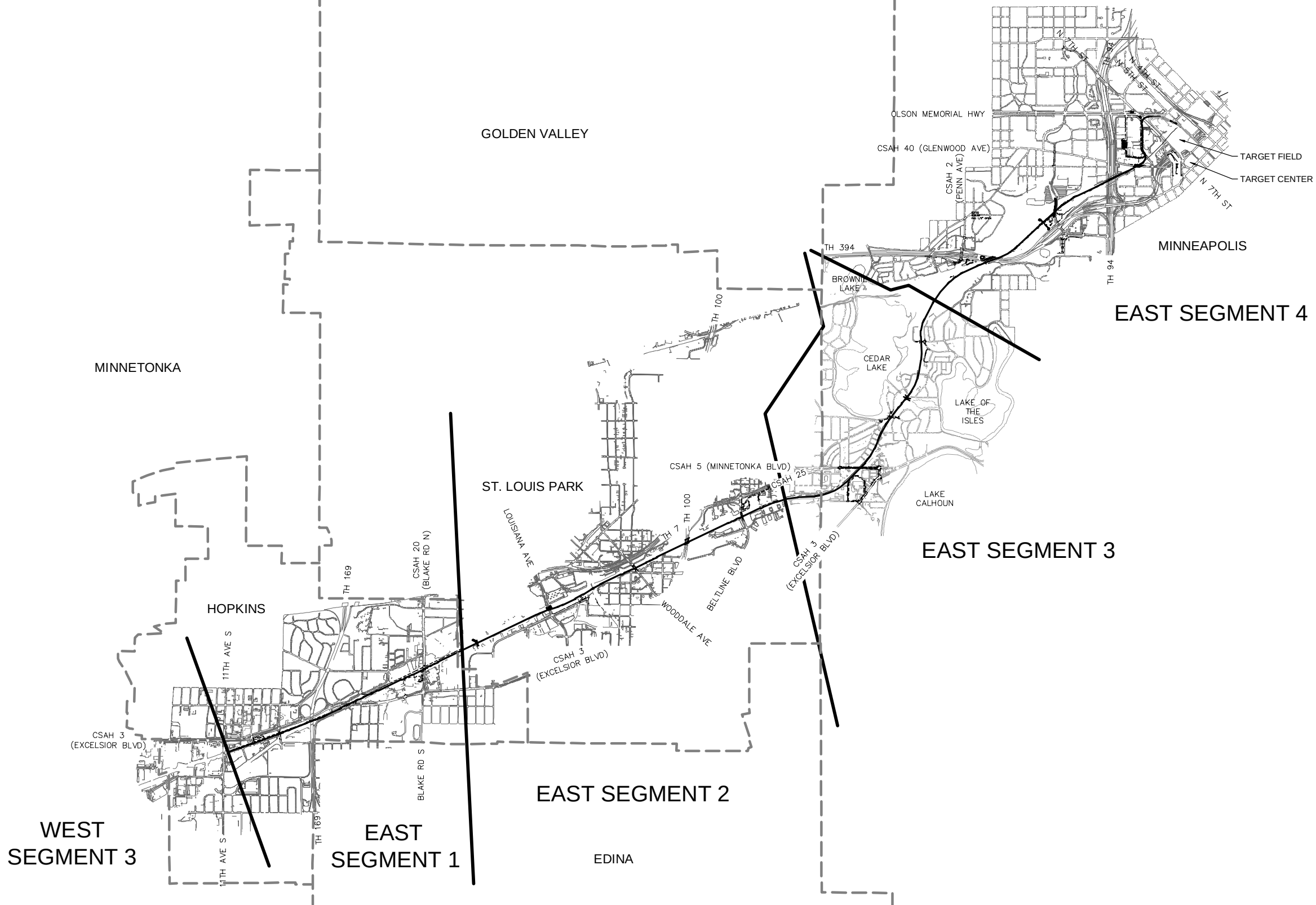




PRELIMINARY ENGINEERING (SEPTEMBER 2014)

PRELIMINARY - NOT FOR CONSTRUCTION

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PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2
GENERAL
SEGMENT KEY MAP

DISCIPLINE: GENERAL

SHEET NAME: E2-GEN-KEY-001

SHEET
2
OF
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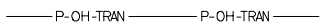
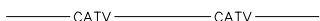
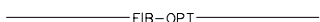
SURVEY NOTES

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	P-OH	OVERHEAD ELECTRIC
	P-OH-TRAN	P-OH-TRAN	OVERHEAD ELECTRIC TRANSMISSION
	P-UG	P-UG	UNDERGROUND ELECTRIC
	T-UG	T-UG	UNDERGROUND TELEPHONE
	COM-OH	COM-OH	OVERHEAD COMMUNICATION
	COM-UG	COM-UG	UNDERGROUND COMMUNICATION
	CABLE-OH		OVERHEAD CABLE TELEVISION
	CATV	CATV	UNDERGROUND CABLE TELEVISION
	FIB-OPT		UNDERGROUND FIBER OPTIC
	FUEL-UG	FUEL-UG	UNDERGROUND FUEL
	GAS	GAS	UNDERGROUND GAS
			ABANDONED UTILITY
	I	I	WATER
			SANITARY SEWER
			SANITARY FORCE MAIN
			STORM SEWER
			CURB AND GUTTER
	x	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
CL	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





EAST - VOLUME 1 (CIVIL) - SEGMENT 2
EXISTING CONDITIONS
NOTES AND LEGEND

DISCIPLINE: SURVEY

SHEET NAME: E2-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
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
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
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
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
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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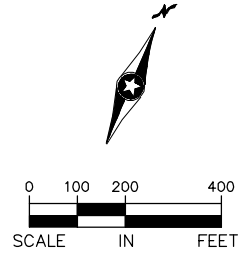
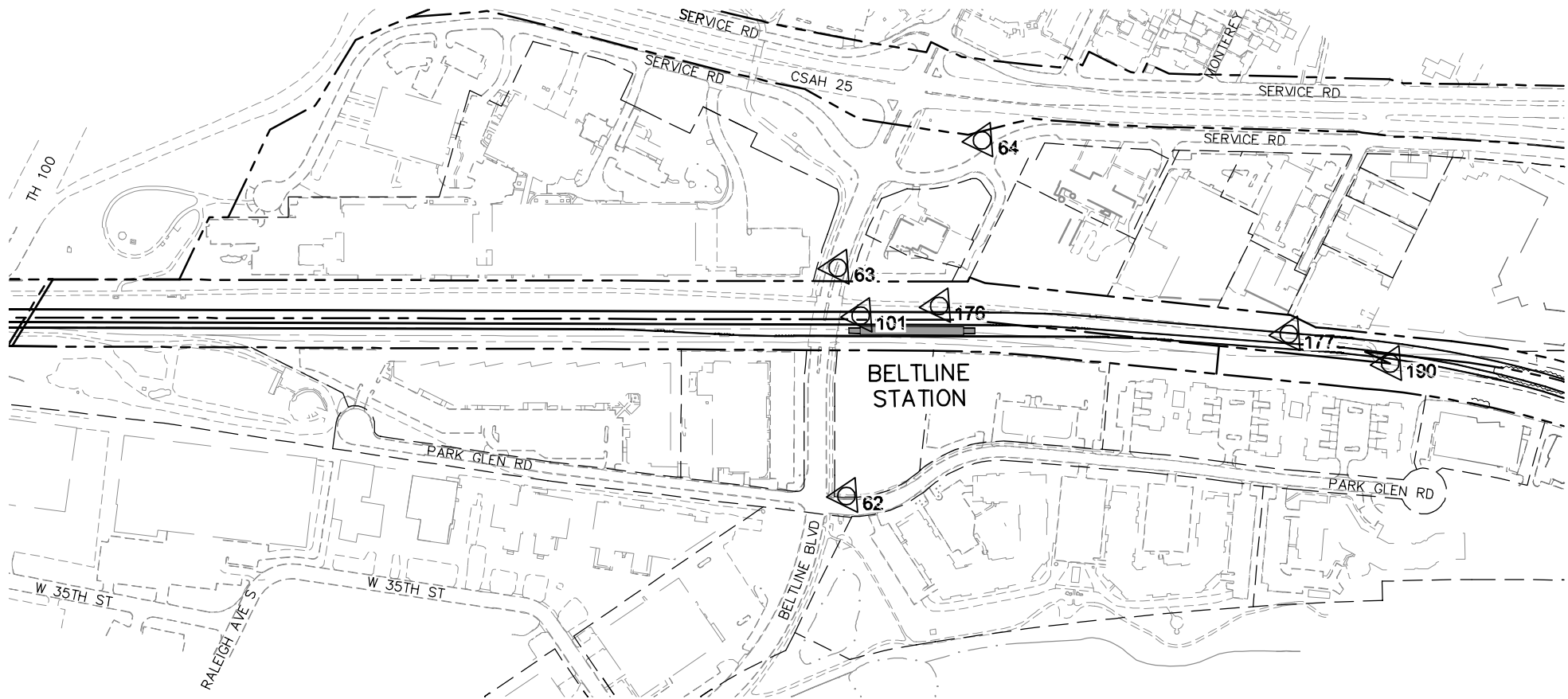
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
EXISTING CONDITIONS
SURVEY CONTROL STATIONS

DISCIPLINE:
SURVEY

SHEET NAME:
E2-SUR-NTS-CTRL-001

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									135	
							DISCIPLINE:	SURVEY	SHEET NAME:	E2-SUR-CTRL-001

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METROPOLITAN COUNCIL

SOUTHWEST
Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 2
EXISTING CONDITIONS
CONTROL POINTS PLAN

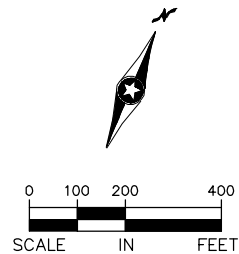
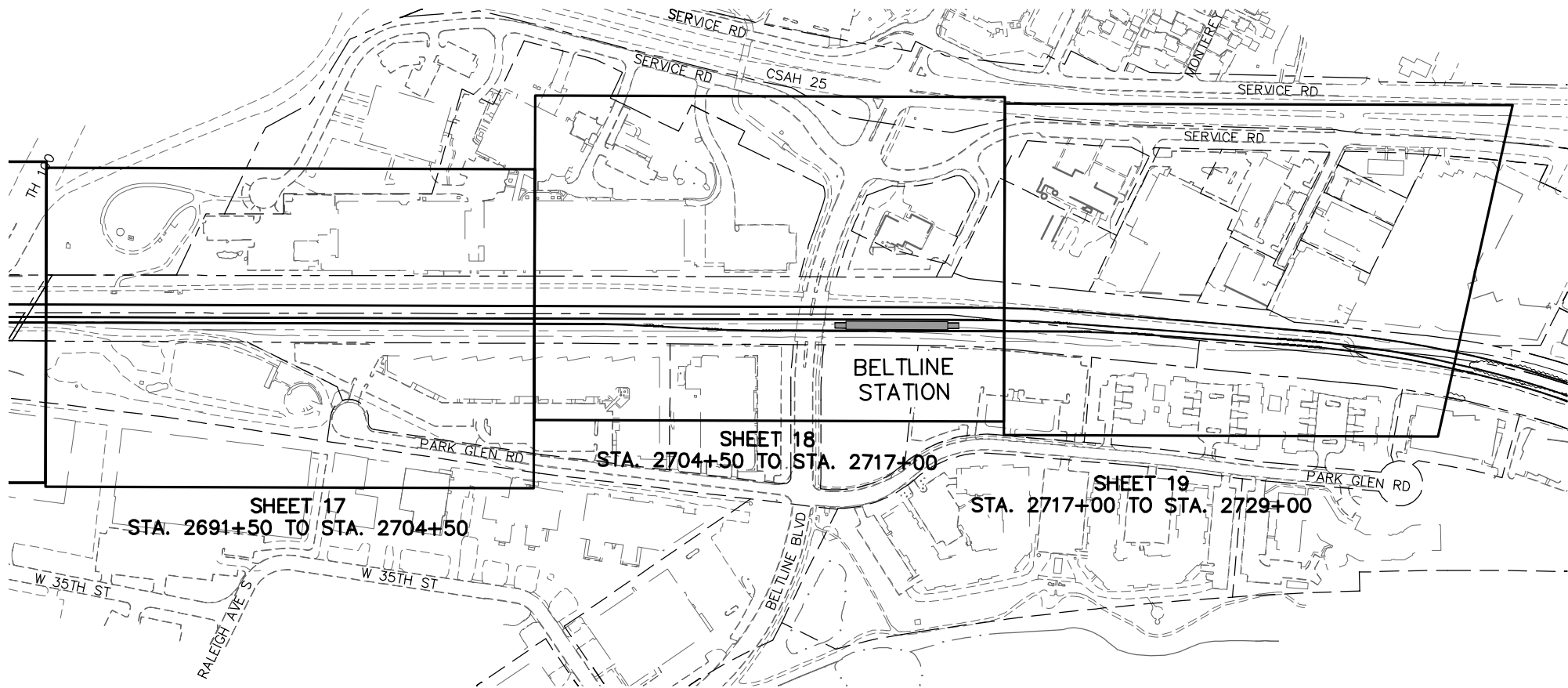
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135

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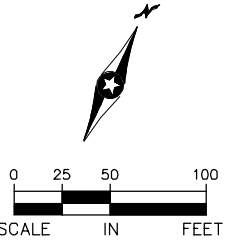
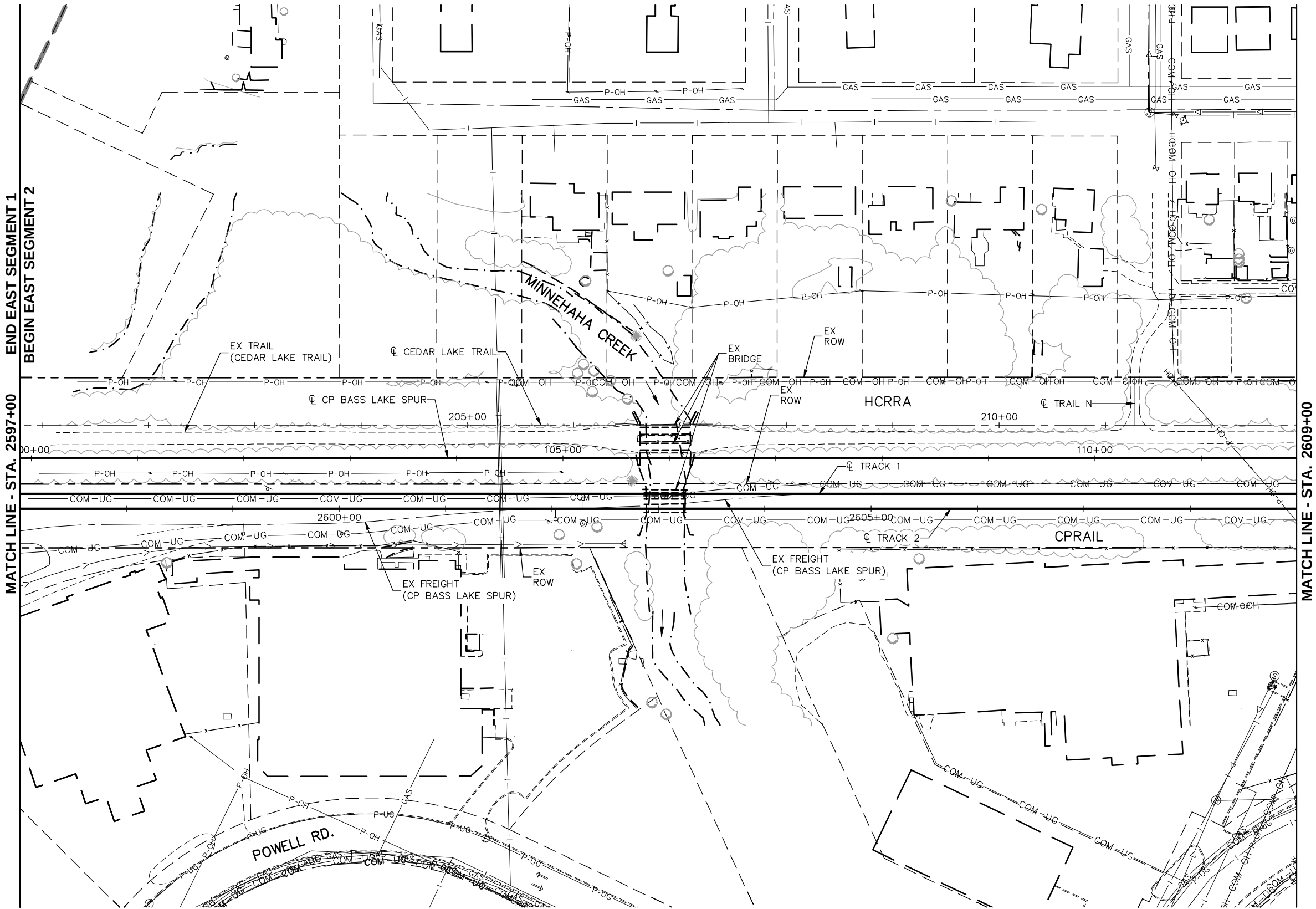
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EXISTING CONDITIONS
SHEET INDEX

DISCIPLINE: SURVEY

SHEET NAME: E2-SUR-IDX-002

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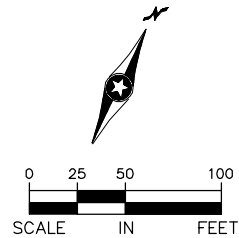
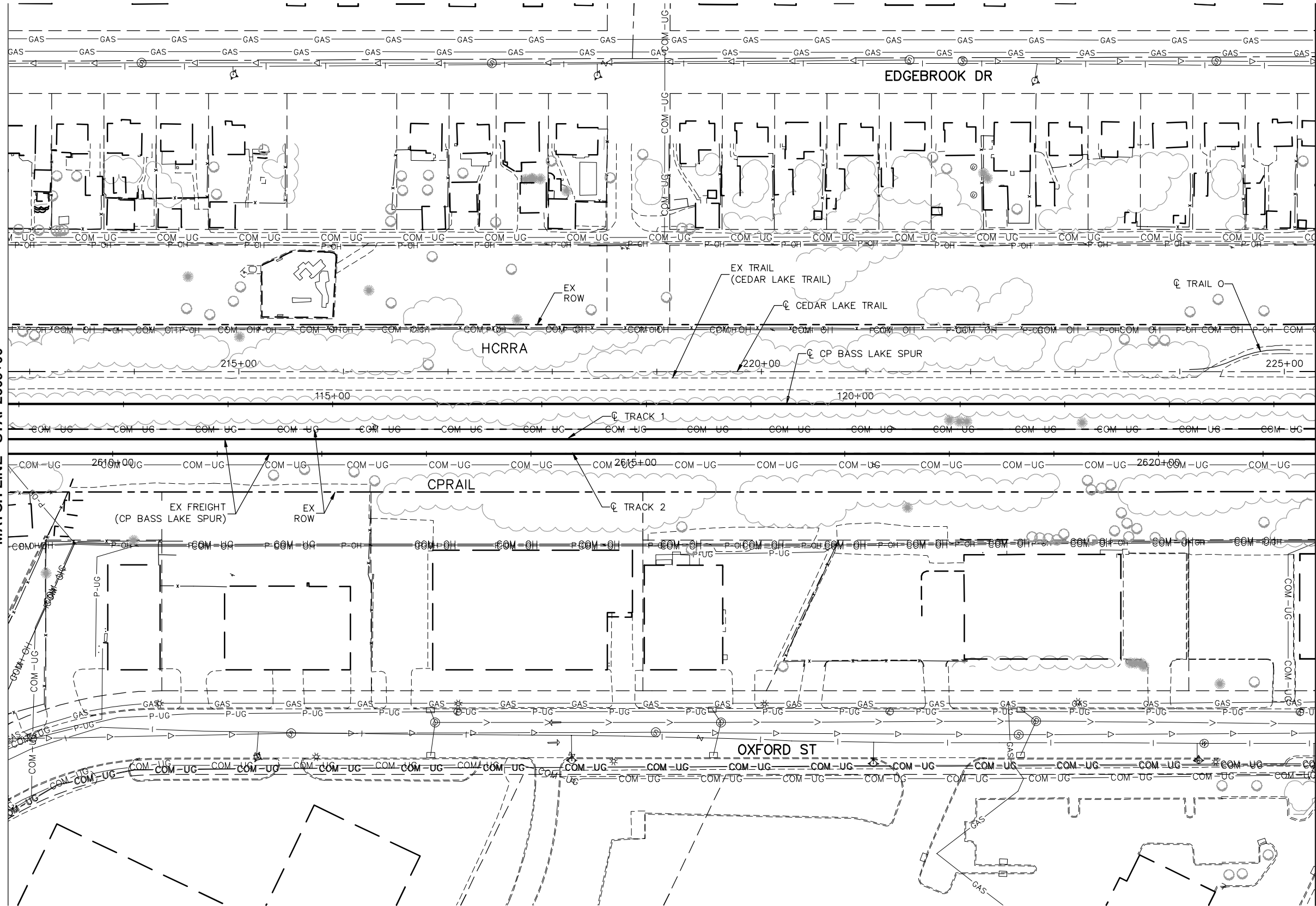
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
EXISTING CONDITIONS
PLAN
STA. 2597+00 TO STA. 2609+00

DISCIPLINE: **SURVEY**

SHEET NAME: **E2-SUR-PLN-001**

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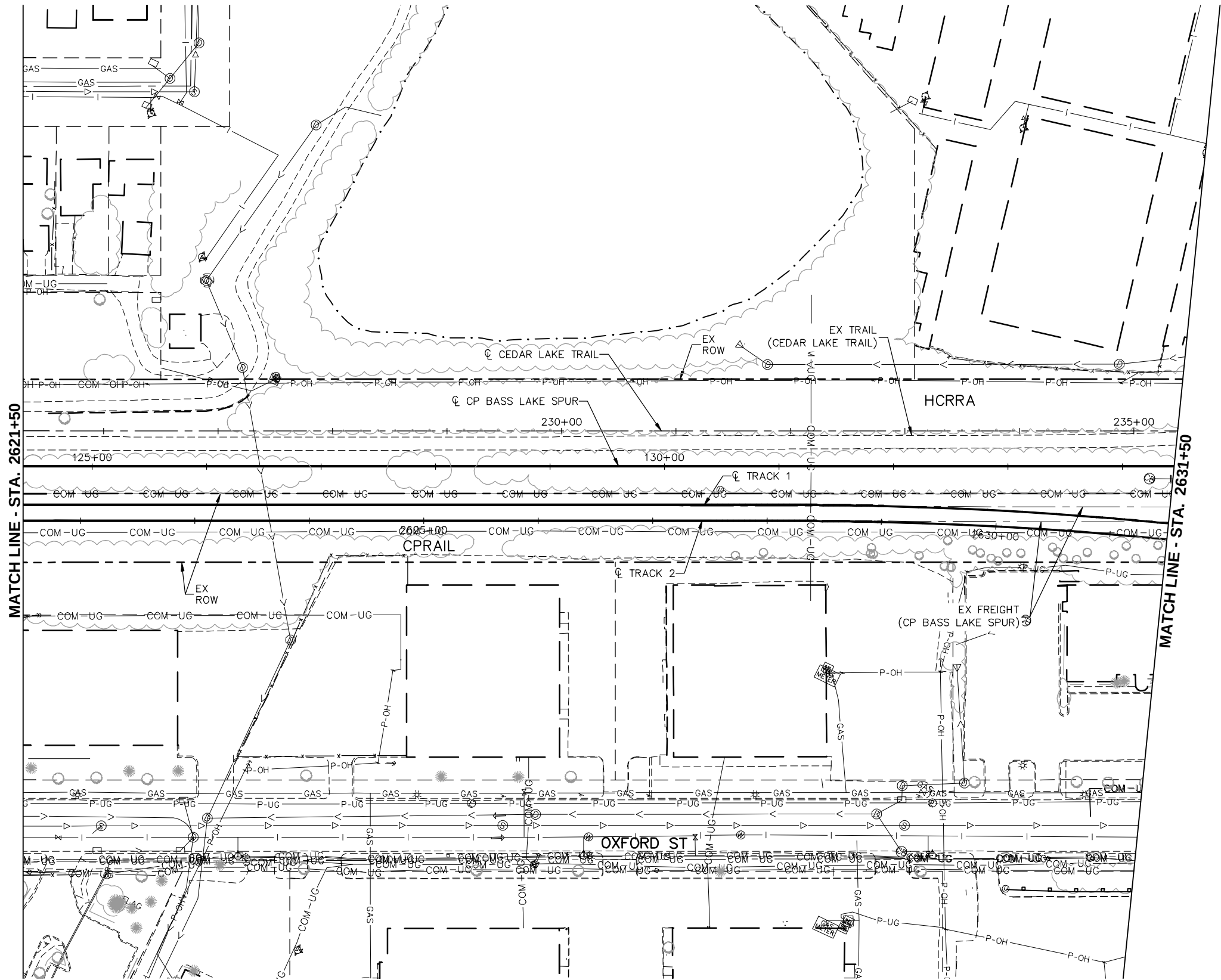
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EXISTING CONDITIONS
PLAN
STA. 2609+00 TO STA. 2621+50

DISCIPLINE: **SURVEY**

SHEET NAME: **E2-SUR-PLN-002**

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PRELIMINARY ENGINEERING



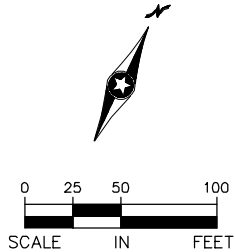
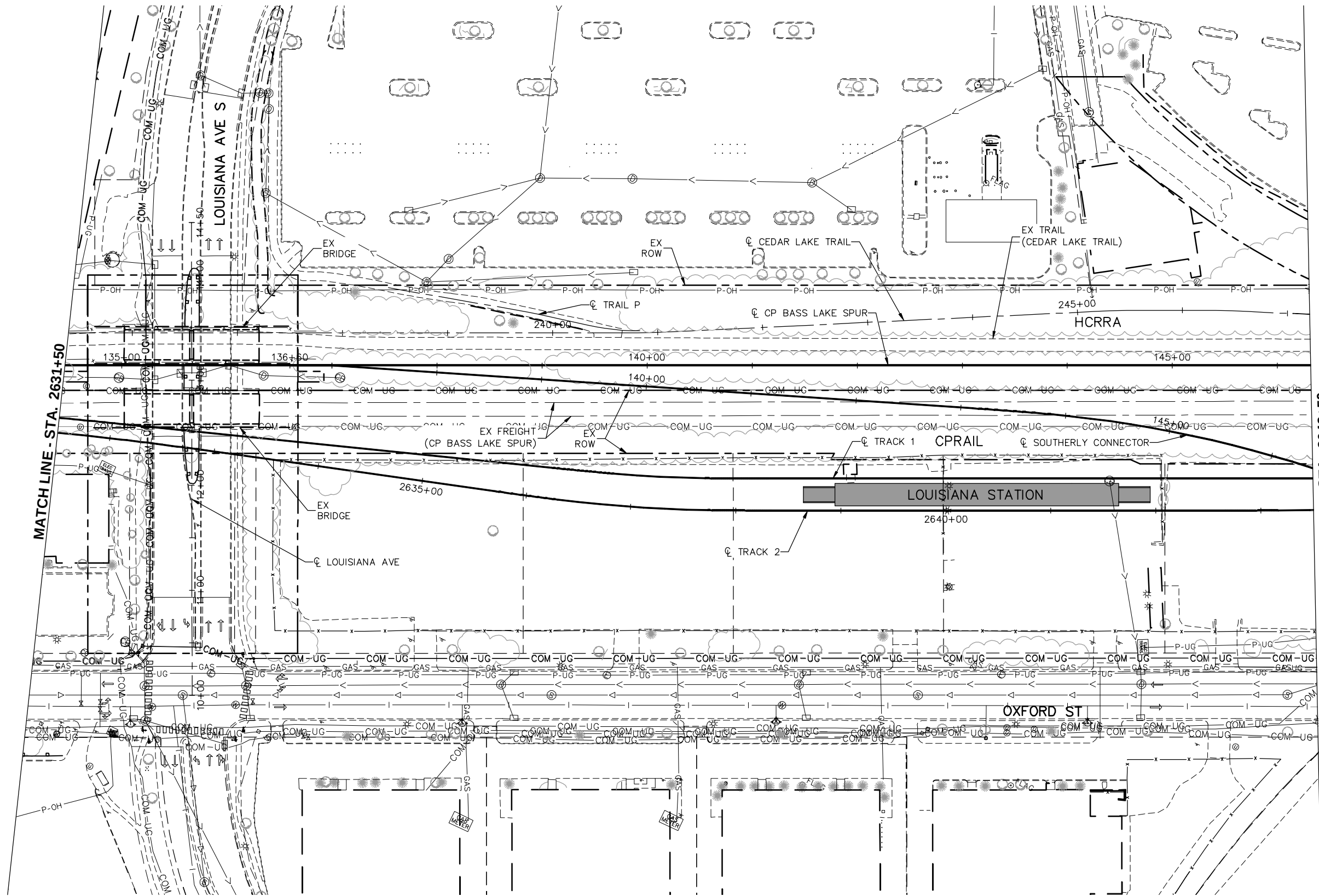
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
EXISTING CONDITIONS
PLAN
STA. 2621+50 TO STA. 2631+50

DISCIPLINE: SURVEY

SHEET NAME: E2-SUR-PLN-003

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PRELIMINARY ENGINEERING



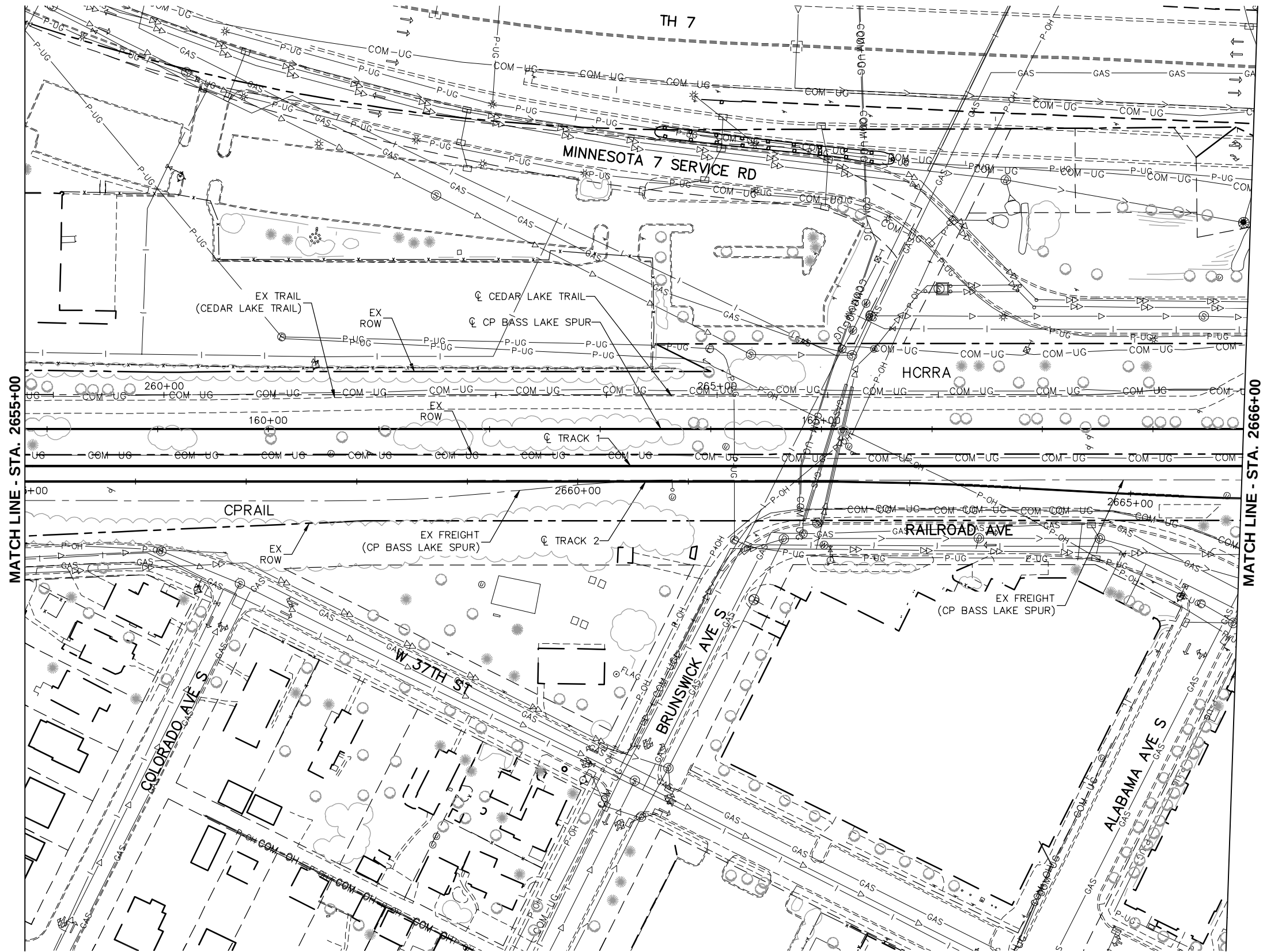
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
EXISTING CONDITIONS
PLAN
STA. 2631+50 TO STA. 2643+50

DISCIPLINE: **SURVEY**

SHEET NAME: **E2-SUR-PLN-004**

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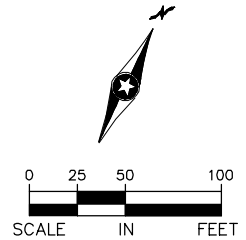
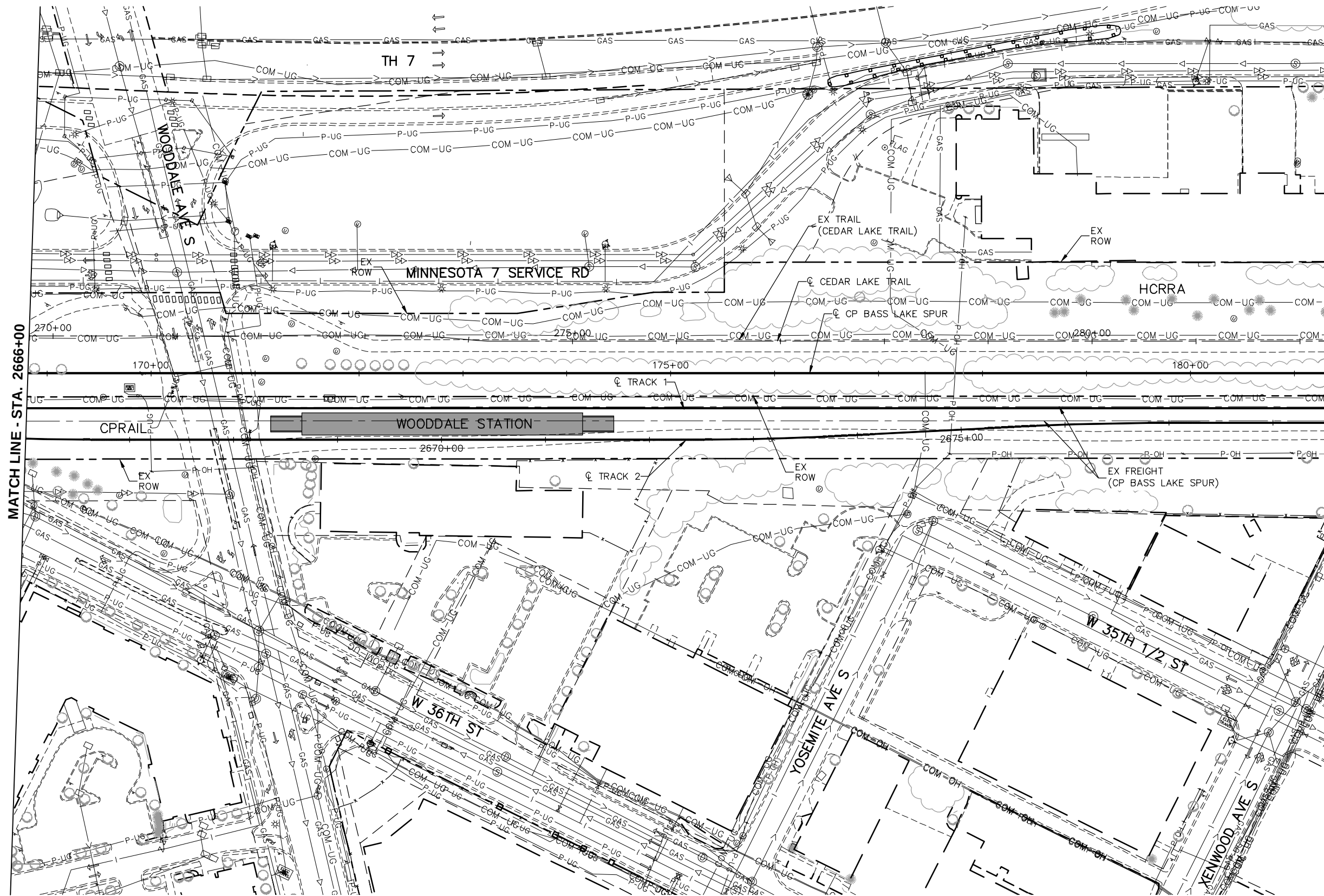
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
EXISTING CONDITIONS
PLAN
STA. 2655+00 TO STA. 2666+00

DISCIPLINE: **SURVEY**

SHEET NAME: **E2-SUR-PLN-006**

SHEET
14
OF
135

Aug. 29 2014 08:00 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\CIVIL\E2-SUR-PLN.dwg By: tracy.fosmo



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PRELIMINARY ENGINEERING

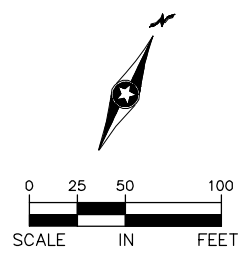
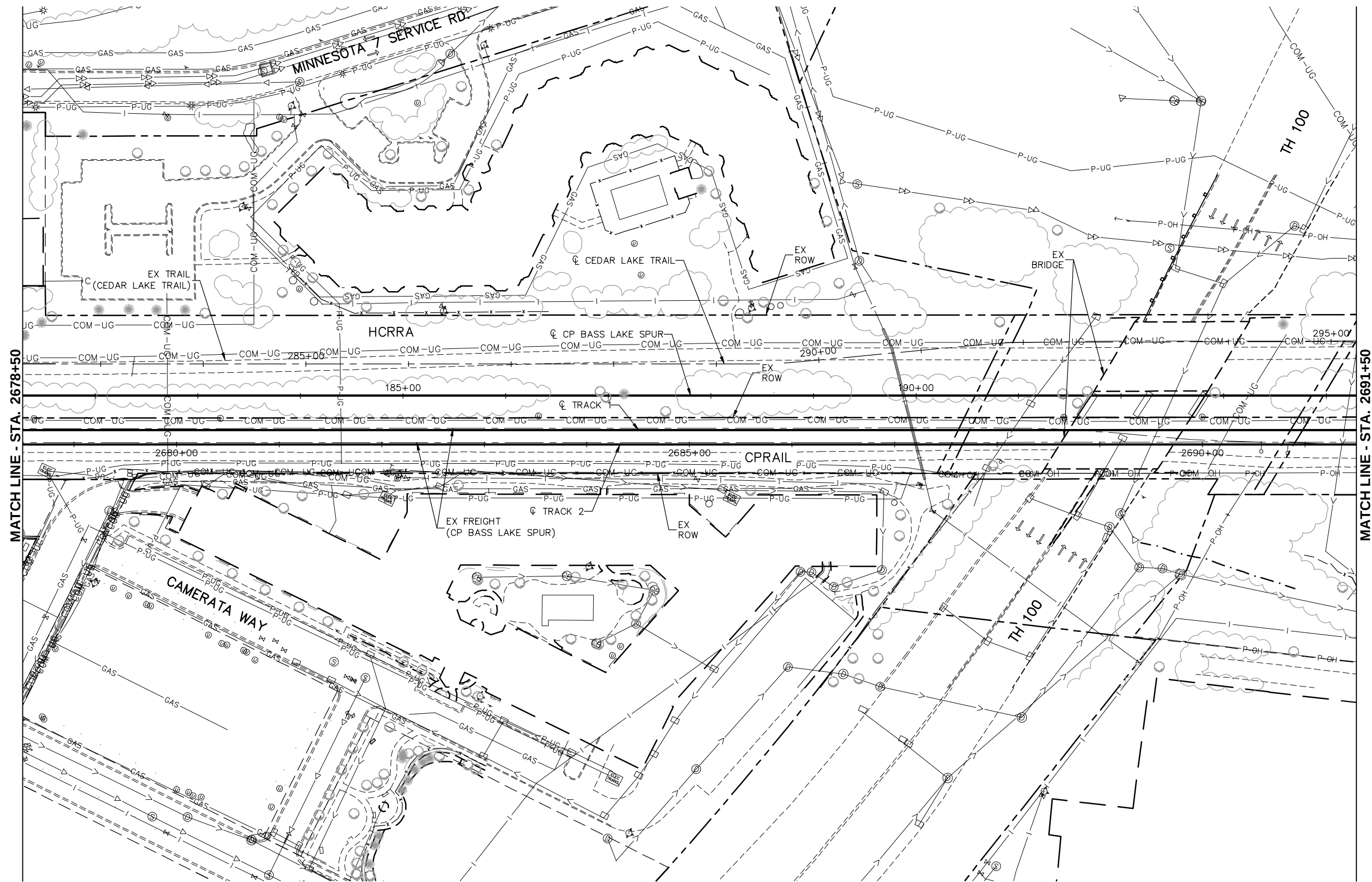


EAST - VOLUME 1 (CIVIL) - SEGMENT 2
EXISTING CONDITIONS
PLAN
STA. 2666+00 TO STA. 2678+50

DISCIPLINE: **SURVEY** SHEET NAME: **E2-SUR-PLN-007**

SHEET
15
OF
135

Aug. 29 2014 08:01 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\CIVIL\E2-SUR-PLN.dwg By: tracy.fosmo



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PRELIMINARY ENGINEERING



SOUTHWEST
Green Line LAT Extension



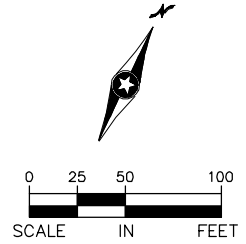
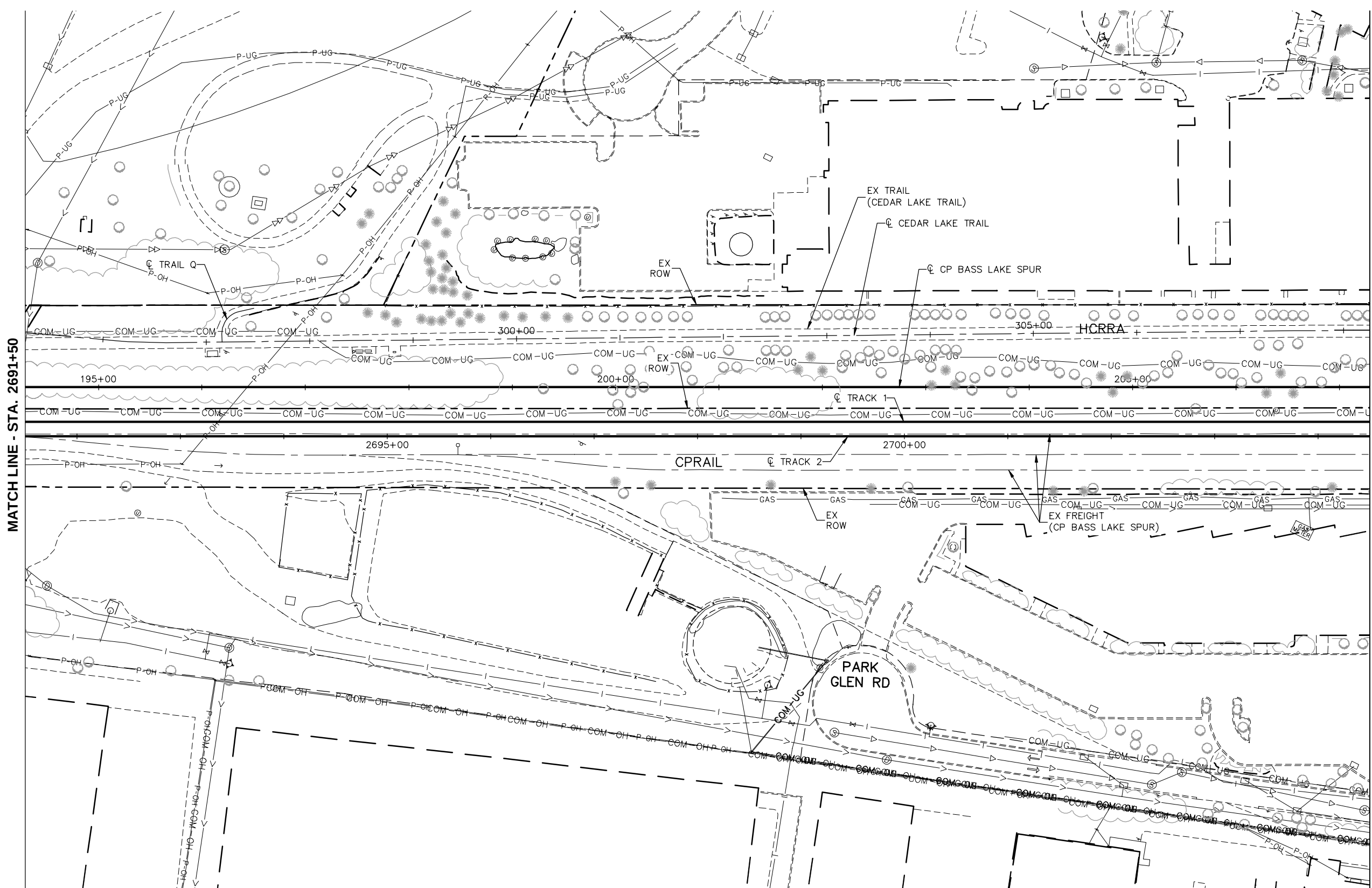
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
EXISTING CONDITIONS
PLAN
STA. 2678+50 TO STA. 2691+50

DISCIPLINE: SURVEY

SHEET NAME: E2-SUR-PLN-008

SHEET
16
OF
135

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MATCH LINE - STA. 2691+50

MATCH LINE - STA. 2704+50

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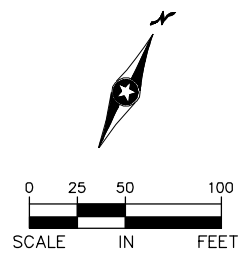
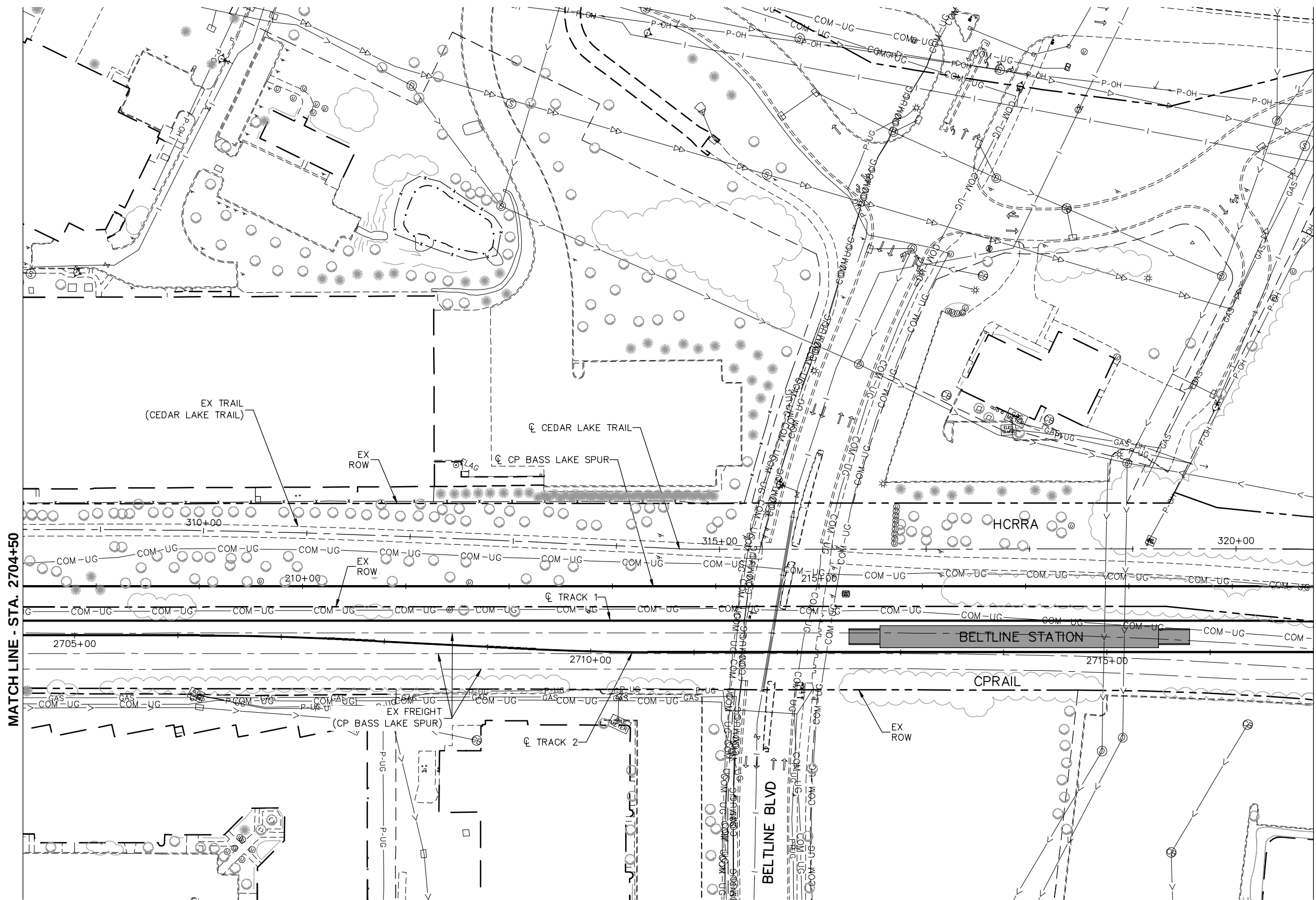
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
EXISTING CONDITIONS
PLAN
STA. 2691+50 TO STA. 2704+50

DISCIPLINE: **SURVEY**

SHEET NAME: **E2-SUR-PLN-009**

SHEET
17
OF
135

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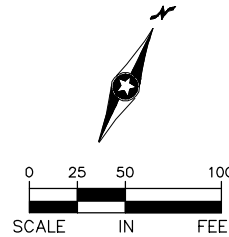
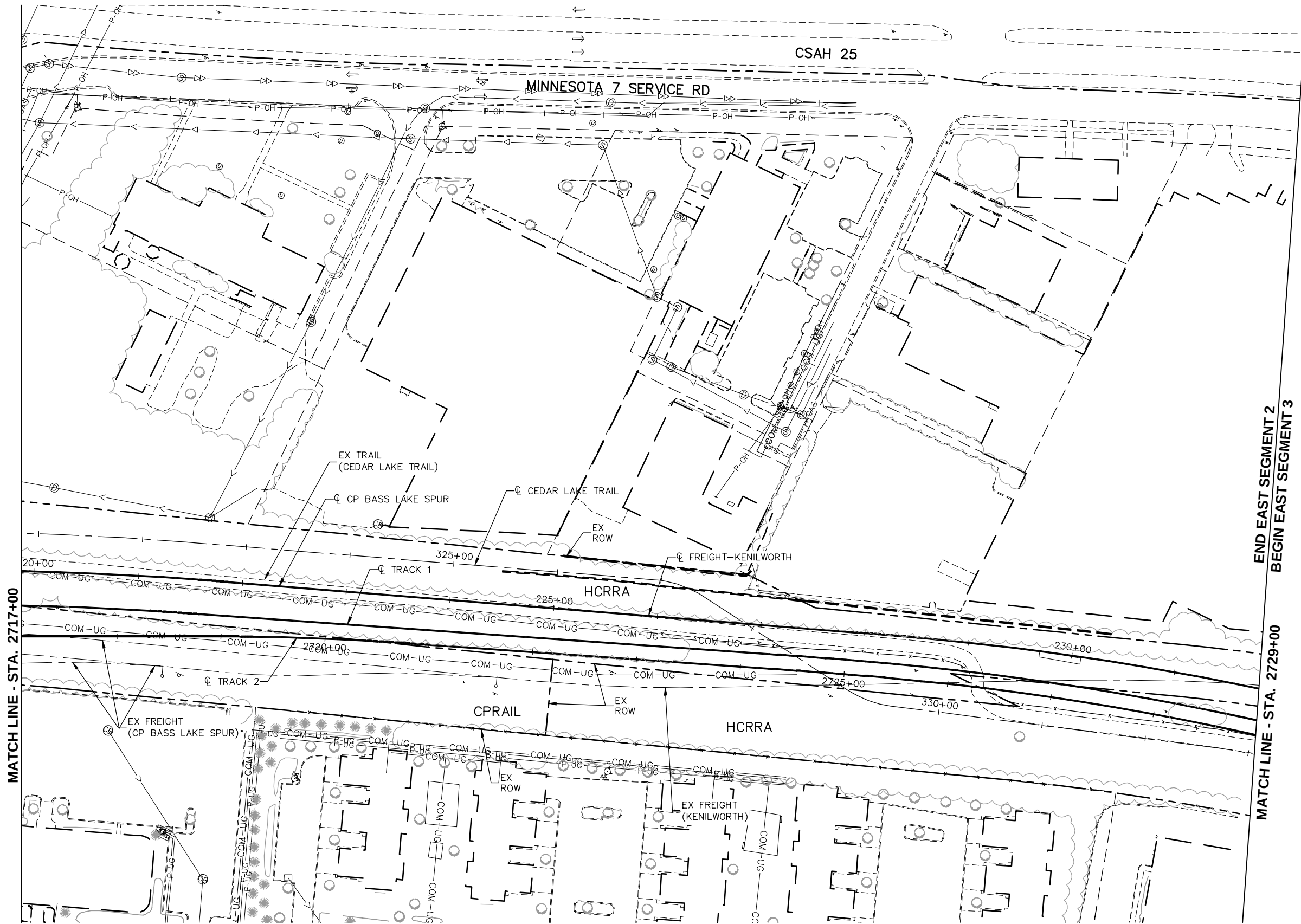
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
EXISTING CONDITIONS
PLAN
STA. 2704+50 TO STA. 2717+00

DISCIPLINE: **SURVEY**

SHEET NAME: **E2-SUR-PLN-010**

SHEET
18
OF
135

Aug. 29 2014 08:03 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\CIVIL\E2-SUR-PLN.dwg By: tracy.fosmo



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EAST - VOLUME 1 (CIVIL) - SEGMENT 2
EXISTING CONDITIONS
PLAN
STA. 2717+00 TO STA. 2729+00

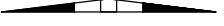
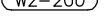
DISCIPLINE: SURVEY

SHEET NAME: E2-SUR-PLN-011

SHEET
19
OF
135

Aug. 29 2014 07:24 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-NTS.dwg By: chris.bunders

TRACK LINETYPES	
	TRACK $\mathcal{C}$
	RETAINING WALL
	TUNNEL WALL
	ROADWAY $\mathcal{C}$
	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)
	RAILROAD CURVE NUMBER
NOTE: ALL TURNOUTS AND CROSSOVERS TO BE EQUIPPED WITH POWER SWITCH MACHINES AND SWITCH HEATERS	

CIVIL LINETYPES	
	ROADWAY $\mathcal{C}$
	TRACK $\mathcal{C}$
	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
$\mathcal{C}$	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
HCRRRA	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

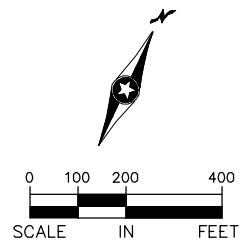
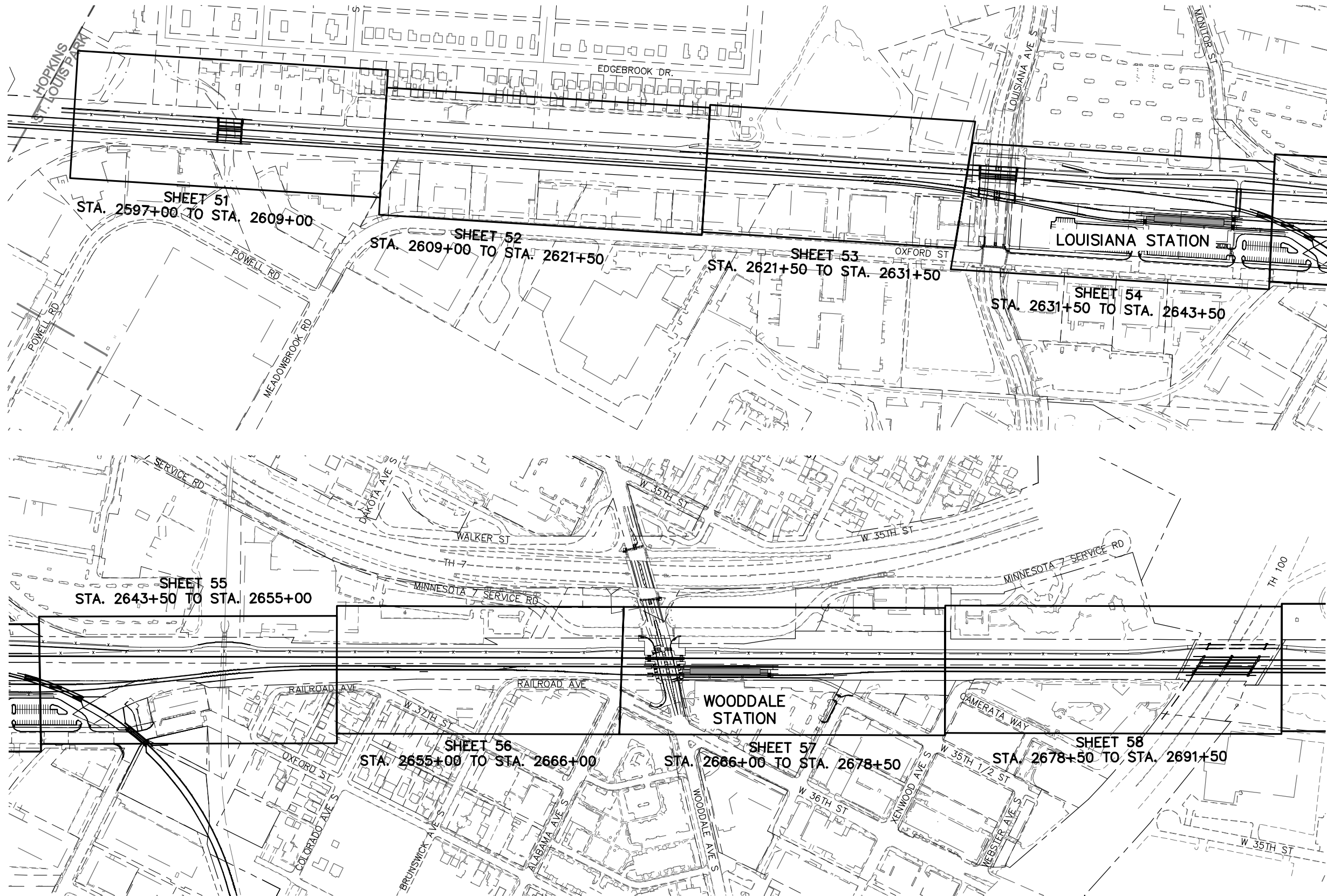
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	PRELIMINARY ENGINEERING

	
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EAST - VOLUME 1 (CIVIL) - SEGMENT 2		SHEET 20 OF 135
TRACK AND CIVIL		
LEGEND AND ABBREVIATIONS		
DISCIPLINE:	TRACK	SHEET NAME:
		E2-TRK-NTS-001

Aug. 29 2014 07:25 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-IDX.dwg By: chrisbunders



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SYSTRA



METROPOLITAN COUNCIL

PRELIMINARY ENGINEERING



SOUTHWEST
Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 2

TRACK

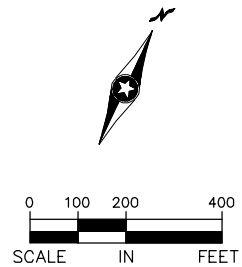
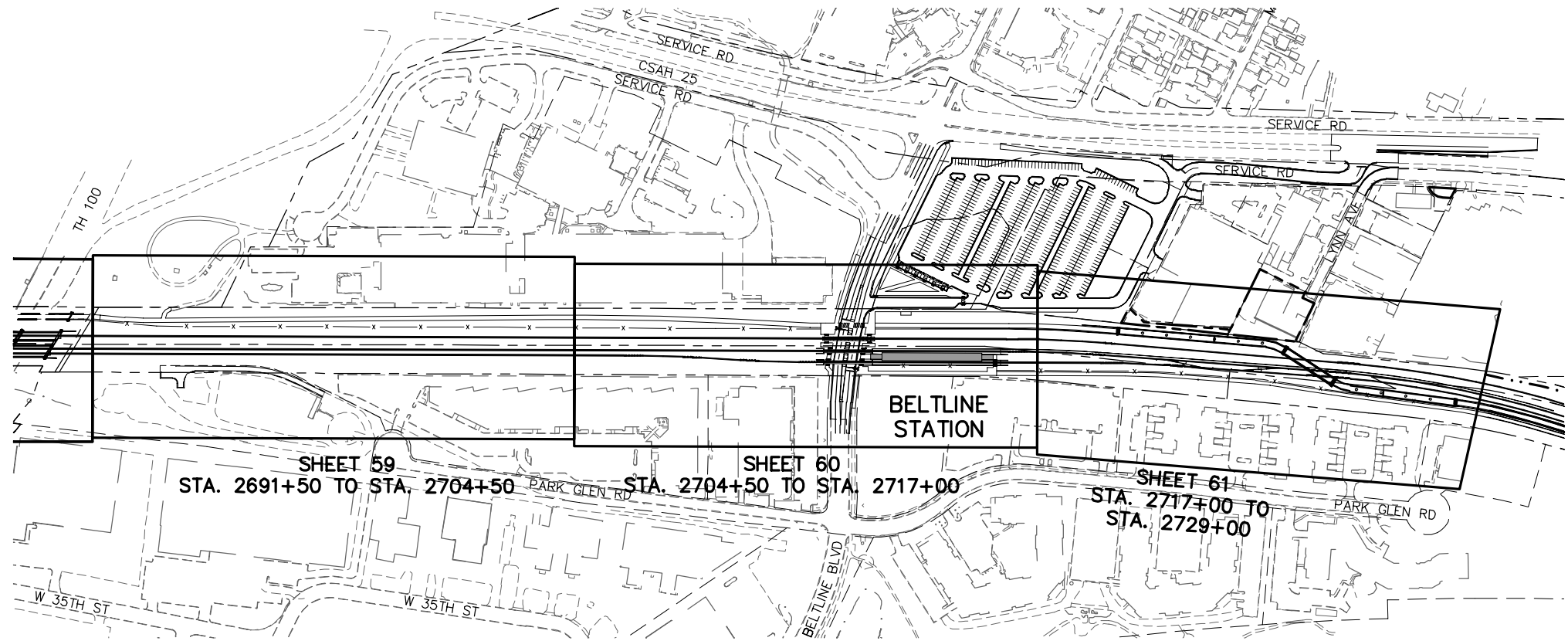
SHEET INDEX

DISCIPLINE: **TRACK**

SHEET NAME: **E2-TRK-IDX-001**

SHEET
21
OF
135

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SYSTRA

PRELIMINARY ENGINEERING

METROPOLITAN
 C O U N C I L

SOUTHWEST
 Green Line LRT Extension

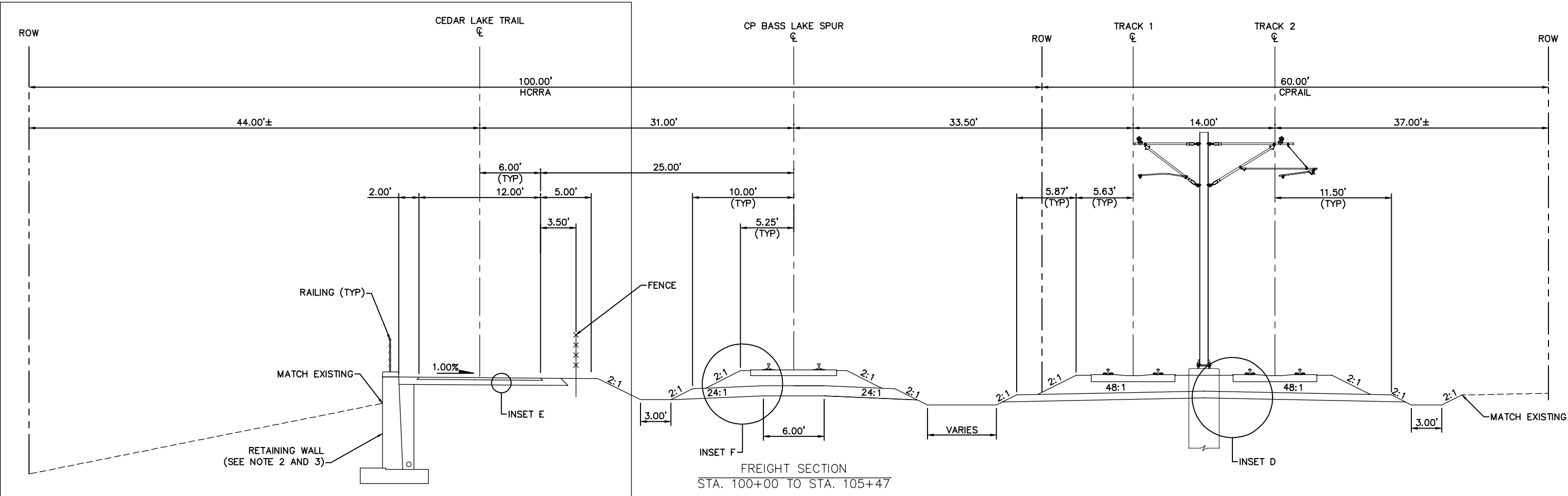
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
SHEET INDEX

DISCIPLINE: **TRACK**

SHEET NAME: **E2-TRK-IDX-002**

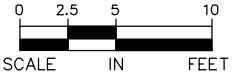
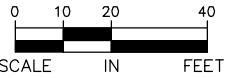
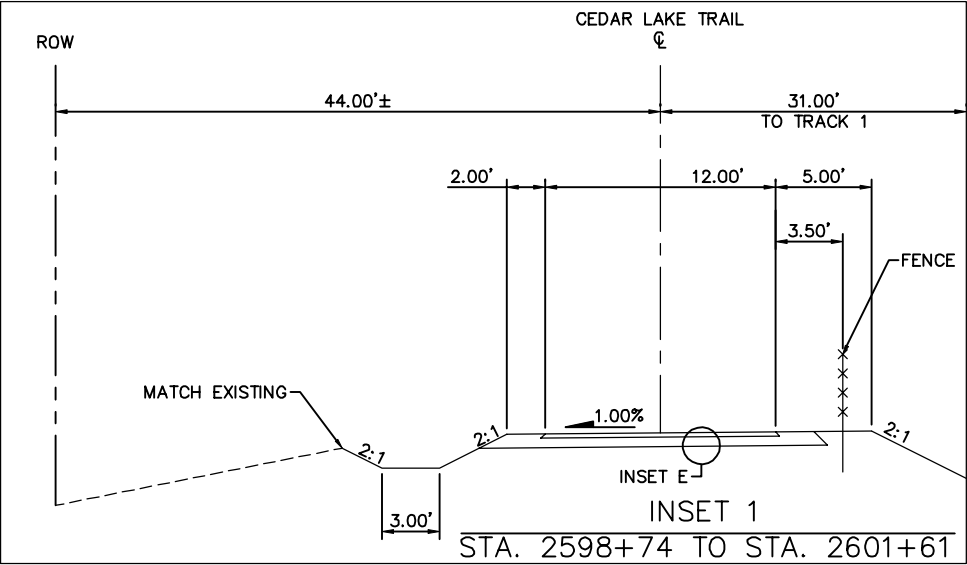
SHEET
22
OF
135

Aug. 29 2014 07:26 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-TYP.dwg By: chris.bunders



TYPICAL SECTION
STA. 2597+00 TO STA. 2602+57

- NOTE:
1. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.
 2. RETAINING WALL FROM STA. 2597+00 TO STA. 2598+74.
 3. RETAINING WALL FROM STA. 2601+61 TO STA. 2602+52.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



PRELIMINARY ENGINEERING

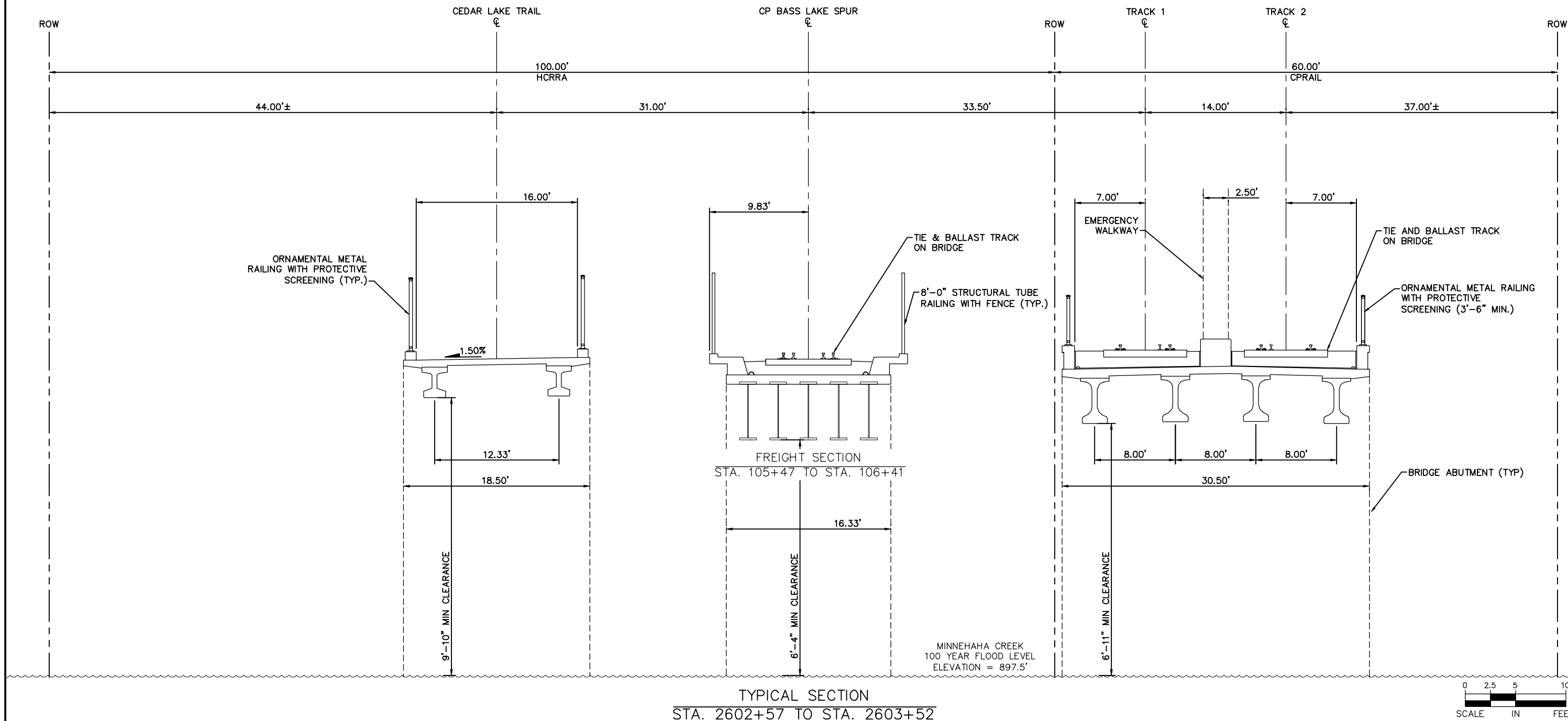


EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME:
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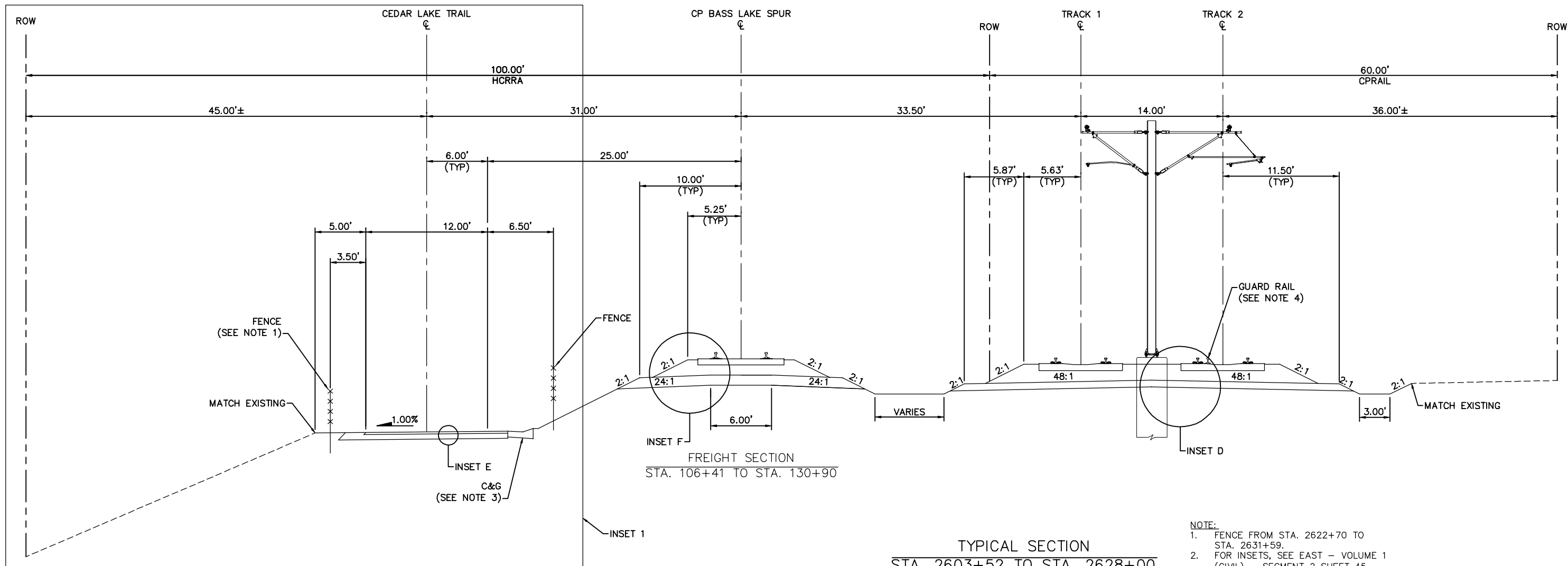
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TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

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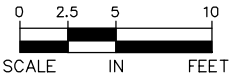
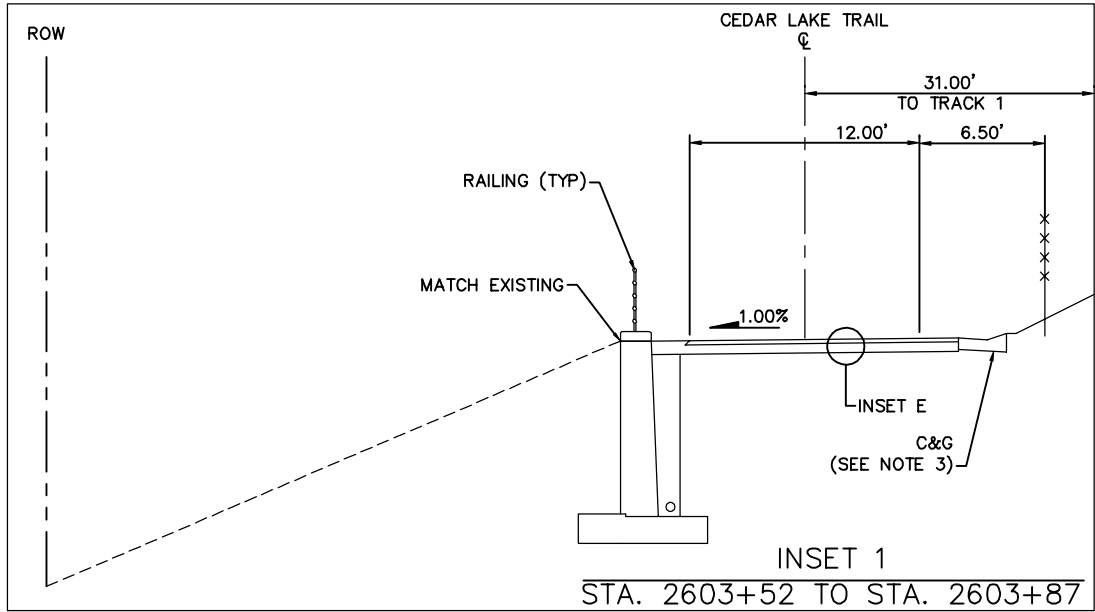
SHEET
24
OF
135

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TYPICAL SECTION
STA. 2603+52 TO STA. 2628+00

- NOTE:
1. FENCE FROM STA. 2622+70 TO STA. 2631+59.
 2. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.
 3. CURB FROM STA. 2620+46 TO STA. 2628+00.
 4. GUARD RAIL BEGINS AT STA. 2627+51.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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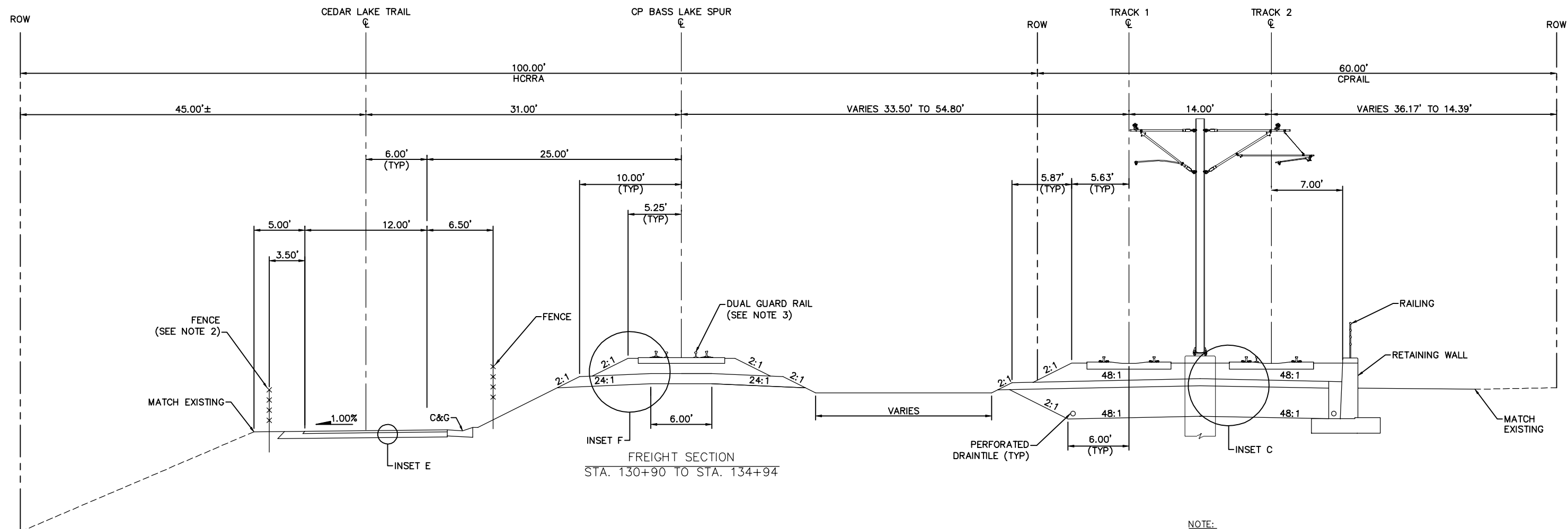
SOUTHWEST Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

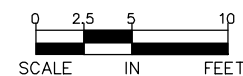
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TYPICAL SECTION
STA. 2628+00 TO STA. 2632+06

- NOTE:
1. FENCE FROM STA. 2628+00 TO STA. 2631+59.
 2. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.
 3. DUAL GUARD RAIL BEGINS AT STA. 134+30.



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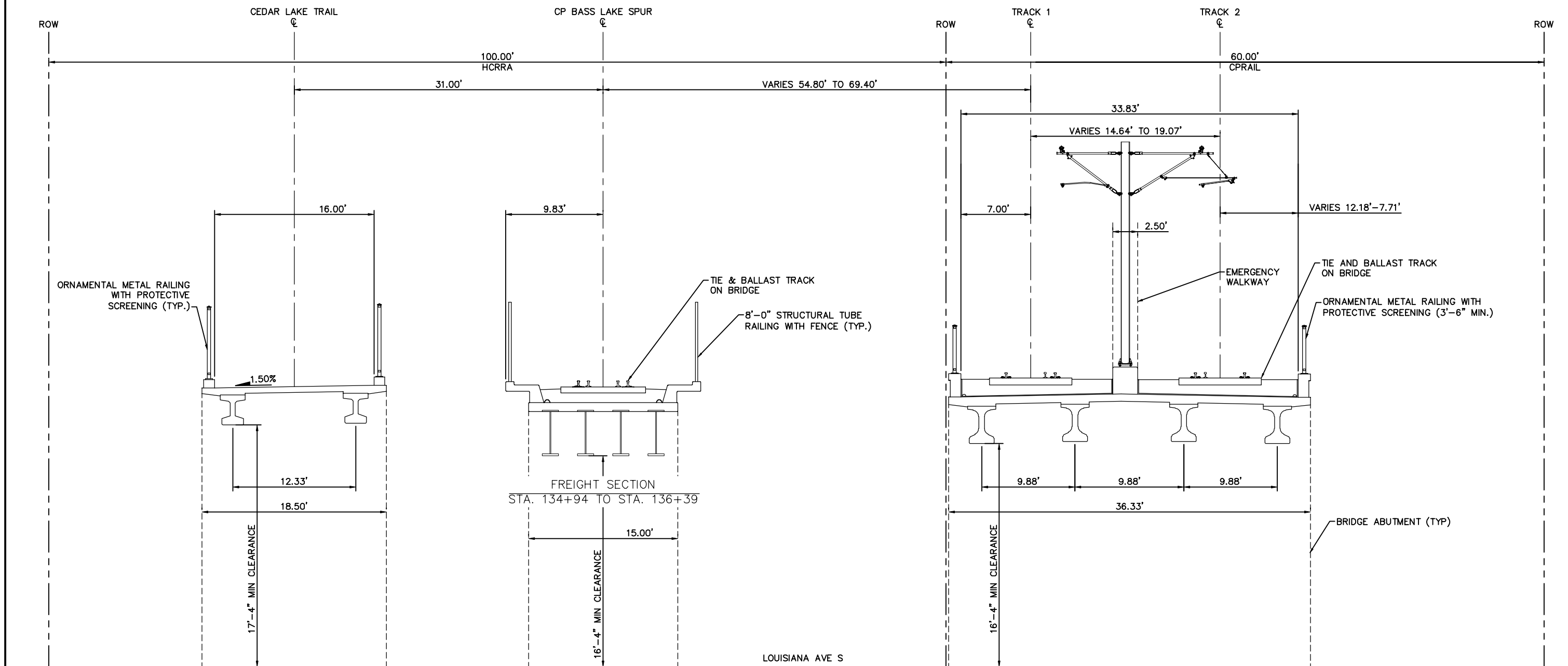
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TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

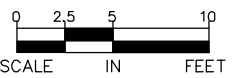
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SHEET
26
OF
135

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TYPICAL SECTION
STA. 2632+06 TO STA. 2633+51



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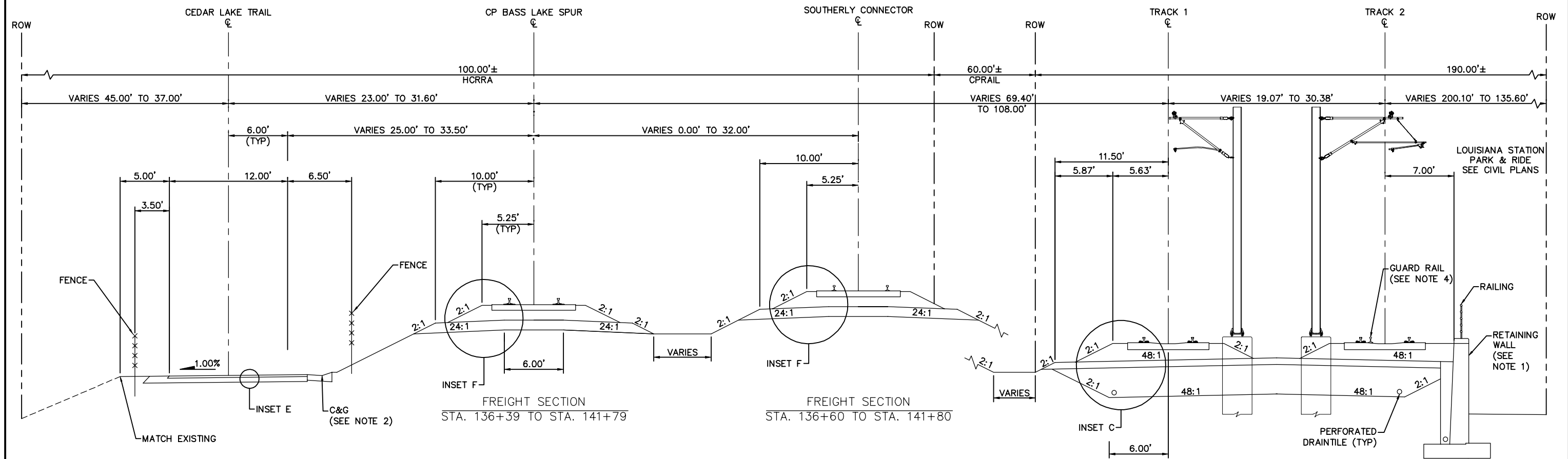
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TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

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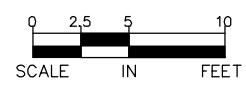
SHEET
27
OF
135

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TYPICAL SECTION
STA. 2633+51 TO STA. 2638+95

- NOTE:
1. RETAINING WALL ENDS AT STA. 2637+46.
 2. CURB FROM STA. 2636+33 TO STA. 2638+95.
 3. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.
 4. GUARD RAIL ENDS AT STATION 2638+30.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E2-TRK-TYP - 006

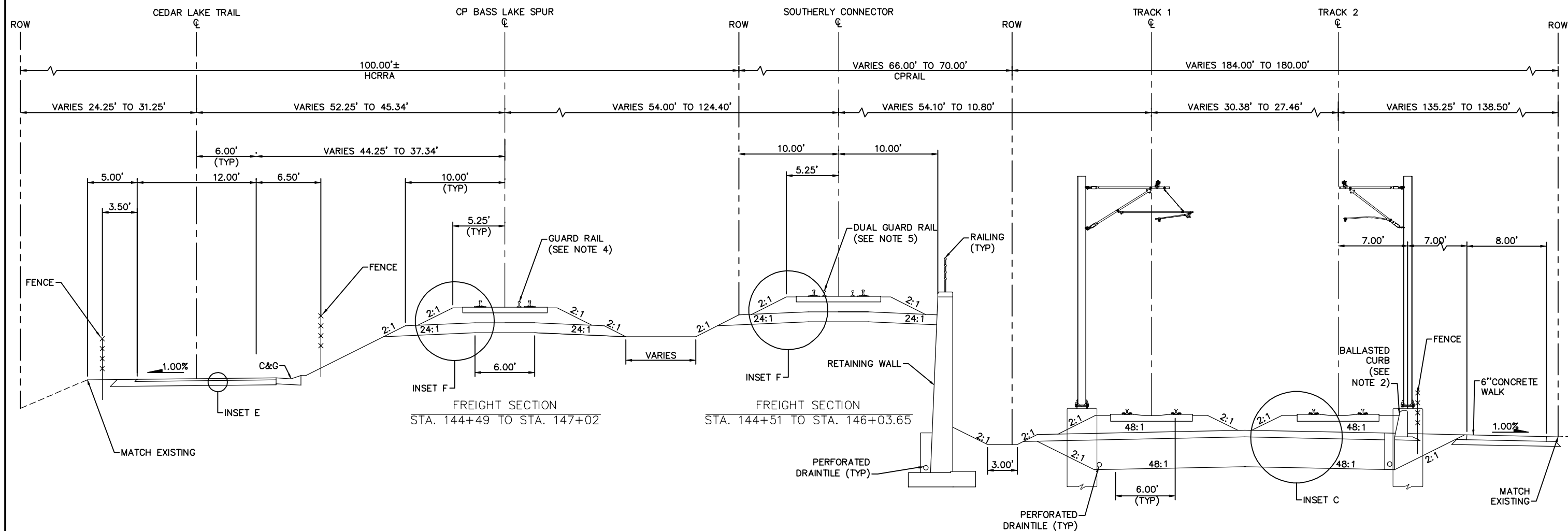
SHEET
28
OF
135

A scale bar with markings at 0, 2.5, 5, and 10. Below the bar, the labels "SCALE", "IN", and "FEET" are positioned under the 0, 2.5, and 5 markings respectively.

[illegible]

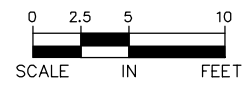
SHEET
29
OF
135

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TYPICAL SECTION
STA. 2641+65 TO STA. 2644+23

- NOTE:
1. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.
 2. BALLAST CURB FROM STA. 2642+15 TO STA. 2644+00.
 3. LIMITS OF SECTION INCLUDE A PEDESTRIAN UNDERPASS THAT IS NOT DEPICTED.
 4. GUARD RAIL ENDS AT STA. 146+60.
 5. DUAL GUARD RAIL BEGINS AT STA. 144+90.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





PRELIMINARY ENGINEERING



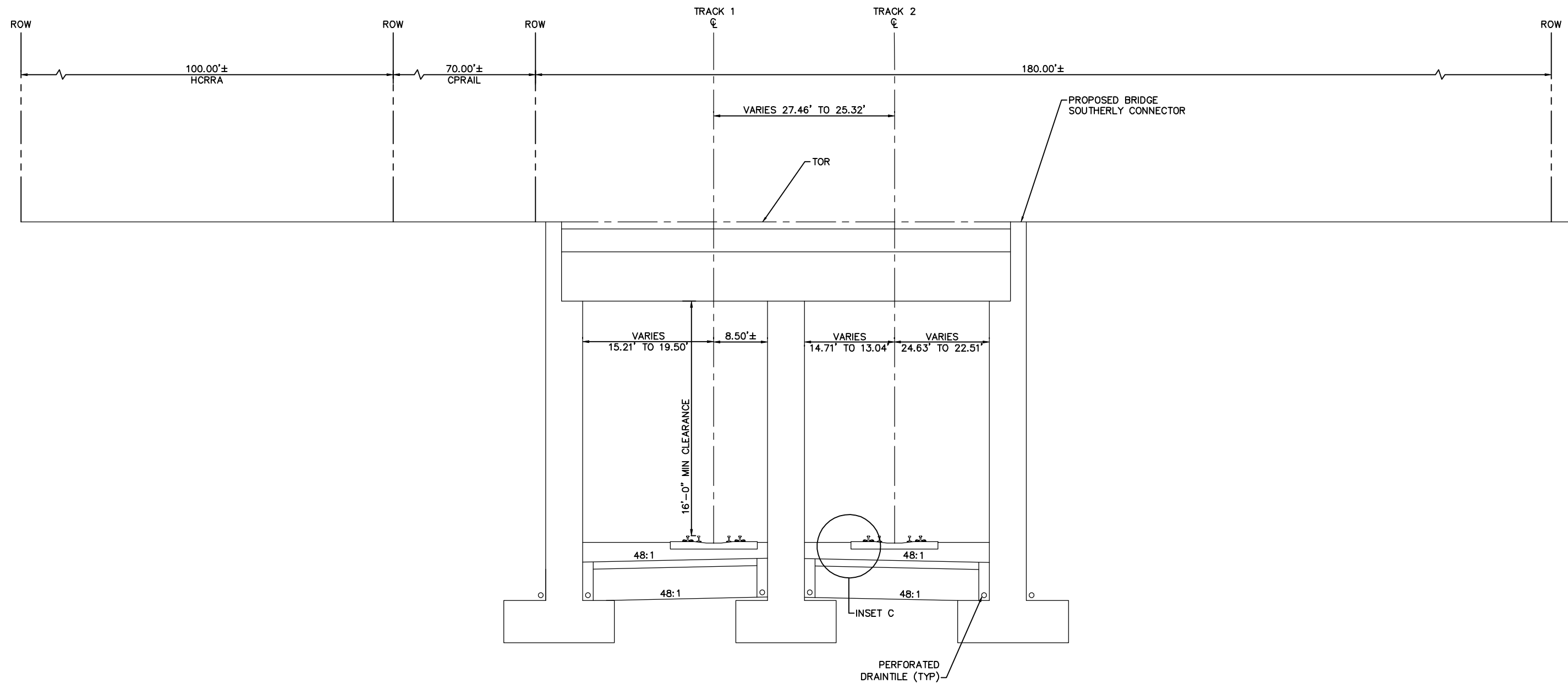
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TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E2-TRK-TYP - 008

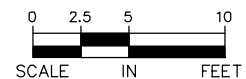
SHEET
30
OF
135

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TYPICAL SECTION
STA. 2644+23 TO STA. 2644+68

NOTE:
FOR INSETS, SEE EAST - VOLUME
1 (CIVIL) - SEGMENT 2 SHEET 45.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING



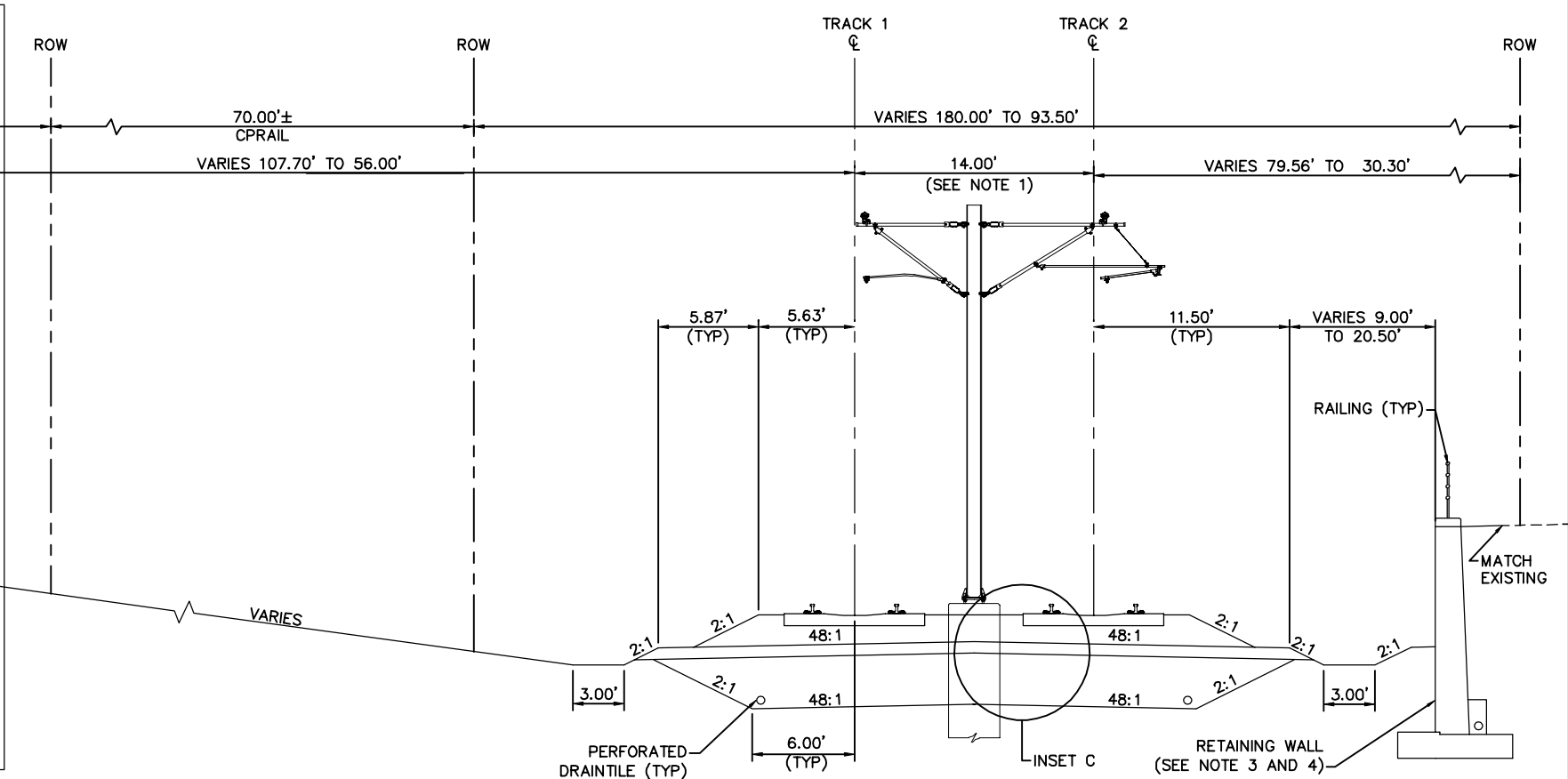
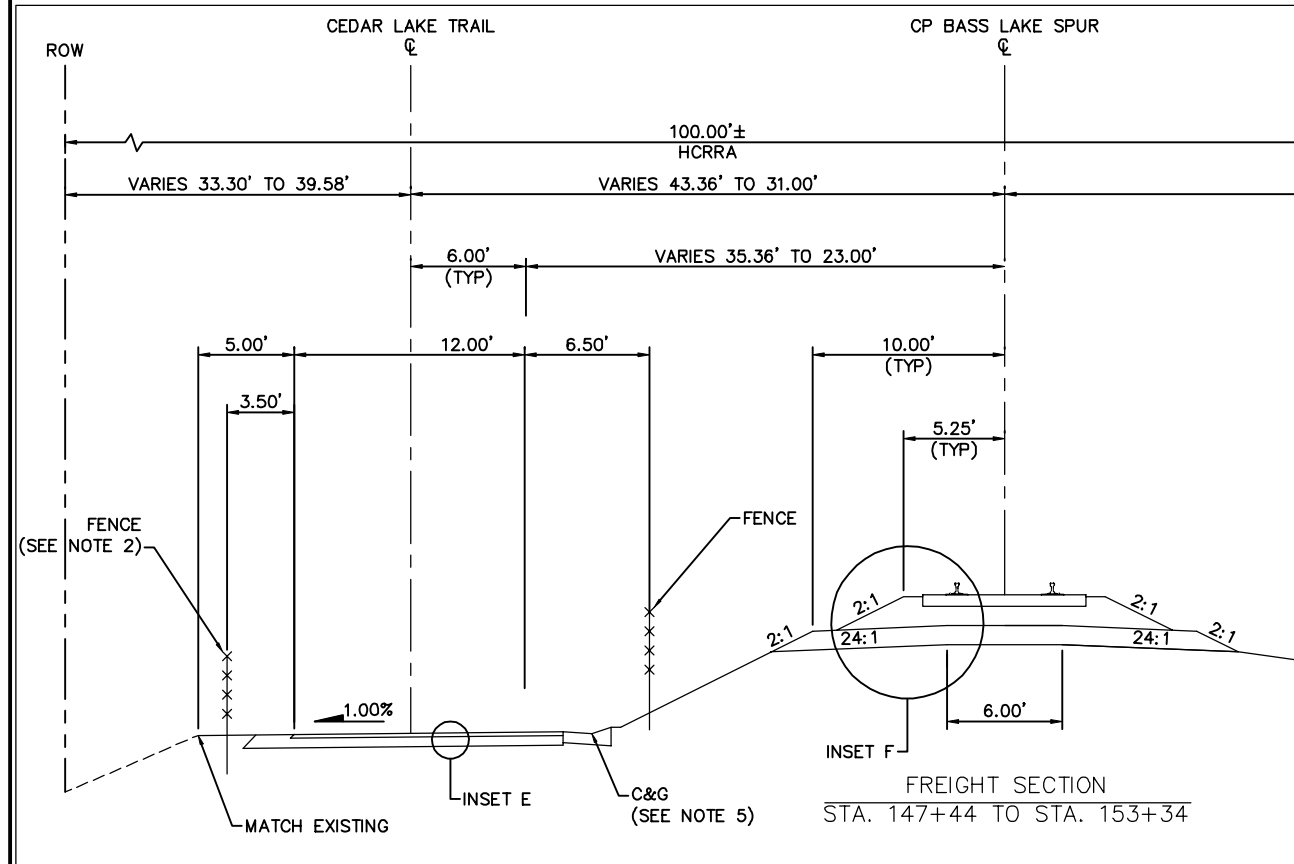
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TRACK
TYPICAL SECTIONS

DISCIPLINE:
TRACK

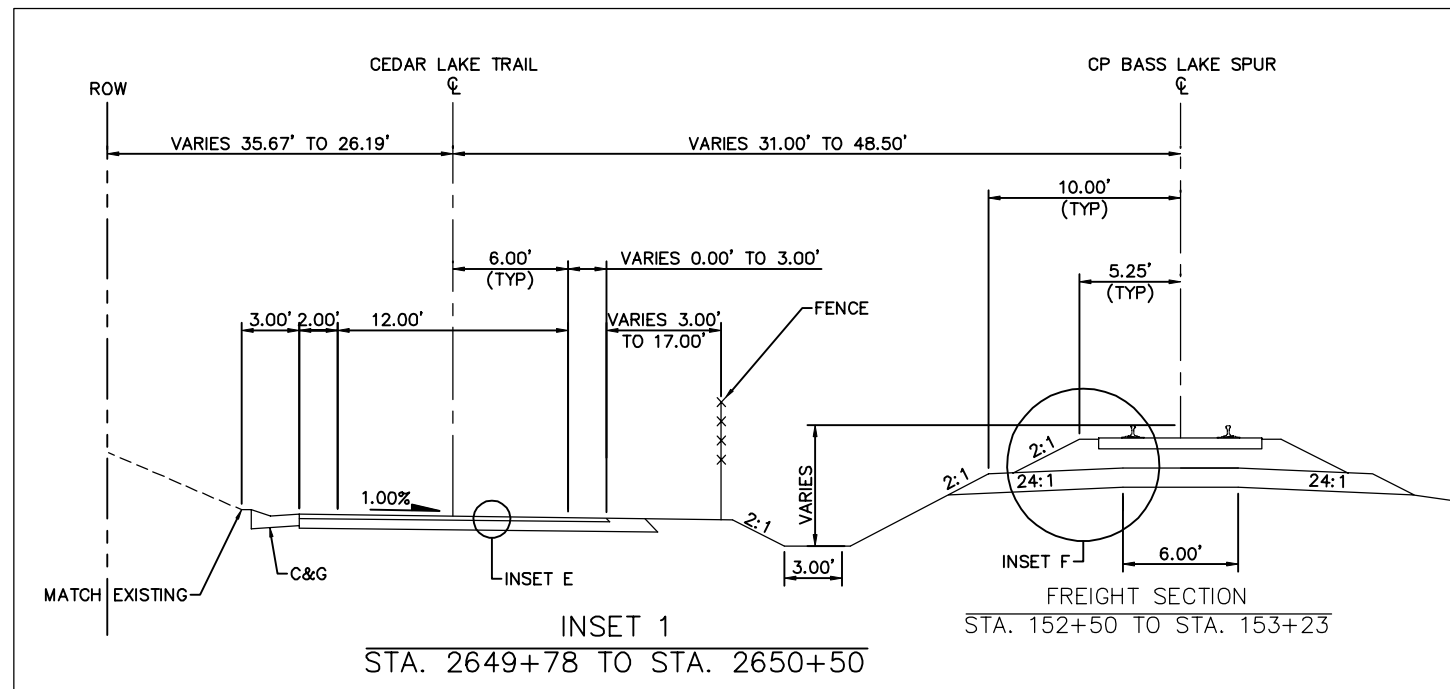
SHEET NAME:
E2-TRK-TYP - 009

SHEET
31
OF
135

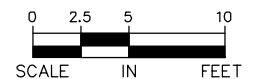
Aug. 29 2014 07:27 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-TYP.dwg By: chris.bunders



TYPICAL SECTION
STA. 2644+68 TO STA. 2650+50



- NOTE:
1. TRACK CENTERS NARROW FROM 25.32' TO 14.00' BETWEEN STA. 2644+68 AND 2648+03.
 2. FENCE FROM STA. 2644+68 TO STA. 2647+10.
 3. RETAINING WALL FROM STA. 2645+11 TO STA. 2646+00.
 4. RETAINING WALL FROM STA. 2649+30 TO STA. 2650+50.
 5. CURB AND GUTTER END AT STA. 2647+07.
 6. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.



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PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E2-TRK-TYP - 010

SHEET
32
OF
135

TYPICAL SECTION

0 10 20 40
SCALE IN FEET

A scale bar with markings at 0, 2.5, 5, and 10. Below the bar, the word "SCALE" is under 0, "IN" is under 5, and "FEET" is under 10.

[illegible]

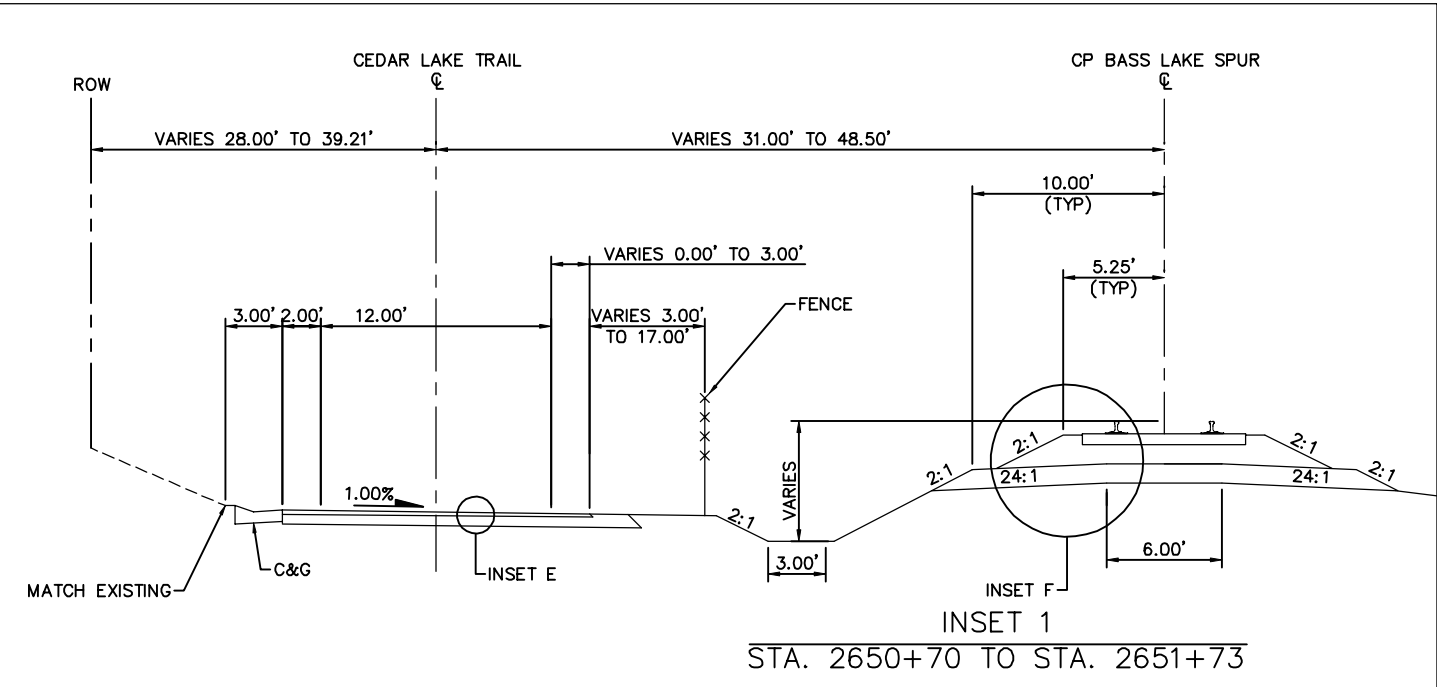
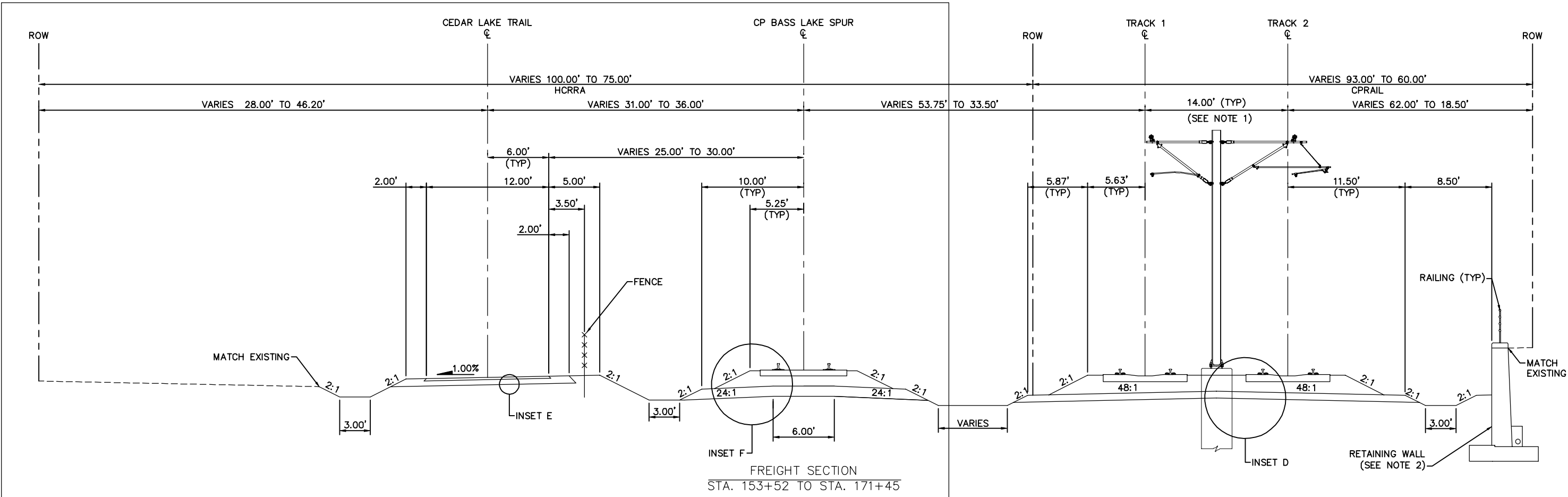
METROPOLITAN
COUNCIL



DISCIPLINE:	TRACK
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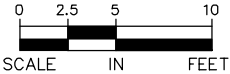
SHEET
33
OF
135

Aug. 29 2014 07:27 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-TYP.dwg By: chris.bunders



TYPICAL SECTION
STA. 2650+70 TO STA. 2668+66

- NOTE:
1. TRACK CENTERS WIDEN FROM 14.00' TO 30.38' BETWEEN STA. 2661+85 AND 2667+05.
 2. RETAINING WALL FROM STA. 2650+70 TO STA. 2651+75.
 3. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.
 4. LIMITS OF SECTION INCLUDE AT-GRADE CROSSINGS THAT ARE NOT DEPICTED.
 5. NO 8 CROSSOVERS FROM STA. 2656+45 TO STA. 2662+27 NOT DEPICTED.



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PRELIMINARY ENGINEERING



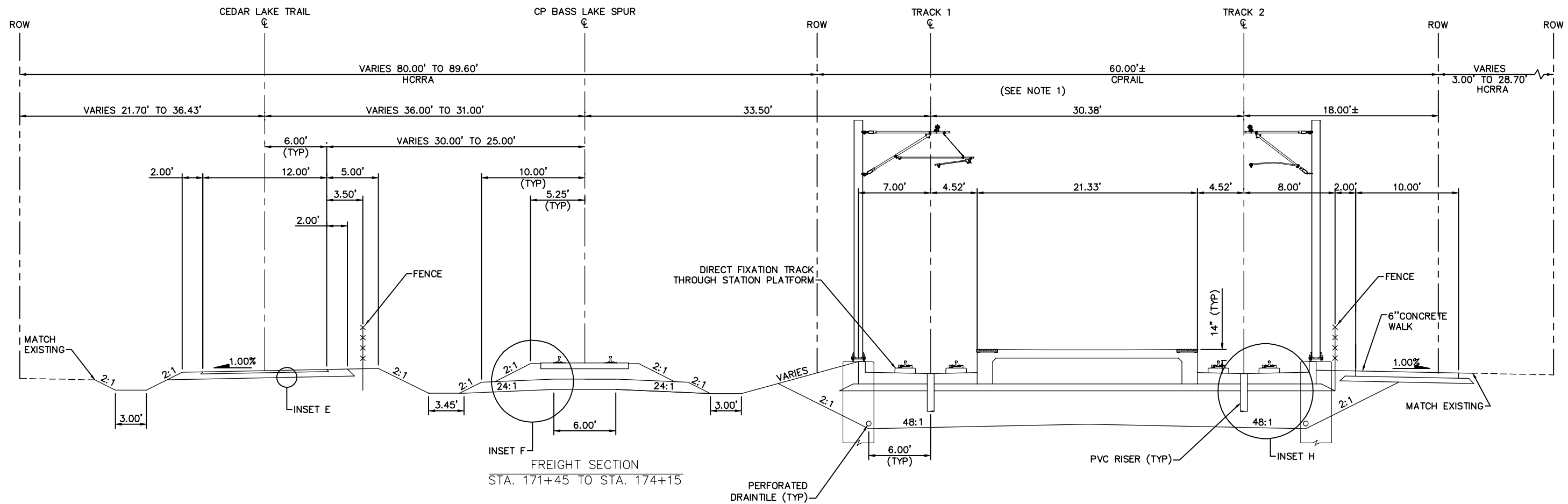
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME:
E2-TRK-TYP - 012

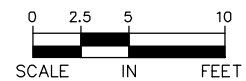
SHEET
34
OF
135

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TYPICAL SECTION - WOODDALE STATION
STA. 2668+66 TO STA. 2671+36

NOTE:
FOR INSETS, SEE EAST - VOLUME
1 (CIVIL) - SEGMENT 2 SHEET 45.



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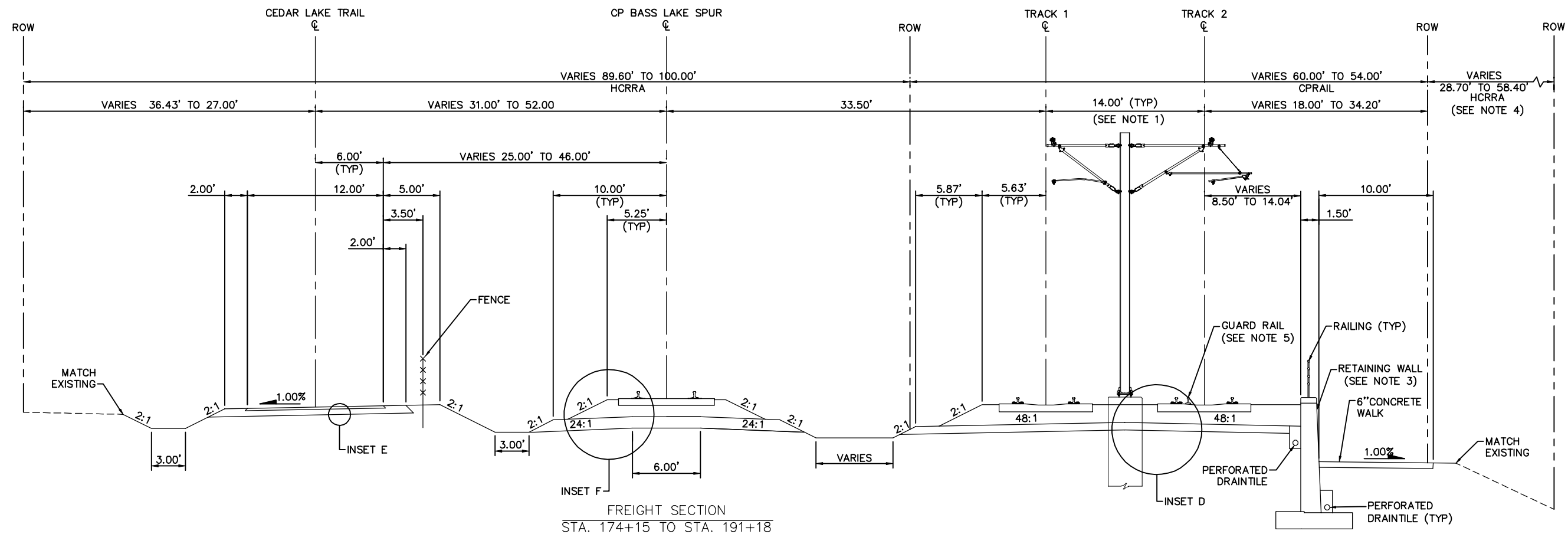
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
TYPICAL SECTIONS

DISCIPLINE:
TRACK

SHEET NAME:
E2-TRK-TYP - 013

SHEET
35
OF
135

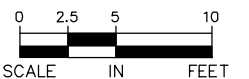
Aug. 29 2014 07:27 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-TYP.dwg By: chris.bunders



TYPICAL SECTION
STA. 2671+36 TO STA. 2688+10

NOTE:

1. TRACK CENTERS NARROWS FROM 30.38' TO 14.00' BETWEEN STA. 2672+10 AND 2677+30.
2. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.
3. RETAINING WALL FROM STA. 2671+76 TO STA. 2674+19.
4. SECTION OF HCRA ROW ENDS AT STA. 2678+92.
5. GUARD RAIL FROM STA. 2672+00 TO STA. 2674+50.



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PRELIMINARY ENGINEERING



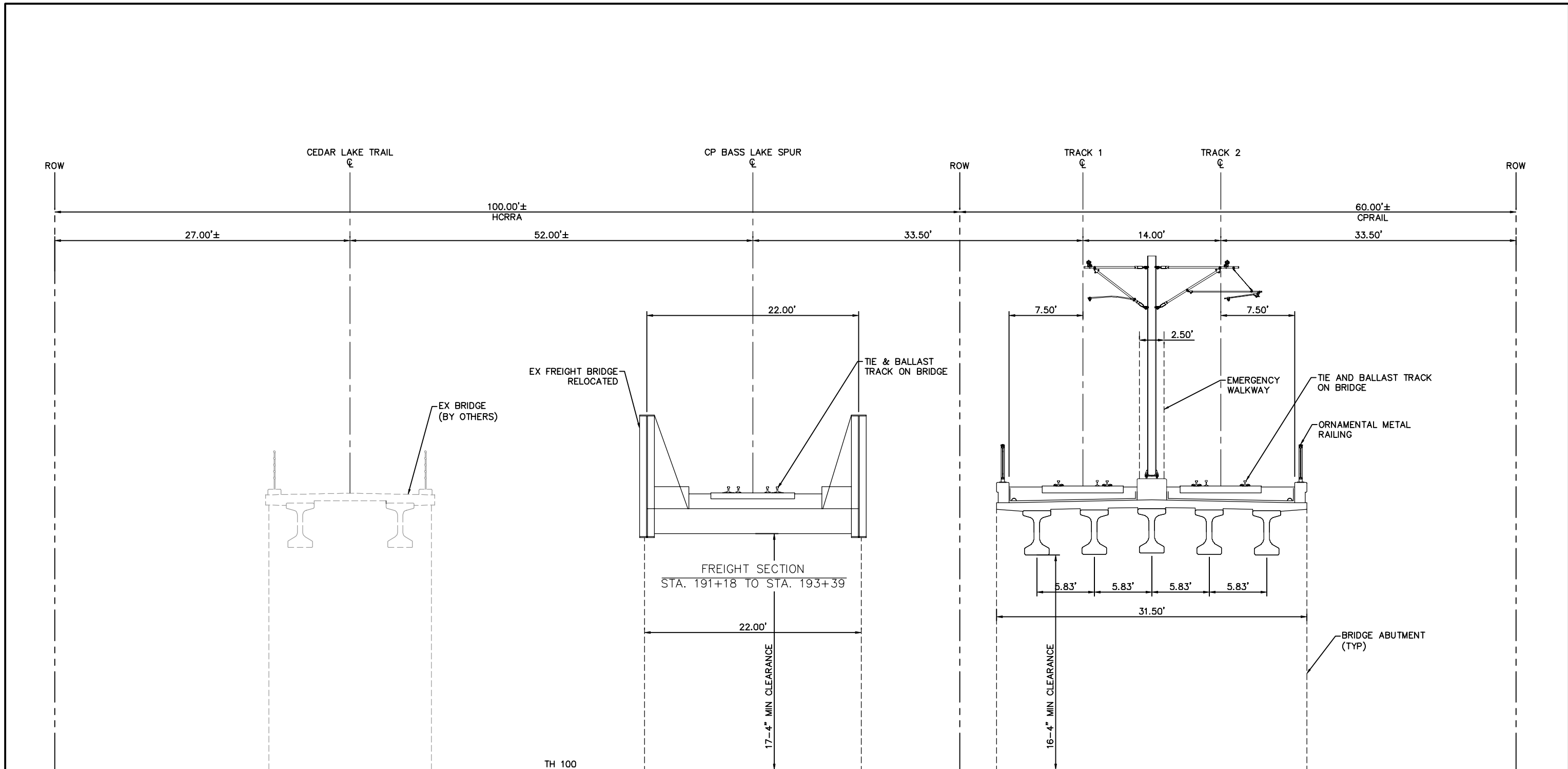
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

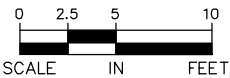
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SHEET
36
OF
135

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TYPICAL SECTION
STA. 2688+10 TO STA. 2690+30



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PRELIMINARY ENGINEERING





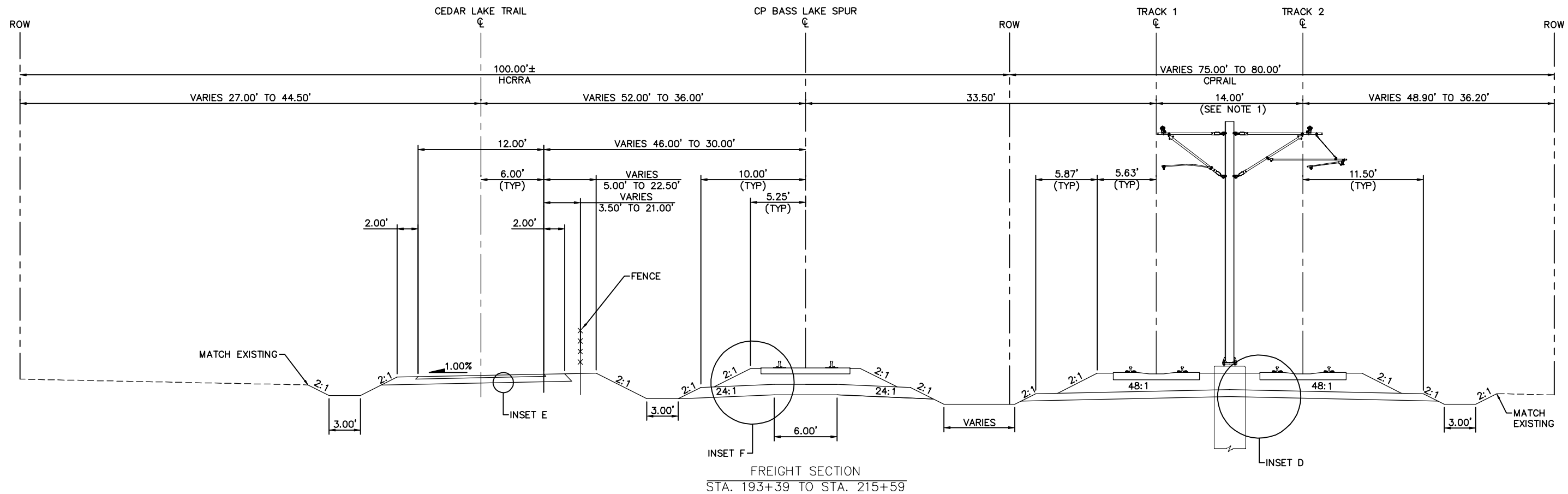
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TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME:
E2-TRK-TYP - 015

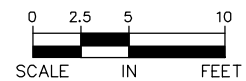
SHEET
37
OF
135

Aug. 29 2014 07:27 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-TYP.dwg By: chris.bunders



TYPICAL SECTION
STA. 2690+30 TO STA. 2712+80

- NOTE:
1. TRACK CENTERS WIDEN FROM 14.00' TO 30.38' BETWEEN STA. 2705+85 AND 2711+05.
 2. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.
 3. LIMITS OF SECTION INCLUDE AT-GRADE CROSSING THAT ARE NOT DEPICTED.



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST
Green Line LRT Extension

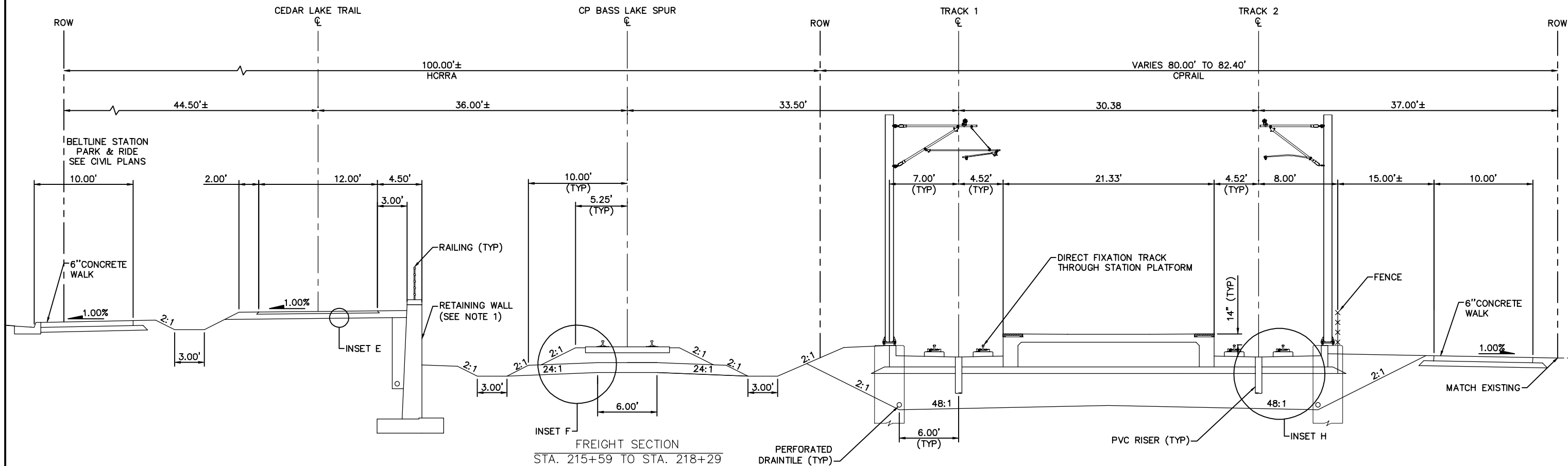
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TRACK
TYPICAL SECTIONS

DISCIPLINE: **TRACK**

SHEET NAME: **E2-TRK-TYP - 016**

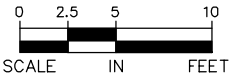
SHEET
38
OF
135

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TYPICAL SECTION - BELTLINE STATION
STA. 2712+80 TO STA. 2715+50

- NOTE:
1. RETAINING WALL BEGINS AT STA. 2713+86.
 2. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.



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EAST - VOLUME 1 (CIVIL) - SEGMENT 2

TRACK

TYPICAL SECTIONS

DISCIPLINE: **TRACK**

SHEET NAME: **E2-TRK-TYP - 017**

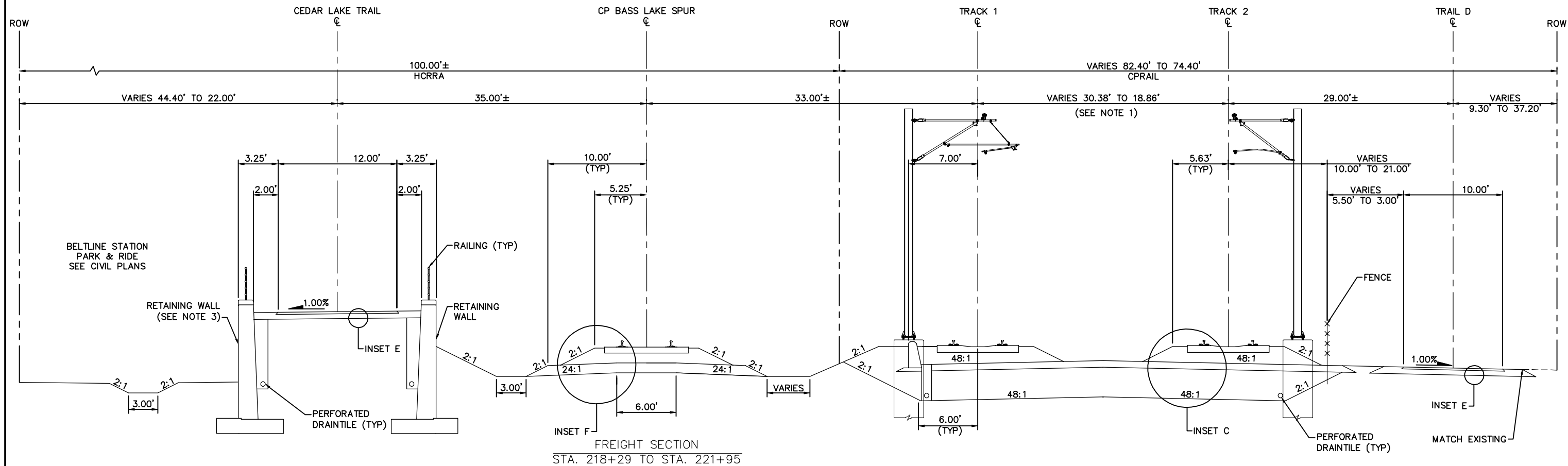
SHEET

39

OF

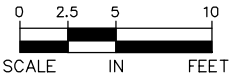
135

Aug. 29 2014 07:27 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-TYP.dwg By: chris.bunders



TYPICAL SECTION
STA. 2715+50 TO STA. 2719+18

- NOTE:
1. TRACK CENTERS NARROWS FROM 30.38' TO 18.86' BETWEEN STA. 2716+22 AND STA. 2719+18.
 2. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.
 3. RETAINING WALL FROM STA. 2718+20 TO STA. 2719+18.



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PRELIMINARY ENGINEERING

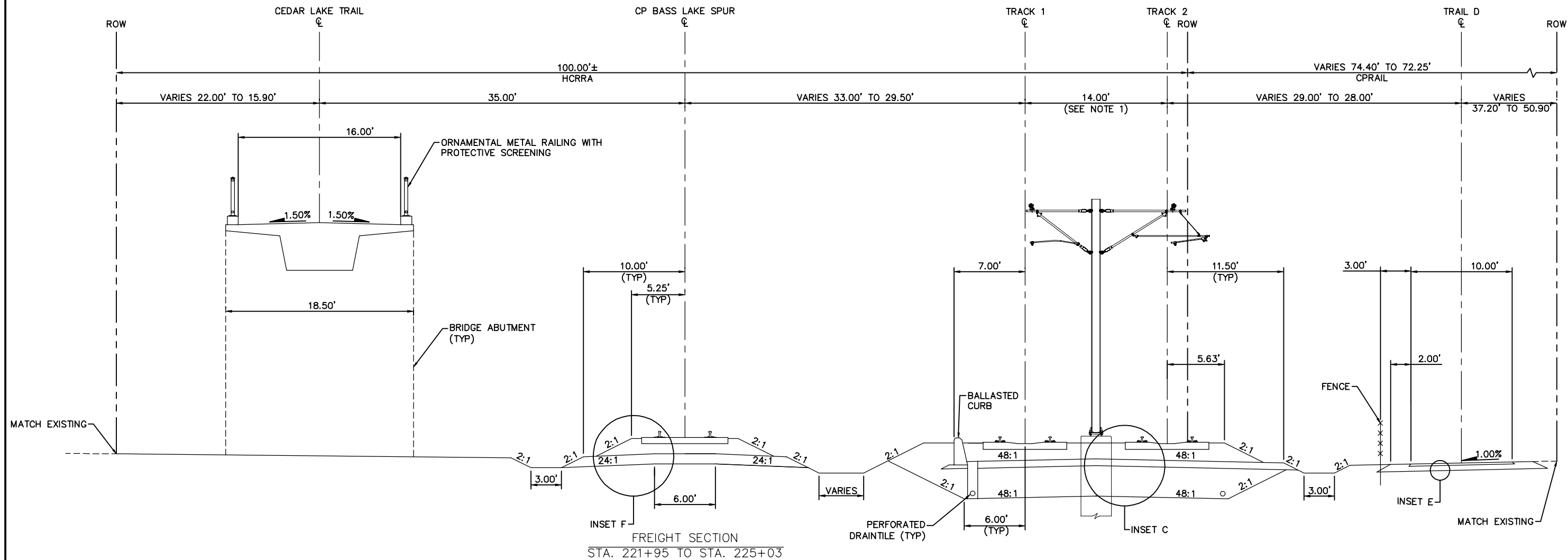


EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

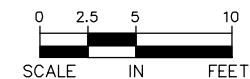
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Aug. 29 2014 07:28 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-TYP.dwg By: chris.bunders



TYPICAL SECTION
STA. 2719+18 TO STA. 2722+20

- NOTE:
1. TRACK CENTERS NARROW FROM 18.86' TO 14.00' BETWEEN STA. 2719+18 AND STA. 2720+99.
 2. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.



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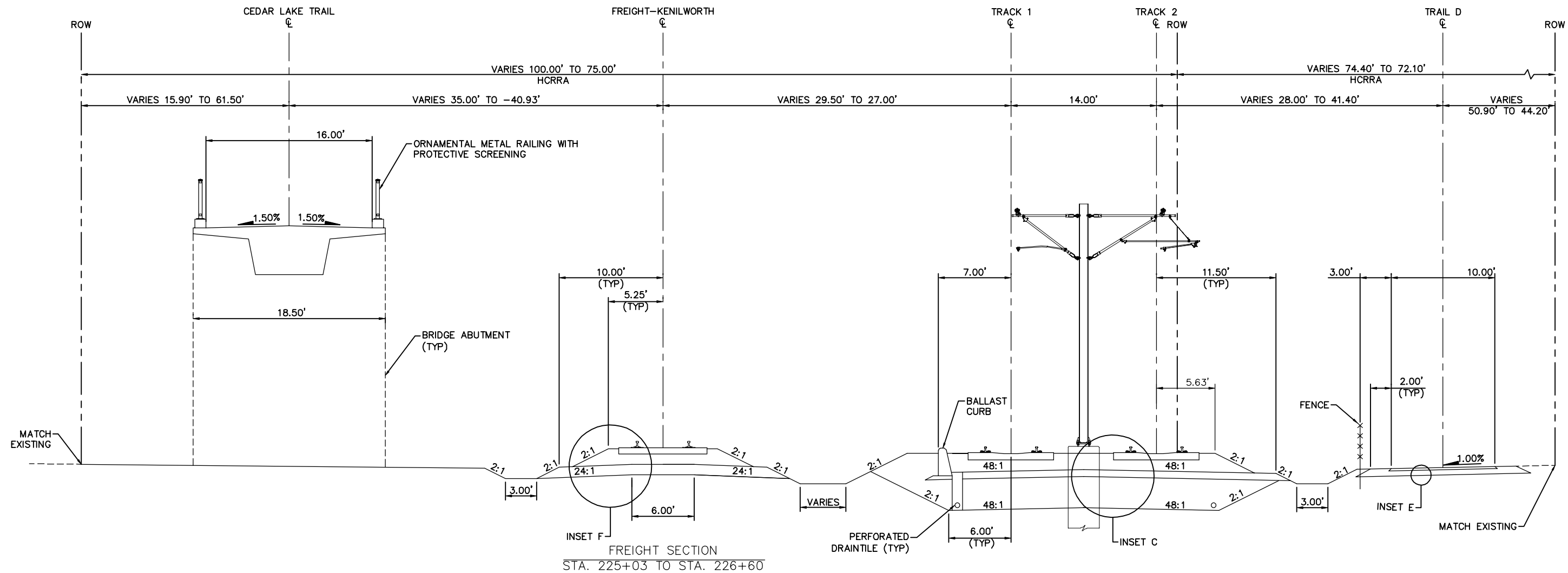
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TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

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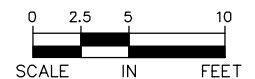
SHEET
41
OF
135

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TYPICAL SECTION
STA. 2722+20 TO STA. 2724+77

NOTE:
1. FOR INSETS, SEE EAST - VOLUME 1
(CIVIL) - SEGMENT 2 SHEET 45.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING



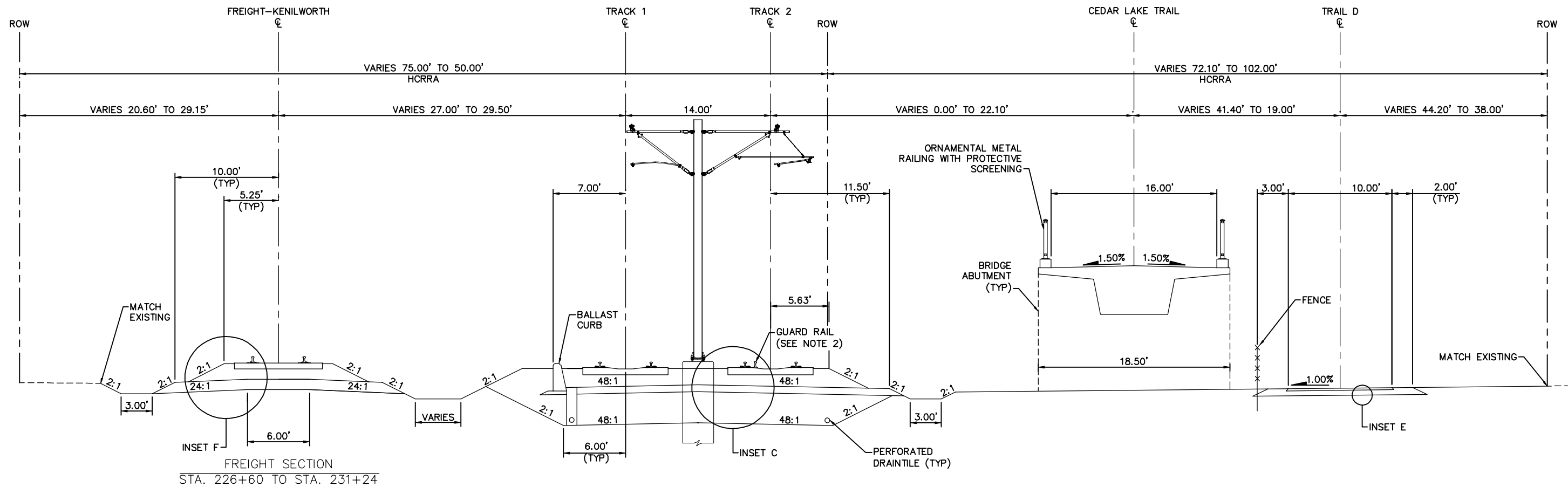
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E2-TRK-TYP - 020

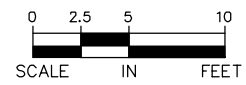
SHEET
42
OF
135

Aug. 29 2014 07:28 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-TYP.dwg By: chris.bunders



TYPICAL SECTION
STA. 2724+77 TO STA. 2728+36

NOTE:
1. FOR INSETS, SEE EAST - VOLUME 1 (CIVIL) - SEGMENT 2 SHEET 45.
2. GUARD RAIL ENDS AT STA. 2725+50.



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PRELIMINARY ENGINEERING



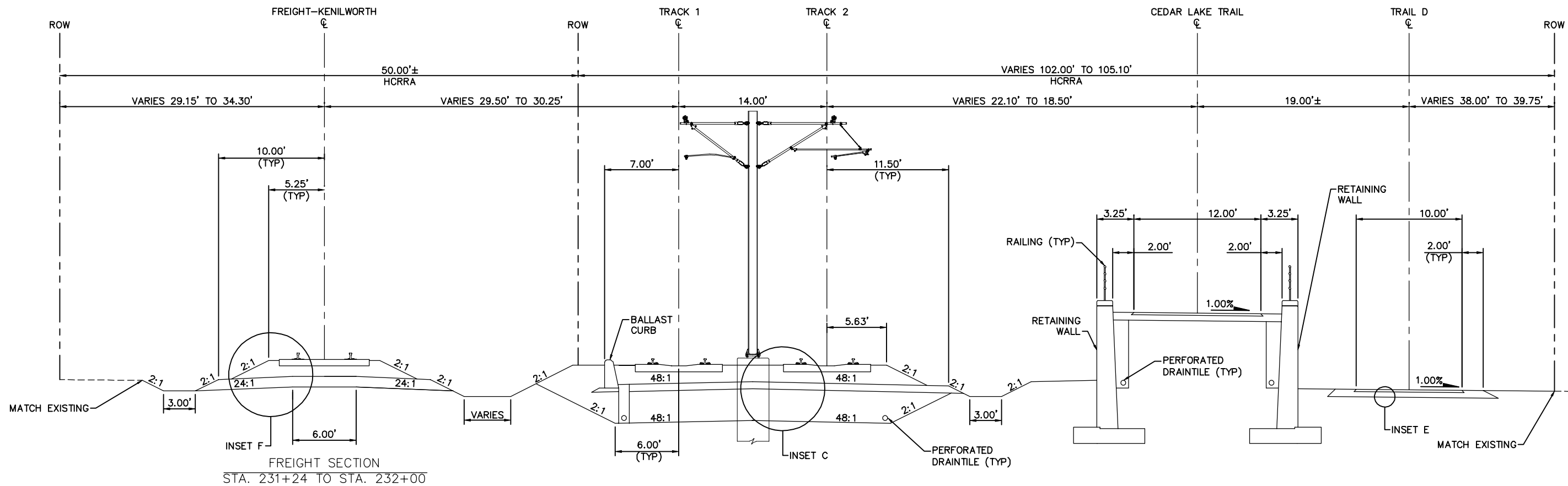
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: E2-TRK-TYP - 021

SHEET
43
OF
135

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TYPICAL SECTION
STA. 2728+36 TO STA. 2729+00

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



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PRELIMINARY ENGINEERING



METROPOLITAN
COUNCIL



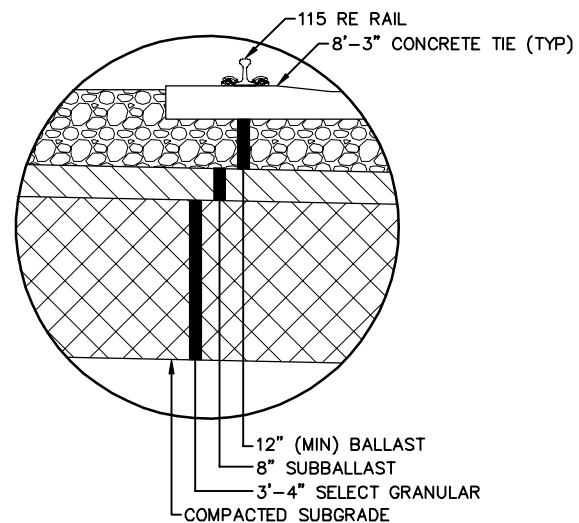
SOUTHWEST
Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
TYPICAL SECTIONS

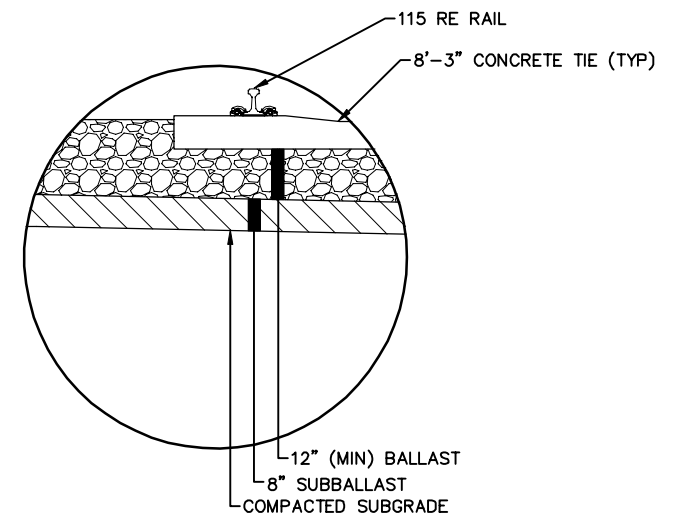
DISCIPLINE: TRACK

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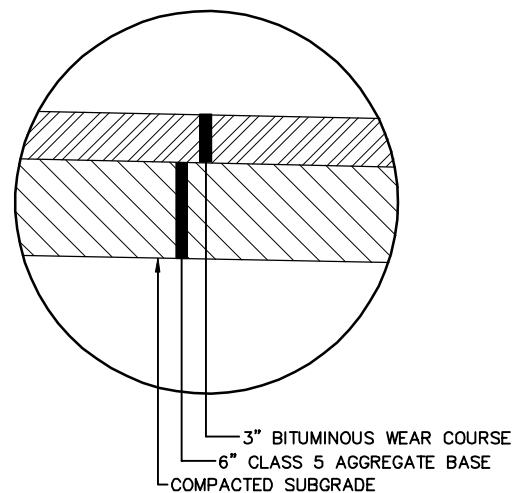
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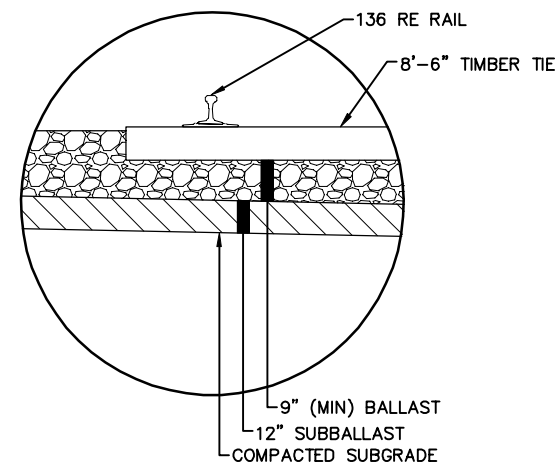
INSET C – TYPICAL BALLASTED TRACK



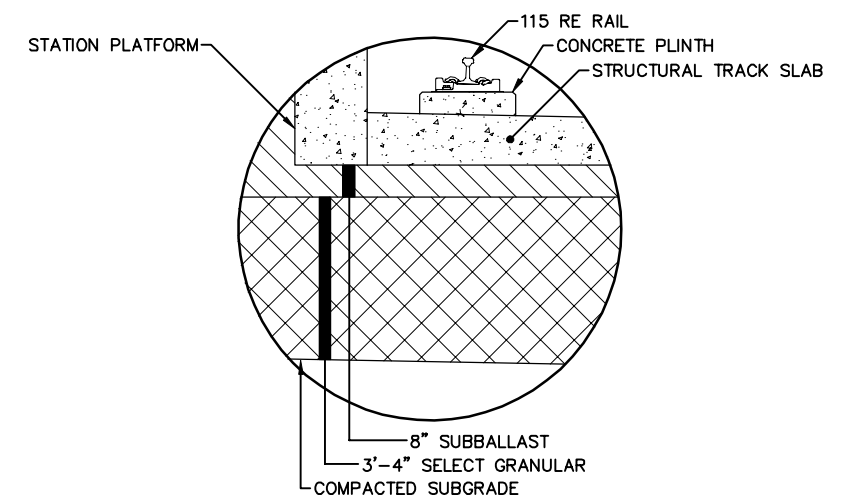
INSET D – TYPICAL LRT BALLASTED
TRACK ON EXISTING SUBGRADE



INSET E – TYPICAL TRAIL



INSET F – TYPICAL BALLASTED FREIGHT TRACK



INSET H – TYPICAL DIRECT FIXATION INTERFACE
AT STATION PLATFORM

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PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
INSETS

DISCIPLINE: TRACK

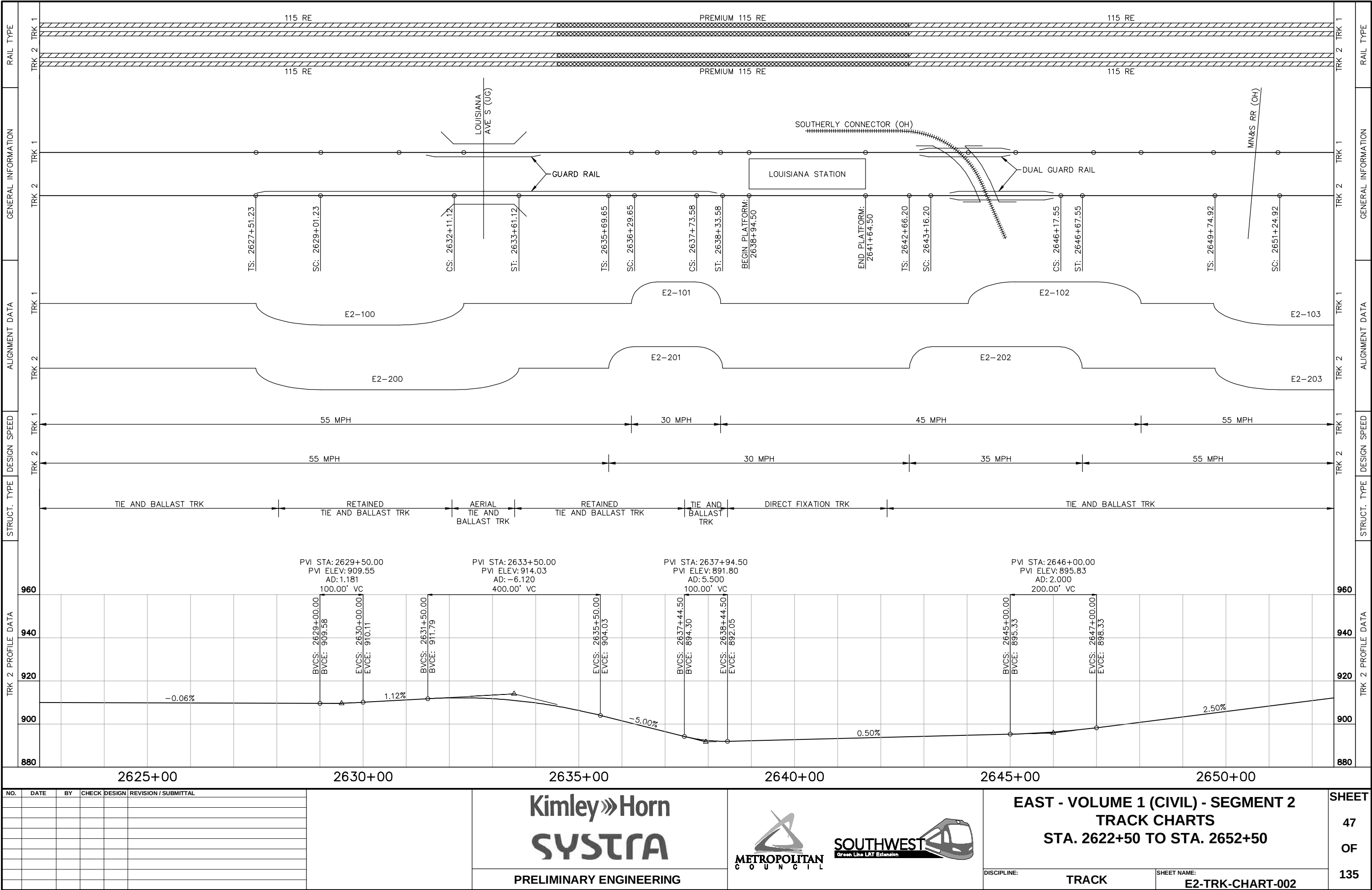
SHEET NAME: E2-TRK-TYP - 023

SHEET
45
OF
135

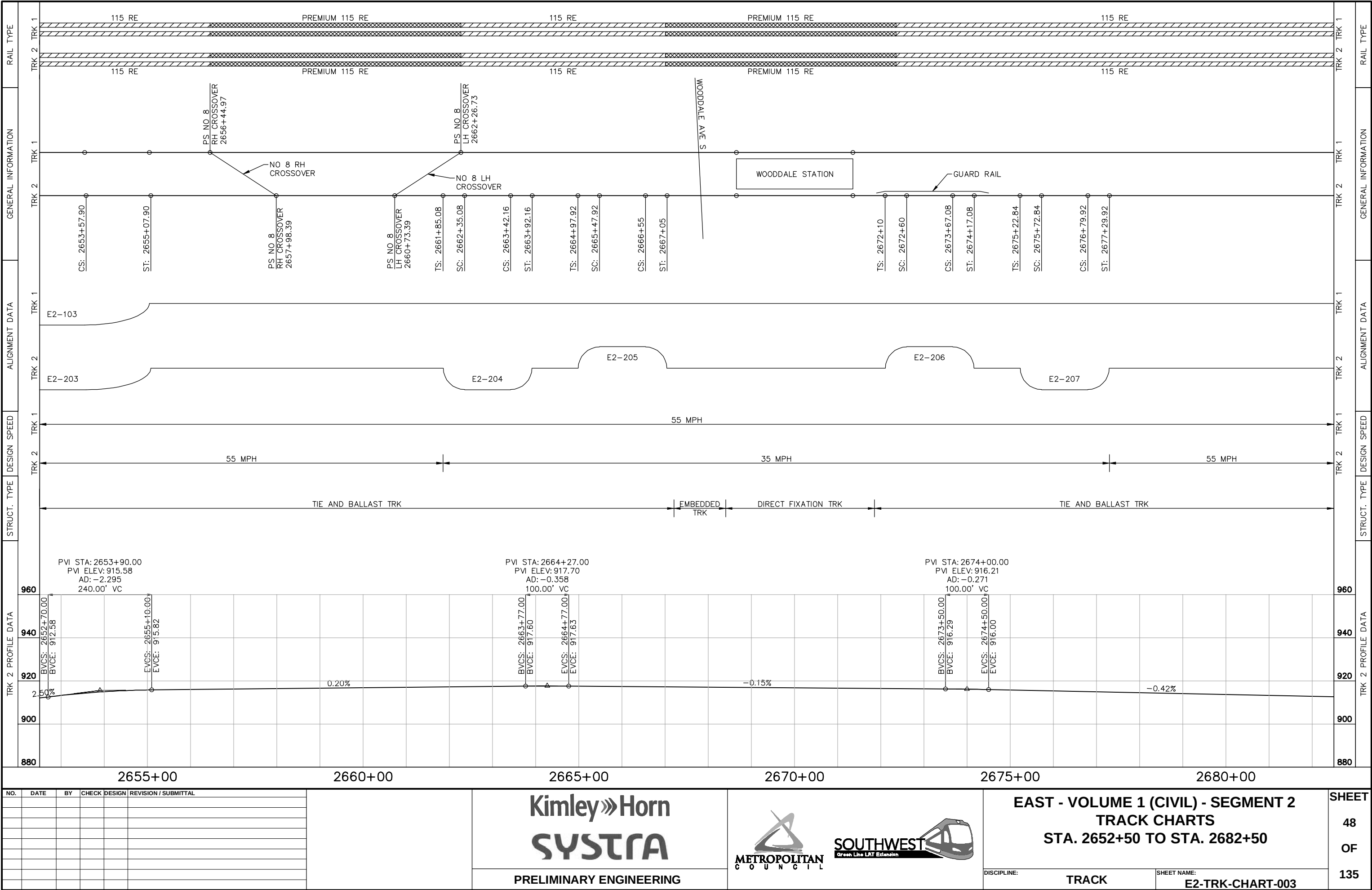
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SHEET
46
OF
135

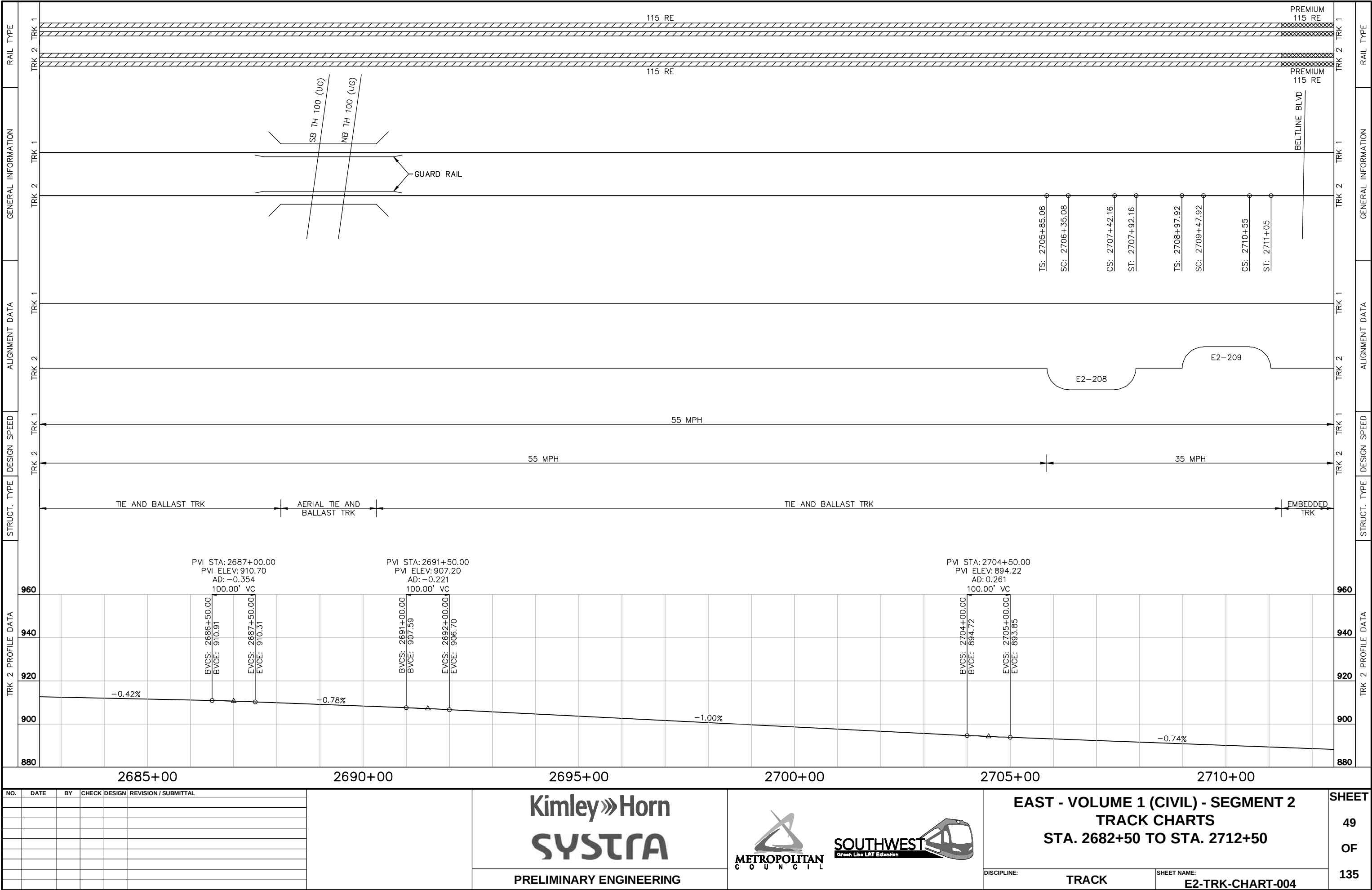
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Aug. 29 2014 07:28 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-CHART.dwg By: chris.bundars



Aug. 29 2014 07:28 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-CHART.dwg By: chris.bunders



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SYSTRA



METROPOLITAN
COUNCIL



SOUTHWEST
Green Line LRT Extension

PRELIMINARY ENGINEERING



METROPOLITAN
COUNCIL



SOUTHWEST
Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 2

TRACK CHARTS

STA. 2682+50 TO STA. 2712+50

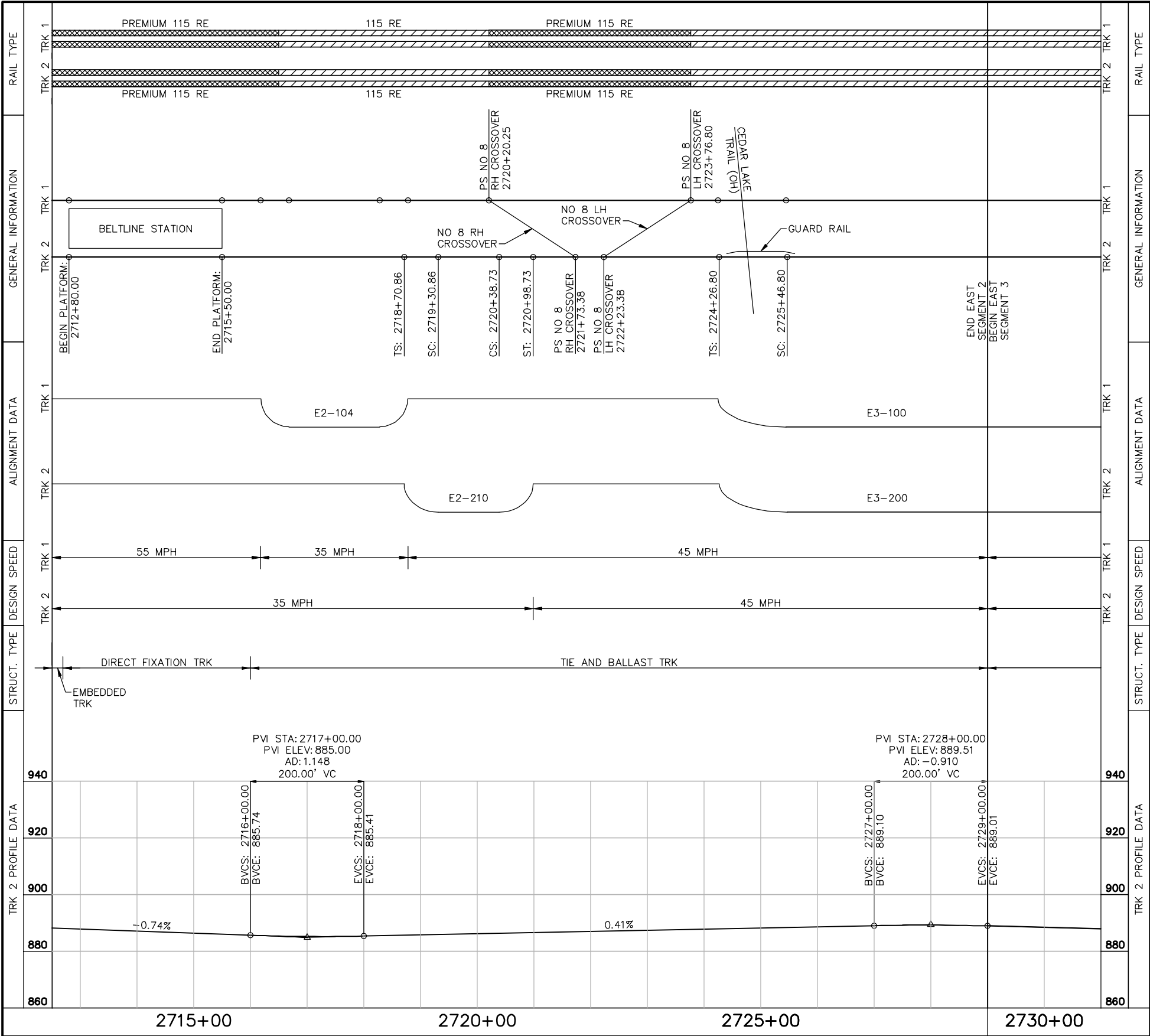
DISCIPLINE:

TRACK

SHEET NAME:

E2-TRK-CHART-004

Aug. 29 2014 07:29 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-CHART.dwg By: chris.bunders



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SYSTRA

PRELIMINARY ENGINEERING

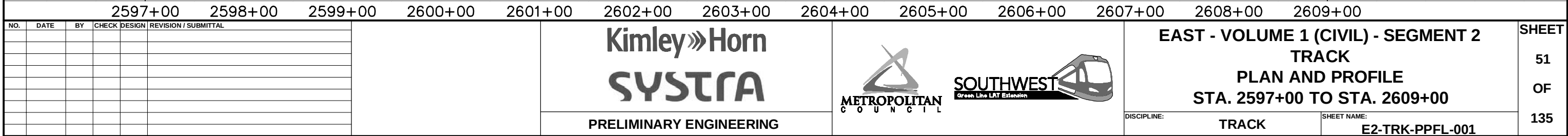
EAST - VOLUME 1 (CIVIL) - SEGMENT 2

TRACK CHARTS

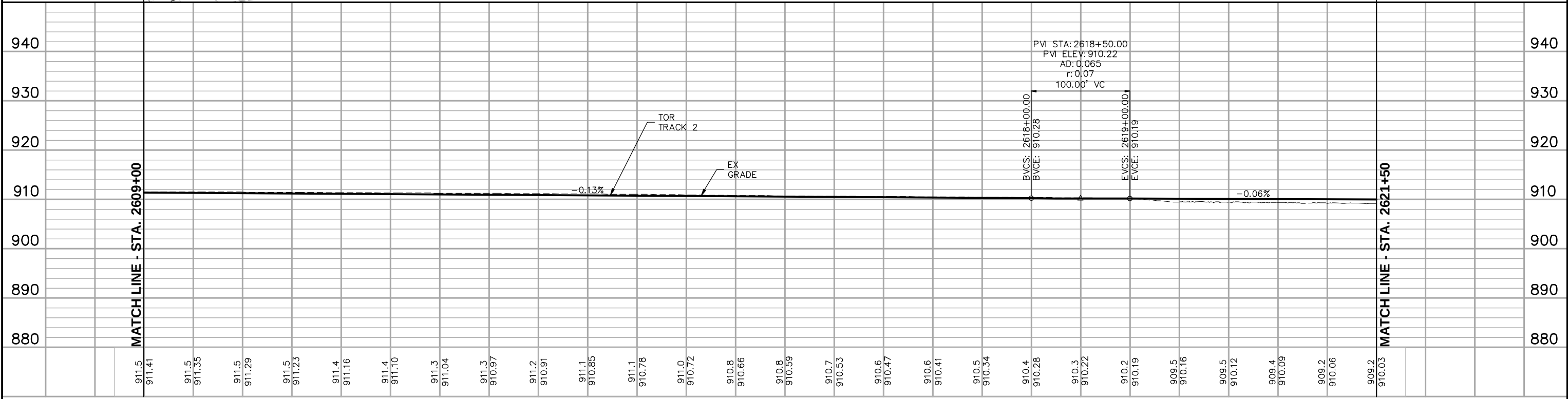
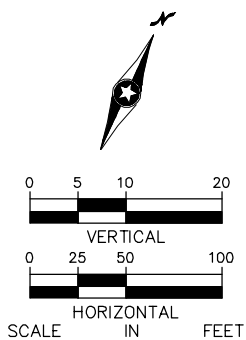
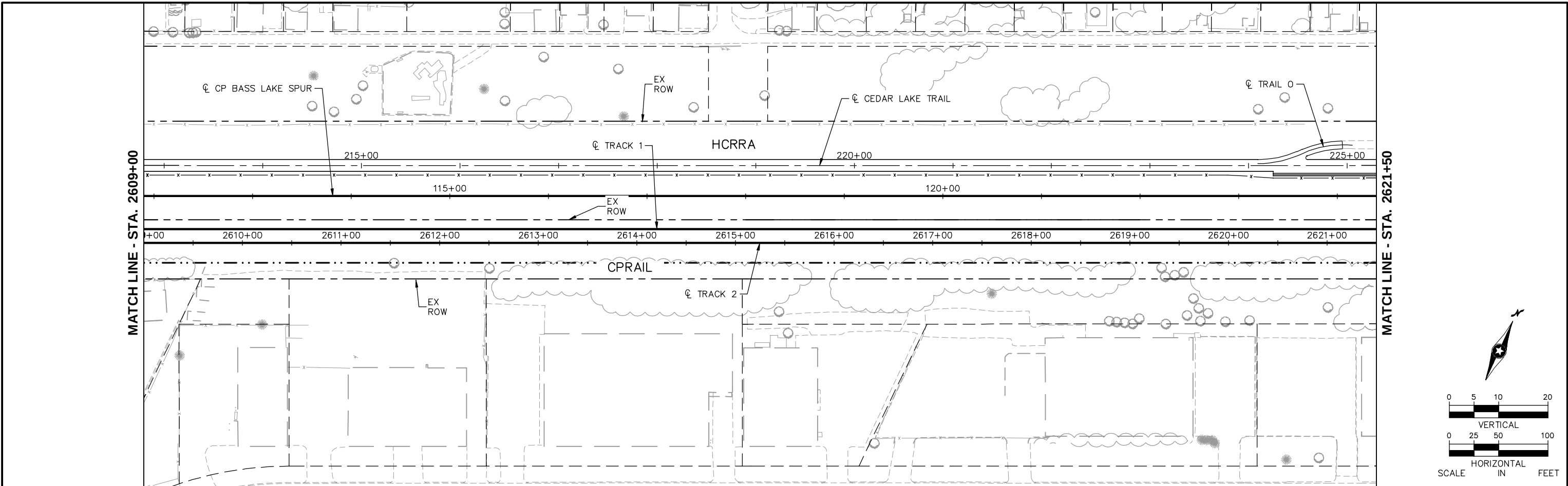
STA. 2712+50 TO STA. 2729+00

DISCIPLINE: TRACK

SHEET NAME: E2-TRK-CHART-005



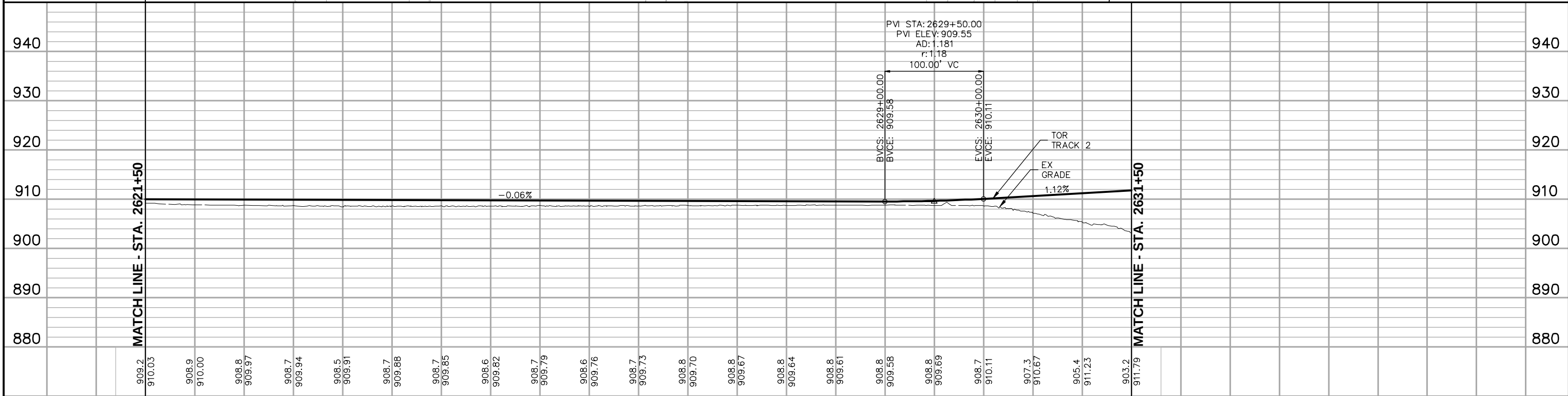
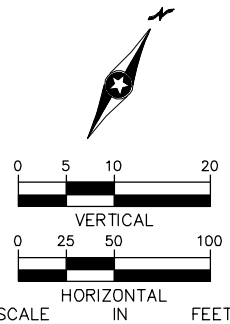
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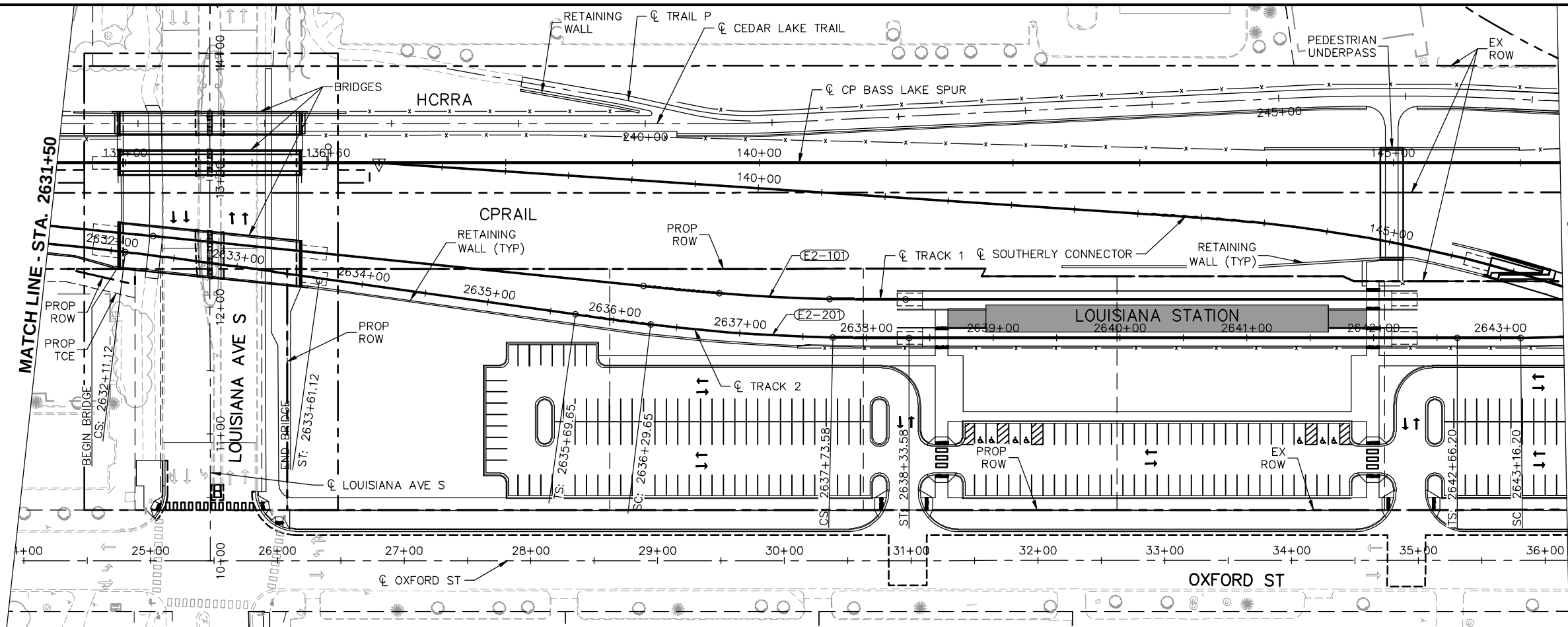
2609+00						2610+00						2611+00						2612+00						2613+00						2614+00						2615+00						2616+00						2617+00						2618+00						2619+00						2620+00						2621+00					
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL													Kimley»Horn SYSTRA												 												EAST - VOLUME 1 (CIVIL) - SEGMENT 2 TRACK PLAN AND PROFILE STA. 2609+00 TO STA. 2621+50												SHEET																							
					52																																																																								
					OF																																																																								
					135																																																																								
					PRELIMINARY ENGINEERING													DISCIPLINE: TRACK												SHEET NAME: E2-TRK-PPFL-002																																															

CURVE NO. E2-100
R = 3,270.00'
Lc = 181.48'
Ls = 150.00'
Ea = 2.00"
Eu = 1.66"
V = 55 MPH

CURVE NO. E2-200
R = 3,270.00'
Lc = 309.89'
Ls = 150.00'
Ea = 2.00"
Eu = 1.66"
V = 55 MPH

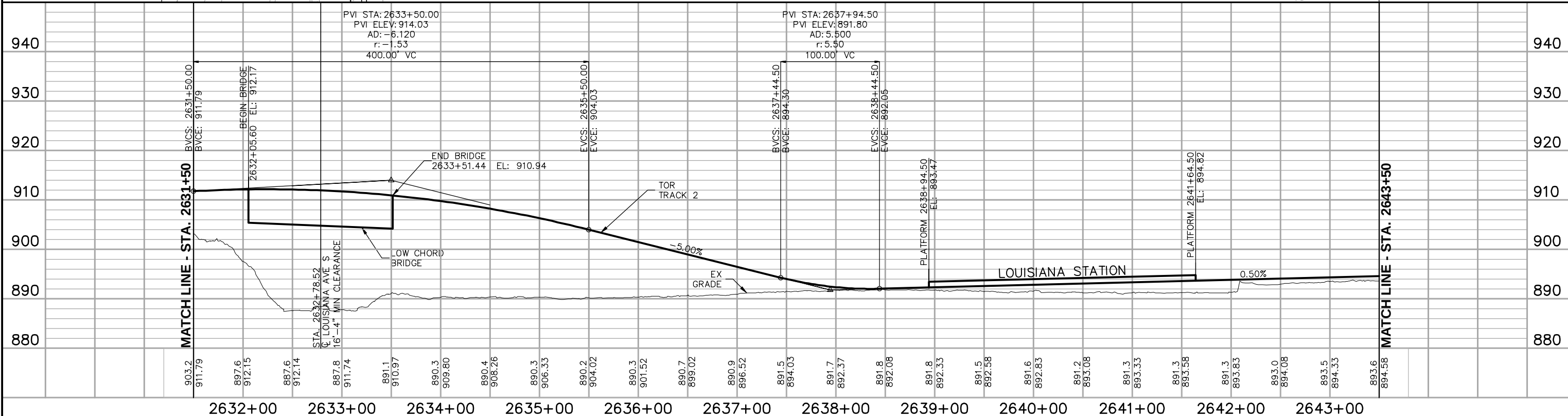
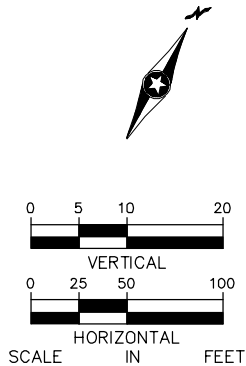
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Aug. 29 2014 07:33 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-PPFL.dwg By: chris.bunders



CURVE NO. E2-101
R = 1,450.00'
Lc = 86.99'
Ls = 60.00'
Ea = 1.25"
Eu = 1.21"
V = 30 MPH

CURVE NO. E2-201
R = 1,450.00'
Lc = 143.93'
Ls = 60.00'
Ea = 1.25"
Eu = 1.21"
V = 30 MPH



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SYSTRA



METROPOLITAN
COUNCIL



SOUTHWEST
Green Line LRT Extension

PRELIMINARY ENGINEERING



METROPOLITAN
COUNCIL



SOUTHWEST
Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
PLAN AND PROFILE
STA. 2631+50 TO STA. 2643+50

DISCIPLINE: **TRACK**

SHEET NAME: **E2-TRK-PPFL-004**

SHEET
54
OF
135

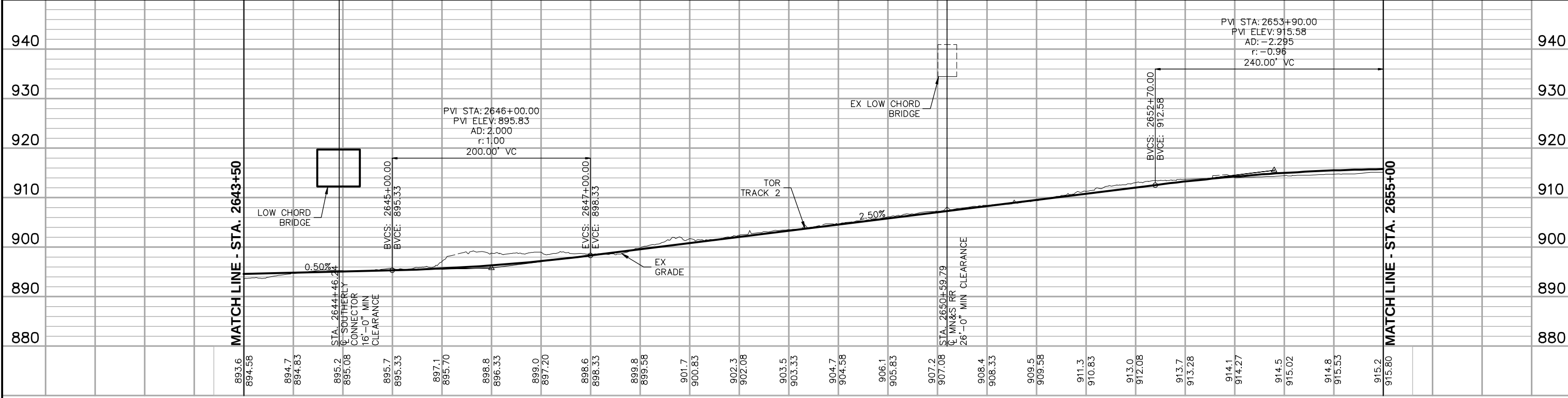
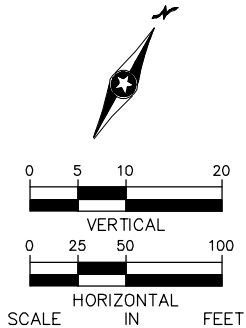
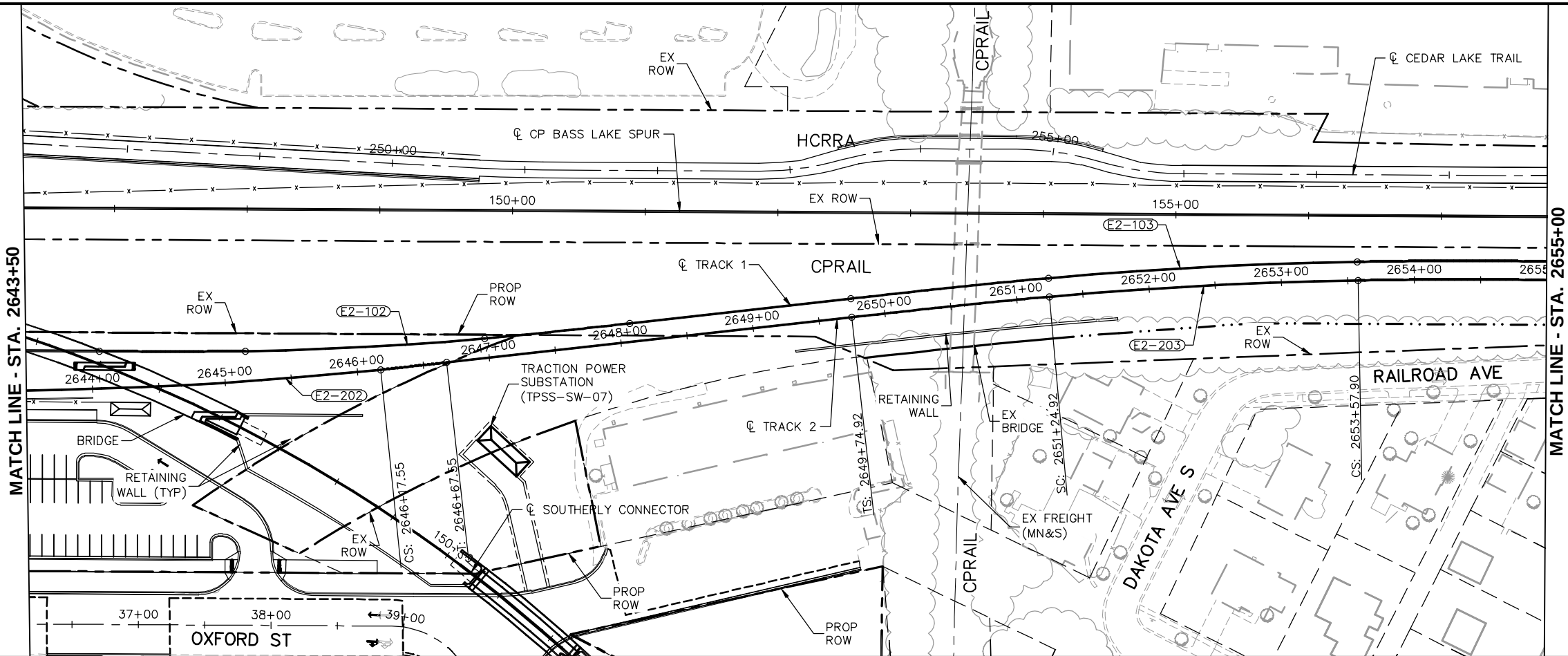
Aug. 29 2014 07:34 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-PPFL.dwg By: chris.bundors

CURVE NO. E2-102
R = 2,480.00'
Lc = 180.45'
Ls = 110.00'
Ea = 1.75"
Eu = 1.48"
V = 45 MPH

CURVE NO. E2-202
R = 3,000.00'
Lc = 301.35'
Ls = 50.00'
Ea = 0.75"
Eu = 0.87"
V = 35 MPH

CURVE NO. E2-103
R = 3,270.00'
Lc = 232.98'
Ls = 150.00'
Ea = 2.00"
Eu = 1.66"
V = 55 MPH

CURVE NO. E2-203
R = 3,270.00'
Lc = 232.98'
Ls = 150.00'
Ea = 2.00"
Eu = 1.66"
V = 55 MPH



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

SYSTRA
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METROPOLITAN
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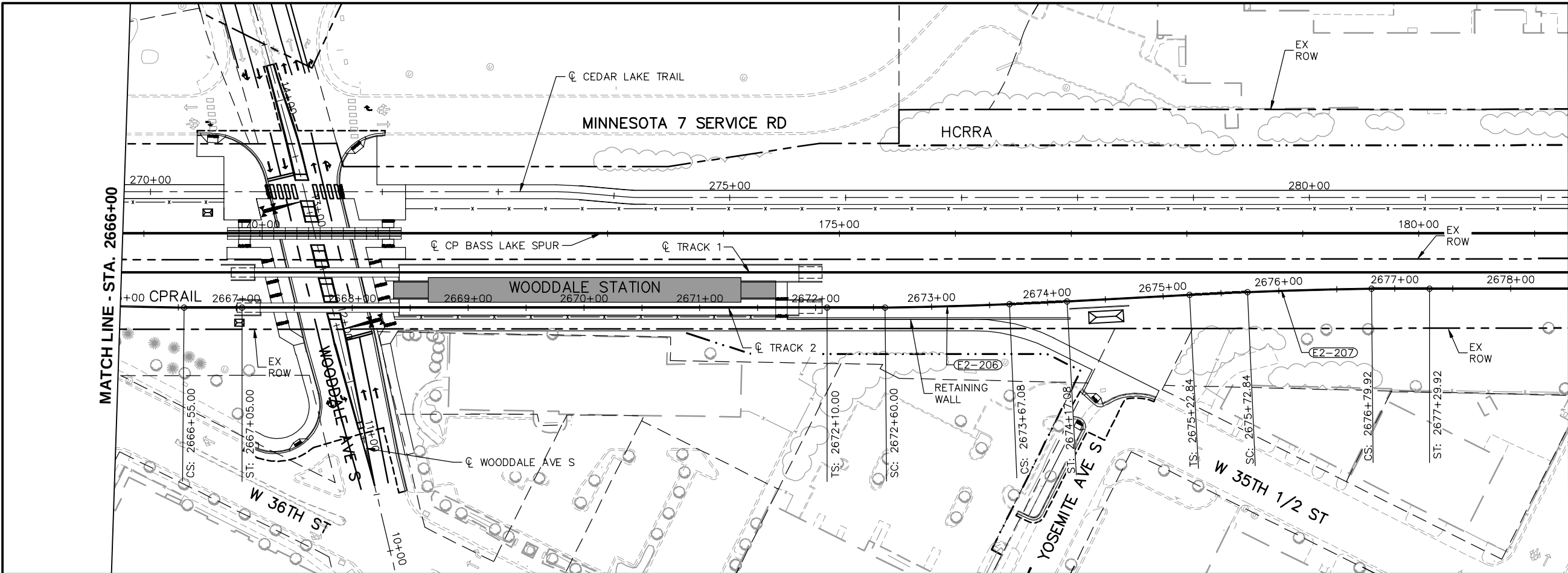
SOUTHWEST
Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
PLAN AND PROFILE
STA. 2643+50 TO STA. 2655+00
DISCIPLINE: **TRACK**

SHEET NAME:
E2-TRK-PPFL-005

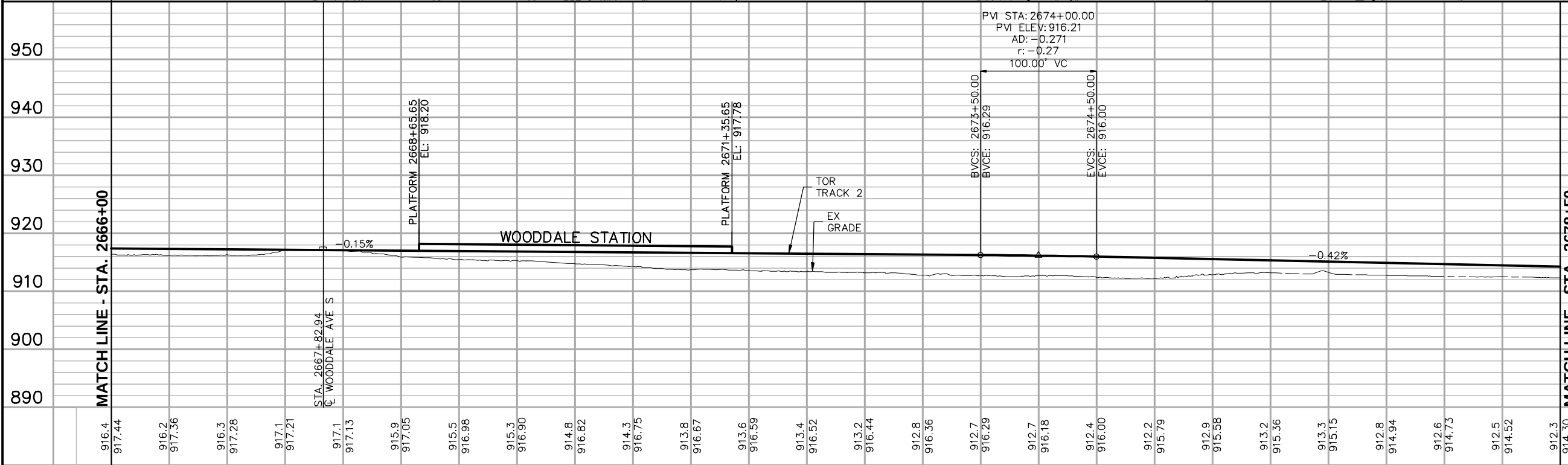
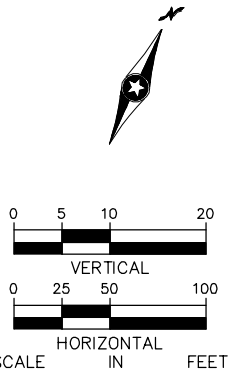
SHEET
55
OF
135

Aug. 29 2014 07:35 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-PPFL.dwg By: chris.bundors



CURVE NO. E2-206
R = 3,000.00'
Lc = 107.08'
Ls = 50.00'
Ea = 0.75"
Eu = 0.87"
V = 35 MPH

CURVE NO. E2-207
R = 3,000.00'
Lc = 107.08'
Ls = 50.00'
Ea = 0.75"
Eu = 0.87"
V = 35 MPH



2666+00	2667+00	2668+00	2669+00	2670+00	2671+00	2672+00	2673+00	2674+00	2675+00	2676+00	2677+00	2678+00
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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



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SYSTRA

PRELIMINARY ENGINEERING



METROPOLITAN
COUNCIL



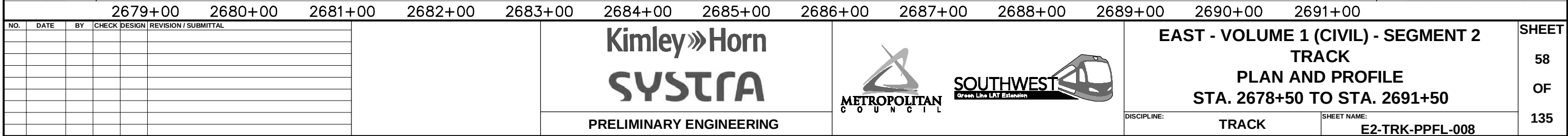
SOUTHWEST
Green Line LRT Extension

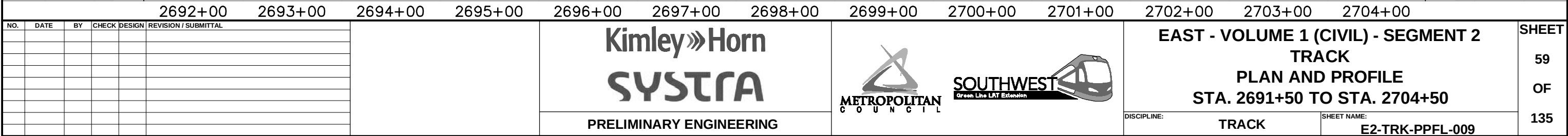
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
PLAN AND PROFILE
STA. 2666+00 TO STA. 2678+50

DISCIPLINE: **TRACK**

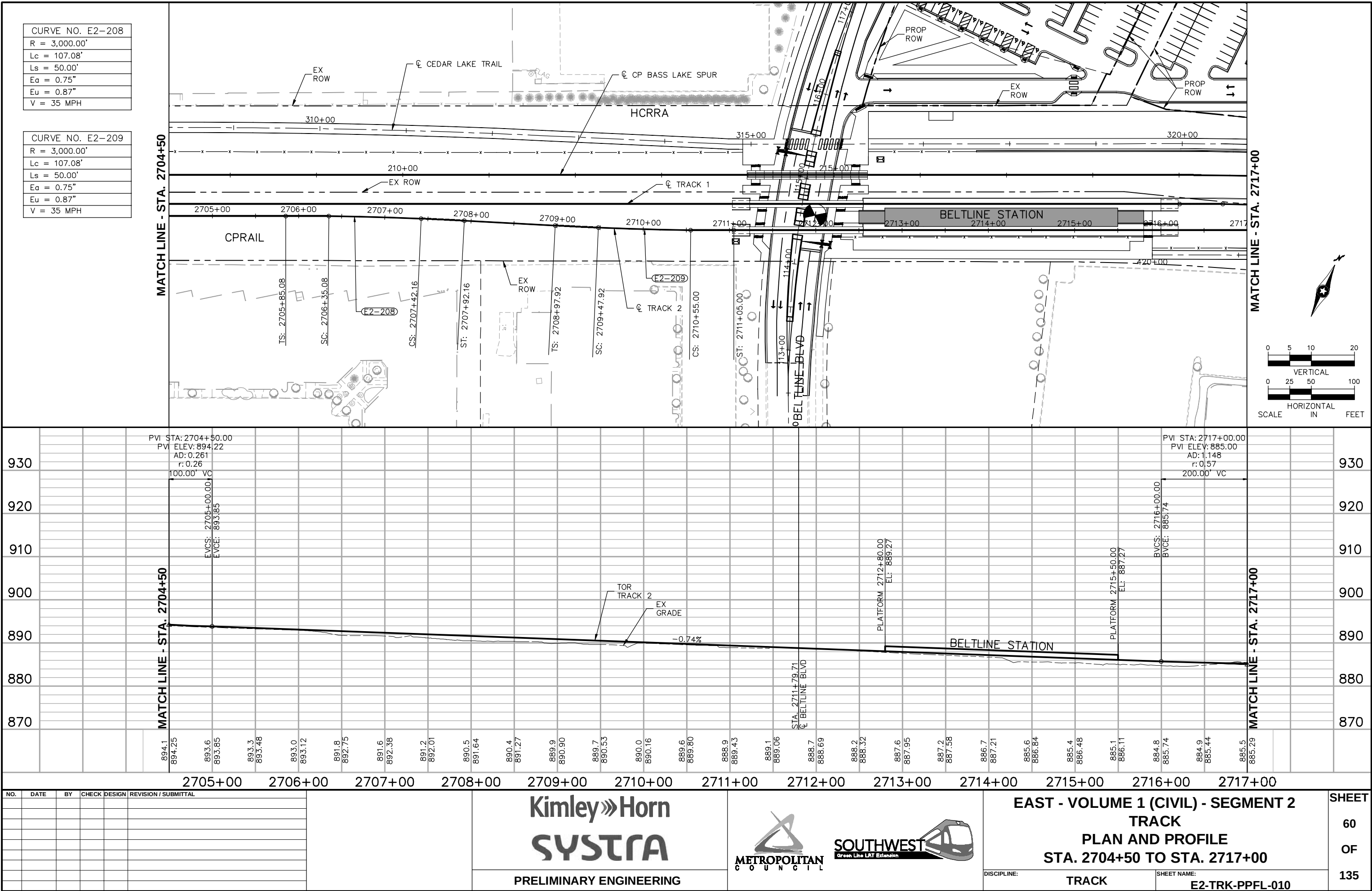
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SHEET
57
OF
135

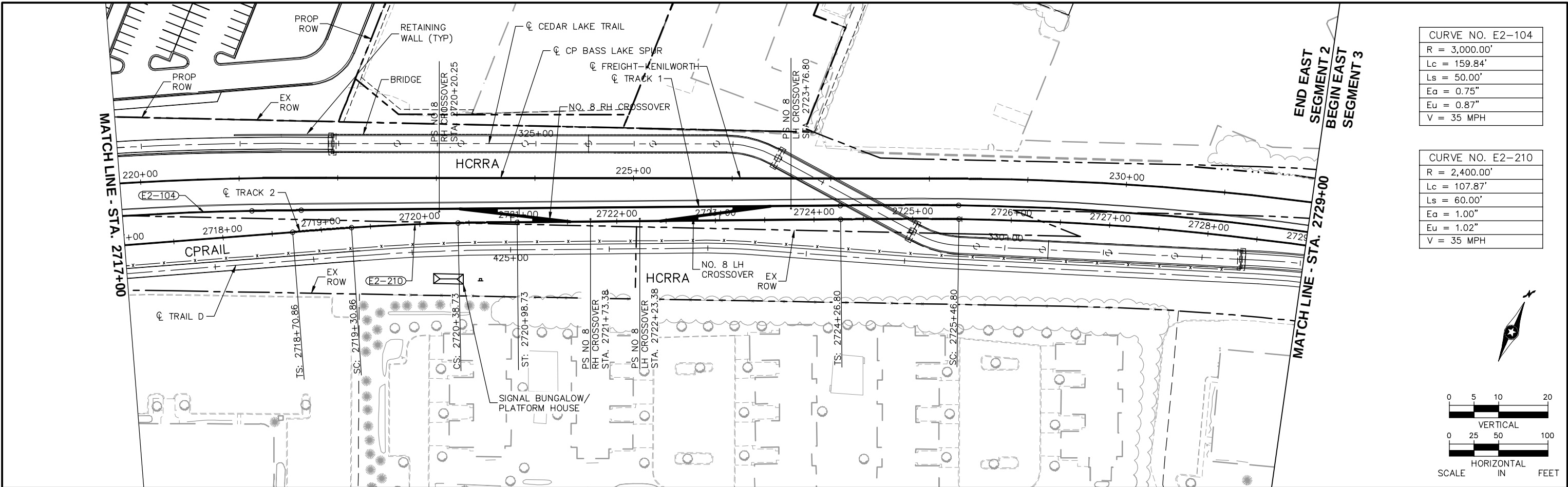




Aug. 29 2014 07:38 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-PPFL.dwg By: chris.bunders

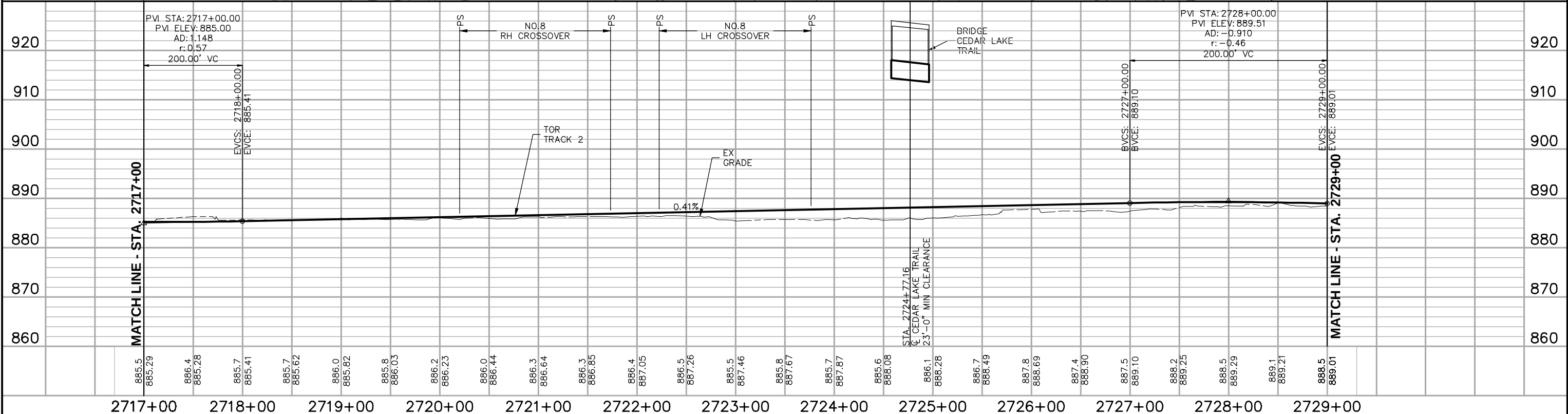
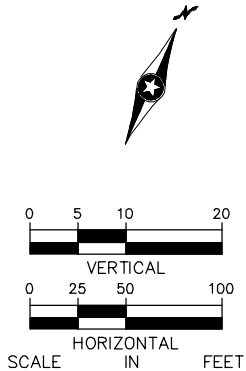


Aug. 29 2014 07:39 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-PPFL.dwg By: chris.bunders

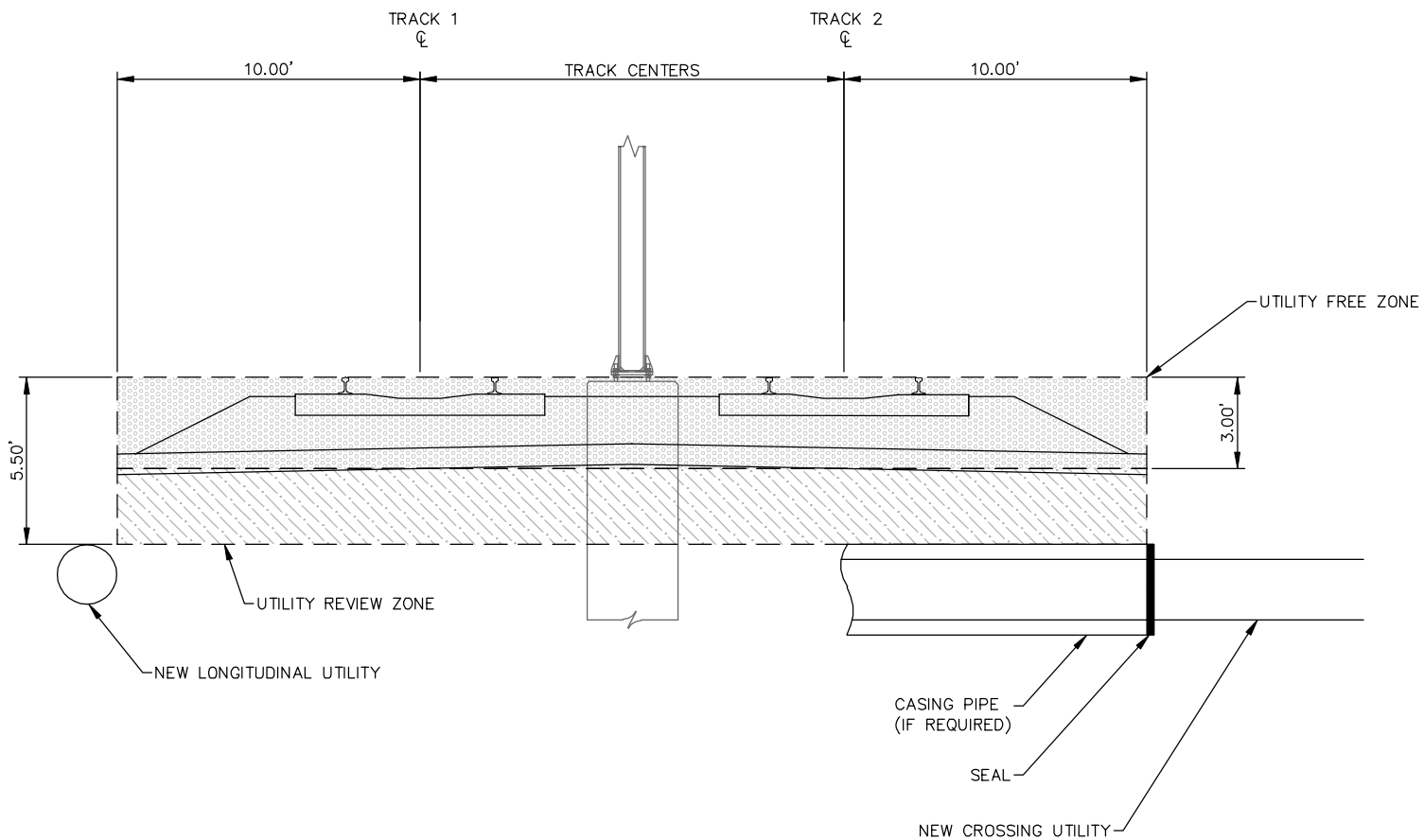


CURVE NO. E2-104
R = 3,000.00'
Lc = 159.84'
Ls = 50.00'
Ea = 0.75"
Eu = 0.87"
V = 35 MPH

CURVE NO. E2-210
R = 2,400.00'
Lc = 107.87'
Ls = 60.00'
Ea = 1.00"
Eu = 1.02"
V = 35 MPH

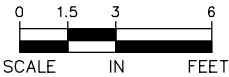


NO. DATE BY CHECK DESIGN REVISION / SUBMITTAL						EAST - VOLUME 1 (CIVIL) - SEGMENT 2 TRACK PLAN AND PROFILE STA. 2717+00 TO STA. 2729+00												SHEET 61 OF 135	
						DISCIPLINE: TRACK SHEET NAME: E2-TRK-PPFL-011													



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.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



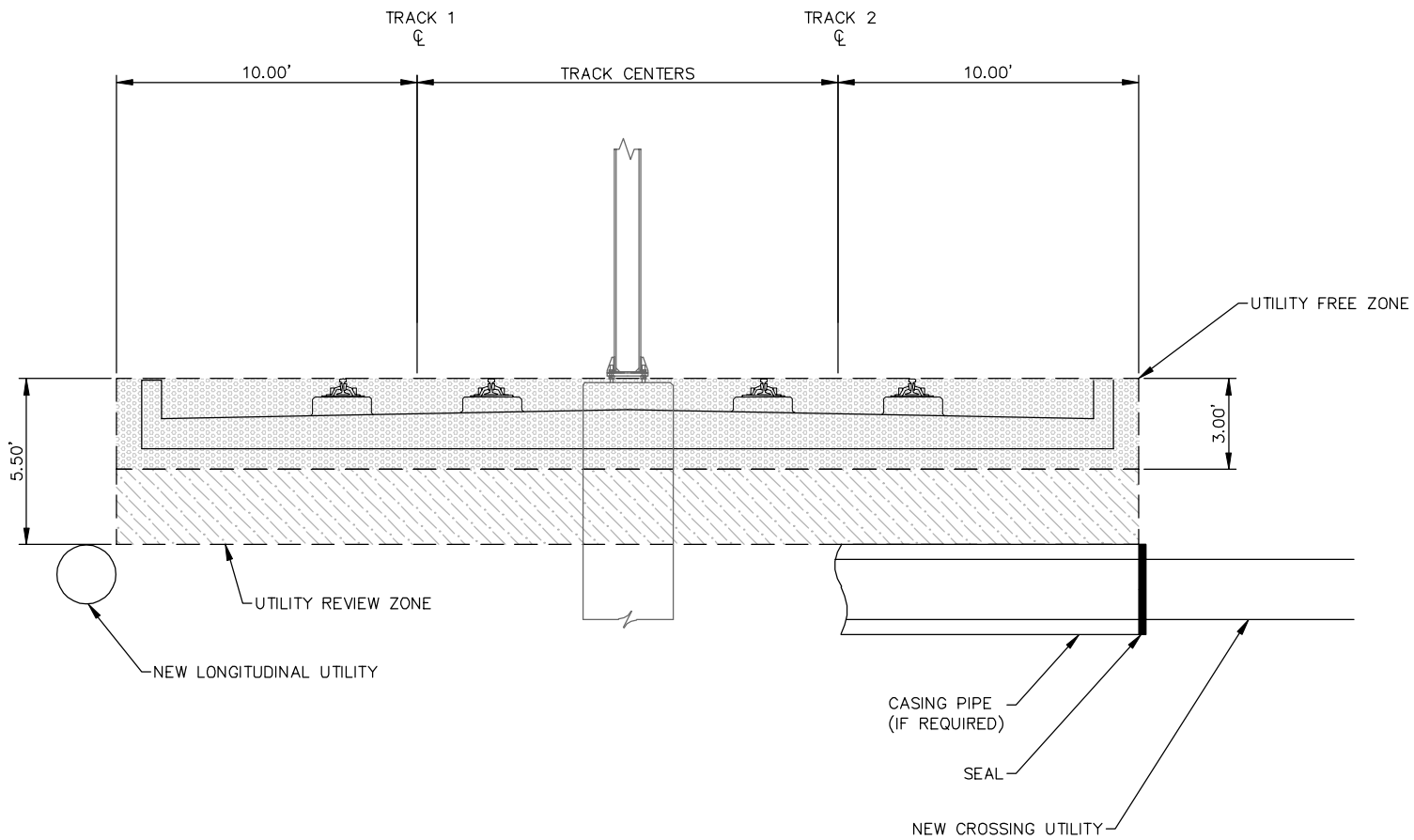
PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
DETAILS

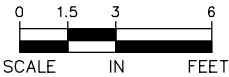
DISCIPLINE: TRACK

SHEET NAME:
E2-TRK-DTL - 101



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.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



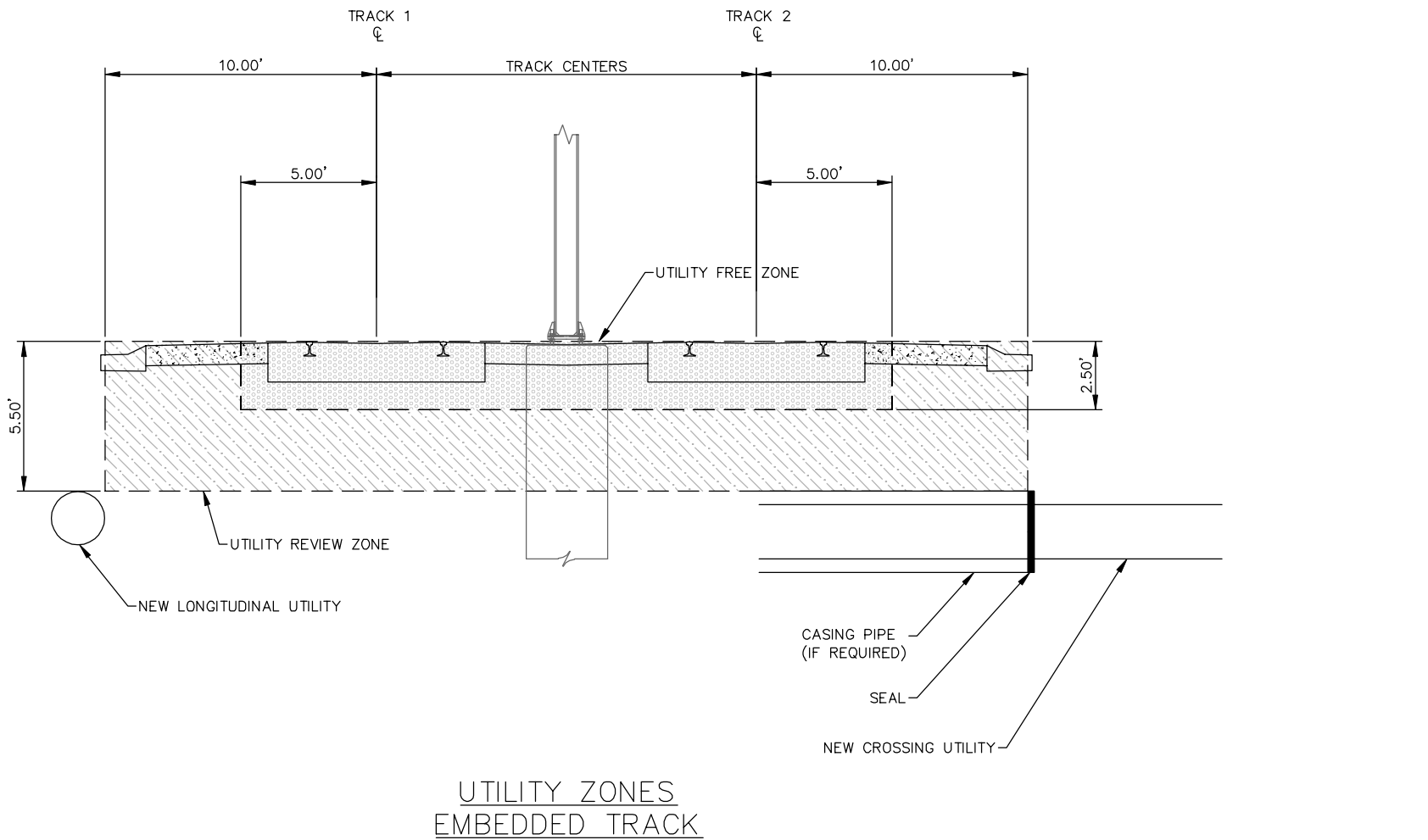
PRELIMINARY ENGINEERING



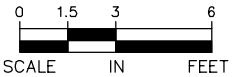
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: E2-TRK-DTL - 102



- 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.



Aug. 29 2014 07:39 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-DTL.dwg By: chris.bunders

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



PRELIMINARY ENGINEERING



METROPOLITAN
COUNCIL



SOUTHWEST
Green Line LRT Extension

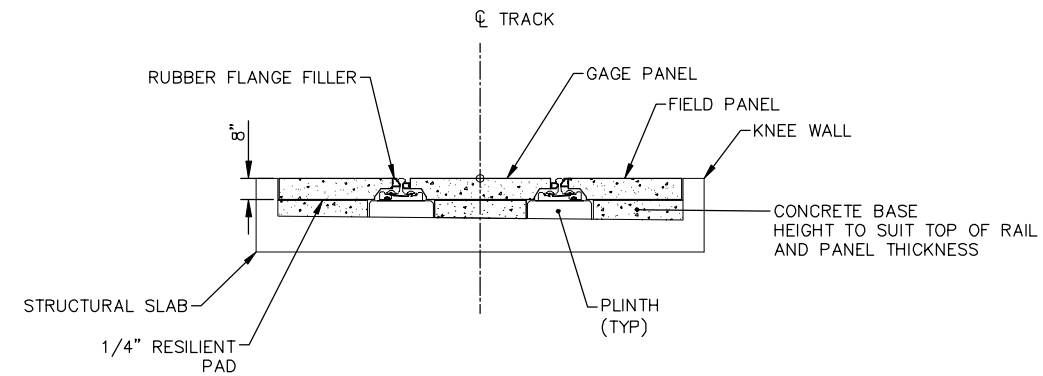
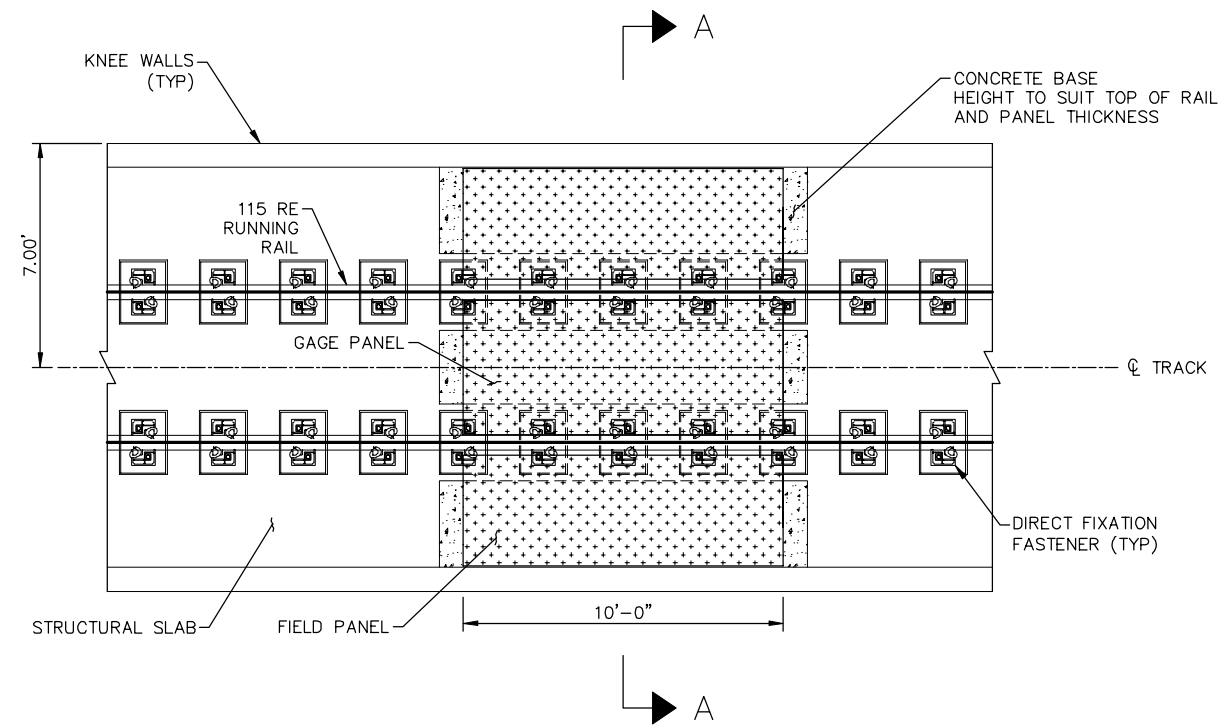
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: E2-TRK-DTL - 103

SHEET 64 OF 135

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SECTION A-A

PEDESTRIAN CROSSING PANEL AT DIRECT FIXATION
(NTS)

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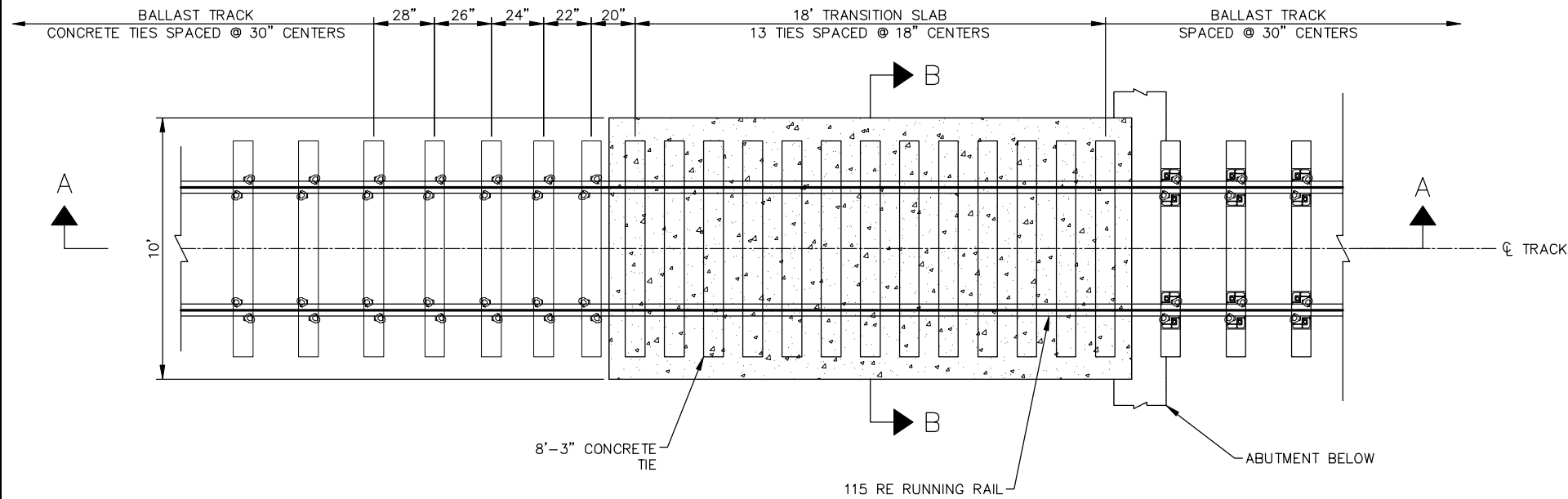
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
DETAILS

DISCIPLINE: TRACK

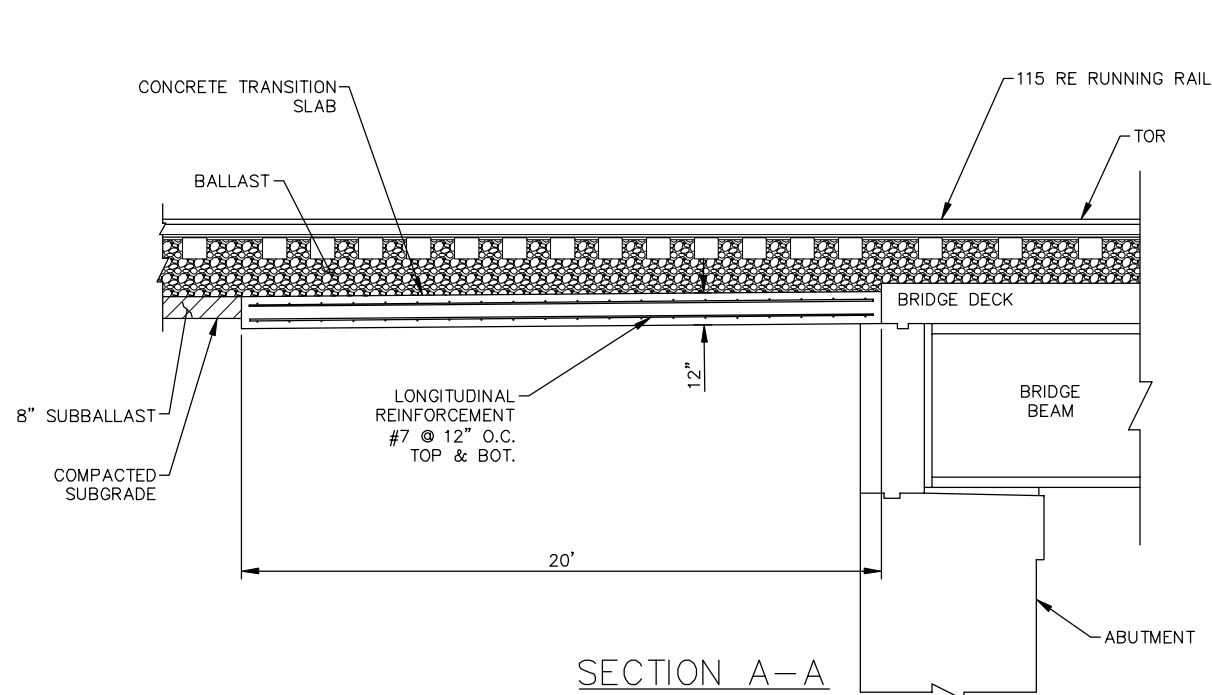
SHEET NAME: E2-TRK-DTL - 203

SHEET
65
OF
135

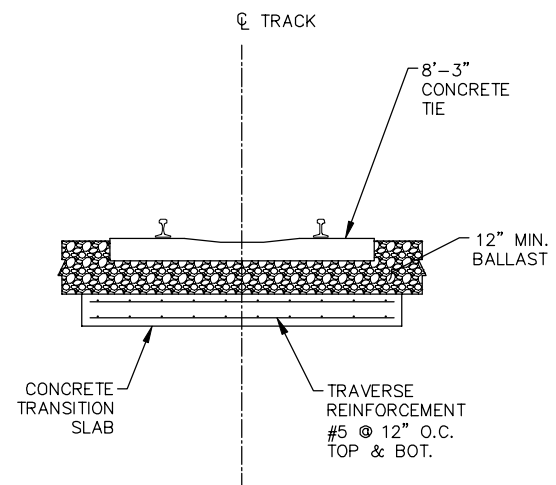
Aug. 29 2014 07:39 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-DTL.dwg By: chris.bunders



PLAN VIEW



SECTION A-A



SECTION B-B

NOTE:

1. DRAIN TILE NOT SHOWN FOR CLARITY.

BALLAST TRACK TRANSITION SLAB AT BALLASTED BRIDGE
(NTS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING



SOUTHWEST
Green Line LRT Extension



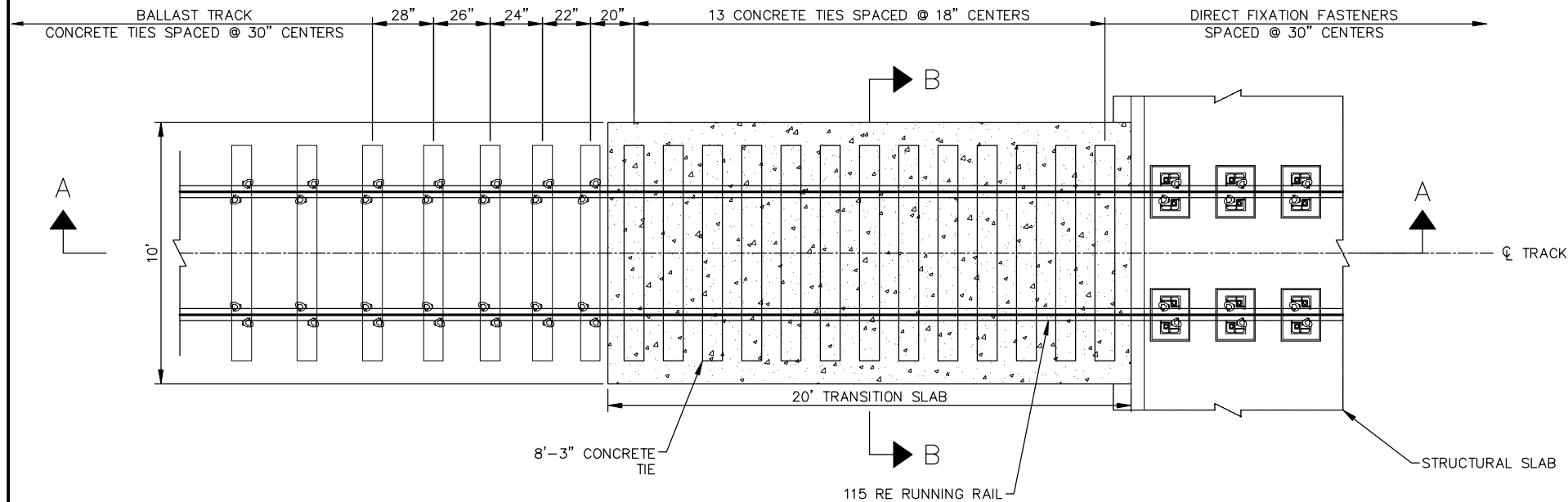
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
DETAILS

DISCIPLINE: TRACK

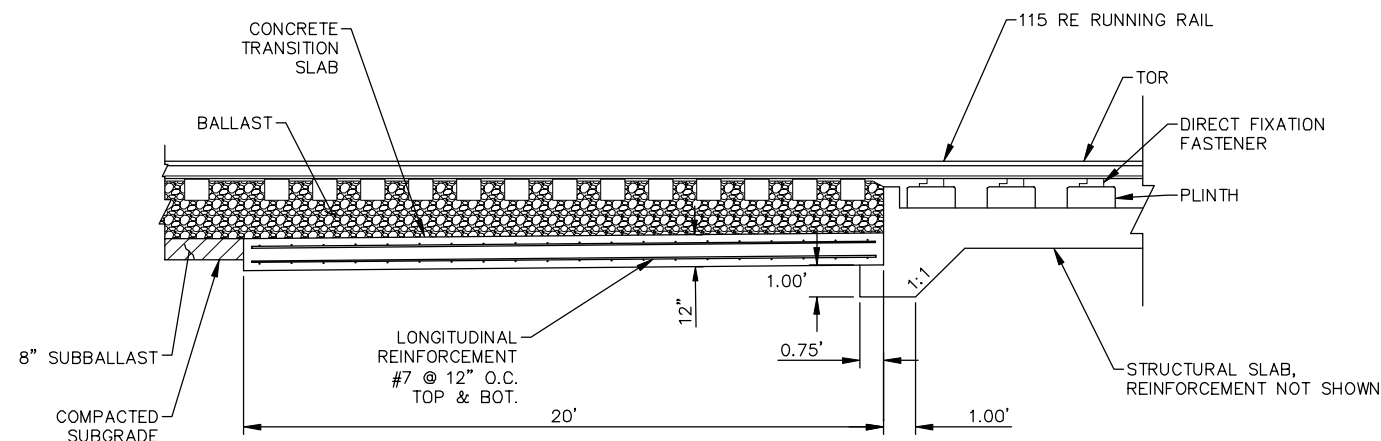
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SHEET
66
OF
135

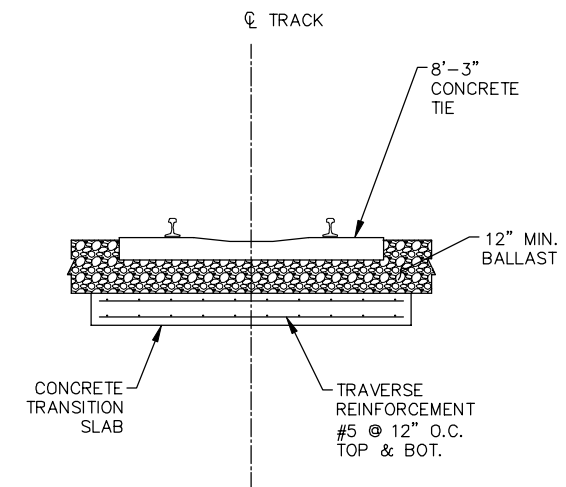
Aug. 29 2014 07:39 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-DTL.dwg By: chris.bunders



PLAN VIEW



SECTION A-A



SECTION B-B

- NOTE:
1. DRAIN TILE NOT SHOWN FOR CLARITY.

BALLAST TRACK TRANSITION SLAB AT DIRECT FIXATION TRACK
(NTS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING



SOUTHWEST
Green Line LRT Extension



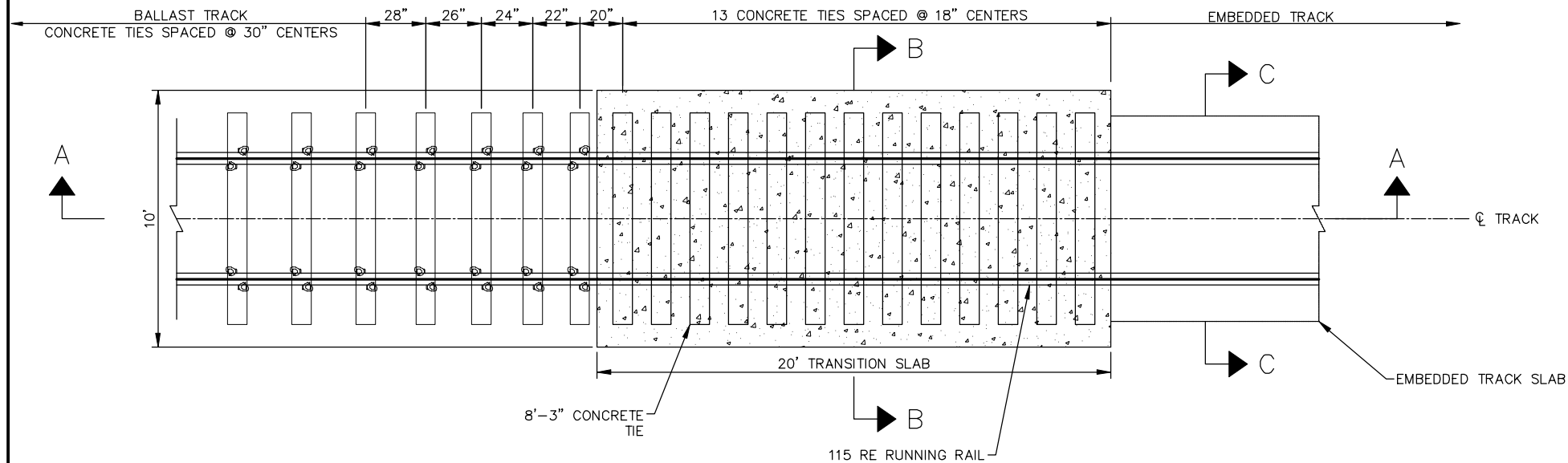
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
DETAILS

DISCIPLINE: TRACK

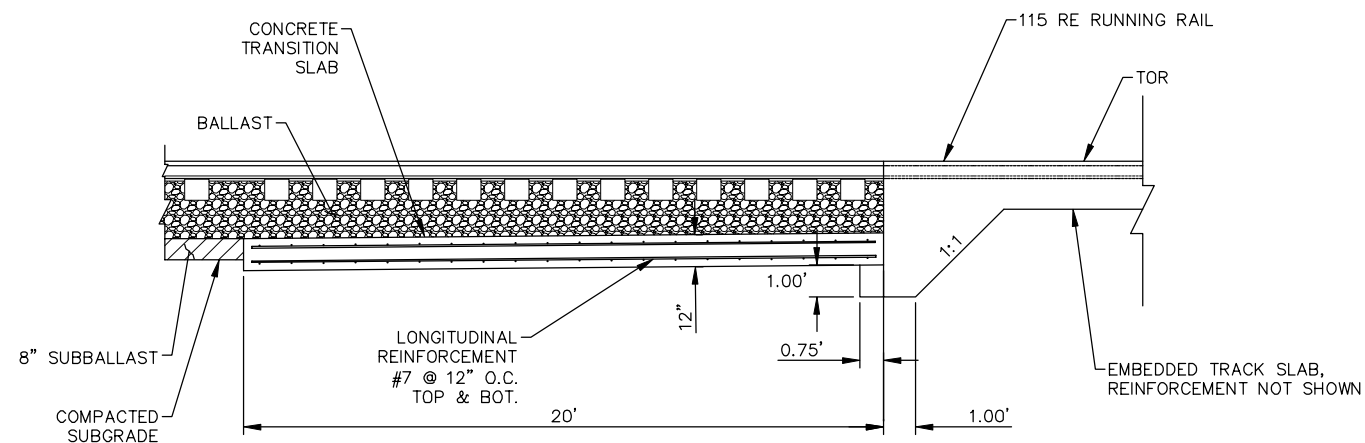
SHEET NAME: E2-TRK-DTL - 303

SHEET
67
OF
135

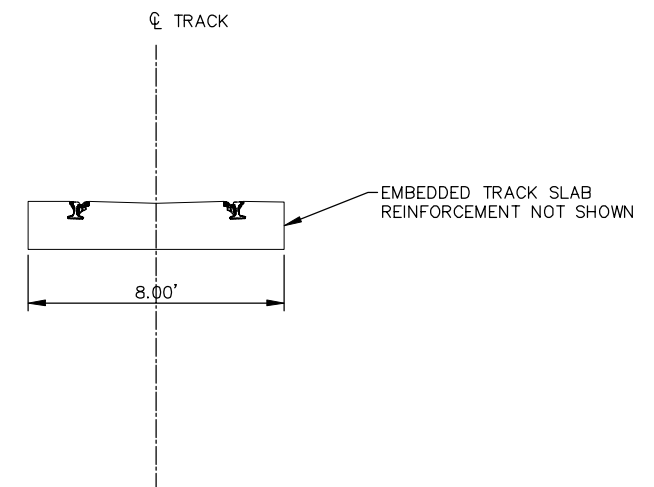
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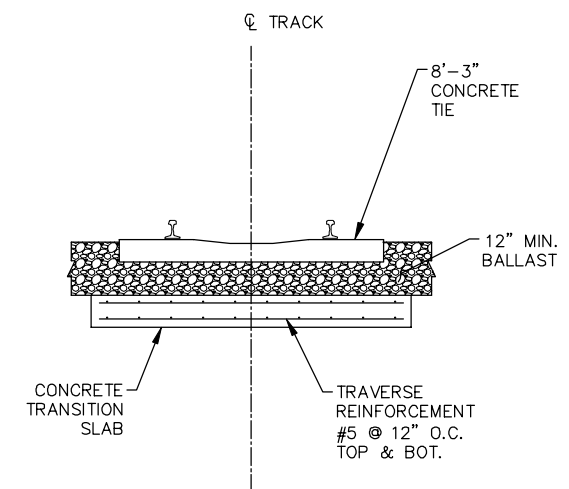
PLAN VIEW



SECTION A-A



SECTION C-C



SECTION B-B

NOTE:

1. DRAIN TILE NOT SHOWN FOR CLARITY.

BALLAST TRACK TRANSITION SLAB AT EMBEDDED
(NTS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING



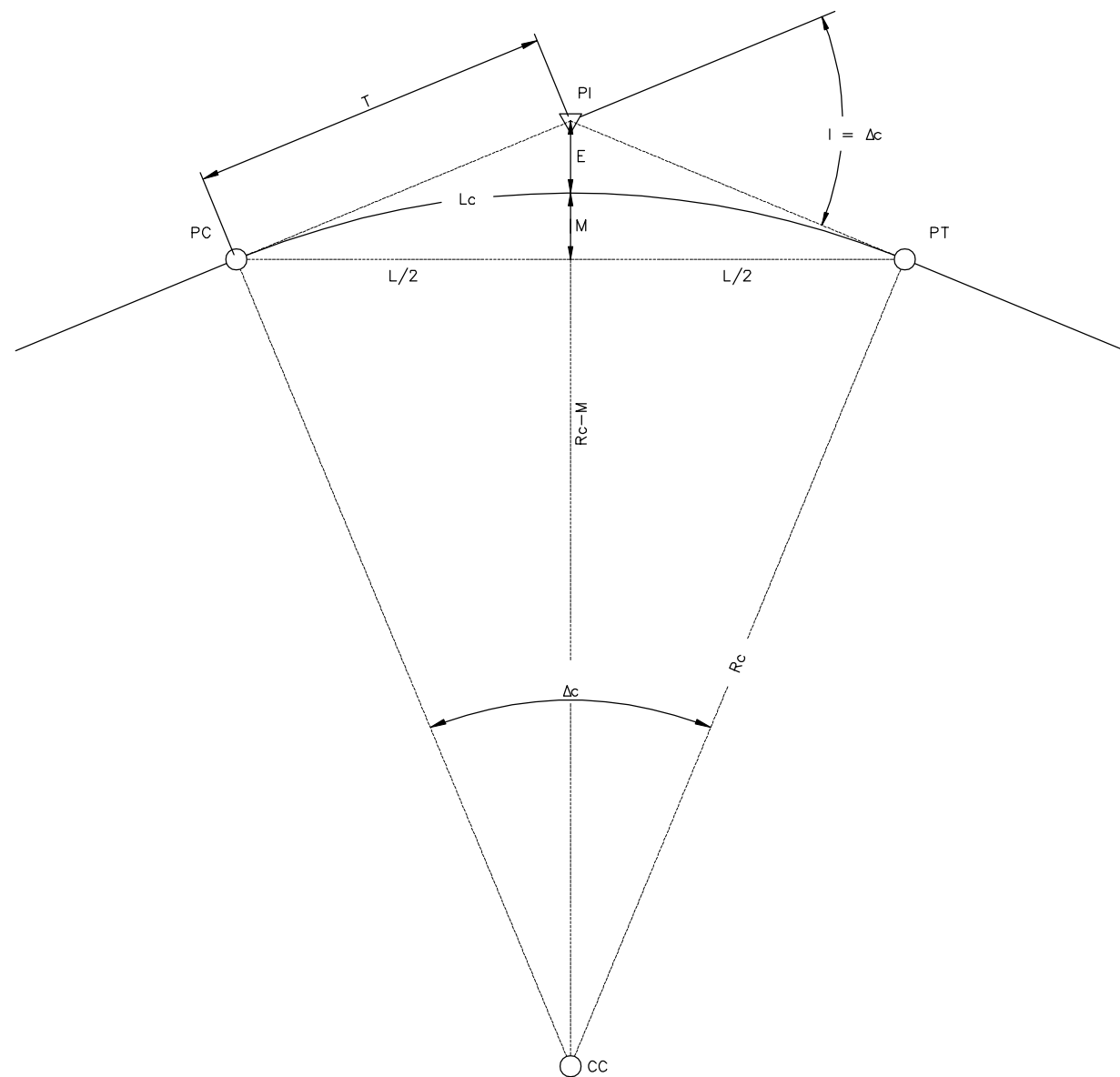
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: E2-TRK-DTL - 304

SHEET
68
OF
135

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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

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

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

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

$$T = Rc \tan \frac{1}{2}$$

$$E = Rc \sec \frac{1}{2} - Rc$$

$$M = Rc - Rc \cos \frac{1}{2}$$

$$L = 2 Rc \sin \frac{1}{2}$$

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

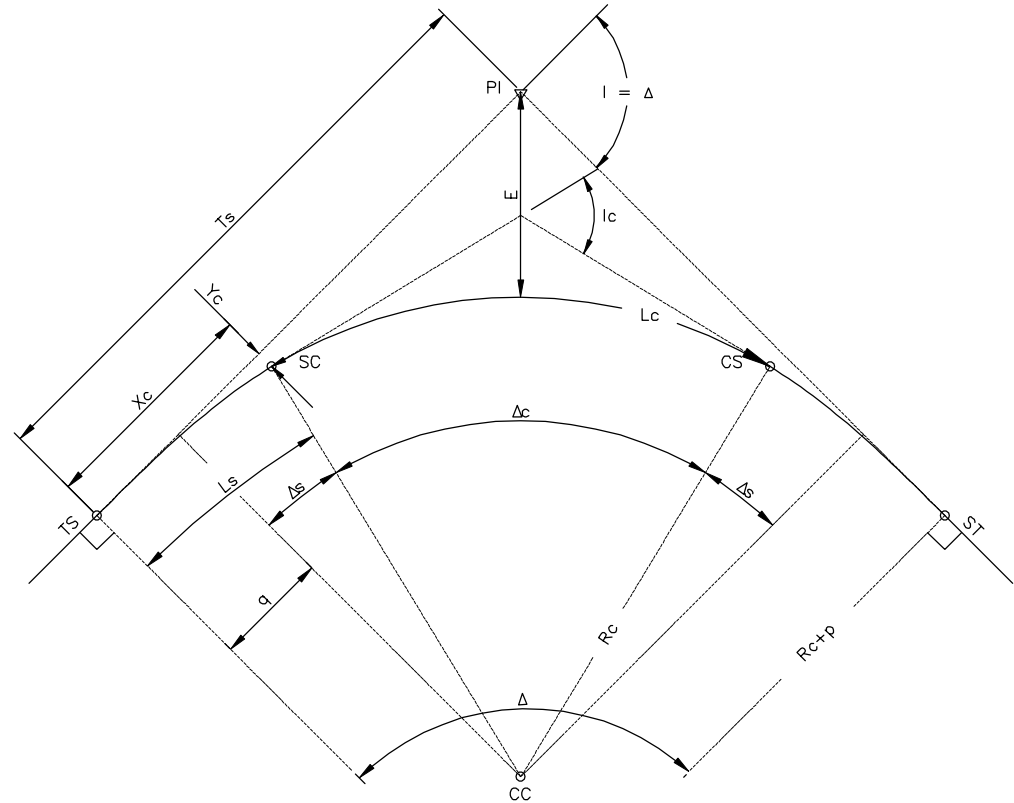


**EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
DETAILS**

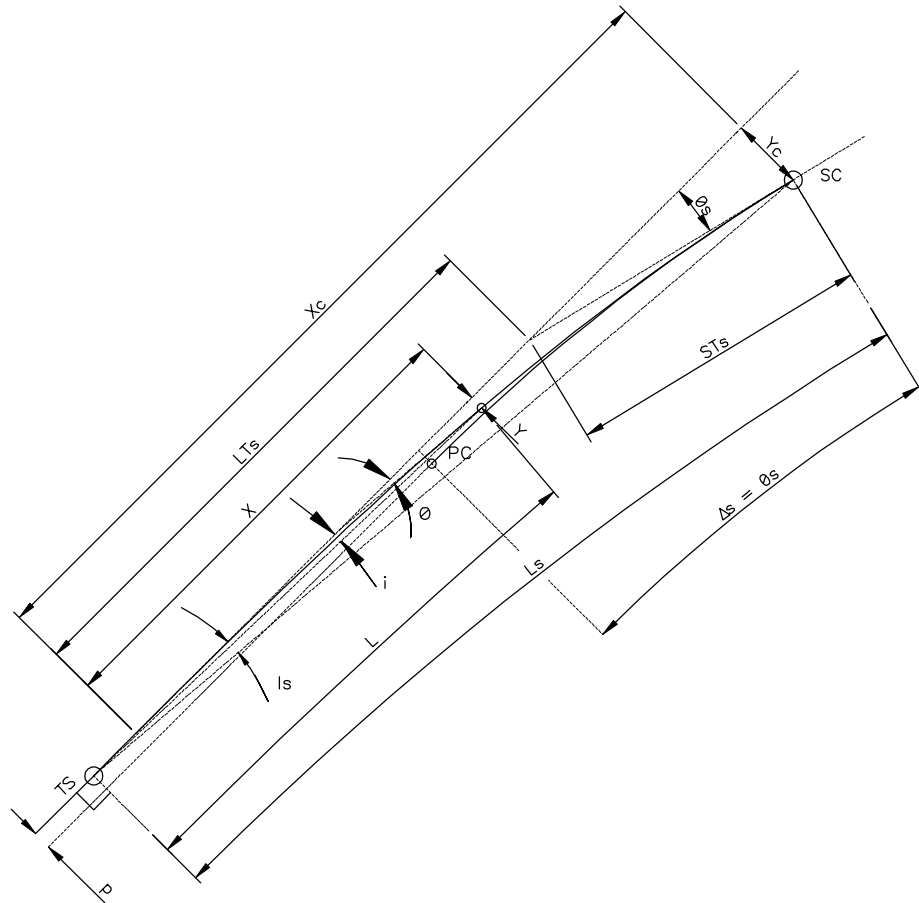
DISCIPLINE: TRACK

SHEET NAME: E2-TRK-DTL - 401

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SPIRAL CURVE DIAGRAM



SPIRAL DIAGRAM

DEFINITIONS

- D_c = DEGREE OF SIMPLE CURVE IN ARC DEFINITION (DEGREES)
 R_c = RADIUS OF CURVE (FEET)
 Δ = TOTAL CENTRAL ANGLE OF CURVE (DEGREES)
 Δ_c = CENTRAL ANGLE OF SIMPLE CURVE (DEGREES)
 Δ_s = CENTRAL ANGLE OF SPIRAL (RADIAN)
 E = EXTERNAL DISTANCE OF THE SIMPLE CURVE (FEET)
 T_s = TOTAL TANGENT DISTANCE (FEET)
 L_s = LENGTH OF SPIRAL (FEET)
 L_c = LENGTH OF THE SIMPLE CURVE ARC (FEET)
 L = LENGTH FROM TS TO ANY POINT ALONG THE SPIRAL (FEET)
 I = TOTAL DEFLECTION ANGLE (DEGREES)
 i_c = DEFLECTION ANGLE OF THE SIMPLE CURVE (DEGREES)
 i_s = 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
 X_c = DISTANCE ALONG TANGENT FROM TS/ST TO THE SC/CS (FEET)
 Y_c = 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
 θ_s = SPIRAL ANGLE FROM TANGENT TO SC
 θ = SPIRAL ANGLE FROM TANGENT TO ANY POINT ON THE SPIRAL
 L_{Ts} = LONG TANGENT OF SPIRAL (FEET)
 ST_s = 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

$\Delta = \Delta_c + 2\Delta_s$
 $\Delta_s = \frac{L_s}{2R_c}$
 $i = \frac{\theta}{3}$
 $X = L - \frac{L^5}{40R_c^2 L_s^2}$
 $X_c = L_s - \frac{L_s^3}{40R_c^2}$
 $Y = \frac{L^3}{6R_c L_s}$
 $Y_c = \frac{L_s^2}{6R_c}$
 $q = X_c - R_c \sin \Delta_s$
 $p = \frac{1}{4} Y_c = \frac{L_s^2}{24R_c}$
 $T_s = (R_c + p) \tan \frac{\Delta}{2} + q$
 $E = \frac{R_c + p}{\cos \frac{\Delta}{2}} - R_c$
 $L_{Ts} = X_c - \frac{Y_c}{\tan \Delta_s}$
 $ST_s = \frac{Y_c}{\sin \Delta_s}$
 $\frac{D_c}{360^\circ} = \frac{100}{2\pi R_c}$
 $D_c = \frac{5729.58'}{R_c}$
 $L_c = \frac{\pi R_c \Delta_c}{180}$

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





PRELIMINARY ENGINEERING



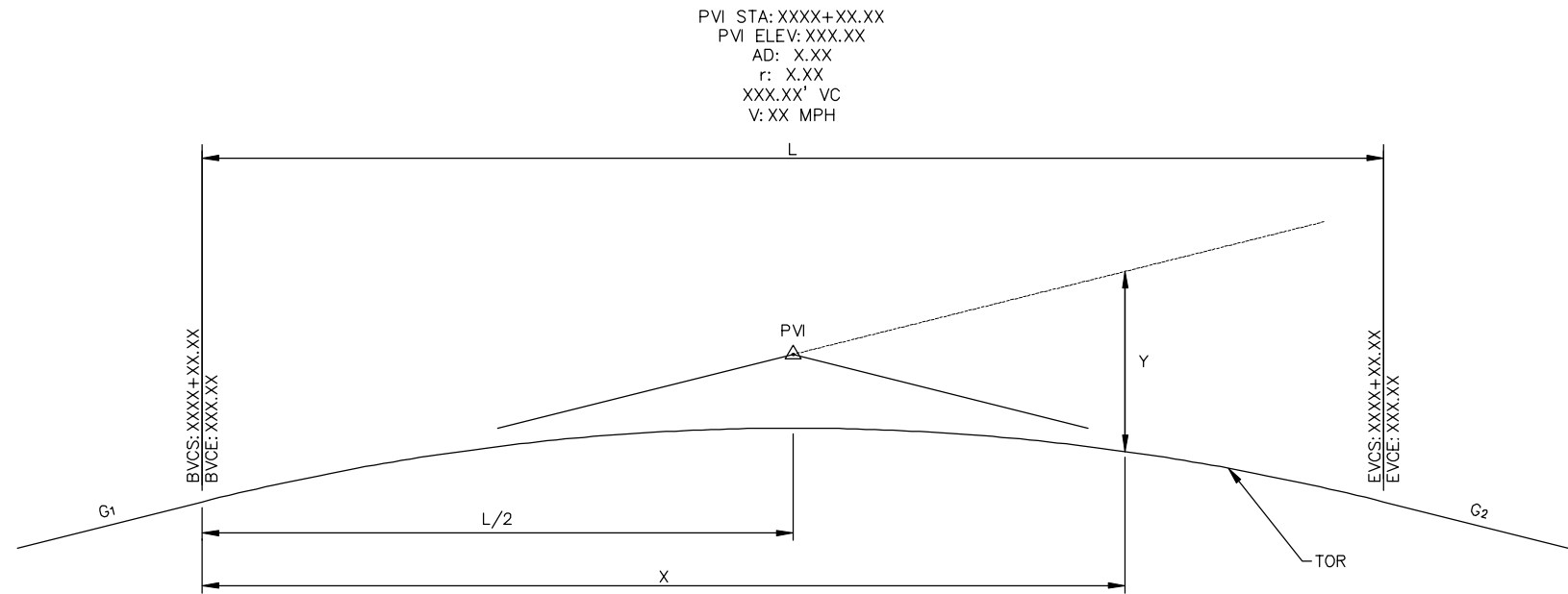
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME:
E2-TRK-DTL - 402

SHEET
70
OF
135

Aug. 29 2014 07:39 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-DTL.dwg By: chris.bunders

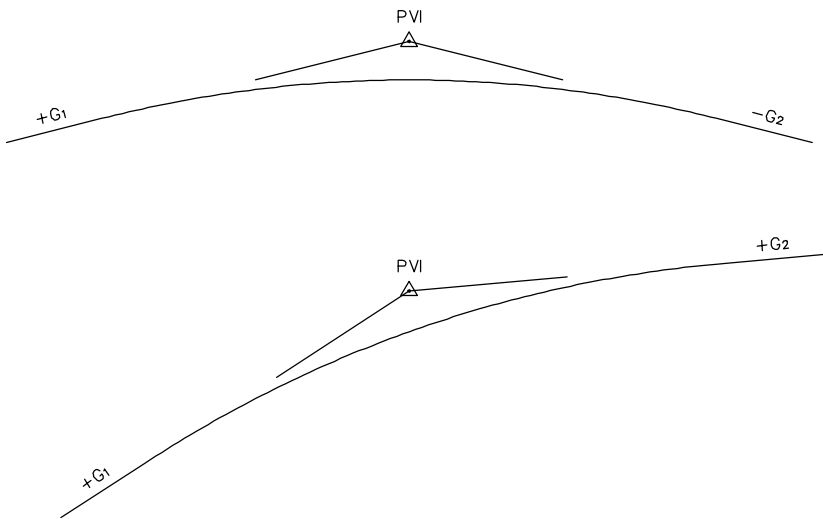


STANDARD VERTICAL CURVE

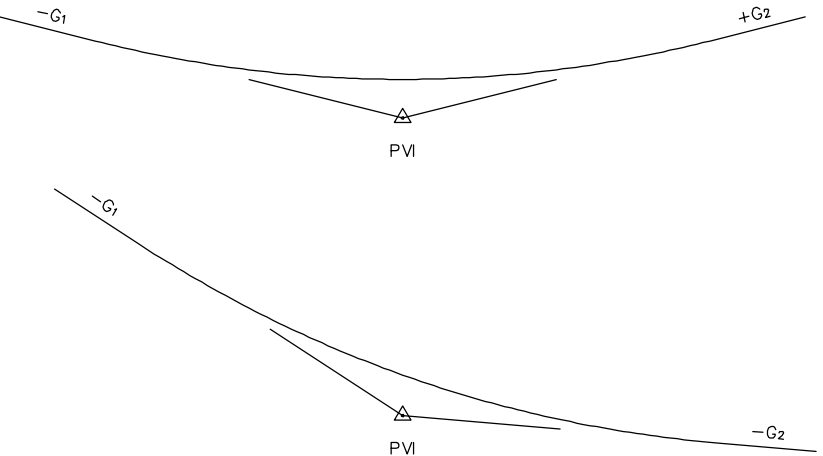
DEFINITIONS
G₁ = ENTRY GRADE %
G₂ = DEPARTING GRADE %
PVI = POINT OF VERTICAL INTERSECTION
AD = ALGEBRAIC DIFFERENCE
r = RATE OF CHANGE OF GRADE
L = LENGTH OF VERTICAL CURVE
V = DESIGN VELOCITY (MPH)
BVCS = BEGIN VERTICAL CURVE STATION
BVCE = BEGIN VERTICAL CURVE ELEVATION
EVCS = END VERTICAL CURVE STATION
EVCE = END VERTICAL CURVE ELEVATION
X = HORIZONTAL DISTANCE FROM BVC
Y = ELEVATION OF PARABOLA BELOW G₁
R_v = EQUIVALENT RADIUS OF VERTICAL CURVE

FORMULAS
 $a = \frac{G_2 - G_1}{2L}$
 $Y = BVCE + G_1X + aX^2$
 $AD = G_2 - G_1$
 $r = \frac{100 \text{ AD}}{L}$
 $R_v = \frac{L}{0.01 \text{ AD}}$

VERTICAL CURVE GEOMETRY



CREST TYPE VERTICAL CURVES



SAG TYPE VERTICAL CURVES

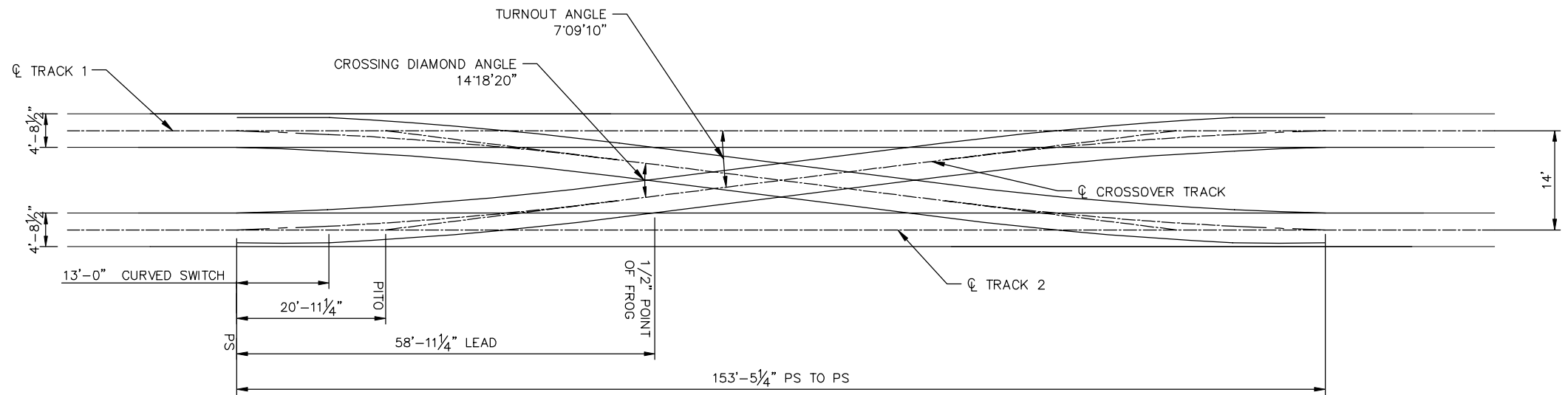
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn
PRELIMINARY ENGINEERING

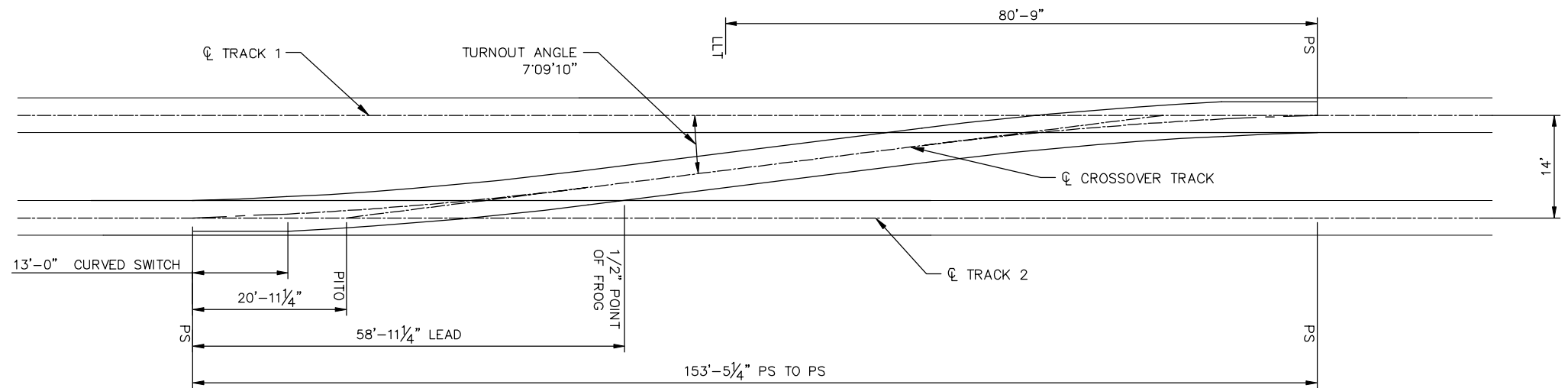
 METROPOLITAN C O U N C I L	 SOUTHWEST Green Line LRT Extension
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EAST - VOLUME 1 (CIVIL) - SEGMENT 2		SHEET 71 OF 135
TRACK DETAILS		
DISCIPLINE: TRACK	SHEET NAME: E2-TRK-DTL - 403	

Aug. 29 2014 07:39 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRACK\E2-TRK-DTL.dwg By: chris.bunders



NO 8 DOUBLE CROSS OVER GEOMETRY DETAIL
(14.0' TRACK CENTERS)



NO 8 CROSS OVER GEOMETRY DETAIL
(14.0' TRACK CENTERS)

NOTE
LEFT HAND CROSS OVER ILLUSTRATED. MIRROR FOR RIGHT HAND
CROSS OVER.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING



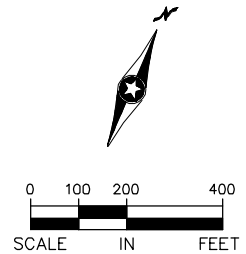
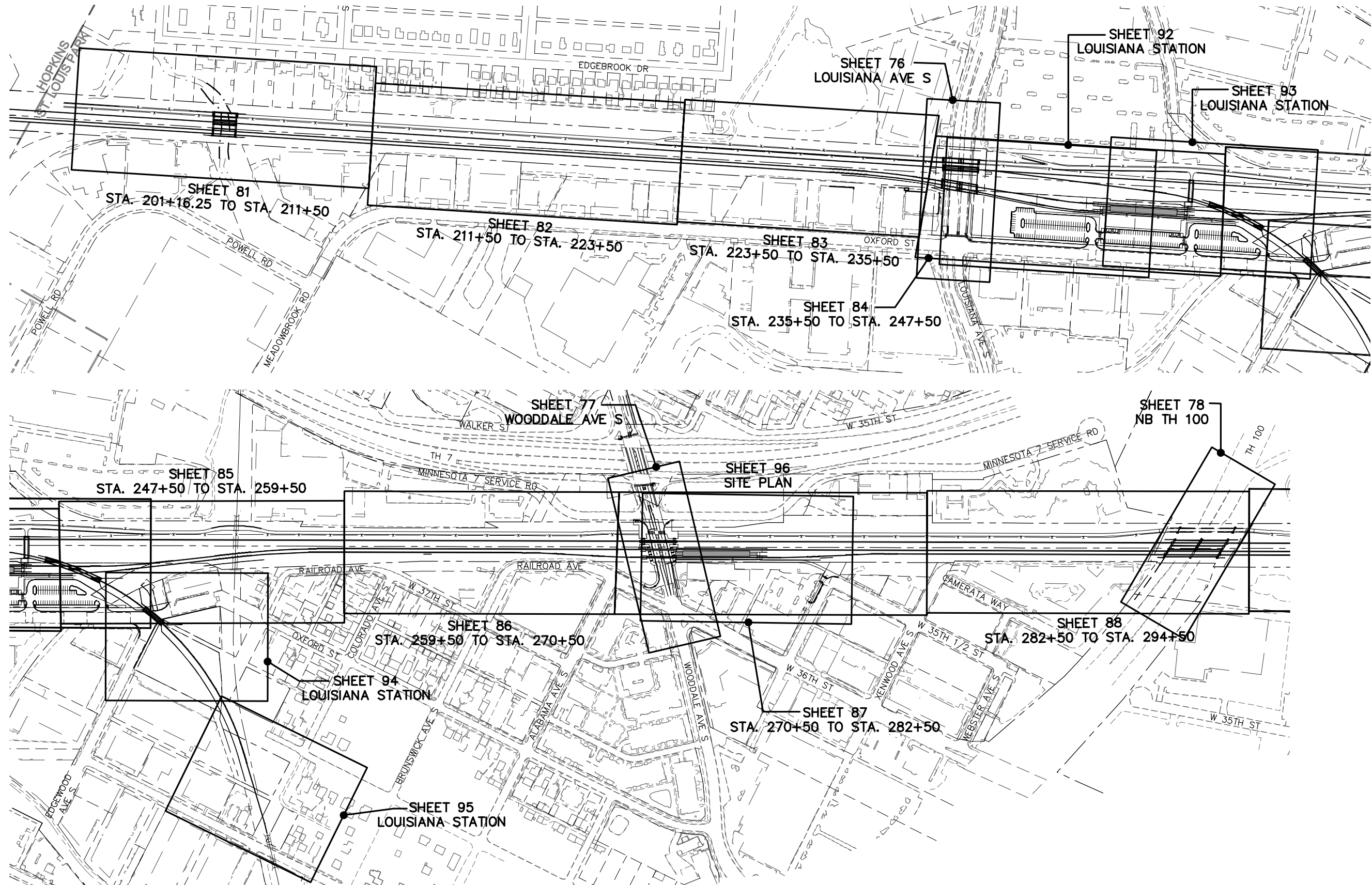
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: E2-TRK-DTL - 502

SHEET
72
OF
135

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PRELIMINARY ENGINEERING



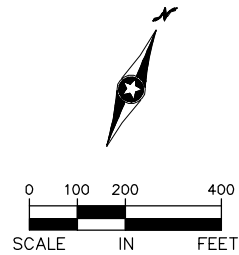
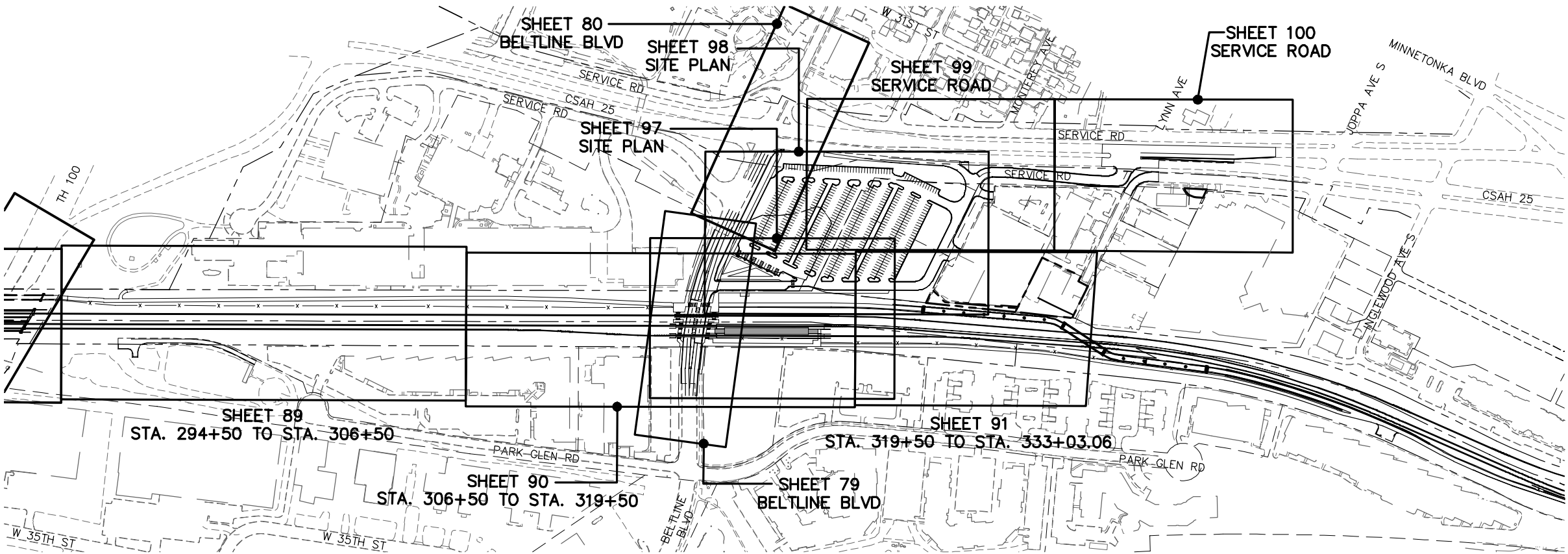
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
CIVIL
SHEET INDEX

DISCIPLINE: CIVIL

SHEET NAME: E2-CIV-IDX-001

SHEET 73 OF 135

Aug. 29 2014 08:05 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\CIVIL\E2-CIV-IDX.dwg By: tracy.fosmo



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





PRELIMINARY ENGINEERING

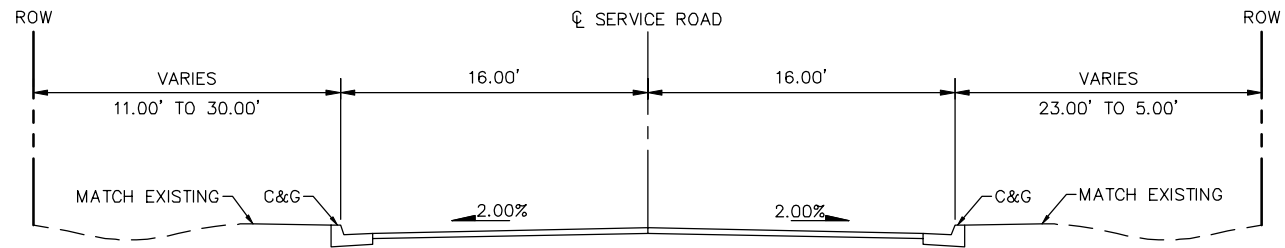


EAST - VOLUME 1 (CIVIL) - SEGMENT 2
CIVIL
SHEET INDEX

DISCIPLINE: CIVIL

SHEET NAME: E2-CIV-IDX-002

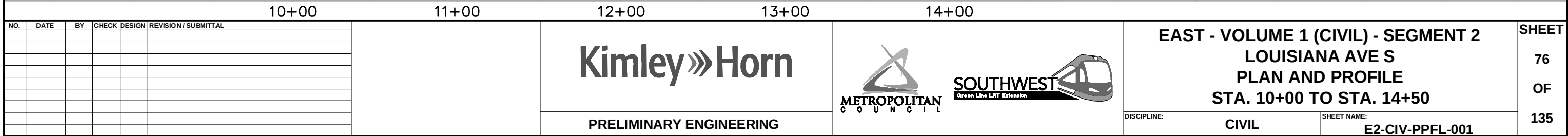
SHEET
74
OF
135



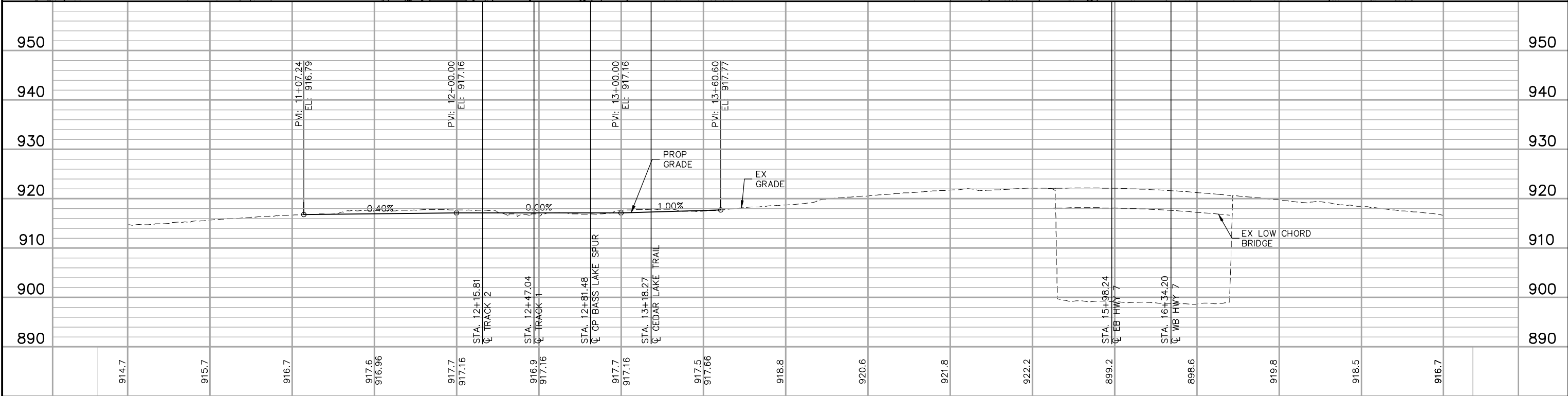
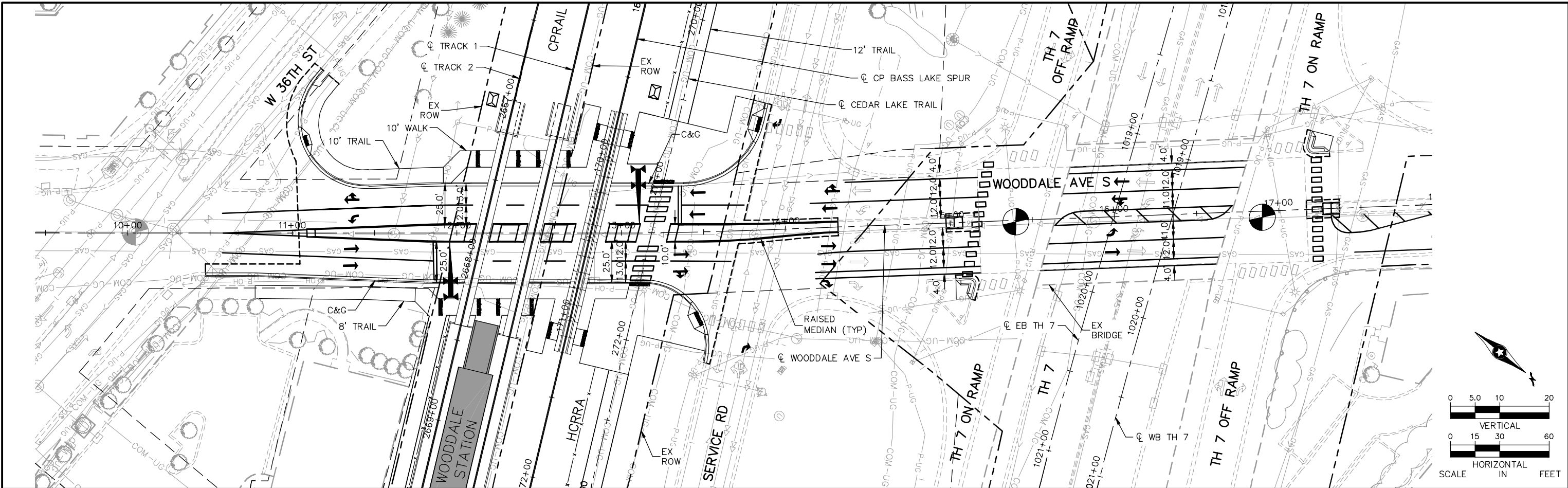
SERVICE ROAD (ADJACENT TO CSAH 25 EAST OF BELTLINE BLVD)
STA 15+50 TO 20+50

Aug. 29 2014 08:05 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\CIVIL\E2-CIV-TYP.dwg By: tracy.fosmo

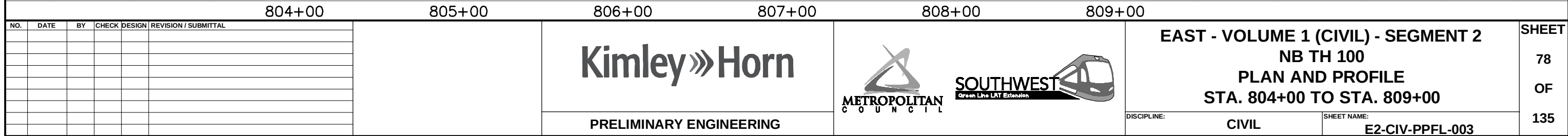
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	Kimley»Horn METROPOLITAN C O U N C I L SOUTHWEST Green Line LRT Extension 	EAST - VOLUME 1 (CIVIL) - SEGMENT 2 CIVIL TYPICAL SECTIONS		SHEET 75 OF 135
							DISCIPLINE: CIVIL	SHEET NAME: E2-CIV-TYP-001	
							PRELIMINARY ENGINEERING		

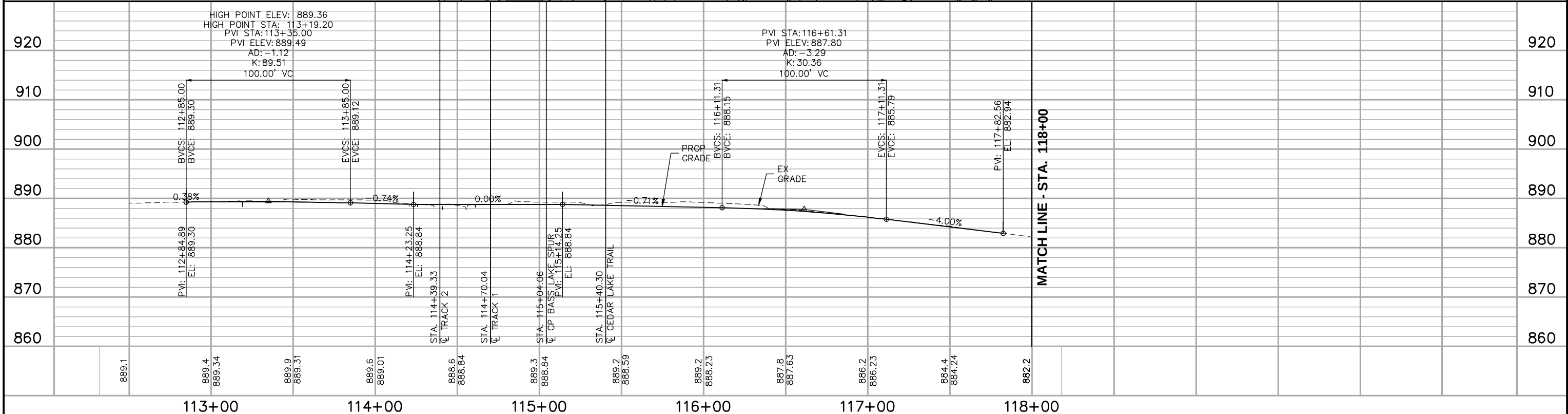


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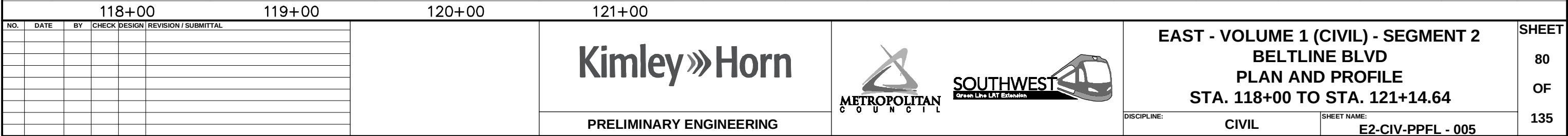


10+00						11+00						12+00						13+00						14+00						15+00						16+00						17+00						18+00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL							Kimley»Horn						 METROPOLITAN COUNCIL  SOUTHWEST Green Line LRT Extension						EAST - VOLUME 1 (CIVIL) - SEGMENT 2 WOODDALE AVE S PLAN AND PROFILE STA. 10+00 TO STA. 18+00												SHEET																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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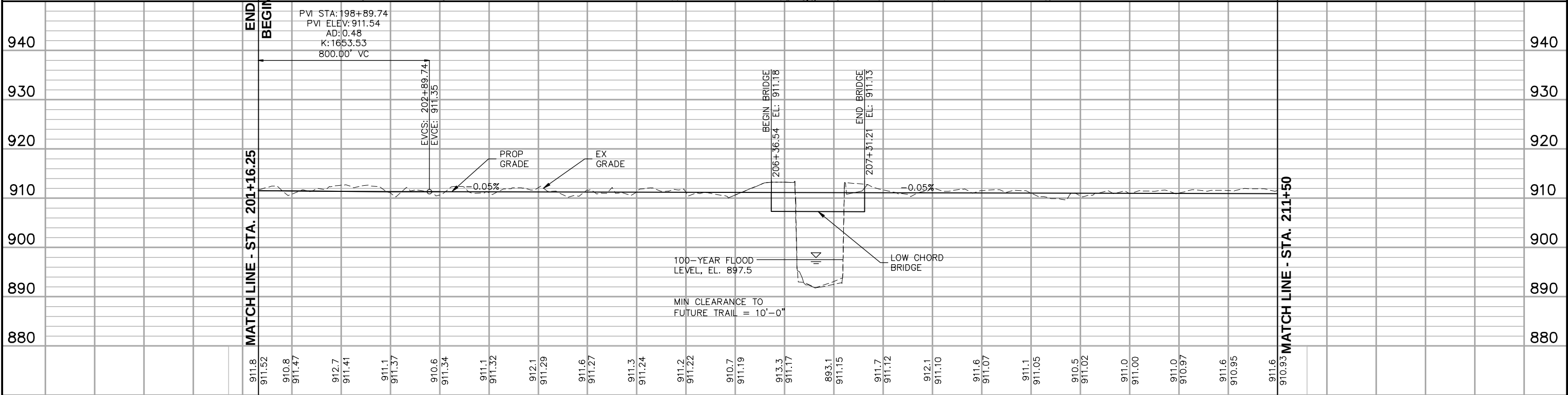
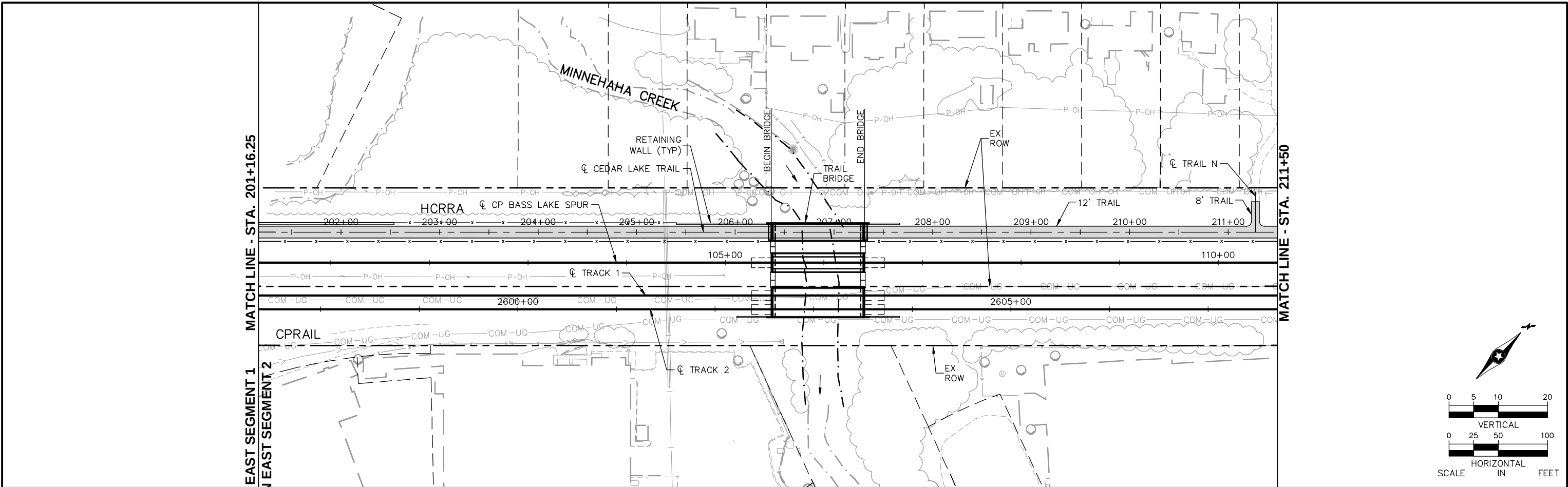




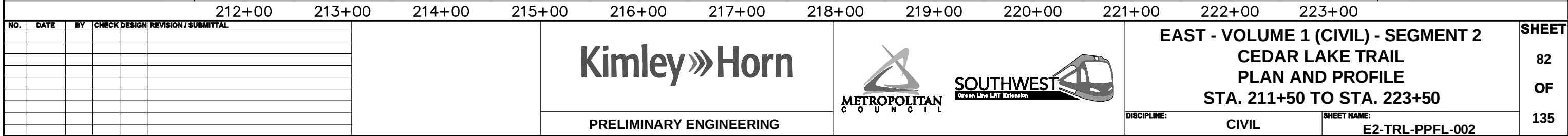
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL		Kimley»Horn	 METROPOLITAN COUNCIL  SOUTHWEST Green Line LRT Extension	EAST - VOLUME 1 (CIVIL) - SEGMENT 2 BELTLINE BLVD PLAN AND PROFILE STA. 112+50 TO STA. 118+00		SHEET		
79													
OF													
													135
						PRELIMINARY ENGINEERING		DISCIPLINE: CIVIL	SHEET NAME: E2-CIV-PPFL-004				



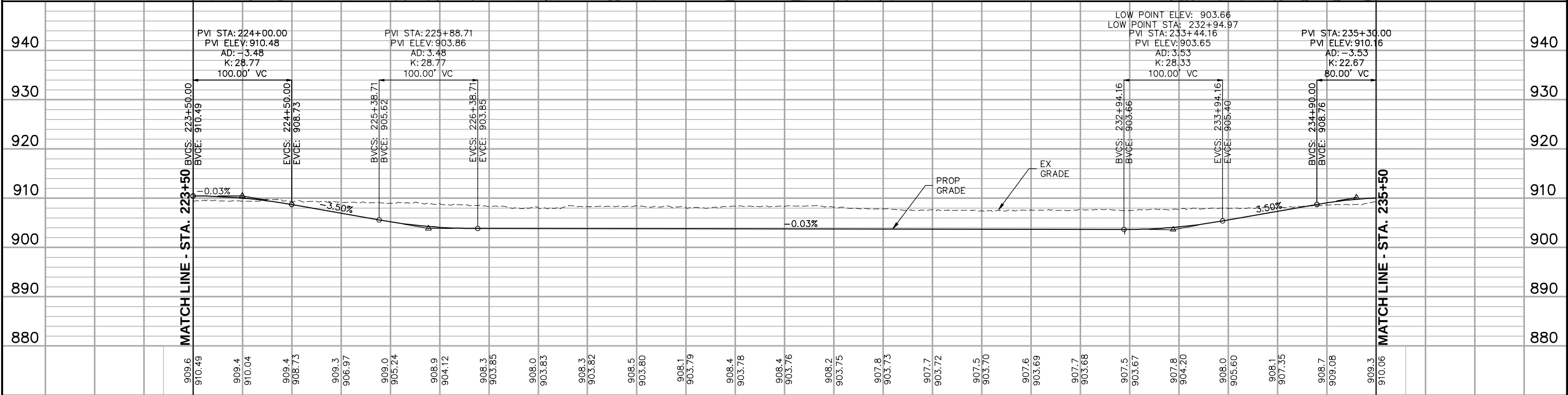
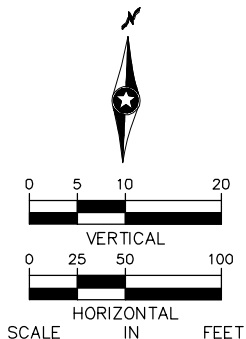
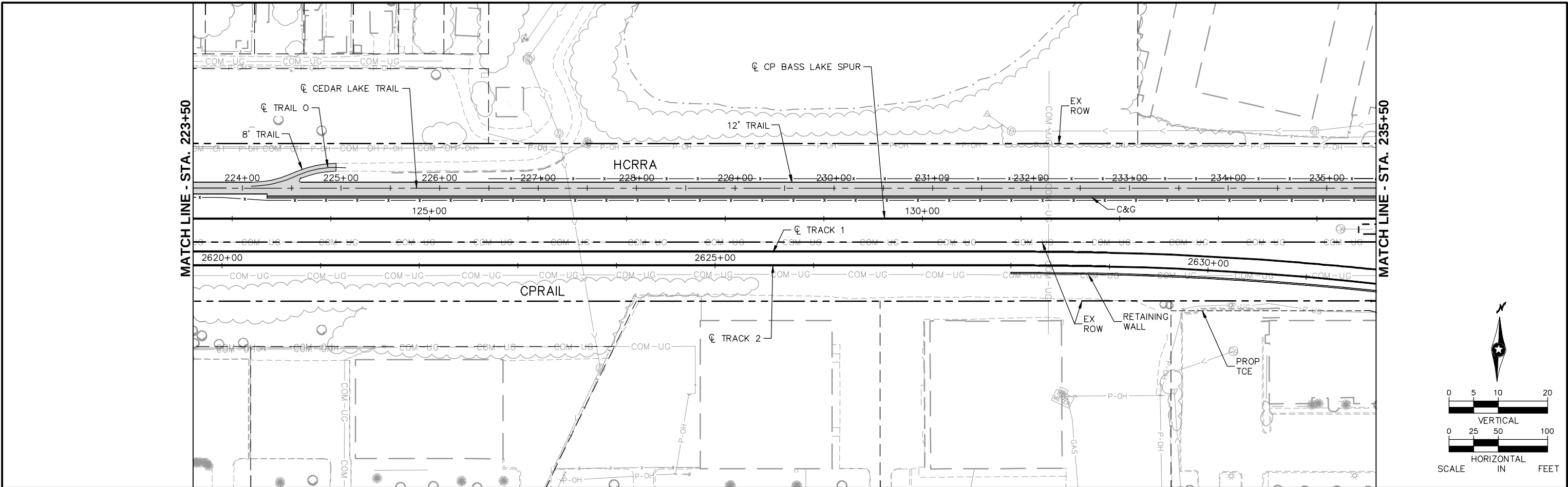
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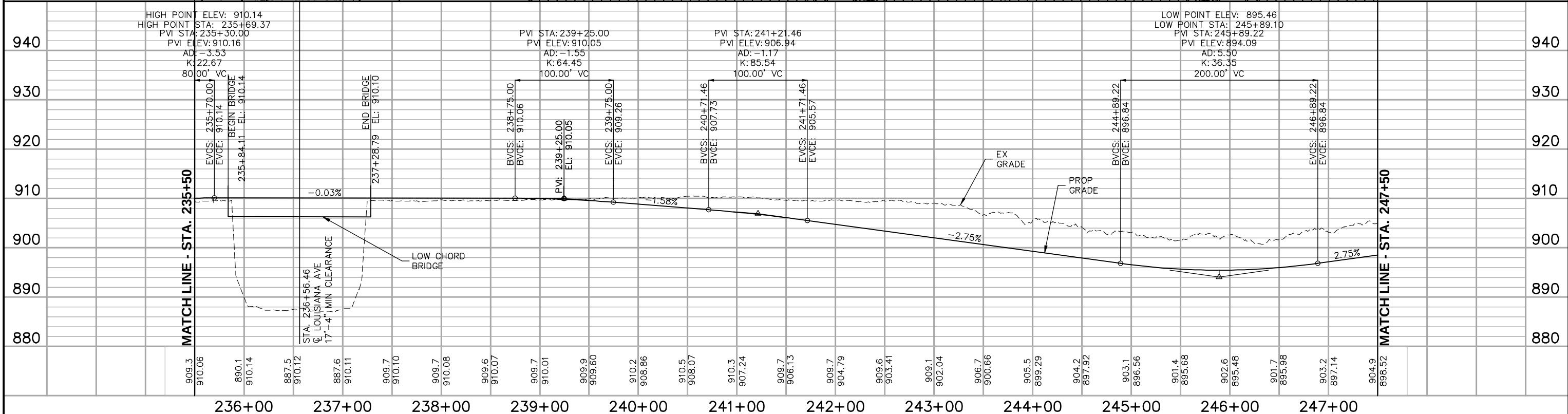
NO.						202+00 203+00 204+00 205+00 206+00 207+00 208+00 209+00 210+00 211+00										EAST - VOLUME 1 (CIVIL) - SEGMENT 2 CEDAR LAKE TRAIL PLAN AND PROFILE STA. 201+16.25 TO STA. 211+50						SHEET
DATE																						81
BY																						OF
CHECK																						135
DESIGN																						
REVISION / SUBMITTAL																						



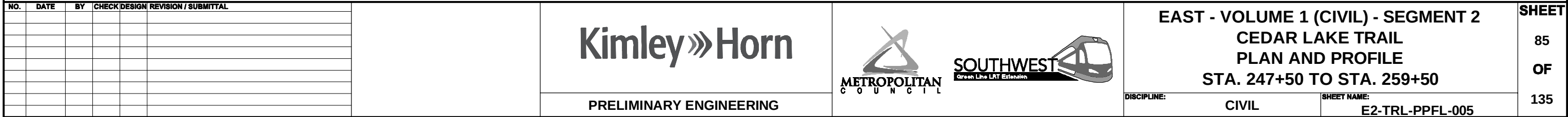
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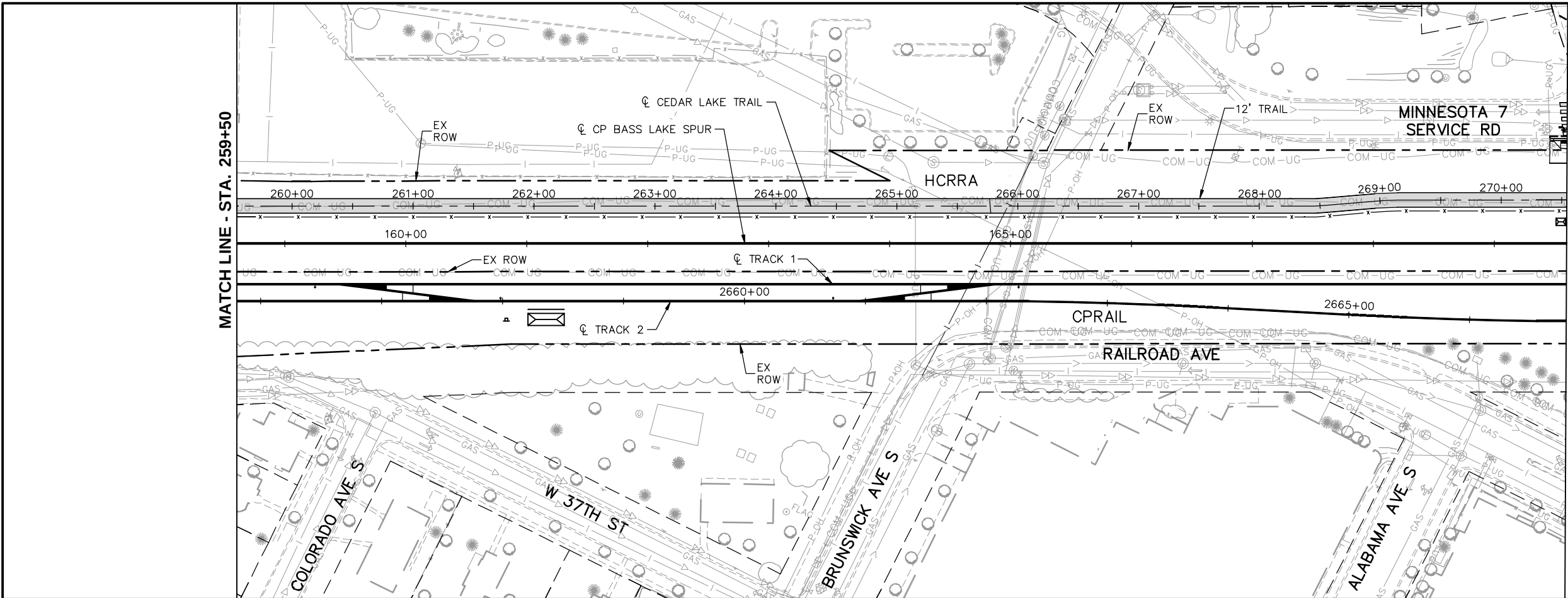
224+00						225+00						226+00						227+00						228+00						229+00						230+00						231+00						232+00						233+00						234+00						235+00					
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	Kimley»Horn PRELIMINARY ENGINEERING												 METROPOLITAN COUNCIL  SOUTHWEST Green Line LRT Extension												EAST - VOLUME 1 (CIVIL) - SEGMENT 2 CEDAR LAKE TRAIL PLAN AND PROFILE STA. 223+50 TO STA. 235+50												SHEET																													
																														83												OF																													
																																										135																													
																		DISCIPLINE: CIVIL												SHEET NAME: E2-TRL-PPFL-003																																									



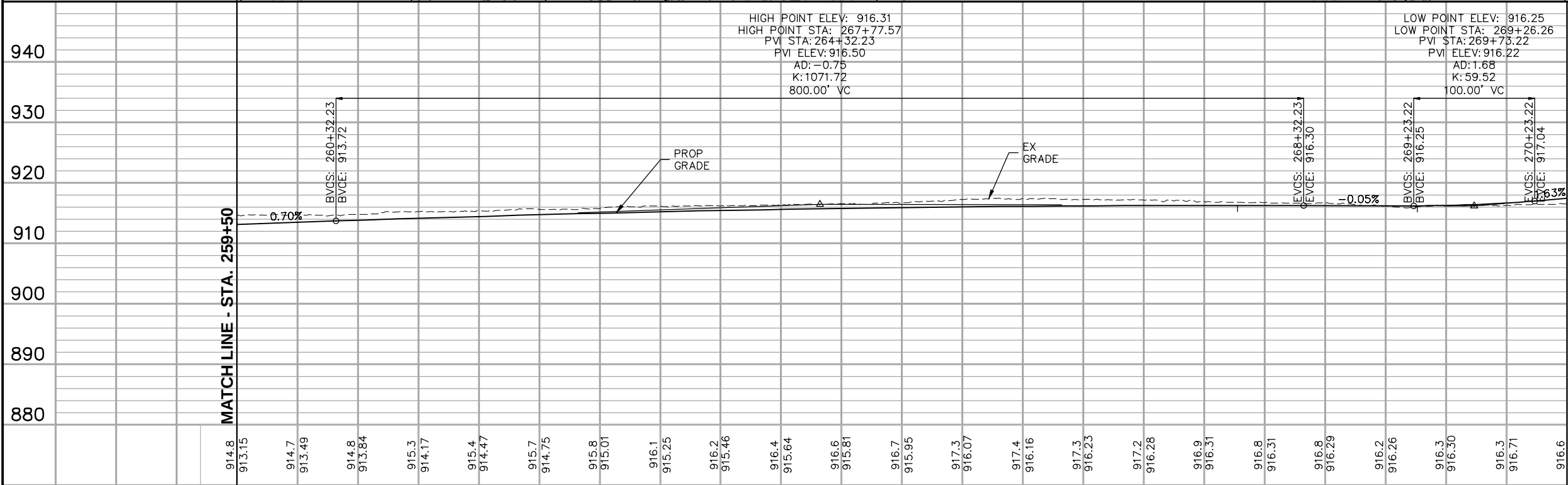
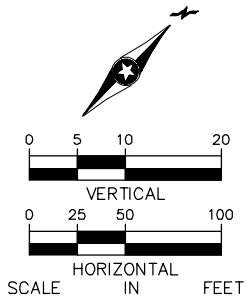
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 PRELIMINARY ENGINEERING		EAST - VOLUME 1 (CIVIL) - SEGMENT 2 CEDAR LAKE TRAIL PLAN AND PROFILE STA. 235+50 TO STA. 247+50		SHEET 84 OF 135
						PRELIMINARY ENGINEERING	DISCIPLINE: CIVIL SHEET NAME: E2-TRL-PPFL-004			



Aug. 29 2014 08:18 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\CIVIL\E2-TRL-PPFL.dwg By: tracyfosmo

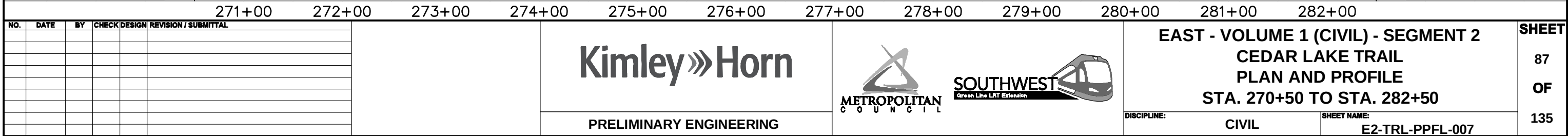


MATCH LINE - STA. 270+50



MATCH LINE - STA. 270+50

						260+00 261+00 262+00 263+00 264+00 265+00 266+00 267+00 268+00 269+00 270+00																			
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	Kimley»Horn PRELIMINARY ENGINEERING						METROPOLITAN C O U N C I L SOUTHWEST Green Line LRT Extension						EAST - VOLUME 1 (CIVIL) - SEGMENT 2 CEDAR LAKE TRAIL PLAN AND PROFILE STA. 259+50 TO STA. 270+50 DISCIPLINE: CIVIL SHEET NAME: E2-TRL-PPFL-006						SHEET 86 OF 135	

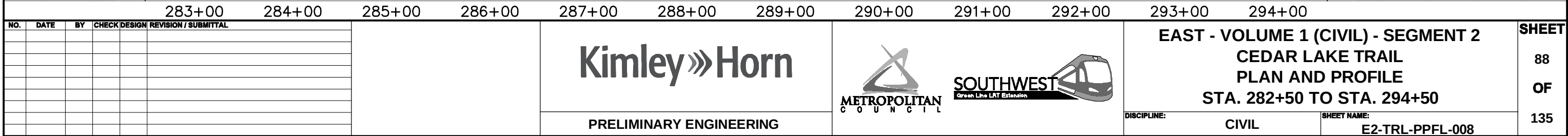


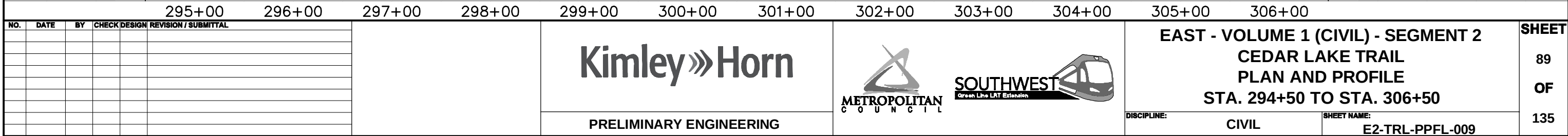
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
CEDAR LAKE TRAIL
PLAN AND PROFILE
STA. 270+50 TO STA. 282+50

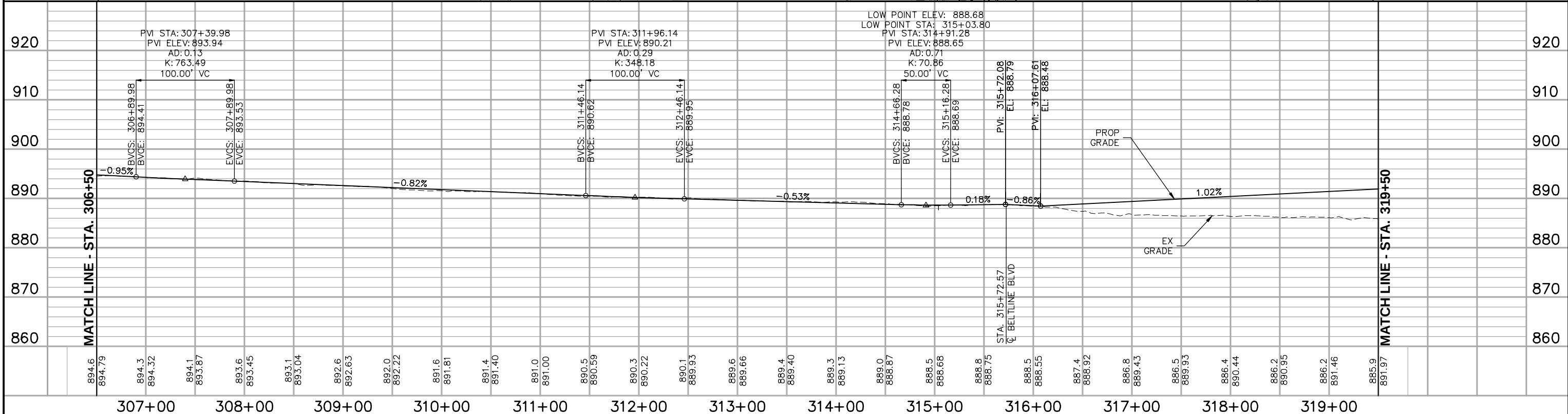
DISCIPLINE:	CIVIL
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SHEET NAME:	E2-TRL-PPFL-007
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SHEET
87
OF
135

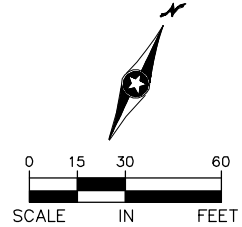
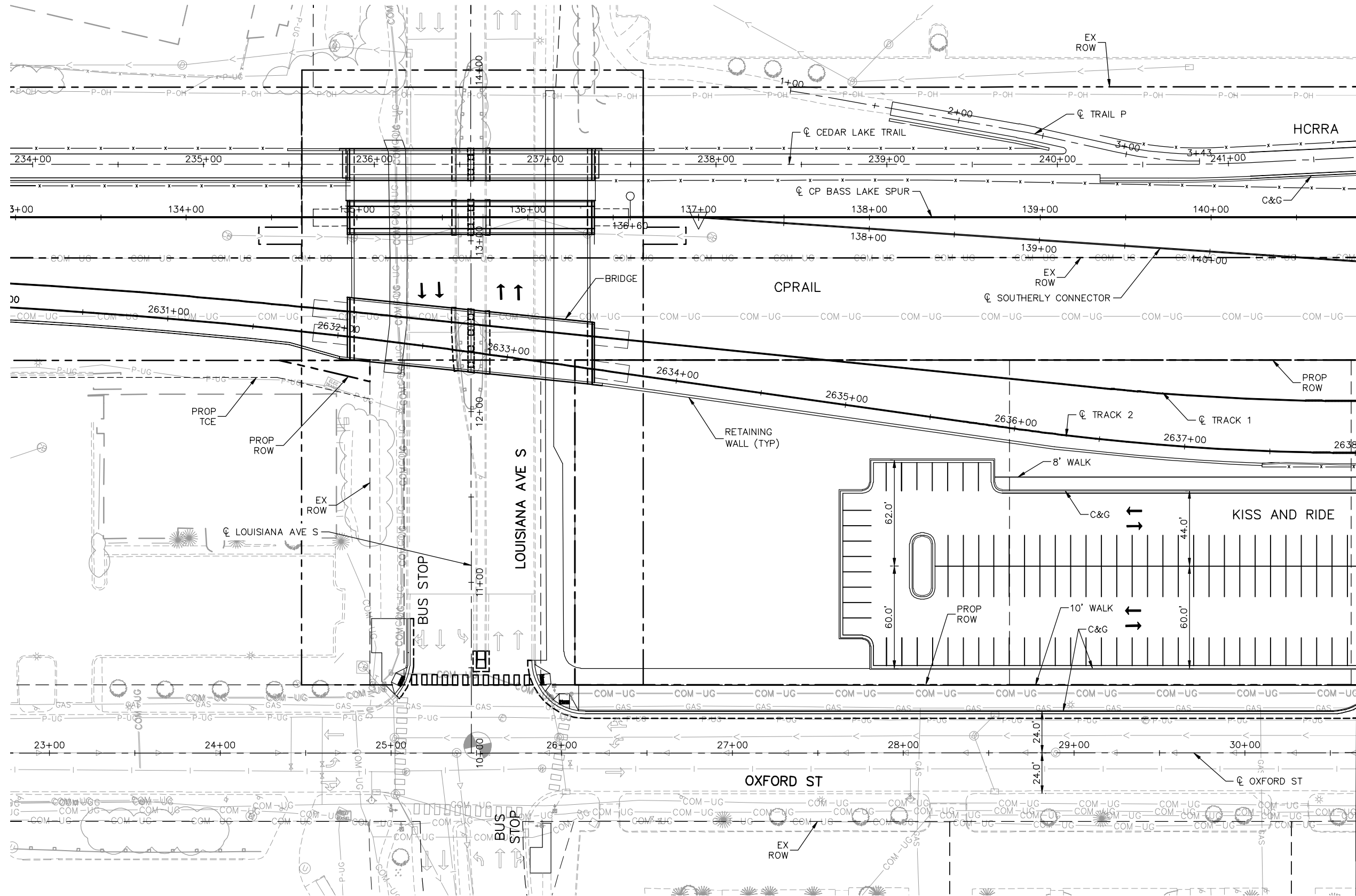






NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	 PRELIMINARY ENGINEERING		EAST - VOLUME 1 (CIVIL) - SEGMENT 2 CEDAR LAKE TRAIL PLAN AND PROFILE STA. 306+50 TO STA. 319+50		SHEET 90 OF 135
								DISCIPLINE: CIVIL	SHEET NAME: E2-TRL-PPFL-010	

Aug. 29 2014 08:25 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\CIVIL\E2-CIV-PLN.dwg By: tracy.fosmo



MATCH LINE - STA. 2638+00

NOTE:
225 REQUIRED PARKING STALLS
226 PROVIDED PARKING STALLS

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 2

LOUISIANA STATION

SITE PLAN

DISCIPLINE: CIVIL

SHEET NAME: E2-CIV-PLN-001

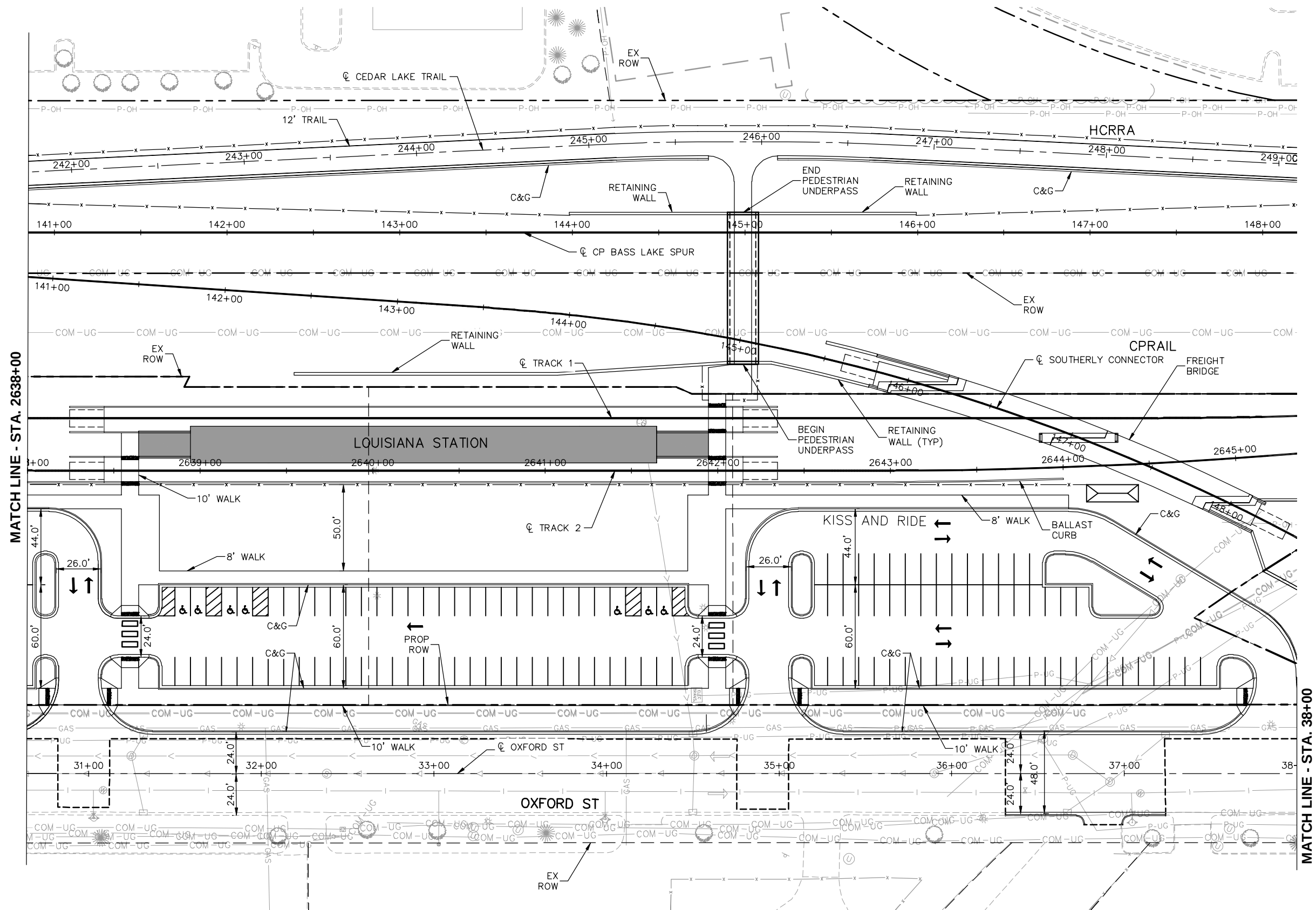
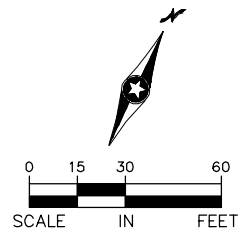
SHEET

92

OF

135

Aug. 29 2014 08:26 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\CIVIL\E2-CIV-PLN.dwg By: tracy.fosmo



NOTE:
225 REQUIRED PARKING STALLS
226 PROVIDED PARKING STALLS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING



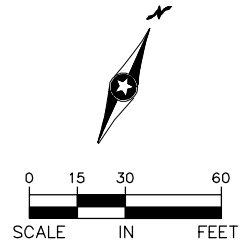
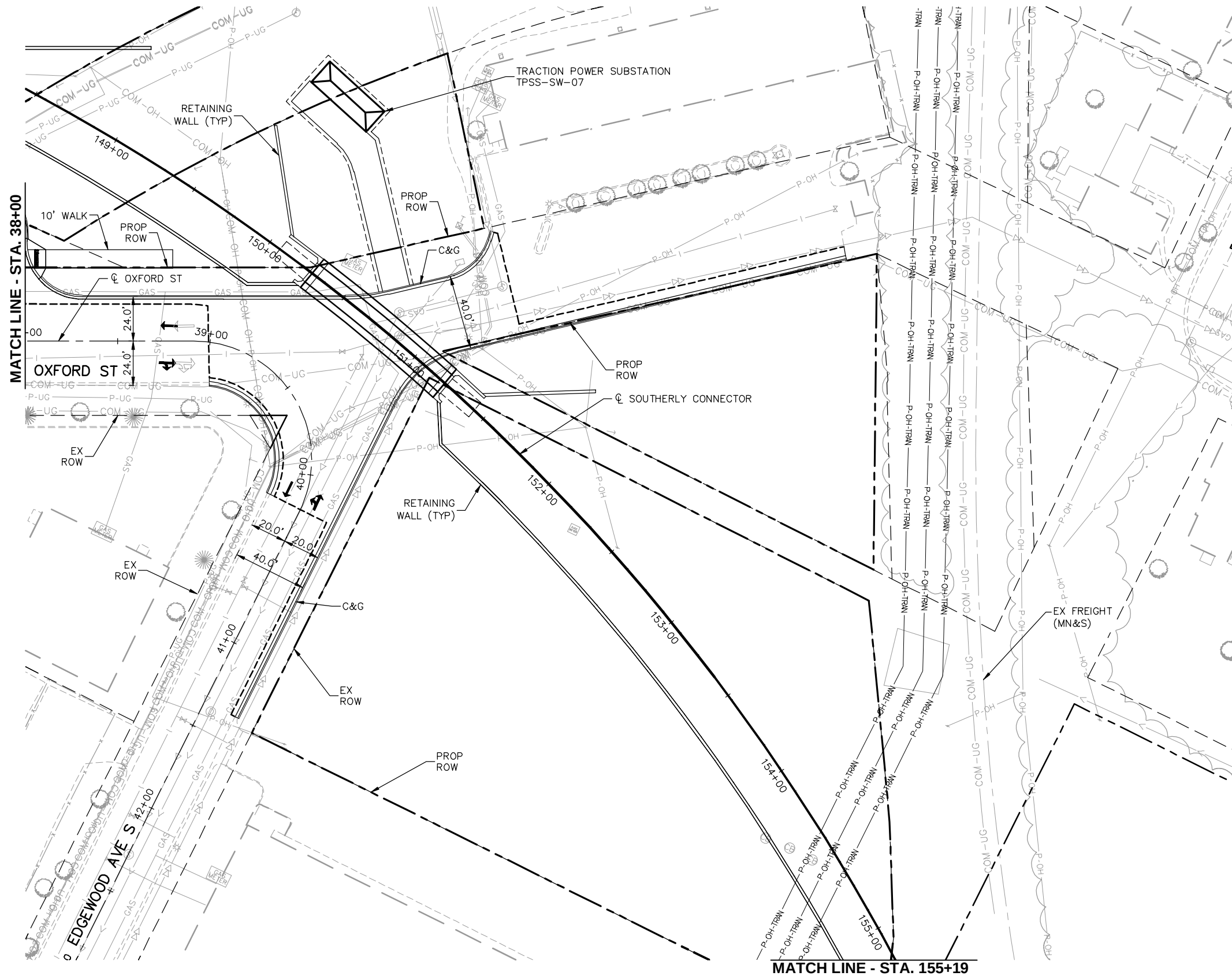
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
LOUISIANA STATION
SITE PLAN

DISCIPLINE: CIVIL

SHEET NAME: E2-CIV-PLN-002

SHEET
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OF
135

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2

LOUISIANA STATION

SITE PLAN

DISCIPLINE: **CIVIL**

SHEET NAME: **E2-CIV-PLN-003**

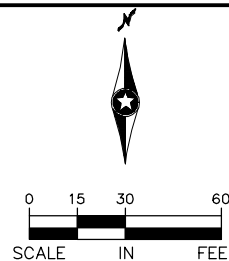
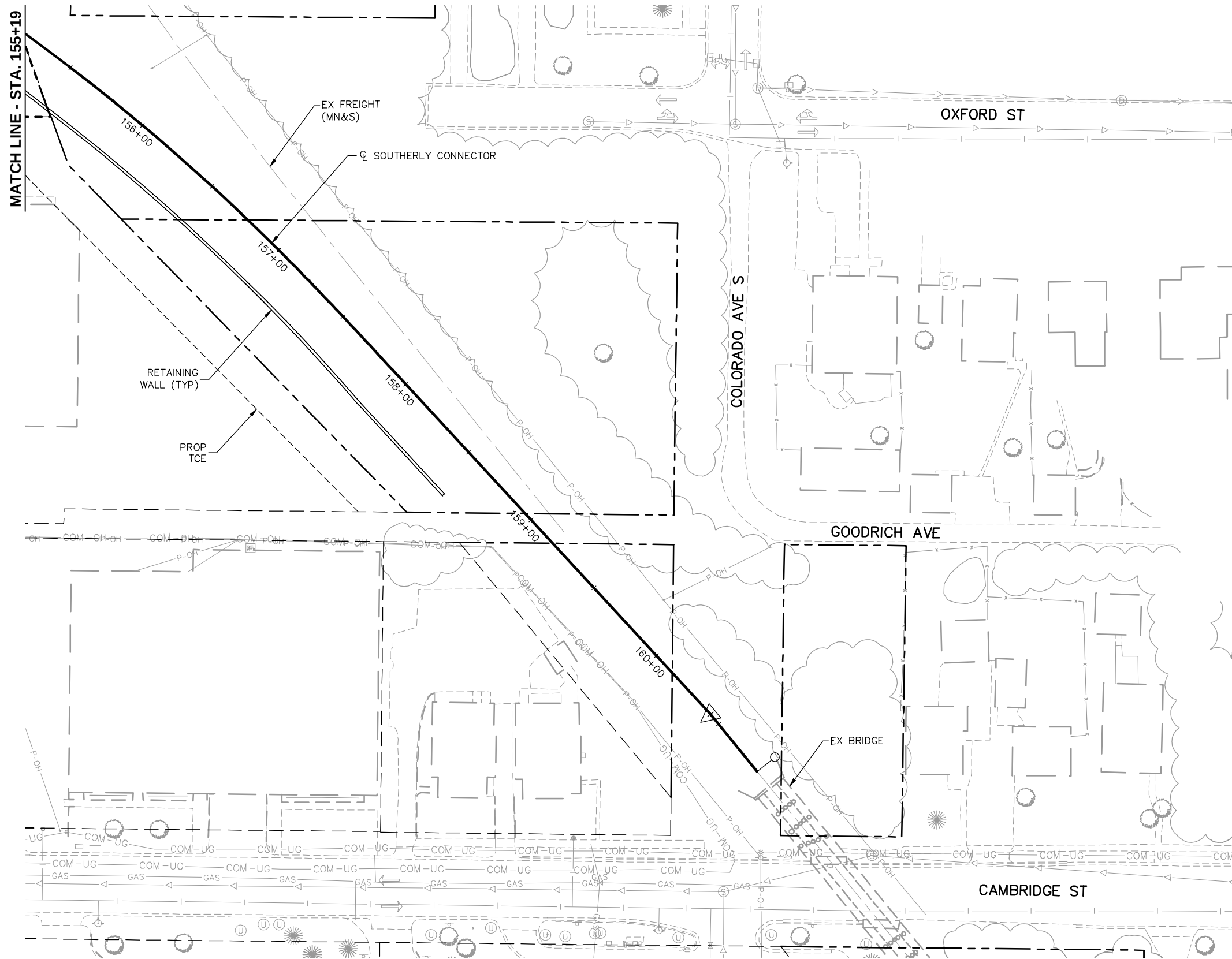
SHEET

94

OF

135

Aug. 29 2014 08:28 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\CIVIL\E2-CIV-PLN.dwg By: tracy.fosmo



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING



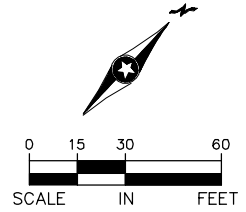
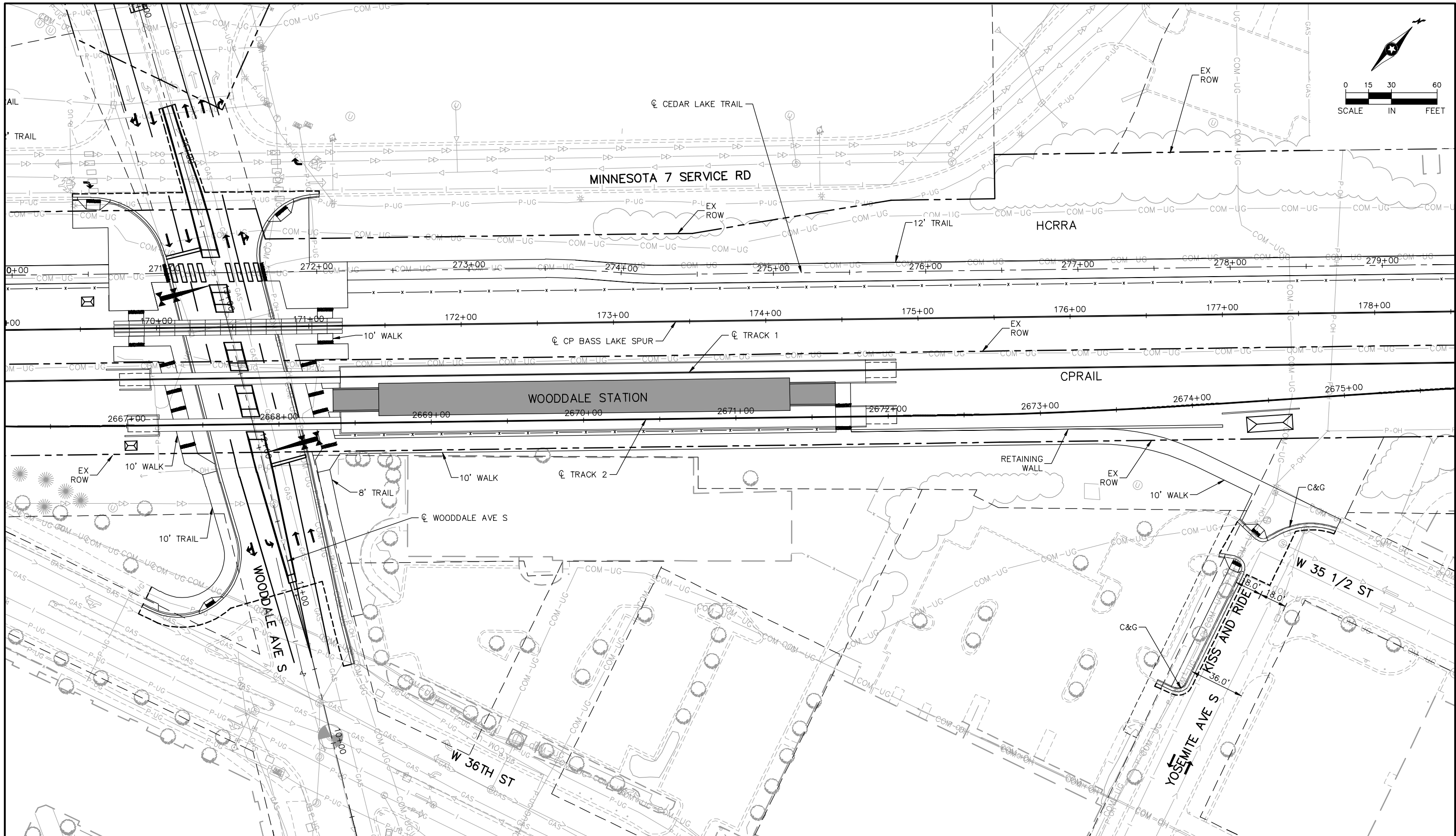
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
LOUISIANA STATION
SITE PLAN

DISCIPLINE: CIVIL

SHEET NAME: E2-CIV-PLN - 004

SHEET
95
OF
135

Aug. 29 2014 08:28 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\CIVIL\E2-CIV-PLN.dwg By: tracy.fosmo



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





PRELIMINARY ENGINEERING

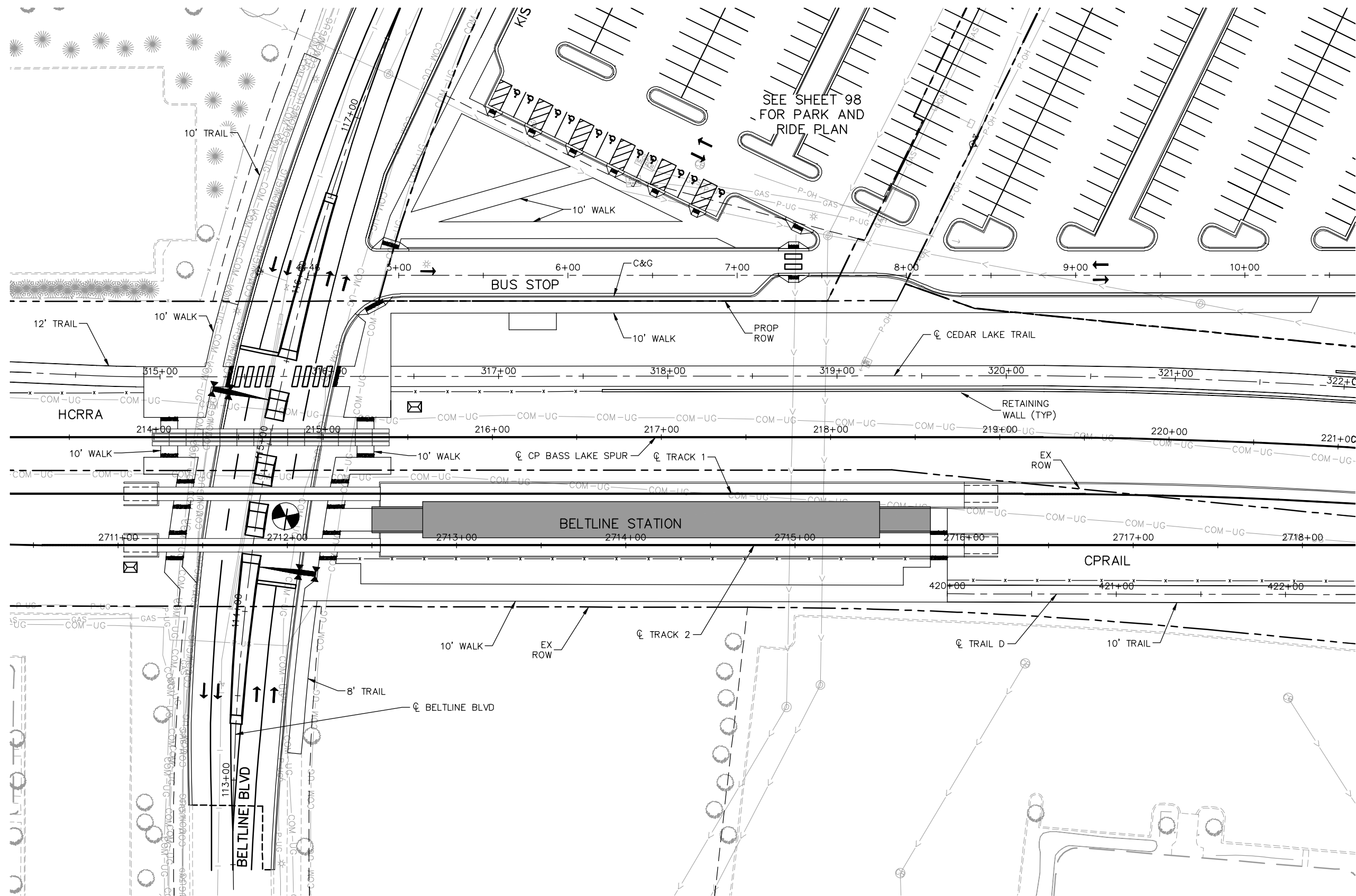


EAST - VOLUME 1 (CIVIL) - SEGMENT 2
WOODDALE STATION
SITE PLAN

DISCIPLINE: CIVIL

SHEET NAME: E2-CIV-PLN - 005

SHEET 96 OF 135

[illegible]

PRELIMINARY ENGINEERING



DISCIPLINE: **CIVIL**

SHEET NAME:	E2-CIV-PLN - 006
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SHEET
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OF
135

[illegible]

PRELIMINARY ENGINEERING



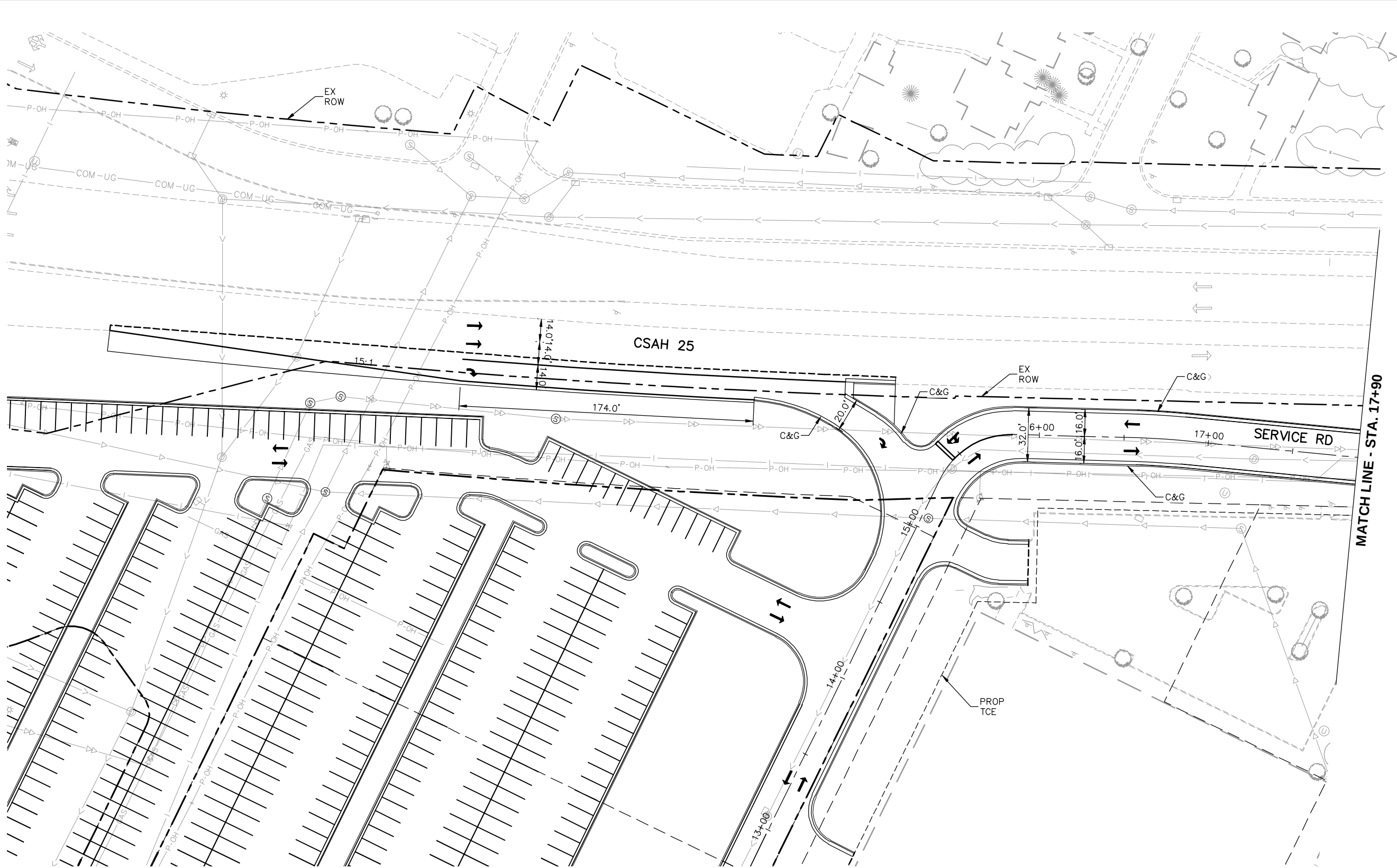
**EAST - VOLUME 1 (CIVIL) - SEGMENT 2
BELTLINE STATION
PARK AND RIDE SITE PLAN**

DISCIPLINE: **CIVIL**

SHEET NAME:	E2-CIV-PLN - 007
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SHEET
98
OF
135

Aug. 29 2014 08:31 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\CIVIL\E2-CIV-PLN.dwg By: tracy.fozmo



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





PRELIMINARY ENGINEERING



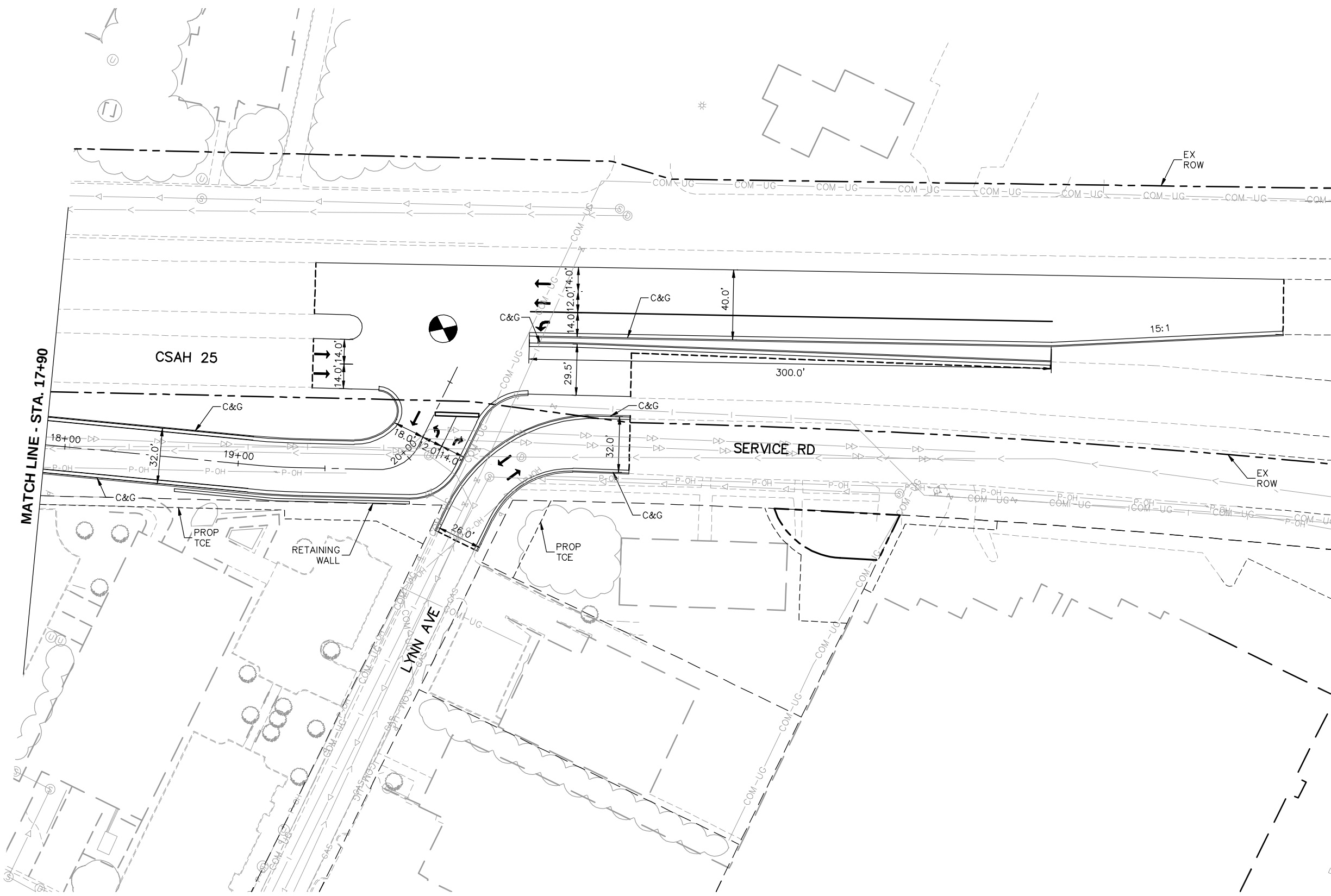
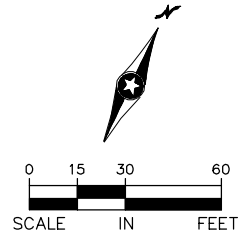
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
BELTLINE STATION
SERVICE ROAD

DISCIPLINE: **CIVIL**

SHEET NAME: **E2-CIV-PLN - 008**

SHEET
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OF
135

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2

BELTLINE STATION

SERVICE ROAD

DISCIPLINE: **CIVIL**

SHEET NAME: **E2-CIV-PLN - 009**

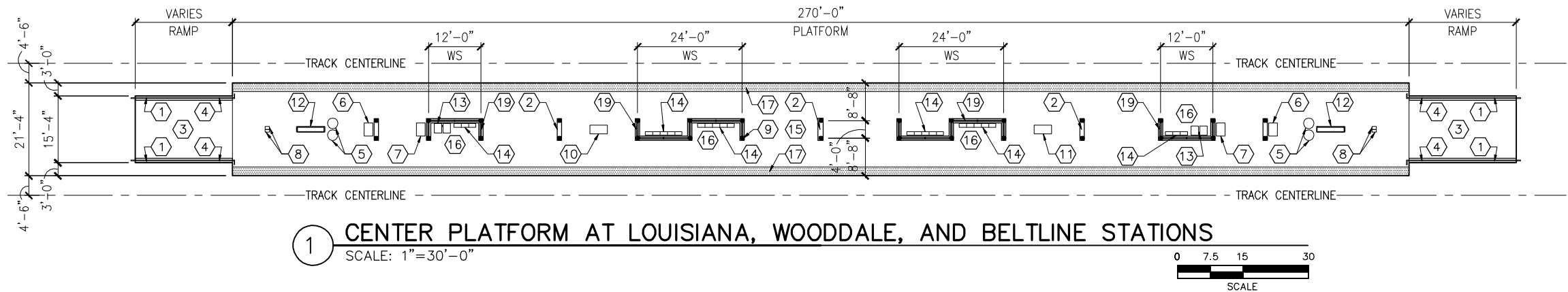
SHEET

100

OF

135

Aug. 29 2014 08:32 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\ARCH\E2-ARC-PLN-1.dwg By: tracy.fosmo



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

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



Kimley»Horn

millerdunwiddie

ARCHITECTURE

PRELIMINARY ENGINEERING

EAST - VOLUME 1 (CIVIL) - SEGMENT 2

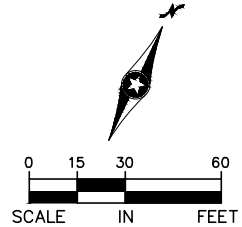
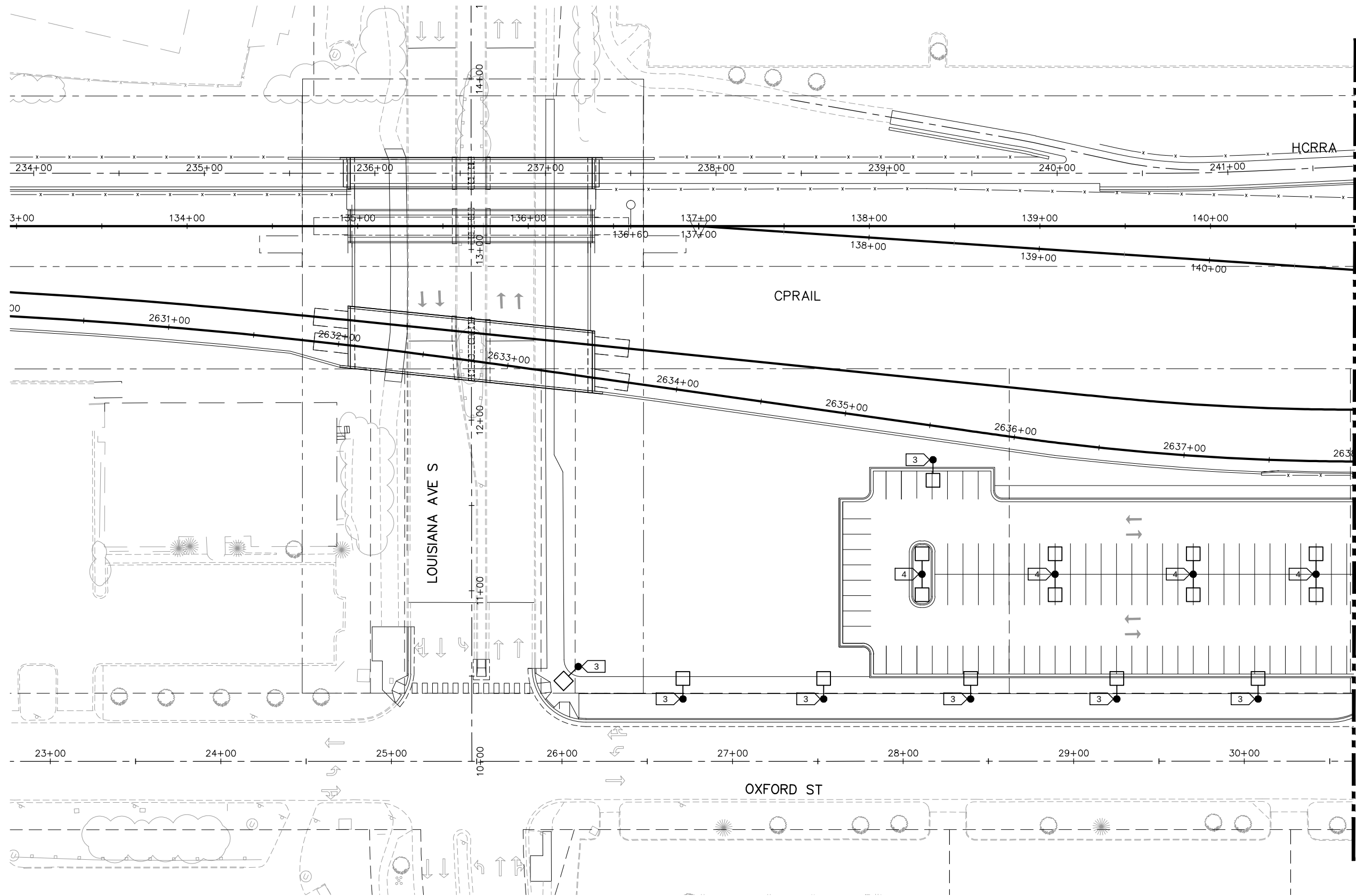
PLATFORM LAYOUTS

LOUISIANA, WOODDALE, AND BELTLINE STATIONS

DISCIPLINE: ARCHITECTURE

SHEET NAME: E2-ARC-PLN-1

Aug. 28 2014 02:51 pm v:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\ELECTRICAL\E2-ELE-PLN.dwg By: Fergtk



- KEYNOTES:
1. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 2 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 5,858 LUMENS, MOUNTED @ 20'.
 2. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 15,529 LUMENS, MOUNTED @ 20'.
 3. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 8,478 LUMENS, MOUNTED @ 20'.
 4. DOUBLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 15,529 LUMENS EACH, 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



SOUTHWEST
Green Line LRT Extension



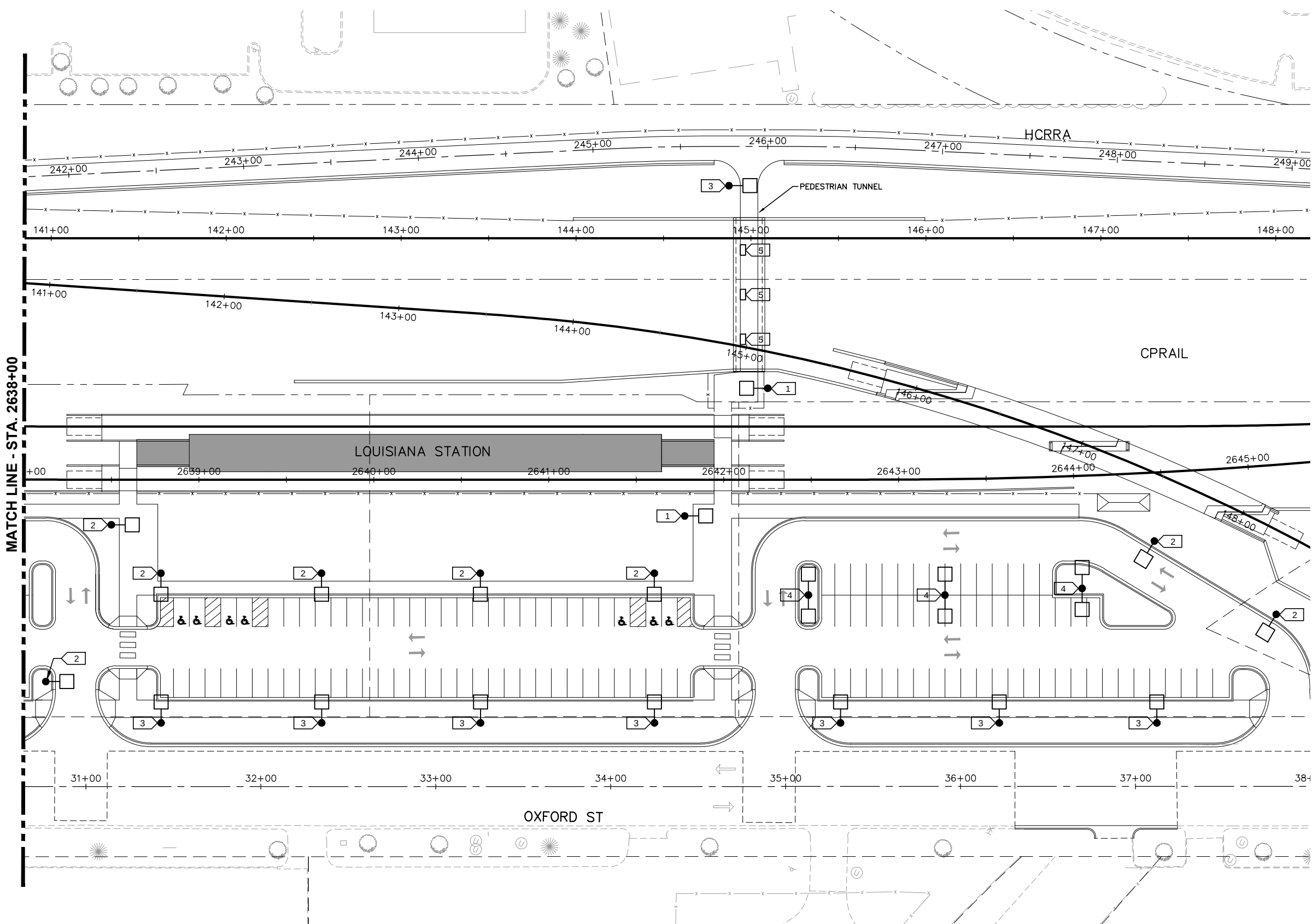
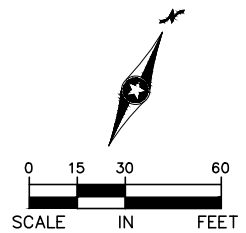
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
ELECTRICAL SITE PLAN
LOUISIANA SITE 1 OF 2

DISCIPLINE: **ELECTRICAL**

SHEET NAME: **E2-ELE-PLN - 001**

SHEET
102
OF
135

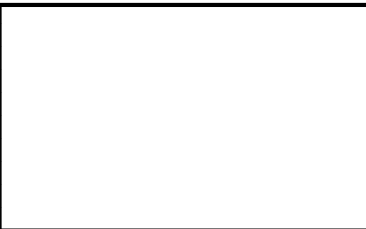
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- KEYNOTES:
- 1. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 2 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 5,858 LUMENS, MOUNTED @ 20'.
 - 2. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 15,529 LUMENS, MOUNTED @ 20'.
 - 3. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 8,478 LUMENS, MOUNTED @ 20'.
 - 4. DOUBLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 15,529 LUMENS EACH, MOUNTED @ 20'.
 - 5. WALL MOUNTED LUMINAIRE, LED, 4000K COLOR TEMPERATURE, 3,500 LUMENS, MOUNTED @ 9'.

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

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PRELIMINARY ENGINEERING



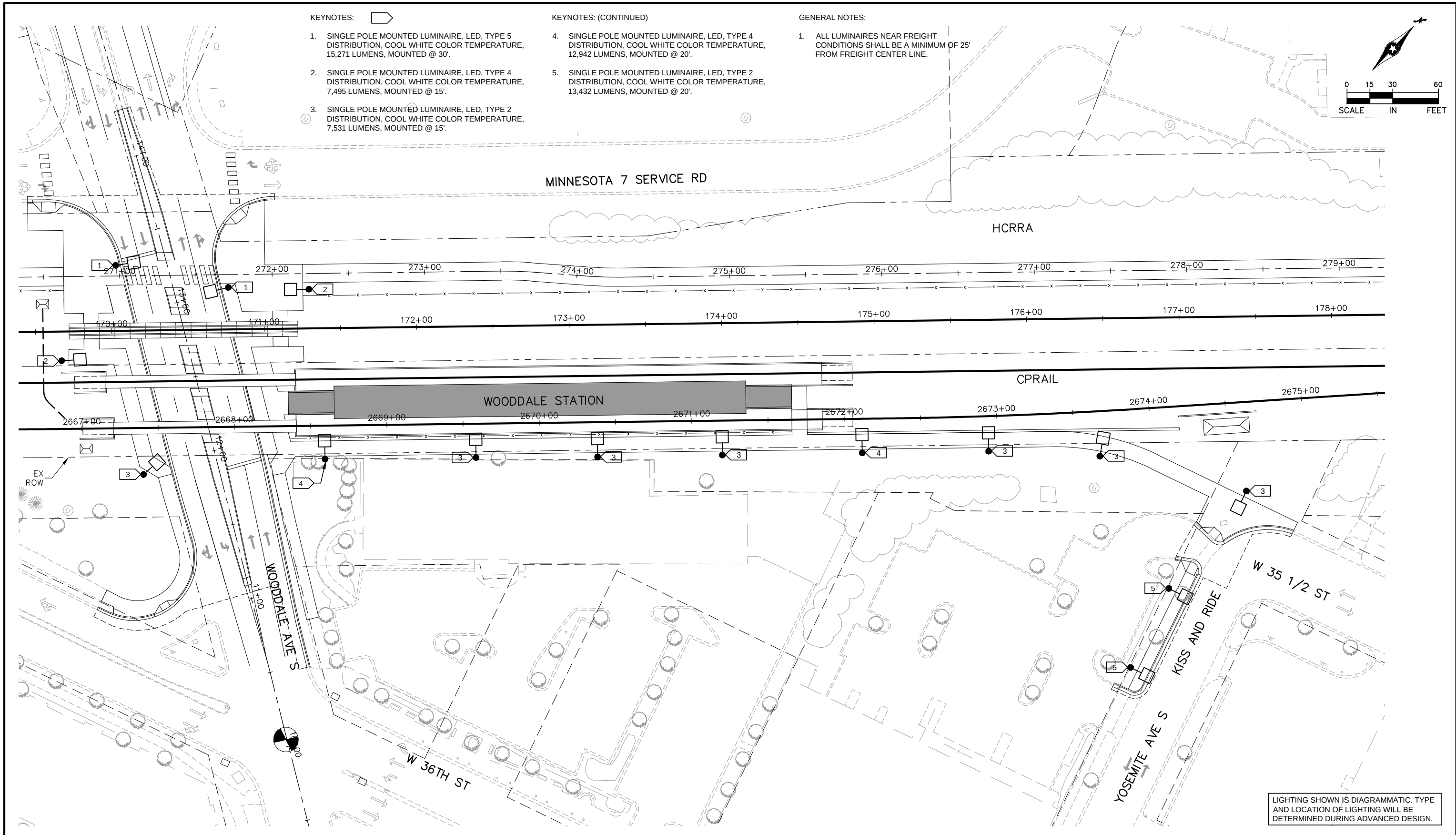
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
ELECTRICAL SITE PLAN
LOUISIANA SITE 2 OF 2

DISCIPLINE: **ELECTRICAL**

SHEET NAME: **E2-ELE-PLN - 002**

SHEET
103
OF
135

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PRELIMINARY ENGINEERING

**METROPOLITAN
COUNCIL**

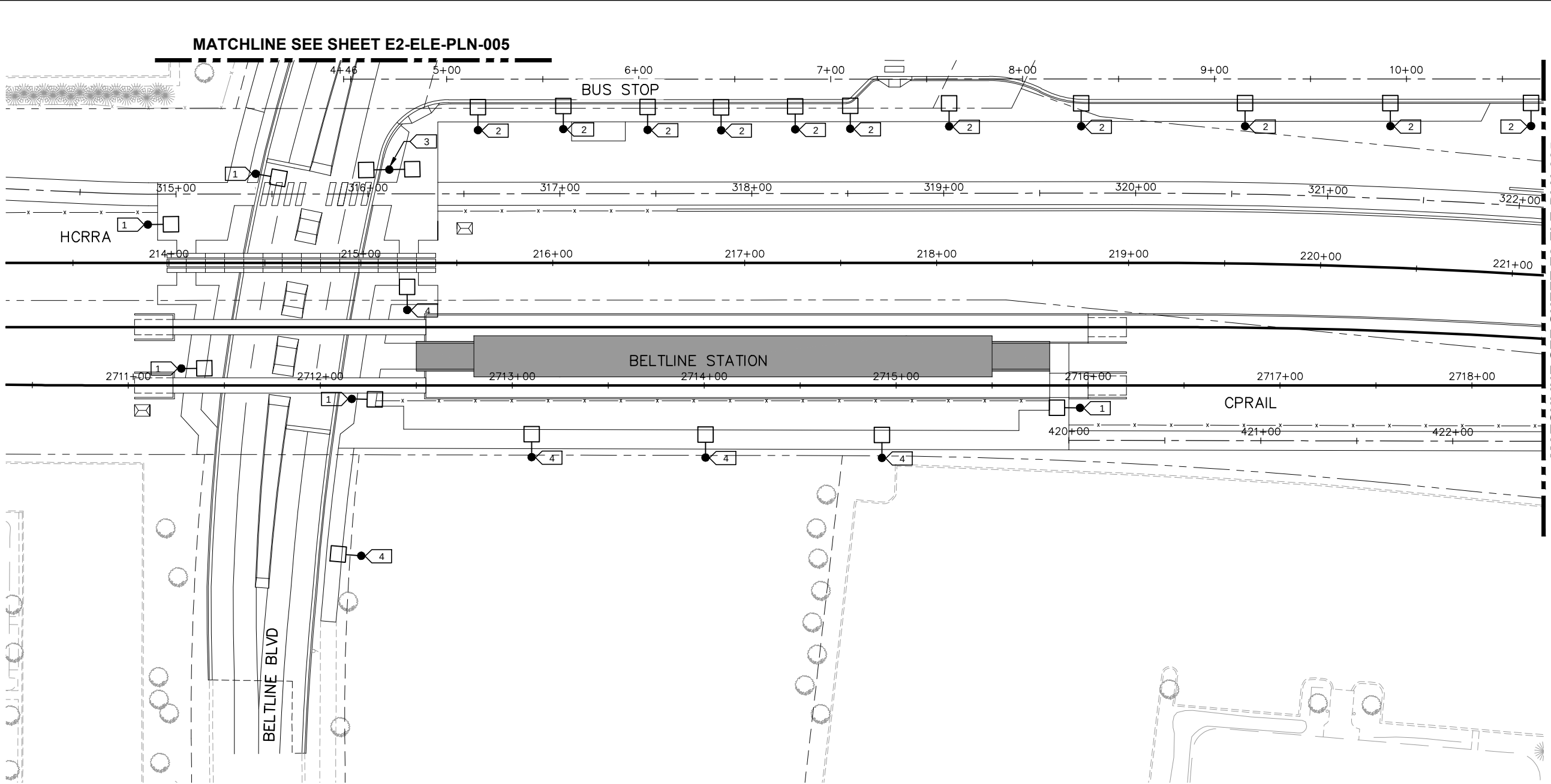
**SOUTHWEST**
Green Line LRT Extension

**EAST - VOLUME 1 (CIVIL) - SEGMENT 2
ELECTRICAL SITE PLAN
WOODDALE SITE**

DISCIPLINE: **ELECTRICAL**
SHEET NAME: **E2-ELE-PLN - 003**

SHEET
104
OF
135

Aug. 28 2014 02:54 pm V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\ELECTRICAL\E2-ELE-PLN.dwg By: Fergtk

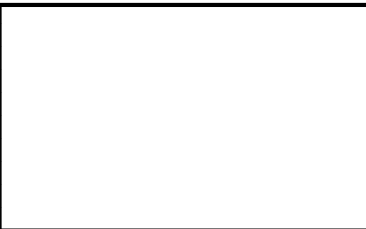


- KEYNOTES:
1. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 12,942 LUMENS, MOUNTED @ 20'.
 2. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 15,529 LUMENS, MOUNTED @ 20'.
 3. DOUBLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 12,942 LUMENS EACH, MOUNTED @ 20'.
 4. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 2 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 7,531 LUMENS, MOUNTED @ 15'.
 5. DOUBLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 15,529 LUMENS EACH, MOUNTED @ 20'.

- GENERAL NOTES:
1. NOT ALL KEYNOTES USED ON THIS SHEET.
 2. ALL LUMINAIRES NEAR FREIGHT CONDITIONS SHALL BE A MINIMUM OF 25' FROM FREIGHT CENTER LINE.

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

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PRELIMINARY ENGINEERING



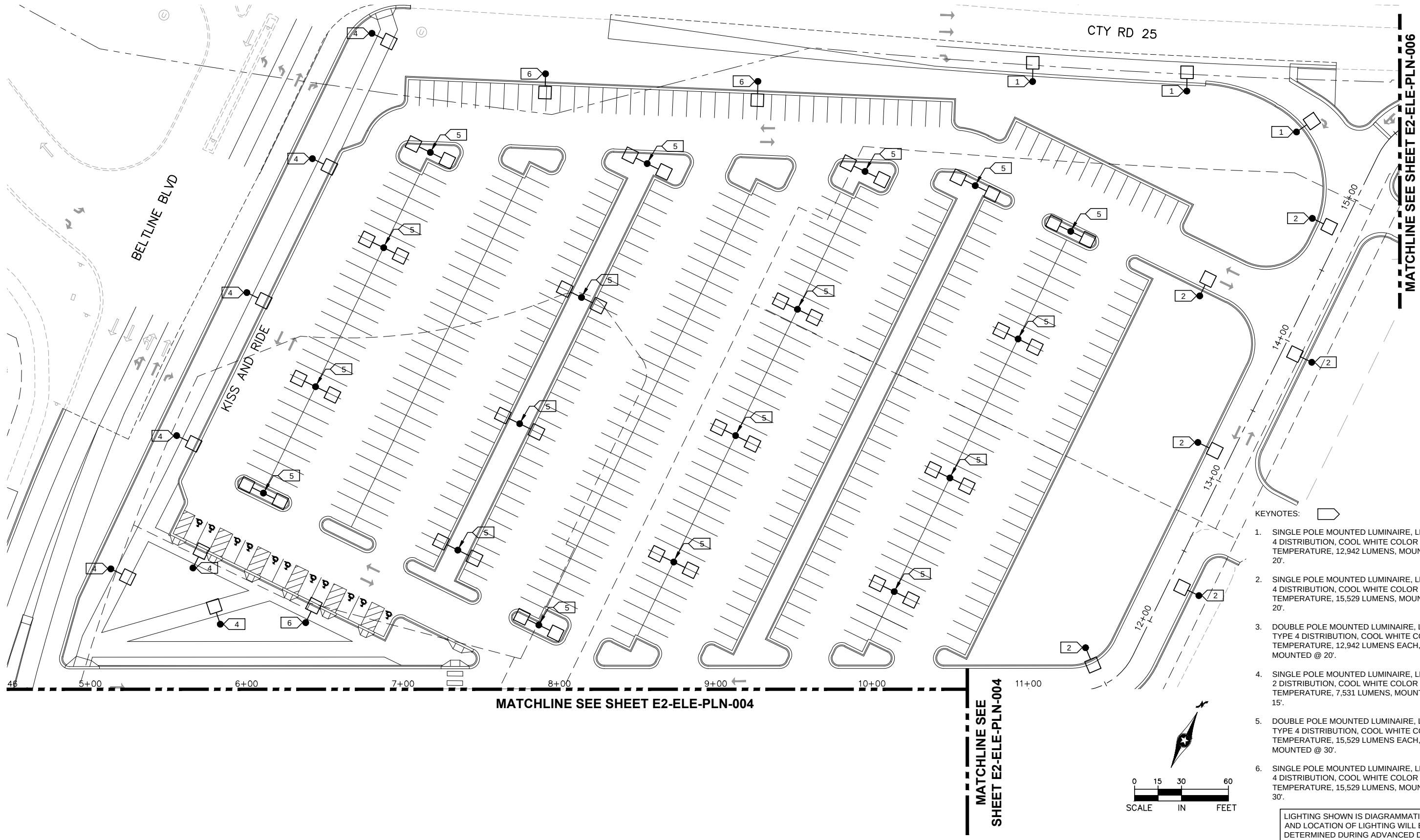
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
ELECTRICAL SITE PLAN
BELTLINE SITE 1 OF 3

DISCIPLINE: **ELECTRICAL**

SHEET NAME: **E2-ELE-PLN - 004**

SHEET
105
OF
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PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2
ELECTRICAL SITE PLAN
BELTLINE SITE 2 OF 3

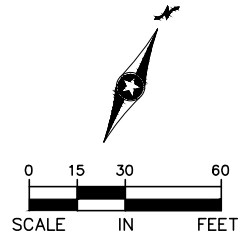
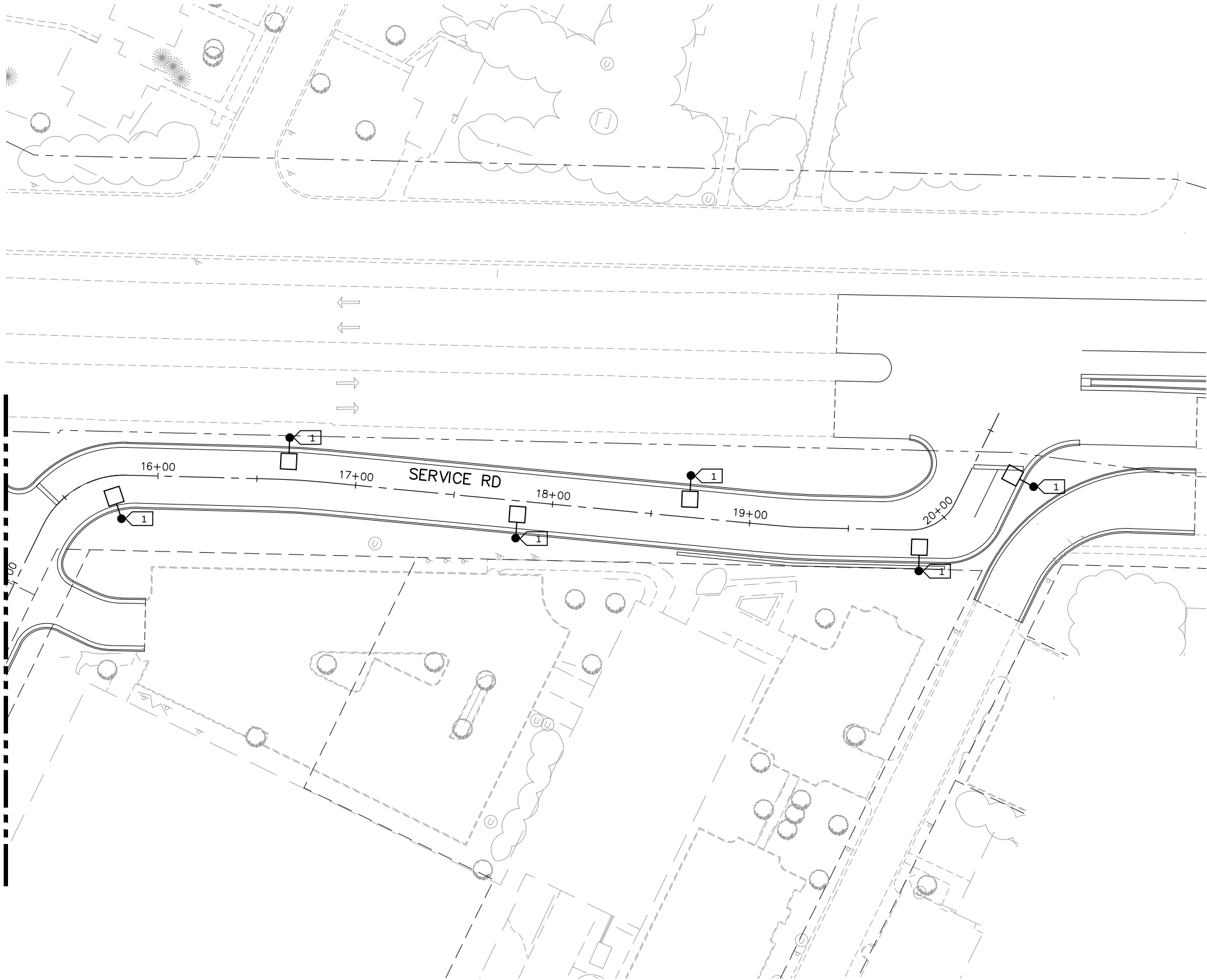
DISCIPLINE: **ELECTRICAL**

SHEET NAME: **E2-ELE-PLN - 005**

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OF
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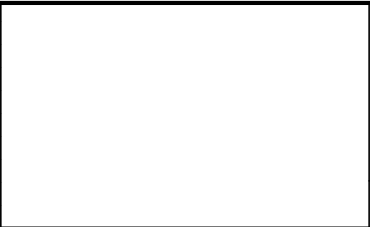
MATCHLINE SEE SHEET E2-ELE-PLN-005



- KEYNOTES: 
1. SINGLE POLE MOUNTED LUMINAIRE, LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 12,942 LUMENS, MOUNTED @ 20'.

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



EAST - VOLUME 1 (CIVIL) - SEGMENT 2
ELECTRICAL SITE PLAN
BELTLINE SITE 3 OF 3

DISCIPLINE: **ELECTRICAL**
SHEET NAME: **E2-ELE-PLN - 006**

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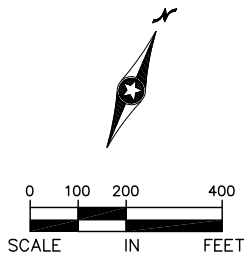
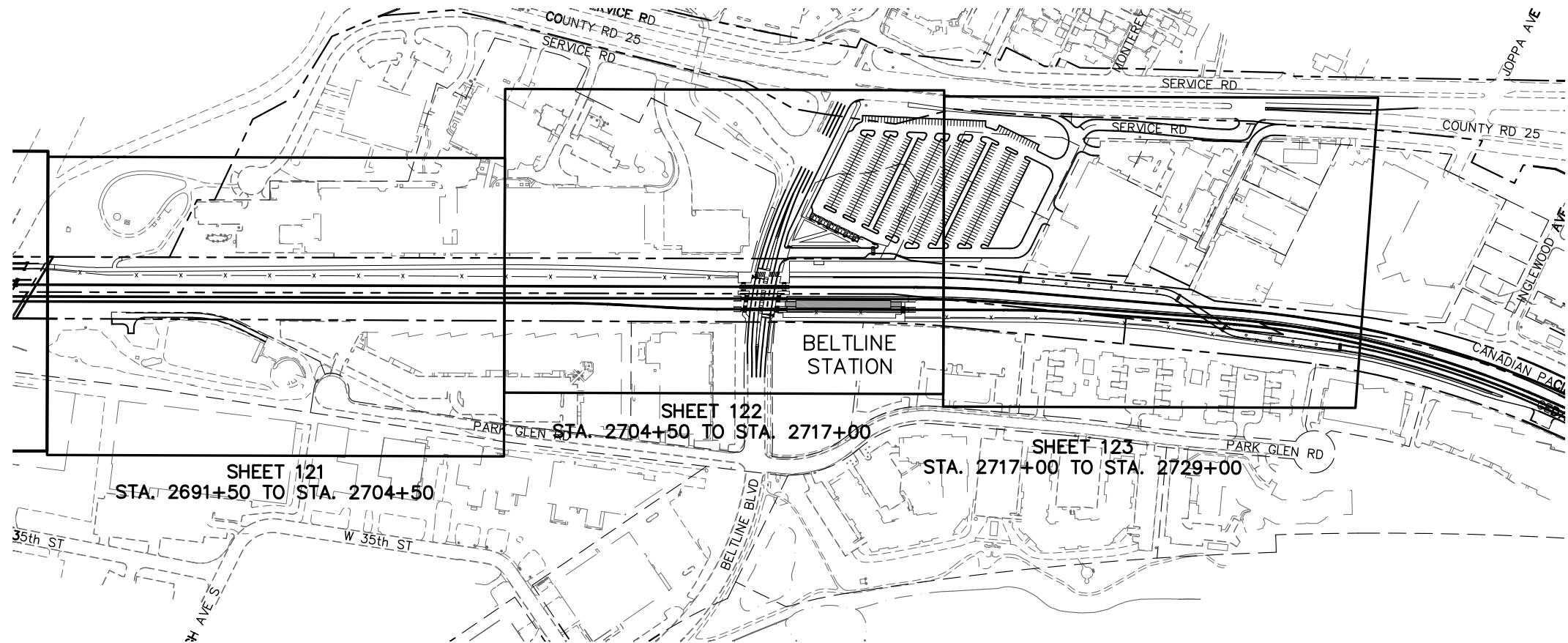
LEGEND						SANITARY AND WATER PLAN CONSTRUCTION NOTES					
PROPOSED UTILITY LINE TYPES			PROPOSED UTILITY SYMBOLS								
I WATER MAIN SANITARY SEWER SANITARY SEWER FORCE MAIN FIBER OPTIC COMMUNICATION			Ⓜ WATER MANHOLE ✕ WATER VALVE ⦿ WATER HYDRANT Ⓢ SANITARY SEWER MANHOLE			① CONNECT TO EXISTING WATER 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					

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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	Kimley»Horn pce PRELIMINARY ENGINEERING			 METROPOLITAN C O U N C I L  SOUTHWEST Green Line LRT Extension			EAST - VOLUME 1 (CIVIL) - SEGMENT 2 UTILITY CONTACTS			SHEET 109 OF 135

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					EAST - VOLUME 1 (CIVIL) - SEGMENT 2 UTILITY PLAN SHEET INDEX		SHEET 110 OF 135
						PRELIMINARY ENGINEERING				DISCIPLINE: UTILITY	SHEET NAME: E2-UTL-IDX-001	

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pce

PRELIMINARY ENGINEERING



METROPOLITAN
COUNCIL



SOUTHWEST
Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 2
UTILITY PLAN
SHEET INDEX

DISCIPLINE: **UTILITY**

SHEET NAME: **E2-UTL-IDX-002**

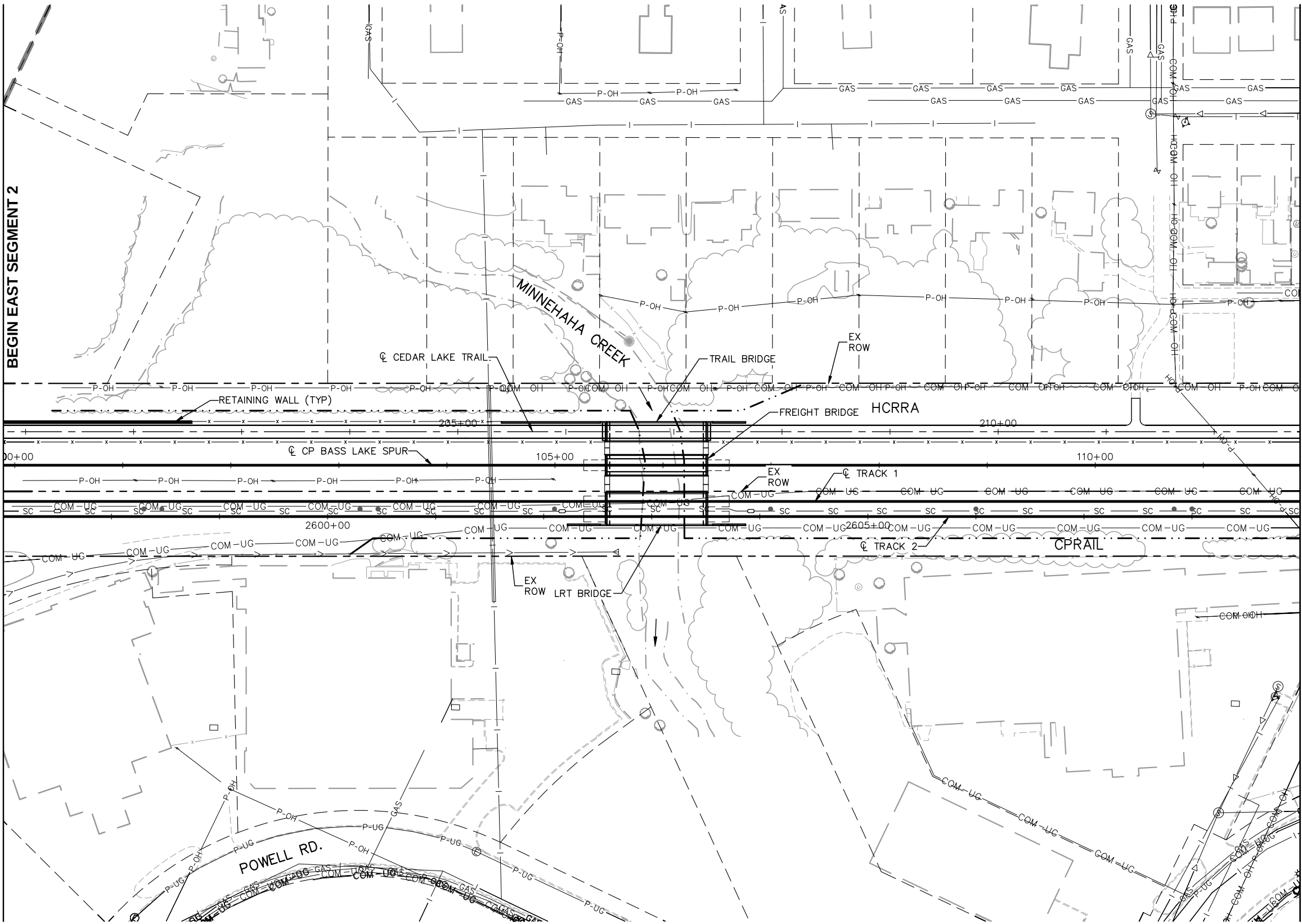
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END EAST SEGMENT 1
BEGIN EAST SEGMENT 2

MATCH LINE - STA. 2597+00

MATCH LINE - STA. 2609+00



NOTES:

- * SEE SHEET E2-UTL-NTS-001 FOR UTILITY LEGEND.
- * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E2-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn
pce

PRELIMINARY ENGINEERING

**METROPOLITAN**
COUNCIL

**SOUTHWEST**
Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 2
UTILITY PLAN

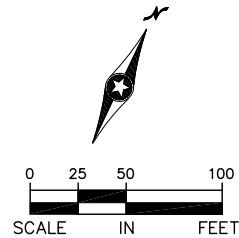
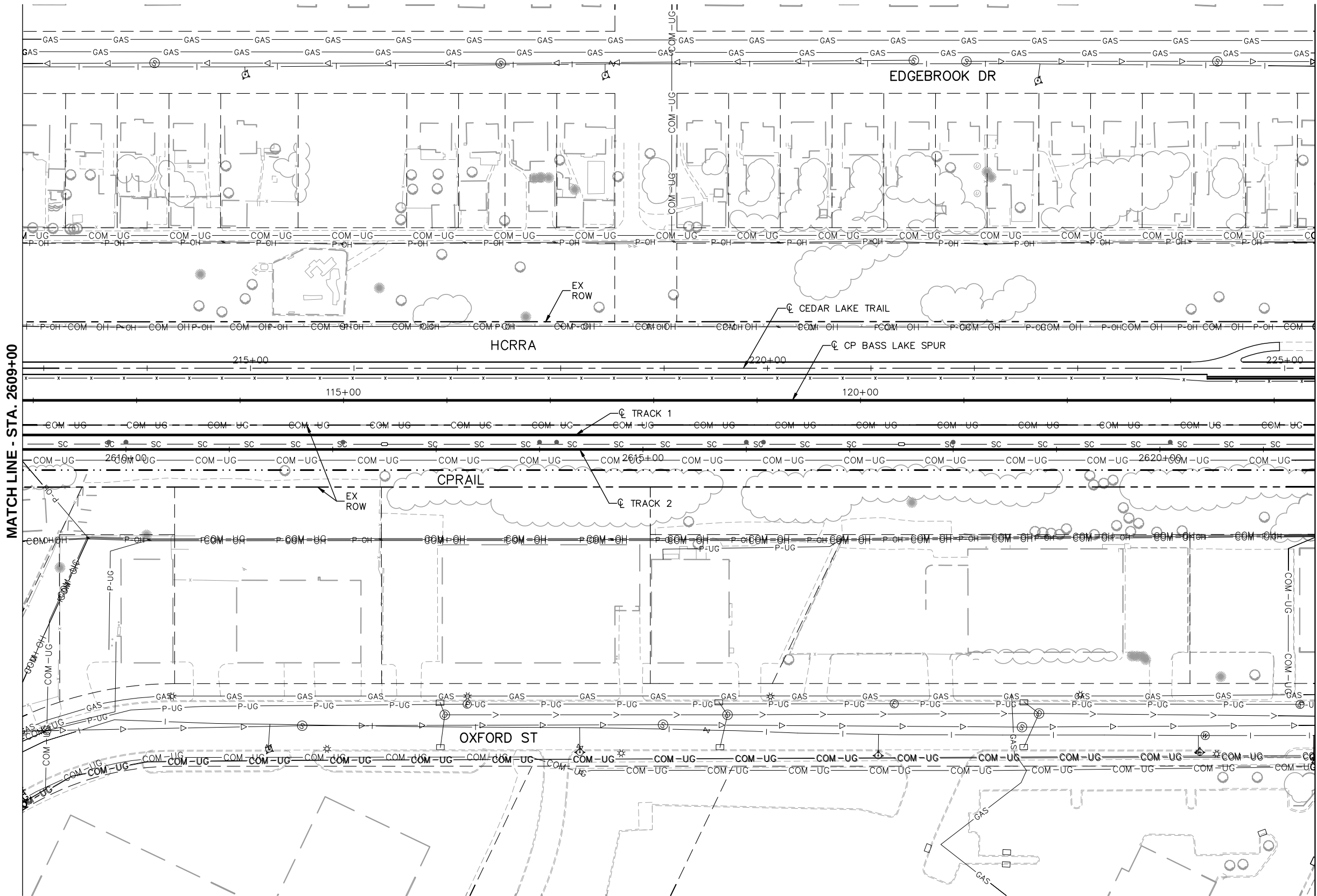
STA. 2597+00 TO STA. 2609+00

DISCIPLINE: **UTILITY**

SHEET NAME: **E2-UTL-PLN-001**

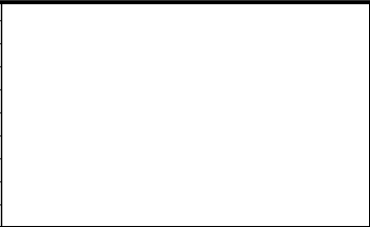
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OF
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- NOTES:
- * SEE SHEET E2-UTL-NTS-001 FOR UTILITY LEGEND.
 - * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E2-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



PRELIMINARY ENGINEERING

EAST - VOLUME 1 (CIVIL) - SEGMENT 2
UTILITY PLAN

STA. 2609+00 TO STA. 2621+50

DISCIPLINE: UTILITY

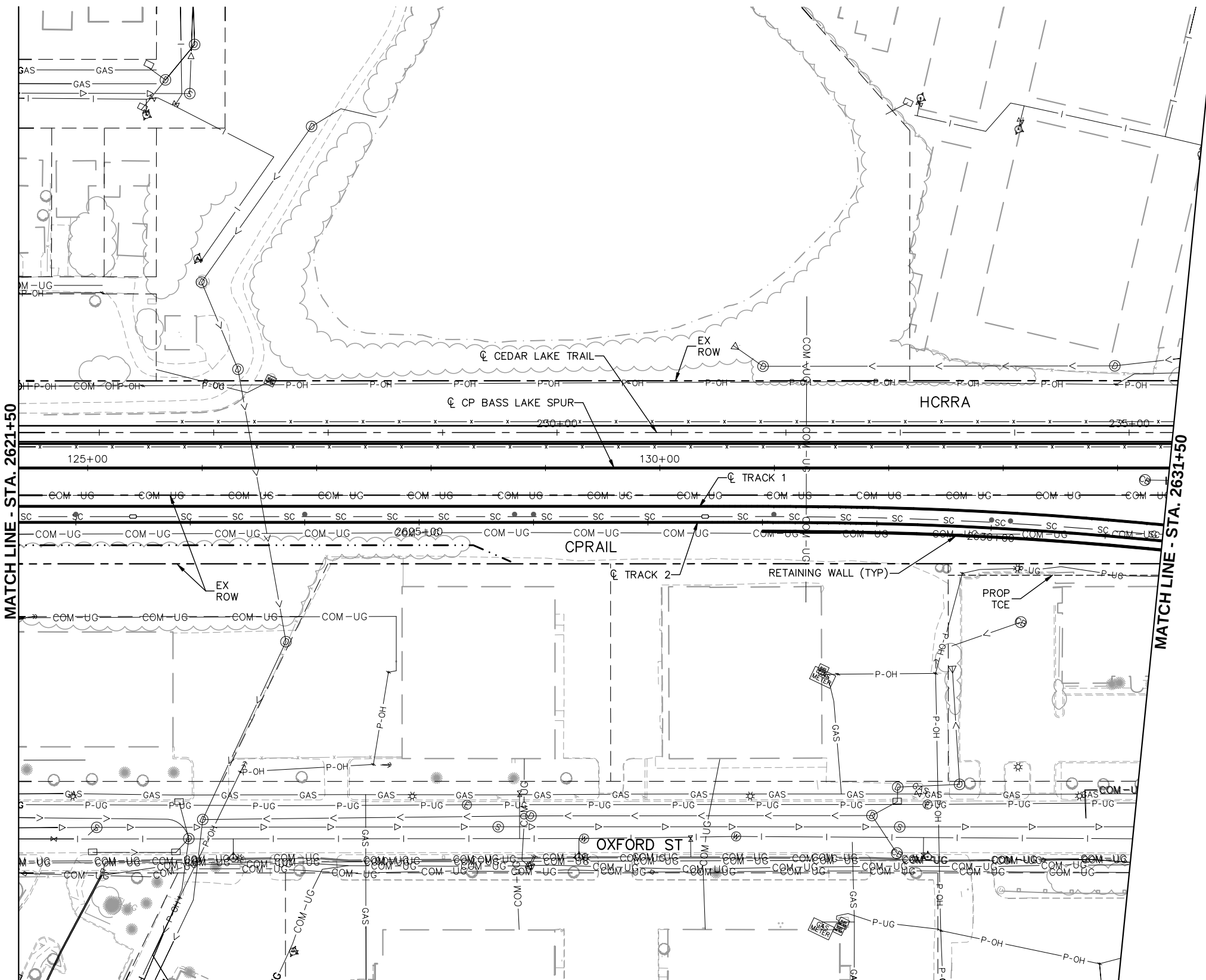
SHEET NAME: E2-UTL-PLN-002

SHEET

113

OF

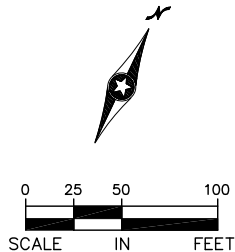
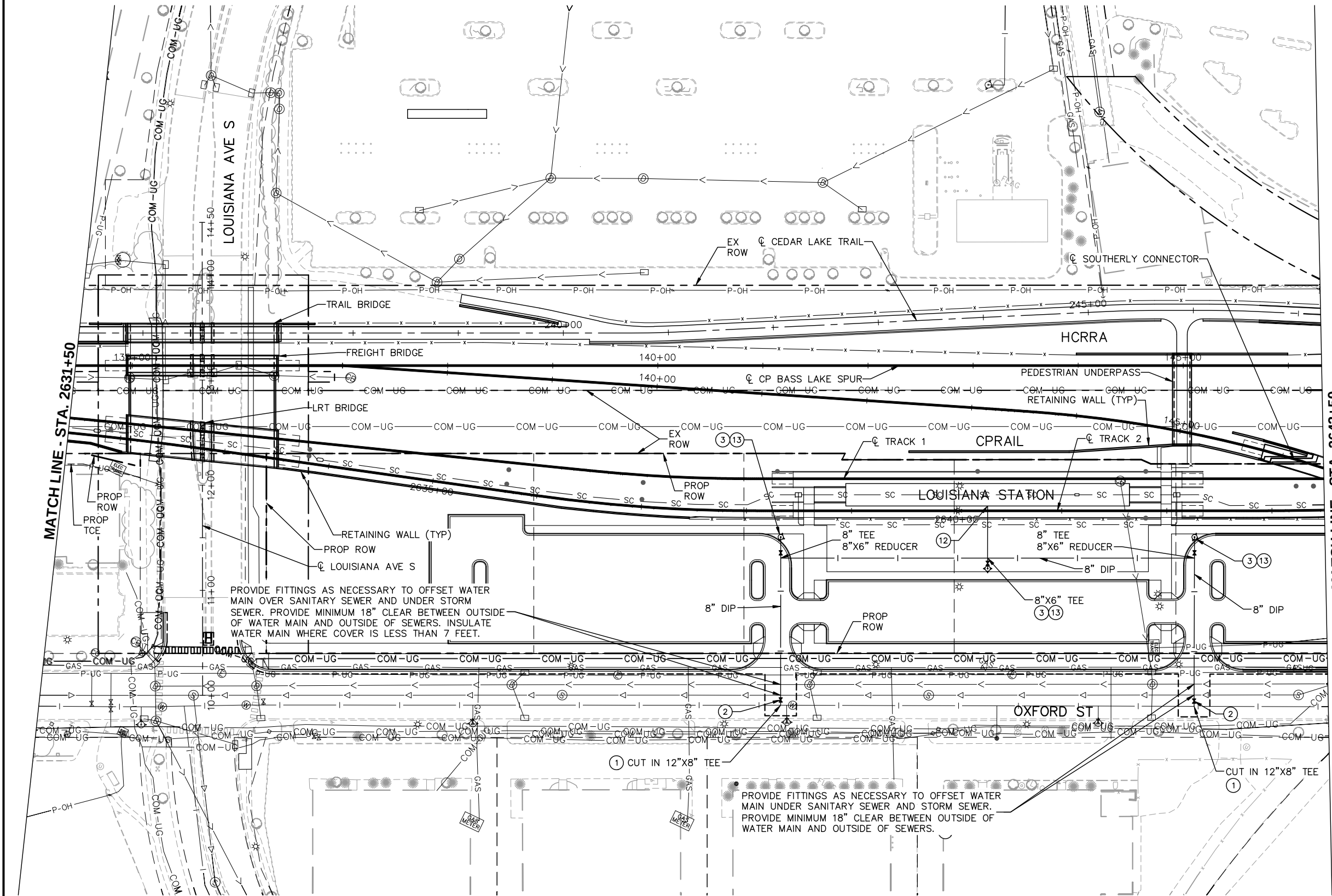
135



* SEE SHEET E2-UTL-NTS-001 FOR UTILITY LEGEND.

* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E2-UTL-NTS-001 FOR NOTES.

Aug. 28 2014 08:30 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\UTILITIES\E2-UTL-PLN.dwg By: hope.wedge



NOTES:

- * SEE SHEET E2-UTL-NTS-001 FOR UTILITY LEGEND.
- * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E2-UTL-NTS-001 FOR NOTES.

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 2
UTILITY PLAN

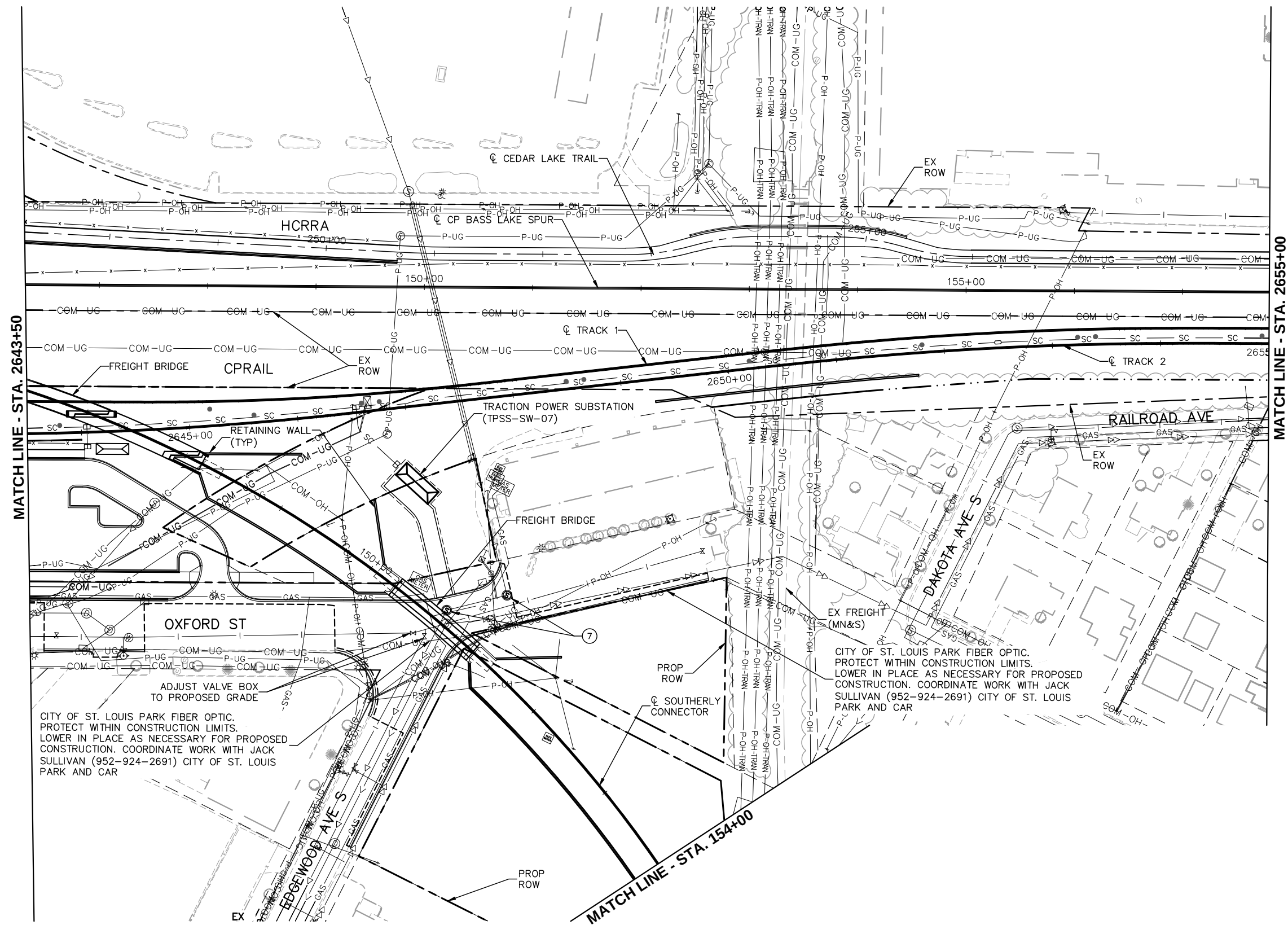
STA. 2631+50 TO STA. 2643+50

DISCIPLINE: **UTILITY**

SHEET NAME: **E2-UTL-PLN-004**

SHEET
115
OF
135

Aug. 28 2014 08:30 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\UTILITIES\E2-UTL-PLN.dwg By: hope.wedge



NOTES:

- * SEE SHEET E2-UTL-NTS-001 FOR UTILITY LEGEND.
- * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E2-UTL-NTS-001 FOR NOTES.

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 2
UTILITY PLAN

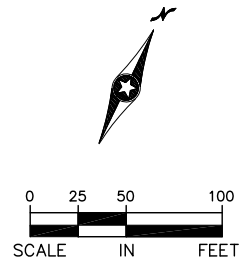
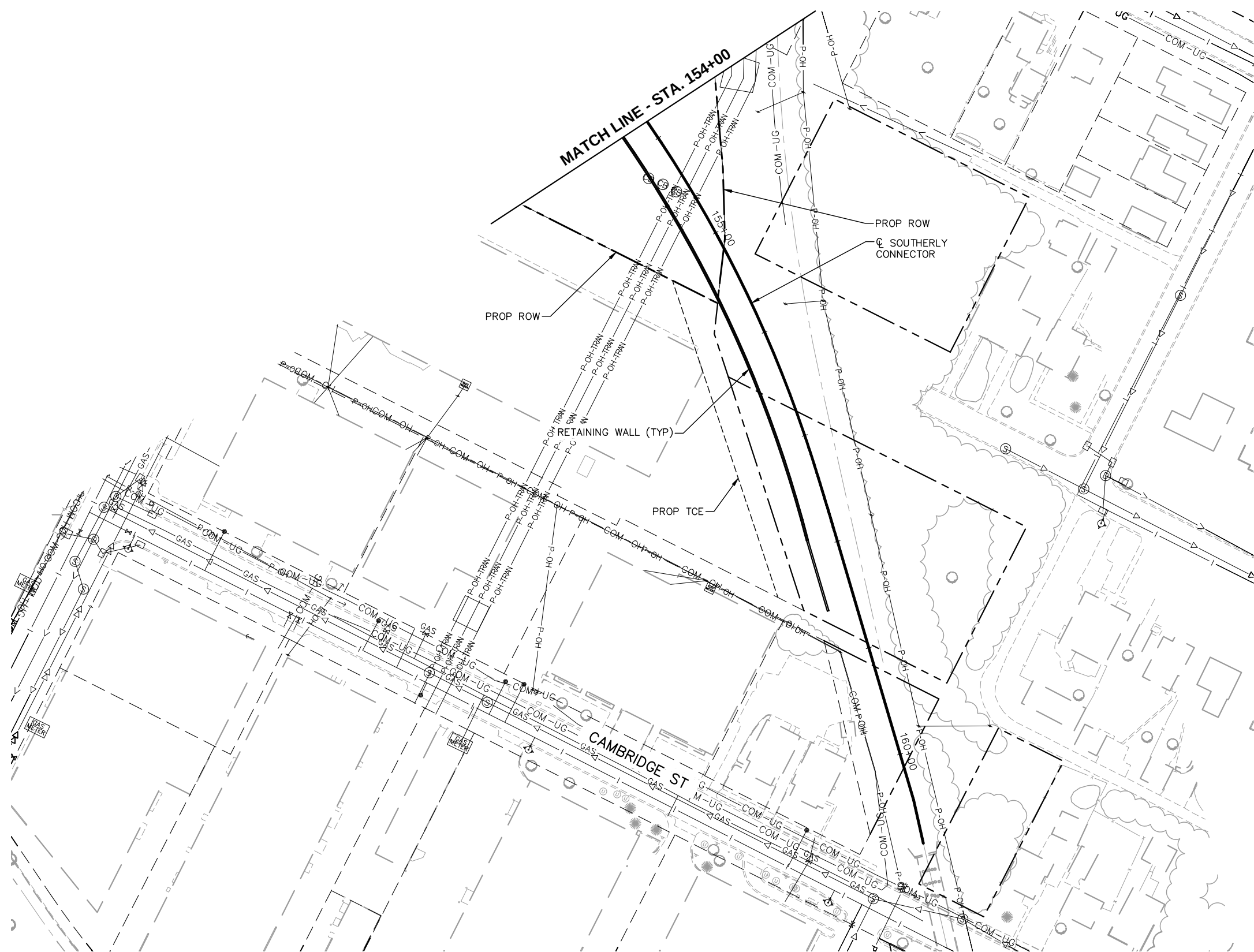
STA. 2643+50 TO STA. 2655+00

DISCIPLINE: **UTILITY**

SHEET NAME: **E2-UTL-PLN-005**

SHEET
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135

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- NOTES:
- * SEE SHEET E2-UTL-NTS-001 FOR UTILITY LEGEND.
 - * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E2-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL




PRELIMINARY ENGINEERING




EAST - VOLUME 1 (CIVIL) - SEGMENT 2

UTILITY PLAN

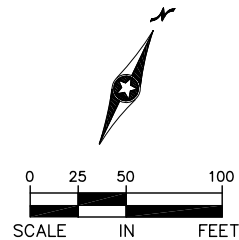
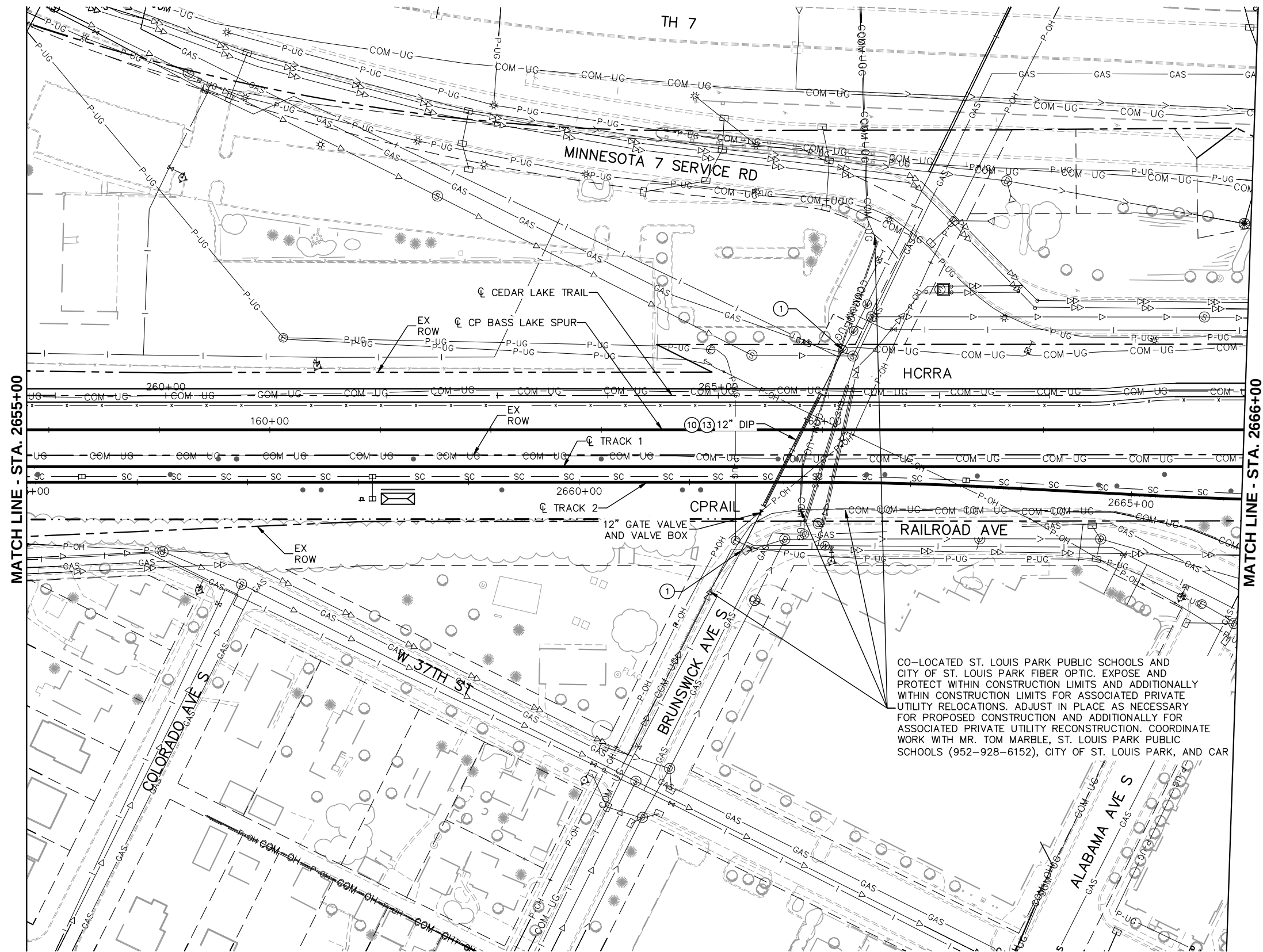
STA. 154+00 TO STA. 161+82.96

DISCIPLINE: UTILITY

SHEET NAME: E2-UTL-PLN-006

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CO-LOCATED ST. LOUIS PARK PUBLIC SCHOOLS AND CITY OF ST. LOUIS PARK FIBER OPTIC. EXPOSE AND PROTECT WITHIN CONSTRUCTION LIMITS AND ADDITIONALLY WITHIN CONSTRUCTION LIMITS FOR ASSOCIATED PRIVATE UTILITY RELOCATIONS. ADJUST IN PLACE AS NECESSARY FOR PROPOSED CONSTRUCTION AND ADDITIONALLY FOR ASSOCIATED PRIVATE UTILITY RECONSTRUCTION. COORDINATE WORK WITH MR. TOM MARBLE, ST. LOUIS PARK PUBLIC SCHOOLS (952-928-6152), CITY OF ST. LOUIS PARK, AND CAR

- NOTES:
- * SEE SHEET E2-UTL-NTS-001 FOR UTILITY LEGEND.
 - * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E2-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

PRELIMINARY ENGINEERING

EAST - VOLUME 1 (CIVIL) - SEGMENT 2
UTILITY PLAN

STA. 2655+00 TO STA. 2666+00

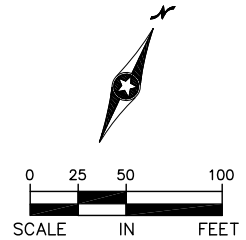
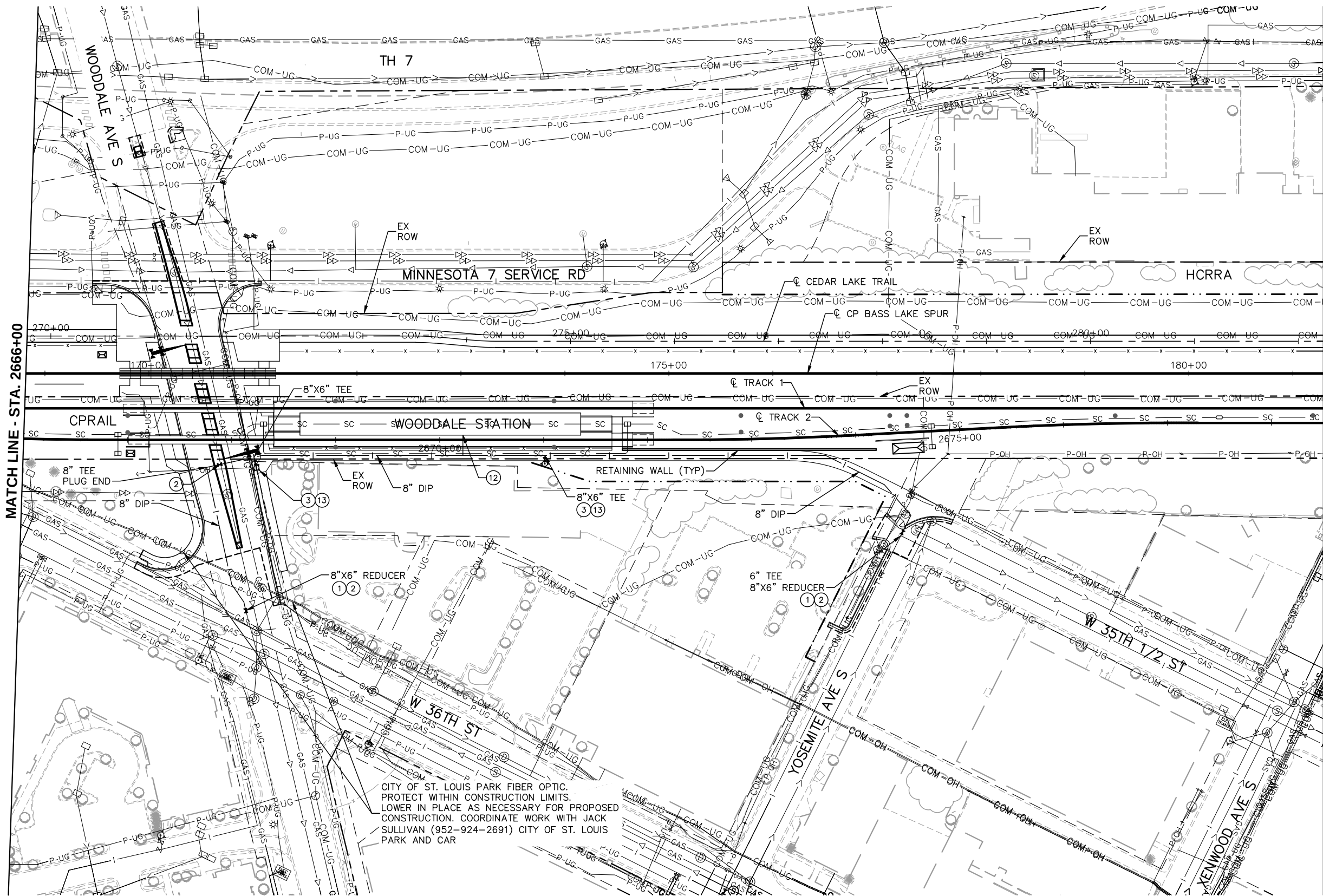
DISCIPLINE: UTILITY

SHEET NAME: E2-UTL-PLN-007

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- NOTES:
- * SEE SHEET E2-UTL-NTS-001 FOR UTILITY LEGEND.
 - * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E2-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

PRELIMINARY ENGINEERING

EAST - VOLUME 1 (CIVIL) - SEGMENT 2
UTILITY PLAN

STA. 2666+00 TO STA. 2678+50

DISCIPLINE: UTILITY

SHEET NAME: E2-UTL-PLN-008

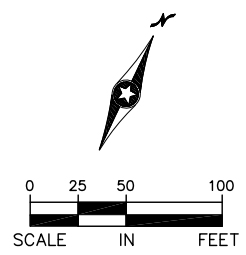
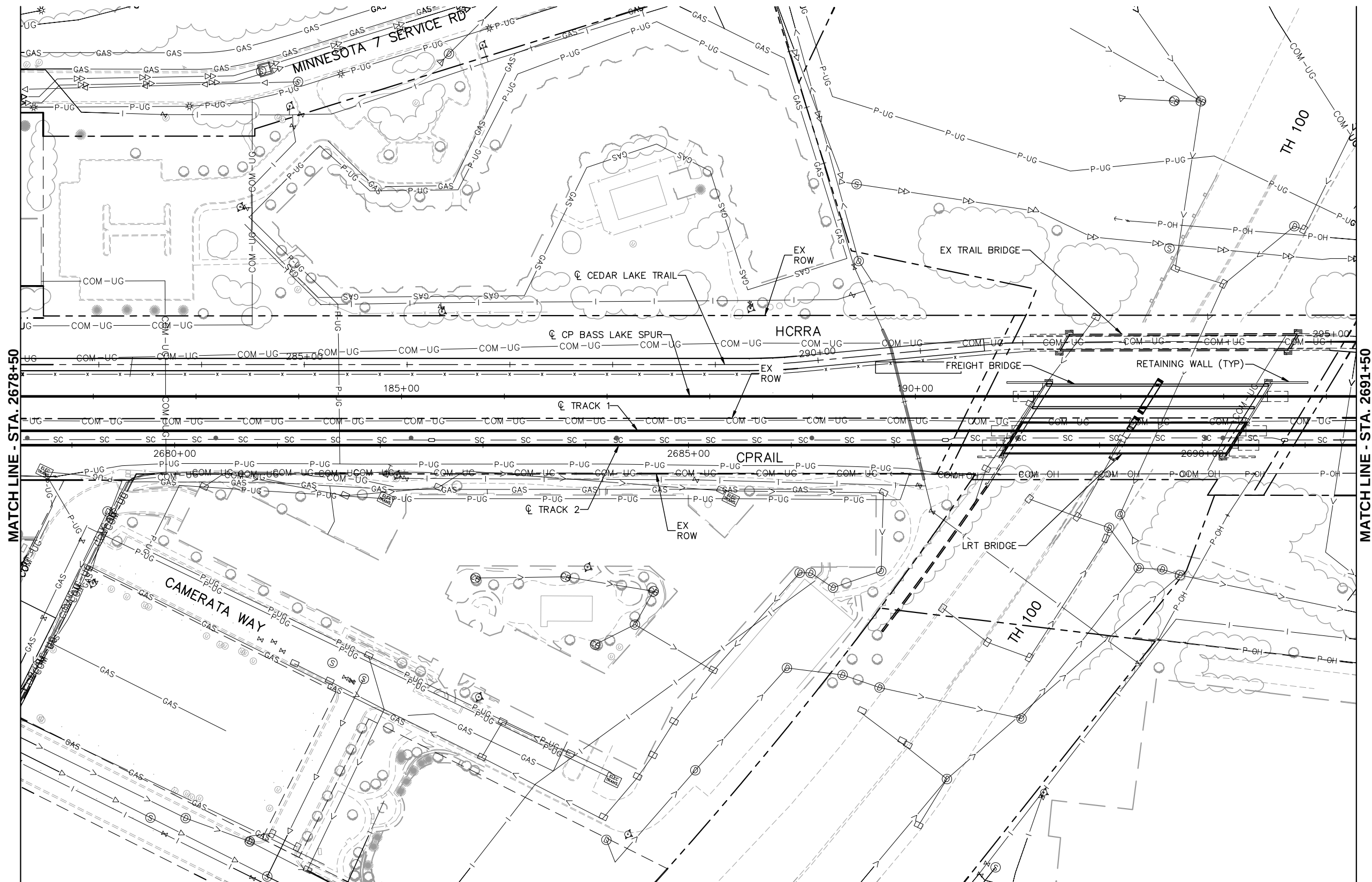
SHEET

119

OF

135

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- NOTES:
- * SEE SHEET E2-UTL-NTS-001 FOR UTILITY LEGEND.
 - * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E2-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

PRELIMINARY ENGINEERING

EAST - VOLUME 1 (CIVIL) - SEGMENT 2
UTILITY PLAN

STA. 2678+50 TO STA. 2691+50

DISCIPLINE: UTILITY

SHEET NAME:
E2-UTL-PLN-009

SHEET

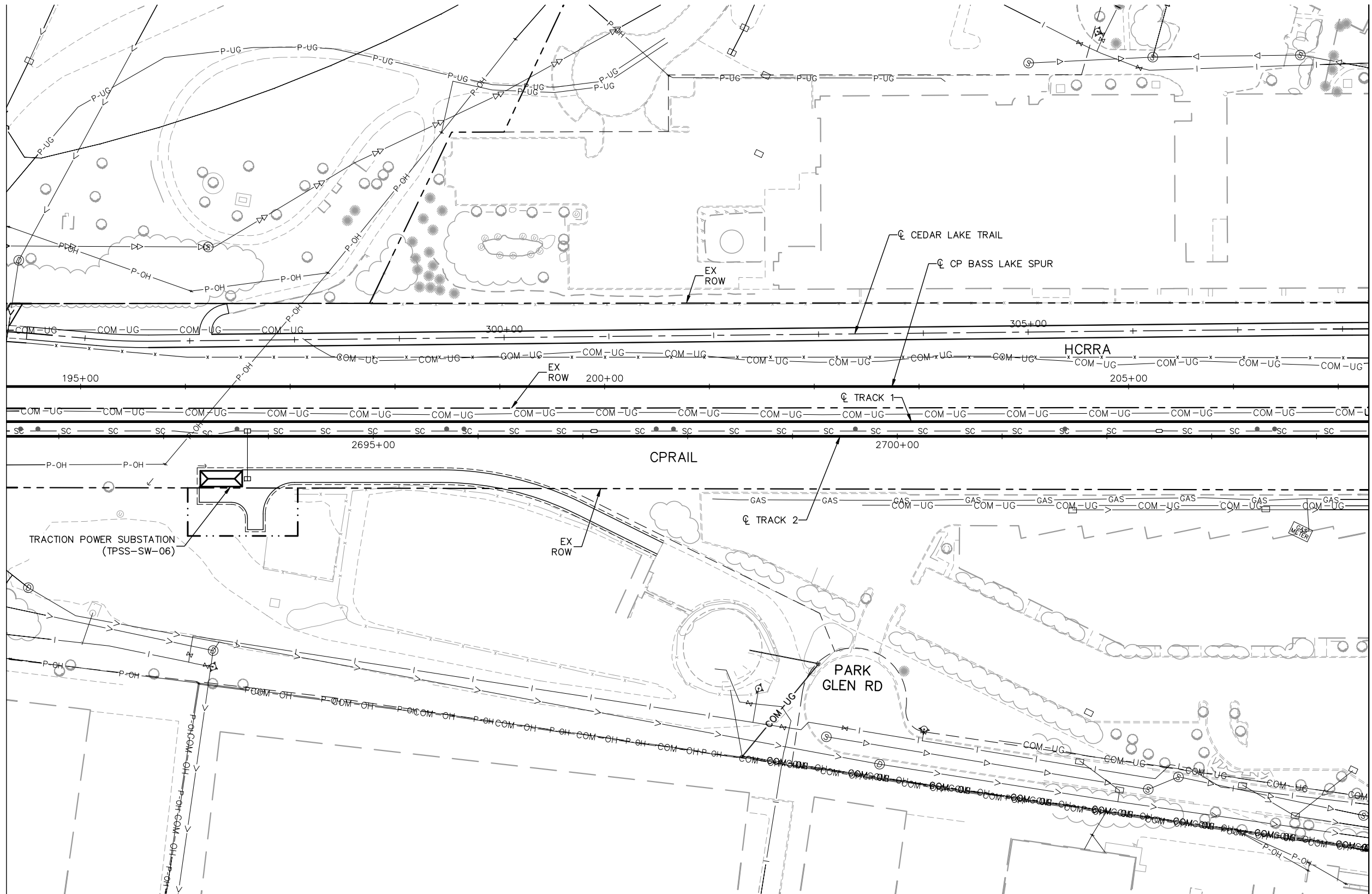
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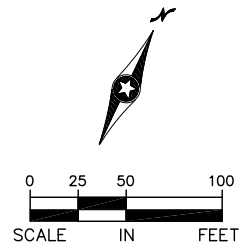
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Aug. 28 2014 08:32 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\UTILITIES\E2-UTL-PLN.dwg By: hope.wedge

MATCH LINE - STA. 2691+50



MATCH LINE - STA. 2704+50



- NOTES:
- * SEE SHEET E2-UTL-NTS-001 FOR UTILITY LEGEND.
 - * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E2-UTL-NTS-001 FOR NOTES.

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 2
UTILITY PLAN

STA. 2691+50 TO STA. 2704+50

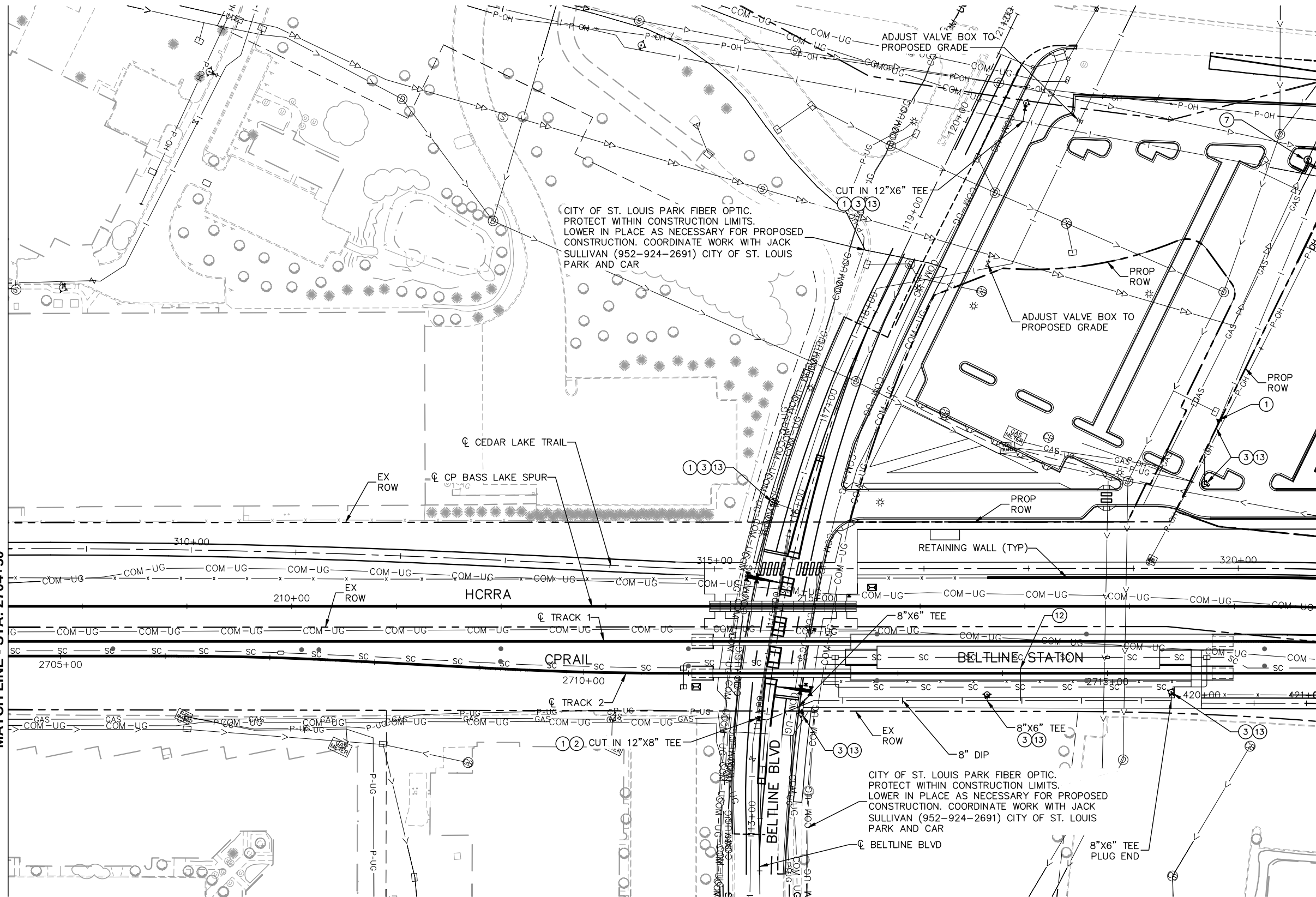
DISCIPLINE: **UTILITY**

SHEET NAME: **E2-UTL-PLN-010**

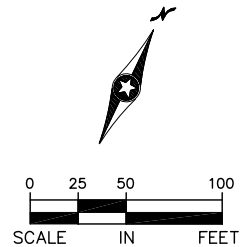
SHEET
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Aug. 28 2014 08:33 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\UTILITIES\E2-UTL-PLN.dwg By: hope.wedge

MATCH LINE - STA. 2704+50



MATCH LINE - STA. 2717+00



- NOTES:
- * SEE SHEET E2-UTL-NTS-001 FOR UTILITY LEGEND.
 - * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E2-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

**METROPOLITAN**
COUNCIL

**SOUTHWEST**
Green Line LRT Extension

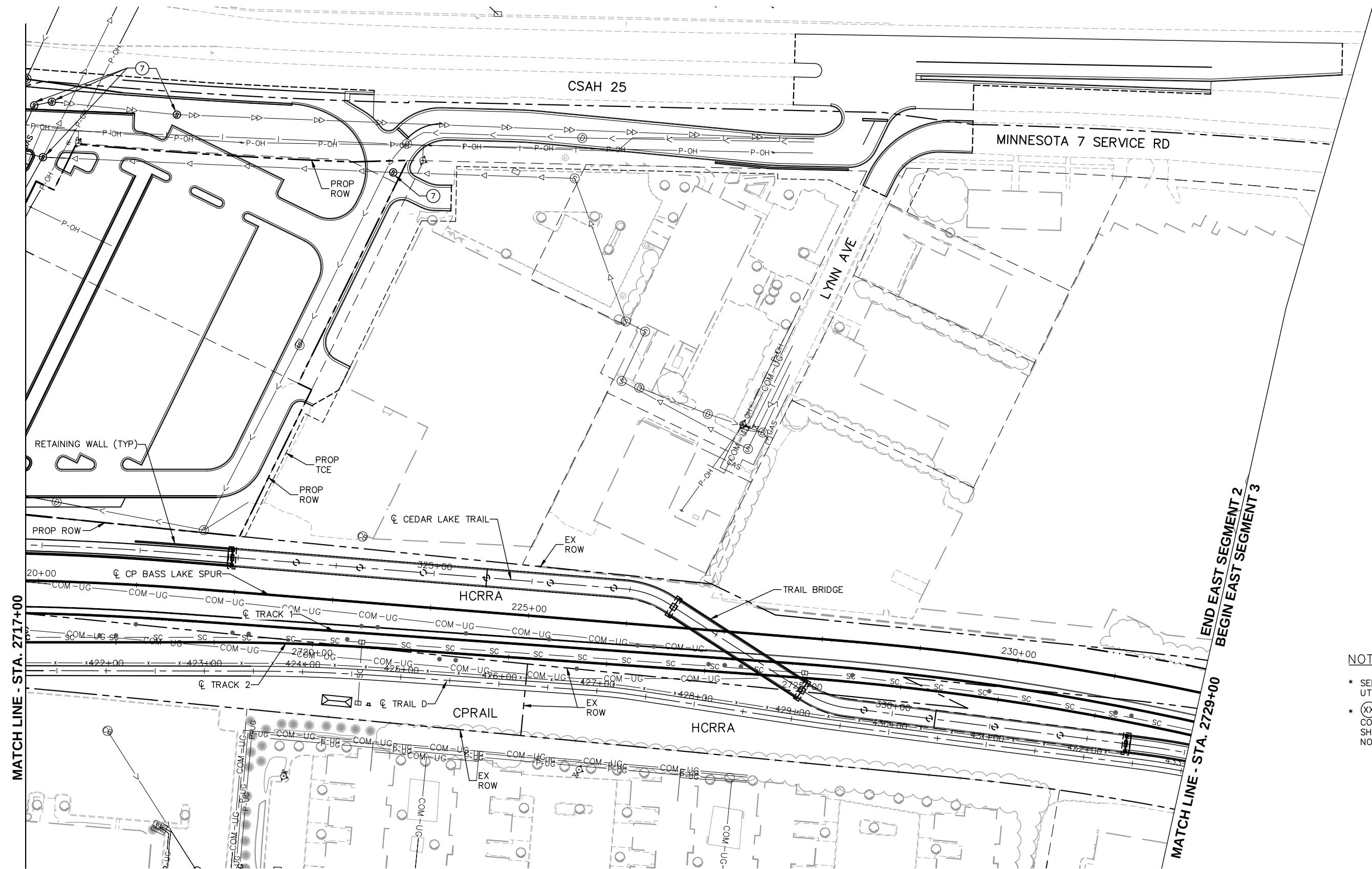
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
UTILITY PLAN

STA. 2704+50 TO STA. 2717+00

DISCIPLINE: **UTILITY** SHEET NAME: **E2-UTL-PLN-011**

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- NOTES:
- * SEE SHEET E2-UTL-NTS-001 FOR UTILITY LEGEND.
 - * (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET E2-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

METROPOLITAN
COUNCIL

SOUTHWEST
Green Line LRT Extension

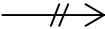
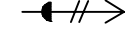
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
UTILITY PLAN
STA. 2717+00 TO STA. 2729+00

DISCIPLINE: **UTILITY**
SHEET NAME: **E2-UTL-PLN-012**

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TRAFFIC LEGEND

INPLACE		FURNISH & INSTALL	
	POWER POLE		POWER POLE
	PUSHBUTTON PEDESTAL		PUSHBUTTON PEDESTAL
	LUMINAIRE		LUMINAIRE
	SIG. POLE W/MASTARM		SIG. POLE W/MASTARM
	SIGNAL PEDESTAL		SIGNAL PEDESTAL
	SIGNAL FACE		SIGNAL FACE
	TRAFFIC PAD		TRAFFIC PAD
	PEDESTRIAN INDICATION		PEDESTRIAN INDICATION
	PUSHBUTTON		PUSHBUTTON
	EVP CONFIRMATORY LIGHT		EVP CONFIRMATORY LIGHT
	EVP DETECTOR		EVP DETECTOR
	EVP DETECTOR AND CONFIRMATORY LIGHT		EVP DETECTOR AND CONFIRMATORY LIGHT
	AUTOMATIC GATE		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		EQUIPMENT LABELS	
	SIGNAL BASE NO.		SIGNAL BASE NO.
	SIGNAL HEAD NO./FLASHER HEAD NO.		SIGNAL HEAD NO./FLASHER HEAD NO.
	LUMINAIRE NO.		LUMINAIRE NO.
	CONTROLLER CABINET		CONTROLLER CABINET
	SIGNAL SERVICE CABINET		SIGNAL SERVICE CABINET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





PRELIMINARY ENGINEERING

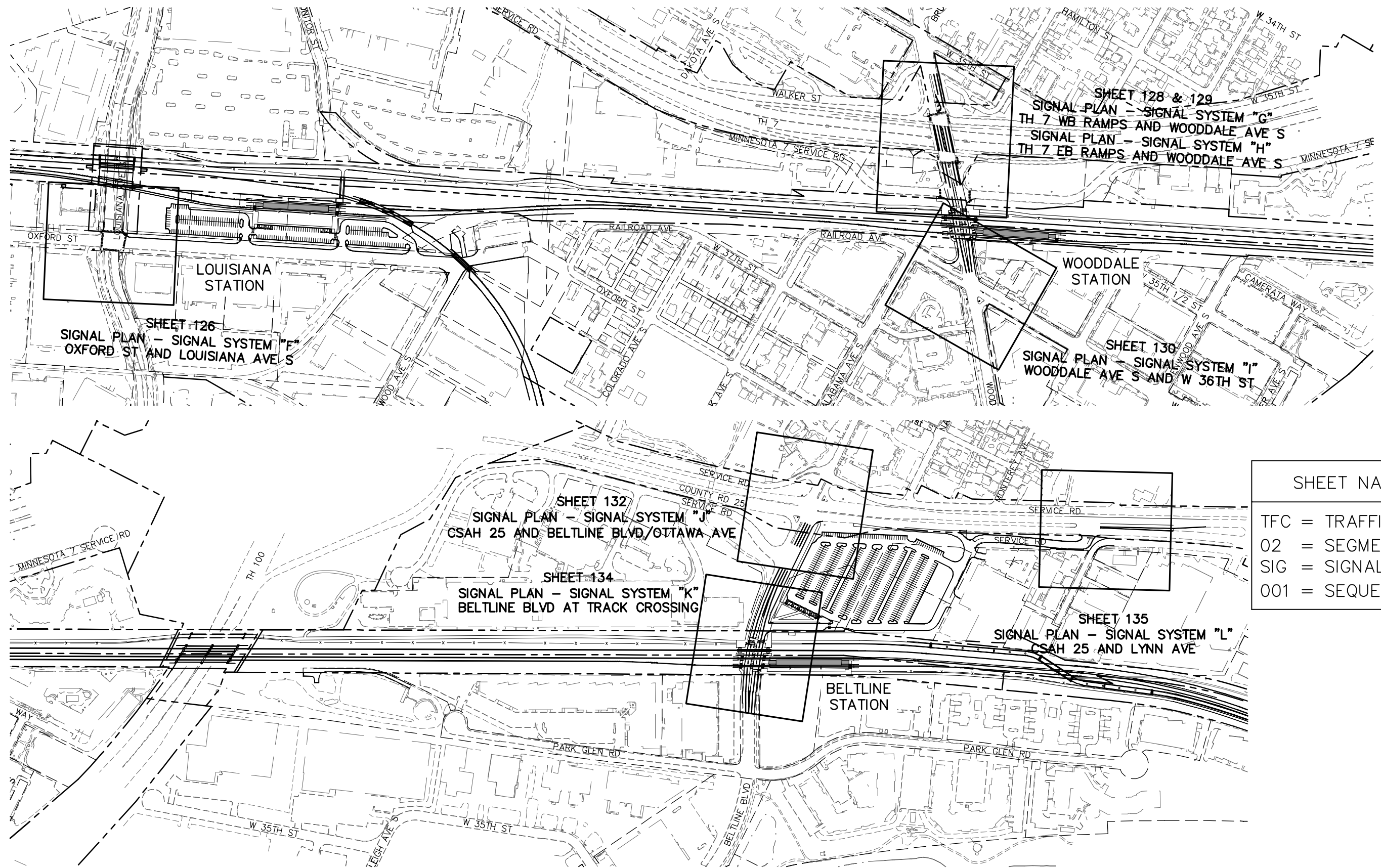


EAST - VOLUME 1 (CIVIL) - SEGMENT 2
SIGNAL PLAN
NOTES AND LEGEND

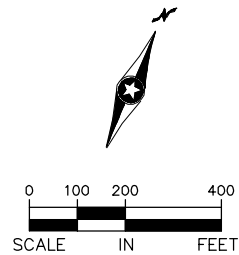
DISCIPLINE:
TRAFFIC

SHEET NAME:
E2-TFC-SIG-NTS-001

Aug. 28 2014 09:28 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRAFFIC\E2-TFC-SIG-IDX.dwg By: guillermo.madrigal



SHEET NAME LEGEND	
TFC	= TRAFFIC
02	= SEGMENT 2
SIG	= SIGNAL PLAN SHEETS
001	= SEQUENCE NUMBER



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2

SIGNAL PLAN

SHEET INDEX

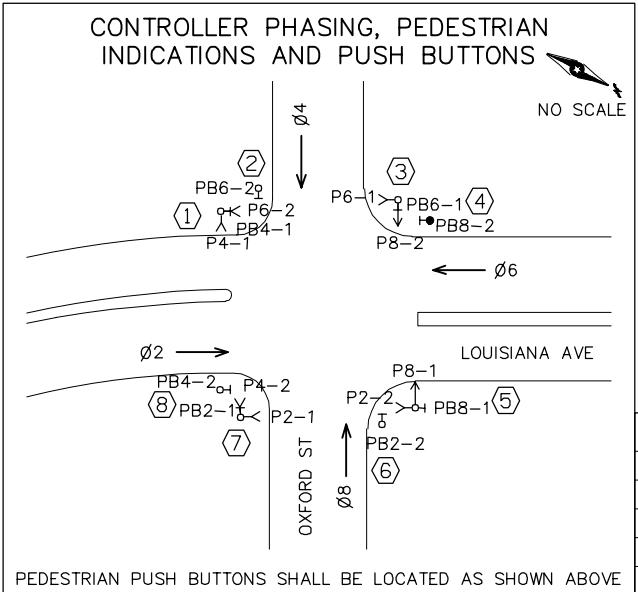
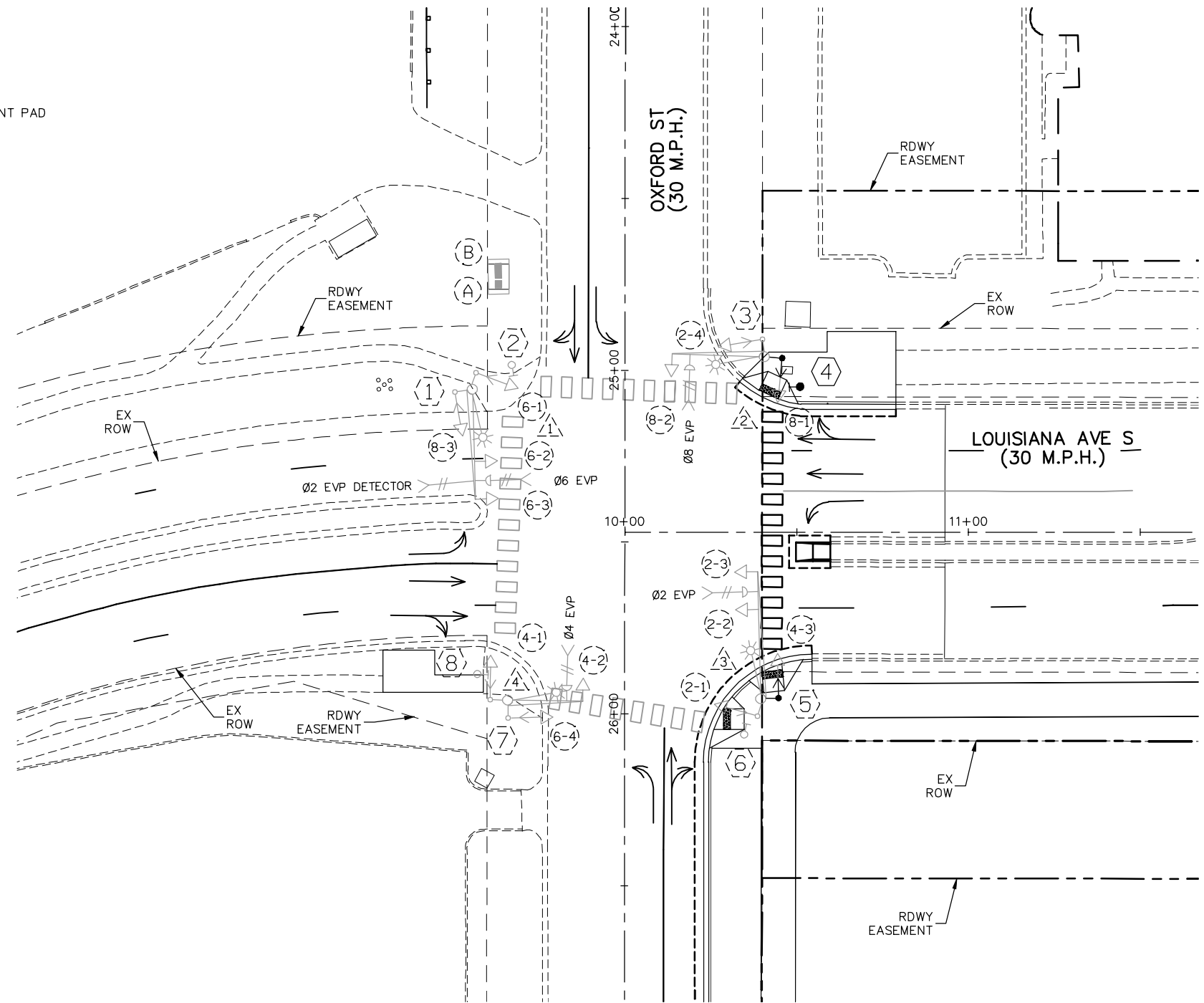
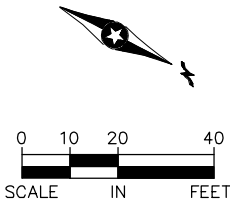
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SHEET NAME: E2-TFC-SIG-IDX-001

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Aug. 28 2014 09:29 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRAFFIC\E2-TFC-SIG-OXF.dwg By: guillermo.madrigal

- 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	
2-1, 2-2, 2-3, 2-4	○	○	○	
4-1, 4-2, 4-3	○	○	○	
6-1, 6-2, 6-3, 6-4	○	○	○	
8-1, 8-2, 8-3	○	○	○	

SIGNAL SYSTEM "F" IS BEING MODIFIED TO ACCOMMODATE PEDESTRIAN CROSSINGS ON THE NORTH APPROACH.

- SIGNAL SYSTEM OPERATIONS
- NORMAL OPERATION IS 4 PHASE.
 - FLASH MODE SHALL BE ALL RED.
 - PHASE 2 AND 6 SHALL BE ON MINIMUM RECALL.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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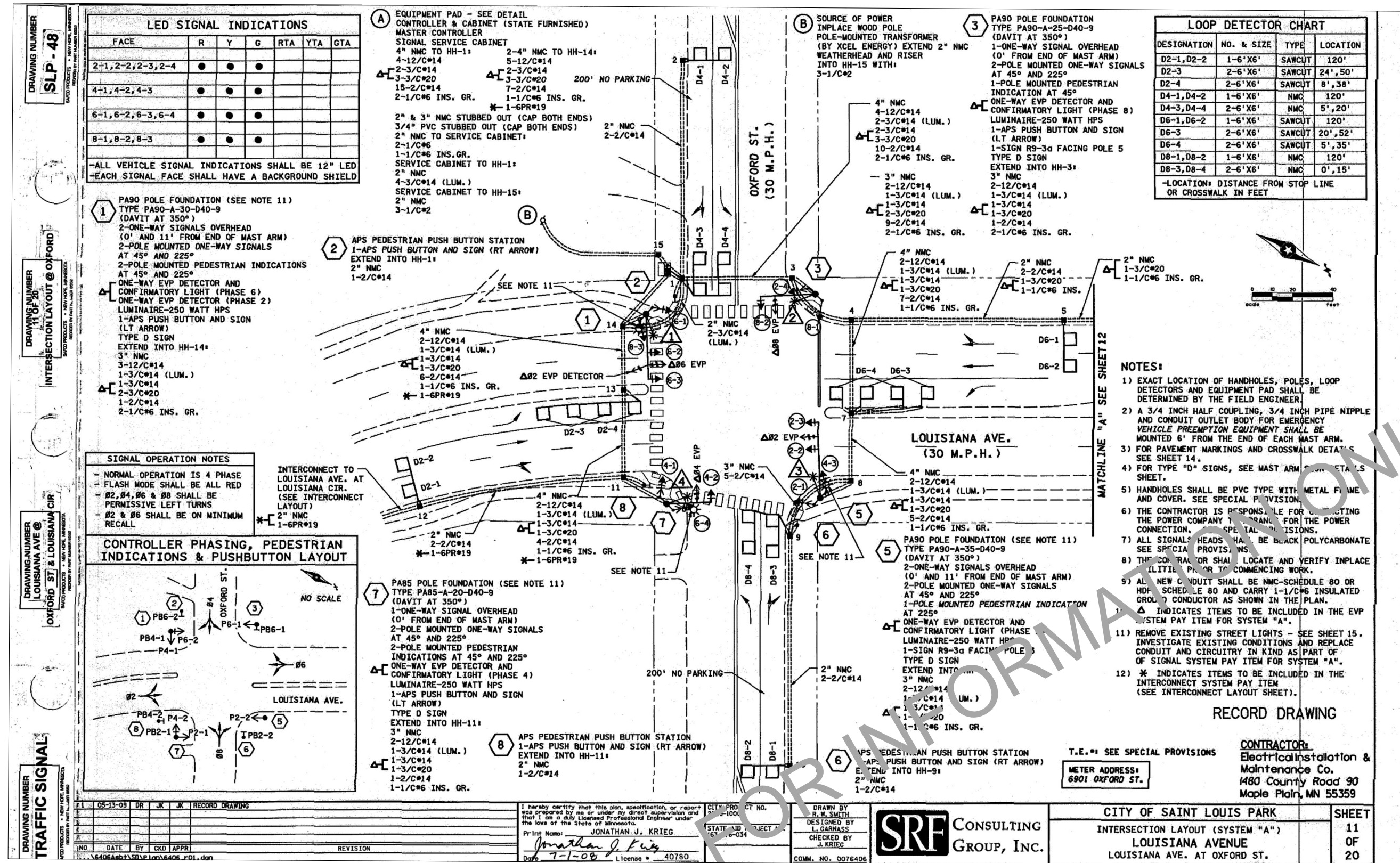
PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2
SIGNAL PLAN - SIGNAL SYSTEM "F"
OXFORD ST AND LOUISIANA AVE S

DISCIPLINE: TRAFFIC
SHEET NAME: E2-TFC-SIG-OXF-001

SHEET
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OF
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[illegible]

Kimley»»Horn

PRELIMINARY ENGINEERING



**EAST - VOLUME 1 (CIVIL) - SEGMENT 2
SIGNAL PLAN - SIGNAL SYSTEM "F"
OXFORD ST AND LOUISIANA AVE S
FOR INFORMATION ONLY**

DISCIPLINE:

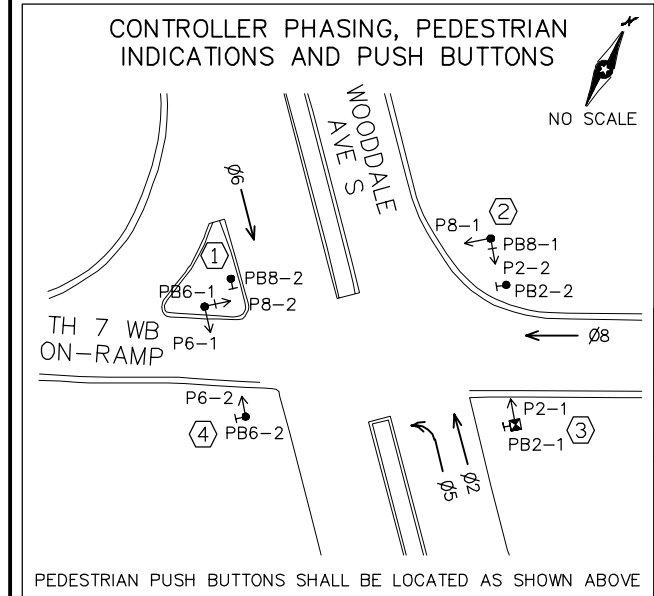
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SHEET NAME:	
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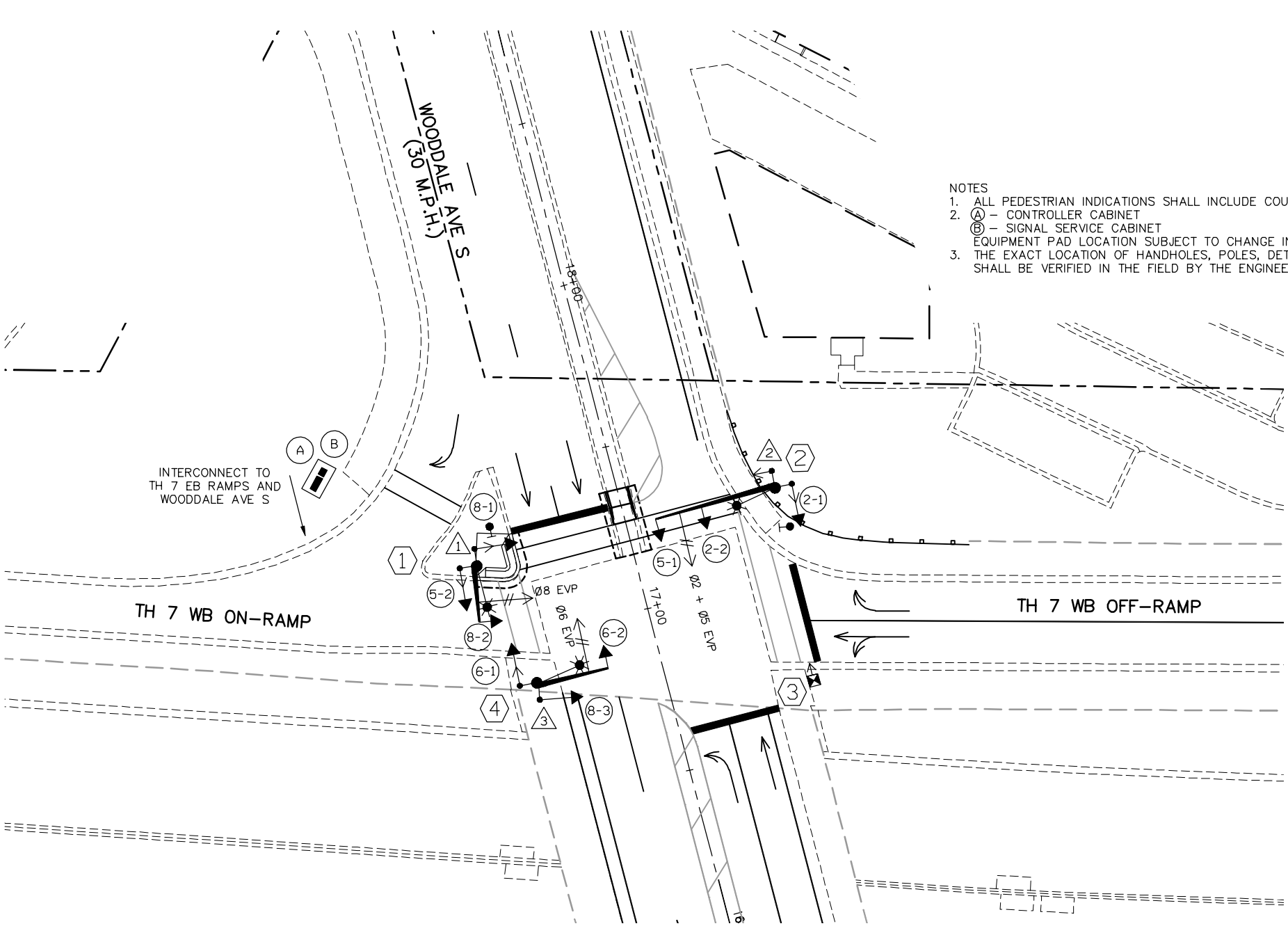
E2-TFC-SIG-OXF-002

SHEET
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OF
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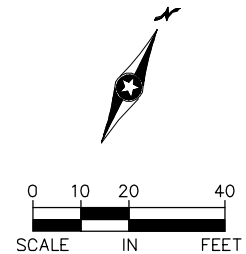
Aug. 28 2014 09:30 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRAFFIC\E2-TFC-SIG-TH7W.dwg By: guillermo.madrigal



SIGNAL FACE CHART				
FACE	R	Y	FYA	G
2-1, 2-2	●	●		●
5-1, 5-2	◀	◀	◀	◀
6-1, 6-2	●	●		●
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				



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



- SIGNAL SYSTEM OPERATIONS
- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
 - NORMAL OPERATION SHALL BE 4 PHASE, WITH PHASE 5 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
 - SIGNAL SYSTEM SHALL BE FULLY ACTUATED.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST
Green Line LRT Extension

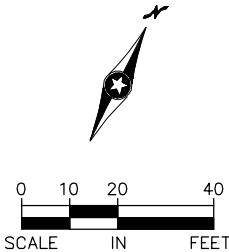
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
SIGNAL PLAN - SIGNAL SYSTEM "G"
TH 7 WB RAMPS AND WOODDALE AVE S

DISCIPLINE: **TRAFFIC**

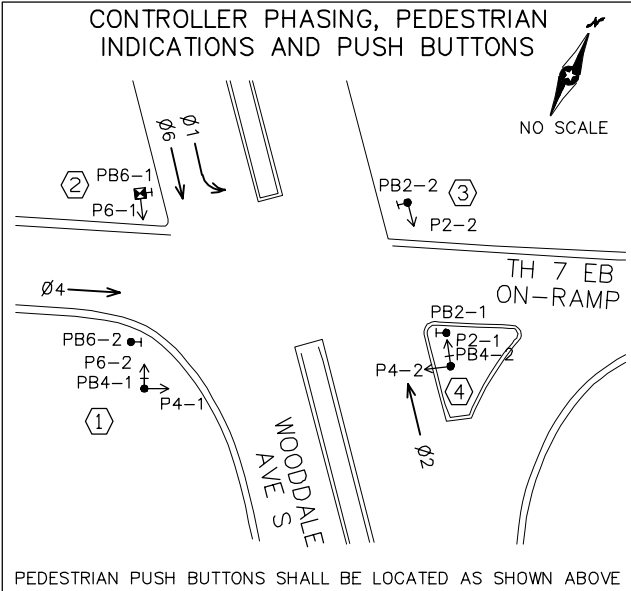
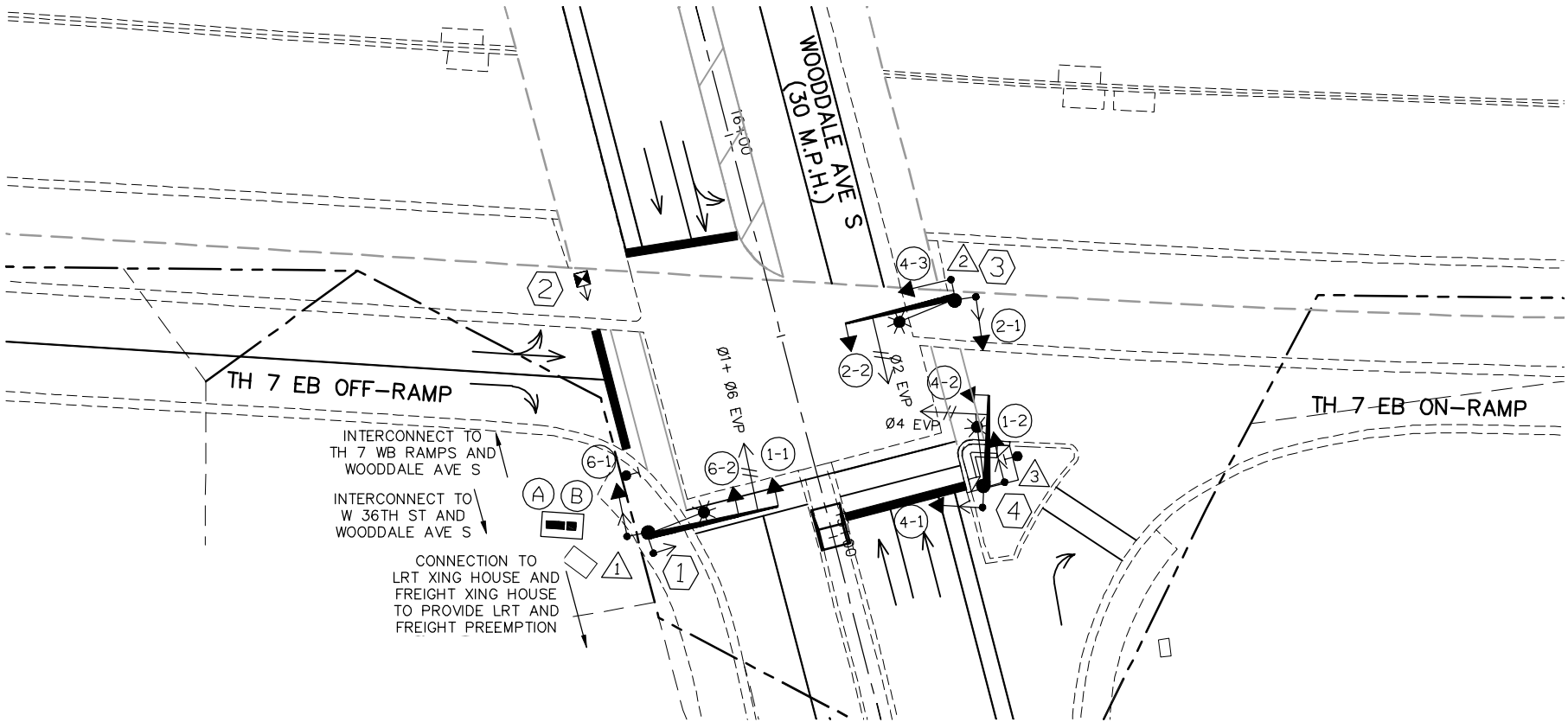
SHEET NAME: **E2-TFC-SIG-TH7W-001**

SHEET 128 OF 135

Aug. 28 2014 09:30 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRAFFIC\E2-TFC-SIG-TH7E.dwg By: guillermo.madrigal



- NOTES
1. ALL PEDESTRIAN INDICATIONS SHALL INCLUDE COUNTDOWN TIMERS.
 2. INTERCONNECT TO LRT XING HOUSE AND FREIGHT XING HOUSE TO BE DETERMINED ONCE HOUSE LOCATIONS ARE DETERMINED.
 3. (A) - CONTROLLER CABINET
(B) - SIGNAL SERVICE CABINET
EQUIPMENT PAD LOCATION SUBJECT TO CHANGE IN FINAL DESIGN.
 4. 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	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2	●	●		●
4-1, 4-2, 4-3	●	●		●
6-1, 6-2	●	●		●
- 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 4 PHASE, WITH PHASE 1 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
 - SIGNAL SYSTEM SHALL BE FULLY ACTUATED.
 - LRT AND FREIGHT RAIL SHALL OPERATE WITH PREEMPTION, INCLUDING TRACK CLEARANCE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



PRELIMINARY ENGINEERING



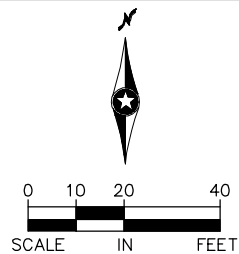
EAST - VOLUME 1 (CIVIL) - SEGMENT 2
SIGNAL PLAN - SIGNAL SYSTEM "H"
TH 7 EB RAMPS AND WOODDALE AVE S

DISCIPLINE: TRAFFIC

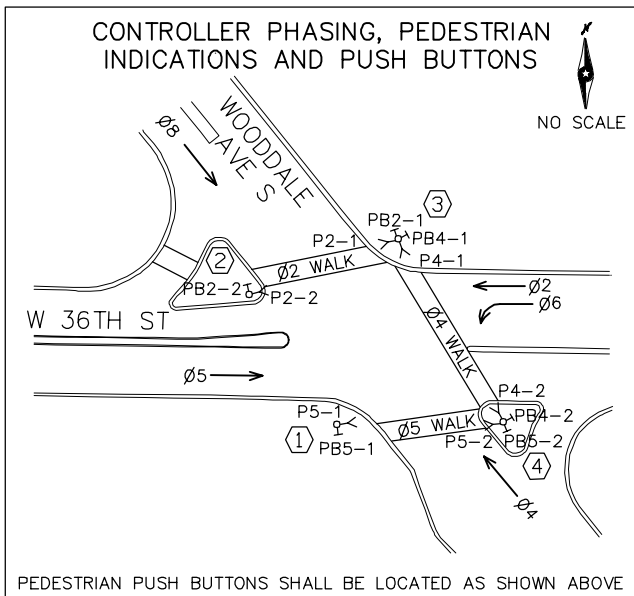
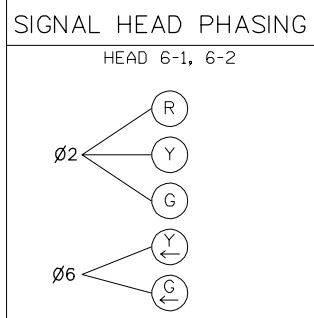
SHEET NAME: E2-TFC-SIG-TH7E-001

SHEET
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- 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 EXISTING HANDHOLES, POLES, DETECTORS, AND EQUIPMENT PAD SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.
 4. PLAN REFLECTS EXISTING SIGNAL CONFIGURATION AS OF JUNE 2014. CITY OF ST LOUIS PARK HAS IDENTIFIED FUTURE RECONSTRUCTION OF THIS SIGNAL IN THEIR 2015 CIP.



CONNECTION TO
LRT XING HOUSE AND
FREIGHT XING HOUSE
TO PROVIDE LRT AND
FREIGHT PREEMPTION

INTERCONNECT TO
TH 7 EB RAMPS AND
WOODDALE AVE S

SIGNAL FACE CHART					
FACE	R	Y	G	Y	G
2-1, 2-2	○	○	○		
4-1, 4-2, 4-3	○	○	○		
5-1, 5-2, 5-3	○	○	○		
6-1, 6-2	○	○	○	◁	◁
8-1, 8-2, 8-3	○	○	○		
-ALL SIGNAL INDICATIONS SHALL BE 12" LED -ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS					

SIGNAL SYSTEM "I" IS BEING MODIFIED TO PROVIDE LRT
PREEMPTION IN ADDITION TO EXISTING FREIGHT PREEMPTION.

SIGNAL SYSTEM OPERATIONS

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION SHALL BE 5 PHASE WITH PHASE 6
BEING A PROTECTED/PERMISSIVE LEFT TURN PHASE.
- SIGNAL SYSTEM SHALL BE FULLY ACTUATED.
- LRT AND FREIGHT RAIL SHALL OPERATE WITH PREEMPTION,
INCLUDING TRACK CLEARANCE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING



SOUTHWEST
Green Line LRT Extension



EAST - VOLUME 1 (CIVIL) - SEGMENT 2
SIGNAL PLAN - SIGNAL SYSTEM "I"
WOODDALE AVE S AND W 36TH ST

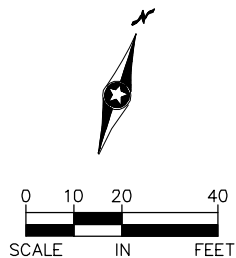
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E2-TFC-SIG-WDL-001

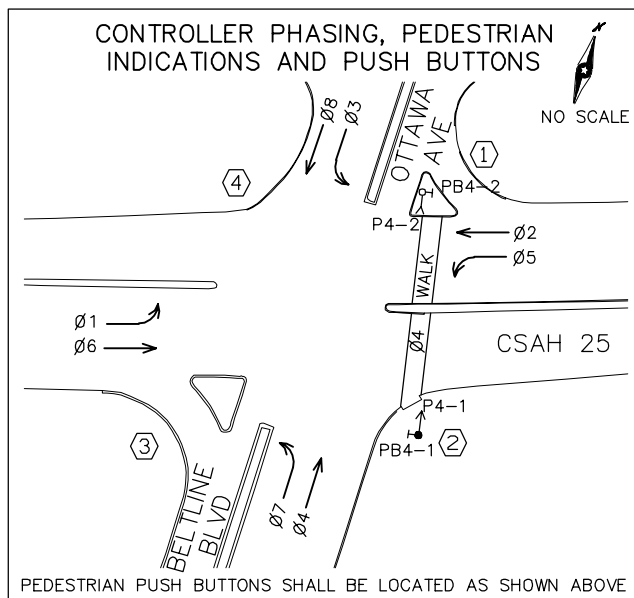
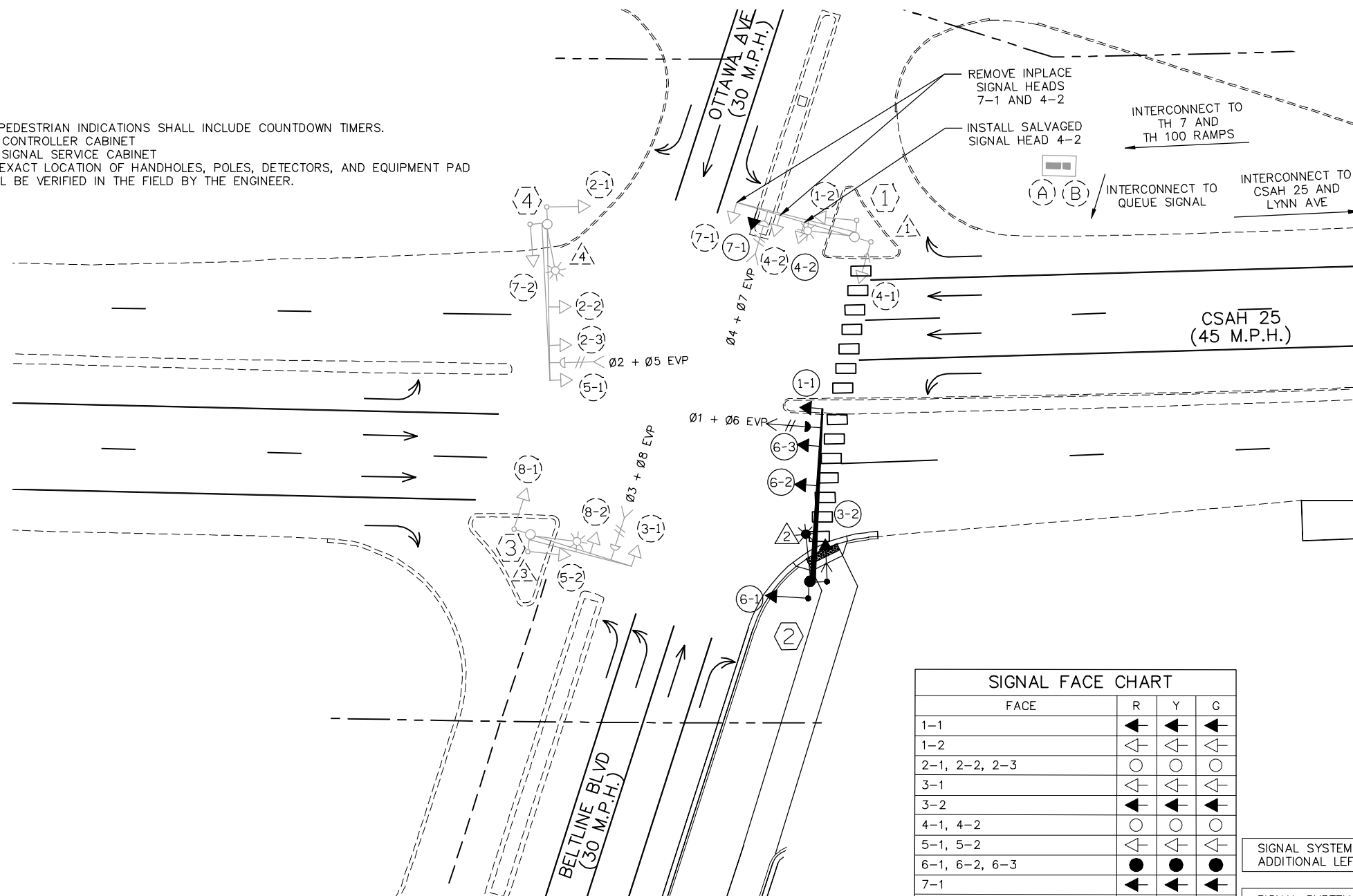
SHEET
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- NOTES
1. ALL PEDESTRIAN INDICATIONS SHALL INCLUDE COUNTDOWN TIMERS.
 2. (A) - CONTROLLER CABINET
(B) - SIGNAL SERVICE CABINET
 3. THE EXACT LOCATION OF HANDHOLES, POLES, DETECTORS, AND EQUIPMENT PAD SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.



SIGNAL FACE CHART			
FACE	R	Y	G
1-1	◀	◀	◀
1-2	◀	◀	◀
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

SIGNAL SYSTEM "J" IS BEING MODIFIED TO ACCOMMODATE AN ADDITIONAL LEFT TURN LANE ON THE NORTHBOUND APPROACH.

SIGNAL SYSTEM OPERATIONS

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION SHALL BE 8 PHASE. PHASES 1, 3, 5, AND 7 SHALL OPERATE PROTECTED.
- SIGNAL SYSTEM SHALL BE FULLY ACTUATED.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2
SIGNAL PLAN - SIGNAL SYSTEM "J"
CSAH 25 AND BELTLINE BLVD/OTTAWA AVE

DISCIPLINE: TRAFFIC

SHEET NAME: E2-TFC-SIG-OTT-001

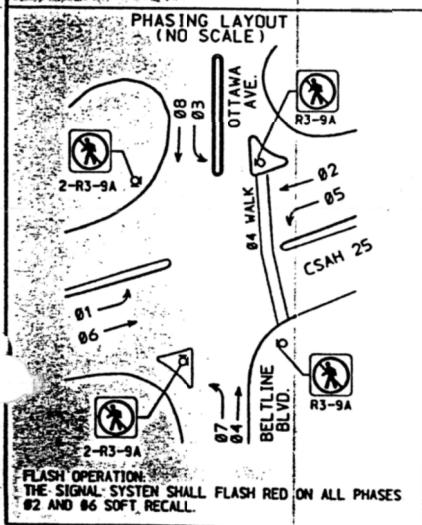
SHEET
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OF
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SIGNAL POLE	SIGNAL FACE MOUNT	SIGNAL #	INDICATION SIZE AND TYPE							BRACKET MOUNTING ANGLE, TYPE AND STANDARD PLATE NUMBER
			CIRCULAR	LT.	TURN	ARR.	DON'T	WALK	WALK	
			RED	YEL	GRN	RED	YEL	GRN		
MA-1	MAST ARM (END)	07	12	12	12	12	12	12		STANDARD ONEWAY/PLATE 8124D
	MAST ARM (INSIDE)	04	12	12	12	12	12	12		STANDARD ONEWAY/PLATE 8124D
	POLE MOUNT	04	12	12	12	12	12	12		270°/TYPE 10B/PLATE 8110C
MA-2	MAST ARM (END)	01	12	12	12	12	12	12		0°/TYPE 10A/PLATE 8110C
	MAST ARM (INSIDE)	06	12	12	12	12	12	12		STANDARD ONEWAY/PLATE 8124D
	POLE MOUNT	06	12	12	12	12	12	12		STANDARD ONEWAY/PLATE 8124D
MA-3	MAST ARM (END)	03	12	12	12	12	12	12		180°/TYPE 10B/PLATE 8110C
	MAST ARM (INSIDE)	08	12	12	12	12	12	12		90°/TYPE 10A/PLATE 8110C
	POLE MOUNT	08	12	12	12	12	12	12		STANDARD ONEWAY/PLATE 8124D
MA-4	MAST ARM (END)	05	12	12	12	12	12	12		270°/TYPE 10A/PLATE 8110C
	MAST ARM (INSIDE)	02	12	12	12	12	12	12		0°/TYPE 10A/PLATE 8110C
	POLE MOUNT	02	12	12	12	12	12	12		STANDARD ONEWAY/PLATE 8124D

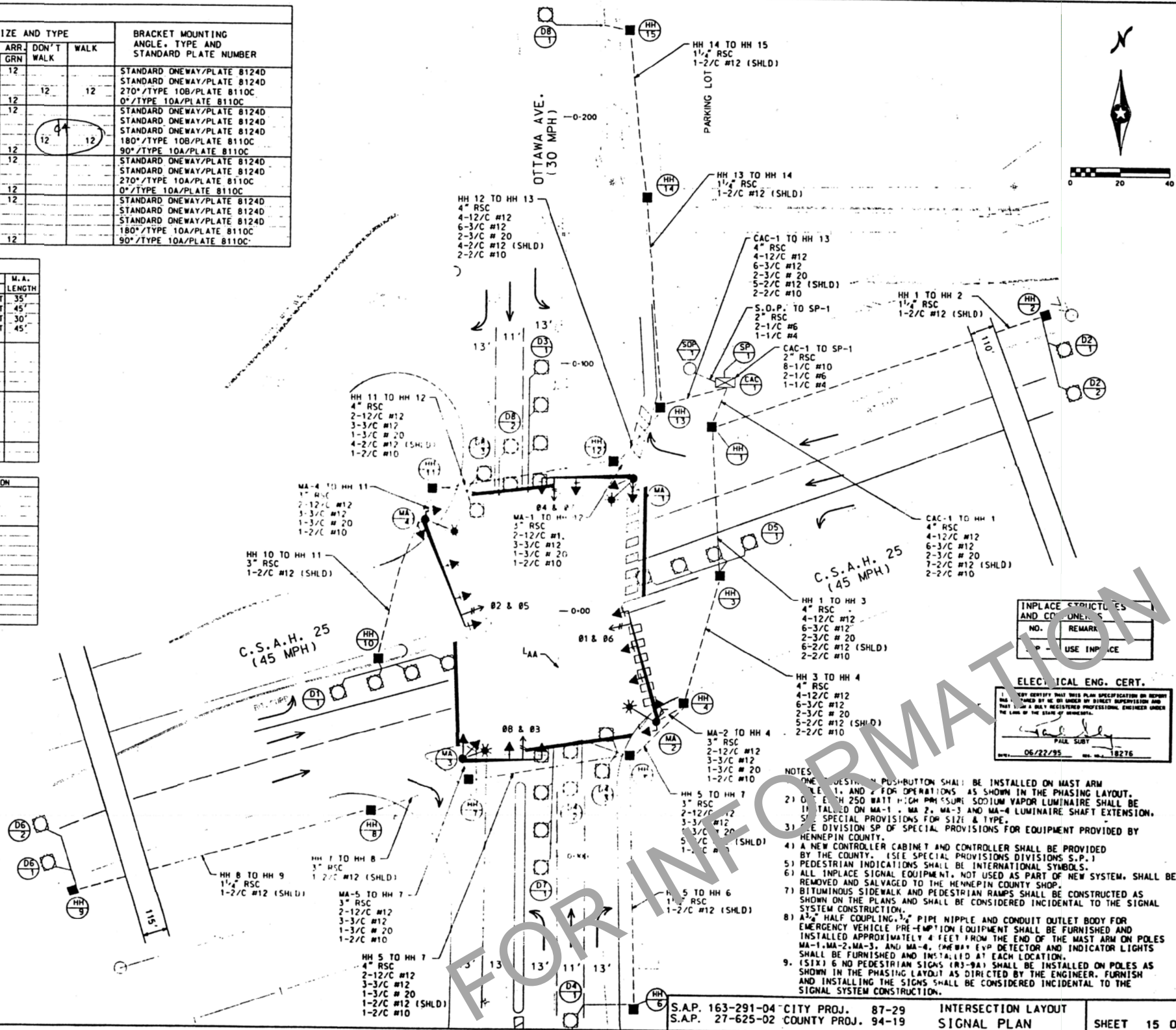
SIGNAL STRUCTURE AND COMPONENT LOCATION				
NO.	LOCATION	NO.	FOUNDATION	M.A. LENGTH
HH-1	LAA 0+74.61' LT	MA1	LAA 0+52.29' RT	35'
HH-2	LAA 0+157.310' LT	MA2	LAA 0+47.41' LT	45'
HH-3	LAA 0+13.65' LT	MA3	LAA 0+61.38' RT	30'
HH-4	LAA 0+37.51' LT	MA4	LAA 0+35.54' RT	45'
HH-5	LAA 0+60.30' LT			
HH-6	LAA 1+61.32' LT			
HH-7	LAA 0+68.35' RT			
HH-8	LAA 0+81.75' RT			
HH-9	LAA 1+61.310' RT			
HH-10	LAA 0+17.72' RT			
HH-11	LAA 0+51.52' RT			
HH-12	LAA 0+60.22' LT			
HH-13	LAA 0+82.41' LT			
HH-14	LAA 0+168.34' LT			
HH-15	LAA 0+235.26' LT			
CAC-1	LAA 0+92.70' LT			
SP-1	LAA 0+92.65' LT			

NO.	LOCATION	LOOP SIZE	NO. OF TURNS	FUNCTION
D1-1	LAA 0+22.43' RT	4 - 6X6	4	1
D2-1	LAA 0+140.316' LT	6X6	4	1
D2-2	LAA 0+136.316' LT	6X6	4	1
D3-1	LAA 0+53.8' RT	4 - 6X6	4	1
D4-1	LAA 1+63.6' LT	2 - 6X6	4	1
D4-2	LAA 0+58.6' LT	2 - 6X6	4	1
D4-3	LAA 0+51.10' LT	2 - 6X6	4	1
D5-1	LAA 0+14.34' LT	4 - 6X6	4	1
D6-1	LAA 1+45.316' RT	6X6	4	1
D6-2	LAA 1+39.316' RT	6X6	4	1
D7-1	LAA 0+58.6' RT	4 - 6X6	4	1
D8-1	LAA 0+241.6' RT	2 - 6X6	4	1
D8-2	LAA 0+53.20' RT	2 - 6X6	4	1
D8-3	LAA 0+38.33' RT	2 - 6X6	4	1

FUNCTIONS:
1 - CALL AND EXTEND
2 - DELAY CALL IMMEDIATE EXTEND
3 - CALL ONLY



FLASH OPERATION:
THE SIGNAL SYSTEM SHALL FLASH RED ON ALL PHASES 02 AND 06 SOFT, RECALL.



- NOTES:
- ONE (1) PUSH-BUTTON SHALL BE INSTALLED ON MAST ARM FOR PEDESTRIAN CROSSING AS SHOWN IN THE PHASING LAYOUT.
 - ONE (1) 250 WATT HIGH PRESSURE SODIUM VAPOR LUMINAIRE SHALL BE INSTALLED ON MA-1, MA-2, MA-3 AND MA-4 LUMINAIRE SHAFT EXTENSION.
 - SPECIAL PROVISIONS FOR SIZE & TYPE.
 - SEE DIVISION SP OF SPECIAL PROVISIONS FOR EQUIPMENT PROVIDED BY HENNEPIN COUNTY.
 - A NEW CONTROLLER CABINET AND CONTROLLER SHALL BE PROVIDED BY THE COUNTY. (SEE SPECIAL PROVISIONS DIVISIONS S.P.)
 - PEDESTRIAN INDICATIONS SHALL BE INTERNATIONAL SYMBOLS.
 - ALL INPLACE SIGNAL EQUIPMENT, NOT USED AS PART OF NEW SYSTEM, SHALL BE REMOVED AND SALVAGED TO THE HENNEPIN COUNTY SHOP.
 - BITUMINOUS SIDEWALK AND PEDESTRIAN RAMPS SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS AND SHALL BE CONSIDERED INCIDENTAL TO THE SIGNAL SYSTEM CONSTRUCTION.
 - A 1/2" HALF COUPLING, 1/2" PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PRE-EMPTION EQUIPMENT SHALL BE FURNISHED AND INSTALLED APPROXIMATELY 4 FEET FROM THE END OF THE MAST ARM ON POLES MA-1, MA-2, MA-3, AND MA-4. (ONE WAY EYE DETECTOR AND INDICATOR LIGHTS SHALL BE FURNISHED AND INSTALLED AT EACH LOCATION).
 - (SEE) 6 NO PEDESTRIAN SIGNS (R3-9A) SHALL BE INSTALLED ON POLES AS SHOWN IN THE PHASING LAYOUT AS DIRECTED BY THE ENGINEER. FURNISH AND INSTALLING THE SIGNS SHALL BE CONSIDERED INCIDENTAL TO THE SIGNAL SYSTEM CONSTRUCTION.

S.A.P. 163-291-04 CITY PROJ. 87-29 INTERSECTION LAYOUT
S.A.P. 27-625-02 COUNTY PROJ. 94-19 SIGNAL PLAN

SHEET 15 OF 18 SHEETS

DESIGNED BY	DATE	SCALE	AS NOTED	DESIGN BY	DATE	REVISION NO.	DATE
PLANNED BY	DATE	SCALE	AS NOTED	DESIGN BY	DATE	REVISION NO.	DATE
CHECKED BY	DATE	SCALE	AS NOTED	DESIGN BY	DATE	REVISION NO.	DATE
RECORDED BY	DATE	SCALE	AS NOTED	DESIGN BY	DATE	REVISION NO.	DATE

CSAH 25 AND OTTAWA AVE/
BELTLINE BLVD.
ST. LOUIS PARK, MINN. SOTA

Orf
Schelen &
Ascheron, Inc.
Engineers & Surveyors
3000 Hennepin Ave. S. Minneapolis, MN 55405-3773

Kimley»Horn

PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2
SIGNAL PLAN - SIGNAL SYSTEM "J"
CSAH 25 AND BELTLINE BLVD/OTTAWA AVE
FOR INFORMATION ONLY

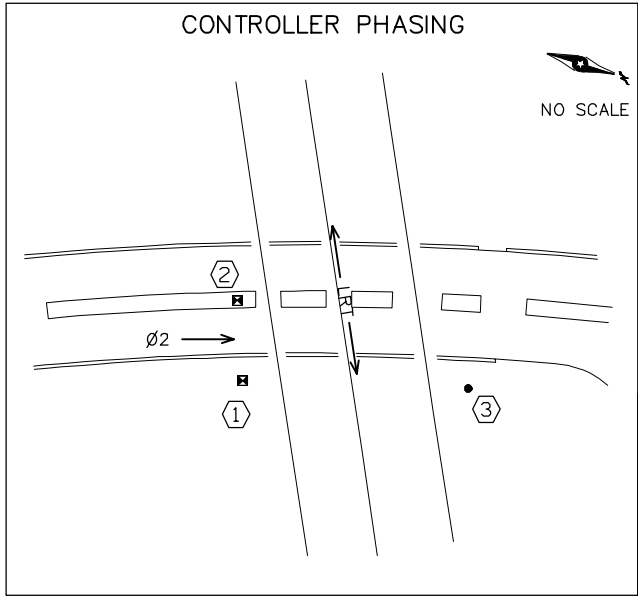
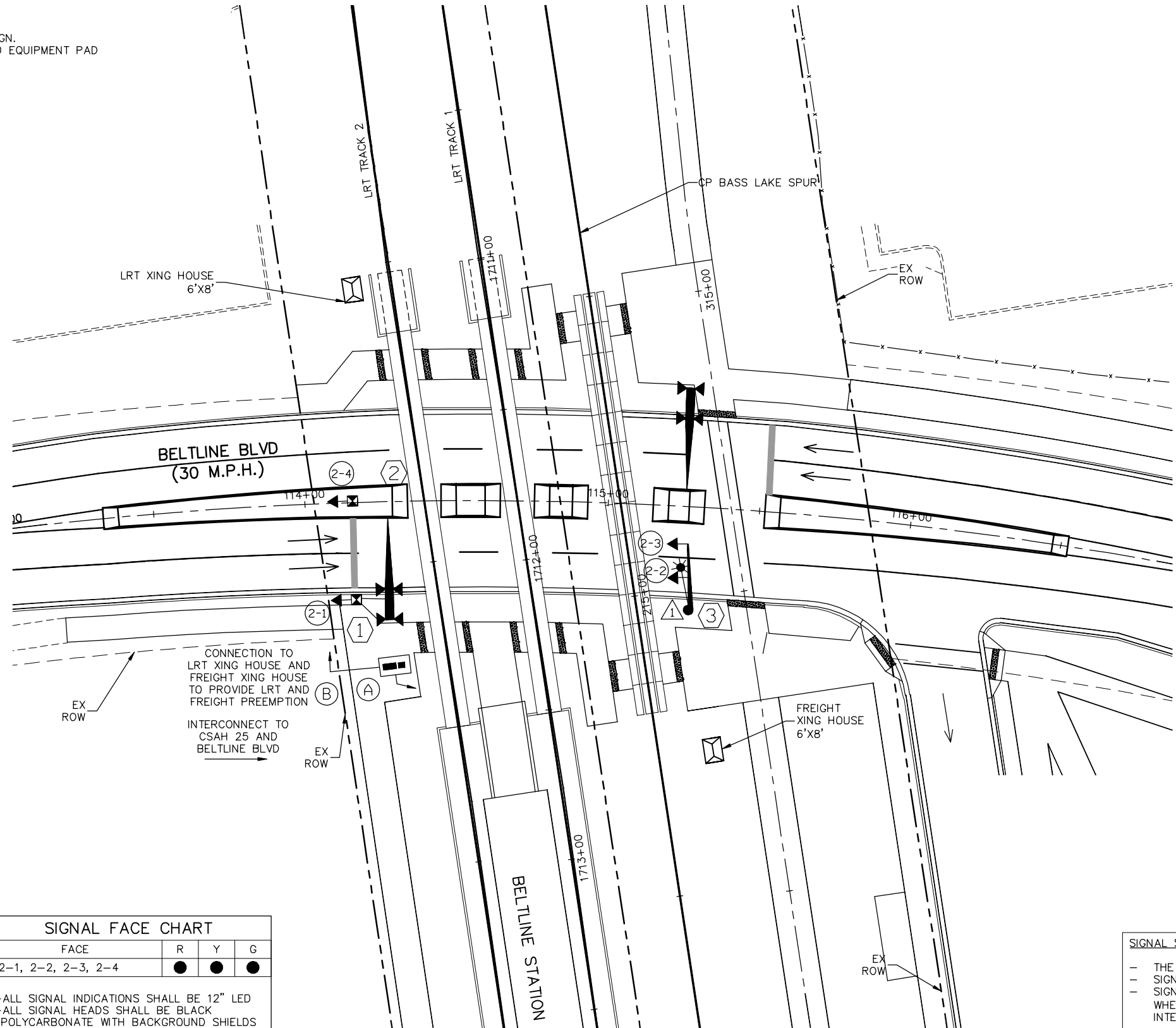
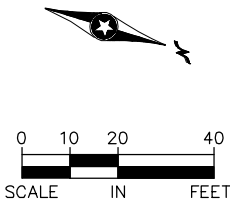
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SHEET NAME: E2-TFC-SIG-OTT-002

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- 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
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.



SIGNAL FACE CHART				
FACE	R	Y	G	
2-1, 2-2, 2-3, 2-4	●	●	●	

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

- SIGNAL SYSTEM OPERATIONS
- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
 - SIGNAL TO REST IN GREEN.
 - SIGNAL TURNS RED ON APPROACH OF LRT OR FREIGHT, OR WHEN NB QUEUE FROM CSAH 25/BELTLINE BLVD INTERSECTION REACHES QUEUE CUTTER DETECTORS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

Kimley»Horn

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST
Green Line LRT Extension

EAST - VOLUME 1 (CIVIL) - SEGMENT 2
SIGNAL PLAN - SIGNAL SYSTEM "K"
BELTLINE BLVD AT TRACK CROSSING

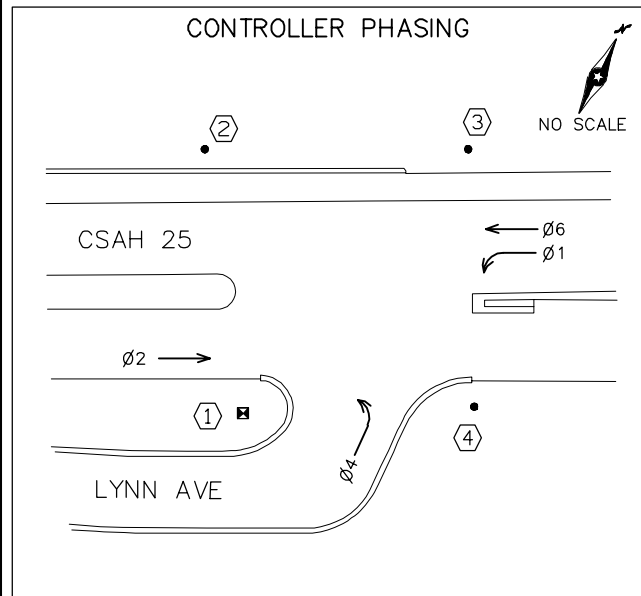
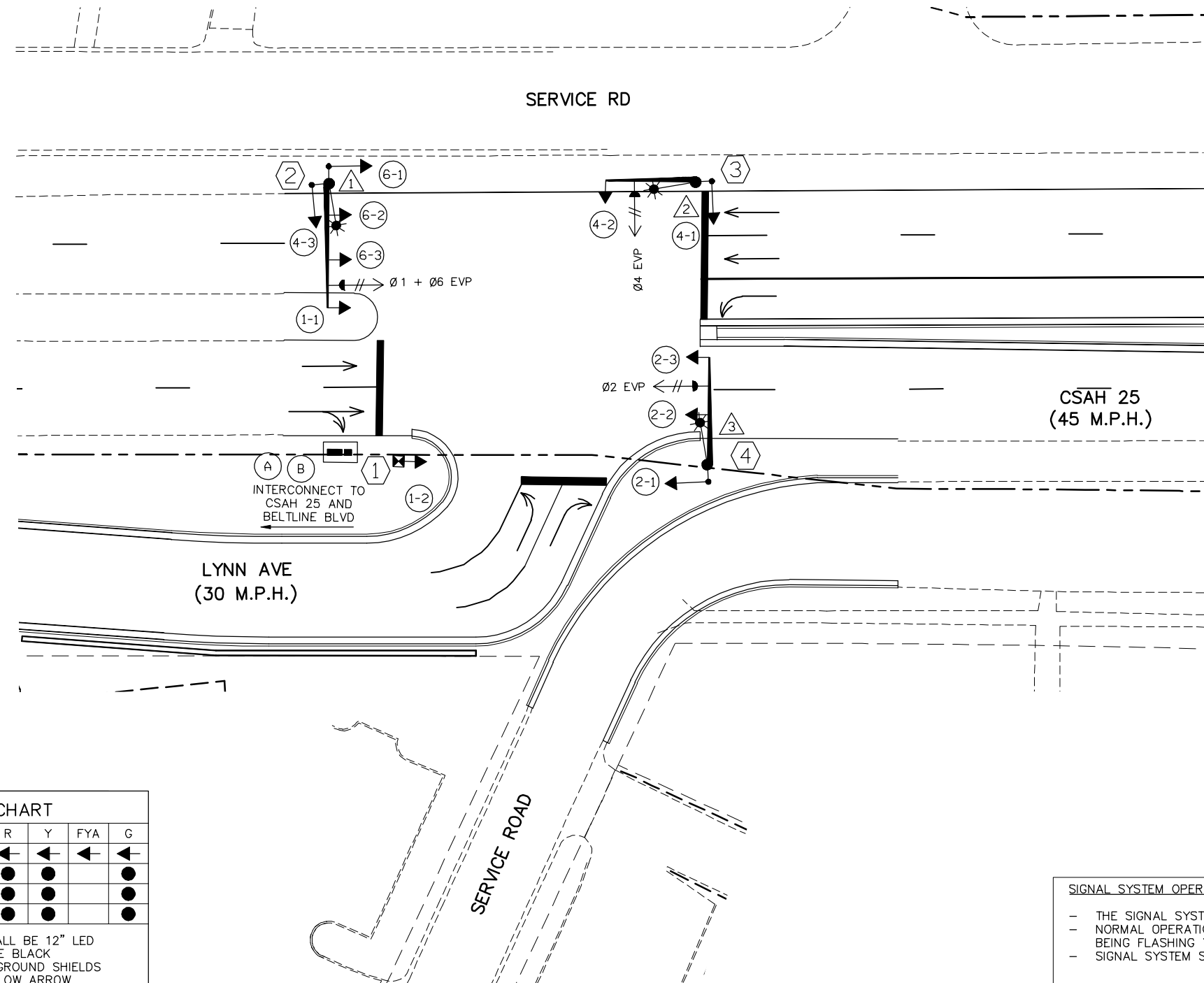
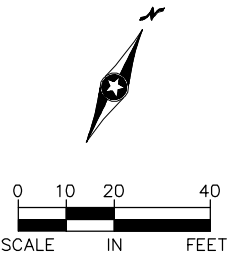
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SHEET NAME: **E2-TFC-SIG-BLT-001**

SHEET 134 OF 135

Aug. 28 2014 09:36 am V:\3300_PEC-E\CAD\SEGMENT E2\PLAN SHEETS\TRAFFIC\E2-TFC-SIG-LYN.dwg By: guillermo.madrigal

- NOTES
1. (A) - CONTROLLER CABINET
(B) - SIGNAL SERVICE CABINET
EQUIPMENT PAD LOCATION SUBJECT TO CHANGE IN FINAL DESIGN.
 2. 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	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	●	●		●
4-1, 4-2, 4-3	●	●		●
6-1, 6-2, 6-3	●	●		●
- 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 4 PHASE. WITH PHASE 1 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
 - SIGNAL SYSTEM SHALL BE FULLY ACTUATED.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



PRELIMINARY ENGINEERING



EAST - VOLUME 1 (CIVIL) - SEGMENT 2
SIGNAL PLAN - SIGNAL SYSTEM "L"
CSAH 25 AND LYNN AVE

DISCIPLINE: **TRAFFIC**

SHEET NAME: **E2-TFC-SIG-LYN-001**

SHEET
135
OF
135