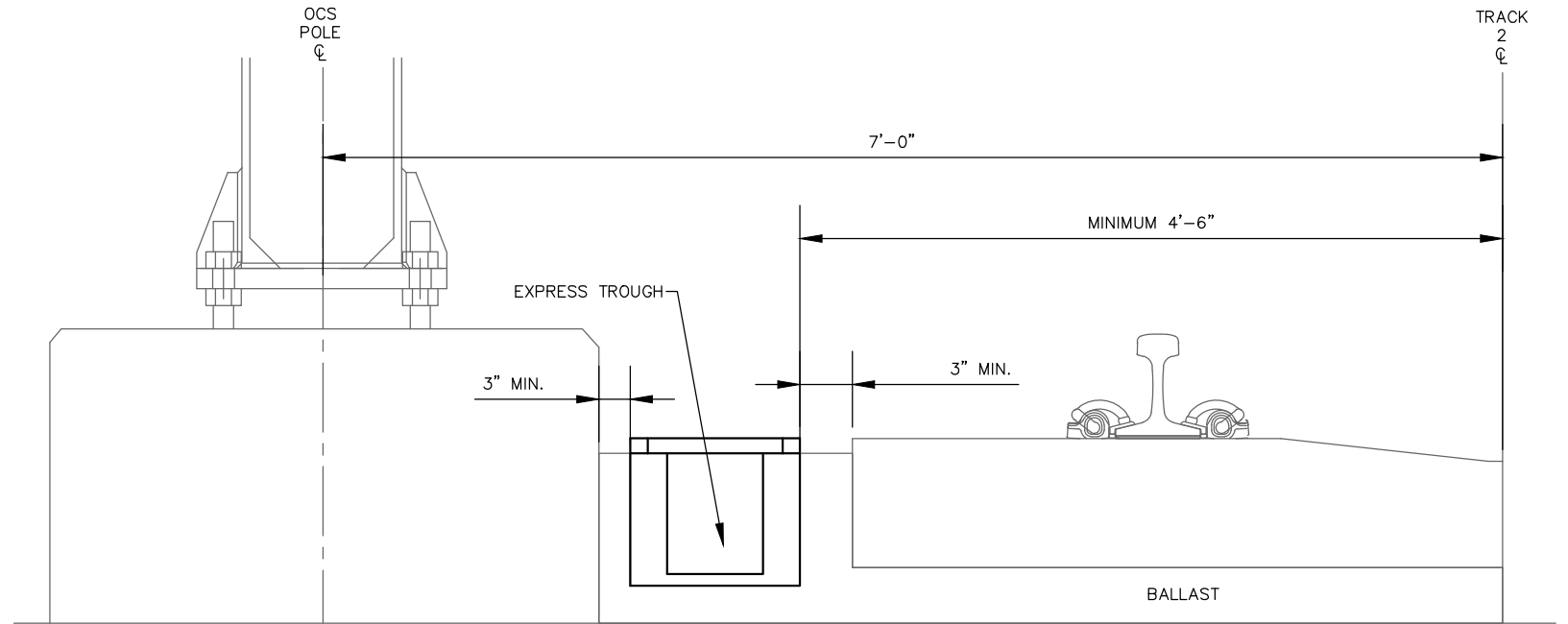
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OF
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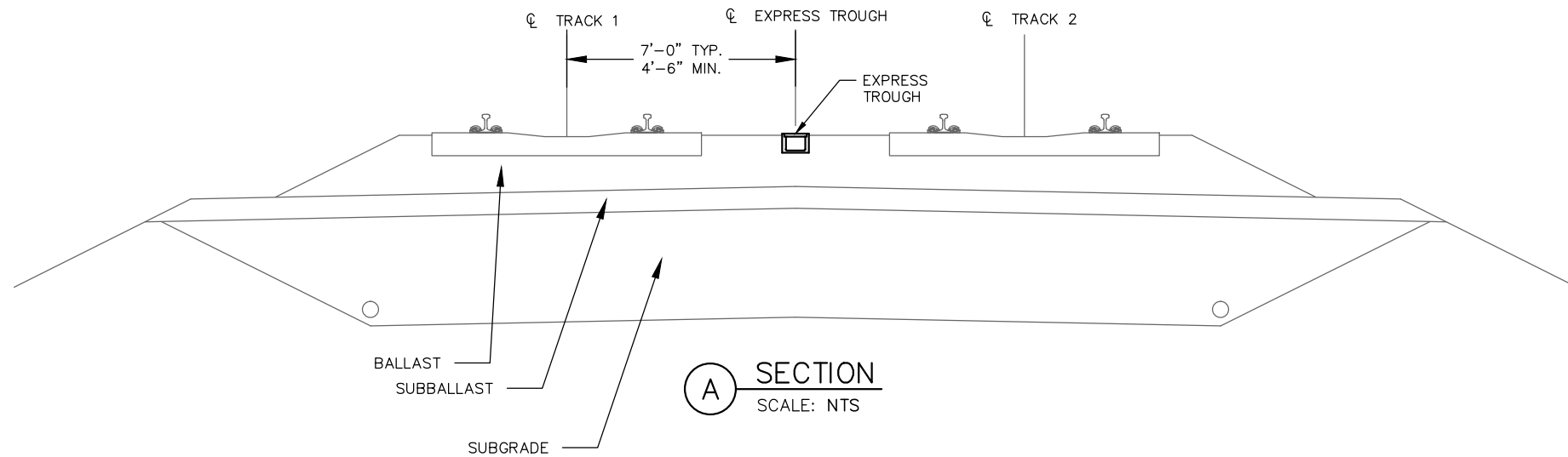
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1 TYPICAL EXPRESS TROUGH LAYOUT
NTS



B TYPICAL EXPRESS TROUGH LAYOUT INSTALLATION
NTS



A SECTION
SCALE: NTS

NOTES:

1. THE CONTRACTOR SHALL SECURE THE TROUGH IN-PLACE, SO THERE IS NO MOVEMENT WHILE THE BALLAST IS BEING LAYED AROUND THE TROUGH.
2. THE EXPRESS TROUGH SHALL BE INSTALLED 7 FEET OFF THE CENTERLINE OF THE TROUGH UNLESS NOTED OTHERWISE. AT OCS AND SIGNAL FOUNDATIONS OR OTHER STRUCTURE, THE CONTRACTOR SHALL OFFSET THE TROUGH SECTIONS IN EQUAL INCREMENTS TOWARD THE TRACK SO THAT THE TROUGH WILL PASS THE OCS FOUNDATION AT 4'-5" FROM THE CENTERLINE OF THE TRACK TO THE CLOSEST EDGE OF THE TROUGH. (SEE TYPICAL EXPRESS TROUGH LAYOUT INSTALLATION DETAIL 1).
3. THE CONTRACTOR SHALL INSTALL THE TROUGH TO INTERSECT THE MANHOLE AT A 90° ANGLE.
4. THE DISTANCE BETWEEN THE EDGE OF THE TIE AND THE OCS FOUNDATION WILL VARY DUE TO THE SIZING AND OFFSET OF THE FOUNDATION FOR THE OCS POLES.
5. BASED ON VERIFIED FIELD CONDITIONS, THE CONTRACTOR SHALL DETERMINE ON WHICH SIDE OF THE OCS FOUNDATION TO INSTALL EXPRESS TROUGH.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

60% SUBMISSION - 9/28/15



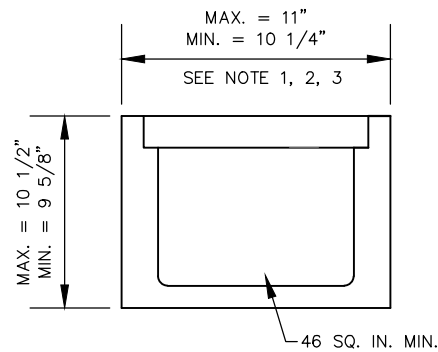
CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
DETAILS
EXPRESS TROUGH INSTALLATION SHEET 1

DISCIPLINE: **SYSTEMS**

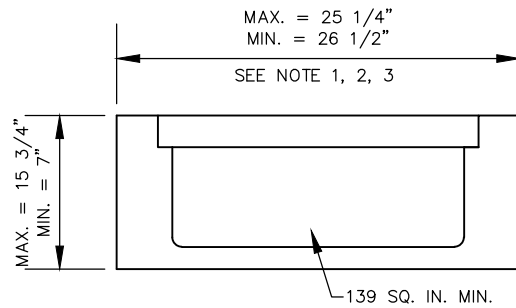
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SHEET
117
OF
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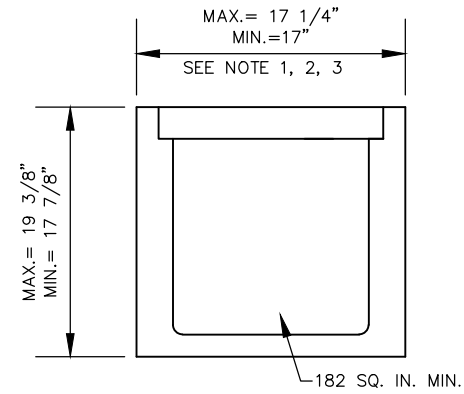
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1 TYPE I EXPRESS TROUGH
SCALE: NTS



2 TYPE II EXPRESS TROUGH
SCALE: NTS



3 TYPE III EXPRESS TROUGH
SCALE: NTS

- NOTES:
1. THE CONTRACTOR SHALL SECURE THE TROUGH IN-PLACE, SO THERE IS NO MOVEMENT WHILE THE BALLAST IS BEING LAYED AROUND THE TROUGH.
 2. THE EXPRESS TROUGH SHALL BE INSTALLED 7 FEET OFF THE CENTERLINE OF THE TROUGH UNLESS NOTED OTHERWISE. AT OCS AND SIGNAL FOUNDATIONS OR OTHER STRUCTURE, THE CONTRACTOR SHALL OFFSET THE TROUGH SECTIONS IN EQUAL INCREMENTS TOWARD THE TRACK SO THAT THE TROUGH WILL PASS THE OCS FOUNDATION AT 4'-5" FROM THE CENTERLINE OF THE TRACK TO THE CLOSEST EDGE OF THE TROUGH. (SEE TYPICAL EXPRESS TROUGH LAYOUT INSTALLATION DETAIL 1).
 3. THE CONTRACTOR SHALL INSTALL THE TROUGH TO INTERSECT THE MANHOLE AT A 90° ANGLE.
 4. THE DISTANCE BETWEEN THE EDGE OF THE TIE AND THE OCS FOUNDATION WILL VARY DUE TO THE SIZING AND OFFSET OF THE FOUNDATION FOR THE OCS POLES.
 5. BASED ON VERIFIED FIELD CONDITIONS, THE CONTRACTOR SHALL DETERMINE ON WHICH SIDE OF THE OCS FOUNDATION TO INSTALL EXPRESS TROUGH.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

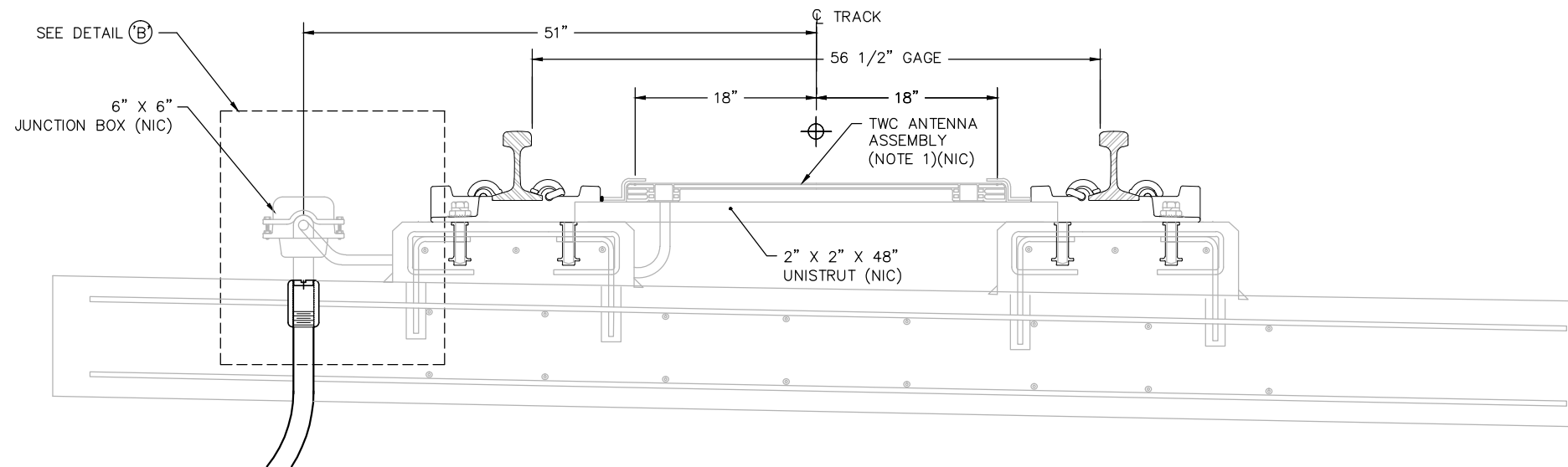
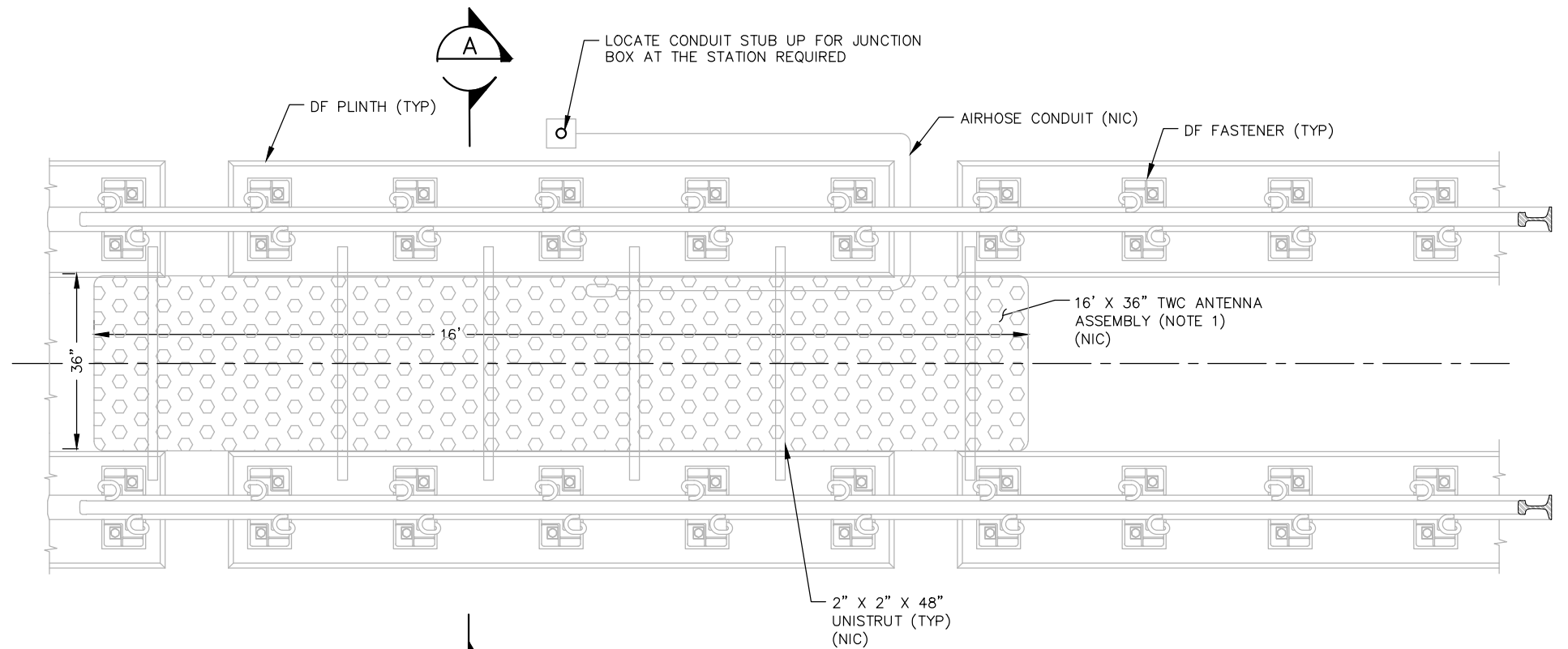
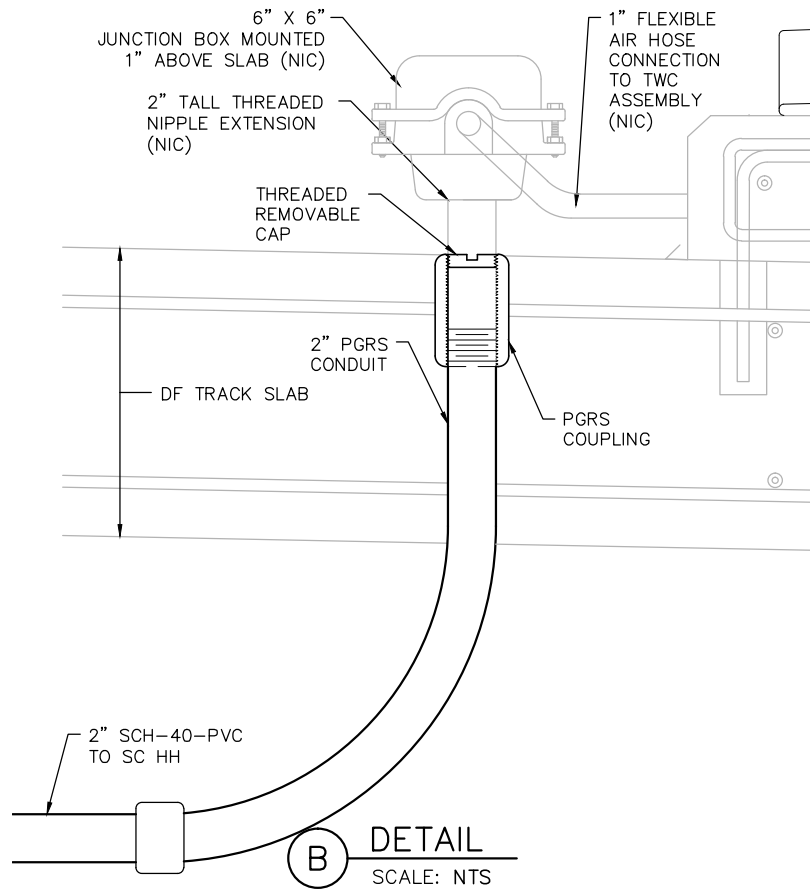


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CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
DETAILS
EXPRESS TROUGH INSTALLATION SHEET 2

DISCIPLINE: SYSTEMS
SHEET NAME: W0-SYS-SWE-DTL-008

Sep. 15 2015 05:13 pm V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\SIGNAL\TYPICALS\SWE TYPICALS\W0-SYS-SWE-DTL-010.dwg By: V-WoodsAU



NOTES:

1. FOR DIRECT FIXATION TRACK, TWC DEVICES ARE SHOWN FOR REFERENCE ONLY. ONLY TWC CONDUIT STUB UP IS INCLUDED IN THIS CONTRACT.
2. PLACE TWC STUB-UP ON THE FIELD SIDE OF TRACK FOR COORDINATION WITH THE NEAREST SWE HH LOCATION
3. JUNCTION BOX IS LOCATED AS A PULL BOX AND A LOCATION FOR TWC TUNING MODULE. NO GROUNDING OR TERMINALS ARE REQUIRED

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

**PARSONS
BRINCKERHOFF**

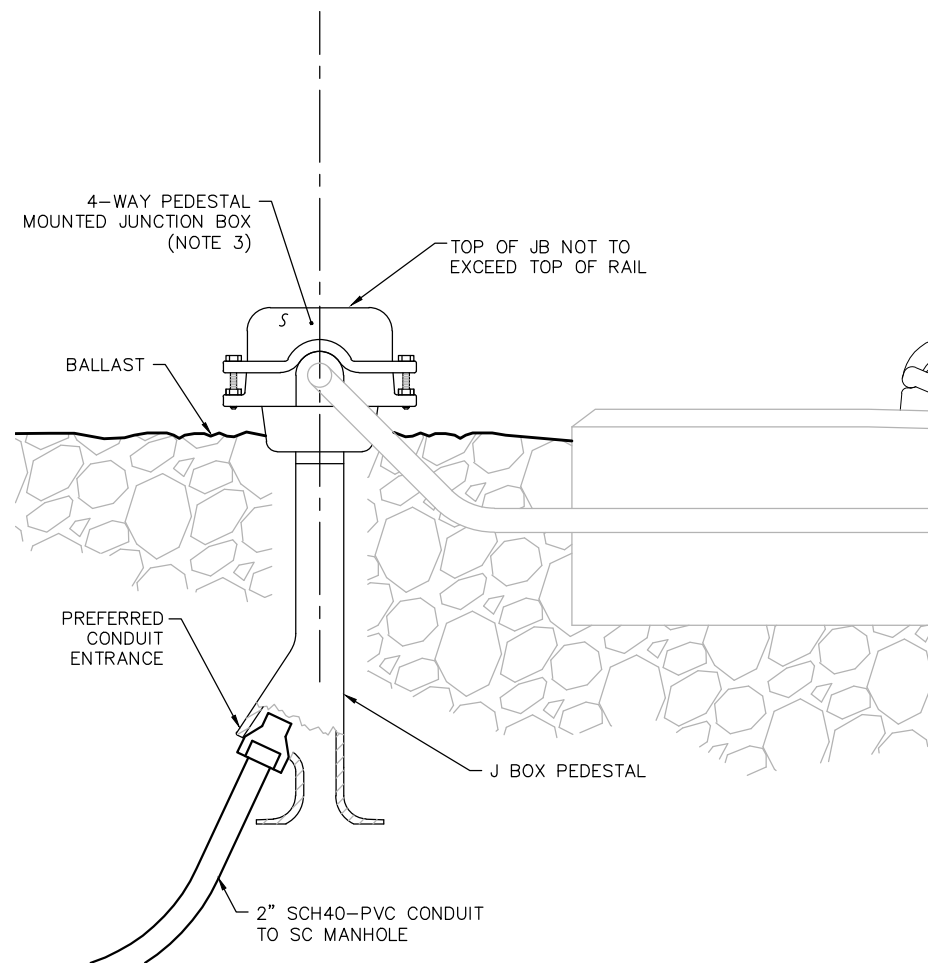


60% SUBMISSION - 09/28/2015

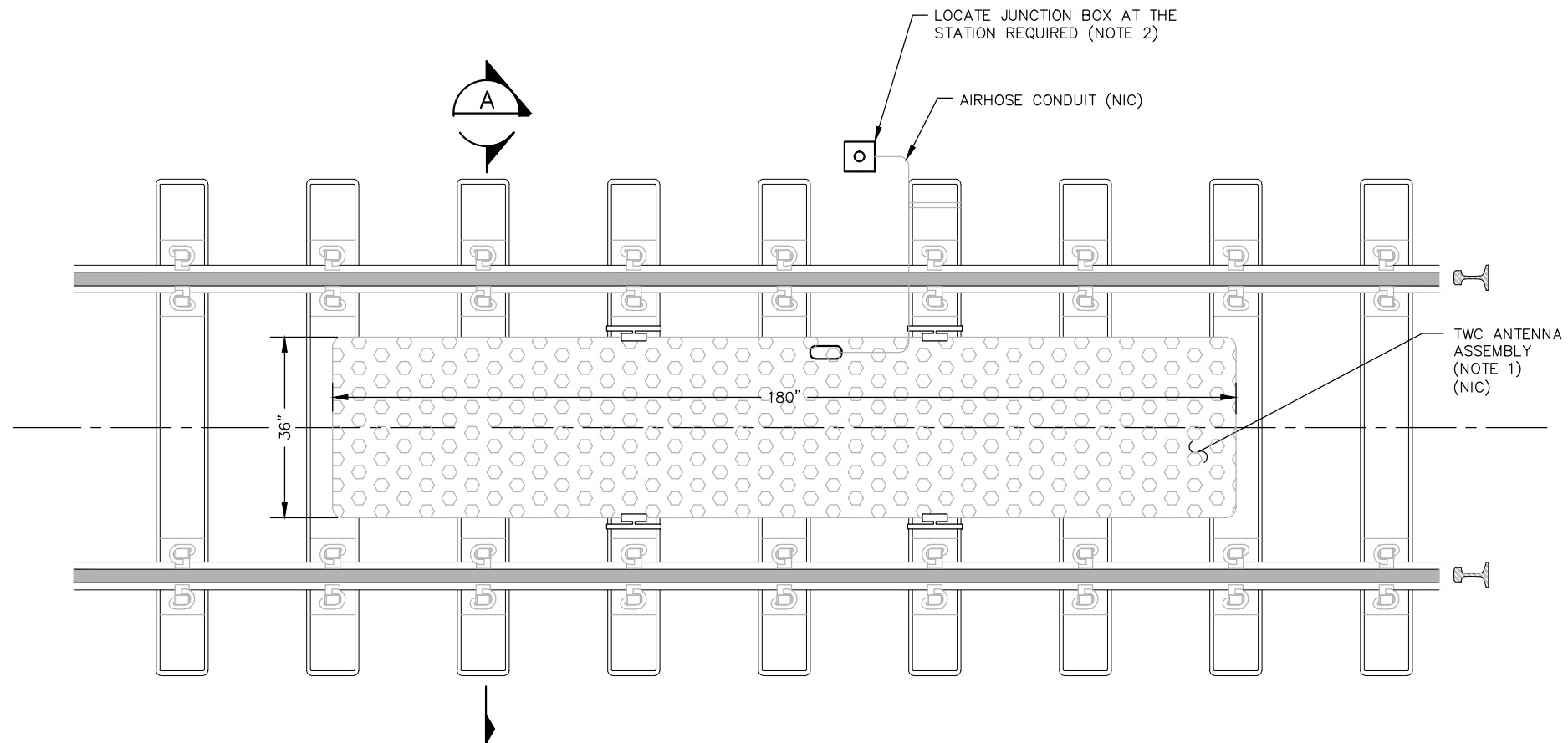
CIVIL WEST - VOLUME 12 SYSTEMWIDE ELECTRICAL TWC ANTENNA DIRECT FIXATION TRACK INSTALLATION	
DISCIPLINE: SYSTEMS	SHEET NAME: W0-SYS-SWE-DTL-010

SHEET
120
OF
162

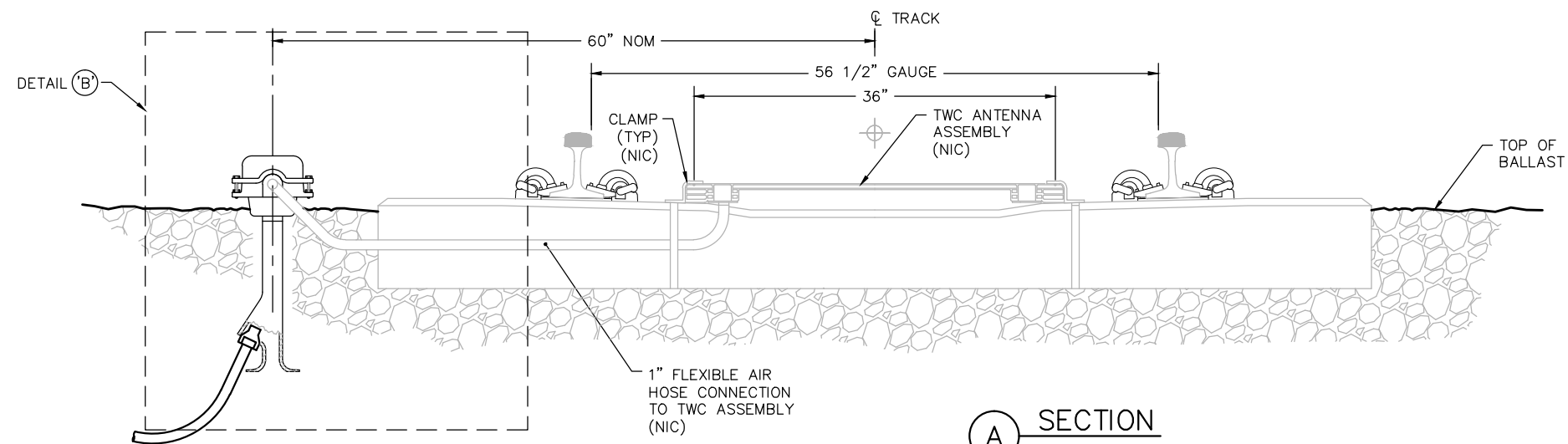
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B DETAIL
SCALE: NTS



1 PLAN
SCALE: NTS



A SECTION
SCALE: NTS

NOTES:

1. FOR BALLASTED TRACK, ALL TWC DEVICES ARE SHOWN FOR REFERENCE ONLY. ONLY CONDUIT & JUNCTION BOX ARE INCLUDED IN THIS CONTRACT
2. PLACE JUNCTION BOX ON THE FIELD SIDE OF TRACK FOR COORDINATION WITH THE NEAREST SC HH LOCATION
3. JUNCTION BOX IS LOCATED AS A PULL BOX AND A LOCATION FOR TWC TUNING MODULE. NO GROUNDING OR TERMINALS ARE REQUIRED

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

**PARSONS
BRINCKERHOFF**



SOUTHWEST
Green Line LRT Extension



**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
TWC ANTENNA
BALLASTED TRACK INSTALLATION**

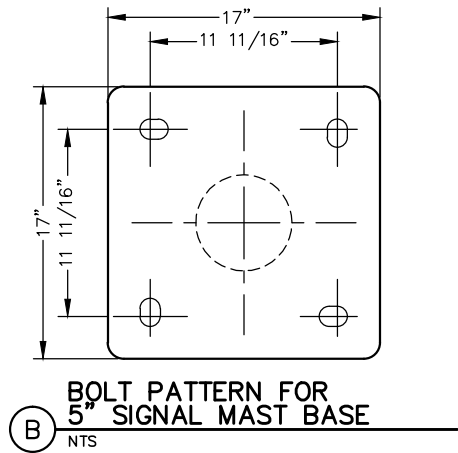
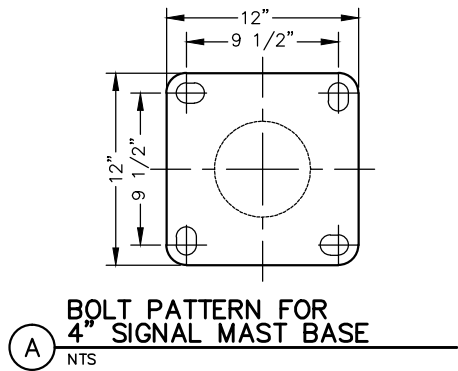
DISCIPLINE:
SYSTEMS

SHEET NAME:
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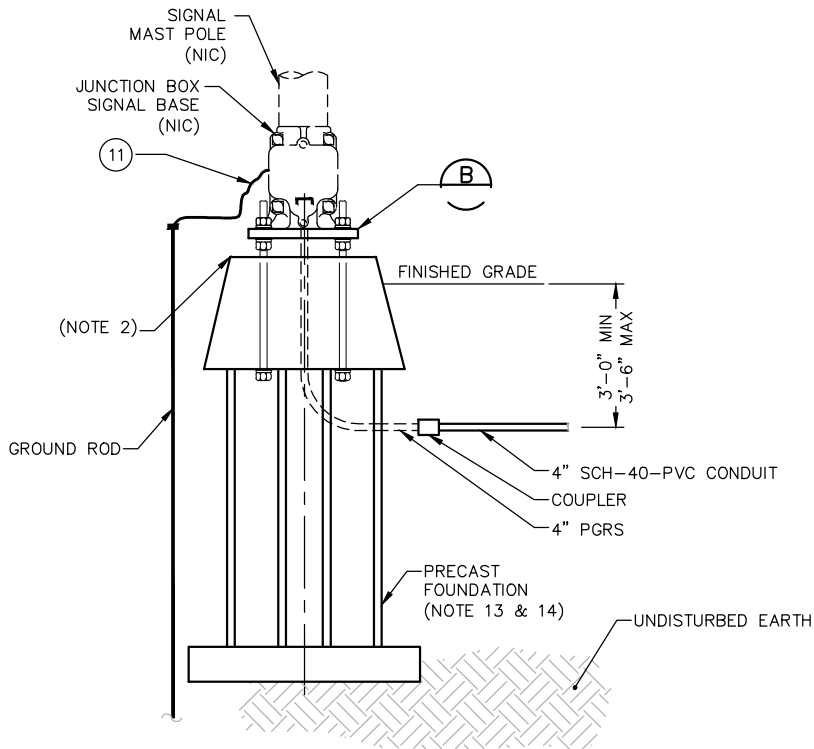
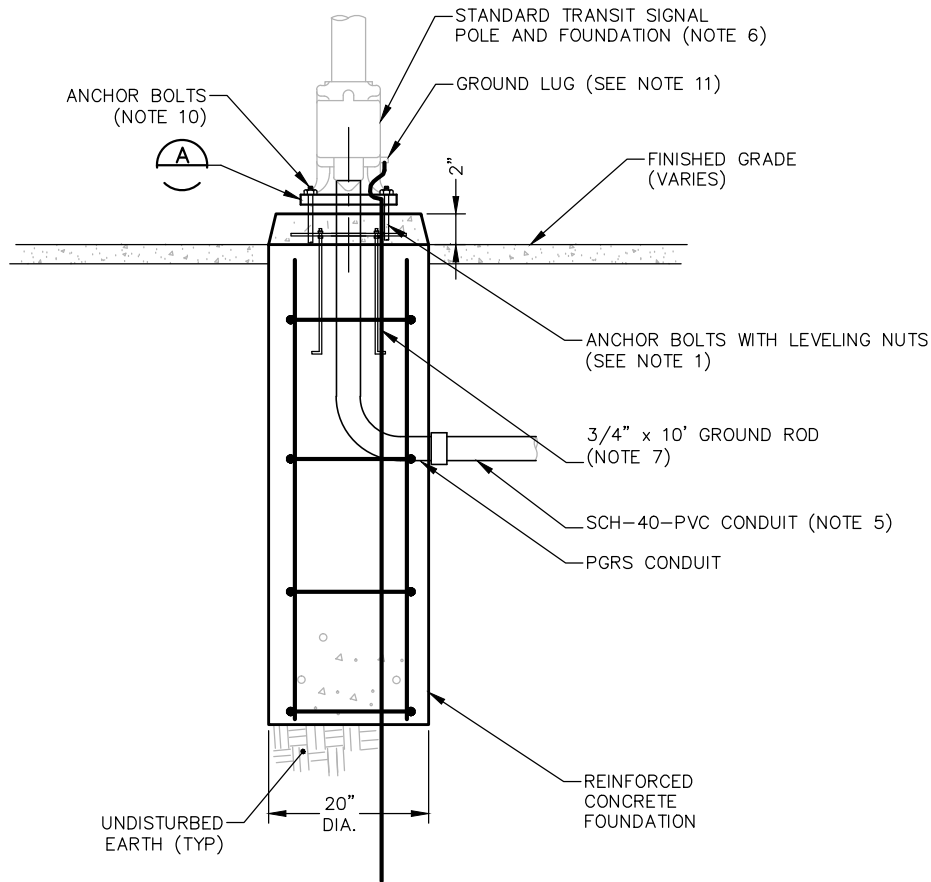
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- NOTES:
1. THE ANCHOR BOLTS, PLATE ASSEMBLIES, NUTS AND WASHERS REQUIRED FOR INSTALLATION OF THE DEVICE SHALL BE PROVIDED.
 2. ASSURE THAT REINFORCING STEEL IS ALL INTERCONNECTED VIA TIE WRAPPING OR OTHER SUITABLE MEANS AND CONNECTED TO THE ANCHOR BOLTS.
 3. THE UPPER PART OF THE FOUNDATION SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER.
 4. THE TOP OF THE CONDUITS SHALL BE CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
 5. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE FOUNDATION WHERE DIRECTED BY APPROVED DRAWINGS, AND SHALL NOT INTERFERE WITH THE JUNCTION BOX, CABLE PULLING OR OTHER DEVICE FUNCTIONS.
 6. STANDARD 4" TRANSIT SIGNAL POLE, JUNCTION BOX BASE WITH INTERNAL GROUNDING STUD AND TWELVE-WAY TERMINAL STRIP (NIC).
 7. POSITION GROUND ROD WITHIN FOUNDATION TO AVOID CONFLICT WITH STANDARD SIGNAL BASE.
 8. TRANSIT SIGNALS TO BE MIN. 76" FROM ϕ OF TANGENT TRACK, UNLESS NOTED OTHERWISE.
 9. CONTRACTOR SHALL PROVIDE DETAILED FOUNDATION DESIGN BY A MN LICENSED ENGINEER BASED ON LOAD AND SOIL CONDITIONS. DESIGN AND CALCULATIONS TO BE SUBMITTED FOR APPROVAL.
 10. ANCHOR BOLTS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE SIGNAL FUNCTIONS (SUPPORTING MEMBERS, ETC.)
 11. ATTACH TO GROUND ROD TO INTERNAL GROUND LUG WITH #2/0 GROUNDING CONDUCTOR FOR FOUNDATIONS LESS THAN 15' FROM ϕ OF TRACK. USE #6 BARE COPPER GROUNDING CONDUCTOR FOR FOUNDATIONS BEYOND 15' FROM ϕ OF TRACK. (NIC)
 12. SEE PLANS AND SCHEDULES FOR CONDUIT SIZES.
 13. CONTRACTOR SHALL DEMONSTRATE THAT THE CROSSING FOUNDATION WILL BE COMPLIANT WITH AREMA & WILL BE STRUCTURALLY ADEQUATE FOR EACH INSTALLATION
 14. CONTRACTORS GEOTECHNICAL CONSULTANT SHALL VERIFY THAT SOIL CONDITIONS ARE ADEQUATE FOR THE SIGNAL FOUNDATION DESIGN



1
NTS

TYPICAL "CAST IN PLACE" SIGNAL FOUNDATION
4" MASTS FOR TRANSIT STYLE SIGNALS

2
NTS

SIGNAL MAST POLE INSTALLATION
ON PRECAST FOUNDATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

**PARSONS
BRINCKERHOFF**

**METROPOLITAN
TRANSIT**

SOUTHWEST
Green Line Light Extension

60% SUBMISSION - 09/28/2015

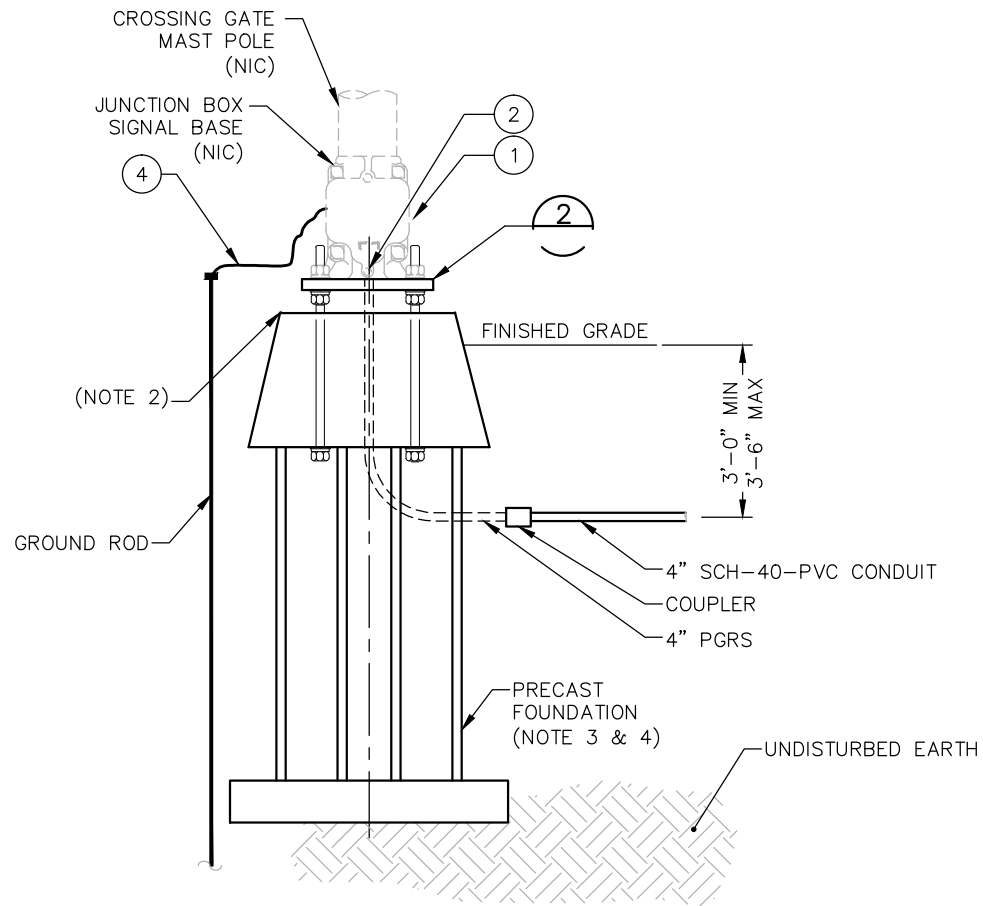
**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
WAYSIDE SIGNAL MAST
TYPICAL FOUNDATION INSTALLATION**

DISCIPLINE:
SYSTEMS

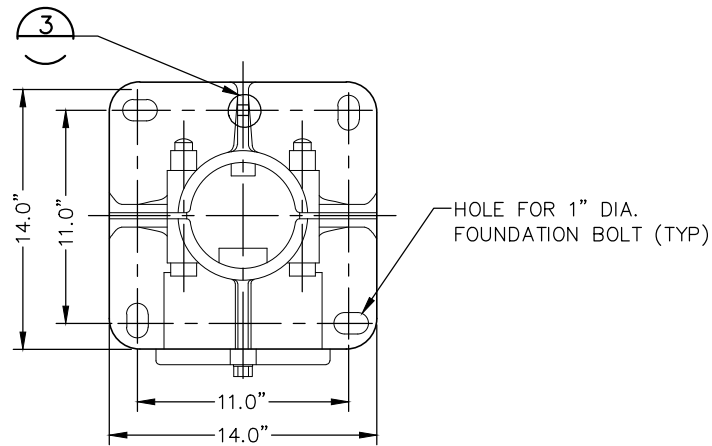
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W0-SYS-SWE-DTL-012

**SHEET
122
OF
162**

Sep. 15 2015 05:13 pm V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\SIGNAL\TYPICALS\SWE TYPICALS\W0-SYS-SWE-DTL-013.dwg By: V-WoodsAJ



1 CROSSING MAST POLE INSTALLATION ON PRECAST FOUNDATION
SCALE: NTS

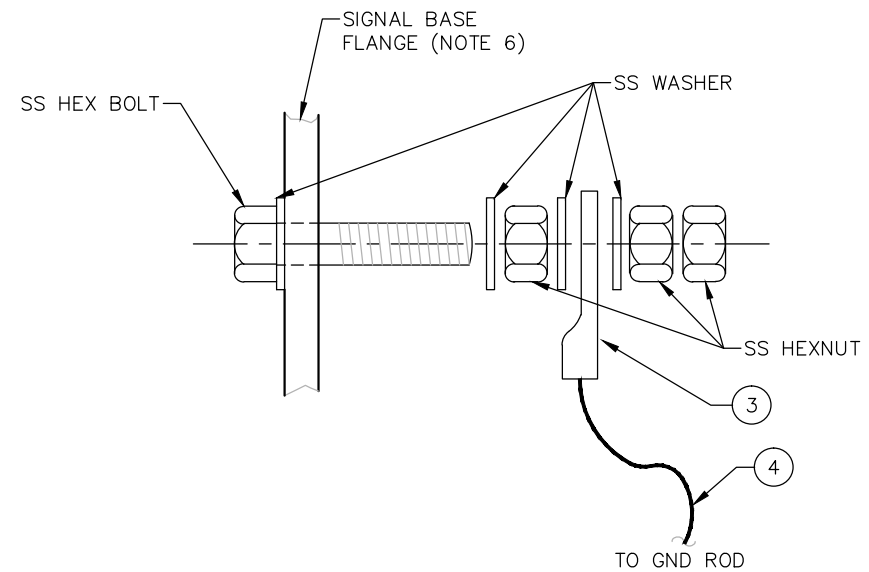


2 CROSSING MAST BASE PLATE DETAIL
SCALE: NTS

BILL OF MATERIALS		
ITEM	QTY.	DESCRIPTION
①	1	CROSSING MAST W/ JUNCTION BOX BASE (NIC)
②	AS REQ'D	DUCT SEAL (NIC)
③	1	GROUND LUG AMP#33467 (NIC)
④	AS REQ'D	#6 BARE STRANDED COPPER WIRE (NIC)

NOTE:

1. PROVIDE FOUNDATION, ANCHOR BOLTS, GROUND ROD, CONDUIT, BASE PLATES, NUTS AND WASHERS REQUIRED FOR INSTALLATION OF THE DEVICE
2. TOP OF FOUNDATION TO BE 2" ABOVE TOP OF PAVEMENT OR 6" ABOVE TOP OF GRADE IN NON-PAVEMENT AREAS
3. CONTRACTOR SHALL DEMONSTRATE THAT THE CROSSING FOUNDATION WILL BE COMPLIANT WITH AREMA & WILL BE STRUCTURALLY ADEQUATE FOR EACH INSTALLATION
4. CONTRACTORS GEOTECHNICAL CONSULTANT SHALL VERIFY THAT SOIL CONDITIONS ARE ADEQUATE FOR THE SIGNAL FOUNDATION DESIGN
5. CONTRACTOR WILL FURNISH FOUNDATION WITH CONDUIT, ANCHOR BOLTS AND GROUND ROD
6. CONTRACTOR SHALL FURNISH DRILL FLANGE FOR CONNECTION OF GROUND STUD TO BASE
7. ATTACH TO GROUND ROD TO INTERNAL GROUND LUG WITH #2/0 GROUNDING CONDUCTOR FOR FOUNDATIONS LESS THAN 15' FROM $\varnothing$ OF TRACK. USE #6 BARE COPPER GROUNDING CONDUCTOR FOR FOUNDATIONS BEYOND 15' FROM $\varnothing$ OF TRACK



3 POLE GROUNDING DETAIL (NIC)
SCALE: NTS

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AECOM

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**METROPOLITAN
TRANSIT
AUTHORITY**

SOUTHWEST
Green Line LRT Extension

**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
GRADE CROSSING MAST
TYPICAL FOUNDATION INSTALLATION**

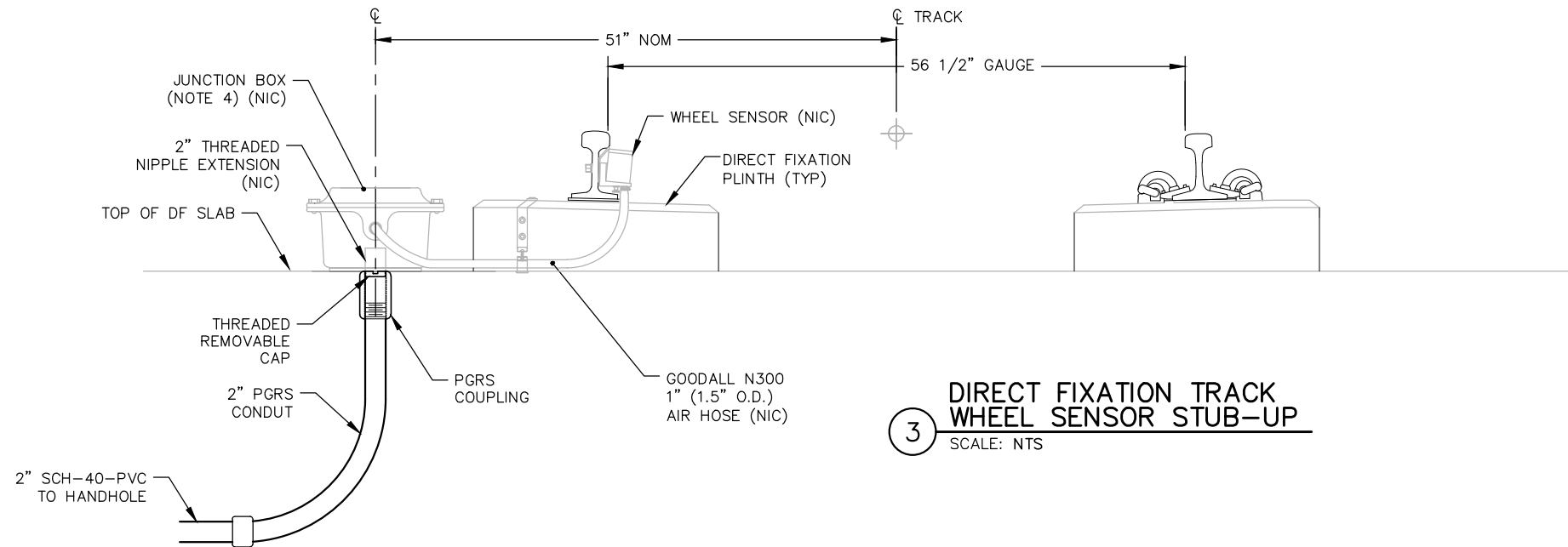
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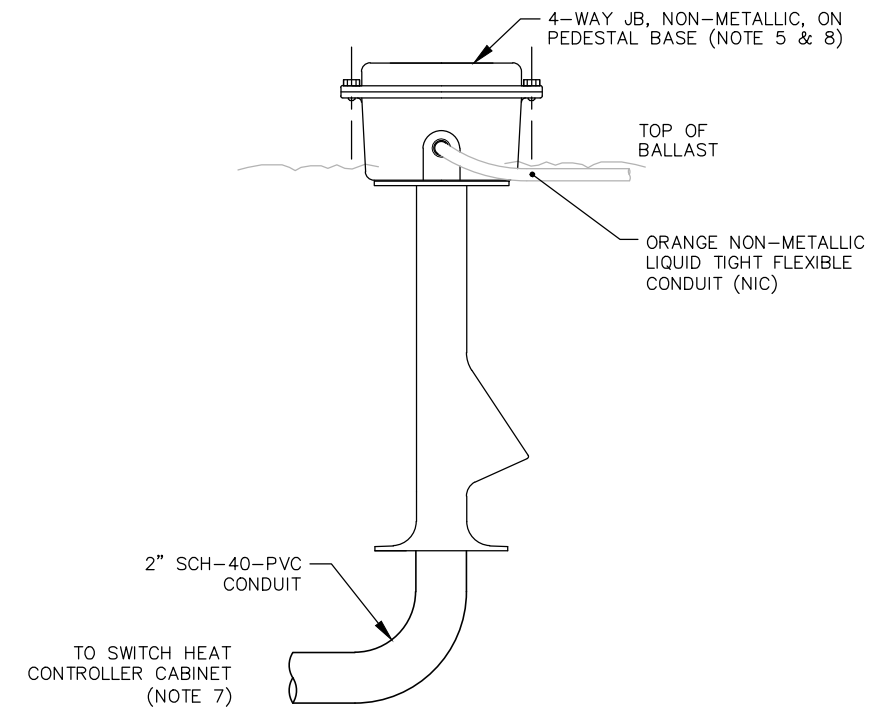
**SHEET
123
OF
162**

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Sep. 15 2015 05:14 pm V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\SIGNAL\TYPICALS\SWE TYPICALS\W0-SYS-SWE-DTL-014.dwg By: V-WoodsAJ



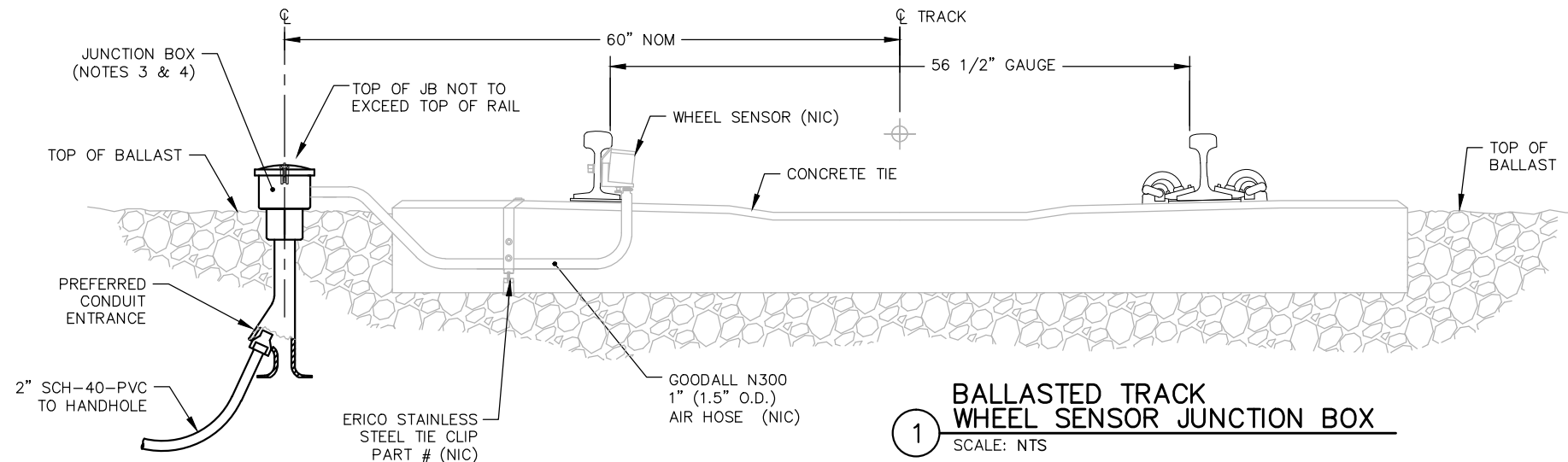
3 DIRECT FIXATION TRACK
WHEEL SENSOR STUB-UP
SCALE: NTS



2 BALLASTED TRACK
SWITCH HEATER JUNCTION BOX
SCALE: NTS

NOTES:

1. WHEEL SENSORS ARE SHOWN FOR REFERENCE ONLY.
2. REFER TO THE SPECIFICATION AND WHEEL SENSOR MANUFACTURERS INSTALLATION REQUIREMENTS FOR RAIL DRILLING REQUIREMENTS, MOUNTING INSTRUCTIONS AND SPECIFIC INSTALLATION REQUIREMENTS.
3. FOR BALLASTED TRACK, PLACE PEDESTAL MOUNTED JUNCTION BOX ON THE FIELD SIDE OF RAILS FOR COORDINATION WITH THE NEAREST HANDHOLE LOCATION. JUNCTION BOX SHALL BE WESTERN CULLEN HAYES 1155 OR APPROVED EQUAL.
4. NO GROUNDING CONNECTION REQUIRED FOR AXLE COUNTER INSTALLATION.
5. THIS DRAWING INCLUDES THE MAJOR ITEMS AND DOES NOT INCLUDE ALL REQUIRED COMPONENTS REQUIRED FOR A COMPLETE INSTALLATION.
6. MANUFACTURER SHALL BE SUBMITTED FOR APPROVAL.
7. SWITCH HEATER CABLES SHALL BE ROUTED IN 2" CONDUITS AND ARE ROUTED DIRECTLY TO SWITCH HEATER CONTROL EQUIPMENT.
8. FOR ADDITIONAL INSTALLATION DETAILS FOR SWITCH POINT HEATERS, SEE DRAWING SYS-SIG-DTL-024.



1 BALLASTED TRACK
WHEEL SENSOR JUNCTION BOX
SCALE: NTS

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60% SUBMISSION - 09/28/2015

**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
WHEEL SENSOR - DF &
BALLASTED TRACK INSTALLATION**

DISCIPLINE:
SYSTEMS

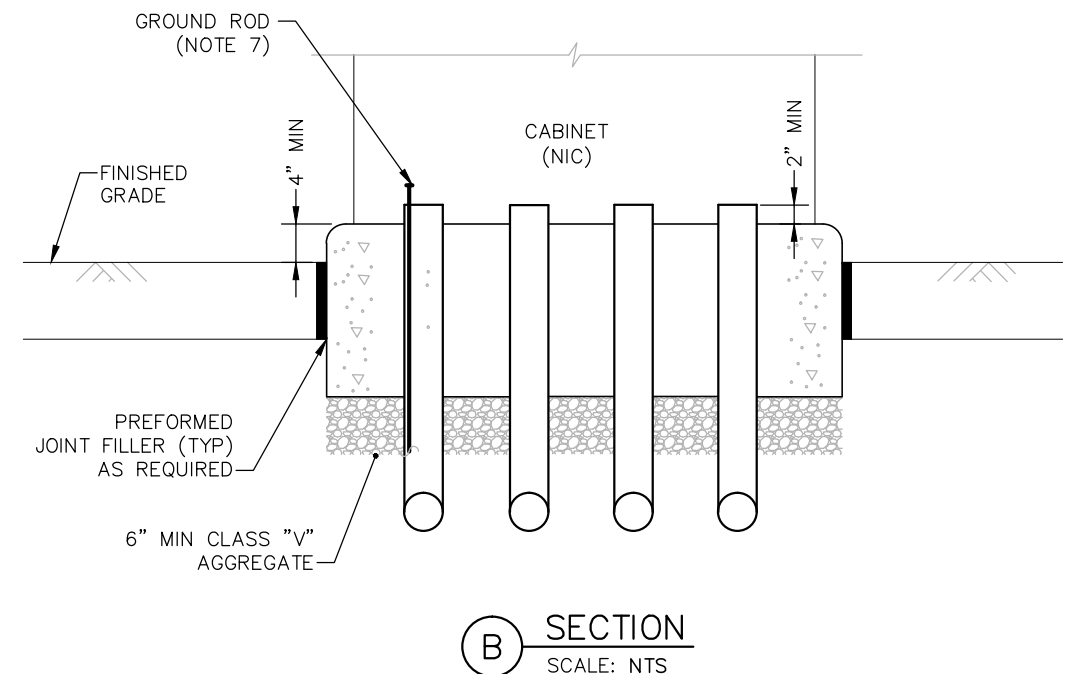
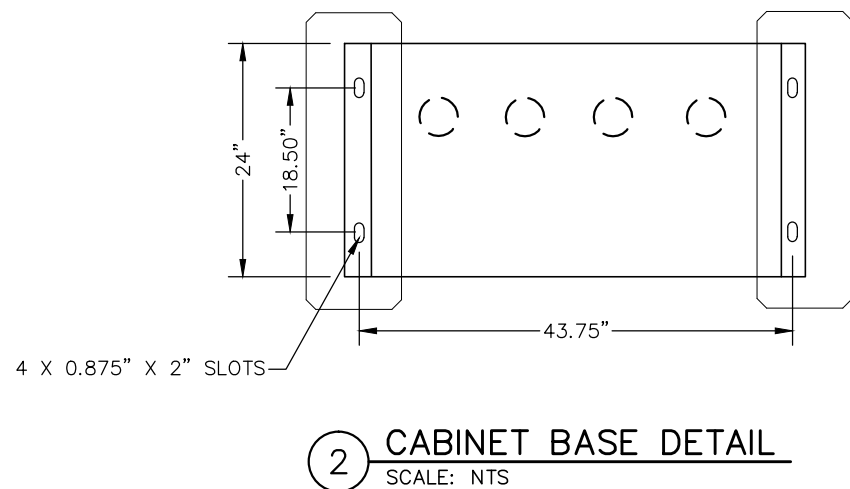
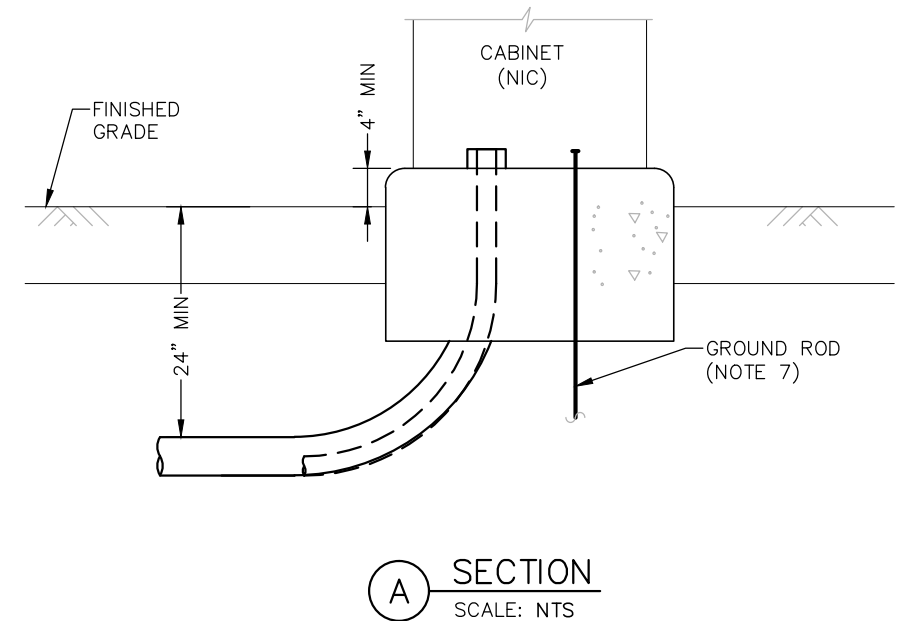
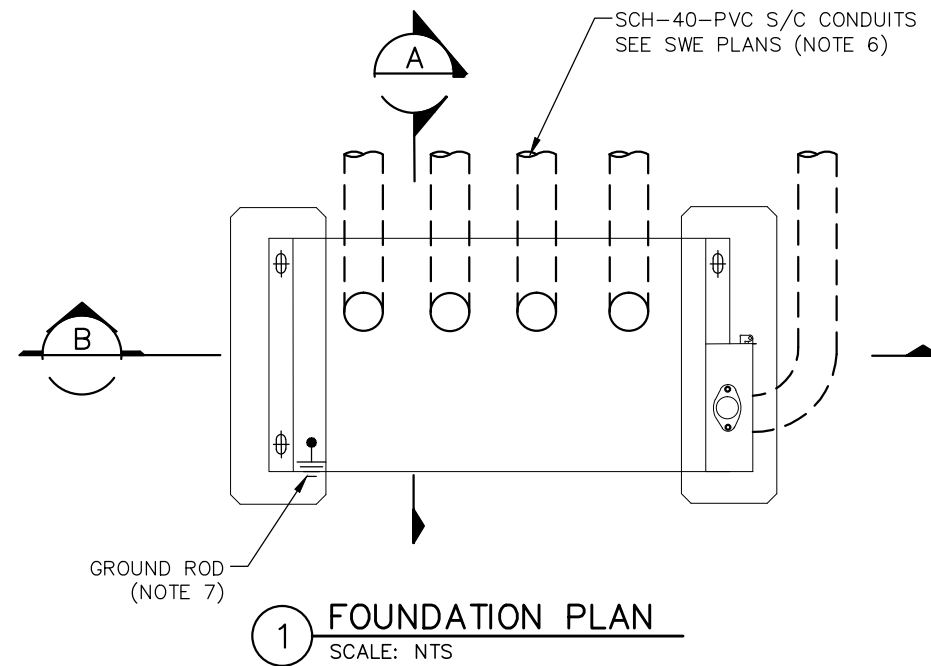
SHEET NAME:
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NOTES:

1. THE ANCHOR BOLTS, NUTS AND WASHERS FOR THE CONTROLLER CABINET SHALL BE FURNISHED ACCORDING TO THE CABINET MFGR SPECIFICATIONS. ANCHOR BOLTS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.) (NIC).
2. THE UPPER PART OF THE EQUIPMENT PLINTHS SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER.
3. THE TOP OF THE CONDUITS SHALL BE CAPPED AFTER INSTALLATION.
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET AS NECESSARY AND SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.) OR WITH THE BASE DIMENSIONS OF THE CABINET.
5. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PLINTHS IN ACCORDANCE WITH Mn/DOT STANDARD CONCRETE DESIGNS.
6. THE EXACT LOCATION AND NUMBER OF CONDUITS SHALL BE DETERMINED BY THE CASE MFG SPECIFICATIONS. CONTRACTOR TO PROVIDE KNOCK-OUT SPACE IN FINISHED GRADE FOR ACCESS TO CONDUIT ENTRANCE.
7. ATTACH TO GROUND ROD TO INTERNAL GROUND LUG WITH #2/0 GROUNDING CONDUCTOR FOR FOUNDATIONS LESS THAN 15' FROM ϕ TRACK. USE #6 BARE COPPER GROUNDING CONDUCTOR FOR FOUNDATIONS BEYOND 15' FROM ϕ TRACK. (NIC)
8. USE AN ADEQUATE POST-INSTALLED CHEMICAL SET ANCHOR BOLT OF A DESIGN SUBMITTED FOR APPROVAL. (NIC)
9. CONCRETE PLINTHS SHALL BE POURED BASED ON CABINET MFG SPECIFICATIONS. PRE-CAST PLINTHS/PIERS MAY BE USED IN LIEU OF POURED PLINTHS. EXACT SIZE AND DEPTH OF PIERS/PLINTHS TO BE DETERMINED BY MFG SPECIFICATIONS AND CASE LOAD. FOUNDATION DESIGN MUST BE SUBMITTED FOR APPROVAL.
10. PRECAST OR POURED PLINTHS SHALL BE BASED ON PTMW P/N 41040J CASE OR APPROVED EQUAL. (NIC)



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**METROPOLITAN
COUNCIL**

SOUTHWEST
Green Line LRT Extension

**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
PEDESTRIAN CROSSING CASE
TYPICAL FOUNDATION INSTALLATION**

DISCIPLINE:
SYSTEMS

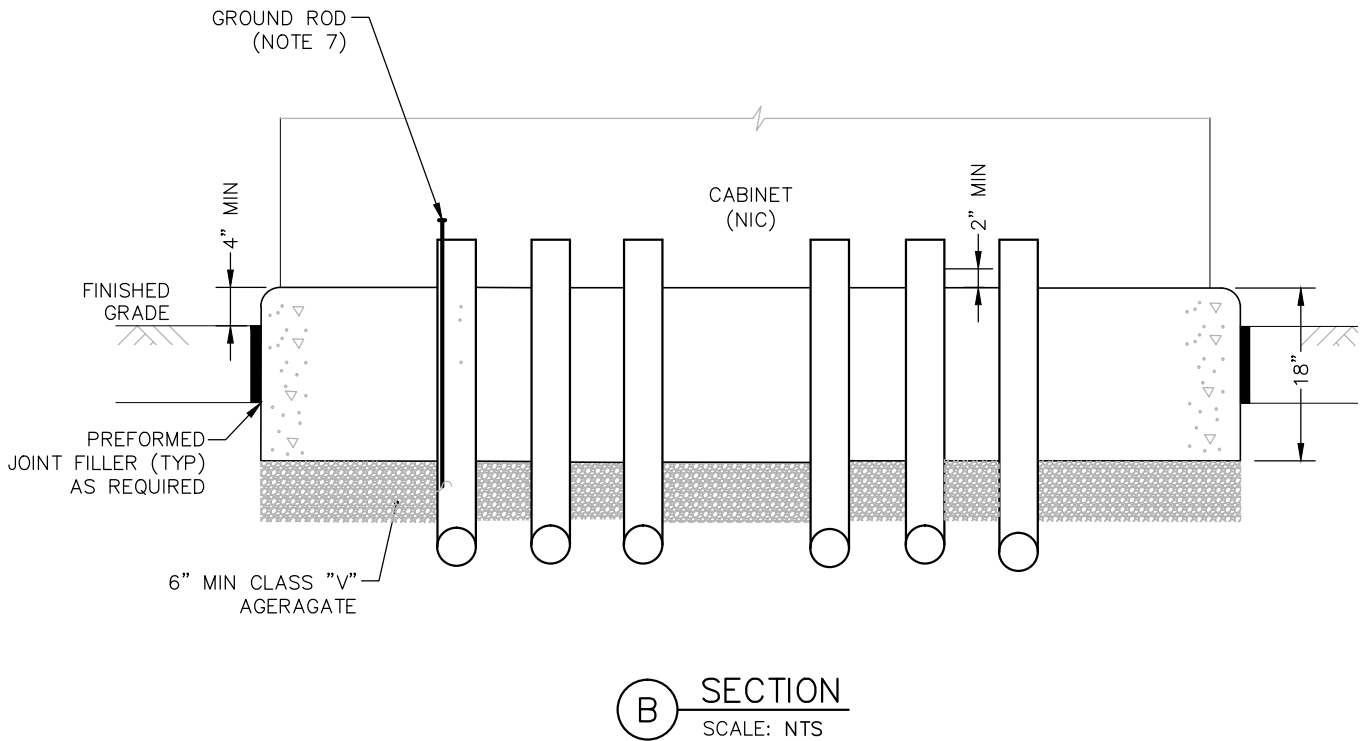
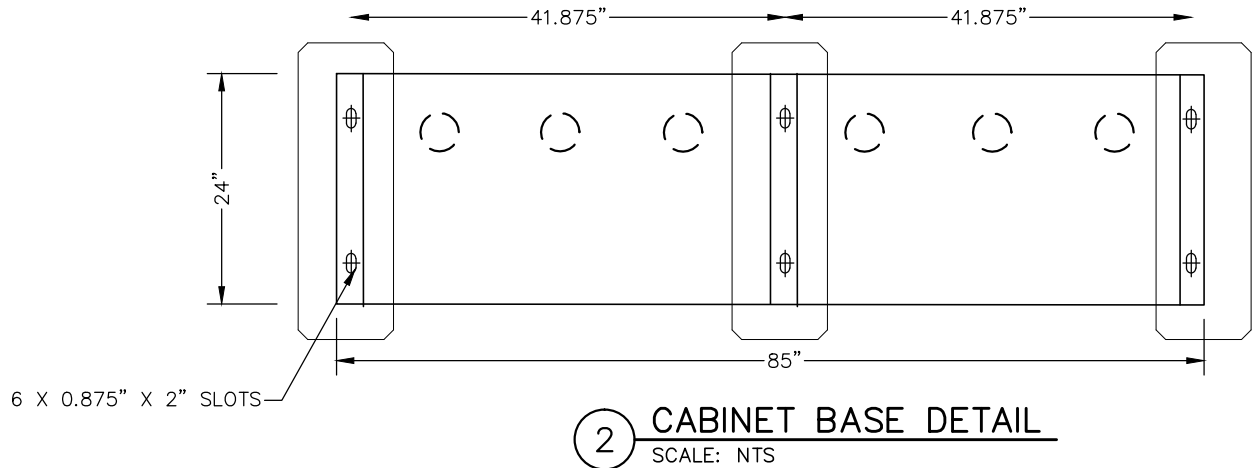
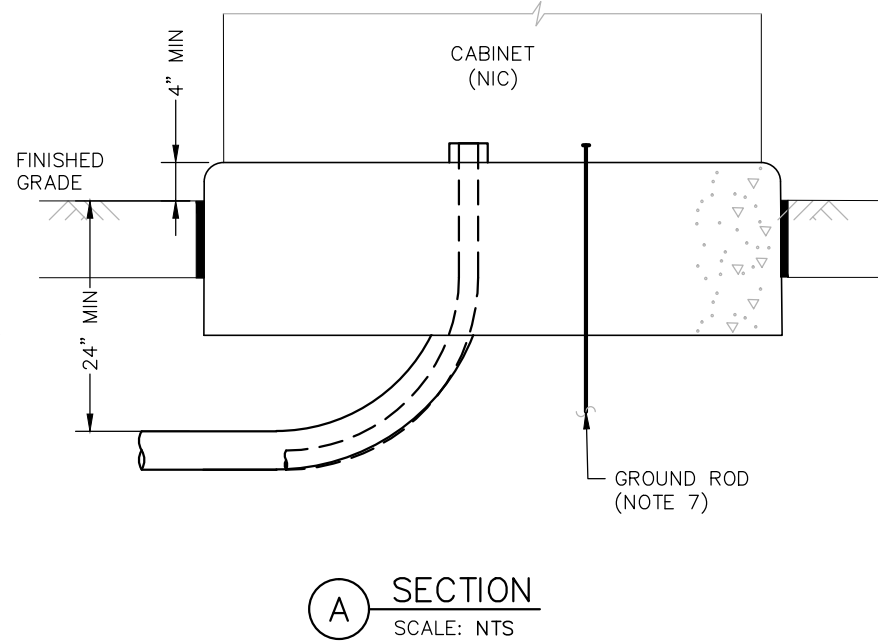
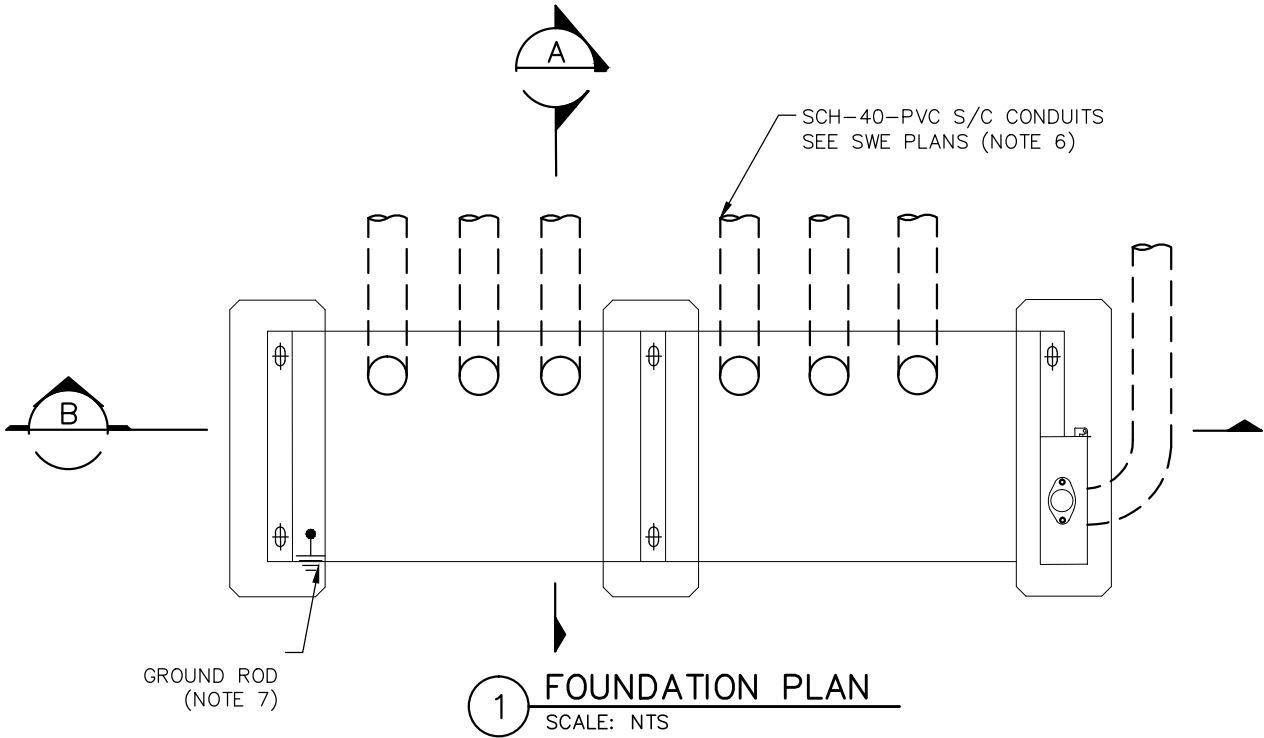
SHEET NAME:
W0-SYS-SWE-DTL-015

**SHEET
125
OF
162**

60% SUBMISSION - 09/28/2015

NOTES:

1. THE ANCHOR BOLTS, NUTS AND WASHERS FOR THE CONTROLLER CABINET SHALL BE FURNISHED ACCORDING TO THE CABINET MFGR SPECIFICATIONS. ANCHOR BOLTS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.) (NIC).
2. THE UPPER PART OF THE EQUIPMENT PAD SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER.
3. THE TOP OF THE CONDUITS SHALL BE CAPPED AFTER INSTALLATION.
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET AS NECESSARY AND SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.) OR WITH THE BASE DIMENSIONS OF THE CABINET.
5. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PLINTHS IN ACCORDANCE WITH Mn/DOT STANDARD CONCRETE DESIGNS.
6. THE EXACT LOCATION AND NUMBER OF CONDUITS SHALL BE DETERMINED BY THE CASE MFG SPECIFICATIONS. CONTRACTOR TO PROVIDE KNOCK-OUT SPACE IN FINISHED GRADE FOR ACCESS TO CONDUIT ENTRANCE.
7. ATTACH TO GROUND ROD TO INTERNAL GROUND LUG WITH #2/0 GROUNDING CONDUCTOR FOR FOUNDATIONS LESS THAN 15' FROM $\varnothing$ TRACK. USE #6 BARE COPPER GROUNDING CONDUCTOR FOR FOUNDATIONS BEYOND 15' FROM $\varnothing$ TRACK. (NIC)
8. USE AN ADEQUATE POST-INSTALLED CHEMICAL SET ANCHOR BOLT OF A DESIGN SUBMITTED FOR APPROVAL. (NIC)
9. CONCRETE PLINTHS SHALL BE POURED BASED ON CABINET MFG SPECIFICATIONS. PRE-CAST PLINTHS/PIERS MAY BE USED IN LIEU OF POURED PLINTHS. EXACT SIZE AND DEPTH OF PIERS/PLINTHS TO BE DETERMINED BY MFG SPECIFICATIONS AND CASE LOAD. FOUNDATION DESIGN MUST BE SUBMITTED FOR APPROVAL.
10. PRECAST OR POURED PLINTHS SHALL BE BASED ON PTMW P/N 41055E CASE OR APPROVED EQUAL. (NIC)



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BRINCKERHOFF**

**METROPOLITAN
TRANSIT**

SOUTHWEST
Green Line LRT Extension

60% SUBMISSION - 09/28/2015

**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
CUT SECTION CASE
TYPICAL FOUNDATION INSTALLATION**

DISCIPLINE:
SYSTEMS

SHEET NAME:
W0-SYS-SWE-DTL-016

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SIG/COMM HOUSE FOOTPRINT

1'-3" x 1'-3" FOOTING

The diagram shows a building footprint with six columns arranged in two rows of three. The top row columns are connected by a horizontal line, and the bottom row columns are also connected by a horizontal line. Vertical lines connect the corresponding columns in the top and bottom rows. A circular feature labeled 'A' is located to the left of the first column in the top row. A line with an arrow points from the text 'SIG/COMM HOUSE FOOTPRINT' to the top-left corner of the first column in the top row. Another line with an arrow points from the text '1'-3" X 1'-3" FOOTING' to the top-right corner of the third column in the top row. A dashed circle is drawn around the third column in the bottom row, with an arrow pointing to it from the bottom right.

— SEE DETAIL—1

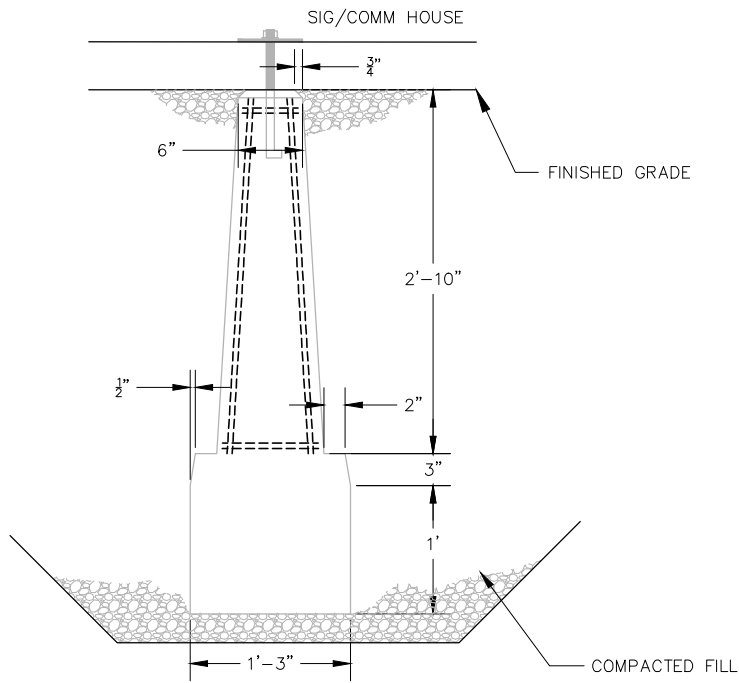
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**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
SIGNAL HOUSE TYPICAL FOUNDATION
INSTALLATION PAGE 1 OF 2**

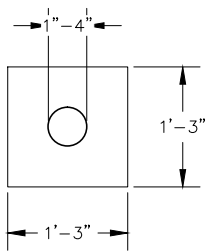
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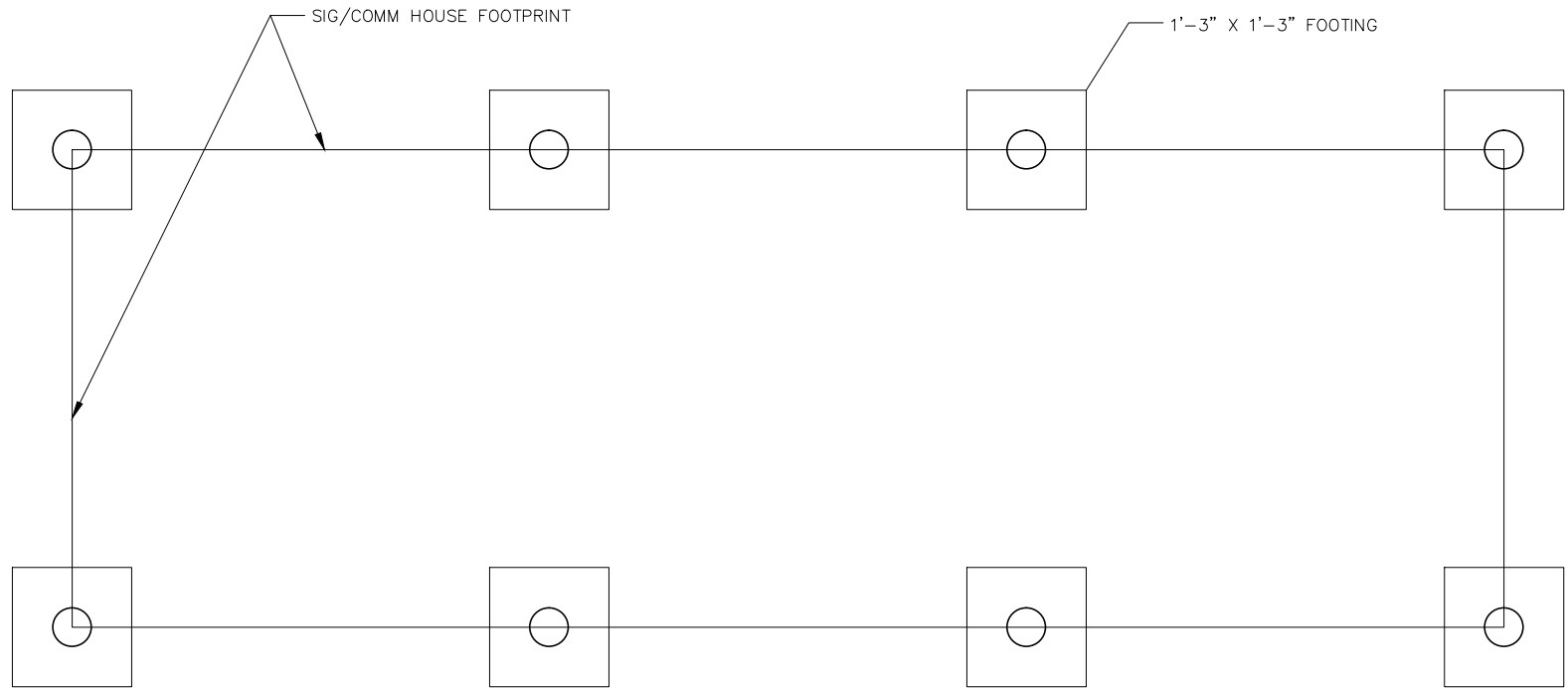
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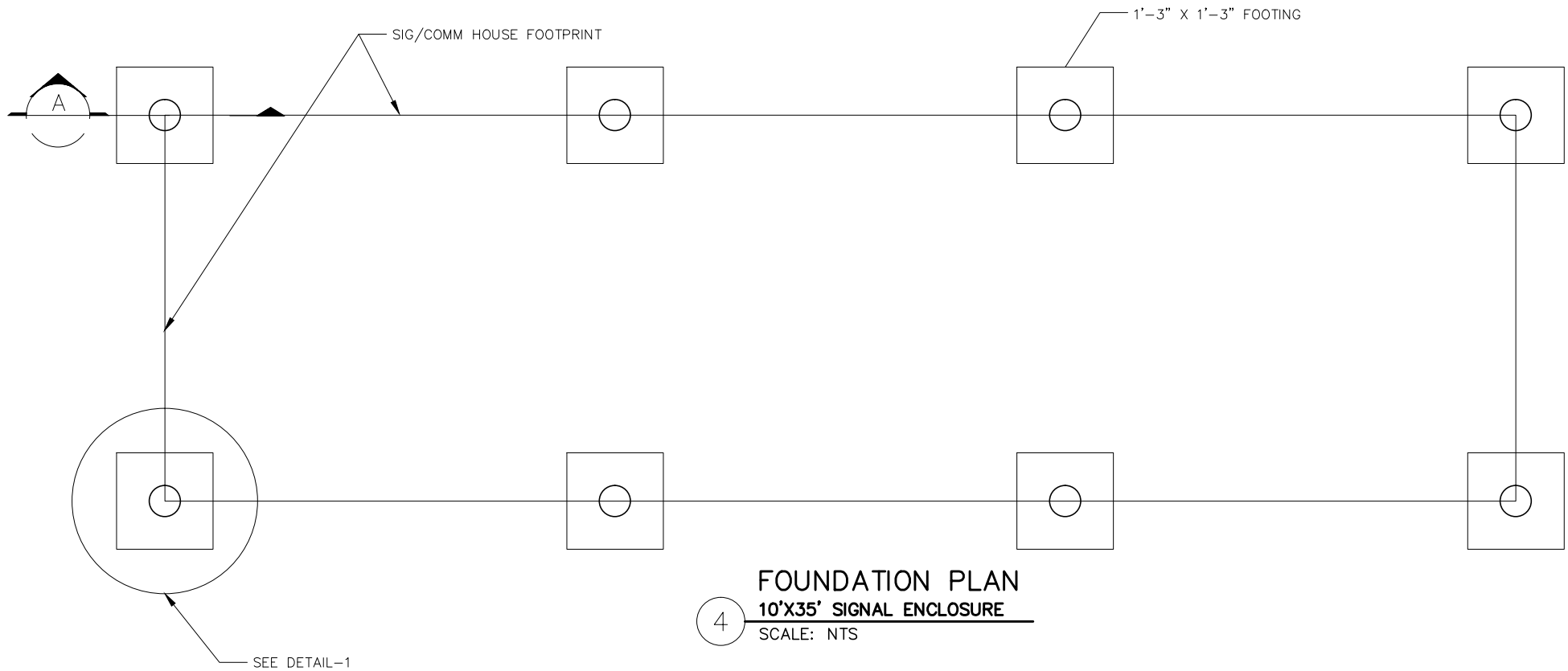
1 **SECTION A-A**
SCALE: NTS



3 **DETAIL-1**
SCALE: NTS



2 **FOUNDATION PLAN**
10'X30' SIGNAL ENCLOSURE
SCALE: NTS



4 **FOUNDATION PLAN**
10'X35' SIGNAL ENCLOSURE
SCALE: NTS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

**PARSONS
BRINCKERHOFF**

**METROPOLITAN
COUNCIL**

SOUTHWEST
Green Line LRT Extension

CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
SIGNAL HOUSE TYPICAL FOUNDATION
INSTALLATION PAGE 2 OF 2

DISCIPLINE:
SYSTEMS

SHEET NAME:
W0-SYS-SWE-DTL-018

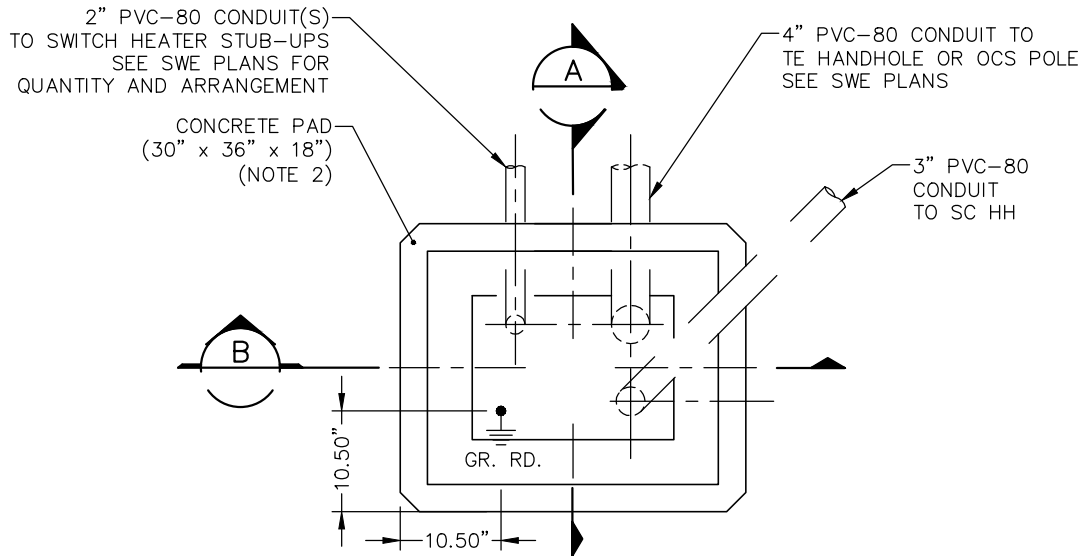
SHEET
128
OF
162

60% SUBMISSION - 09/28/2015

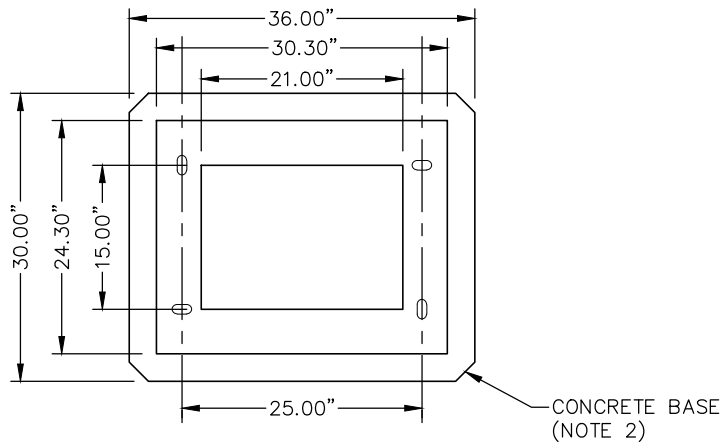
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NOTES:

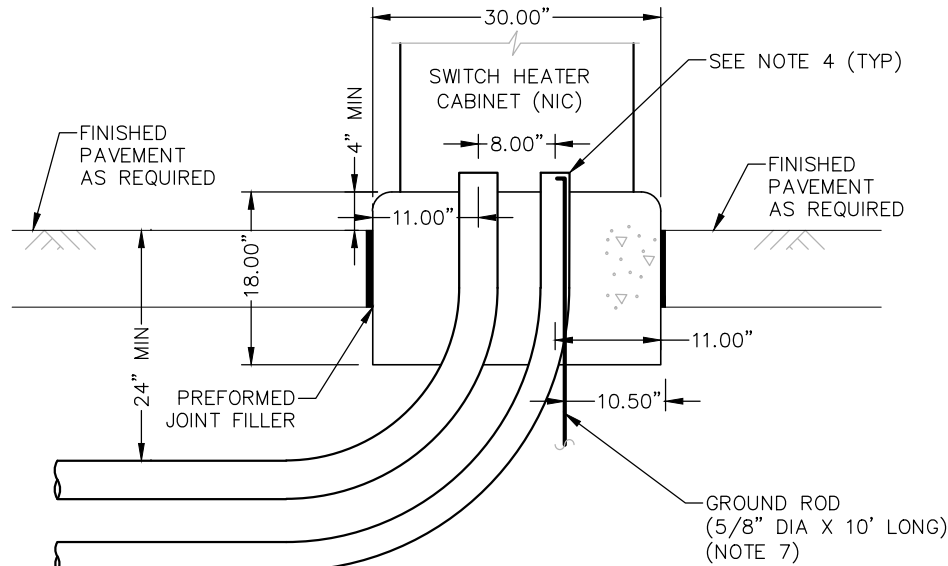
1. THE ANCHOR BOLTS, NUTS AND WASHERS FOR THE CONTROLLER CABINET SHALL BE FURNISHED ACCORDING TO THE CABINET MFRG SPECIFICATIONS. ANCHOR BOLTS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.) (NIC)
2. THE UPPER PART OF THE EQUIPMENT PAD SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER
3. THE TOP OF THE CONDUITS SHALL BE CAPPED AFTER INSTALLATION.
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET AS NECESSARY AND SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.) OR WITH THE BASE DIMENSIONS OF THE CABINET.
5. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PAD IN ACCORDANCE WITH Mn/DOT STANDARD CONCRETE DESIGNS.
6. THE EXACT LOCATION OF CONDUITS WITHIN THE PAD SHALL BE DETERMINED IN THE FIELD, AND WILL PROJECT ENTIRELY WITHIN THE BASE OPENING OF THE CABINET.
7. ATTACH TO GROUND ROD TO INTERNAL GROUND LUG WITH #2/0 GROUNDING CONDUCTOR FOR FOUNDATIONS LESS THAN 15' FROM $\varnothing$ TRACK. USE #6 BARE COPPER GROUNDING CONDUCTOR FOR FOUNDATIONS BEYOND 15' FROM $\varnothing$ TRACK. (NIC)
8. USE AN ADEQUATE POST-INSTALLED CHEMICAL SET ANCHOR BOLT OF A DESIGN SUBMITTED FOR APPROVAL. (NIC)



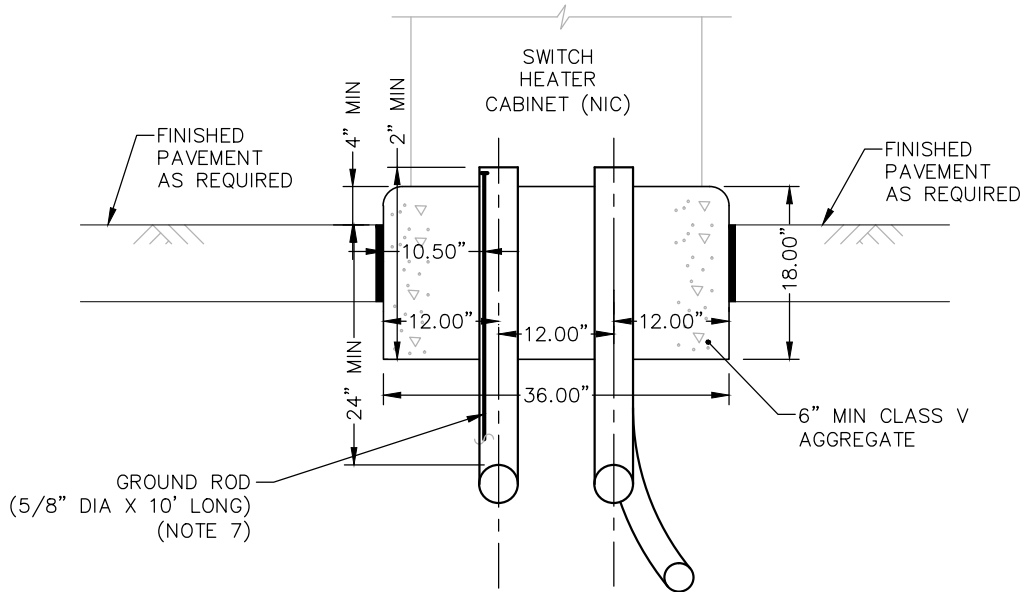
1 FOUNDATION PLAN
SCALE: NTS



2 SWITCH HEATER CONTROLLER CABINET BASE DETAIL
SCALE: NTS



A SECTION
SCALE: NTS



B SECTION
SCALE: NTS

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METROPOLITAN
COUNCIL

SOUTHWEST
Green Line Light Extension

CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
SWITCH HEATER CASE
TYPICAL FOUNDATION INSTALLATION

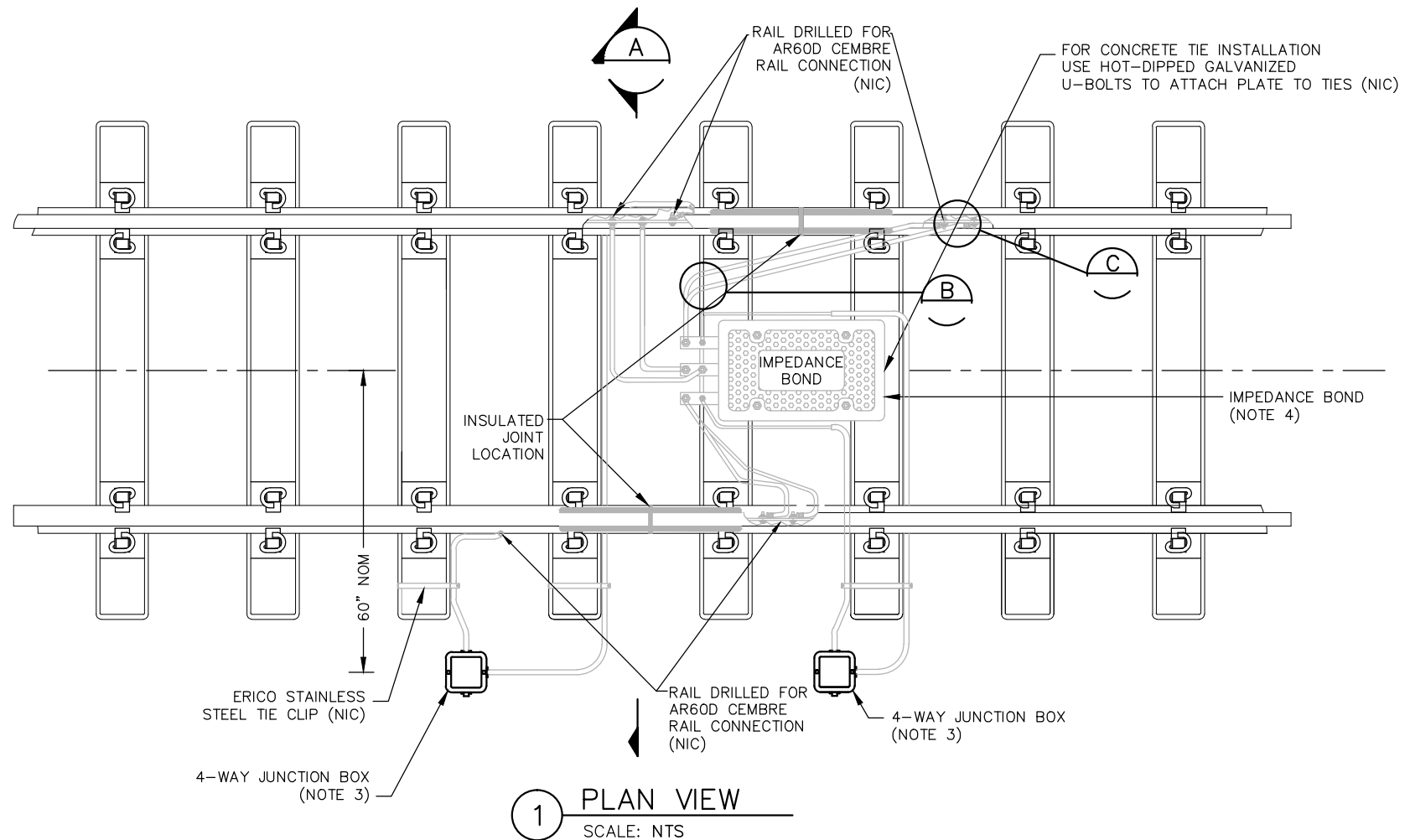
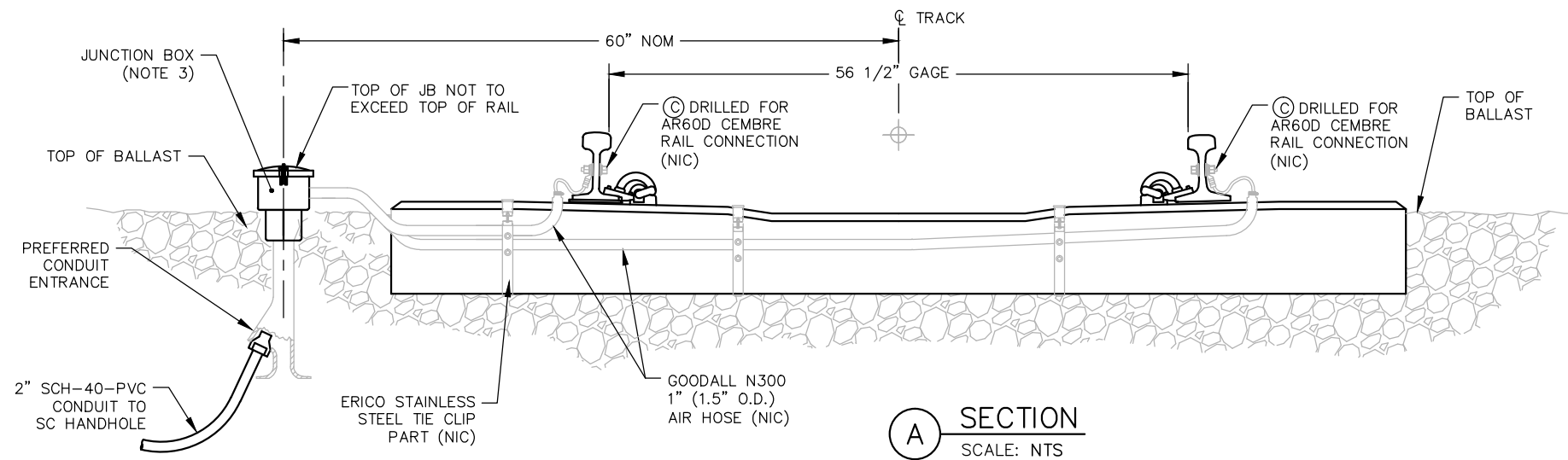
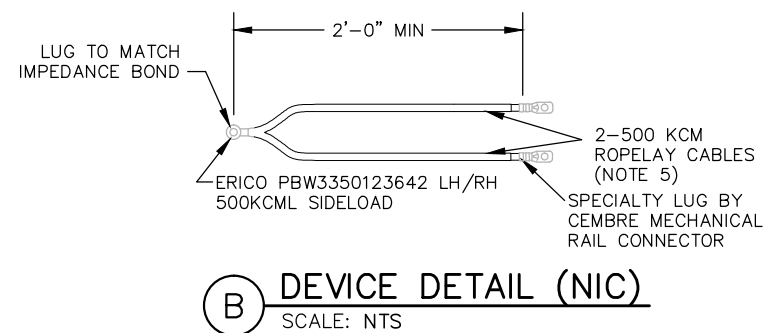
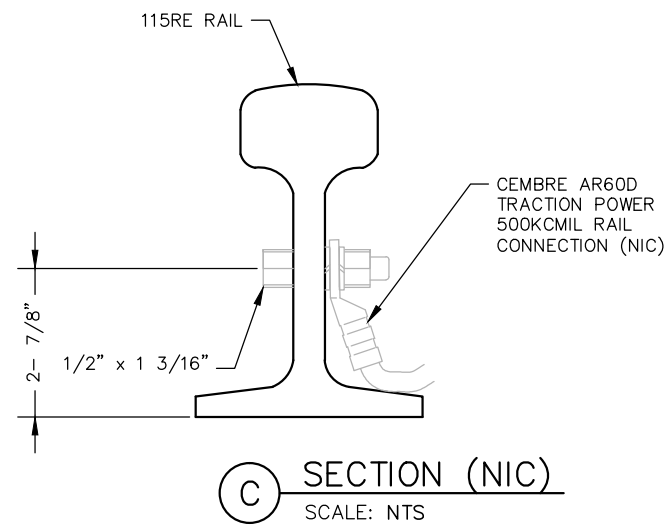
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SYSTEMS

SHEET NAME:
W0-SYS-SWE-DTL-019

SHEET
129
OF
162

60% SUBMISSION - 09/28/2015

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NOTES:

1. USE THIS DETAIL FOR BALLASTED TRACK BOND INSTALLATIONS WHERE DOUBLE RAIL TRACK CIRCUITS ARE ADJACENT TO SINGLE RAIL AC TRACK CIRCUITS.
2. PLACE PEDESTAL MOUNTED JUNCTION BOX ON THE FIELD SIDE OF TRACK FOR COORDINATION WITH DUCT BANK OR THE NEAREST HANDHOLE LOCATION.
3. PEDESTAL MOUNTED JUNCTION BOX SHALL BE WESTERN CULLEN HAYES 1155 OR APPROVED EQUAL.
4. NUTS, BOLTS AND WASHERS USED FOR CONNECTIONS TO THE IMPEDANCE BOND LUGS SHALL BE BRASS. (NIC)
5. CABLES SHALL BE ALL "ROPE LAY". TRACTION POWER CABLES SHALL BE INSULATED WITH RATING OF 2KV. (NIC)
6. PLACEMENT OF 500 KCML CABLES SHALL NOT INTERFERE WITH NORMAL TRACK TAMPING OPERATION.
7. SUFFICIENT SLACK SHALL BE PROVIDED IN CROSS BONDING CABLES TO PREVENT STRESS AT CONNECTIONS AND "BIRD CAGING", TWISTING OR OTHERWISE DAMAGING THE CABLES.
8. LOCAL CONDUIT SHALL BE NON-METALLIC, U.V. RESISTANT, LIQUID-TIGHT CONDUIT, BLACK OR GRAY PVC JACKET (UV RESISTANT) WITH REINFORCED NYLON BRAID WITH STRAIN RELIEF FITTING WHERE POSSIBLE OR AIR HOSE WITH NIPPLE CONNECTION TO JUNCTION BOX. (NIC)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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BRINCKERHOFF**



SOUTHWEST
Green Line LRT Extension



**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
SINGLE IMPEDANCE BOND
BALLASTED TRACK INSTALLATION**

DISCIPLINE:

SYSTEMS

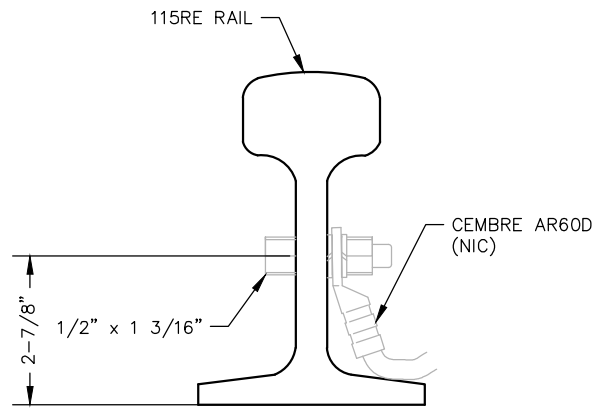
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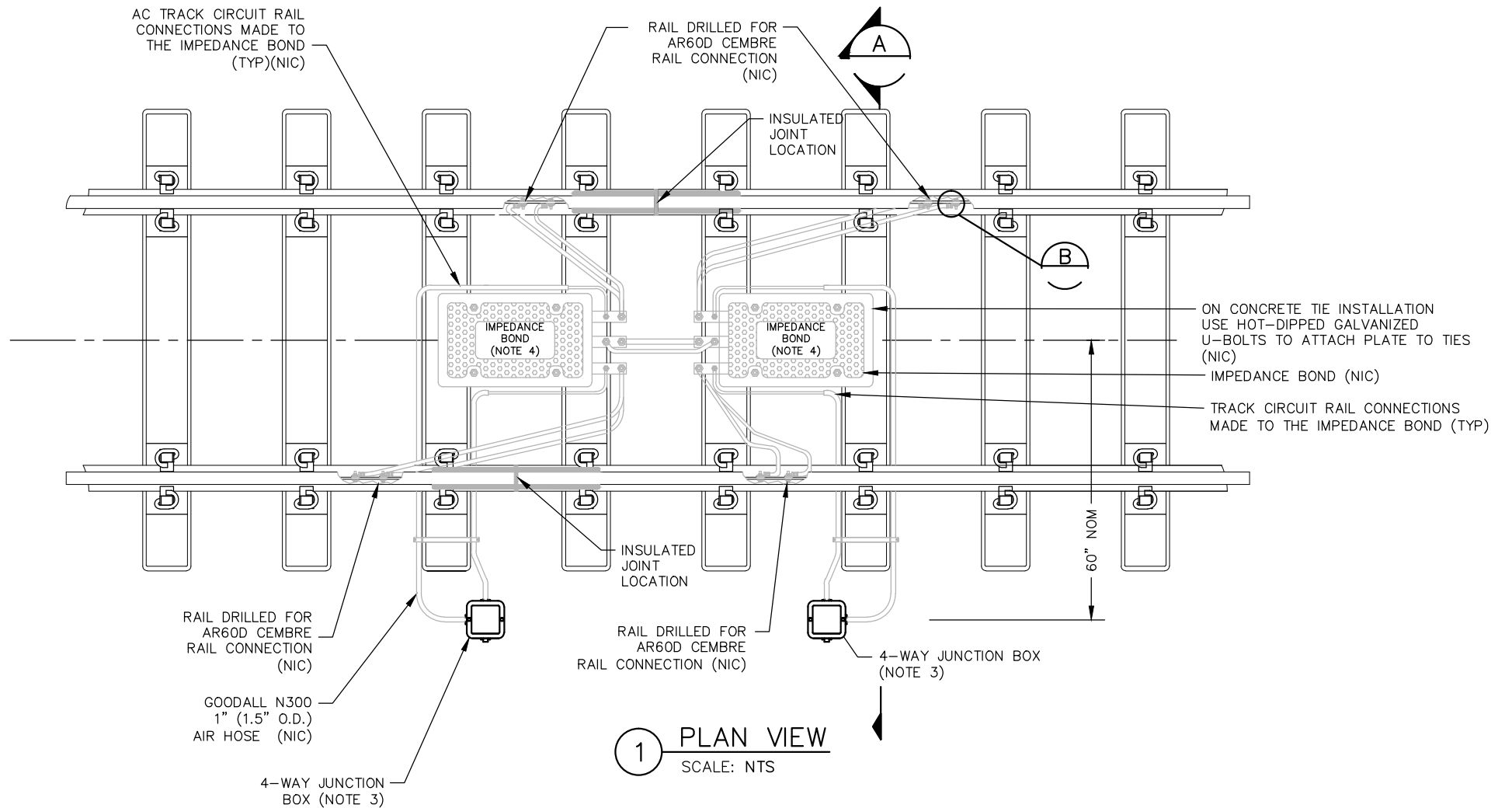
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60% SUBMISSION - 09/28/2015

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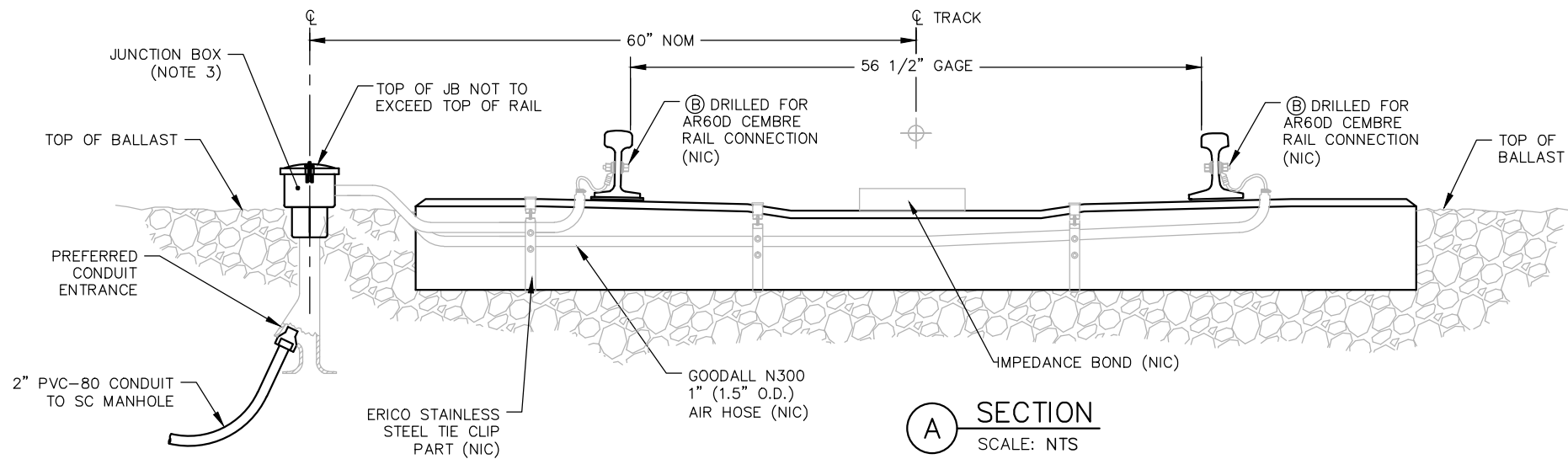
B SECTION (NIC)
SCALE: NTS



1 PLAN VIEW
SCALE: NTS

NOTES:

1. USE THIS DETAIL FOR BALLASTED TRACK BOND INSTALLATIONS WHERE DOUBLE RAIL TRACK CIRCUITS ARE ADJACENT TO DOUBLE RAIL TRACK CIRCUITS SEPARATED BY DOUBLE, STAGGERED INSULATED JOINTS.
2. PLACE PEDESTAL MOUNTED JUNCTION BOXES ON THE FIELD SIDE OF TRACK FOR COORDINATION WITH DUCT BANK OR THE NEAREST SWE HH LOCATION.
3. PEDESTAL MOUNTED JUNCTION BOX SHALL BE WESTERN CULLEN HAYES 1155 OR APPROVED EQUAL.
4. NUTS, BOLTS AND WASHERS USED FOR CONNECTIONS TO THE IMPEDANCE BOND LUGS SHALL BE BRASS. (NIC)
5. CABLES SHALL BE ALL "ROPE LAY". TRACTION POWER CABLES SHALL BE INSULATED WITH RATING OF 2KV. (NIC)
6. PLACEMENT OF 500 KCMIL CABLES SHALL NOT INTERFERE WITH NORMAL TRACK TAMPING OPERATION.
7. SUFFICIENT SLACK SHALL BE PROVIDED IN CROSS BONDING CABLES TO PREVENT STRESS AT CONNECTIONS AND "BIRD CAGING", TWISTING OR OTHERWISE DAMAGING THE CABLES.
8. LOCAL CONDUIT SHALL BE NON-METALLIC, U.V. RESISTANT, LIQUID-TIGHT CONDUIT, BLACK OR GRAY PVC JACKET (UV RESISTANT) WITH REINFORCED NYLON BRAID WITH STRAIN RELIEF FITTING WHERE POSSIBLE. (NIC)



A SECTION
SCALE: NTS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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SOUTHWEST
Green Line LRT Extension



60% SUBMISSION - 09/28/2015

**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
DOUBLE IMPEDANCE BOND
BALLASTED TRACK INSTALLATION**

DISCIPLINE:

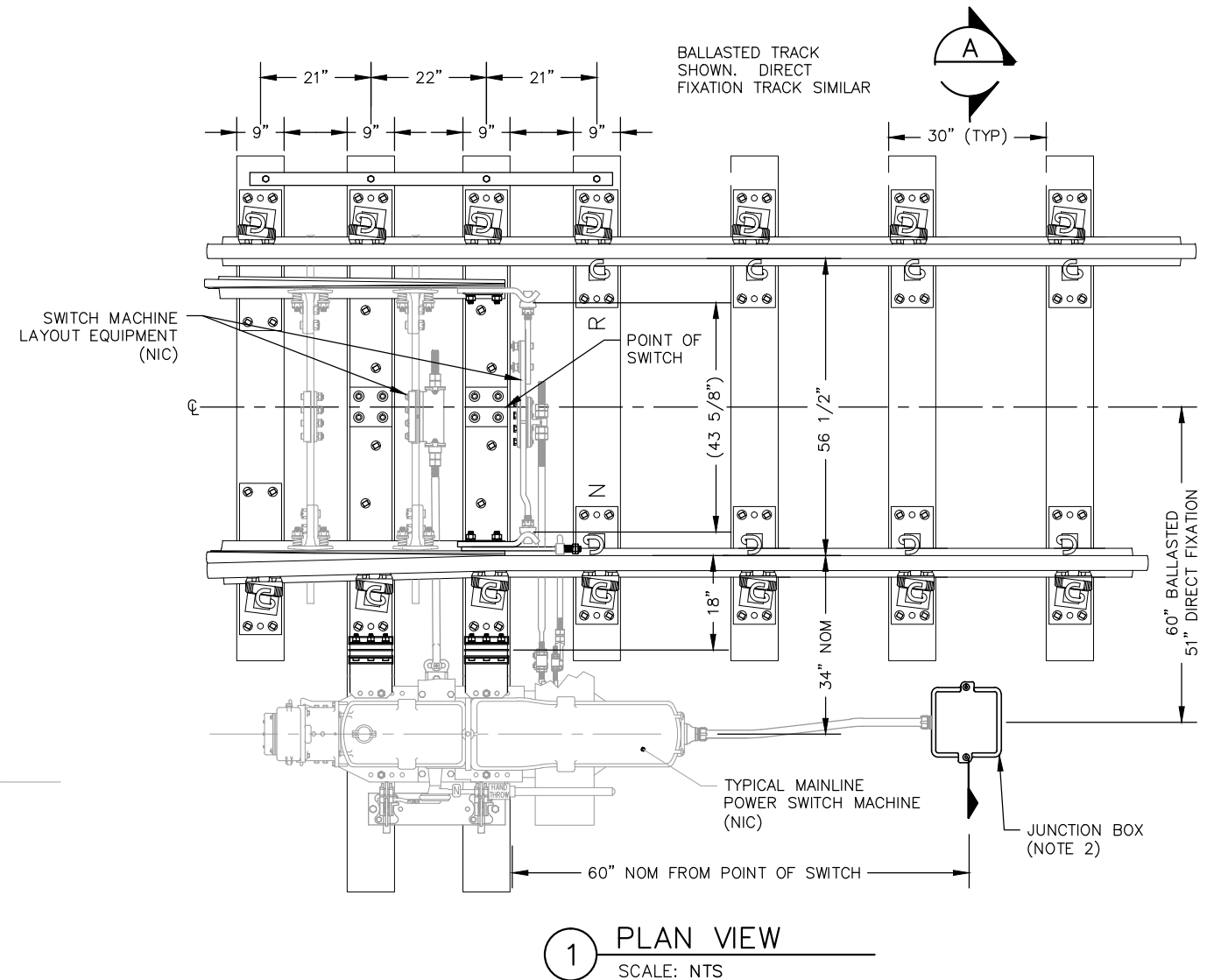
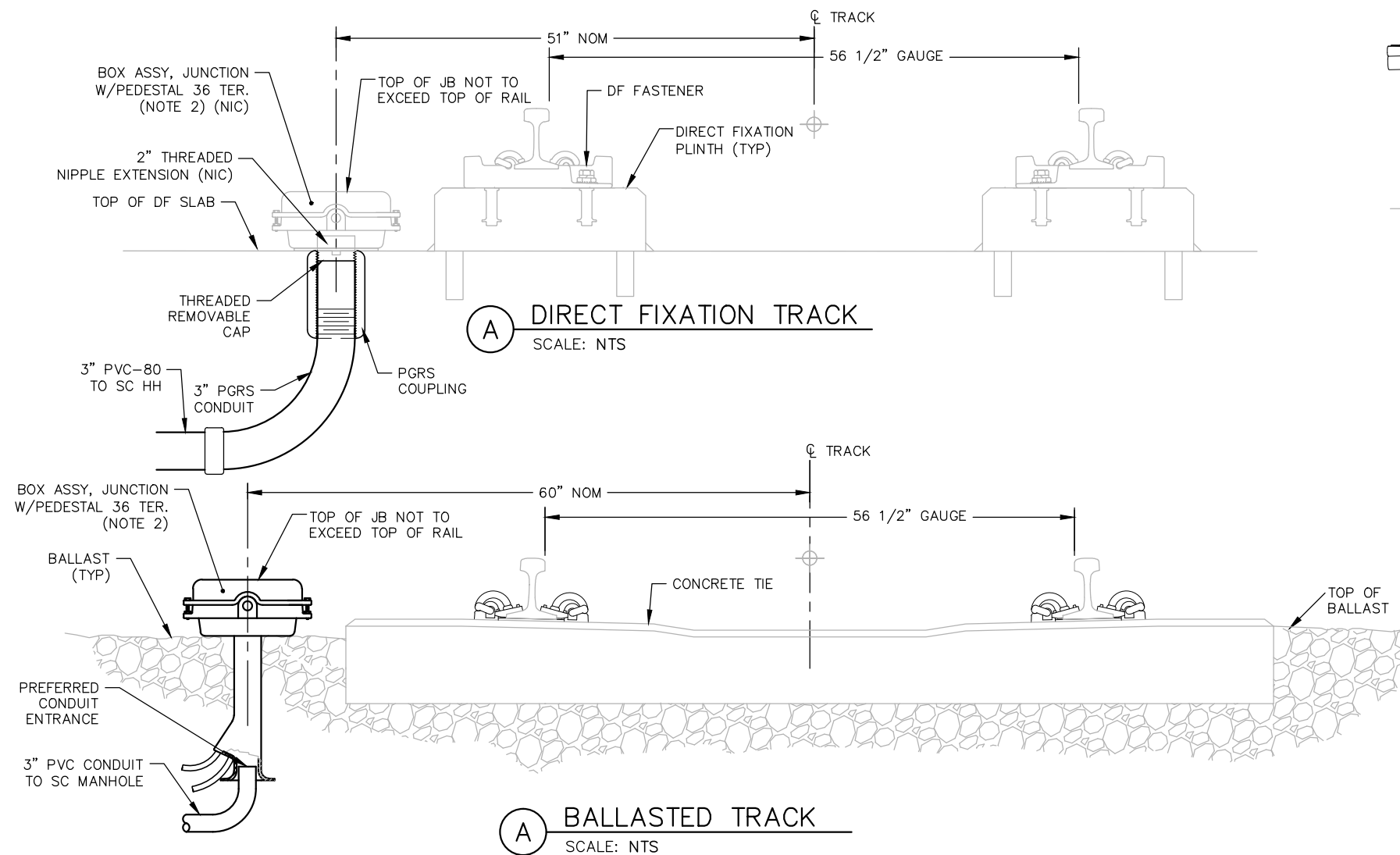
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W0-SYS-SWE-DTL-021

**SHEET
131
OF
162**

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NOTES:

1. SWITCH MACHINE SHOWN FOR REFERENCE ONLY. FOR BALLASTED TRACK ONLY PEDESTAL JUNCTION BOX AND RELATED CONDUIT EQUIPMENT IS INCLUDED IN THIS CONTRACT. FOR DF TRACK ONLY CONDUIT STUB-UP IS INCLUDED IN THIS CONTRACT.
2. PLACE PEDESTAL JUNCTION BOX OR STUB-UP ON THE SWITCH MACHINE SIDE OF THE RAILS FOR COORDINATION WITH THE SWITCH MACHINE AND RELATED EQUIPMENT.
3. PEDESTAL JUNCTION BOX MUST BE SUBMITTED FOR APPROVAL

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

**PARSONS
BRINCKERHOFF**

**METROPOLITAN
COUNCIL**

SOUTHWEST
Green Line LRT Extension

**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
MAINLINE SWITCH MACHINE - DIRECT
FIXATION&BALLASTED TRACK INSTALLATION**

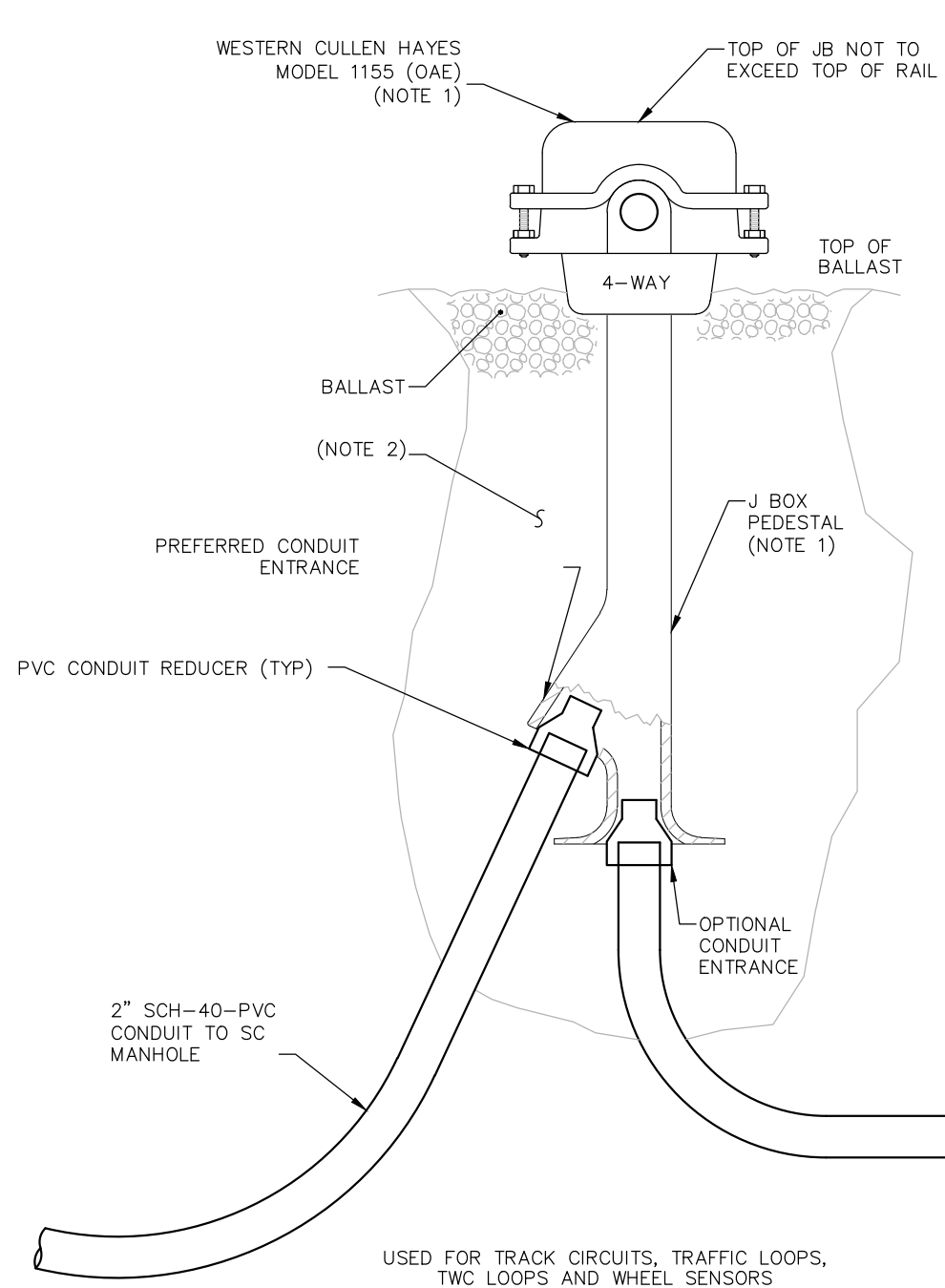
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SYSTEMS

SHEET NAME:
W0-SYS-SWE-DTL-022

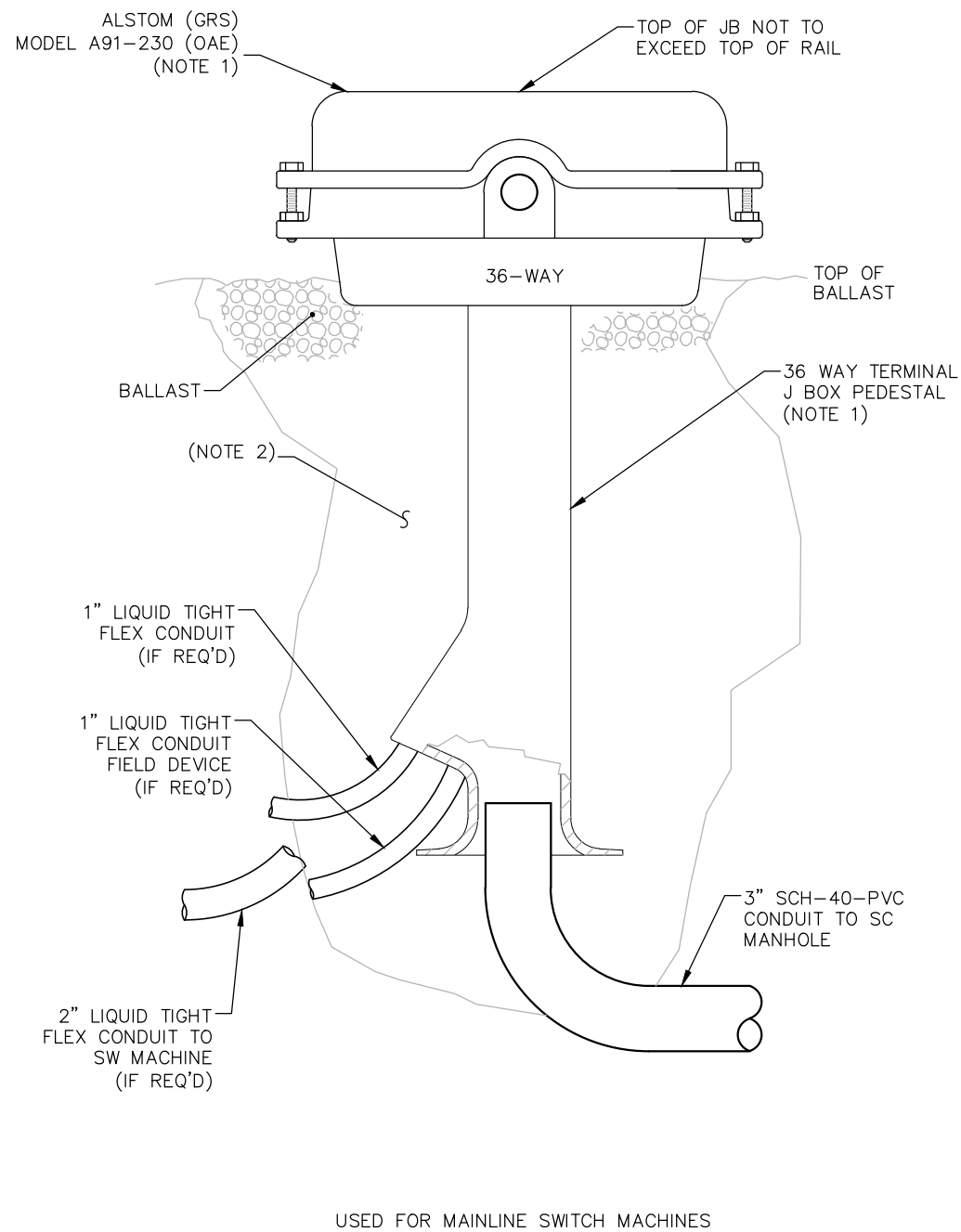
**SHEET
132
OF
162**

60% SUBMISSION - 09/28/2015

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1 4-WAY BOOTLEG JUNCTION BOX DETAIL
SCALE: NTS



2 36-WAY BOOTLEG JUNCTION BOX DETAIL
SCALE: NTS

NOTES:

1. EQUIPMENT DETAILS SHALL BE SUBMITTED FOR APPROVAL
2. EXCAVATION FOR BOOTLEG AND JUNCTION BOX INSTALLATION WILL REQUIRE REMOVAL OF BALLAST, SUB-BALLAST AND NATIVE SOIL OR BACKFILL MATERIALS. THESE MATERIALS MUST BE KEPT SEPARATED AND NOT MIXED TOGETHER WHEN BACKFILLING
3. THE CONTRACTOR SHALL EQUIP EACH JUNCTION BOX PROVIDED WITH A COMPLETE SET OF GOLD NUT TEST LINKS AND APPROPRIATE STRAPS FOR ALL TERMINALS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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BRINCKERHOFF**

**METROPOLITAN
COUNCIL**

SOUTHWEST
Green Line Light Extension



60% SUBMISSION - 09/28/2015

**CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
BOOTLEG JUNCTION BOX INSTALLATION**

DISCIPLINE: **SYSTEMS**

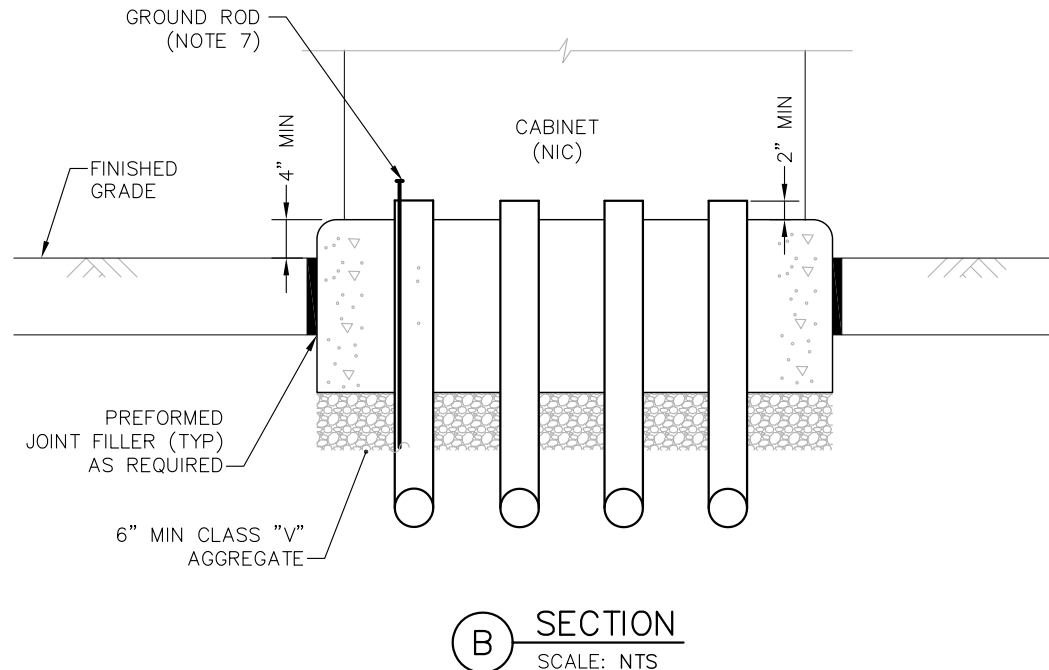
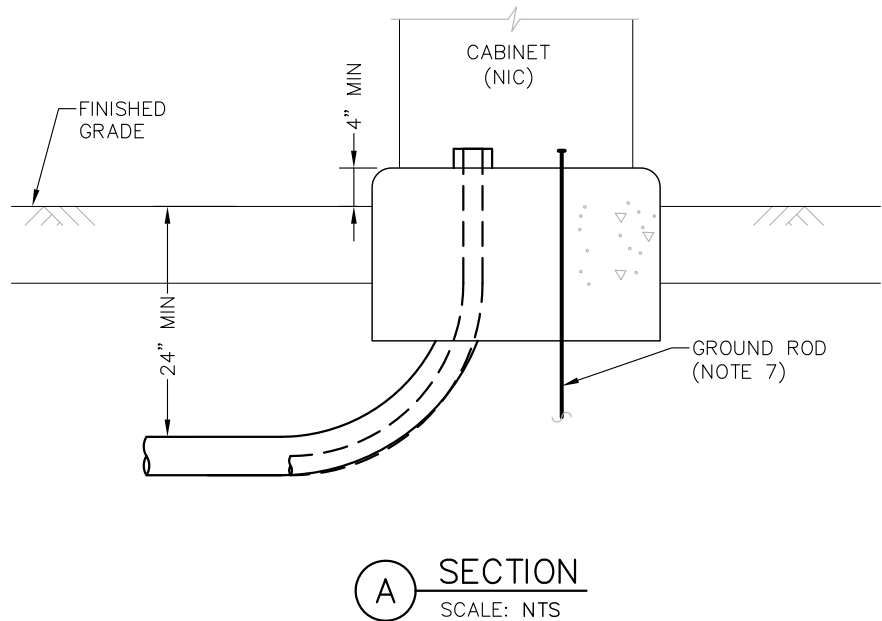
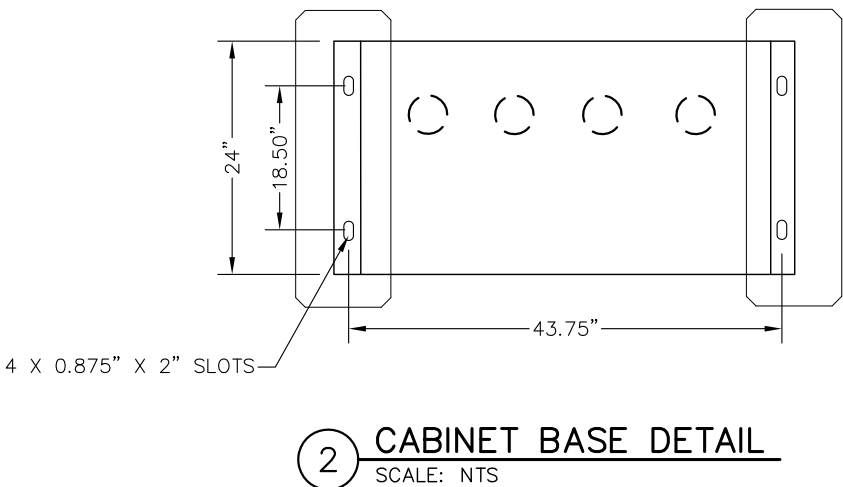
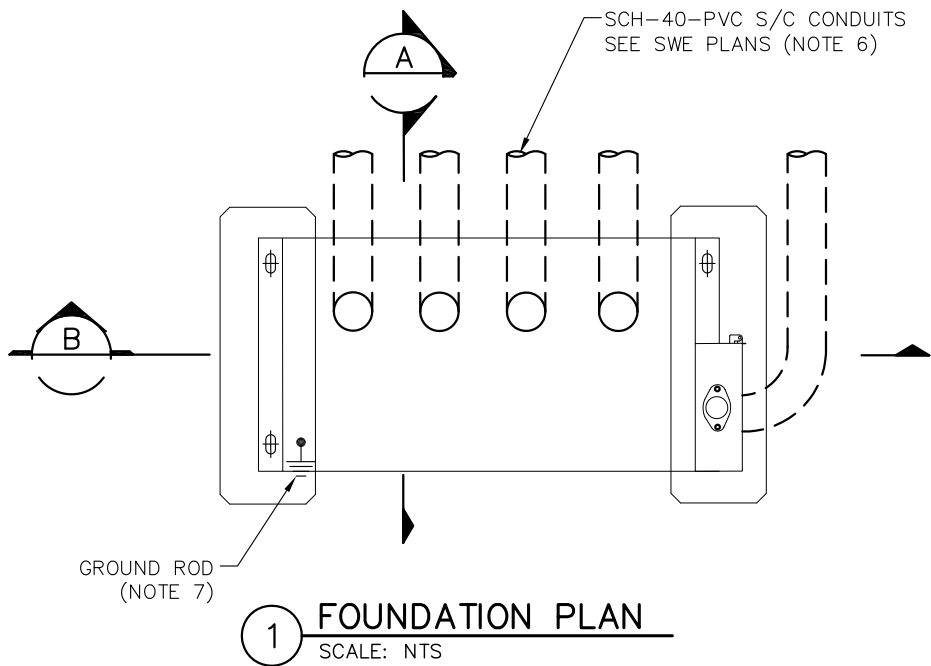
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**SHEET
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OF
162**

Sep. 15 2015 10:21 am V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\SYSTEM WIDE ELECTRICAL\W0-SYS-SWE-DTL-COM-001.dwg By: FergTK

NOTES:

1. THE ANCHOR BOLTS, NUTS AND WASHERS FOR THE CONTROLLER CABINET SHALL BE FURNISHED ACCORDING TO THE CABINET MFGR SPECIFICATIONS. ANCHOR BOLTS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.) (NIC).
2. THE UPPER PART OF THE EQUIPMENT PLINTHS SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER.
3. THE TOP OF THE CONDUITS SHALL BE CAPPED AFTER INSTALLATION.
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET AS NECESSARY AND SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.) OR WITH THE BASE DIMENSIONS OF THE CABINET.
5. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PLINTHS IN ACCORDANCE WITH Mn/DOT STANDARD CONCRETE DESIGNS.
6. THE EXACT LOCATION AND NUMBER OF CONDUITS SHALL BE DETERMINED BY THE CASE MFG SPECIFICATIONS. CONTRACTOR TO PROVIDE KNOCK-OUT SPACE IN FINISHED GRADE FOR ACCESS TO CONDUIT ENTRANCE.
7. ATTACH TO GROUND ROD TO INTERNAL GROUND LUG WITH #2/0 GROUNDING CONDUCTOR FOR FOUNDATIONS LESS THAN 15' FROM $\varnothing$ TRACK. USE #6 BARE COPPER GROUNDING CONDUCTOR FOR FOUNDATIONS BEYOND 15' FROM $\varnothing$ TRACK. (NIC)
8. USE AN ADEQUATE POST-INSTALLED CHEMICAL SET ANCHOR BOLT OF A DESIGN SUBMITTED FOR APPROVAL. (NIC)
9. CONCRETE PLINTHS SHALL BE POURED BASED ON CABINET MFG SPECIFICATIONS. PRE-CAST PLINTHS/PIERS MAY BE USED IN LIEU OF POURED PLINTHS. EXACT SIZE AND DEPTH OF PIERS/PLINTHS TO BE DETERMINED BY MFG SPECIFICATIONS AND CASE LOAD. FOUNDATION DESIGN MUST BE SUBMITTED FOR APPROVAL.
10. PRECAST OR POURED PLINTHS SHALL BE BASED ON PTMW P/N 41040J CASE OR APPROVED EQUAL. SEE DRAWING SYS-SIG-DTL-016 FOR ADDITIONAL DETAILS OF CASE. (NIC)



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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CONSULTING ENGINEERING
MINNEAPOLIS MINNESOTA

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METROPOLITAN
C O U N C I L

SOUTHWEST
Green Line LRT Extension



CIVIL WEST - VOLUME 12
SYSTEMWIDE ELECTRICAL
INTRUSION DETECTION CABINET
TYPICAL FOUNDATION INSTALLATION

DISCIPLINE: **SYSTEMS**

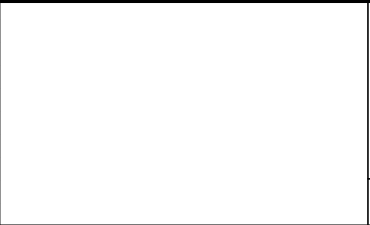
SHEET NAME: **W0-SYS-SWE-DTL-COM-001**

SHEET
134
OF
162

Sep, 18 2015 04:41 pm V:\3400_ADC\CAD\CAD\SYSTEMS\PLAN SHEETS\OCS\CE_ CW & OMF\W0-SYS-OCS-PFS.dwg By: butlerj2

STRUCTURE NUMBER	STATION	OFFSET (FT)	DIRECTION	REFERENCE TRACK	NORTHING	EASTING	FND TYPE	REFERENCE TOP OF FOUNDATION	MSE PROJECTION (FT)	EMBEDMENT DEPTH (FT)	FOUNDATION DRAWING NUMBER	CONDUIT NUMBER-SIZE	COMMENTS
W207765A	—	—	R	2	124994.7218	483998.8388	FD1A	TOR	—	—	FND—001	—	—
W207765B	—	—	R	2	125007.0553	483992.2142	FD1A	TOR	—	—	FND—001	—	—
W207814	2078+14	7.00	L	2	125024.5478	484039.5747	FD1A	TOR	—	—	FND—001	—	—
W208172B	2081+72	8.00	R	2	125180.6153	484361.8379	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208172A	2081+72	25.00	L	2	125209.6871	484346.2228	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208174	2081+74	7.00	L	2	125194.8940	484356.7216	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208226A	2082+26	8.00	R	2	125206.2852	484409.6294	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208226B	2082+26	25.00	L	2	125235.3570	484394.0144	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208294A	2082+94	8.00	R	2	125238.2535	484469.1473	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208294B	2082+94	25.00	L	2	125267.3253	484453.5323	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208360A	2083+60	8.00	R	2	125269.2966	484526.9427	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208360B	2083+60	25.00	L	2	125298.3684	484511.3276	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208435	2084+35	7.00	L	2	125317.9999	484585.9172	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208455	2084+55	7.35	L	2	125327.7688	484603.3691	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208500	2085+00	7.22	L	2	125348.2945	484643.8321	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208519	2085+19	7.64	L	2	125356.8692	484661.9007	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208555	2085+55	7.75	L	2	125369.3466	484695.8697	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208600	2086+00	8.51	L	2	125379.4279	484741.2205	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208645	2086+45	8.85	L	2	125380.7999	484787.7679	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208690	2086+90	8.88	L	2	125373.4937	484833.7913	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208735	2087+35	8.60	L	2	125357.7731	484877.6353	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208780	2087+80	8.02	L	2	125334.2322	484917.7363	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208825	2088+25	7.75	L	2	125304.8248	484953.2696	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208870	2088+70	7.83	L	2	125272.3488	484985.2564	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W208935	2089+35	7.25	L	2	125223.5872	485028.3900	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209015	2090+15	7.00	L	2	125163.8741	485081.6292	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209115	2091+15	7.00	L	2	125089.4483	485148.4183	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209201	2092+01	7.04	L	2	125028.1728	485207.3271	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209286	2092+86	7.03	L	2	124971.6591	485270.8372	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209352	2093+52	7.41	L	2	124932.2067	485322.4946	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209372	2093+72	7.00	L	2	124920.0675	485338.3893	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209482	2094+82	7.00	L	2	124855.1701	485427.2055	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209592	2095+92	7.00	L	2	124790.2728	485516.0218	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209612	2096+12	7.00	L	2	124778.4732	485532.1703	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209667	2096+67	7.06	L	2	124746.3272	485576.7982	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209733	2097+33	7.25	L	2	124712.0854	485632.0461	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209793	2097+93	7.36	L	2	124686.8048	485686.4584	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209859	2098+59	7.37	L	2	124666.8349	485748.3129	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209925	2099+25	7.25	L	2	124654.8961	485812.2052	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W209991	2099+91	7.05	L	2	124650.9744	485877.0858	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W210076	2100+76	7.00	L	2	124651.7182	485962.0825	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W210176	2101+76	7.00	L	2	124652.9812	486062.0745	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W210301	2103+01	7.00	L	2	124654.5599	486187.0646	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W210451	2104+51	7.00	L	2	124656.4544	486337.0526	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W210576	2105+76	7.00	L	2	124658.0332	486462.0426	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W210702	2107+02	7.01	L	2	124660.5592	486587.0170	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W210817	2108+17	7.01	L	2	124668.7082	486701.7277	FD1A	TOR	—	—	FND—001	—	—
W210937	2109+37	7.00	L	2	124683.5729	486820.8041	FD1A	TOR	—	—	FND—001	—	—
W211037B	2110+37	7.04	L	2	124697.1227	486919.8818	FA1	TOR	—	—	FND—003	—	—
W211037A	2110+37	8.00	R	2	124682.2196	486921.9140	FA1	TOR	—	—	FND—003	—	—

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



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CIVIL WEST - VOLUME 12
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION SCHEDULE
SHEET 1 OF 9

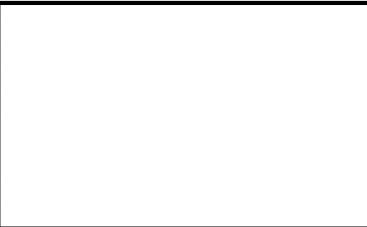
DISCIPLINE: OCS

SHEET NAME: W0-SYS-OCS-PFS-001

Sep. 18 2015 04:42 pm v:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\OCS\CE_ CW & OMF\W0-SYS-OCS-PFS.dwg By: butlerj2

STRUCTURE NUMBER	STATION	OFFSET (FT)	DIRECTION	REFERENCE TRACK	NORTHING	EASTING	FND TYPE	REFERENCE TOP OF FOUNDATION	MSE PROJECTION (FT)	EMBEDMENT DEPTH (FT)	FOUNDATION DRAWING NUMBER	CONDUIT NUMBER-SIZE	COMMENTS
W211057A	2110+57	7.04	L	2	124699.8257	486939.6983	FD1A	TOR	—	—	FND—001	—	—
W211057B	2110+57	8.00	R	2	124684.9235	486941.7304	FD1A	TOR	—	—	FND—001	—	—
W211180	2111+80	9.17	L	2	124718.4504	487060.5412	FD1B	TOR	—	—	FND—001	—	—
W211320B	2113+20	18.59	L	2	124746.7004	487197.9846	FD1B	TOR	—	—	FND—001	—	—
W211320A	2113+20	8.00	L	2	124736.2094	487199.4152	FD1B	TOR	—	—	FND—001	—	—
W211460B	2114+60	22.37	L	2	124769.3645	487336.1755	FD1A	TOR	—	—	FND—001	—	—
W211460B	2114+60	8.00	L	2	124755.1241	487338.1278	FD1A	TOR	—	—	FND—001	—	—
W211480A	2114+80	22.37	L	2	124772.0667	487355.9921	FA1	TOR	—	—	FND—003	—	—
W211480B	2114+80	8.00	L	2	124757.8263	487357.9444	FA1	TOR	—	—	FND—003	—	—
W211600A	2116+00	8.00	R	2	124758.1868	487479.0095	FD1A	TOR	—	—	FND—001	—	—
W211600B	2116+00	38.38	L	2	124804.1367	487472.7438	FD1A	TOR	—	—	FND—001	—	—
W211740B	2117+40	38.38	L	2	124823.0518	487611.4601	FD1A	TOR	—	—	FND—001	—	—
W211740A	2117+40	8.00	R	2	124777.1021	487617.7258	FD1A	TOR	—	—	FND—001	—	—
W211890B	2118+90	8.00	L	2	124813.2218	487764.1887	FD1A	TOR	—	—	FND—001	—	—
W211890A	2118+90	22.38	L	2	124827.4662	487762.2572	FD1A	TOR	—	—	FND—001	—	—
W212040B	2120+40	8.00	L	2	124833.4878	487912.8108	FD1A	TOR	—	—	FND—001	—	—
W212040B	2120+40	17.95	L	2	124843.4177	487911.9656	FD1A	TOR	—	—	FND—001	—	—
W212175	2121+75	9.84	L	2	124853.5885	488046.2851	FD1A	TOR	—	—	FND—001	—	—
W212296	2122+96	8.67	L	2	124872.4596	488165.6398	FD1A	TOR	—	—	FND—001	—	—
W212392	2123+92	8.07	L	2	124895.3481	488258.5254	FD1A	TOR	—	—	FND—001	—	—
W212489	2124+89	7.42	L	2	124925.5401	488349.2477	FD1A	TOR	—	—	FND—001	—	—
W212604	2126+04	7.01	L	2	124969.4905	488455.9364	FD1A	TOR	—	—	FND—001	—	—
W212720	2127+20	7.25	L	2	125015.5169	488561.4186	FD1A	TOR	—	—	FND—001	—	—
W212806	2128+06	7.50	L	2	125053.1643	488638.3559	FD1A	TOR	—	—	FND—001	—	—
W212873	2128+73	7.60	L	2	125088.5488	488693.9656	FD1A	TOR	—	—	FND—001	—	—
W212940	2129+40	7.77	L	2	125130.9699	488744.5013	FD1A	TOR	—	—	FND—001	—	—
W213007	2130+07	7.82	L	2	125179.5724	488789.1444	FD1A	TOR	—	—	FND—001	—	—
W213074	2130+74	7.73	L	2	125233.5314	488827.1345	FD1A	TOR	—	—	FND—001	—	—
W213141	2131+41	7.51	L	2	125291.9276	488857.8294	FD1A	TOR	—	—	FND—001	—	—
W213195	2131+95	7.70	L	2	125341.4969	488876.5466	FA1	TOR	—	—	FND—003	—	—
W213210	2132+10	7.53	L	2	125355.7344	488881.2683	FD1A	TOR	—	—	FND—001	—	—
W213309	2133+09	7.00	L	2	125450.7275	488906.9196	FD1B	TOR	—	—	FND—001	—	—
W213418	2134+18	7.20	L	2	125557.3786	488932.7324	FD1B	TOR	—	—	FND—001	—	—
W213438	2134+38	7.17	L	2	125576.7872	488937.5599	FA1	TOR	—	—	FND—003	—	—
W213542	2135+42	6.81	L	2	125677.5266	488964.2650	FD1A	TOR	—	—	FND—001	—	—
W213667	2136+67	6.87	L	2	125796.4085	489000.9871	FD1A	TOR	—	—	FND—001	—	—
W213797	2137+97	7.41	L	2	125918.5572	489046.8224	FD1A	TOR	—	—	FND—001	—	—
W213927	2139+27	7.53	L	2	126037.3128	489100.8932	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W214057	2140+57	7.62	L	2	126152.2955	489162.5962	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W214187	2141+87	7.68	L	2	126263.0136	489231.6688	FD3A	TOR	13	—	FND—004	—	—
W214322	2143+22	7.70	L	2	126372.9702	489310.8833	FD3A	TOR	12	—	FND—004	—	—
W214457	2144+57	7.69	L	2	126477.3101	489397.3625	FD3A	TOR	11	—	FND—004	—	—
W214592	2145+92	7.64	L	2	126575.5526	489490.7079	FD3A	TOR	7	—	FND—004	—	—
W214727	2147+27	7.56	L	2	126667.2452	489590.4887	FD1A	TOR	—	—	FND—001	—	—
W214862	2148+62	7.25	L	2	126751.8147	489696.3577	FD1A	TOR	—	—	FND—001	—	—
W214997	2149+97	7.00	L	2	126829.0853	489807.6430	FD1A	TOR	—	—	FND—001	—	—
W215112A	2151+12	6.74	L	2	126888.8431	489906.4410	FA1	TOR	—	—	FND—003	—	—
W215112B	2151+12	22.19	L	2	126902.3967	489899.0202	FA1	TOR	—	—	FND—003	—	—
W215132A	2151+32	6.50	L	2	126898.4587	489923.9734	FD1B	TOR	—	—	FND—001	—	—
W215132B	2151+32	22.18	L	2	126912.2148	489916.4400	FD1A	TOR	—	—	FND—001	—	—

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





60% SUBMISSION - 09/28/15



CIVIL WEST - VOLUME 12
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION SCHEDULE
SHEET 2 OF 9

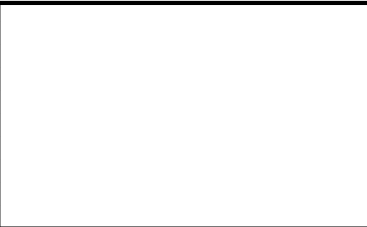
DISCIPLINE: OCS

SHEET NAME: W0-SYS-OCS-PFS-002

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STRUCTURE NUMBER	STATION	OFFSET (FT)	DIRECTION	REFERENCE TRACK	NORTHING	EASTING	FND TYPE	REFERENCE TOP OF FOUNDATION	MSE PROJECTION (FT)	EMBEDMENT DEPTH (FT)	FOUNDATION DRAWING NUMBER	CONDUIT NUMBER-SIZE	COMMENTS
W215269	2152+69	6.03	L	2	126962.4561	490045.3797	FD1B	TOR	—	—	FND—001	—	—
W215404B	2154+04	22.00	L	2	127038.1596	490158.2936	FD1B	TOR	—	—	FND—001	—	—
W215404A	2154+04	8.00	R	2	127011.4492	490171.9522	FD1B	TOR	—	—	FND—001	—	—
W215517B	2155+17	21.75	L	2	127089.9394	490257.3655	FD1A	TOR	—	—	FND—001	—	—
W215517A	2155+17	6.76	L	2	127076.8178	490264.6209	FD1B	TOR	—	—	FND—001	—	—
W215537A	2155+37	6.76	L	2	127086.5829	490282.0704	FD1A	TOR	—	—	FND—001	—	—
W215537B	2155+37	21.75	L	2	127099.7085	490274.8173	FD1A	TOR	—	—	FND—001	—	—
W215627	2156+27	6.81	L	2	127132.9039	490359.6431	FD1A	TOR	—	—	FND—001	—	—
W215753	2157+53	7.00	L	2	127202.4428	490463.8516	FD1A	TOR	—	—	FND—001	—	—
W215903	2159+03	7.00	L	2	127287.5132	490587.4476	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W216063	2160+63	7.00	L	2	127378.2287	490719.2455	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W216223	2162+23	7.00	L	2	127468.9445	490851.0432	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W216343	2163+43	7.01	L	2	127537.0037	490949.8557	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W216428	2164+28	7.08	L	2	127586.2450	491018.8270	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W216513	2165+13	7.58	L	2	127639.2417	491084.7808	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W216598	2165+98	7.70	L	2	127697.3080	491146.2168	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W216683	2166+83	7.74	L	2	127760.4386	491201.8096	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W216768	2167+68	7.75	L	2	127828.4985	491251.4485	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W216833	2168+33	7.76	L	2	127883.2618	491284.9206	FA1	TOR	—	—	FND—003	—	—
W216853	2168+53	7.75	L	2	127900.7666	491294.5578	FD1B	TOR	—	—	FND—001	—	—
W216938	2169+38	8.04	L	2	127977.1145	491330.7028	FD1A	TOR	—	—	FND—001	—	—
W217023	2170+23	7.90	L	2	128055.9730	491361.0392	FD1B	TOR	—	—	FND—001	—	—
W217038	2170+38	7.97	L	2	128070.0134	491365.8301	FA1	TOR	—	—	FND—003	—	—
W217118	2171+18	7.22	L	2	128145.9273	491391.5609	FD1B	TOR	—	—	FND—001	—	—
W217242	2172+42	7.00	L	2	128263.0110	491429.3386	FD3A	TOR	18	—	FND—004	—	—
W220626	2206+26	6.93	L	2	128410.3908	491476.6767	FD3A	TOR	14	—	FND—004	—	—
W220785	2207+85	7.16	L	2	128561.2102	491523.8462	FD3A	TOR	11	—	FND—004	—	—
W220925	2209+25	7.16	L	2	128696.1982	491559.4976	FD3A	TOR	10	—	FND—004	—	—
W221045	2210+45	7.15	L	2	128813.2822	491584.2502	FD3A	TOR	9	—	FND—004	—	—
W221145	2211+45	7.00	L	2	128911.6325	491601.7675	FD1A	TOR	—	—	FND—001	—	—
W221225	2212+25	6.55	L	2	128990.4304	491616.3674	FD1A	TOR	—	—	FND—001	—	—
W221285	2212+85	7.23	L	2	129049.4293	491630.4769	FD1A	TOR	—	—	FND—001	—	—
W221345	2213+45	7.93	L	2	129106.5167	491652.4235	FD1A	TOR	—	—	FND—001	—	—
W221402	2214+02	8.18	L	2	129157.0021	491681.3681	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221459	2214+59	8.26	L	2	129202.7710	491717.3527	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221516	2215+16	8.16	L	2	129242.8274	491759.6014	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221573	2215+73	7.89	L	2	129276.3081	491807.1932	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221610	2216+10	7.33	L	2	129294.0851	491840.9199	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221630	2216+30	7.46	L	2	129302.5062	491859.0563	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221667	2216+67	6.72	L	2	129315.3444	491894.4282	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221687	2216+87	6.60	L	2	129321.5622	491913.4330	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221757	2217+57	7.00	L	2	129341.9240	491980.5448	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221837	2218+37	7.37	L	2	129364.5723	492057.2181	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221857	2218+57	7.34	L	2	129370.3340	492076.3661	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221913	2219+13	7.12	L	2	129388.5817	492129.0285	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221934	2219+34	7.27	L	2	129396.4795	492147.3988	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W221987	2219+87	7.16	L	2	129419.8606	492194.8523	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W222061	2220+61	7.23	L	2	129458.9909	492256.3235	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W222134	2221+34	7.44	L	2	129504.5271	492312.7858	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W222229	2222+29	7.00	L	2	129566.0266	492385.2162	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL




60% SUBMISSION - 09/28/15



**CIVIL WEST - VOLUME 12
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION SCHEDULE
SHEET 3 OF 9**

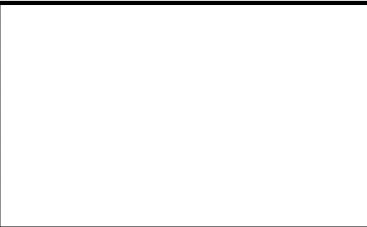
DISCIPLINE:
OCS

SHEET NAME:
W0-SYS-OCS-PFS-003

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STRUCTURE NUMBER	STATION	OFFSET (FT)	DIRECTION	REFERENCE TRACK	NORTHING	EASTING	FND TYPE	REFERENCE TOP OF FOUNDATION	MSE PROJECTION (FT)	EMBEDMENT DEPTH (FT)	FOUNDATION DRAWING NUMBER	CONDUIT NUMBER-SIZE	COMMENTS
W222354	2223+54	7.00	L	2	129647.3804	492480.1191	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W222504	2225+04	7.00	L	2	129745.0050	492594.0026	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W222692	2226+92	7.00	L	2	129867.3611	492736.7365	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W222832	2228+32	7.00	L	2	129958.4773	492843.0277	FD3A	TOR	26	—	FND-004	—	—
W222933	2229+33	6.93	L	2	130024.1600	492919.7528	FD3A	TOR	26	—	FND-004	—	—
W223015	2230+15	7.46	L	2	130078.7937	492980.1046	FD3A	TOR	24	—	FND-004	—	—
W223087	2230+87	7.75	L	2	130131.0488	493027.9713	FD3A	TOR	17	—	FND-004	—	—
W223159	2231+59	7.94	L	2	130189.0657	493068.8212	FD1A	TOR	—	—	FND-001	—	—
W223211	2232+11	7.99	L	2	130233.7636	493093.3947	FA1	TOR	—	—	FND-003	—	—
W223231	2232+31	8.00	L	2	130251.8777	493101.8636	FD1B	TOR	—	—	FND-001	—	—
W223303	2233+03	7.93	L	2	130318.4233	493126.5363	FD1A	TOR	—	—	FND-001	—	—
W223375	2233+75	7.74	L	2	130387.5750	493142.4253	FD1B	TOR	—	—	FND-001	—	—
W223395	2233+95	7.66	L	2	130407.3665	493145.2785	FA1	TOR	—	—	FND-003	—	—
W223447	2234+47	7.34	L	2	130458.0744	493149.4765	FD1A	TOR	—	—	FND-001	—	—
W223518A	2235+18	7.06	L	2	130528.4420	493150.1638	FA1	TOR	—	—	FND-003	—	—
W223518B	2235+18	6.94	R	2	130528.6426	493164.1624	FA1	TOR	—	—	FND-003	—	—
W223538B	2235+38	7.06	R	2	130548.6381	493164.0010	FD1A	TOR	—	—	FND-001	—	—
W223538A	2235+38	6.94	L	2	130548.4374	493150.0024	FD1A	TOR	—	—	FND-001	—	—
W223630A	2236+30	22.00	L	2	130640.5080	493133.6229	FD1B	TOR	—	—	FND-001	—	—
W223630B	2236+30	8.00	R	2	130640.9380	493163.6156	FD1B	TOR	—	—	FND-001	—	—
W223694A	2236+94	8.00	R	2	130705.1283	493162.6976	FD1B	TOR	—	—	FND-001	—	—
W223694B	2236+94	22.00	L	2	130704.6983	493132.7006	FD1B	TOR	—	—	FND-001	—	—
W223757B	2237+57	8.00	R	2	130768.4386	493161.7879	FD1B	TOR	—	—	FND-001	—	—
W223757A	2237+57	22.00	L	2	130768.0087	493131.7952	FD1B	TOR	—	—	FND-001	—	—
W223873B	2238+73	7.17	L	2	130883.4156	493144.9726	FD1A	TOR	—	—	FND-001	—	—
W223873B	2238+73	7.50	R	2	130883.6273	493159.6386	FD1A	TOR	—	—	FND-001	—	—
W223893B	2238+93	7.22	L	2	130903.4088	493144.6388	FA1	TOR	—	—	FND-003	—	—
W223893B	2238+93	7.45	R	2	130903.6206	493159.3049	FA1	TOR	—	—	FND-003	—	—
W223968	2239+68	8.26	L	2	130978.8429	493142.4903	FD1A	TOR	—	—	FND-001	—	—
W224059A	2240+59	15.56	L	2	131068.8932	493131.2112	FD1A	TOR	—	—	FND-001	—	—
W224059B	2240+59	8.00	L	2	131069.5376	493138.7392	FD1A	TOR	—	—	FND-001	—	—
W224172A	2241+72	22.07	L	2	131176.9638	493108.9993	FD1A	TOR	—	—	FND-001	—	—
W224172B	2241+72	8.00	L	2	131179.7044	493122.7980	FD1A	TOR	—	—	FND-001	—	—
W224312B	2243+12	38.38	L	2	131310.4075	493063.7358	FD1A	TOR	—	—	FND-001	—	—
W224312A	2243+12	8.00	R	2	131320.2211	493109.0606	FD1A	TOR	—	—	FND-001	—	—
W224472B	2244+72	38.38	L	2	131466.7841	493029.8777	FD1A	TOR	—	—	FND-001	—	—
W224472A	2244+72	8.00	R	2	131476.5976	493075.2025	FD1A	TOR	—	—	FND-001	—	—
W224632B	2246+32	22.33	L	2	131626.5465	493011.6573	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W224632A	2246+32	8.00	L	2	131629.6384	493025.6454	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W224808B	2248+08	17.77	L	2	131797.5937	492974.6228	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W224808A	2248+08	8.00	L	2	131800.1168	492984.0603	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W224968	2249+68	8.60	L	2	131954.0924	492941.3285	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W225087	2250+87	7.02	L	2	132071.0441	492914.5461	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W225107	2251+07	7.05	L	2	132090.5789	492910.2758	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W225227	2252+27	6.93	L	2	132208.1899	492887.8032	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W225247	2252+47	7.00	L	2	132227.8819	492884.3294	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W225427	2254+27	7.00	L	2	132405.2713	492853.7845	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W225607	2256+07	7.00	L	2	132582.6607	492823.2395	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W225627	2256+27	6.99	L	2	132602.3692	492819.8603	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W225787	2257+87	7.00	L	2	132760.0501	492792.6946	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





60% SUBMISSION - 09/28/15



CIVIL WEST - VOLUME 12
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION SCHEDULE
SHEET 4 OF 9

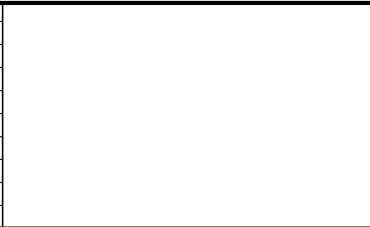
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SHEET NAME: W0-SYS-OCS-PFS-004

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STRUCTURE NUMBER	STATION	OFFSET (FT)	DIRECTION	REFERENCE TRACK	NORTHING	EASTING	FND TYPE	REFERENCE TOP OF FOUNDATION	MSE PROJECTION (FT)	EMBEDMENT DEPTH (FT)	FOUNDATION DRAWING NUMBER	CONDUIT NUMBER-SIZE	COMMENTS
W225807	2258+07	6.99	L	2	132779.7586	492789.3154	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W226007	2260+07	7.00	L	2	132976.8594	492755.3619	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W226227	2262+27	7.00	L	2	133193.6687	492718.0292	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W226407	2264+07	7.00	L	2	133371.0582	492687.4843	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W226547	2265+47	6.62	L	2	133509.1762	492664.2726	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W226647	2266+47	6.23	L	2	133608.7268	492651.2805	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W226727	2267+27	7.04	L	2	133689.2273	492646.2948	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W226807	2268+07	7.12	L	2	133769.8796	492650.3697	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W226897	2268+97	7.12	L	2	133859.5000	492665.2929	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W226987	2269+87	7.01	L	2	133946.6512	492690.9424	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W227077	2270+77	6.88	L	2	134030.2400	492726.0244	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W227187	2271+87	6.61	L	2	134128.5252	492776.1429	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W227297	2272+97	7.01	L	2	134225.8943	492827.3443	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W227317	2273+17	7.00	L	2	134243.5513	492836.7290	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W227487	2274+87	7.00	L	2	134393.7189	492916.4139	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W227687	2276+87	7.00	L	2	134570.3868	493010.1607	FD1B	TOR	—	—	FND-001	—	—
W227707	2277+07	6.99	L	2	134588.0457	493019.5418	FA1	TOR	—	—	FND-003	—	—
W227907	2279+07	7.00	L	2	134764.3275	493113.0732	FD1A	TOR	—	—	FND-001	—	—
W228107	2281+07	7.00	L	2	134941.3893	493207.0291	FD1A	TOR	—	—	FND-001	—	—
W228278	2282+78	7.04	L	2	135092.4428	493285.5435	FD1A	TOR	—	—	FND-001	—	—
W228408	2284+08	7.09	L	2	135211.0480	493339.6587	FD1A	TOR	—	—	FND-001	—	—
W228509	2285+09	7.11	L	2	135304.1045	493377.0333	FD1A	TOR	—	—	FND-001	—	—
W228585	2285+85	7.60	L	2	135375.2034	493402.1761	FD1A	TOR	—	—	FND-001	—	—
W228646	2286+46	8.58	L	2	135433.8568	493418.6822	FD1A	TOR	—	—	FND-001	—	—
W228709	2287+09	10.22	L	2	135494.4637	493427.7284	FD1A	TOR	—	—	FND-001	—	—
W228772B	2287+72	15.32	L	2	135555.6413	493424.8005	FD1A	TOR	—	—	FND-001	—	—
W228772B	2287+72	8.00	L	2	135555.8930	493432.1202	FD1A	TOR	—	—	FND-001	—	—
W228835B	2288+35	17.80	L	2	135616.0645	493415.9605	FD1A	TOR	—	—	FND-001	—	—
W228835A	2288+35	8.00	L	2	135617.9389	493425.5811	FD1A	TOR	—	—	FND-001	—	—
W228899A	2288+99	8.00	L	2	135678.2245	493410.4437	FD1A	TOR	—	—	FND-001	—	—
W228899B	2288+99	19.80	L	2	135674.7685	493399.1629	FD1A	TOR	—	—	FND-001	—	—
W228963B	2289+63	8.00	L	2	135736.4621	493386.6681	FD1A	TOR	—	—	FND-001	—	—
W228963A	2289+63	21.27	L	2	135730.7240	493374.7016	FD1A	TOR	—	—	FND-001	—	—
W229027B	2290+27	8.00	L	2	135790.8926	493354.7578	FD1A	TOR	—	—	FND-001	—	—
W229027A	2290+27	22.19	L	2	135782.9280	493343.0131	FD1A	TOR	—	—	FND-001	—	—
W229091A	2290+91	8.00	L	2	135840.3001	493315.3535	FD1A	TOR	—	—	FND-001	—	—
W229091B	2290+91	22.54	L	2	135830.4523	493304.6610	FD1A	TOR	—	—	FND-001	—	—
W229145B	2291+45	22.45	L	2	135866.2786	493268.1243	FA1	TOR	—	—	FND-003	—	—
W229145B	2291+45	8.00	L	2	135877.1826	493277.6040	FA1	TOR	—	—	FND-003	—	—
W229165B	2291+65	8.00	L	2	135890.4203	493262.6172	FD1A	TOR	—	—	FND-001	—	—
W229165A	2291+65	22.40	L	2	135879.5516	493253.1688	FD1A	TOR	—	—	FND-001	—	—
W229265B	2292+65	22.38	L	2	135944.5508	493177.4615	FD1B	TOR	—	—	FND-001	—	—
W229265B	2292+65	8.00	L	2	135955.4653	493186.8164	FD1B	TOR	—	—	FND-001	—	—
W229390A	2293+90	8.00	L	2	136036.8124	493091.9078	FD1B	TOR	—	—	FND-001	—	—
W229390B	2293+90	22.38	L	2	136025.8991	493082.5516	FD1B	TOR	—	—	FND-001	—	—
W229515A	2295+15	8.00	L	2	136118.1597	492996.9993	FD1A	TOR	—	—	FND-001	—	—
W229515B	2295+15	22.38	L	2	136107.2452	492987.6444	FD1A	TOR	—	—	FND-001	—	—
W229535A	2295+35	8.00	L	2	136131.1727	492981.8170	FA1	TOR	—	—	FND-003	—	—
W229535B	2295+35	22.38	L	2	136120.2582	492972.4620	FA1	TOR	—	—	FND-003	—	—
W229640B	2296+40	8.00	R	2	136211.6552	492912.5032	FD1A	TOR	—	—	FND-001	—	—

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





60% SUBMISSION - 09/28/15



CIVIL WEST - VOLUME 12
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION SCHEDULE
SHEET 5 OF 9

DISCIPLINE:

OCS

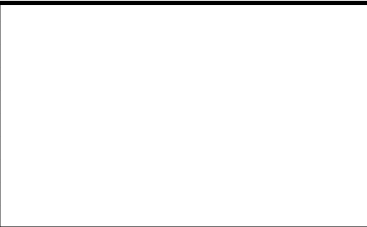
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STRUCTURE NUMBER	STATION	OFFSET (FT)	DIRECTION	REFERENCE TRACK	NORTHING	EASTING	FND TYPE	REFERENCE TOP OF FOUNDATION	MSE PROJECTION (FT)	EMBEDMENT DEPTH (FT)	FOUNDATION DRAWING NUMBER	CONDUIT NUMBER-SIZE	COMMENTS
W229640A	2296+40	38.38	L	2	136176.4441	492882.3234	FD1A	TOR	—	—	FND—001	—	—
W229765B	2297+65	8.00	R	2	136293.0024	492817.5947	FD1A	TOR	—	—	FND—001	—	—
W229765A	2297+65	38.38	L	2	136257.7914	492787.4149	FD1A	TOR	—	—	FND—001	—	—
W229915A	2299+15	8.00	L	2	136378.4708	492693.2920	FD1A	TOR	—	—	FND—001	—	—
W229915B	2299+15	22.37	L	2	136367.5549	492683.9421	FD1A	TOR	—	—	FND—001	—	—
W230035A	2300+35	19.90	L	2	136447.2828	492594.7205	FD1A	TOR	—	—	FND—001	—	—
W230035B	2300+35	8.00	L	2	136456.5474	492602.1993	FD1A	TOR	—	—	FND—001	—	—
W230155A	2301+55	8.00	L	2	136534.5517	492511.1910	FD1A	TOR	—	—	FND—001	—	—
W230155B	2301+55	14.16	L	2	136529.8773	492507.1854	FD1A	TOR	—	—	FND—001	—	—
W230295	2302+95	9.75	L	2	136624.3154	492403.7738	FD1A	TOR	—	—	FND—001	—	—
W230405	2304+05	9.75	L	2	136696.2057	492320.3389	FD1A	TOR	—	—	FND—001	—	—
W230495	2304+95	9.77	L	2	136758.2126	492254.1594	FD1A	TOR	—	—	FND—001	—	—
W231115	2311+15	9.38	L	2	137324.4307	492021.1825	FA1	TOR	—	—	FND—003	—	—
W231135	2311+35	9.77	L	2	137344.4253	492020.9412	FD1B	TOR	—	—	FND—001	—	—
W231230	2312+30	9.75	L	2	137439.8944	492026.1949	FD1A	TOR	—	—	FND—001	—	—
W231355	2313+55	9.75	L	2	137564.4877	492037.0401	FD1B	TOR	—	—	FND—001	—	—
W231375	2313+75	9.66	L	2	137584.3990	492038.8794	FA1	TOR	—	—	FND—003	—	—
W231520	2315+20	9.71	L	2	137728.8157	492051.4148	FD1A	TOR	—	—	FND—001	—	—
W231685	2316+85	9.16	L	2	137893.0610	492062.6834	FD1A	TOR	—	—	FND—001	—	—
W231870	2318+70	8.67	L	2	138077.6826	492067.2809	FD1A	TOR	—	—	FND—001	—	—
W232025B	2320+25	13.10	L	2	138232.5233	492064.0565	FA1	TOR	—	—	FND—003	—	—
W232025A	2320+25	7.85	L	2	138232.6733	492069.3110	FA1	TOR	—	—	FND—003	—	—
W232045B	2320+45	13.51	L	2	138252.5177	492063.7969	FD1A	TOR	—	—	FND—001	—	—
W232045A	2320+45	8.00	L	2	138252.6693	492069.3110	FD1A	TOR	—	—	FND—001	—	—
W233634B	2336+34	18.62	L	2	138397.0964	492059.8139	FD1B	TOR	—	—	FND—001	—	—
W233634A	2336+34	8.00	L	2	138397.6650	492070.4358	FD1B	TOR	—	—	FND—001	—	—
W233779B	2337+79	22.12	L	2	138542.5640	492057.4449	FD1B	TOR	—	—	FND—001	—	—
W233779A	2337+79	8.00	L	2	138542.6606	492071.5606	FD1B	TOR	—	—	FND—001	—	—
W233924B	2339+24	22.38	L	2	138687.7678	492058.3108	FD1A	TOR	—	—	FND—001	—	—
W233924A	2339+24	8.00	L	2	138687.6563	492072.6854	FD1A	TOR	—	—	FND—001	—	—
W233944B	2339+44	22.20	L	2	138707.7612	492058.6370	FA1	TOR	—	—	FND—003	—	—
W233944B	2339+44	7.83	L	2	138707.6497	492073.0115	FA1	TOR	—	—	FND—003	—	—
W234084B	2340+84	38.38	L	2	138847.8871	492043.5524	FD1A	TOR	—	—	FND—001	—	—
W234084A	2340+84	8.00	R	2	138847.5273	492089.9260	FD1A	TOR	—	—	FND—001	—	—
W234244A	2342+44	38.38	L	2	139007.8823	492044.7936	FD1A	TOR	—	—	FND—001	—	—
W234244B	2342+44	8.00	R	2	139007.5225	492091.1672	FD1A	TOR	—	—	FND—001	—	—
W234404B	2344+04	21.29	L	2	139167.1344	492062.5747	FD1A	TOR	—	—	FND—001	—	—
W234404A	2344+04	8.00	L	2	139167.5137	492075.8626	FD1A	TOR	—	—	FND—001	—	—
W234554	2345+54	10.15	L	2	139317.2765	492070.3762	FD1A	TOR	—	—	FND—001	—	—
W234674A	2346+74	8.00	R	2	139437.5108	492086.5243	FA1	TOR	—	—	FND—003	—	—
W234674B	2346+74	22.41	L	2	139437.6804	492056.1102	FA1	TOR	—	—	FND—003	—	—
W234694A	2346+94	8.00	R	2	139457.5069	492086.5384	FD1A	TOR	—	—	FND—001	—	—
W234694B	2346+94	22.14	L	2	139457.6743	492056.4035	FD1A	TOR	—	—	FND—001	—	—
W234819A	2348+19	21.50	L	2	139582.6996	492057.9404	FD1B	TOR	—	—	FND—001	—	—
W234819B	2348+19	7.50	R	2	139582.4746	492086.9395	FD1B	TOR	—	—	FND—001	—	—
W234882A	2348+82	22.00	L	2	139645.1366	492057.9247	FD1B	TOR	—	—	FND—001	—	—
W234882B	2348+82	8.00	R	2	139644.9038	492087.9238	FD1B	TOR	—	—	FND—001	—	—
W234944A	2349+44	21.50	L	2	139707.6958	492058.9100	FD1B	TOR	—	—	FND—001	—	—
W234944B	2349+44	7.50	R	2	139707.4709	492087.9092	FD1B	TOR	—	—	FND—001	—	—
W235069A	2350+69	22.06	L	2	139832.4290	492059.1696	FD1A	TOR	—	—	FND—001	—	—

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





60% SUBMISSION - 09/28/15



CIVIL WEST - VOLUME 12
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION SCHEDULE
SHEET 6 OF 9

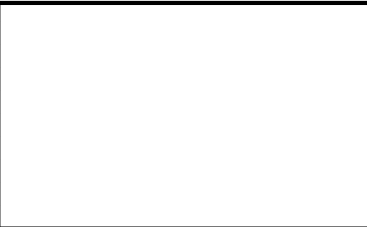
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STRUCTURE NUMBER	STATION	OFFSET (FT)	DIRECTION	REFERENCE TRACK	NORTHING	EASTING	FND TYPE	REFERENCE TOP OF FOUNDATION	MSE PROJECTION (FT)	EMBEDMENT DEPTH (FT)	FOUNDATION DRAWING NUMBER	CONDUIT NUMBER-SIZE	COMMENTS
W235069B	2350+69	8.00	R	2	139832.6439	492089.2265	FD1A	TOR	—	—	FND—001	—	—
W235089B	2350+89	22.13	L	2	139852.4245	492059.0257	FA1	TOR	—	—	FND—003	—	—
W235089A	2350+89	7.93	R	2	139852.6394	492089.0827	FA1	TOR	—	—	FND—003	—	—
W235185	2351+85	7.22	L	2	139948.0772	492070.7436	FD1A	TOR	—	—	FND—001	—	—
W235292	2352+92	7.70	L	2	140053.0007	492059.3810	FD1A	TOR	—	—	FND—001	—	—
W235398	2353+98	7.83	L	2	140156.8246	492040.4400	FD1A	TOR	—	—	FND—001	—	—
W235504	2355+04	7.63	L	2	140259.0214	492014.0145	FD1A	TOR	—	—	FND—001	—	—
W235610	2356+10	7.68	L	2	140358.8542	491979.6741	FD1A	TOR	—	—	FND—001	—	—
W235716	2357+16	7.68	L	2	140455.8172	491937.9072	FD1A	TOR	—	—	FND—001	—	—
W235822	2358+22	7.65	L	2	140549.3560	491888.9524	FD1A	TOR	—	—	FND—001	—	—
W235929	2359+29	7.57	L	2	140638.9359	491833.0904	FD1A	TOR	—	—	FND—001	—	—
W236035	2360+35	7.44	L	2	140724.0456	491770.6415	FD1A	TOR	—	—	FND—001	—	—
W236141	2361+41	7.58	L	2	140803.9966	491701.7437	FD1A	TOR	—	—	FND—001	—	—
W236247	2362+47	7.49	L	2	140878.6622	491627.2239	FD1A	TOR	—	—	FND—001	—	—
W236362	2363+62	7.00	L	2	140956.1827	491542.0254	FD1A	TOR	—	—	FND—001	—	—
W236502	2365+02	7.00	L	2	141049.2310	491437.4213	FD1A	TOR	—	—	FND—001	—	—
W236672	2366+72	7.00	L	2	141162.2182	491310.4020	FD1A	TOR	—	—	FND—001	—	—
W236872	2368+72	7.00	L	2	141295.1444	491160.9676	FD1A	TOR	—	—	FND—001	—	—
W237042	2370+42	7.00	L	2	141408.1316	491033.9484	FD1A	TOR	—	—	FND—001	—	—
W237182	2371+82	7.00	L	2	141501.1799	490929.3443	FD1A	TOR	—	—	FND—001	—	—
W237283	2372+83	7.02	L	2	141567.3687	490854.0941	FD1A	TOR	—	—	FND—001	—	—
W237363	2373+63	7.04	L	2	141617.2244	490792.2382	FD1A	TOR	—	—	FND—001	—	—
W237423	2374+23	7.04	L	2	141652.4563	490743.0492	FA1	TOR	—	—	FND—003	—	—
W237443	2374+43	7.04	L	2	141663.5364	490726.4037	FD1C	TOR	—	—	FND—001	—	—
W237504	2375+04	7.02	L	2	141695.3501	490675.0639	FA1	TOR	—	—	FND—003	—	—
W237524	2375+24	7.02	L	2	141705.3667	490657.7576	FD1C	TOR	—	—	FND—001	—	—
W237619	2376+19	7.00	L	2	141751.2526	490574.5651	FD1B	TOR	—	—	FND—001	—	—
W237714	2377+14	7.00	L	2	141796.6396	490491.1084	FD1C	TOR	—	—	FND—001	—	—
W237734	2377+34	7.00	L	2	141806.1928	490473.5420	FA1	TOR	—	—	FND—003	—	—
W237809	2378+09	7.00	L	2	141842.0265	490407.6517	FD1C	TOR	—	—	FND—001	—	—
W237829	2378+29	6.97	L	2	141851.6058	490390.0995	FA1	TOR	—	—	FND—003	—	—
W237899	2378+99	6.91	L	2	141885.0979	490328.6349	FD1A	TOR	—	—	FND—001	—	—
W237979	2379+79	6.92	L	2	141923.6481	490258.3969	FD1A	TOR	—	—	FND—001	—	—
W238054	2380+54	7.07	L	2	141963.0976	490193.9366	FD1A	TOR	—	—	FND—001	—	—
W238125	2381+25	7.39	L	2	142006.3521	490137.7138	FD1A	TOR	—	—	FND—001	—	—
W238190	2381+90	7.63	L	2	142053.0963	490091.1803	FD1A	TOR	—	—	FND—001	—	—
W238255	2382+55	7.73	L	2	142105.4781	490051.0625	FD1A	TOR	—	—	FND—001	—	—
W238320	2383+20	7.71	L	2	142162.6092	490018.0477	FD1A	TOR	—	—	FND—001	—	—
W238385	2383+85	7.54	L	2	142223.5176	489992.6960	FD1A	TOR	—	—	FND—001	—	—
W238450	2384+50	7.58	L	2	142287.0932	489975.1049	FD1A	TOR	—	—	FND—001	—	—
W238515	2385+15	7.24	L	2	142352.2215	489965.7638	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W238595	2385+95	7.01	L	2	142432.5528	489961.2301	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W238700	2387+00	7.00	L	2	142537.5399	489958.1687	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W238815	2388+15	7.00	L	2	142652.4957	489954.8436	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W238835	2388+35	7.00	L	2	142672.4836	489954.2706	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W239010	2390+10	7.00	L	2	142847.4106	489949.2176	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W239210	2392+10	7.00	L	2	143047.3394	489943.4425	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W239230	2392+30	7.01	L	2	143067.3268	489942.8538	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W239435	2394+35	7.00	L	2	143272.2456	489936.9456	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W239660	2396+60	7.00	L	2	143497.1518	489930.4489	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





60% SUBMISSION - 09/28/15



CIVIL WEST - VOLUME 12
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION SCHEDULE
SHEET 7 OF 9

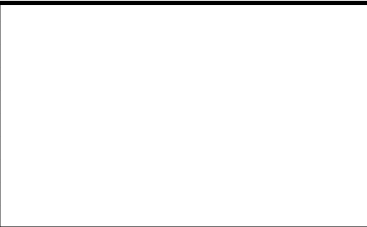
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STRUCTURE NUMBER	STATION	OFFSET (FT)	DIRECTION	REFERENCE TRACK	NORTHING	EASTING	FND TYPE	REFERENCE TOP OF FOUNDATION	MSE PROJECTION (FT)	EMBEDMENT DEPTH (FT)	FOUNDATION DRAWING NUMBER	CONDUIT NUMBER-SIZE	COMMENTS
W239885	2398+85	7.00	L	2	143722.0580	489923.9522	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W240110	2401+10	7.00	L	2	143946.9642	489917.4554	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W240335	2403+35	7.00	L	2	144171.8704	489910.9587	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W240540	2405+40	7.03	L	2	144376.7880	489905.0084	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W240560	2405+60	7.00	L	2	144396.7766	489904.4620	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W240730	2407+30	6.81	L	2	144566.8180	489900.1083	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W240750	2407+50	6.82	L	2	144586.8111	489899.7587	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W240925	2409+25	6.81	L	2	144762.0497	489900.1418	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W241105	2411+05	7.00	L	2	144942.0604	489905.0890	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W241125	2411+25	7.10	L	2	144962.0497	489905.6101	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W241285	2412+85	7.00	L	2	145121.9732	489910.6906	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W241305	2413+05	7.01	L	2	145141.9599	489911.3041	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W241435	2414+35	6.98	L	2	145271.9039	489915.3794	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W241455	2414+55	6.99	L	2	145291.8907	489915.9879	PA	—	—	—	SEE STR. PLANS	—	SEE STR. PLANS
W241570	2415+70	7.00	L	2	145406.6174	489919.5542	FD1B	TOR	—	—	FND-001	—	—
W241617	2416+17	7.00	L	2	145454.3377	489921.0388	FD1B	TOR	—	—	FND-001	—	—
W241656	2416+56	6.98	R	2	145492.0768	489936.1990	FD1A	TOR	—	—	FND-001	—	—
W241729	2417+29	6.41	R	2	145565.4272	489937.9136	FD1B	TOR	—	—	FND-001	—	—
W241749B	2417+49	7.00	L	2	145585.8348	489925.1330	FD1B	TOR	—	—	FND-001	—	—
W241749A	2417+49	6.41	R	2	145585.4175	489938.5360	FD1B	TOR	—	—	FND-001	—	—
W241821	2418+21	7.00	L	2	145657.9698	489927.3789	FD1B	TOR	—	—	FND-001	—	—
W241902	2419+02	7.08	L	2	145739.1657	489929.8246	FD1B	TOR	—	—	FND-001	—	—
W241996	2419+96	7.00	L	2	145832.4053	489932.8100	FD1B	TOR	—	—	FND-001	—	—
W242114	2421+14	7.10	L	2	145951.2155	489936.9030	FD1B	TOR	—	—	FND-001	—	—
W242134	2421+34	7.91	L	2	145971.1593	489938.3479	FA1	TOR	—	—	FND-003	—	—
W242157	2421+57	8.00	L	2	145995.5148	489943.7180	FD1A	TOR	—	—	FND-001	—	—
W242158	2421+58	27.06	L	2	146001.6986	489925.6743	FD1A	TOR	—	—	FND-001	—	—
W242188	2421+88	31.77	L	2	146037.0327	489935.5401	FD1A	TOR	—	—	FND-001	—	—
W242193	2421+93	8.00	L	2	146030.2128	489959.0116	FD1A	TOR	—	—	FND-001	—	—
W242219	2422+19	35.41	L	2	146070.1608	489954.0349	FD1A	TOR	—	—	FND-001	—	—
W242230	2422+30	8.00	L	2	146060.2664	489982.1330	FD1A	TOR	—	—	FND-001	—	—
W242250	2422+50	37.68	L	2	146097.8914	489979.8632	FD1A	TOR	—	—	FND-001	—	—
W242266	2422+66	8.00	L	2	146083.9437	490011.7427	FD1A	TOR	—	—	FND-001	—	—
W242281	2422+81	38.51	L	2	146118.7153	490011.3986	FD1A	TOR	—	—	FND-001	—	—
W242302	2423+02	8.00	L	2	146100.6047	490045.1421	FD1A	TOR	—	—	FND-001	—	—
W242327	2423+27	38.37	L	2	146138.2328	490058.5408	FD1A	TOR	—	—	FND-001	—	—
W242352	2423+52	8.00	R	2	146103.1317	490097.7634	FD1A	TOR	—	—	FND-001	—	—
W242402	2424+02	38.37	L	2	146163.8033	490129.0484	FD1A	TOR	—	—	FND-001	—	—
W242427	2424+27	8.00	R	2	146128.7014	490168.2701	FD1A	TOR	—	—	FND-001	—	—
W242502B	2425+02	38.37	L	2	146197.8637	490222.9677	FD1A	TOR	—	—	FND-001	—	—
W242502B	2425+02	8.00	R	2	146154.2710	490238.7768	FD1A	TOR	—	—	FND-001	—	—
W242602B	2426+02	38.37	L	2	146231.9565	490316.9766	FD1A	TOR	—	—	FND-001	—	—
W242602A	2426+02	8.00	R	2	146188.3638	490332.7857	FD1A	TOR	—	—	FND-001	—	—
W242728A	2427+28	22.36	L	2	146259.9743	490441.2002	FD1A	TOR	—	—	FND-001	—	—
W242728B	2427+28	8.00	L	2	146246.4719	490446.0969	FD1A	TOR	—	—	FND-001	—	—
W242835A	2428+35	8.01	L	2	146282.8246	490546.3028	FA1	TOR	—	—	FND-003	—	—
W242835B	2428+35	21.25	L	2	146295.2751	490541.7914	FA1	TOR	—	—	FND-003	—	—
W242855B	2428+55	20.87	L	2	146301.7329	490560.7160	FD1A	TOR	—	—	FND-001	—	—
W242855A	2428+55	8.00	L	2	146289.6307	490565.1049	FD1A	TOR	—	—	FND-001	—	—
W243015B	2430+15	14.54	L	2	146350.3254	490713.2903	FD1A	TOR	—	—	FND-001	—	—

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





60% SUBMISSION - 09/28/15



CIVIL WEST - VOLUME 12
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION SCHEDULE
SHEET 8 OF 9

DISCIPLINE: OCS

SHEET NAME: W0-SYS-OCS-PFS-008

[illegible]

60% SUBMISSION - 09/28/15

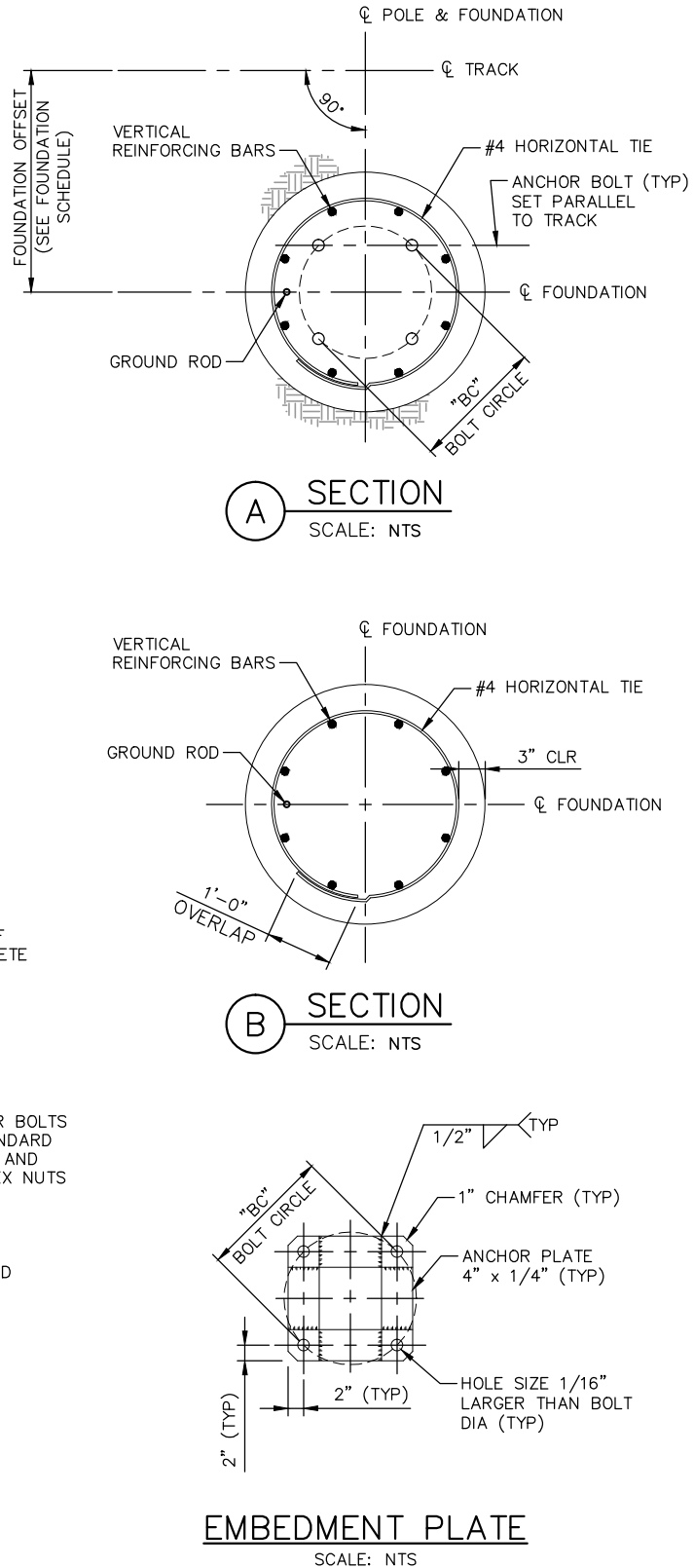
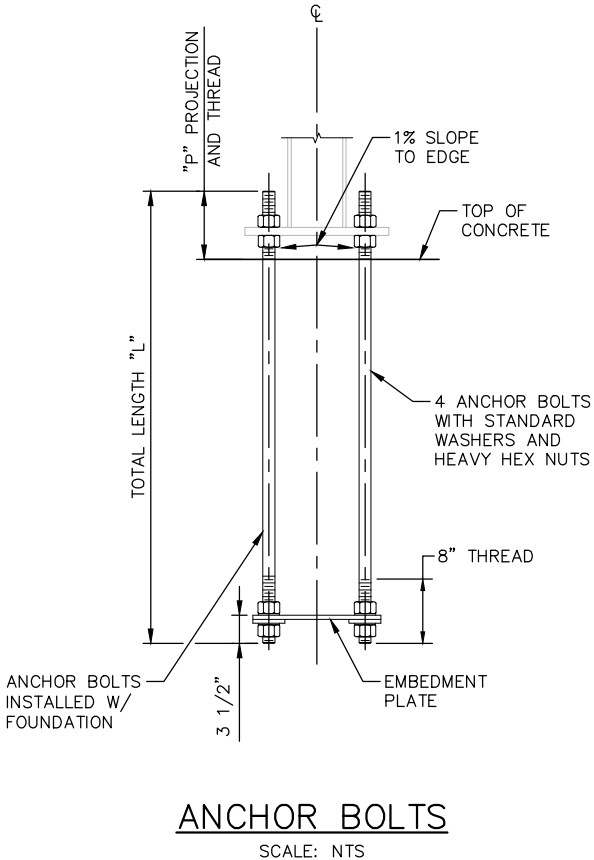
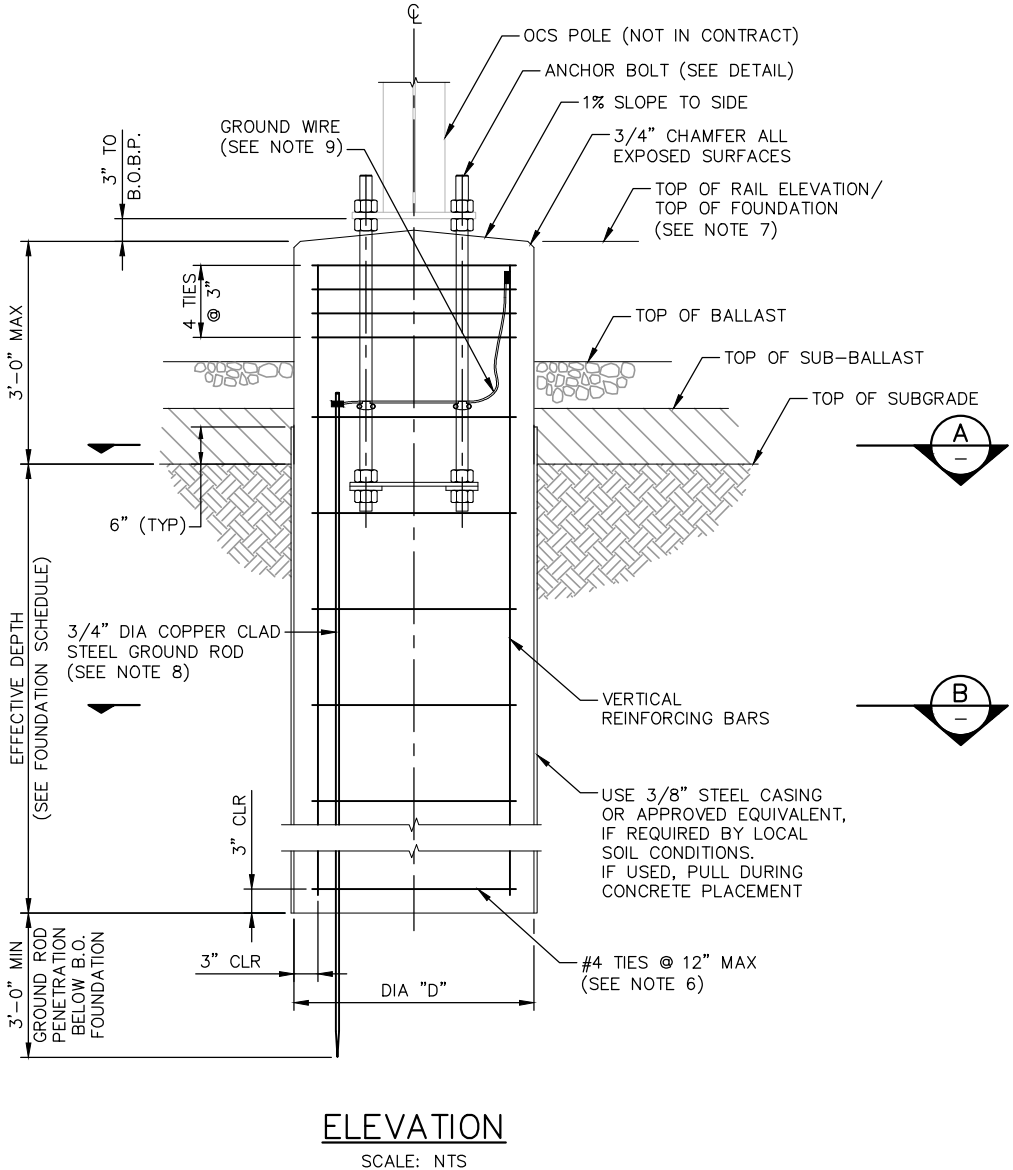


DISCIPLINE: **OCS**

SHEET
143
OF
162

Sep. 18 2015 04:45 pm V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\OCS\CE, CW & OMF\W0-SYS-OCS-FND.dwg By: butlerj2

BOLT AND REINFORCING SCHEDULE							
TYPE	D DIA (IN)	REINFORCEMENT		ANCHOR BOLT DIMENSIONS			
		SIZE	QUANTITY	BC (IN)	DIA (IN)	L (IN)	P (IN)
FD1A	30	#8	8	16	1.25	48	10
FD1B	36	#8	8	18	1.50	54	10
FD1C	36	#8	8	22	2.00	60	10
FD1D	30	#8	8	15	1.25	48	10
FD1E	36	#8	8	19	1.50	54	10
FD1F	36	#8	8	23	1.75	60	10



- NOTES:
1. MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS AND THE SPECIFICATIONS.
 2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI.
 3. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 SPECIFICATIONS, LATEST EDITION.
 4. PROVIDE BOLT PATTERN TEMPLATE FOR ANCHOR BOLT INSTALLATION.
 5. ROTATE REINFORCEMENT CAGE TO AVOID CONFLICT WITH ANCHOR BOLTS AND EMBEDMENT PLATE.
 6. NO. 4 SPIRALS AT 4 INCHES (MAXIMUM) PITCH MAY BE SUBSTITUTED FOR REBAR TIES.
 7. SEE FOUNDATION SCHEDULE FOR REFERENCE TOP OF FOUNDATION, CONDUIT LOCATIONS AND NUMBERS, FOUNDATION TYPES, OFFSETS AND EFFECTIVE DEPTH. CONDUIT LOCATIONS AND NUMBERS MUST BE COORDINATED WITH SYSTEMWIDE ELECTRICAL PLAN AND DETAILS, TRAFFIC AND LRT SIGNALS DRAWINGS.
 8. INSTALL A 3/4" DIA COPPER CLAD STEEL GROUND ROD IN EACH FOUNDATION AS SHOWN, DRIVEN VERTICALLY.
 9. EXOTHERMICALLY WELD 4/0 GROUND WIRE TO REBAR CAGE AND GROUND ROD, AND CLAMP TO ANCHOR BOLTS USING A BURNDY GAR GROUND CONNECTOR, OR APPROVED EQUAL.
 10. POLE TO GROUND RESISTANCE SHALL NOT EXCEED 25 OHMS. USE ADDITIONAL GROUND RODS AS REQUIRED.
 11. REFER TO SYSTEMWIDE ELECTRICAL PLAN AND DETAILS FOR DUCT BANK LAYOUT, CONDUIT LAYOUT AND CONDUIT DETAILS AT OCS FOUNDATIONS.
 12. TACK WELD TOP AND BOTTOM TIES OF REINFORCEMENT CAGE TO VERTICAL REINFORCEMENT.

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60% SUBMISSION - 09/28/15	

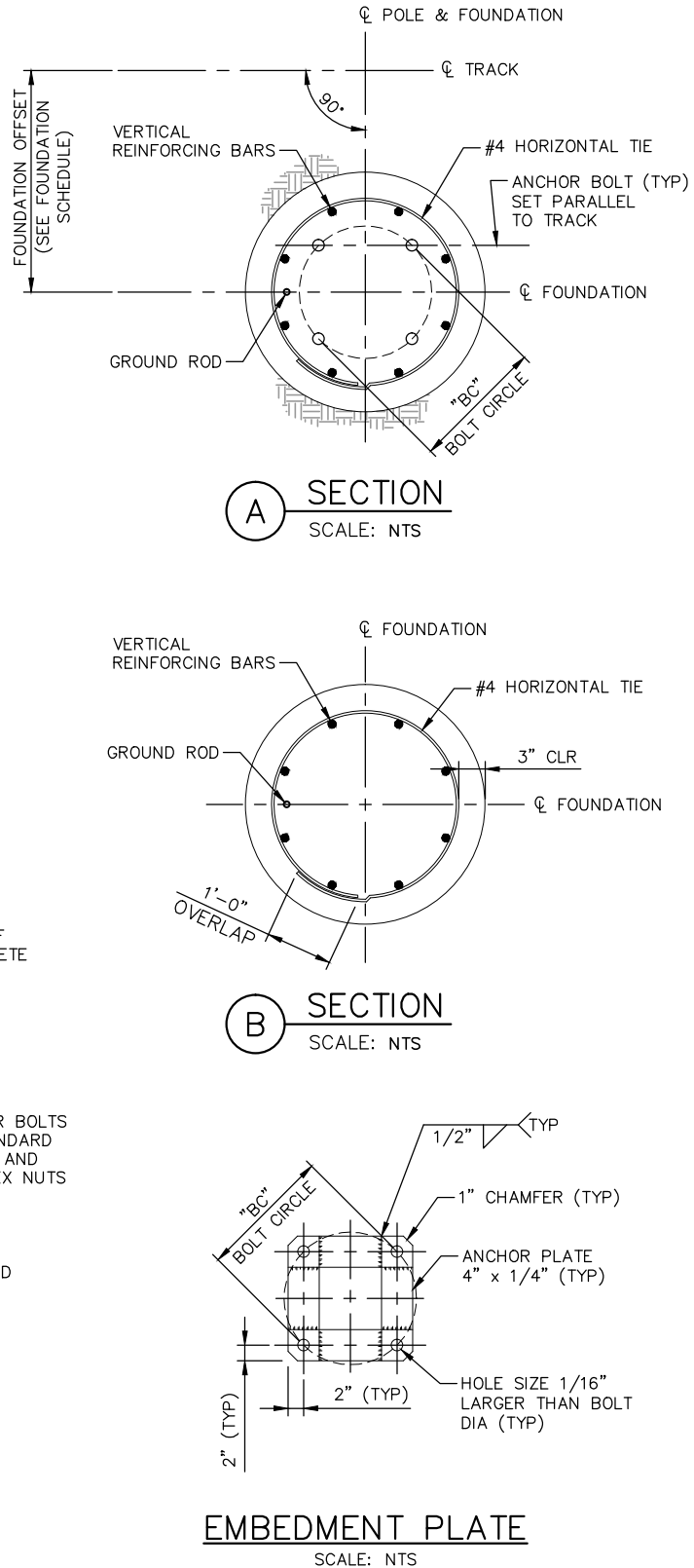
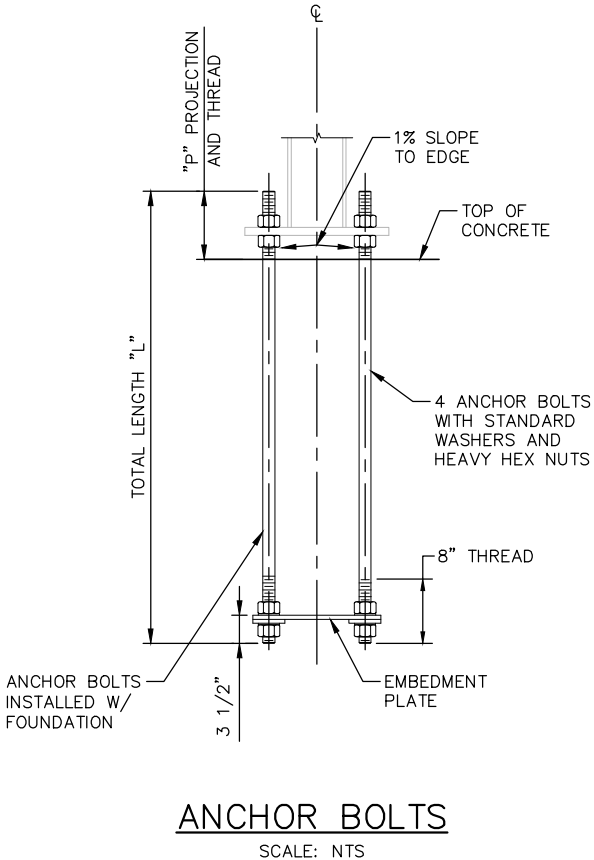
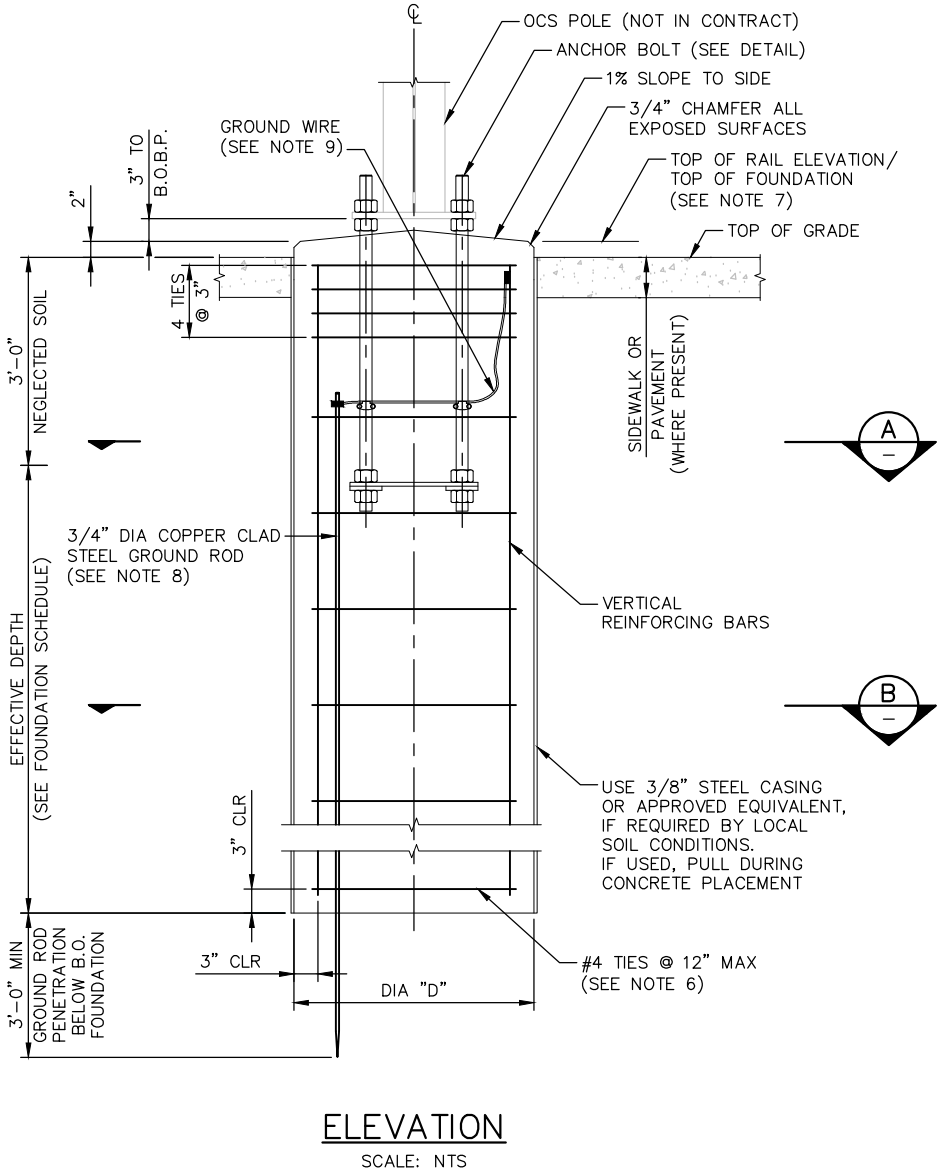
	
DISCIPLINE: OCS	

CIVIL WEST - VOLUME 12 OVERHEAD CONTACT SYSTEM POLE FOUNDATION ASSEMBLY BALLASTED TRACK	
SHEET NAME: W0-SYS-OCS-FND-001	

SHEET
144
OF
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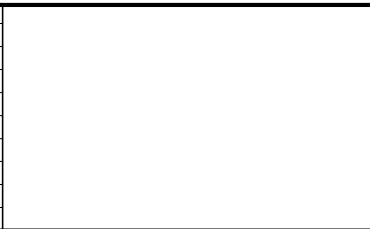
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BOLT AND REINFORCING SCHEDULE							
TYPE	D DIA (IN)	REINFORCEMENT		ANCHOR BOLT DIMENSIONS			
		SIZE	QUANTITY	BC (IN)	DIA (IN)	L (IN)	P (IN)
FD2A	30	#8	8	16	1.25	48	10
FD2B	36	#8	8	18	1.50	54	10
FD2C	36	#8	8	22	2.00	60	10
FD2D	30	#8	8	15	1.25	48	10
FD2E	36	#8	8	19	1.50	54	10
FD2F	36	#8	8	23	1.75	60	10



- NOTES:
1. MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS AND THE SPECIFICATIONS.
 2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI.
 3. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 SPECIFICATIONS, LATEST EDITION.
 4. PROVIDE BOLT PATTERN TEMPLATE FOR ANCHOR BOLT INSTALLATION.
 5. ROTATE REINFORCEMENT CAGE TO AVOID CONFLICT WITH ANCHOR BOLTS AND EMBEDMENT PLATE.
 6. NO. 4 SPIRALS AT 4 INCHES (MAXIMUM) PITCH MAY BE SUBSTITUTED FOR REBAR TIES.
 7. SEE FOUNDATION SCHEDULE FOR REFERENCE TOP OF FOUNDATION, CONDUIT LOCATIONS AND NUMBERS, FOUNDATION TYPES, OFFSETS AND EFFECTIVE DEPTH. CONDUIT LOCATIONS AND NUMBERS MUST BE COORDINATED WITH SYSTEMWIDE ELECTRICAL PLAN AND DETAILS, TRAFFIC AND LRT SIGNALS DRAWINGS.
 8. INSTALL A 3/4" DIA COPPER CLAD STEEL GROUND ROD IN EACH FOUNDATION AS SHOWN, DRIVEN VERTICALLY.
 9. EXOTHERMICALLY WELD 4/0 GROUND WIRE TO REBAR CAGE AND GROUND ROD, AND CLAMP TO ANCHOR BOLTS USING A BURNDY GAR GROUND CONNECTOR, OR APPROVED EQUAL.
 10. POLE TO GROUND RESISTANCE SHALL NOT EXCEED 25 OHMS. USE ADDITIONAL GROUND RODS AS REQUIRED.
 11. REFER TO SYSTEMWIDE ELECTRICAL PLAN AND DETAILS FOR DUCT BANK LAYOUT, CONDUIT LAYOUT AND CONDUIT DETAILS AT OCS FOUNDATIONS.
 12. TACK WELD TOP AND BOTTOM TIES OF REINFORCEMENT CAGE TO VERTICAL REINFORCEMENT.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



60% SUBMISSION - 09/28/15

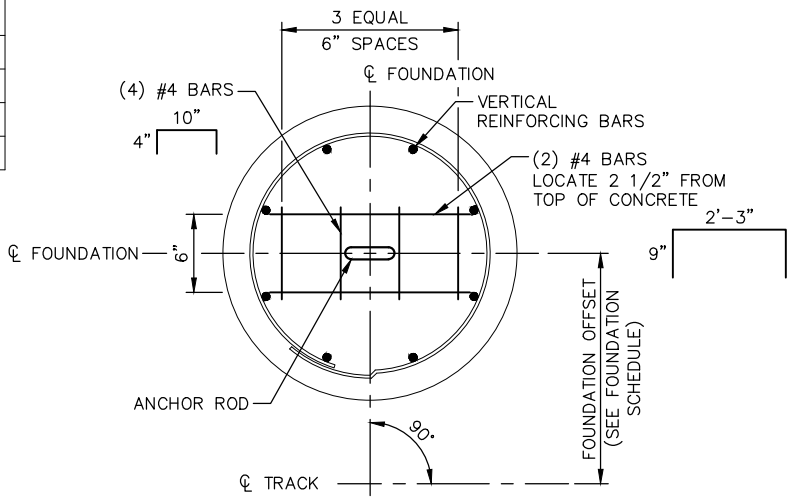
CIVIL WEST - VOLUME 12
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION ASSEMBLY
MEDIAN OR NEUTRAL AREA

DISCIPLINE: OCS

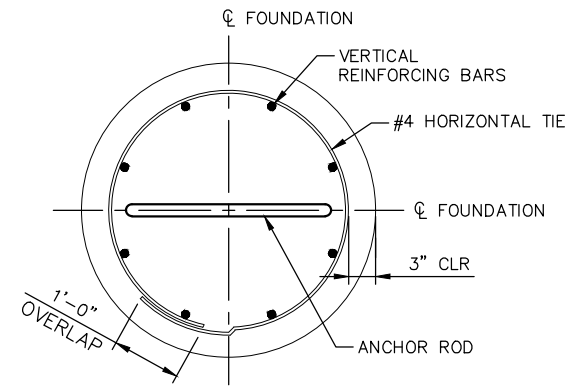
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REINFORCING SCHEDULE						
TYPE	D DIA (IN)	REINFORCEMENT		ANCHOR RODS		
		SIZE	QUANTITY	DIA (IN)	E (IN)	P (IN)
FA1	36	#8	8	1.50	48	8
FA2	36	#8	8	1.50	48	8

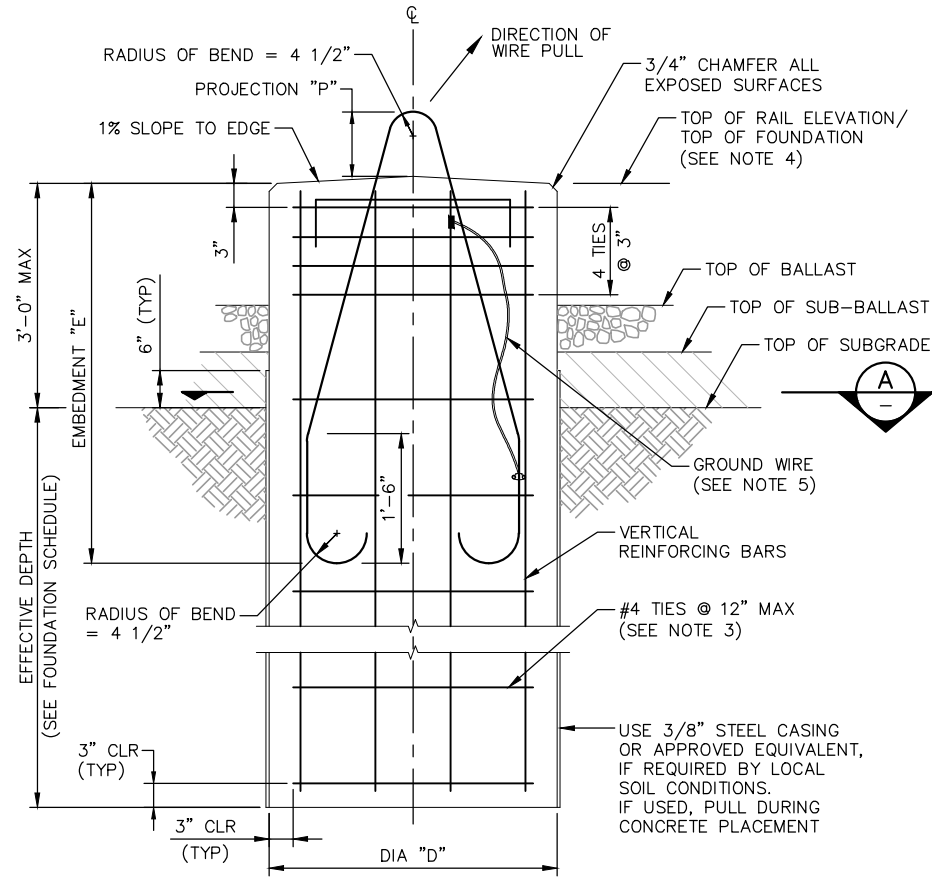


PLAN – TYP GUY ANCHOR FOUNDATION
SCALE: NTS

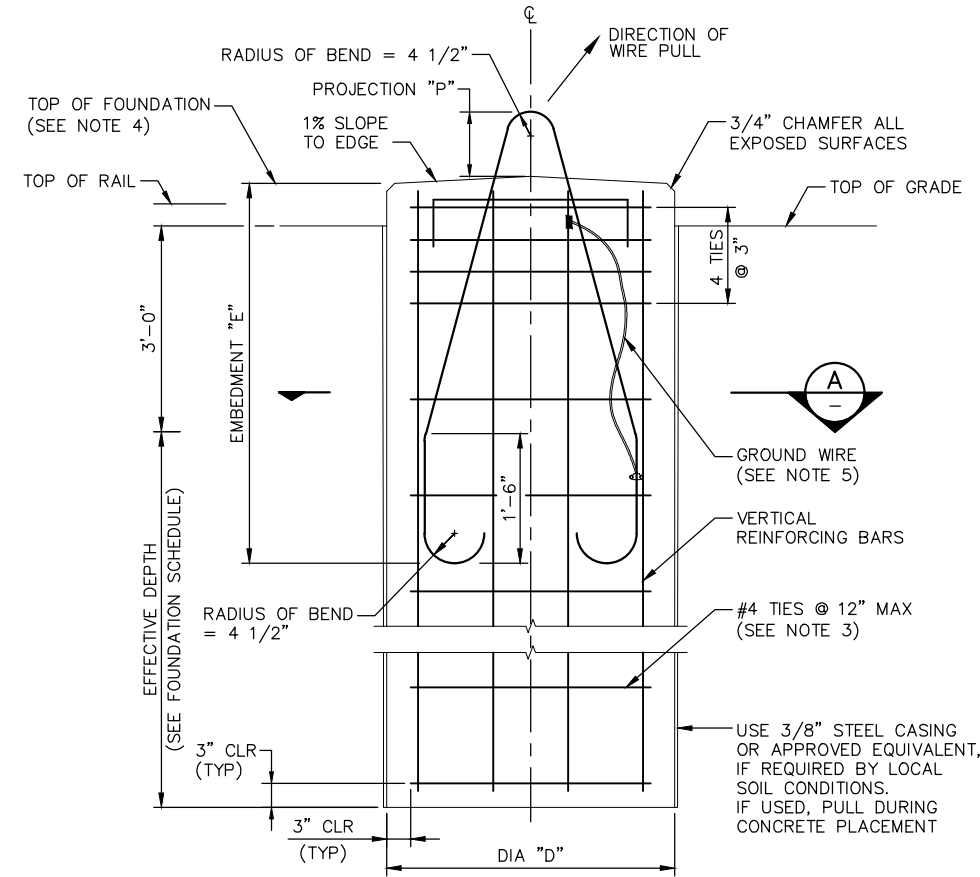


A SECTION
SCALE: NTS

- NOTES:
1. MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS.
 2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI.
 3. NO. 4 SPIRALS AT 4 INCHES (MAXIMUM) PITCH MAY BE SUBSTITUTED FOR REBAR TIES.
 4. SEE FOUNDATION SCHEDULE FOR REFERENCE TOP OF FOUNDATION, FOUNDATION TYPES, OFFSET AND EFFECTIVE DEPTH.
 5. EXOTHERMICALLY WELD ANCHOR ROD TO REINFORCEMENT WITH 4/0 COPPER GROUND WIRE. CLAMP WIRE TO ANCHOR ROD WITH A BURNDY GAR GROUND CONNECTOR, OR APPROVED EQUAL, AND WELD WIRE TO TOP OF VERTICAL REINFORCEMENT.



ELEVATION – GUY ANCHOR FOUNDATION
BALLASTED TRACK (FA1)
SCALE: NTS



ELEVATION – GUY ANCHOR FOUNDATION
MEDIAN (FA2)
SCALE: NTS

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CIVIL WEST - VOLUME 12
OVERHEAD CONTACT SYSTEM
GUY FOUNDATION ASSEMBLY

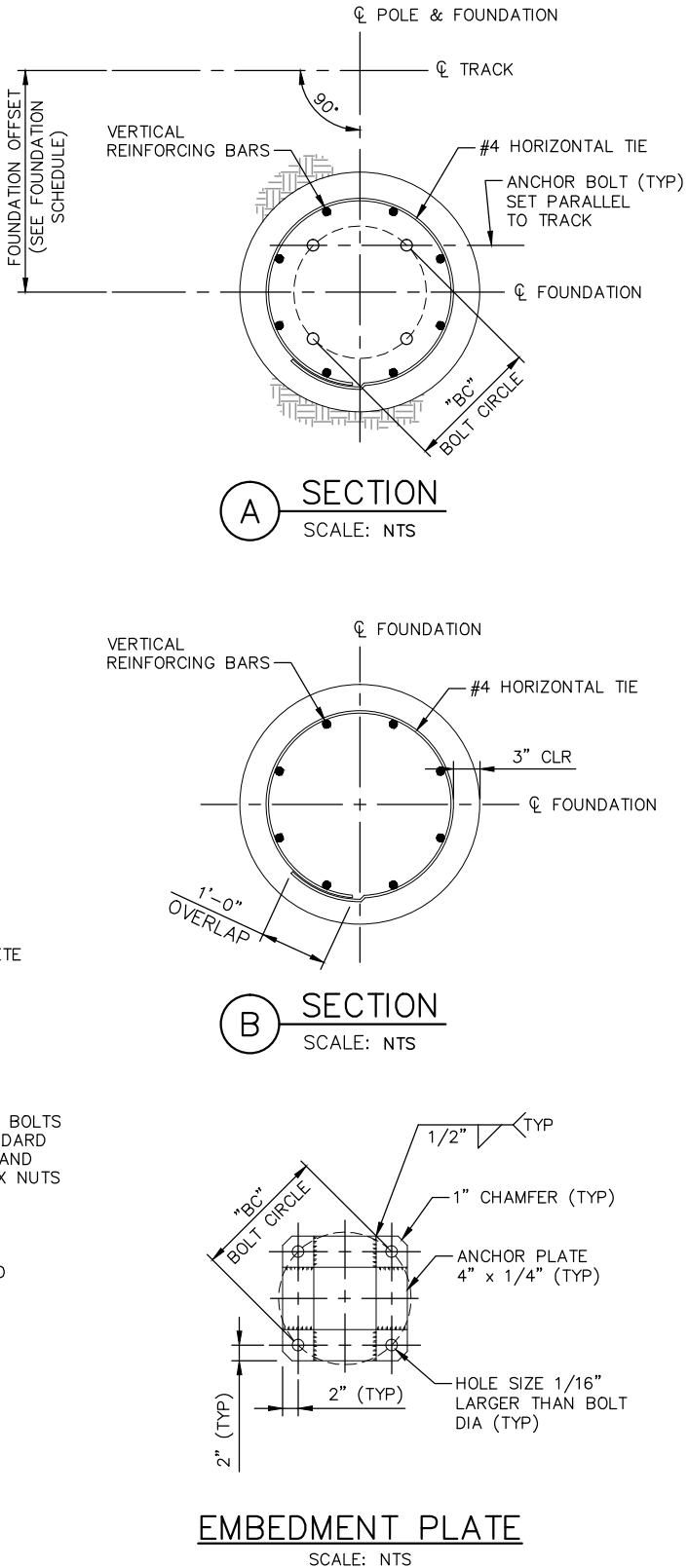
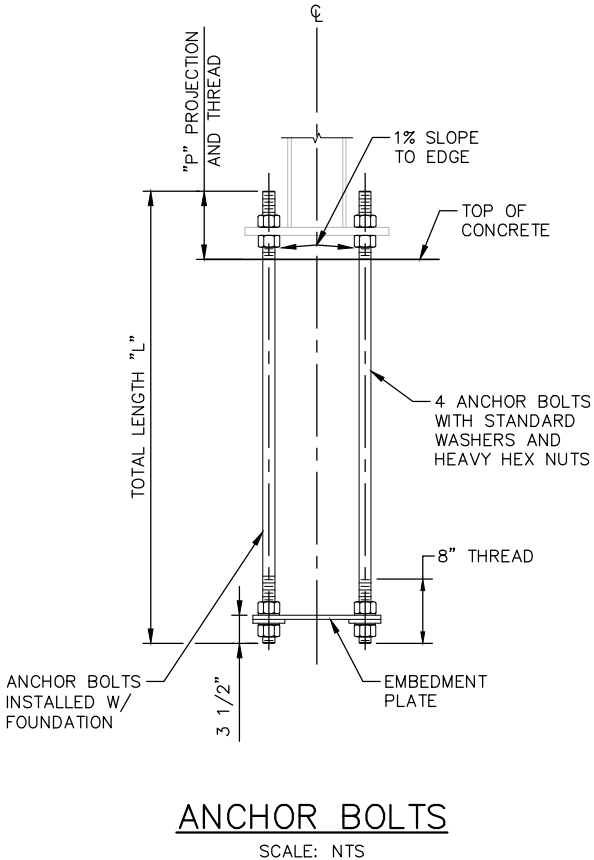
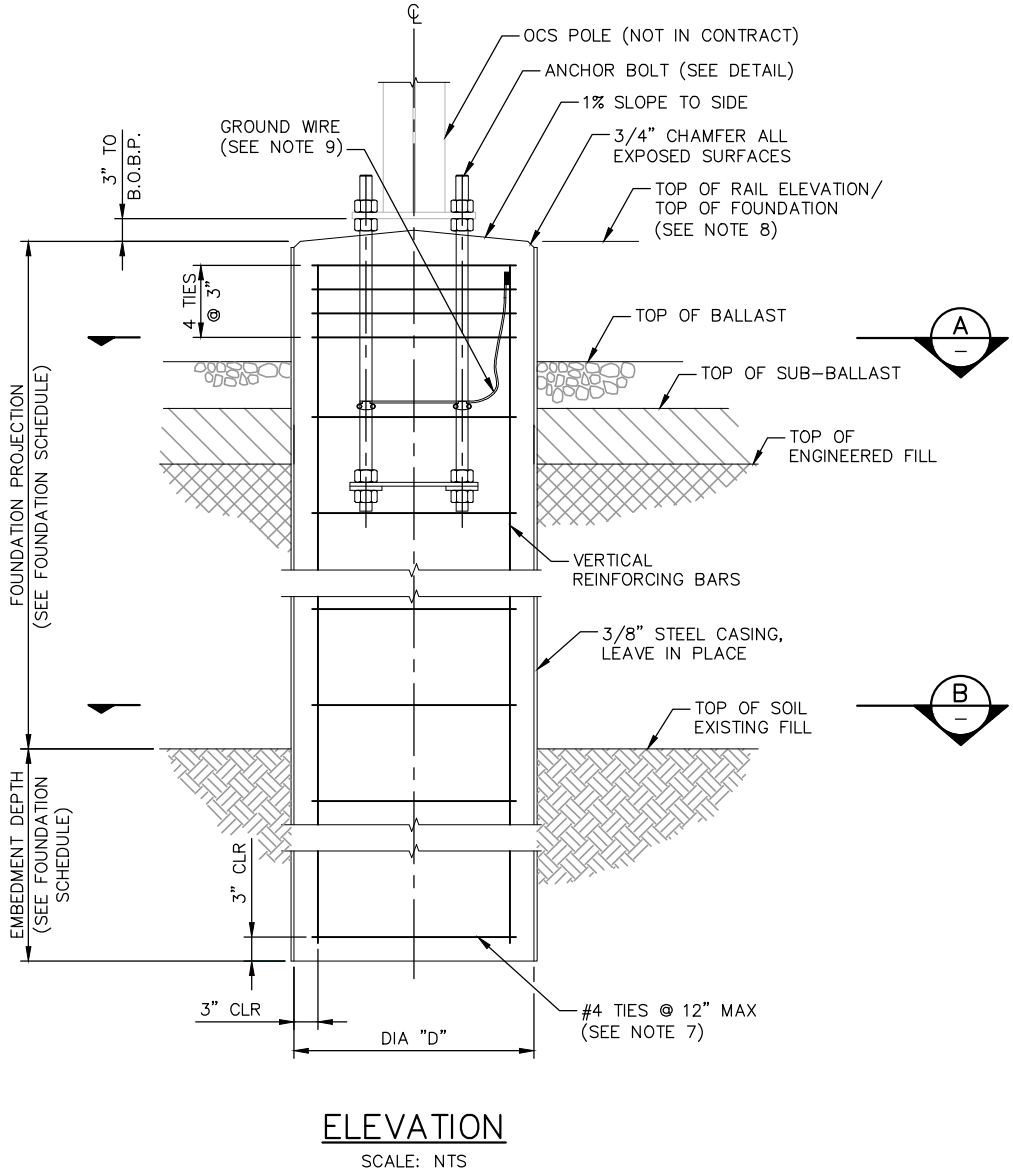
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SHEET NAME: W0-SYS-OCS-FND-003

60% SUBMISSION - 09/28/15

SHEET 146 OF 162

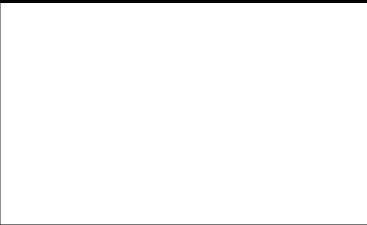
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BOLT AND REINFORCING SCHEDULE							
TYPE	D DIA (IN)	REINFORCEMENT		ANCHOR BOLT DIMENSIONS			
		SIZE	QUANTITY	BC (IN)	DIA (IN)	L (IN)	P (IN)
FD3A	30	#8	8	16	1.25	48	10
FD3B	36	#8	8	18	1.50	54	10
FD3C	36	#8	8	22	2.00	60	10
FD3D	30	#8	8	15	1.25	48	10
FD3E	36	#8	8	19	1.50	54	10
FD3F	36	#8	8	23	1.75	60	10



- NOTES:
1. INSTALL TYPE FD3x FOUNDATIONS PRIOR TO MSE CONSTRUCTION. MONITOR FOUNDATIONS DURING MSE CONSTRUCTION TO ENSURE THAT ALL TOLERANCES ARE MAINTAINED.
 2. MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS AND THE SPECIFICATIONS.
 3. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI.
 4. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 SPECIFICATIONS, LATEST EDITION.
 5. PROVIDE BOLT PATTERN TEMPLATE FOR ANCHOR BOLT INSTALLATION.
 6. ROTATE REINFORCEMENT CAGE TO AVOID CONFLICT WITH ANCHOR BOLTS AND EMBEDMENT PLATE.
 7. NO. 4 SPIRALS AT 4 INCHES (MAXIMUM) PITCH MAY BE SUBSTITUTED FOR REBAR TIES.
 8. SEE FOUNDATION SCHEDULE FOR REFERENCE TOP OF FOUNDATION, FOUNDATION TYPES, OFFSET AND EFFECTIVE DEPTH.
 9. EXOTHERMICALLY WELD 4/0 GROUND WIRE TO REBAR CAGE AND CLAMP TO ANCHOR BOLTS USING A BURNDY GAR GROUND CONNECTOR, OR APPROVED EQUAL.
 10. POLE TO GROUND RESISTANCE SHALL NOT EXCEED 25 OHMS. USE GROUND RODS AS REQUIRED.
 11. REFER TO SYSTEMWIDE ELECTRICAL PLAN AND DETAILS FOR DUCT BANK LAYOUT, CONDUIT LAYOUT AND CONDUIT DETAILS AT OCS FOUNDATIONS.
 12. TACK WELD TOP AND BOTTOM TIES OF REINFORCEMENT CAGE TO VERTICAL REINFORCEMENT.

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60% SUBMISSION - 09/28/15

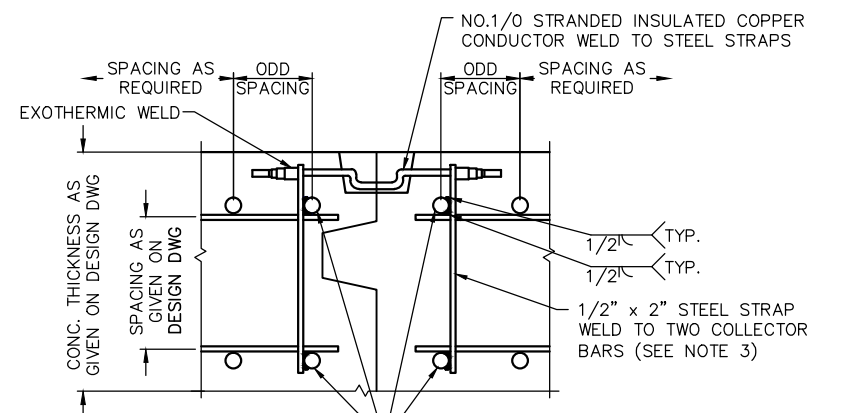
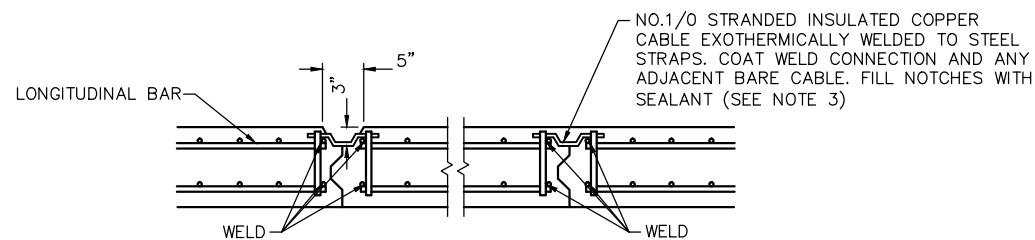


CIVIL WEST - VOLUME 12
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION ASSEMBLY
MSE RETAINED FILL AT BRIDGE APPROACH

DISCIPLINE: **OCS** SHEET NAME: **WO-SYS-OCS-FND-004**

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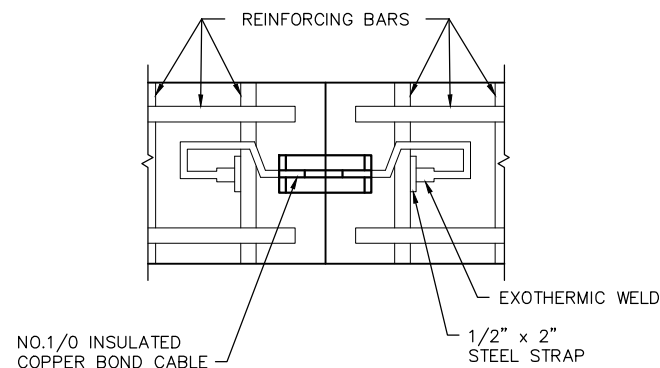
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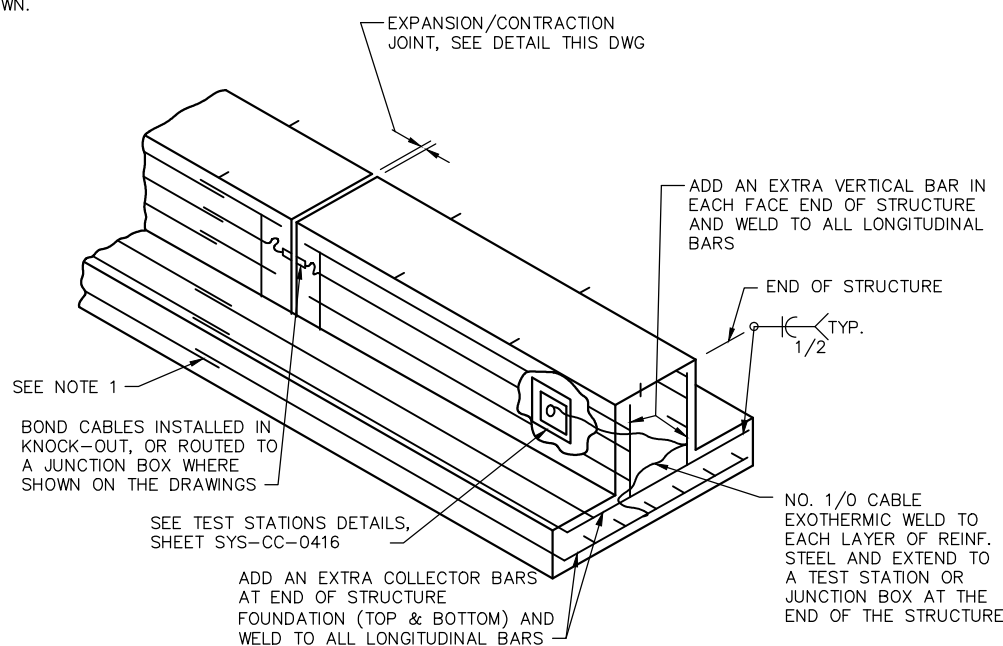
NOTE: THE BONDING ASSEMBLY MAY BE SHOP OR FIELD WELDED.

END COLLECTOR BARS WELDED TO ALL LONGITUDINAL BARS AND ALL END COLLECTOR BARS WELDED TOGETHER TO FORM A COMPLETE CONTINUOUS DOUBLE CAGE. REINFORCING ARRANGEMENT SHOWN IS FOR TYPICAL REFERENCE. WELDING SHALL BE WITH EXTRA BARS INSTALLED ODD SPACING AS SHOWN.

FIRST POUR SECOND POUR



BOND CABLE KNOCK-OUT DETAIL



CAST IN PLACE CONCRETE STRUCTURE BONDING DETAIL

WELD ALL LAP SPLICES IN HORIZONTAL REINFORCEMENT OF ABUTMENT WALL

#1/0 AWG INSULATED COPPER CABLES OR MINIMUM #5 REINFORCING BAR CONNECTING FOUNDATION REINFORCEMENT TO ABUTMENT WALL REINFORCEMENT

WELD ALL LAP SPLICES IN REINFORCEMENT OF ABUTMENT FOUNDATION PARALLEL TO TRACK DIRECTION

TYPICAL STRAY CURRENT BONDING OF ROADWAY BRIDGE ABUTMENT AT LIGHT RAIL OVERPASS

#1/0 AWG INSULATED COPPER CABLES ROUTED TO STRAY CURRENT TEST STATION AT EACH END OF ABUTMENT

VERTICAL COLLECTOR BARS

WELD DOWELS TO COLLECTOR BARS OF SLAB OR TO REINFORCEMENT THAT IS PARALLEL TO TRACK DIRECTION

1/2" X 2" STEEL SHORTING STRAP

COLLECTOR BARS

DOWELS FOR APPROACH SLAB. BOND DOWELS TO ABUTMENT REINFORCEMENT AND TO APPROACH SLAB REINFORCEMENT

TRACK DIRECTION

WELD ALL LAP SPLICES IN VERTICAL REINFORCEMENT OF ABUTMENT WALL

WELD DOWELS TO COLLECTOR BARS OF STEM

WELD ALL LAP SPLICES IN REINFORCEMENT OF ABUTMENT FOUNDATION PARALLEL TO TRACK DIRECTION

NOTES:

1. ALL LONGITUDINAL REINFORCING BARS MUST BE FULLY BONDED. COLLECTOR BARS ARE TO BE BONDED AT THE JOINTS TO ELECTRICALLY TIE LONGITUDINAL BARS TOGETHER.
2. AT EXPANSION JOINTS, ENDS OF EACH STRUCTURE AND AT INTERVALS NOT EXCEEDING 500 FT. TEST STATIONS SHALL BE INSTALLED WHERE SHOWN ON THE CONTRACT DRAWINGS. SEE SHEET SYS-CC-0416 FOR TEST STATION DETAILS. INSTALL BOX 2' TO 4' ABOVE FINISHED GRADE.
3. STRAP SHALL BE OF SUFFICIENT LENGTH TO FACILITATE WELDING TO TOP AND BOTTOM OF REBAR CAGE.

WELD ALL LAP SPLICES IN REINFORCEMENT THAT IS IN THE DIRECTION OF THE TRACKS

1/2" X 2" STEEL SHORTING STRAP

#1/0 AWG INSULATED COPPER CABLES ROUTED TO STRAY CURRENT TEST STATION AT EACH END OF ABUTMENT

COLLECTOR BARS

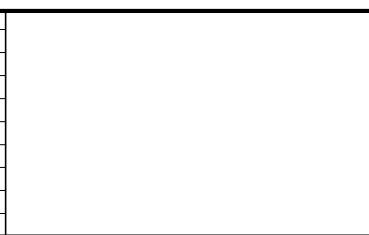
WELD DOWELS TO COLLECTOR BARS OF SLAB OR TO REINFORCEMENT THAT IS PARALLEL TO TRACK DIRECTION

1/2" X 2" STEEL SHORTING STRAP

COLLECTOR BARS

TYPICAL STRAY CURRENT BONDING OF BRIDGE ABUTMENTS

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60% SUBMISSION - 09/28/15

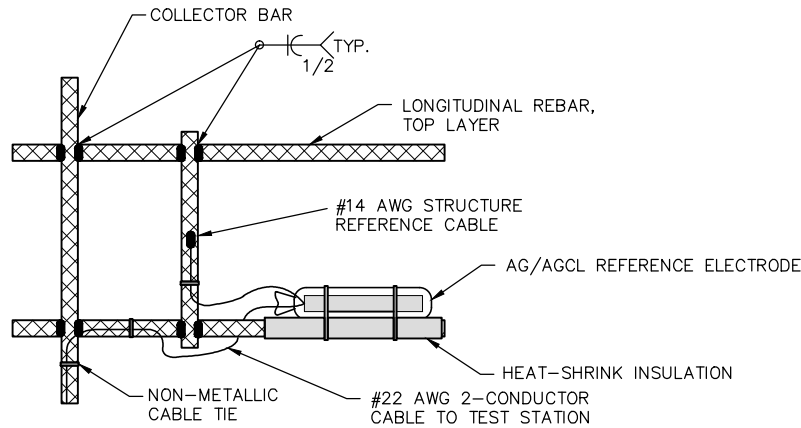


CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 1

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SHEET NAME: W0-SYS-CORR-DTL-001

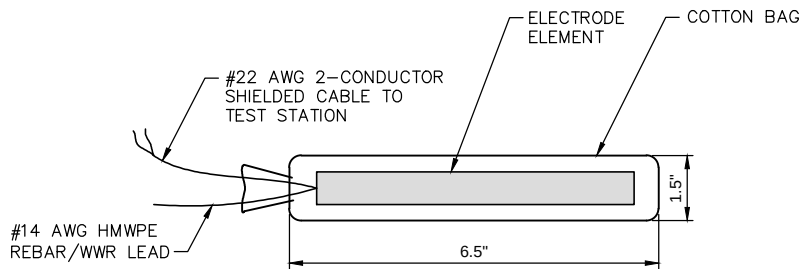
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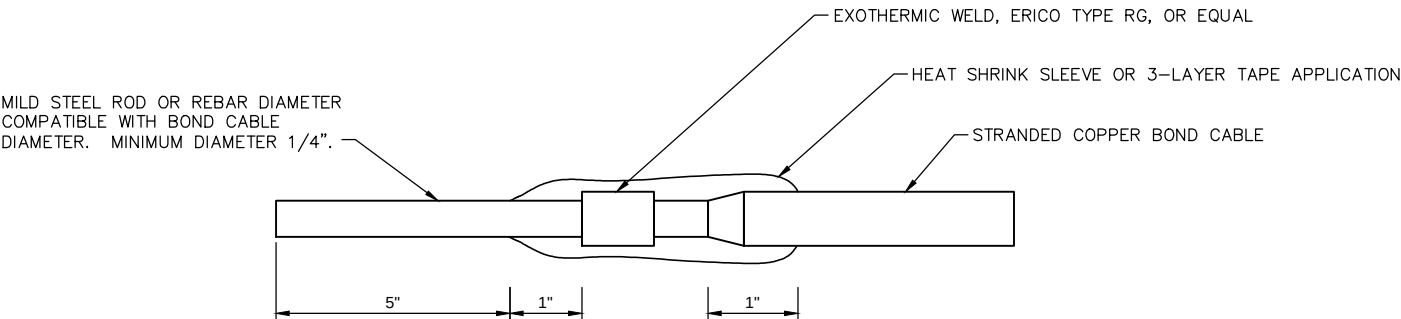


NOTE:
ALL EXOTHERMIC WELDS SHALL BE CLEANED AND COATED
WITH AN APPROVED 2-PART EPOXY COATING.

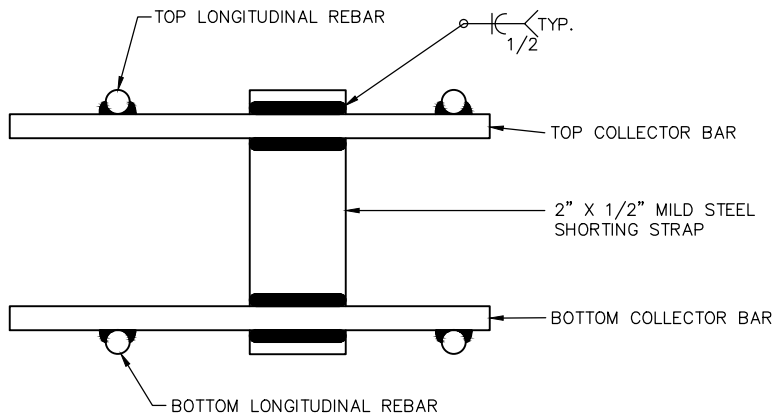
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REFERENCE ELECTRODE MOUNTING DETAIL



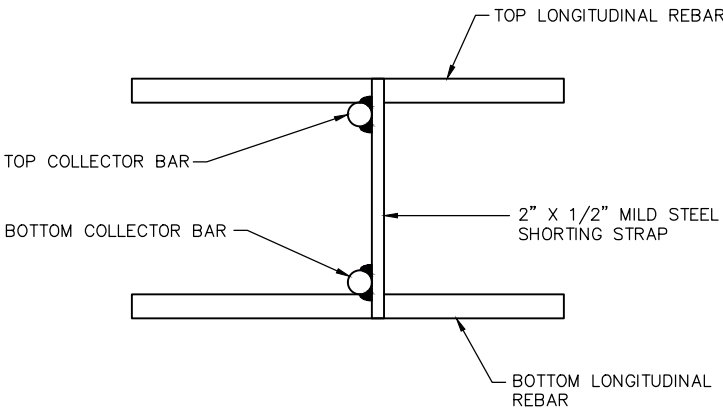
AG/AGCL REFERENCE ELECTRODE



CABLE ATTACHMENT TO REINFORCING

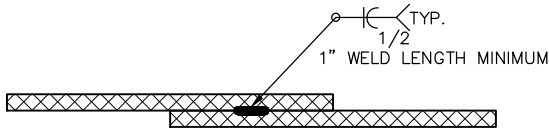


REBAR SHORTING STRAP

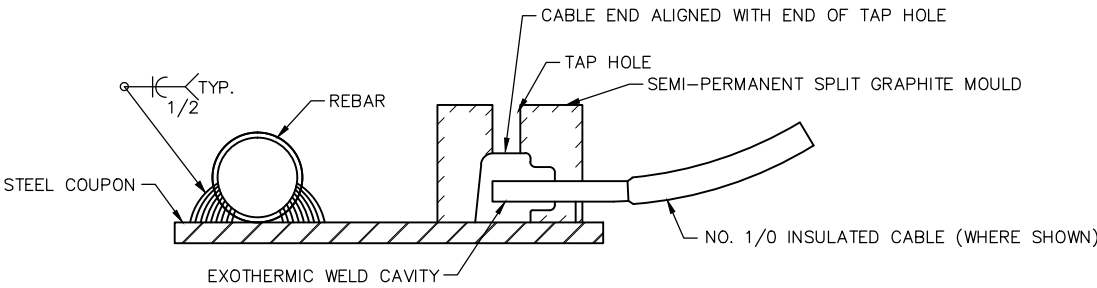


NOTES:

1. THE COLLECTOR BAR FOR REINFORCED CONCRETE STRUCTURES SHALL BE THE GREATER OF THE SIZE OF THE LONGITUDINAL REINFORCEMENT OR A #5 REINFORCING BAR. THE COLLECTOR BAR SHALL BE WELDED TO EACH LONGITUDINAL REINFORCEMENT ON EACH SIDE OF THE COLLECTOR BAR. COLLECTOR BARS ARE REQUIRED FOR EACH COURSE OF LONGITUDINAL REINFORCEMENT. ONLY TWO COURSES ARE SHOWN IN DETAILS AS AN EXAMPLE.
2. STEEL SHORTING STRAPS, MINIMUM 2" WIDE AND 1/2" THICK, SHALL BE WELDED BETWEEN THE COLLECTOR BARS TO ENSURE ELECTRICAL CONTINUITY. A MINIMUM OF TWO SHORTING STRAPS ARE REQUIRED, ONE AT EACH END OF THE COLLECTOR BARS.
3. A MINIMUM OF 2 JUMPER CABLES SHALL BE EXOTHERMICALLY WELDED TO COLLECTOR BARS OR SHORTING STRAPS ON EACH SIDE OF ANY PHYSICAL/ELECTRICAL DISCONTINUITY IN THE LONGITUDINAL REINFORCEMENT, SUCH AS AT EXPANSION JOINTS. SUFFICIENT SLACK SHALL BE PROVIDED IN THE JUMPER CABLES TO PREVENT STRESS IN THE CABLE DUE TO JOINT MOVEMENT.
4. ALL EXOTHERMIC WELD CONNECTIONS SHALL BE CLEANED OF ALL SLAG AND WELD RESIDUE WITH A STIFF WIRE BRUSH THEN COATED WITH AN APPROVED EPOXY. ALL WELDING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH AWS D1.4.

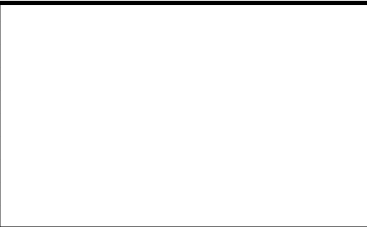


REINFORCED CONCRETE
LONGITUDINAL REBAR LAP SPLICE WELD



STEEL COUPON TO REINFORCING

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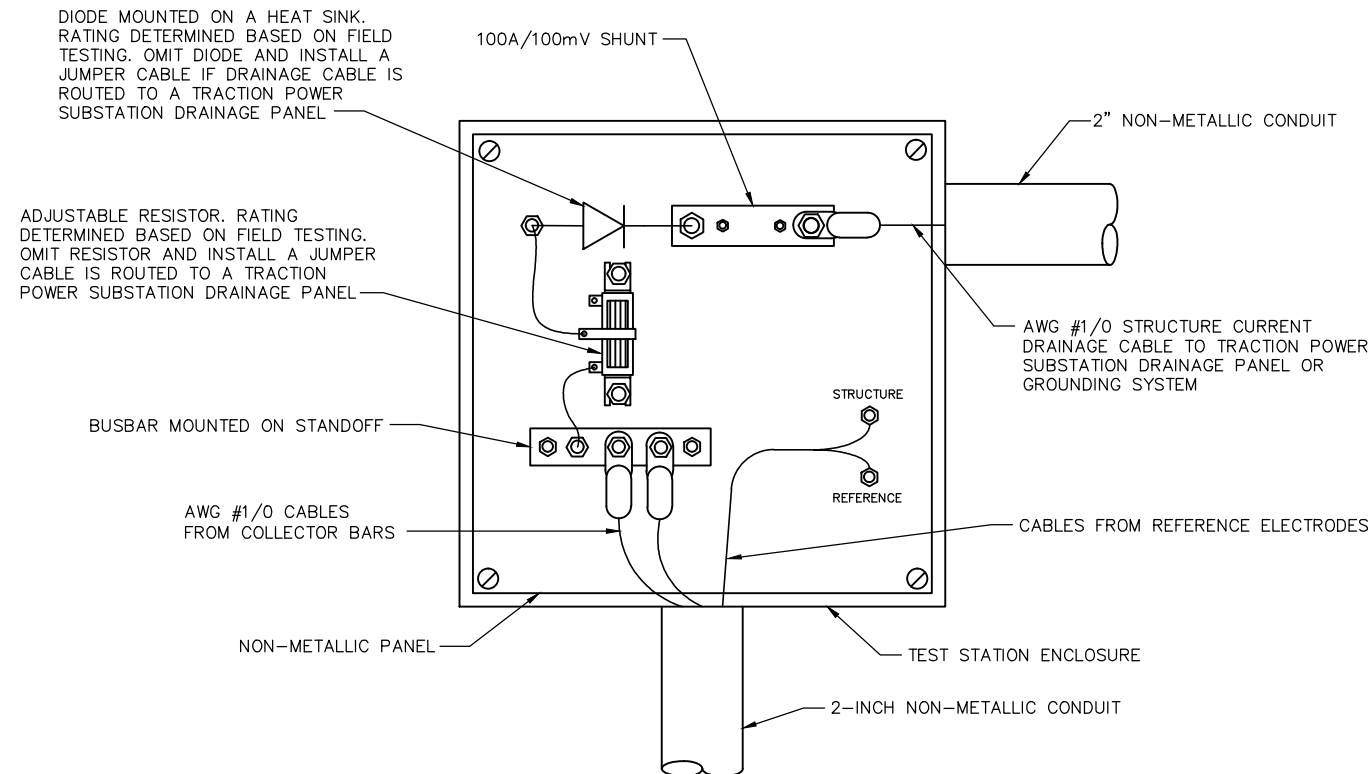


CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 2

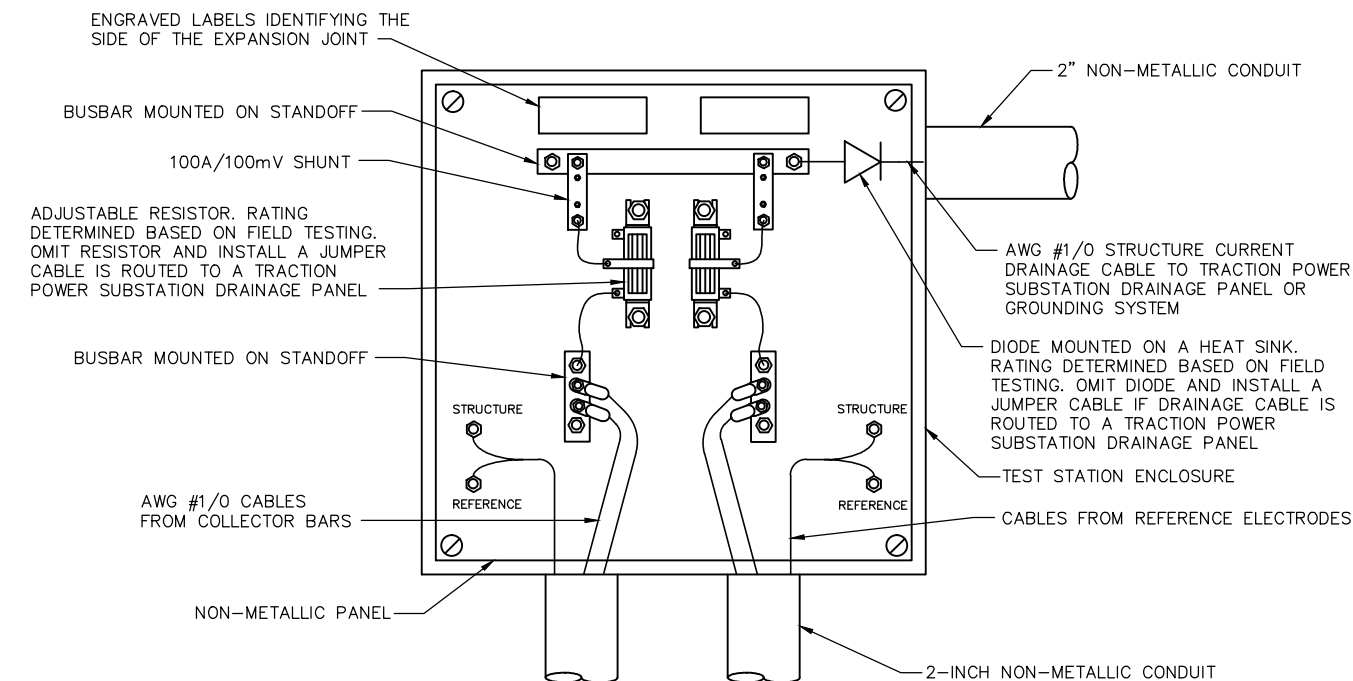
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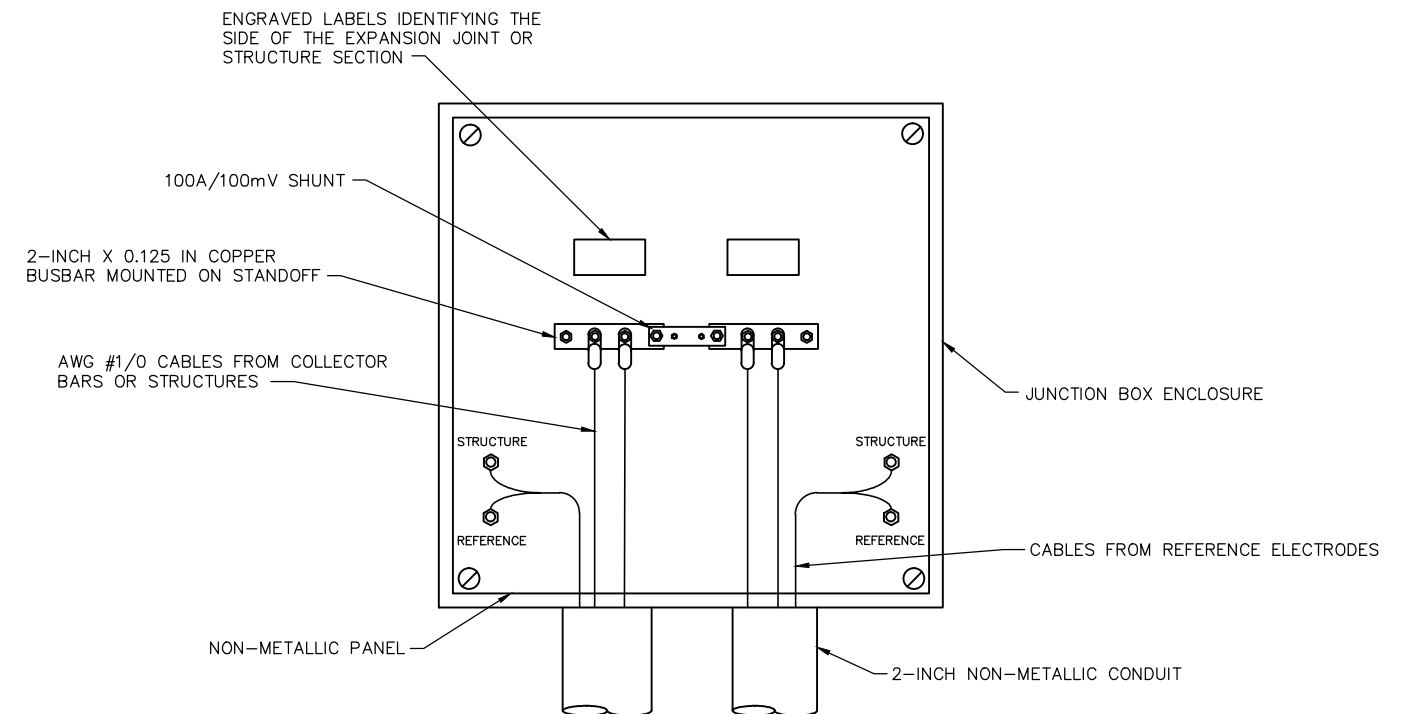
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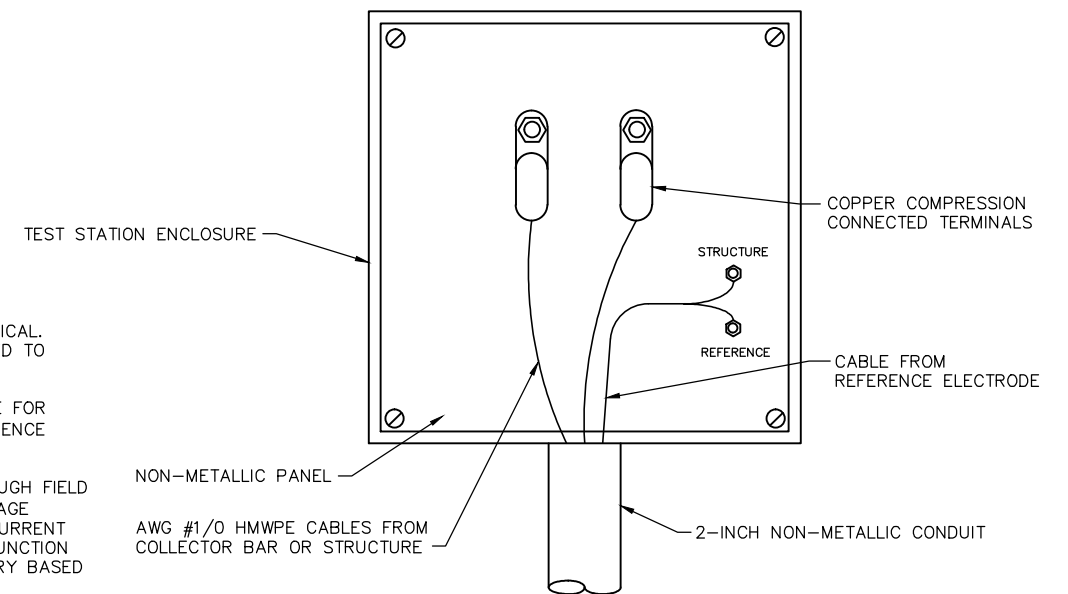
STRAY CURRENT
TEST STATION WITH DRAINAGE CIRCUIT



STRAY CURRENT JUNCTION BOX
WITH DRAINAGE CIRCUIT



STRAY CURRENT
JUNCTION BOX



STRAY CURRENT INTERMEDIATE OR
END OF STRUCTURE TEST STATION

NOTE:

1. CONDUIT ENTRANCE LOCATIONS SHOWN ARE TYPICAL. ACTUAL ENTRANCE LOCATIONS MAY BE ADJUSTED TO SUIT FIELD CONDITIONS.
2. DELETE REFERENCE ELECTRODE STRUCTURE WIRE FOR UNDERGROUND COPPER/COPPER SULFATE REFERENCE ELECTRODE INSTALLATIONS.
3. THE DIODE RATING SHALL BE DETERMINED THROUGH FIELD TESTING AND/OR COMMISSIONING OF THE DRAINAGE CIRCUIT, IF IT IS DEMONSTRATED THAT STRAY CURRENT DRAINAGE IS NECESSARY. A HEAT SINK AND JUNCTION BOX VENTILATION SHALL BE ADDED IF NECESSARY BASED ON THE HEAT DISSIPATION OF THE DIODE.
4. TEST STATIONS WITH DRAINAGE CIRCUITS SHALL BE LOCATED AT THE COLLECTOR BAR NEAREST THE TRACTION POWER SUBSTATION OR GROUNDING SYSTEM IF PRACTICAL.

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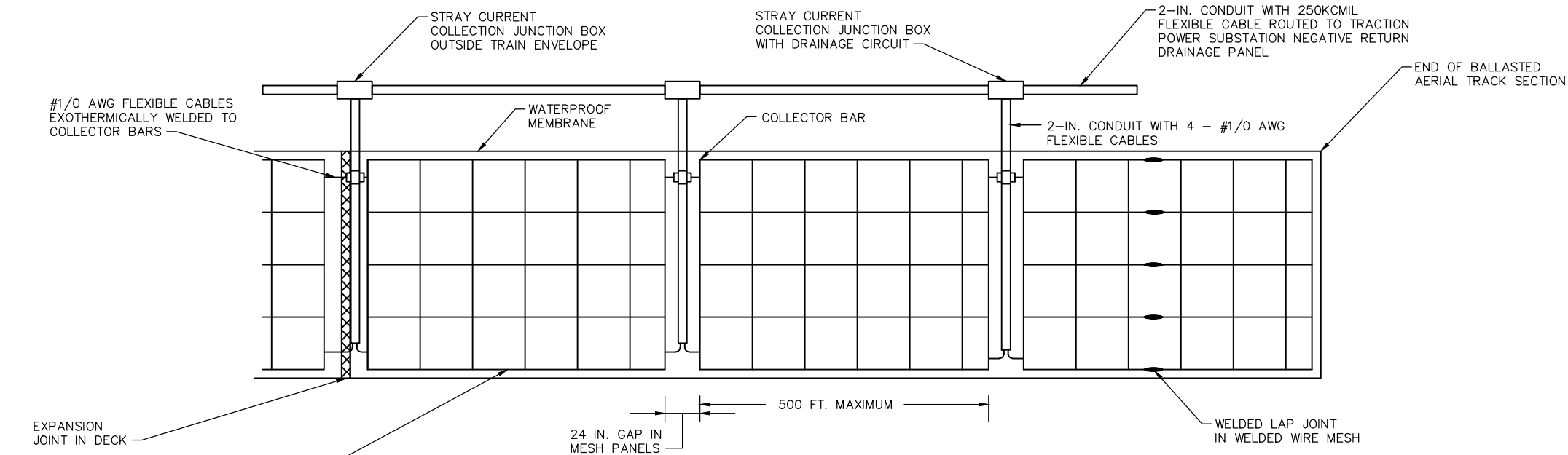
**CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 3**

DISCIPLINE: **CORR**

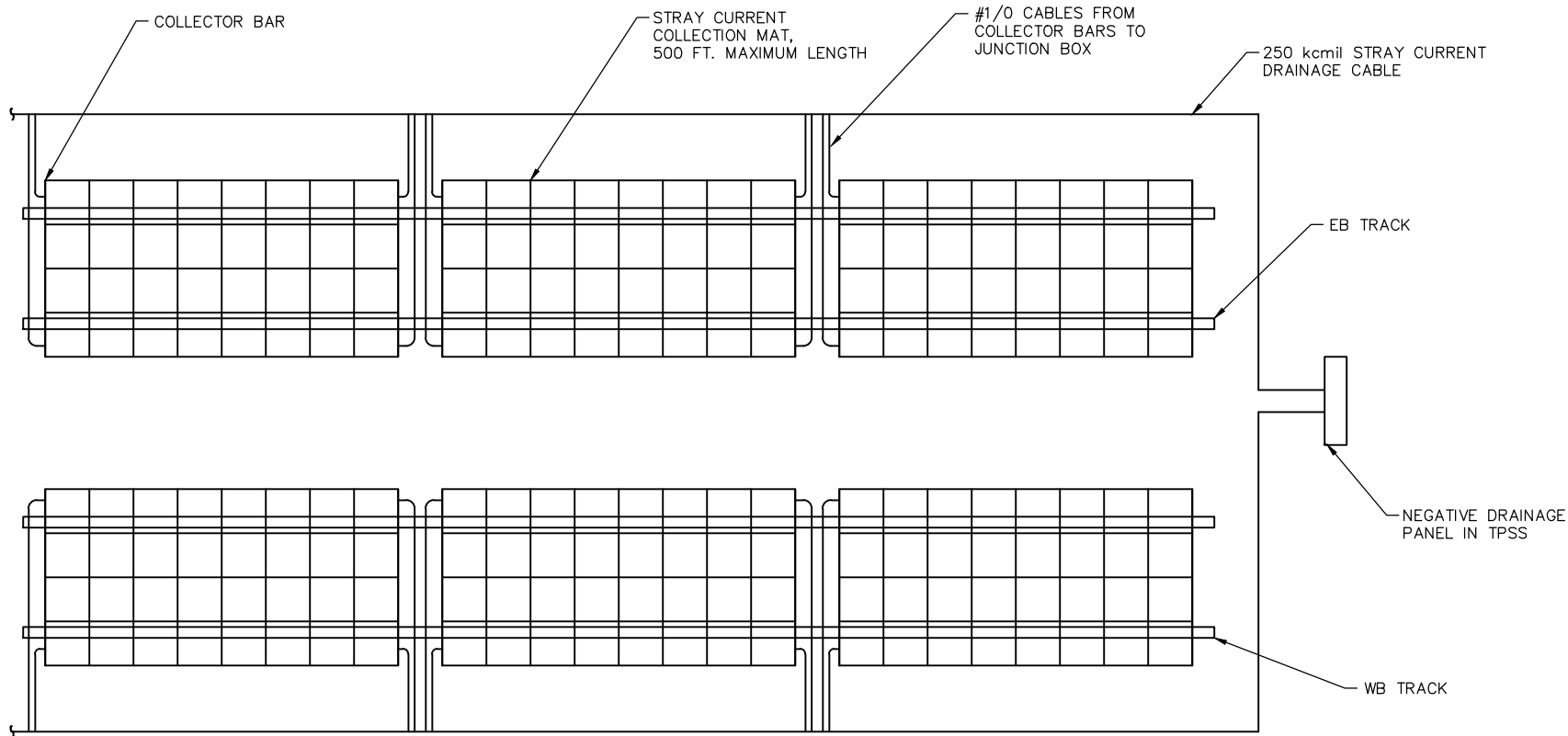
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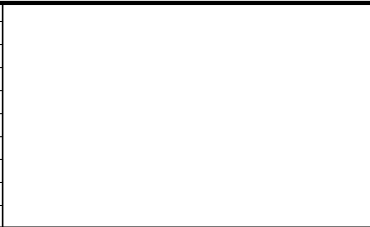
BALLASTED AERIAL TRACK STRAY CURRENT COLLECTION SYSTEM TYPICAL LAYOUT DETAIL



STRAY CURRENT COLLECTION SYSTEM SCHEMATIC

- NOTES:
1. THE COLLECTOR BAR SHALL BE A BARE #1/0 AWG STRANDED COPPER CABLE EXOTHERMICALLY WELDED TO THE MESH. THE COLLECTOR BAR SHALL BE WELDED TO THE MESH AT EACH EDGE OF THE MESH AND AT A MAXIMUM SPACING OF 24 INCHES ALONG THE COLLECTOR BAR.
 2. A COLLECTOR BAR SHALL BE EXOTHERMICALLY WELDED TO THE MESH ON EACH SIDE OF ANY PHYSICAL/ELECTRICAL DISCONTINUITY IN THE WELDED WIRE MESH. A MINIMUM OF 2 CABLES SHALL BE ROUTED IN NON-METALLIC CONDUIT TO A STRAY CURRENT COLLECTION JUNCTION BOX FROM EACH COLLECTOR BAR.
 3. STRAY CURRENT COLLECTION JUNCTION BOXES SHALL BE LOCATED OUTSIDE OF THE VEHICLE ENVELOPE IN A REASONABLY ACCESSIBLE POSITION. STRAY CURRENT DRAINAGE CABLES SHALL BE ROUTED FROM THE STRAY CURRENT COLLECTION JUNCTION BOX NEAREST THE TRACTION POWER SUBSTATION TO THE DRAINAGE PANEL WITHIN THE TRACTION POWER SUBSTATION.
 4. SPLICING OF MESH, IF REQUIRED, SHALL BE COMPLETED USING EXOTHERMIC WELD CONNECTIONS.
 5. ALL EXOTHERMIC WELD CONNECTIONS SHALL BE CLEANED OF ALL SLAG AND WELD RESIDUE WITH A STIFF WIRE BRUSH THEN COATED WITH AN APPROVED EPOXY.

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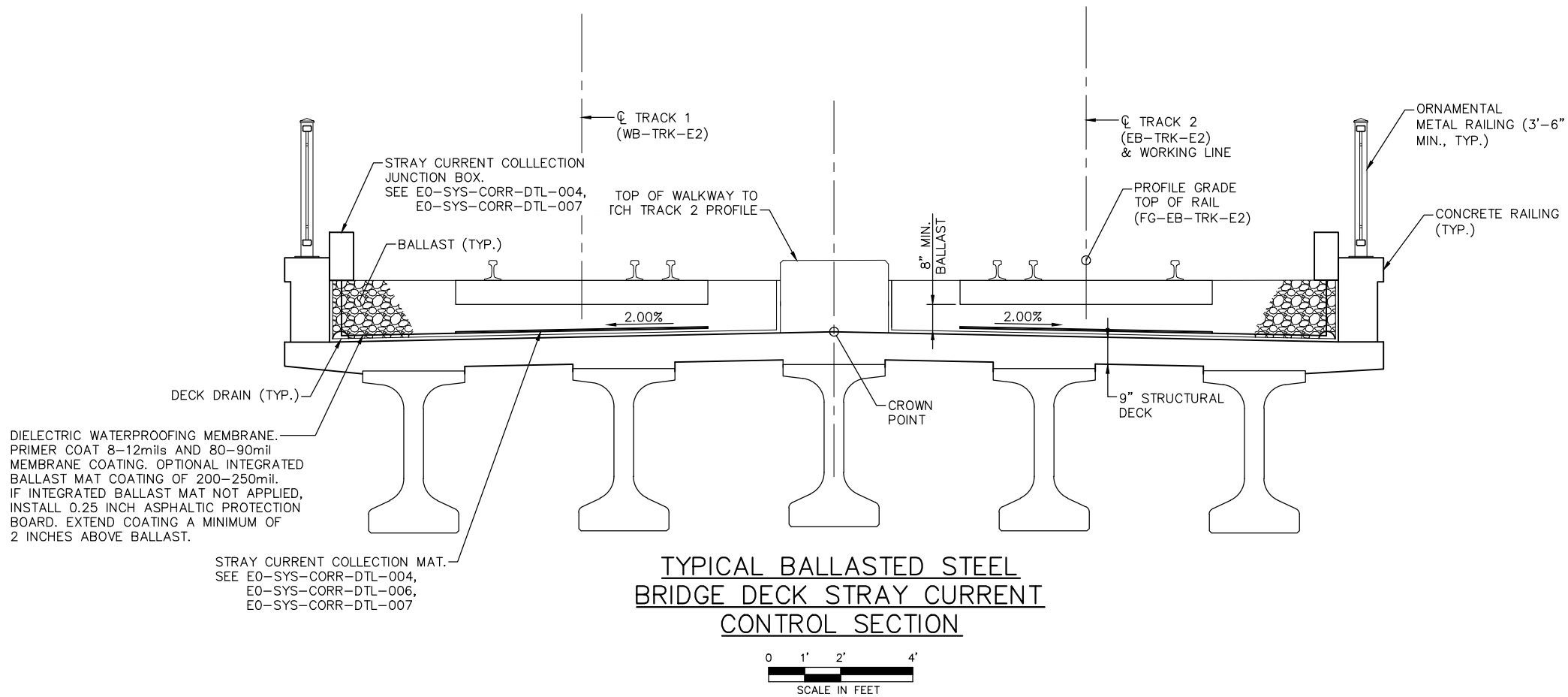
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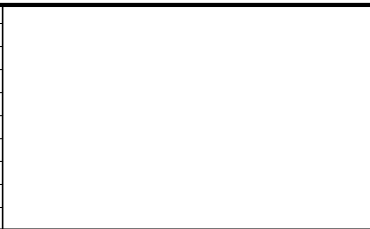
**CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 4**

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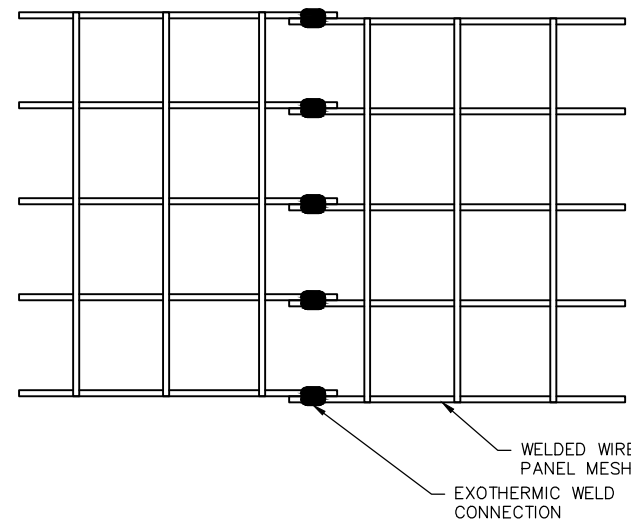


CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 5

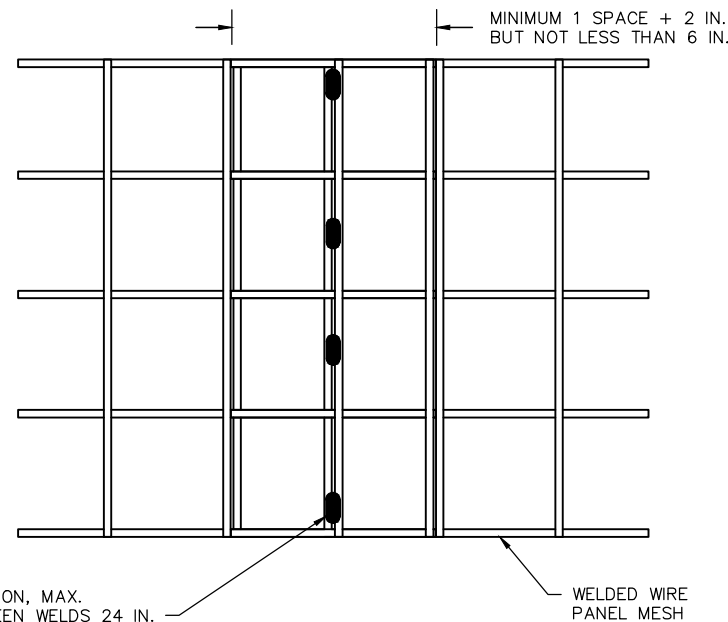
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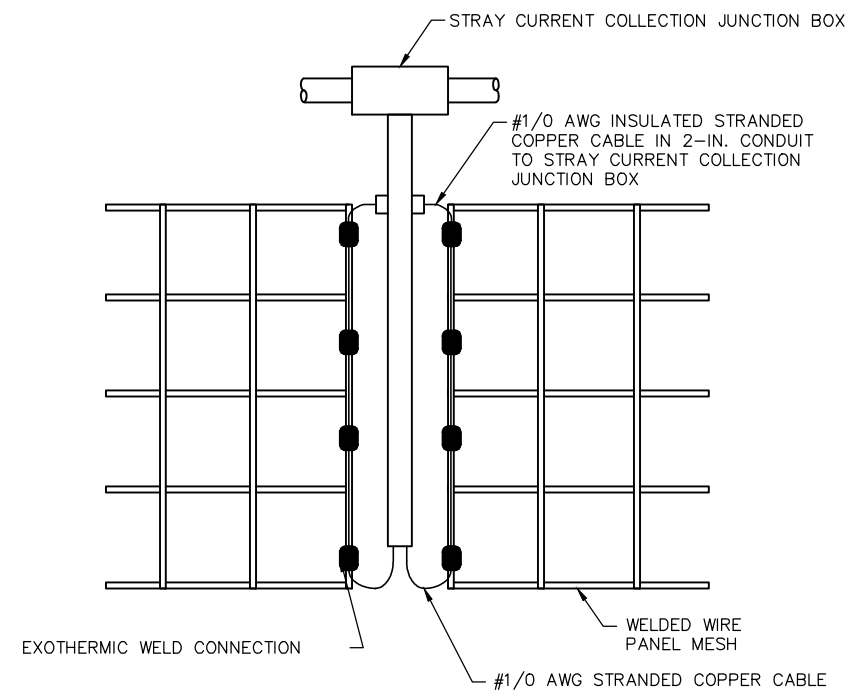
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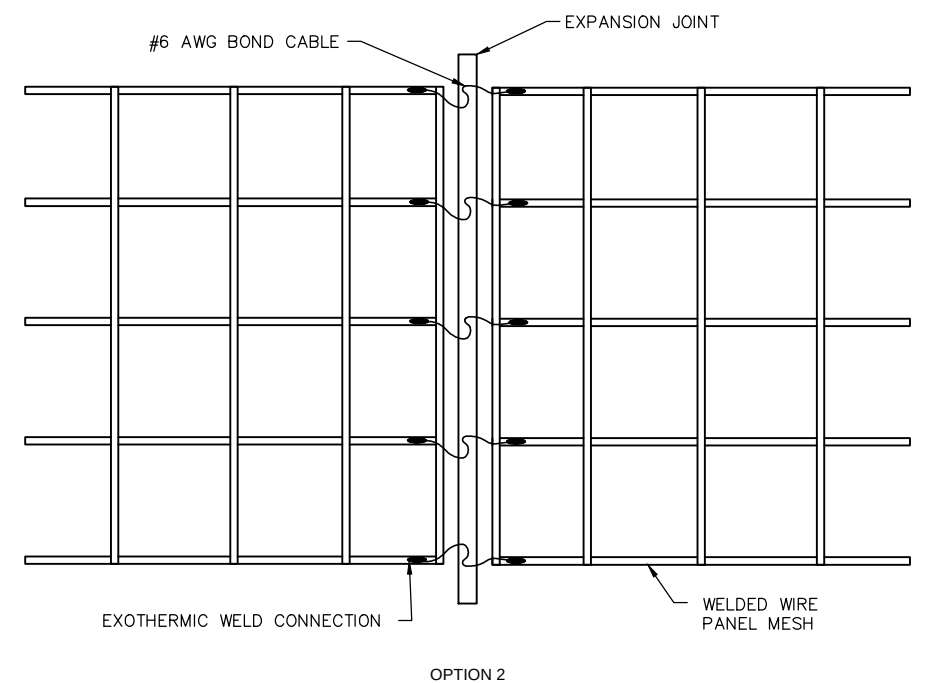
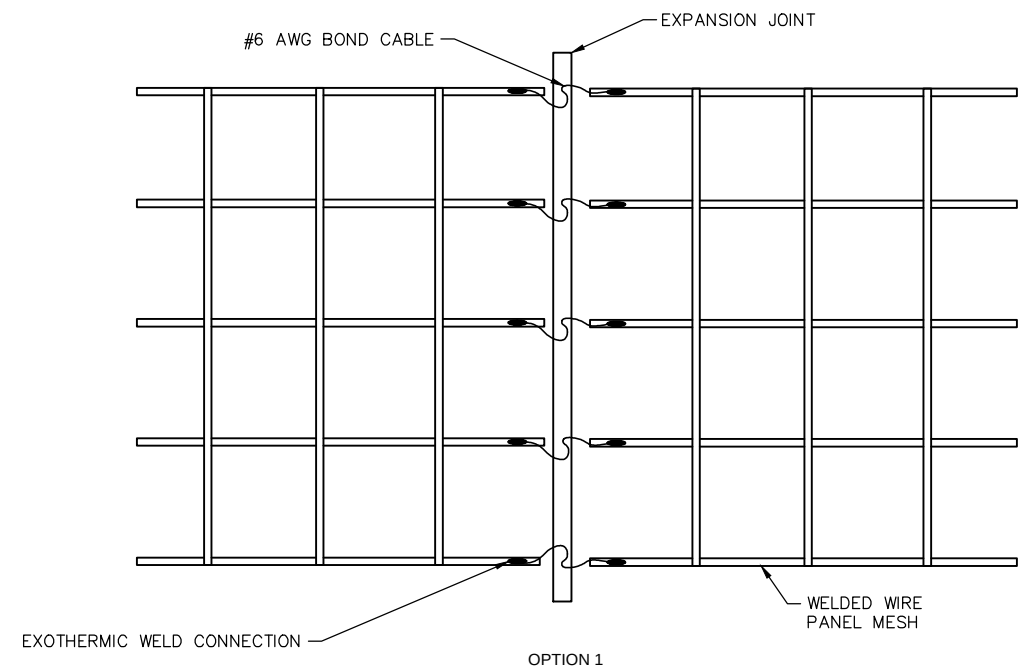
STRAY CURRENT COLLECTION
MAT SPLICE DETAIL 1



STRAY CURRENT COLLECTION MAT SPLICE DETAIL 2



STRAY CURRENT COLLECTION
MAT COLLECTOR BAR DETAIL



STRAY CURRENT COLLECTION MAT
SPLICE DETAILS AT EXPANSION JOINT

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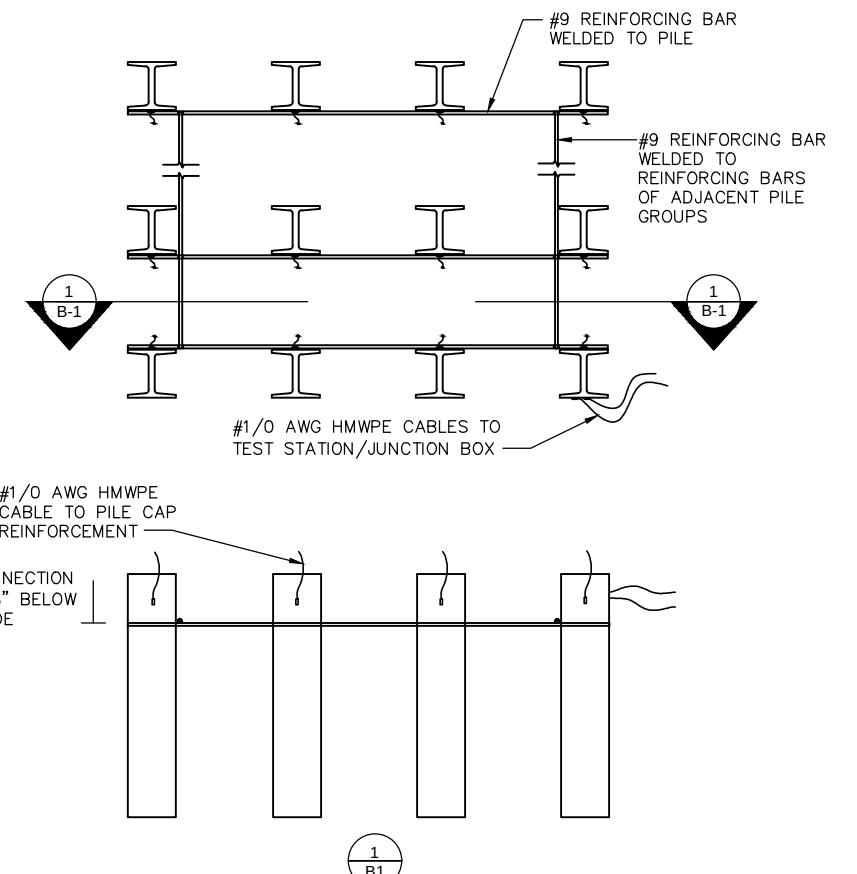
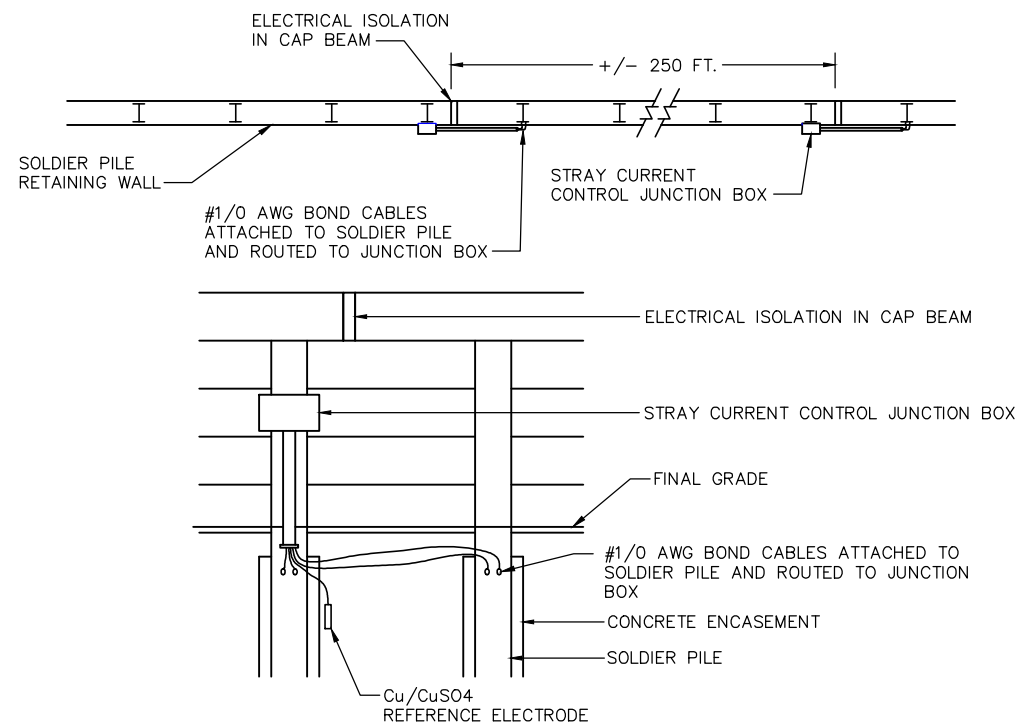
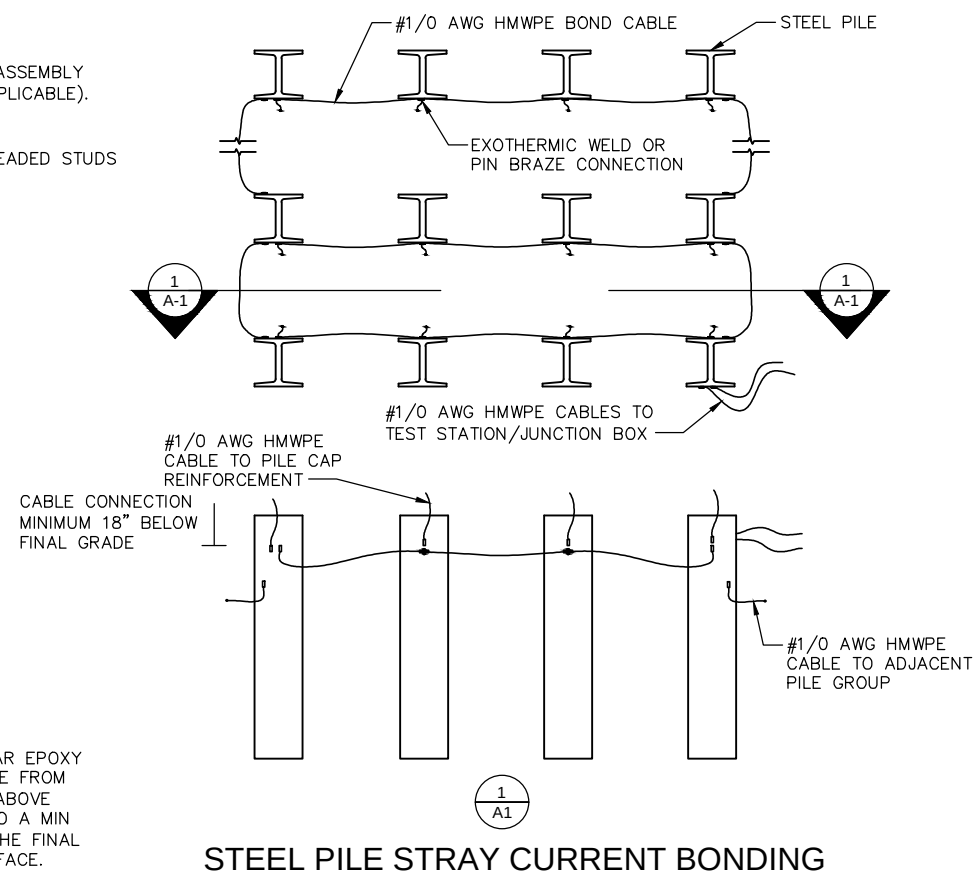
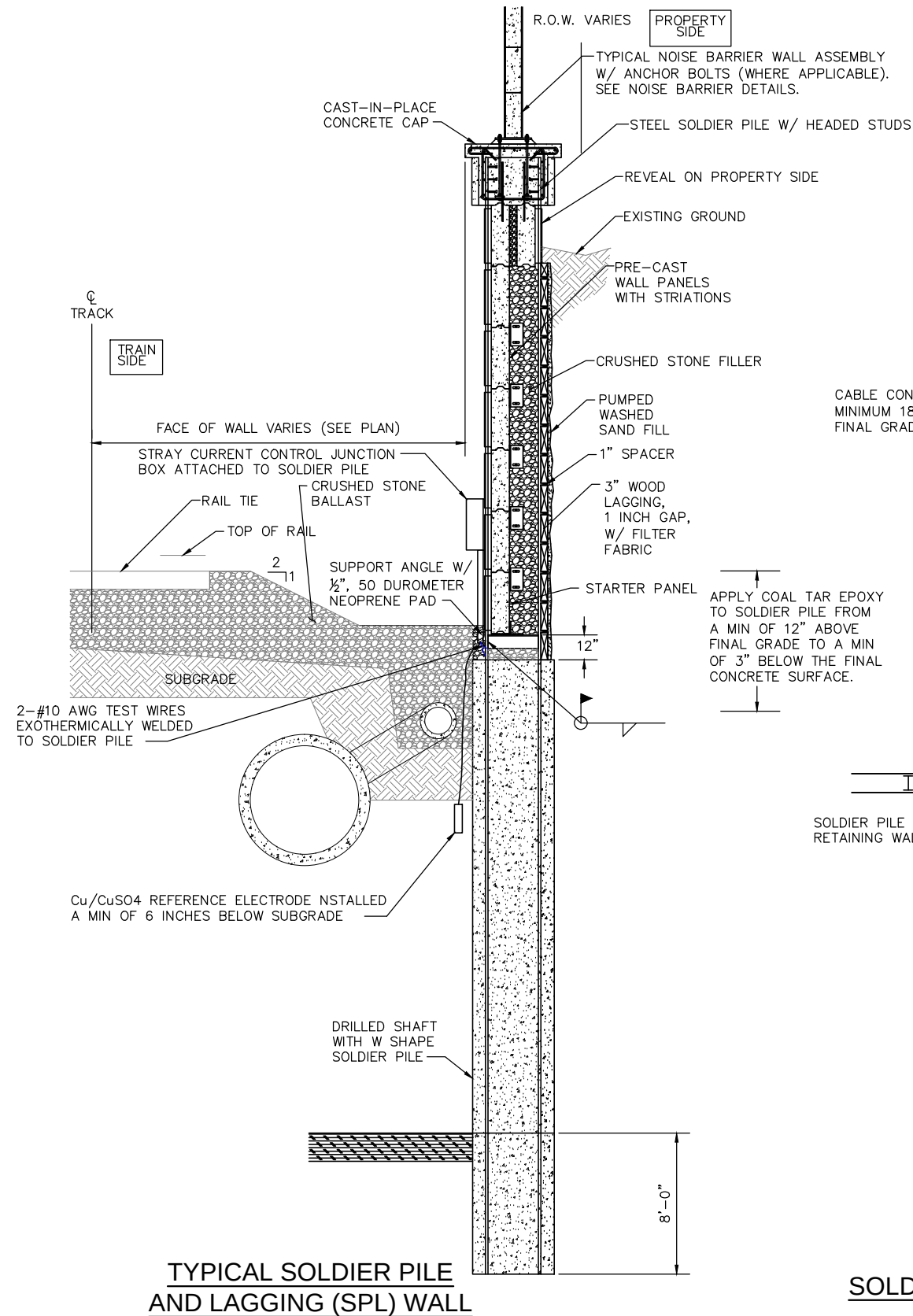
CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 6

DISCIPLINE:
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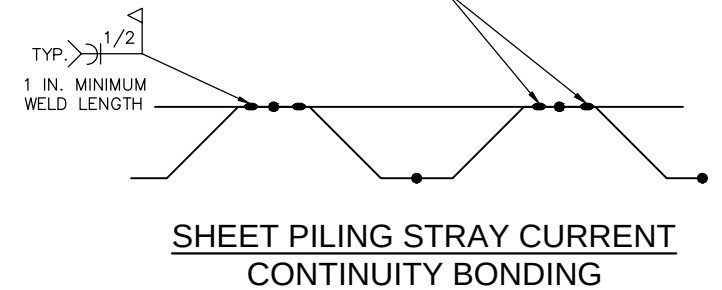
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WELD ONE REINFORCING BAR (#5 MINIMUM) OR A #1/0 AWG HMWPE STRANDED COPPER CABLE ACROSS LENGTH OF SHEET PILE DESIGNATED FOR BONDING. WELD TO EACH SHEET PILING SECTION. LAP SPICE AND WELD REINFORCING BAR AS NECESSARY. UTILIZE GALVANIZED REINFORCING BAR IF SHEET PILING IS GALVANIZED. REMOVE THE MINIMUM AMOUNT OF GALVANIZING FROM THE SHEET PILING AND REINFORCING BAR FOR THE WELDING PROCEDURE. REPAIR THE GALVANIZING ON THE COMPLETED WELD AND ALL BARE STEEL SURFACES IN ACCORDANCE WITH ASTM A780.



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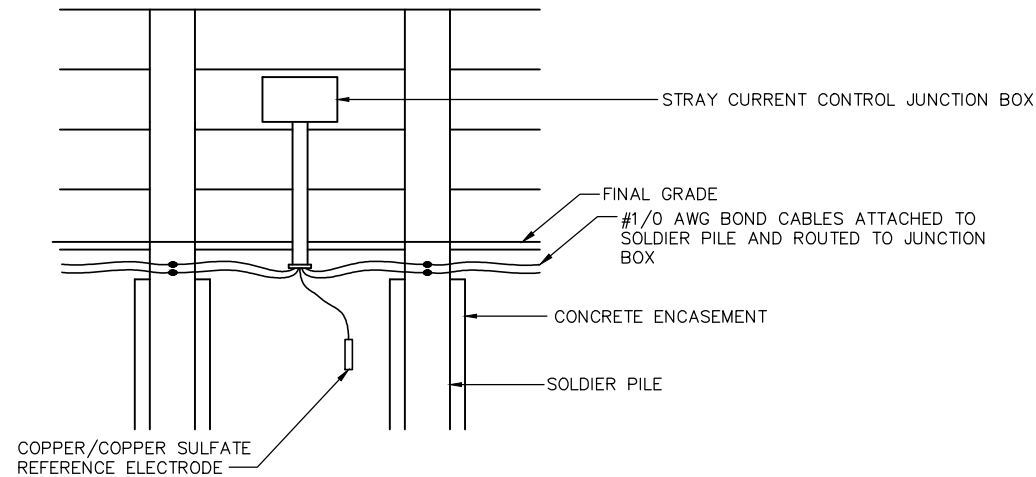
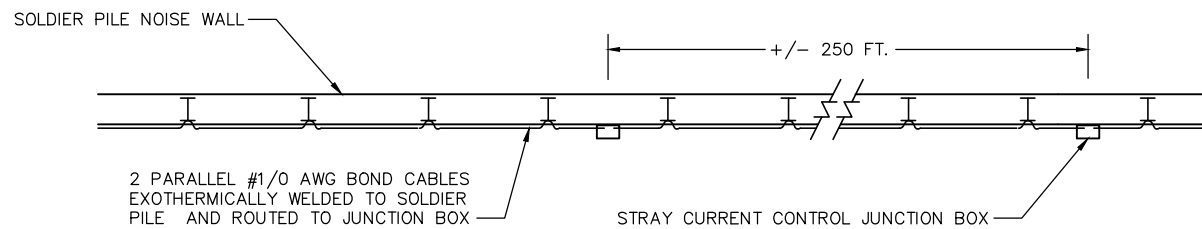
CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 8

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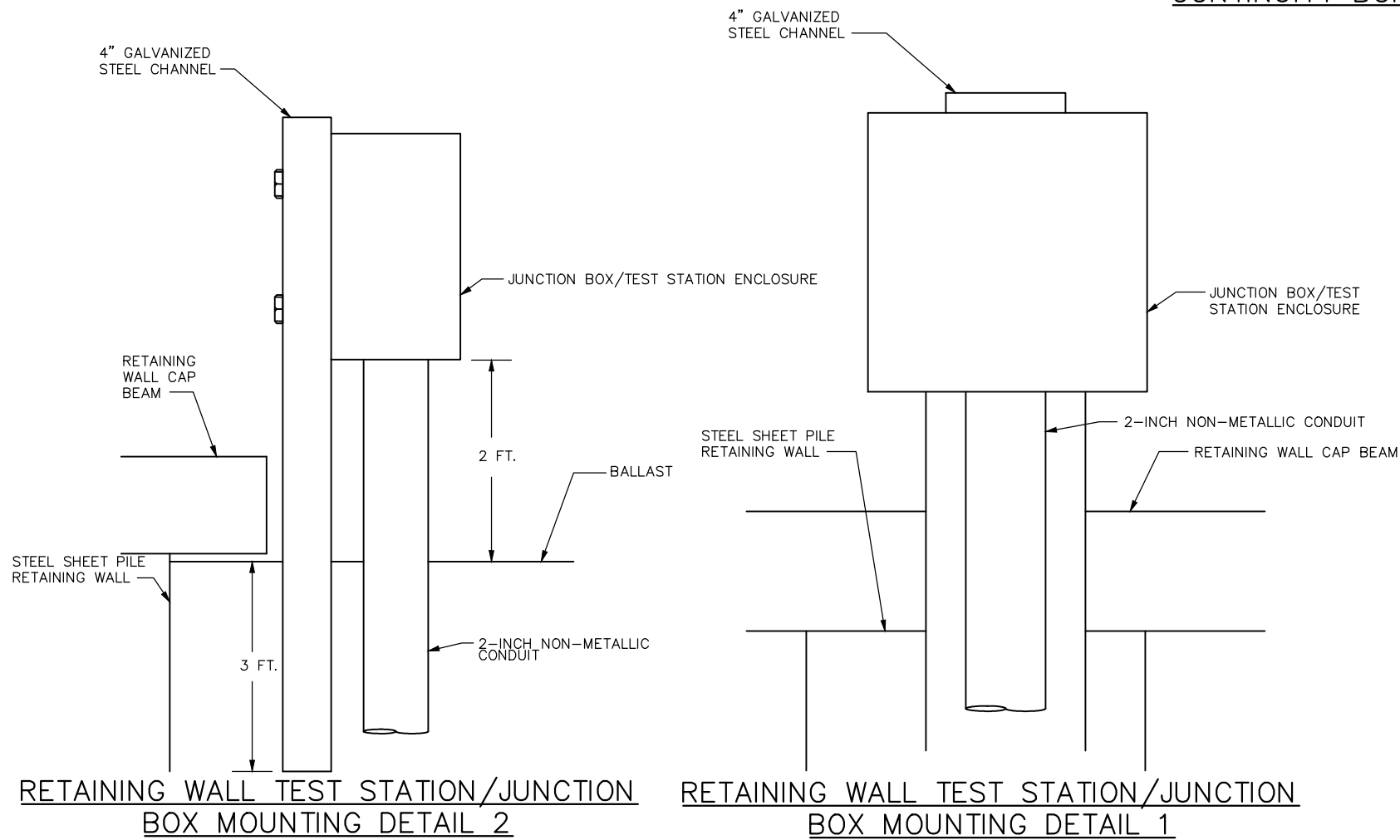
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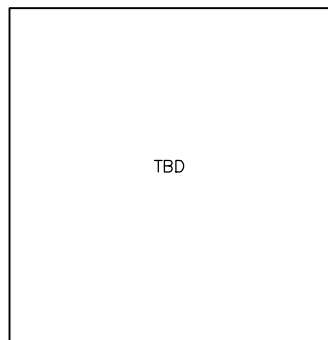


NOTE:
1. WHERE NFPA 130 EGRESS IS IMPEDED THE TEST STATION SHALL BE MOUNTED ON THE CONCRETE CAP WITH THE CONDUIT CAST INTO THE CONCRETE INFILL.

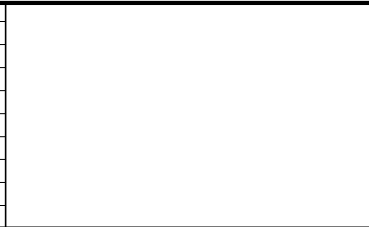
SOLDIER PILE NOISE WALL STRAY CURRENT CONTINUITY BONDING



TYPICAL GRADE STATION BONDING DETAIL



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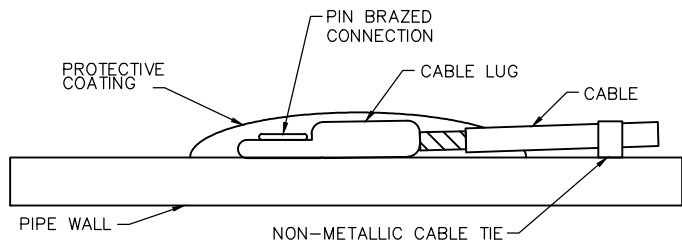

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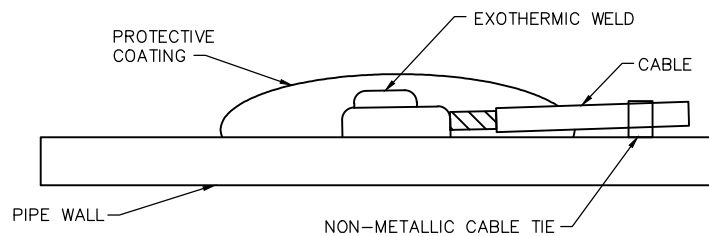
CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 9

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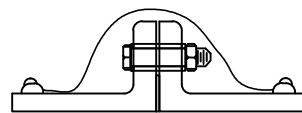
TYPICAL PIN BRAZED CABLE CONNECTION



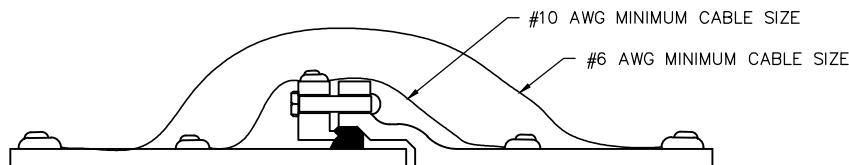
TYPICAL EXOTHERMICALLY WELDED CABLE CONNECTION



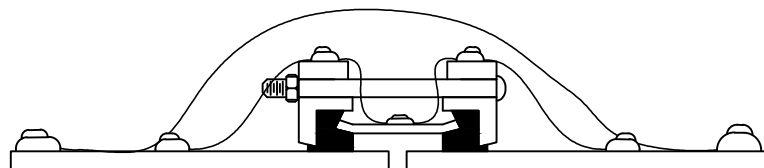
PUSH-ON JOINT



NON-INSULATED FLANGE



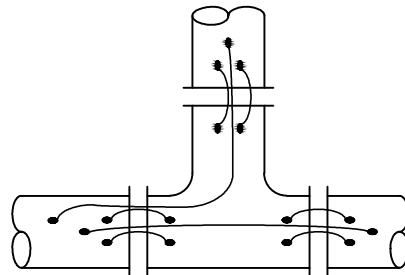
MECHANICAL JOINT



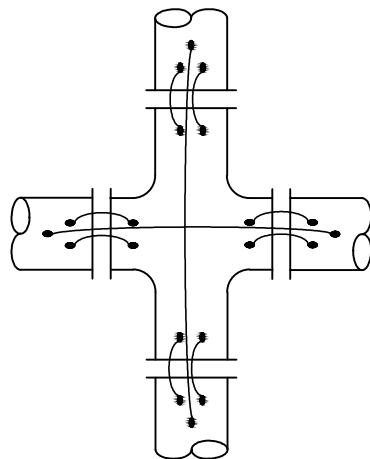
FLEXIBLE SLEEVE COUPLING WITHOUT RESTRAINT

BONDING NOTES

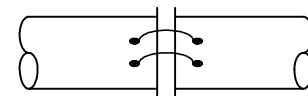
1. REINFORCED CONCRETE NON-PRESSURE PIPE DOES NOT REQUIRE ELECTRICAL CONTINUITY OF THE REINFORCING STEEL OR BONDING OF THE PIPE JOINTS. REINFORCED CONCRETE NON-PRESSURE PIPE AND ASSOCIATED MANHOLES SHALL BE COATED ON THE EXTERNAL SURFACES WITH AN APPROVED EPOXY.
2. PRESTRESSED CONCRETE CYLINDER PIPE, IF SPECIFICALLY APPROVED BY THE MBTA, REQUIRES ELECTRICAL CONTINUITY BETWEEN THE STEEL CYLINDER AND PRESTRESSING WIRES. EACH PIPE JOINT SHALL BE PROVIDED WITH ELECTRICAL BONDING PLATES ON EACH END. THE CONTRACTOR SHALL PROVIDE PROPOSED DETAILS FOR THE BONDING PLATES AND THE NUMBER OF PLATES TO BE ATTACHED TO EACH PIPE JOINT.
3. A MINIMUM OF TWO #6 AWG BOND WIRES PER BONDED JOINT ARE REQUIRED. THE CONTRACTOR SHALL DETERMINE IF ADDITIONAL OR LARGER BOND WIRES ARE NECESSARY TO MINIMIZE CURRENT ATTENUATION AND ACHIEVE THE MAXIMUM ALLOWABLE RESISTANCE CRITERIA.
4. ALL EXOTHERMIC WELDS SHALL BE CLEANED OF ALL WELD SLAG WITH A STIFF WIRE BRUSH. WELDS FOR PIPE JOINT AND FITTING BONDS SHALL BE COATED WITH AN APPROVED EPOXY OR WITH A PETROLATUM WAX COATING SYSTEM PRIOR TO BACKFILLING.



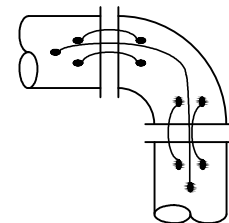
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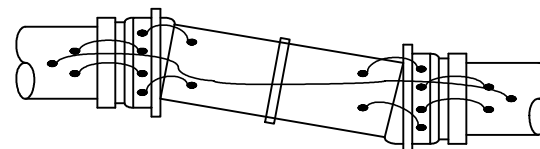
CROSS



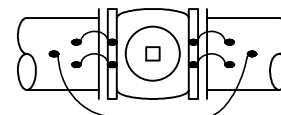
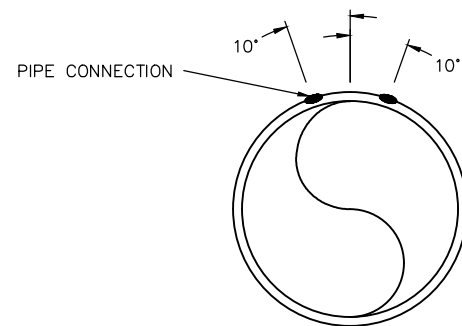
PIPE JOINT



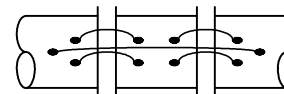
ELBOW



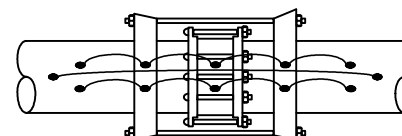
FLEXIBLE JOINT



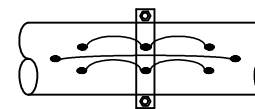
VALVE



ADAPTER



FLEXIBLE COUPLING WITH RESTRAINT



VICTAULIC COUPLING

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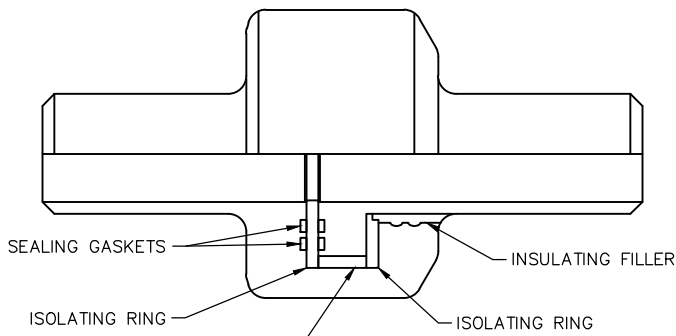
CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 10

DISCIPLINE: CORR

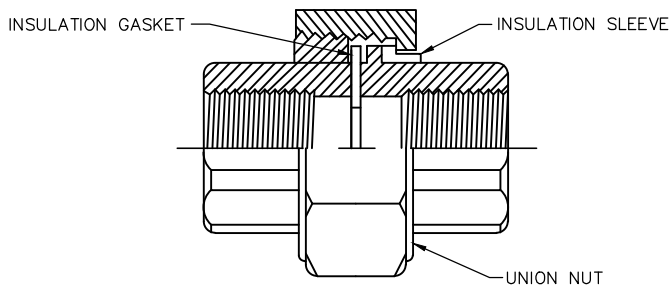
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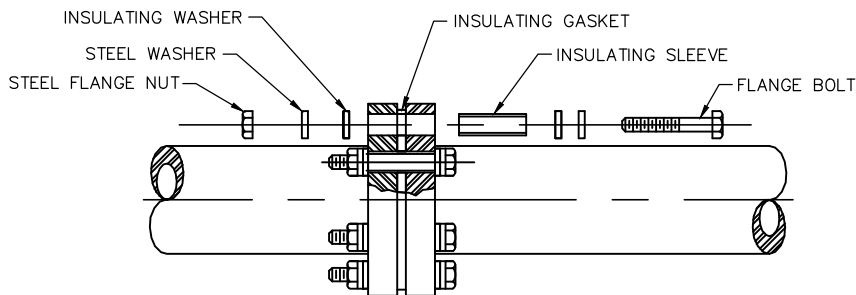


MONOLITHIC ISOLATION JOINT



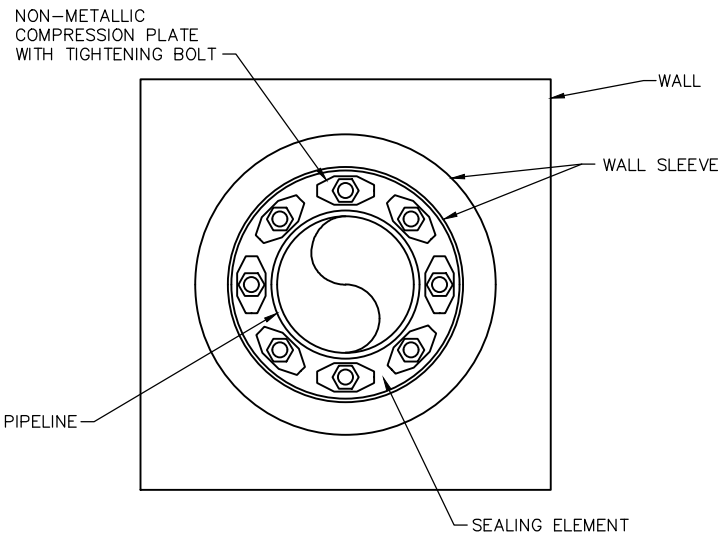
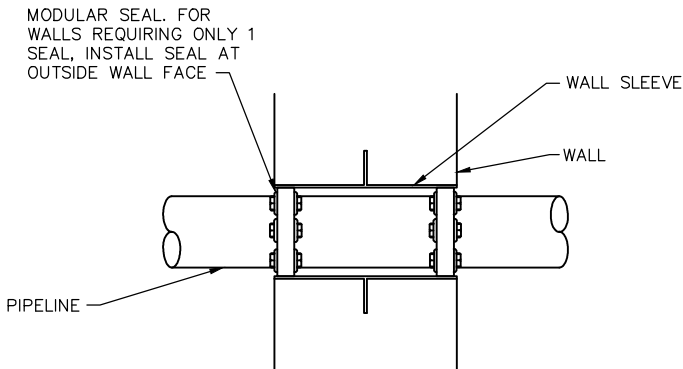
INSULATED UNION

DIELECTRIC ISOLATION ABOVE 150° F SPECIFY HIGH TEMPERATURE

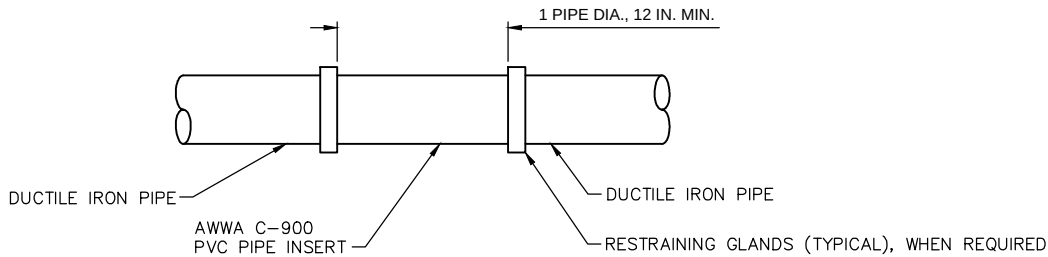


INSULATED FLANGE

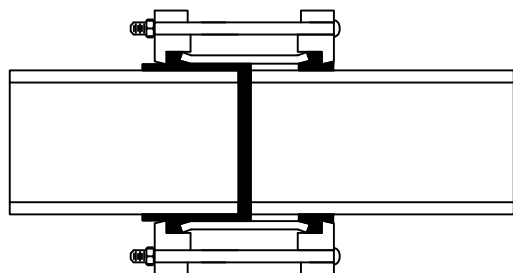
- NOTES:
1. FOR FLANGES INSTALLED ABOVE GRADE, INSTALL TWO INSULATING WASHERS AS SHOWN. FOR FLANGES INSTALLED BELOW GRADE IN CONJUNCTION WITH CATHODIC PROTECTION, OMIT THE INSULATING WASHER ON THE CATHODICALLY PROTECTED SIDE OF THE FLANGE.
 2. FOR STEEL PIPELINES MONOLITHIC ISOLATION JOINTS ARE PREFERRED OVER INSULATED FLANGES FOR BELOW GRADE INSTALLATIONS.
 3. IF AN INSULATED FLANGE IS INSTALLED BELOW GRADE, APPLY AN EXTERNAL PROTECTIVE COATING CONSISTING OF PRIMER, FILLER, PETROLATUM IMPREGNATED TAPE, AND OUTER PROTECTIVE WRAP AS MANUFACTURED BY TRENTON CORPORATION, DENSO NORTH AMERICA, OR APPROVED EQUAL. FOR BARE STRUCTURES THE EXTERNAL PROTECTIVE COATING SHALL EXTEND FOR A LENGTH OF A MINIMUM OF 3 PIPE DIAMETERS FROM THE CENTER OF THE FLANGE.
 4. FLANGE BOLTS SHALL EXTEND COMPLETELY THROUGH THE FLANGE NUTS WITH A MINIMUM OF THREE THREADS EXPOSED.
 5. AN INTERNAL POLYAMIDE EPOXY COATING SHALL BE APPLIED ON EACH SIDE OF THE ISOLATION FITTING FOR A MINIMUM DISTANCE OF 2 TIMES THE PIPE DIAMETER. WHERE THE TRANSPORTED FLUID RESISTIVITY IS LESS THAN 2000 OHM-CM THE CONTRACTOR SHALL DETERMINE THE MINIMUM COATING DISTANCE REQUIRED TO ACHIEVE A CURRENT LEAKAGE OF 2% OR LESS ACROSS THE FITTING. INTERNAL COATING FOR PIPELINES TRANSPORTING POTABLE WATER SHALL MEET THE REQUIREMENTS OF NSF-61.



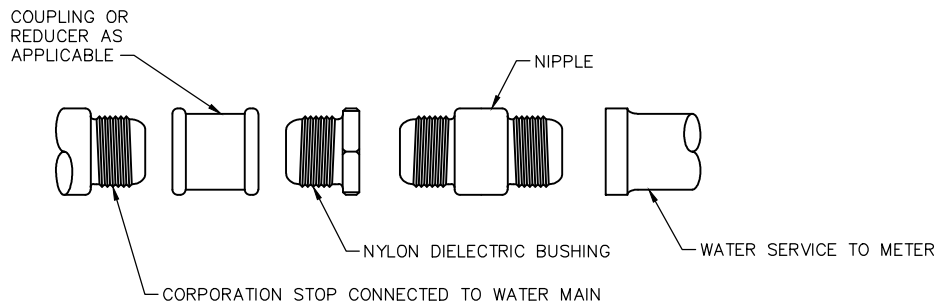
PIPELINE WALL PENETRATION



PVC INSERT ISOLATION JOINT



ISOLATION COUPLING



WATER SERVICE ISOLATION

- NOTES:
1. ALL METALLIC VALVES AND FITTINGS IN NON-METALLIC PIPELINE SECTIONS SHALL BE COATED WITH A FUSION BONDED EPOXY COATING SYSTEM IN ACCORDANCE WITH ANSI/AWWA C116.
 2. ALL NUTS AND BOLTS OF MECHANICAL FITTINGS SHALL BE PROTECTED WITH A PETROLATUM WAX COATING.

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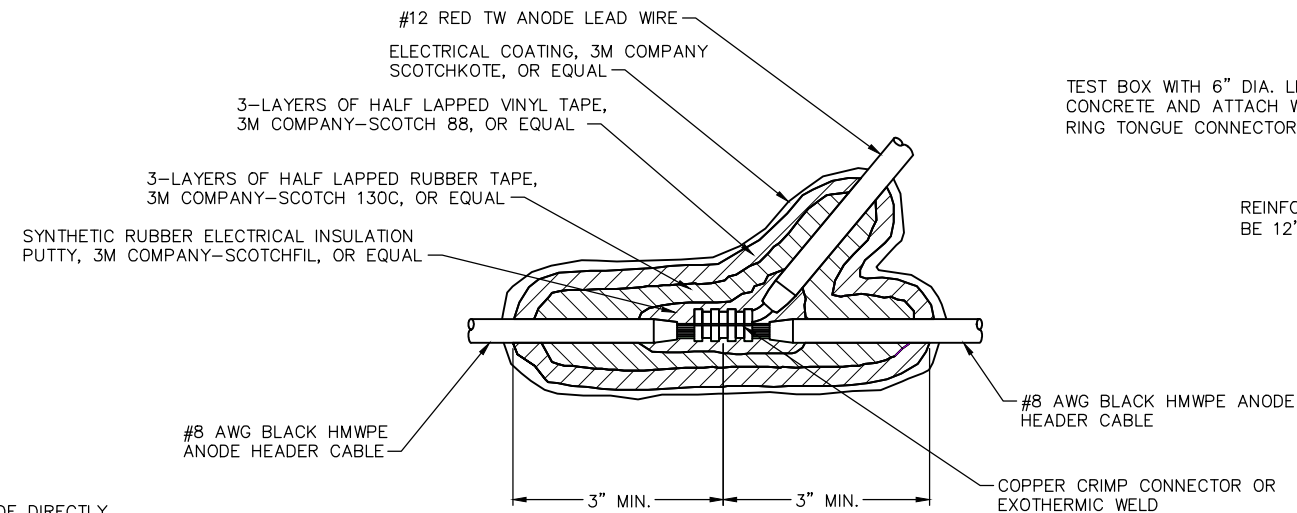
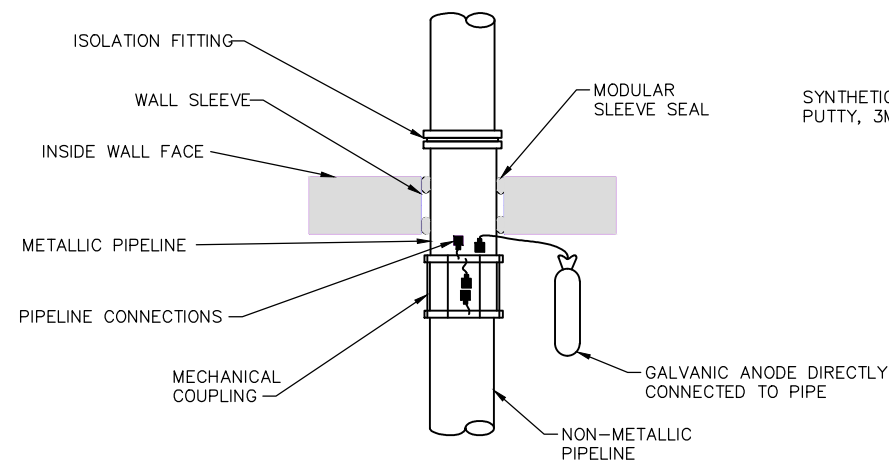
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 METROPOLITAN COUNCIL	 SOUTHWEST Green Line LRT Extension
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CIVIL WEST - VOLUME 12 CORROSION CONTROL STRAY CURRENT CONTROL DETAILS 11	
DISCIPLINE: CORR	SHEET NAME: W0-SYS-CORR-DTL-011

SHEET
158
OF
162

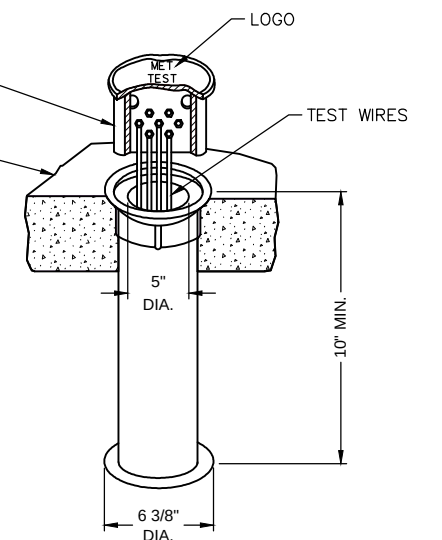
Sep. 21 2015 12:01 pm V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\CORROSION\Civil West - VOLUME 12\W0-SYS-CORR-DTL-012.dwg By: mccoij



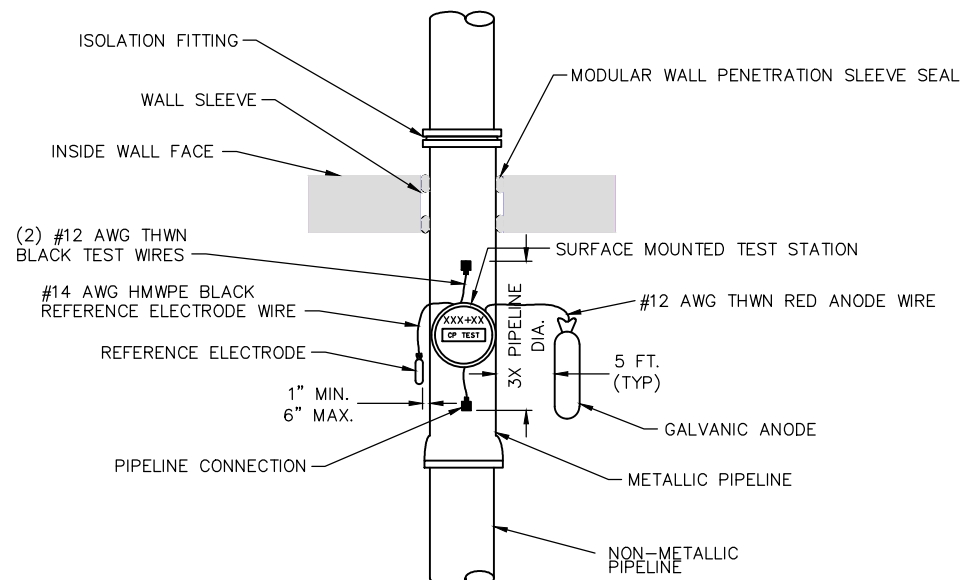
WYE SPLICE INSULATION

TEST BOX WITH 6" DIA. LID, SET BOX IN CONCRETE AND ATTACH WIRES TO TERMINALS WITH RING TONGUE CONNECTOR. LEAVE 18" SLACK

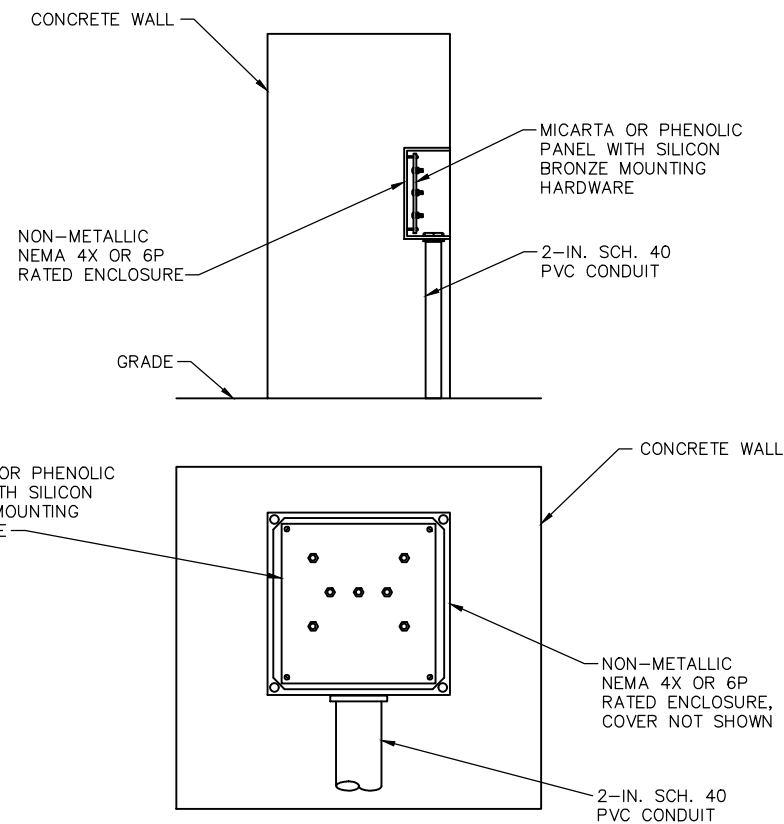
REINFORCED CONCRETE PAD TO BE 12" SQUARE x 4" DEEP MIN.



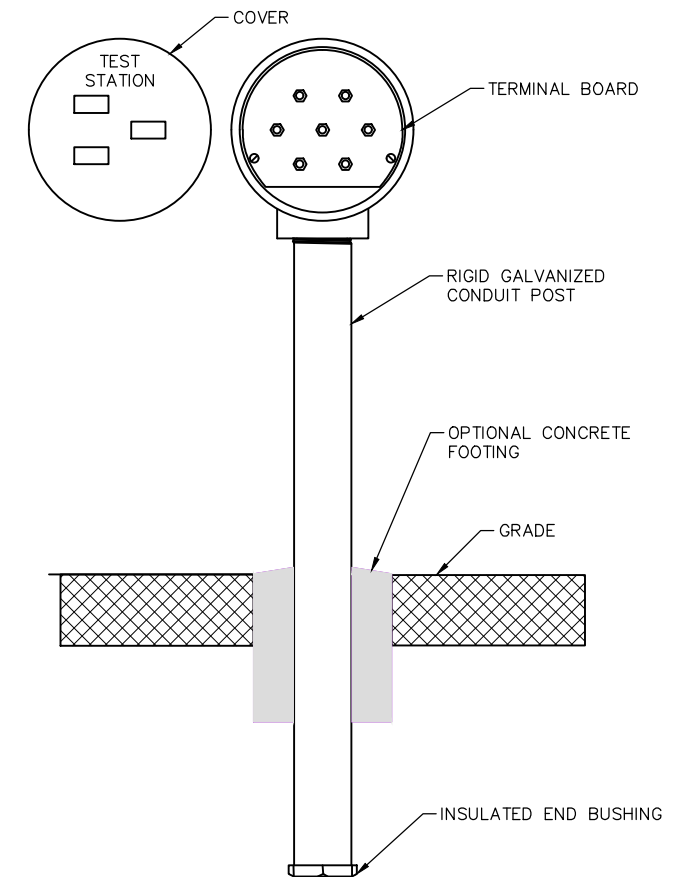
AT-GRADE BOX



METALLIC PIPE STUB-IN CATHODIC PROTECTION



CAST-IN-PLACE FLUSH MOUNT TEST STATION/JUNCTION BOX



POST MOUNTED TEST STATION

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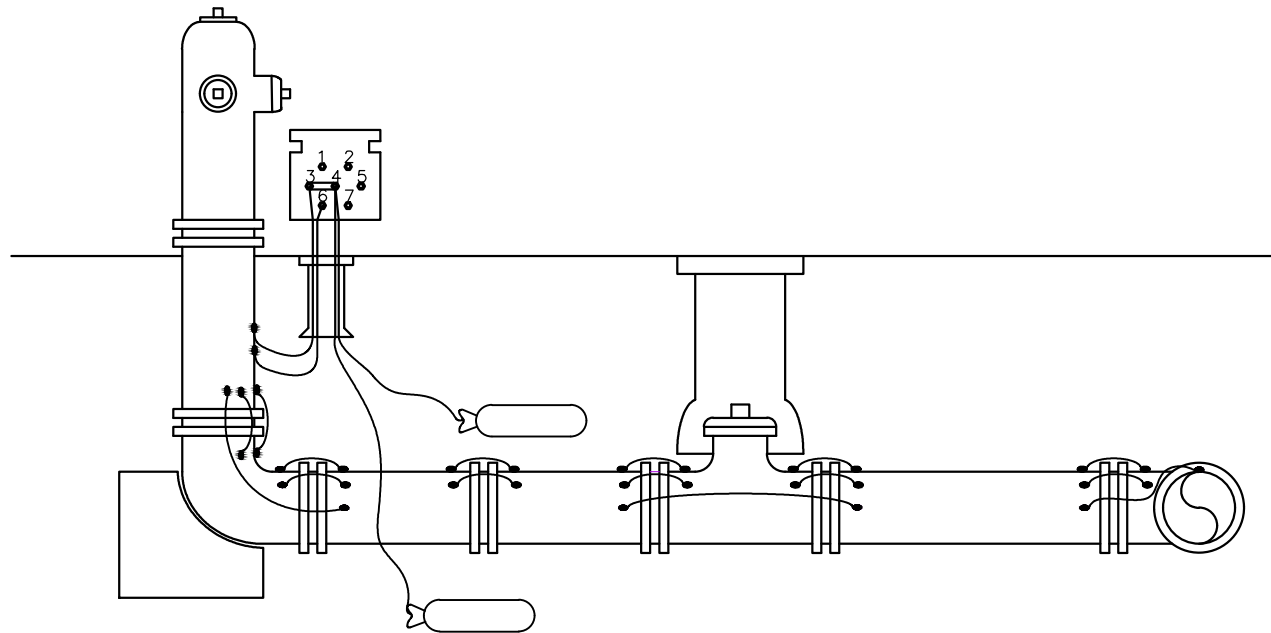
CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 12

DISCIPLINE: CORR

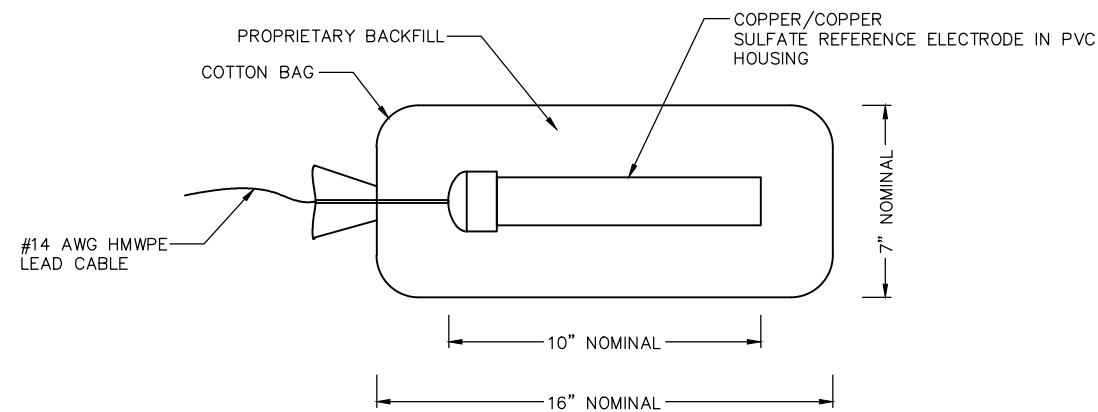
SHEET NAME: W0-SYS-CORR-DTL-012

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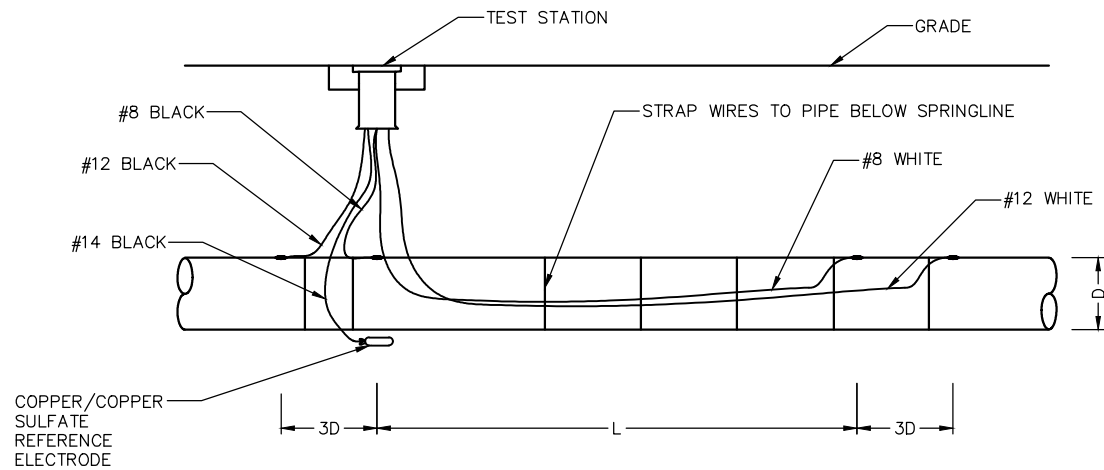
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FIRE HYDRANT STRAY CURRENT AND CATHODIC PROTECTION BONDING

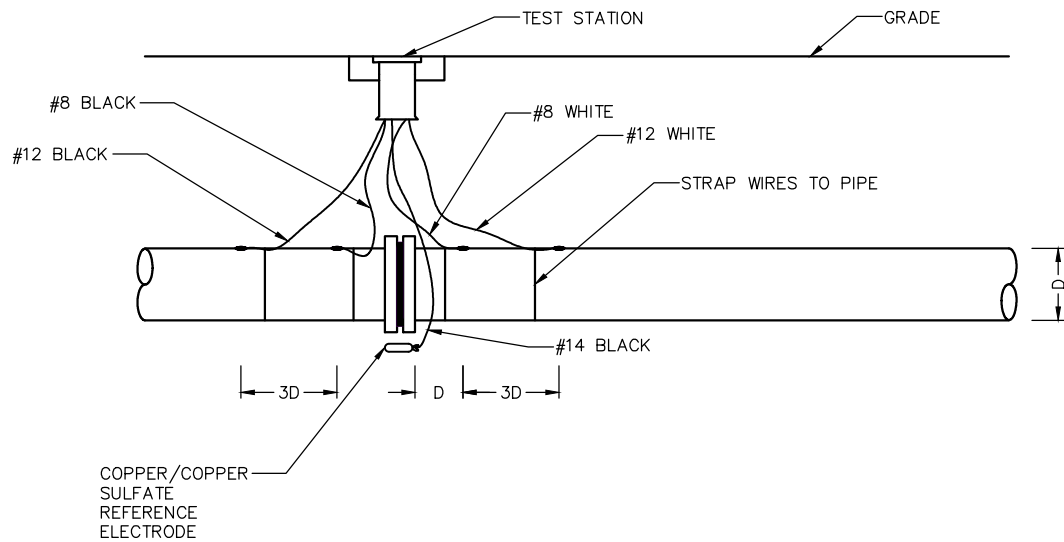


COPPER/COPPER SULFATE REFERENCE ELECTRODE



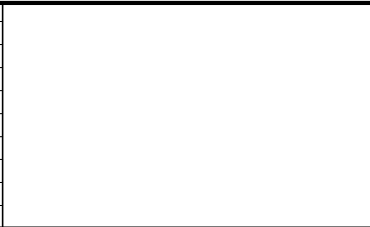
DI PIPE DIAMETER(D) INCHES	LENGTH (L) FEET
4-8	100
20	120
24	150
30-36	200
42-48	240
54-60	300

IR DROP TEST STATION



ISOLATION JOINT TEST STATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



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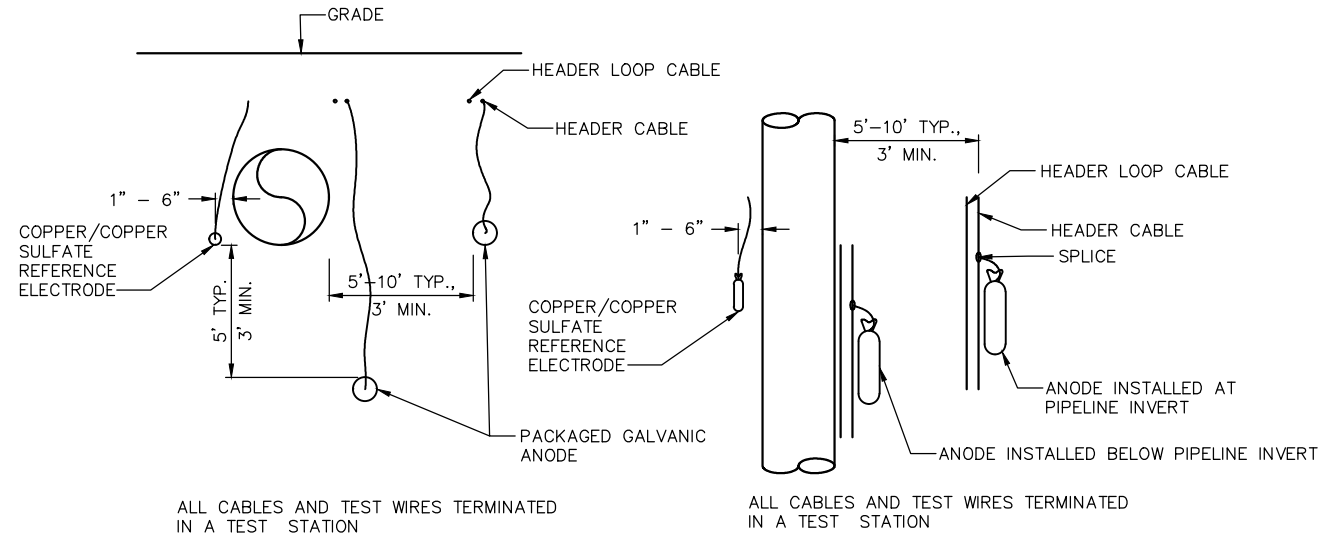


CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 13

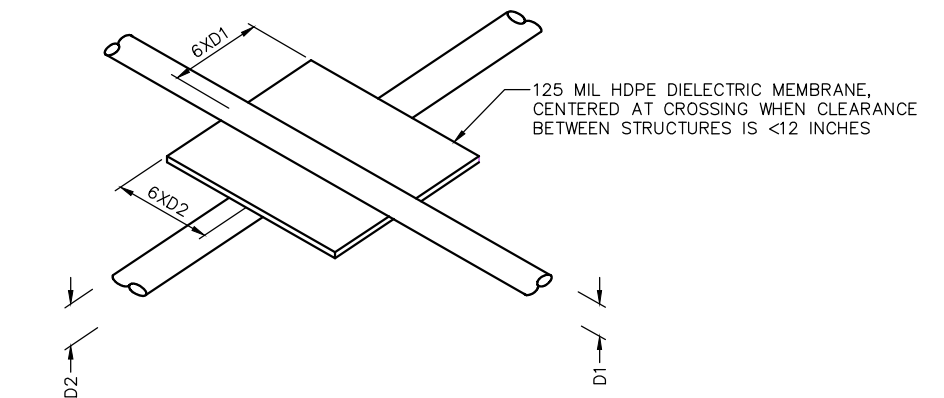
DISCIPLINE: CORR
SHEET NAME: W0-SYS-CORR-DTL-013

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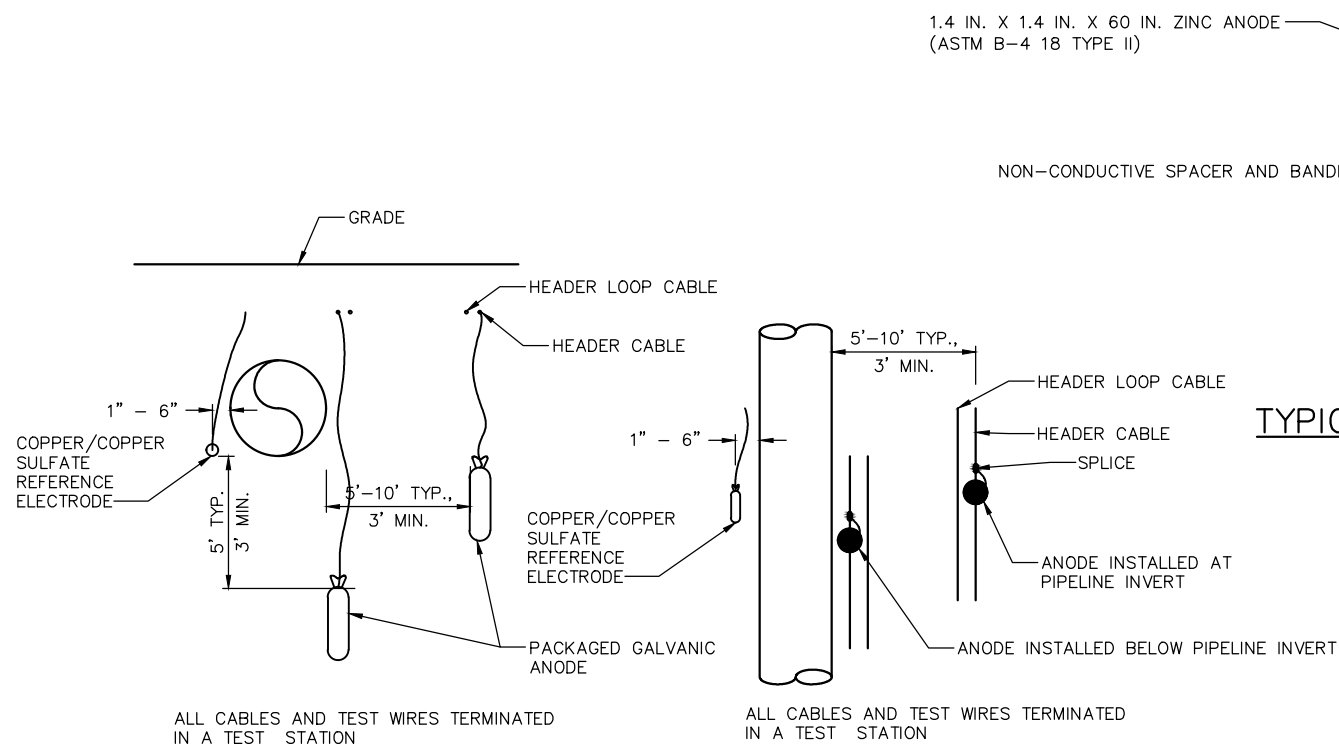
Sep. 21 2015 11:42 am V:\3400_ADC\CAD\SYSTEMS\PLAN SHEETS\CORROSION\Civil West - VOLUME 12\W0-SYS-CORR-DTL-014.dwg By: mccoij



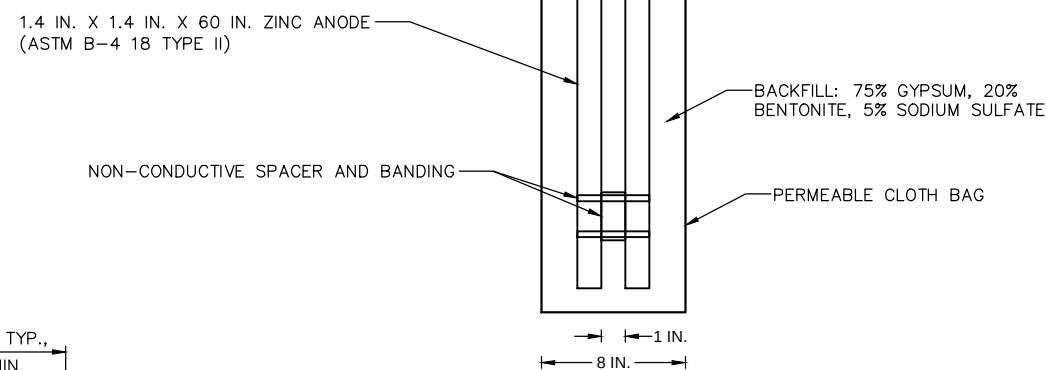
HORIZONTAL GALVANIC ANODE INSTALLATION



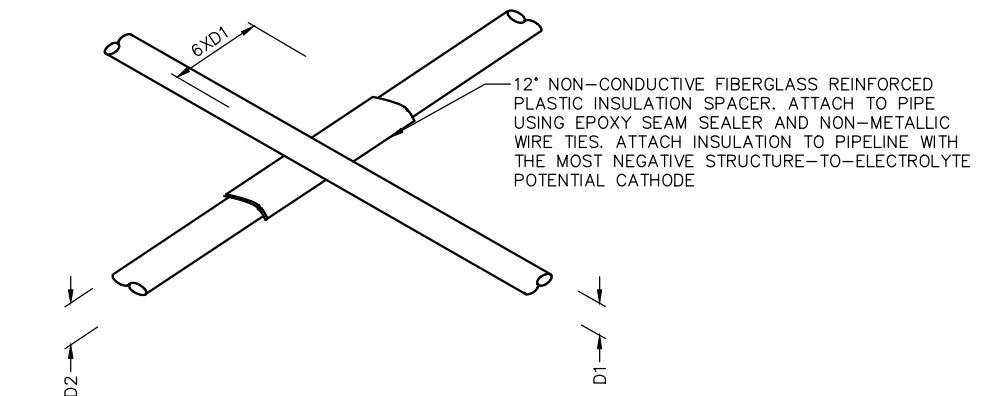
STRUCTURE ISOLATION AT CROSSING WITH MEMBRANE



VERTICAL GALVANIC ANODE INSTALLATION



TYPICAL ZINC GROUNDING CELL



STRUCTURE ISOLATION AT CROSSING WITH SHIELD

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SOUTHWEST
Green Line LRT Extension



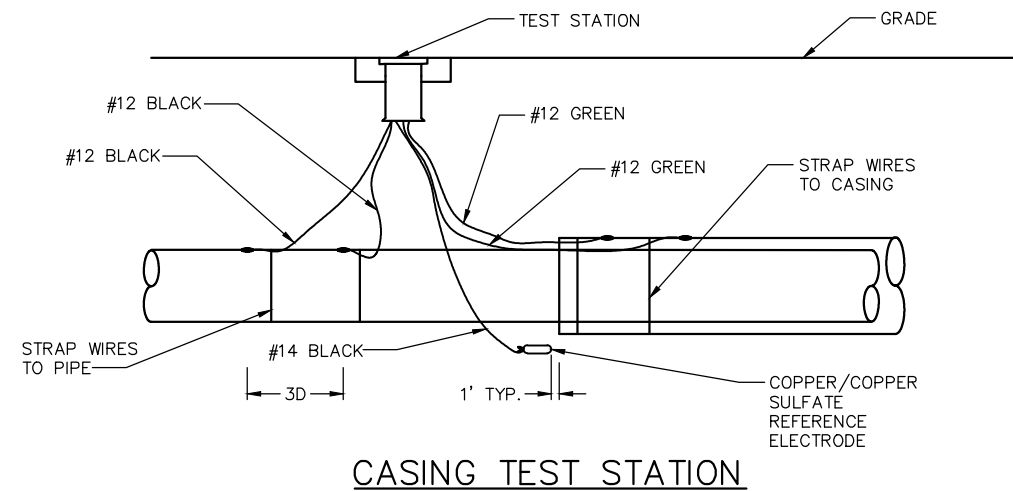
CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 14

DISCIPLINE: **CORR**

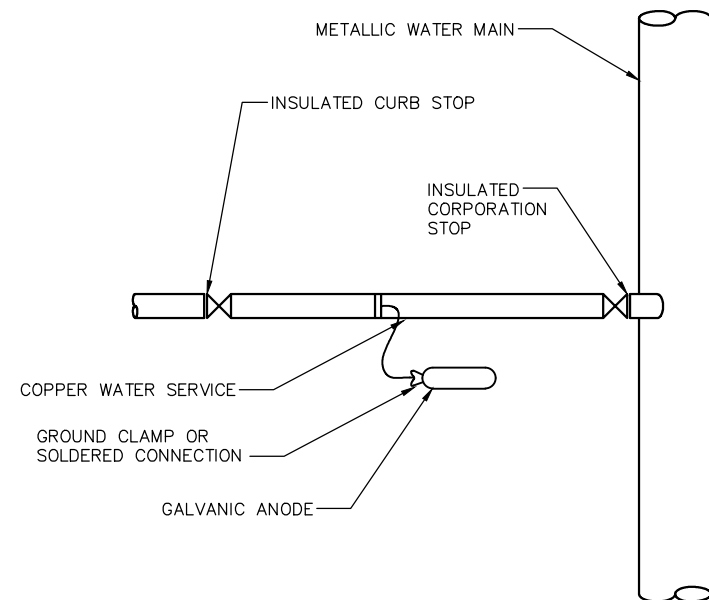
SHEET NAME: **W0-SYS-CORR-DTL-014**

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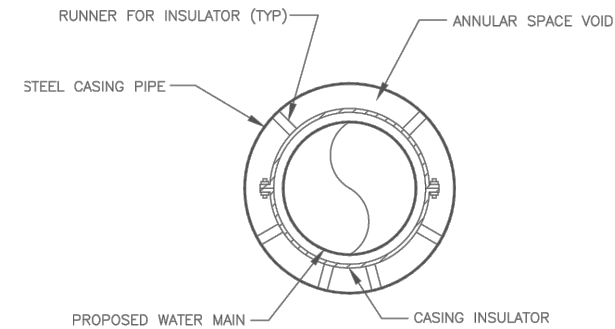
Sep. 21 2015 12:06 pm V:\3400_ADC\CAD\CAD\SYSTEMS\PLAN SHEETS\CORROSION\Civil West - VOLUME 12\W0-SYS-CORR-DTL-015.dwg By: mccoij



CASING TEST STATION

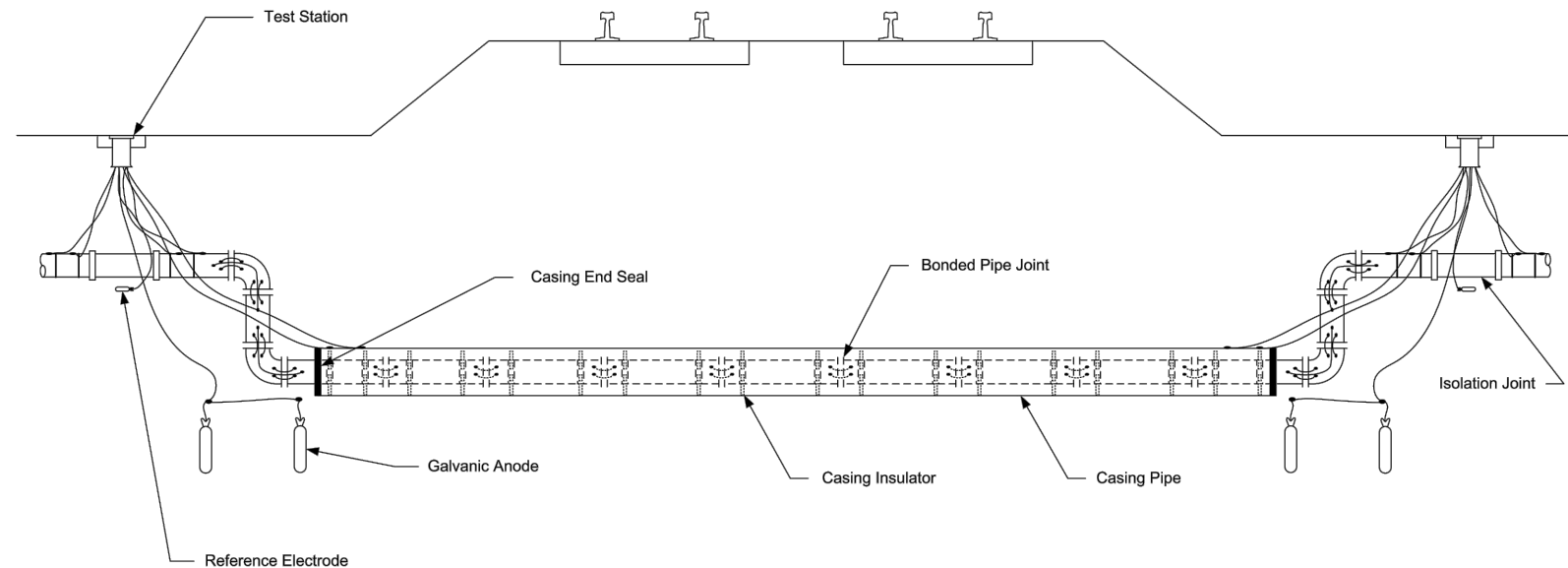


COPPER WATER SERVICE CATHODIC PROTECTION DETAIL



CASING PIPE SIZES		
WATER MAIN PIPE SIZE (INCHES)	CASING PIPE SIZE (INCHES)	CASING THICKNESS (INCHES)
6	16	0.375
8	20	0.375
12	24	0.375
16	30	0.375
20	36	0.375
24	42	0.500
30	48	0.500
36	54	0.500

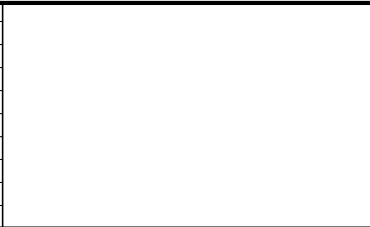
TYPICAL CASING DETAIL



UTILITY CROSSING TYPICAL DETAIL

- NOTES:
1. CASING PIPE SIZES SHOWN ARE TYPICAL TO ALLOW CLEARANCE OF BELL AND SPIGOT OR MECHANICAL COUPLINGS. REFER TO UTILITY OWNER'S STANDARDS FOR FINAL SIZING OF CASING PIPE.
 2. THE UTILITY CROSSING SHOWN IS TYPICAL TO DEMONSTRATE THE REQUIRED JOINT BONDING, CASING ISOLATOR INSTALLATIONS, ISOLATION JOINTS AND TEST STATIONS. THE ACTUAL CROSSING LAYOUT WILL BE SHOWN IN THE UTILITY RELOCATION/INSTALLATION DRAWINGS.

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CIVIL WEST - VOLUME 12
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 15

DISCIPLINE: CORR SHEET NAME: W0-SYS-CORR-DTL-015

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OF
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