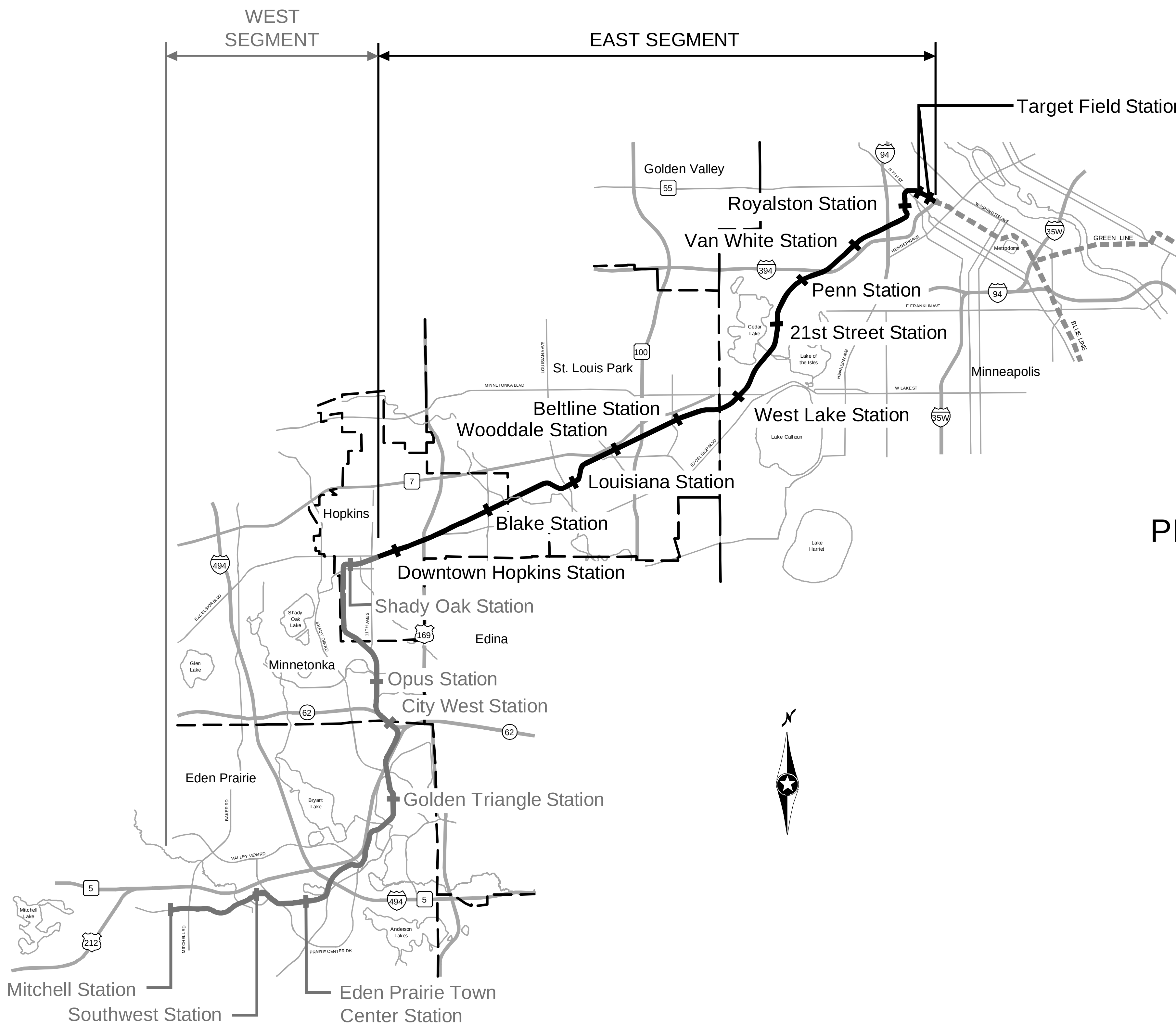

SOUTHWEST
Green Line LRT Extension

METROPOLITAN COUNCIL

EAST - VOLUME 1 (CIVIL) - SEGMENT 1

PRELIMINARY ENGINEERING (SEPTEMBER 2014)

INDEX

Kimley»Horn

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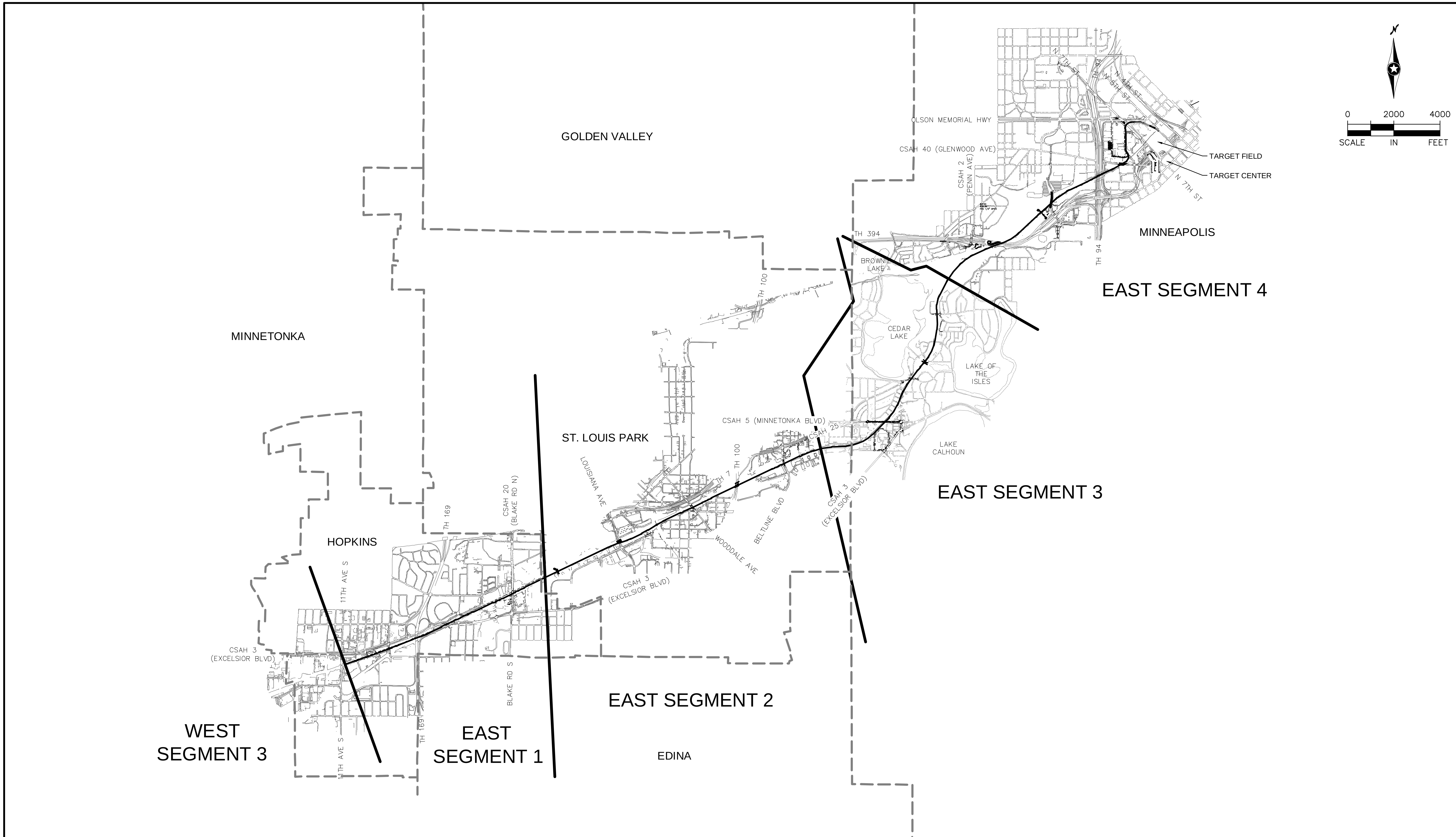

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
GENERAL
SEGMENT KEY MAP

DISCIPLINE: **GENERAL**

SHEET NAME: **E1-GEN-KEY-001**

SURVEY NOTES

1. 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.
2. 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 MFRA, INC.
3. 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.
4. VERTICAL POSITIONAL ACCURACY: USING THE NATIONAL STANDARD FOR SPATIAL DATA ACCURACY, THE DATA SET TESTED 0.10 FEET VERTICAL ACCURACY AT 95% CONFIDENCE LEVEL.

TOPOGRAPHIC SYMBOLS

- CATCH BASIN
- STORM MANHOLE
- SANITARY MANHOLE
- SANITARY CLEANOUT
- WATER MANHOLE
- WATER GATE VALVE MANHOLE
- WATER VALVE
- WATER METER
- CORP STOP
- HYDRANT
- ELECTRIC METER
- ELECTRIC TRANSFORMER
- ELECTRIC PANEL
- ELECTRIC MANHOLE
- ELECTRIC BOX
- GAS VALVE
- GAS METER
- TRAFFIC SIGNAL
- LIGHT POLE
- HAND HOLE (STRUCTURE)
- CABLE TELEVISION
- COMMUNICATION STRUCTURE
- TELEPHONE STRUCTURE
- TELEPHONE MANHOLE
- FIBER OPTIC MANHOLE
- UTILITY POLE
- UTILITY POLE W/LIGHT
- TREE (DECIDUOUS)
- TREE (CONIFEROUS)
- LIGHT POLE
- CAMERA
- MONITOR WELL
- BOLLARD
- SIGN
- FLAG POLE
- UNIDENTIFIED STRUCTURE
- EXISTING DIRECTIONAL LANE USE
- EXISTING SIGNALIZED INTERSECTION
- SURVEY CONTROL STATION

LINETYPES

P-OH	OVERHEAD ELECTRIC
P-OH-TRAN	OVERHEAD ELECTRIC TRANSMISSION
P-UG	UNDERGROUND ELECTRIC
T-UG	UNDERGROUND TELEPHONE
COM-OH	OVERHEAD COMMUNICATION
COM-UG	UNDERGROUND COMMUNICATION
CABLE-OH	OVERHEAD CABLE TELEVISION
CATV	UNDERGROUND CABLE TELEVISION
FIB-OPT	UNDERGROUND FIBER OPTIC
FUEL-UG	UNDERGROUND FUEL
GAS	UNDERGROUND GAS
	ABANDONED UTILITY
I	WATER
>	SANITARY SEWER
>>	SANITARY FORCE MAIN
>	STORM SEWER
	CURB AND GUTTER
x	FENCE
	GUARDRAIL
	WALK
	BUILDING
	RIGHT–OF–WAY
	PROPERTY LINE
	CENTERLINE OF RAIL
	CENTERLINE OF TRAIL
	VEGETATION
	WATER BODY

TRAIL INDEX

ABBREVIATED NAME	FULL NAME/LOCATION
MN RIVER BLUFFS TRAIL	MINNESOTA RIVER BLUFFS LRT REGIONAL TRAIL/WEST OF EXCELSIOR
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL TRAIL/EAST OF EXCELSIOR
TRAIL A	NOT USED
TRAIL B	NOT USED
TRAIL C	10' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO TYLER AVE.
TRAIL D	10' CONNECTOR TRAIL/BELTLINE STATION
KENILWORTH TRAIL	KENILWORTH TRAIL (MAIN)/W LAKE ST TO PENN STATION
TRAIL E	KENILWORTH TRAIL (SECONDARY)/W LAKE ST TO CEDAR LAKE PKWY
TRAIL F	KENILWORTH TRAIL (SECONDARY)/WEST OF PENN STATION
TRAIL F	NORTH CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL G	KENILWORTH TRAIL (SECONDARY)/WEST OF PENN STATION
TRAIL G	NORTH CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL H	10' CONNECTOR TRAIL/EAST OF PENN STATION TO KENWOOD PKWY
TRAIL I	NORTH CEDAR LAKE TRAIL (MAIN) ON BRIDGE OVER LIGHT RAIL
TRAIL J	NORTH CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL K	NORTH CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL L	20' CONNECTOR TRAIL/VAN WHITE STATION
TRAIL M	NORTH CEDAR LAKE TRAIL (SECONDARY)/EAST OF I–94
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 T.H. 7 SERVICE ROAD

ABBREVIATIONS

AVE	AVENUE
BLVD	BOULEVARD
BNSF	BURLINGTON NORTHERN SANTA FE RAILWAY
℄	CENTERLINE
CP	CANADIAN PACIFIC
CPRAIL	CANADIAN PACIFIC RAILWAY
CSAH	COUNTY STATE AID HIGHWAY
EB	EAST BOUND
EX	EXISTING
HCRRA	HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY
MPLS	CITY OF MINNEAPOLIS
MPRB	MINNEAPOLIS PARK AND RECREATION BOARD
N	NORTH
NB	NORTH BOUND
OH	OVERHEAD
PKWY	PARKWAY
ROW	RIGHT OF WAY
S	SOUTH
SB	SOUTH BOUND
SCS	SURVEY CONTROL STATION
ST	STREET
STA	STATION
UG	UNDERGROUND
WB	WEST BOUND

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
NOTES AND LEGEND

DISCIPLINE: SURVEY

SHEET NAME: E1-SUR-NTS-001

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SWLRT – SURVEY CONTROL STATIONS

Point #	Elevation	Northing	Easting	Description
50	925.20	147803.72	492997.59	NAIL IN WALK
51	924.63	147296.86	493041.40	1/2" PIPE W/ CAP
52	920.12	147457.54	493444.91	1/2" PIPE W/ CAP
53	918.88	149783.11	499410.13	SPIKE IN CONC.ISLAND
54	916.30	150249.30	499454.07	SPIKE IN WALK
55	914.34	150598.24	499375.94	SPIKE IN WALK
56	892.05	151747.10	504275.16	MAG NAIL IN BIT. ISLAND
57	893.52	152551.75	503890.55	NAIL IN CONC. ISLAND
58	912.16	153153.46	505103.84	1/2" PIPE W/ CAP
60	922.10	153902.36	506943.04	SPIKE IN WALK
61	914.44	153987.80	507459.25	TOP NUT HYDRANT
62	887.15	155207.09	511406.17	SPIKE IN WALK
63	888.82	155735.94	511126.66	MAG NAIL IN BIT. ISLAND
64	880.03	156199.11	511320.88	CP 64
65	874.88	156748.13	515073.56	TOP NUT HYDRANT
66	871.15	157066.04	515500.10	1/2" PIPE W/ CAP
67	900.57	157332.41	515573.29	MAG NAIL IN WALK
68	873.41	162065.52	517921.22	SPIKE IN CONC.
69	894.70	160820.23	517681.87	SPIKE IN CONC.
70	883.87	162053.75	518233.43	SPIKE IN CONC.

SWLRT – SURVEY CONTROL STATIONS

Point #	Elevation	Northing	Easting	Description
71	883.87	164784.02	518990.60	1/2" PIPE W/ CAP
72	878.63	165010.99	519354.33	MAG NAIL IN CONC.
73	868.05	164981.51	519784.70	MAG NAIL IN PED BRIDGE
74	822.45	167691.23	523787.15	1/2" PIPE W/ CAP
76	819.93	167634.47	523653.72	IRON PIPE
77	849.53	168719.56	526300.32	1/2" PIPE W/ CAP
78	851.67	168845.25	526108.98	1/2" PIPE W/ CAP
79	837.08	168863.92	525748.91	MAG NAIL IN WALK
80	923.03	148003.36	495053.47	LARGE SPIKE
81	922.07	147981.12	495437.89	LARGE SPIKE
82	832.55	170339.14	525851.45	MAG NAIL IN WALK
83	828.36	170329.54	525453.40	SPIKE IN BACK OF CURB
84	844.15	168518.87	525610.67	SPIKE IN WALK
85	922.35	148080.97	495381.24	MAG NAIL IN BIT. PATH
86	874.55	157268.46	515433.01	MAG NAIL IN BIT PATH
87	864.02	161338.52	517727.72	MAG NAIL IN BIT. PATH
88	865.88	160917.15	517712.96	MAG NAIL IN BIT PATH
89	848.56	164900.15	519989.73	MAG NAIL IN BIT PATH
90	840.08	165195.52	520795.95	MAG NAIL IN BIT PATH
91	843.57	165063.04	520475.13	MAG NAIL IN BIT. PATH

SWLRT – SURVEY CONTROL STATIONS

Point #	Elevation	Northing	Easting	Description
94	923.38	148101.27	495311.47	LARGE SPIKE
95	887.47	152190.79	504031.01	LARGE SPIKE
96	913.20	150917.04	501306.42	MAG NAIL IN BIT.
97	912.78	150966.60	501408.21	MAG NAIL IN BIT.
98	853.64	164593.72	519411.98	MAG NAIL IN BIT. PATH
99	920.01	148504.58	496237.41	MAG NAIL IN BIT.
100	921.79	148866.38	496673.90	MAG NAIL IN BIT. PATH
101	886.78	155648.11	511235.02	1/2" PIPE W/ CAP
102	883.42	156272.14	513588.70	1/2" PIPE W/ CAP
103	880.40	156338.34	514155.56	1/2" PIPE W/ CAP
104	871.62	157762.81	515869.76	1/2" PIPE W/ CAP
105	873.75	158678.79	516297.37	MAG NAIL IN BIT. PATH
106	866.40	162004.27	517707.75	1/2" PIPE W/ CAP
107	868.12	162688.55	517804.72	1/2" PIPE W/ CAP
108	861.02	163531.76	518305.19	SPIKE IN BIT. PATH
112	867.26	160249.76	517503.88	MAG NAIL IN BIT PATH
113	876.37	164973.60	519008.24	CUT CROSS IN CONC. ISLAND
115	880.49	165191.46	518300.44	1/2" PIPE W/CAP
116	880.52	165378.10	519337.76	MAG NAIL IN WALK
117	872.67	165140.44	518963.43	1/2" PIPE W/ CAP

SWLRT – SURVEY CONTROL STATIONS

Point #	Elevation	Northing	Easting	Description
150	866.11	160525.63	517639.90	MAG NAIL IN BIT. PATH
151	865.64	160775.49	517820.23	SPIKE
152	868.02	160196.77	517477.76	SPIKE IN BIT. PATH
153	823.10	168151.98	525117.22	MAG NAIL IN BIT. PATH
154	838.49	166512.10	522182.52	DRILL HOLE IN CONC.
155	841.33	166200.34	522480.63	DRILL HOLE IN CONC.
156	823.27	168187.84	525166.47	MAG NAIL IN BIT. PATH
157	822.30	168084.12	524994.65	MAG NAIL IN BIT. PATH
158	822.56	168015.53	524875.04	MAG NAIL IN BIT.
159	822.72	167933.08	524729.12	MAG NAIL IN BIT.
162	822.47	168430.42	525688.95	MAG NAIL IN BIT. PATH
163	822.94	168527.62	525863.31	MAG NAIL IN BIT. PATH
165	914.95	153502.80	505502.55	1/2" PIPE W/ CAP
167	899.33	151921.95	505886.04	1/2" PIPE W/ CAP
170	912.98	152946.50	505533.45	MAG NAIL IN BIT PATH
175	896.03	152982.35	505138.46	MAG NAIL IN BIT.
176	886.84	155760.74	511408.49	MAG NAIL IN BIT. PATH
177	887.43	156091.81	512264.50	MAG NAIL IN BIT. PATH
178	842.85	168825.29	526461.70	1/2" PIPE W/ CAP
179	885.66	156282.82	513324.58	MAG NAIL IN BIT. PATH

SWLRT – SURVEY CONTROL STATIONS

Point #	Elevation	Northing	Easting	Description
180	875.87	156943.11	515118.61	MAG NAIL IN BIT. PATH
181	874.01	158378.12	516184.61	MAG NAIL IN BIT PATH
182	872.80	159045.47	516509.37	SPIKE
183	869.09	159916.74	517227.56	MAG NAIL IN BIT. PATH
184	867.99	160069.02	517359.05	MAG NAIL IN BIT. PATH
185	830.32	169979.72	525948.03	SPIKE
188	921.26	148272.10	495855.92	MAG NAIL IN BIT. PATH
190	887.63	156137.69	512537.72	ROD INSIDE 2" PIPE
192	872.56	159258.76	516679.66	MAG NAIL IN BIT. PATH
193	856.58	164153.67	518695.30	1/2" PIPE W/ CAP
254	827.47	170118.88	525333.75	1/2" PIPE W/CAP
255	826.29	169791.42	525397.27	1/2" PIPE W/CAP
256	831.56	170382.26	525636.60	1/2" PIPE W/CAP
257	842.02	168796.94	525927.78	1/2" PIPE W/CAP
258	869.92	161307.56	517884.90	1/2" PIPE W/CAP
259	874.83	165634.38	519336.38	1/2" PIPE W/CAP
260	807.50	168457.50	522736.13	1/2" PIPE W/CAP
261	808.88	168184.26	522715.29	1/2" PIPE W/CAP
262	815.45	169010.87	522690.77	1/2" PIPE W/CAP
263	814.97	169368.54	522785.88	1/2" PIPE W/CAP

SWLRT – SURVEY CONTROL STATIONS

Point #	Elevation	Northing	Easting	Description
264	823.85	166431.61	522798.47	1/2" PIPE W/CAP
265	820.15	166071.49	523088.01	1/2" PIPE W/CAP
266	820.90	165962.80	523328.89	1/2" PIPE W/CAP
267	816.84	165949.34	523748.73	1/2" PIPE W/CAP

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
SURVEY CONTROL STATIONS

DISCIPLINE: SURVEY

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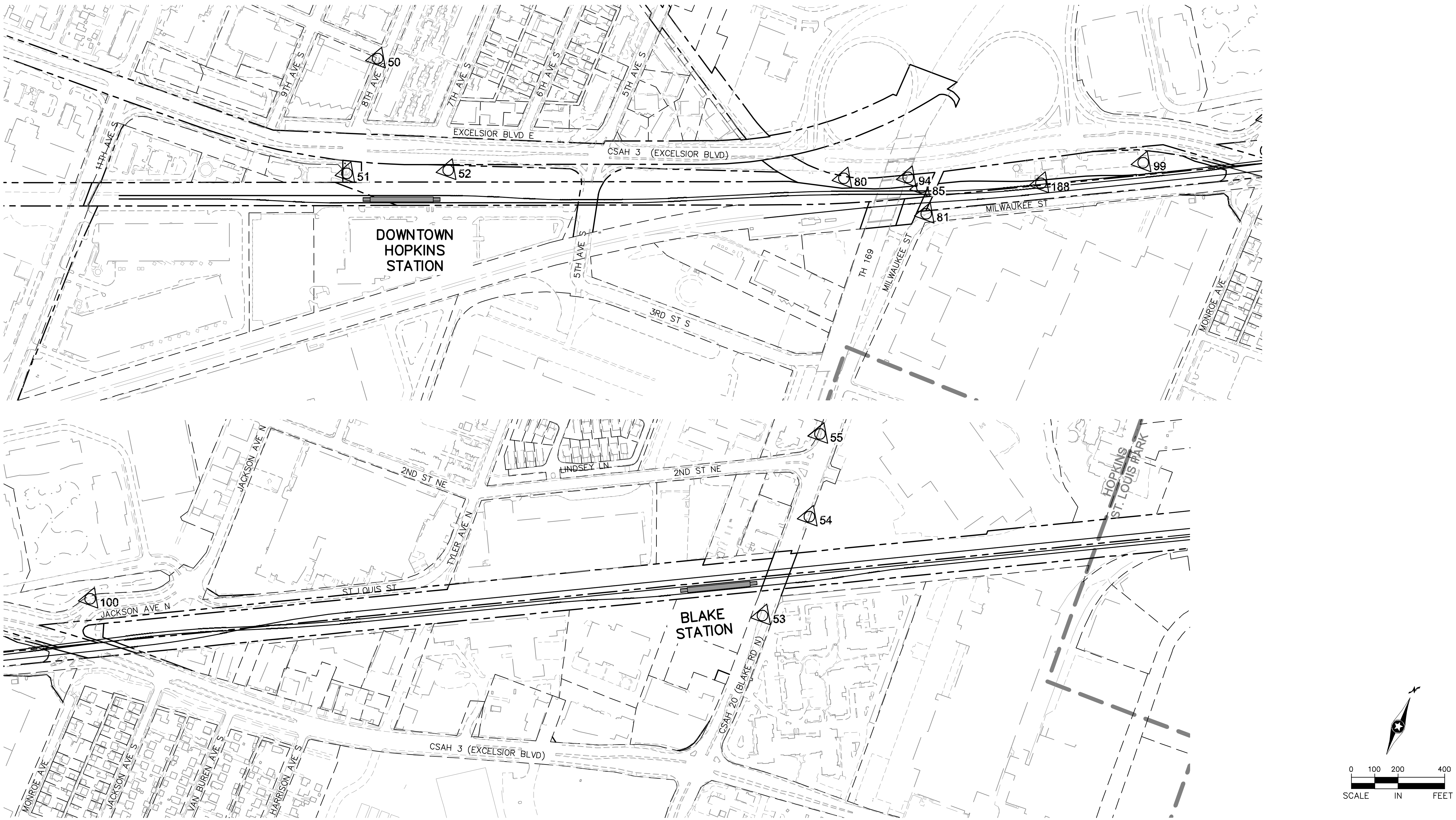

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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
CONTROL POINTS PLAN

DISCIPLINE: SURVEY

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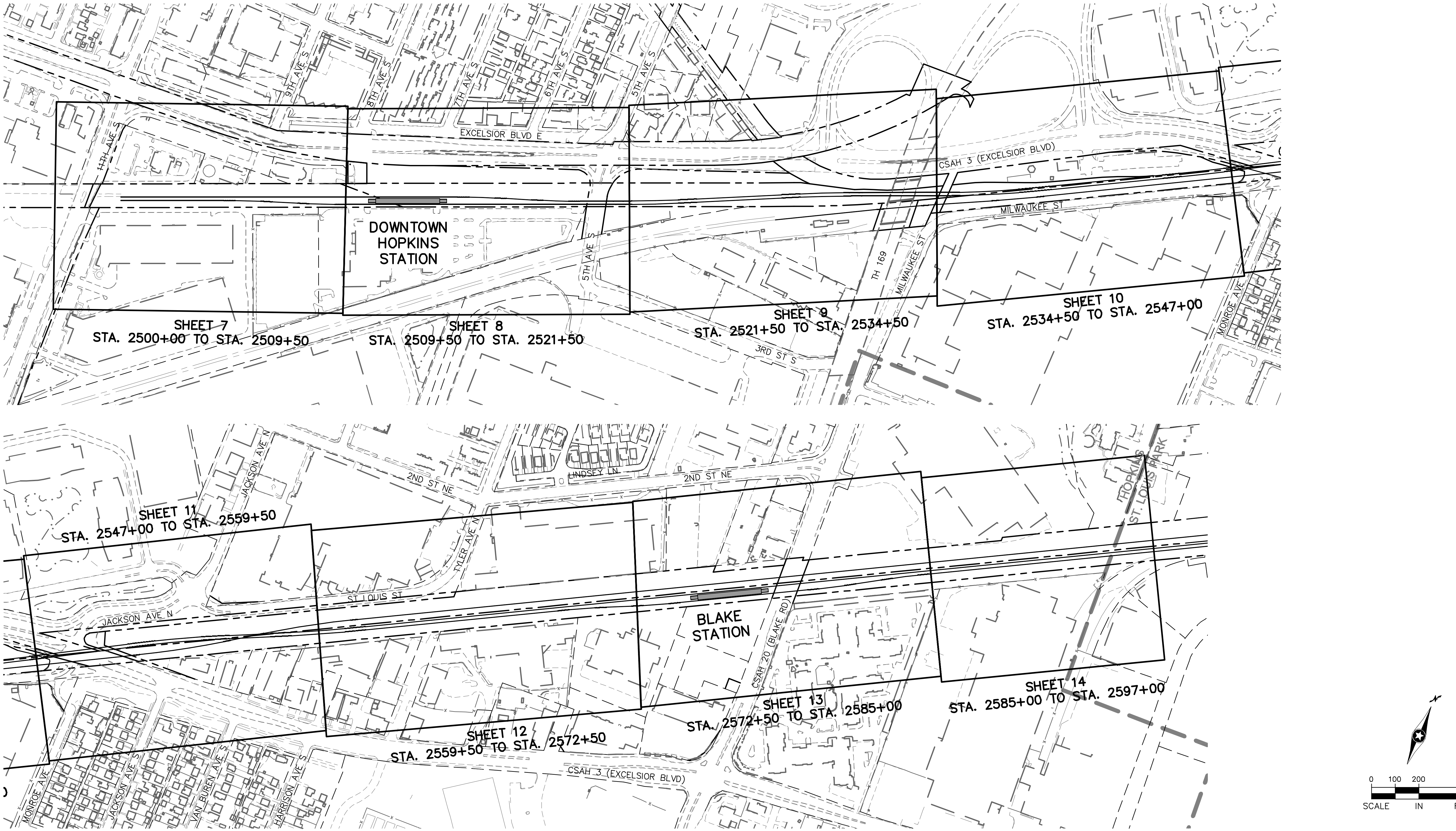
SHEET 5 OF 113



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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
SHEET INDEX

DISCIPLINE: SURVEY

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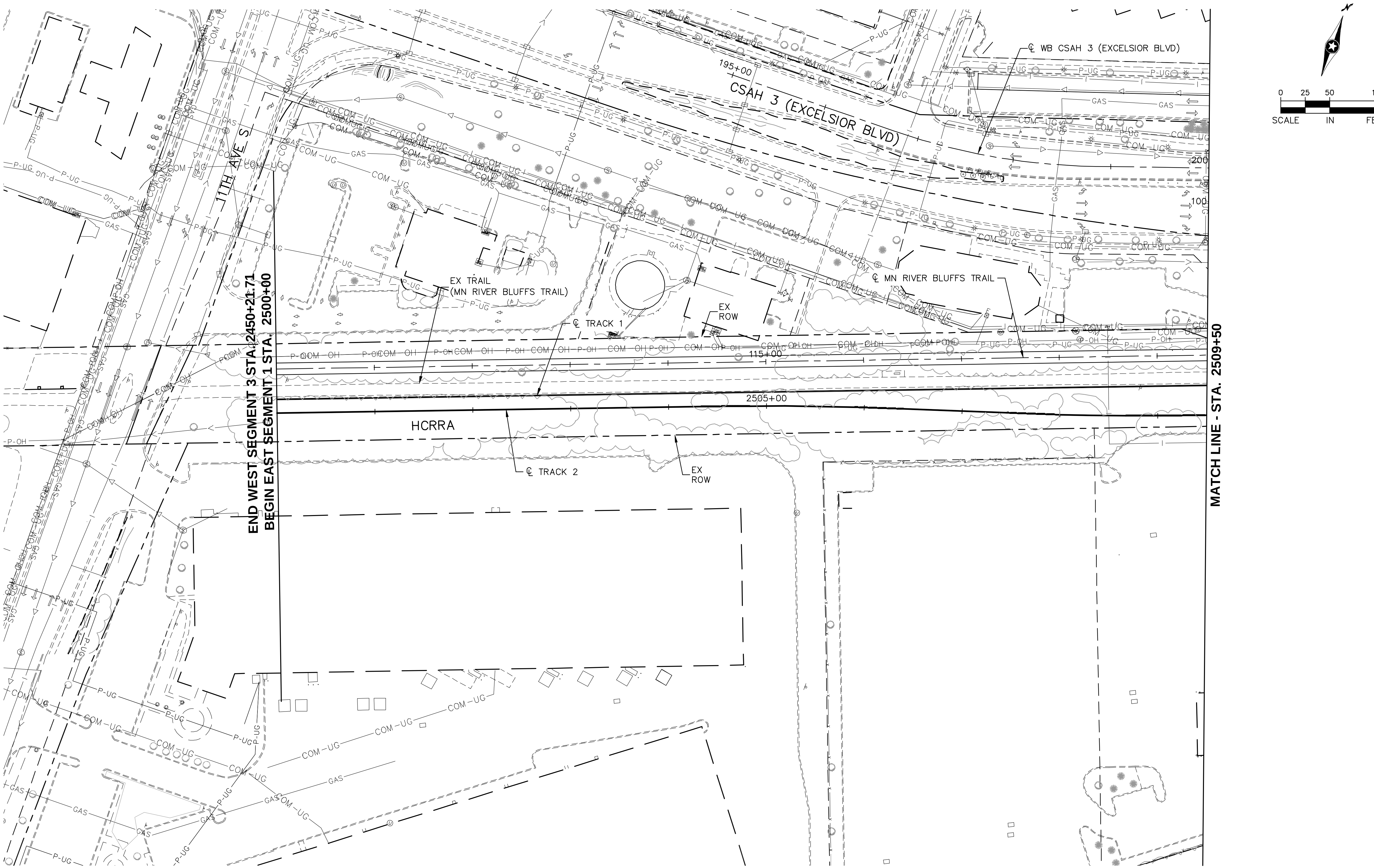

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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2500+00 TO STA. 2509+50

DISCIPLINE: **SURVEY**

SHEET NAME: **E1-SUR-PLN-001**

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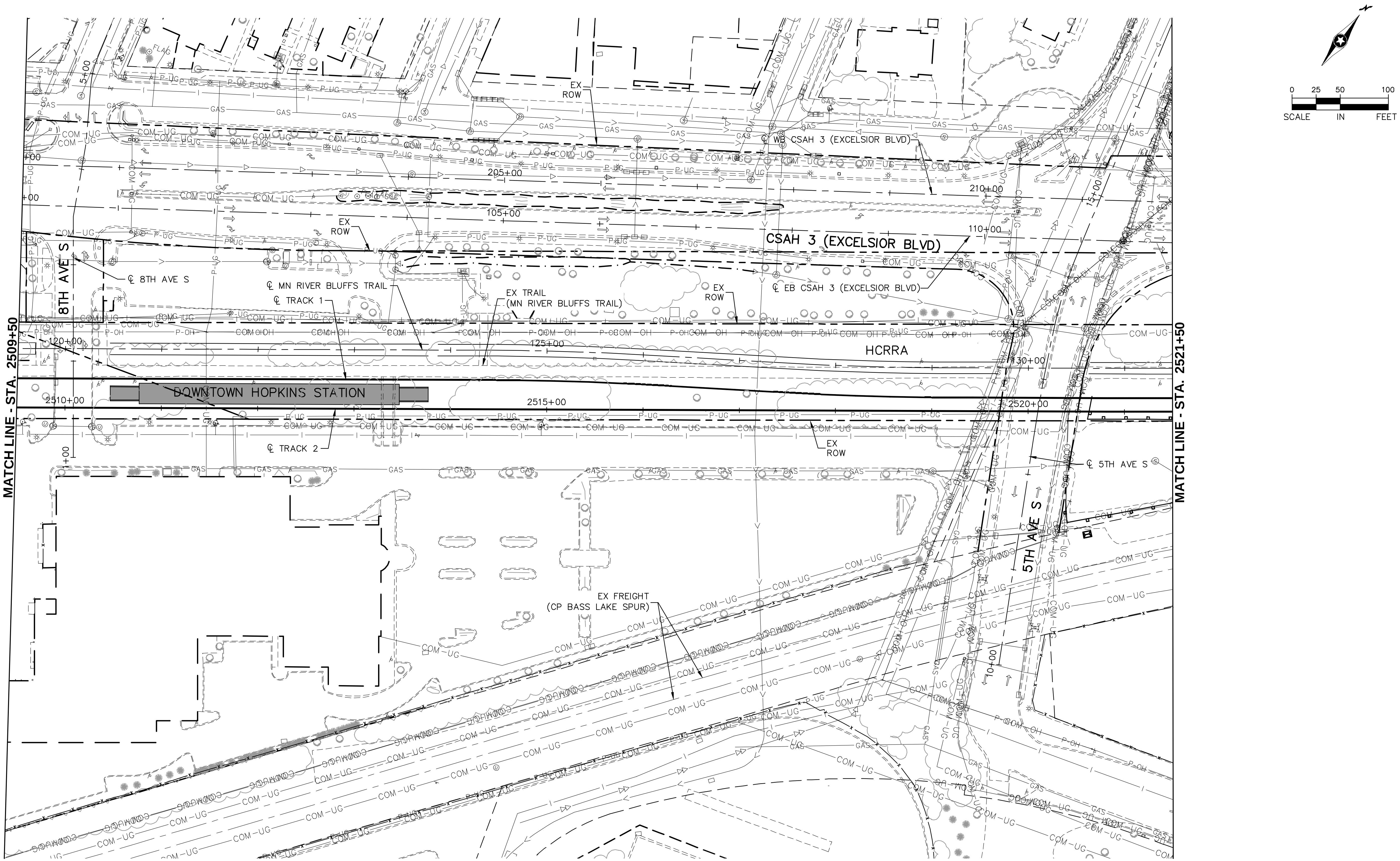

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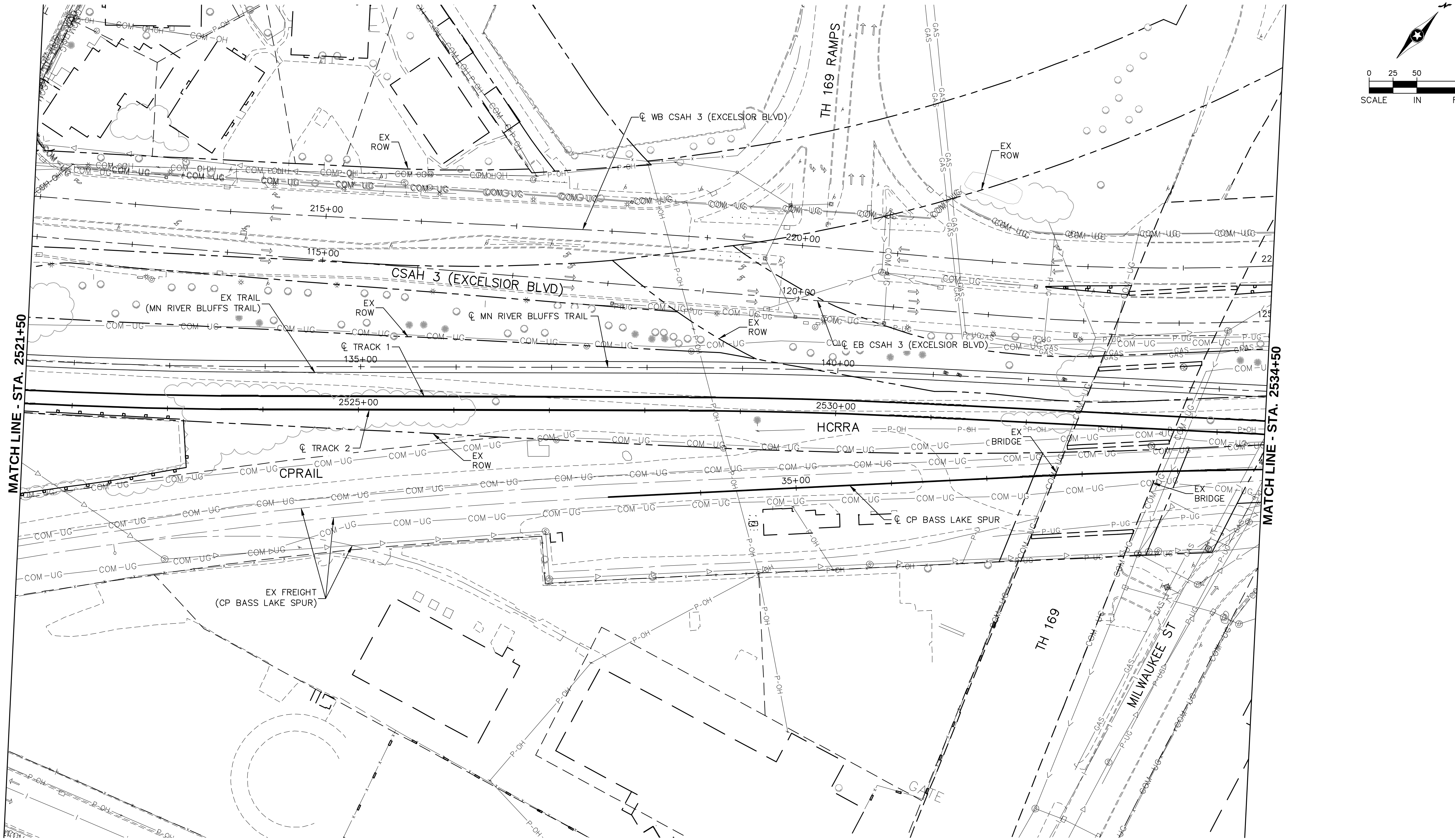
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2509+50 TO STA. 2521+50

DISCIPLINE: SURVEY

SHEET NAME: E1-SUR-PLN-002

SHEET 8 OF 113



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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2521+50 TO STA. 2534+50

DISCIPLINE: **SURVEY**

SHEET NAME: **E1-SUR-PLN-003**

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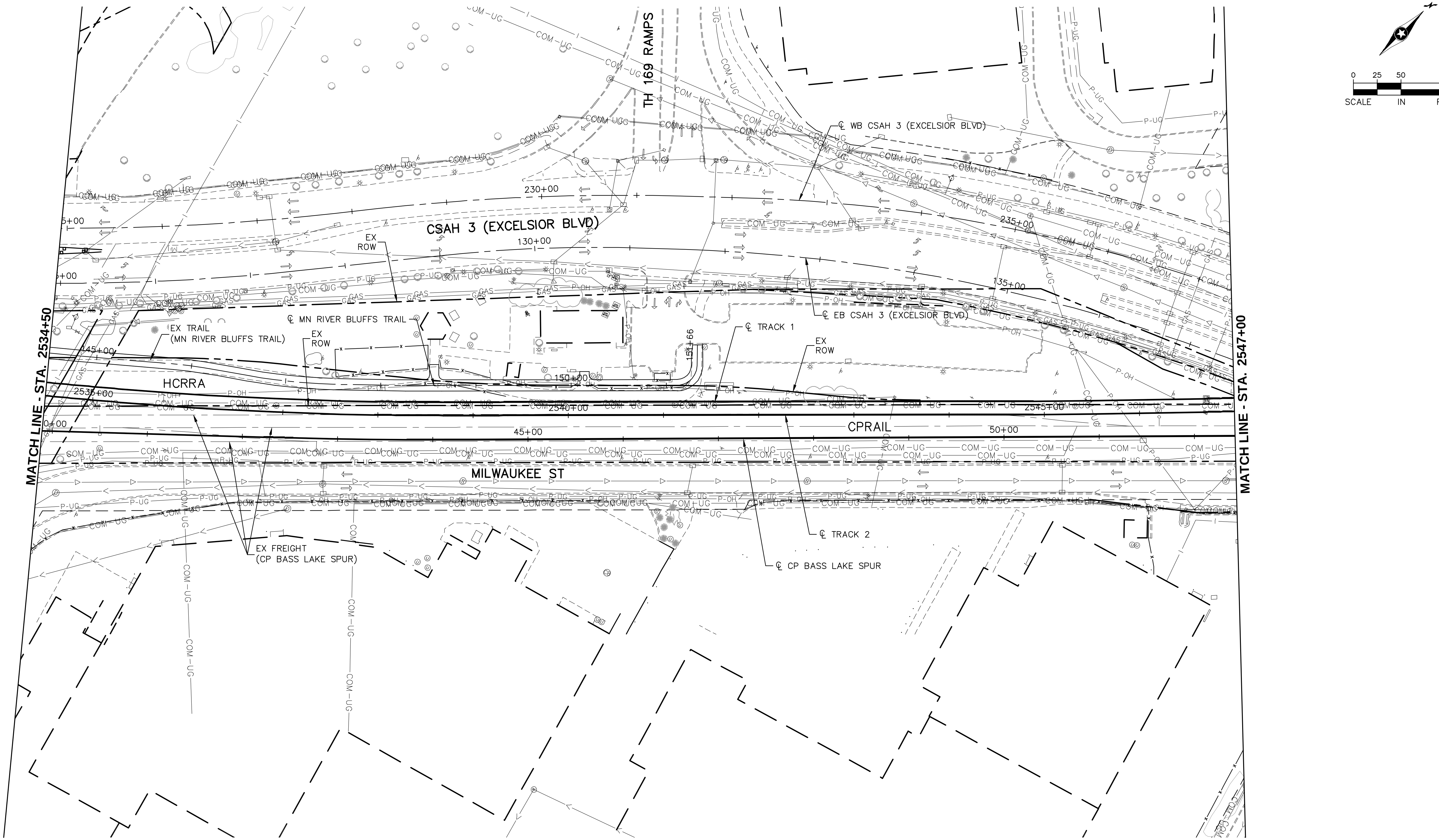

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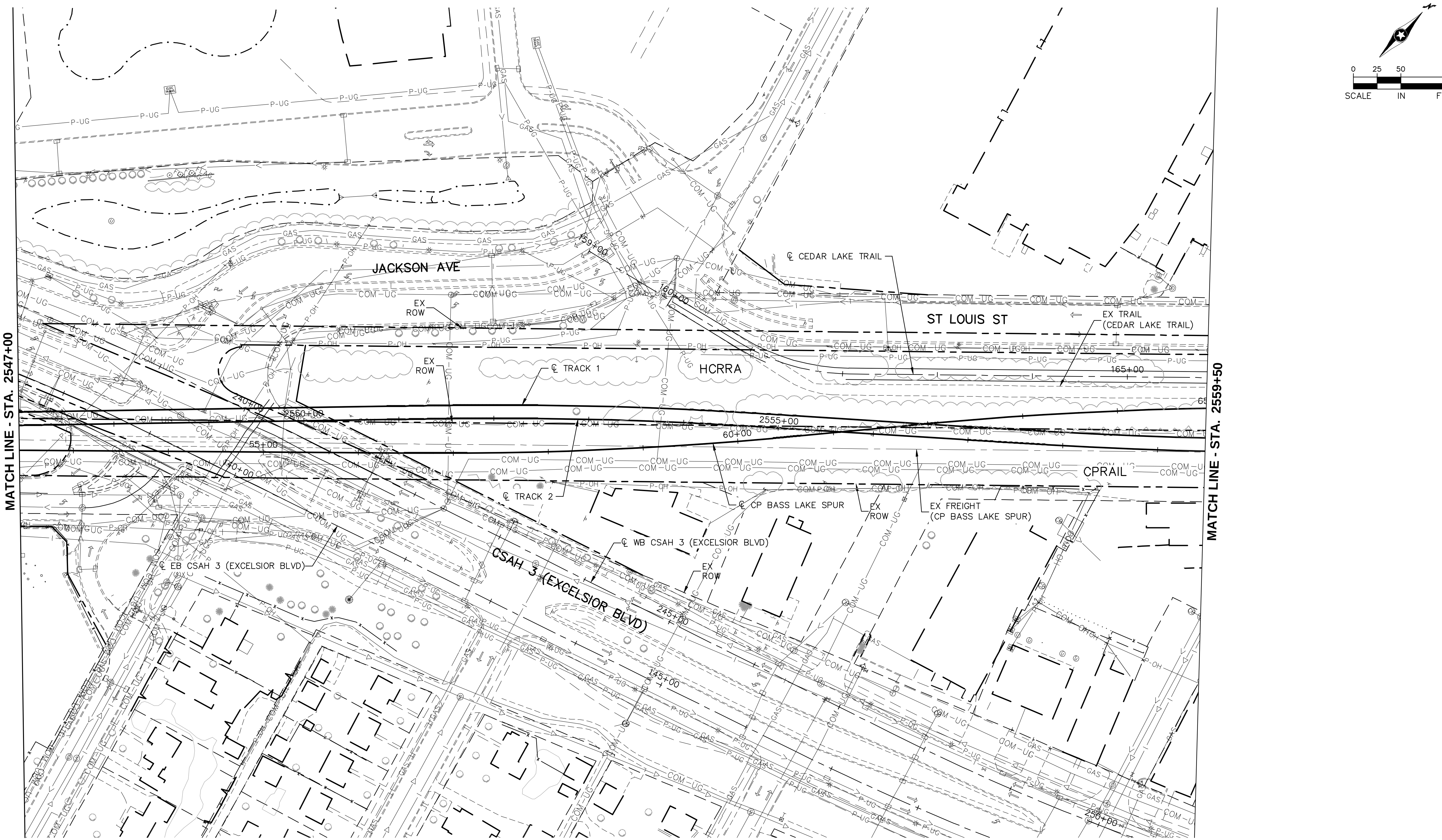
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2534+50 TO STA. 2547+00

DISCIPLINE: **SURVEY**

SHEET NAME: **E1-SUR-PLN-004**

SHEET 10 OF 113



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EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2547+00 TO STA. 2559+50

DISCIPLINE: SURVEY

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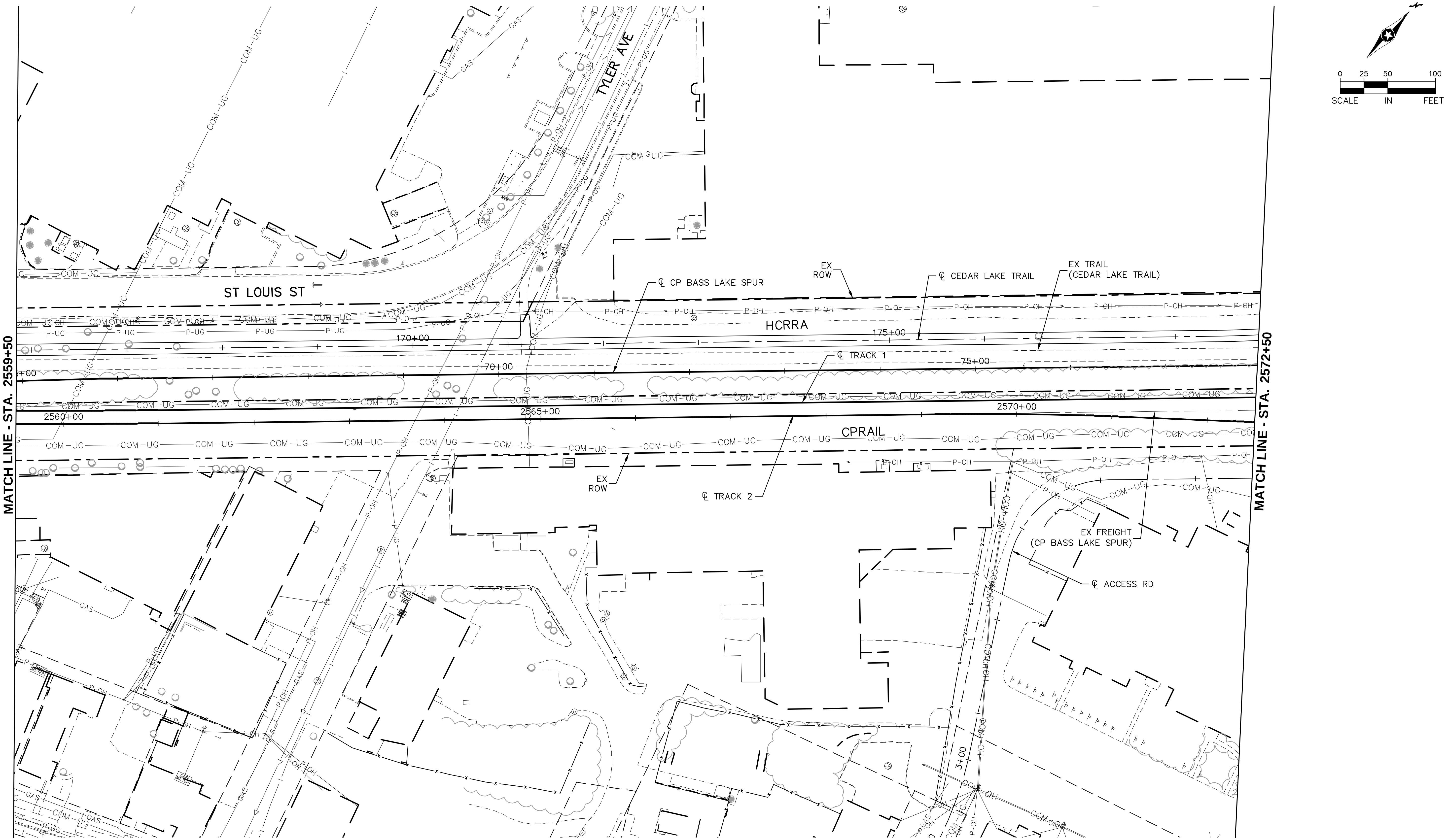

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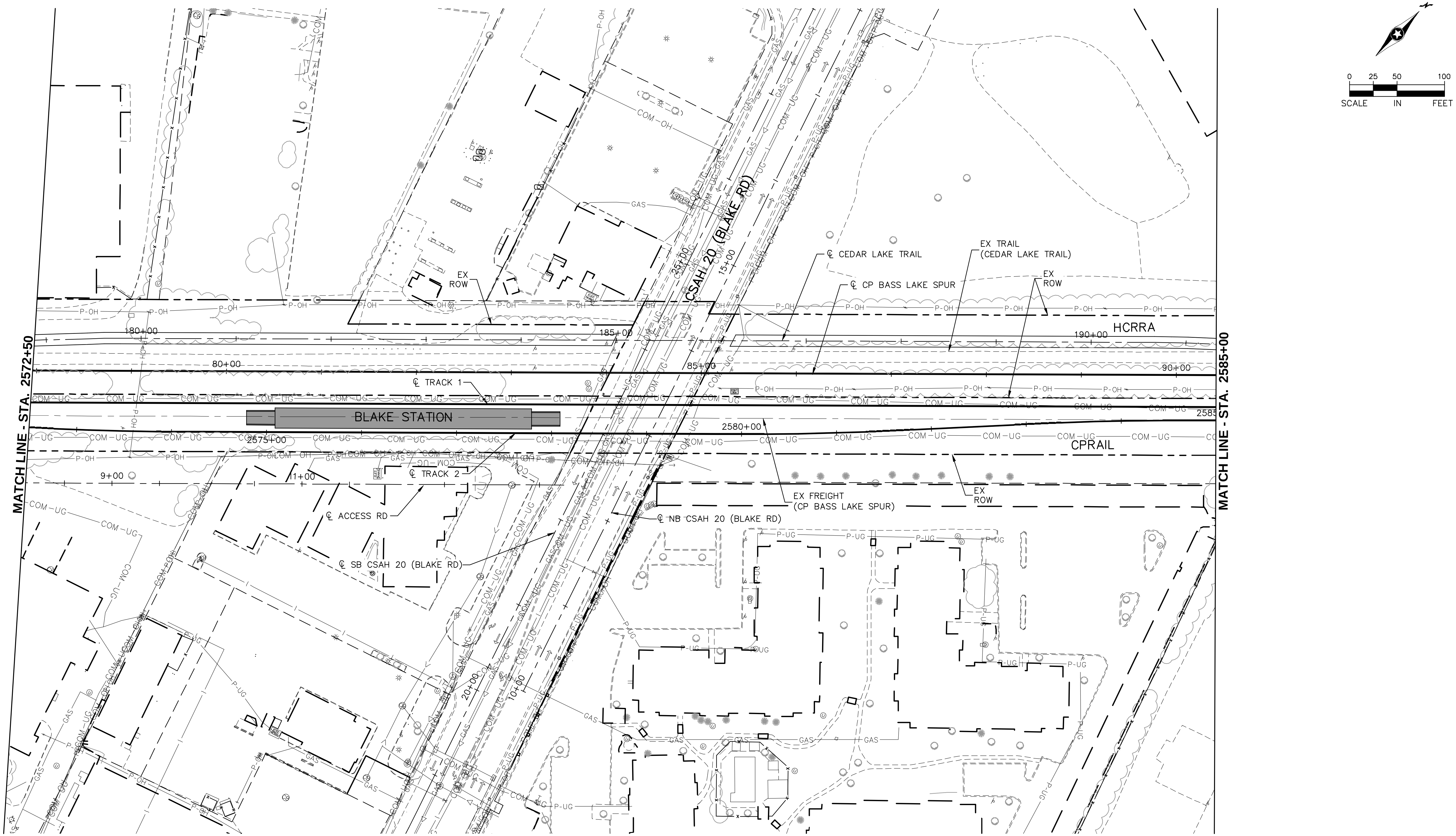
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2559+50 TO STA. 2572+50

DISCIPLINE: SURVEY

SHEET NAME: E1-SUR-PLN-006



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PRELIMINARY ENGINEERING

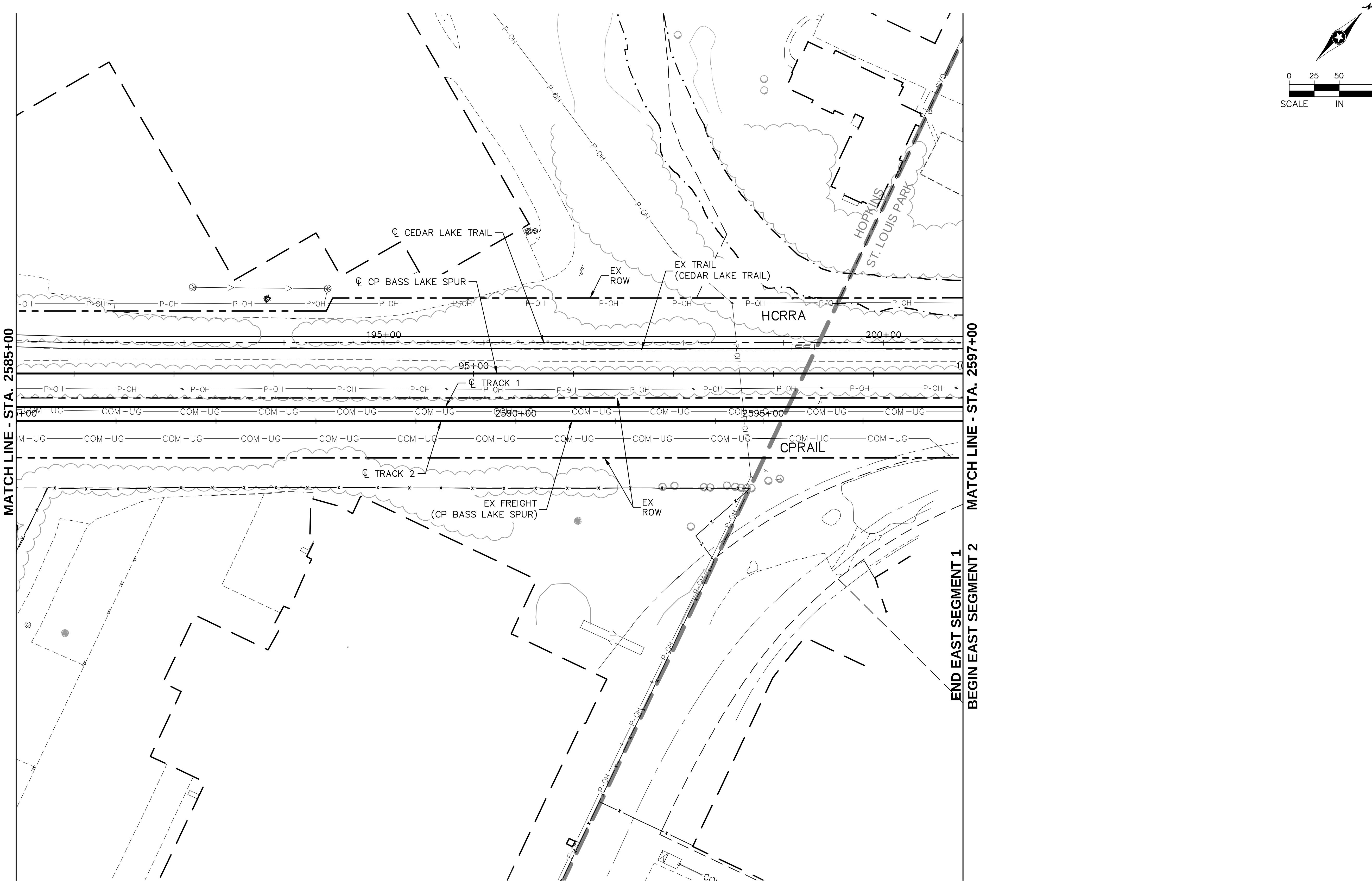
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2572+50 TO STA. 2585+00

DISCIPLINE: SURVEY

SHEET NAME: E1-SUR-PLN-007



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2585+00 TO STA. 2597+00

DISCIPLINE: SURVEY

SHEET NAME: E1-SUR-PLN-008

Aug. 29 2014 07:10 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\CIVIL\E1-SUR-PLN.dwg By: tracy.fosmo

TRACK LINETYPES

- TRACK ℄
- RETAINING WALL
- TUNNEL WALL
- ROADWAY ℄
- FENCE
- BALLAST CURB

TRACK SYMBOLS

- PROPOSED SIGNALIZED INTERSECTION
- EXISTING SIGNALIZED INTERSECTION
- PROPOSED DIRECTIONAL LANE USE
- EXISTING DIRECTIONAL LANE USE
- AUTOMATIC GATE
- RAIL TURNOUT
- RAIL CROSSOVER (DOUBLE)
- RAIL CROSSOVER (SINGLE)
- POINT OF SWITCH (PS)
- W2-200 RAILROAD CURVE NUMBER

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

CIVIL LINETYPES

- ROADWAY ℄
- TRACK ℄
- CONCRETE CURB AND GUTTER
- TRAIL
- SIDEWALK
- DRIVEWAY
- BRIDGE
- RETAINING WALL
- TUNNEL WALL
- CROSSWALK
- STOP BAR
- MEDIAN NOSE
- SAWCUT
- FENCE
- LIMITS OF DISTURBANCE
- CONCRETE SIDEWALK JOINTING

CIVIL SYMBOLS

- ACCESSIBLE PEDESTRIAN CURB RAMP (DESIGN VARIES)
- PROPOSED SIGNALIZED INTERSECTION
- EXISTING SIGNALIZED INTERSECTION
- 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

ABBREVIATIONS

AD	ALGEBRAIC DIFFERENCE	OCS	OVERHEAD CONTACT SYSTEM
AVE	AVENUE	OH	OVERHEAD
BGN	BEGIN	PC	POINT OF CURVE
BVCE	BEGINNING VERTICAL CURVE ELEVATION	PE	PROPOSED EASEMENT
BVCS	BEGINNING VERTICAL CURVE STATION	PITO	POINT OF INTERSECTION OF TURNOUT
BLVD	BOULEVARD	PKWY	PARKWAY
BNSF	BURLINGTON NORTHERN SANTA FE RAILWAY	POT	POINT ON TANGENT
C&G	CURB AND GUTTER	PROP	PROPOSED
℄	CENTERLINE	PS	POINT OF SWITCH
CP	CANADIAN PACIFIC	PT	POINT OF TANGENT
CPRAIL	CANADIAN PACIFIC RAILWAY	PVI	POINT OF VERTICAL INTERSECTION
CS	CURVE TO SPIRAL	R	RADIUS (FEET)
CSAH	COUNTY STATE AID HIGHWAY	r	RATE OF CHANGE VERTICAL CURVE
DF	DIRECT FIXATION	RH	RIGHT HAND
DR	DRIVE	ROW	RIGHT OF WAY
Ea	ACTUAL SUPERELEVATION (INCHES)	S	SOUTH
EB	EAST BOUND	SB	SOUTH BOUND
ELEV	ELEVATION	SC	SPIRAL TO CURVE
Eu	UNBALANCED SUPERELEVATION (INCHES)	SIG-COMM	SIGNAL COMMUNICATION
EVCE	ENDING VERTICAL CURVE ELEVATION	ST	STREET
EVCS	ENDING VERTICAL CURVE STATION	ST	SPIRAL TO TANGENT
EX	EXISTING	STA	STATION
HCRRA	HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY	TCE	TEMPORARY CONSTRUCTION EASEMENT
LH	LEFT HAND	TOR	TOP OF RAIL
Ls	SPIRAL LENGTH (FEET)	TPSS	TRACTION POWER SUBSTATION
MPLS	CITY OF MINNEAPOLIS	TRK	TRACK
MPRB	MINNEAPOLIS PARK AND RECREATION BOARD	TS	TANGENT TO SPIRAL
N	NORTH	UG	UNDERGROUND
NB	NORTH BOUND	V	DESIGN VELOCITY (MPH)
NO	NUMBER	WB	WEST BOUND

TRAIL INDEX

ABBREVIATED NAME	FULL NAME/LOCATION
MN RIVER BLUFFS TRAIL	MINNESOTA RIVER BLUFFS LRT REGIONAL TRAIL/WEST OF EXCELSIOR
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL TRAIL/EAST OF EXCELSIOR
TRAIL A	NOT USED
TRAIL B	NOT USED
TRAIL C	10' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO TYLER AVE.
TRAIL D	10' CONNECTOR TRAIL/BELTLINE STATION
KENILWORTH TRAIL	KENILWORTH TRAIL (MAIN)/W LAKE ST TO PENN STATION
TRAIL E	KENILWORTH TRAIL (SECONDARY)/W LAKE ST TO CEDAR LAKE PKWY
TRAIL F	KENILWORTH TRAIL (SECONDARY)/WEST OF PENN STATION
TRAIL F	NORTH CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL G	KENILWORTH TRAIL (SECONDARY)/WEST OF PENN STATION
TRAIL G	NORTH CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL H	10' CONNECTOR TRAIL/EAST OF PENN STATION TO KENWOOD PKWY
TRAIL I	NORTH CEDAR LAKE TRAIL (MAIN) ON BRIDGE OVER LIGHT RAIL
TRAIL J	NORTH CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL K	NORTH CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL L	20' CONNECTOR TRAIL/VAN WHITE STATION
TRAIL M	NORTH CEDAR LAKE TRAIL (SECONDARY)/EAST OF I-94
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 T.H. 7 SERVICE ROAD

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

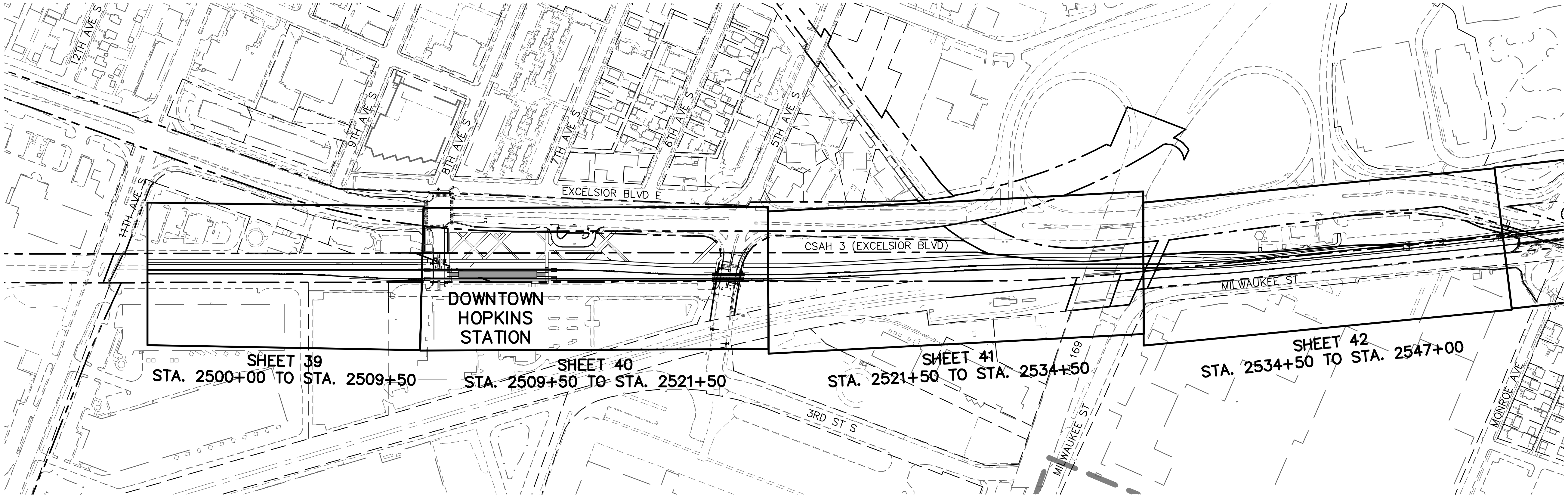
METROPOLITAN COUNCIL

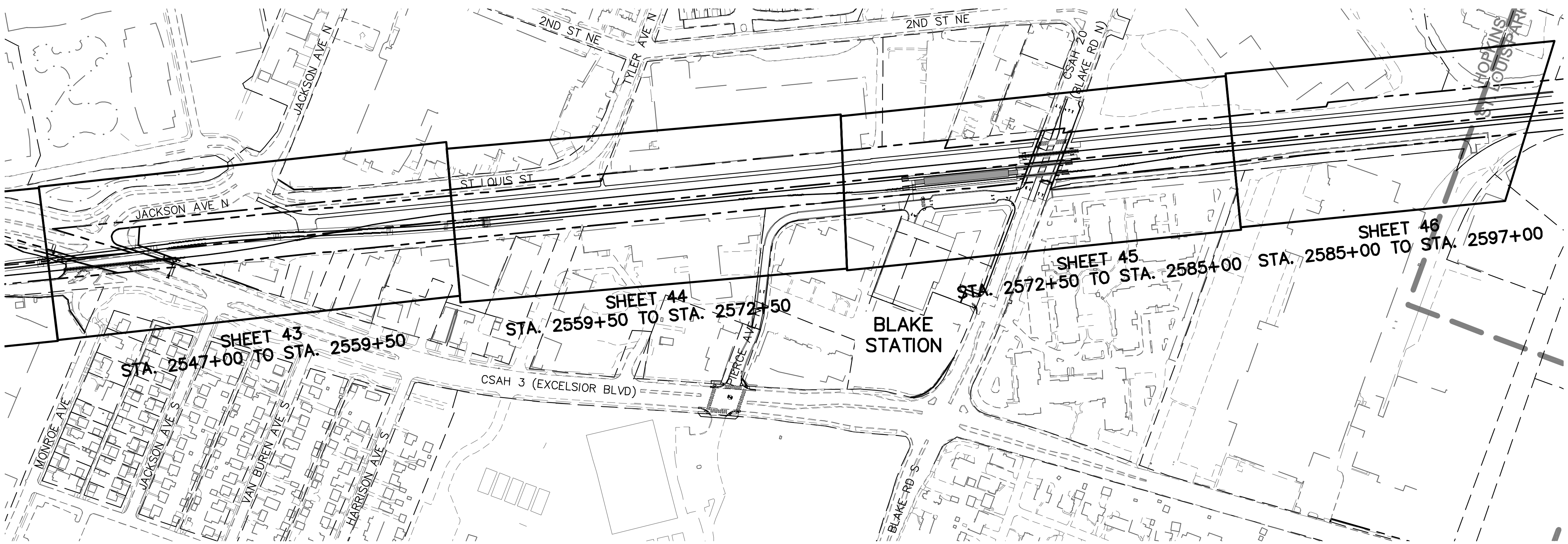
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK AND CIVIL
LEGEND AND ABBREVIATIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-NTS-001





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SCALE IN FEET

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SYSTRA

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

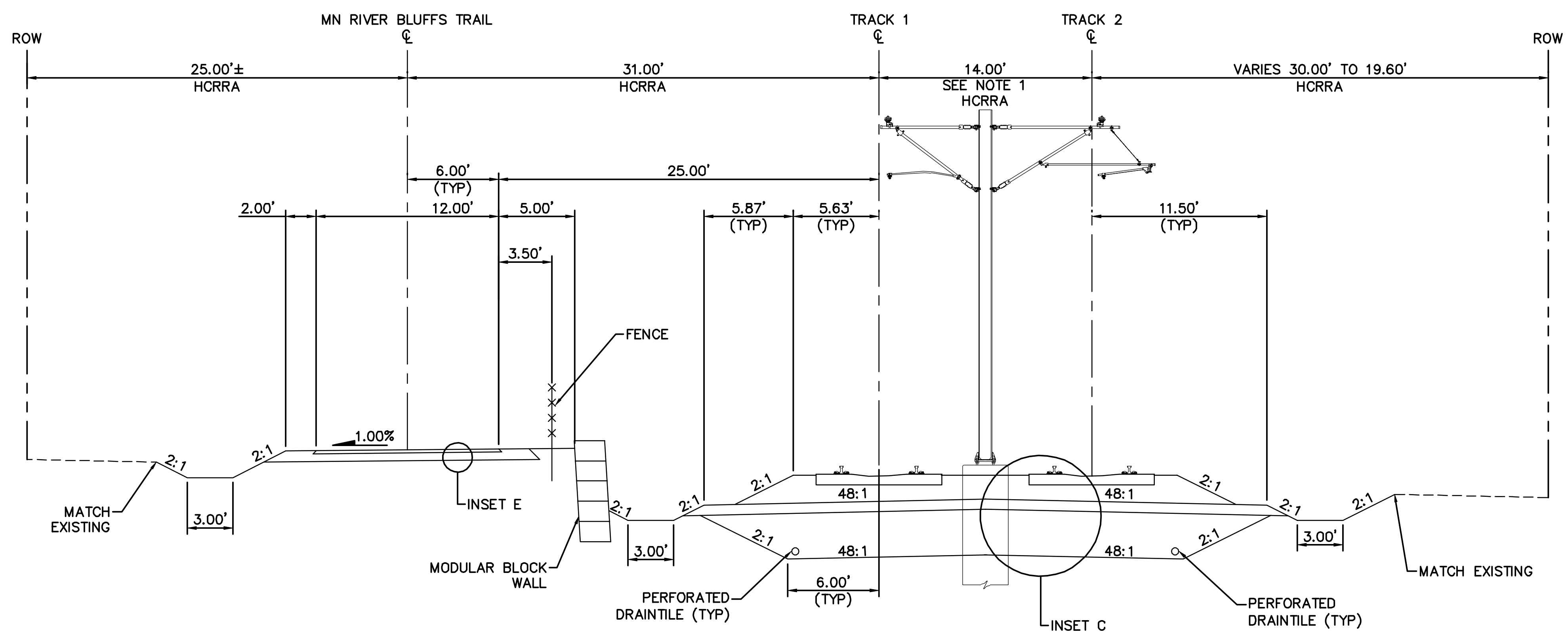
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
SHEET INDEX

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-IDX-001

SHEET 16 OF 113

Aug. 29 2014 07:00 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-IDX.dwg By: chris.bunders



TYPICAL SECTION
STA. 2500+00 TO STA. 2507+00

NOTE:
1. TRACK CENTERS WIDEN FROM 14.00' TO 22.55' BETWEEN STA. 2504+33 AND 2507+00.
2. FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.

0 2.5 5 10
SCALE IN FEET

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

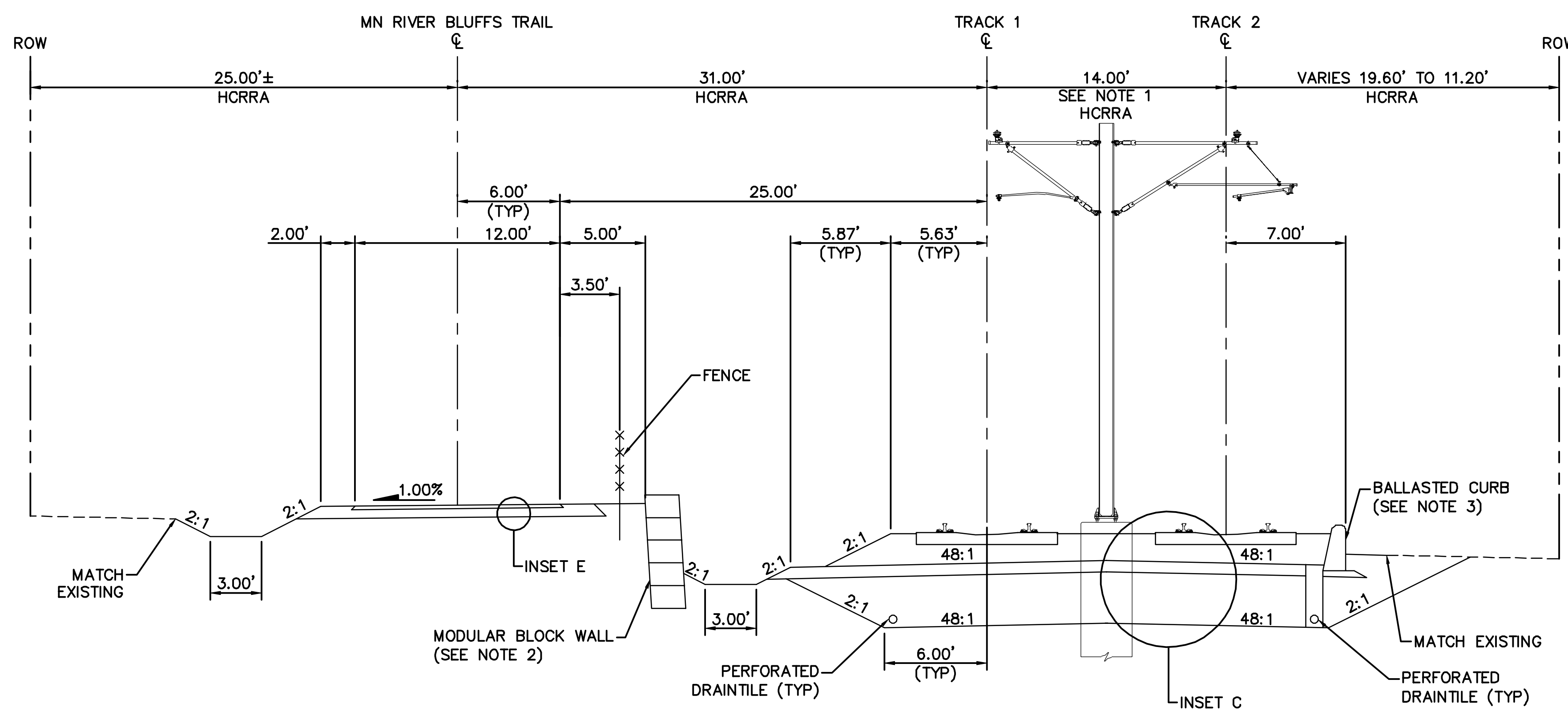
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 001

SHEET 17 OF 113

Aug. 29 2014 07:00 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-TYP.dwg By: chris.bunders



TYPICAL SECTION

STA. 2507+00 TO STA. 2510+77

NOTE:

1. TRACK CENTERS WIDEN FROM 22.55' TO 30.38' BETWEEN STA. 2507+00 AND 2509+53.
2. MODULAR BLOCK WALL ENDS AT STA. 2509+50.
3. BALLASTED CURB ENDS AT STA. 2509+79.
4. FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.
5. LIMITS OF SECTION INCLUDE AT-GRADE CROSSINGS THAT ARE NOT DEPICTED.

0 2.5 5 10
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

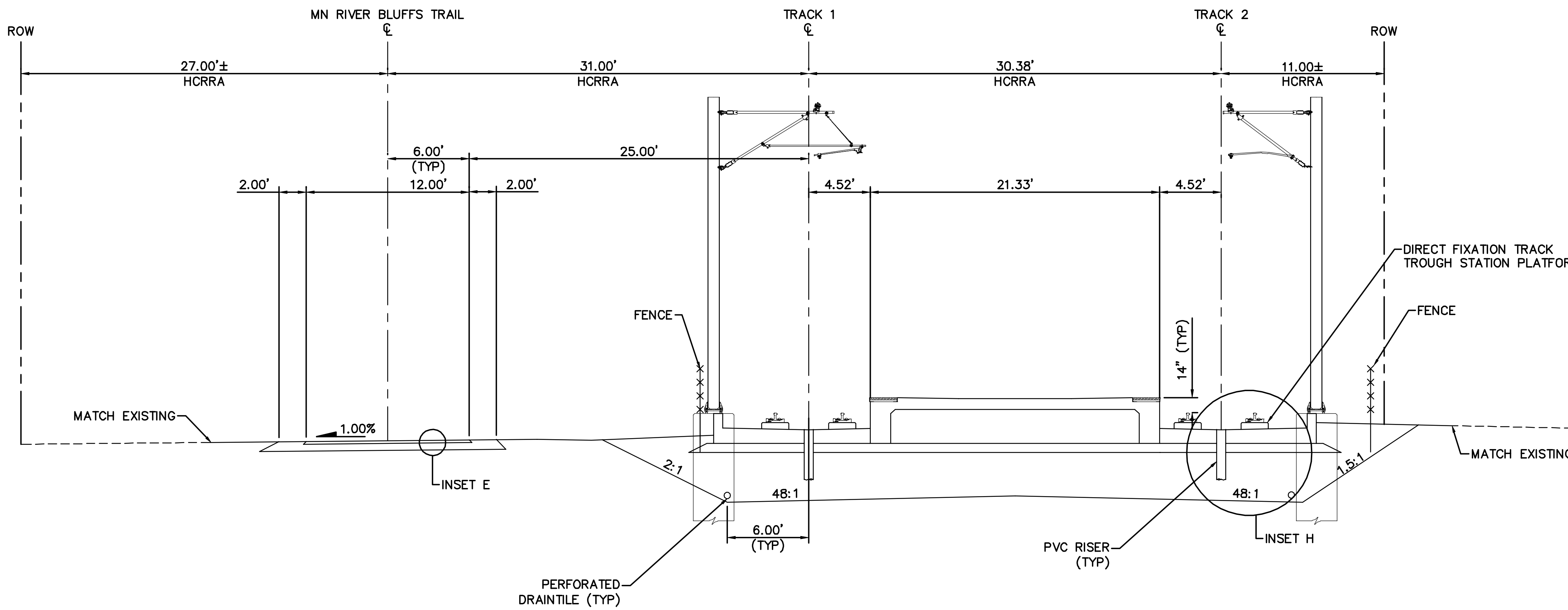
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 002

SHEET 18 OF 113

Aug. 29 2014 07:00 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-TYP.dwg By: chris.bunders



TYPICAL SECTION – DOWNTOWN HOPKINS STATION
STA. 2510+77 TO STA. 2513+47

NOTE:
FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.

0 2.5 5 10
SCALE IN FEET

Aug. 29 2014 07:00 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-TYP.dwg By: chris.bunders

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

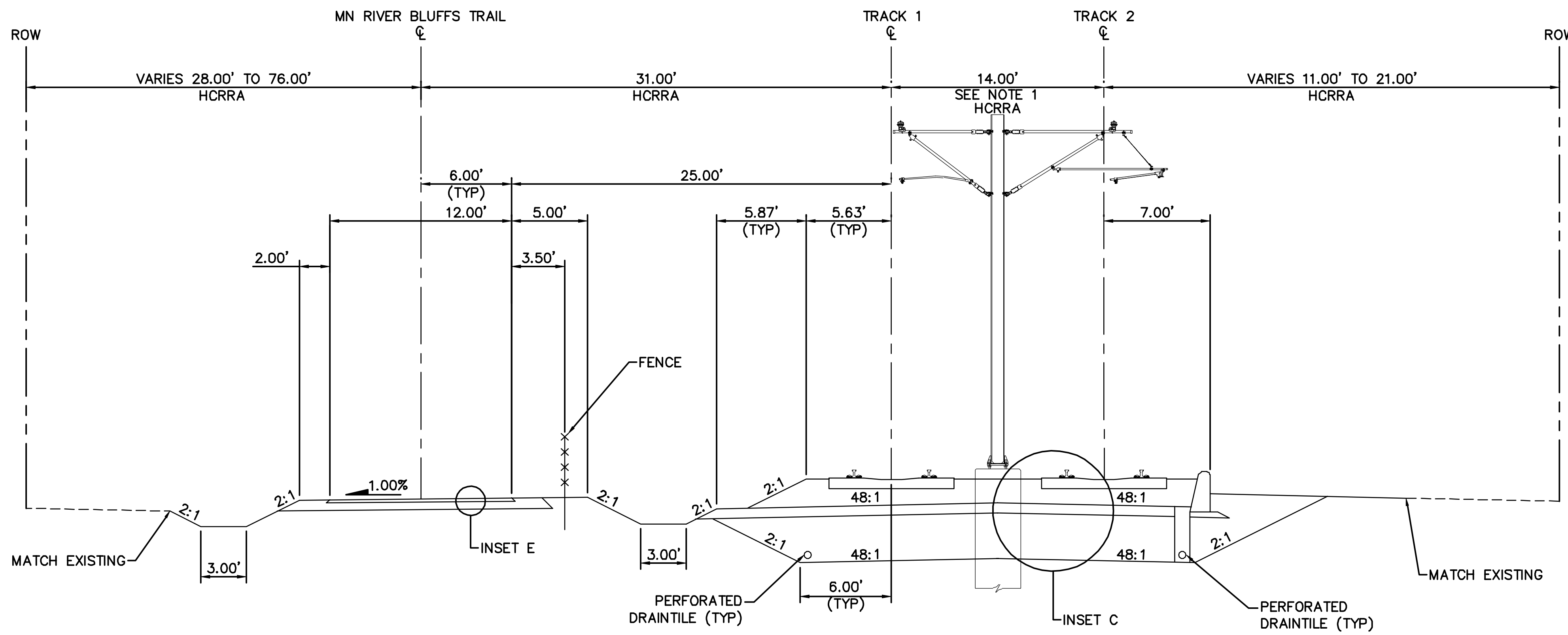
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 003

SHEET 19 OF 113



TYPICAL SECTION
STA. 2513+47 TO STA. 2525+00

NOTE:
1. TRACK CENTERS NARROW FROM 30.38' TO 14.00' BETWEEN STA. 2514+23 AND 2519+42.
2. FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.
3. LIMITS OF SECTION INCLUDE AT-GRADE CROSSINGS THAT ARE NOT DEPICTED.

0 2.5 5 10
SCALE IN FEET

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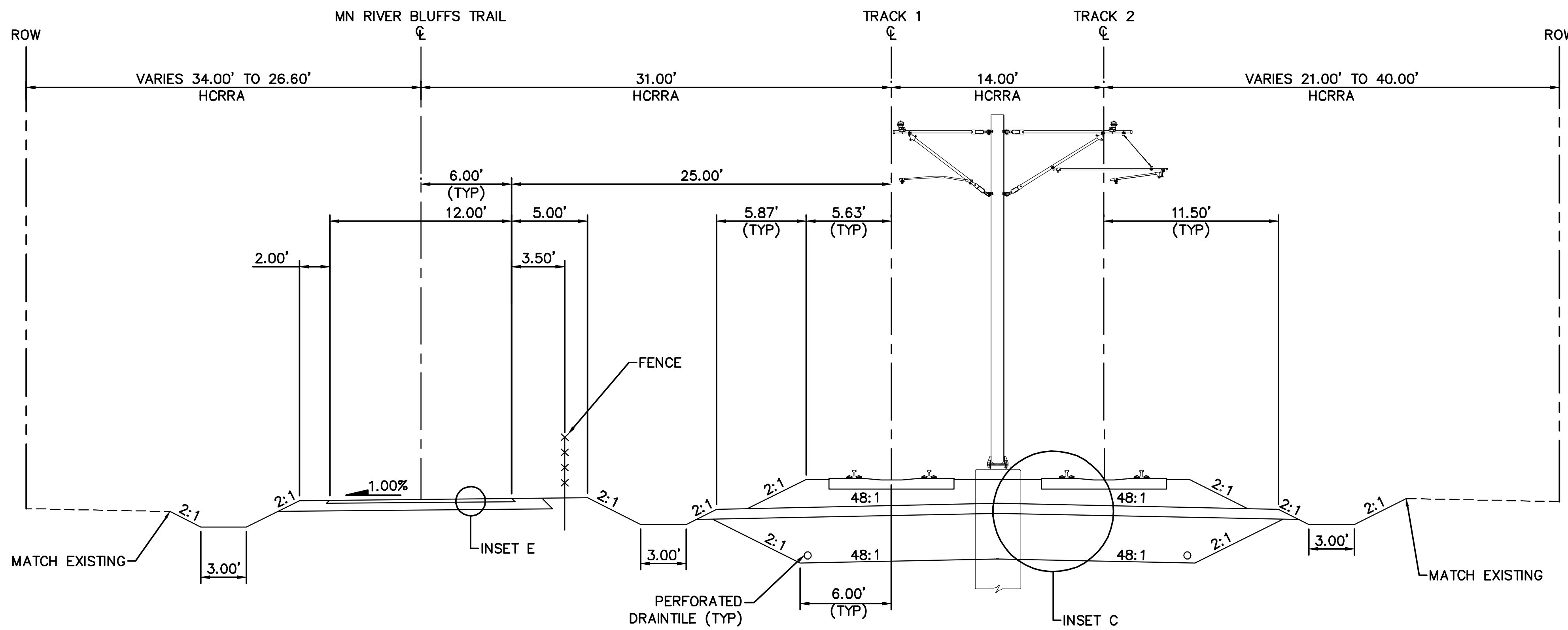
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 004



TYPICAL SECTION
STA. 2525+00 TO STA. 2532+52

NOTE:
FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.

0 2.5 5 10
SCALE IN FEET

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

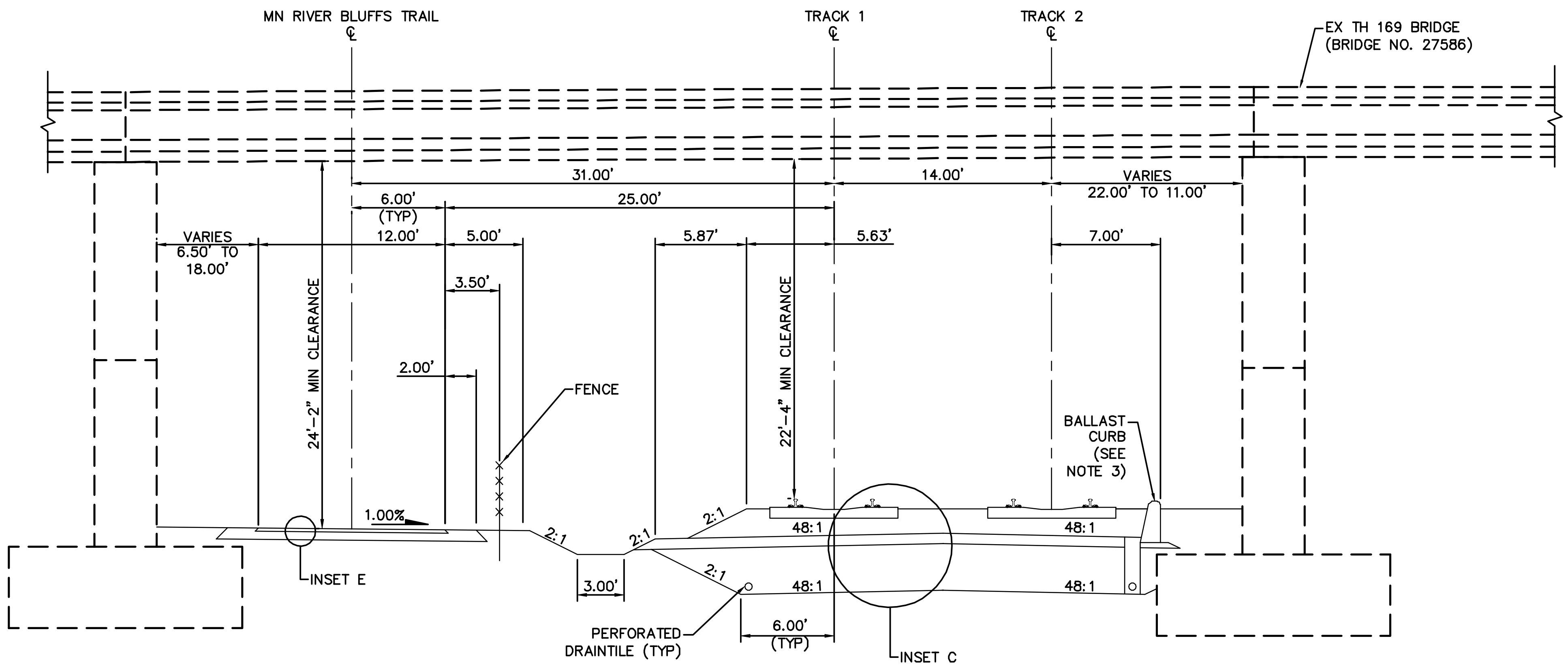
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 005

SHEET 21 OF 113

Aug. 29 2014 07:00 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-TYP.dwg By: chris.bunders



TYPICAL SECTION
STA. 2532+52 TO STA. 2533+55

NOTE:
1. FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.
2. OCS NOT SHOWN.
3. BALLAST CURB BETWEEN STA. 2532+79 AND STA. 2533+69.

0 2.5 5 10
SCALE IN FEET

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METROPOLITAN COUNCIL

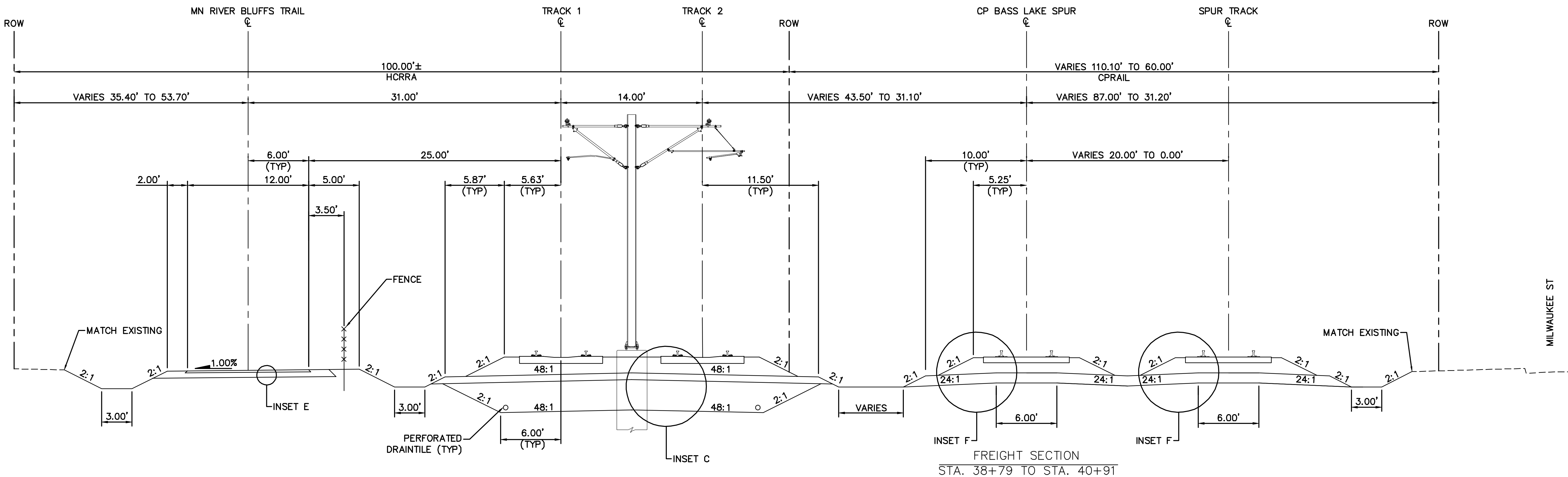
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 006

SHEET 22 OF 113



TYPICAL SECTION
STA. 2533+55 TO STA. 2535+50

NOTE:
FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.

0 2.5 5 10
SCALE IN FEET

Aug. 29 2014 07:00 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-TYP.dwg By: chris.bunders

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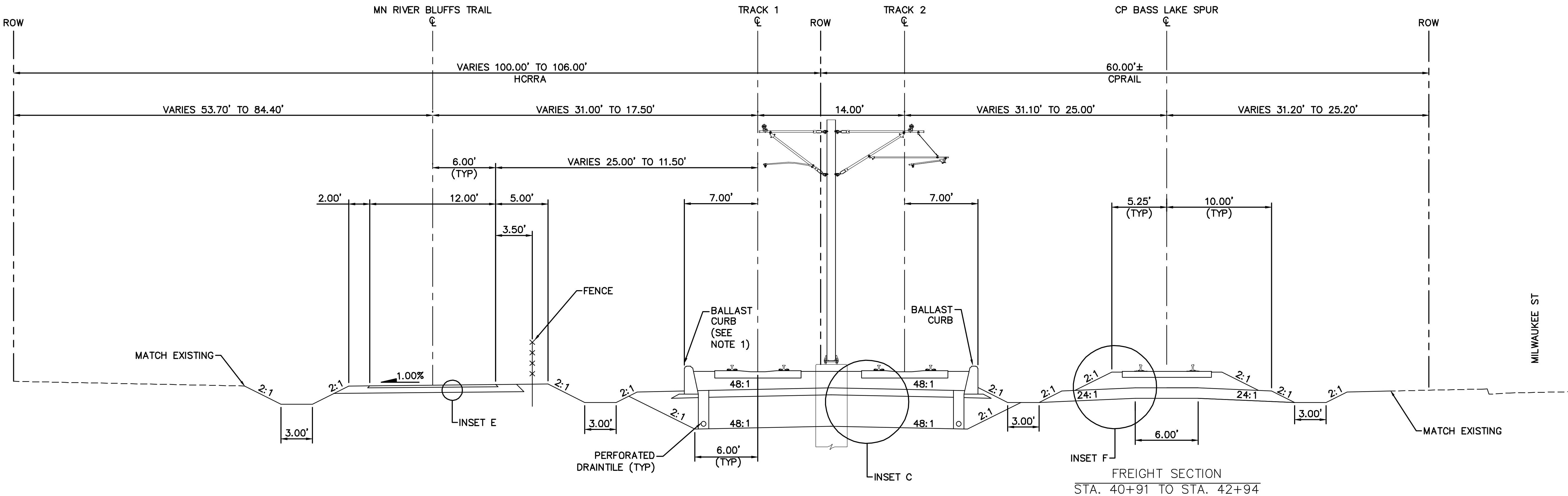
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 007



TYPICAL SECTION
STA. 2535+50 TO STA. 2537+52

NOTE:
1. BALLAST CURB BEGINS AT STA. 2535+81.
2. FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.

0 2.5 5 10
SCALE IN FEET

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PRELIMINARY ENGINEERING

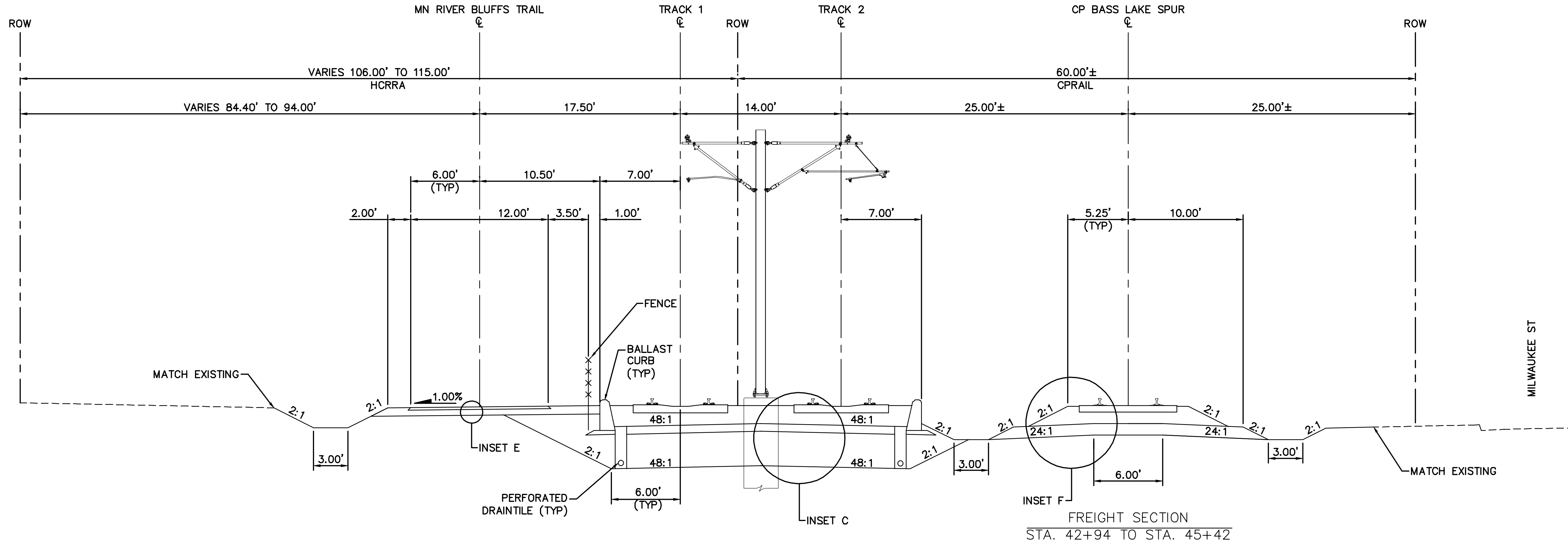
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: **TRACK**

SHEET NAME: **E1-TRK-TYP - 008**



FREIGHT SECTION
STA. 42+94 TO STA. 45+42

TYPICAL SECTION
STA. 2537+52 TO STA. 2540+00

NOTE:
FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.

0 2.5 5 10
SCALE IN FEET

Aug. 29 2014 07:00 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-TYP.dwg By: chris.bunders

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

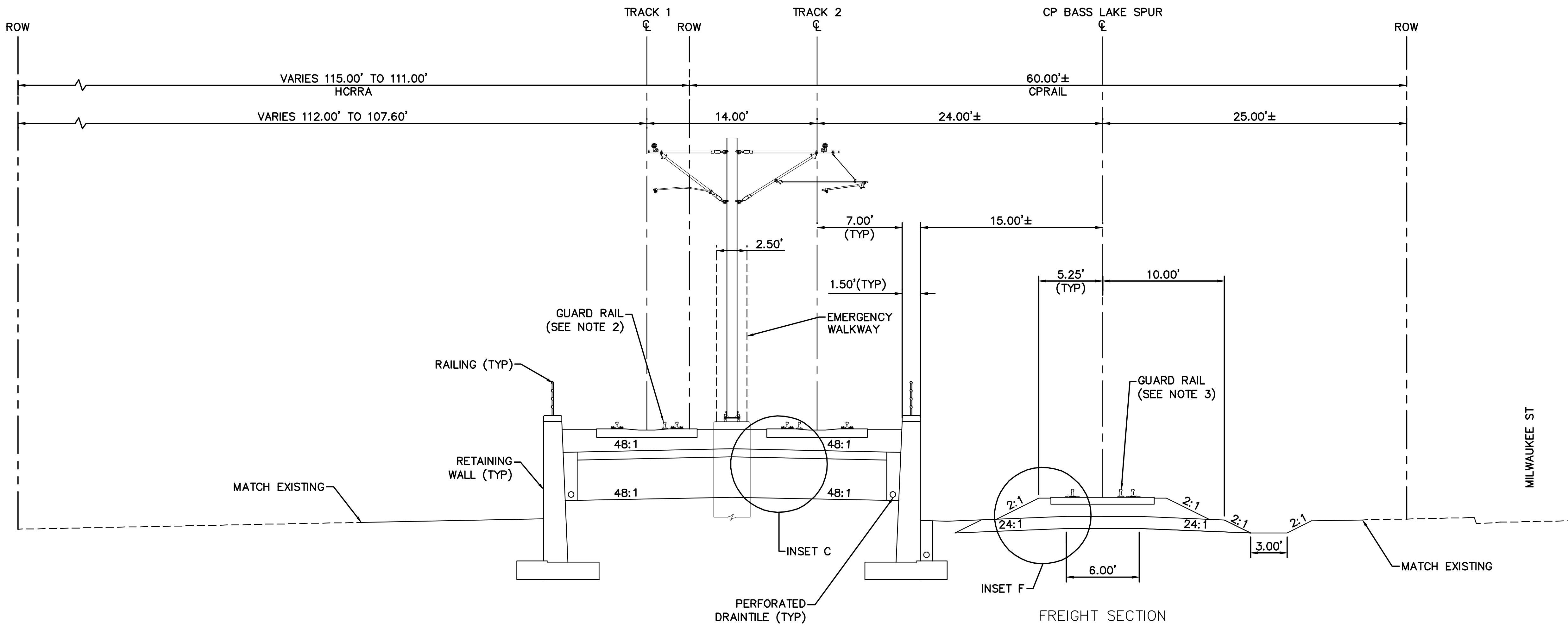
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 009

SHEET 25 OF 113



FREIGHT SECTION
STA. 45+42 TO STA. 49+18

TYPICAL SECTION
STA. 2540+00 TO STA. 2543+75

NOTE:
1. FOR INSETS, EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SEE SHEET 34.
2. SEE TRACK CHARTS FOR LRT GUARD RAIL LIMITS.
3. GUARD RAIL BEGINS AT STA. 48+00.

0 2.5 5 10
SCALE IN FEET

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PRELIMINARY ENGINEERING

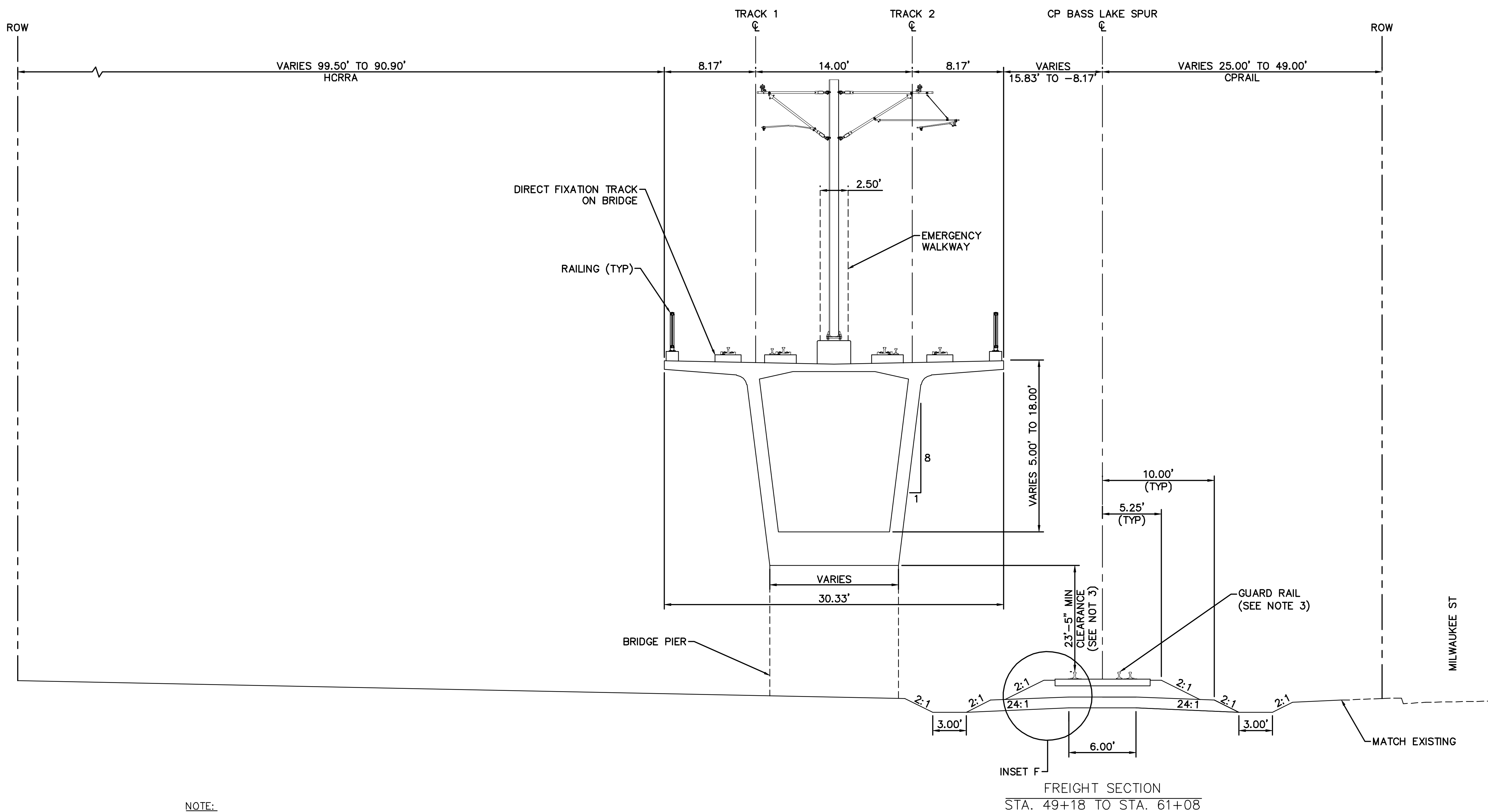
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 010



NOTE:
1. FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.
2. LIMITS OF SECTION INCLUDE AT-GRADE CROSSINGS THAT ARE NOT DEPICTED. STA. 2555+14 TO STA. 2557+08.
3. GUARD RAIL STA. 49+18 TO STA. 52+50 AND STA. 57+00 TO STA. 60+70.

TYPICAL SECTION
STA. 2543+75 TO STA. 2555+66

0 2.5 5 10
SCALE IN FEET

Aug. 29 2014 07:00 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-TYP.dwg By: chris.bunders

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PRELIMINARY ENGINEERING

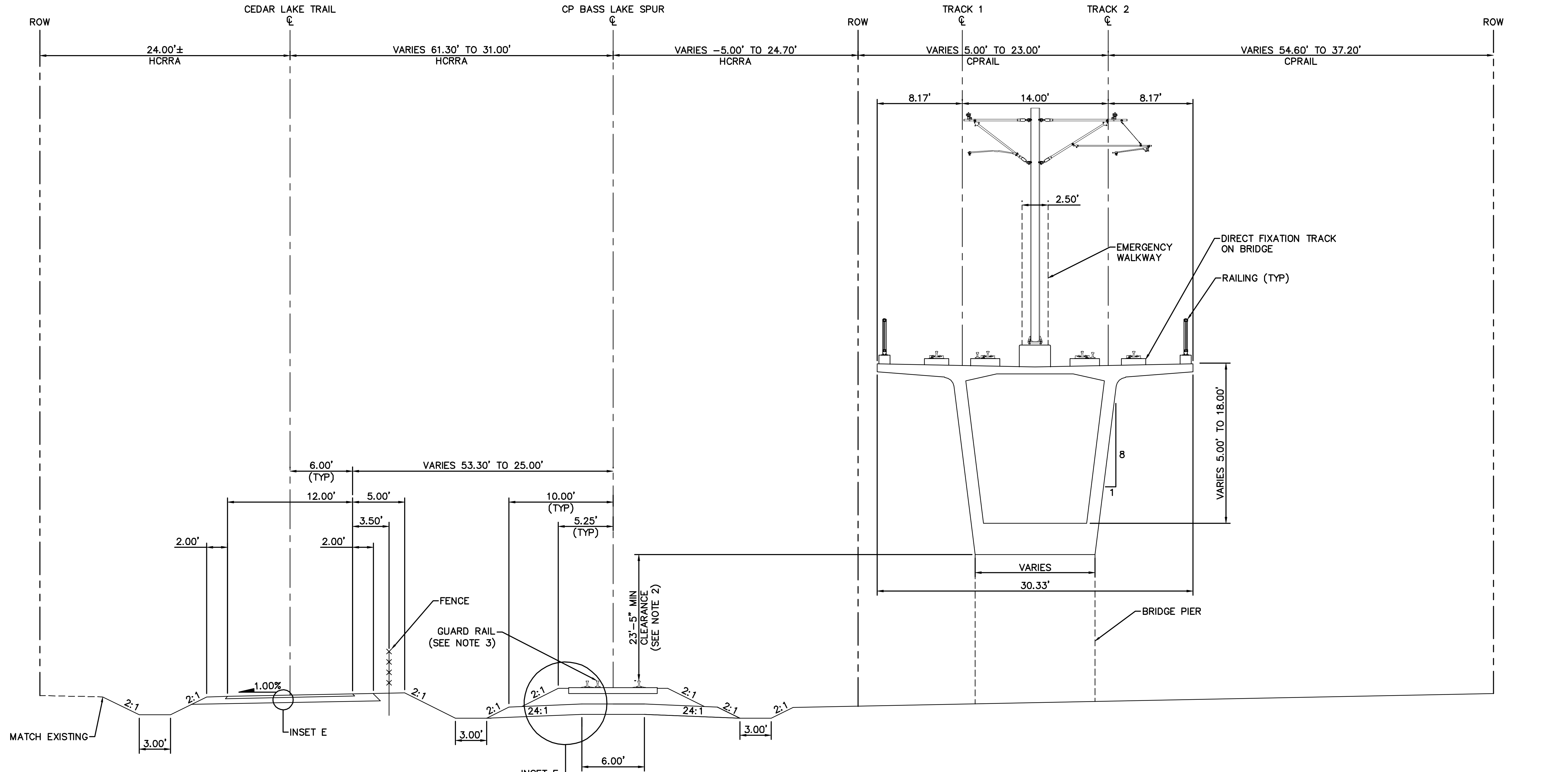
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 011



FREIGHT SECTION
STA. 61+08 TO STA. 66+38

TYPICAL SECTION
STA. 2555+66 TO STA. 2560+95

NOTE:
1. FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.
2. STA. 2555+14 TO STA. 2557+08.
3. GUARD RAIL STA. 62+50 TO STA. 66+50.

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PRELIMINARY ENGINEERING

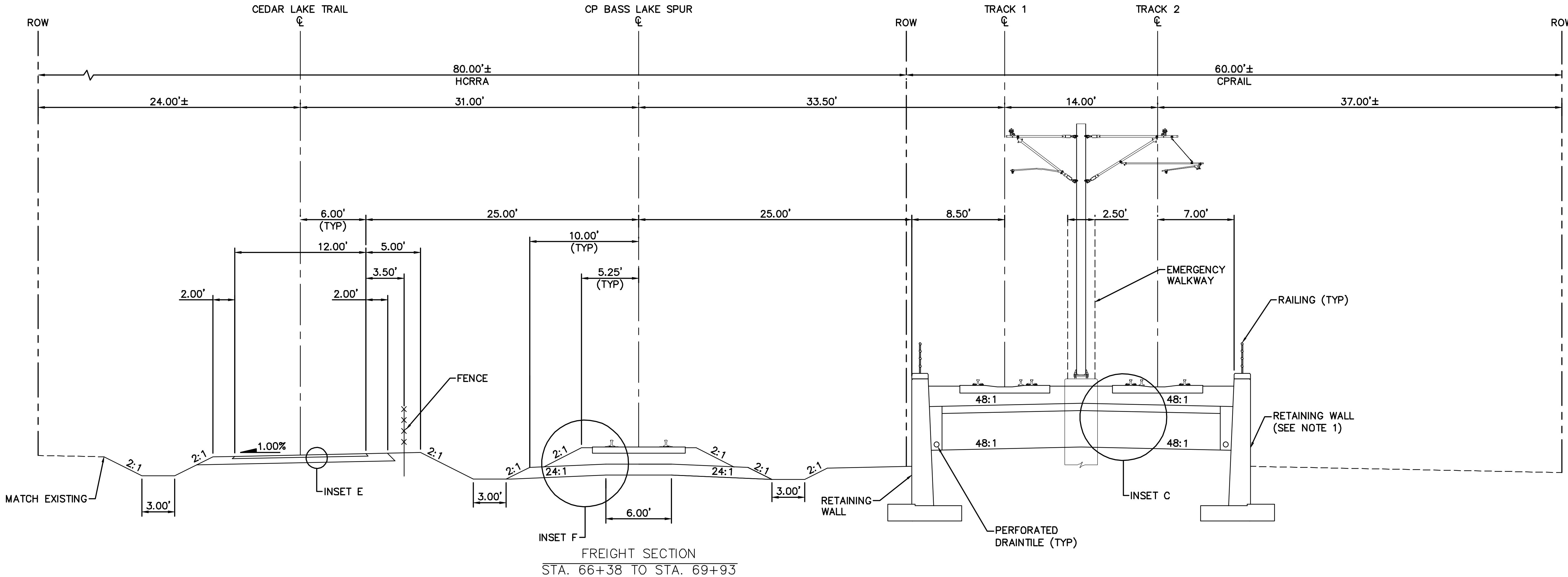
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 012



TYPICAL SECTION
STA. 2560+95 TO STA. 2564+50

NOTE:
1. RETAINING WALL ENDS AT STA. 2563+50.
2. FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.

0 2.5 5 10
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

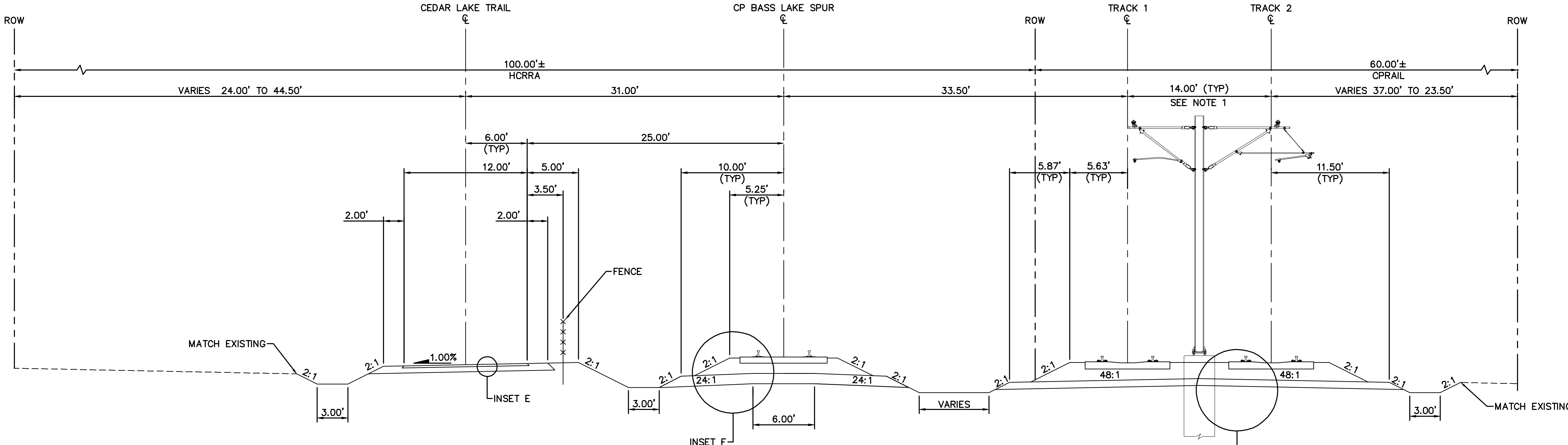
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 013

SHEET 29 OF 113

Aug. 29 2014 07:01 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-TYP.dwg By: chris.bunders



FREIGHT SECTION
STA. 69+93 TO STA. 78+19

TYPICAL SECTION
STA. 2564+50 TO STA. 2572+75

NOTE:
1. TRACK CENTERS WIDEN FROM 14.00' TO 27.43' BETWEEN STA. 2569+14 AND 2572+75.
2. FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.

0 2.5 5 10
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

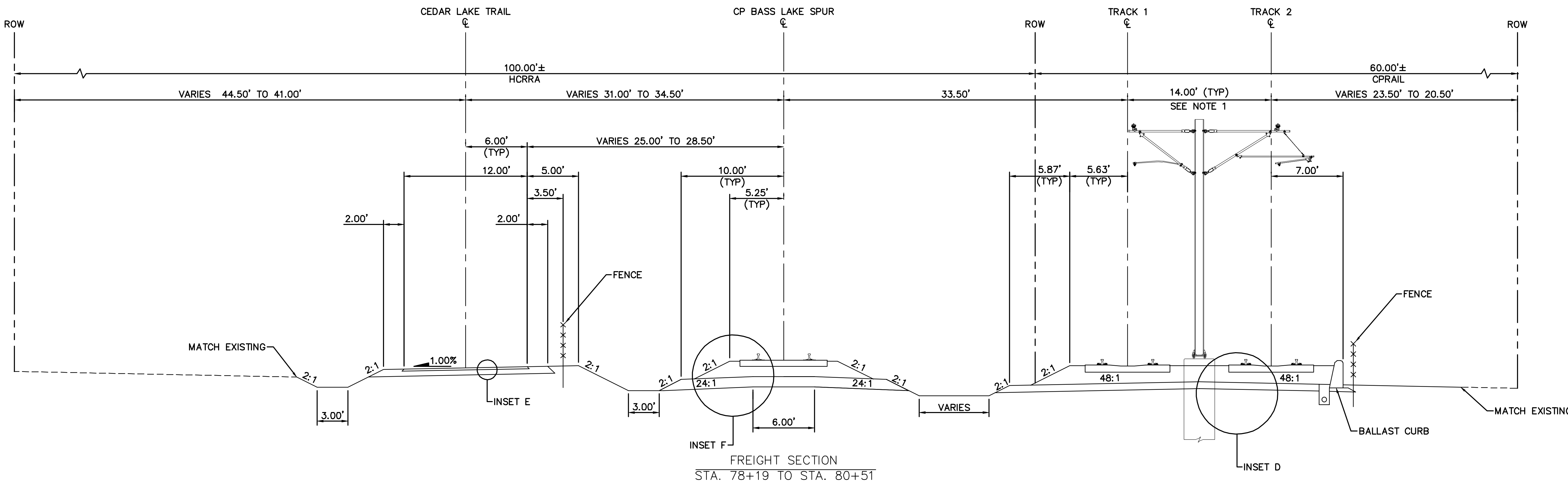
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 014



TYPICAL SECTION
STA. 2572+75 TO STA. 2575+09

NOTE:
1. TRACK CENTERS WIDEN FROM 27.43' TO 30.38' BETWEEN STA. 2572+75 AND 2574+34.
2. FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.

0 2.5 5 10
SCALE IN FEET

Aug. 29 2014 07:01 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-TYP.dwg By: chris.bunders

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Kimley»Horn

PRELIMINARY ENGINEERING

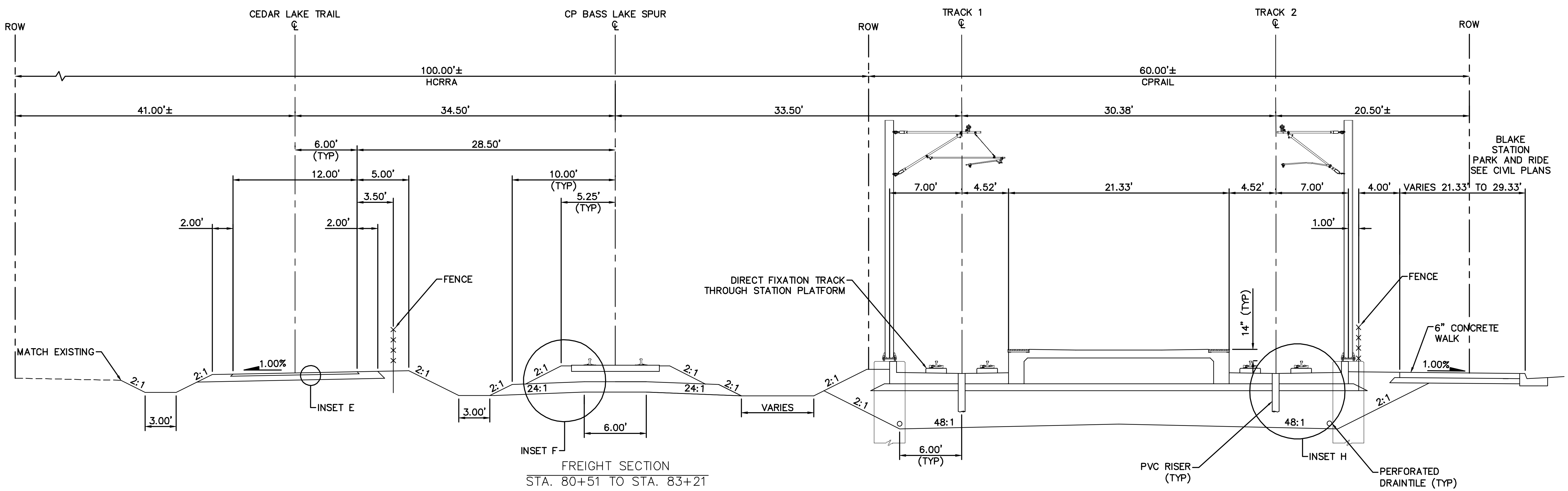
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 015



TYPICAL SECTION – BLAKE STATION
STA. 2575+09 TO STA. 2577+79

NOTE:
FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.

0 2.5 5 10
SCALE IN FEET

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

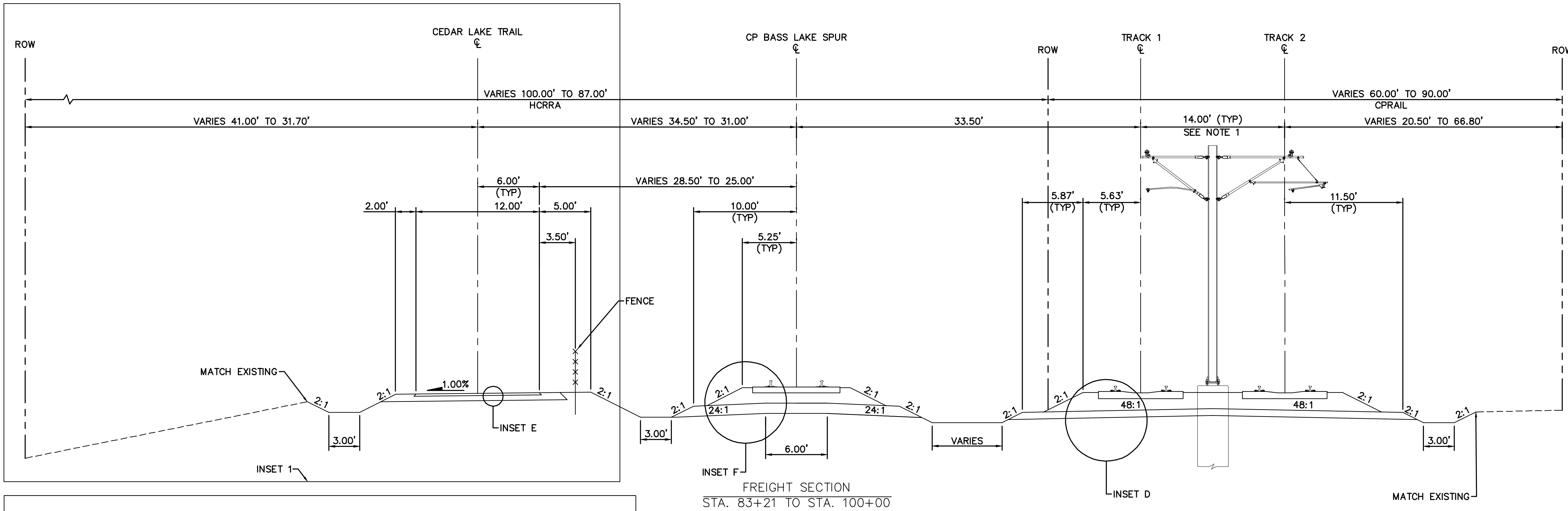
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

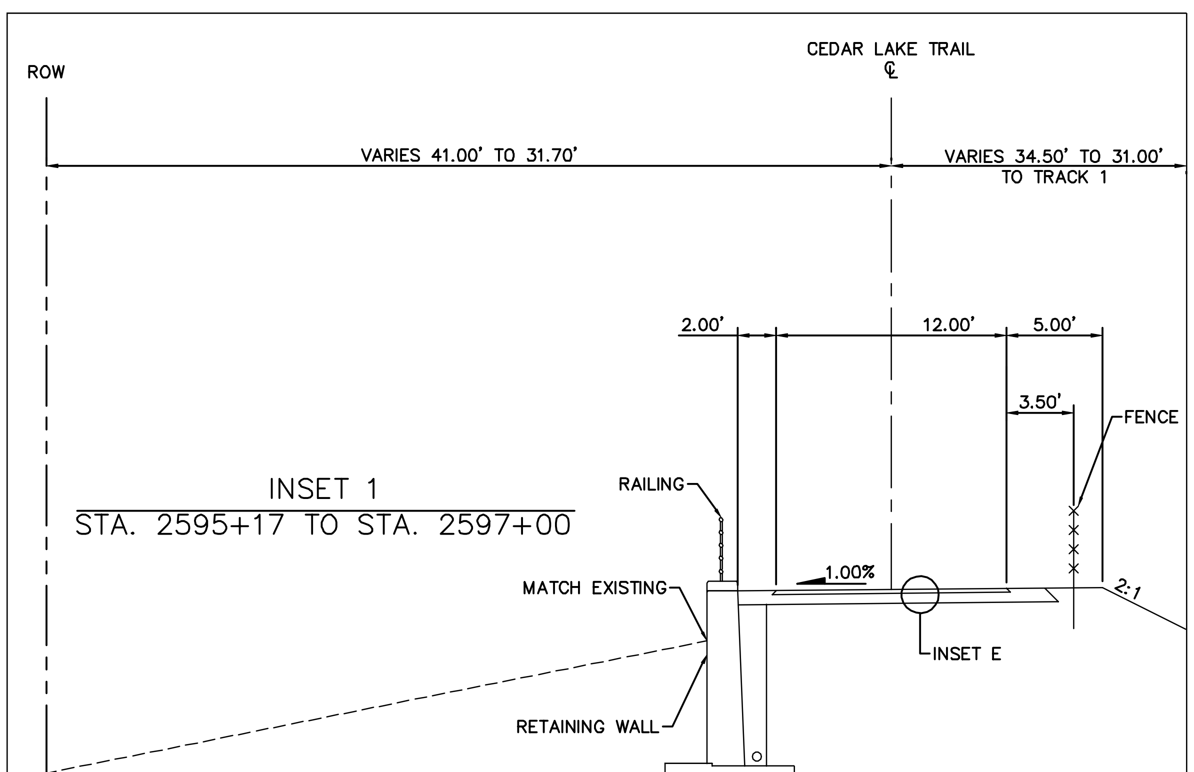
DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 016

SHEET 32 OF 113



TYPICAL SECTION
STA. 2577+79 TO STA. 2597+00



INSET 1
STA. 2595+17 TO STA. 2597+00

NOTE:
1. TRACK CENTERS NARROWS FROM 30.83' TO 14.00' BETWEEN STA. 2579+74 AND 2584+94.
2. FOR INSETS, SEE EAST – VOLUME 1 (CIVIL) – SEGMENT 1 SHEET 34.
3. LIMITS OF SECTION INCLUDE AT-GRADE CROSSINGS THAT ARE NOT DEPICTED.

0 2.5 5 10
SCALE IN FEET

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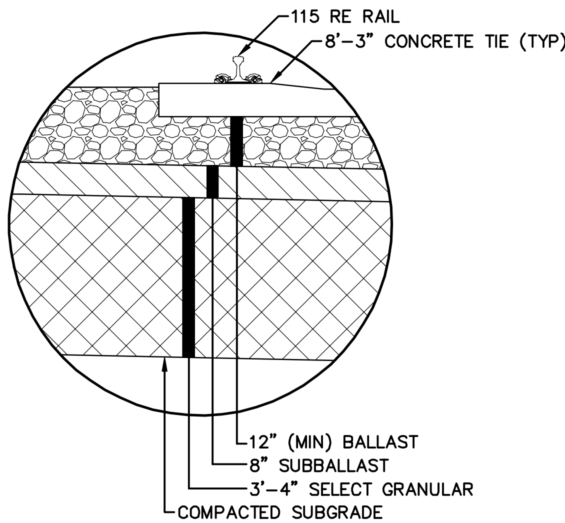
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

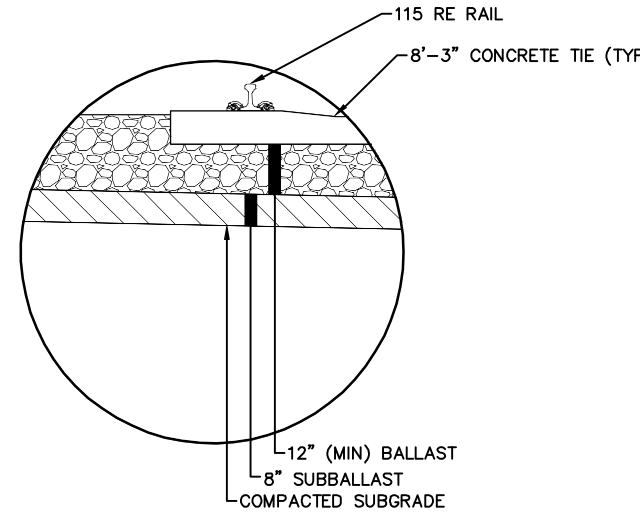
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

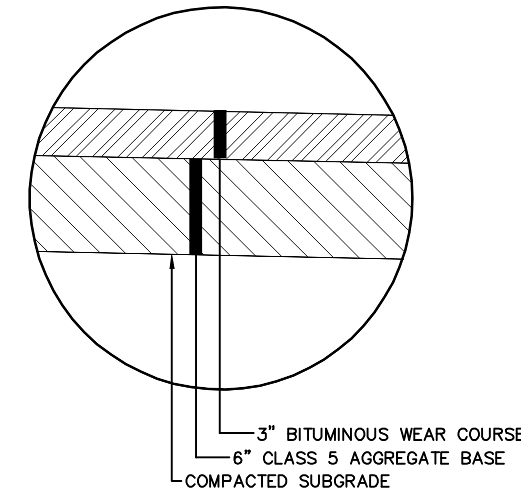
SHEET NAME: E1-TRK-TYP - 017



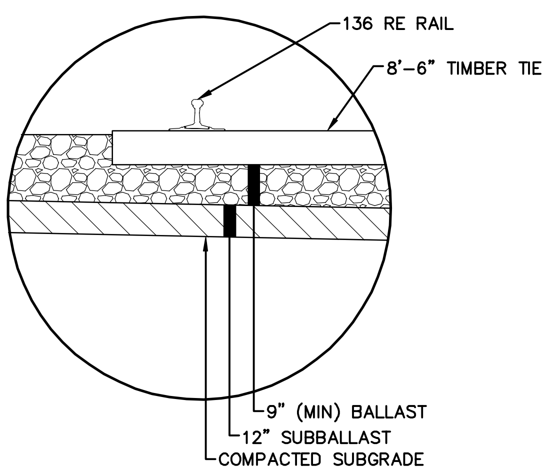
INSET C – TYPICAL BALLASTED TRACK



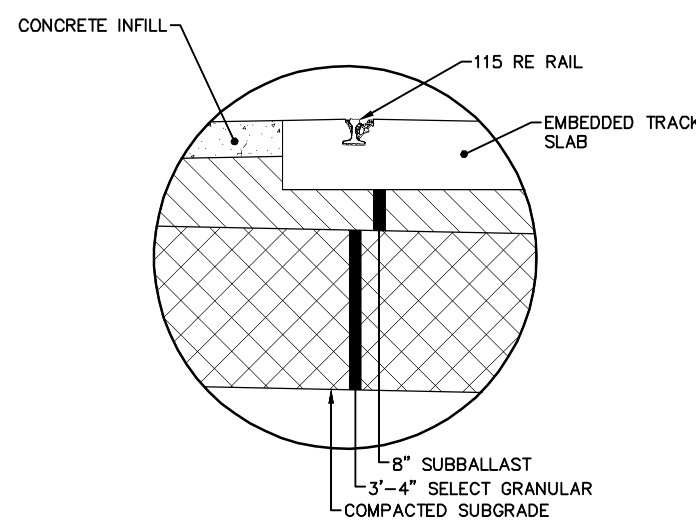
INSET D – TYPICAL LRT BALLASTED TRACK ON EXISTING SUBGRADE



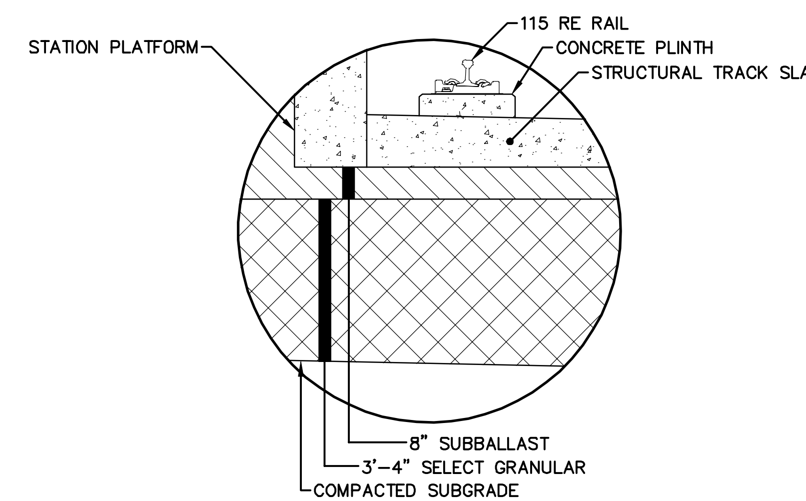
INSET E – TYPICAL TRAIL



INSET F – TYPICAL BALLASTED FREIGHT TRACK



INSET G – TYPICAL EMBEDDED TRACK



INSET H – TYPICAL DIRECT FIXATION INTERFACE AT STATION PLATFORM

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PRELIMINARY ENGINEERING

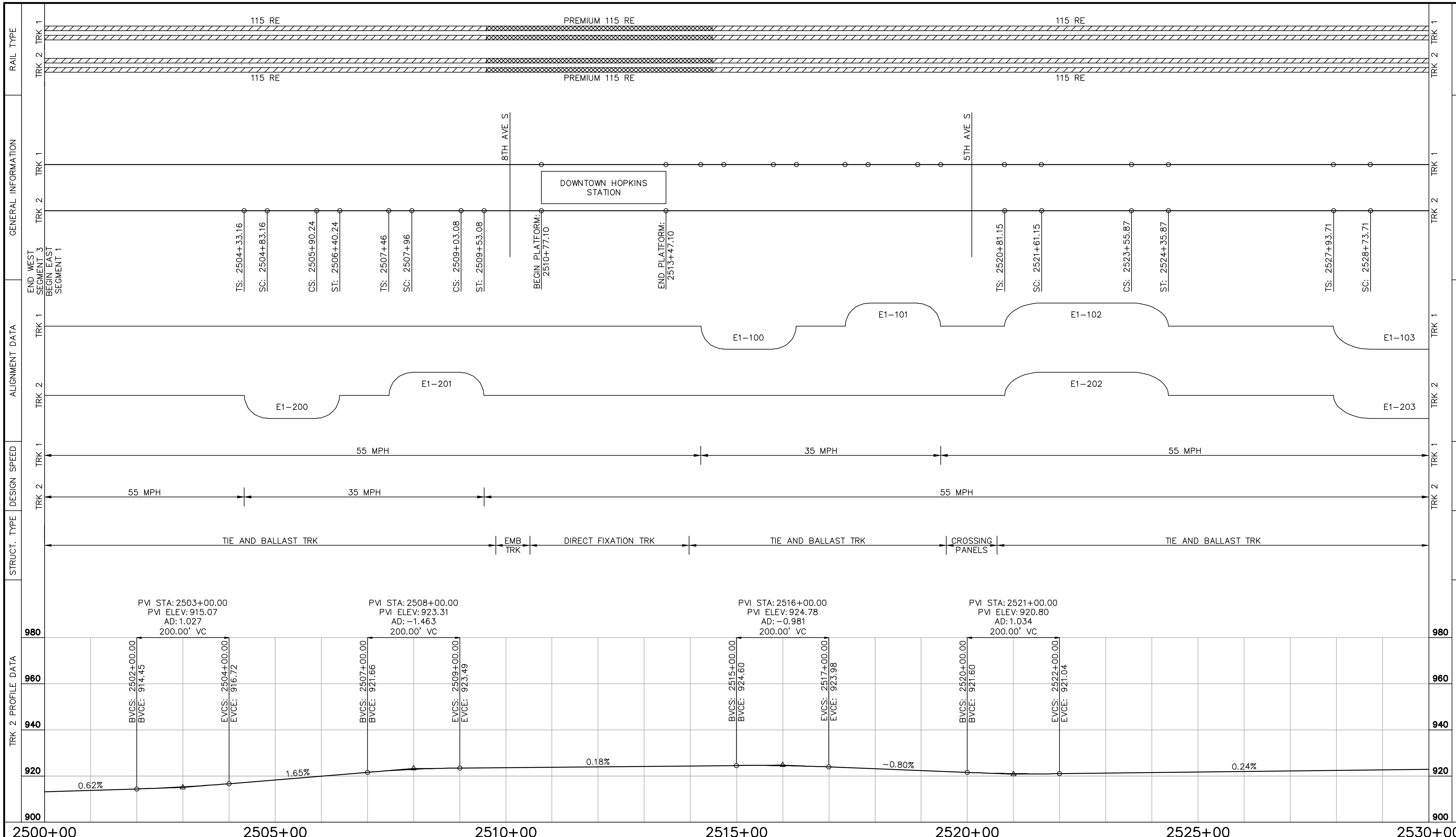
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
INSETS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-TYP - 018



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

SYSTRA

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

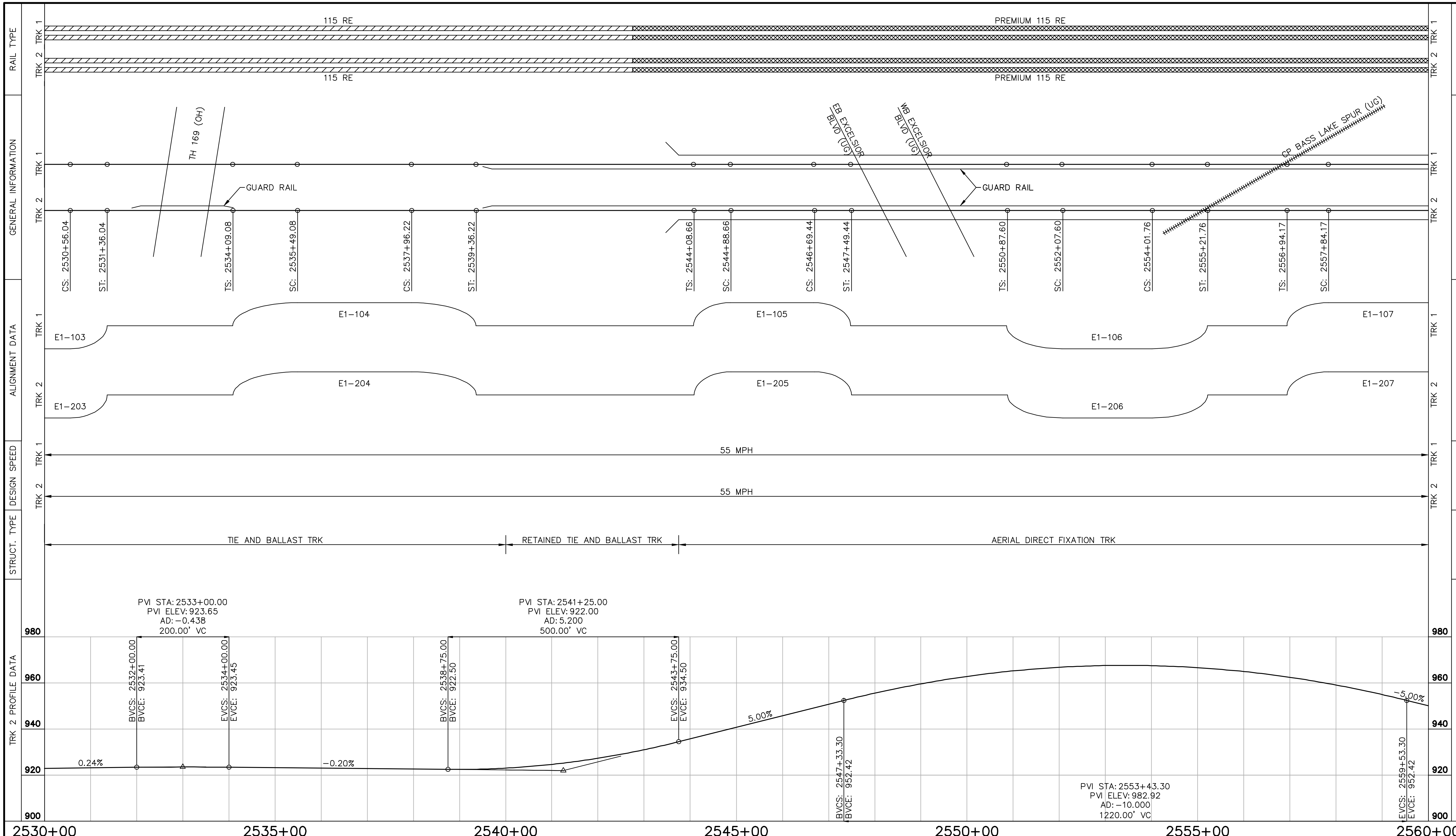
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK CHARTS
STA. 2500+00 STA. 2530+00

DISCIPLINE: TRACK PLAN

SHEET NAME: E1-TRK-CHART-001

SHEET 35 OF 113

Aug. 29 2014 07:01 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-CHART.dwg By: chris.bunders



Aug. 29 2014 07:01 am V:\3300_PEC–E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1–TRK–CHART.dwg By: chris.bunders

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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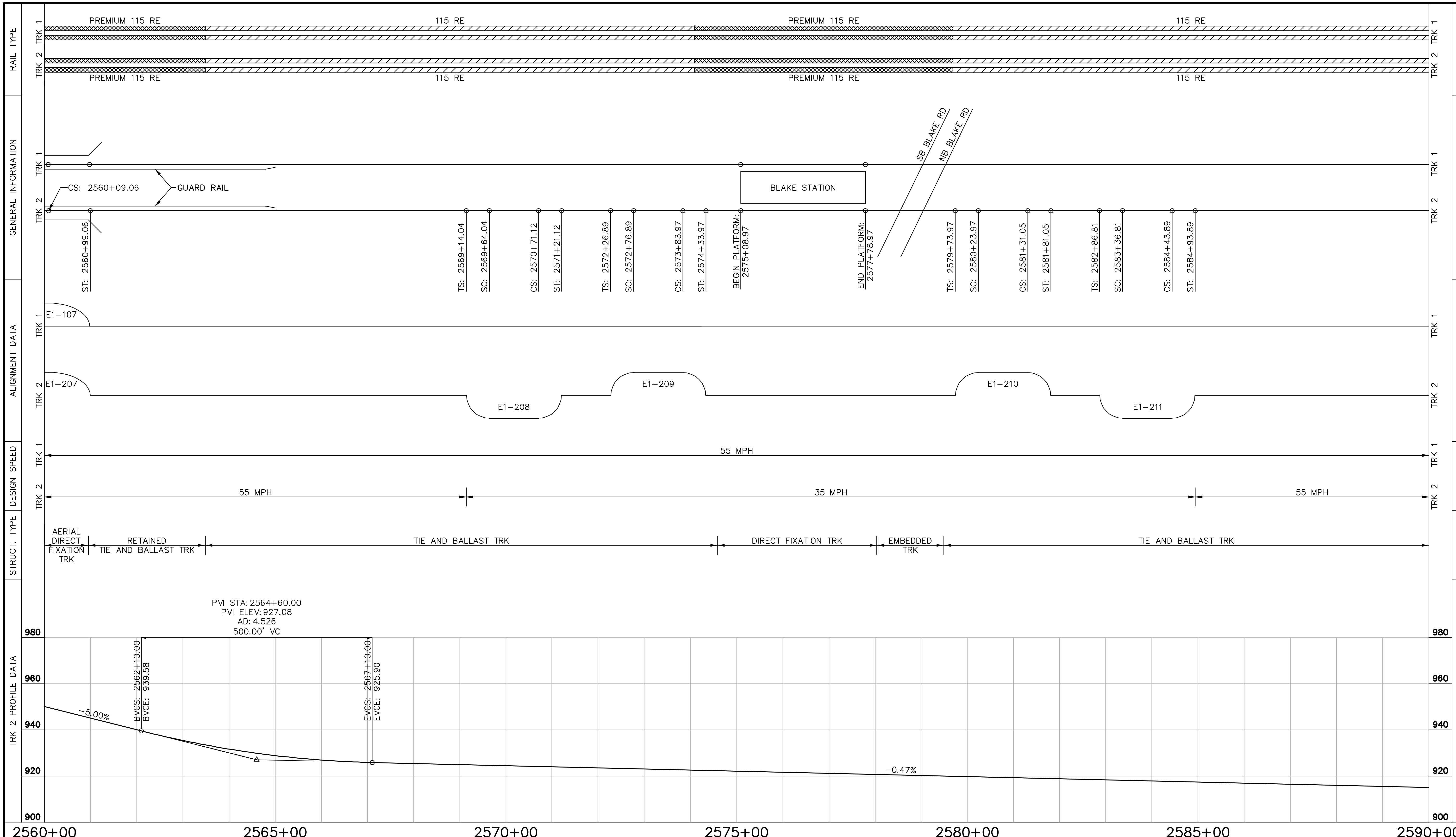
SYSTRA
PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK CHARTS
STA. 2530+00 TO STA. 2560+00

DISCIPLINE: TRACK PLAN
SHEET NAME: E1-TRK-CHART-002

SHEET 36 OF 113



Aug. 29 2014 07:01 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-CHART.dwg By: chris.bunders

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

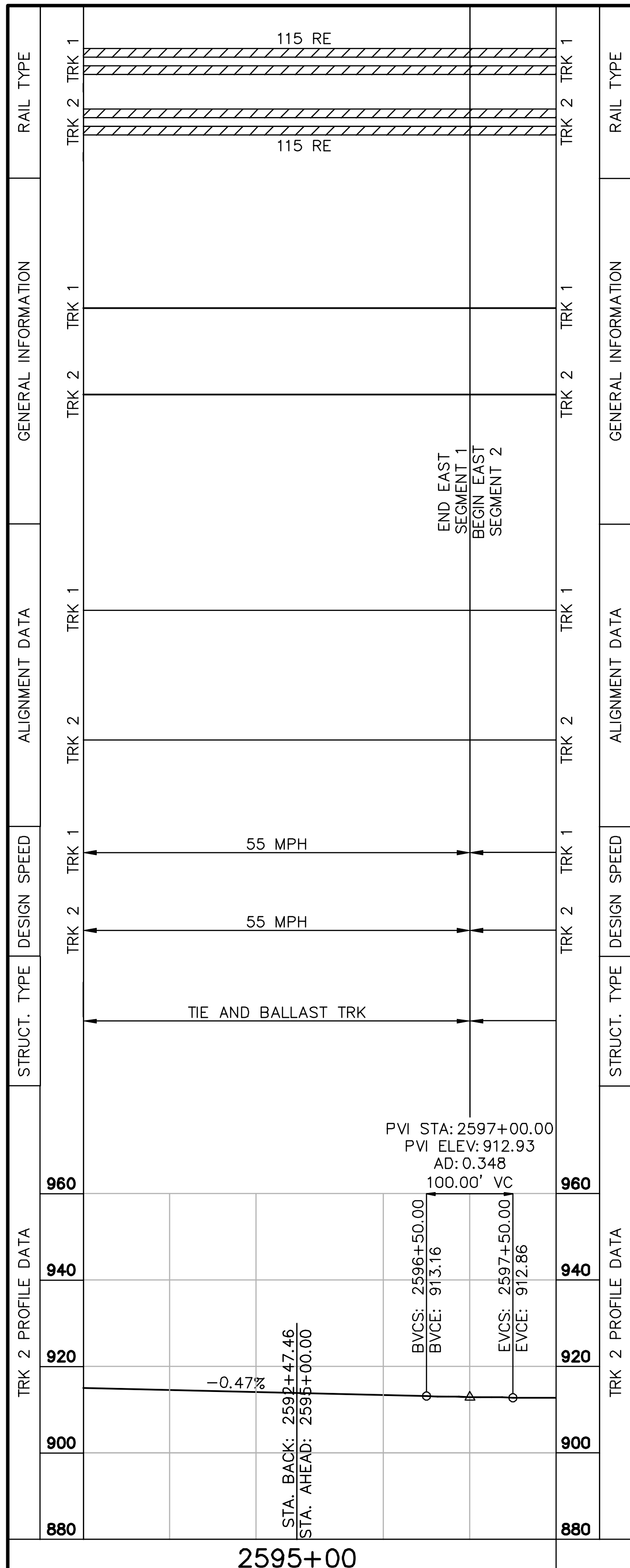
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK CHARTS
STA. 2560+00 TO STA. 2590+00

DISCIPLINE: **TRACK PLAN**

SHEET NAME: **E1-TRK-CHART-003**



Aug. 29 2014 07:01 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-CHART.dwg By: chris.bunders

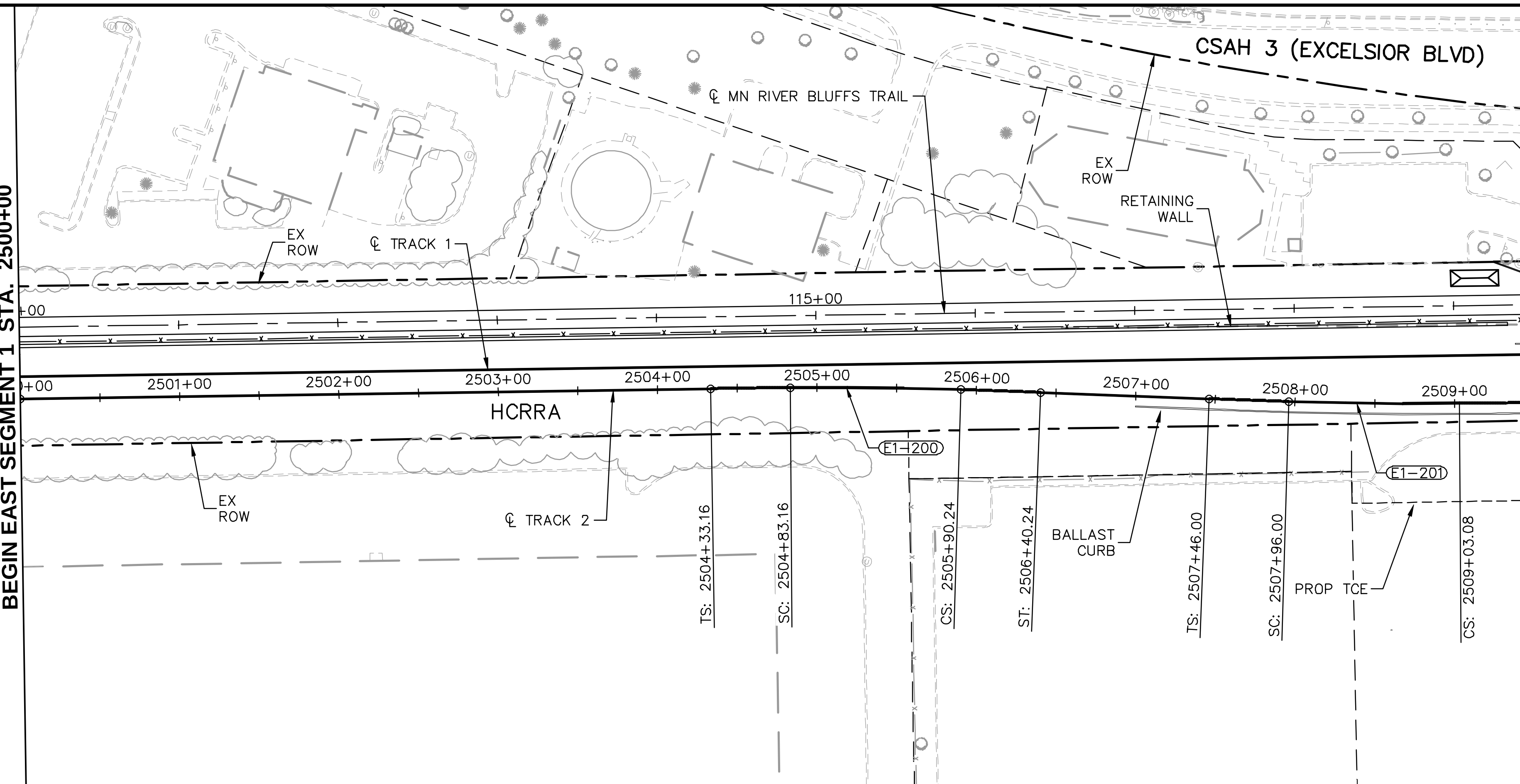
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

PRELIMINARY ENGINEERING

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK CHARTS
STA. 2590+00 TO STA. 2597+00

DISCIPLINE: TRACK PLAN

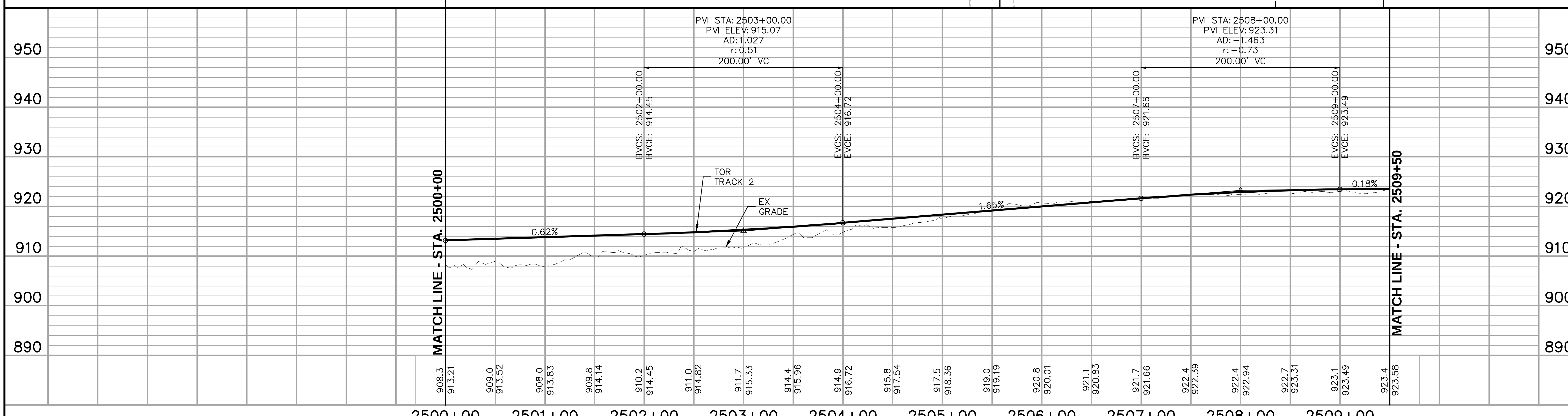
SHEET NAME: E1-TRK-CHART-004



CURVE NO. E1-200
R = 3,000.00'
Lc = 107.08'
Ls = 50.00'
Ea = 0.75"
Eu = 0.87"
V = 35 MPH

CURVE NO. E1-201
R = 3,000.00'
Lc = 107.08'
Ls = 50.00'
Ea = 0.75"
Eu = 0.87"
V = 35 MPH

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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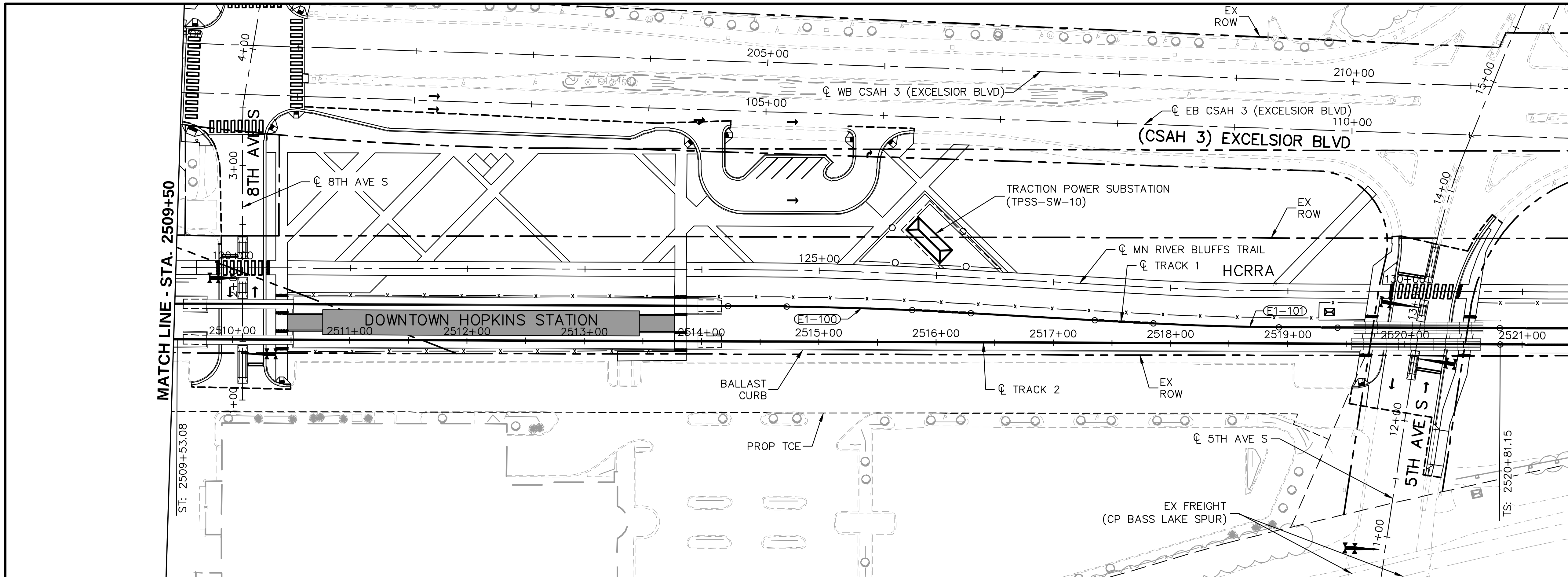
PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2500+00 TO STA. 2509+50

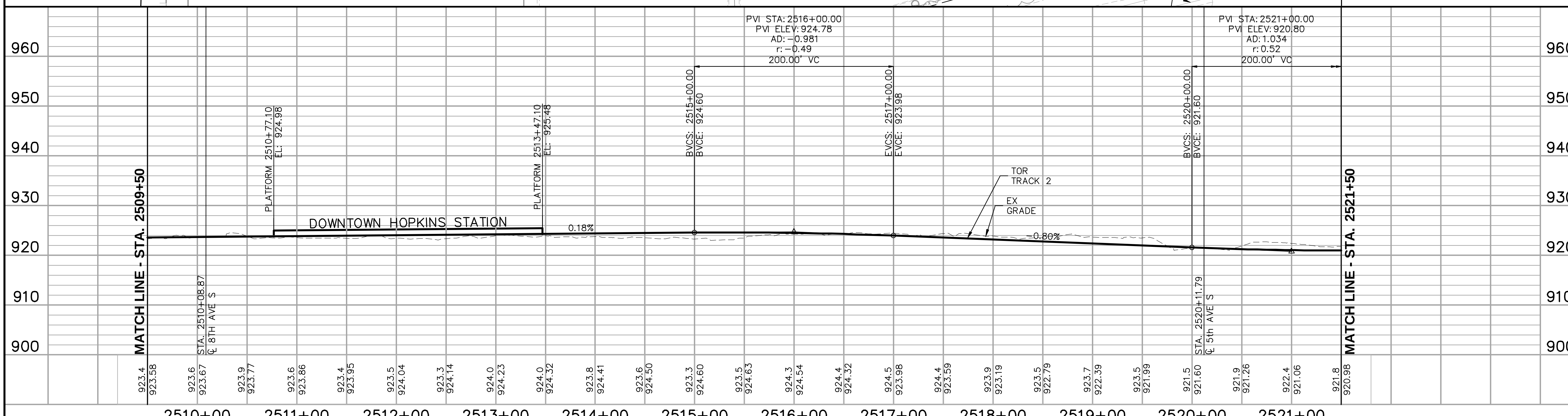
DISCIPLINE: **TRACK**
SHEET NAME: **E1-TRK-PPFL-001**



CURVE NO. E1-100
R = 3,000.00'
Lc = 107.08'
Ls = 50.00'
Ea = 0.75"
Eu = 0.87"
V = 35 MPH

CURVE NO. E1-101
R = 3,000.00'
Lc = 107.08'
Ls = 50.00'
Ea = 0.75"
Eu = 0.87"
V = 35 MPH

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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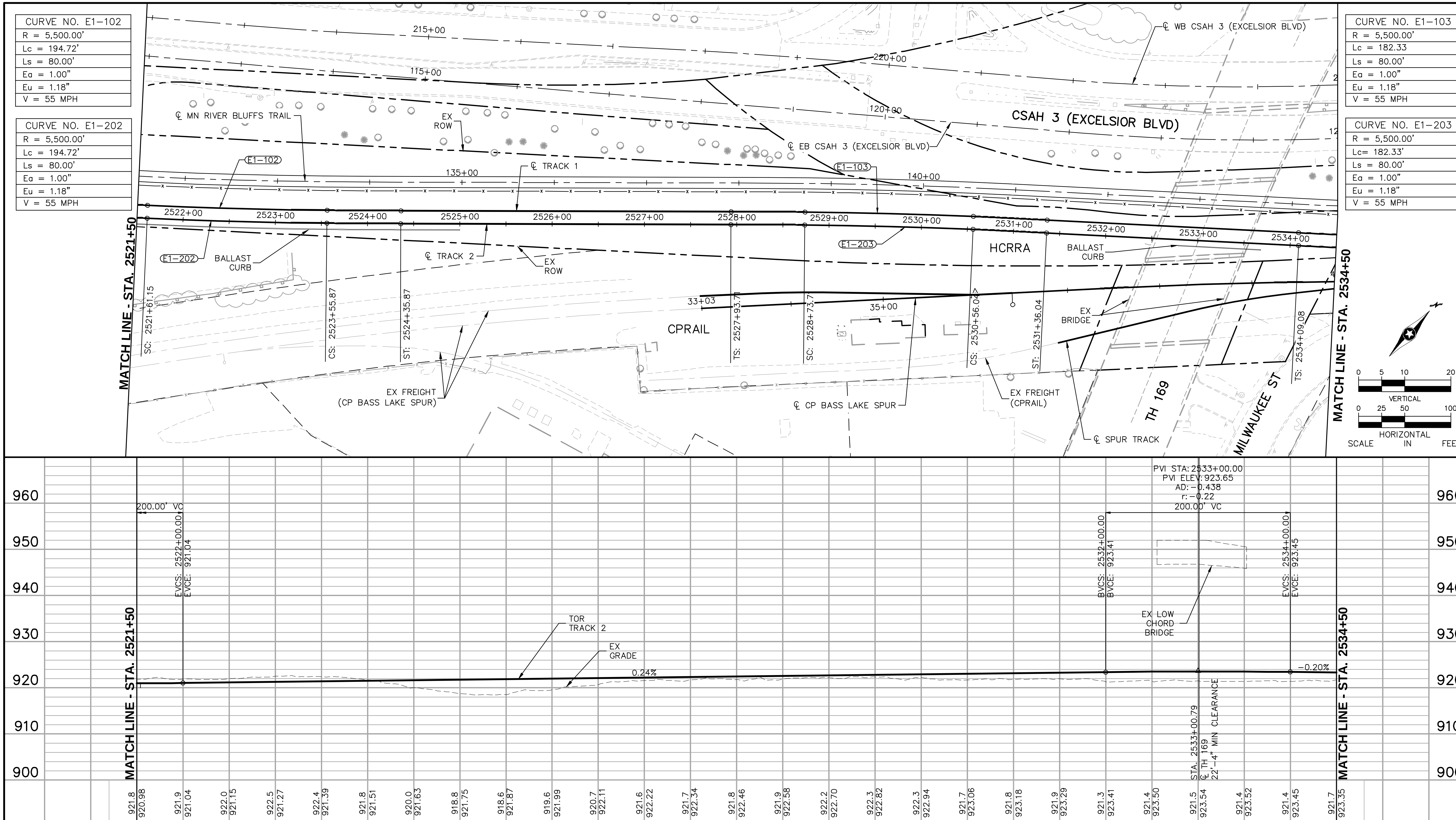
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2509+50 TO STA. 2521+50

DISCIPLINE: TRACK
SHEET NAME: E1-TRK-PPFL-002

SHEET 40 OF 113

Aug. 29 2014 07:05 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-PPFL.dwg By: chris.bunders



921.8	921.9	922.0	922.5	922.4	921.8	920.0	918.8	918.6	919.6	920.7	921.6	921.7	921.8	921.9	922.2	922.3	922.3	921.7	921.8	921.9	921.3	921.4	921.5	921.4	921.4	921.7
920.98	921.04	921.15	921.27	921.39	921.51	921.63	921.75	921.87	921.99	922.11	922.22	922.34	922.46	922.58	922.70	922.82	922.94	923.06	923.18	923.29	923.41	923.50	923.54	923.52	923.45	923.35

2522+00 2523+00 2524+00 2525+00 2526+00 2527+00 2528+00 2529+00 2530+00 2531+00 2532+00 2533+00 2534+00

CURVE NO. E1-102
R = 5,500.00'
Lc = 194.72'
Ls = 80.00'
Ea = 1.00"
Eu = 1.18"
V = 55 MPH

CURVE NO. E1-202
R = 5,500.00'
Lc = 194.72'
Ls = 80.00'
Ea = 1.00"
Eu = 1.18"
V = 55 MPH

CURVE NO. E1-103
R = 5,500.00'
Lc = 182.33
Ls = 80.00'
Ea = 1.00"
Eu = 1.18"
V = 55 MPH

CURVE NO. E1-203
R = 5,500.00'
Lc= 182.33'
Ls = 80.00'
Ea = 1.00"
Eu = 1.18"
V = 55 MPH

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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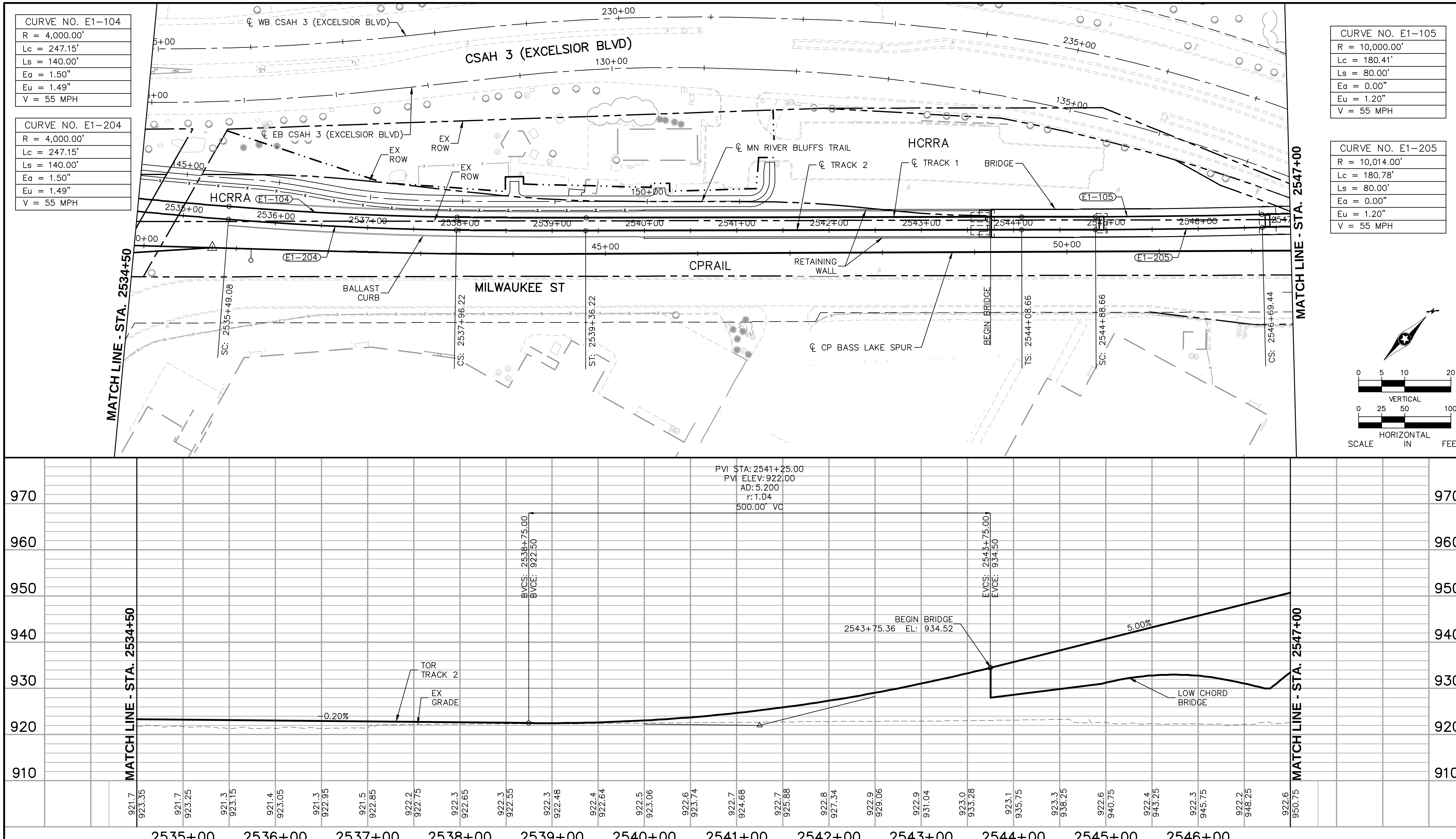
PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2521+50 TO STA. 2534+50

DISCIPLINE: TRACK
SHEET NAME: E1-TRK-PPFL-003

Aug. 29 2014 07:06 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-PPFL.dwg By: chris.bunders



CURVE NO. E1-104
R = 4,000.00'
Lc = 247.15'
Ls = 140.00'
Ea = 1.50"
Eu = 1.49"
V = 55 MPH

CURVE NO. E1-204
R = 4,000.00'
Lc = 247.15'
Ls = 140.00'
Ea = 1.50"
Eu = 1.49"
V = 55 MPH

CURVE NO. E1-105
R = 10,000.00'
Lc = 180.41'
Ls = 80.00'
Ea = 0.00"
Eu = 1.20"
V = 55 MPH

CURVE NO. E1-205
R = 10,014.00'
Lc = 180.78'
Ls = 80.00'
Ea = 0.00"
Eu = 1.20"
V = 55 MPH

Aug. 29 2014 07:07 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-PPFL.dwg By: chris.bunders

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

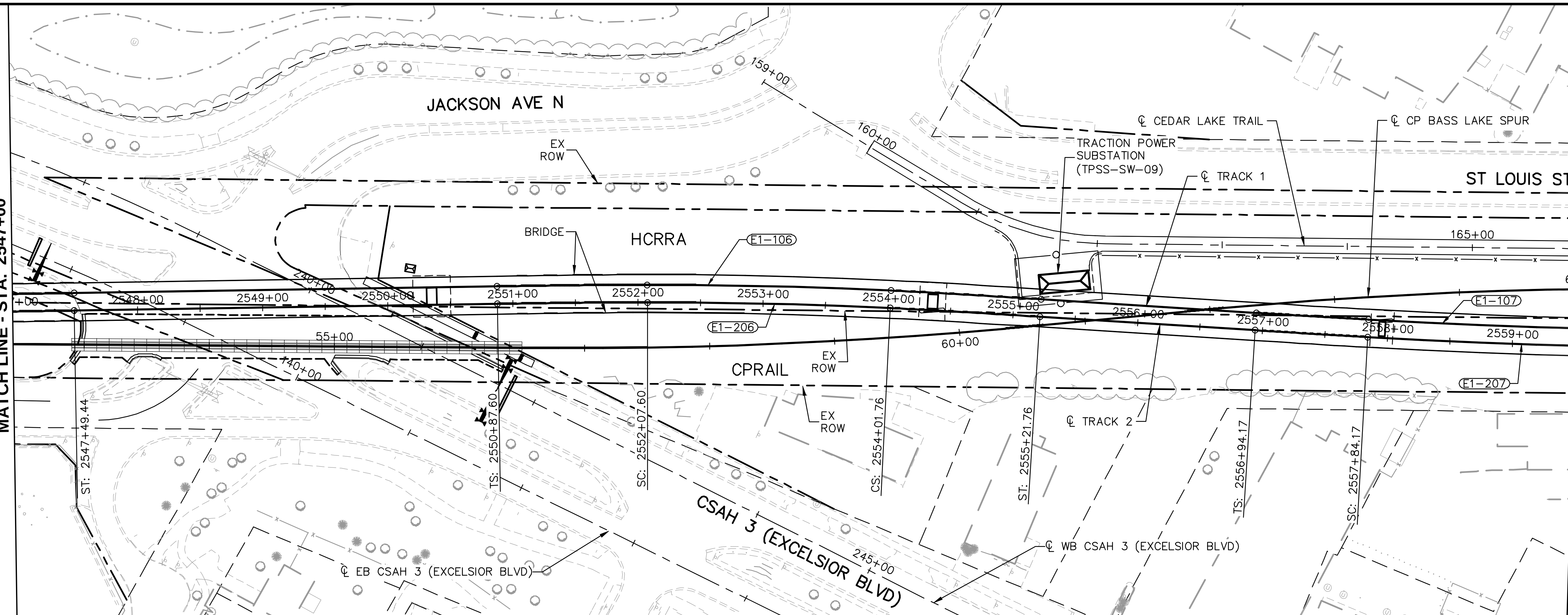
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2534+50 TO STA. 2547+00

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-PPFL-004

CURVE NO. E1-106
R = 4,014.00'
Lc = 195.26'
Ls = 120.00'
Ea = 1.25"
Eu = 1.73"
V = 55 MPH

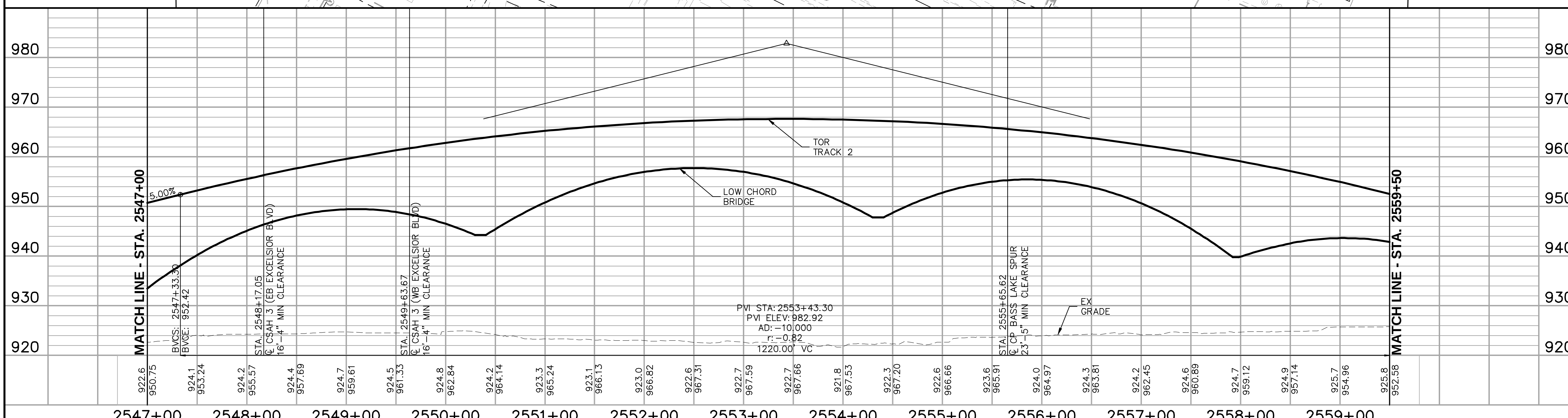
CURVE NO. E1-206
R = 4,000.00'
Lc = 194.16'
Ls = 120.00'
Ea = 1.25"
Eu = 1.74"
V = 55 MPH



CURVE NO. E1-107
R = 6,000.00'
Lc = 224.16'
Ls = 90.00'
Ea = 1.00"
Eu = 1.00"
V = 55 MPH

CURVE NO. E1-207
R = 6,014.00'
Lc = 224.89'
Ls = 90.00'
Ea = 1.00"
Eu = 0.99"
V = 55 MPH

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



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SYSTRA
PRELIMINARY ENGINEERING

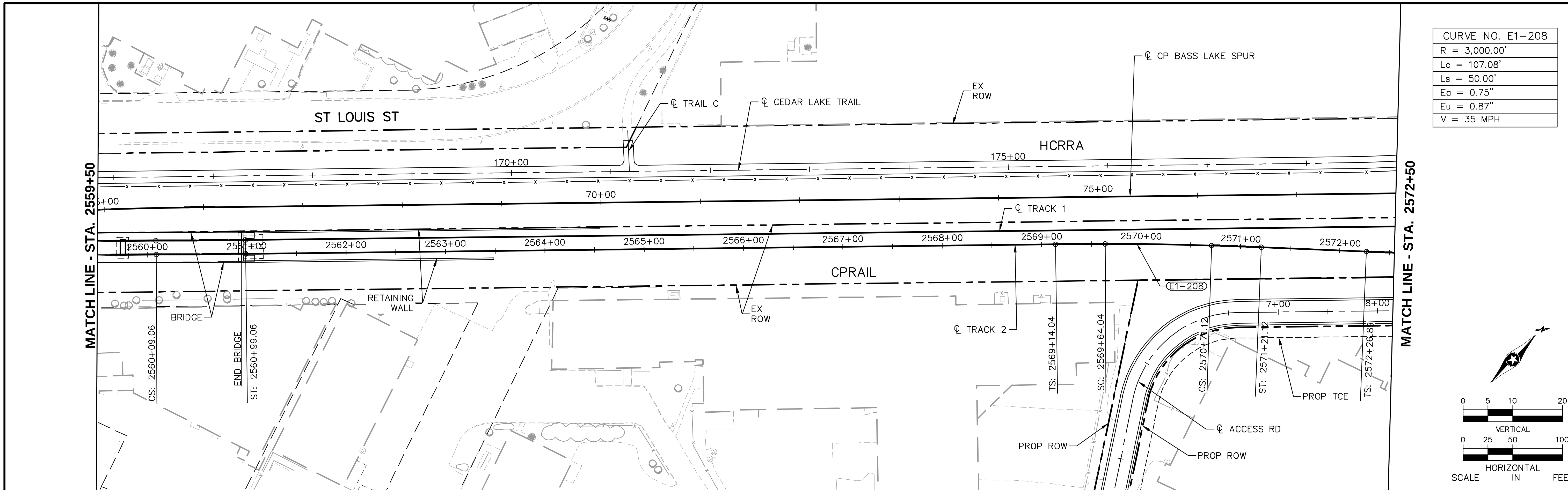
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

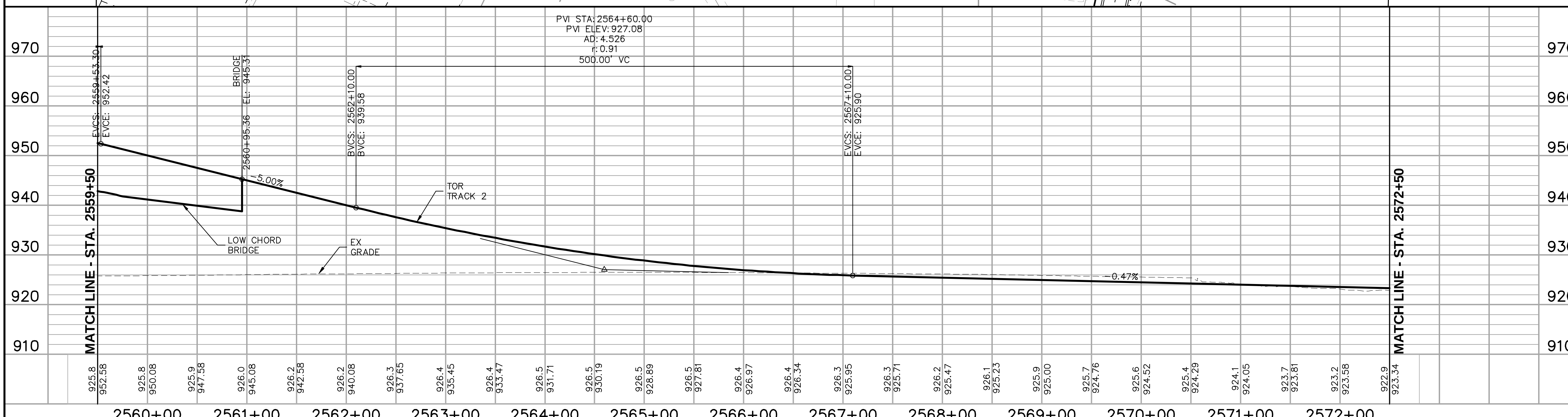
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2547+00 TO STA. 2559+50

DISCIPLINE: TRACK
SHEET NAME: E1-TRK-PPFL-005

SHEET 43 OF 113

Aug. 29 2014 07:08 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-PPFL.dwg By: chris.bunders





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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2559+50 TO STA. 2572+50

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-PPFL-006

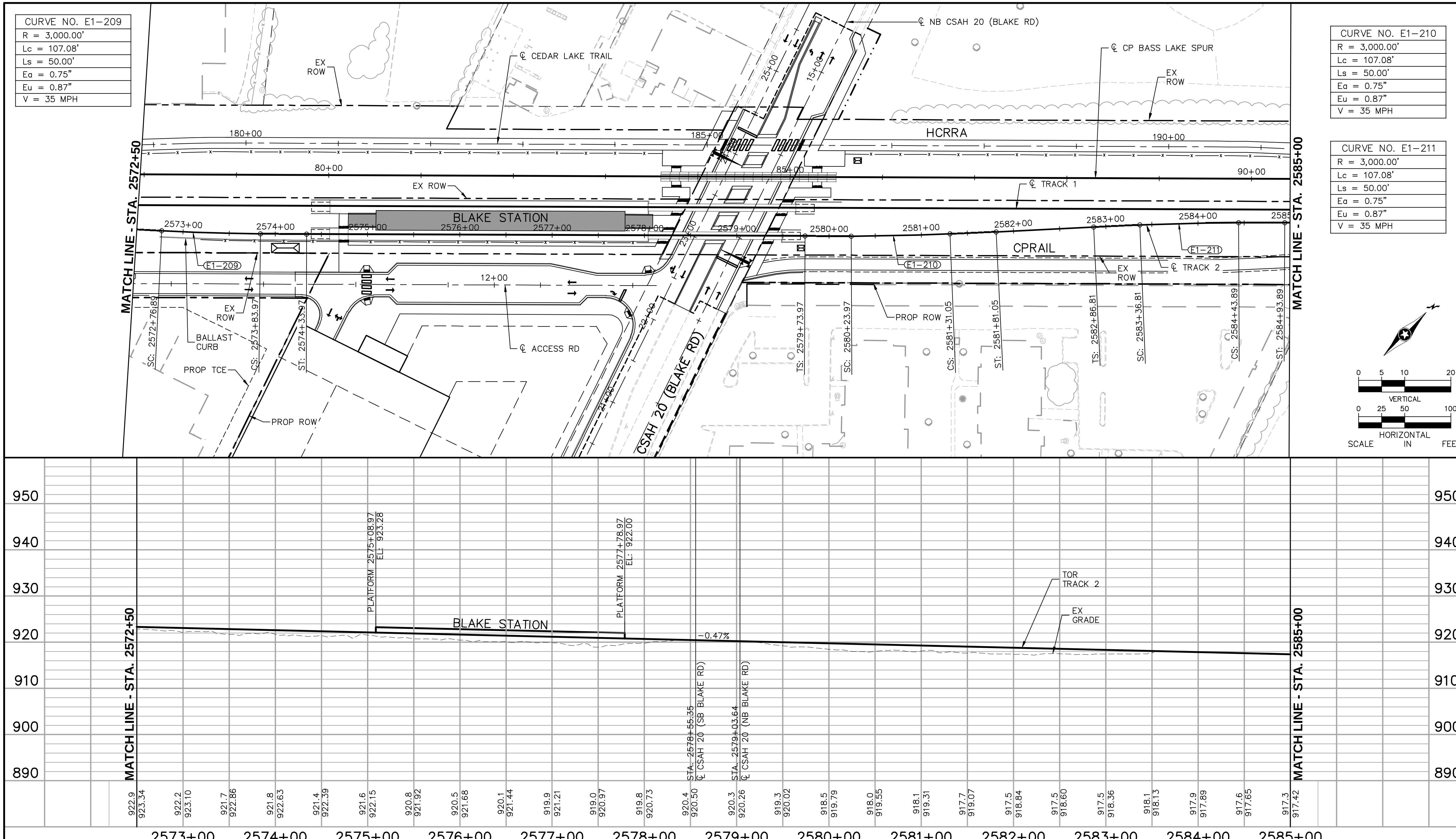
SHEET 44 OF 113

Aug. 29 2014 07:11 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-PPFL.dwg By: chris.bunders

CURVE NO. E1-209
R = 3,000.00'
Lc = 107.08'
Ls = 50.00'
Ea = 0.75"
Eu = 0.87"
V = 35 MPH

CURVE NO. E1-210
R = 3,000.00'
Lc = 107.08'
Ls = 50.00'
Ea = 0.75"
Eu = 0.87"
V = 35 MPH

CURVE NO. E1-211
R = 3,000.00'
Lc = 107.08'
Ls = 50.00'
Ea = 0.75"
Eu = 0.87"
V = 35 MPH



Aug. 29 2014 07:12 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-PPFL.dwg By: chris.bunders

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SYSTRA
PRELIMINARY ENGINEERING

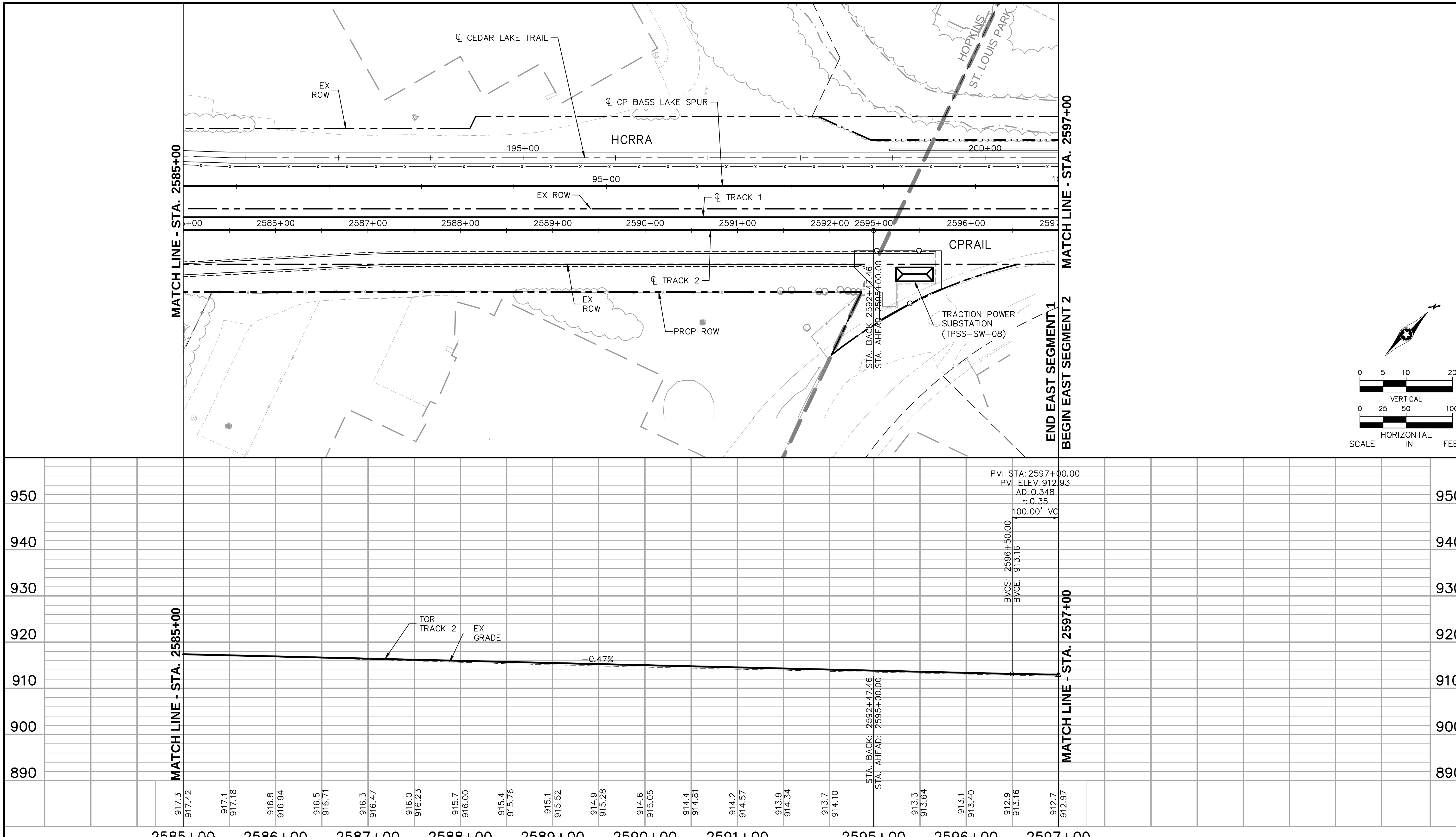
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2572+50 TO STA. 2585+00

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-PPFL-007

SHEET 45 OF 113



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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SYSTRA

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

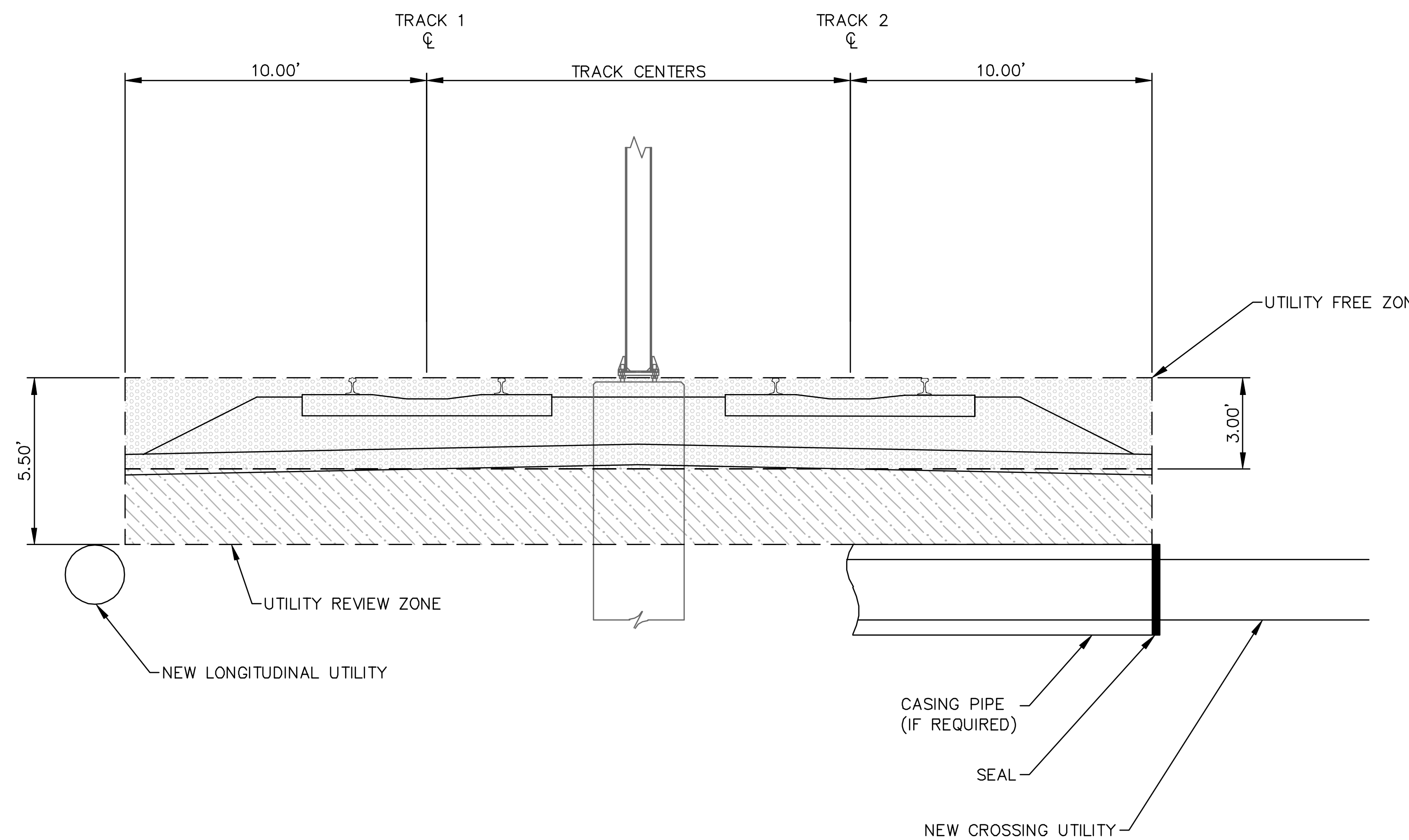
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2585+00 TO STA. 2597+00

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-PPFL-008

SHEET 46 OF 113

Aug. 29 2014 07:13 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-PPFL.dwg By: chris.bunders



UTILITY ZONES
BALLASTED TRACK

NOTES:

1. ADJUSTMENTS OF LIMITS REQUIRE METROPOLITAN COUNCIL APPROVAL.
2. UTILITIES SUSCEPTIBLE TO EFFECTS OF STRAY CURRENT SHOULD BE RELOCATED FROM UTILITY REVIEW ZONE OR APPROPRIATE MITIGATION MEASURES SHOULD BE TAKEN.

0 1.5 3 6
SCALE IN FEET

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

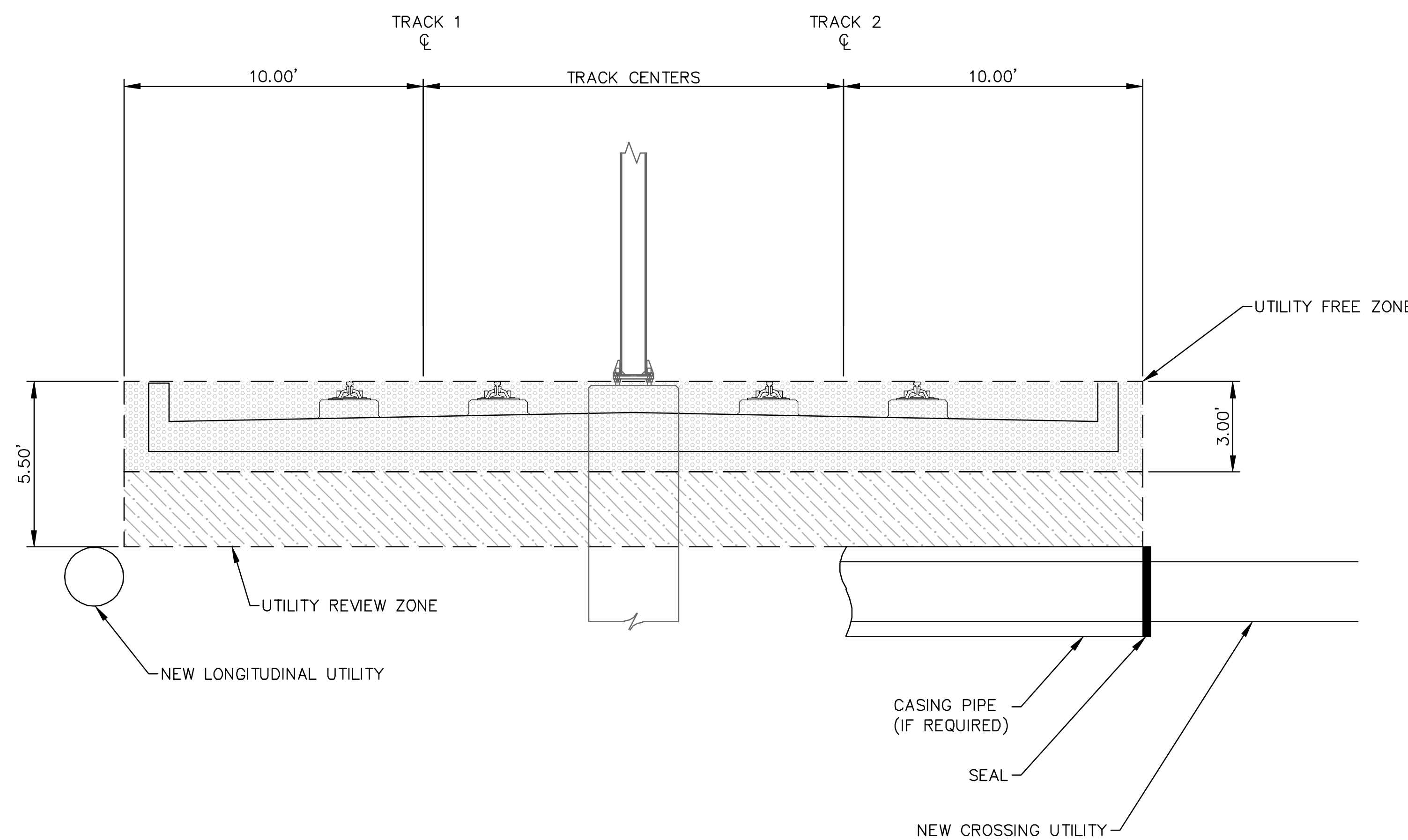
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-DTL - 101

SHEET 47 OF 113



UTILITY ZONES
DIRECT FIXATION TRACK

NOTES:

1. ADJUSTMENTS OF LIMITS REQUIRE METROPOLITAN COUNCIL APPROVAL.
2. UTILITIES SUSCEPTIBLE TO EFFECTS OF STRAY CURRENT SHOULD BE RELOCATED FROM UTILITY REVIEW ZONE OR APPROPRIATE MITIGATION MEASURES SHOULD BE TAKEN.

0 1.5 3 6
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

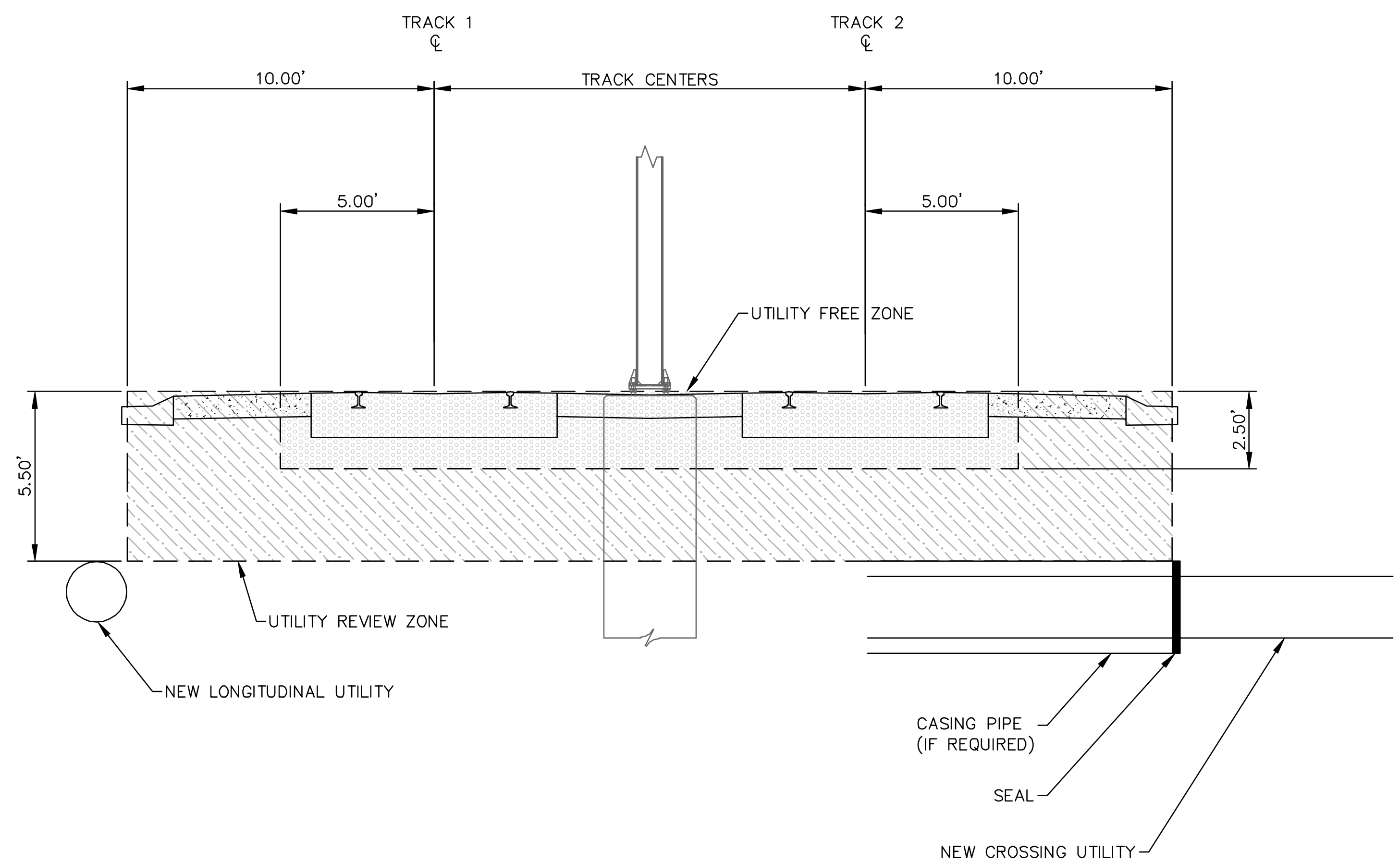
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-DTL - 102



UTILITY ZONES
EMBEDDED TRACK

NOTES:

1. ADJUSTMENTS OF LIMITS REQUIRE METROPOLITAN COUNCIL APPROVAL.
2. UTILITIES SUSCEPTIBLE TO EFFECTS OF STRAY CURRENT SHOULD BE RELOCATED FROM UTILITY REVIEW ZONE OR APPROPRIATE MITIGATION MEASURES SHOULD BE TAKEN.

0 1.5 3 6
SCALE IN FEET

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

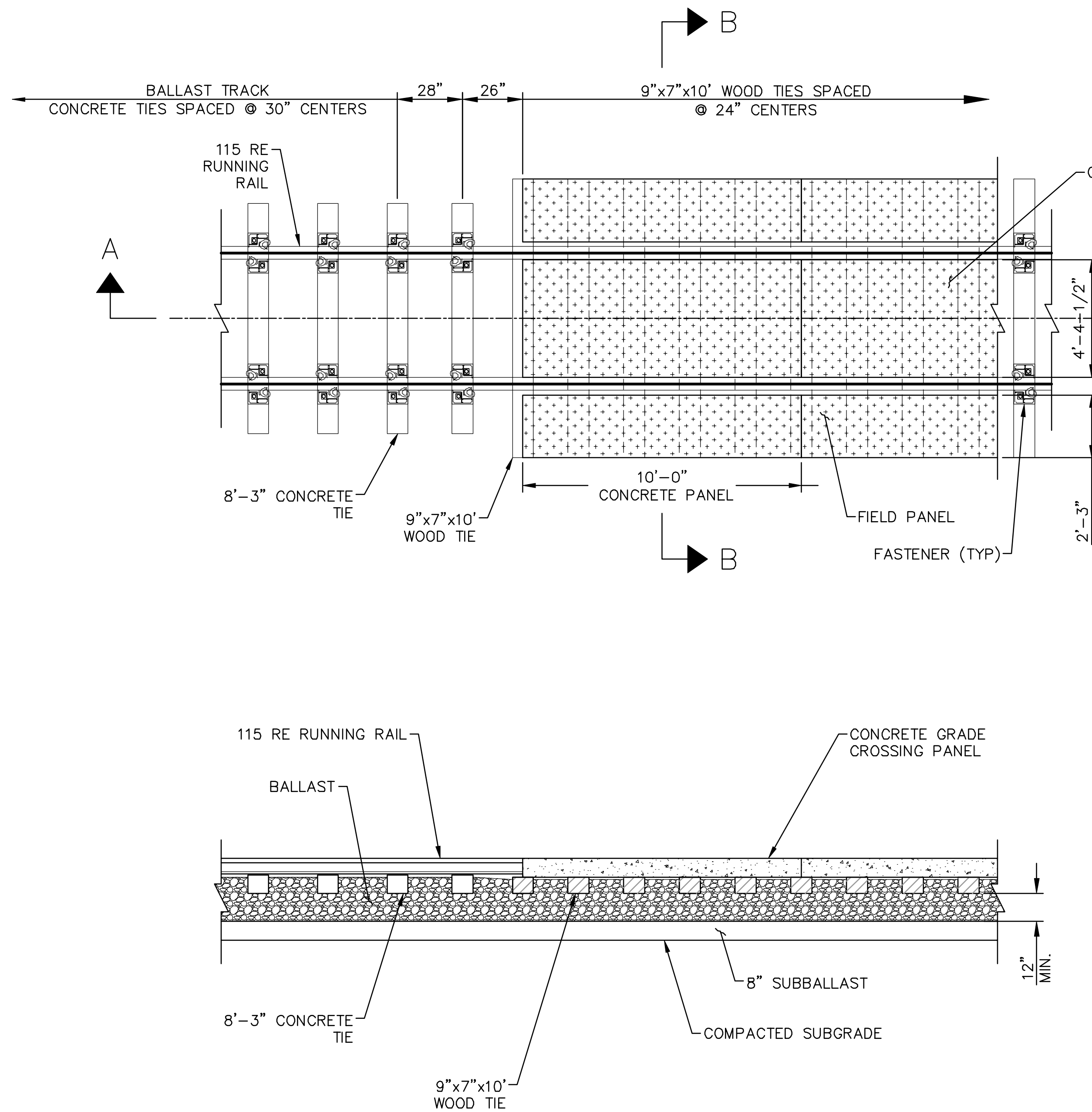
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

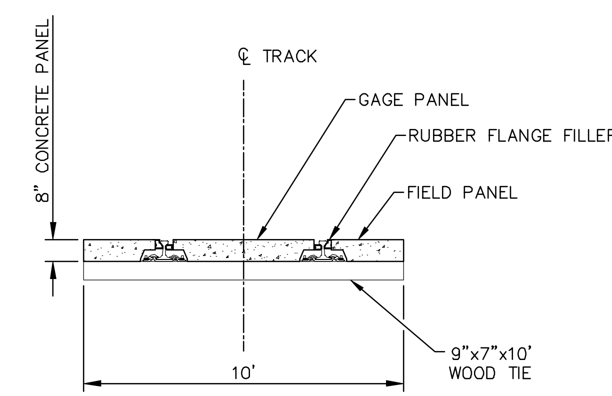
DISCIPLINE: TRACK

SHEET NAME: E1-TRK-DTL - 103

SHEET 49 OF 113



SECTION A–A



SECTION B–B

NOTE:

1. DRAIN TILE NOT SHOWN FOR CLARITY.

ROAD CROSSING WITH CONCRETE PANEL ON 10' WOOD TIES
(NTS)

Aug. 29 2014 07:13 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRACK\E1-TRK-DTL.dwg By: chris.bunders

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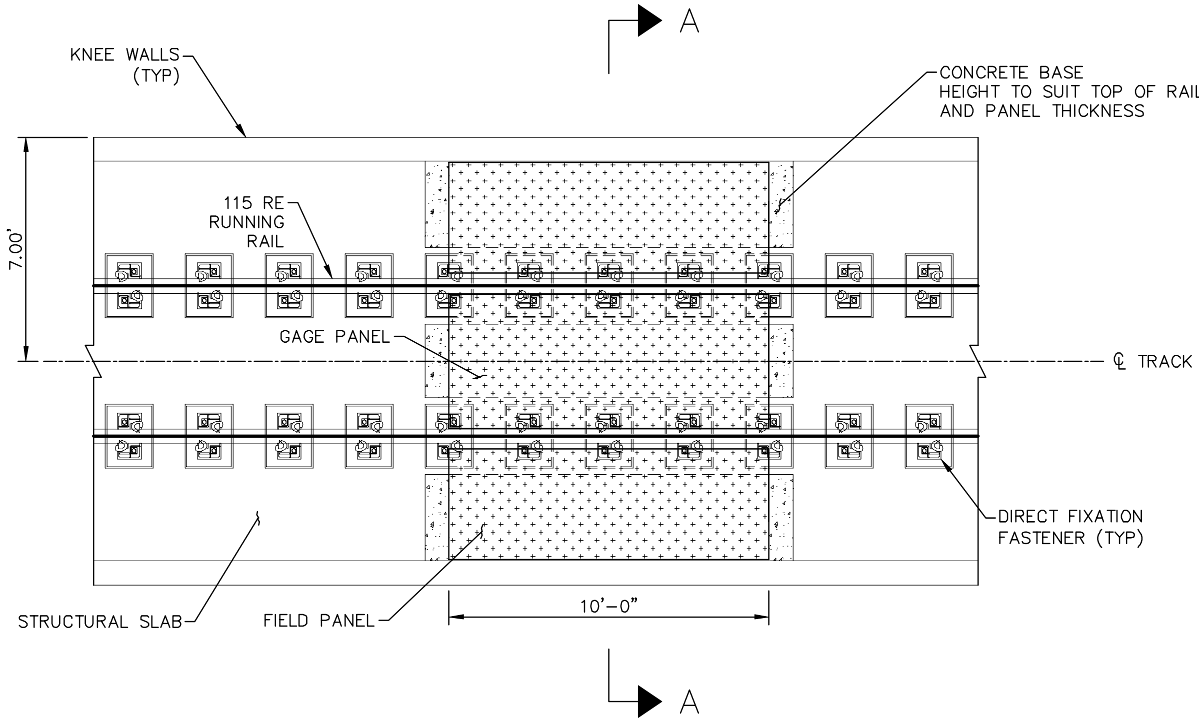
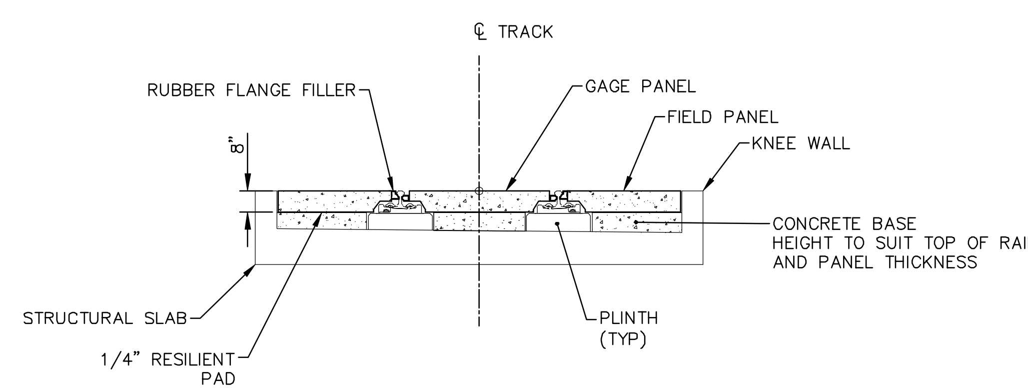
PRELIMINARY ENGINEERING

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-DTL - 202





SECTION A–A

PEDESTRIAN CROSSING PANEL AT DIRECT FIXATION
(NTS)

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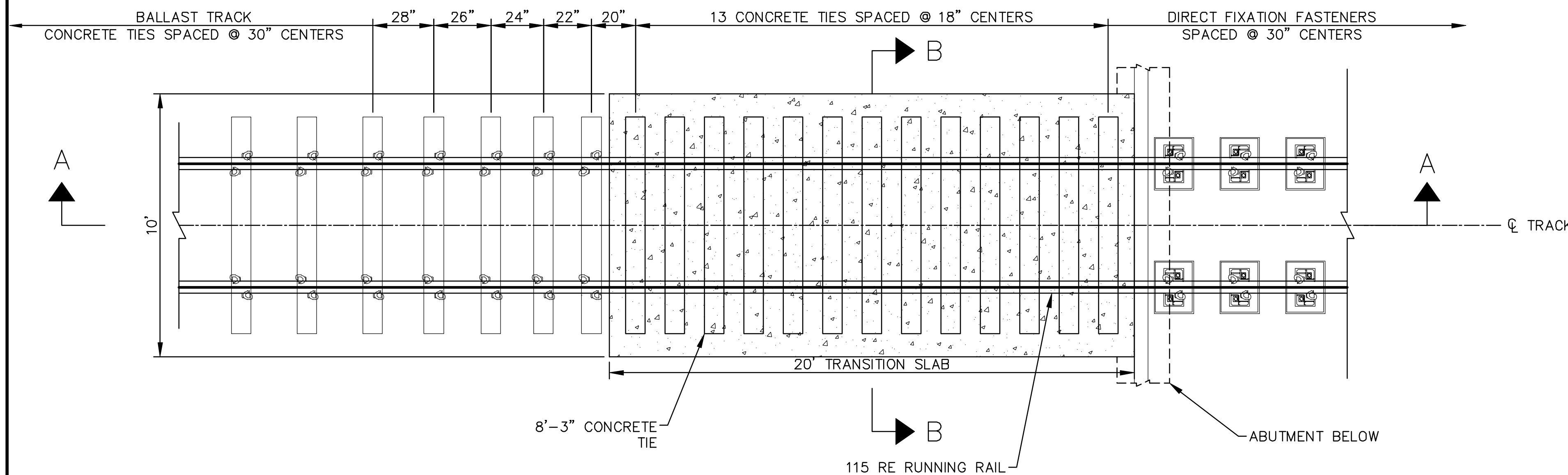
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

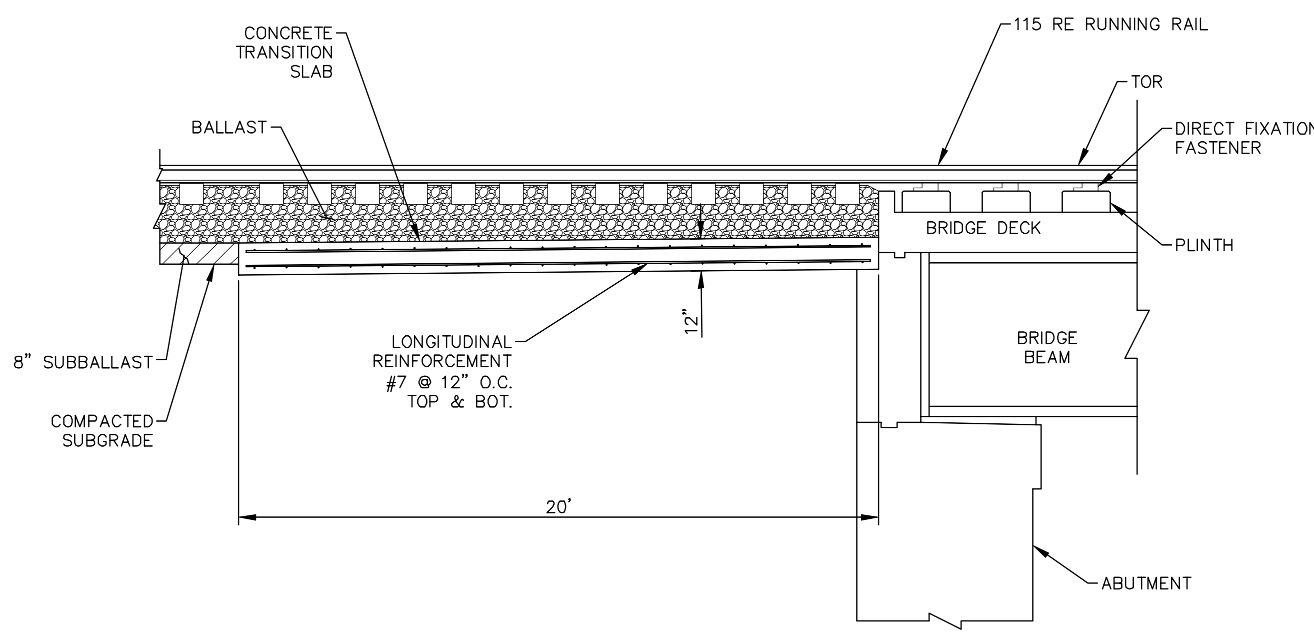
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

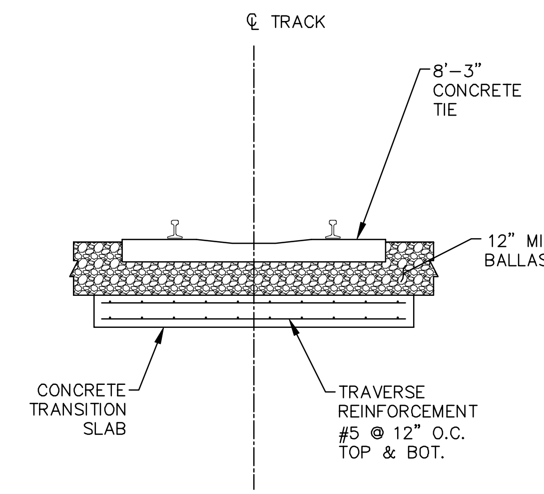
SHEET NAME: E1-TRK-DTL - 203



PLAN VIEW



SECTION A–A



SECTION B–B

NOTE:

1. DRAIN TILE NOT SHOWN FOR CLARITY.

BALLAST TRACK TRANSITION SLAB AT DIRECT FIXATION BRIDGE
(NTS)

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METROPOLITAN COUNCIL

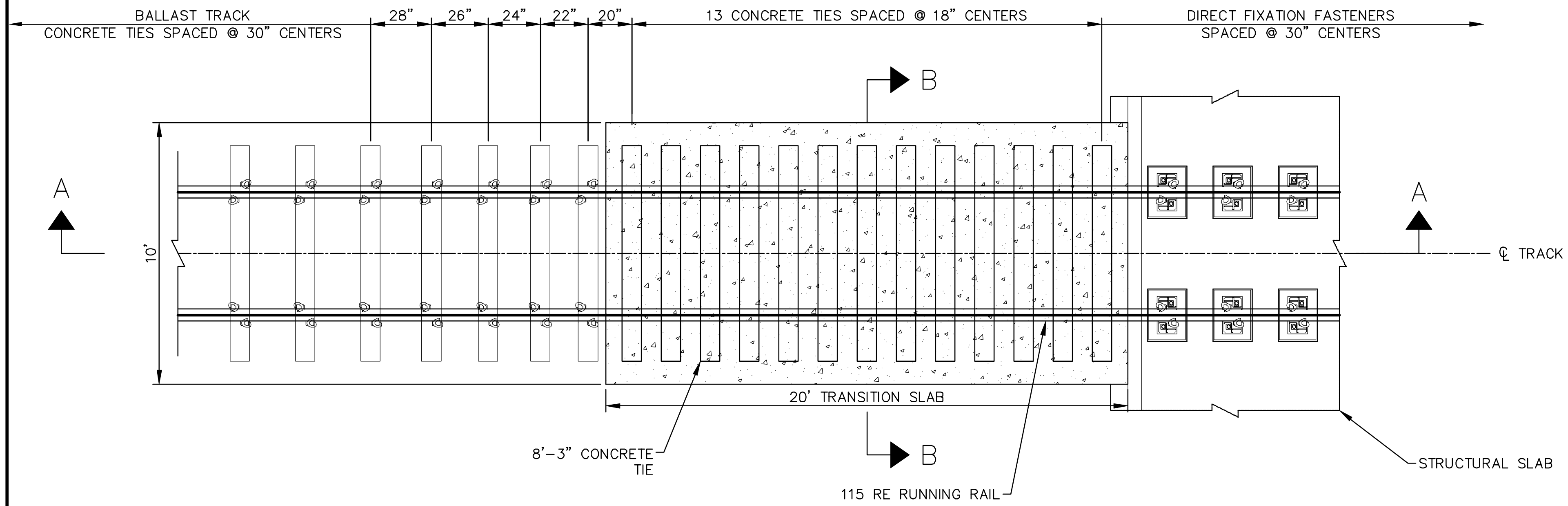
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

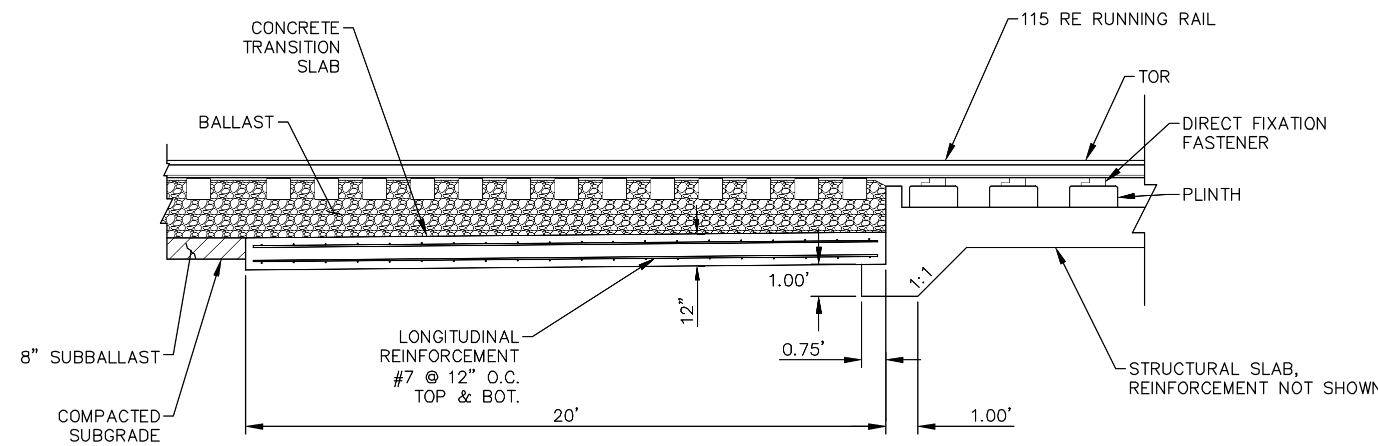
DISCIPLINE: TRACK

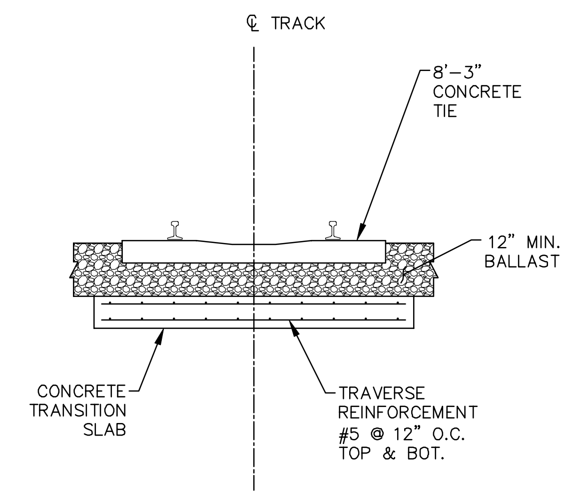
SHEET NAME: E1-TRK-DTL - 302

SHEET 52 OF 113



PLAN VIEW





SECTION B–B

NOTE:

1. DRAIN TILE NOT SHOWN FOR CLARITY.

SECTION A–A

BALLAST TRACK TRANSITION SLAB AT DIRECT FIXATION TRACK
(NTS)

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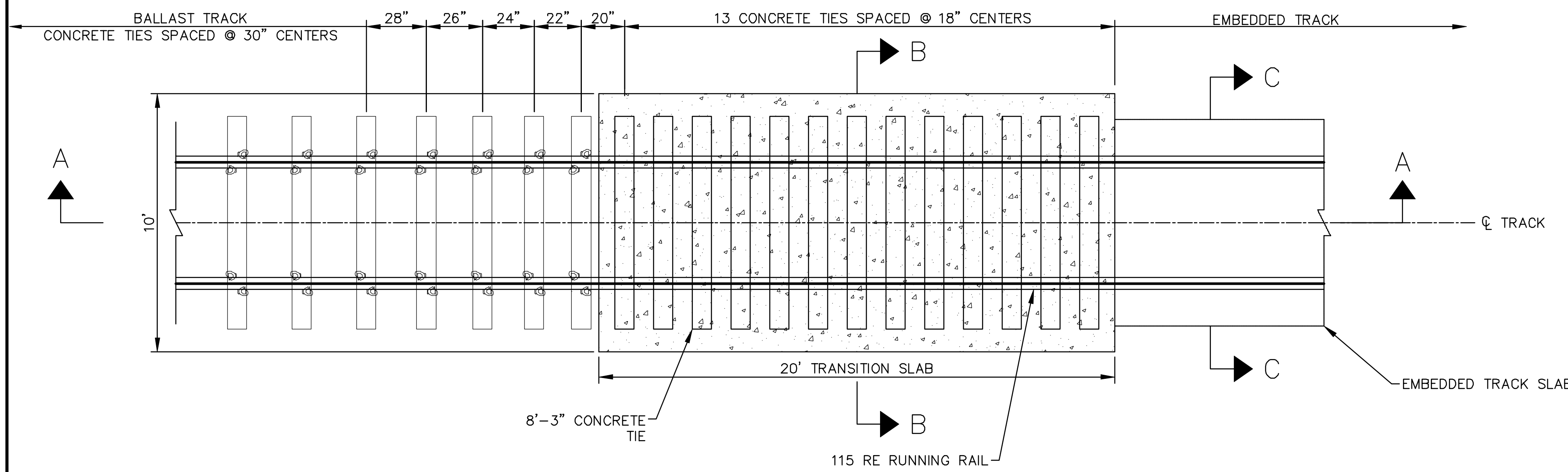
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

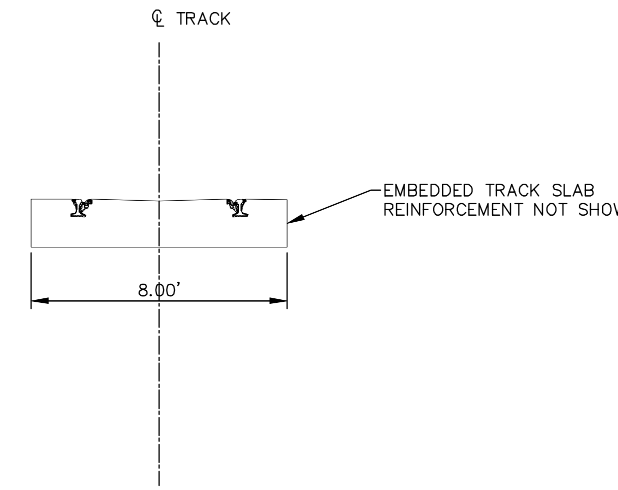
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: **TRACK**

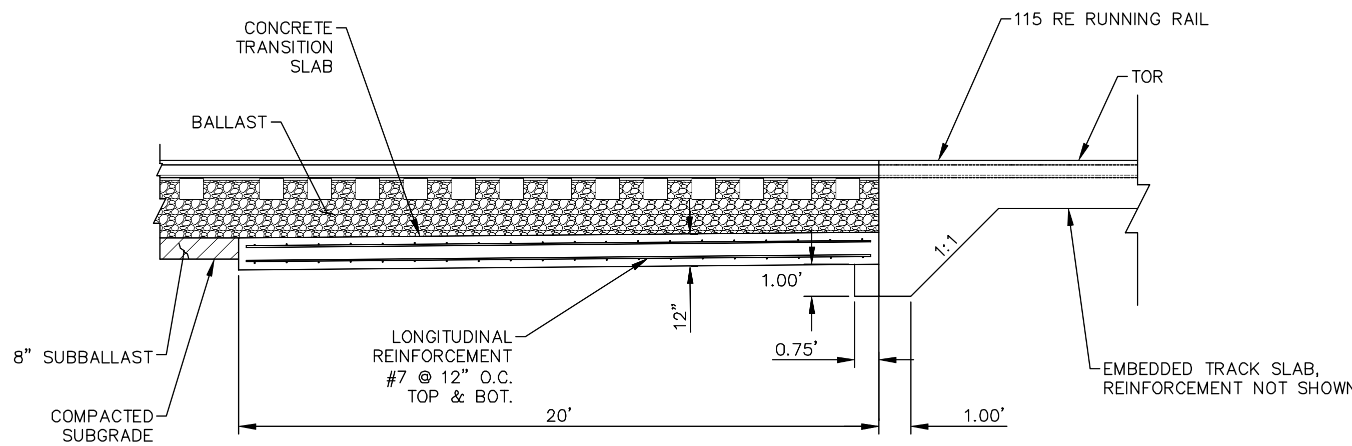
SHEET NAME: **E1-TRK-DTL - 303**

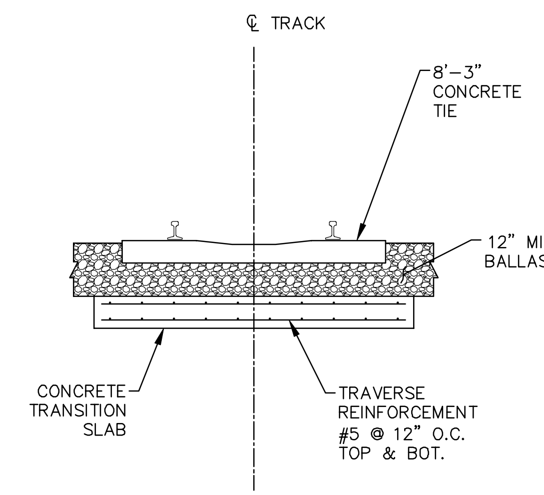


PLAN VIEW



SECTION C-C





SECTION B-B

NOTE:

1. DRAIN TILE NOT SHOWN FOR CLARITY.

SECTION A-A

BALLAST TRACK TRANSITION SLAB AT EMBEDDED
(NTS)

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PRELIMINARY ENGINEERING

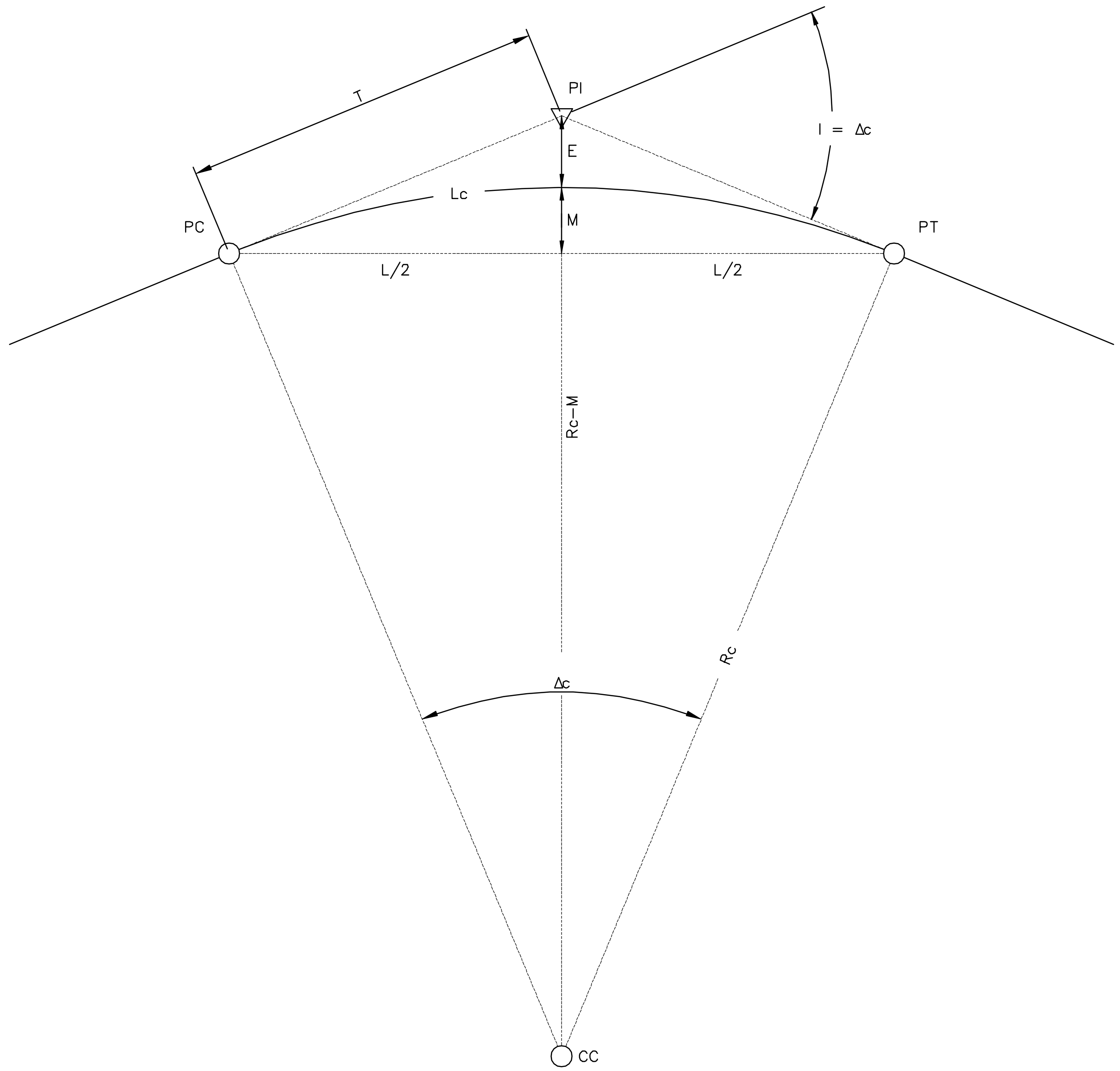
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: **TRACK**

SHEET NAME: **E1-TRK-DTL - 304**



SIMPLE CURVE DIAGRAM

DEFINITIONS

Dc = DEGREE OF CURVE IN ARC DEFINITION (DECIMAL DEGREES)
Rc = RADIUS OF CURVE (FEET)
Lc = LENGTH OF CURVE ALONG THE ARC (FEET)
Δc = CENTRAL ANGLE OF CURVE (DECIMAL DEGREES)
E = EXTERNAL DISTANCE (FEET)
T = TANGENT DISTANCE (FEET)
M = MIDDLE ORDINATE (FEET)
L = CHORD LENGTH (FEET)
I = DEFLECTION ANGLE (DECIMAL DEGREES)
PC = POINT OF CURVE
PT = POINT OF TANGENT
PI = POINT OF INTERSECTION
CC = CENTER OF CURVE

SIMPLE CURVE FORMULAS

$$\frac{Dc}{360^\circ} = \frac{100}{2\pi\ Rc}$$

$$Dc = \frac{5729.58'}{Rc}$$

$$Lc = \frac{\pi Rc \Delta c}{180}$$

$$T = Rc\ TAN\ \tfrac{I}{2}$$

$$E = Rc\ SEC\tfrac{I}{2} - Rc$$

$$M = Rc - Rc\ COS\tfrac{I}{2}$$

$$L = 2\ Rc\ SIN\tfrac{I}{2}$$

NOTE
THIS DRAWING IS APPLICABLE TO SIMPLE CURVES WITHOUT TRANSITION SPIRALS AND SHALL ONLY BE USED ON NON-REVENUE TRACK.

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PRELIMINARY ENGINEERING

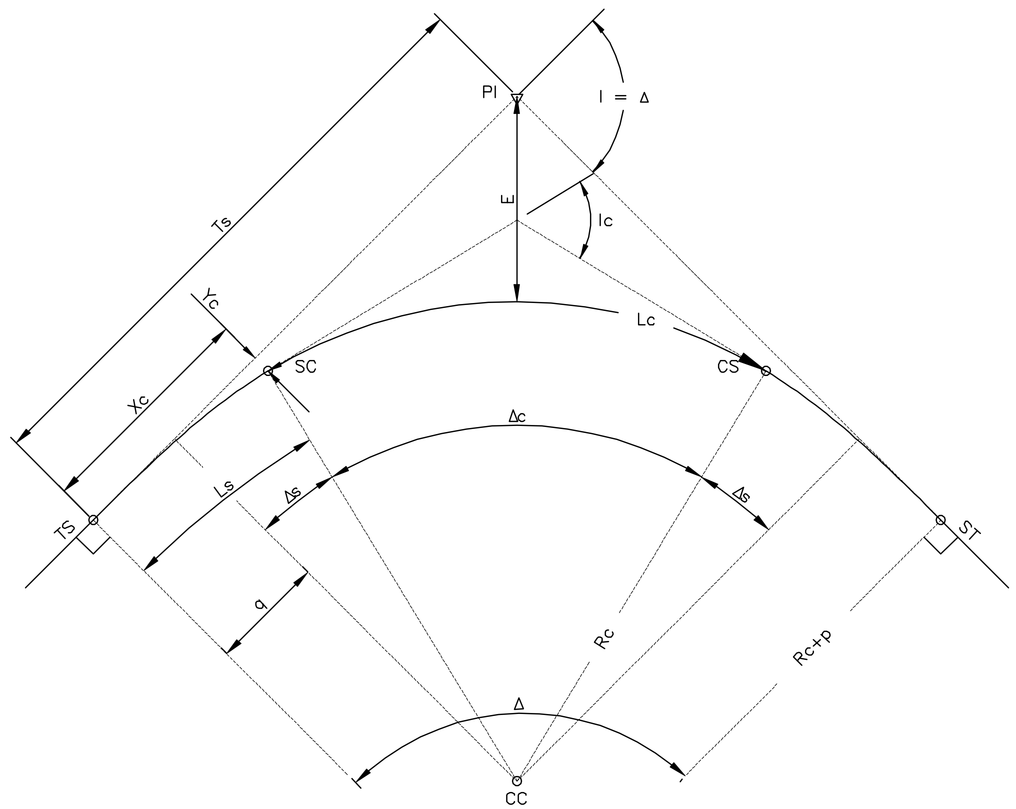
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

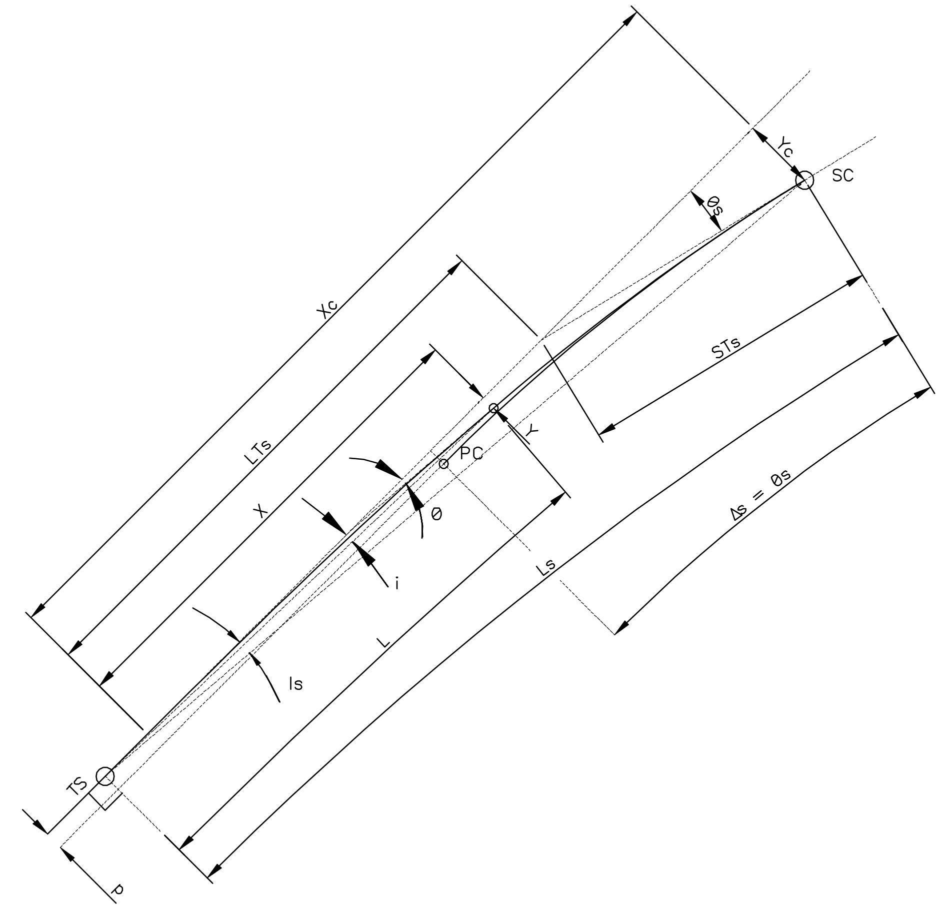
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-DTL - 401



SPIRAL CURVE DIAGRAM



SPIRAL DIAGRAM

DEFINITIONS

- Dc = DEGREE OF SIMPLE CURVE IN ARC DEFINITION (DEGREES)
- Rc = RADIUS OF CURVE (FEET)
- Δ = TOTAL CENTRAL ANGLE OF CURVE (DEGREES)
- Δc = CENTRAL ANGLE OF SIMPLE CURVE (DEGREES)
- Δs = CENTRAL ANGLE OF SPIRAL (RADIANS)
- E = EXTERNAL DISTANCE OF THE SIMPLE CURVE (FEET)
- Ts = TOTAL TANGENT DISTANCE (FEET)
- Ls = LENGTH OF SPIRAL (FEET)
- Lc = LENGTH OF THE SIMPLE CURVE ARC (FEET)
- L = LENGTH FROM TS TO ANY POINT ALONG THE SPIRAL (FEET)
- I = TOTAL DEFLECTION ANGLE (DEGREES)
- Ic = DEFLECTION ANGLE OF THE SIMPLE CURVE (DEGREES)
- Is = DEFLECTION ANGLE OF THE SPIRAL (DEGREES)
- i = DEFLECTION ANGLE FROM TS TO ANY POINT ON THE SPIRAL
- p = LENGTH OF THROW, OFFSET DISTANCE FROM TANGENT TO PC/PT
- q = DISTANCE FROM TS/ST TO THE OFFSET TC/CT
- Xc = DISTANCE ALONG TANGENT FROM TS/ST TO THE SC/CS (FEET)
- Yc = OFFSET DISTANCE FROM TANGENT TO SC/CS (FEET)
- X = DISTANCE ALONG TANGENT FROM TS/ST TO ANY POINT ON THE SPIRAL
- Y = OFFSET DISTANCE FROM TANGENT TO ANY POINT ON THE SPIRAL
- θs = SPIRAL ANGLE FROM TANGENT TO SC
- θ = SPIRAL ANGLE FROM TANGENT TO ANY POINT ON THE SPIRAL
- LTs = LONG TANGENT OF SPIRAL (FEET)
- STs = SHORT TANGENT OF SPIRAL (FEET)
- TS = POINT OF TANGENT TO SPIRAL CURVE
- SC = POINT OF SPIRAL CURVE TO SIMPLE CURVE
- CS = POINT OF SIMPLE CURVE TO SPIRAL CURVE
- ST = POINT OF SPIRAL CURVE TO TANGENT
- PC = POINT OF CURVE
- PT = POINT OF TANGENT
- PI = POINT OF INTERSECTION
- CC = CENTER OF CURVE

FORMULAS

$$\Delta = \Delta c + 2\Delta s$$

$$\Delta s = \frac{Ls}{2Rc}$$

$$i = \frac{\theta}{3}$$

$$X = L - \frac{L^5}{40Rc^2 Ls^2}$$

$$Xc = Ls - \frac{Ls^3}{40Rc^2}$$

$$Y = \frac{L^3}{6RcLs}$$

$$Yc = \frac{Ls^2}{6Rc}$$

$$q = Xc - Rc\ SIN\Delta s$$

$$p = \tfrac{1}{4}Yc = \frac{Ls^2}{24Rc}$$

$$Ts = (Rc + p)\ TAN\tfrac{\Delta}{2} + q$$

$$E = \frac{Rc + p}{COS\frac{\Delta}{2}} - Rc$$

$$LTs = Xc - \frac{Yc}{TAN\Delta s}$$

$$STs = \frac{Yc}{SIN\Delta s}$$

$$\frac{Dc}{360^\circ} = \frac{100}{2\pi\ Rc}$$

$$Dc = \frac{5729.58'}{Rc}$$

$$Lc = \frac{\pi Rc \Delta c}{180}$$

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PRELIMINARY ENGINEERING

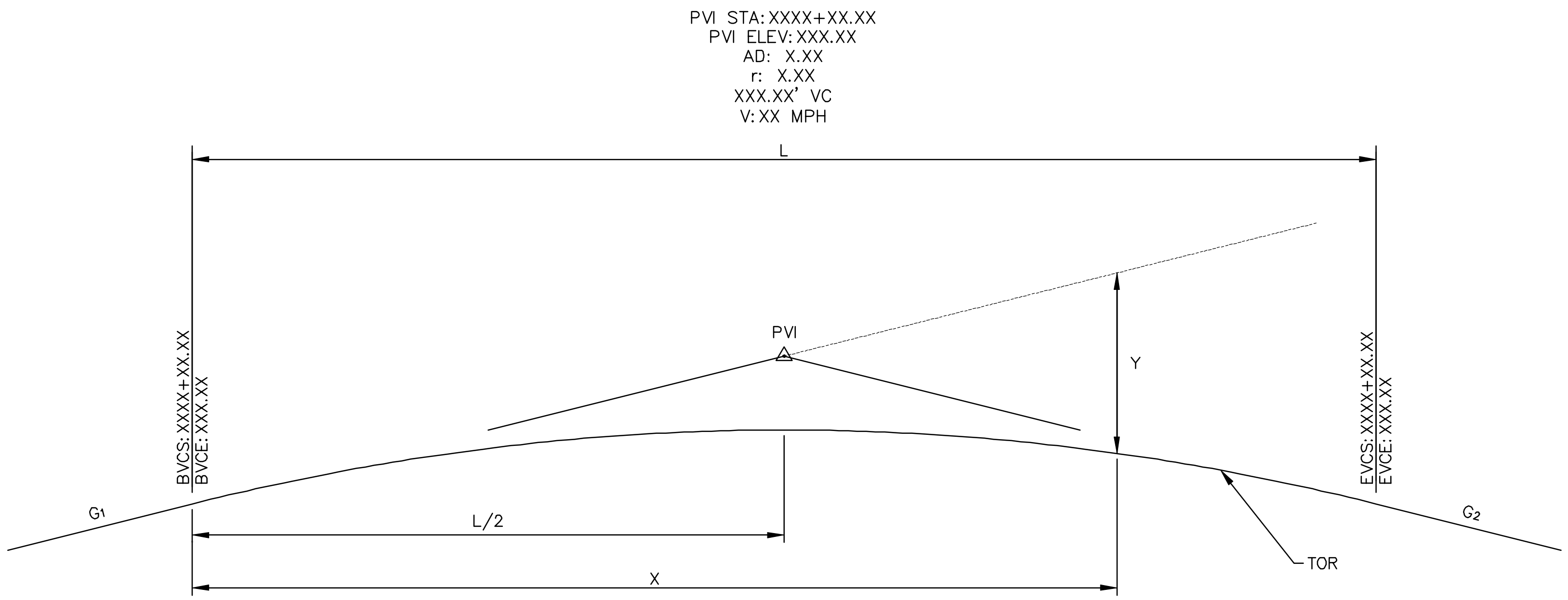
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

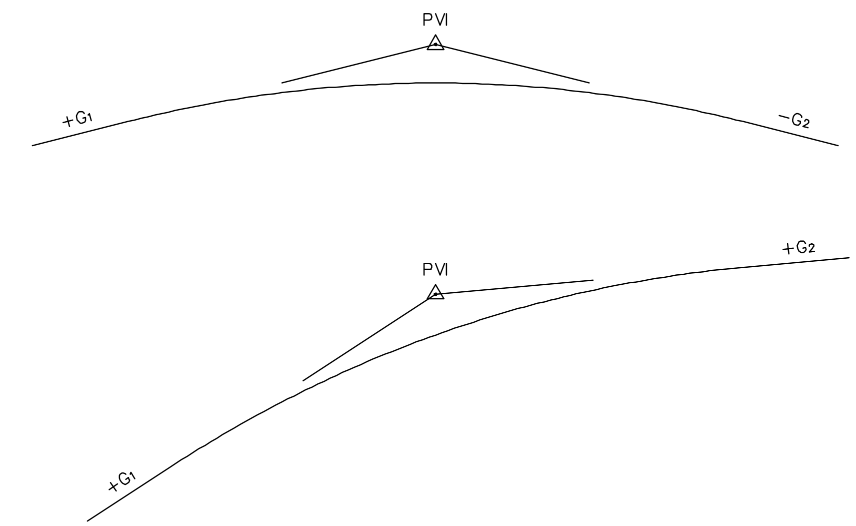
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-DTL - 402



STANDARD VERTICAL CURVE



CREST TYPE VERTICAL CURVES

DEFINITIONS

G_1 =	ENTRY GRADE %
G_2 =	DEPARTING GRADE %
PVI =	POINT OF VERTICAL INTERSECTION
AD =	ALGEBRAIC DIFFERENCE
r =	RATE OF CHANGE OF GRADE
L =	LENGTH OF VERTICAL CURVE
V =	DESIGN VELOCITY (MPH)
BVCS =	BEGIN VERTICAL CURVE STATION
BVCE =	BEGIN VERTICAL CURVE ELEVATION
EVCS =	END VERTICAL CURVE STATION
EVCE =	END VERTICAL CURVE ELEVATION
X =	HORIZONTAL DISTANCE FROM BVC
Y =	ELEVATION OF PARABOLA BELOW G_1
Rv =	EQUIVALENT RADIUS OF VERTICAL CURVE

FORMULAS

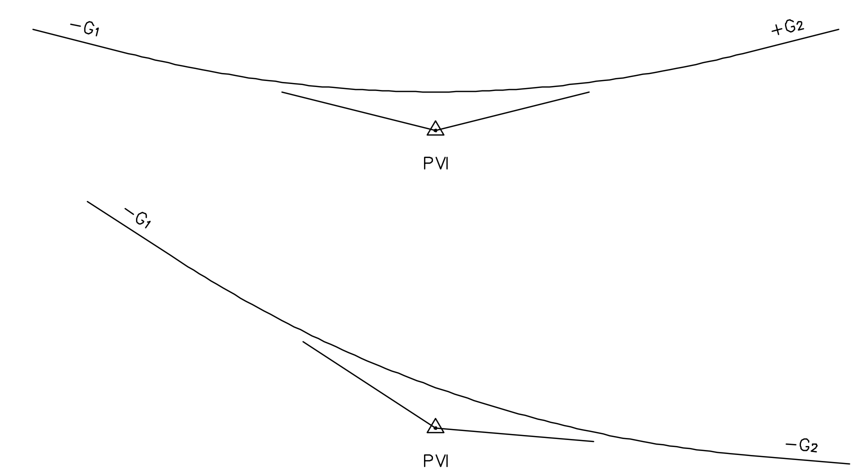
$$a = \frac{G_2 - G_1}{2L}$$

$$Y = BVCE + G_1X + aX^2$$

$$AD = G_2 - G_1$$

$$r = \frac{100\ AD}{L}$$

$$Rv = \frac{L}{0.01\ AD}$$



SAG TYPE VERTICAL CURVES

VERTICAL CURVE GEOMETRY

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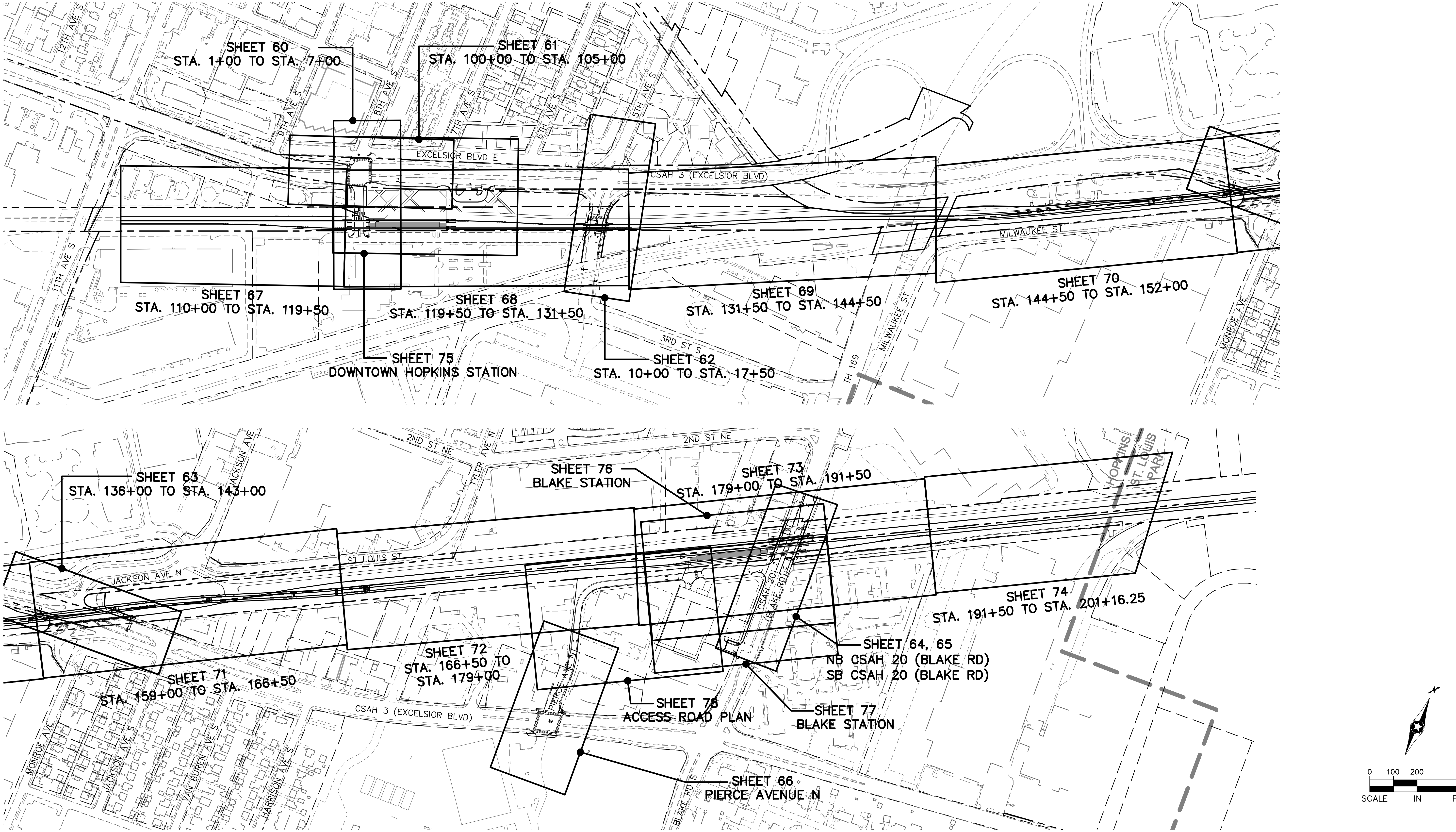
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: E1-TRK-DTL - 403



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METROPOLITAN COUNCIL

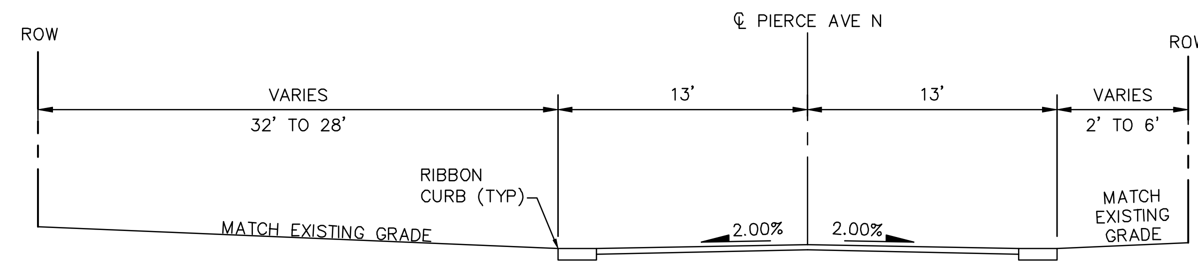
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
CIVIL
SHEET INDEX

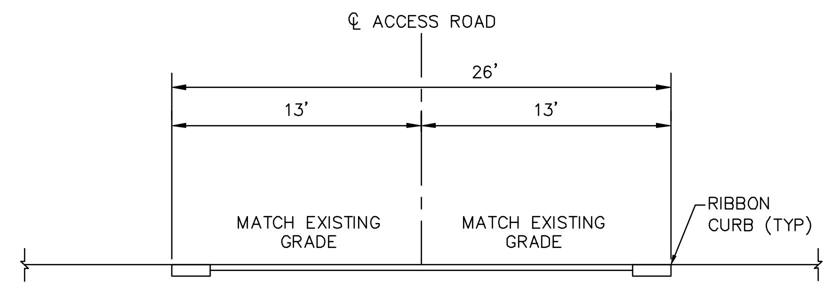
DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-IDX-001

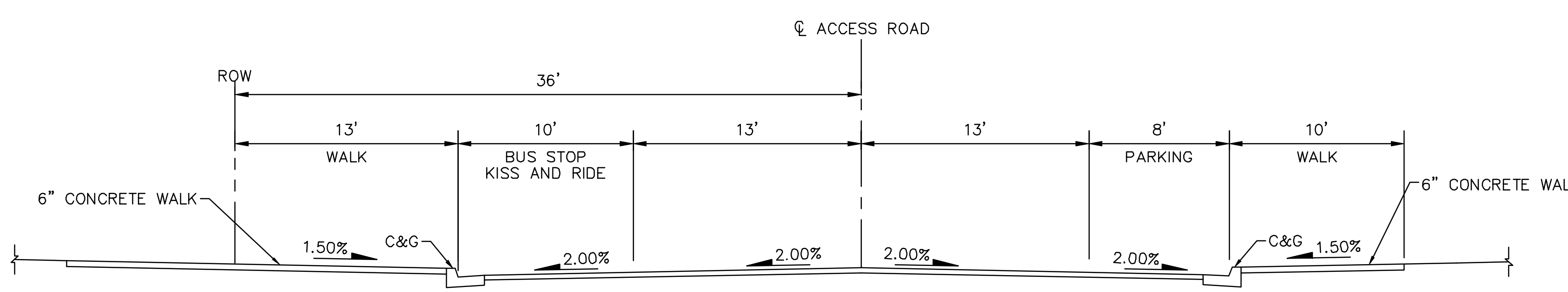
SHEET 58 OF 113



PIERCE AVE N
STA. 0+50 TO STA. 2+44



ACCESS ROAD–BLAKE STATION
STA. 2+44 TO STA. 9+82



ACCESS ROAD – BLAKE STATION
STA. 9+82 TO STA. 12+58

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
CIVIL
TYPICAL SECTIONS

DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-TYP-001

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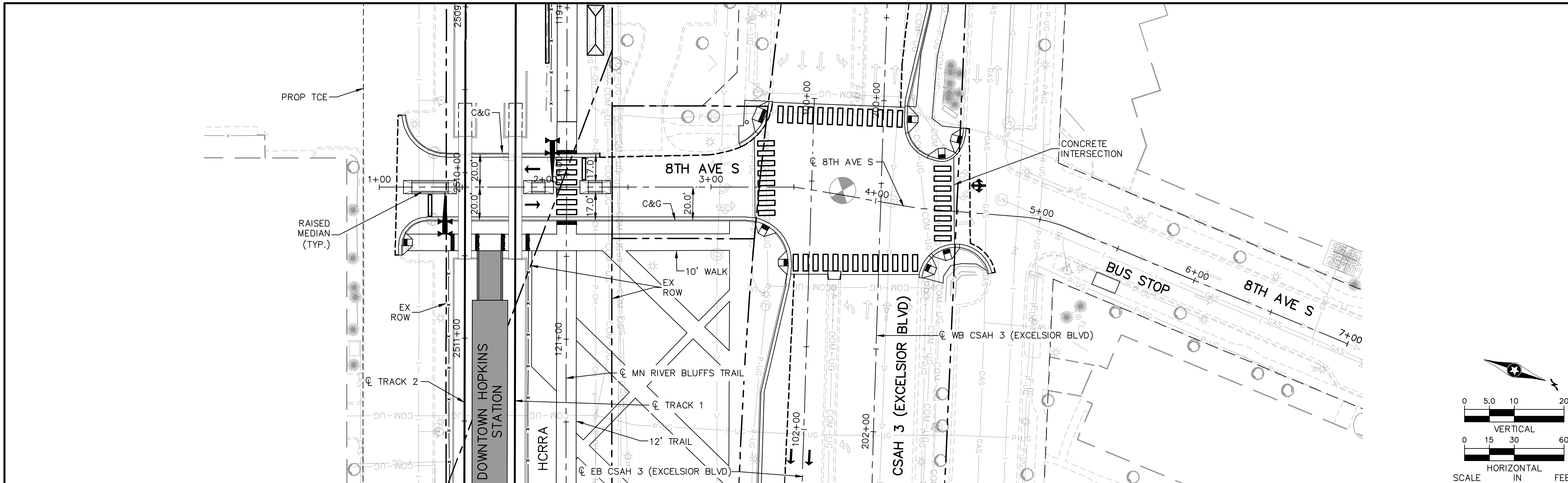

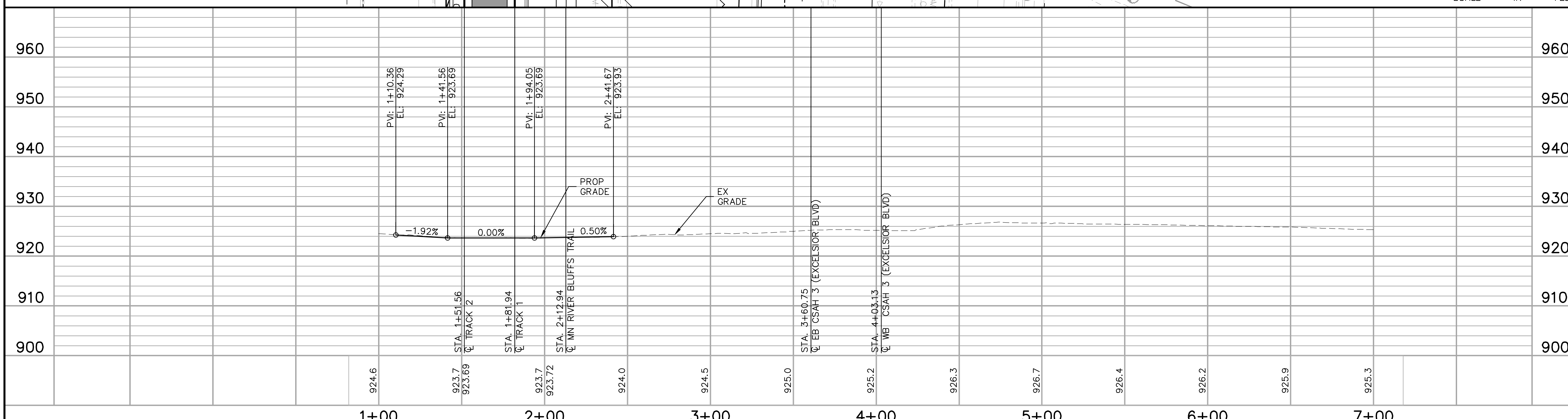

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PRELIMINARY ENGINEERING

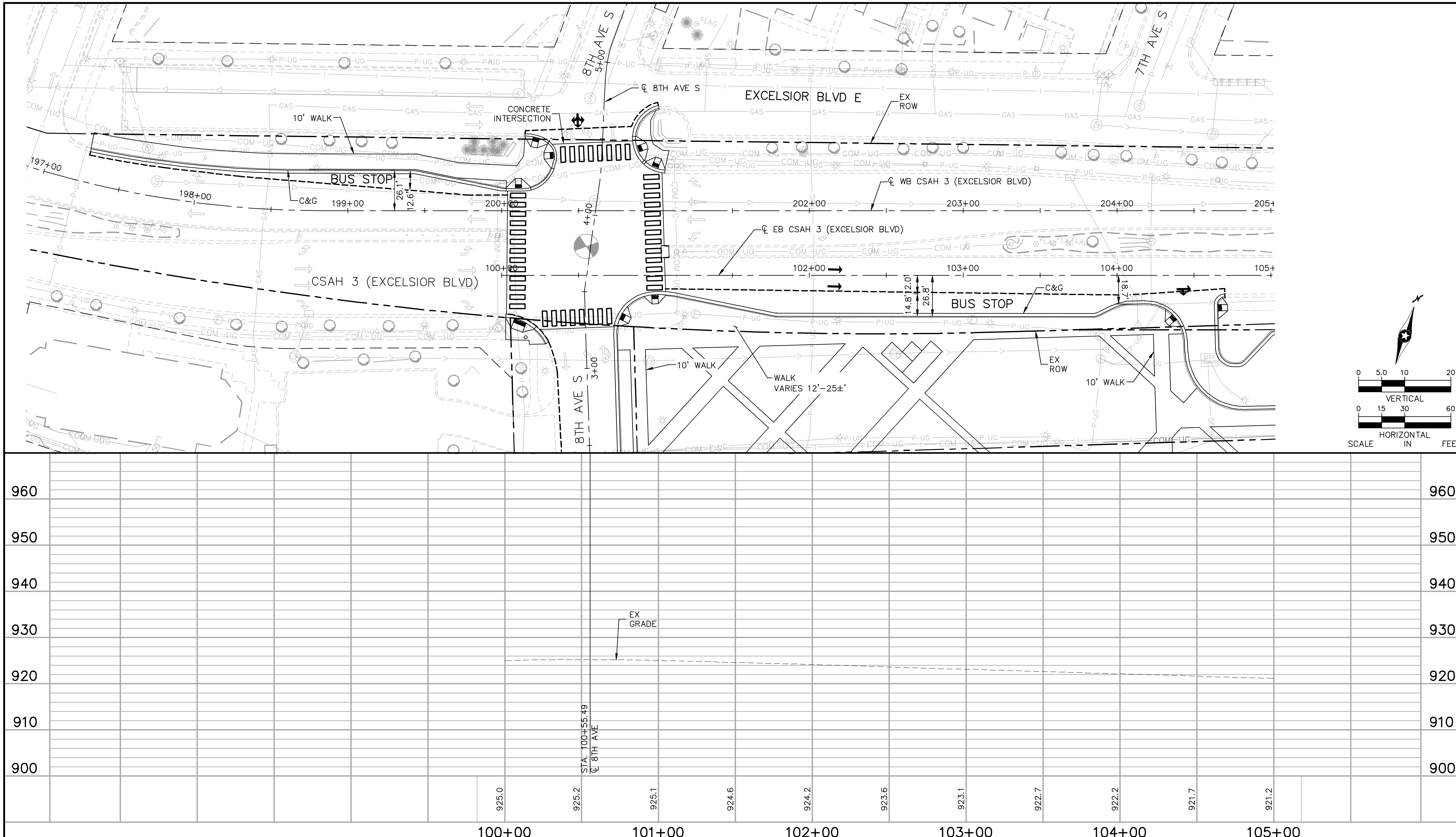
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
8TH AVE S
PLAN AND PROFILE
STA. 1+00 TO STA. 7+00

DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-PPFL-001



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PRELIMINARY ENGINEERING

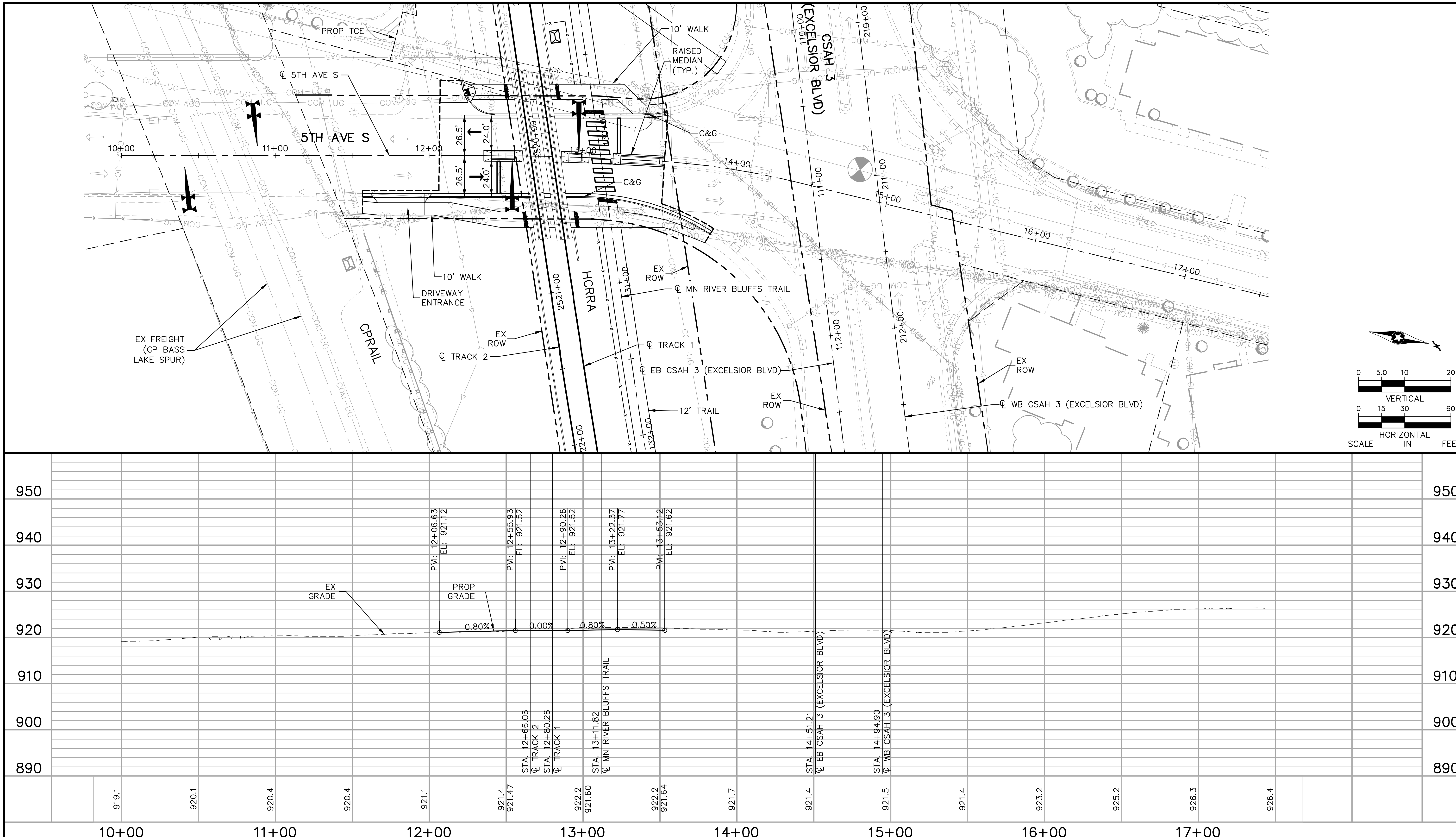
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EB CSAH 3 (EXCELSIOR BLVD)
PLAN AND PROFILE
STA. 100+00 TO STA. 105+00

DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-PPFL-003



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

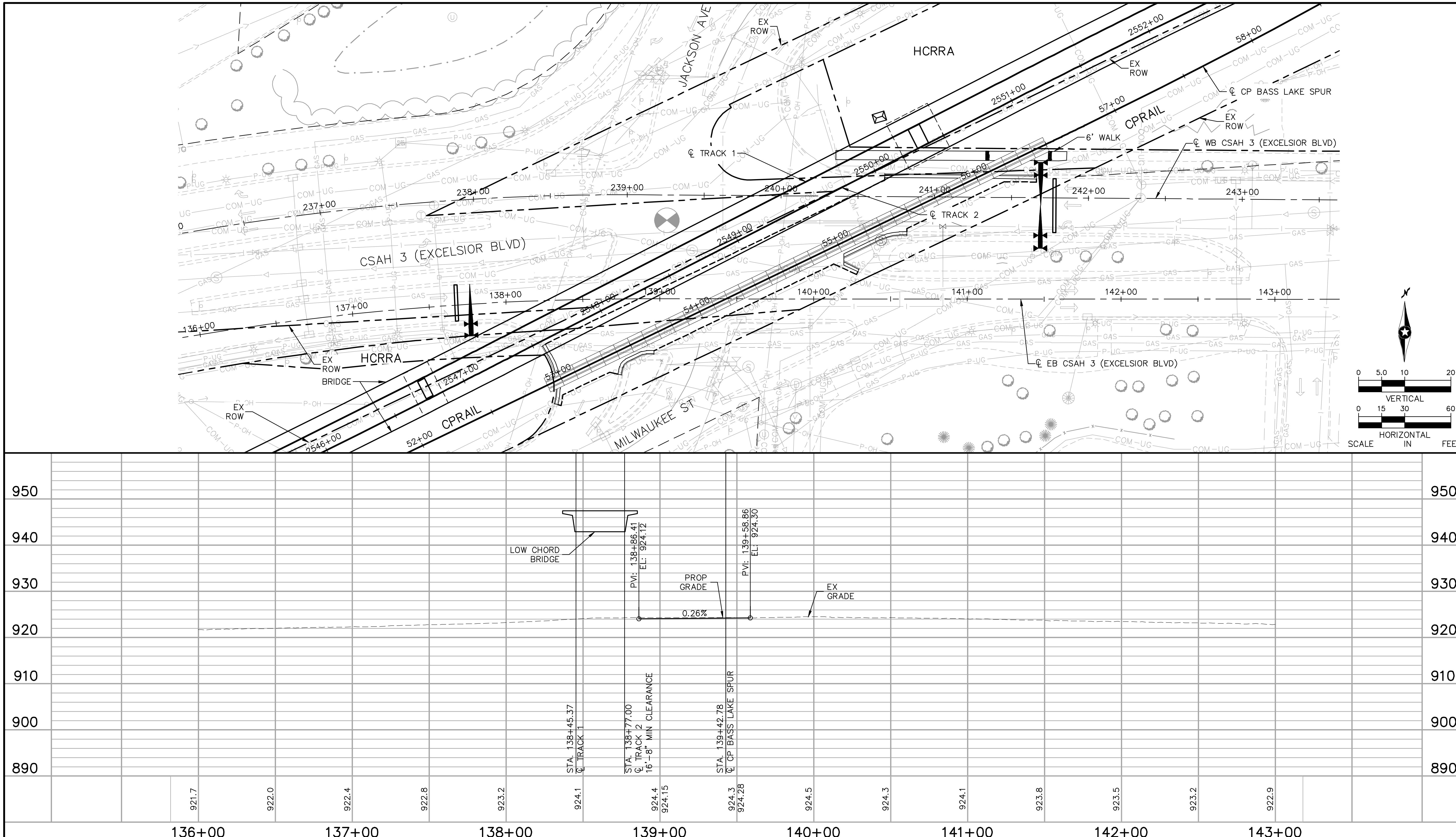
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
5TH AVE S
PLAN AND PROFILE
STA. 10+00 TO STA. 17+50

DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-PPFL-004



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PRELIMINARY ENGINEERING

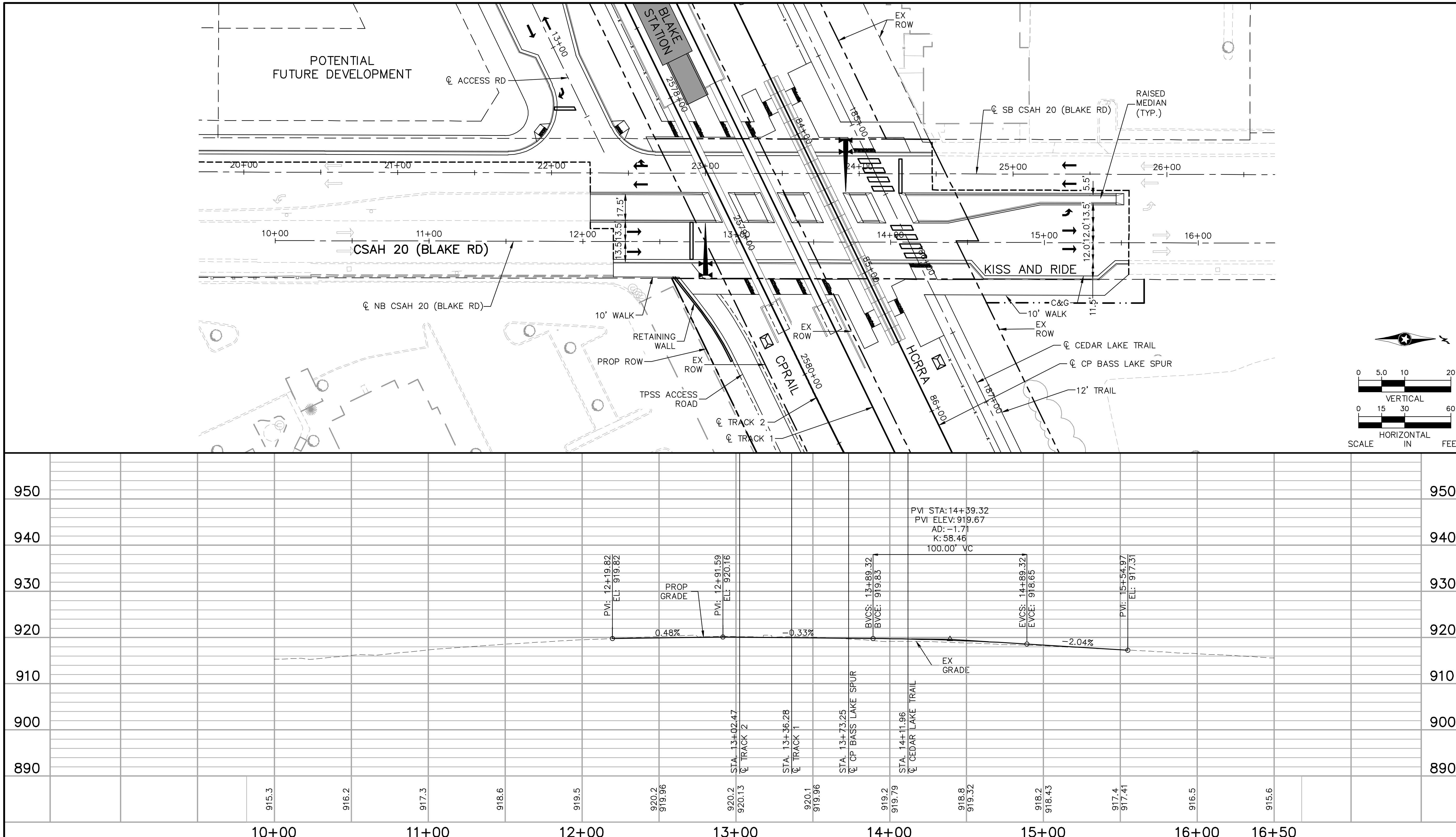
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
EB CSAH 3 (EXCELSIOR BLVD)
PLAN AND PROFILE
STA. 136+00 TO STA. 143+00

DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-PPFL-005



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PRELIMINARY ENGINEERING

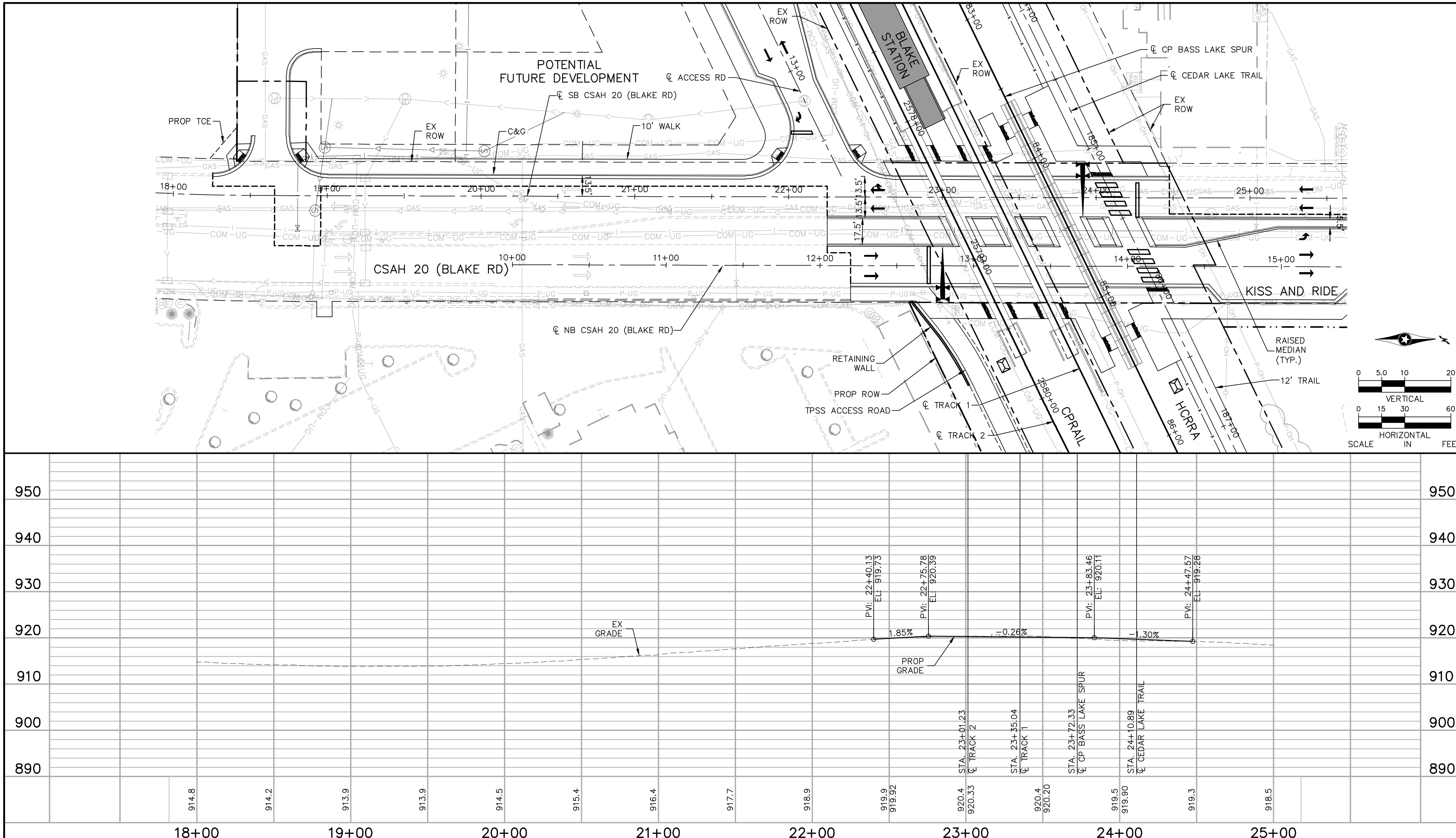
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
NB CSAH 20 (BLAKE RD)
PLAN AND PROFILE
STA. 10+00 TO STA. 16+00

DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-PPFL-006



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

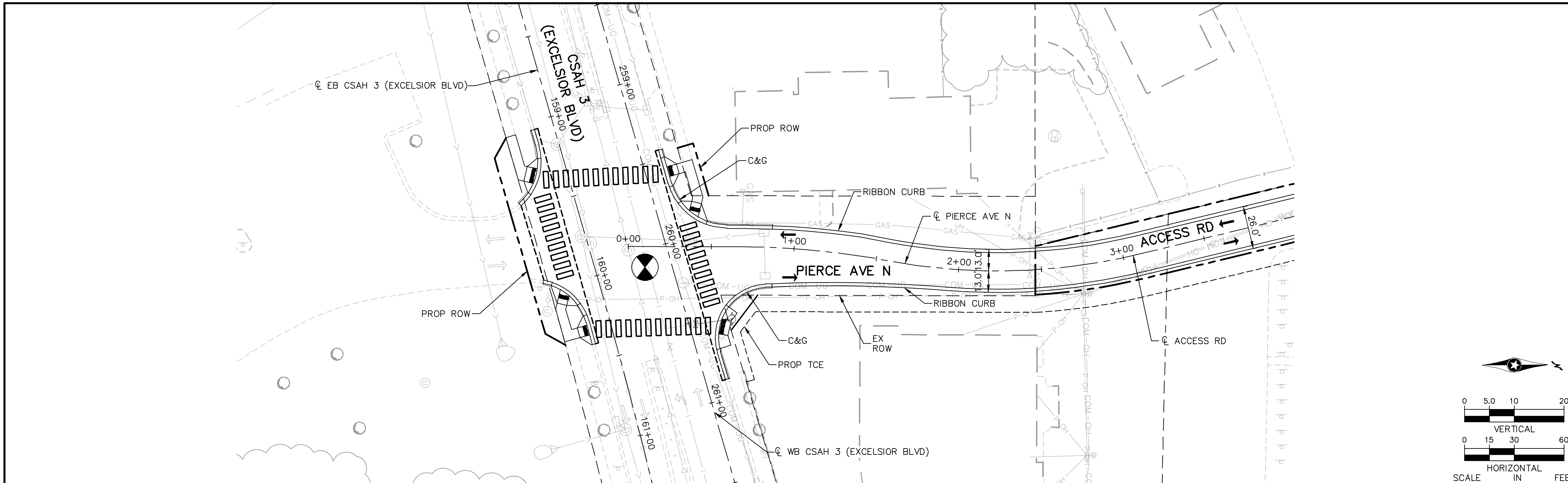
METROPOLITAN COUNCIL

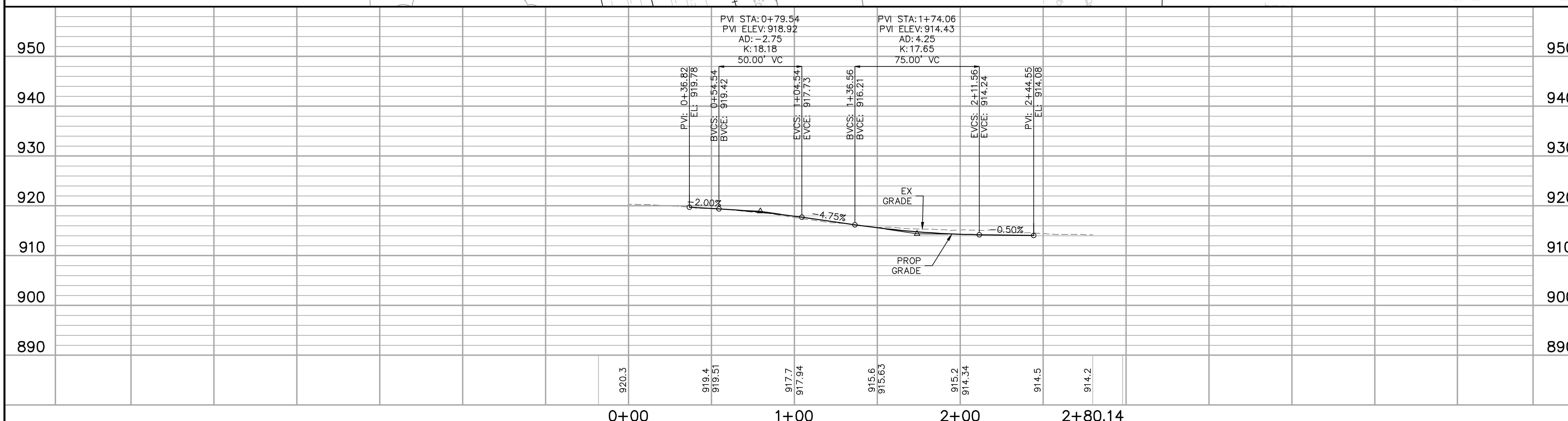
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SB CSAH 20 (BLAKE RD)
PLAN AND PROFILE
STA. 18+00 TO STA. 23+00

DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-PPFL-007





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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
PIERCE AVENUE N
PLAN AND PROFILE
STA. 0+00 TO STA. 2+80.14

DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-PPFL-008

SHEET 66 OF 113

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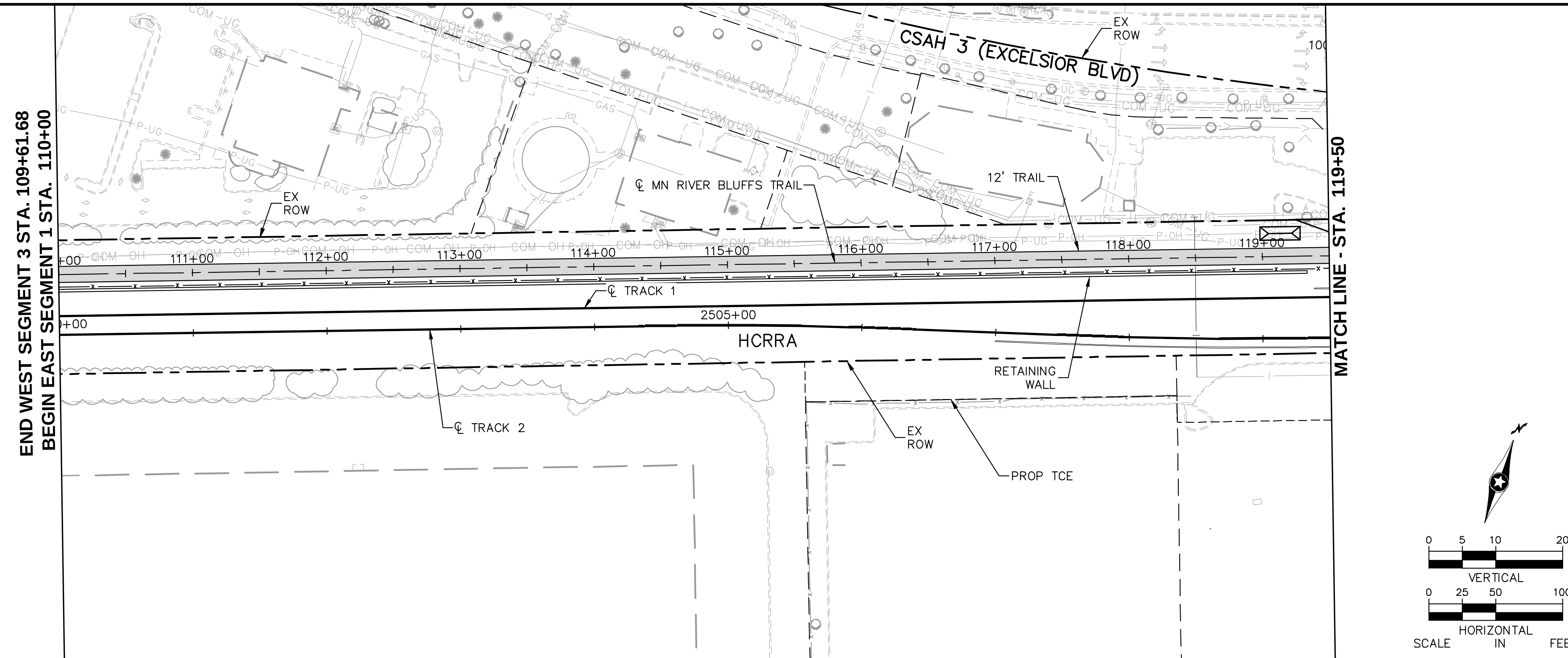

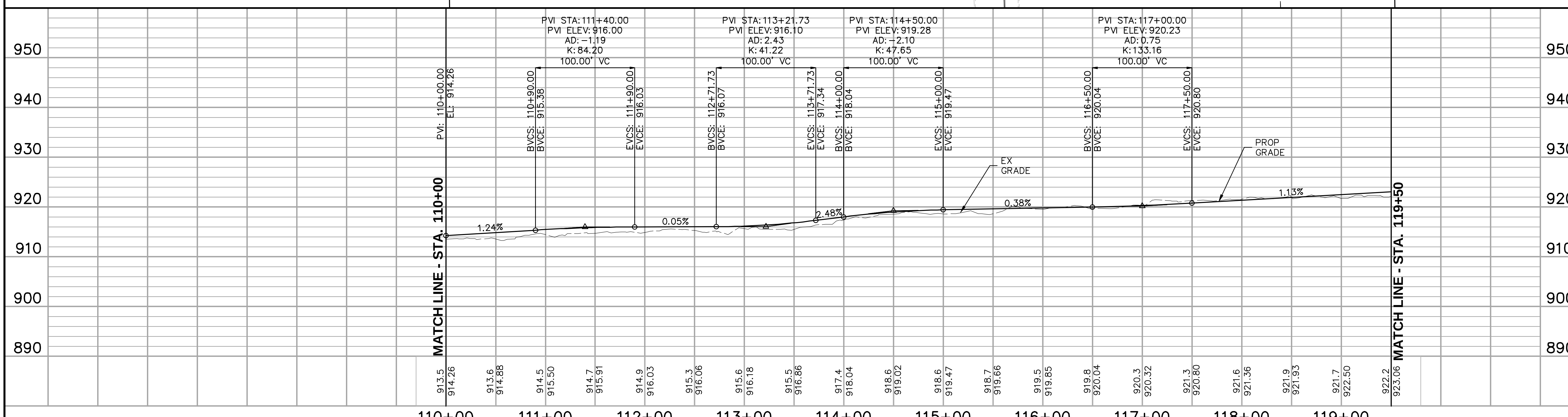

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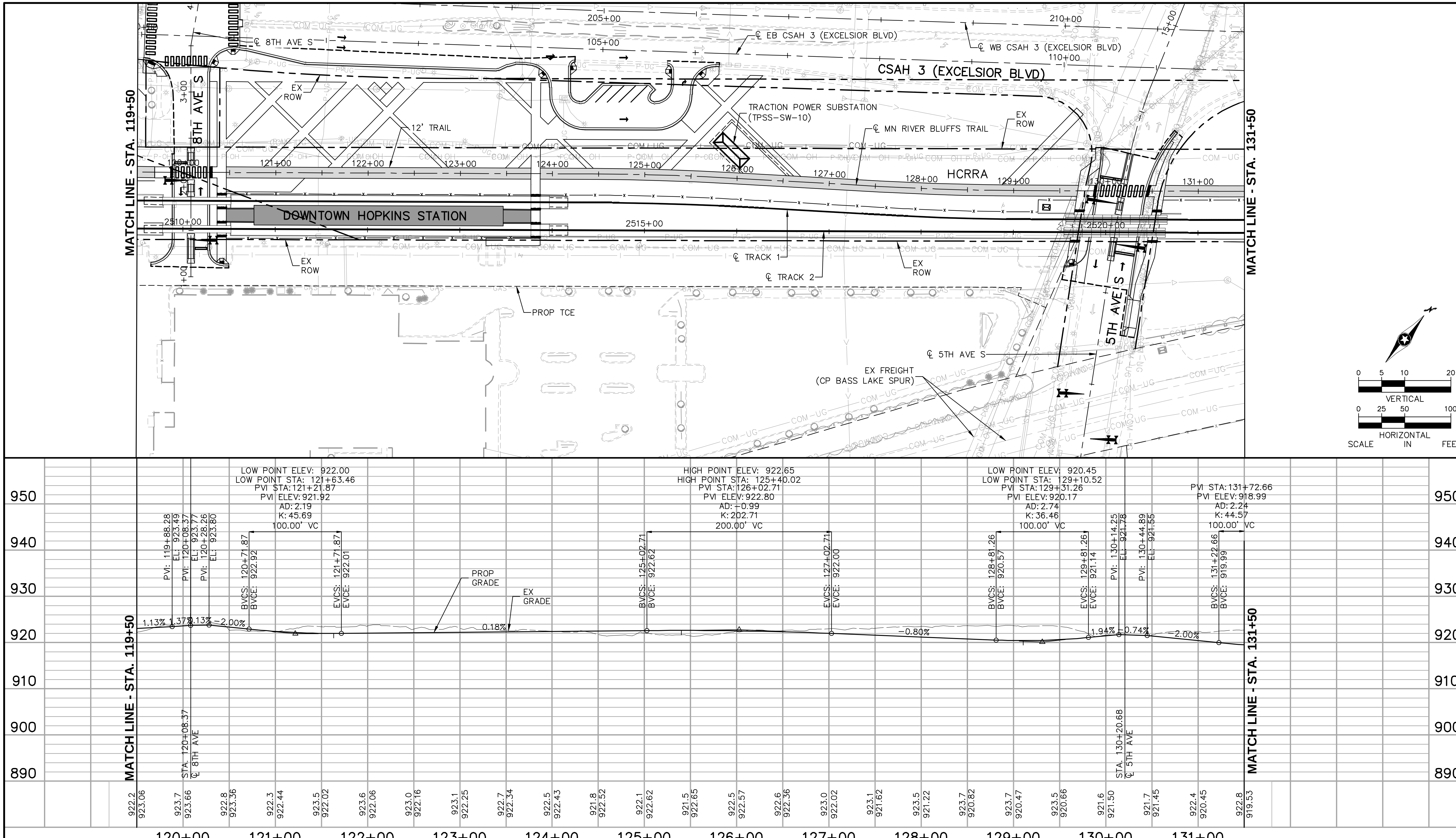
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
MN RIVER BLUFF TRAIL
PLAN AND PROFILE
STA. 110+00 TO STA. 119+50

DISCIPLINE: CIVIL

SHEET NAME: E1-TRL-PPFL-001



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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
MN RIVER BLUFF TRAIL
PLAN AND PROFILE
STA. 119+50 TO STA. 131+50

DISCIPLINE: CIVIL

SHEET NAME: E1-TRL-PPFL-002

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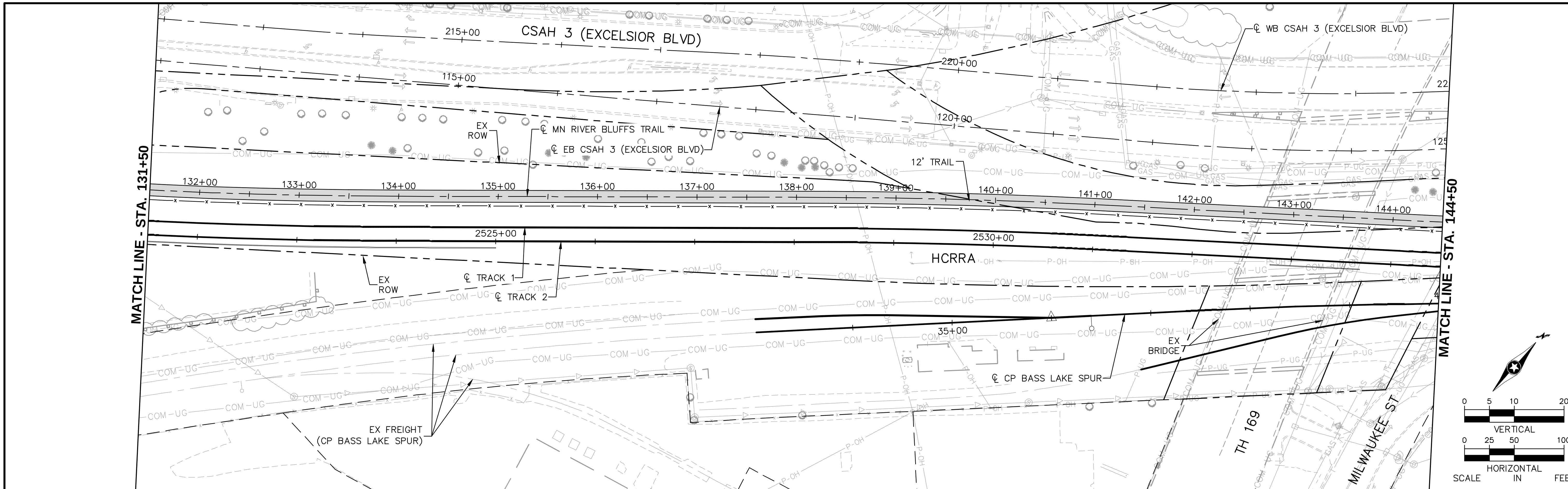

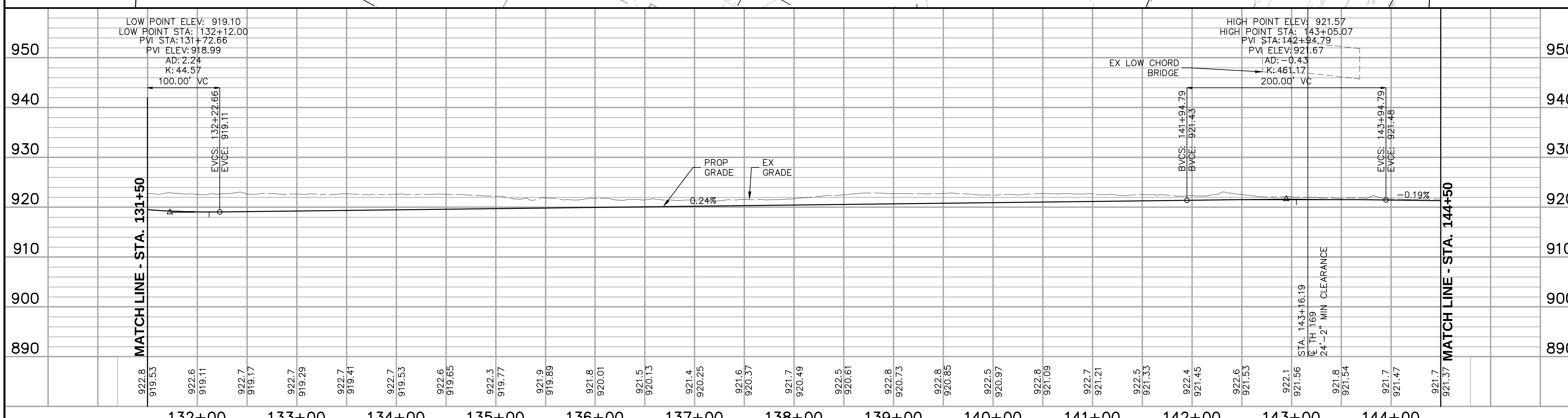

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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
MN RIVER BLUFF TRAIL
PLAN AND PROFILE
STA. 131+50 TO STA. 144+50

DISCIPLINE: CIVIL

SHEET NAME: E1-TRL-PPFL-003

SHEET 69 OF 113

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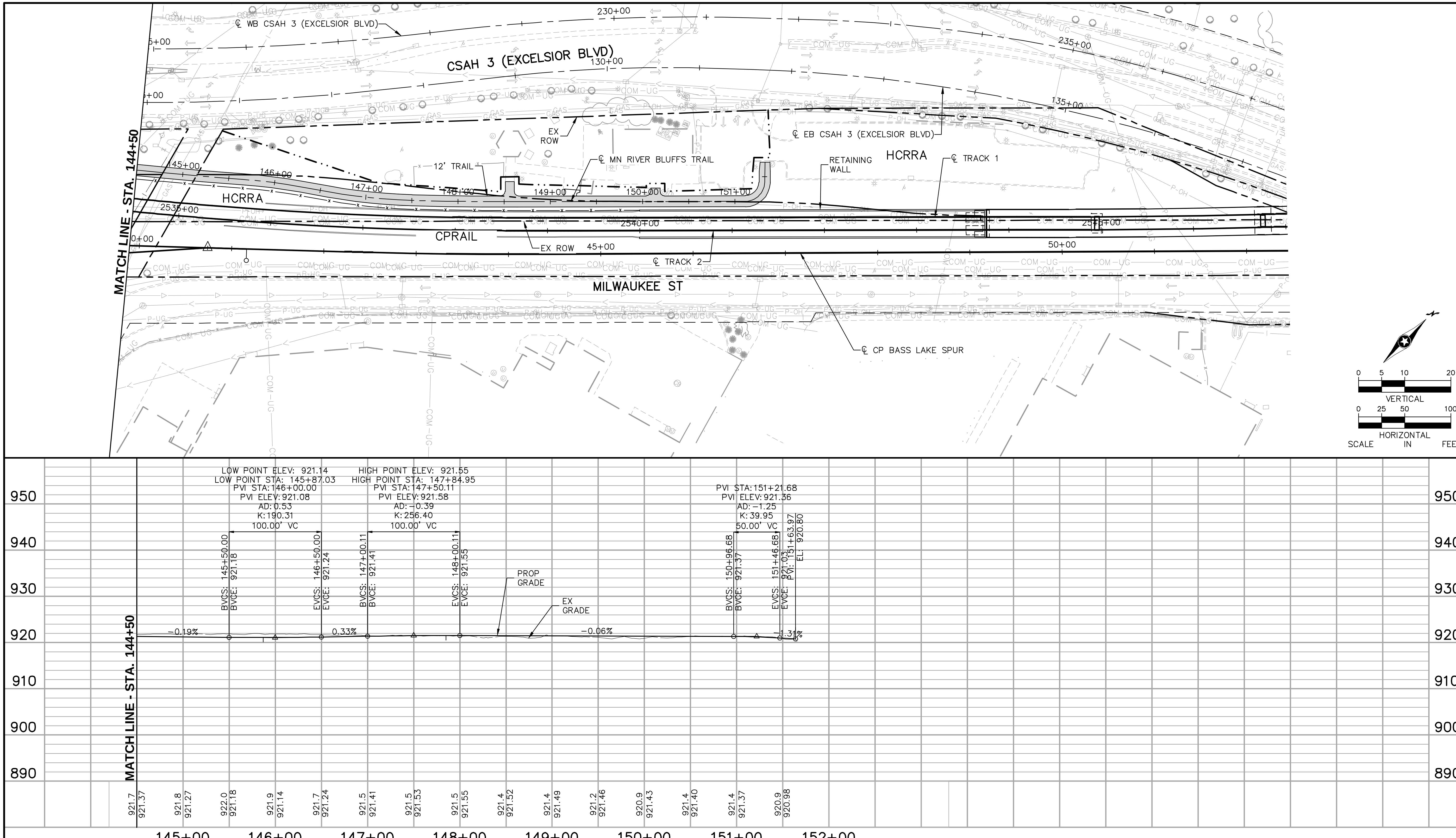

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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
MN RIVER BLUFF TRAIL
PLAN AND PROFILE
STA. 144+50 TO STA. 152+00

DISCIPLINE: CIVIL

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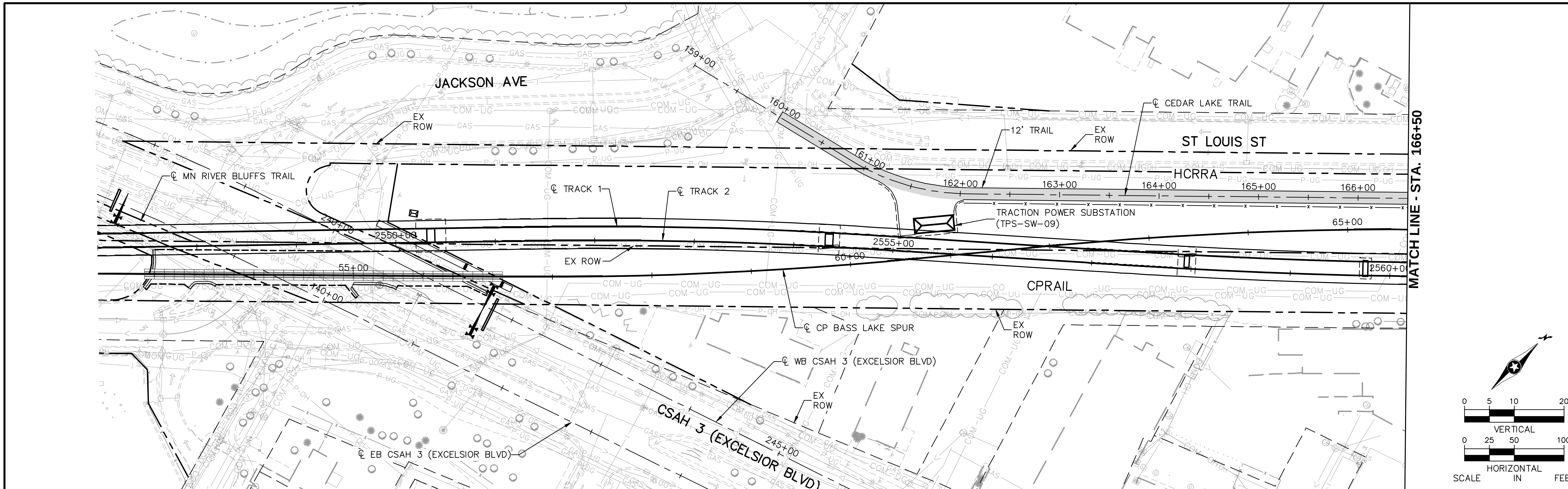

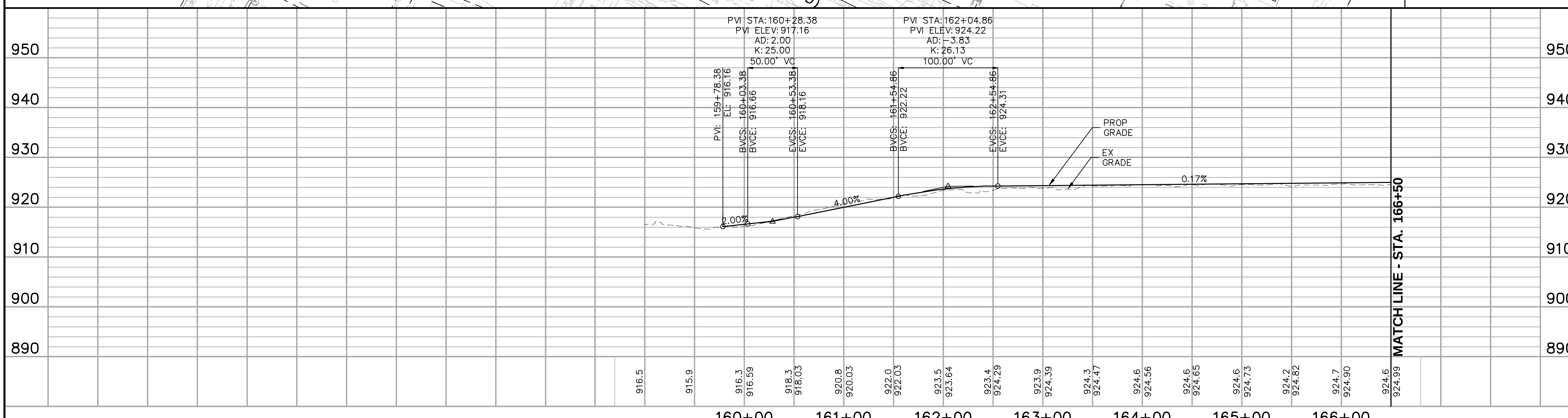

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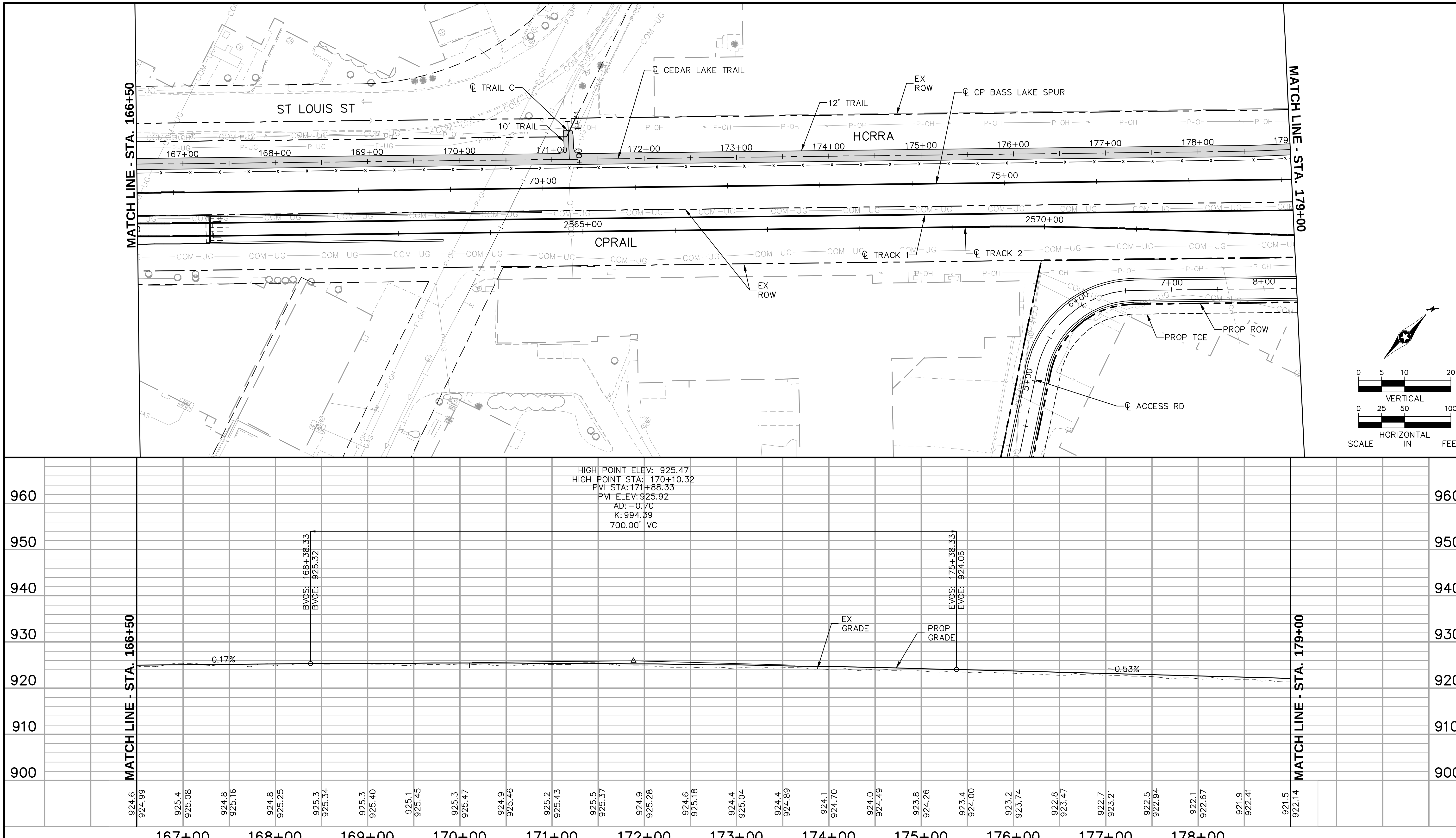
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
CEDAR LAKE TRAIL
PLAN AND PROFILE
STA. 159+00 TO STA. 166+50

DISCIPLINE: CIVIL

SHEET NAME: E1-TRL-PPFL-005



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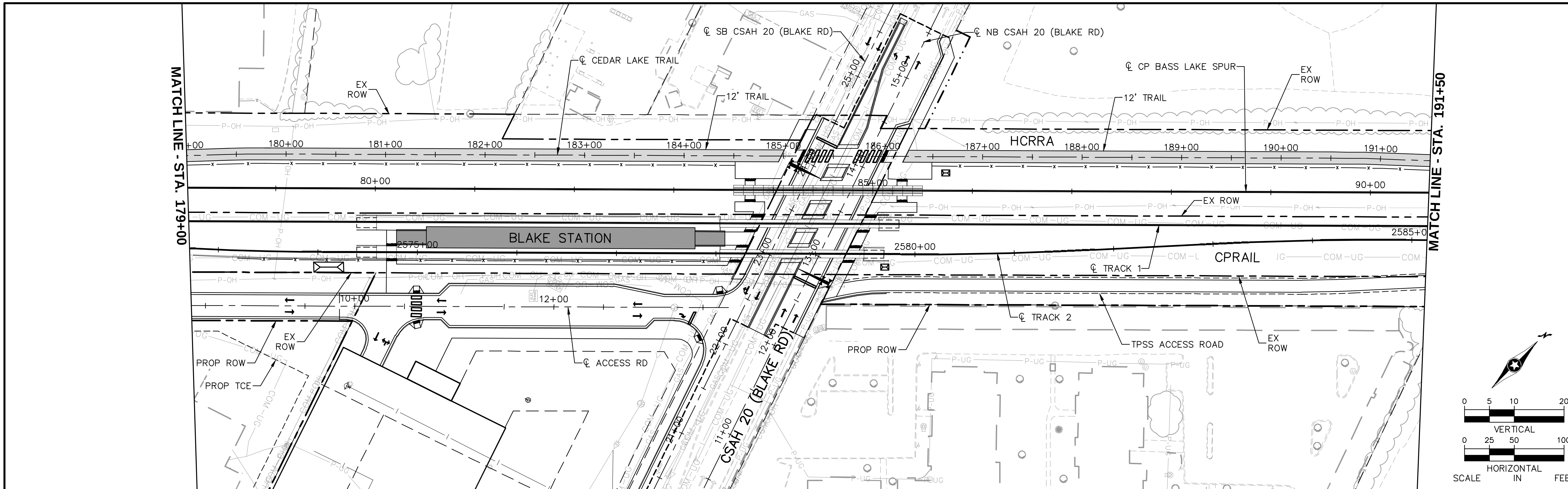
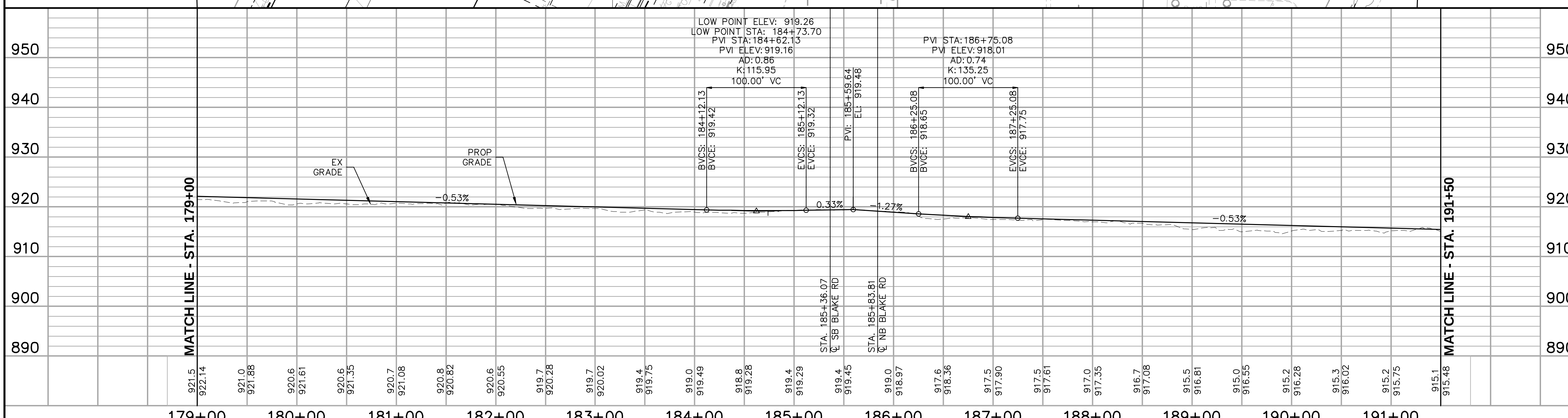
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
CEDAR LAKE TRAIL
PLAN AND PROFILE
STA. 166+50 TO STA. 179+00

DISCIPLINE: CIVIL

SHEET NAME: E1-TRL-PPFL-006





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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
CEDAR LAKE TRAIL
PLAN AND PROFILE
STA. 179+00 TO STA. 191+50

DISCIPLINE: CIVIL

SHEET NAME: E1-TRL-PPFL-007

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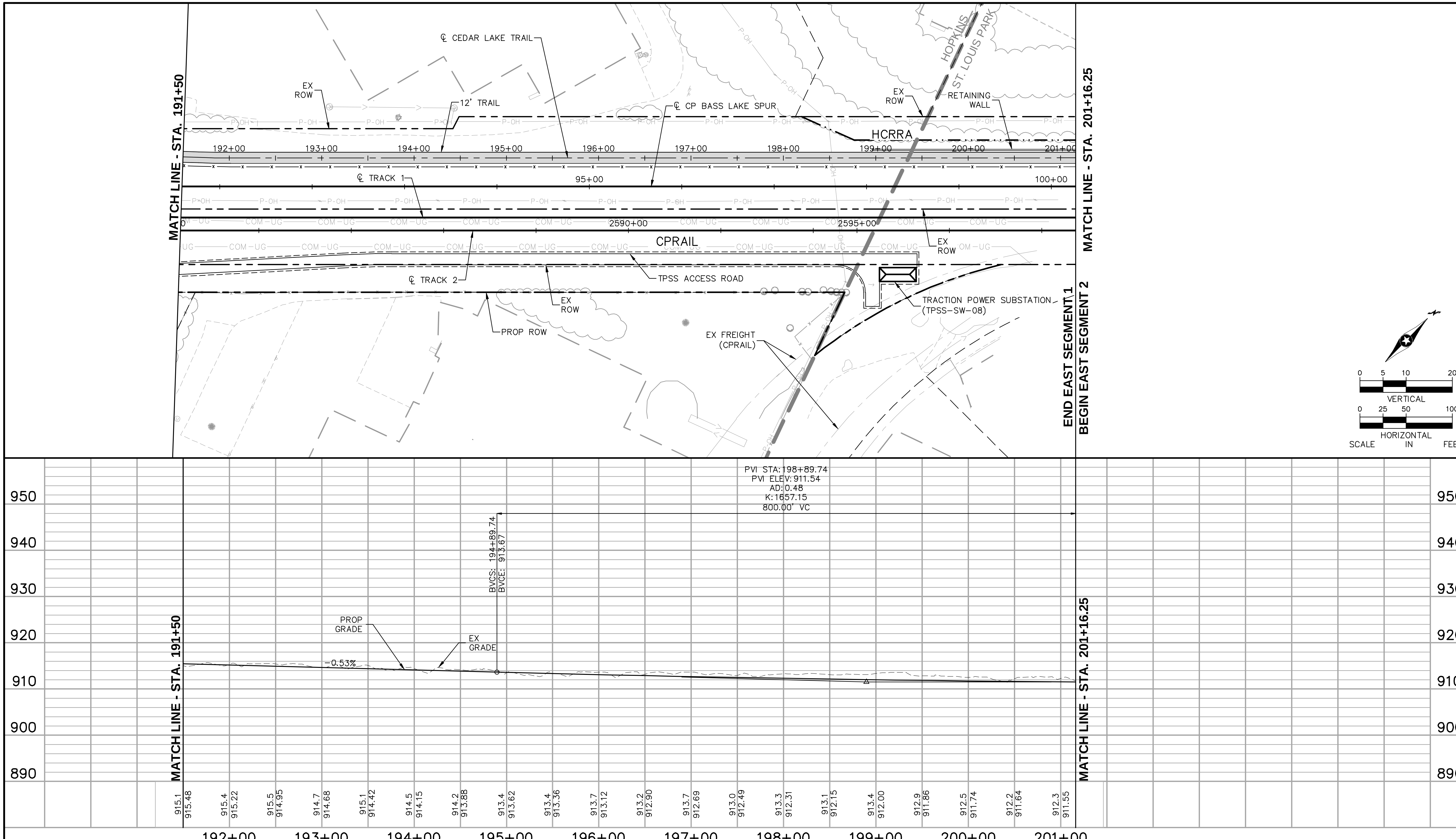

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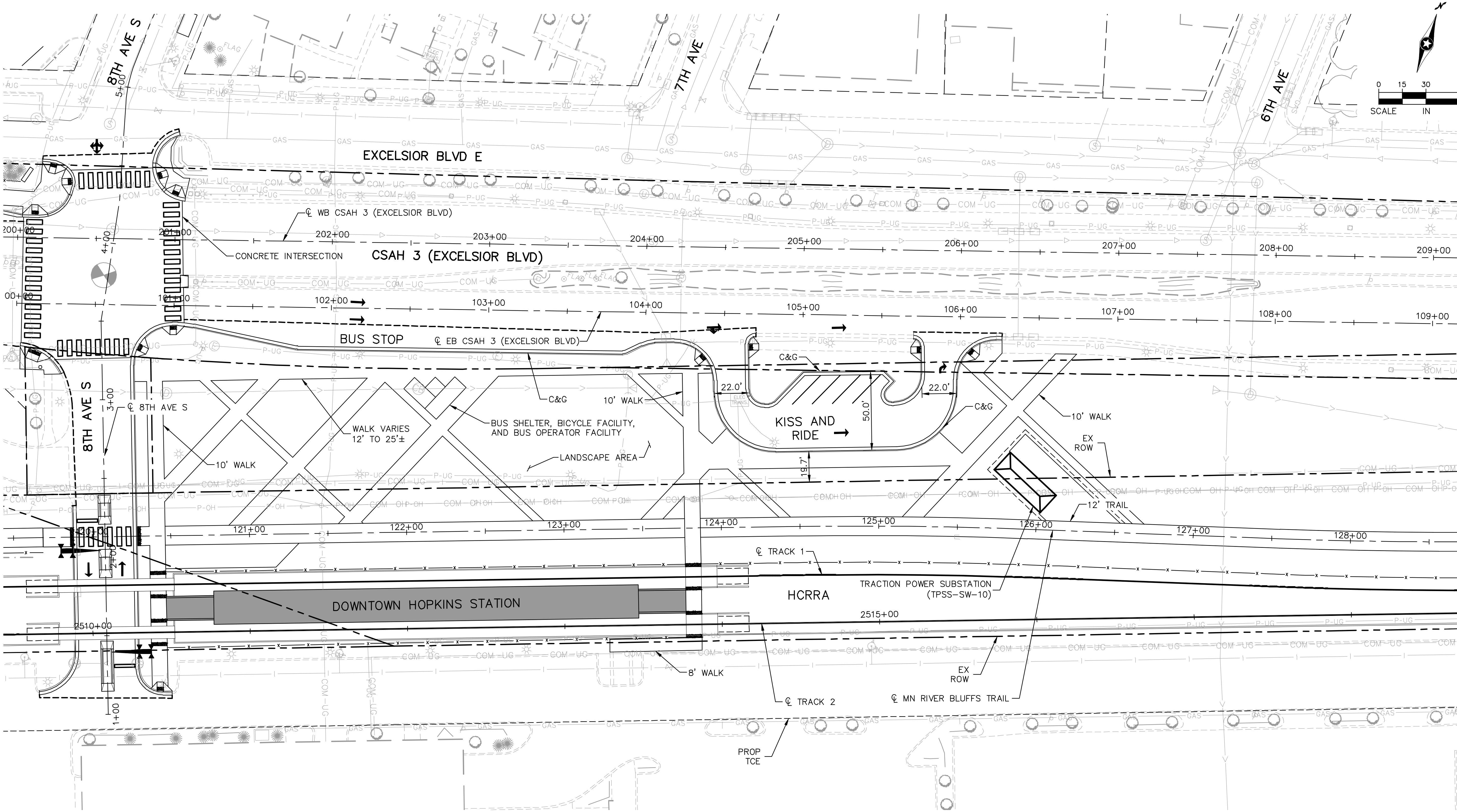
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
CEDAR LAKE TRAIL
PLAN AND PROFILE
STA. 191+50 TO STA. 201+16.25

DISCIPLINE: CIVIL

SHEET NAME: E1-TRL-PPFL-008

SHEET 74 OF 113



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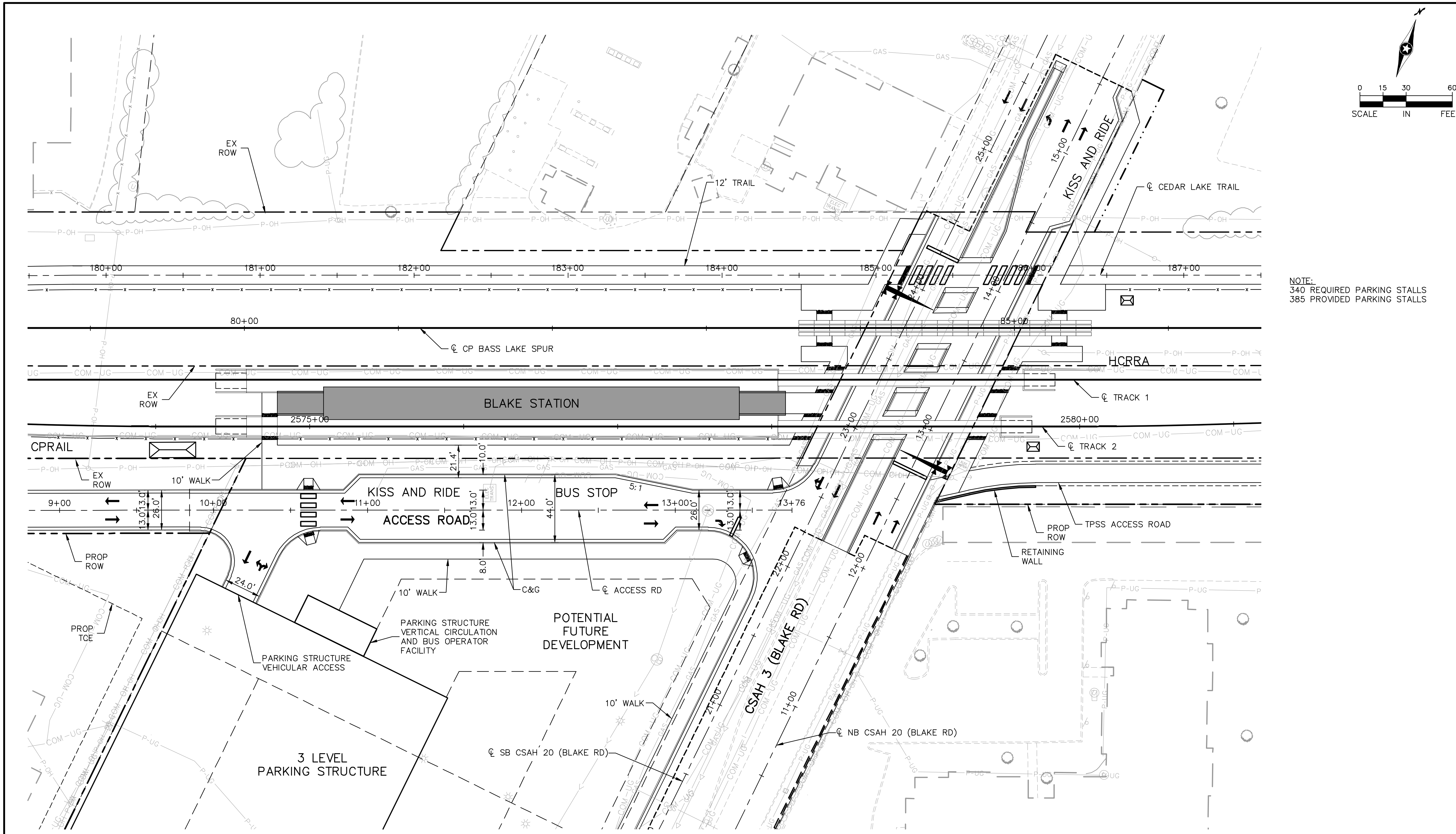
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
DOWNTOWN HOPKINS STATION
SITE PLAN

DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-PLN-001



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METROPOLITAN COUNCIL

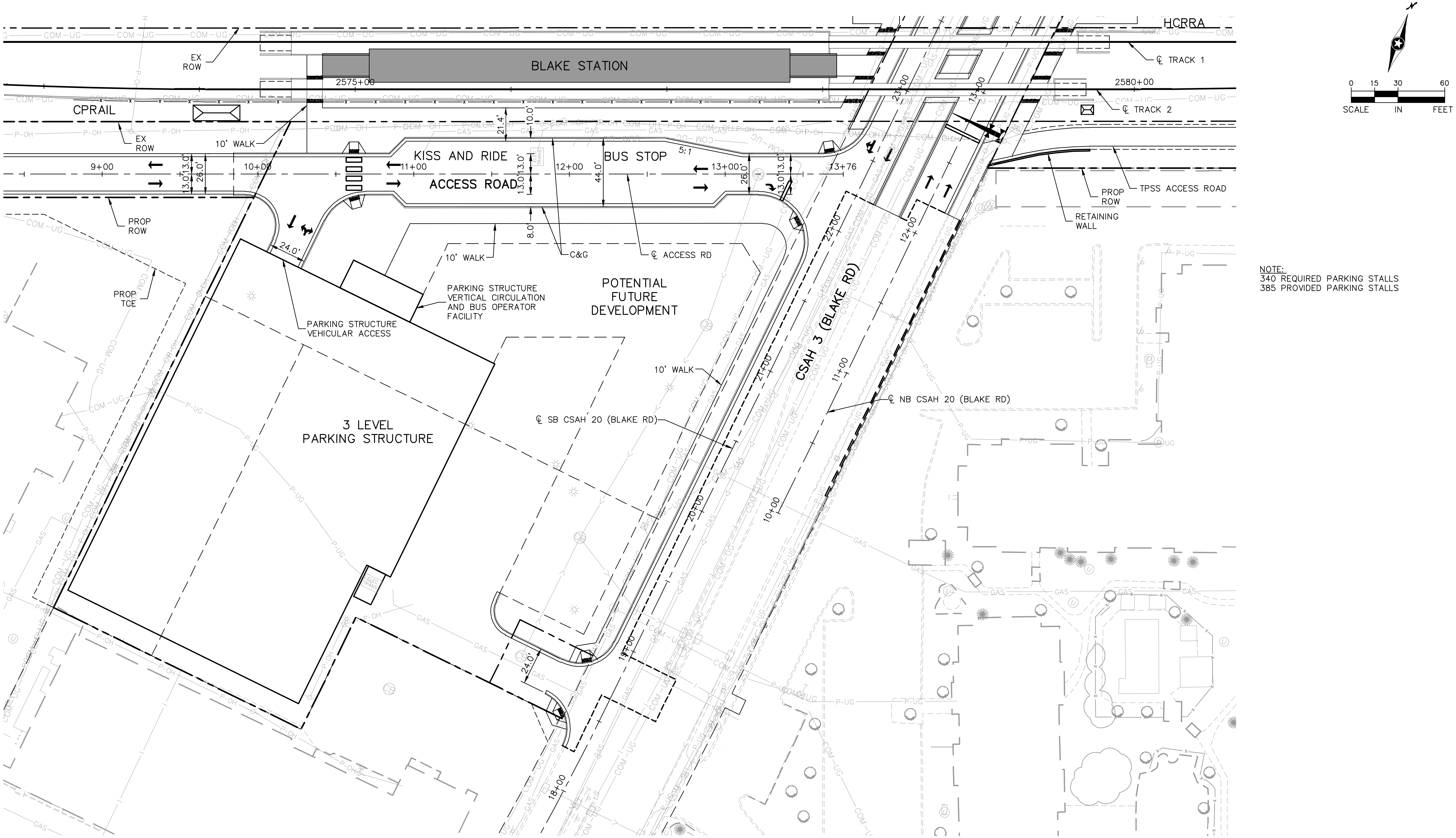
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
BLAKE STATION
SITE PLAN

DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-PLN-002

SHEET 76 OF 113



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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
BLAKE STATION
PARK AND RIDE SITE PLAN

DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-PLN-003

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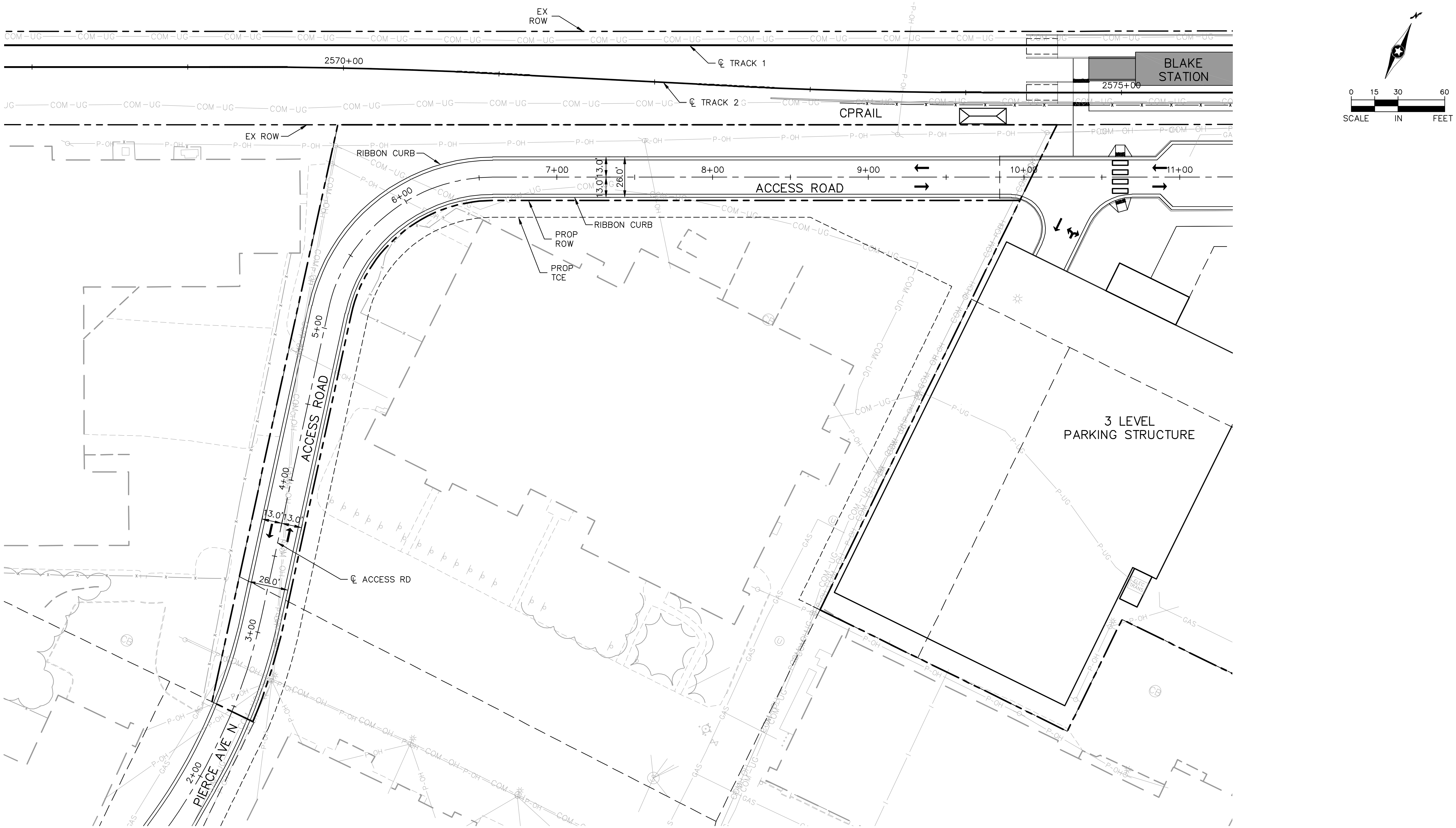

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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
BLAKE STATION
ACCESS ROAD PLAN

DISCIPLINE: CIVIL

SHEET NAME: E1-CIV-PLN-004

SHEET 78 OF 113

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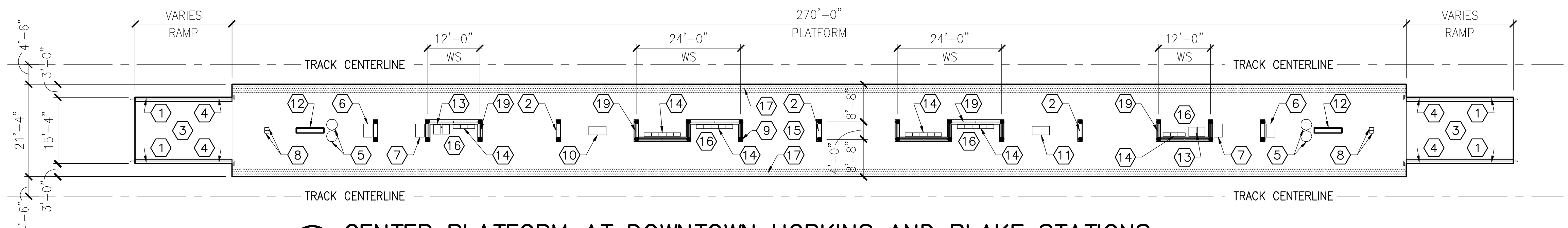

1 CENTER PLATFORM AT DOWNTOWN HOPKINS AND BLAKE STATIONS

SCALE: 1"=30'-0"

0 7.5 15 30
SCALE

KEYNOTES

NOTE: ALL KEYNOTES MAY NOT BE USED

1	ENTRY SIGN
2	LIGHT MOUNTED TO STRUCTURE
3	ACCESS RAMP – 5% MAX
4	HAND RAIL
5	TRASH/RECYCLING RECEPTACLE, BLAST CONTROLLING TYPE
6	TICKET VENDING MACHINE
7	FUTURE TICKET VENDING MACHINE
8	STORED VALUE VALIDATOR
9	EMERGENCY CALL BOX
10	COMMUNICATION CABINET
11	ELECTRICAL CABINET
12	INFORMATION KIOSK WITH TRANSIT INFO AND ADVERTISING
13	BENCH
14	LEANING RAIL/BENCH
15	CONCRETE PLATFORM
16	SHELTER: WINDSCREEN,LIGHT,HEATERS WITH CANOPY ABOVE
17	DETECTABLE WARNING AT BOARDING EDGE
18	GUARD RAIL AND SAFETY SCREEN
19	ALUMINUM & GLASS FRAMING SYSTEM
20	CONCRETE WALL
21	POTENTIAL FUTURE ELEVATOR

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
PLATFORM LAYOUTS
DOWNTOWN HOPKINS AND BLAKE STATIONS

DISCIPLINE: ARCHITECTURE

SHEET NAME: E1-ARC-PLN-1

SHEET 79 OF 113

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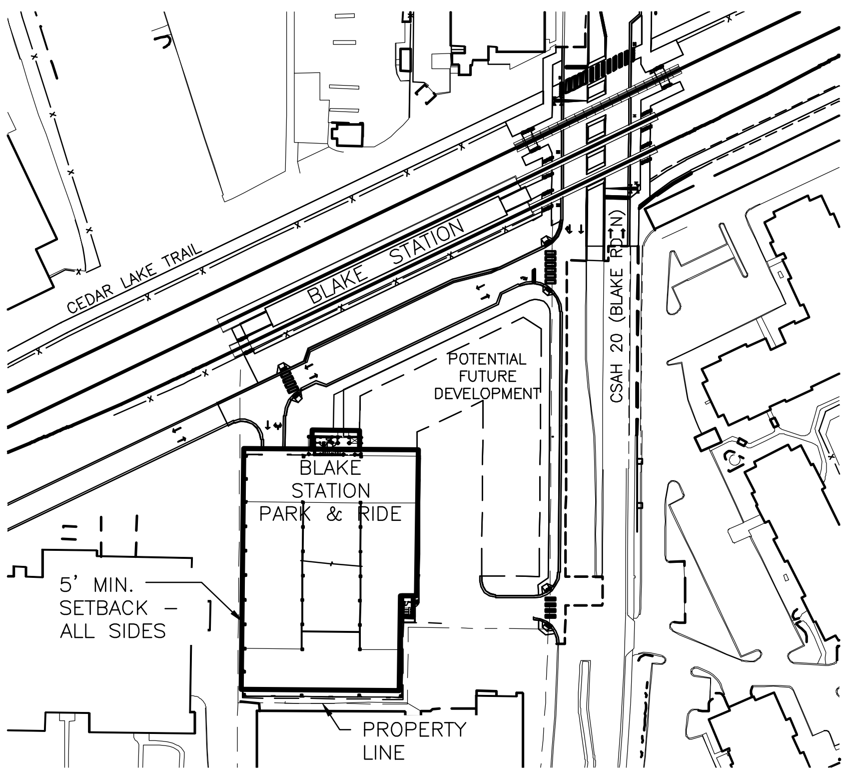
BLAKE STATION PARK & RIDE

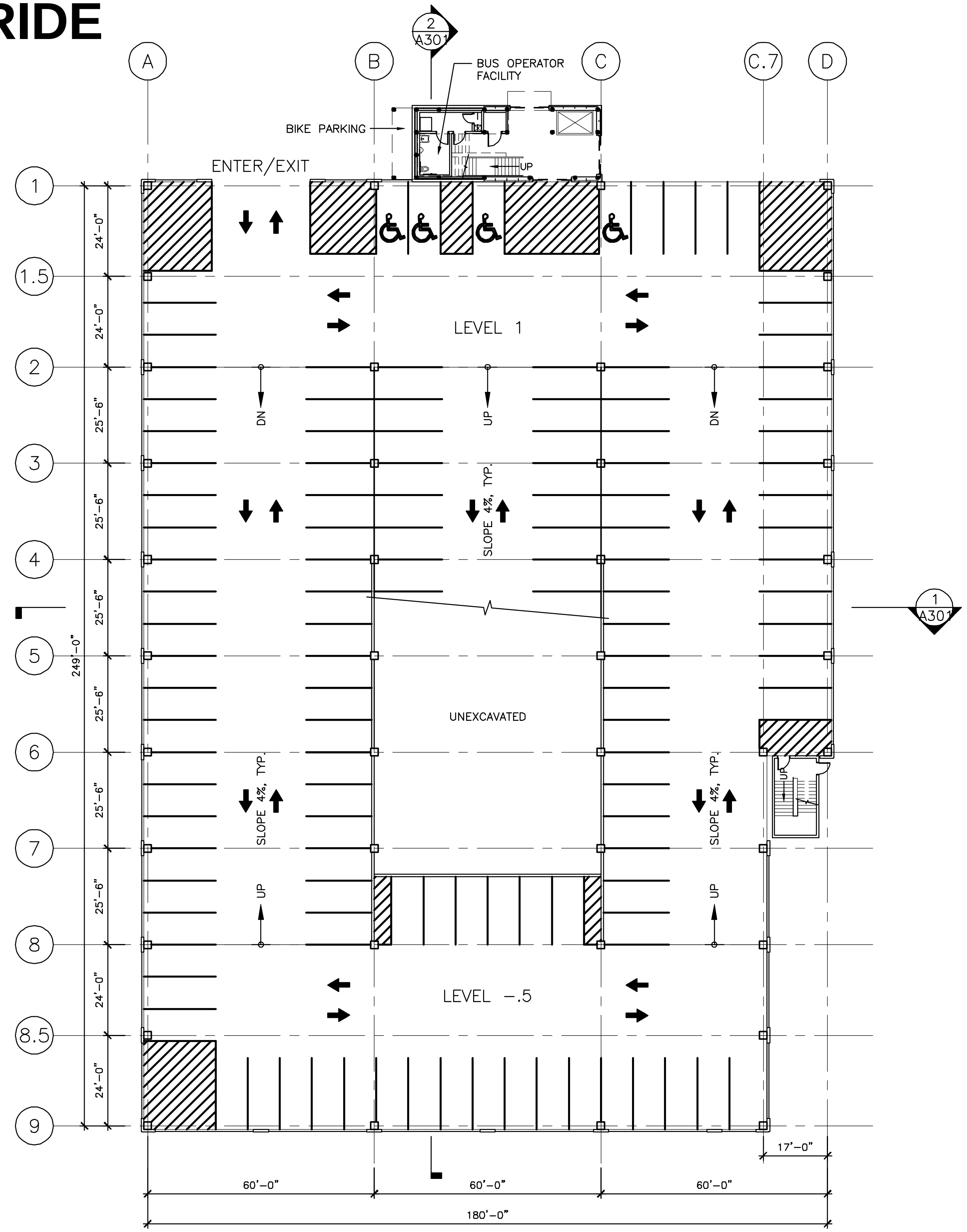
PARKING COUNT

1ST LEVEL:	105 SPACES
2ND LEVEL:	140 SPACES
3RD LEVEL:	140 SPACES
TOTAL:	385 SPACES

ACCESSIBLE SPACES REQUIRED (TABLE 1106.1):
GREATER THAN 500 SPACES: 385 X 2% = 8 REQUIRED; 10 PROVIDED



1 SITE PLAN
SCALE: 1"=200'-0"



2 FIRST LEVEL PLAN
SCALE: 1"=40'-0"

PRELIMINARY CODE ANALYSIS

APPLICABLE CODES:
MINNESOTA STATE BUILDING CODE
2006 INTERNATIONAL BUILDING CODE

OCCUPANCY CLASSIFICATION (SECTION 302):
S2 PARKING GARAGE, OPEN – SINGLE USE (SECTION 311.3)

TYPE OF CONSTRUCTION (SECTION 602; TABLE 601):
II–B

ALLOWABLE HEIGHTS AND AREAS (SECTION 406):
AREA: ALLOWABLE = 50,000 SF/TIER, ACTUAL = 44,000 SF/TIER
HEIGHT: ALLOWABLE = 8 TIERS (UNSPRINKLED), ACTUAL = 3 TIERS

FIRE RESISTIVE REQUIREMENTS (TABLE 601):
CONSTRUCTION TYPE II–B

STRUCTURAL FRAME	0 HR	FLOOR CONSTRUCTION	0 HR
BEARING WALLS EXTERIOR	0 HR	ROOF CONSTRUCTION	0 HR
BEARING WALLS INTERIOR	0 HR		
NON–BEARING WALLS EXTERIOR	0 HR		
NON–BEARING WALLS INTERIOR	0 HR		

MIXED USE AND OCCUPANCY (SECTION 508):
ACCESSORY USE AREAS (508.3.1): NO FIRE BARRIER IS REQUIRED BETWEEN AREAS OCCUPYING 10% OR LESS THAN THE TOTAL FLOOR AREA OF THE BUILDING

FIRE SEPARATION DISTANCE (SECTION 406.3.7; TABLES 601 & 602):
FIRE RESISTANCE RATING FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE (TABLE 602):
GREATER OR EQUAL TO 5', LESS THAN 10' = 1 HR
GREATER OR EQUAL TO 10' = 0 HR

– NOTE d: OPEN PARKING GARAGES COMPLYING WITH SECTION 406 SHALL NOT BE REQUIRED TO HAVE A FIRE–RESISTANCE RATING

MOTOR VEHICLE RELATED OCCUPANCIES (SECTION 406):
406.3 OPEN PARKING GARAGES:
– EXTERIOR SIDE OF THE STRUCTURE SHALL HAVE UNIFORMLY DISTRIBUTED OPENINGS ON TWO OR MORE SIDES
– AREA OF THE OPENINGS MUST BE AT LEAST 20% OF THE TOTAL PERIMETER WALL AREA OF EACH TIER. AGGREGATE LENGTH OF OPENINGS SHALL BE A MINIMUM OF 40% OF THE PERIMETER OF THE TIER

EXTERIOR WALL OPENING PROTECTION (TABLE 704.8):
MAX. AREA OF EXTERIOR WALL OPENINGS:
FIRE SEPARATION DISTANCE GREATER THAN 5' TO 10':
UNPROTECTED OPENINGS = 10% OF WALL AREA;
PROTECTED OPENINGS = 25% OF WALL AREA

– NOTE d: THE AREA OF OPENINGS IN AN OPEN PARKING STRUCTURE WITH A FIRE SEPARATION DISTANCE OF GREATER THAN 10 FEET SHALL NOT BE LIMITED

OCCUPANT LOAD (TABLE 1004.1.1):
PARKING GARAGES: 200 GROSS SF/OCCUPANT

1ST LEVEL:	38,880 SF /200 SF PER PERSON	= 195
2ND LEVEL:	44,000 SF /200	= 220
3RD LEVEL:	44,000 SF /200	= 220
TOTAL	126,880 SF	= 635 OCCUPANTS

MEANS OF EGRESS (CHAPTER 10):
EGRESS WIDTH (TABLE 1005.1):
STAIRS .3 INCHES/OCC
OTHER EGRESS COMPONENTS: .2 INCHES/OCC
220 OCC. X .3" = 66" / 2 STAIRS = 33" WIDTH/STAIR

SECTION 1007.3: IN ORDER TO BE CONSIDERED PART OF AN ACCESSIBLE MEANS OF EGRESS, AN EXIT STAIRWAY SHALL HAVE A CLEAR WIDTH OF 48" MIN. BETWEEN HANDRAILS

EXIT ACCESS TRAVEL DISTANCE (TABLE 1016.1):
MAX. TRAVEL DISTANCE ALLOWABLE = 300', ACTUAL = 235'

EXCEPTION 1: TRAVEL DISTANCE IN OPEN PARKING GARAGES PERMITTED TO BE MEASURED TO CLOSEST RISER OF OPEN STAIR

MIN. REQUIRED EXITS (TABLE 1019.1):
LESS THAN 500 OCC./LEVEL REQUIRED = 2 EXITS/LEVEL, ACTUAL = 2

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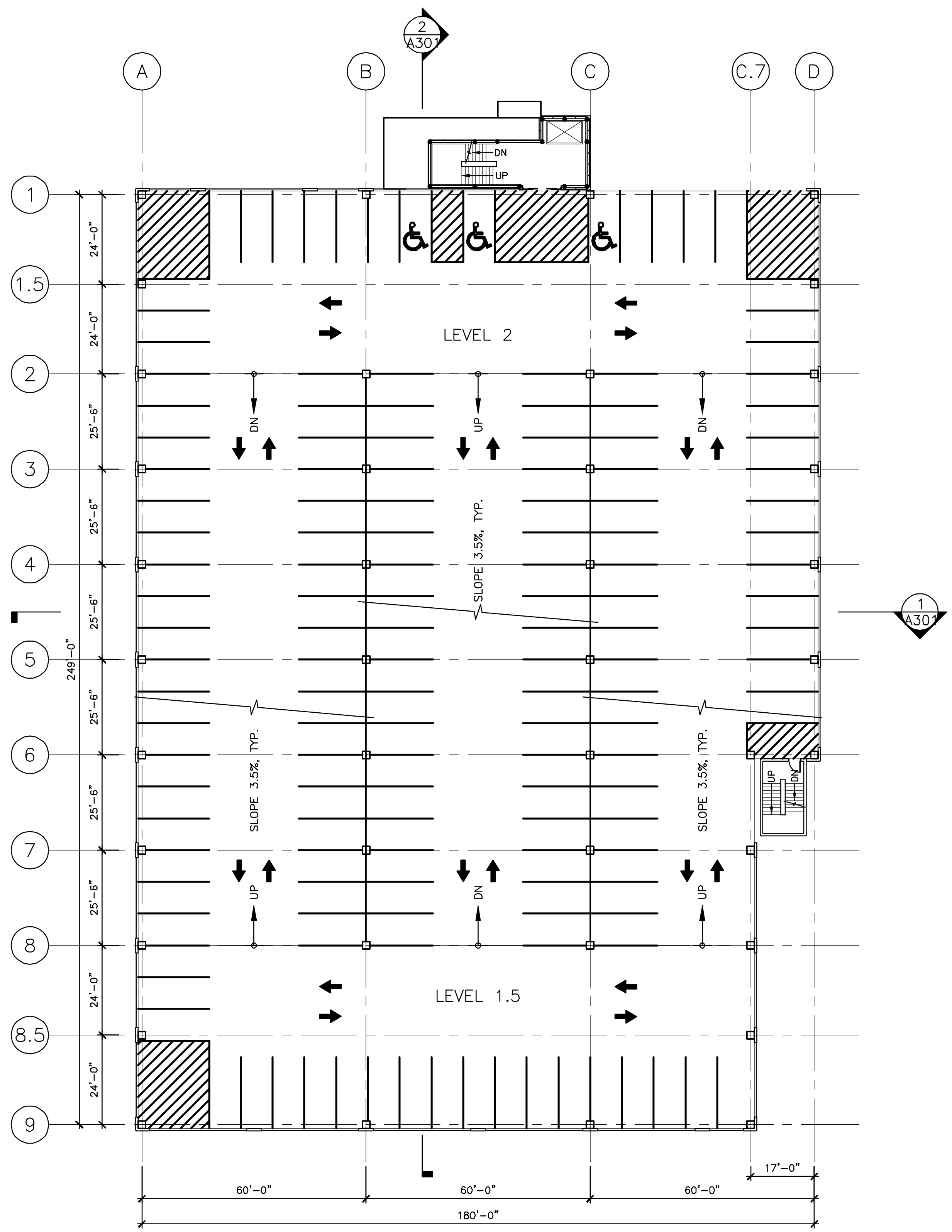
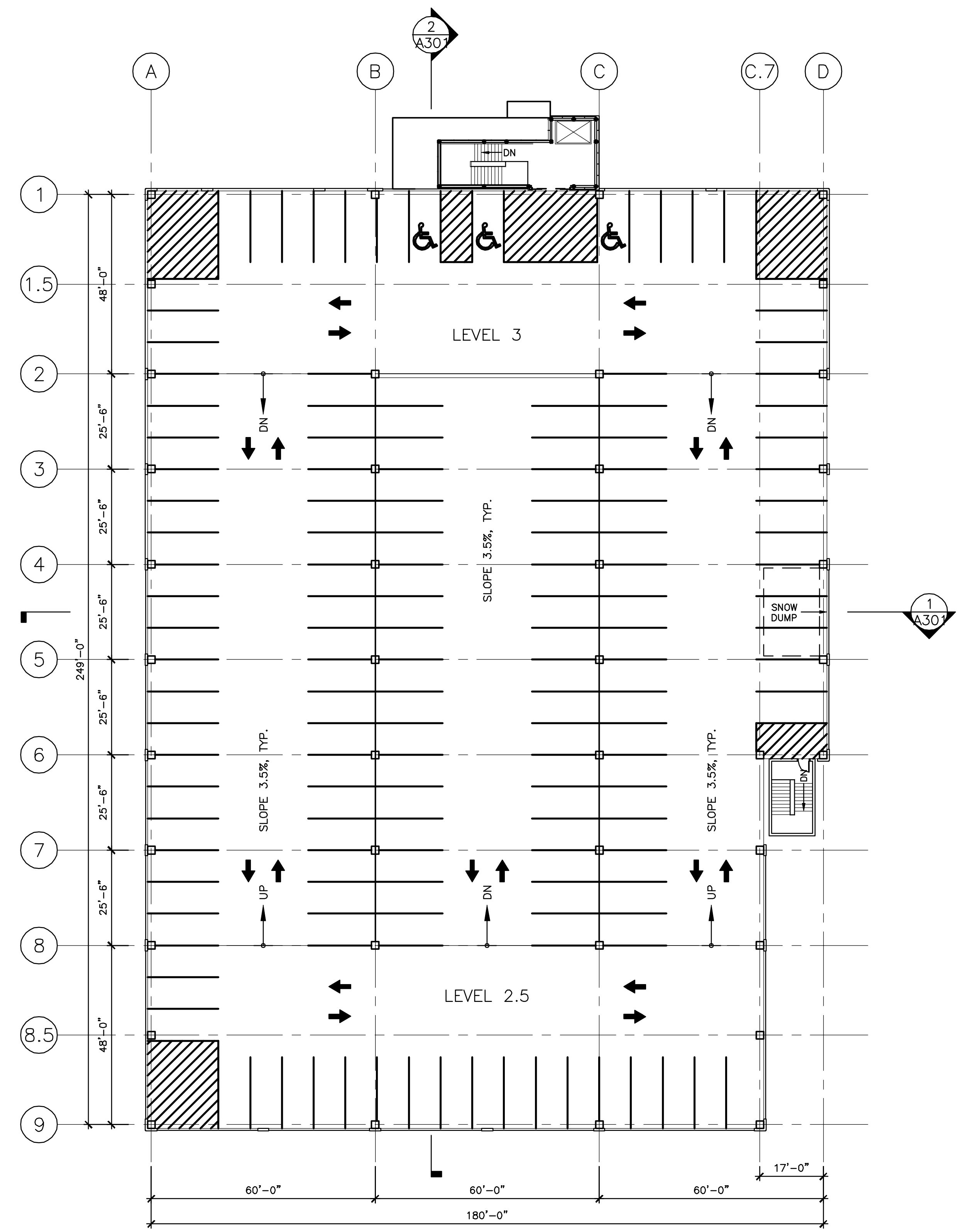
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
BLAKE STATION
(PARK & RIDE STRUCTURE)
PLANS AND CODE ANALYSIS

DISCIPLINE: ARCHITECTURE
SHEET NAME: E1-BPR-ARC-PLN-A101



1 TYPICAL PLAN LEVEL 2
SCALE: 1"=40'-0"



2 TOP LEVEL PLAN
SCALE: 1"=40'-0"

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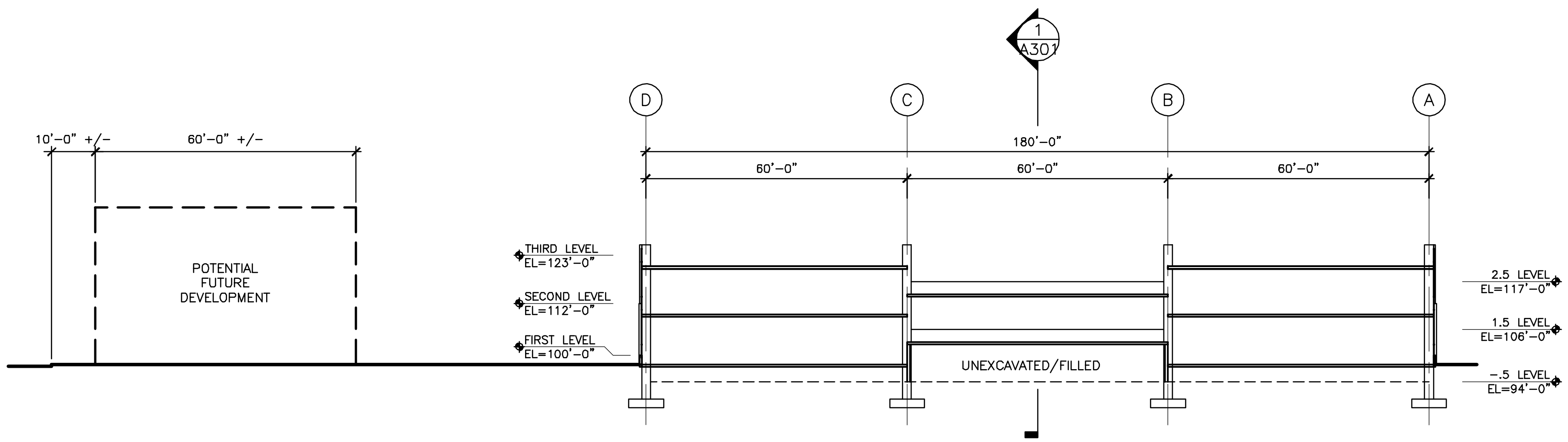
SOUTHWEST Green Line LRT Extension

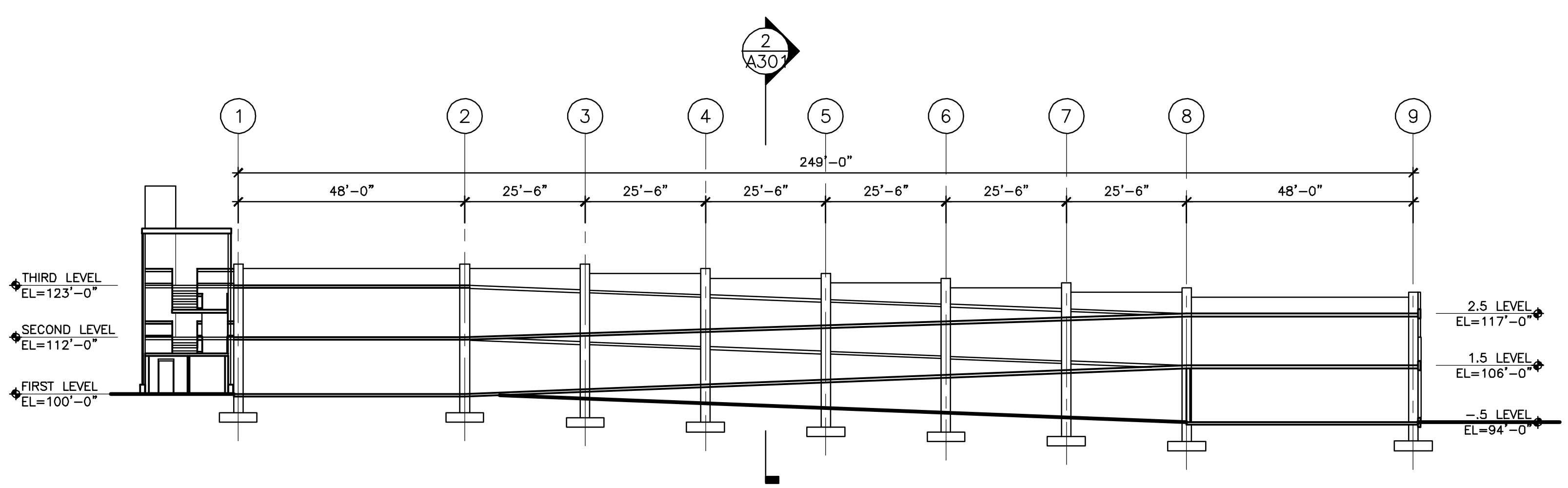
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
BLAKE STATION PARK & RIDE
PLANS

DISCIPLINE: ARCHITECTURE

SHEET NAME: E1-BPR-ARC-PLN-A102



1 TYPICAL SECTION
SCALE: 1"=40'-0"



2 TYPICAL SECTION
SCALE: 1"=40'-0"

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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
BLAKE STATION
(PARK & RIDE STRUCTURE)
TYPICAL SECTIONS

DISCIPLINE: ARCHITECTURE
SHEET NAME: E1-BPR-ARC-SCT-A301

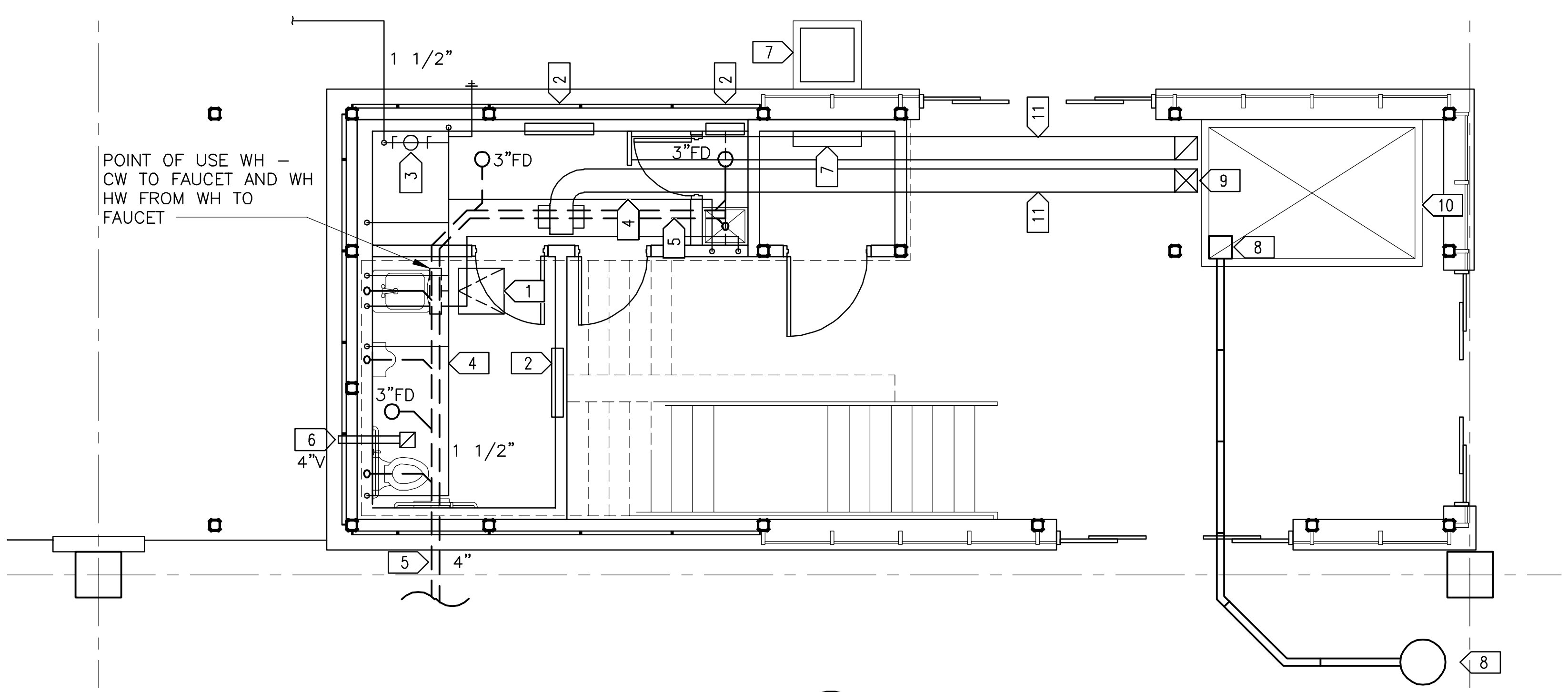
SHEET 82 OF 113

KEYNOTES - ENLARGED PLAN

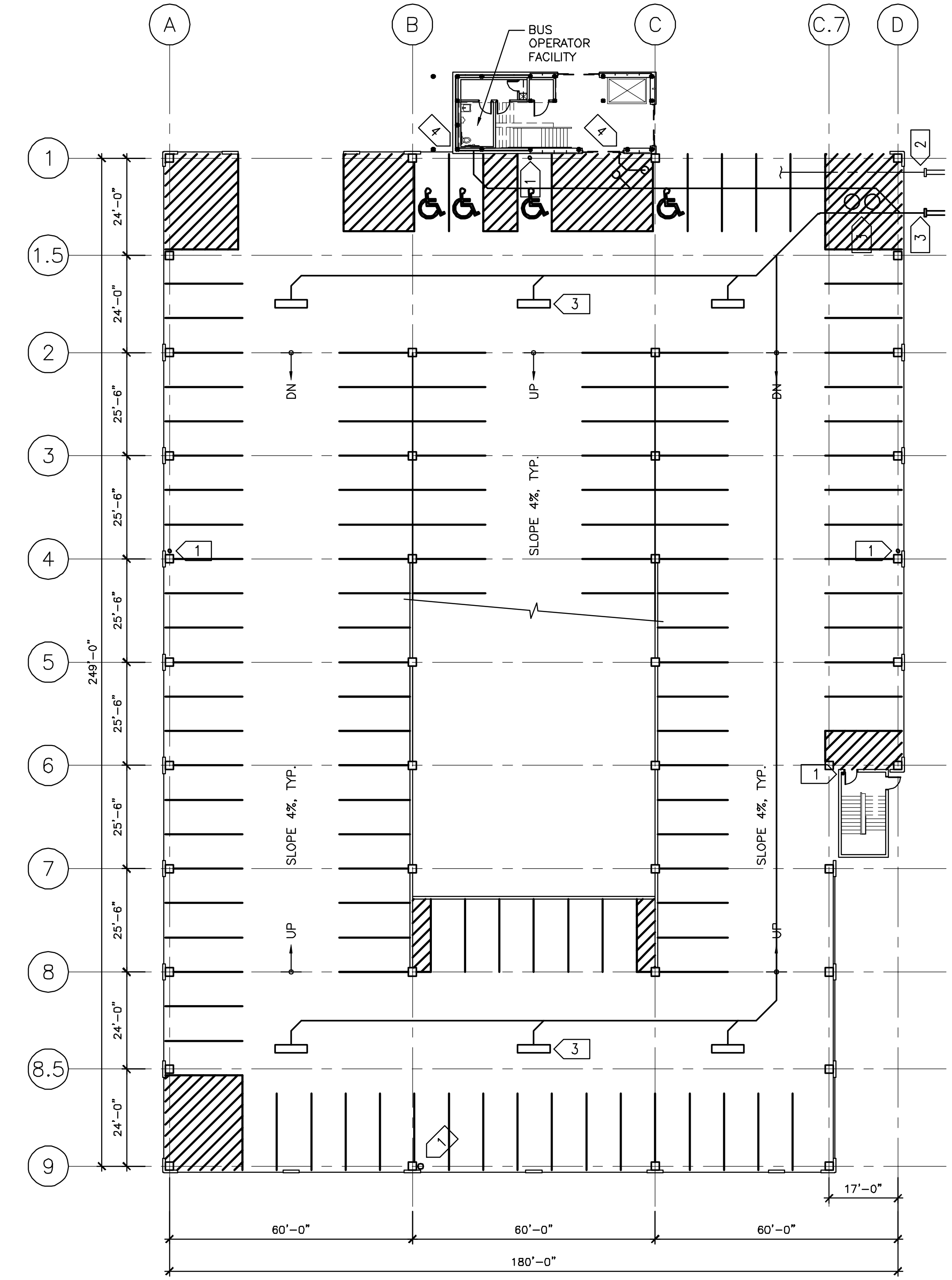
1. POINT OF USE ELECTRIC WATER HEATER ABOVE CEILING WITH SECURE ACCESS PANEL.
2. ELECTRIC CABINET UNIT HEATER MOUNTED IN WALL WITH SECURITY GRILLE.
3. WATER METER AND SERVICE. MOUNT IN SECURE LOCATION. CONNECT SERVICE TO MAIN 5'-0" OUTSIDE WALL.
4. DOMESTIC SERVICE FEEDING PLUMBING FIXTURES SHALL BE OVERHEAD, ABOVE CEILING.
5. UNDERFLOOR SANITARY SEWER, CONNECT TO EACH PLUMBING FIXTURE AND EXTEND MAIN AND CONNECT TO SEWER IN PARKING RAMP.
6. CEILING MOUNTED EXHAUST FAN WITH 4" DIA. DISCHARGE TO WALL TERMINAL WITH DAMPER.
7. ELEVATOR MACHINE ROOM WALL HUNG DX COOLING UNIT AND EXTERIOR PAD MOUNTED AIR COOLED CONDENSING UNIT
8. ELEVATOR PIT DRAIN PIPED TO SUMP AND PUMP. DISCHARGE CONNECTION BY CIVIL.
9. SUPPLY AND RETURN DUCT RISERS FEEDING ELEVATOR SHAFT. SUPPLY HIGH IN SHAFT, RETURN LOW. OPENINGS INTO HOISTWAY SHALL HAVE FIRE/SMOKE DAMPERS. RISERS THROUGH ROOF TO ROOFTOP UNIT.
10. PROVIDE ELEVATOR HOISTWAY RELIEF OPENING LOCATED AT TOP WITH MOTORIZED DAMPER.
11. SUPPLY AND RETURN DUCTS FEEDING DRIVER BREAK AREA.

KEYNOTES

1. DRY STANDPIPES WITH 2 1/2" HOSE CONNECTION AT EACH FLOOR.
2. 15" STORM SEWER, TERMINATE 5'-0" BEYOND BUILDING WALL. CONTINUATION BY CIVIL.
3. SANITARY SEWER TRENCH DRAINS PIPED TO SAND TRAP AND FLAMMABLE WASTE TRAP. TERMINATE 5'-0" BEYOND BUILDING WALL. CONTINUATION BY CIVIL.
4. REFER TO 1/4" SCALE DRAWING FOR CONT.



1 ENLARGED LOBBY MECHANICAL PLAN
SCALE:1/4" = 1'-0"



2 FIRST LEVEL MECHANICAL PLAN
SCALE: 1"=40'-0"

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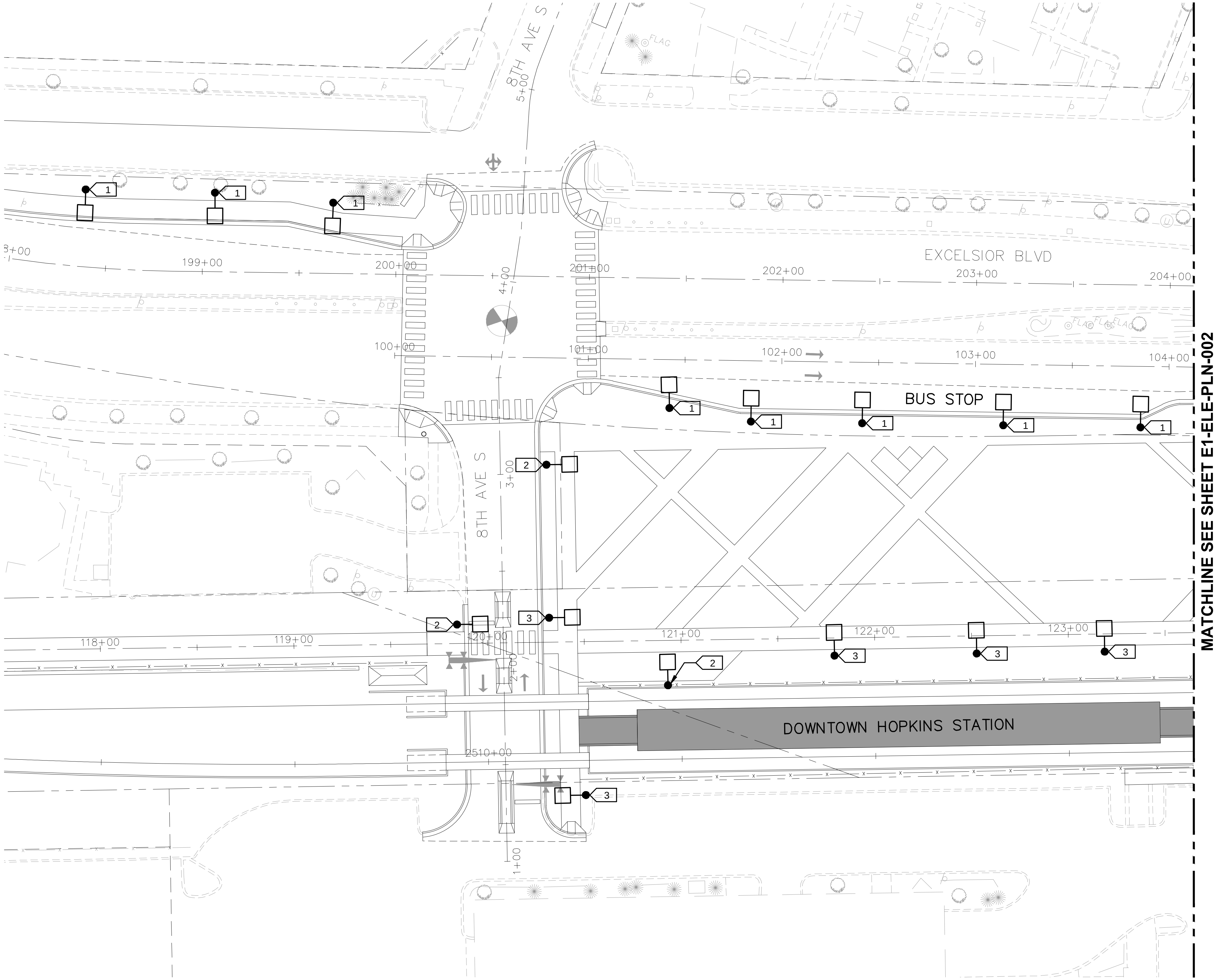
PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
BLAKE STATION
(PARK & RIDE STRUCTURE)
MECHANICAL/PLUMBING PLANS

DISCIPLINE: MECHANICAL
SHEET NAME: E1-BPR-MEC-PLN-M101

Aug. 29 2014 10:04 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\ARCH\E1-BPR-MEC-PLN-M101.dwg By: tracy.fosmo



0 15 30 60
SCALE IN FEET

KEYNOTES:

1. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 2 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 13,432 LUMENS, MOUNTED @ 20'.
2. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 7,495 LUMENS, MOUNTED @ 15'.
3. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 2 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 7,531 LUMENS, MOUNTED @ 15'.
4. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 12,942 LUMENS, MOUNTED @ 20'.
5. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 3 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 13,042 LUMENS, MOUNTED @ 20'.

GENERAL NOTES:

1. NOT ALL KEYNOTES USED ON THIS SHEET.

LIGHTING SHOWN IS DIAGRAMMATIC. TYPE AND LOCATION OF LIGHTING WILL BE DETERMINED DURING ADVANCED DESIGN.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

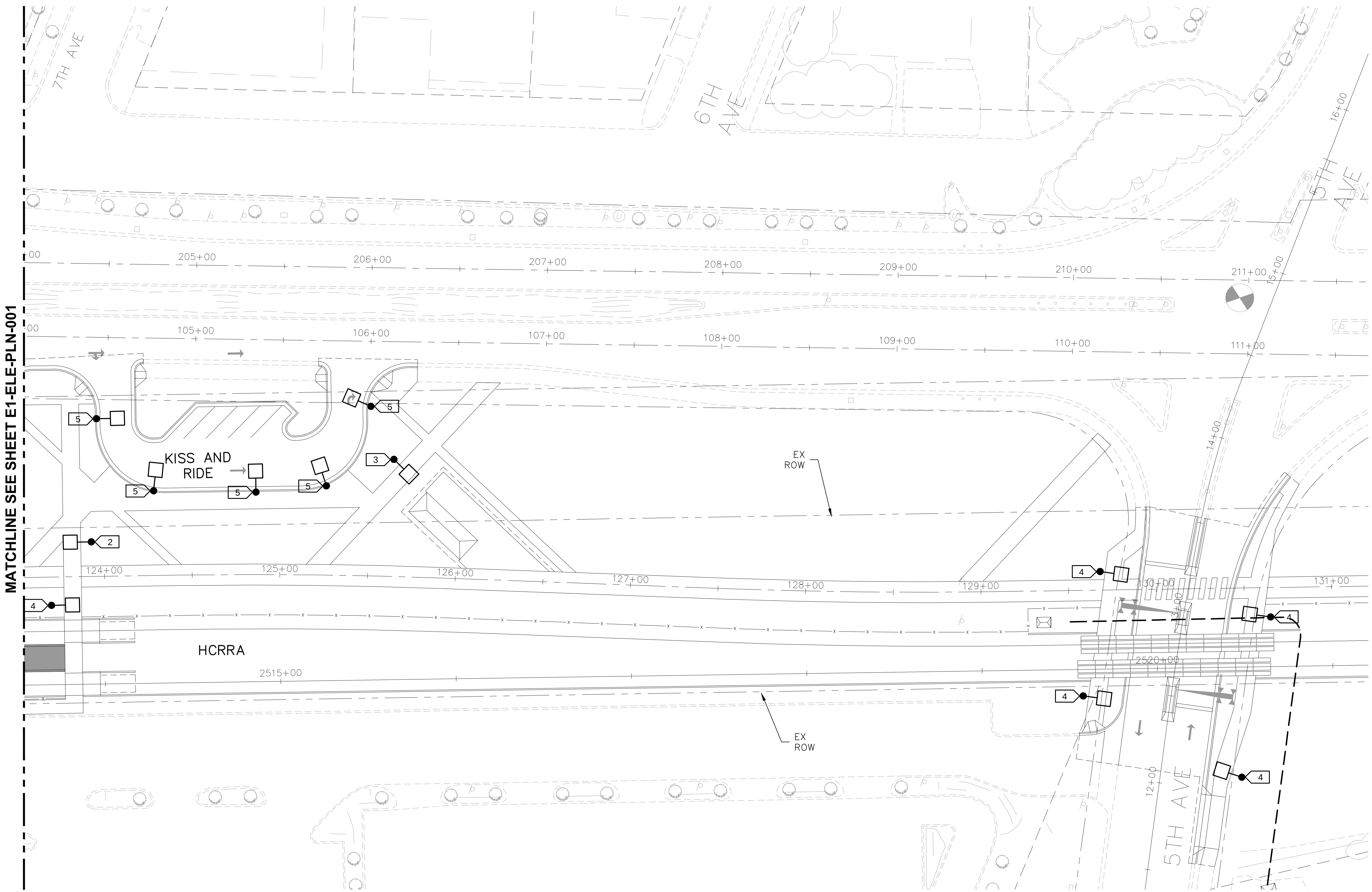
SOUTHWEST
Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
ELECTRICAL SITE PLAN
DOWNTOWN HOPKINS SITE 1 OF 2

DISCIPLINE: ELECTRICAL

SHEET NAME: E1-ELE-PLN - 001

Aug. 28 2014 02:36 pm V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\ELECTRICAL\E1-ELE-PLN.dwg By: Fergtk



0 15 30 60
SCALE IN FEET

KEYNOTES:

1. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 2 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 13,432 LUMENS, MOUNTED @ 20'.
2. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 7,495 LUMENS, MOUNTED @ 15'.
3. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 2 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 7,531 LUMENS, MOUNTED @ 15'.
4. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 12,942 LUMENS, MOUNTED @ 20'.
5. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 3 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 13,042 LUMENS, MOUNTED @ 20'.

GENERAL NOTES:

1. NOT ALL KEYNOTES USED ON THIS SHEET.
2. ALL LUMINAIRES NEAR FREIGHT CONDITIONS SHALL KEEP A MINIMUM OF 25' FROM FREIGHT CENTER LINE.

LIGHTING SHOWN IS DIAGRAMMATIC. TYPE AND LOCATION OF LIGHTING WILL BE DETERMINED DURING ADVANCED DESIGN.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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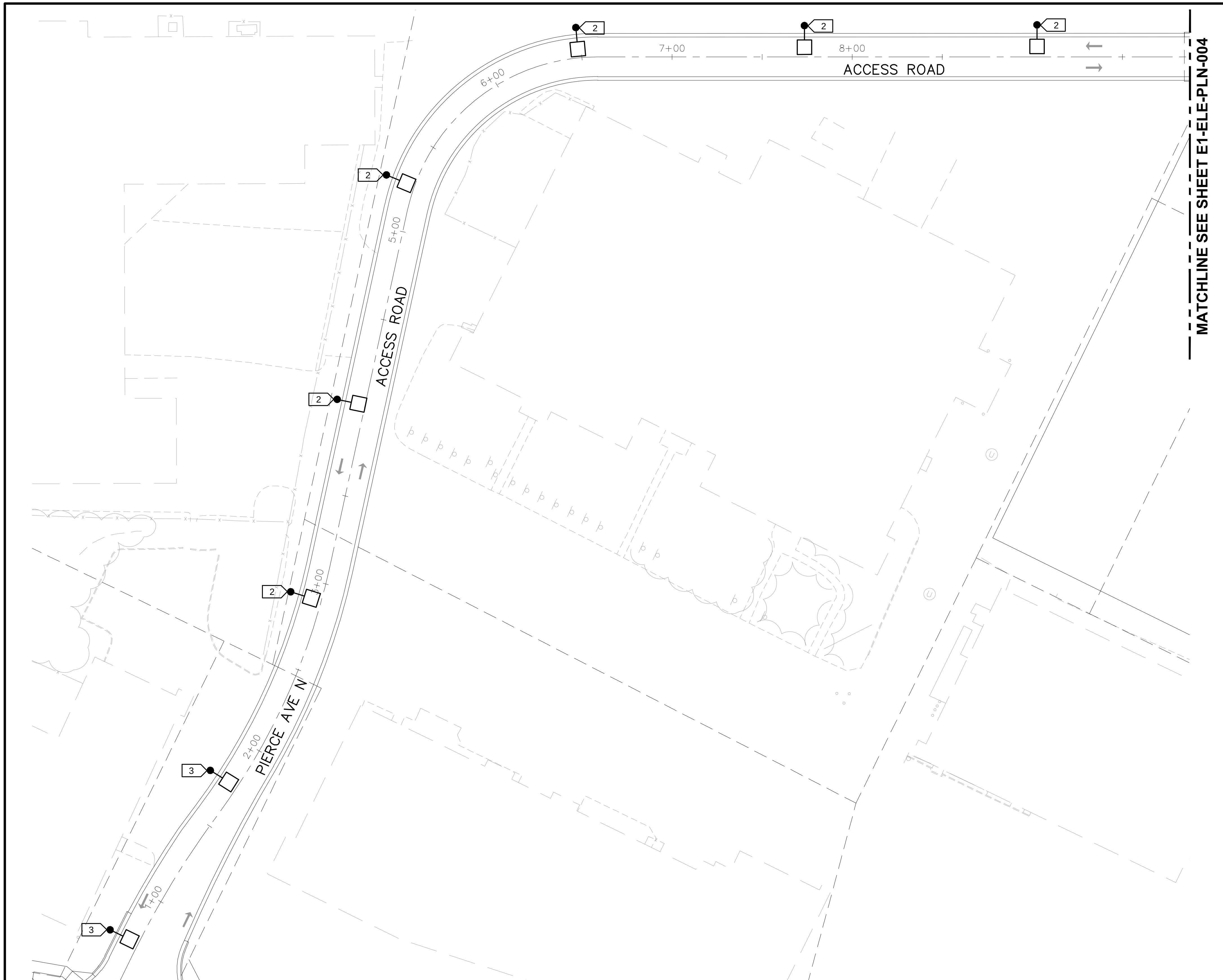
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
ELECTRICAL SITE PLAN
DOWNTOWN HOPKINS SITE 2 OF 2

DISCIPLINE: ELECTRICAL

SHEET NAME: E1-ELE-PLN - 002



0 15 30 60
SCALE IN FEET

KEYNOTES:

1. SINGLE UTILITY POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 15,529 LUMENS, MOUNTED @ 20'.
2. SINGLE UTILITY POLE MOUNTED LUMINAIRE, LED, TYPE 2 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 13,432 LUMENS, MOUNTED @ 20'.
3. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 15,529 LUMENS, MOUNTED @ 20'.
4. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 8,478 LUMENS, MOUNTED @ 20'.
5. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 2 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 5,858 LUMENS, MOUNTED @ 15'.
6. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 3 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 8,658 LUMENS, MOUNTED @ 20'.
7. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 12,942 LUMENS, MOUNTED @ 20'.
8. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 6,008 LUMENS, MOUNTED @ 20'.
9. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 3 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 9,550 LUMENS, MOUNTED @ 20'.

GENERAL NOTES:

1. NOT ALL KEYED NOTES USED ON THIS SHEET.

LIGHTING SHOWN IS DIAGRAMMATIC. TYPE AND LOCATION OF LIGHTING WILL BE DETERMINED DURING ADVANCED DESIGN.

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METROPOLITAN COUNCIL

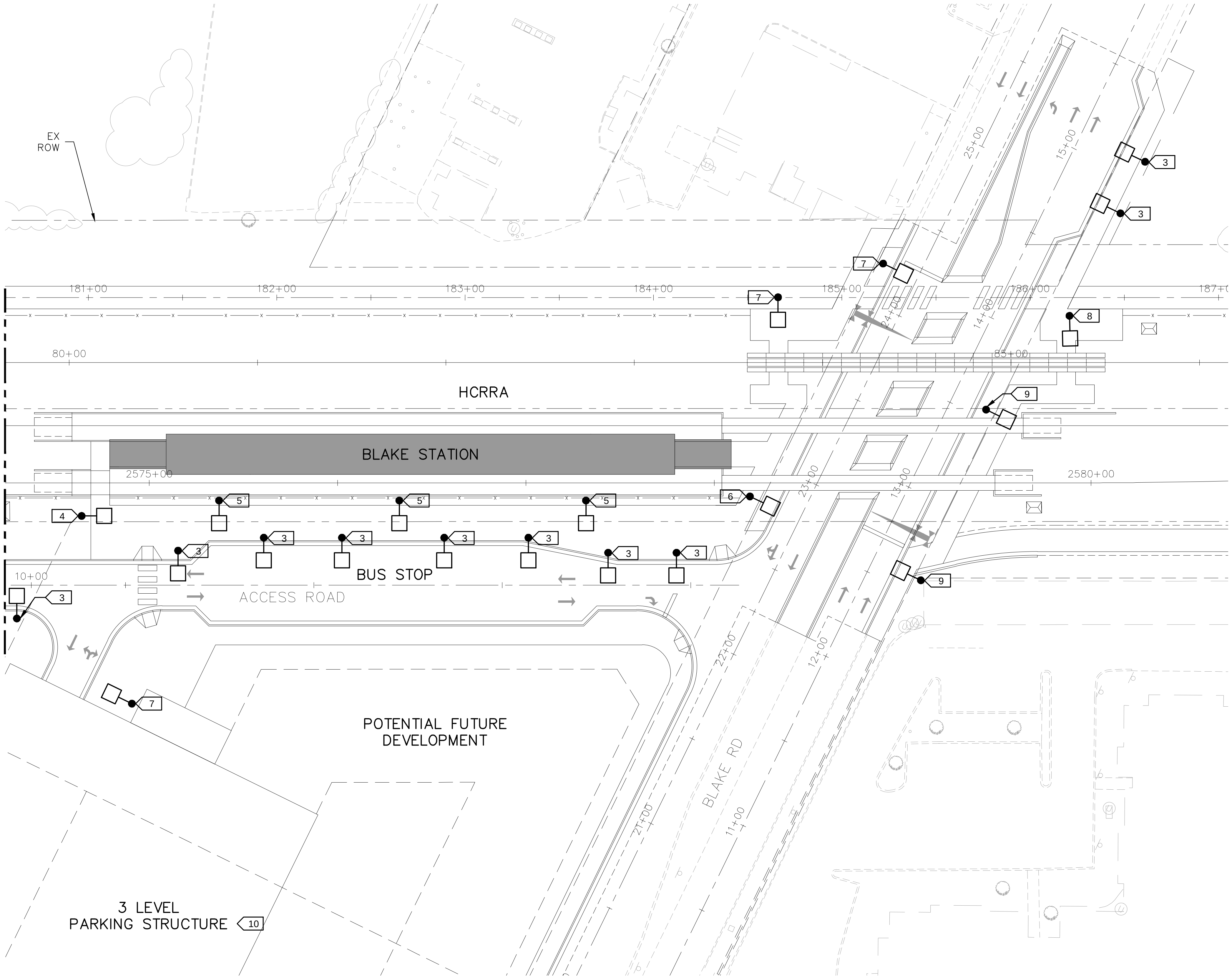
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
ELECTRICAL SITE PLAN
BLAKE SITE
ACCESS ROAD

DISCIPLINE: ELECTRICAL

SHEET NAME: E1-ELE-PLN - 003

Aug. 28 2014 02:40 pm V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\ELECTRICAL\E1-ELE-PLN.dwg By: Fergtk



KEYNOTES:

1. SINGLE UTILITY POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 15,529 LUMENS, MOUNTED @ 20'.
2. SINGLE UTILITY POLE MOUNTED LUMINAIRE, LED, TYPE 2 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 13,432 LUMENS, MOUNTED @ 20'.
3. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 15,529 LUMENS, MOUNTED @ 20'.
4. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 8,478 LUMENS, MOUNTED @ 20'.
5. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 2 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 5,858 LUMENS, MOUNTED @ 15'.
6. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 3 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 8,658 LUMENS, MOUNTED @ 20'.
7. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 12,942 LUMENS, MOUNTED @ 20'.
8. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 6,008 LUMENS, MOUNTED @ 20'.
9. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 3 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 9,550 LUMENS, MOUNTED @ 20'.
10. BLAKE PARKING STRUCTURE. SEE SHEET E1-ELEC-BPR-LTG-101.

GENERAL NOTES:

1. ALL LUMINAIRES NEAR FREIGHT CONDITIONS SHALL KEEP A MINIMUM OF 25' FROM FREIGHT CENTER LINE.
2. NOT ALL KEYNOTES USED ON THIS SHEET.

LIGHTING SHOWN IS DIAGRAMMATIC. TYPE AND LOCATION OF LIGHTING WILL BE DETERMINED DURING ADVANCED DESIGN.

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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
ELECTRICAL SITE PLAN
BLAKE SITE

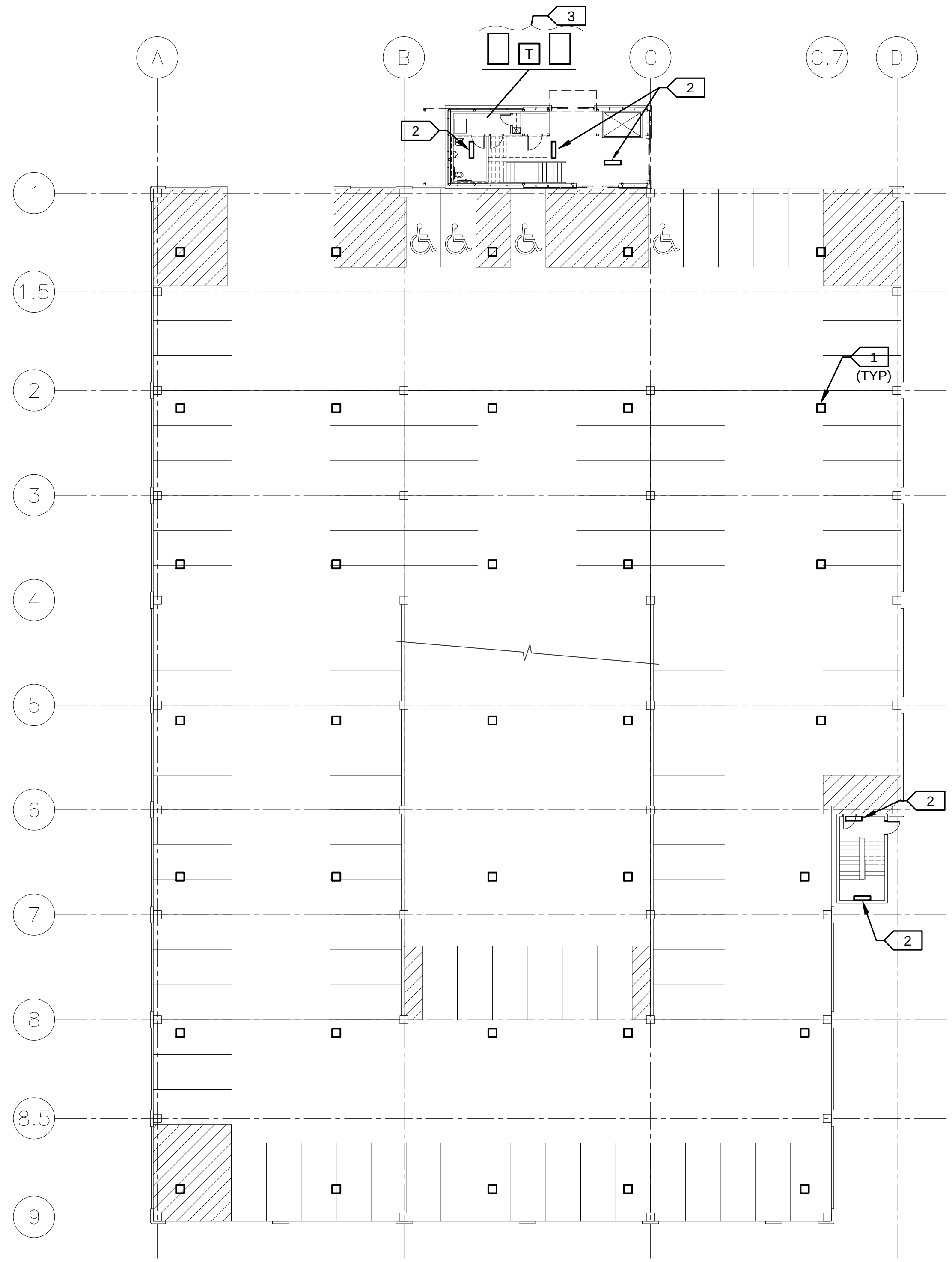
DISCIPLINE: ELECTRICAL

SHEET NAME: E1-ELE-PLN - 004

Aug. 28 2014 02:42 pm V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\ELECTRICAL\E1-ELE-PLN.dwg By: Fergtk

KEYNOTES:

1. 4.5"X14" SQUARE, LED, 8,000 LUMENS; PARKING GARAGE LUMINAIRE, TYPICAL.
2. 1'X4' LINEAR LED LUMINAIRE, TYPICAL.
3. 277/480V PANELBOARD, STEP DOWN TRANSFORMER AND 120/208V PANELBOARD FOR RAMP LIGHTING AND POWER.

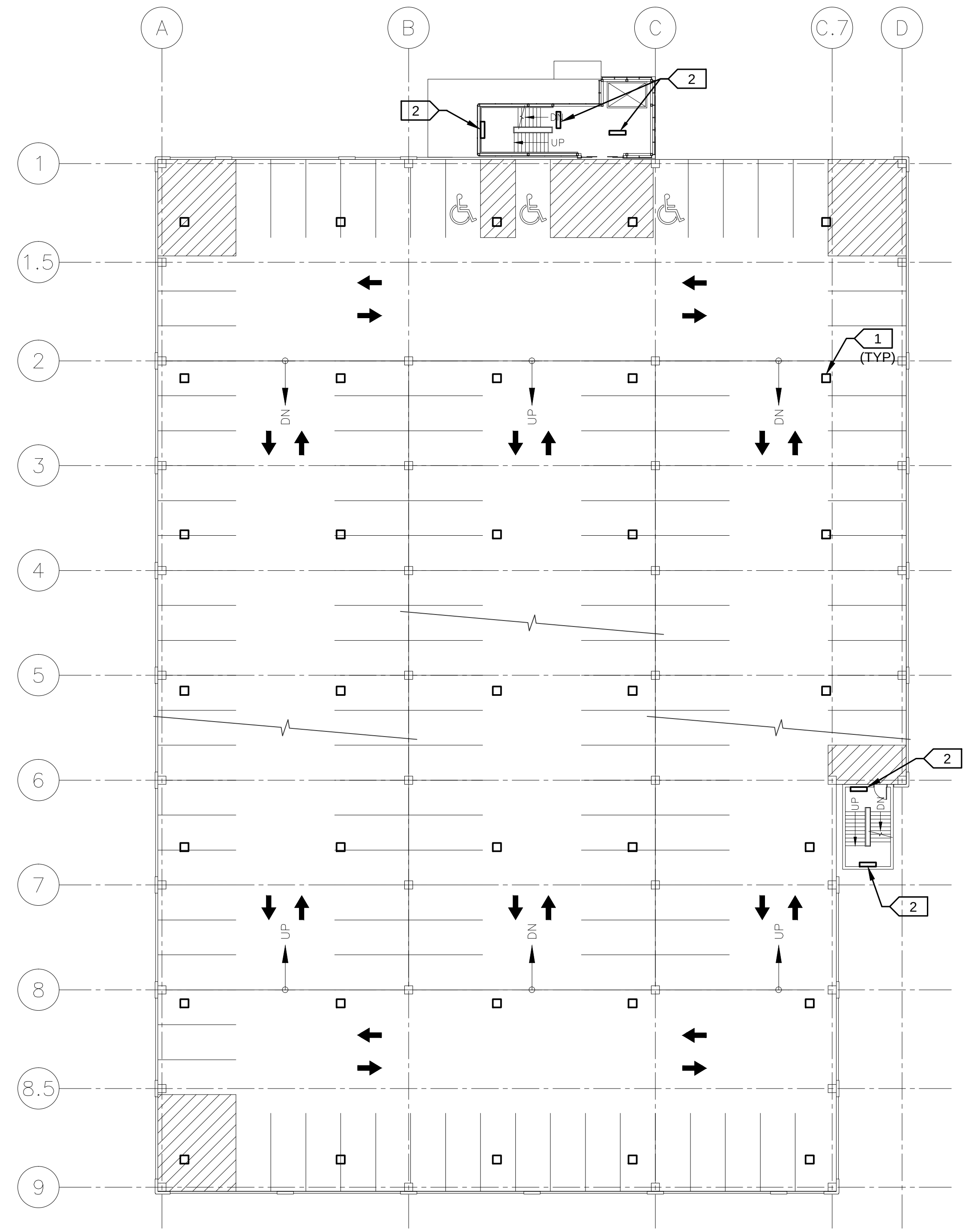


1 SITE LIGHTING PLAN - FIRST LEVEL
SCALE: 1"=20'

0 10 20 40
HORIZONTAL
SCALE IN FEET

KEYNOTES:

1. 4.5"X14" SQUARE, LED, 8,000 LUMENS; PARKING GARAGE LUMINAIRE, TYPICAL.
2. 1'X4' LINEAR LED LUMINAIRE, TYPICAL.



1 SITE LIGHTING PLAN - SECOND LEVEL

SCALE: 1"=20'

0 10 20 40

HORIZONTAL

SCALE IN FEET

Aug. 28 2014 02:42 pm V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\ELECTRICAL\E1-ELEC-BPR-LTG-102.dwg By: Fergtk

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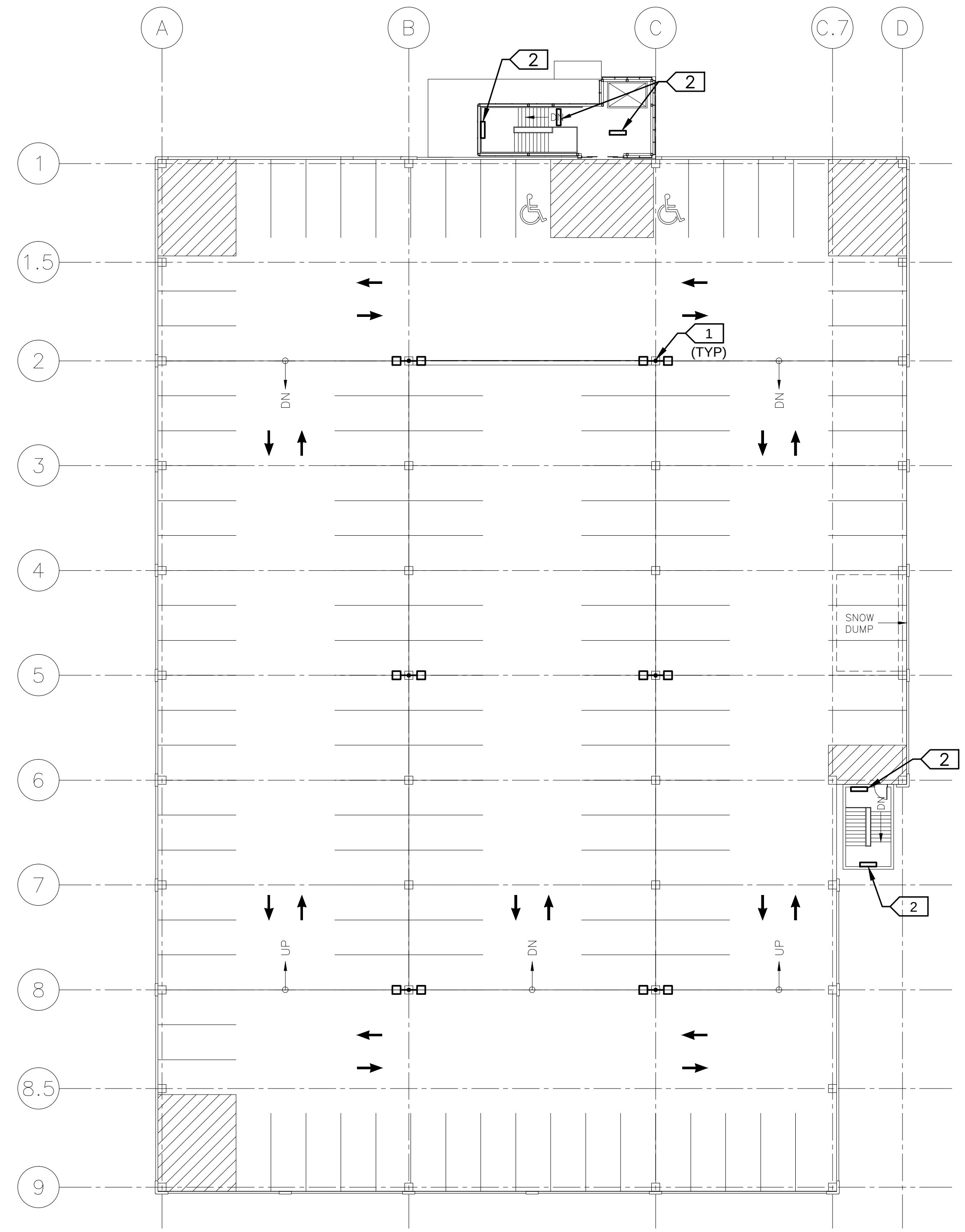
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
LIGHTING PLAN
BLAKE PARK AND RIDE STRUCTURE
2 OF 3

DISCIPLINE: **ELECTRICAL**

SHEET NAME: **E1-ELEC-BPR-LTG-102**

KEYNOTES:

1. TWIN POLE MOUNTED, LED, 138W EACH LUMINAIRE (276W COMBINED) MOUNTED @ 30', TYPICAL.
2. 1'X4' LINEAR LED LUMINAIRE, TYPICAL.



1 SITE LIGHTING PLAN - THIRD LEVEL

SCALE: 1"=20'

0 10 20 40

HORIZONTAL SCALE IN FEET

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EAST - VOLUME 1 (CIVIL) - SEGMENT 1
LIGHTING PLAN
BLAKE PARK AND RIDE STRUCTURE
3 OF 3

DISCIPLINE: ELECTRICAL

SHEET NAME: E1-ELEC-BPR-LTG-104

LEGEND

PROPOSED UTILITY LINE TYPES

——I——	WATER MAIN
——▶——	SANITARY SEWER
——▶▶——	SANITARY SEWER FORCE MAIN
——COM–UG——	FIBER OPTIC COMMUNICATION

PROPOSED UTILITY SYMBOLS

Ⓦ	WATER MANHOLE
⋈	WATER VALVE
◇	WATER HYDRANT
Ⓢ	SANITARY SEWER MANHOLE

SANITARY AND WATER PLAN CONSTRUCTION NOTES

(1) CONNECT TO EXISTING WATER MAIN. VERIFY EXISTING WATER MAIN SIZE AND LOCATION. PROVIDE FITTINGS, PIPE COUPLING (ISOLATING COUPLING WHERE REQUIRED–SEE CORROSION CONTROL PLANS) AND MECHANICAL THRUST RESTRAINT AT THE FITTINGS, COUPLING AND ACROSS COUPLING.

(2) 8" GATE VALVE AND VALVE BOX.

(3) 6" GATE VALVE, VALVE BOX, HYDRANT AND DIP LEAD.

(4) COORDINATE WITH CITY FOR SERVICE CONNECTIONS.

(5) 6" GATE VALVE, VALVE MANHOLE, HYDRANT AND DIP LEAD

(6) CONSTRUCT MANHOLE OVER EXISTING SEWER.

(7) RECONSTRUCT MANHOLE AS NECESSARY TO MATCH PROPOSED GRADE

(8) CONSTRUCT WATER SERVICE. SEE TABULATION OF WATER SERVICES IN THE EXISTING UTILITY TABULATIONS FOR PROPOSED SIZE AND MATERIAL. PROVIDE ADAPTORS AND FITTINGS AS NECESSARY TO MAKE CONNECTION TO EXISTING SERVICE. REFER TO CORROSION CONTROL PLANS FOR CORROSION CONTROL NOTES. CONTRACTOR SHALL TAP MAIN FOR ALL SERVICES. VERIFY EXISTING WATER SERVICE SIZE AND LOCATION.

(9) CONNECT TO EXISTING WATER SERVICE. VERIFY EXISTING WATER SERVICE SIZE AND LOCATION. PROVIDE FITTINGS, PIPE COUPLING (ISOLATING COUPLING WHERE REQUIRED–SEE CORROSION CONTROL PLANS) AND MECHANICAL THRUST RESTRAINT AT THE FITTINGS, COUPLING AND ACROSS COUPLING. CONSTRUCT WATER SERVICES 4" AND LARGER WITH MECHANICAL JOINT DIP. PROVIDE MECHANICAL THRUST RESTRAINT FOR ALL JOINTS. INSTALL WITH A CAP AND OUTLET AT THE END OF THE SERVICE OF SUFFICIENT SIZE TO ALLOW FOR FLUSHING AND TESTING OF THE SERVICE LINE. ALL SERVICES WILL BE SUBJECT TO THE SAME TESTING AS THE WATER MAIN. AFTER SUCCESSFUL COMPLETION OF TESTING, REMOVE CAP AND CONNECT TO EXISTING SERVICE PIPE. CONNECTION TO EXISTING PIPE WILL BE VISUALLY INSPECTED UNDER CITY OPERATING PRESSURE PRIOR TO BURYING. COORDINATE TESTING AND INSPECTION WITH CAR (COUNCIL AUTHORIZED REPRESENTATIVE) AND CITY INSPECTOR.

(10) SEE TYPICAL PIPE CASING INSTALLATION DETAIL.

(11) PROTECT SEWER IN PLACE.

(12) STATION WATER SERVICE. SEE STATION MECHANICAL PLANS FOR CONTINUATION AND DETAIL. COORDINATE WITH CAR (COUNCIL AUTHORIZED REPRESENTATIVE) FOR LOCATION OF CURB STOP.

(13) PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS.

(14) CONCRETE PIERS FOR PIPE CROSSING. SEE DETAIL.

(15) INSULATE WATER MAIN.

(16) SEWER CONSTRUCTION JOINT. SEE DETAIL.

(17) SEE JOINING DISSIMILAR PIPE DETAIL.

(18) CONSTRUCT WATER SERVICE TRACK CROSSING PER TYPICAL WATER SERVICE TRACK CROSSING FOR 2" COPPER SERVICE OR SMALLER DETAIL.

(19) NOT USED

(20) RECONSTRUCT SEWER SERVICE PER RECONNECTION OF HOUSE SERVICES DETAIL. COORDINATE WITH PROPERTY OWNER TO MINIMIZE INTERRUPTION OF SERVICE. COORDINATE WITH LOCATION AND ELEVATION OF PUBLIC AND PRIVATE UTILITIES AND PROPOSED RELOCATION OF PUBLIC AND PRIVATE UTILITIES.

(21) NOT USED

UTILITY CONTACTS

UTILITY: ARVIG COMMUNICATIONS SYSTEMS
CONTACT: PATRICK LYNCH
PHONE: (320) 256–0271
MOBILE: (320) 492–8763
ADDRESS: 224 MAIN STREET EAST
MELROSE, MINNESOTA 56352

UTILITY: CITY OF MINNEAPOLIS TRAFFIC
CONTACT: ALLAN KLUGMAN
PHONE: (612) 673–2743
MOBILE: (612) 655–6292
ADDRESS: 300 BORDER AVENUE NORTH
MINNEAPOLIS, MN 55405

UTILITY: LEVEL 3 COMMUNICATIONS
CONTACT: BRAD MORSETH
PHONE:
MOBILE: (612) 805–9479
ADDRESS: 715 N. 2ND ST.
MINNEAPOLIS, MINNESOTA 55401

UTILITY: TDS TELECOM
CONTACT: MICHAEL RITCHIE
PHONE: (608) 664–4461
MOBILE:
ADDRESS: 525 JUNCTION ROAD
MADISON, WISCONSIN 53717

UTILITY: ZAYO FIBER SOLUTIONS
CONTACT: JACK JELINEK
PHONE: (952) 230–4288
MOBILE: (715) 245–0491
ADDRESS: 2300 BERKSHIRE LN N.
SUITE 4
PLYMOUTH, MN 55441

UTILITY: AT & T
CONTACT: JERRY STREETER
PHONE: (612) 344–3327
MOBILE: (612) 248–8674
ADDRESS: 420 3RD AVE. S., 9TH FLOOR
MINNEAPOLIS, MINNESOTA 55415

UTILITY: CITY OF MINNEAPOLIS WATER
CONTACT: MARIE ASGIAN
PHONE: (612) 673–5682
MOBILE:
ADDRESS: ROOM MAIN, WATER – EAST YARD
935 5TH AVENUE SE
MINNEAPOLIS, MN 55414

UTILITY: METROPOLITAN COUNCIL, ENVIRONMENTAL SERVICES
CONTACT: ADAM GORDON
PHONE: (651) 602–4508
MOBILE:
ADDRESS: 3565 KENNEBEC DRIVE
EAGAN, MINNESOTA 55122

UTILITY: TELECOM TRANSPORT MANAGEMENT, INC.
CONTACT: DAVE SMITH
PHONE: (612) 309–8422
MOBILE:
ADDRESS: 6844 WASHINGTON AVE.
EDEN PRAIRIE, MN 55344

UTILITY: CENTERPOINT ENERGY
CONTACT: ANDREW BALGOBIN
PHONE: (612) 321–5426
MOBILE:
ADDRESS: 700 WEST LINDEN AVENUE
MINNEAPOLIS, MINNESOTA 55403

UTILITY: CITY OF ST. LOUIS PARK
CONTACT: JACK SULLIVAN
PHONE: (952) 924–2691
MOBILE:
ADDRESS: ENGINEERING DEPARTMENT
CITY HALL
5005 MINNETONKA BLVD
ST. LOUIS PARK, MINNESOTA 55416

UTILITY: METRO TRANSIT
CONTACT: BOJAN MISIC
PHONE: (612) 373–3874
MOBILE: (619) 549–7620
ADDRESS: SOUTHWEST LRT PROJECT OFFICE
PARK PLACE WEST
6465 WAYZATA BOULEVARD, SUITE 500
ST. LOUIS PARK, MN 55426

UTILITY: TW TELECOM, INCORPORATED
CONTACT: BOB STRONG
PHONE: (952) 351–2353
MOBILE: (612) 805–6827
ADDRESS: 5480 FELTL ROAD
MINNETONKA, MINNESOTA 55343–7982

UTILITY: CENTURYLINK
CONTACT: BRANDON ELVERUM
PHONE: (651) 250–3996
MOBILE:
ADDRESS: 390 COMMERCE DRIVE, ROOM #104
WOODBURY, MINNSOTA 55125

UTILITY: COMCAST CABLE
CONTACT: TOM NIEDZIELSKI
PHONE: (651) 493–5407
MOBILE: (612) 490–7750
ADDRESS: 2621 FAIRVIEW AVE. NORTH
ROSEVILLE, MINNESOTA 55113

UTILITY: MNDOT
CONTACT: MIKE MANNING
PHONE: (612) 373–3809
MOBILE: (651) 775–0227
ADDRESS: SOUTHWEST LRT PROJECT OFFICE
PARK PLACE WEST
6465 WAYZATA BOULEVARD, SUITE 500
ST. LOUIS PARK, MN 55426

UTILITY: VERIZON COMMUNICATIONS
CONTACT: STEPHEN BONCZKOWSKI
PHONE: (630) 395–6161
MOBILE: (630) 327–6959
ADDRESS: 501 63RD ST.
DOWNERS GROVE, ILLINOIS 60516

UTILITY: CENTURYLINK
CONTACT: KATHY HOGGARTH
PHONE: (651) 312–5306
MOBILE:
ADDRESS: 425 MONROE ST.
ANOKA, MINNESOTA 55303

UTILITY: EDCO PRODUCTS
CONTACT: RUSS CLARNO
PHONE: (952) 945–2650
MOBILE:
ADDRESS: 8700 EXCELSIOR BLVD.
HOPKINS, MINNESOTA 55343

UTILITY: ROGERS COMMUNICATIONS
CONTACT: RICHARD AUSTRIA
PHONE: (647) 747–2976
MOBILE: (647) 241–6534
ADDRESS: EAST BUILDING 2ND FLOOR
BRAMPTON, ONTARIO L6T 0C1

UTILITY: WINDSTREAM
CONTACT: ERIC BECKER
PHONE:
MOBILE: (612) 790–4110
ADDRESS: 2996 CENTRE POINT DR.
ROSEVILLE, MINNESOTA 55113

UTILITY: CENTURYLINK – LITECORE/KMC
CONTACT: KYLE TOSTENSON
PHONE: (318) 417–2768
MOBILE:
ADDRESS: 100 CENTURYLINK DRIVE
MONROE, LA 71203

UTILITY: HENNEPIN COUNTY
CONTACT: KRISTY MORTER
PHONE: (612) 596–0384
MOBILE:
ADDRESS: HENNEPIN COUNTY
TRANSPORTATION DEPARTMENT, DESIGN DIVISION
1600 PRAIRIE DRIVE
MEDINA, MN 55340

UTILITY: SPRINT COMMUNICATIONS COMPANY, LP
CONTACT: DAN HILLIARD
PHONE: (651) 772–6714
MOBILE: (612) 414–2089
ADDRESS: 849 EARL STREET
ST. PAUL, MINNESOTA 55106

UTILITY: XCEL ENERGY – TRANSMISSION
CONTACT: BRUCE ZEMKE
PHONE: (612) 330–7815
MOBILE: (651) 214–2620
ADDRESS: 414 NICOLLET MALL, (MP 8)
MINNEAPOLIS, MINNESOTA 55401

UTILITY: CITY OF HOPKINS
CONTACT: NATE STANLEY
PHONE: (952) 548–6356
MOBILE: (952) 292–6872
ADDRESS: 1010 1ST ST. S.
HOPKINS, MINNESOTA 55343

UTILITY: HERC
CONTACT: ANDREW LEITH
PHONE: (612) 348–8993
MOBILE:
ADDRESS: HENNEPIN COUNTY DEPARTMENT OF
ENVIRONMENTAL SERVICES
SOLID WASTE & ENERGY DIVISION
701 FOURTH AVENUE SOUTH, SUITE 700
MINNEAPOLIS, MN 55415–1842

UTILITY: ST. LOUIS PARK PUBLIC SCHOOLS – ISD #283
CONTACT: TOM MARBLE
PHONE: (952) 928–6152
MOBILE:
ADDRESS: ST. LOUIS PARK PUBLIC SCHOOLS – ISD #283
6425 WEST 33RD STREET
ST. LOUIS PARK, MINNESOTA 55426

UTILITY: XCEL ENERGY – DISTRIBUTION
CONTACT: MORGAN IMPOLA
PHONE: (952) 829–4538
MOBILE: (612) 876–5447
ADDRESS: 5309 WEST 70TH STREET
EDINA, MINNESOTA 55439

UTILITY: CITY OF MINNEAPOLIS SEWER
CONTACT: KELLY MORIARITY
PHONE: (612) 673–3617
MOBILE:
ADDRESS: CITY OF LAKES BUILDING
309 2ND AVENUE SOUTH – ROOM 330
MINNEAPOLIS, MN 55401–2268

UTILITY: HOPKINS PUBLIC SCHOOLS
CONTACT: JOHN WETTER
PHONE: (952) 988–5373
MOBILE:
ADDRESS: EDUCATIONAL TECHNOLOGY, MEDIA &
INFORMATION SERVICES
HOPKINS DISTRICT 270
1001 HIGHWAY 7
HOPKINS, MINNESOTA 55305

UTILITY: SUPER–VALU
CONTACT: AARON RESTEMAYER
PHONE: (952) 238–3231
MOBILE:
ADDRESS: 300 2ND AVE. S.
HOPKINS, MINNESOTA 55343

UTILITY: XO COMMUNICATIONS
CONTACT: ED PARKER
PHONE: (602) 324–6488
MOBILE:
ADDRESS: 3930 E. WATKINS SUITE 200
PHOENIX, ARIZONA 85034

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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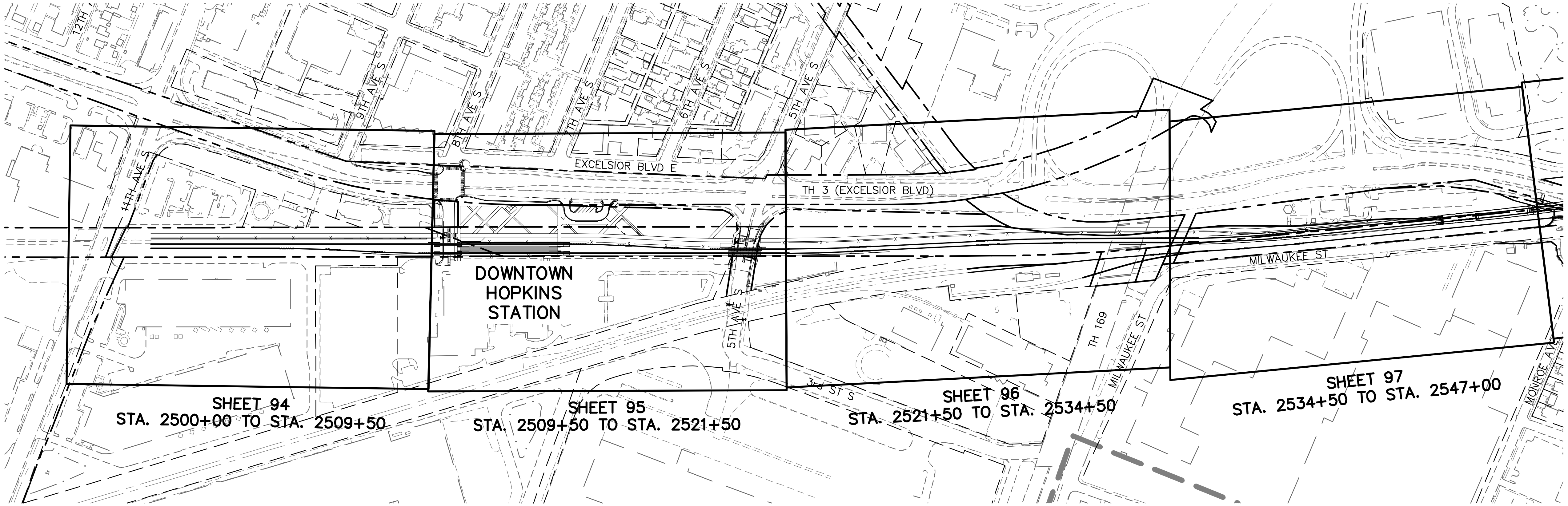
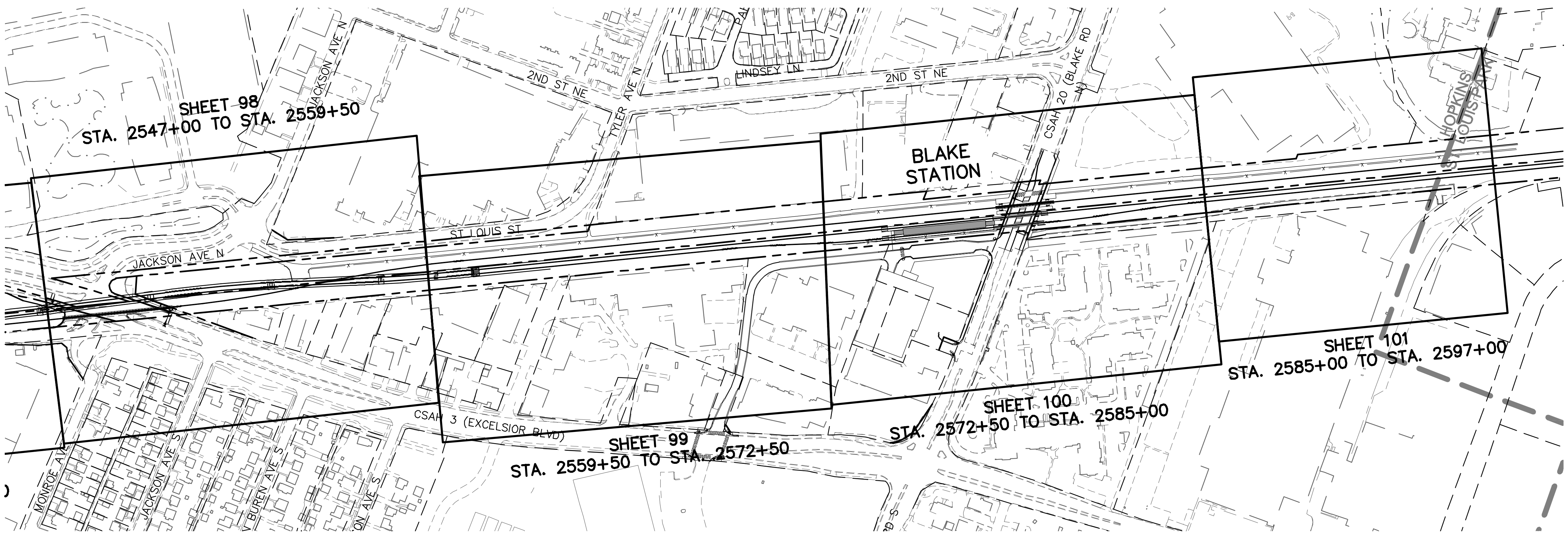
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
UTILITY CONTACTS

DISCIPLINE: UTILITY
SHEET NAME: E1-UTL-CNTC-001





0 100 200 400

SCALE IN FEET

Aug. 29 2014 07:07 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\UTILITIES\E1-UTL-IDX.dwg By: chris.bunders

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METROPOLITAN COUNCIL

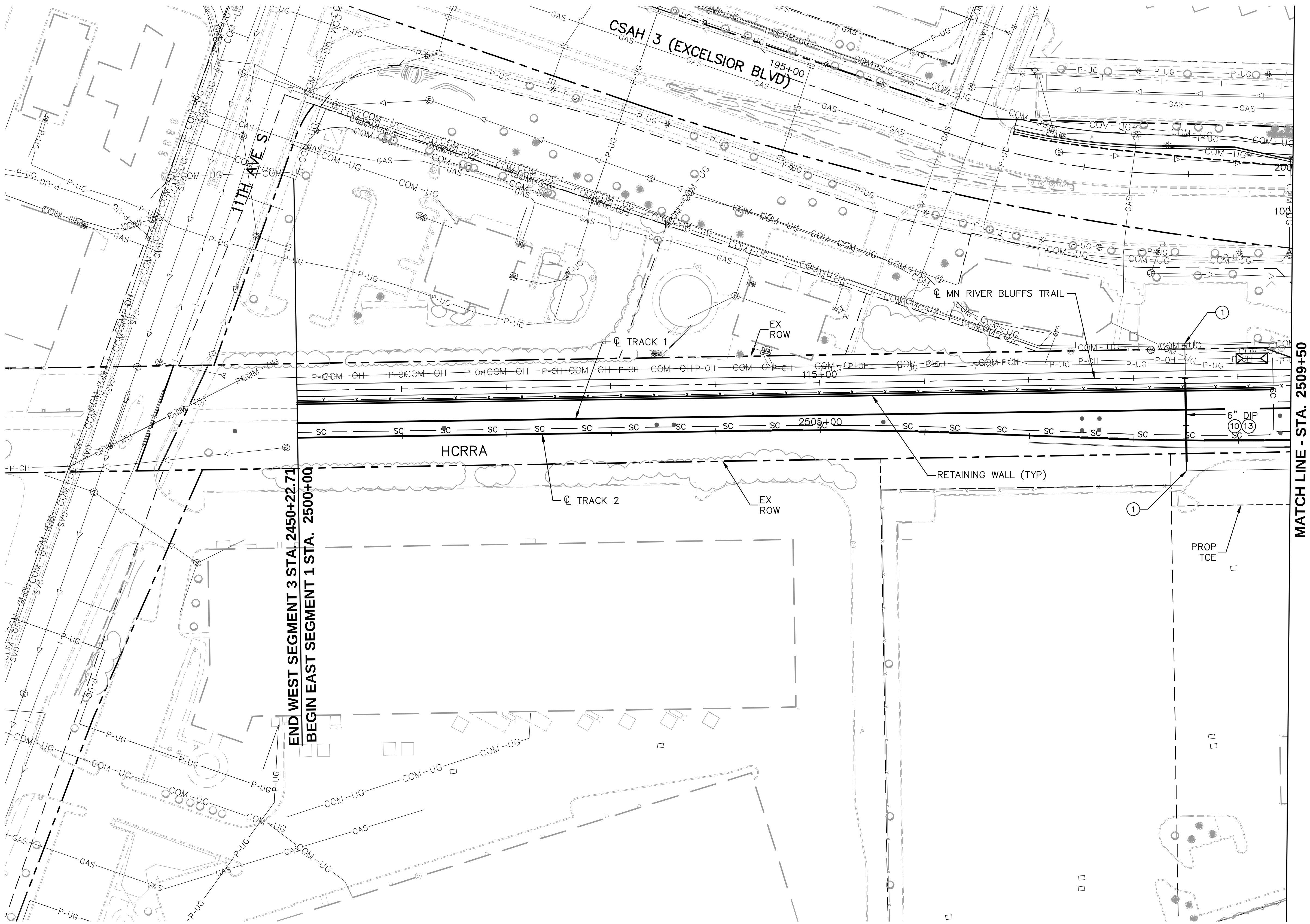
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
UTILITY PLAN
SHEET INDEX

DISCIPLINE: UTILITY

SHEET NAME: E1-UTL-IDX-001

SHEET 93 OF 113



0 25 50 100
SCALE IN FEET

NOTES:

* SEE SHEET E1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E1-UTL-NTS-001 FOR NOTES.

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

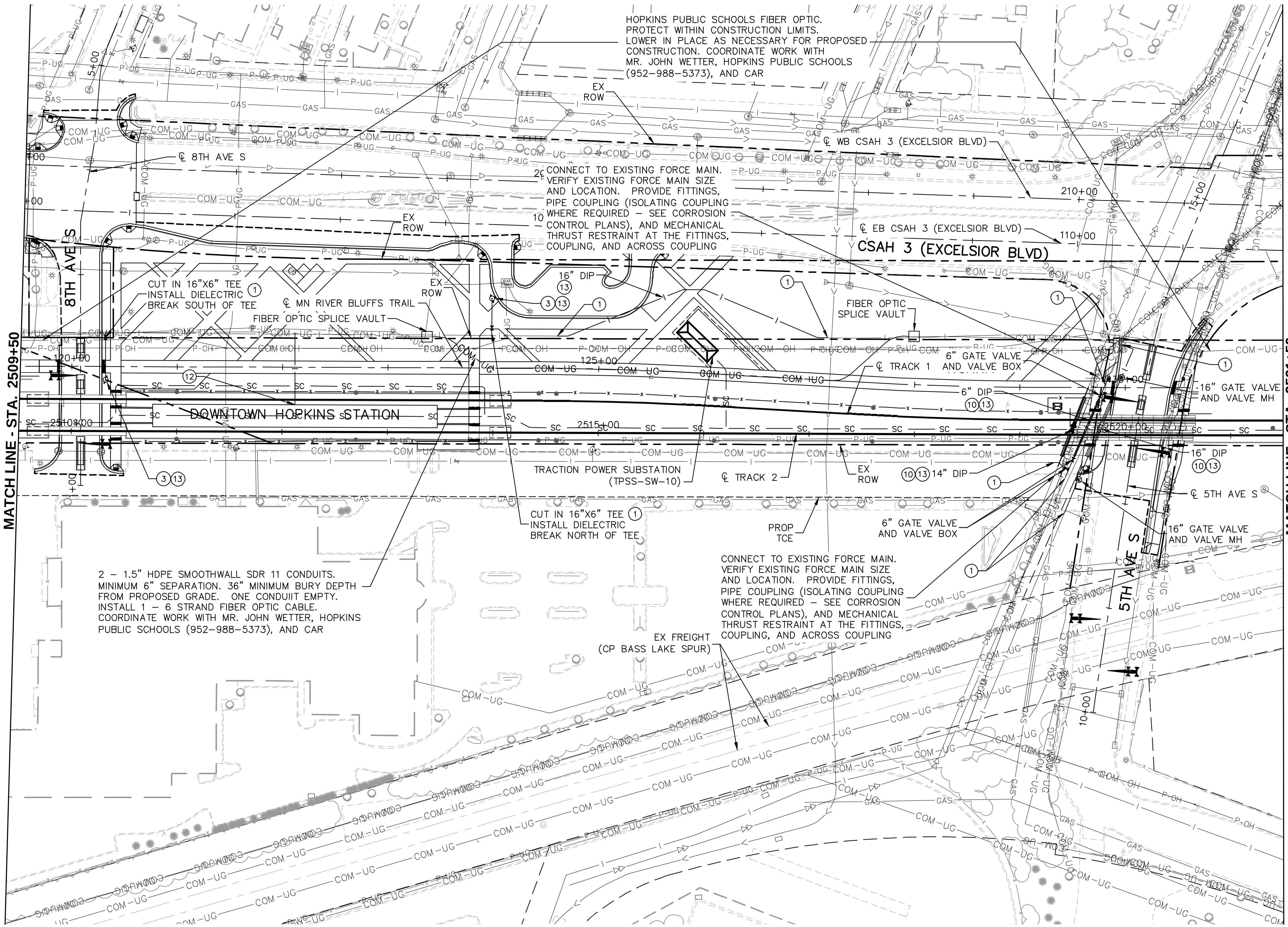
EAST - VOLUME 1 (CIVIL) - SEGMENT 1
UTILITY PLAN

STA. 2500+00 TO STA. 2509+50

DISCIPLINE: UTILITY

SHEET NAME: E1-UTL-PLN-001

SHEET 94 OF 113



NOTES:

* SEE SHEET E1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E1-UTL-NTS-001 FOR NOTES.

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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
UTILITY PLAN

STA. 2509+50 TO STA. 2521+50

DISCIPLINE: UTILITY
SHEET NAME: E1-UTL-PLN-002

SHEET 95 OF 113

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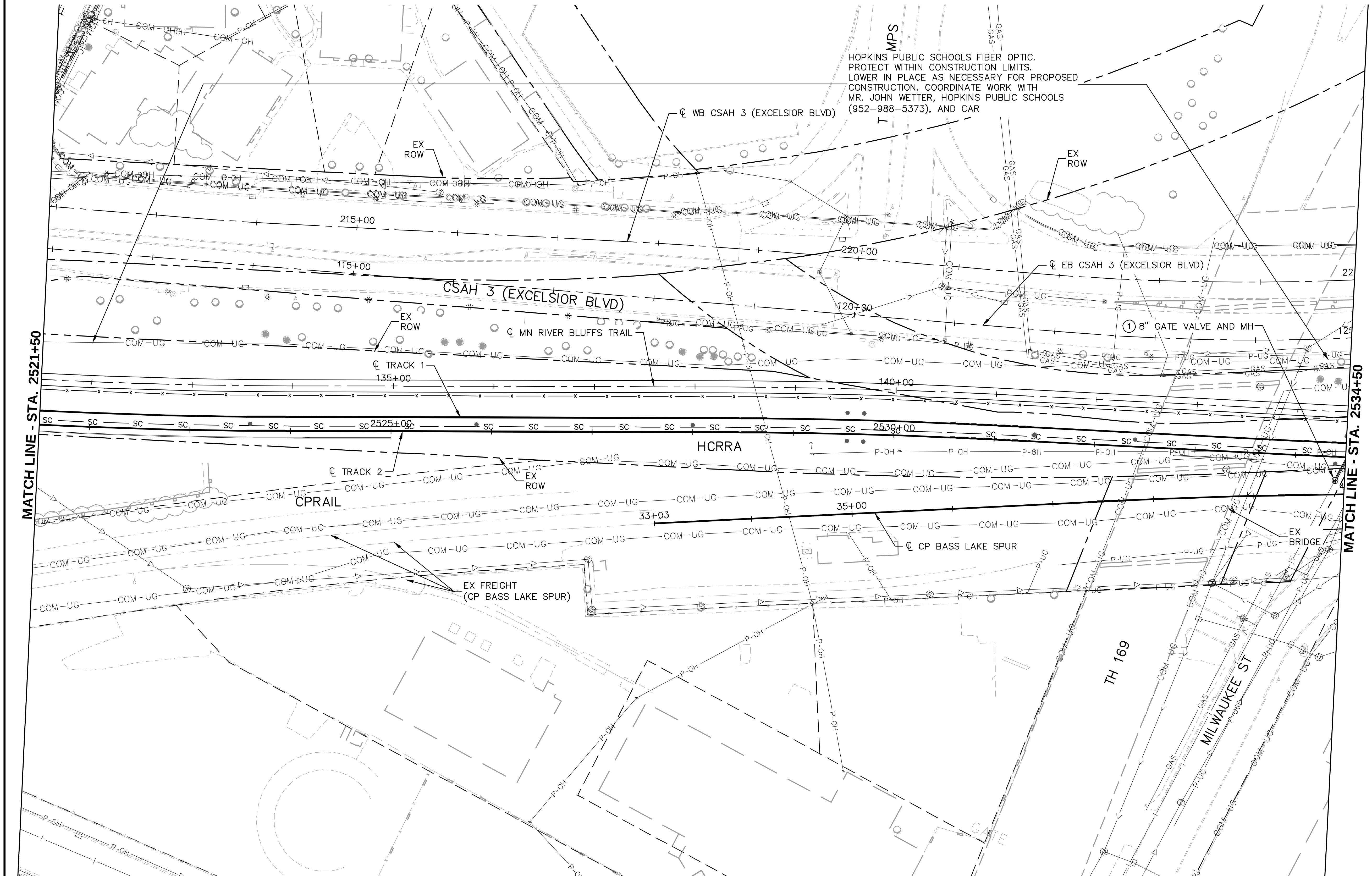

0 25 50 100
SCALE IN FEET

NOTES:

* SEE SHEET E1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E1-UTL-NTS-001 FOR NOTES.

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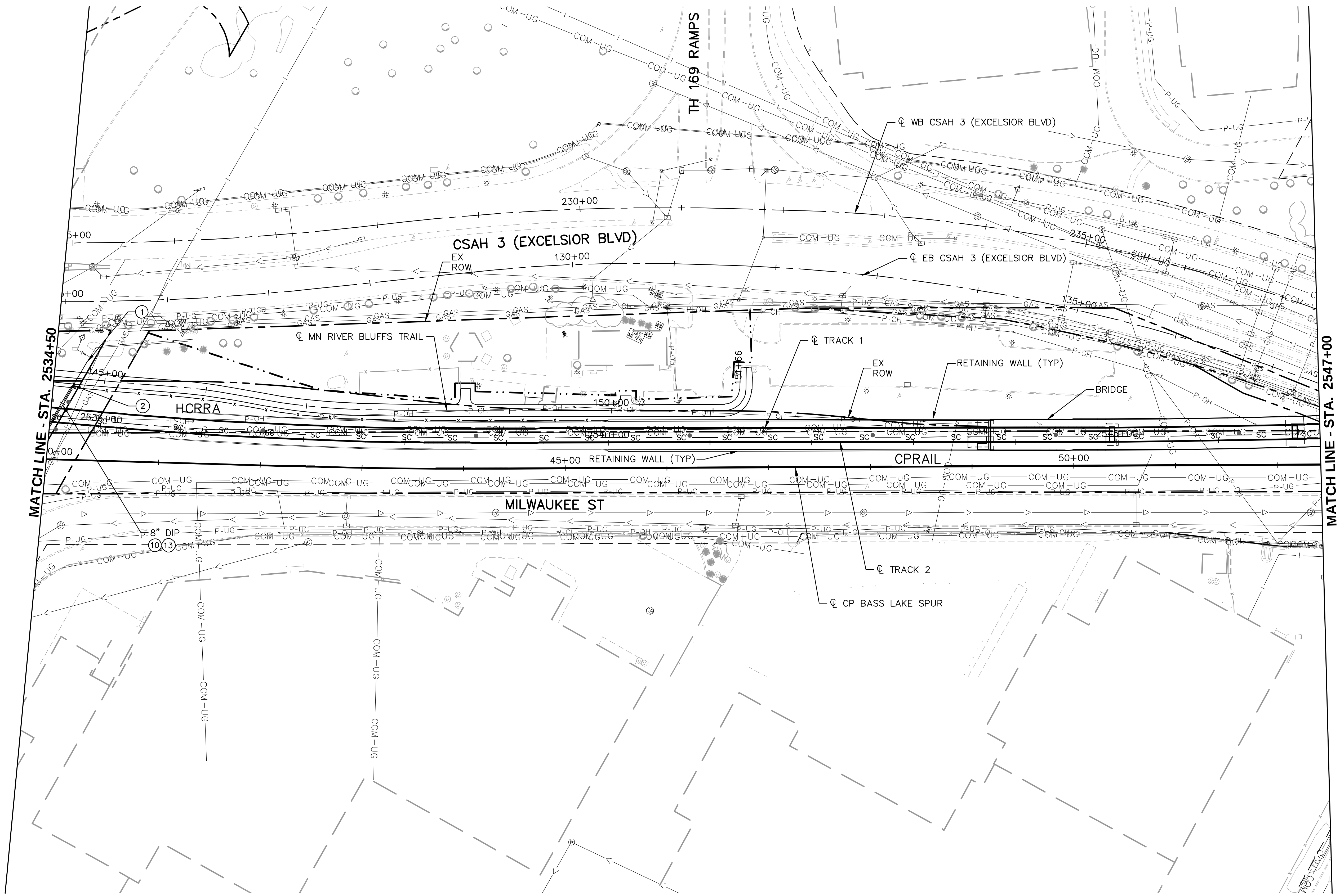
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
UTILITY PLAN
STA. 2521+50 TO STA. 2534+50

DISCIPLINE: UTILITY
SHEET NAME: E1-UTL-PLN-003



0 25 50 100
SCALE IN FEET

NOTES:

* SEE SHEET E1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E1-UTL-NTS-001 FOR NOTES.

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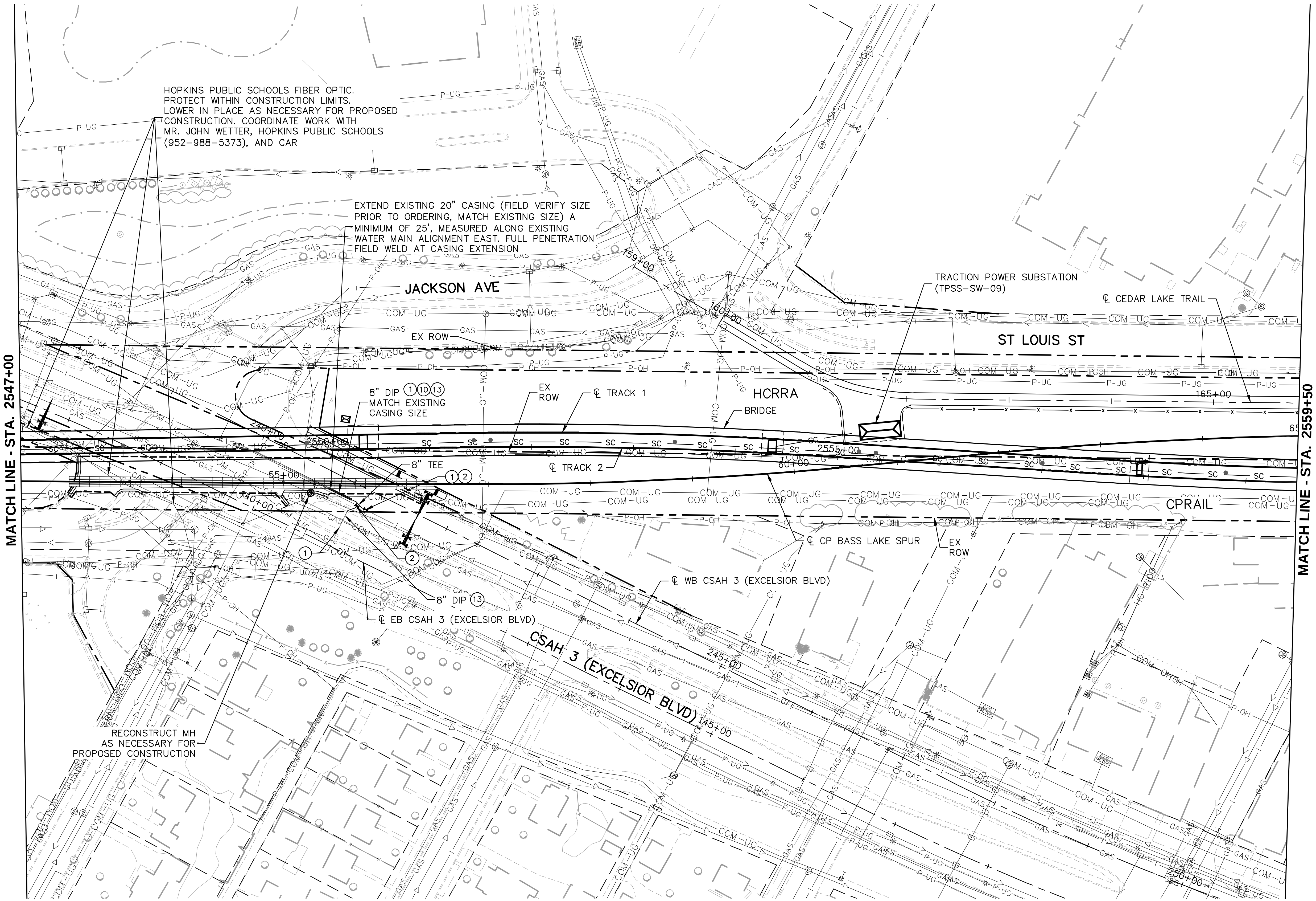
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
UTILITY PLAN

STA. 2534+50 TO STA. 2547+00

DISCIPLINE: UTILITY

SHEET NAME: E1-UTL-PLN-004



0 25 50 100
SCALE IN FEET

NOTES:

* SEE SHEET E1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E1-UTL-NTS-001 FOR NOTES.

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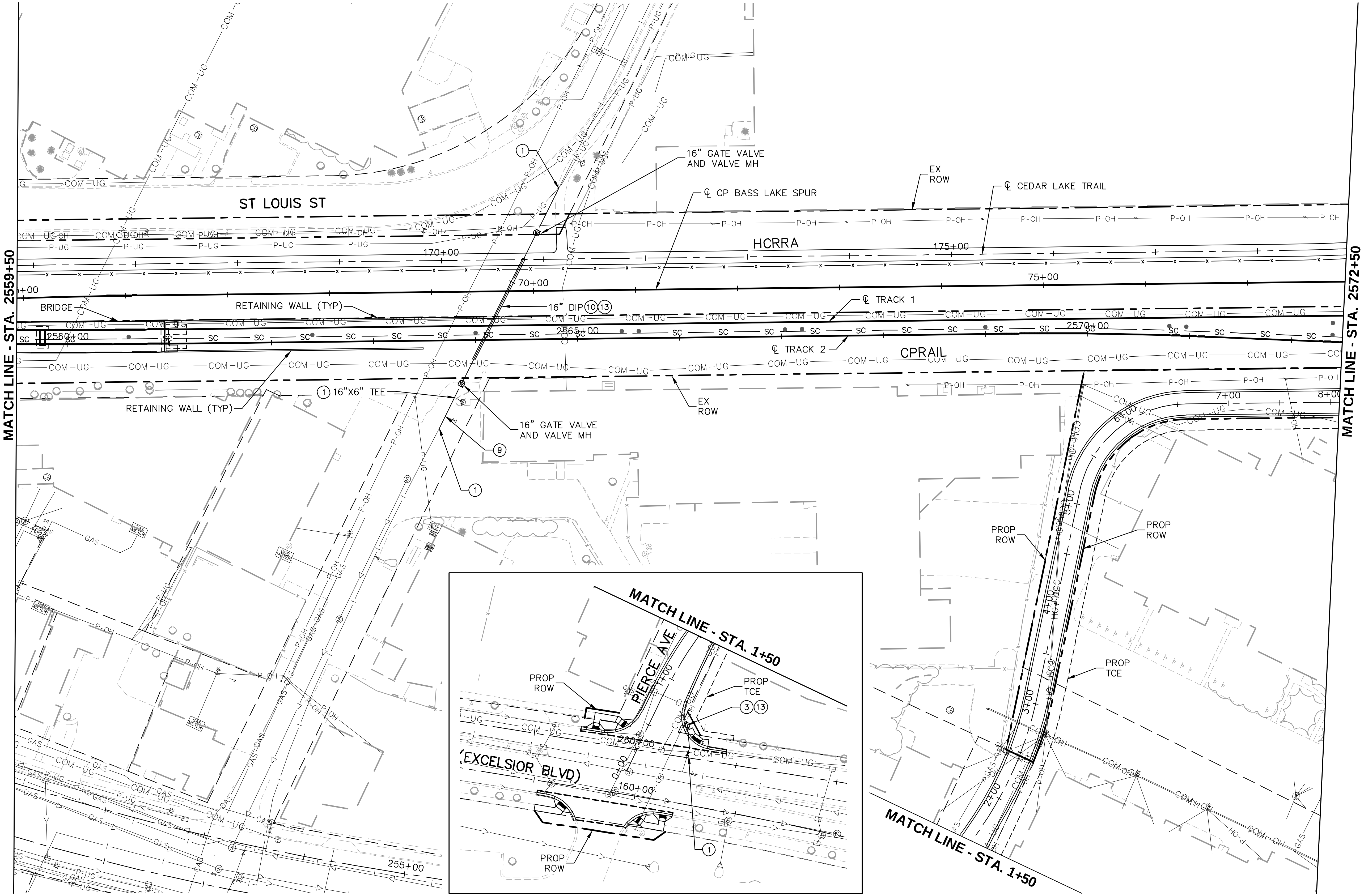
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
UTILITY PLAN

STA. 2547+00 TO STA. 2559+50

DISCIPLINE: UTILITY
SHEET NAME: E1-UTL-PLN-005

SHEET 98 OF 113



NOTES:

* SEE SHEET E1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E1-UTL-NTS-001 FOR NOTES.

SCALE IN FEET: 0 25 50 100

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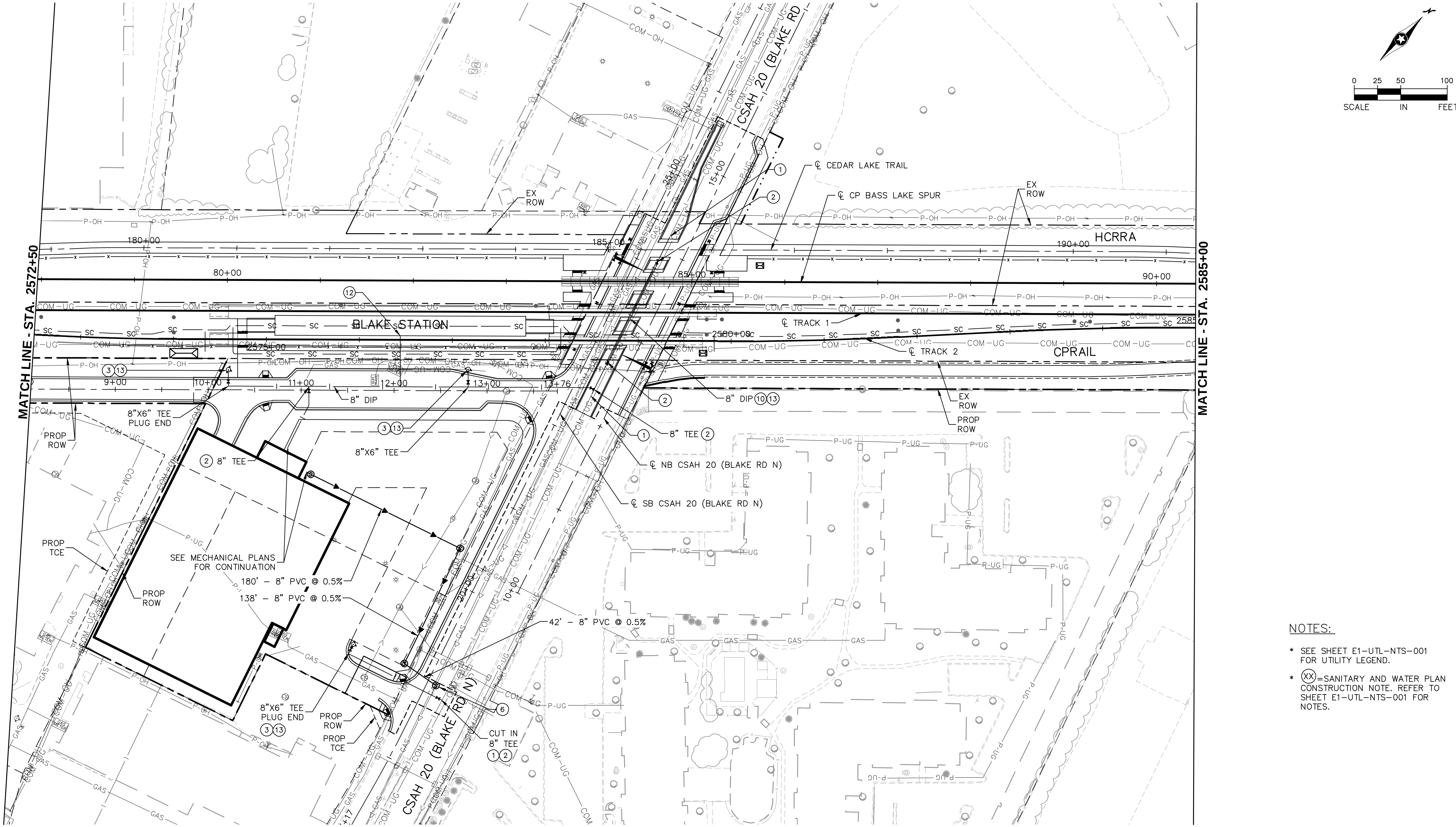
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
UTILITY PLAN

STA. 2559+50 TO STA. 2572+50

DISCIPLINE: UTILITY
SHEET NAME: E1-UTL-PLN-006



NOTES:

* SEE SHEET E1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E1-UTL-NTS-001 FOR NOTES.

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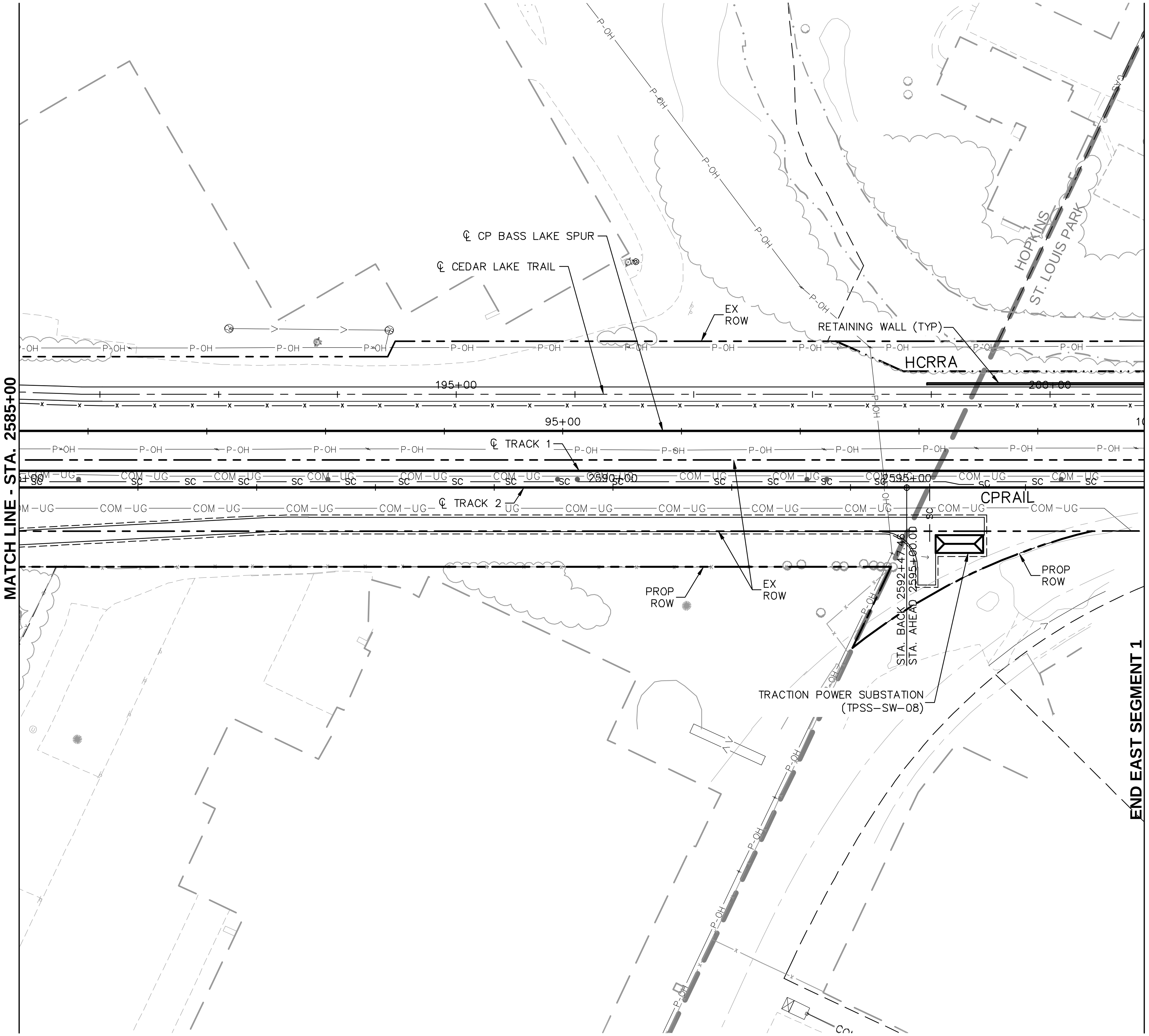
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
UTILITY PLAN

STA. 2572+50 TO STA. 2585+00

DISCIPLINE: **UTILITY**

SHEET NAME: **E1-UTL-PLN-007**



NOTES:

* SEE SHEET E1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E1-UTL-NTS-001 FOR NOTES.

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SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
UTILITY PLAN

STA. 2585+00 TO STA. 2597+00

DISCIPLINE: UTILITY

SHEET NAME: E1-UTL-PLN-008

SHEET 101 OF 113

TRAFFIC LEGEND

INPLACE

- POWER POLE
- PUSHBUTTON PEDESTAL
- LUMINAIRE
- SIG. POLE W/MASTARM
- SIGNAL PEDESTAL
- SIGNAL FACE
- TRAFFIC PAD
- PEDESTRIAN INDICATION
- PUSHBUTTON
- EVP CONFIRMATORY LIGHT
- EVP DETECTOR
- EVP DETECTOR AND CONFIRMATORY LIGHT
- AUTOMATIC GATE

FURNISH & INSTALL

- POWER POLE
- PUSHBUTTON PEDESTAL
- LUMINAIRE
- SIG. POLE W/MASTARM
- SIGNAL PEDESTAL
- SIGNAL FACE
- WARNING FLASHER
- TRAFFIC PAD
- PEDESTRIAN INDICATION
- PUSHBUTTON
- EVP CONFIRMATORY LIGHT
- EVP DETECTOR
- EVP DETECTOR AND CONFIRMATORY LIGHT
- AUTOMATIC GATE
- RAIL CROSSING FLASHER

ABBREVIATIONS

2-1	SIGNAL HEAD NUMBER
AWF	ADVANCE WARNING FLASHER
EVP	EMERGENCY VEHICLE PRE-EMPTION
FYA	FLASHING YELLOW ARROW
GRN	GREEN INDICATION
GR. RD.	GROUND ROD
INP	INPLACE
INS. GR.	INSULATED GROUND
LED	LIGHT EMITTING DIODE
LUM	LUMINAIRE
P1-1 (e.g.)	PEDESTRIAN HEAD (PHASE 1, NO. 1)
PB2-1 (e.g.)	PUSH BUTTON (PHASE 2, NO. 1)
PED	PEDESTRIAN
SOP	SOURCE OF POWER
STA	STATION
WLK	WALK INDICATION
YEL	YELLOW INDICATION
RED	RED INDICATION
Ø2	SIGNAL PHASE NUMBER

INPLACE EQUIPMENT LABELS

3	SIGNAL BASE NO.
3-2	SIGNAL HEAD NO./FLASHER HEAD NO.
2	LUMINAIRE NO.
A	CONTROLLER CABINET
B	SIGNAL SERVICE CABINET

EQUIPMENT LABELS

3	SIGNAL BASE NO.
3-2	SIGNAL HEAD NO./FLASHER HEAD NO.
2	LUMINAIRE NO.
A	CONTROLLER CABINET
B	SIGNAL SERVICE CABINET

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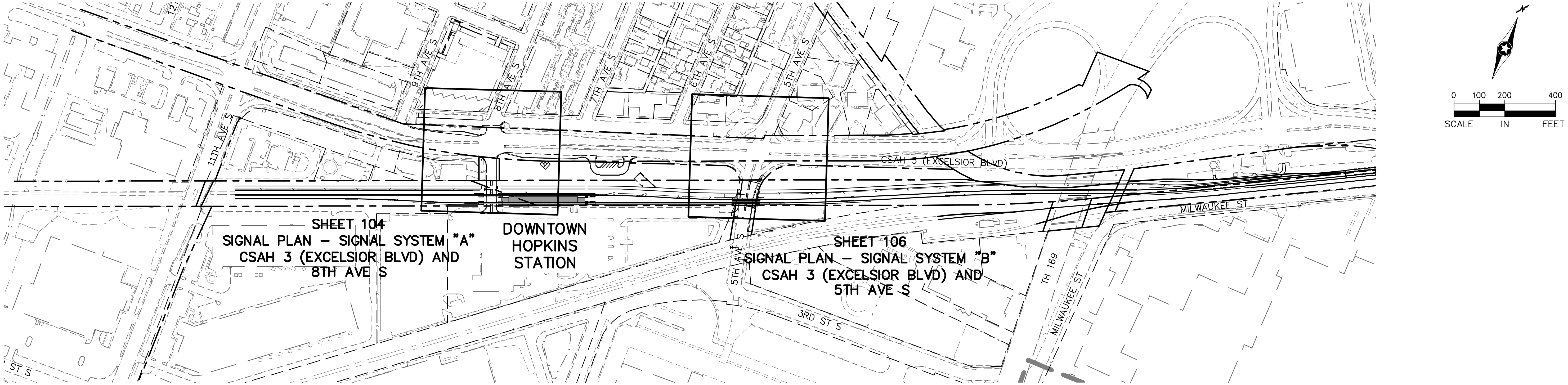
METROPOLITAN COUNCIL

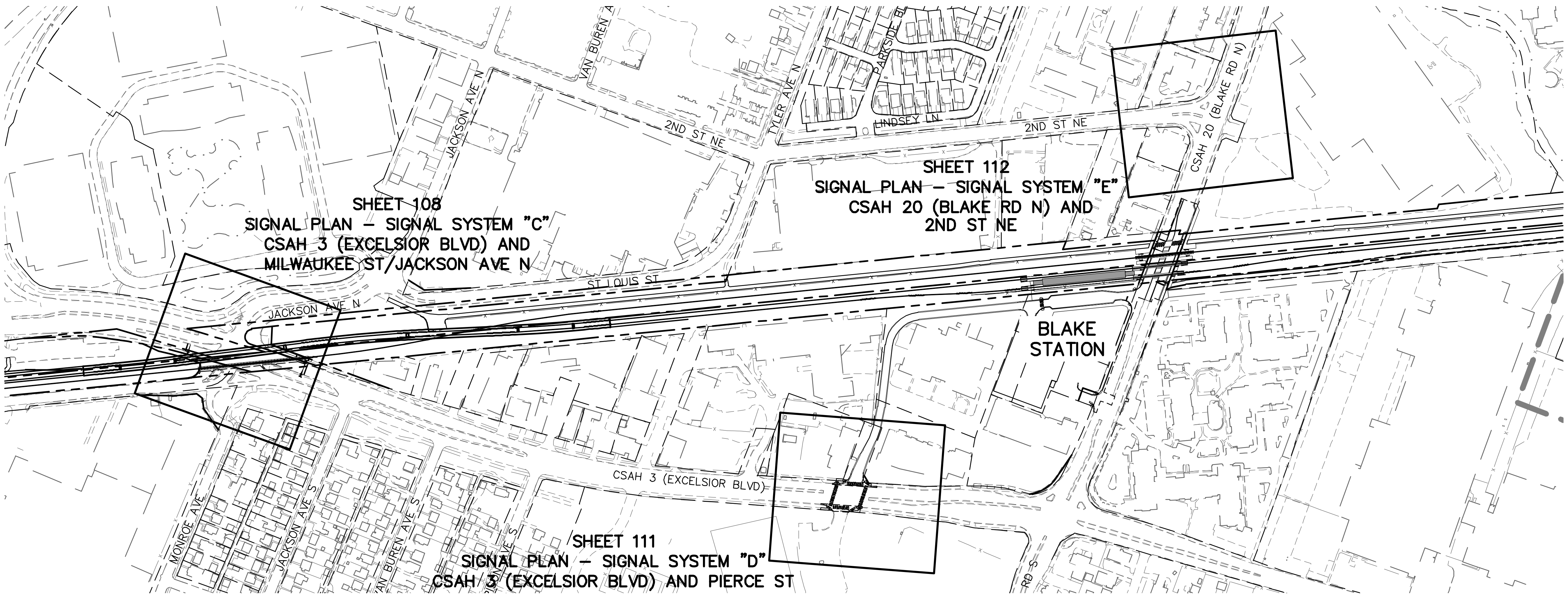
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SIGNAL PLAN
NOTES AND LEGEND

DISCIPLINE: TRAFFIC

SHEET NAME: E1-TFC-SIG-NTS-001





SHEET NAME LEGEND

TFC = TRAFFIC
01 = SEGMENT 1
SIG = SIGNAL PLAN SHEETS
001 = SEQUENCE NUMBER

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SIGNAL PLAN
SHEET INDEX

DISCIPLINE: TRAFFIC

SHEET NAME: E1-TFC-SIG-IDX-001

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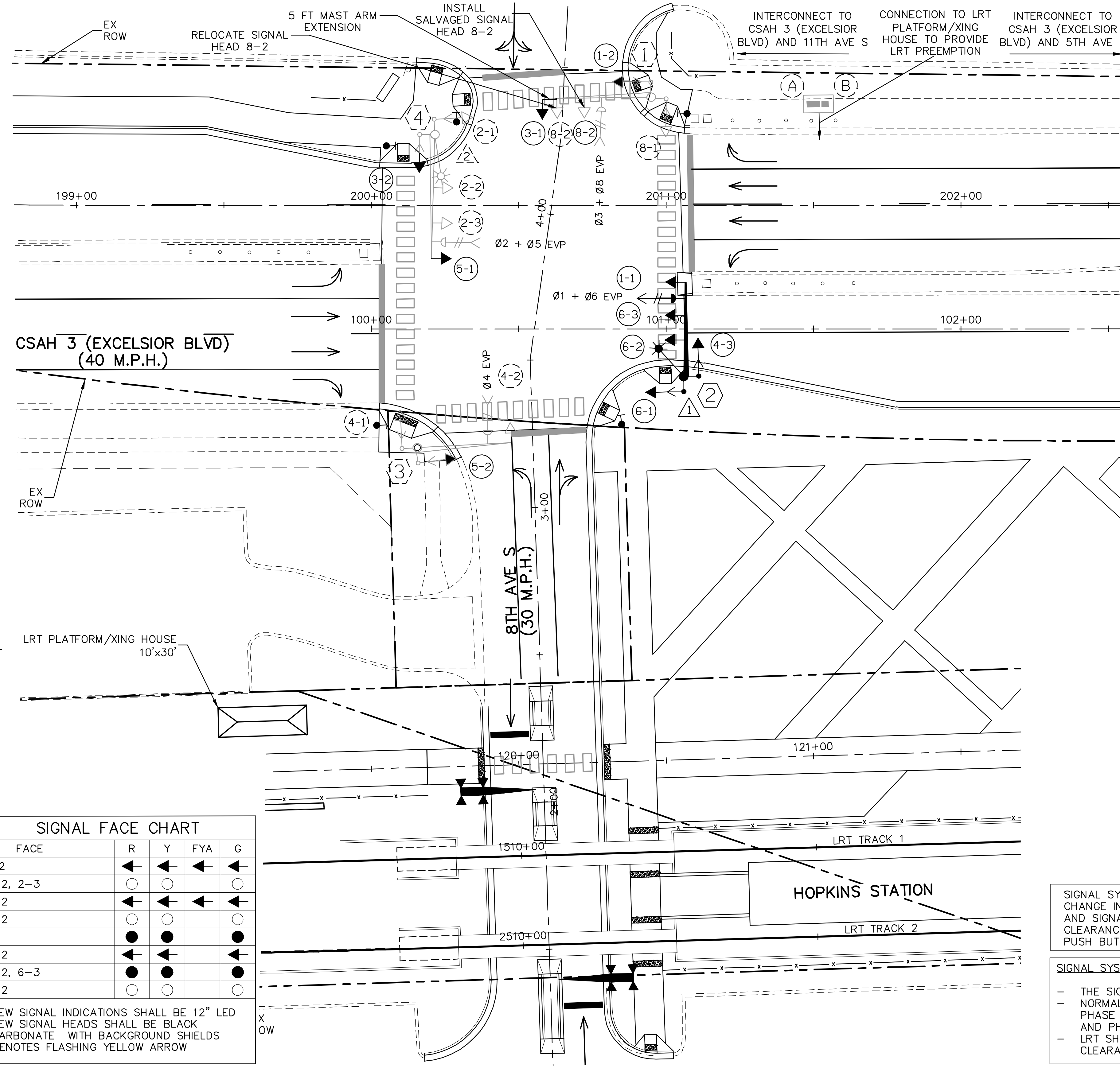
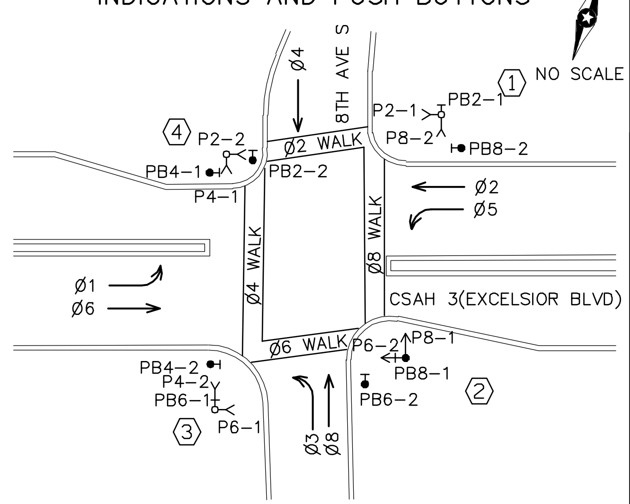


NOTES
1. ALL PEDESTRIAN INDICATIONS SHALL INCLUDE COUNTDOWN TIMERS.
2. INTERCONNECT TO LRT PLATFORM/XING HOUSE TO BE DETERMINED ONCE LRT PLATFORM/XING HOUSE LOCATION IS DETERMINED.
3. (A) – CONTROLLER CABINET
   (B) – SIGNAL SERVICE CABINET
4. THE EXACT LOCATION OF HANDHOLES, POLES, DETECTORS, AND EQUIPMENT PAD SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL FACE CHART

FACE	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	○	○		○
3-1, 3-2	←	←	←	←
4-1, 4-2	○	○		○
4-3	●	●		●
5-1, 5-2	←	←		←
6-1, 6-2, 6-3	●	●		●
8-1, 8-2	○	○		○

- ALL NEW SIGNAL INDICATIONS SHALL BE 12" LED
- ALL NEW SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
- FYA DENOTES FLASHING YELLOW ARROW

SIGNAL SYSTEM "A" IS BEING MODIFIED TO ACCOMMODATE A CHANGE IN THE CURB ALIGNMENT IN THE SOUTHEAST CORNER AND SIGNAL PHASING CHANGES DUE TO LRT TRACK CLEARANCE AND PREEMPTION AND TO PROVIDE PEDESTRIAN PUSH BUTTONS.

SIGNAL SYSTEM OPERATIONS

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION SHALL BE 7 PHASE, WITH PHASE 1 AND PHASE 3 BEING FLASHING YELLOW ARROWS BY TIME OF DAY AND PHASE 5 BEING PROTECTED ONLY.
- LRT SHALL OPERATE WITH PREEMPTION, INCLUDING TRACK CLEARANCE.

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SIGNAL PLAN - SIGNAL SYSTEM "A"
CSAH 3 (EXCELSIOR BLVD) AND 8TH AVE S

DISCIPLINE: TRAFFIC

SHEET NAME: E1-TFC-SIG-8TH-001

SHEET 104 OF 113

SIGNAL STRUCTURE AND COMPONENT LOCATION

NO.	LOCATION	NO.	REMARKS
HH-1	℄EBL 741+20 21' RT.	HH-A	USE INPLACE
HH-2	℄WBL 743+66 40' LT.	HH-B	USE INPLACE
HH-3	℄EBL 744+23 46' RT.	HH-C	USE INPLACE
HH-4	℄WBL 746+72 20' RT.	HH-D	USE INPLACE
HH-5	℄WBL 744+44 LT ***	HH-E	USE INPLACE
		HH-F	USE INPLACE
		HH-G	USE INPLACE
CAC-1	℄WBL 744+90 36' LT		
		SP-A	USE INPLACE

NO.	LOCATION
MA-1	℄WBL 744+35 34' LT AIM ARM TO ℄WBL 744+05 34' LT. (30' MAST ARM)
MA-2	℄EBL 744+37 27' RT AIM ARM TO ℄EBL 744+37 (40' MAST ARM)
MA-3	℄EBL 743+56 34' RT AIM ARM TO ℄EBL 743+86 34' RT (30' MAST ARM)
MA-4	℄WBL 743+57 22' LT AIM ARM TO ℄WBL 743+57 (35' MAST ARM)

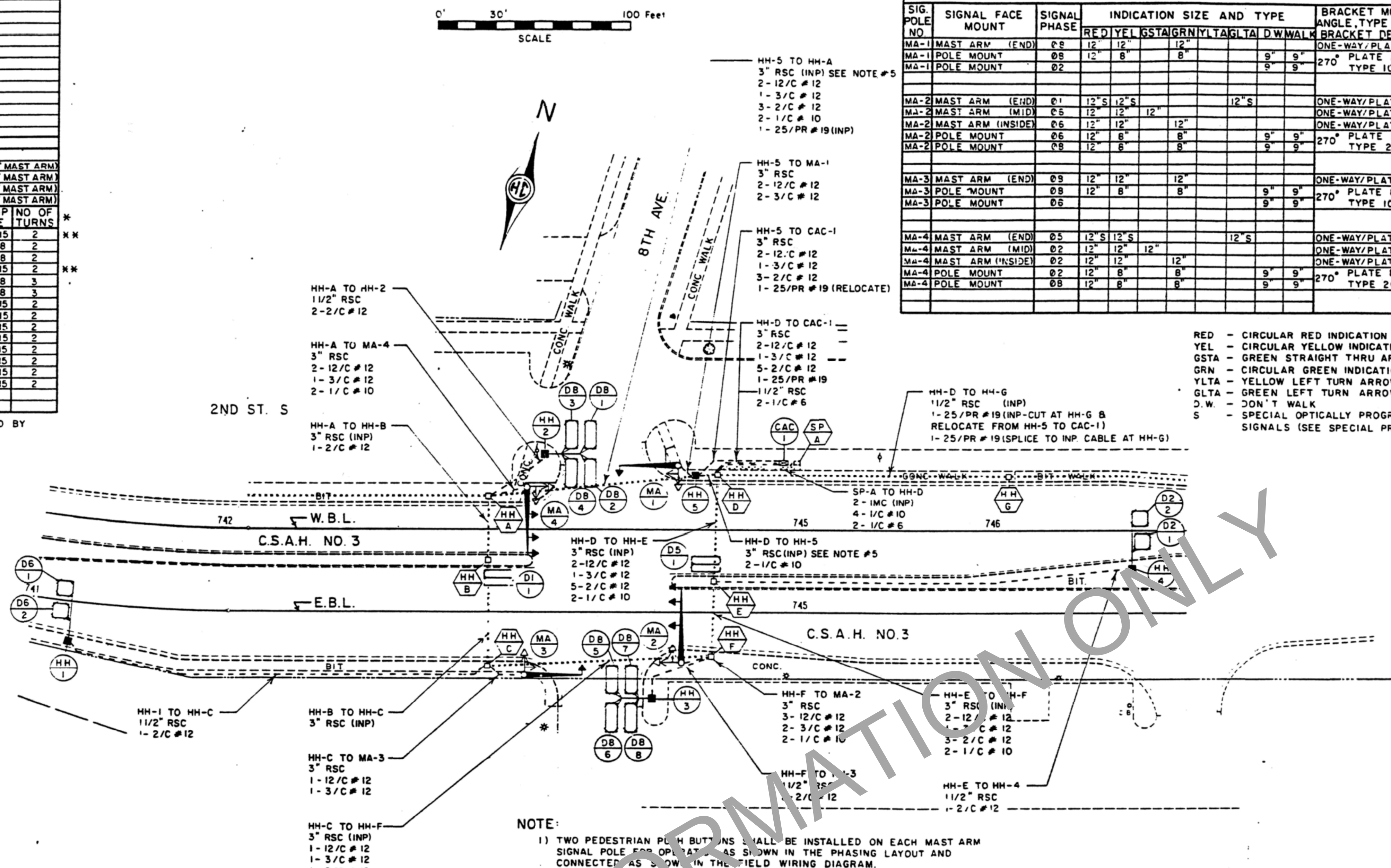
NO.	LOCATION	LOOP SIZE	NO OF TURNS *	
D1-1	EAST EDGE AT ℄EBL 743+50 NORTH EDGE 2' FROM F/C	8 X 15	2	**
D2-1	WEST EDGE AT ℄WBL 746+73 NORTH EDGE 2' FROM ℄	8 X 8	2	
D2-2	WEST EDGE AT ℄WBL 746+72 SOUTH EDGE 2' FROM ℄	8 X 8	2	
D5-1	WEST EDGE AT ℄WBL 744+42 SOUTH EDGE 2' FROM F/C	8 X 15	2	**
D6-1	EAST EDGE AT ℄EBL 741+20 SOUTH EDGE 2' FROM ℄	8 X 8	3	
D6-2	EAST EDGE AT ℄EBL 741+19 NORTH EDGE 2' FROM ℄	8 X 8	3	
D8-1	EAST EDGE AT ℄WBL 743+93 SOUTH EDGE 42' FROM ℄	6 X 15	2	
D8-2	EAST EDGE AT ℄WBL 743+93 SOUTH EDGE 22' FROM ℄	6 X 15	2	
D8-3	EAST EDGE AT ℄WBL 743+83 SOUTH EDGE 42' FROM ℄	6 X 15	2	
D8-4	EAST EDGE AT ℄WBL 743+83 SOUTH EDGE 22' FROM ℄	6 X 15	2	
D8-5	WEST EDGE AT ℄EBL 743+99 NORTH EDGE 28' FROM ℄	6 X 15	2	
D8-6	WEST EDGE AT ℄EBL 743+99 NORTH EDGE 48' FROM ℄	6 X 15	2	
D8-7	WEST EDGE AT ℄EBL 744+09 NORTH EDGE 28' FROM ℄	6 X 15	2	
D8-8	WEST EDGE AT ℄EBL 744+09 NORTH EDGE 48' FROM ℄	6 X 15	2	

* NUMBER OF TURNS IN THE LOOP UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER.
** SEE DETAIL NO. 1
*** SEE NOTE #5

SIGNAL INDICATIONS AND BRACKETING

SIG. POLE NO.	SIGNAL FACE MOUNT	SIGNAL PHASE	RED	YEL	GSTA	GRN	YLTA	GLTA	D.W.	WALK	BRACKET MOUNTING ANGLE, TYPE AND/OR BRACKET DETAIL NO.
MA-1	MAST ARM (END)	Ø8	12"	12"		12"					ONE-WAY/PLATE 8124
MA-1	POLE MOUNT	Ø8	12"	8"		8"			9"	9"	270° PLATE 8110C TYPE 10C
MA-1	POLE MOUNT	Ø2							9"	9"	
MA-2	MAST ARM (END)	Ø1	12"S	12"S				12"S			ONE-WAY/PLATE 8124
MA-2	MAST ARM (MID)	Ø5	12"	12"	12"						ONE-WAY/PLATE 8124
MA-2	MAST ARM (INSIDE)	Ø6	12"	12"		12"					ONE-WAY/PLATE 8124
MA-2	POLE MOUNT	Ø6	12"	8"		8"			9"	9"	270° PLATE 8110C TYPE 20C
MA-2	POLE MOUNT	Ø8	12"	8"		8"			9"	9"	
MA-3	MAST ARM (END)	Ø8	12"	12"		12"					ONE-WAY/PLATE 8124
MA-3	POLE MOUNT	Ø8	12"	8"		8"			9"	9"	270° PLATE 8110C TYPE 10C
MA-3	POLE MOUNT	Ø6							9"	9"	
MA-4	MAST ARM (END)	Ø5	12"S	12"S				12"S			ONE-WAY/PLATE 8124
MA-4	MAST ARM (MID)	Ø2	12"	12"	12"						ONE-WAY/PLATE 8124
MA-4	MAST ARM (INSIDE)	Ø2	12"	12"		12"					ONE-WAY/PLATE 8124
MA-4	POLE MOUNT	Ø2	12"	8"		8"			9"	9"	270° PLATE 8110C TYPE 20C
MA-4	POLE MOUNT	Ø8	12"	8"		8"			9"	9"	

RED - CIRCULAR RED INDICATION
YEL - CIRCULAR YELLOW INDICATION
GSTA - GREEN STRAIGHT THRU ARROW
GRN - CIRCULAR GREEN INDICATION
YLTA - YELLOW LEFT TURN ARROW
GLTA - GREEN LEFT TURN ARROW
D.W. - DON'T WALK
S - SPECIAL OPTICALLY PROGRAMED SIGNALS (SEE SPECIAL PROVISION)



NOTE:

1) TWO PEDESTRIAN PU[illegible]H BUTT[illegible]NS [illegible]ALL BE INSTALLED ON EACH MAST ARM SIGNAL POLE [illegible] OP[illegible] AS S[illegible]OWN IN THE PHASING LAYOUT AND CONNECTE[illegible] AS [illegible] IN THE [illegible]IELD WIRING DIAGRAM.

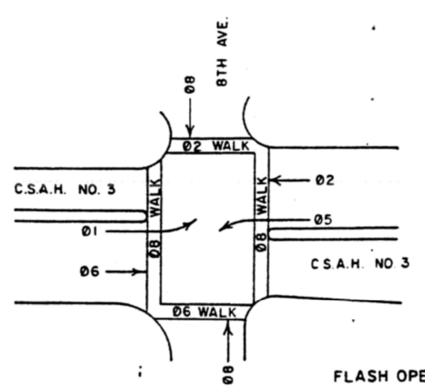
2.) [illegible] WATT [illegible]IGH PR[illegible]SSURE SODIUM VAPOR LUMINAIRE SHALL BE INSTALLED [illegible] MA-[illegible] [illegible] [illegible]4 LUMINAIRE SHAFT EXTENSIONS.

3.) [illegible]EE [illegible]PECIAL PROVISIONS FOR RELOCATION AND SPLICING OF 25/PR #19 CABLE.

4.) SEE DETAIL NO. 2 FOR ADDITIONAL SIDEWALK REQUIREMENTS.

5.) CONSTRUCT HH-5 OVER INPLACE CONDUIT. CUT AND/OR EXTEND CONDUIT AS REQUIRED.

PHASING LAYOUT
(NO SCALE)



FLASH OPERATION:
THE SIGNALS SHALL FLASH YELLOW ON PHASE 1, 2, 5 AND 6 AND RED ON PHASE 8.

SIGNAL PLAN LAYOUT
C.S.A.H. NO 3 AT 8TH AVE.

✓12/5/E
11/17/E

HENN CO, MINN C.S.A.H NO 3 PROJ. NO. 8039 SHEET 3 OF 4 SHEETS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

PRELIMINARY ENGINEERING

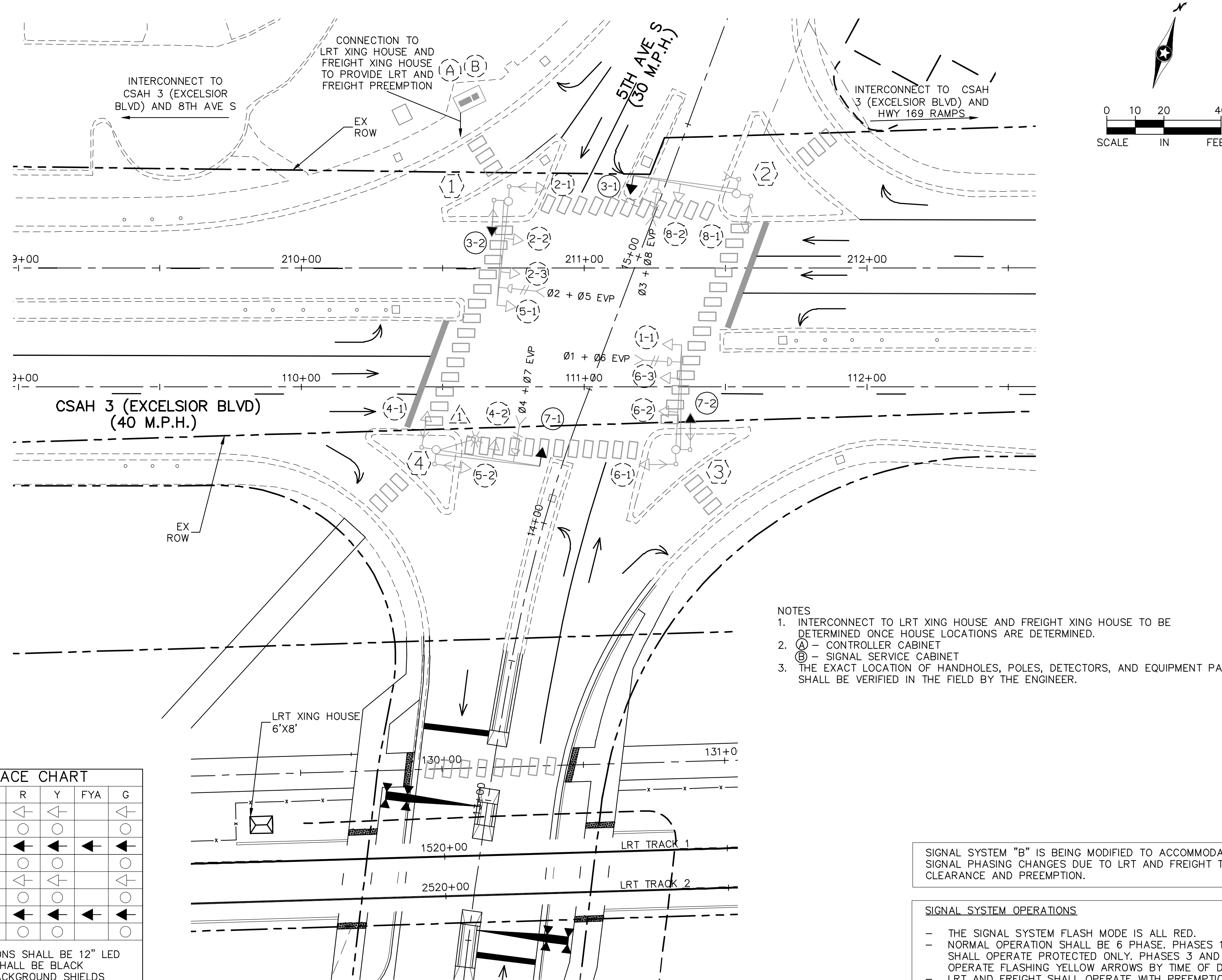
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SIGNAL PLAN - SIGNAL SYSTEM "A"
CSAH 3 (EXCELSIOR BLVD) AND 8TH AVE S
FOR INFORMATION ONLY

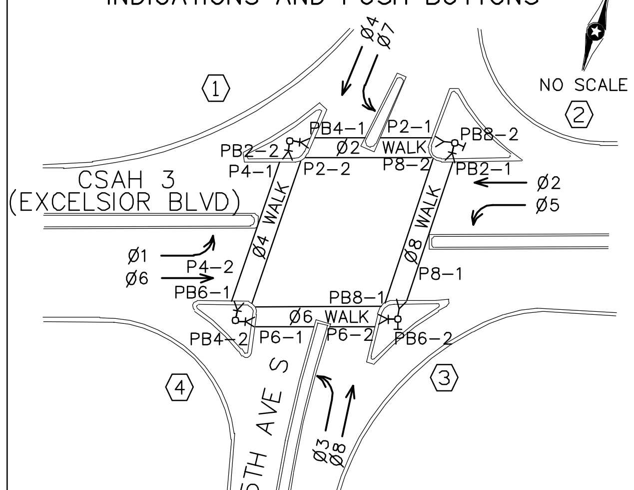
DISCIPLINE: TRAFFIC

SHEET NAME: E1-TFC-SIG-8TH-002



NOTES
1. INTERCONNECT TO LRT XING HOUSE AND FREIGHT XING HOUSE TO BE DETERMINED ONCE HOUSE LOCATIONS ARE DETERMINED.
2. (A) – CONTROLLER CABINET
   (B) – SIGNAL SERVICE CABINET
3. THE EXACT LOCATION OF HANDHOLES, POLES, DETECTORS, AND EQUIPMENT PAD SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL FACE CHART

FACE	R	Y	FYA	G
1–1	◁	◁		◁
2–1, 2–2, 2–3	○	○		○
3–1, 3–2	◀	◀	◀	◀
4–1, 4–2	○	○		○
5–1, 5–2	◁	◁		◁
6–1, 6–2, 6–3	○	○		○
7–1, 7–2	◀	◀	◀	◀
8–1, 8–2	○	○		○

– ALL NEW SIGNAL INDICATIONS SHALL BE 12" LED
– ALL NEW SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
– FYA DENOTES FLASHING YELLOW ARROW

SIGNAL SYSTEM "B" IS BEING MODIFIED TO ACCOMMODATE SIGNAL PHASING CHANGES DUE TO LRT AND FREIGHT TRACK CLEARANCE AND PREEMPTION.

SIGNAL SYSTEM OPERATIONS

– THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
– NORMAL OPERATION SHALL BE 6 PHASE. PHASES 1 AND 5 SHALL OPERATE PROTECTED ONLY. PHASES 3 AND 7 SHALL OPERATE FLASHING YELLOW ARROWS BY TIME OF DAY.
– LRT AND FREIGHT SHALL OPERATE WITH PREEMPTION, INCLUDING TRACK CLEARANCE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SIGNAL PLAN - SIGNAL SYSTEM "B"
CSAH 3 (EXCELSIOR BLVD) AND 5TH AVE S

DISCIPLINE: TRAFFIC

SHEET NAME: E1-TFC-SIG-5TH-001

SIGNAL STRUCTURE AND COMPONENT LOCATION

NO.	LOCATION	NO.	LOCATION
HH-1	L EBL 752 + 15 - 31.5' RT.	HH-8	L 5 332 + 14 - 35' RT.
HH-2	L WBL 753 + 75 - 38' LT.	HH-9	L WBL 755 + 11 - 27' LT.
HH-3	L WBL 753 + 75 - 16' RT.	HH-10	L EBL 755 + 11 - 16' LT.
HH-4	L EBL 753 + 75 - 20' RT.	HH-11	L WBL 756 + 71 - 29' LT.
HH-5	L 5 333 + 19 - 35' LT.	HH-12	L EBL 758 + 31 - 26' RT.
HH-6	L 5 332 + 08 - 3' RT.	HH-13	L 5 333 + 55 - 48' LT.
HH-7	L 5 333 + 32 - 3' LT.	SP-1	EAST END OF CAC-1 FOUNDATION
		CAC-1	L 5 333 + 48 - 62' LT.
		SOP-1	L 5 335 + 00 - 24' RT.

NO.	LOCATION
MA-1	L 5 333 + 36 - 31' RT. AIM ARM TO L 5 333 + 24 - ℄ (35' MAST ARM)
MA-2	L EBL 754 + 73 - 22' RT. AIM ARM TO L EBL 754 + 74 - ℄ (35' MAST ARM)
MA-3	L 5 332 + 17 - 41' LT. AIM ARM TO L 5 332 + 22 - ℄ (35' MAST ARM)
MA-4	L WBL 754 + 14 - 22' LT. AIM ARM TO L WBL 754 + 13 - ℄ (35' MAST ARM)

	NO.	LOCATION	LOOP SIZE	NO. OF TURNS *	
	D1 -1	EAST EDGE AT L EBL 773 + 97 - NORTH EDGE 3' FROM F/C	(4) 6 X 6	2	**
	D5 -1	WEST EDGE AT L WBL 754 + 91 - SOUTH EDGE 3' FROM F/C	(4) 6 X 6	2	**
	D2 -1	WEST EDGE AT L WBL 756 + 71 - NORTH EDGE 2' RT. OF L WBL	8 X 8	2	
	D2 -2	WEST EDGE AT L WBL 756 + 72 - SOUTH EDGE 2' LT. OF L WBL	8 X 8	2	
	D6 -1	EAST EDGE AT L EBL 752 + 15 - SOUTH EDGE 2' LT. OF L EBL	8 X 8	2	
	D6 -2	EAST EDGE AT L EBL 752 + 14 - NORTH EDGE 2' RT. OF L EBL	8 X 8	2	
4	D~~3~~ -1	NORTH EDGE AT L 5 332 + 04 - WEST EDGE 3' FROM F/C	8 X 15	2	
4	D~~3~~ -2	NORTH EDGE AT L 5 332 + 24 - WEST EDGE 3' FROM F/C	8 X 15	2	
	D8 -1	NORTH EDGE AT L 5 332 + 06 - WEST EDGE 21' RT. OF L 5	8 X 15	2	
	D8 -2	NORTH EDGE AT L 5 332 + 26 - WEST EDGE 21' RT. OF L 5	8 X 15	2	
	D7 -1	SOUTH EDGE AT L 5 333 + 35 - EAST EDGE 3' FROM F/C	9 X 15	2	
	D7 -2	SOUTH EDGE AT L 5 333 + 15 - EAST EDGE 3' FROM F/C	8 X 15	2	
3	D~~4~~ -1	SOUTH EDGE AT L 5 333 + 30 EAST EDGE 21' LT. OF L 5	8 X 15	2	
3	D~~4~~ -2	SOUTH EDGE AT L 5 333 + 10 EAST EDGE 21' LT. OF L 5	8 X 15	2	

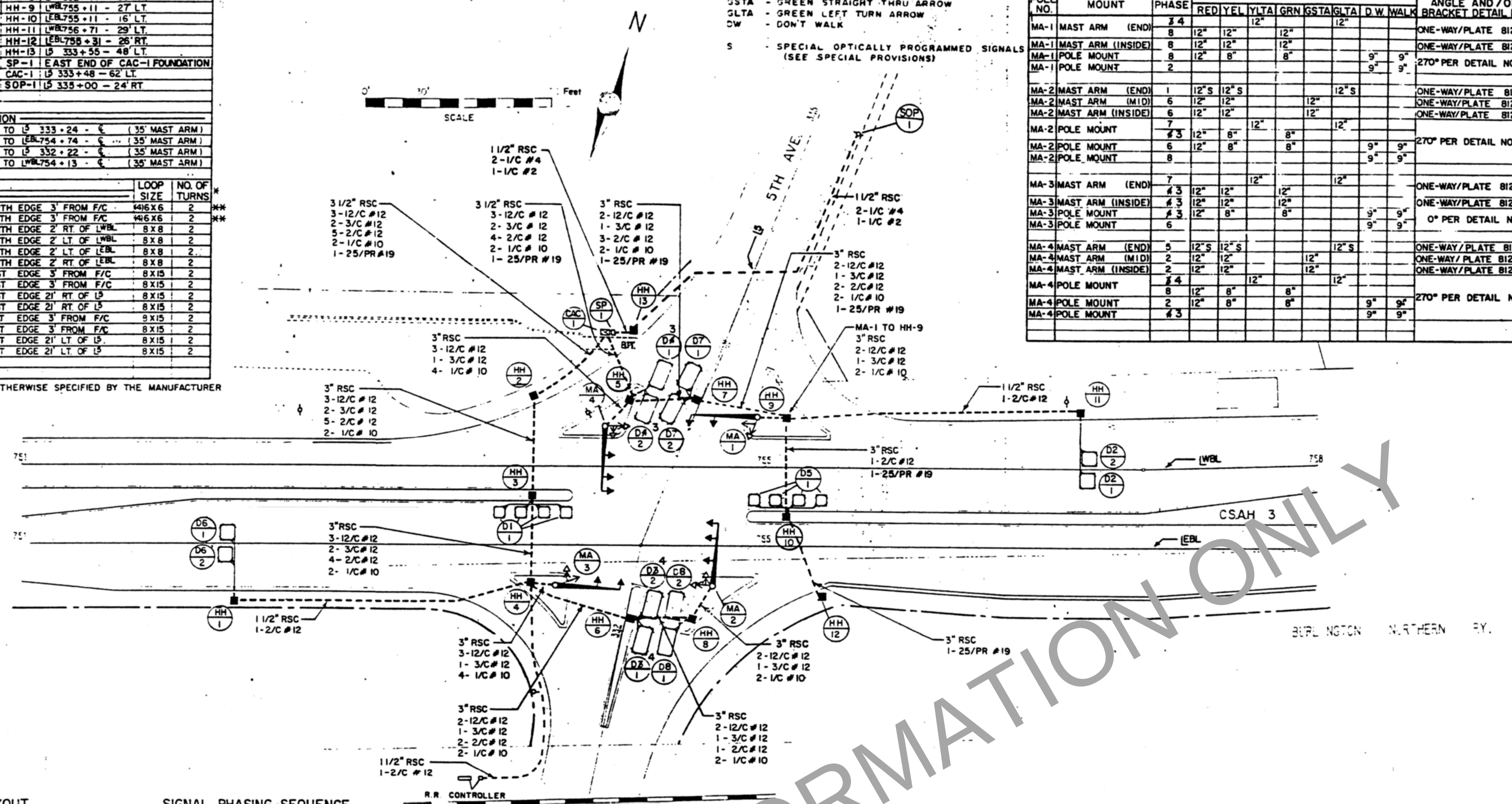
* NUMBER OF TURNS IN THE LOOP UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER
** 6' SPACE BETWEEN LOOPS

RED - CIRCULAR RED INDICATION
YEL - CIRCULAR YELLOW INDICATION
YLTA - YELLOW LEFT TURN ARROW
GRN - CIRCULAR GREEN INDICATION
GSTA - GREEN STRAIGHT THRU ARROW
GLTA - GREEN LEFT TURN ARROW
DW - DON'T WALK

S - SPECIAL OPTICALLY PROGRAMMED SIGNALS (SEE SPECIAL PROVISIONS)

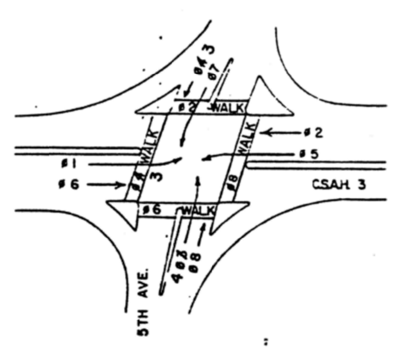
SIGNAL INDICATIONS AND BRACKETING

SIG. POLE NO.	SIGNAL FACE MOUNT	SIGNAL PHASE	RED	YEL	YLTA	GRN	GSTA	GLTA	D.W.	WALK	BRACKET MOUNTING ANGLE AND/OR BRACKET DETAIL NO.
MA-1	MAST ARM (END)	~~3~~ 4			12"			12"			ONE-WAY/PLATE 8124B
		8	12"	12"		12"					
MA-1	MAST ARM (INSIDE)	8	12"	12"		12"					ONE-WAY/PLATE 8124B
MA-1	POLE MOUNT	8	12"	8"		8"			9"	9"	270° PER DETAIL NO. 1
MA-1	POLE MOUNT	2							9"	9"	
MA-2	MAST ARM (END)	1	12" S	12" S				12" S			ONE-WAY/PLATE 8124B
MA-2	MAST ARM (MID)	6	12"	12"			12"				ONE-WAY/PLATE 8124B
MA-2	MAST ARM (INSIDE)	6	12"	12"			12"				ONE-WAY/PLATE 8124B
MA-2	POLE MOUNT	7			12"			12"			270° PER DETAIL NO. 8
		~~4~~ 3	12"	8"		8"					
MA-2	POLE MOUNT	6	12"	8"		8"			9"	9"	
MA-2	POLE MOUNT	8							9"	9"	
MA-3	MAST ARM (END)	7			12"			12"			ONE-WAY/PLATE 8124B
		~~4~~ 3	12"	12"		12"					
MA-3	MAST ARM (INSIDE)	~~4~~ 3	12"	12"		12"					ONE-WAY/PLATE 8124B
MA-3	POLE MOUNT	~~4~~ 3	12"	8"		8"			9"	9"	0° PER DETAIL NO. 1
MA-3	POLE MOUNT	6							9"	9"	
MA-4	MAST ARM (END)	5	12" S	12" S				12" S			ONE-WAY/PLATE 8124B
MA-4	MAST ARM (MID)	2	12"	12"			12"				ONE-WAY/PLATE 8124B
MA-4	MAST ARM (INSIDE)	2	12"	12"			12"				ONE-WAY/PLATE 8124B
MA-4	POLE MOUNT	~~3~~ 4			12"			12"			270° PER DETAIL NO. 8
		8	12"	8"		8"					
MA-4	POLE MOUNT	2	12"	8"		8"			9"	9"	
MA-4	POLE MOUNT	~~4~~ 3							9"	9"	



PHASING LAYOUT

(NO SCALE)



SIGNAL PHASING SEQUENCE

WITH CALLS OR ACTUATIONS ON ALL PHASES, PHASE ROTATION SHALL BE AS FOLLOWS:

#1 & #5
#2 & #6
#3 & #7
#4 & #8
REPEAT

FLASH OPERATION:

THE SIGNALS SHALL FLASH RED ON PHASES 1, 2, 3, 4, 5, 6, 7, AND 8.

PEDESTRIAN "WALK" INDICATION SHALL BE DISPLAYED ON PUSH BUTTON ACTUATION ONLY.

NOTE

1.) TWO (2) PEDESTRIAN PUSH BUTTONS SHALL BE INSTALLED ON EACH MAST ARM SIGNAL POLE AND CONNECTED AS SHOWN IN THE FIELD WIRING DIAGRAM FOR OPERATION AS SHOWN IN THE PHASING LAYOUT.

2.) 250 WATT HIGH PRESSURE SODIUM VAPOR LUMINAIRE SHALL BE INSTALLED ON MA-1, MA-2, MA-3, AND MA-4 LUMINAIRE SHAFT EXTENSIONS.

3.) 25/PR #19 CABLE NOT INCLUDED IN SIGNAL SYSTEM (SEE INTERCONNECT CONDUIT AND CABLE)

9/27/82

REVISION DATES		
⊘ CHANGE 5/80		

MAINTENANCE FILE C.S.A.H. NO. 3 AT 5TH AVE. SIGNAL I.D. NO. 8016600 SHEET 1 OF 3 SHEETS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SIGNAL PLAN - SIGNAL SYSTEM "B"
CSAH 3 (EXCELSIOR BLVD) AND 5TH AVE S
FOR INFORMATION ONLY

DISCIPLINE: TRAFFIC

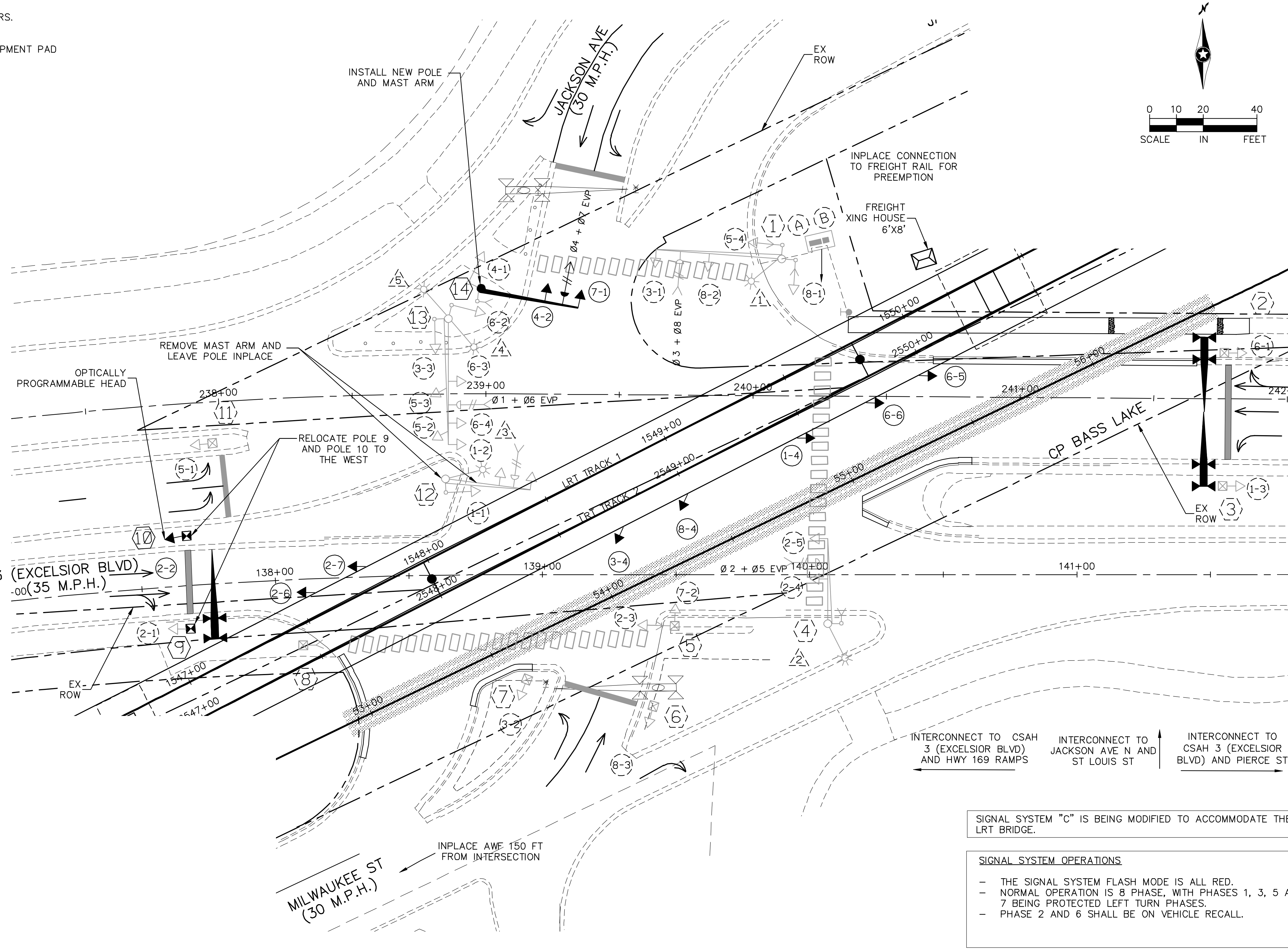
SHEET NAME: E1-TFC-SIG-5TH-002

NOTES
1. ALL NEW PEDESTRIAN INDICATIONS SHALL INCLUDE COUNTDOWN TIMERS.
2. (A) – CONTROLLER CABINET
(B) – SIGNAL SERVICE CABINET
3. THE EXACT LOCATION OF HANDHOLES, POLES, DETECTORS, AND EQUIPMENT PAD SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.

SIGNAL FACE CHART

FACE	R	Y	G
1-1, 1-2, 1-3	◁	◁	◁
1-4	◀	◀	◀
2-1, 2-3, 2-4, 2-5	○	○	○
2-2, 2-6, 2-7	●	●	●
3-1, 3-2, 3-3	◁	◁	◁
3-4	◀	◀	◀
4-1	○	○	○
4-2	●	●	●
5-1, 5-2, 5-3, 5-4	◁	◁	◁
6-1, 6-2, 6-3, 6-4	○	○	○
6-5, 6-6	●	●	●
7-1	◀	◀	◀
7-2	◁	◁	◁
8-1, 8-2, 8-3	○	○	○
8-4	●	●	●

–ALL NEW SIGNAL INDICATIONS SHALL BE 12" LED
–ALL NEW SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS



INTERCONNECT TO CSAH 3 (EXCELSIOR BLVD) AND HWY 169 RAMPS

INTERCONNECT TO JACKSON AVE N AND ST LOUIS ST

INTERCONNECT TO CSAH 3 (EXCELSIOR BLVD) AND PIERCE ST

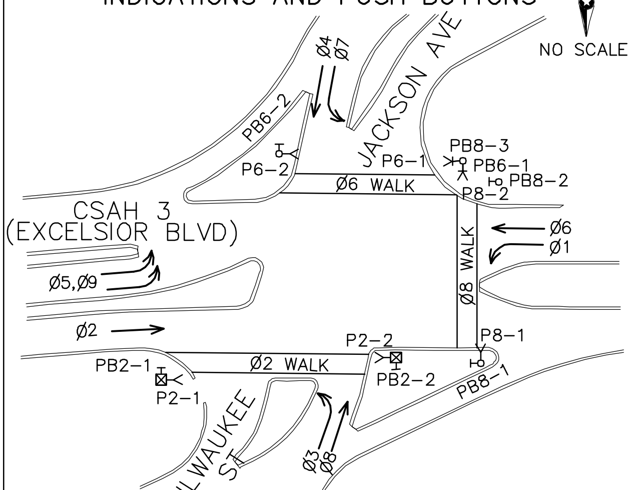
SIGNAL SYSTEM "C" IS BEING MODIFIED TO ACCOMMODATE THE LRT BRIDGE.

SIGNAL SYSTEM OPERATIONS

– THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
– NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5 AND 7 BEING PROTECTED LEFT TURN PHASES.
– PHASE 2 AND 6 SHALL BE ON VEHICLE RECALL.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

NO SCALE



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SIGNAL PLAN - SIGNAL SYSTEM "C"
CSAH 3 (EXCELSIOR BLVD) AND
MILWAUKEE ST/JACKSON AVE N

DISCIPLINE: TRAFFIC

SHEET NAME: E1-TFC-SIG-EXC-001

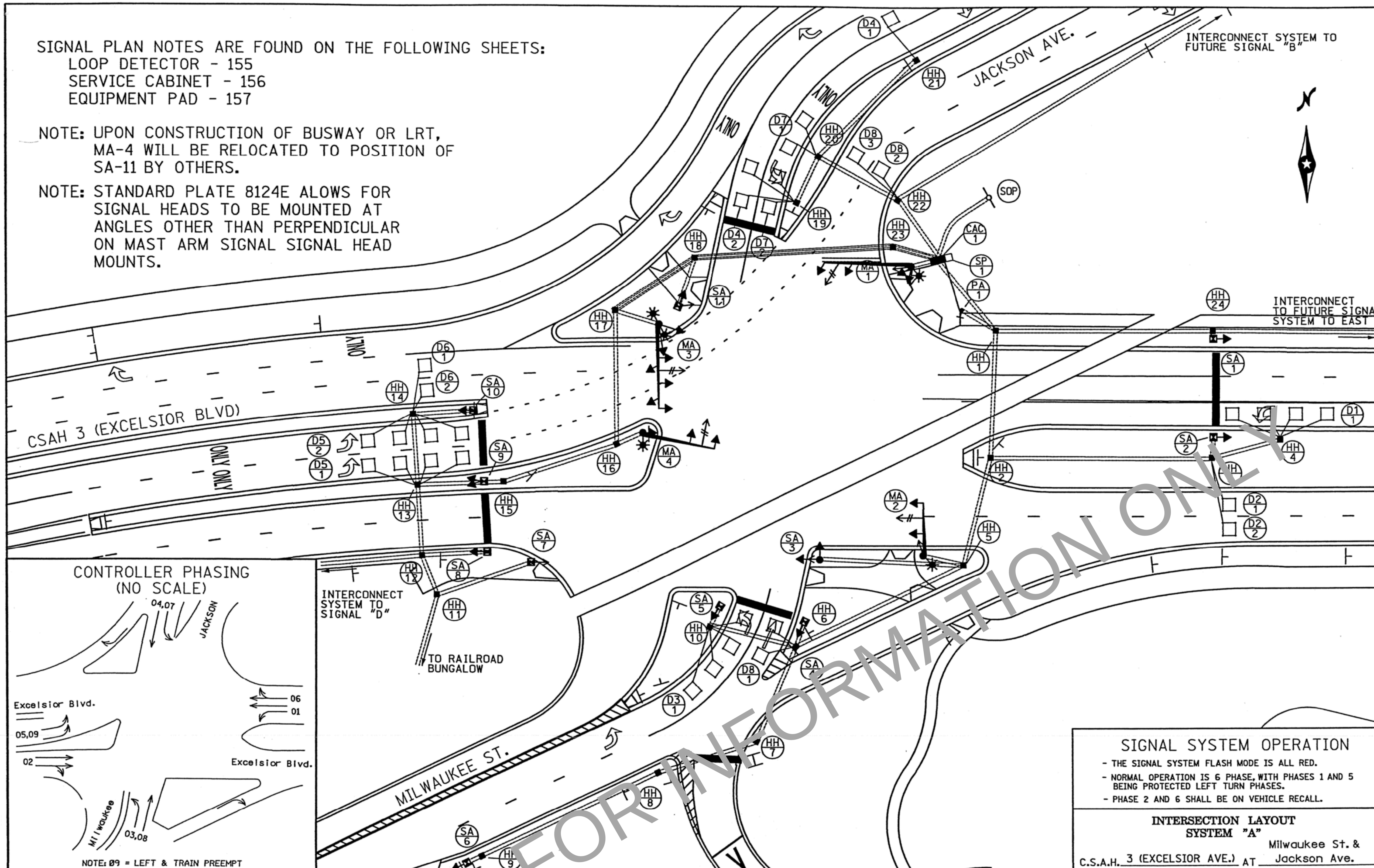
SHEET 108 OF 113

Aug. 29 2014 07:38 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRAFFIC\E1-TFC-SIG-EXC.dwg By: chris.bunders

SIGNAL PLAN NOTES ARE FOUND ON THE FOLLOWING SHEETS:
- LOOP DETECTOR - 155
- SERVICE CABINET - 156
- EQUIPMENT PAD - 157

NOTE: UPON CONSTRUCTION OF BUSWAY OR LRT, MA-4 WILL BE RELOCATED TO POSITION OF SA-11 BY OTHERS.

NOTE: STANDARD PLATE 8124E ALOWS FOR SIGNAL HEADS TO BE MOUNTED AT ANGLES OTHER THAN PERPENDICULAR ON MAST ARM SIGNAL SIGNAL HEAD MOUNTS.



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES.
- PHASE 2 AND 6 SHALL BE ON VEHICLE RECALL.

INTERSECTION LAYOUT
SYSTEM "A"

C.S.A.H. 3 (EXCELSIOR AVE.) AT Milwaukee St. & Jackson Ave.

Hennepin | minnesota metro

SCALE = 1 : 500
0 5m 10m

I HEREBY CERTIFY THAT THIS PLAN, WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

REG. NO. 22428 DATE 5/9/02

DESIGNED / DRAWN / CHECKED

HENN. CO. PROJ. NO. 9227 S.A.P. 27-603-29

M.S.A.P. NO. 132-020-13

PLAN PAGE 7 of 25

SHEET 159 OF 226

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SIGNAL PLAN - SIGNAL SYSTEM "C"
CSAH 3 (EXCELSIOR BLVD) AND MILWAUKEE ST/JACKSON AVE N-FOR INFORMATION ONLY

DISCIPLINE: TRAFFIC

SHEET NAME: E1-TFC-SIG-EXC-002

Aug. 29 2014 07:39 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRAFFIC\E1-TFC-SIG-EXC.dwg By: chris.bunders

SIGNAL INDICATIONS

SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG Ø	300 mm LED INDICTIONS RED LED	YEL LED	GRN LED	YEL LED	GRN LED	PED LED	BRACKET MOUNTING ANGLE, TYPE, AND STANDARD PLATE NO.
MA-1	3-1	MAST ARM (END)	3	←	←	←				STD. ONE-WAY/PLATE M8124E
	8-2	MAST ARM (INSIDE)	8	●	●	●				STD. ONE-WAY/PLATE M8124E
	8-1	POLE MOUNT	8	●	●	●			*	270° PLATE 8110D TYPE 10B
	5-3	POLE MOUNT	5	←	←	←				0° PLATE 8110D TYPE 10B
	8-1		8	●	●	●			*	
MA-2	2-3	MAST ARM (END)	2	●	●	●				STD. ONE-WAY/PLATE M8124E
	2-2	MAST ARM (INSIDE)	2	●	●	●				STD. ONE-WAY/PLATE M8124E
	—	POLE MOUNT	8						*	270° PLATE 8110D TYPE 30A
MA-3	1-1	MAST ARM (END)	1	←	←	←				STD. ONE-WAY/PLATE M8124E
	6-4	MAST ARM (MID)	6	●	●	●			*	STD. ONE-WAY/PLATE M8124E
	6-3	MAST ARM (INSIDE)	6	●	●	●				STD. ONE-WAY/PLATE M8124E
	5-1	MAST ARM (BACK)	5	←	←	←				STD. ONE-WAY/PLATE M8124E
	5-2	MAST ARM (BACK)	5	←	←	←				STD. ONE-WAY/PLATE M8124E
	6-2	POLE MOUNT	4	●	●	●				270° PLATE 8110D TYPE 20B
	3-2	POLE MOUNT	3	←	←	←				
MA-4	7-1	MAST ARM (END)	7	←	←	←				STD. ONE-WAY/PLATE M8124E
	4-2	MAST ARM (INSIDE)	4	●	●	●				STD. ONE-WAY/PLATE M8124E
	1-2	POLE MOUNT	4	←	←	←				270° PLATE 8110D TYPE 10A
SA-1	6-1	PEDESTAL MOUNT	6	●	●	●				TYPE 1A/PLATE M8111C
SA-2	1-1	PEDESTAL MOUNT	1	←	←	←				TYPE 1A/PLATE M8111C
SA-3	7-2	POLE MOUNT	7	←	←	←				TYPE 6B/PLATE M8111C
	2-1	POLE MOUNT	2	●	●	●			*	
SA-4	8-3	PEDESTAL MOUNT	8	●	●	●				TYPE 1A/PLATE M8111C
SA-5	3-3	PEDESTAL MOUNT	3	←	←	←				TYPE 1A/PLATE M8111C
SA-6	—	PEDESTAL MOUNT								FLASHER
SA-7	—	PEDESTAL MOUNT	2						*	TYPE 4A/PLATE M8111C
SA-8	2-4	PEDESTAL MOUNT	2	●	●	●				TYPE 1A/PLATE M8111C
SA-9	2-5	PEDESTAL MOUNT	2	●	●	●				TYPE 2A/PLATE M8111C
	5-4	PEDESTAL MOUNT	5	←	←	←				
SA-10	5-5	PEDESTAL MOUNT	5	←	←	←				TYPE 1A/PLATE M8111C
SA-11	4-1	PEDESTAL MOUNT	1	●	●	●			*	TYPE 1A/PLATE M8111C

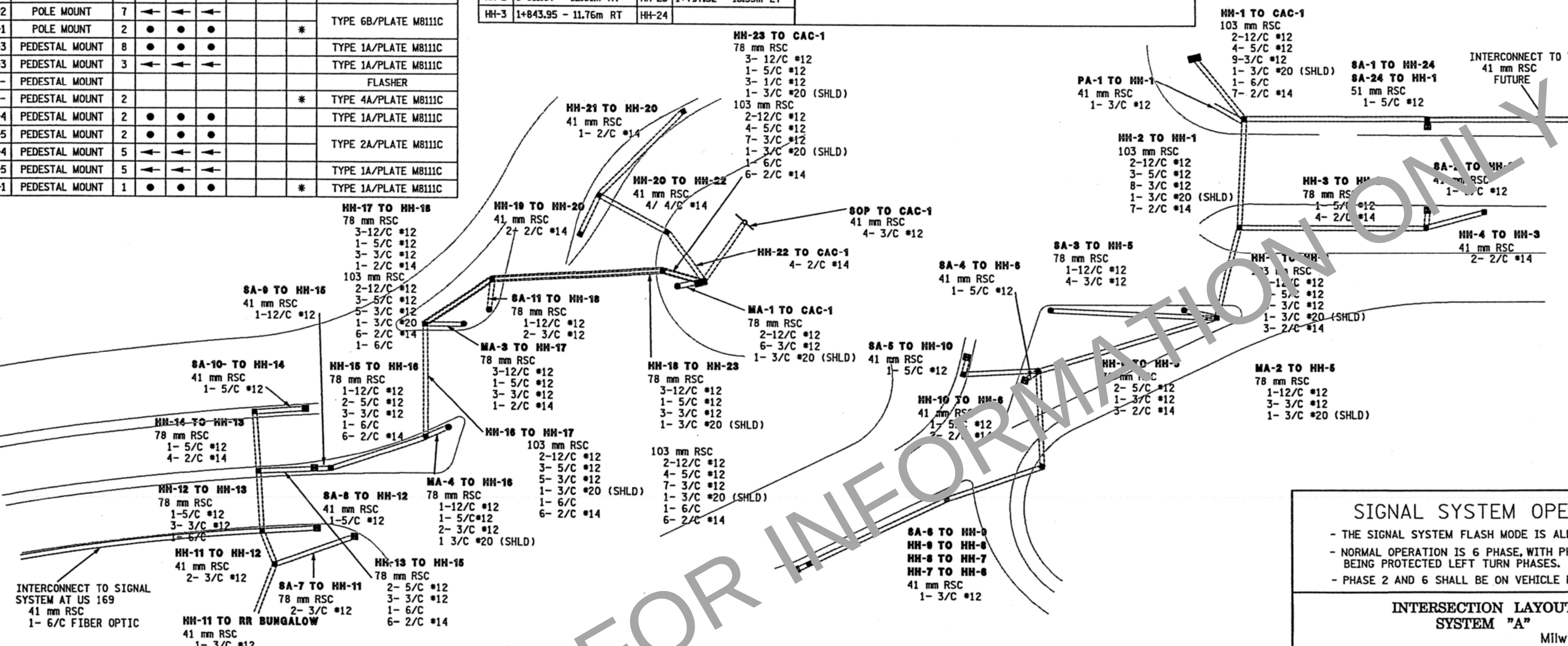
SIGNAL STRUCTURE AND COMPONENT LOCATION

NO.	LOCATION	NO.	LOCATION	NO.	LOCATION	LOOP SIZE	NO. OF TURNS	DETECTOR FUNCTION
SA-1	1+844.11 - 5.42m LT	HH-4	1+853.74 - 9.08m RT	D1-1	1+845.94 - 5.45m RT	4(1.8 m x 1.8 m)	4	1
SA-2	1+844.17 - 8.81m RT	HH-5	1+801.97 - 26.22m RT	D2-1	1+845.49 - 18.48m RT	1.8 m x 1.8 m	4	1
SA-3	1+787.00 - 26.90m RT	HH-6	1+786.00 - 37.9M RT	D2-2	1+845.52 - 21.98m RT	1.8 m x 1.8 m	4	1
SA-4	1+786.00 - 36.4M RT	HH-7	1+777.98 - 53.33m RT	D3-1	1+734.68 - 34.68m RT	4(1.8 m x 1.8 m)	4	1
SA-5	1+774.00 - 35.0m RT	HH-8	1+761.05 - 59.13m RT	D4-1	1+797.27 - 51.98m LT	1.8 m x 1.8 m	4	2
SA-6	1+730.75 - 70.28m RT	HH-9	1+733.34 - 69.41m RT	D4-2	1+774.31 - 23.50m LT	2(1.8 m x 1.8 m)	4	1
SA-7	1+743.61 - 27.28m RT	HH-10	1+700.00 - 85.00m RT	D5-1	1+735.04 - 11.81m RT	4(1.8 m x 1.8 m)	4	1
SA-8	1+736.99 - 25.55m RT	HH-11	1+728.83 - 31.25m RT	D5-2	1+735.13 - 8.34m RT	4(1.8 m x 1.8 m)	4	1
SA-9	1+737.10 - 15.35m RT	HH-12	1+726.99 - 25.48m RT	D6-1	1+728.57 - 1.80m LT	1.8 m x 1.8 m	4	1
SA-10	1+736.05 - 5.09m RT	HH-13	1+727.09 - 25.28m RT	D6-2	1+728.61 - 1.80m RT	1.8 m x 1.8 m	4	1
SA-11	1+760.81 - 8.95m RT	HH-14	1+727.18 - 5.08m RT	D7-1	1+788.61 - 37.00m LT	4(1.8 m x 1.8 m)	4	1
MA-1	1+799.98 - 15.58m LT	HH-15	1+739.97 - 15.48m RT	D8-1	1+780.82 - 38.50m RT	1.8 m x 1.8 m	4	1
MA-2	1+801.97 - 26.22m RT	HH-16	1+756.87 - 10.52m RT	D8-2	1+795.11 - 28.66m LT	1.8 m x 1.8 m	4	1
MA-3	1+765.58 - 9.30m LT	HH-17	1+756.95 - 8.79m LT	D8-3	1+791.38 - 30.76m LT	1.8 m x 1.8 m	4	1
MA-4	1+765.58 - 9.30m LT	HH-18	1+768.35 - 16.46m LT					
PA-1	1+807.37 - 9.29m LT	HH-19	1+783.29 - 24.60m LT					
CAC-1	1+803.75 - 16.53m LT	HH-20	1+786.46 - 31.46m LT					
SOP-1	DET. BY POWER CO	HH-21	1+800.52 - 45.57m LT					
HH-1	1+812.32 - 6.35m LT	HH-22	1+797.98 - 25.10m LT					
HH-2	1+811.67 - 12.01m RT	HH-23	1+797.32 - 18.33m LT					
HH-3	1+843.95 - 11.76m RT	HH-24						

ALL STATION OFFSET LOCATIONS REFERENCE WESTBOUND ALIGNMENT

LOCATION: DISTANCE FROM STOP BAR
FUNCTION: 1-CALL & EXTEND
2-EXTEND ONLY
3-DELAY CALL-IMMEDIATE EXTEND

NOTES:
1. SEE SPECIAL PROVISIONS FOR HENNEPIN COUNTY FURNISHED MATERIALS.
2. 250 WATT HIGH PRESURE SODIUM VAPOR LUMINAIRE WITH PHOTO ELECTRIC CELL RECEPTACLE SHALL BE INSTALLED ON MA-1, MA-2, MA- SA-11, MA-4 LUMINAIRE SHAFT EXTENSIONS.
3. LOCATION OF HAND HOLES, POLES, LOOP DETECTORS, AND CABINET SHALL BE DETERMINED BY THE TRAFFIC OFFICE PERSONNEL.
4. HAND HOLES SHALL BE PVC WITH METAL COVERS.
5. EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
6. THE CONTRACTOR SHALL RESTORE ALL DISTURBED TURF, CONCRETE, BITUMINOUS WALK ETC., TO ITS ORIGINAL CONDITION OR BETTER THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE SIGNAL SYSTEM.
7. ALL ITEMS ARE TO BE FURNISHED AND INSTALLED UNLESS DENOTED AS EXISTING.
8. ALL SIGNAL & PEDESTRIAN INDICATORS SHALL BE COVERED AT ALL TIMES PRIOR TO SYSTEM ACTIVATION, TO THE SATISFACTION OF THE ENGINEER.
9. CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL TO DETERMINE THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
10. CONTACT EXCEL ENERGY REGUARDING FUTURE LOCATION FOR THE SOURCE OF POWER FOR CONTROLLER AND SERVICE CABINETS.
11. COMMON BACKFILL AT SIGNAL STRUCTURE S DIRECTED BY THE ENGINEER SHALL BE INCIDENTAL TO THE SIGNAL SYSTEM.



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES.
- PHASE 2 AND 6 SHALL BE ON VEHICLE RECALL.

INTERSECTION LAYOUT
SYSTEM "A"

C.S.A.H. 3 (EXCELSIOR AVE.) AT Milwaukee St. & Jackson Ave.

Hennepin | minnesota metric

SCALE = 1 : 100
0 10 20m

I HEREBY CERTIFY THAT THIS PLAN, WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
REG. NO. 22428 DATE 5/9/02

DESIGNED | DRAWN | CHECKED

HENN. CO. PROJ. NO. 9227 S.A.P. 27-603-29
M.S.A.P. NO. 132-020-13

PLAN PAGE 8 of 25 | SHEET 160 OF 226

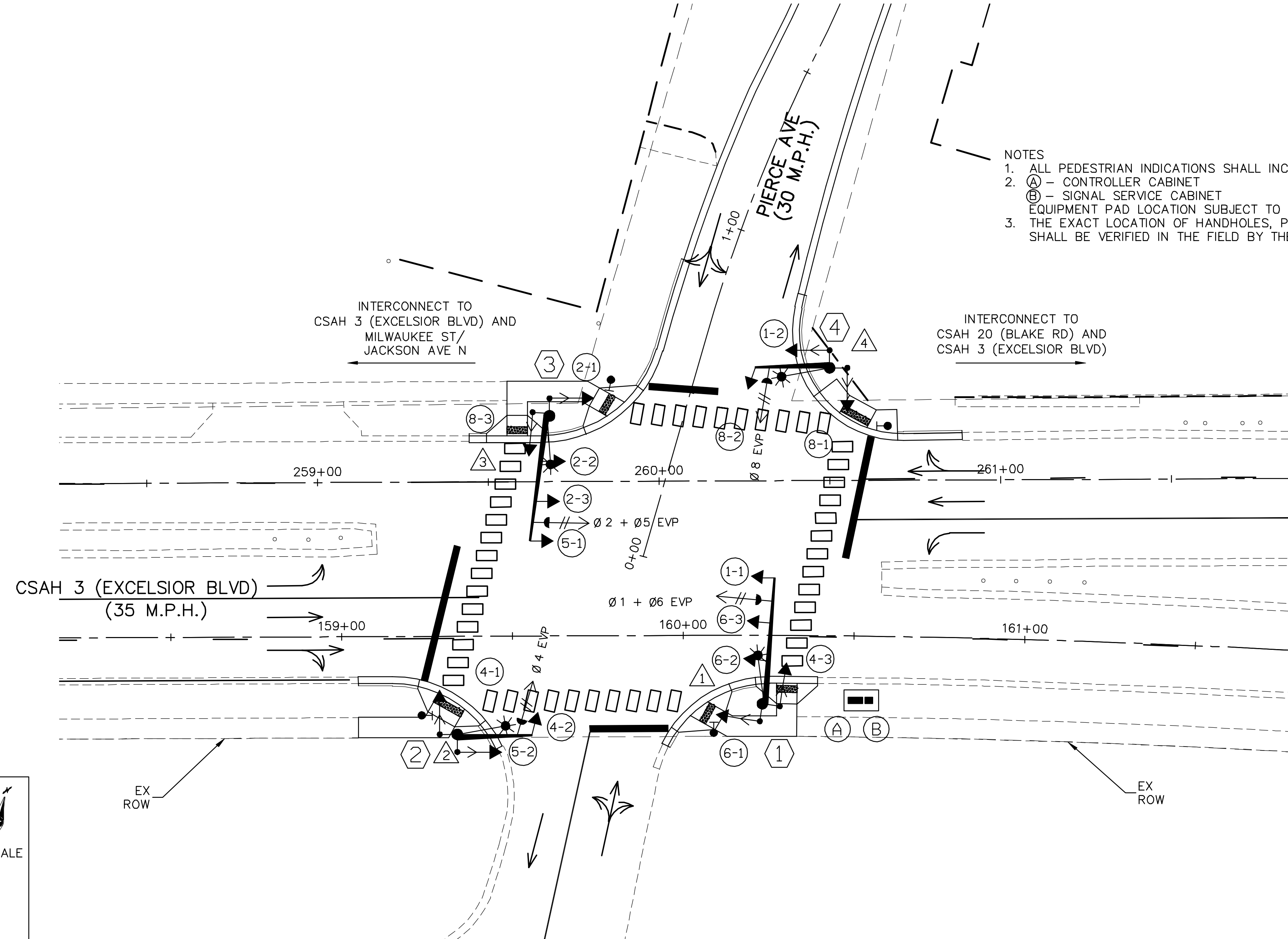
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

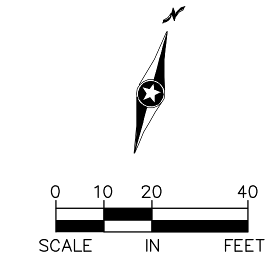
Kimley»Horn
PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL | SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SIGNAL PLAN - SIGNAL SYSTEM "C"
CSAH 3 (EXCELSIOR BLVD) AND MILWAUKEE ST/JACKSON AVE N-FOR INFORMATION ONLY

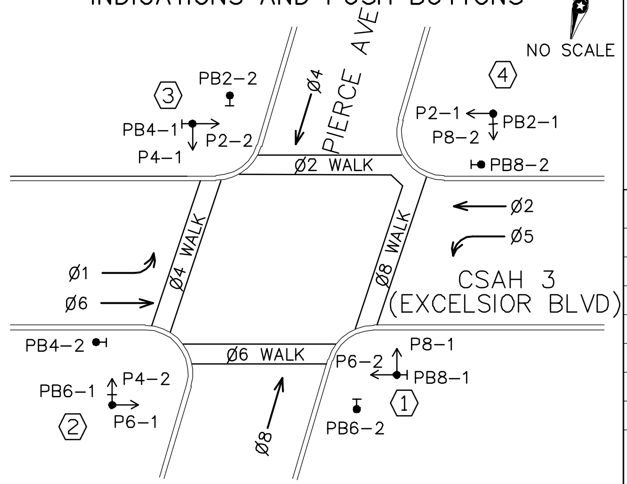
DISCIPLINE: TRAFFIC
SHEET NAME: E1-TFC-SIG-EXC-003





NOTES
1. ALL PEDESTRIAN INDICATIONS SHALL INCLUDE COUNTDOWN TIMERS.
2. Ⓐ – CONTROLLER CABINET
Ⓑ – SIGNAL SERVICE CABINET
EQUIPMENT PAD LOCATION SUBJECT TO CHANGE IN FINAL DESIGN.
3. THE EXACT LOCATION OF HANDHOLES, POLES, DETECTORS, AND EQUIPMENT PAD SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL FACE CHART

FACE	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	●	●		●
4-1, 4-2, 4-3	●	●		●
5-1, 5-2	←	←	←	←
6-1, 6-2, 6-3	●	●		●
8-1, 8-2, 8-3	●	●		●

- ALL SIGNAL INDICATIONS SHALL BE 12" LED
- ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
- FYA DENOTES FLASHING YELLOW ARROW

SIGNAL SYSTEM OPERATIONS

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1 AND 5 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
- SIGNAL SYSTEM SHALL BE FULLY ACTUATED.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING

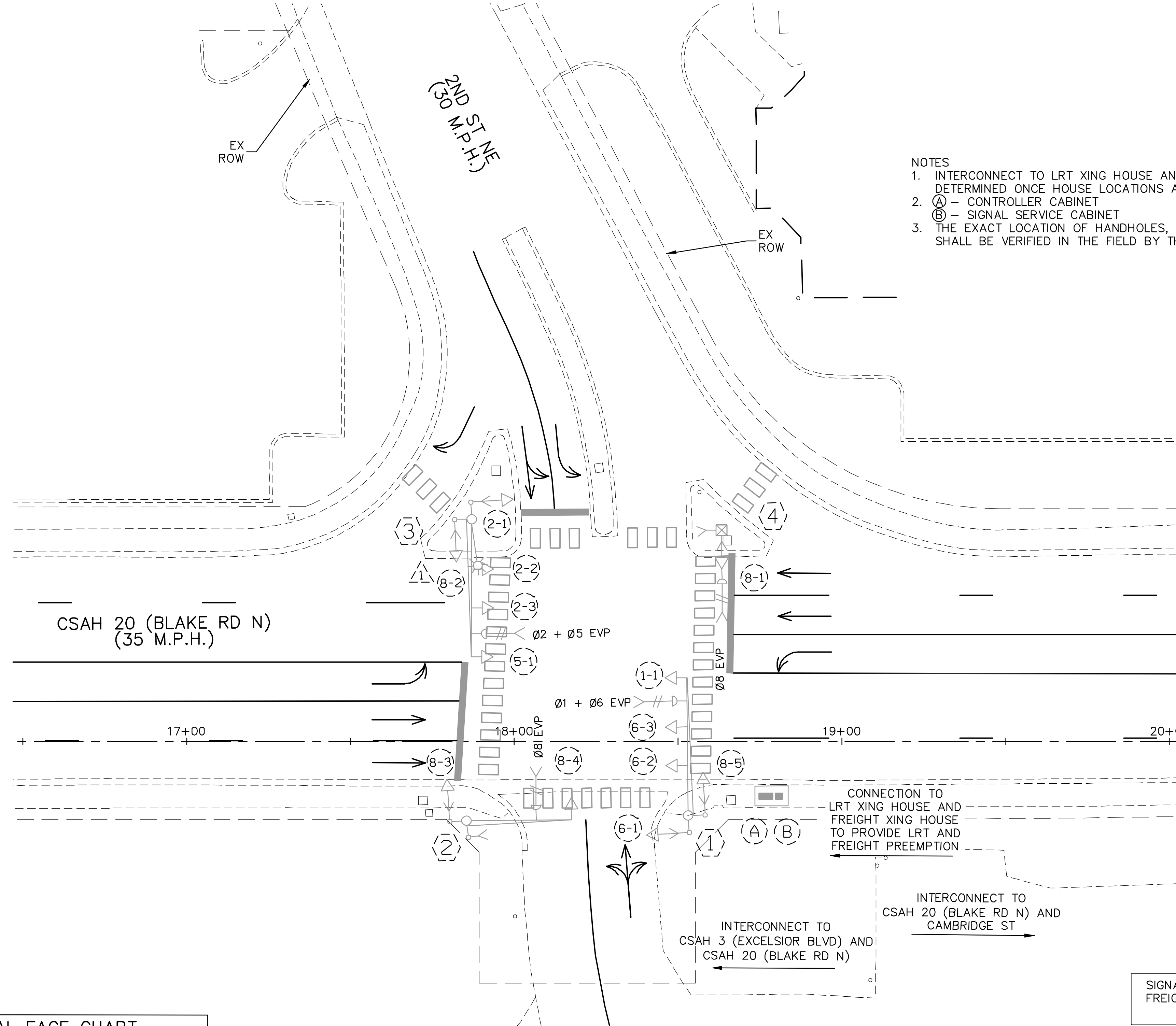
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SIGNAL PLAN - SIGNAL SYSTEM "D"
CSAH 3 (EXCELSIOR BLVD) AND PIERCE ST

DISCIPLINE: TRAFFIC

SHEET NAME: E1-TFC-SIG-PRC-001

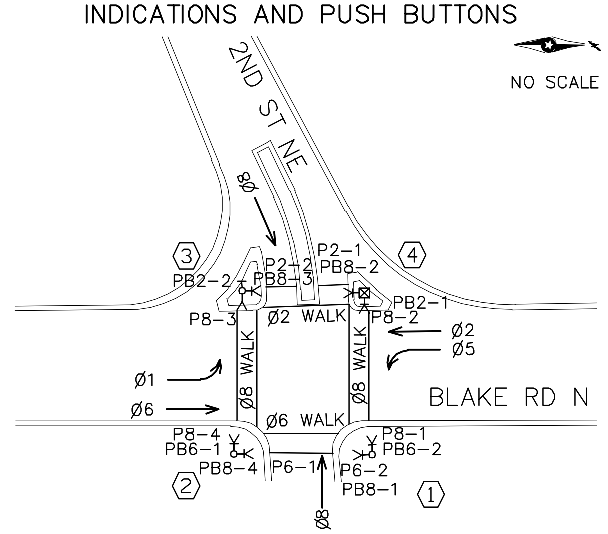


SCALE IN FEET: 0 10 20 40

NOTES
1. INTERCONNECT TO LRT XING HOUSE AND FREIGHT XING HOUSE TO BE DETERMINED ONCE HOUSE LOCATIONS ARE DETERMINED.
2. (A) – CONTROLLER CABINET
   (B) – SIGNAL SERVICE CABINET
3. THE EXACT LOCATION OF HANDHOLES, POLES, DETECTORS, AND EQUIPMENT PAD SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

NO SCALE



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL FACE CHART

FACE	R	Y	G
1-1	←	←	←
2-1, 2-2, 2-3	○	○	○
5-1	←	←	←
6-1, 6-2, 6-3	○	○	○
8-1, 8-2, 8-3, 8-4, 8-5	○	○	○

SIGNAL SYSTEM "E" IS BEING MODIFIED TO PROVIDE LRT AND FREIGHT PREEMPTION.

SIGNAL SYSTEM OPERATIONS

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE. PHASE 1 AND 5 OPERATE PROTECTED ONLY.
- SIGNAL SYSTEM IS FULLY ACTUATED.
- LRT AND FREIGHT RAIL SHALL OPERATE WITH PREEMPTION, INCLUDING TRACK CLEARANCE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SIGNAL PLAN - SIGNAL SYSTEM "E"
CSAH 20 (BLAKE RD N) AND 2ND ST NE

DISCIPLINE: TRAFFIC

SHEET NAME: E1-TFC-SIG-BLK-001

SHEET 112 OF 113

Aug. 29 2014 07:42 am V:\3300_PEC-E\CAD\SEGMENT E1\PLAN SHEETS\TRAFFIC\E1-TFC-SIG-BLK.dwg By: chris.bunders

SIGNAL STRUCTURE AND COMPONENT LOCATION

NO	LOCATION	NO	LOCATION
HH-1	LOR 30+40 – 40' RT.	HH-7	LOR 32+92 – 39' LT.
HH-2	LOR 32+00 – 40' RT.	HH-8	LOR 34+70 – 40' LT.
HH-3	LOR 32+22 – 60' LT.	HH-9	LOR 32+95 – 39' RT
HH-4	LOR 32+54 – 60' LT.	CAC-1	LOR 33+15 – 43' RT.
HH-5	LOR 32+78 – 68' RT.	SOP-1	LOR 33+10 – 44' RT.
HH-6	LOR 32+90 – 43' RT.		

NO	LOCATION
MA-1	LOR 32+82 – 45' RT. AIM ARM TO LOR 32+82 – ℄ (40' MAST ARM)
MA-2	LOR 32+15 – 45' RT. AIM ARM TO LOR 32+45 – 45' RT (30' MAST ARM)
MA-3	LOR 32+16 – 43' LT. AIM ARM TO LOR 32+16 – ℄ (35' MAST ARM)
SA-1	LOR 32+88 – 43' LT.

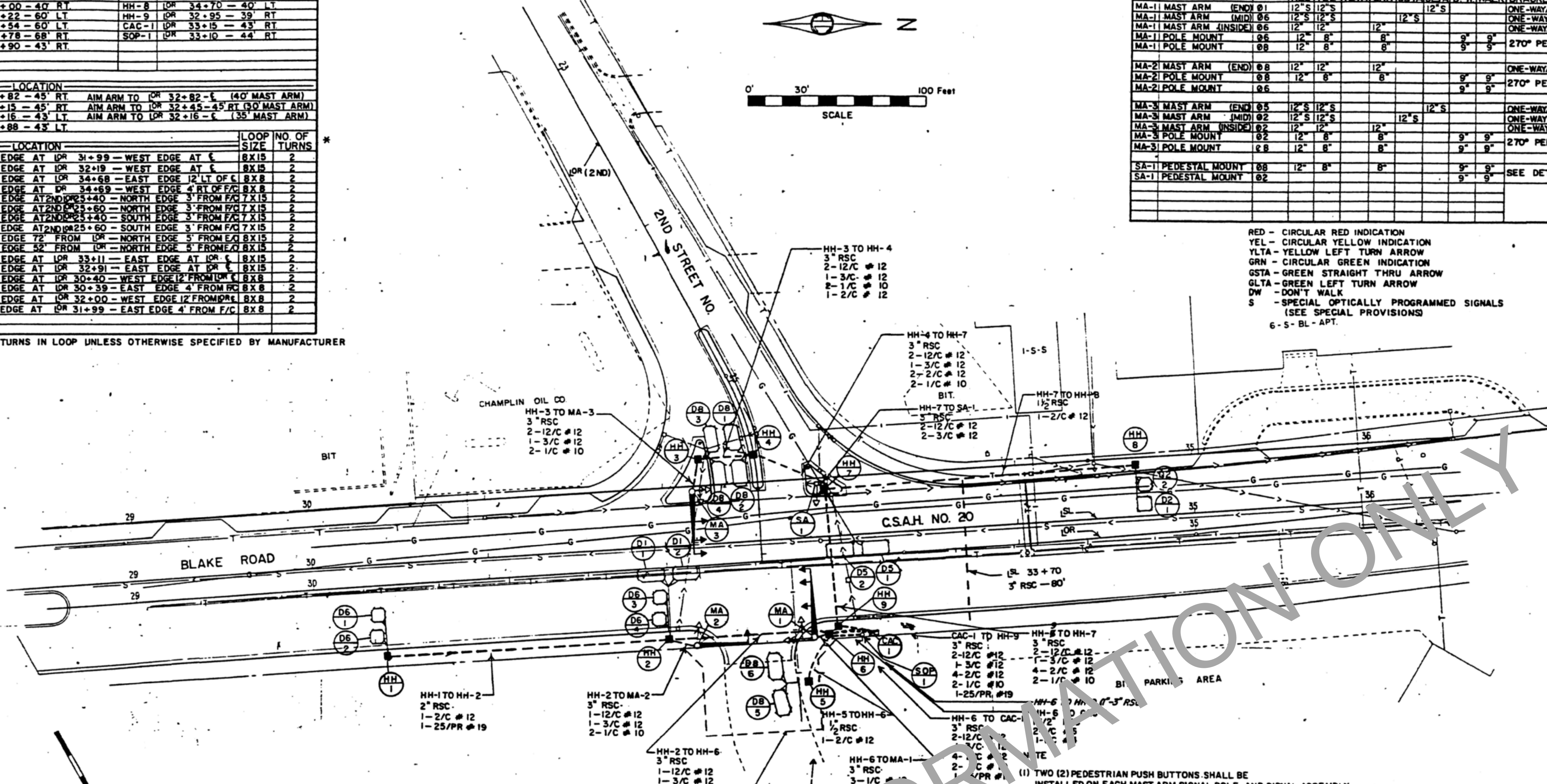
NO	LOCATION	LOOP SIZE	NO. OF TURNS *
D1-1	NORTH EDGE AT LOR 31+99 – WEST EDGE AT ℄	8X15	2
D1-2	NORTH EDGE AT LOR 32+19 – WEST EDGE AT ℄	8X15	2
D2-1	SOUTH EDGE AT LOR 34+68 – EAST EDGE 12' LT. OF ℄	8X8	2
D2-2	SOUTH EDGE AT LOR 34+69 – WEST EDGE 4' RT OF F/C	8X8	2
D8-1	EAST EDGE AT 2ND LOR 25+40 – NORTH EDGE 3' FROM F/C	7X15	2
D8-2	EAST EDGE AT 2ND LOR 25+60 – NORTH EDGE 3' FROM F/C	7X15	2
D8-3	EAST EDGE AT 2ND LOR 25+40 – SOUTH EDGE 3' FROM F/C	7X15	2
D8-4	EAST EDGE AT 2ND LOR 25+60 – SOUTH EDGE 3' FROM F/C	7X15	2
D8-5	WEST EDGE 72' FROM LOR – NORTH EDGE 5' FROM E/O	8X15	2
D8-6	WEST EDGE 52' FROM LOR – NORTH EDGE 5' FROM E/O	8X15	2
D5-1	SOUTH EDGE AT LOR 33+11 – EAST EDGE AT LOR ℄	8X15	2
D5-2	SOUTH EDGE AT LOR 32+91 – EAST EDGE AT LOR ℄	8X15	2
D6-1	NORTH EDGE AT LOR 30+40 – WEST EDGE 12' FROM LOR ℄	8X8	2
D6-2	NORTH EDGE AT LOR 30+39 – EAST EDGE 4' FROM F/C	8X8	2
D6-3	NORTH EDGE AT LOR 32+00 – WEST EDGE 12' FROM LOR ℄	8X8	2
D6-4	NORTH EDGE AT LOR 31+99 – EAST EDGE 4' FROM F/C	8X8	2

* NUMBER OF TURNS IN LOOP UNLESS OTHERWISE SPECIFIED BY MANUFACTURER

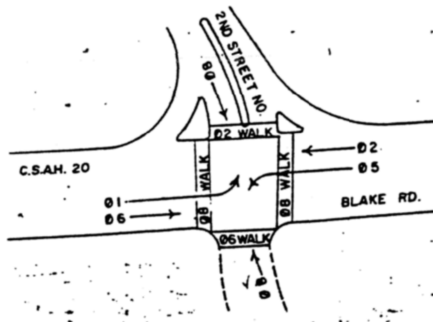
SIGNAL INDICATIONS AND BRACKETING

SIG. POLE NO.	SIGNAL FACE MOUNT	SIGNAL PHASE	RED	YEL	YLTA	GRN	GSTA	GLTA	D.W.	WALK	BRACKET MOUNTING ANGLE AND/OR BRACKET DETAIL NO.
MA-1	MAST ARM (END)	Ø1	12"S	12"S				12"S			ONE-WAY/PLATE 8124 B
MA-1	MAST ARM (MID)	Ø6	12"S	12"S			12"S				ONE-WAY/PLATE 8124 B
MA-1	MAST ARM (INSIDE)	Ø6	12"	12"		12"					ONE-WAY/PLATE 8124 B
MA-1	POLE MOUNT	Ø6	12"	8"		8"			9"	9"	270° PER DETAIL NO.2
MA-1	POLE MOUNT	Ø8	12"	8"		8"			9"	9"	
MA-2	MAST ARM (END)	Ø8	12"	12"		12"					ONE-WAY/PLATE 8124 B
MA-2	POLE MOUNT	Ø8	12"	8"		8"			9"	9"	270° PER DETAIL NO.3
MA-2	POLE MOUNT	Ø6							9"	9"	
MA-3	MAST ARM (END)	Ø5	12"S	12"S				12"S			ONE-WAY/PLATE 8124 B
MA-3	MAST ARM (MID)	Ø2	12"S	12"S			12"S				ONE-WAY/PLATE 8124 B
MA-3	MAST ARM (INSIDE)	Ø2	12"	12"		12"					ONE-WAY/PLATE 8124 B
MA-3	POLE MOUNT	Ø2	12"	8"		8"			9"	9"	270° PER DETAIL NO.2
MA-3	POLE MOUNT	Ø8	12"	8"		8"			9"	9"	
SA-1	PEDESTAL MOUNT	Ø8	12"	8"		8"			9"	9"	SEE DETAIL NO. 1
SA-1	PEDESTAL MOUNT	Ø2							9"	9"	

RED – CIRCULAR RED INDICATION
YEL – CIRCULAR YELLOW INDICATION
YLTA – YELLOW LEFT TURN ARROW
GRN – CIRCULAR GREEN INDICATION
GSTA – GREEN STRAIGHT THRU ARROW
GLTA – GREEN LEFT TURN ARROW
DW – DON'T WALK
S – SPECIAL OPTICALLY PROGRAMMED SIGNALS (SEE SPECIAL PROVISIONS)
6 - S - BL - APT.



PHASING LAYOUT
(NO SCALE)



SIGNAL PHASING SEQUENCE

WITH CALLS OR ACTUATIONS ON ALL PHASES, PHASE ROTATION SHALL BE AS FOLLOWS:

Ø1 & Ø5
Ø2 & Ø6
Ø8
REPEAT

FLASH OPERATION:

THE SIGNALS SHALL FLASH YELLOW ON PHASES 1,5,2, AND 6 AND FLASH RED ON PHASE 8.

PEDESTRIAN "WALK" INDICATION SHALL BE DISPLAYED ON PUSH BUTTON ACTUATION ONLY

NOTE

(1) TWO (2) PEDESTRIAN PUSH BUTTONS SHALL BE INSTALLED ON EACH MAST ARM SIGNAL POLE, AND SIGNAL ASSEMBLY AND CONNECTED AS SHOWN IN THE FIELD WIRING DIAGRAM FOR OPERATION AS SHOWN IN THE PHASING LAYOUT.

(2) 250 WATT HIGH PRESSURE SODIUM VAPOR LUMINAIRE SHALL BE INSTALLED ON MA-1, MA-2, AND MA-3 LUMINAIRE SHAFT EXTENSIONS.

(3) 25/PR #19 CABLE NOT INCLUDED IN SIGNAL SYSTEM (SEE INTERCONNECT CONDUIT AND CABLE)

SYSTEM "B"
SIGNAL PLAN LAYOUT
C.S.A.H. 20 AT 2ND STREET NO.

1/23/78
9/9/77
7/29/77

HENN. CO., MINN. PROJ. NO. 6319 C.S.A.H. NO. 20 SHEET 35 OF 73 SHEETS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 1
SIGNAL PLAN - SIGNAL SYSTEM "E"
CSAH 20 (BLAKE RD N) AND 2ND ST NE
FOR INFORMATION ONLY

DISCIPLINE: TRAFFIC

SHEET NAME: E1-TFC-SIG-BLK-002