COTTON BELT REGIONAL RAIL
VELOWEB HIKE AND BIKE TRAIL
CITY OF COPPELL

CONTRACT NO. C - 2033270 - 01

100% DESIGN
AUGUST 25, 2023

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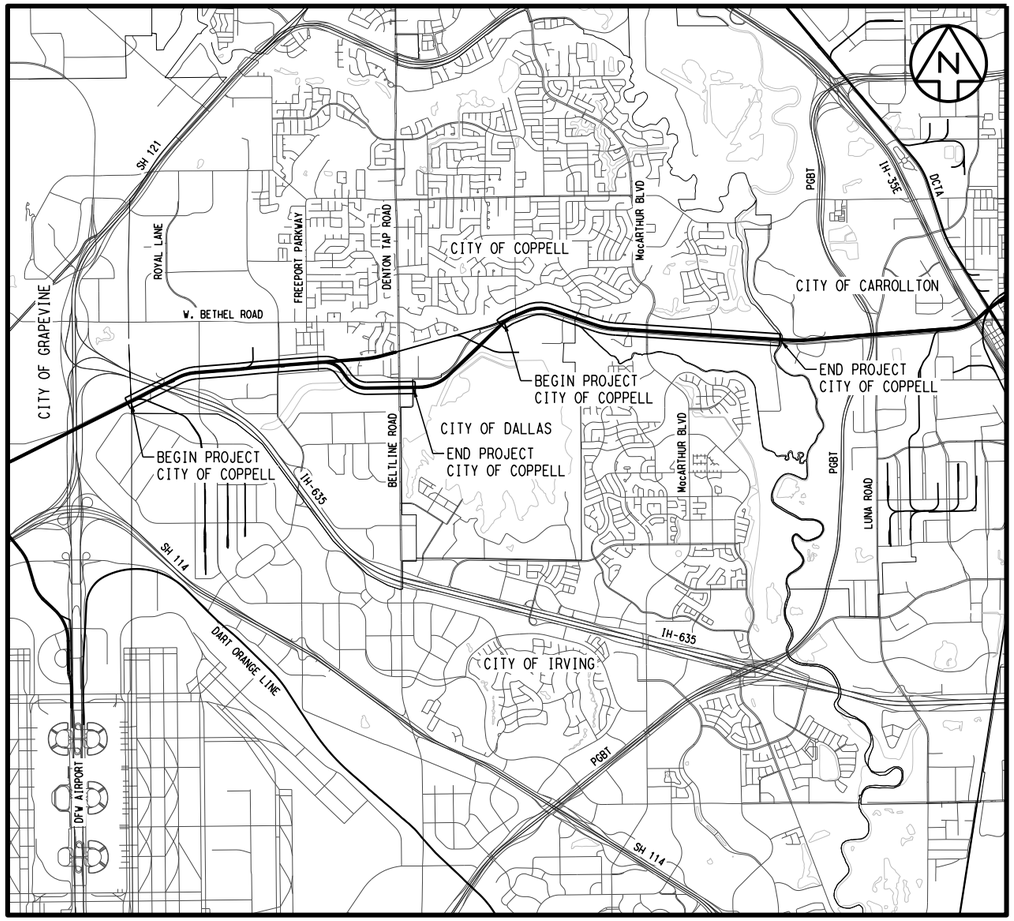
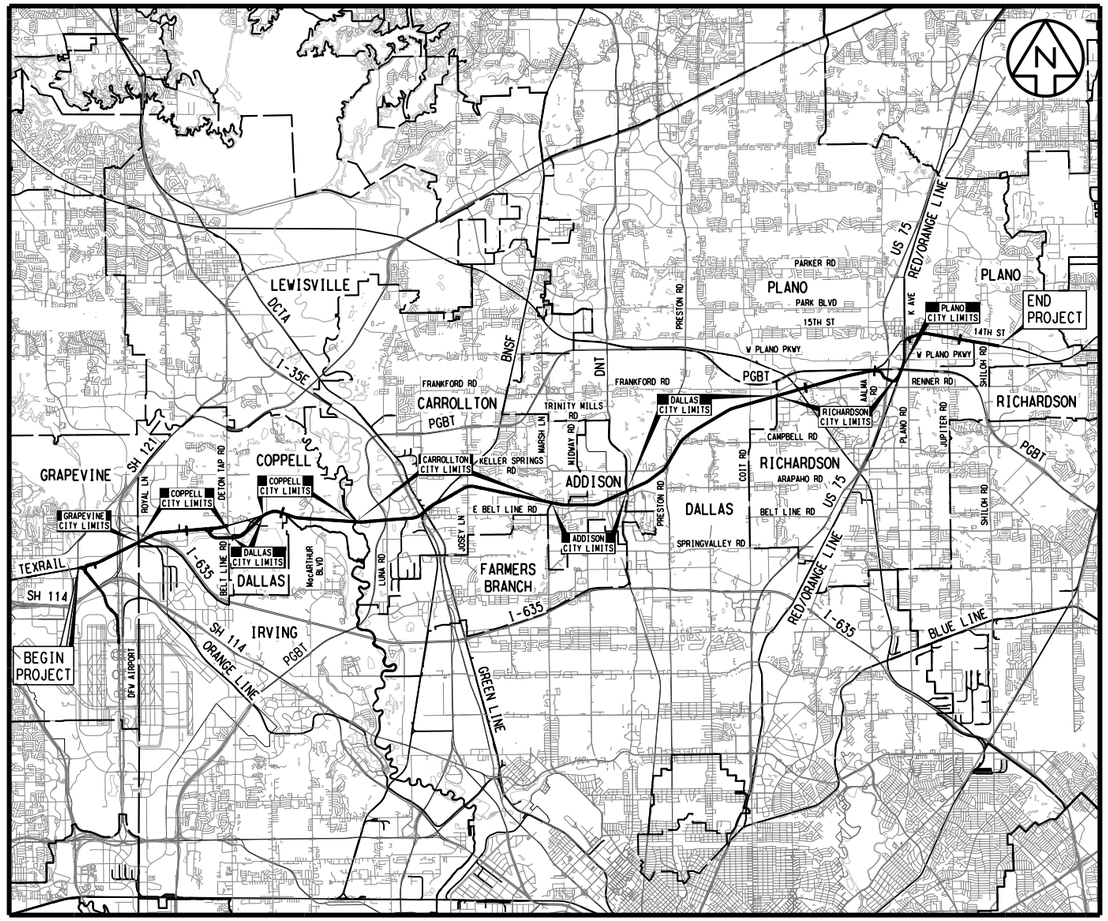


VICINITY MAP
NO SCALE



KEY MAP
VELOWEB HIKE AND BIKE TRAIL
NO SCALE

COTTON BELT REGIONAL RAIL
VELOWEB HIKE AND BIKE TRAIL
CITY OF COPPELL

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1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No, F-2966

IEA
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DALLAS, TX 75252
Phone: +1 (214) 884-4253
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
TITLE SHEET

CONTRACT	DWG No.	REV
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DWG No. GC2-0221

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VELOWEB HIKE & BIKE TRAIL

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CONTRACT	DWG No.	REV
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188	D	CC1-6403	CITY OF COPPELL CROSS SECTIONS SHEET 84 OF 106
189	D	CC1-6404	CITY OF COPPELL CROSS SECTIONS SHEET 85 OF 106
190	D	CC1-6405	CITY OF COPPELL CROSS SECTIONS SHEET 86 OF 106
191	D	CC1-6406	CITY OF COPPELL CROSS SECTIONS SHEET 87 OF 106
192	D	CC1-6407	CITY OF COPPELL CROSS SECTIONS SHEET 88 OF 106
193	D	CC1-6408	CITY OF COPPELL CROSS SECTIONS SHEET 89 OF 106
194	D	CC1-6409	CITY OF COPPELL CROSS SECTIONS SHEET 90 OF 106
195	D	CC1-6410	CITY OF COPPELL CROSS SECTIONS SHEET 91 OF 106
196	D	CC1-6411	CITY OF COPPELL CROSS SECTIONS SHEET 92 OF 106
197	D	CC1-6412	CITY OF COPPELL CROSS SECTIONS SHEET 93 OF 106
198	D	CC1-6413	CITY OF COPPELL CROSS SECTIONS SHEET 94 OF 106
199	D	CC1-6414	CITY OF COPPELL CROSS SECTIONS SHEET 95 OF 106
200	D	CC1-6415	CITY OF COPPELL CROSS SECTIONS SHEET 96 OF 106
201	D	CC1-6416	CITY OF COPPELL CROSS SECTIONS SHEET 97 OF 106
202	D	CC1-6417	CITY OF COPPELL CROSS SECTIONS SHEET 98 OF 106

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Phone: +1 (214) 638-0145
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DALLAS, TX 75252
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SHEET NO.	REV NO.	DWG NO.	DRAWING TITLE
CIVIL DRAWINGS: CITY OF COPPELL (CONT'D)			
203	D	CC1-6418	CITY OF COPPELL CROSS SECTIONS SHEET 99 OF 106
204	D	CC1-6419	CITY OF COPPELL CROSS SECTIONS SHEET 100 OF 106
205	D	CC1-6420	CITY OF COPPELL CROSS SECTIONS SHEET 101 OF 106
206	D	CC1-6421	CITY OF COPPELL CROSS SECTIONS SHEET 102 OF 106
207	D	CC1-6422	CITY OF COPPELL CROSS SECTIONS SHEET 103 OF 106
208	D	CC1-6423	CITY OF COPPELL CROSS SECTIONS SHEET 104 OF 106
209	D	CC1-6424	CITY OF COPPELL CROSS SECTIONS SHEET 105 OF 106
210	D	CC1-6425	CITY OF COPPELL CROSS SECTIONS SHEET 106 OF 106
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211	D	CC1-0069	CITY OF COPPELL CITY STANDARDS - CIVIL SHEET 1 OF 9
212	D	CC1-0070	CITY OF COPPELL CITY STANDARDS - CIVIL SHEET 2 OF 9
213	D	CC1-0071	CITY OF COPPELL CITY STANDARDS - CIVIL SHEET 3 OF 9
214	D	CC1-0072	CITY OF COPPELL CITY STANDARDS - CIVIL SHEET 4 OF 9
215	D	CC1-0073	CITY OF COPPELL CITY STANDARDS - CIVIL SHEET 5 OF 9
216	D	CC1-0074	CITY OF COPPELL CITY STANDARDS - CIVIL SHEET 6 OF 9
217	D	CC1-0075	CITY OF COPPELL CITY STANDARDS - CIVIL SHEET 7 OF 9
218	D	CC1-0076	CITY OF COPPELL CITY STANDARDS - CIVIL SHEET 8 OF 9
219	D	CC1-0077	CITY OF COPPELL CITY STANDARDS - CIVIL SHEET 9 OF 9
220	D	CC1-0080	CIVIL DETAILS
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221	D	CS9-0102	CHAIN LINK FENCE DETAILS SHEET 1 OF 2
222	D	CS9-0112	CHAIN LINK FENCE DETAILS SHEET 2 OF 2
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223	D	WC4-1134	SECTION 1-3 TRAFFIC SIGNAL LAYOUT ROYAL LN
224	D	WC4-1135	SECTION 1-3 TRAFFIC SIGNAL SUMMARY ROYAL LN
225	D	WC4-1169	SECTION 1-3 TRAFFIC SIGNAL LAYOUT FREEPORT PKWY
226	D	WC4-1170	SECTION 1-3 TRAFFIC SIGNAL LAYOUT FREEPORT PKWY
227	D	WC3-1186	SECTION 1-4 SIGNING AND STRIPING LAYOUT COPPELL RD
228	D	WC3-1210	SECTION 1-4 SIGNING AND STRIPING LAYOUT SOUTHWESTERN BLVD SHEET 1 OF 4
229	D	WC3-1211	SECTION 1-4 SIGNING AND STRIPING LAYOUT SOUTHWESTERN BLVD SHEET 2 OF 4
230	D	WC3-1212	SECTION 1-4 SIGNING AND STRIPING LAYOUT SOUTHWESTERN BLVD SHEET 3 OF 4
231	D	WC3-1213	SECTION 1-4 SIGNING AND STRIPING LAYOUT SOUTHWESTERN BLVD SHEET 4 OF 4
232	D	WC3-1226	SECTION 1-4 CROSSING EXHIBIT S DENTON TAP RD
233	D	WC3-1232	SECTION 1-4 SIGNING AND STRIPING LAYOUT SANDERS LOOP
234	D	WC4-1287	SECTION 1-4 TRAFFIC SIGNAL LAYOUT DRIVEWAY @ MOORE RD
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235	D	WC3-1316	SECTION 1-4 SIGNING AND STRIPING LAYOUT MOCKINGBIRD LN
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236	D	WS9-2001	ELECTRICAL DETAILS CONDUITS & NOTES ED (1) - 14
237	D	WS9-2002	ELECTRICAL DETAILS CONDUIT SUPPORTS ED (2) - 14
238	D	WS9-2003	ELECTRICAL DETAILS CONDUCTORS ED (3) - 14
239	D	WS9-2004	ELECTRICAL DETAILS GROUND BOXES ED (4) - 14
240	D	WS9-2005	ELECTRICAL DETAILS SERVICE NOTES & DATA ED (5) - 14
241	D	WS9-2006	ELECTRICAL DETAILS SERVICE ENCLOSURE AND NOTES ED (6) - 14
242	D	WS9-2008	ELECTRICAL DETAILS TYPICAL TRAFFIC SIGNAL SYSTEM DETAILS ED (8) - 14
243	D	WS9-2009	ELECTRICAL DETAILS ELECTRICAL SERVICE SUPPORT PEDESTAL SERVICE TYPE PS ED (9) - 14
244	D	WS9-2010	ROADWAY ILLUMINATION DETAILS RID (1) - 20
245	D	WS9-2011	ROADWAY ILLUMINATION DETAILS (RDWY ILLUM FOUNDATIONS) RID (2) - 20
246	D	WS9-2012	ROADWAY ILLUMINATION DETAILS (UNDERPASS LIGHT FIXTURES) RID (3) - 20
247	D	WS9-2013	ROADWAY ILLUMINATION POLES RIP (1) - 19 SHEET 1 OF 4
248	D	WS9-2014	ROADWAY ILLUMINATION POLES RIP (2) - 19 SHEET 2 OF 4
249	D	WS9-2015	ROADWAY ILLUMINATION POLES RIP (3) - 19 SHEET 3 OF 4
250	D	WS9-2016	ROADWAY ILLUMINATION POLES RIP (4) - 19 SHEET 4 OF 4
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251	D	WS9-2101	CLAMP ON FITTING ASSEMBLY FOR LUMINAIRE MAST ARM CFA-12
252	D	WS9-2102	STANDARD ASSEMBLY DRAWINGS FOR LUMINAIRE SUPPORT STRUCTURES ARM DETAILS LUM-A-12
253	D	WS9-2103	STANDARD ASSEMBLY FOR TRAFFIC SIGNAL SUPPORT STRUCTURES MAST ARM CONNECTIONS MA-C-12
254	D	WS9-2104	TRAFFIC SIGNAL CONTROLLER CABINET BASE AND PAD TS-CF-21
255	D	WS9-2105	MAST ARM DAMPING PLATE DETAILS MA-DPD-20
256	D	WS9-2106	TRAFFIC SIGNAL HEAD WITH BACKPLATE TS-BP-20
257	D	WS9-2107	TRAFFIC SIGNAL SUPPORT STRUCTURES SINGLE MAST ARM ASSEMBLY (80 MPH WIND ZONE) SMA-80 (1) - 12 (DAL) SHEET 1 OF 2
258	D	WS9-2108	TRAFFIC SIGNAL SUPPORT STRUCTURES SINGLE MAST ARM ASSEMBLY (80 MPH WIND ZONE) SMA-80 (2) - 12 (DAL) SHEET 2 OF 2
259	D	WS9-2117	TRAFFIC SIGNAL SUPPORT STRUCTURES MAST ARM POLE DETAILS MA-D-12 (DAL)
260	D	WS9-2119	TRAFFIC SIGNAL HEAD DETAILS (DAL)
261	D	WS9-2120	PEDESTRIAN SIGNAL HEAD DETAILS (DAL)
262	D	WS9-2121	RADAR VEHICLE DETECTION SYSTEM RVDS-18 (DAL)
263	D	WS9-2127	INSTALLATION OF BBU/EVP EXTERNAL SIDE MOUNT CABINET INSTALLATION DETAILS DALLAS DISTRICT STANDARD SHEET 1 OF 3
264	D	WS9-2128	INSTALLATION OF BBU/EVP STAND ALONE BBU CABINET (GROUND MOUNT) DALLAS DISTRICT STANDARD SHEET 2 OF 3
265	D	WS9-2129	INSTALLATION OF BBU/EVP INSTALLATION SCENARIOS DALLAS DISTRICT STANDARD SHEET 3 OF 3
266	D	WS9-2210	TYPICAL STANDARD PAVEMENT MARKINGS PM (1) - 20
267	D	WS9-2211	POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM (2) - 20

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SHEET NO.	REV NO.	DWG NO.	DRAWING TITLE
TRAFFIC: STANDARD DRAWINGS (CONT'D)			
268	D	WS9-2212	TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM (3) - 20
269	D	WS9-2213	CROSS WALK PAVEMENT MARKINGS PM (4) - 22
270	D	WS9-2239	TYPICAL SIGN REQUIREMENTS TSR (4) - 13
271	D	WS9-2240	TYPICAL SIGN REQUIREMENTS TSR (5) - 13
272	D	WS9-2249	SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS SMD (GEN) - 08
273	D	WS9-2250	SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM SMD (SLIP-1) - 08
274	D	WS9-2251	SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM SMD (SLIP-2) - 08
275	D	WS9-2252	SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM SMD (SLIP-3) - 08
276	D	WS9-2253	SOLAR POWERED ROADSIDE FLASHING BEACON ASSEMBLY DETAILS DETAILS SPRFBA (1) -13
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277	D	CC6-1511	CITY OF COPPELL DRAINAGE CALCULATIONS SHEET 1 OF 6
278	D	CC6-1512	CITY OF COPPELL DRAINAGE CALCULATIONS SHEET 2 OF 6
279	D	CC6-1513	CITY OF COPPELL DRAINAGE CALCULATIONS SHEET 3 OF 6
280	D	CC6-1514	CITY OF COPPELL DRAINAGE CALCULATIONS SHEET 4 OF 6
281	D	CC6-1515	CITY OF COPPELL DRAINAGE CALCULATIONS SHEET 5 OF 6
282	D	CC6-1516	CITY OF COPPELL DRAINAGE CALCULATIONS SHEET 6 OF 6
283	D	CC6-1532	CITY OF COPPELL DRAINAGE AREA MAP BEGIN TO 1130+00 SHEET 1 OF 6
284	D	CC6-1533	CITY OF COPPELL DRAINAGE AREA MAP STA 1130+00 TO STA 1175+00 SHEET 2 OF 6
285	D	CC6-1781	CITY OF COPPELL DRAINAGE AREA MAP STA 1175+00 TO STA 1215+00 SHEET 3 OF 6
286	D	CC6-1782	CITY OF COPPELL DRAINAGE AREA MAP STA 1215+00 TO END SHEET 4 OF 6
287	D	CC6-1784	CITY OF COPPELL DRAINAGE AREA MAP BEGIN TO STA 1319+00 SHEET 5 OF 6
288	D	CC6-1785	CITY OF COPPELL DRAINAGE AREA MAP STA 1319+00 TO END SHEET 6 OF 6
289	D	CC6-1566	CITY OF COPPELL DRAINAGE PLAN BEGIN TO STA 1109+50 SHEET 1 OF 21
290	D	CC6-1567	CITY OF COPPELL DRAINAGE PLAN STA 1109+50 TO STA 1119+50 SHEET 2 OF 21
291	D	CC6-1568	CITY OF COPPELL DRAINAGE PLAN STA 1119+50 TO STA 1128+50 SHEET 3 OF 21
292	D	CC6-1569	CITY OF COPPELL DRAINAGE PLAN STA 1128+50 TO STA 1138+00 SHEET 4 OF 21
293	D	CC6-1570	CITY OF COPPELL DRAINAGE PLAN STA 1138+00 TO STA 1148+00 SHEET 5 OF 21
294	D	CC6-1571	CITY OF COPPELL DRAINAGE PLAN STA 1148+00 TO STA 1158+00 SHEET 6 OF 21
295	D	CC6-1572	CITY OF COPPELL DRAINAGE PLAN STA 1158+00 TO STA 1168+00 SHEET 7 OF 21
296	D	CC6-1573	CITY OF COPPELL DRAINAGE PLAN STA 1168+00 TO STA 1177+00 SHEET 8 OF 21
297	D	CC6-1800	CITY OF COPPELL DRAINAGE PLAN STA 1177+00 TO STA 1185+50 SHEET 9 OF 21
298	D	CC6-1801	CITY OF COPPELL DRAINAGE PLAN STA 1185+50 TO STA 1196+00 SHEET 10 OF 21
299	D	CC6-1802	CITY OF COPPELL DRAINAGE PLAN STA 1196+00 TO STA 1204+50 SHEET 11 OF 21
300	D	CC6-1803	CITY OF COPPELL DRAINAGE PLAN STA 1204+50 TO STA 1214+00 SHEET 12 OF 21
301	D	CC6-1804	CITY OF COPPELL DRAINAGE PLAN STA 1214+00 TO STA 1224+00 SHEET 13 OF 21
302	D	CC6-1805	CITY OF COPPELL DRAINAGE PLAN STA 1224+00 TO CITY OF DALLAS SHEET 14 OF 21
303	D	CC6-1823	CITY OF COPPELL DRAINAGE PLAN CITY OF DALLAS TO STA 1304+00 SHEET 15 OF 21
304	D	CC6-1824	CITY OF COPPELL DRAINAGE PLAN STA 1304+00 TO STA 1314+00 SHEET 16 OF 21
305	D	CC6-1825	CITY OF COPPELL DRAINAGE PLAN STA 1314+00 TO STA 1325+00 SHEET 17 OF 21
306	D	CC6-1826	CITY OF COPPELL DRAINAGE PLAN STA 1325+00 TO STA 1334+50 SHEET 18 OF 21
307	D	CC6-1827	CITY OF COPPELL DRAINAGE PLAN STA 1334+50 TO STA 1344+50 SHEET 19 OF 21
308	D	CC6-1828	CITY OF COPPELL DRAINAGE PLAN STA 1344+50 TO STA 1354+50 SHEET 20 OF 21
309	D	CC6-1829	CITY OF COPPELL DRAINAGE PLAN STA 1354+50 TO END SHEET 21 OF 21
310	D	CC6-1634	CITY OF COPPELL CULVERT AT CB-1 NB STA 1126+74 PLAN & PROFILE SHEET 1 OF 5
311	D	CC6-1880	CITY OF COPPELL CULVERT AT CB-1 NB STA 1187+53 PLAN & PROFILE SHEET 2 OF 5
312	D	CC6-1881	CITY OF COPPELL CULVERT AT CB-1 NB STA 1192+53 PLAN & PROFILE SHEET 3 OF 5
313	D	CC6-1882	CITY OF COPPELL CULVERT AT CB-1 NB STA 1197+76 PLAN & PROFILE SHEET 4 OF 5
314	D	CC6-1889	CITY OF COPPELL CULVERT AT CB-1 NB STA 1296+02 PLAN & PROFILE SHEET 5 OF 5
315	D	CC6-1422	CITY OF COPPELL STORM DRAIN PROFILES SHEET 1 OF 4
316	D	CC6-1423	CITY OF COPPELL STORM DRAIN PROFILES SHEET 2 OF 4
317	D	CC6-1424	CITY OF COPPELL STORM DRAIN PROFILES SHEET 3 OF 4
318	D	CC6-1425	CITY OF COPPELL STORM DRAIN PROFILES SHEET 4 OF 4
319	D	CC6-1710	DRAINAGE GENERAL NOTES
320	D	CC6-1711	REHAB DRAINAGE DETAILS
321	D	CC6-1712	UNDERDRAIN OUTFALL DETAILS
322	D	CC6-1713	INSERTA TEE DRAINAGE DETAILS
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323	D	CC6-1714	DURA TRENCH 8" PRECAST TRENCH DRAIN
324	D	CC6-1715	DURA TRENCH 10" HEEL GUARD DUCTILE IRON GRATE
325	D	CC6-1716	DURA TRENCH 8" INLINE CATCH BASIN
326	D	CC6-1717	CONCRETE HEADWALLS WITH PARALLEL WINGS FOR NON-SKEWED PIPE CULVERTS CH-PW-0
327	D	CC6-1718	MISCELLANEOUS DRAINAGE DETAIL
328	D	CC6-1719	PRECAST BASE PB
329	D	CC6-1720	PIPE AND BOX GROUTED CONNECTIONS FOR PRECAST STRUCTURES PBGC
330	D	CC6-1721	DESIGN DATA FOR PRECAST BASE AND JUNCTION BOX PDD
331	D	CC6-1722	PRECAST SAFETY END TREATMENT TYPE II - CROSS DRAINAGE PSET-SC
332	D	CC6-1723	PRECAST SAFETY END TREATMENT TYPE II - PARALLEL DRAINAGE PSET-SP
333	D	CC6-1724	PRECAST SLAB LID PSL SHEET 1 OF 2

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DRAINAGE: STANDARD DRAWINGS (CONT'D)			
334	D	CC6-1725	PRECAST SLAB LID PSL SHEET 2 OF 2
335	D	CC6-1726	SAFETY END TREATMENT FOR 12 DIA TO 60" DIA PIPE CULVERTS TYPE II - CROSS DRAINAGE SETP-CD SHEET 1 OF 2
336	D	CC6-1727	SAFETY END TREATMENT FOR 12 DIA TO 60" DIA PIPE CULVERTS TYPE II - CROSS DRAINAGE SETP-CD SHEET 2 OF 2
337	D	CC6-1728	SAFETY END TREATMENT FOR 12" DIA TO 72" DIA PIPE CULVERTS TYPE II - PARALLEL DRAINAGE SETP-CD
338	D	CC6-1729	STONE RIPRAP DETAILS SHEET 1 OF 2 SRR
339	D	CC6-1730	STONE RIPRAP DETAILS SHEET 2 OF 2 SRR
340	D	CC6-1731	DRAINAGE DETAILS SHEET 1 OF 4
341	D	CC6-1732	DRAINAGE DETAILS SHEET 2 OF 4
342	D	CC6-1733	DRAINAGE DETAILS SHEET 3 OF 4
343	D	CC6-1734	DRAINAGE DETAILS SHEET 4 OF 4
344	D	CC6-1735	UNDERDRAIN DETAILS SHEET 1 OF 4
345	D	CC6-1736	UNDERDRAIN DETAILS SHEET 2 OF 4
346	D	CC6-1737	UNDERDRAIN DETAILS SHEET 3 OF 4
347	D	CC6-1738	UNDERDRAIN DETAILS SHEET 4 OF 4
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348	D	OC2-1040	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1100+00 TO STA 1110+00 SHEET 1 OF 20
349	D	OC2-1041	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1110+00 TO STA 1120+00 SHEET 2 OF 20
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350	D	OC2-1042	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1120+00 TO STA 1130+00 SHEET 3 OF 20
351	D	OC2-1043	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1130+00 TO STA 1140+00 SHEET 4 OF 20
352	D	OC2-1044	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1140+00 TO STA 1150+00 SHEET 5 OF 20
353	D	OC2-1045	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1150+00 TO STA 1160+00 SHEET 6 OF 20
354	D	OC2-1046	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1160+00 TO STA 1170+00 SHEET 7 OF 20
355	D	OC2-1047	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1170+00 TO STA 1180+00 SHEET 8 OF 20
356	D	OC2-1048	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1180+00 TO STA 1191+50 SHEET 9 OF 20
357	D	OC2-1049	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1191+50 TO STA 1201+00 SHEET 10 OF 20
358	D	OC2-1050	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1201+00 TO STA 1211+00 SHEET 11 OF 20
359	D	OC2-1051	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1211+00 TO STA 1221+00 SHEET 12 OF 20
360	D	OC2-1052	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1221+00 TO STA 1232+50 SHEET 13 OF 20
361	D	OC2-1061	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1296+00 TO STA 1306+00 SHEET 14 OF 20
362	D	OC2-1062	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1306+00 TO STA 1316+50 SHEET 15 OF 20
363	D	OC2-1063	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1316+50 TO STA 1327+00 SHEET 16 OF 20
364	D	OC2-1064	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1327+00 TO STA 1337+00 SHEET 17 OF 20
365	D	OC2-1065	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1337+00 TO STA 1346+00 SHEET 18 OF 20
366	D	OC2-1066	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1346+00 TO STA 1356+00 SHEET 19 OF 20
ENVIRONMENTAL: CITY OF COPPELL STORM WATER POLLUTION PREVENTION PLAN (CONT'D)			
367	D	OC2-1067	CITY OF COPPELL TEMPORARY EROSION CONTROL STA 1356+00 TO STA 1366+00 SHEET 20 OF 20
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368	D	OC9-1068	EROSION AND SEDIMENTATION CONTROL SILT FENCE SHEET 1 OF 7
369	D	OC9-1069	EROSION AND SEDIMENTATION CONTROL ROCK BERM SHEET 2 OF 7
370	D	OC9-1070	EROSION AND SEDIMENTATION CONTROL STABILIZED CONSTRUCTION ENTRANCE SHEET 3 OF 7
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DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

IEA
18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
Phone: +1 (214) 884-4253
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ARCHER WESTERN HERZOG

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CHECKED	B. ALLDREDGE
IN CHARGE	K. MOYNAHAN
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

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CONTRACT	DWG No.	REV
C-2033270-01	GC2-0226	D

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DWG No. GC3-7203

SYMBOLS

- PROFILE GRADE LINE / ELEVATION CONTROL POINT
- DIRECTION OF FLOW
- C OR B CENTERLINE OR BASELINE
- FUTURE OR NOT IN CONTRACT
- ℄ CENTERLINE
- ℄ BASELINE
- ℙ PROPERTY LINE
- DIMENSION LINE CONTINUES
- MATCH LINE
- 510 CONTOUR LINE
- TRACK (TRANSIT) CENTER LINE
- X X X EXISTING FENCE LINE
- PROPOSED FENCE LINE
- STRUCTURE OUTLINE
- RAILROAD TRACKS
- CO CLEANOUT
- MH MANHOLE
- SIDEWALK AND MISC. LINES
- DROP INLET, CATCH BASIN OR DRAIN
- CULVERT HEADWALLS
- + 543.5 SPOT ELEVATION
- CURB LINE
- EXISTING BARRIER/RETAINING WALL
- PROPOSED RETAINING WALL
- PROPOSED BALLAST WALL
- PROPOSED SIDEWALK WALL
- NOISE IMPACT AREA
- GUARD RAIL
- HAND RAIL
- UNPAVED ROAD
- CONCRETE GUARD FENCE
- VEGETATION LINE
- (T) TREE
- (S) SHRUB
- POLE

- UTILITY POLE
- SS SANITARY (DIRECTION OF FLOW) , PLUG
- GRID OF THE STATE PLANE COORDINATE SYSTEM
- BILLBOARD
- △ TOTAL CENTRAL ANGLE OF SPIRAL AND CIRCULAR CURVES
- △ C1 SUFFIX (1) AT THE SYMBOL DENOTES DATA FOR THE FIRST CIRCULAR CURVE OF A COMPOUND CURVE
- △ C2 SUFFIX (2) AT THE SYMBOL DENOTES DATA FOR THE SECOND CIRCULAR CURVE OF A COMPOUND CURVE
- ⊖S CENTRAL ANGLE OF SPIRAL OR SPIRAL ANGLE
- ⊖aAC CENTRAL ANGLE OF COMPOUND SPIRAL OR COMPOUND ANGLE (CS1 TO CS2)
- ⊖sAT TOTAL CENTRAL ANGLE OF COMPOUND SPIRAL OR TOTAL COMPOUND SPIRAL ANGLE (FROM SPO TO SC2)
- WWMH WASTEWATER MANHOLE
- SMH STORM SEWER MANHOLE
- EMH, TMH, WUMH ELECTRICAL, TELEPHONE, OR WESTERN UNION MANHOLE
- REDUCER
- WM WATER METER
- WV WATER VALVE
- FH FIRE HYDRANT
- CAP OR PLUG
- GV GAS VALVE
- GM GAS METER
- PB PULL BOX OR SPLICING CHAMBER
- LIGHT POLE
- FS FIRE SERVICE STAND PIPE
- EXISTING TRAFFIC SIGN
- PROPOSED TRAFFIC SIGN
- POLE GUY AND ANCHOR
- TRANSMISSION LINE TOWER
- TRAFFIC CONTROL GATE
- CANTILEVERED RAILROAD CROSSING SIGNAL
- TEST BORING LOCATION
- (O/H) OVERHEAD LINES
- (O/H) E OVERHEAD ELECTRIC LINES
- POINT NUMBER DART PRIMARY CONTROL POINT

- △ OTHER SURVEY MONUMENTS
- T (UG) UNDERGROUND TELEPHONE LINE
- UG(E) UNDERGROUND ELECTRIC LINE
- OH AERIAL UTILITY
- UTILITY FACILITY LESS THAN 24"
- MAJOR UTILITY FACILITY 24" OR LARGER IN PLAN VIEW
- FACILITY TO BE ABANDONED
- DOUBLE CROSSOVER
- POINT OF SWITCH
- EXISTING DITCH
- DITCH PROPOSED SPECIAL DITCH
- STM STORM DRAIN/CULVERT
- UD UNDERDRAIN
- WW WASTEWATER
- W WATER LINE
- G GAS LINE
- TS TRAFFIC SIGNALIZATION LINE
- E ELECTRIC POWER LINE
- ESL ELECTRIC LINE, STREET LIGHTING
- T TELEPHONE LINE
- TG TELEGRAPH LINE
- TV CABLEVISION LINE
- PROPOSED CASING
- PROPOSED STREET CLOSING
- PROPOSED STREET CONSTRUCTION
- EXISTING STREET/RAILROAD RIGHT-OF-WAY LINE
- EXISTING PROPERTY LINE
- DART PROPOSED RIGHT-OF-WAY LINE
- EXISTING EASEMENT LINE
- DART PROPOSED EASEMENT LINE
- EXIST ○ SET ● COPPER, IRON PIN, PIPE IRON ROD MARKERS OR ANY PROPERTY CORNER
- □ ■ RIGHT-OF-WAY, CONTROL MONUMENT OR MARKERS
- EXISTING INTERSECTION OF PROPERTY LINES
- INTERSECTION OF PROPOSED DART RIGHT-OF-WAY LINES

- PROPOSED DART RIGHT-OF-WAY MONUMENT
- DB SYSTEMS DUCTBANK
- POINT OF SWITCH
- LEFT HAND TURNOUT
- RIGHT HAND TURNOUT
- DERAIL SWITCH
- CENTERLINE
- GAUGE LINE
- LEFT HAND CURVE
- RIGHT HAND CURVE
- SINGLE CROSSOVER,LH SHOWN
- CONTINUOUS WELDED RAIL
- PI/PVI/PITO
- NON-INSULATED JOINT
- INSULATED RAIL JOINT-BOTH RAILS
- INSULATED RAIL JOINT - L RAIL
- INSULATED RAIL JOINT - R RAIL
- INSULATED RAIL JOINT
- RESTRAINING RAIL
- PRE-CURVED RAIL
- STANDARD RAIL,GIRDER RAIL
- PREMIUM RAIL
- (F) SWITCH NUMBERING "F" INDICATES FUTURE
- 136#/115# TRANSITION RAIL
- NE3-A CURVE NUMBER
- BLUE FLAG
- BUMPING POST
- EQUILATERAL TURNOUT
- POWER POINT POLE
- FH PROPOSED FIRE HYDRANT
- REMOVE AND REPLACE MANHOLE
- RAILROAD GATE/CANTILEVER LOCATION
- HW 100 HEADWATER ELEVATION
- TW 100 TAILWATER ELEVATION
- CORROSION CONTROL TEST STATION
- (235) CONDUIT RUN NUMBER

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
SYMBOLS

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ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
AAR PLATE	ASSOCIATION OF AMERICAN RAILWAY PLATE
ABUT	ABUTMENT
ABV	ABOVE
ACI	AMERICAN CONCRETE INSTITUTE
AD	AREA DRAIN
ADD	ADDENDUM
ADJ	ADJACENT
A/E	ARCHITECT/ENGINEER
AFF	ABOVE FINISHED FLOOR
A/G	AT GRADE
AGG	AGGREGATE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC
AISI	AMERICAN IRON AND STEEL INSTITUTE
AL	ALUMINUM
ALT	ALTERNATE
ANC	ANCHOR
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
APP	APPROACH
ARCH.	ARCHITECT, ARCHITECTURE
AREMA	AMERICAN RAILWAY ENGINEERING AND MAINTAINANCE OF WAY ASSOCIATION
ASA	AMERICAN STANDARDS ASSOCIATION
ASPH	ASPHALT
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ATR	ABOVE TOP OF RAIL
AUX	AUXILIARY
AVE	AVENUE
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
AWS	AMERICAN WELDING SOCIETY
BAS	BRIDGE APPROACH SLAB
B/B	BACK TO BACK
B/C	BACK OF CURB
BD	BOARD, BALLAST DRAIN
BEG.	BEGINNING
BF	BOTH FACES
BH	BORED HOLE
BIT.	BITUMINOUS
BJF	BITUMINOUS JOINT FILLER
BK	BACK
BKF	BACKFILL
BKWL	BACKWALL
B/L	BUILDING LINE
BLDG	BUILDING
BLKG	BLOCKING
BLVD	BOULEVARD
BM	BEAM
BMCS	BRIDGE MOUNTED CLEARANCE SIGN
B.M.	BENCH MARK
BOT	BOTTOM
BNSF	BURLINGTON NORTHERN SANTA FE RAILWAY
BPA	BRIDGE PROTECTIVE ASSEMBLY
BRG	BEARING
BRKT	BRACKET
BS	BOTH SIDES
B/S	BOTTOM OF SLOPE
BTWN	BETWEEN
BVL	BEVELED
BW	BOTH WAYS, BOTTOM WIDTH
C_X_	AMERICAN STANDARD CHANNEL, X = SIZE BY WEIGHT
	RUNOFF COEFFICIENT
CAB.	CABINET
CALC	CALCULATED
CANT	CANTILEVER
CAT.	CATENARY
CATF	CATENARY FOUNDATION
CATP	CATENARY POLE
CB	CATCH BASIN
CC	CENTER OF CURVE
CDC	CORRIDOR DEVELOPMENT CERTIFICATE
C TO C	CENTER TO CENTER
CEM	CEMENT
CF	CUBIC FEET
CFA	CONTINUOUS FLIGHT AUGER
CFL	COUNTERFLASHING
CFS	CUBIC FEET PER SECOND
CG	CONCRETE GUTTER
C & G	CURB AND GUTTER
C/G	CORNER GUARD
CHAM	CHAMFER
CHD	CHORD
CI	CAST IRON, CURB INLET
CIH	CENTRAL INSTRUMENT HOUSE
CIP	CAST-IN-PLACE, CAST IRON PIPE
CJ	CONSTRUCTION JOINT
CL	CLASS, CURVE LENGTH, CENTERLINE
C/L	CURB LINE
CLF	CHAIN LINK FENCE
CLR	CLEARANCE, CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COD	CITY OF DALLAS
COI	CITY OF IRVING
COL	COLUMN
COMB	COMBINATION
COMM	COMMUNICATIONS
COMP	COMPRESSED, COMPRESSIVE
CON	CONSTRUCTION LINES
CONC	CONCRETE
CONN	CONNECT, CONNECTOR, CONNECTION
CONST	CONSTRUCTION, CONSTRUCT
CONT	CONTINUATION, CONTINUOUS
CORR	CORRUGATED
COV	COVER
CRS	COLD ROLLED STEEL
CS	CURVE TO SPIRAL POINT
CTB	CEMENT TREATED BASE, CONCRETE TRAFFIC BARRIER
CTR	CENTER
CULV	CULVERT
CWR	CONTINUOUS WELDED RAIL
CY	CUBIC YARD
D, DEG	DEGREE OF CURVE
DART	DALLAS AREA RAPID TRANSIT
DCURD	DALLAS COUNTY UTILITY & RECLAMATION DISTRICT
DEFL	DEFLECTION
DEG	DEGREE
DEP	DEPRESSED
DET	DETAIL
DFW	DALLAS/FORT WORTH
DF	DIRECT FIXATION
DG	DOWNGUY
DI	DROP INLET, DUCTILE IRON
DIA	DIAMETER
DIM.	DIMENSION
DIP	DUCTILE IRON PIPE
DIST	DISTANCE
DL	DEAD LOAD
DN	DOWN
DP	DAMPPROOFING
DPL	DALLAS POWER & LIGHT COMPANY
DR	DOOR, DRIVE, DERAILMENT LOAD
DRN	DRAIN, DRAINAGE
DRWY	DRIVEWAY
DS	DOWNSPOUT
D.S.	DRILLED SHAFT
DWG	DRAWING
DWU	DALLAS WATER UTILITY
E	EXPANSION BEAM END, EAST, ELECTRIC
Ea	SUPERELEVATION IN INCHES
EA	EACH
EB	EAST BOUND
EBFR	EAST BOUND FRONTAGE ROAD
EBML	EAST BOUND MAINLINE
EF	EACH FACE
EFC	EXPOSED FINISH CONCRETE
E.G.	FOR EXAMPLE
EL., ELEV	ELEVATION
ELEC	ELECTRIC, ELECTRICAL
EMBED	EMBEDMENT
E/P	EDGE OF PAVEMENTS
EQ	EQUAL
EQUIV	EQUIVALENT
E/S	EDGE OF SHOULDER
ESMT	EASEMENT
EST	ESTIMATE
ETC	ET CETERA
EW	EACH WAY
EWEF	EACH WAY, EACH FACE
EXIST	EXISTING
EXP	EXPANSION
EXPJT	EXPANSION JOINT
EXPO	EXPOSED
EXT	EXTERIOR
EXPWY	EXPRESSWAY
F	FIXED BEAM END, FAHRENHEIT
F/C	FACE OF CURVE
FD	FLOOR DRAIN
FDN	FOUNDATION
FF	FINISH FLOOR, FAR FACE
FFBW	FRONT FACE BACKWALL
FG	FINISH GRADE
FH	FIRE HYDRANT
FIN.	FINISH
FL	FLOW LINE
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
FO	FIBER OPTIC
FOC	FIBER OPTIC CABLE
FOF	FACE OF FINISH
FPU	PRESTRESSING STEEL TENSILE STRENGTH
FRWY	FREEWAY
FS	FAR SIDE
FT	FOOT OR FEET
FTG	FOOTING
FURN	FURNISH
FUT	FUTURE
FWD	FORWARD
FW	FORT WORTH
G	GAS (NATURAL)
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GEC	GENERAL ENGINEERING CONSULTANT
GEN	GENERAL
GI	GALVANIZED IRON, GRATE INLET
G/L	GROUND LINE
GM	GAS METER
GND	GROUND
GP	GAUGE PLATE, GRAND PRAIRIE
GR	GRADE
G/R	GUARD RAIL
GRAN	GRANITE, GRANULAR
G/R PL	GUARD RAIL PLATE
GRTG	GRATING
GV	GAS VALVE
GV	GATE VALVE
GVL	GRAVEL
H	HEIGHT
H/D	HEAVY DUTY
HDWL	HEADWALL
HEX	HEXAGONAL
HH	HAND HOLE
HMAC	HOT MIX ASPHALTIC CONCRETE
HORIZ	HORIZONTAL
HP_X_	BEARING PILE SHAPE, _X_ = SIZE BY WEIGHT
HPT	HIGH POINT
HSB	HIGH STRENGTH BOLT
HSS_X_X_	HOLLOW STRUCTURAL SHAPE X_(X_) = DIMENSION X DIMENSION X THICKNESS
HR	HOUR
HSS	HIGH STRENGTH STEEL
HWL	HIGH WATER LINE
HWY	HIGHWAY
ID	INSIDE DIAMETER
IF.	INSIDE FACE
IH	INTERSTATE HIGHWAY
IJ	INSULATED JOINT
IN.	INCH, INCHES
INC	INCORPORATED
INCL	INCLUDE
INT	INTERIOR
INV	INVERT
IRR.	IRRIGATION
JT	JOINT
K	KIP, RATE OF VERTICAL CURVATURE
L	TOTAL CURVE LENGTH, LENGTH, LEFT (DEFLECTION)
LB	POUND
LF	LINEAR FEET
LG	LENGTH, LONG
LIN	LINEAR, LINEAL
LL	LIVE LOAD
LN	LANE
LOC	LOCATION
LONG.	LONGITUDINAL
LPT	LOW POINT
LRT	LIGHT RAIL TRANSIT
LTD	LIMITED
LSG	LONE STAR GAS
LTL	LINTEL
LVC	LENGTH OF VERTICAL CURVE
LVL	LEVEL
LT	LEFT
M X	MISCELLANEOUS PILE SHAPE, _X_ = SIZE BY WEIGHT
MATL	MATERIAL
MAX	MAXIMUM
MBGF	METAL BEAM GUARD FENCE
MBR	MEMBER
MC_X_	MISCELLANEOUS CHANNEL, _X_ = SIZE BY WEIGHT
MCI	MCI TELECOMMUNICATIONS
MEAS	MEASURE
MEMB	MEMBRANE
MET.	METAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINUTES, MINIMUM
MISC	MISCELLANEOUS
MKT	MISSOURI-KANSAS-TEXAS RAILROAD COMPANY
ML	MAINLINE
MOD	MODULAR, MODIFIED
MON	MONUMENT
MSE	MECHANICALLY STABILIZED EARTH
MT	MOUNTED
MTG	MOUNTING
MULT	MULTIPLE
N	NORTH
N/A	NOT APPLICABLE
NAT	NATURAL
NB	NORTHBOUND
NBFR	NORTHBOUND FRONTAGE ROAD
NBML	NORTHBOUND MAINLINE
NCTCOG	NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS
NF	NEAR FACE
NIC	NOT IN CONTRACT
No.	NUMBER
Nos	NUMBERS
NOM	NOMINAL
NS	NEAR SIDE
N/S	NORTH/SOUTH
NTMWD	NORTH TEXAS MUNICIPAL WATER DISTRICT
NTS	NOT TO SCALE
NTTA	NORTH TEXAS TOLLWAY AUTHORITY
OC	ON CENTERS
OCEW	ON CENTER EACH WAY
OCS	OVERHEAD CATENARY SYSTEM
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OFF	OFFSET
OH	OVERHEAD
O TO O	OUT TO OUT
OPNG	OPENING
OPP	OPPOSITE
PC	POINT OF CURVE
PCC	POINT OF CURVE TO CURVE
P/C	PRECAST
PED	PEDESTRIAN
PEJ	PREFORMED EXPANSION JOINT
PERF	PERFORATED
PERM	PERMANENT
PERMISS	PERMISSIBLE
PERP	PERPENDICULAR
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PL	PLATE, PROPERTY LINE
PLAT.	PLATFORM
PMDF	PERMANENT METAL DECK FORMS
P/O	PART OF
POB	POINT OF BEGINNING
POC	POINT OF CURVE
POE	POINT OF ENDING
POLY	POLYETHYLENE
POS	POINT OF SPIRAL
POT	POINT OF TANGENT
PREM	PREMOLDED
PROJ.	PROJECTION
PROP	PROPOSED
PROT	PROTECTION
P/S	PRE-STRESSED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENT
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVC	POLY VINYL CHLORIDE, POINT OF VERTICAL CURVE
PVT	POINT OF VERTICAL TANGENT
Q	STORM WATER DISCHARGE
QTY	QUANTITY
R	RADIUS
R1	RIGHT (DEFLECTION)
RC	REINFORCED CONCRETE
RCB	REINFORCED CONCRETE BOX CULVERT
RCCP	REINFORCED CONCRETE CYLINDER PIPE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
REINF	REINFORCE, REINFORCED, REINFORCING, REINFORCEMENT
REQD	REQUIRED
REV	REVISE, REVISION
RH	RIGHT HAND
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RR	RAILROAD
RT	RIGHT
S	SOUTH, SLOPE
S_X_	I SHAPE, _X_ = SIZE BY WEIGHT
SB	SOUTHBOUND
SBFR	SOUTHBOUND FRONTAGE ROAD
SBML	SOUTHBOUND MAINLINE
SC	SPIRAL TO CURVE
SCHED	SCHEDULE
SCR	SCREW
SD	STORM DRAIN
SDWK	SIDEWALK
SEJ	SEALED EXPANSION JOINT
SEL	SELECT
SH	STATE HIGHWAY
S/H	STRUCTURAL HEIGHT
SHLD	SHOULDER
SHT	SHEET
SIM	SIMILAR
SL	STREET LIGHT, SLAB
SLV	SLEEVE
SM	SMOOTH
SMH	SEWER MANHOLE
SP	SOUTHERN PACIFIC TRANS. CORP.
SPA	SPACE
SPEC(S)	SPECIFICATION, SPECIFICATIONS
SQ	SQUARE
SQ FT	SQUARE FOOT
SQ IN	SQUARE INCH
SS	SANITARY SEWER
SST	STAINLESS STEEL
ST	STREET, SPIRAL TO TANGENT POINT
STA	STATION, STATIONING
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STM	STORM
STRGTH	STRENGTH
STRUCT	STRUCTURE, STRUCTURAL
SURF.	SURFACE
SWR	SEWER
SY	SQUARE YARD
SYM	SYMMETRICAL
SYS	SYSTEM
T/	TOP OF
T & B	TOP AND BOTTOM
TBM	TEMPORARY BENCH MARK
T/C	TOP OF CURB
T/D	TOP OF DITCH
TCP	TRAFFIC CONTROL PLAN
TEM	TEMPORARY
TEMP	TEMPERATURE
TEN	TENSION
TES	TRACTION ELECTRIFICATION SYSTEM
THRU	THROUGH
THK	THICK, THICKNESS
TL	TRAFFIC LIGHT
TMH	TELECOM MANHOLE
TO	TURNOUT
TOC	TOP OF CONCRETE
TP	TOP OF PAVEMENT
TPSS	TRACTION POWER SUBSTATION
T/R	TOP OF RAIL
TRA	TRINITY RIVER AUTHORITY
TRAF SIG	TRAFFIC SIGNAL
TRK	TRACK
T/S	TOP OF SLOPE
T/STL	TOP OF STEEL
T/W	TOP OF WALL
TxDOT	TEXAS DEPARTMENT OF TRANSPORTATION
TWC	TIME WARNER CABLE
TYP	TYPICAL
UD	UNDERDRAIN
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
UP	UNION PACIFIC RAILWAY
US	UNITED STATES
USC&GS	U.S. COAST & GEODETIC SURVEY
USGS	UNITED STATES GEOLOGICAL SURVEY
UTIL	UTILITY
V	VELOCITY
VAR	VARIABLE, VARIES
VERT	VERTICAL
VOL	VOLUME
VPI	VERTICAL POINT OF INTERSECTION
W	WEST, WATER
W/	WITH
WB	WESTBOUND
WBFR	WESTBOUND FRONTAGE ROAD
WBML	WESTBOUND MAINLINE
W_X_	WIDE FLANGE SHAPE, X = SIZE BY WEIGHT
WI	WROUGHT IRON
W/O	WITHOUT
WP	WORK POINT
W/P	WEATHERPROOF
WS	WATER SURFACE
WT	WATERTIGHT, WEIGHT
WTR	WATER
WV	WATER VALVE
WWF	WELDED WIRE FABRIC
WSEL	WATER SURFACE ELEVATION
X-ING	CROSSING
X-SECT	CROSS SECTION

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CB05-GC3-7204.001

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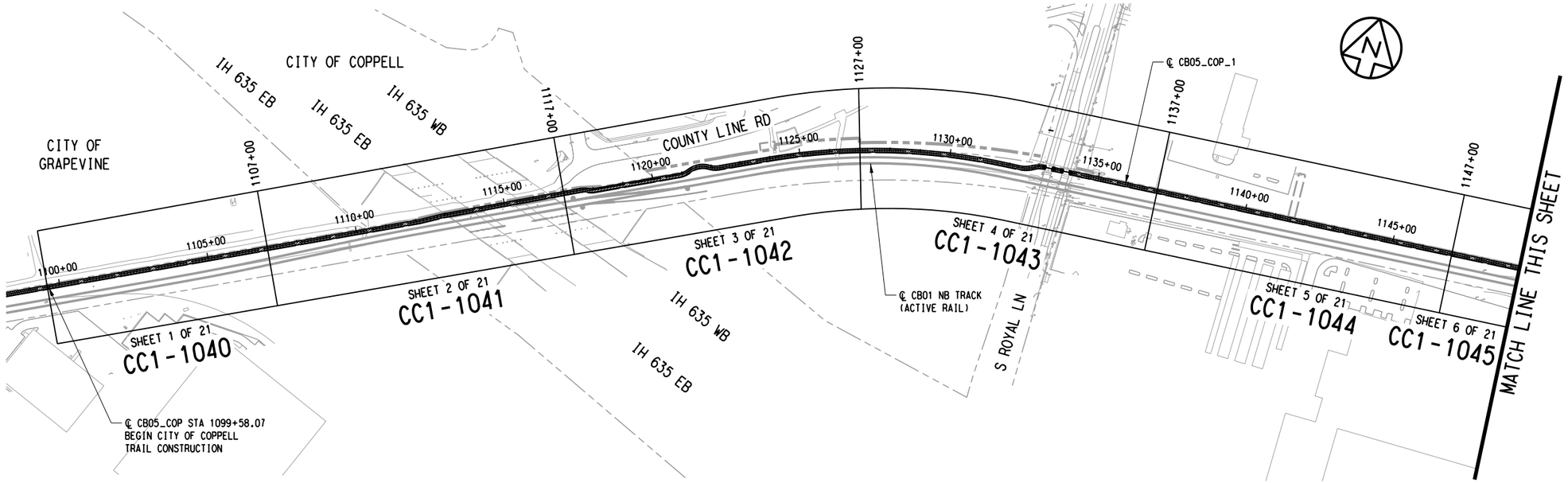
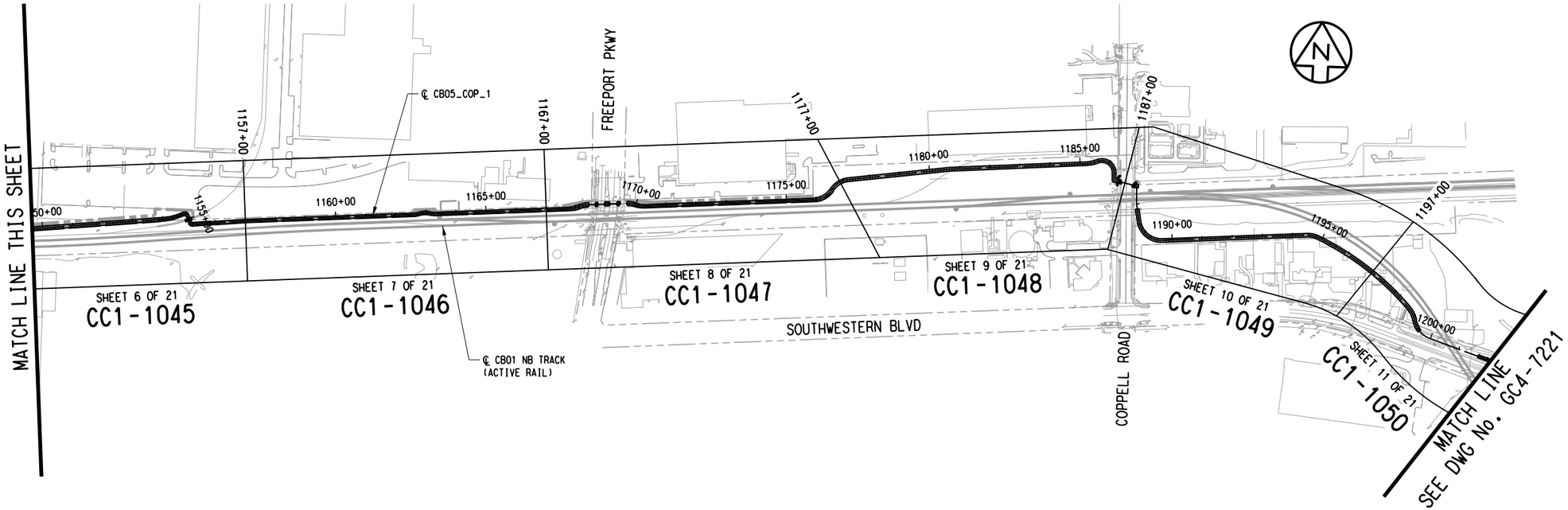
DWG No. GC4-1220





SCALE (IN FEET)
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NOTES:

1. MAJORITY OF PROJECT IS LOCATED WITHIN DART SILVERLINE ROW AND IS ADJACENT TO ACTIVE RR LINES. REFER TO RR REQUIREMENTS AND RR SCOPE OF WORK SHEETS.

30-AUG-2023 16:49
CB05-GC4-7220.200

ssaleh
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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP
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Jacobs
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Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
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ARCHER WESTERN HERZOG

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DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

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CONTRACT SHEET No. 11 OF 378

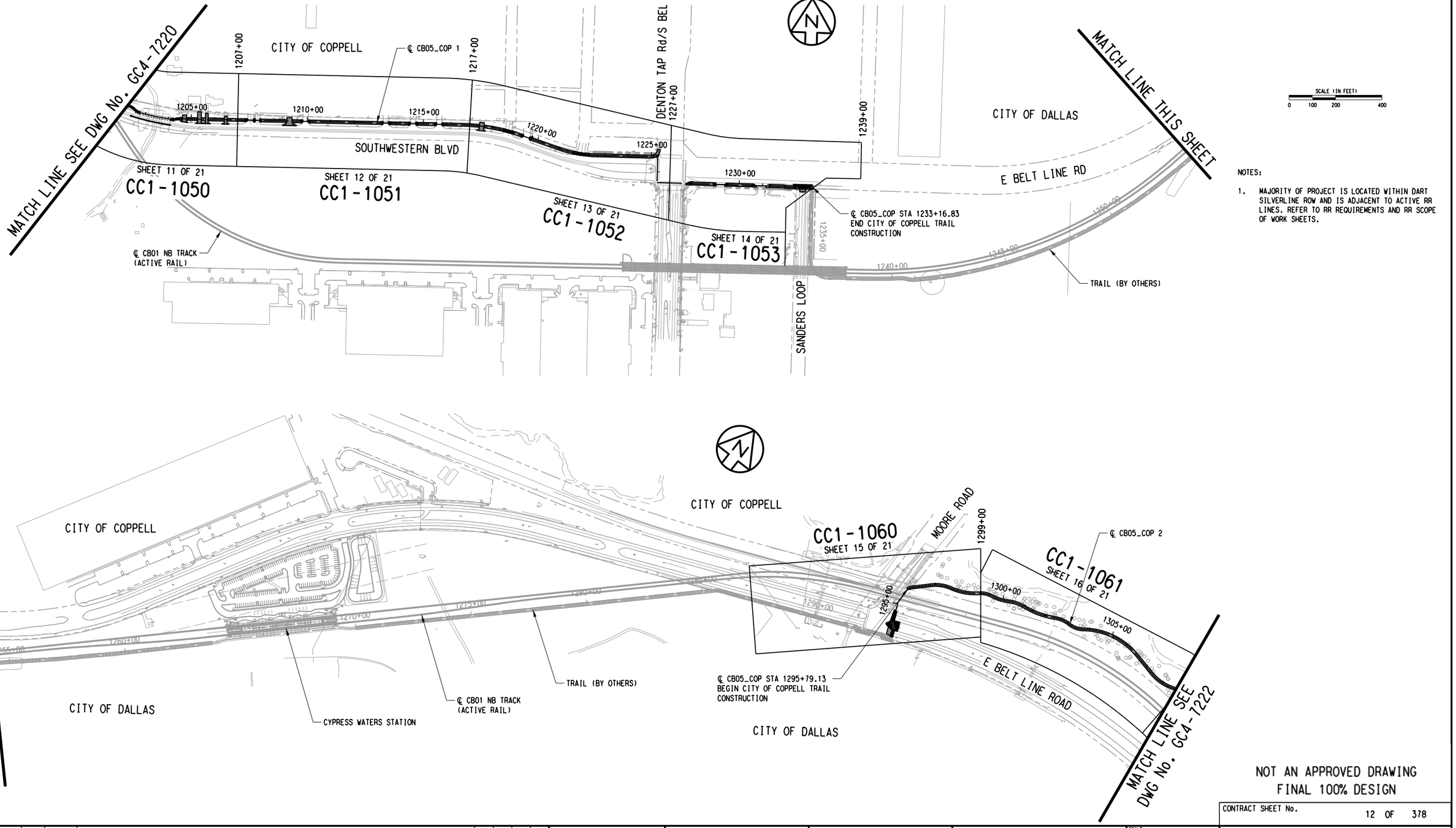
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN TRAIL KEY MAP
SHEET 1 OF 3

CONTRACT	DWG No.	REV
C-2033270-01	GC4-7220	D

CB05-GC4-7220.200

DWG No. GC4-1221



SCALE (IN FEET)
0 100 200 400

NOTES:

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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

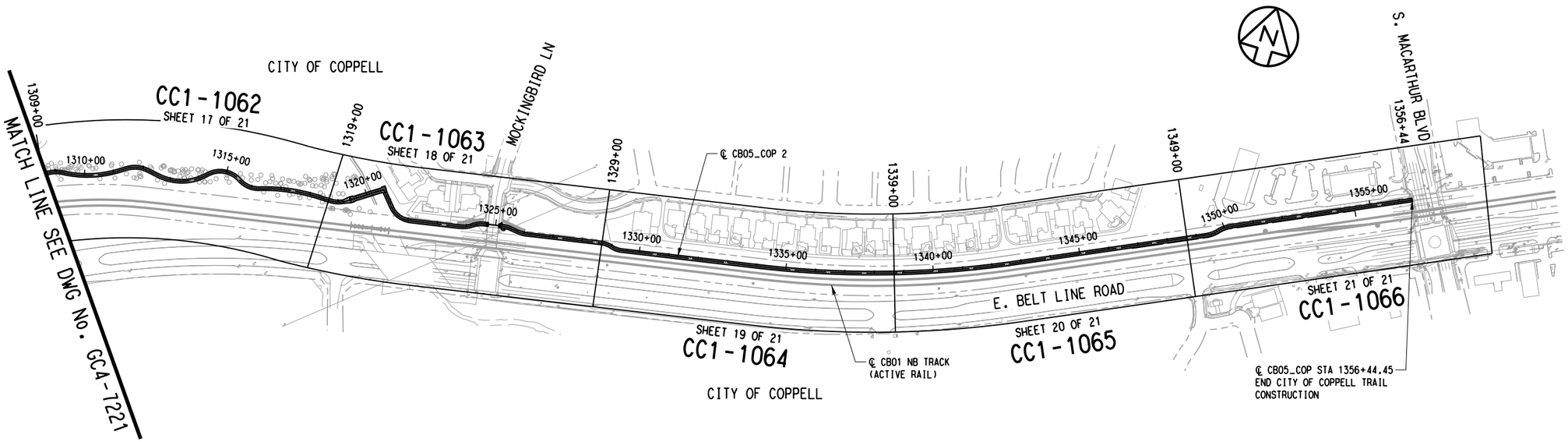
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN TRAIL KEY MAP
SHEET 2 OF 3

CONTRACT	DWG No.	REV
C-2033270-01	GC4-7221	D

CB05-GC4-7221.200

DWG No. GC4-7222



SCALE (IN FEET)
0 100 200 400

NOTES:

1. MAJORITY OF PROJECT IS LOCATED WITHIN DART SILVERLINE ROW AND IS ADJACENT TO ACTIVE RR LINES. REFER TO RR REQUIREMENTS AND RR SCOPE OF WORK SHEETS.

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DESIGNED	C. BAGBY
CHECKED	D. LUU
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DATE	25 AUG 23

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CONTRACT SHEET No. 13 OF 378

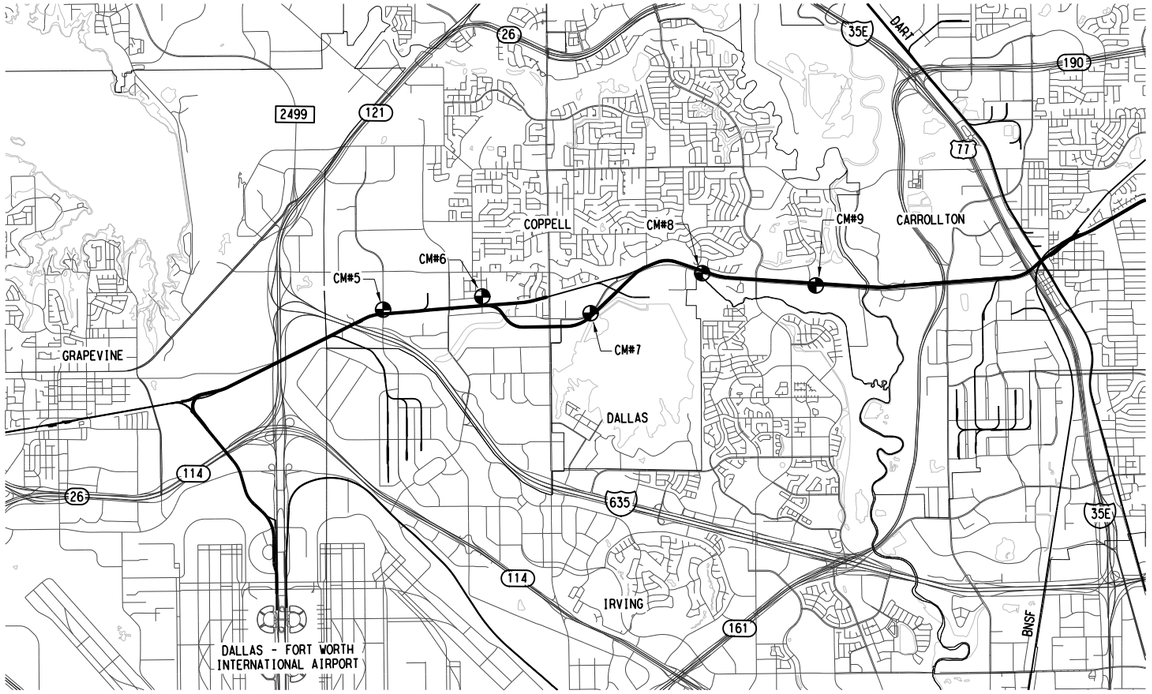
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN TRAIL KEY MAP
SHEET 3 OF 3

CONTRACT	DWG No.	REV
C-2033270-01	GC4-7222	D

CB05-GC4-7222.200

DWG No. RC1-7200



SCALE (IN FEET)
0 8000 16000

COTTON BELT GEODETIC NETWORK CONTROL NOTES:

1. ALL PRIMARY CONTROL POINTS SET BY JACOBS ARE 31/2 INCH BRASS MONUMENTS STAMPED "DART CM# XX JACOBS ENGINEERING CONTROL MARKER" WITH A 3 FOOT TO 4 FOOT IRON ROD SET IN CONCRETE TO NO REFUSAL PER STANDARDS IN THE DART SURVEY RIGHT-OF-WAY AND SUBSURFACE UTILITY ENGINEERING MANUAL.
2. BASIS OF BEARING FOR THIS PROJECT IS TEXAS COORDINATE SYSTEM, NORTH CENTRAL ZONE (4202), NAD83 (ADJ 2011), NAVD 1988, GEOID 12A.
3. ALL COORDINATES AND DISTANCES SHOWN HEREON ARE PROJECT SURFACE VALUES EXPRESSED IN US SURVEY FEET WITH A GRID TO GROUND SCALE FACTOR OF 1.000136506 UNLESS OTHERWISE NOTED FOR GRID CONVERSION ILLUSTRATIONS AS USED BY THE TXDOT DALLAS DISTRICT FOR DALLAS COUNTY.
4. THE HORIZONTAL DATUM IS BASED ON NAD 83 (ADJUSTMENT 2011) DERIVED FROM THE PUBLISHED POSITIONS FOR (CORS) STATIONS ZFW1 AND TXCO.
5. THE ELEVATIONS FROM THE PRIMARY CONTROL SET BY JACOBS ENGINEERING GROUP ARE PUBLISHED BENCHMARKS FOR THIS PROJECT.
6. JACOBS BENCHMARKS WERE BASED ON DART 57 MONUMENT PUBLISHED BY MICHAEL MCGUINNESS RPLS#1965 ON FEBRUARY 19, 2009. DIGITAL LEVEL LOOPS WERE RAN FROM THIS MONUMENT IN OPPOSITE DIRECTIONS THROUGH JACOBS PRIMARY CONTROL MONUMENTS CONSTRUCTED ALONG THE VICINITY OF THE DART RAIL RIGHT-OF-WAY. VERTICAL DELTA BETWEEN JACOBS PRIMARY CONTROL AND ANY VRS NETWORK CAN BE 0.20 +/-.
7. ALL TOPOGRAPHIC SURVEYING AND CONSTRUCTION STAKING MUST BE BASED ON THE PRIMARY CONTROL SHOWN HEREON.
8. ALL TOPOGRAPHIC SURVEYING MUST BE PERFORMED UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS ACCORDING TO DART SPECIFICATIONS PUBLISHED IN DART SURVEY, ROW AND SUE MANUAL CHAPTER 6, DATED 4/22/03
9. THIS ON THE GROUND SURVEY WAS PERFORMED IN APRIL OF 2019.
10. THESE MONUMENTS ARE SUBJECT TO THE DYNAMIC FORCES OF NATURE AND OTHER OBJECTS THAT CAN DAMAGE THE INTEGRITY OF THE REPORTED VALUES SHOWN HEREON.
11. ANY DAMAGED MONUMENTS FOUND MUST BE REPORTED TO JACOBS ENGINEERING GROUP, INC.

Point ID	Northing (Surface)	Easting (Surface)	Elevation	Northing (Grid)	Easting (Grid)	Latitude (Global)	Longitude (Global)	Ellipsoid Height (Global)	Feature Code
CM#5	7,032,504.921	2,422,119.174	538.494	7,031,545.073	2,421,788.585	32°56'58.02067"	-97°01'19.89242"	449.328	3½ INCH BRASS DISK STAMPED DART-JACOBS ENGINEERING-CM#5-DART CONTROL
CM#6	7,033,198.415	2,427,356.469	515.300	7,032,238.472	2,427,025.166	32°57'04.14823"	-97°00'18.32475"	426.282	3½ INCH BRASS DISK STAMPED DART-JACOBS ENGINEERING-CM#6-DART CONTROL
CM#7	7,032,314.670	2,433,075.554	511.593	7,031,354.848	2,432,743.470	32°56'54.59526"	-96°59'11.36807"	422.740	3½ INCH BRASS DISK STAMPED DART-JACOBS ENGINEERING-CM#7-DART CONTROL
CM#8	7,034,428.763	2,438,970.988	460.506	7,033,468.652	2,438,638.099	32°57'14.66404"	-96°58'01.83307"	371.844	3½ INCH BRASS DISK STAMPED DART-JACOBS ENGINEERING-CM#8-DART CONTROL
CM#9	7,033,783.098	2,444,970.107	443.609	7,032,823.076	2,444,636.399	32°57'07.40506"	-96°56'51.55118"	355.135	3½ INCH BRASS DISK STAMPED DART-JACOBS ENGINEERING-CM#9-DART CONTROL

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CONTRACT SHEET No. 14 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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SCALE	1"=8000'
DRAWN	A. PITCHFORD
DESIGNED	A. PITCHFORD
CHECKED	M. KEETON
IN CHARGE	M. KEETON
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL VELOWEB HIKE & BIKE TRAIL

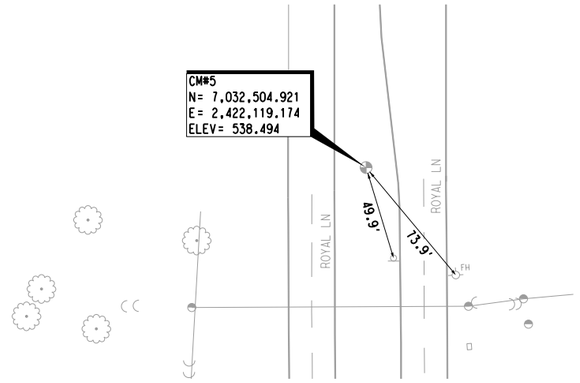
HORIZONTAL AND VERTICAL CONTROL SHEET 1 OF 2

CONTRACT	DWG No.	REV
C-2033270-01	RC1-7200	D

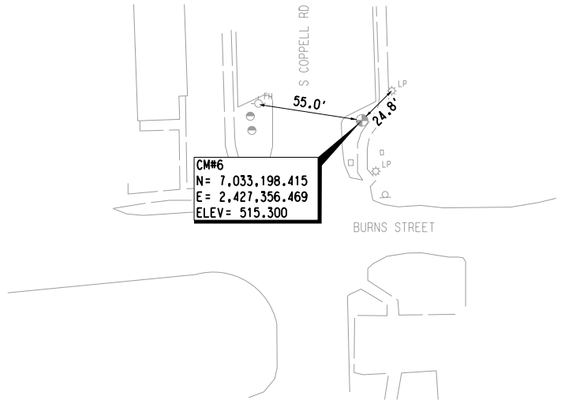
CB05-RC1-7200.08k

01-SEP-2023 05:45
CB05-RC1-7200.08k
JEGSVCPWU01
Default

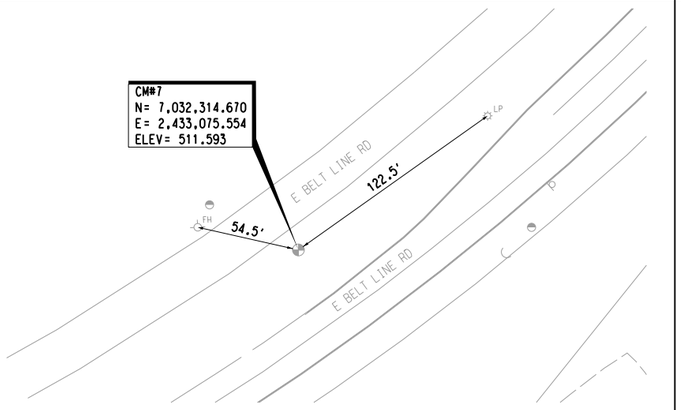
DWG No. RC1-7201



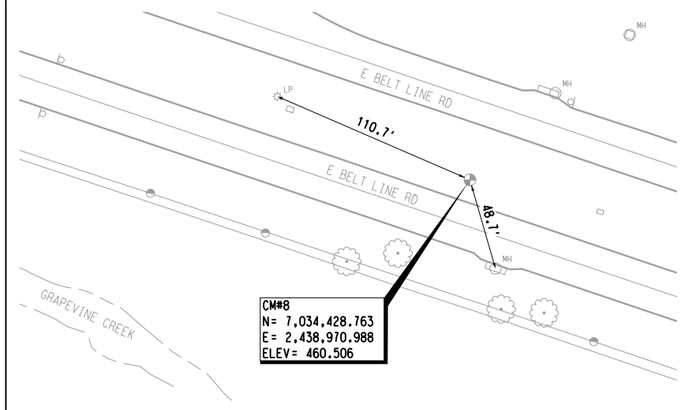
CM#5 IS LOCATED IN THE CENTER MEDIAN OF ROYAL LANE, 350 FEET SOUTH OF TECHNOLOGY ROAD, APPROXIMATELY 49.9 FEET NORTHWEST OF A LEFT TURN ONLY SIGN AND 73.9 FEET NORTHWEST OF A FIRE HYDRANT.



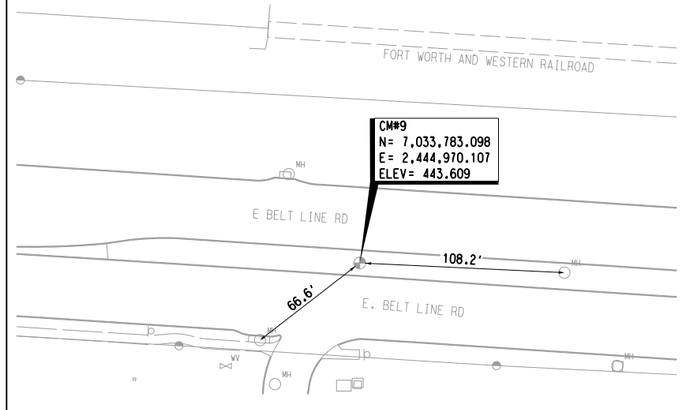
CM#6 IS LOCATED IN THE EAST RIGHT-OF-WAY OF SOUTH COPPELL ROAD, 55 FEET NORTH OF BURNS STREET, APPROXIMATELY 55 FEET SOUTHEAST OF A FIRE HYDRANT AND 24.8 FEET SOUTHWEST OF A LIGHT POLE.



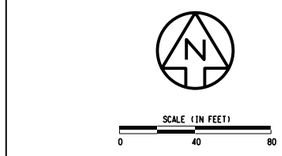
CM#7 IS LOCATED IN THE CENTER MEDIAN OF EAST BELT LINE ROAD, 1,350 FEET EAST OF NORTH LAKE DRIVE, APPROXIMATELY 54.5 FEET SOUTHEAST OF A FIRE HYDRANT AND 122.5 FEET SOUTHWEST OF A LIGHT POLE.



CM#8 IS LOCATED IN THE CENTER MEDIAN OF EAST BELT LINE ROAD, 340 FEET EAST OF MOCKINGBIRD LANE, APPROXIMATELY 110.7 FEET SOUTHEAST OF A LIGHT POLE AND 48.7 FEET NORTHWEST OF A STORM DRAIN MANHOLE.



CM#9 IS LOCATED IN THE CENTER MEDIAN OF EAST BELT LINE ROAD, 345 FEET EAST OF FAIRWAY DRIVE, APPROXIMATELY 108.2 FEET WEST OF A SANITARY SEWER MANHOLE AND 66.6 FEET NORTHEAST OF A STORM DRAIN MANHOLE.



COTTON BELT GEODETIC NETWORK CONTROL NOTES:

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CONTRACT SHEET No. 15 OF 378

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FIRM REGISTRATION No. F-2966

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SCALE	1"=40'
DRAWN	A. PITCHFORD
DESIGNED	A. PITCHFORD
CHECKED	W. KEETON
IN CHARGE	W. KEETON
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL VELOWEB HIKE & BIKE TRAIL

HORIZONTAL AND VERTICAL CONTROL SHEET 2 OF 2

CONTRACT	DWG No.	REV
C-2033270-01	RC1-7201	D

CB05-RC1-7201.040

01-SEP-2023 05:45
CB05-RC1-7201.040
JEGSVCPW001
Default-1

DWG No. GC5-1229

GENERAL NOTES TO BE ADDED BY CITY PRIOR TO BIDDING

01-SEP-2023 05:45
CB05-GC5-7229.010

JEGSVCPW001
Default

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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KYLE MOYNIHAN, P.E., 125696
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FIRM REGISTRATION No. F-2966

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18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
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CONTRACT SHEET No. 16 OF 378

SCALE	NO SCALE
DRAWN	M. JAHN
DESIGNED	M. JAHN
CHECKED	B. ALLDREDGE
IN CHARGE	K. MOYNIHAN
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
GENERAL NOTES

CONTRACT	DWG No.	REV
C-2033270-01	GC5-7229	D

CB05-GC5-7229.010

DWG No. GC5-7230

SUMMARY OF DRAINAGE ITEMS

TXDOT ITEMS

ITEM NUMBER			420	432	432	432	432	432	460	464	464	464	464	464	464	464	464	464	465	465	465	465	466	467	467
DESC. CODE			6011	6006	6031	6033	6034	6035	6003	6003	6004	6005	6007	6008	6009	6010	6018	6027	6070	6126	6127	6135	6134	6356	6362
SHEET NO.	LOCATION		CL B CONC (FLUME)	RIPRAP (CONC) (CLB) (4")	RIPRAP (STONE PROTECTION) (12 IN)	RIPRAP (STONE PROTECTION) (18 IN)	RIPRAP (STONE PROTECTION) (21 IN)	RIPRAP (STONE PROTECTION) (24 IN)	CMP (GAL STL 24 IN)	RC PIPE (CL III) (18 IN)	RC PIPE (CL III) (21 IN)	RC PIPE (CL III) (24 IN)	RC PIPE (CL III) (30 IN)	RC PIPE (CL III) (36 IN)	RC PIPE (CL III) (42IN)	RC PIPE (CL III) (48IN)	RC PIPE (CL IV) (24IN)	RC PIPE (CL V) (36IN)	INLET (COMPL) (PSL)(RC) (3FTX3FT)	INLET (COMPL) (PSL)(FG) (3FTX3FT-3FTX3FT)	INLET (COMPL) (PSL)(FG) (4FTX4FT-4FTX4FT)	INLET (COMPL) (PSL)(FG) (5FTX5FT-4FTX4FT)	HEADWALL (CH-PW-S) (DIA= 36 IN)	SET (TY II) (18 IN) (RCP) (3:1) (C)	SET (TY II) (18 IN) (RCP) (6:1) (C)
	STA	STA	CY	CY	CY	CY	CY	CY	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA
DRAINAGE LAYOUTS																									
1 OF 21	BEGIN	1109+50								211		259							2	1					
2 OF 21	1109+50	1119+50										990							3						
3 OF 21	1119+50	1128+50				3						266						56	1				1		
4 OF 21	1128+50	1138+00	31								61														
5 OF 21	1138+00	1148+00	33			3				50									1						1
6 OF 21	1148+00	1158+00							64																
7 OF 21	1158+00	1168+00											29												
8 OF 21	1168+00	1177+00											59												
9 OF 21	1177+00	1186+00								29										1				1	
10 OF 21	1186+00	1196+00			12					22			37		25									2	
11 OF 21	1196+00	1204+50			3					21														2	
12 OF 21	1204+50	1214+00																							
13 OF 21	1214+00	1224+00																							
14 OF 21	1224+00	CITY OF DALLAS								39		19									1	1			
15 OF 21	CITY OF DALLAS	1304+00					69	47								32								2	
16 OF 21	1304+00	1314+00																							
17 OF 21	1314+00	1325+00			76												131		2						
18 OF 21	1325+00	1334+00	22		264					200				8											
19 OF 21	1334+00	1344+00		1	141																				
20 OF 21	1344+00	1354+00		1																					
21 OF 21	1354+00	END																							
SUBTOTALS			86	2	496	6	69	47	64	572	61	1534	125	8	25	32	131	56	9	2	1	1	1	7	1

SUMMARY OF DRAINAGE ITEMS

			TXDOT ITEMS										DART ITEMS								
ITEM NUMBER			467	467	467	467	467	467	467	467	467	467	2700	2700	2700	2700	2700	2700	2700	2700	2700
DESC. CODE			6363	6374	6380	6388	6395	6422	6423	6448	6461	6474	1001	1003	1004	1005	1006	1008	1011	1012	1013
SHEET NO.	LOCATION		SET (TY II) (18 IN) (RCP) (6:1) (P)	SET (TY II) (21 IN) (RCP) (6:1) (P)	SET (TY II) (24 IN) (CMP) (6:1) (P)	SET (TY II) (24 IN) (RCP) (3:1) (C)	SET (TY II) (24 IN) (RCP) (6:1) (P)	SET (TY II) (30 IN) (RCP) (6:1) (C)	SET (TY II) (30 IN) (RCP) (6:1) (P)	SET (TY II) (36 IN) (RCP) (3:1) (C)	SET (TY II) (42 IN) (RCP) (3:1) (C)	SET (TY II) (48 IN) (RCP) (3:1) (C)	DART PIPE UNDERDRAINS (8 IN)	DART PIPE UNDERDRAINS (12 IN)	DART PIPE UNDERDRAINS (15 IN)	DART CLEANOUT UNDERDRAINS	DART TERMINAL CLEANOUT UNDERDRAINS	DART PIPE HDPE (10 IN)	INSERTA TEE CONNECTION	(8 IN) PRECAST TRENCH DRAIN	(8 IN) INLINE CATCH BASIN
	STA	STA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	EA	EA	LF	EA	LF	EA
DRAINAGE LAYOUTS																					
1 OF 21	BEGIN	1109+50												189		1	1	18	4	237	3
2 OF 21	1109+50	1119+50											12					24	6	673	4
3 OF 21	1119+50	1128+50					1														
4 OF 21	1128+50	1138+00		1																	
5 OF 21	1138+00	1148+00	1																		
6 OF 21	1148+00	1158+00			1																
7 OF 21	1158+00	1168+00						1							687	4	3		3		
8 OF 21	1168+00	1177+00							1									105	9	516	9
9 OF 21	1177+00	1186+00																			
10 OF 21	1186+00	1196+00							1		1										
11 OF 21	1196+00	1204+50																			
12 OF 21	1204+50	1214+00																			
13 OF 21	1214+00	1224+00																			
14 OF 21	1224+00	CITY OF DALLAS																			
15 OF 21	CITY OF DALLAS	1304+00										2									
16 OF 21	1304+00	1314+00																			
17 OF 21	1314+00	1325+00				1															
18 OF 21	1325+00	1334+00	4							1											
19 OF 21	1334+00	1344+00												200	407	3	1		1		
20 OF 21	1344+00	1354+00													12						
21 OF 21	1354+00	END																			
SUBTOTALS			5	1	1	1	1	1	2	1	1	2	12	389	1106	8	5	147	23	1426	16

SUMMARY OF STRUCTURAL ITEMS

ITEM NUMBER		400	400	416	420	422	422	432	4196	450
DESC. CODE		6001	6005	6004	6013	6001	6015	6031	6001	6066
SHEET NO.		STRUCT EXCAV	CEM STABIL BKFL	DRILL SHAFT (36 IN)	CL C CONC (ABUT)	REINF CONC SLAB	APPROACH SLAB	RIPRAP STONE PROTECTION (12 IN)	PREFAB PED STL TRUSS BRDG SPAN	RAIL (TY C411) (MOD)
		CY	CY	LF	CY	SF	CY	CY	EA	LF
BRIDGE LAYOUTS										
Bridge 6P										177
Bridge 10P		69	50	159	30.8	1,597	25.4	116	1	
SUBTOTALS		69	50	159	31	1,597	25	116	1	177

FINAL 100% DESIGN

CONTRACT SHEET No. 17 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

IEA
18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
Phone: +1 (214) 884-4253
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
BID ITEMS SUMMARY
SHEET 1 OF 2

SCALE	NO SCALE
DRAWN	M. JAHN
DESIGNED	M. JAHN
CHECKED	B. ALLDREDGE
IN CHARGE	K. MOYNAHAN
DATE	25 AUG 23

CONTRACT	DWG No.	REV
C-2033270-01	GC5-7230	D

CB05-GC5-7230.010

01-SEP-2023 05:45
CB05-GC5-7230.010

JEGSVCPW001
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DWG No. GC5-7231

SUMMARY OF CIVIL ITEMS

			TXDOT ITEMS										DART ITEMS			NCTCOG ITEMS						
ITEM NUMBER			110	132	360	432	450	529	529	530	531	644	2830	2100	2476	305.2	802.2	703.3	701.2	701.2	701.2	701.2
DESC. CODE			6001	6007	6002	6001	6103	6005	6007	6004	6001	6001	1002	1001	1000	1001	1002	1003	1004	1005	1006	1007
SHEET NO.	LOCATION		EXCAVATION (ROADWAY)	EMBANKMENT (FINAL) (ORD COMP) (TY D)	CONC PVMT (CONT REINF-CRCP) (8")	RIPRAP (CONC)(4")	RAIL (TY PR11)	CONC CURB (MONO) (TY II)	CONC CURB & GUTTER (TY I)	DRIVEWAYS (CONC)	CONC SIDEWALKS (4")	IN SM RD SN SUP&AM TY10BWG (1)SA(P)	CHAIN LINK FENCE	SITE PREPARATION	GRADE CROSSING PANEL	CURB RAMP	CONC SIDEWALK WALL	BOLLARD	ADJUST UTILITY VALVE/METER	ADJUST CONDUIT JUNCTION BOX	RELOCATE ELECTRIC TRANSFORMER BOX	RELOCATE POWER POLE
	STA	STA	CY	CY	SY	CY	LF	LF	LF	SY	SY	EA	LF	LS	LS	SY	LF	EA	EA	EA	EA	EA
CIVIL LAYOUTS																						
1 OF 21	1099+58	1107+00	34	231	989								742									
2 OF 21	1107+00	1117+00	46	513	1,333								1000							1		
3 OF 21	1117+00	1127+00	5	1,051	1,334								999							6		
4 OF 21	1127+00	1137+00	333	498	1,232							2	863			49		4		2	1	1
5 OF 21	1137+00	1147+00	170	184	1,333								1000							1		
6 OF 21	1147+00	1157+00	148	276	1,254		74					4	968				75			1		
7 OF 21	1157+00	1167+00	530	159	1,111								1000									
8 OF 21	1167+00	1177+00	78	800	1,041		93	30				2	843			30	93	4				
9 OF 21	1177+00	1187+00	388	150	1,305						14	1				14		1				
10 OF 21	1187+00	1197+00	408	251	1,192		179					2				16	180	1				
11 OF 21	1197+00	1207+00	283	277	736		383		15	273		4					384			3		1
12 OF 21	1207+00	1217+00	182	23	1,001			14	47	113		2				140		3		2		
13 OF 21	1217+00	1227+00	148	45	885				40	85	3	5				108		5		4	1	
14 OF 21	1227+00	1233+17	106	10	418				48	141						150		3	4	4	2	
15 OF 21	1295+79	1299+00	306	900	428							2								1		
16 OF 21	1299+00	1309+00	2,017	494	1,333																	
17 OF 21	1309+00	1319+00	1,738	154	1,333																	
18 OF 21	1319+00	1329+00	331	981	1,109		169				12	6					169	2		3		
19 OF 21	1329+00	1339+00	801	64	1,333	19																
20 OF 21	1339+00	1349+00	146	2,813	1,333								223									
21 OF 21	1349+00	1356+44	640	63	993							2	567							1		
SUBTOTALS			8,837	9,939	23,026	19	982	44	28	613	29	32	8,205	1	1	516		23	4	29	4	2

SUMMARY OF SW3P ITEMS

			NCTCOG ITEMS					
ITEM NUMBER			202.5	202.9	202.11	202.14	203.6	204.6
DESC. CODE			0001	0001	0001	0001	0001	0001
SHEET NO.	LOCATION		SILT FENCE	CHECK DAM (ROCK)	STABILIZED CONSTRUCTION EXIT	INLET PROTECTION	DUST CONTROL	SEEDING TURFGRASS
	STA	STA	LF	CY	SY	EA	K GAL	SY
SW3P LAYOUTS								
1 OF 20	1100+00	1110+00	1,000			3	29	653
2 OF 20	1110+00	1120+00	1,000			5	29	653
3 OF 20	1120+00	1130+00	1,056	18			78	1,776
4 OF 20	1130+00	1140+00	921	9	312		60	1,380
5 OF 20	1140+00	1150+00	1,175	9		1	47	1,068
6 OF 20	1150+00	1160+00	1,028	9			41	940
7 OF 20	1160+00	1170+00	924	9	156		41	938
8 OF 20	1170+00	1180+00	1,066	9	156		191	4,390
9 OF 20	1180+00	1191+50	1,271	27	312	1	251	5,773
10 OF 20	1191+50	1201+00	1,070	27	156	2	78	1,786
11 OF 20	1201+00	1211+00	693	18		4	99	2,262
12 OF 20	1211+00	1221+00	876			4	109	2,496
13 OF 20	1221+00	1232+00	772			2	36	827
14 OF 20	1296+00	1306+00	981	54	156	2	133	3,054
15 OF 20	1306+00	1316+50	1,054	27			122	2,802
16 OF 20	1316+50	1327+00	1,012	75	312	4	126	2,904
17 OF 20	1327+00	1337+00	997	36		2	67	1,529
18 OF 20	1337+00	1347+00	996	18			57	1,302
19 OF 20	1347+00	1356+00	897	18			63	1,438
20 OF 20	1356+00	1366+00	83		156		4	71
SUBTOTALS			18,872	363	1,716	30	1,661	38,042

SUMMARY OF REMOVAL ITEMS

			TXDOT ITEMS								NCTCOG ITEMS	
ITEM NUMBER			104	104	104	104	496	496	496	496	701.2	701.2
DESC. CODE			6001	6009	6015	6029	6002	6004	6006	6007	1010	1011
SHEET NO.	LOCATION		REMOVING CONC (PAV)	REMOVING CONC (RIPRAP)	REMOVING CONC (SIDEWALKS)	REMOVING CONC (CURB OR CURB & GUTTER)	REMOV STR (INLET)	REMOV STR (SET)	REMOV STR (HEADWALL)	REMOV STR (PIPE)	REMOVE EXIST SIGN	REMOVE EXIST FENCE
	STA	STA	SY	SY	SY	LF	EA	EA	EA	LF	EA	LF
REMOVAL LAYOUTS												
1 OF 11	1099+58	1117+00		450				2		158		
2 OF 11	1117+00	1137+00		30		52		2	2	173		
3 OF 11	1137+00	1157+00										71
4 OF 11	1157+00	1177+00		784		48			2			
5 OF 11	1177+00	1197+00		10	48	14		1	1	15		
6 OF 11	1197+00	1217+00	396		712						3	
7 OF 11	1217+00	1233+17	416		563		3				3	
8 OF 11	1295+79	1309+00	365									
9 OF 11	1309+00	1329+00		7	11	26			1			
10 OF 11	1329+00	1349+00										
11 OF 11	1349+00	1356+44			4							
SUBTOTALS			1177	1281	1338	140	3	5	6	346	6	71

SUMMARY OF TRAFFIC CONTROL ITEMS

		NCTCOG ITEMS
ITEM NUMBER		801.1
DESC. CODE		1001
SHEET NO.	LOCATION	TRAFFIC CONTROL
		LS
TCP LAYOUTS		
1 OF 8	ROYAL LN.	
2 OF 8	FREEPORT PKWY.	
3 OF 8	COPPELL RD.	
4 OF 8	SOUTHWESTERN BLVD.	
5 OF 8	DENTON TAP RD.	
6 OF 8	SANDERS LOOP	
7 OF 8	SANDERS LOOP DETOUR	
8 OF 8	MOCKINGBIRD LN.	
SUBTOTALS		1

25-AUG-2023 09:58
CB05-GC5-7231.010

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

Jacobs
1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

IEA
18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
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CONTRACT SHEET No. 18 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
BID ITEMS SUMMARY
SHEET 2 OF 2

SCALE	NO SCALE
DRAWN	M. JAHN
DESIGNED	M. JAHN
CHECKED	B. ALLDREDGE
IN CHARGE	K. MOYNAHAN
DATE	25 AUG 23

CONTRACT	DWG No.	REV
C-2033270-01	GC5-7231	D

CB05-GC5-7231.010

DWG No. CC1-1301

<* 1 Describe Chain COPPELL_1

Chain COPPELL_1 contains:
268 269 270 CUR COPPELL_11 CUR COPPELL_12 CUR COPPELL_13 CUR COPPELL_14 CUR CO-
PPELL_15 CUR COPPELL_16 CUR COPPELL_17 CUR COPPELL_18 271 CUR COPPELL_19 CUR CO-
PPELL_110 CUR COPPELL_111 272 CUR COPPELL_112 CUR COPPELL_113 CUR COPPELL_114 C-
UR COPPELL_115 CUR COPPELL_116 CUR COPPELL_117 CUR COPPELL_118 273 274 CUR COPP-
ELL_119 CUR COPPELL_120 275 CUR COPPELL_121 CUR COPPELL_122 276 277 278 CUR COP-
PELL_123 CUR COPPELL_124 CUR COPPELL_125 CUR COPPELL_126 CUR COPPELL_127 CUR CO-
PPELL_128 CUR COPPELL_129 CUR COPPELL_130 CUR COPPELL_131 CUR COPPELL_132 CUR C-
OPPELL_133 CUR COPPELL_134 CUR COPPELL_135 279 280 281

Beginning chain COPPELL_1 description
==========

Point 268 N 7,031,004.1727 E 2,419,015.4635 Sta 1099+58.07

Course from 268 to 269 N 63° 29' 53.61" E Dist 1,256.0876

Point 269 N 7,031,564.6711 E 2,420,139.5621 Sta 1112+14.16

Course from 269 to 270 N 59° 45' 31.05" E Dist 77.0972

Point 270 N 7,031,603.5006 E 2,420,206.1672 Sta 1112+91.25

Course from 270 to PC COPPELL_11 N 62° 59' 30.26" E Dist 462.9319

Curve Data

Curve COPPELL_11
P.I. Station 1117+65.86 N 7,031,819.0277 E 2,420,629.0123
Delta = 17° 41' 35.62" (RT)
Degree = 76° 23' 39.74"
Tangent = 11.6731
Length = 23.1604
Radius = 75.0000
External = 0.9030
Long Chord = 23.0685
Mid. Ord. = 0.8922
P.C. Station 1117+54.19 N 7,031,813.7268 E 2,420,618.6122
P.T. Station 1117+77.35 N 7,031,820.9172 E 2,420,640.5315
C.C. N 7,031,746.9062 E 2,420,652.6712
Back = N 62° 59' 30.26" E
Ahead = N 80° 41' 05.88" E
Chord Bear = N 71° 50' 18.07" E

Curve Data

Curve COPPELL_12
P.I. Station 1117+88.60 N 7,031,822.7394 E 2,420,651.6406
Delta = 17° 04' 22.34" (LT)
Degree = 76° 23' 39.74"
Tangent = 11.2576
Length = 22.3483
Radius = 75.0000
External = 0.8402
Long Chord = 22.2657
Mid. Ord. = 0.8309
P.C. Station 1117+77.35 N 7,031,820.9172 E 2,420,640.5315
P.T. Station 1117+99.70 N 7,031,827.7428 E 2,420,661.7252
C.C. N 7,031,894.9282 E 2,420,628.3918
Back = N 80° 41' 05.88" E
Ahead = N 63° 36' 43.54" E
Chord Bear = N 72° 08' 54.71" E

Course from PT COPPELL_12 to PC COPPELL_13 N 63° 36' 43.54" E Dist 291.0029

Curve Data

Curve COPPELL_13
P.I. Station 1121+08.65 N 7,031,965.0569 E 2,420,938.4894
Delta = 26° 55' 23.50" (LT)
Degree = 76° 23' 39.74"
Tangent = 17.9527
Length = 35.2424
Radius = 75.0000
External = 2.1187
Long Chord = 34.9190
Mid. Ord. = 2.0605
P.C. Station 1120+90.70 N 7,031,957.0778 E 2,420,922.4072
P.T. Station 1121+25.94 N 7,031,979.4530 E 2,420,949.2156
C.C. N 7,032,024.2633 E 2,420,889.0737
Back = N 63° 36' 43.54" E
Ahead = N 36° 41' 20.04" E
Chord Bear = N 50° 09' 01.79" E

Curve Data

Curve COPPELL_14
P.I. Station 1121+63.29 N 7,032,009.4011 E 2,420,971.5292
Delta = 52° 56' 33.93" (RT)
Degree = 76° 23' 39.74"
Tangent = 37.3469
Length = 69.3019
Radius = 75.0000
External = 8.7842
Long Chord = 66.8626
Mid. Ord. = 7.8632
P.C. Station 1121+25.94 N 7,031,979.4530 E 2,420,949.2156
P.T. Station 1121+95.24 N 7,032,009.6412 E 2,421,008.8753
C.C. N 7,031,934.6428 E 2,421,009.3574
Back = N 36° 41' 20.04" E
Ahead = N 89° 37' 53.96" E
Chord Bear = N 63° 09' 37.00" E

Curve Data

Curve COPPELL_15
P.I. Station 1122+12.65 N 7,032,009.7531 E 2,421,026.2811
Delta = 26° 07' 55.42" (LT)
Degree = 76° 23' 39.74"
Tangent = 17.4062
Length = 34.2068
Radius = 75.0000
External = 1.9933
Long Chord = 33.9111
Mid. Ord. = 1.9417
P.C. Station 1121+95.24 N 7,032,009.6412 E 2,421,008.8753
P.T. Station 1122+29.45 N 7,032,017.5198 E 2,421,041.8584
C.C. N 7,032,084.6397 E 2,421,008.3931
Back = N 89° 37' 53.96" E
Ahead = N 63° 29' 58.54" E
Chord Bear = N 76° 33' 56.25" E

Course from PT COPPELL_15 to PC COPPELL_16 N 63° 29' 58.54" E Dist 151.7238

Curve Data

Curve COPPELL_16
P.I. Station 1127+78.74 N 7,032,262.6160 E 2,421,533.4366
Delta = 21° 47' 42.94" (RT)
Degree = 2° 46' 28.61"
Tangent = 397.5677
Length = 785.5240
Radius = 2,065.0000
External = 37.9230
Long Chord = 780.7964
Mid. Ord. = 37.2391
P.C. Station 1123+81.17 N 7,032,085.2196 E 2,421,177.6408
P.T. Station 1131+66.70 N 7,032,295.2277 E 2,421,929.6645
C.C. N 7,030,237.1867 E 2,422,099.0523
Back = N 63° 29' 58.54" E
Ahead = N 85° 17' 41.48" E
Chord Bear = N 74° 23' 50.01" E

Course from PT COPPELL_16 to PC COPPELL_17 N 85° 17' 41.48" E Dist 68.3759

Curve Data

Curve COPPELL_17
P.I. Station 1132+56.58 N 7,032,302.6008 E 2,422,019.2471
Delta = 24° 16' 41.85" (LT)
Degree = 57° 17' 44.81"
Tangent = 21.5096
Length = 42.3736
Radius = 100.0000
External = 2.2872
Long Chord = 42.0573
Mid. Ord. = 2.2360
P.C. Station 1132+35.07 N 7,032,300.8364 E 2,421,997.8100
P.T. Station 1132+77.45 N 7,032,313.0234 E 2,422,038.0629
C.C. N 7,032,400.4994 E 2,421,989.6072
Back = N 85° 17' 41.48" E
Ahead = N 61° 00' 59.63" E
Chord Bear = N 73° 09' 20.56" E

30-AUG-2023 16:23
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CONTRACT SHEET No. 19 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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Jacobs
1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
FIRM NO. F-819

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SCALE	NO SCALE
DRAWN	C BAGBY
DESIGNED	C BAGBY
CHECKED	D LUU
IN CHARGE	D LUU
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
HORIZONTAL ALIGNMENT DATA
SHEET 1 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1301	D

CB05-CC1-1301.001

DWG No. CC1-1302

Curve Data

Curve COPPELL_18
P.I. Station 1132+99.14 N 7,032,323.5343 E 2,422,057.0379
Delta = 24° 28' 39.47" (RT)
Degree = 57° 17' 44.81"
Tangent = 21.6917
Length = 42.7215
Radius = 100.0000
External = 2.3256
Long Chord = 42.3974
Mid. Ord. = 2.2727
P.C. Station 1132+77.45 N 7,032,313.0234 E 2,422,038.0629
P.T. Station 1133+20.17 N 7,032,325.2384 E 2,422,078.6626
C.C. N 7,032,225.5474 E 2,422,086.5186
Back = N 61° 00' 59.63" E
Ahead = N 85° 29' 39.10" E
Chord Bear = N 73° 15' 19.37" E

Course from PT COPPELL_18 to 271 N 85° 29' 39.10" E Dist 1,644.1565

Point 271 N 7,032,454.4035 E 2,423,717.7376 Sta 1149+64.32

Course from 271 to PC COPPELL_19 N 83° 27' 47.14" E Dist 433.3655

Curve Data

Curve COPPELL_19
P.I. Station 1154+35.04 N 7,032,507.9911 E 2,424,185.3917
Delta = 21° 09' 20.31" (LT)
Degree = 28° 38' 52.40"
Tangent = 37.3489
Length = 73.8471
Radius = 200.0000
External = 3.4575
Long Chord = 73.4283
Mid. Ord. = 3.3987
P.C. Station 1153+97.69 N 7,032,503.7392 E 2,424,148.2857
P.T. Station 1154+71.54 N 7,032,525.3481 E 2,424,218.4624
C.C. N 7,032,702.4389 E 2,424,125.5171
Back = N 83° 27' 47.14" E
Ahead = N 62° 18' 26.83" E
Chord Bear = N 72° 53' 06.98" E

Curve Data

Curve COPPELL_110
P.I. Station 1154+82.59 N 7,032,530.4845 E 2,424,228.2489
Delta = 95° 43' 26.92" (RT)
Degree = 572° 57' 28.08"
Tangent = 11.0525
Length = 16.7070
Radius = 10.0000
External = 4.9050
Long Chord = 14.8306
Mid. Ord. = 3.2908
P.C. Station 1154+71.54 N 7,032,525.3481 E 2,424,218.4624
P.T. Station 1154+88.24 N 7,032,520.2345 E 2,424,232.3836
C.C. N 7,032,516.4936 E 2,424,223.1097
Back = N 62° 18' 26.83" E
Ahead = S 21° 58' 06.25" E
Chord Bear = S 69° 49' 49.71" E

Course from PT COPPELL_110 to PC COPPELL_111 S 21° 58' 06.25" E Dist 24.6427

Curve Data

Curve COPPELL_111
P.I. Station 1155+20.46 N 7,032,490.3547 E 2,424,244.4367
Delta = 74° 17' 58.03" (LT)
Degree = 572° 57' 28.06"
Tangent = 7.5766
Length = 12.9677
Radius = 10.0000
External = 2.5461
Long Chord = 12.0780
Mid. Ord. = 2.0294
P.C. Station 1155+12.89 N 7,032,497.3811 E 2,424,241.6023
P.T. Station 1155+25.85 N 7,032,491.1819 E 2,424,251.9680
C.C. N 7,032,501.1221 E 2,424,250.8762
Back = S 21° 58' 06.25" E
Ahead = N 83° 43' 55.72" E
Chord Bear = S 59° 07' 05.27" E

Course from PT COPPELL_111 to 272 N 83° 43' 55.72" E Dist 172.5102

Point 272 N 7,032,510.0160 E 2,424,423.4470 Sta 1156+98.37

Course from 272 to PC COPPELL_112 N 85° 29' 39.10" E Dist 559.3396

Curve Data

Curve COPPELL_112
P.I. Station 1162+67.31 N 7,032,554.7121 E 2,424,990.6303
Delta = 14° 35' 29.39" (LT)
Degree = 76° 23' 39.74"
Tangent = 9.6021
Length = 19.1002
Radius = 75.0000
External = 0.6122
Long Chord = 19.0487
Mid. Ord. = 0.6072
P.C. Station 1162+57.70 N 7,032,553.9577 E 2,424,981.0579
P.T. Station 1162+76.80 N 7,032,557.8536 E 2,424,999.7039
C.C. N 7,032,628.7259 E 2,424,975.1659
Back = N 85° 29' 39.10" E
Ahead = N 70° 54' 09.71" E
Chord Bear = N 78° 11' 54.41" E

Curve Data

Curve COPPELL_113
P.I. Station 1162+96.33 N 7,032,564.2414 E 2,425,018.1535
Delta = 29° 10' 58.79" (RT)
Degree = 76° 23' 39.74"
Tangent = 19.5242
Length = 38.2005
Radius = 75.0000
External = 2.4996
Long Chord = 37.7889
Mid. Ord. = 2.4190
P.C. Station 1162+76.80 N 7,032,557.8536 E 2,424,999.7039
P.T. Station 1163+15.01 N 7,032,560.8223 E 2,425,037.3760
C.C. N 7,032,486.9813 E 2,425,024.2419
Back = N 70° 54' 09.71" E
Ahead = S 79° 54' 51.51" E
Chord Bear = N 85° 29' 39.10" E

Curve Data

Curve COPPELL_114
P.I. Station 1163+24.61 N 7,032,559.1408 E 2,425,046.8296
Delta = 14° 35' 29.39" (LT)
Degree = 76° 23' 39.74"
Tangent = 9.6021
Length = 19.1002
Radius = 75.0000
External = 0.6122
Long Chord = 19.0487
Mid. Ord. = 0.6072
P.C. Station 1163+15.01 N 7,032,560.8223 E 2,425,037.3760
P.T. Station 1163+34.11 N 7,032,559.8951 E 2,425,056.4020
C.C. N 7,032,634.6633 E 2,425,050.5100
Back = S 79° 54' 51.51" E
Ahead = N 85° 29' 39.10" E
Chord Bear = S 87° 12' 36.20" E

Course from PT COPPELL_114 to PC COPPELL_115 N 85° 29' 39.10" E Dist 440.7584

Curve Data

Curve COPPELL_115
P.I. Station 1167+92.74 N 7,032,595.9252 E 2,425,513.6151
Delta = 19° 08' 26.27" (LT)
Degree = 54° 03' 09.44"
Tangent = 17.8721
Length = 35.4111
Radius = 106.0000
External = 1.4961
Long Chord = 35.2467
Mid. Ord. = 1.4753
P.C. Station 1167+74.86 N 7,032,594.5212 E 2,425,495.7983
P.T. Station 1168+10.28 N 7,032,603.0935 E 2,425,529.9866
C.C. N 7,032,700.1936 E 2,425,487.4709
Back = N 85° 29' 39.10" E
Ahead = N 66° 21' 12.84" E
Chord Bear = N 75° 55' 25.97" E

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SHEET 2 OF 10

CONTRACT	DWG No.	REV
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DWG No. CC1-1303

Curve Data

Curve COPPELL_116
P.I. Station 1168+27.13 N 7,032,609.8542 E 2,425,545.4271
Delta = 19° 08' 07.24" (RT)
Degree = 57° 17' 44.81"
Tangent = 16.8557
Length = 33.3975
Radius = 100.0000
External = 1.4106
Long Chord = 33.2425
Mid. Ord. = 1.3910
P.C. Station 1168+10.28 N 7,032,603.0935 E 2,425,529.9866
P.T. Station 1168+43.67 N 7,032,611.1799 E 2,425,562.2305
C.C. N 7,032,511.4897 E 2,425,570.0957
Back = N 66° 21' 12.84" E
Ahead = N 85° 29' 20.08" E
Chord Bear = N 75° 55' 16.46" E

Course from PT COPPELL_116 to PC COPPELL_117 N 85° 29' 20.08" E Dist 121.6607

Curve Data

Curve COPPELL_117
P.I. Station 1169+82.47 N 7,032,622.0963 E 2,425,700.5934
Delta = 19° 26' 35.52" (RT)
Degree = 57° 17' 44.81"
Tangent = 17.1321
Length = 33.9348
Radius = 100.0000
External = 1.4569
Long Chord = 33.7722
Mid. Ord. = 1.4360
P.C. Station 1169+65.33 N 7,032,620.7488 E 2,425,683.5143
P.T. Station 1169+99.27 N 7,032,617.6818 E 2,425,717.1470
C.C. N 7,032,521.0586 E 2,425,691.3795
Back = N 85° 29' 20.08" E
Ahead = S 75° 04' 04.40" E
Chord Bear = S 84° 47' 22.16" E

Curve Data

Curve COPPELL_118
P.I. Station 1170+16.40 N 7,032,613.2685 E 2,425,733.6960
Delta = 19° 26' 16.64" (LT)
Degree = 57° 17' 44.81"
Tangent = 17.1274
Length = 33.9256
Radius = 100.0000
External = 1.4561
Long Chord = 33.7632
Mid. Ord. = 1.4352
P.C. Station 1169+99.27 N 7,032,617.6818 E 2,425,717.1470
P.T. Station 1170+33.19 N 7,032,614.6140 E 2,425,750.7705
C.C. N 7,032,714.3049 E 2,425,742.9144
Back = S 75° 04' 04.40" E
Ahead = N 85° 29' 38.97" E
Chord Bear = S 84° 47' 12.71" E

Course from PT COPPELL_118 to 273 N 85° 29' 38.97" E Dist 468.2636

Point 273 N 7,032,651.4012 E 2,426,217.5869 Sta 1175+01.46

Course from 273 to 274 N 85° 29' 38.97" E Dist 60.2682

Point 274 N 7,032,656.1359 E 2,426,277.6687 Sta 1175+61.73

Course from 274 to PC COPPELL_119 N 85° 29' 38.97" E Dist 29.7197

Curve Data

Curve COPPELL_119
P.I. Station 1176+29.88 N 7,032,661.4900 E 2,426,345.6111
Delta = 54° 15' 54.71" (LT)
Degree = 76° 23' 39.74"
Tangent = 38.4333
Length = 71.0330
Radius = 75.0000
External = 9.2741
Long Chord = 68.4077
Mid. Ord. = 8.2535
P.C. Station 1175+91.45 N 7,032,658.4707 E 2,426,307.2966
P.T. Station 1176+62.48 N 7,032,694.3544 E 2,426,365.5372
C.C. N 7,032,733.2389 E 2,426,301.4046
Back = N 85° 29' 38.97" E
Ahead = N 31° 13' 44.26" E
Chord Bear = N 58° 21' 41.61" E

Curve Data

Curve COPPELL_120
P.I. Station 1176+97.86 N 7,032,724.6089 E 2,426,383.8809
Delta = 50° 30' 39.46" (RT)
Degree = 76° 23' 39.74"
Tangent = 35.3811
Length = 66.1187
Radius = 75.0000
External = 7.9266
Long Chord = 63.9983
Mid. Ord. = 7.1689
P.C. Station 1176+62.48 N 7,032,694.3544 E 2,426,365.5372
P.T. Station 1177+28.60 N 7,032,729.6919 E 2,426,418.8949
C.C. N 7,032,655.4700 E 2,426,429.6699
Back = N 31° 13' 44.26" E
Ahead = N 81° 44' 23.72" E
Chord Bear = N 56° 29' 03.99" E

Course from PT COPPELL_120 to 275 N 81° 44' 23.72" E Dist 337.6519

Point 275 N 7,032,778.2013 E 2,426,753.0441 Sta 1180+66.25

Course from 275 to PC COPPELL_121 N 85° 15' 45.52" E Dist 454.1742

Curve Data

Curve COPPELL_121
P.I. Station 1185+40.25 N 7,032,817.3480 E 2,427,225.4234
Delta = 18° 45' 41.27" (LT)
Degree = 47° 44' 47.34"
Tangent = 19.8244
Length = 39.2939
Radius = 120.0000
External = 1.6265
Long Chord = 39.1186
Mid. Ord. = 1.6048
P.C. Station 1185+20.42 N 7,032,815.7107 E 2,427,205.6667
P.T. Station 1185+59.72 N 7,032,825.2526 E 2,427,243.6037
C.C. N 7,032,935.3008 E 2,427,195.7561
Back = N 85° 15' 45.52" E
Ahead = N 66° 30' 04.25" E
Chord Bear = N 75° 52' 54.89" E

Curve Data

Curve COPPELL_122
P.I. Station 1186+18.46 N 7,032,848.6744 E 2,427,297.4733
Delta = 111° 29' 37.97" (RT)
Degree = 143° 14' 22.02"
Tangent = 58.7411
Length = 77.8374
Radius = 40.0000
External = 31.0670
Long Chord = 66.1248
Mid. Ord. = 17.4860
P.C. Station 1185+59.72 N 7,032,825.2526 E 2,427,243.6037
P.T. Station 1186+37.55 N 7,032,789.9693 E 2,427,299.5284
C.C. N 7,032,788.5699 E 2,427,259.5529
Back = N 66° 30' 04.25" E
Ahead = S 2° 00' 17.78" E
Chord Bear = S 57° 45' 06.76" E

Course from PT COPPELL_122 to 276 S 2° 00' 17.78" E Dist 25.4080

Point 276 N 7,032,764.5769 E 2,427,300.4174 Sta 1186+62.96

Course from 276 to 277 S 77° 52' 27.93" E Dist 77.3401

Point 277 N 7,032,748.3312 E 2,427,376.0320 Sta 1187+40.30

Course from 277 to 278 S 2° 00' 17.78" E Dist 59.4439

Point 278 N 7,032,688.9237 E 2,427,378.1117 Sta 1187+99.75

Course from 278 to PC COPPELL_123 S 10° 29' 47.87" E Dist 57.3792

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SHEET 3 OF 10

CONTRACT	DWG No.	REV
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Curve Data

Curve COPPELL_123
P.I. Station 1189+24.67 N 7,032,566.0938 E 2,427,400.8694
Delta = 84° 00' 33.16" (LT)
Degree = 76° 23' 39.74"
Tangent = 67.5412
Length = 109.9678
Radius = 75.0000
External = 25.9298
Long Chord = 100.3786
Mid. Ord. = 19.2682
P.C. Station 1188+57.13 N 7,032,632.5047 E 2,427,388.5649
P.T. Station 1189+67.09 N 7,032,571.3999 E 2,427,468.2019
C.C. N 7,032,646.1681 E 2,427,462.3098
Back = S 10° 29' 47.87" E
Ahead = N 85° 29' 38.97" E
Chord Bear = S 52° 30' 04.45" E

Course from PT COPPELL_123 to PC COPPELL_124 N 85° 29' 38.97" E Dist 481.4894

Curve Data

Curve COPPELL_124
P.I. Station 1194+67.27 N 7,032,610.6944 E 2,427,966.8368
Delta = 27° 59' 17.56" (RT)
Degree = 76° 23' 39.74"
Tangent = 18.6914
Length = 36.6365
Radius = 75.0000
External = 2.2940
Long Chord = 36.2733
Mid. Ord. = 2.2260
P.C. Station 1194+48.58 N 7,032,609.2260 E 2,427,948.2031
P.T. Station 1194+85.22 N 7,032,603.2465 E 2,427,983.9802
C.C. N 7,032,534.4578 E 2,427,954.0952
Back = N 85° 29' 38.97" E
Ahead = S 66° 31' 03.48" E
Chord Bear = S 80° 30' 42.26" E

Curve Data

Curve COPPELL_125
P.I. Station 1196+78.92 N 7,032,526.0613 E 2,428,161.6437
Delta = 23° 41' 44.29" (RT)
Degree = 6° 12' 18.36"
Tangent = 193.7056
Length = 381.8736
Radius = 923.3661
External = 20.0992
Long Chord = 379.1580
Mid. Ord. = 19.6710
P.C. Station 1194+85.22 N 7,032,603.2465 E 2,427,983.9802
P.T. Station 1198+67.09 N 7,032,383.9842 E 2,428,293.3098
C.C. N 7,031,756.3510 E 2,427,616.0494
Back = S 66° 31' 03.48" E
Ahead = S 42° 49' 19.19" E
Chord Bear = S 54° 40' 11.33" E

Curve Data

Curve COPPELL_126
P.I. Station 1198+92.89 N 7,032,365.0642 E 2,428,310.8434
Delta = 28° 55' 42.62" (RT)
Degree = 57° 17' 44.82"
Tangent = 25.7952
Length = 50.4898
Radius = 100.0000
External = 3.2734
Long Chord = 49.9552
Mid. Ord. = 3.1696
P.C. Station 1198+67.09 N 7,032,383.9842 E 2,428,293.3098
P.T. Station 1199+17.58 N 7,032,340.0237 E 2,428,317.0373
C.C. N 7,032,316.0119 E 2,428,219.9629
Back = S 42° 49' 19.19" E
Ahead = S 13° 53' 36.57" E
Chord Bear = S 28° 21' 27.88" E

Curve Data

Curve COPPELL_127
P.I. Station 1199+62.19 N 7,032,296.7244 E 2,428,327.7476
Delta = 58° 17' 02.27" (LT)
Degree = 71° 37' 11.00"
Tangent = 44.6042
Length = 81.3798
Radius = 80.0000
External = 11.5944
Long Chord = 77.9161
Mid. Ord. = 10.1267
P.C. Station 1199+17.58 N 7,032,340.0237 E 2,428,317.0373
P.T. Station 1199+98.96 N 7,032,283.0724 E 2,428,370.2112
C.C. N 7,032,359.2331 E 2,428,394.6968
Back = S 13° 53' 36.57" E
Ahead = S 72° 10' 38.83" E
Chord Bear = S 43° 02' 07.70" E

Course from PT COPPELL_127 to PC COPPELL_128 S 72° 10' 38.83" E Dist 224.2266

Curve Data

Curve COPPELL_128
P.I. Station 1202+35.53 N 7,032,210.6663 E 2,428,595.4252
Delta = 27° 43' 41.30" (RT)
Degree = 114° 35' 29.61"
Tangent = 12.3405
Length = 24.1974
Radius = 50.0000
External = 1.5004
Long Chord = 23.9619
Mid. Ord. = 1.4567
P.C. Station 1202+23.19 N 7,032,214.4433 E 2,428,583.6769
P.T. Station 1202+47.39 N 7,032,201.8568 E 2,428,604.0670
C.C. N 7,032,166.8429 E 2,428,568.3734
Back = S 72° 10' 38.83" E
Ahead = S 44° 26' 57.53" E
Chord Bear = S 58° 18' 48.18" E

Curve Data

Curve COPPELL_129
P.I. Station 1202+61.55 N 7,032,191.7441 E 2,428,613.9871
Delta = 31° 38' 13.05" (LT)
Degree = 114° 35' 29.61"
Tangent = 14.1660
Length = 27.6085
Radius = 50.0000
External = 1.9680
Long Chord = 27.2591
Mid. Ord. = 1.8935
P.C. Station 1202+47.39 N 7,032,201.8568 E 2,428,604.0670
P.T. Station 1202+74.99 N 7,032,188.3377 E 2,428,627.7374
C.C. N 7,032,236.8707 E 2,428,639.7605
Back = S 44° 26' 57.53" E
Ahead = S 76° 05' 10.58" E
Chord Bear = S 60° 16' 04.05" E

Curve Data

Curve COPPELL_130
P.I. Station 1203+19.89 N 7,032,177.4457 E 2,428,671.2956
Delta = 5° 51' 05.67" (LT)
Degree = 6° 31' 19.20"
Tangent = 44.8993
Length = 89.7205
Radius = 878.5000
External = 1.1466
Long Chord = 89.6816
Mid. Ord. = 1.1451
P.C. Station 1202+74.99 N 7,032,188.3377 E 2,428,627.7374
P.T. Station 1203+64.72 N 7,032,171.0512 E 2,428,715.7372
C.C. N 7,033,040.5962 E 2,428,840.8521
Back = S 75° 57' 38.12" E
Ahead = S 81° 48' 43.79" E
Chord Bear = S 78° 53' 10.96" E

Course from PT COPPELL_130 to PC COPPELL_131 S 81° 48' 43.79" E Dist 45.8435

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DWG No. CC1-1305

Curve Data

Curve COPPELL_131
P.I. Station 1204+21.86 N 7,032,162.9124 E 2,428,772.3015
Delta = 25° 28' 37.52" (LT)
Degree = 114° 35' 29.61"
Tangent = 11.3033
Length = 22.2330
Radius = 50.0000
External = 1.2617
Long Chord = 22.0502
Mid. Ord. = 1.2307
P.C. Station 1204+10.56 N 7,032,164.5222 E 2,428,761.1133
P.T. Station 1204+32.79 N 7,032,166.2717 E 2,428,783.0941
C.C. N 7,032,214.0125 E 2,428,768.2343
Back = S 81° 48' 43.79" E
Ahead = N 72° 42' 38.69" E
Chord Bear = N 85° 26' 57.45" E

Curve Data

Curve COPPELL_132
P.I. Station 1204+39.99 N 7,032,168.4096 E 2,428,789.9626
Delta = 16° 22' 26.53" (RT)
Degree = 114° 35' 29.62"
Tangent = 7.1935
Length = 14.2890
Radius = 50.0000
External = 0.5148
Long Chord = 14.2405
Mid. Ord. = 0.5096
P.C. Station 1204+32.79 N 7,032,166.2717 E 2,428,783.0941
P.T. Station 1204+47.08 N 7,032,168.5245 E 2,428,797.1552
C.C. N 7,032,118.5309 E 2,428,797.9539
Back = N 72° 42' 38.69" E
Ahead = N 89° 05' 05.23" E
Chord Bear = N 80° 53' 51.96" E

Course from PT COPPELL_132 to PC COPPELL_133 N 89° 05' 05.23" E Dist 1,222.5365

Curve Data

Curve COPPELL_133
P.I. Station 1218+00.44 N 7,032,190.1414 E 2,430,150.3410
Delta = 18° 10' 21.41" (RT)
Degree = 7° 00' 15.75"
Tangent = 130.8219
Length = 259.4467
Radius = 818.0000
External = 10.3951
Long Chord = 258.3605
Mid. Ord. = 10.2646
P.C. Station 1216+69.62 N 7,032,188.0518 E 2,430,019.5358
P.T. Station 1219+29.06 N 7,032,151.3312 E 2,430,275.2735
C.C. N 7,031,370.1562 E 2,430,032.6016
Back = N 89° 05' 05.23" E
Ahead = S 72° 44' 33.36" E
Chord Bear = S 81° 49' 44.07" E

Course from PT COPPELL_133 to PC COPPELL_134 S 72° 44' 33.36" E Dist 169.3794

Curve Data

Curve COPPELL_134
P.I. Station 1221+77.33 N 7,032,077.6789 E 2,430,512.3645
Delta = 17° 55' 55.31" (LT)
Degree = 11° 27' 32.96"
Tangent = 78.8882
Length = 156.4865
Radius = 500.0000
External = 6.1851
Long Chord = 155.8486
Mid. Ord. = 6.1095
P.C. Station 1220+98.44 N 7,032,101.0823 E 2,430,437.0277
P.T. Station 1222+54.93 N 7,032,078.6077 E 2,430,591.2472
C.C. N 7,032,578.5731 E 2,430,585.3601
Back = S 72° 44' 33.36" E
Ahead = N 89° 19' 31.33" E
Chord Bear = S 81° 42' 31.02" E

Course from PT COPPELL_134 to PC COPPELL_135 N 89° 19' 31.33" E Dist 244.9459

Curve Data

Curve COPPELL_135
P.I. Station 1225+12.63 N 7,032,081.6420 E 2,430,848.9312
Delta = 44° 05' 27.94" (LT)
Degree = 181° 53' 28.91"
Tangent = 12.7560
Length = 24.2403
Radius = 31.5000
External = 2.4848
Long Chord = 23.6466
Mid. Ord. = 2.3031
P.C. Station 1224+99.88 N 7,032,081.4918 E 2,430,836.1761
P.T. Station 1225+24.12 N 7,032,090.6249 E 2,430,857.9878
C.C. N 7,032,112.9896 E 2,430,835.8052
Back = N 89° 19' 31.33" E
Ahead = N 45° 14' 03.39" E
Chord Bear = N 67° 16' 47.36" E

Course from PT COPPELL_135 to 181 S 44° 45' 56.61" E Dist 8.5000

Point 181 N 7,032,084.5899 E 2,430,863.9736 Sta 1225+32.62

Course from 181 to 182 S 0° 37' 18.09" E Dist 113.3079

Point 182 N 7,031,971.2887 E 2,430,865.2030 Sta 1226+45.92

Course from 182 to 183 N 89° 38' 32.78" E Dist 540.3120

Point 183 N 7,031,974.6606 E 2,431,405.5046 Sta 1231+86.24

Course from 183 to 184 S 80° 21' 27.22" E Dist 16.9802

Point 184 N 7,031,971.8164 E 2,431,422.2449 Sta 1232+03.22

Course from 184 to 185 N 89° 38' 32.78" E Dist 110.5452

Point 185 N 7,031,972.5063 E 2,431,532.7879 Sta 1233+13.76

Course from 185 to 186 S 0° 58' 20.10" E Dist 6.0003

Point 186 N 7,031,966.5068 E 2,431,532.8897 Sta 1233+19.76

==========
Ending chain COPPELL_1 description

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COTTON BELT REGIONAL RAIL
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HORIZONTAL ALIGNMENT DATA
SHEET 5 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1305	D

CB05-CC1-1305.001

<* 1 Describe Chain COPPELL_2

Chain COPPELL_2 contains:
118 119 120 121 122 CUR COPPELL_21 CUR COPPELL_22 CUR COPPELL_23 CUR COPPELL_2-
4 CUR COPPELL_25 CUR COPPELL_26 CUR COPPELL_27 CUR COPPELL_28 CUR COPPELL_29 CU-
R COPPELL_210 CUR COPPELL_211 CUR COPPELL_212 CUR COPPELL_213 CUR COPPELL_214 C-
UR COPPELL_215 CUR COPPELL_216 CUR COPPELL_217 CUR COPPELL_218 CUR COPPELL_219 -
123 124 125 126 CUR COPPELL_220 CUR COPPELL_221 CUR COPPELL_222 CUR COPPELL_223-
CUR COPPELL_224 CUR COPPELL_225 CUR COPPELL_226 CUR COPPELL_227 CUR COPPELL_22-
8 CUR COPPELL_229 127 128

Beginning chain COPPELL_2 description
==========

Point 118 N 7,034,630.2901 E 2,436,149.7069 Sta 1293+53.14

Course from 118 to 119 N 22° 20' 01.28" W Dist 38.3163

Point 119 N 7,034,665.7321 E 2,436,135.1468 Sta 1293+91.45

Course from 119 to 120 N 52° 13' 05.07" W Dist 24.0842

Point 120 N 7,034,680.4875 E 2,436,116.1118 Sta 1294+15.54

Course from 120 to 121 N 22° 20' 01.28" W Dist 54.2115

Point 121 N 7,034,730.6323 E 2,436,095.5115 Sta 1294+69.75

Course from 121 to 122 N 22° 20' 01.28" W Dist 37.7664

Point 122 N 7,034,765.5657 E 2,436,081.1602 Sta 1295+07.52

Course from 122 to PC COPPELL_21 N 1° 11' 06.85" W Dist 68.6844

Curve Data

Curve COPPELL_21
P.I. Station 1295+84.82 N 7,034,842.8511 E 2,436,079.5613
Delta = 46° 37' 11.21" (RT)
Degree = 286° 28' 44.03"
Tangent = 8.6175
Length = 16.2734
Radius = 20.0000
External = 1.7775
Long Chord = 15.8282
Mid. Ord. = 1.6324
P.C. Station 1295+76.20 N 7,034,834.2355 E 2,436,079.7395
P.T. Station 1295+92.47 N 7,034,848.8982 E 2,436,085.7008
C.C. N 7,034,834.6492 E 2,436,099.7352
Back = N 1° 11' 06.85" W
Ahead = N 45° 26' 04.35" E
Chord Bear = N 22° 07' 28.75" E

Course from PT COPPELL_21 to PC COPPELL_22 N 45° 26' 04.35" E Dist 90.0559

Curve Data

Curve COPPELL_22
P.I. Station 1297+26.97 N 7,034,943.2772 E 2,436,181.5224
Delta = 31° 02' 28.85" (RT)
Degree = 35° 48' 17.91"
Tangent = 44.4402
Length = 86.6956
Radius = 160.0218
External = 6.0562
Long Chord = 85.6392
Mid. Ord. = 5.8354
P.C. Station 1296+82.53 N 7,034,912.0925 E 2,436,149.8610
P.T. Station 1297+69.23 N 7,034,953.6698 E 2,436,224.7303
C.C. N 7,034,798.0851 E 2,436,262.1521
Back = N 45° 26' 04.35" E
Ahead = N 76° 28' 33.20" E
Chord Bear = N 60° 57' 18.78" E

Curve Data

Curve COPPELL_23
P.I. Station 1298+32.37 N 7,034,968.4364 E 2,436,286.1240
Delta = 28° 20' 48.08" (LT)
Degree = 22° 54' 54.66"
Tangent = 63.1446
Length = 123.7026
Radius = 250.0341
External = 7.8502
Long Chord = 122.4449
Mid. Ord. = 7.6112
P.C. Station 1297+69.23 N 7,034,953.6698 E 2,436,224.7303
P.T. Station 1298+92.93 N 7,035,010.5825 E 2,436,333.1448
C.C. N 7,035,196.7709 E 2,436,166.2587
Back = N 76° 28' 33.20" E
Ahead = N 48° 07' 45.13" E
Chord Bear = N 62° 18' 09.16" E

Curve Data

Curve COPPELL_24
P.I. Station 1299+22.06 N 7,035,030.0288 E 2,436,354.8402
Delta = 32° 28' 58.15" (RT)
Degree = 57° 17' 16.65"
Tangent = 29.1351
Length = 56.7010
Radius = 100.0137
External = 4.1573
Long Chord = 55.9447
Mid. Ord. = 3.9914
P.C. Station 1298+92.93 N 7,035,010.5825 E 2,436,333.1448
P.T. Station 1299+49.63 N 7,035,034.7813 E 2,436,383.5851
C.C. N 7,034,936.1071 E 2,436,399.8992
Back = N 48° 07' 45.13" E
Ahead = N 80° 36' 43.28" E
Chord Bear = N 64° 22' 14.20" E

Curve Data

Curve COPPELL_25
P.I. Station 1299+87.30 N 7,035,040.9268 E 2,436,420.7556
Delta = 21° 20' 00.17" (LT)
Degree = 28° 38' 38.33"
Tangent = 37.6751
Length = 74.4777
Radius = 200.0273
External = 3.5171
Long Chord = 74.0482
Mid. Ord. = 3.4564
P.C. Station 1299+49.63 N 7,035,034.7813 E 2,436,383.5851
P.T. Station 1300+24.11 N 7,035,060.1736 E 2,436,453.1434
C.C. N 7,035,232.1295 E 2,436,350.9568
Back = N 80° 36' 43.28" E
Ahead = N 59° 16' 43.11" E
Chord Bear = N 69° 56' 43.19" E

Curve Data

Curve COPPELL_26
P.I. Station 1300+63.47 N 7,035,080.2822 E 2,436,486.9815
Delta = 24° 01' 11.89" (RT)
Degree = 30° 57' 59.27"
Tangent = 39.3620
Length = 77.5677
Radius = 185.0253
External = 4.1406
Long Chord = 77.0009
Mid. Ord. = 4.0500
P.C. Station 1300+24.11 N 7,035,060.1736 E 2,436,453.1434
P.T. Station 1301+01.67 N 7,035,084.8756 E 2,436,526.0746
C.C. N 7,034,901.1145 E 2,436,547.6661
Back = N 59° 16' 43.11" E
Ahead = N 83° 17' 55.00" E
Chord Bear = N 71° 17' 19.05" E

Curve Data

Curve COPPELL_27
P.I. Station 1301+72.73 N 7,035,093.1675 E 2,436,596.6453
Delta = 22° 38' 03.41" (LT)
Degree = 16° 08' 14.83"
Tangent = 71.0561
Length = 140.2593
Radius = 355.0485
External = 7.0405
Long Chord = 139.3491
Mid. Ord. = 6.9036
P.C. Station 1301+01.67 N 7,035,084.8756 E 2,436,526.0746
P.T. Station 1302+41.93 N 7,035,127.9797 E 2,436,658.5895
C.C. N 7,035,437.4983 E 2,436,484.6423
Back = N 83° 17' 55.00" E
Ahead = N 60° 39' 51.59" E
Chord Bear = N 71° 58' 53.29" E

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HORIZONTAL ALIGNMENT DATA
SHEET 6 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1306	D

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Curve Data

Curve COPPELL_28
P.I. Station 1302+75.06 N 7,035,144.2113 E 2,436,687.4717
Delta = 30° 51' 52.27" (RT)
Degree = 47° 44' 23.88"
Tangent = 33.1307
Length = 64.6513
Radius = 120.0164
External = 4.4889
Long Chord = 63.8725
Mid. Ord. = 4.3271
P.C. Station 1302+41.93 N 7,035,127.9797 E 2,436,658.5895
P.T. Station 1303+06.59 N 7,035,143.3273 E 2,436,720.5906
C.C. N 7,035,023.3537 E 2,436,717.3885
Back = N 60° 39' 51.59" E
Ahead = S 88° 28' 16.14" E
Chord Bear = N 76° 05' 47.72" E

Curve Data

Curve COPPELL_29
P.I. Station 1303+40.31 N 7,035,142.4274 E 2,436,754.3078
Delta = 37° 16' 22.68" (LT)
Degree = 57° 17' 16.66"
Tangent = 33.7292
Length = 65.0625
Radius = 100.0136
External = 5.5344
Long Chord = 63.9213
Mid. Ord. = 5.2442
P.C. Station 1303+06.59 N 7,035,143.3273 E 2,436,720.5906
P.T. Station 1303+71.65 N 7,035,162.1309 E 2,436,781.6836
C.C. N 7,035,243.3054 E 2,436,723.2590
Back = S 88° 28' 16.14" E
Ahead = N 54° 15' 21.18" E
Chord Bear = N 72° 53' 32.52" E

Course from PT COPPELL_29 to PC COPPELL_210 N 54° 15' 21.18" E Dist 10.2602

Curve Data

Curve COPPELL_210
P.I. Station 1305+18.75 N 7,035,248.0601 E 2,436,901.0727
Delta = 49° 01' 54.32" (RT)
Degree = 19° 05' 45.55"
Tangent = 136.8370
Length = 256.7647
Radius = 300.0410
External = 29.7301
Long Chord = 249.0012
Mid. Ord. = 27.0498
P.C. Station 1303+81.91 N 7,035,168.1246 E 2,436,790.0112
P.T. Station 1306+38.67 N 7,035,216.6095 E 2,437,034.2463
C.C. N 7,034,924.6011 E 2,436,965.2850
Back = N 54° 15' 21.18" E
Ahead = S 76° 42' 44.51" E
Chord Bear = N 78° 46' 18.34" E

Course from PT COPPELL_210 to PC COPPELL_211 S 77° 03' 26.95" E Dist 103.0946

Curve Data

Curve COPPELL_211
P.I. Station 1307+96.53 N 7,035,181.9183 E 2,437,188.2398
Delta = 30° 37' 15.94" (LT)
Degree = 28° 38' 38.33"
Tangent = 54.7609
Length = 106.9024
Radius = 200.0273
External = 7.3604
Long Chord = 105.6347
Mid. Ord. = 7.0992
P.C. Station 1307+41.77 N 7,035,193.5191 E 2,437,134.7218
P.T. Station 1308+48.67 N 7,035,199.1950 E 2,437,240.2039
C.C. N 7,035,389.0065 E 2,437,177.0965
Back = S 77° 46' 10.35" E
Ahead = N 71° 36' 33.71" E
Chord Bear = N 86° 55' 11.68" E

Curve Data

Curve COPPELL_212
P.I. Station 1308+88.38 N 7,035,211.7235 E 2,437,277.8865
Delta = 43° 18' 41.07" (RT)
Degree = 57° 17' 16.65"
Tangent = 39.7107
Length = 75.6030
Radius = 100.0137
External = 7.5952
Long Chord = 73.8157
Mid. Ord. = 7.0591
P.C. Station 1308+48.67 N 7,035,199.1950 E 2,437,240.2039
P.T. Station 1309+24.27 N 7,035,194.9908 E 2,437,313.8998
C.C. N 7,035,104.2893 E 2,437,271.7576
Back = N 71° 36' 33.71" E
Ahead = S 65° 04' 45.22" E
Chord Bear = S 86° 44' 05.76" E

Curve Data

Curve COPPELL_213
P.I. Station 1310+18.89 N 7,035,155.1221 E 2,437,399.7081
Delta = 28° 19' 04.76" (LT)
Degree = 15° 16' 35.80"
Tangent = 94.6181
Length = 185.3683
Radius = 375.0556
External = 11.7509
Long Chord = 183.4873
Mid. Ord. = 11.3939
P.C. Station 1309+24.27 N 7,035,194.9908 E 2,437,313.8998
P.T. Station 1311+09.64 N 7,035,160.7290 E 2,437,494.1600
C.C. N 7,035,535.1255 E 2,437,471.9350
Back = S 65° 04' 45.22" E
Ahead = N 86° 36' 10.01" E
Chord Bear = S 79° 14' 17.60" E

Course from PT COPPELL_213 to PC COPPELL_214 N 84° 44' 46.19" E Dist 33.0590

Curve Data

Curve COPPELL_214
P.I. Station 1311+82.63 N 7,035,167.4125 E 2,437,566.8426
Delta = 43° 31' 42.76" (RT)
Degree = 57° 17' 16.65"
Tangent = 39.9303
Length = 75.9820
Radius = 100.0137
External = 7.6764
Long Chord = 74.1679
Mid. Ord. = 7.1293
P.C. Station 1311+42.70 N 7,035,163.7561 E 2,437,527.0801
P.T. Station 1312+18.68 N 7,035,142.6784 E 2,437,598.1899
C.C. N 7,035,064.1627 E 2,437,536.2381
Back = N 84° 44' 46.19" E
Ahead = S 51° 43' 31.05" E
Chord Bear = S 73° 29' 22.43" E

Course from PT COPPELL_214 to PC COPPELL_215 S 51° 43' 31.05" E Dist 42.8077

Curve Data

Curve COPPELL_215
P.I. Station 1313+54.22 N 7,035,058.7213 E 2,437,704.5944
Delta = 55° 49' 51.40" (LT)
Degree = 32° 44' 09.52"
Tangent = 92.7309
Length = 170.5492
Radius = 175.0239
External = 23.0478
Long Chord = 163.8813
Mid. Ord. = 20.3659
P.C. Station 1312+61.49 N 7,035,116.1619 E 2,437,631.7961
P.T. Station 1314+32.04 N 7,035,086.6928 E 2,437,793.0061
C.C. N 7,035,253.5644 E 2,437,740.2116
Back = S 51° 43' 31.05" E
Ahead = N 72° 26' 37.56" E
Chord Bear = S 79° 38' 26.75" E

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VELOWEB HIKE & BIKE TRAIL

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HORIZONTAL ALIGNMENT DATA
SHEET 7 OF 10

CONTRACT	DWG No.	REV
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Curve Data

Curve COPPELL_216
P.I. Station = 1315+03.85 N 7,035,108.3541 E 2,437,861.4723
Delta = 78° 25' 25.15" (RT)
Degree = 65° 05' 59.83"
Tangent = 71.8111
Length = 120.4665
Radius = 88.0120
External = 25.5791
Long Chord = 111.2805
Mid. Ord. = 19.8191
P.C. Station = 1314+32.04 N 7,035,086.6928 E 2,437,793.0061
P.T. Station = 1315+52.51 N 7,035,045.6274 E 2,437,896.4323
C.C. N 7,035,002.7803 E 2,437,819.5542
Back = N 72° 26' 37.56" E
Ahead = S 29° 07' 57.30" E
Chord Bear = S 68° 20' 39.87" E

Curve Data

Curve COPPELL_217
P.I. Station = 1315+92.65 N 7,035,010.5651 E 2,437,915.9738
Delta = 50° 33' 02.99" (LT)
Degree = 67° 23' 51.36"
Tangent = 40.1402
Length = 75.0039
Radius = 85.0116
External = 9.0001
Long Chord = 72.5948
Mid. Ord. = 8.1385
P.C. Station = 1315+52.51 N 7,035,045.6274 E 2,437,896.4323
P.T. Station = 1316+27.51 N 7,035,003.3765 E 2,437,955.4650
C.C. N 7,035,087.0138 E 2,437,970.6895
Back = S 29° 07' 57.30" E
Ahead = S 79° 41' 00.28" E
Chord Bear = S 54° 24' 28.79" E

Curve Data

Curve COPPELL_218
P.I. Station = 1317+29.38 N 7,034,985.1325 E 2,438,055.6905
Delta = 19° 16' 11.38" (RT)
Degree = 9° 32' 52.78"
Tangent = 101.8724
Length = 201.8207
Radius = 600.0819
External = 8.5857
Long Chord = 200.8709
Mid. Ord. = 8.4646
P.C. Station = 1316+27.51 N 7,035,003.3765 E 2,437,955.4650
P.T. Station = 1318+29.33 N 7,034,934.8344 E 2,438,144.2800
C.C. N 7,034,412.9960 E 2,437,847.9981
Back = S 79° 41' 00.28" E
Ahead = S 60° 24' 48.90" E
Chord Bear = S 70° 02' 54.59" E

Course from PT COPPELL_218 to PC COPPELL_219 S 60° 24' 48.90" E Dist 42.0326

Curve Data

Curve COPPELL_219
P.I. Station = 1319+02.68 N 7,034,898.6179 E 2,438,208.0678
Delta = 34° 46' 33.69" (LT)
Degree = 57° 17' 16.71"
Tangent = 31.3194
Length = 60.7039
Radius = 100.0136
External = 4.7892
Long Chord = 59.7764
Mid. Ord. = 4.5703
P.C. Station = 1318+71.36 N 7,034,914.0814 E 2,438,180.8320
P.T. Station = 1319+32.07 N 7,034,901.4508 E 2,438,239.2588
C.C. N 7,035,001.0545 E 2,438,230.2123
Back = S 60° 24' 48.90" E
Ahead = N 84° 48' 37.42" E
Chord Bear = S 77° 48' 05.74" E

Course from PT COPPELL_219 to 123 N 85° 01' 31.29" E Dist 12.0016

Point 123 N 7,034,902.4916 E 2,438,251.2152 Sta 1319+44.07

Course from 123 to 124 N 85° 01' 19.52" E Dist 100.0137

Point 124 N 7,034,911.1699 E 2,438,350.8516 Sta 1320+44.08

Course from 124 to 125 N 85° 01' 19.52" E Dist 12.0016

Point 125 N 7,034,912.2113 E 2,438,362.8080 Sta 1320+56.08

Course from 125 to 126 N 84° 36' 42.01" E Dist 4.8242

Point 126 N 7,034,912.6643 E 2,438,367.6109 Sta 1320+60.91

Course from 126 to PC COPPELL_220 S 11° 43' 10.89" E Dist 64.0159

Curve Data

Curve COPPELL_220
P.I. Station = 1321+70.81 N 7,034,805.0521 E 2,438,389.9349
Delta = 59° 40' 35.84" (LT)
Degree = 71° 37' 11.01"
Tangent = 45.8875
Length = 83.3243
Radius = 80.0000
External = 12.2261
Long Chord = 79.6087
Mid. Ord. = 10.6054
P.C. Station = 1321+24.92 N 7,034,849.9829 E 2,438,380.6140
P.T. Station = 1322+08.25 N 7,034,790.4130 E 2,438,433.4246
C.C. N 7,034,866.2329 E 2,438,458.9463
Back = S 11° 43' 10.89" E
Ahead = S 71° 23' 46.72" E
Chord Bear = S 41° 33' 28.81" E

Course from PT COPPELL_220 to PC COPPELL_221 S 71° 23' 46.72" E Dist 168.4470

Curve Data

Curve COPPELL_221
P.I. Station = 1323+98.72 N 7,034,729.6498 E 2,438,613.9404
Delta = 24° 50' 16.35" (LT)
Degree = 57° 17' 44.81"
Tangent = 22.0211
Length = 43.3503
Radius = 100.0000
External = 2.3959
Long Chord = 43.0116
Mid. Ord. = 2.3399
P.C. Station = 1323+76.69 N 7,034,736.6750 E 2,438,593.0700
P.T. Station = 1324+20.05 N 7,034,732.0412 E 2,438,635.8312
C.C. N 7,034,831.4498 E 2,438,624.9720
Back = S 71° 23' 46.72" E
Ahead = N 83° 45' 56.92" E
Chord Bear = S 83° 48' 54.90" E

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CHECKED	D LUU
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
HORIZONTAL ALIGNMENT DATA
SHEET 8 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1402	D

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Curve Data

Curve COPPELL_222
P.I. Station = 1324+42.07 N 7,034,734.4325 E 2,438,657.7221
Delta = 24° 50' 16.35" (RT)
Degree = 57° 17' 44.79"
Tangent = 22.0211
Length = 43.3503
Radius = 100.0000
External = 2.3959
Long Chord = 43.0116
Mid. Ord. = 2.3399
P.C. Station = 1324+20.05 N 7,034,732.0412 E 2,438,635.8312
P.T. Station = 1324+63.40 N 7,034,727.4073 E 2,438,678.5925
C.C. N 7,034,632.6325 E 2,438,646.6905
Back = N 83° 45' 56.92" E
Ahead = S 71° 23' 46.72" E
Chord Bear = S 83° 48' 54.90" E

Course from PT COPPELL_222 to PC COPPELL_223 S 71° 23' 46.72" E Dist 57.0159

Curve Data

Curve COPPELL_223
P.I. Station = 1325+36.63 N 7,034,704.0451 E 2,438,747.9970
Delta = 18° 25' 14.66" (RT)
Degree = 57° 17' 44.81"
Tangent = 16.2150
Length = 32.1503
Radius = 100.0000
External = 1.3061
Long Chord = 32.0120
Mid. Ord. = 1.2893
P.C. Station = 1325+20.41 N 7,034,709.2181 E 2,438,732.6292
P.T. Station = 1325+52.56 N 7,034,694.2812 E 2,438,760.9427
C.C. N 7,034,614.4433 E 2,438,700.7272
Back = S 71° 23' 46.72" E
Ahead = S 52° 58' 32.07" E
Chord Bear = S 62° 11' 09.39" E

Course from PT COPPELL_223 to PC COPPELL_224 S 52° 58' 32.07" E Dist 24.6744

Curve Data

Curve COPPELL_224
P.I. Station = 1325+93.43 N 7,034,669.6693 E 2,438,793.5749
Delta = 18° 24' 08.68" (LT)
Degree = 57° 17' 44.81"
Tangent = 16.1986
Length = 32.1183
Radius = 100.0000
External = 1.3035
Long Chord = 31.9804
Mid. Ord. = 1.2867
P.C. Station = 1325+77.24 N 7,034,679.4234 E 2,438,780.6422
P.T. Station = 1326+09.35 N 7,034,664.4967 E 2,438,808.9254
C.C. N 7,034,759.2612 E 2,438,840.8578
Back = S 52° 58' 32.07" E
Ahead = S 71° 22' 40.74" E
Chord Bear = S 62° 10' 36.40" E

Course from PT COPPELL_224 to PC COPPELL_225 S 71° 22' 40.74" E Dist 255.9967

Curve Data

Curve COPPELL_225
P.I. Station = 1328+84.02 N 7,034,576.7909 E 2,439,069.2069
Delta = 27° 56' 58.04" (RT)
Degree = 76° 23' 39.74"
Tangent = 18.6645
Length = 36.5858
Radius = 75.0000
External = 2.2875
Long Chord = 36.2241
Mid. Ord. = 2.2198
P.C. Station = 1328+65.35 N 7,034,582.7509 E 2,439,051.5196
P.T. Station = 1329+01.94 N 7,034,563.2362 E 2,439,082.0378
C.C. N 7,034,511.6775 E 2,439,027.5704
Back = S 71° 22' 40.74" E
Ahead = S 43° 25' 42.70" E
Chord Bear = S 57° 24' 11.72" E

Curve Data

Curve COPPELL_226
P.I. Station = 1329+20.60 N 7,034,549.6814 E 2,439,094.8687
Delta = 27° 56' 58.09" (LT)
Degree = 76° 23' 39.74"
Tangent = 18.6645
Length = 36.5858
Radius = 75.0000
External = 2.2875
Long Chord = 36.2241
Mid. Ord. = 2.2198
P.C. Station = 1329+01.94 N 7,034,563.2362 E 2,439,082.0378
P.T. Station = 1329+38.52 N 7,034,543.7214 E 2,439,112.5560
C.C. N 7,034,614.7949 E 2,439,136.5053
Back = S 43° 25' 42.70" E
Ahead = S 71° 22' 40.79" E
Chord Bear = S 57° 24' 11.75" E

Course from PT COPPELL_226 to PC COPPELL_227 S 71° 22' 40.79" E Dist 469.4942

Curve Data

Curve COPPELL_227
P.I. Station = 1338+45.11 N 7,034,254.2256 E 2,439,971.6838
Delta = 14° 52' 03.20" (LT)
Degree = 1° 42' 37.16"
Tangent = 437.0974
Length = 869.2840
Radius = 3,350.0000
External = 28.3952
Long Chord = 866.8472
Mid. Ord. = 28.1565
P.C. Station = 1334+08.02 N 7,034,393.8010 E 2,439,557.4703
P.T. Station = 1342+77.30 N 7,034,225.6042 E 2,440,407.8431
C.C. N 7,037,568.4146 E 2,440,627.2031
Back = S 71° 22' 40.79" E
Ahead = S 86° 14' 43.99" E
Chord Bear = S 78° 48' 42.39" E

Course from PT COPPELL_227 to PC COPPELL_228 S 86° 14' 43.99" E Dist 656.9225

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DESIGNED	C. BAGBY
CHECKED	D LUU
IN CHARGE	D LUU
DATE	25 AUG 23

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
HORIZONTAL ALIGNMENT DATA
SHEET 9 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1403	D

CB05-CC1-1403.001

DWG No. CC1-1404

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Curve Data
*----------*
Curve COPPELL_228
P.I.  Station          1349+55.99  N      7,034,181.1634  E      2,441,085.0743
Delta       =      24° 33' 28.99" (LT)
Degree      =      57° 17' 44.81"
Tangent     =            21.7652
Length      =            42.8619
Radius      =           100.0000
External    =             2.3412
Long Chord  =            42.5345
Mid. Ord.   =             2.2877
P.C.  Station          1349+34.22  N      7,034,182.5886  E      2,441,063.3558
P.T.  Station          1349+77.09  N      7,034,188.8936  E      2,441,105.4205
C.C.                               N      7,034,282.3739  E      2,441,069.9039
Back        = S  86° 14' 43.99" E
Ahead       = N  69° 11' 47.02" E
Chord Bear  = N  81° 28' 31.52" E

Curve Data
*----------*
Curve COPPELL_229
P.I.  Station          1349+98.84  N      7,034,196.6204  E      2,441,125.7574
Delta       =      24° 32' 50.19" (RT)
Degree      =      57° 17' 44.85"
Tangent     =            21.7553
Length      =            42.8431
Radius      =           100.0000
External    =             2.3391
Long Chord  =            42.5162
Mid. Ord.   =             2.2857
P.C.  Station          1349+77.09  N      7,034,188.8936  E      2,441,105.4205
P.T.  Station          1350+19.93  N      7,034,195.1999  E      2,441,147.4663
C.C.                               N      7,034,095.4133  E      2,441,140.9370
Back        = N  69° 11' 47.02" E
Ahead       = S  86° 15' 22.79" E
Chord Bear  = N  81° 28' 12.12" E

Course from PT COPPELL_229 to 127 S 86° 15' 22.79" E Dist 397.6600

Point 127             N   7,034,169.2355 E   2,441,544.2777 Sta    1354+17.59

Course from 127 to 128 S 86° 15' 22.79" E Dist 226.8591

Point 128             N   7,034,154.4232 E   2,441,770.6528 Sta    1356+44.45

============================================================
Ending chain COPPELL_2 description
```

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DESIGNED	C. BAGBY
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IN CHARGE	D LUU
DATE	25 AUG 23

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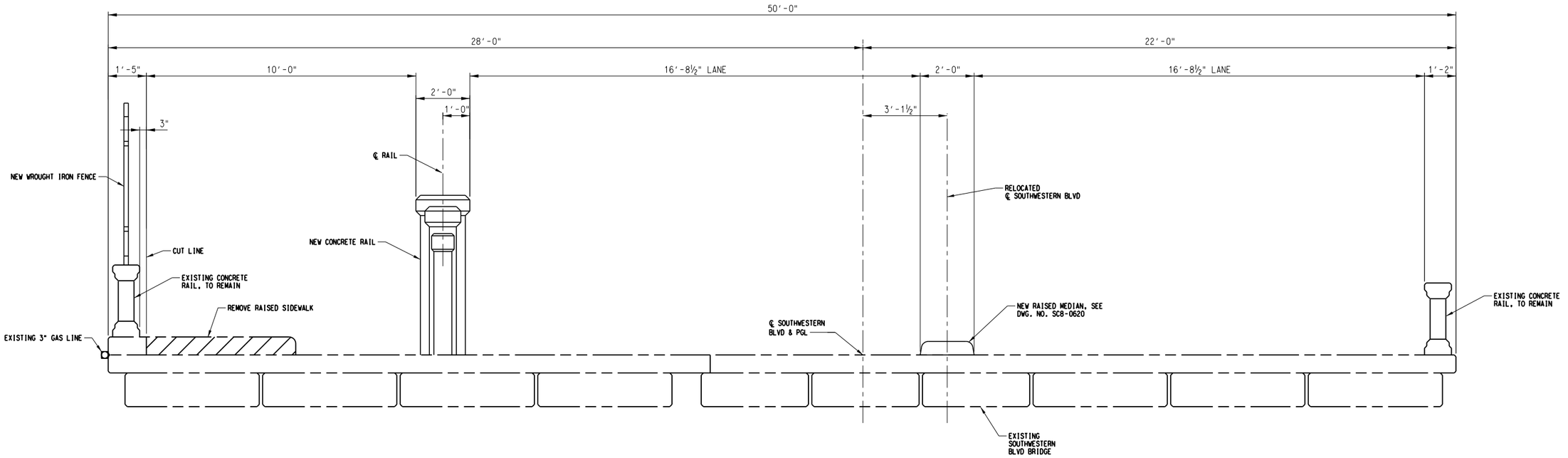
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
HORIZONTAL ALIGNMENT DATA
SHEET 10 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1404	D

CB05-CC1-1404.001

DWG No. SC8-0601



TYPICAL TRANSVERSE SECTION 1/-

NO SCALE

LOOKING UPSTATION

NOTES:

1. DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (2004).
2. ROADWAY DESIGN LOADING HL93 AND 25 PSF FUTURE OVERLAY.
3. TRAIL DESIGN PEDESTRIAN LIVE LOADING IS 90 PSF AND DESIGN VEHICULAR LIVE LOAD IS H-10.
4. DESIGN SPEED = 45 MPH.
5. ALL CONCRETE FOR RAILING SHALL BE CLASS "C". A CLASS "C" (ONE RUB) FINISH SHALL BE APPLIED TO THE NEW RAILING.
6. ALL REINFORCING SHALL BE GRADE 60 EPOXY COATED.
7. FACE OF RAIL, PEDESTALS AND COLUMNS SHALL BE PLUMB.
8. FOR PEDESTRIAN TRAIL PLAN AND PROFILE, SEE VELOWEB HIKE AND BIKE PLAN AND PROFILE SHEETS.
9. FOR OTHER DETAILS, SEE CIVIL PLANS.
10. SEE DRAWING No. CC1-1051 FOR HIKE AND BIKE TRAIL PLAN AND PROFILE AT BRIDGE.

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DESIGNED	R. RILEY
CHECKED	J. FINKE
IN CHARGE	J. FINKE
DATE	25 AUG 23

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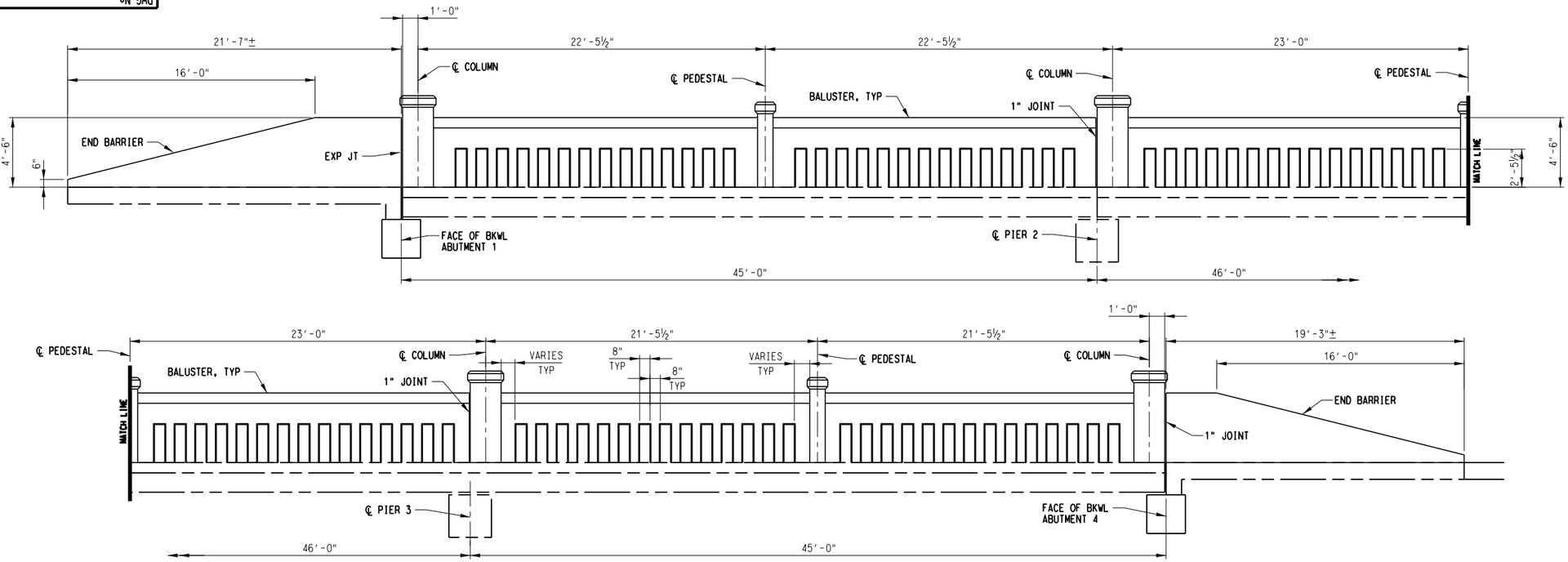
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#6P)
TYPICAL SLAB SECTION

CONTRACT	DWG No.	REV
C-2033270-01	SC8-0601	D

CB05-SC8-0601.008

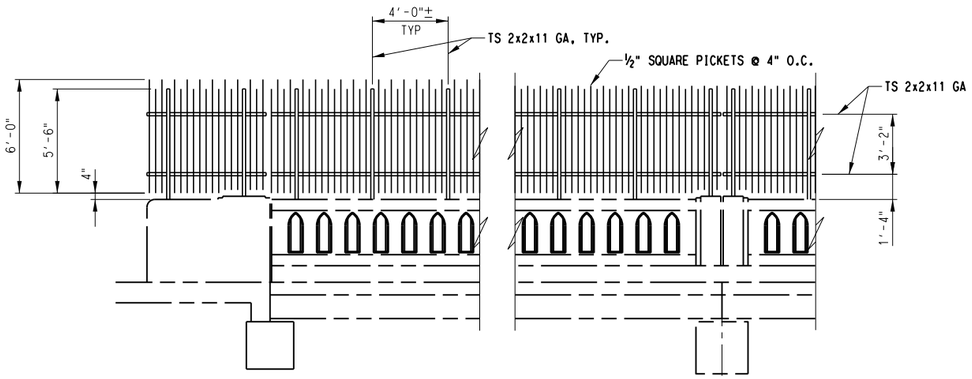
DWG No. SC8-0611



HIKE AND BIKE INSIDE RAIL SOUTH ELEVATION

NO SCALE

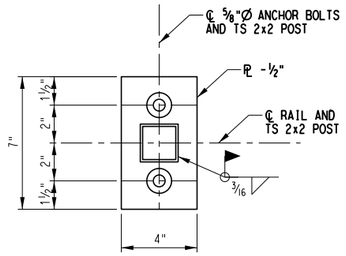
LOOKING NORTH



WROUGHT IRON FENCE DETAIL ON NORTH HIKE AND BIKE RAIL

NO SCALE

LOOKING NORTH



WROUGHT IRON FENCE POST ANCHORAGE DETAIL

NO SCALE

NOTE:

1. QUANTITY: RAIL (TY C411) (MOD) = 177 LIN FT.

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DESIGNED	R. RILEY
CHECKED	J. FINKE
IN CHARGE	J. FINKE
DATE	25 AUG 23

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CONTRACT SHEET No. 30 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#6P)
BRIDGE RAILING ELEVATION

CONTRACT	DWG No.	REV
C-2033270-01	SC8-0611	D

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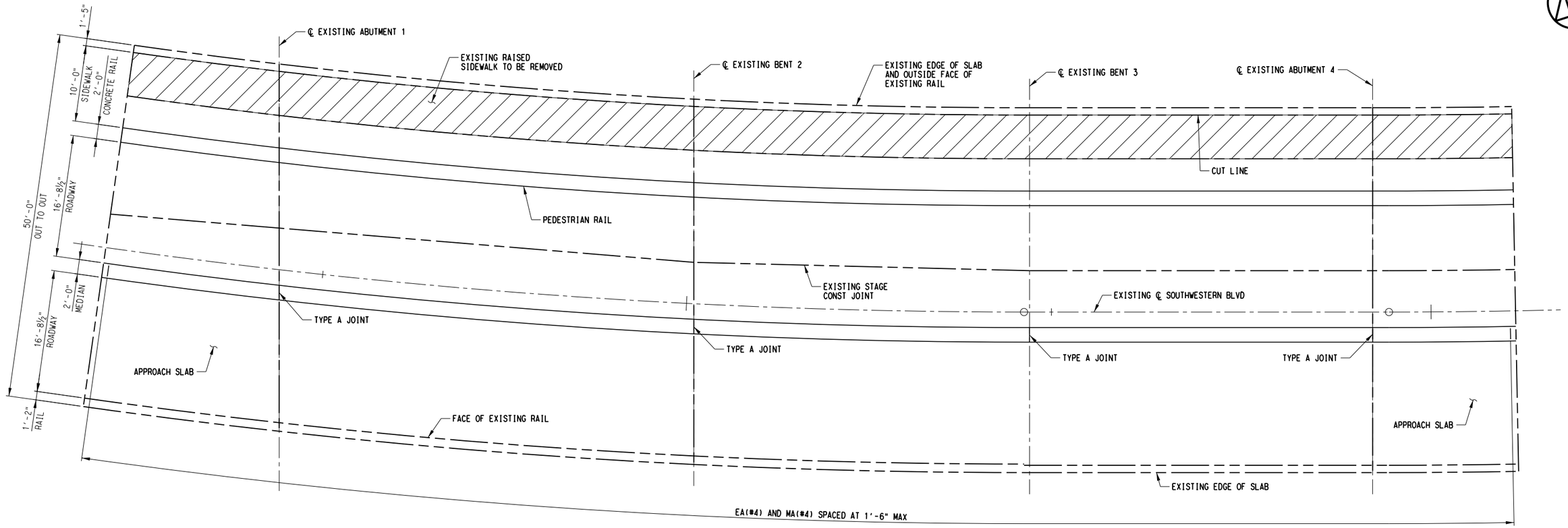
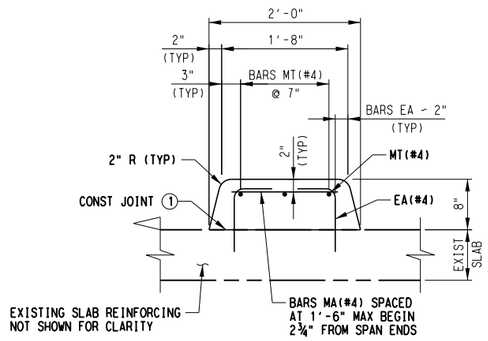
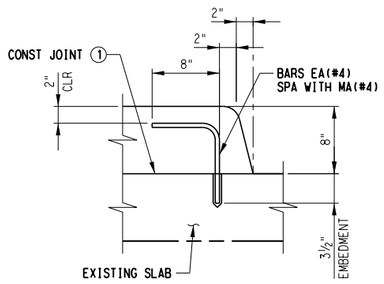
DWG No. SC8-0620



SLAB PLAN (1) — NO SCALE

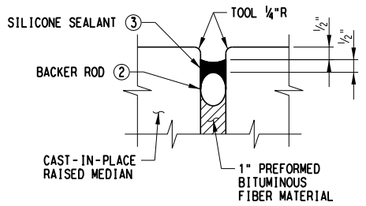


TYPICAL MEDIAN SECTION (2) — NO SCALE



EPOXY ANCHOR DETAIL (3) — NO SCALE

NOTE: EMBEDED EA(#4) BAR INTO CONCRETE WITH A TYPE III (CLASS C, D, E, OR F) EPOXY MEETING THE REQUIREMENTS OF DMS-3100, "EPOXIES AND ADHESIVES". FOLLOW MANUFACTURER'S DIRECTIONS FOR INSTALLING THE EPOXIED ANCHOR BARS.



TYPE A JOINT DETAIL (4) — NO SCALE

(1) ROUGHEN EXISTING BRIDGE SLAB WHERE RAISED MEDIAN AREA IS DEFINED.

(2) BACKER ROD SHALL BE 25% LARGER THAN JOINT OPENING SHALL BE COMPATIBLE WITH THE SEALANT; NO REACTION SHALL OCCOUR BETWEEN THE ROD AND THE SEALANT.

(3) SEALANT SHALL BE CLASS 7 SILICONE SEALANT. INSTALL WHEN AMBIENT TEMP. IS BETWEEN 55°F AND HOURS FOR SEALANT APPLICATION.

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#6P)
SLAB PLAN AND DETAILS

CONTRACT	DWG No.	REV
C-2033270-01	SC8-0620	D

CB05-SC8-0620.008

28-AUG-2023 08:50
CB05-SC8-0620.008

JEGSVCPWU01
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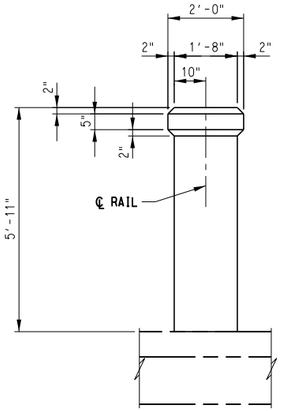
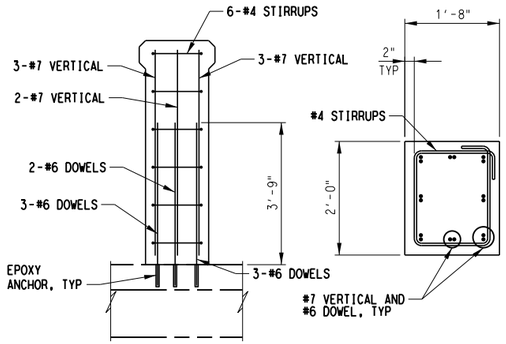
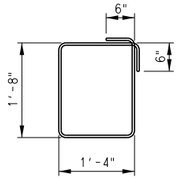
DWG No. SC8-0612

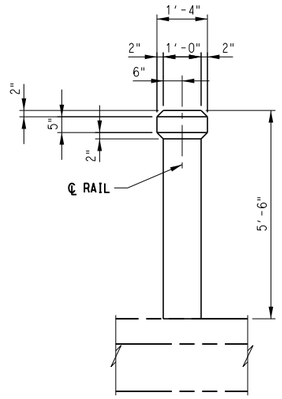


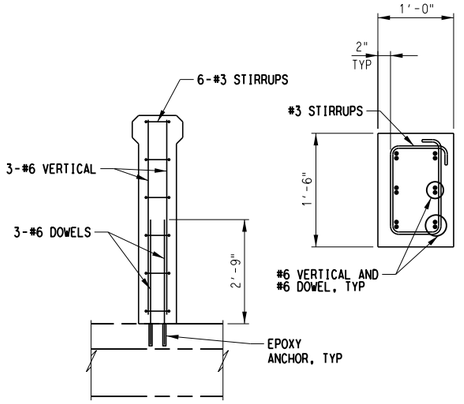


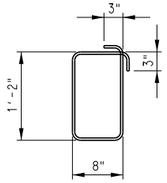


HIKE AND BIKE INSIDE RAIL COLUMN DETAILS

NO SCALE

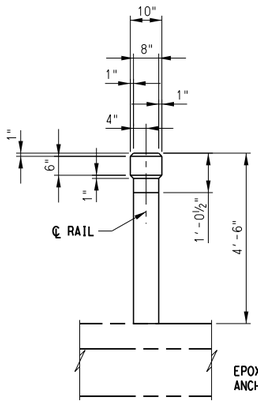


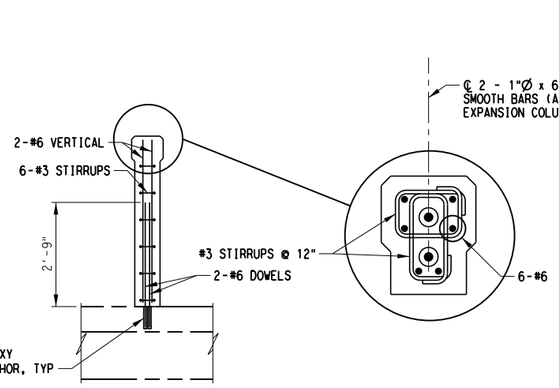


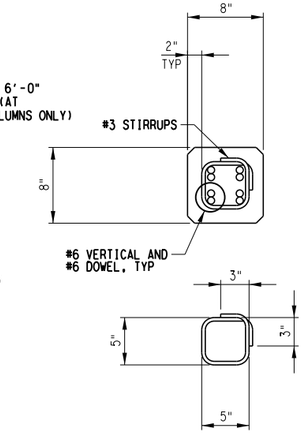


HIKE AND BIKE INSIDE RAIL PEDESTAL DETAILS

NO SCALE







HIKE AND BIKE INSIDE RAIL BALUSTER DETAILS

NO SCALE

28-AUG-2023 08:52
CB05-SC8-0612.008

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CONTRACT SHEET No. 32 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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FIRM REGISTRATION No. F-2966

ARCHER WESTERN HERZOG

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SCALE	NO SCALE
DRAWN	M. KING
DESIGNED	R. RILEY
CHECKED	J. FINKE
IN CHARGE	J. FINKE
DATE	25 AUG 23

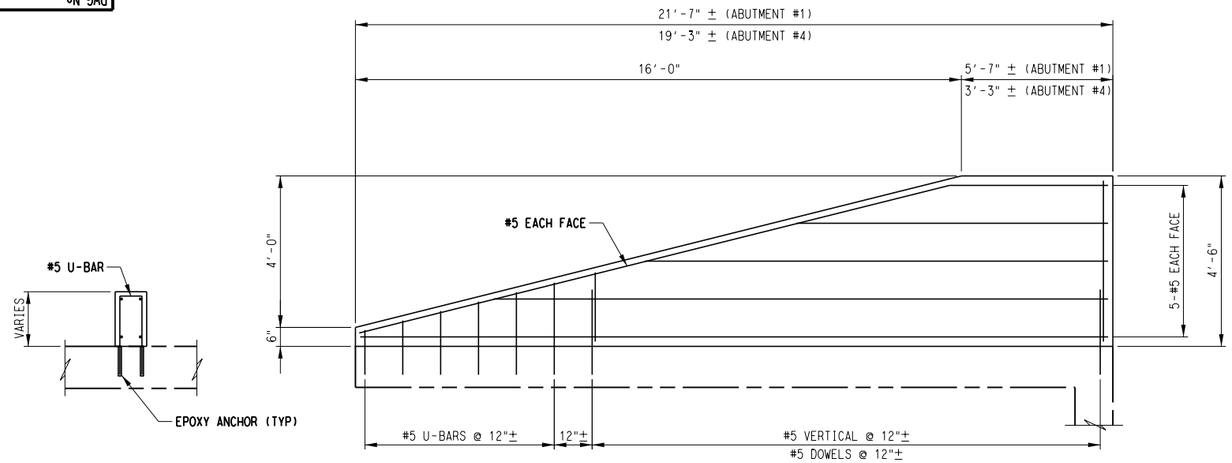
CAES

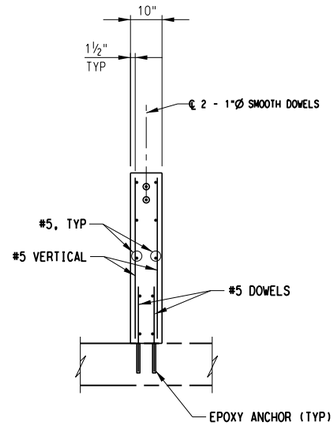
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PEDESTRIAN BRIDGE (#6P)
BRIDGE RAILING DETAILS
SHEET 1 OF 2

CONTRACT	DWG No.	REV
C-2033270-01	SC8-0612	D

CB05-SC8-0612.008

DWG No. SC8-0613





END BARRIER DETAILS
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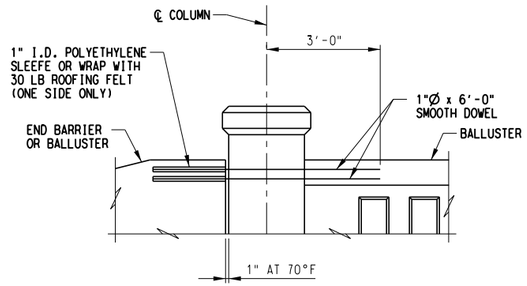

EXPANSION JOINT AT COLUMN
NO SCALE

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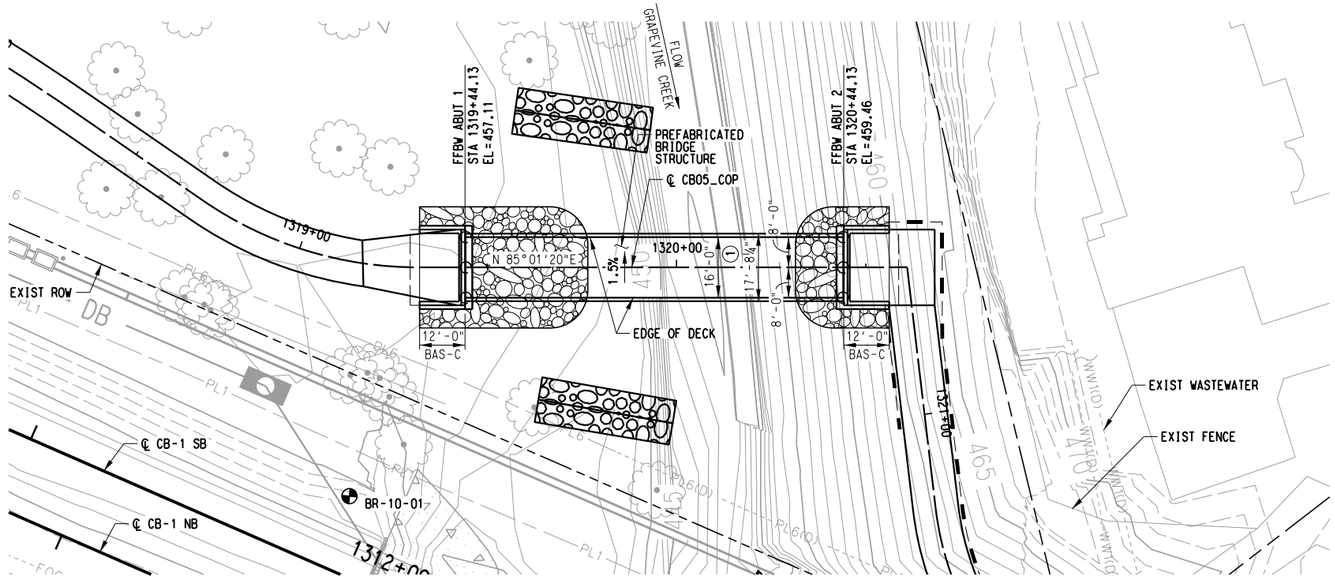
CONTRACT SHEET No. 33 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PEDESTRIAN BRIDGE (#6P)
BRIDGE RAILING DETAILS
SHEET 2 OF 2

CONTRACT	DWG No.	REV
C-2033270-01	SC8-0613	D

CB05-SC8-0613.008

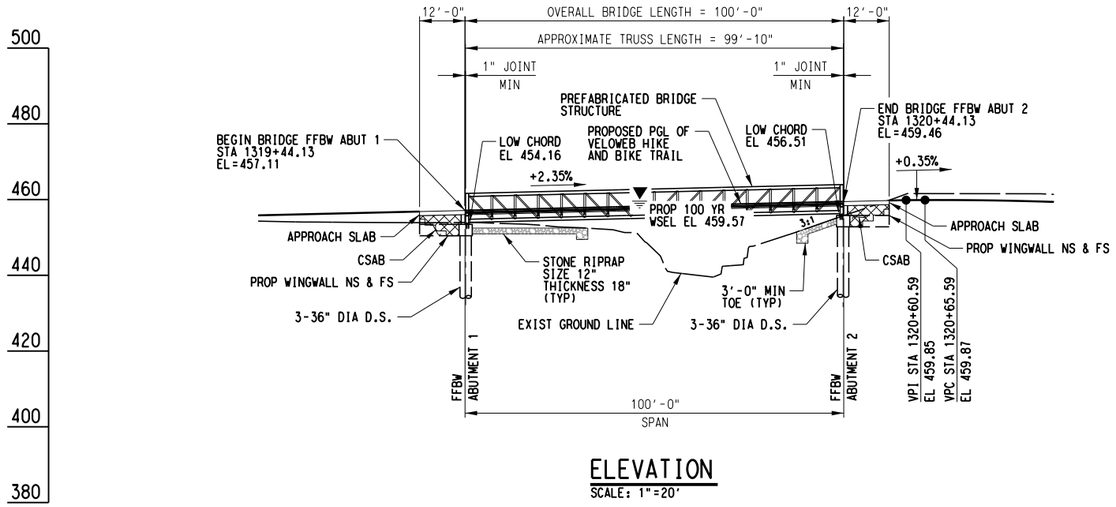
DWG No. SC2-1001



PLAN
SCALE: 1"=20'

HYDRAULIC DATA		
100-Yr FLOW (CFS)	WATER SURFACE ELEV.	VELOCITY (FPS)
11,000	459.57	8.07

① TOTAL BRIDGE WIDTH IS SUBJECT TO CHANGE. REFER TO THE PREFABRICATED BRIDGE PLANS FOR FINAL BRIDGE DETAILS.



ELEVATION
SCALE: 1"=20'

ALL ABUTMENTS AND PIERS ARE ALONG BEARING: N4°58'40"W

NOTES:

1. DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 8TH EDITION, 2017.
2. SPAN LENGTH STATIONING AND VERTICAL PROFILE ARE SHOWN ALONG THE CENTERLINE OF THE TRAIL. TOP OF DECK IS THE CONTROL AND PROFILE GRADE LINE.
3. FOR PEDESTRIAN TRAIL PLAN AND PROFILE, SEE VELOWEB HIKE AND BIKE PLAN AND PROFILE SHEETS.
4. FOR OTHER TRAIL DETAILS INCLUDING STRIPING AND FENCE, SEE CIVIL PLANS.
5. CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.
6. FOR DRAINAGE ELEMENTS, SEE DRAINAGE PLANS.
7. FOR EXACT LOCATIONS OF BORING LOGS AND SOIL PARAMETERS, SEE GEOTECHNICAL REPORT.
8. DESIGN PEDESTRIAN LIVE LOAD IS 90 PSF AND DESIGN VEHICULAR LIVE LOAD IS H-10.
9. TEMPORARY OR PERMANENT CASING MAY BE USED AT THE ABUTMENTS AS REQUIRED.
10. FOR SLOPE PROTECTION, SEE STANDARD DRAWING NO TXDOT SRR STANDARD.
11. FOR CSAB (CEMENT STABILIZED ABUTMENT BACKFILL) DETAILS, SEE TxDOT CSAB STANDARD.
12. FOR BRIDGE APPROACH SLAB DETAILS, SEE TxDOT BAS-C STANDARD.
13. FOR PREFABRICATED BRIDGE TRUSS REQUIREMENTS AND NOTES, SEE DRAWING No. SC8-1091.
14. PREFABRICATED BRIDGE SUPERSTRUCTURE, DECK FORM, SIDE DAMS, BEARING ASSEMBLIES, EXPANSION JOINTS, AND EXPANSION JOINT COVER PLATES ARE TO BE PROVIDED BY THE PREFABRICATED BRIDGE VENDOR.
15. PREFABRICATED BRIDGE STRUCTURES AND ESTIMATED DIMENSIONS BASED ON THE PIONEER TRAILBLAZER BRIDGE TYPE. SUPERSTURCTURE DIMENSIONS AND FINAL LOADINGS SHALL BE PROVIDED BY THE VENDOR.
16. JOINT OPENING SIZES ARE MINIMUM, REFER TO PREFABRICATED BRIDGE VENDOR'S PLANS FOR OPENING SIZE.
17. THE PROPOSED STEEL TRUSSES SHALL BE WEATHERING STEEL.
18. THE DISTANCE FROM PGL TO LOW CHORD IS ASSUMED TO BE 2'-11 7/16". THE DISTANCE FROM PGL TO TOP OF CAP IS ASSUMED TO BE 3'-2 7/16".
19. REINFORCEMENT DESIGNATION CALLOUT IS AS FOLLOWS:

300 SERIES	-- #3 BAR
400 SERIES	-- #4 BAR
500 SERIES	-- #5 BAR
600 SERIES	-- #6 BAR
800 SERIES	-- #8 BAR
900 SERIES	-- #9 BAR

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CONTRACT SHEET No. 34 OF 378

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SCALE	1"=20'
DRAWN	M. MEYER
DESIGNED	R. RILEY
CHECKED	M. MUENKS
IN CHARGE	J. FINKE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
PLAN AND ELEVATION

CONTRACT	DWG No.	REV
C-2033270-01	SC2-1001	D

CB05-SC2-1001.020

28-AUG-2023 08:52
CB05-SC2-1001.020
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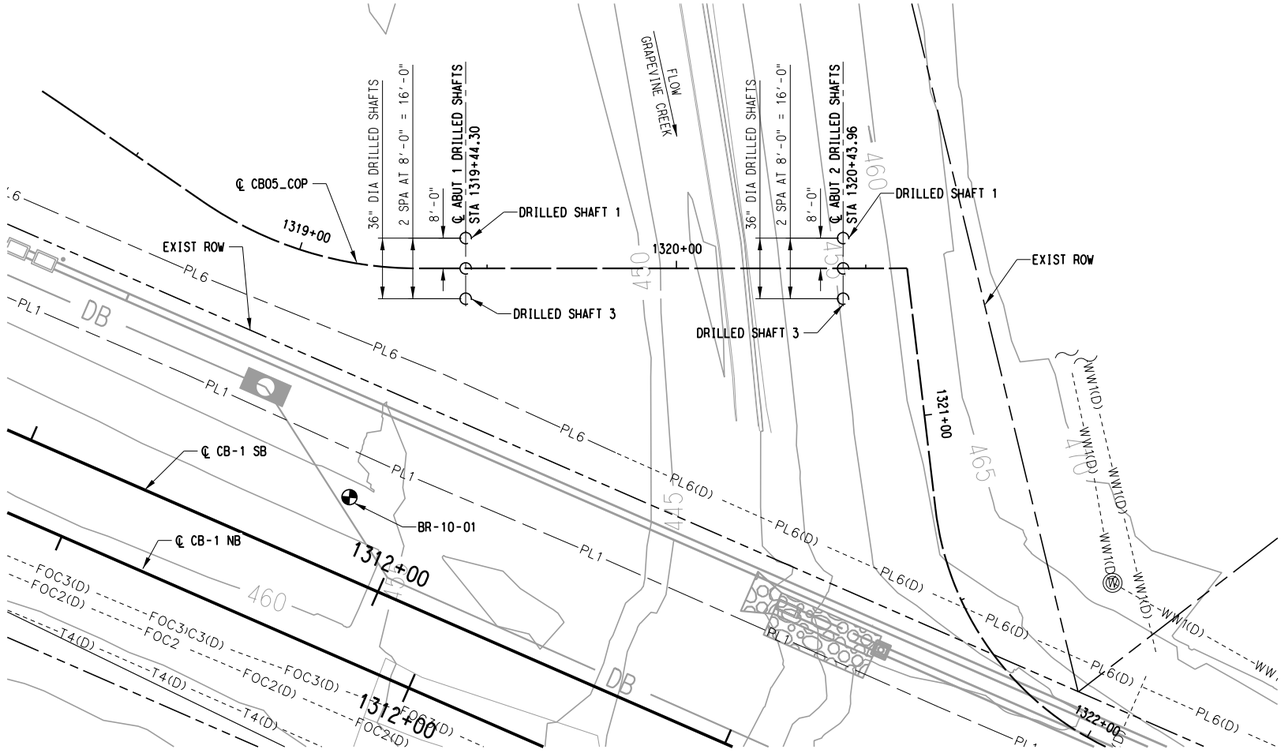
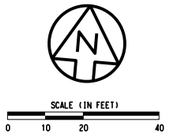
DWG No. SC2-1011



PLAN
SCALE: 1"=20'



ALL ABUTMENTS AND PIERS ARE ALONG BEARING: N4°58'40"W

NOTES:

1. ALL DIMENSIONS ARE HORIZONTAL UNLESS NOTED OTHERWISE.
2. FOR GEOMETRY INFORMATION, SEE GEOMETRY CONTROL PLAN DRAWING Nos SC8-1046 & SC8-1047.
3. FOR BORING LOG INFORMATION, SEE GEOTECHNICAL DESIGN REPORT.
4. FOUNDATIONS SHALL BE FOUNDED AS SHOWN IN THE SUBSTRUCTURE SCHEDULE ON DRAWING No. SC8-1011.
5. CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.

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CONTRACT SHEET No. 35 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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SCALE	1"=20'
DRAWN	M. KING
DESIGNED	M. MUENKS
CHECKED	M. MUENKS
IN CHARGE	J. FINKE
DATE	25 AUG 23

CAES

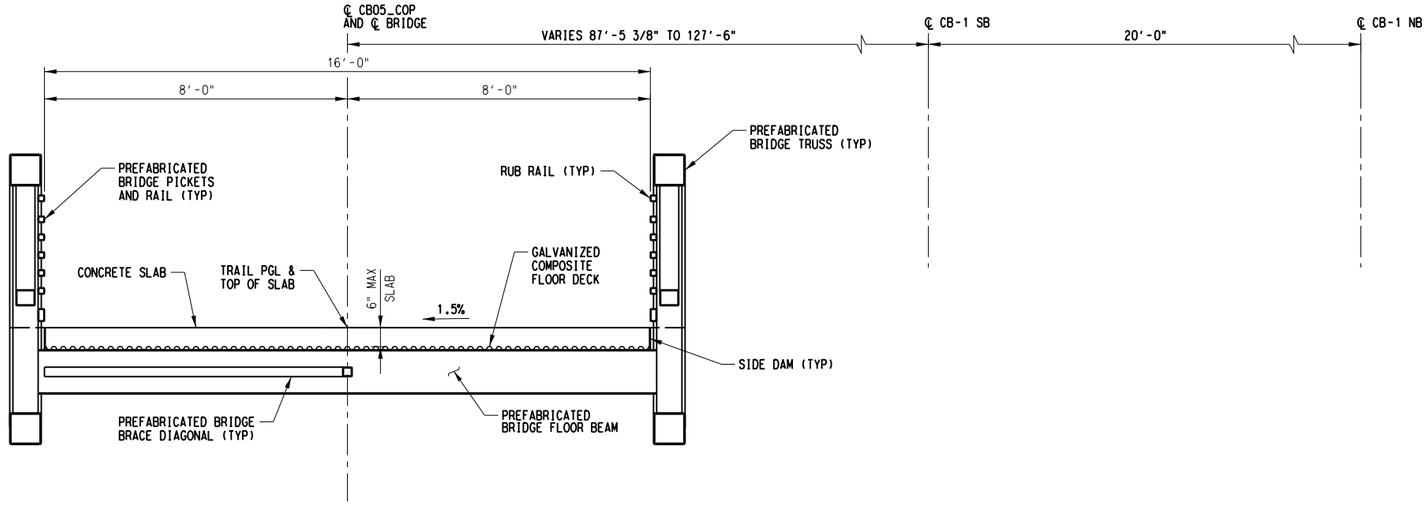
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
FOUNDATION PLAN

CONTRACT	DWG No.	REV
C-2033270-01	SC2-1011	D

CB05-SC2-1011.020

DWG No. SC8-1001



TYPICAL SECTION 1

NO SCALE

LOOKING AHEAD STATION

NOTES:

1. REFER TO DRAWING No. SC2-1001 FOR NOTES.
2. RUB RAIL HORIZONTAL PICKETS ARE FOR ILLUSTRATIVE PURPOSES ONLY. REFER TO PREFABRICATED BRIDGE VENDOR DETAILS FOR DETAILS.

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CB05-SC8-1001.008

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DRAWN	M. KING
DESIGNED	W. WUENKS
CHECKED	W. WUENKS
IN CHARGE	J. FINKE
DATE	25 AUG 23

CAES

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CONTRACT SHEET No. 36 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
TYPICAL SECTION

CONTRACT	DWG No.	REV
C-2033270-01	SC8-1001	D

CB05-SC8-1001.008

DWG No. SC8-1011

NOTES:

1. FOR SUBSURFACE INFORMATION. SEE GENERAL NOTES AND GEOTECHNICAL REPORT.
2. FOUND DRILLED SHAFTS AT THE LENGTH SHOWN OR DEEPER TO OBTAIN MINIMUM EMBEDMENT INTO UNWEATHERED SHALE.

* REFER TO THE PREFABRICATED BRIDGE PLANS FOR BEARING SEAT ELEVATIONS.

ABUTMENT SUBSTRUCTURE SCHEDULE

ABUT No.	ABUT STATION WP	SURFACE COORDINATES AT WP		BEARING	PGL AT FF BKWL EL "A" (FT)	TOP OF BKWL EL "B" (FT)	TOP OF BKWL EL "C" (FT)	TOP OF CAP EL "D" (FT)	BOTT OF CAP\ TOP OF D.S. EL "E" (FT)	TOP OF BEARING SEAT EL "F" (FT)	TOP OF BEARING SEAT EL "G" (FT)	APPROXIMATE DRILLED SHAFT LENGTH (FEET)(UNO)	SIZE OF D.S. (IN)	MINIMUM EMBEDMENT SEE NOTE 2 (FT)
		NORTHING	EASTING											
1	1319+44.13	7034902.50	2438251.28	N 4°58'40" W	457.11	456.18	455.88	453.91	451.41	*	*	27	36	5
2	1320+44.13	7034911.17	2438350.91	N 4°58'40" W	459.46	458.23	458.53	456.26	453.76	*	*	26	36	3

SUMMARY OF ESTIMATED QUANTITIES

ITEM / DESCRIPTION	400	400	416	420	422	422	432	4196
	6001	6005	6004	6013	6001	6015	6031	6001
	STRUCT EXCAV	CEM STABIL BKFL	DRILL SHAFT (36 IN)	CL C CONC (ABUT)	REINF CONC SLAB	APPROACH SLAB	RIPRAP (STONE PROTECTION (12 IN)	PREFAB PED STL TRUSS BRDG SPAN
	CY	CY	LF	CY	SF	CY	CY	EA
ABUTMENT 1	24	25	81.0	15.4		12.7	81	
ABUTMENT 2	45	25	78.0	15.4		12.7	35	
99'-10" TRUSS BRIDGE					1597			1
TOTAL	69	50	159.0	30.8	1597	25.4	116	1

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SCALE	NO SCALE
DRAWN	M. KING
DESIGNED	S. HOFFMANN
CHECKED	M. MUENKS
IN CHARGE	J. FINKE
DATE	25 AUG 23

CAES

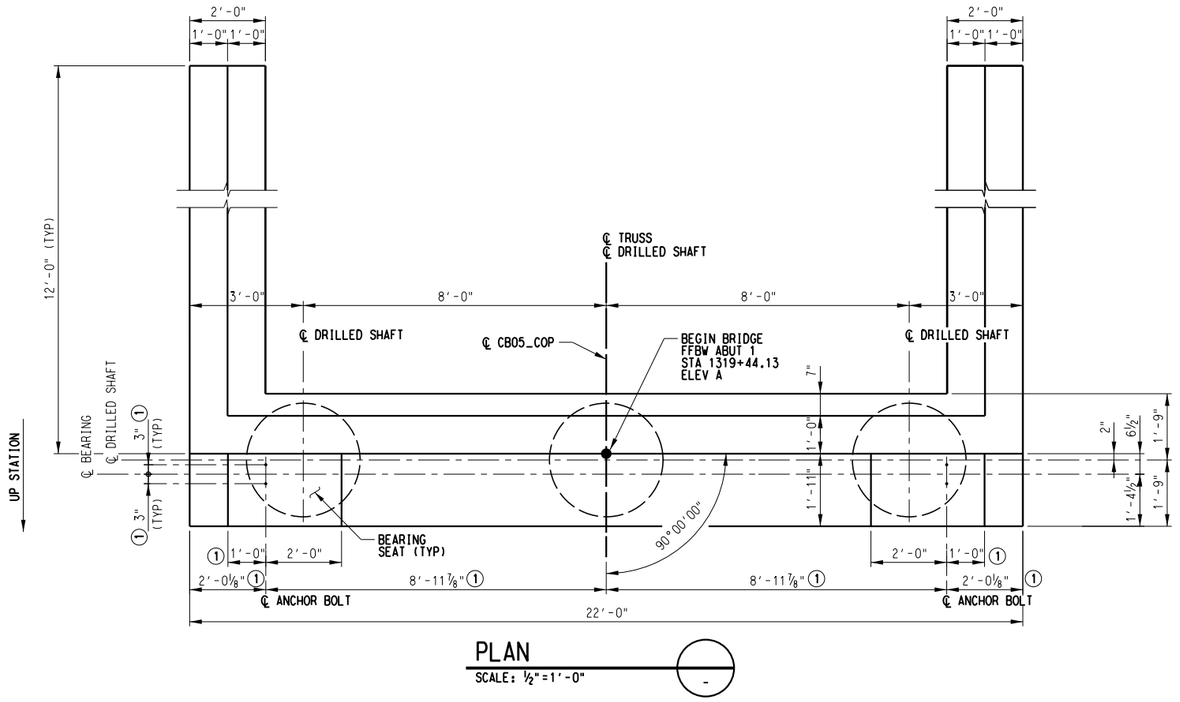
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
SUBSTRUCTURE SCHEDULE

CONTRACT	DWG No.	REV
C-2033270-01	SC8-1011	D

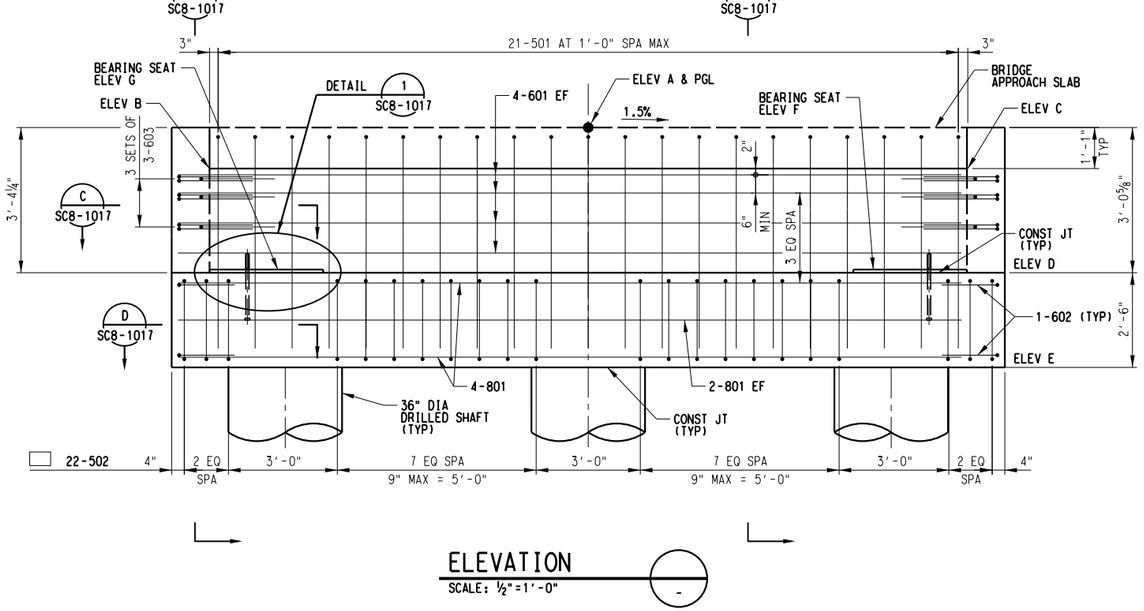
CB05-SC8-1011.008

DWG No. SC8-1016



PLAN

SCALE: ½"=1'-0"



ELEVATION

SCALE: ½"=1'-0"

SCALE (IN FEET)

0 1 2 4

NOTES:

1. FOR FOUNDATION PLANS, SEE DRAWING No. SC2-1011.
2. FOR SCHEDULE OF ELEVATIONS AND DRILLED SHAFT LENGTHS, SEE SUBSTRUCTURE SCHEDULE DRAWING No. SC8-1011.
3. FOR GEOMETRY CONTROL PLANS, SEE DRAWING Nos SC8-1046 AND SC8-1047.
4. FOR BEARING SEAT AND ANCHOR BOLT LAYOUT AND INFORMATION, SEE DRAWING No. SC8-1017.
5. CONCRETE FOR ABUTMENT AND DRILLED SHAFTS SHALL BE CLASS "C" WITH MINIMUM 28-DAY COMPRESSIVE STRENGTH 3600 PSI.
6. ALL EXPOSED EDGES OF CONCRETE MEMBERS SHALL BE CHAMFERED ¾ INCH.
7. REINFORCEMENT SHALL MEET THE REQUIREMENTS OF THE CURRENT A.S.T.M. DESIGNATION: A615 OR A706, GRADE 60.
8. BAR DIMENSIONS ARE OUT-TO-OUT.
9. MINIMUM CONCRETE COVER ON REINFORCEMENT SHALL BE TWO (2) INCHES UNLESS OTHERWISE NOTED.
10. FOR NOTES AND STANDARDS NOT SHOWN, SEE GENERAL NOTES OF THE BRIDGE STANDARD DRAWINGS.
11. ALL DIMENSIONS ARE EITHER HORIZONTAL OR VERTICAL AND MUST BE CORRECTED FOR GRADE, CROSS-SLOPE, AND/OR SUPERELEVATION.
12. ANCHOR BOLTS SHALL BE HEX HEAD ASTM F1554 GRADE 105. SEE DRAWING No. SC8-1017 FOR MORE DETAILS.

(1) LOCATIONS OF ANCHOR BOLTS ARE SUBJECT TO CHANGE. REFER TO THE PREFABRICATED BRIDGE PLANS FOR FINAL ANCHOR BOLT LOCATIONS.

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CONTRACT SHEET No. 38 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARCHER WESTERN HERZOG

DART PROJECT

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CAES

SCALE	1/2"=1'-0"
DRAWN	M. KING
DESIGNED	S. HOFFMANN
CHECKED	M. MUENKS
IN CHARGE	J. FINKE
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
ABUTMENT 1

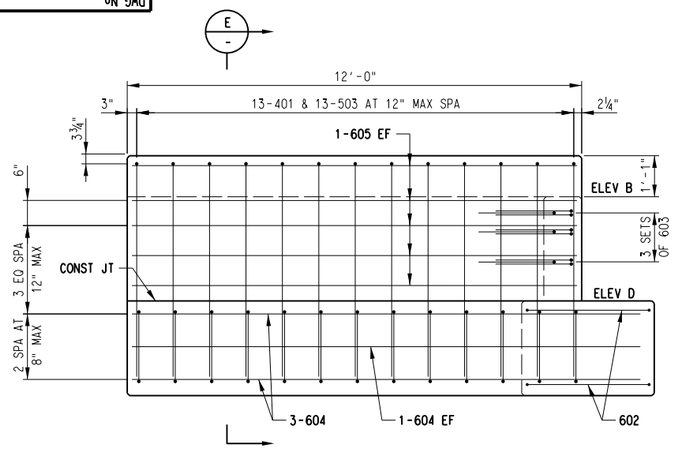
CONTRACT	DWG No.	REV
C-2033270-01	SC8-1016	D

CB05-SC8-1016.008

28-AUG-2023 08:50
CB05-SC8-1016.008

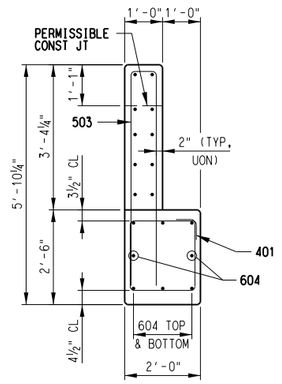
JEGSVCPW001
Default

DWG No. SC8-1017



SECTION A
SCALE: ½"=1'-0"
SC8-1016

SOUTH WINGWALL SHOWN, NORTH WINGWALL SIMILAR



SECTION E
SCALE: ½"=1'-0"
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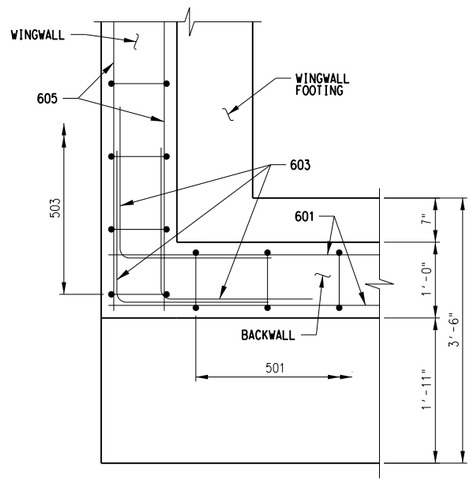
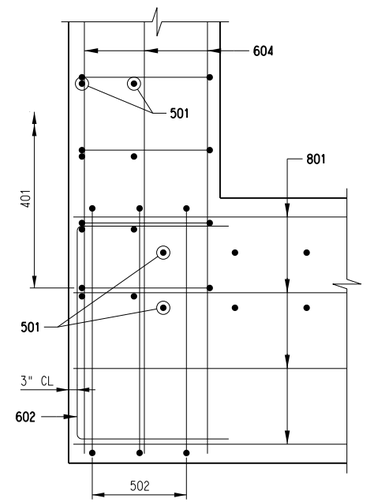


SECTION C
SCALE: ½"=1'-0"
SC8-1016



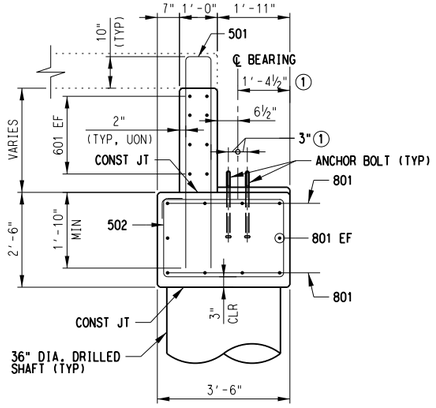
SECTION D
SCALE: ½"=1'-0"
SC8-1016

NOTE:

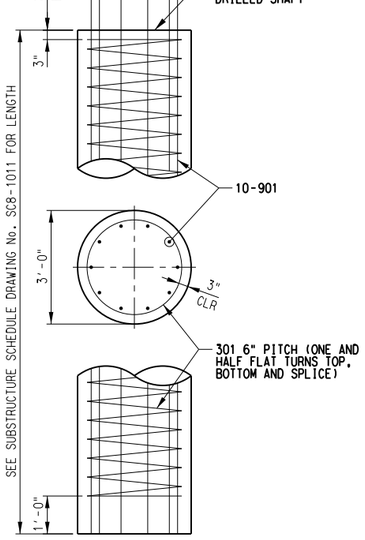
1. SEE DRAWING No. SC8-1016 FOR NOTES.

① LOCATIONS OF ANCHOR BOLTS ARE SUBJECT TO CHANGE. REFER TO THE PREFABRICATED BRIDGE PLANS FOR FINAL ANCHOR BOLT LOCATIONS.

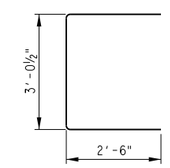
② SEE PLAN VIEW ON DRAWING No. SC8-1016 FOR DIMENSIONS.



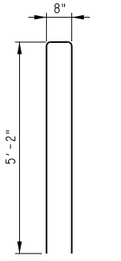
SECTION B
SCALE: ½"=1'-0"
SC8-1016



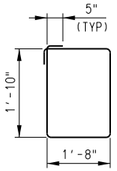
36" DRILLED SHAFT DETAIL
SCALE: ½"=1'-0"
-



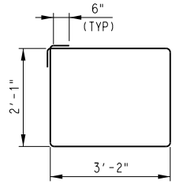
BAR 602



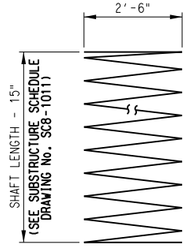
BAR 501, 503



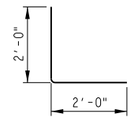
BAR 401



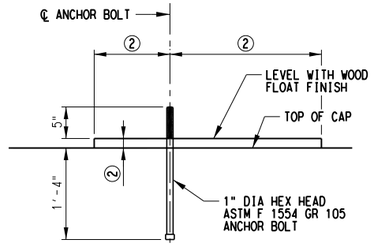
BAR 502



BARS 301



BAR 603



BEARING SEAT DETAIL 1
SCALE: 1"=1'-0"
SC8-1016

(SEE DRAWING No. SC8-1016 FOR ORIENTATION)
(BEARING SURFACE SHALL BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING ASSEMBLY)

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FINAL 100% DESIGN

CONTRACT SHEET No. 39 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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FIRM REGISTRATION No. F-2966

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SCALE	AS NOTED
DRAWN	M. KING
DESIGNED	S. HOFFMANN
CHECKED	W. MUENKS
IN CHARGE	J. FINKE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

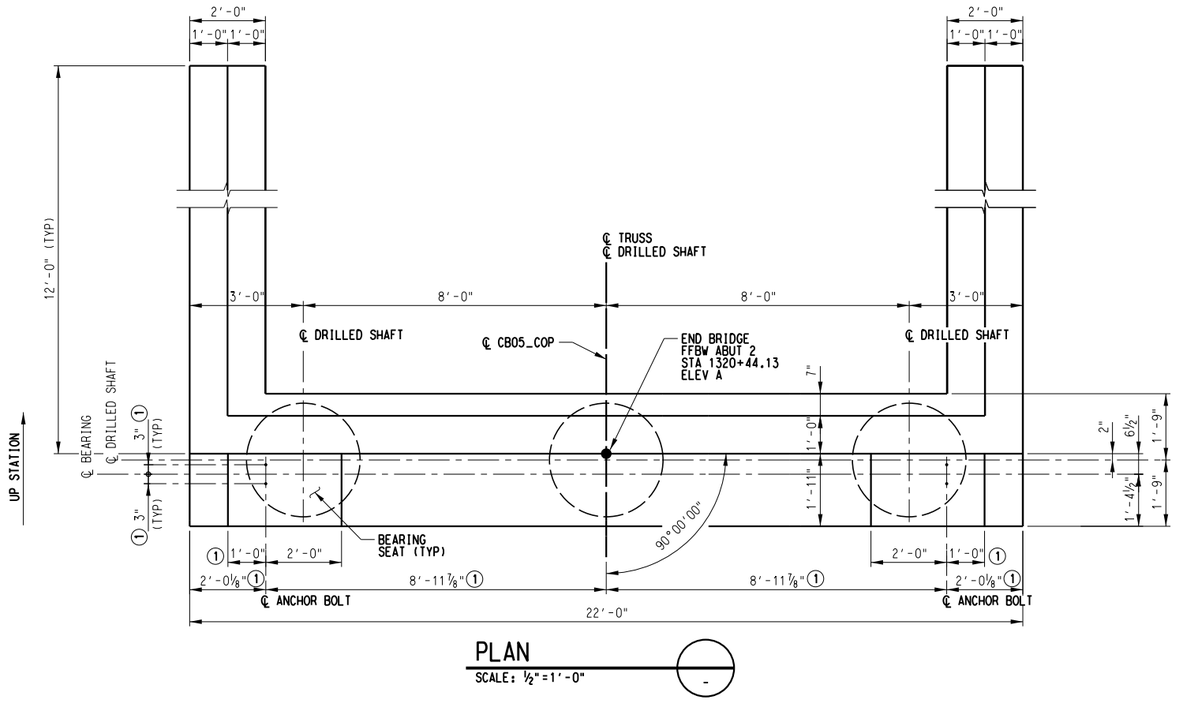
CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
ABUTMENT 1 DETAILS

CONTRACT	DWG No.	REV
C-2033270-01	SC8-1017	D

CB05-SC8-1017.008

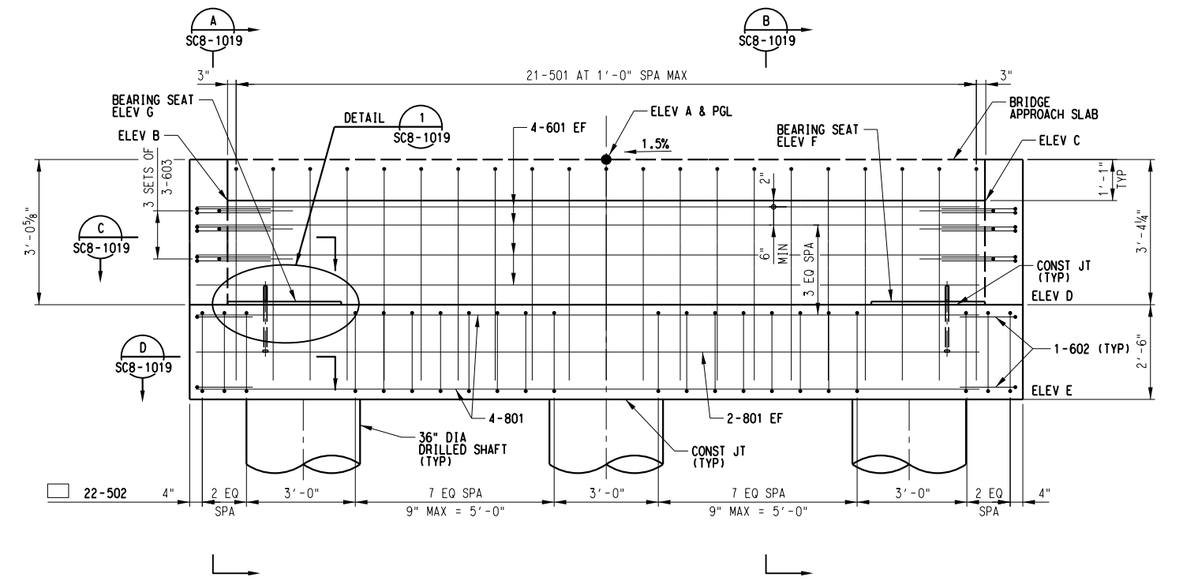
28-AUG-2023 08:50
CB05-SC8-1017.008
JEGSVCPWU01
Default

DWG No. SC8-1018



PLAN

SCALE: ½"=1'-0"



ELEVATION

SCALE: ½"=1'-0"

SCALE (IN FEET)

0 1 2 4

NOTES:

1. FOR FOUNDATION PLANS, SEE DRAWING No. SC2-1011.
2. FOR SCHEDULE OF ELEVATIONS AND DRILLED SHAFT LENGTHS, SEE SUBSTRUCTURE SCHEDULE DRAWING No. SC8-1011.
3. FOR GEOMETRY CONTROL PLANS, SEE DRAWING Nos SC8-1046 AND SC8-1047.
4. FOR BEARING SEAT AND ANCHOR BOLT LAYOUT AND INFORMATION, SEE DRAWING No. SC8-1019.
5. CONCRETE FOR ABUTMENT AND DRILLED SHAFTS SHALL BE CLASS "C" WITH MINIMUM 28-DAY COMPRESSIVE STRENGTH 3600 PSI.
6. ALL EXPOSED EDGES OF CONCRETE MEMBERS SHALL BE CHAMFERED ¾ INCH.
7. REINFORCEMENT SHALL MEET THE REQUIREMENTS OF THE CURRENT A.S.T.M. DESIGNATION: A615 OR A706, GRADE 60.
8. BAR DIMENSIONS ARE OUT-TO-OUT.
9. MINIMUM CONCRETE COVER ON REINFORCEMENT SHALL BE TWO (2) INCHES UNLESS OTHERWISE NOTED.
10. FOR NOTES AND STANDARDS NOT SHOWN, SEE GENERAL NOTES OF THE BRIDGE STANDARD DRAWINGS.
11. ALL DIMENSIONS ARE EITHER HORIZONTAL OR VERTICAL AND MUST BE CORRECTED FOR GRADE, CROSS-SLOPE, AND/OR SUPERELEVATION.
12. ANCHOR BOLTS SHALL BE HEX HEAD ASTM F1554 GRADE 105. SEE DRAWING No. SC8-1019 FOR MORE DETAILS.

① LOCATIONS OF ANCHOR BOLTS ARE SUBJECT TO CHANGE. REFER TO THE PREFABRICATED BRIDGE PLANS FOR FINAL ANCHOR BOLT LOCATIONS.

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FINAL 100% DESIGN

CONTRACT SHEET No. 40 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	S. HOFFMANN
CHECKED	M. MUENKS
IN CHARGE	J. FINKE
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
ABUTMENT 2

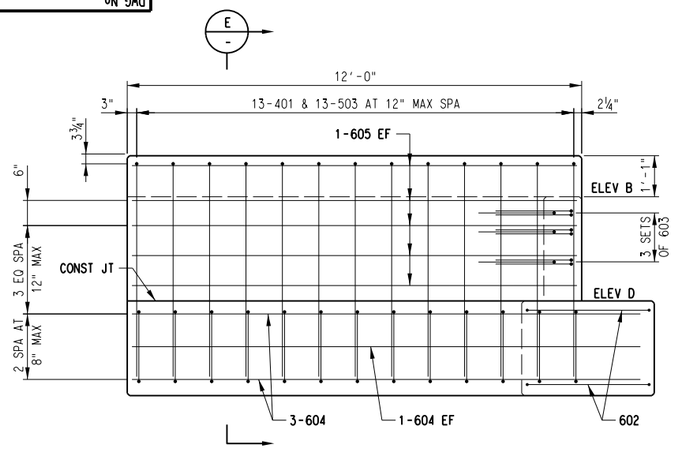
CONTRACT	DWG No.	REV
C-2033270-01	SC8-1018	D

CB05-SC8-1018.008

28-AUG-2023 08:52
CB05-SC8-1018.008

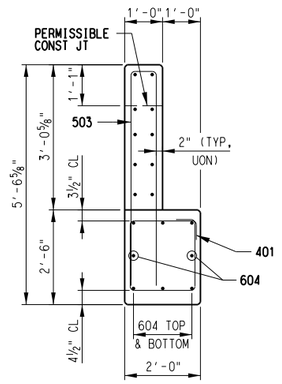
JEGSVCPW001
Default

DWG No. SC8-1019

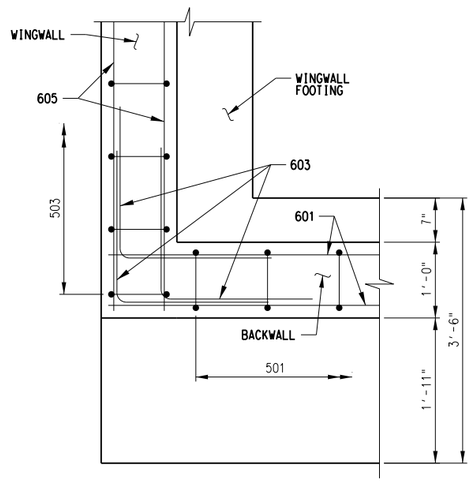


SECTION
SCALE: ½"=1'-0"
A
SC8-1018

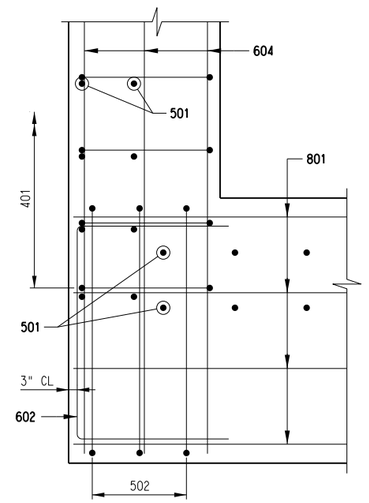
NORTH WINGWALL SHOWN, SOUTH WINGWALL SIMILAR



SECTION
SCALE: ½"=1'-0"
E
-



SECTION
SCALE: ½"=1'-0"
C
SC8-1018



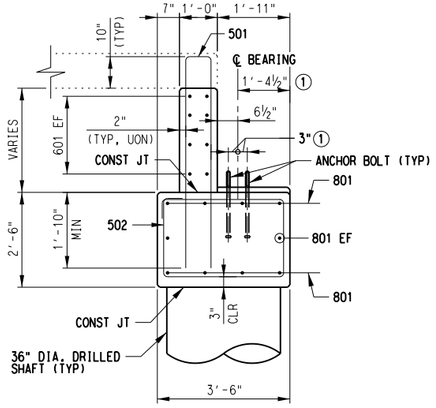
SECTION
SCALE: ½"=1'-0"
D
SC8-1018

NOTE:

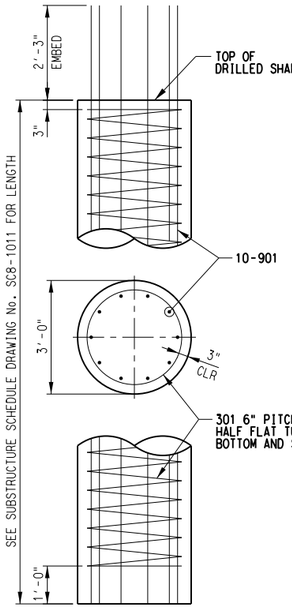
1. SEE DRAWING No. SC8-1018 FOR NOTES.

① LOCATIONS OF ANCHOR BOLTS ARE SUBJECT TO CHANGE. REFER TO THE PREFABRICATED BRIDGE PLANS FOR FINAL ANCHOR BOLT LOCATIONS.

② SEE PLAN VIEW ON DRAWING No. SC8-1018 FOR DIMENSIONS.



SECTION
SCALE: ½"=1'-0"
B
SC8-1018



36" DRILLED SHAFT DETAIL
SCALE: ½"=1'-0"
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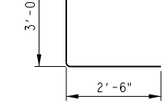
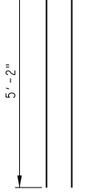
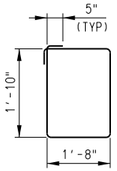


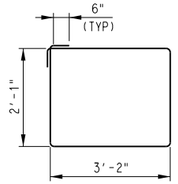
BAR 602



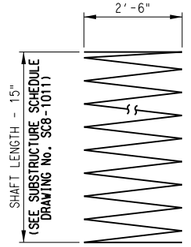
BAR 501, 503



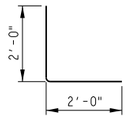
BAR 401



BAR 502



BARS 301



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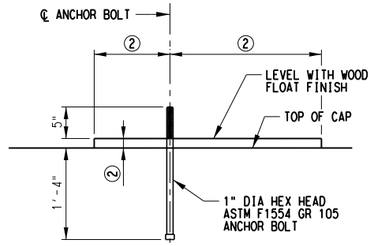

BEARING SEAT DETAIL
SCALE: 1"=1'-0"
1
SC8-1018

(SEE DRAWING No. SC8-1018 FOR ORIENTATION)
(BEARING SURFACE SHALL BE CLEAN AND FREE OF ALL LOOSE MATERIAL BEFORE PLACING BEARING ASSEMBLY)

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CONTRACT SHEET No. 41 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	S. HOFFMANN
CHECKED	W. MUENKS
IN CHARGE	J. FINKE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
ABUTMENT 2 DETAILS

CONTRACT	DWG No.	REV
C-2033270-01	SC8-1019	D

CB05-SC8-1019.008

28-AUG-2023 08:52
CB05-SC8-1019.008

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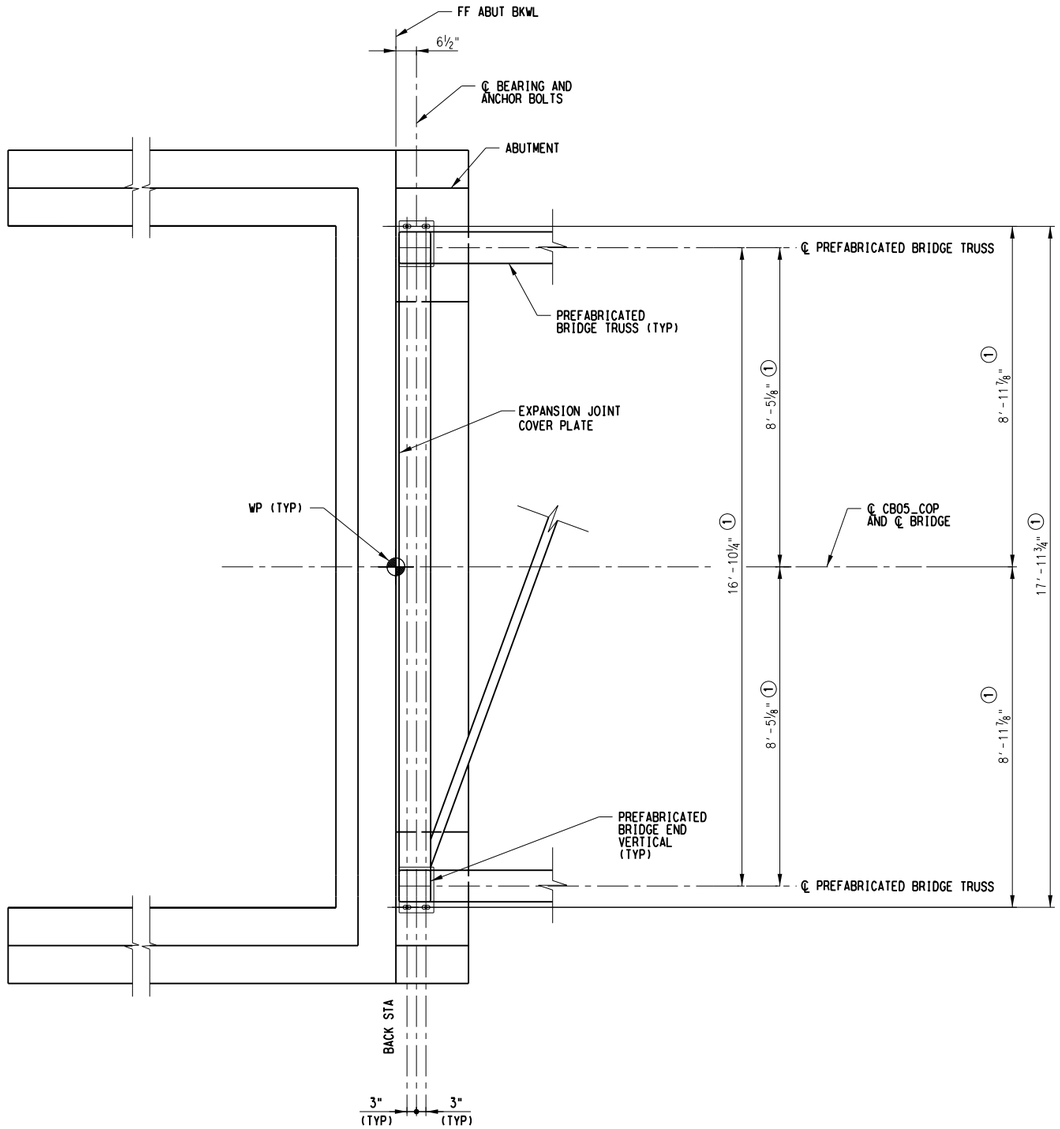
DWG No. SC8-1036



TYPICAL DETAIL OF TRUSS ENDS AT ABUTMENTS — 1/-

NO SCALE

ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR

NOTES:

1. SHOP DRAWINGS FOR APPROVAL ARE REQUIRED.
2. A BEARING LAYOUT WHICH IDENTIFIES LOCATION AND ORIENTATION OF ALL BEARINGS MUST BE DEVELOPED BY THE BEARING FABRICATOR. PERMANENTLY MARK EACH BEARING IN ACCORDANCE WITH THE BEARING LAYOUT. A COPY OF THE BEARING LAYOUT IS TO BE PROVIDED TO THE ENGINEER.
3. TRUSS LAYOUT IS FOR ILLUSTRATION ONLY. SEE PREFABRICATED BRIDGE VENDOR'S PLANS FOR DETAILS.
4. PREFABRICATED SUPERSTRUCTURE, DECK FORM, SIDE DAMS, BEARING ASSEMBLIES, EXPANSION JOINTS, AND EXPANSION JOINT COVER PLATES ARE TO BE PROVIDED BY PREFABRICATED BRIDGE VENDOR.

① LOCATIONS OF BEARINGS AND ANCHOR BOLTS ARE SUBJECT TO CHANGE. REFER TO THE PREFABRICATED BRIDGE VENDOR'S PLANS FOR FINAL LOCATIONS.

28-AUG-2023 08:53
CB05-SC8-1036.008

JEGSVCPW101
Default

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CONTRACT SHEET No. 42 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DART PROJECT

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SCALE	NO SCALE
DRAWN	M. KING
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CHECKED	M. MUENKS
IN CHARGE	J. FINKE
DATE	25 AUG 23

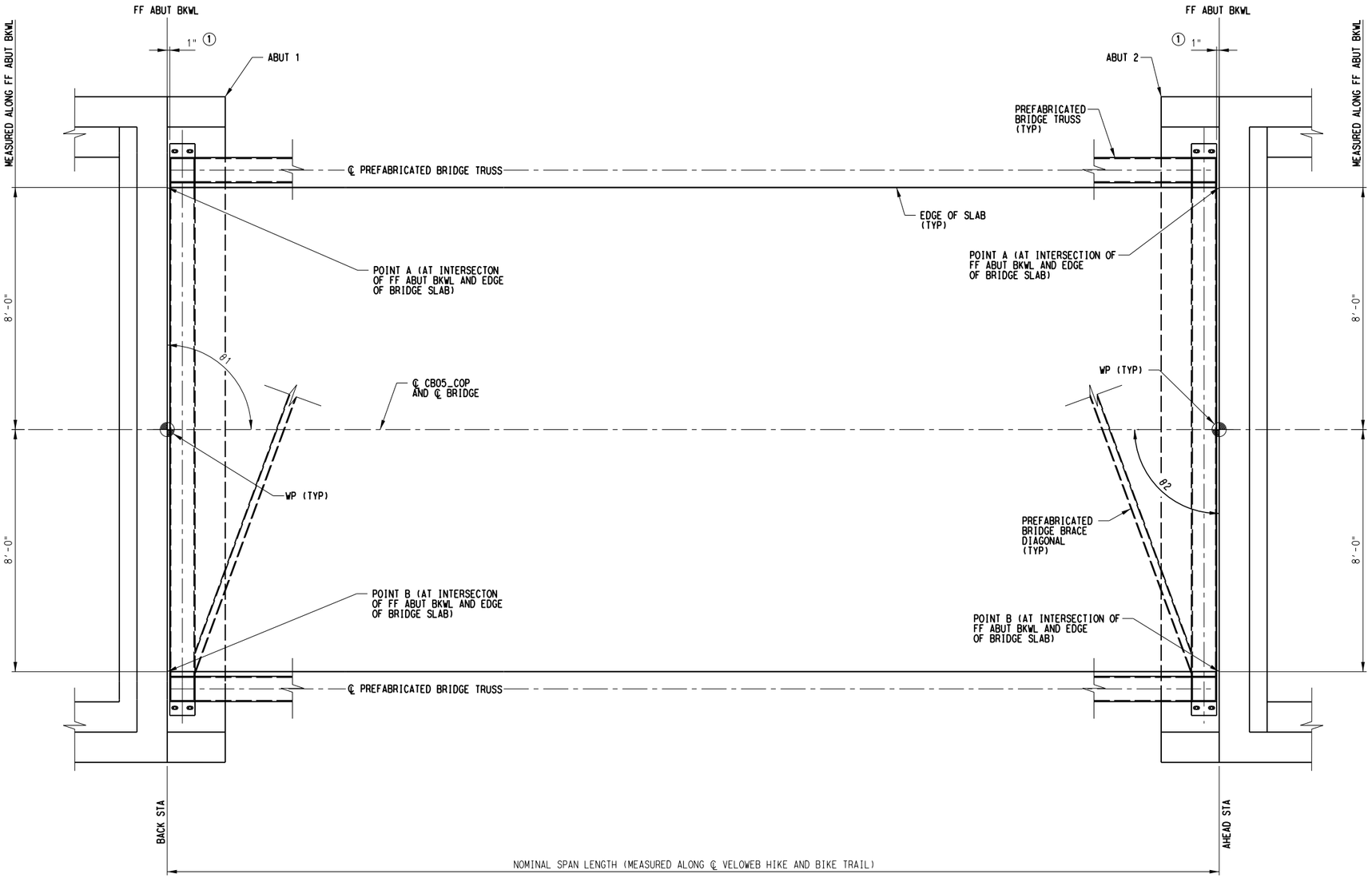
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
PREFABRICATED BRIDGE
END AND BEARING DETAILS

CONTRACT	DWG No.	REV
C-2033270-01	SC8-1036	D

CB05-SC8-1036.008

DWG No. SC8-1046



NOTES:

1. FOR PLAN AND ELEVATION, SEE DRAWING No. SC2-1001.
2. FOR TYPICAL SECTIONS, SEE DRAWING No. SC8-1001.
3. FOR PEDESTRIAN TRAIL PLAN AND PROFILE, SEE HIKE AND BIKE TRAIL SHEETS.
4. FOR WORKING POINT COORDINATES SEE DRAWING No. SC8-1011.
5. WORK THIS DRAWING WITH DRAWING No. SC8-1047.
6. ALL DIMENSIONS SHOWN ARE HORIZONTALLY PROJECTED DIMENSIONS. THE LENGTHS SHALL BE ADJUSTED BY VERTICAL ELEVATION DIFFERENCE BETWEEN WORKING POINTS.
7. TRUSS LAYOUT IS FOR ILLUSTRATION ONLY. SEE PREFABRICATED BRIDGE VENDOR'S PLANS FOR DETAILS.

① LOCATIONS OF BEARINGS AND ANCHOR BOLTS ARE SUBJECT TO CHANGE. REFER TO THE PREFABRICATED VENDOR'S PLANS FOR FINAL LOCATIONS.

DIMENSIONS SHOWN ARE ASSUMED DIMENSIONS USED FOR THE PURPOSE OF VERIFYING ADEQUATE SUBSTRUCTURE MEMBER SIZES HAVE BEEN PROVIDED. REFER TO THE PREFABRICATED BRIDGE VENDOR'S PLANS FOR FINAL DIMENSIONS.

GEOMETRY CONTROL PLAN

NO SCALE

1
-

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CONTRACT SHEET No. 43 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARCHER WESTERN HERZOG

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DRAWN	M. KING
DESIGNED	M. MUENKS
CHECKED	M. MUENKS
IN CHARGE	J. FINKE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
GEOMETRY CONTROL PLAN
SHEET 1 OF 2

CONTRACT	DWG No.	REV
C-2033270-01	SC8-1046	D

CB05-SC8-1046.008

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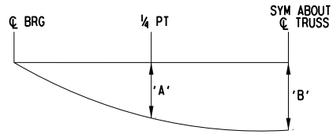
DWG No. SC8-1047

ABUT / PIER No.	ABUT / PIER STATION	WORKING POINT PGL EL AT CL	ABUT / PIER BEARING	SPAN No.	NOMINAL SPAN LENGTH (WP TO WP)	ASSUMED TRUSS DIMENSIONS						
						TRUSS LENGTH	CL BRG TO CL BRG	DEFL 'A' (INCH)	DEFL 'B' (INCH)	TRUSS BEARING	ANGLE FROM ABUT TO AHEAD TRUSS θ1	ANGLE FROM ABUT TO BACK TRUSS θ2
1	1319+44.13	457.11	N 4°58'40" W	1	100'-0"	99'-10"	98'-11"	*	*	N 85°01'20" E	90°00'00"	- - -
2	1320+44.13	459.46	N 4°58'40" W							N 85°01'20" E	- - -	90°00'00"



NOTES: DEFLECTIONS SHOWN ARE DUE TO PREFABRICATED BRIDGE SUPERSTRUCTURE, CAST-IN-PLACE CONCRETE SLAB AND ALL OTHER SUPERIMPOSED DEAD LOADS. DEFLECTIONS SHOWN ARE INSTANT DEFLECTIONS. ADJUST DEFLECTIONS BASED ON FIELD OBSERVATIONS AS NEEDED.

DEAD LOAD DEFLECTIONS DIAGRAM

NO SCALE

1
-

NOTES:

1. SEE NOTES ON DRAWING No. SC8-1046.

* ANTICIPATED DEAD LOAD DEFLECTIONS SHALL BE PROVIDED BY THE PREFABRICATED BRIDGE MANUFACTURER. DEFLECTIONS SHALL BE DUE TO PREFABRICATED BRIDGE SUPERSTRUCTURE, CAST-IN-PLACE CONCRETE SLAB AND ALL OTHER SUPERIMPOSED DEAD LOADS. DEFLECTIONS SHALL BE INSTANT DEFLECTIONS.

TOP OF SLAB ELEVATIONS						
ABUT / PIER No.	POINT	STATION	PGL EL (FT)	OFFSET (FT)	SLOPE %	TOP OF SIDEWALK EL (FT)
1	A	1319+44.13	457.11	-8.00	1.50%	456.99
	B	1319+44.13		8.00	1.50%	457.23
2	A	1320+44.13	459.46	-8.00	1.50%	459.34
	B	1320+44.13		8.00	1.50%	459.58

NOTES: TOP OF DECK/SLAB ELEVATIONS SHOWN ARE MEASURED ALONG THE FRONT FACE OF ABUTMENT BACKWALLS. ELEVATIONS ARE TAKEN AT THE EDGE OF DECK.

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CHECKED	M. MUENKS
IN CHARGE	J. FINKE
DATE	25 AUG 23

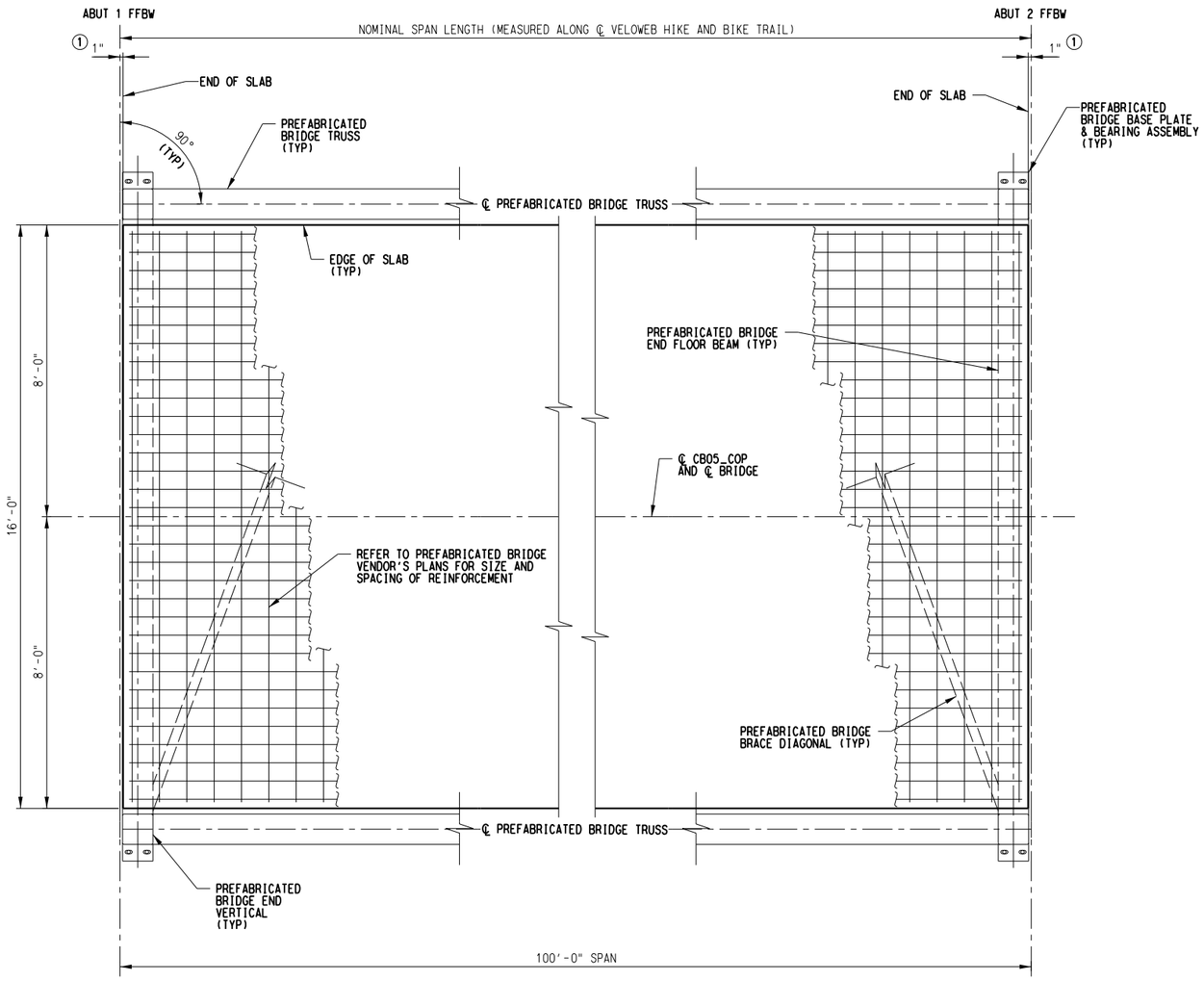
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
GEOMETRY CONTROL PLAN
SHEET 2 OF 2

CONTRACT	DWG No.	REV
C-2033270-01	SC8-1047	D

CB05-SC8-1047.008

DWG No. SC3-1001



SLAB REINFORCING PLAN (1)
NO SCALE

NOTES:

1. SLAB DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
2. ALL CONCRETE SHALL BE TxDOT CLASS S CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI.
3. ALL SLAB REINFORCING BARS SHALL BE ASTM A615, GRADE 60 AND EPOXY COATED.
4. FOR TYPICAL SLAB SECTION, SEE DRAWING No. SC8-1051.
5. PREFABRICATED BRIDGE SUPERSTRUCTURE, DECK FORM, SIDE DAMS, BEARING ASSEMBLIES, EXPANSION JOINTS, AND EXPANSION JOINT COVER PLATES ARE TO BE PROVIDED BY THE PREFABRICATED BRIDGE VENDOR.
6. FOR ADDITIONAL DETAILS, SEE GEOMETRY CONTROL PLANS, DRAWING Nos SC8-1046 AND SC8-1047.
7. FOR SECTION CONTROL LINE, SEE PLAN AND ELEVATION SHEET, DRAWING No. SC2-1001, AND TYPICAL SECTIONS SHEET, DRAWING No. SC8-1001.
8. TRUSS LAYOUT IS FOR ILLUSTRATION ONLY. SEE PREFABRICATED BRIDGE VENDOR'S PLANS FOR DETAILS.
9. FOR THE FINAL SURFACE TEXTURE, A ROUGHENED BROOM FINISH SHALL BE PROVIDED AS A NON-SKID FINISH.
10. CONTROL JOINTS SHALL BE PROVIDED AT EVERY FLOOR BEAM. REFER TO THE PREFABRICATED BRIDGE VENDOR'S PLANS FOR FLOOR BEAM LOCATIONS.
11. EDGES OF SLAB ARE PERPENDICULAR TO TRUSS BEARINGS UNLESS NOTED OTHERWISE.

(1) TRUSS DIMENSIONS ARE SUBJECT TO CHANGE. REFER TO THE PREFABRICATED BRIDGE VENDOR'S PLANS FOR FINAL TRUSS DIMENSIONS.

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CONTRACT SHEET No. 45 OF 378

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DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
SLAB REINFORCING PLAN

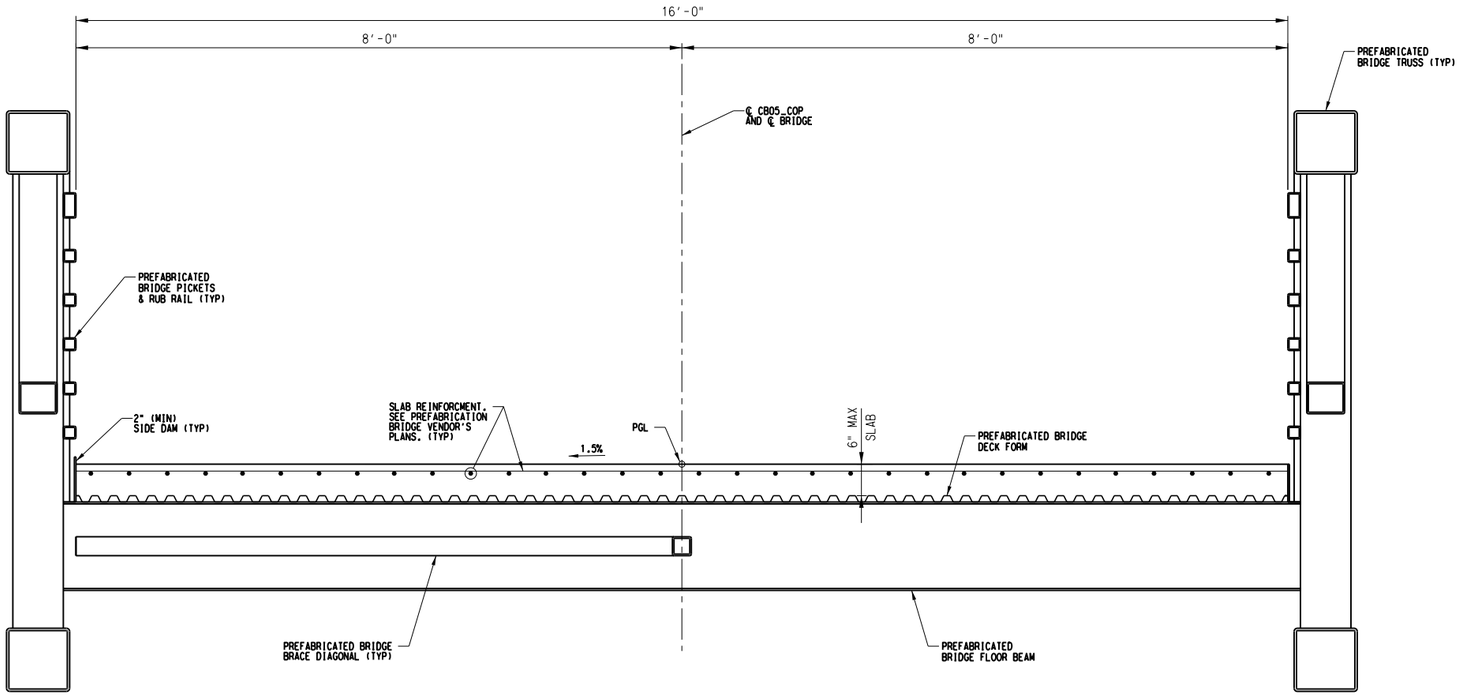
CONTRACT	DWG No.	REV
C-2033270-01	SC3-1001	D

CB05-SC3-1001.008

DWG No. SC8-1051

NOTES:

1. FOR NOTES SEE DRAWING No. SC8-1091.
2. RUB RAILS AND HORIZONTAL PICKETS ARE FOR ILLUSTRATIVE PURPOSES ONLY. REFER TO PREFABRICATED VENDOR DRAWINGS FOR DETAILS.



TYPICAL TRANSVERSE SECTION 1/-

NO SCALE

LOOKING UPSTATION

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CONTRACT SHEET No. 46 OF 378

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COTTON BELT REGIONAL RAIL VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
TYPICAL SLAB SECTION

CONTRACT	DWG No.	REV
C-2033270-01	SC8-1051	D

CB05-SC8-1051.008

DWG No. SC8-1091

PREFABRICATED BRIDGE REQUIREMENTS AND NOTES

BRIDGE GEOMETRY AND DESIGN REQUIREMENTS

1. THE PREFABRICATED STRUCTURE SPAN LENGTHS FROM CENTERLINE TO CENTERLINE OF PIER OR TO FRONT FACE OF BACKWALL SHALL BE AS AS SHOWN ON THE PLAN AND ELEVATIONS. SPAN LENGTHS SHOWN ARE HORIZONTAL AND MUST BE ADJUSTED FOR GRADE.
2. THE CLEAR WIDTH OF THE BRIDGE (INSIDE OF HANDRAIL TO INSIDE OF HANDRAIL) SHALL BE 16'-0".
3. THE ELEVATION DIFFERENCE BETWEEN PIERS IS NOTED ON THE INCLUDED PLAN AND ELEVATION SHEET.
4. LIVE LOAD DEFLECTION SHALL NOT EXCEED 1/360 OF THE SPAN LENGTH. HORIZONTAL DEFLECTIONS UNDER UNFACTORED WIND LOADING SHALL NOT EXCEED 1/360 OF THE SPAN LENGTH.
5. VIBRATIONS SHALL BE INVESTIGATED AS A SERVICE LIMIT STATE USING LOAD COMBINATION SERVICE I IN TABLE 3.4.1-1 OF AASHTO LRFD AND SHALL MEET THE CRITERIA SPECIFIED IN SECTION 6 OF THE LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES. VIBRATION OF THE STRUCTURE SHALL NOT CAUSE DISCOMFORT OR CONCERN TO USERS OF THE BRIDGE.
6. PREFABRICATED BRIDGE SHALL BE CONSTRUCTED OF UNPAINTED WEATHERING STEEL.
7. THE PREFABRICATED STRUCTURE SHALL INCLUDE RAILING WITH RUB RAILS. RAILINGS SHALL MEET THE REQUIRMENTS AS SPECIFIED IN AASHTO "GUIDE FOR BICYCLE FACILITIES" 4TH EDITION, 2012. REFER TO AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS" 8TH EDITIONS FOR LOADING AND DESIGN REQUIREMENTS.
8. REFER TO THE BRIDGE PLAN AND ELEVATION SHEET FOR ASSUMED DEPTH FOR LOW CHORD AND TOP OF CAP DEPTHS.
9. MAINTAIN A FLUSH DECK WITH THE APPROACH SLABS ON EITHER END.
10. THE PREFABRICATED STRUCTURE SHALL BE ADA COMPLIANT.
11. THE PREFABRICATED STRUCTURE SHALL INCLUDE DESIGN, DETAILS AND MATERIALS FOR THE PREFABRICATED SUPERSTRUCTURE, BEARING ASSEMBLIES, EXPANSION JOINTS, EXPANSION JOINT COVER PLATES, WIRE MESH, RAILINGS, CLEARANCE SIGN SUPPORT BRACKETS, DRIP PANS AND ANCHOR BOLT LOCATIONS.
12. FABRICATOR SHALL PROVIDE IPE WOODEN RUB RAILS.

DESIGN LOADS (UNFACTORED)

DEAD LOADS:

IN ADDITION TO THE SELF-WEIGHT OF THE PREFABRICATED STRUCTURE AND ANY OTHER MISC DEAD LOADS REQUIRED BY THE PRECEEDING SPECIFICATIONS AND STANDARDS, THE PREFABRICATED STRUCTURE SHALL ALSO BE DESIGNED FOR THE FOLLOWING DEAD LOADS:

1. 16'-0" WIDE BY 6" THICK (MAXIMUM) CONCRETE DECK WITH A CROSS SLOPE AS IDENTIFIED IN THE LAYOUT SHEET. MINIMUM UNIT WEIGHT FOR CONCRETE SHALL BE 150 PCF

LIVE LOADS:

IN ACCORDANCE WITH THE PRECEEDING SPECIFICATIONS AND STANDARDS, THE PREFABRICATED STRUCTURE SHALL BE DESIGNED FOR THE FOLLOWING LIVE LOADS:

1. PEDESTRIAN LIVE LOAD = 90 PSF
2. VEHICULAR LIVE LOAD = H10 LOADING

THE ABOVE LOADING IS NOT ALL-INCLUSIVE. THE PREFABRICATED STRUCTURE SHALL ALSO BE DESIGNED FOR ANY ADDITIONAL LOADS AS REQUIRED BY THE PRECEEDING SPECIFICATIONS (SUCH AS WIND LOAD, THERMAL, ETC.).

DESIGN SPECIFICATIONS AND STANDARDS

(IN ORDER OF PRECEDENCE)

1. DART COTTON BELT DESIGN CRITERIA MANUAL.
2. TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS AND BRIDGES (2014) AND SPECIAL PROVISIONS THERETO.
3. TxDOT GEOTECHNICAL MANUAL (2020).
4. AWS D1.5 BRIDGE WELDING CODE (LATEST VERSION).
5. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) BRIDGE DESIGN SPECIFICATIONS 8TH EDITION (2017).
6. LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES (2009) WITH 2015 INTERIM REVISIONS.
7. AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS 1ST EDITION (2015) AND ALL INTERIM REVISIONS THERETO.
8. "ANNUAL BOOK OF ASTM STANDARDS" OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM).
9. "STANDARD SPECIFICATIONS FOR TRANSPORTATION MATERIALS AND METHODS OF SAMPLING AND TESTING" OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (2018).

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DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
PEDESTRIAN BRIDGE (#10P)
REQUIREMENTS AND NOTES

CONTRACT	DWG No.	REV
C-2033270-01	SC8-1091	D

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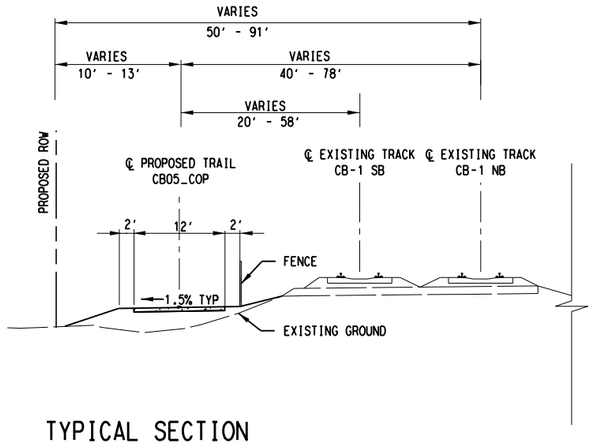
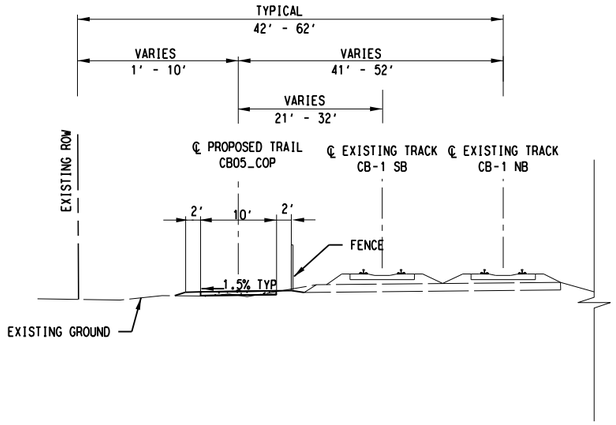
DWG No. CC7-1041



TYPICAL SECTION
CL CB05_COP STA. 1099+58.07 TO 1112+14.16
CL CB05_COP STA. 1132+91.59 TO 1134+19.80
CL CB05_COP STA. 1135+03.99 TO 1149+64.32

NO SCALE



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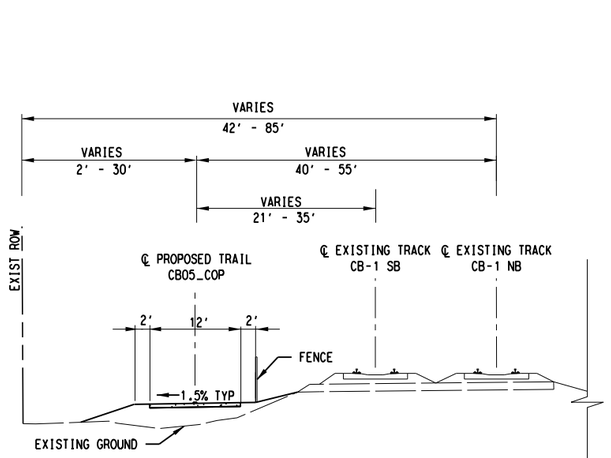

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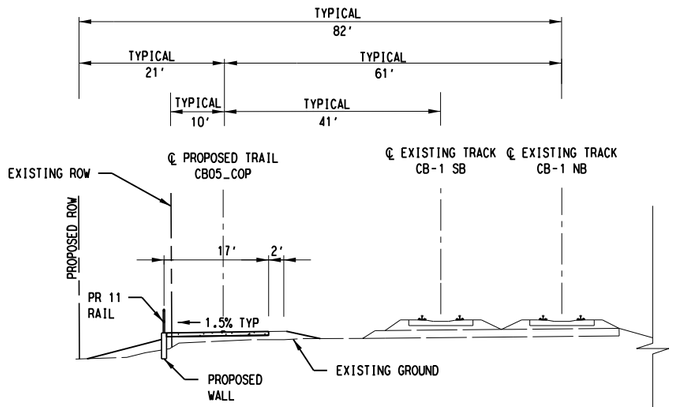
NO SCALE



TYPICAL SECTION
CL CB05_COP STA. 1134+19.80 TO 1135+03.99

NO SCALE

NOTES:

1. SEE TRAIL PLAN AND PROFILE SHEETS FOR FENCE LIMITS. FENCING IS REQUIRED WHERE TRAIL EDGE IS WITHIN 35' OF TRACK AND NO BARRIER STRUCTURE IS IN PLACE.
2. SEE TRAIL PLAN AND PROFILE SHEETS FOR SIDEWALK WALL LOCATIONS AND LIMITS.
3. SEE RETAINING WALL LAYOUT SHEETS FOR RETAINING WALL LIMITS.
4. SEE RR REQUIREMENTS SHEETS.

LEGEND

① 8" THICK REINFORCED CONCRETE TRAIL PAVEMENT; REFERENCE TXDOT STANDARD CRCP(1)-23

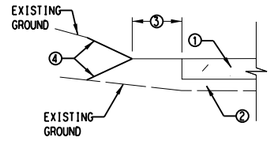
② SUBGRADE @ 95% STANDARD PROCTOR

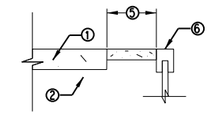
③ DISTANCE = 2' TYPICAL @ 1.5% OR 16.6% MAXIMUM

④ MATCH EXISTING GROUND AT 4:1 TYPICAL OR 3:1 MAXIMUM

⑤ 4" THICK CONCRETE TRAIL PAVEMENT (MOW STRIP)

⑥ SIDEWALK WALL





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12801 N Central Expressway, Suite 1250
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CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CONTRACT SHEET No. 48 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
TYPICAL SECTIONS
SHEET 1 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC7-1041	D

CB05-CC7-1041.010

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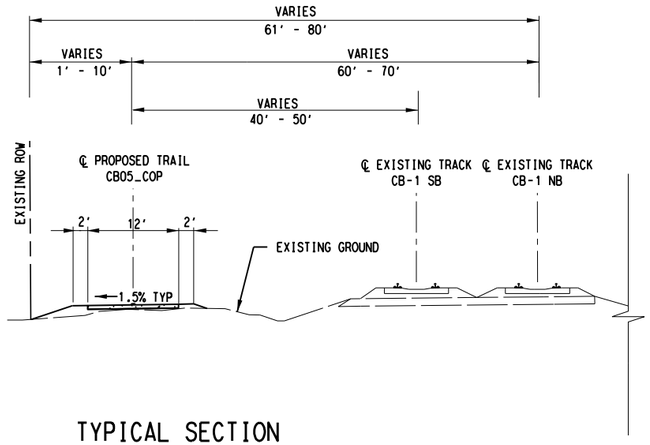
DWG No. CC7-1042



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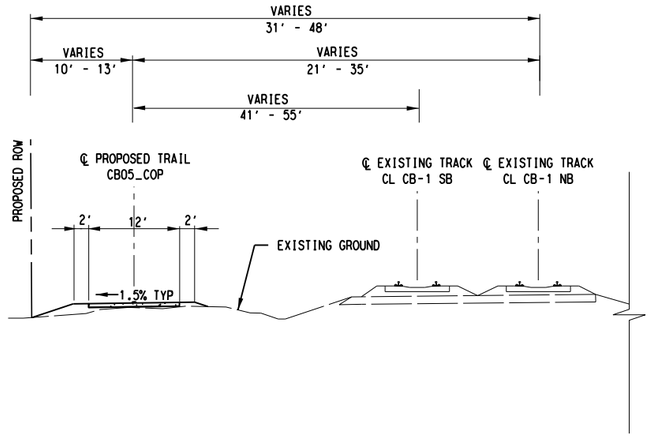
NO SCALE



TYPICAL SECTION
CL CB05_COP STA. 1155+00.00 TO 1162+57.70
NO SCALE

TYPICAL SECTION
CL CB05_COP STA. 1162+57.70 TO 1175+88.22
NO SCALE

TYPICAL SECTION
CL CB05_COP STA. 1175+88.22 TO 1176+62.48
NO SCALE

NOTES:

1. SEE TRAIL PLAN AND PROFILE SHEETS FOR FENCE LIMITS. FENCING IS REQUIRED WHERE TRAIL EDGE IS WITHIN 35' OF TRACK AND NO BARRIER STRUCTURE IS IN PLACE.
2. SEE TRAIL PLAN AND PROFILE SHEETS FOR SIDEWALK WALL LOCATIONS AND LIMITS.
3. SEE RETAINING WALL LAYOUT SHEETS FOR RETAINING WALL LIMITS.
4. SEE RR REQUIREMENTS SHEETS.

LEGEND

① 8" THICK REINFORCED CONCRETE TRAIL PAVEMENT; REFERENCE TXDOT STANDARD CRCP(1)-23

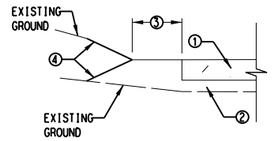
② SUBGRADE @ 95% STANDARD PROCTOR

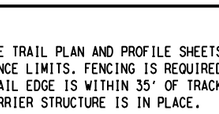
③ DISTANCE = 2' TYPICAL @ 1.5% OR 16.6% MAXIMUM

④ MATCH EXISTING GROUND AT 4:1 TYPICAL OR 3:1 MAXIMUM

⑤ 4" THICK CONCRETE TRAIL PAVEMENT (MOW STRIP)

⑥ SIDEWALK WALL





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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 49 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
TYPICAL SECTIONS
SHEET 2 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC7-1042	D

CB05-CC7-1042.010

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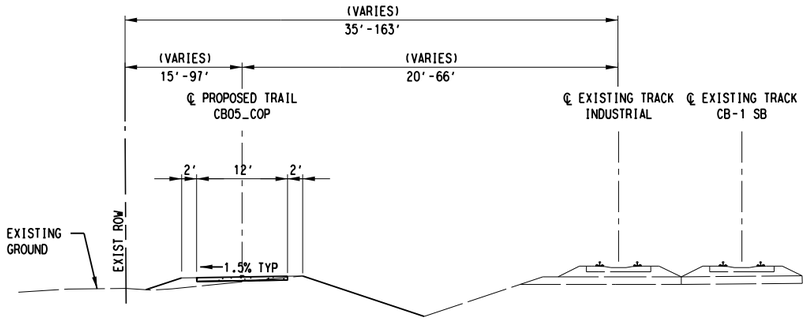
CB05-CC7-1042.010

ssaleh
Default

DWG No. CC7-1043



TYPICAL SECTION
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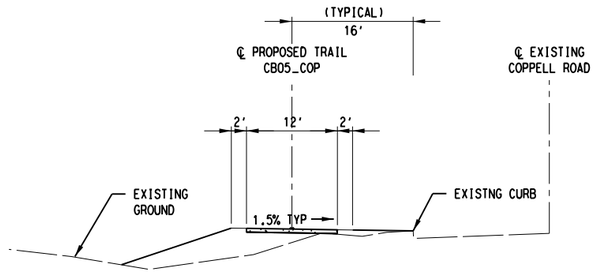
NO SCALE



TYPICAL SECTION
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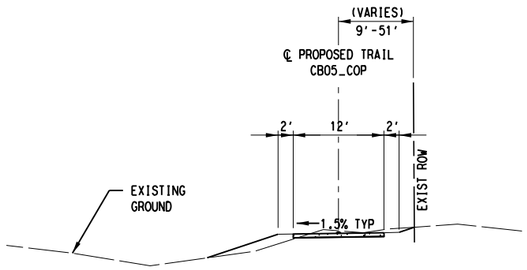
NO SCALE



TYPICAL SECTION
CL CB05_COP STA. 1188+24.09 TO 1195+19.33

NO SCALE

NOTES:

1. SEE TRAIL PLAN AND PROFILE SHEETS FOR FENCE LIMITS. FENCING IS REQUIRED WHERE TRAIL EDGE IS WITHIN 35' OF TRACK AND NO BARRIER STRUCTURE IS IN PLACE.
2. SEE TRAIL PLAN AND PROFILE SHEETS FOR SIDEWALK WALL LOCATIONS AND LIMITS.
3. SEE RETAINING WALL LAYOUT SHEETS FOR RETAINING WALL LIMITS.
4. SEE RR REQUIREMENTS SHEETS.

LEGEND

① 8" THICK REINFORCED CONCRETE TRAIL PAVEMENT; REFERENCE TXDOT STANDARD CRCP(1)-23

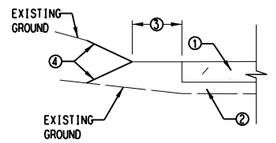
② SUBGRADE @ 95% STANDARD PROCTOR

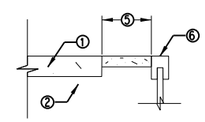
③ DISTANCE = 2' TYPICAL @ 1.5% OR 16.6% MAXIMUM

④ MATCH EXISTING GROUND AT 4:1 TYPICAL OR 3:1 MAXIMUM

⑤ 4" THICK CONCRETE TRAIL PAVEMENT (MOW STRIP)

⑥ SIDEWALK WALL





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CONTRACT SHEET No. 50 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
TYPICAL SECTIONS
SHEET 3 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC7-1043	D

CB05-CC7-1043.010

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CB05-CC7-1043.010
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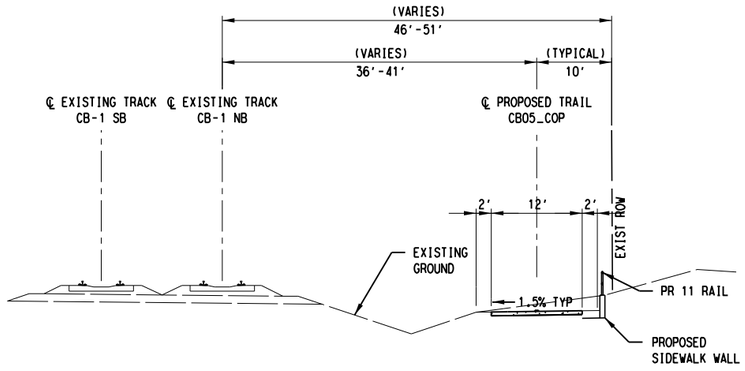
DWG No. CC7-1044



TYPICAL SECTION
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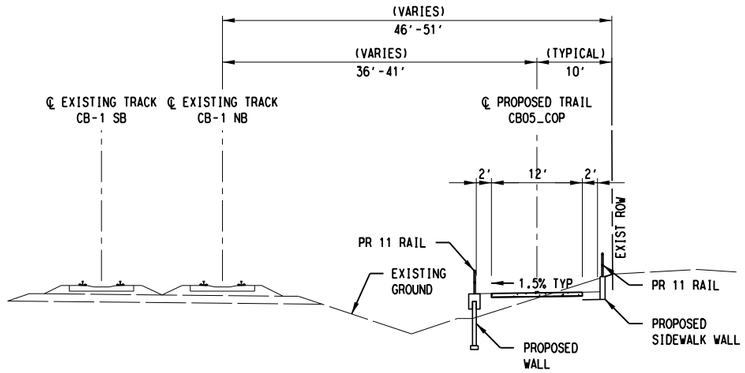
NO SCALE



TYPICAL SECTION
CL CB05_COP STA. 1197+05.02 TO 1198+72.01
NO SCALE

TYPICAL SECTION
CL CB05_COP STA. 1198+72.01 TO 1199+13.22
NO SCALE

NOTES:

1. SEE TRAIL PLAN AND PROFILE SHEETS FOR FENCE LIMITS. FENCING IS REQUIRED WHERE TRAIL EDGE IS WITHIN 35' OF TRACK AND NO BARRIER STRUCTURE IS IN PLACE.
2. SEE TRAIL PLAN AND PROFILE SHEETS FOR SIDEWALK WALL LOCATIONS AND LIMITS.
3. SEE RETAINING WALL LAYOUT SHEETS FOR RETAINING WALL LIMITS.
4. SEE RR REQUIREMENTS SHEETS.

LEGEND

① 8" THICK REINFORCED CONCRETE TRAIL PAVEMENT; REFERENCE TXDOT STANDARD CRCP(1)-23

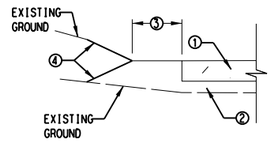
② SUBGRADE @ 95% STANDARD PROCTOR

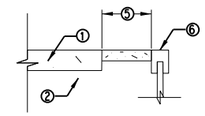
③ DISTANCE = 2' TYPICAL @ 1.5% OR 16.6% MAXIMUM

④ MATCH EXISTING GROUND AT 4:1 TYPICAL OR 3:1 MAXIMUM

⑤ 4" THICK CONCRETE TRAIL PAVEMENT (MOW STRIP)

⑥ SIDEWALK WALL





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CONTRACT SHEET No. 51 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
TYPICAL SECTIONS
SHEET 4 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC7-1044	D

CB05-CC7-1044.010

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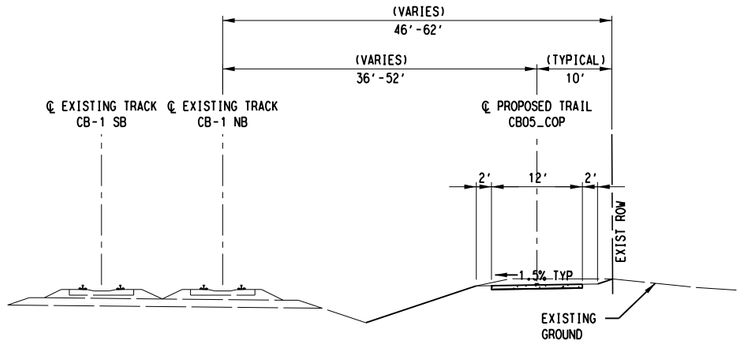
DWG No. CC7-1045



TYPICAL SECTION
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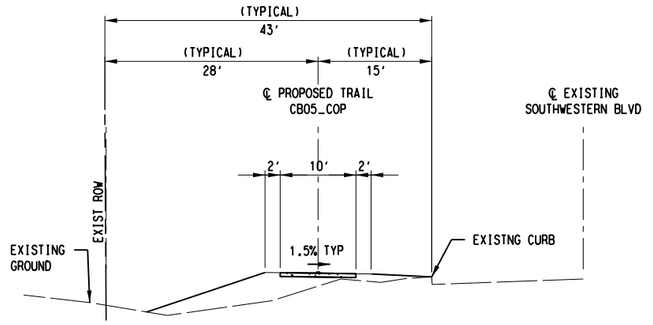
NO SCALE



TYPICAL SECTION
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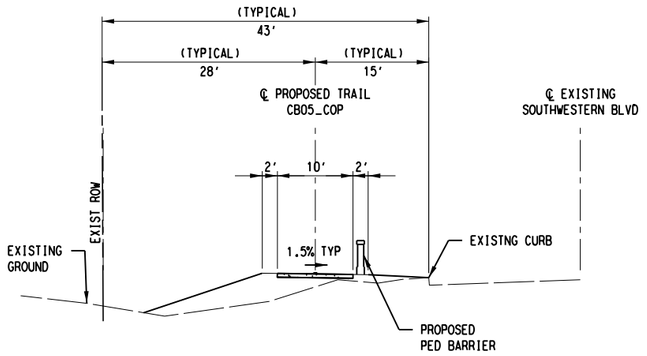
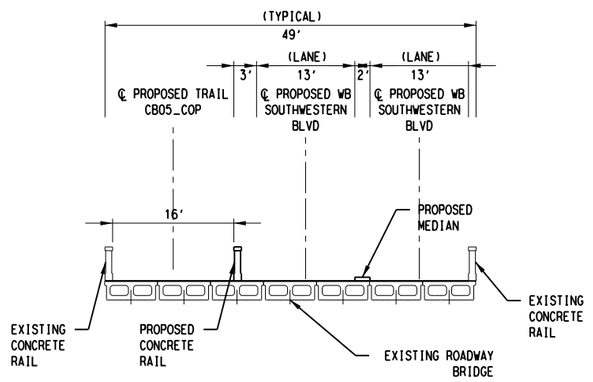


TYPICAL SECTION
CL CB05_COP STA. 1202+57.05 TO 1202+74.77
NO SCALE



TYPICAL SECTION
CL CB05_COP STA. 1202+74.77 TO 1204+10.62
NO SCALE

NOTES:

1. SEE TRAIL PLAN AND PROFILE SHEETS FOR FENCE LIMITS. FENCING IS REQUIRED WHERE TRAIL EDGE IS WITHIN 35' OF TRACK AND NO BARRIER STRUCTURE IS IN PLACE.
2. SEE TRAIL PLAN AND PROFILE SHEETS FOR SIDEWALK WALL LOCATIONS AND LIMITS.
3. SEE RETAINING WALL LAYOUT SHEETS FOR RETAINING WALL LIMITS.
4. SEE RR REQUIREMENTS SHEETS.

LEGEND

① 8" THICK REINFORCED CONCRETE TRAIL PAVEMENT; REFERENCE TXDOT STANDARD CRCP(1)-23

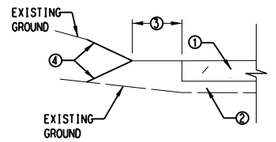
② SUBGRADE @ 95% STANDARD PROCTOR

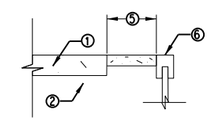
③ DISTANCE = 2' TYPICAL @ 1.5% OR 16.6% MAXIMUM

④ MATCH EXISTING GROUND AT 4:1 TYPICAL OR 3:1 MAXIMUM

⑤ 4" THICK CONCRETE TRAIL PAVEMENT (MOW STRIP)

⑥ SIDEWALK WALL





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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
TYPICAL SECTIONS
SHEET 5 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC7-1045	D

CB05-CC7-1045.010

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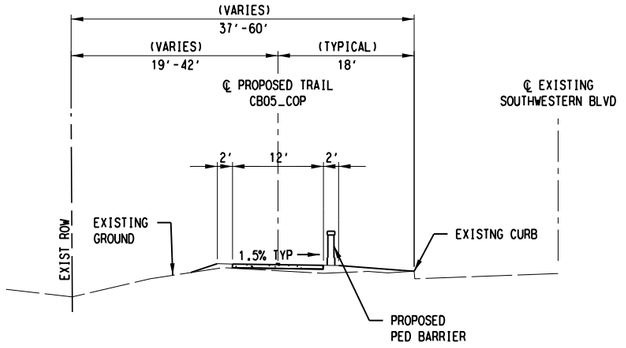
DWG No. CC7-1046



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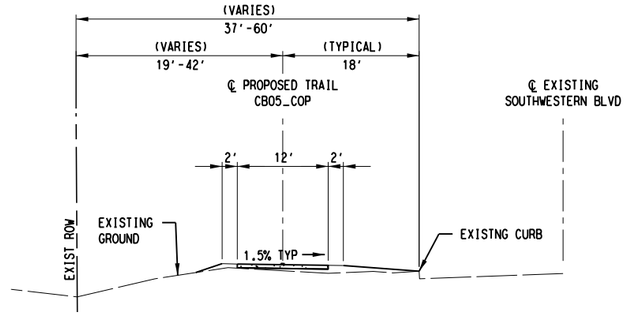

TYPICAL SECTION
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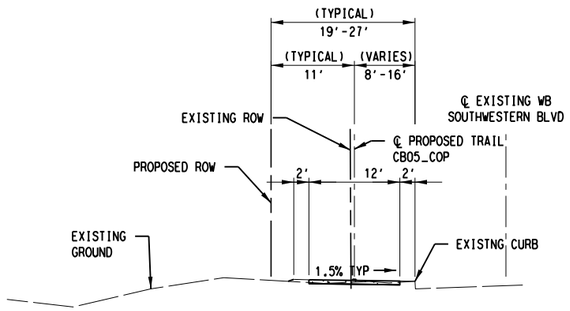

TYPICAL SECTION
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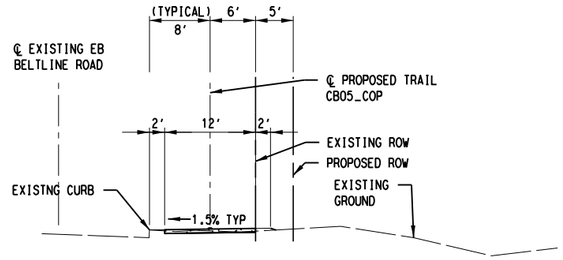


TYPICAL SECTION
CL CB05_COP STA. 1227+75.54 TO 1233+13.76
NO SCALE

NOTES:

1. SEE TRAIL PLAN AND PROFILE SHEETS FOR FENCE LIMITS. FENCING IS REQUIRED WHERE TRAIL EDGE IS WITHIN 35' OF TRACK AND NO BARRIER STRUCTURE IS IN PLACE.
2. SEE TRAIL PLAN AND PROFILE SHEETS FOR SIDEWALK WALL LOCATIONS AND LIMITS.
3. SEE RETAINING WALL LAYOUT SHEETS FOR RETAINING WALL LIMITS.
4. SEE RR REQUIREMENTS SHEETS.

LEGEND

① 8" THICK REINFORCED CONCRETE TRAIL PAVEMENT; REFERENCE TXDOT STANDARD CRCP(1)-23

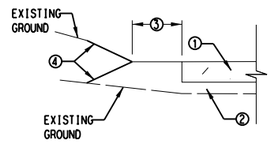
② SUBGRADE @ 95% STANDARD PROCTOR

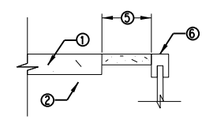
③ DISTANCE = 2' TYPICAL @ 1.5% OR 16.6% MAXIMUM

④ MATCH EXISTING GROUND AT 4:1 TYPICAL OR 3:1 MAXIMUM

⑤ 4" THICK CONCRETE TRAIL PAVEMENT (MOW STRIP)

⑥ SIDEWALK WALL





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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
TYPICAL SECTIONS
SHEET 6 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC7-1046	D

CB05-CC7-1046.010

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CB05-CC7-1046.010

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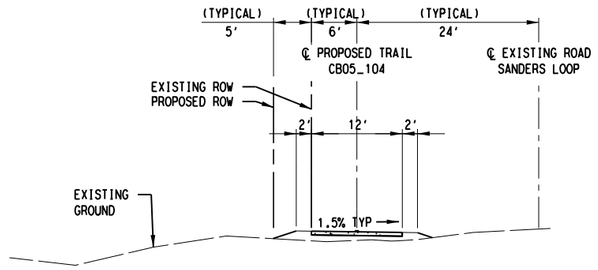
DWG No. CC7-1047



TYPICAL SECTION
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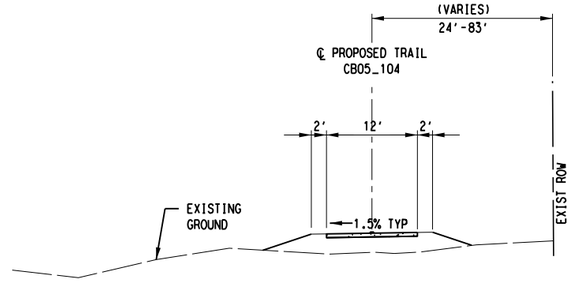
NO SCALE



TYPICAL SECTION
CL CB05_104 STA. 1295+79.13 TO 1319+44.13
NO SCALE

NOTES:

1. SEE TRAIL PLAN AND PROFILE SHEETS FOR FENCE LIMITS. FENCING IS REQUIRED WHERE TRAIL EDGE IS WITHIN 35' OF TRACK AND NO BARRIER STRUCTURE IS IN PLACE.
2. SEE TRAIL PLAN AND PROFILE SHEETS FOR SIDEWALK WALL LOCATIONS AND LIMITS.
3. SEE RETAINING WALL LAYOUT SHEETS FOR RETAINING WALL LIMITS.
4. SEE RR REQUIREMENTS SHEETS.

LEGEND

① 8" THICK REINFORCED CONCRETE TRAIL PAVEMENT; REFERENCE TXDOT STANDARD CRCP(1)-23

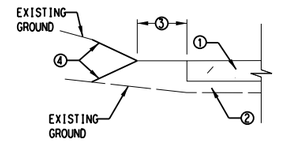
② SUBGRADE @ 95% STANDARD PROCTOR

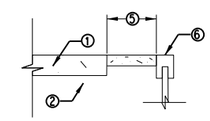
③ DISTANCE = 2' TYPICAL @ 1.5% OR 16.6% MAXIMUM

④ MATCH EXISTING GROUND AT 4:1 TYPICAL OR 3:1 MAXIMUM

⑤ 4" THICK CONCRETE TRAIL PAVEMENT (MOW STRIP)

⑥ SIDEWALK WALL





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CONTRACT SHEET No. 54 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARCHER WESTERN HERZOG

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SCALE	NO SCALE
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

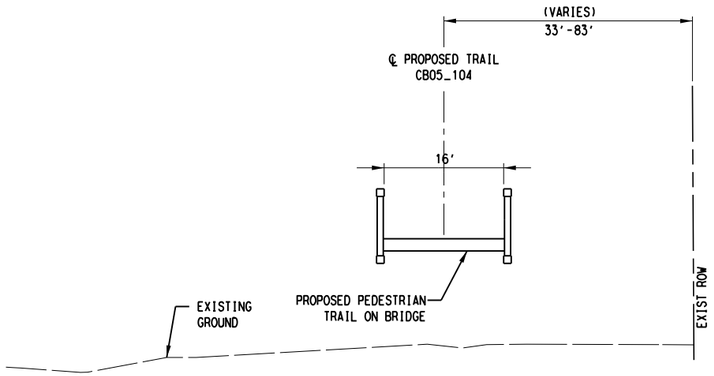
CITY OF COPPELL
TYPICAL SECTIONS
SHEET 7 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC7-1047	D

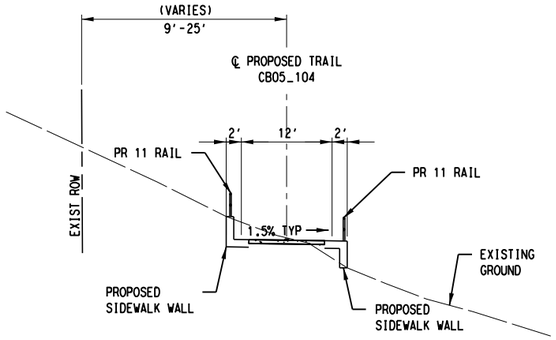
CB05-CC7-1047.010

30-AUG-2023 16:47
CB05-CC7-1047.010
ssaleh
Default

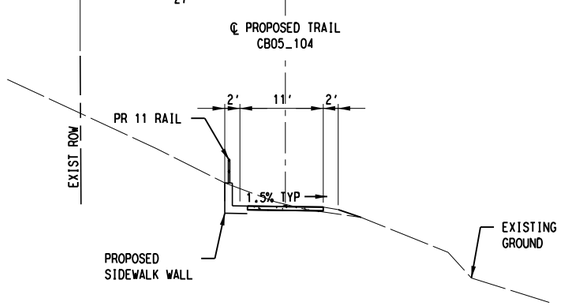
DWG No. CC7-1048



TYPICAL SECTION
CL CB05_104 STA. 1319+44.13 TO 1320+44.13
NO SCALE



TYPICAL SECTION
CL CB05_104 STA. 1320+44.13 TO 1321+03.20
NO SCALE



TYPICAL SECTION
CL CB05_104 STA. 1321+03.20 TO 1321+74.74
NO SCALE

NOTES:

1. SEE TRAIL PLAN AND PROFILE SHEETS FOR FENCE LIMITS. FENCING IS REQUIRED WHERE TRAIL EDGE IS WITHIN 35' OF TRACK AND NO BARRIER STRUCTURE IS IN PLACE.
2. SEE TRAIL PLAN AND PROFILE SHEETS FOR SIDEWALK WALL LOCATIONS AND LIMITS.
3. SEE RETAINING WALL LAYOUT SHEETS FOR RETAINING WALL LIMITS.
4. SEE RR REQUIREMENTS SHEETS.

LEGEND

① 8" THICK REINFORCED CONCRETE TRAIL PAVEMENT; REFERENCE TXDOT STANDARD CRCP(1)-23

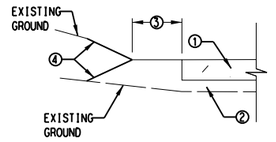
② SUBGRADE @ 95% STANDARD PROCTOR

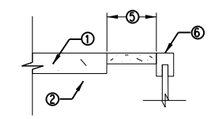
③ DISTANCE = 2' TYPICAL @ 1.5% OR 16.6% MAXIMUM

④ MATCH EXISTING GROUND AT 4:1 TYPICAL OR 3:1 MAXIMUM

⑤ 4" THICK CONCRETE TRAIL PAVEMENT (MOW STRIP)

⑥ SIDEWALK WALL





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CONTRACT SHEET No. 55 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP
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ARCHER WESTERN HERZOG

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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
TYPICAL SECTIONS
SHEET 8 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC7-1048	D

CB05-CC7-1048.010

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CB05-CC7-1048.010
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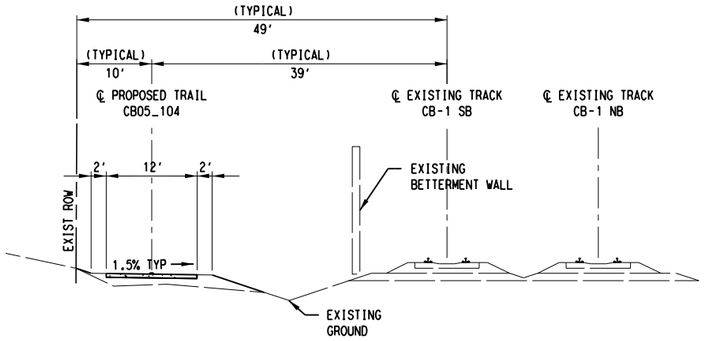
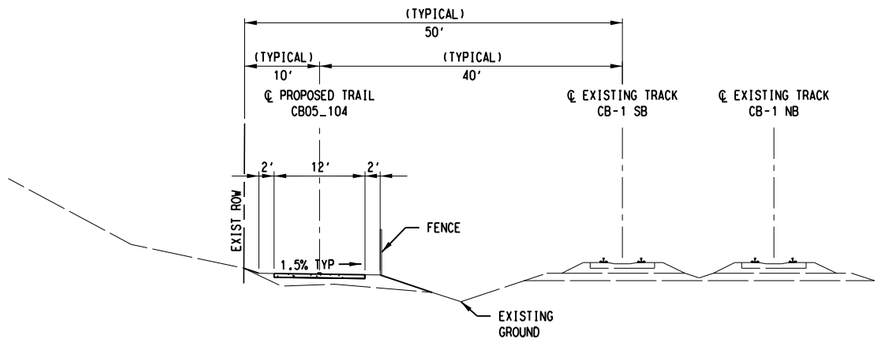
DWG No. CC7-1049



TYPICAL SECTION
CL CB05_104 STA. 1321+74.74 TO 1324+68.57
NO SCALE



TYPICAL SECTION
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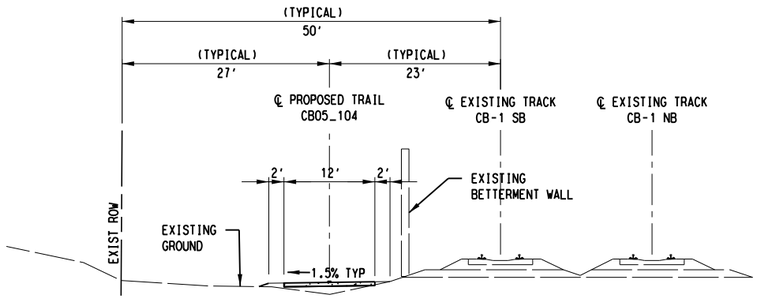
NO SCALE



TYPICAL SECTION
CL CB05_104 STA. 1329+38.52 TO 1346+77.45
NO SCALE

NOTES:

1. SEE TRAIL PLAN AND PROFILE SHEETS FOR FENCE LIMITS. FENCING IS REQUIRED WHERE TRAIL EDGE IS WITHIN 35' OF TRACK AND NO BARRIER STRUCTURE IS IN PLACE.
2. SEE TRAIL PLAN AND PROFILE SHEETS FOR SIDEWALK WALL LOCATIONS AND LIMITS.
3. SEE RETAINING WALL LAYOUT SHEETS FOR RETAINING WALL LIMITS.
4. SEE RR REQUIREMENTS SHEETS.

LEGEND

① 8" THICK REINFORCED CONCRETE TRAIL PAVEMENT; REFERENCE TXDOT STANDARD CRCP(1)-23

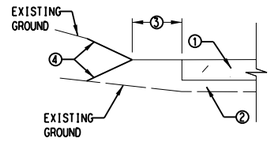
② SUBGRADE @ 95% STANDARD PROCTOR

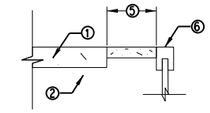
③ DISTANCE = 2' TYPICAL @ 1.5% OR 16.6% MAXIMUM

④ MATCH EXISTING GROUND AT 4:1 TYPICAL OR 3:1 MAXIMUM

⑤ 4" THICK CONCRETE TRAIL PAVEMENT (MOW STRIP)

⑥ SIDEWALK WALL





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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP
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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
TYPICAL SECTIONS
SHEET 9 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC7-1049	D

CB05-CC7-1049.010

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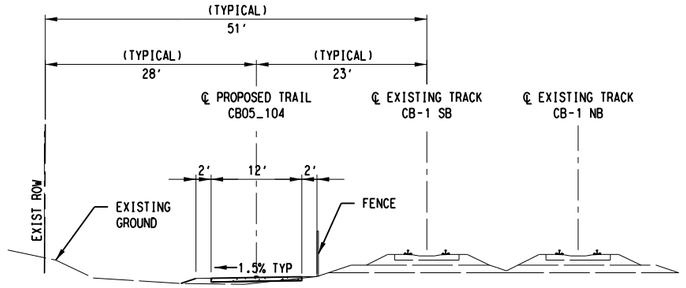
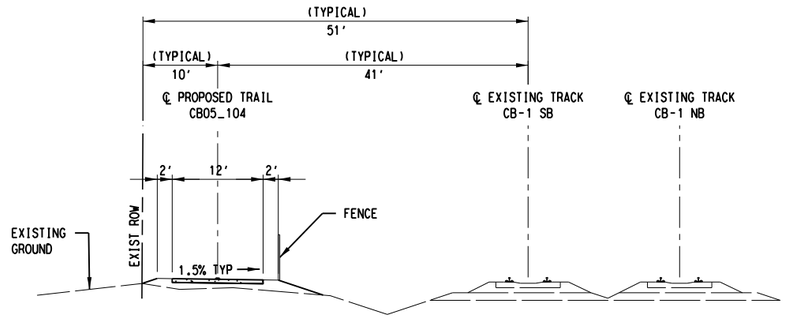
DWG No. CC7-1050



TYPICAL SECTION
CL CB05_104 STA. 1346+77.75 TO 1349+50.00
NO SCALE



TYPICAL SECTION
CL CB05_104 STA. 1349+50.00 TO 1356+44.45
NO SCALE

NOTES:

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LEGEND

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② SUBGRADE @ 95% STANDARD PROCTOR

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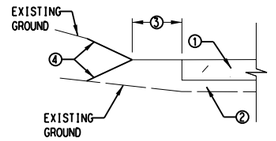
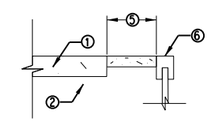
⑥ SIDEWALK WALL





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CONTRACT SHEET No. 57 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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SCALE	NO SCALE
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
TYPICAL SECTIONS
SHEET 10 OF 10

CONTRACT	DWG No.	REV
C-2033270-01	CC7-1050	D

CB05-CC7-1050.010

30-AUG-2023 16:47
CB05-CC7-1050.010
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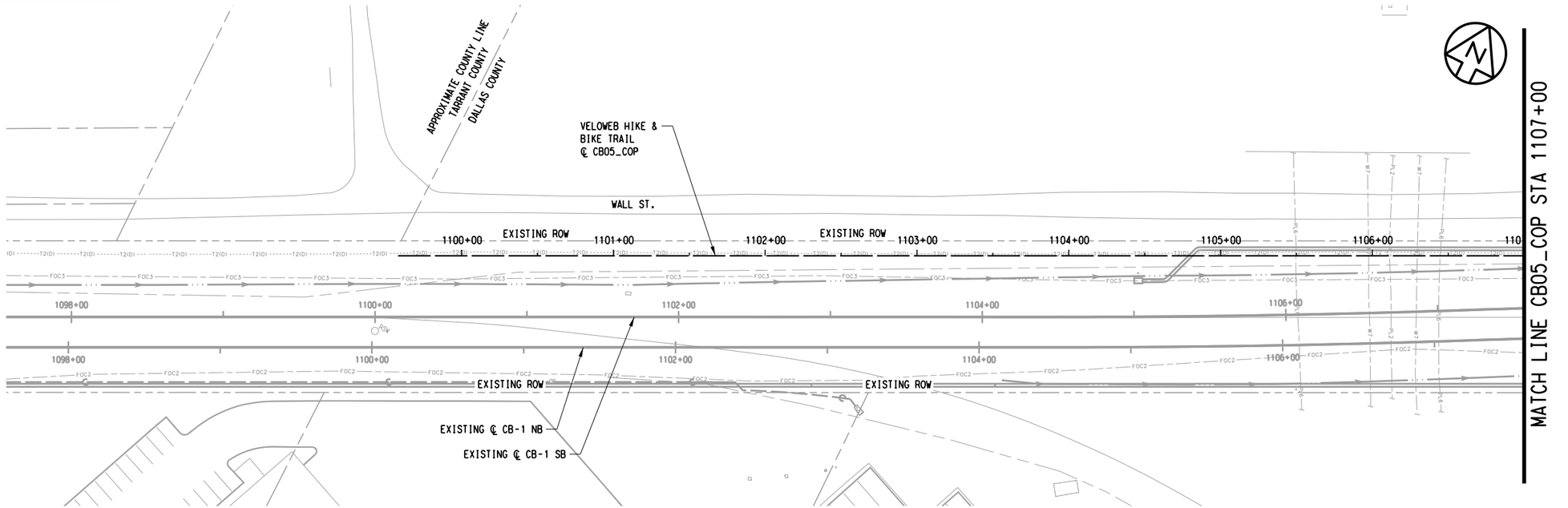
DWG No. CCO-1100



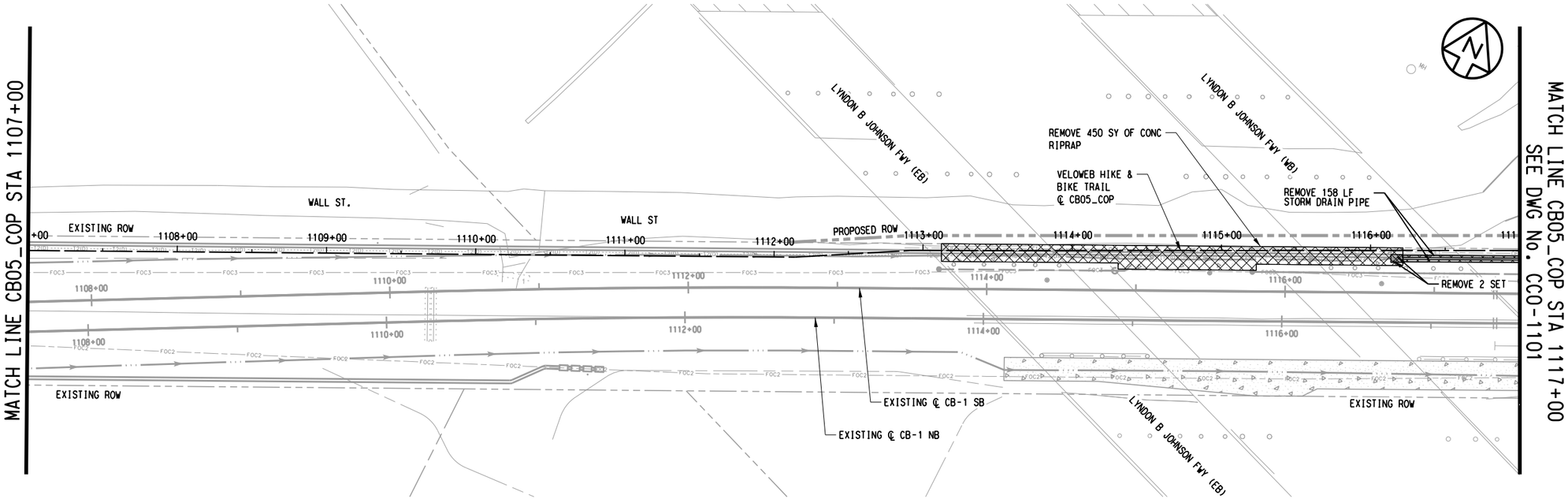
SCALE (IN FEET)
HORIZ 0 20 40 80

LEGEND:

CONCRETE REMOVAL

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.
2. CONTRACTOR SHALL PROTECT IN PLACE EXISITING PAVEMENT, STRUCTURES, METERS, UTILITY VAULTS, LANDSCAPING MATERIALS AND APPURTENANCES WHICH ARE NOT BEING DEMOLISHED.



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CONTRACT SHEET No. 58 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
REMOVAL LAYOUT
STA 1099+58.07 TO STA 1117+00
SHEET 1 OF 11

CONTRACT	DWG No.	REV
C-2033270-01	CCO-1100	D

CB05-CCO-1100.040

30-AUG-2023 16:30
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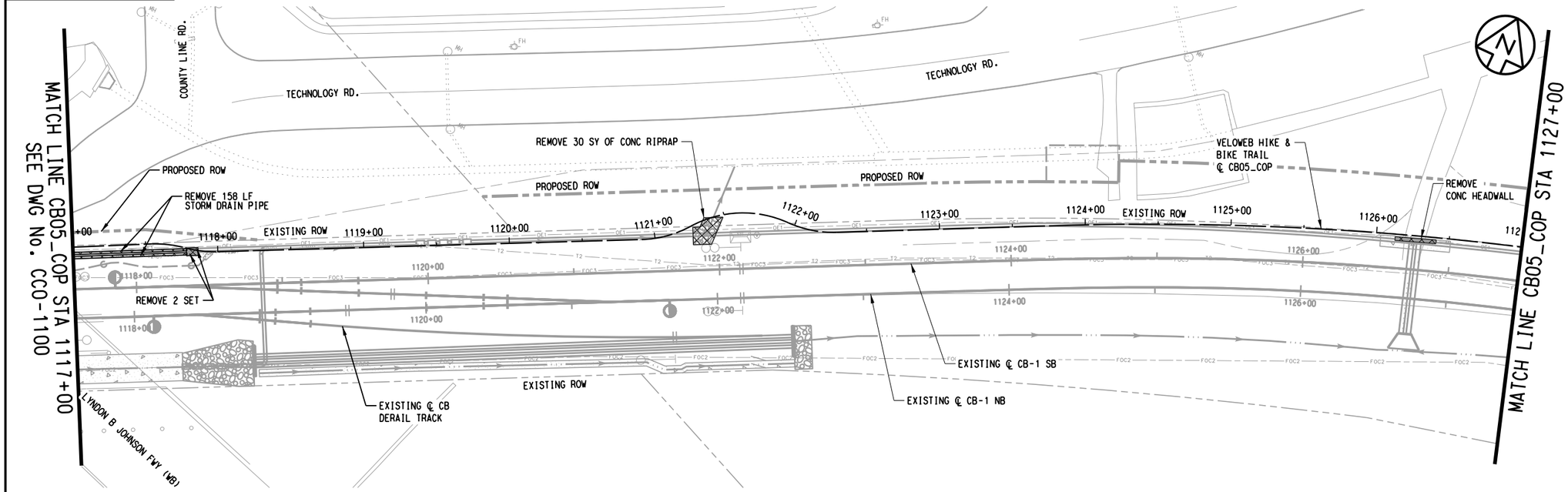
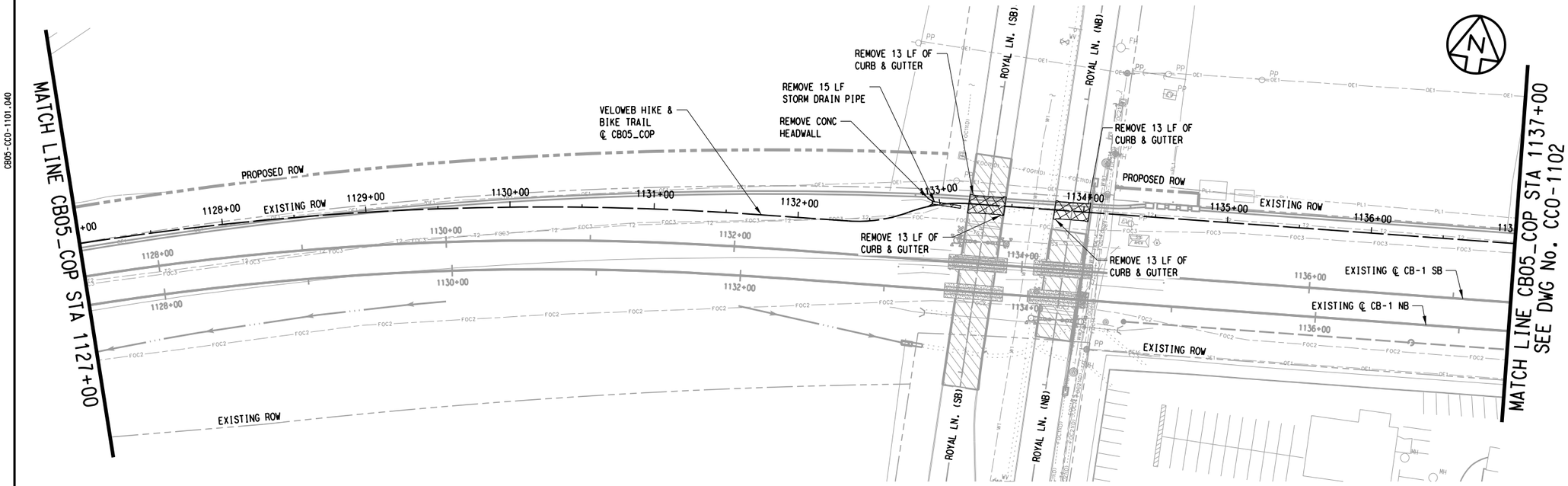
DWG No. CCO-1101





SCALE (IN FEET)
HORIZ 0 20 40 80

LEGEND:

CONCRETE REMOVAL

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.
2. CONTRACTOR SHALL PROTECT IN PLACE EXISITING PAVEMENT, STRUCTURES, METERS, UTILITY VAULTS, LANDSCAPING MATERIALS AND APPURTENANCES WHICH ARE NOT BEING DEMOLISHED.

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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IN CHARGE	D. LUU
DATE	25 AUG 23

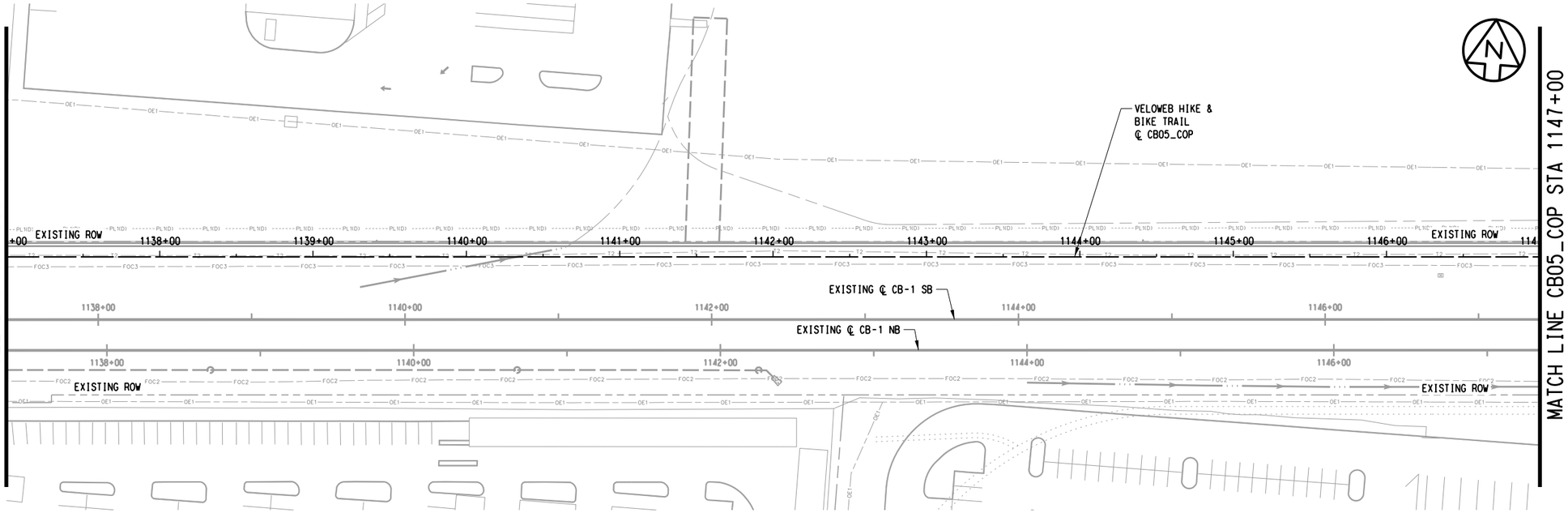
CAES

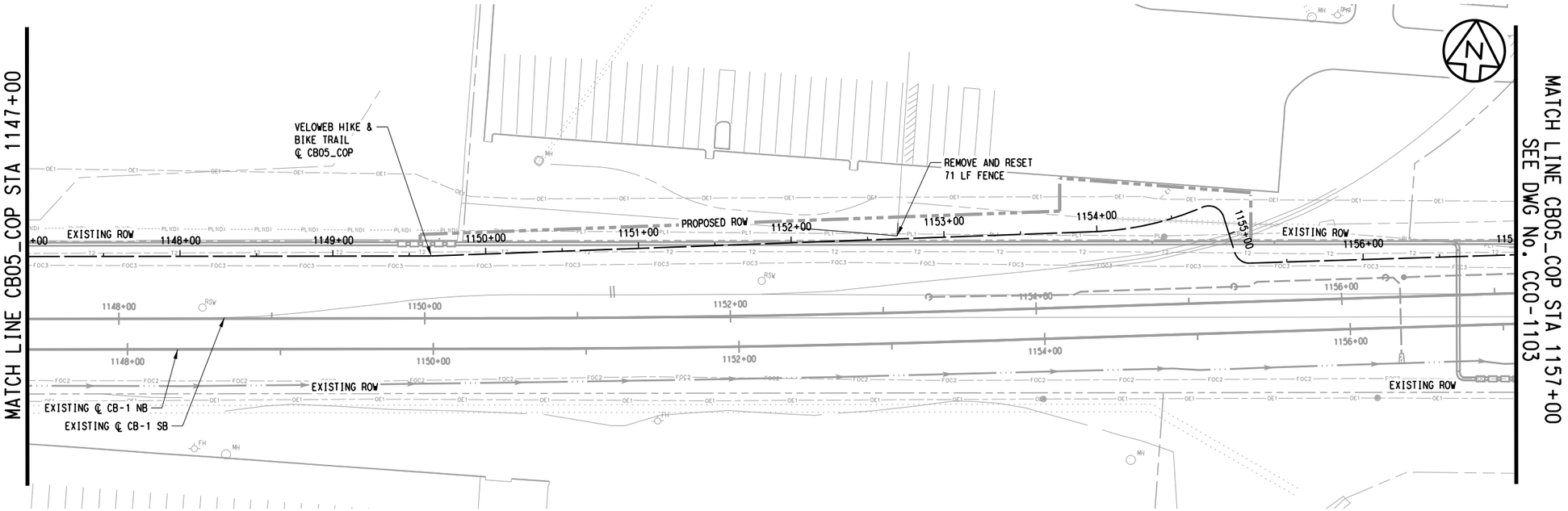
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
REMOVAL LAYOUT
STA 1117+00 TO STA 1137+00
SHEET 2 OF 11

CONTRACT	DWG No.	REV
C-2033270-01	CCO-1101	D

CB05-CCO-1101.040

DWG No. CCO-1102





SCALE (IN FEET)
HORIZ 0 20 40 80

LEGEND:

CONCRETE REMOVAL

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.
2. CONTRACTOR SHALL PROTECT IN PLACE EXISITING PAVEMENT, STRUCTURES, METERS, UTILITY VAULTS, LANDSCAPING MATERIALS AND APPURTENANCES WHICH ARE NOT BEING DEMOLISHED.

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CONTRACT SHEET No. 60 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
REMOVAL LAYOUT
STA 1137+00 TO STA 1157+00
SHEET 3 OF 11

CONTRACT	DWG No.	REV
C-2033270-01	CCO-1102	D

CB05-CCO-1102.040

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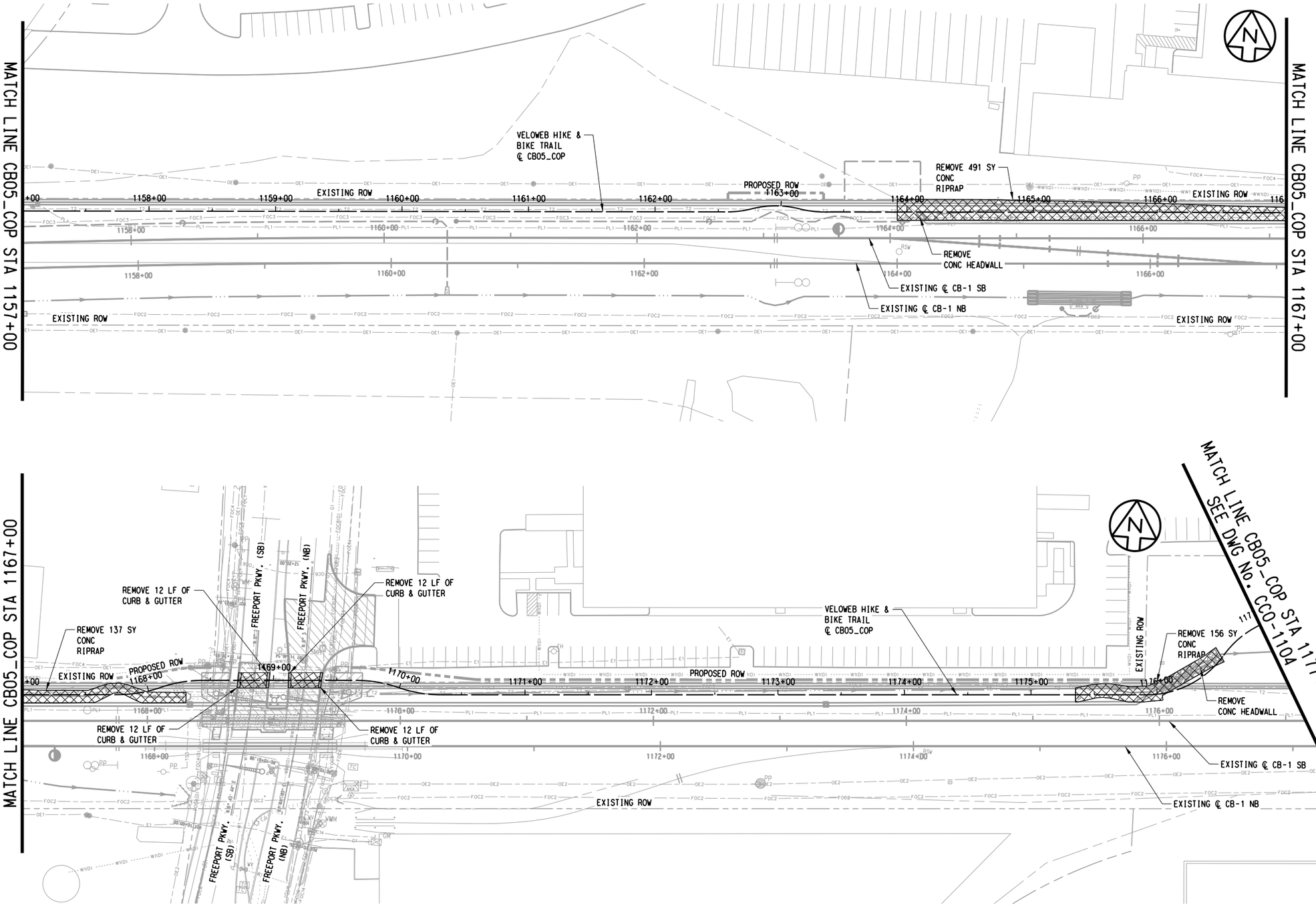
DWG No. CCO-1103



SCALE (IN FEET)
HORIZ 0 20 40 80

LEGEND:

CONCRETE REMOVAL

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CONTRACT SHEET No. 61 OF 378

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CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

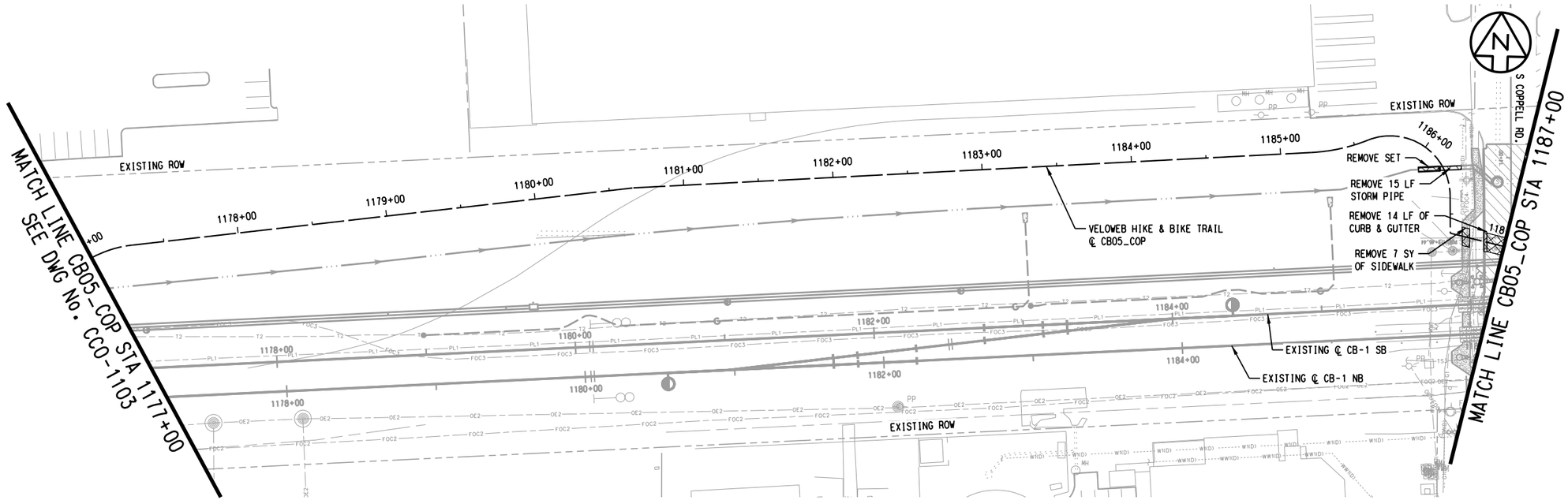
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
REMOVAL LAYOUT
STA 1157+00 TO STA 1177+00
SHEET 4 OF 11

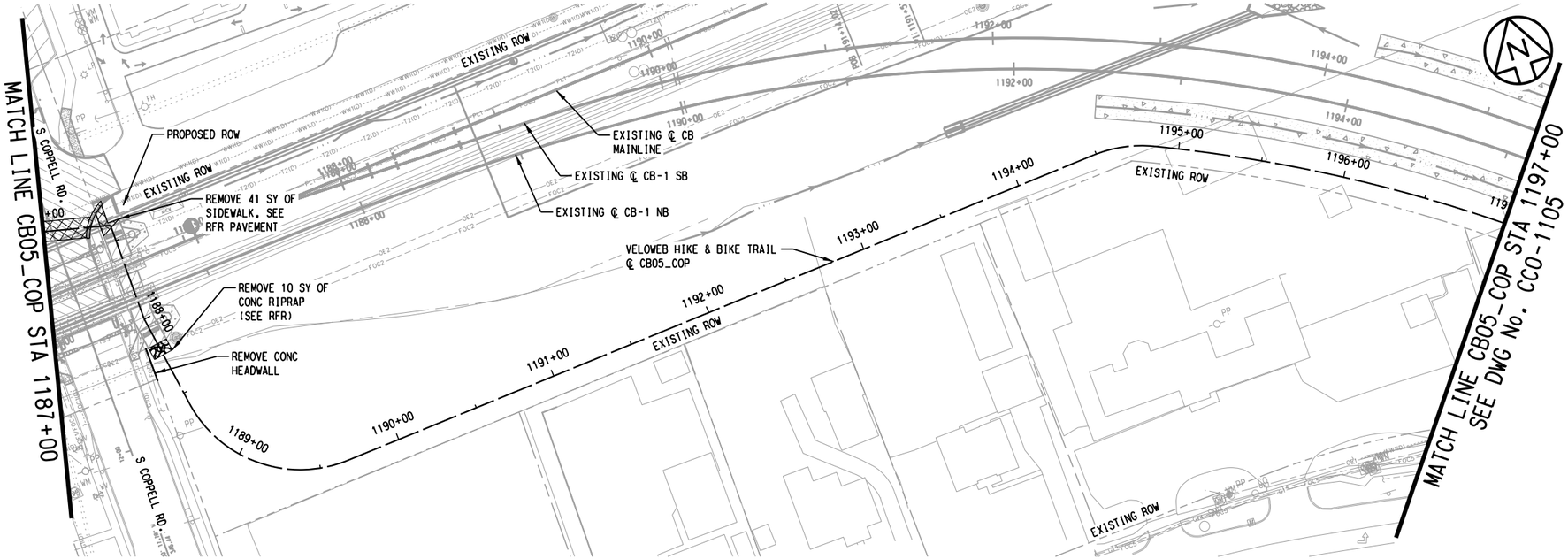
CONTRACT	DWG No.	REV
C-2033270-01	CCO-1103	D

CB05-CCO-1103.040

30-AUG-2023 16:30
CB05-CCO-1103.040
ssaleh
Default

DWG No. CCO-1104





SCALE (IN FEET)
HORIZ 0 20 40 80

LEGEND:

CONCRETE REMOVAL

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.
2. CONTRACTOR SHALL PROTECT IN PLACE EXISITING PAVEMENT, STRUCTURES, METERS, UTILITY VAULTS, LANDSCAPING MATERIALS AND APPURTENANCES WHICH ARE NOT BEING DEMOLISHED.

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CONTRACT SHEET No. 62 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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12801 N Central Expressway, Suite 1250
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ARCHER WESTERN HERZOG

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

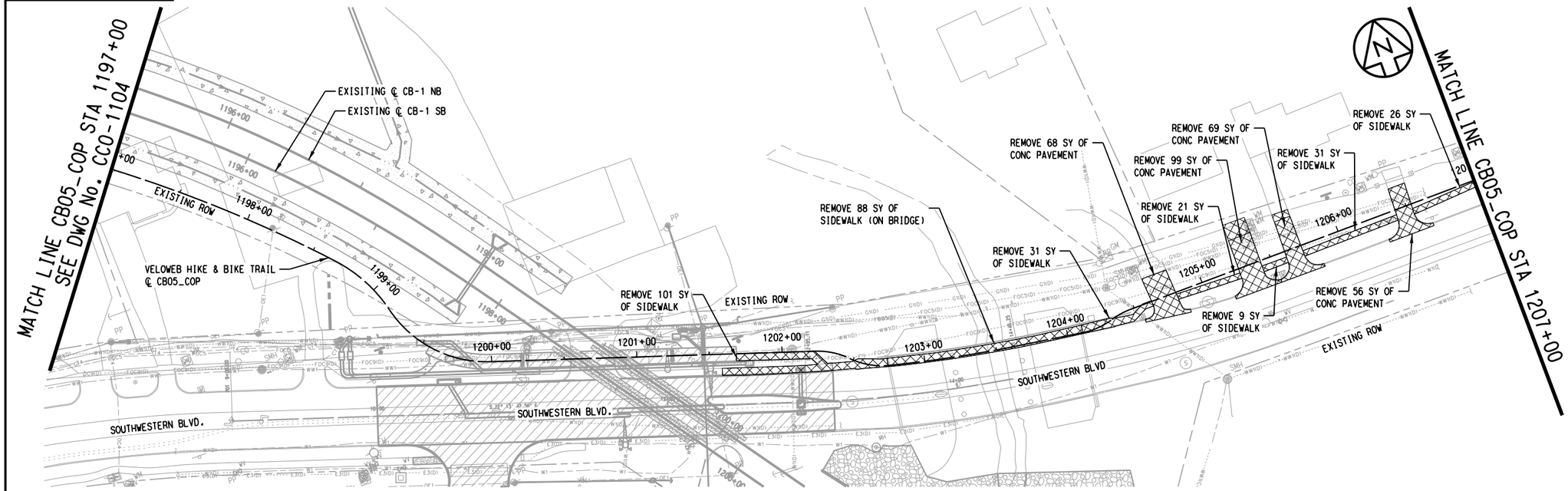
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
REMOVAL LAYOUT
STA 1177+00 TO STA 1197+00
SHEET 5 OF 11

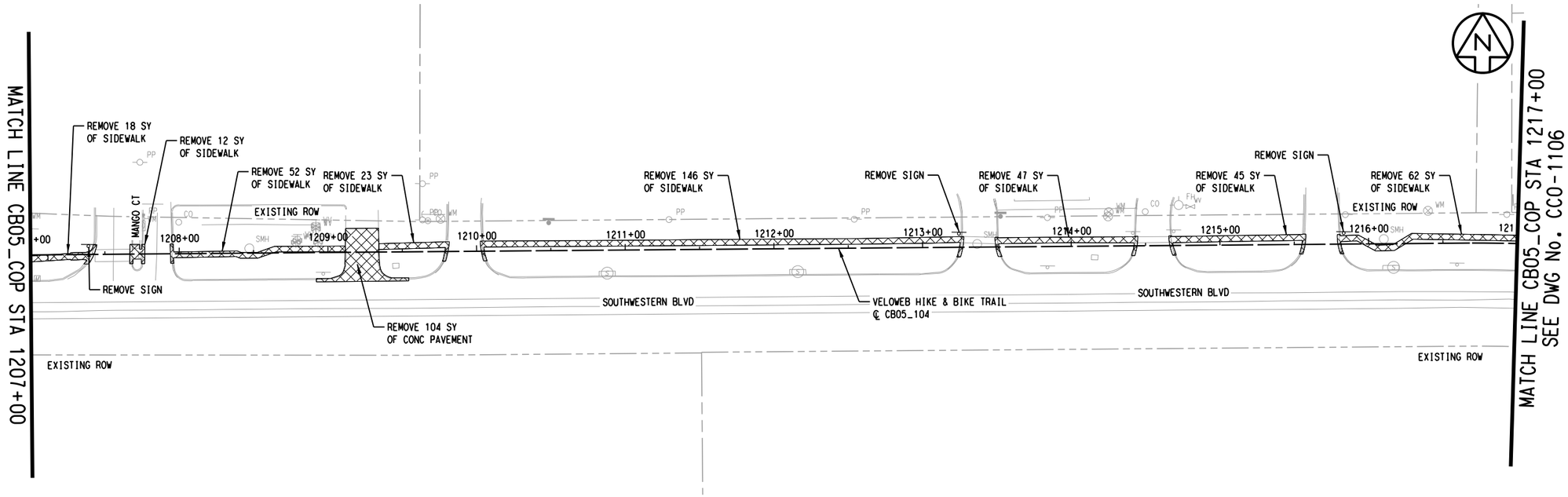
CONTRACT	DWG No.	REV
C-2033270-01	CCO-1104	D

CB05-CCO-1104.040

30-AUG-2023 16:30
CB05-CCO-1104.040
ssaleh
Default

DWG No. CCO-1105





SCALE (IN FEET)
HORIZ 0 20 40 80

LEGEND:

CONCRETE REMOVAL

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.
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CONTRACT SHEET No. 63 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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Phone: +1 (214) 638-0145
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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
REMOVAL LAYOUT
STA 1197+00 TO STA 1217+00
SHEET 6 OF 11

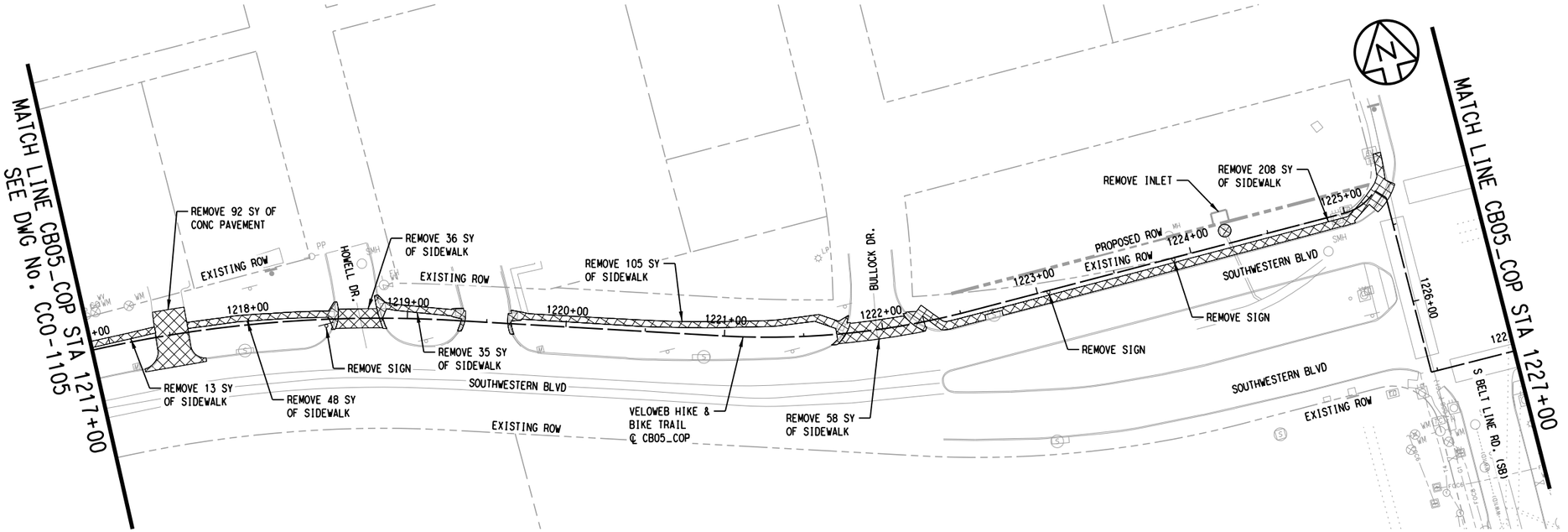
CONTRACT	DWG No.	REV
C-2033270-01	CCO-1105	D

CB05-CCO-1105.040

30-AUG-2023 16:30
CB05-CCO-1105.040

ssoleh
Default

DWG No. CCO-1106



SCALE (IN FEET)
HORIZ 0 20 40 80

LEGEND:

CONCRETE REMOVAL

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.
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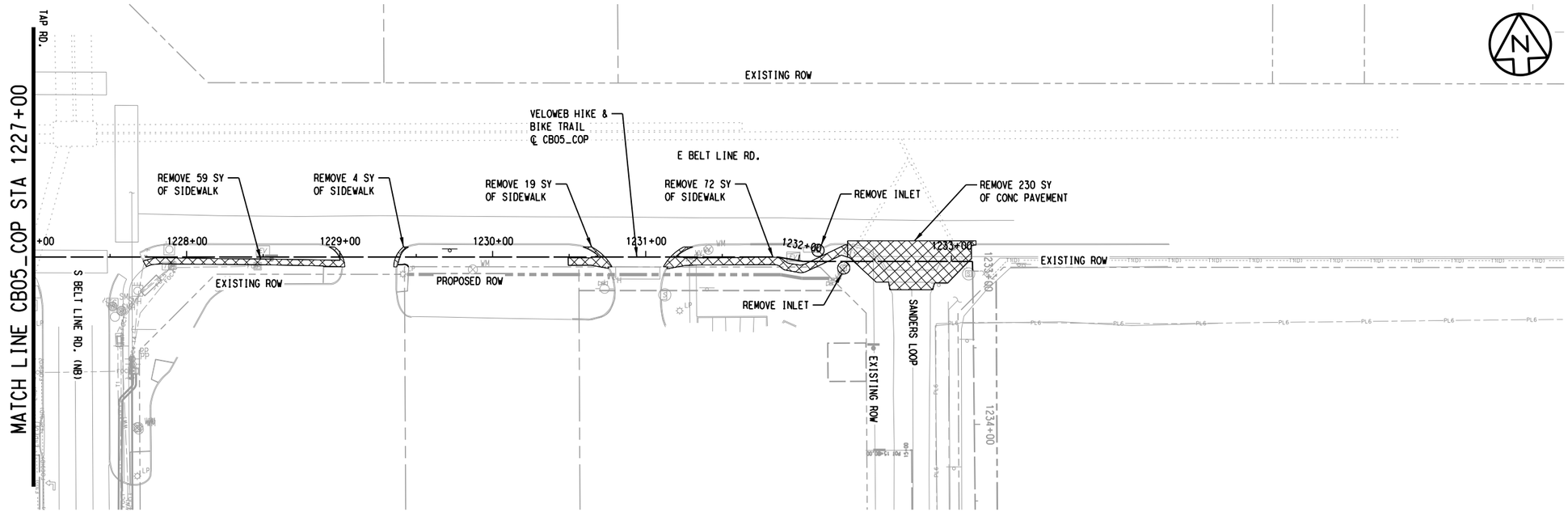

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CONTRACT SHEET No. 64 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
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DRAWN	C. BAGBY
DESIGNED	C.BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

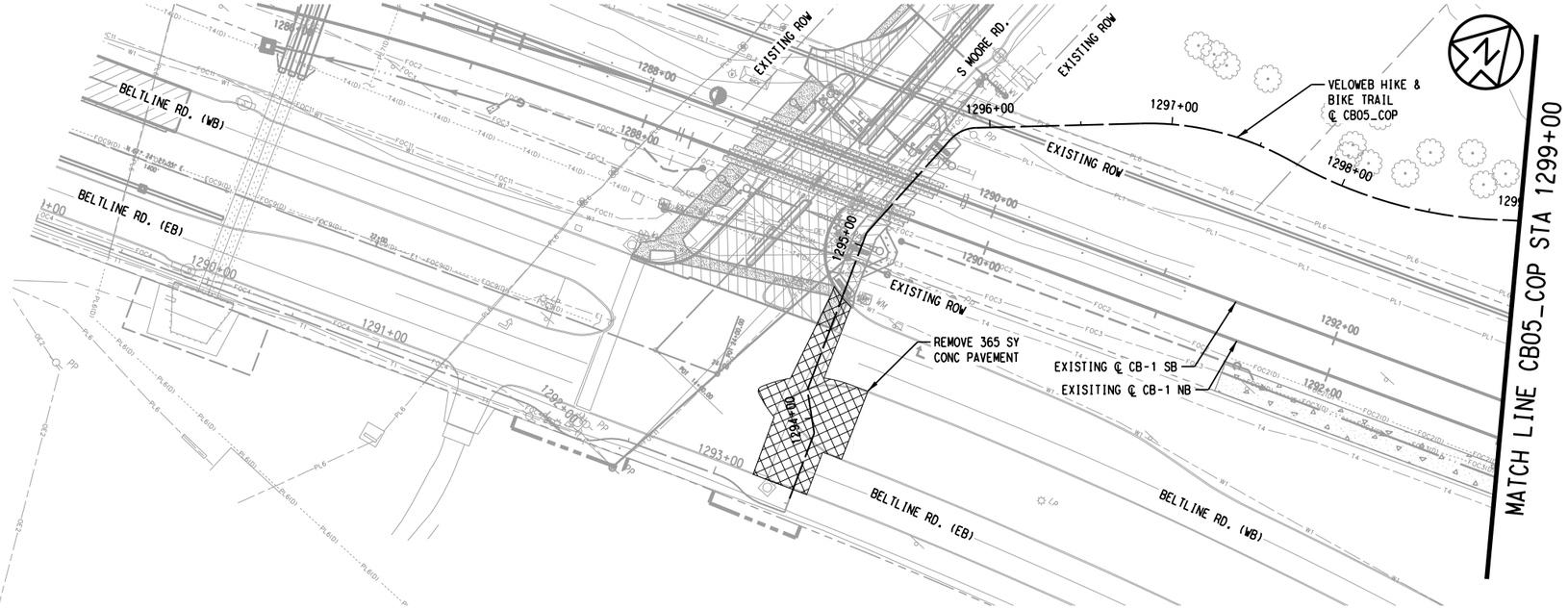
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
REMOVAL LAYOUT
STA 1217+00 TO STA 1232+95.57
SHEET 7 OF 11

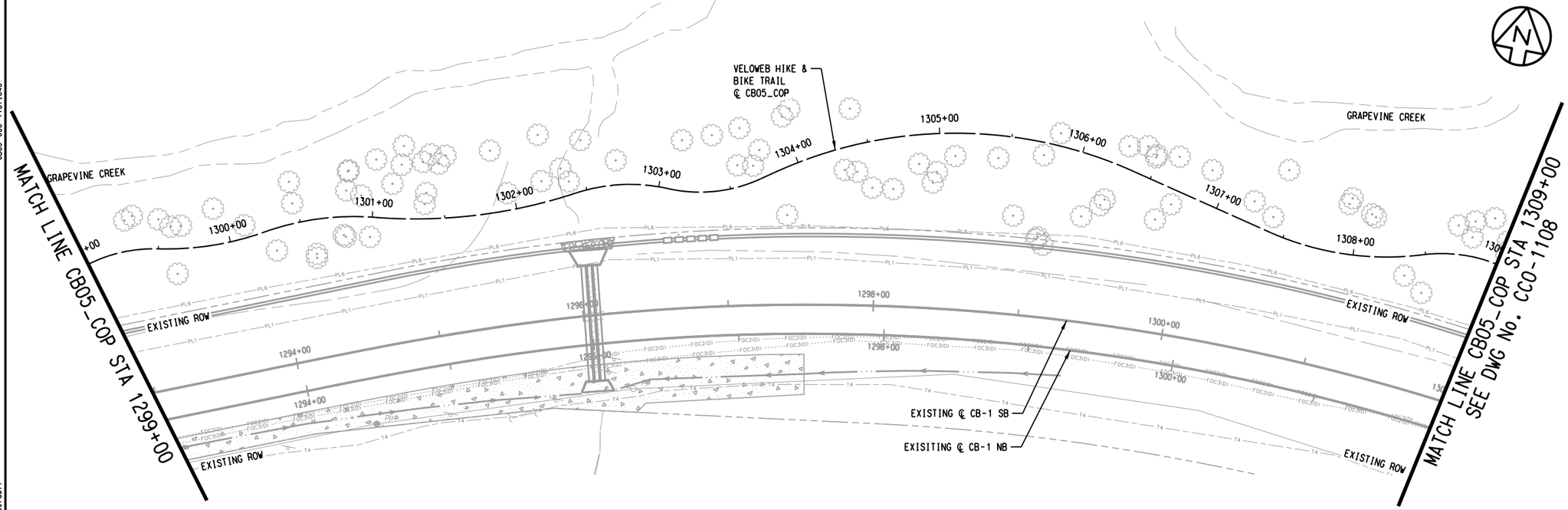
CONTRACT	DWG No.	REV
C-2033270-01	CCO-1106	D

CB05-CCO-1106.040

30-AUG-2023 16:30
CB05-CCO-1106.040
ssaleh
Default

DWG No. CCO-1107





SCALE (IN FEET)
HORIZ 0 20 40 80

LEGEND:

CONCRETE REMOVAL

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.
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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

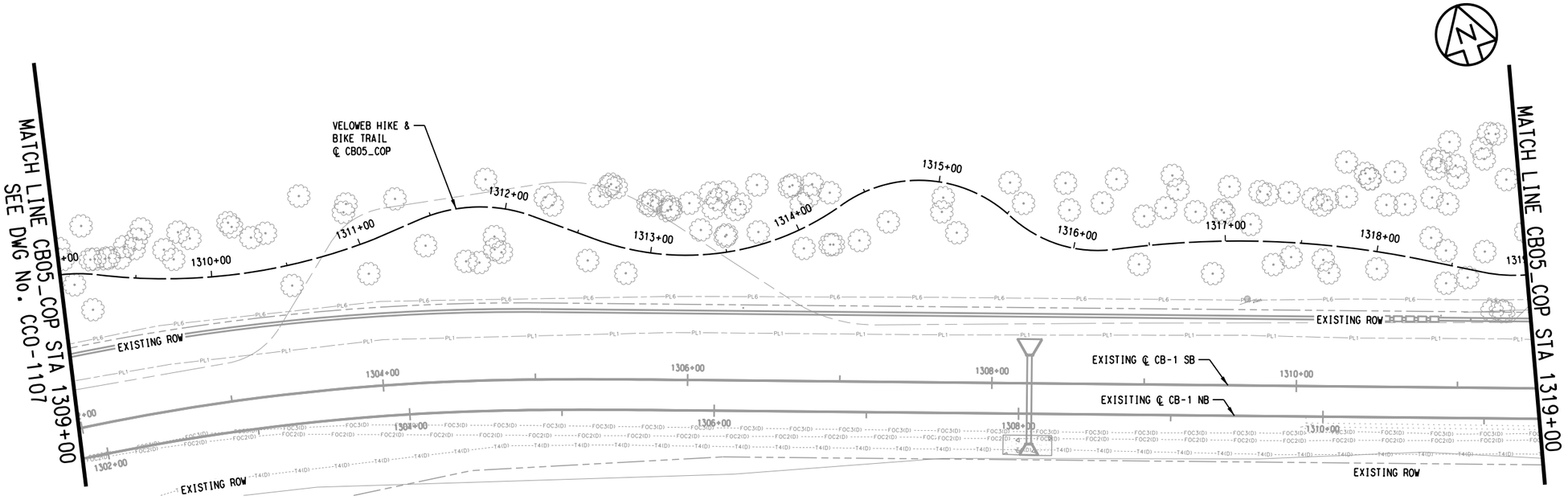
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
REMOVAL LAYOUT
STA 1294+69.75 TO STA 1309+00
SHEET 8 OF 11

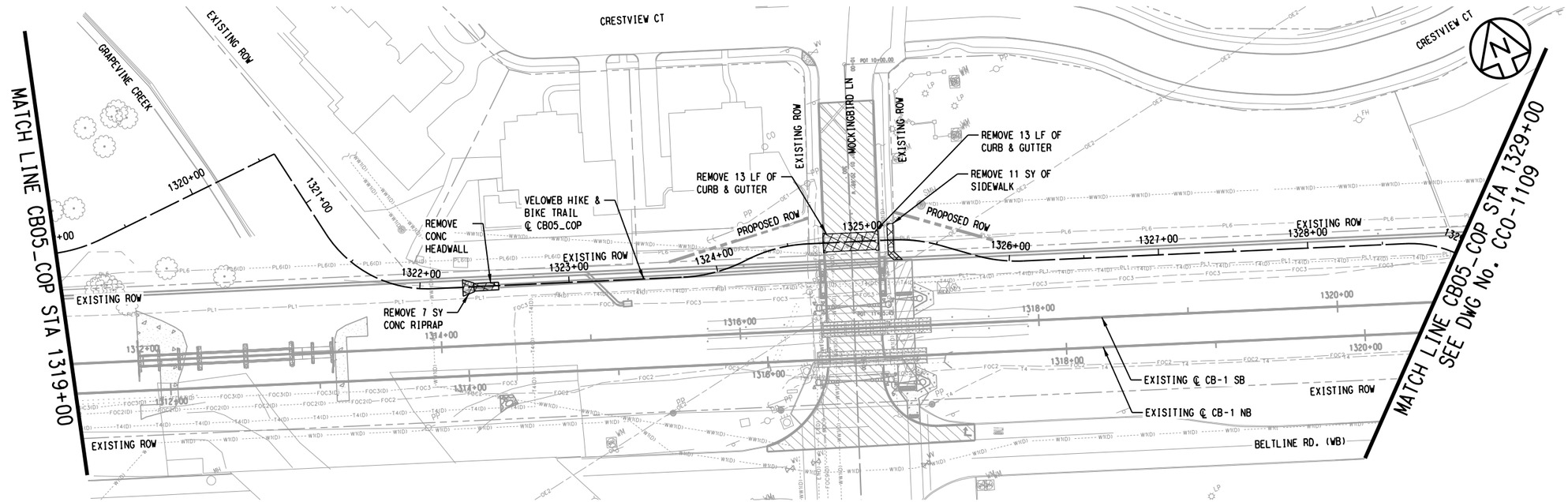
CONTRACT	DWG No.	REV
C-2033270-01	CCO-1107	D

CB05-CCO-1107.040

30-AUG-2023 16:31
CB05-CCO-1107.040
ssoleh
Default

DWG No. CCO-1108





SCALE (IN FEET)
HORIZ 0 20 40 80

LEGEND:

CONCRETE REMOVAL

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.
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CONTRACT SHEET No. 66 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
REMOVAL LAYOUT
STA 1309+00 TO STA 1329+00
SHEET 9 OF 11

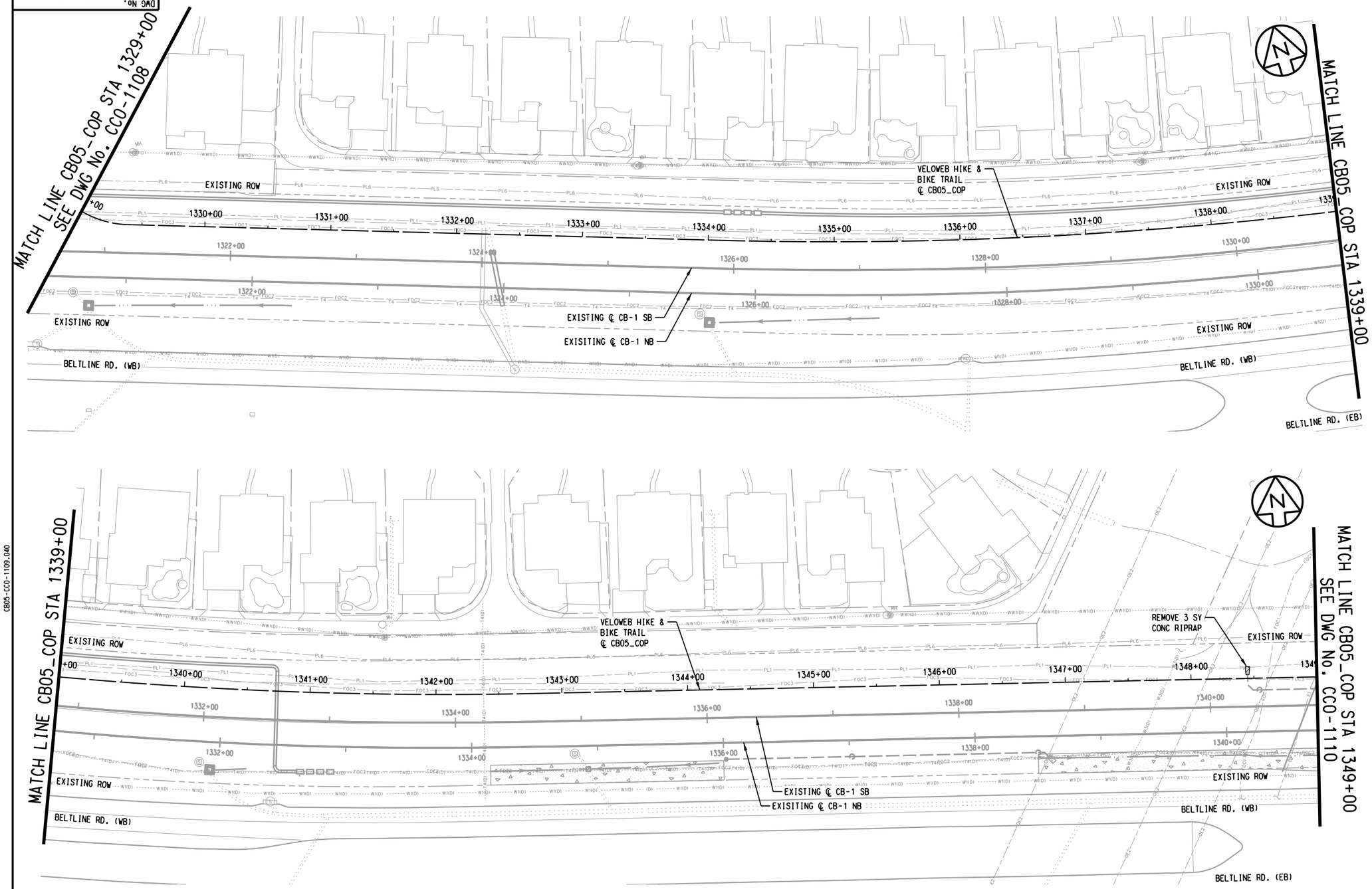
CONTRACT	DWG No.	REV
C-2033270-01	CCO-1108	D

CB05-CCO-1108.040

30-AUG-2023 16:31
CB05-CCO-1108.040

ssaleh
Default

DWG No. CCO-1109



SCALE (IN FEET)
HORIZ 0 20 40 80

LEGEND:

CONCRETE REMOVAL

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.
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CONTRACT SHEET No. 67 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
REMOVAL LAYOUT
STA 1329+00 TO STA 1349+00
SHEET 10 OF 11

CONTRACT	DWG No.	REV
C-2033270-01	CCO-1109	D

CB05-CCO-1109.040

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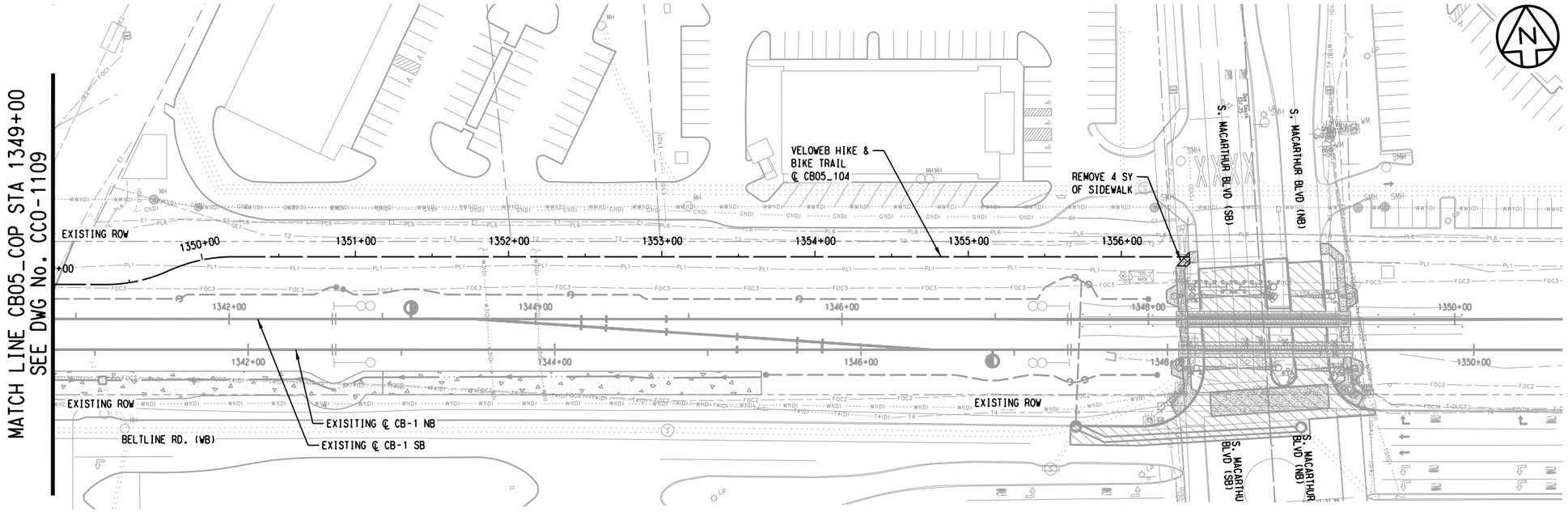
DWG No. CCO-1110



SCALE (IN FEET)
HORIZ 0 20 40 80

LEGEND:

CONCRETE REMOVAL

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.
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ssaleh
Default

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

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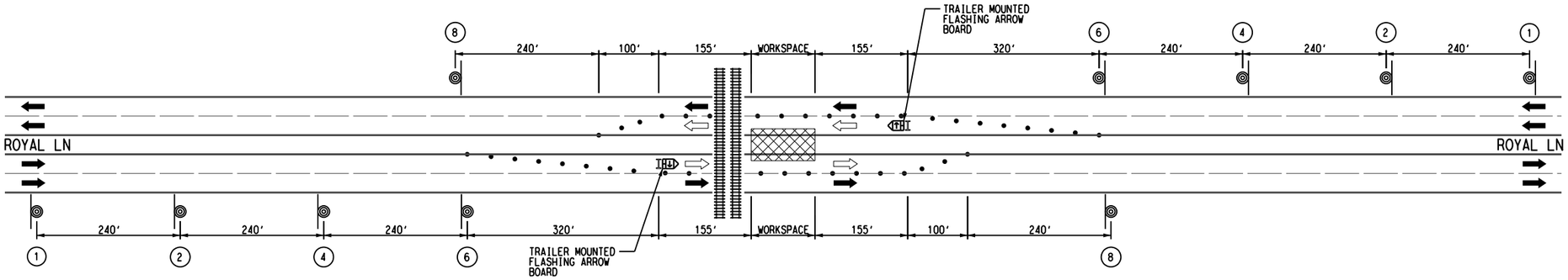
CONTRACT SHEET No. 68 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
REMOVAL LAYOUT
STA 1349+00 TO STA 1356+44.45
SHEET 11 OF 11

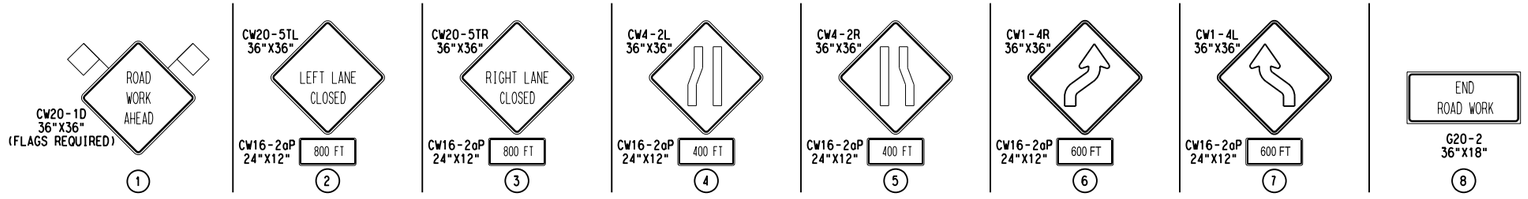
CONTRACT	DWG No.	REV
C-2033270-01	CCO-1110	D

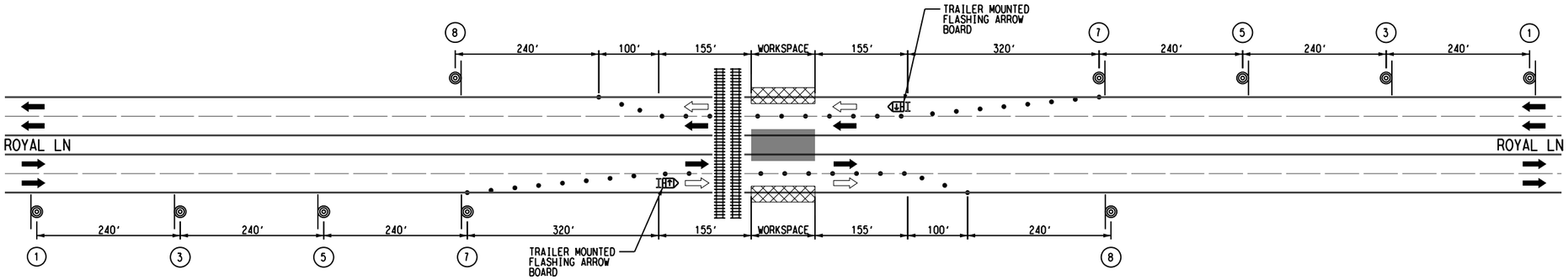
CB05-CCO-1110.040

DWG No. CC3-1500



PHASE 1





PHASE 2

LEGEND

- CONSTRUCTION THIS PHASE
- COMPLETED PERMANENT CONSTRUCTION
- SIGN
- CHANNELIZING DEVICE
- TRAFFIC DIRECTION ARROWS (OPEN LANE)
- TRAFFIC DIRECTION ARROWS (CLOSED LANE)
- TY III BARRICADE

NOTES:

1. INSTALL ALL BARRICADES, CHANNELING DEVICES, SIGNS, AND PORTABLE SIGNALS AS SHOWN ON THE PLAN. THIS WORK SHALL BE IN ACCORDANCE WITH THE TMUTCD 2011-REV 2, AND AS DIRECTED BY THE ENGINEER.

2. ANY EXISTING SIGNS IN CONFLICT WITH THE PROPOSED TRAFFIC CONTROL SHALL BE REMOVED OR COVERED TEMPORARILY DURING CONSTRUCTION AS DIRECTED.

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 69 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
ROYAL LN
TRAFFIC CONTROL PLAN

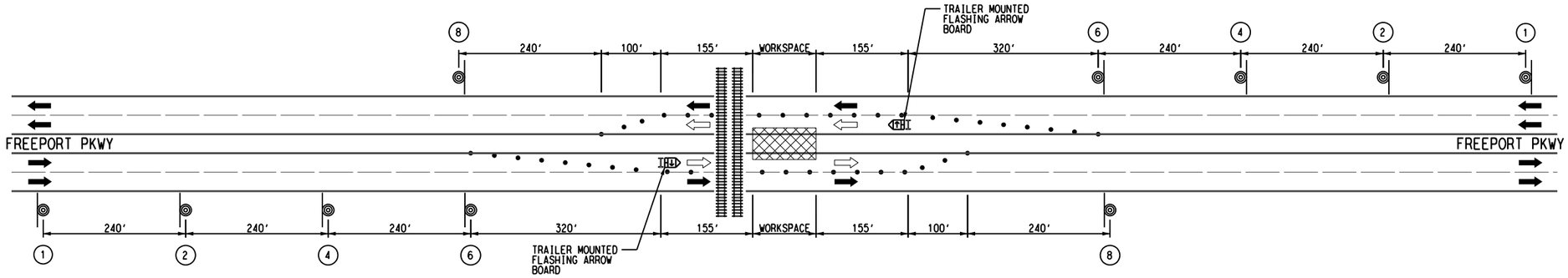
CONTRACT	DWG No.	REV
C-2033270-01	CC3-1500	D

CB05-CC3-1500.001

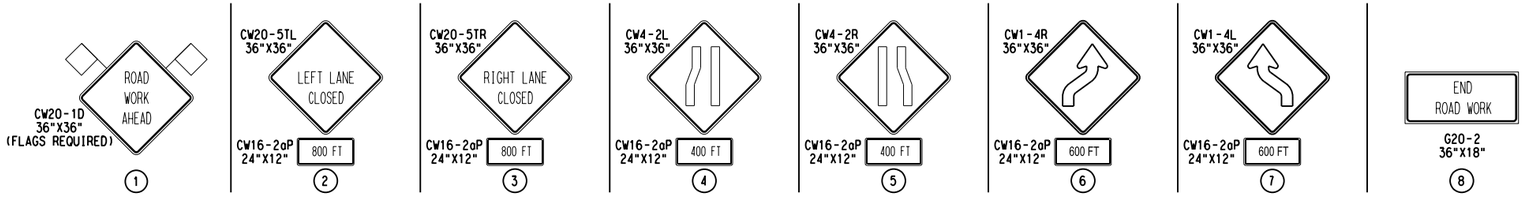
30-AUG-2023 16:42
CB05-CC3-1500.001

ssaleh
Default

DWG No. CC3-1501



PHASE 1



LEGEND

- CONSTRUCTION THIS PHASE
- COMPLETED PERMANENT CONSTRUCTION
- SIGN
- CHANNELIZING DEVICE
- TRAFFIC DIRECTION ARROWS (OPEN LANE)
- TRAFFIC DIRECTION ARROWS (CLOSED LANE)
- TY III BARRICADE

NOTES:

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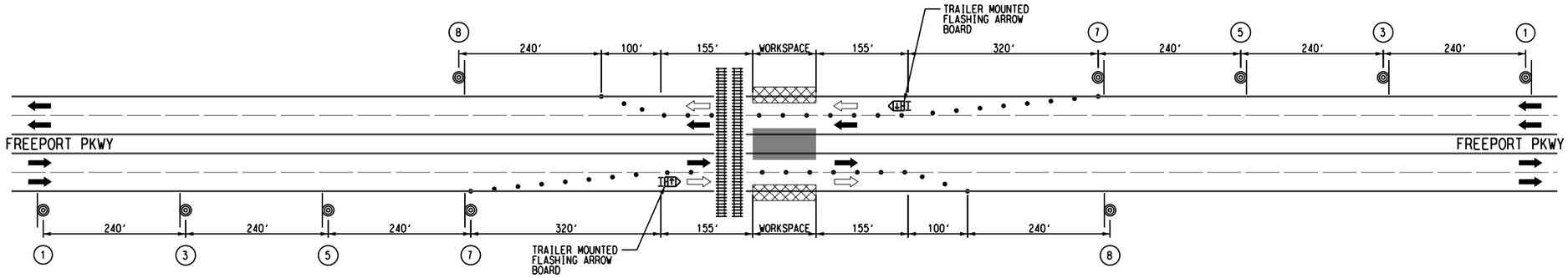

PHASE 2

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CONTRACT SHEET No. 70 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARCHER WESTERN HERZOG

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
FREEPORT PKWY
TRAFFIC CONTROL PLAN

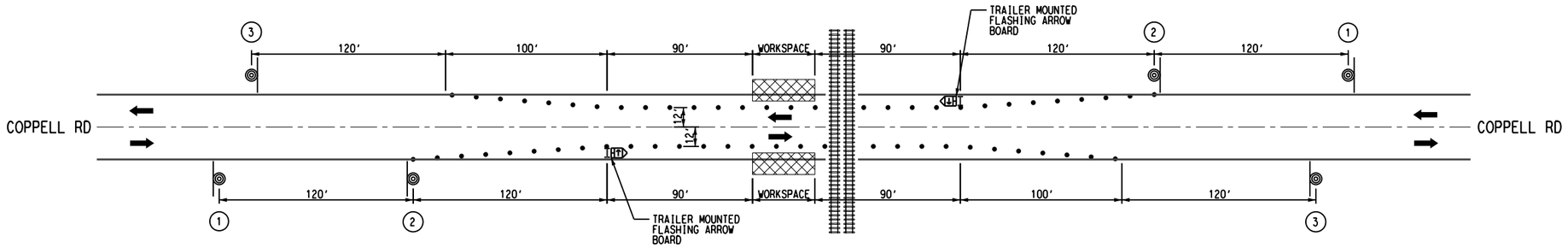
CONTRACT	DWG No.	REV
C-2033270-01	CC3-1501	D

CB05-CC3-1501.001

30-AUG-2023 16:42
CB05-CC3-1501.001

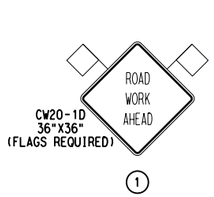
ssaleh
Default

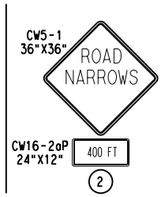
DWG No. CC3-1502

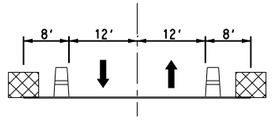


LEGEND

- CONSTRUCTION THIS PHASE
- COMPLETED PERMANENT CONSTRUCTION
- SIGN
- CHANNELIZING DEVICE
- TRAFFIC DIRECTION ARROWS (OPEN LANE)
- TRAFFIC DIRECTION ARROWS (CLOSED LANE)
- TY III BARRICADE







TCP TYPICAL
NARROWING LANES

NOTES:

1. INSTALL ALL BARRICADES, CHANNELING DEVICES, SIGNS, AND PORTABLE SIGNALS AS SHOWN ON THE PLAN. THIS WORK SHALL BE IN ACCORDANCE WITH THE TMUTCD 2011-REV 2, AND AS DIRECTED BY THE ENGINEER.

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
COPPELL RD
TRAFFIC CONTROL PLAN

CONTRACT	DWG No.	REV
C-2033270-01	CC3-1502	D

CB05-CC3-1502.001

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CB05-CC3-1502.001

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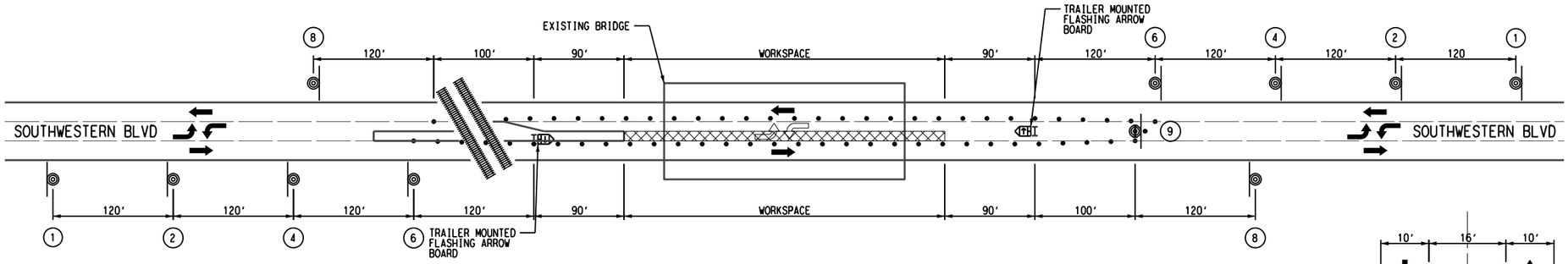
DWG No. CC3-1503



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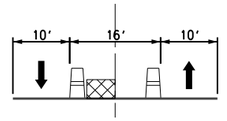
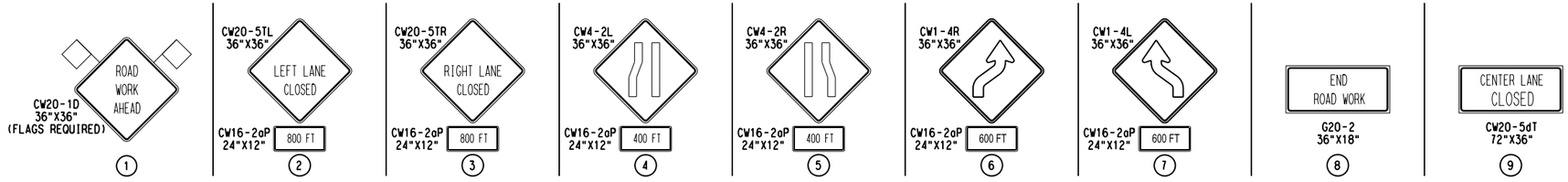


TCP TYPICAL
NARROWING LANES

LEGEND

- CONSTRUCTION THIS PHASE
- COMPLETED PERMANENT CONSTRUCTION
- SIGN
- CHANNELIZING DEVICE
- TRAFFIC DIRECTION ARROWS (OPEN LANE)
- TRAFFIC DIRECTION ARROWS (CLOSED LANE)
- TY III BARRICADE



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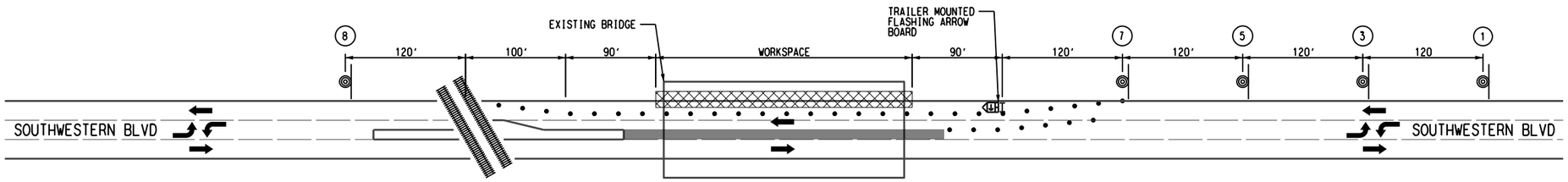
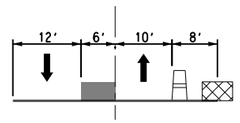


PHASE 2



TCP TYPICAL
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DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
SOUTHWESTERN BLVD
TRAFFIC CONTROL PLAN

CONTRACT	DWG No.	REV
C-2033270-01	CC3-1503	D

CB05-CC3-1503.001

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CB05-CC3-1503.001

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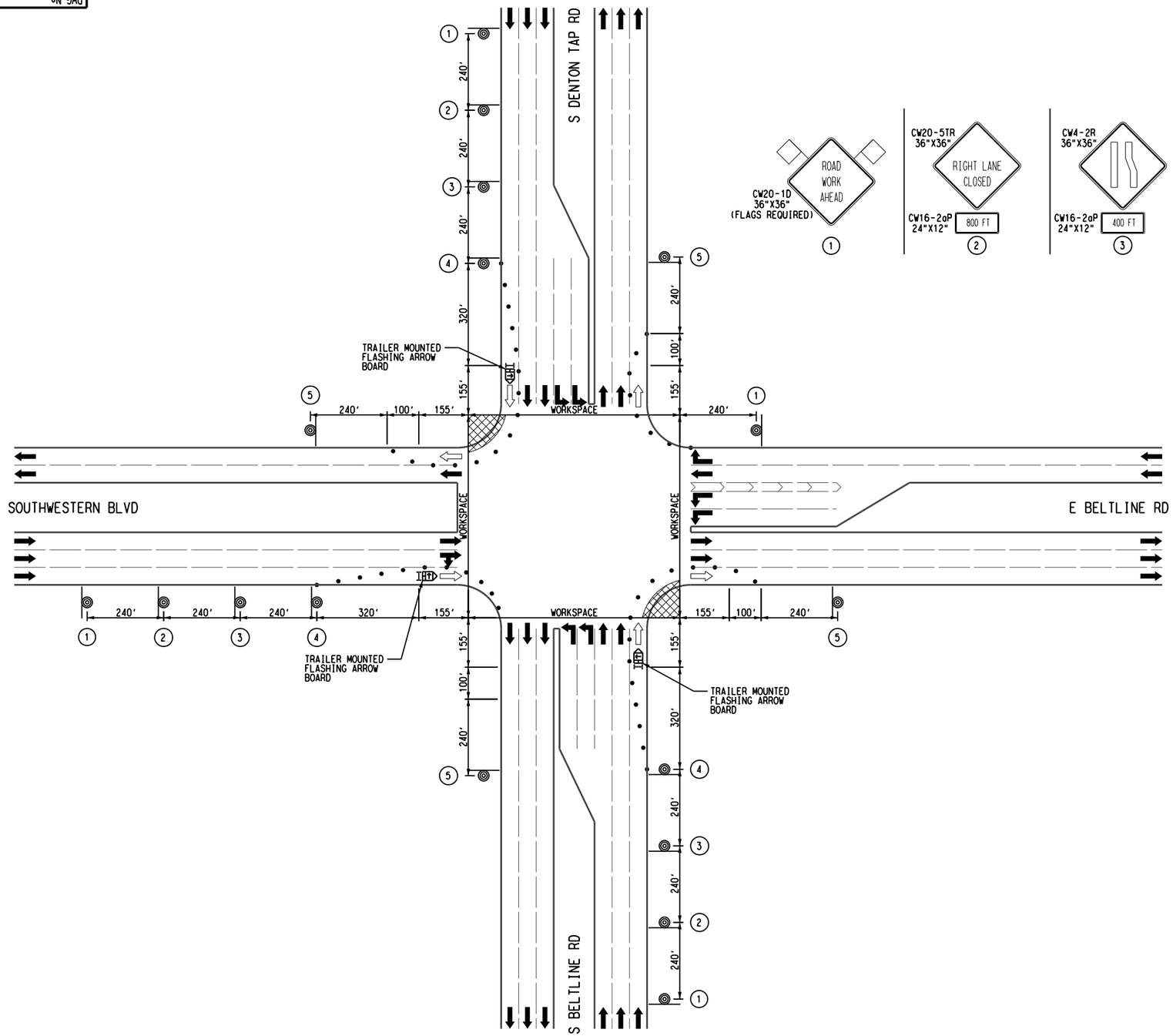
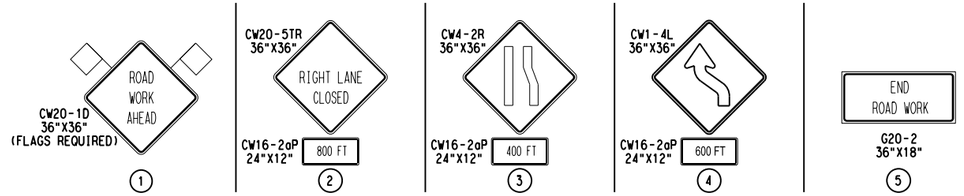
DWG No. CC3-1505





LEGEND

- CONSTRUCTION THIS PHASE
- COMPLETED PERMANENT CONSTRUCTION
- SIGN
- CHANNELIZING DEVICE
- TRAFFIC DIRECTION ARROWS (OPEN LANE)
- TRAFFIC DIRECTION ARROWS (CLOSED LANE)
- TY III BARRICADE

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CONTRACT SHEET No. 73 OF 378

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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
DENTON TAP RD
TRAFFIC CONTROL PLAN

CONTRACT	DWG No.	REV
C-2033270-01	CC3-1505	D

CB05-CC3-1505.001

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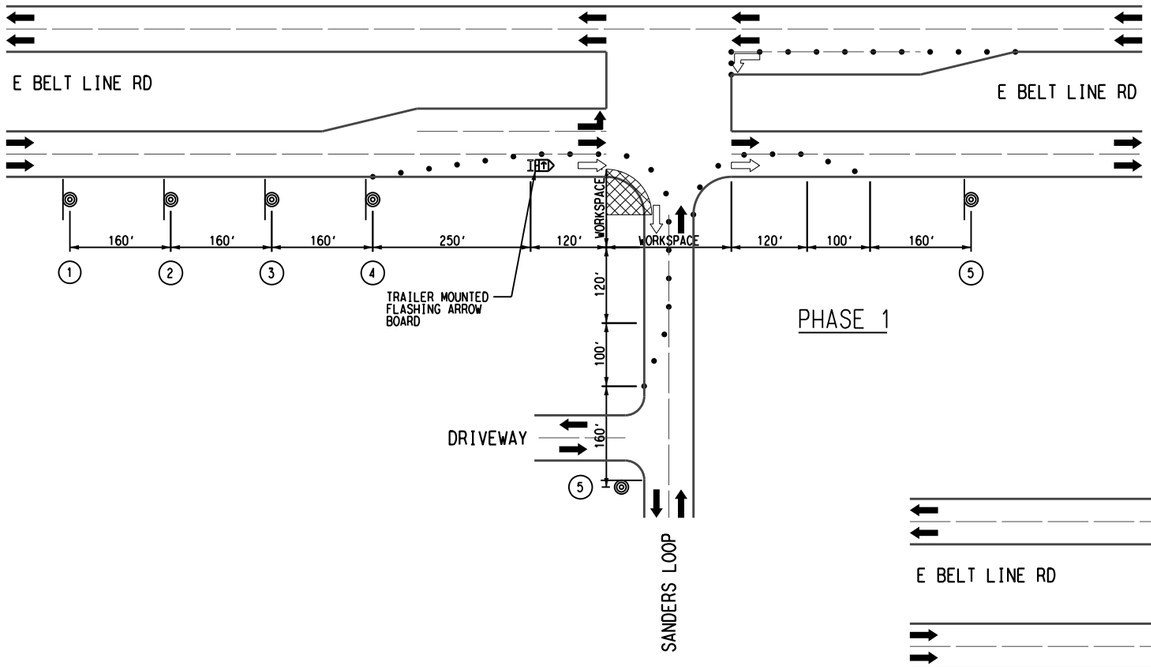
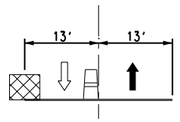
DWG No. CC3-1506



PHASE 1



TCP TYPICAL
LANE CLOSURE

LEGEND

- CONSTRUCTION THIS PHASE
- COMPLETED PERMANENT CONSTRUCTION
- SIGN
- CHANNELIZING DEVICE
- TRAFFIC DIRECTION ARROWS (OPEN LANE)
- TRAFFIC DIRECTION ARROWS (CLOSED LANE)
- TY III BARRICADE

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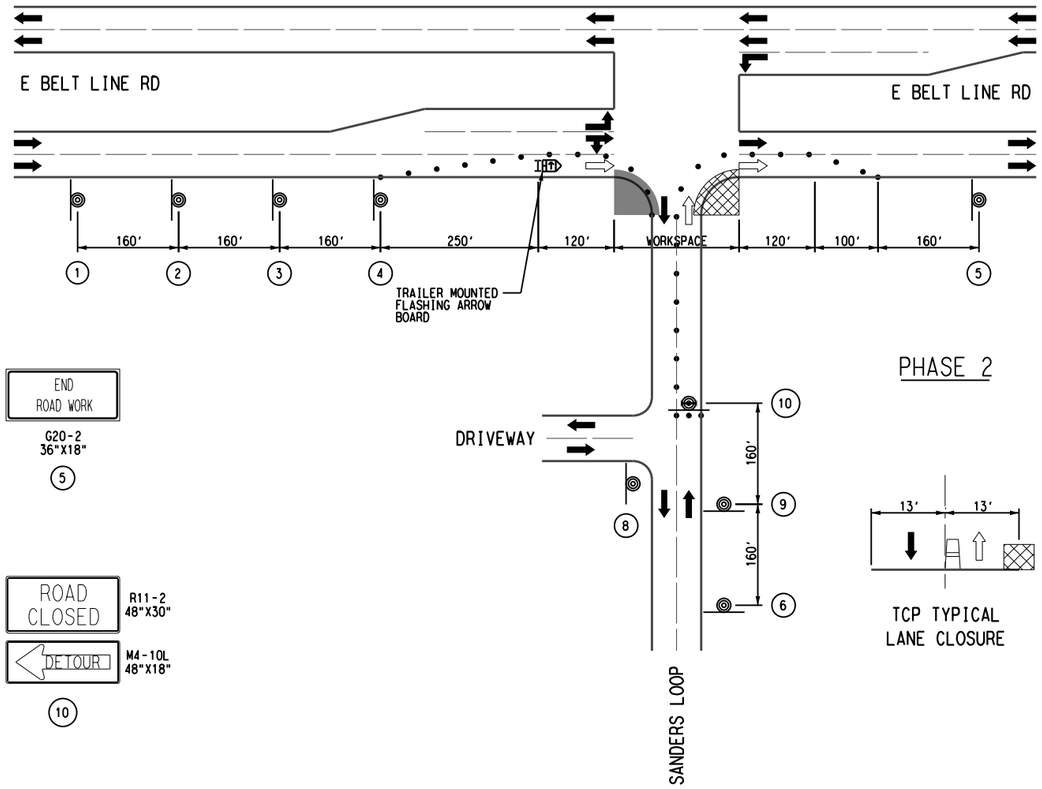
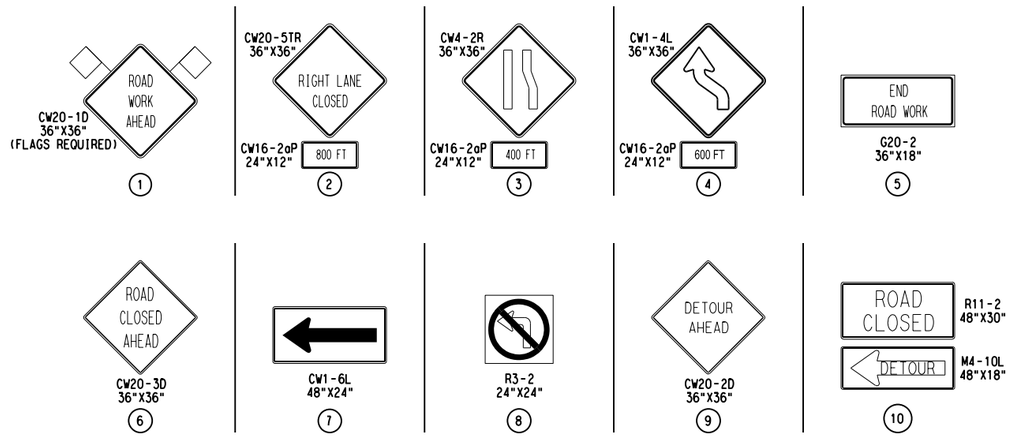


PHASE 2

TCP TYPICAL
LANE CLOSURE



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CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
SANDERS LOOP
TRAFFIC CONTROL PLAN

CONTRACT	DWG No.	REV
C-2033270-01	CC3-1506	D

CB05-CC3-1506.001

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CB05-CC3-1506.001
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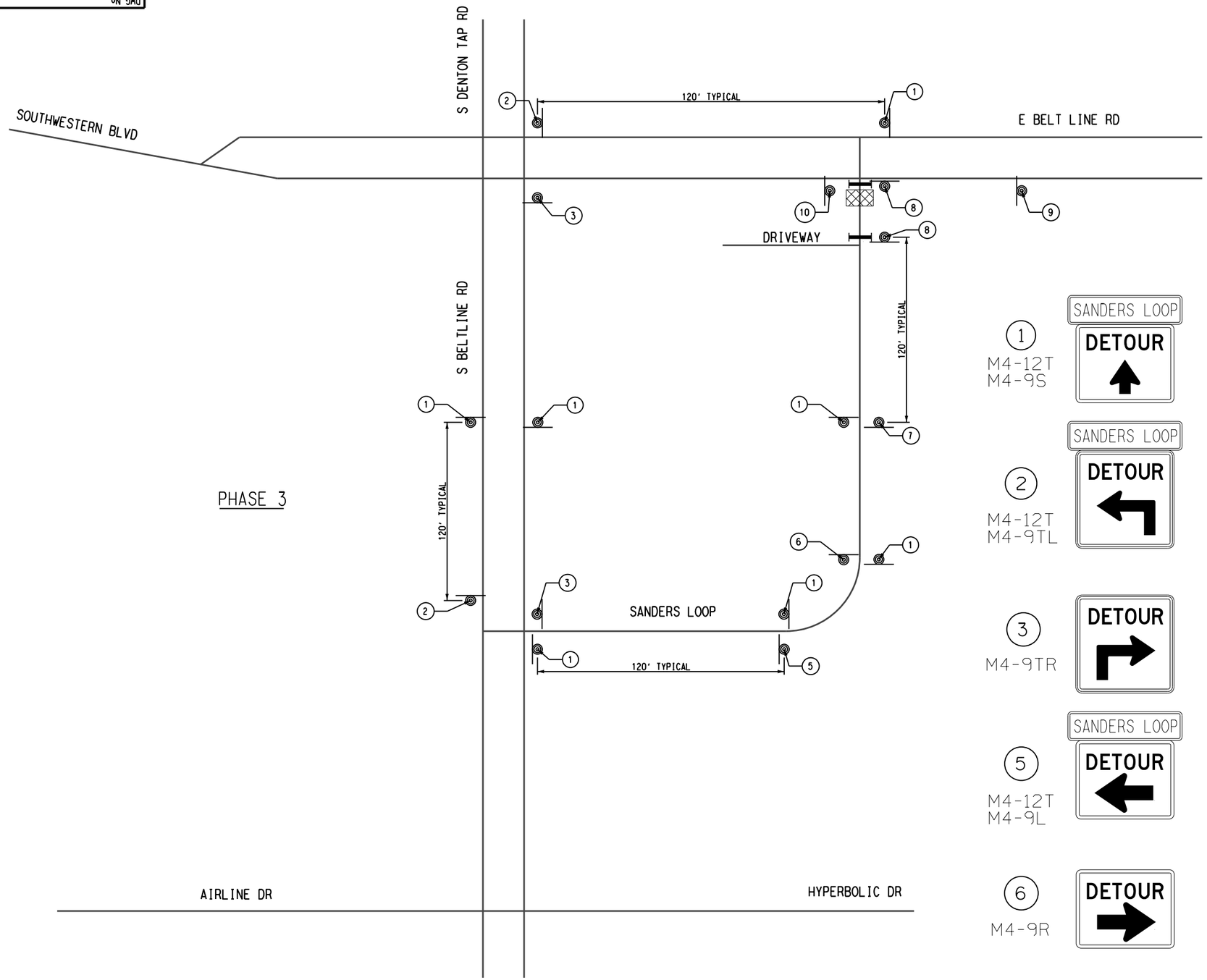
DWG No. CC3-1507



1 M4-12T M4-9S

2 M4-12T M4-9TL

3 M4-9TR

5 M4-12T M4-9L

6 M4-9R

7 CW20-3D

8 R11-2

9 M4-8A

10 R3-1

LEGEND

- CONSTRUCTION THIS PHASE
- COMPLETED PERMANENT CONSTRUCTION
- SIGN
- CHANNELIZING DEVICE
- TRAFFIC DIRECTION ARROWS (OPEN LANE)
- TRAFFIC DIRECTION ARROWS (CLOSED LANE)
- TY III BARRICADE

NOTES:

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
SANDERS LOOP DETOUR
TRAFFIC CONTROL PLAN

CONTRACT	DWG No.	REV
C-2033270-01	CC3-1507	D

CB05-CC3-1507.001

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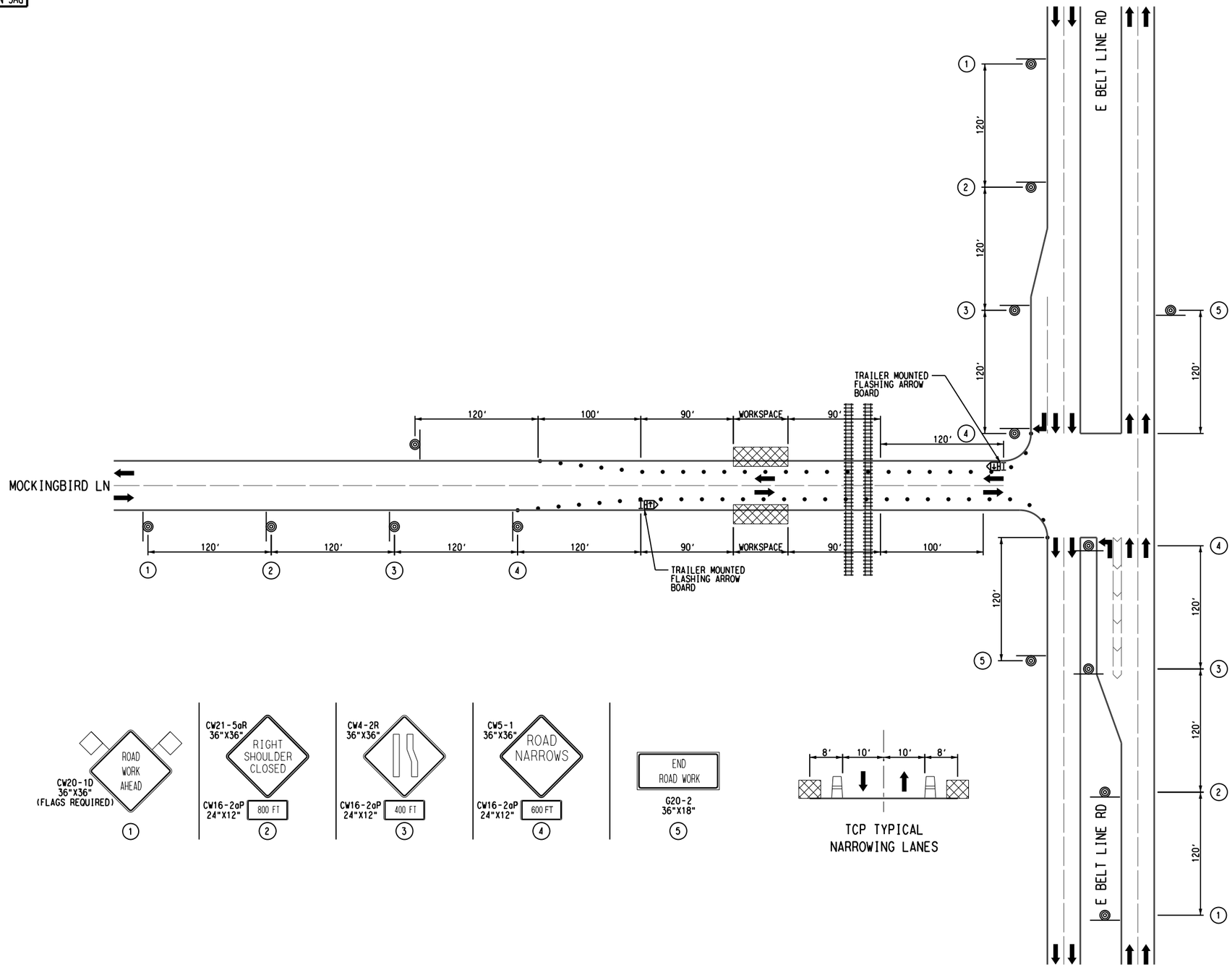
DWG No. CC3-1508



TCP TYPICAL
NARROWING LANES

LEGEND

- CONSTRUCTION THIS PHASE
- COMPLETED PERMANENT CONSTRUCTION
- SIGN
- CHANNELIZING DEVICE
- TRAFFIC DIRECTION ARROWS (OPEN LANE)
- TRAFFIC DIRECTION ARROWS (CLOSED LANE)
- TY III BARRICADE

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
MOCKINGBIRD LN
TRAFFIC CONTROL PLAN

CONTRACT	DWG No.	REV
C-2033270-01	CC3-1508	D

CB05-CC3-1508.001

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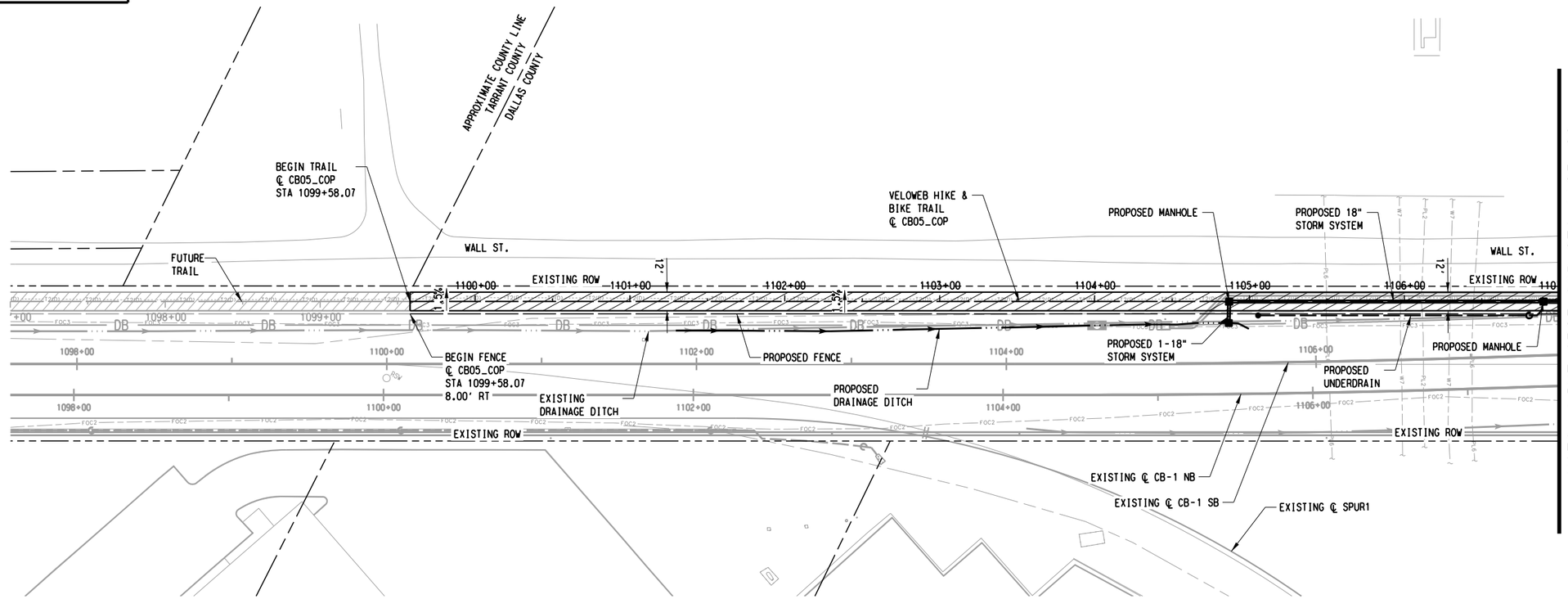
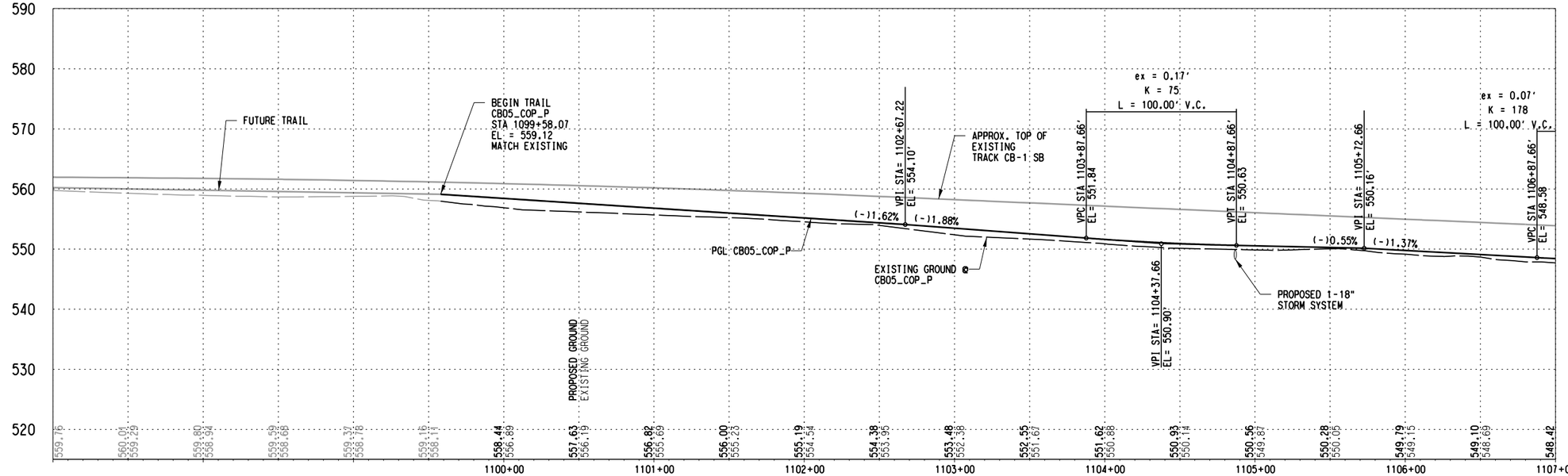
DWG No. CC1-1040



MATCH LINE CB05 COP STA 1107+00
SEE DWG No. CB05-CC1-1041



LEGEND:

- TRAIL PAVEMENT
- 1.5% → TRAIL CROSS-SLOPE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
2. SEE SURVEY CONTROL SHEETS FOR BENCHMARK LOCATIONS.
3. SEE DRAINAGE PLAN AND PROFILE SHEETS FOR TRAIL DRAINAGE DESIGN.
4. SEE RETAINING WALL LAYOUT SHEETS FOR ADDITIONAL INFORMATION.
5. SEE BRIDGE LAYOUT SHEETS FOR ADDITIONAL PEDESTRIAN BRIDGE INFORMATION.
6. SEE TYPICAL SECTION SHEETS FOR ADDITIONAL INFORMATION.
7. SIGN PLACEMENT SHALL BE AS PER CHAPTER 9 OF THE TMUTCD 2011 REV 2.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.

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CONTRACT SHEET No. 77 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
FIRM NO. F-819

ARCHER WESTERN HERZOG

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1099+58.07 TO STA 1107+00
SHEET 1 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1040	D

CB05-CC1-1040.040

30-AUG-2023 16:39
CB05-CC1-1040.040
ssoleh
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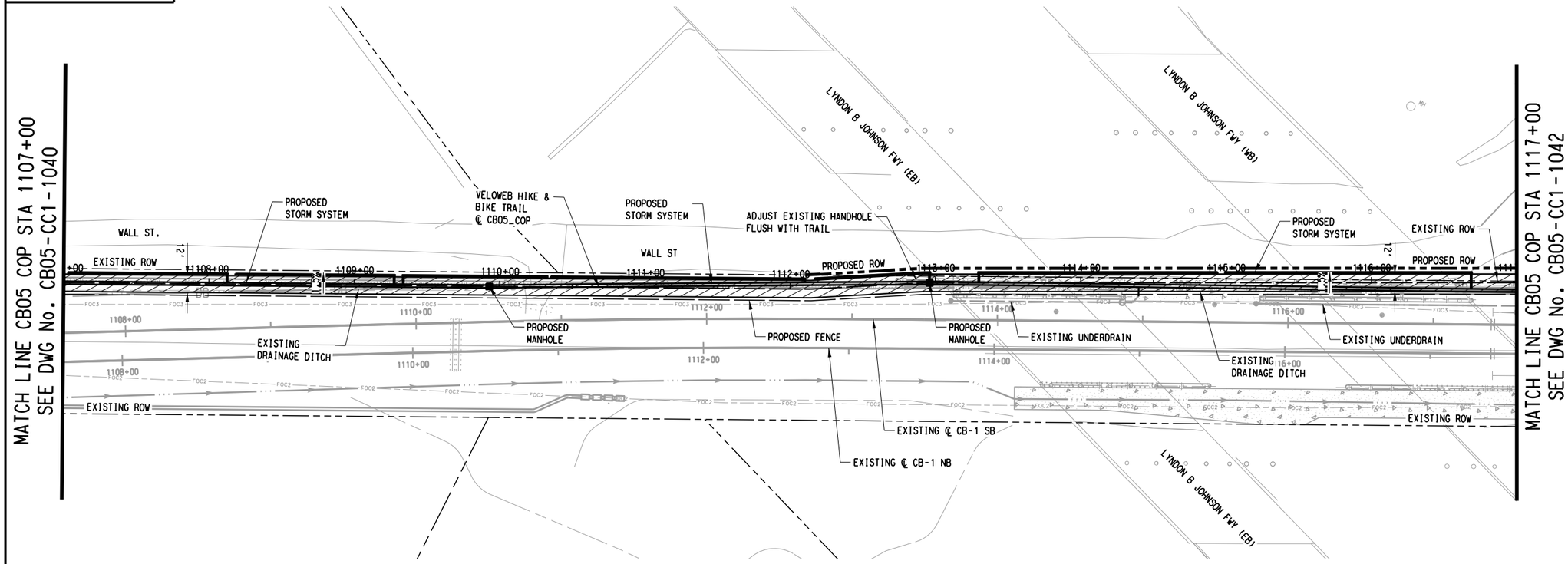
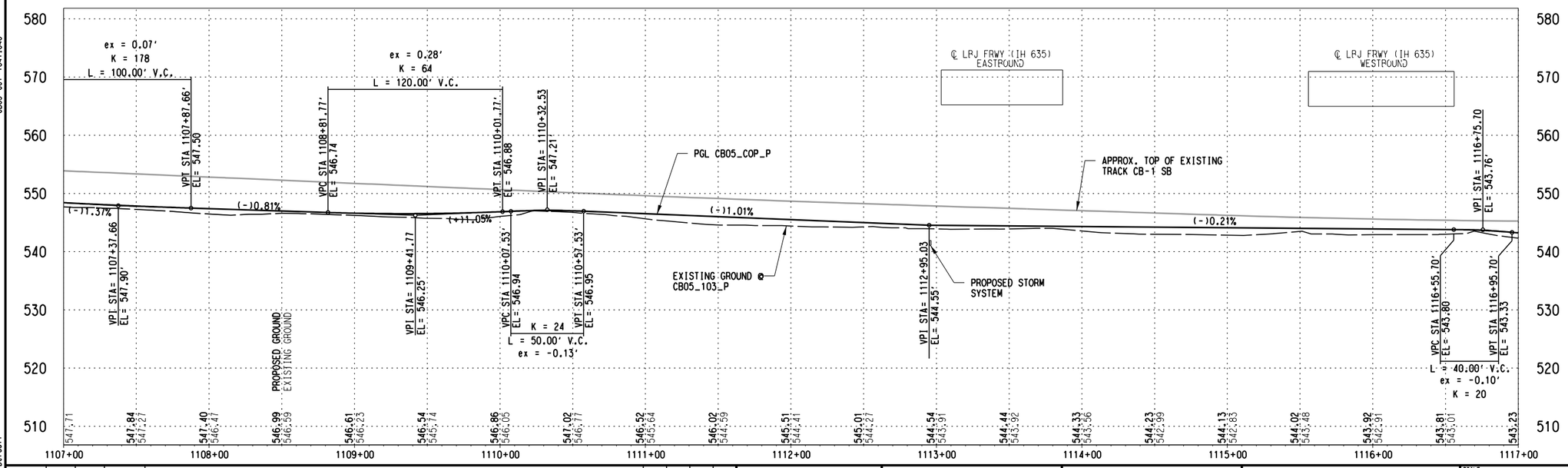
DWG No. CC1-1041





LEGEND:

TRAIL PAVEMENT

1.5% → TRAIL CROSS-SLOPE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
2. SEE SURVEY CONTROL SHEETS FOR BENCHMARK LOCATIONS.
3. SEE DRAINAGE PLAN AND PROFILE SHEETS FOR TRAIL DRAINAGE DESIGN.
4. SEE RETAINING WALL LAYOUT SHEETS FOR ADDITIONAL INFORMATION.
5. SEE BRIDGE LAYOUT SHEETS FOR ADDITIONAL PEDESTRIAN BRIDGE INFORMATION.
6. SEE TYPICAL SECTION SHEETS FOR ADDITIONAL INFORMATION.
7. SIGN PLACEMENT SHALL BE AS PER CHAPTER 9 OF THE TMUTCD 2011 REV 2.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.

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FINAL 100% DESIGN

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 78 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1107+00 TO STA 1117+00
SHEET 2 OF 21

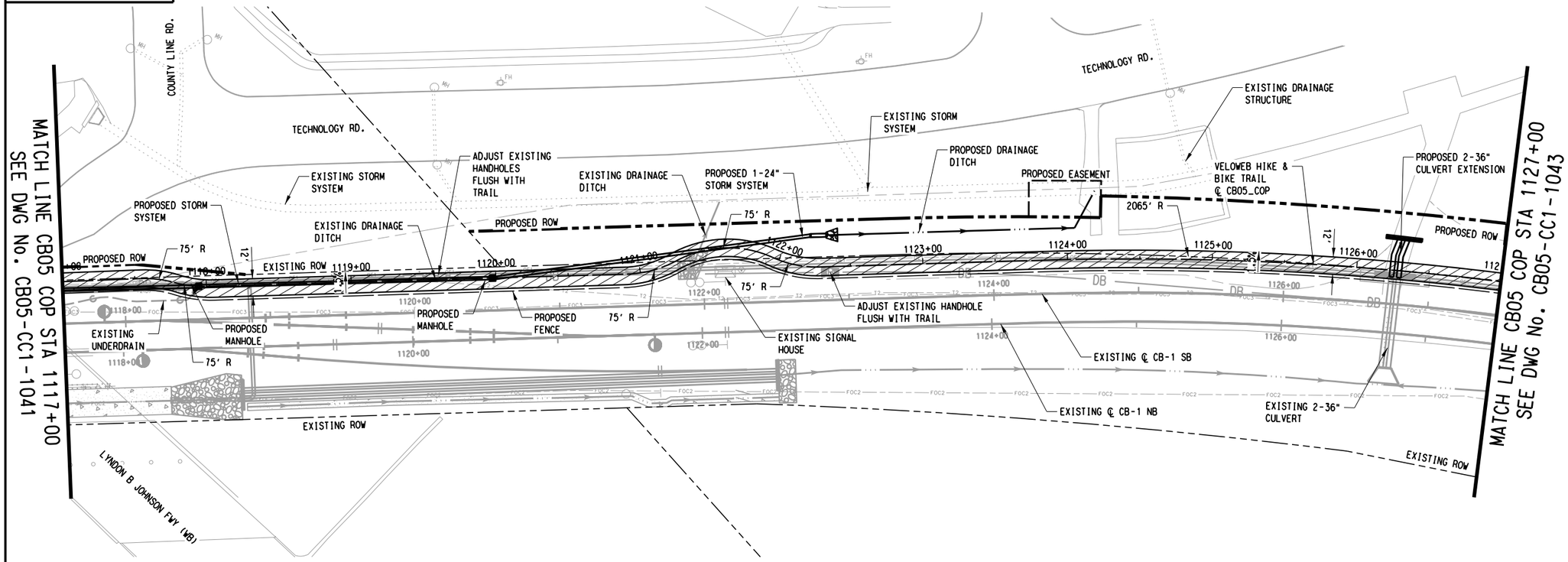
CONTRACT	DWG No.	REV
C-2033270-01	CC1-1041	D

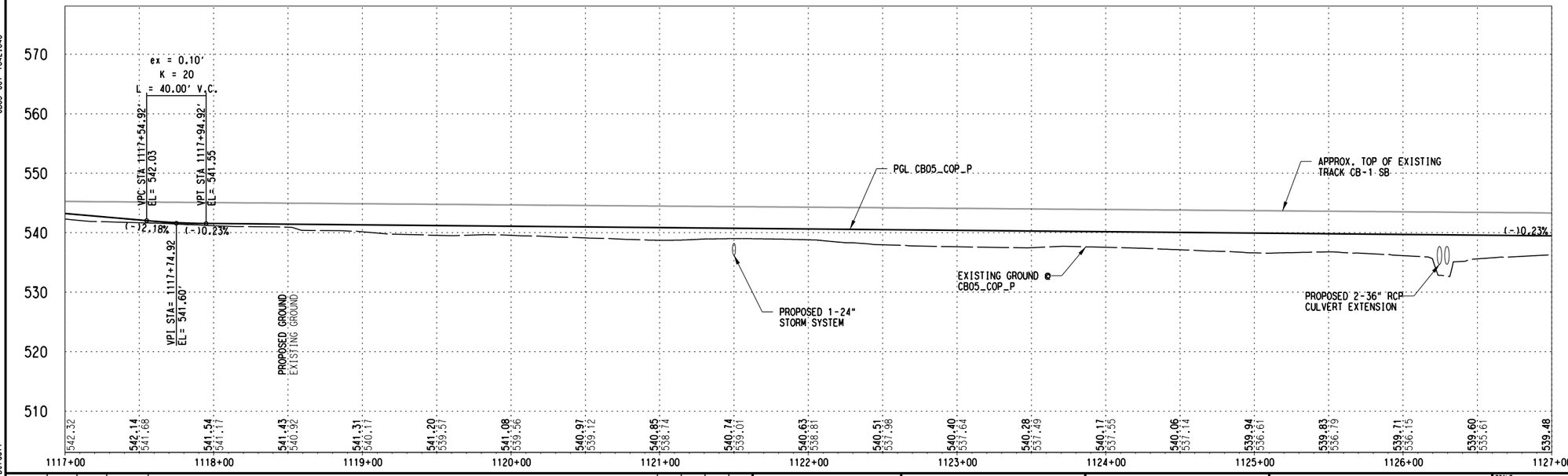
CB05-CC1-1041.040

30-AUG-2023 16:39
CB05-CC1-1041.040

ssoleh
Default

DWG No. CC1-1042





LEGEND:

TRAIL PAVEMENT

1.5% → TRAIL CROSS-SLOPE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
2. SEE SURVEY CONTROL SHEETS FOR BENCHMARK LOCATIONS.
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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CONTRACT SHEET No. 79 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1117+00 TO STA 1127+00
SHEET 3 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1042	D

CB05-CC1-1042.040

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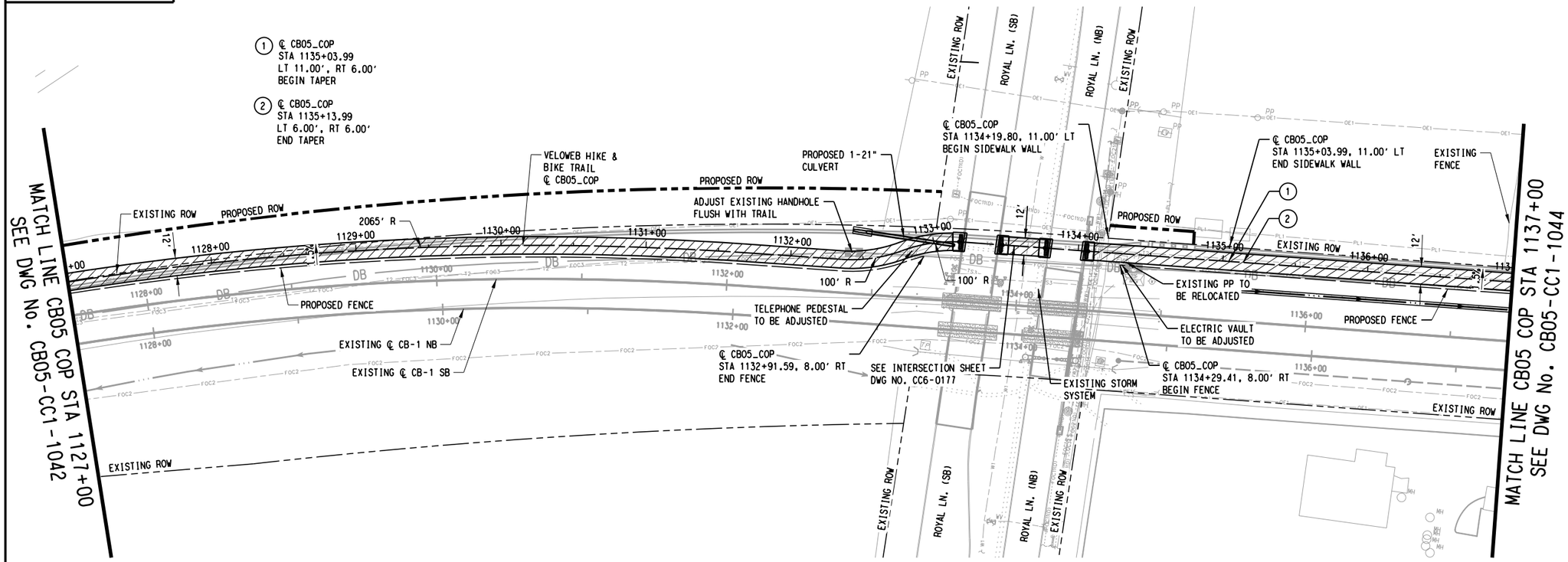
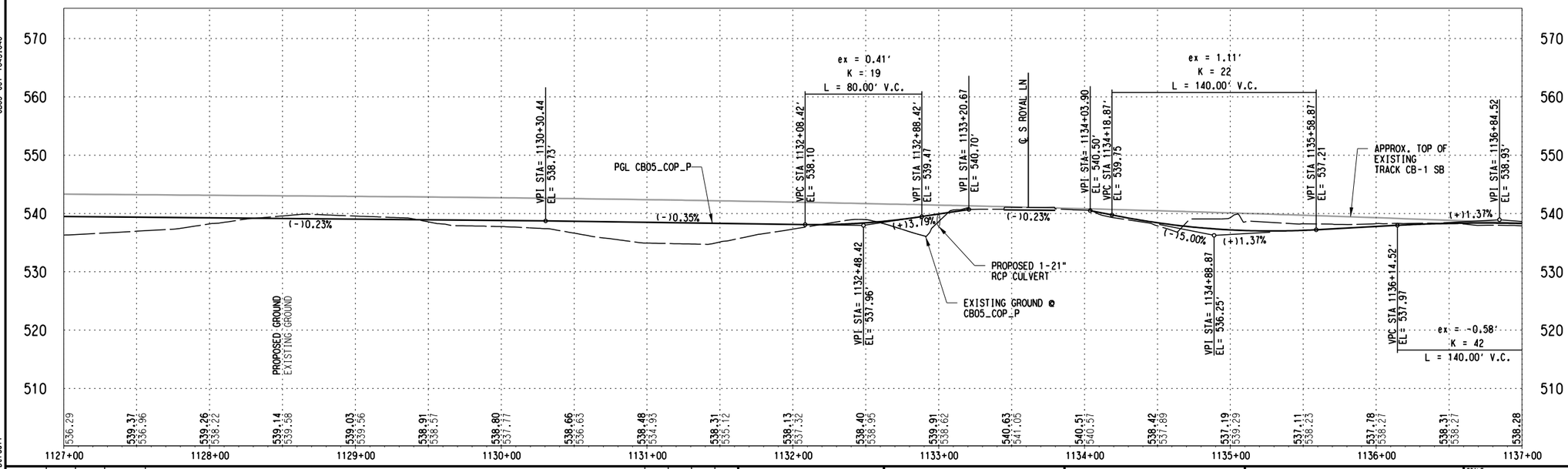
CB05-CC1-1042.040
ssoleh
Default

DWG No. CC1-1043





LEGEND:

- TRAIL PAVEMENT
- 1.5% → TRAIL CROSS-SLOPE
- TRAIL CROSSWALK

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
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SCALE (IN FEET) HORIZ 0 20 40 80
SCALE (IN FEET) VERT 0 5 10 15 20

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

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CONTRACT SHEET No. 80 OF 378

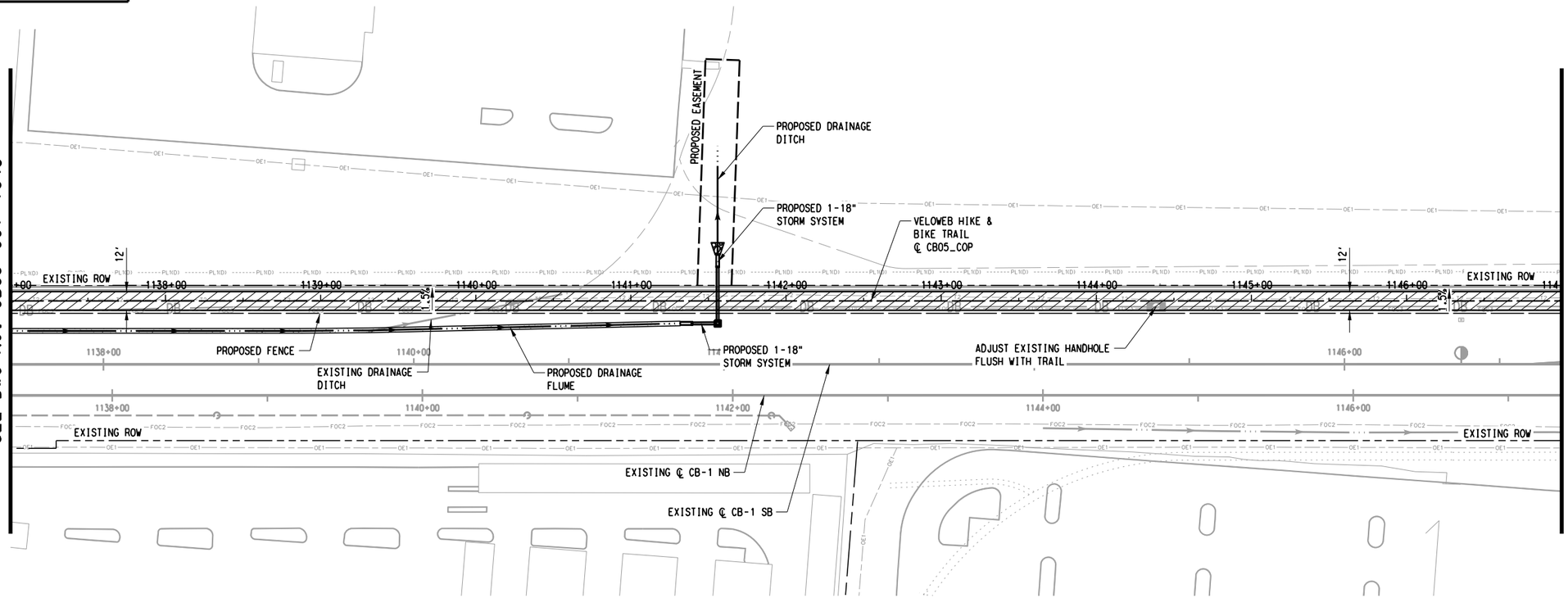
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1127+00 TO STA 1137+00
SHEET 4 OF 21

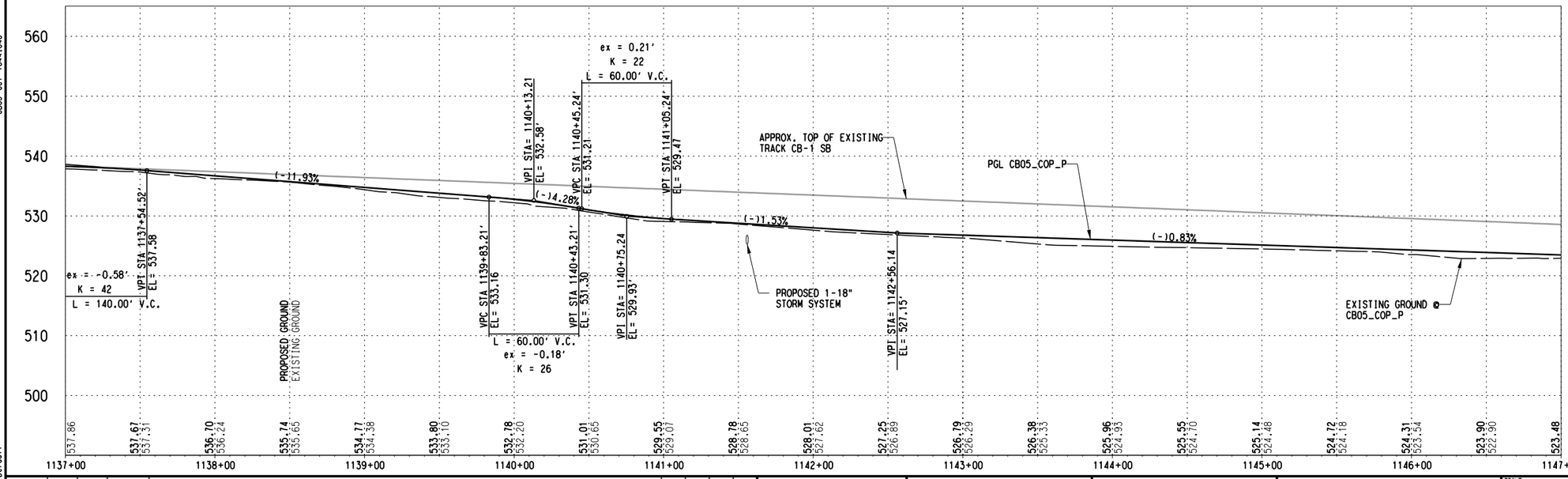
CONTRACT	DWG No.	REV
C-2033270-01	CC1-1043	D

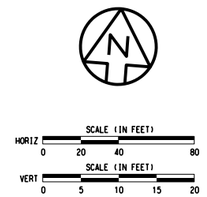
CB05-CC1-1043.040

30-AUG-2023 16:39
CB05-CC1-1043.040
ssoleh
Default

DWG No. CC1-1044







LEGEND:

TRAIL PAVEMENT

1.5% TRAIL CROSS-SLOPE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
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CHECKED	D. LUU
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DATE	25 AUG 23

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1137+00 TO STA 1147+00
SHEET 5 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1044	D

CB05-CC1-1044.040

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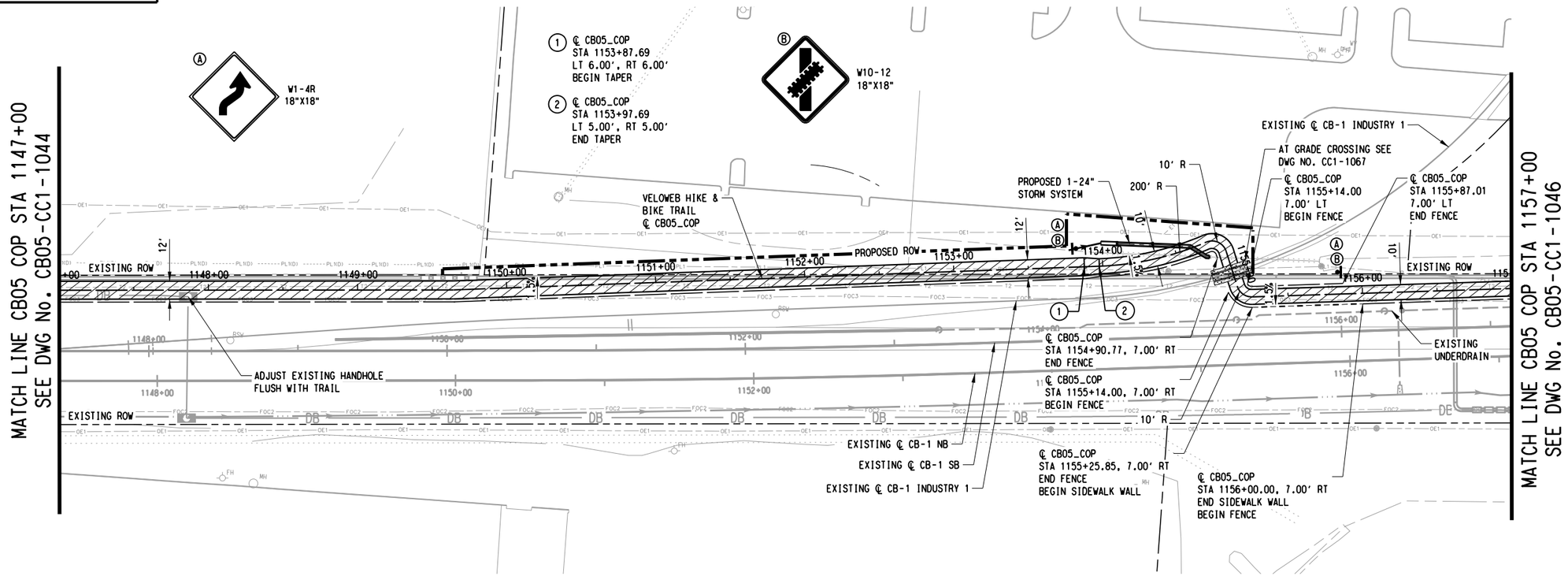
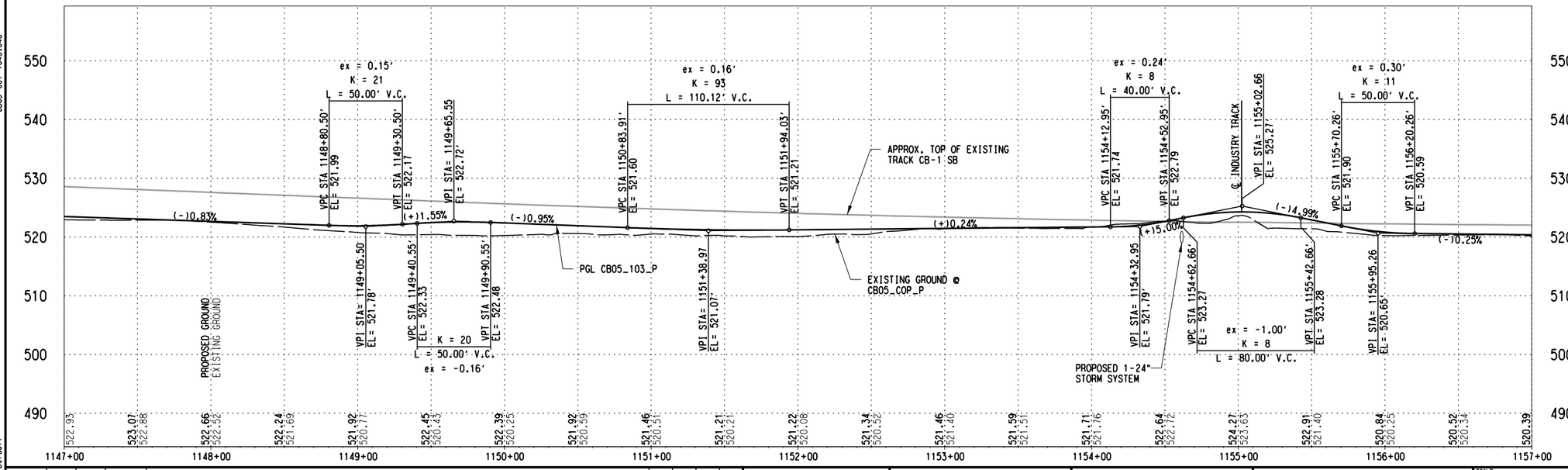
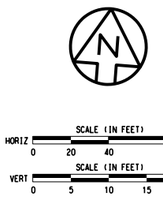
DWG No. CC1-1045







LEGEND:

TRAIL PAVEMENT

1.5% → TRAIL CROSS-SLOPE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

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CONTRACT SHEET No. 82 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1147+00 TO STA 1157+00
SHEET 6 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1045	D

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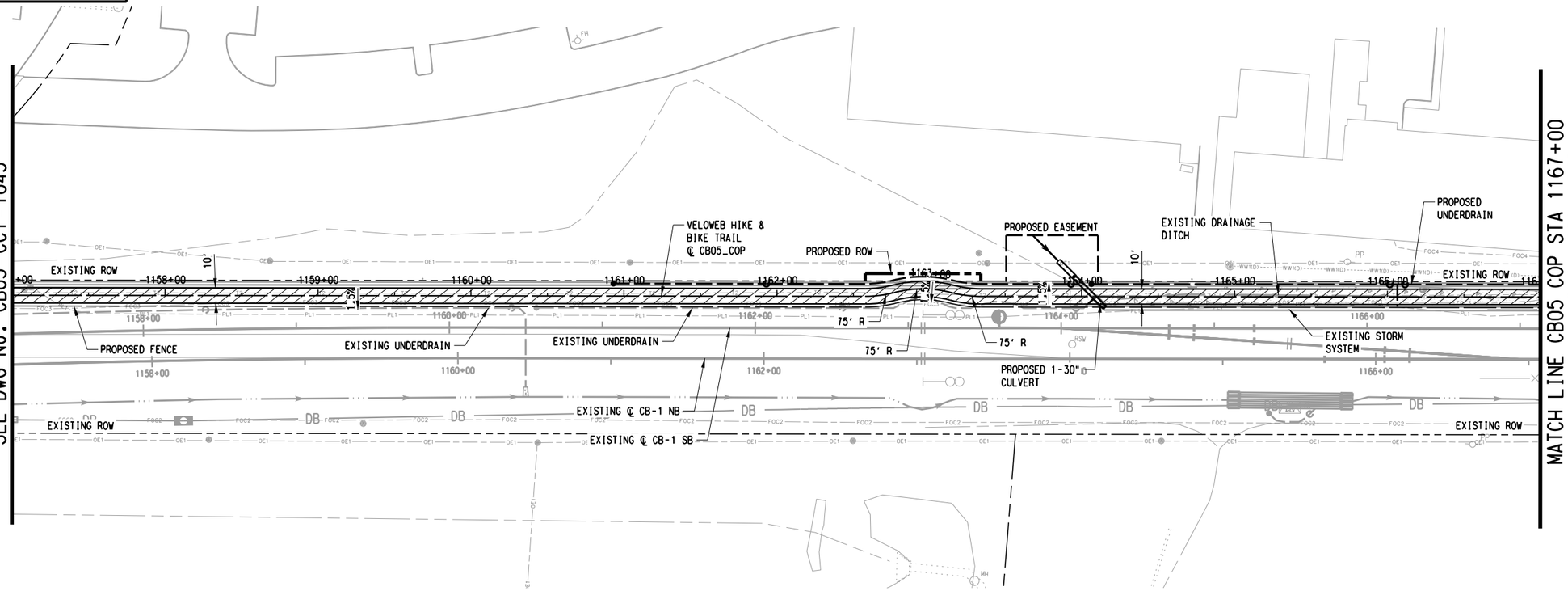
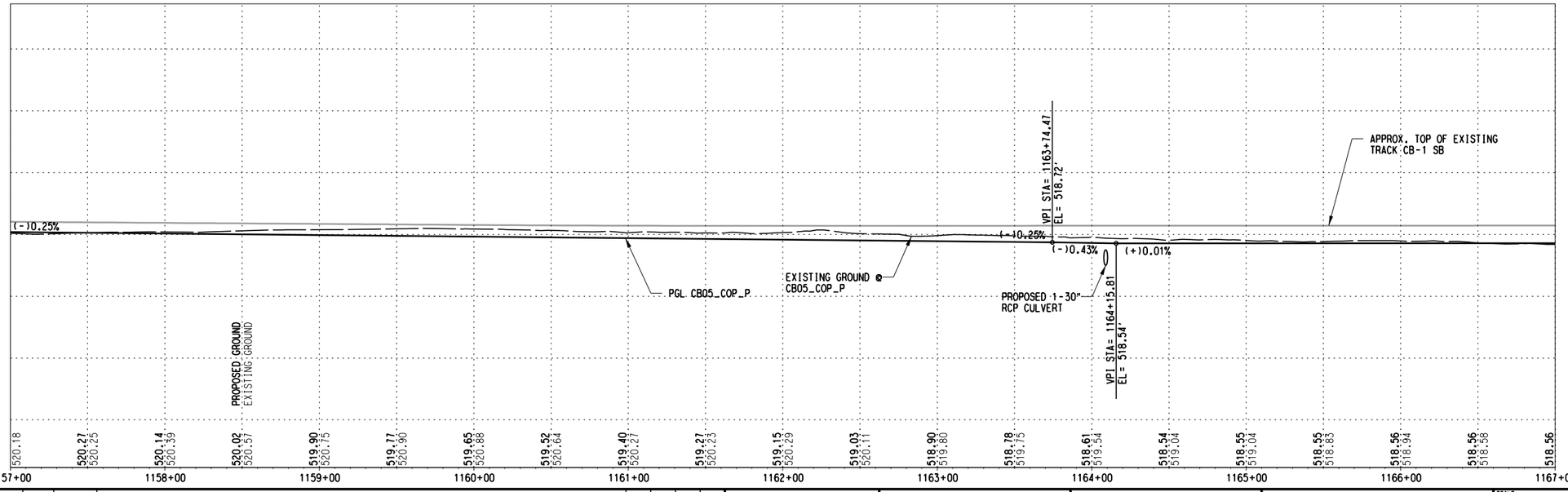
DWG No. CC1-1046





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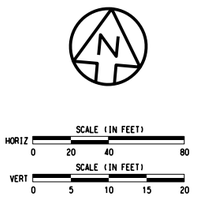

LEGEND:

TRAIL PAVEMENT

1.5% → TRAIL CROSS-SLOPE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
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CONTRACT SHEET No. 83 OF 378

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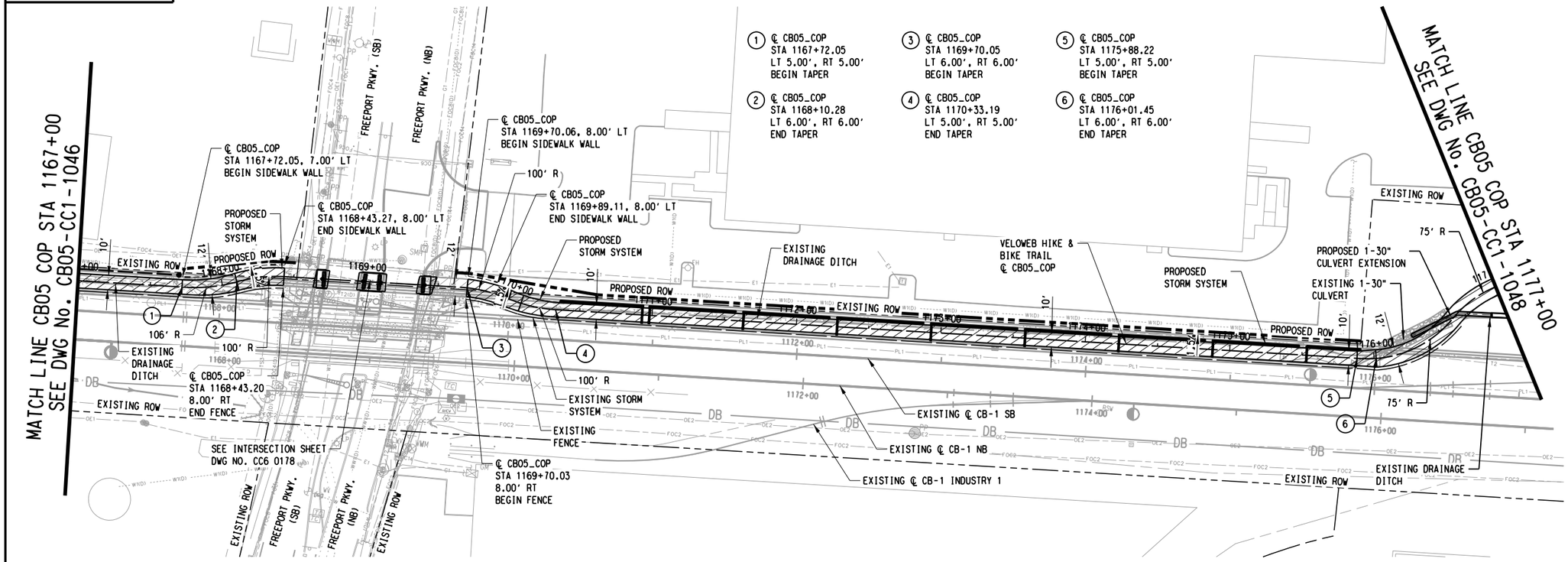
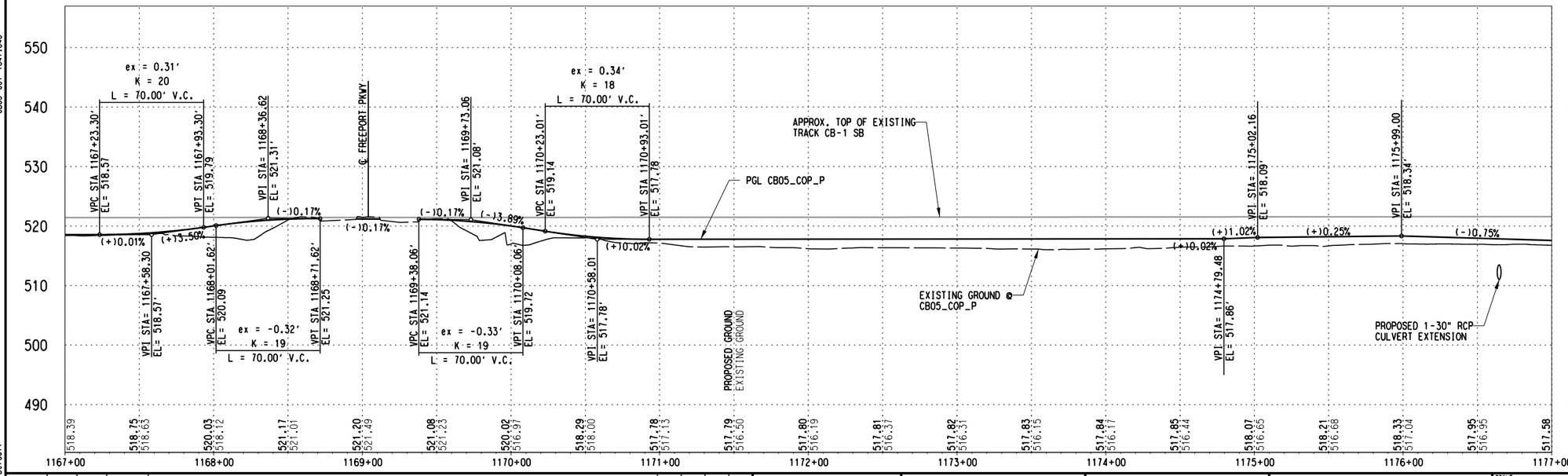
CITY OF COPPELL
PLAN & PROFILE
STA 1157+00 TO STA 1167+00
SHEET 7 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1046	D

CB05-CC1-1046.040

DWG No. CC1-1047





SCALE (IN FEET)
HORIZ 0 20 40 80
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:

- TRAIL PAVEMENT
- 1.5% TRAIL CROSS-SLOPE
- TRAIL CROSSWALK

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
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CONTRACT SHEET No. 84 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1167+00 TO STA 1177+00
SHEET 8 OF 21

CONTRACT	DWG No.	REV
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CB05-CC1-1047.040

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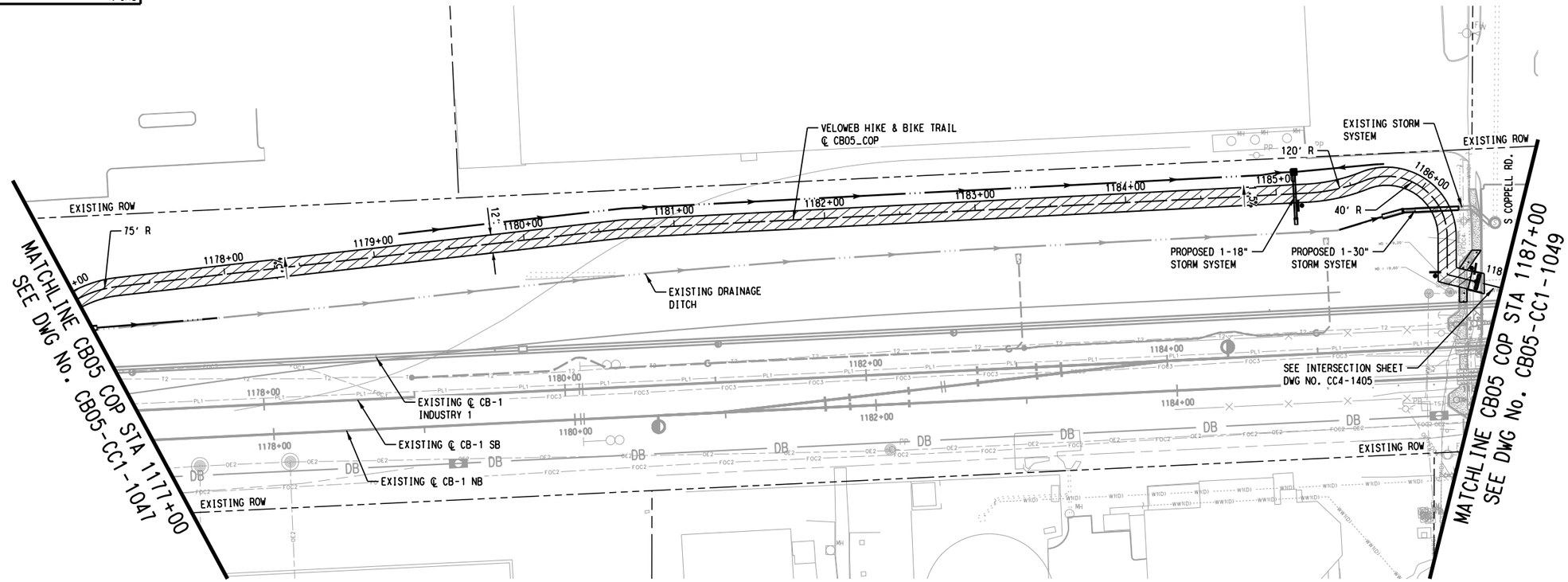
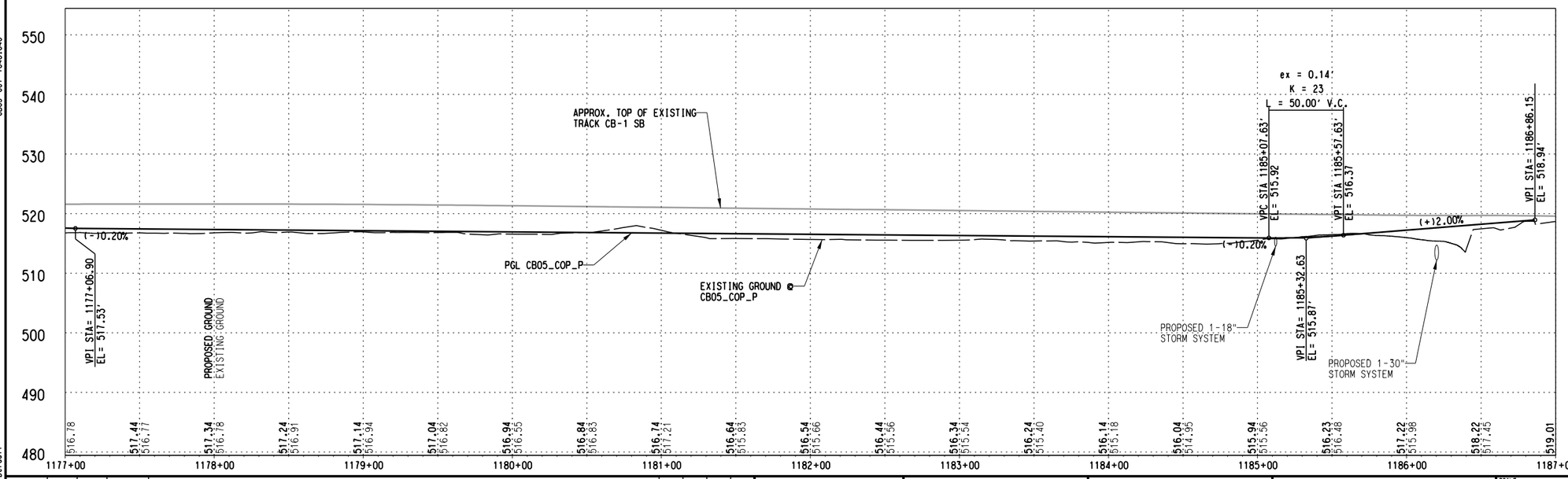
DWG No. CC1-1048





30-AUG-2023 16:40
CB05-CC1-1048.040

ssoleh
Default

LEGEND:

TRAIL PAVEMENT

1.5% → TRAIL CROSS-SLOPE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
2. SEE SURVEY CONTROL SHEETS FOR BENCHMARK LOCATIONS.
3. SEE DRAINAGE PLAN AND PROFILE SHEETS FOR TRAIL DRAINAGE DESIGN.
4. SEE RETAINING WALL LAYOUT SHEETS FOR ADDITIONAL INFORMATION.
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HORIZ SCALE (IN FEET) 0 20 40 80
VERT SCALE (IN FEET) 0 5 10 15 20

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
FIRM NO. F-819

ARCHER WESTERN HERZOG

DART PROJECT

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

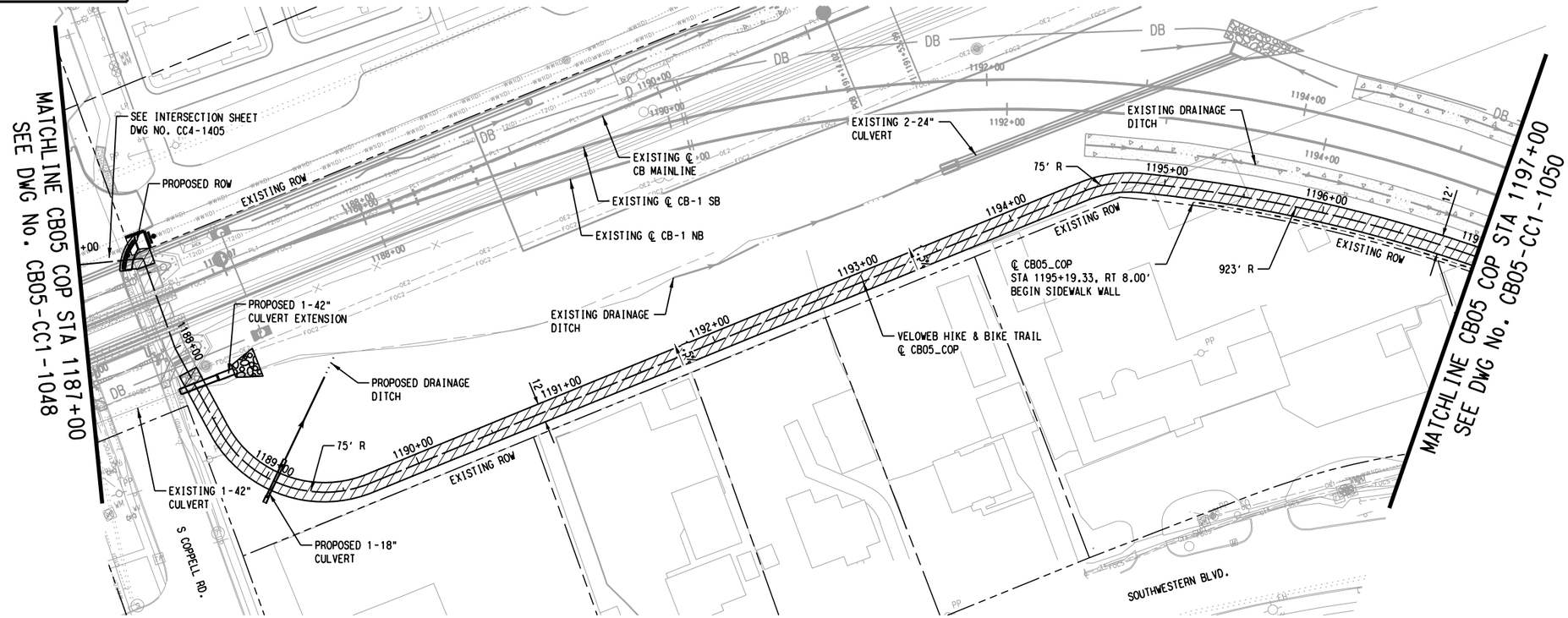
CONTRACT SHEET No. 85 OF 378

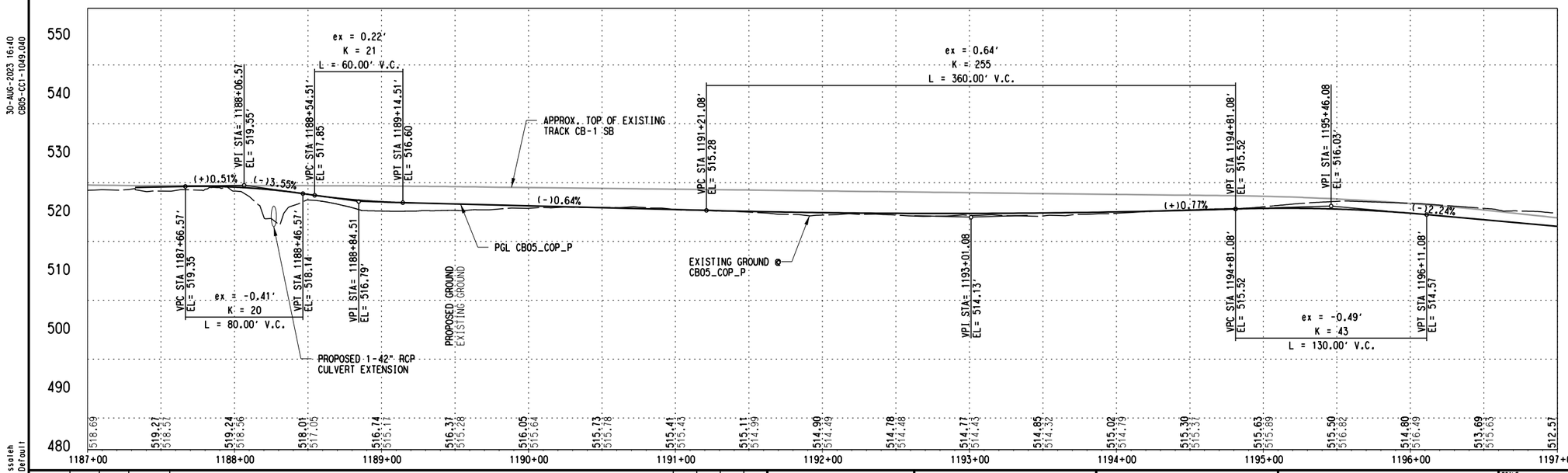
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1177+00 TO STA 1187+00
SHEET 9 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1048	D

CB05-CC1-1048.040

DWG No. CC1-1049





30-AUG-2023 16:40
CB05-CC1-1049.040

ssoleh
Default

SCALE (IN FEET)
HORIZ 0 20 40 80
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:

TRAIL PAVEMENT

1.5% → TRAIL CROSS-SLOPE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
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FINAL 100% DESIGN

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
FIRM NO. F-819

ARCHER WESTERN HERZOG

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

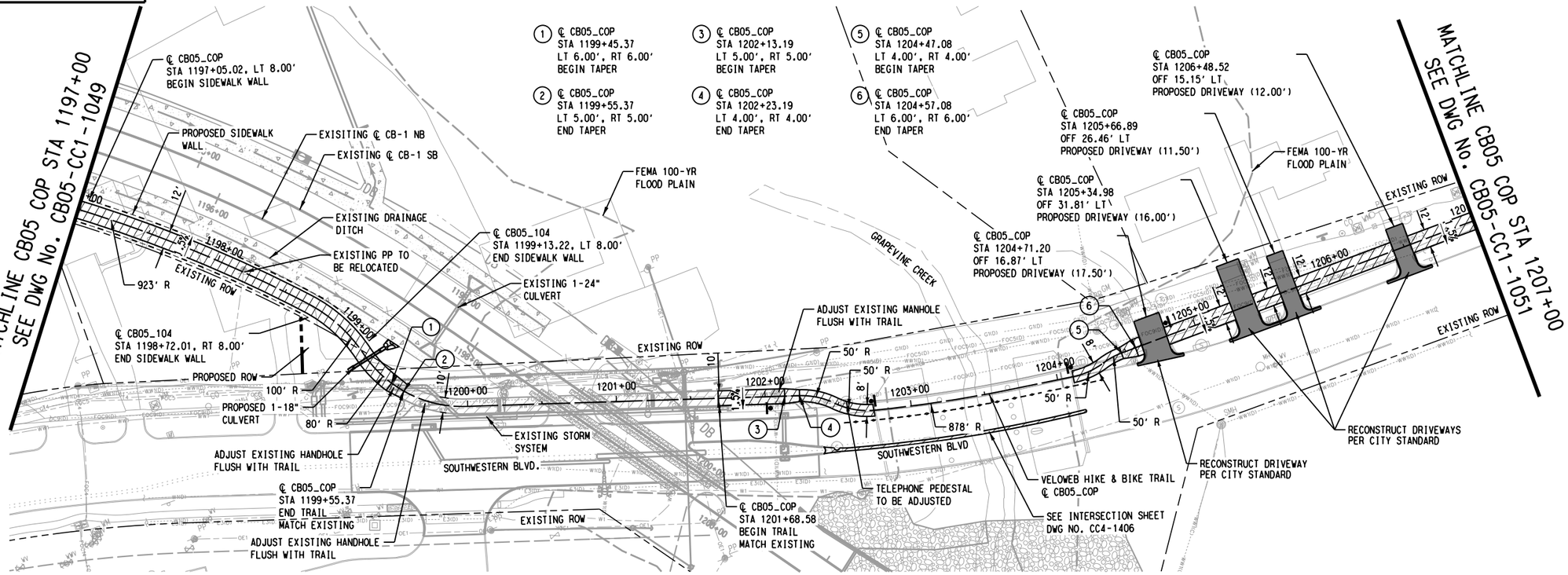
CONTRACT SHEET No. 86 OF 378

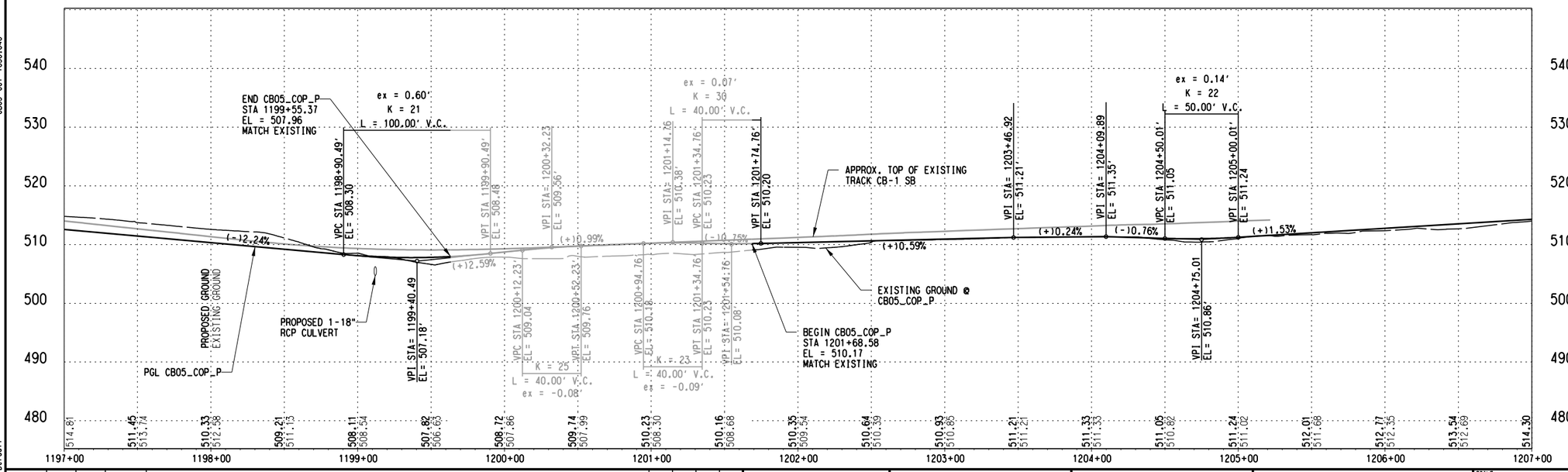
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1187+00 TO STA 1197+00
SHEET 10 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1049	D

CB05-CC1-1049.040

DWG No. CC1-1050





30-AUG-2023 16:40
CB05-CC1-1050.040

ssaleh
Default

SCALE (IN FEET)
HORIZ 0 20 40 80
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:
TRAIL PAVEMENT
1.5% → TRAIL CROSS-SLOPE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
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NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 87 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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(214)739-3152 Fax (214)739-3169
FIRM NO.F-819
ARCHER WESTERN HERZOG

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

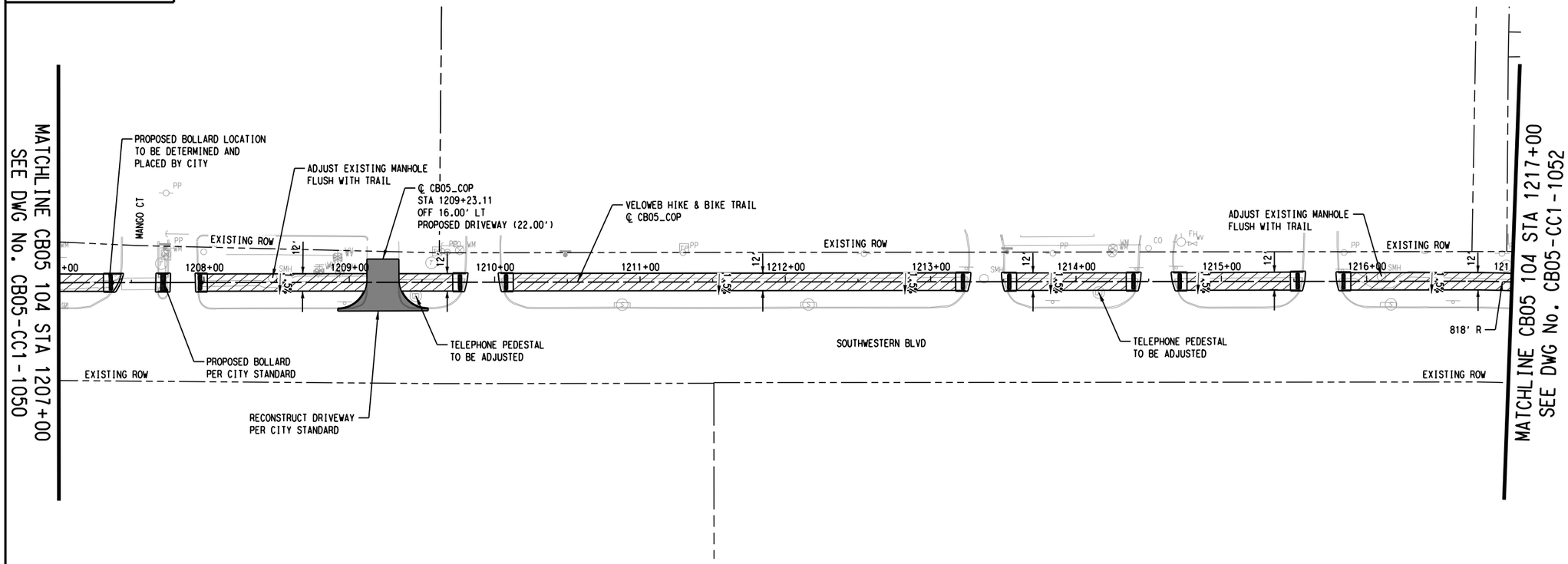
CAES

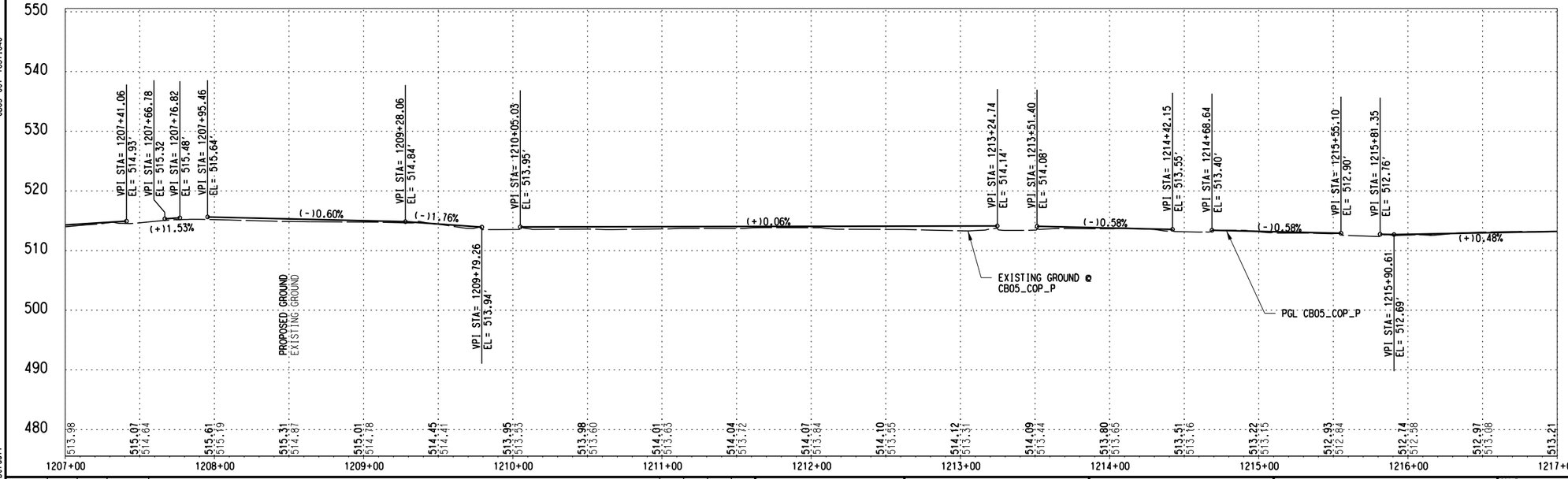
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1197+00 TO STA 1207+00
SHEET 11 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1050	D

CB05-CC1-1050.040

DWG No. CC1-1051





SCALE (IN FEET)
HORIZ 0 20 40 80
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:
TRAIL PAVEMENT
1.5% → TRAIL CROSS-SLOPE

NOTES:

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NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 88 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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(214) 739-3152 Fax (214) 739-3169
FIRM NO. F-819
ARCHER WESTERN HERZOG

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

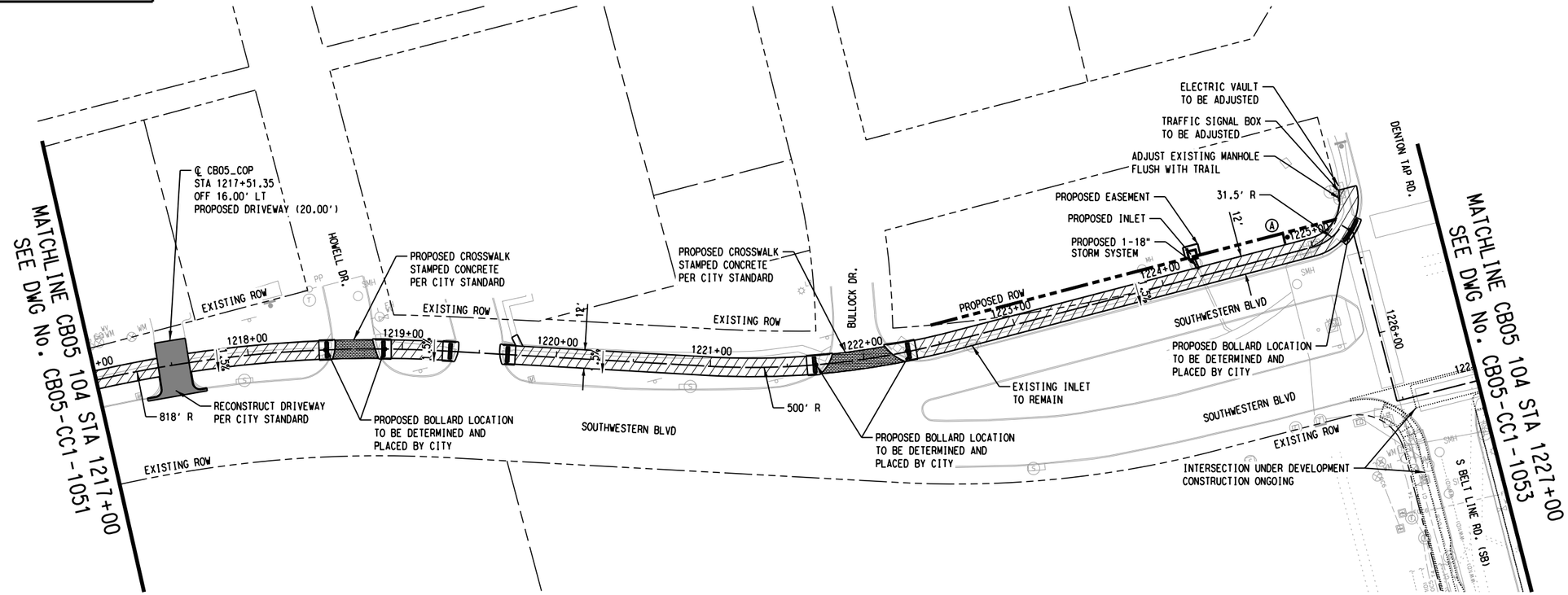
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1207+00 TO STA 1217+00
SHEET 12 OF 21

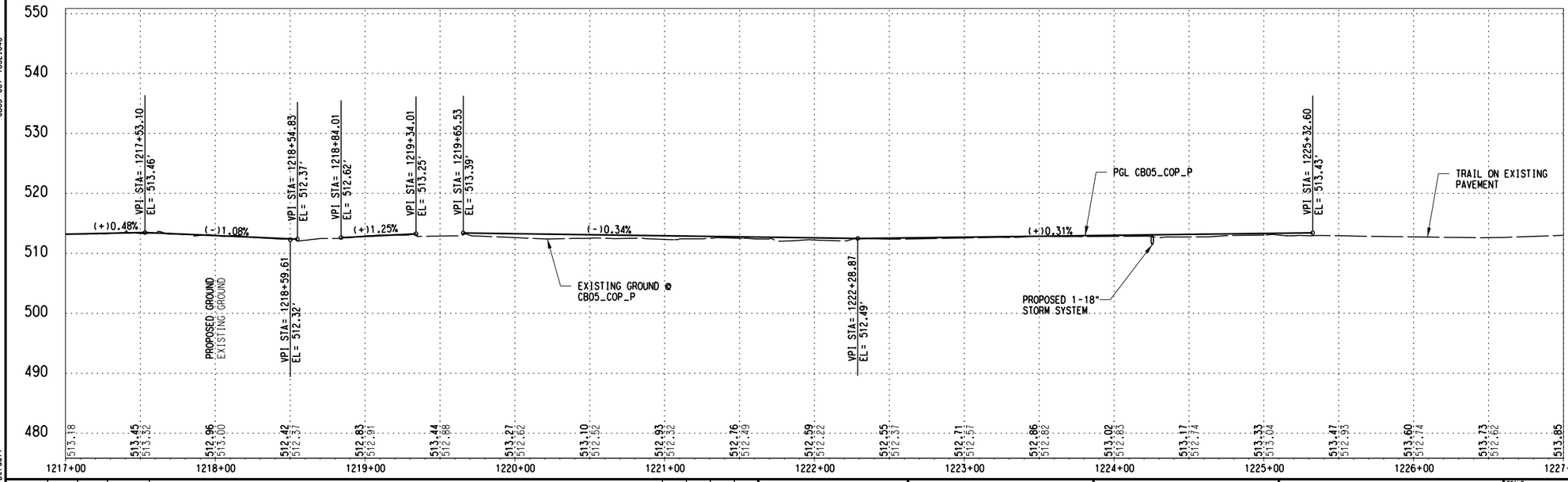
CONTRACT	DWG No.	REV
C-2033270-01	CC1-1051	D

CB05-CC1-1051.040

30-AUG-2023 16:40
CB05-CC1-1051.040
ssoleh
Default

DWG No. CC1-1052





HORIZ SCALE (IN FEET) 0 20 40 80
VERT SCALE (IN FEET) 0 5 10 15 20

LEGEND:

TRAIL PAVEMENT

1.5% → TRAIL CROSS-SLOPE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
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NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 89 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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(214) 739-3152 Fax (214) 739-3169
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ARCHER WESTERN HERZOG

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1217+00 TO STA 1227+00
SHEET 13 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1052	D

CB05-CC1-1052.040

30-AUG-2023 16:40
CB05-CC1-1052.040
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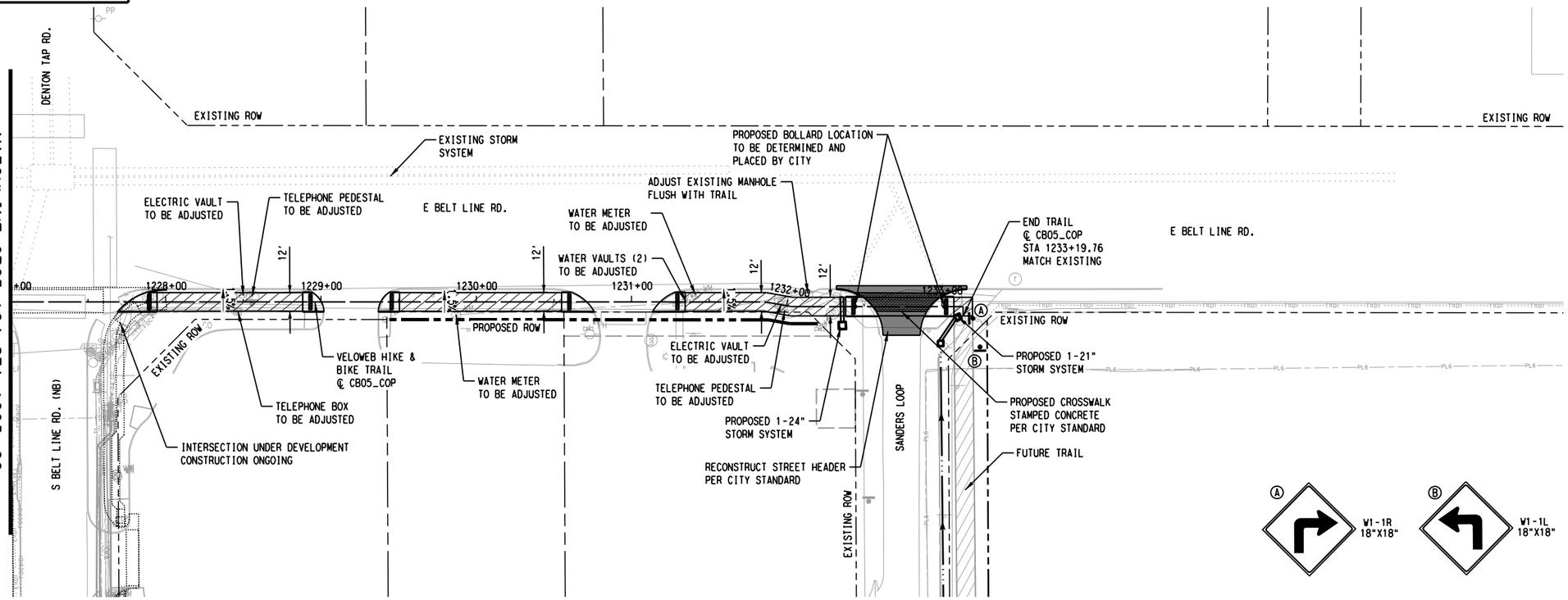
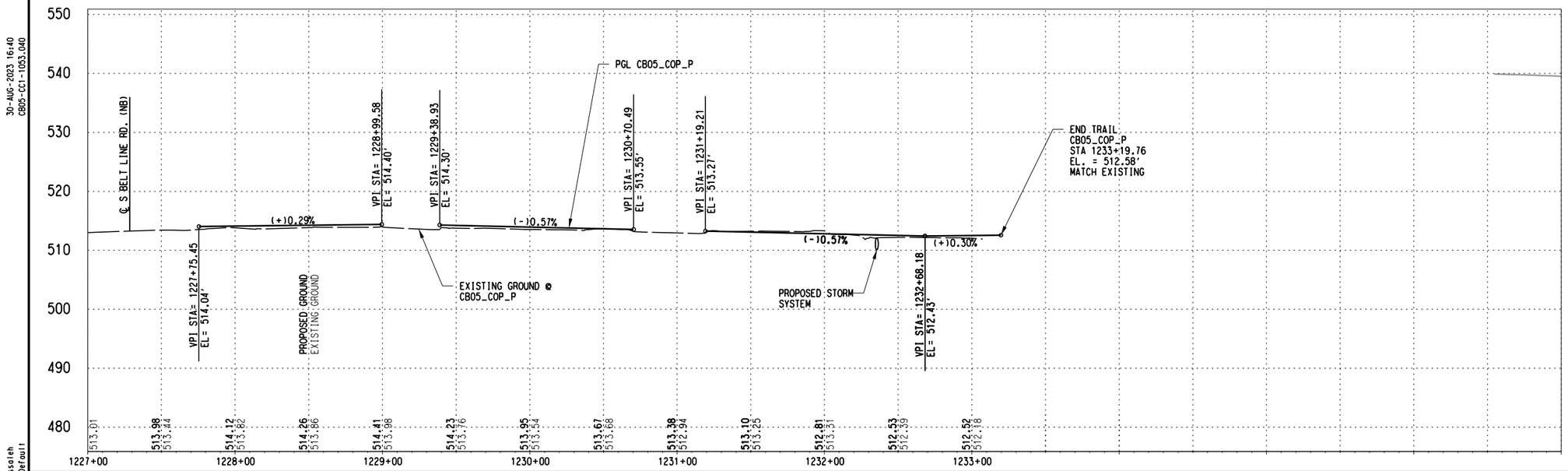
DWG No. CC1-1053

MATCHLINE CB05 104 STA 1227+00
SEE DWG No. CB05-CC1-1052





30-AUG-2023 16:40
CB05-CC1-1053.040

ssaleh
Default

SCALE (IN FEET)
HORIZ 0 20 40 80
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:
TRAIL PAVEMENT
1.5% TRAIL CROSS-SLOPE

NOTES:

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FINAL 100% DESIGN

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

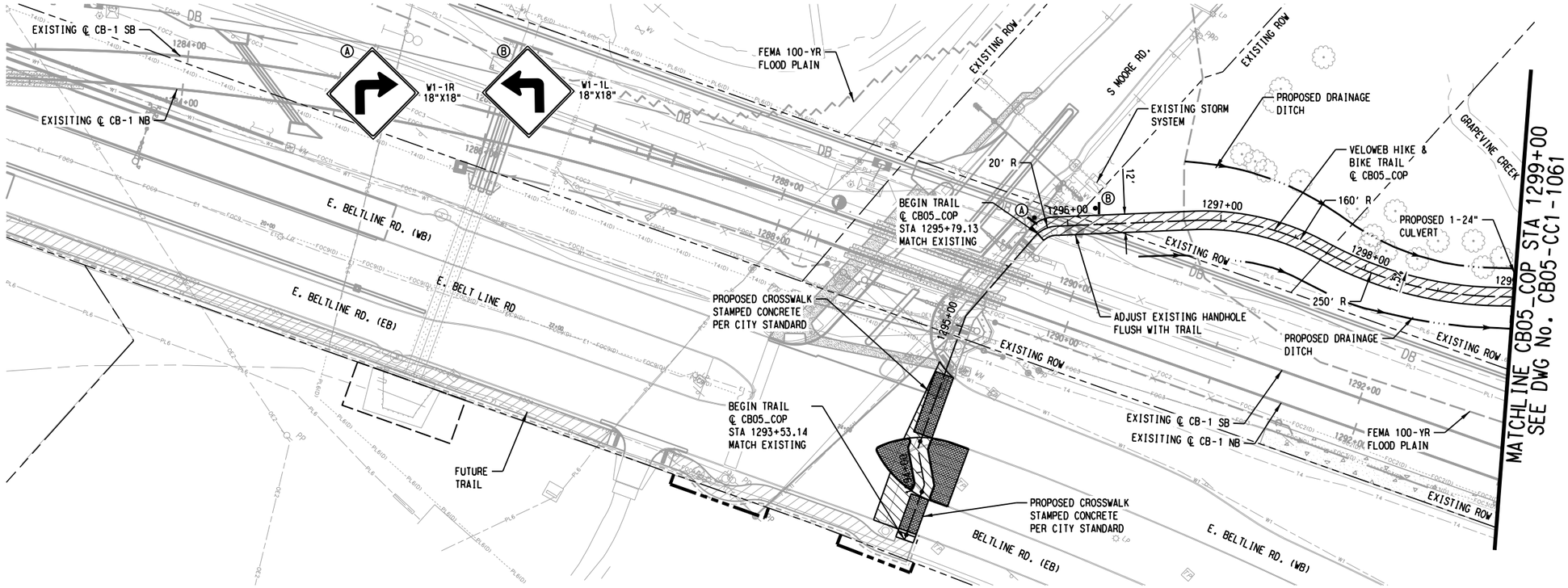
CONTRACT SHEET No. 90 OF 378

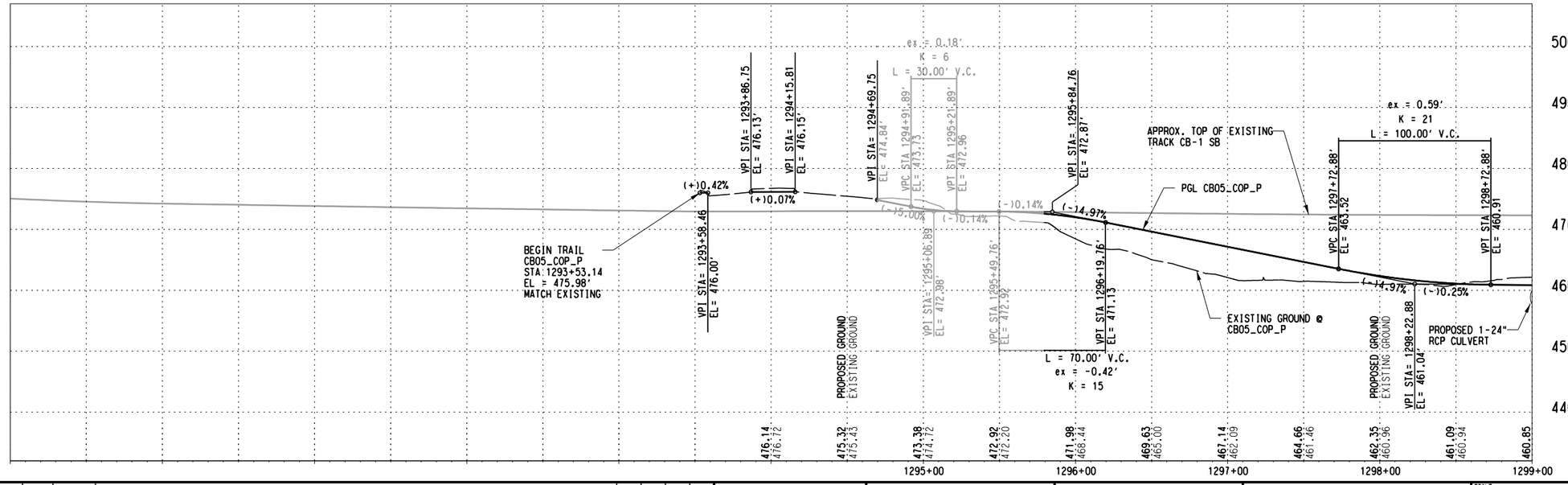
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1227+00 TO STA 1233+16.83
SHEET 14 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1053	D

CB05-CC1-1053.040

DWG No. CC1-1060





LEGEND:

TRAIL PAVEMENT

1.5% → TRAIL CROSS-SLOPE

NOTES:

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SCALE (IN FEET)
HORIZ 0 20 40 80
SCALE (IN FEET)
VERT 0 5 10 15 20

WARNING!!! EXPLORER'S HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE

AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION WITHIN 25 FEET OF EXPLORER'S PIPELINE, CONTACT EXPLORER PIPELINE AT (888) 876-0036

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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(214) 739-3152 Fax (214) 739-3169
FIRM NO. F-819

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 91 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1295+79.13 TO STA 1299+00
SHEET 15 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1060	D

CB05-CC1-1060.040

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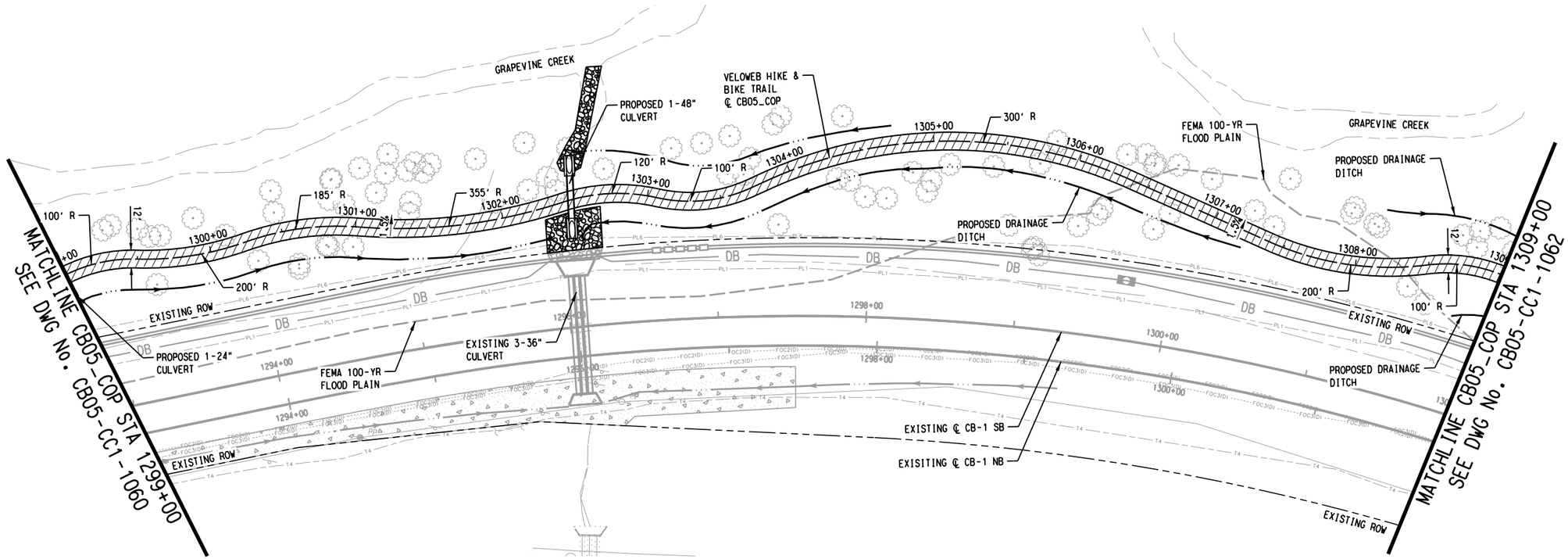
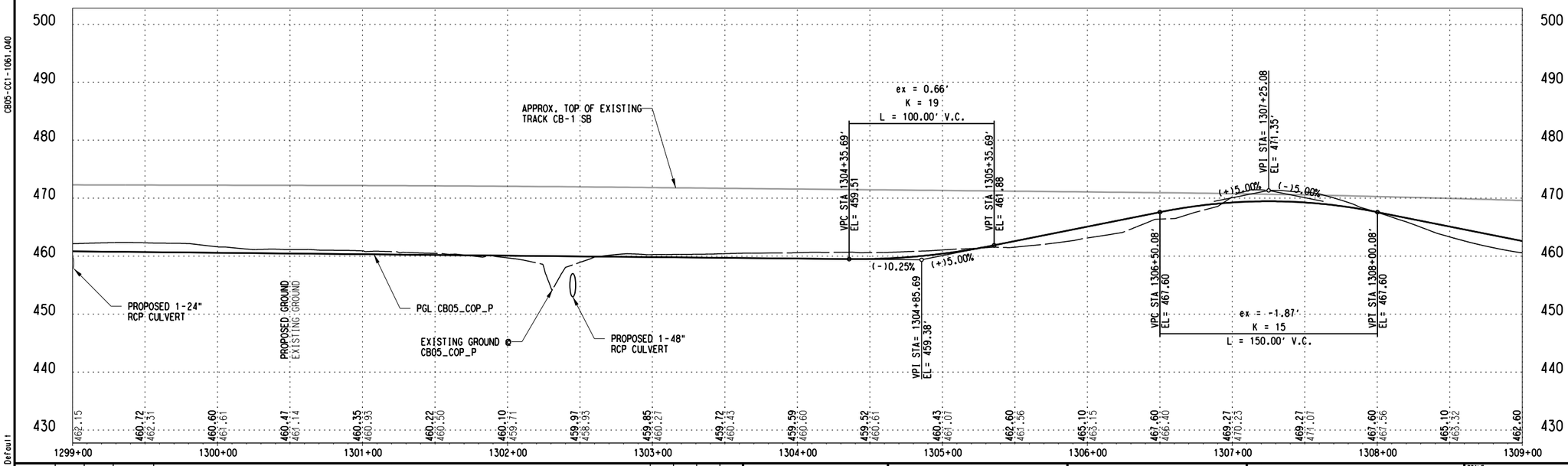
DWG No. CC1-1061





SCALE (IN FEET)
HORIZ 0 20 40 80
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:

TRAIL PAVEMENT

1.5% TRAIL CROSS-SLOPE

NOTES:

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
FIRM NO. F-819

ARCHER WESTERN HERZOG

DART PROJECT

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CAES

SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

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FINAL 100% DESIGN

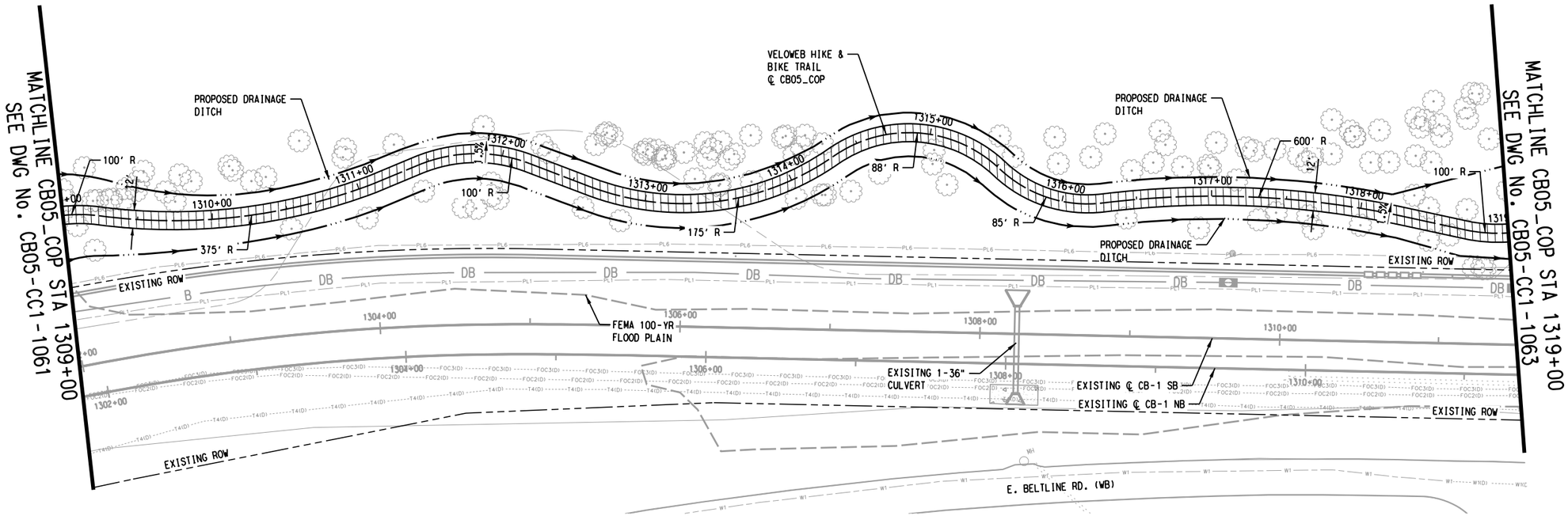
CONTRACT SHEET No. 92 OF 378

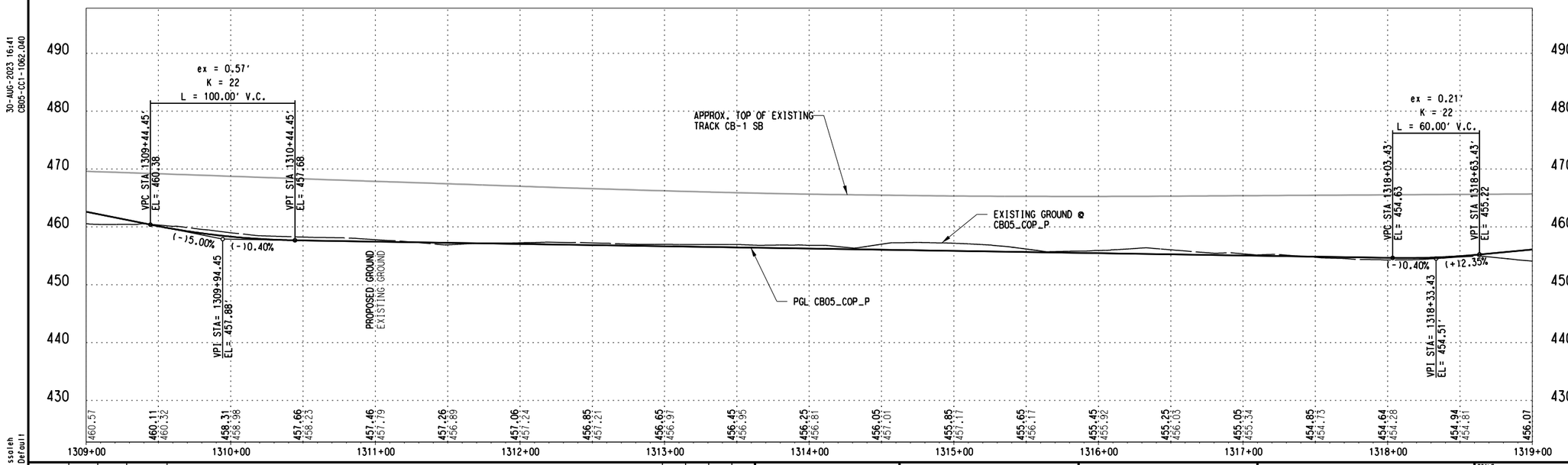
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1299+00 TO STA 1309+00
SHEET 16 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1061	D

CB05-CC1-1061.040

DWG No. CC1-1062





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CB05-CC1-1062.040

ssaleh
Default

SCALE (IN FEET)
HORIZ 0 20 40 80
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:
TRAIL PAVEMENT
1.5% TRAIL CROSS-SLOPE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
2. SEE SURVEY CONTROL SHEETS FOR BENCHMARK LOCATIONS.
3. SEE DRAINAGE PLAN AND PROFILE SHEETS FOR TRAIL DRAINAGE DESIGN.
4. SEE RETAINING WALL LAYOUT SHEETS FOR ADDITIONAL INFORMATION.
5. SEE BRIDGE LAYOUT SHEETS FOR ADDITIONAL PEDESTRIAN BRIDGE INFORMATION.
6. SEE TYPICAL SECTION SHEETS FOR ADDITIONAL INFORMATION.
7. SIGN PLACEMENT SHALL BE AS PER CHAPTER 9 OF THE TMUTCD 2011 REV 2.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.

WARNING!!! EXPLORER'S HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE

AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION WITHIN 25 FEET OF EXPLORER'S PIPELINE, CONTACT EXPLORER PIPELINE AT (888) 876-0036

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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IN CHARGE	D. LUU
DATE	25 AUG 23

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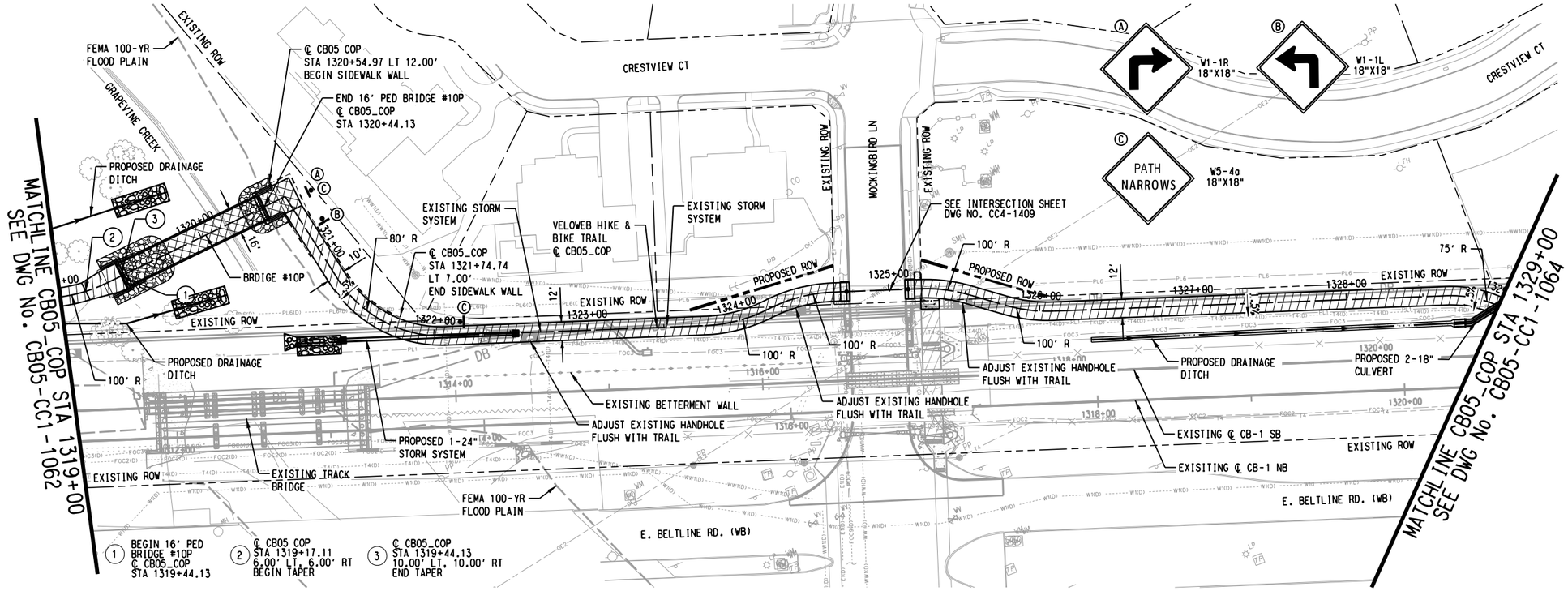
CONTRACT SHEET No. 93 OF 378

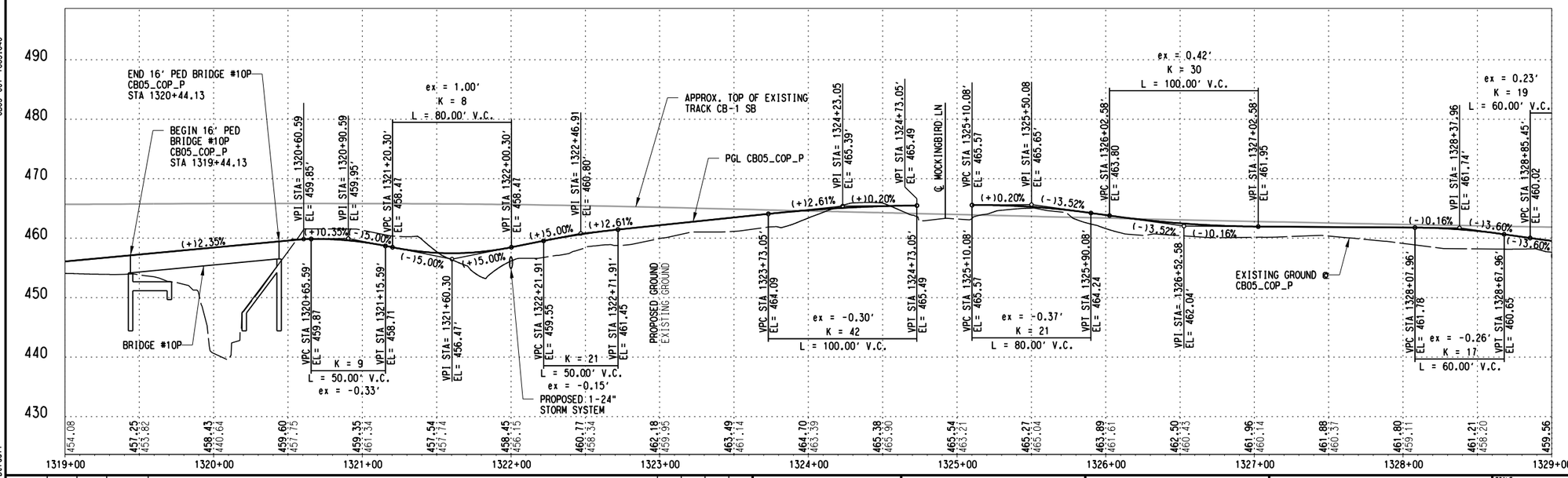
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1309+00 TO STA 1319+00
SHEET 17 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1062	D

CB05-CC1-1062.040

DWG No. CC1-1063





LEGEND:

- TRAIL PAVEMENT
- 1.5% TRAIL CROSS-SLOPE
- PEDESTRIAN BRIDGE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
2. SEE SURVEY CONTROL SHEETS FOR BENCHMARK LOCATIONS.
3. SEE DRAINAGE PLAN AND PROFILE SHEETS FOR TRAIL DRAINAGE DESIGN.
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6. SEE TYPICAL SECTION SHEETS FOR ADDITIONAL INFORMATION.
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8. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL APPROPRIATE UTILITY COMPANIES FOR LOCATION OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA.

SCALE (IN FEET) HORIZ 0 20 40 80
SCALE (IN FEET) VERT 0 5 10 15 20

WARNING!!! EXPLORER'S HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE

AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION WITHIN 25 FEET OF EXPLORER'S PIPELINE, CONTACT EXPLORER PIPELINE AT (888) 876-0036

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FINAL 100% DESIGN

CONTRACT SHEET No. 94 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1319+00 TO STA 1329+00
SHEET 18 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1063	D

CB05-CC1-1063.040

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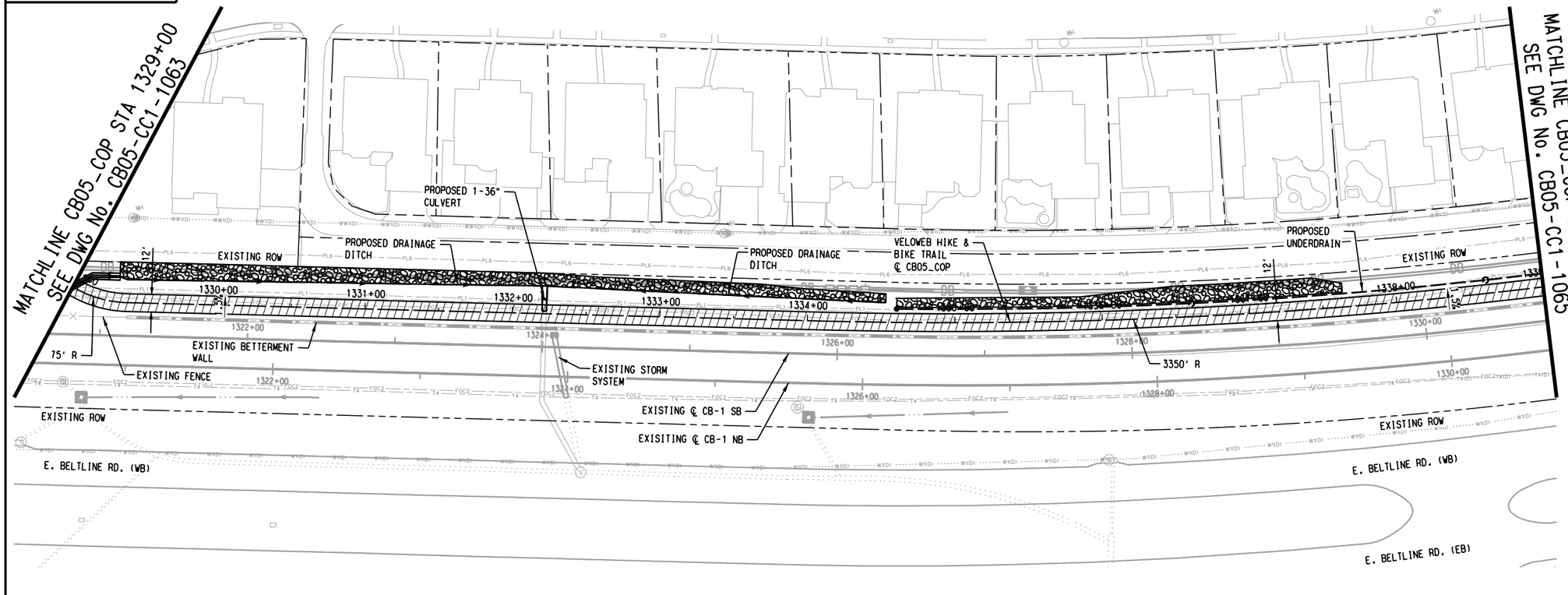
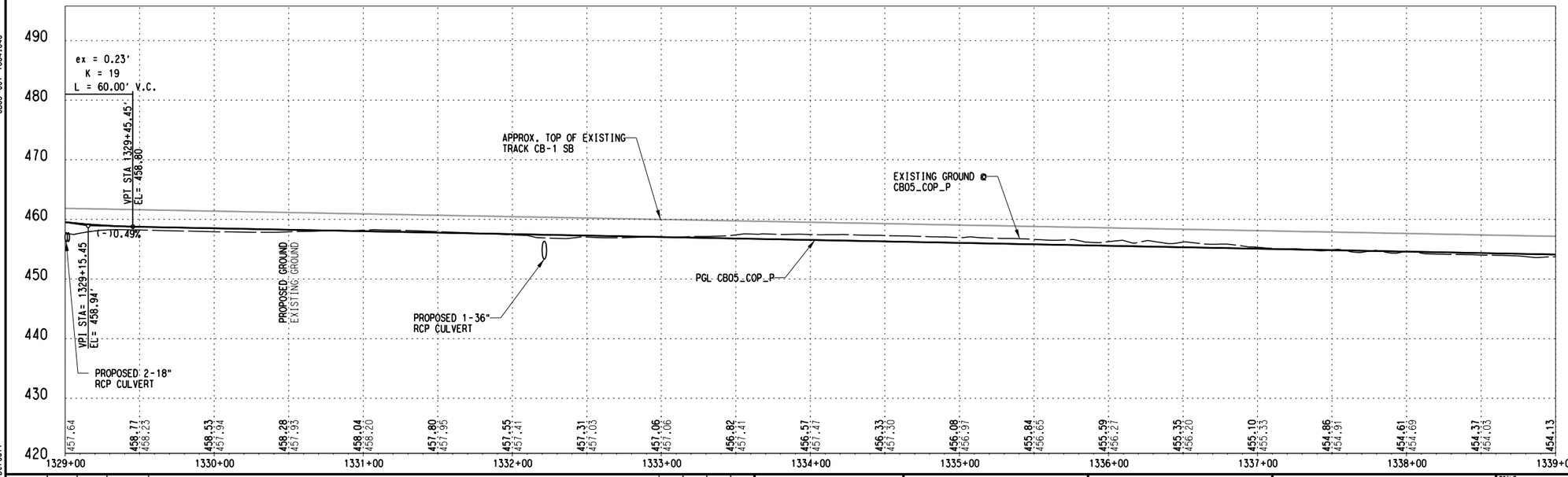
CB05-CC1-1063.040
ssoleh
Default

DWG No. CC1-1064





30-AUG-2023 16:41
CB05-CC1-1064.040

ssoleh
Default

SCALE (IN FEET)
HORIZ 0 20 40 80
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:

TRAIL PAVEMENT

1.5% TRAIL CROSS-SLOPE

NOTES:

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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

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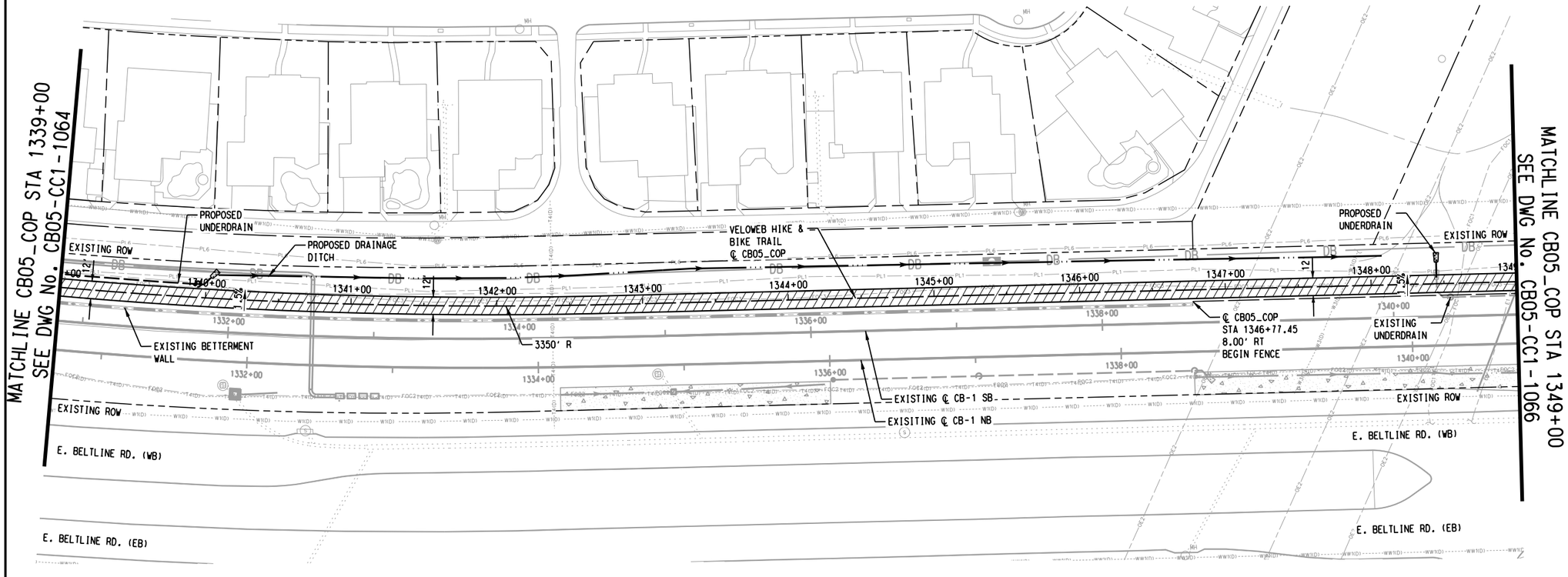
CONTRACT SHEET No. 95 OF 378

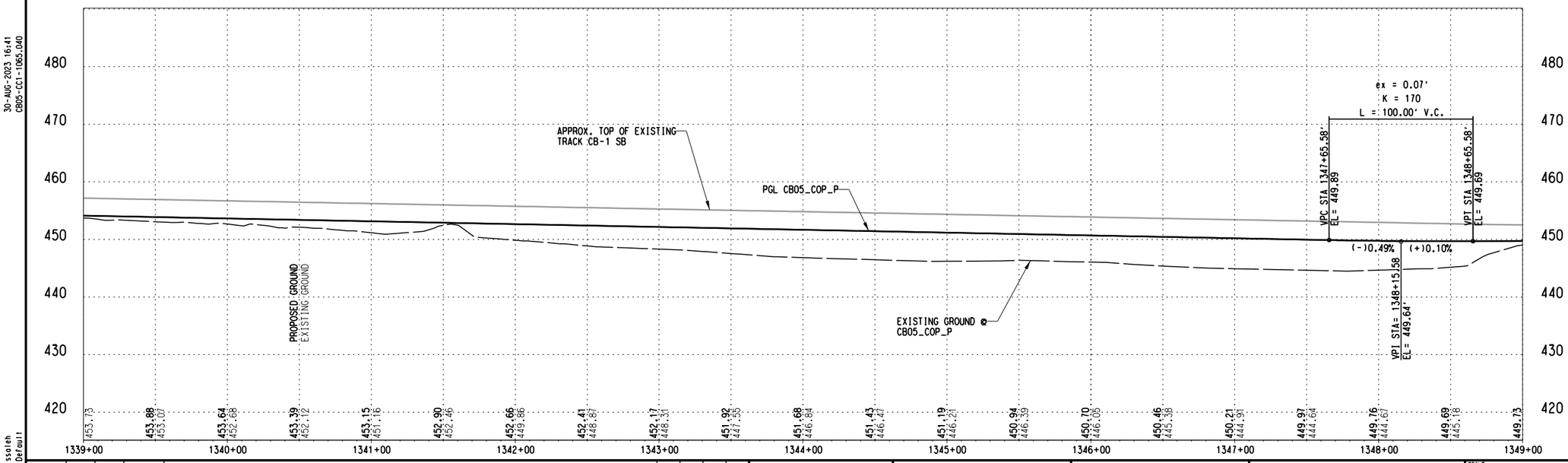
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1329+00 TO STA 1339+00
SHEET 19 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1064	D

CB05-CC1-1064.040

DWG No. CC1-1065





30-AUG-2023 16:41
CB05-CC1-1065.040

ssoleh
Default

SCALE (IN FEET)
HORIZ 0 20 40 80
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:
- TRAIL PAVEMENT
- 1.5% → TRAIL CROSS-SLOPE

NOTES:

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

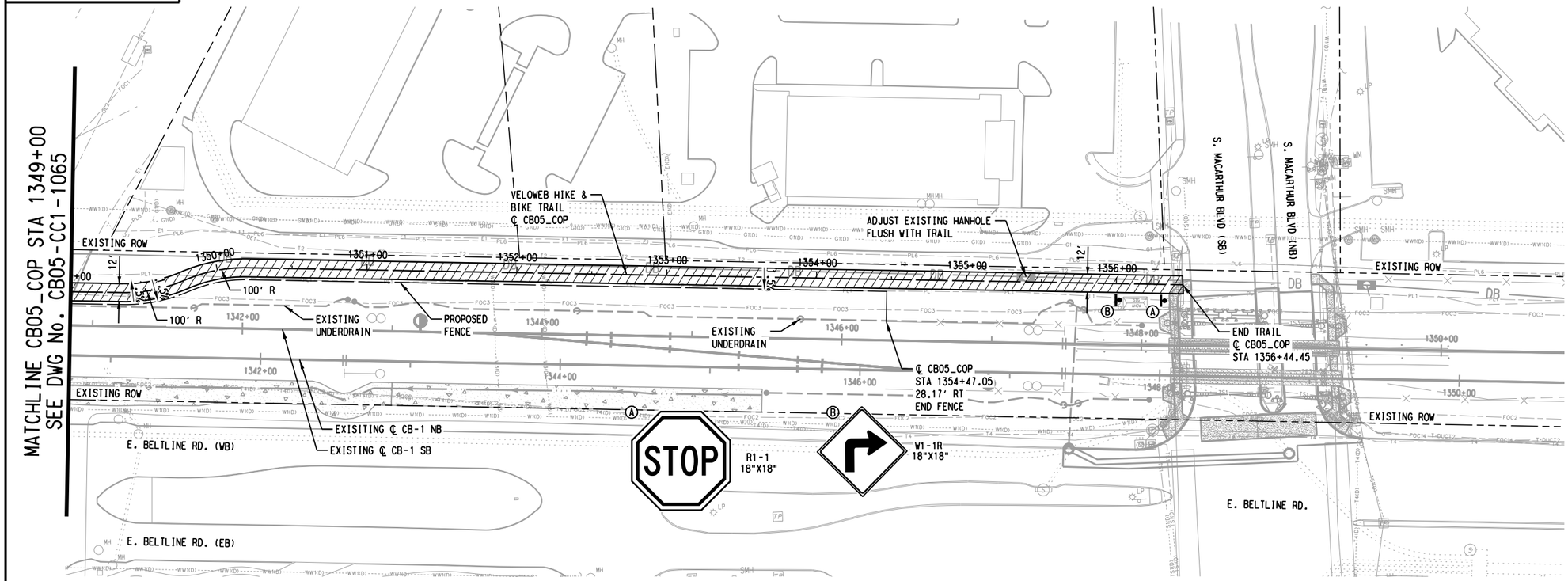
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1339+00 TO STA 1349+00
SHEET 20 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1065	D

CB05-CC1-1065.040

DWG No. CC1-1066



LEGEND:

TRAIL PAVEMENT

1.5% → TRAIL CROSS-SLOPE

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
2. SEE SURVEY CONTROL SHEETS FOR BENCHMARK LOCATIONS.
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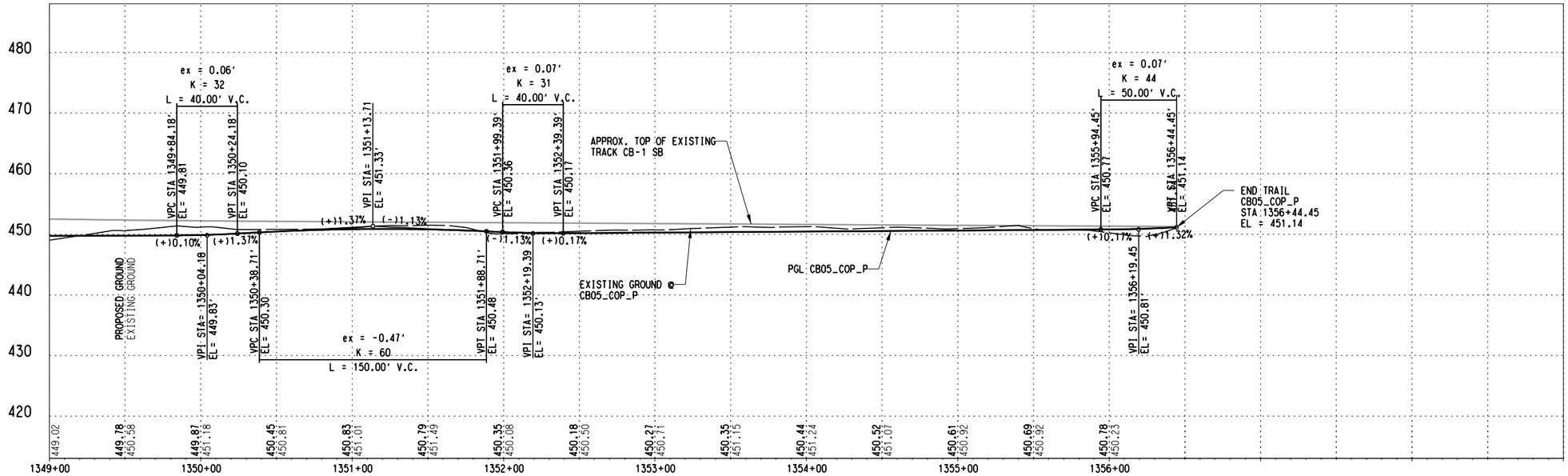

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CONTRACT SHEET No. 97 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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(214) 739-3152 Fax (214) 739-3169
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ARCHER WESTERN HERZOG

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
PLAN & PROFILE
STA 1349+00 TO STA 1356+44.45
SHEET 21 OF 21

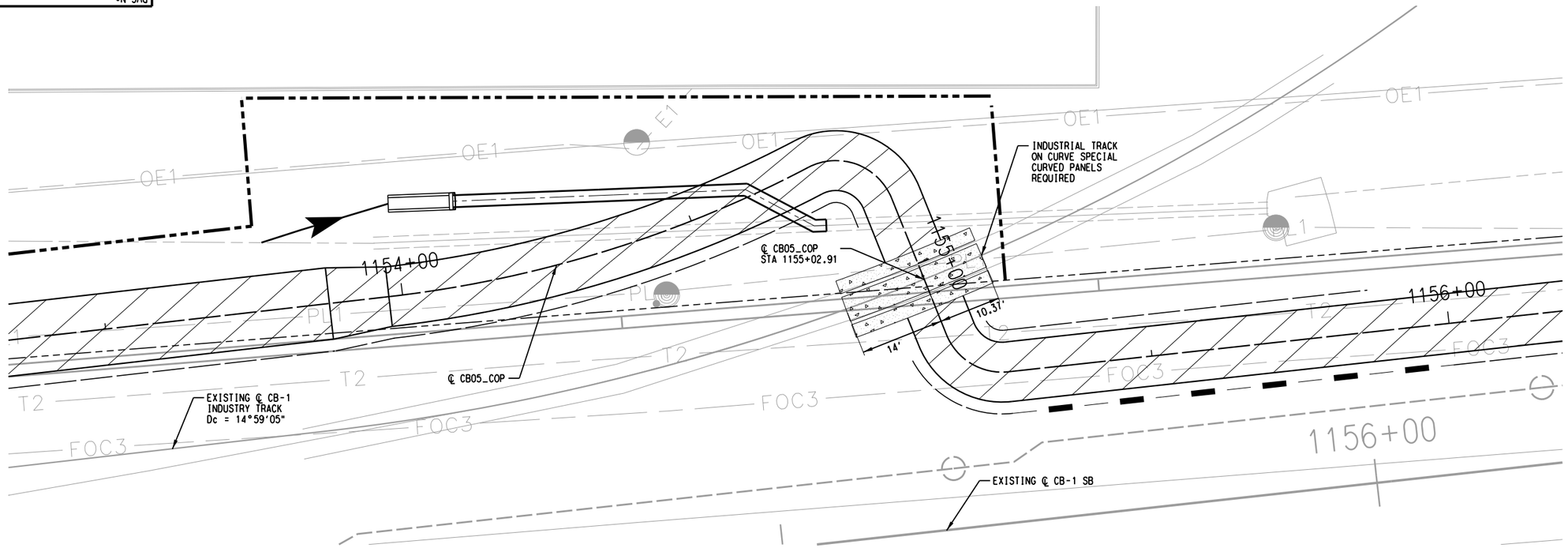
CONTRACT	DWG No.	REV
C-2033270-01	CC1-1066	D

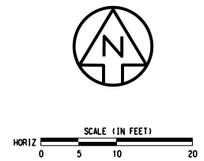
CB05-CC1-1066.040

30-AUG-2023 16:41
CB05-CC1-1066.040

ssoleh
Default

DWG No. CC1-1067



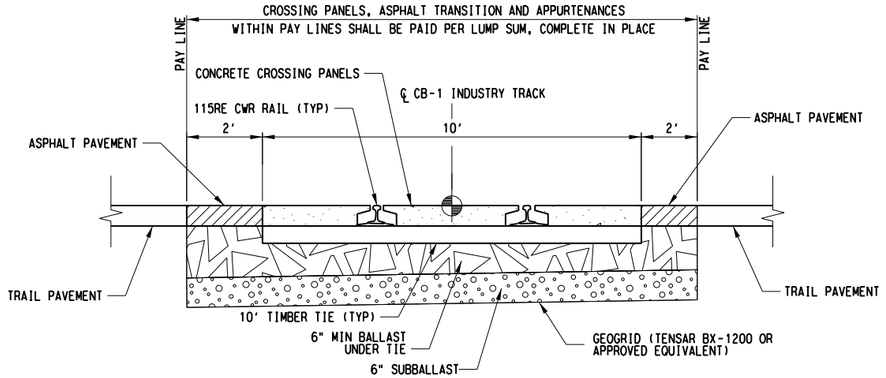


NOTES:

1. ALL STATIONING IS BASED ON HIKE & BIKE TRAIL STATIONING UNLESS OTHERWISE NOTED.
2. SEE TRAIL PLAN AND PROFILE SHEETS FOR FENCE LIMITS. FENCING IS REQUIRED WHERE TRAIL EDGE IS WITHIN 35' OF TRACK AND NO BARRIER STRUCTURE IS IN PLACE.
3. SEE TRAIL PLAN AND PROFILE SHEETS FOR SIDEWALK WALL LOCATIONS AND LIMITS.
4. REFER TO PANEL DETAILS FOR NOTES AND SPECIFICATIONS.
5. ALL TRACK GRADE CROSSING WORK BETWEEN TRAIL PAVEMENT TO BE DONE BY OTHERS UNLESS OTHERWISE SPECIFIED.

LEGEND:

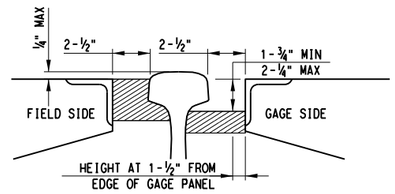
- TRAIL PAVEMENT
- CONCRETE CROSSING PANEL
- RIPRAP



TRACK GRADE CROSSING

NO SCALE

NOTE:
TIE SPACING AT CROSSING TO BE
10' TIMBER TIES AT 19.5" TIE SPACING
5-10' TIMBER TRANSITION TIES AT EACH
END OF CROSSING PANEL



FLANGE DETAIL

NO SCALE

NOTE:
VENDOR SHALL SUBMIT PREATTACHED FLANGEWAY FILLER DESIGN AND DETAILS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.

*PER ADA COMPLIANCE NO FLANGEWAY GAP CAN BE GREATER THAN 2-½"

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FINAL 100% DESIGN

CONTRACT SHEET No. 98 OF 378

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DESIGNED	C.BAGBY
CHECKED	D. LUU
IN CHARGE	D.LUU
DATE	25 AUG 23

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
GRADE CROSSING

CONTRACT	DWG No.	REV
C-2033270-01	CC1-1067	D

CB05-CC1-1067.010

30-AUG-2023 16:33
CB05-CC1-1067.010

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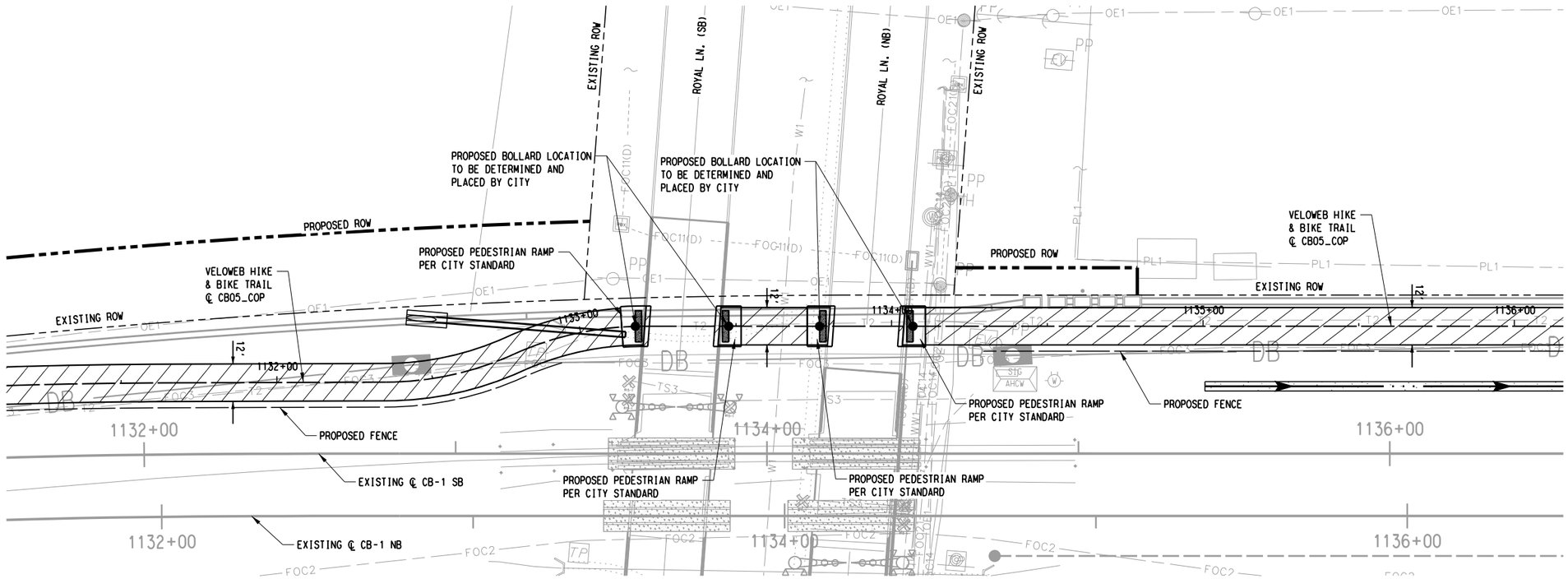
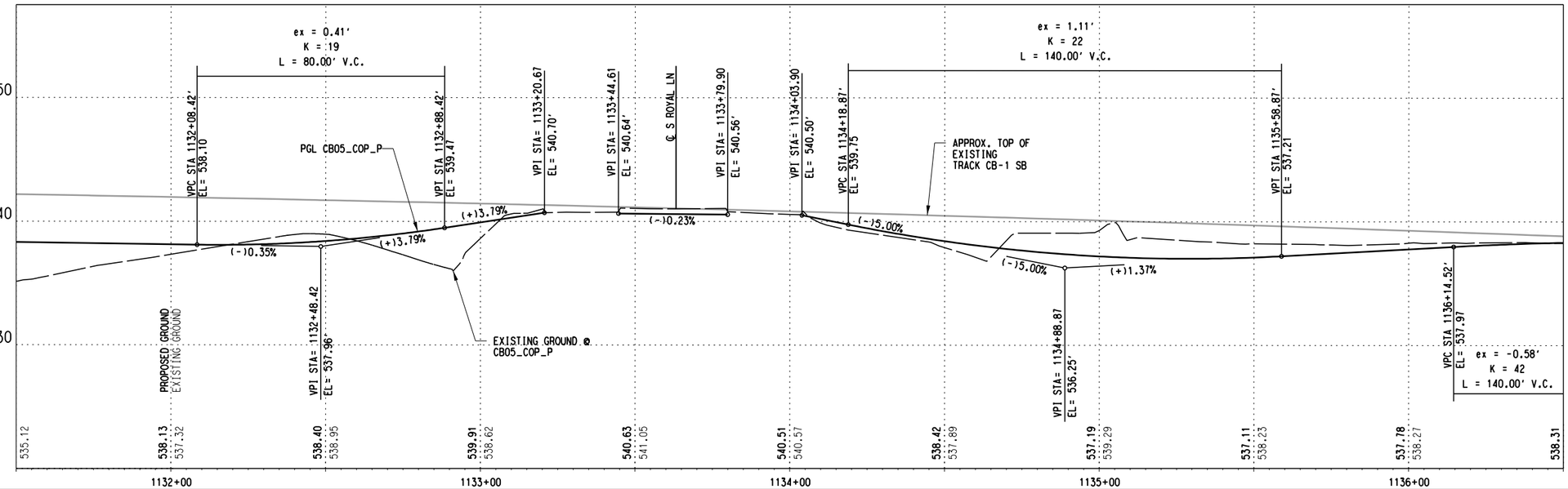
DWG No. CC6-0177





SCALE (IN FEET)
HORIZ 0 10 20 40
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:

- TRAIL PAVEMENT
- 1.50% → TRAIL CROSS-SLOPE
- SIDEWALK PAVEMENT
- TRAIL BOARDWALK

NOTES:

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7. SIGN PLACEMENT SHALL BE AS PER CHAPTER 9 OF THE TMUTCD 2011 REV 2.
8. PROPOSED BOLLARD LOCATION TO BE DETERMINED AND INSTALLED BY CITY

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FINAL 100% DESIGN

CONTRACT SHEET No. 99 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
FIRM NO.F-819

ARCHER WESTERN HERZOG

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CAES

SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

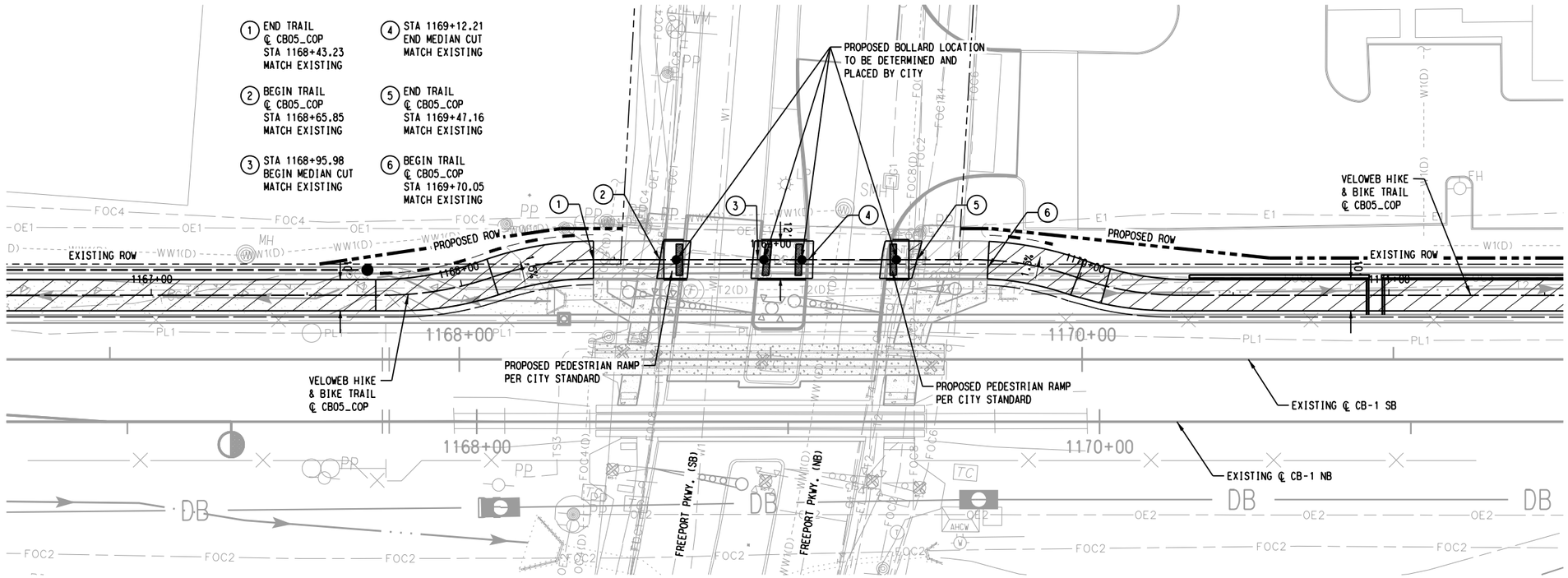
CITY OF COPPELL
ROYAL LN
PLAN & PROFILE

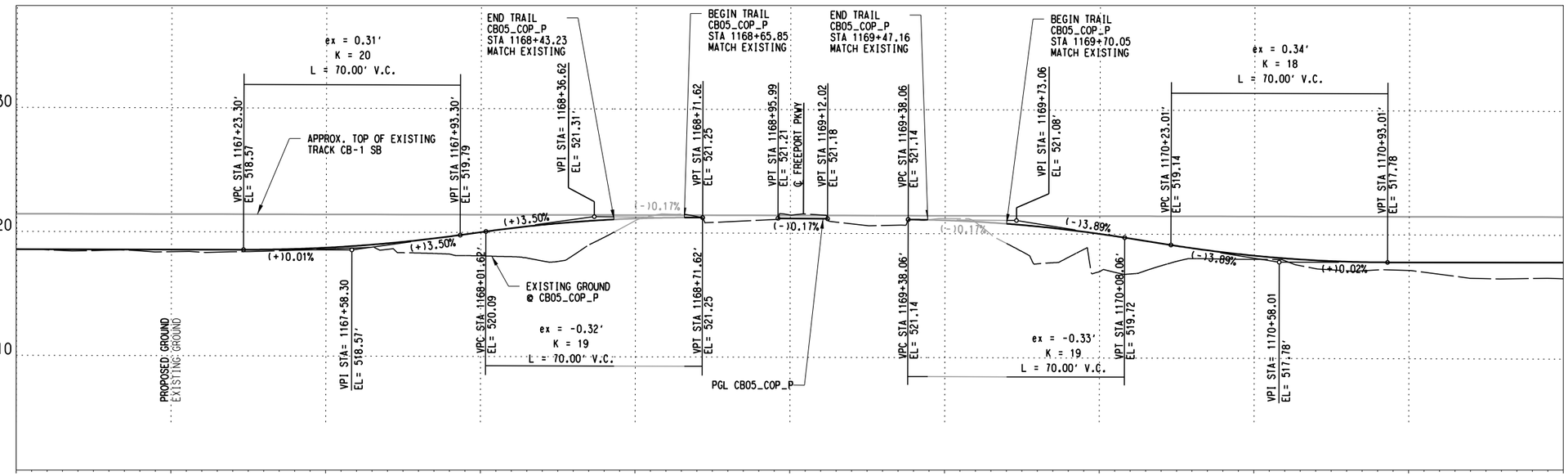
CONTRACT	DWG No.	REV
C-2033270-01	CC6-0177	D

CB05-CC6-0177.0

30-AUG-2023 16:33
CB05-CC6-0177.0
ssaleh
Default

DWG No. CC6-0178





SCALE (IN FEET)
HORIZ 0 10 20 40
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:

- TRAIL PAVEMENT
- 1.50% → TRAIL CROSS-SLOPE
- SIDEWALK PAVEMENT
- TRAIL BOARDWALK

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
2. SEE SURVEY CONTROL SHEETS FOR BENCHMARK LOCATIONS.
3. SEE DRAINAGE PLAN AND PROFILE SHEETS FOR TRAIL DRAINAGE DESIGN.
4. SEE RETAINING WALL LAYOUT SHEETS FOR ADDITIONAL INFORMATION.
5. SEE BRIDGE LAYOUT SHEETS FOR ADDITIONAL PEDESTRIAN BRIDGE INFORMATION.
6. SEE TYPICAL SECTION SHEETS FOR ADDITIONAL INFORMATION.
7. SIGN PLACEMENT SHALL BE AS PER CHAPTER 9 OF THE TMUTCD 2011 REV 2.
8. PROPOSED BOLLARD LOCATION TO BE DETERMINED AND INSTALLED BY CITY

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 100 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARCHER WESTERN HERZOG

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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

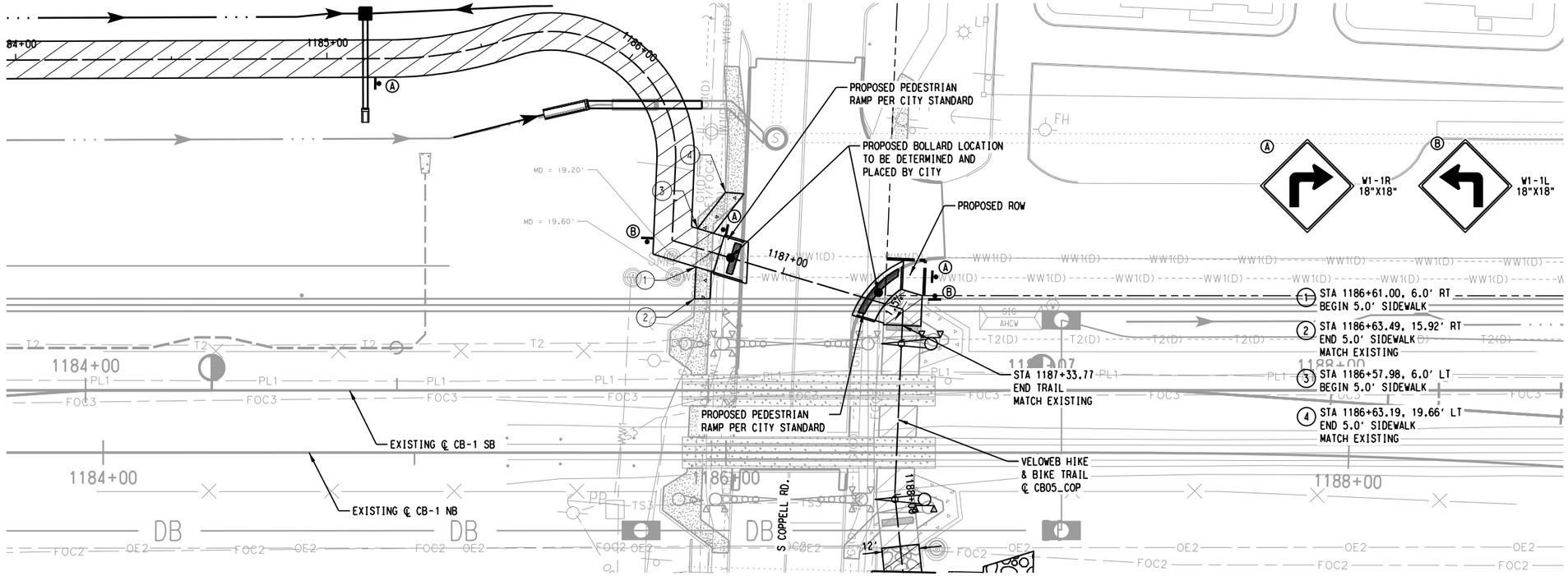
CITY OF COPPELL
FREEPORT PKWY
PLAN & PROFILE

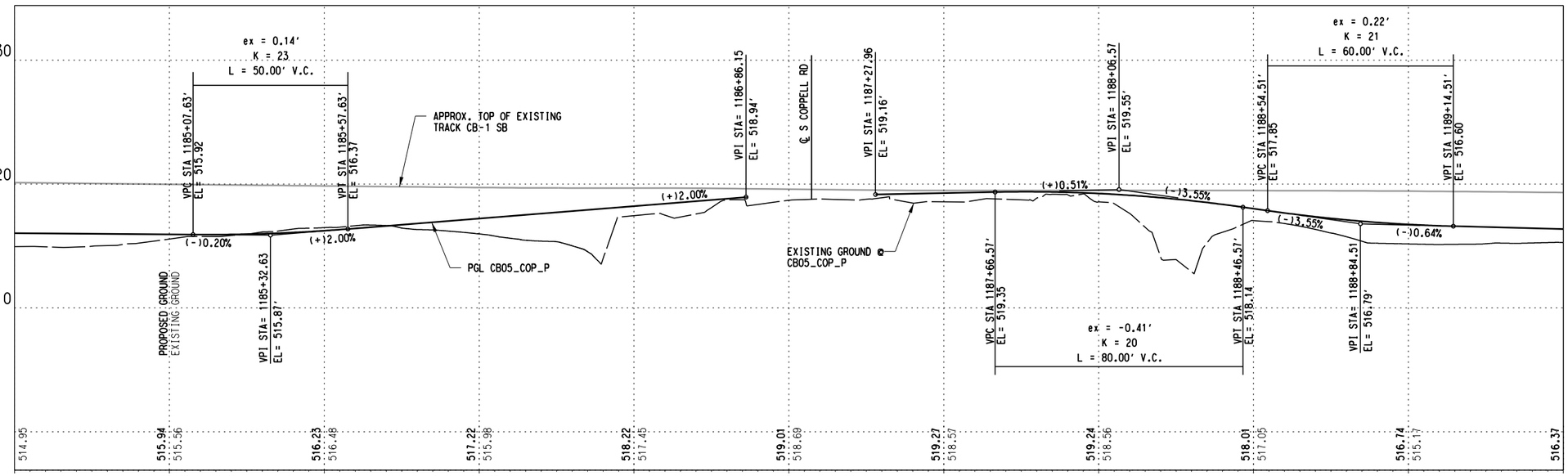
CONTRACT	DWG No.	REV
C-2033270-01	CC6-0178	D

CB05-CC6-0178.0

30-AUG-2023 16:33
CB05-CC6-0178.0
ssaleh
Default

DWG No. CC4-1405





SCALE (IN FEET)
HORIZ 0 10 20 40
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:

- TRAIL PAVEMENT
- 1.50% TRAIL CROSS-SLOPE
- SIDEWALK PAVEMENT
- TRAIL BOARDWALK

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
2. SEE SURVEY CONTROL SHEETS FOR BENCHMARK LOCATIONS.
3. SEE DRAINAGE PLAN AND PROFILE SHEETS FOR TRAIL DRAINAGE DESIGN.
4. SEE RETAINING WALL LAYOUT SHEETS FOR ADDITIONAL INFORMATION.
5. SEE BRIDGE LAYOUT SHEETS FOR ADDITIONAL PEDESTRIAN BRIDGE INFORMATION.
6. SEE TYPICAL SECTION SHEETS FOR ADDITIONAL INFORMATION.
7. SIGN PLACEMENT SHALL BE AS PER CHAPTER 9 OF THE TMUTCD 2011 REV 2.
8. PROPOSED BOLLARD LOCATION TO BE DETERMINED AND INSTALLED BY CITY

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 101 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

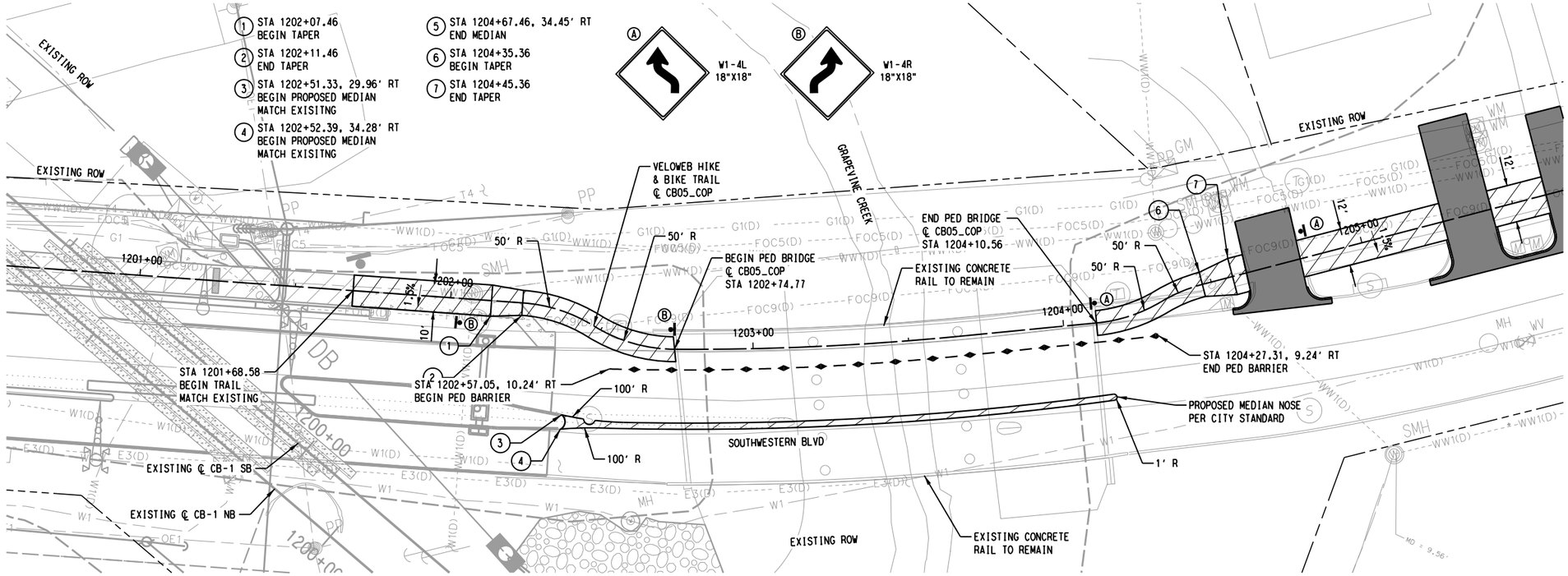
CITY OF COPPELL
COPPELL RD
PLAN & PROFILE

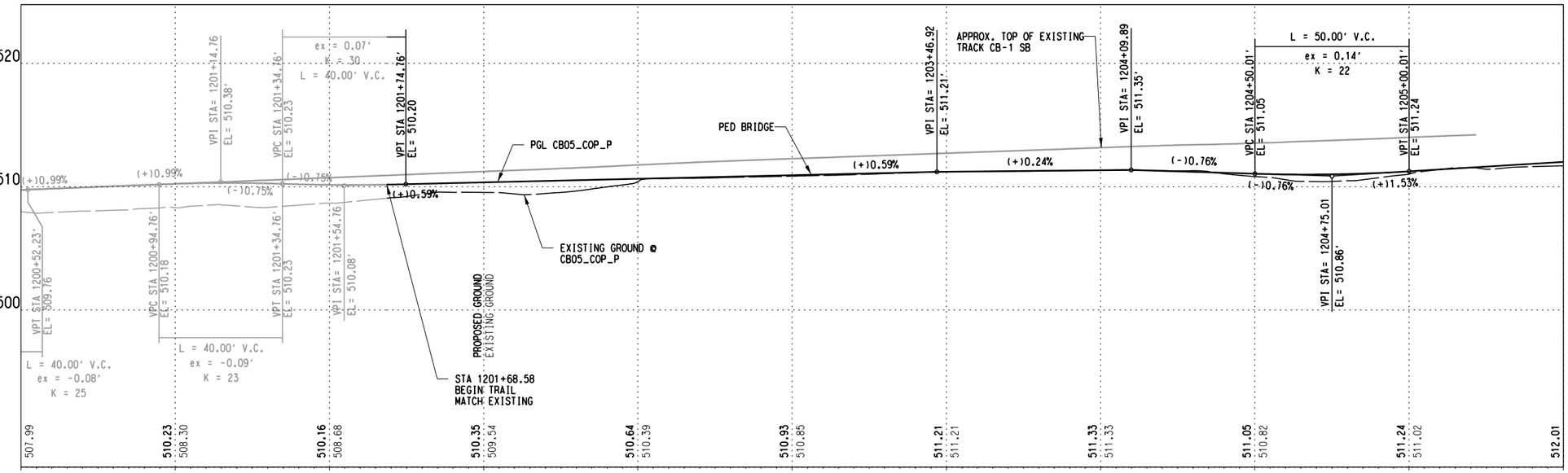
CONTRACT	DWG No.	REV
C-2033270-01	CC4-1405	D

CB05-CC4-1405.0

30-AUG-2023 16:33
CB05-CC4-1405.0
ssaleh
Default

DWG No. CC4-1406





LEGEND:

- TRAIL PAVEMENT
- 1.50% TRAIL CROSS-SLOPE
- SIDEWALK PAVEMENT
- TRAIL BOARDWALK

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
2. SEE SURVEY CONTROL SHEETS FOR BENCHMARK LOCATIONS.
3. SEE DRAINAGE PLAN AND PROFILE SHEETS FOR TRAIL DRAINAGE DESIGN.
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6. SEE TYPICAL SECTION SHEETS FOR ADDITIONAL INFORMATION.
7. SIGN PLACEMENT SHALL BE AS PER CHAPTER 9 OF THE TMUTCD 2011 REV 2.
8. PROPOSED BOLLARD LOCATION TO BE DETERMINED AND INSTALLED BY CITY

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FINAL 100% DESIGN

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
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CAES

SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CONTRACT SHEET No. 102 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

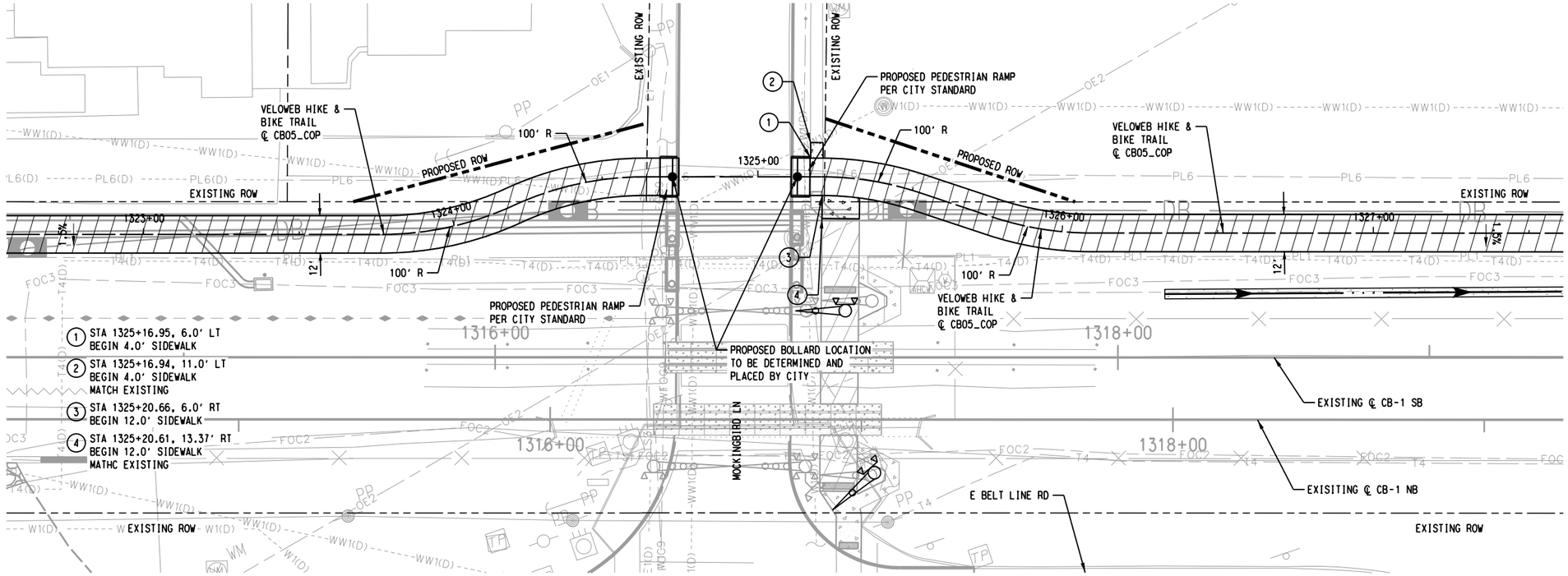
CITY OF COPPELL
SOUTHWESTERN BLVD
PLAN & PROFILE

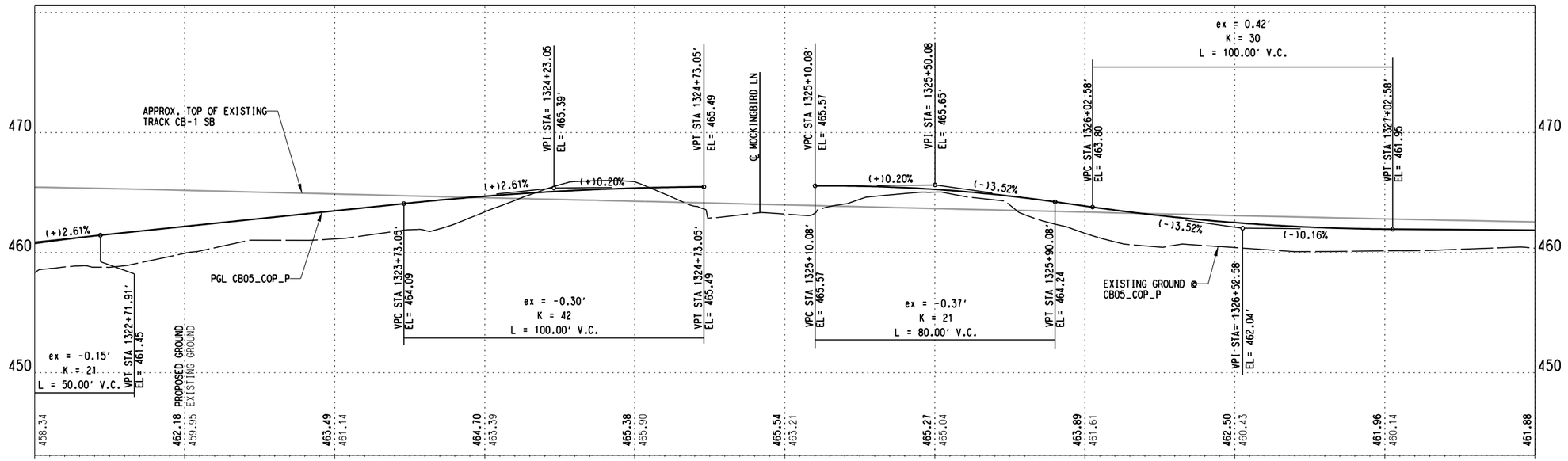
CONTRACT	DWG No.	REV
C-2033270-01	CC4-1406	D

CB05-CC4-1406.0

30-AUG-2023 16:33
CB05-CC4-1406.0
ssoleh
Default

DWG No. CC4-1409





SCALE (IN FEET)
HORIZ 0 10 20 40
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:

- TRAIL PAVEMENT
- 1.50% → TRAIL CROSS-SLOPE
- SIDEWALK PAVEMENT
- TRAIL BOARDWALK

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
2. SEE SURVEY CONTROL SHEETS FOR BENCHMARK LOCATIONS.
3. SEE DRAINAGE PLAN AND PROFILE SHEETS FOR TRAIL DRAINAGE DESIGN.
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6. SEE TYPICAL SECTION SHEETS FOR ADDITIONAL INFORMATION.
7. SIGN PLACEMENT SHALL BE AS PER CHAPTER 9 OF THE TMUTCD 2011 REV 2.
8. PROPOSED BOLLARD LOCATION TO BE DETERMINED AND INSTALLED BY CITY

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 103 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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12801 N Central Expressway, Suite 1250
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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

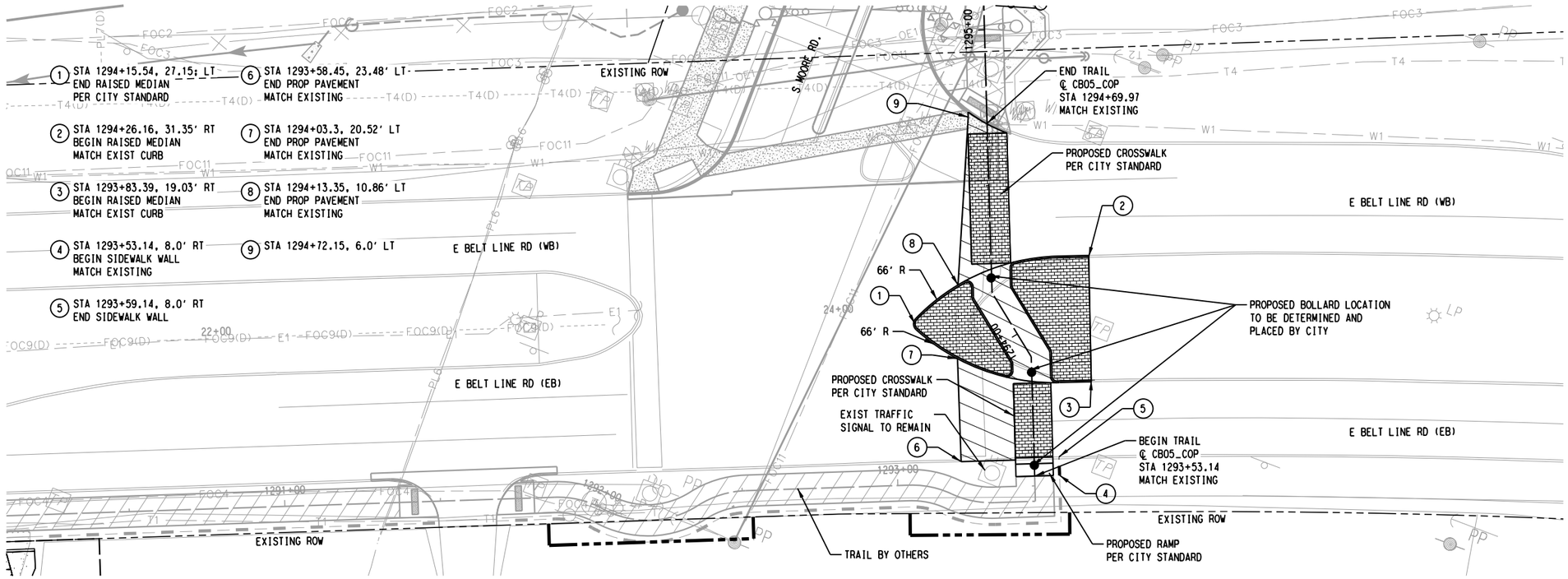
CITY OF COPPELL
MOCKINGBIRD LN
PLAN & PROFILE

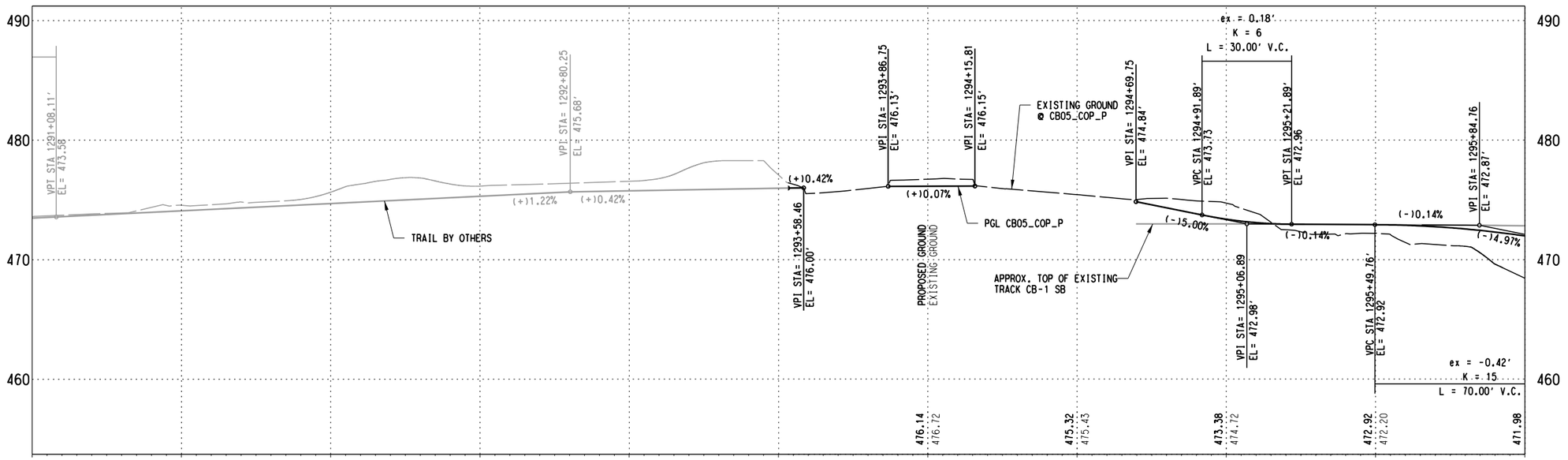
CONTRACT	DWG No.	REV
C-2033270-01	CC4-1409	D

30-AUG-2023 16:33
CB05-CC4-1409.0
ssaleh
Default

CB05-CC4-1409.0

DWG No. CC4-1408





SCALE (IN FEET)
HORIZ 0 10 20 40
SCALE (IN FEET)
VERT 0 5 10 15 20

LEGEND:

- TRAIL PAVEMENT
- 1.50% TRAIL CROSS-SLOPE
- SIDEWALK PAVEMENT

NOTES:

1. PROPOSED ROW AND EASEMENTS ARE APPROXIMATE.
2. SEE SURVEY CONTROL SHEETS FOR BENCHMARK LOCATIONS.
3. SEE DRAINAGE PLAN AND PROFILE SHEETS FOR TRAIL DRAINAGE DESIGN.
4. SEE RETAINING WALL LAYOUT SHEETS FOR ADDITIONAL INFORMATION.
5. SEE BRIDGE LAYOUT SHEETS FOR ADDITIONAL PEDESTRIAN BRIDGE INFORMATION.
6. SEE TYPICAL SECTION SHEETS FOR ADDITIONAL INFORMATION.
7. SIGN PLACEMENT SHALL BE AS PER CHAPTER 9 OF THE TMUTCD
8. PROPOSED BOLLARD LOCATION TO BE DETERMINED AND INSTALLED BY CITY

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FINAL 100% DESIGN

CONTRACT SHEET No. 104 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
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SCALE	AS NOTED
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
MOORE RD
PLAN & PROFILE

CONTRACT	DWG No.	REV
C-2033270-01	CC4-1408	D

CB05-CC4-1408.0

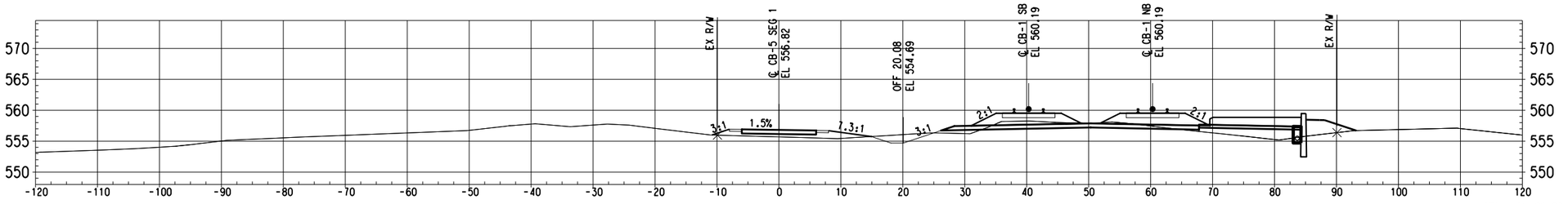
31-AUG-2023 09:27
CB05-CC4-1408.0
amcdorman
Default

DWG No. CC1-6320

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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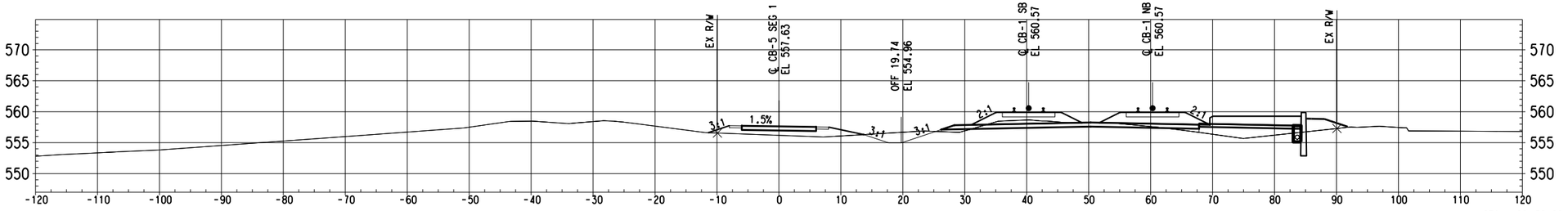

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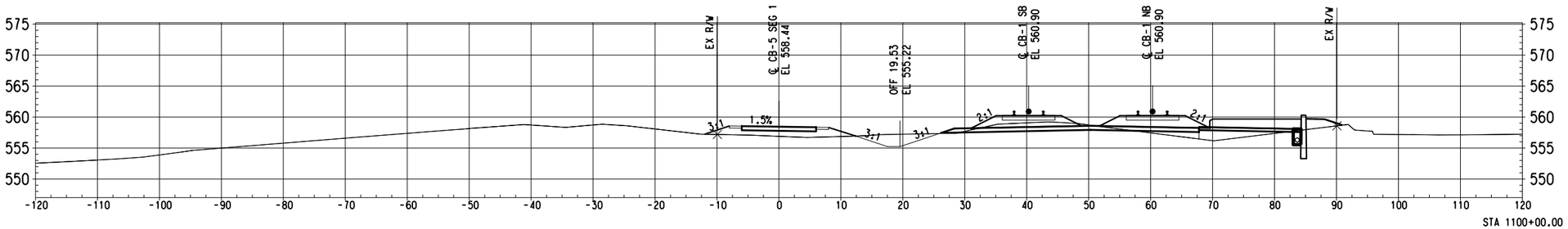

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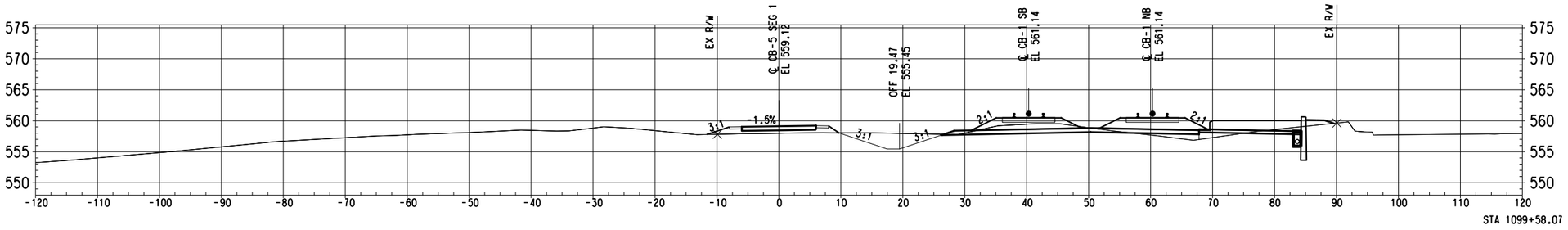

STA 1099+58.07

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CONTRACT SHEET No. 105 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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SCALE	AS NOTED
DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 1 OF 106

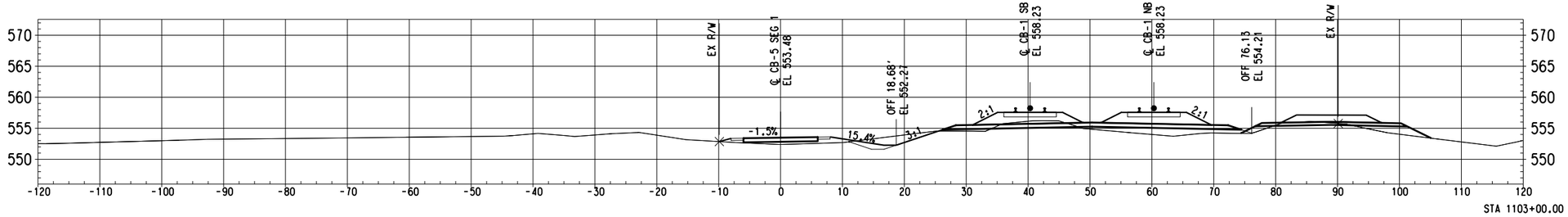
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6320	D

DWG No. CC1-6321

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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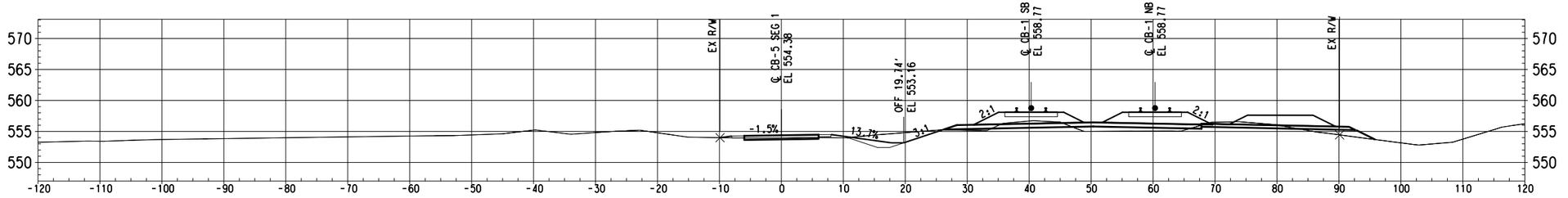

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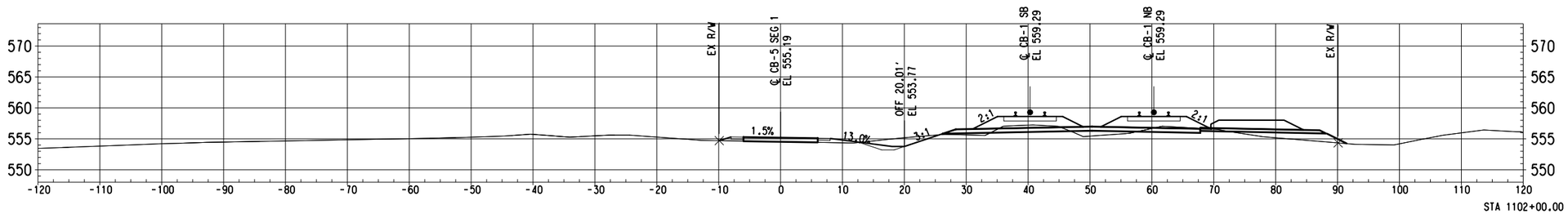

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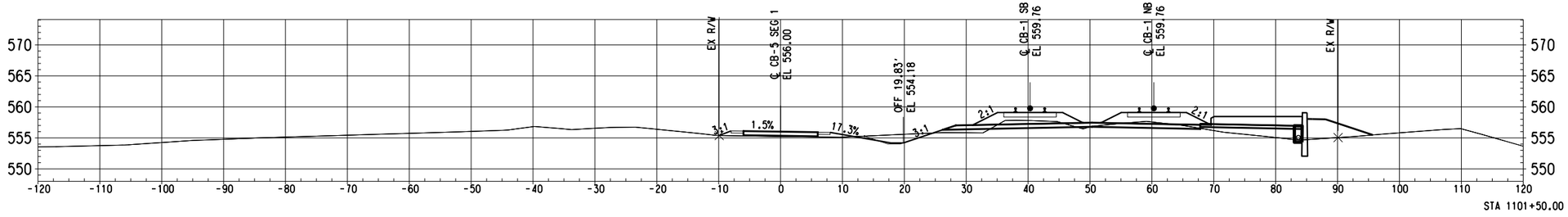

STA 1101+50.00

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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FIRM NO. F-819

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DART PROJECT

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SCALE	AS NOTED
DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

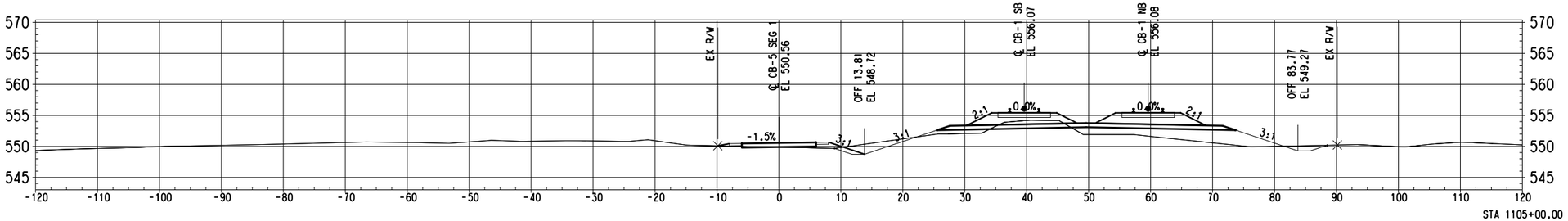
CITY OF COPPELL
CROSS SECTIONS
SHEET 2 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6321	D

DWG No. CC1-6322

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

SCALE (IN FEET)
HORIZ 0 5 10 20
SCALE (IN FEET)
VERT 0 5 10 20



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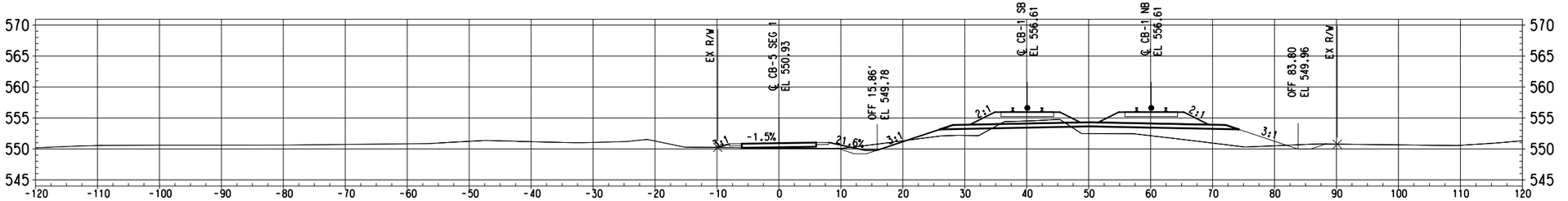
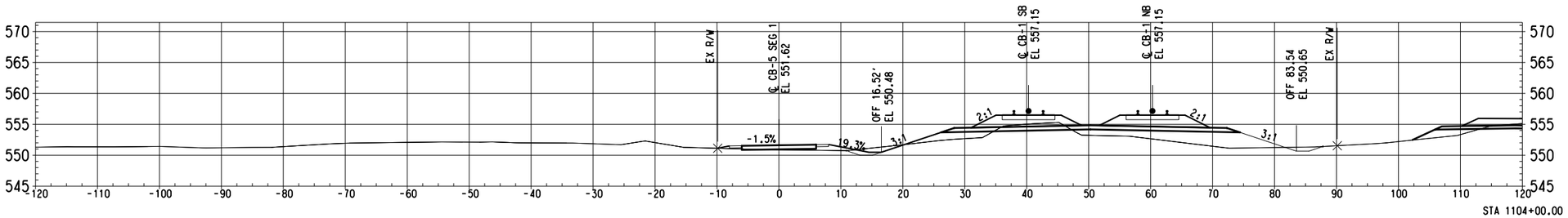


STA 1104+50.00



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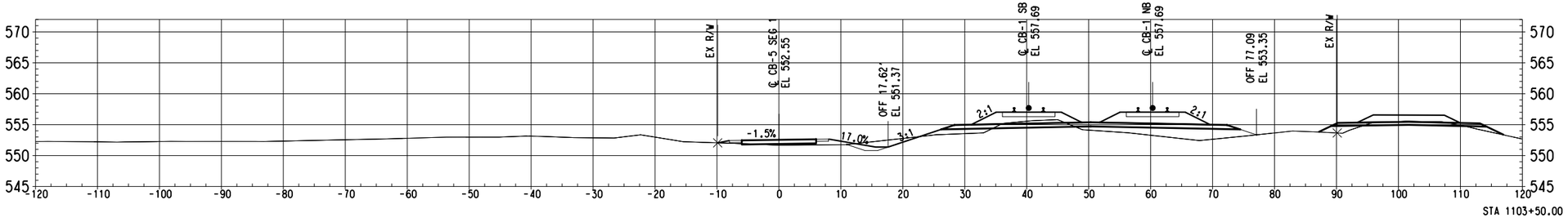

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DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 107 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 3 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6322	D

DWG No. CC1-6323

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE
AND RIP RAP LOCATIONS AND LIMITS

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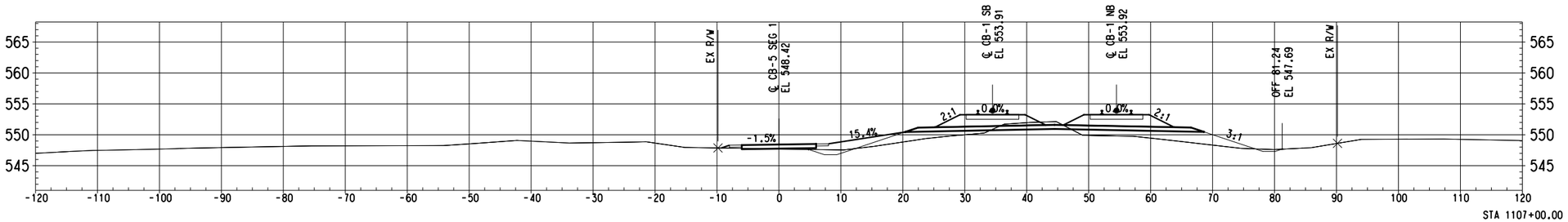
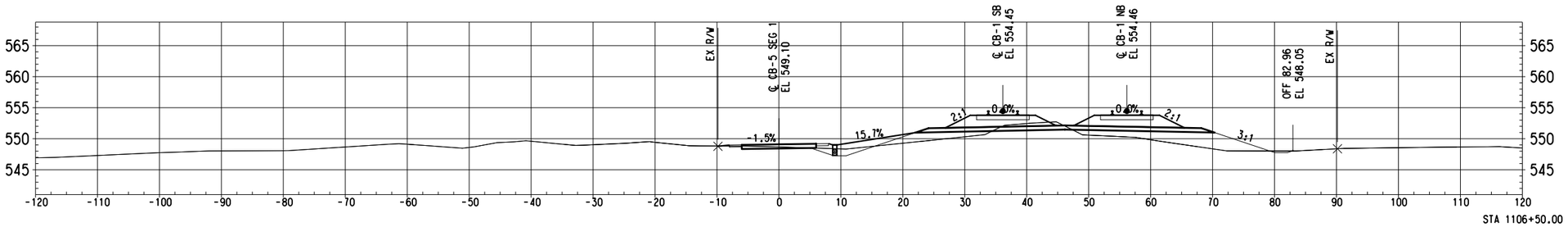
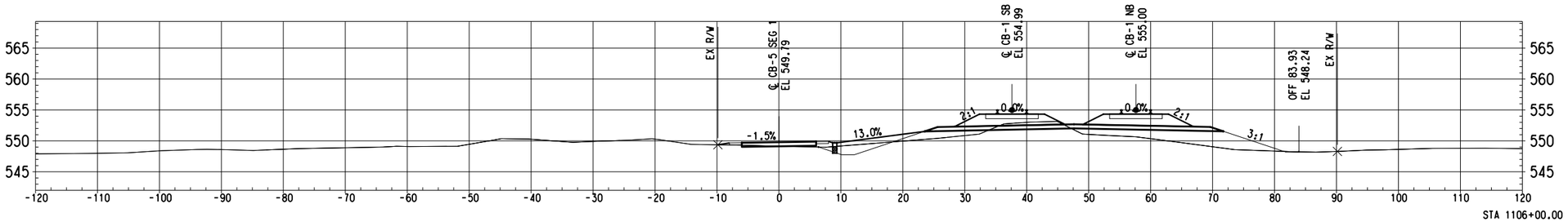
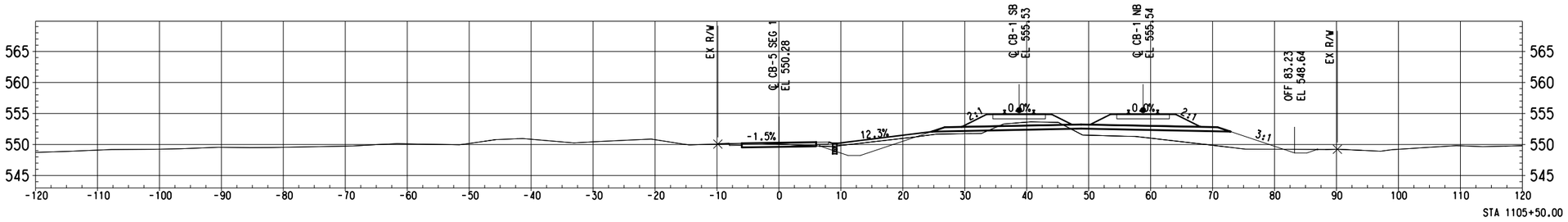
VERT SCALE (IN FEET) 0 5 10 20









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DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CONTRACT SHEET No. 108 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 4 OF 106

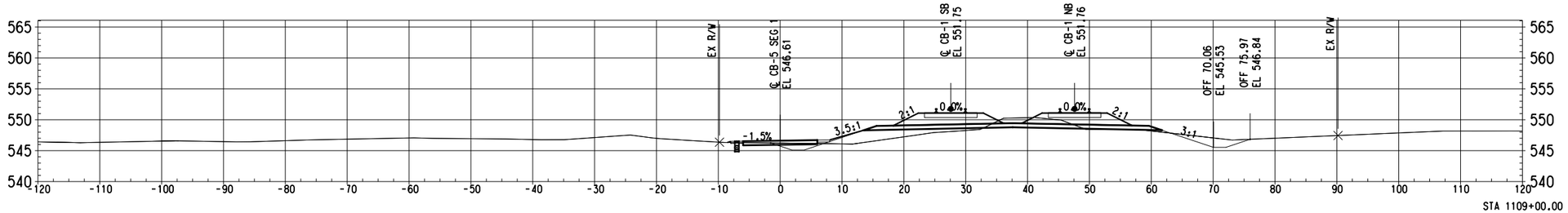
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6323	D

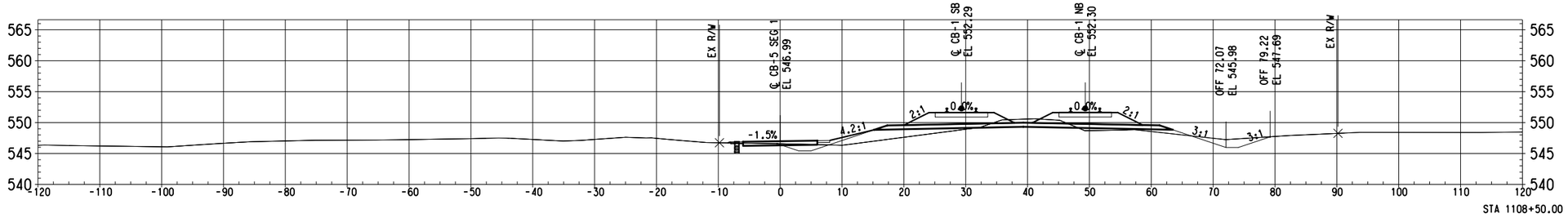
DWG No. CC1-6324

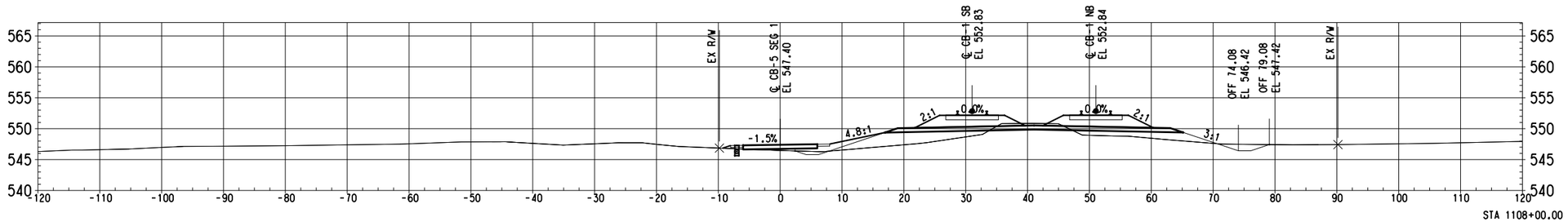
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

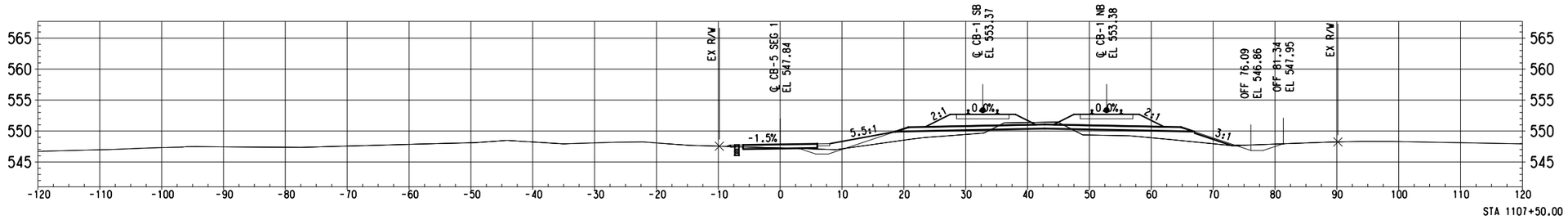
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 5 OF 106

SCALE	AS NOTED
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CONTRACT	DWG No.	REV
C-2033270-01	CC1-6324	D

DWG No. CC1-6325

NOTE:
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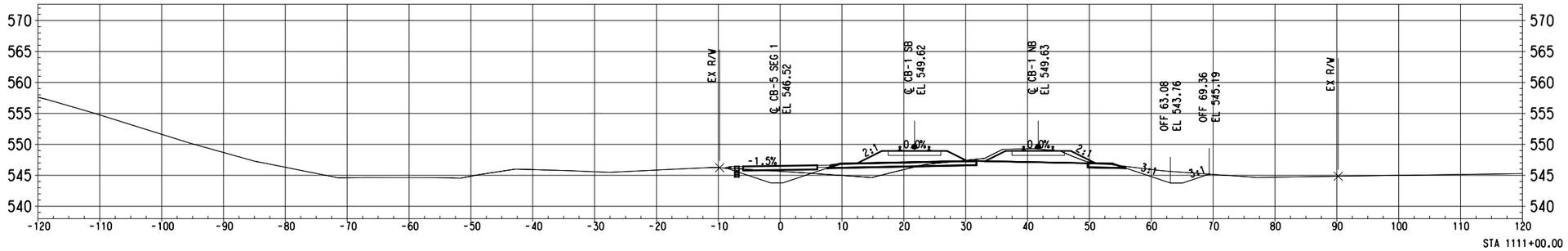
VERT SCALE (IN FEET) 0 5 10 20



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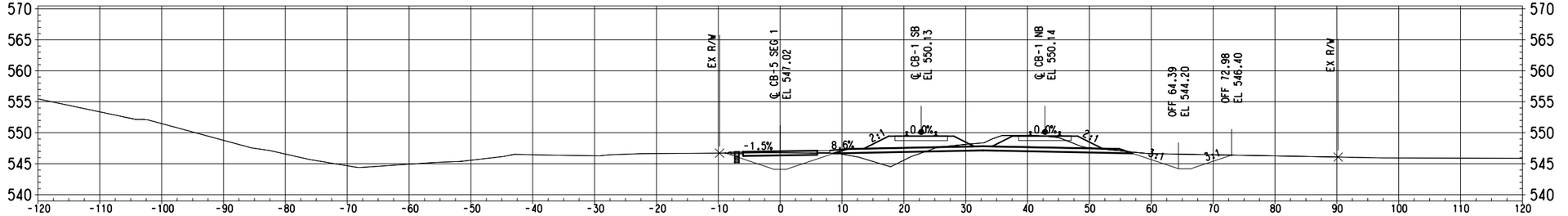

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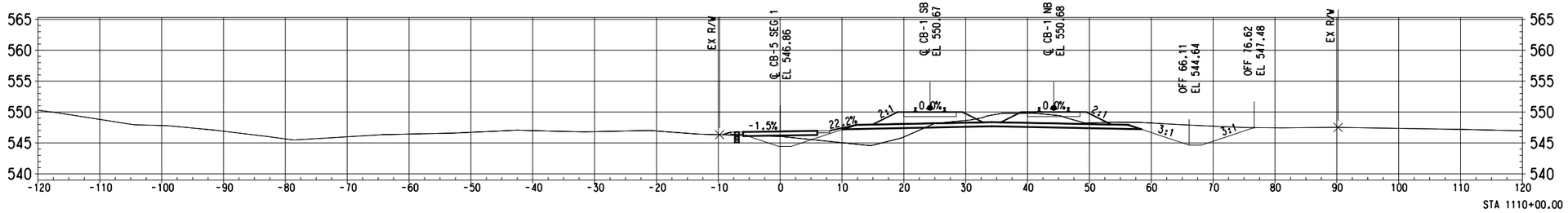

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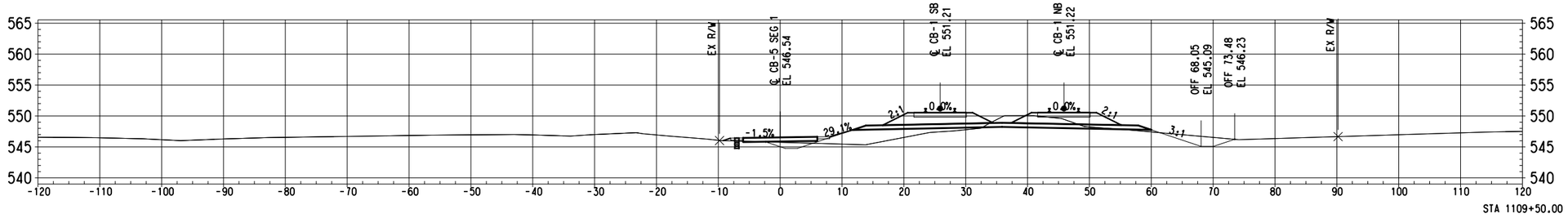

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DESIGNED	S. SALEH
CHECKED	D. LUU
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DATE	25 AUG 23

CAES

CONTRACT SHEET No. 110 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 6 OF 106

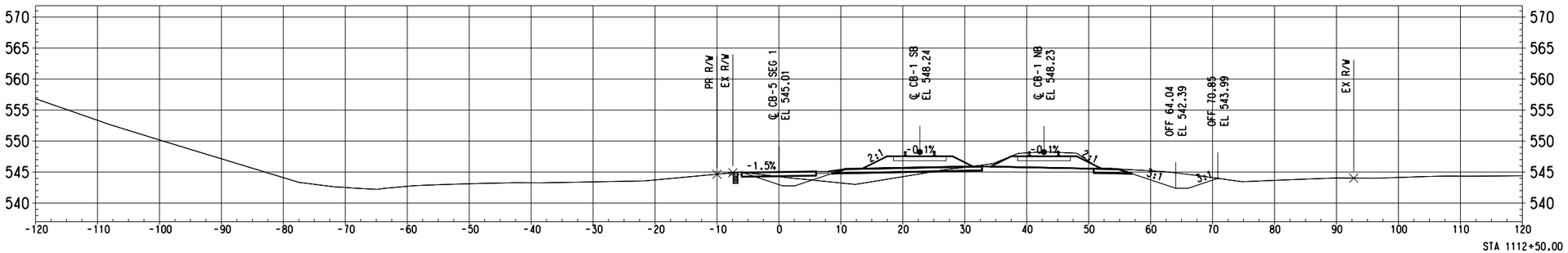
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6325	D

DWG No. CC1-6326

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE
AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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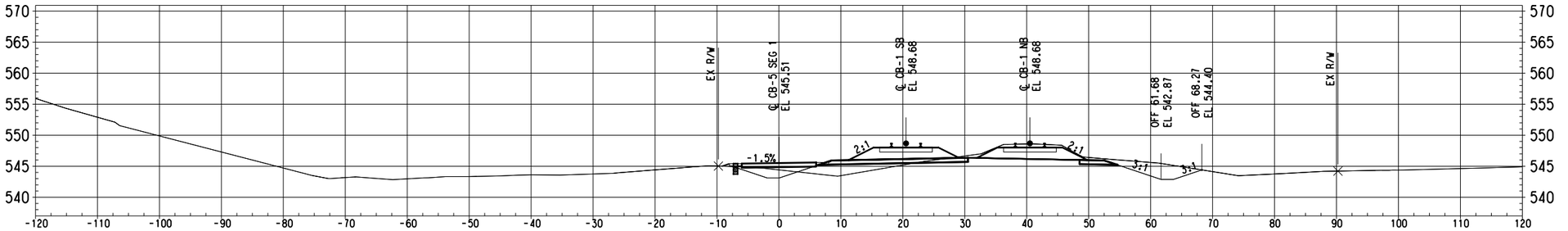

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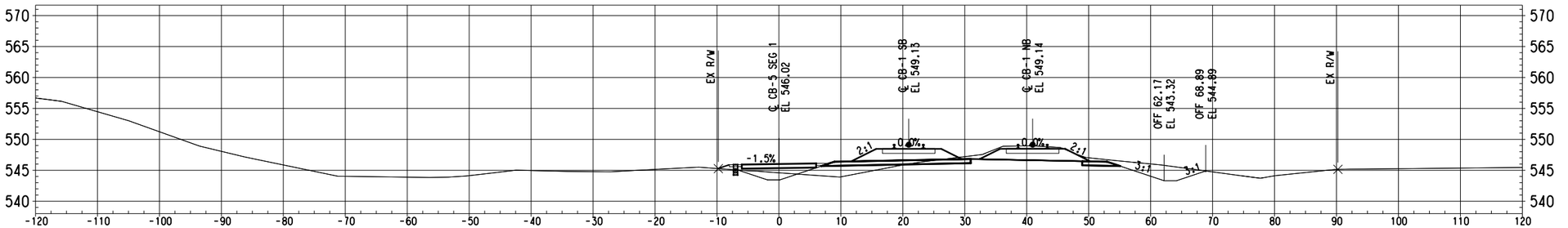

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CONTRACT SHEET No. 111 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 7 OF 106

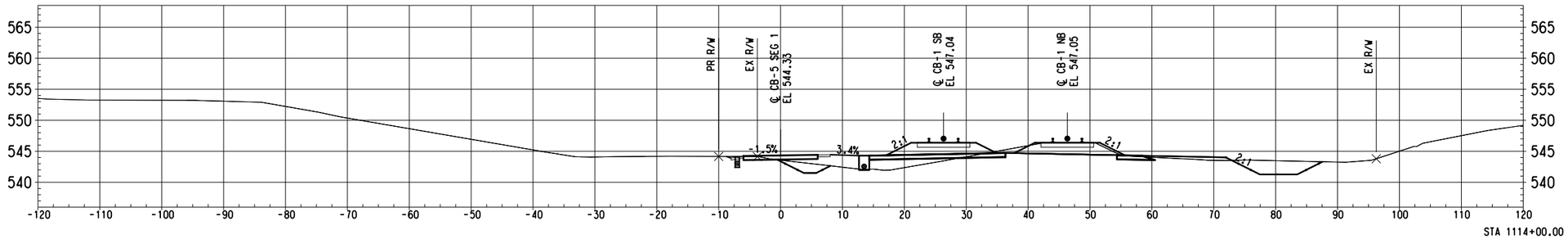
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6326	D

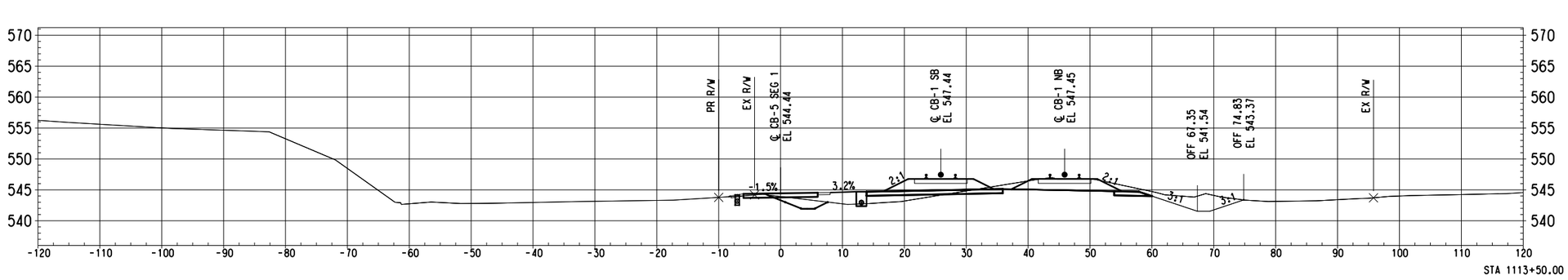
DWG No. CC1-6327

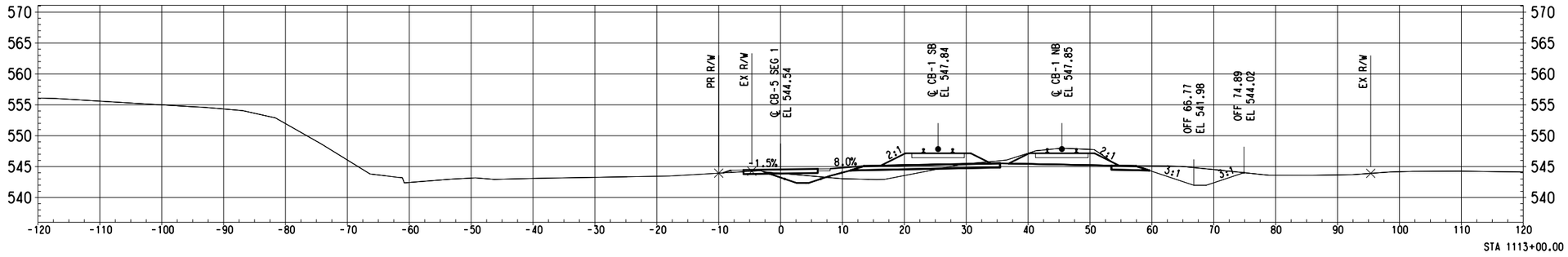
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE
AND RIP RAP LOCATIONS AND LIMITS

SCALE (IN FEET)
HORIZ 0 5 10 20

SCALE (IN FEET)
VERT 0 5 10 20







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DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 8 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6327	D

DWG No. CC1-6328

NOTE:
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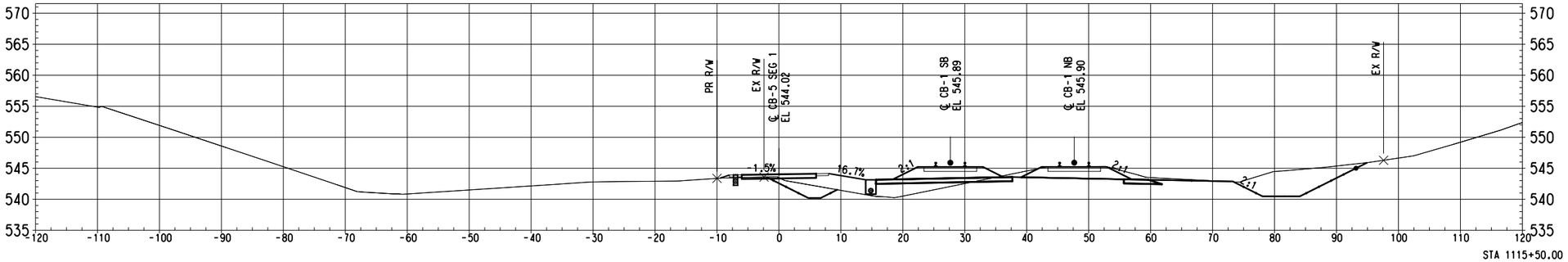
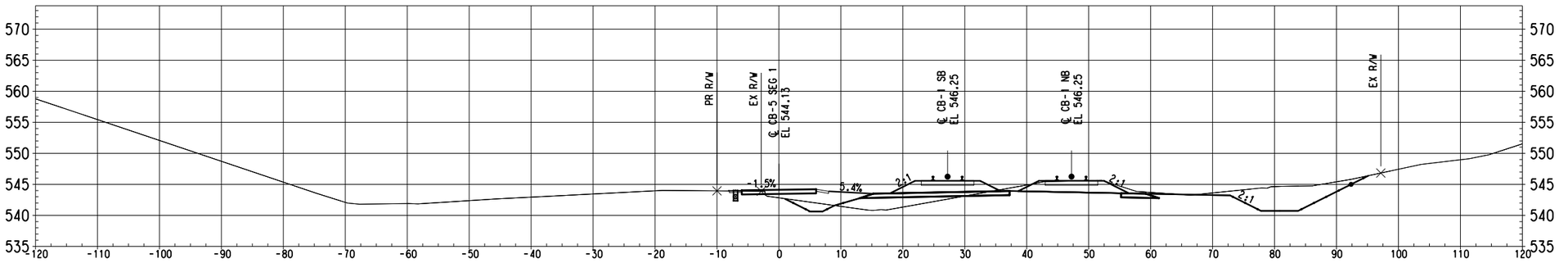
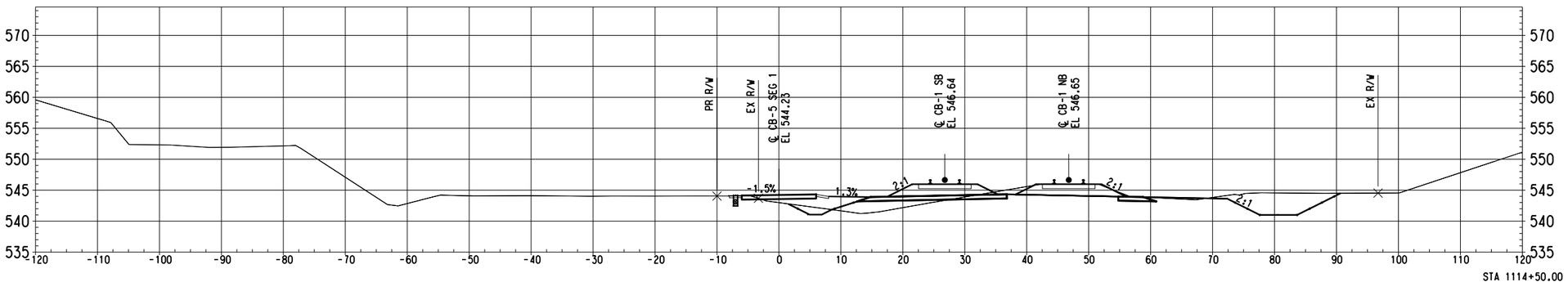
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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COTTON BELT REGIONAL RAIL VELOWEB HIKE & BIKE TRAIL

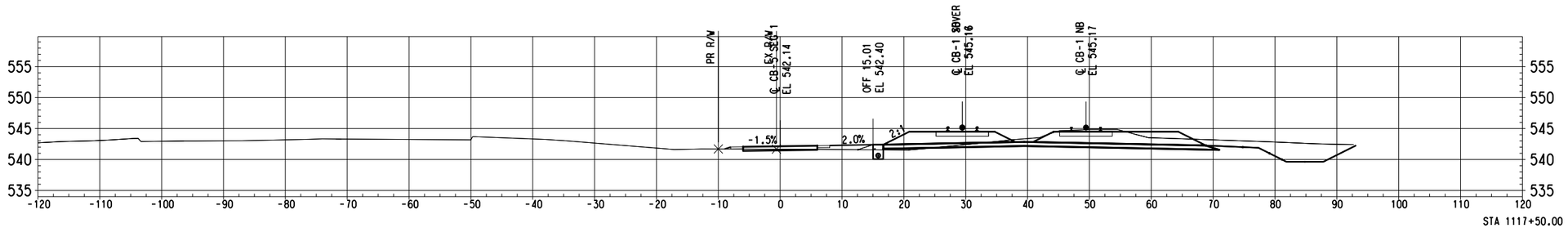
CITY OF COPPELL
CROSS SECTIONS
SHEET 9 OF 106

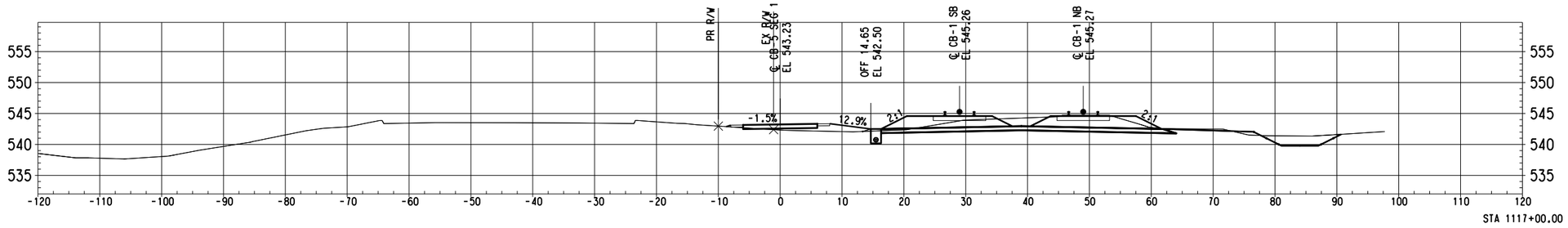
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6328	D

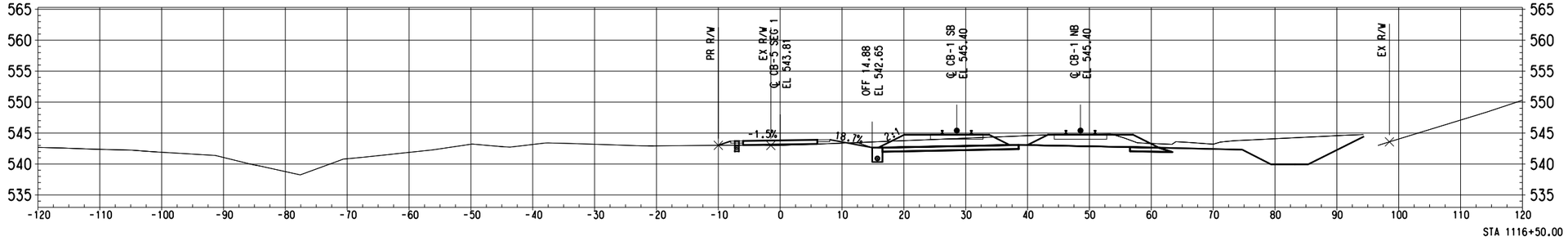
DWG No. CC1-6329

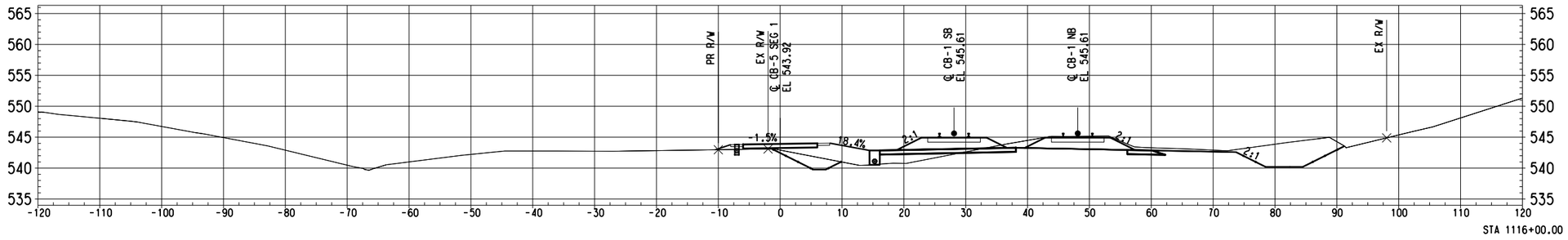
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20
VERT SCALE (IN FEET) 0 5 10 20









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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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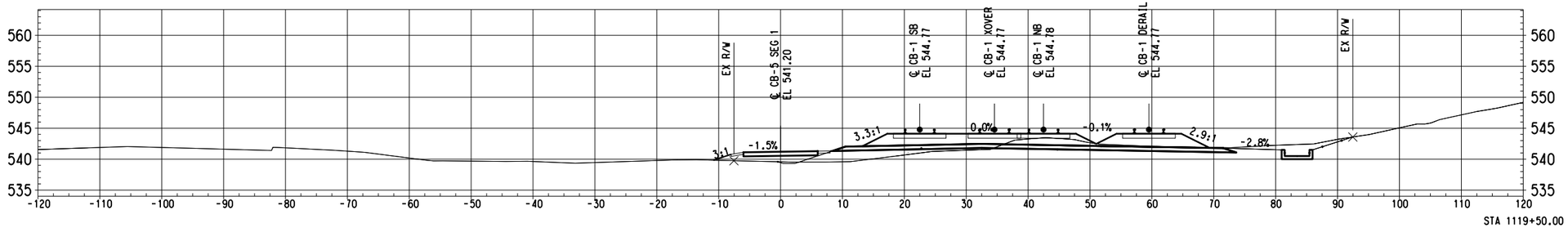
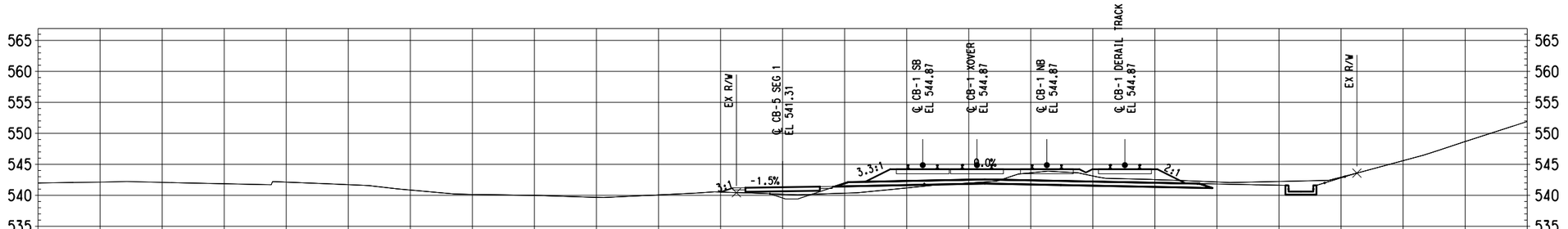
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

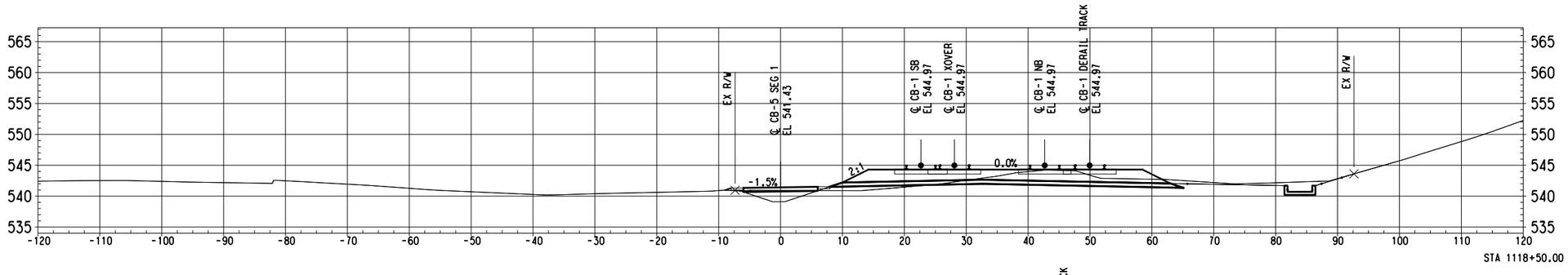
CITY OF COPPELL
CROSS SECTIONS
SHEET 10 OF 106

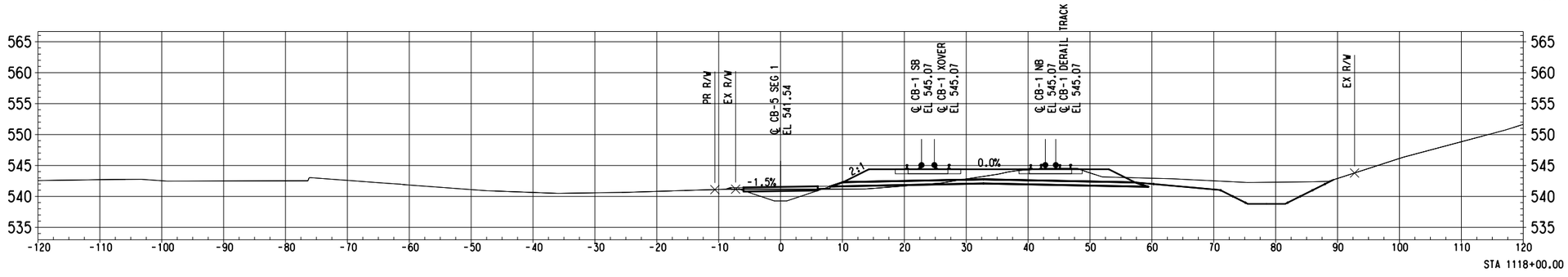
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6329	D

DWG No. CC1-6330









NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20

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DESIGNED	S. SALEH
CHECKED	D. LUU
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DATE	25 AUG 23

CAES

CONTRACT SHEET No. 115 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 11 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6330	D

DWG No. CC1-6331

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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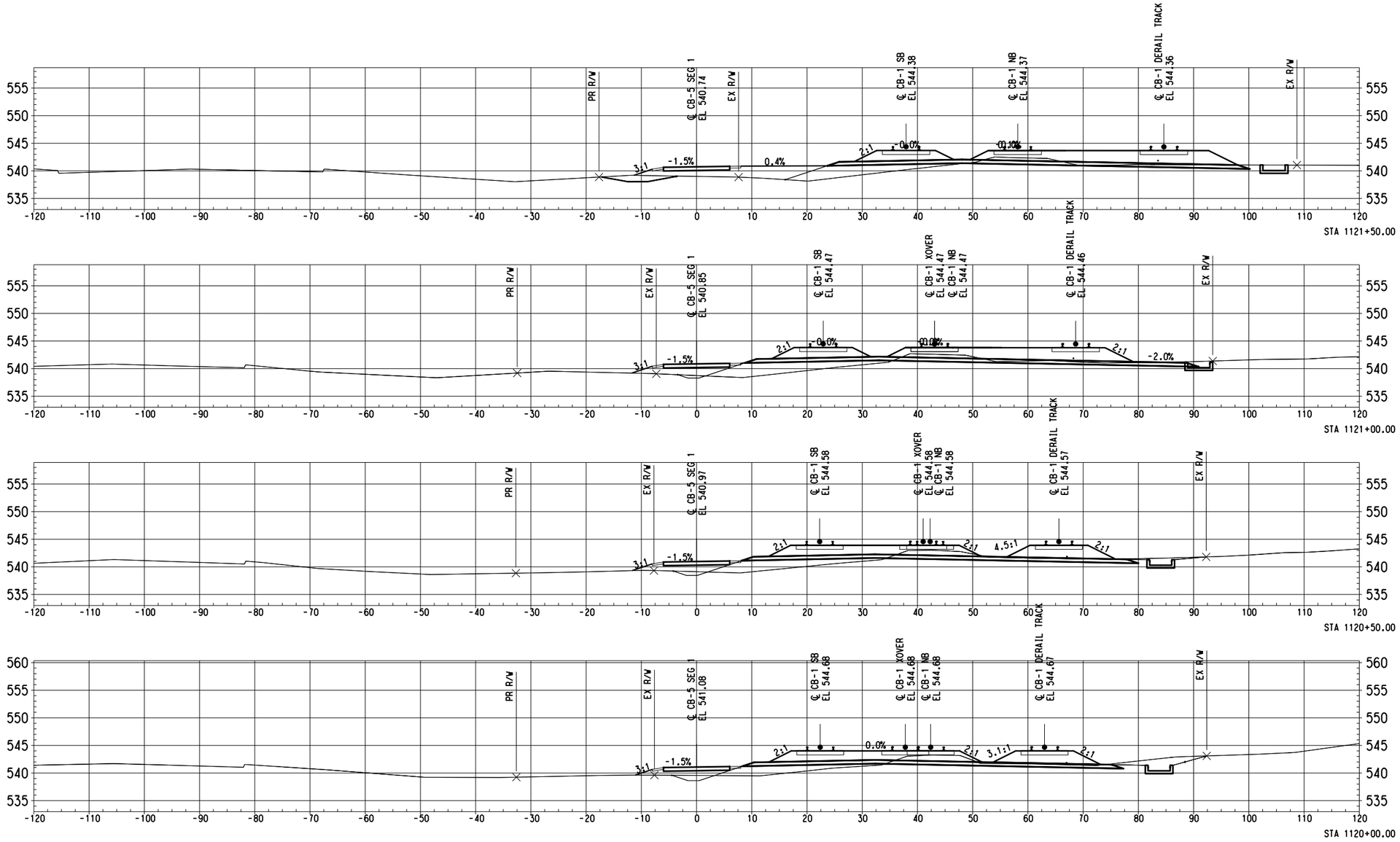

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CAES

CONTRACT SHEET No. 116 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 12 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6331	D

DWG No. CC1-6332

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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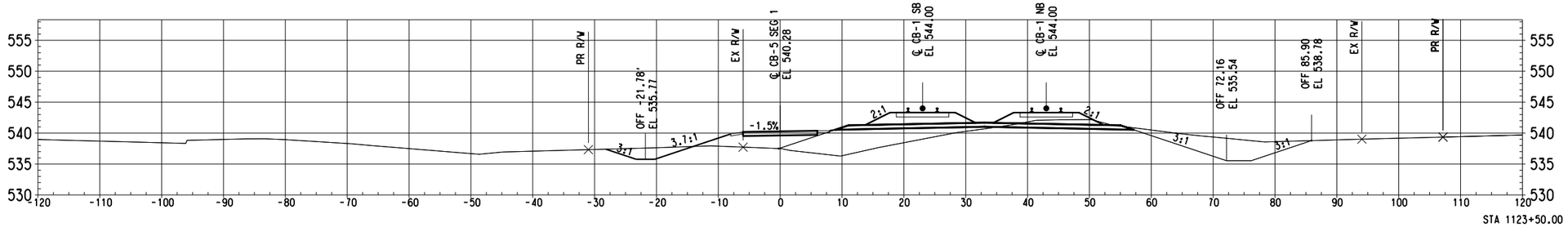
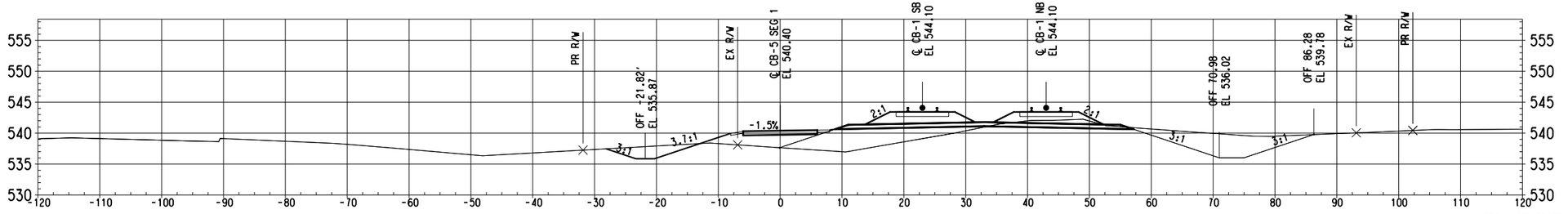
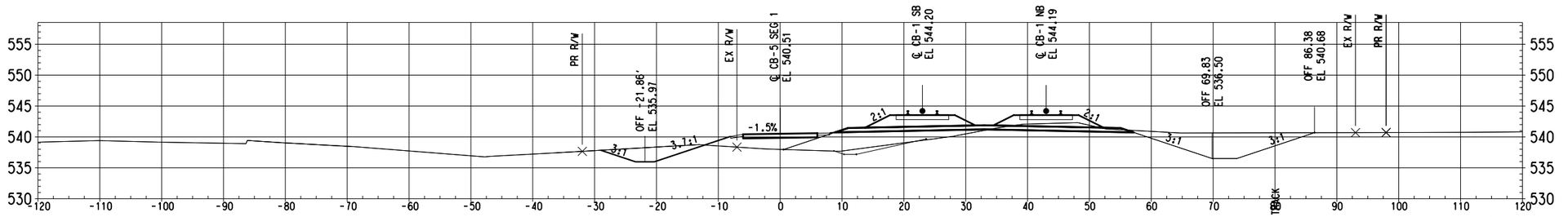
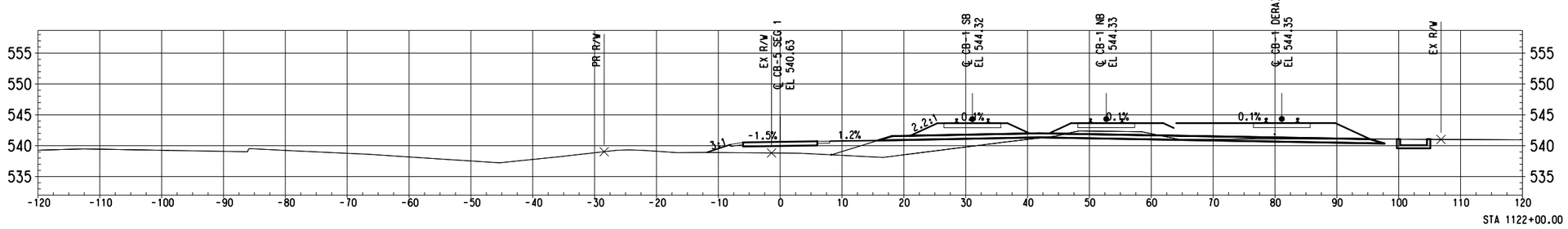
VERT SCALE (IN FEET) 0 5 10 20









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CHECKED	D. LUU
IN CHARGE	D. LUU
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CAES

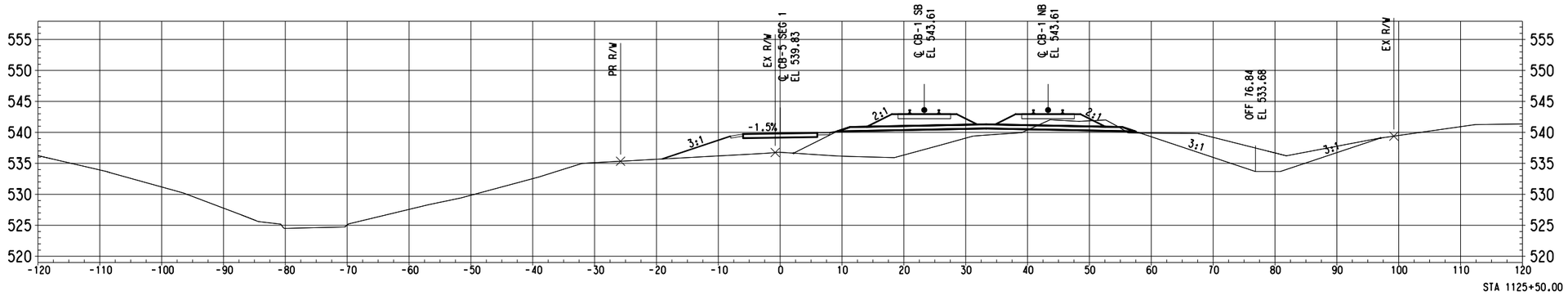
CONTRACT SHEET No. 117 OF 378

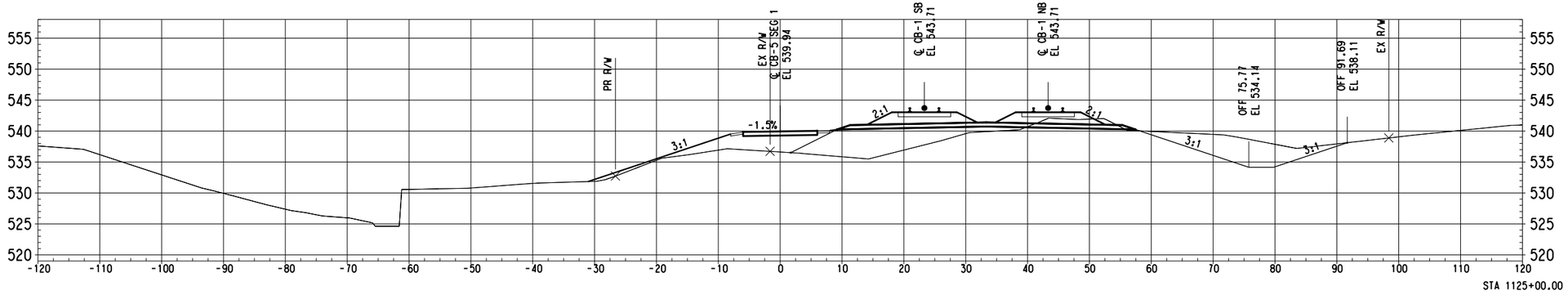
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

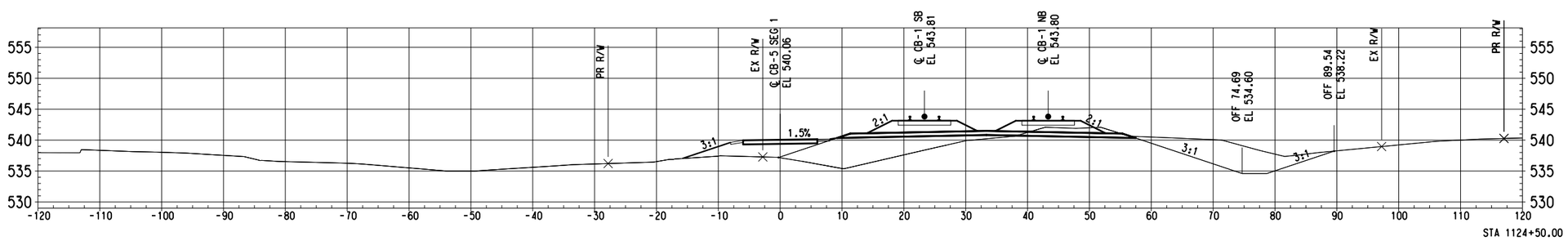
CITY OF COPPELL
CROSS SECTIONS
SHEET 13 OF 106

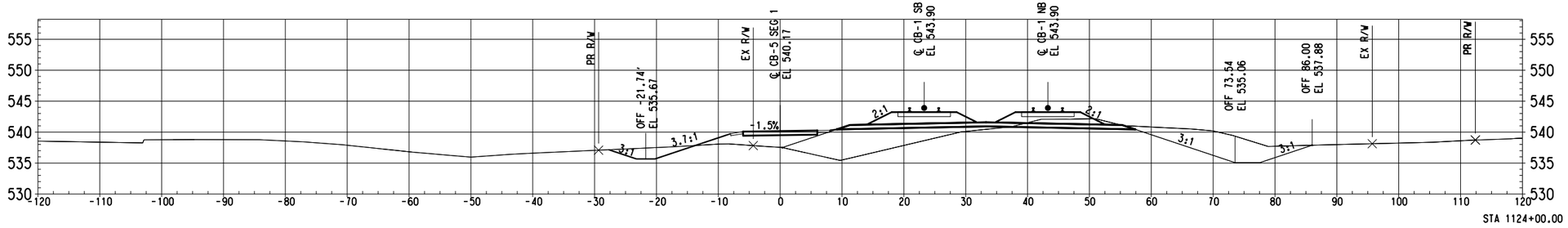
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6332	D

DWG No. CC1-6333









NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20

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CONTRACT SHEET No. 118 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 14 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6333	D

DWG No. CC1-6334

NOTE:
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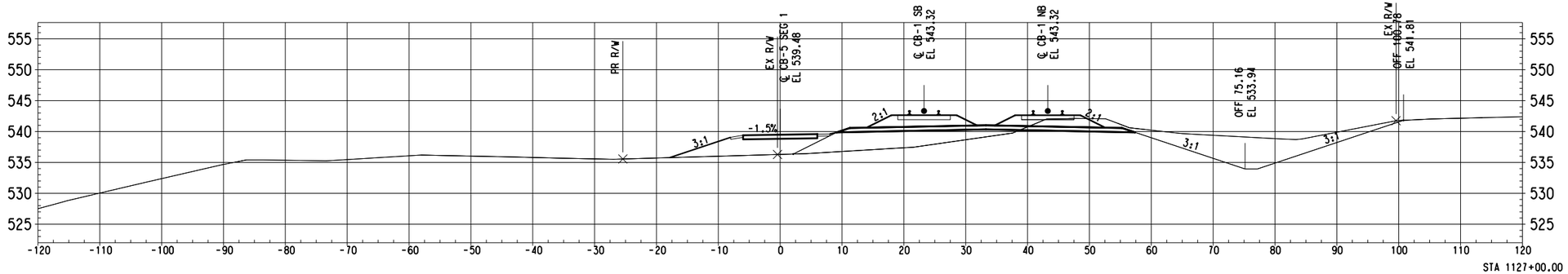
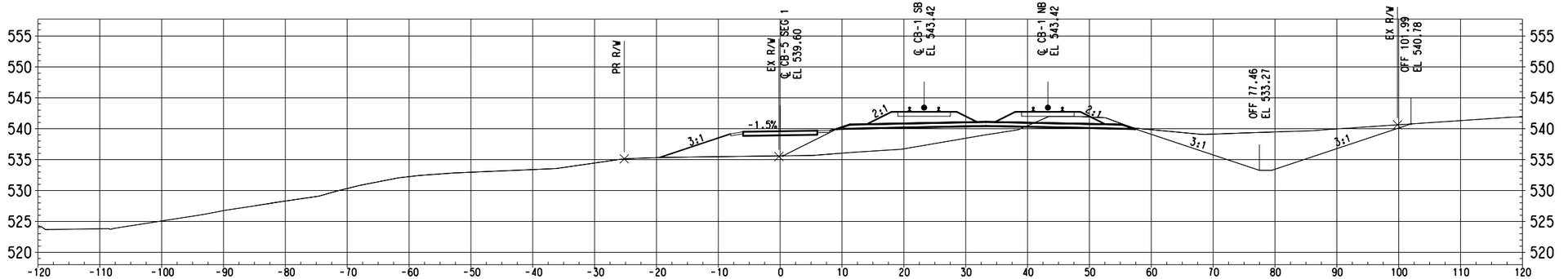
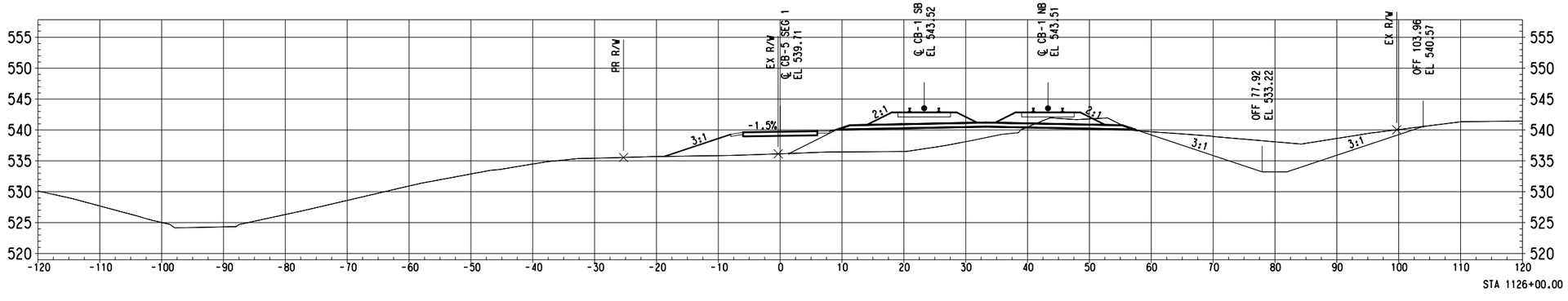
VERT SCALE (IN FEET) 0 5 10 20







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CONTRACT SHEET No. 119 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 15 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6334	D

DWG No. CC1-6335

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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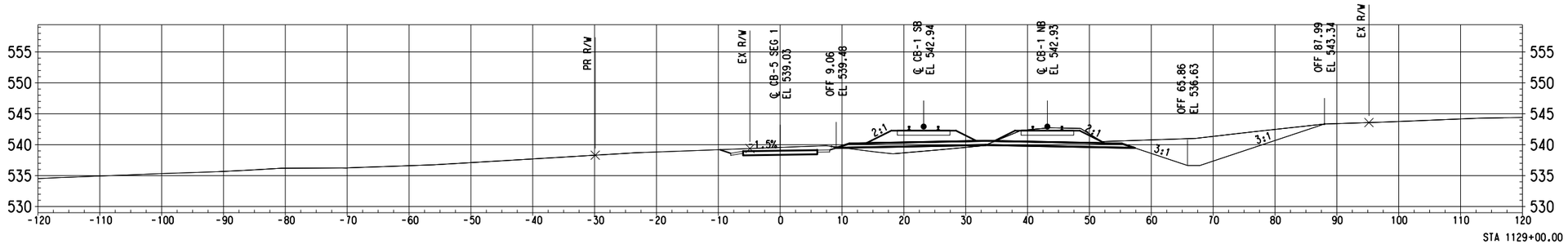
VERT 0 5 10 20



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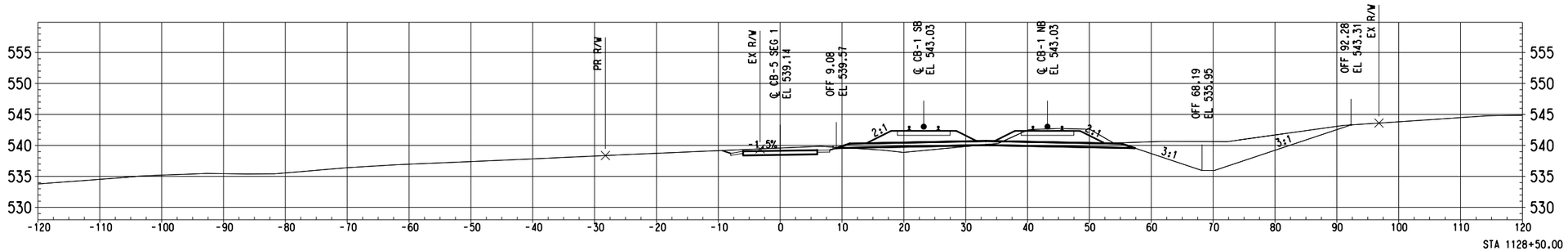

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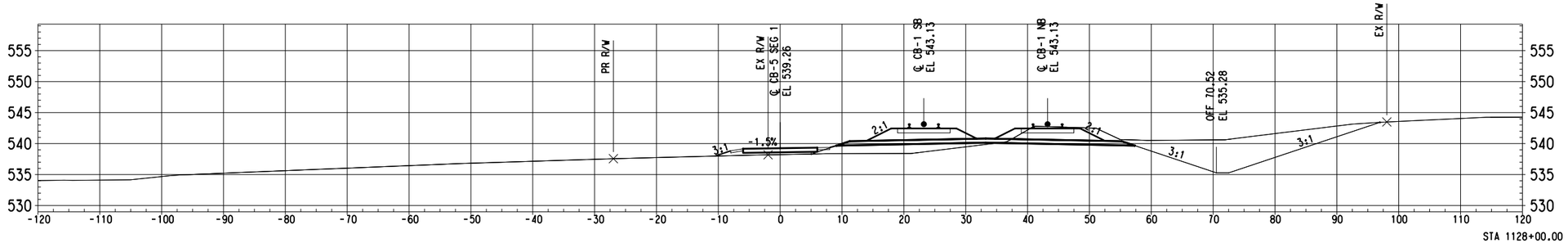

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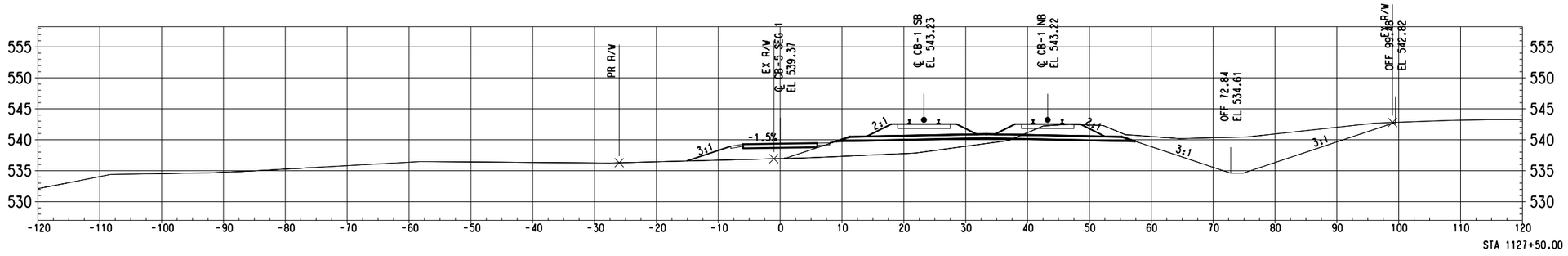

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 16 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6335	D

DWG No. CC1-6336

NOTE:
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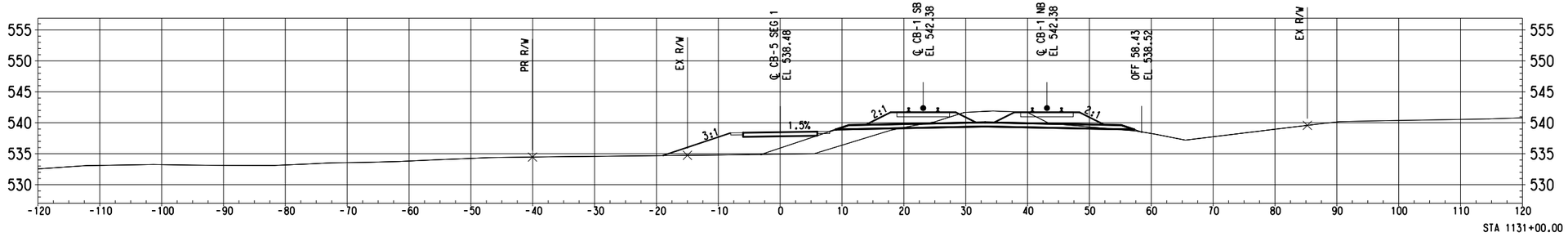

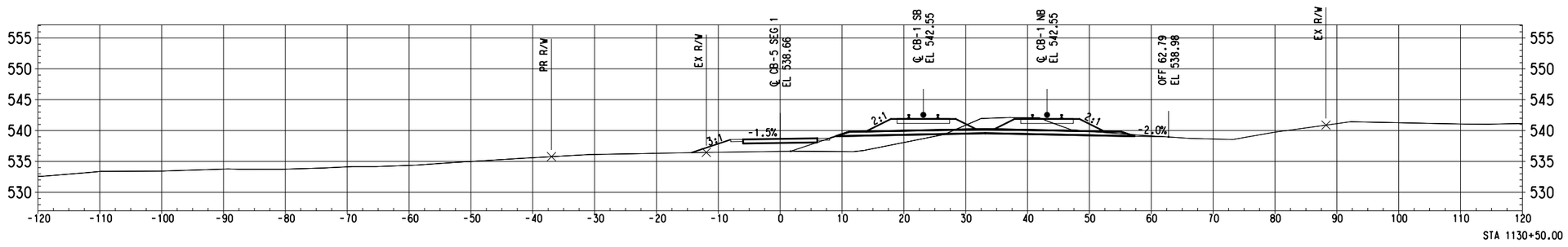

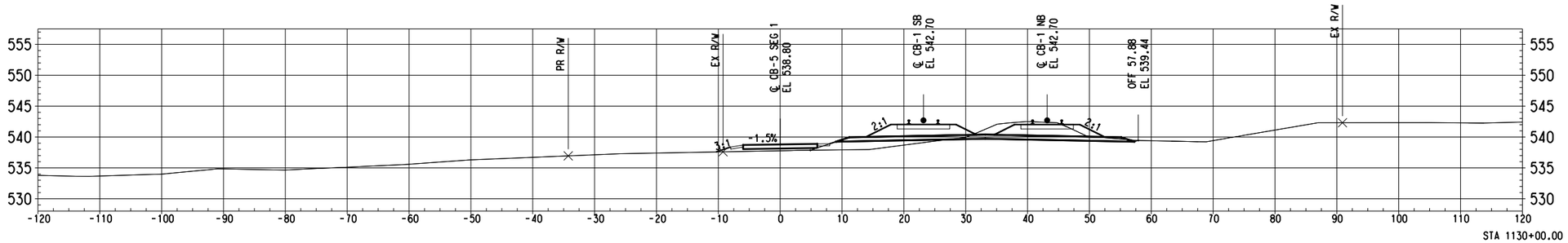

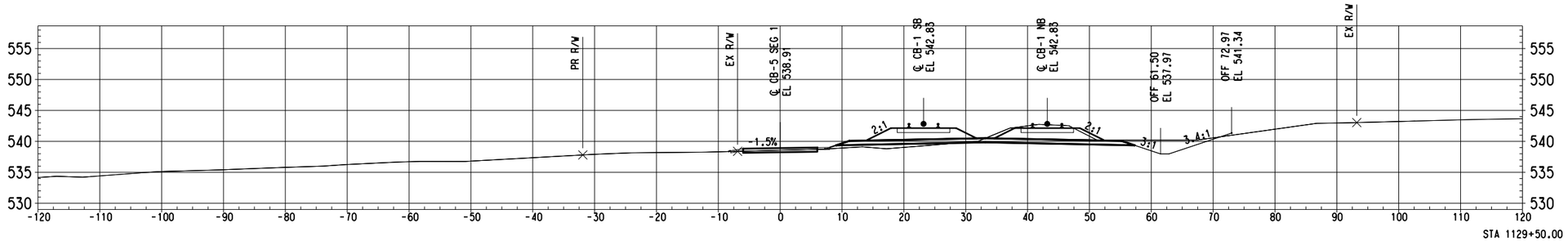

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CONTRACT SHEET No. 121 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 17 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6336	D

DWG No. CC1-6337

NOTE:
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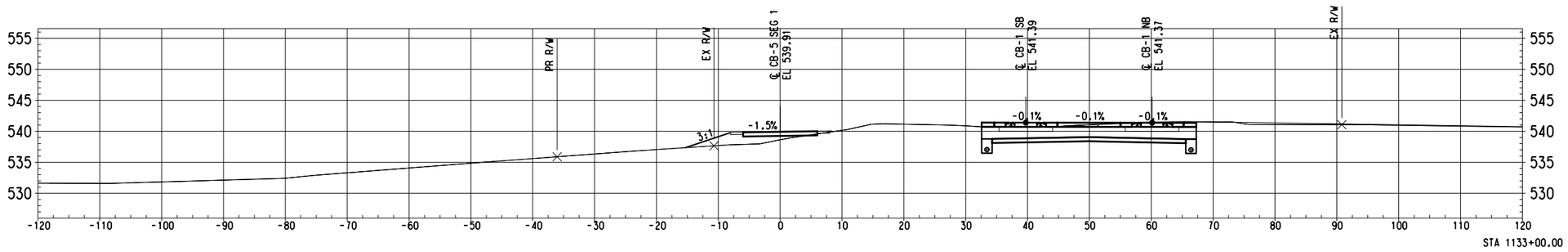
VERT 0 5 10 20



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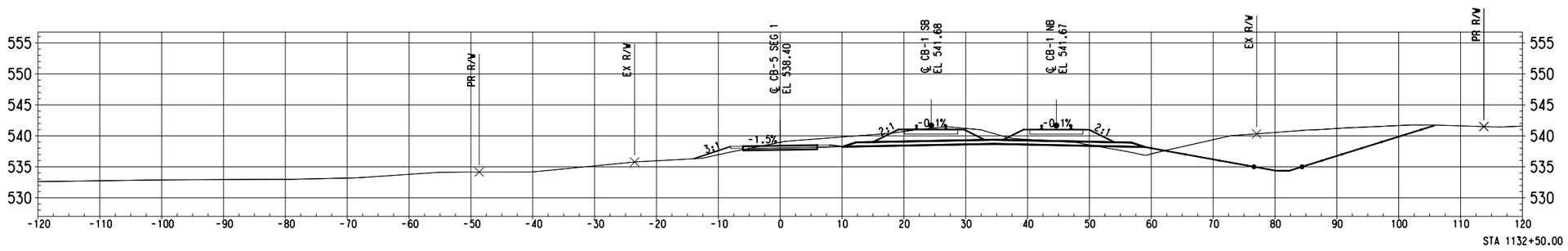

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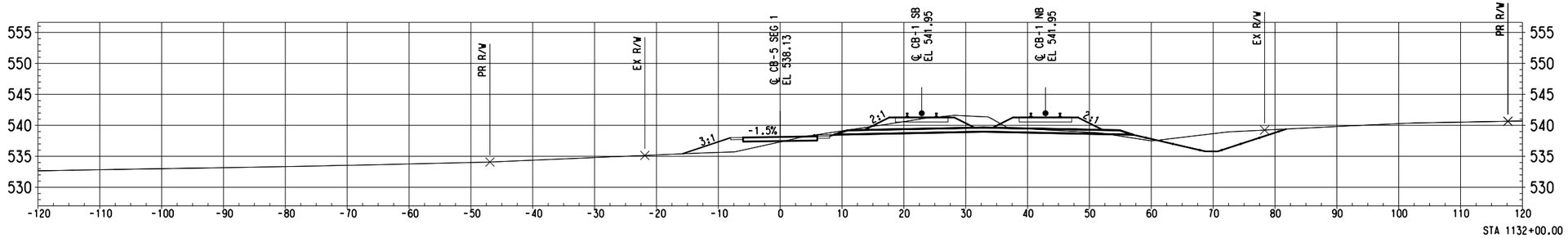

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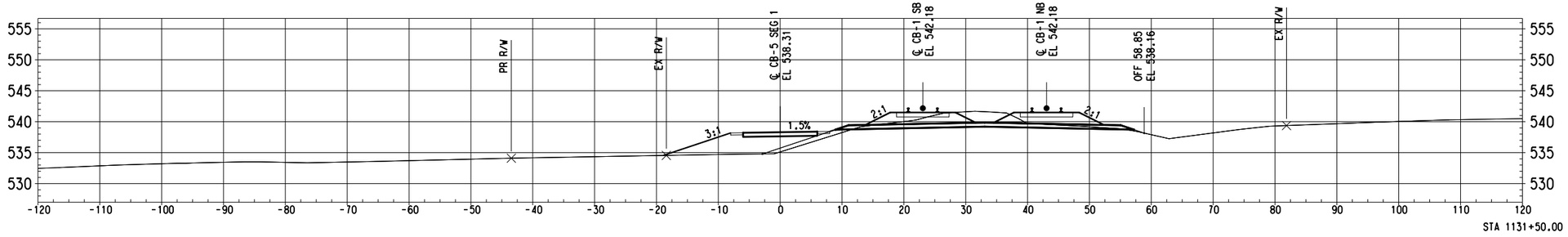

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 18 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6337	D

DWG No. CC1-6338

NOTE:
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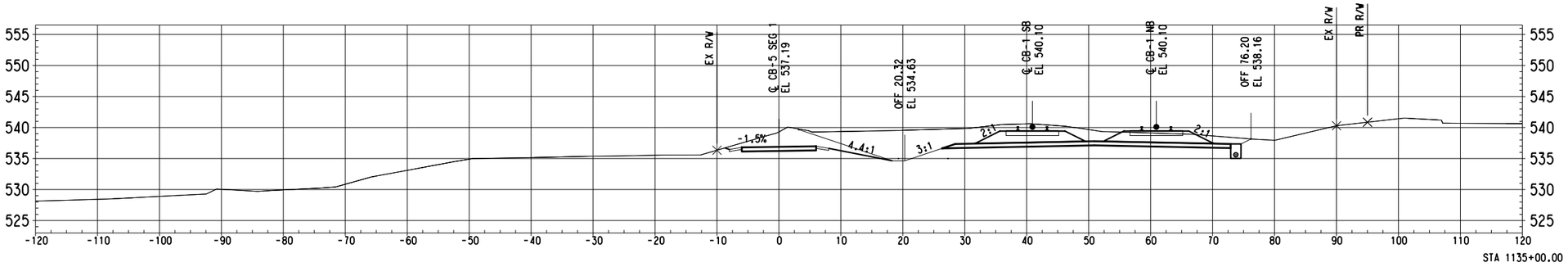
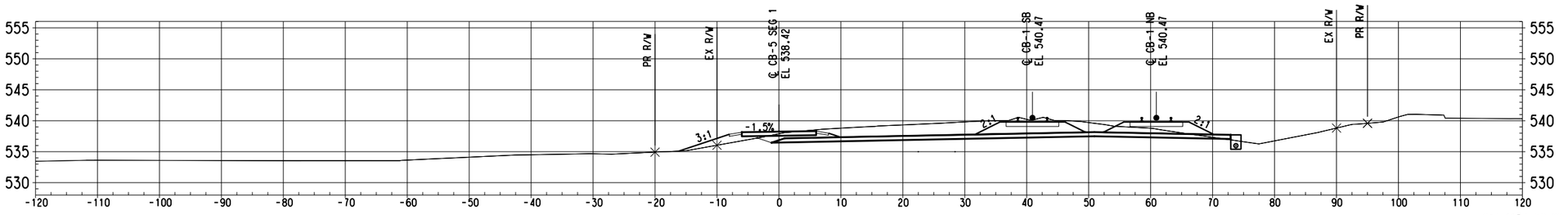
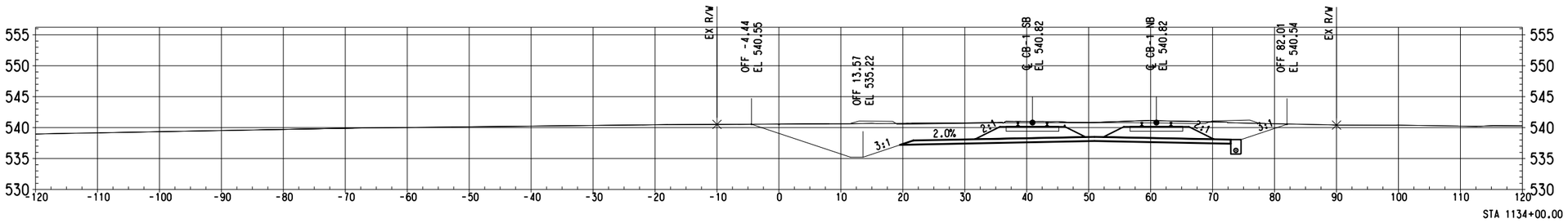
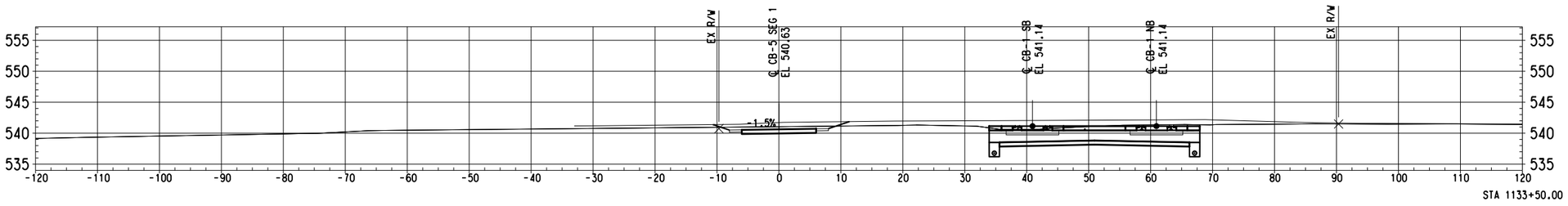
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CONTRACT SHEET No. 123 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 19 OF 106

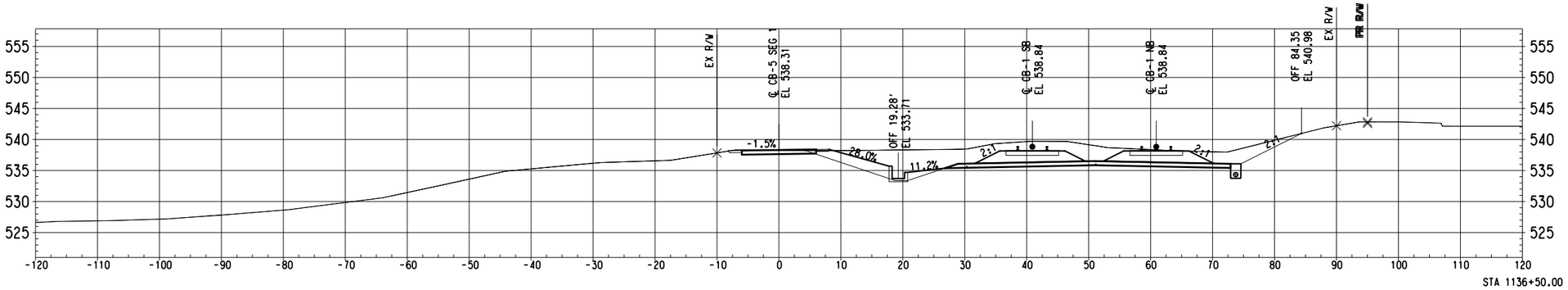
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6338	D

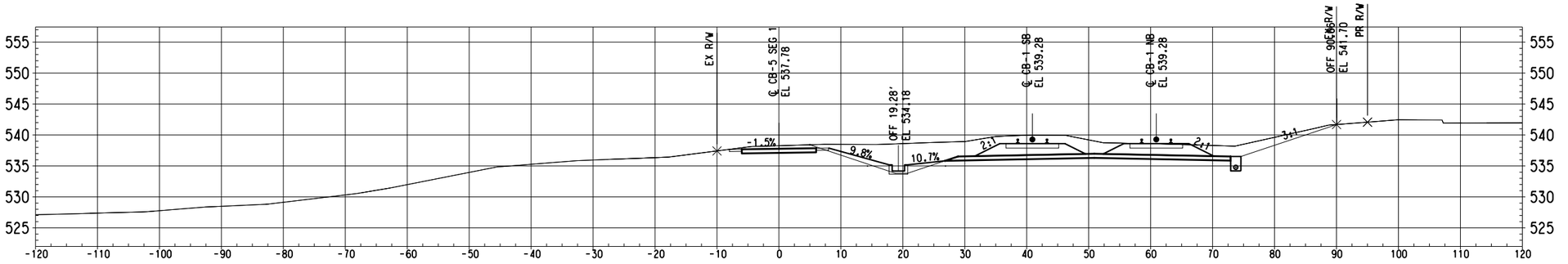
DWG No. CC1-6339

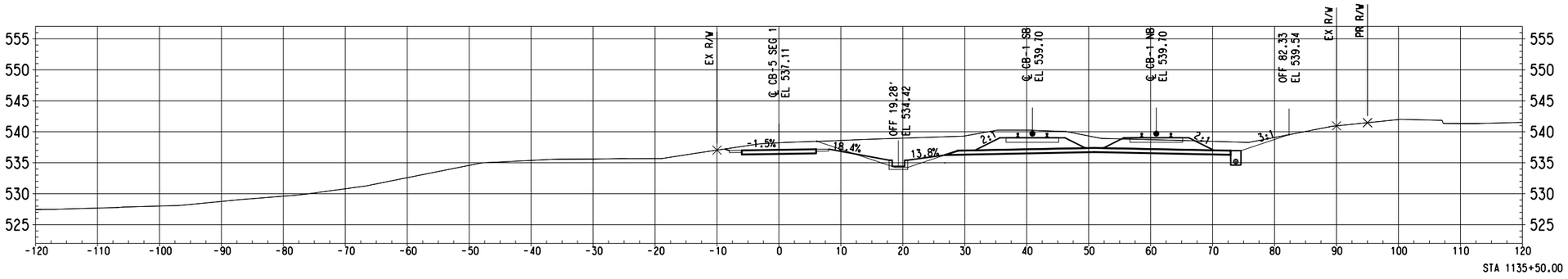
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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COTTON BELT REGIONAL RAIL VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 20 OF 106

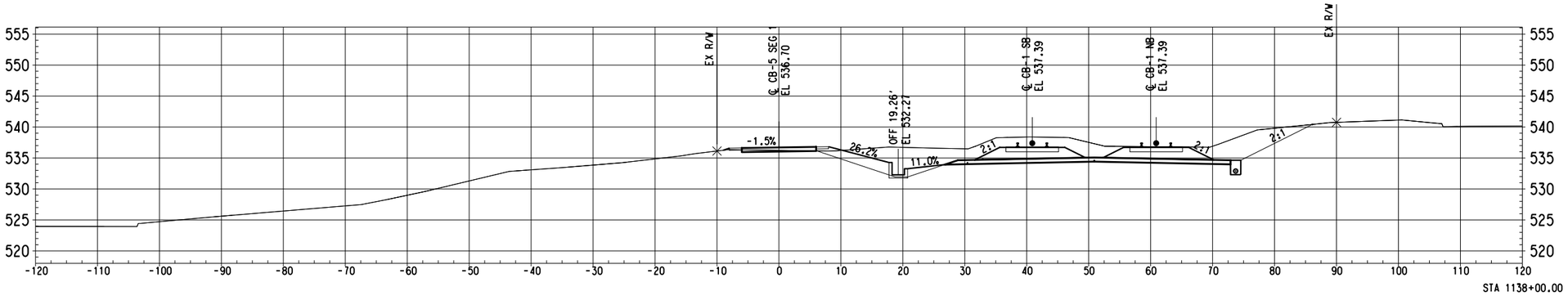
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6339	D

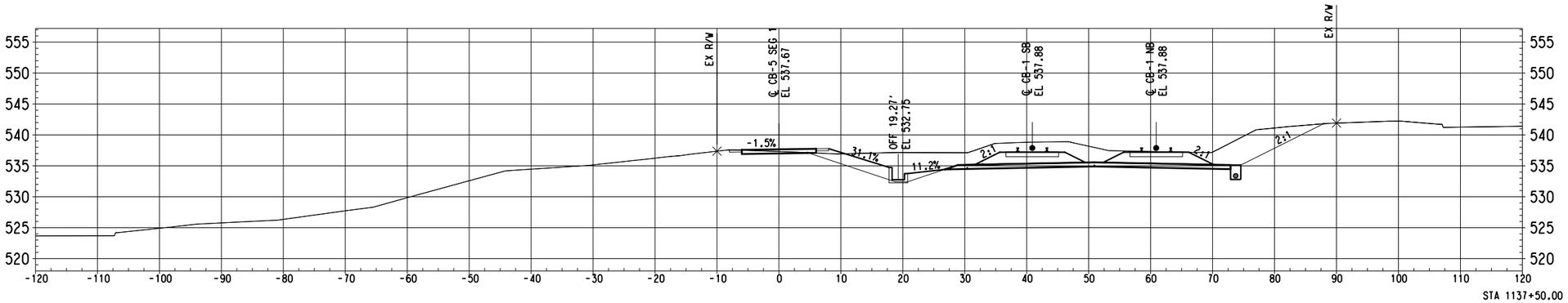
DWG No. CC1-6340

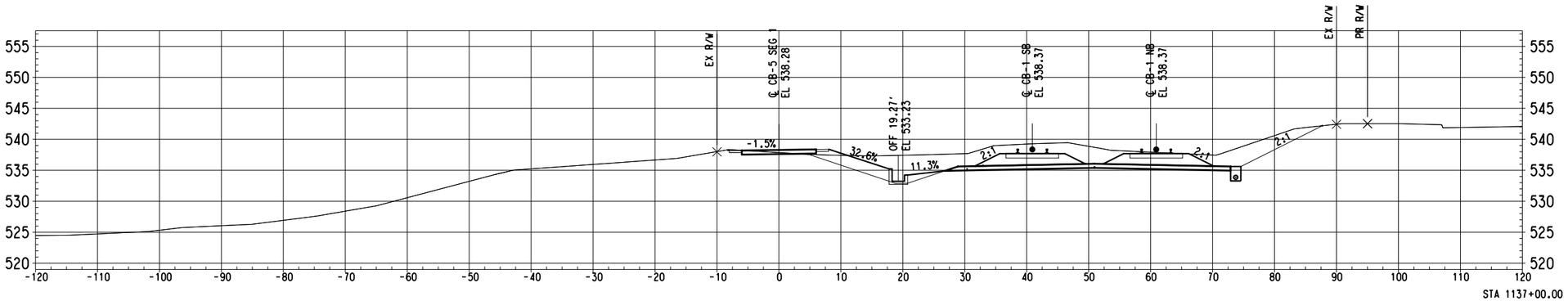
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 21 OF 106

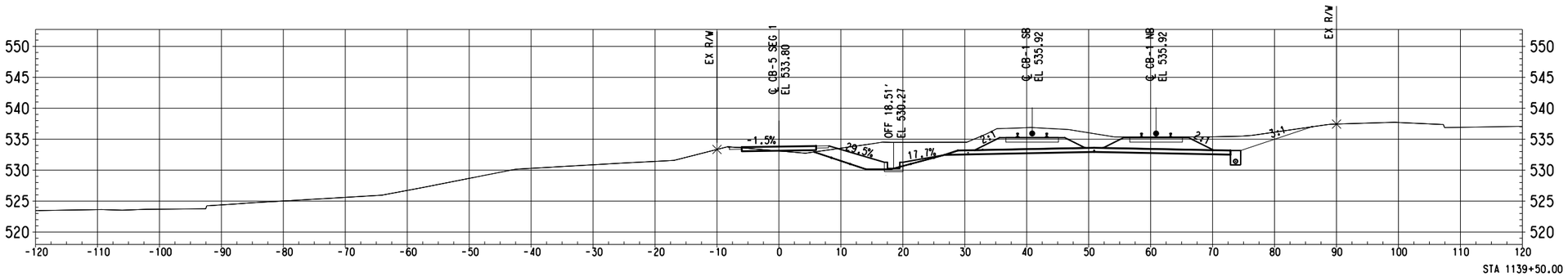
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6340	D

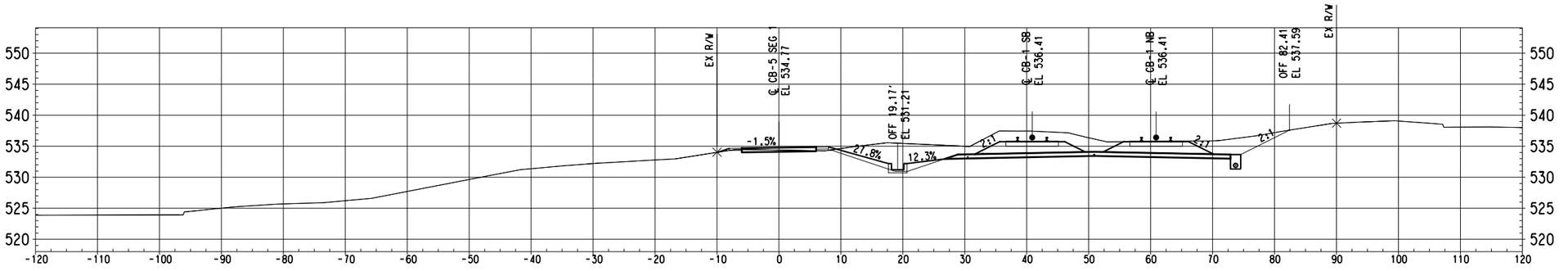
DWG No. CC1-6341

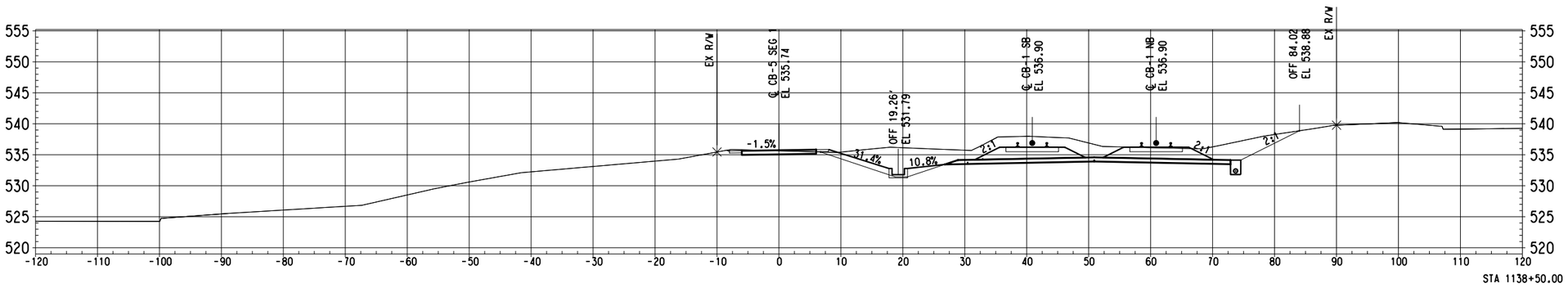
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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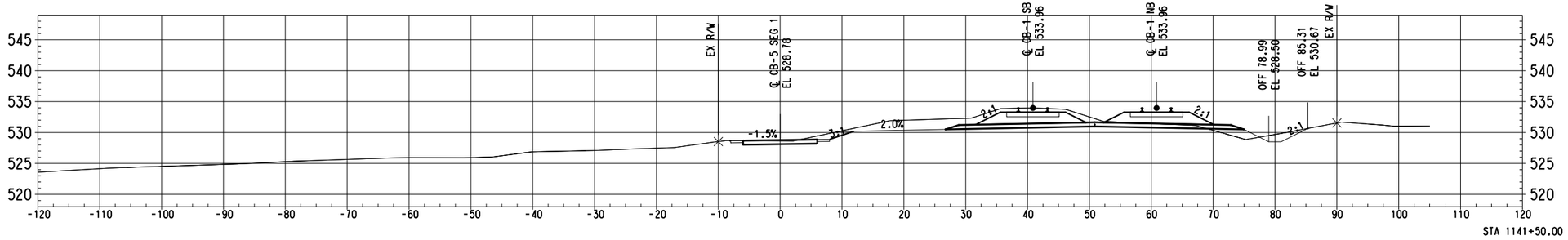
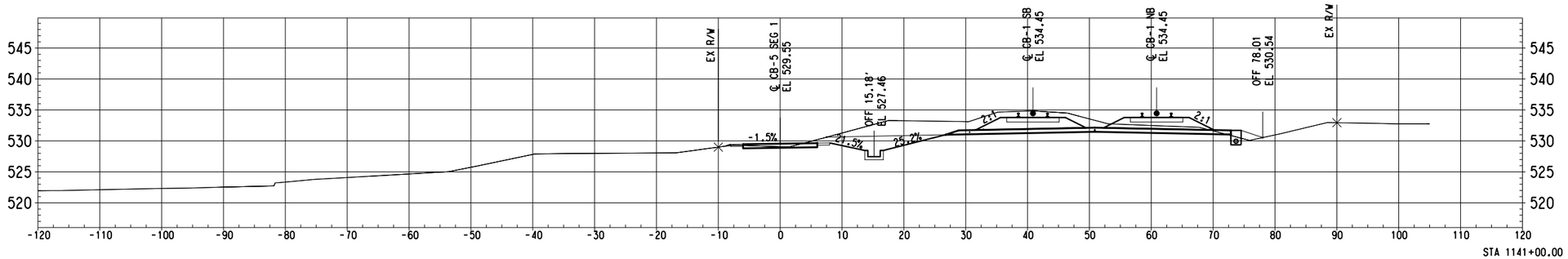
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

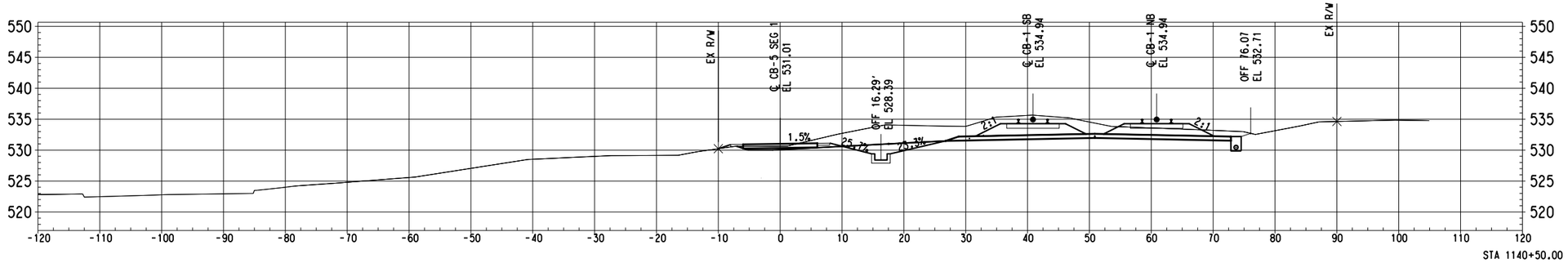
CITY OF COPPELL
CROSS SECTIONS
SHEET 22 OF 106

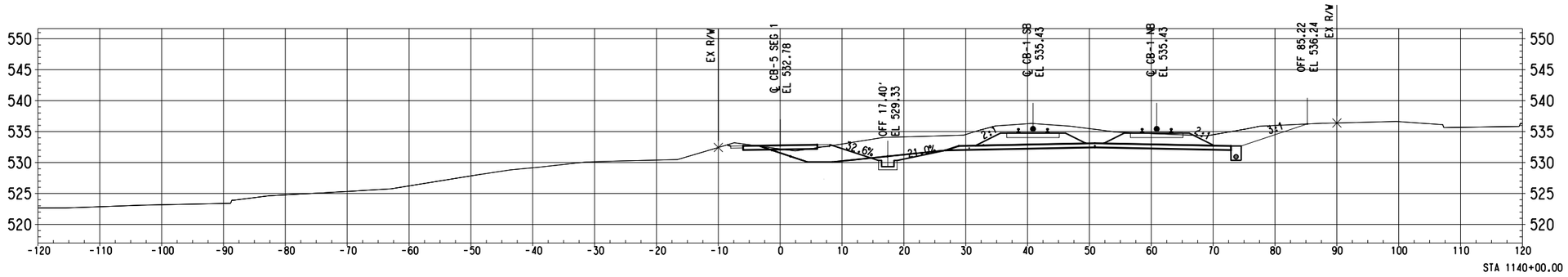
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6341	D

DWG No. CC1-6342









NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20

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CONTRACT SHEET No. 127 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 23 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6342	D

DWG No. CC1-6343

NOTE:
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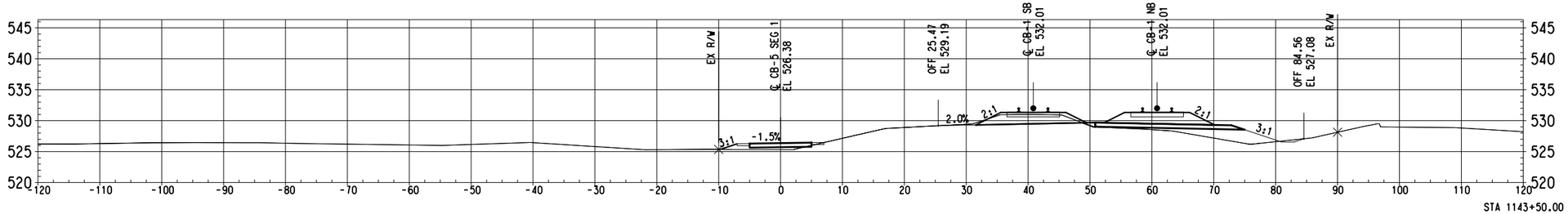
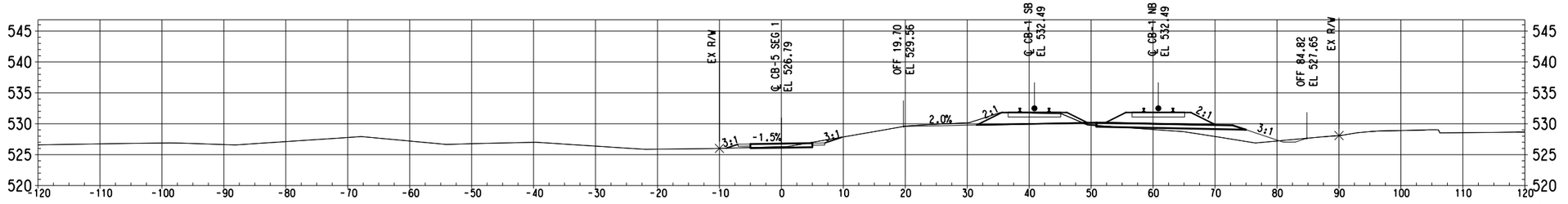
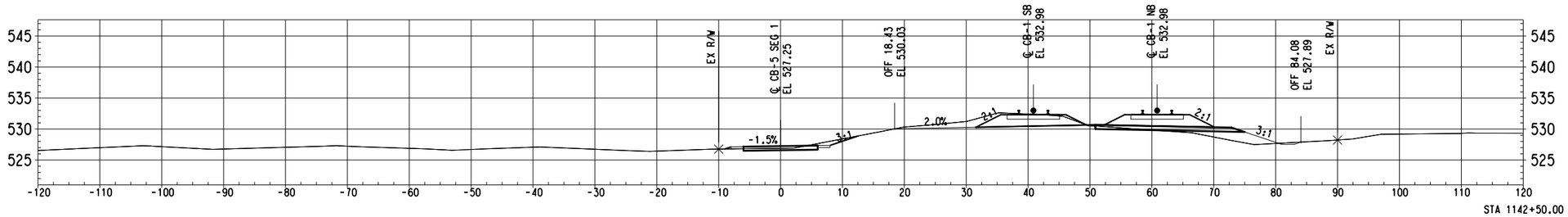
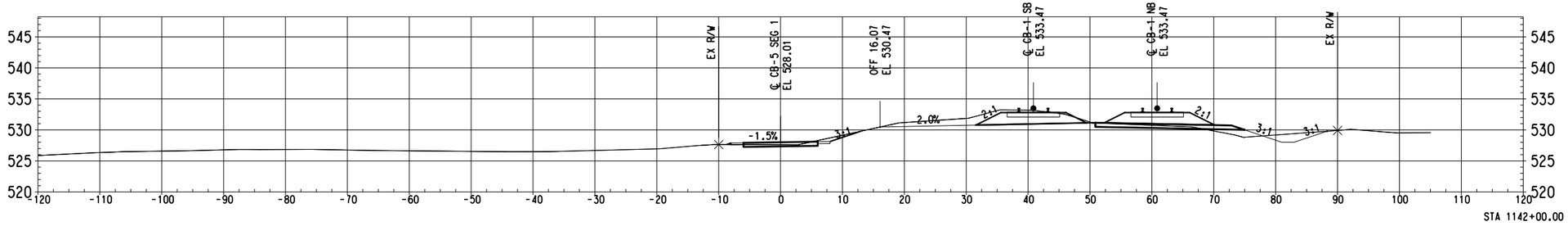
VERT SCALE (IN FEET) 0 5 10 20









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CONTRACT SHEET No. 128 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 24 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6343	D

DWG No. CC1-6344

NOTE:
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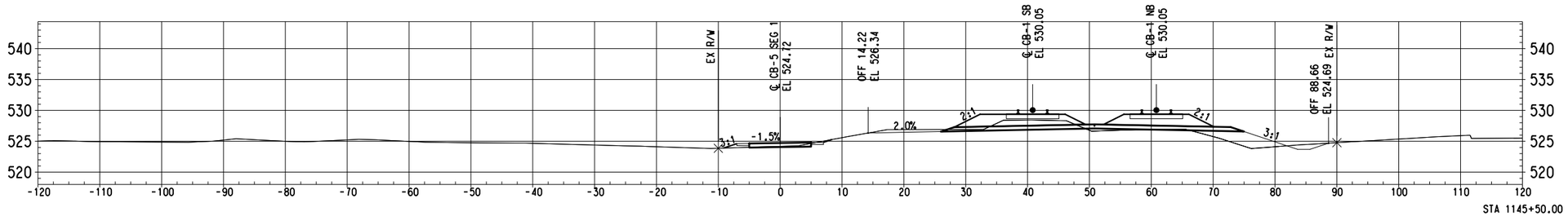
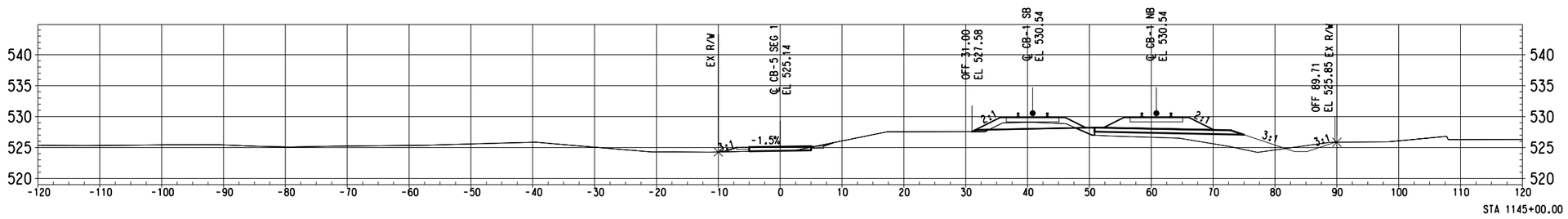
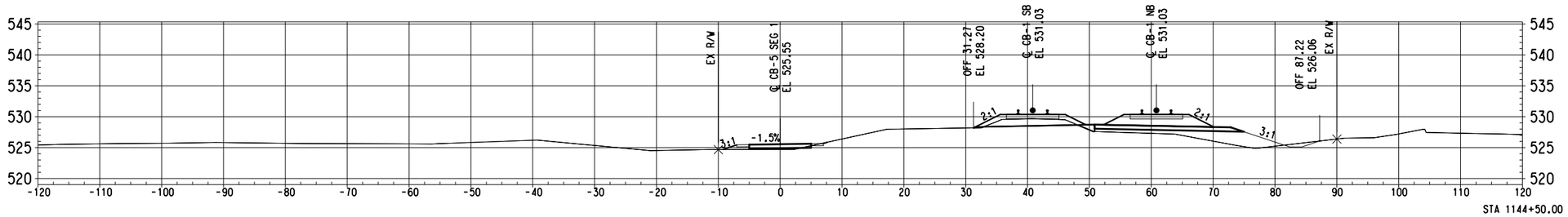
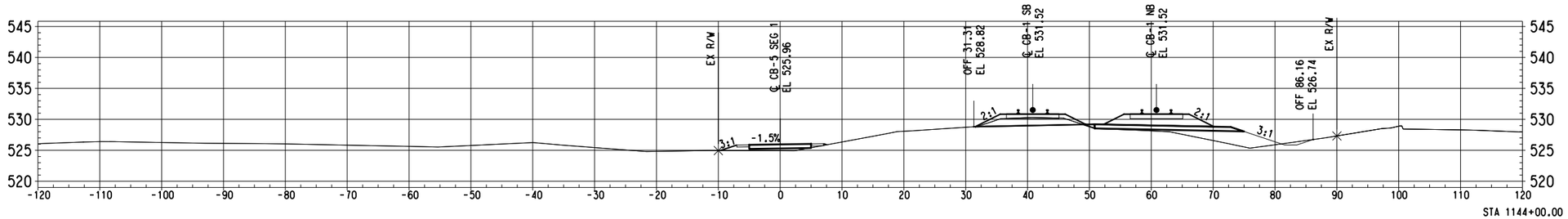
VERT SCALE (IN FEET) 0 5 10 20









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CONTRACT SHEET No. 129 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 25 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6344	D

DWG No. CC1-6345

NOTE:
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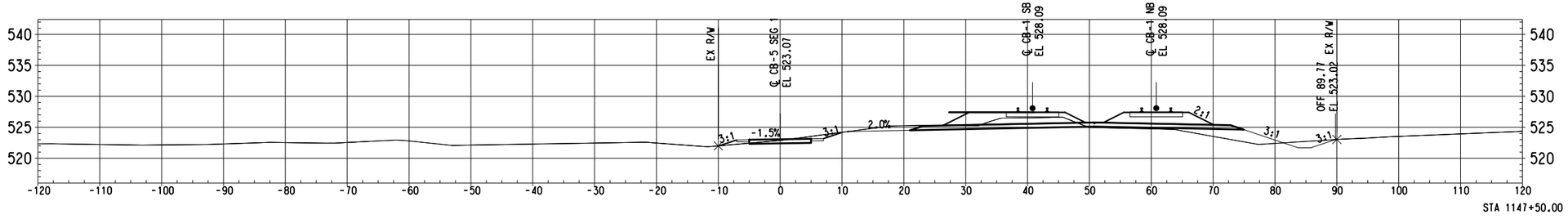
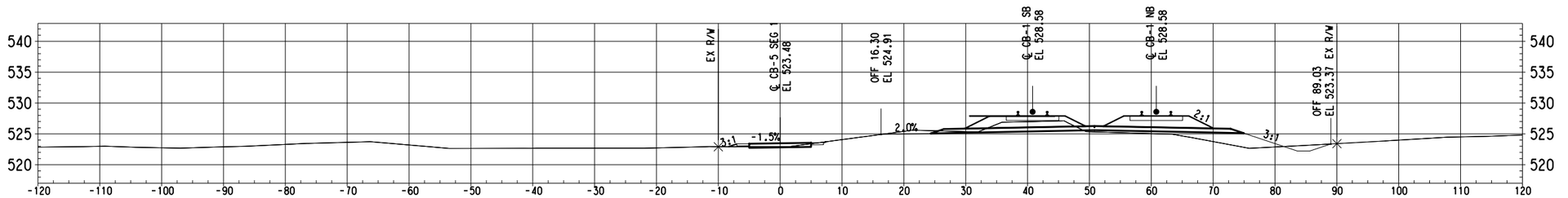
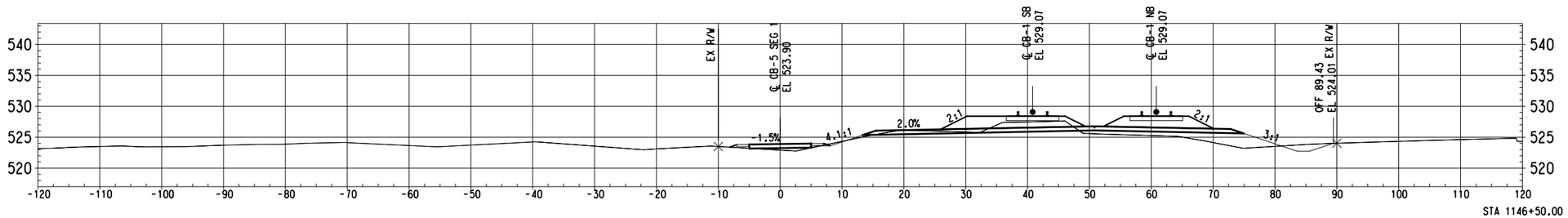
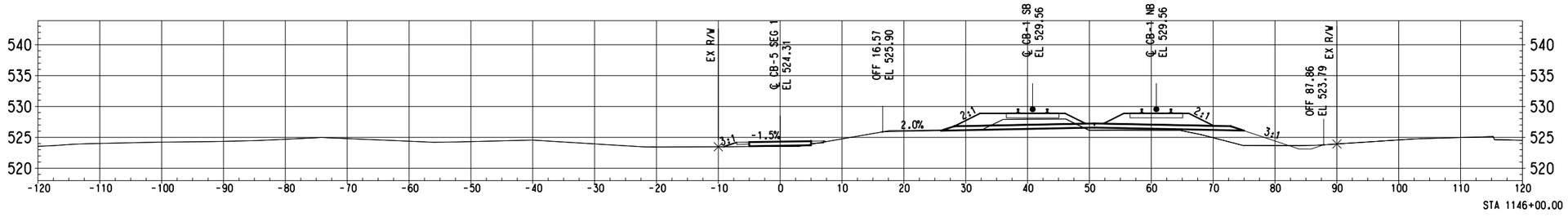
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 26 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6345	D

DWG No. CC1-6346

NOTE:
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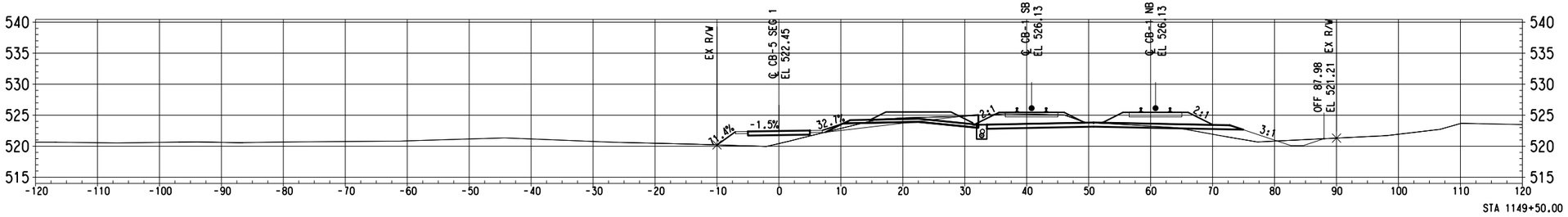
AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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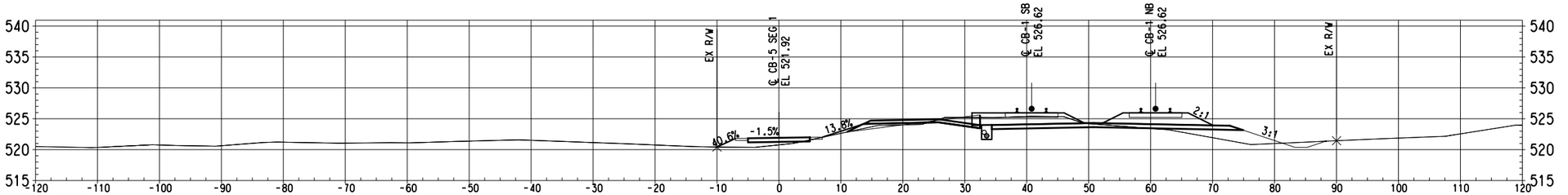

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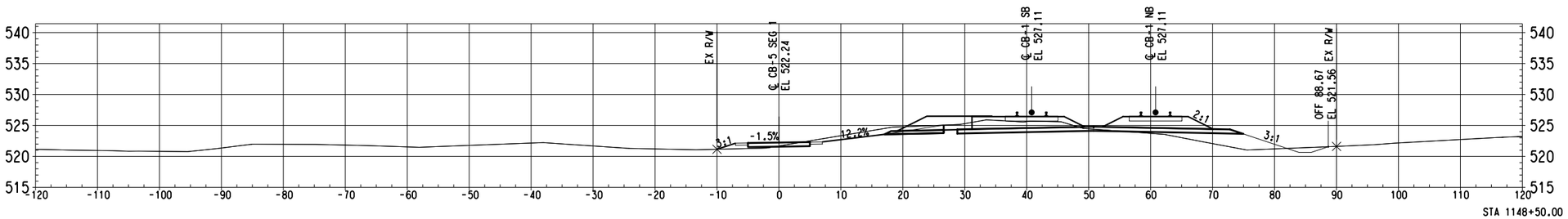

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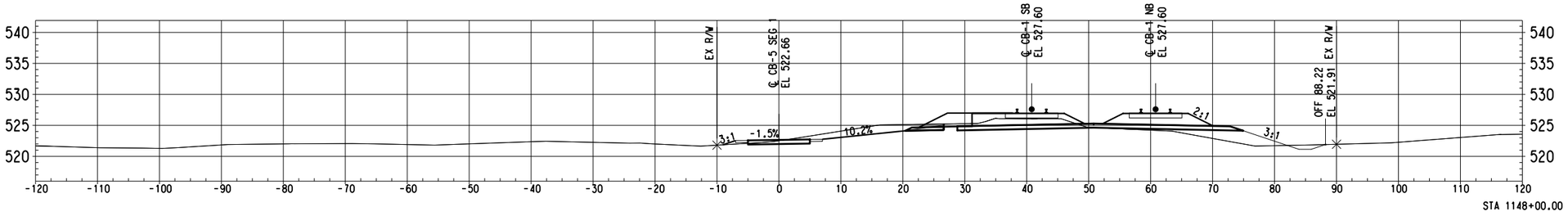

STA 1148+00.00

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CONTRACT SHEET No. 131 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARCHER WESTERN HERZOG

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SCALE	AS NOTED
DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 27 OF 106

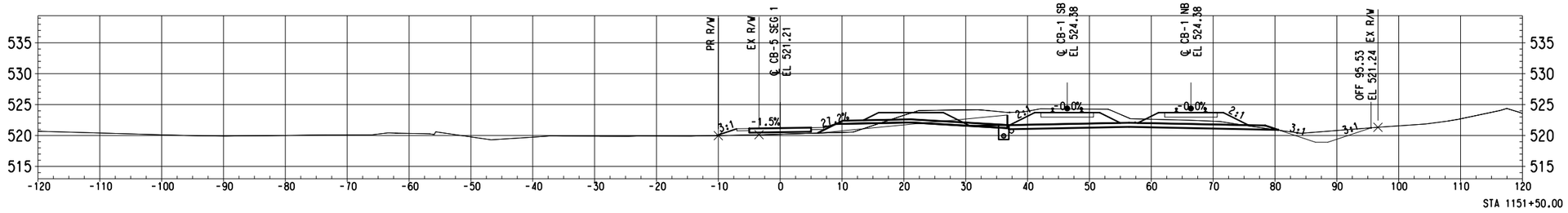
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6346	D

DWG No. CC1-6347

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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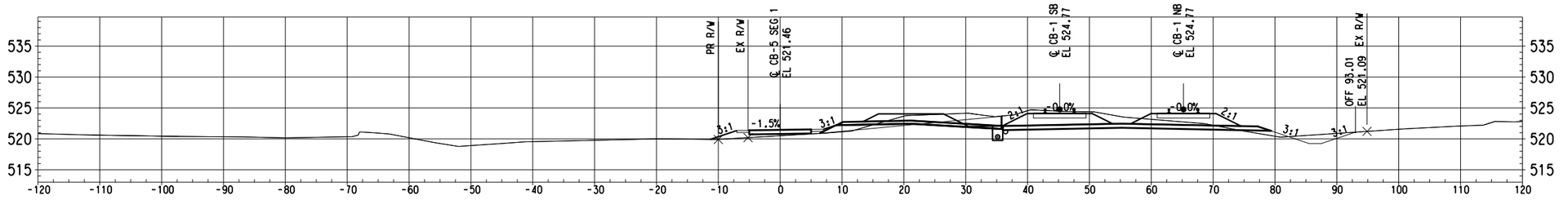

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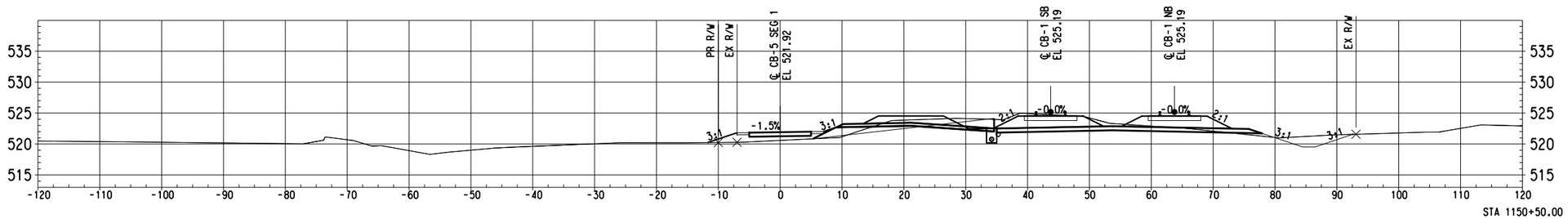

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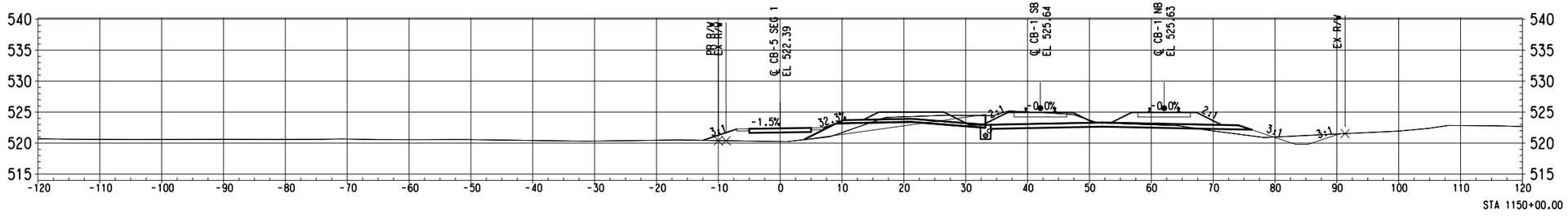

STA 1150+00.00

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CONTRACT SHEET No. 132 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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CHECKED	D. LUU
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 28 OF 106

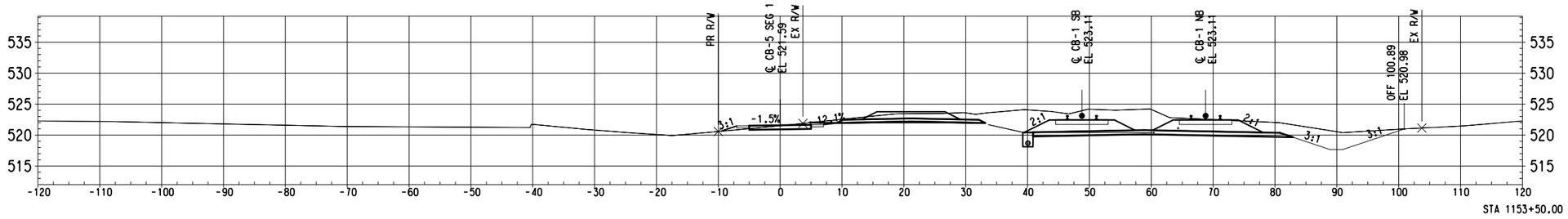
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6347	D

DWG No. CC1-6348

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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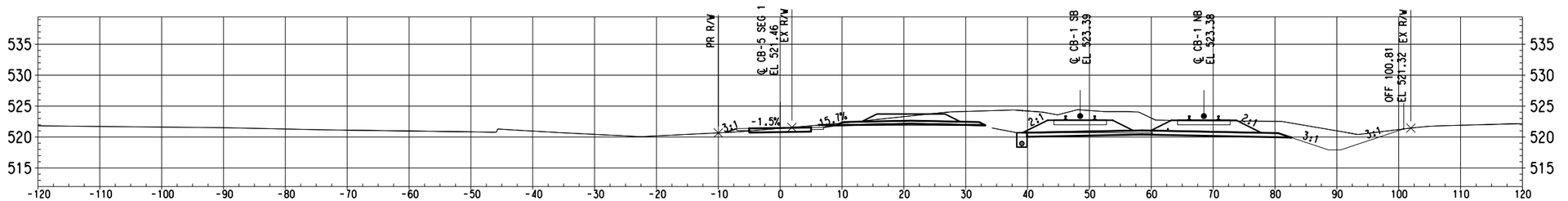

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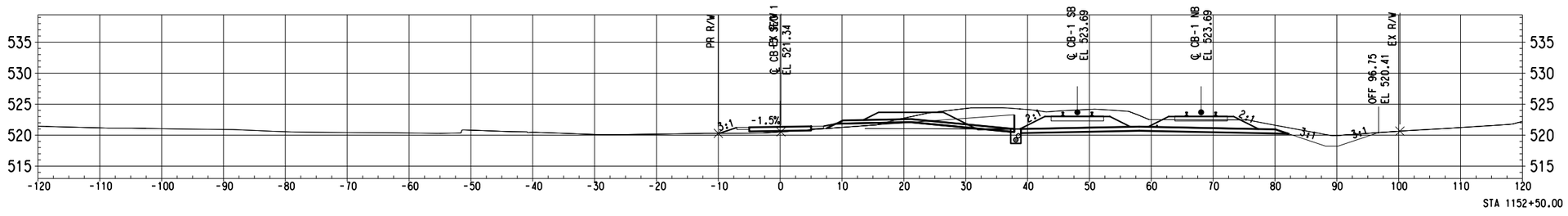

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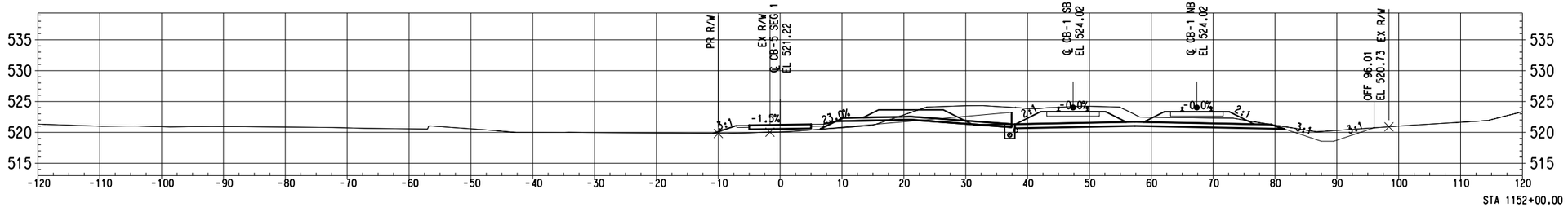

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CONTRACT SHEET No. 133 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 29 OF 106

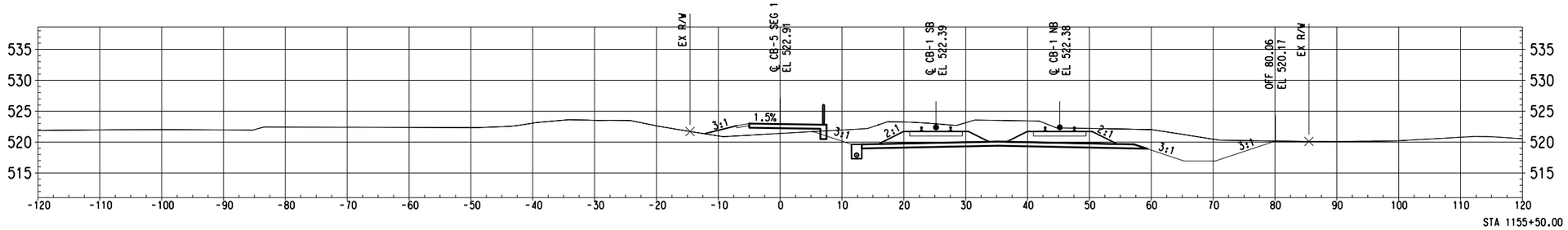
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6348	D

DWG No. CC1-6349

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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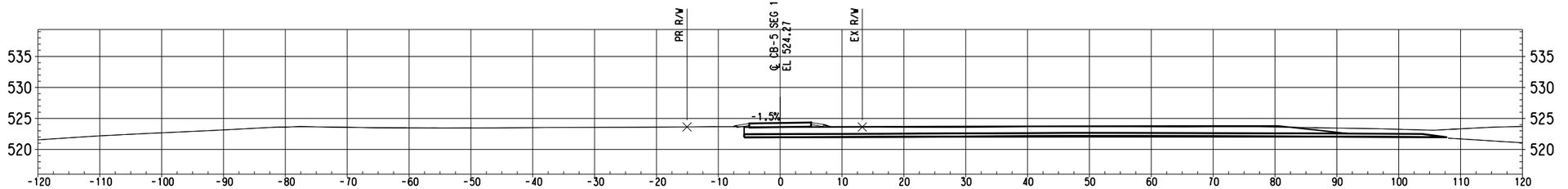

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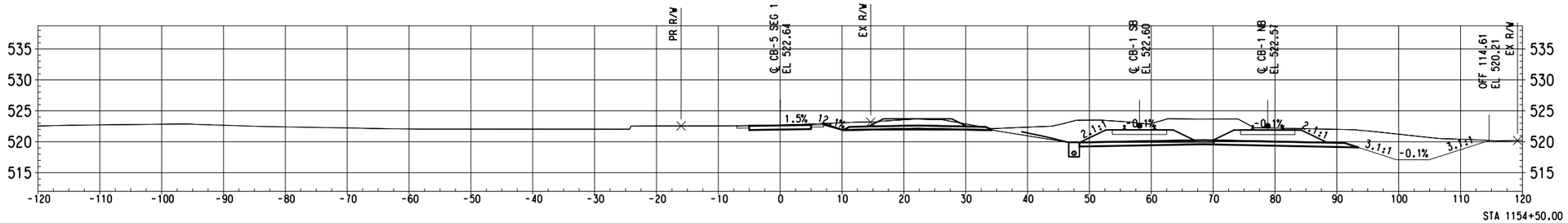

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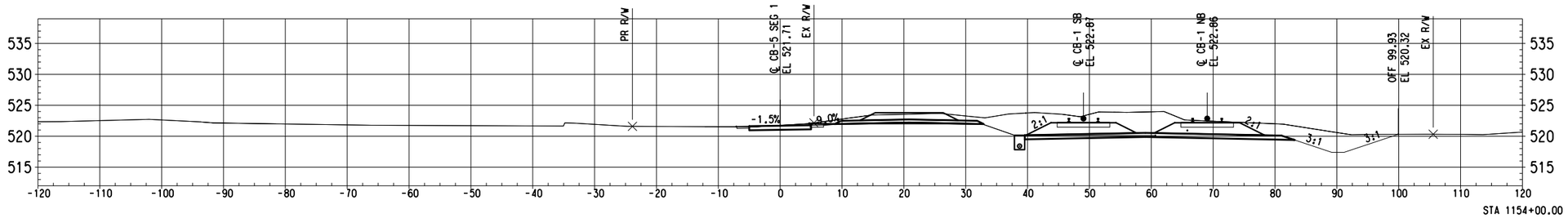

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DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 134 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 30 OF 106

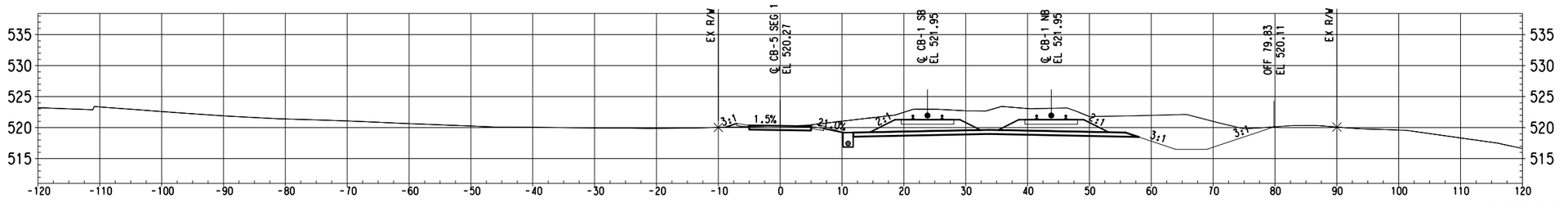
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6349	D

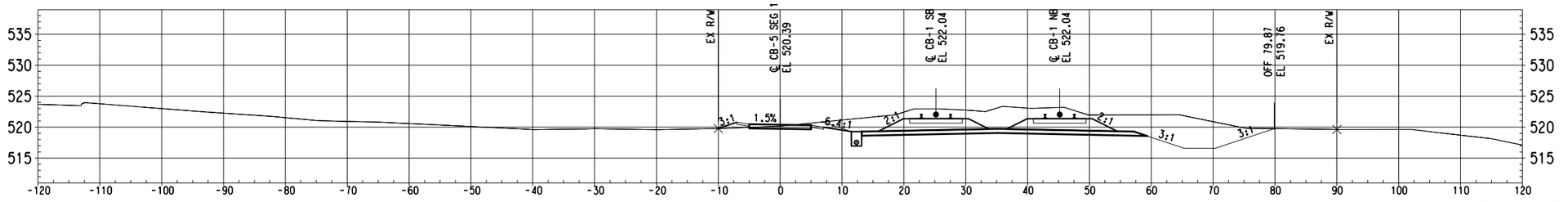
DWG No. CC1-6350

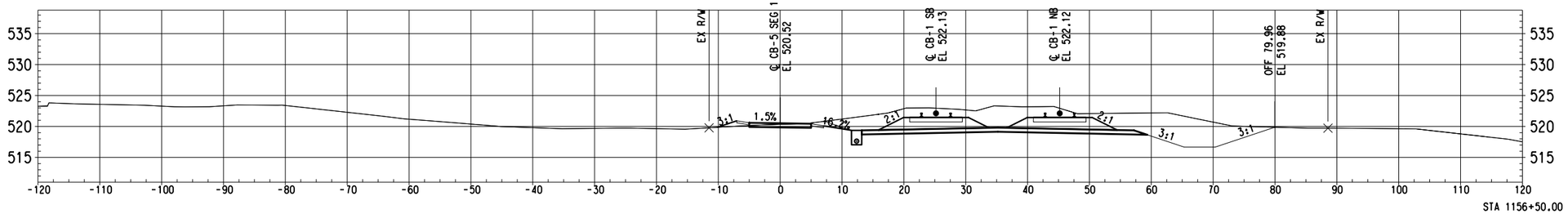
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

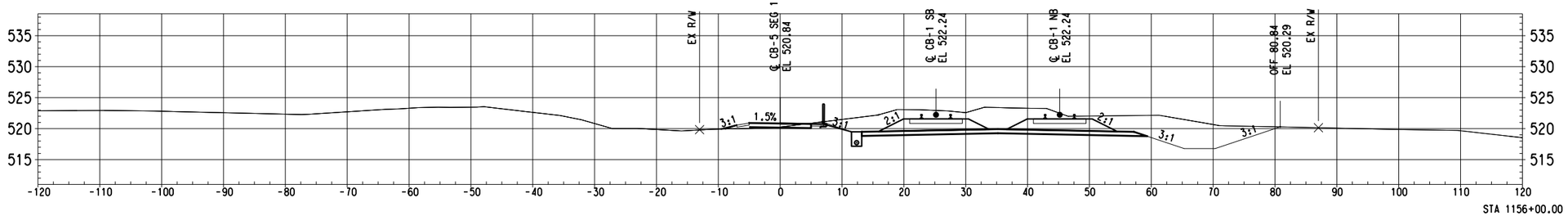
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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CONTRACT SHEET No. 135 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 31 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6350	D

DWG No. CC1-6351

NOTE:
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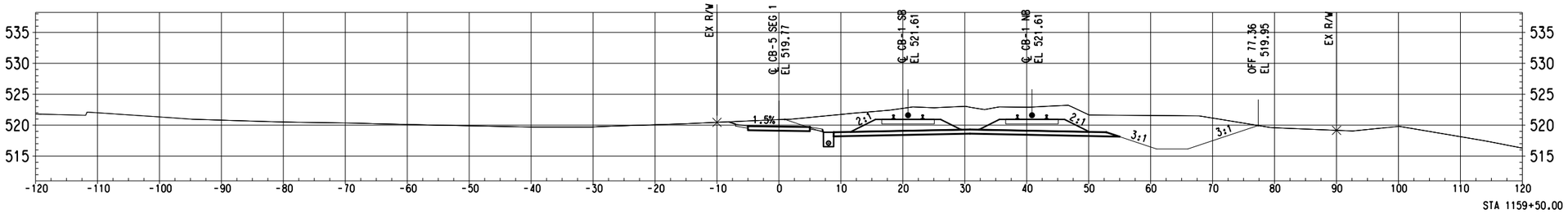
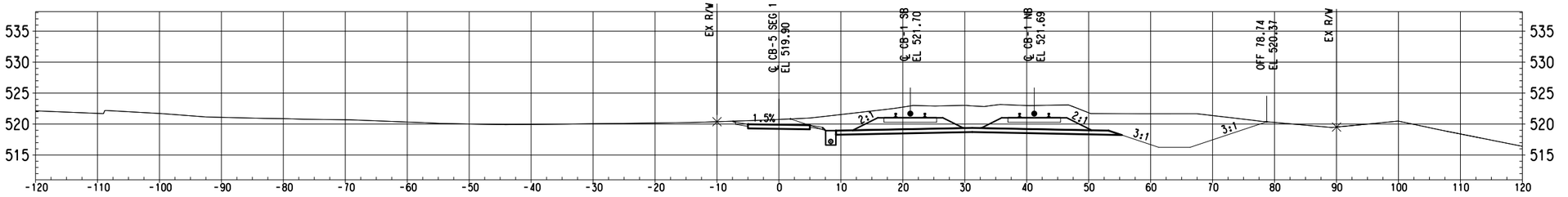
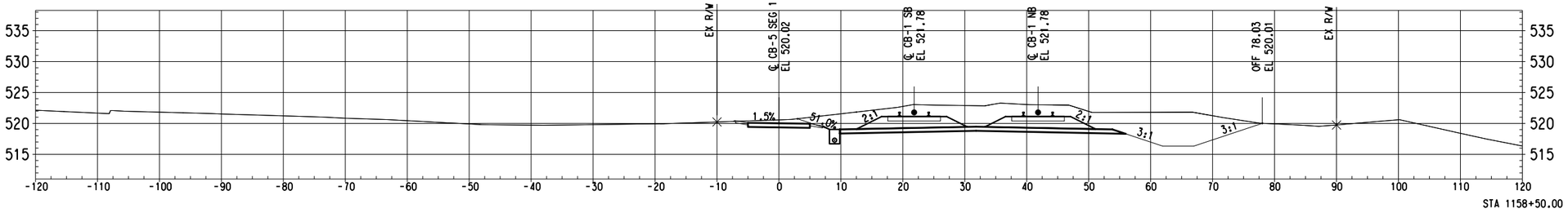
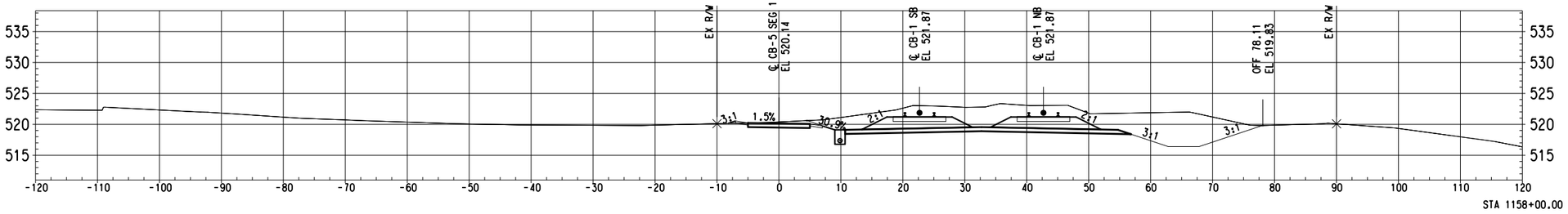
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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CAES

CONTRACT SHEET No. 136 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 32 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6351	D

DWG No. CC1-6352

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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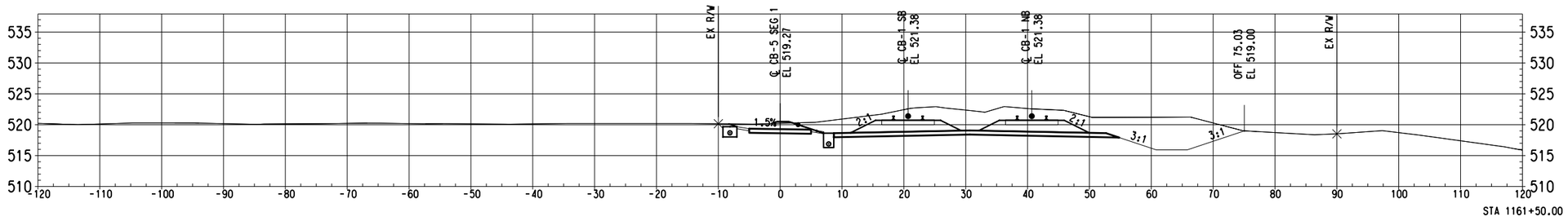
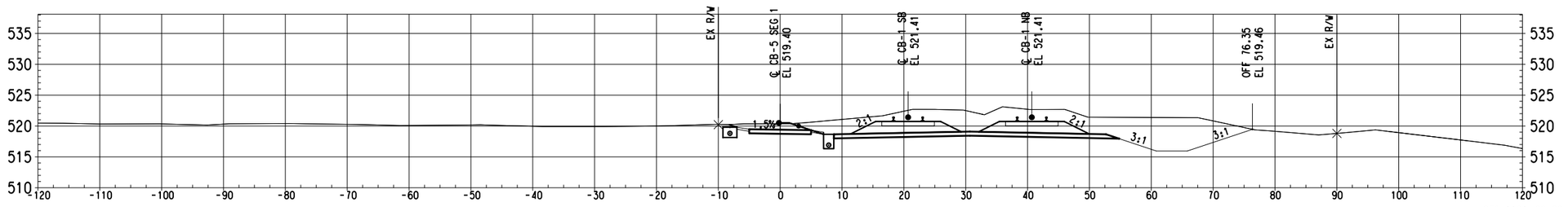
SCALE (IN FEET)
VERT 0 5 10 20



STA 1161+50.00



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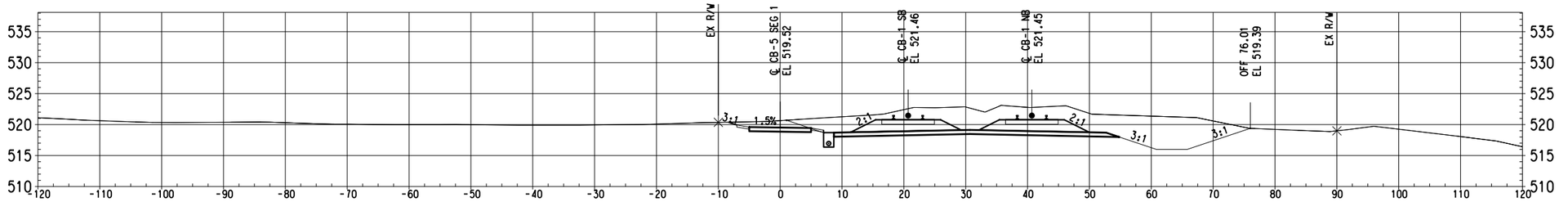

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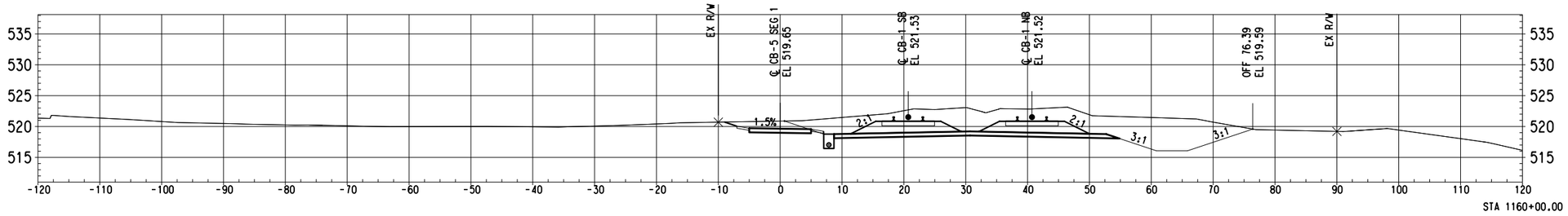

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CHECKED	D. LUU
IN CHARGE	D. LUU
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CAES

CONTRACT SHEET No. 137 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 33 OF 106

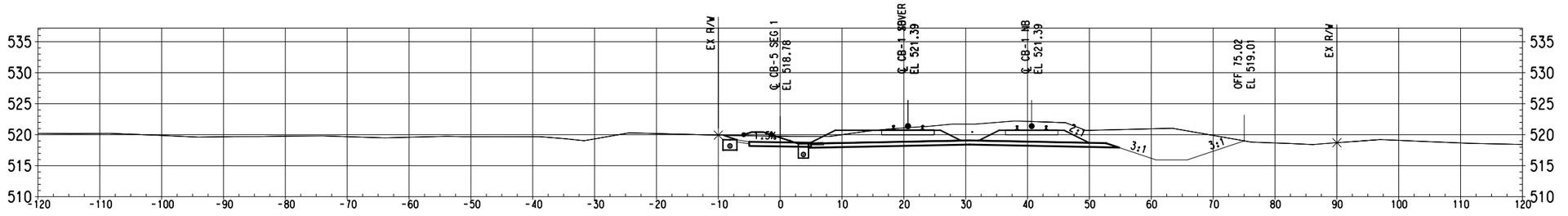
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6352	D

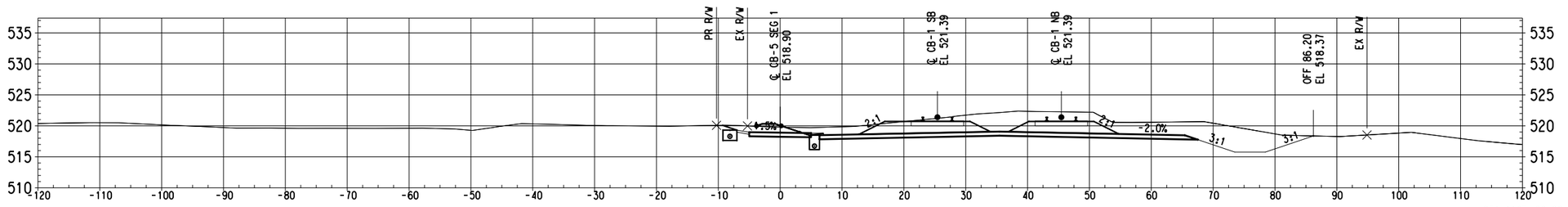
DWG No. CC1-6353

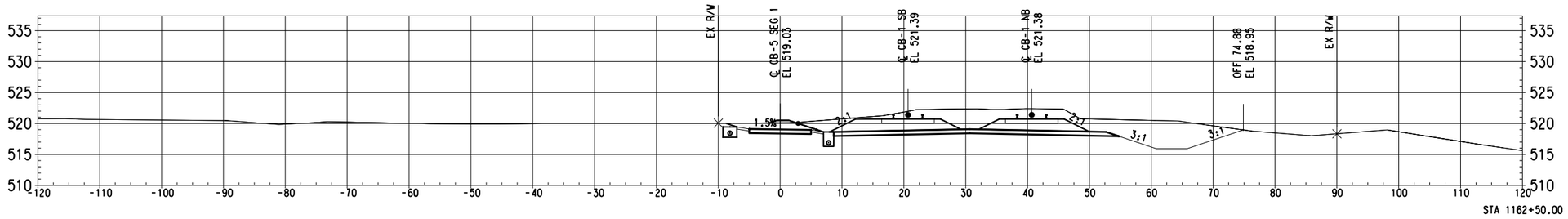
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

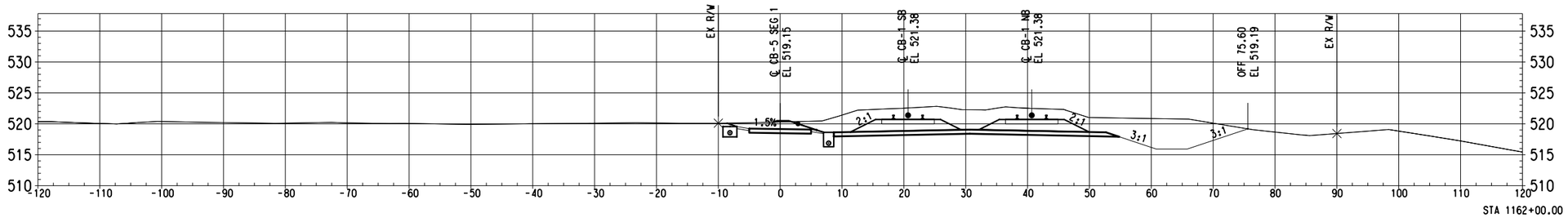
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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SCALE	AS NOTED
DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 138 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 34 OF 106

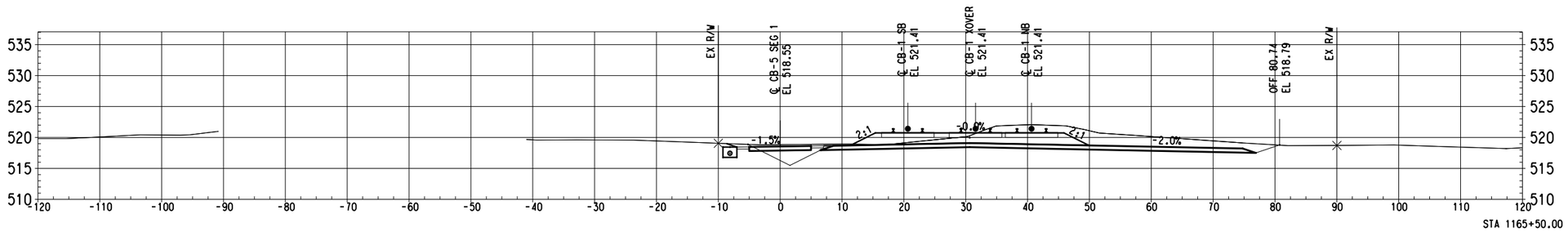
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6353	D

DWG No. CC1-6354

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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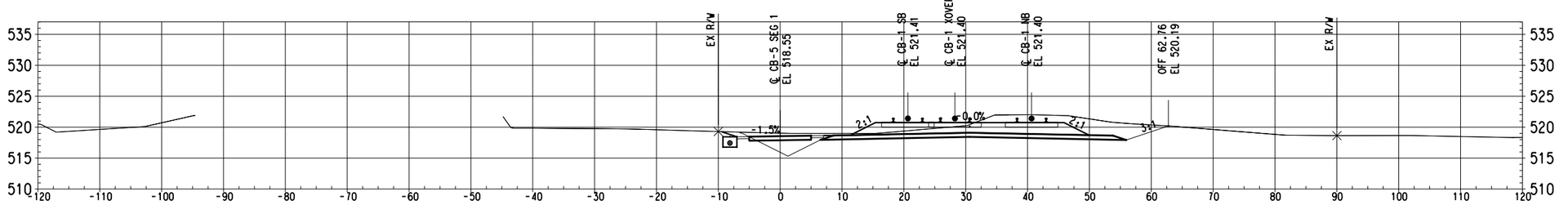

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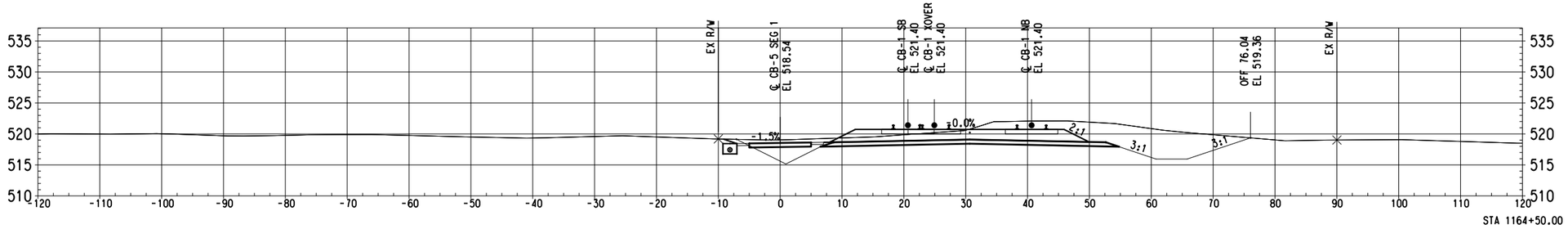

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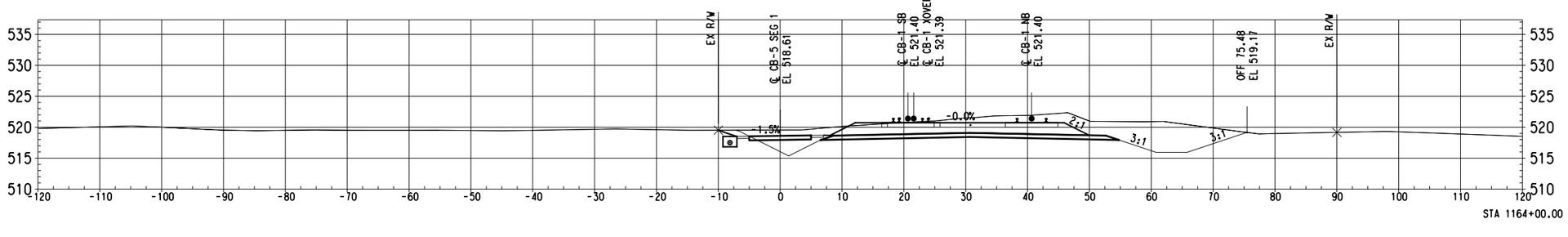

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DESIGNED	S. SALEH
CHECKED	D. LUU
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DATE	25 AUG 23

CAES

CONTRACT SHEET No. 139 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 35 OF 106

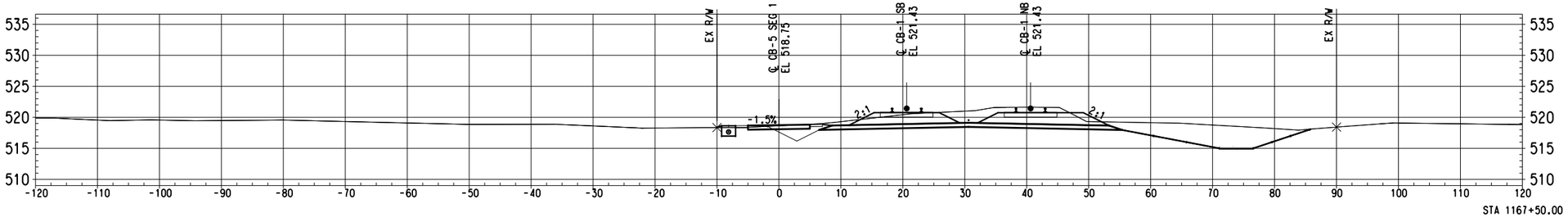
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6354	D

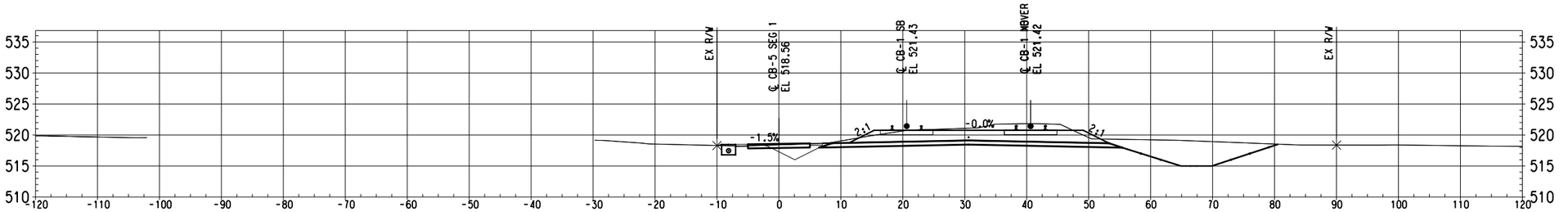
DWG No. CC1-6355

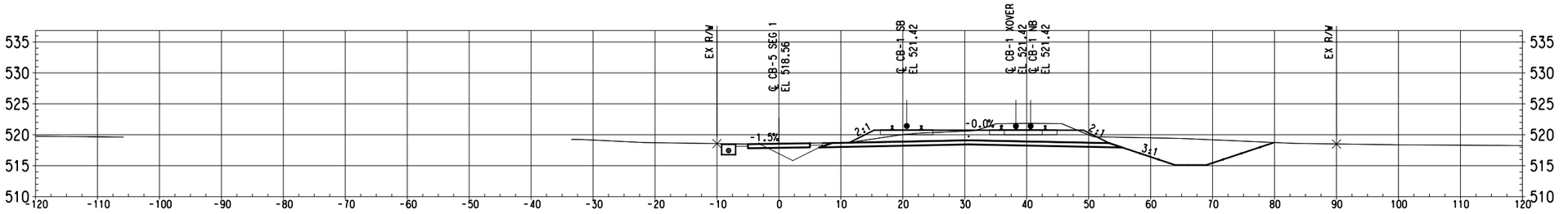
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

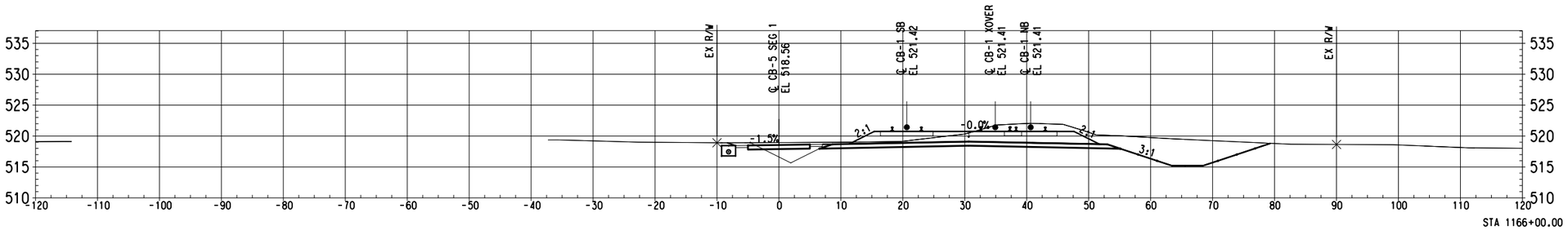
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEÉT) 0 5 10 20









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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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12801 N Central Expressway, Suite 1250
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DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

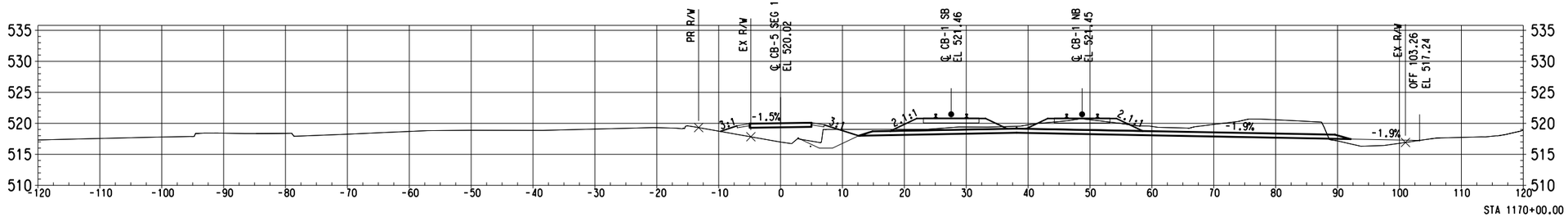
CONTRACT SHEET No. 140 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 36 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6355	D

DWG No. CC1-6356



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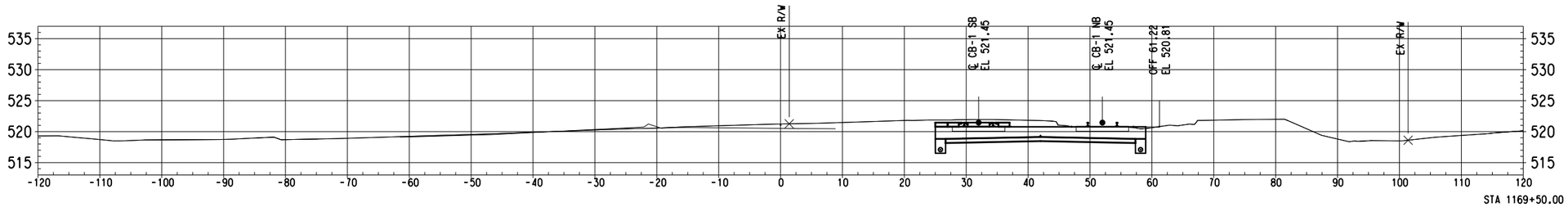

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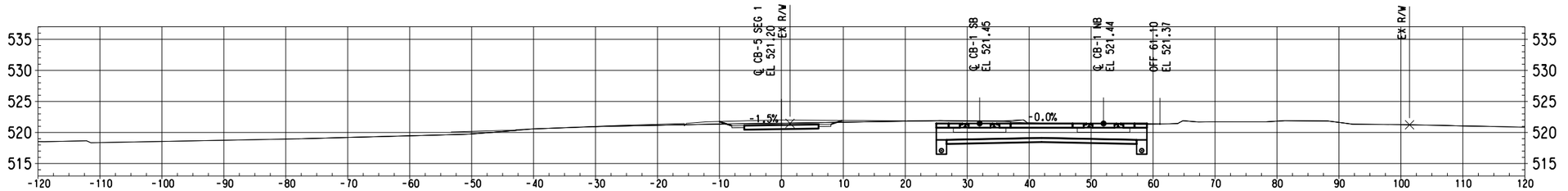

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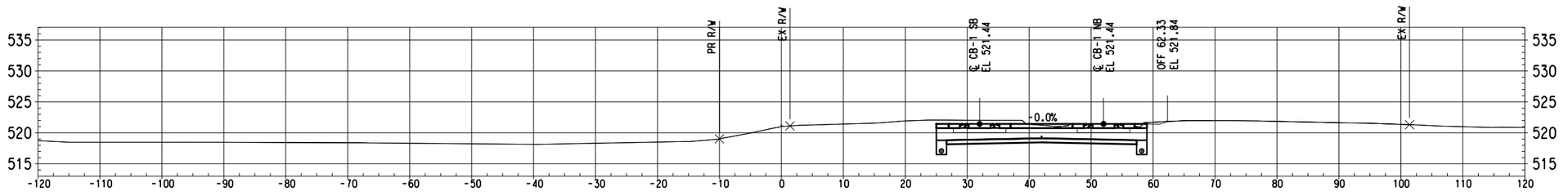

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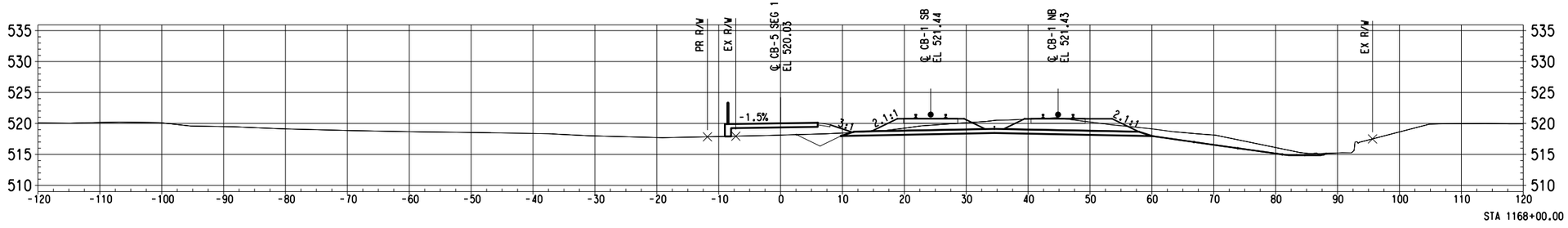

STA 1168+00.00

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20

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CONTRACT SHEET No. 141 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 37 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6356	D

DWG No. CC1-6357

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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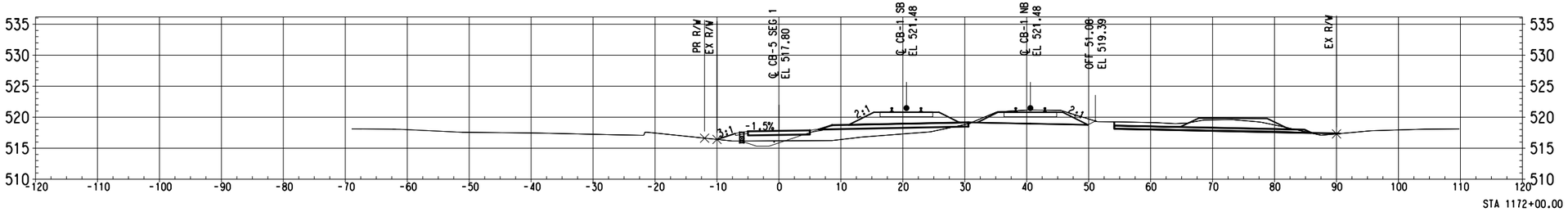
VERT SCALE (IN FEET) 0 5 10 20



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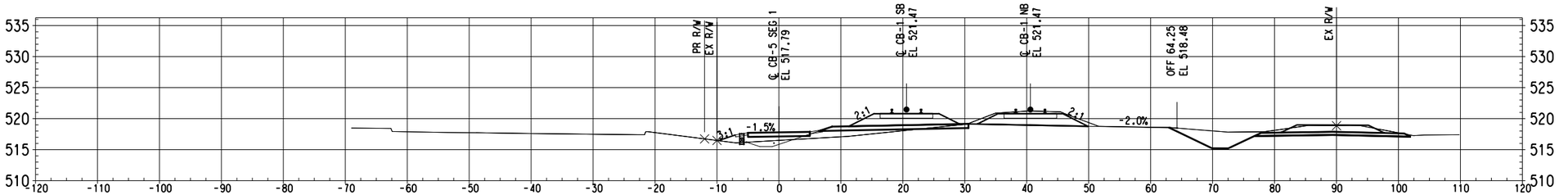

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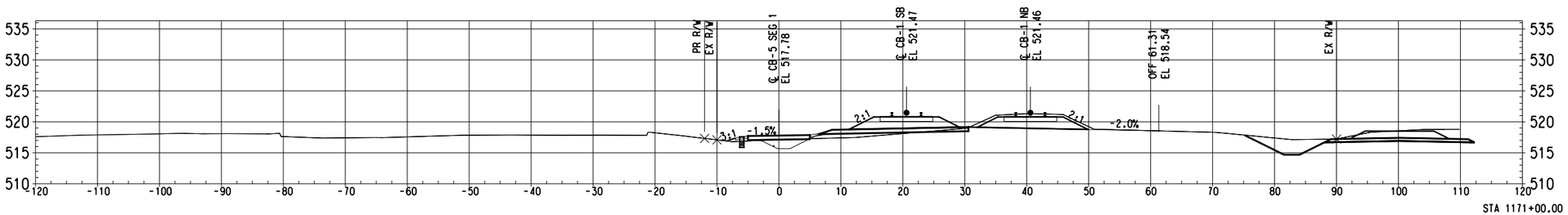

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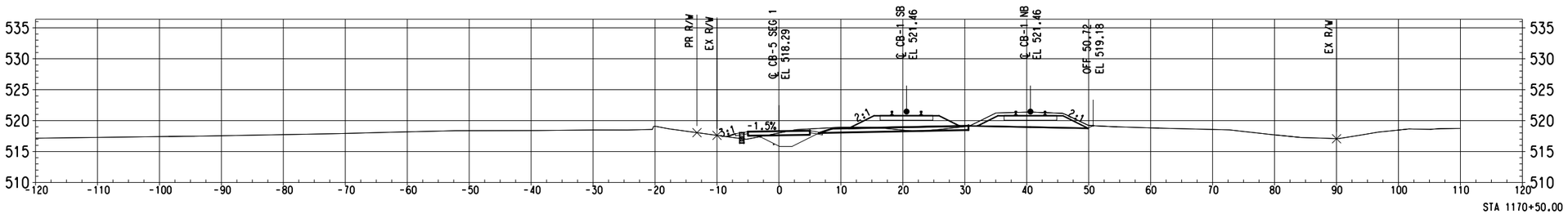

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DESIGNED	S. SALEH
CHECKED	D. LUU
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DATE	25 AUG 23

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 38 OF 106

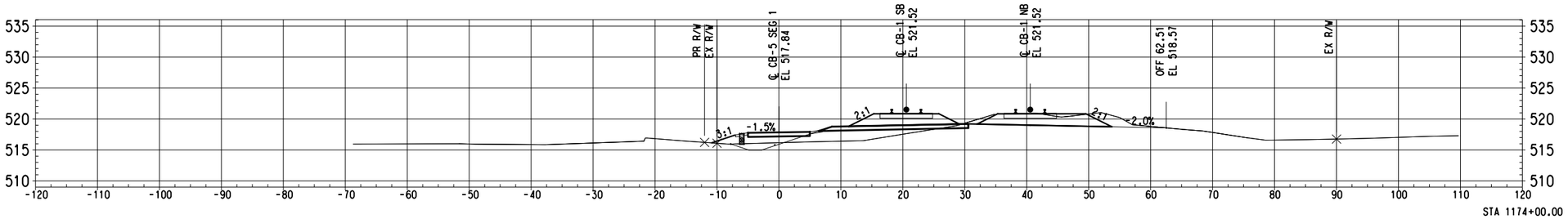
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6357	D

DWG No. CC1-6358

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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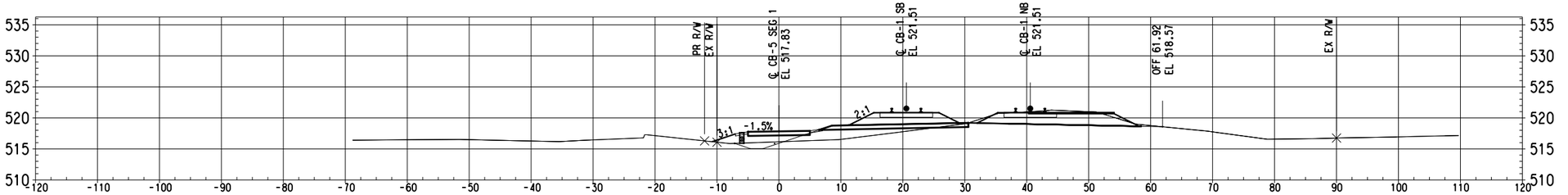

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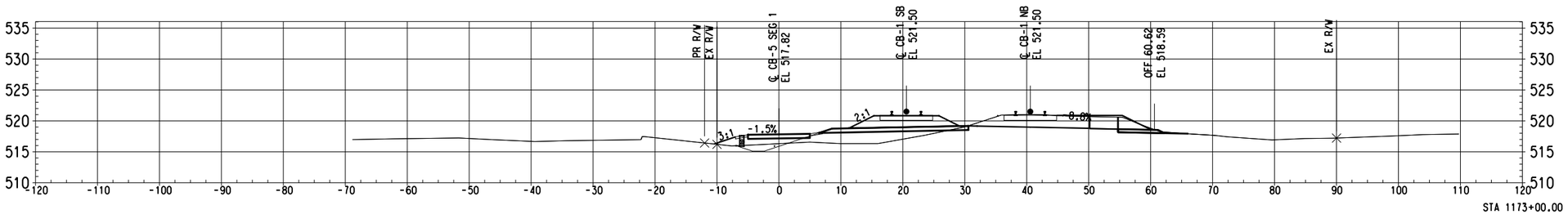

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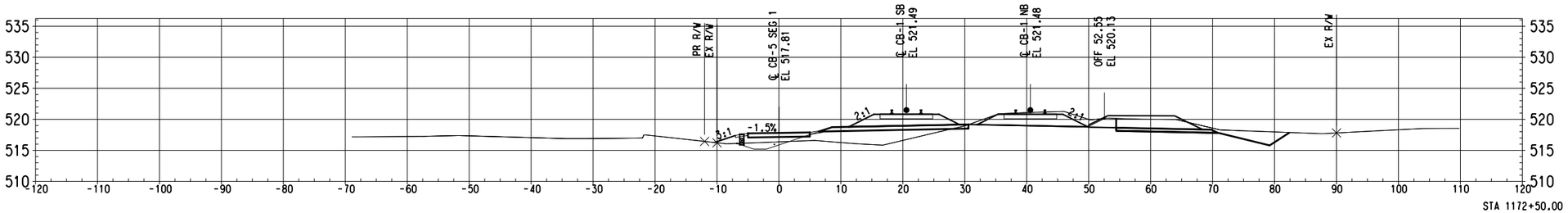

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CONTRACT SHEET No. 143 OF 378

COTTON BELT REGIONAL RAIL VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 39 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6358	D

DWG No. CC1-6359

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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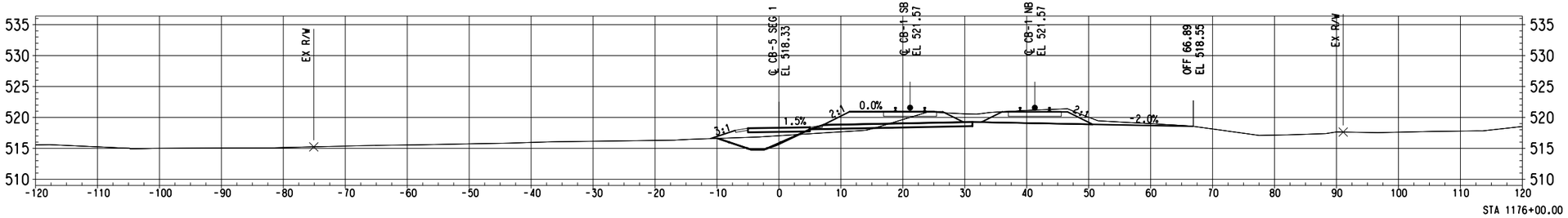
SCALE (IN FEET)
VERT 0 5 10 20



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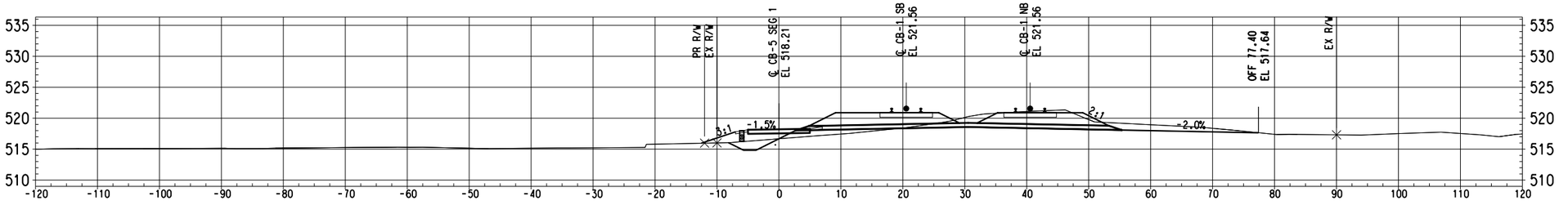

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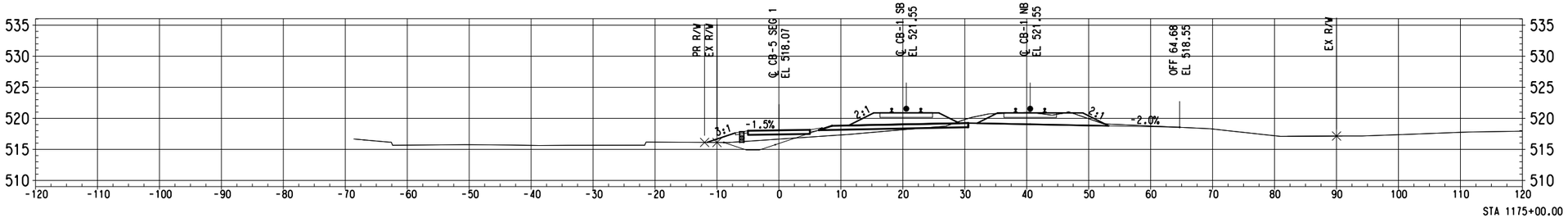

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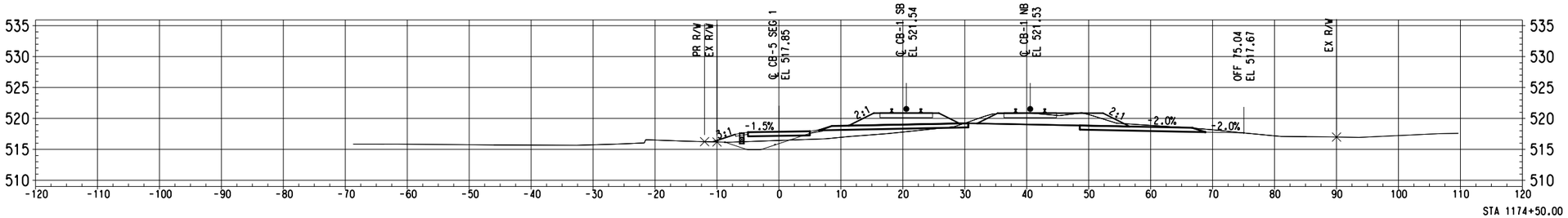

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ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
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CONTRACT SHEET No. 144 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 40 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6359	D

DWG No. CC1-6360

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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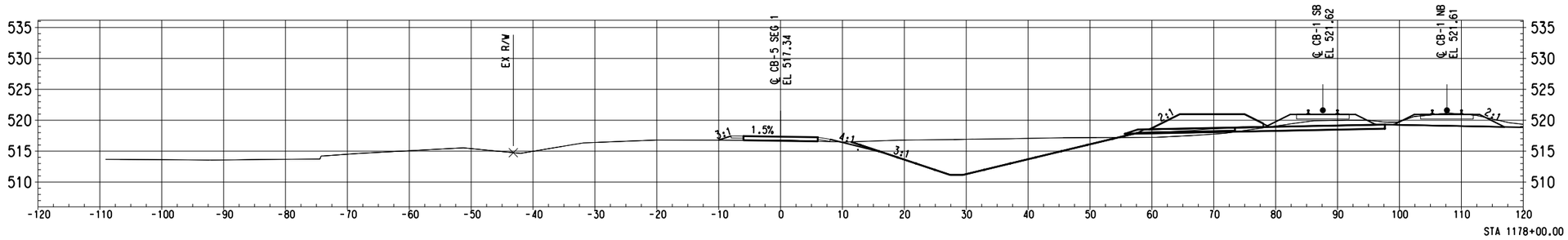
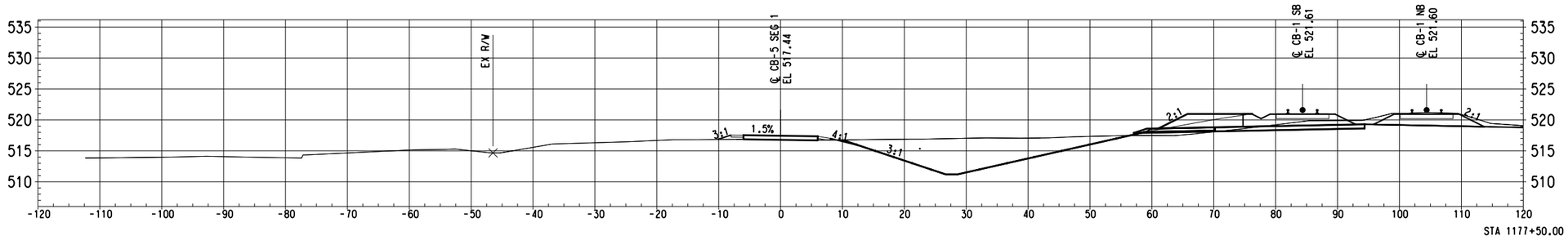
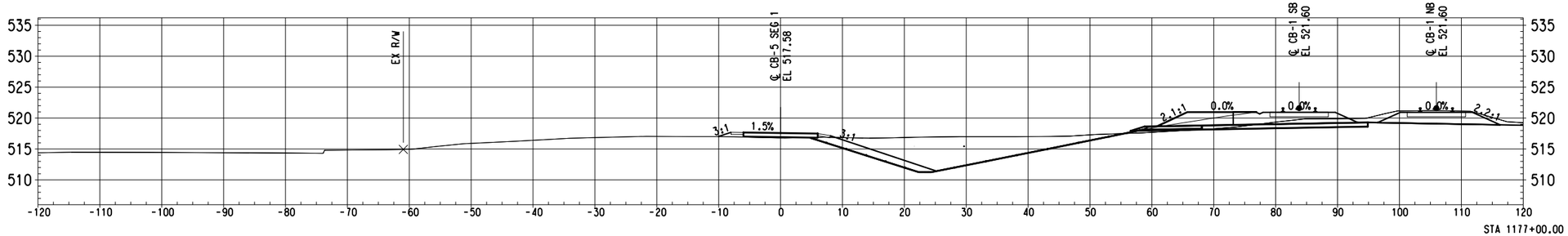
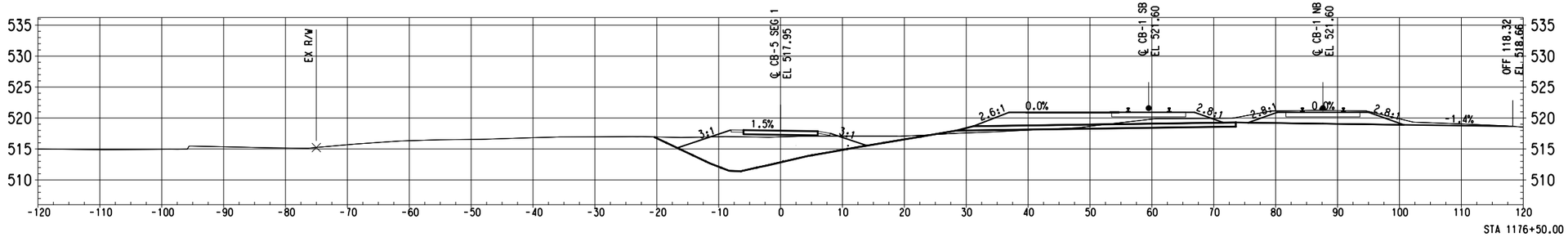
SCALE (IN FEET)
VERT 0 5 10 20









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CONTRACT SHEET No. 145 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARCHER WESTERN HERZOG

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SCALE	AS NOTED
DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

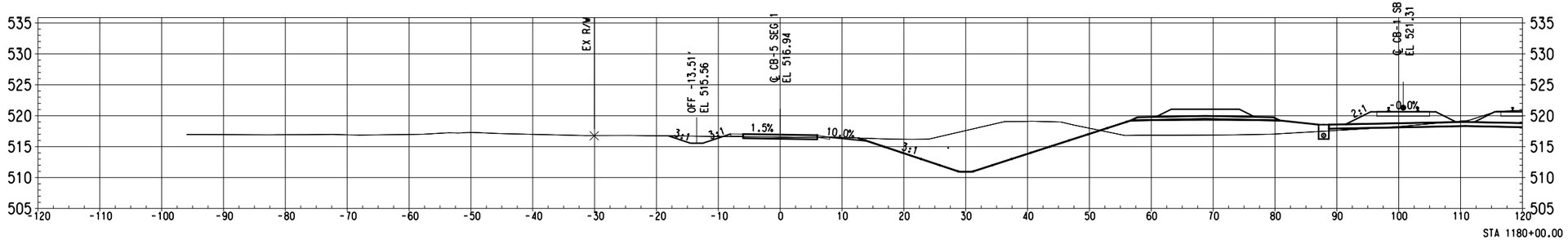
CITY OF COPPELL
CROSS SECTIONS
SHEET 41 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6360	D

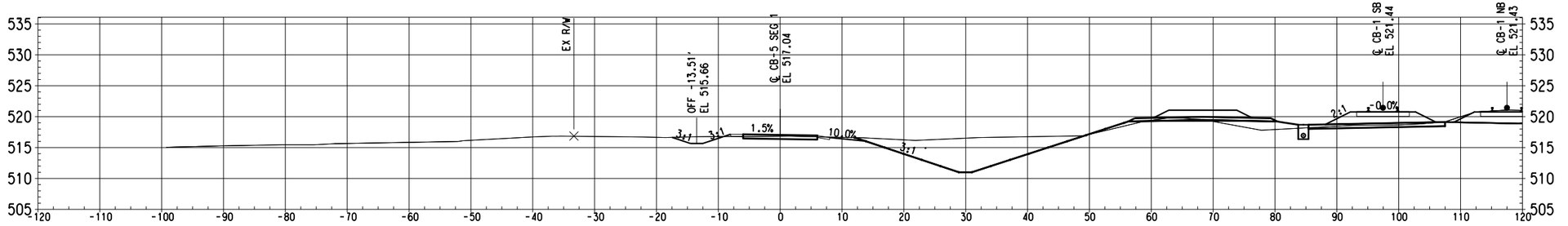
DWG No. CC1-6361

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

SCALE (IN FEET)
HORIZ 0 5 10 20
SCALE (IN FEET)
VERT 0 5 10 20



STA 1180+00.00



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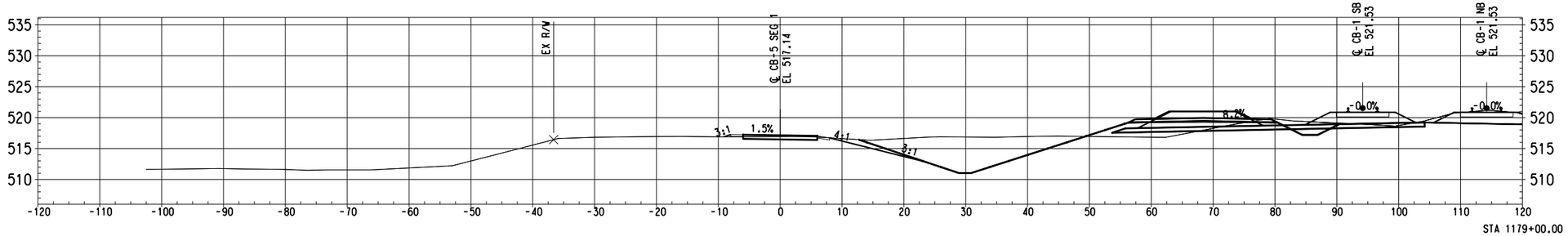

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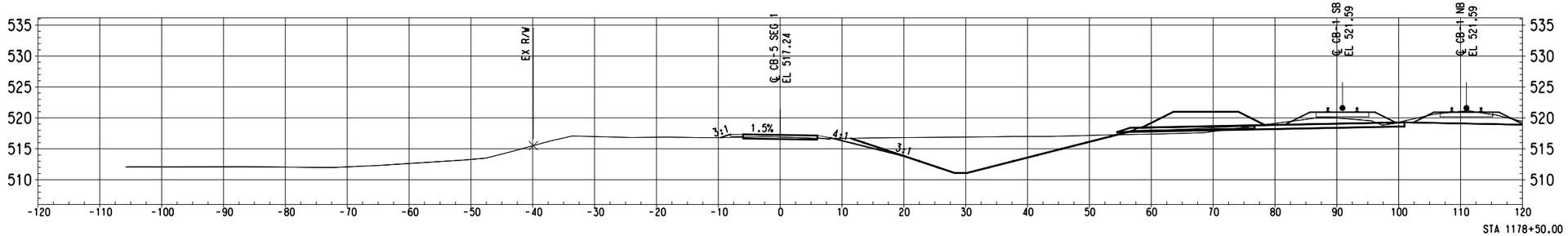

STA 1178+50.00

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DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 42 OF 106

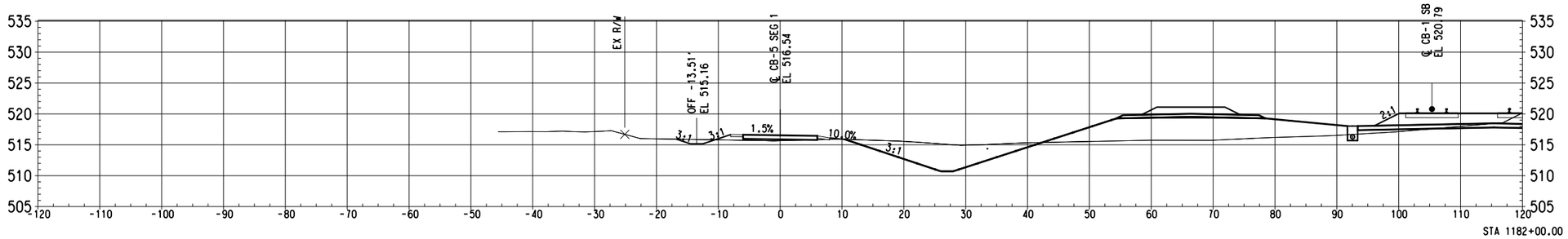
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6361	D

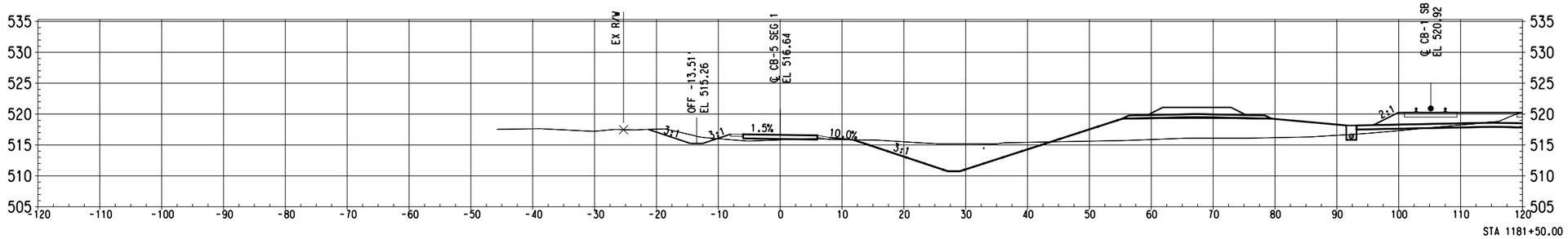
DWG No. CC1-6362

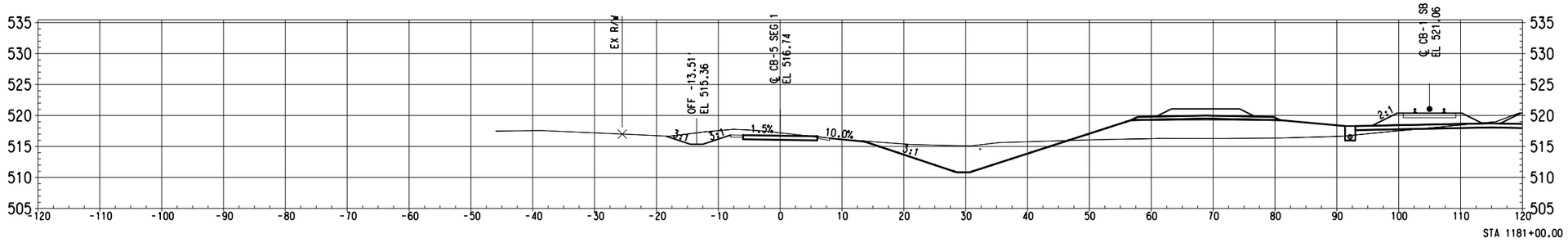
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

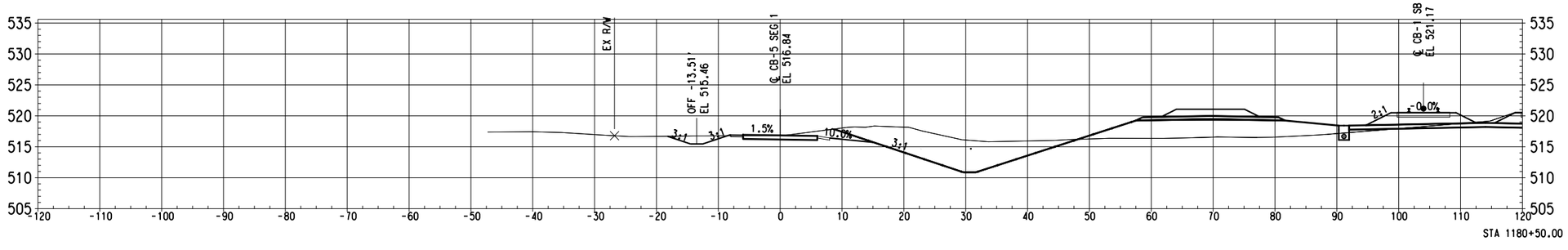
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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12801 N Central Expressway, Suite 1250
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SCALE	AS NOTED
DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 147 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 43 OF 106

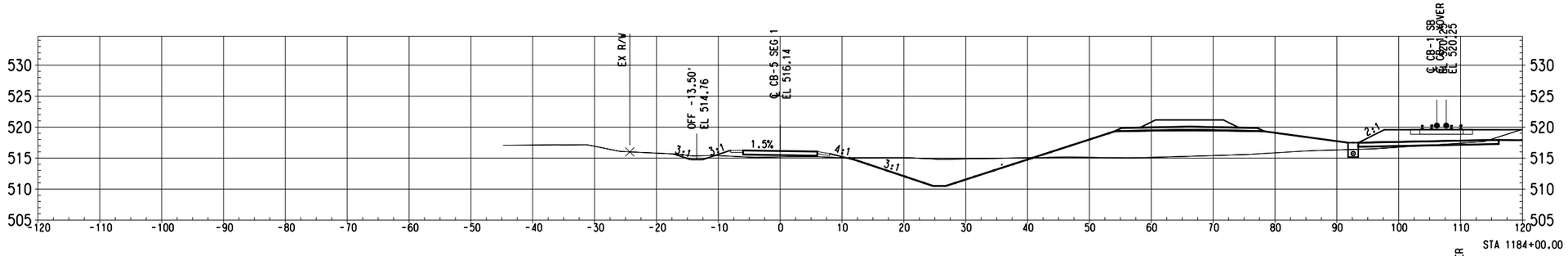
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6362	D

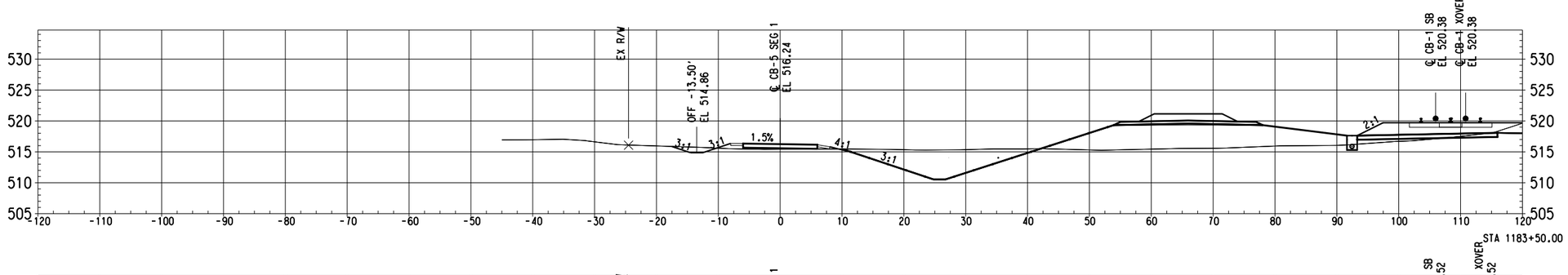
DWG No. CC1-6363

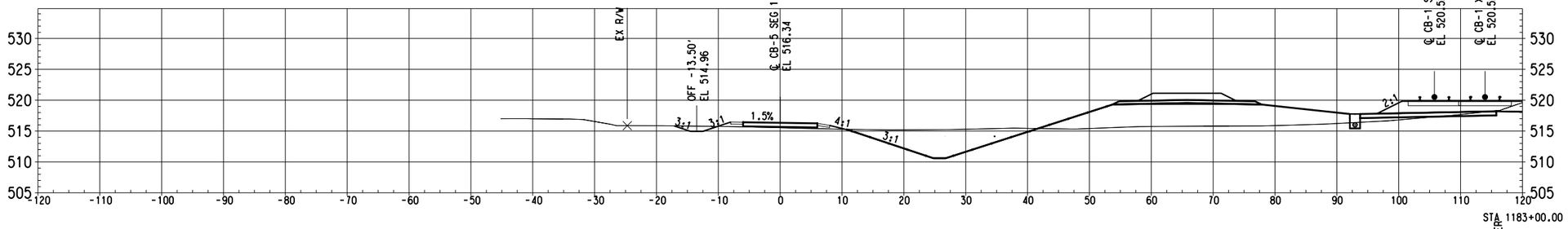
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

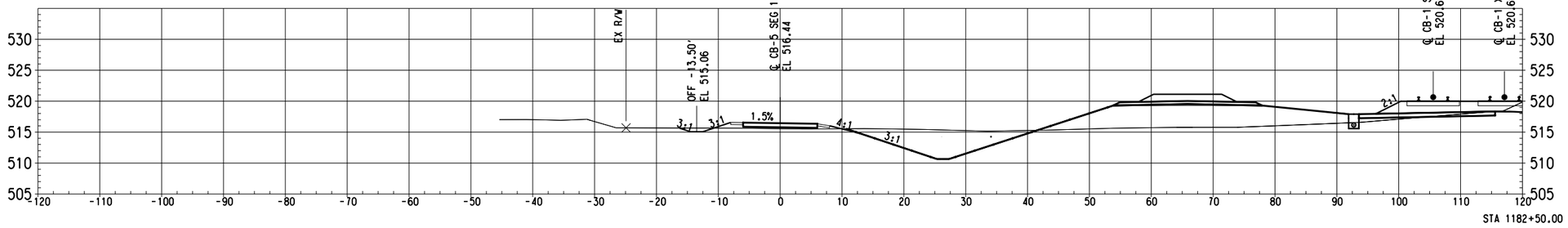
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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SCALE	AS NOTED
DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 148 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 44 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6363	D

DWG No. CC1-6364

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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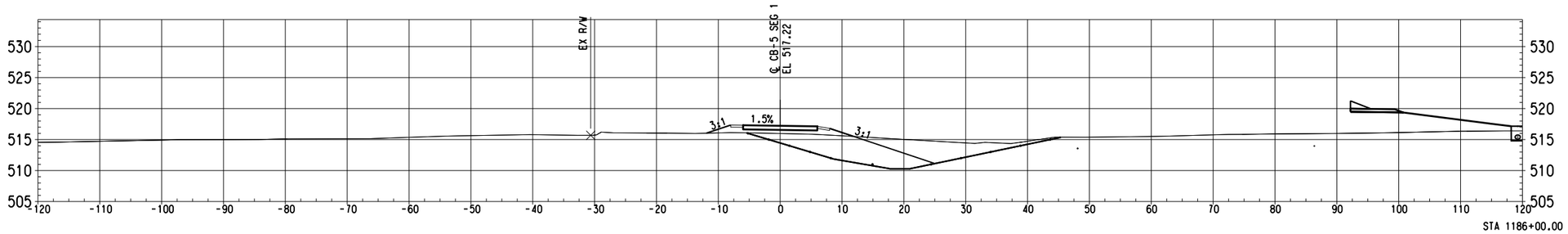
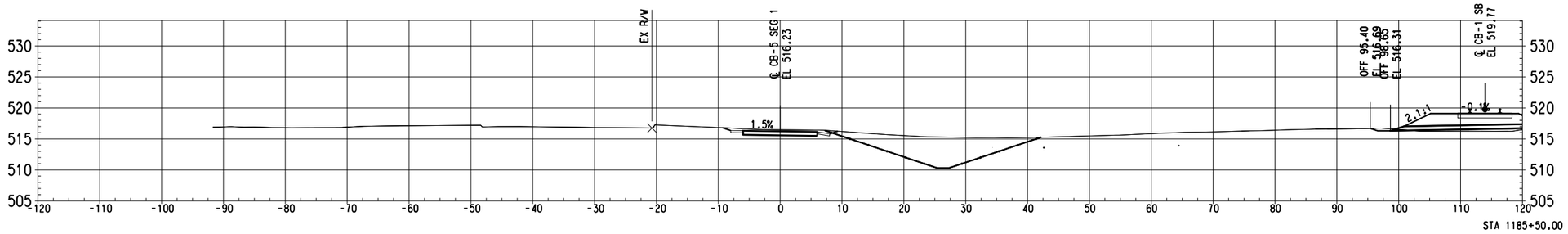
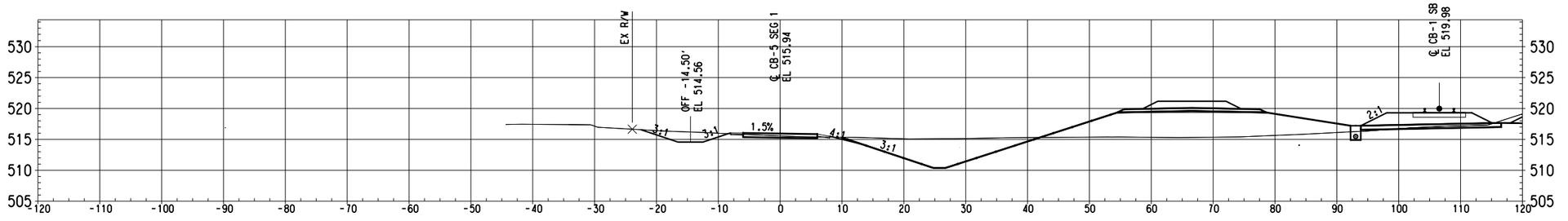
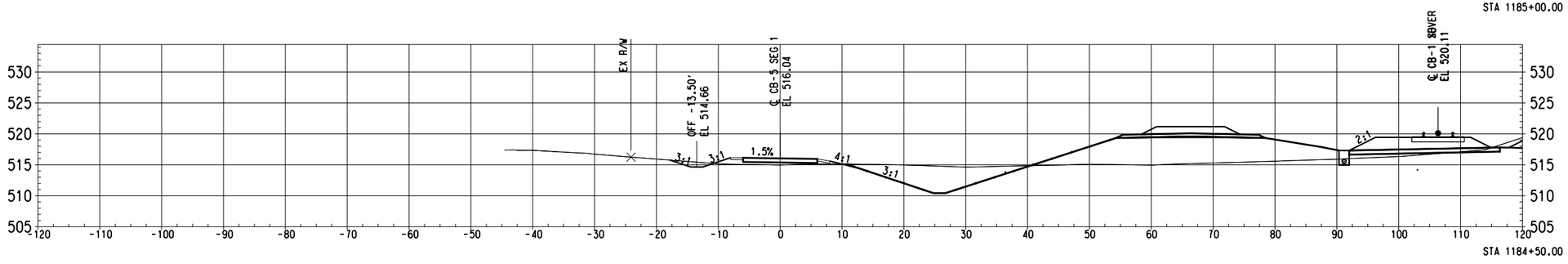
VERT SCALE (IN FEÉT) 0 5 10 20









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CONTRACT SHEET No. 149 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 45 OF 106

SCALE	AS NOTED
DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6364	D

DWG No. CC1-6365

NOTE:
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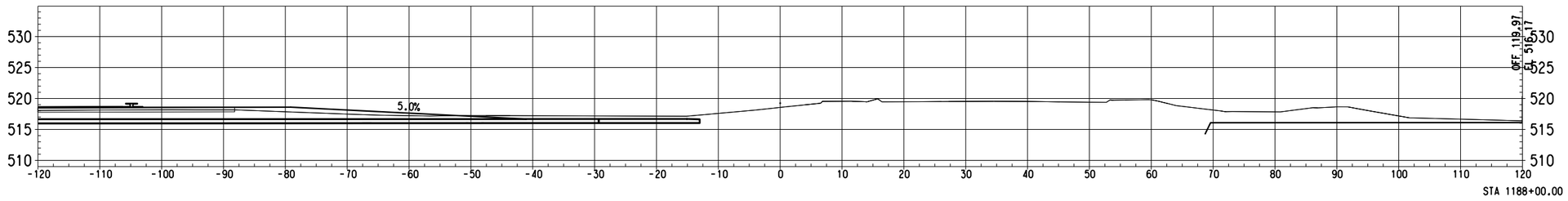
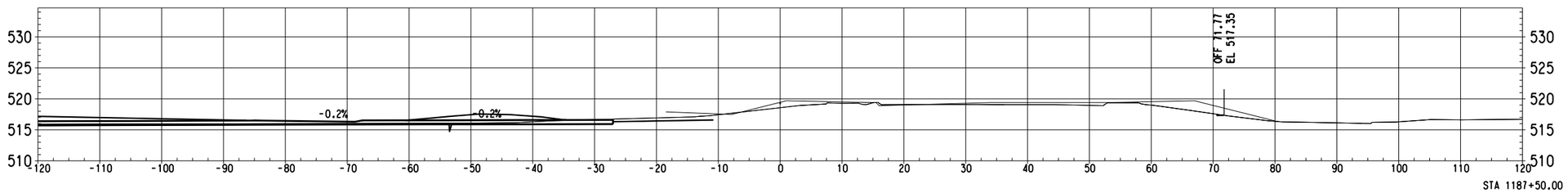
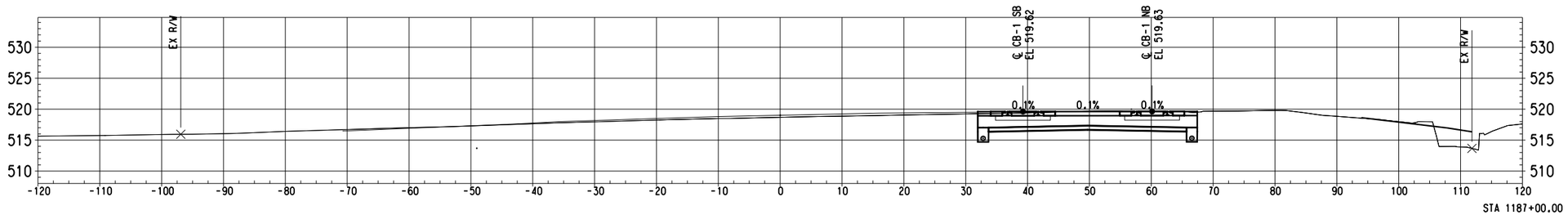
AND RIP RAP LOCATIONS AND LIMITS

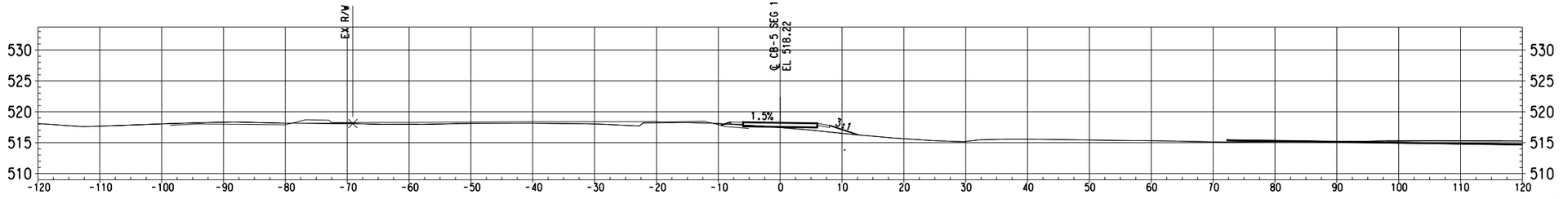
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 46 OF 106

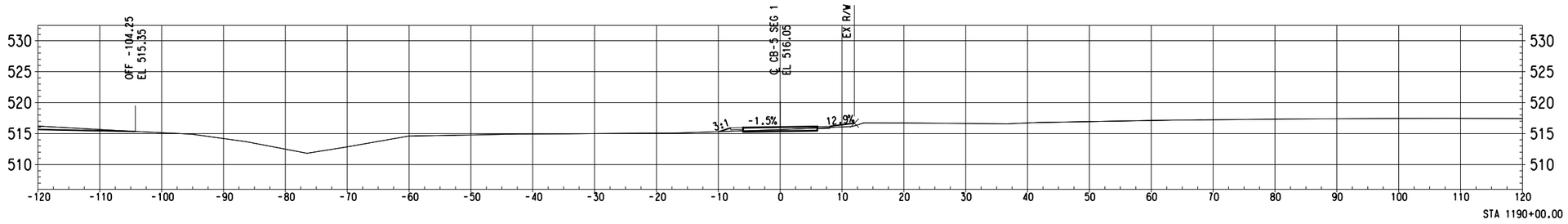
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6365	D

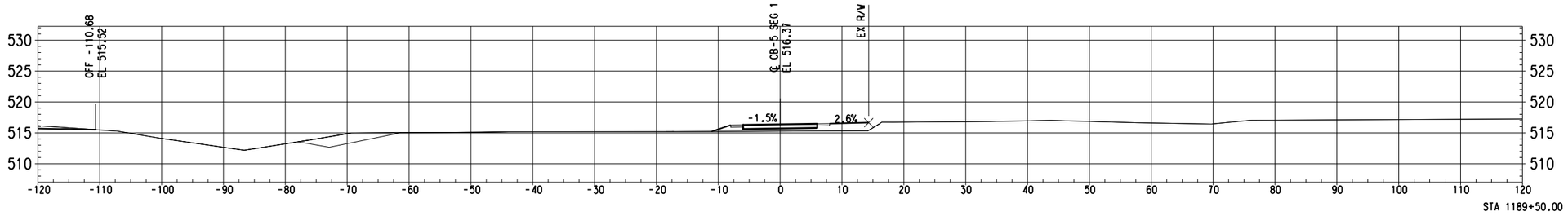
DWG No. CC1-6366

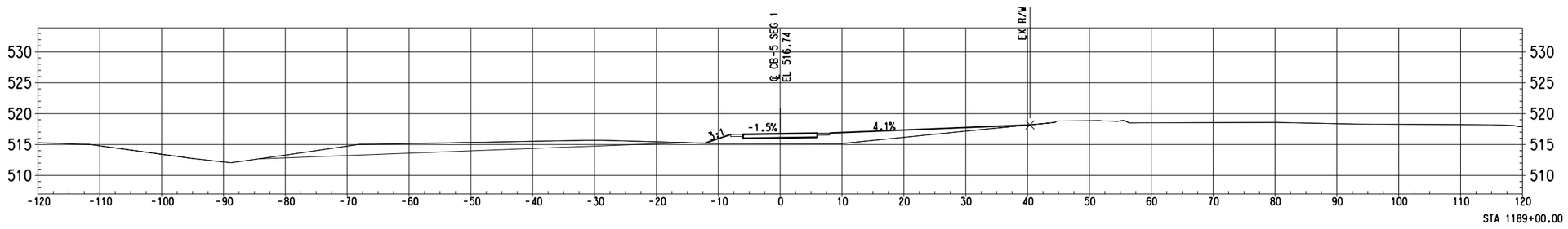
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

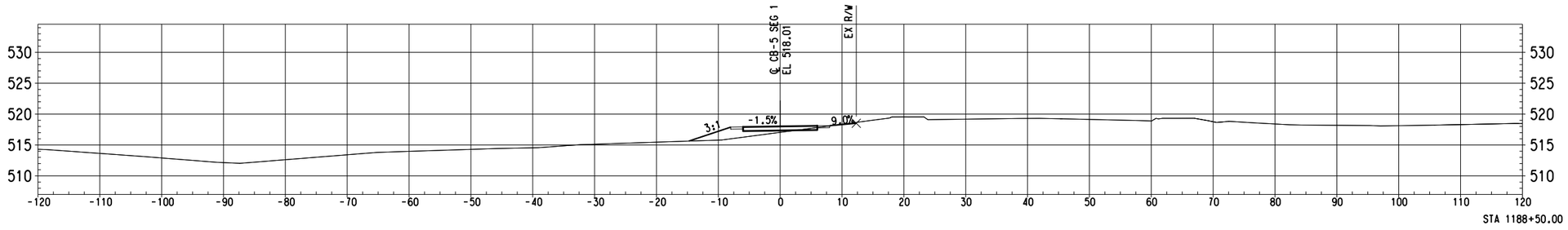
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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CONTRACT SHEET No. 151 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 47 OF 106

SCALE	AS NOTED
DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

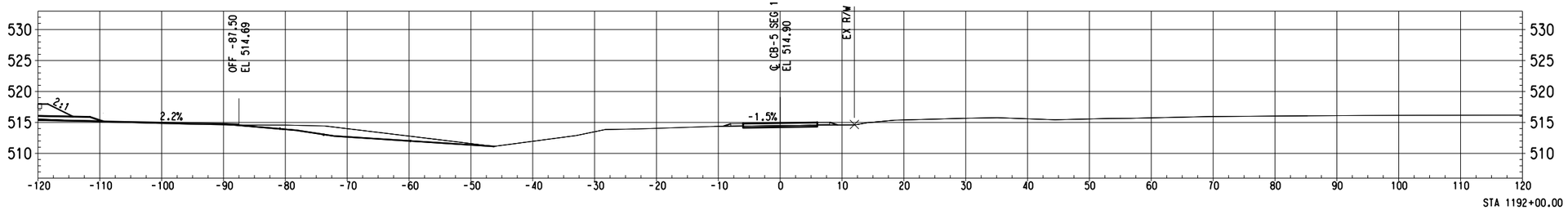
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6366	D

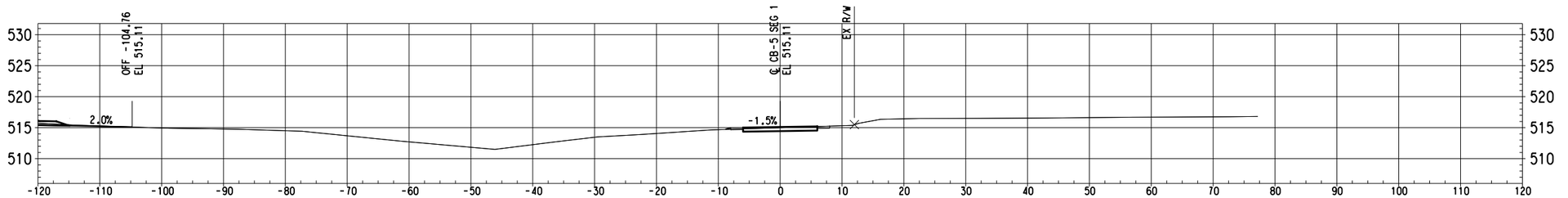
DWG No. CC1-6367

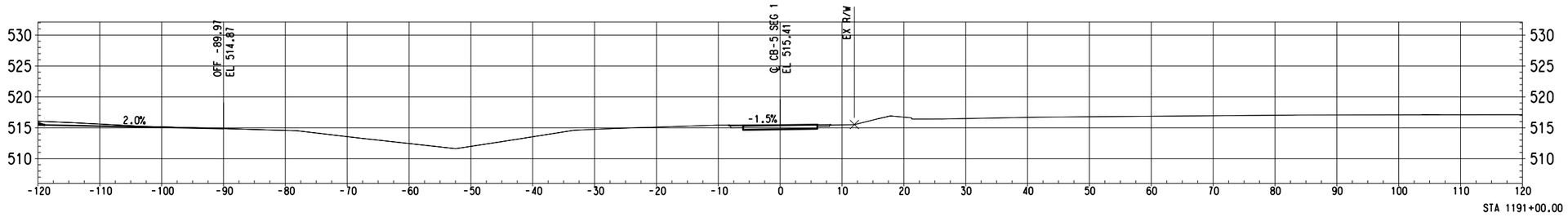
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE
AND RIP RAP LOCATIONS AND LIMITS

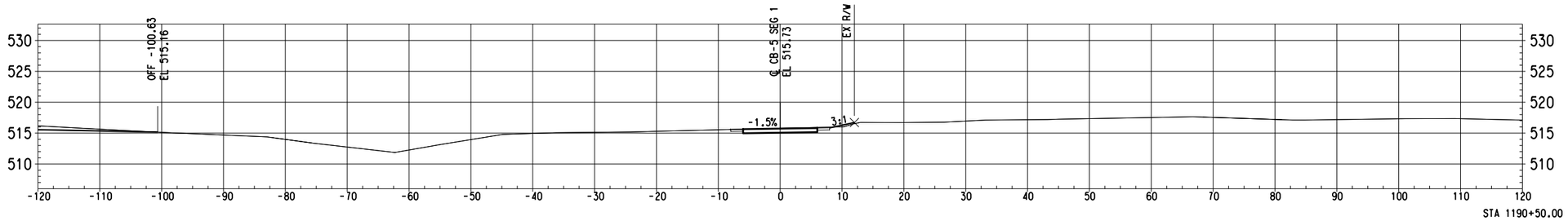
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
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DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 48 OF 106

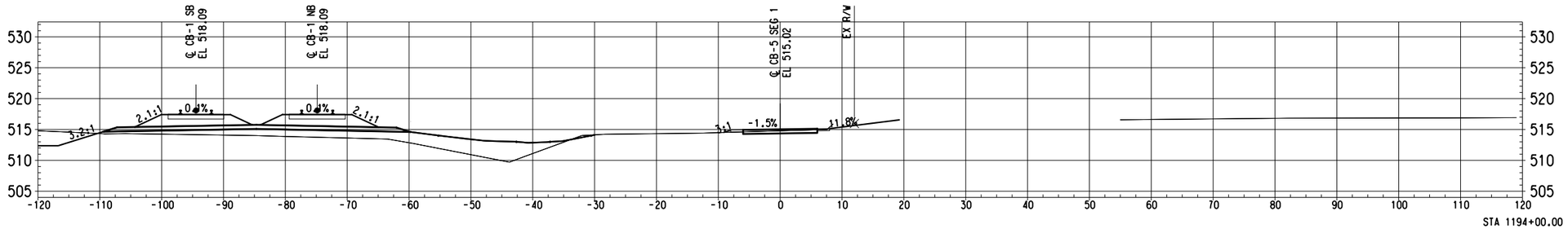
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6367	D

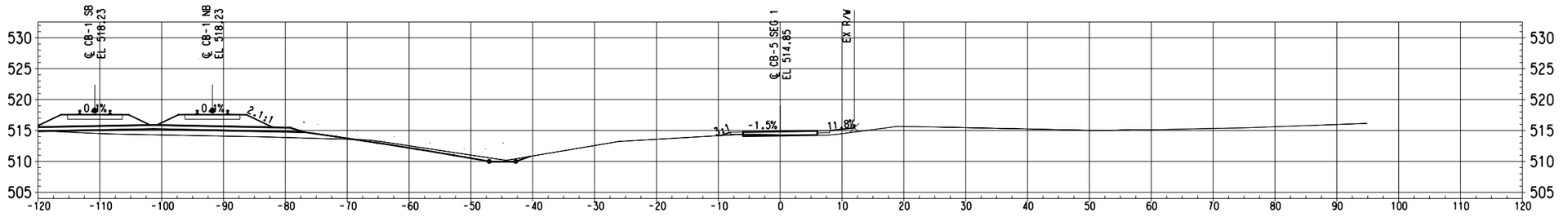
DWG No. CC1-6368

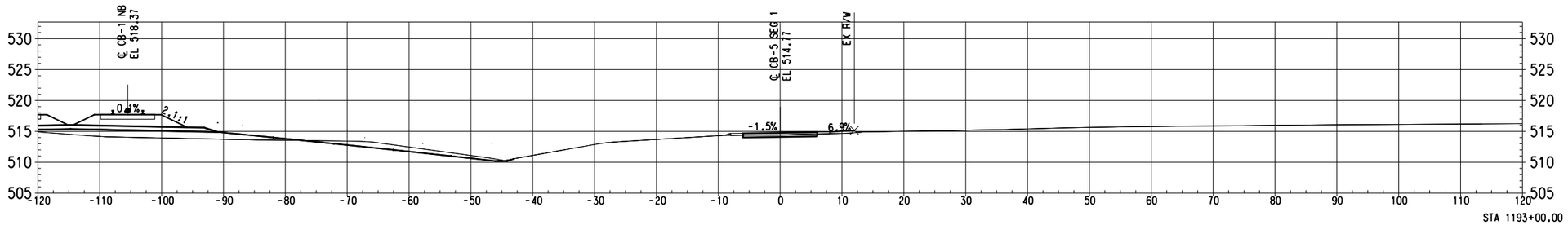
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

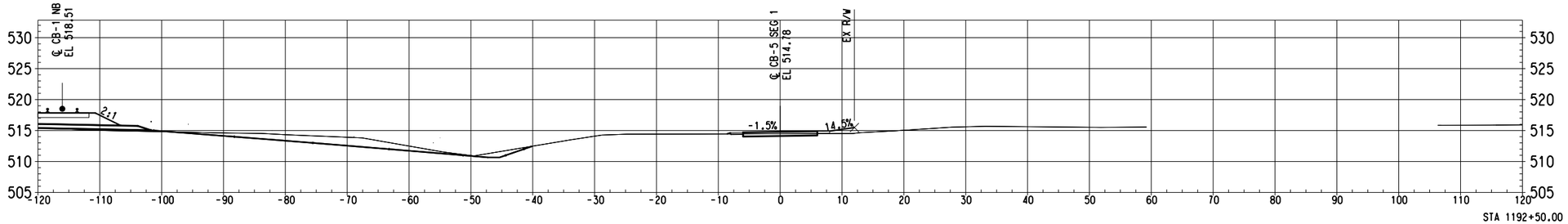
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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CONTRACT SHEET No. 153 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	S. SALEH
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DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

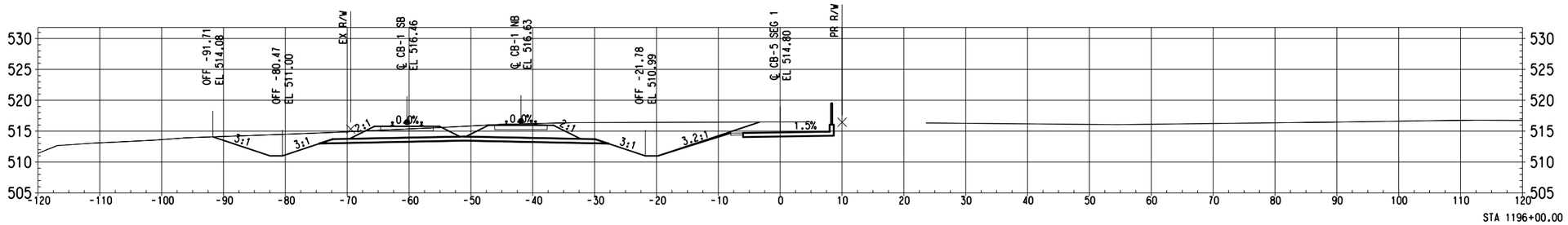
CITY OF COPPELL
CROSS SECTIONS
SHEET 49 OF 106

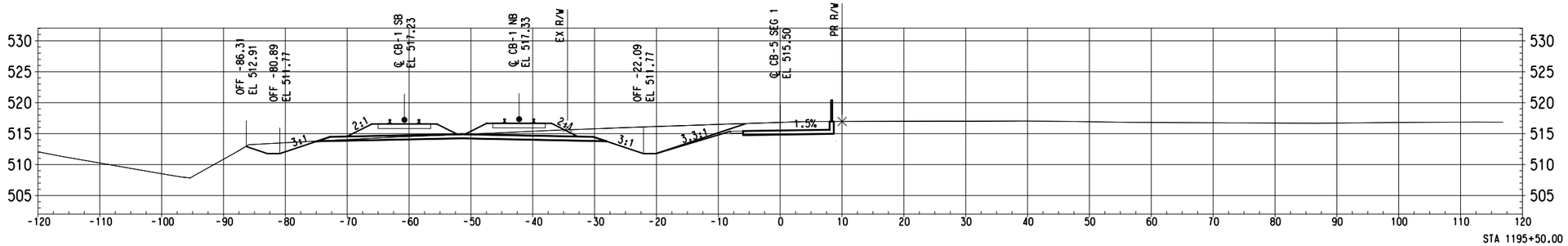
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6368	D

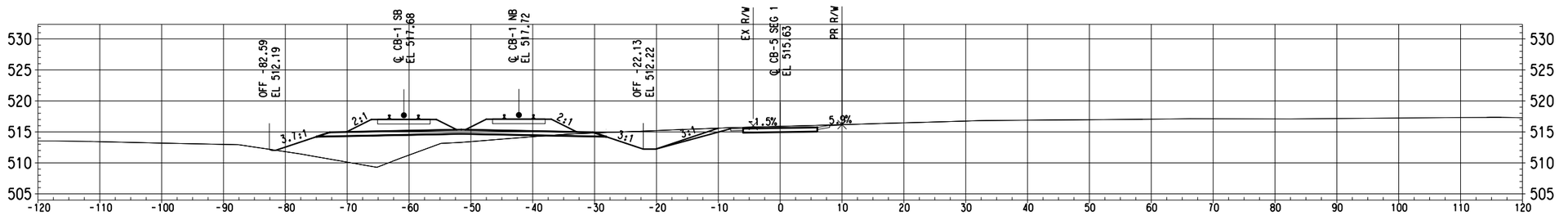
DWG No. CC1-6369

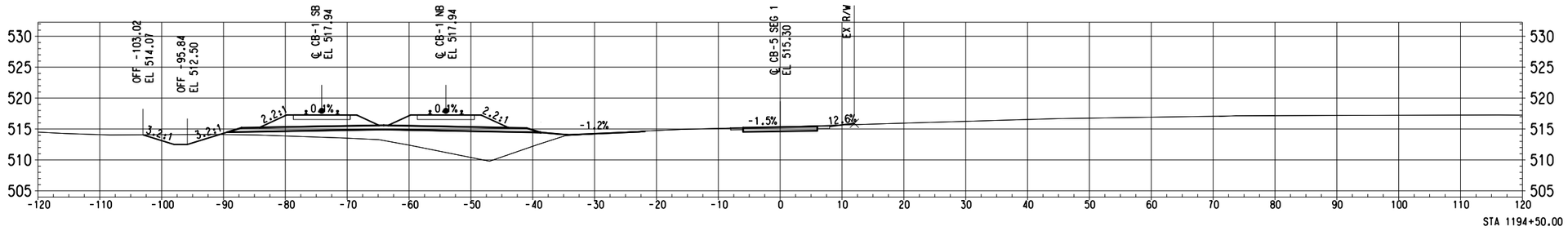
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

SCALE (IN FEET)
HORIZ 0 5 10 20
VERT 0 5 10 20









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CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CONTRACT SHEET No. 154 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 50 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6369	D

DWG No. CC1-6370

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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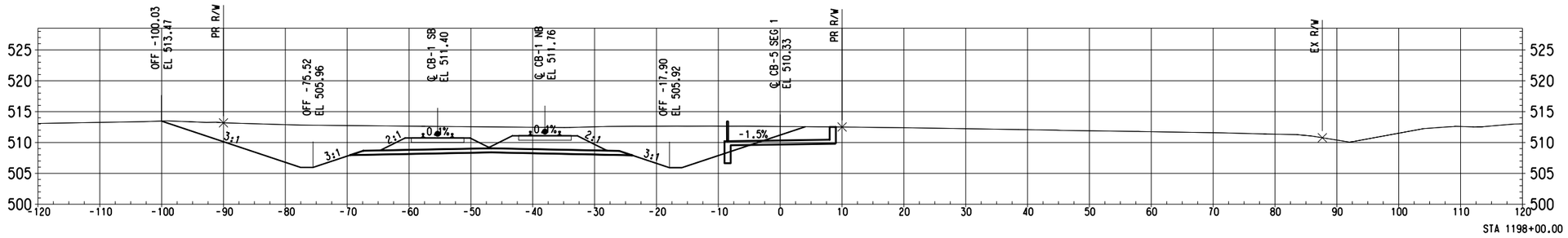
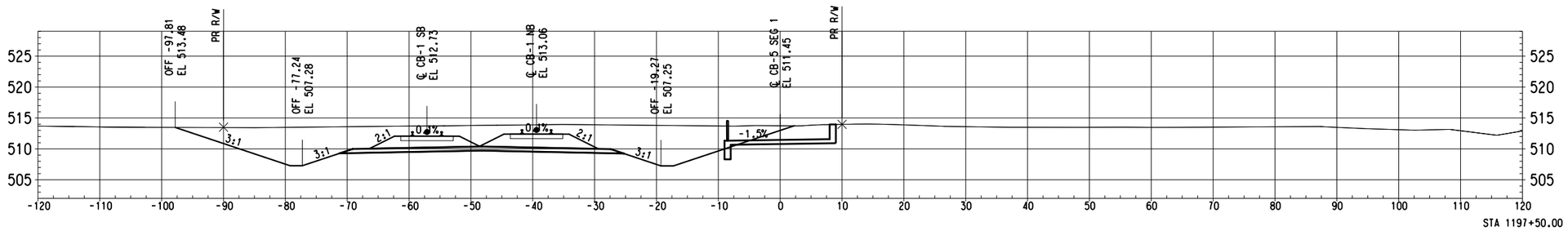
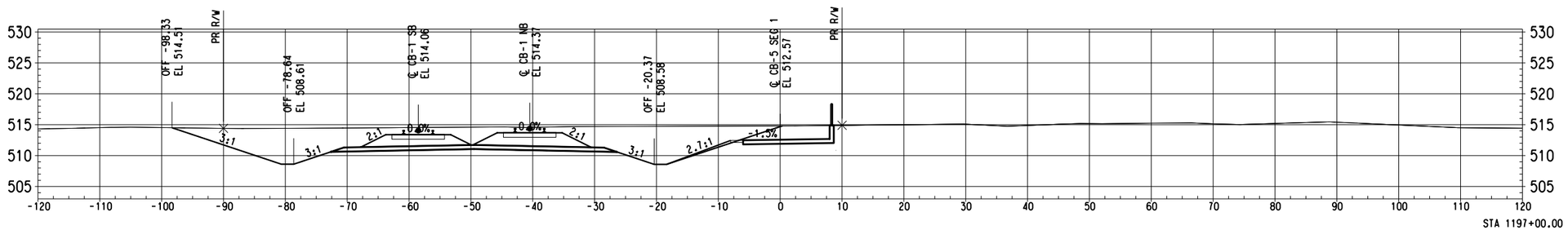
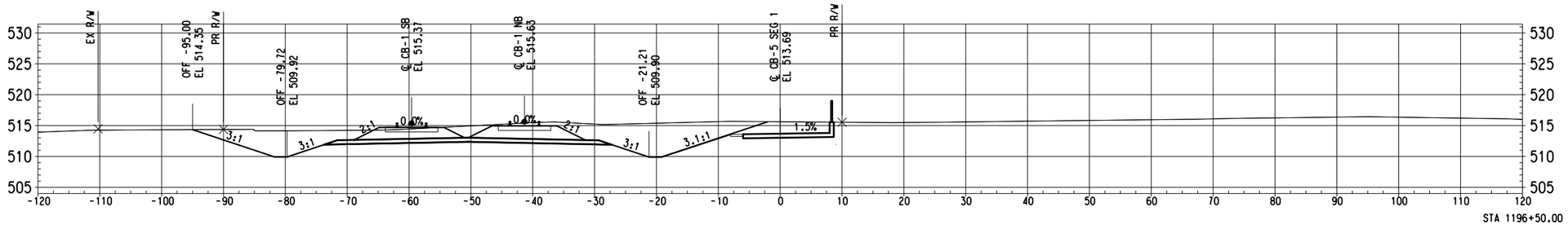
VERT SCALE (IN FEET) 0 5 10 20









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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	S. SALEH
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IN CHARGE	D. LUU
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

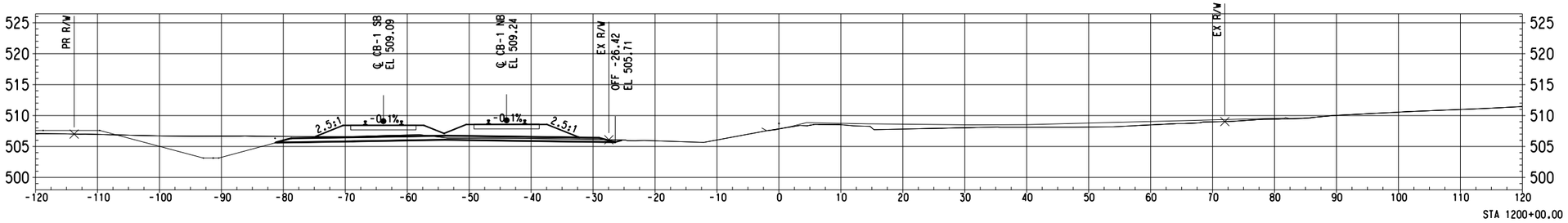
CITY OF COPPELL
CROSS SECTIONS
SHEET 51 OF 106

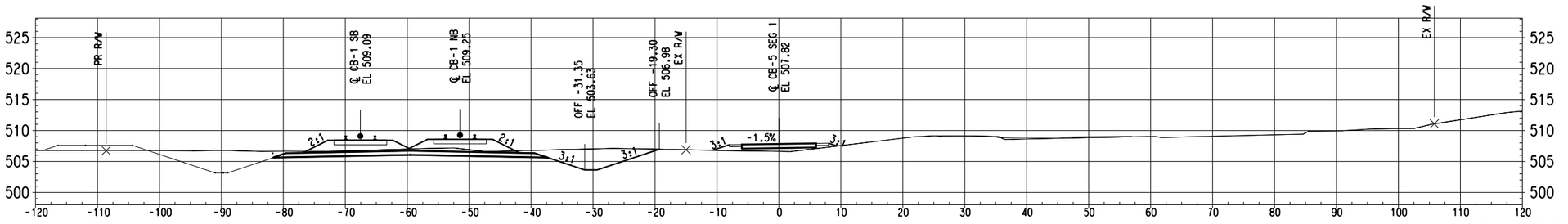
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6370	D

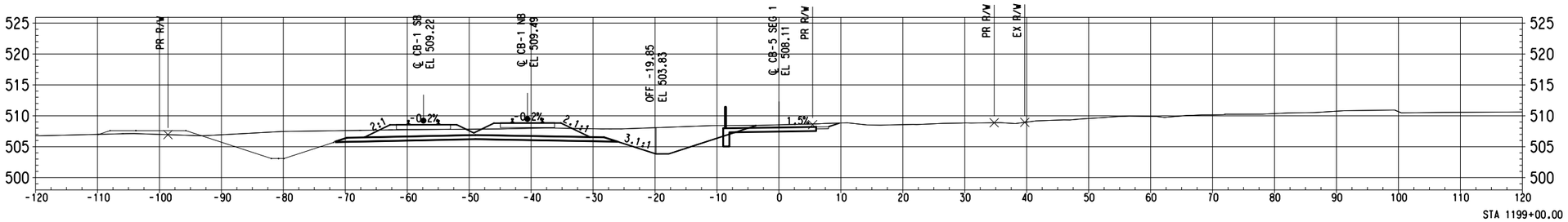
DWG No. CC1-6371

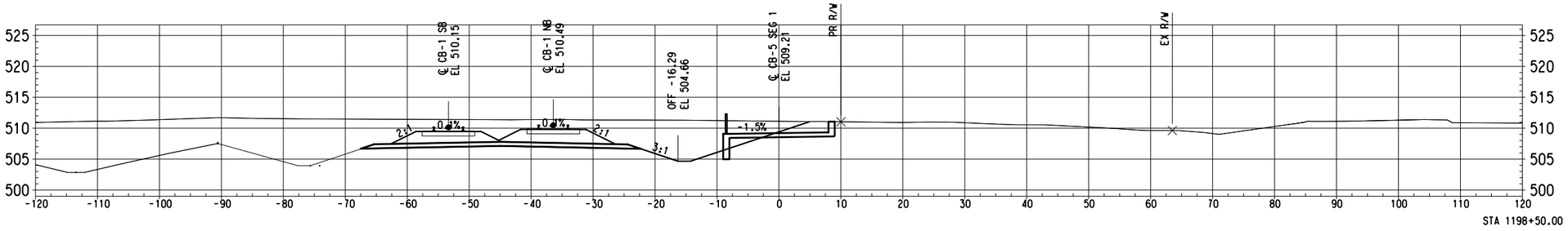
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

SCALE (IN FEET)
HORIZ 0 5 10 20
SCALE (IN FEET)
VERT 0 5 10 20









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DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

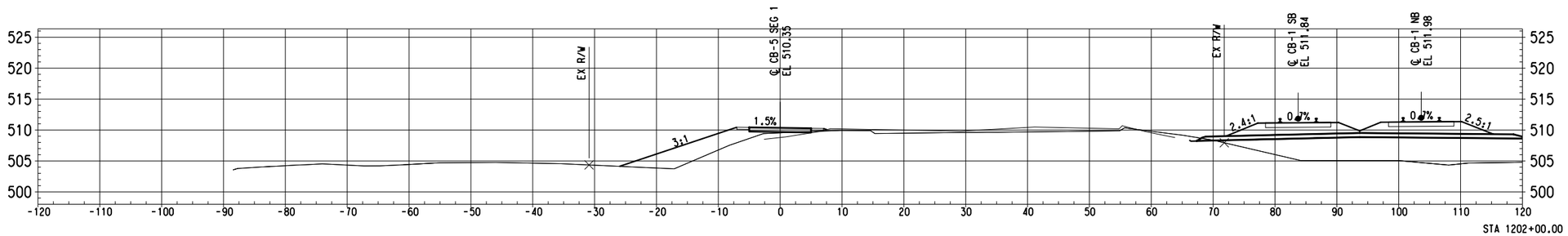
CITY OF COPPELL
CROSS SECTIONS
SHEET 52 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6371	D

DWG No. CC1-6372

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

SCALE (IN FEET)
HORIZ 0 5 10 20
SCALE (IN FEET)
VERT 0 5 10 20



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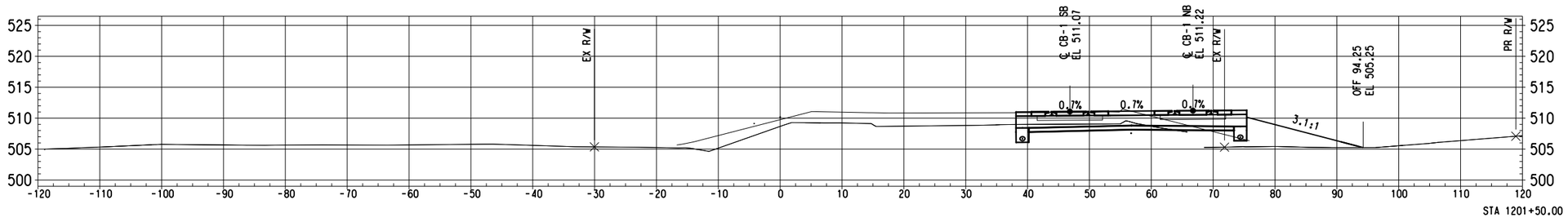

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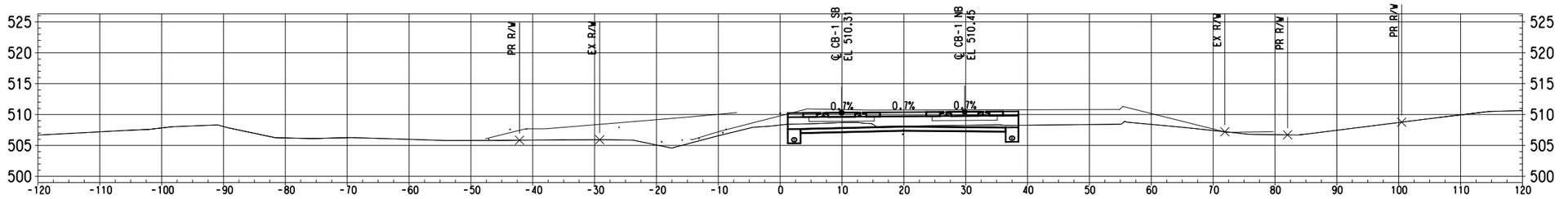

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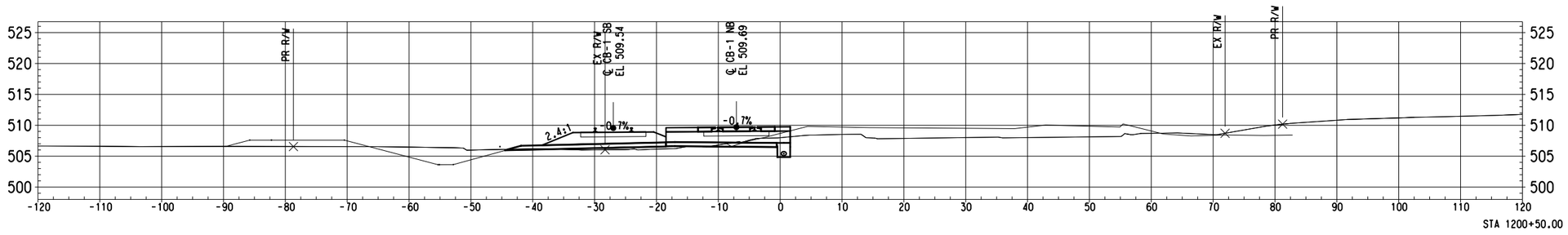

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IN CHARGE	D. LUU
DATE	25 AUG 23

CONTRACT SHEET No. 157 OF 378

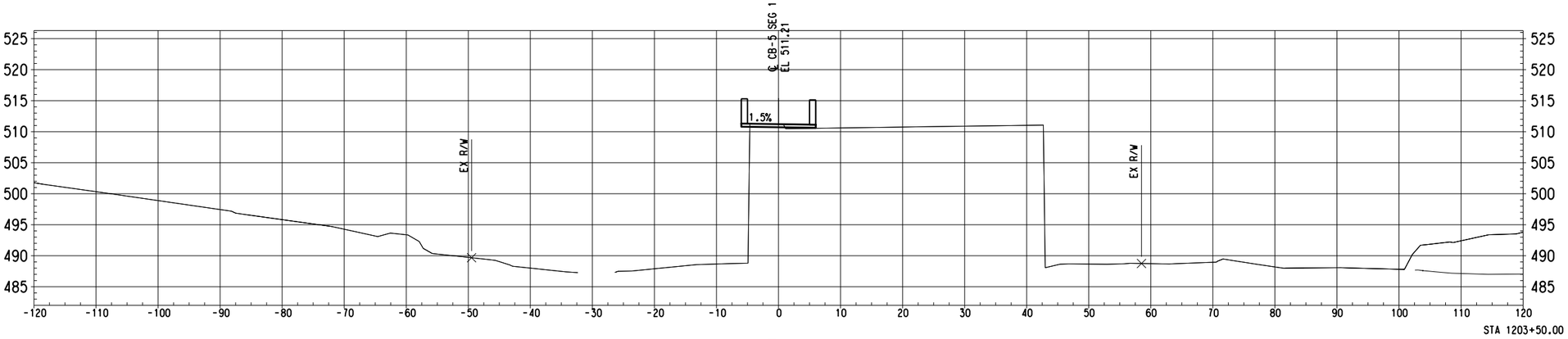
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

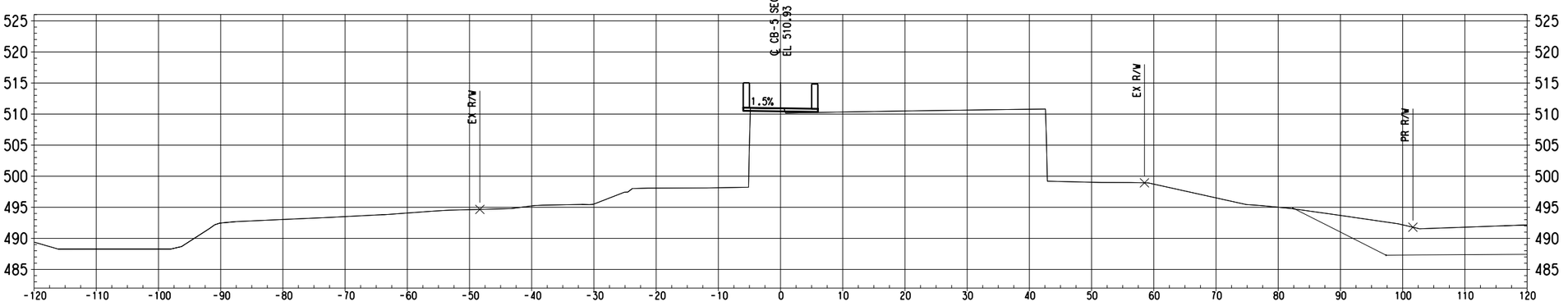
CITY OF COPPELL
CROSS SECTIONS
SHEET 53 OF 106

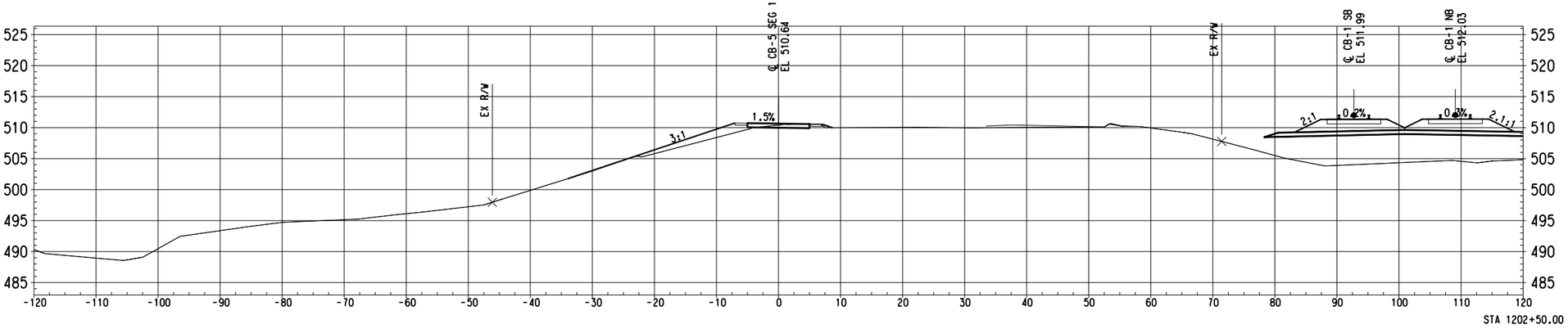
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6372	D

DWG No. CC1-6373

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS







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CONTRACT SHEET No. 158 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 54 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6373	D

DWG No. CC1-6374

NOTE:
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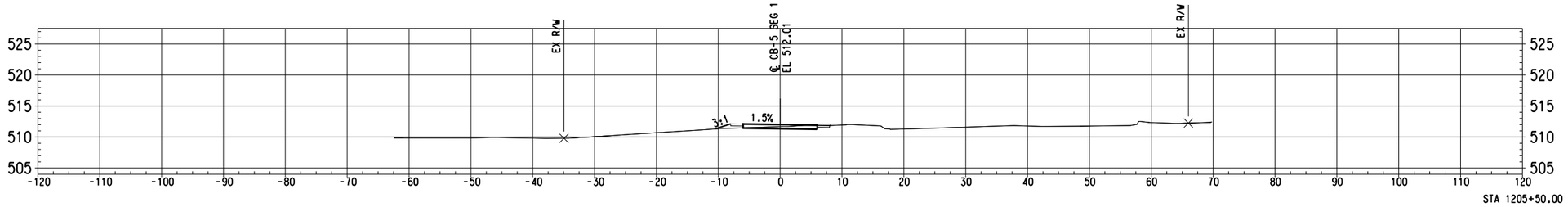
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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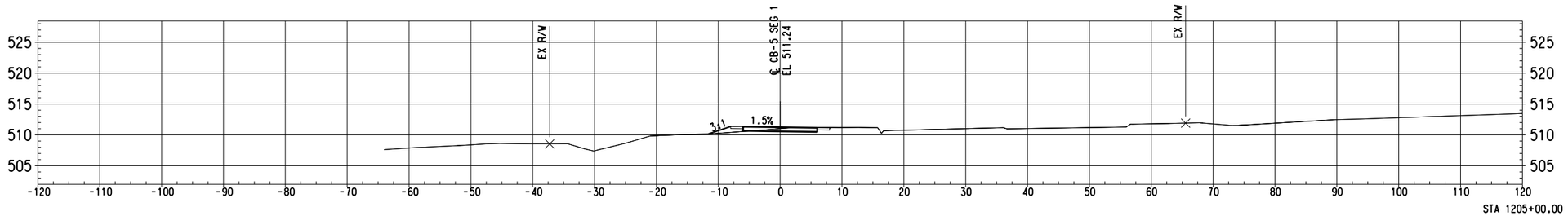

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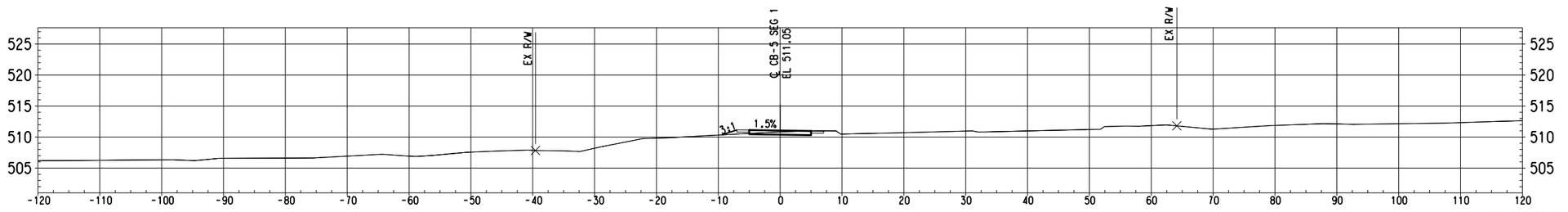

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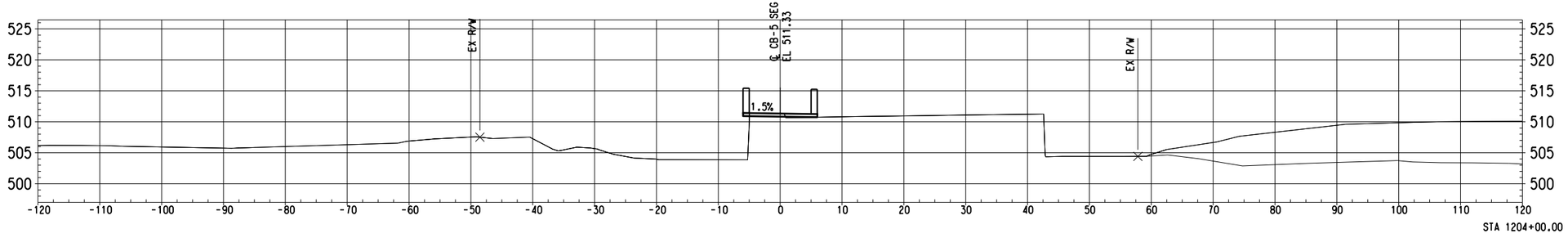

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CAES

CONTRACT SHEET No. 159 OF 378

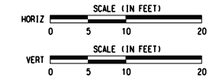
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

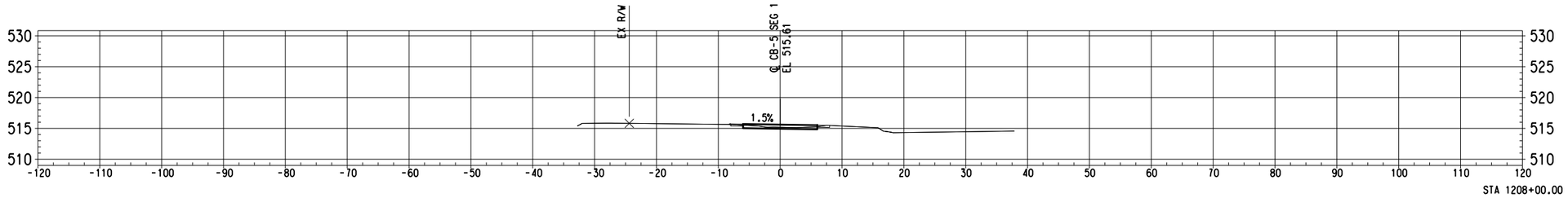
CITY OF COPPELL
CROSS SECTIONS
SHEET 55 OF 106

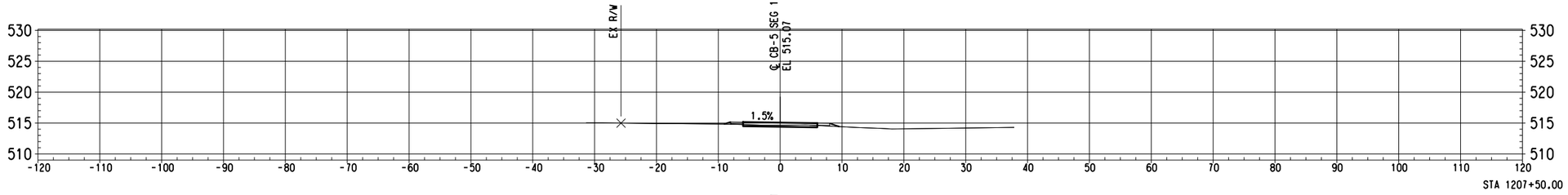
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6374	D

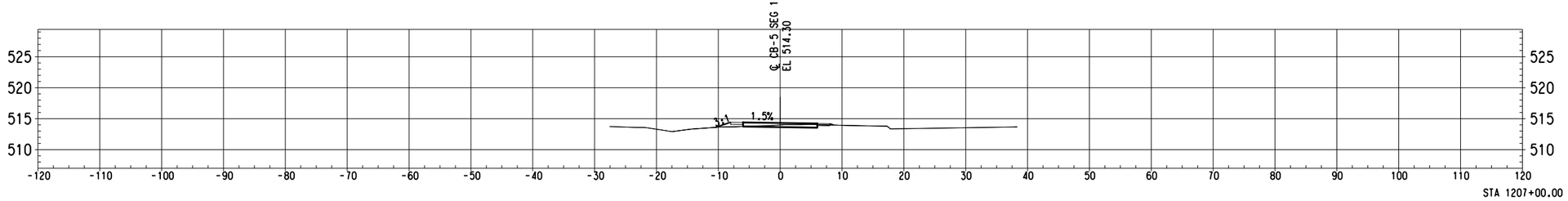
DWG No. CC1-6375

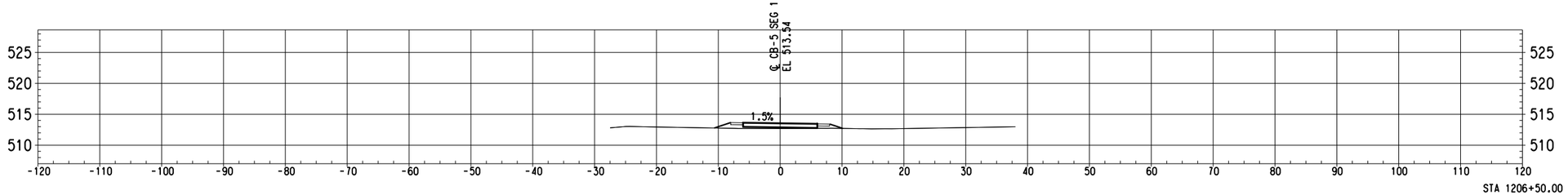
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

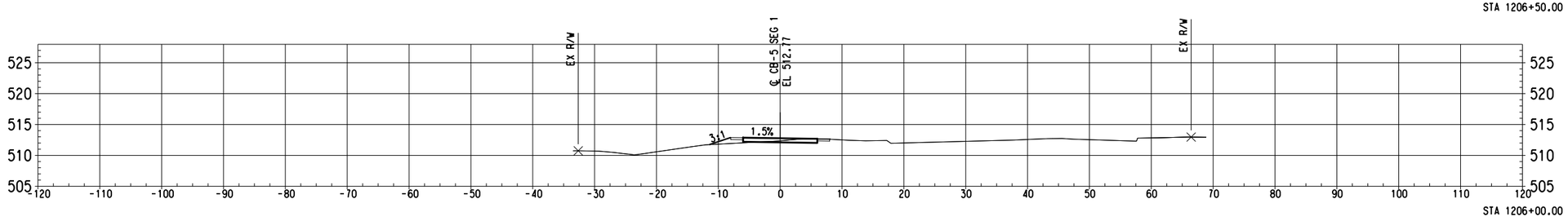












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CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 160 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 56 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6375	D

DWG No. CC1-6376

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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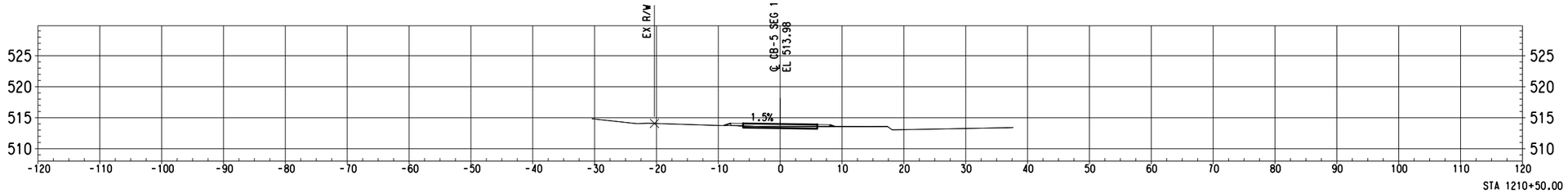
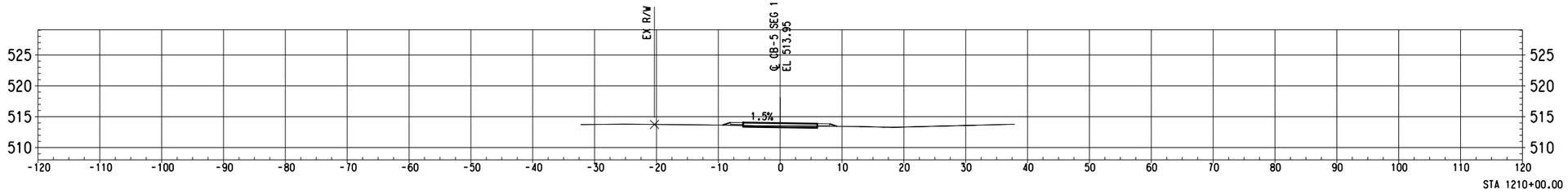
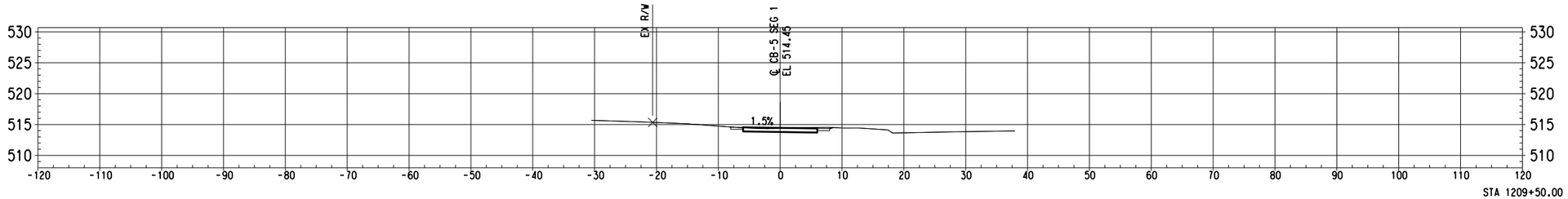
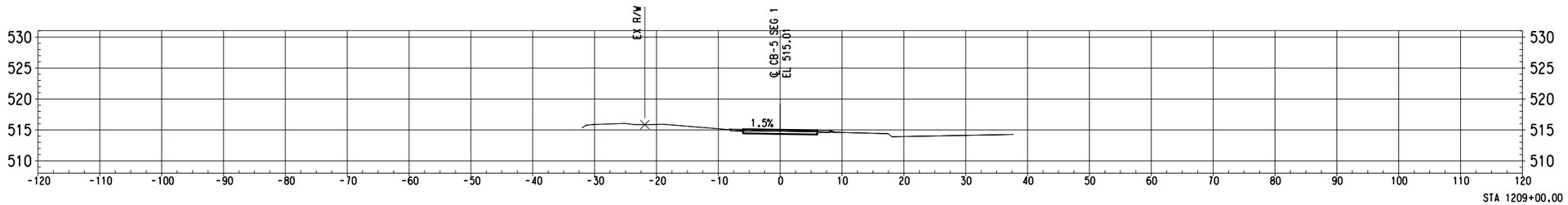
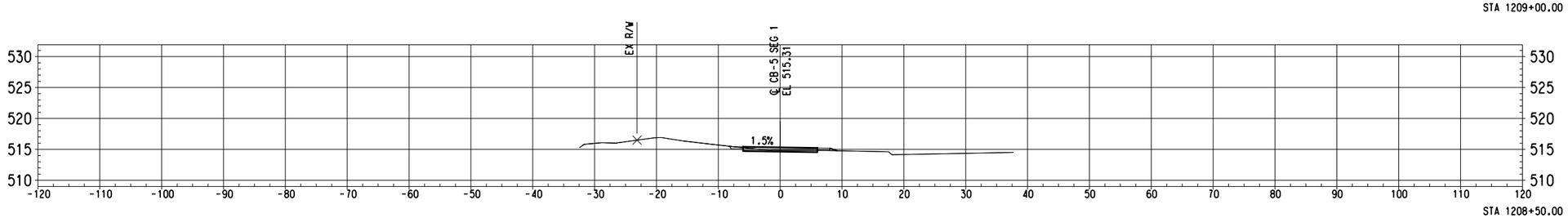
VERT SCALE (IN FEET) 0 5 10 20











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CONTRACT SHEET No. 161 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 57 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6376	D

DWG No. CC1-6377

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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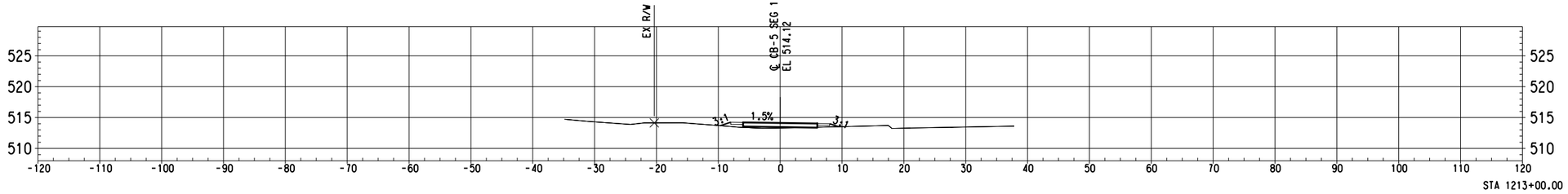
VERT SCALE (IN FEET) 0 5 10 20



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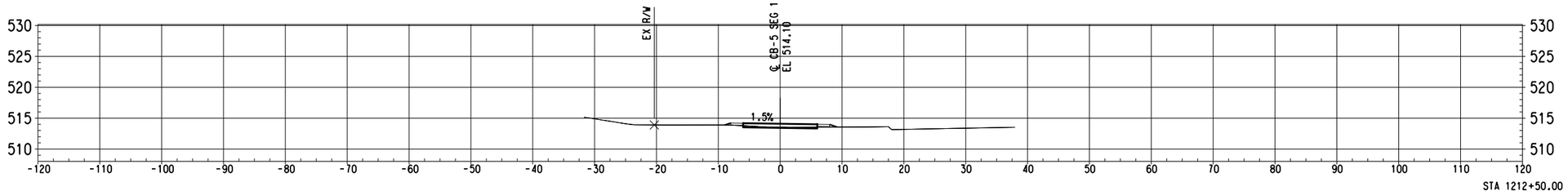

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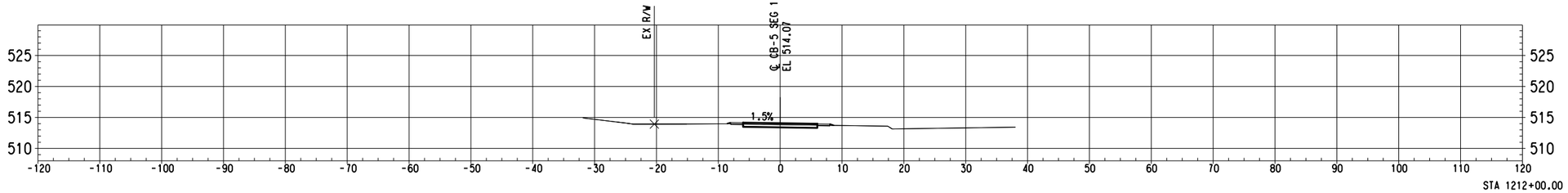

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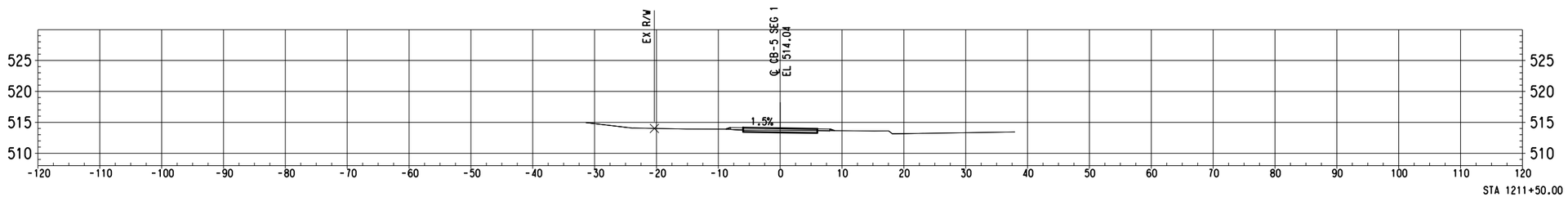

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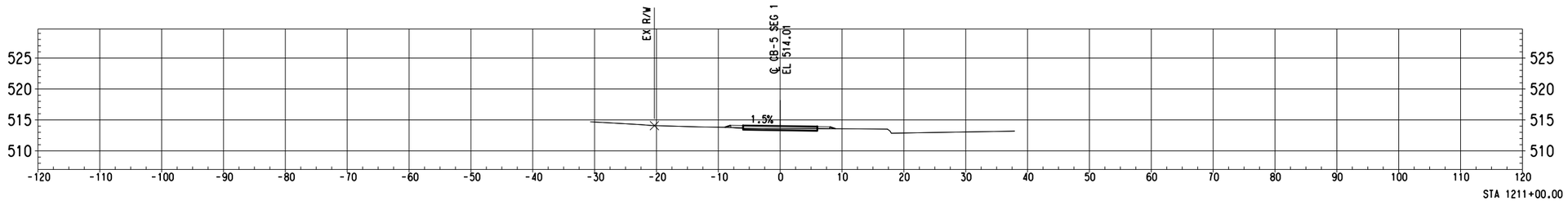

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 58 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6377	D

DWG No. CC1-6378

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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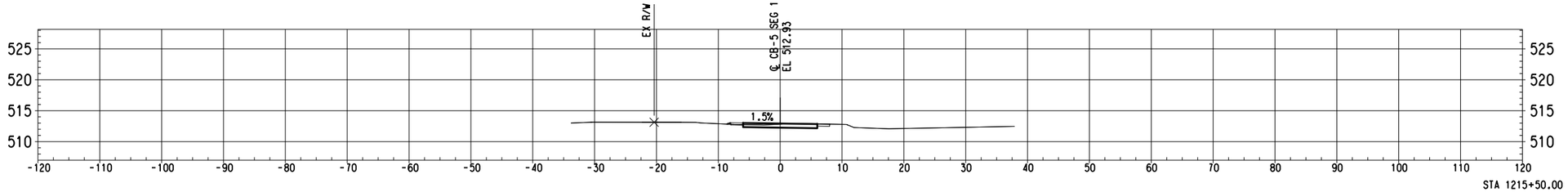
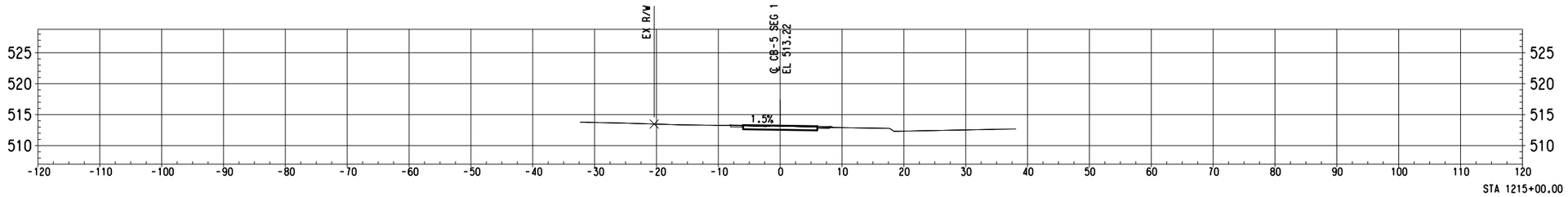
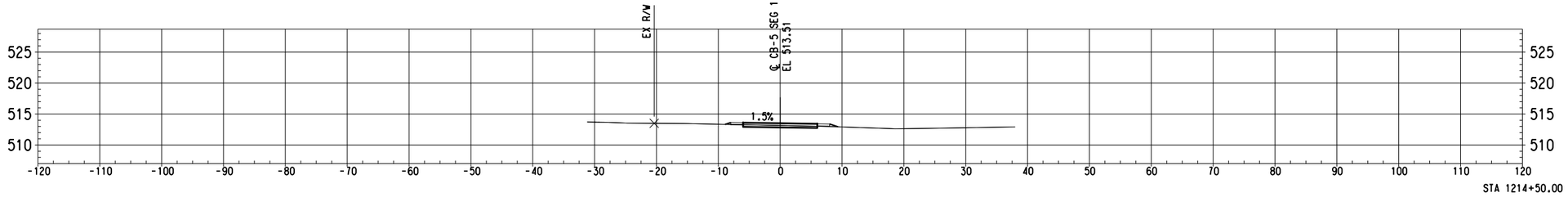
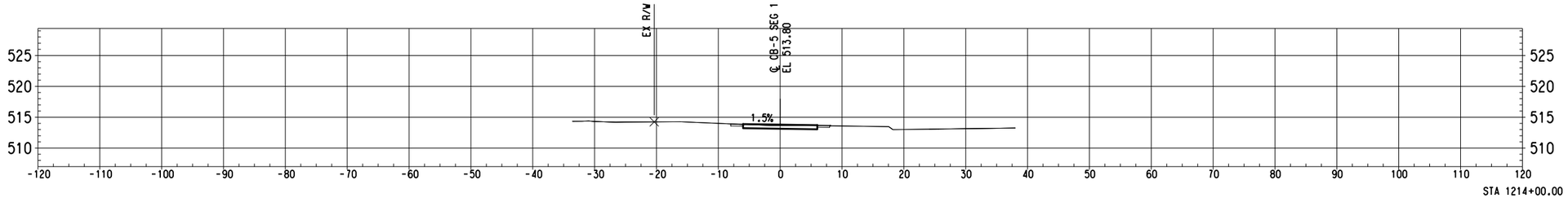
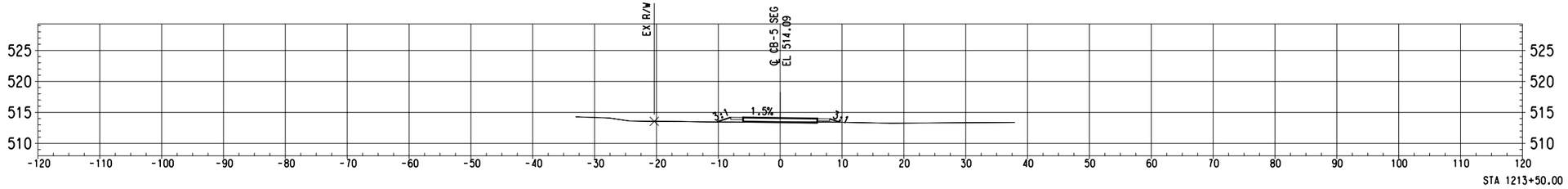
SCALE (IN FEET)
VERT 0 5 10 20











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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 59 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6378	D

DWG No. CC1-6379

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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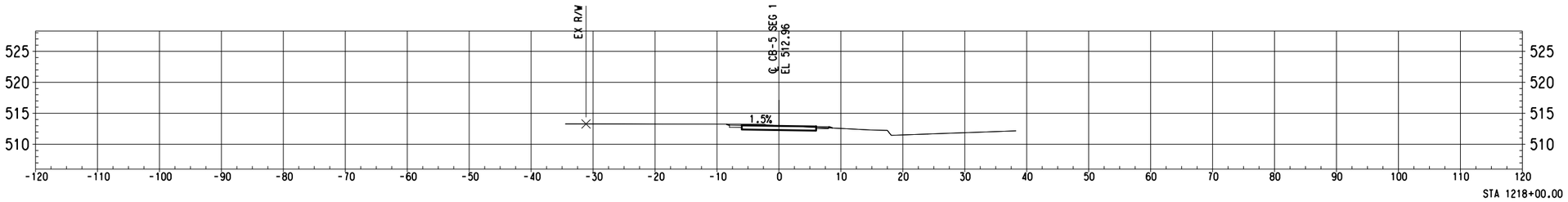
SCALE (IN FEET)
VERT 0 5 10 20



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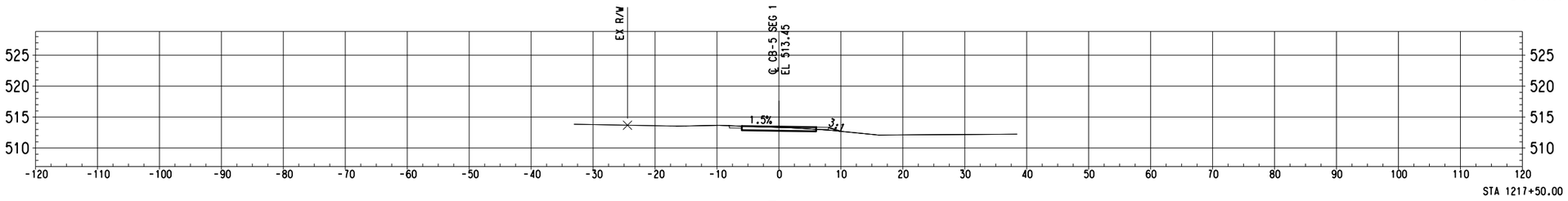

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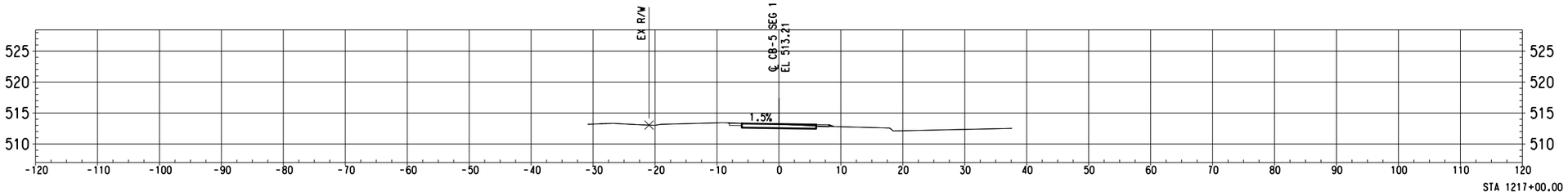

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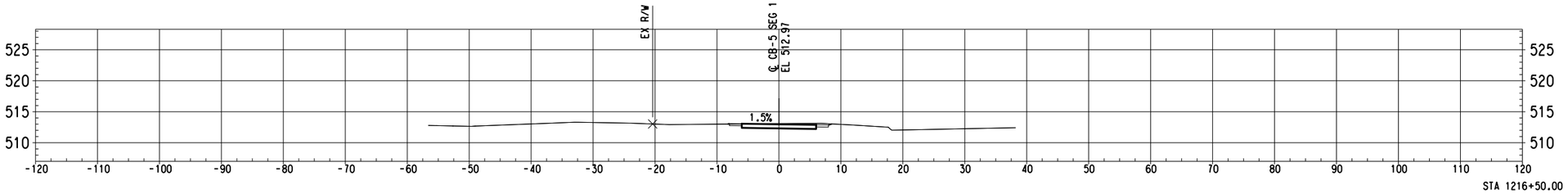

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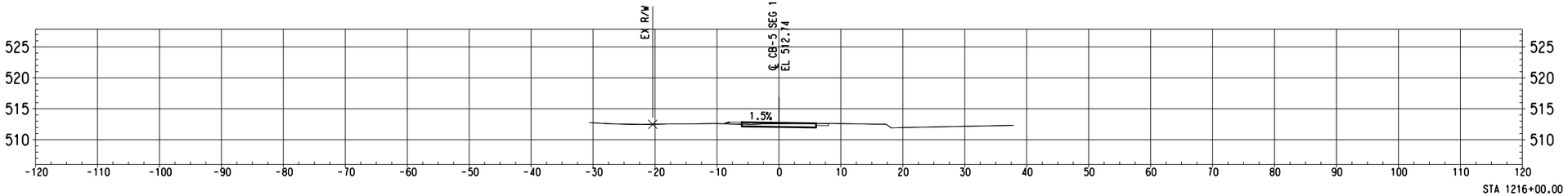

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CONTRACT SHEET No. 164 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 60 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6379	D

DWG No. CC1-6380

NOTE:
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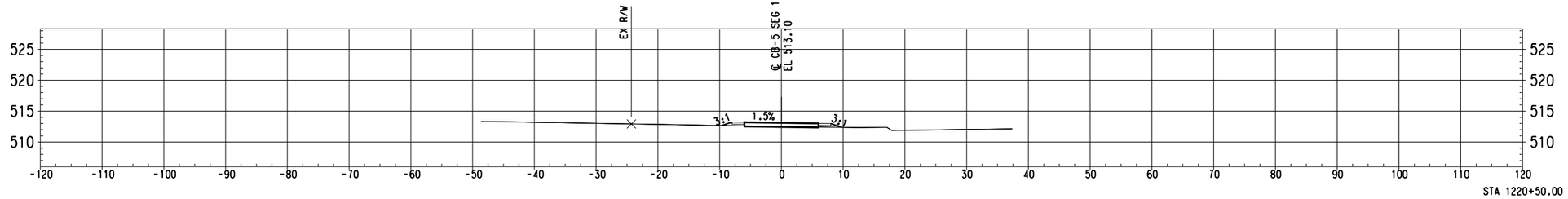

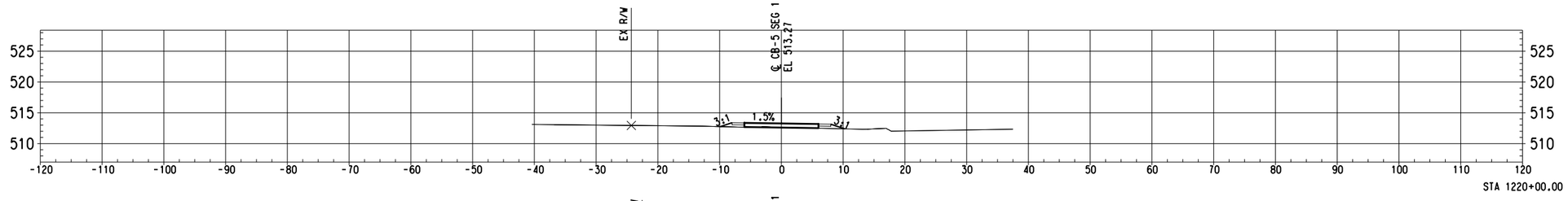

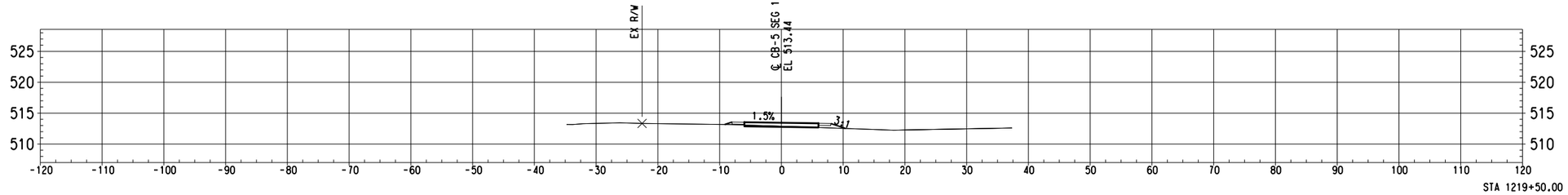

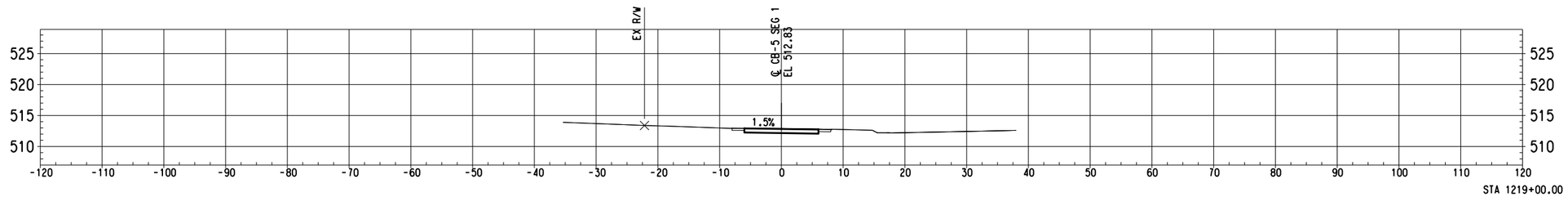

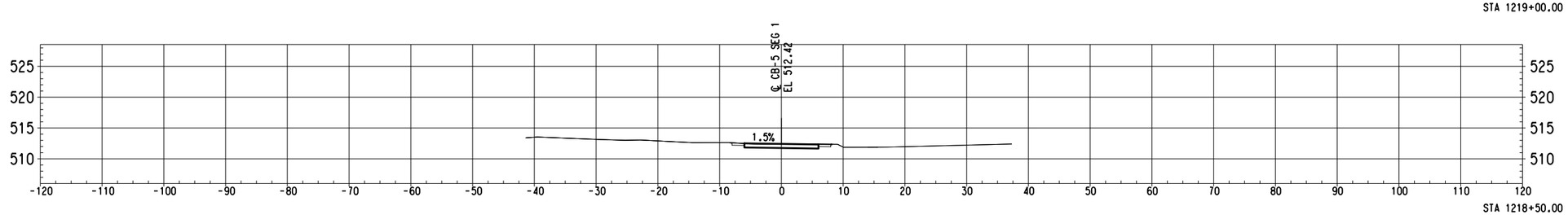

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CONTRACT SHEET No. 165 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 61 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6380	D

DWG No. CC1-6381

NOTE:
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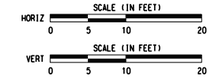

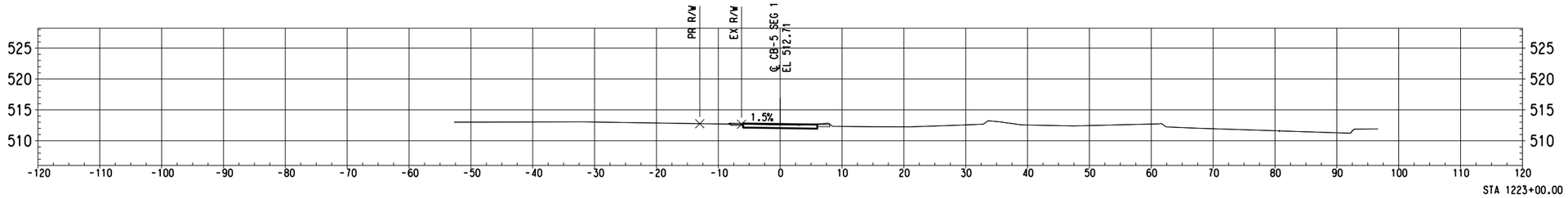

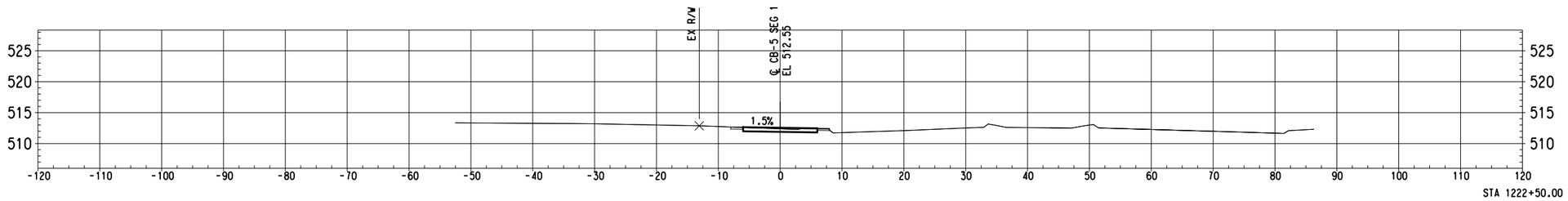

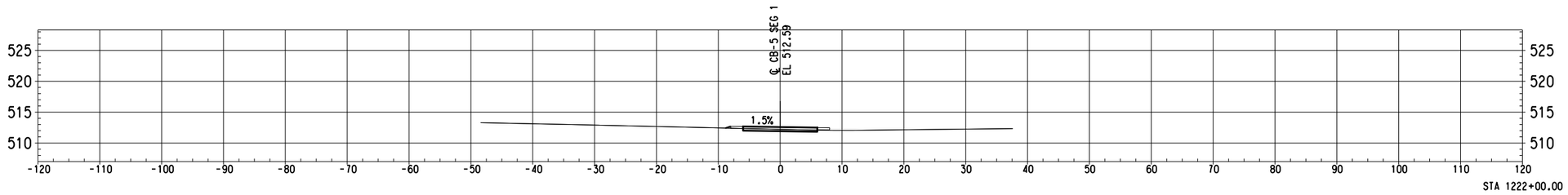

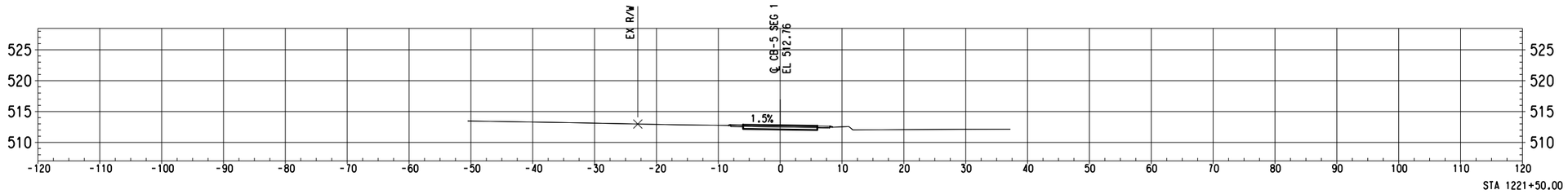

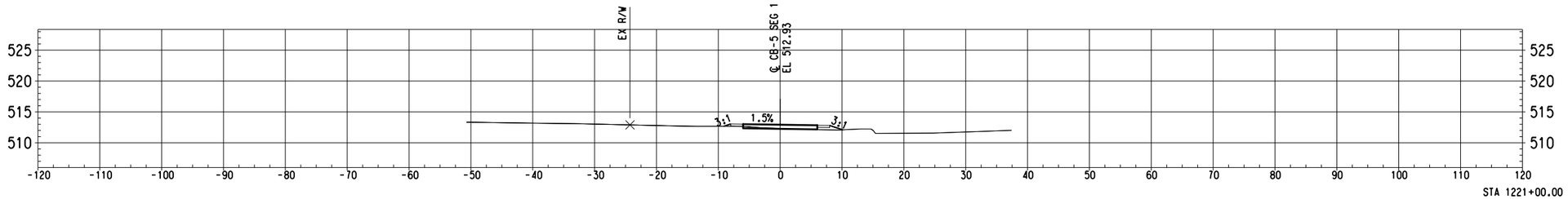

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DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 166 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 62 OF 106

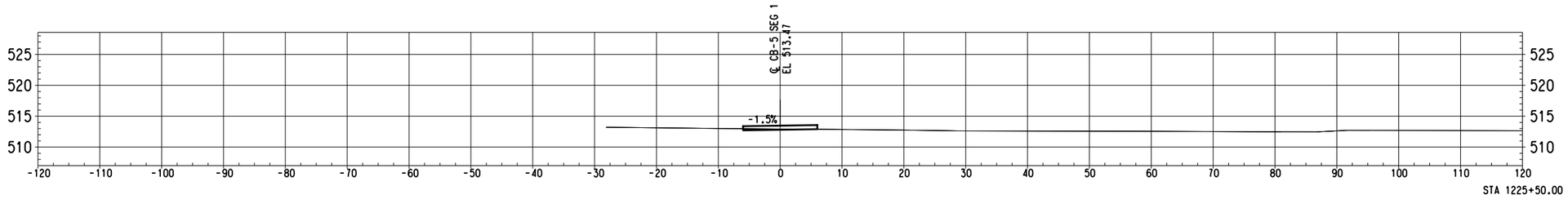
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6381	D

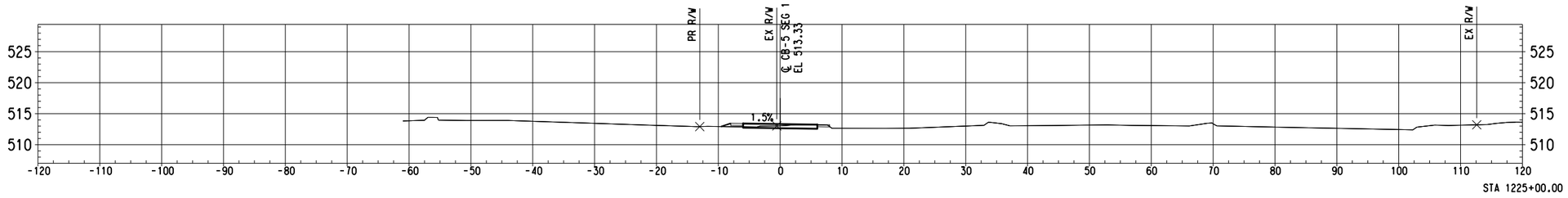
DWG No. CC1-6382

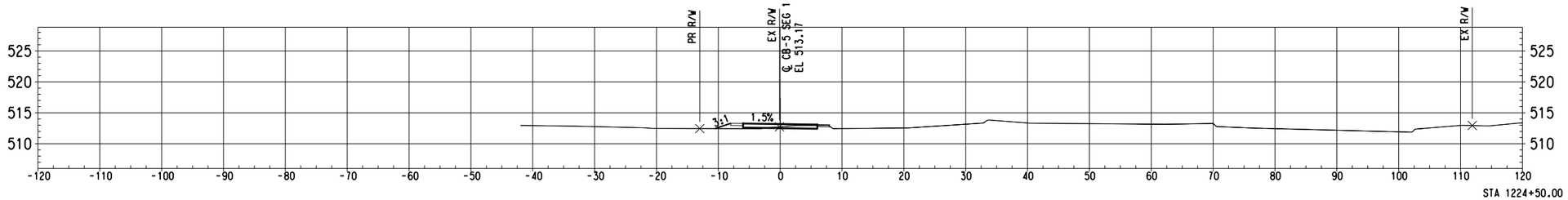
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

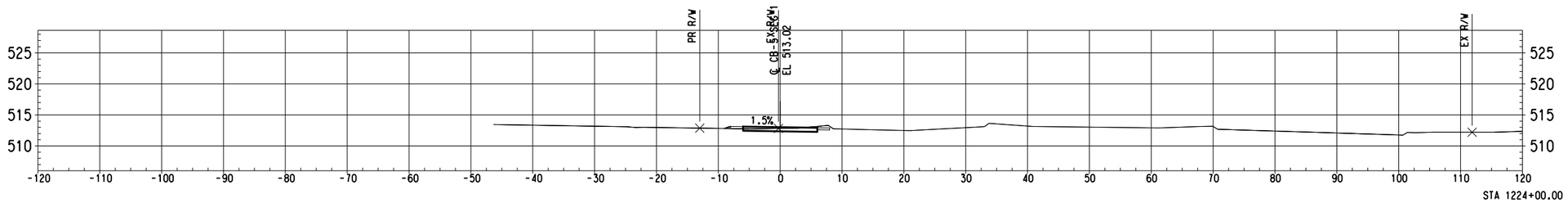
HORIZ SCALE (IN FEET) 0 5 10 20

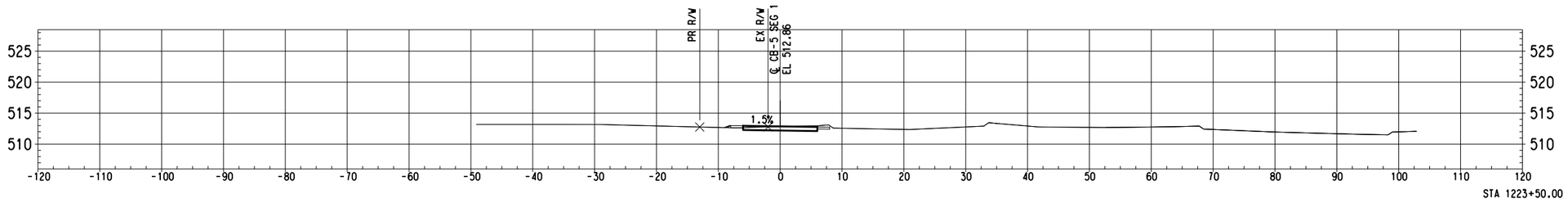
VERT SCALE (IN FEET) 0 5 10 20











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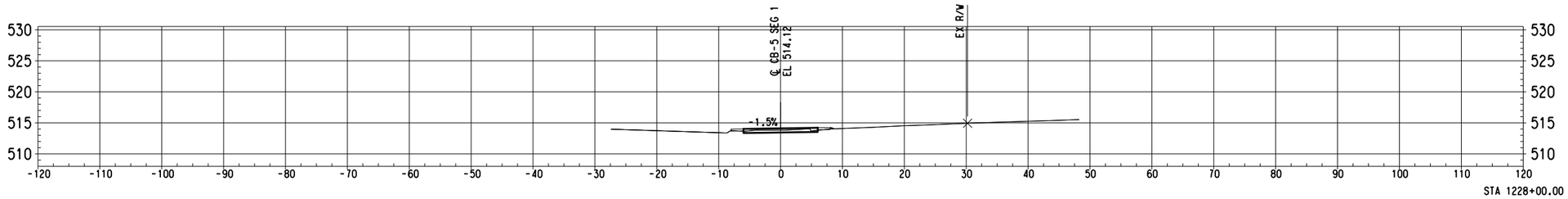
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

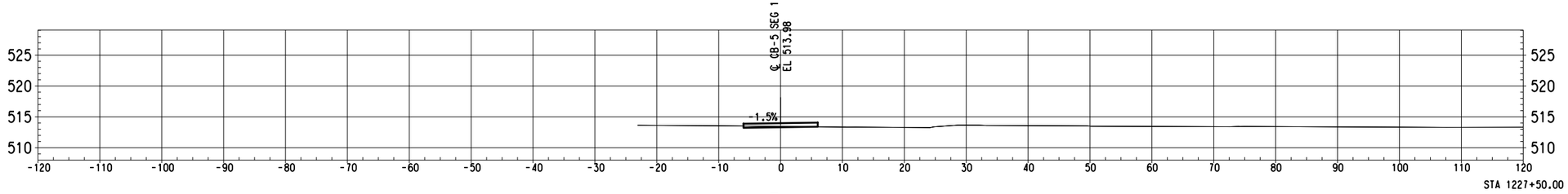
CITY OF COPPELL
CROSS SECTIONS
SHEET 63 OF 106

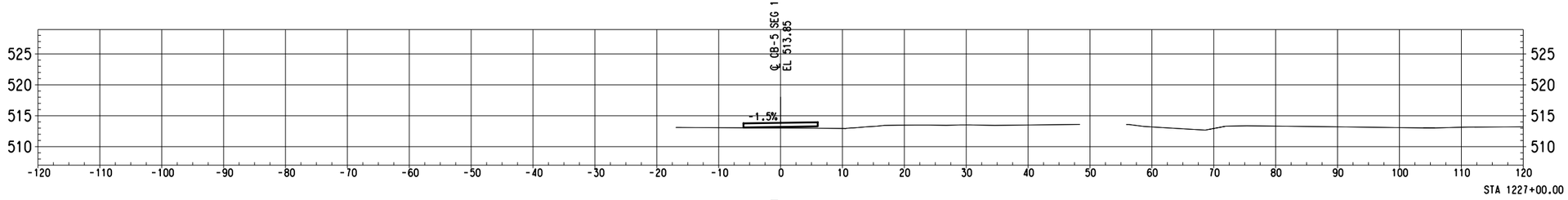
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6382	D

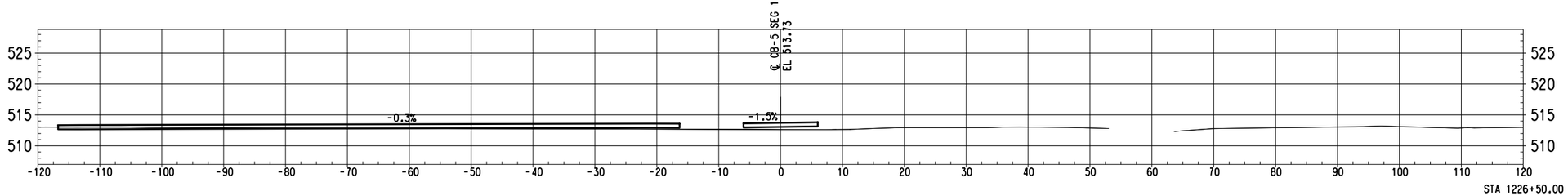
DWG No. CC1-6383

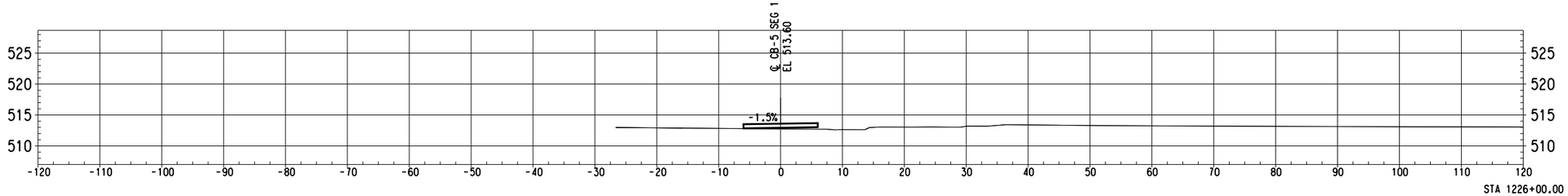
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS











HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

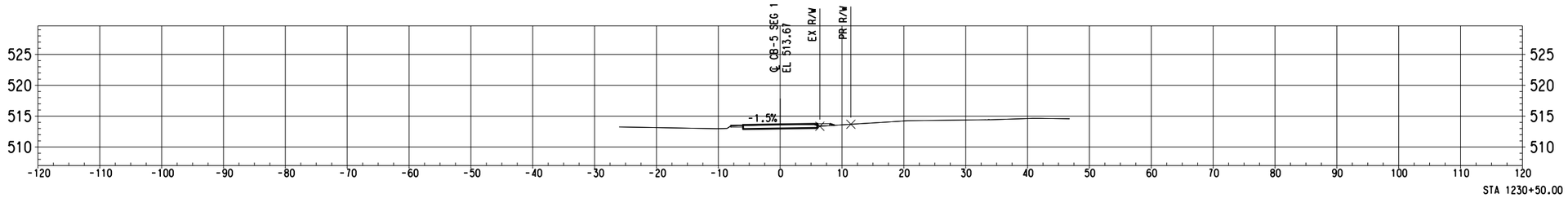
CITY OF COPPELL
CROSS SECTIONS
SHEET 64 OF 106

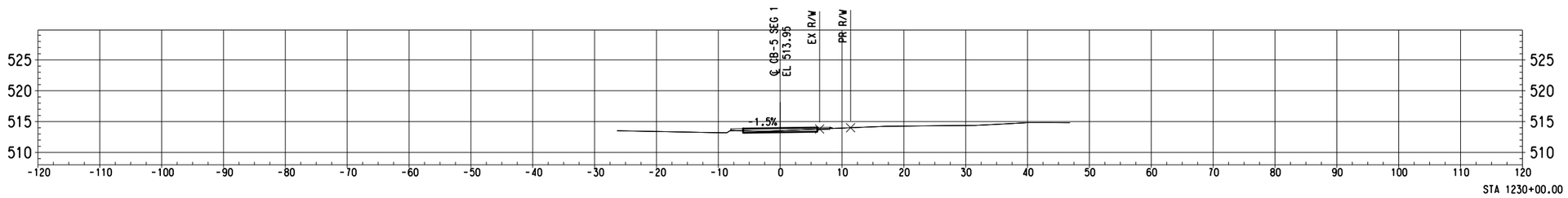
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6383	D

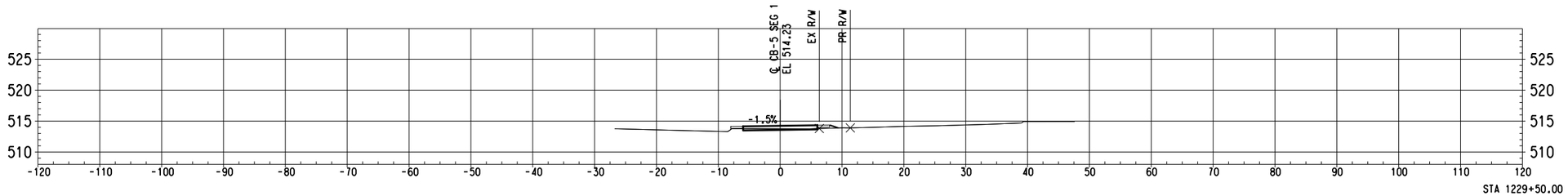
DWG No. CC1-6384

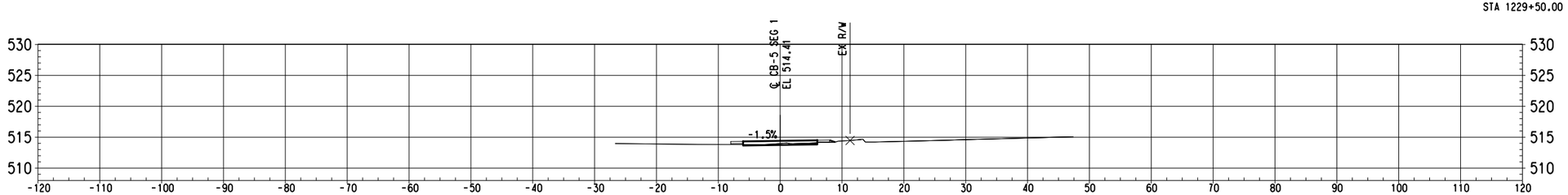
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

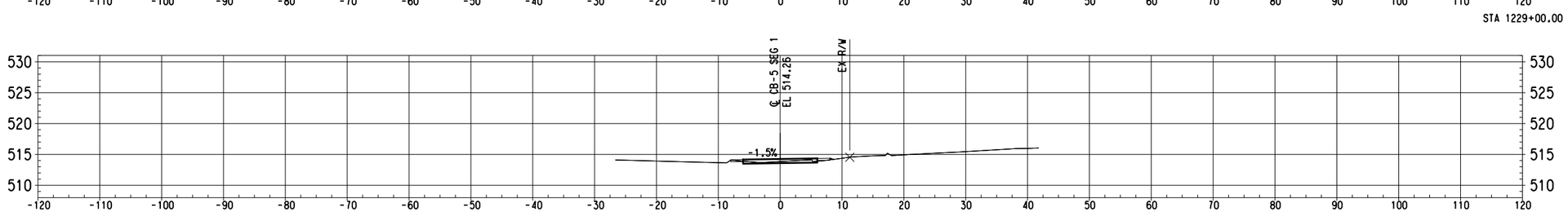
SCALE (IN FEET)
HORIZ 0 5 10 20
SCALE (IN FEET)
VERT 0 5 10 20











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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 65 OF 106

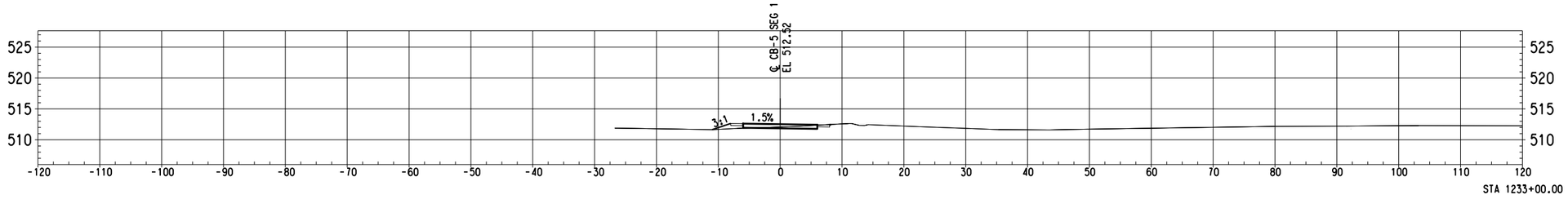
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6384	D

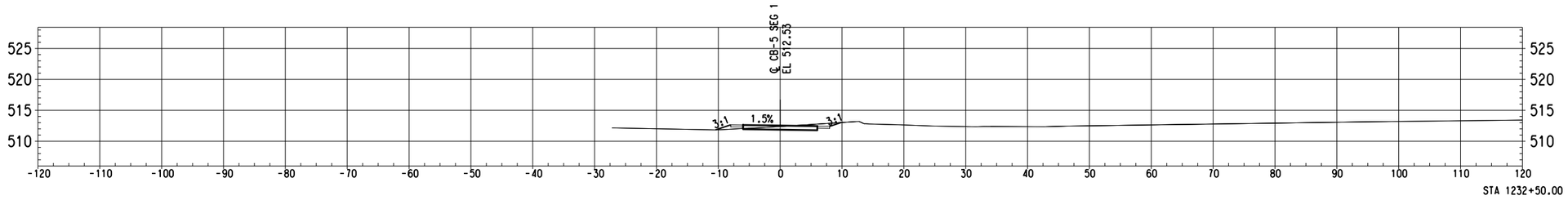
DWG No. CC1-6385

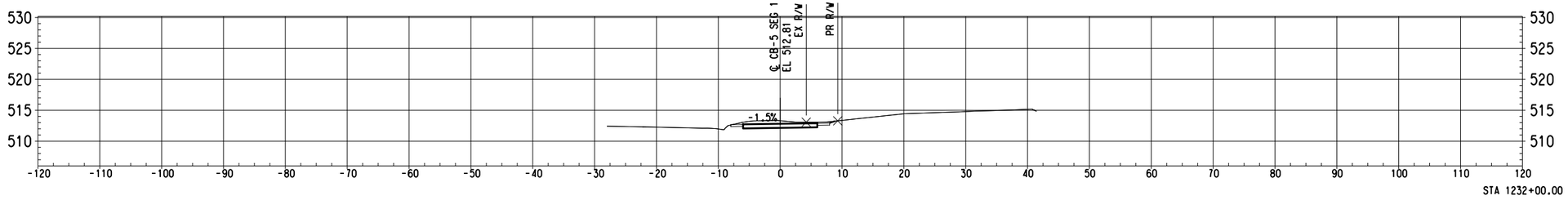
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

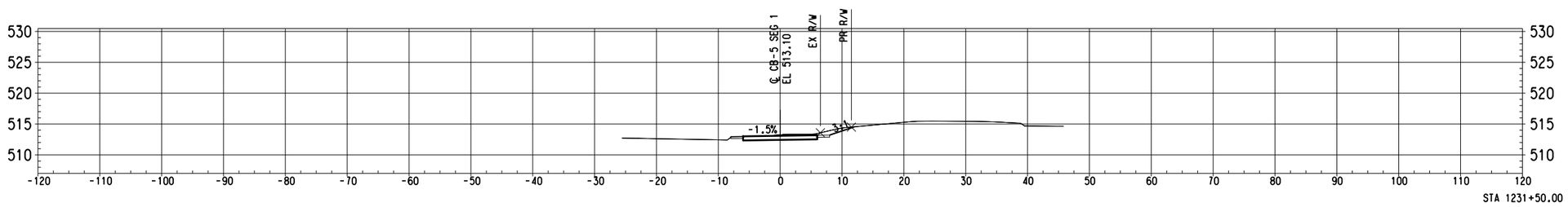
HORIZ SCALE (IN FEET) 0 5 10 20

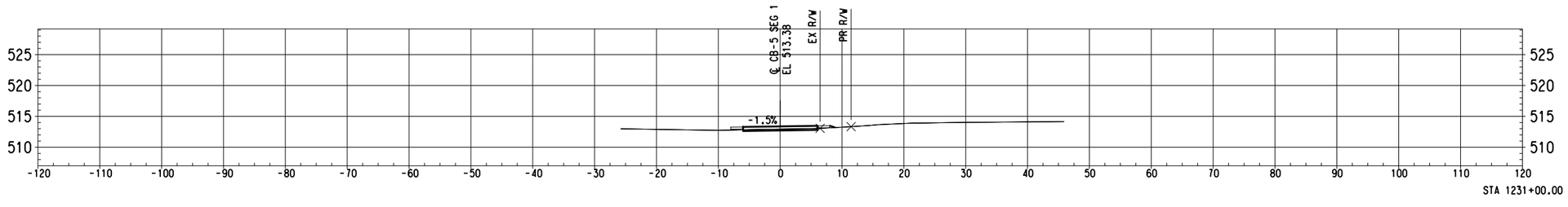
VERT SCALE (IN FEET) 0 5 10 20











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DATE	25 AUG 23

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 66 OF 106

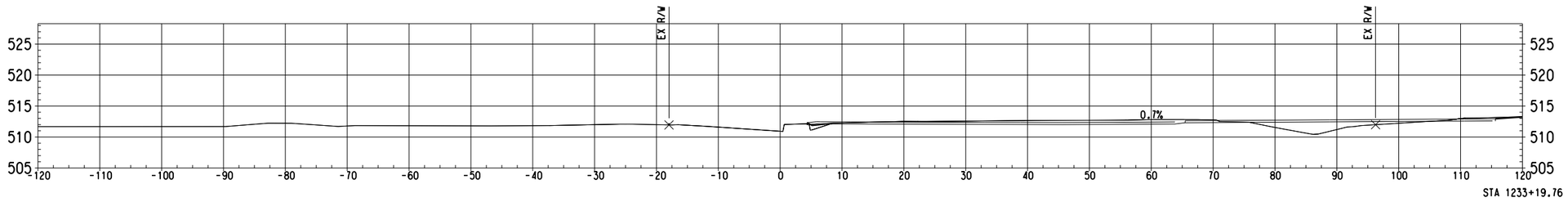
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6385	D

DWG No. CC1-6386

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

SCALE (IN FEET)
HORIZ 0 5 10 20

SCALE (IN FEET)
VERT 0 5 10 20



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CONTRACT SHEET No. 171 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 67 OF 106

SCALE	AS NOTED
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DESIGNED	S. SALEH
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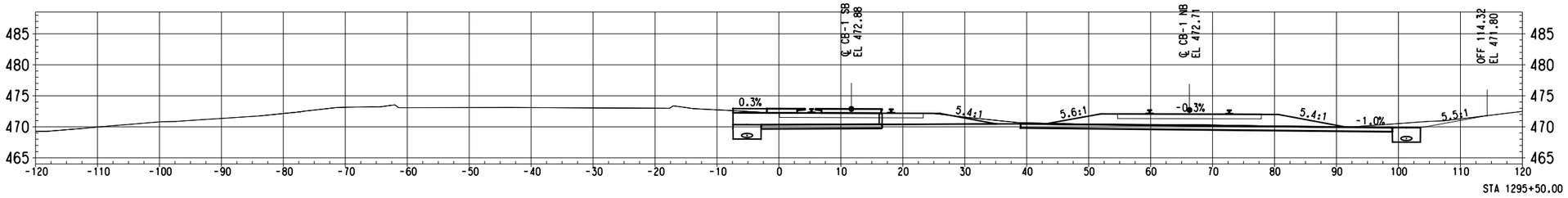
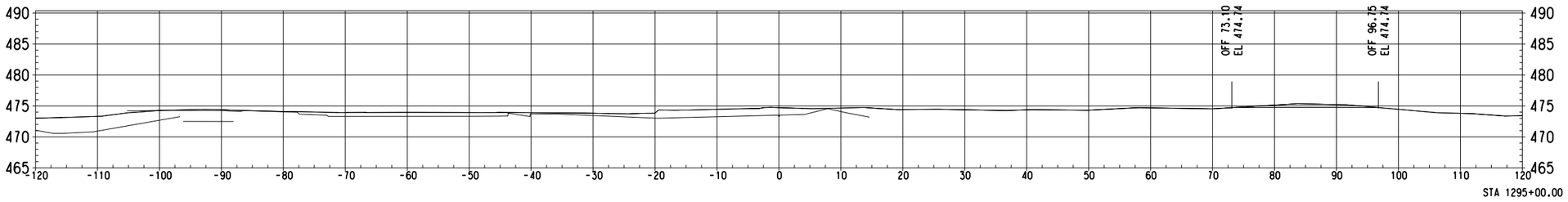
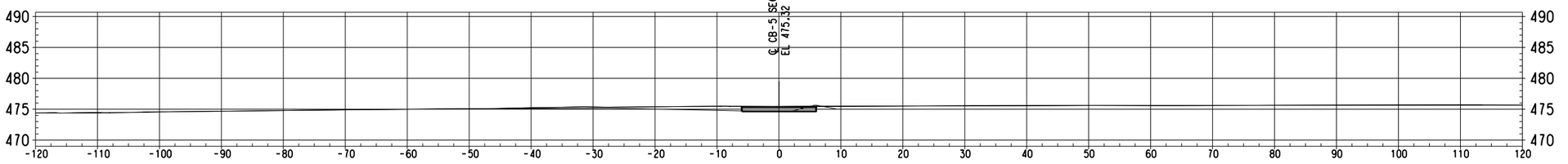
IN CHARGE	D. LUU
DATE	25 AUG 23

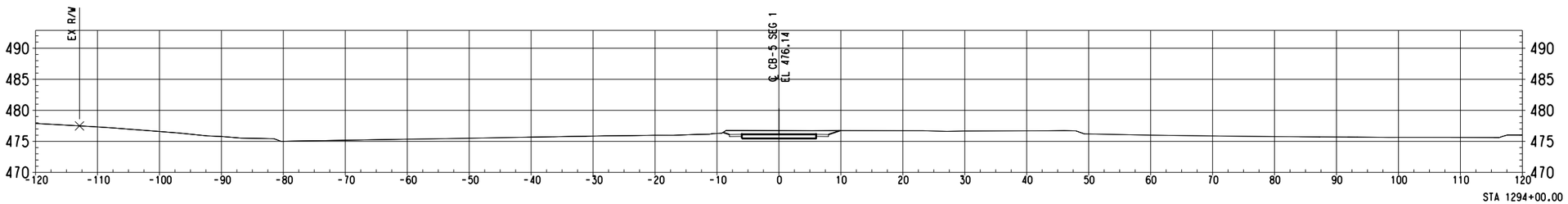
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6386	D

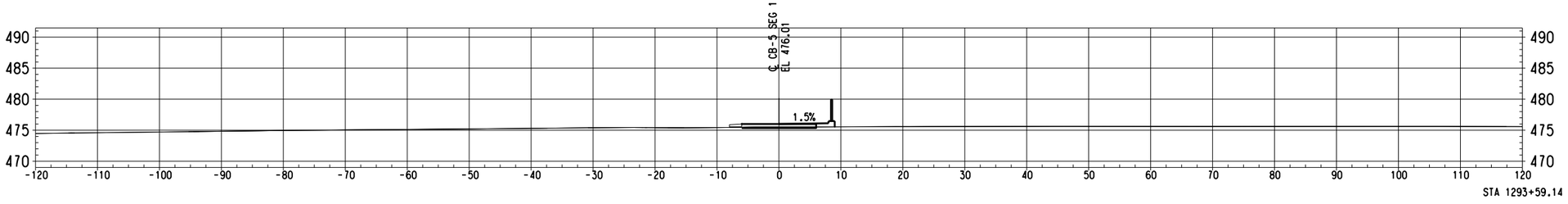
DWG No. CC1-6387











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VERT SCALE (IN FEET) 0 5 10 20

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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CONTRACT SHEET No. 172 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 68 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6387	D

CB05-CC1-6387.000

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CB05-CC1-6387.000

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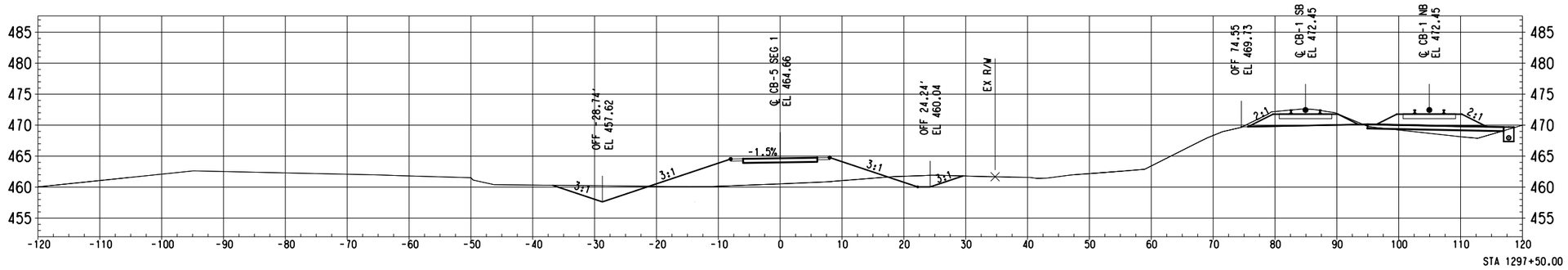
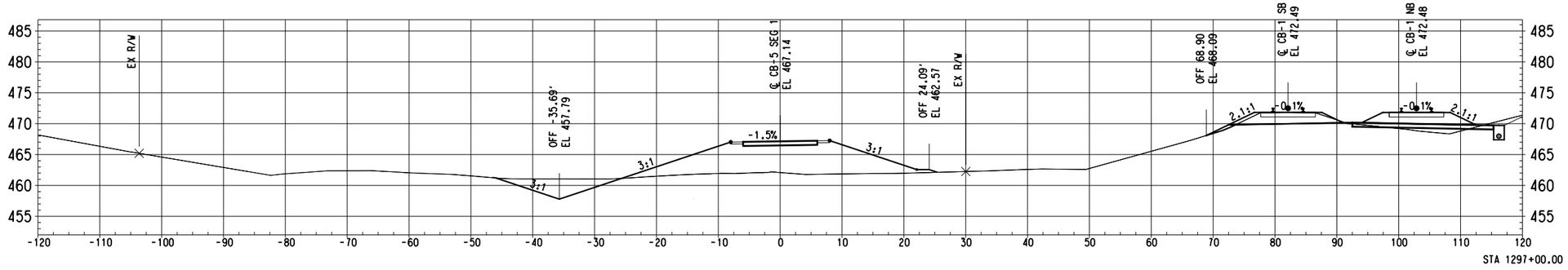
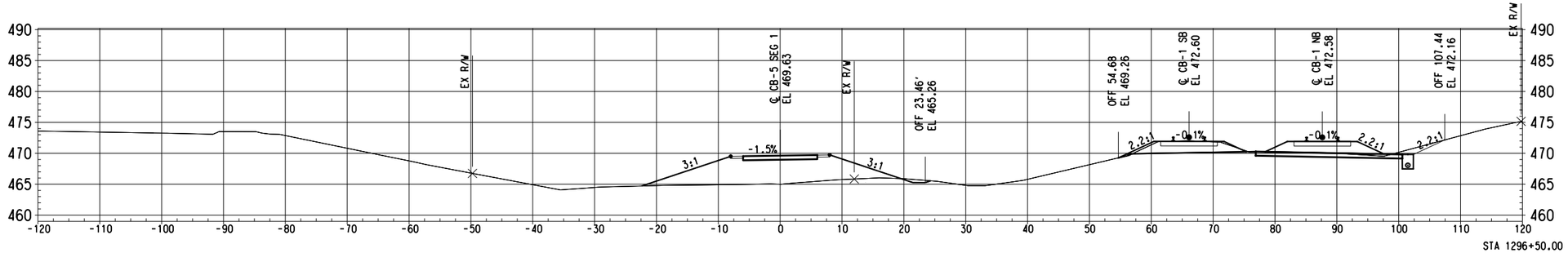
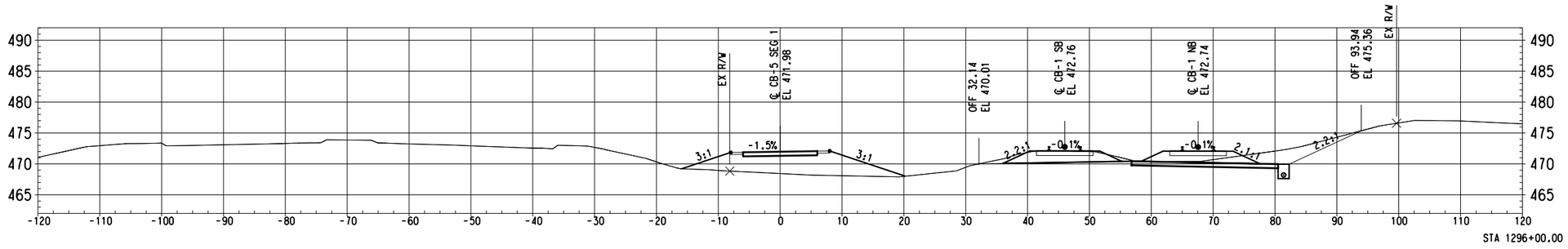
DWG No. CC1-6388









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VERT SCALE (IN FEET) 0 5 10 20

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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CONTRACT SHEET No. 173 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 69 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6388	D

DWG No. CC1-6389

NOTE:
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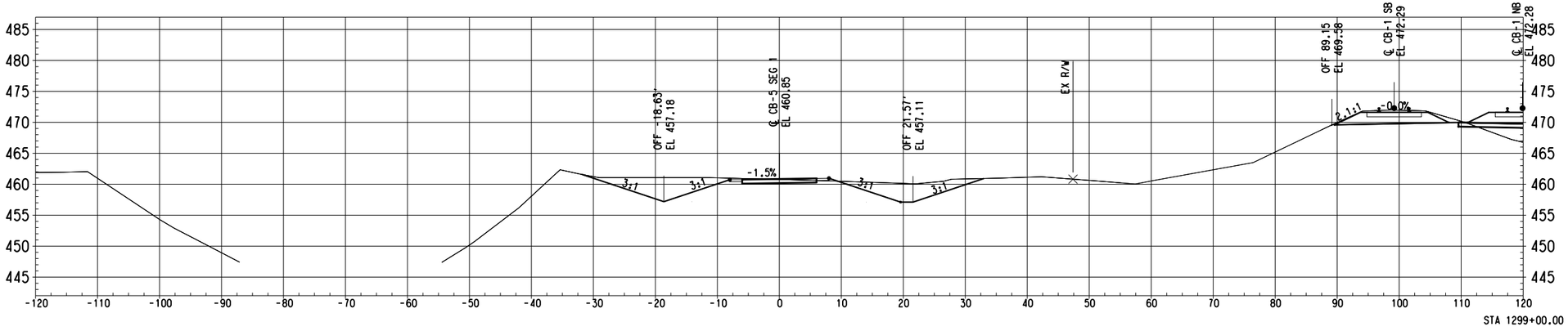
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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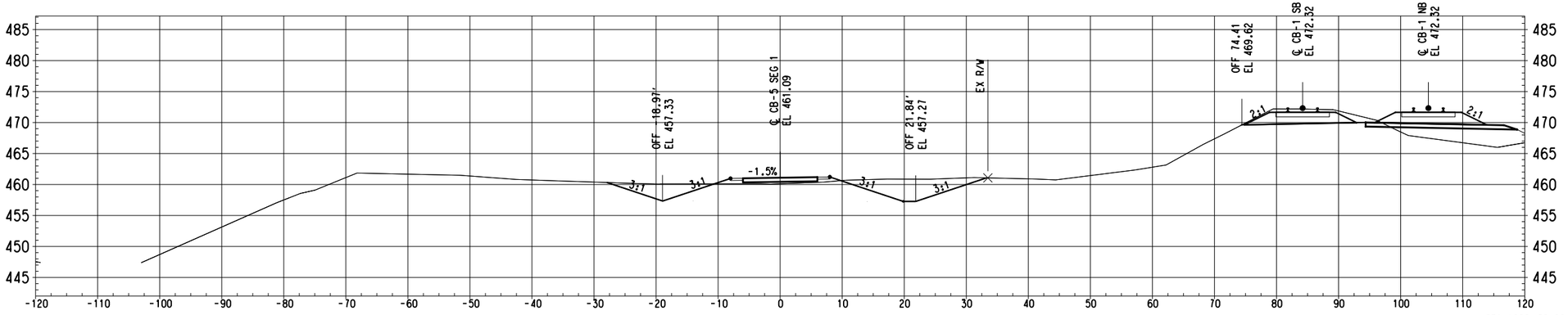

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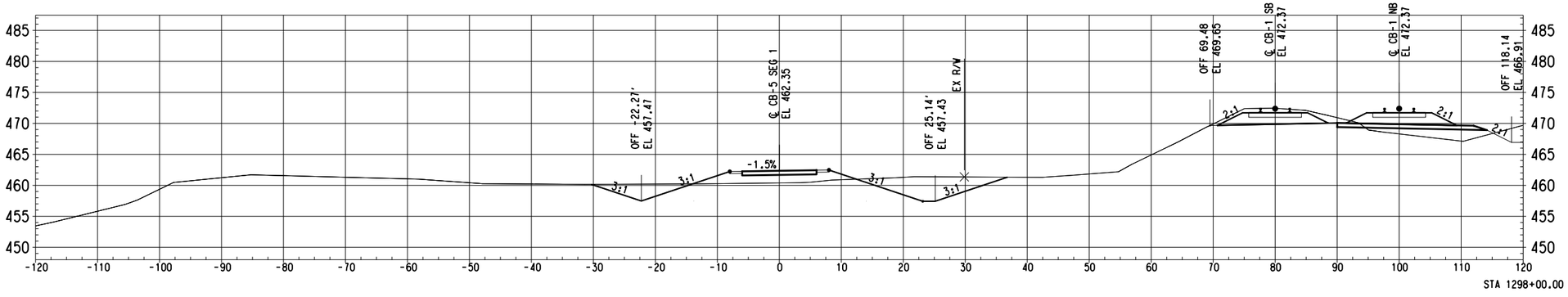

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DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

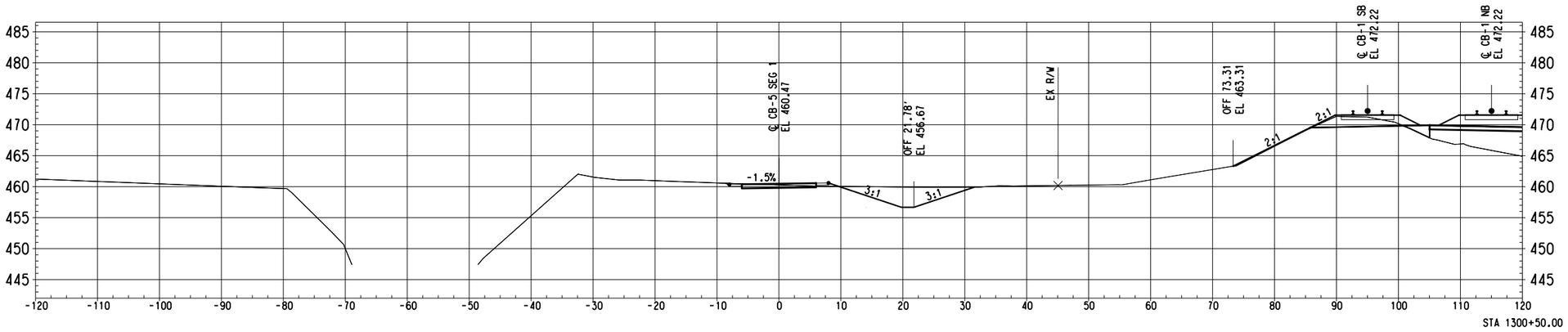
CONTRACT SHEET No. 174 OF 378

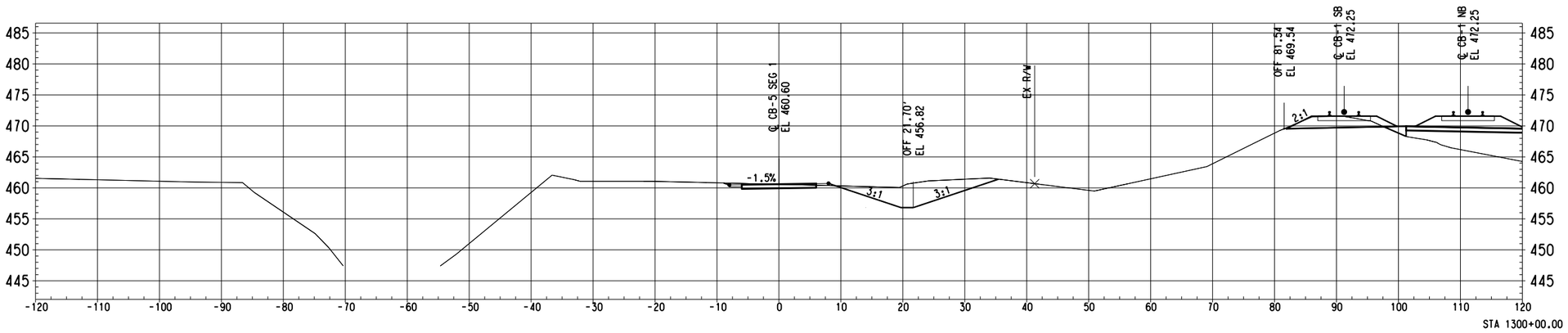
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

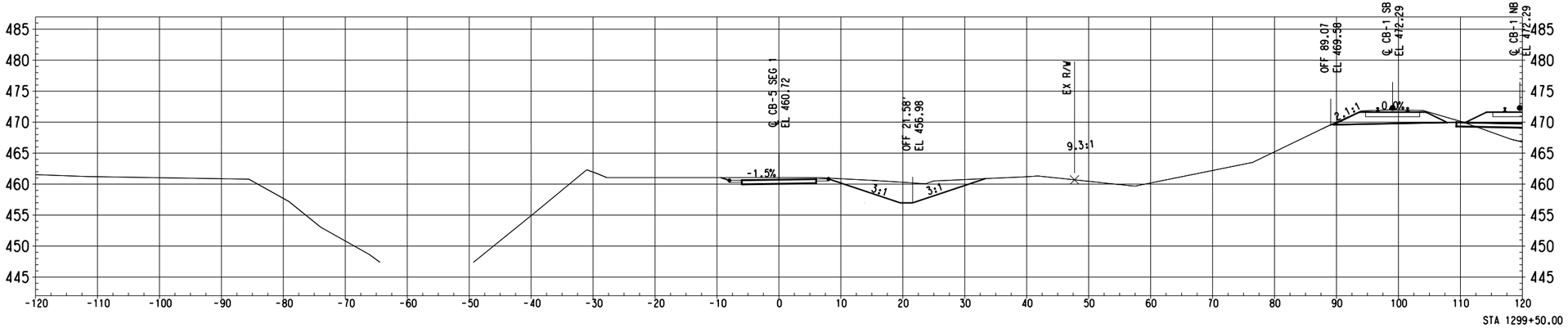
CITY OF COPPELL
CROSS SECTIONS
SHEET 70 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6389	D

DWG No. CC1-6390







NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20

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CONTRACT SHEET No. 175 OF 378

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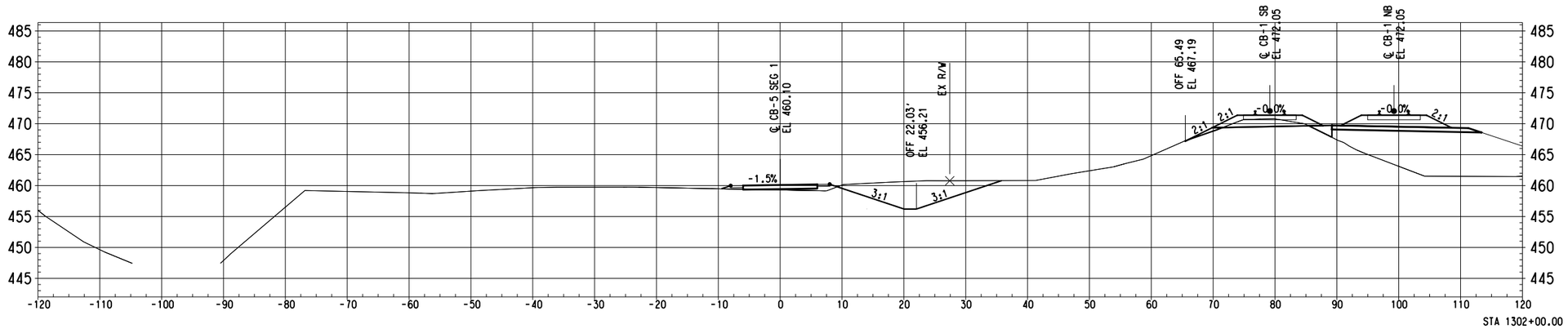
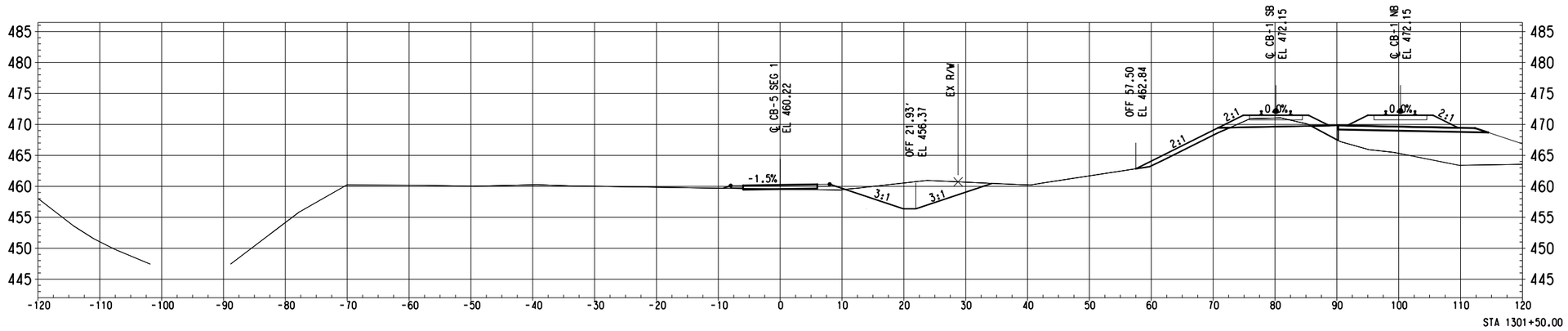
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

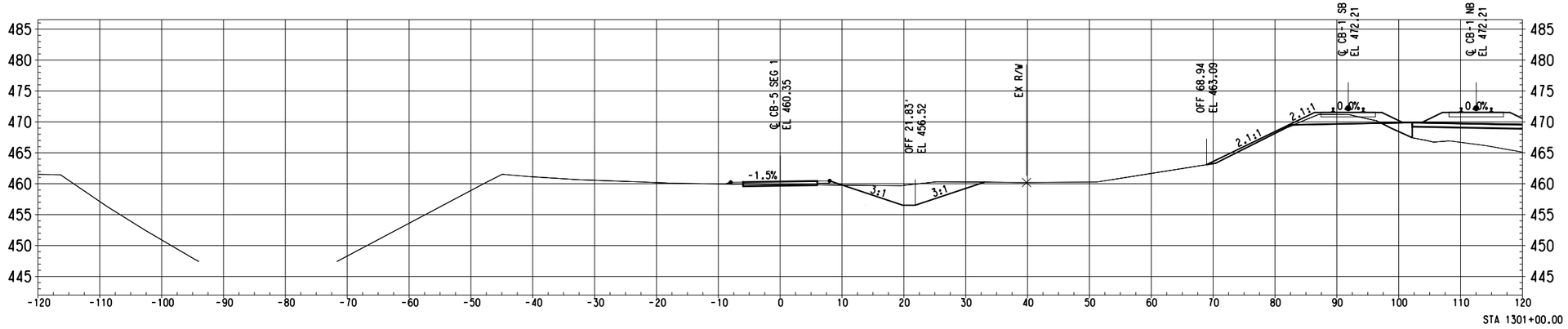
CITY OF COPPELL
CROSS SECTIONS
SHEET 71 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6390	D

DWG No. CC1-6391







NOTE:
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HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20

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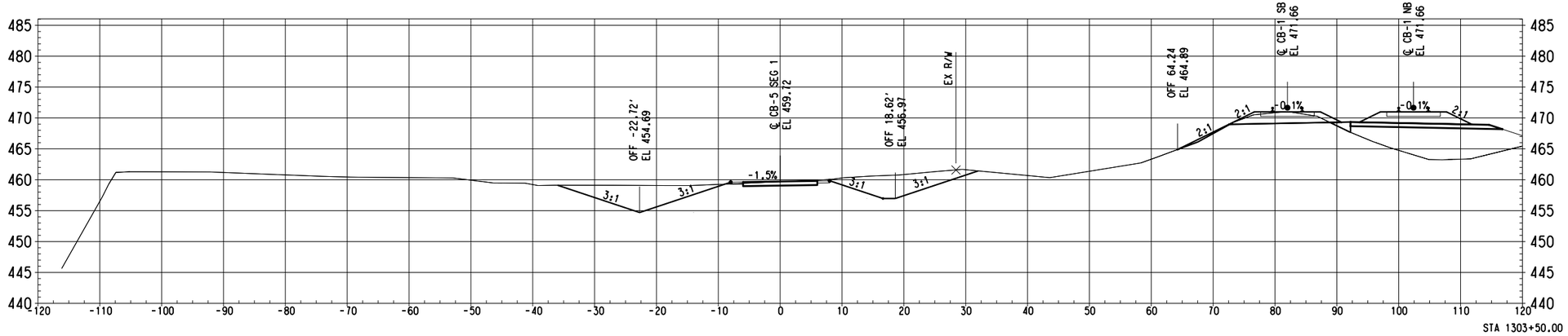
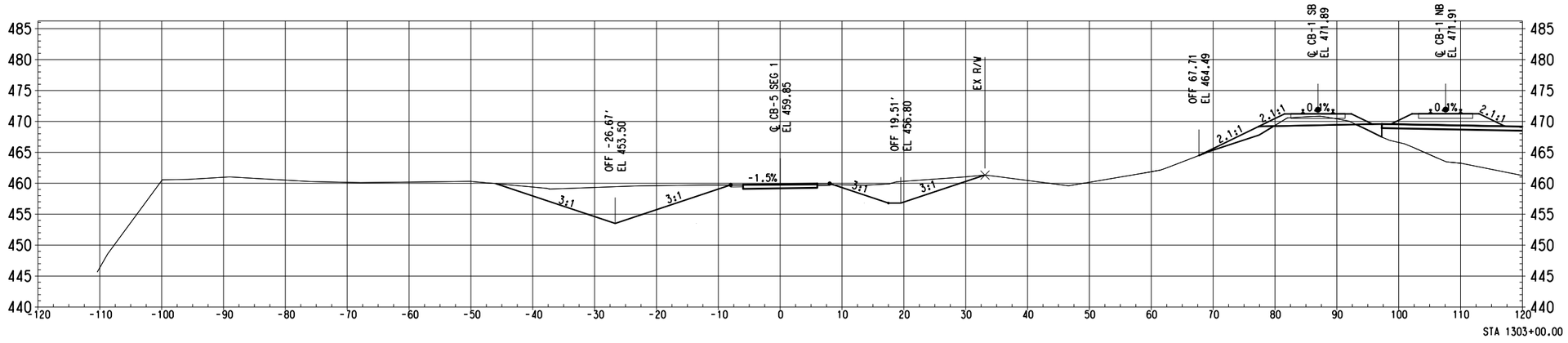
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

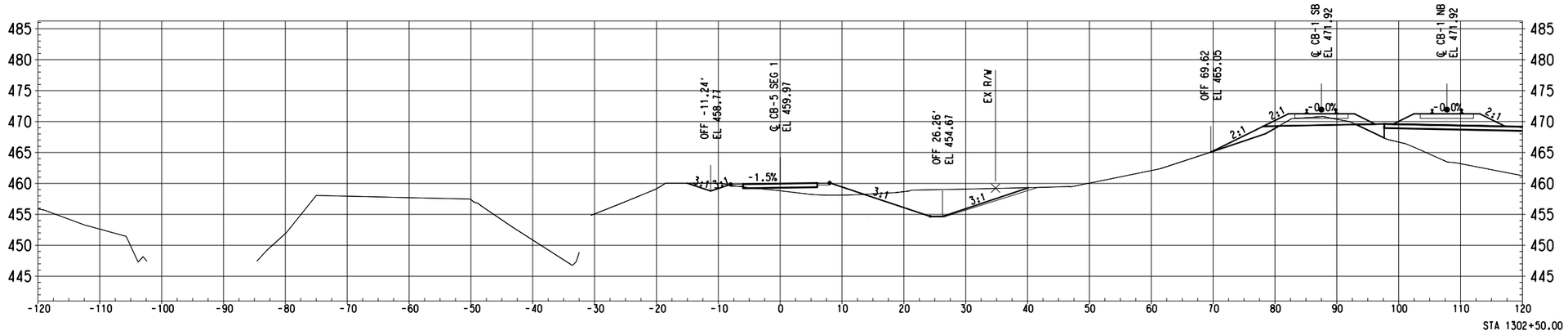
CITY OF COPPELL
CROSS SECTIONS
SHEET 72 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6391	D

DWG No. CC1-6392







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VERT SCALE (IN FEET) 0 5 10 20

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CONTRACT SHEET No. 177 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 73 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6392	D

DWG No. CC1-6393

NOTE:
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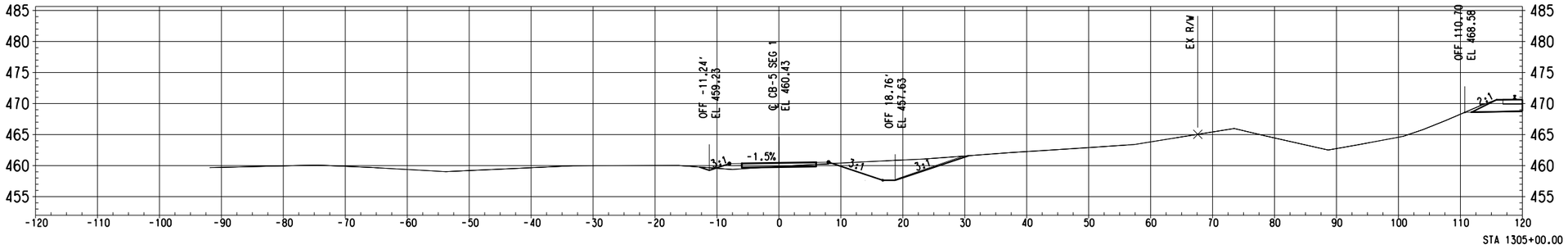
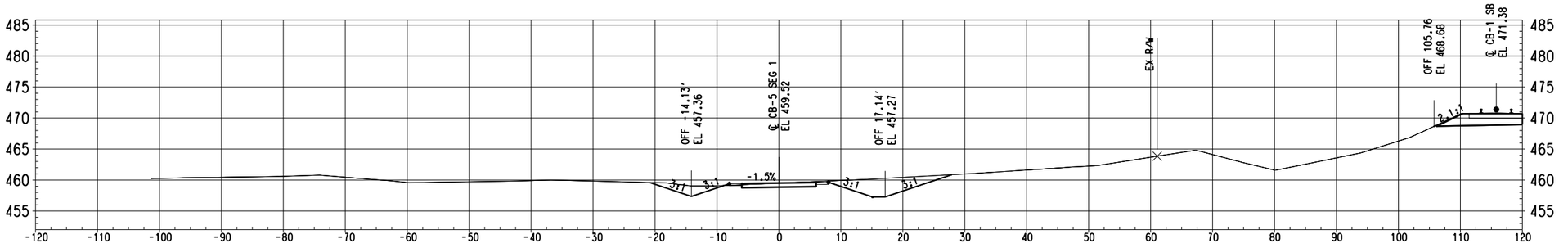
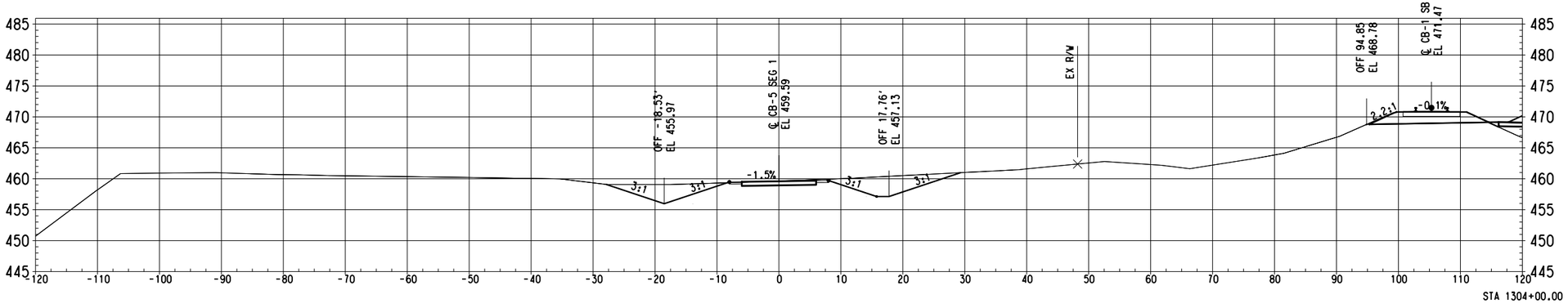
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 74 OF 106

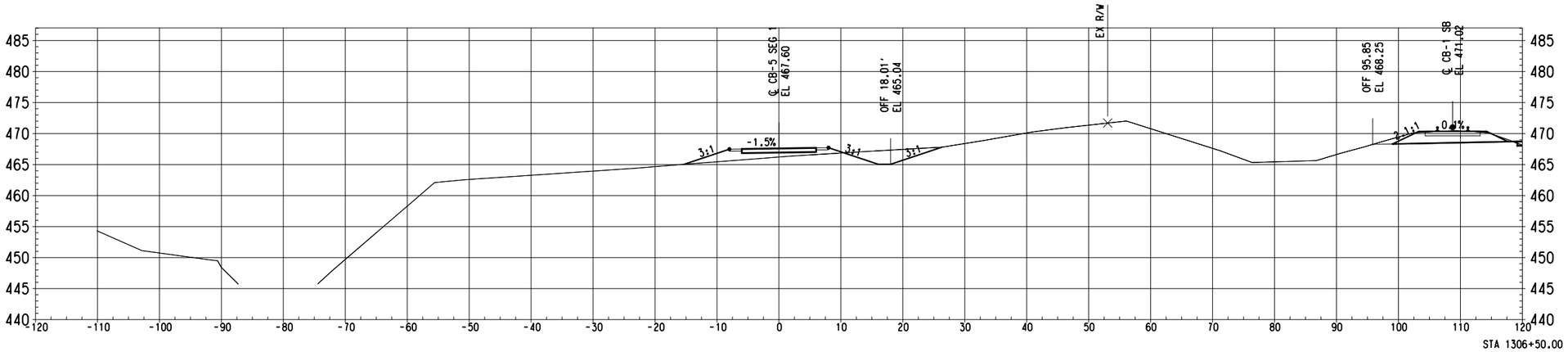
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6393	D

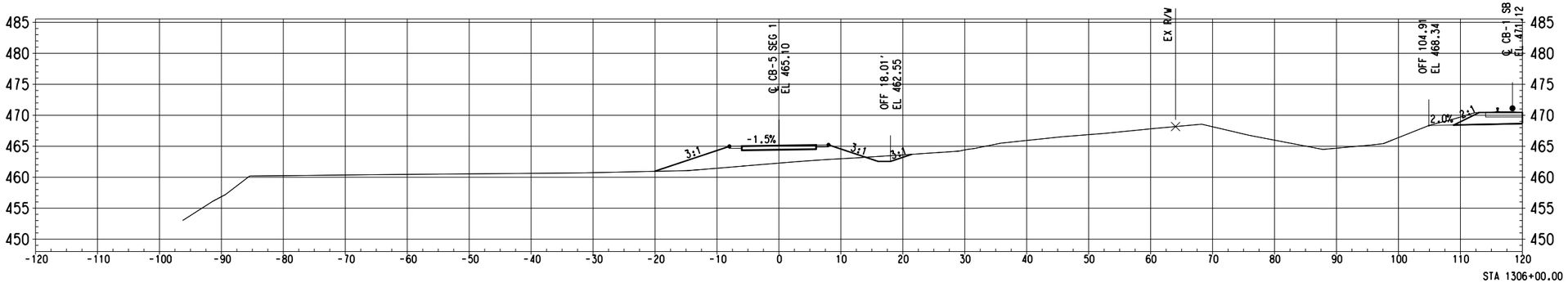
DWG No. CC1-6394

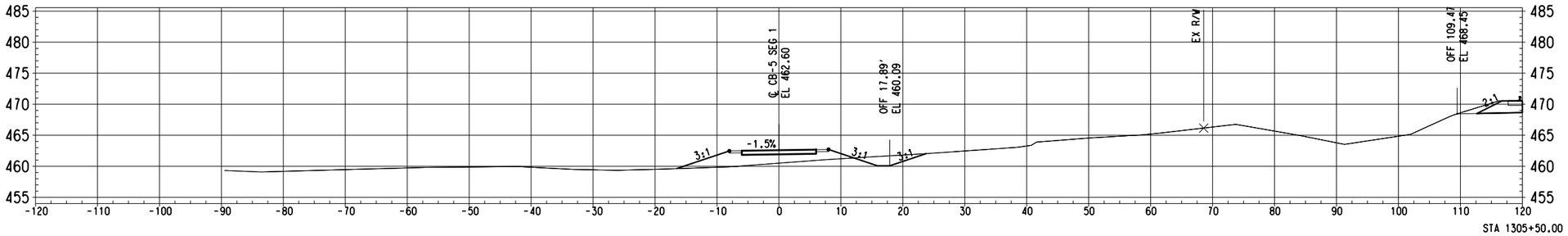
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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DESIGNED	S. SALEH
CHECKED	D. LUU
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DATE	25 AUG 23

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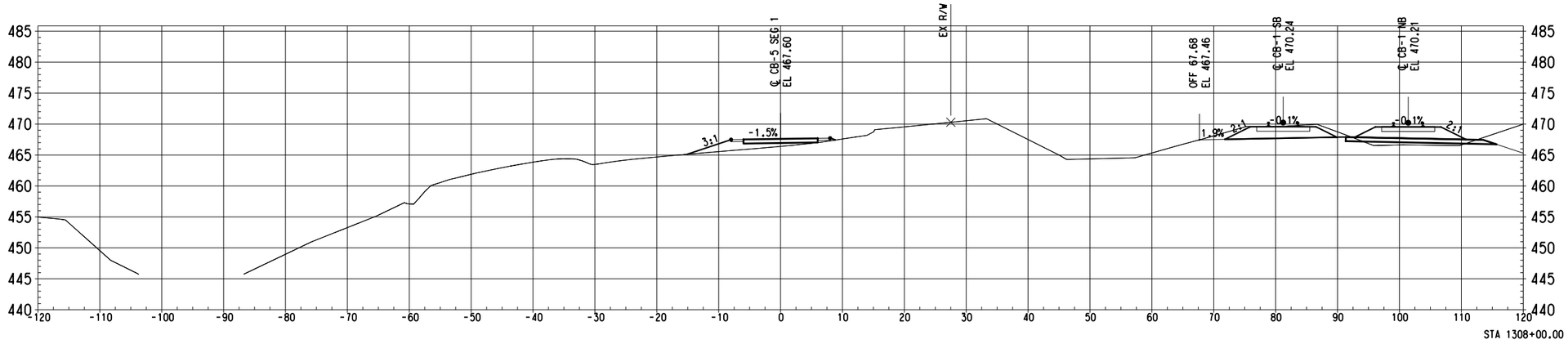
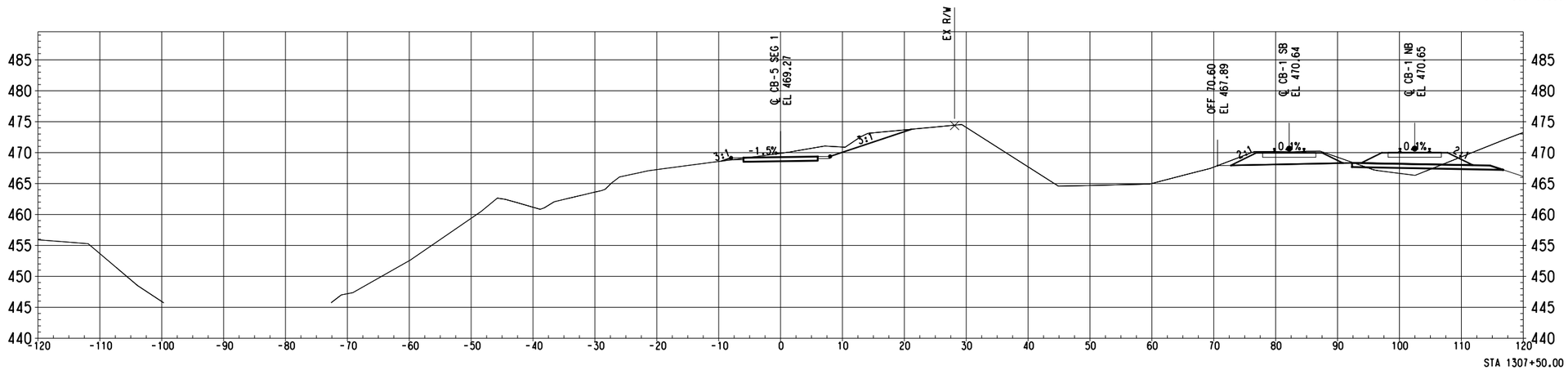
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

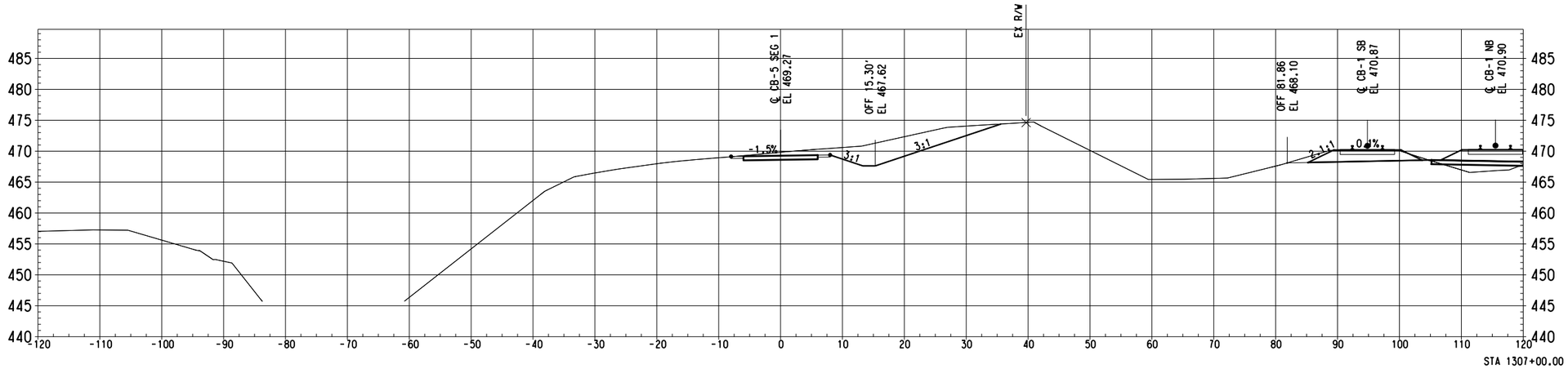
CITY OF COPPELL
CROSS SECTIONS
SHEET 75 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6394	D

DWG No. CC1-6395







NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

SCALE (IN FEET)
HORIZ 0 5 10 20
SCALE (IN FEET)
VERT 0 5 10 20

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 76 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6395	D

DWG No. CC1-6396

NOTE:
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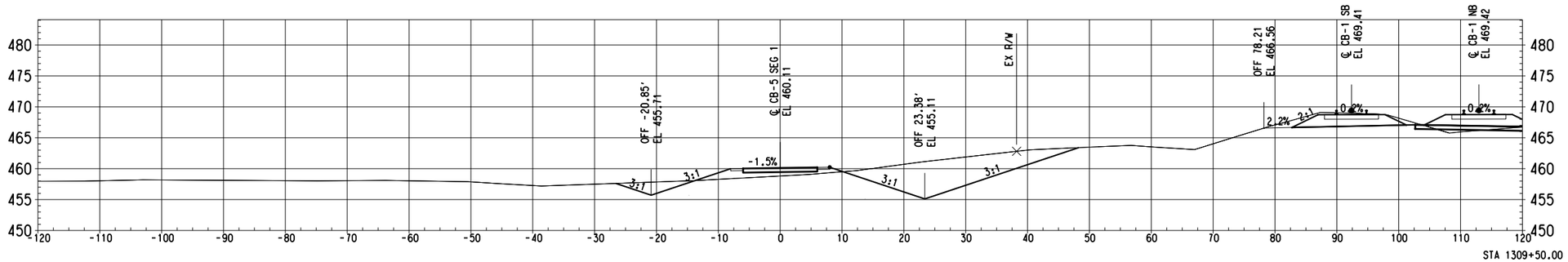
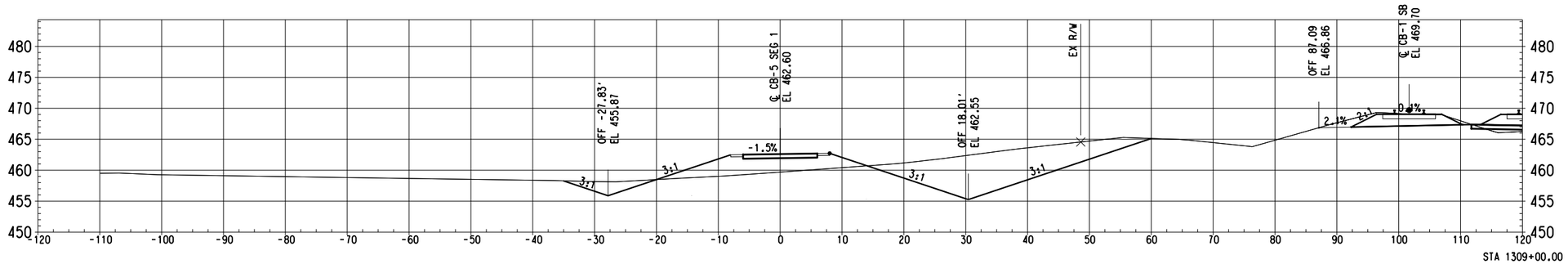
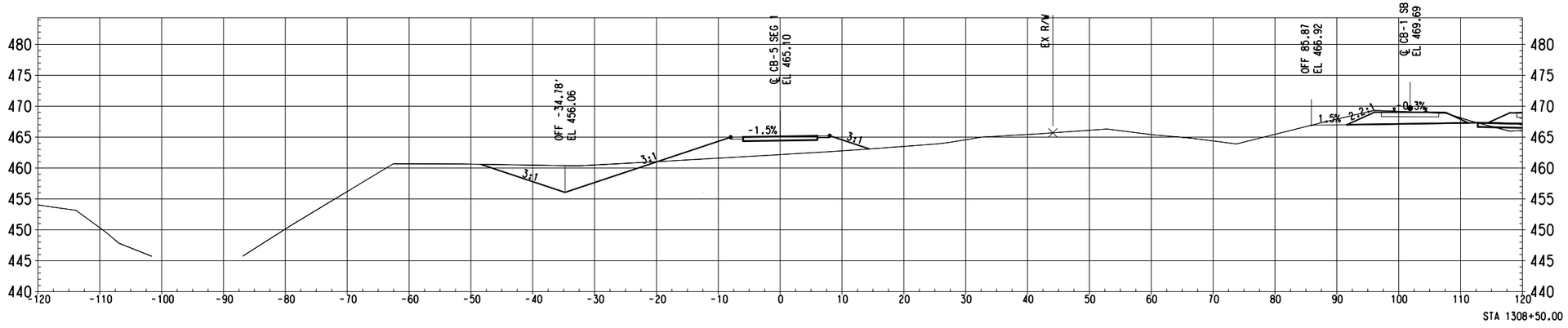
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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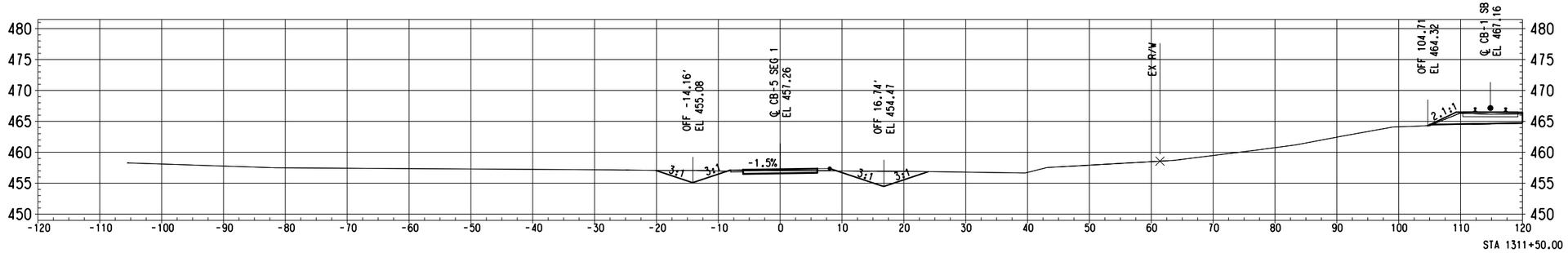
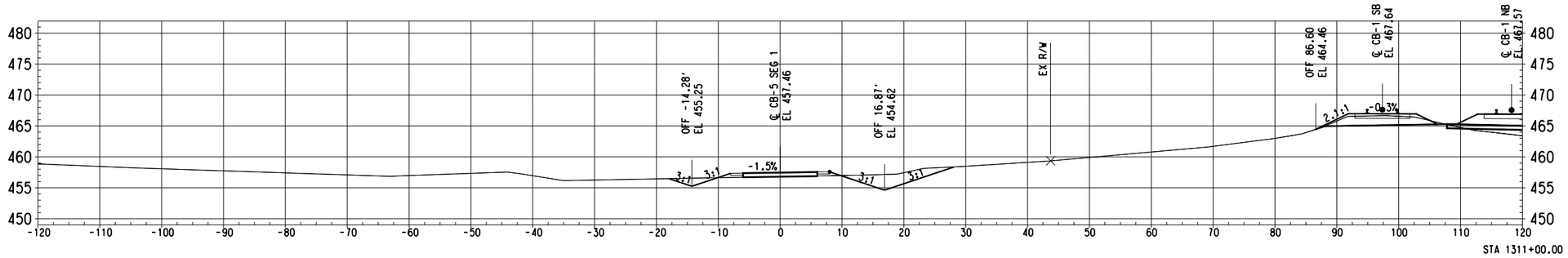
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

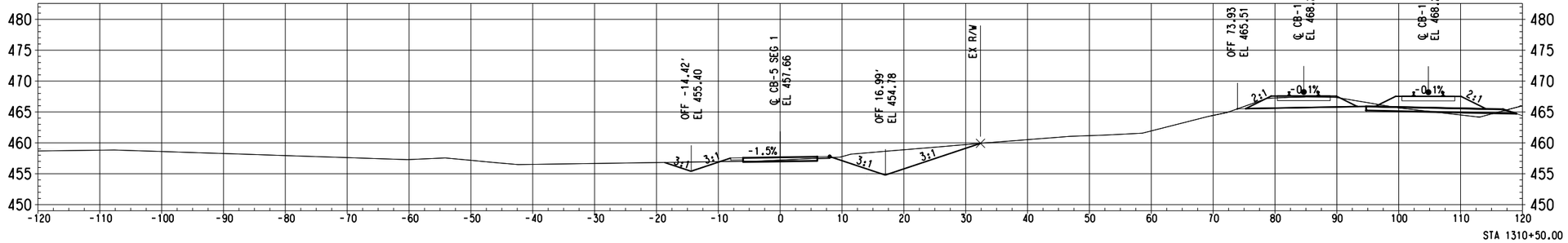
CITY OF COPPELL
CROSS SECTIONS
SHEET 77 OF 106

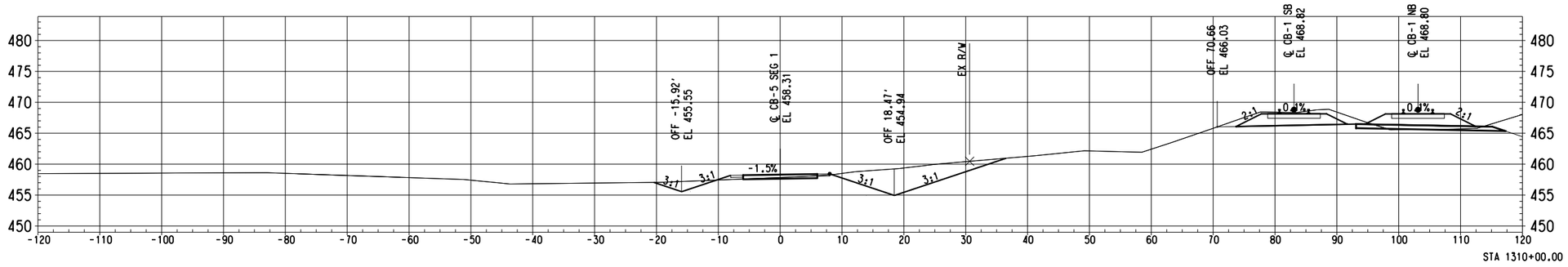
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6396	D

DWG No. CC1-6397









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HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20

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CONTRACT SHEET No. 182 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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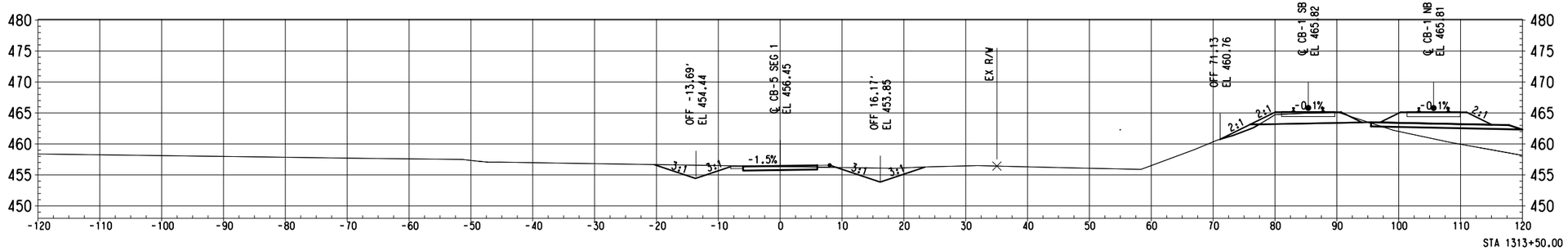
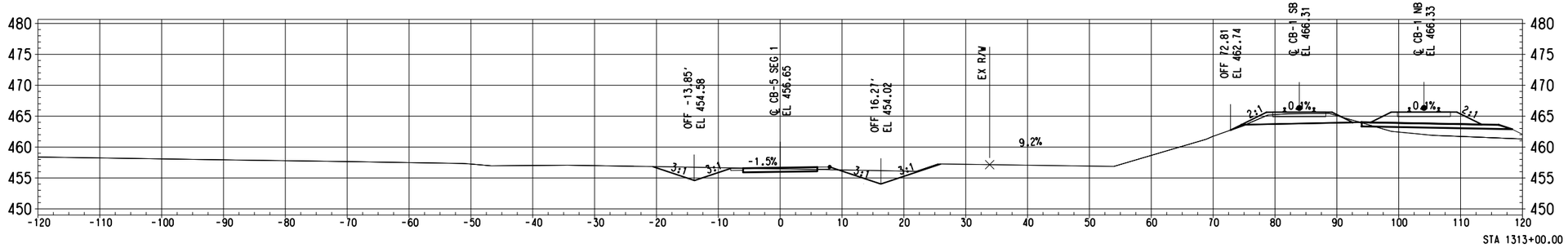
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

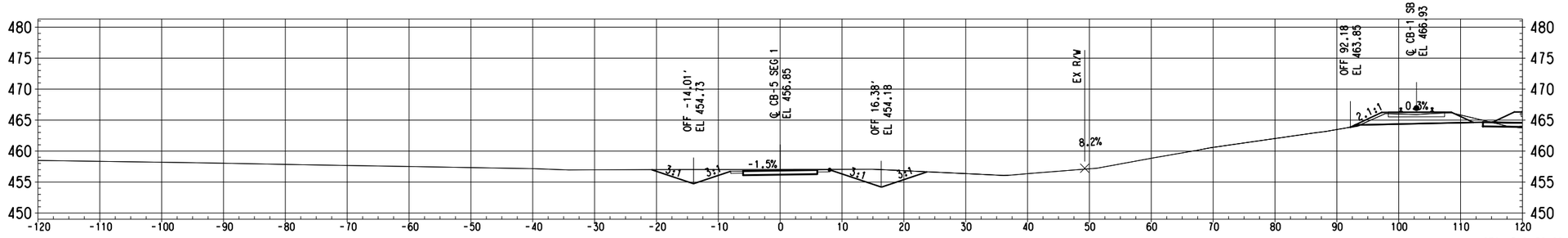
CITY OF COPPELL
CROSS SECTIONS
SHEET 78 OF 106

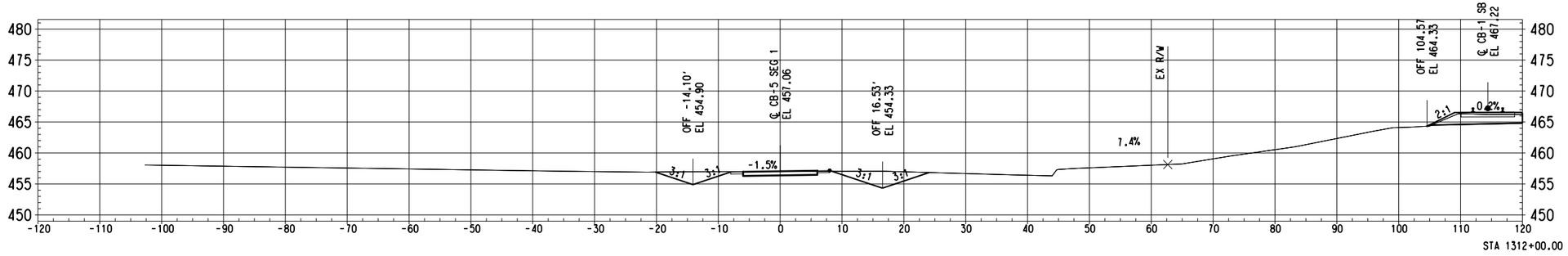
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6397	D

DWG No. CC1-6398









NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20

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CONTRACT SHEET No. 183 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 79 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6398	D

DWG No. CC1-6399

NOTE:
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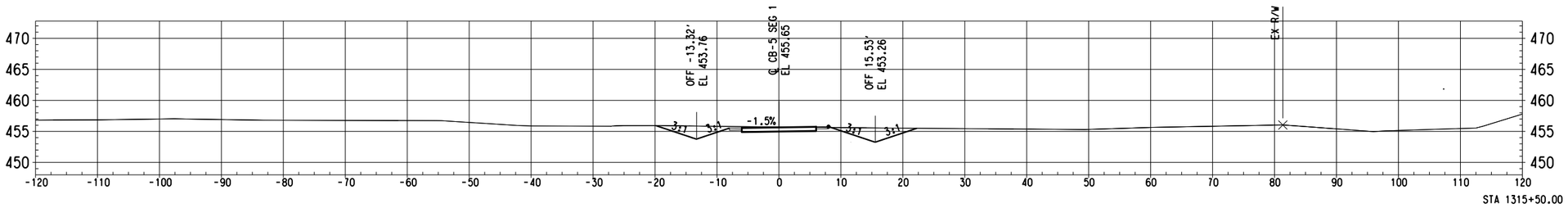
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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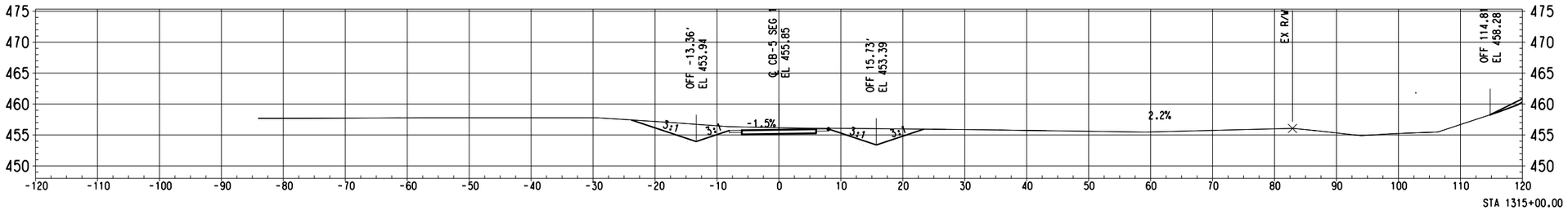

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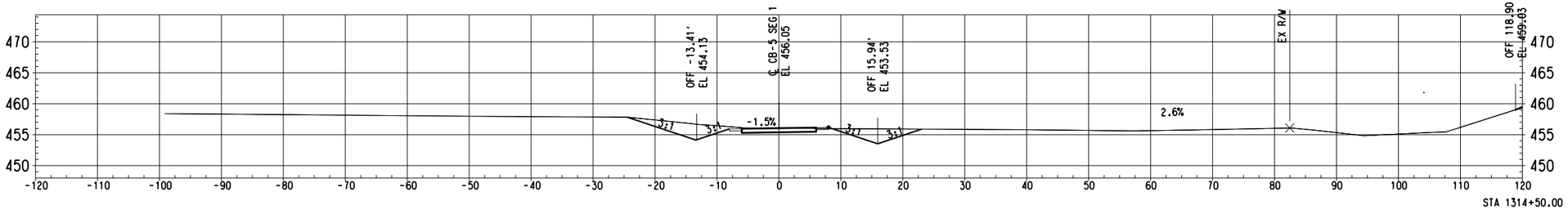

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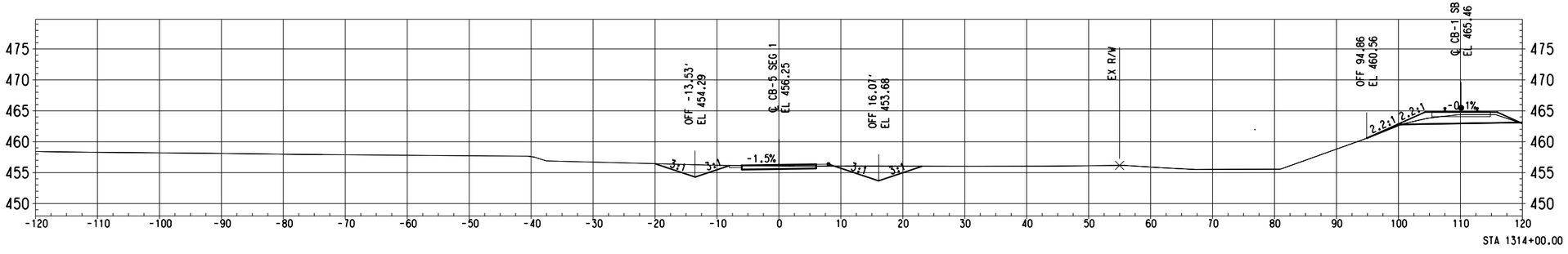

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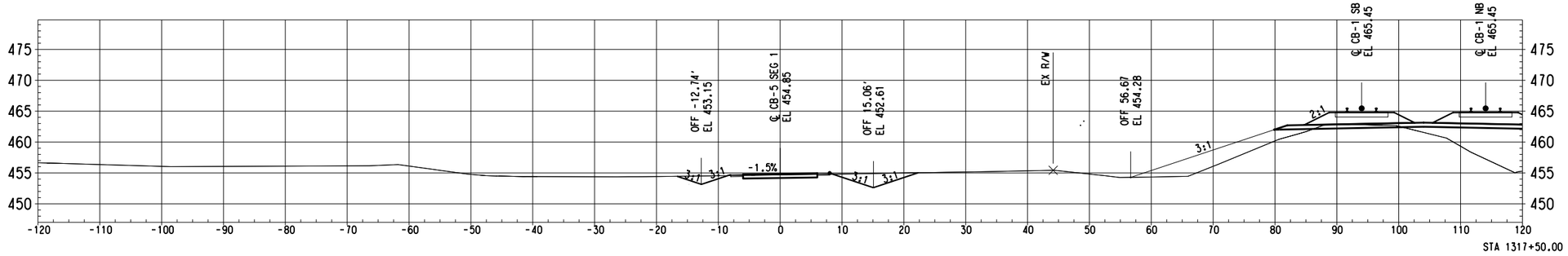
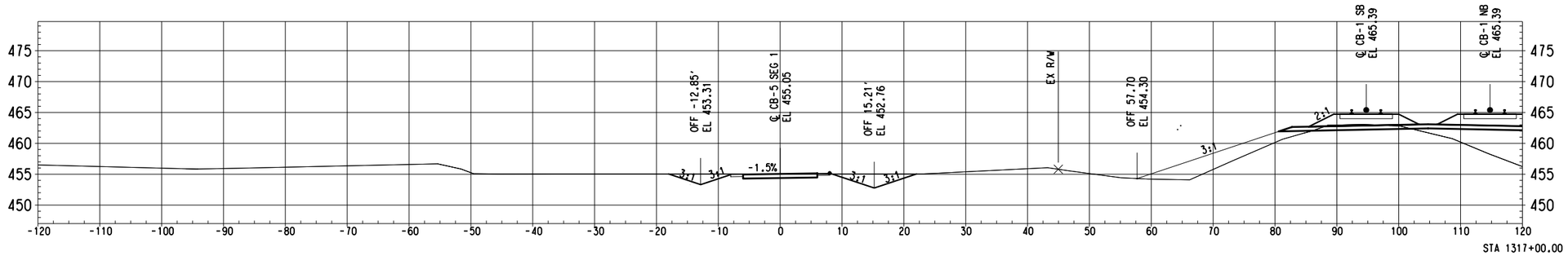
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

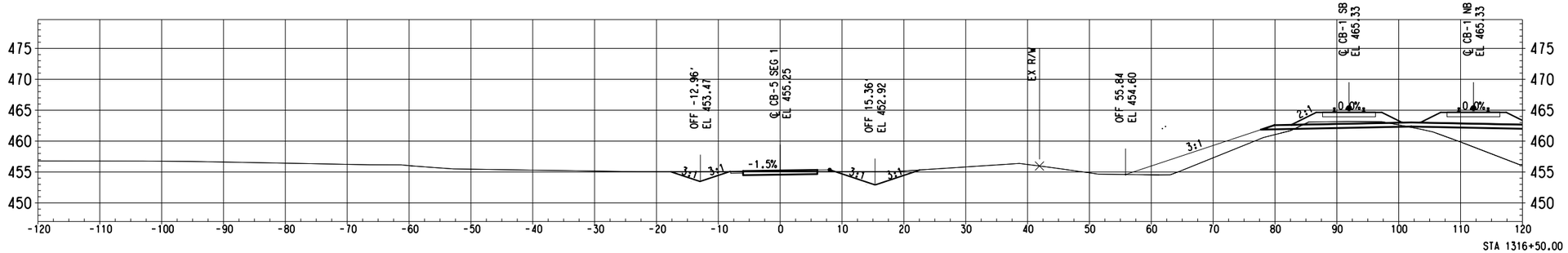
CITY OF COPPELL
CROSS SECTIONS
SHEET 80 OF 106

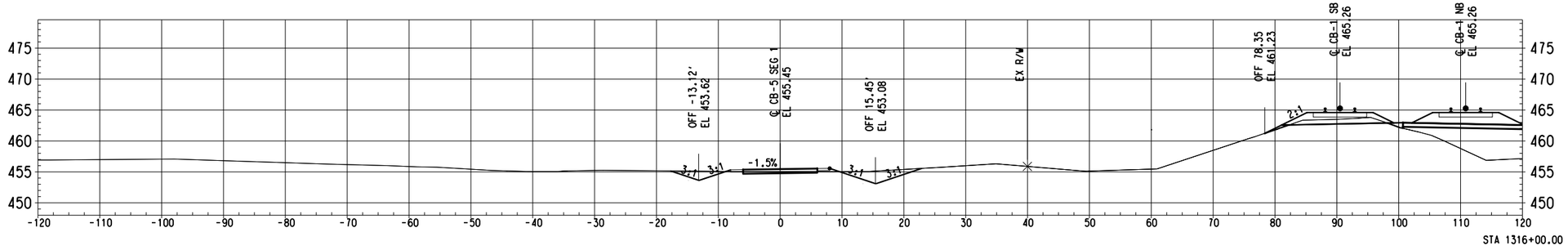
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6399	D

DWG No. CC1-6400









NOTE:
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VERT SCALE (IN FEET) 0 5 10 20

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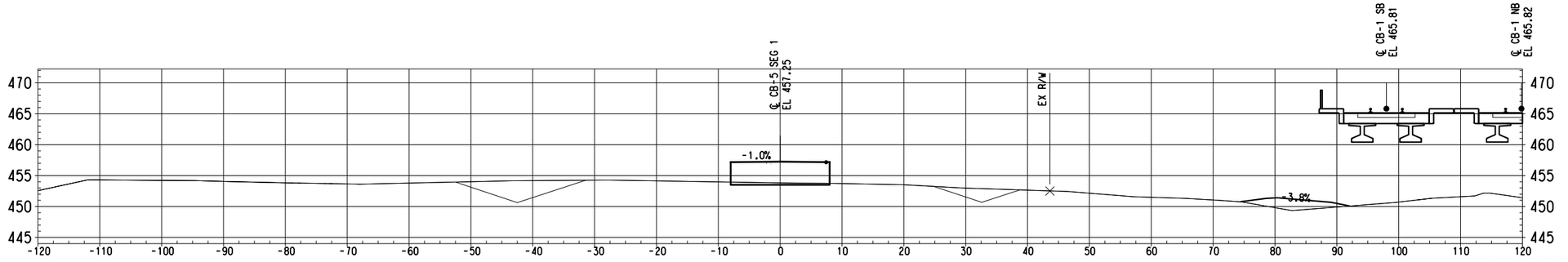
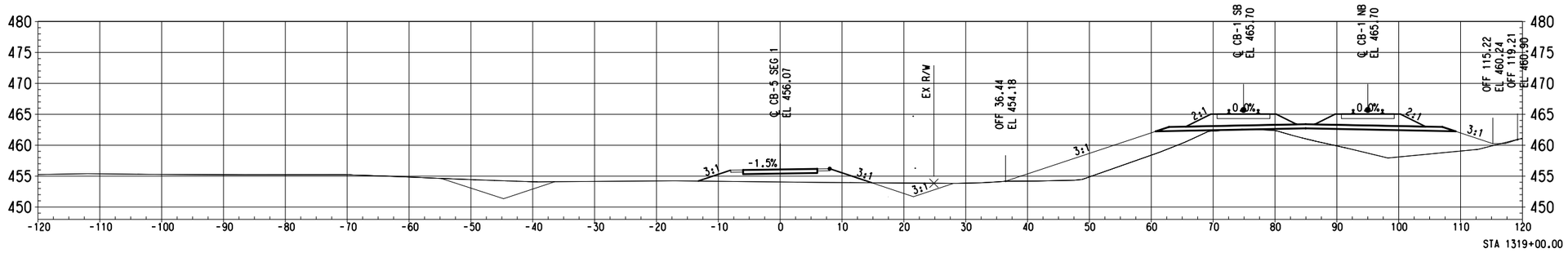
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

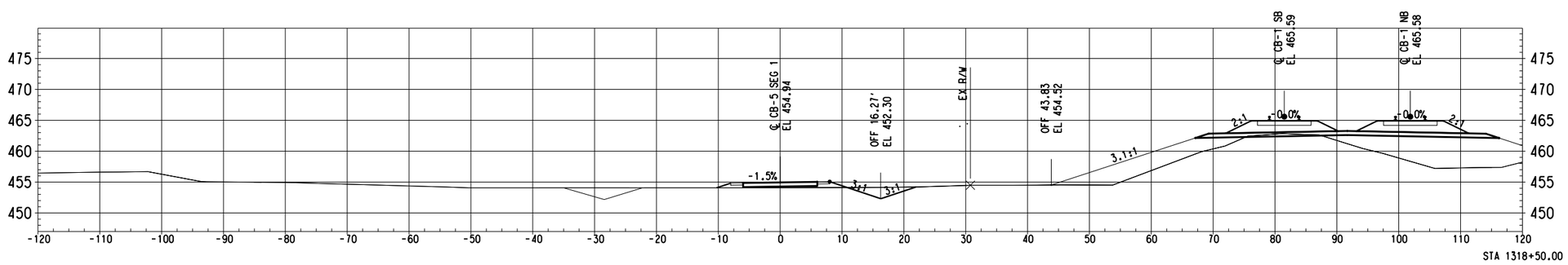
CITY OF COPPELL
CROSS SECTIONS
SHEET 81 OF 106

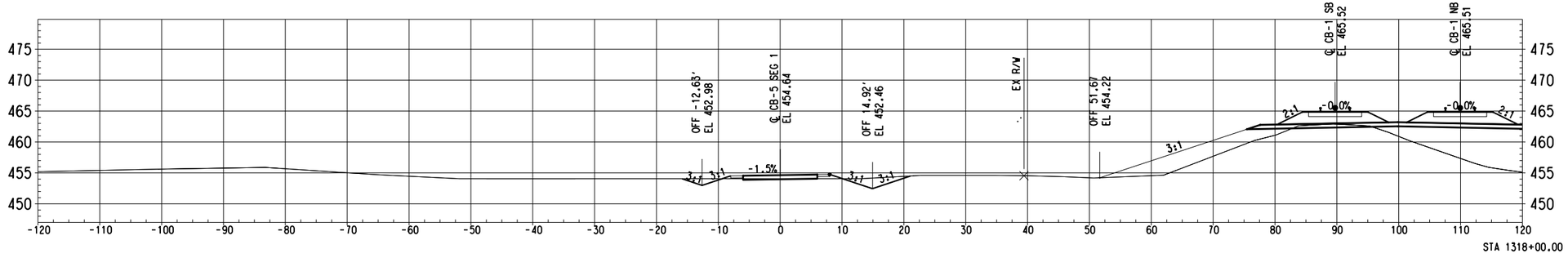
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6400	D

DWG No. CC1-6401









NOTE:
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HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20

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CONTRACT SHEET No. 186 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 82 OF 106

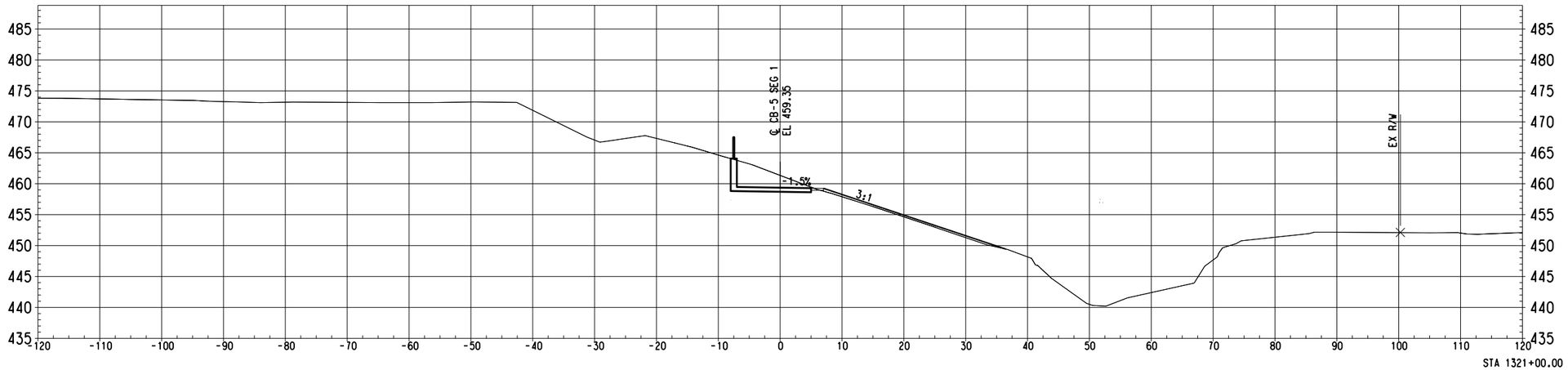
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6401	D

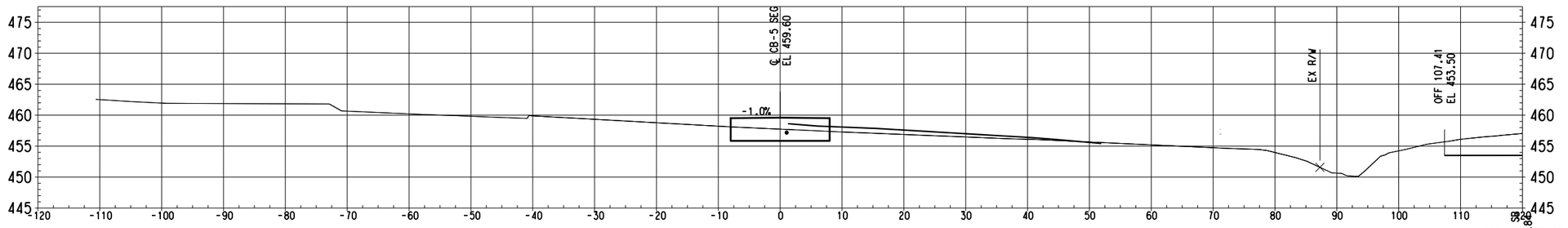
DWG No. CC1-6402

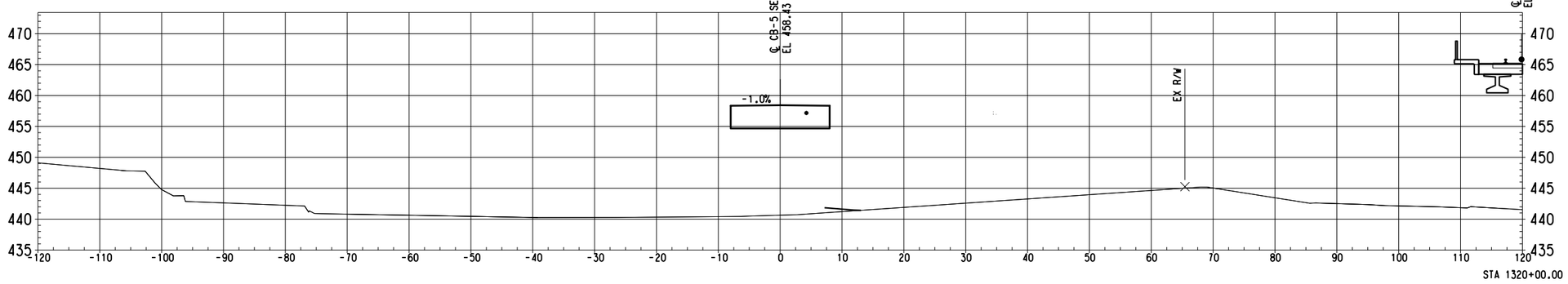
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 83 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6402	D

DWG No. CC1-6403

NOTE:
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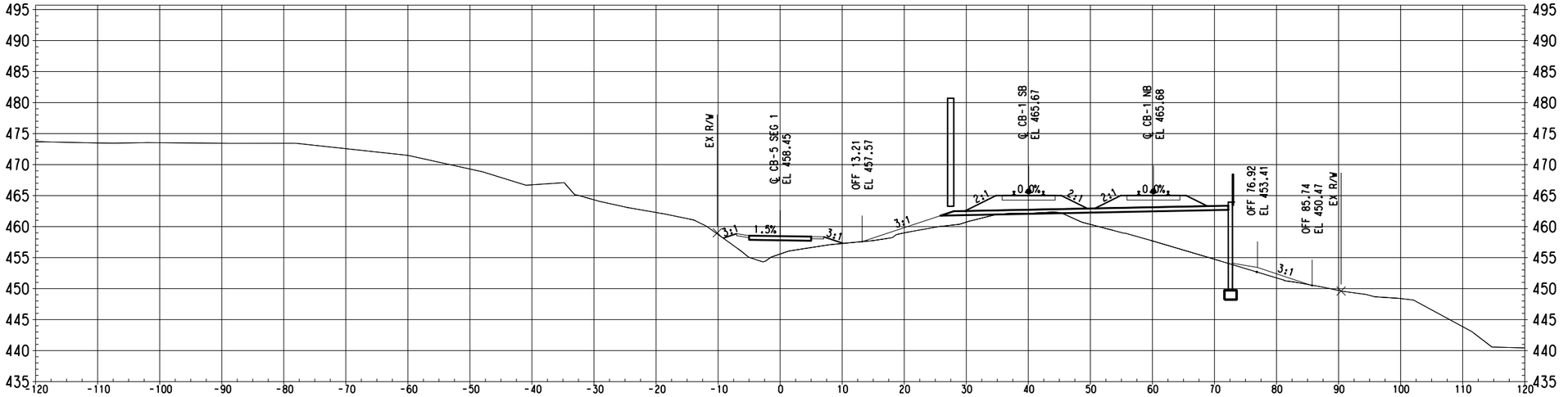
VERT SCALE (IN FEET) 0 5 10 20



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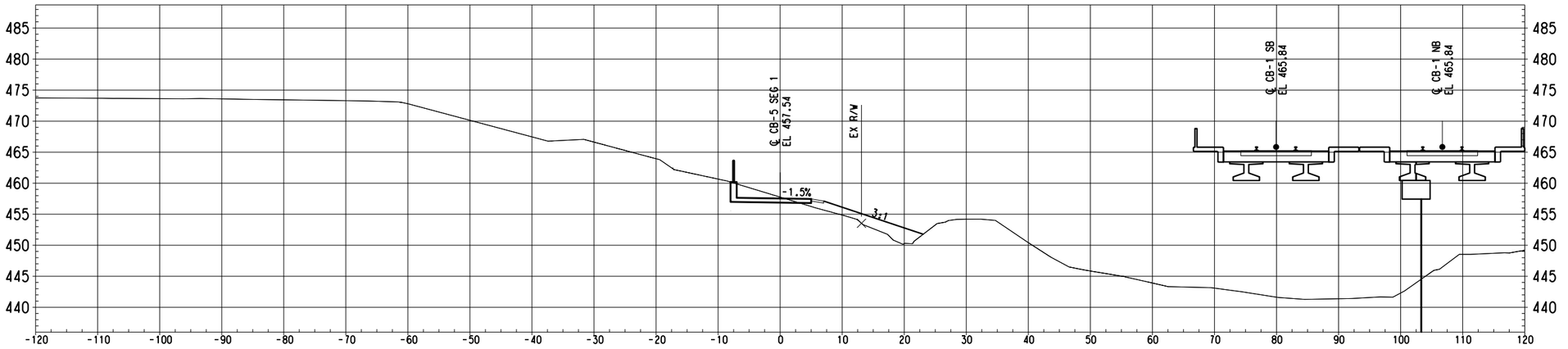

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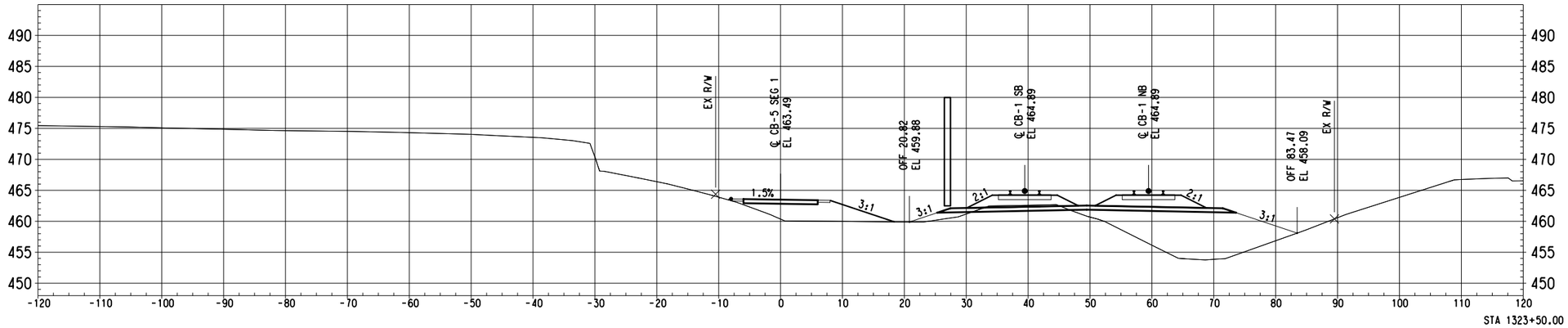
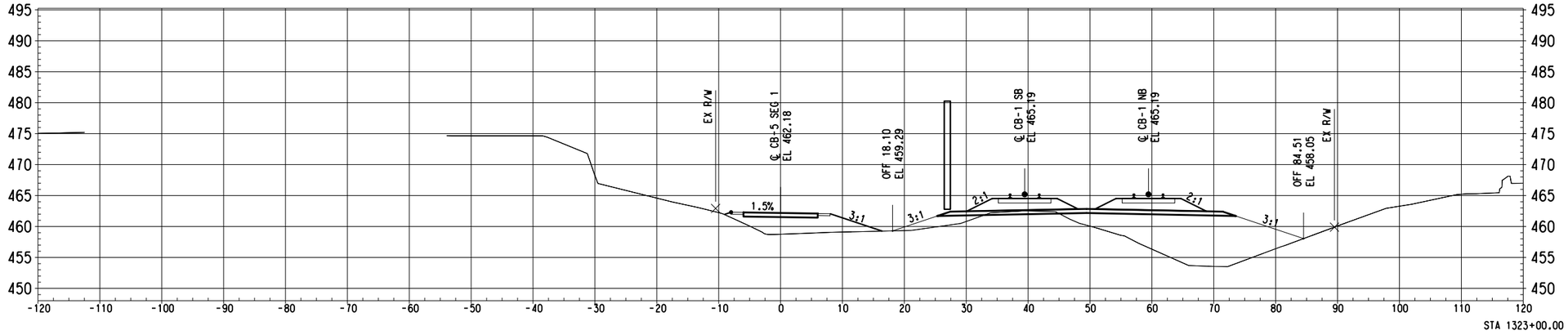
VELOWEB HIKE & BIKE TRAIL

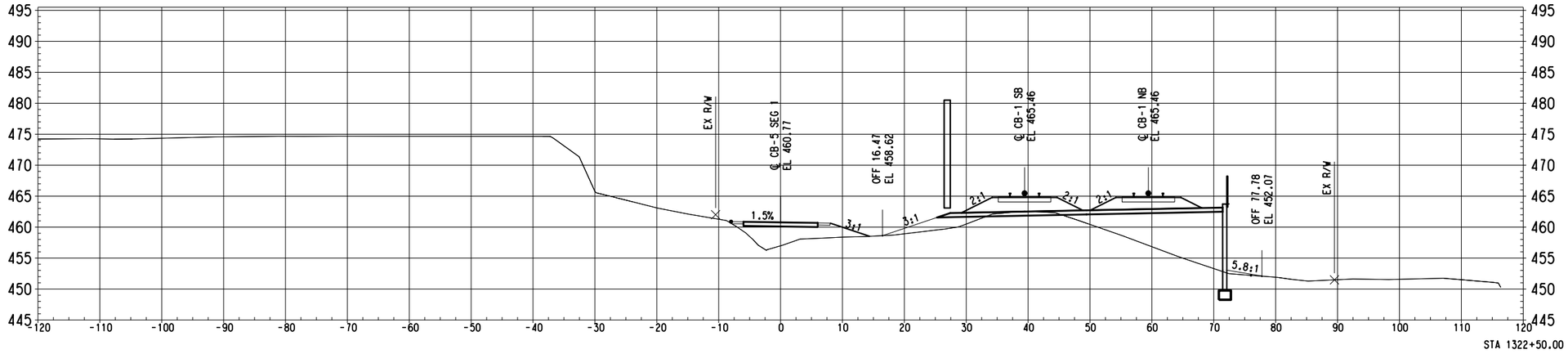
CITY OF COPPELL
CROSS SECTIONS
SHEET 84 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6403	D

DWG No. CC1-6404







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CONTRACT SHEET No. 189 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 85 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6404	D

DWG No. CC1-6405

NOTE:
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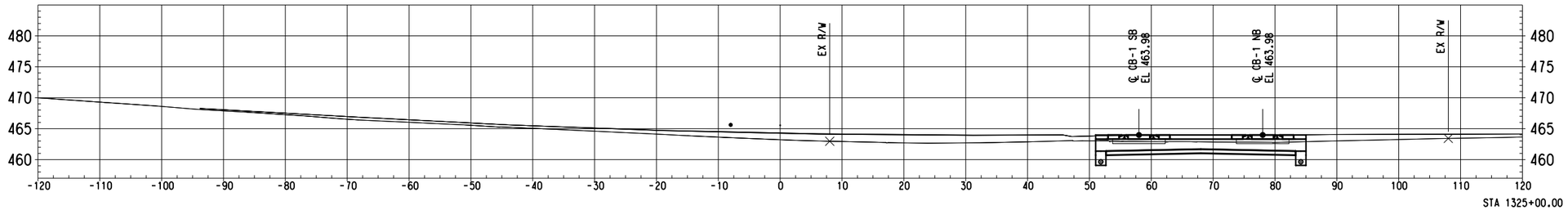
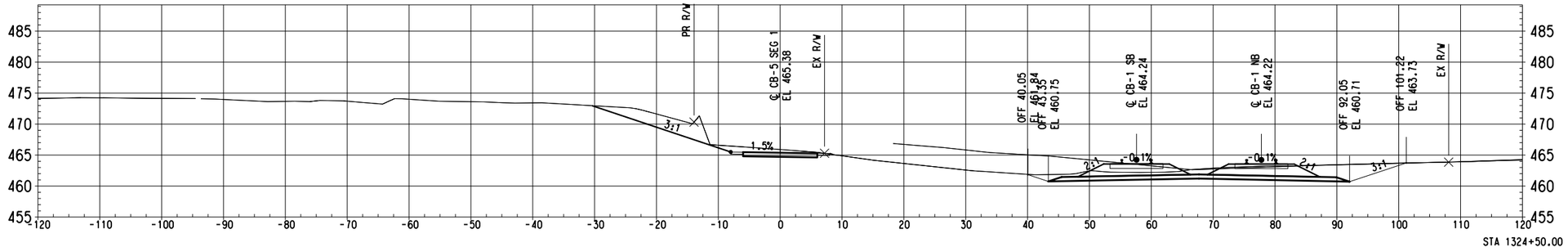
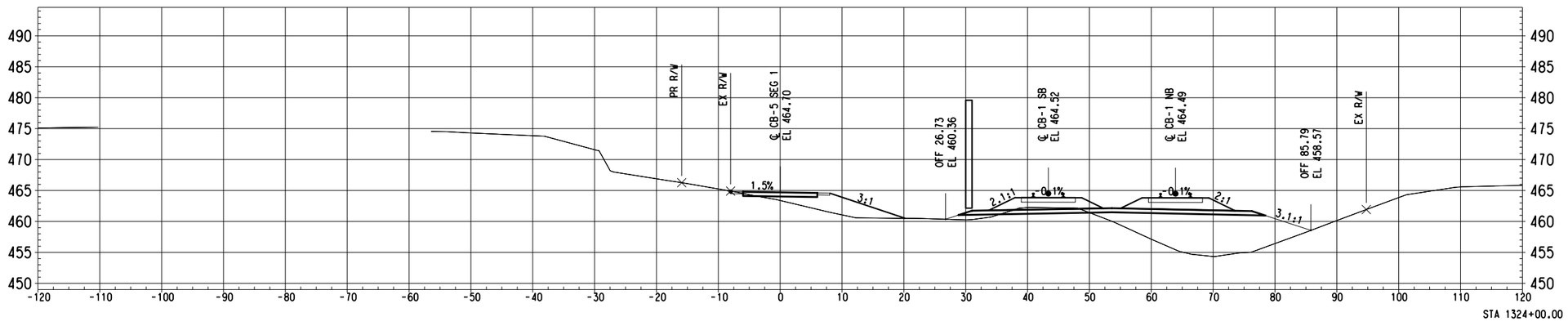
SCALE (IN FEET)
HORIZ 0 5 10 20
SCALE (IN FEET)
VERT 0 5 10 20







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CONTRACT SHEET No. 190 OF 378

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 86 OF 106

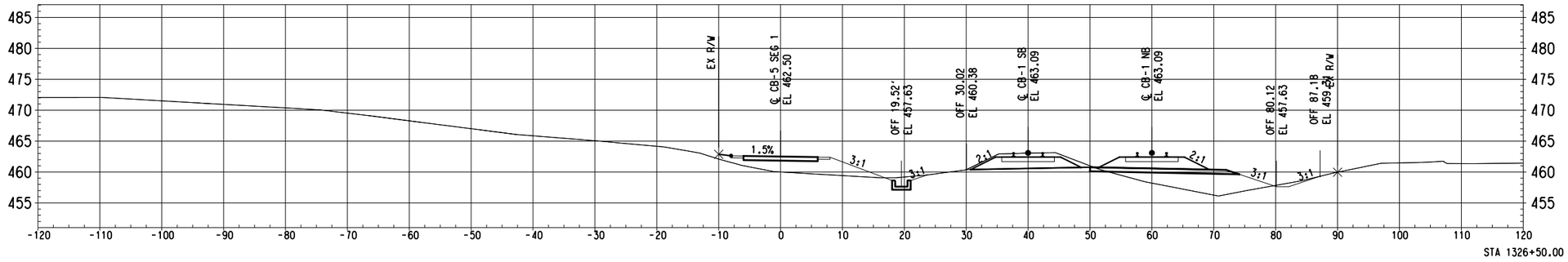
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6405	D

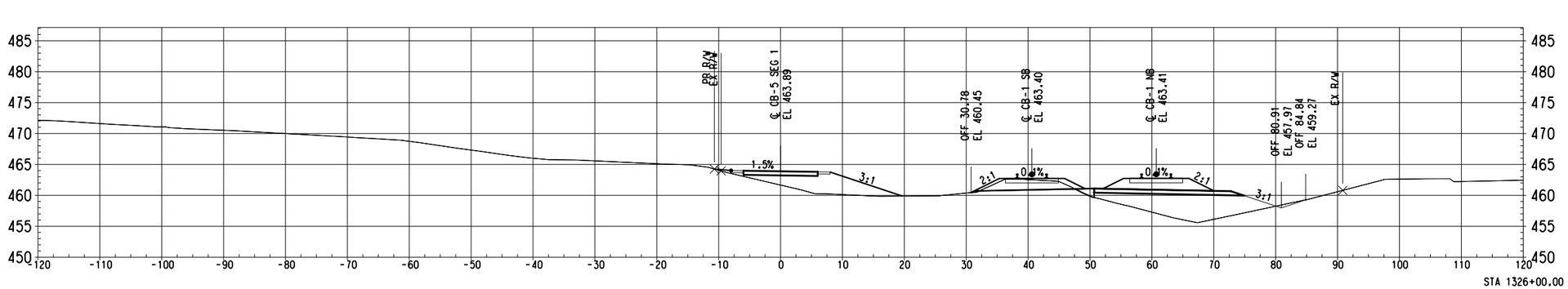
DWG No. CC1-6406

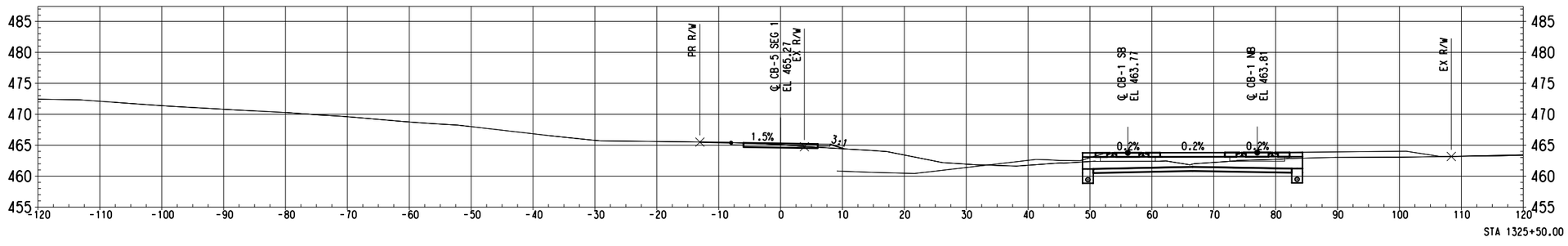
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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CONTRACT SHEET No. 191 OF 378

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COTTON BELT REGIONAL RAIL VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 87 OF 106

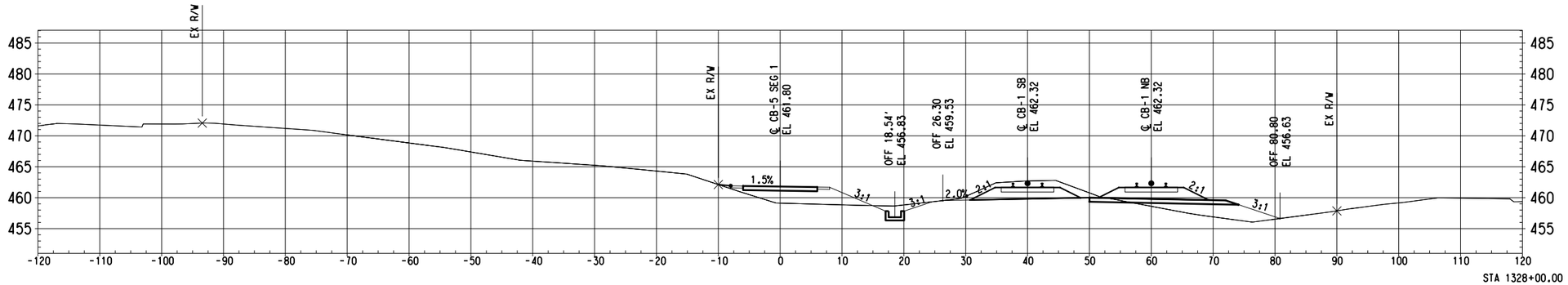
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6406	D

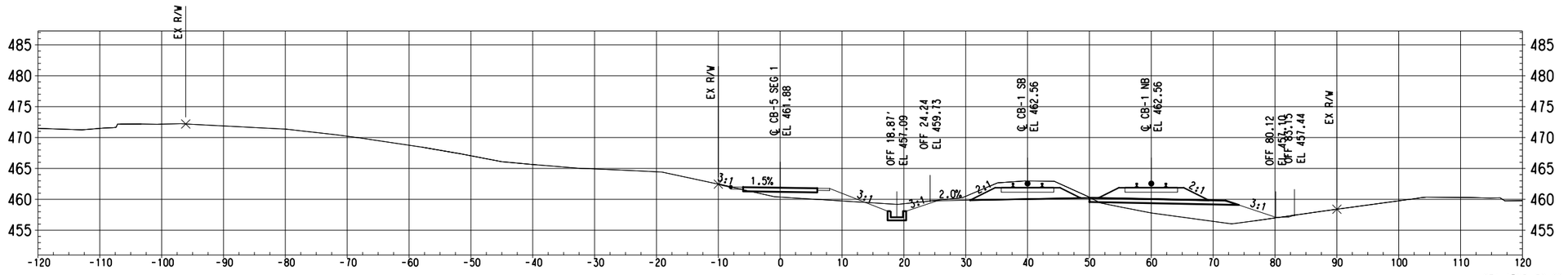
DWG No. CC1-6407

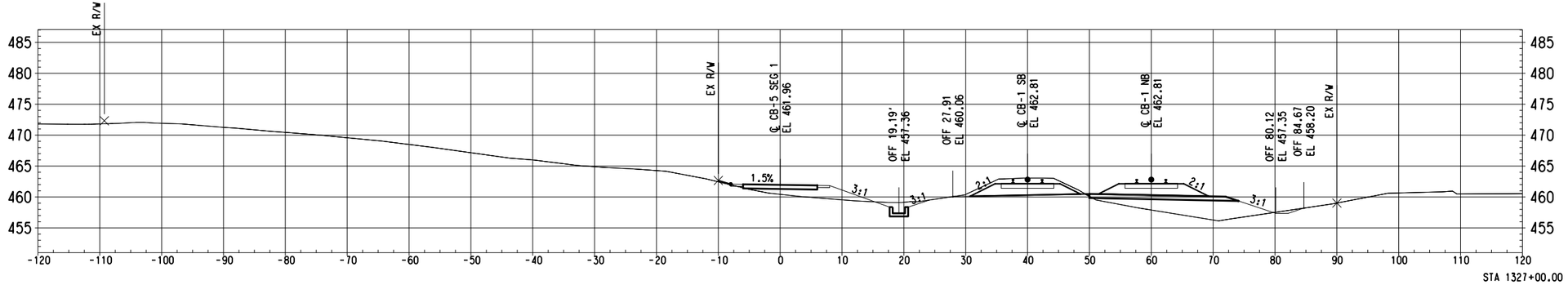
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

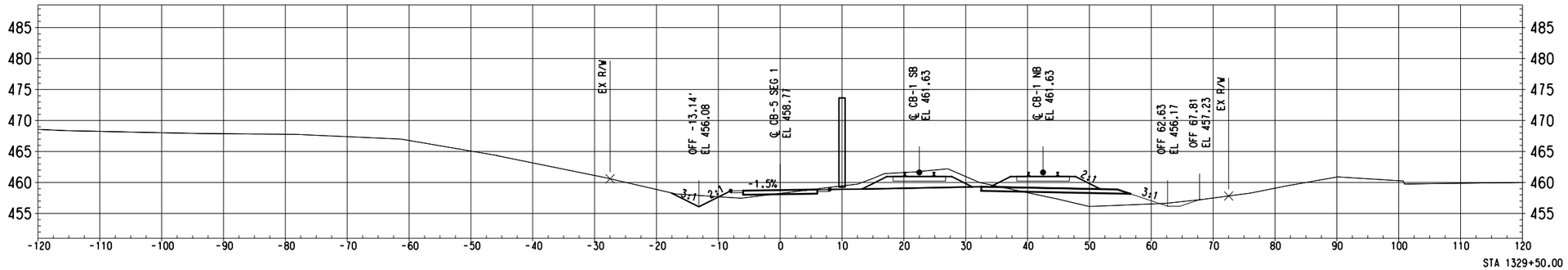
CITY OF COPPELL
CROSS SECTIONS
SHEET 88 OF 106

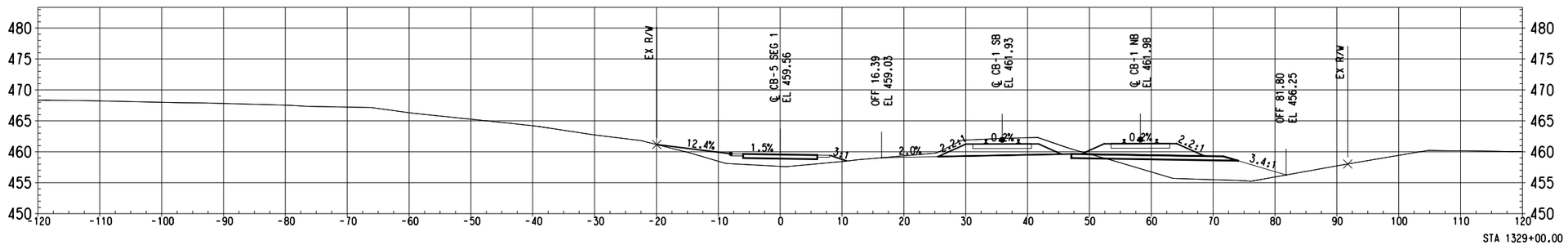
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6407	D

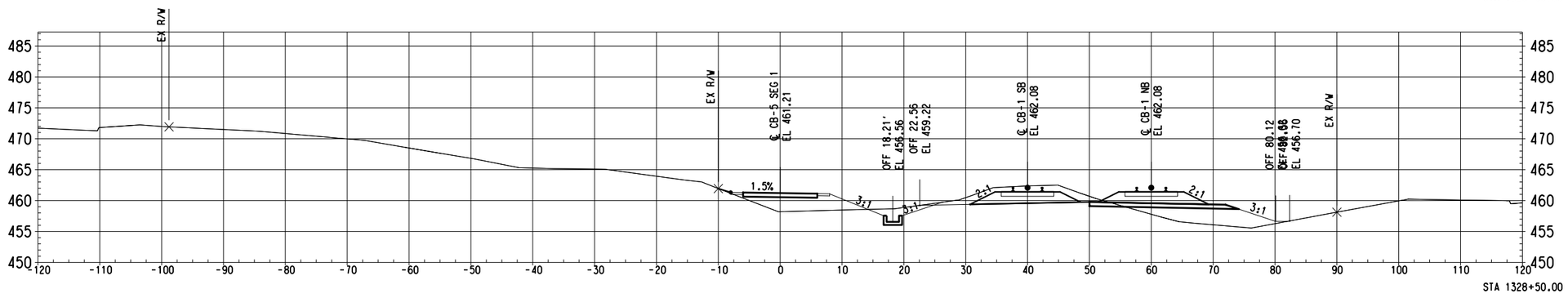
DWG No. CC1-6408

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

SCALE (IN FEET)
HORIZ 0 5 10 20
SCALE (IN FEET)
VERT 0 5 10 20







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COTTON BELT REGIONAL RAIL VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 89 OF 106

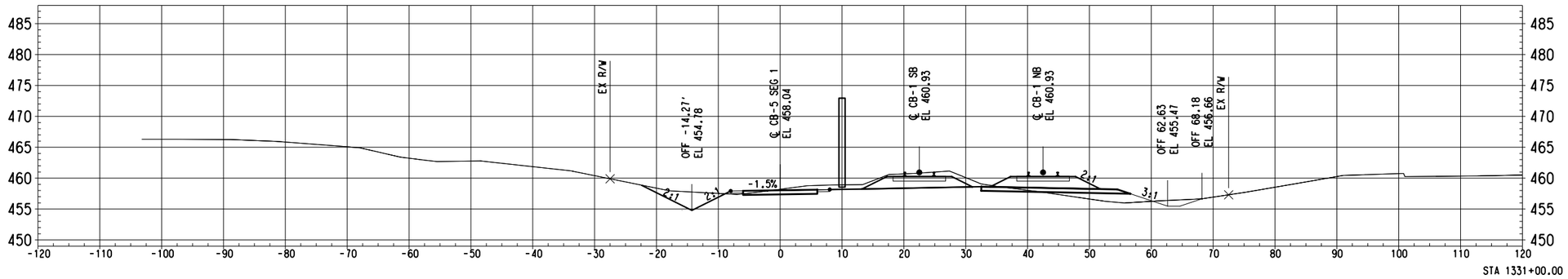
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6408	D

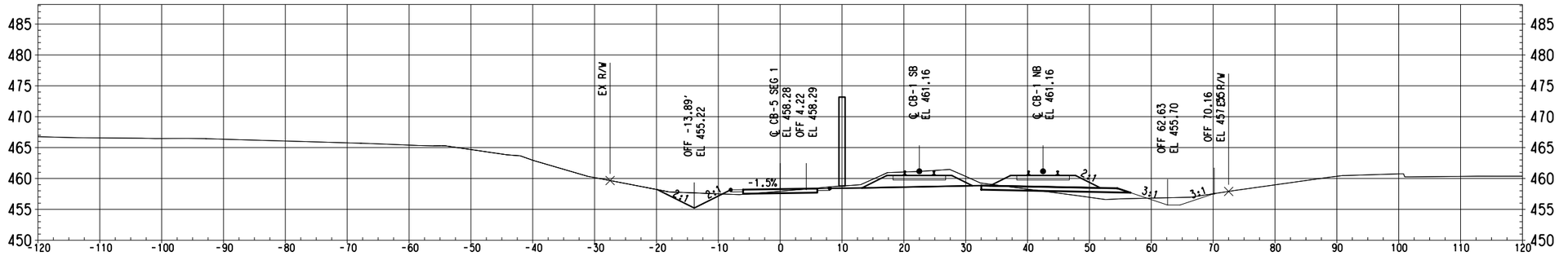
DWG No. CC1-6409

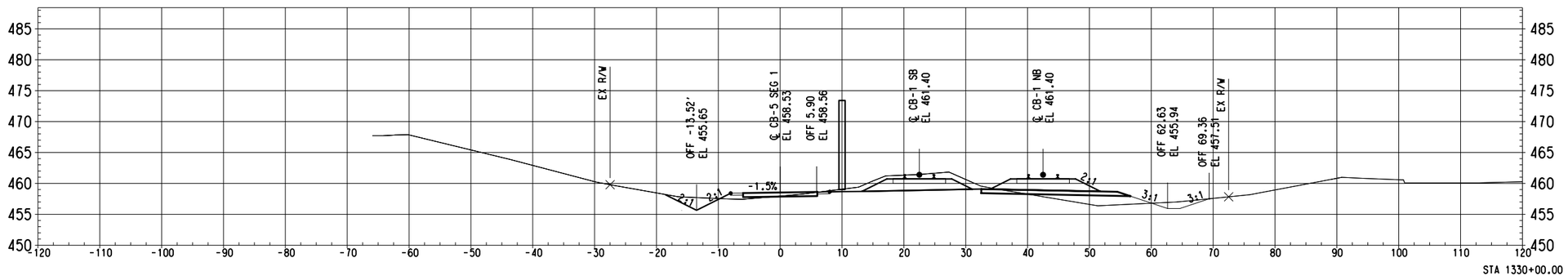
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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CONTRACT SHEET No. 194 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 90 OF 106

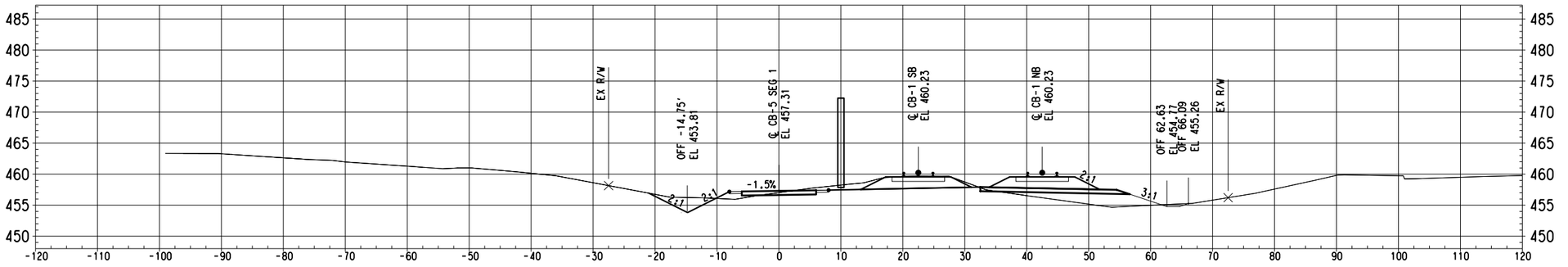
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6409	D

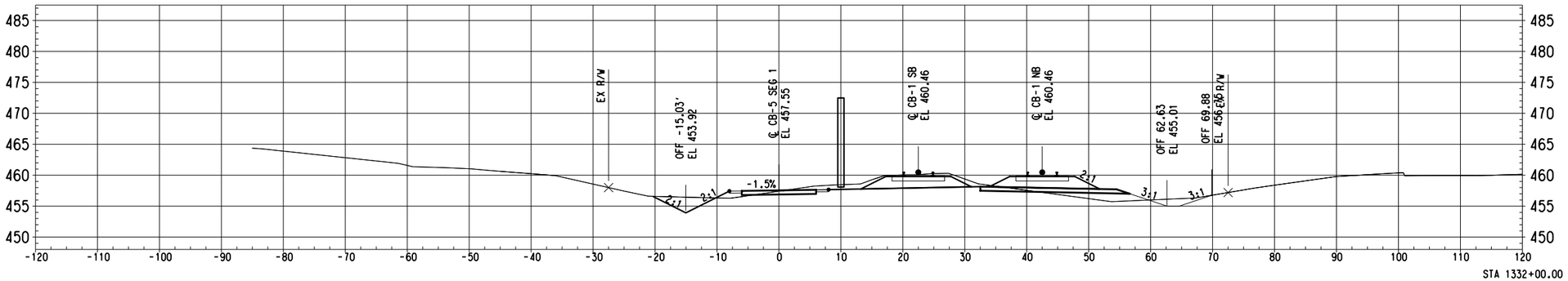
DWG No. CC1-6410

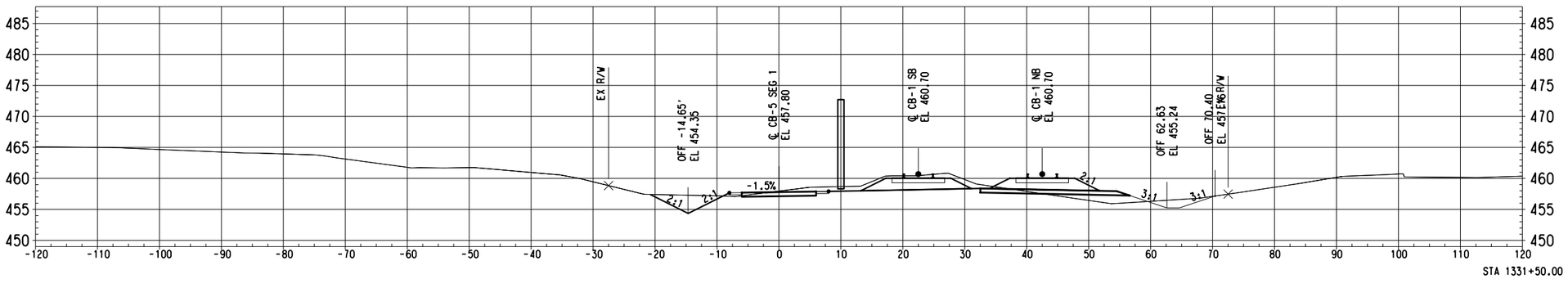
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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CONTRACT SHEET No. 195 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 91 OF 106

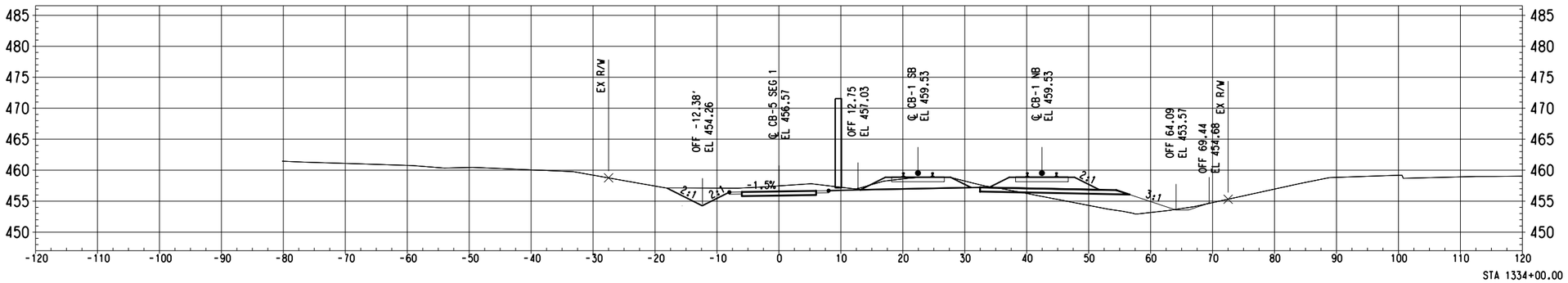
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6410	D

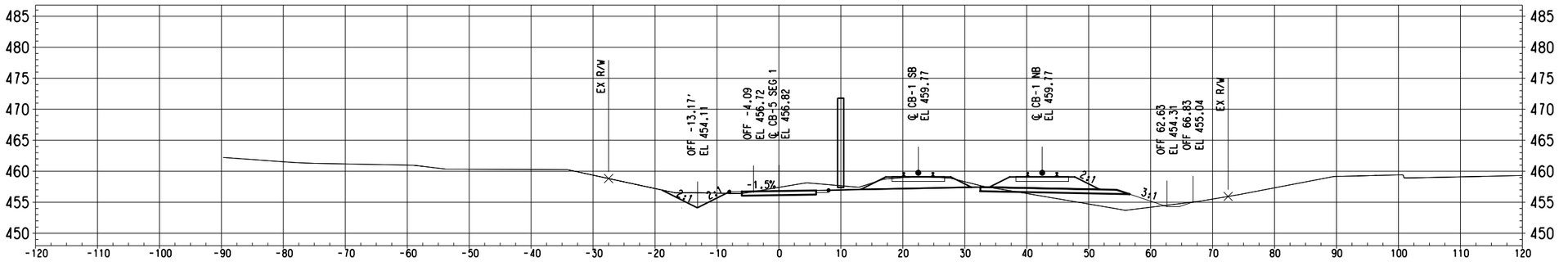
DWG No. CC1-6411

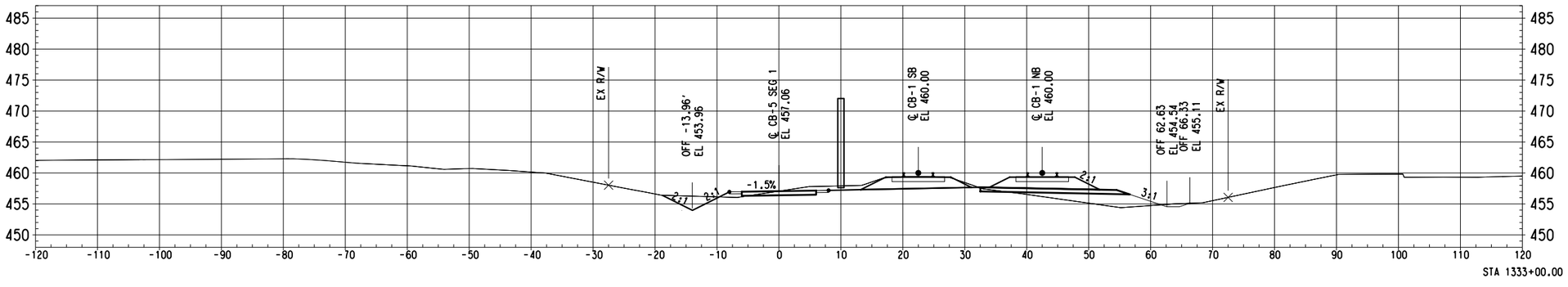
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 92 OF 106

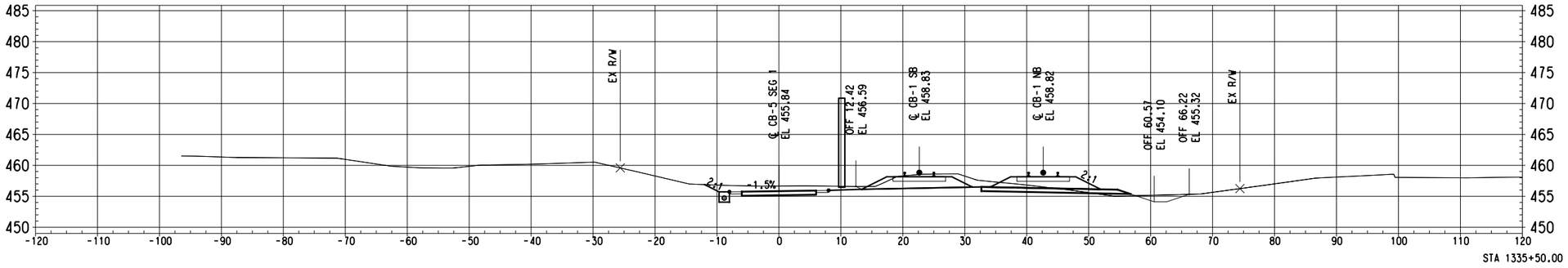
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6411	D

DWG No. CC1-6412

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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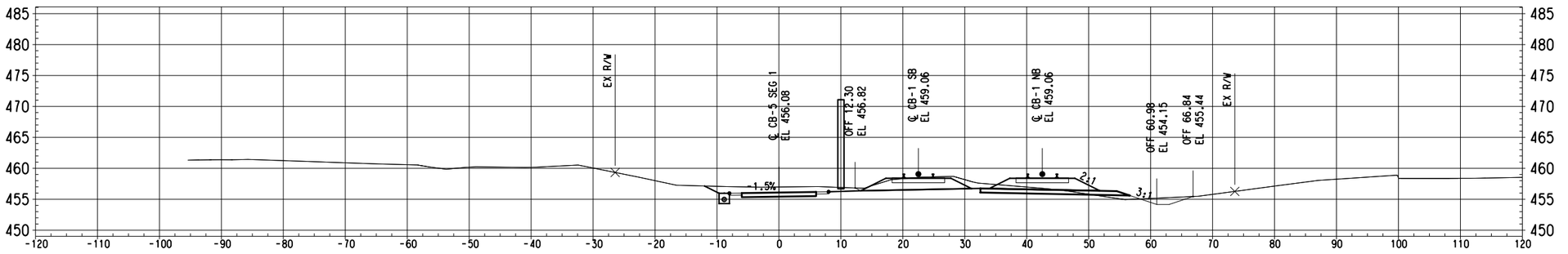

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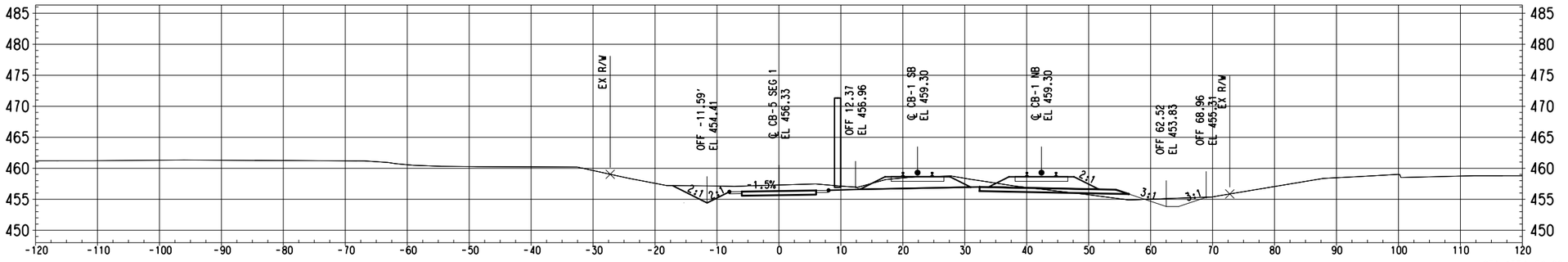

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CONTRACT SHEET No. 197 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 93 OF 106

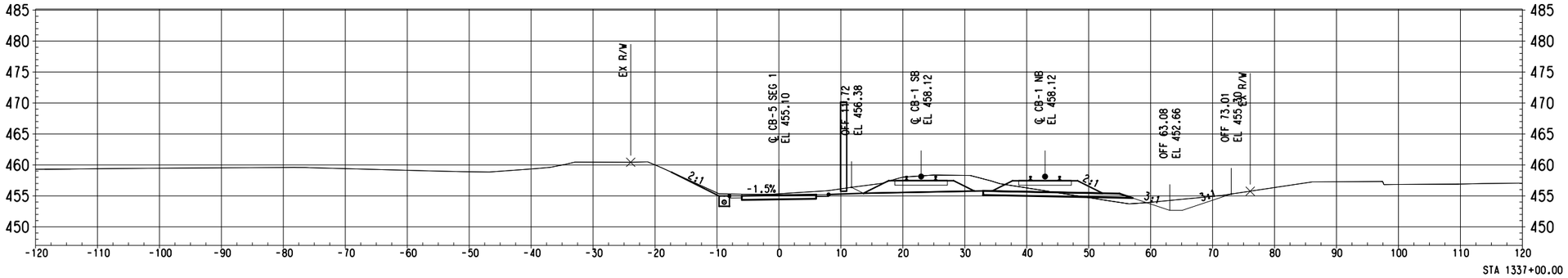
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6412	D

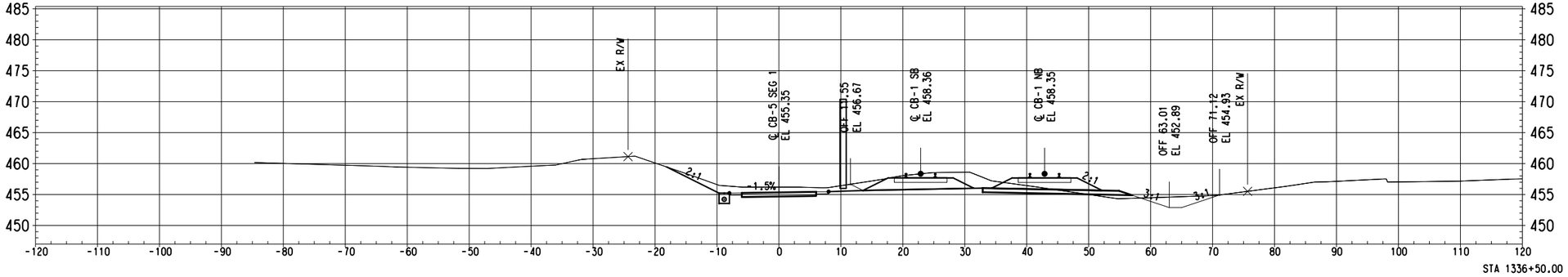
DWG No. CC1-6413

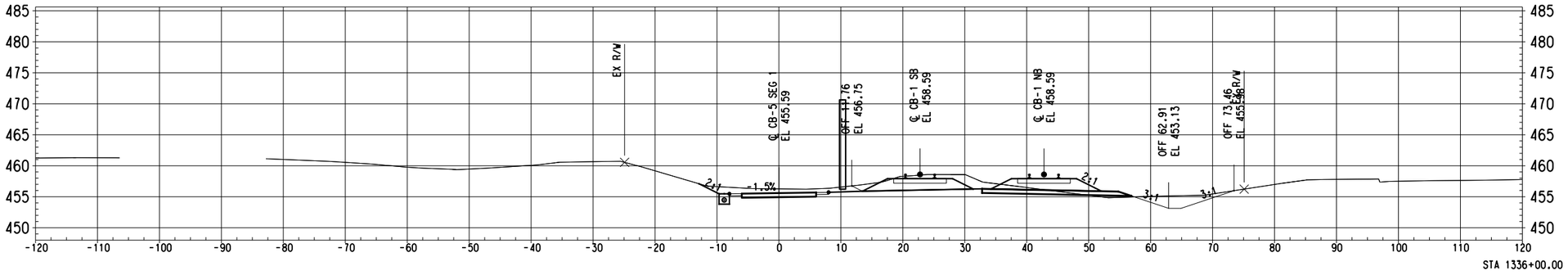
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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CONTRACT SHEET No. 198 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 94 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6413	D

DWG No. CC1-6414

NOTE:
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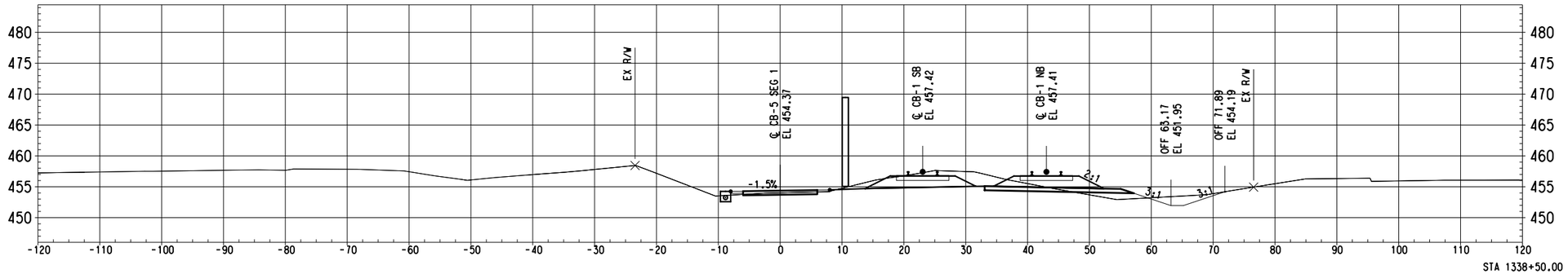
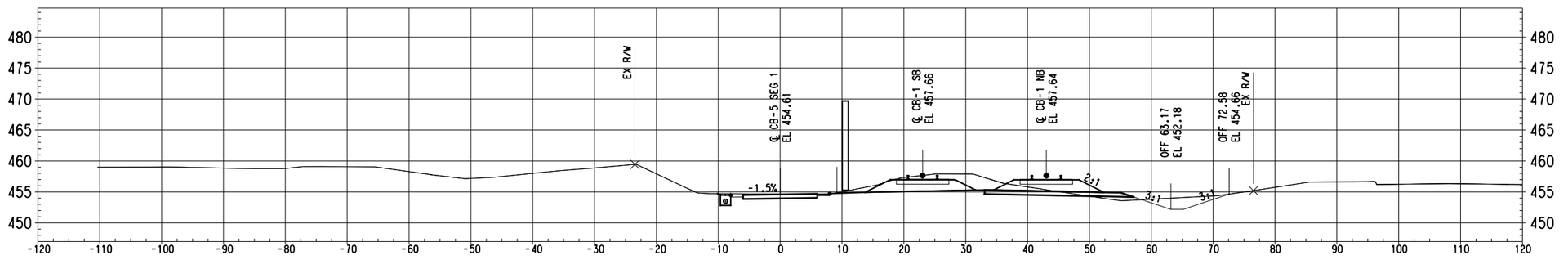
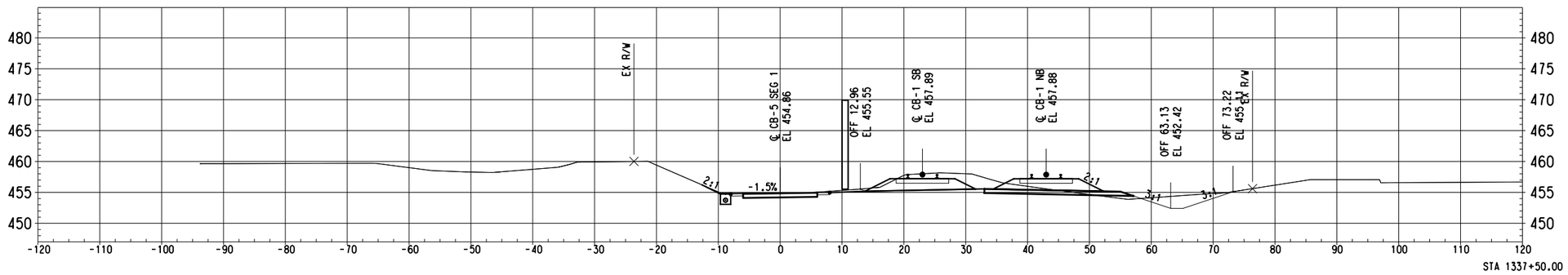
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEL) 0 5 10 20







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DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

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CONTRACT SHEET No. 199 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 95 OF 106

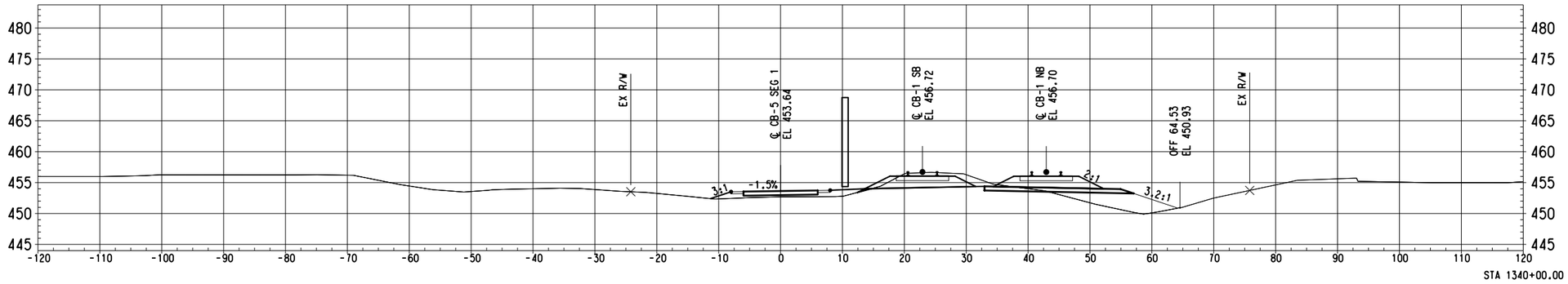
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6414	D

DWG No. CC1-6415

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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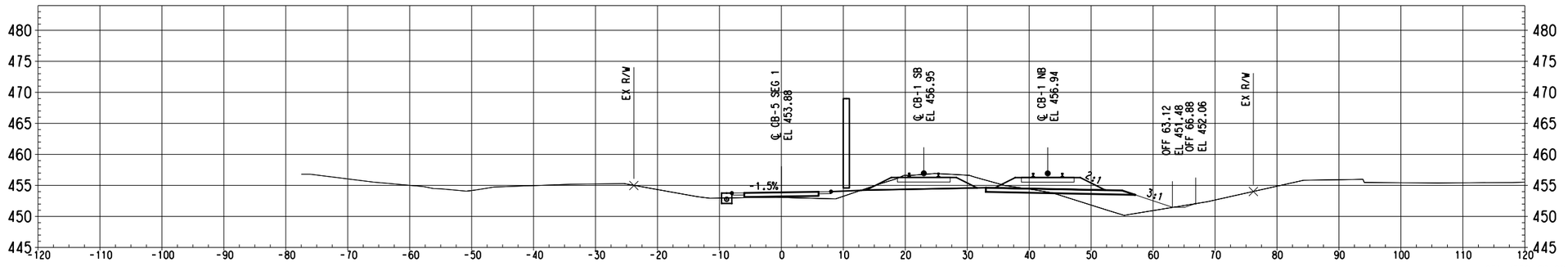

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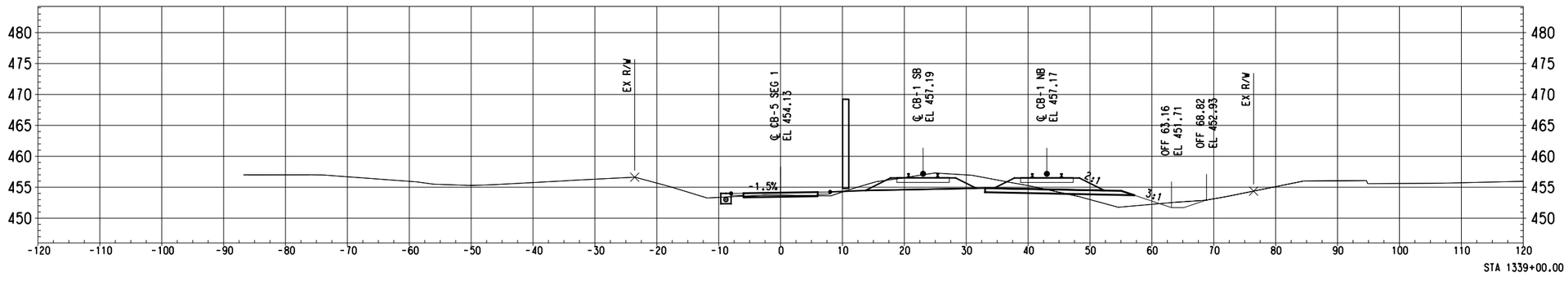

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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COTTON BELT REGIONAL RAIL VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 96 OF 106

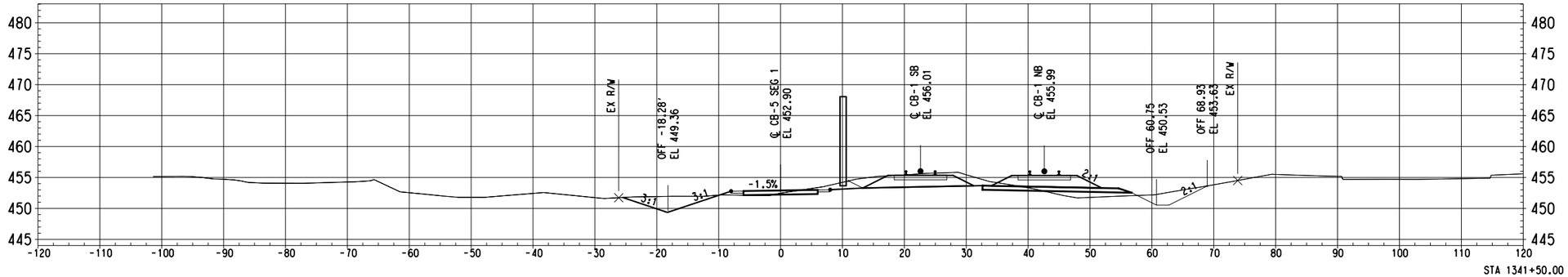
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6415	D

DWG No. CC1-6416

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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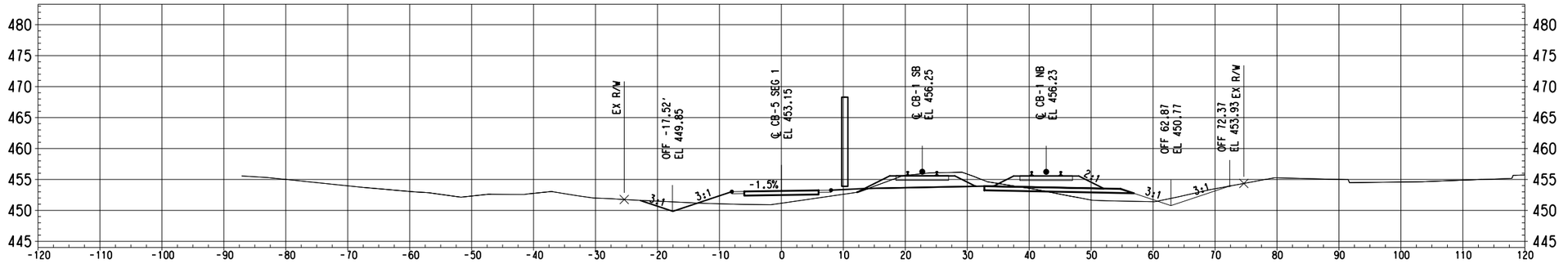

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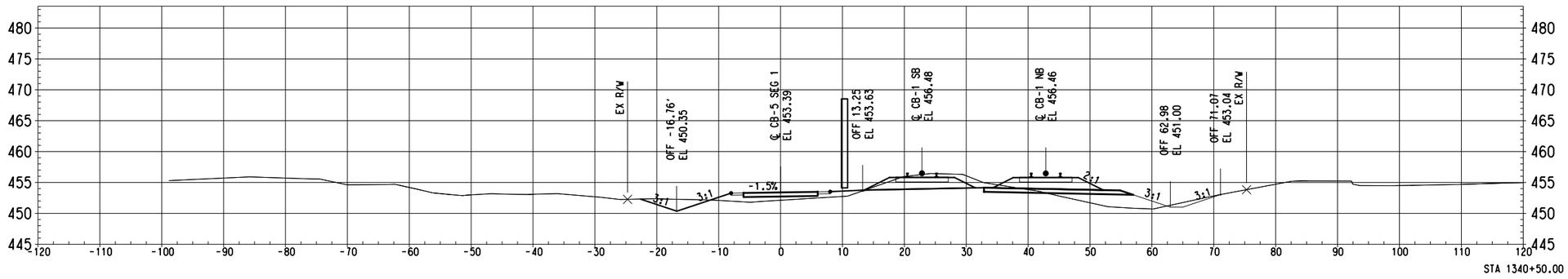

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 97 OF 106

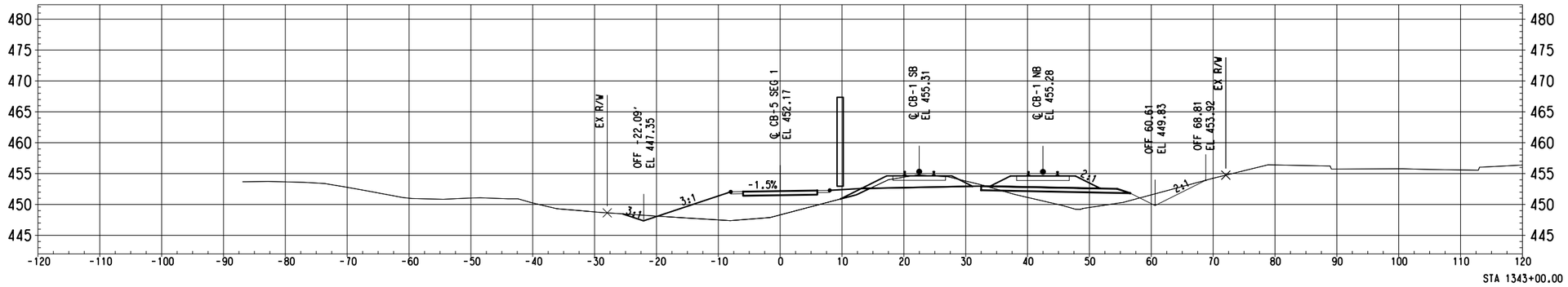
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6416	D

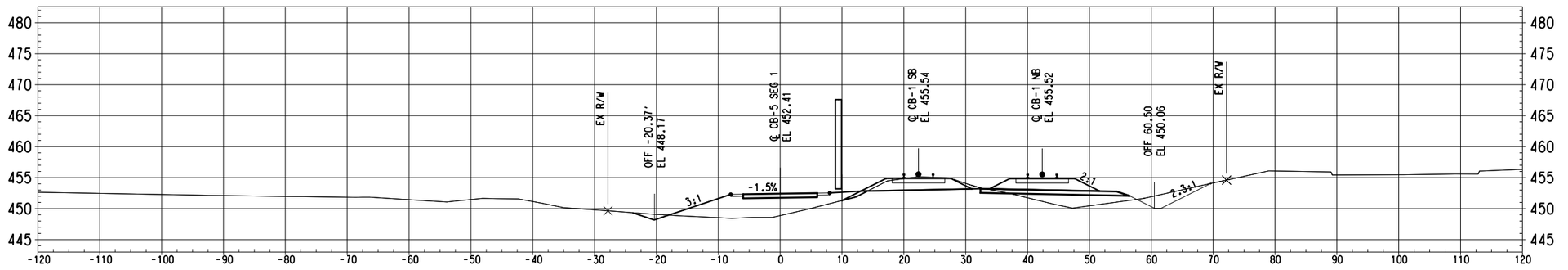
DWG No. CC1-6417

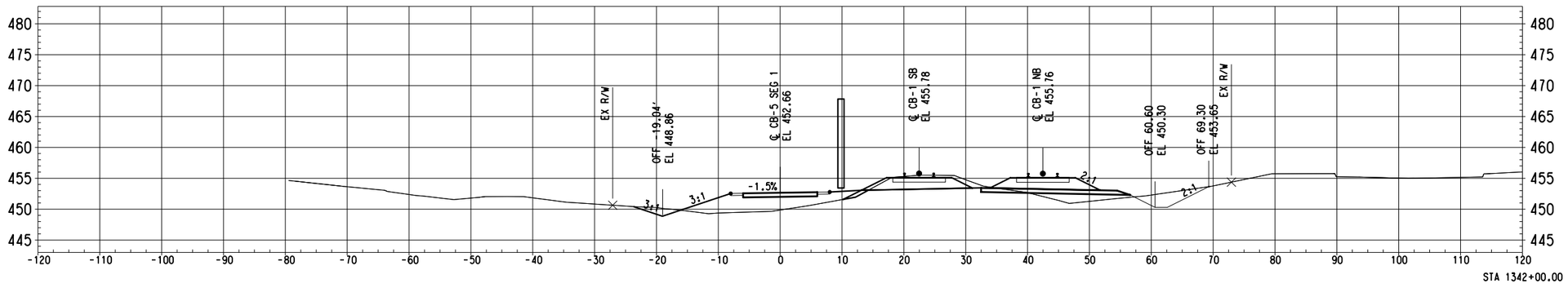
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE
AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 98 OF 106

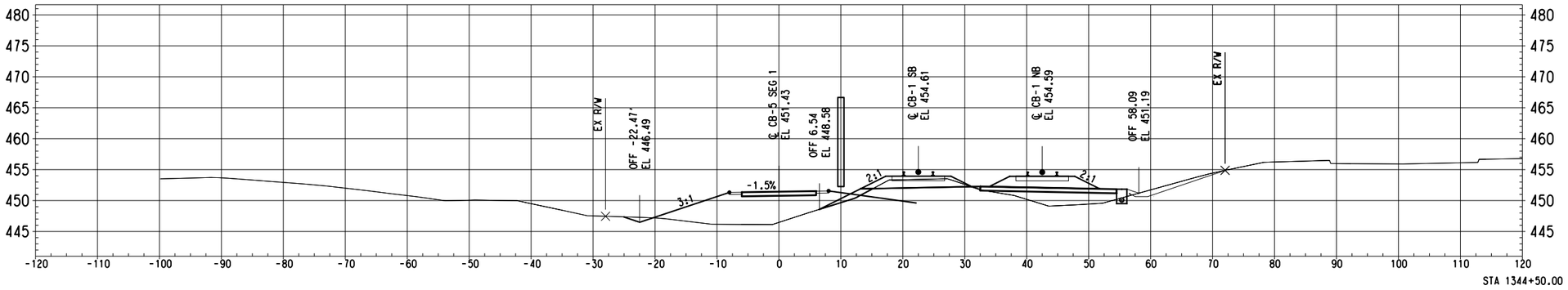
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6417	D

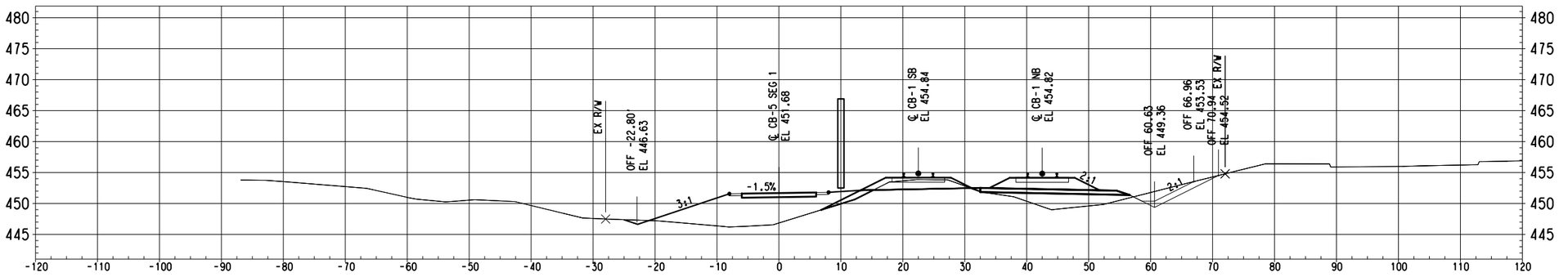
DWG No. CC1-6418

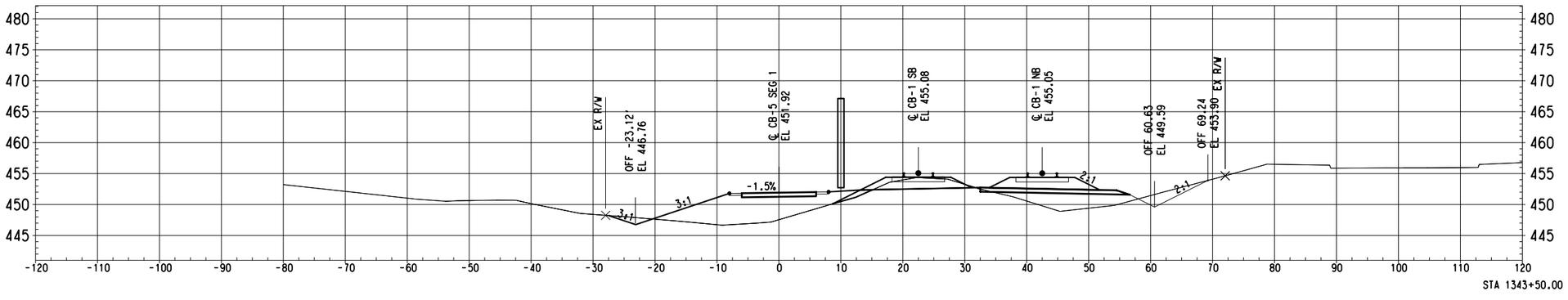
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20







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CONTRACT SHEET No. 203 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 99 OF 106

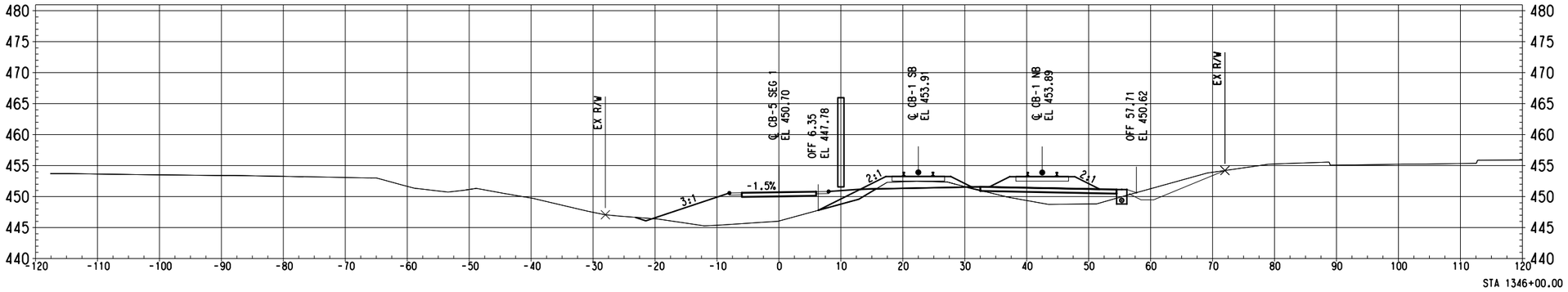
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6418	D

DWG No. CC1-6419

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20



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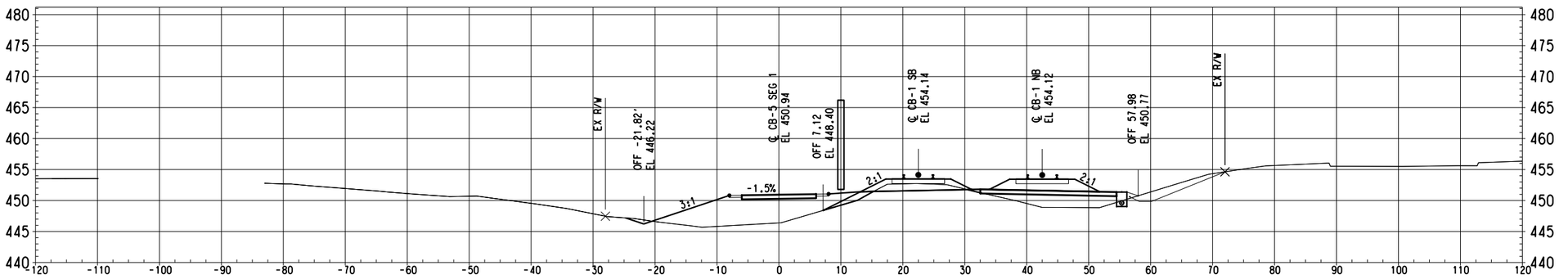

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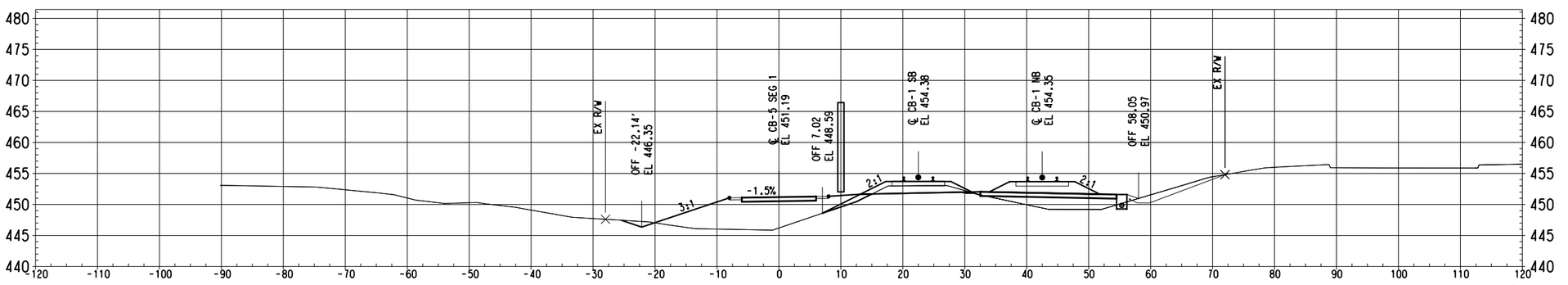

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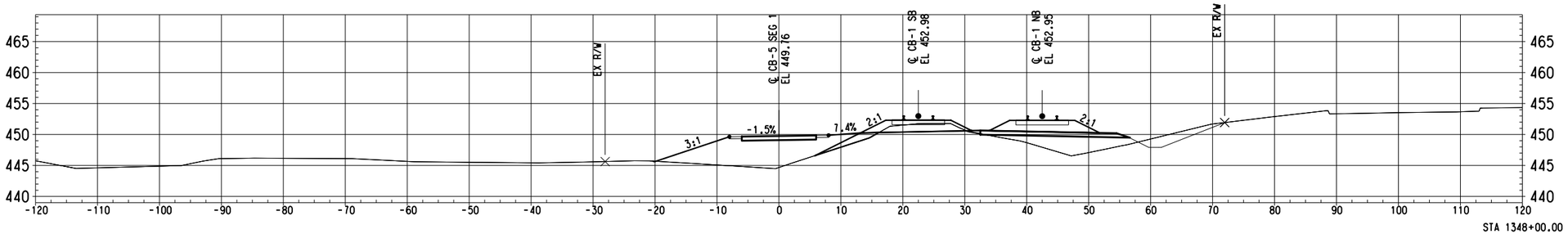
CONTRACT SHEET No. 204 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 100 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6419	D

DWG No. CC1-6420



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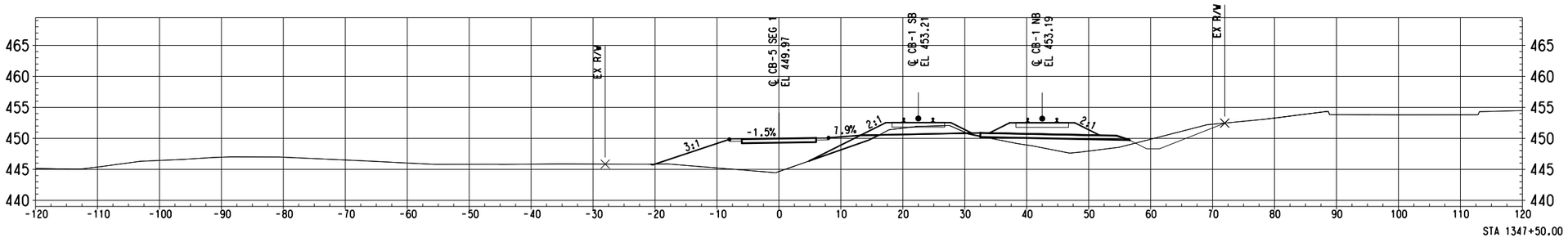

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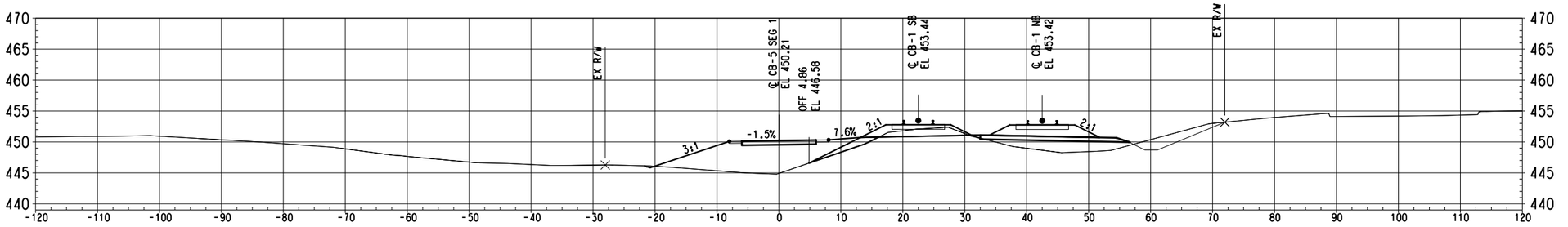

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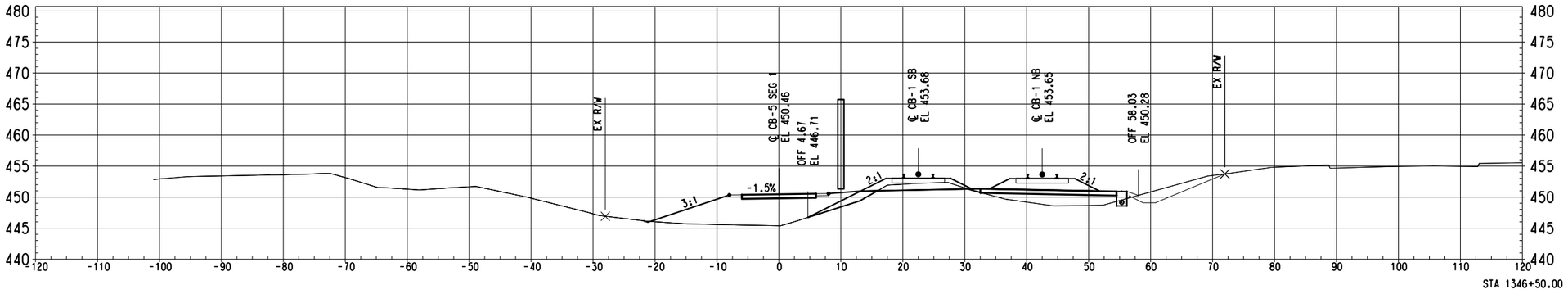

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NOTE:
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HORIZ SCALE (IN FEET) 0 5 10 20

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CONTRACT SHEET No. 205 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 101 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6420	D

DWG No. CC1-6421

NOTE:
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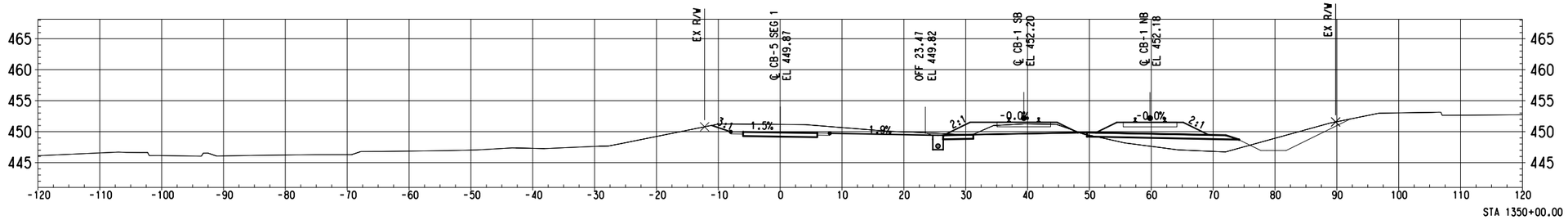
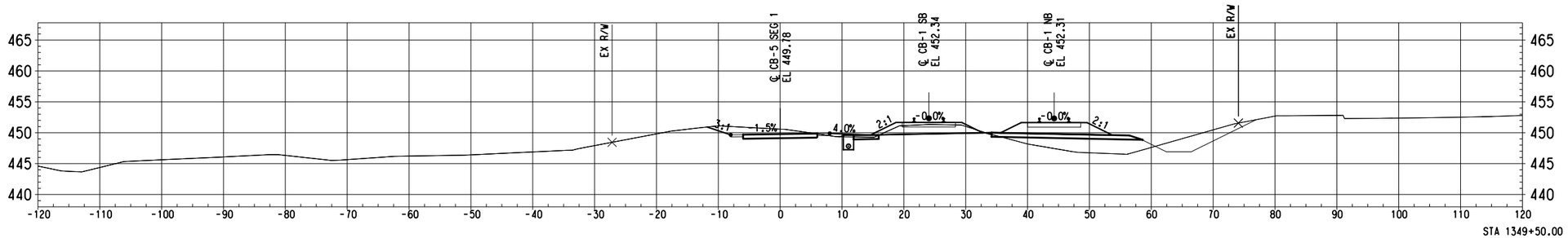
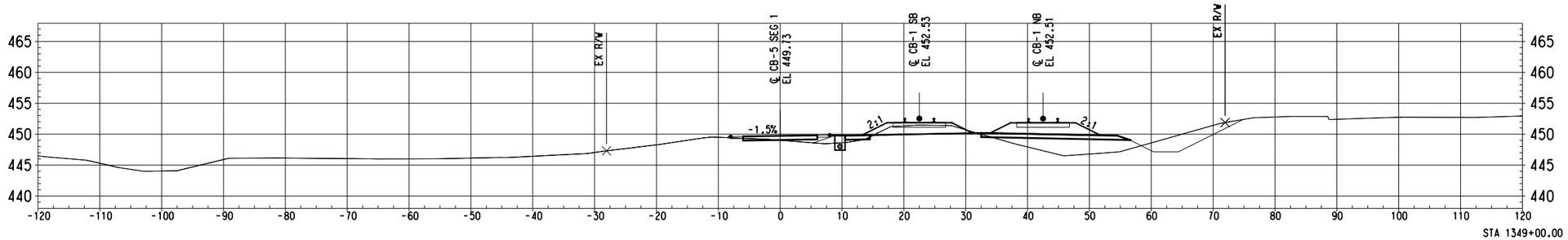
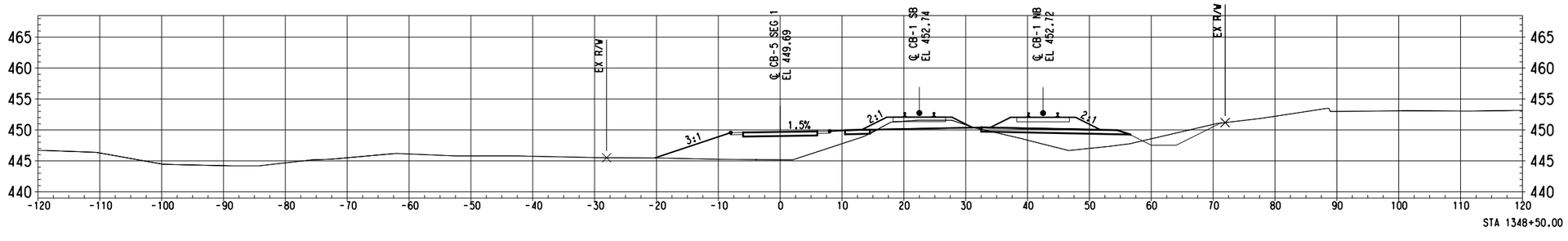
HORIZ SCALE (IN FEET) 0 5 10 20
VERT SCALE (IN FEET) 0 5 10 20









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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 102 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6421	D

DWG No. CC1-6422

NOTE:
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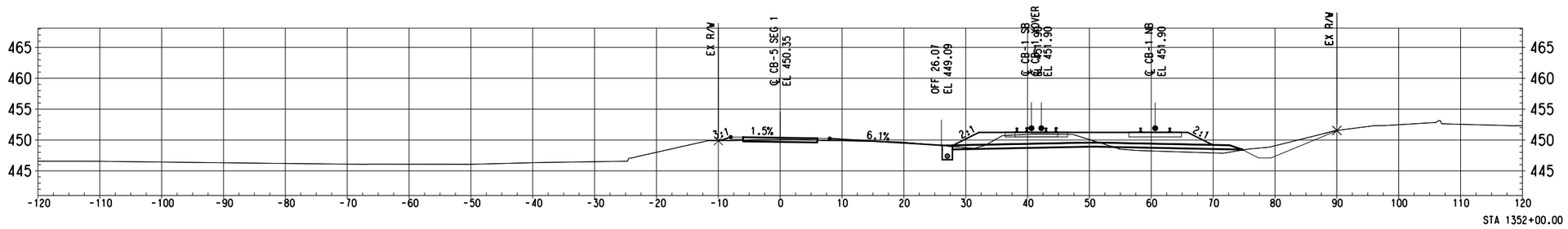
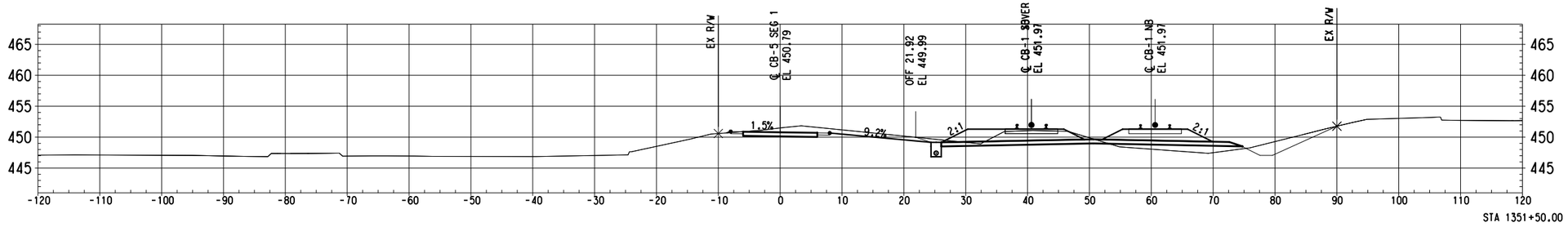
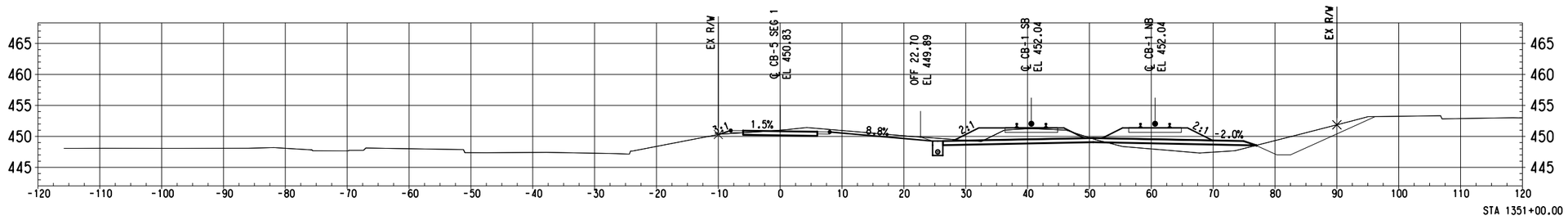
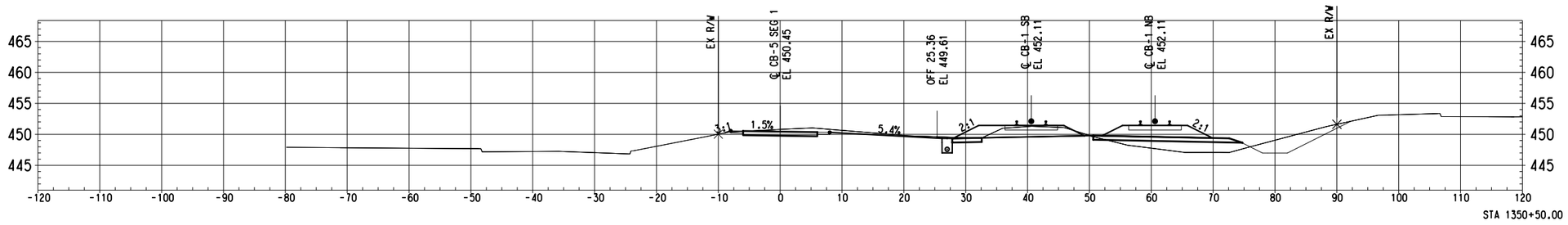
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 103 OF 106

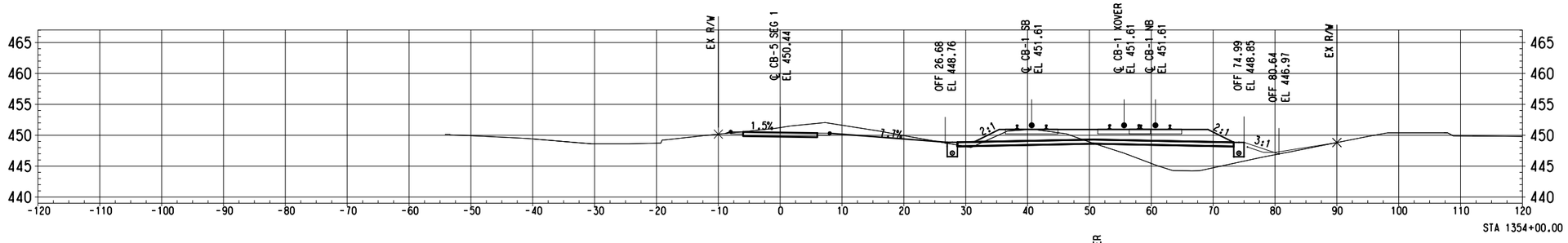
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6422	D

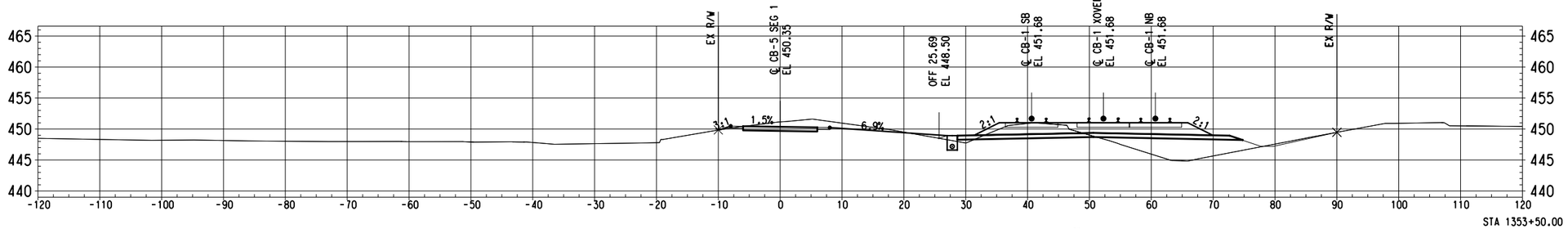
DWG No. CC1-6423

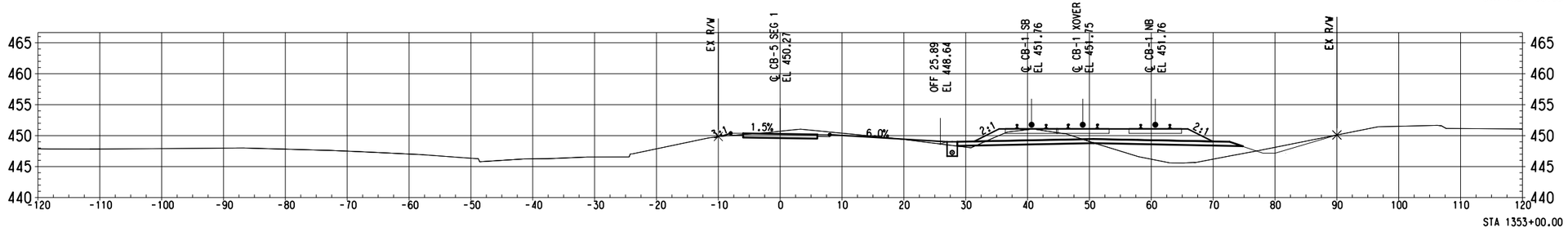
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

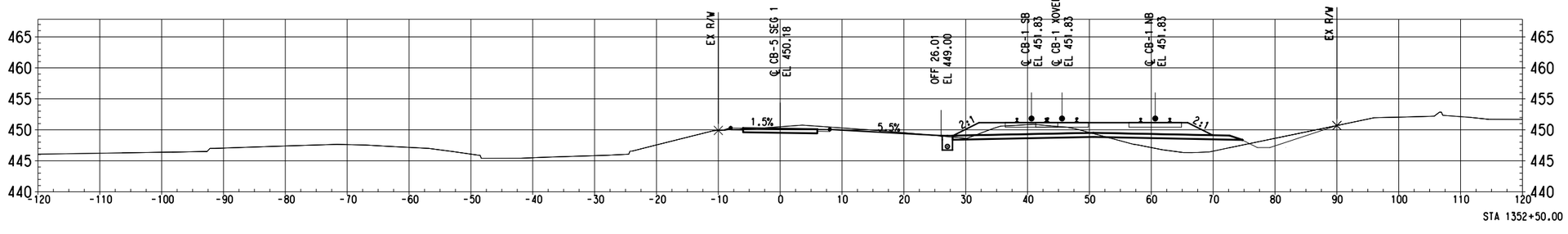
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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FINAL 100% DESIGN

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966
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12801 N Central Expressway, Suite 1250
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(214) 739-3152 Fax (214) 739-3169
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SCALE	AS NOTED
DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 208 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 104 OF 106

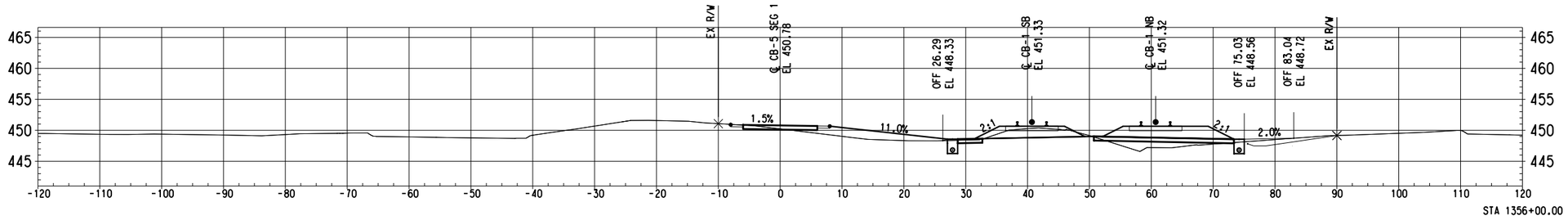
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6423	D

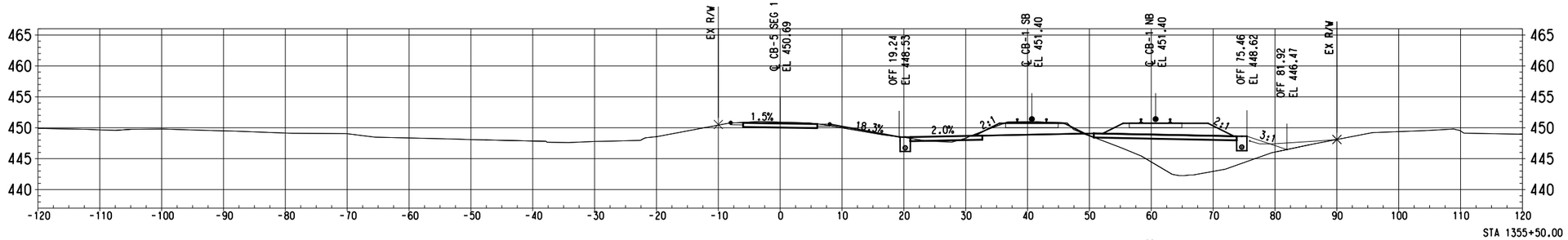
DWG No. CC1-6424

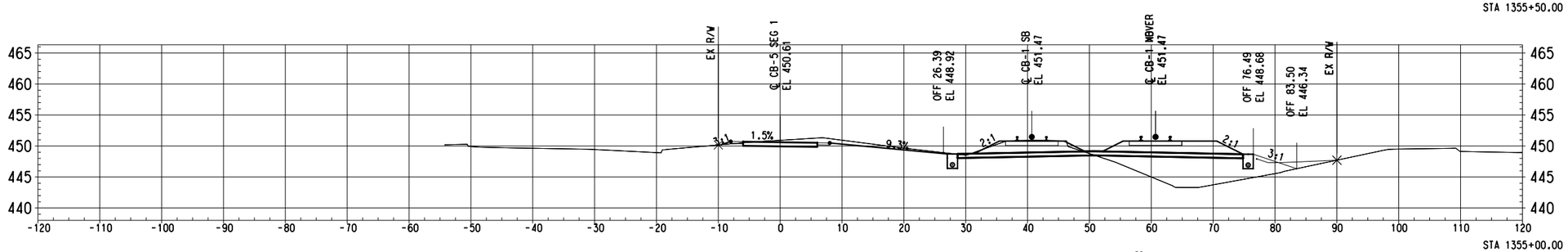
NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

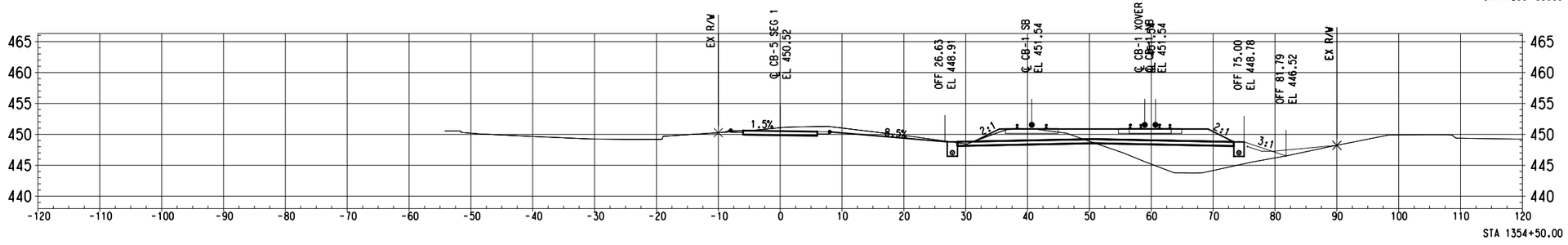
HORIZ SCALE (IN FEET) 0 5 10 20

VERT SCALE (IN FEET) 0 5 10 20









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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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Phone: +1 (214) 638-0145
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ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
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DRAWN	S. SALEH
DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 209 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 105 OF 106

CONTRACT	DWG No.	REV
C-2033270-01	CC1-6424	D

DWG No. CC1-6425

NOTE:
SEE PLAN AND PROFILE SHEETS FOR FENCE AND RIP RAP LOCATIONS AND LIMITS

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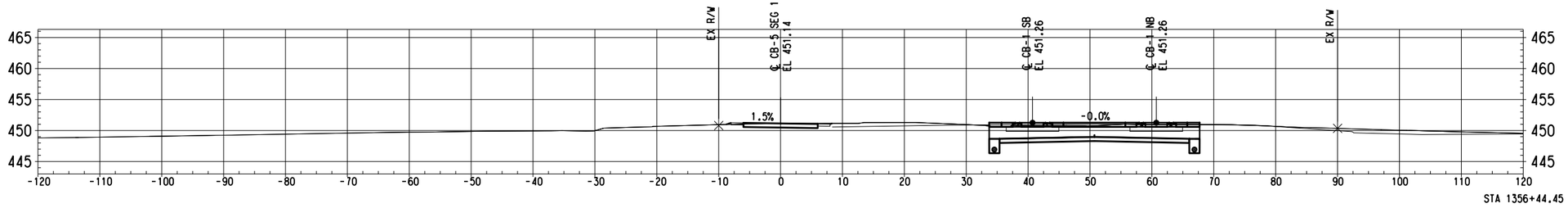
VERT SCALE (IN FEET) 0 5 10 20



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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
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ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
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DESIGNED	S. SALEH
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

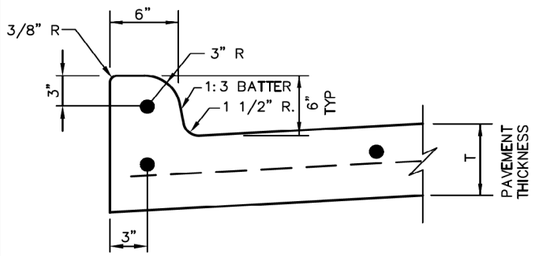
CONTRACT SHEET No. 210 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CROSS SECTIONS
SHEET 106 OF 106

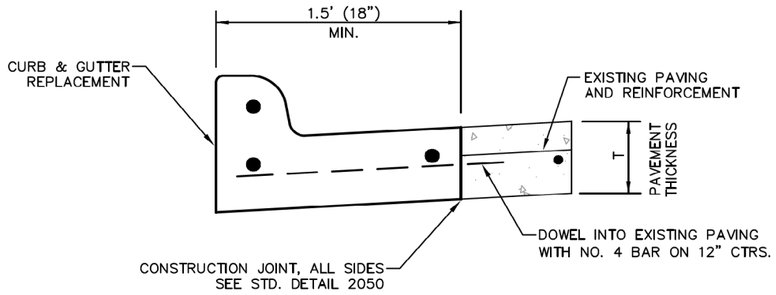
CONTRACT	DWG No.	REV
C-2033270-01	CC1-6425	D

DWG No. CC1-0069



INTEGRAL CURB AND GUTTER

N.T.S.



CURB AND GUTTER REPAIR

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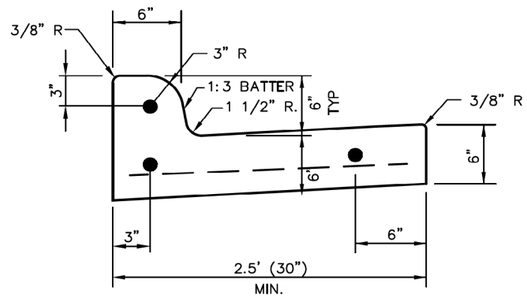

SEPARATE CURB & GUTTER

N.T.S.

NOTES:

1. REINFORCEMENT SHALL BE NO. 4 BARS UNLESS OTHERWISE SPECIFIED.
2. CONCRETE SHALL BE CLASS "C" 3600 PSI, UNLESS OTHERWISE SPECIFIED.

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE
1	ADD "3600 PSI" TO NOTE 2.	JB	APR. '19

THE CITY OF COPPELL TEXAS 1891

STANDARD CONSTRUCTION DETAILS

CONCRETE CURB AND GUTTER
INTEGRAL AND SEPARATE

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE: 303., 305.

STANDARD DETAIL: 2120

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CONTRACT SHEET No. 211 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CITY STANDARDS - CIVIL
SHEET 1 OF 9

CONTRACT	DWG No.	REV
C-2033270-01	CC1-0069	D

CB05-CC1-0069.001

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CB05-CC1-0069.001

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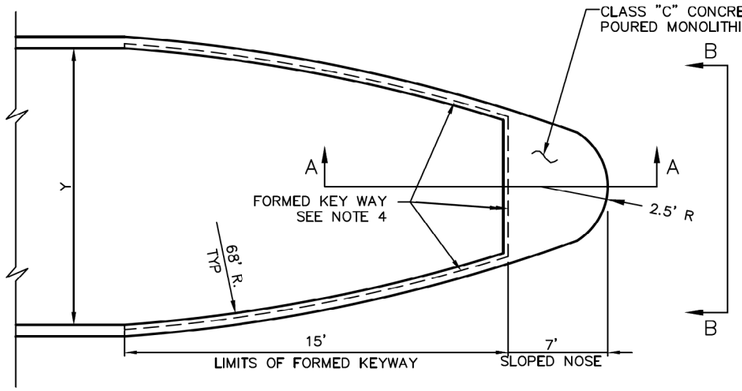
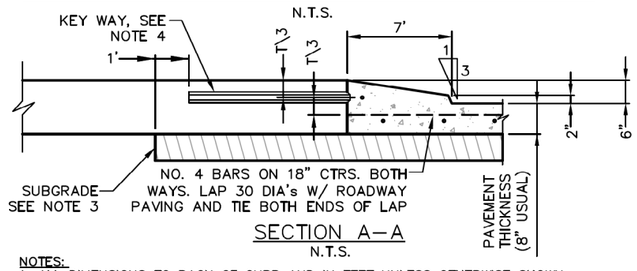
DWG No. CC1-0070



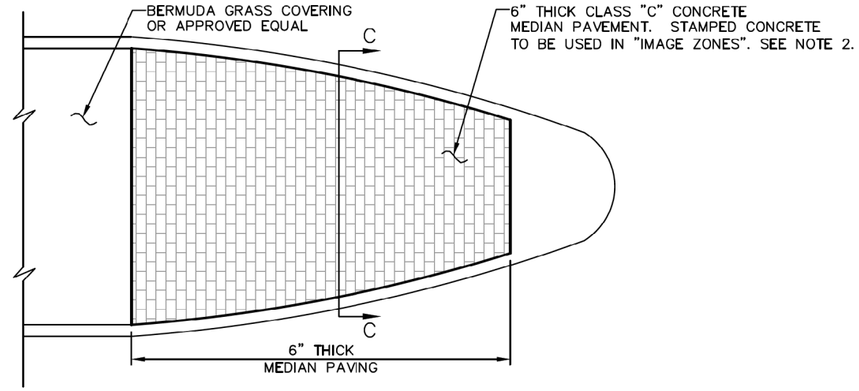
CONCRETE NOSE FOR MEDIAN ISLAND, FIRST POUR

N.T.S.



SECTION A–A

N.T.S.



CONCRETE NOSE FOR MEDIAN ISLAND, SECOND POUR

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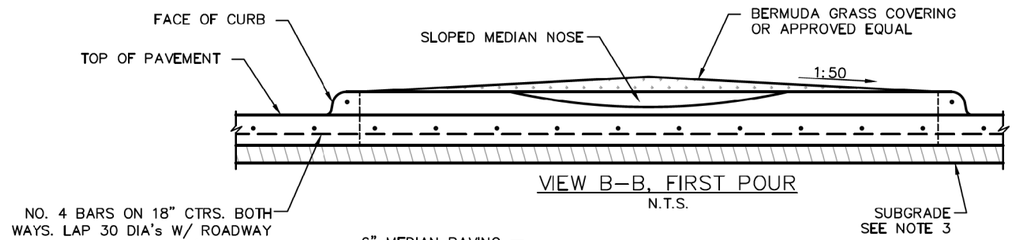
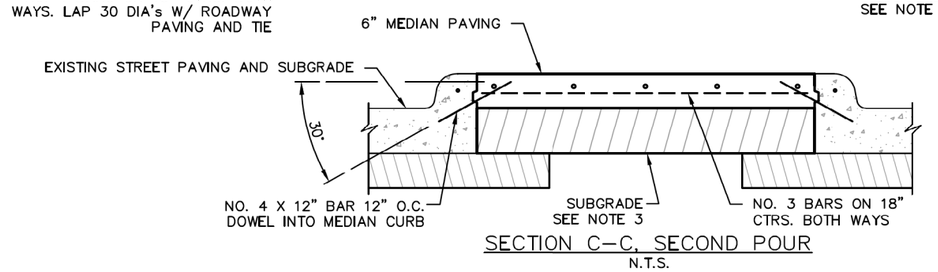


VIEW B–B, FIRST POUR

N.T.S.



SECTION C–C, SECOND POUR

N.T.S.

NOTES:

1. ALL DIMENSIONS TO BACK OF CURB AND IN FEET UNLESS OTHERWISE SHOWN
2. STAMPED, COLORED CONCRETE MEDIAN PAVING SHALL BE USED IN CONSTRUCTION LOCATIONS DESIGNATED AS "IMAGE ZONES" BY THE STREETSCAPE PLAN SECTION OF THE CITY OF COPPELL SUBDIVISION ORDINANCE AND THE CITY OF COPPELL STAMPED CONCRETE ORDINANCE 2002–979. STANDARD CONCRETE MEDIAN PAVING SHALL BE USED IN LOCATIONS THAT ARE NOT DESIGNATED AS "IMAGE ZONES".
3. SUBGRADE (MIN. REQUIREMENTS–UNLESS OTHERWISE APPROVED BY CITY ENGINEER). SUBGRADE UNDER ALL PAVEMENT SHALL BE INITIALLY MIXED 8" THICK AND RE–MIXED 6" THICK AND SHALL BE STABILIZED WITH 6% MIN. BY WEIGHT OF HYDRATED LIME (GENERALLY ±40 LBS./S.Y.) AND COMPACTED TO A DENSITY NOT LESS THAN 95% STANDARD PROCTOR DENSITY. ALTERNATIVE SUBGRADES, SUPPORTED BY LABORATORY TESTS, MAY BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.
4. SEE STANDARD CONSTRUCTION DETAIL 2050 FOR KEY WAY DIMENSIONS

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE

THE CITY OF COPPELL TEXAS 1891

STANDARD CONSTRUCTION DETAILS

MEDIAN ISLAND PAVEMENT
MEDIAN ISLAND WITH SLOPE-END NOSE

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE: 301., 303., 305.

STANDARD DETAIL: 2140

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CONTRACT SHEET No. 212 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
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IN CHARGE	
DATE	

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CITY STANDARDS - CIVIL
SHEET 2 OF 9

CONTRACT	DWG No.	REV
C-2033270-01	CC1-0070	D

CB05-CC1-0070.001

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CB05-CC1-0070.001
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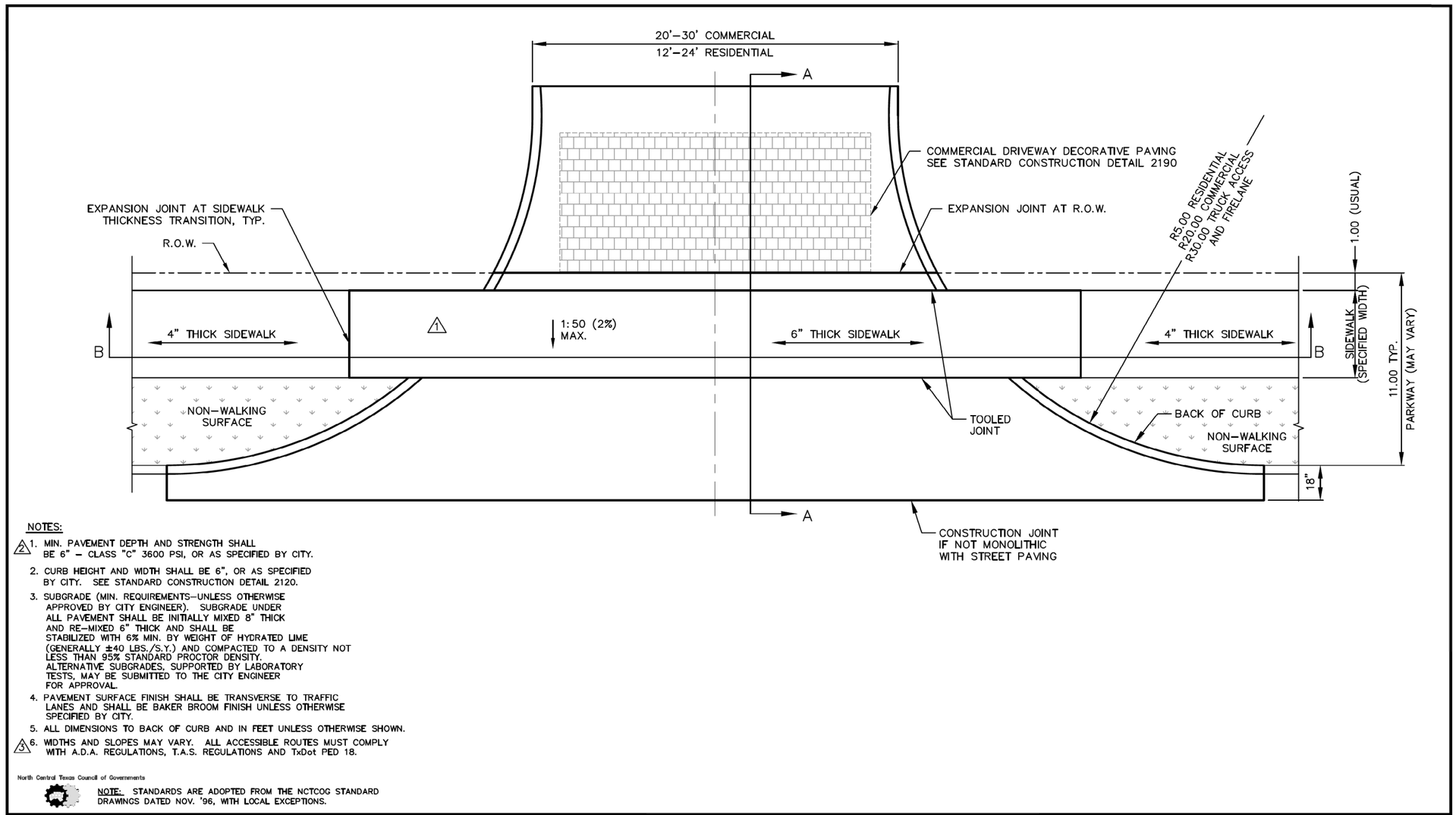
Default

DWG No. CC1-0071



NOTES:

1. MIN. PAVEMENT DEPTH AND STRENGTH SHALL BE 6" – CLASS "C" 3600 PSI, OR AS SPECIFIED BY CITY.
2. CURB HEIGHT AND WIDTH SHALL BE 6", OR AS SPECIFIED BY CITY. SEE STANDARD CONSTRUCTION DETAIL 2120.
3. SUBGRADE (MIN. REQUIREMENTS–UNLESS OTHERWISE APPROVED BY CITY ENGINEER). SUBGRADE UNDER ALL PAVEMENT SHALL BE INITIALLY MIXED 8" THICK AND RE–MIXED 6" THICK AND SHALL BE STABILIZED WITH 6% MIN. BY WEIGHT OF HYDRATED LIME (GENERALLY ±40 LBS./S.Y.) AND COMPACTED TO A DENSITY NOT LESS THAN 95% STANDARD PROCTOR DENSITY. ALTERNATIVE SUBGRADES, SUPPORTED BY LABORATORY TESTS, MAY BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.
4. PAVEMENT SURFACE FINISH SHALL BE TRANSVERSE TO TRAFFIC LANES AND SHALL BE BAKER BROOM FINISH UNLESS OTHERWISE SPECIFIED BY CITY.
5. ALL DIMENSIONS TO BACK OF CURB AND IN FEET UNLESS OTHERWISE SHOWN.
6. WIDTHS AND SLOPES MAY VARY. ALL ACCESSIBLE ROUTES MUST COMPLY WITH A.D.A. REGULATIONS, T.A.S. REGULATIONS AND TxDot PED 18.

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE
3	ADD "TxDot PED 18" TO NOTE 6.	JB	APR. '19
2	ADD "3600 PSI" TO NOTE 1.	JB	APR. '19
1	DELETED DETECTABLE WARNING AND CALLOUT.	JB	APR. '19

THE CITY OF COPPELL
TEXAS

STANDARD CONSTRUCTION DETAILS

DRIVEWAY APPROACH
TYPE "A"

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE
301., 303., 305.

STANDARD DETAIL
2150-1

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CONTRACT SHEET No. 213 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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Phone: +1 (214) 638-0145
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12801 N Central Expressway, Suite 1250
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CITY STANDARDS - CIVIL
SHEET 3 OF 9

CONTRACT	DWG No.	REV
C-2033270-01	CC1-0071	D

CB05-CC1-0071.001

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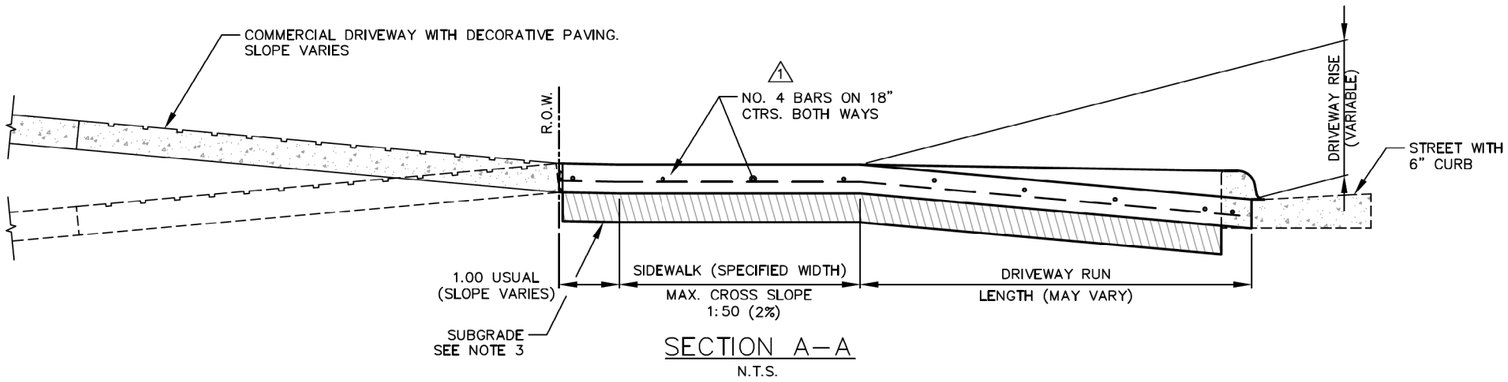
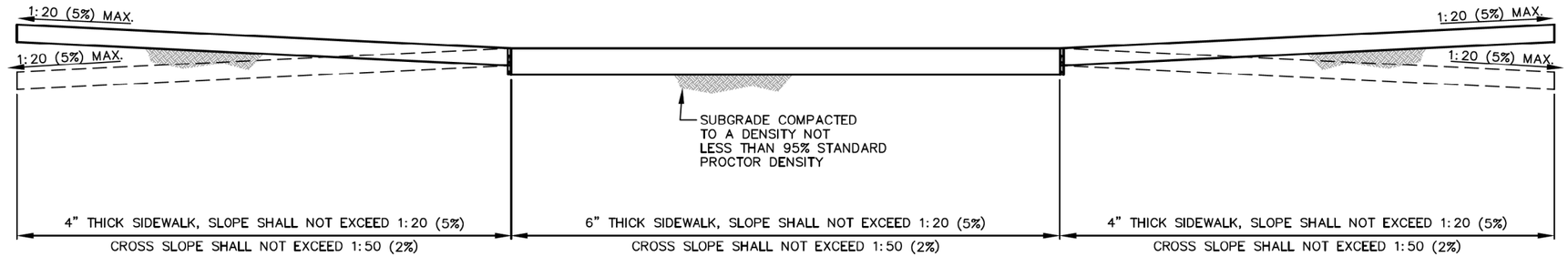
DWG No. CC1-0072



SECTION A–A
N.T.S.



SECTION B–B
N.T.S.

NOTES: 2

1. MIN. PAVEMENT DEPTH AND STRENGTH SHALL BE 6" – CLASS "C" 3600 PSI, OR AS SPECIFIED BY CITY.
2. CURB HEIGHT AND WIDTH SHALL BE 6", OR AS SPECIFIED BY CITY. SEE STANDARD CONSTRUCTION DETAIL 2120.
3. SUBGRADE (MIN. REQUIREMENTS–UNLESS OTHERWISE APPROVED BY CITY ENGINEER). SUBGRADE UNDER ALL PAVEMENT SHALL BE INITIALLY MIXED 8" THICK AND RE–MIXED 6" THICK AND SHALL BE STABILIZED WITH 6% MIN. BY WEIGHT OF HYDRATED LIME (GENERALLY ±40 LBS./S.Y.) AND COMPACTED TO A DENSITY NOT LESS THAN 95% STANDARD PROCTOR DENSITY. ALTERNATIVE SUBGRADES, SUPPORTED BY LABORATORY TESTS, MAY BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE
2	ADD "3600 PSI" TO NOTE 1.	JB	APR. '19
1	CHANGED REINFORCEMENT FROM NO. 3 BARS TO NO. 4 BARS.	SWL	JUL. '19

THE CITY OF COPPELL
TEXAS 1891

STANDARD CONSTRUCTION DETAILS	STD. SPEC. REFERENCE
DRIVEWAY APPROACH TYPE "A"	301., 303., 305.
CITY OF COPPELL DALLAS COUNTY, TEXAS	STANDARD DETAIL 2150-2

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CONTRACT SHEET No. 214 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
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VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CITY STANDARDS - CIVIL
SHEET 4 OF 9

CONTRACT C-2033270-01 | DWG No. CC1-0072 | REV D

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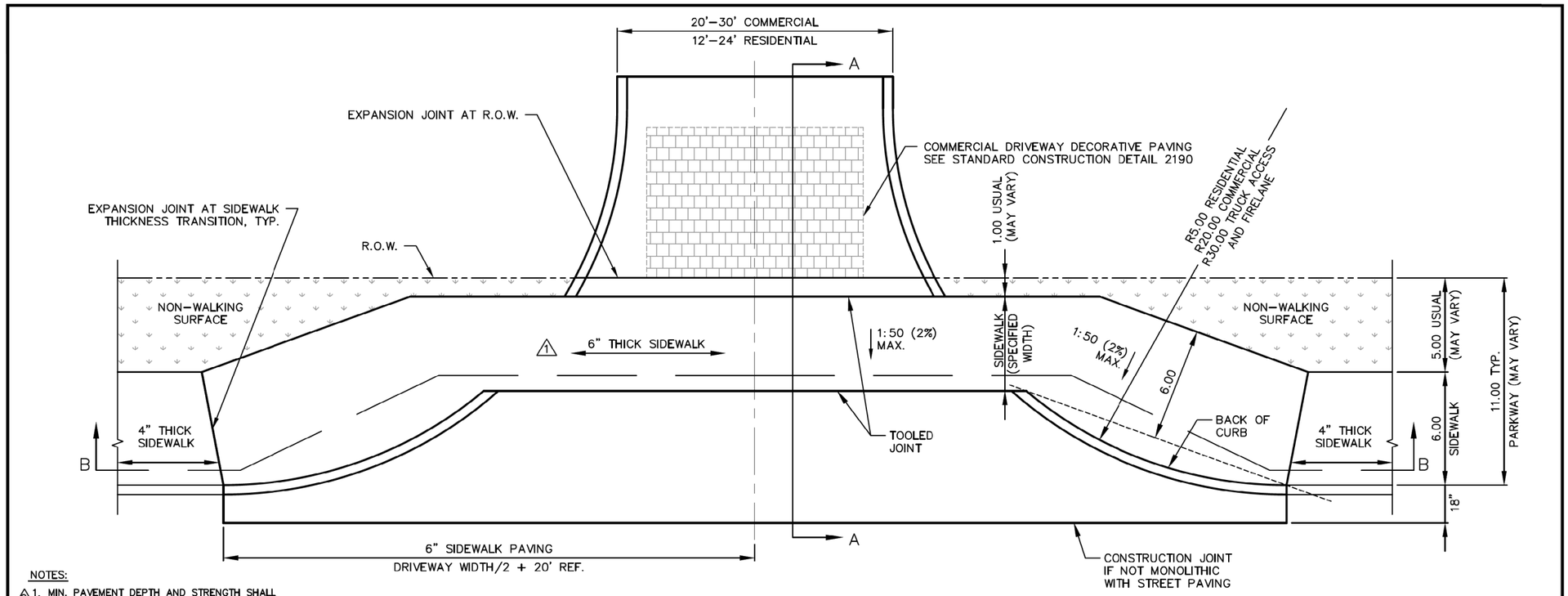
DWG No. CC1-0073



NOTES:

1. 1 MIN. PAVEMENT DEPTH AND STRENGTH SHALL BE 6" – CLASS "C" 3600 PSI, OR AS SPECIFIED BY CITY.
2. CURB HEIGHT AND WIDTH SHALL BE 6", OR AS SPECIFIED BY CITY. SEE STANDARD CONSTRUCTION DETAIL 2120.
3. SUBGRADE (MIN. REQUIREMENTS–UNLESS OTHERWISE APPROVED BY CITY ENGINEER). SUBGRADE UNDER ALL PAVEMENT SHALL BE INITIALLY MIXED 8" THICK AND RE–MIXED 6" THICK AND SHALL BE STABILIZED WITH 6% MIN. BY WEIGHT OF HYDRATED LIME (GENERALLY ±40 LBS./S.Y.) AND COMPACTED TO A DENSITY NOT LESS THAN 95% STANDARD PROCTOR DENSITY. ALTERNATIVE SUBGRADES, SUPPORTED BY LABORATORY TESTS, MAY BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.
4. PAVEMENT SURFACE FINISH SHALL BE TRANSVERSE TO TRAFFIC LANES AND SHALL BE BAKER BROOM FINISH UNLESS OTHERWISE SPECIFIED BY CITY.
5. ALL DIMENSIONS TO BACK OF CURB AND IN FEET UNLESS OTHERWISE SHOWN.
6. 3 WIDTHS AND SLOPES MAY VARY. ALL ACCESSIBLE ROUTES MUST COMPLY WITH A.D.A. REGULATIONS, T.A.S. REGULATIONS AND TxDot PED 18.

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE
3	ADD "TxDot PED 18" TO NOTE 6.	JB	APR. '19
2	ADD "3600 PSI" TO NOTE 1.	JB	APR. '19
1	DELETED DETECTABLE WARNING AND CALLOUT.	JB	APR. '19

THE CITY OF COPPELL TEXAS USA

STANDARD CONSTRUCTION DETAILS

DRIVEWAY APPROACH
TYPE "B"

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE
301., 303., 305.

STANDARD DETAIL
2155-1

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 215 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

Jacobs
1999 BRYAN ST. SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
FIRM NO. F-819

ARCHER WESTERN HERZOG

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DRAWN
DESIGNED
CHECKED
IN CHARGE
DATE

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CITY STANDARDS - CIVIL
SHEET 5 OF 9

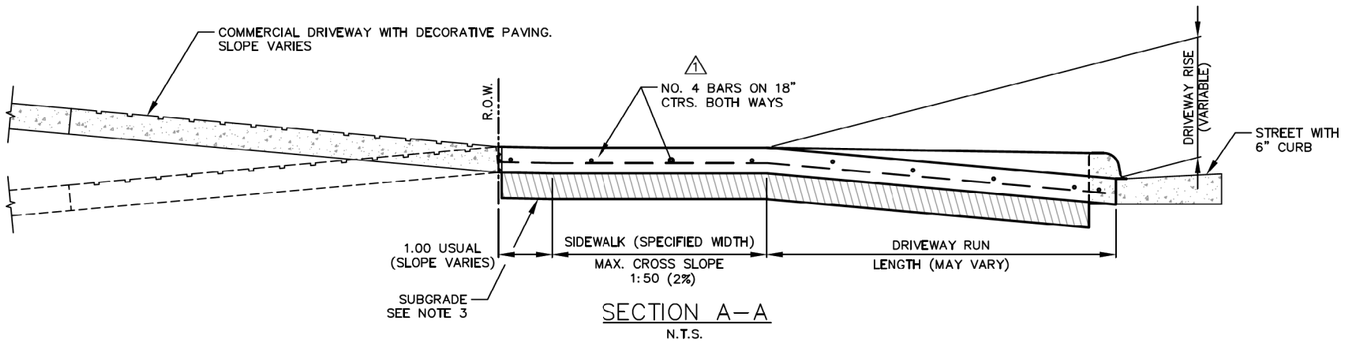
CONTRACT	DWG No.	REV
C-2033270-01	CC1-0073	D

CB05-CC1-0073.001

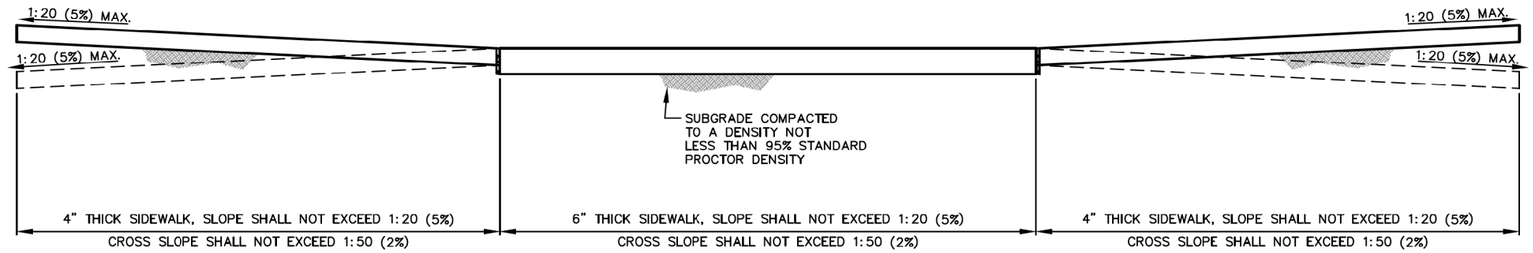
30-AUG-2023 16:53
CB05-CC1-0073.001

ssoleh
Default

DWG No. CC1-0074



SECTION A–A
N.T.S.



SECTION B–B
N.T.S.

NOTES: 2

1. MIN. PAVEMENT DEPTH AND STRENGTH SHALL BE 6" – CLASS "C" 3600 PSI, OR AS SPECIFIED BY CITY.
2. CURB HEIGHT AND WIDTH SHALL BE 6", OR AS SPECIFIED BY CITY. SEE STANDARD CONSTRUCTION DETAIL 2120.
3. SUBGRADE (MIN. REQUIREMENTS–UNLESS OTHERWISE APPROVED BY CITY ENGINEER). SUBGRADE UNDER ALL PAVEMENT SHALL BE INITIALLY MIXED 8" THICK AND RE–MIXED 6" THICK AND SHALL BE STABILIZED WITH 6% MIN. BY WEIGHT OF HYDRATED LIME (GENERALLY ±40 LBS./S.Y.) AND COMPACTED TO A DENSITY NOT LESS THAN 95% STANDARD PROCTOR DENSITY. ALTERNATIVE SUBGRADES, SUPPORTED BY LABORATORY TESTS, MAY BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE
2	ADD "3600 PSI" TO NOTE 1.	JB	APR. '19
1	CHANGED REINFORCEMENT FROM NO. 3 BARS TO NO. 4 BARS.	SWL	JUL. '19

THE CITY OF COPPELL

STANDARD CONSTRUCTION DETAILS

DRIVEWAY APPROACH
TYPE "B"

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE
301., 303., 305.

STANDARD DETAIL
2155-2

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 216 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
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IN CHARGE	
DATE	

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CITY STANDARDS - CIVIL
SHEET 6 OF 9

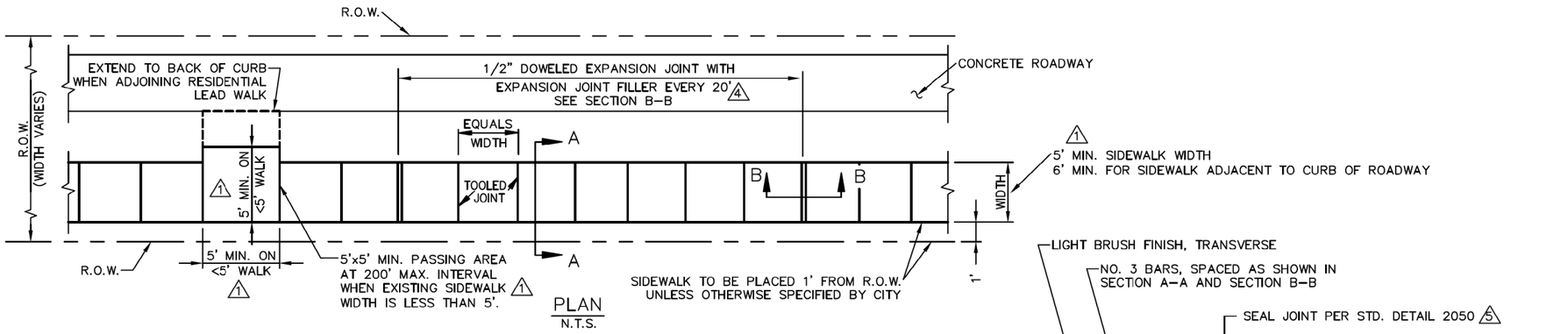
CONTRACT	DWG No.	REV
C-2033270-01	CC1-0074	D

CB05-CC1-0074.001

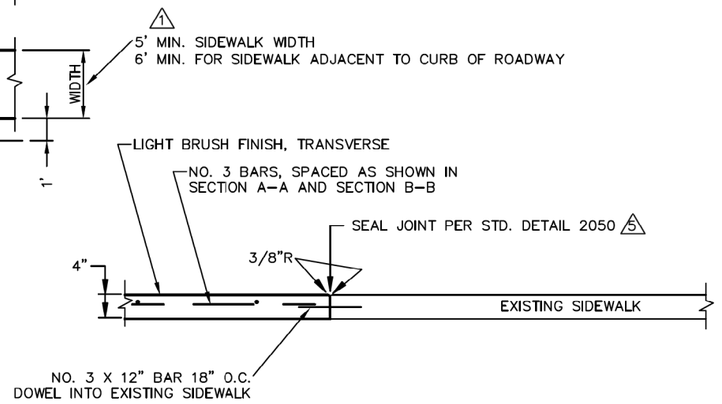
30-AUG-2023 16:53
CB05-CC1-0074.001

ssaleh
Default

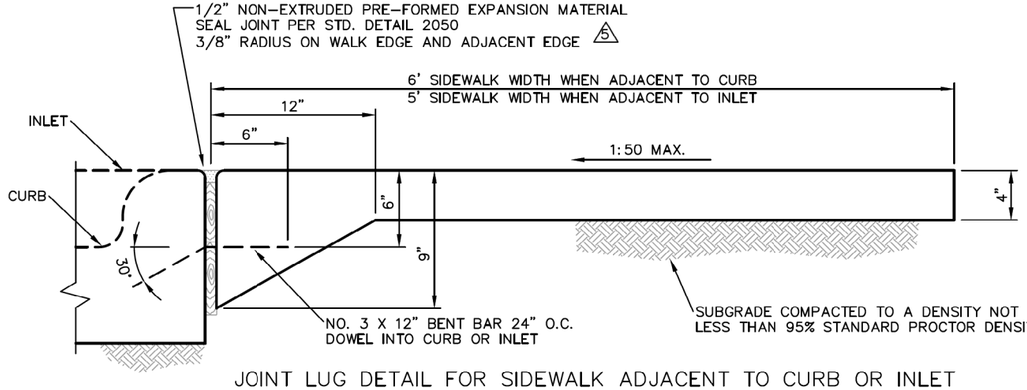
DWG No. CC1-0075



PLAN
N.T.S.

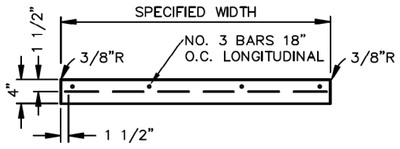


SIDEWALK REPAIR
N.T.S.

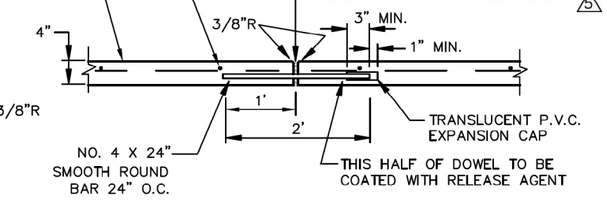


JOINT LUG DETAIL FOR SIDEWALK ADJACENT TO CURB OR INLET
N.T.S.

NOTE:
1. WIRE MESH REINFORCEMENT IS NOT PERMITTED.
2. CROSS SLOPE OF SIDEWALK SHALL BE 1:50 MAX.
1 3. SIDEWALK WIDTH OTHER THAN 5'–0" MAY BE SPECIFIED BY CITY.
2 4. SIDEWALK SHALL BE CLASS "A" 3000 PSI CONCRETE UNLESS OTHERWISE SPECIFIED BY CITY.
5. ALL HONEYCOMB IN BACK OF CURB SHALL BE TROWEL–PLASTERED BEFORE POURING SIDEWALK.
6. LUG MAY BE FORMED BY SHAPING SUBGRADE TO APPROXIMATE DIMENSIONS SHOWN.
7. SIDEWALK SURFACE FINISH SHALL BE TRANSVERSE TO DIRECTION OF TRAVEL AND SHALL BE LIGHT BROOM FINISH.
3 8. WIDTHS AND SLOPES MAY VARY. ALL ACCESSIBLE ROUTES MUST COMPLY WITH A.D.A. REGULATIONS, T.A.S. REGULATIONS AND TxDot PED 18.



SECTION A–A
N.T.S.



SECTION B–B
N.T.S.

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE
5	REFERRED TO STANDARD CONSTRUCTION DETAIL 2050 FOR JOINT SEALING	JB	APR. '19
4	CHANGED EXPANSION JOINT SPACING FROM 40' TO 20'	JB	APR. '19
3	ADD "TxDot PED 18" TO NOTE 8.	JB	APR. '19
2	ADD "3000 PSI" TO NOTE 4.	JB	APR. '19
1	CHANGED SIDEWALK MINIMUM WIDTH FROM 4' TO 5', UPDATED CALLOUTS AND DIMENSIONS ACCORDINGLY	SWL	OCT. '19

THE CITY OF COPPELL TEXAS 1891

STANDARD CONSTRUCTION DETAILS

REINFORCED CONCRETE SIDEWALK JOINTS AND SPACING

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE 305., 401.

STANDARD DETAIL 2170

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 217 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

Jacobs
1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
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DATE

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CITY STANDARDS - CIVIL
SHEET 7 OF 9

CONTRACT	DWG No.	REV
C-2033270-01	CC1-0075	D

CBD5-CC1-0075.001

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CBD5-CC1-0075.001
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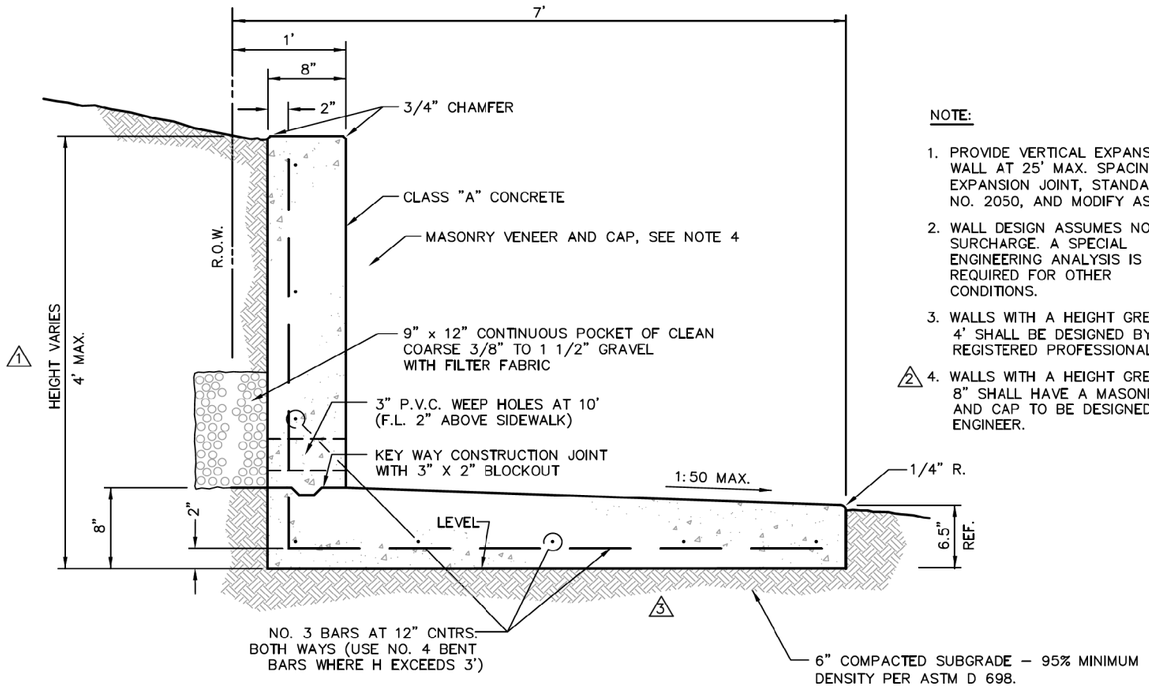
DWG No. CC1-0076



RETAINING WALL WITH INTEGRAL SIDEWALK

N.T.S.

NOTE:

1. PROVIDE VERTICAL EXPANSION IN WALL AT 25' MAX. SPACING (USE EXPANSION JOINT, STANDARD DRAWING NO. 2050, AND MODIFY AS REQUIRED)
2. WALL DESIGN ASSUMES NO SURCHARGE. A SPECIAL ENGINEERING ANALYSIS IS REQUIRED FOR OTHER CONDITIONS.
3. WALLS WITH A HEIGHT GREATER THAN 4' SHALL BE DESIGNED BY A TEXAS REGISTERED PROFESSIONAL ENGINEER.
2. 4. WALLS WITH A HEIGHT GREATER THAN 8" SHALL HAVE A MASONRY VENEER AND CAP TO BE DESIGNED BY PROJECT ENGINEER.

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE
3	DELETED CALLOUT FOR 1" OF CUSHION SAND UNDER SIDEWALK.	SWL	MAY '20
2	ADD NOTE 4.	JB	FEB. '20
1	CHANGED WALL HEIGHT DIMENSION TO MEASURE FROM BOTTOM OF FOUNDATION TO TOP OF WALL	CMSB	MAR. '20

THE CITY OF COPPELL

STANDARD CONSTRUCTION DETAILS

REINFORCED CONCRETE RETAINING WALL INTEGRAL WITH SIDEWALK

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE 303., 802.

STANDARD DETAIL 2180

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 218 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

Jacobs
1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CITY STANDARDS - CIVIL
SHEET 8 OF 9

CONTRACT	DWG No.	REV
C-2033270-01	CC1-0076	D

CB05-CC1-0076.001

30-AUG-2023 16:53
CB05-CC1-0076.001

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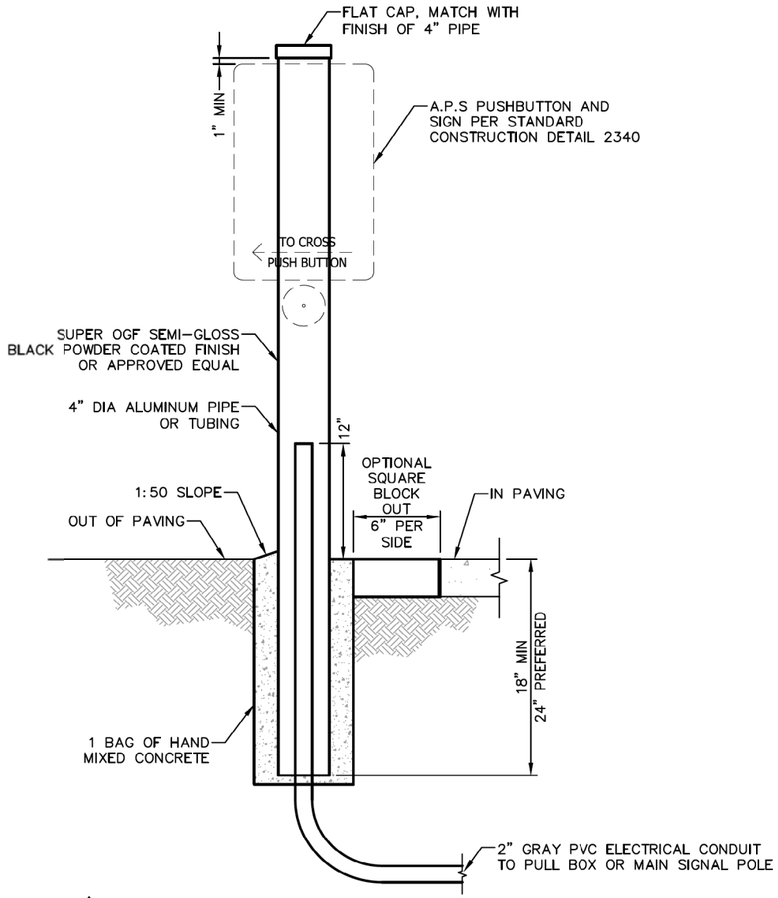
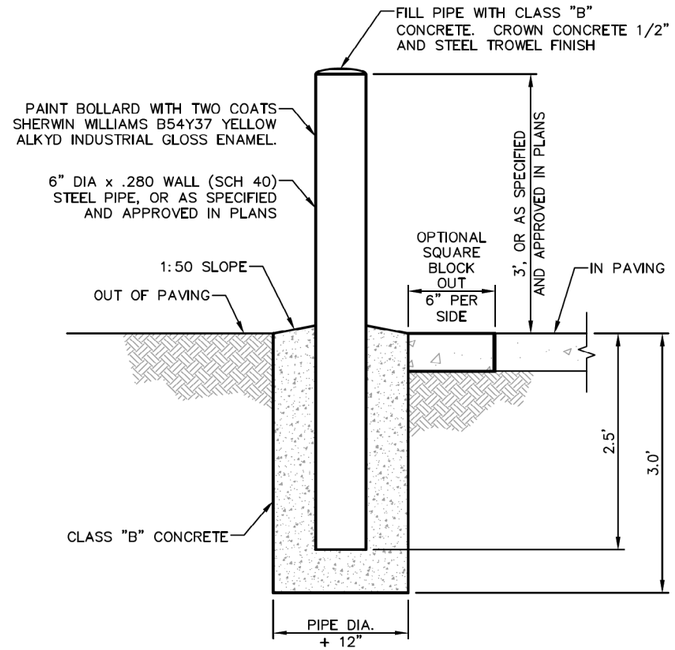
Default

DWG No. CC1-0077



⚠1 DIRECT BURY A.P.S POLE AND BASE

N.T.S.



PIPE BOLLARD AND BASE

N.T.S.

NOTE:
FOR SIGNAGE DETAILS, SEE LATEST TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (T.M.U.T.C.D.).

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE
⚠1	ADD DIRECT BURY A.P.S. POLE AND BASE DETAIL.	SWL	FEB. '16

THE CITY OF COPPELL TEXAS 1891

STANDARD CONSTRUCTION DETAILS

POURED CONCRETE BASE
BOLLARD AND DIRECT BURY POLE

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE
702., 806.

STANDARD DETAIL
2330

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FINAL 100% DESIGN

CONTRACT SHEET No. 219 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
(214) 739-3152 Fax (214) 739-3169
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
CITY STANDARDS - CIVIL
SHEET 9 OF 9

CONTRACT	DWG No.	REV
C-2033270-01	CC1-0077	D

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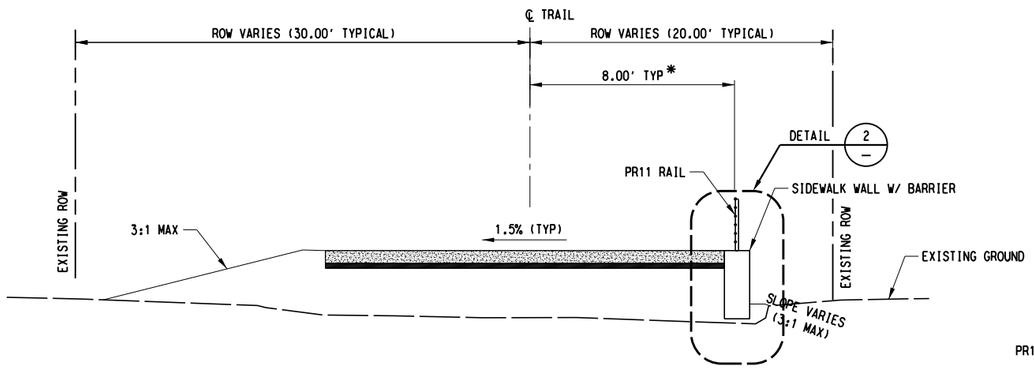
DWG No. CC1-0080



SIDEWALK WALL DETAIL 1
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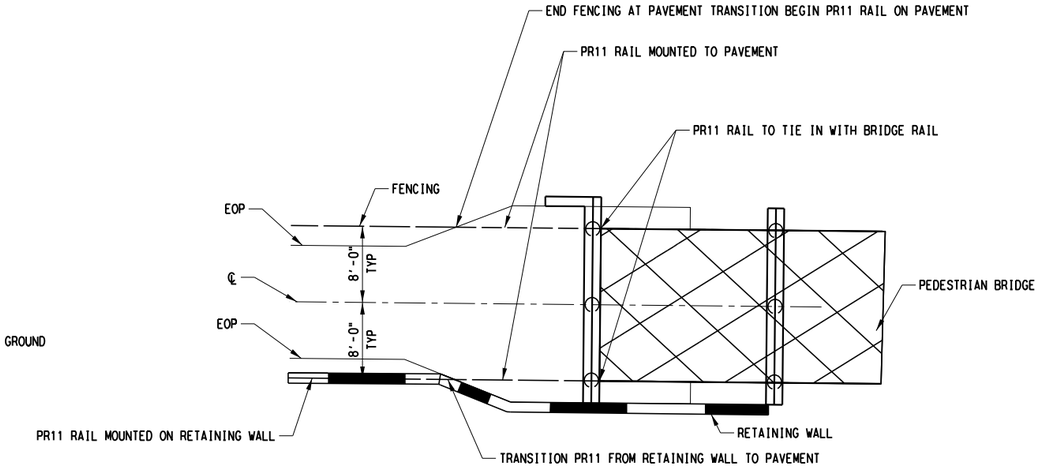


TYPICAL RAIL TREATMENT AT BRIDGE APPROACH
NO SCALE

GENERAL NOTES:

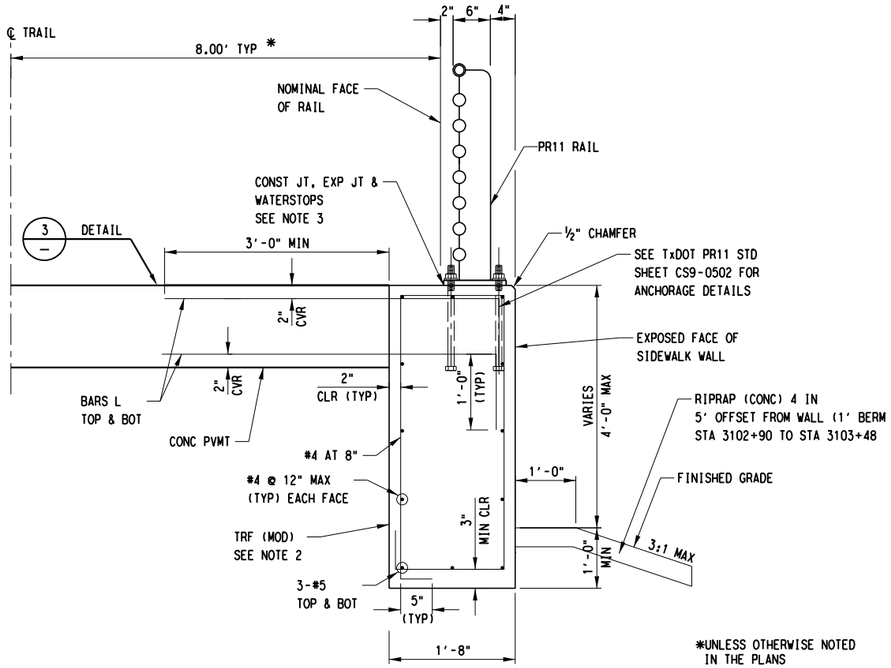
1 PEDESTRIAN RAIL PR11 (TXDOT STANDARD PEDESTRIAN RAIL TYPE PR11).

2 SEE TXDOT STD TRF FOR ADDITIONAL DETAILS.

3 SEE TXDOT STD DWG RW 2 FOR CONSTRUCTION JOINT, EXPANSION JOINT AND WATERSTOP DETAILS. PROVIDE CONSTRUCTION JOINTS AT 32' SPACING AND EXPANSION JOINTS AT 96' SPACING.

4 CLASS "C" CONCRETE: MIN F'C = 3,600 PSI.

5 REINFORCING STEEL GRADE 60.



SIDEWALK WALL DETAIL 2
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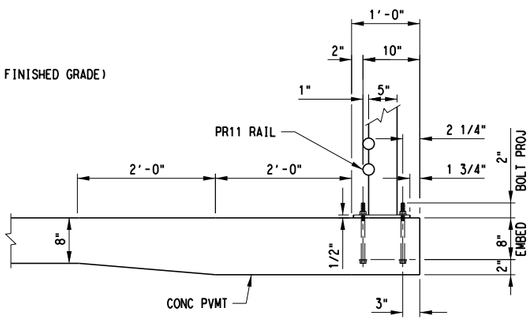

PAVEMENT TRANSITION DETAIL
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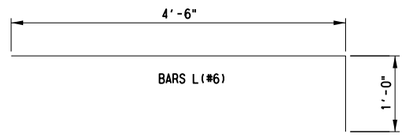

SIDEWALK WALL DETAIL 3
NO SCALE

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 220 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

IN-PROGRESS REVIEW
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:
DANNY LUU, P.E., 91884
ON
30-AUG-2023 16:54
ARS
TBPELS FIRM NO. F-819/10131900
IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

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1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
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ARS ENGINEERS, INC.
12801 N Central Expressway, Suite 1250
Dallas, Texas 75243
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SCALE	NO SCALE
DRAWN	C. BAGBY
DESIGNED	C. BAGBY
CHECKED	D. LUU
IN CHARGE	D. LUU
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CIVIL DETAILS

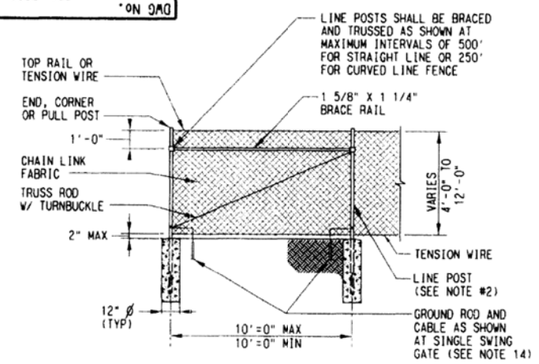
CONTRACT	DWG No.	REV
C-2033270-01	CC1-0080	D

CB05-CC1-0080.001

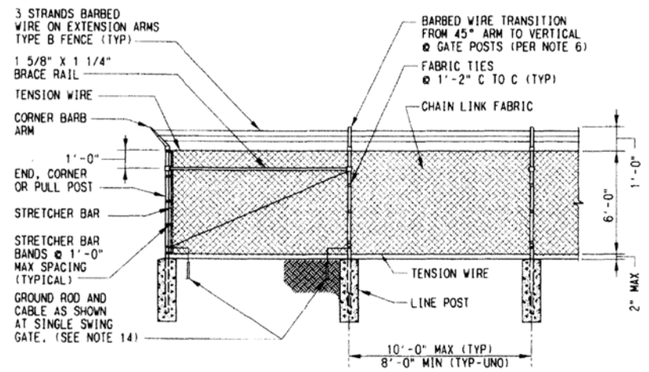
30-AUG-2023 16:54
CB05-CC1-0080.001

ssaleh
RW Plan 11

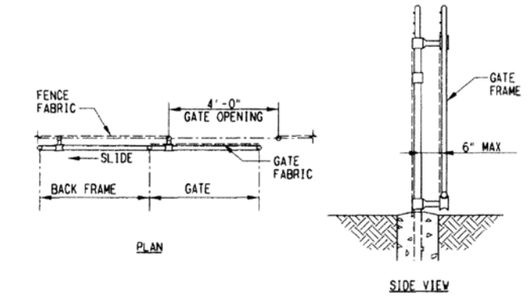
DWG No. CS1-0008



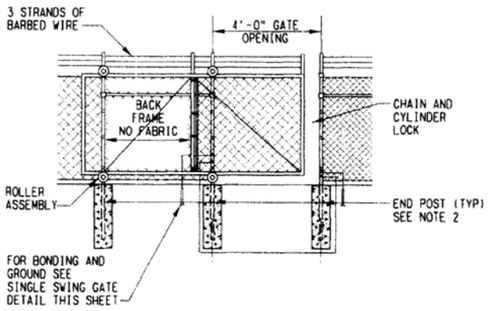
1 — TYPE A AND A-1 FENCE
NTS



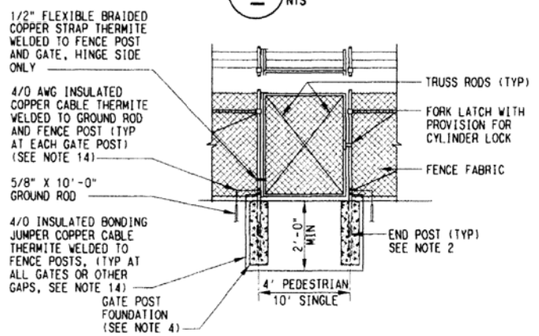
2 — TYPE B FENCE
NTS



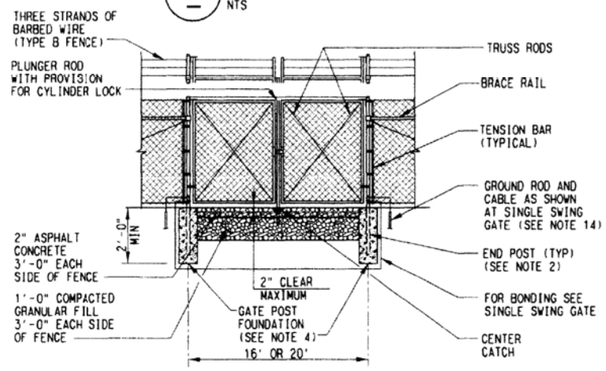
3 — SLIDING GATE
NTS



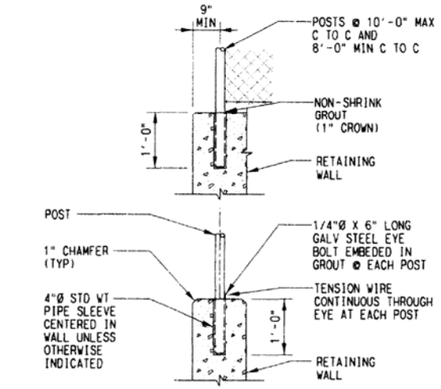
4 — SLIDING GATE ELEVATION
NTS



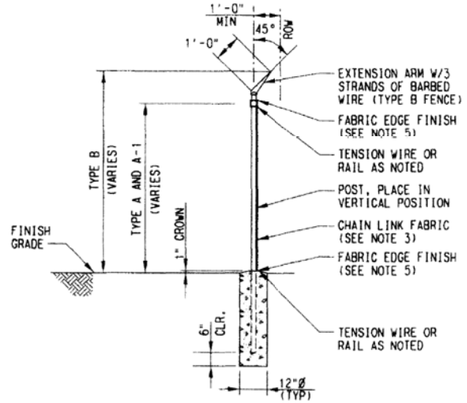
5 — SINGLE SWING GATE
NTS



6 — DOUBLE SWING GATE
NTS



7 — FENCE ON RETAINING WALL
NTS



8 — TYPICAL FENCE POST
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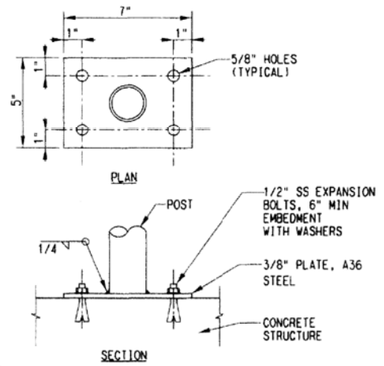

NOTE:
POST AND PLATE SHALL BE HOT DIPPED GALV AFTER FABRICATION.

9 — ALTERNATIVE FENCE/HANDRAIL POST MOUNTING
NTS

NOTES:

1. LOCATION OF FENCE AND GATES, GATE WIDTH AND DIRECTION OF SWING, AND ANY SPECIAL FEATURES NECESSARY FOR CONSTRUCTION SHALL BE SHOWN ON PLAN/PROFILE SHEETS..
2. FENCE POSTS FOR 6 FOOT HIGH FENCE TO BE AS FOLLOWS UNLESS OTHERWISE NOTED.
   LINE POST: 1 1/2" NPS GALVANIZED STEEL PIPE WEIGHING 2.72 LBS/FT. SET IN CONCRETE IN A HOLE 2'-6" DEEP AND 12 INCHES DIAMETER.
   TERMINAL, END POST AND CORNER POST: 2 1/2" NPS GALVANIZED STEEL PIPE WEIGHING 5.80 LBS/FT. SET IN CONCRETE IN A HOLE 3 FEET DEEP AND 12 INCHES IN DIAMETER.
   TOP RAIL: 1 1/4" NPS GALVANIZED STEEL PIPE WEIGHING 2.27 LBS/FT.
   POSTS FOR FENCES GREATER THAN 6 FEET IN HEIGHT TO BE AS NOTED ON OTHER DRAWINGS.
3. ALL FENCE FABRIC SHALL BE BARBED ON THE TOP EDGE AND SHALL BE GALVANIZED STEEL UNLESS OTHERWISE NOTED ON OTHER DRAWINGS.
4. THE CONTRACTOR SHALL CONSULT WITH THE GATE MANUFACTURER TO DETERMINE THE SIZE OF THE GATE POST FOUNDATION. THE FOUNDATION SIZE SHALL BE SHOWN ON THE SHOP DRAWINGS.
5. TYPE A AND B FENCE - TENSION WIRE AT TOP AND BOTTOM, FENCE TIED TO TENSION WIRE WITH HOG RINGS 2'-0" CENTER TO CENTER. TYPE A-1 FENCE- TOP RAIL AT TOP OF FENCE. FABRIC TIED TO TOP RAIL WITH TIE WIRES, AND SHALL HAVE ENDS TWISTED TOGETHER DURING INSTALLATION.
6. WHEN 3 STRAND BARBED WIRE IS TO BE ADDED TO TOP OF FENCE, POST EXTENSIONS AND BARBED WIRE ARMS ON THE GATES SHALL BE VERTICAL.
7. POSTS, RAILS AND RODS TO BE INSTALLED INSIDE OF FENCE FABRIC.
8. FENCE AND GATE POSTS AND FRAMES SHALL BE GROUNDED. SEE SPECIFICATIONS FOR FABRICATION, INSTALLATION, AND GROUNDING REQUIREMENTS FOR FENCING.
9. COAT ALL THERMITEE WELDS WITH COAL TAR EPOXY OR EQUIVALENT.
10. THE MINIMUM HEIGHT FOR TYPE B FENCE WITH BARBED WIRE IS SEVEN FEET.
11. LOCATE FENCE POSTS AS SHOWN ON CONTRACT DRAWINGS.
12. SEE ARCHITECTURAL STANDARDS FOR ADDITIONAL FENCING REQUIREMENTS.
13. REFER TO CONSTRUCTION PLANS FOR FABRIC SIZE, GAUGE AND FENCING LIMITS.
14. GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH NATIONAL ELECTRIC SAFETY CODE (IEEE C2-1990). GROUND RODS ARE REQUIRED AT EACH END POST, GATE POST, POWER LINE CROSSING (OVERHEAD OR UNDER-GROUND AND AT INTERVALS OF 150 FEET (MAXIMUM). A BURIED BONDING JUMPER IS REQUIRED AT EVERY GATE OR GAP.

TYPE	HEIGHT FENCE	TOP LINE	BOTTOM LINE	SELVAGE
A	4'-0" - 12'-0"	TENSION WIRE	TENSION WIRE	TWISTED AND BARBED TOP AND BOT.
A-1	4'-0" - 12'-0"	TOP RAIL	TENSION WIRE	TWISTED AND BARBED TOP AND BOT.
B	7'-0" MIN W/ BARBED WIRE	TENSION WIRE	TENSION WIRE	TWISTED AND BARBED TOP AND BOT.

FENCE CODE: (1) (2) (3) (4)
CL-6WA

(1) TYPE OF CHAIN LINK FABRIC:
CL = ZINC COATED STEEL
ACS = ALUMINUM COATED STEEL
ACL = ALUMINUM CLAD STEEL
AA = ALUMINUM ALLOY
PVC = POLY-VINYL COATED STEEL

(2) WIDTH OF FABRIC IN FEET/HEIGHT ERECTED

(3) TYPE OF TOP/BOTTOM SUPPORTS
W = TENSION WIRE
P = PIPE RAIL

(4) INCLINATION OF EXTENSION ARMS
A = AWAY FROM PROTECTED FACILITY
O = NO BARBED WIRE OR EXTENSION ARMS USED

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 221 OF 378
DWG NO. CS9-0102
CONTRACT NO. C-2033270-01
CONTRACT SHEET No. 13 OF 307

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

STATE OF TEXAS
B. N. REDDY CHIDANANDA
58001
LICENSED PROFESSIONAL ENGINEER
12/23/05

CONFORMED

ACT 21
CARTER BURGESS
JACOBS CIVIL INC
STV INCORPORATED
KAI ALLIANCE

DART PROJECT

DART

SCALE	NOT TO SCALE
DRAWN	B. SKINNER
DESIGNED	T. WILLIAMS
CHECKED	G. CELERIER
IN CHARGE	B.N. REDDY CHIDANANDA
DATE	30 NOV 05

CAES

CIVIL STANDARD

CHAIN LINK FENCE DETAILS SHEET 1 OF 2

CONTRACT	DWG No.	REV
	CS1-0008	0

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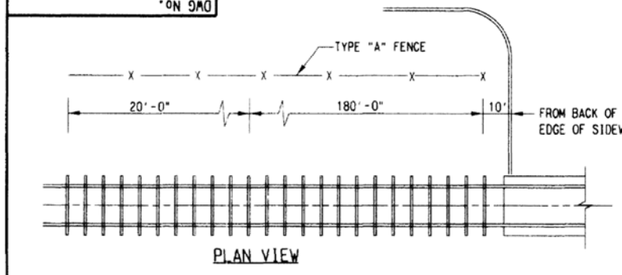
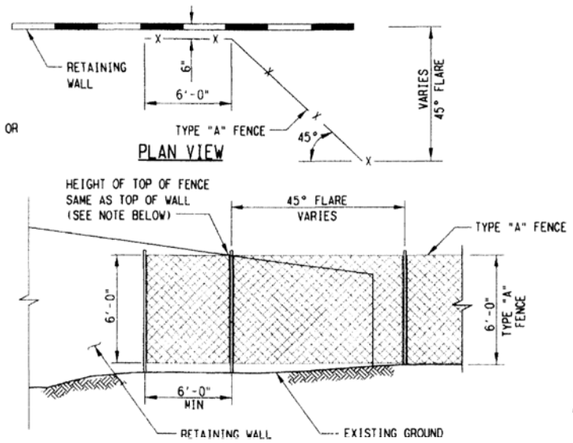
DWG No. CS1-0009



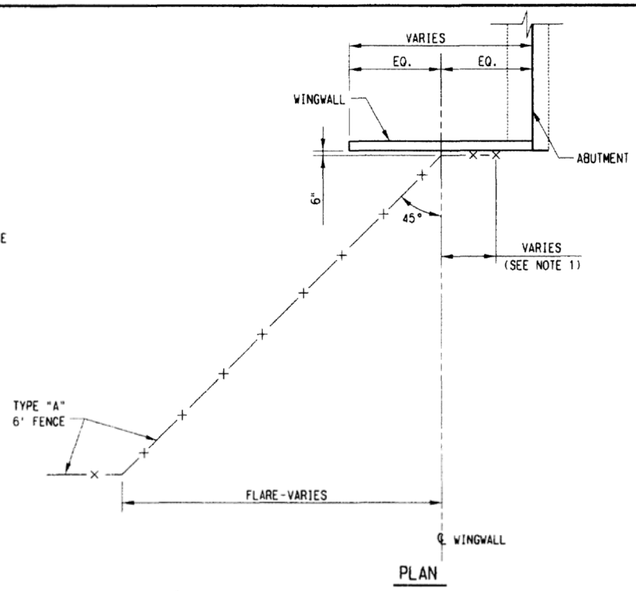
NOTE: FOR FENCES LOCATED WITHIN 50' OR LESS FROM NEAREST TRACK CENTER LINE.

FENCE TAPER AT GRADE CROSSINGS (1)
NTS



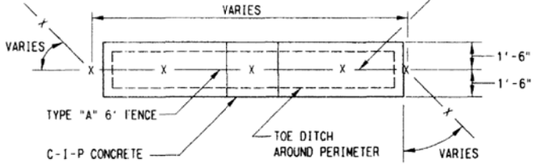
NOTE: FENCE SHALL EXTEND ALONG RETAINING WALL TO THE LOCATION WHERE THE WALL IS 6'-0" IN HEIGHT, MINIMUM, PLUS AN ADDITIONAL 6'-0".

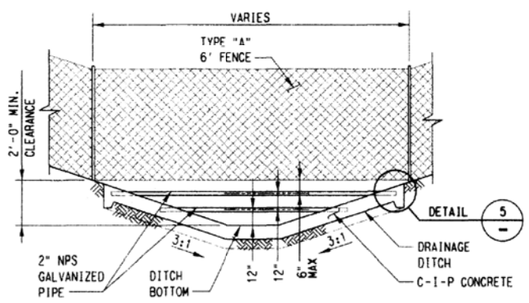
FENCE TERMINATION AT RETAINING WALL (2)
NTS



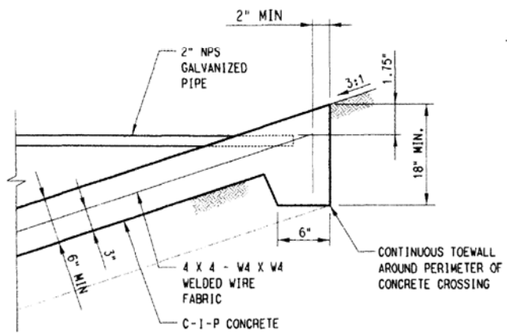
NOTE:

1. FENCE SHALL EXTEND DOWN SLOPE TO A POINT WHERE THE WING WALL IS AT LEAST 6'-0" HIGH.
2. 2" NPS GALVANIZED PIPE NOT SHOWN FOR CLARITY. PIPE ALIGNS UNDER FENCE.

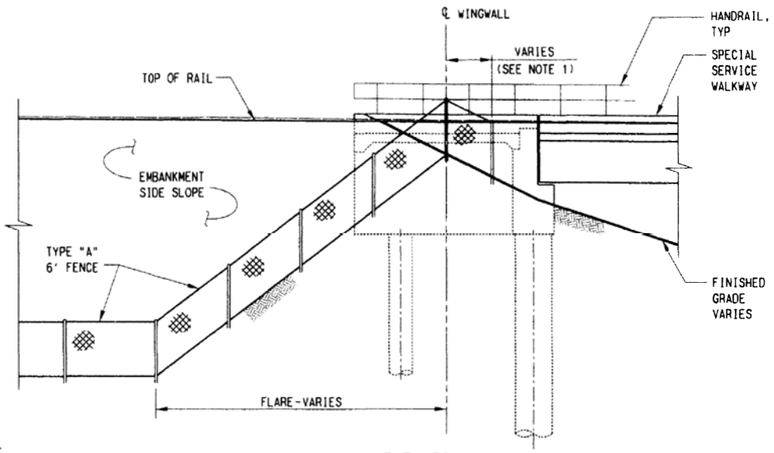




FENCE CROSSING OVER DRAINAGE DITCH (3)
NTS



DETAIL (5)
NTS



FENCE TERMINATION AT BRIDGE ABUTMENTS (4)
NTS

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 222 OF 378
DWG NO. CS9-0112
CONTRACT NO. C-2033270-01

CONTRACT SHEET No. 14 OF 307

REV	AMEND	CP	DATE	DESCRIPTION	BY	ENG	CHK	APP

STATE OF TEXAS — B. N. REDDY CHIDANANDA — 58001 — LICENSED PROFESSIONAL ENGINEER — 12/23/05

CARTER BURGESS
JACOBS CIVIL INC
STV INCORPORATED
KAI ALLIANCE

DART PROJECT

SCALE	NOT TO SCALE
DRAWN	B. SKINNER
DESIGNED	T. WILLIAMS
CHECKED	G. CELERIER
IN CHARGE	B.N. REDDY CHIDANANDA
DATE	30 NOV 05

CAES

CIVIL STANDARD

CHAIN LINK FENCE DETAILS SHEET 2 OF 2

CONTRACT	DWG No.	REV
	CS1-0009	0

CONFORMED

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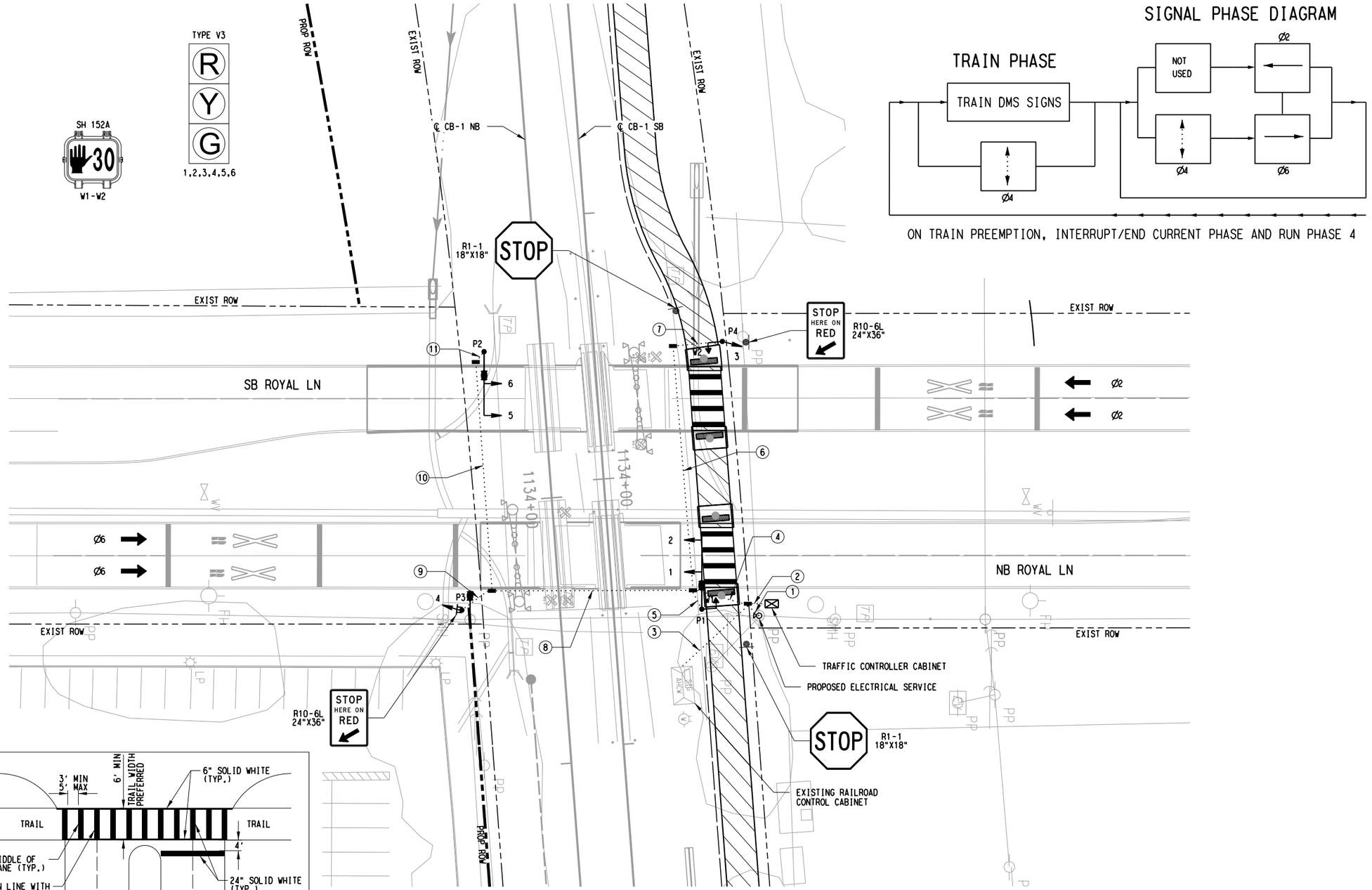
DWG No. WC4-1134



SIGNAL PHASE DIAGRAM

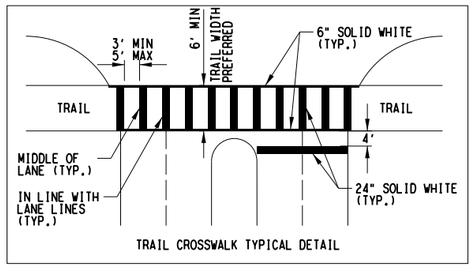
ON TRAIN PREEMPTION, INTERRUPT/END CURRENT PHASE AND RUN PHASE 4

SCALE (IN FEET)
0 10 20 40

LEGEND

- CONTROLLER CABINET
- ELECTRICAL SERVICE
- P1 SIGNAL POLE NUMBER
- SIGNAL POLE AND MAST ARM
- 1 2 SIGNAL HEAD NUMBER
- SIGN MOUNTED ON POLE/MAST ARM
- W1 PEDESTRIAN SIGNAL HEAD
- TYPE C GROUND BOX
- PROPOSED CONDUIT RUN
- (1) CONDUIT RUN NUMBER
- LUMINAIRE

1. THE CONTRACTOR SHALL ADJUST STRIPING IN ACCORDANCE WITH THE TRAIL CROSSING TYPICAL DETAIL.



TRAIL CROSSWALK TYPICAL DETAIL

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 223 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

IN-PROGRESS REVIEW
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:
EDWARD J. PULTORAK, P.E., 93881
ON
28-AUG-2023 09:04
JACOBS
TBPE FIRM NO. F-2966
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Jacobs
1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARCHER WESTERN HERZOG

DART PROJECT

DART®

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CAES

SCALE	1"=20'
DRAWN	B. SCHAAP
DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SECTION 1-3
TRAFFIC SIGNAL LAYOUT
ROYAL LN

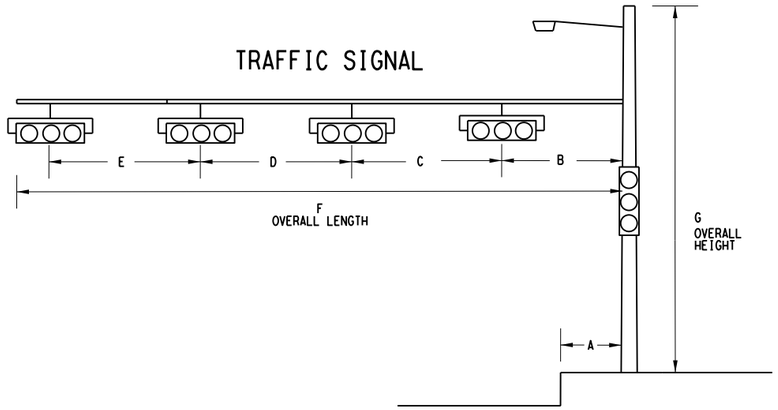
CONTRACT	DWG No.	REV
C-2033270-01	WC4-1134	D

CB05-WC4-1134.020

28-AUG-2023 09:04
CB05-WC4-1134.020
JEGSVCPW001
Default

DWG No. WC4-1135

SIGNAL POLES														
POLE NO.	A	B	C	D	E	F	G	NO. HEADS		ILSN	LUM	PED	FOUNDATION	
								M.A.	POLE	(EA)	(EA)	(EA)	TYPE	DEPTH
P1	8	14	12			28	30	2			1	1	30-A	11
P2	5	12	12			24	30	2			1		30-A	11
P3	4	PEDESTAL POLE					10		1				24-A	6
P4	9	STREET LIGHT POLE					30		1		1	1	24-A	6



ELECTRIC SERVICE DATA										
ELECTRIC SERVICE DESCRIPTION	SERVICE CONDUIT NO./SIZE	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN DISCONNECT CKT.BRK POLE/AMPS	TWO-POLE CONTRACTOR AMPS	PANEL BD./ LOADCENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CKT. BRK. POLE/AMPS	BRANCH CKT. BRK. POLE/AMPS	KVA LOAD
TYPE D (120/240) 070(NS)SS(E)PS(U)	2"	3 / #4	N/A	2P/70	30	100	T.S.	1P/50	23	<7.1
							LIGHTING	1P/20	5	

CONDUIT RUNS										
		CONDUIT TYPE			WIRE				SGNL CABLE	
RUN NO.	LENGTH OF RUN (LF)	TRENCH SCH 40 PVC 3"	BORED SCH 40 PVC 4"	STEEL ENCASED 3"	NO. 6 BARE QTY/RUN	NO. 6 INSULATED QTY/RUN	NO. 8 BARE QTY/RUN	NO. 8 INSULATED QTY/RUN	10 CNDR 14 AWG QTY/RUN	2 CNDR 12 AWG QTY/RUN
1	10	1			1	2	1	2		
2	5	1			1	2			5	2
3	35	1			1				1	
4	20	1			1		1	2	4	2
5	10	1			1		1	2	1	1
6	95		1		1		1	2	1	1
7	20	1			1		1	2	1	1
8	75			2	1		1	2	2	
9	10	1			1				1	
10	90		1		1		1	2	1	
11	5	1			1		1	2	1	
TOTAL (LF)		115	185	150	375	30	325	650	520	175

CABLE TERMINATION CHART					
CNDR NO.	CONDUCTOR COLOR	CABLE 1 FROM P1 TO CNTRL 10 CNDR	CABLE 2 FROM P2 TO CNTRL 10 CNDR	CABLE 3 FROM P3 TO CNTRL 10 CNDR	CABLE 4 FROM P4 TO CNTRL 10 CNDR
1	BLACK	SPARE	SPARE	SPARE	SPARE
2	WHITE	SIG COMM	SIG COMM	SIG COMM	SIG COMM
3	RED	PH. 6 SH 1,2 RED BALL	PH. 2 SH 5,6 RED BALL	PH. 6 SH 4 RED BALL	PH. 2 SH 3 RED BALL
4	GREEN	PH. 6 SH 1,2 GREEN BALL	PH. 2 SH 5,6 GREEN BALL	PH. 6 SH 4 GREEN BALL	PH. 2 SH 3 GREEN BALL
5	ORANGE	PH. 6 SH 1,2 YELLOW BALL	PH. 2 SH 5,6 YELLOW BALL	PH. 6 SH 4 YELLOW BALL	PH. 2 SH 3 YELLOW BALL
6	BLUE	SH W1:W	SPARE	SPARE	SH W2:W
7	WHITE/BLACK	SH W1:DW	SPARE	SPARE	SH W2:DW
8	RED/BLACK	SPARE	SPARE	SPARE	SPARE
9	GREEN/BLACK	SPARE	SPARE	SPARE	SPARE
10	ORANGE/BLACK	SPARE	SPARE	SPARE	SPARE

NOTES:

1. LOCATE ALL UTILITIES, DRAINAGE STRUCTURES AND OTHER CONFLICTS PRIOR TO TRENCHING, INSTALLING DRILLED SHAFTS OR POLES. IF NECESSARY, ADJUST LOCATIONS IN ACCORDANCE WITH TXDOT'S POLE PLACEMENT GUIDELINES AND AS DIRECTED BY THE ENGINEER.
2. TRAFFIC SIGNAL POLES SHALL BE ASSEMBLED AND INSTALLED PER TXDOT SMA-80-12 AND TS-FD-12 STANDARDS.

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 224 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

IN-PROGRESS REVIEW
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JACOBS
TBPE FIRM NO. F-2966
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Jacobs
1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARCHER WESTERN HERZOG

DART PROJECT

DART

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SCALE	1"=20'
DRAWN	B. SCHAAP
DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SECTION 1-3
TRAFFIC SIGNAL SUMMARY
ROYAL LN

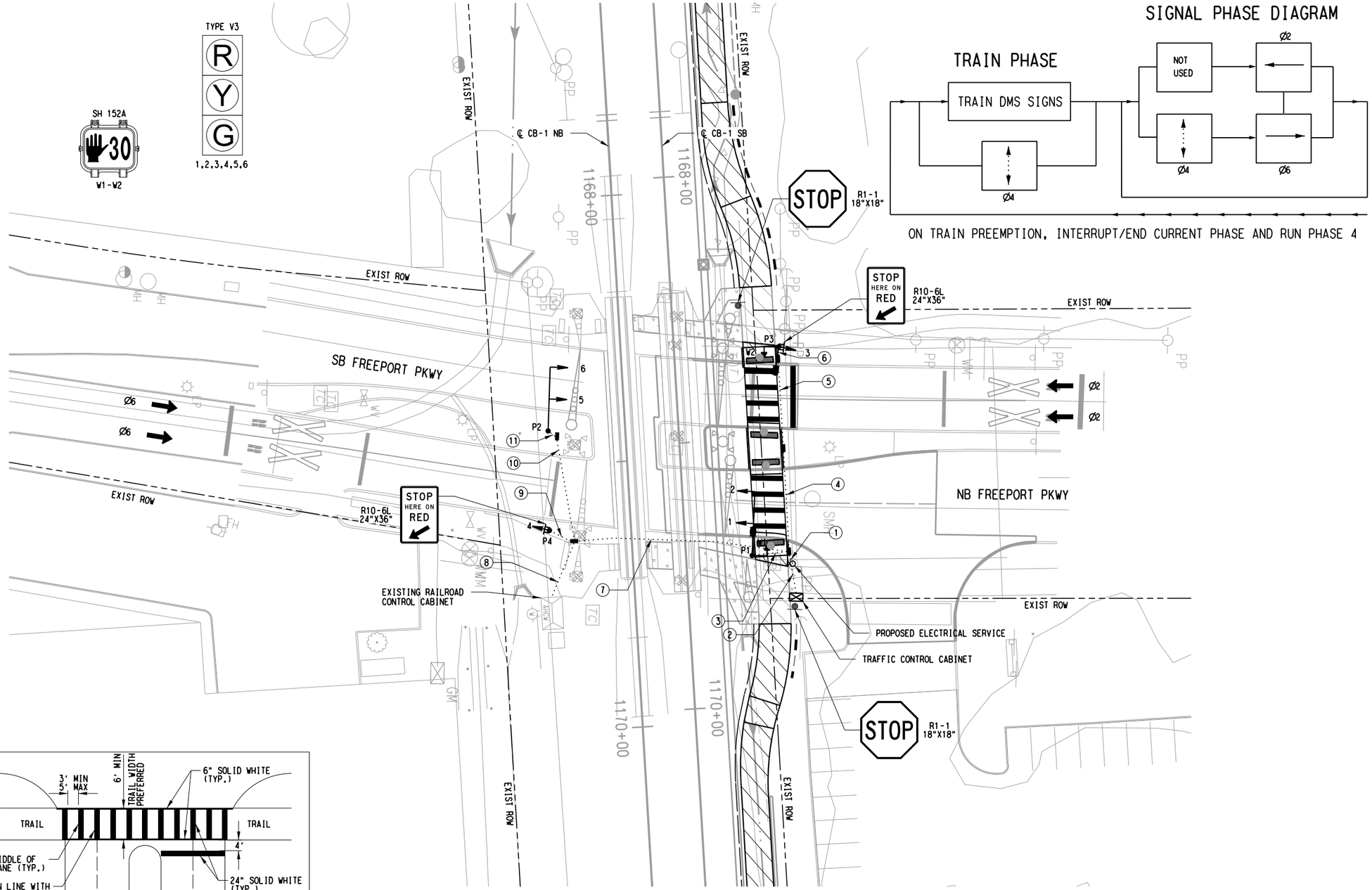
CONTRACT	DWG No.	REV
C-2033270-01	WC4-1135	D

CB05-WC4-1135.020

28-AUG-2023 09:07
CB05-WC4-1135.020

JEGSVCPW001
Default

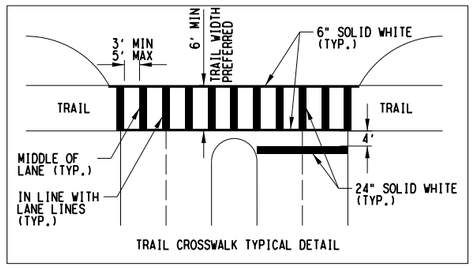
DWG No. WC4-1169



SIGNAL PHASE DIAGRAM

TRAIN PHASE

ON TRAIN PREEMPTION, INTERRUPT/END CURRENT PHASE AND RUN PHASE 4



TRAIL CROSSWALK TYPICAL DETAIL

SCALE (IN FEET)
0 10 20 40

LEGEND

- CONTROLLER CABINET
- ELECTRICAL SERVICE
- P1 SIGNAL POLE NUMBER
- SIGNAL POLE AND MAST ARM
- 1 2 SIGNAL HEAD NUMBER
- SIGN MOUNTED ON POLE/MAST ARM
- W1 PEDESTRIAN SIGNAL HEAD
- TYPE C GROUND BOX
- PROPOSED CONDUIT RUN
- (1) CONDUIT RUN NUMBER
- LUMINAIRE

1. THE CONTRACTOR SHALL ADJUST STRIPING IN ACCORDANCE WITH THE TRAIL CROSSING TYPICAL DETAIL.

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 225 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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Jacobs
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DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

ARCHER WESTERN HERZOG

DART PROJECT

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SCALE	1"=20'
DRAWN	B. SCHAAP
DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL VELOWEB HIKE & BIKE TRAIL

SECTION 1-3
TRAFFIC SIGNAL LAYOUT
FREEPORT PKWY

CONTRACT	DWG No.	REV
C-2033270-01	WC4-1169	D

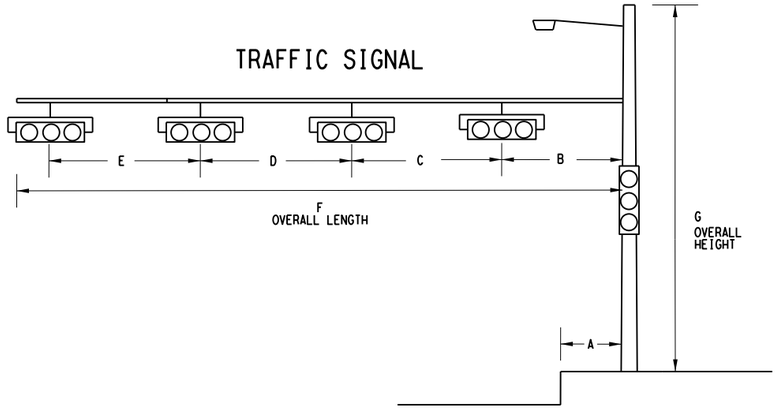
CB05-WC4-1169.020

28-AUG-2023 09:04
CB05-WC4-1169.020

JEGSVCPW101
Default

DWG No. WC4-1170

SIGNAL POLES														
POLE NO.	A	B	C	D	E	F	G	NO. HEADS		ILSN	LUM	PED	FOUNDATION	
								M.A.	POLE	(EA)	(EA)	(EA)	TYPE	DEPTH
P1	8	12	12			24	30	2			1	1	30-A	11
P2	8	12	12			24	30	2			1		30-A	11
P3	8	STREET LIGHT POLE					30		1		1	1	24-A	6
P4	4	STREET LIGHT POLE					30		1		1		24-A	6



ELECTRIC SERVICE DATA										
ELECTRIC SERVICE DESCRIPTION	SERVICE CONDUIT NO./SIZE	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN DISCONNECT CKT.BRK POLE/AMPS	TWO-POLE CONTRACTOR AMPS	PANEL BD./ LOADCENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CKT. BRK. POLE/AMPS	BRANCH CKT. BRK. POLE/AMPS	KVA LOAD
TYPE D (120/240) 070(NS)SS(E)PS(U)	2"	3 / #4	N/A	2P/70	30	100	T.S.	1P/50	23	<7.1
							LIGHTING	1P/20	5	

CONDUIT RUNS										
		CONDUIT TYPE			WIRE				SGNL CABLE	
RUN NO.	LENGTH OF RUN (LF)	TRENCH SCH 40 PVC 3"	BORED SCH 40 PVC 4"	STEEL ENCASED 3"	NO. 6 BARE QTY/RUN	NO. 6 INSULATED QTY/RUN	NO. 8 BARE QTY/RUN	NO. 8 INSULATED QTY/RUN	10 CNDR 14 AWG QTY/RUN	2 CNDR 12 AWG QTY/RUN
1	5	1			1	2	1	2		
2	15	1			1	2			5	2
3	15	1			1		1	2	1	
4	40		1		1		1	2	1	1
5	3		1		1		1	2	1	1
6	35	1			1		1	2	1	1
7	80			2	1		1	2	3	1
8	25	1			1				1	
9	10	1			1		1	2	1	1
10	45		1		1		1	2	1	
11	5	1			1		1	2	1	
TOTAL (LF)		110	88	160	278	40	238	476	493	198

CABLE TERMINATION CHART					
CNDR NO.	CONDUCTOR COLOR	CABLE 1 FROM P1 TO CNTRL 10 CNDR	CABLE 2 FROM P2 TO CNTRL 10 CNDR	CABLE 3 FROM P3 TO CNTRL 10 CNDR	CABLE 4 FROM P4 TO CNTRL 10 CNDR
1	BLACK	SPARE	SPARE	SPARE	SPARE
2	WHITE	SIG COMM	SIG COMM	SIG COMM	SIG COMM
3	RED	PH. 6 SH 1,2 RED BALL	PH. 2 SH 5,6 RED BALL	PH. 2 SH 3 RED BALL	PH. 6 SH 4 RED BALL
4	GREEN	PH. 6 SH 1,2 GREEN BALL	PH. 2 SH 5,6 GREEN BALL	PH. 2 SH 3 GREEN BALL	PH. 6 SH 4 GREEN BALL
5	ORANGE	PH. 6 SH 1,2 YELLOW BALL	PH. 2 SH 5,6 YELLOW BALL	PH. 2 SH 3 YELLOW BALL	PH. 6 SH 4 YELLOW BALL
6	BLUE	SH W1:W	SPARE	SH W2:W	SPARE
7	WHITE/BLACK	SH W1:DW	SPARE	SH W2:DW	SPARE
8	RED/BLACK	SPARE	SPARE	SPARE	SPARE
9	GREEN/BLACK	SPARE	SPARE	SPARE	SPARE
10	ORANGE/BLACK	SPARE	SPARE	SPARE	SPARE

NOTES:

1. LOCATE ALL UTILITIES, DRAINAGE STRUCTURES AND OTHER CONFLICTS PRIOR TO TRENCHING, INSTALLING DRILLED SHAFTS OR POLES. IF NECESSARY, ADJUST LOCATIONS IN ACCORDANCE WITH TXDOT'S POLE PLACEMENT GUIDELINES AND AS DIRECTED BY THE ENGINEER.
2. TRAFFIC SIGNAL POLES SHALL BE ASSEMBLED AND INSTALLED PER TXDOT SMA-80-12 AND TS-FD-12 STANDARDS.

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 226 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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FIRM REGISTRATION No. F-2966

ARCHER WESTERN HERZOG

DART PROJECT

DART

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CAES

SCALE	1"=20'
DRAWN	B. SCHAAP
DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SECTION 1-3
TRAFFIC SIGNAL LAYOUT
FREEPORT PKWY

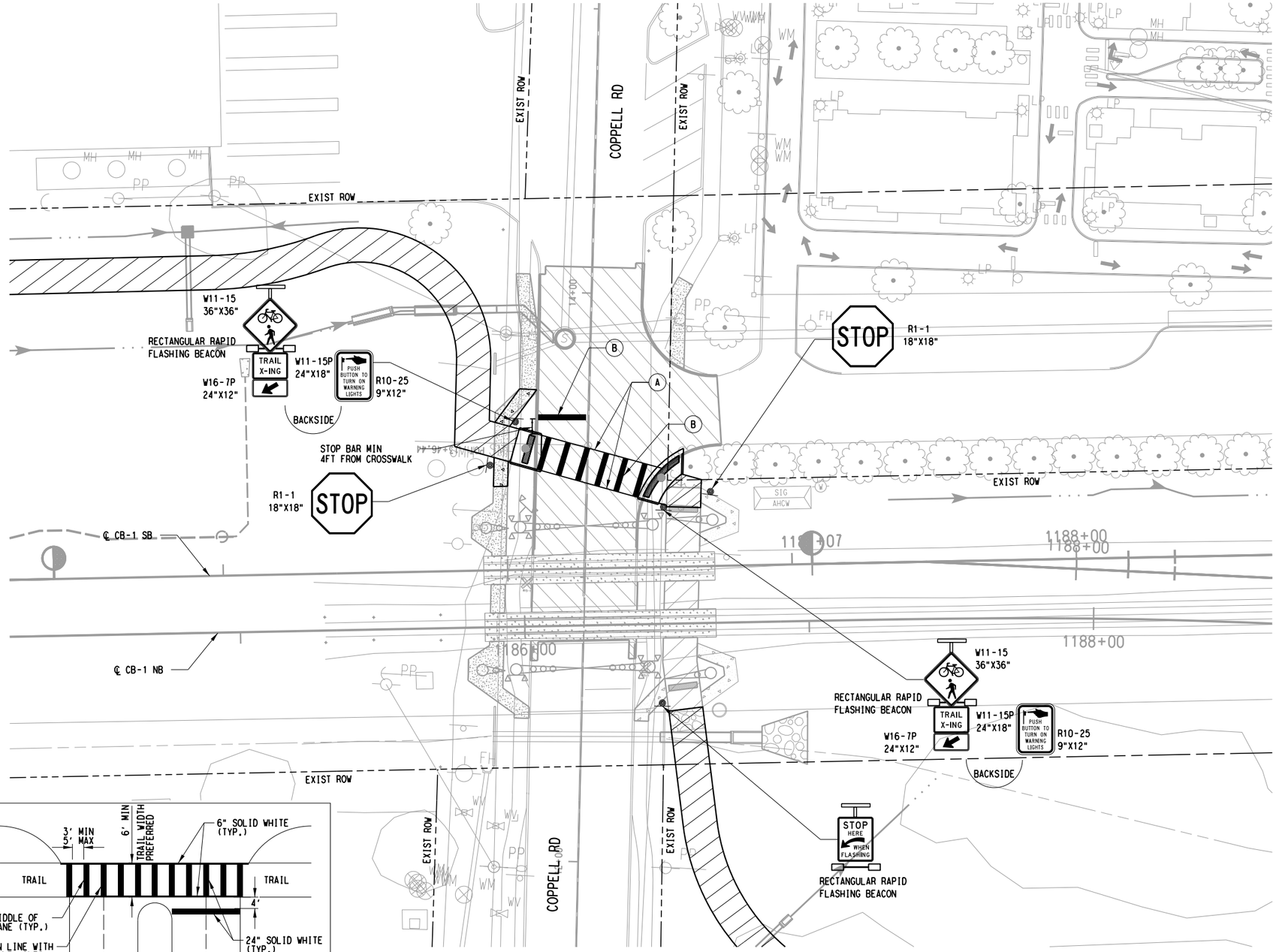
CONTRACT	DWG No.	REV
C-2033270-01	WC4-1170	D

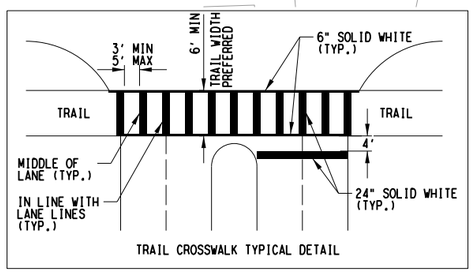
CB05-WC4-1170.020

28-AUG-2023 09:03
CB05-WC4-1170.020

JEGSVCPWJ01
Default

DWG No. WC3-1186





TRAIL CROSSWALK TYPICAL DETAIL

SCALE (IN FEET)
0 10 20 40

LEGEND

- (A) THERMO PAV MARK (6" WHITE) (SOLID)
- (B) THERMO PAV MARK (24" WHITE) (SOLID)
- (C) THERMO PAV MARK (8" WHITE) (SOLID)
- (D) THERMO PAV MARK (12" WHITE) (SOLID)
- (E) RAILROAD PAVEMENT MARKING
- (F) LANE ASSIGNMENT MARKING
- (*) PROPOSED SMALL SIGN
- EXISTING SMALL SIGN

1. THE CONTRACTOR SHALL CONNECT VIA WIRE OR WIRELESSLY ALL THE FLASHING BEACONS ASSOCIATED WITH THIS CROSSING. ALL BEACONS SHALL FLASH AT THE SAME TIME ONCE CALLED BY TRAIL USER FOR THE AMOUNT OF TIME IT TAKES TO SAFELY CROSS THE ROADWAY VIA THE TRAIL CROSSING.
2. THE CONTRACTOR SHALL ADJUST STRIPING IN ACCORDANCE WITH THE TRAIL CROSSING TYPICAL DETAIL.

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARCHER WESTERN HERZOG

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CAES

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DRAWN	B. SCHAAP
DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

CONTRACT SHEET No. 227 OF 378

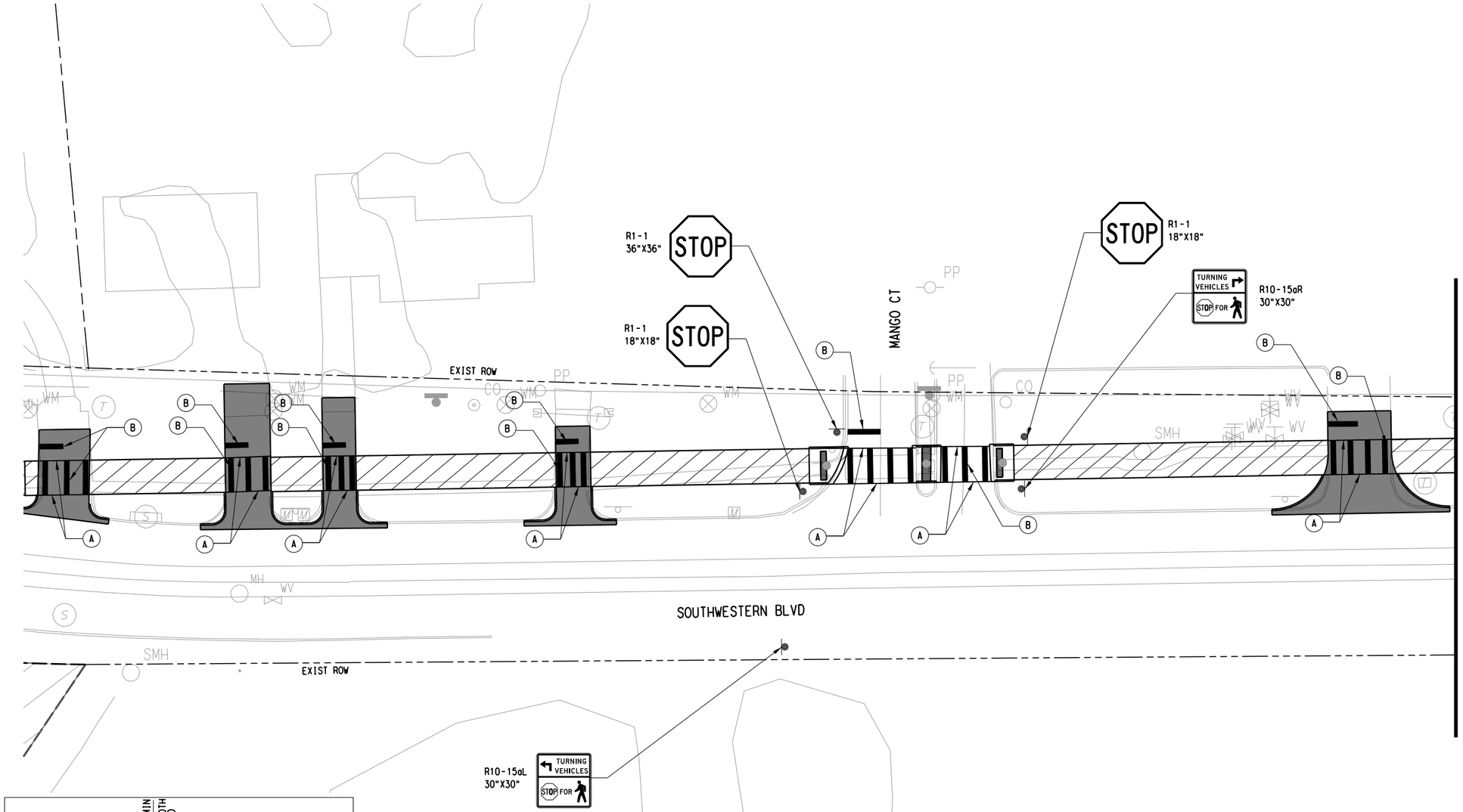
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SECTION 1-4
SIGNING AND STRIPING LAYOUT
COPPELL RD

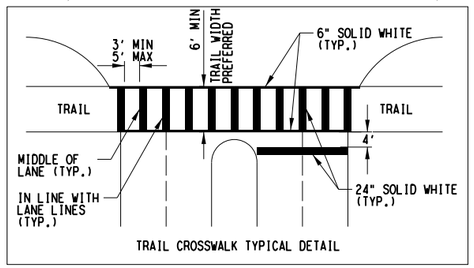
CONTRACT	DWG No.	REV
C-2033270-01	WC3-1186	D

CB05-WC3-1186.020

28-AUG-2023 09:04
CB05-WC3-1186.020
JEGSVCPW001
Default

DWG No. WC3-1210





TRAIL CROSSWALK TYPICAL DETAIL

SCALE (IN FEET)
0 10 20 40

LEGEND

- (A) THERMO PAV MARK (6" WHITE) (SOLID)
- (B) THERMO PAV MARK (24" WHITE) (SOLID)
- (C) THERMO PAV MARK (8" WHITE) (SOLID)
- (D) THERMO PAV MARK (12" WHITE) (SOLID)
- (E) RAILROAD PAVEMENT MARKING
- (F) LANE ASSIGNMENT MARKING
- (*) PROPOSED SMALL SIGN
- EXISTING SMALL SIGN

1. THE CONTRACTOR SHALL ADJUST STRIPING IN ACCORDANCE WITH THE TRAIL CROSSING TYPICAL DETAIL.

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FINAL 100% DESIGN

CONTRACT SHEET No. 228 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DRAWN	B. SCHAAP
DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

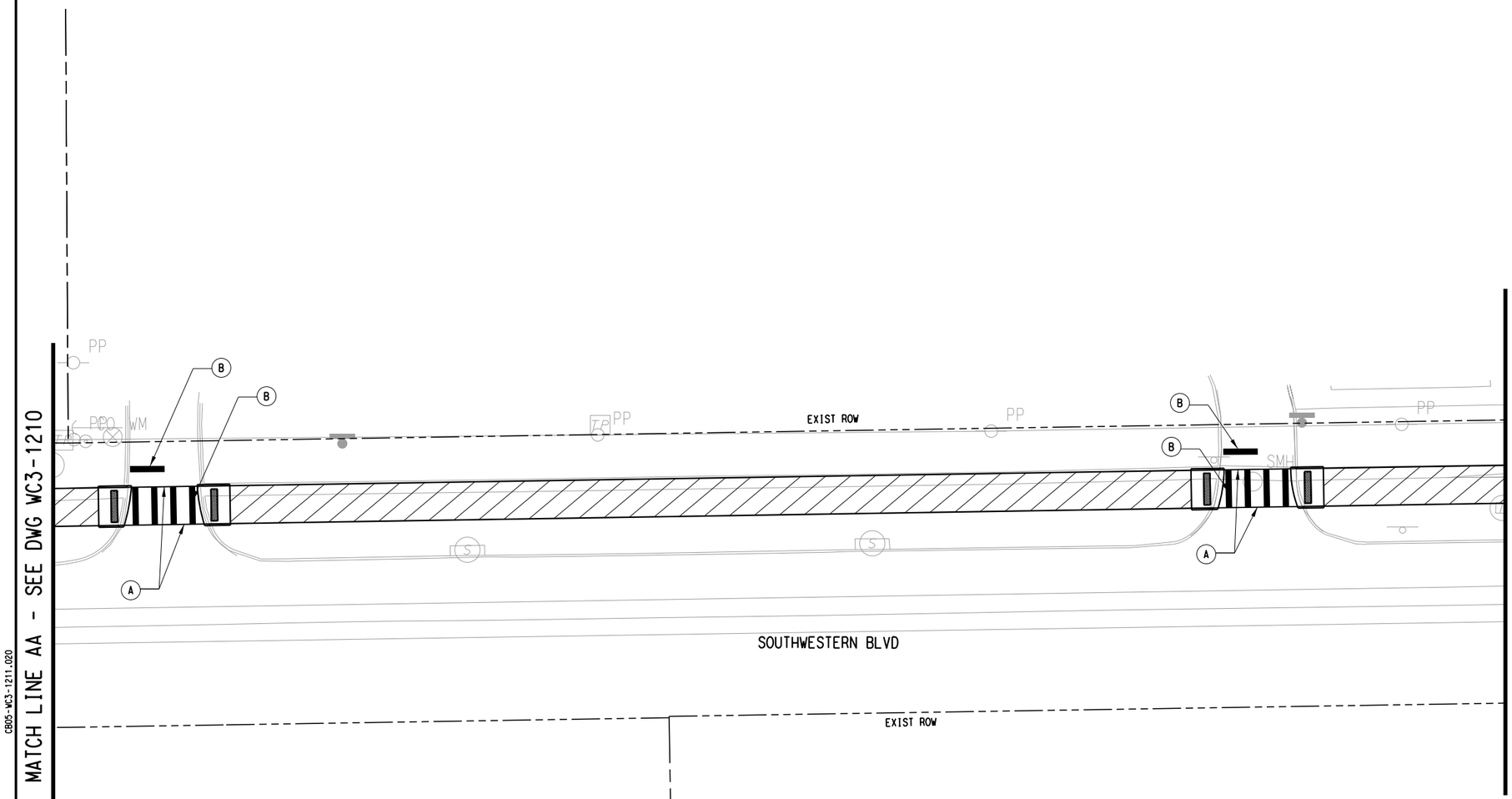
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SECTION 1-4
SIGNING AND STRIPING LAYOUT
SOUTHWESTERN BLVD
SHEET 1 OF 4

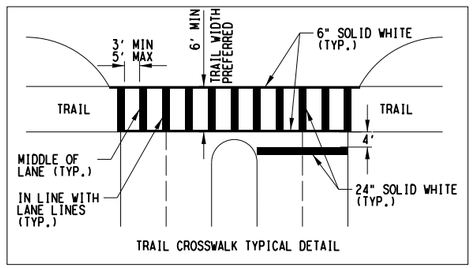
CONTRACT	DWG No.	REV
C-2033270-01	WC3-1210	D

CB05-WC3-1210.020

28-AUG-2023 09:05
CB05-WC3-1210.020
JEGSVCPW001
Default

DWG No. WC3-1211





TRAIL CROSSWALK TYPICAL DETAIL

SCALE (IN FEET)
0 10 20 40

LEGEND

- (A) THERMO PAV MARK (6" WHITE) (SOLID)
- (B) THERMO PAV MARK (24" WHITE) (SOLID)
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- (D) THERMO PAV MARK (12" WHITE) (SOLID)
- (E) RAILROAD PAVEMENT MARKING
- (F) LANE ASSIGNMENT MARKING
- (*) PROPOSED SMALL SIGN
- EXISTING SMALL SIGN

1. THE CONTRACTOR SHALL ADJUST STRIPING IN ACCORDANCE WITH THE TRAIL CROSSING TYPICAL DETAIL.

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CONTRACT SHEET No. 229 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SECTION 1-4
SIGNING AND STRIPING LAYOUT
SOUTHWESTERN BLVD
SHEET 2 OF 4

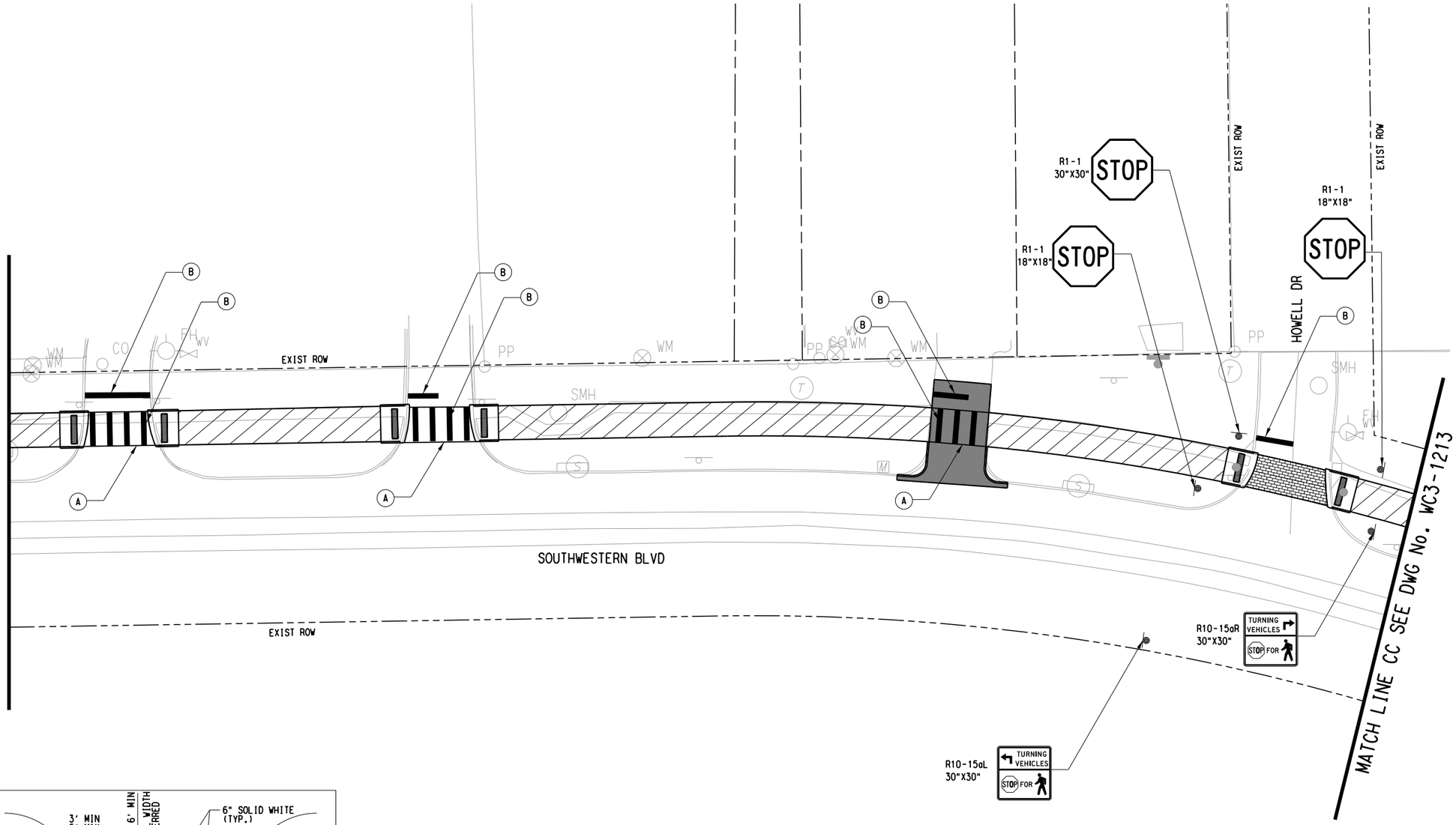
CONTRACT	DWG No.	REV
C-2033270-01	WC3-1211	D

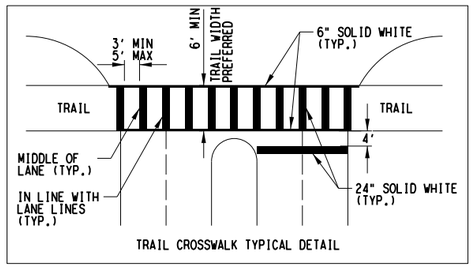
CB05-WC3-1211.020

28-AUG-2023 09:02
CB05-WC3-1211.020

JEGSVCPW001
Default

DWG No. WC3-1212





TRAIL CROSSWALK TYPICAL DETAIL

SCALE (IN FEET)
0 10 20 40

LEGEND

- (A) THERMO PAV MARK (6" WHITE) (SOLID)
- (B) THERMO PAV MARK (24" WHITE) (SOLID)
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- (D) THERMO PAV MARK (12" WHITE) (SOLID)
- (E) RAILROAD PAVEMENT MARKING
- (F) LANE ASSIGNMENT MARKING
- (*) PROPOSED SMALL SIGN
- EXISTING SMALL SIGN

1. THE CONTRACTOR SHALL ADJUST STRIPING IN ACCORDANCE WITH THE TRAIL CROSSING TYPICAL DETAIL.

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FINAL 100% DESIGN

CONTRACT SHEET No. 230 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARCHER WESTERN HERZOG

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SCALE	1"=20'
DRAWN	B. SCHAAP
DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

CAES

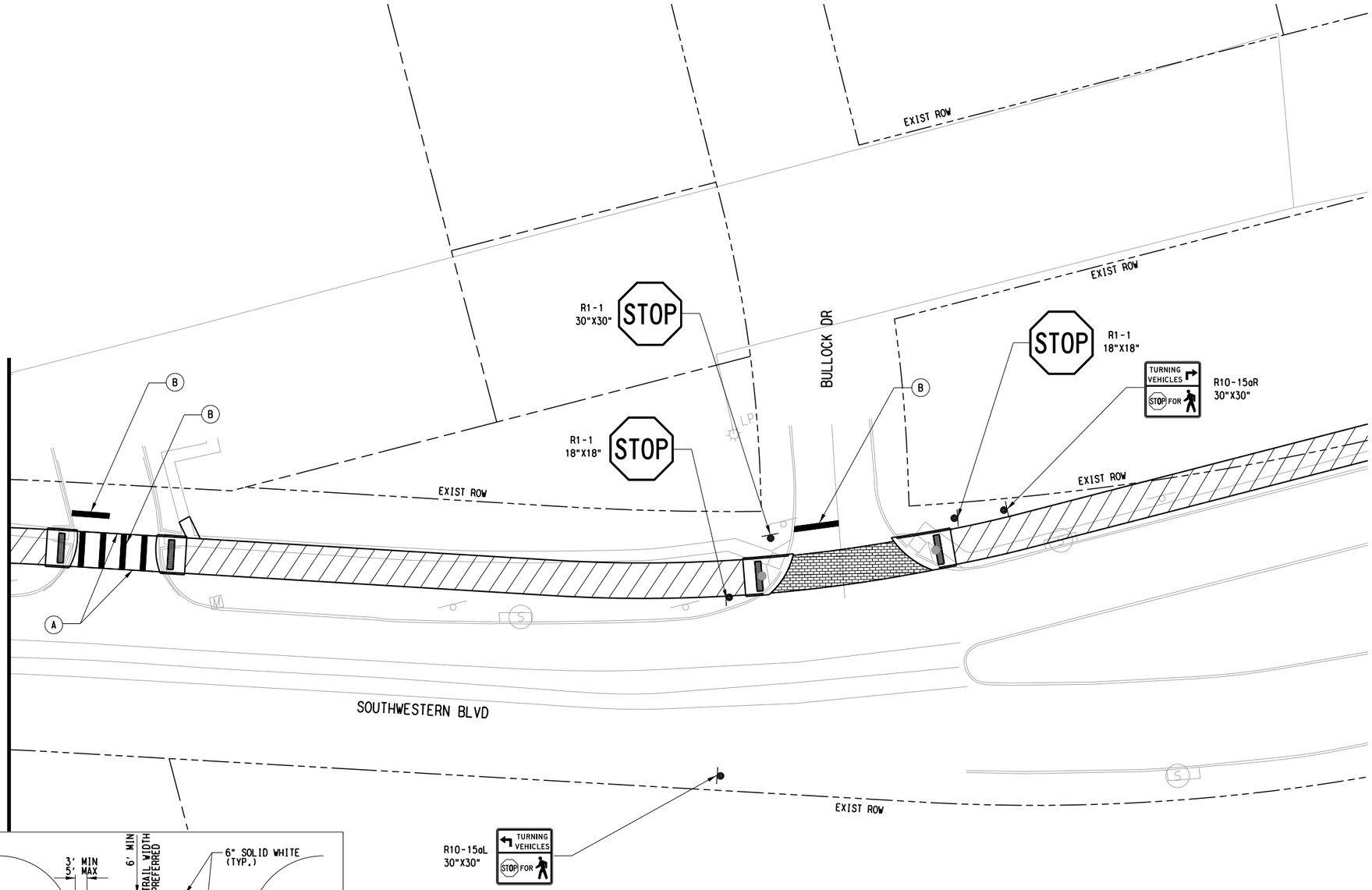
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SECTION 1-4
SIGNING AND STRIPING LAYOUT
SOUTHWESTERN BLVD
SHEET 3 OF 4

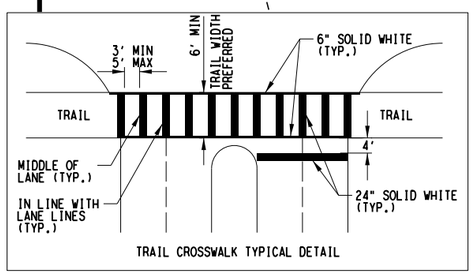
CONTRACT	DWG No.	REV
C-2033270-01	WC3-1212	D

CB05-WC3-1212.020

28-AUG-2023 09:03
CB05-WC3-1212.020
JEGSVCPW101
Default

DWG No. WC3-1213





TRAIL CROSSWALK TYPICAL DETAIL

MATCH LINE CC - SEE DWG WV3-1212

N

SCALE (IN FEET)
0 10 20 40

LEGEND

- (A) THERMO PAV MARK (6" WHITE) (SOLID)
- (B) THERMO PAV MARK (24" WHITE) (SOLID)
- (C) THERMO PAV MARK (8" WHITE) (SOLID)
- (D) THERMO PAV MARK (12" WHITE) (SOLID)
- (E) RAILROAD PAVEMENT MARKING
- (F) LANE ASSIGNMENT MARKING
- (*) PROPOSED SMALL SIGN
- EXISTING SMALL SIGN

1. THE CONTRACTOR SHALL ADJUST STRIPING IN ACCORDANCE WITH THE TRAIL CROSSING TYPICAL DETAIL.

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FINAL 100% DESIGN

CONTRACT SHEET No. 231 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP
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FIRM REGISTRATION No. F-2966

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SCALE	1"=20'
DRAWN	B. SCHAAP
DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SECTION 1-4
SIGNING AND STRIPING LAYOUT
SOUTHWESTERN BLVD
SHEET 4 OF 4

CONTRACT	DWG No.	REV
C-2033270-01	WC3-1213	D

CB05-WC3-1213.020

28-AUG-2023 09:03
CB05-WC3-1213.020
JEGSVCPW001
Default

DWG No. WC3-1226

EXIST ROW

S DENTON TAP RD

PP

EXIST ROW

MH

SMH

SOUTHWESTERN BLVD

E BELT LINE RD

EXIST ROW

S BELT LINE RD

SCALE (IN FEET)
0 10 20 40

LEGEND

- (A) THERMO PAV MARK (6" WHITE) (SOLID)
- (B) THERMO PAV MARK (24" WHITE) (SOLID)
- (C) THERMO PAV MARK (8" WHITE) (SOLID)
- (D) THERMO PAV MARK (12" WHITE) (SOLID)
- (E) RAILROAD PAVEMENT MARKING
- (F) LANE ASSIGNMENT MARKING
- (*) PROPOSED SMALL SIGN
- EXISTING SMALL SIGN

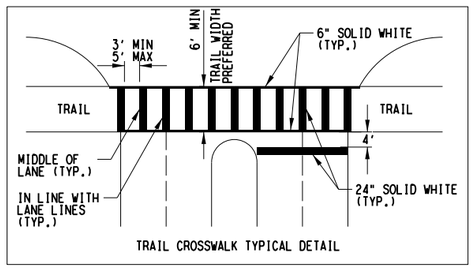
1. THE CONTRACTOR SHALL ADJUST STRIPING IN ACCORDANCE WITH THE TRAIL CROSSING TYPICAL DETAIL.

A

B

B

R1-1
30"X30"
STOP



TRAIL CROSSWALK TYPICAL DETAIL

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CONTRACT SHEET No. 232 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SECTION 1-4
CROSSING EXHIBIT
S DENTON TAP RD

CONTRACT	DWG No.	REV
C-2033270-01	WC3-1226	D

CB05-WC3-1226.020

28-AUG-2023 09:07
CB05-WC3-1226.020

JEGSVCPW001
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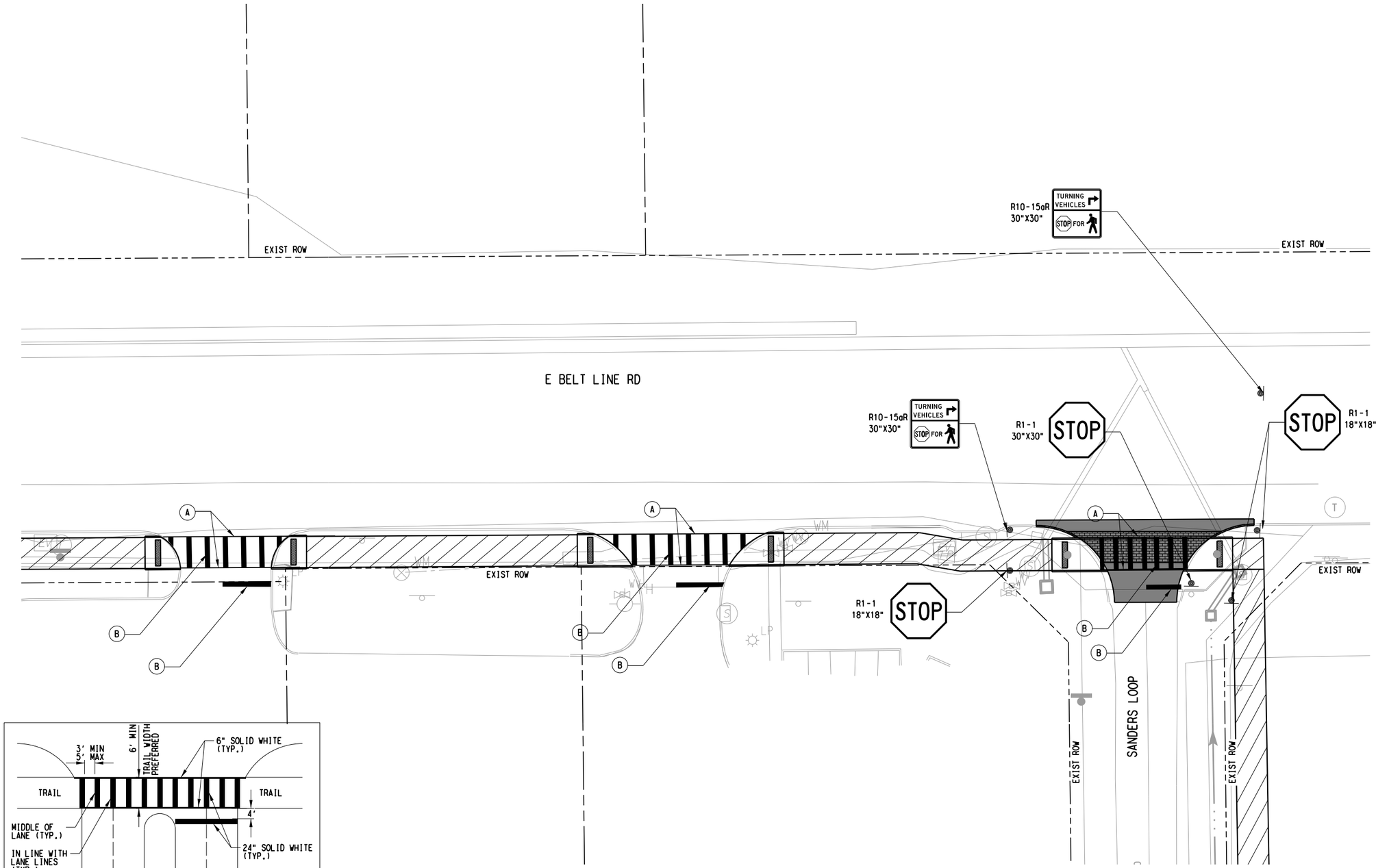
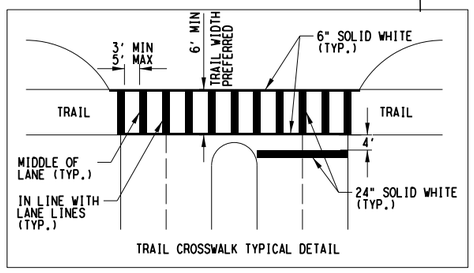
DWG No. WC3-1232





TRAIL CROSSWALK TYPICAL DETAIL

SCALE (IN FEET)
0 10 20 40

LEGEND

- (A) THERMO PAV MARK (6" WHITE) (SOLID)
- (B) THERMO PAV MARK (24" WHITE) (SOLID)
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- (D) THERMO PAV MARK (12" WHITE) (SOLID)
- (E) RAILROAD PAVEMENT MARKING
- (F) LANE ASSIGNMENT MARKING
- (*) PROPOSED SMALL SIGN
- EXISTING SMALL SIGN

1. THE CONTRACTOR SHALL ADJUST STRIPING IN ACCORDANCE WITH THE TRAIL CROSSING TYPICAL DETAIL.

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FINAL 100% DESIGN

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DRAWN	B. SCHAAP
DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

CONTRACT SHEET No. 233 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SECTION 1-4
SIGNING AND STRIPING LAYOUT
SANDERS LOOP

CONTRACT	DWG No.	REV
C-2033270-01	WC3-1232	D

CB05-WC3-1232.020

28-AUG-2023 09:06
CB05-WC3-1232.020

JEGSVCPW001
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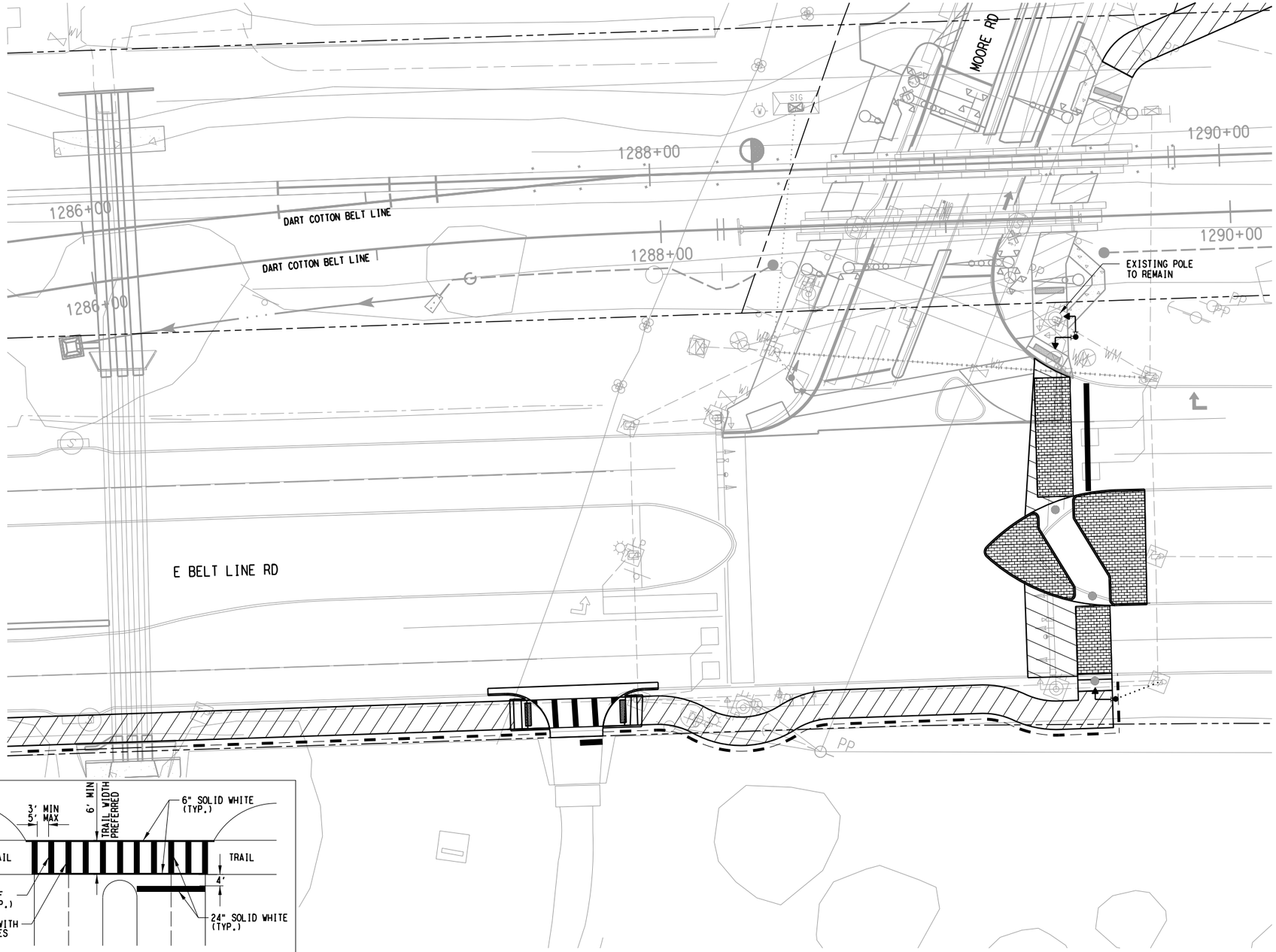
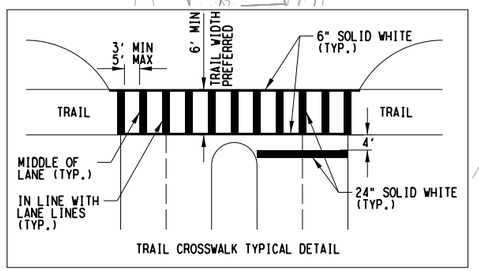
DWG No. WC4-1287





TRAIL CROSSWALK TYPICAL DETAIL

SCALE (IN FEET)
0 10 20 40

LEGEND

- CONTROLLER CABINET
- ELECTRICAL SERVICE
- P1 SIGNAL POLE NUMBER
- SIGNAL POLE AND MAST ARM
- 1 2 SIGNAL HEAD NUMBER
- SIGN MOUNTED ON POLE/MAST ARM
- W1 PEDESTRIAN SIGNAL HEAD
- TYPE C GROUND BOX
- PROPOSED CONDUIT RUN
- 1 CONDUIT RUN NUMBER
- LUMINAIRE

1. THE CONTRACTOR SHALL ADJUST STRIPING IN ACCORDANCE WITH THE TRAIL CROSSING TYPICAL DETAIL.

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FINAL 100% DESIGN

CONTRACT SHEET No. 234 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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SCALE	1"=20'
DRAWN	B. SCHAAP
DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SECTION 1-4
TRAFFIC SIGNAL LAYOUT
DRIVEWAY @ MOORE RD

CONTRACT	DWG No.	REV
C-2033270-01	WC4-1287	D

CB05-WC4-1287.020

28-AUG-2023 09:04
CB05-WC4-1287.020

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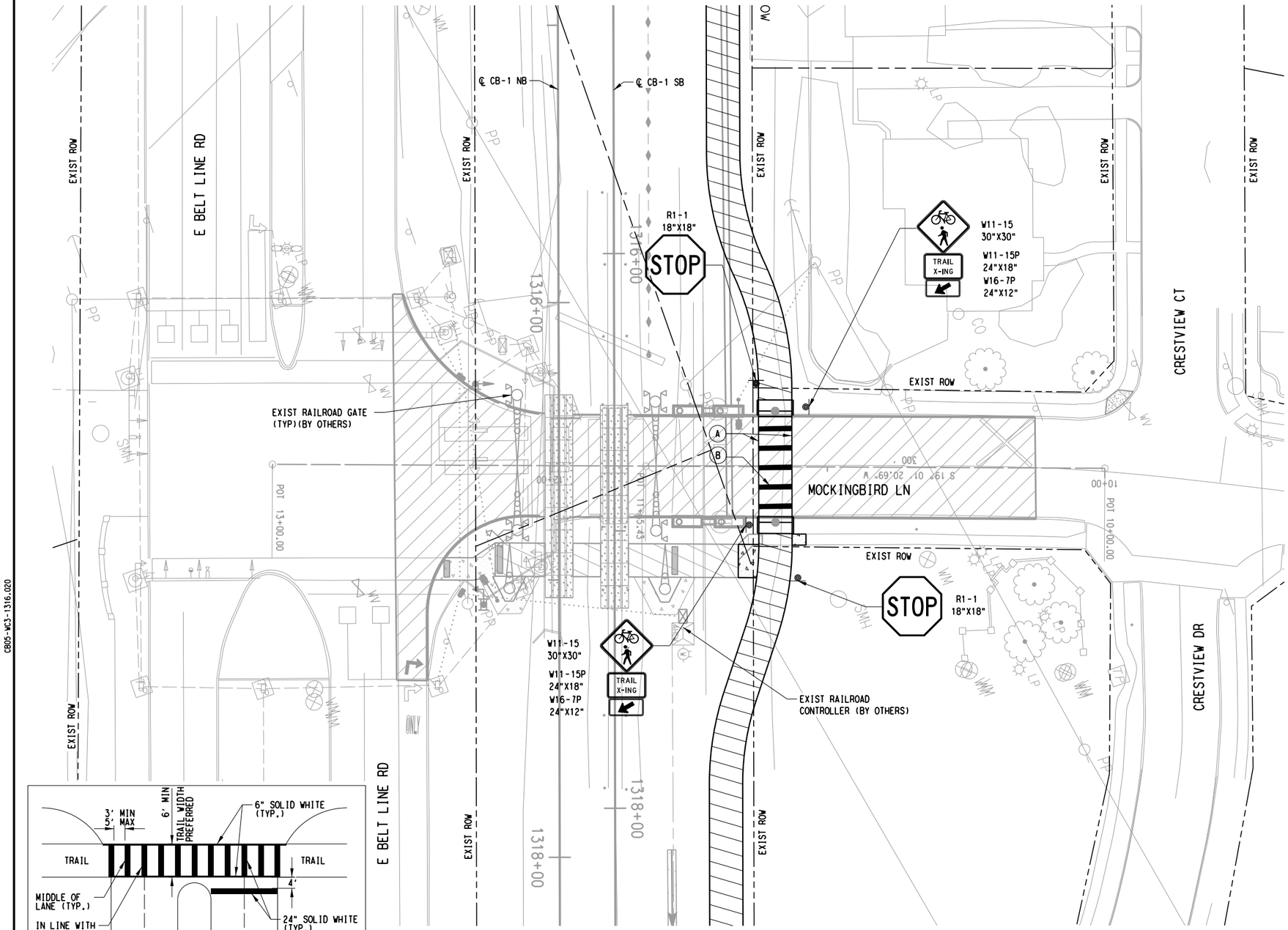
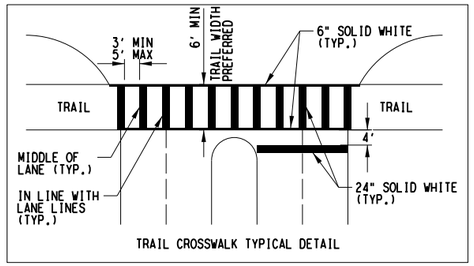
DWG No. WC3-1316





TRAIL CROSSWALK TYPICAL DETAIL

SCALE (IN FEET)
0 10 20 40

LEGEND

- (A) THERMO PAV MARK (6" WHITE) (SOLID)
- (B) THERMO PAV MARK (24" WHITE) (SOLID)
- (C) THERMO PAV MARK (8" WHITE) (SOLID)
- (D) THERMO PAV MARK (12" WHITE) (SOLID)
- (E) RAILROAD PAVEMENT MARKING
- (F) LANE ASSIGNMENT MARKING
- (*) PROPOSED SMALL SIGN
- EXISTING SMALL SIGN

1. THE CONTRACTOR SHALL ADJUST STRIPING IN ACCORDANCE WITH THE TRAIL CROSSING TYPICAL DETAIL.

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 235 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

IN-PROGRESS REVIEW
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:
EDWARD J. PULTORAK, P.E., 93881
ON
28-AUG-2023 09:05
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FIRM REGISTRATION No. F-2966

ARCHER WESTERN HERZOG

DART PROJECT

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SCALE	1"=20'
DRAWN	B. SCHAAP
DESIGNED	B. SCHAAP
CHECKED	E. PULTORAK
IN CHARGE	E. PULTORAK
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SECTION 1-4
SIGNING AND STRIPING LAYOUT
MOCKINGBIRD LN

CONTRACT	DWG No.	REV
C-2033270-01	WC3-1316	D

CB05-WC3-1316.020

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GENERAL NOTES FOR ALL ELECTRICAL WORK

1. The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.

2. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.

3. Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is ½ in. or less in diameter.

4. Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.

5. Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.

6. When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

1. Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.

2. Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.

3. Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.

AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" x 8" x 4"	10" x 10" x 4"	12" x 12" x 4"
#4	8" x 8" x 4"	10" x 10" x 4"	10" x 10" x 4"
#6	8" x 8" x 4"	8" x 8" x 4"	10" x 10" x 4"
#8	8" x 8" x 4"	8" x 8" x 4"	8" x 8" x 4"

4. Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.

5. Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.

6. Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.

7. Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

8. Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.

9. When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.

10. Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

1. Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.

2. Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.

3. Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.

4. Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.

5. When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."

6. Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.

7. During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.

8. Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.

9. Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.

10. Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.

11. At all electrical services, install a 6 AWG solid copper grounding electrode conductor.

12. Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).

13. Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.

14. File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 236 OF 378
DWG NO. WS9-2001
CONTRACT NO. C-2033270-01

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUITS & NOTES

ED(1)-14

FILE: ed1-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
	DIST	COUNTY		SHEET NO.

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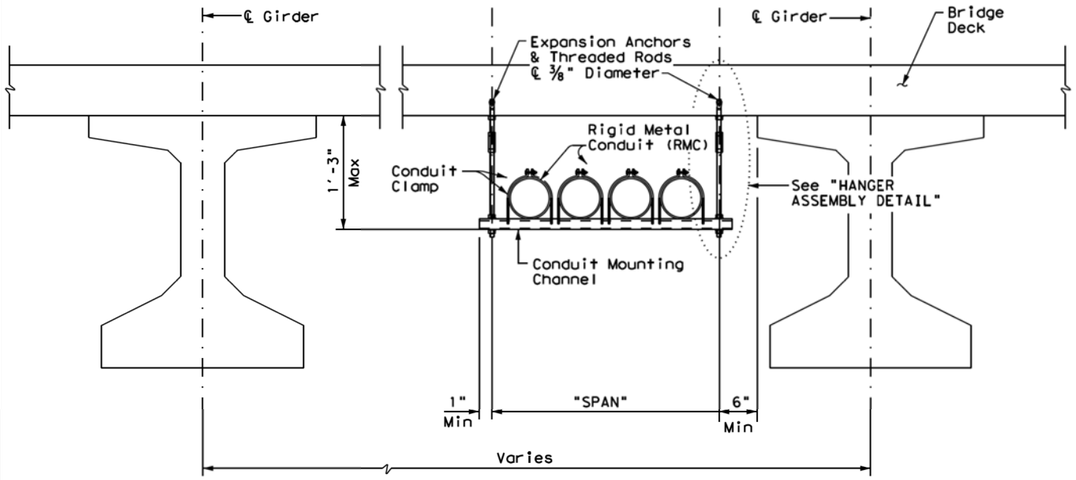
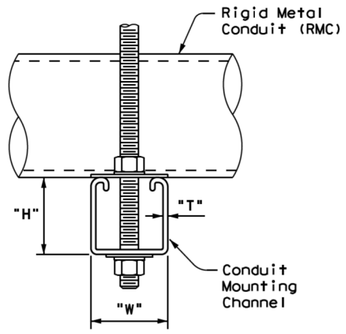
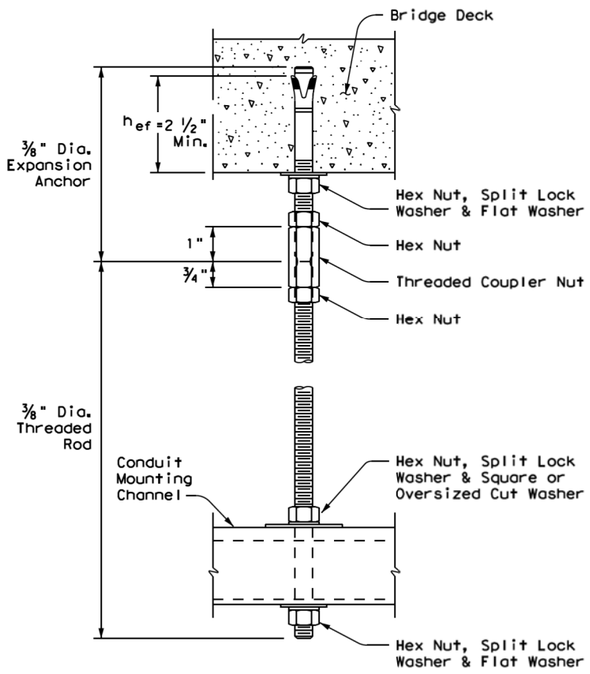


CONDUIT HANGING DETAIL

CONDUIT MOUNTING CHANNEL		
"SPAN"	"W" x "H"	"T"
less than 2'	1 5/8" x 1 3/8"	12 Ga.
2'-0" to 2'-6"	1 5/8" x 1 5/8"	12 Ga.
>2'-6" to 3'-0"	1 5/8" x 2 7/16"	12 Ga.

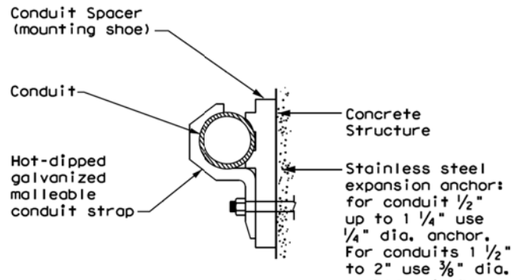
Channels with round or short slotted hole patterns are allowed, if the load carrying capacity is not reduced by more than 15%.

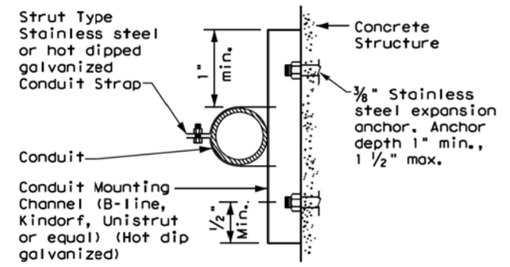




HANGER ASSEMBLY DETAIL

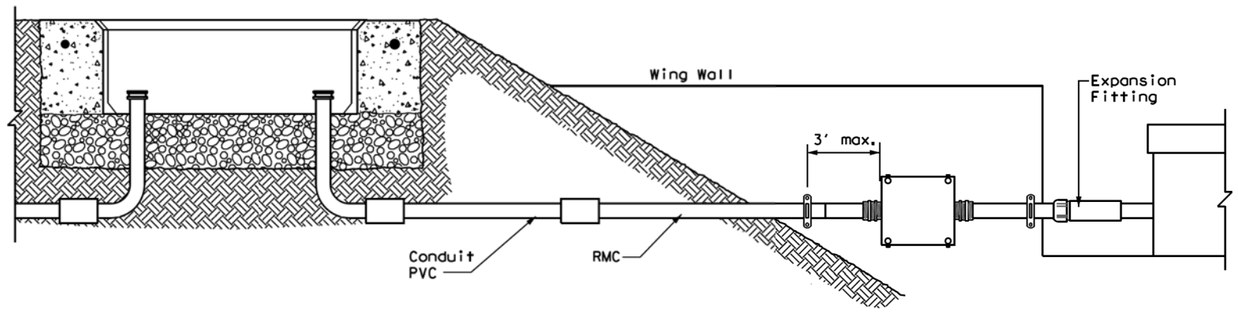
ELECTRIC CONDUIT TO BRIDGE DECK ATTACHMENT





CONDUIT MOUNTING OPTIONS

Attachment to concrete surfaces
See ED(1)B.2



TYPICAL CONDUIT ENTRY TO BRIDGE STRUCTURE DETAIL

EXPANSION ANCHOR NOTES FOR BRIDGE DECK ATTACHMENT

1. Use torque controlled mechanical expansion anchors that are approved for use in cracked concrete by the International Code Council, Evaluation Service (ICC-ES). The chosen anchor product shall have a designated ICC-ES Evaluation Report number, and its approval status shall be maintained on the ICC-ES website under Division 031600 for Concrete Anchors.
2. Unless otherwise approved by the Engineer: do not use adhesive anchors; do not use expansion anchors that are not included in the ICC-ES approval list; and do not use expansion anchors that are only approved for use in uncracked concrete.
3. Use anchors manufactured with stainless steel expansion wedges. Anchors manufactured with carbon steel expansion wedges are not allowed. Anchor bodies can be either zinc-plated carbon steel or stainless steel. For application in marine environment, both the anchor body and expansion wedge shall be stainless steel.
4. Install anchors as shown on the plans and in accordance with the anchor manufacturer's published installation instructions. Arrange a field demonstration test to evaluate the procedures and tools. The test shall be witnessed and approved by the Engineer prior to furnishing anchors on the structure.
5. Prior to hole drilling, use rebar locator to ensure clearing of existing deck strands or reinforcement. Install anchors to ensure a minimum effective embedment depth, (h_{ef}), as shown. Increase (h_{ef})as needed to ensure sufficient thread length for proper torqueing and tightening of anchors.
6. Use anchors of minimum 1600 Lbs tensile capacity (minimum of steel, concrete breakout, and concrete pullout strengths as determined by ACI 318 Appendix D) at the required minimum embedment depth (h_{ef}). No lateral loads shall be introduced after conduit installation.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 237 OF 378
DWG NO. WS9-2002
CONTRACT NO. C-2033270-01

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
CONDUIT SUPPORTS

ED(2)-14

FILE: ed2-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

1. Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS)11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color jacket or by colored tape. When identifying conductors with colored tape, mark at least 6 in. of the conductor's insulation with half laps of tape.

2. Provide a solid copper 6 AWG grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS 11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the plans.

3. Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag with a permanent marker.

4. Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in DMS 11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.

B. CONSTRUCTION METHODS

1. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.

2. Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.

3. Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between the individual conductors and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned, or overheated, is considered defective and must be replaced.

4. Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.

5. Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the accumulation of water.

6. Support conductors in illumination poles with a J-hook at the top of the pole.

7. When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.

8. Replace conductors and cables that are damaged beyond repair or that fail an insulation resistance test at no additional cost to the department.

9. Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.

10. Do not terminate more than one conductor under a single connector, unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.

11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.

12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

C. TEMPORARY WIRING

1. Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.

2. Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of the following: molded cord and plug set, receptacle, or circuit breaker type.

3. Use listed wire nuts with factory applied sealant for temporary wiring where approved.

4. Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. Where installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.

5. Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with the NEC.

GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in specific locations including electrical service, see individual plan sheets.

B. CONSTRUCTION METHODS

1. Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.

2. Do not place ground rods in the same drilled hole as a timber pole.

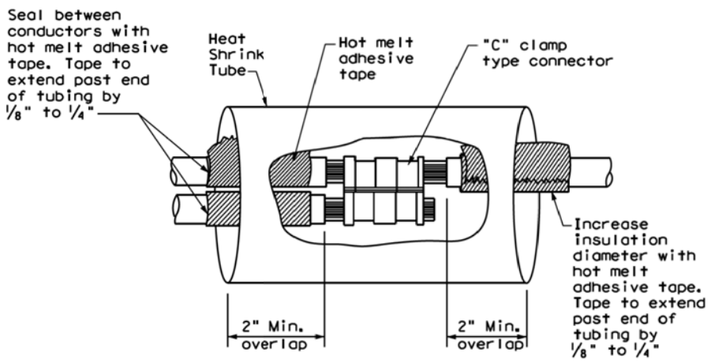
3. Install ground rods so the imprinted part number is at the upper end of the rod.

4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.

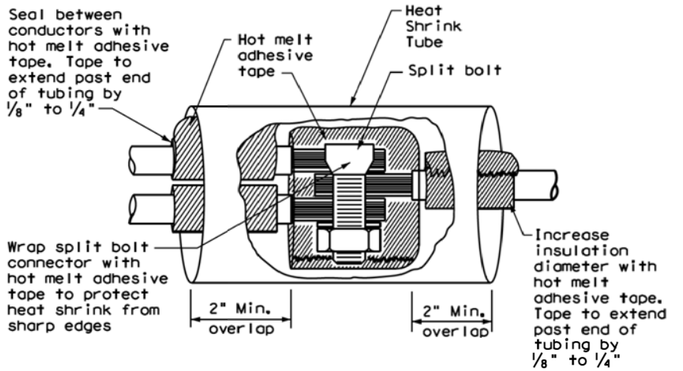
5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.

6. Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding type bushing and properly sized bonding jumper on each end of the metal conduit.

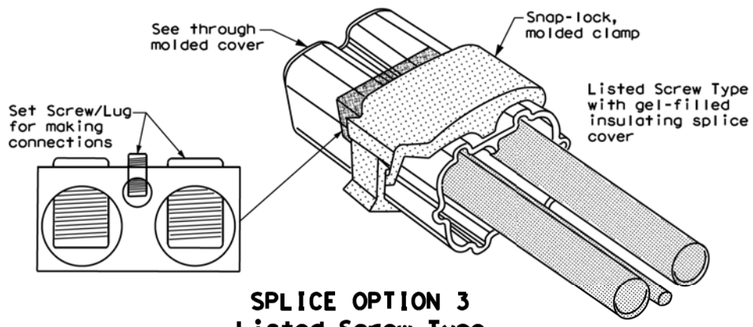
7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



SPLICE OPTION 1
Compression Type



SPLICE OPTION 2
Split Bolt Type



SPLICE OPTION 3
Listed Screw Type

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 238 OF 378
DWG NO. WS9-2003
CONTRACT NO. C-2033270-01

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUCTORS

ED(3)-14

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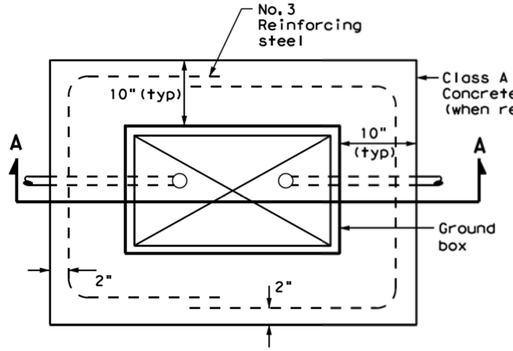
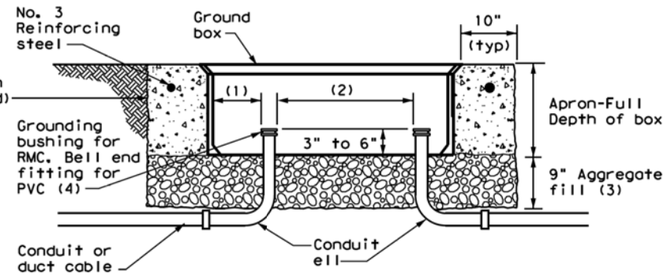


PLAN VIEW



SECTION A - A

APRON FOR GROUND BOX

(1) Uniformly space ends of conduits within the ground box. Position ends of conduits so that ground box walls do not interfere with the installation of grounding bushings or bell end fittings.

(2) Maintain sufficient space between conduits to allow for proper installation of bushing.

(3) Place aggregate under the box, not in the box. Aggregate should not encroach on the interior volume of the box.

(4) Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.

GROUND BOX DIMENSIONS	
TYPE	OUTSIDE DIMENSIONS (INCHES) (Width x Length X Depth)
A	12 X 23 X 11
B	12 X 23 X 22
C	16 X 29 X 11
D	16 X 29 X 22
E	12 X 23 X 17

GROUND BOX COVER DIMENSIONS								
TYPE	DIMENSIONS (INCHES)							
	H	I	J	K	L	M	N	P
A, B & E	23 1/4	23	13 3/4	13 1/2	9 7/8	5 1/8	1 3/8	2
C & D	30 1/2	30 1/4	17 1/2	17 1/4	13 1/4	6 3/4	1 3/8	2

GROUND BOXES

A. MATERIALS

1. Provide polymer concrete ground boxes measuring 16x30x24 in. (WxLxD) or smaller in accordance with Departmental Material Specification (DMS) 11070 "Ground Boxes" and Item 624 "Ground Boxes."

2. Provide Type A, B, C, D, and E ground boxes as shown in the plans, and as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 624.

3. Ensure ground box cover is correctly labeled in accordance with DMS 11070.

4. Provide larger ground boxes in accordance with Item 624 and as shown in the plans.

B. CONSTRUCTION METHODS

1. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting ground box. Provide Grade 3 or 4 coarse aggregate as shown on Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure aggregate bed is in place and at least 9 inches deep, prior to setting the ground box. Install ground box on top of aggregate.

2. Cast ground box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Ground box aprons, including concrete and reinforcing steel, are subsidiary to ground boxes when called for by descriptive code.

3. Keep bolt holes in the box clear of dirt. Bolt covers down when not working in ground boxes.

4. Install all conduits and ells in a neat and workmanlike manner. Uniformly space conduits so grounding bushings and bell end fittings can easily be installed.

5. Temporarily seal all conduits in the ground box until conductors are installed.

6. Permanently seal conduits immediately after the completion of conductor installation and pull tests. Permanently seal the ends of all conduits with duct seal, expandable foam, or other method as approved. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a sealant.

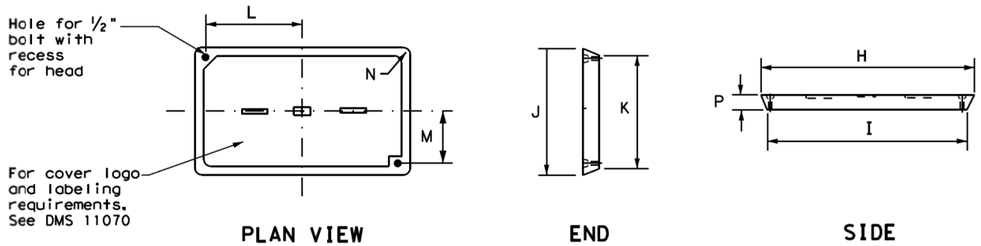
7. When a ground rod is present in a ground box, bond all equipment grounding conductors together and to the ground rod with listed connectors.

8. When a type B or D ground box is stacked to meet volume requirements, it is allowable to cut an appropriately sized hole for conduit entry in the side wall at least 18 inches below grade.

9. If an existing ground box in the contract has a metal cover, bond the cover to the equipment grounding conductor with a 3 ft. long stranded bonding jumper the same size as the grounding conductor. The bonding jumper is subsidiary to various bid items. Verify existing ground boxes with metal covers are shown on the plans, with notes fully describing the work required.

10. If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.

11. Bond metal ground box covers to the grounding conductor with a tank ground type lug.



PLAN VIEW | END | SIDE

GROUND BOX COVER

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 239 OF 378
DWG NO. WS9-2004
CONTRACT NO. C-2033270-01

Texas Department of Transportation | Traffic Operations Division Standard

ELECTRICAL DETAILS
GROUND BOXES

ED(4)-14

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ELECTRICAL SERVICES NOTES

1. Provide new materials. Ensure installation and materials comply with the applicable provisions of the National Electrical Code (NEC) and National Electrical Manufacturers Association (NEMA) standards. Ensure material is Underwriters Laboratories (UL) listed. Provide and install electrical service conduits, conductors, disconnects, contactors, circuit breaker panels, and branch circuit breakers as shown on the Electrical Service Data chart in the plans. Faulty fabrication or poor workmanship in material, equipment, or installation is justification for rejection. Where manufacturers provide warranties and guarantees as a customary trade practice, furnish these to the State.

2. Provide electrical services in accordance with Electrical Details standard sheets, Departmental Material Specification (DMS) 11080 "Electrical Services,"DMS 11081 "Electrical Services-Type A," DMS 11082 "Electrical Services-Type C," DMS 11083 "Electrical Services-Type D," DMS 11084 "Electrical Services-Type T," DMS 11085 "Electrical Services-Pedestal (PS)", and Item 628 "Electrical Services" of the Standard Specifications. Provide electrical service types A, C, and D, as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 628. Provide other service types as detailed on the plans.

3. Provide all work, materials, services, and any incidentals needed to install a complete electrical service as specified in the plans.

4. Coordinate with the Engineer and the utility provider for metering and compliance with utility requirements. Primary line extensions, connection charges, meter charges, and other charges by the utility company to provide power to the location are paid for in accordance with Item 628. Get approval for the costs associated with these charges prior to engaging the utility company to do the work. Consult with the utility provider to determine costs and requirements, and coordinate the work as approved.

5. The enclosure manufacturer will provide Master Lock Type 2 with brass tumblers keyed #2195 for all custom electrical enclosures. Installing Contractor is to provide Master Lock #2195 Type 2 with brass tumblers for "off the shelf" enclosures. Master Lock #2195 keys and locks become property of the State. Unless otherwise approved, do not energize electrical service equipment until locks are installed.

6. Enclosures with external disconnects that de-energize all equipment inside the enclosure do not need a dead front trim. Protect incoming line terminations from incidental contact as required by the NEC.

7. When galvanized is specified for nuts, screws, bolts or miscellaneous hardware, stainless steel may be used.

8. Provide wiring and electrical components rated for 75°C. Provide red, black, and white colored XHHW service entrance conductors of minimum size 6 American Wire Gauge (AWG). Identify size 6 AWG conductors by continuous color jacket. Identify electrical conductors sized 4 AWG and larger by continuous color jacket or by colored tape. Mark at least 6 inches of the conductor's insulation with half laps of colored tape, when identifying conductors. Ensure each service entrance conductor exits through a separately bushed non-metallic opening in the weatherhead. The lengths of the conductors outside the weatherhead are to be 12 inches minimum, 18 inches maximum, or as required by utility.

9. All electrical service conduit and conductors attached to the electrical service including the riser or the elbow below ground are subsidiary to the electrical service. For an underground utility feed, all service conduit and conductors after the elbow, including service conduit and conductors for the utility pole riser when furnished by the Contractor, will be paid for separately.

10. Provide rigid metal conduit (RMC) for all conduits on service, except for the ½ in. PVC conduit containing the electrical service grounding electrode conductor. Size the service entrance conduit as shown in the plans. Ensure conduit for branch circuit entry to enclosure is the same size as that shown on the layout sheets for branch circuit conduit. Extend all rigid metal conduits a minimum of 6 inches underground and then couple to the type and schedule of the conduit shown on the layout for that particular branch circuit. Install a grounding bushing on the RMC where it terminates in the service enclosure.

11. Use of liquidtight flexible metal conduit (LFMC) is allowed between the meter and service enclosure when they are mounted 90 to 180 degrees to each other. Size the LFMC the same size as service entrance conduit. LFMC must not exceed 3 feet in length. Strap LFMC within 1 foot of each end. LFMC less than 12 inches in length need not be strapped. Each end of LFMC must have a grounding bushing or be terminated with a grounding fitting. The LFMC must contain a grounded (neutral) conductor. Ensure any bend in LFMC never exceeds 180 degrees. A pull test is required on all installed conductors, with at least six inches of free conductor movement demonstrated to the satisfaction of the Engineer.

12. Ensure all mounting hardware and installation details of services conform to utility company specifications.

13. For all electrical service enclosures listed under Item 628 on the MPL, the UL 508 enclosure manufacturers will prepare and submit a schematic drawing unique to each service. Before shipment to the job site, place the applicable laminated schematic drawings and the laminated plan sheet showing the electrical service data chart used to build the enclosure in the enclosure's data pocket. The installing contractor will copy and laminate the actual project plan sheets detailing all equipment and branch circuits supplied by that service. The laminated plan sheets are to be placed in the service enclosure's document pocket. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in. before laminating. If the installation differs from the plan sheets, the installing contractor is to redline plan sheets before laminating.

14. When providing an "Off The Shelf" Type D or Type T service, provide laminated plan sheets detailing equipment and branch circuits supplied by that service. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in before laminating. Deliver these drawings before completion of the work to the Engineer, instead of placing in enclosure that has no door pocket.

15. Do not install conduit in the back wall of a service enclosure where it would penetrate the equipment mounting panel inside the enclosure. Provide grounding bushings on all metal conduits, and terminate bonding jumpers to grounding bus. Grounding bushings are not required when the end of the metal conduit is fitted with a conduit sealing hub or threaded boss, such as a meter base hub.

SERVICE ASSEMBLY ENCLOSURE

1. Provide threaded hub for all conduit entries into the top of enclosure.

2. Type galvanized steel (GS) enclosures may be used for Type C panelboards and for Type D and T services that do not use an enclosure mounted photocell or lighting contactor. Provide GS enclosures in accordance with DMS 11080, 11082, 11083, and 11084.

3. Provide aluminum (AL) and stainless steel (SS) enclosures for Types A, C, and D in accordance with DMS 11080, 11081, 11082, 11083, and 11084. Do not paint stainless steel.

4. Provide pedestal service (PS) enclosures in accordance with ED(9) and DMS 11080 and 11085. Do not provide GS pedestal services. If GS is shown in the PS descriptive code, provide an AL enclosure.

MAIN DISCONNECT & BRANCH CIRCUIT BREAKERS

1. Field drill flange-mounted remote operator handle if needed, to ensure handle is lockable in both the "On" and "Off" positions.

2. When the utility company provides a transformer larger than 50 KVA, verify that the available fault current is less than the circuit breaker's ampere interrupting capacity (AIC) rating and provide documentation from the electric utility provider to the Engineer.

PHOTOELECTRIC CONTROL

1. Provide photocell as listed on the MPL. Move, adjust, or shield the photocell from stray or ambient night time light to ensure proper operation. Mount photocell facing north when practical. Mount top of pole photocells as shown on Top Mounted Photocell Detail.

*ELECTRICAL SERVICE DATA

Elec. Service ID	Plan Sheet Number	Electrical Service Description	Service Conduit **Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole/Amps	Two-Pole Contractor Amps	Panelbd/ Loadcenter Amp Rating	Branch Circuit ID	Branch Ckt. Bkr. Pole/Amps	Branch Circuit Amps	KVA Load
SB 183	289	ELC SRV TY A 240/480 100(SS)AL(E)SF(U)	2"	3/#2	100	2P/100	100	N/A	Lighting NB	2P/40	26	28.1
									Lighting SB	2P/40	25	
									Underpass	1P/20	15	
NB Access	30	ELC SRV TY D 120/240 060(NS)SS(E)TS(O)	1 ¼"	3/#6	N/A	2P/60		100	Sig. Controller	1P/30	23	5.3
							30		Luminaires	2P/20	9	
									CCTV	1P/20	3	
2nd & Main	58	ELC SRV TY T 120/240 000(NS)GS(N)SP(O)	1 ¼"	3/#6	N/A	N/A	N/A	70	Flashing Beacon 1	1P/20	4	1.0
									Flashing Beacon 2	1P/20	4	

* Example only, not for construction. All new electrical services must have electrical service data chart specific to that service as shown in the plans.

** Verify service conduit size with utility. Size may change due to utility meter requirements. Ensure conduit size meets the National ELectrical Code.

EXPLANATION OF ELECTRICAL SERVICE DESCRIPTIVE CODE

ELEC SERV TY X XXX/XXX XXX (XX) XX (X) XX (X)

Schematic Type

Service Voltage V / V

Disconnect Amp Rating
000 indicates main lug only/
Typically Type T

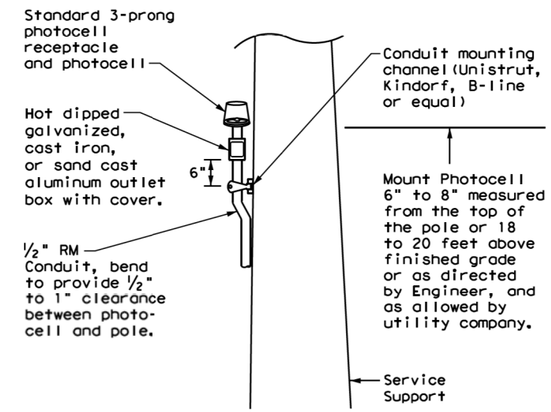
(SS)= Safety Switch Ahead of Meter-Check with Utility
(NS)= No safety Switch Ahead of Meter-Check with Utility

Enclosure Type
GS= Galvanized steel("off the shelf")
SS= Stainless steel(Custom Enclosure)See MPL
AL= Aluminum (Custom Enclosure)See MPL

Photocell Mounting Location
(E)= Inside Service/Enclosure Mounted
(T)= Top of pole
(L)= Luminaire mounted
(N)= None/No Photocell or Lighting Contactor Required

Service Support Type
GC= Granite concrete
OC= Other concrete
TP= Timber pole
SP= Steel pole
SF= Steel frame
OT= Pole by others or paid for separately
EX= Existing pole
TS= Service on traffic signal pole
PS= Pedestal Service

O= Overhead Service Feed from Utility
U= Underground Service Feed from Utility



TOP MOUNTED PHOTOCELL

Install conduit strap maximum 3 feet from box. 5 foot maximum spacing between straps supporting conduit.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE NOTES & DATA

ED(5)-14

COTTON BELT REGIONAL RAI
VELOWEB HIKE & BIKE TRAI
SHEET NO. 240 OF 378
DWG NO. WS9-2005
CONTRACT NO. C-2033270-01

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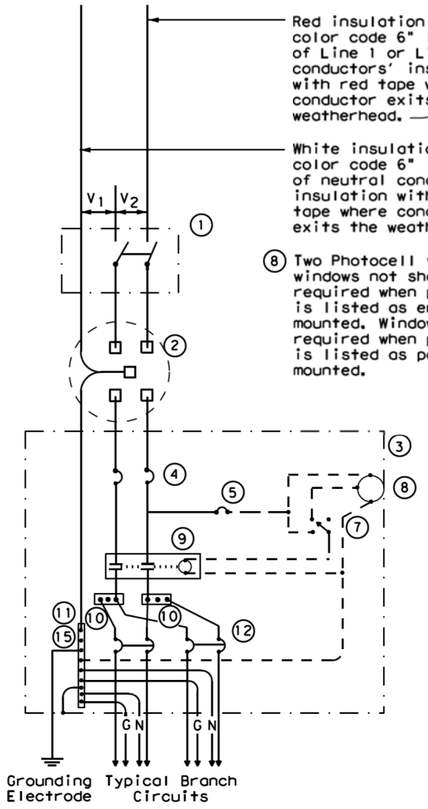
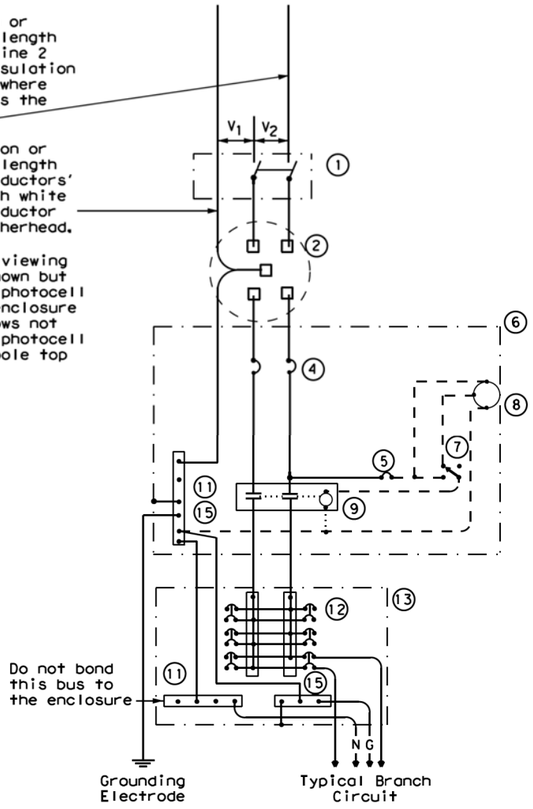
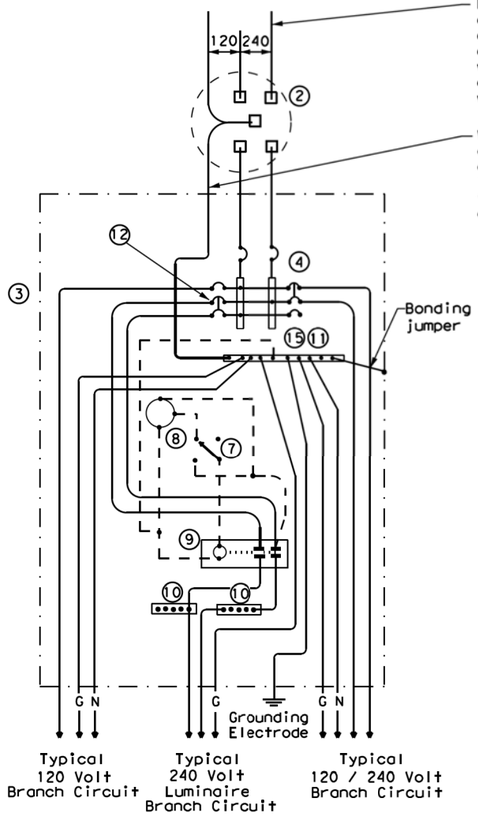


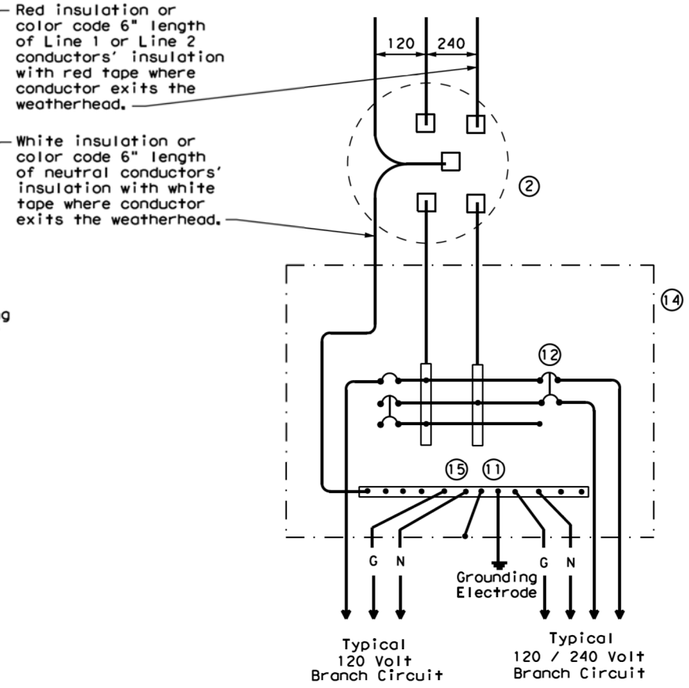
SCHEMATIC TYPE A
THREE WIRE



SCHEMATIC TYPE C
THREE WIRE



SCHEMATIC TYPE D - CUSTOM
120/240 VOLTS - THREE WIRE



SCHEMATIC TYPE T
120/240 VOLTS - THREE WIRE

Galvanized steel-"Buy Off The Shelf" only. When required install photocell top of the pole or on luminaire only, no lighting contractor will be installed.

WIRING LEGEND	
———	Power Wiring
- - - -	Control Wiring
—N—	Neutral Conductor
—G—	Equipment grounding conductor-always required

SCHEMATIC LEGEND	
1	Safety Switch (when required)
2	Meter (when required-verify with electric utility provider)
3	Service Assembly Enclosure
4	Main Disconnect Breaker (See Electrical Service Data)
5	Circuit Breaker, 15 Amp (Control Circuit)
6	Auxiliary Enclosure
7	Control Station ("H-O-A" Switch)
8	Photo Electric Control (enclosure-mounted shown)
9	Lighting Contactor
10	Power Distribution Terminal Blocks
11	Neutral Bus
12	Branch Circuit Breaker (See Electrical Service Data)
13	Separate Circuit Breaker Panelboard
14	Load Center
15	Ground Bus

COTTON BELT REGIONAL RAI
VELOWEB HIKE & BIKE TRAI
SHEET NO. 241 OF 378
DWG NO. WS9-2006
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Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE ENCLOSURE AND NOTES

ED(6)-14

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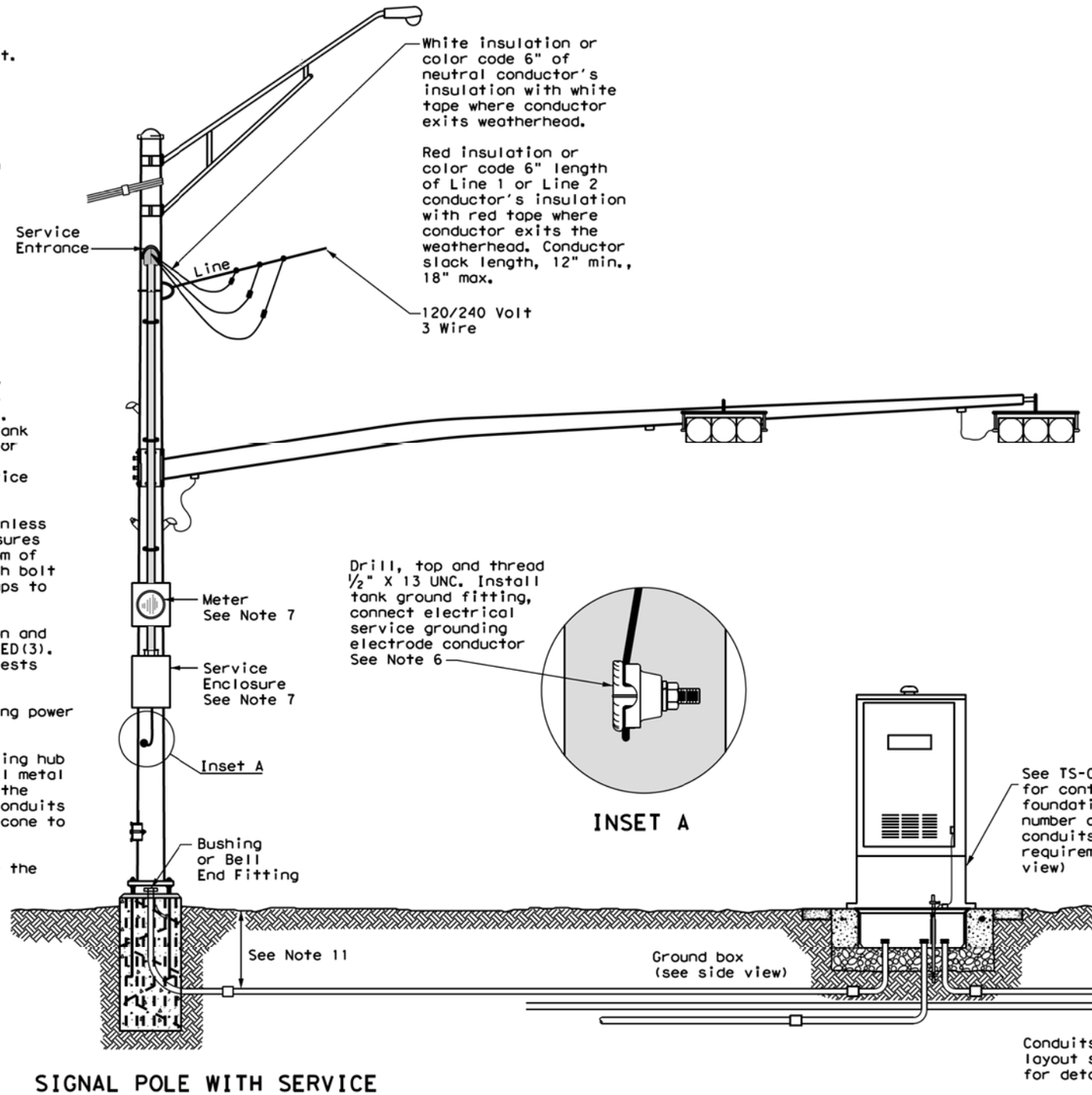
TRAFFIC SIGNAL NOTES

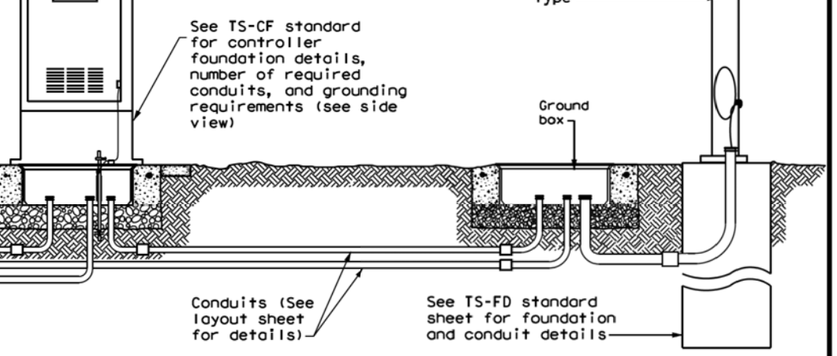
1. Do not pass luminaire conductors through the signal controller cabinet.
2. Include an equipment grounding conductor in all conduits throughout the electrical system. Bond all exposed metal parts to the grounding conductor.
3. Provide roadway luminaires, when required, in accordance with the material and construction sections of Item 610, "Roadway Illumination Assemblies," except for performance testing of luminaires. Test installed roadway luminaires for proper operation as a part of the associated traffic signal system test.
4. If internally illuminated street name signs are approved for use, ground the fixture to the pole with a 12 AWG green XHHW conductor.
5. Bond anchor bolts to rebar cage in two locations using #3 bars or 6 AWG stranded copper conductors. Use listed mechanical connectors rated for embedment in concrete. See TXDOT standard TS-FD for further details.
6. Drill and tap signal poles for ½ in. X 13 UNC tank ground fitting. Provide and install tank ground fitting 4 in. to 6 in. directly below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Connect the electrical service grounding electrode conductor to the tank ground fitting. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. See Inset A detail for further information. Size service entrance conduit and branch circuit conduit as shown in the plans.
7. Mount electrical service enclosure and meter to signal pole with stainless steel bands. Ensure bands are a minimum width of ¾ in. Secure enclosures to bands using two-bolt brackets. Install brackets near top and bottom of each enclosure. Install properly sized stainless steel washers on each bolt in the enclosure. Band or drill and tap properly sized stand-off straps to signal pole for attaching conduit.
8. Conduct pull tests and insulation resistance tests on all illumination and power conductors as required in Item 620 "Electrical Conductors" and ED(3). To prevent electronics damage, do not conduct insulation resistance tests on traffic signal cables after termination.
9. Lock all enclosures and bolt down all ground box covers before applying power to the signal installation.
10. Terminate conduits entering the top of enclosures with a conduit-sealing hub or threaded boss such as meter hub. Install a grounding bushing on all metal conduits not connected to conduit-sealing hub or threaded boss. Bond the grounding bushing to the ground bus with a bonding jumper. Seal all conduits entering enclosures with duct seal or expanding foam. Do not use silicone to seal conduit ends.
11. For all conduits, ensure the burial depth is a minimum of 18". Ensure the minimum burial depth for conduit placed under a roadway is 24".



INSET A

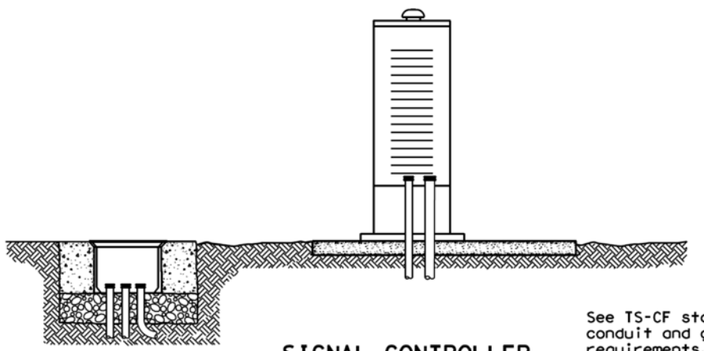
SIGNAL POLE WITH SERVICE

Type T electrical service mounted on signal pole shown as an example. See electrical details, layout sheets, and electrical service data chart for additional details.



SIGNAL CONTROLLER FRONT VIEW

SIGNAL POLE



SIGNAL CONTROLLER SIDE VIEW

See TS-CF standard for conduit and grounding requirements. See layout sheets for ground box locations and any additional conduits that are required.

COTTON BELT REGIONAL RAI
VELOWEB HIKE & BIKE TRAI
SHEET NO. 242 OF 378
DWG NO. WS9-2008
CONTRACT NO. C-2033270-01

Texas Department of Transportation | Traffic Operations Division Standard

ELECTRICAL DETAILS TYPICAL TRAFFIC SIGNAL SYSTEM DETAILS

ED(8)-14

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PEDESTAL SERVICE NOTES

1. Manufacture pedestal electrical services in accordance with Departmental Material Specifications (DMS)11080 "Electrical Services", 11085 "Electrical Services-Pedestal (PS)" and Item 628 "Electrical Services. "Provide pedestal electrical services as listed on the Material Producers list (MPL) on the Department's web site under "Roadway Illumination and Electrical Supplies," Item 628. Ensure all mounting hardware and installation details of services meet utility company specifications. Contact the local utility company for approval of pedestal details prior to installing the electrical pedestal service. Submit any changes required by the utility company prior to manufacturing the pedestal enclosure.

2. When a meter socket is required, provide a socket with a minimum 100 amp rating that complies with local utility requirements.

3. Provide Class A or C concrete for pedestal service foundations in accordance with Item 420, "Concrete Substructures," except that concrete will not be paid for directly but is considered subsidiary to Item 628.

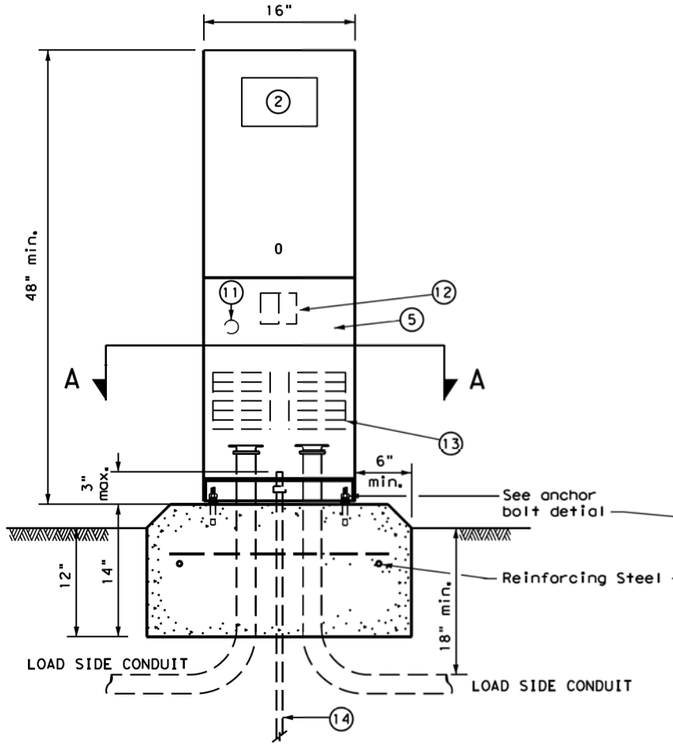
4. Provide #4 reinforcing steel for foundations in accordance with Item 440, "Reinforcement for Concrete."

5. Install ½ in. X 2 ⅛ in. minimum length concrete single expansion type anchors for mounting pedestal enclosure to foundation. Anchor location to match mounting holes in each corner of enclosure. Secure each of the four corners of the pedestal enclosure to the anchors in the foundation with a ½ in. galvanized or stainless steel machine thread bolt, a properly sized locknut and a flat washer.

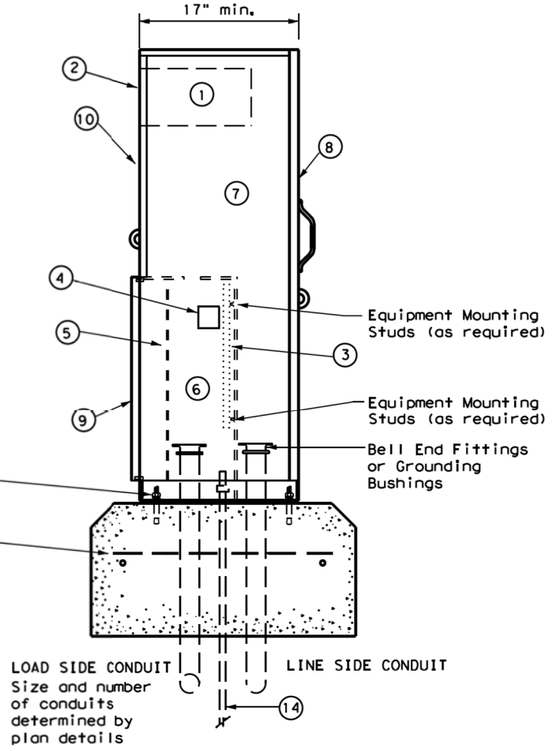
6. Finish top of concrete foundation in a neat and workmanlike manner. If leveling washers are used, ensure no more than ⅛ in. gap at any corner. Do not exceed a maximum dip or rise in the foundation of ⅛ in. per foot. When properly installed, ensure the top of the service enclosure is level front to back and side to side within ¼ in. Repair rocking or movement of the service enclosure at no additional cost to the department.

7. Do not use liquidtight flexible metal conduit (LFMC) on pedestal type services.

8. Ensure all elbows in the foundation are sized as per utility provider's conduit requirements for underground conduit and feeders. PVC extensions may be installed provided the ends of the rigid metal conduits are more than 2 in. below the top of the concrete foundation. Where extension conduits are metal, grounding bushings must be installed with a bonding jumper properly terminated.

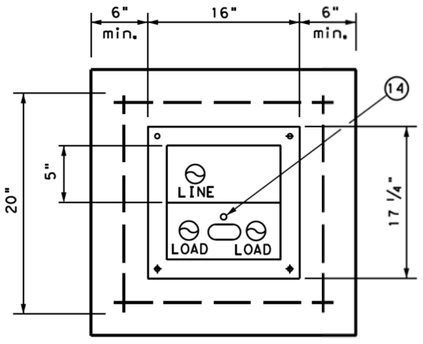


FRONT VIEW

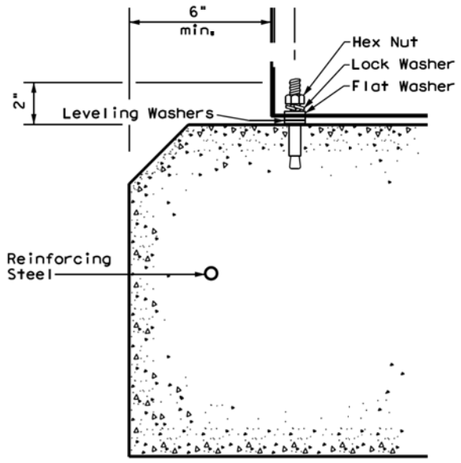


SIDE VIEW

TYPE C shown, TYPE A similar except that TYPE A shall have individual circuit breakers (CB) mounted on an equipment mounting panel. CB Handles shall protrude through hinged deadfront trim.



SECTION A-A



ANCHOR BOLT DETAIL

LEGEND	
1	Meter Socket, (when required)
2	Meter Socket Window, (when required)
3	Equipment Mounting Panel
4	Photo Electric Control Window, (When required)
5	Hinged Deadfront Trim
6	Load Side Conduit Trim
7	Line Side Conduit Area
8	Utility Access Door, with handle
9	Pedestal Door
10	Hinged Meter Access
11	Control Station (H-O-A Switch)
12	Main Disconnect
13	Branch Circuit Breakers
14	Copper Clad Ground Rod - 5/8" X 10'

COTTON BELT REGIONAL RAI
VELOWEB HIKE & BIKE TRAI
SHEET NO. 243 OF 378
DWG NO. WS9-2009
CONTRACT NO. C-2033270-01

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
ELECTRICAL SERVICE SUPPORT
PEDESTAL SERVICE TYPE PS
ED(9)-14

FILE: ed9-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

71J

DATE:
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ROADWAY ILLUMINATION ASSEMBLY NOTES

1. Details apply to roadway lighting installations bid or referenced under Item 610, "Roadway Illumination Assemblies." Provide, furnish, and install all other materials not shown on the plans which may be necessary for complete and proper construction. Where manufacturers provide warranties or guarantees as a customary trade practice, furnish to the State such warranties or guarantees.

2. The locations of poles and fixtures may be shifted by the Engineer to accommodate local conditions. Install or remove poles and luminaires located near overhead electrical lines using established industry and utility safety practices and in accordance with laws governing such work. Consult with the appropriate utility company prior to beginning such work.

3. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC),TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA),and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association, Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection.

4. Provide Roadway Illumination Light Fixtures as per TxDOT Departmental Material Specification (DMS) 11010, Item 610, and as shown on the Material Producers List (MPL) for Roadway Illumination and Electrical Supplies.

5. Fabricate steel roadway illumination poles in accordance with Roadway Illumination Poles (RIP) standards and Item 610. Poles fabricated according to RIP standards do not require shop drawing submittals.

   a. Alternate designs to RIP standards or the use of aluminum to fabricate poles will require the submission of shop drawings electronically. For instructions on submitting shop drawings electronically see "Guide to Electronic Shop Drawing Submittal" on the TxDOT web site.

   b. Limitations on use of the RIP standard: The RIP standard details were developed for installations in locations where the 3-second gust basic maximum wind speed is 110 mph, and where the elevation of the base of the pole is less than (i.e. not more than) 25' above the elevation of the surrounding terrain, in accordance with the "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals," 6th Edition (2013) of the AASHTO Design Specifications. For poles to be installed in regions where the maximum basic wind speed exceeds 110 mph or to be mounted more than 25' above the surrounding terrain, provide poles meeting the following requirements:

      i. Submittals. Following the electronic shop drawing submittal process (see Guide to Electronic Shop Drawing Submittal on the TxDOT web site), submit to the Engineer for approval fabrication drawings and calculations for the poles, sealed by a Texas licensed professional engineer (P.E.).

      ii. Luminaire Structural Support Requirements. Provide light poles, arms, and anchor bolt assemblies with a 25 year design life to safely resist dead loads, ice loads and the required basic wind speeds at the location of installation in accordance with the 6th edition (2013) of the AASHTO Design Specifications. For transformer base poles, include transformer base and connecting hardware in calculations and shop drawing submittals. Structurally test all transformer bases to resist the theoretical plastic moment capacity of the pole. Submit certification of the plastic moment load test and FHWA breakaway requirement test of the model of base being furnished with the shop drawings. Show breakaway base model number, manufacturer's name, and logo on shop drawings. Include on manufacturer's shop drawings the ASTM designations for all materials to be used.

6. For both transformer and shoe-base type illumination poles, provide and install double-pole breakaway fuse holders as specified by DMS-11040. Breakaway fuse holders are listed on the MPL for Roadway Illumination and Electrical Supplies under Items 610 & 620. Provide 10 amp time delay fuses for breakaway connectors in light poles, or inside the light fixture for underpass luminaires. In each pole, connect luminaires to the breakaway connector with continuous stranded 12 AWG copper conductors as listed on the MPL. Bond all equipment grounding conductors together and to the ground lug in the transformer base or hand hole.

7. Tighten anchor bolts for shoe base, concrete traffic barrier base, and bridge mount roadway illumination poles, in accordance with Item 449.

8. Install T-Base with following procedure:

   a. Anchor Bolt Tightening.

      i. Coat the threads of the anchor bolts with electrically conductive lubricant.

      ii. Place the T-base over the anchor bolts. Foundation must be level and flat. The maximum permissible gap under any one corner of the t-base is 1/8" before nuts are tightened.

      iii. Coat the bearing surfaces of the nuts and washers with electrically conductive lubricant. Install (1) 1/2" hold down washer, (1) lock washer, and (1) nut on each anchor bolt. Turn the nuts onto the bolts so that each is hand-tight against the washer.

      iv. Using a torque wrench, tighten each nut to 150 ft-lb. Uniform contact is required between the foundation and the T-base in the corner regions of the T-base, and all corner gaps must be closed after applying torque. If a gap still exists after torquing to 150 ft-lbs, continue torquing each bolt incrementally until gap is closed or maximum allowable torque of 250 ft. pound is reached, whichever comes first. If 250 ft-lbs is not enough to close the gap the foundation must be leveled. Gaps along the straight sides of the T-bases and the foundation are permissible. Ensure that no high point of contact occurs between the straight sides of the T-base and the foundation.

      v. Check top of T-base for level. If not level then foundation must be leveled.

   b. Top Bolt Procedure

      i. Erect pole over T-base with crane. Coat bolts, nuts, washers, and lock washers with electrically conductive lubricant.

      ii. Install bolts and 1/2" connecting washers from the inside of the T-base, thread up through the pole base. Install flat washers, lock washers and nuts snug tight according to Item 447, "Structural Bolting."

      iii. Tighten each nut to 150 ft-lb. using a torque wrench.

   c. Level and Plumb

      i. Ensure pole is plumb and mast arm is perpendicular to the roadway according to plans to within 5 degrees.

9. Construct luminaire pole foundations in accordance with Item 416, "Drilled Shaft Foundations," and TxDOT standard sheet RID(2).

10. Provide and install underpass luminaires in accordance with Item 610, DMS-11010, and TxDOT standard sheet RID(3). Typical luminaire size for underpass luminaires is 150W HPS or 150W EQ LED.

11. Mount luminaires on arms level as shown by the luminaire level indicator.

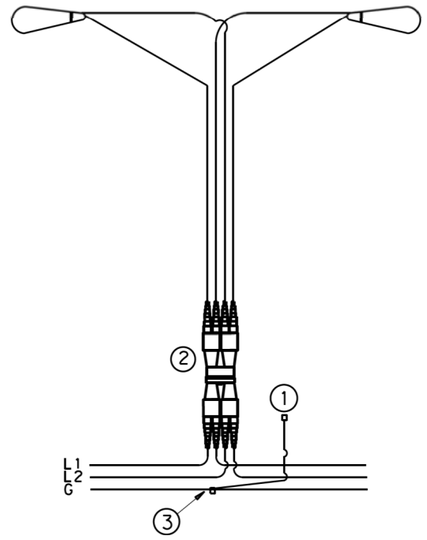
12. Orient luminaires perpendicular to the roadway intended to be lit unless otherwise shown on the plans.

Wiring Diagram Notes:

(1) Use 1/2 in.-13 UNC threaded, copper or tin-plated copper, pole bonding connector, sized appropriately for conductors, bonded to T-base, or use ground lug in handhole as available.

(2) Use pre-qualified two-pole breakaway connectors for all luminaire pole installations. For luminaires fed by a circuit with a neutral conductor, use double pole breakaway connectors with the neutral side unfused and marked white.

(3) Split Bolt or other connector.



L1,L2 = Hot Conductors
G = Grounding Conductor

TYPICAL WIRING DIAGRAM

LUMINAIRES SERVED AT 480V ON 240/480 VOLT SERVICE OR LUMINAIRES SERVED AT 240V FOR 120/240 VOLT SERVICE.

Decorative LED Lighting Notes:

1. LED Drivers in Remote Outdoor enclosures (for drivers that do not include an enclosure as part of a factory assembly):

   a. Provide NEMA 3R outdoor enclosure or as approved.

   b. Install enclosure at least 12" above ground or other horizontal surface. Mount vertically or on ceiling, and avoid direct sun where possible.

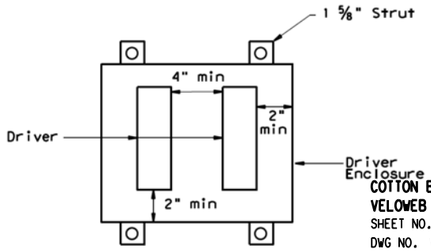
   c. Install drivers with at least 2 inches of space from enclosure walls.

   d. For multiple drivers in an enclosure, provide at least 4 inches side to side and 1 inch end to end from other drivers or electronic equipment

   e. For drivers mounted on back wall of enclosure, mount enclosure on 1 5/8" strut or other standoff to dissipate heat, or mount driver to side of the enclosure or to the metal cover.

   f. Provide remote drivers with a maximum of 100 watts

   g. Provide drivers with documentation of 100,000 hr lifetime at Tcase of 65C or higher.



Driver Spacing In Remote Enclosure

Texas Department of Transportation — Traffic Safety Division Standard

ROADWAY ILLUMINATION DETAILS

RID(1)-20

FILE: rid1-20.dgn	DN:	CK:	DW:	CK:
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7-17	DIST	COUNTY		SHEET NO.
12-20				

72A

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 244 OF 378
DWG NO. WS9-2010
CONTRACT NO. C-2033270-01

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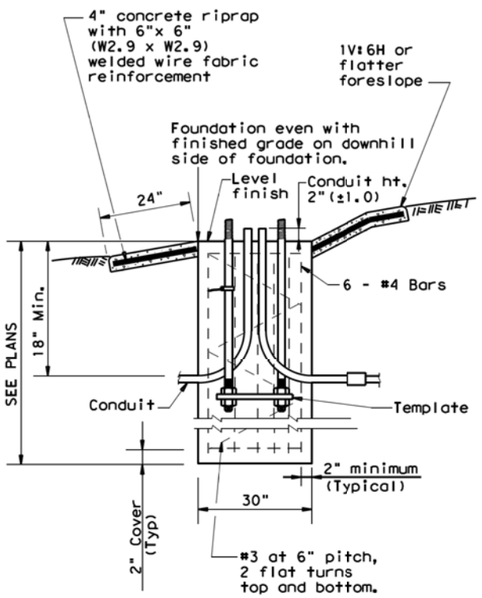
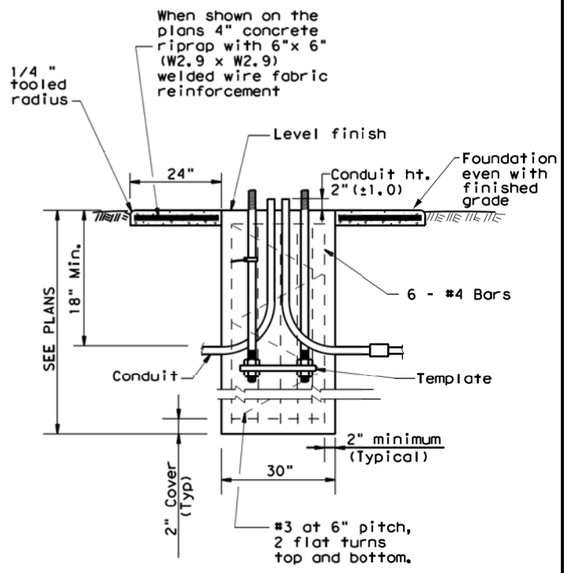


SECTION A-A
SHOWING SLOPED GRADE



SECTION A-A
SHOWING CONSTANT GRADE

TABLE 1

ANCHOR BOLTS

POLE MOUNTING HEIGHT	BOLT CIRCLE		ANCHOR BOLT SIZE
	Shoe Base	T-Base	
<40 ft.	13 in.	14 in.	1in. x 30in.
40-50 ft.	15 in.	17 ¼in.	1 ¼in. x 30in.

TABLE 2

RECOMMENDED FOUNDATION LENGTHS
(See note 1)

MOUNTING HEIGHT	TEXAS CONE PENETROMETER N Blows/ft		
	10	15	40
≤20 ft.	6′	6′	6′
>20 ft. to 30 ft.	8′	6′	6′
>30 ft. to 40 ft.	8′	8′	6′
>40 ft. to 50 ft.	10′	8′	6′

TABLE 3

PAY QUANTITY OF RIPRAP PER FOUNDATION (Install only when shown on the plans)

Foundation Diameter	RIPRAP DIAMETER	RIPRAP (CONC) (CL B)
30 in.	78 in.	0.35 CY

GENERAL NOTES:

1. "Recommended Foundation Lengths" table is for information purposes only. Foundation lengths shall be as shown on the plans, or as directed by the Engineer. Foundations will be paid for under Item 416, "Drilled Shaft Foundations," unless otherwise shown on the plans.
2. Erect roadway illumination assembly poles plumb and true. Form and level the top 6" of the foundation so the pole will be plumb. Use leveling nuts to plumb shoe base poles. Do not use shims or leveling nuts under transformer bases. Do not grout between baseplate and the foundation.
3. Ensure Class 2A and 2B fit for anchor bolts and nuts. Tap and chase nuts after galvanizing. Anchor bolt body with rolled threads need not be full size.
4. Use appropriate class of concrete as specified in Items 416 and 432. Concrete for riprap may be upgraded to Class C at no extra cost to the Department.
5. Place riprap around the foundation when called for elsewhere in the plans. Riprap will be paid for under Item 432.
6. Locate breakaway roadway illumination assemblies as shown in the placement table, unless otherwise dimensioned on the plans. Protect non-breakaway illumination assemblies from vehicular impact (i.e. 2.5 ft. behind guard rail or mounted on traffic barrier), or located outside the clear zone, except that 2.5 ft. from curb face is minimum desired for light poles on city streets, 45 mph or less. See Roadway Design Manual for further information.
7. Use 4 hold down and 4 connecting washers on transformer base poles as recommended by the manufacturer and supplied with base.
8. Install a minimum of 2 conduits in each foundation. See lighting layout sheets for locations of foundations with more than 2 conduits. Cap unused conduits in foundations on both ends.
9. Conduit location in foundations is critical for breakaway devices. Place conduits 2 in. apart on centerline as shown.
10. Bond anchor bolt to rebar cage with #6 bare stranded copper conductor. Use listed mechanical connectors rated for embedment in concrete. The bonded steel in the foundation creates a concrete encased grounding electrode which replaces the ground rod.
11. Grade earthwork around T-base foundations even with the finished grade as shown in Section A-A to ensure proper function of the breakaway device. Use riprap on T-base foundations that are located on sloped grades, and as shown on the plans for level grades.

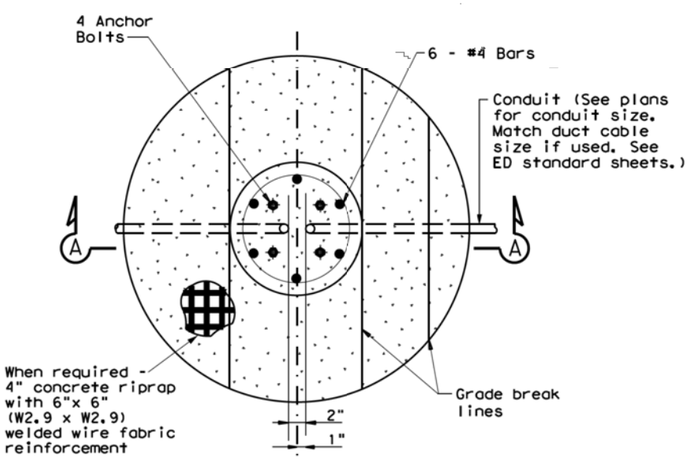
TABLE 4

BREAKAWAY POLE PLACEMENT (See note 6)

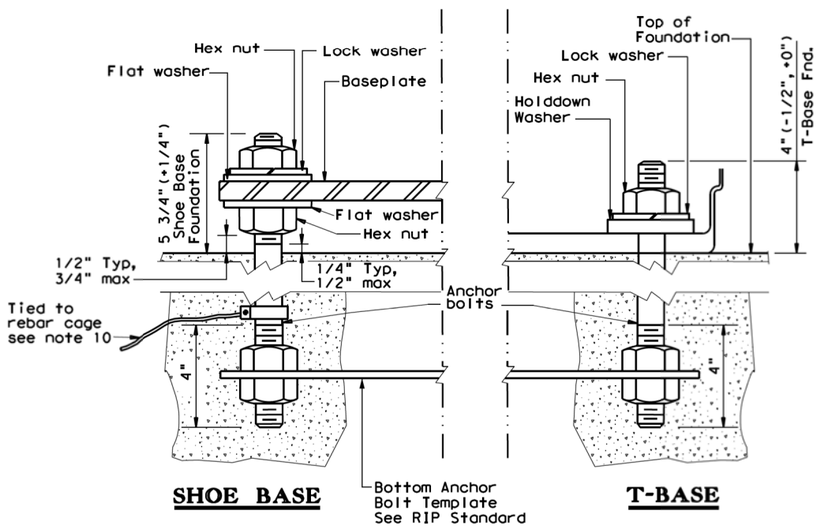
ROADWAY FUNCTIONAL CLASSIFICATION	** POLE OFFSET (DISTANCE TO FACE OF TRANSFORMER BASE)
Freeway Mainlanes (roadway with full control of access)	15 ft. (minimum and typical) from lane edge
All curbed, 45 mph or less design speed	2.5 ft. minimum (15 ft. desirable) from curb face
All others	10 ft. minimum*(15 ft. desirable) from lane edge

* or as close to ROW line as is practical

** provide 2/5 of the luminaire mounting height behind the pole for "falling area" to prevent encroachment on the other travel lanes. See design guidelines.



FOUNDATION DETAIL



ANCHOR BOLT DETAIL

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 245 OF 378
DWG NO. WS9-2011
CONTRACT NO. C-2033270-01

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION DETAILS
(RDWY ILLUM FOUNDATIONS)
RID(2)-20

FILE: rid2-20.dgn	DN:	CK:	DW:	CK:
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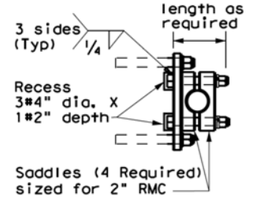
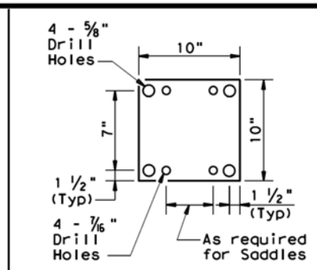
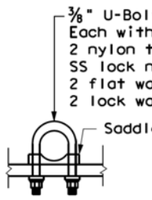


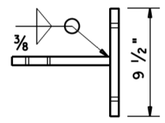
SECTION A-A



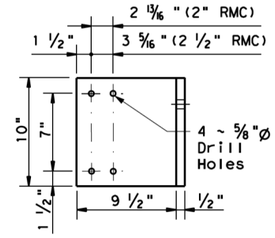
MOUNTING PLATE
(ASTM A-36 or better)



CLAMP DETAIL
(2 Req'd)



PLAN VIEW



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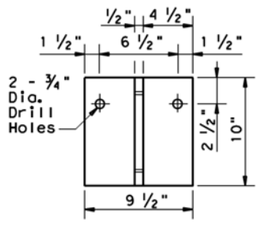
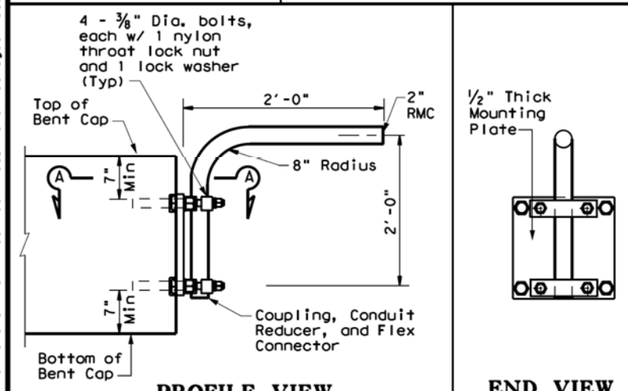


SIDE

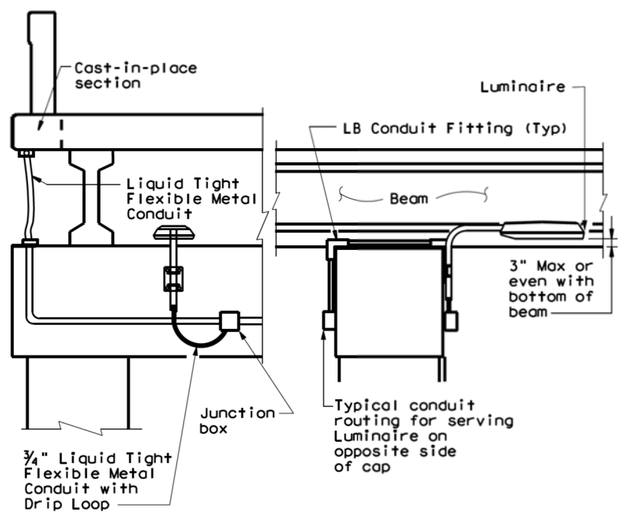
BRACKET DETAIL
Make from 1/2" plate (ASTM A-36 or better)



PROFILE VIEW
Or as Required
(See Note A.3)

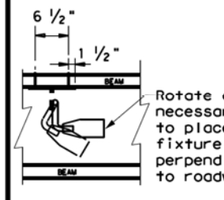
END VIEW

UNDERPASS LIGHTING ARM



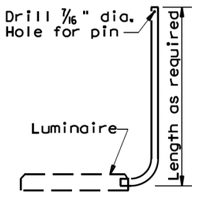
IN RD IL AM (U/P)(TY 1)
If bridge has pre-cast panels under deck, run circuit under deck edge.

UNDERPASS LIGHTING TYPE 1



PLAN VIEW

FIXTURE ORIENTATION



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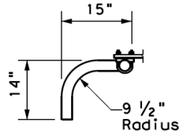
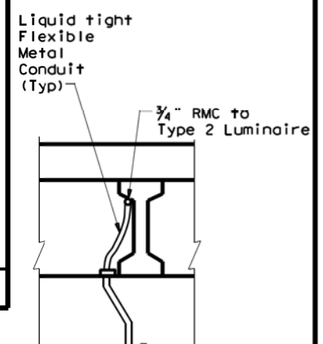


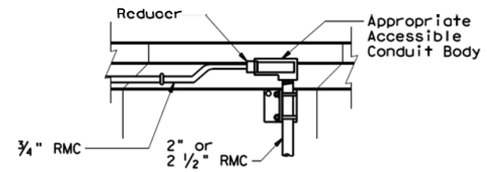
PLAN VIEW

ARM DETAIL

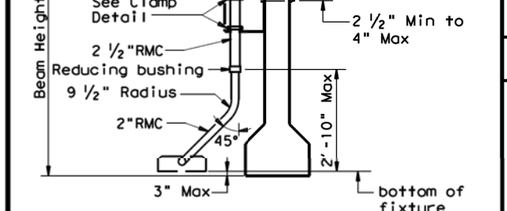


3 - No. 12 XHHW in 3/4" RMC for Branch Circuit runs from fused disconnect to underpass Luminaires

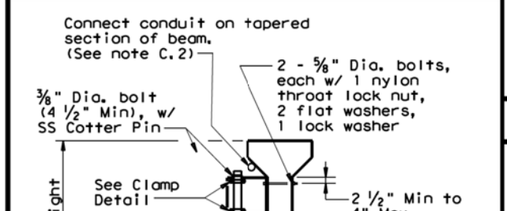
CONDUIT DETAIL



CONDUIT CONNECTION PROFILE

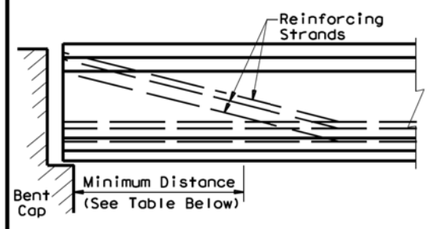


FRONT
(Beam height greater than 54")



FRONT
(Beam height equal to or less than 54")

IN RD IL AM (U/P)(TY 2)



LOCATION OF UNDERPASS LIGHT MOUNTING BRACKET

TABLE 5
LOCATION OF UNDERPASS LIGHT MOUNTING BRACKET TABLE

SPAN LENGTH	MINIMUM DISTANCE
≤ 50'	10'-0"
50' - 70'	15'-0"
70' - 90'	20'-0"
> 90'	25'-0"

GENERAL NOTES:

A. ALL 150 watt HPS and 150 watt equivalent LED Luminaires

1. Luminaire locations, conduit and conductor sizes and routing are typical and diagrammatic only. See project layout sheets for specific details.
2. Conduit will be paid for under Item 618, "Conduit" and conductors will be paid for under Item 620, "Electrical Conductors," unless otherwise shown on the plans.
3. Adjust conduit in saddles to place fixture height and orientation as required. See fixture orientation detail and plans. Where practicable, place luminaires so the bottom of luminaire is above the bottom of the beam, maximum of 3 in. (See detail UNDERPASS LIGHTING ARM TYPE 2)
4. Except as noted, galvanize all structural steel and exposed bolts, nuts, and washers in accordance with Item 445 "Galvanizing".
5. Fabrication of brackets and support arms will not be paid for directly but is subsidiary to Item 610, "Roadway Illumination Assemblies."
6. Install a heavy duty NEMA 3R fused disconnect or breaker enclosure rated at 30 amps and 480 volts to switch underpass luminaires as shown on plans, with at least one per bridge circuit. Install 20 amp time-delay fuses or inverse-time circuit breakers. Mount disconnect or breaker enclosure 10 ft. (min) above grade on columns or bent caps as approved by the Department. Modify disconnect to allow padlocking in the "ON" and "OFF" positions. Padlocks and disconnect switches or circuit breakers for underpass fixtures will not be paid for directly but are subsidiary to the various bid items of the contract.
7. Conduit on columns, caps, and slab is shown surface mounted. For new columns and caps, embed PVC conduit in concrete. Bond and ground metal junction boxes and conduit.

B. TYPE 1

1. Provide 2 in. rigid metal conduit (2.375" O.D., 0.146" wall) for Type 1 arm shaft.
2. Use 3/8 in. stainless steel bolt or stud non-epoxy type expansion anchors for concrete for Type 1 mounting. Except as noted, provide an allowable 2650 lbs minimum pull-out force (after consideration of adjustment factors for edge distance and bolt spacing) for each anchor. Install each anchor to the embedment depth recommended by the manufacturer.
3. Attach conduit to plate with 4 saddles, four - 3/8 in. diameter bolts, nylon throat lock nuts, and lock washers.

C. TYPE 2

1. Provide 2 in. rigid metal conduit (2.375" O.D., 0.146" wall) or provide a combination of 2 1/2 in. (2.875" O.D., 0.193" wall) and 2 in. (2.375" O.D., 0.146" wall) rigid metal conduits with a reducing bushing as beam height stipulated for Type 2 arm shaft. Field cutting and threading will be permitted. Paint cut and threaded areas with zinc rich paint after conduit is connected to adjacent fitting.
2. Connecting conduit may be strapped to tapered section only of precast beams as shown. Anchor as approved by the Engineer. Maximum anchor depth is 1 in.
3. Indiscriminate drilling into precast concrete beams may result in reduced beam strength. Use drilling location and method as directed by the Engineer. See Location of Underpass Lighting Mounting Bracket detail. The locations shown in the table are such that reinforcing strands will not be damaged.

UNDERPASS LIGHTING TYPE 2

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION DETAILS
(UNDERPASS LIGHT FIXTURES)

RID(3)-20

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COTTON GIN LOCAL RAIL
VELOWER BIKE & BIKE TRAIL
SHEET NO. 246 OF 378
DWG NO. WS9-2012
CONTRACT NO. C-2033270-01

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SHIPPING PARTS LIST - POLES AND LUMINAIRE ARMS

Nominal Mounting Ht. (ft)	Shoe Base Designation				Quantity	T-Base Designation				Quantity	CSB/SSCB Mounted Designation				Quantity
	Pole	A1	A2	Luminaire		Pole	A1	A2	Luminaire		Pole	A1	A2	Luminaire	
20	(Type SA 20 S - 4)			(150W EQ) LED		(Type SA 20 T - 4)			(150W EQ) LED						
	(Type SA 20 S - 4 - 4)			(150W EQ) LED		(Type SA 20 T - 4 - 4)			(150W EQ) LED						
30	(Type SA 30 S - 4)			(250W EQ) LED		(Type SA 30 T - 4)			(250W EQ) LED		(Type SP 28 S - 4)			(250W EQ) LED	
	(Type SA 30 S - 4 - 4)			(250W EQ) LED		(Type SA 30 T - 4 - 4)			(250W EQ) LED		(Type SP 28 S - 4 - 4)			(250W EQ) LED	
	(Type SA 30 S - 8)			(250W EQ) LED		(Type SA 30 T - 8)			(250W EQ) LED		(Type SP 28 S - 8)			(250W EQ) LED	
	(Type SA 30 S - 8 - 8)			(250W EQ) LED		(Type SA 30 T - 8 - 8)			(250W EQ) LED		(Type SP 28 S - 8 - 8)			(250W EQ) LED	
40	(Type SA 40 S - 4)			(250W EQ) LED		(Type SA 40 T - 4)			(250W EQ) LED		(Type SP 38 S - 4)			(250W EQ) LED	
	(Type SA 40 S - 4 - 4)			(250W EQ) LED		(Type SA 40 T - 4 - 4)			(250W EQ) LED		(Type SP 38 S - 4 - 4)			(250W EQ) LED	
	(Type SA 40 S - 8)			(250W EQ) LED		(Type SA 40 T - 8)			(250W EQ) LED		(Type SP 38 S - 8)			(250W EQ) LED	
	(Type SA 40 S - 8 - 8)			(250W EQ) LED		(Type SA 40 T - 8 - 8)			(250W EQ) LED		(Type SP 38 S - 8 - 8)			(250W EQ) LED	
	(Type SA 40 S - 10)			(250W EQ) LED		(Type SA 40 T - 10)			(250W EQ) LED		(Type SP 38 S - 10)			(250W EQ) LED	
	(Type SA 40 S - 10 - 10)			(250W EQ) LED		(Type SA 40 T - 10 - 10)			(250W EQ) LED		(Type SP 38 S - 10 - 10)			(250W EQ) LED	
	(Type SA 40 S - 12)			(250W EQ) LED		(Type SA 40 T - 12)			(250W EQ) LED		(Type SP 38 S - 12)			(250W EQ) LED	
	(Type SA 40 S - 12 - 12)			(250W EQ) LED		(Type SA 40 T - 12 - 12)			(250W EQ) LED		(Type SP 38 S - 12 - 12)			(250W EQ) LED	
50	(Type SA 50 S - 4)			(400W EQ) LED		(Type SA 50 T - 4)			(400W EQ) LED		(Type SP 48 S - 4)			(400W EQ) LED	
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	(Type SA 50 S - 8 - 8)			(400W EQ) LED		(Type SA 50 T - 8 - 8)			(400W EQ) LED		(Type SP 48 S - 8 - 8)			(400W EQ) LED	
	(Type SA 50 S - 10)			(400W EQ) LED		(Type SA 50 T - 10)			(400W EQ) LED		(Type SP 48 S - 10)			(400W EQ) LED	
	(Type SA 50 S - 10 - 10)			(400W EQ) LED		(Type SA 50 T - 10 - 10)			(400W EQ) LED		(Type SP 48 S - 10 - 10)			(400W EQ) LED	
	(Type SA 50 S - 12)			(400W EQ) LED		(Type SA 50 T - 12)			(400W EQ) LED		(Type SP 48 S - 12)			(400W EQ) LED	
	(Type SA 50 S - 12 - 12)			(400W EQ) LED		(Type SA 50 T - 12 - 12)			(400W EQ) LED		(Type SP 48 S - 12 - 12)			(400W EQ) LED	

OTHER Designation				Quantity
Pole	A1	A2	Luminaire	

GENERAL NOTES:

1. All work, materials and services not shown on the plans which may be necessary for complete and proper construction shall be performed, furnished and installed by the Contractor. Faulty fabrication or poor workmanship in any material, equipment or installation will be considered justification for rejection. Where manufacturers provide warranties or guarantees as a customary trade practice, furnish to the Department such warranties or guarantees.

2. The location of poles and fixtures are diagrammatic only and may be shifted by the Engineer to accommodate local conditions. Install or remove poles and luminaires located near overhead electrical lines using established industry and utility safety practices and in accordance with laws governing such work. Consult with the appropriate utility company prior to beginning such work.

3. Standard Steel Pole Designs. Steel poles fabricated in accordance with the details and dimensions shown herein, shall be considered standard designs. Submission of shop drawings and design calculations for standard designs is not required.

4. Optional Steel Pole Designs. Multi-sided steel poles may be allowed as optional designs, if steel poles are permitted or required, pending approval by the Department as outlined below.

   a. Shop Drawings. Optional designs require submission of shop drawings and design calculations bearing the seal of an engineer licensed in the State of Texas, in accordance with Item 441, "Steel Structures." The Department may elect to pre-approve some shop drawings for optionally designed poles. Submission of shop drawings and design calculations is not required for structures fabricated in accordance with the details of shop drawings on the pre-approved list maintained by the TxDOT Traffic Operations Division. Any deviation from the pre-approved shop drawings will require submission of shop drawings of the complete assembly and design calculations as described above.
   b. Structural Support Design for Luminaires. Lighting support structures shall be designed for a 25 year design life in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 6th Edition (2013) and Interim Revisions thereto. All poles shall be designed for 110 mph 3-second gust wind speeds. The Gust Factor, G, and Wind Importance Factor, Ir, shall be applied as per the AASHTO Specifications assuming a 25-year design life. The design wind pressure for hurricane wind velocities greater than 100 mph shall not be less than the design wind pressure using 100 mph with the non-hurricane Wind Importance Factor, Ir, value. For transformer base poles, fabricator shall include transformer base and connecting hardware in design calculations and shop drawing submittals. All transformer bases shall have been structurally tested to resist the theoretical plastic moment capacity of the pole. Certification of the plastic moment load test and FHWA breakaway requirement test of the model of base being furnished shall be submitted with the shop drawings. Shop drawings shall show breakaway base model number, and manufacturer's name and logo. Manufacturer's shop drawings shall include the ASTM designations for all materials to be used.
   c. Mast Arm Attachments. All poles and attachments shall be structurally designed to support two 12-foot mast arms and luminaires. Poles shall be supplied with mast arm combinations as shown in the plans. All mast arms shall be designed for a 60-pound luminaire having an effective projected area of 1.6 square feet.
   d. Anchor Bolt Assembly. Anchor bolt assemblies for optionally designed poles shall be the same as those shown herein.

5. Aluminum Pole Designs. Aluminum pole designs may be allowed, if aluminum poles are permitted or required, pending approval by the Department as outlined below.

   a. Meet all of the requirements stated above for optional steel pole designs and the following:
      1. Aluminum poles shall be fabricated in accordance with "Structural Welding Code-Aluminum" AWS D1.2.
      2. Aluminum pole designs shall use the same anchor bolt assembly and be subject to the same geometric restraints and other requirements for steel poles specified herein.
      3. Aluminum poles shall be equipped with vibration mitigation devices, as approved by the engineer.
      4. Pole components shall be constructed using the following material:
         Shaft: ASTM B221 or B241 Alloy 6063-T6, ASTM B209 Alloy 5086-H34, ASTM B221 Alloy 6005-T5.
         Base Flange: ASTM B26 Alloy 356.0-T6 or ASTM B108 Alloy 356.0-T6 (Yield strength test required).
         Mast Arm Fitting: ASTM B209 Alloy 6061-T6 or ASTM B221 Alloy 6005-T5.
         Mast Arms: ASTM B241 Alloy 6061-T6 or Alloy 6063-T6.
         Pole Cap: ASTM B209 Alloy 5086-H32 or ASTM B108 or B26 Alloy 356.0-T6.
         Bolts: Stainless Steel AISI 300 series. Bolts threading into aluminum threads shall be treated with anti-seize compound, Never-Seez Compound, Permatex 133K or equal.

6. Special Designs. Poles with architectural treatments shall meet the requirements shown elsewhere in the plans.

7. Luminaire Mounting Height. Actual luminaire mounting height shall be the nominal mounting height given on RIP(2) for all pole-arm combinations except for poles with 4 ft. luminaire arms, which shall be 3'-0" lower than the nominal height, unless otherwise shown or directed.

EXPLANATION OF ROADWAY ILLUMINATION ASSEMBLY DESIGNATIONS

(TYPE SA 50 T - X - X) (400W EQ) LED

- SA: Pole and mast arm may be steel or aluminum.
- ST: Pole and mast arm must be steel.
- AL: Pole and mast arm must be aluminum.
- SP: Special (ovalized) steel or aluminum pole for installing on CSB or SSCB. See standard sheet CSB (4), or SSCB (4).

Two numerical digits denote nominal mounting height in feet.

Next letter denotes type of base, (S-Shoe Base, T-Transformer Base, or B-Bridge/Ret.Wall Mount)

First number denotes length of mast arm in feet.

Use of second mast arm is indicated by second dashed number which denotes length in feet.

Luminaire rating in watts (i.e. 400W). Equivalent wattage LED fixtures will include EQ (i.e. 400W EQ)

Last letters indicate light source (S - High Pressure Sodium; LED - LED luminaire)

COTTON BELT REGIONAL RAIL
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SHEET NO. 247 OF 378
DWG NO. WS9-2013
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SHEET 1 OF 4

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION POLES

RIP(1)-19

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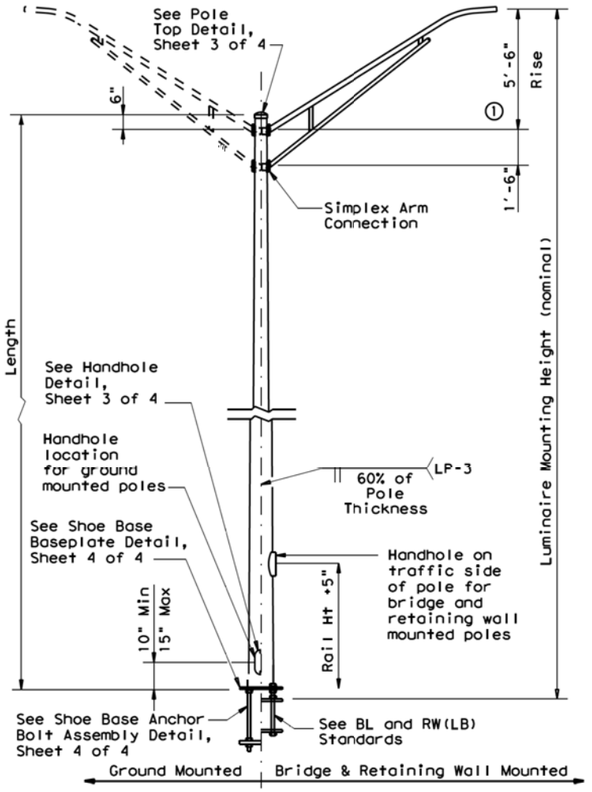
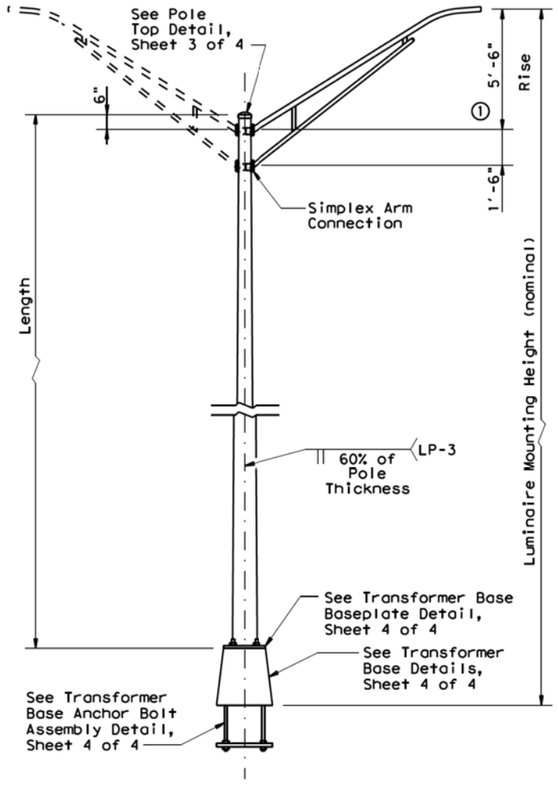


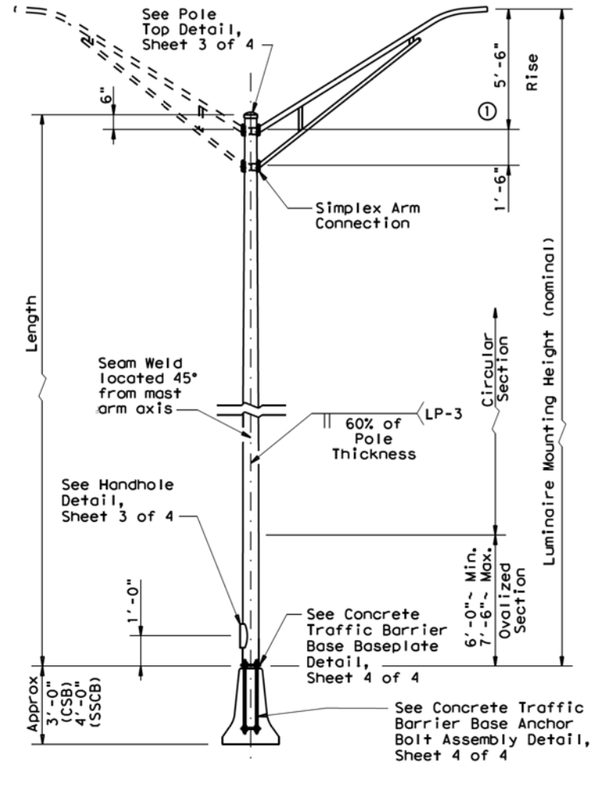
SHOE BASE POLE

SHOE BASE POLE					
Luminaire Mounting Height (Nominal) (ft)	Base Diameter (in)	Top Diameter (in)	Length (ft)	Pole Thickness (in)	Design Moment (K-ft)
20.00	7.00	4.90	15.00	0.1196	7.1
30.00	7.50	4.00	25.00	0.1196	13.2
31.00-39.00	8.00	4.36-3.24	26.00-34.00	0.1196	20.7
40.00	8.50	3.60	35.00	0.1196	20.7
50.00	10.50	4.20	45.00	0.1196	30.3



TRANSFORMER BASE POLE

TRANSFORMER BASE POLE					
Luminaire Mounting Height (Nominal) (ft)	Base Diameter (in)	Top Diameter (in)	Length (ft)	Pole Thickness (in)	Design Moment (K-ft)
20.00	7.00	5.11	13.50	0.1196	7.1
30.00	7.50	4.21	23.50	0.1196	13.2
31.00-39.00	8.00	4.57-3.45	24.50-32.50	0.1196	20.7
40.00	8.50	3.81	33.50	0.1196	20.7
50.00	10.00	3.91	43.50	0.1196	30.3



CONCRETE TRAFFIC BARRIER BASE POLE

CONCRETE TRAFFIC BARRIER BASE POLE (CSB/SSCB)						
Luminaire Mounting Height (Nominal) (ft)	Base ② Diameter (in)	Top Diameter (in)	Length (ft)	Pole Thickness (in)	Design Moment (K-ft)	
					About ℄ of Rail	Perp. to Rail
28.00	9.00	5.78	23.00	0.1196	10.3	13.2
38.00	9.00	4.38	33.00	0.1196	16.6	20.8
48.00	10.50	4.48	43.00	0.1345	25.1	30.5

MATERIAL DATA		
COMPONENT	ASTM DESIGNATION	MIN. YIELD (ksi)
Pole Shaft (0.14"/ft. Taper)	A572 Gr 50, A595 Gr A, A1011 HSLAS Gr 50 Cl 2 ③, or A1008 HSLAS Gr 50 Cl 2	50
Base Plate and Handhole Frame	A572 Gr.50, or A36	36
T-Base Connecting Bolts	F3125 Gr A325	92
Anchor Bolts	F1554 Gr 55, A193-B7 or A321	55 105
Anchor Bolt Templates	A36	36
Heavy Hex (H.H.) Nuts	A194 Gr 2H, or A563 Gr DH	
Flat Washers	F436	

NOTES:

① 2'-6" rise for 4 ft. luminaire arms.

② Before ovalized as shown on Concrete Traffic Barrier Base Baseplate details, Sheet 4 of 4.

③ A1011 SS Gr 50 may be used instead of HSLAS, provided the material meets the elongation requirements for HSLAS.

POLE ASSEMBLY FABRICATION TOLERANCES TABLE	
DIMENSION	TOLERANCE
Shaft length	+1"
I.D. of outside piece of slip fitting pieces	+1/8", -1/16"
O.D. of inside piece of slip fitting pieces	+1/32", -1/8"
Shaft diameter: other	+3/16"
Out of "round"	1/4"
Straightness of shaft	±1/4" in 10 ft
Twist in multi-sided shaft	4° in 50 ft
Perpendicular to baseplate	1/8" in 24"
Pole centered on baseplate	±1/4"
Location of Attachments	±1/4"
Bolt hole spacing	±1/16"

GENERAL NOTES:

1. Designs conform to AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals , 6th Edition (2013) and Interim Revisions thereto. Design 3-Second Gust Wind Speed equals 110 mph with a 1.14 gust factor. A wind importance factor of 0.80 is applied to adjust the wind speed to a 25 year recurrence interval. Design moments listed in tables assume base of pole is 25' above natural ground level.
2. Structures are designed to support two 12' luminaire mast arms and luminaires. Mast arms are designed to support a 60-pound luminaire having an effective projected area of 1.6 square feet.
3. Fabrication shall be in accordance with the Specifications and with the details, dimensions, and weld procedures shown herein. Do not submit shop drawings for roadway illumination pole assemblies fabricated in accordance with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of these sheets and the Specifications. In the absence of specified fabrication tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice.
4. For mounting heights between values shown in the tables, use base diameter and thickness values for the larger height.
5. Unless otherwise noted, all steel parts shall be galvanized in accordance with Item 445, "Galvanizing."
6. Steel poles shall be fabricated in accordance with Item 441, "Steel Structures." Longitudinal seam welds for pole sections shall have 60% minimum penetration. All welding shall be in accordance with AWS D1.1, Structural Welding Code-Steel.
7. Two-section poles joined by circumferential welds will not be permitted, unless otherwise shown on the plans. Poles may be fabricated in two sections and field-assembled by the lap-joint method. The two sections shall telescope together with a lap length of not less than 1-1/2 times the shaft diameter at the lap joint.
8. Alternate material equal to or better than material specified may be substituted with the approval of the Engineer.
9. Lubricate and tighten anchor bolts, when erecting shoe base poles and concrete traffic barrier base poles, in accordance with Item 449, "Anchor Bolts."
10. All poles, except Transformer Base Poles, shall have hand holes with reinforcing frames and covers. For ground mounted shoe base poles, hand holes shall be placed 90 degrees to mast arm unless otherwise noted on the plans. For poles mounted on a concrete traffic barrier with one luminaire arm, hand holes shall be located 180 degrees from luminaire arm. For poles mounted on a concrete traffic barrier with two luminaire arms, all hand holes shall be on the same side of the barrier. For poles mounted on a bridge lighting bracket or a retaining wall lighting bracket, hand hole shall be on traffic side of the pole, at a height that will clear the barrier.
11. The finished pole shall have a smooth, uniform finish free of pits, blisters, or other defects. Scratched, chipped, and other damaged galvanized areas on poles and mast arms shall be repaired in accordance with Item 445, "Galvanizing."
12. Pole length is based on a 5'-6" luminaire arm rise. 4 ft. luminaire arms have a 2'-6" rise. A pole with 4 ft. luminaire arms will have an actual mounting height 3'-0" less than the nominal mounting height. Increasing the pole length to meet the nominal mounting height is allowed, but unnecessary unless otherwise directed by the engineer.
13. Erect transformer base poles in accordance with sheet RID(1).

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 248 OF 378
DWG NO. WS9-2014
CONTRACT NO. C-2033270-01

ROADWAY ILLUMINATION POLES

RIP(2)-19

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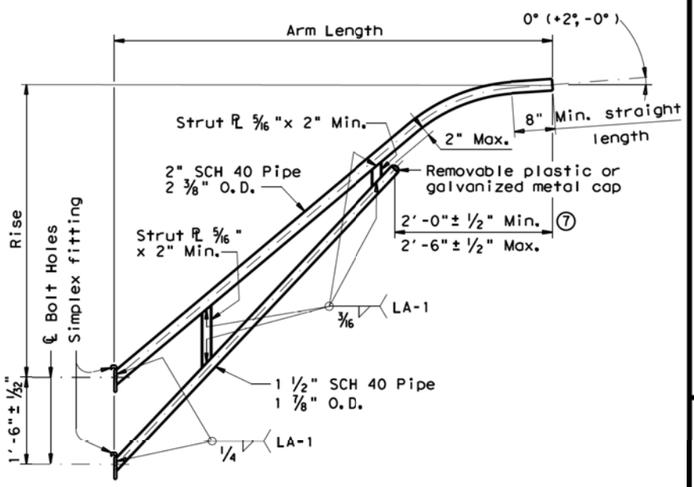
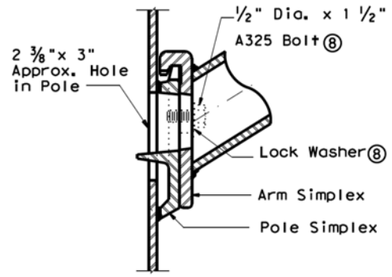


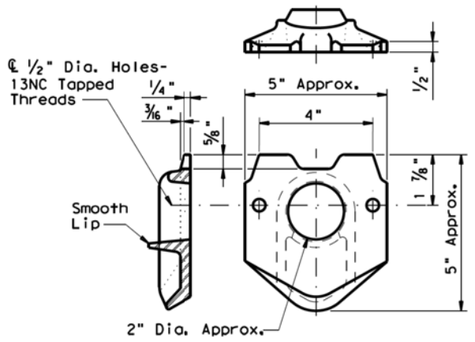
LUMINAIRE ARM

LUMINAIRE ARM DIMENSIONS		
Nominal Arm Length	Arm Length	Rise
4'-0"	3'-6"	2'-6"
6'-0"	5'-6"	5'-6"
8'-0"	7'-6"	5'-6"
10'-0"	9'-6"	5'-6"
12'-0"	11'-6"	5'-6"

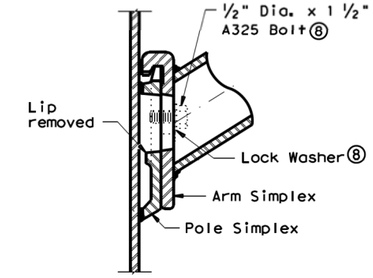
ARM ASSEMBLY FABRICATION TOLERANCES TABLE	
DIMENSION	TOLERANCE
Arm Length	±1"
Arm Rise	±1"
Deviation from flat	1/8" in 12"
Spacing between holes	±1/32"



UPPER SIMPLEX FITTING
(Gusset not shown for clarity)

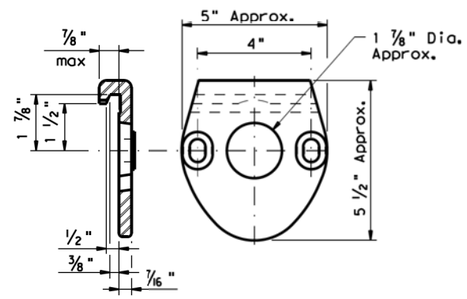


POLE SIMPLEX DETAIL ⑨



LOWER SIMPLEX FITTING
(Gusset not shown for clarity)

SECTION B-B



ARM SIMPLEX DETAIL ⑨

NOTES:

④ Any of the materials listed for plates may be used where the drawings do not specify a particular ASTM designation.

⑤ A576 must be suitable for forging and also meet minimum tensile strength of 65 ksi, minimum yield of 35 ksi, and elongation in 2 inches of 22 percent.

⑥ A572, A1008 HSLAS-F, and A1011 HSLAS-F materials may have higher yield strengths but shall not have less elongation than the grade indicated.

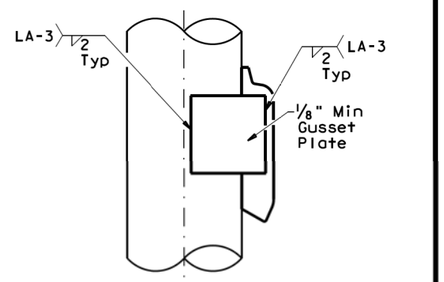
⑦ Dimensional limits are given to show acceptable variation in design. All of a Fabricator's production of a particular arm length shall have the same dimensions within specified tolerances.

⑧ Each pole simplex fitting shall be supplied with 2 bolts and 2 lock washers of the size specified. The bolts and lock washers shall be secured to the pole with the other hardware items called for in the plans.

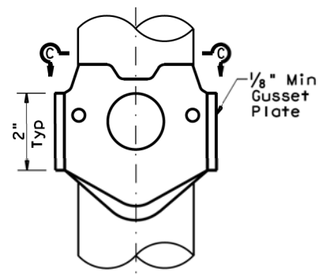
⑨ Proposed deviations in arm simplex dimensions or materials must be submitted to the Department for approval.

⑩ A welded handhole frame is permissible. Maximum of two (2) CJP weld splices is allowed.

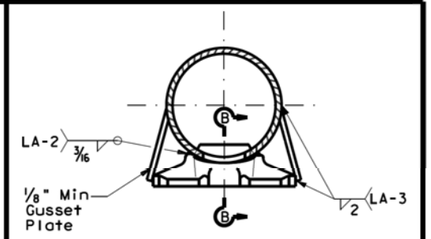
MATERIALS	
Pole or Arm Simplex	ASTM A27 Gr 65-35 or Gr 70-36, A148 Gr 80-50, A576 Gr 1021 ⑤, or A36 (Arm only)
Arm Pipes	ASTM A53 Gr A or B, A500 Gr B, A501, A 1008 HSLAS-F Gr 50 ⑥, or A1011 HSLAS-F Gr 50 ⑥
Arm Struts and Gusset Plates ④	ASTM A36, A572 Gr 50 ⑥, or A588
Misc.	ASTM designations as noted



SIDE

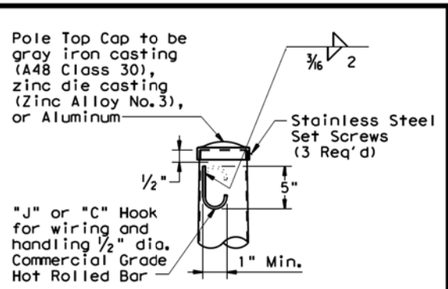


ELEVATION

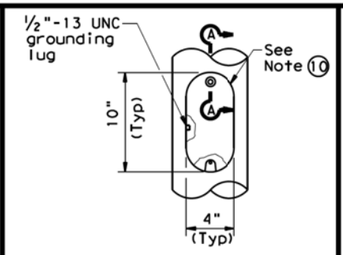


SECTION C-C

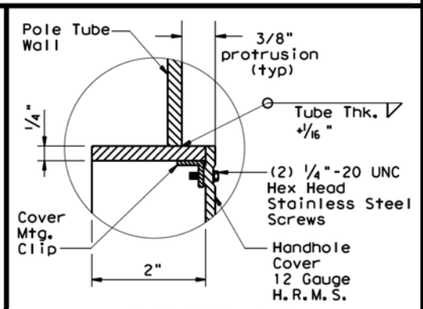
SIMPLEX ATTACHMENT DETAIL



POLE TOP



ELEVATION



SECTION A-A

HANDHOLE

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 249 OF 378
DWG NO. WS9-2015
CONTRACT NO. C-2033270-01

SHEET 3 OF 4

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION POLES

RIP(3)-19

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REVISIONS				
7-17	DIST	COUNTY		SHEET NO.
12-19				

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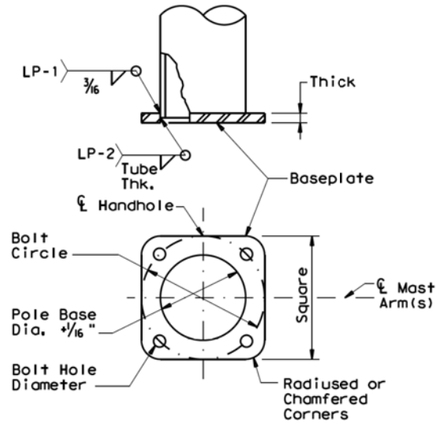
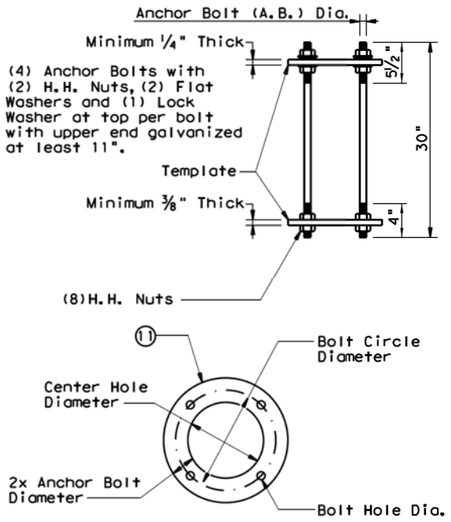


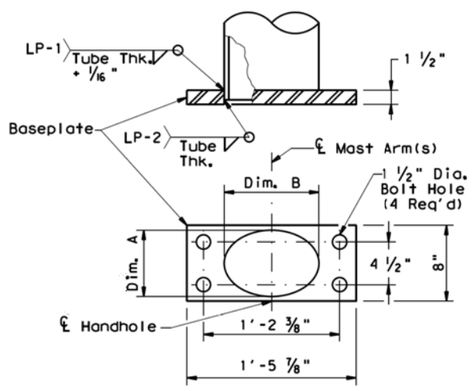
SHOE BASE BASEPLATE

SHOE BASE BASEPLATE TABLE				
MOUNTING HEIGHTS (nominal)	BOLT CIRCLE	SQUARE	THICK	BOLT HOLE DIAMETER
20' - 39'	13"	13"	1 1/4"	1 1/4"
40'	15"	15"	1 1/4"	1 1/2"
50'	15"	15"	1 1/2"	1 1/2"



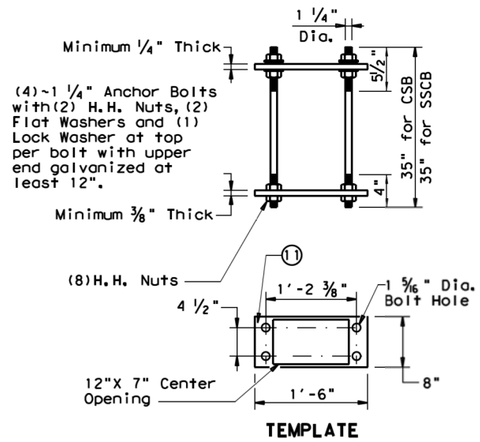
SHOE BASE ANCHOR BOLT ASSEMBLY

SHOE BASE ANCHOR BOLT ASSEMBLY TABLE				
MOUNTING HEIGHTS (nominal)	A.B. Dia.	BOLT CIRCLE DIAMETER	CTR. HOLE DIAMETER	BOLT HOLE DIAMETER
20'-39'	1"	13"	11"	1 1/16"
40'-50'	1 1/4"	15"	12 1/2"	1 5/16"



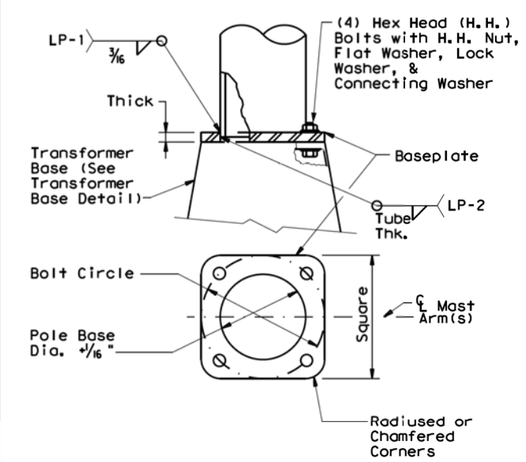
CONCRETE TRAFFIC BARRIER BASE BASEPLATE

CONCRETE TRAFFIC BARRIER BASE BASEPLATE TABLE			
MOUNTING HEIGHTS (nominal)	POLE DIA.(12)	DIM. A	DIM. B
28' - 38'	9"	7" ± 1/4"	10" ± 1/4"
48'	10 1/2"	7" ± 1/4"	13" ± 1/4"



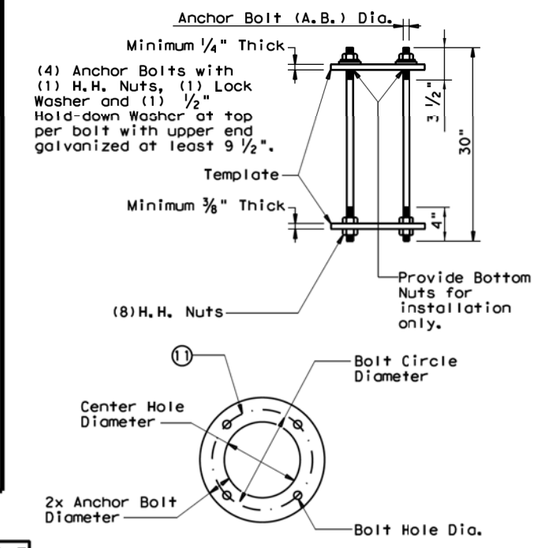
CONCRETE TRAFFIC BARRIER BASE ANCHOR BOLT ASSEMBLY

TRANSFORMER BASE ANCHOR BOLT ASSEMBLY TABLE				
MOUNTING HEIGHTS (nominal)	A.B. Dia.	BOLT CIRCLE DIAMETER	CTR. HOLE DIAMETER	BOLT HOLE DIAMETER
20' - 39'	1"	14"	12"	1 1/16"
40' - 50'	1 1/4"	17 1/4"	14 3/4"	1 5/16"



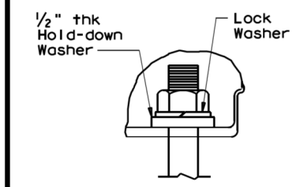
TRANSFORMER BASE BASEPLATE

TRANSFORMER BASE BASEPLATE TABLE						
MOUNTING HEIGHTS (nominal)	BOLT CIRCLE	SQUARE	THICK	CONNECTING BOLT DIA.	BOLT HOLE DIAMETER	TRANSFOMER BASE TYPE
20' - 39'	13"	13"	1 1/4"	1"	1 1/4"	A
40'	15"	15"	1 1/4"	1 1/4"	1 1/2"	B
50'	15"	15"	1 1/2"	1 1/4"	1 1/2"	B

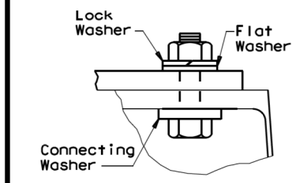


TRANSFORMER BASE ANCHOR BOLT ASSEMBLY

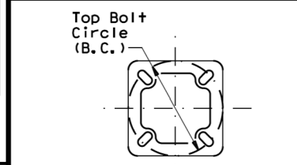
TRANSFORMER BASE TABLE		
TYPE	TOP B.C.	BTM. B.C.
A	13"	14"
B	15"	17 1/4"



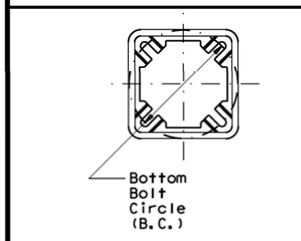
DETAIL A



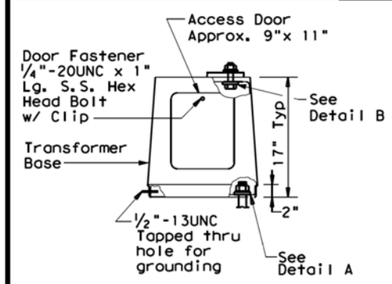
DETAIL B



TOP PLAN



BOTTOM PLAN



ELEVATION

TRANSFORMER BASE DETAILS

GENERAL NOTES:

1. For mounting heights between those shown in the table, use the values in the table for the larger mounting height.
2. All breakaway bases shall meet the breakaway requirements of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 6th Edition (2013) and Interim Revisions thereto, and shall have been tested by FHWA-approved methods. All bases shall have been structurally tested to resist 150% of the design moment.
3. Transformer bases shall be cast from aluminum, ASTM B108 or B26 Alloy 356.0-T6, or other material approved by the Engineer. Four Hex Head (H.H.) bolts with four H.H. nuts, four lock washers, four flat washers, and connecting and hold-down washers as recommended by the manufacturer, galvanized to ASTM A153 Class C or D, or B695 Class 50, shall be provided with each transformer base for connecting the pole. Bolts shall be ASTM A325 or approved equal. Nuts shall be ASTM A563 grade DH galvanized.
4. Bases shall be stamped, incised or by other approved permanent means, marked to show fabricator's name or logo, and model number. Such information shall be placed in a readily seen location, inside or outside the base, but shall not be placed on the door.
5. Doors for transformer bases shall be made of plastic, fiberglass or other non-metallic material approved by the Engineer and shall be attached with stainless steel screws or bolts. Transformer bases shall be cleaned by grit blast cleaning after heat treatment. Certification by the manufacturer of heat treatment shall be furnished with transformer bases. The certification shall show the metal alloy and temper and that the base meets those requirements, chemical and physical. The certification shall also show the material ASTM specification. Transformer bases shall be cast with a removable tab bar for material testing. Some bars may have been removed by the manufacturer for testing.

NOTES:

(11) Anchor Bolt Templates do not need to be galvanized.

(12) Pole diameter before ovalized.

ANCHOR BOLT FABRICATION TOLERANCES TABLE	
DIMENSION	TOLERANCE
Length	± 1/2"
Threaded length	± 1/2"
Galvanized length (if required)	- 1/4"

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION POLES

RIP(4)-19

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REVISIONS 7-17 12-19	DIST	COUNTY		SHEET NO.

730

CONSTRUCTION OF REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 250 OF 378
DWG NO. WS9-2016
CONTRACT NO. C-2033270-01

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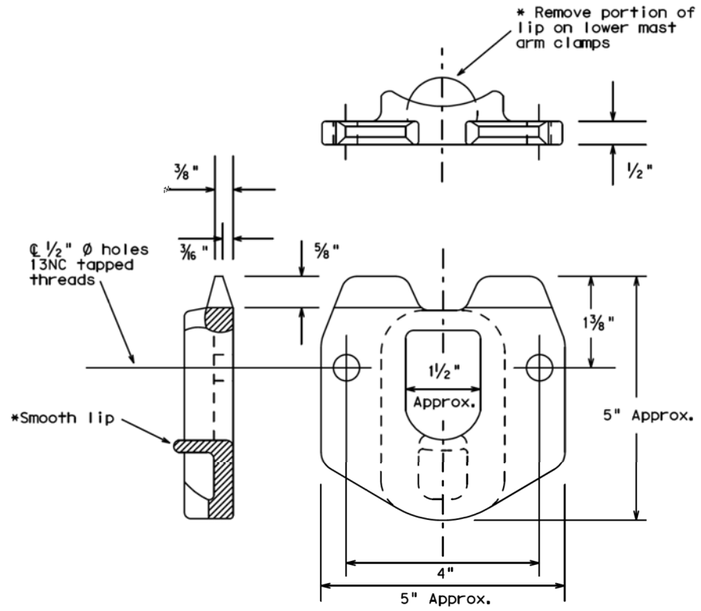
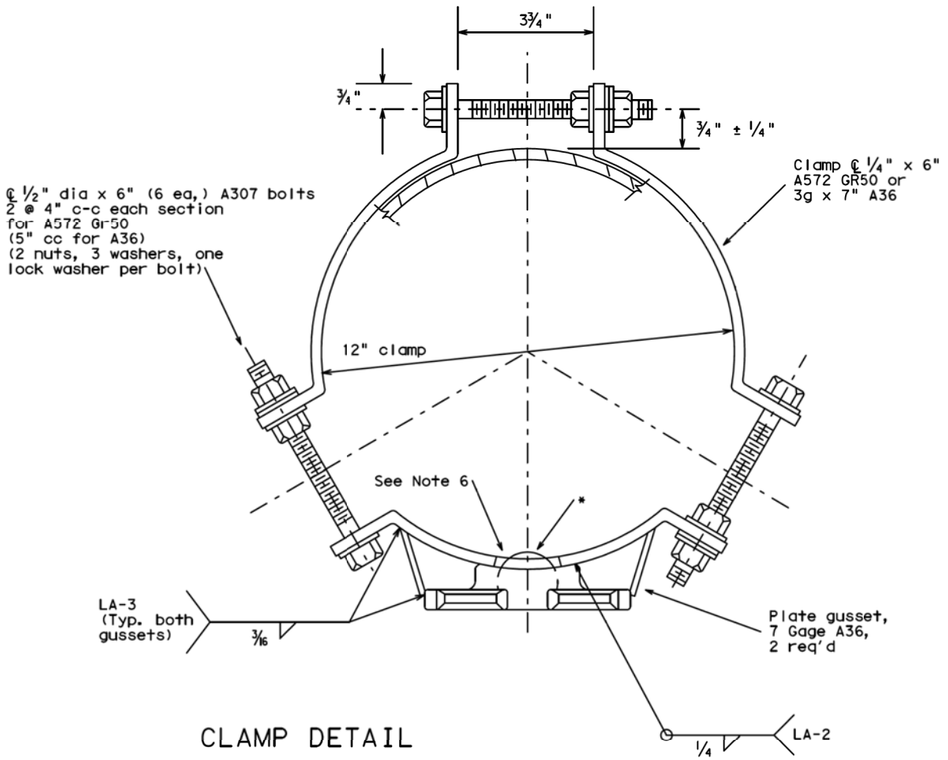
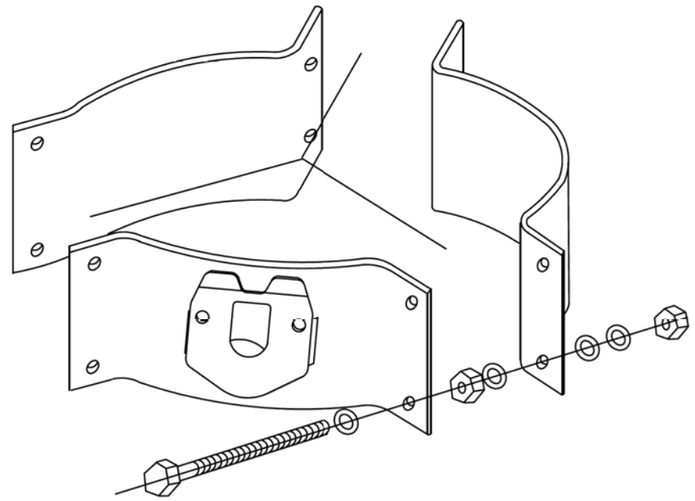


POLE SIMPLEX DETAILS



CLAMP DETAIL



PROJECTION

OTHER MATERIALS:

1. Pole simplex shall be ASTM A27 GR65-35 or A148 GR80-50 or A576 GR1021. ASTM A576 must be suitable for forging and also meet minimum tensile of 65ksi, minimum yield of 35ksi, and a minimum elongation of 22 percent in 2 inches.
2. Welded tabs and backplates shall be ASTM A-36 steel or better.
3. Nylon insert locknuts shall conform to ASTM A563.

GENERAL NOTES:

1. Materials and fabrication shall be in accordance with Standard Sheet "MA-C" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. In the absence of specified fabrication tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice.
2. All parts shall be galvanized after fabrication in accordance with Item 445, "Galvanizing". The throat of the Simplex shall be made free of all rough or sharp edges resulting from the galvanizing process.
3. Each simplex fitting shall be supplied with 2 ASTM A325 bolts, ½in. X 1½in. and 2 lock washers. The bolts and lock washers shall be secured to the clamp with the other hardware items. The Fabricator shall ship clamp assembly together in a single package, including all bolts, nuts, and washers required for the clamp and simplex fitting.
4. Design conforms to 1994 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" and interim revisions thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor. Clamps are designed to support a 60 lb. luminaire having an effective projected area (actual area times drag coefficient) of 1.6 sq.ft.,12 ft. maximum arm length.
5. Each assembly shall consist of one upper piece simplex fitting having a smooth lip and one lower piece simplex fitting with the lip removed.
6. Approximately 2 in. diameter hole in upper mast arm clamp.

For 8.9 - 12 inch diameter Signal Poles
(Two req'd for each mast arm)

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 251 OF 378
DWG NO. WS9-2101
CONTRACT NO. C-2033270-01

Texas Department of Transportation
Traffic Operations Division

CLAMP ON FITTING ASSEMBLY FOR LUMINAIRE MAST ARM

CFA-12

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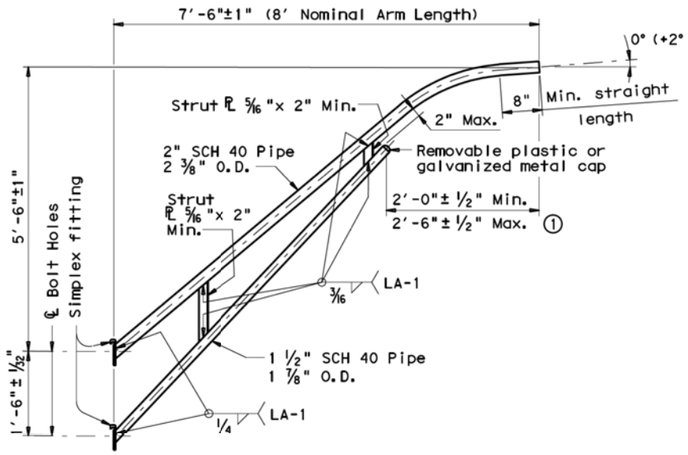
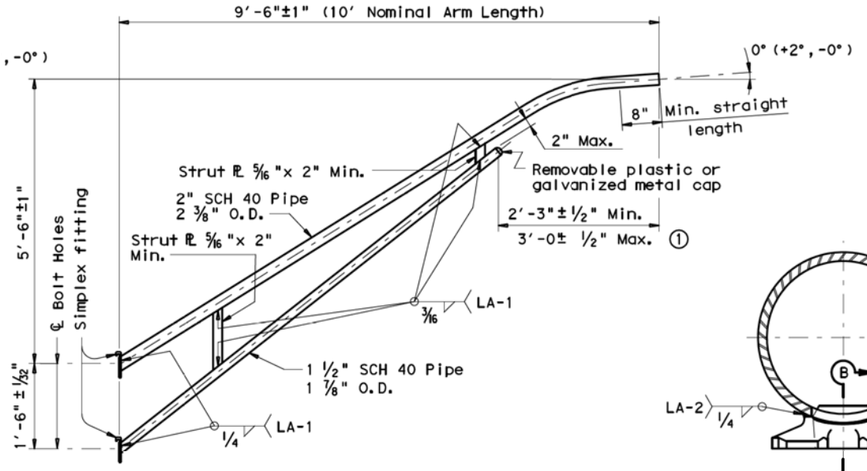
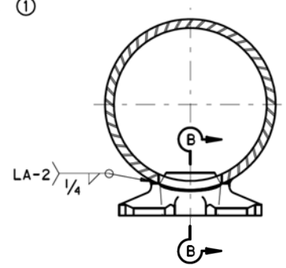


8-FOOT LUMINAIRE ARM



10-FOOT LUMINAIRE ARM



DIRECT ATTACHMENT DETAIL

MATERIALS	
Pole or Arm Simplex	ASTM A27 Gr.65-35 or A148 Gr.80-50, A576 Gr.1021 (3), or A36 (Arm only)
Arm Pipes	ASTM A53 Gr.B, A501, A1008 HSLAS-F Gr.50 (4), or A1011 HSLAS-F Gr.50 (4)
Arm Strut Plates (2)	ASTM A36, A572 Gr.50 (4), or A588
Misc.	ASTM designations as noted

(1) Dimensional limits are given to show acceptable variation in design. All of a Fabricator's production of a particular arm length shall have the same dimensions within specified tolerances.

(2) Any of the materials listed for plates may be used where the drawings do not specify a particular ASTM designation.

(3) A576 must be suitable for forging and also meet minimum tensile strength of 65 ksi, minimum yield of 35 ksi, and elongation in 2 inches of 22 percent.

(4) ASTM A572, A1008 HSLAS-F, and A1011 HSLAS-F may have higher yield strengths but shall not have less elongation than the grade indicated.

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Revisions thereto. Design Wind Speed equals 90 mph plus a 1.3 gust factor. Arms are designed to support a 60 lb. luminaire having an effective projected area (actual area times drag coefficient) of 1.6 sq. ft.

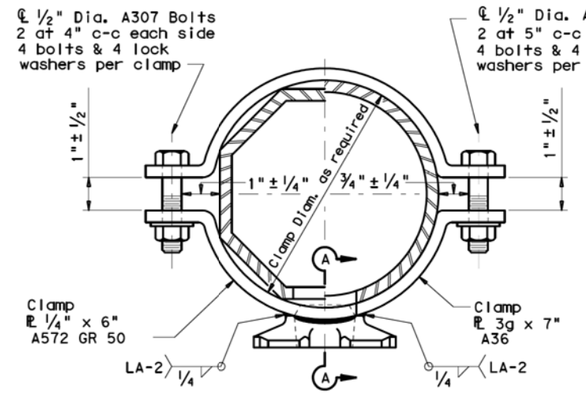
Materials and fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. In the absense of specified Fabricaton tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice.

Unless otherwise noted, all parts shall be galvanized after fabrication in accordance with Item 445, "Galvanizing".

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

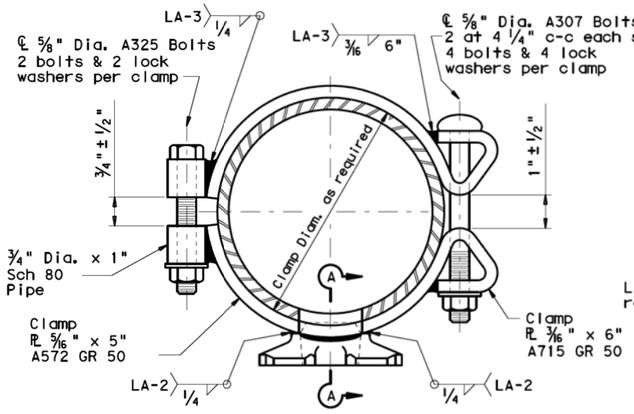
Each pole simplex fitting shall be supplied with 2 ASTM A325 bolts and 2 lock washers of the size specified. The bolts and lock washers shall be secured to the pole with the other hardware items called for in the plans. When clamp attachment is specified, the Fabricator shall ship the clamp assembly securely attached to the pole at the location shown on the plans.

If clamp assemblies are ordered without poles, the Fabricator shall ship one upper and one lower clamp assembly together in a single package, including all nuts and washers required for the clamps and simplex fittings.



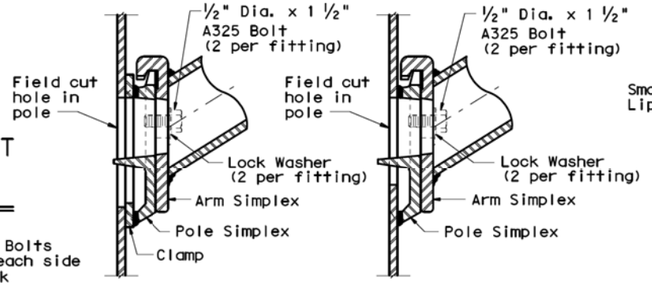
CLAMP ATTACHMENT DETAIL NO. 1 (HALF SECTION)

CLAMP ATTACHMENT DETAIL NO. 2 (HALF SECTION)



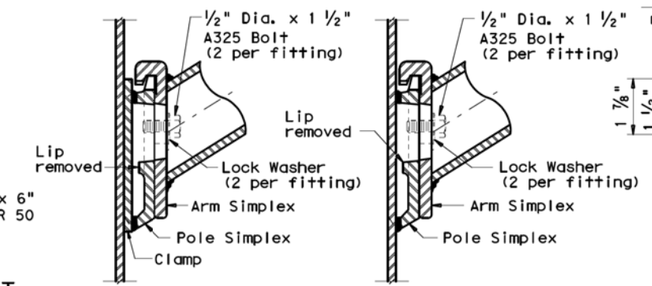
CLAMP ATTACHMENT DETAIL NO. 3 (HALF SECTION)

CLAMP ATTACHMENT DETAIL NO. 4 (HALF SECTION)



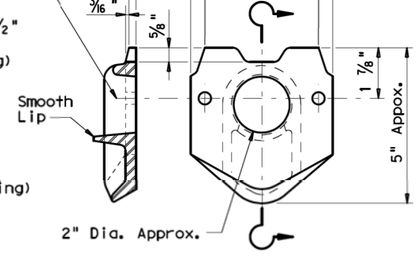
UPPER SIMPLEX FITTING

UPPER SIMPLEX FITTING



LOWER SIMPLEX FITTING

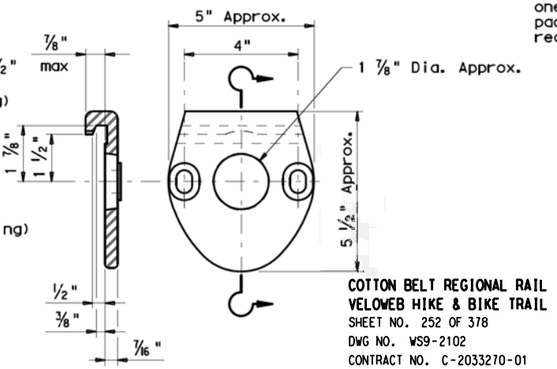
LOWER SIMPLEX FITTING



POLE SIMPLEX DETAIL

SECTON A-A

SECTON B-B



ARM SIMPLEX DETAIL

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 252 OF 378
DWG NO. WS9-2102
CONTRACT NO. C-2033270-01

Texas Department of Transportation
Traffic Operations Division

STANDARD ASSEMBLY DRAWINGS FOR LUMINAIRE SUPPORT STRUCTURES

ARM DETAILS

LUM-A-12

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1-12				
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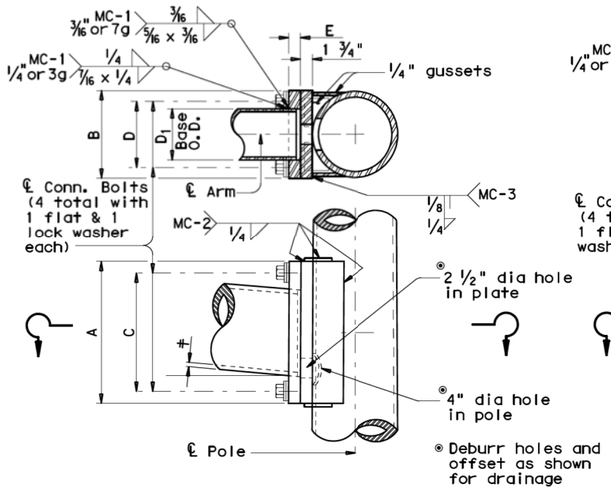
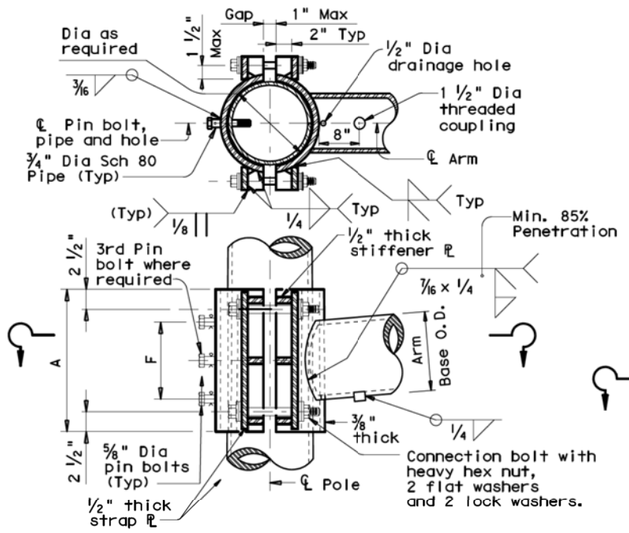
ARM SIZE D_1	ARM SIZE ǂ	A	B	C	D	E	CONN BOLT DIA
in.	in.	in.	in.	in.	in.	in.	in.
6.5	.179	12	9	9	6	1 ¾	1
7.5	.179	13	9	10	6	1 ¾	1
8.0	.179	14	10	11	7	2	1 ¼
9.0	.179	16	11	13	8	2	1 ¼
9.5	.179	17	12	14	9	2	1 ¼
9.5	.239	18	12	15	9	2	1 ¼
10.0	.239	18	12	15	9	2	1 ¼
10.5	.239	18	13	15	10	3	1 ½
11.0	.239	18	13	15	10	3	1 ½



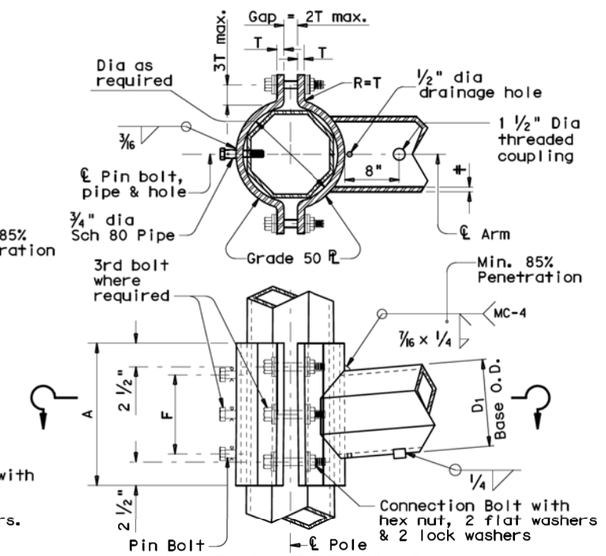
FIXED MOUNT DETAIL 1

ARM SIZE D_1	ARM SIZE ǂ	A	F	CONN. BOLTS No.	CONN. BOLTS Dia	PIN BOLTS No.	PIN BOLTS Dia
in.	in.	in.	in.	ea.	in.	ea.	in.
6.5	.179	12	6	4	1	2	⅝
7.5	.179	14	8	4	1	2	⅝
8.0	.179	14	8	4	1	2	⅝
9.0	.179	16	10	4	1	2	⅝
9.5	.179	18	12	4	1 ¼	3	⅝
9.5	.239	18	12	4	1 ¼	3	⅝
10.0	.239	18	12	4	1 ¼	3	⅝



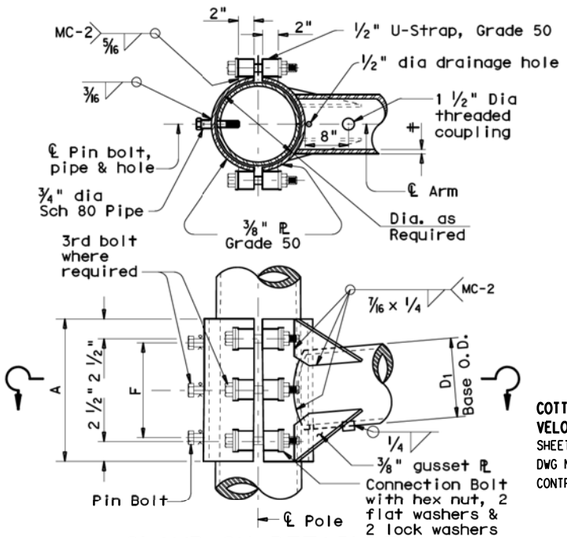
CLAMP-ON DETAIL 1

ARM SIZE D_1	ARM SIZE ǂ	A	F	T	CONN. BOLTS No.	CONN. BOLTS Dia	PIN BOLTS No.	PIN BOLTS Dia
in.	in.	in.	in.	in.	ea.	in.	ea.	in.
7.0	.179	12	6	¾	4	¾	2	⅝
7.5	.179	14	8	¾	4	¾	2	⅝
8.0	.179	14	8	¾	4	¾	2	⅝
9.0	.179	16	10	⅞	4	1	2	⅝
10.0	.179	18	10	⅞	4	1	2	⅝
9.5	.239	18	10	1	6	1	3	⅝
10.0	.239	18	10	1	6	1	3	⅝

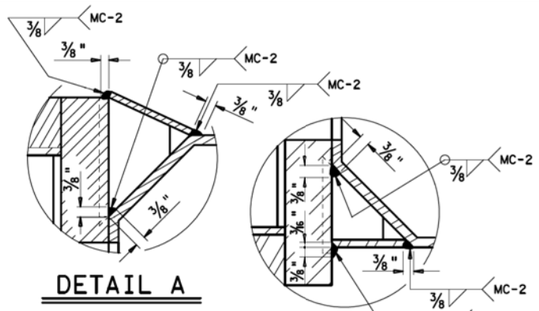


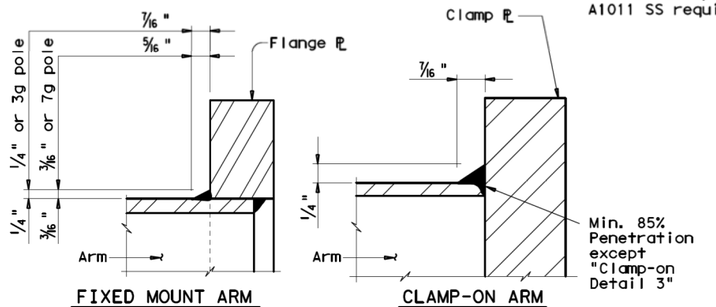
CLAMP-ON DETAIL 2

ARM SIZE D_1	ARM SIZE ǂ	A	F	CONN. BOLTS No.	CONN. BOLTS Dia	PIN BOLTS No.	PIN BOLTS Dia
in.	in.	in.	in.	ea.	in.	ea.	in.
6.5	.179	12	6	4	1	2	⅝
7.5	.179	14	8	4	1	2	⅝
8.0	.179	14	8	4	1	2	⅝
9.0	.179	16	10	4	1	2	⅝
9.5	.179	18	12	6	1	3	⅝
9.5	.239	18	12	6	1	3	⅝
10.0	.239	18	12	6	1	3	⅝



CLAMP-ON DETAIL 3





ARM BASE WELD DETAILS

MATERIALS	
Round Shafts or Polygonal Shafts ①	ASTM A595 Gr.A, A588, A1008 HSLAS Gr.50 Class 2, A1011 HSLAS Gr.50 Class 2, A572 Gr.50 or A1011 SS Gr.50 ②
Plates ①	ASTM A36, A588, or A572 Gr.50
Connection Bolts	ASTM A325 or A449, except where noted
Pin Bolts	ASTM A325
Pipe ①	ASTM A53 Gr.B, A501, A1008 HSLAS-F Gr.50, A1011 HSLAS-F Gr.50
Misc. Hardware	Galvanized steel or stainless steel or as noted

① ASTM A572, A1008 HSLAS, A1011 HSLAS, A1008 HSLAS-F, A1011 HSLAS-F or A1011 SS may have higher yield strengths but shall not have less elongation than the grade indicated.

② ASTM A1011 SS Gr.50 material shall also have a minimum elongation of 18 percent in 8 inches or 23 percent in 2 inches. Material thickness in excess of those stipulated under A1011 SS will be acceptable providing the material meets all other A1011 SS requirements and the requirements of this item.

GENERAL NOTES:

Clamp-on details are used for the second arm on dual mast arm assemblies. A Maximum 1 ½" wide vertical slotted hole shall be cut in the front clamp plate to facilitate drainage during galvanizing. The slot shall be centered behind the arm and shall be no longer than the arm diameter minus 1"

Fixed mount details are used for single mast arm assemblies and for the first arm on dual mast arm assemblies.

Where duplicate parts occur on a detail, welds shown for one part shall apply to all similar parts on the detail.

Pin bolts are required to prevent rotation of clamp-on arms under design wind forces.

NOTE:

Pin bolts shall be A325 with threads excluded from the shear plane. Pin bolt and ¾" dia pipe shall have 9/16" dia holes for a ⅛" dia galvanized cotter pin. Back clamp plate shall be furnished with a ¾" dia hole for each pin bolt. An 11/16" dia hole for each pin bolt shall be field drilled through the pole after arm orientations have been approved by the Engineer.

Texas Department of Transportation
Traffic Operations Division

STANDARD ASSEMBLY FOR TRAFFIC SIGNAL SUPPORT STRUCTURES

MAST ARM CONNECTIONS

MA-C-12

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 253 OF 378
DWG NO. WS9-2103
CONTRACT NO. C-2033270-01

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DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
5-09
1-12

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.

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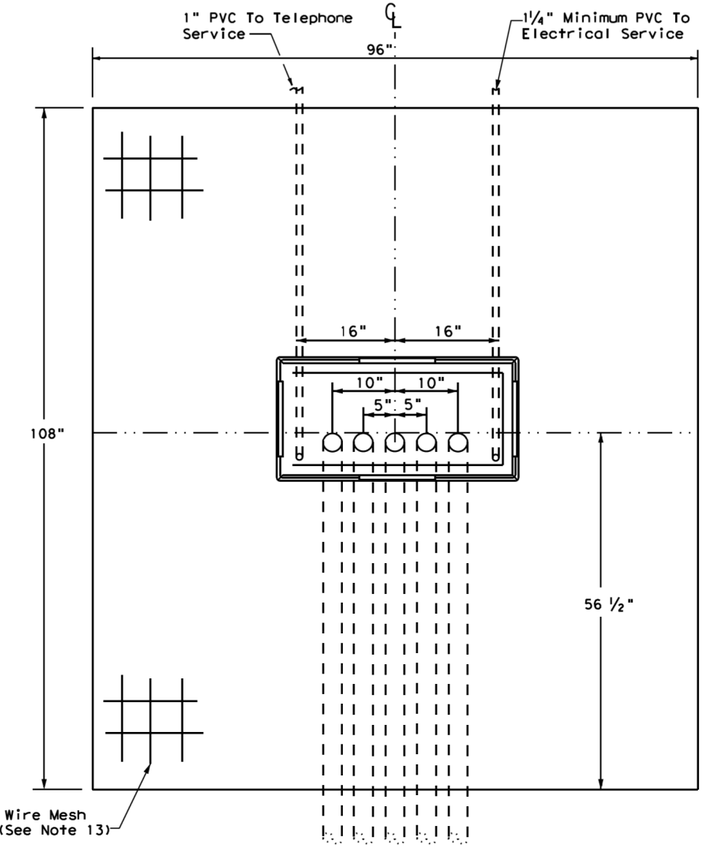
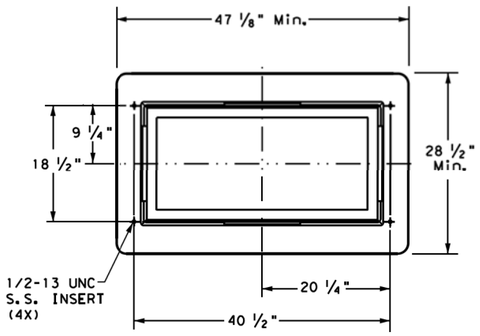
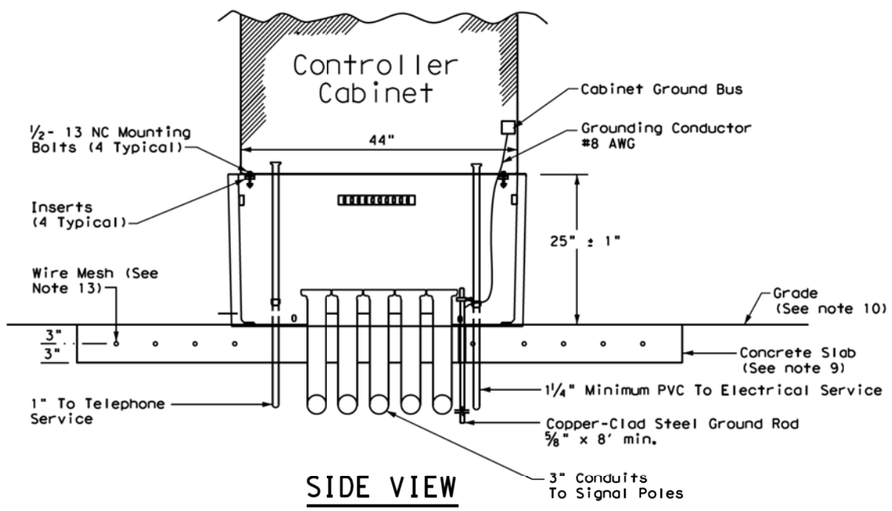


TOP VIEW



CABINET BASE



SIDE VIEW

TRAFFIC SIGNAL CONTROLLER BASE:

1. Provide a traffic signal controller base (cabinet base) manufactured of polymer concrete material consisting of calcareous and siliceous stone; glass fibers and thermoset polyester resin. The polymer concrete cabinet base must be reinforced on the inside of the cabinet base with fiberglass matting. Provide one of the following bases: Armorcast Part # A6001848X24, Quazite Model # PG3048Z709, or other as approved by TxDOT Traffic Safety Division.

2. The polymer concrete material must have a minimum compressive strength of 10,300 pounds per square inch (psi), minimum flexural strength of 3600 psi, and minimum shear strength of 3600 psi.

3. The polymer concrete cabinet base must conform to the dimensions shown and must accommodate a standard TxDOT basemount cabinet.

4. Supply the cabinet base with four 1#2"-13 UNC stainless steel inserts for attachment of the cabinet to the base. Inserts must withstand a minimum torque of 50 ft-lb and a minimum straight pull out strength of 750 lbs.

5. Provide the cabinet base with 4 cable racks mounted one on each side of the base 2" to 7 " from the top edge of the base. Unless approved otherwise, cable racks must be 1-1/2 x 9#16x 3#16inch steel channel with eight T-slots spaced at 1-1/2 inches. The cable racks must easily accommodate the insertion of tie wraps to attach field wiring to the racks to serve as strain relief. Secure cable racks to the base using 1#2"-13 UNC stainless steel screws and inserts.

6. The cabinet base, when secured to the concrete slab with controller cabinet attached, must withstand a minimum wind load of 125 mph or a 850 lb force applied at 49" above the bottom of the base without causing the base or cabinet to come out of their anchored position or cause any permanent deformation. The manufacturer must supply certification by an independent testing laboratory or sealed by a Texas Licensed Professional Engineer. Provide the cabinet base with hardware for attachment to a concrete slab.

7. The traffic signal base must be permanently marked either by impress or by permanent ink with the manufacturer's model number and name or logo.

8. Seal the base to the concrete with a silicone caulk bead and fastened to the slab per manufacturer's instructions.

CONCRETE SLAB:

9. Traffic signal controller pad must be a portland cement concrete slab poured in place, must conform to the dimensions shown, and must be level.

10. Grade earthwork such that it is flush with the concrete pad on all four sides, unless otherwise shown on the plans. Subsidiary to ITEM 680, four inch rip rap may be used in lieu of earthwork. Slopes shall gradually contour to match plans.

11. Bond a #8 AWG copper ground wire and an 8 ft ground rod bonded to the reinforcing mesh by a suitable UL Listed clamp and terminated to the cabinet grounding bus for the purpose of providing a local ground for the electrical grounding conductor. The electrical grounding conductor specified in Item 680-3.A.4 is required and must be terminated to the cabinet ground bus.

12. Install a PVC sleeve to prevent the ground rod from direct embedment in the slab.

13. Provide welded wire mesh 6X6-W2.9 X W2.9 for reinforcement. Provide joints and splices in the mesh with a minimum 6-inch overlap. Center the mesh between top and bottom and provide a minimum 3 inch cover on the edges.

14. Provide Class B concrete minimum for the slab in accordance with Item 421. Construct the slab in accordance with Item 531.

CONDUITS:

15. Stub up and run 3-inch conduits through the slab to the various traffic signal poles and ground boxes as shown on the layouts. Install the number of conduits as shown on layouts plus two additional 3 inch conduits for future use. Terminate the conduits with a bushing between 2 and 4-inches above the slab.

16. Extend conduits for future use at least 18-inches from the edge of the slab, terminate underground with a coupling, and cap and seal so that the seal can be removed without damaging the coupling. This must also apply to unused telephone conduit.

17. Stub up two separate conduits through the slab from the electrical and telephone services. Run the conduit for the electrical feed directly to the electrical service enclosure. Run the conduit for the telephone line directly to the telephone service, usually located on the same pole as the electrical service. Telephone must not under any circumstance share a conduit with any other function.

18. Terminate electric and telephone conduits above the slab with a coupling. After the base is installed, extend the conduits above the top of the base and secure to the base using a steel one-hole strap or similar suitable substitute.

CONTROLLER CABINET:

19. Anchor the controller cabinet to the base using four stainless steel 1/2-13 NC bolts.

20. The silicone caulk bead specified in Item 680.3.B must be RTV 133.

PAYMENT:

21. Bid TS-CF as subsidiary to Item 680.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 254 OF 378
DWG NO. WS9-2104
CONTRACT NO. C-2033270-01

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC SIGNAL CONTROLLER CABINET BASE AND PAD
TS-CF-21

FILE: ts-cf-21.dgn	DN:	CK:	DW:	CK:
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REVISIONS				
12-04	DIST	COUNTY		SHEET NO.
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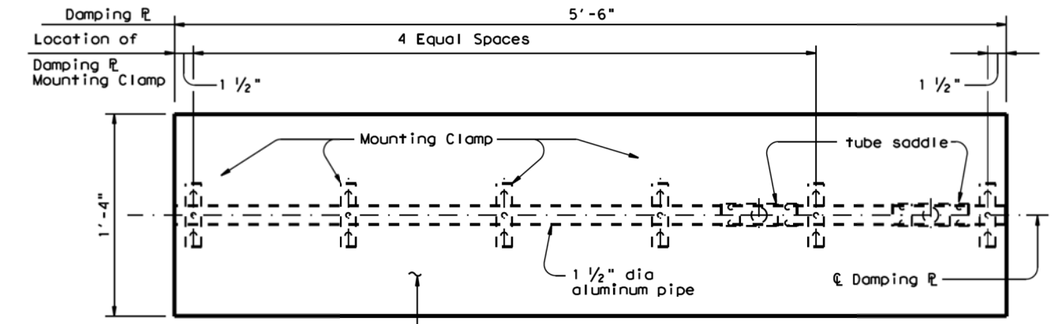
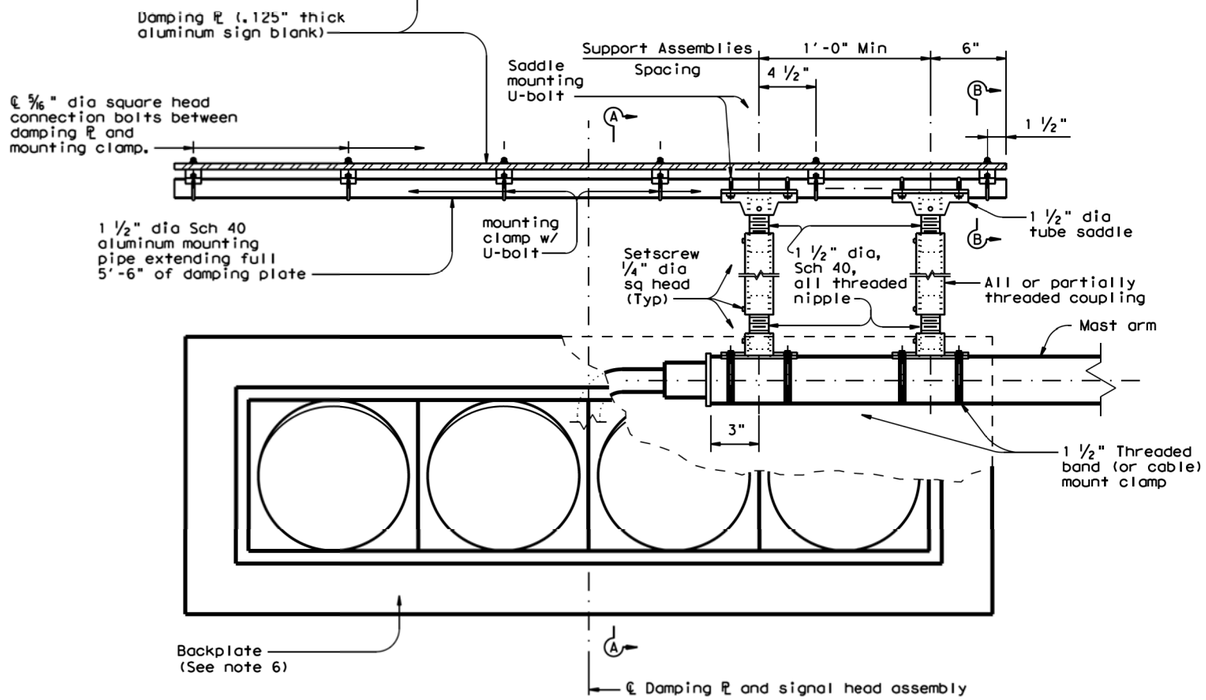


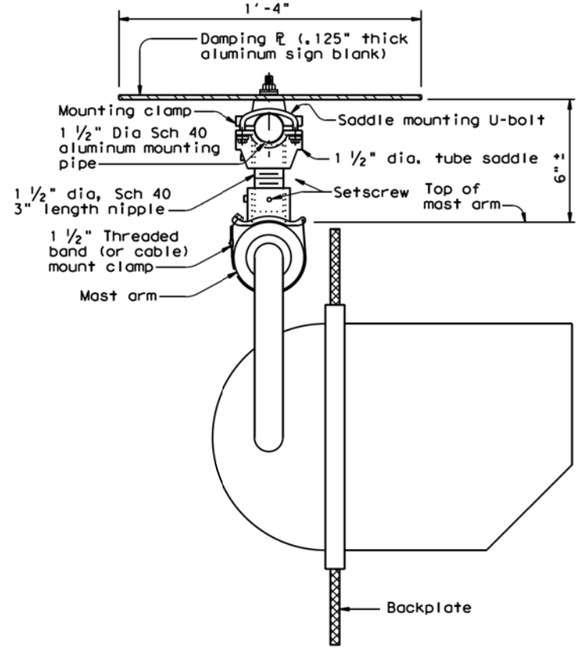
PLAN



ELEVATION

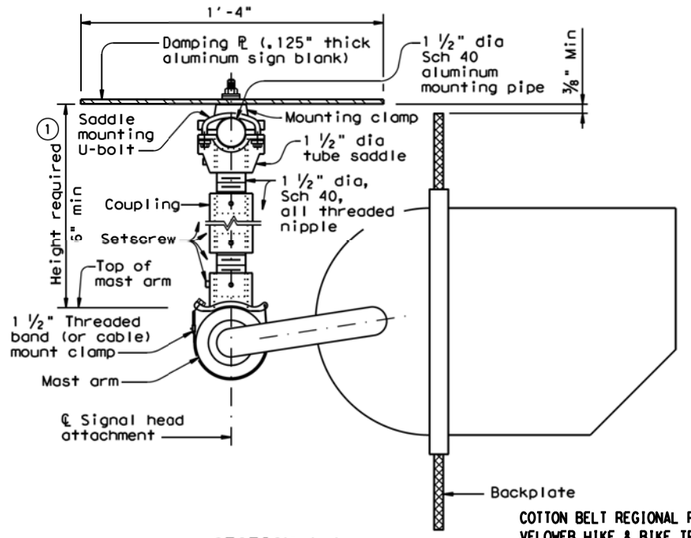
DAMPING PLATE MOUNTING DETAILS

(Showing alternate placement of signal head)



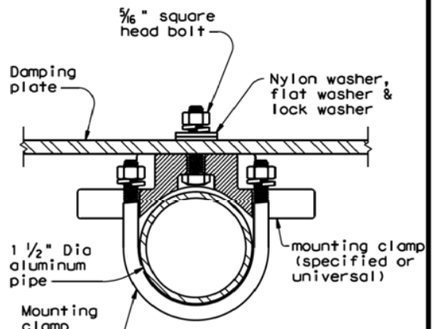
SECTION A-A

(Showing standard placement of signal head)
(Mounting clamp U-bolt is not shown for clarity)



SECTION A-A

(Showing alternate placement of signal head)
(Mounting clamp U-bolt is not shown for clarity)



SECTION B-B

(Showing damping plate attachment)

① Recommended supporting assemblies to achieve required height for horizontal section heads

Height required	One nipple each length	Two nipples each length plus	One coupling each length
6"-6 ¾"	3"	-	-
7"-8 ½"	4"	-	-
9"-10 ½"	6"	-	-
11"-15 ½"	-	4"	5"
16"-24"	-	6"	10"

GENERAL NOTES:

1. In accordance with the findings of TxDOT sponsored research, the installation of a damping plate in accordance with the details shown here at the end of signal mast arms of SMA and DMA standard structures reduces excessive harmonic vertical vibration, and thus fatigue damage. Any deviation from these details may reduce the effectiveness of this damping device.
2. Aluminum sign blank for damping plate will conform to Departmental Material Specifications DMS-7110. Materials for mast arm mounting clamp and tube saddle will be aluminum castings or aluminum alloys as in accordance with manufacturers' stipulations. Mounting pipe, pipe nipple and coupling will be aluminum alloy 6061-T6 or 6063-T6. Damping plate mounting clamp and u-bolt assemblies will conform to Standard sheet SMD(GEN). U-bolts for saddle mounting will have a minimum yield strength of 36 ksi.
3. Damping plate will be mounted horizontally. Position centerline of damping plate to align with centerline of mast arm or horizontal signal head assembly. Vertical clearance between signal head (with or without backing plate) and bottom of damping plate will be maintained as shown. The attachments shown here are examples only, other supporting details which meet both alignment and vertical clearance requirements are also acceptable.
4. Unless stipulated by the manufacturers, all steel parts will be galvanized finish in accordance with Standard Specification Item 445, "Galvanizing".
5. Contractor will verify applicable field dimensions before the installation.
6. Backplates are optional for traffic signals. When backplates are used, Backplates will have a 2-inch fluorescent yellow AASHTO Type B_{FL} or C_{FL} retroreflective border conforming to TxDOT DMS-8300 "Sign Face Materials." See Sheet TS-BP-20 for backplate details.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 255 OF 378
DWG NO. WS9-2105
CONTRACT NO. C-2033270-0

Texas Department of Transportation

Traffic Safety Division Standard

MAST ARM DAMPING PLATE DETAILS

MA-DPD-20

FILE: ma-dpd-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS 6-20	DIST	COUNTY		SHEET NO.

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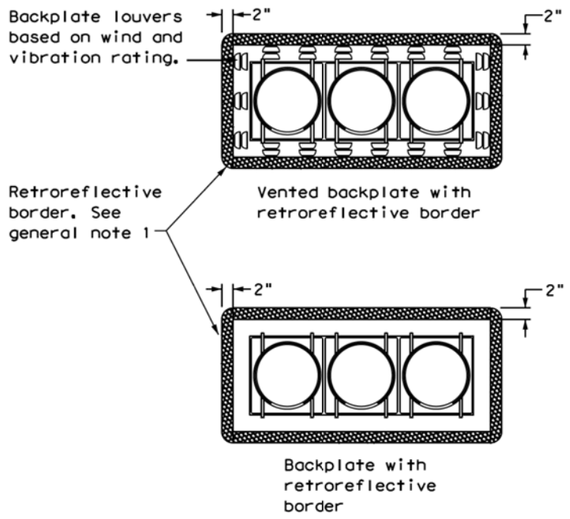
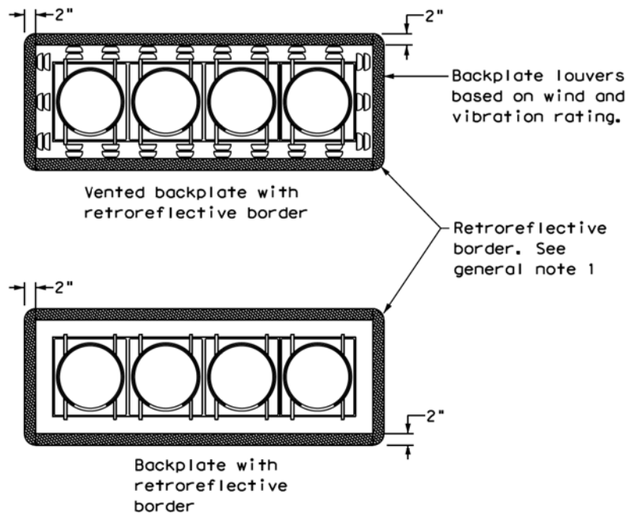
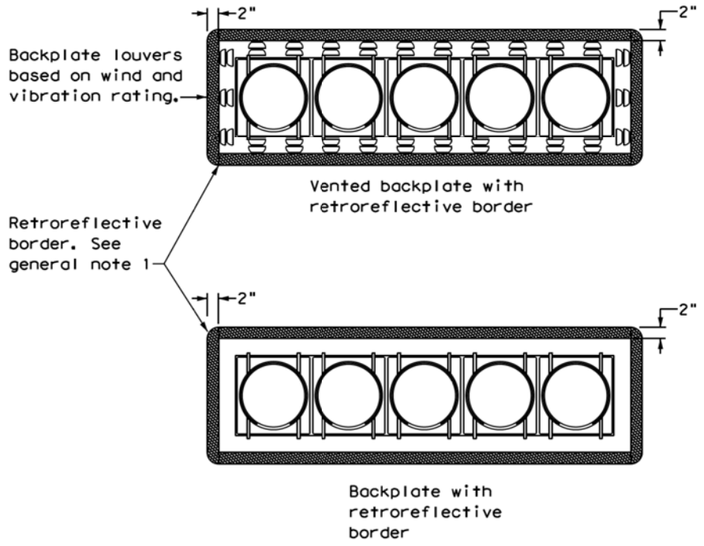


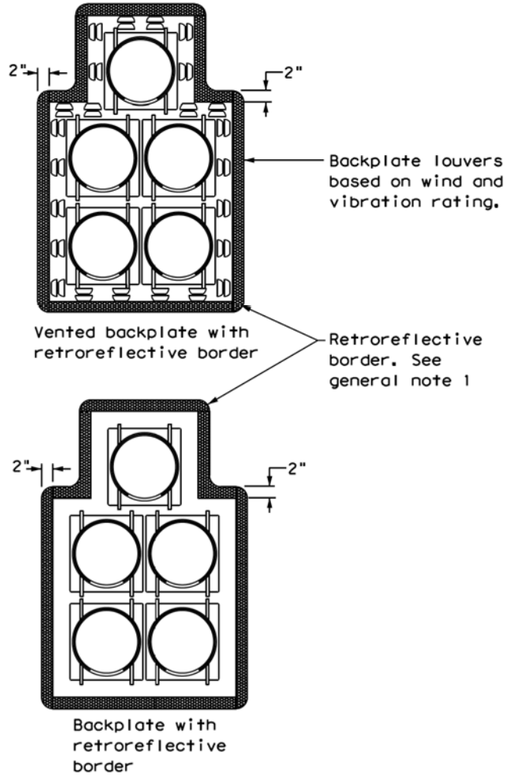
THREE-SECTION HEAD
HORIZONTAL OR VERTICAL



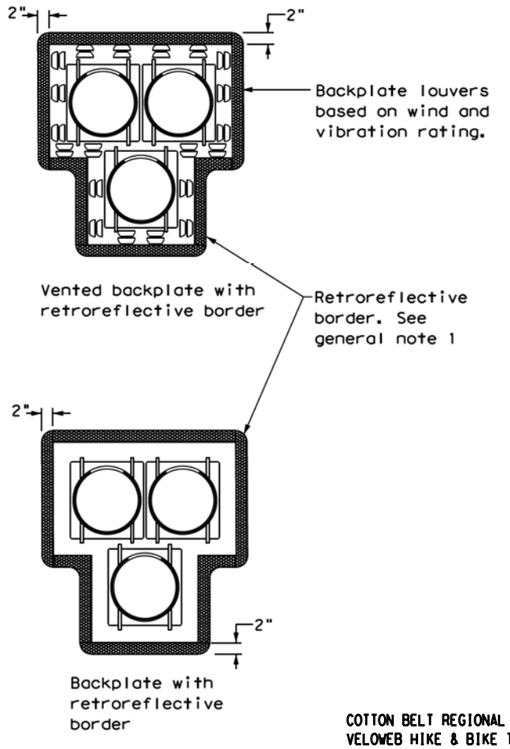
FOUR-SECTION HEAD
HORIZONTAL OR VERTICAL



FIVE-SECTION HEAD
HORIZONTAL OR VERTICAL



FIVE-SECTION HEAD
CLUSTER



PEDESTRIAN HYBRID
BEACON

GENERAL NOTES:

1. Backplates are optional for traffic signals and pedestrian hybrid beacons. When backplates are used, a 2-inch wide fluorescent yellow AASHTO Type B_{FL} or C_{FL} retroreflective border conforming to TxDOT DMS-8300 is required. Place on all approaches when used.
2. Signal head and backplate compatability must be verified by the contractor prior to installation.
3. When using backplates on signal heads, venting is preferred to reduce cyclic vibration stress.
4. When a vented backplate is used, the retroreflective border must not be placed over the louvers.
5. This standard sheet applies to all signal heads with backplates, including but not limited to:
   - Pole mounted
   - Overhead mounted
   - Span wire mounted
   - Mast arm mounted
   - Vertical signal heads
   - Horizontal signal heads
   - Clustered signal heads
   - Pedestrian hybrid beacons

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC SIGNAL HEAD WITH BACKPLATE

TS-BP-20

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 256 OF 378
DWG NO. WS9-2106
CONTRACT NO. C-2033270-0

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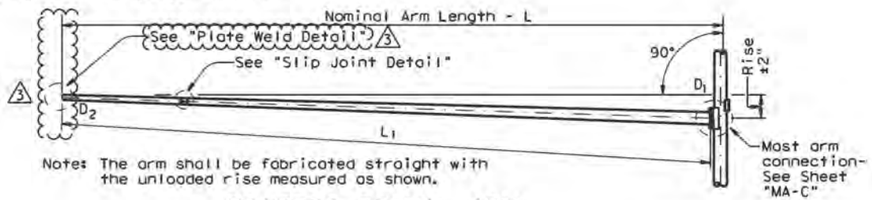
Arm Length	ROUND POLES					POLYGONAL POLES					Foundation Type
	D_B	D_{19}	D_{24}	D_{30}	① thk	D_B	D_{19}	D_{24}	D_{30}	① thk	
ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	10.5	7.8	7.1	6.3	.179	11.5	8.5	7.7	6.8	.179	30-A
24	11.0	8.3	7.6	6.8	.179	12.0	9.0	8.2	7.3	.179	30-A
28	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
32	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
36	12.0	9.3	8.6	7.8	.239	12.5	9.5	8.7	7.8	.239	36-A
40	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
44	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
48	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A

Arm Length	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	① thk	Rise	L_1	D_1	② D_2	① thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1'-9"	19.1	7.0	3.5	.179	1'-8"
24	23.1	7.5	4.3	.179	1'-10"	23.1	7.5	3.5	.179	1'-9"
28	27.1	8.0	4.2	.179	1'-11"	27.1	8.0	3.5	.179	1'-10"
32	31.0	9.0	4.7	.179	2'-1"	31.0	9.0	3.5	.179	2'-0"
36	35.0	9.5	4.6	.179	2'-4"	35.0	10.0	3.5	.179	2'-1"
40	39.0	9.5	4.1	.239	2'-8"	39.0	9.5	3.5	.239	2'-3"
44	43.0	10.0	4.1	.239	2'-11"	43.0	10.0	3.5	.239	2'-6"
48	47.0	10.5	4.1	.239	3'-4"	47.0	11.0	3.5	.239	2'-9"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L = Nominal Arm Length

① Thickness shown are minimums, thicker materials may be used.

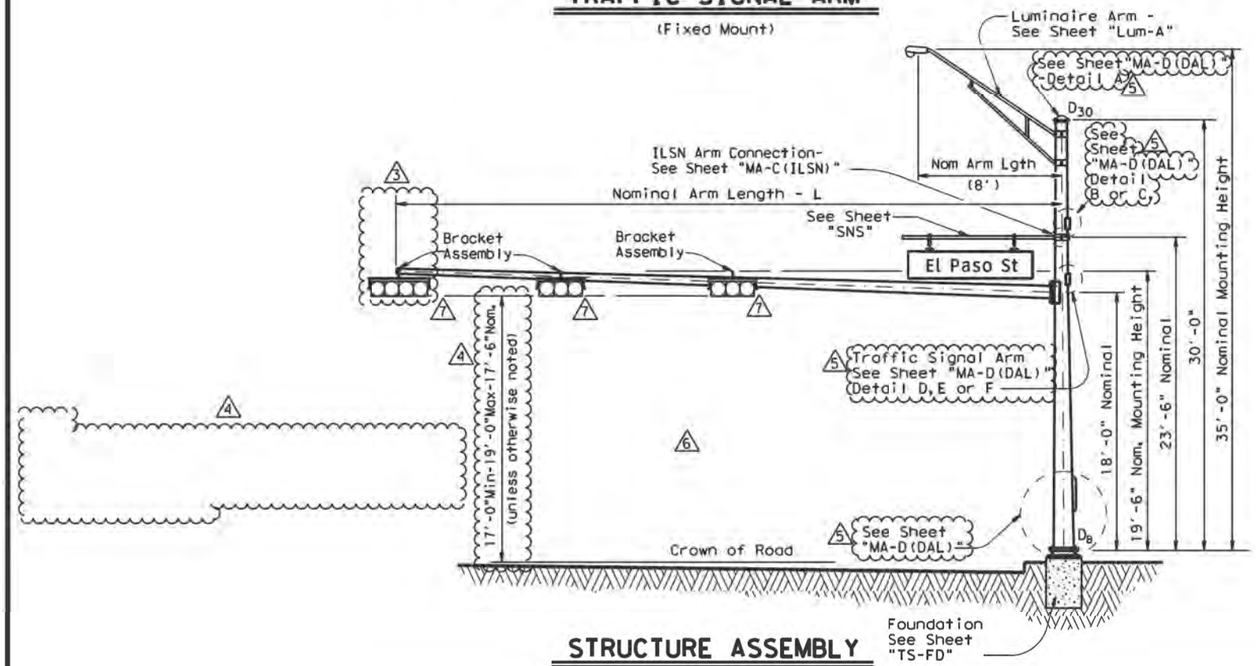
② D_2 may be increased by up to 1" for polygonal arms.



Note: The arm shall be fabricated straight with the unloaded rise measured as shown.

TRAFFIC SIGNAL ARM

(Fixed Mount)



STRUCTURE ASSEMBLY

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed-arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length	30' Poles With Luminaire		24' Poles With ILSN		19' Poles With No Luminaire and No ILSN	
	Above hardware plus: One (or two if ILSN attached) small hand hole, clamp-on simplex		Above hardware plus one small hand hole		See note above	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20L-80		20S-80		20-80	
24	24L-80		24S-80		24-80	
28	28L-80		28S-80		28-80	
32	32L-80		32S-80		32-80	
36	36L-80		36S-80		36-80	
40	40L-80		40S-80		40-80	
44	44L-80		44S-80		44-80	
48	48L-80		48S-80		48-80	

Traffic Signal Arms (1 per Pole) Ship each arm with the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	⚠1 1 Bracket Assembly		2 Bracket Assemblies		3 Bracket Assemblies	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80			
32			32II-80		32III-80	
36			36II-80		36III-80	
40			⚠2 40II-80		40III-80	
44			44II-80		44III-80	
48					48III-80	

Luminaire Arms (1 per 30' pole)

Nominal Arm Length	Quantity
8' Arm	

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7' Arm	
9' Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 ½"	3'-4"	
1 ¾"	3'-10"	

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

MODIFICATIONS:

⚠1 REPLACED CGB CONNECTOR WITH BRACKET ASSEMBLY. (2/12)

⚠2 ADDITIONAL OPTION. (3/12)

⚠3 REPLACED TENON DETAIL WITH PLATE WELD DETAIL. (2/12)

⚠4 REVISED MINIMUM SIGNAL HEIGHT. (3/12)

⚠5 REPLACED "MA-D" WITH "MA-D(DAL)". (2/12)

⚠6 REMOVED TABLE OF DIMENSIONS "A". (2/12)

⚠7 REMOVED CGB CONNECTORS. (2/12)

SHEET 1 OF 2

Texas Department of Transportation

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

SMA-80(1)-12(DAL)

©TxDOT August 1995

REVISIONS
5-96
11-99
1-12

DN: MS	CK: JSY	DW: MWF	CK: JSY
CONT	SECT	JOB	HIGHWAY
#CONT	#SECT	#JOB	#HWY
DIST	COUNTY		SHEET NO.
18	#CNTY		

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 257 OF 378
DWG NO. WS9-2107
CONTRACT NO. C-2033270-01

122A

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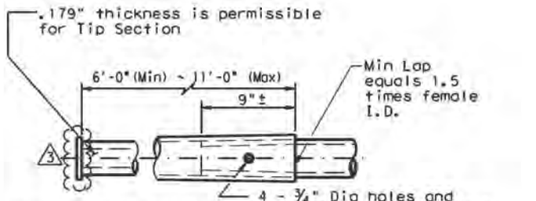


Note: A slip joint is permissible for arms 40' and greater in length. The slip joint shall be made in the shop, but may be match marked and shipped disassembled.

SLIP JOINT DETAIL

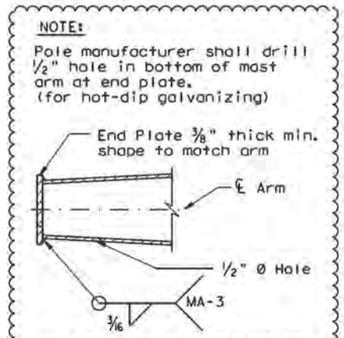


PLATE WELD DETAIL

Stainless steel bands (or Cables) and cast bracket as in "Astro-Brac", "Sky Bracket" or "Easy Bracket" with 1 ½" Dia Threaded Coupling.

BRACKET ASSEMBLY

VIBRATION WARNING

Mast Arms of SMA and DMA structures and clamp-on Arms of LMA structures of approximately 40 ft or longer are subject to harmonic vertical vibrations in light wind conditions due to the aeroelastic characteristics of a few of the myriads of possible combinations of the following: signal numbers, weights and positions; existence/solidity of backplates; presence of additional attachments to the arm, such as signs and cameras; arm-wind orientation; and arm-pole stiffness.

Such vibrations may cause fatigue damage to the structure and may lead to galloping in moderate wind conditions which may further damage the structure and alarm the public. Tests have indicated that when wind is blowing toward the back side of signal heads having un-vented backplates attached the probability of unacceptable harmonic vibration and/or galloping is rather high.

If backplates are not required for improved visibility they should not be applied to the signal heads or, if they must be applied, they should be vented as a first and inexpensive measure to mitigate vibrations.

The traffic signal mast arms shall be visually inspected in 5 to 20 mph wind conditions after installation of signal heads and any attachments, including any required backpates. If vertical movements with a total excursion (maximum upward excursion to maximum downward excursion) of more than approximately 8" are observed at the arm tip, a damping plate shall be fitted to the arm. See "Damping Plate Mounting Details" on standard sheet, MA-DPD-10.

This visual inspection shall be repeated after each modification of the structure that could affect its aeroelastic response. Excessive vibrations shall not be allowed to continue for more than two days.

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor.

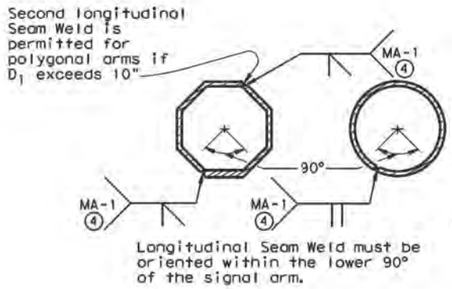
Poles are designed to support one 8'-0" luminaire arm, one 9'-0" internally lighted street name sign and one traffic signal arm with a length as tabulated. The specified luminaire load applied at the end of the luminaire arm equals 60 lbs vertical dead load plus the horizontal wind load on an effective projected area of 1.6 sq ft. The specified internally lighted street name sign load applied 4.5 ft from the centerline of the pole equals 85 lbs vertical dead load plus horizontal wind load on an effective projected area of 11.5 sq ft. The specified signal load applied at the end of the traffic signal arm equals 180 lbs vertical dead load plus the horizontal wind load on an effective projected area of 32.4 sq ft (actual area times drag coefficient).

5 See Standard Sheet "MA-D(DAL)" for pole details, "MA-C" for traffic signal arm connection details, "MA-C (ILSN)" for internally lighted street name sign arm connection details, "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details. See "MA-C" for material specifications.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

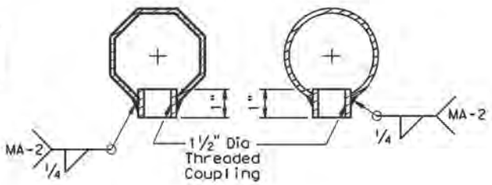
Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing", after fabrication.

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.



ARM WELD DETAIL

4 60% Min. penetration 100% pemetration within 6" of circumferential base welds.



ARM COUPLING DETAILS

3 REPLACED TENON DETAIL WITH PLATE WELD DETAIL (2/12).

5 REPLACED "MA-D" WITH "MA-D(DAL)" (2/12).

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 258 OF 378
DWG NO. WS9-2108
CONTRACT NO. C-2033270-01

Texas Department of Transportation

TRAFFIC SIGNAL SUPPORT STRUCTURES
SINGLE MAST ARM ASSEMBLY
(80 MPH WIND ZONE)
SMA-80(2)-12(DAL)

©TxDOT August 1995

DN: MS	CK: JSY	DW: MAF	CK: JSY

REVISIONS
5-96
1-12

CONT	SECT	JOB	HIGHWAY
#CONT	#SECT	#JOB	#HWY
DIST	COUNTY		SHEET NO.
18	#CNTY		

122B

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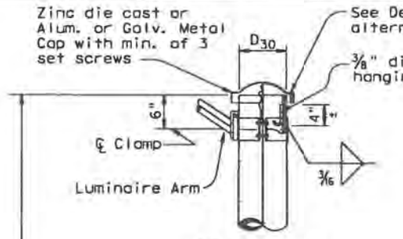
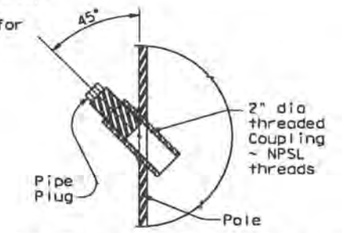
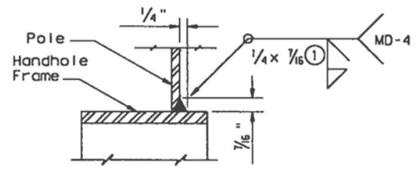


DETAIL A

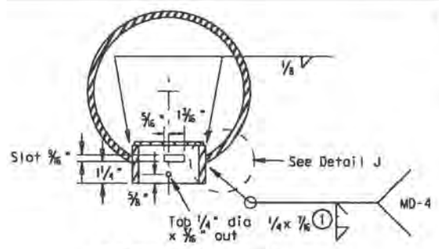
(for pole with luminaire)



POLE COUPLING DETAIL

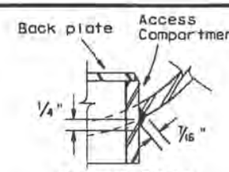


DETAIL G

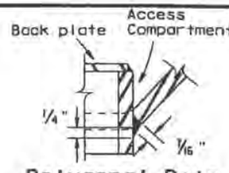


SECTION X-X

Opening for access compartment shall be no more than 1/16 inch wider than the access compartment itself.

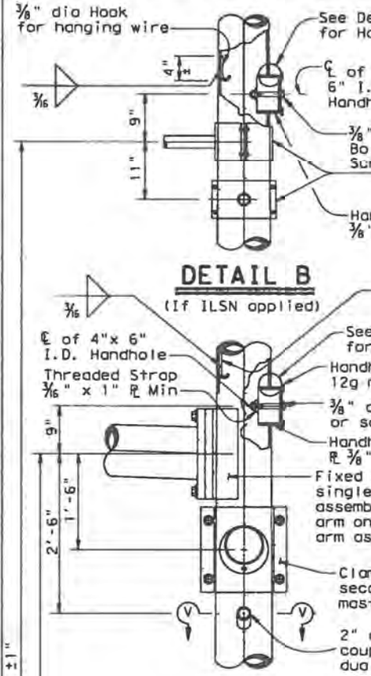


Round Pole



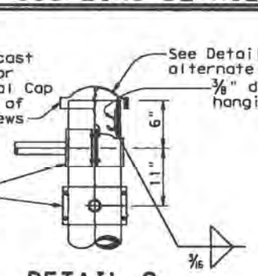
Polygonal Pole

DETAIL J

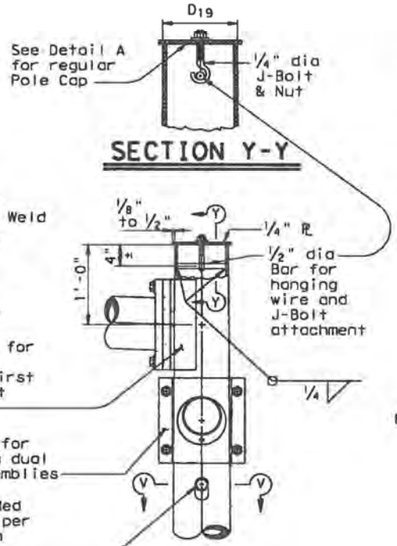


DETAIL B

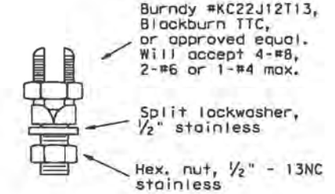
(If ILSN applied)



DETAIL C



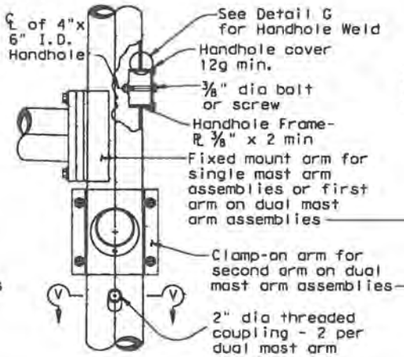
SECTION Y-Y



COPPER GROUND CONNECTOR

DETAIL D

(for 30' pole with luminaire and ILSN sign)



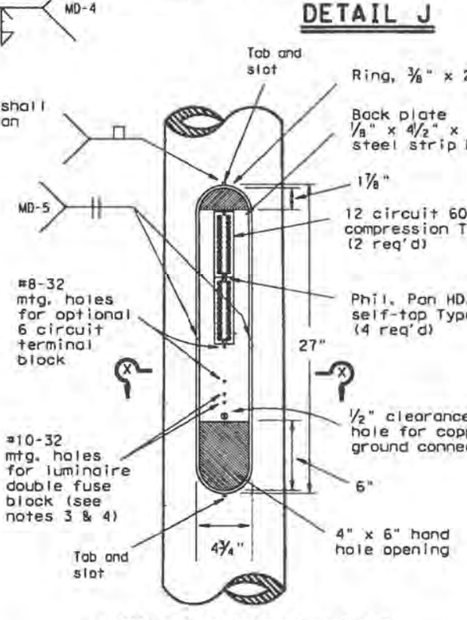
DETAIL E

(for 24' pole with ILSN sign and no luminaire)

DETAIL F

(for 19' pole with no ILSN sign and no luminaire)

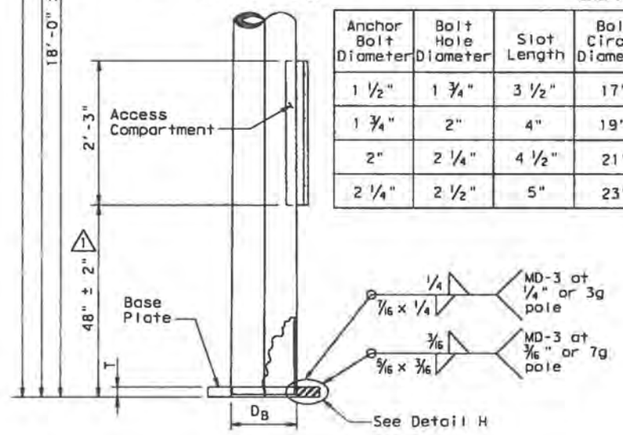
SECTION V-V



ACCESS COMPARTMENT

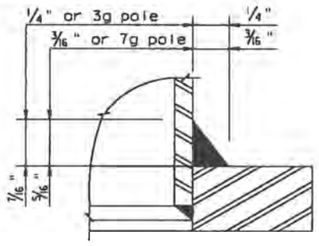
NOTES:

1. The cover shall be one piece formed from ABS plastic, shall be a pearl gray color, and shall be suitable for exposure to harsh sunlight and extreme weather. Cover shall latch with two screw latches and shall fit tightly to the enclosure ring to create a rainproof seal. Latch screws shall be 1/4-20 stainless flat socket head screws with tamper proof feature.
2. The pole manufacturer shall provide with each pole a separate kit consisting of: one cover with two latching assemblies, two terminal strips (Marathon #985GP12CU or approved equal), four #8-32 x 1 ¼" self tapping type "F" stainless steel pan head screws, and one ground connector (Blackburn TTC, Burndy KC22J12T13, or Ilsco SSS-5). The traffic signal contractor shall install the kit items in the field.
3. The screw hole spacing on the enclosure back plate shall be for two Marathon #985GP12 terminal strips, one Marathon #985GP06CU terminal strip, and one Bussmann #BM6032B fuse block.
4. Install one Bussmann #BM6032B, Littelfuse #L60030M-2C, or Ferraz-Shawmut #30352 fuse block for poles where luminaires are to be installed.

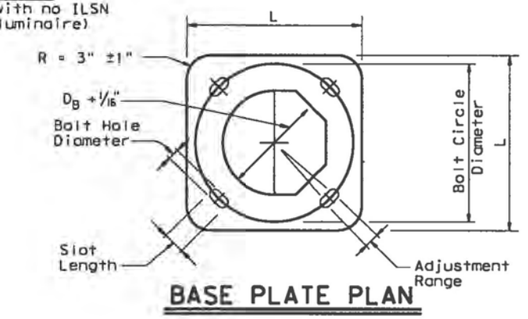


POLE ELEVATION

Anchor Bolt Diameter	Bolt Hole Diameter	Slot Length	Bolt Circle Diameter	Base ℞ Dim. L x T	Adjust. Range
1 ½"	1 ¾"	3 ½"	17"	18" x 1 ½"	13.4*
1 ¾"	2"	4"	19"	20" x 1 ¾"	13.5*
2"	2 ¼"	4 ½"	21"	22" x 2"	13.6*
2 ¼"	2 ½"	5"	23"	24" x 2 ¼"	13.7*



DETAIL H



BASE PLATE PLAN

① 85% Min. penetration

② 60% Min. penetration 100% pemetration within 6" of circumferential base welds.

⚠ REVISED THE ELEVATION OF ACCESS COMPARTMENT (2/12).

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 259 OF 378
DWG NO. WS9-2117
CONTRACT NO. C-2033270-01

Texas Department of Transportation

TRAFFIC SIGNAL SUPPORT STRUCTURES MAST ARM POLE DETAILS

MA-D-12(DAL)

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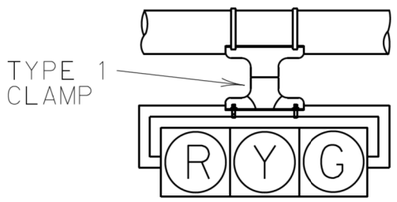
DN: MS	CK: JSY	DW: FDN	CK: CAL

REVISIONS
8-99
1-12

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
18		



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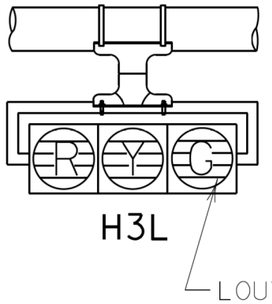

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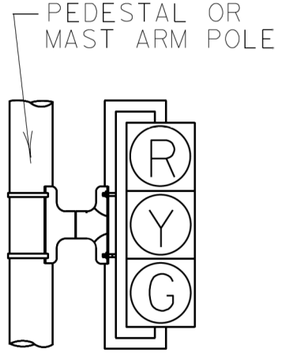
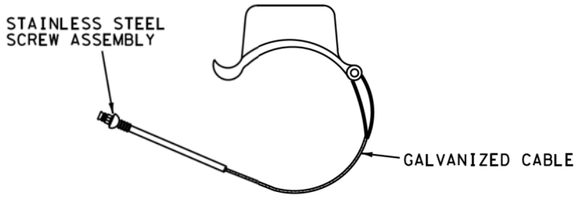
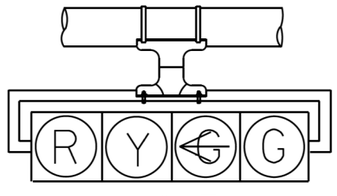


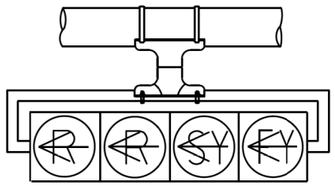
V3



TYPE 1 AND 2 CLAMPS



H4LT



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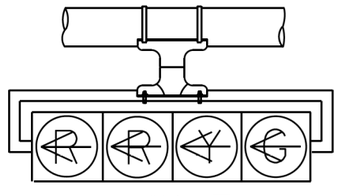
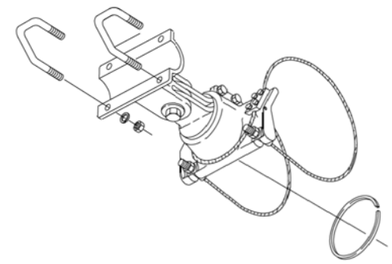


H4PLT

H5LT

H5FLT

V5RT



TYPE 2 CLAMP KIT

SHALL BE INSTALLED WHEN ROTATION ABOUT
THE HORIZONTAL AND VERTICAL AXES ARE NEEDED.

NOTES:

1. VEHICLE SIGNAL HEADS SHALL BE MOUNTED WITH TYPE 1 CLAMP AND APPROPRIATE TUBING.
2. ALL POLE MOUNTED VEHICLE HEADS SHALL BE INSTALLED ON THE AWAY-FROM-TRAFFIC SIDE OF THE PEDESTAL OR MAST ARM POLE.
3. THE SIGNAL HEADS SHOWN ARE NOT MEANT TO REFLECT ALL POSSIBLE SIGNAL HEADS, BUT ARE REPRESENTATIVE OF SIGNAL HEADS COMMONLY IN USE. SEE THE TRAFFIC SIGNAL LAYOUT FOR REQUIRED SIGNAL HEADS, AND THE NUMBER AND ORIENTATION OF LOUVERS.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 260 OF 378
DWG NO. WS9-2119
CONTRACT NO. C-2033270-01

TRAFFIC SIGNAL HEAD DETAILS (DAL)

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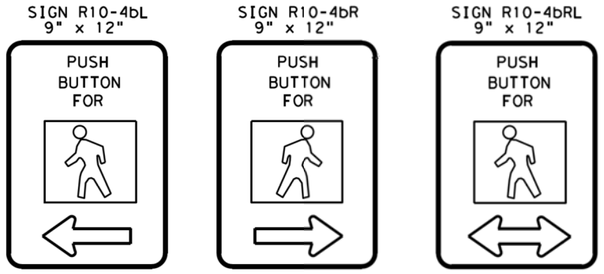
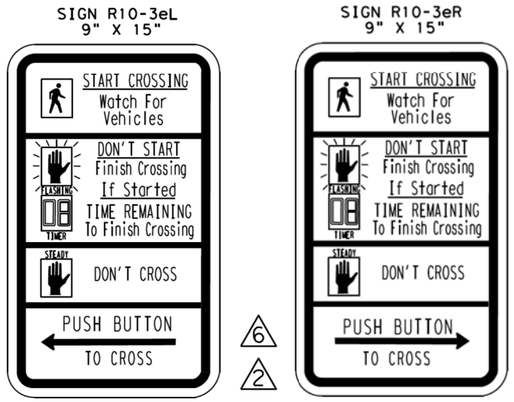
DALLAS DISTRICT STANDARD

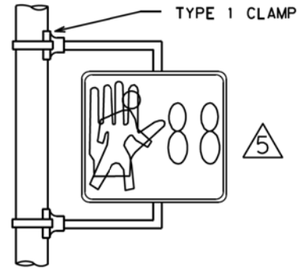
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	(SEE TITLE SHEET)		101
STATE	STATE DIST.	COUNTY	
TEXAS	DALLAS	DENTON, ETC.	
CONT.	SECT.	JOB	HIGHWAY NO.
0081	03	081	US 377, ETC.



PEDESTRIAN PUSHBUTTON SIGN DETAILS

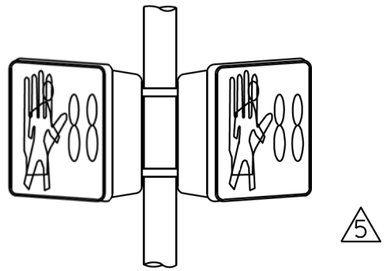


COUNTDOWN PEDESTRIAN PUSHBUTTON SIGN DETAILS



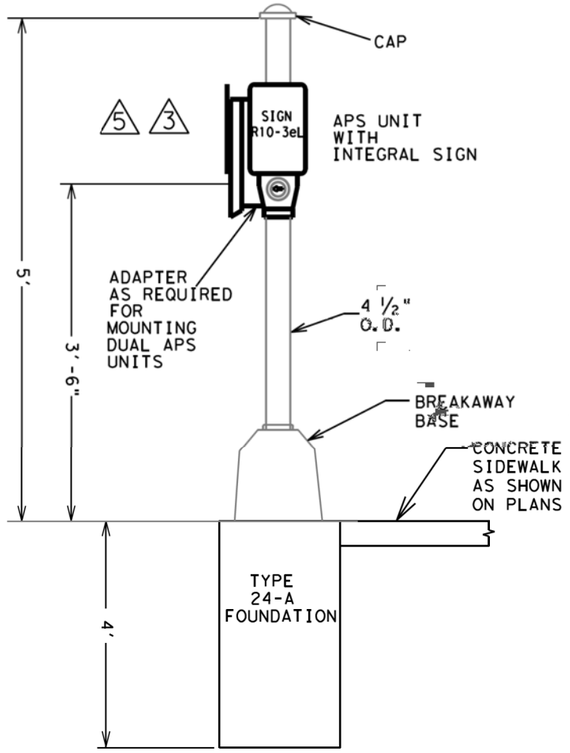
PEDESTRIAN SIGNAL HEAD MOUNTING FOR ONE PEDESTRIAN SIGNAL HEAD

152A

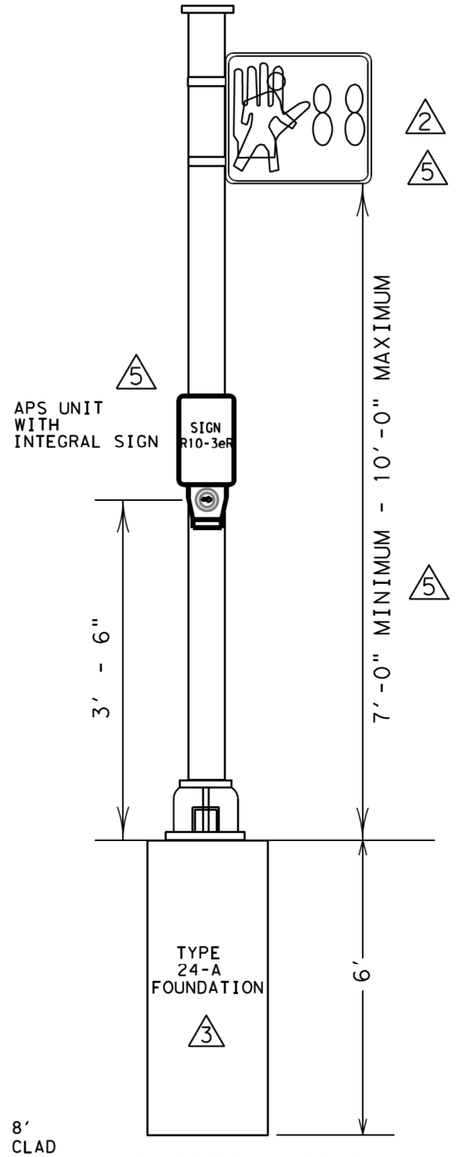


PEDESTRIAN SIGNAL HEAD MOUNTING FOR TWO PEDESTRIAN SIGNAL HEADS

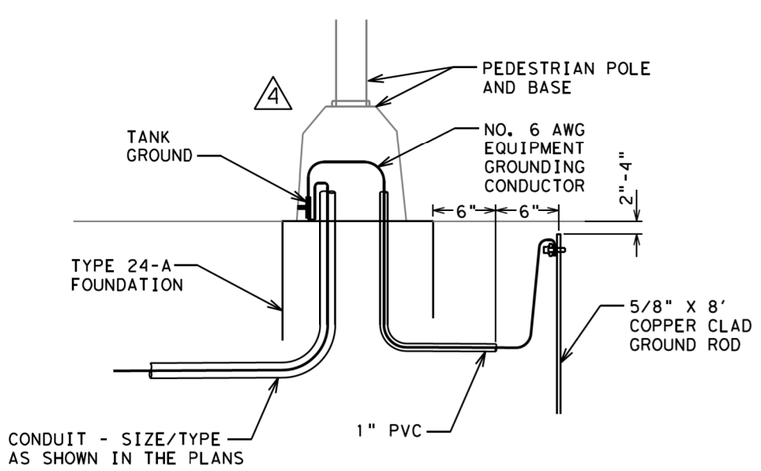
143C



PEDESTRIAN PUSH BUTTON POLE



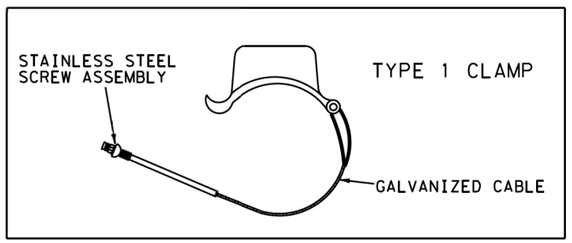
PEDESTAL POLE



PEDESTRIAN PUSH BUTTON POLE GROUNDING DETAILS

NOTE:
THE POLES ON THIS DRAWING ARE SHOWN AS AN EXAMPLE ONLY. POLES OF SIMILAR DESIGN FOR ANY CROSS SECTION WHICH MEET THE SPECIFICATIONS AND REQUIREMENTS SHOWN ON THESE DRAWINGS AND ARE APPROVED BY THE ENGINEER WILL BE DEEMED ACCEPTABLE.

1 5 NOTE: EITHER TYPE 1 CLAMPS OR CLAM SHELL MOUNTING HARDWARE MAY BE USED AS APPROVED BY THE ENGINEER. FOR CLAM SHELLS, USE ICC P/N 4805 OR McCAIN QUICKMOUNT OR APPROVED EQUAL.



1 ALTERNATIVE MOUNTING METHOD revised 12-92

2 ALTERNATIVE PEDESTRIAN SIGNAL HEAD AND SIGNING revised 10-08

3 PEDESTRIAN PUSH BUTTON POLE revised 01-11

4 PEDESTRIAN PUSH BUTTON POLE GROUNDING DETAILS revised 09-15

5 APS UNIT ADDED "SYMBOLS ONLY" PEDESTRIAN SIGNAL HEAD REMOVED MOUNTING HARDWARE NOTES REVISED MOUNTING HEIGHT REVISED revised 06-17

6 APS SIGN REVISED revised 11-20

NOTES:

5
1. ALL PEDESTRIAN SIGNAL HEADS SHALL BE INSTALLED ON THE AWAY-FROM-TRAFFIC SIDE OF THE PEDESTAL OR MAST ARM POLE.
2. ALL WIRING FOR PEDESTRIAN SIGNALS SHALL BE TOTALLY ENCLOSED WITHIN THE SIGNAL MOUNTING HARDWARE.
3. ALL PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON SIGNS SHALL DISPLAY THE SYMBOLIZED MESSAGES SHOWN ABOVE.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 261 OF 378
DWG NO. WS9-2120
CONTRACT NO. C-2033270-01

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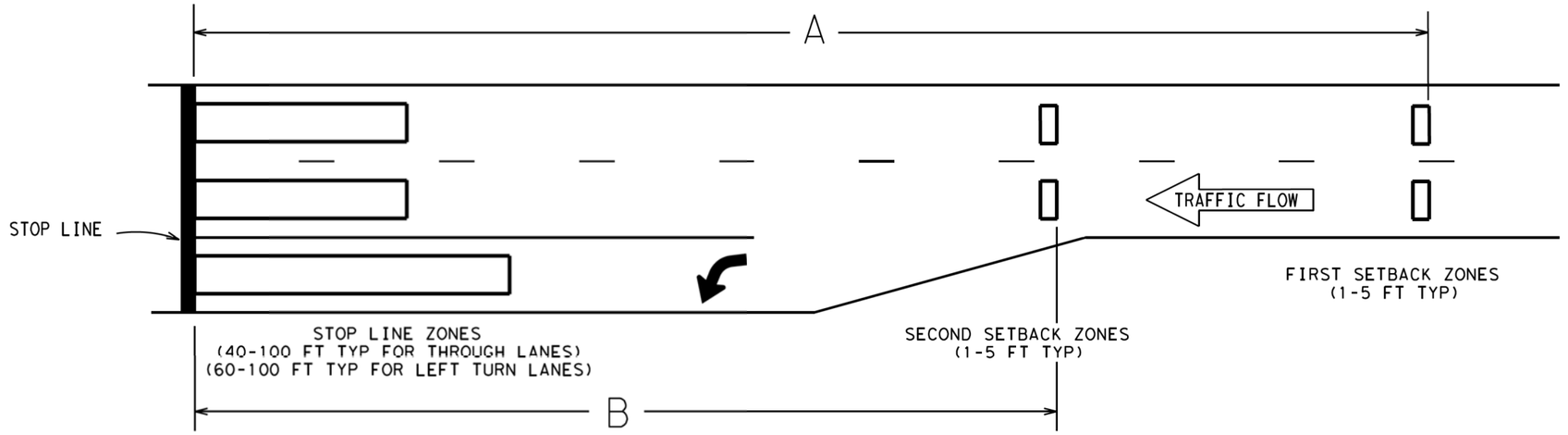
DALLAS DISTRICT STANDARD

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	(SEE TITLE SHEET)		
STATE	STATE DIST.	COUNTY	
TEXAS	18	DENTON	
CONT.	SECT.	JOB	HIGHWAY NO.
1567	01	037	FM 720

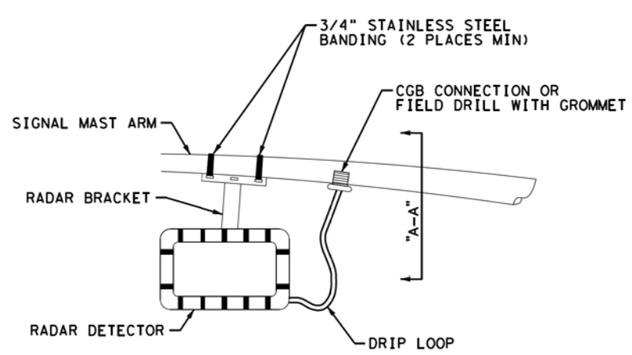
PEDESTRIAN SIGNAL HEAD DETAILS (DAL)

RADAR DETECTION ZONE LOCATIONS

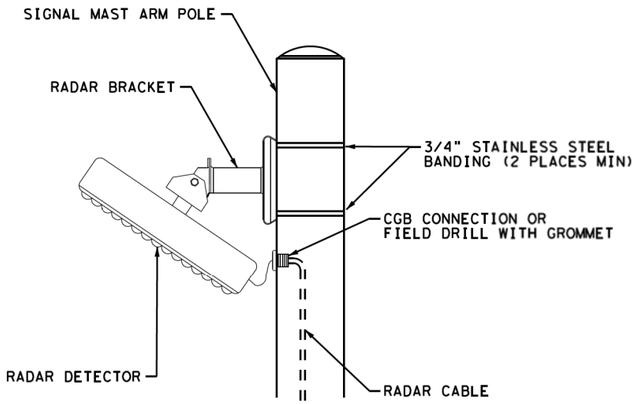


APPROACH SPEED LIMIT (MPH)	DISTANCE A (FT)	DISTANCE B (FT)	MINIMUM RANGE OF DETECTION (LF)
45	360	245	400
50	405	300	440
55	445	325	490
60	485	355	530
65	525	380	575
70	565	410	620

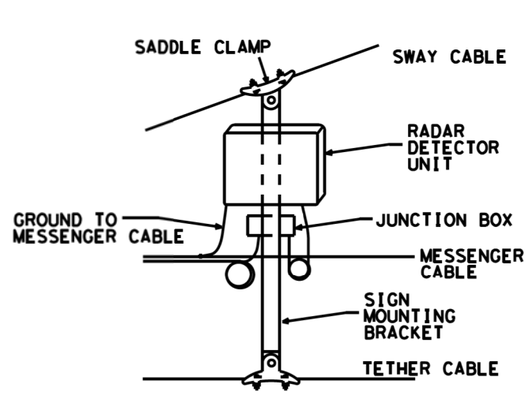
RADAR DETECTION INSTALLATION DETAILS



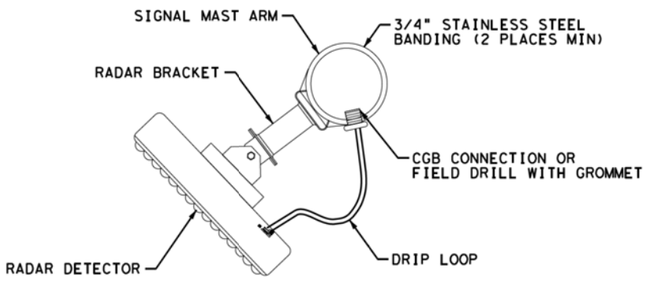
MAST ARM MOUNT



POLE MOUNT



SPAN WIRE MOUNT FOR ADVANCE RADAR



SECTION "A-A"

NOTES:

1. THE RADAR SENSOR MOUNTING BRACKET MUST BE ADJUSTABLE TO TILT UP, DOWN, LEFT, RIGHT, AND TO ROTATE.

2. THE RADAR DETECTOR UNITS SHOWN ARE NOT INTENDED TO REPRESENT ANY SPECIFIC BRAND OR PRODUCT, AND ALTERNATE MOUNTING METHODS MAY BE SUBMITTED FOR APPROVAL.

DALLAS DISTRICT STANDARD

Texas Department of Transportation
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Dallas District

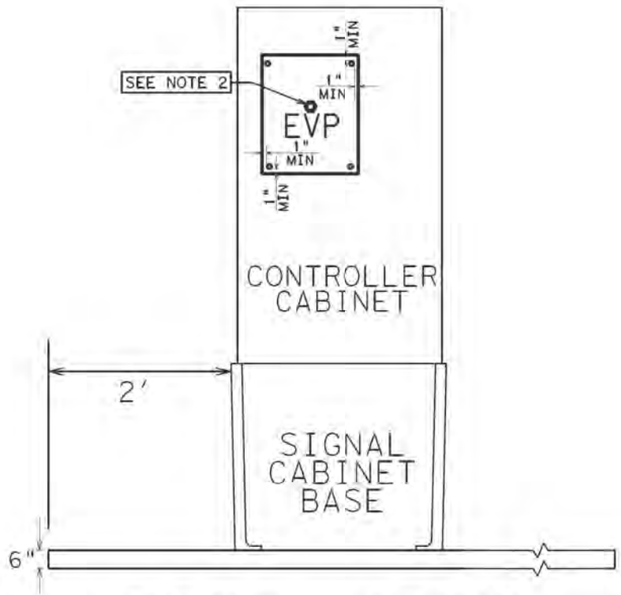
RADAR VEHICLE DETECTION SYSTEM
RVDS-18 (DAL)

©TxDOT May 2018	DN: EF	CK: ---	DW: EF	CK: TRF-Aus.
REVISIONS	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
	6	(SEE TITLE SHEET)		$HWY
	STATE	DISTRICT	COUNTY	SHEET NO.
	TEXAS	18	$CNTY	
	CONTROL	SECTION	JOB	
	$CONT	$SECT	$JOB	

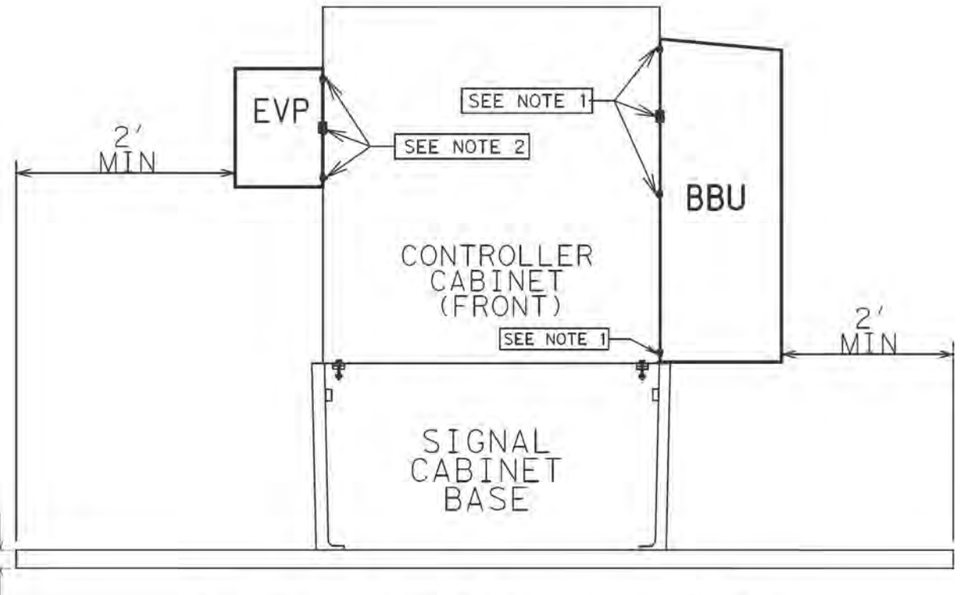
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 262 OF 378
DWG NO. WS9-2121
CONTRACT NO. C-203327C-01

NOTES:

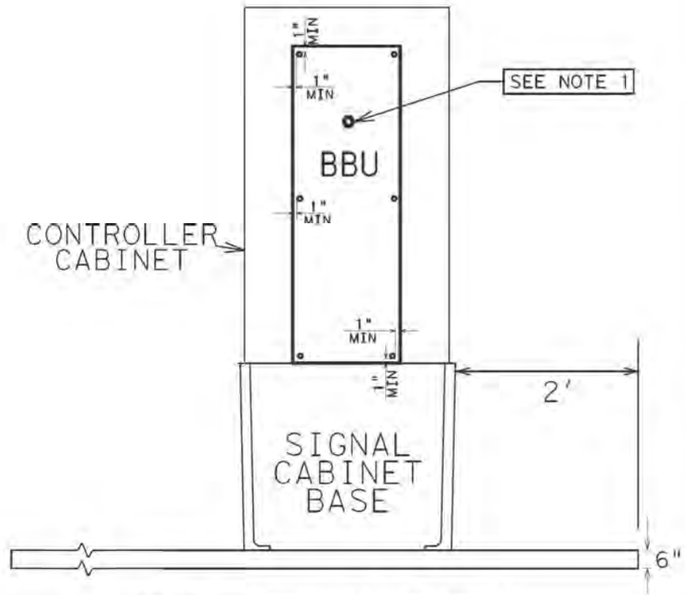
1. INSTALL 1½" ALL THREAD NIPPLE WITH BONDING BUSHINGS ON BOTH ENDS AND 6 EA OF ½" X 1½" 13 UNC MOUNTING BOLTS BETWEEN THE TWO CABINETS (SIGNAL AND BBU).
2. INSTALL 2 " FITTING FOR EVP CABLES/WIRES AND 4 EA OF ½" X 1½" 13 UNC MOUNTING BOLTS BETWEEN THE TWO CABINETS (SIGNAL AND EVP).
3. USE SILICON SEALANT TO SEAL BETWEEN THE CABINETS OF THE CONTROLLER, EVP AND BBU UNIT.
4. THE ABOVE WORK PERFORMED AND MATERIALS FURNISHED WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE SUBSIDIARY TO PERTINENT ITEMS.



SIDE VIEW (EVP)



ELEVATION VIEW

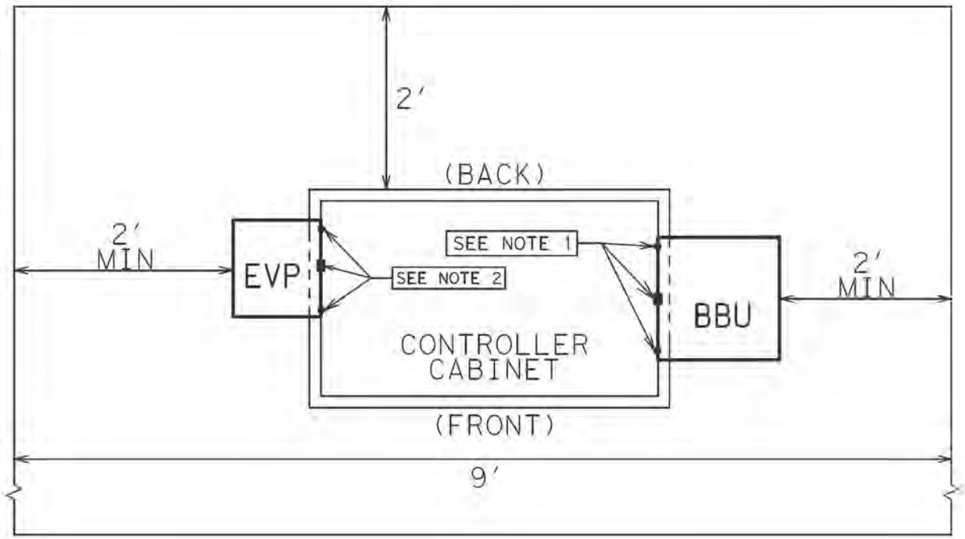


SIDE VIEW (BBU)

REQUIRED CABLE/CONDUCTORS FOR EVP			
QUANTITY EACH	WIRE SIZE	COLOR	FUNCTION
1	#14	BLACK	120 VAC FOR EVP
1	#14	RED	120 VAC FOR FAN & CABINET LIGHT
1	#14	WHITE	AC NEUTRAL
1	#14	GREEN	CHASIS GROUND
1	#18	GRAY	LOGIC GROUND
4	#18	BLUE	PREEMPT COMMANDS
4	-	-	CABLE FROM DETECTOR UNIT

REQUIRED CONDUCTORS FOR BBU			
QUANTITY EACH	WIRE SIZE	COLOR	FUNCTION
1	-	BLACK	120 VAC FROM SERVICE
1	-	WHITE	AC NEUTRAL FROM SERVICE
1	#6	BLACK	120 VAC TO CONTROLLER
1	#6	WHITE	AC NEUTRAL TO CONTROLLER
1	#6	GREEN	GROUND

LEGEND:
EVP-EMERGENCY VEHICLE PREEMPTION CABINET.
BBU-BATTERY BACKUP UNIT.



PLAN VIEW

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 263 OF 378
DWG NO. WS9-2127
CONTRACT NO. C-2033270-01

Texas Department of Transportation
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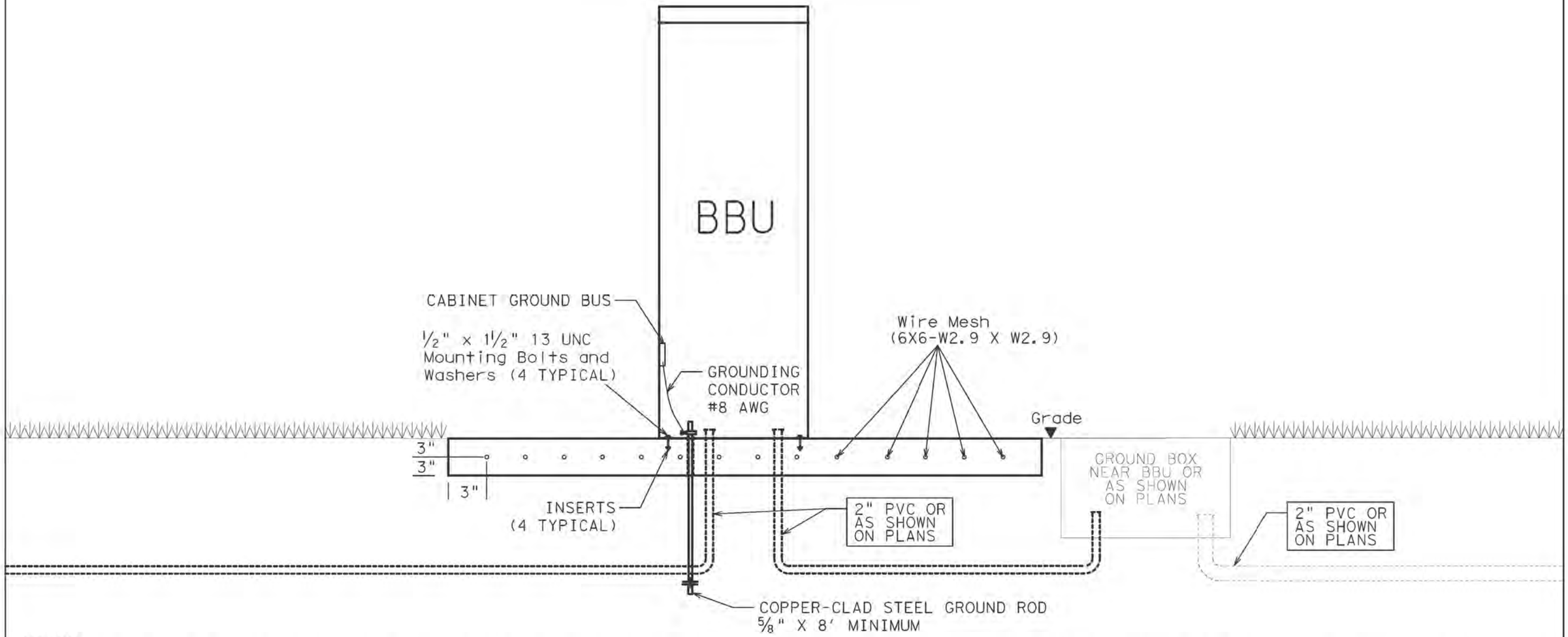
INSTALLATION OF BBU/EVP

EXTERNAL SIDE MOUNT CABINET INSTALLATION DETAILS
DALLAS DISTRICT STANDARD

N. T. S.

SHEET 1 OF 3

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	(SEE TITLE SHEET)		
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	DALLAS		
CONTROL	SECTION	JOB	



NOTES:

1. INSTALL A 5' X 5' CONCRETE PAD AT THE LOCATION DIRECTED BY THE ENGINEER. THE PAD MAY BE CAST-IN-PLACE OR PRE-CAST AS APPROVED BY THE ENGINEER.
2. PROVIDE WELDED WIRE MESH 6X6-W2.9 X W2.9 FOR REINFORCEMENT. PROVIDE JOINTS AND SPLICES IN THE MESH WITH A MINIMUM 6-INCH OVERLAP. PROVIDE A MINIMUM 3 INCH COVER BETWEEN WIRE MESH AND EDGE OF CONCRETE PAD.
3. PROVIDE CLASS B CONCRETE MINIMUM FOR THE CONCRETE PAD IN ACCORDANCE WITH ITEM 421. CONSTRUCT THE CONCRETE PAD IN ACCORDANCE WITH ITEM 531, EXCEPT FOR PAYMENT.
4. INSTALL THE BACK OF BBU CABINET 10" FROM THE EDGE OF CONCRETE PAD AND CENTER THE CABINET ON THE PAD FROM SIDE TO SIDE.
5. SUPPLY FOUR ½" X 1½" 13 UNC STAINLESS STEEL INSERTS FOR ATTACHMENT OF THE BBU CABINET TO THE CONCRETE PAD. INSERTS MUST WITHSTAND A MINIMUM TORQUE OF 50 FT-LB AND A MINIMUM STRAIGHT PULL OUT STRENGTH OF 750 LBS.
6. BOND A #8 AWG COPPER GROUND WIRE AND AN 8 FT GROUND ROD TO THE REINFORCING MESH WITH A SUITABLE UL LISTED CLAMP, AND TERMINATE THE GROUND WIRE TO THE CABINET GROUNDING BUS.
7. INSTALL A PVC SLEEVE TO PREVENT THE GROUND ROD FROM DIRECT EMBEDMENT IN THE CONCRETE PAD.
8. THE ABOVE WORK PERFORMED AND MATERIALS FURNISHED WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE SUBSIDIARY TO PERTINENT ITEMS.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 264 OF 378
DWG NO. WS9-2128
CONTRACT NO. C-2033270-01

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INSTALLATION OF BBU/EVP

STAND ALONE BBU CABINET (GROUND MOUNT)

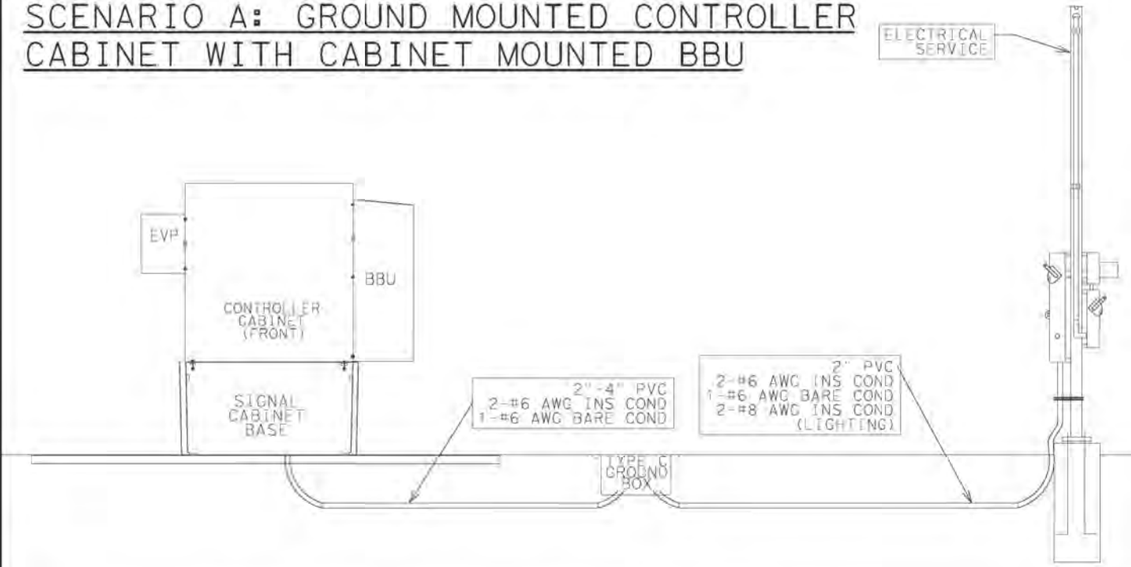
DALLAS DISTRICT STANDARD

N.T.S.

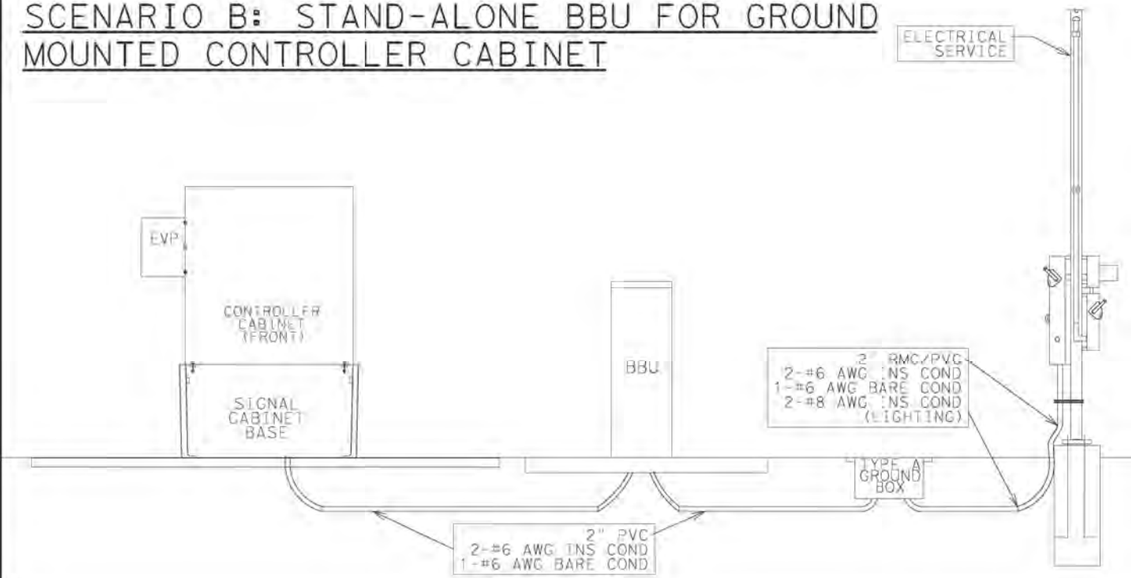
SHEET 2 OF 3

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	(SEE TITLE SHEET)		
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	DALLAS		
CONTROL	SECTION	JOB	

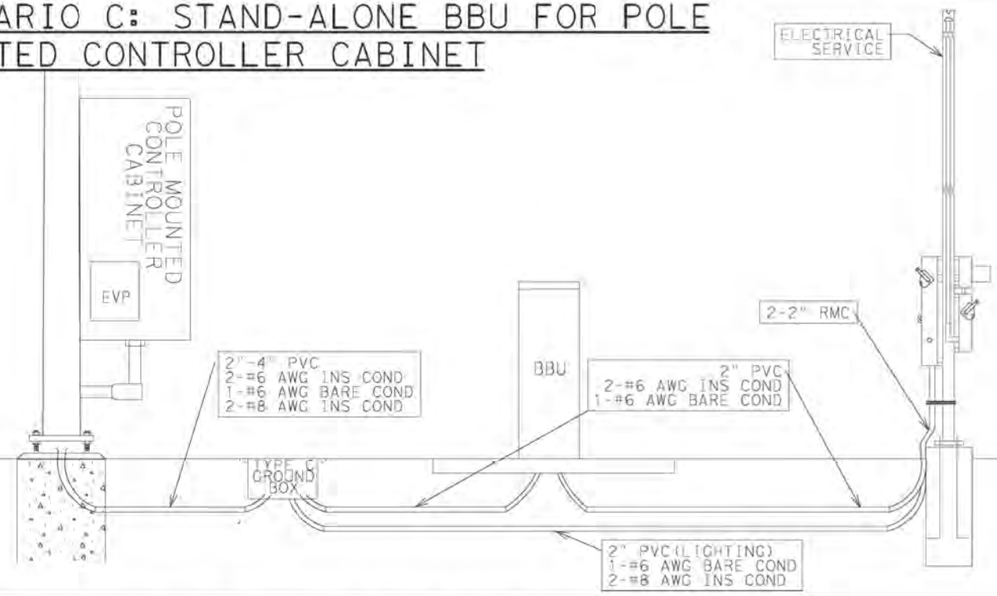
SCENARIO A: GROUND MOUNTED CONTROLLER CABINET WITH CABINET MOUNTED BBU



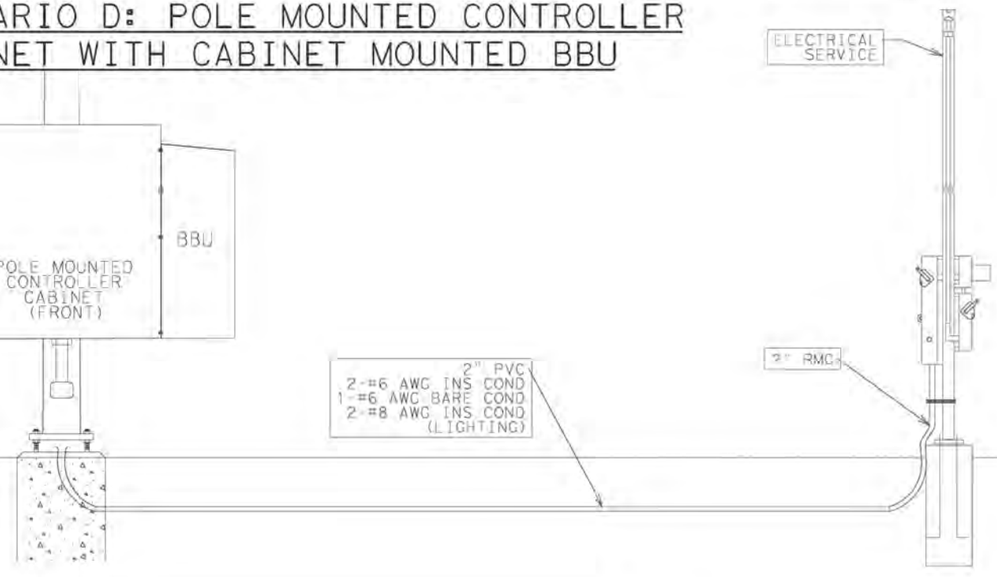
SCENARIO B: STAND-ALONE BBU FOR GROUND MOUNTED CONTROLLER CABINET



SCENARIO C: STAND-ALONE BBU FOR POLE MOUNTED CONTROLLER CABINET



SCENARIO D: POLE MOUNTED CONTROLLER CABINET WITH CABINET MOUNTED BBU



NOTE:

ABOVE SCENARIOS ARE TYPICAL BBU/EVP INSTALLATIONS USED IN THE DALLAS DISTRICT. SEE TRAFFIC SIGNAL DESIGN PLANS FOR GROUND BOX, CONDUIT AND CONDUCTOR QUANTITIES AND SIZES SPECIFIC TO EACH INTERSECTION.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 265 OF 378
DWG NO. WS9-2129
CONTRACT NO. C-2033270-01

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INSTALLATION OF BBU/EVP

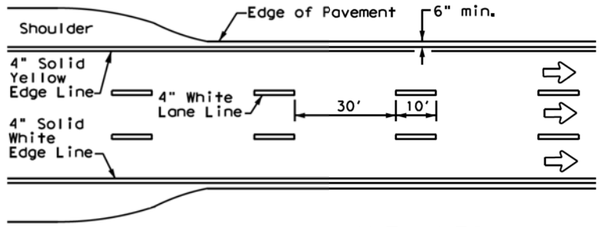
INSTALLATION SCENARIOS

DALLAS DISTRICT STANDARD

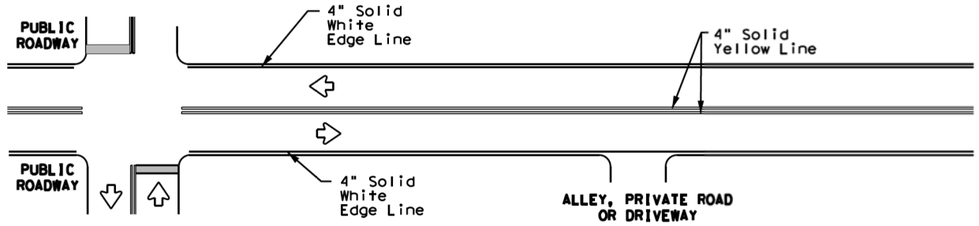
N.T.S. SHEET 3 OF 3

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	(SEE TITLE SHEET)		
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	DALLAS		
CONTROL	SECTION	JOB	

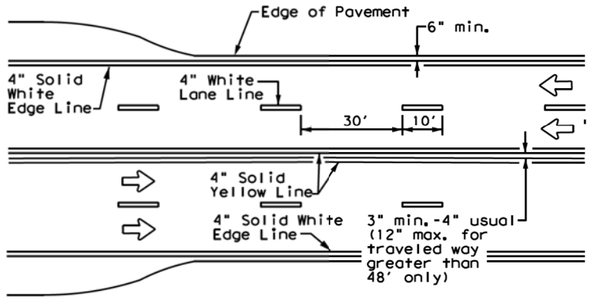
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



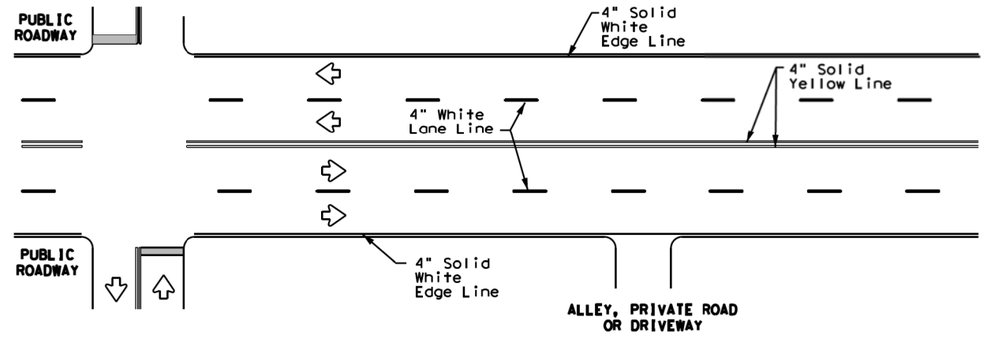
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



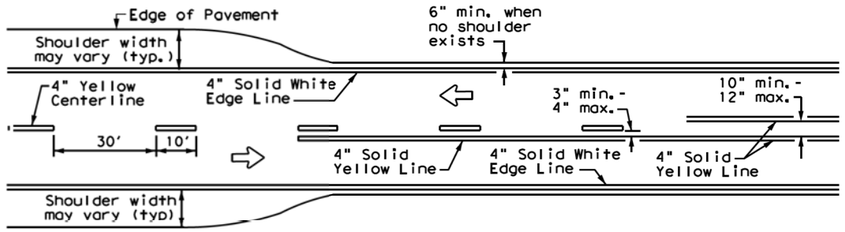
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



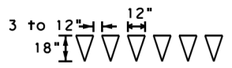
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



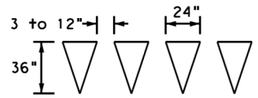
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

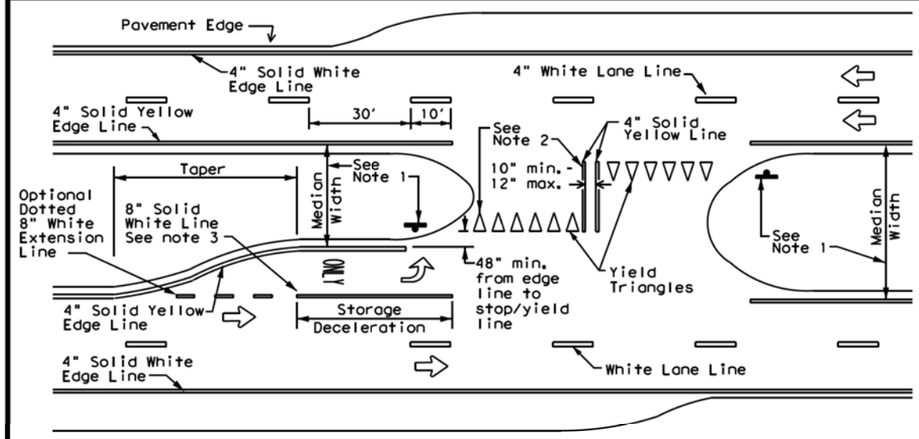


For posted speed on road being marked equal to or less than 40 MPH.



For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs are optional as determined by the Engineer.

2. Install median striping (double yellow centerlines and stop bars/yield triangles) when a 50' or greater median centerline can be placed. Stop bars shall only be used with stop signs. Yield traingles shall only be used with yield signs.

3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

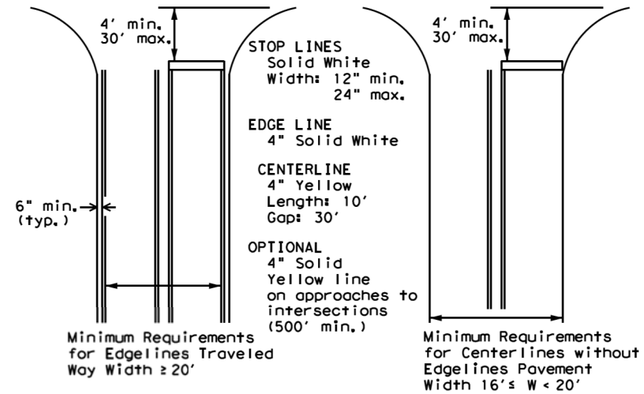
GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should not be placed less less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.

2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to the inside of edgeline of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 266 OF 378
DWG NO. WS9-2210
CONTRACT NO. C-2033270-01

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

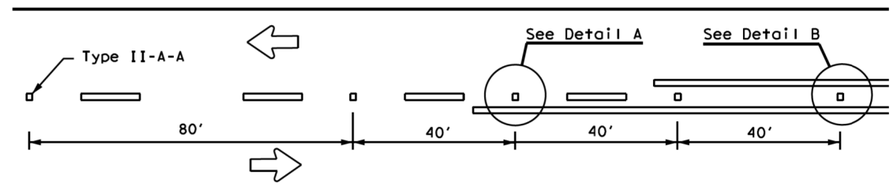
PM(1)-20

FILE: pm1-20.dgn	DN:	CK:	DW:	CK:
©TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
REVISIONS				
8-95 3-03	DIST	COUNTY		SHEET NO.
5-00 2-12				
8-00 6-20				

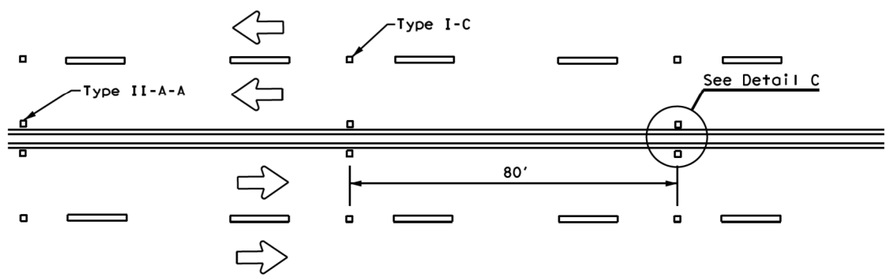
22A

DATE:
FILE:

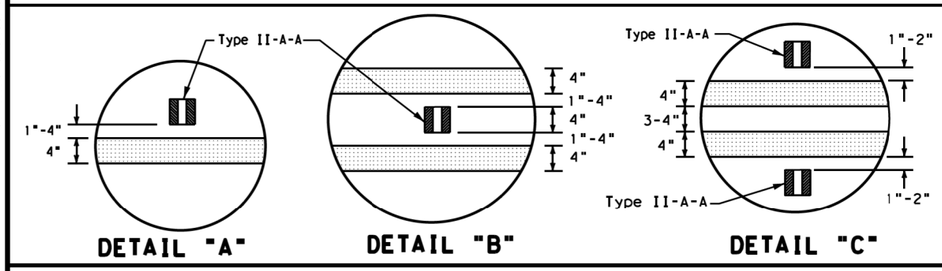
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



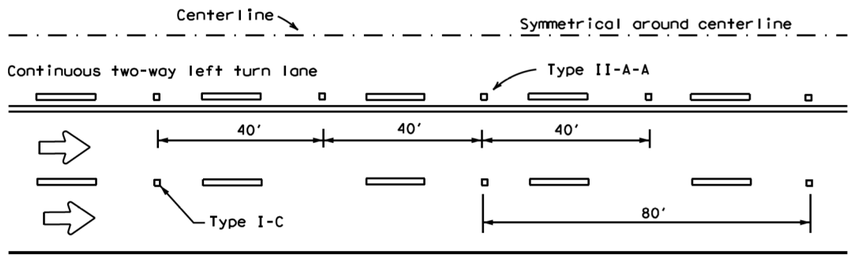
CENTERLINE FOR ALL TWO LANE ROADWAYS



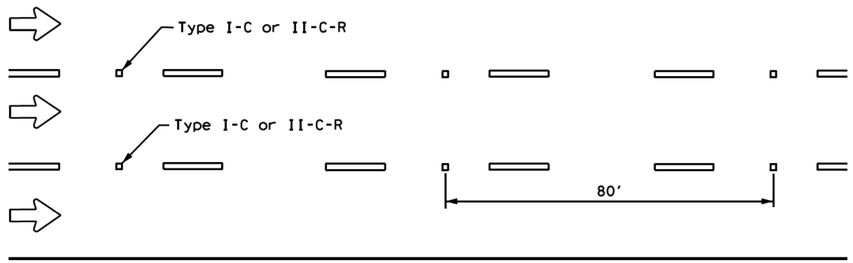
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS



DETAIL "A" **DETAIL "B"** **DETAIL "C"**



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE

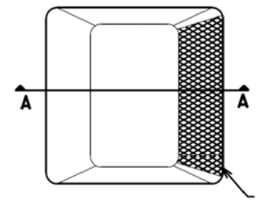


LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

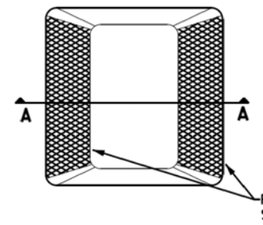
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

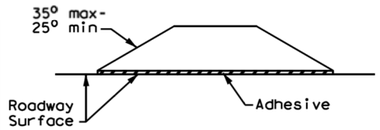
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

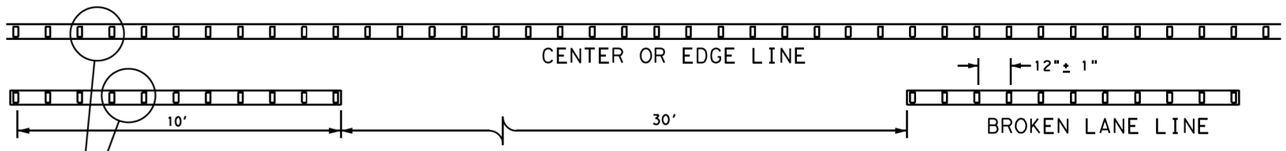


Type II (Top View)



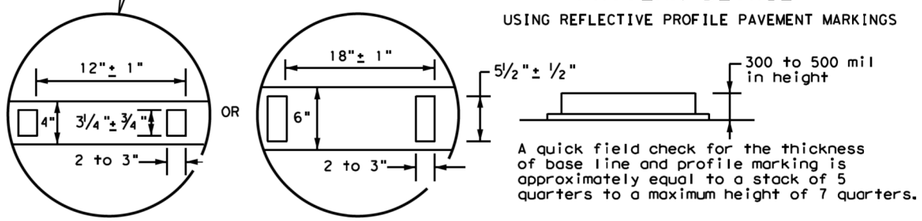
SECTION A

RAISED PAVEMENT MARKERS



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS



4" EDGE LINE, CENTER LINE OR LANE LINE

OPTIONAL 6" EDGE LINE, CENTER LINE OR LANE LINE

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTE

Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 267 OF 378
DWG NO. WS9-2211
CONTRACT NO. C-2033270-01

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-20

FILE: pm2-20.dgn	DN:	CK:	DW:	CK:
©TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
REVISIONS				
4-92 2-10	DIST	COUNTY		SHEET NO.
5-00 2-12				
8-00 6-20				

22B

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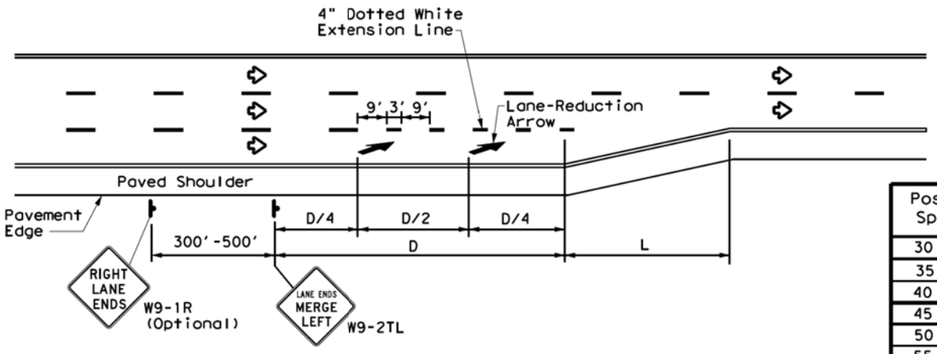
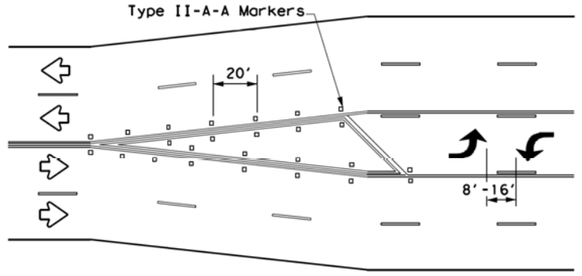


LANE REDUCTION

Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional W9-1R "RIGHT LANE ENDS" sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.



A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

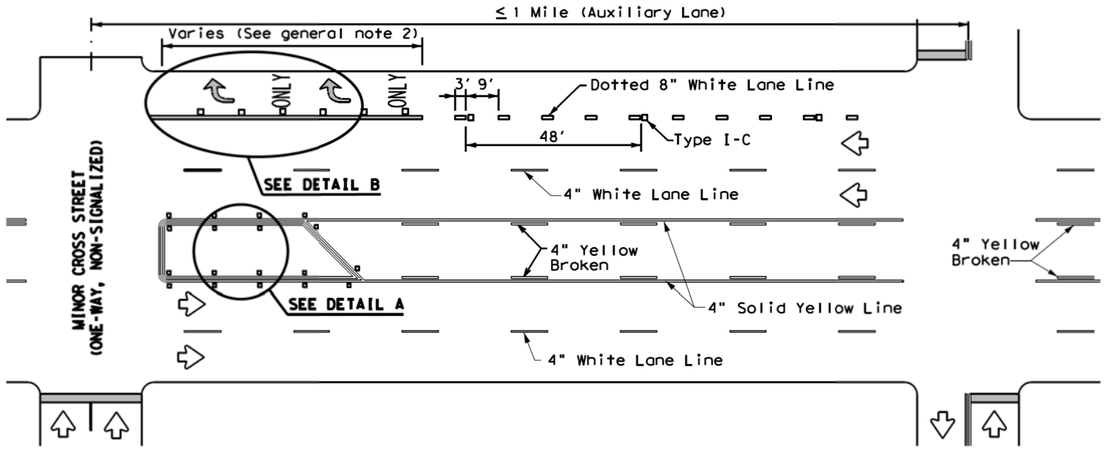
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

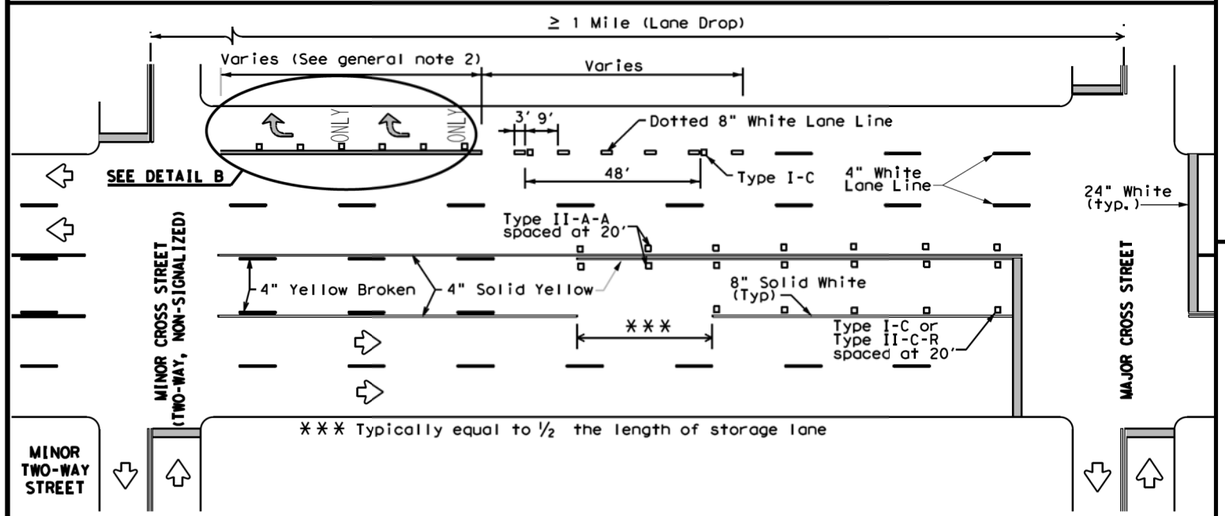
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

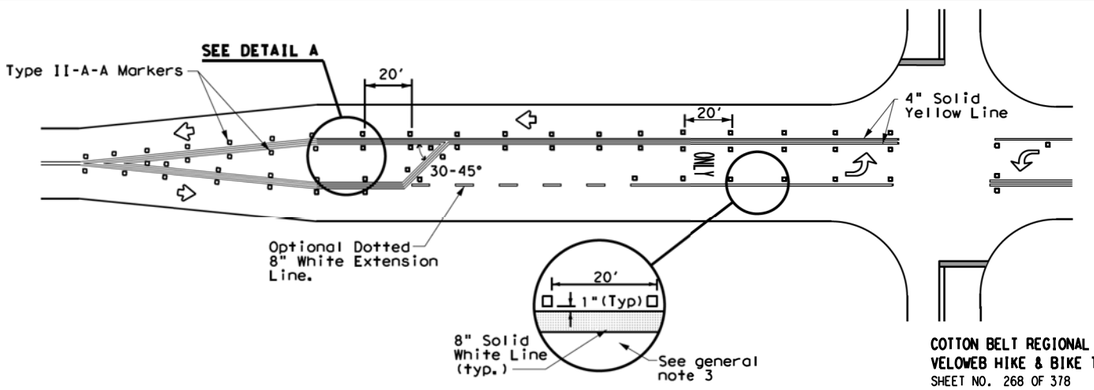
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE

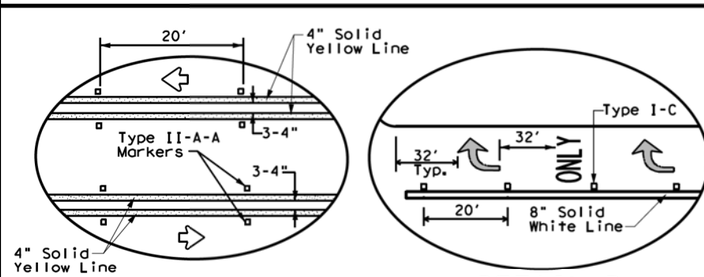


TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 268 OF 378
DWG NO. WS9-2212
CONTRACT NO. C-2033270-01

TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



DETAIL A

DETAIL B

Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-20

FILE: pm3-20.dgn	DN:	CK:	DW:	CK:
©TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 5-00 2-10, 8-00 2-12, 3-03 6-20	DIST	COUNTY		SHEET NO.

22C

DATE:
FILE:

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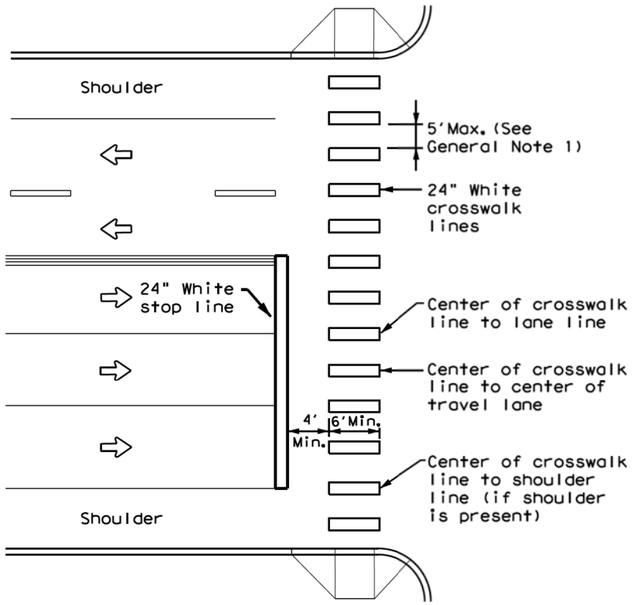


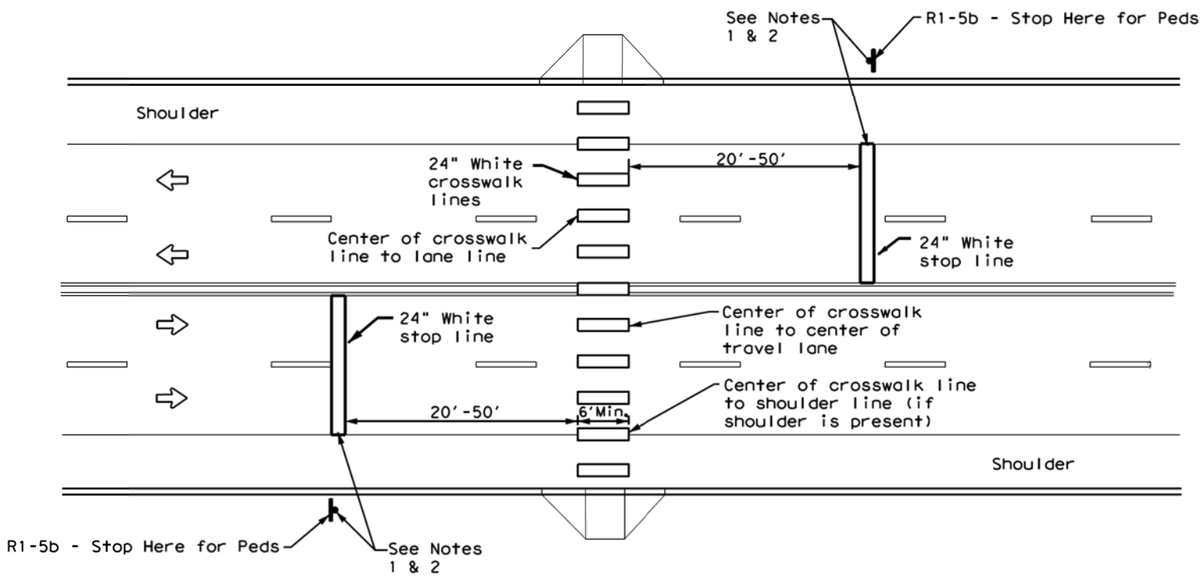
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



UNSIGNALIZED MID BLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES:

1. Use stop bars with "Stop Here for Pedestrians" signs at unsignalized mid block cross walks.
2. Use stop bars with "Stop Here on Red" signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 269 OF 378
DWG NO. WS9-2213
CONTRACT NO. C-2033270-01

Texas Department of Transportation

Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS

PM(4)-22

FILE: pm4-22.dgn	DN:	CK:	DW:	CK:
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REVISIONS 3-22				
	DIST	COUNTY		SHEET NO.

22D

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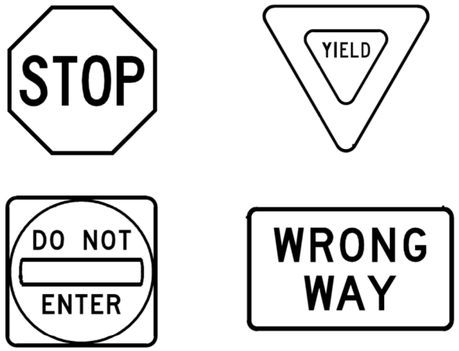
REQUIREMENTS FOR RED BACKGROUND REGULATORY SIGNS
(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

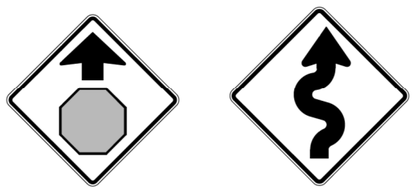
SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	WHITE	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING
LEGEND	RED	TYPE B OR C SHEETING

REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS
(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND, BORDERS AND SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR WARNING SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR SCHOOL SIGNS

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
6. Colored legend shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to background sheeting, or combination thereof.
7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
8. Mounting details for roadside mounted signs are shown in the "SMD series" Standard Plan Sheets.

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080
7.5 to 15	0.100
Greater than 15	0.125

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 270 OF 378
DWG NO. WS9-2239
CONTRACT NO. C-2033270-01

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(4)-13

FILE: tsr4-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08				

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FILE:

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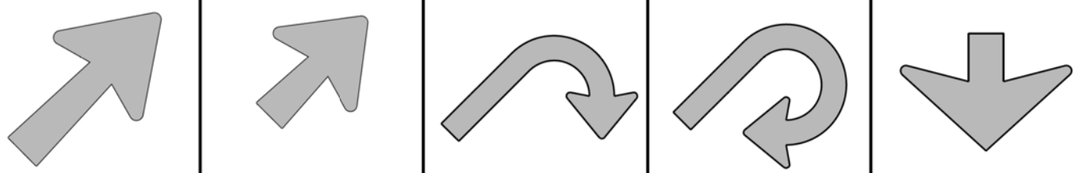
ARROW DETAILS

for Large Ground-Mounted and Overhead Guide Signs



TYPE	LETTER SIZE	USE
A-1	10.67" U/L and 10" Caps	Single Lane Exits
A-2	13.33" U/L and 12" Caps	
A-3	16" & 20" U/L	
B-1	10.67" U/L and 10" Caps	Multiple Lane Exits
B-2	13.33" U/L and 12" Caps	
B-3	16" & 20" U/L	

CODE	USED ON SIGN NO.
E-3	E5-1aT
E-4	E5-1bT

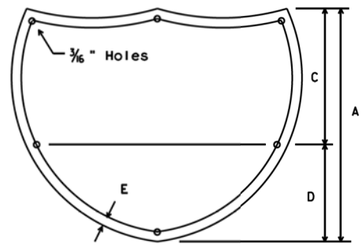
NOTE

Arrow dimensions are shown in the "Standard Highway Sign Designs for Texas" manual.

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

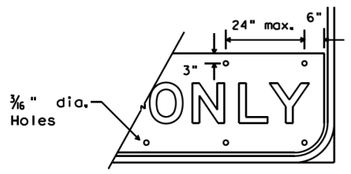
http://www.txdot.gov/

SIGN BLANK PUNCHING DETAILS FOR ATTACHMENTS WHEN SPECIFIED TO BE TYPE A ALUMINUM SIGNS (FOR MOUNTING TO GUIDE SIGN FACE)

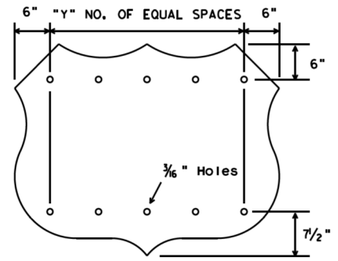


INTERSTATE ROUTE MARKERS

A	C	D	E
36	21	15	1½
48	28	20	1¾

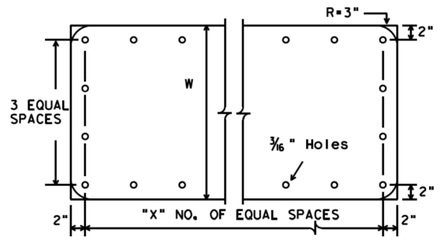


EXIT ONLY PANEL



U.S. ROUTE MARKERS

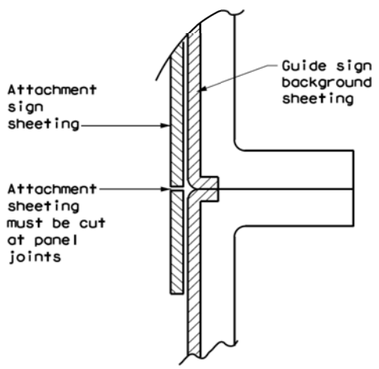
Sign Size	"Y"
24x24	2
30x24	3
36x36	3
45x36	4
48x48	4
60x48	5



STATE ROUTE MARKERS

No. of Digits	W	X
4	24	4
4	36	5
4	48	6
3	24	3
3	36	4
3	48	5

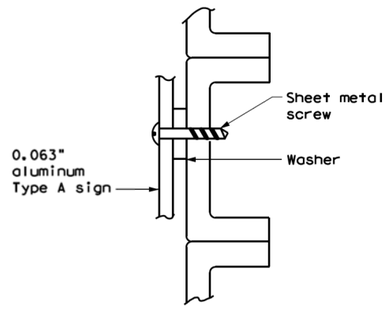
MOUNTING DETAILS OF ATTACHMENTS TO GUIDE SIGN FACE ("EXIT ONLY" AND "LEFT EXIT" PANELS, ROUTE MARKERS AND OTHER ATTACHMENTS)



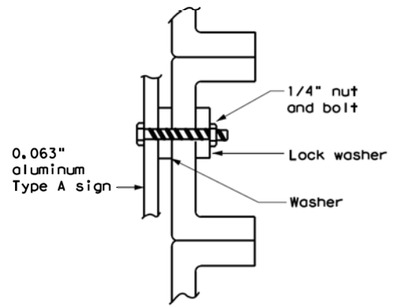
DIRECT APPLIED ATTACHMENT

NOTE:

1. Sheeting for legend, symbols, and borders must be cut at panel joints.
2. Direct applied attachment signs will be subsidiary to "Aluminum Signs" or "Fiberglass Signs".



SCREW ATTACHMENT



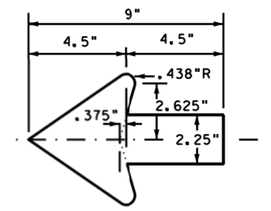
NUT/BOLT ATTACHMENT

NOTE:

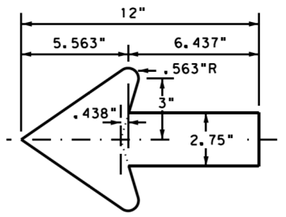
Furnish Type A aluminum sign attachments only when specified in the plans. These signs will be paid for under "Aluminum Signs".

ARROW DETAILS

for Destination Signs (Type D)



Standard arrow to be used with 6 inch letters.



Standard arrow to be used with 8 inch letters.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 271 OF 378
DWG NO. WS9-2240
CONTRACT NO. C-2033270-01

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(5)-13

FILE: tsr5-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08				

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

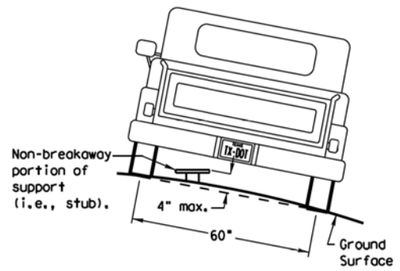
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-1))

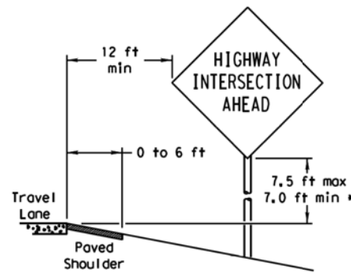
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

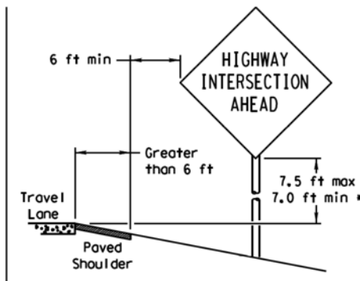
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

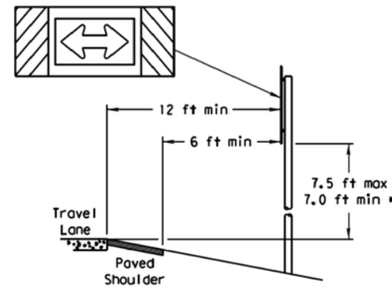
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



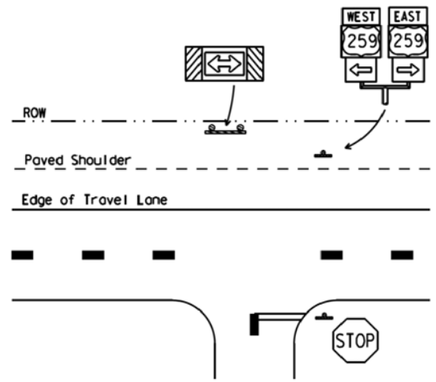
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

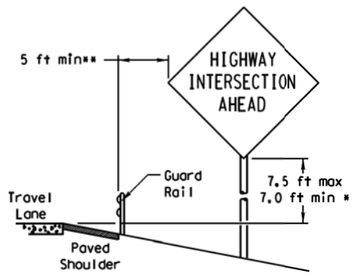
T-INTERSECTION



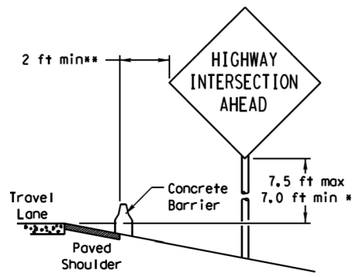
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



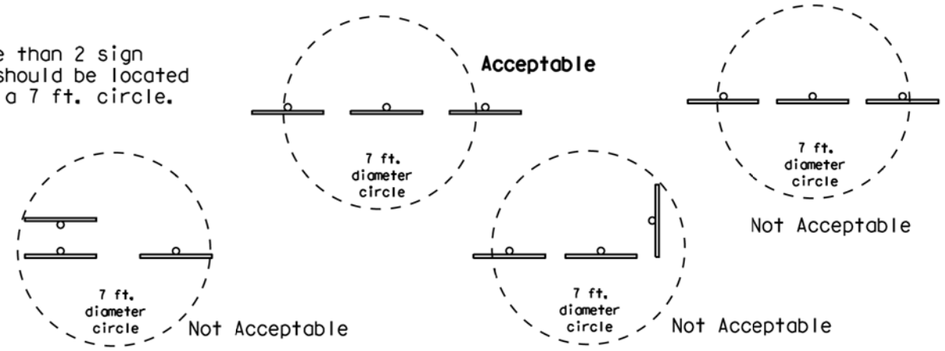
BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

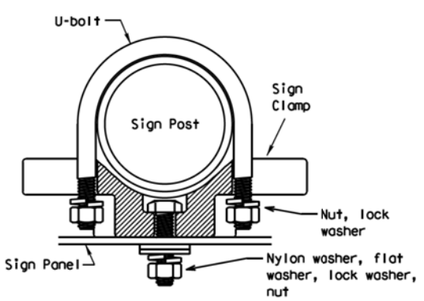
**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

No more than 2 sign posts should be located within a 7 ft. circle.



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

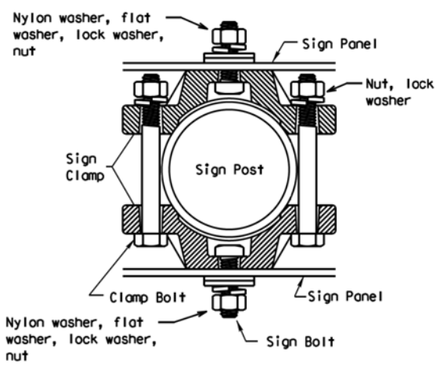


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

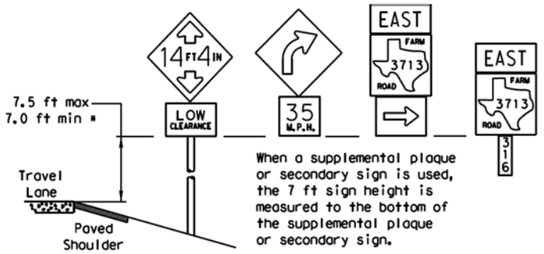
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



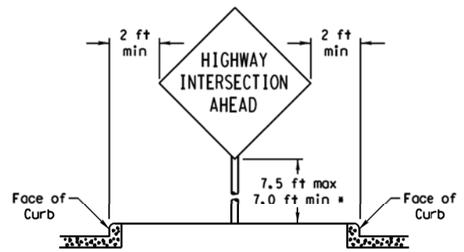
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



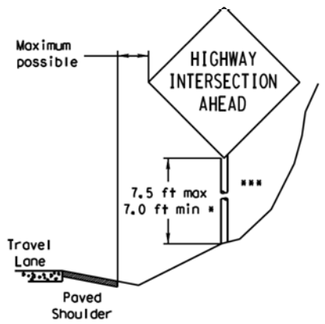
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

SHEET NO. 272 OF 378
DWG NO. WS9-2249
CONTRACT NO. C-2033270-01

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

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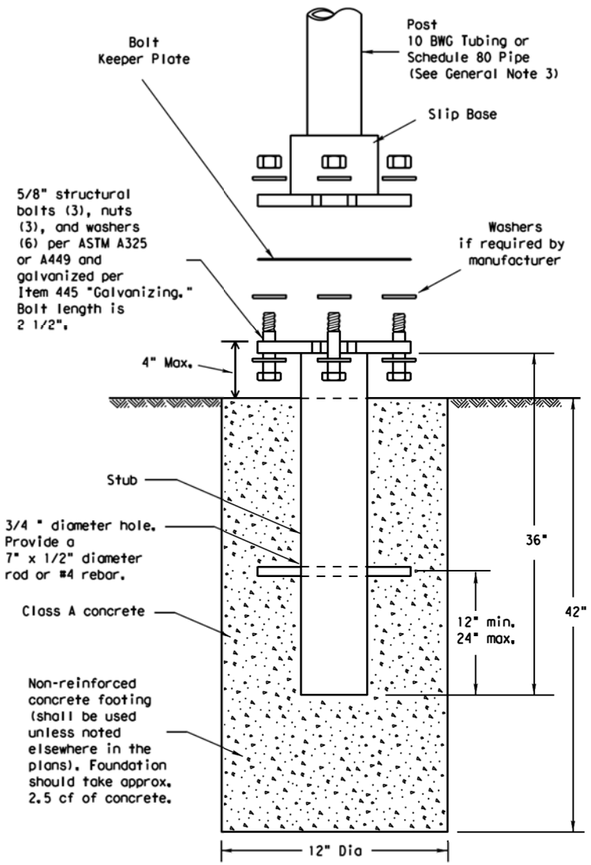
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

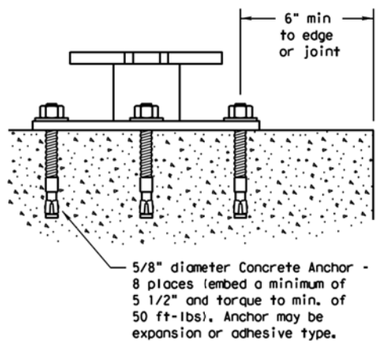
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 273 OF 378
DWG NO. WS9-2250
CONTRACT NO. C-2033270-01

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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REVISIONS	CONT	SECT	JOB	HIGHWAY
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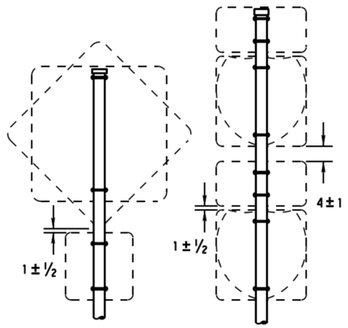
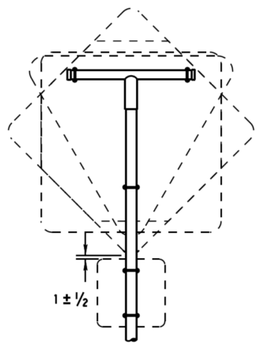


SM RD SGN ASSM TY XXXXX(1)XX(P)



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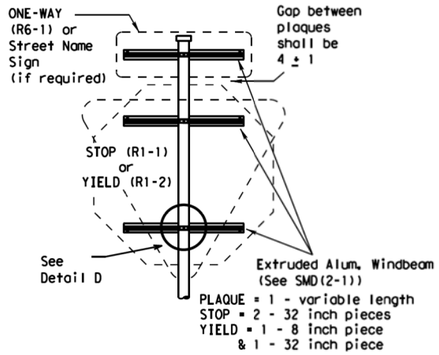

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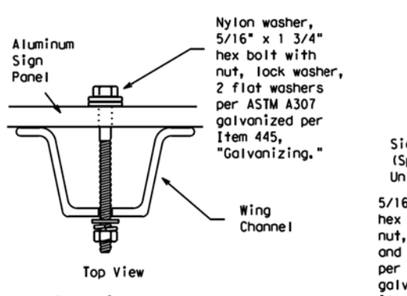
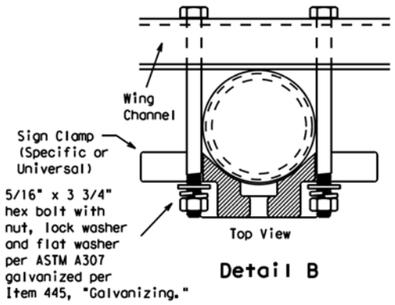
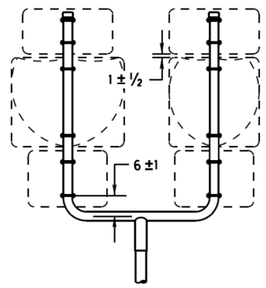


Detail A



Detail B



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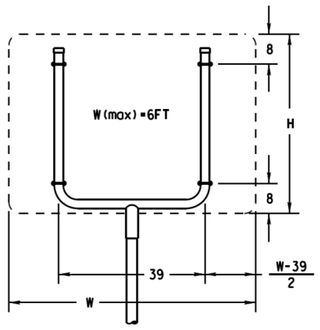

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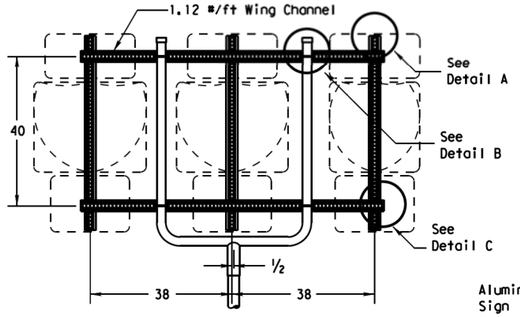
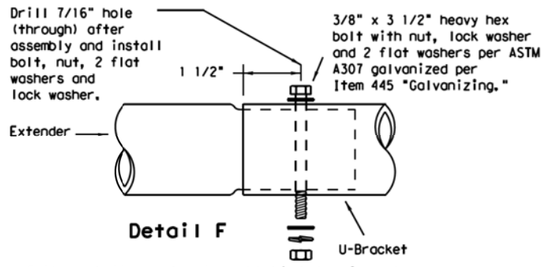
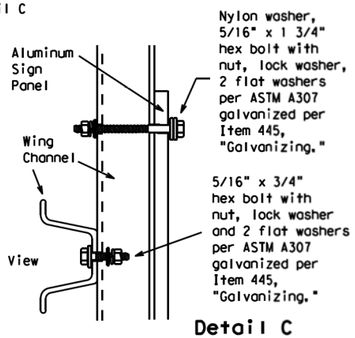


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

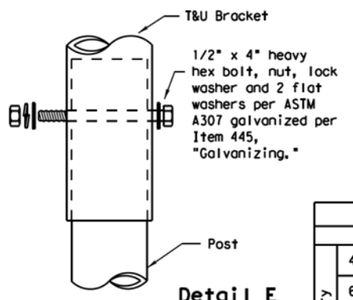


Detail F

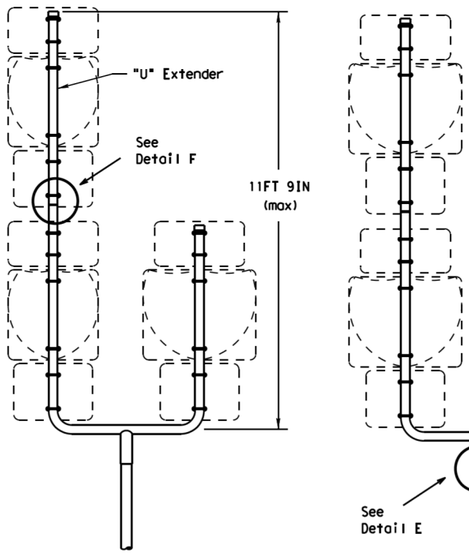
Splices shall only be allowed behind the sign substrate.



Detail C



Detail E



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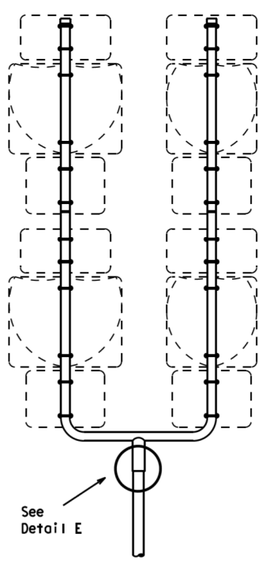

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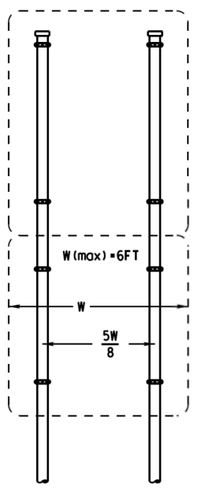
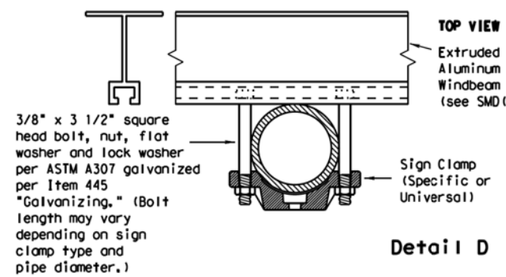
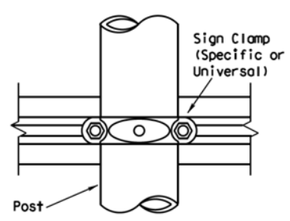


SM RD SGN ASSYM TY XXXXX(2)XX(P)

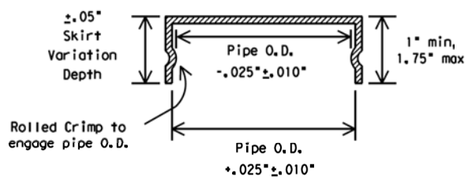
SIDE VIEW



Detail D



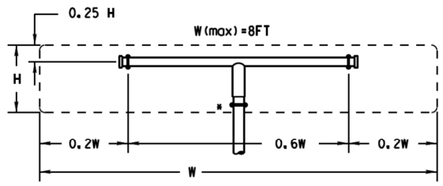
FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.



SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1.
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

SHEET NO. 274 OF 378
DWG NO. WS9-2251
CONTRACT NO. C-2033270-01

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

©TxDOT July 2002

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.

9-08 REVISIONS

DATE:
FILE:

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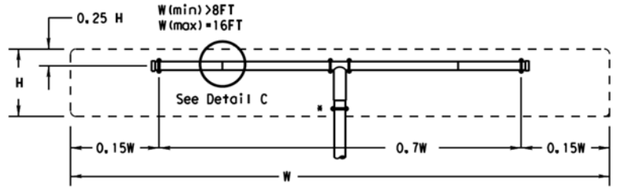
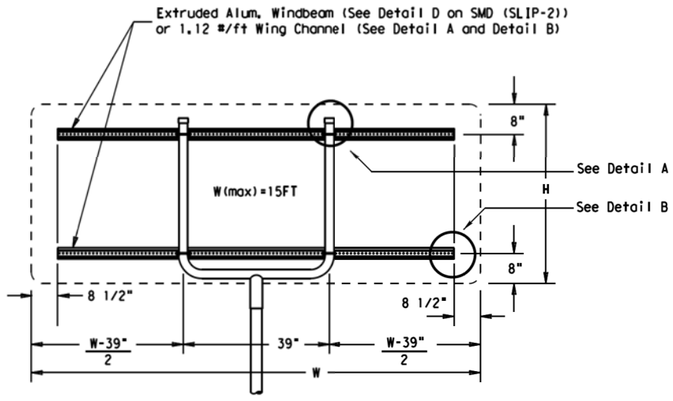
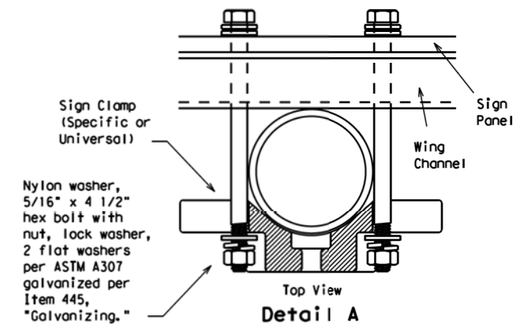


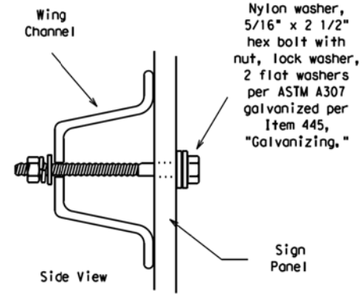
SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)



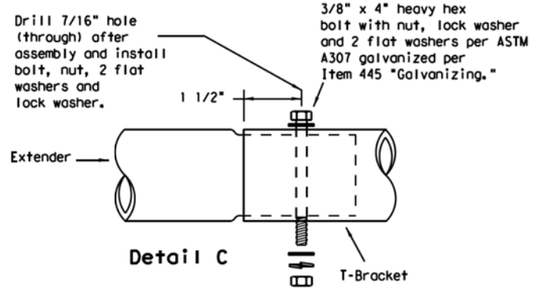
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



Detail A

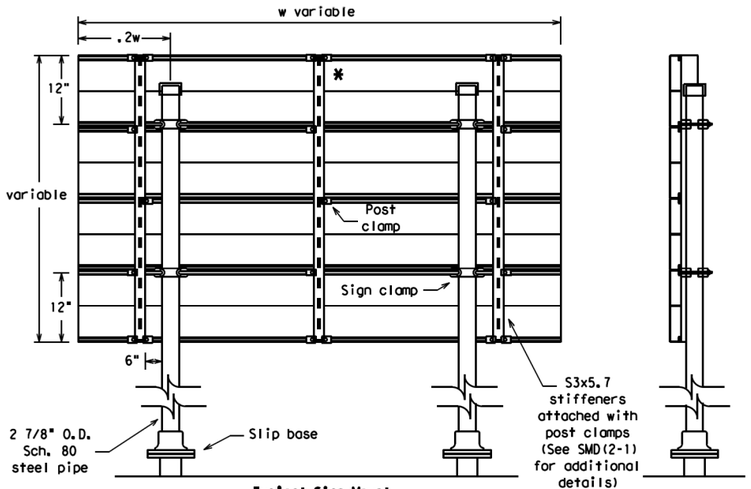


Detail B



Detail C

Splices shall only be allowed behind the sign substrate.

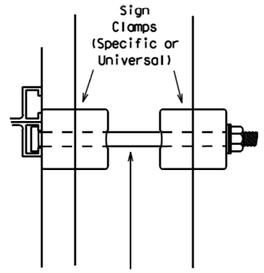


Typical Sign Mount

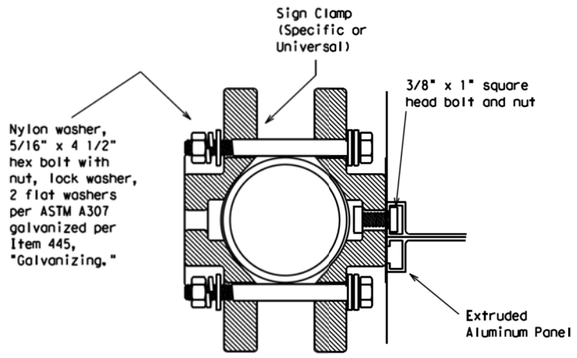
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

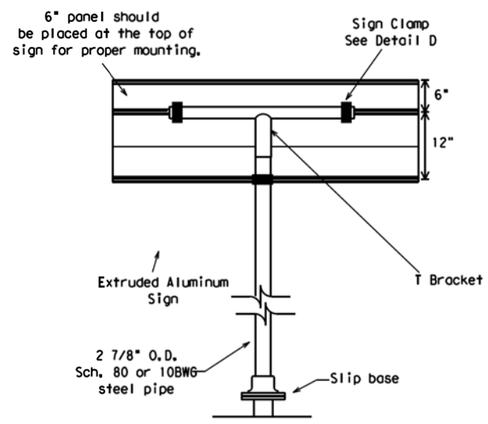
See Detail E
for clamp installation



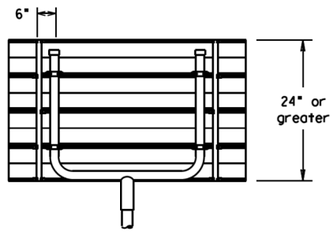
Detail E



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
2. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
3. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
4. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
5. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
6. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
7. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
8. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
9. Sign blanks shall be the sizes and shapes shown on the plans.
10. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
11. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 275 OF 378
DWG NO. WS9-2252
CONTRACT NO. C-2033270-01

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

© TxDOT July 2002

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.

9-08 REVISIONS

DATE:
FILE:

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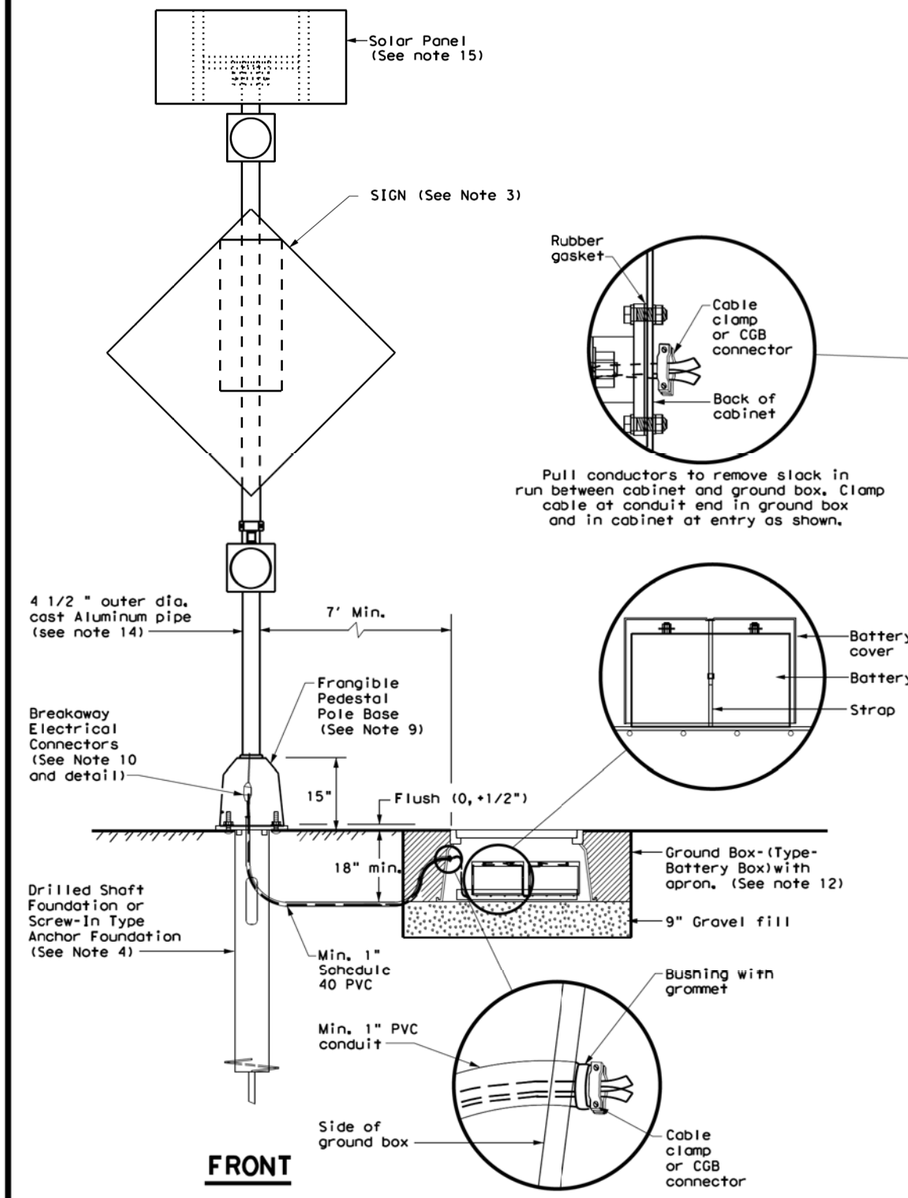
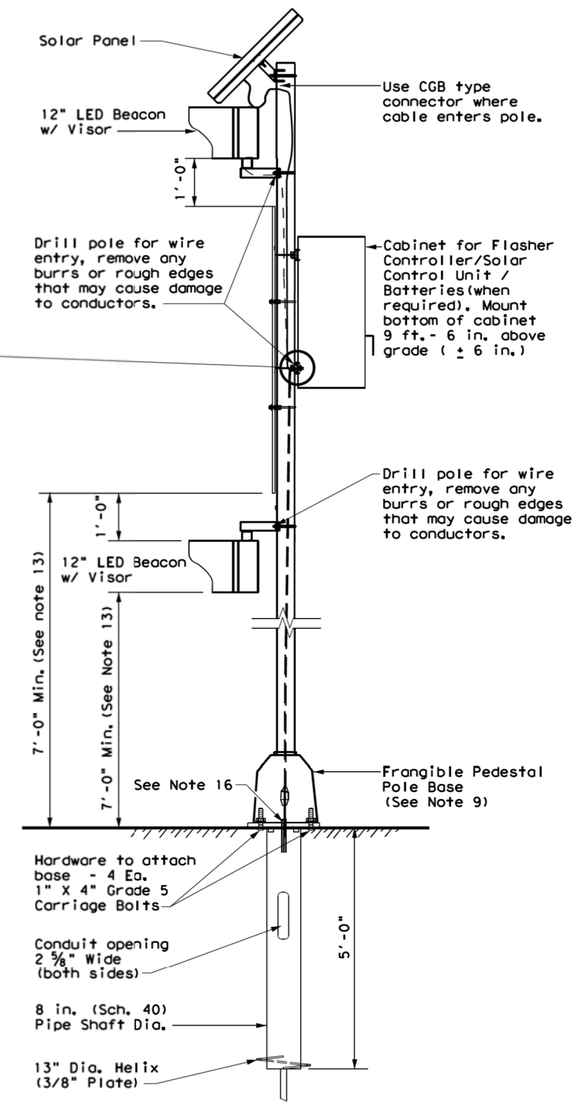
GENERAL NOTES:

1. Details show a typical warning sign with two flashing beacon heads, other arrangements are possible. When only one beacon is required, install the upper beacon.
2. See Item 685, "Roadside Flashing Beacon Assemblies" for further requirements.
3. See SMD standard sheets for lateral and vertical clearances and sign mounting details. Install signs as shown on the sign layout sheets.
4. Use either a Screw-In Type Anchor Foundation or a Drilled Shaft Foundation as shown elsewhere in the plans. When plans require a Drilled Shaft Foundation, see standard sheet TS-FD. Install the Screw-In Type Anchor Foundation as per manufacturer's recommendations. On a slope, install one edge at ground level. Screw-In/Drilled Shaft Foundation is subsidiary to Item 685. Installation of a ground rod is not required for solar powered flashing beacon assemblies.
5. When used, provide Screw-In Type Anchor Foundations as shown on TxDOT's Material Producer List (MPL) in the file "Highway Traffic Signals".
6. Use materials specifically designed for attaching cabinets, beacon heads, solar panels, etc., to poles.
7. Install beacon heads as shown here, as shown elsewhere on the plans, or as directed. Use hardware specifically designed for mounting beacon heads on poles.
8. Conduit in foundation and within 6 in. of foundation is subsidiary to the Item 685, "Roadside Flashing Beacon Assemblies."
9. Per manufacturer's recommendations, engage all threads on the pedestal pole base and pipe unless the pipe is fully seated into base. In high winds, use a pole and base collar assembly to add strength and prevent loosening on connection.
10. Provide single pole non-fused watertight breakaway electrical connectors for frangible pedestal pole bases, as shown on TxDOT's MPL in the file "Roadway Illumination and Electrical Supplies." Approved models are listed under Item 685. For ungrounded (hot) conductors, install a breakaway connector with a dummy fuse slug). For grounded (neutral) conductors, install a breakaway connector with a white colored marking and a permanently installed dummy fuse (slug).
11. Install the batteries in a battery box. Place the batteries on a 3/16" thick plastic sheet and connect together. Place a plastic cover (battery bell jar) over the top of each battery and secure the battery bell jar to the battery with a strap. The batteries, bell jars, straps and 3/16" plastic sheet are subsidiary to the Item 685, "Roadside Flashing Beacon Assemblies." When required, install batteries in the flasher cabinet. Wire batteries according to manufacturers recommendations. Provide the number of batteries as required by the manufacturer.
12. See standard sheet Electrical Details (ED) for additional requirements regarding the installation of ground boxes/battery boxes, conduit, and cabinets.
13. Provide clearance as shown above the sidewalk or pavement grade at the edge of the road. When a bottom beacon is not used, mount the bottom of the sign at least 7 ft. above the sidewalk or pavement grade at the edge of the road.
14. Unless otherwise shown on the plans, pole shaft shall be one piece, Schedule 40 Aluminum pipe, ASTM B429 or B221 (Alloy 6061-T6 only). Aluminum conduit will not develop the necessary strength and will not be allowed.
15. Orient solar panel for optimum exposure to sunlight (face to the south). Prior to installation, check the location to ensure there is no overhead obstruction that would block the solar panel from receiving full sunlight. Unless specified elsewhere, mount a minimum of 14' above grade.
16. Ensure height of conduit is below top of anchor bolts.



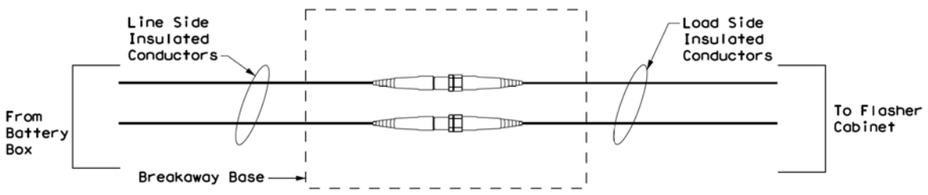
Pull conductors to remove slack in run between cabinet and ground box. Clamp cable at conduit end in ground box and in cabinet at entry as shown.

FRONT

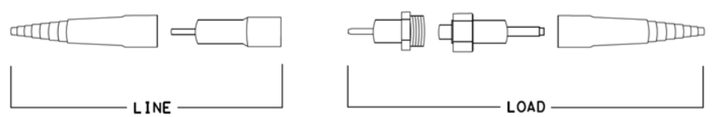


SIDE

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 276 OF 378
DWG NO. WS9-2253
CONTRACT NO. C-2033270-01



NON-FUSED BREAKAWAY ELECTRICAL CONNECTORS



NON-FUSED BREAKAWAY ELECTRICAL CONNECTORS EXPLODED VIEW

Texas Department of Transportation

Traffic Operations Division Standard

SOLAR POWERED ROADSIDE FLASHING BEACON ASSEMBLY DETAILS

SPRFBA(1)-13

FILE: spb1-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
DATE: 12-04	DIST	COUNTY		SHEET NO.
FILE: 3-13				

75A

DWG No. CC6-1511

NOTES:

1. VELOCITIES SHOWN WHERE CALCULATED AT RIPRAP BOUNDARY/RIGHT-OF-WAY, WHERE APPLICABLE.

2. THE DESIGN STORM FOR DRAINAGE SYSTEMS CONVEYING FLOWS FROM TRAIL AND TRACK IS 100-YEAR. THE DESIGN STORM FOR DRAINAGE SYSTEMS CONVEYING FLOWS FROM THE TRAIL ONLY IS 50-YEAR.

3. ADDITIONAL DATA PROVIDED PER DFWIA REQUIREMENTS. APPROXIMATE DFWIA JURISDICTIONAL LIMITS EQUAL TRAIL STATION LIMITS 1099+58 TO 1133+00.

PROPOSED DRAINAGE AREA CALCULATIONS (LESS THAN 200 ACRES)

AREA NUMBER	AREA BY ZONING			RATIONAL METHOD Q=CIA										COMMENTS
	GRASS/ROW (ACRES) 0.40	INDUSTRIAL/ PAVEMENT (ACRES) 0.90	BALLAST (ACRES) 0.90	AREA (ACRES)	Tc (MIN)	RUNOFF "C"	INTENSITY 1 YEAR (IN/HR)	Q1 (CFS)	INTENSITY 25 YEAR (IN/HR)	Q25 (CFS)	INTENSITY 50 YEAR (IN/HR)	Q50 (CFS)	INTENSITY 100 YEAR (IN/HR)	Q100 (CFS)	
A-13a	23.40	1.97	1.77	27.14	30.00	0.47	2.32	29.59	4.76	60.72	5.28	67.35	5.80	73.98	WITHIN DFWIA JURSDICTIONAL LIMITS
A-13b	1.64	0.86	1.44	3.94	29.70	0.69	2.34	6.36	4.79	13.02	5.31	14.44	5.84	15.88	WITHIN DFWIA JURSDICTIONAL LIMITS

PROPOSED DRAINAGE AREA CALCULATIONS (LESS THAN 200 ACRES)

AREA NUMBER	AREA BY ZONING				RATIONAL METHOD Q=CIA							COMMENTS
	GRASS/ROW (ACRES) 0.40	SF (ACRES) 0.65	INDUSTRIAL/ PAVEMENT (ACRES) 0.90	BALLAST (ACRES) 0.90	AREA (ACRES)	Tc (MIN)	RUNOFF "C"	INTENSITY 50 YEAR (IN/HR)	Q50 (CFS)	INTENSITY 100 YEAR (IN/HR)	Q100 (CFS)	
A-16	12.08		1.05	0.84	13.97	16.66	0.47	6.77	44.45	7.37	48.39	
A-17	0.65		0.19	0.47	1.31	10.00	0.65	8.16	6.95	8.88	7.56	
A-18a	0.17				0.17	10.00	0.40	8.16	0.55	8.88	0.60	
A-18b	2.48		0.73	0.44	3.65	19.39	0.56	6.47	13.22	7.04	14.39	
A-18c			0.38		0.38	10.00	0.90	8.16	2.79	8.88	3.04	
A-18d	1.33		0.75	0.78	2.86	10.26	0.67	8.10	15.52	8.81	16.88	
A-18e	0.56				0.56	10.00	0.40	8.16	1.84	8.88	2.01	
A-29a	0.84			0.21	3.43	14.87	0.74	6.99	17.74	7.59	19.26	
A-29b		0.53			0.53	10.00	0.65	8.16	2.81	8.88	3.06	
A-29c	1.51	1.18	0.19	0.31	3.19	15.73	0.57	6.88	12.51	7.47	13.58	
A-30a	0.25	1.20	0.20	0.30	1.95	10.00	0.68	8.16	10.82	8.88	11.77	
A-30b	0.18		0.16	0.26	0.60	10.00	0.75	8.16	3.67	8.88	4.00	
A-31a		0.28	0.75		1.03	10.00	0.83	8.16	6.98	8.88	7.59	
A-31b		0.26	0.85		1.11	10.00	0.84	8.16	7.61	8.88	8.28	
A-31c			0.95		1.33	10.00	0.89	8.16	9.66	8.88	10.51	
A-31d			0.26		0.26	10.00	0.90	8.16	1.91	8.88	2.08	
A-31e			0.05		0.05	10.00	0.90	8.16	0.37	8.88	0.40	
A-31f			0.07		0.07	10.00	0.90	8.16	0.51	8.88	0.56	
A-33	0.56		0.12		0.68	21.66	0.49	6.21	2.07	6.78	2.26	
A-35	0.06		0.40		7.11	49.07	0.85	4.21	25.44	4.63	27.98	
A-38a	24.77		10.66		35.43	17.58	0.55	8.16	159.01	7.52	146.54	ATLAS 14 INTENSITY USED
A-38b	2.24		0.60		2.84	10.00	0.51	8.75	12.67	9.64	13.96	ATLAS 14 INTENSITY USED
A-38c	0.77		0.55		1.32	10.00	0.61	8.75	7.05	9.64	7.76	ATLAS 14 INTENSITY USED
A-38d	1.01		0.21	0.34	1.56	10.00	0.58	8.75	7.92	9.64	8.72	ATLAS 14 INTENSITY USED
A-38e	0.99			0.27	1.26	16.32	0.51	7.01	4.50	7.32	4.70	ATLAS 14 INTENSITY USED
A-38f	0.72		0.18		0.90	15.42	0.50	7.15	3.22	7.87	3.54	ATLAS 14 INTENSITY USED
A-38g	0.52		0.13		0.65	14.16	0.50	7.47	2.43	8.23	2.67	ATLAS 14 INTENSITY USED
A-38h	0.99			0.17	1.16	11.64	0.47	8.24	4.49	9.08	4.95	ATLAS 14 INTENSITY USED
A-38i	0.62		0.12	0.17	0.91	10.00	0.56	8.75	4.46	9.64	4.91	ATLAS 14 INTENSITY USED
A-39a	1.69		0.48	0.69	2.86	16.60	0.60	6.97	11.96	7.68	13.18	ATLAS 14 INTENSITY USED
A-39b	2.38		0.33		2.71	10.00	0.46	8.16	10.17	8.88	11.07	
A-39c	2.28			0.48	2.76	10.00	0.49	8.16	11.04	8.88	12.01	
A-39d	2.82				2.82	25.68	0.40	5.76	6.50	6.31	7.12	
A-40a		3.02			3.02	15.00	0.65	6.96	13.66	7.56	14.84	
A-40b			0.11		0.11	10.00	0.90	8.16	0.81	8.88	0.88	
A-40c		1.11			1.11	15.00	0.65	6.96	5.02	7.56	5.45	
A-40d			0.24		0.24	10.00	0.90	8.16	1.76	8.88	1.92	
A-40e	0.48	0.55	0.11	0.12	1.26	10.00	0.60	8.16	6.17	8.88	6.71	
A-40f	0.29			0.09	0.38	10.00	0.52	8.16	1.61	8.88	1.75	
A-41a	1.66		0.26	0.53	2.45	10.00	0.56	8.16	11.20	8.88	12.18	
A-43a	1.22		0.38	0.78	2.38	10.60	0.64	8.02	12.22	8.72	13.28	
A-43b	0.34		0.23	0.46	1.03	10.00	0.73	8.16	6.14	8.88	6.68	
A-44	0.25		7.02		7.27	10.00	0.88	8.16	52.20	8.88	56.81	

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DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

IEA
18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
Phone: +1 (214) 884-4253
Firm Registration: F-10161

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IN CHARGE	A. DORANTES
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CONTRACT SHEET No. 277 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
DRAINAGE CALCULATIONS
SHEET 1 OF 6

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1511	D

CB05-CC6-1511.001

DWG No. CC6-1512

CULVERT HYDRAULIC INPUT DATA (HY-8)												
MINOR CULVERTS												
STATION/ID	TRACK OR ROADWAY/TRAIL	DESCRIPTION	DRAINAGE AREA ID	INLET STATION (FT)	INLET ELEV (FT)	UPPER-BREAK STATION (FT)	UPPER-BREAK ELEV (FT)	LOWER-BREAK STATION (FT)	LOWER-BREAK ELEV (FT)	OUTLET STATION (FT)	OUTLET ELEV (FT)	TAILWATER DATA
CB-1 NB STA 1126+74	TRACK/TRAIL	EXISTING 2-36" RCP	A-13a	0.00	533.07	N/A	N/A	N/A	N/A	65.00	532.88	TW CONDITION RECTANGULAR CHANNEL WITH 7' BW, 2.5' DEPTH, 3.25% CHANNEL SLOPE, MANNINGS N = 0.012
CB-1 NB STA 1126+74	TRACK/TRAIL	PROPOSED 2-36" RCP	A-13a	0.00	533.07	63.00	532.89	N/A	N/A	91.00	531.94	TW CONDITION RECTANGULAR CHANNEL WITH 7' BW, 2.5' DEPTH, 3.25% CHANNEL SLOPE, MANNINGS N = 0.012

CULVERT HYDRAULIC DATA																														
MINOR CULVERTS																														
STATION/ID	TRACK OR ROADWAY/TRAIL	DESCRIPTION	DRAINAGE AREA ID	ALLOWABLE HEADWATER (FT)	BOT OF SUBALLAST ELEV (FT)	1 YEAR (STORM FREQ)							25 YEAR (STORM FREQ)							50 YEAR (STORM FREQ)							100 YEAR (STORM FREQ)							COMMENTS
						FLOW "Q" (CFS)	HW ELEV (FT)	HW DEPTH (FT)	TW ELEV (FT)	TW DEPTH (FT)	OUTLET VEL (FT/S)	TW VEL (FT/S)	FLOW "Q" (CFS)	HW ELEV (FT)	HW DEPTH (FT)	TW ELEV (FT)	TW DEPTH (FT)	OUTLET VEL (FT/S)	TW VEL (FT/S)	FLOW "Q" (CFS)	HW ELEV (FT)	HW DEPTH (FT)	TW ELEV (FT)	TW DEPTH (FT)	OUTLET VEL (FT/S)	TW VEL (FT/S)	FLOW "Q" (CFS)	HW ELEV (FT)	HW DEPTH (FT)	EGL ELEV (FT)	TW ELEV (FT)	TW DEPTH (FT)	OUTLET VEL (FT/S)	TW VEL (FT/S)	
CB-1 NB STA 1126+74	TRACK/TRAIL	EXISTING 2-36" RCP	SEE NOTE 6	537.50	540.00	29.59	534.98	1.91	533.26	0.38	5.47	11.01	60.72	535.93	2.86	533.48	0.60	6.95	14.35	67.35	536.12	3.05	533.53	0.65	7.22	14.90	73.98	536.30	3.23	537.17	533.57	0.69	7.50	15.41	SEE NOTE 6. DFWIA LIMITS
		PROPOSED 2-36" RCP	A-13a	537.50	540.00	29.59	534.98	1.91	532.56	0.38	9.79	11.01	60.72	535.93	2.86	532.78	0.60	11.24	14.35	67.35	536.12	3.05	532.83	0.65	11.48	14.90	73.98	536.30	3.23	538.43	532.87	0.69	11.72	15.41	100-YEAR DESIGN. DFWIA LIMITS

CULVERT HYDRAULIC INPUT DATA (HY-8)												
MINOR CULVERTS												
STATION/ID	TRACK OR ROADWAY/TRAIL	DESCRIPTION	DRAINAGE AREA ID	INLET STATION (FT)	INLET ELEV (FT)	UPPER-BREAK STATION (FT)	UPPER-BREAK ELEV (FT)	LOWER-BREAK STATION (FT)	LOWER-BREAK ELEV (FT)	OUTLET STATION (FT)	OUTLET ELEV (FT)	TAILWATER DATA
CB-1 NB STA 1187+53	ROADWAY/TRAIL	EXISTING 1-42" RCP	A-29a	0.00	513.70	61.00	N/A	N/A	N/A	61.00	512.49	TW CONDITION SET TO NORMAL DEPTH
		PROPOSED 1-42" RCP	A-29a	0.00	513.70	59.00	512.55	84	512.2	84.00	512.20	TW CONDITION SET TO NORMAL DEPTH
CULV LINE A-29b-01	TRAIL	PROPOSED 1-18" RCP	A-29b	0.00	513.95	N/A	N/A	N/A	N/A	22.00	513.65	TW CONDITION SET TO NORMAL DEPTH
CB-1 NB STA 1192+53	TRACK	EXISTING 2-24" RCP	A-29a-c	0.00	509.90	N/A	N/A	N/A	N/A	187.00	509.02	TW CONDITION TRIANGULAR CHANNEL WITH 5:1 SIDE SLOPES, 0.50% CHANNEL SLOPE, MANNING N = 0.035.
CB-1 NB STA 1197+76	TRACK	EXISTING 1-24" RCP	A-30a	0.00	503.29	N/A	N/A	N/A	N/A	46.00	503.16	TW CONDITION SET TO HW ELEVATION OF CULVERT DOWNSTREAM. CONSTANT TW CONDTION SET TO EL = 505.91
CULV LINE A-30a-01	TRAIL	PROPOSED 1-18" RCP	A-30a	0.00	505.55	N/A	N/A	N/A	N/A	21.00	505.05	TW CONDITION SET TO NORMAL DEPTH
CULV LINE A-38f-01	TRAIL	PROPOSED 1-24" RCP	A-38f	0.00	457.84	N/A	N/A	N/A	N/A	20.00	457.77	TW CONDITION SET TO NORMAL DEPTH
CB-1 NB STA 1296+02	TRAIL	PROPOSED 1-48" RCP	A-38a-i	0.00	454.01	N/A	N/A	N/A	N/A	32.00	452.40	TW CONDITION SET TO CONSTANT TAILWATER AT BASE FLOOD ELEVATION
CULV LINE A-41a-01	TRACK/TRAIL	PROPOSED 1-36" RCP	A-41a	0.00	453.35	8.00	451.35	N/A	N/A	120.00	449.32	TW CONDITION SET TO SOFIT OF PIPE AT OUTFALL OF 36" RCP TO EXIST. ENCLOSED STORM SEWER
CULV LINE A-41a-02	TRAIL	PROPOSED 2-18" RCP	A-41a	0.00	456.40	N/A	N/A	N/A	N/A	50.00	456.27	TW CONDITION TRIANGULAR CHANNEL WITH 3:1 SIDE SLOPES, 0.90% CHANNEL SLOPE, MANNING N = 0.035.

CULVERT HYDRAULIC DATA																				
MINOR CULVERTS																				
STATION/ID	TRACK OR ROADWAY/TRAIL	DESCRIPTION	DRAINAGE AREA ID	ALLOWABLE HEADWATER (FT)	BOT OF SUBALLAST ELEV (FT)	50 YEAR (STORM FREQ)							100 YEAR (STORM FREQ)							COMMENTS
						FLOW "Q" (CFS)	HW ELEV (FT)	HW DEPTH (FT)	EGL ELEV (FT)	TW ELEV (FT)	TW DEPTH (FT)	OUTLET VEL (FT/S)	TW VEL (FT/S)	FLOW "Q" (CFS)	HW ELEV (FT)	HW DEPTH (FT)	EGL ELEV (FT)	TW ELEV (FT)	TW DEPTH (FT)	OUTLET VEL (FT/S)	TW VEL (FT/S)	
CB-1 NB STA 1188+15	ROADWAY/TRAIL	EXISTING 1-42" RCP	A-29a	515.55	516.22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19.26	515.55	1.85	516.93	513.39	0.90	9.42	9.42	ALLOWABLE HEADWATER SET TO EXISTING 100-YEAR DEPTH. NOTE: WITHIN UPRR JURISDICTION
		PROPOSED 1-42" RCP	A-29a	515.55	516.22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19.26	515.55	1.85	517.00	513.11	0.91	9.66	9.66	ALLOWABLE HEADWATER SET TO EXISTING 100-YEAR DEPTH. NOTE: WITHIN UPRR JURISDICTION
CULV LINE A-29b-01	TRAIL	PROPOSED 1-18" RCP	A-29b	515.25	N/A	2.81	514.85	0.90	N/A	514.06	0.47	5.58	5.58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50-YR DESIGN FREQUENCY OUTSIDE UPRR JURISDICTION
CB-1 NB STA 1192+53	TRACK	EXISTING 2-24" RCP	A-29a-c	513.58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35.25	512.50	2.60	N/A	510.66	1.64	6.38	2.60	100-YR DESIGN FREQUENCY OUTSIDE UPRR JURISDICTION
CB-1 NB STA 1197+76	TRACK	EXISTING 1-24" RCP	A-30a	506.32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11.77	506.32	3.03	N/A	505.91	2.75	3.66	3.66	100-YR DESIGN FREQUENCY OUTSIDE UPRR JURISDICTION
CULV LINE A-30a-01	TRAIL	PROPOSED 1-18" RCP	A-30a	507.72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.06	507.37	1.82	N/A	505.86	0.81	8.24	8.24	100-YR DESIGN FREQUENCY OUTSIDE UPRR JURISDICTION
CULV LINE A-38f-01	TRAIL	PROPOSED 1-24" RCP	A-38f	458.79	458.79	2.90	458.74	0.90	458.96	458.36	0.59	3.74	3.74	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50-YR DESIGN FREQUENCY ATLAS 14 INTENSITY USED
CB-1 NB STA 1296+02	TRAIL	PROPOSED 1-48" RCP	A-38a-i	N/A	N/A	129.10	459.77	5.76	463.72	454.60	2.20	15.94	15.94	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	FEMA FLOOD ELEVATIONS: 10-YR = 462.00, 50-YEAR = 463.00, 100-YR = 463.80. TRAIL IS INUNDATED FOR DESIGN EVENT DUE TO GRAPEVINE CREEK. CULVERT WAS ANALYZED FOR A NORMAL DEPTH CONDITION FOR THE 50-YEAR DESIGN EVENT. ATLAS 14 INTENSITY USED
CULV LINE A-41a-01	TRACK/TRAIL	PROPOSED 1-36" RCP	A-41a	454.90	454.90	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12.18	454.84	1.49	456.32	452.32	3.00	9.77	3.00	100-YR DESIGN FREQUENCY WITHIN UPRR JURISDICTION
CULV LINE A-41a-02	TRAIL	PROPOSED 2-18" RCP	A-41a	457.50	457.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.35	457.37	0.97	457.47	457.12	0.85	2.59	2.10	100-YR DESIGN FREQUENCY WITHIN UPRR JURISDICTION

NOTES:

1. RUNOFF COMPUTATIONS HAVE BEEN PERFORMED ACCORDING TO DART DESIGN CRITERIA MANUAL, VOL. 1, DRAINAGE CRITERIA, CHAPER 7, JANUARY 31, 2003.
2. VELOCITIES SHOWN WHERE CALCULATED AT RIPRAP BOUNDARY/RIGHT-OF-WAY, WHERE APPLICABLE.
3. MINOR CULVERT COMPUTATIONS HAVE BEEN PERFORMED WITH FHWA HY-8 PROGRAM.
4. SURVEY INFORMATION WAS UTILIZED IN THE HYDRAULIC ANALYSIS FOR MINOR CROSS CULVERTS.
5. THE DESIGN STORM FOR DRAINAGE SYSTEMS CONVEYING FLOWS FROM TRAIL AND TRACK IS 100-YEAR. THE DESIGN STORM FOR DRAINAGE SYSTEMS CONVEYING FLOWS FROM THE TRAIL ONLY IS 50-YEAR.
6. HYDRAULIC RESULTS REFERENCED FROM COTTON BELT RAIL REGIONAL RAIL LINE SECTION CB-1 SECTION 1-3 PLANS
7. ADDITIONAL DATA PROVIDED PER DFWIA REQUIREMENTS. APPROXIMATE DFWIA JURISDICTIONAL LIMITS EQUAL TRAIL STATION LIMITS 1099+58 TO 1133+00.

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1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

IEA
18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
Phone: +1 (214) 864-4253
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
DRAINAGE CALCULATIONS
SHEET 2 OF 6

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1512	D

CB05-CC6-1512.001

DWG No. CC6-1513

1 YEAR (STORM FREQ) INLET CALCULATIONS

INLET NO.	STATION/OFFSET				INLET TYPE	GRATE PERIMETER (FT)	GRATE AREA (SQ FT)	LONGITUDINAL SLOPE (%)	CROSS SLOPE (%)	DESIGN FREQ. (YRS)	DISCHARGE (CAPTURED) (CFS)	BYPASS FLOW (CFS)	BYPASS TO	INLET CURB LENGTH (FT)	ALLOWABLE PONDED WIDTH (FT)	ACTUAL PONDED WIDTH (FT)	PONDED DEPTH (FT)	ALLOWABLE DEPTH (FT)	NO. GRATES (EA)	COMMENTS
A-13b	VELOWEB H&B TRAIL	1104+86.57	13.92	RT	(PSL)(FG)(3X3)(3X3)	12.67	4.51	N/A	33.33	100	3.76	N/A	N/A	N/A	8.50	5.55	0.26	0.75	1	IN SAG, DFWIA LIMITS

25 YEAR (STORM FREQ) INLET CALCULATIONS

INLET NO.	STATION/OFFSET				INLET TYPE	GRATE PERIMETER (FT)	GRATE AREA (SQ FT)	LONGITUDINAL SLOPE (%)	CROSS SLOPE (%)	DESIGN FREQ. (YRS)	DISCHARGE (CAPTURED) (CFS)	BYPASS FLOW (CFS)	BYPASS TO	INLET CURB LENGTH (FT)	ALLOWABLE PONDED WIDTH (FT)	ACTUAL PONDED WIDTH (FT)	PONDED DEPTH (FT)	ALLOWABLE DEPTH (FT)	NO. GRATES (EA)	COMMENTS
A-13b	VELOWEB H&B TRAIL	1104+86.57	13.92	RT	(PSL)(FG)(3X3)(3X3)	12.67	4.51	N/A	33.33	100	7.44	N/A	N/A	N/A	8.50	6.45	0.41	0.75	1	IN SAG, DFWIA LIMITS

100 YEAR (STORM FREQ) INLET CALCULATIONS

INLET NO.	STATION/OFFSET				INLET TYPE	GRATE PERIMETER (FT)	GRATE AREA (SQ FT)	LONGITUDINAL SLOPE (%)	CROSS SLOPE (%)	DESIGN FREQ. (YRS)	DISCHARGE (CAPTURED) (CFS)	BYPASS FLOW (CFS)	BYPASS TO	INLET CURB LENGTH (FT)	ALLOWABLE PONDED WIDTH (FT)	ACTUAL PONDED WIDTH (FT)	PONDED DEPTH (FT)	ALLOWABLE DEPTH (FT)	NO. GRATES (EA)	COMMENTS
A-13b	VELOWEB H&B TRAIL	1104+86.57	13.92	RT	(PSL)(FG)(3X3)(3X3)	12.67	4.51	N/A	33.33	100	9.00	N/A	N/A	N/A	8.50	6.78	0.46	0.75	1	IN SAG, DFWIA LIMITS

1 YEAR (STORM FREQ) PIPE CALCULATIONS

PIPE ID.	FROM	TO	DESIGN FREQUENCY (YR)	CUMULATIVE DISCHARGE (CFS)	CAPACITY (CFS)	LENGTH (FT)	SIZE (IN)	UPSTREAM FL (FT)	DOWNSTREAM FL (FT)	MANNING'S N	PIPE SLOPE (%)	FRICTION SLOPE (%)	CRITICAL DEPTH (FT)	NORMAL DEPTH (FT)	ACTUAL DOWNSTREAM DEPTH (FT)	HGL UPSTREAM (FT)	HGL DOWNSTREAM (FT)	ACTUAL VELOCITY (FT/S)	NO. OF BARRELS	COMMENTS
A-13b	A-13b	A-13b-MH1	100	3.76	9.70	11	18	546.35	546.27	0.012	0.73	0.36	0.74	0.65	0.88	547.09	547.16	5.14	1	DFWIA LIMITS
A-13b-MH1	A-13b-MH1	A-13b-MH2	100	3.76	9.49	200	18	546.27	544.88	0.012	0.70	0.68	0.74	0.66	0.66	547.01	545.54	5.05	1	DFWIA LIMITS
A-13b-MH2	A-13b-MH2	A-13b-MH3	100	5.08	25.11	300	24	544.38	541.23	0.012	1.05	1.03	0.79	0.61	0.96	545.17	542.19	6.26	1	DFWIA LIMITS
A-13b-MH3	A-13b-MH3	A-13b-MH4	100	5.28	16.07	300	24	541.23	539.94	0.012	0.43	0.41	0.81	0.79	0.98	542.04	540.92	4.58	1	DFWIA LIMITS
A-13b-MH4	A-13b-MH4	A-13b-MH5	100	5.46	16.08	495	24	539.94	537.81	0.012	0.43	0.42	0.82	0.80	0.99	540.76	538.80	4.63	1	DFWIA LIMITS
A-13b-MH5	A-13b-MH5	A-13b-MH6	100	5.62	16.07	200	24	537.81	536.95	0.012	0.43	0.41	0.84	0.82	0.98	538.65	537.93	4.66	1	DFWIA LIMITS
A-13b-MH6	A-13b-MH6	A-13b-OUT1	100	5.51	16.10	220	24	536.95	536.00	0.012	0.43	0.43	0.83	0.81	0.81	537.78	536.81	4.64	1	DFWIA LIMITS

25 YEAR (STORM FREQ) PIPE CALCULATIONS

PIPE ID.	FROM	TO	DESIGN FREQUENCY (YR)	CUMULATIVE DISCHARGE (CFS)	CAPACITY (CFS)	LENGTH (FT)	SIZE (IN)	UPSTREAM FL (FT)	DOWNSTREAM FL (FT)	MANNING'S N	PIPE SLOPE (%)	FRICTION SLOPE (%)	CRITICAL DEPTH (FT)	NORMAL DEPTH (FT)	ACTUAL DOWNSTREAM DEPTH (FT)	HGL UPSTREAM (FT)	HGL DOWNSTREAM (FT)	ACTUAL VELOCITY (FT/S)	NO. OF BARRELS	COMMENTS
A-13b	A-13b	A-13b-MH1	100	7.44	9.70	11	18	546.35	546.27	0.012	0.73	0.41	1.06	0.98	1.30	547.58	547.57	6.05	1	DFWIA LIMITS
A-13b-MH1	A-13b-MH1	A-13b-MH2	100	7.43	9.49	200	18	546.27	544.88	0.012	0.70	0.69	1.06	1.00	1.00	547.33	545.88	5.94	1	DFWIA LIMITS
A-13b-MH2	A-13b-MH2	A-13b-MH3	100	10.12	25.11	300	24	544.38	541.23	0.012	1.05	1.02	1.14	0.88	1.42	545.59	542.65	7.56	1	DFWIA LIMITS
A-13b-MH3	A-13b-MH3	A-13b-MH4	100	10.60	16.07	300	24	541.23	539.94	0.012	0.43	0.40	1.17	1.19	1.46	542.42	541.40	5.46	1	DFWIA LIMITS
A-13b-MH4	A-13b-MH4	A-13b-MH5	100	11.09	16.08	495	24	539.94	537.81	0.012	0.43	0.41	1.19	1.22	1.50	541.16	539.31	5.52	1	DFWIA LIMITS
A-13b-MH5	A-13b-MH5	A-13b-MH6	100	11.64	16.07	200	24	537.81	536.95	0.012	0.43	0.39	1.23	1.26	1.49	539.07	538.44	5.57	1	DFWIA LIMITS
A-13b-MH6	A-13b-MH6	A-13b-OUT1	100	11.49	16.10	220	24	536.95	536.00	0.012	0.43	0.43	1.22	1.25	1.22	538.20	537.22	5.57	1	DFWIA LIMITS

100 YEAR (STORM FREQ) PIPE CALCULATIONS

PIPE ID.	FROM	TO	DESIGN FREQUENCY (YR)	CUMULATIVE DISCHARGE (CFS)	CAPACITY (CFS)	LENGTH (FT)	SIZE (IN)	UPSTREAM FL (FT)	DOWNSTREAM FL (FT)	MANNING'S N	PIPE SLOPE (%)	FRICTION SLOPE (%)	CRITICAL DEPTH (FT)	NORMAL DEPTH (FT)	ACTUAL DOWNSTREAM DEPTH (FT)	HGL UPSTREAM (FT)	HGL DOWNSTREAM (FT)	ACTUAL VELOCITY (FT/S)	NO. OF BARRELS	COMMENTS
A-13b	A-13b	A-13b-MH1	100	9.00	9.70	11	18	546.35	546.27	0.012	0.73	0.55	1.16	1.14	1.45	547.78	547.72	6.24	1	DFWIA LIMITS
A-13b-MH1	A-13b-MH1	A-13b-MH2	100	8.99	9.49	200	18	546.27	544.88	0.012	0.70	0.70	1.16	1.16	1.16	547.43	546.04	6.11	1	DFWIA LIMITS
A-13b-MH2	A-13b-MH2	A-13b-MH3	100	12.26	25.11	300	24	544.38	541.23	0.012	1.05	1.01	1.26	0.99	1.60	545.64	542.83	7.94	1	DFWIA LIMITS
A-13b-MH3	A-13b-MH3	A-13b-MH4	100	12.85	16.07	300	24	541.23	539.94	0.012	0.43	0.39	1.29	1.35	1.66	542.58	541.60	5.68	1	DFWIA LIMITS
A-13b-MH4	A-13b-MH4	A-13b-MH5	100	13.48	16.08	495	24	539.94	537.81	0.012	0.43	0.40	1.32	1.40	1.72	541.34	539.53	5.73	1	DFWIA LIMITS
A-13b-MH5	A-13b-MH5	A-13b-MH6	100	14.19	16.07	200	24	537.81	536.95	0.012	0.43	0.38	1.36	1.46	1.70	539.28	538.61	5.77	1	DFWIA LIMITS
A-13b-MH6	A-13b-MH6	A-13b-OUT1	100	14.03	16.10	220	24	536.95	536.00	0.012	0.43	0.44	1.35	1.44	1.35	538.39	537.35	5.78	1	DFWIA LIMITS

NOTES:

1. ALL ELEVATIONS ARE BASED ON NAVD88 VERTICAL DATUM.
2. EXISTING TOPOGRAPHIC DATA WERE OBTAINED FROM TNRIS STARTMAP 2009 1-m DEM
3. SURVEY DATA FOR THE EXISTING MINOR CULVERTS AND GRAPEVINE CREEK CROSSINGS 1 & 2 WAS UTILIZED IN THE HYDRAULIC ANALYSIS
4. THE EXISTING STRUCTURES WERE ANALYZED AND CHECKED FOR THE ABILITY TO PASS THE DESIGN 100-YEAR STORM FREQUENCY WITHOUT OVERTOPPING THE TRACKS.
5. THE DESIGN STORM FOR DRAINAGE SYSTEMS CONVEYING FLOWS FROM TRAIL AND TRACK IS 100-YEAR. THE DESIGN STORM FOR DRAINAGE SYSTEMS CONVEYING FLOWS FROM THE TRAIL ONLY IS 50-YEAR.
6. ADDITIONAL DATA PROVIDED PER DFWIA REQUIREMENTS. APPROXIMATE DFWIA JURISDICTIONAL LIMITS EQUAL TRAIL STATION LIMITS 1099+58 TO 1133+00.

28-AUG-2023 09:07
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INLET CALCULATIONS

INLET NO.	STATION/OFFSET				INLET TYPE	GRATE PERIMETER (FT)	GRATE AREA (SQ FT)	LONGITUDINAL SLOPE (%)	CROSS SLOPE (%)	DESIGN FREQ. (YRS)	DISCHARGE (CAPTURED) (CFS)	BYPASS FLOW (CFS)	BYPASS TO	INLET CURB LENGTH (FT)	ALLOWABLE PONDED WIDTH (FT)	ACTUAL PONDED WIDTH (FT)	PONDED DEPTH (FT)	ALLOWABLE DEPTH (FT)	NO. GRATES (EA)	COMMENTS
A-18e	VELOWEB H&B TRAIL	1185+12.37	14.50	LT	(PSL)(FG)(3X3)(3X3)	12.67	4.51	N/A	33.33	100	2.01	N/A	N/A	N/A	10.00	5.02	0.17	1.00	1	IN SAG
A-33	VELOWEB H&B TRAIL	1224+23.23	14.86	LT	(PSL)(FG)(5X5)(4X4)	16.66	8.19	N/A	0.02	100	2.28	N/A	N/A	N/A	N/A	N/A	0.26	0.83	1	IN SAG
A-35	VELOWEB H&B TRAIL	1232+35.74	15.20	RT	(PSL)(FG)(4X4)(4X4)	16.66	9.75	N/A	0.02	100	28.21	N/A	N/A	N/A	N/A	N/A	1.15	2.20	1	IN SAG

PIPE CALCULATIONS

PIPE ID.	FROM	TO	DESIGN FREQUENCY (YR)	CUMULATIVE DISCHARGE (CFS)	CAPACITY (CFS)	LENGTH (FT)	SIZE (IN)	UPSTREAM FL (FT)	DOWNSTREAM FL (FT)	MANNING'S N	PIPE SLOPE (%)	FRICTION SLOPE (%)	CRITICAL DEPTH (FT)	NORMAL DEPTH (FT)	ACTUAL DOWNSTREAM DEPTH (FT)	HGL UPSTREAM (FT)	HGL DOWNSTREAM (FT)	ACTUAL VELOCITY (FT/S)	NO. OF BARRELS	COMMENTS
A-16	A-16	A-16-MH1	100	7.02	11.38	15	18	526.85	526.70	0.012	1.00	0.76	1.03	0.85	0.90	527.88	527.60	6.77	1	
A-16-MH1	A-16-MH1	A-16-OUT1	100	7.01	10.18	35	18	525.58	525.30	0.012	0.80	0.73	1.03	0.92	0.92	526.61	526.22	6.21	1	
A-18b-01	A-18b-01	A-18-MH1	100	14.79	24.30	445	30	515.08	513.75	0.012	0.30	0.26	1.30	1.41	1.78	516.49	515.53	5.19	1	
A-18-MH1	A-18-MH1	A-18-MH2	100	17.27	24.36	499	30	513.75	512.25	0.012	0.30	0.26	1.41	1.55	1.94	515.30	514.19	5.38	1	
A-18-MH2	A-18-MH2	A-18-OUT1	100	19.75	24.64	351	30	512.25	511.17	0.012	0.31	0.32	1.51	1.69	1.51	513.94	512.68	5.58	1	
A-18d	A-18d	A-18d-OUT1	100	26.53	30.21	37	30	510.33	510.16	0.012	0.46	0.47	1.76	1.82	1.76	512.15	511.92	6.94	1	
A-18e	A-18e	A-18e-OUT1	100	2.01	6.34	29	18	511.39	511.30	0.012	0.31	0.04	0.53	0.58	1.14	512.45	512.44	3.18	1	
A-33-01	A-33	A-33-OUT	100	4.54	30.33	39	18	507.81	504.32	0.012	7.1	0	0.82	0.39	4.64	509	508.96	12.34	1	
A-35-01	A-35	A-35-OUT	100	56.19	31.14	19	24	507.77	507.49	0.012	1.61	5.26	1.99	N/A	1.99	510.40	509.48	17.89	1	
A-40-MH1	A-40-MH1	A-40-MH2	100	29.59	25.03	109	24	451.32	450.15	0.012	1.08	0.01	1.86	(N/A)	1.86	453.71	452	9.42	1	
A-40-MH3	A-40-MH2	A-40-OUT1	100	29.55	30.37	22	24	445.91	445.54	0.012	1.68	0.01	1.86	1.59	1.7	447.77	447.24	11.02	1	

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CONTRACT SHEET No. 279 OF 378

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Jacobs
1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

IEA
18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
Phone: +1 (214) 884-4253
Firm Registration: F-10161

ARCHER WESTERN HERZOG

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DRAWN	D. ESCALANTE
DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
DRAINAGE CALCULATIONS
SHEET 3 OF 6

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1513	D

CB05-CC6-1513.001

DWG No. CC6-1514

NOTES:

1. RUNOFF COMPUTATIONS HAVE BEEN PERFORMED ACCORDING TO DART DESIGN CRITERIA MANUAL, VOL. 1, DRAINAGE CRITERIA, CHAPER 7, JANUARY 31, 2003.

2. THE DESIGN STORM FOR DRAINAGE SYSTEMS CONVEYING FLOWS FROM TRAIL AND TRACK IS 100-YEAR. THE DESIGN STORM FOR DRAINAGE SYSTEMS CONVEYING FLOWS FROM THE TRAIL ONLY IS 50-YEAR.

UD5.COP.001
STA 1105+05.59 TO STA 1106+89.84 RIGHT

UNDERDRAIN PIPE								
FROM		TO		LENGTH	SIZE	SLOPE	Q50	Q100
STA	FL	STA	FL	(FEET)	(INCHES)	(FT/FT)	(CFS)	(CFS)
1105+05.59	548.70	1106+80.59	546.00	175	12	0.015	N/A	1.75
1106+80.59	546.00	1106+89.84	545.38	14	12	0.044	N/A	1.15

END TREATMENTS			
ITEM	STA	CONNECTION FL	COMMENTS
TERMINAL CLEAN OUT	1105+05.59	548.70	100-YR DESIGN
CLEAN OUT	1106+80.59	546.00	100-YR DESIGN
OUTFALL	1106+89.84	545.38	100-YR DESIGN, OUTFALLS INTO A-13b-MH2

UD5.COP.002
STA 1160+93.10 TO STA 1163+93.10 LEFT

UNDERDRAIN PIPE								
FROM		TO		LENGTH	SIZE	SLOPE	Q50	Q100
STA	FL	STA	FL	(FEET)	(INCHES)	(FT/FT)	(CFS)	(CFS)
1160+93.10	517.82	1161+93.10	517.38	100	15	0.004	N/A	0.69
1161+93.10	517.38	1163+93.10	516.50	200	15	0.004	N/A	0.69
1163+93.10	516.50	1163+98.10	515.69	5	15	0.162	N/A	0.69

END TREATMENTS			
ITEM	STA	CONNECTION FL	COMMENTS
TERMINAL CLEAN OUT	1160+93.10	517.82	100-YR DESIGN
CLEAN OUT	1161+93.10	517.38	100-YR DESIGN
CLEAN OUT	1163+93.10	516.50	100-YR DESIGN
OUTFALL	1163+98.10	515.69	100-YR DESIGN

UD5.COP.003
STA 1164+06.41 TO STA 1166+06.41 LEFT

UNDERDRAIN PIPE								
FROM		TO		LENGTH	SIZE	SLOPE	Q50	Q100
STA	FL	STA	FL	(FEET)	(INCHES)	(FT/FT)	(CFS)	(CFS)
1164+06.41	516.47	1166+01.41	515.89	195	15	0.003	N/A	1.75
1166+01.41	515.89	1166+06.41	515.87	5	15	0.005	N/A	3.59
1166+06.41	515.87	1166+06.41	515.05	15	15	0.007	N/A	5.44

END TREATMENTS			
ITEM	STA	CONNECTION FL	COMMENTS
TERMINAL CLEAN OUT	1164+06.41	516.47	100-YR DESIGN
CLEAN OUT	1166+01.41	515.89	100-YR DESIGN
TEE	1166+06.41	515.87	100-YR DESIGN
OUTFALL	1166+06.41	515.05	100-YR DESIGN

UD5.COP.003
STA 1167+69.41 TO STA 1166+06.41 LEFT

UNDERDRAIN PIPE								
FROM		TO		LENGTH	SIZE	SLOPE	Q50	Q100
STA	FL	STA	FL	(FEET)	(INCHES)	(FT/FT)	(CFS)	(CFS)
1167+69.41	516.36	1165+11.41	515.89	158	15	0.003	N/A	1.42
1165+11.41	515.89	1166+06.41	515.87	5	15	0.004	N/A	3.59
1166+06.41	515.87	1166+06.41	515.05	15	15	0.007	N/A	5.44

END TREATMENTS			
ITEM	STA	CONNECTION FL	COMMENTS
TERMINAL CLEAN OUT	1167+69.41	516.36	100-YR DESIGN
CLEAN OUT	1165+11.41	515.89	100-YR DESIGN
TEE	1166+06.41	515.87	100-YR DESIGN
OUTFALL	1166+06.41	515.05	100-YR DESIGN

UD5.COP.004
STA 1334+60.50 TO STA 1338+61.60 LEFT

UNDERDRAIN PIPE								
FROM		TO		LENGTH	SIZE	SLOPE	Q50	Q100
STA	FL	STA	FL	(FEET)	(INCHES)	(FT/FT)	(CFS)	(CFS)
1334+60.50	454.41	1336+61.00	453.43	200	12	0.005	N/A	1.79
1336+61.00	453.18	1338+61.60	452.20	200	15	0.005	N/A	3.59
1338+61.60	452.20	1339+94.24	450.78	200	15	0.007	N/A	5.44
1339+94.24	450.78	1340+03.40	450.73	7	15	0.007	N/A	5.44

END TREATMENTS			
ITEM	STA	CONNECTION FL	COMMENTS
TERMINAL CLEAN OUT	1334+60.50	454.41	100-YR DESIGN
CLEAN OUT	1336+61.00	453.43	100-YR DESIGN
CLEAN OUT	1338+61.60	452.20	100-YR DESIGN
CLEAN OUT	1339+94.24	450.78	100-YR DESIGN
OUTFALL	1340+03.40	450.73	100-YR DESIGN

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Jacobs
1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3138
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

IEA
18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
Phone: +1 (214) 884-4253
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DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
DRAINAGE CALCULATIONS
SHEET 4 OF 6

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1514	D

CB05-CC6-1514.001

DWG No. CC6-1515

DITCH A-13b-1

VELOWEB HIKE & BIKE STATION		EXISTING												PROPOSED														
		1 YEAR (STORM FREQ)			25 YEAR (STORM FREQ)			50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)								1 YEAR (STORM FREQ)			25 YEAR (STORM FREQ)			50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)						
FROM	TO	SLOPE (FT/FT)	Q1 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q25 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q1 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q25 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	DEPTH TO BOT OF SUBBALLAST (FT)	COMMENT
1101+30 RT	1102+30 RT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.82%	0.035	3.00	2.00	3.00	GRASS	2.78	1.79	0.46	5.68	2.17	0.66	6.30	2.24	0.69	6.98	2.30	0.73	0.81	0.75	N/A	50-YEAR DESIGN, IN DFWIA LIMITS
1102+30 RT	1104+31 RT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.79%	0.035	3.00	2.00	3.00	GRASS	2.78	2.37	0.38	5.68	2.89	0.54	6.30	2.97	0.57	6.98	3.06	0.60	0.75	0.75	N/A	50-YEAR DESIGN, IN DFWIA LIMITS
1104+31 RT	1104+66 RT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.82%	0.035	3.00	2.00	3.00	GRASS	3.58	1.92	0.52	7.32	2.33	0.74	8.11	2.39	0.78	8.93	2.45	0.82	0.91	0.85	N/A	50-YEAR DESIGN, IN DFWIA LIMITS
1104+66 RT	1104+85 RT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.82%	0.035	3.00	4.00	3.00	GRASS	3.58	1.77	0.39	7.32	2.21	0.58	8.11	2.27	0.61	8.93	2.34	0.64	0.73	0.75	N/A	50-YEAR DESIGN, IN DFWIA LIMITS

DITCH A-13b-2

VELOWEB HIKE & BIKE STATION		EXISTING												PROPOSED														
		1 YEAR (STORM FREQUENCY)			25 YEAR (STORM FREQUENCY)			50 YEAR (STORM FREQUENCY)			100 YEAR (STORM FREQUENCY)								1 YEAR (STORM FREQUENCY)			25 YEAR (STORM FREQUENCY)			50 YEAR (STORM FREQUENCY)			100 YEAR (STORM FREQUENCY)						
FROM	TO	SLOPE (FT/FT)	Q1 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q25 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q1 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q25 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	DEPTH TO BOT OF SUBBALLAST (FT)	COMMENT
1122+34 LT	1124+20 LT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.20%	0.035	3.00	3.00	3.00	GRASS	6.36	1.31	0.87	13.02	1.59	1.23	14.44	1.63	1.29	15.88	1.67	1.35	1.39	1.45	N/A	50-YEAR DESIGN, IN DFWIA LIMITS

NOTES:

1. SURVEY INFORMATION WAS UTILIZED IN THE HYDRAULIC ANALYSIS FOR MINOR CROSS CULVERTS.
2. VELOCITIES SHOWN WHERE CALCULATED AT RIPRAP BOUNDARY/RIGHT-OF-WAY, WHERE APPLICABLE.
3. THE DESIGN STORM FOR DRAINAGE SYSTEMS CONVEYING FLOWS FROM TRAIL AND TRACK IS 100-YEAR. THE DESIGN STORM FOR DRAINAGE SYSTEMS CONVEYING FLOWS FROM THE TRAIL ONLY IS 50-YEAR.
4. ADDITIONAL DATA PROVIDED PER DFWIA REQUIREMENTS. APPROXIMATE DFWIA JURISDICTIONAL LIMITS EQUAL TRAIL STATION LIMITS 1099+58 TO 1133+00.

FLUME A-16-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1135+01 RT	1136+01 RT	0.47%	0.015	0.00	2.00	0.00	CONCRETE	N/A	N/A	N/A	2.23	2.90	0.38	1.00	100-YEAR DESIGN
1136+01 RT	1138+88 RT	0.96%	0.015	0.00	2.00	0.00	CONCRETE	N/A	N/A	N/A	5.42	4.89	0.55	1.00	100-YEAR DESIGN
1138+88 RT	1141+32 RT	1.87%	0.015	0.00	2.00	0.00	CONCRETE	N/A	N/A	N/A	7.02	6.67	0.53	1.00	100-YEAR DESIGN

DITCH A-16-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1141+56 LT	1141+56 LT	0.43%	0.035	3.00	2.00	3.00	GRASS	N/A	N/A	N/A	8.50	1.91	0.93	1.00	100-YEAR DESIGN

DITCH A-18a-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1153+78 LT	1154+05 LT	4.04%	0.035	3.00	2.00	3.00	GRASS	N/A	N/A	N/A	0.60	1.96	0.13	1.00	100-YEAR DESIGN

DITCH A-18e-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1179+18 LT	1185+11 LT	0.20%	0.035	3.00	2.00	3.00	GRASS	N/A	N/A	N/A	2.01	0.98	0.56	1.00	100-YEAR DESIGN

DITCH A-29c-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1189+06 LT	1189+76 LT	1.70%	0.035	3.00	0.00	3.00	GRASS	N/A	N/A	N/A	3.06	2.50	0.64	1.00	100-YEAR DESIGN

DITCH A-38e-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1296+45 RT	1297+97 RT	5.16%	0.035	3.00	2.00	3.00	GRASS	11.00	19.02	0.58	N/A	N/A	N/A	1.60	50-YEAR DESIGN
1297+97 RT	1302+38 RT	0.30%	0.035	3.00	2.00	3.00	GRASS	11.00	9.67	1.14	N/A	N/A	N/A	1.60	50-YEAR DESIGN

DITCH A-38f-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1296+78 LT	1299+00 LT	0.30%	0.035	3.00	0.00	3.00	GRASS	6.14	5.35	1.15	N/A	N/A	N/A	1.70	50-YEAR DESIGN

DITCH A-38g-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1304+73 LT	1302+56 LT	0.27%	0.035	3.00	0.00	3.00	GRASS	2.43	2.94	0.83	N/A	N/A	N/A	1.30	50-YEAR DESIGN

DITCH A-38h-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1307+23 RT	1304+95 RT	5.15%	0.035	3.00	2.00	3.00	GRASS	4.49	12.28	0.37	N/A	N/A	N/A	1.20	50-YEAR DESIGN
1304+95 RT	1302+47 RT	0.30%	0.035	3.00	2.00	3.00	GRASS	4.49	6.00	0.75	N/A	N/A	N/A	1.20	50-YEAR DESIGN

DITCH A-39b-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1308+21 LT	1318+19 LT	0.32%	0.035	3.00	0.00	3.00	GRASS	N/A	N/A	N/A	11.07	1.85	1.41	2.00	100-YEAR DESIGN
1318+19 LT	1319+85 LT	0.20%	0.035	3.00	0.00	3.00	GRASS	N/A	N/A	N/A	11.07	1.55	1.54	2.00	100-YEAR DESIGN

DITCH A-39c-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1308+67 RT	1318+71 RT	0.31%	0.035	3.00	0.00	3.00	GRASS	N/A	N/A	N/A	12.01	1.86	1.47	2.00	100-YEAR DESIGN
1318+71 RT	1319+91 RT	0.17%	0.035	3.00	0.00	3.00	GRASS	N/A	N/A	N/A	12.01	1.49	1.64	2.00	100-YEAR DESIGN

FLUME A-41a-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1326+33 RT	1328+71 RT	0.45%	0.015	0.00	2.00	0.00	CONCRETE	N/A	N/A	N/A	5.35	3.73	0.72	1.00	100-YEAR DESIGN

DITCH A-41a-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1329+23 LT	1332+22 LT	0.90%	0.035	3.00	0.00	2.00	MIXED	N/A	N/A	N/A	10.10	2.75	1.21	1.30	100-YEAR DESIGN

DITCH A-41a-2

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1334+53 LT	1332+22 LT	0.30%	0.035	3.00	0.00	2.00	MIXED	N/A	N/A	N/A	2.08	1.22	0.82	1.00	100-YEAR DESIGN

DITCH A-43a-1

VELOWEB HIKE & BIKE STATION		PROPOSED													
								50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S n	DITCH SECTION FS	DITCH SECTION BW	DITCH SECTION BS	DITCH LINING	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1340+08 LT	1342+20 LT	1.00%	0.035	3.00	0.00	3.00	GRASS	N/A	N/A	N/A	3.51	2.12	0.74	2.00	100-YEAR DESIGN
1342+20 LT	1343+15 LT	1.82%	0.035	3.00	0.00	3.00	GRASS	N/A	N/A	N/A	5.09	2.92	0.76	2.00	100-YEAR DESIGN
1343+15 LT	1346+80 LT	0.30%	0.035	3.00	0.00	3.00	GRASS	N/A	N/A	N/A	10.81	1.79	1.42	2.50	100-YEAR DESIGN
1346+80 LT	1348+09 LT	0.20%	0.035	3.00	40.00	15.00	GRASS	N/A	N/A	N/A	13.28	0.89	0.34	2.50	100-YEAR DESIGN

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ALBERTO J. DORANTES, P.E., 140788
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Jacobs
1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

IEA
18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
Phone: +1 (214) 884-4253
Firm Registration: F-10161

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CONTRACT SHEET No. 281 OF 378

SCALE	NO SCALE
DRAWN	D. ESCALANTE
DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
DRAINAGE CALCULATIONS
SHEET 5 OF 6

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1515	D

CB05-CC6-1515.001

DWG No. CC6-1516

A-18b-TD1

VELOWEB HIKE & BIKE STATION		PROPOSED																
						1 YEAR (STORM FREQ)			25 YEAR (STORM FREQ)			50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q1 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q25 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1107+03 LT	1108+13 LT	0.81%	0.009	8	12	0.55	4.13	0.40	1.02	4.81	0.51	1.12	4.91	0.54	1.22	4.99	0.56	0.91	1.00	100-YEAR DESIGN, DFWIA LIMITS, NEUTRAL (0%) CHANNELS

A-18b-TD2

VELOWEB HIKE & BIKE STATION		PROPOSED																
						1 YEAR (STORM FREQ)			25 YEAR (STORM FREQ)			50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q1 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q25 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1108+18 LT	1109+28 LT	0.19%	0.009	8	12	0.50	2.32	0.52	0.92	2.65	0.72	1.01	2.70	0.76	1.10	2.74	0.80	0.87	1.00	100-YEAR DESIGN, DFWIA LIMITS, NEUTRAL (0%) CHANNELS

A-18b-TD3

VELOWEB HIKE & BIKE STATION		PROPOSED																
						1 YEAR (STORM FREQ)			25 YEAR (STORM FREQ)			50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q1 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q25 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1110+33 LT	1109+33 LT	0.07%	0.009	8	12	0.41	1.52	0.60	0.76	1.69	0.87	0.83	1.72	0.92	0.91	1.73	0.98	0.97	1.00	100-YEAR DESIGN, DFWIA LIMITS, NEUTRAL (0%) CHANNELS

A-18b-TD4

VELOWEB HIKE & BIKE STATION		PROPOSED																
						1 YEAR (STORM FREQ)			25 YEAR (STORM FREQ)			50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q1 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q25 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1110+35 LT	1112+10 LT	1.01%	0.009	8	12	0.59	4.54	0.39	1.10	5.32	0.51	1.21	5.45	0.53	1.31	5.55	0.55	0.99	1.00	100-YEAR DESIGN, DFWIA LIMITS, NEUTRAL (0%) CHANNELS

A-18b-TD5

VELOWEB HIKE & BIKE STATION		PROPOSED																
						1 YEAR (STORM FREQ)			25 YEAR (STORM FREQ)			50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q1 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q25 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1112+17 LT	1112+97 LT	1.01%	0.009	8	12	0.34	3.85	0.33	0.63	4.61	0.40	0.69	4.73	0.42	0.75	4.86	0.43	0.76	1.00	100-YEAR DESIGN, DFWIA LIMITS, NEUTRAL (0%) CHANNELS

A-18b-TD6

VELOWEB HIKE & BIKE STATION		PROPOSED																
						1 YEAR (STORM FREQ)			25 YEAR (STORM FREQ)			50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q1 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q25 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1114+94 LT	1113+29 LT	0.21%	0.009	8	12	0.23	1.99	0.37	0.43	2.32	0.47	0.47	2.39	0.49	0.52	2.46	0.51	0.58	1.00	100-YEAR DESIGN, DFWIA LIMITS, NEUTRAL (0%) CHANNELS

A-18b-TD7

VELOWEB HIKE & BIKE STATION		PROPOSED																
						1 YEAR (STORM FREQ)			25 YEAR (STORM FREQ)			50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)				
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q1 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q25 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1114+99 LT	1116+69 LT	0.21%	0.009	8	12	0.23	1.99	0.37	0.43	2.32	0.47	0.47	2.39	0.49	0.52	2.46	0.51	0.58	1.00	100-YEAR DESIGN, DFWIA LIMITS, NEUTRAL (0%) CHANNELS

NOTES:

1. SURVEY INFORMATION WAS UTILIZED IN THE HYDRAULIC ANALYSIS FOR MINOR CROSS CULVERTS.
2. VELOCITIES SHOWN WHERE CALCULATED AT RIPRAP BOUNDARY/RIGHT-OF-WAY, WHERE APPLICABLE.
3. THE DESIGN STORM FOR DRAINAGE SYSTEMS CONVEYING FLOWS FROM TRAIL AND TRACK IS 100-YEAR. THE DESIGN STORM FOR DRAINAGE SYSTEMS CONVEYING FLOWS FROM THE TRAIL ONLY IS 50-YEAR.
4. ADDITIONAL DATA PROVIDED PER DFWIA REQUIREMENTS. APPROXIMATE DFWIA JURISDICTIONAL LIMITS EQUAL TRAIL STATION LIMITS 1099+58 TO 1133+00.

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A-18c-TD1

VELOWEB HIKE & BIKE STATION		PROPOSED											
						50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)					
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1170+36 LT	1170+94 LT	0.42%	0.009	8	12	1.17	3.82	0.66	1.27	3.88	0.69	0.88	1.00	100-YEAR DESIGN, NEUTRAL (0%) CHANNELS

A-18c-TD2

VELOWEB HIKE & BIKE STATION		PROPOSED											
						50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)					
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1171+58 LT	1170+98 LT	0.50%	0.009	8	12	0.40	3.15	0.39	0.44	3.25	0.40	0.54	1.00	100-YEAR DESIGN, PRE-SLOPED (0.5%) CHANNELS

A-18c-TD3

VELOWEB HIKE & BIKE STATION		PROPOSED											
						50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)					
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1172+23 LT	1171+63 LT	0.50%	0.009	8	12	0.40	3.15	0.39	0.44	3.25	0.40	0.54	1.00	100-YEAR DESIGN, PRE-SLOPED (0.5%) CHANNELS

A-18c-TD4

VELOWEB HIKE & BIKE STATION		PROPOSED											
						50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)					
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1172+88 LT	1172+28 LT	0.50%	0.009	8	12	0.40	3.15	0.39	0.44	3.25	0.40	0.54	1.00	100-YEAR DESIGN, PRE-SLOPED (0.5%) CHANNELS

A-18c-TD5

VELOWEB HIKE & BIKE STATION		PROPOSED											
						50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)					
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1173+53 LT	1172+93 LT	0.50%	0.009	8	12	0.40	3.15	0.39	0.44	3.25	0.40	0.54	1.00	100-YEAR DESIGN, PRE-SLOPED (0.5%) CHANNELS

A-18c-TD6

VELOWEB HIKE & BIKE STATION		PROPOSED											
						50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)					
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1174+18 LT	1173+58 LT	0.50%	0.009	8	12	0.40	3.15	0.39	0.44	3.25	0.40	0.54	1.00	100-YEAR DESIGN, PRE-SLOPED (0.5%) CHANNELS

A-18c-TD7

VELOWEB HIKE & BIKE STATION		PROPOSED											
						50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)					
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1174+83 LT	1174+23 LT	0.50%	0.009	8	12	0.40	3.15	0.39	0.44	3.25	0.40	0.54	1.00	100-YEAR DESIGN, PRE-SLOPED (0.5%) CHANNELS

A-18c-TD8

VELOWEB HIKE & BIKE STATION		PROPOSED											
						50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)					
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1175+48 LT	1174+88 LT	0.50%	0.009	8	12	0.40	3.15	0.39	0.44	3.25	0.40	0.54	1.00	100-YEAR DESIGN, NEUTRAL (0%) CHANNELS

A-18c-TD9

VELOWEB HIKE & BIKE STATION		PROPOSED											
						50 YEAR (STORM FREQ)			100 YEAR (STORM FREQ)					
FROM	TO	SLOPE (FT/FT)	MANNING'S N	TRENCH WIDTH (IN)	TRENCH DEPTH (IN)	Q50 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	Q100 (CFS)	VELOCITY (FT/S)	DEPTH OF FLOW (FT)	EGL DEPTH (FT)	MAX ALLOWABLE DEPTH OF FLOW (FT)	COMMENT
1175+90 LT	1175+53 LT	0.25%	0.009	8	12	0.25	2.17	0.37	0.28	2.23	0.38	0.44	1.00	100-YEAR DESIGN, NEUTRAL (0%) CHANNELS

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CONTRACT SHEET No. 282 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DRAWN	D. ESCALANTE
DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

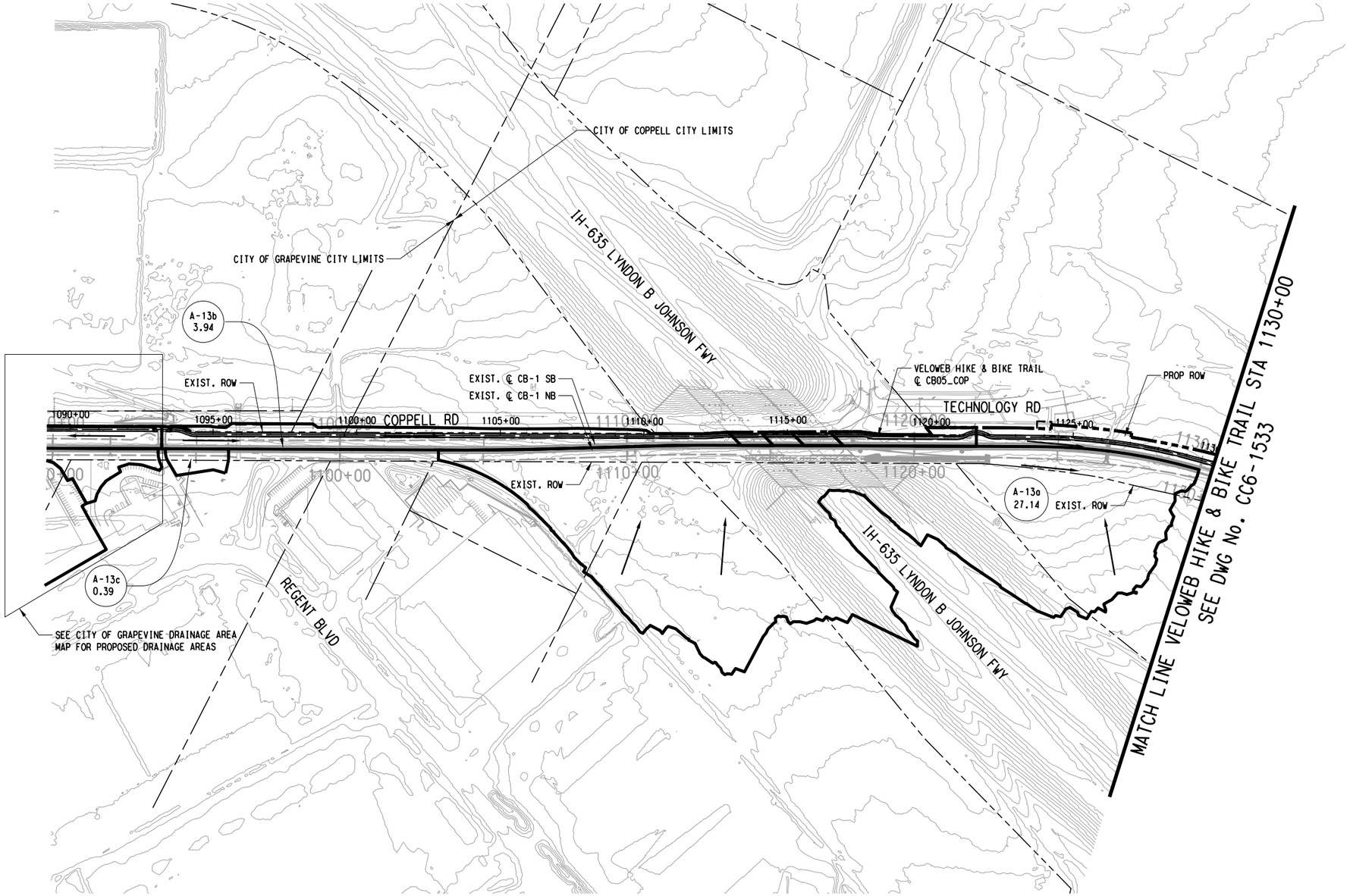
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
DRAINAGE CALCULATIONS
SHEET 6 OF 6

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1516	D

CB05-CC6-1516.001

DWG No. CC6-1532



SCALE (IN FEET)
0 100 200 400

LEGEND

- DRAINAGE AREA BOUNDARY
- PROPOSED CONTOUR
- DRAINAGE FLOW
- XX — DRAINAGE AREA NUMBERS
- XXX — DRAINAGE AREA IN ACRES

NOTES:

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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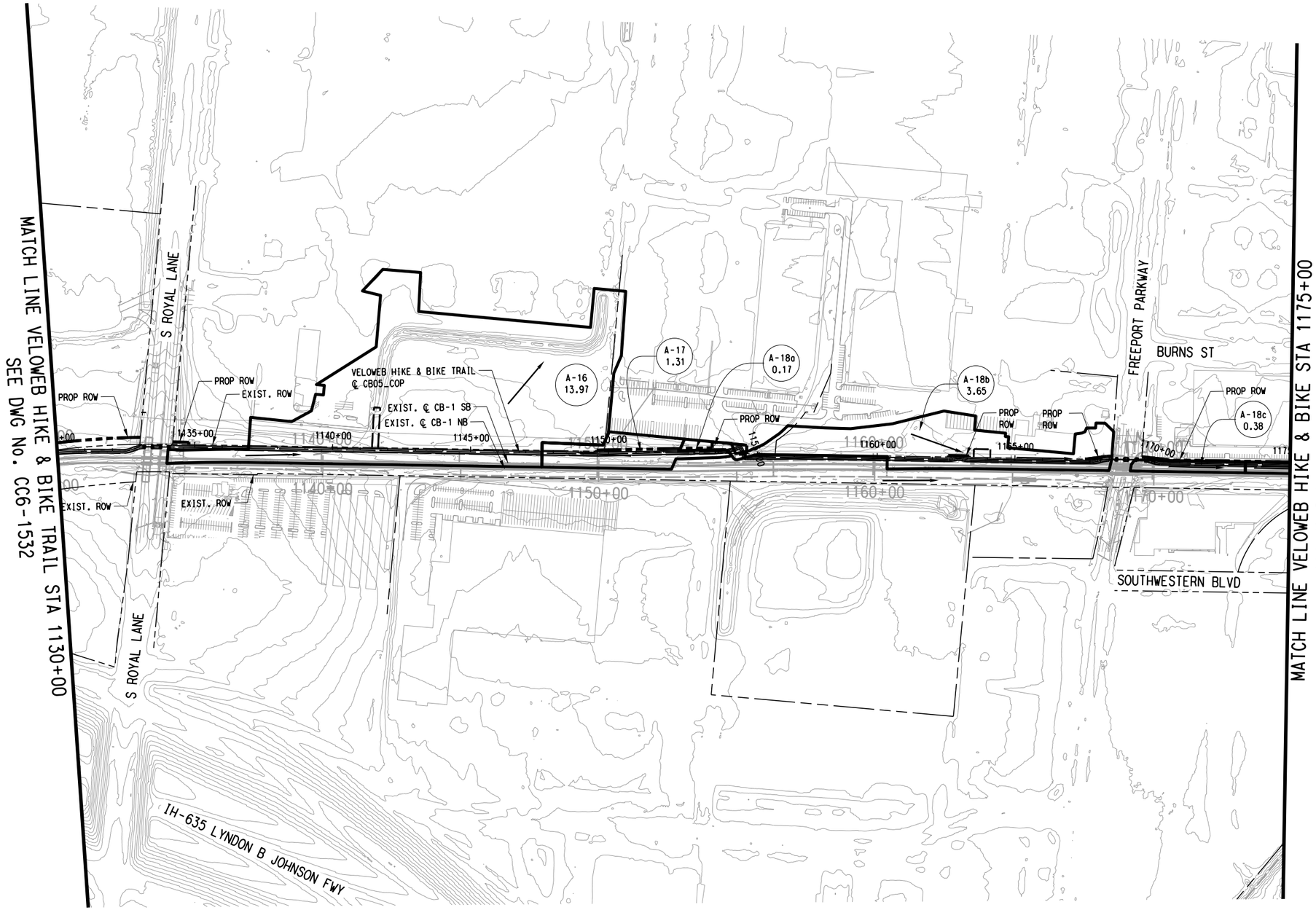
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE AREA MAP
BEGIN TO 1130+00
SHEET 1 OF 6

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1532	D

CB05-CC6-1532.200

DWG No. CC6-1533



SCALE (IN FEET)
0 100 200 400

LEGEND

- DRAINAGE AREA BOUNDARY
- PROPOSED CONTOUR
- DRAINAGE FLOW
- XX / XXX — DRAINAGE AREA NUMBERS / DRAINAGE AREA IN ACRES

NOTES:

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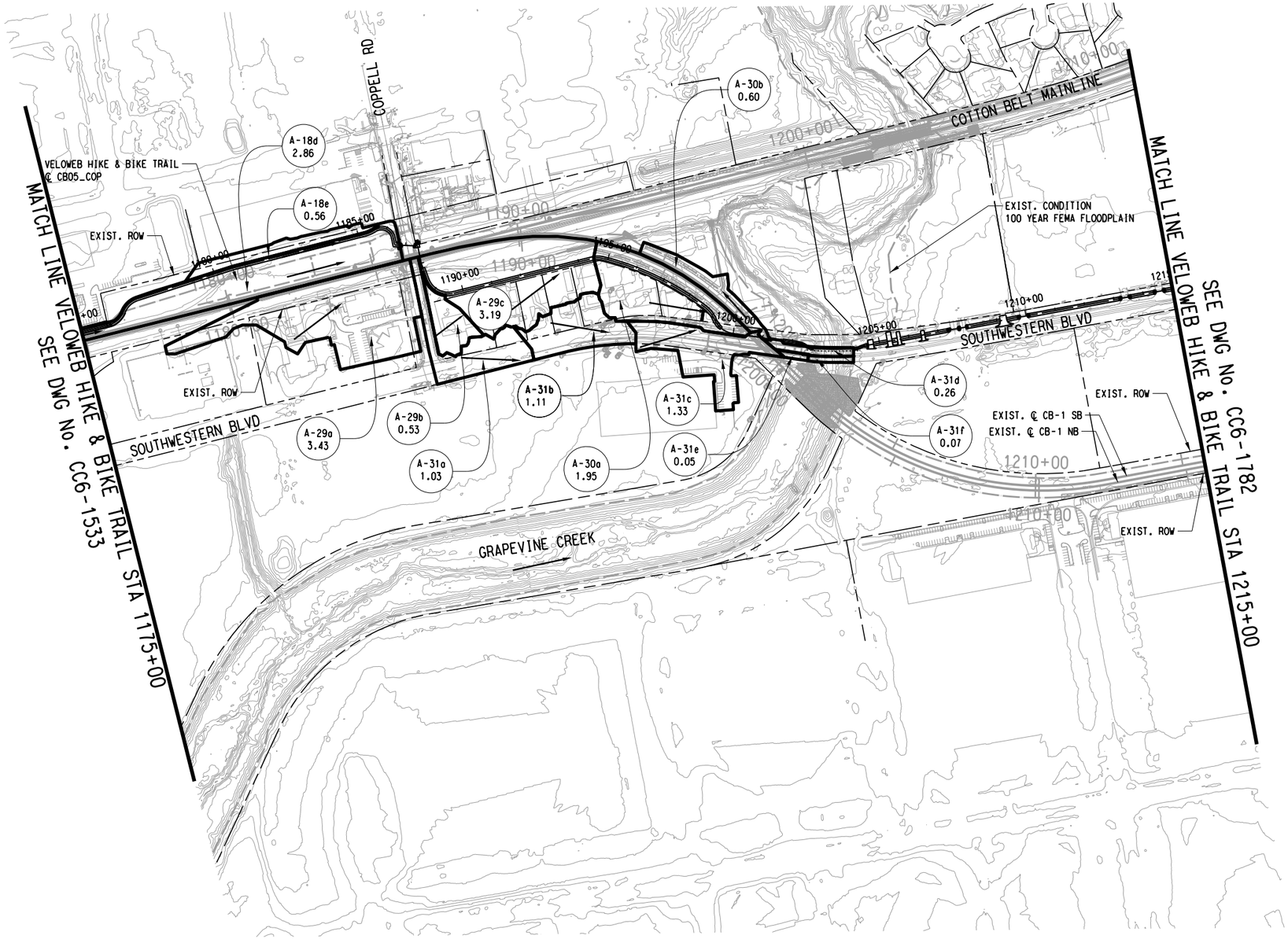
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE AREA MAP
STA 1130+00 TO STA 1175+00
SHEET 2 OF 6

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1533	D

CB05-CC6-1533.200

DWG No. CC6-1781



SCALE (IN FEET)
0 100 200 400

LEGEND

- DRAINAGE AREA BOUNDARY
- PROPOSED CONTOUR
- DRAINAGE FLOW
- XX / XXX — DRAINAGE AREA NUMBERS / DRAINAGE AREA IN ACRES

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE AREA MAP
STA 1175+00 TO STA 1215+00
SHEET 3 OF 6

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1781	D

CB05-CC6-1781.200

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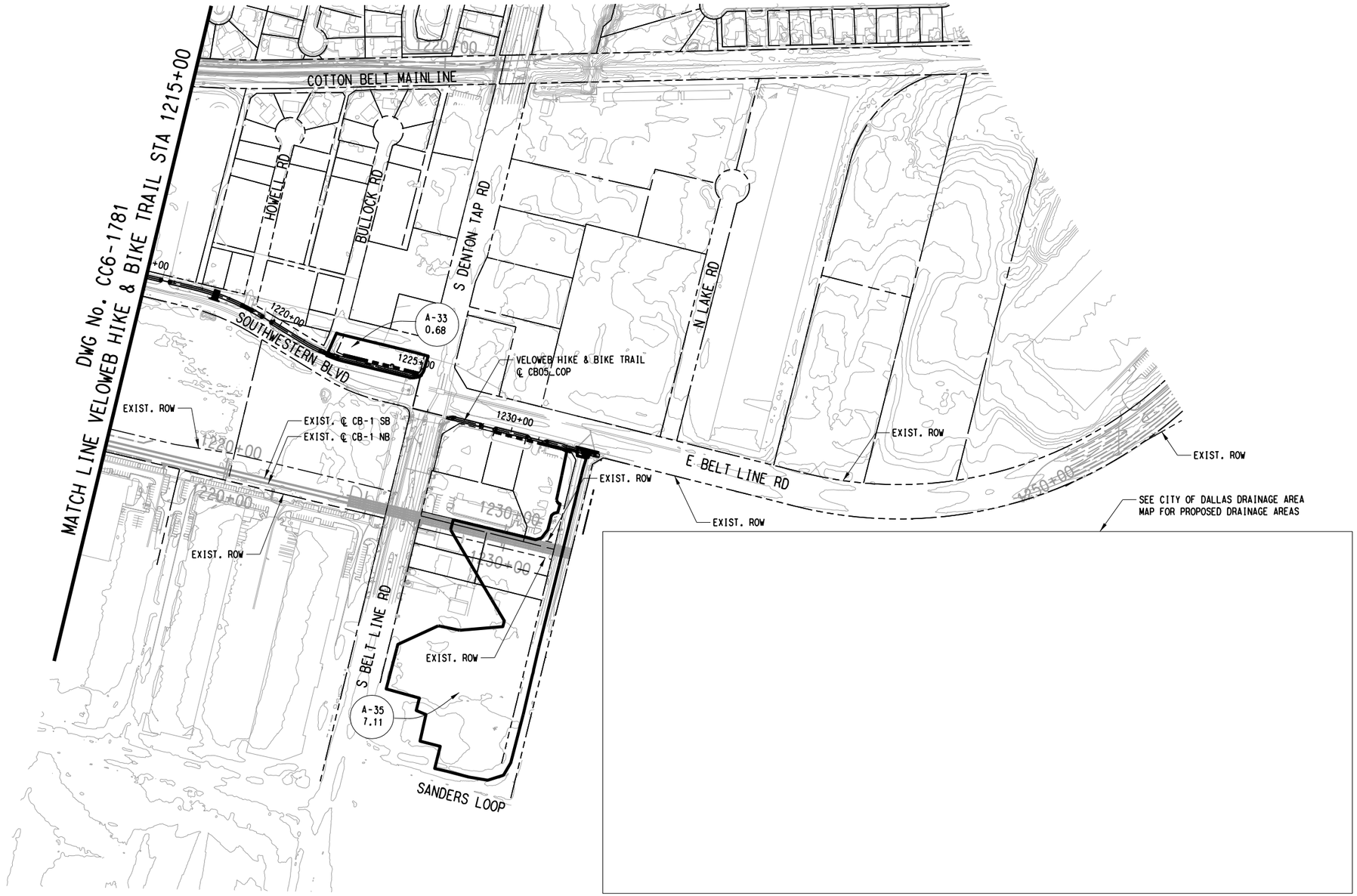
DWG No. CC6-1782



SCALE (IN FEET)
0 100 200 400

LEGEND

- DRAINAGE AREA BOUNDARY
- PROPOSED CONTOUR
- DRAINAGE FLOW
- XX / XXX — DRAINAGE AREA NUMBERS / DRAINAGE AREA IN ACRES

NOTES:

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SEE CITY OF DALLAS DRAINAGE AREA MAP FOR PROPOSED DRAINAGE AREAS

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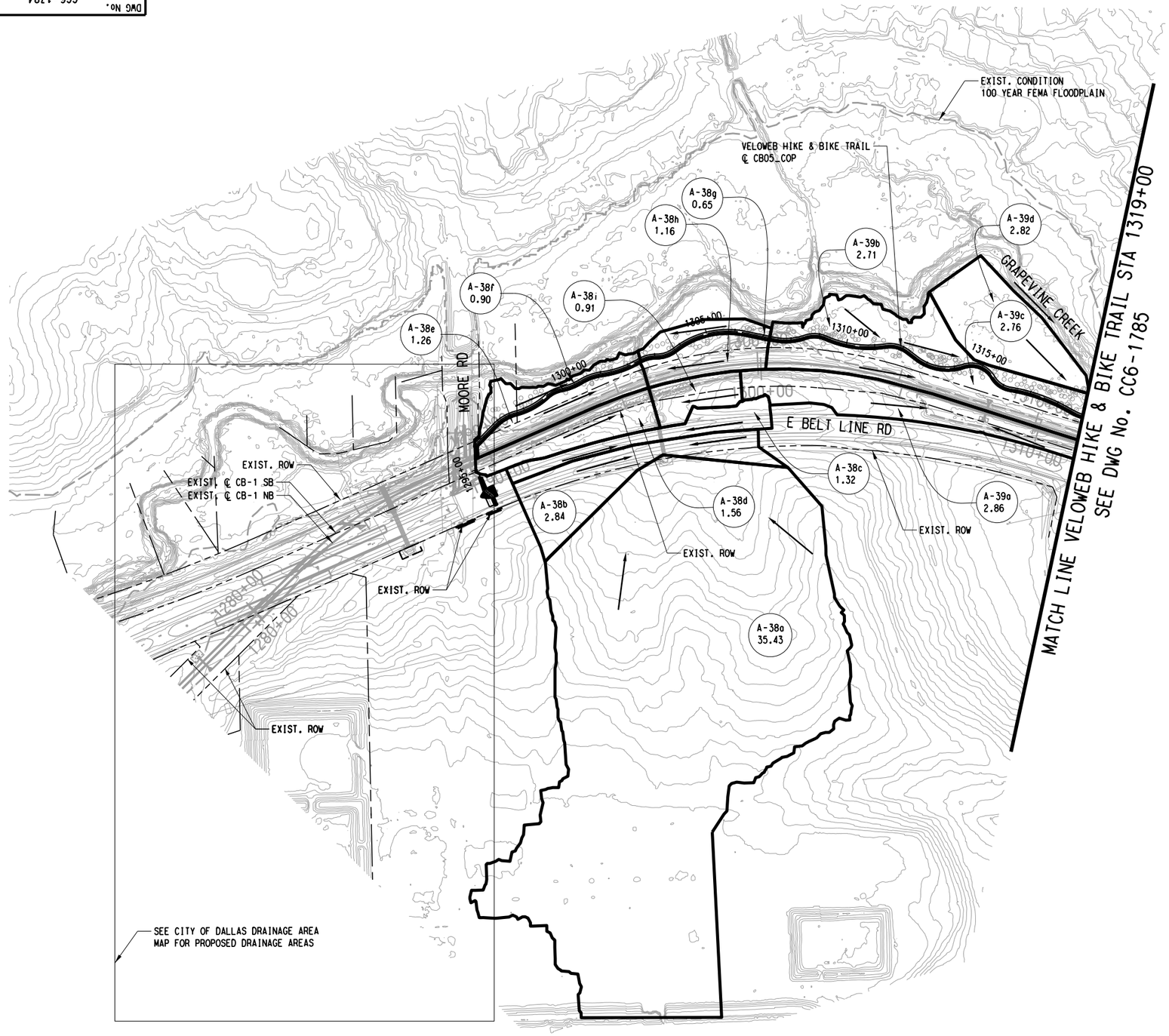
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
DRAINAGE AREA MAP
STA 1215+00 TO END
SHEET 4 OF 6

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1782	D

CB05-CC6-1782.200

DWG No. CC6-1784



SCALE (IN FEET)
0 100 200 400

LEGEND

- DRAINAGE AREA BOUNDARY
- PROPOSED CONTOUR
- DRAINAGE FLOW
- XX — DRAINAGE AREA NUMBERS
- XXX — DRAINAGE AREA IN ACRES

NOTES:

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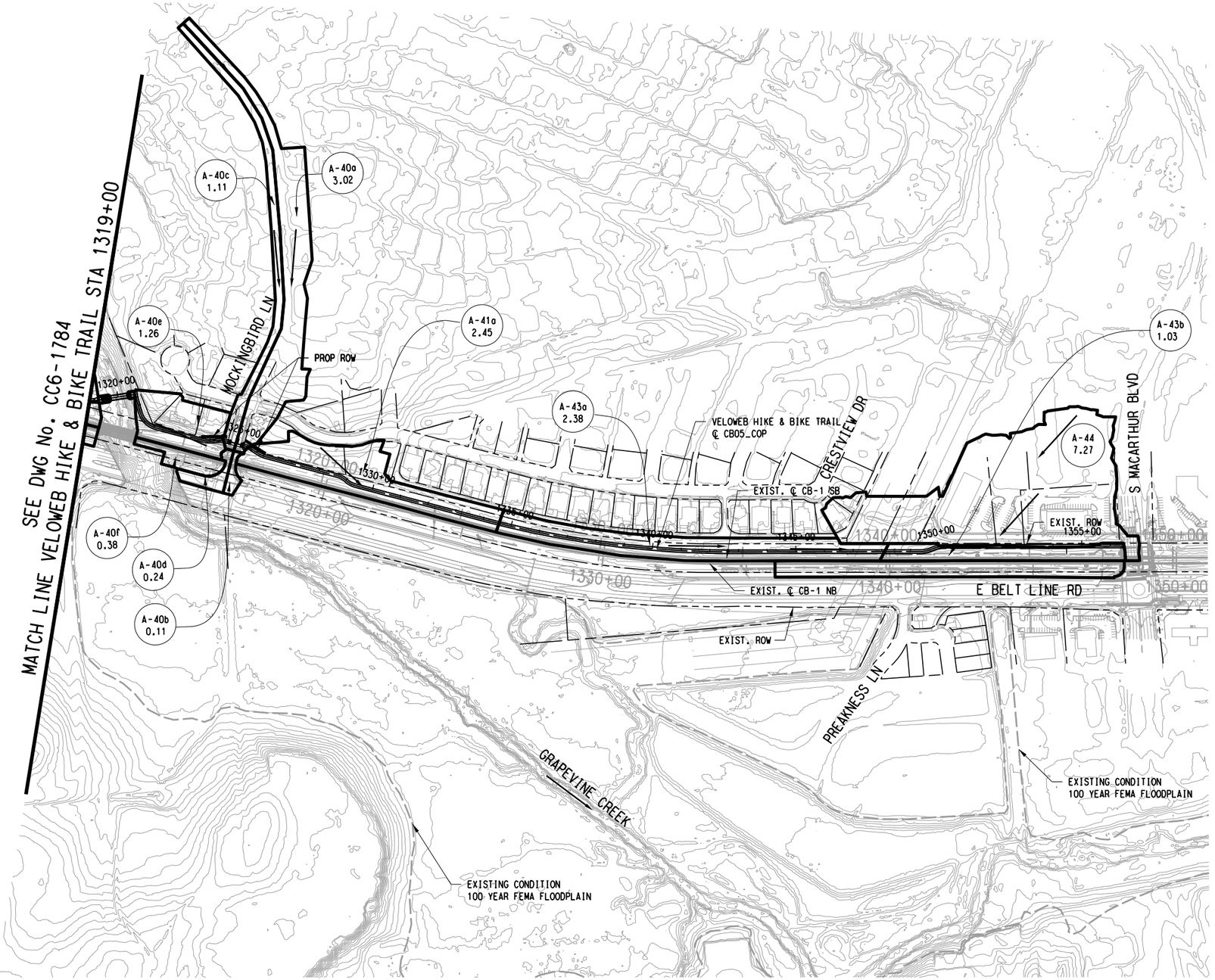
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
DRAINAGE AREA MAP
BEGIN TO STA 1319+00
SHEET 5 OF 6

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1784	D

CB05-CC6-1784.200

DWG No. CC6-1785



SCALE (IN FEET)
0 100 200 400

LEGEND

- DRAINAGE AREA BOUNDARY
- PROPOSED CONTOUR
- DRAINAGE FLOW
- XX / XXX — DRAINAGE AREA NUMBERS / DRAINAGE AREA IN ACRES

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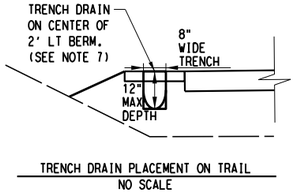
DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE AREA MAP
STA 1319+00 TO END
SHEET 6 OF 6

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1785	D

CB05-CC6-1785.200

DWG No. CC6-1566



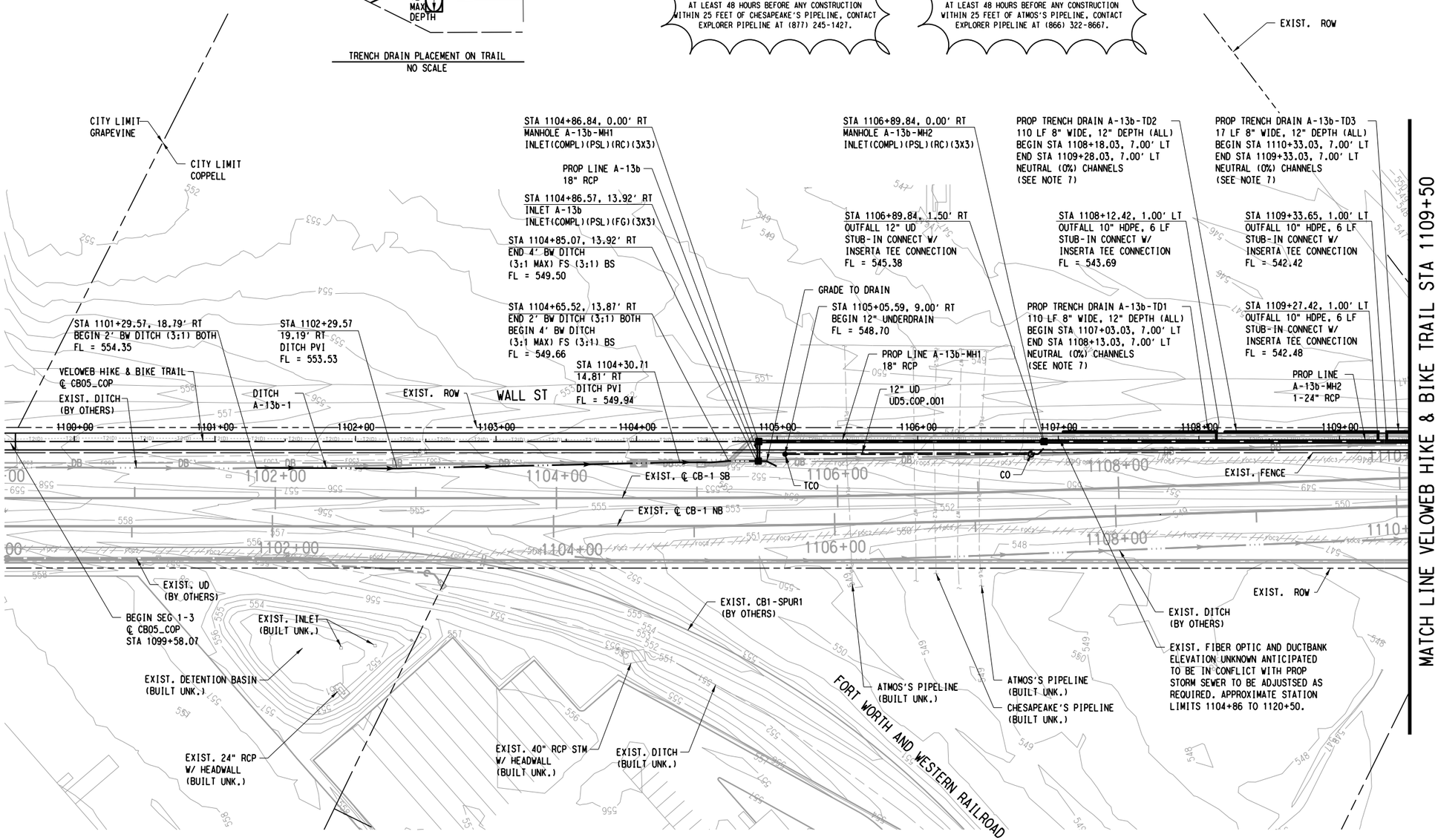
TRENCH DRAIN PLACEMENT ON TRAIL
NO SCALE

WARNING!!! CHESAPEAKE'S HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE.

AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION WITHIN 25 FEET OF CHESAPEAKE'S PIPELINE, CONTACT EXPLORER PIPELINE AT (877) 245-1427.

WARNING!!! ATMOS'S HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE.

AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION WITHIN 25 FEET OF ATMOS'S PIPELINE, CONTACT EXPLORER PIPELINE AT (866) 322-8667.



SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

NOTES:

1. ALL STATIONS CALLOUTS ARE IN REFERENCE TO THE VELOWEB HIKE & BIKE TRAIL CENTERLINE UNLESS NOTED OTHERWISE.
2. ALL STORM DRAIN PIPES AND CULVERT CROSSINGS NB AND SB TRACK SHALL BE CLASS V UNLESS NOTED OTHERWISE.
3. DISTURBED AREAS REQUIRING GROUND COVER SHALL BE SEEDED BY HYDROMULCHING, UNLESS OTHERWISE NOTED.
4. ALL DITCH SIDE SLOPES SHALL BE 3:1 MAX, UNLESS OTHERWISE NOTED.
5. CONTOURS SHOWN IN PLAN VIEW ARE EXISTING UNLESS OTHERWISE NOTED.
6. SEE DWG. NO. CC6-1731 FOR DURA TRENCH 8" PRECAST TRENCH DRAIN.
7. TOP OF TRENCH DRAIN GRATE ELEVATION TO BE SET TO TOP OF TRAIL ELEVATION AT EDGE OF PAVEMENT AND FOLLOW THE TRAIL VERTICAL PROFILE SLOPE. SEE DWG. NO. CC1-1040 AND FOR VERTICAL PROFILE SLOPE.

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IN CHARGE	A. DORANTES
DATE	25 AUG 23

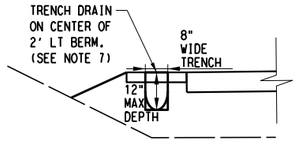
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
BEGIN TO STA 1109+50
SHEET 1 OF 21

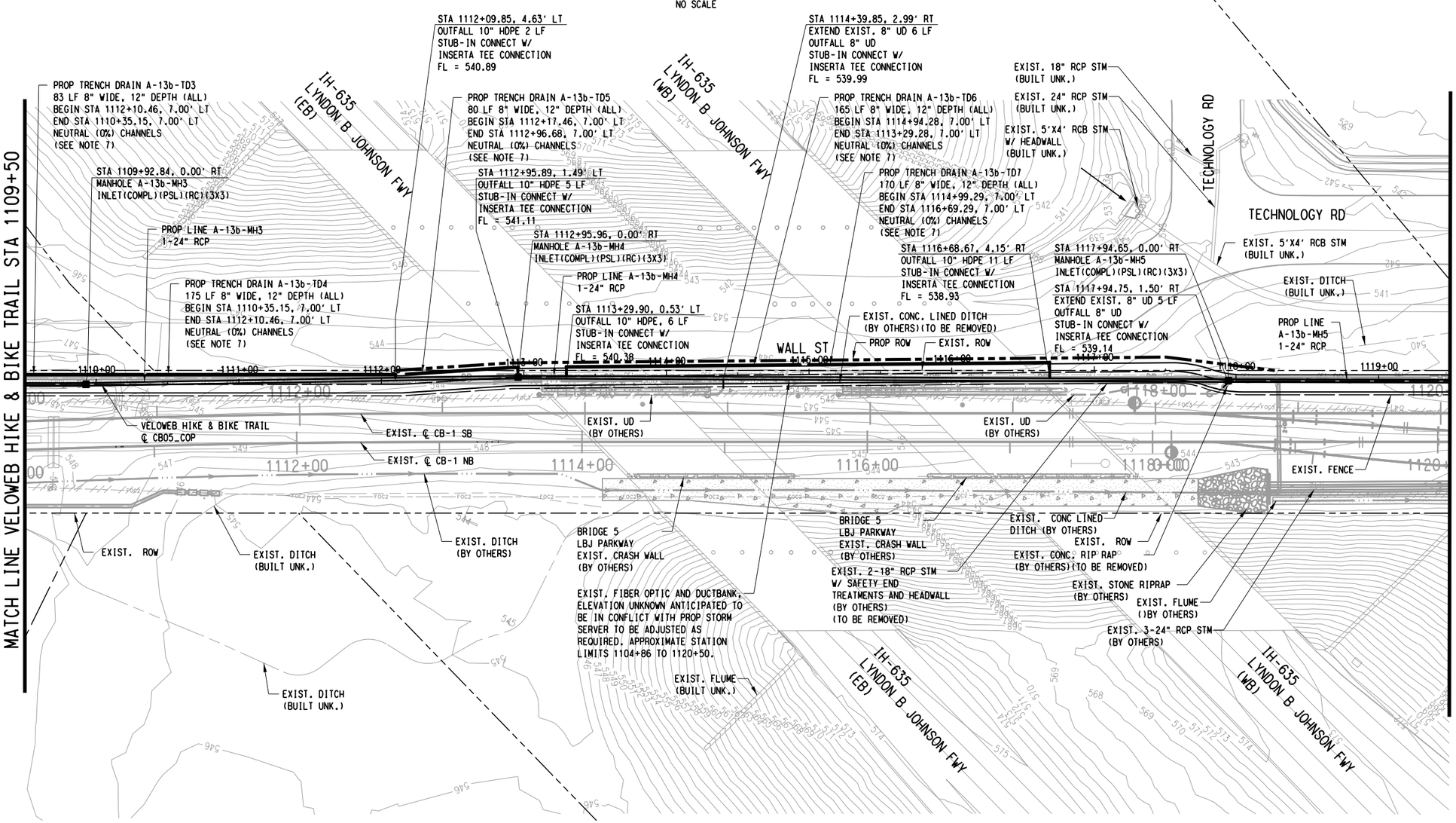
CONTRACT	DWG No.	REV
C-2033270-01	CC6-1566	D

CB05-CC6-1566.040

DWG No. CC6-1567



TRENCH DRAIN PLACEMENT ON TRAIL
NO SCALE



SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

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4. ALL DITCH SIDE SLOPES SHALL BE 3:1 MAX, UNLESS OTHERWISE NOTED.
5. CONTOURS SHOWN IN PLAN VIEW ARE EXISTING UNLESS OTHERWISE NOTED.
6. SEE DWG. NO. CC6-1731 FOR DURA TRENCH 8" PRECAST TRENCH DRAIN.
7. TOP OF TRENCH DRAIN GRATE ELEVATION TO BE SET TO TOP OF TRAIL ELEVATION AT EDGE OF PAVEMENT AND FOLLOW THE TRAIL VERTICAL PROFILE SLOPE. SEE DWG. NO. CC1-1040 AND CC1-1041 FOR VERTICAL PROFILE SLOPE.

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DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

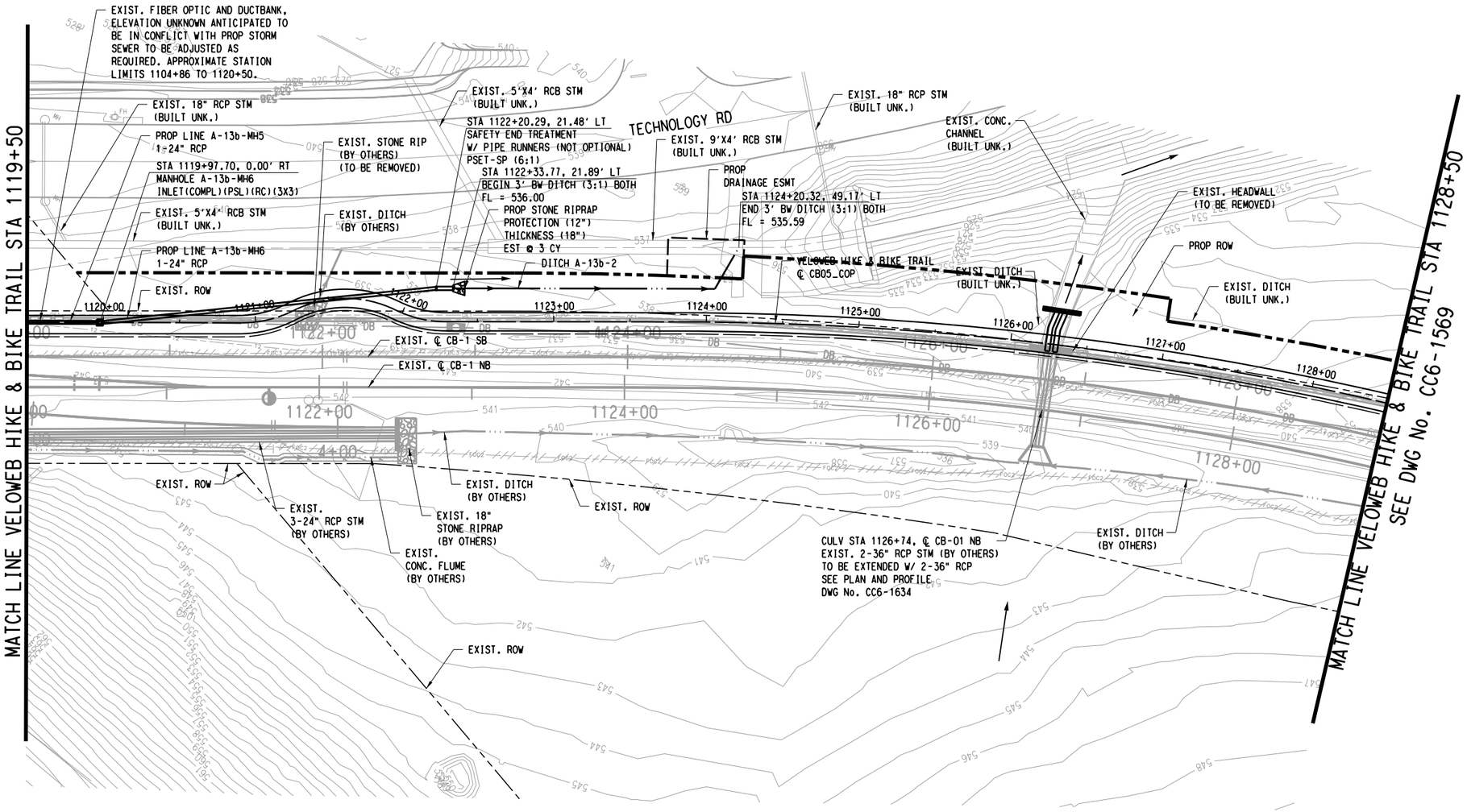
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1109+50 TO STA 1119+50
SHEET 2 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1567	D

CB05-CC6-1567.040

DWG No. CC6-1568



SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

NOTES:

1. ALL STATION CALLOUTS ARE IN REFRENCE TO THE VELOWEB HIKE & BIKE TRAIL CENTERLINE, UNLESS NOTED OTHERWISE.
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3. DISTURBED AREAS REQUIRING GROUND COVER SHALL BE SEEDED BY HYDROMULCHING, UNLESS OTHERWISE NOTED.
4. ALL DITCH SIDE SLOPES SHALL BE 3:1 MAX, UNLESS OTHERWISE NOTED.
5. CONTOURS SHOWN IN PLAN VIEW ARE EXISTING UNLESS OTHERWISE NOTED.

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FINAL 100% DESIGN

CONTRACT SHEET No. 291 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

IN-PROGRESS REVIEW
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ALBERTO J. DORANTES, P.E., 140788
ON
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Jacobs
1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No, F-2966

IEA
18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
Phone: +1 (214) 884-4253
Firm Registration: F-10161

ARCHER WESTERN HERZOG

DART PROJECT

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SCALE	1"=40'
DRAWN	D. ESCALANTE
DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

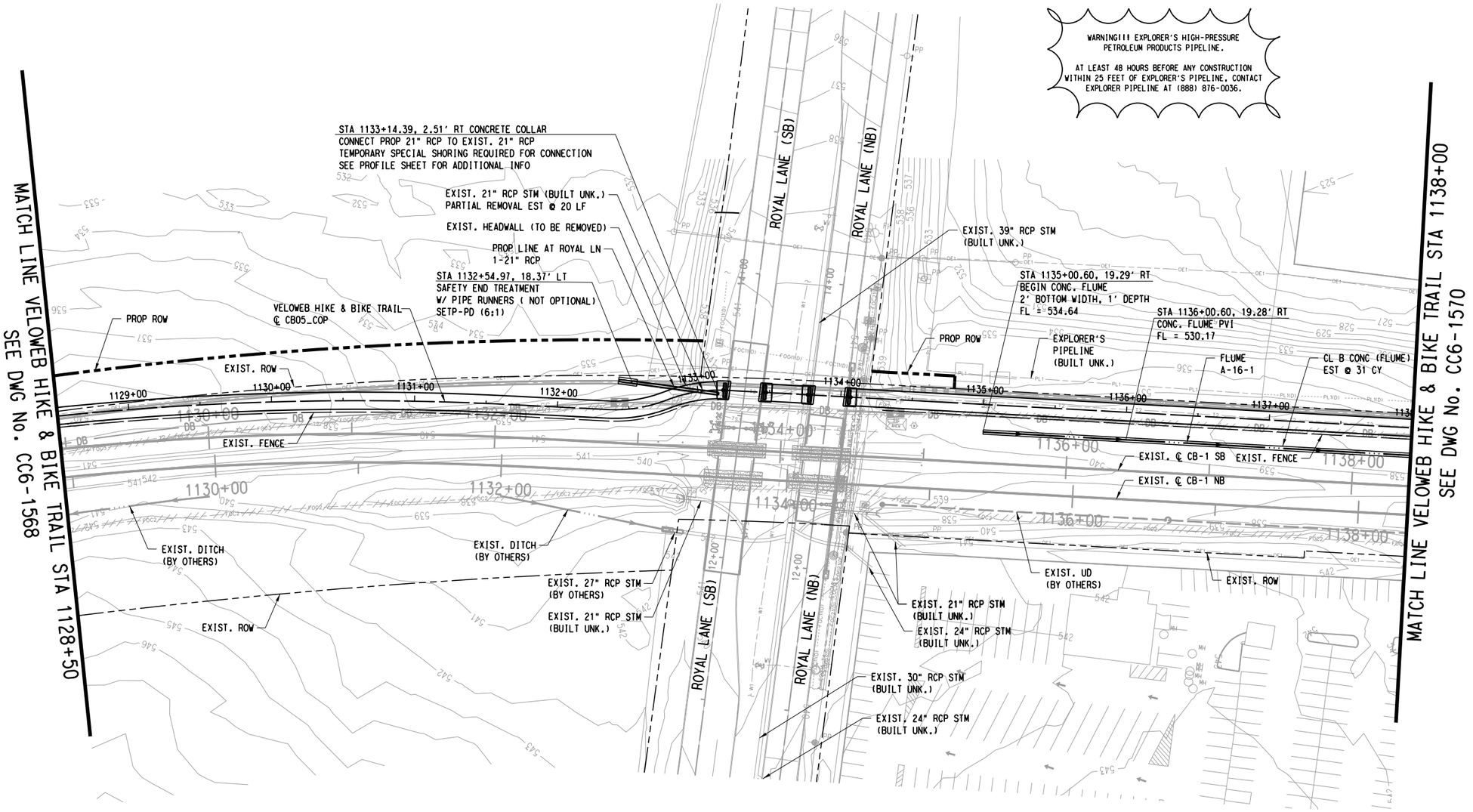
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1119+50 TO STA 1128+50
SHEET 3 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1568	D

CB05-CC6-1568.040

28-AUG-2023 09:04
CB05-CC6-1568.040
JEGSVCPWU01
Default

DWG No. CC6-1569



SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

NOTES:

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28-AUG-2023 09:05
CB05-CC6-1569.040

JEGSVCPW001
Default

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DATE	25 AUG 23

CAES

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FINAL 100% DESIGN

CONTRACT SHEET No. 292 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1128+50 TO STA 1138+00
SHEET 4 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1569	D

CB05-CC6-1569.040

DWG No. CC6-1570

*ALL TEMPORARY SHORING SHALL MEET REQUIREMENTS OF "UPRR GUIDELINES FOR TEMPORARY SHORING" MANUAL, PUBLISHED DECEMBER 7,2021. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, IMPLEMENTATION AND REMOVAL OF TEMPORARY SHORING REQUIRED FOR THE CONCRETE FLUME AND STORM LINE CONSTRUCTION. PAYMENT FOR WORK AND MATERIALS OF SUCH SHORING SHALL BE SUBSIDIARY TO THE COST OF THE CONCRETE FLUME AND STORM LINE CONSTRUCTION.

APPROXIMATE LIMITS OF EXIST. SILVERLINE REHAB TRACK: STA 1141+94 TO STA 1146+70
CONTRACTOR TO FIELD LOCATE REHAB TRACK UNDERDRAIN OUTFALLS AND EXTEND
SEE DWG No. CC6-1711 FROM RAIL PACKAGES FOR LIMITS
EST @ 1 TOTAL UNDERDRAIN EXTENSION

SEE DWG No. CC6-1569
VELOWEB HIKE & BIKE TRAIL STA 1138+00
MATCH LINE

SEE DWG No. CC6-1571
VELOWEB HIKE & BIKE TRAIL STA 1148+00
MATCH LINE

STA 1141+55.90, 99.84' LT
END 2' BW DITCH (3:1) BOTH
FL = 525.00

PROP STONE RIPRAP
PROTECTION (12")
THICKNESS (18")
EST @ 3 CY

STA 1141+55.90, 29.62' LT
BEGIN 2' BW DITCH (3:1) BOTH
FL = 525.30

STA 1141+55.90, 22.03' LT
SAFETY END TREATMENT
W/ PIPE RUNNERS (NOT OPTIONAL)
PSET-SC (6:1)

PROP LINE A-16-MH1
18" RCP

WARNING!!! EXPLORER'S HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE.
AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION WITHIN 25 FEET OF EXPLORER'S PIPELINE, CONTACT EXPLORER PIPELINE AT (888) 876-0036.

PROP DRAINAGE ESMT

DITCH A-16-1

PROP LINE A-16
18" RCP

EXIST. DITCH
(BUILT UNK.)

STA 1141+39.40, 14.47' RT
SAFETY END TREATMENT
W/ PIPE RUNNERS (NOT OPTIONAL)
PSET-SP (6:1)

STA 1141+31.82, 14.47' RT
END CONC. FLUME
2' BOTTOM WIDTH, 1' DEPTH
FL = 526.85

ADJUST FENCE FOR STORM SEWER CONSTRUCTION AS NECCESSARY. COST SHALL BE INCIDENTAL TO THE CONSTRUCTION OF THE STORM SEWER.

EXIST. FIBER OPTIC AND DUCTBANK, ELEVATION UNKNOWN ANTICIPATED TO BE IN CONFLICT WITH PROP STORM SEWER TO BE ADJUSTED AS REQUIRED. APPROXIMATE STATION LIMITS 1141+50 TO 1141+62.

STA 1141+55.90, 14.47' RT
MANHOLE A-16-MH1
INLET(COMPL)(PSL)(RC)(3X3)

EXIST. DITCH
(BY OTHERS)

CL B CONC (FLUME)
EST @ 33 CY

FLUME A-16-1

EXIST. DITCH
(BUILT UNK.)

EXPLORER'S PIPELINE
(BUILT UNK.)

EXIST. ROW

VELOWEB HIKE & BIKE TRAIL
℄ CB05_COP

EXIST. ℄ CB-1 SB

EXIST. FENCE

EXIST. ℄ CB-1 NB

ZONE B SHORING *APPROX. LIMITS

EXIST. UD
(BY OTHERS)

STA 1138+88.10, 19.25' RT
CONC. FLUME PVI
FL = 531.42

EXIST. ROW

EXIST. DITCH
(BY OTHERS)

EXIST. 5'X5' RCB STM
(BUILT UNK.)

EXIST. 36" RCP STM
(BUILT UNK.)

SCALE (IN FEET)
0 20 40 80

LEGEND

CENTERLINE OF SPECIAL DITCH

PROP FLUME

PROP LIMITS OF CONCRETE LINED DITCH

NOTES:

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CONTRACT SHEET No. 293 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DALLAS, TX 75252
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ARCHER WESTERN HERZOG

DART PROJECT

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SCALE	1"=40'
DRAWN	D. ESCALANTE
DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1138+00 TO STA 1148+00
SHEET 5 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1570	D

CB05-CC6-1570.040

28-AUG-2023 09:05
CB05-CC6-1570.040

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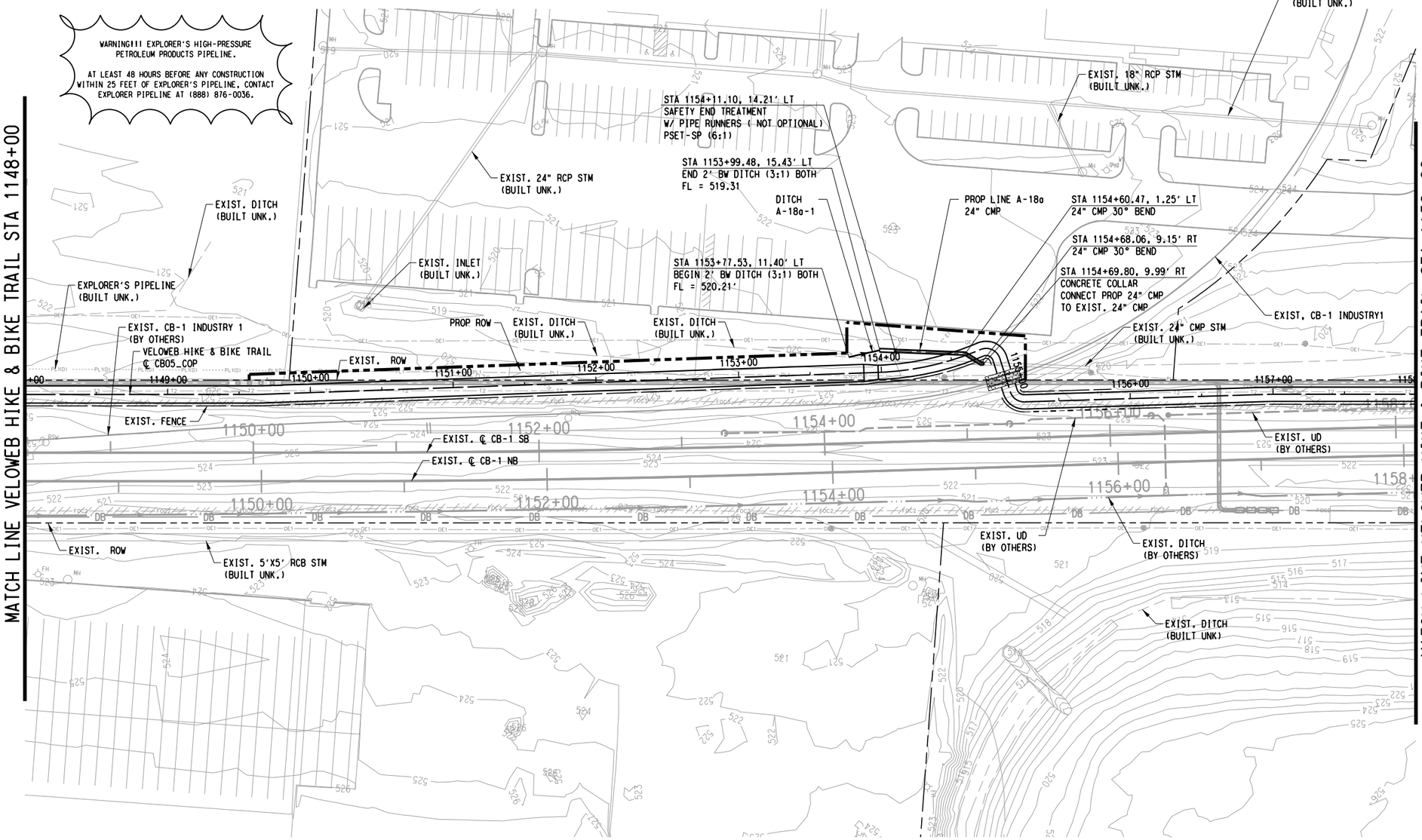
DWG No. CC6-1571



SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

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CB05-CC6-1571.040

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CONTRACT SHEET No. 294 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARCHER WESTERN HERZOG

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CAES

SCALE	1"=40'
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1148+00 TO STA 1158+00
SHEET 6 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1571	D

CB05-CC6-1571.040

DWG No. CC6-1572

WARNING!!! EXPLORER'S HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE.

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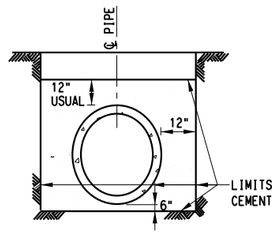

DETAIL A, CEMENT STABILIZED BACKFILL
NO SCALE

SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

NOTES:

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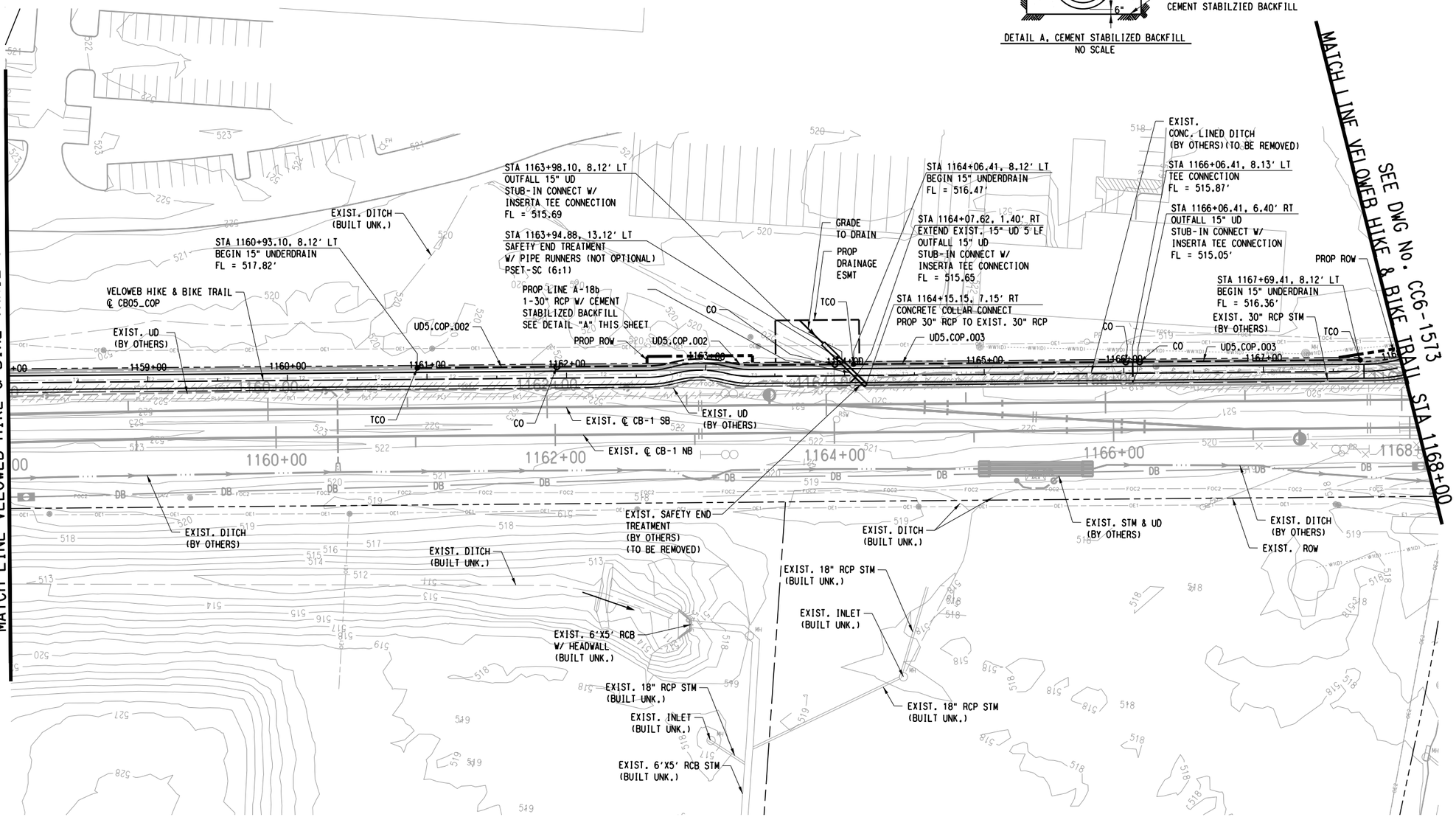
6. SEE DWG. NO. CC6-1731 FOR DURA TRENCH 8" PRECAST TRENCH DRAIN.



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CONTRACT SHEET No. 295 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1158+00 TO STA 1168+00
SHEET 7 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1572	D

CB05-CC6-1572.040

28-AUG-2023 09:07
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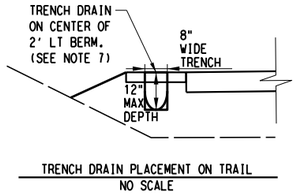
DWG No. CC6-1573



TRENCH DRAIN PLACEMENT ON TRAIL
NO SCALE

PROP TRENCH DRAIN A-18c-TD3
60 LF 8" WIDE, 12" DEPTH (MAX)
BEGIN STA 1172+22.70, 6.00' LT
END STA 1171+62.70, 6.00' LT
PRE-SLOPED (0.5%) CHANNELS
(SEE NOTE 7)

STA 1171+63.23, 6.24' RT
OUTFALL 10" HDPE 12 LF
STUB-IN CONNECT TO 30" RCP
W/ INSERTA TEE CONNECTION
FL = 513.69

STA 1172+28.23, 6.24' RT
OUTFALL 10" HDPE 12 LF
STUB-IN CONNECT TO 30" RCP
W/ INSERTA TEE CONNECTION
FL = 513.49

STA 1174+23.23, 5.92' RT
OUTFALL 10" HDPE 12 LF
STUB-IN CONNECT TO 30" RCP
W/ INSERTA TEE CONNECTION
FL = 512.91

PROP TRENCH DRAIN A-18c-TD4
60 LF 8" WIDE, 12" DEPTH (MAX)
BEGIN STA 1172+87.70, 6.00' LT
END STA 1172+27.70, 6.00' LT
PRE-SLOPED (0.5%) CHANNELS
(SEE NOTE 7)

PROP TRENCH DRAIN A-18c-TD7
60 LF 8" WIDE, 12" DEPTH (MAX)
BEGIN STA 1174+82.70, 6.00' LT
END STA 1174+22.70, 6.00' LT
PRE-SLOPED (0.5%) CHANNELS
(SEE NOTE 7)

STA 1176+87.09, 16.04' RT
SAFTY END TREATMENT
W/ PIPE RUNNERS (NOT OPTIONAL)
PSET-SP (6:1)

PROP TRENCH DRAIN A-18c-TD2
60 LF 8" WIDE, 12" DEPTH (MAX)
BEGIN STA 1171+57.70, 6.00' LT
END STA 1170+97.70, 6.00' LT
PRE-SLOPED (0.5%) CHANNELS
(SEE NOTE 7)

STA 1170+98.23, 6.24' RT
OUTFALL 10" HDPE 12 LF
STUB-IN CONNECT TO 30" RCP
W/ INSERTA TEE CONNECTION
FL = 513.88

STA 1170+93.16, 6.24' RT
OUTFALL 10" HDPE 12 LF
STUB-IN CONNECT TO 30" RCP
W/ INSERTA TEE CONNECTION
FL = 513.90

PROP TRENCH DRAIN A-18c-TD6
60 LF 8" WIDE, 12" DEPTH (MAX)
BEGIN STA 1174+17.70, 6.00' LT
END STA 1173+57.70, 6.00' LT
PRE-SLOPED (0.5%) CHANNELS
(SEE NOTE 7)

STA 1173+58.23, 6.19' RT
OUTFALL 10" HDPE 12 LF
STUB-IN CONNECT TO 30" RCP
W/ INSERTA TEE CONNECTION
FL = 513.11

PROP TRENCH DRAIN A-18c-TD5
60 LF 8" WIDE, 12" DEPTH (MAX)
BEGIN STA 1173+52.70, 6.00' LT
END STA 1172+92.70, 6.00' LT
PRE-SLOPED (0.5%) CHANNELS
(SEE NOTE 7)

STA 1172+93.23, 6.24' RT
OUTFALL 10" HDPE 12 LF
STUB-IN CONNECT TO 30" RCP
W/ INSERTA TEE CONNECTION
FL = 513.30

PROP TRENCH DRAIN A-18c-TD9
38 LF 8" WIDE, 12" DEPTH (ALL)
BEGIN STA 1175+90.23, 6.12' LT
END STA 1175+52.70, 6.00' LT
NEUTRAL (0%) CHANNELS
(SEE NOTE 7)

STA 1175+53.22, 5.40' RT
OUTFALL 10" HDPE 10 LF
STUB-IN CONNECT TO 30" RCP
W/ INSERTA TEE CONNECTION
FL = 512.50

PROP TRENCH DRAIN A-18c-TD8
60 LF 8" WIDE, 12" DEPTH (ALL)
BEGIN STA 1175+47.70, 6.00' LT
END STA 1174+87.70, 6.00' LT
NEUTRAL (0%) CHANNELS
(SEE NOTE 7)

STA 1174+88.23, 5.66' RT
OUTFALL 10" HDPE 11 LF
STUB-IN CONNECT TO 30" RCP
W/ INSERTA TEE CONNECTION
FL = 512.71

PROP TRENCH DRAIN A-18c-TD1
58 LF 8" WIDE, 12" DEPTH (ALL)
BEGIN STA 1170+35.96, 6.00' LT
END STA 1170+93.70, 6.00' LT
NEUTRAL (0%) CHANNELS
(SEE NOTE 7)

STA 1176+67.44,
0.06' LT
30" RCP 30° BEND

PROP LINE
A-18-MH2
30" RCP

STA 1176+31.18,
8.60' LT
CONCRETE COLLAR
CONNECT PROP 30" RCP
TO EXIST. 30" RCP

EXIST. 27" RCP STM
(BUILT UNK.)
(TO BE REMOVED BY OTHERS)

EXIST. HEADWALL
(BUILT UNK.)
(TO BE REMOVED
BY OTHERS)

PROP ROW

FREEPORT PKWY (SB)

FREEPORT PKWY (NB)

MATCH LINE VELOWEB HIKE & BIKE TRAIL STA 1168+00
SEE DWG No. CC6-1572

MATCH LINE VELOWEB HIKE & BIKE TRAIL STA 1177+00
SEE DWG No. CC6-1800

PROP ROW — EXIST. ROW

VELOWEB HIKE & BIKE TRAIL
℄ CB05_COP

EXIST. ℄ CB-1 SB

EXIST. ℄ CB-1 NB

EXIST. DITCH
(BY OTHERS)

EXIST. 30" RCP STM
(BY OTHERS)

EXIST. 30" RCP STM
(BY OTHERS)

EXIST. HEADWALL
(BUILT UNK.)
(TO BE REMOVED BY OTHERS)

EXIST. DITCH
(BUILT UNK.)

EXIST. HEADWALL
(BUILT UNK.)

EXIST. 18" RCP
(BUILT UNK.)

EXIST. 54" RCP STM
(BUILT UNK.)

EXIST. 60" RCP STM
(BUILT UNK.)

EXIST. DITCH
(BUILT UNK.)

EXIST. TURNOUT
(BUILT UNK.)

EXIST. CB-1 INDUSTRY 2A
(BY OTHERS)

EXIST. DITCH
(BUILT UNK.)

EXIST. ROW

EXIST. SAFETY END TREATMENT
(BY OTHERS)(TO BE REMOVED)

EXIST. STONE RIPRAP
(BY OTHERS)(TO BE REMOVED)

EXIST. DITCH
(BUILT UNK.)

SCALE (IN FEET)
0 20 40 80

LEGEND

CENTERLINE OF SPECIAL DITCH

PROP FLUME

PROP LIMITS OF
CONCRETE LINED DITCH

NOTES:

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5. CONTOURS SHOWN IN PLAN VIEW ARE EXISTING UNLESS OTHERWISE NOTED.
6. SEE DWG. NO. CC6-1731 FOR DURA TRENCH 8" PRECAST TRENCH DRAIN.
7. TOP OF TRENCH DRAIN GRATE ELEVATION TO BE SET TO TOP OF TRAIL ELEVATION AT EDGE OF PAVEMENT AND FOLLOW THE TRAIL VERTICAL PROFILE SLOPE. SEE DWG. NO. CC1-1047 FOR VERTICAL PROFILE SLOPE.

28-AUG-2023 09:05
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CONTRACT SHEET No. 296 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARCHER WESTERN HERZOG

DART PROJECT

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SCALE	1" = 40'
DRAWN	D. ESCALANTE
DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

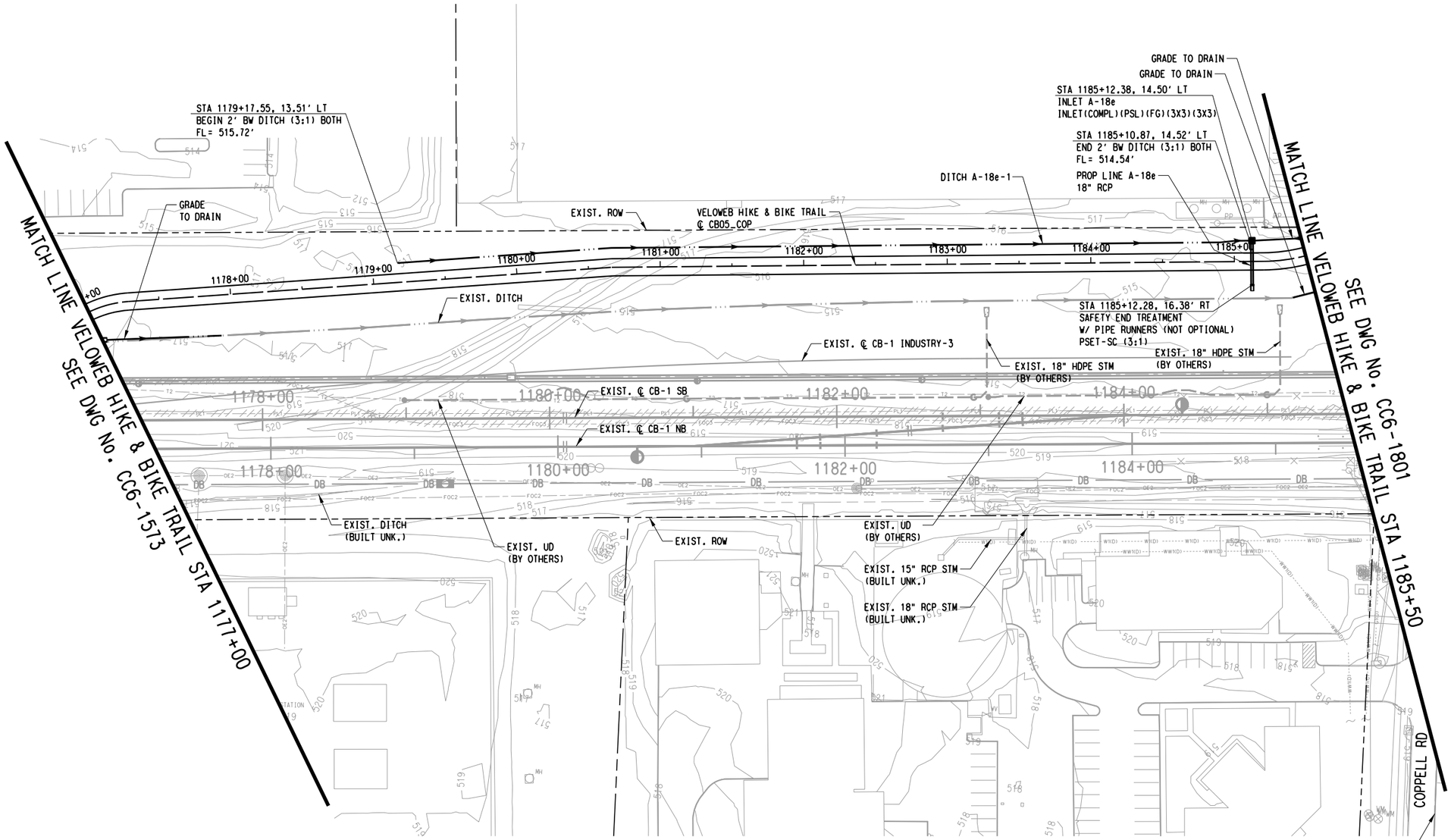
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1168+00 TO STA 1177+00
SHEET 8 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1573	D

CB05-CC6-1573.040

DWG No. CC6-1800



SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

NOTES:

1. ALL STATION CALLOUTS ARE IN REFRENCE TO THE VELOWEB HIKE & BIKE TRAIL CENTERLINE, UNLESS NOTED OTHERWISE.
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3. DISTURBED AREAS REQUIRING GROUND COVER SHALL BE SEEDED BY HYDROMULCHING, UNLESS OTHERWISE NOTED.
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CONTRACT SHEET No. 297 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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CHECKED	A. DORANTES
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CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1177+00 TO STA 1185+50
SHEET 9 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1800	D

CB05-CC6-1800.040

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CB05-CC6-1800.040

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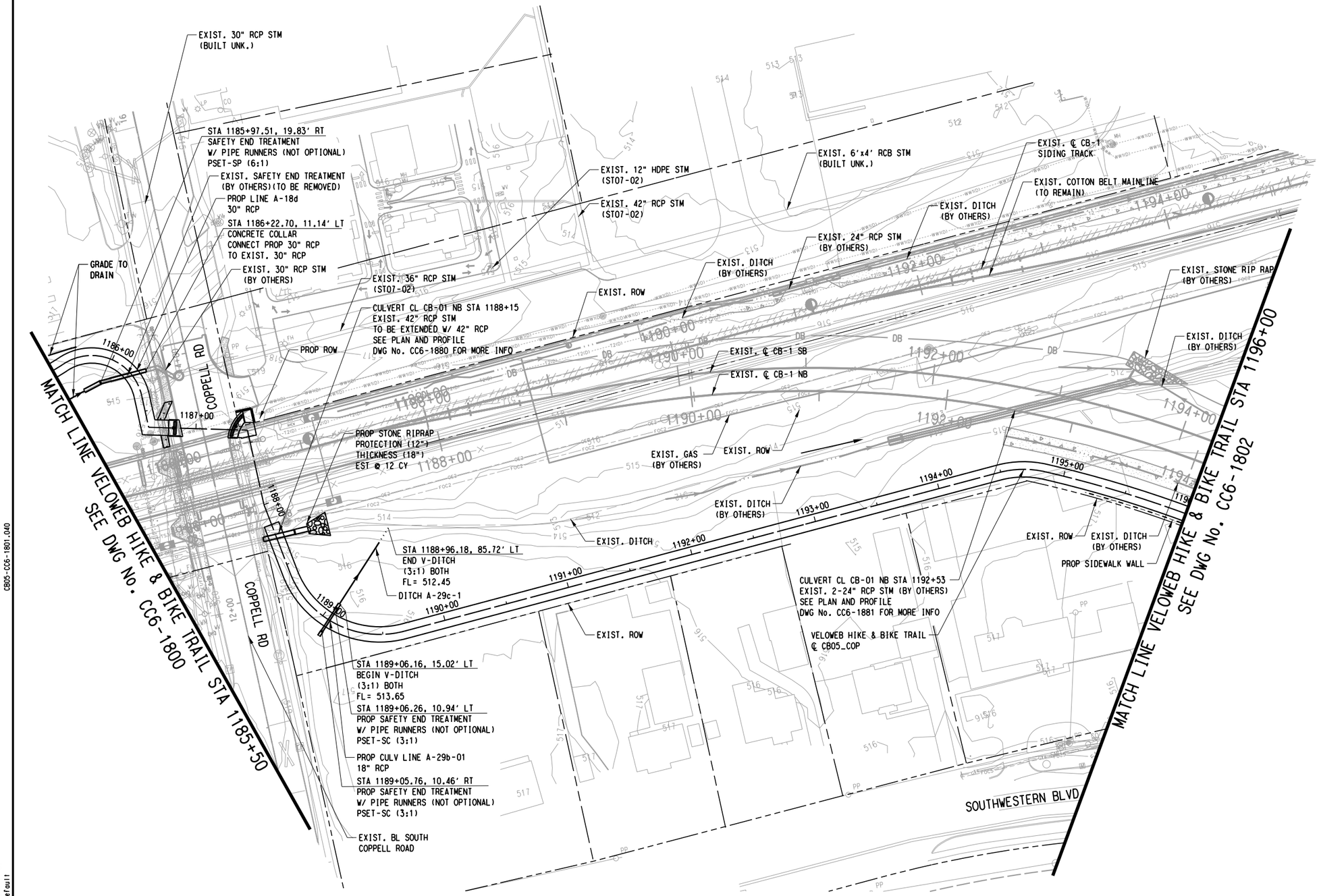
DWG No. CC6-1801



SCALE (IN FEET)
0 20 40 80

LEGEND

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- PROP FLUME
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DATE	25 AUG 23

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1185+50 TO STA 1196+00
SHEET 10 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1801	D

CB05-CC6-1801.040

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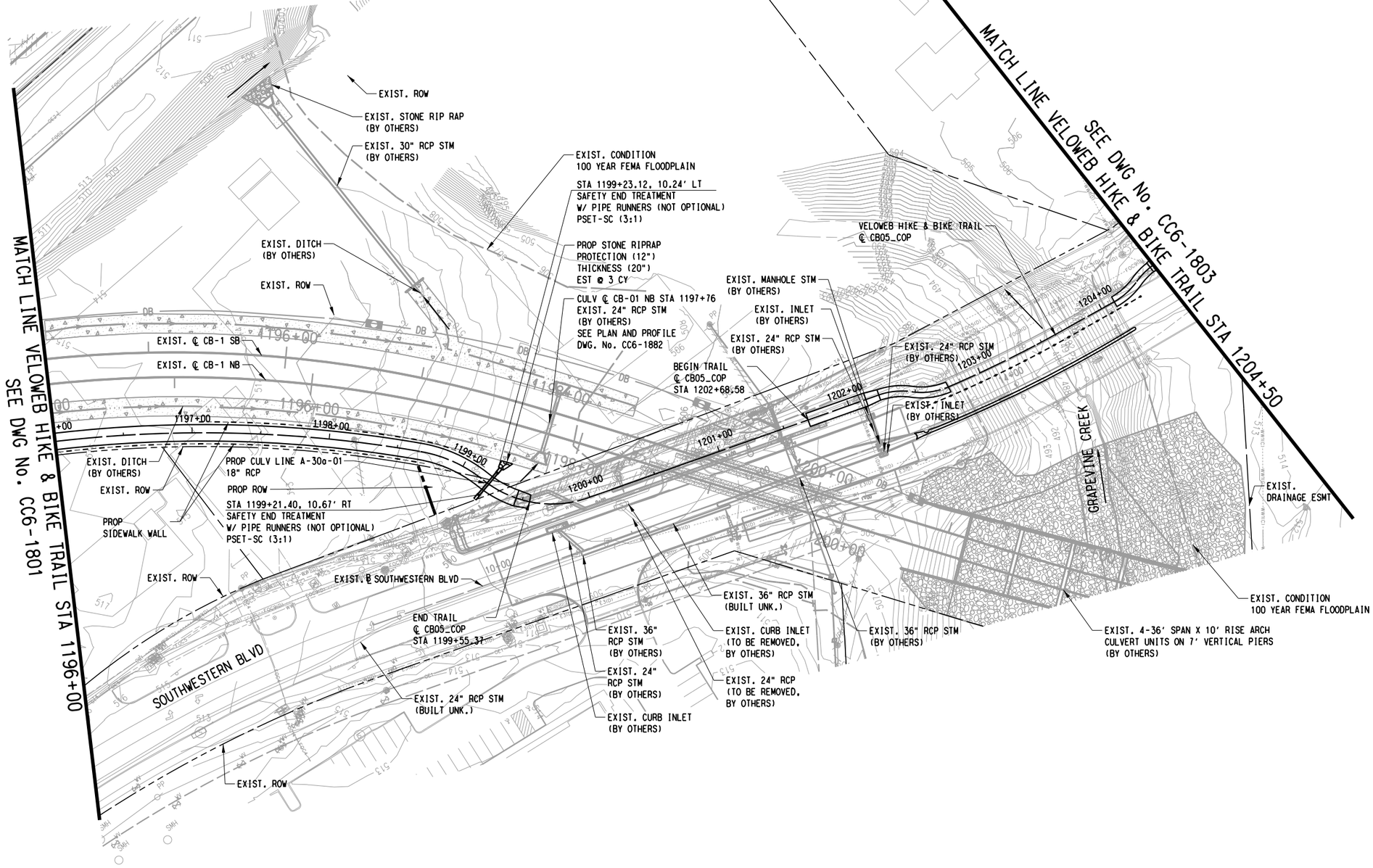
DWG No. CC6-1802



SCALE (IN FEET)
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- PROP FLUME
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IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1196+00 TO STA 1204+50
SHEET 11 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1802	D

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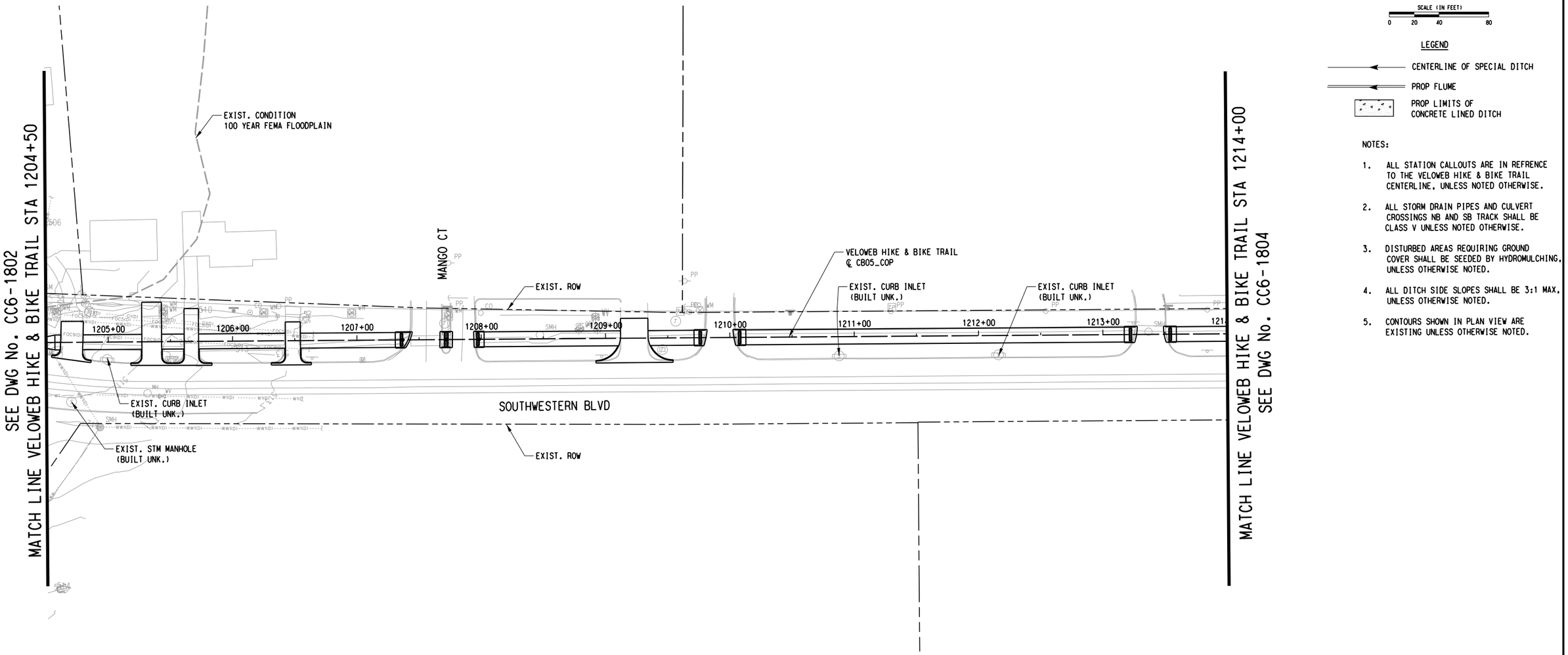
DWG No. CC6-1803



SCALE (IN FEET)
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LEGEND

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- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

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CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
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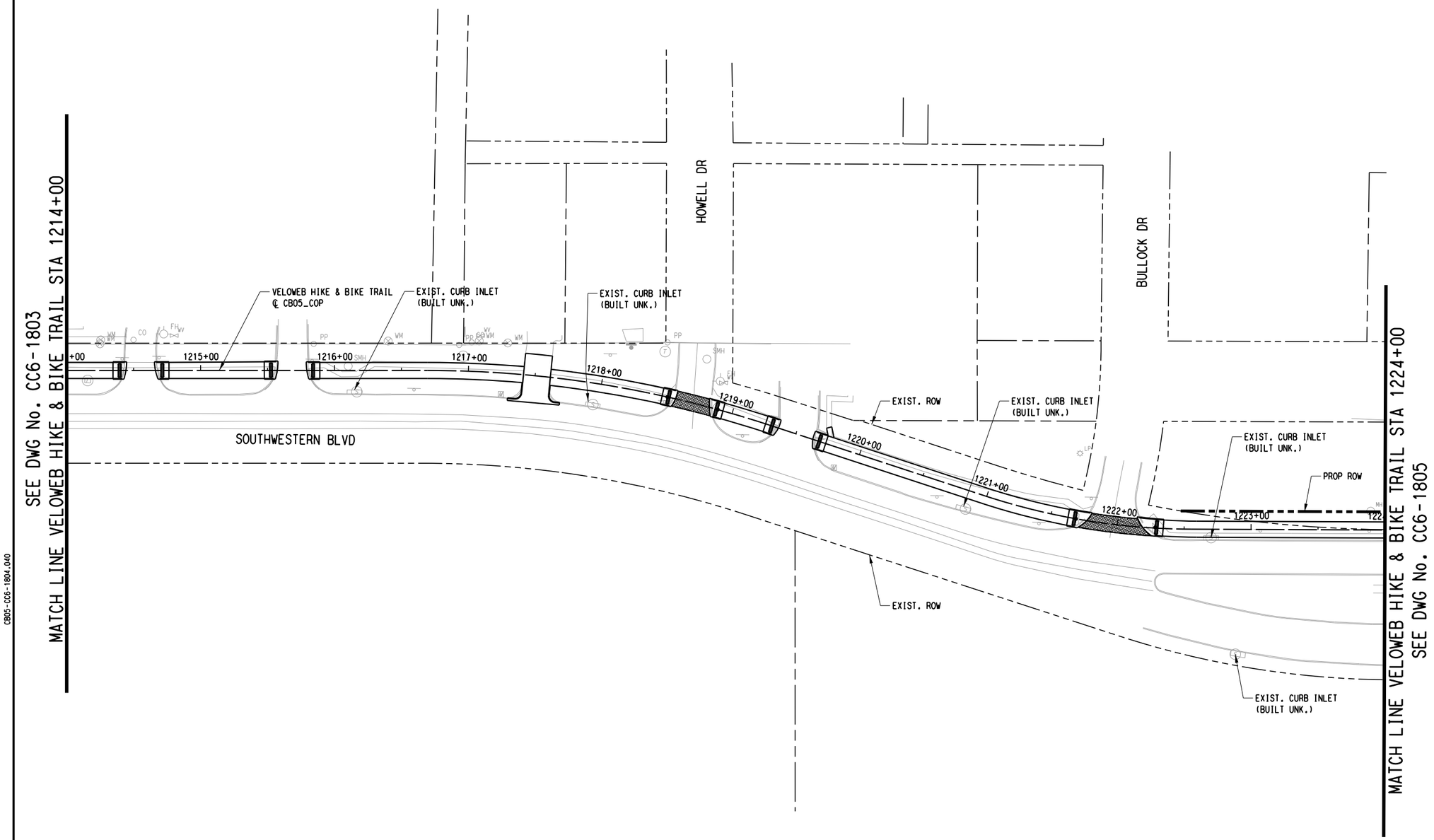
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1204+50 TO STA 1214+00
SHEET 12 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1803	D

CB05-CC6-1803.040

DWG No. CC6-1804



SCALE (IN FEET)
0 20 40 80

LEGEND

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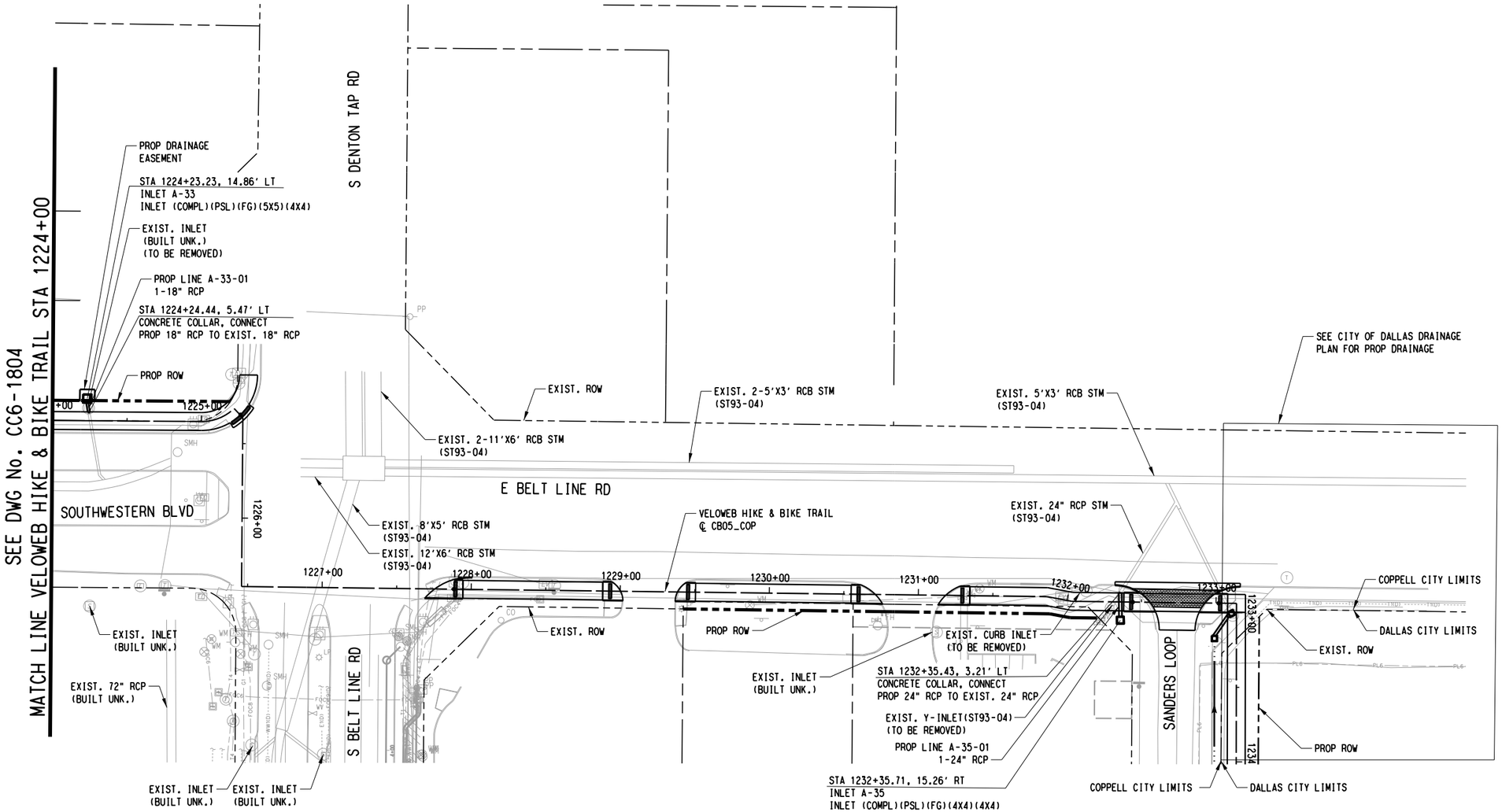
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1214+00 TO STA 1224+00
SHEET 13 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1804	D

CB05-CC6-1804.040

DWG No. CC6-1805



SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1224+00 TO CITY OF DALLAS
SHEET 14 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1805	D

CB05-CC6-1805.040

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DWG No. CC6-1823

WARNING!!! EXPLORER'S HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE.

AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION WITHIN 25 FEET OF EXPLORER'S PIPELINE, CONTACT EXPLORER PIPELINE AT (888) 876-0036.

WARNING!!! ATMOS HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE.

AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION WITHIN 25 FEET OF ATMOS'S PIPELINE, CONTACT ATMOS AT (866) 322-8667.

EXIST. CONDITION 100 YEAR FEMA PLOODPLAIN

EXIST. ROW

EXIST. DITCH (BUILT UNK.)

EXIST. 18" RCP STM (BUILT UNK.)

EXIST. CURB INLET (BUILT UNK.)

MOORE RD

BEGIN TRAIL ℄ CB05_COP STA 1295+79.13

STA 1296+78.07, 78.07' LT
BEGIN V-DITCH (3:1) BOTH
FL= 457.86

DITCH A-38f-1

STA 1298+98.69, 18.63' LT
END V-DITCH (3:1) BOTH
FL= 457.17

EXIST. ATMOS PIPELINE (BUILT UNK.)

STA 1299+00.07, 12.67' LT
SAFETY END TREATMENT
W/ PIPE RUNNERS (NOT OPTIONAL)
PSET-SC (3:1)

GRAPEVINE CREEK

PROP CULV LINE A-38f-01
18" RCP

VELOWEB HIKE & BIKE TRAIL
℄ CB05_COP

EXIST. EXPLORER'S PIPELINE (BUILT UNK.)

EXIST. DITCH (BUILT UNK.)

EXIST. ROW

EXIST. ℄ CB-1 SB

EXIST. ℄ CB-1 NB

DITCH A-38e-1

STA 1297+95.78, 24.07' RT
DITCH PVI
FL=457.43

STA 1296+45.30, 22.15' RT
BEGIN 2' BW DITCH (3:1) BOTH
FL= 466.79

STA 1299+00.08, 12.68' RT
SAFETY END TREATMENT
W/ PIPE RUNNERS (NOT OPTIONAL)
PSET-SC (3:1)

STA 1299+00.09, 20.71' RT
DITCH PVI
FL=457.10

STA 1302+27.04, 21.08' RT
DITCH PVI
FL= 456.11

STA 1302+32.52, 27.31' RT
END 2' BW DITCH (3:1) BOTH
FL= 454.00

STA 1302+56.07, 30.97' LT
END V-DITCH (3:1) BOTH
FL= 452.13

PROP STONE RIPRAP PROTECTION (24") THICKNESS (18") EST @ 47 CY

PROP STONE RIPRAP PROTECTION (21") THICKNESS (31") EST @ 69 CY

CULV CL-CB-1 NB STA 1296+02

DITCH A-38g-1

DITCH A-38h-1

STA 1302+55.08, 20.74' RT
DITCH PVI
FL= 456.68

STA 1302+47.80, 27.37' RT
END 2' BW DITCH (3:1) BOTH
FL= 454.00

MATCH LINE VELOWEB HIKE & BIKE STA 1304+00

SEE DWG No. CC6-1824

EXIST. UD (BY OTHERS)

EXIST. ROW

EXIST. DITCH (BY OTHERS)

CULV STA 1296+02
EXIST. 3-36" RCP STM
(BY OTHERS)

EXIST. UNK. SIZE CMP STM (BUILT UNK.)

EXIST. DITCH (BUILT UNK.)

EXIST. DITCH (BY OTHERS)

E BELT LINE RD

EXIST. 3-36" RCP STM (ST93-04, SH67)

PROP ROW

PROP ROW

EXIST. ROW

SEE CITY OF DALLAS DRAINAGE PLAN FOR PROPOSED DRAINAGE

SCALE (IN FEET)
0 20 40 80

LEGEND

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DESIGNED	S. REYNA
CHECKED	A. DORANTES
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DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
CITY OF DALLAS TO STA 1304+00
SHEET 15 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1823	D

CB05-CC6-1823.040

DWG No. CC6-1824

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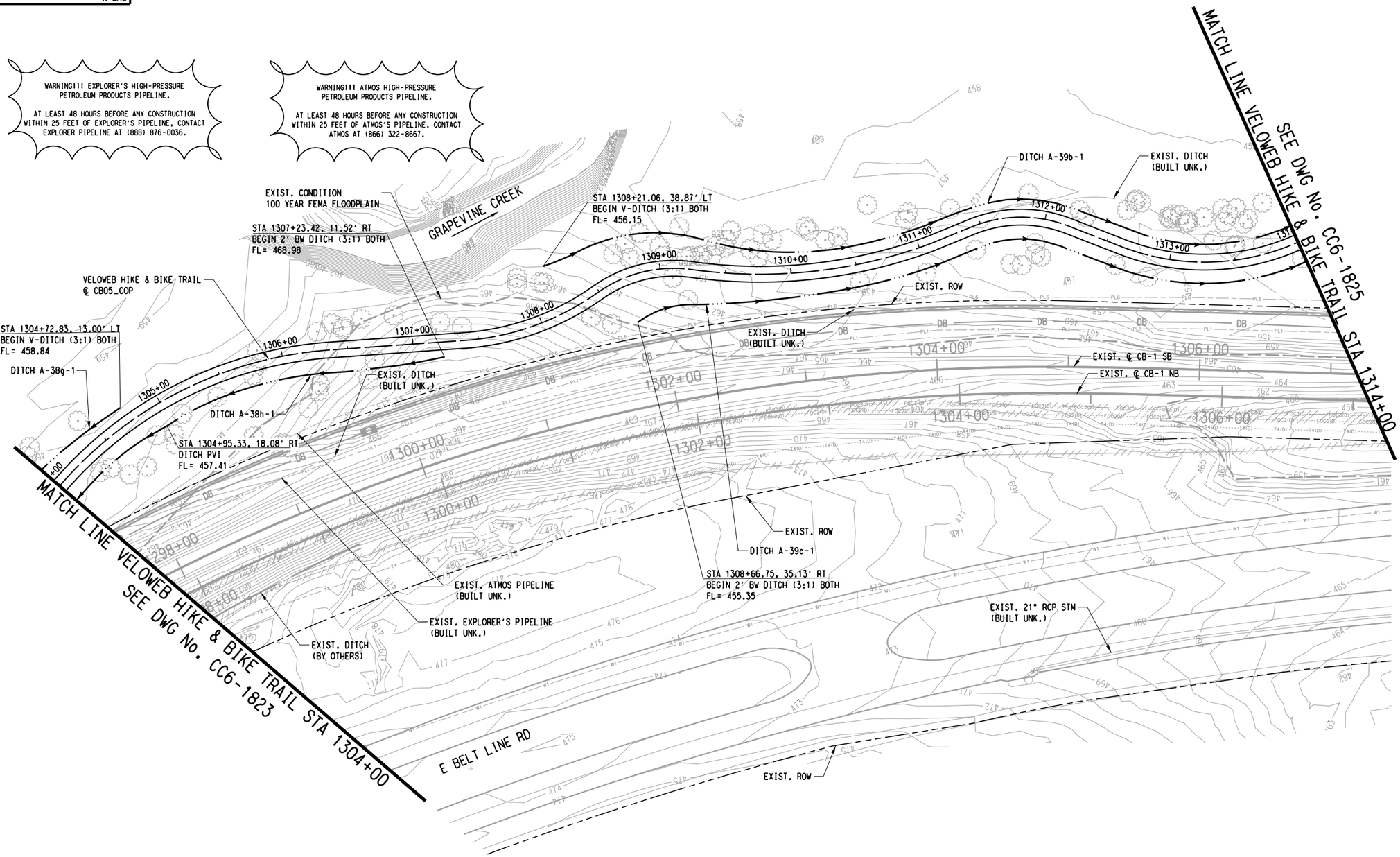

SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

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ARCHER WESTERN HERZOG

DART PROJECT

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SCALE	1"=40'
DRAWN	D. ESCALANTE
DESIGNED	S. REYNA
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

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CONTRACT SHEET No. 304 OF 378

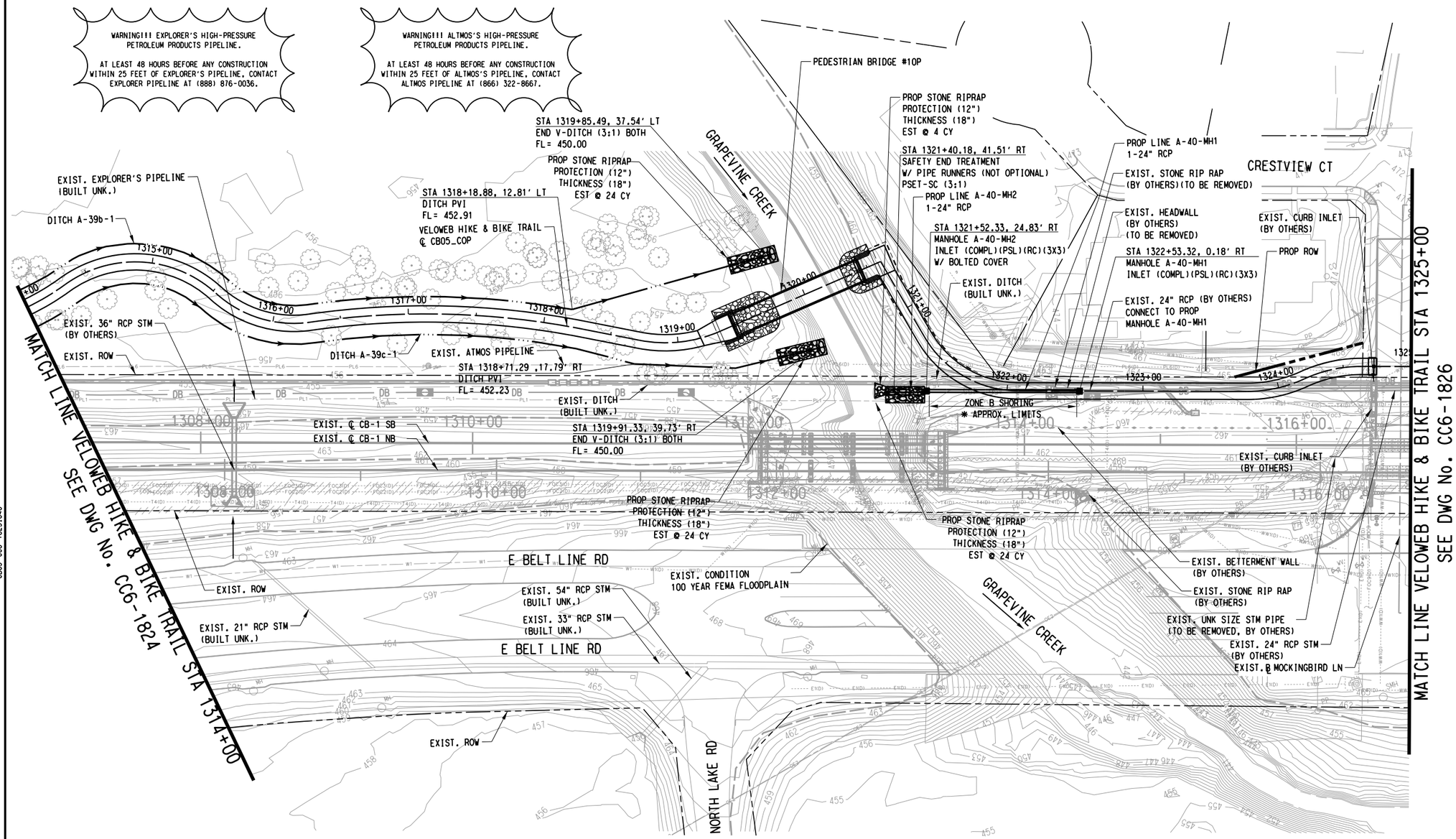
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
DRAINAGE PLAN
STA 1304+00 TO STA 1314+00
SHEET 16 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1824	D

CB05-CC6-1824.040

DWG No. CC6-1825



SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

NOTES:

1. ALL STATION CALLOUTS ARE IN REFRENCE TO THE VELOWEB HIKE & BIKE TRAIL CENTERLINE, UNLESS NOTED OTHERWISE.
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CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

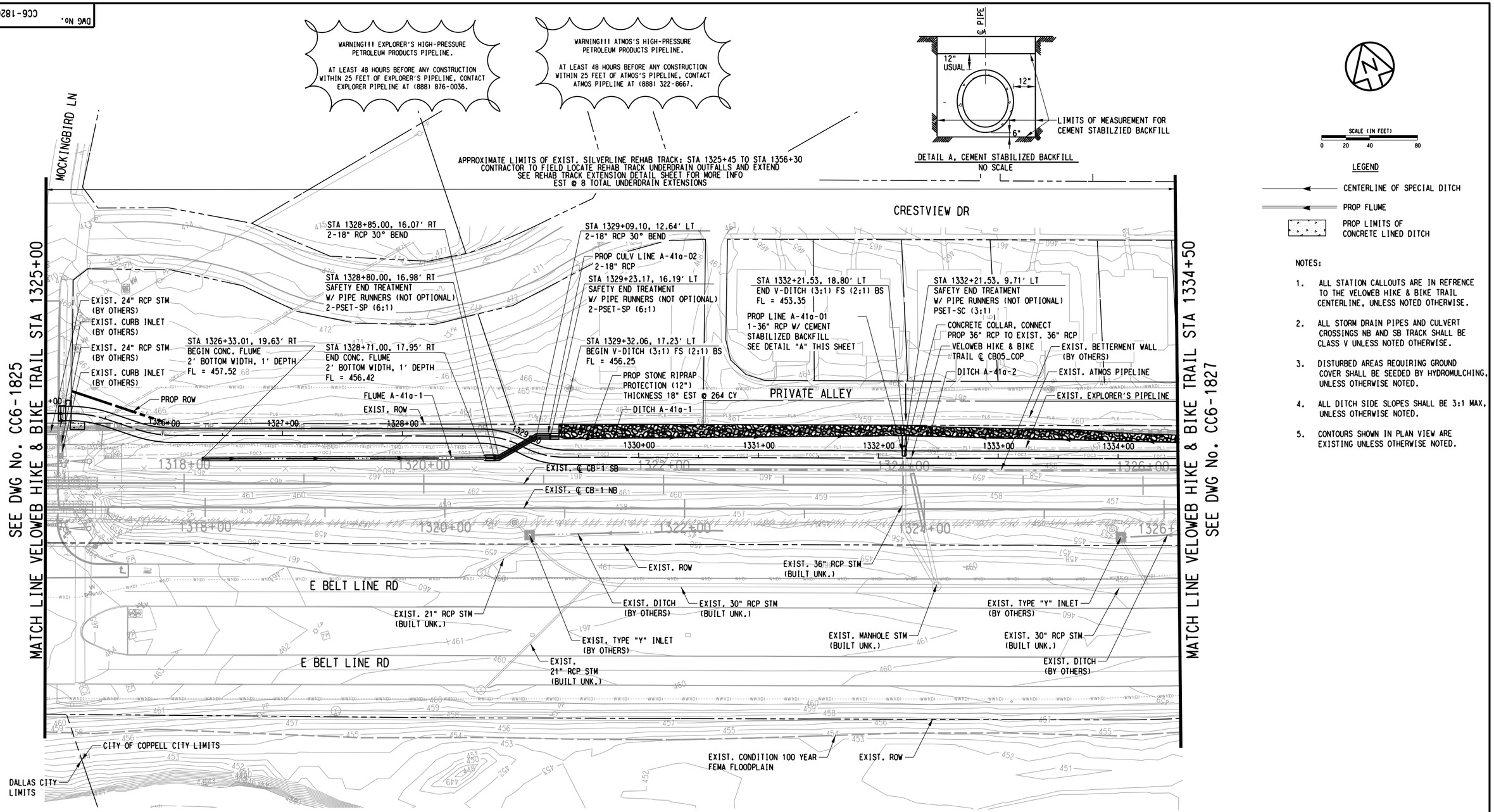
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1314+00 TO STA 1325+00
SHEET 17 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1825	D

CB05-CC6-1825.040

DWG No. CC6-1826



DETAIL A, CEMENT STABILIZED BACKFILL
NO SCALE

SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

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CONTRACT SHEET No. 306 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DRAWN	D. ESCALANTE
DESIGNED	S. REYNA
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

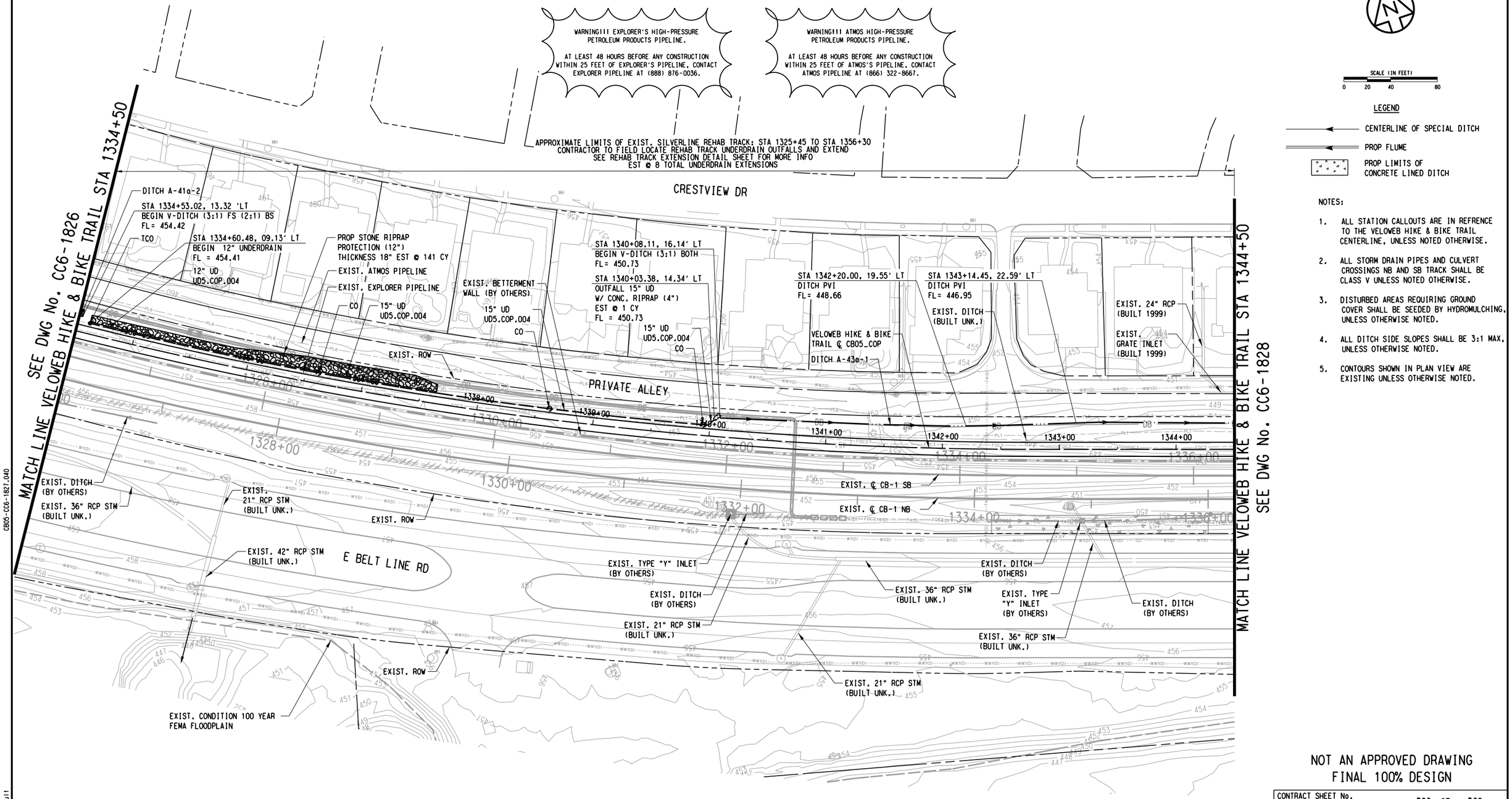
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1325+00 TO STA 1334+50
SHEET 18 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1826	D

CB05-CC6-1826.040

DWG No. CC06-1827



SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

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CONTRACT SHEET No. 307 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP
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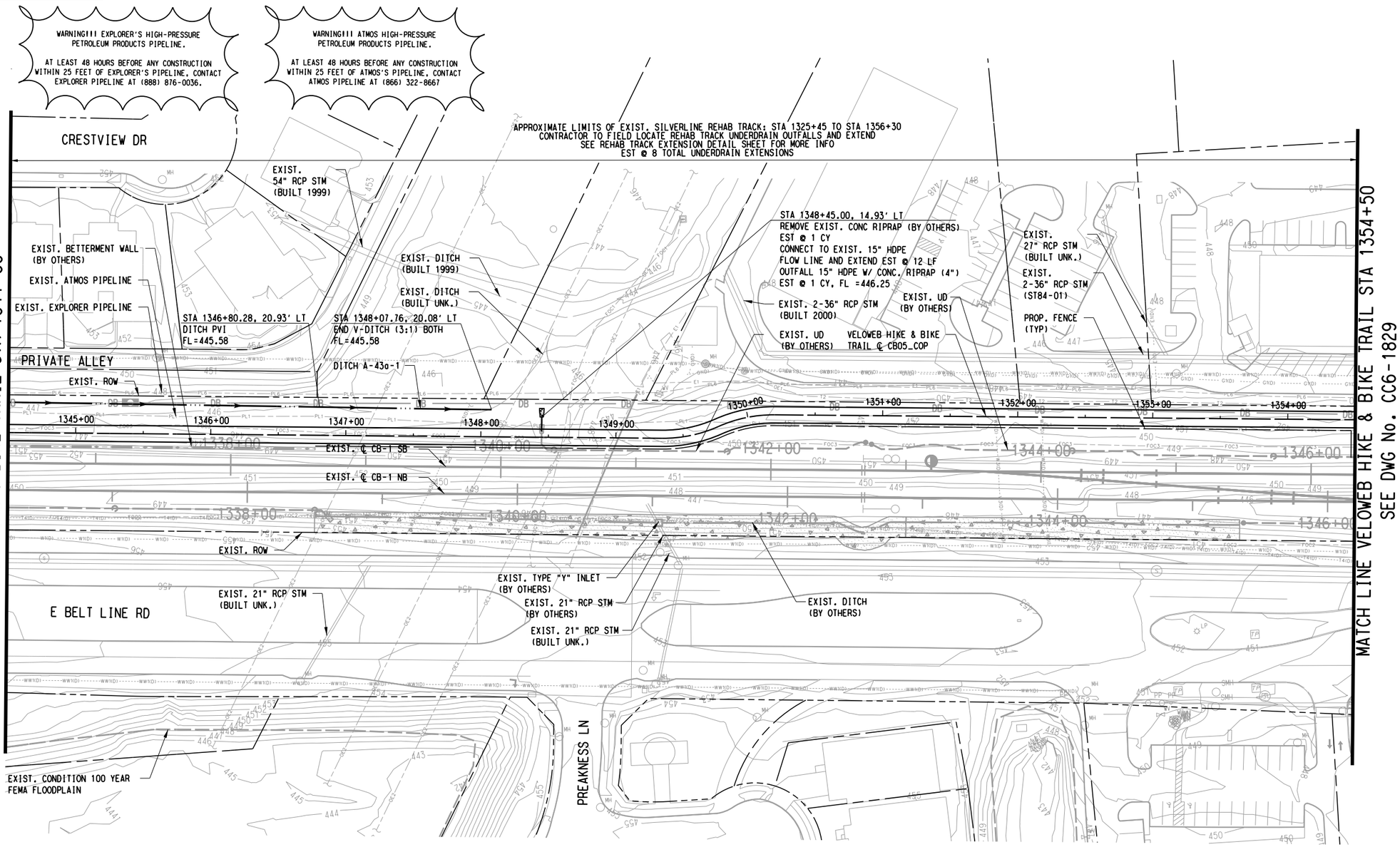
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1334+50 TO STA 1344+50
SHEET 19 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1827	D

CB05-CC6-1827.040

DWG No. CC6-1828



SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

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CONTRACT SHEET No. 308 OF 378

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IN CHARGE	A. DORANTES
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CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1344+50 TO STA 1354+50
SHEET 20 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1828	D

CB05-CC6-1828.040

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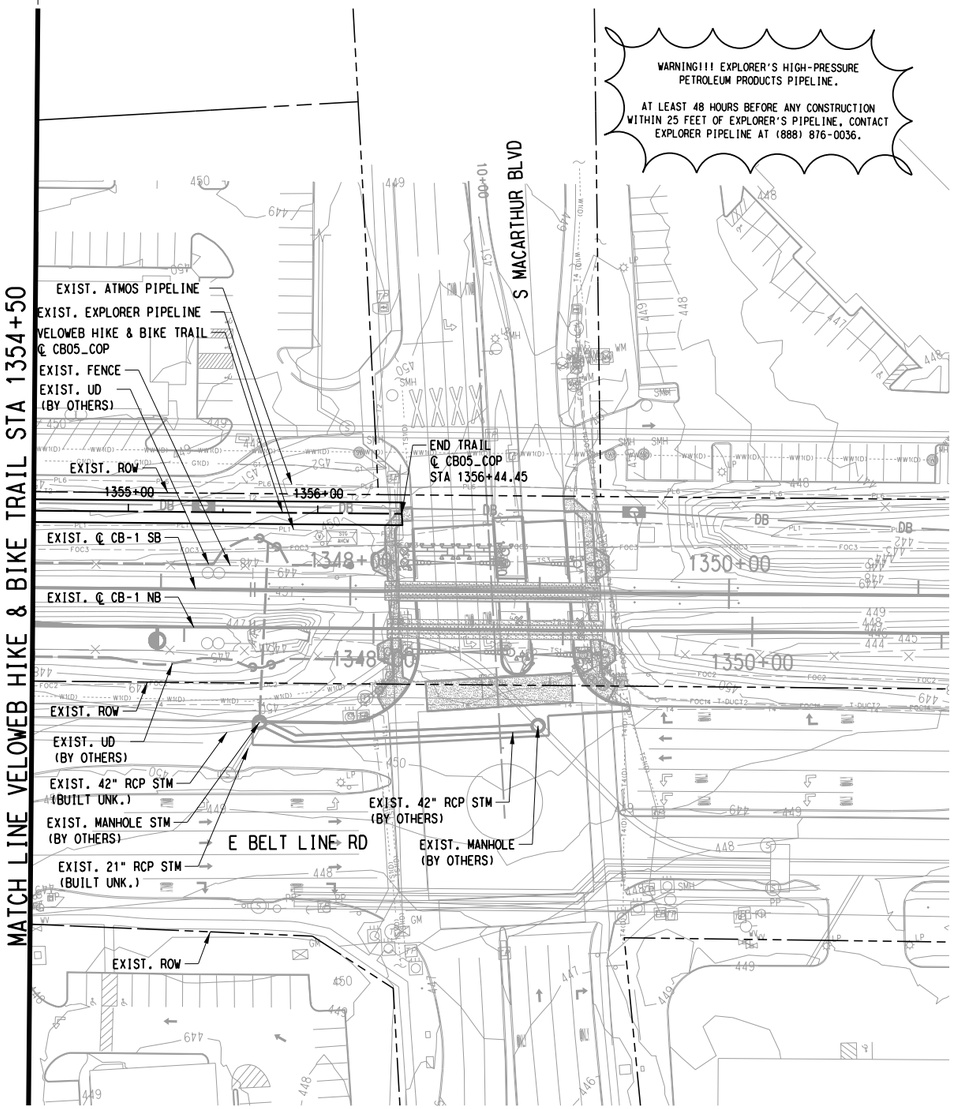
DWG No. CC6-1829

APPROXIMATE LIMITS OF EXIST. SILVERLINE REHAB TRACK: STA 1325+45 TO STA 1356+30
CONTRACTOR TO FIELD LOCATE REHAB TRACK UNDERDRAIN OUTFALLS AND EXTEND
SEE REHAB TRACK EXTENSION DETAIL SHEET FOR MORE INFO
EST @ 8 TOTAL UNDERDRAIN EXTENSIONS



SCALE (IN FEET)
0 20 40 80

LEGEND

- CENTERLINE OF SPECIAL DITCH
- PROP FLUME
- PROP LIMITS OF CONCRETE LINED DITCH

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ARCHER WESTERN HERZOG

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SCALE	1"=40'
DRAWN	D. ESCALANTE
DESIGNED	S. REYNA
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
DRAINAGE PLAN
STA 1354+50 TO END
SHEET 21 OF 21

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1829	D

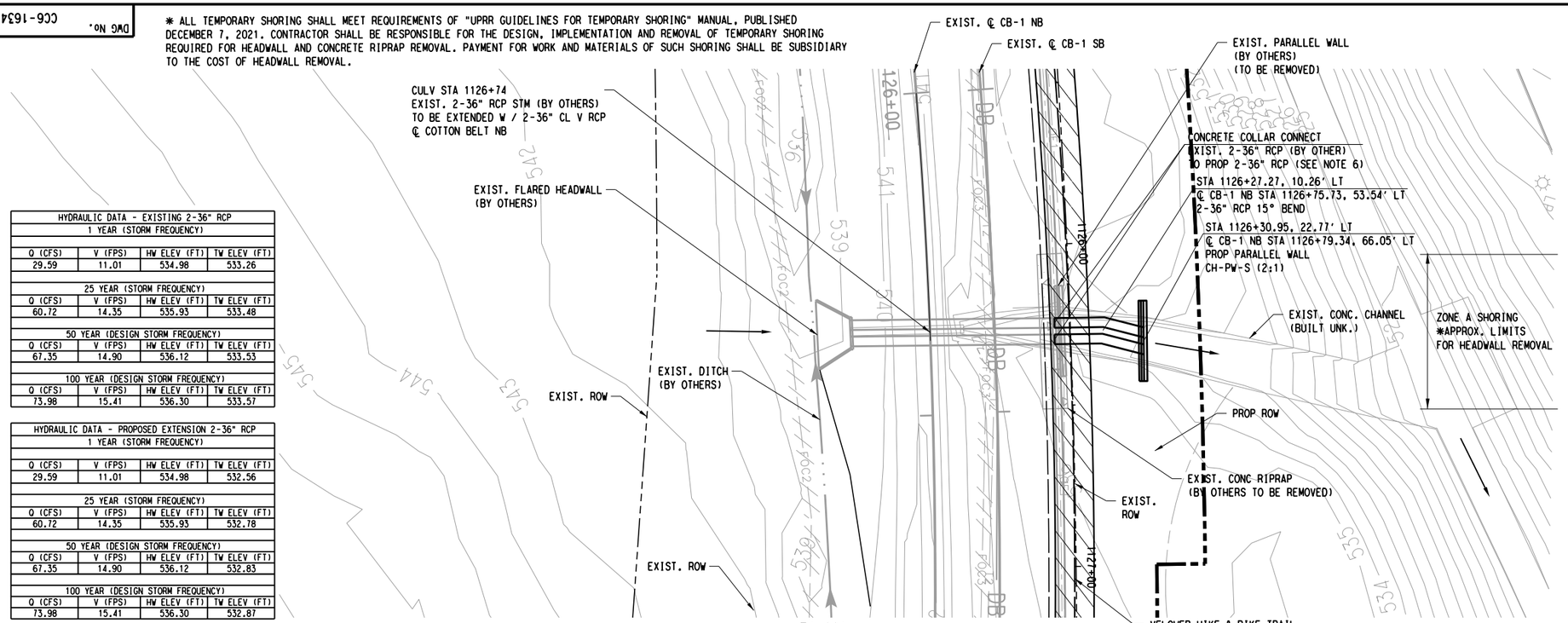
CB05-CC6-1829.040

DWG No. CC6-1634

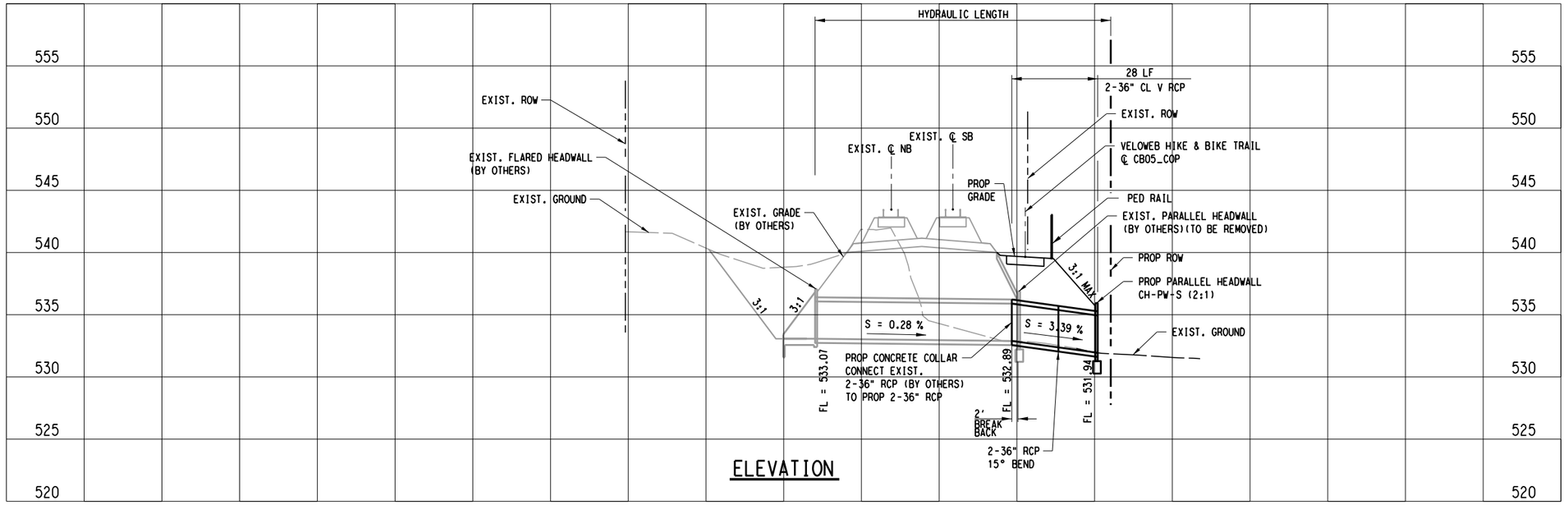
* ALL TEMPORARY SHORING SHALL MEET REQUIREMENTS OF "UPRR GUIDELINES FOR TEMPORARY SHORING" MANUAL, PUBLISHED DECEMBER 7, 2021. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, IMPLEMENTATION AND REMOVAL OF TEMPORARY SHORING REQUIRED FOR HEADWALL AND CONCRETE RIPRAP REMOVAL. PAYMENT FOR WORK AND MATERIALS OF SUCH SHORING SHALL BE SUBSIDIARY TO THE COST OF HEADWALL REMOVAL.

HYDRAULIC DATA - EXISTING 2-36" RCP			
1 YEAR (STORM FREQUENCY)			
Q (CFS)	V (FPS)	HW ELEV (FT)	TW ELEV (FT)
29.59	11.01	534.98	533.26
25 YEAR (STORM FREQUENCY)			
Q (CFS)	V (FPS)	HW ELEV (FT)	TW ELEV (FT)
60.72	14.35	535.93	533.48
50 YEAR (DESIGN STORM FREQUENCY)			
Q (CFS)	V (FPS)	HW ELEV (FT)	TW ELEV (FT)
67.35	14.90	536.12	533.53
100 YEAR (DESIGN STORM FREQUENCY)			
Q (CFS)	V (FPS)	HW ELEV (FT)	TW ELEV (FT)
73.98	15.41	536.30	533.57

HYDRAULIC DATA - PROPOSED EXTENSION 2-36" RCP			
1 YEAR (STORM FREQUENCY)			
Q (CFS)	V (FPS)	HW ELEV (FT)	TW ELEV (FT)
29.59	11.01	534.98	532.56
25 YEAR (STORM FREQUENCY)			
Q (CFS)	V (FPS)	HW ELEV (FT)	TW ELEV (FT)
60.72	14.35	535.93	532.78
50 YEAR (DESIGN STORM FREQUENCY)			
Q (CFS)	V (FPS)	HW ELEV (FT)	TW ELEV (FT)
67.35	14.90	536.12	532.83
100 YEAR (DESIGN STORM FREQUENCY)			
Q (CFS)	V (FPS)	HW ELEV (FT)	TW ELEV (FT)
73.98	15.41	536.30	532.87



PLAN



ELEVATION

SCALE (IN FEET)
HORIZ 0 10 20 40
SCALE (IN FEET)
VERT 0 2.5 5 7.5 10

NOTES:

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6. CONTRACTOR TO FIELD VERIFY EXISTING CULVERT MATERIAL OTHER THAN CONCRETE, A FLEXIBLE CONNECTOR IS TO BE USED INSTEAD OF CONCRETE COLLAR.

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ARCHER WESTERN HERZOG

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SCALE	AS NOTED
DRAWN	D. ESCALANTE
DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

CONTRACT SHEET No. 310 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
CULVERT AT CB-1 NB STA 1126+74
PLAN & PROFILE
SHEET 1 OF 5

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1634	D

CB05-CC6-1634.020

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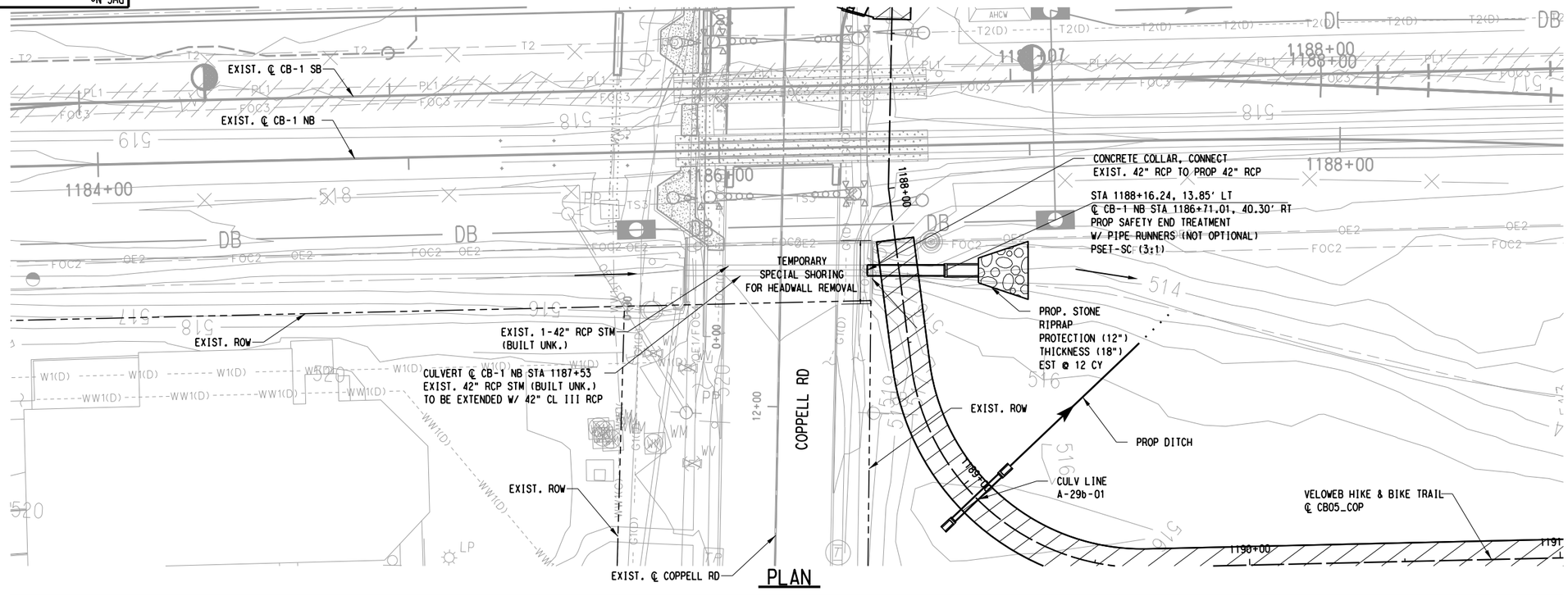
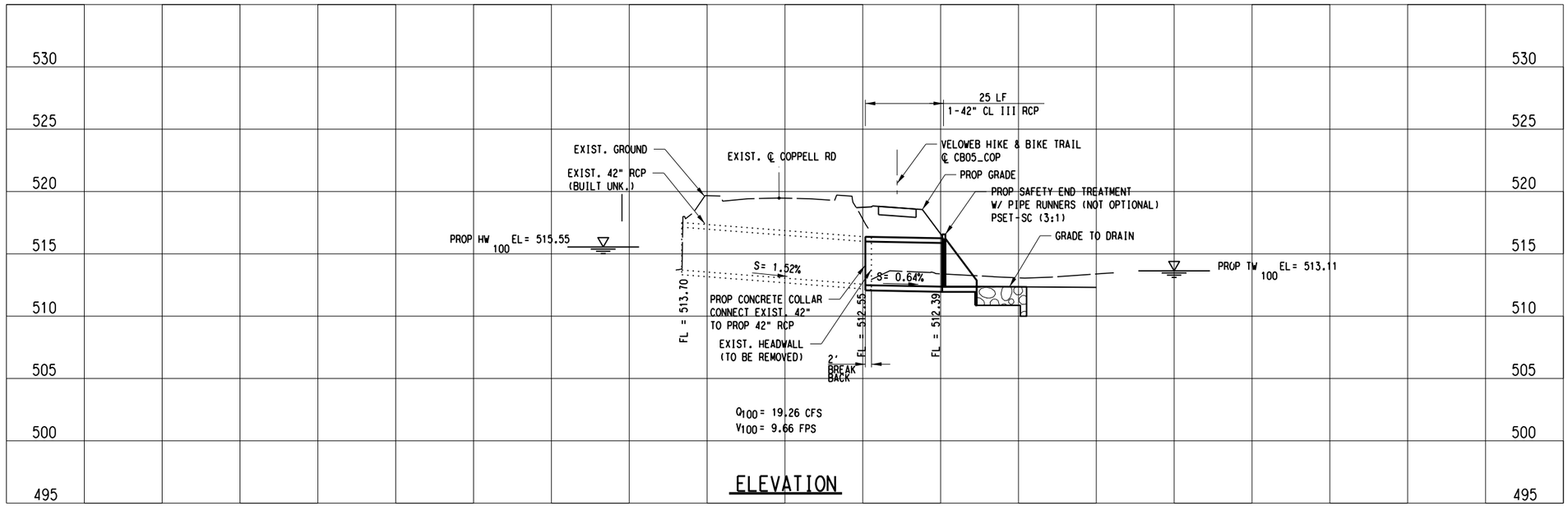
DWG No. CC6-1880



PLAN



ELEVATION

SCALE (IN FEET)
HORIZ 0 10 20 40
SCALE (IN FEET)
VERT 0 2.5 5 7.5 10

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CONTRACT SHEET No. 311 OF 378

SCALE	AS NOTED
DRAWN	D. ESCALANTE
DESIGNED	S. REYNA
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

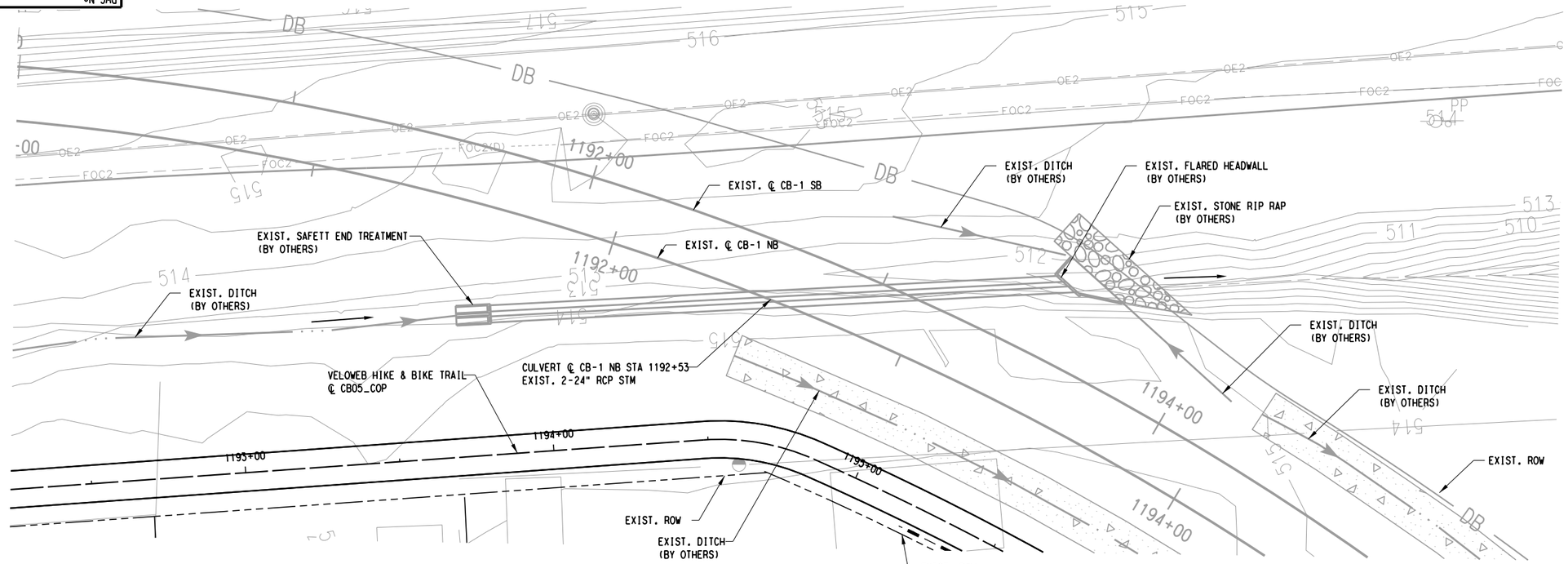
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
CULVERT AT CB-1 NB STA 1187+53
PLAN & PROFILE
SHEET 2 OF 5

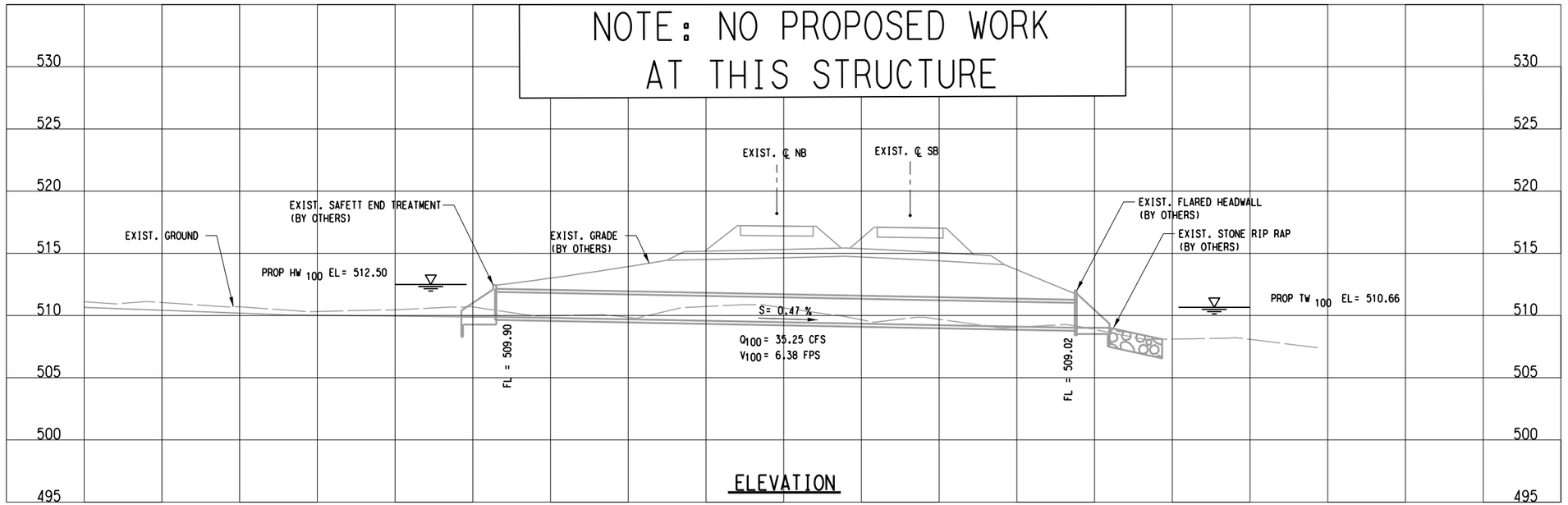
CONTRACT	DWG No.	REV
C-2033270-01	CC6-1880	D

CB05-CC6-1880.020

DWG No. CC6-1881



PLAN



ELEVATION

SCALE (IN FEET)
HORIZ 0 10 20 40
SCALE (IN FEET)
VERT 0 2.5 5 7.5 10

NOTES:

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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SCALE	AS NOTED
DRAWN	D. ESCALANTE
DESIGNED	S. REYNA
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

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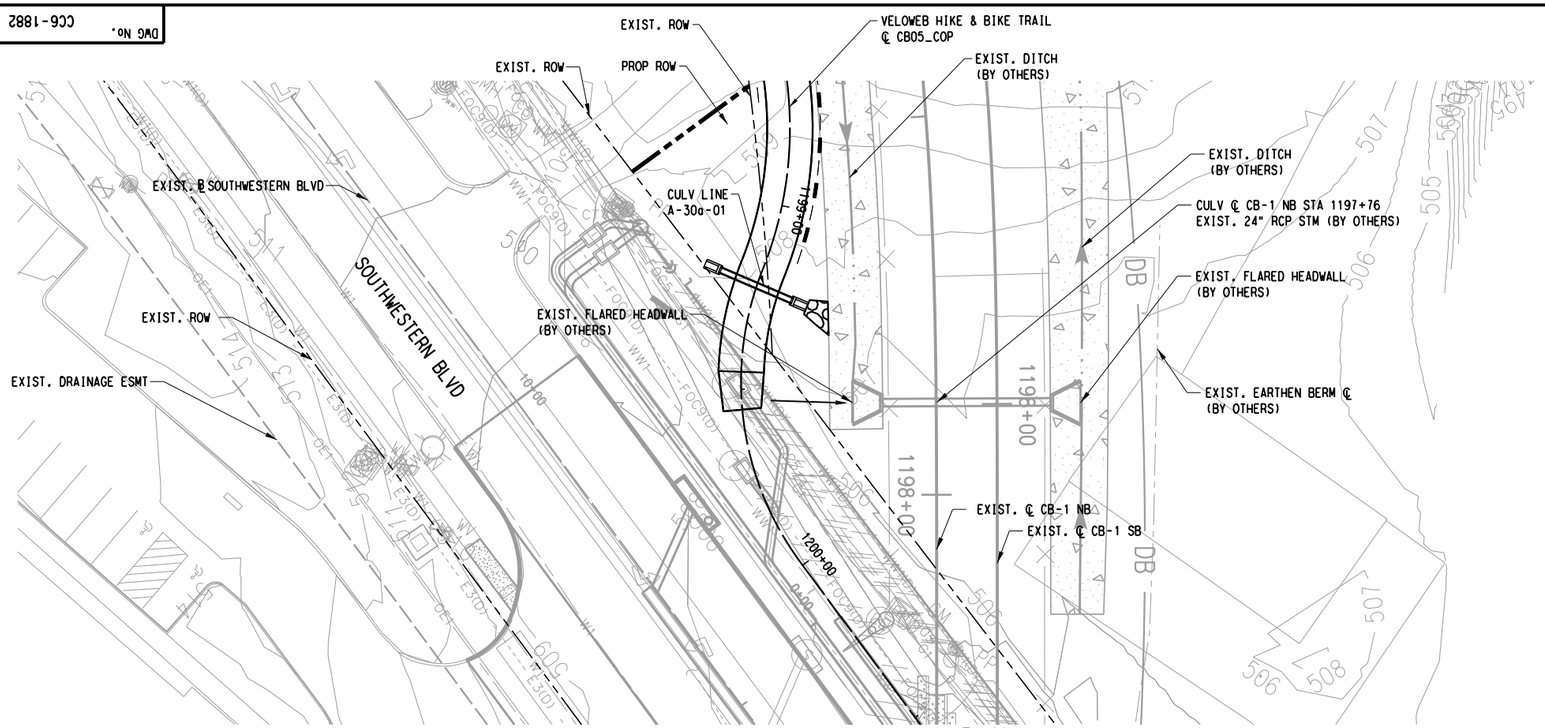
CONTRACT SHEET No. 312 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
CULVERT AT CB-1 NB STA 1192+53
PLAN & PROFILE
SHEET 3 OF 5

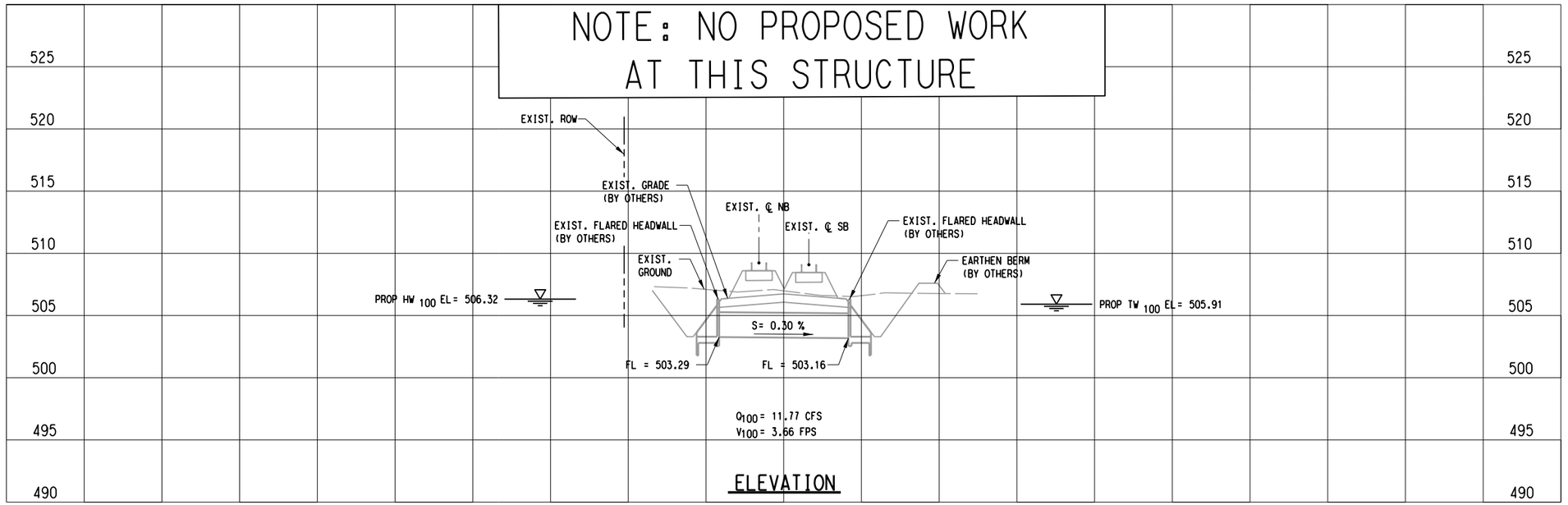
CONTRACT	DWG No.	REV
C-2033270-01	CC6-1881	D

CB05-CC6-1881.020

DWG No. CC6-1882



PLAN



ELEVATION

SCALE (IN FEET)
HORIZ 0 10 20 40
SCALE (IN FEET)
VERT 0 2.5 5 7.5 10

NOTES:

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CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

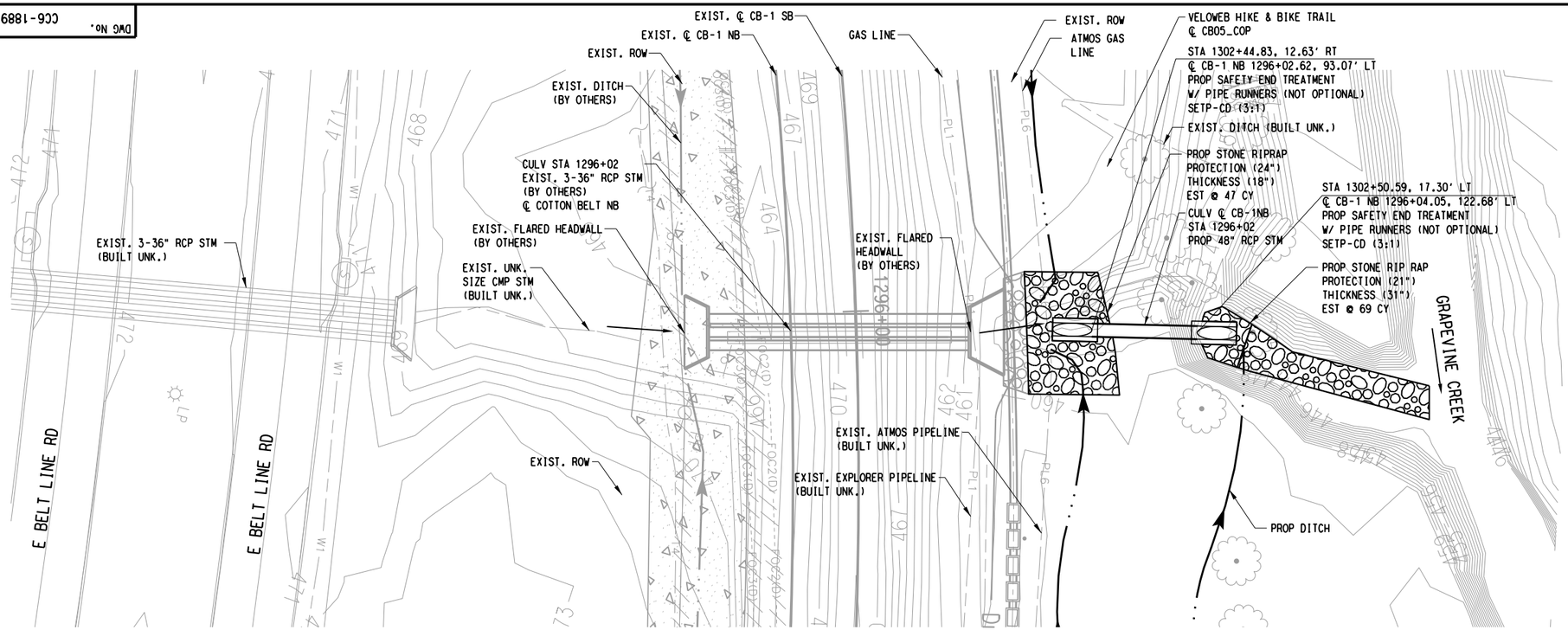
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
CULVERT AT CB-1 NB STA 1197+76
PLAN & PROFILE
SHEET 4 OF 5

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1882	D

CB05-CC6-1882.020

DWG No. CC6-1889



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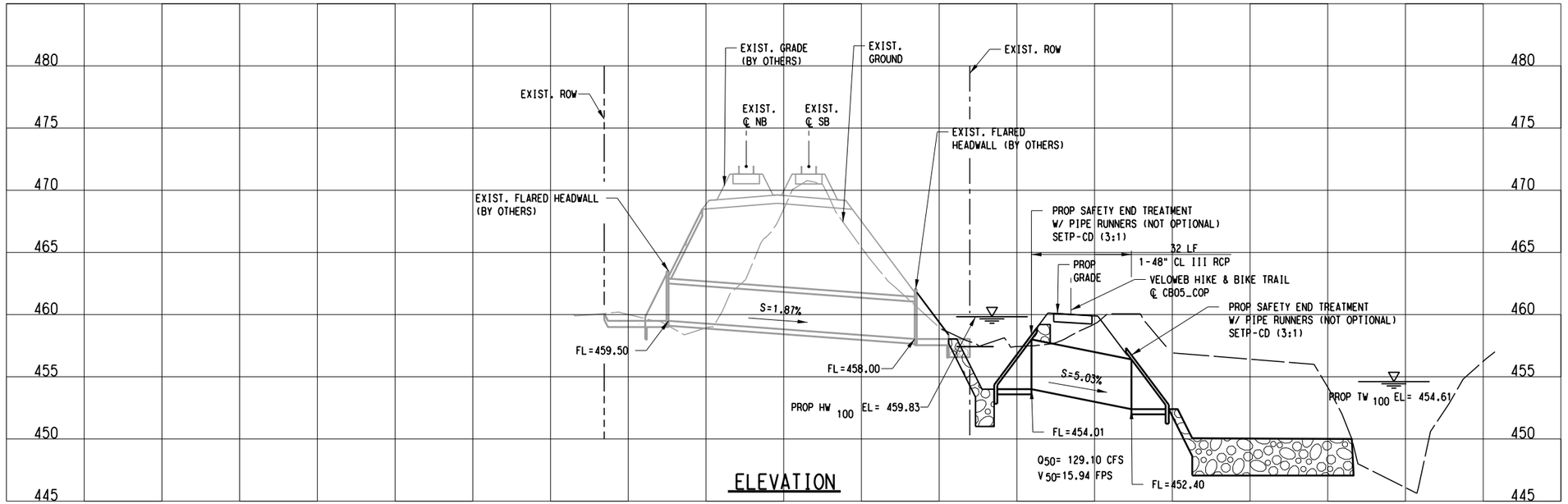

ELEVATION

SCALE (IN FEET)
HORIZ 0 10 20 40
SCALE (IN FEET)
VERT 0 2.5 5 7.5 10

NOTES:

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4. ALL DITCH SIDE SLOPES SHALL BE 3:1 MAX, UNLESS OTHERWISE NOTED.
5. CONTOURS SHOWN IN PLAN VIEW ARE EXISTING UNLESS OTHERWISE NOTED.
6. REFERENCE PACHECO KOCH PLANS TITLED "GRAPEVINE CREEK TRAIL FROM MOORE ROAD TO MACARTHUR BOULEVARD" FOR PROPOSED CULVERT APPROVED DESIGN.
7. TOP OF TRAIL ELEVATION IS BELOW THE 10-YEAR FEMA INUNDATION WATER SURFACE ELEVATION 461.00 FT.

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DESIGNED	S. REYNA
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

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CONTRACT SHEET No. 314 OF 378

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
CULVERT AT CB-1 NB STA 1296+02
PLAN & PROFILE
SHEET 5 OF 5

CONTRACT	DWG No.	REV
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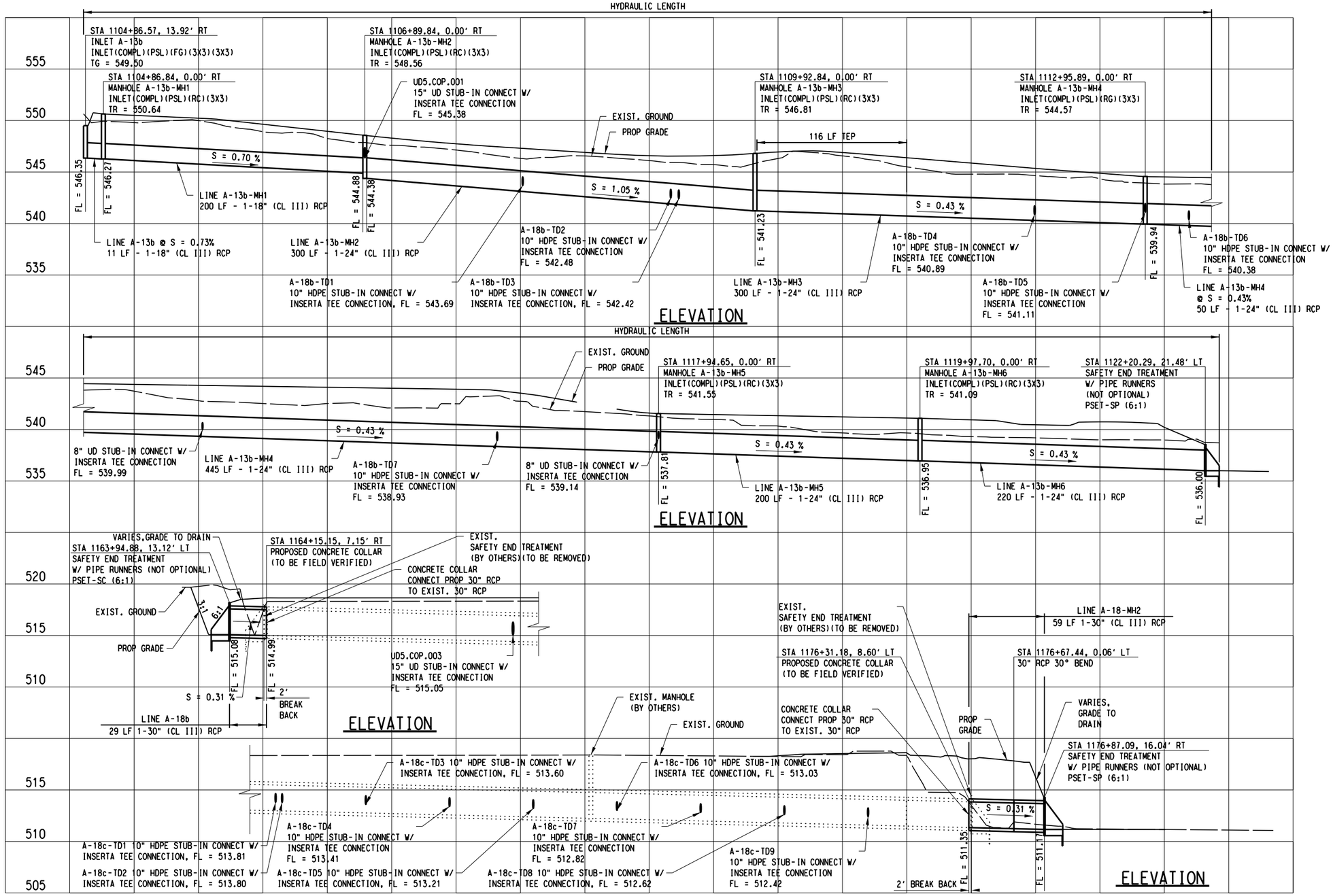
DWG No. CC6-1422



SCALE (IN FEET)
HORIZ 0 20 40 80
SCALE (IN FEET)
VERT 0 2.5 5 7.5 10

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DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

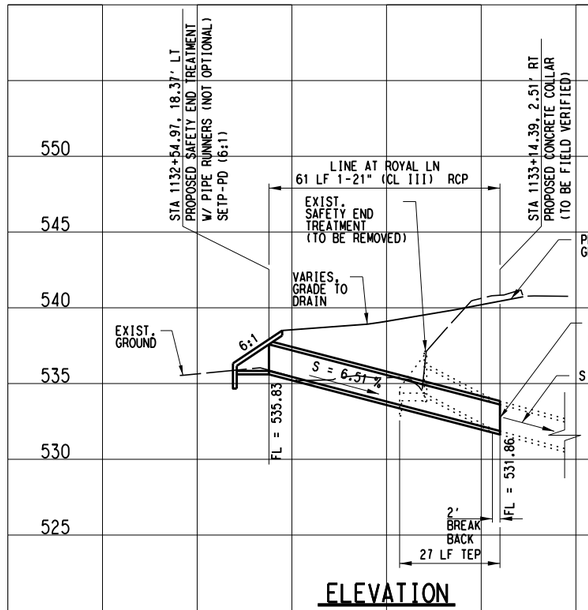
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
STORM DRAIN PROFILES
SHEET 1 OF 4

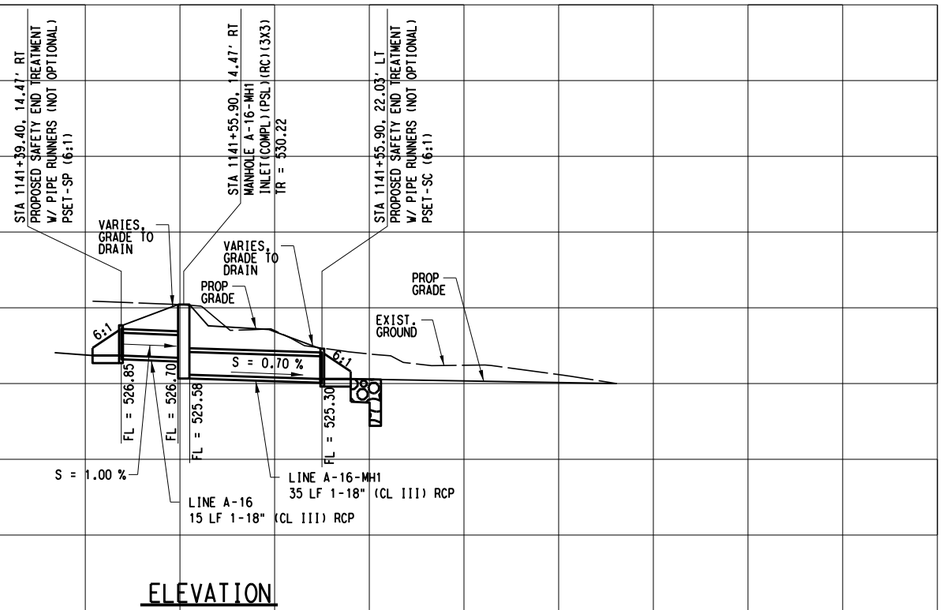
CONTRACT	DWG No.	REV
C-2033270-01	CC6-1422	D

CB05-CC6-1422.040

DWG No. CC6-1423



ELEVATION



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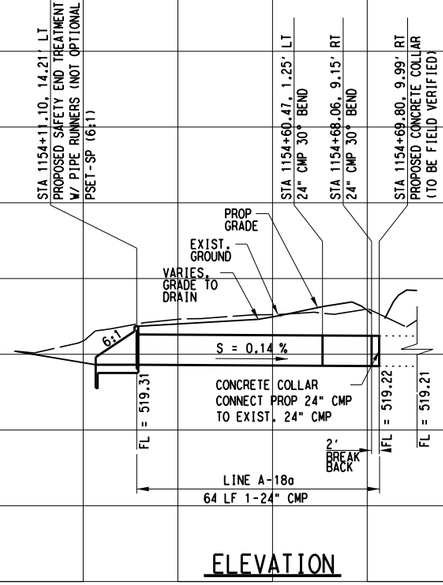

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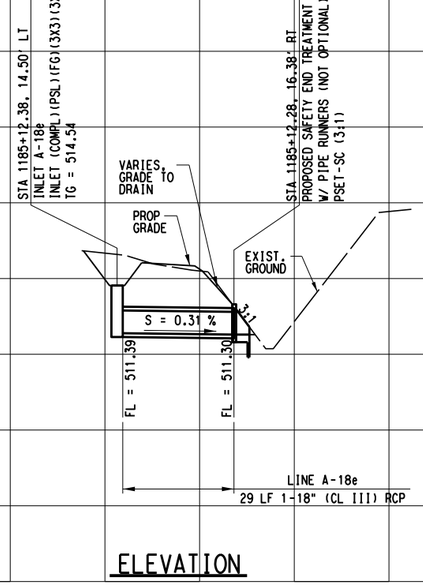

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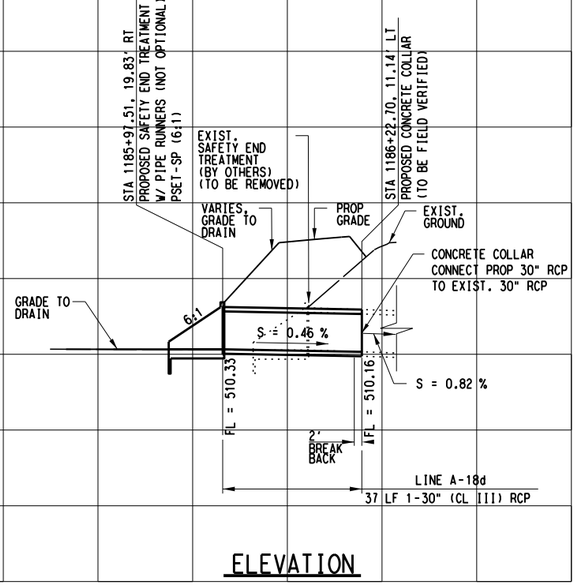

ELEVATION

SCALE (IN FEET)
HORIZ 0 10 20 40
SCALE (IN FEET)
VERT 0 2.5 5 7.5 10

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CONTRACT SHEET No. 316 OF 378

SCALE	1"=20'
DRAWN	D. ESCALANTE
DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
STORM DRAIN PROFILES
SHEET 2 OF 4

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1423	D

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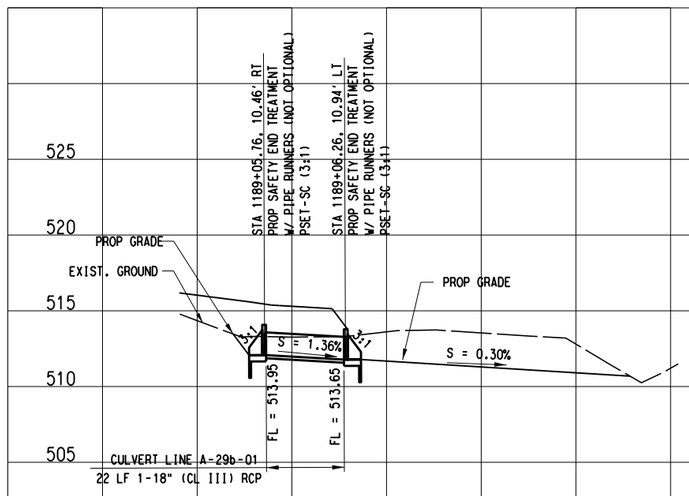
DWG No. CC6-1424



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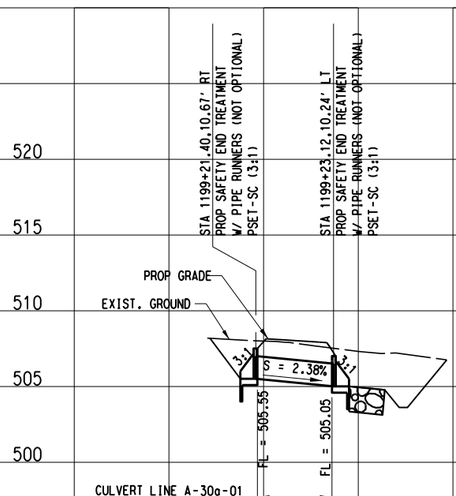

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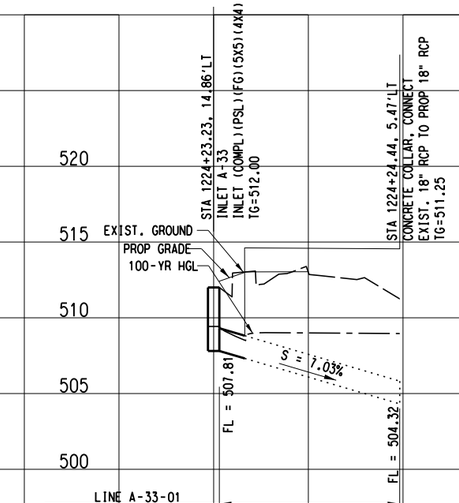

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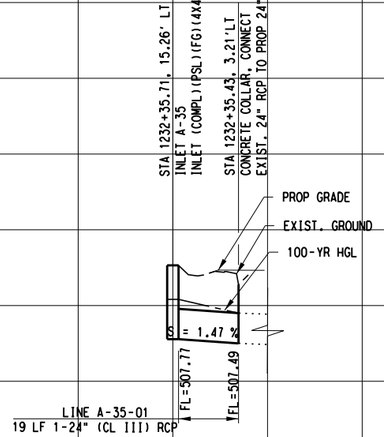

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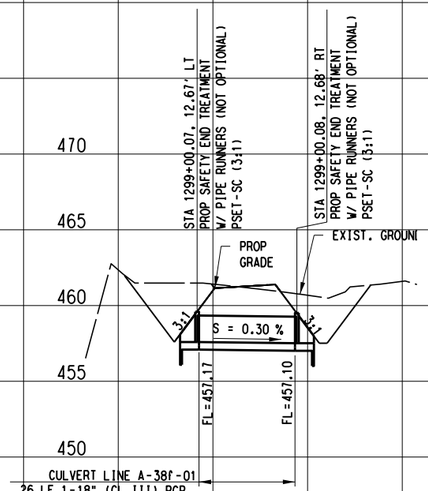

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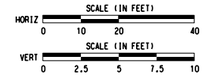

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CONTRACT SHEET No. 317 OF 378

SCALE	1"=20'
DRAWN	D. ESCALANTE
DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
STORM DRAIN PROFILES
SHEET 3 OF 4

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1424	D

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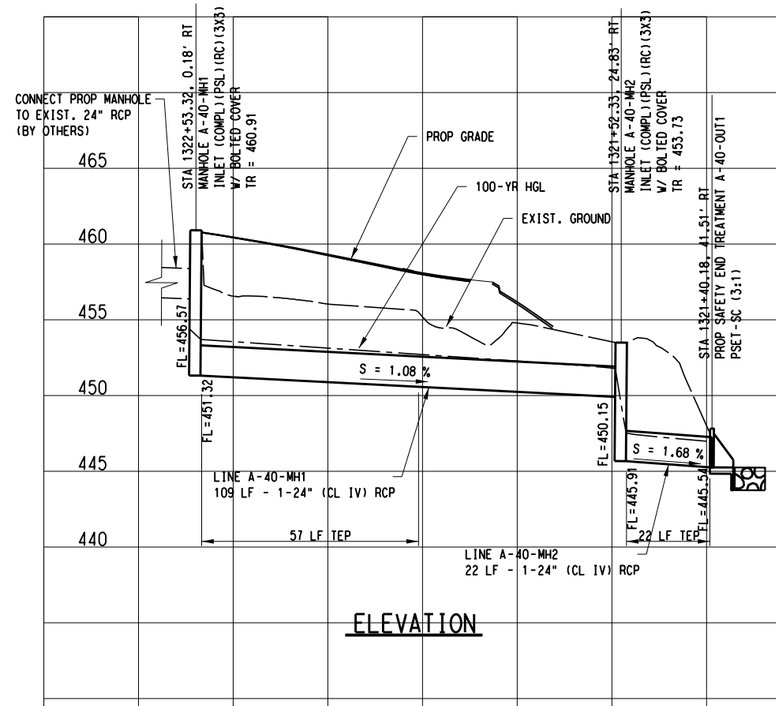
DWG No. CC6-1425



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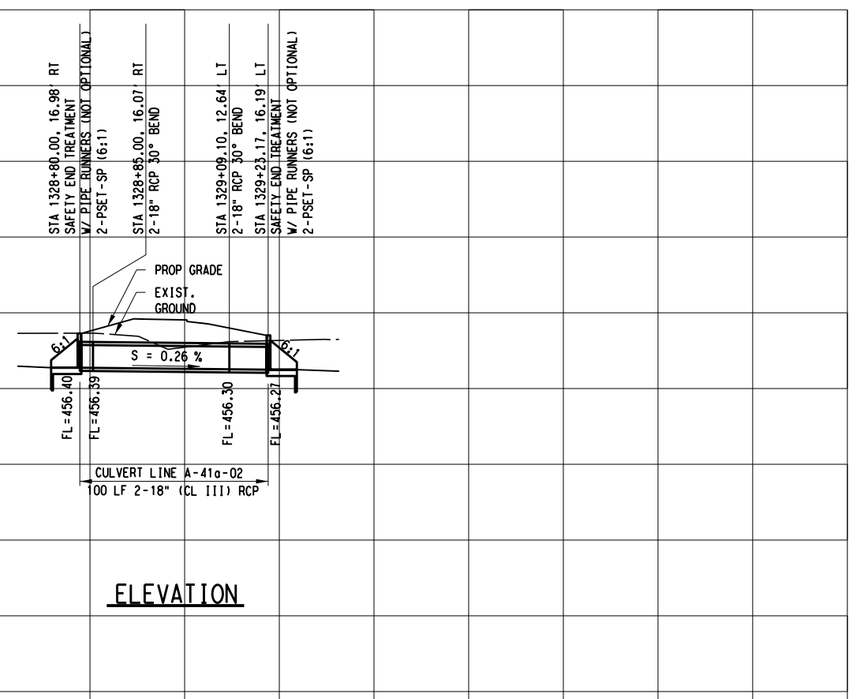

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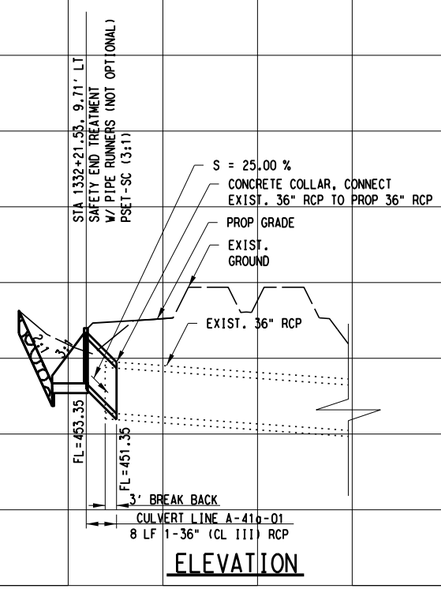

ELEVATION

SCALE (IN FEET)
HORIZ 0 10 20 40
SCALE (IN FEET)
VERT 0 2.5 5 7.5 10

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CONTRACT SHEET No. 318 OF 378

SCALE	1"=20'
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

CITY OF COPPELL
STORM DRAIN PROFILES
SHEET 4 OF 4

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1425	D

CB05-CC6-1425.020

DWG No. CC6-1710

DRAINAGE GENERAL NOTES:

1. ALL STORM DRAIN LINES SHALL BE INSPECTED AND CLEANED, THEN SYSTEM VIDEOED AND REVIEWED BY CONTRACTOR BEFORE A COPY OF THE RESULTS ARE SENT TO DESIGN, CODE AND CONSTRUCTION FOR APPROVAL.
2. PVC AND POLYETHYLENE PIPE CONNECTIONS TO RCP SHALL BE INSTALLED WITH INSERTA TEE CONNECTIONS OR AN APPROVED EQUAL FLEXIBLE CONNECTOR.
3. FORMED CONCRETE COLLARS SHALL BE AT ALL CONNECTIONS AT INLETS, MANHOLES AND ALL PIPES TIE-INS. SEE MISCELLANEOUS STORM SEWER DETAILS SHEET FOR CONCRETE COLLAR DETAILS.
4. RAM-NEK OR AN APPROVED EQUAL SHALL BE CUT SMOOTH IN THE INSIDE OF RCP TO ALLOW PROPER FLOW.
5. FILTER FABRIC SHALL BE LAID ON TOP OF ALL RCP JOINTS.
6. BEDDING FOR RCP SHALL BE LAID TO NO LESS THAN SPRING LINE OF THE PIPE.
7. PVC PIPE SHALL BE BEDDED WITH #10 CHAT OR CUSHION SAND TO 6" BELOW AND 12" ON TOP WITH MARKING TAPE.

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ALBERTO J. DORANTES, P.E. NO. 140788
ON
28-AUG-2023 09:04
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Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

IEA
18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
Phone: +1 (214) 884-4253
Firm Registration: F-10161

ARCHER WESTERN HERZOG

DART PROJECT

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CONTRACT SHEET No. 319 OF 378

SCALE	NO SCALE
DRAWN	D. ESCALANTE
DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

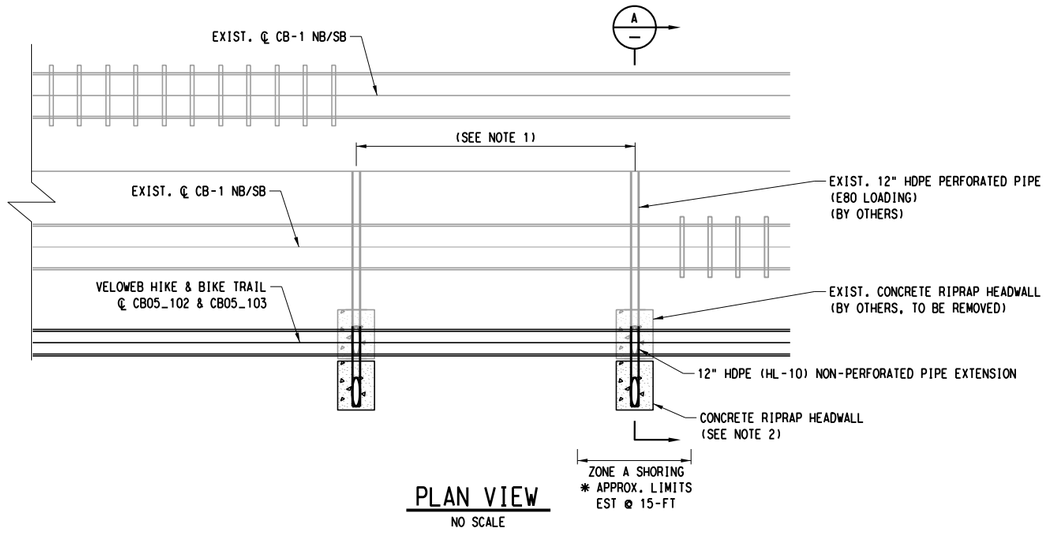
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

DRAINAGE GENERAL NOTES

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1710	D

CB05-CC6-1710.010

DWG No. CC6-1711



PLAN VIEW
NO SCALE

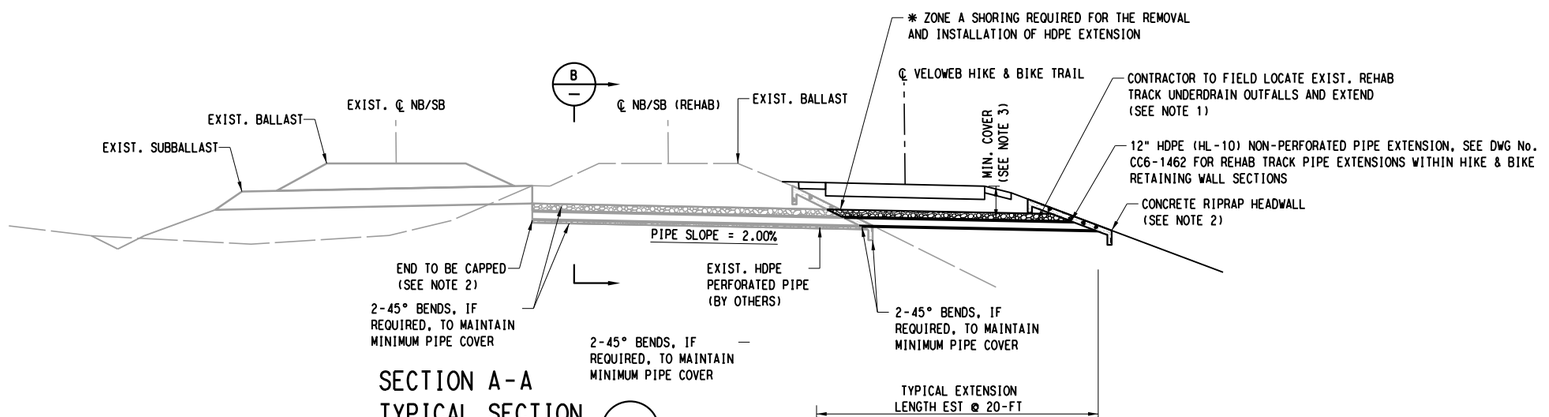
NOTES:

1. FOR REFERENCE ONLY, EXIST. REHAB TRACK OUTFALL DRAINAGE CRITERIA:

TRACK PROFILE	SPACING (FT)
S < 1.0%	400
1.0% < S < 1.5%	500
1.5% < S < 2.0%	600
S > 2.0%	700

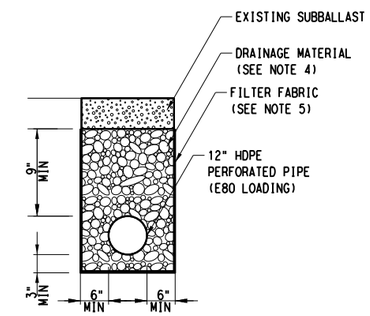
2. SEE DWG No. CC6-1732 FOR DART STANDARD CONCRETE RIPRAP HEADWALL DETAILS.
3. MINIMUM COVER, WITHIN LIMITS OF RIGID PAVEMENT IS 12" FROM THE TOP OF PIPE TO THE TOP OF THE RIGID PAVEMENT FOR HDPE PIPE UNDER 48" DIA.

   MINIMUM COVER, WITHIN GRASS OR LANDSCAPE AREAS IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE.
4. REFER TO DWG No. CC6-1462 IF REHAB DRAIN EXTENSION OCCURS AT A PROPOSED RETAINING WALL SECTION FOR ADDITIONAL DETAILS.



SECTION A-A
TYPICAL SECTION
NO SCALE

CC6-1711



SECTION B-B
TYPICAL SECTION
NO SCALE

CC6-1711

* SEE UP/BNSF GUIDELINES FOR TEMPORARY SHORING. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, IMPLEMENTATION AND REMOVAL OF TEMPORARY SHORING REQUIRED FOR THE REMOVAL OF THE REHAB TRACK DRAIN HEADWALL REMOVALS AND THE CONSTRUCTION OF THE REHAB TRACK DRAIN EXTENSIONS. PAYMENT FOR WORK AND MATERIALS OF SUCH SHORING SHALL BE SUBSIDIARY TO THE COST OF THE REHAB TRACK DRAIN EXTENSION.

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CONTRACT SHEET No. 320 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

REHAB DRAINAGE DETAILS

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1711	D

CB05-CC6-1711.010

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CB05-CC6-1711.010

JEGSVCPWU01
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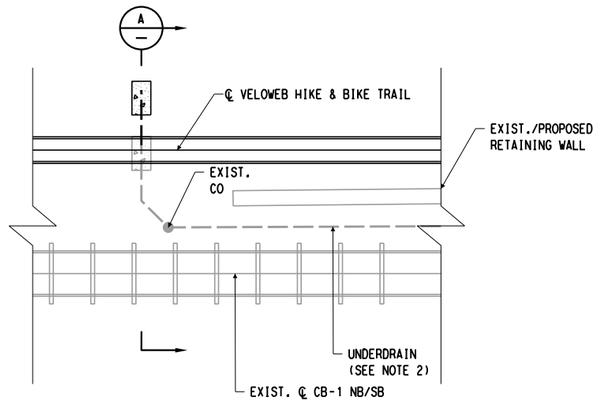
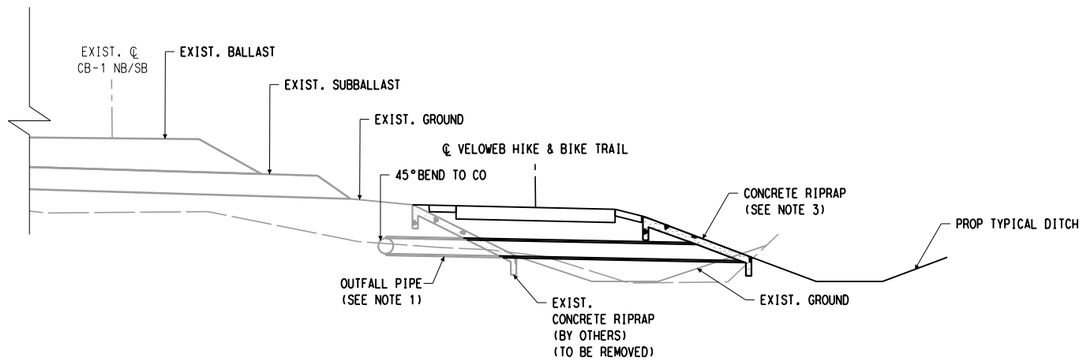
DWG No. CC6-1712



PLAN VIEW
NO SCALE



SECTION A-A
TYPICAL SECTION
NO SCALE

CC6-1712

NOTES:

1. REFER TO UNDERDRAIN TABLES FOR SIZE AND TYPE OF OUTFALL PIPES.
2. SEE DART DWG No. CC6-1740 TO CC6-1743 FOR UNDERDRAIN DETAIL.
3. SEE DART DWG No. CC6-1732 FOR STANDARD CONCRETE RIP RAP HEADWALL DETAILS.

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CONTRACT SHEET No. 321 OF 378

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CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

UNDERDRAIN OUTFALL DETAILS

CONTRACT	DWG No.	REV
C-2033270-01	CC6-1712	D

CB05-CC6-1712.010

DWG No. CC6-1713

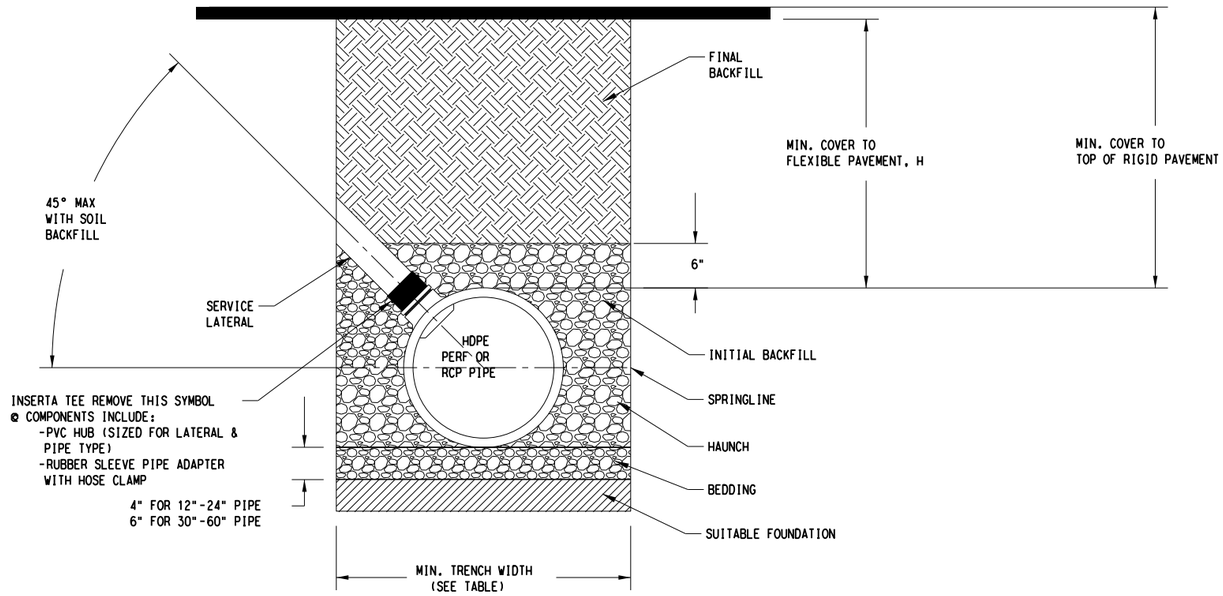

TABLE OF STANDARD EXCAVATION	
PIPE DIA	MIN TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
54"	96"

NOTES:

1. CONTRACTOR HAS THE OPTION TO USE THE INSERTA TEE CONNECTION OR AN APPROVED EQUAL FLEXIBLE CONNECTOR.
2. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION
3. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
4. THE INSERTA TEE CONNECTION SHOULD NOT BE PLACED AT AN ANGLE EXCEEDING 45° FROM THE SPRINGLINE. GREATER ANGLES ARE SUBJECT TO DESIGN ENGINEER APPROVAL AND MAY REQUIRE PREMIUM BACKFILL.
5. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
6. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" FOR 4"-24"; 6" FOR 30"-60".
7. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
8. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

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CONTRACT SHEET No. 322 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	E. HERNANDEZ
CHECKED	A. DORANTES
IN CHARGE	A. DORANTES
DATE	25 AUG 23

CAES

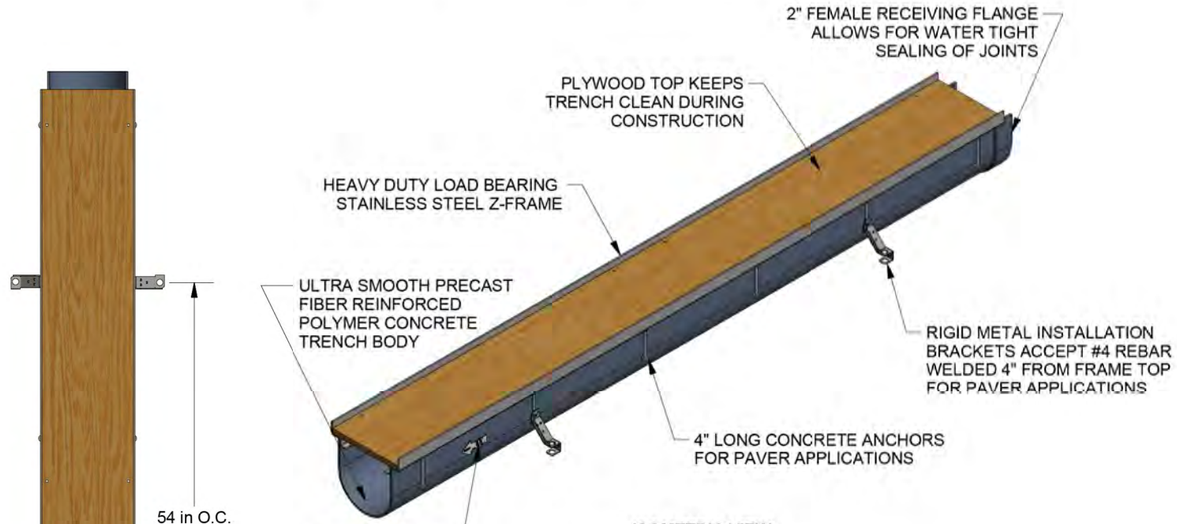
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL

INSERTA TEE
DRAINAGE DETAILS

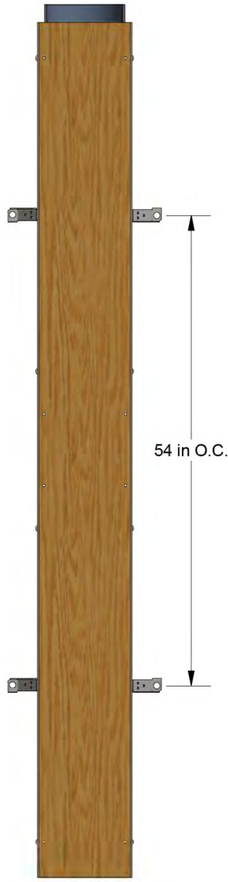
CONTRACT	DWG No.	REV
C-2033270-01	CC6-1713	D

CB05-CC6-1713.010

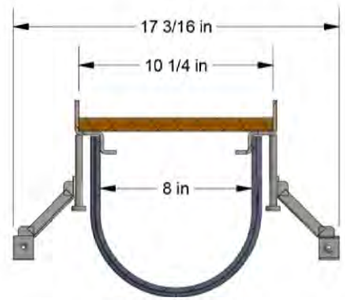
DTPF8-HD$$15ZPA 8" PRECAST TRENCH DRAIN R1



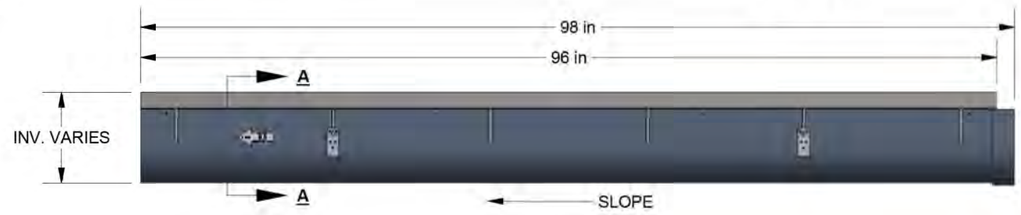
ISOMETRIC VIEW



TOP VIEW



SECTION A-A
SCALE 1:8



SIDE VIEW

TRENCH MATERIAL	FIBER REINFORCED POLYMER
FRAME MATERIAL	T304 STAINLESS STEEL
FRAME COATING	NONE
ANCHOR STUDS	4" X 3/8" Ø
INSTALL DEVICE	RIGID STAMPED METAL FOR #4 BARS
LOAD RATING	HEAVY DUTY
SLOPE	0.5% TYP (CUSTOM SLOPE AVAILABLE)

STANDARD TOLERANCES
0 = +/-0.25
0.0 = +/-0.25
0.00 = +/- 0.13

NOTE:
ALL TRENCHES ARE FACTORY ASSEMBLED AND READY FOR SITE INSTALLATION

Dura Trench manufactured by Eric'sons
574c Industrial Way N.
Dallas, GA 30132
PH: 770-505-6575
www.trenchdrain.net

NOTES:

1. CONTRACTOR HAS THE OPTION TO USE DURA TRENCH TRENCH DRAIN PRODUCTS OR AN APPROVED EQUAL TRENCH DRAIN PRODUCT.

2. SEE DURA TRENCH STANDARDS FOR SPECIAL ADA COMPLIANT SIDEWALK TRENCH DRAIN INLET, GRATE COVER, AND ITS ACCESSORIES. SUMMARY OF THE PROPOSED TRENCH DRAIN INLET PRODUCT SPECIFICATION TO BE INSTALLED:

   (I). PRODUCT MANUFACTURER: DURA TRENCH

   (II). INLET SIZE: 8" PRECAST WIDE/ 98" LENGTH

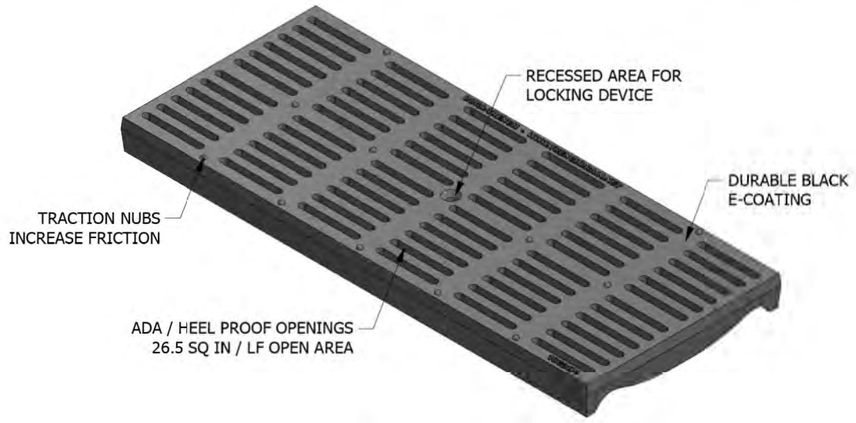
   (III). ADA GRATE TYPE: 10" HEEL GUARD DUCTILE IRON WITH 1/4" GRATE SLOTS OPENING, WHICH EXCEEDS THE MINIMUM 1/2" ADA GRATE SLOTS OPENING REQUIREMENTS.

   (IV). OUTFALL CONNECTION POINT: 8" INLINE CATCH BASIN

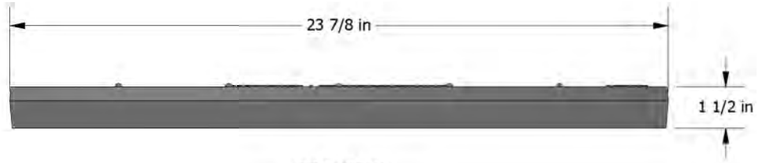
3. PROPOSED PIPING CONNECTIONS FOR TRENCH DRAINS CAN BE N-12 DUAL HP PIPE MATERIAL WITH A SMOOTH INTERIOR (n = 0.011 - 0.012). ALTERNATIVE PIPE MATERIALS TO BE UTILIZED IN LIEU OF RCP FOR TRENCH DRAIN PIPING CONNECTIONS IS SUBJECT TO THE APPROVAL BY THE CITY OF COPPELL DEPARTMENT OF ENGINEERING.

4. MINIMUM LOAD RATING SHALL BE HL-10.

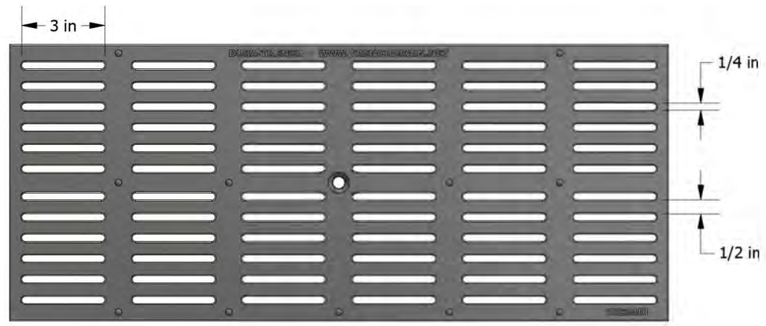
10C24DI 10" HEEL GUARD DUCTILE IRON GRATE R2



ISOMETRIC VIEW



SIDE VIEW



TOP VIEW

END VIEW

MATERIAL	DUCTILE IRON 65-45-12
COATING	BLACK E-COATING
LOCKING	BOLT AND TOGGLE
LOAD RATING	DIN CLASS D
ADA / HEEL GUARD	YES

STANDARD TOLERANCES
0 = +/-0.25
0.0 = +/-0.25
0.00 = +/- 0.13

Dura Trench manufactured by Eric'sons
574c Industrial Way N.
Dallas, GA 30132
PH: 770-505-6575
www.trenchdrain.net

NOTES:

1. CONTRACTOR HAS THE OPTION TO USE DURA TRENCH TRENCH DRAIN PRODUCTS OR AN APPROVED EQUAL TRENCH DRAIN PRODUCT.

2. SEE DURA TRENCH STANDARDS FOR SPECIAL ADA COMPLIANT SIDEWALK TRENCH DRAIN INLET, GRATE COVER, AND ITS ACCESSORIES. SUMMARY OF THE PROPOSED TRENCH DRAIN INLET PRODUCT SPECIFICATION TO BE INSTALLED:

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   (III). ADA GRATE TYPE: 10" HEEL GUARD DUCTILE IRON WITH 1/4" GRATE SLOTS OPENING, WHICH EXCEEDS THE MINIMUM 1/2" ADA GRATE SLOTS OPENING REQUIREMENTS.

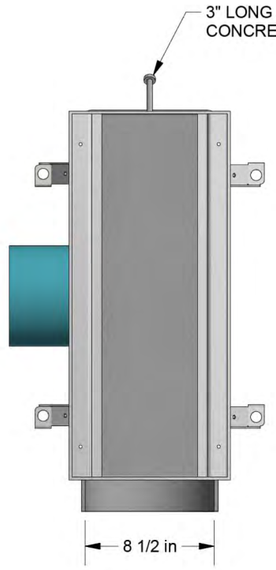
   (IV). OUTFALL CONNECTION POINT: 8" INLINE CATCH BASIN

3. PROPOSED PIPING CONNECTIONS FOR TRENCH DRAINS CAN BE N-12 DUAL HP PIPE MATERIAL WITH A SMOOTH INTERIOR (n = 0.011 - 0.012). ALTERNATIVE PIPE MATERIALS TO BE UTILIZED IN LIEU OF RCP FOR TRENCH DRAIN PIPING CONNECTIONS IS SUBJECT TO THE APPROVAL BY THE CITY OF COPPELL DEPARTMENT OF ENGINEERING.

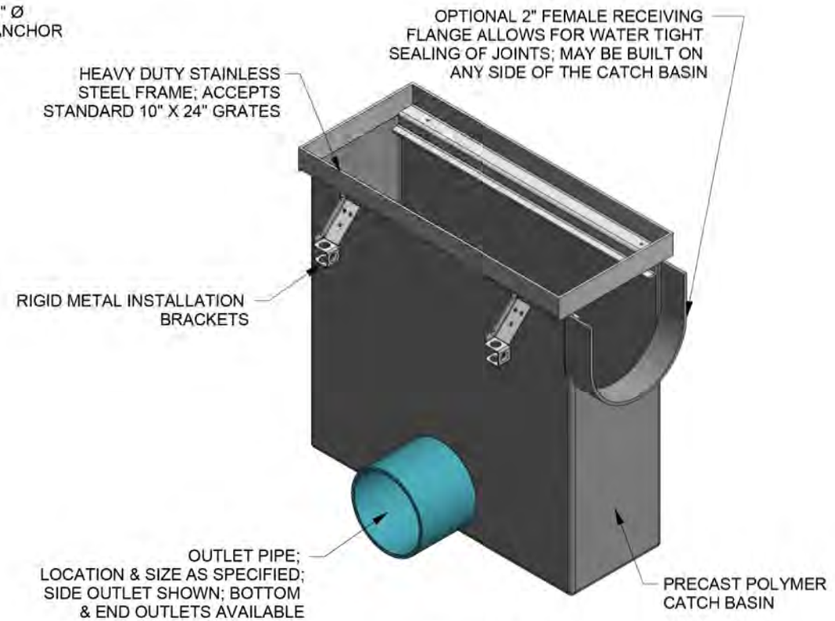
4. MINIMUM LOAD RATING SHALL BE HL-10.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 324 OF 378
DWG No. CC6-1715
CONTRACT No. C-2033270-01

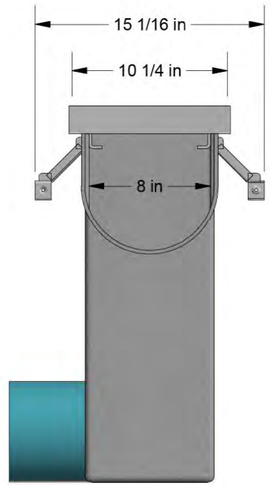
DTCBPF8-10CBHD$$ — 8" INLINE CATCH BASIN — R1



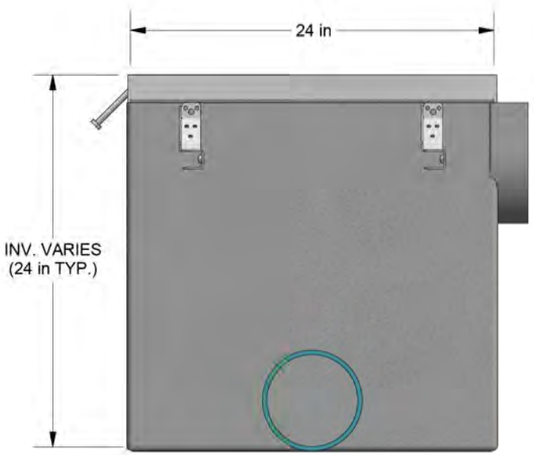
TOP VIEW



ISOMETRIC VIEW



END VIEW



SIDE VIEW

TRENCH MATERIAL	FIBER REINFORCED POLYMER
FRAME MATERIAL	T304 STAINLESS STEEL
FRAME COATING	NONE
ANCHOR STUDS	3" X 3/8" Ø
INSTALL DEVICE	RIGID STAMPED METAL FOR #4 BARS
LOAD RATING	HEAVY DUTY
SLOPE	0.5% TYP (CUSTOM SLOPE AVAILABLE)

STANDARD TOLERANCES
0 = +/-0.25
0.0 = +/-0.25
0.00 = +/- 0.13

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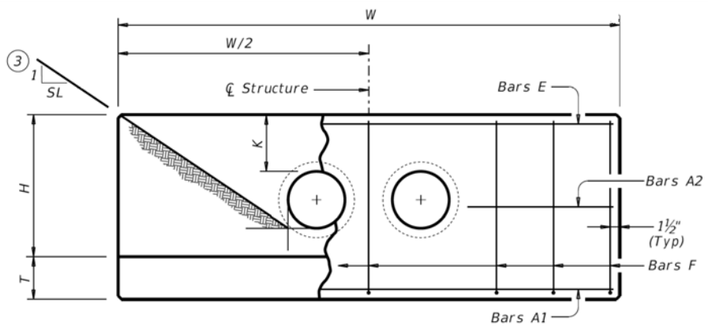
   ALTERNATIVE PIPE MATERIALS TO BE UTILIZED IN LIEU OF RCP FOR TRENCH DRAIN PIPING CONNECTIONS IS SUBJECT TO THE APPROVAL BY THE CITY OF COPPELL DEPARTMENT OF ENGINEERING.

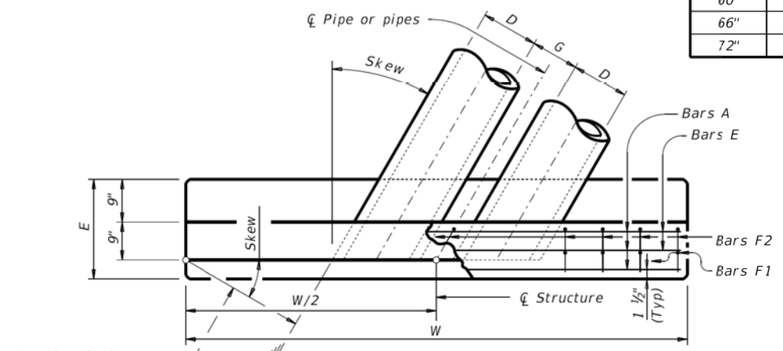
4. MINIMUM LOAD RATING SHALL BE HL-10.

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (5)

Slope	Dia of Pipe (D)	15° Skew						30° Skew						45° Skew					
		Values for One Pipe			Values To Be Added for Each Addt'l Pipe			Values for One Pipe			Values To Be Added for Each Addt'l Pipe			Values for One Pipe			Values To Be Added for Each Addt'l Pipe		
		W	Reinf (Lbs) (1)	Conc (CY) (2)	W	Reinf (Lbs) (1)	Conc (CY) (2)	W	Reinf (Lbs) (1)	Conc (CY) (2)	W	Reinf (Lbs) (1)	Conc (CY) (2)	W	Reinf (Lbs) (1)	Conc (CY) (2)	W	Reinf (Lbs) (1)	Conc (CY) (2)
2:1	12"	9' – 4"	124	1.1	1' – 9 ¾"	15	0.2	10' – 5"	130	1.2	2' – 0"	16	0.2	12' – 9"	159	1.5	2' – 5 ¾"	17	0.3
	15"	10' – 7"	136	1.3	2' – 3"	17	0.2	11' – 10"	159	1.5	2' – 6"	18	0.2	14' – 6"	191	1.8	3' – 0 ¾"	20	0.3
	18"	11' – 11"	165	1.5	2' – 9"	19	0.3	13' – 3"	174	1.7	3' – 1"	29	0.3	16' – 3"	207	2.1	3' – 9 ¼"	33	0.4
	21"	13' – 2"	203	1.9	3' – 2 ¼"	31	0.4	14' – 9"	233	2.1	3' – 6 ¾"	33	0.4	18' – 0"	276	2.6	4' – 4 ¼"	36	0.5
	24"	14' – 6"	240	2.1	3' – 8 ¼"	34	0.4	16' – 2"	251	2.4	4' – 1 ¾"	36	0.5	19' – 10"	318	2.9	5' – 0 ¾"	39	0.6
	27"	15' – 9"	258	2.5	4' – 0 ¾"	38	0.5	17' – 7"	292	2.8	4' – 6 ¼"	39	0.6	21' – 7"	342	3.4	5' – 6 ¼"	44	0.7
	30"	17' – 1"	297	2.8	4' – 5 ¾"	40	0.6	19' – 1"	311	3.1	5' – 0"	42	0.6	23' – 4"	388	3.8	6' – 1 ¾"	47	0.8
	33"	18' – 5"	320	3.3	4' – 9 ¾"	43	0.6	20' – 6"	358	3.6	5' – 4 ¾"	46	0.7	25' – 1"	439	4.4	6' – 7 ¼"	51	0.9
	36"	19' – 8"	401	4.0	5' – 3"	47	0.9	21' – 11"	422	4.5	5' – 10 ¾"	50	0.9	26' – 10"	517	5.5	7' – 2 ¼"	55	1.2
	42"	22' – 3"	476	5.0	6' – 0 ¾"	53	1.1	24' – 10"	528	5.6	6' – 8 ¾"	56	1.2	30' – 5"	634	6.9	8' – 3"	76	1.4
	48"	25' – 11"	577	6.6	6' – 9 ¾"	60	1.3	28' – 10"	637	7.3	7' – 7 ¼"	79	1.5	35' – 4"	791	9.0	9' – 3 ¾"	88	1.8
	54"	28' – 6"	711	7.8	7' – 9"	83	1.6	31' – 9"	781	8.7	8' – 8"	81	1.8	38' – 11"	958	10.7	10' – 7 ½"	97	2.2
	60"	31' – 1"	805	9.2	8' – 6 ¼"	91	1.9	34' – 8"	881	10.2	9' – 6 ¼"	97	2.1	42' – 5"	1,113	12.5	11' – 8"	124	2.6
	66"	33' – 8"	907	10.6	9' – 0 ¾"	98	2.1	37' – 6"	1,028	11.8	10' – 1 ¼"	102	2.4	46' – 0"	1,235	14.5	12' – 4 ¼"	132	2.9
	72"	36' – 3"	1,071	12.1	9' – 8"	105	2.4	40' – 5"	1,207	13.5	10' – 9 ¼"	110	2.6	49' – 6"	1,446	16.6	13' – 2 ¼"	141	3.2
3:1	12"	13' – 6"	178	1.6	1' – 9 ¾"	15	0.2	15' – 0"	189	1.8	2' – 0"	15	0.2	18' – 5"	237	2.2	2' – 5 ¾"	17	0.2
	15"	15' – 3"	212	1.9	2' – 3"	17	0.2	17' – 0"	223	2.1	2' – 6"	17	0.3	20' – 10"	276	2.6	3' – 0 ¾"	20	0.3
	18"	17' – 1"	231	2.3	2' – 9"	19	0.3	19' – 1"	259	2.5	3' – 1"	29	0.3	23' – 4"	318	3.1	3' – 9 ¼"	32	0.4
	21"	18' – 11"	306	2.7	3' – 2 ¼"	31	0.4	21' – 1"	339	3.0	3' – 6 ¾"	33	0.4	25' – 10"	413	3.7	4' – 4 ¼"	36	0.5
	24"	20' – 8"	345	3.1	3' – 8 ¾"	35	0.4	23' – 1"	384	3.5	4' – 1 ¾"	36	0.5	28' – 3"	462	4.2	5' – 0 ¾"	40	0.6
	27"	22' – 6"	376	3.7	4' – 0 ¾"	38	0.5	25' – 1"	438	4.1	4' – 6 ¼"	39	0.6	30' – 9"	522	5.0	5' – 6 ¼"	44	0.7
	30"	24' – 4"	422	4.1	4' – 5 ¾"	40	0.6	27' – 2"	466	4.6	5' – 0"	42	0.6	33' – 3"	578	5.6	6' – 1 ¾"	47	0.8
	33"	26' – 2"	476	4.8	4' – 10"	43	0.6	29' – 2"	522	5.3	5' – 4 ¾"	46	0.7	35' – 9"	644	6.5	6' – 7 ¼"	51	0.9
	36"	27' – 11"	590	5.9	5' – 3"	47	0.8	31' – 2"	645	6.6	5' – 10 ¾"	50	0.9	38' – 2"	787	8.0	7' – 2 ¼"	56	1.2
	42"	31' – 7"	684	7.3	6' – 0 ¼"	53	1.1	35' – 3"	776	8.2	6' – 8 ¾"	56	1.2	43' – 2"	933	10.0	8' – 3"	79	1.4
	48"	36' – 9"	880	9.6	6' – 9 ¾"	61	1.3	41' – 0"	953	10.7	7' – 7 ¼"	81	1.5	50' – 2"	1,166	13.1	9' – 3 ¾"	88	1.8
	54"	40' – 5"	1,065	11.4	7' – 9"	85	1.6	45' – 0"	1,185	12.7	8' – 8"	89	1.8	55' – 2"	1,435	15.5	10' – 7 ¼"	97	2.2
	60"	44' – 0"	1,224	13.3	8' – 6 ¼"	93	1.9	49' – 1"	1,356	14.8	9' – 6 ¼"	96	2.1	60' – 1"	1,635	18.2	11' – 8"	124	2.6
	66"	47' – 7"	1,357	15.4	9' – 1"	98	2.1	53' – 1"	1,497	17.2	10' – 1 ¼"	103	2.3	65' – 1"	1,892	21.1	12' – 4 ¼"	130	2.9
	72"	51' – 3"	1,624	17.7	9' – 8"	105	2.3	57' – 2"	1,787	19.7	10' – 9 ¼"	109	2.6	70' – 0"	2,218	24.1	13' – 2 ¼"	139	3.2
4:1	12"	17' – 7"	232	2.1	1' – 9 ¾"	15	0.2	19' – 8"	259	2.4	2' – 0"	16	0.2	24' – 0"	314	2.9	2' – 5 ¾"	18	0.2
	15"	19' – 11"	272	2.5	2' – 3"	17	0.2	22' – 3"	301	2.8	2' – 6"	18	0.3	27' – 3"	361	3.5	3' – 0 ¾"	21	0.3
	18"	22' – 3"	313	3.0	2' – 9"	19	0.3	24' – 10"	344	3.3	3' – 1"	29	0.3	30' – 5"	427	4.0	3' – 9 ¼"	32	0.4
	21"	24' – 7"	407	3.6	3' – 2 ¼"	31	0.4	27' – 5"	446	4.0	3' – 6 ¾"	33	0.4	33' – 7"	549	4.9	4' – 4 ¼"	36	0.5
	24"	26' – 11"	455	4.1	3' – 8 ¾"	35	0.4	30' – 0"	499	4.5	4' – 1 ¾"	36	0.5	36' – 9"	609	5.6	5' – 0 ¾"	40	0.6
	27"	29' – 3"	514	4.8	4' – 0 ¾"	38	0.5	32' – 7"	562	5.4	4' – 6 ¼"	40	0.6	39' – 11"	703	6.6	5' – 6 ¼"	43	0.7
	30"	31' – 7"	568	5.4	4' – 5 ¾"	40	0.6	35' – 3"	620	6.0	5' – 0"	42	0.6	43' – 2"	768	7.4	6' – 1 ¾"	49	0.8
	33"	33' – 11"	634	6.2	4' – 10"	43	0.7	37' – 10"	710	7.0	5' – 4 ¾"	46	0.7	46' – 4"	848	8.5	6' – 7 ¼"	52	0.9
	36"	36' – 3"	776	7.7	5' – 3"	48	0.9	40' – 5"	868	8.6	5' – 10 ¾"	49	0.9	49' – 6"	1,058	10.6	7' – 2 ¼"	56	1.1
	42"	40' – 11"	921	9.6	6' – 0 ¼"	53	1.0	45' – 7"	1,022	10.7	6' – 8 ¾"	57	1.2	55' – 10"	1,262	13.1	8' – 3"	78	1.4
	48"	47' – 7"	1,152	12.6	6' – 10"	61	1.3	53' – 1"	1,268	14.0	7' – 7 ¼"	80	1.5	65' – 1"	1,587	17.2	9' – 3 ¾"	86	1.8
	54"	52' – 3"	1,416	14.9	7' – 9 ½"	86	1.6	58' – 4"	1,589	16.6	8' – 8"	89	1.8	71' – 5"	1,924	20.4	10' – 7 ¼"	95	2.2
	60"	56' – 11"	1,606	17.5	8' – 6 ¾"	92	1.9	63' – 6"	1,806	19.5	9' – 6 ¼"	95	2.1	77' – 9"	2,192	23.9	11' – 8"	122	2.6
	66"	61' – 7"	1,819	20.2	9' – 0 ¾"	97	2.1	68' – 8"	2,019	22.5	10' – 1 ¼"	101	2.4	84' – 2"	2,472	27.6	12' – 4 ¼"	131	2.9
	72"	66' – 3"	2,150	23.2	9' – 8"	104	2.4	73' – 11"	2,379	25.9	10' – 9 ¼"	108	2.6	90' – 6"	2,937	31.7	13' – 2 ¼"	138	3.2
6:1	12"	25' – 11"	342	3.1	1' – 9 ¾"	15	0.2	28' – 10"	374	3.5	2' – 0"	16	0.2	35' – 4"	456	4.3	2' – 5 ¾"	17	0.2
	15"	29' – 3"	390	3.7	2' – 3"	17	0.2	32' – 7"	442	4.2	2' – 6"	18	0.2	39' – 11"	549	5.1	3' – 0 ¾"	20	0.3
	18"	32' – 7"	459	4.4	2' – 9"	20	0.3	36' – 4"	515	4.9	3' – 1"	29	0.3	44' – 7"	629	6.0	3' – 9 ½"	33	0.4
	21"	36' – 0"	608	5.3	3' – 2 ¼"	31	0.4	40' – 2"	660	5.9	3' – 6 ¾"	33	0.4	49' – 2"	823	7.2	4' – 4 ¼"	38	0.5
	24"	39' – 4"	672	6.0	3' – 8 ¾"	35	0.4	43' – 11"	748	6.7	4' – 1 ¾"	36	0.5	53' – 9"	920	8.2	5' – 0 ¾"	42	0.6
	27"	42' – 8"	770	7.1	4' – 0 ¾"	38	0.5	47' – 8"	852	8.0	4' – 6 ¼"	41	0.5	58' – 4"	1,039	9.7	5' – 6 ¼"	45	0.7
	30"	46' – 1"	839	8.0	4' – 5 ¾"	40	0.6	51' – 5"	949	8.9	5' – 0"	44	0.6	62' – 11"	1,162	10.9	6' – 1 ¾"	48	0.8
	33"	49' – 5"	947	9.2	4' – 10"	45	0.7	55' – 2"	1,040	10.3	5' – 4 ¾"	48	0.7	67' – 6"	1,292	12.6	6' – 7 ¼"	50	0.9
	36"	52' – 10"	1,151	11.4	5' – 3"	49	0.8	58' – 11"	1,287	12.7	5' – 10 ¾"	51	1.0	72' – 1"	1,583	15.6	7' – 2 ¼"	55	1.1
	42"	59' – 6"	1,365	14.2	6' – 0 ¼"	55	1.0	66' – 5"	1,530	15.8	6' – 8 ¾"	57	1.2	81' – 4"	1,875	19.4	8' – 3"	76	1.4
	48"	69' – 4"	1,737	18.5	6' – 10"	59	1.3	77' – 4"	1,942	20.7	7' – 7 ¼"	79	1.5	94' – 9"	2,368	25.3	9' – 3 ¾"	86	1.8
	54"	76' – 1"	2,138	22.0	7' – 9 ¼"	83	1.6	84' – 10"	2,378	24.6	8' – 8"	87	1.8	103' – 11"	2,912	30.1	10' – 7 ¼"	95	2.2
	60"	82' – 10"	2,426	25.8	8' – 6 ¾"	90	1.9	92' – 5"	2,681	28.8	9' – 6 ¼"	94	2.1	113' – 2"	3,294	35.3	11' – 8"	122	2.6
	66"	89' – 7"	2,730	29.9	9' – 0 ¾"	96	2.1	99' – 11"	3,038	33.3	10' – 1 ¼"	101	2.4	122' – 4"	3,697	40.8	12' – 4 ¼"	130	2.9
	72"	96' – 3"	3,218	34.2	9' – 8"	102	2.4	107' – 5"	3,580	38.2	10' – 9 ¼"	108	2.6	131' – 6"	4,372	46.8	13' – 2 ¼"	139	3.2

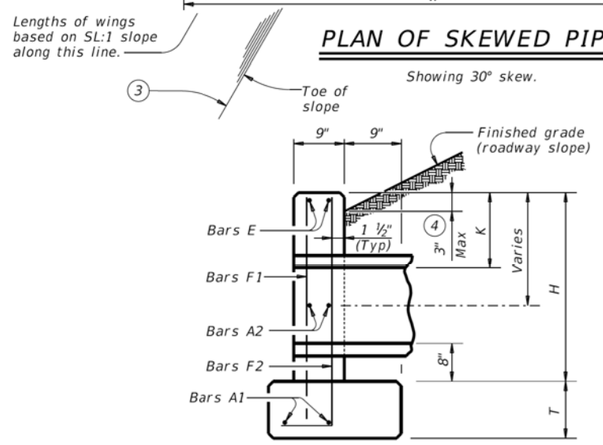


ELEVATION



PLAN OF SKEWED PIPES

Showing 30° skew.



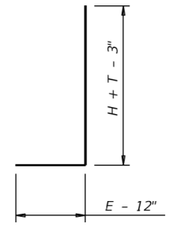
SECTION AT CENTER OF PIPE

TABLE OF CONSTANT DIMENSIONS

Dia of Pipe (D)	G	K (5)	H	T	E
12"	0' – 9"	1' – 0"	2' – 8"	0' – 9"	1' – 9"
15"	0' – 11"	1' – 0"	2' – 11"	0' – 9"	1' – 9"
18"	1' – 2"	1' – 0"	3' – 2"	0' – 9"	1' – 9"
21"	1' – 4"	1' – 0"	3' – 5"	0' – 9"	2' – 0"
24"	1' – 7"	1' – 0"	3' – 8"	0' – 9"	2' – 0"
27"	1' – 8"	1' – 0"	3' – 11"	0' – 9"	2' – 3"
30"	1' – 10"	1' – 0"	4' – 2"	0' – 9"	2' – 3"
33"	1' – 11"	1' – 0"	4' – 5"	0' – 9"	2' – 6"
36"	2' – 1"	1' – 0"	4' – 8"	1' – 0"	2' – 6"
42"	2' – 4"	1' – 0"	5' – 2"	1' – 0"	2' – 9"
48"	2' – 7"	1' – 3"	5' – 11"	1' – 0"	3' – 0"
54"	3' – 0"	1' – 3"	6' – 5"	1' – 0"	3' – 3"
60"	3' – 3"	1' – 3"	6' – 11"	1' – 0"	3' – 6"
66"	3' – 3"	1' – 3"	7' – 5"	1' – 0"	3' – 9"
72"	3' – 4"	1' – 3"	7' – 11"	1' – 0"	4' – 0"

TABLE OF (6) REINFORCING STEEL

Bar	Size	Spa	No.
A1	#5	~	2
A2	#5	1' – 6"	~
E	#5	~	2
F	#5	1' – 0"	~



BARS F2

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'c = 3,600 psi).

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Do not mount bridge rails of any type directly to these culvert headwalls.
This standard may not be used for wall heights, H, exceeding the values shown.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

(1) Total quantites include one 3'-1" lap for bars over 60' in length.

(2) Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

(3) Indicated slope is perpendicular to centerline pipe or pipes.

(4) For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(5) Dimensions shown are usual and maximum.

(6) Quantities shown are for one structure end only (one headwall).

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 326 OF 378
DWG No. CC6-1717
CONTRACT No. C-2033270-01

Texas Department of Transportation | Bridge Division Standard

CONCRETE HEADWALLS WITH PARALLEL WINGS FOR SKEWED PIPE CULVERTS

CH-PW-S

FILE: chpwsste-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

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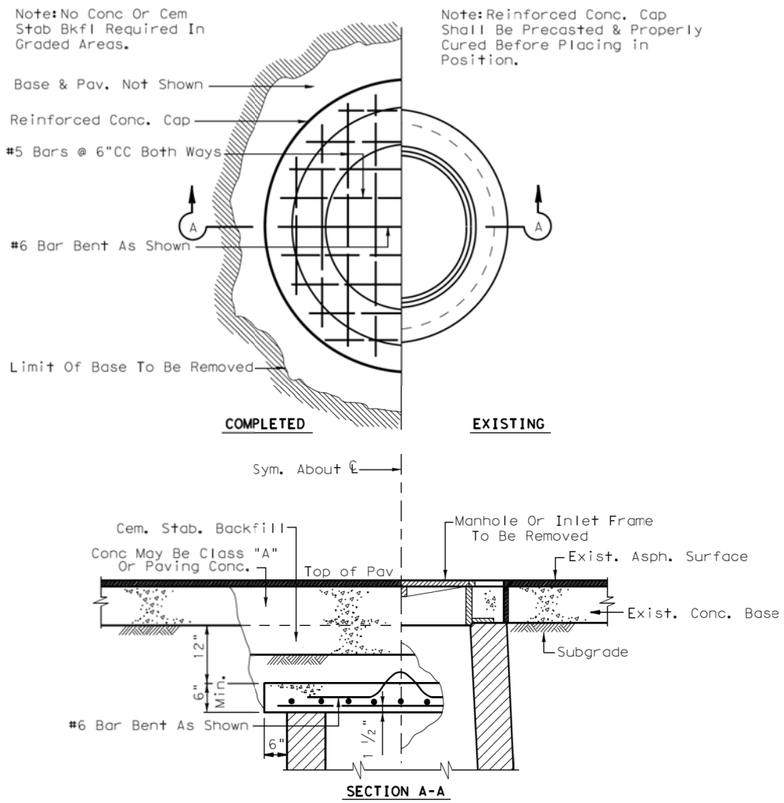
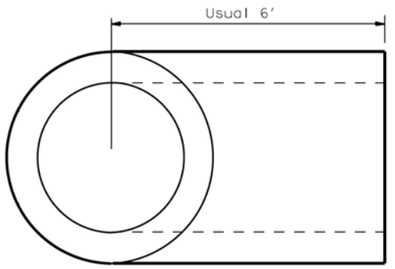
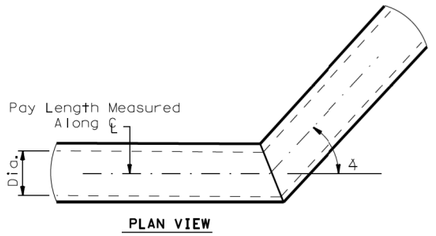


DETAIL SHOWING METHOD OF CAPPING ABANDONED MANHOLES OR INLETS (GRADED OR PAVED AREAS)



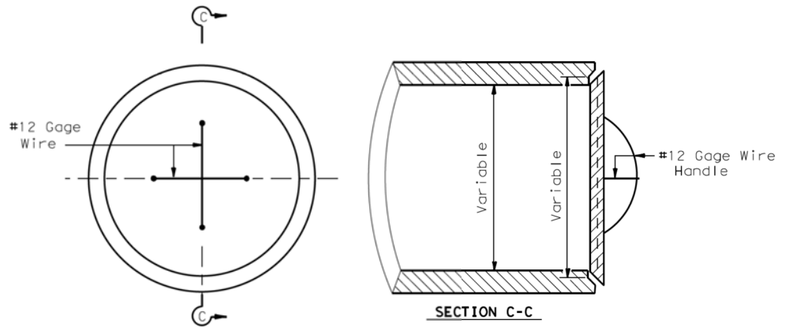
Note: Jointing Material Shall Conform To Requirements Of Item "Reinforced Concrete Pipe." Material For Tees Shall Conform To Requirements Of Item "Reinforced Concrete Pipe." Payment For Tee To Be In Accordance With Item "Reinforced Concrete Pipe."

PRECAST STORM SEWER TEE



BENDING DETAIL

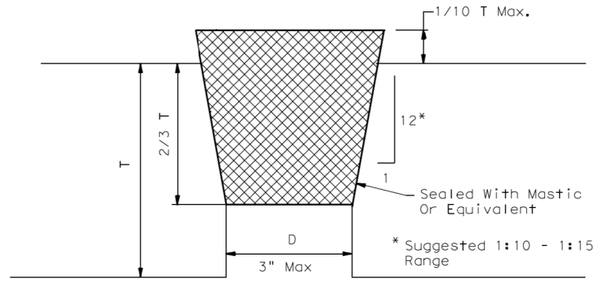
Note: Bending Of Proposed Pipe Sewer Or RCP In A Vertical & /Or Horizontal Plane Shall Be Accomplished By The Use Of A "Pipe Collar" Or A "Precast Elbow", As Approved By The Engineer. Price Of "Pipe Collar" Or, "Precast Elbow" Shall Be Subsidiary To The Unit Prices Bid For Item Reinforced Concrete Pipe. Pay Length Measurement To Be Along Horizontal ℄ & Horizontal Plane Of Pipes.



Note: The Price Of Plug Shall Be Subsidiary To The Unit Bid Price For Pipe Sewer Or RCP. Mortar Joints To Be Used As Directed By The Engineer. Removal Of The Existing Plugs For Storm Sewer Or RCP Conns. Shall Be Considered Incidental To Item "Excavation And Backfill For Structures."

Concrete Plug For End Of Pipe Culvert Or Sewer

CONCRETE PLUG FOR PIPE

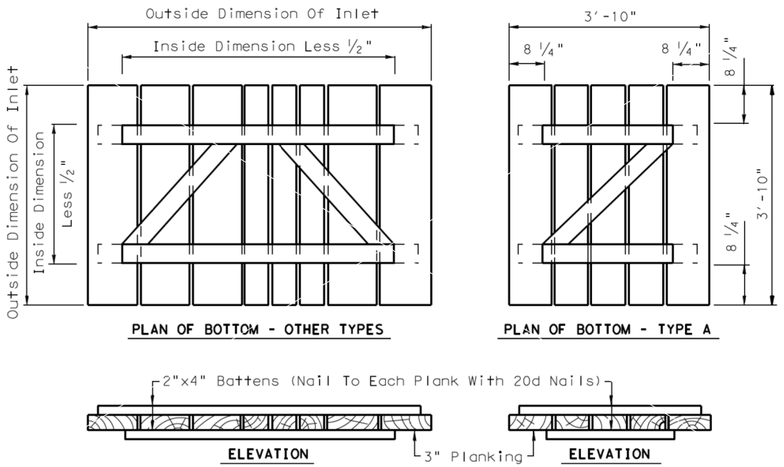


T = Wall Thickness On Top Of Box Or Pipe
D = Diameter Of Lifting Hole

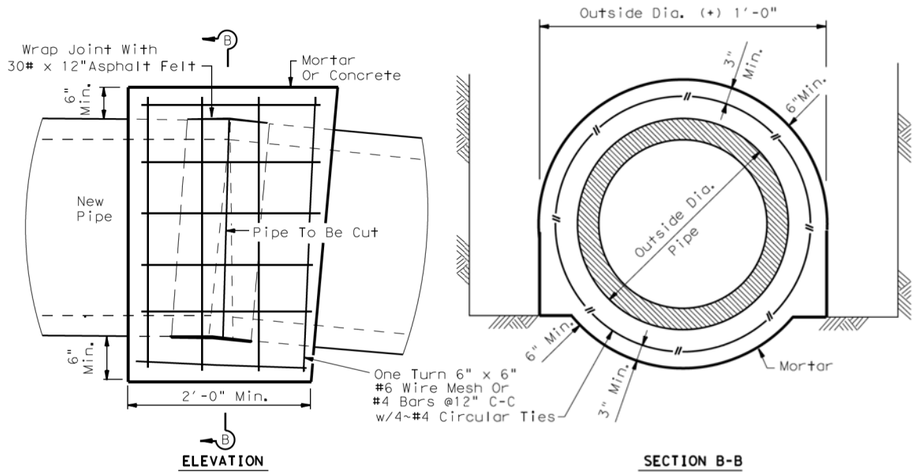
Minimum Length Of Plug Is 2/3 T +/-
Minimum Diameter At Bottom Of Plug = D - ⅛"
Maximum 1/10 T Of Plug Not Seated In Lifting Hole

Note: The Plug Shall Be Cast With The Same Taper As The Lifting Hole.

DETAIL OF PLUG FOR LIFTING HOLES IN RCB AND RCP



TEMPORARY COVERS FOR ALL TYPES OF INLETS



PIPE COLLAR DETAIL

For Horizontal Or Vertical Placement

d = Diameter
R = Radius

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 327 OF 378
DWG No. CC6-1718
CONTRACT No. C-2033270-01

Texas Department of Transportation
Houston District (Bridge)

MISCELLANEOUS SEWER DETAILS

MSD

FILE: STDD11.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK:
© TxDOT Mar 2004	DISTRICT	FED REG	PROJECT NO.	SHEET
REVISIONS 3/2015 2014 Specs	HOU	6		
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

STDD11.DGN

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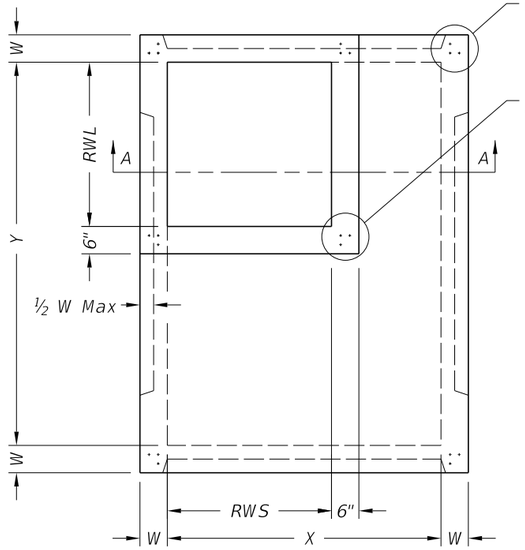
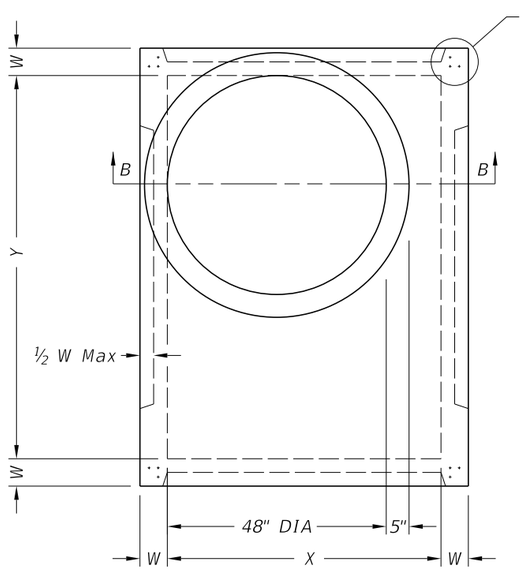
DATE:
FILE:



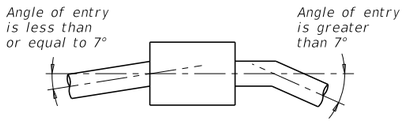
PLAN VIEW "A"

SQUARE REDUCED RISER OPTION



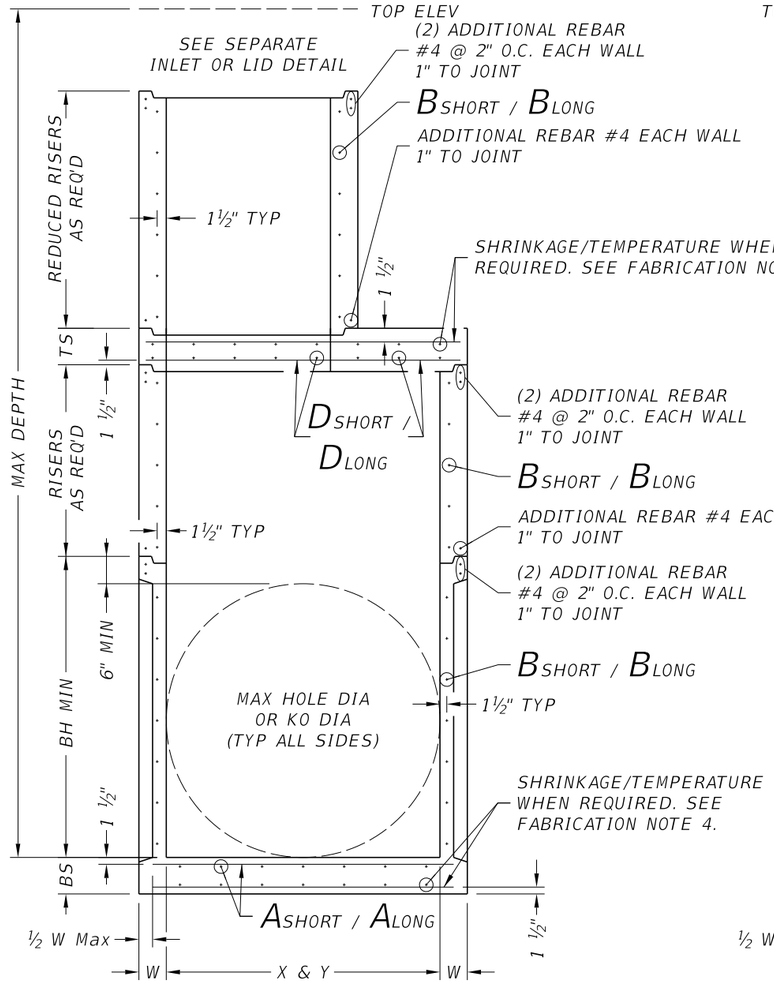
PLAN VIEW "B"

ROUND REDUCED RISER OPTION



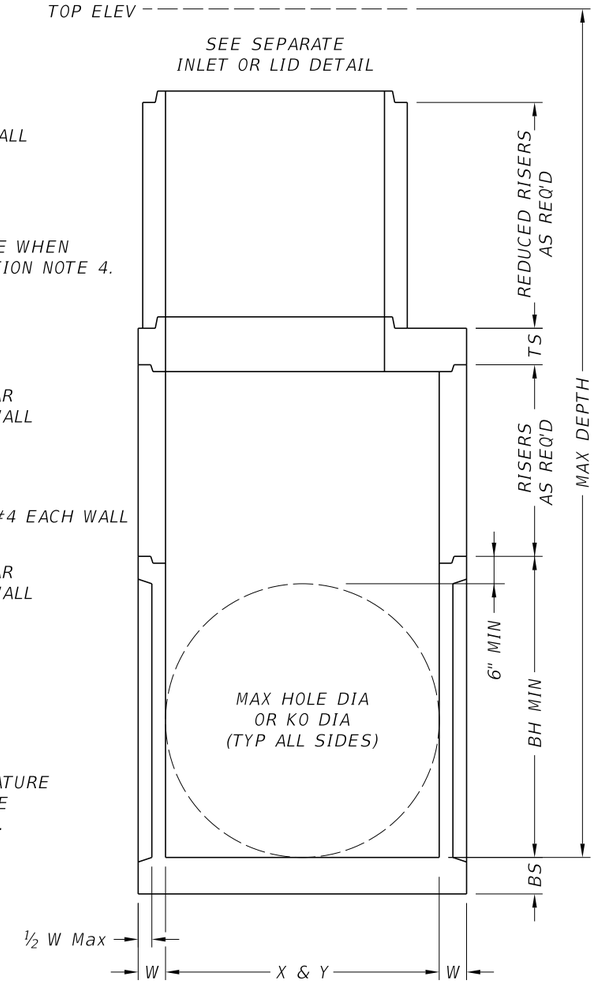
PIPE CONNECTION DETAIL

Connect pipes within 7° of normal to PB wall.
If necessary, use pipe elbow or curved
approach alignment to stay within this limit.



SECTION A-A

SQUARE REDUCED RISER OPTION



SECTION B-B

ROUND REDUCED RISER OPTION

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1 ½" to reinforcing steel at interior or exterior walls.
4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
5. No substitution is allowed for vertical and horizontal #4 bars in corners.
6. Manufacture base and risers to nearest 3" increment.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
8. Provide lifting devices in conformance with Manufacturer's recommendations.
9. See sheet PDD for sizes, dimensions, and reinforcing steel not shown.

INSTALLATION NOTES:

1. If required elsewhere. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to specified inlet or manhole.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:

1. Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PDD for sizes.
2. Designed according to ASTM C913.
3. Payment for precast base is subsidiary to the specified inlet, per Item 465, "Junction Boxes, Manholes, and Inlets."

Cover dimensions are clear dimensions, unless noted otherwise.

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SHEET No. 328 OF 378
DWG No. CC6-1719
CONTRACT No. C-2033270-01

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRECAST BASE

PB

FILE: prestd01-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
	DIST	COUNTY		SHEET NO.

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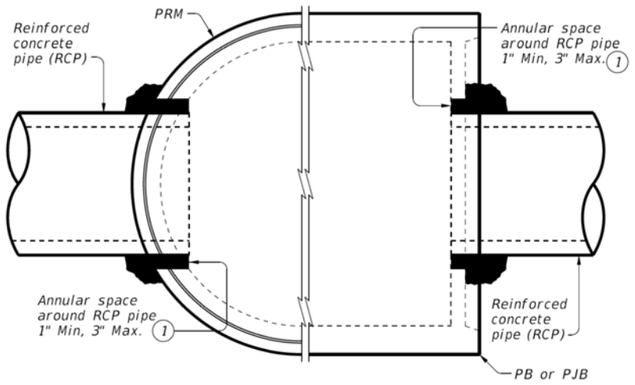
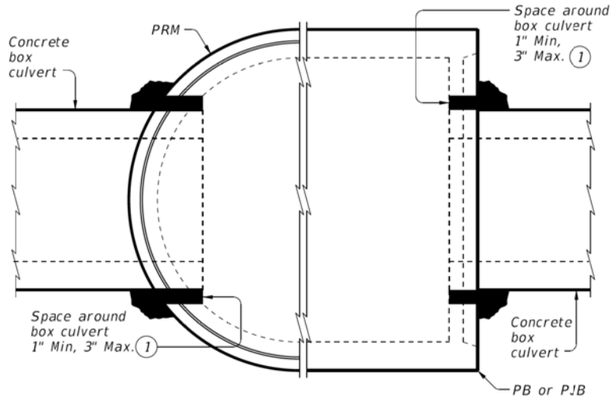


PRECAST ROUND MANHOLE (PRM) WITH THROUGH-HOLE

PRECAST BASE (PB) OR PRECAST JUNCTION BOX (PJB) WITH THIN-WALL KNOCK-OUT

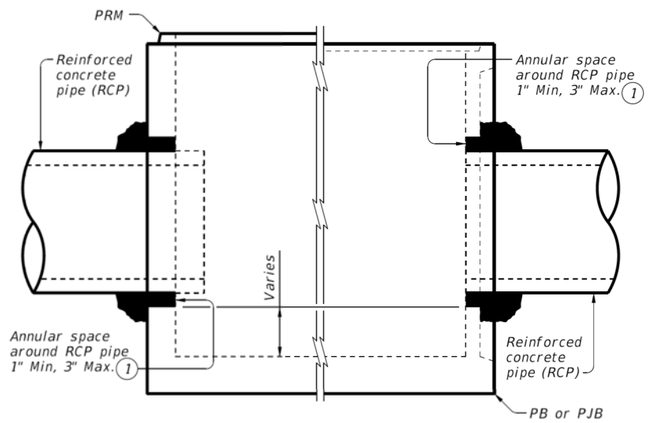
TYPICAL HALF PLAN



PRECAST ROUND MANHOLE (PRM) WITH THROUGH-HOLE

PRECAST BASE (PB) OR PRECAST JUNCTION BOX (PJB) WITH THIN-WALL KNOCK-OUT

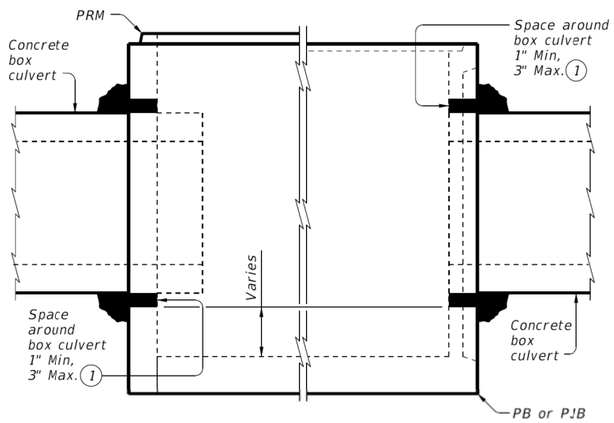
TYPICAL HALF PLAN



PRECAST ROUND MANHOLE (PRM) WITH THROUGH-HOLE

PRECAST BASE (PB) OR PRECAST JUNCTION BOX (PJB) WITH THIN-WALL KNOCK-OUT

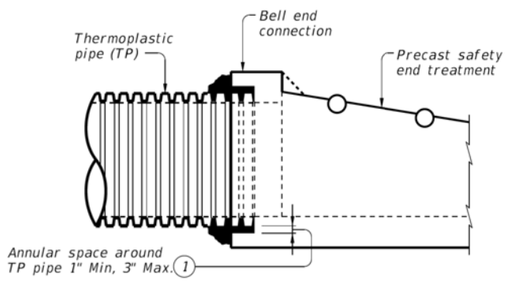
TYPICAL HALF ELEVATION



PRECAST ROUND MANHOLE (PRM) WITH THROUGH-HOLE

PRECAST BASE (PB) OR PRECAST JUNCTION BOX (PJB) WITH THIN-WALL KNOCK-OUT

TYPICAL HALF ELEVATION



TYPICAL PARTIAL ELEVATION OF PRECAST SAFETY END TREATMENTS

Showing square PSET for parallel drainage, cross drainage shown similar.

(1) Completely fill the void between the precast structure and the connecting pipe or box with cementitious grouts and mortars in accordance with DMS-4675 "Cementitious Grouts and Mortars for Miscellaneous Application".

CONSTRUCTION NOTES:

Do not grout rubber gasket joints without Manufacturer's recommendations.

Do not use bricks, masonry blocks, native stone, or similar materials in conjunction with grouted connections when filling void spaces around pipes or box culverts.

MATERIAL NOTES:

Provide grouted connections in accordance with DMS-4675 "Cementitious Grouts and Mortars for Miscellaneous Application".

GENERAL NOTES:

See applicable standards for notes and details not shown:

- Precast Base (PB)
- Precast Junction Box (PJB)
- Precast Round Manhole (PRM)
- Precast Safety End Treatments C/D Square (PSET-SC)
- Precast Safety End Treatments P/D Square (PSET-SP)

Provide Concrete Box Culverts in accordance with Item 462 "Concrete Box Culverts and Drains".

Provide Reinforced Concrete Pipe (RCP) in accordance with Item 464 "Reinforced Concrete Pipe".

Provide Thermoplastic Pipe (TP) in accordance with Special Specification Thermoplastic Pipe.

Payment for grouted connections is considered subsidiary to other bid Items.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 329 OF 378
DWG No. CC6-1720
CONTRACT No. C-2033270-01

Texas Department of Transportation

Bridge Division Standard

PIPE AND BOX GROUTED CONNECTIONS FOR PRECAST STRUCTURES

PBGC

FILE: pbgcstd1-20.dgn	DN: TxDOT	CK: TAR	DW: JTR	CK: TAR
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REVISIONS				
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		MAX DEPTH = 15 ft. to top of BASE SLAB										MAX DEPTH = 25 ft. to top of BASE SLAB												
		Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)				Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)				Min Height (See Gen Note 3)	Max HOLE DIA (See Fab Note 2)	Max KO DIA (See Fab Note 2)
	Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Reduced Riser Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Reduced Riser Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness			
	X x Y	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Dlong	TS	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Dlong	TS	BH MIN	HOLE DIA	KO DIA
	ft.	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	ft. **	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	ft. **	in^2/ft	in^2/ft	in.	ft.	in.	in.
Precast Junction Box (PJB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	0.37	0.37	9	0.29	0.29	6	0.24	0.24	6	N/A	0.37	0.37	9	3.5	36	36
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	0.41	0.41	9	0.47	0.47	6	0.38	0.38	6	N/A	0.41	0.41	9	4.5	48	48
	3x5	0.29	0.18	6	0.19	0.35	6	N/A	0.48	0.48	9	0.39	0.18	6	0.23	0.59	6	N/A	0.48	0.48	9	3.5	36/60	36/60
	4x5	0.36	0.18	6	0.22	0.34	6	N/A	0.42	0.42	9	0.53	0.26	6	0.39	0.59	6	N/A	0.42	0.42	9	4.5	48/60	48/60
	5x5	0.36	0.36	6	0.34	0.34	6	N/A	0.43	0.43	9	0.62	0.62	6	0.59	0.59	6	N/A	0.43	0.43	9	5.5	60	60
	5x6	0.27	0.27	9	0.34	0.45	6	N/A	0.48	0.48	9	0.47	0.45	9	0.38	0.54	8	N/A	0.48	0.48	9	5.5	60/72	60/72
	6x6	0.27	0.27	9	0.45	0.45	6	N/A	0.56	0.56	9	0.52	0.52	9	0.54	0.54	8	N/A	0.56	0.56	9	6.5	72	72
	8x8	0.46	0.46	9	0.51	0.51	8	N/A	0.45	0.45	12	0.87	0.87	9	0.59	0.59	10	N/A	0.45	0.45	12	8.5	96	72
Precast Base (PB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	N/A	N/A	N/A	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	3.5	36	36
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	0.47	0.47	6	0.38	0.38	6	N/A	N/A	N/A	N/A	4.5	48	48
	3x5	0.29	0.18	6	0.19	0.35	6	3x3	0.30	0.34	9	0.39	0.18	6	0.23	0.59	6	3x3	0.40	0.40	9	3.5	36/60	36/60
	4x5	0.36	0.18	6	0.22	0.34	6	3x3	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	3x3	0.46	0.37	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	4x4	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	4x4	0.39	0.39	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	48"	0.39	0.39	9	0.53	0.26	6	0.39	0.59	6	48"	0.47	0.47	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	3x5	0.33	0.40	9	0.53	0.26	6	0.39	0.59	6	3x5	0.48	0.48	9	4.5	48/60	48/60
	5x5	0.36	0.36	6	0.34	0.34	6	3x3	0.34	0.34	9	0.62	0.62	6	0.59	0.59	6	3x3	0.53	0.53	9	5.5	60	60
	5x5	0.36	0.36	6	0.34	0.34	6	4x4	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	4x4	0.64	0.64	9	5.5	60	60
	5x5	0.38	0.38	6	0.34	0.34	6	48"	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	48"	0.64	0.64	9	5.5	60	60
	5x5	0.36	0.36	6	0.34	0.34	6	3x5	0.34	0.40	9	0.62	0.62	6	0.59	0.59	6	3x5	0.53	0.53	9	5.5	60	60
	5x6	0.31	0.31	9	0.34	0.45	6	3x3	0.34	0.34	9	0.47	0.45	9	0.38	0.54	8	3x3	0.61	0.50	9	5.5	60/72	60/72
	5x6	0.27	0.27	9	0.34	0.45	6	4x4	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	4x4	0.74	0.57	9	5.5	60/72	60/72
	5x6	0.29	0.29	9	0.34	0.45	6	48"	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	48"	0.74	0.57	9	5.5	60/72	60/72
	5x6	0.29	0.29	9	0.34	0.45	6	3x5	0.45	0.45	9	0.47	0.45	9	0.38	0.54	8	3x5	0.61	0.61	9	5.5	60/72	60/72
	6x6	0.29	0.29	9	0.45	0.45	6	3x3	0.41	0.41	9	0.52	0.52	9	0.54	0.54	8	3x3	0.74	0.74	9	6.5	72	72
	6x6	0.27	0.27	9	0.45	0.45	6	4x4	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	4x4	0.87	0.87	9	6.5	72	72
	6x6	0.29	0.29	9	0.45	0.45	6	48"	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	48"	0.87	0.87	9	6.5	72	72
	6x6	0.29	0.29	9	0.45	0.45	6	3x5	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	3x5	0.87	0.87	9	6.5	72	72
	8x8	0.52	0.52	9	0.51	0.51	8	3x3	0.61	0.61	12	0.91	0.91	9	0.70	0.70	10	3x3	0.85	0.85	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	4x4	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	4x4	1.01	1.01	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	48"	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	48"	1.01	1.01	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	3x5	0.70	0.85	12	0.87	0.87	9	0.70	0.70	10	3x5	1.01	1.01	12	8.5	96	72

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FABRICATION NOTES:
1. Maximum spacing of reinforcement is 8".
2. At manufacturer's option, provide cast or cored holes or thin wall panels (KO) to the maximum diameter shown for each. When no penetration is required, it is acceptable to provide a wall with no sectional reduction.

GENERAL NOTES:
1. Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PJB for details.
2. Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PB for details.
3. Min Height shown is for stock base units. Use stock base units whenever practical. Smaller height base units can be used in special installation circumstances, when noted elsewhere in the plans. Absolute minimum height of base units is 2'-6".

COTTON BELT REGIONAL RAIL
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SHEET No. 330 OF 378
DWG No. CC6-1721
CONTRACT No. C-2033270-01

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

DESIGN DATA FOR PRECAST BASE AND JUNCTION BOX

PDD

FILE: prestd10-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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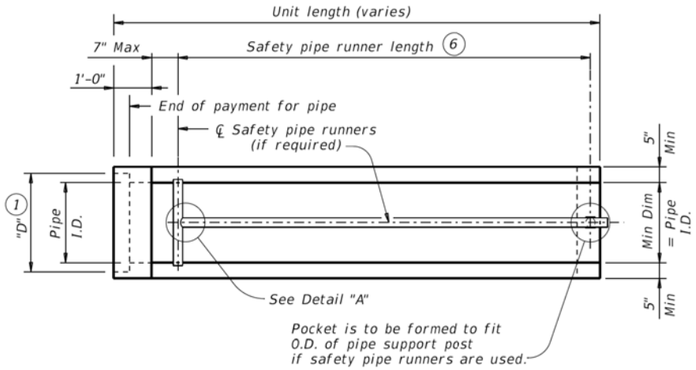
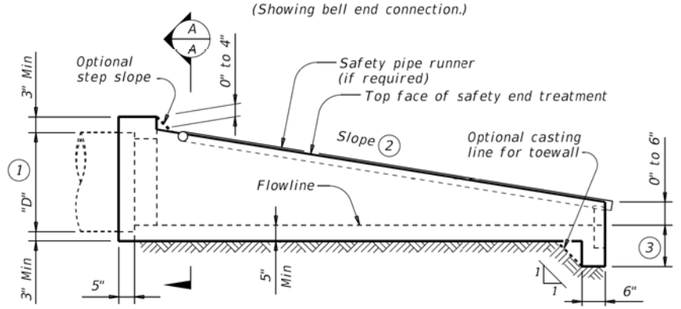
REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

Pipe I.D.	RCP Wall "B" Thickness	TP Wall Thickness (8)	"D" (1)	Slope	Min Length of Unit	Single Pipe		Multiple Pipes	
						Skew	Pipe Runners Required	Skew	Pipe Runners Required
12"	2"	1.15"	17.00"	3:1	2' – 11"	≤ 45°	No	≤ 45°	No
				4:1	3' – 6"				
				6:1	4' – 9"				
15"	2 ¼"	1.30"	20.50"	3:1	3' – 8"	≤ 45°	No	≤ 45°	No
				4:1	4' – 7"				
				6:1	6' – 5"				
18"	2 ½"	1.60"	24.00"	3:1	4' – 6"	≤ 45°	No	≤ 45°	No
				4:1	5' – 8"				
				6:1	8' – 0"				
24"	3"	1.95"	31.00"	3:1	6' – 2"	≤ 45°	No	= 30°	No
				4:1	7' – 10"				
				6:1	11' – 3"			> 30°	Yes
30"	3 ½"	2.65"	38.50"	3:1	7' – 10"	= 15°	No	= 15°	No
				4:1	10' – 1"				
				6:1	14' – 8"	> 15°	Yes	> 15°	Yes
36"	4"	2.75"	45.50"	3:1	9' – 5"	= 0°	No	≥ 0°	Yes
				4:1	12' – 3"				
				6:1	17' – 11"	> 0°	Yes		
42"	4 ½"	N/A	52.50"	3:1	11' – 1"	≥ 0°	Yes	≥ 0°	Yes
				4:1	14' – 5"				
				6:1	21' – 2"				



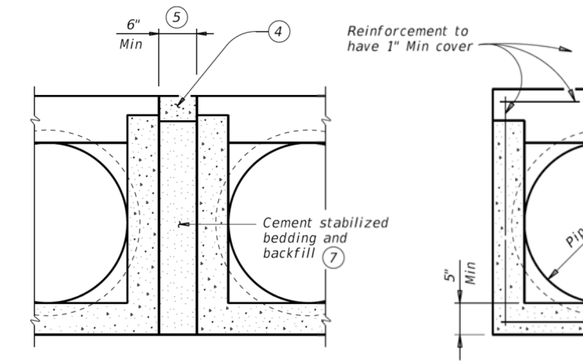
PLAN

(Showing bell end connection.)



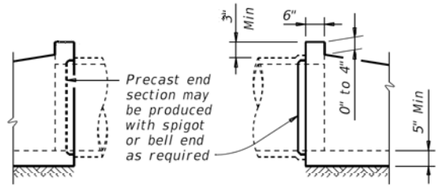
LONGITUDINAL ELEVATION

(Showing bell end connection.)



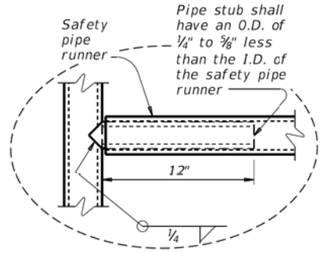
END DETAIL FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)



OPTIONAL JOINT FOR RCP

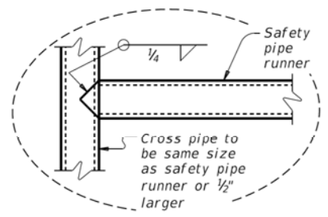
(Showing joint between RCP and precast safety end treatment)



OPTION A

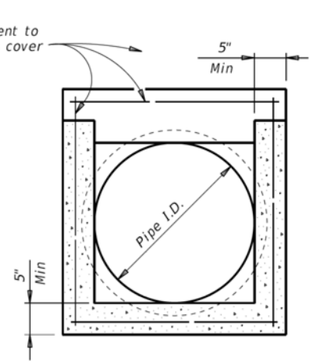
DETAIL A

(If required)

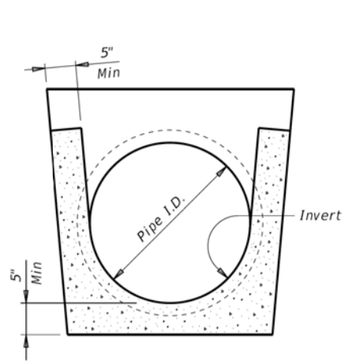


OPTION B

MULTIPLE PIPE INSTALLATION

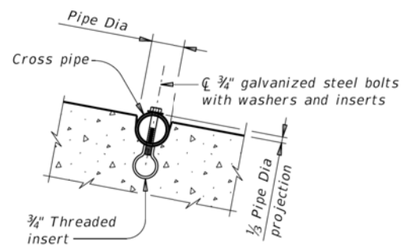


OPTION WITH SQUARE BOTTOM



OPTION WITH INVERT BOTTOM

SECTION A-A



INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)

SAFETY PIPE RUNNER DIMENSIONS

Max Safety Pipe Runner Length	Required Pipe Runner Size		
	Pipe Size	Pipe O.D.	Pipe I.D.
11' – 2"	3" STD	3.500"	3.068"
15' – 6"	3 ½" STD	4.000"	3.548"
20' – 10"	4" STD	4.500"	4.026"
35' – 4"	5" STD	5.563"	5.047"

(1) Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.

(2) Slope as shown elsewhere in plans. Slope of 3:1 or flatter is required for vehicle safety.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

(4) Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment".

(5) Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.

(6) Measured along slope.

(7) Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures". Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.

(8) Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment".

When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below :

A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" – D12 x D12 or 5"x5" – D10 x D10 welded wire reinforcement (WWR).
B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).

At the option and expense of the Contractor, the next larger size of safety end treatment may be furnished as long as the "D" dimension cast is that of the required size of pipe.

Pipe runners are designed for a traversing load of 1,800 Lbs at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

Provide safety pipe runners, cross pipes, pipe support posts, and pipe stubs meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464 "Reinforced Concrete Pipe". Connect TP by grouting. See PBGC standard for grouted connections with TP and precast safety end treatment.

Texas Department of Transportation

Bridge Division Standard

PRECAST SAFETY END TREATMENT

TYPE II ~ CROSS DRAINAGE

PSET-SC

FILE: psetscss-20.dgn	DN: RLW	CK: KLR	DW: JTR	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 331 OF 378
DWG No. CC6-1722
CONTRACT No. C-2033270-01

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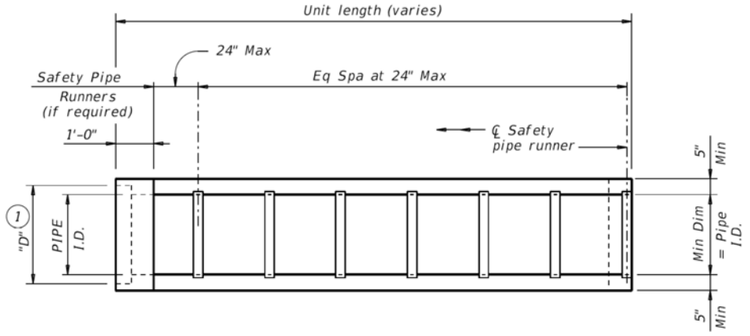
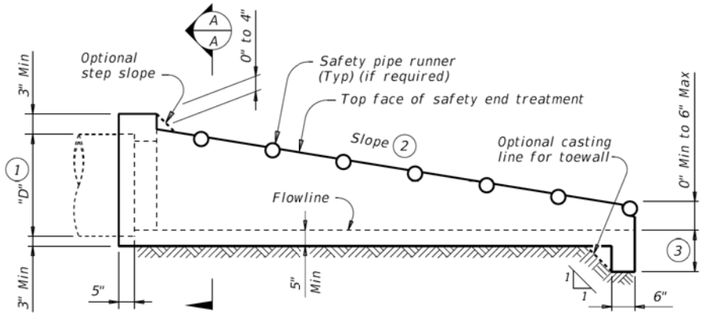


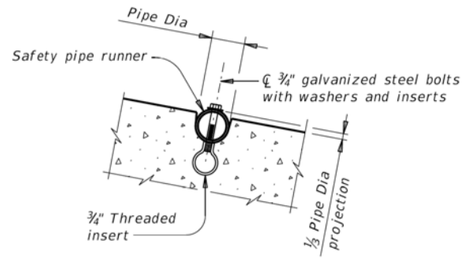
PLAN

(Showing bell end connection.)



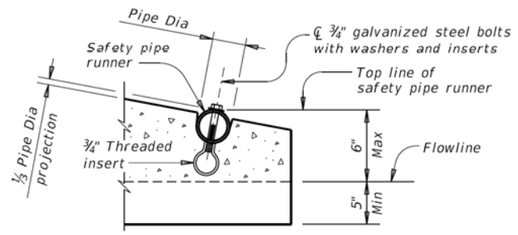
LONGITUDINAL ELEVATION

(Showing bell end connection.)

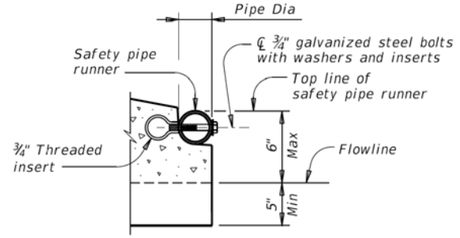


INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)



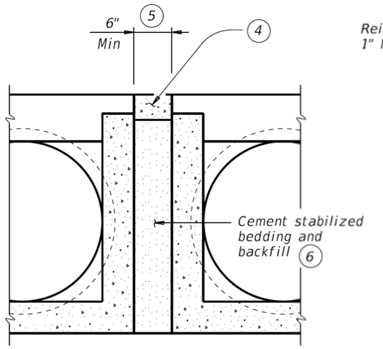
OPTION A



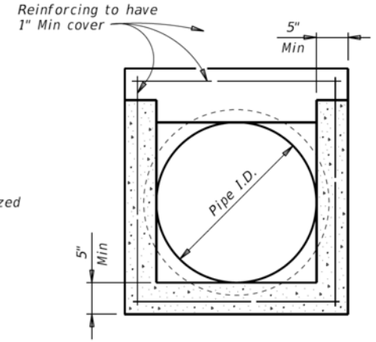
OPTION B

END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS

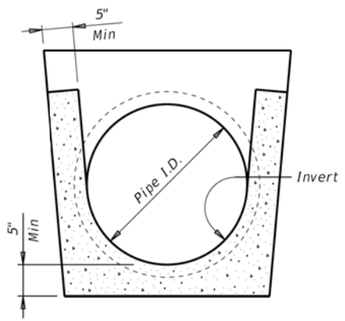
(If required)



MULTIPLE PIPE INSTALLATION

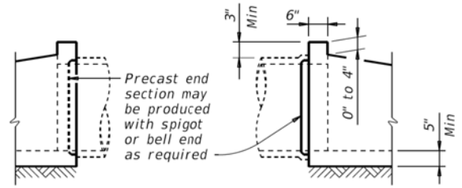


OPTION WITH SQUARE BOTTOM



OPTION WITH INVERT BOTTOM

SECTION A-A



OPTIONAL JOINT FOR RCP

(Showing joint between RCP and precast safety end treatment.)

REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

Pipe I.D.	RCP Wall "B" Thickness	TP Wall Thickness (7)	"D" (1)	Slope	Min Length	Pipe Runners Required		Required Pipe Runner Size		
						Single Pipe	Multiple Pipe	Nominal Dia.	O.D.	I.D.
12"	2"	1.15"	17.00"	6:1	4' – 9"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
15"	2 ¼"	1.30"	20.50"	6:1	6' – 5"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
18"	2 ½"	1.60"	24.00"	6:1	8' – 0"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
24"	3"	1.95"	31.00"	6:1	11' – 3"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
30"	3 ½"	2.65"	38.50"	6:1	14' – 8"	No	Yes	4" STD	4.500"	4.026"
36"	4"	2.75"	45.50"	6:1	17' – 11"	Yes	Yes	4" STD	4.500"	4.026"
42"	4 ½"	N/A	52.50"	6:1	21' – 2"	Yes	Yes	4" STD	4.500"	4.026"

(1) Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.

(2) Slope as shown elsewhere in the plans. Slope of 6:1 or flatter is required for vehicle safety.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

(4) Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment".

(5) Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.

(6) Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures". Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.

(7) Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment".

When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below :

A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" – D12 x D12 or 5"x5" – D10 x D10 welded wire reinforcement (WWR).

B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).

At the option and expense of the Contractor the next larger size of safety end treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.

Pipe runners are designed for a traversing load of 10,000 Lbs at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Provide pipe runners meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464, "Reinforced Concrete Pipe". Connect TP by grouting. See PBGC standard for grouted connections with TP and precast safety end treatment.

Texas Department of Transportation

Bridge Division Standard

PRECAST SAFETY END TREATMENT

TYPE II ~ PARALLEL DRAINAGE

PSET-SP

FILE: psetspss-20.dgn	DN: RLW	CK: KLR	DW: JTR	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 332 OF 378
DWG No. CC6-1723
CONTRACT No. C-2033270-01

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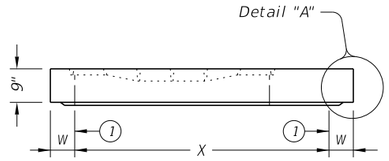
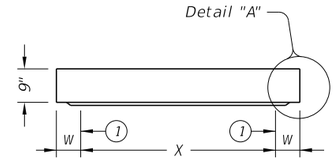
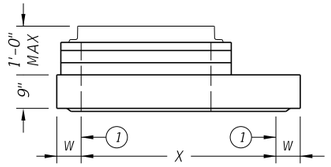


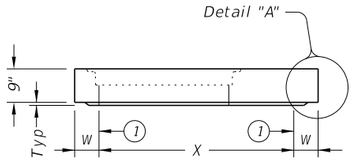
STYLE 'FG'



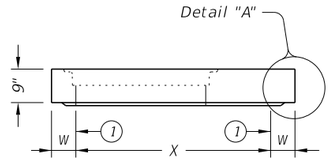
ELEVATION VIEW



ELEVATION VIEW



ELEVATION VIEW



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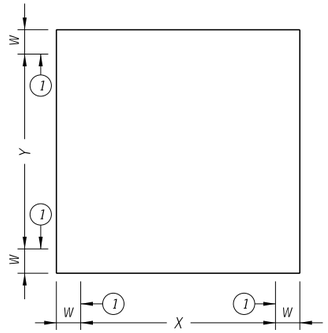
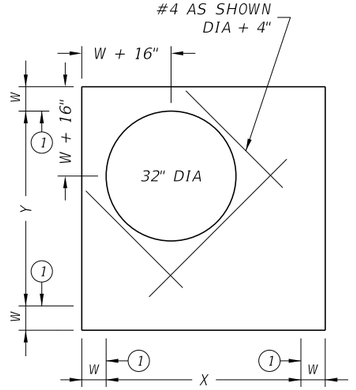


PLAN VIEW

NO OPENINGS

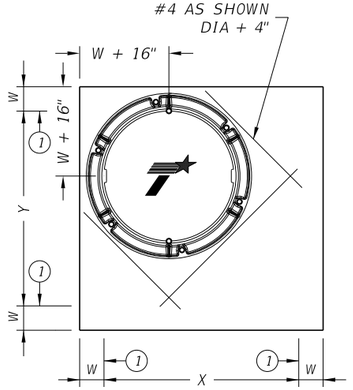
STYLE 'SL'



PLAN VIEW

SHIP LOOSE RING & COVER

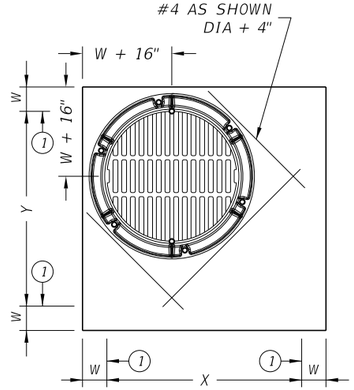
STYLE 'RH'



PLAN VIEW

32" DIA CAST-IN RING & COVER

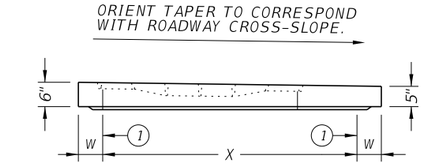
STYLE 'RC'



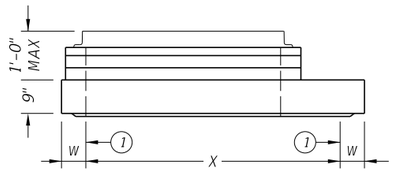
PLAN VIEW

32" DIA CAST-IN RING & GRATE

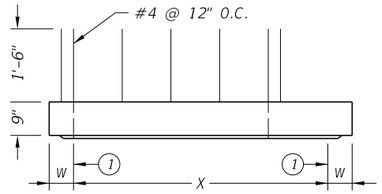
STYLE 'RG'



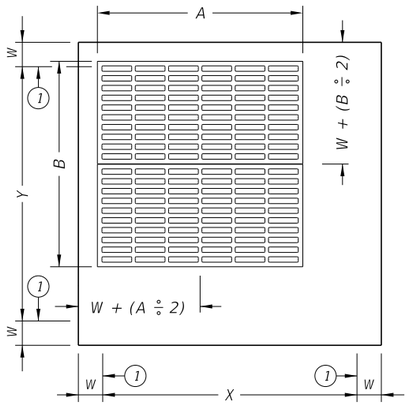
STYLE 'SFG'
ELEVATION VIEW



ELEVATION VIEW



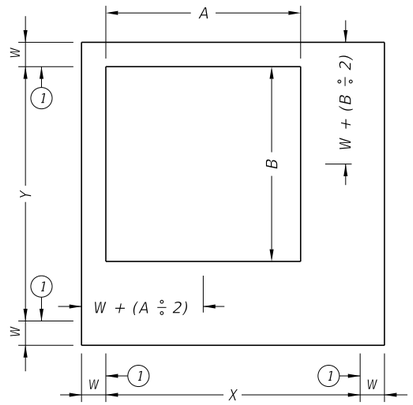
ELEVATION VIEW



PLAN VIEW

CAST-IN FRAME & GRATE

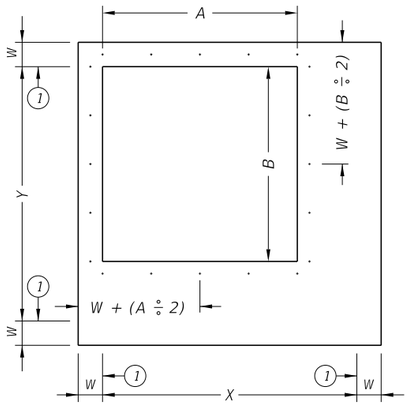
STYLES 'FG' & 'SFG'



PLAN VIEW

SHIP LOOSE FRAME & GRATE

STYLE 'SH'



PLAN VIEW

EXPOSED REBAR

STYLE 'S1'

1 Matches inside face of wall of precast base or riser below inlet.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRECAST SLAB LID

PSL

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 333 OF 378
DWG No. CC6-1724
CONTRACT No. C-2033270-01

FILE: prestd05-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
	DIST	COUNTY		SHEET NO.

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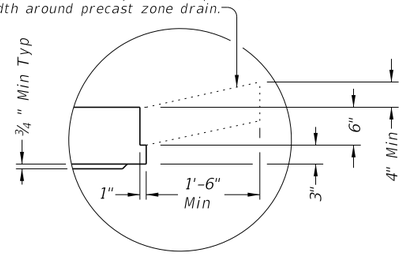
DATE:
FILE:

Style	Size (X x Y)	W (2)	A x B (nominal)	Short Span Reinf Steel Area	Long Span Reinf Steel Area
SL	3'x3'	6"	n/a	0.37 in²/ft	0.37 in²/ft
RH,RC,RG,SH,S1,FG	3'x3'	6"	3'x3' or 32" Dia	0.37 in²/ft	0.37 in²/ft
SFG	3'x3'	6"	3'x3'	0.32 in²/ft	0.32 in²/ft
SL	4'x4'	6"	n/a	0.34 in²/ft	0.34 in²/ft
RH,RC,RG,SH,S1,FG	4'x4'	6"	3'x3' or 32" Dia	0.41 in²/ft	0.41 in²/ft
SH,S1,FG	4'x4'	6"	4'x4'	0.41 in²/ft	0.41 in²/ft
SFG	4'x4'	6"	4'x4'	0.32 in²/ft	0.32 in²/ft
SL	3'x5'	6"	n/a	0.39 in²/ft	0.39 in²/ft
RH,RC,RG,SH,S1,FG	3'x5'	6"	3'x3' or 32" Dia	0.48 in²/ft	0.48 in²/ft
SH,S1,FG	3'x5'	6"	3'x5'	0.48 in²/ft	0.48 in²/ft
SFG	3'x5'	6"	3'x5'	0.32 in²/ft	0.32 in²/ft
SL	4'x5'	6"	n/a	0.42 in²/ft	0.42 in²/ft
RH,RC,RG,SH,S1,FG	4'x5'	6"	3'x3' or 32" Dia	0.42 in²/ft	0.42 in²/ft
SH,S1,FG	4'x5'	6"	4'x4'	0.63 in²/ft	0.63 in²/ft
SH,S1,FG	4'x5'	6"	3'x5'	0.66 in²/ft	0.66 in²/ft
SL	5'x5'	6"	n/a	0.36 in²/ft	0.36 in²/ft
RH,RC,RG,SH,S1,FG	5'x5'	6"	3'x3' or 32" Dia	0.43 in²/ft	0.43 in²/ft
SH,S1,FG	5'x5'	6"	4'x4'	0.63 in²/ft	0.63 in²/ft
SH,S1,FG	5'x5'	6"	3'x5'	0.63 in²/ft	0.63 in²/ft
SL	5'x6'	6"/8"	n/a	0.48 in²/ft	0.48 in²/ft
RH,RC,RG,SH,S1,FG	5'x6'	6"/8"	3'x3' or 32" Dia	0.48 in²/ft	0.48 in²/ft
SH,S1,FG	5'x6'	6"/8"	4'x4'	0.60 in²/ft	0.60 in²/ft
SH,S1,FG	5'x6'	6"/8"	3'x5'	0.60 in²/ft	0.60 in²/ft
SL	6'x6'	6"/8"	n/a	0.43 in²/ft	0.43 in²/ft
RH,RC,RG,SH,S1,FG	6'x6'	6"/8"	3'x3' or 32" Dia	0.56 in²/ft	0.56 in²/ft
SH,S1,FG	6'x6'	6"/8"	4'x4'	0.56 in²/ft	0.56 in²/ft
SH,S1,FG	6'x6'	6"/8"	3'x5'	0.59 in²/ft	0.59 in²/ft
SL	8'x8'	8"/10"	n/a	0.45 in²/ft	0.45 in²/ft
RH,RC,RG,SH,S1,FG	8'x8'	8"/10"	3'x3' or 32" Dia	0.45 in²/ft	0.45 in²/ft
SH,S1,FG	8'x8'	8"/10"	4'x4'	0.45 in²/ft	0.45 in²/ft
SH,S1,FG	8'x8'	8"/10"	3'x5'	0.45 in²/ft	0.45 in²/ft

(2) See sheet PDD for corresponding wall thickness (W) of base unit or riser.

Construct cast-in-place reinforced concrete apron, when shown elsewhere in plans. Use Class "A" concrete. Apron is subsidiary to PSL. Apron is 1'-6" Min width around precast zone drain.



DETAIL "A"

(Reinforcing not shown for clarity)

When an apron is to be cast around PSL, use detail above to create an apron ledge on all 4 sides.

FABRICATION NOTES:

1. Locate penetration (Style 'RH'), ring and cover (Style 'RC'), ring and grate (Style 'RG'), and frame and grate (Style 'FG') in a corner. Only one penetration is allowed per slab lid.
2. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
3. Provide Grade 60 reinforcing steel or equivalent area of WWR.
4. Provide clear cover of ¾" to reinforcing from lower outside shoulder of slab for structural reinforcement, and 2" from top of slab for shrinkage and temperature reinforcement. Place short span reinforcing closest to surface.
5. Slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing. Provide steel area = 0.11 in²/ft each way.
6. No substitution is allowed for diagonal #4 bars around openings.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
8. Provide lifting devices in conformance with Manufacturer's recommendations.

INSTALLATION NOTES:

1. Precast slab lids are intended for direct traffic and may be placed in roadway.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. Initial installation of grade adjustment rings for Styles 'RH' and 'SH' is limited to 1'-0" Max as shown.
5. Grade adjustment rings for Styles 'RH' and 'SH' may be increased to 2'-0" Max when future construction affects final grade of structure. Make adjustments greater than 2'-0" with additional risers. Adjustments can be made up to Max depth shown on sheet PDD. Structure must be evaluated if Max depth will be exceeded.
6. Orient long dimension of grate slots perpendicular to traffic, unless noted otherwise on plans

GENERAL NOTES:

1. Designed according to ASTM C913.
2. Payment for lid is per Item 465, "Junction Boxes, Manholes, and Inlets" by type, style, size, and opening size (when applicable).

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRECAST SLAB LID

PSL

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 334 OF 378
DWG No. CC6-1725
CONTRACT No. C-2033270-01

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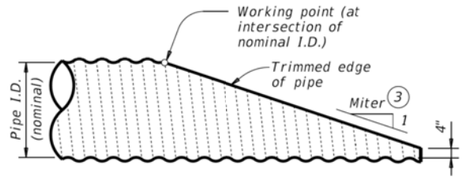
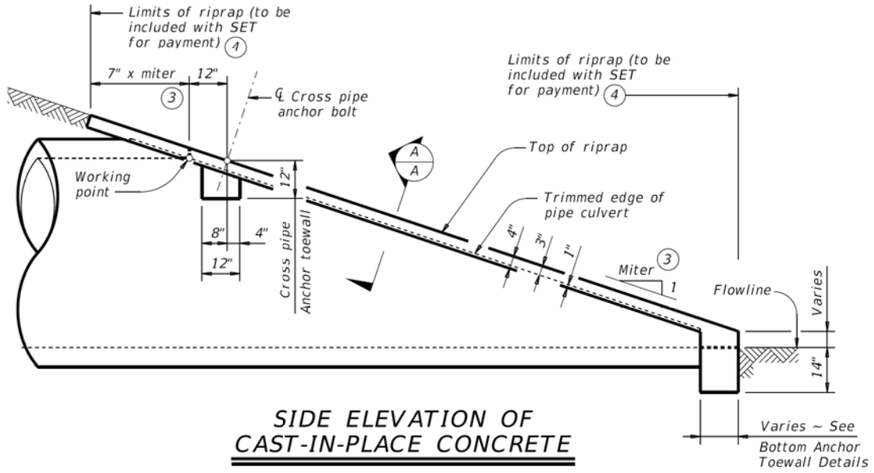


NOTE: All pipe runners, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

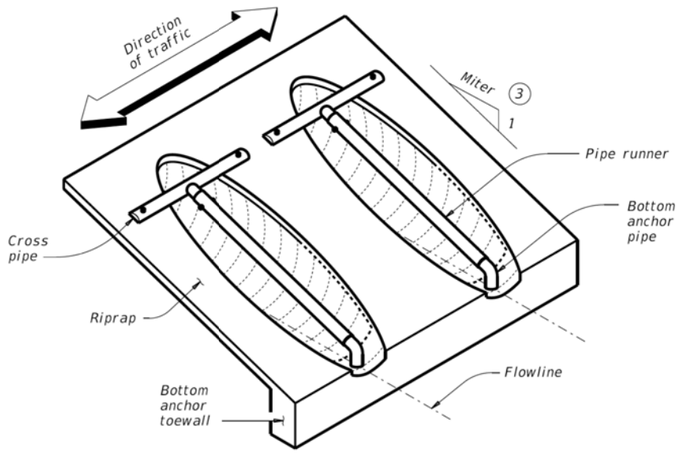
SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert.
Details of reinforced concrete pipe (RCP) culvert are similar.)



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert.
Details of corrugated metal pipe (CMP) culvert
are similar. Pipe runners not shown for clarity)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

CROSS PIPE LENGTHS AND PIPE RUNNER LENGTHS (1) (2)

Nominal Culvert I.D.	Pipe Culvert Spa ~ G	Cross Pipe Length	Pipe Runner Length											
			3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
			0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
24"	1' – 7"	3' – 5"	N/A	N/A	N/A	5' – 10"	N/A	N/A	N/A	8' – 1"	N/A	N/A	N/A	12' – 9"
27"	1' – 8"	3' – 8"	N/A	N/A	5' – 5"	6' – 11"	N/A	N/A	7' – 7"	9' – 7"	N/A	N/A	11' – 11"	14' – 11"
30"	1' – 10"	3' – 11"	N/A	N/A	6' – 4"	8' – 0"	N/A	N/A	8' – 9"	11' – 0"	N/A	N/A	13' – 8"	17' – 0"
33"	1' – 11"	4' – 2"	6' – 2"	6' – 5"	7' – 3"	9' – 1"	8' – 6"	8' – 10"	10' – 0"	12' – 5"	13' – 3"	13' – 9"	15' – 5"	19' – 2"
36"	2' – 1"	4' – 5"	6' – 11"	7' – 3"	8' – 2"	10' – 2"	9' – 6"	9' – 11"	11' – 2"	13' – 10"	14' – 9"	15' – 3"	17' – 2"	21' – 3"
42"	2' – 4"	4' – 11"	8' – 6"	8' – 10"	9' – 11"	12' – 4"	11' – 7"	12' – 0"	13' – 6"	16' – 8"	17' – 9"	18' – 5"	20' – 8"	25' – 7"
48"	2' – 7"	5' – 5"	10' – 1"	10' – 5"	11' – 9"	N/A	13' – 7"	14' – 2"	15' – 10"	N/A	20' – 9"	21' – 6"	24' – 2"	N/A
54"	3' – 0"	5' – 11"	11' – 8"	12' – 1"	N/A	N/A	15' – 8"	16' – 3"	N/A	N/A	23' – 10"	24' – 8"	N/A	N/A
60"	3' – 3"	6' – 5"	13' – 3"	N/A	N/A	N/A	17' – 9"	N/A	N/A	N/A	26' – 10"	N/A	N/A	N/A

TYPICAL PIPE CULVERT MITERS (3)

Side Slope	0° Skew	15° Skew	30° Skew	45° Skew
3:1	3:1	3.106:1	3.464:1	4.243:1
4:1	4:1	4.141:1	4.619:1	5.657:1
6:1	6:1	6.212:1	6.928:1	8.485:1

CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED (2)

Nominal Culvert I.D.	Single Pipe Culvert	Multiple Pipe Culverts
12" thru 21"	Skews thru 45°	Skews thru 45°
24"	Skews thru 45°	Skews thru 30°
27"	Skews thru 30°	Skews thru 15°
30"	Skews thru 15°	Skews thru 15°
33"	Skews thru 15°	Always required
36"	Normal (no skew)	Always required
42" thru 60"	Always required	Always required

STANDARD PIPE SIZES AND MAX PIPE RUNNER LENGTHS (1)

Pipe Size	Pipe O.D.	Pipe I.D.	Max Pipe Runner Length
2" STD	2.375"	2.067"	N/A
3" STD	3.500"	3.068"	10' – 0"
4" STD	4.500"	4.026"	19' – 8"
5" STD	5.563"	5.047"	34' – 2"

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) (5)

Nominal Culvert I.D.	3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
12"	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.8
15"	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9
18"	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.9	1.0
21"	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.2
24"	0.6	0.7	0.7	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.1	1.3
27"	0.7	0.7	0.8	0.9	0.8	0.9	0.9	1.1	1.1	1.1	1.2	1.4
30"	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.3	1.6
33"	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.3	1.3	1.4	1.5	1.7
36"	0.9	0.9	0.9	1.1	1.1	1.1	1.2	1.4	1.4	1.5	1.6	1.8
42"	1.0	1.0	1.1	1.3	1.2	1.3	1.3	1.6	1.6	1.7	1.8	2.1
48"	1.1	1.1	1.2	N/A	1.4	1.4	1.5	N/A	1.9	1.9	2.1	N/A
54"	1.3	1.3	N/A	N/A	1.6	1.6	N/A	N/A	2.1	2.1	N/A	N/A
60"	1.4	N/A	N/A	N/A	1.7	N/A	N/A	N/A	2.3	N/A	N/A	N/A

(1) Provide pipe runner of the size shown in the tables. Provide cross pipe of the same size as the pipe runner. Provide cross pipe stub out and bottom anchor pipe of the next smaller size pipe as shown in the Standard Pipe Sizes and Max Pipe Runner Lengths tabie.

(2) This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:

For 60" culvert pipes, the skew must not exceed 0°.
For 54" culvert pipes, the skew must not exceed 15°.
For 48" culvert pipes, the skew must not exceed 30°.
For all culvert pipe sizes 42" and less, the skew must not exceed 45°.

If the above conditions cannot be met, the designer should consider using a safety end treatment with flared wings. For further information, refer to the TxDOT Roadway Design Manual.

(3) Miter = slope of mitered end of pipe culvert.

(4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

(5) Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 335 OF 378
DWG No. CC6-1726
CONTRACT No. C-2033270-01

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 60" DIA
PIPE CULVERTS
TYPE II ~ CROSS DRAINAGE

SETP-CD

FILE: setpcdse-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
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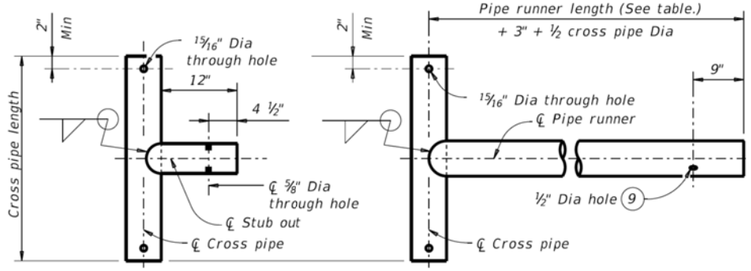
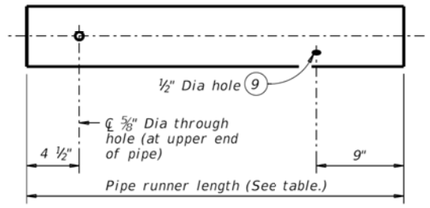


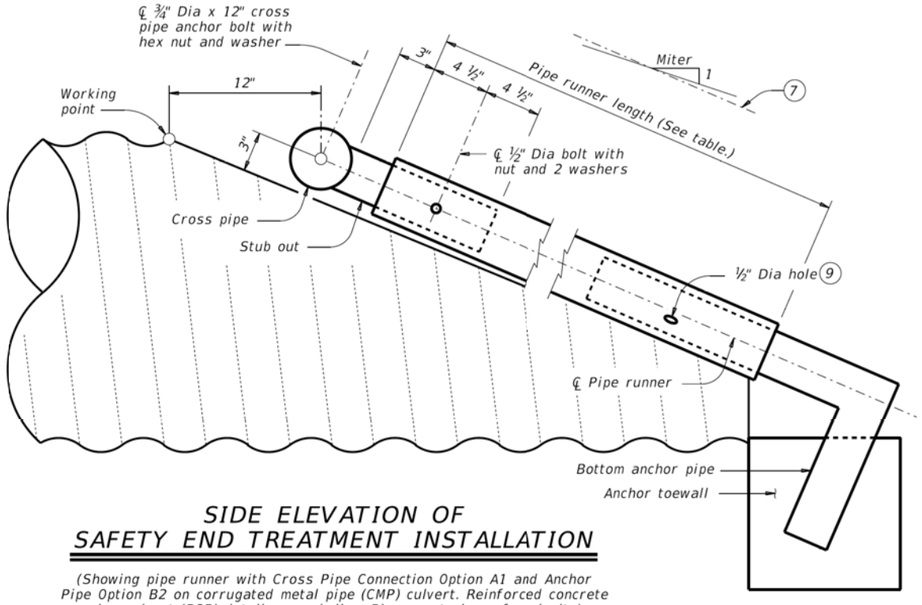
OPTION A1 OPTION A2

CROSS PIPE AND CONNECTIONS DETAILS



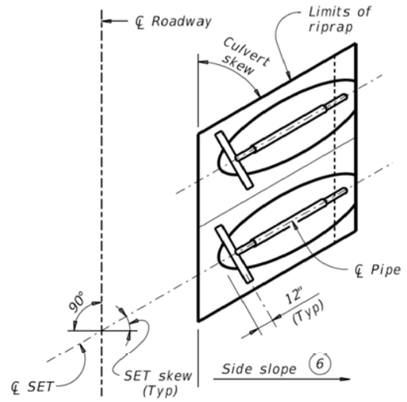
NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS

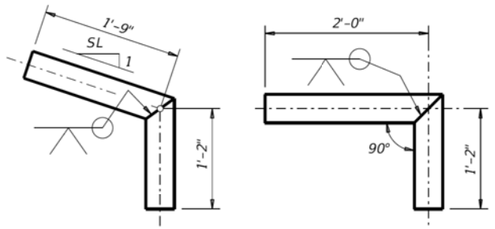


SIDE ELEVATION OF SAFETY END TREATMENT INSTALLATION

(Showing pipe runner with Cross Pipe Connection Option A1 and Anchor Pipe Option B2 on corrugated metal pipe (CMP) culvert. Reinforced concrete pipe culvert (RCP) details are similar. Riprap not shown for clarity)

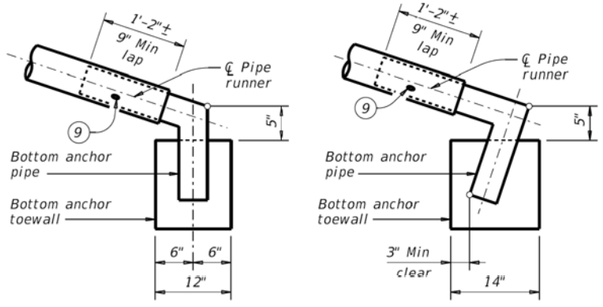


PLAN OF SKEWED INSTALLATION



OPTION B1 OPTION B2

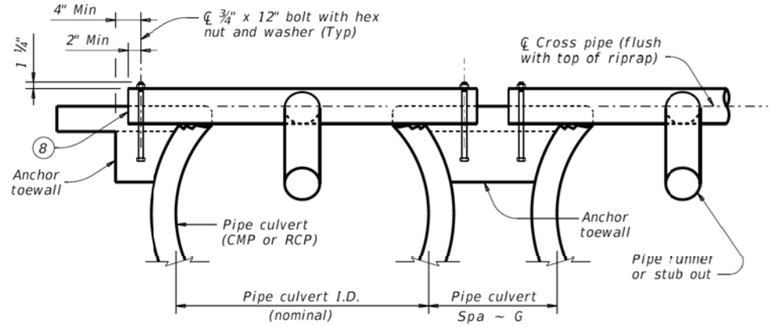
BOTTOM ANCHOR PIPE DETAILS (10)



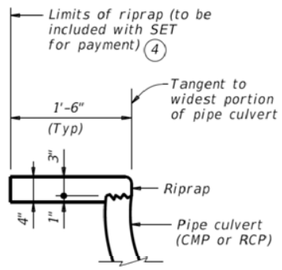
OPTION B1 OPTION B2

BOTTOM ANCHOR TOEWALL DETAILS

(Culvert and riprap not shown for clarity.)



SHOWING CROSS PIPE AND ANCHOR TOEWALL



SHOWING TYPICAL PIPE CULVERT AND RIPRAP

SECTION A-A

(4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

(6) Recommended values of side slope are 3:1, 4:1, and 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.

(7) Note that actual slope of pipe runner may vary slightly from side slope of riprap and trimmed culvert pipe edge.

(8) Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.

(9) After installation, inspect the 1/2" hole to ensure that the lap of the pipe runner with the bottom anchor pipe is adequate.

(10) At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide pipe runners, cross pipes, and anchor pipes conforming to the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication.

Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:

Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.

Payment for riprap and toewall is included in the price bid for each safety end treatment.

Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 60" DIA PIPE CULVERTS
TYPE II ~ CROSS DRAINAGE

SETP-CD

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VELOWEB HIKE & BIKE TRAIL
SHEET No. 336 OF 378
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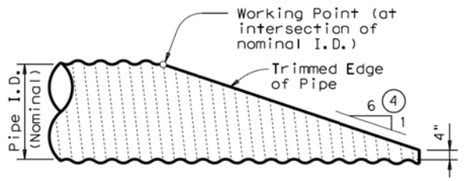
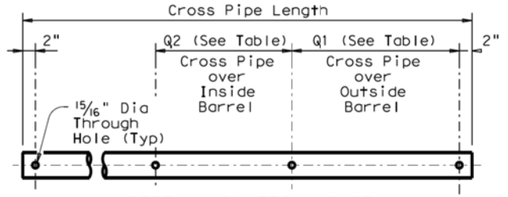


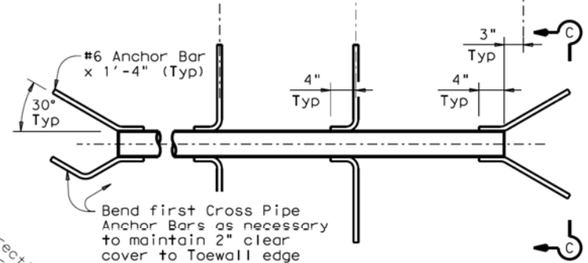
NOTE: All Cross Pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

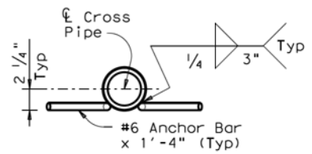
(Showing Corrugated Metal Pipe Culvert.)
(Details at Concrete Pipe Culvert are similar.)



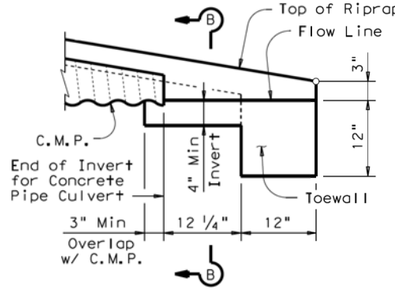
PIPE W/ BOLTED ANCHOR



PIPE W/ ANCHOR BARS

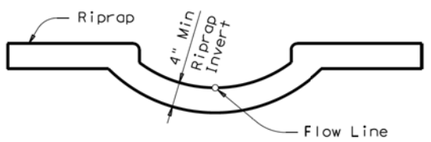


SECTION C-C



DETAIL "A"

(Showing Invert with Corrugated Metal Pipe Culvert. Concrete Pipe Culvert details are similar. Cross Pipes not shown for clarity.)



SECTION B-B

(Cross Pipes not shown for clarity.)

CROSS PIPE DETAILS

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, & RIPRAP QUANTITIES (2)							
Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for use of Cross Pipes	Cross Pipe Size
12"	0.6	9"	N/A	2'- 1"	1'- 9"	3 or more Pipe Culverts	3" Std (3.500" O.D.)
15"	0.7	11"	N/A	2'- 5"	2'- 2"		
18"	0.8	1'- 2"	N/A	2'-10"	2'- 8"		
21"	0.9	1'- 4"	N/A	3'- 2"	3'- 1"		
24"	0.9	1'- 7"	N/A	3'- 6"	3'- 7"		
27"	1.0	1'- 8"	N/A	3'-10"	3'-11"	3 or more Pipe Culverts	3 1/2" Std (4.000" O.D.)
30"	1.1	1'-10"	N/A	4'- 2"	4'- 4"	2 or more Pipe Culverts	
33"	1.2	1'-11"	4'- 2"	4'- 5"	4'- 8"	All Pipe Culverts	
36"	1.3	2'- 1"	4'- 5"	4'- 9"	5'- 1"	All Pipe Culverts	4" Std (4.500" O.D.)
42"	1.5	2'- 4"	4'-11"	5'- 5"	5'-10"		
48"	1.7	2'- 7"	5'- 5"	6'- 0"	6'- 7"	All Pipe Culverts	5" Std (5.563" O.D.)
54"	2.0	3'- 0"	5'-11"	6'- 9"	7'- 6"		
60"	2.2	3'- 3"	6'- 5"	7'- 4"	8'- 3"		
66"	2.4	3'- 3"	6'-11"	7'-10"	8'- 9"		
72"	2.7	3'- 4"	7'- 5"	8'- 5"	9'- 4"		

(1) The proper installation of the first Cross Pipe is critical for venicle safety. The top of the first Cross Pipe must be placed at no more than 6" above the flow line.

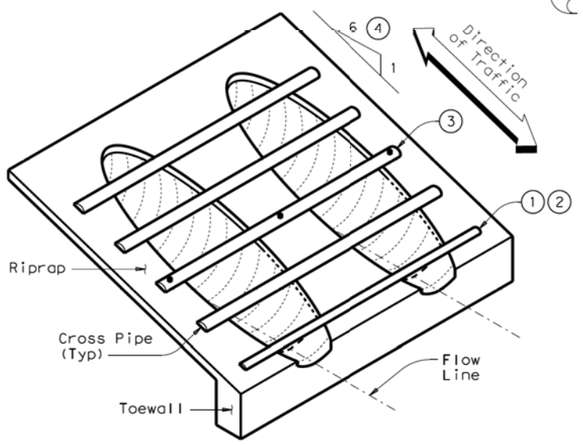
(2) Size of Cross Pipes, except the first bottom pipe, shall be as shown in the PIPE SIZE table. The first bottom pipe shall be 3 1/2" Standard Pipe (4" O.D.).

(3) The third Cross Pipe from the bottom of the Culvert shall always be installed using a bolted connection. Care shall be taken to ensure that Riprap concrete does not flow into the Cross Pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, all other Cross Pipes may also be installed using the bolted connection details.

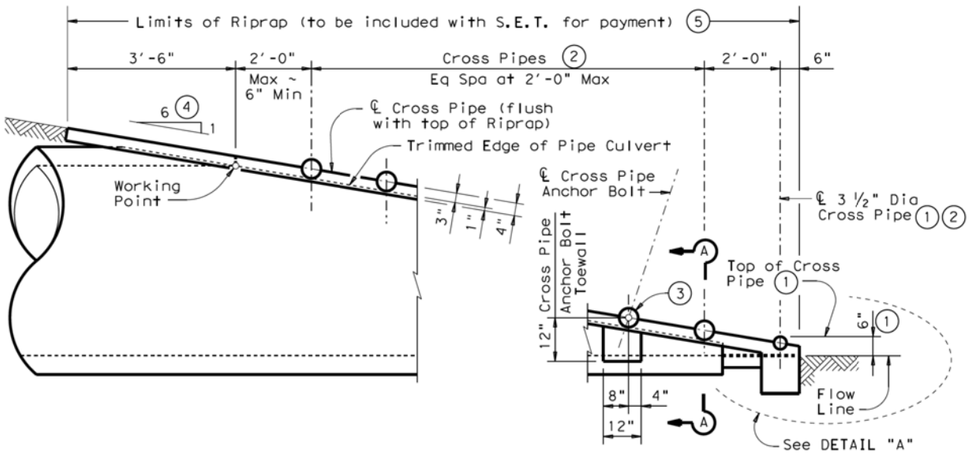
(4) Match Cross Slope as shown elsewhere in the plans. Cross Slope of 6:1 or flatter is required for vehicle safety.

(5) Riprap placed beyond the limits shown will be paid as Concrete Riprap in accordance with Item 432, "Riprap".

(6) Quantities shown are for one end of one reinforced Concrete Pipe Culvert. For multiple pipe culverts or for Corrugated Metal Pipe Culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

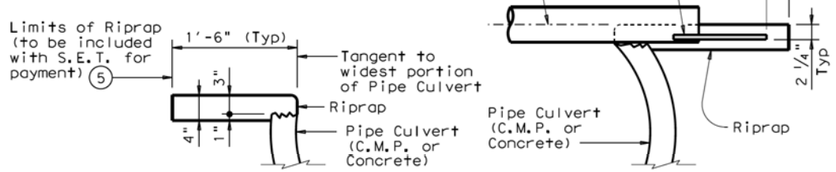


ISOMETRIC VIEW OF TYPICAL INSTALLATION



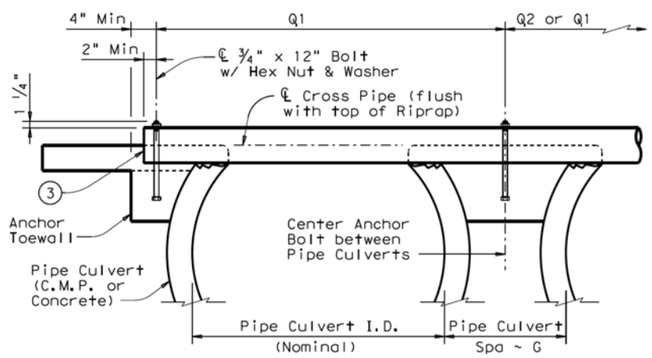
SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing Concrete Pipe Culvert.)
(Details at Corrugated Metal Pipe Culvert are similar.)



SHOWING TYPICAL PIPE CULVERT & RIPRAP

SHOWING CROSS PIPE WITH ANCHOR BAR



SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

GENERAL NOTES:

Cross Pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Safety End Treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Cross Pipes.

Riprap and all necessary inverts shall be Concrete Riprap conforming to the requirements of Item 432, "Riprap".

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.

Cross Pipes shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Bolts and nuts shall conform to ASTM A307.

All steel components, except concrete reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

VELOWEB HIKE & BIKE TRAIL

SHEET No. 337 OF 378
DWG No. CC6-1728
CONTRACT No.

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 72" DIA
PIPE CULVERTS
TYPE II ~ PARALLEL DRAINAGE

SETP-PD

FILE: setppdse.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
11-10: Add note for synthetic fibers.	DIST	COUNTY		SHEET NO.

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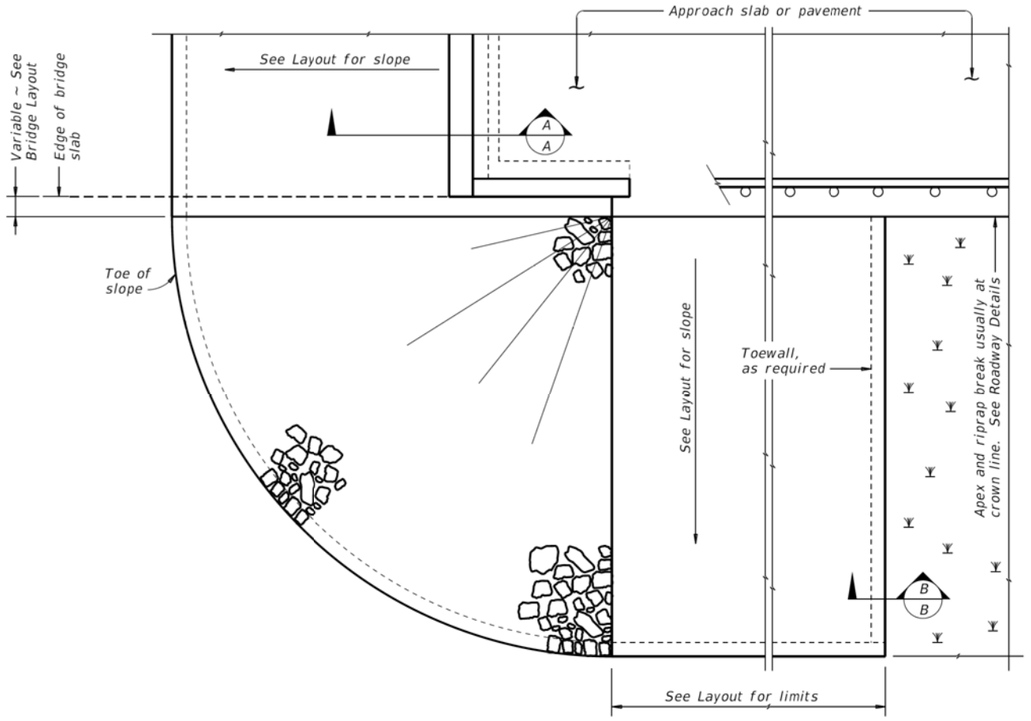
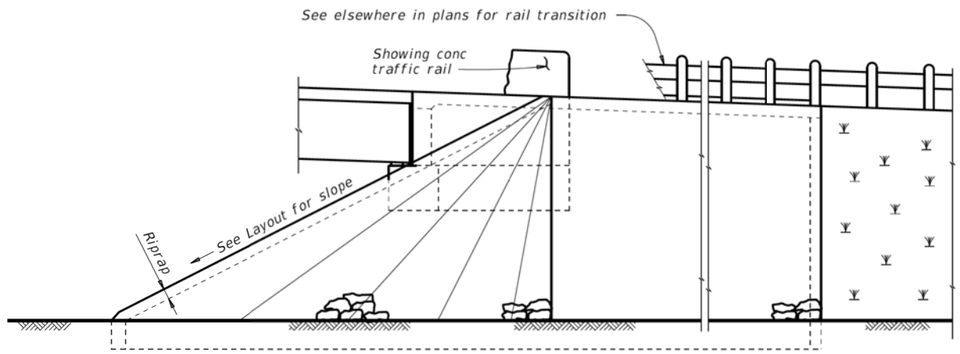
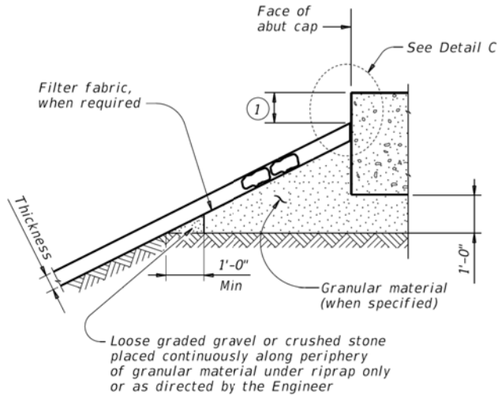
DATE:
FILE:



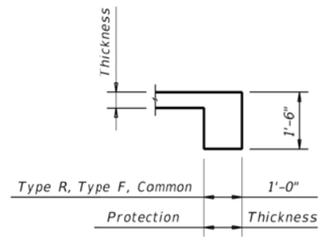
PLAN



ELEVATION

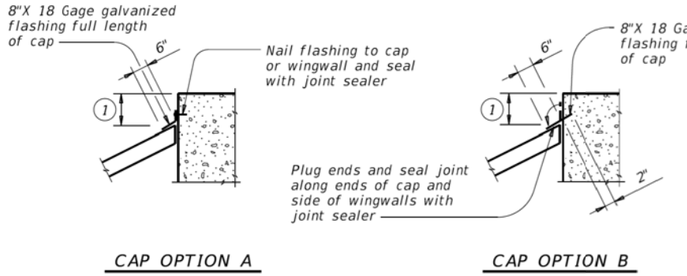


SECTION A-A AT CAP



SECTION B-B

Provide toewall when shoulder drain is located adjacent to limits of stone riprap. Omit toewall when thickness of protection riprap is greater than 18".



CAP OPTION A

CAP OPTION B

DETAIL C

(1) Top of cap to top of riprap dimension varies as directed by the Engineer. Provide 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.

GENERAL NOTES:
Refer to Item 432, "Riprap" for stone size and gradation, and construction details. See Layout for limits and thickness of riprap specified.
See elsewhere in plans for locations and details of shoulder drains.

VELOWEB HIKE & BIKE TRAIL
COTTON BELT REGIONAL RAIL
SHEET NO. 338 OF 378
DWG NO. CC6-1729
CONTRACT NO. C-2033270-01

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

FILE: srrstde1-19.dgn	DN: AES	CK: JGD	DW: BWH	CK: AES
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

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DATE:
FILE:

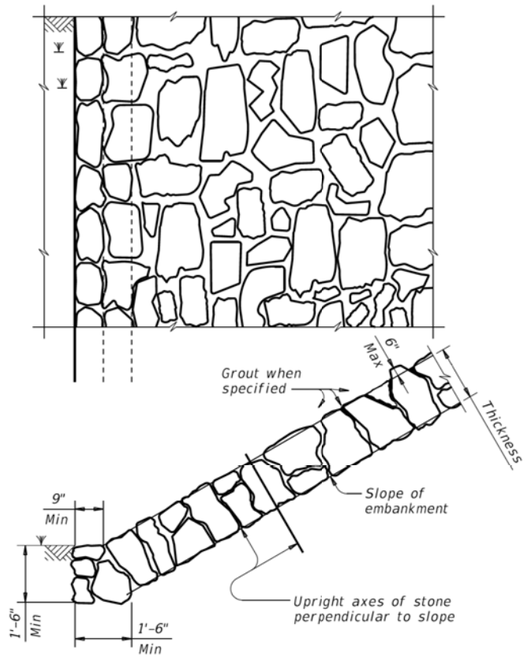


FIGURE 1 ~ TYPE R STONE RIPRAP

dry or grouted

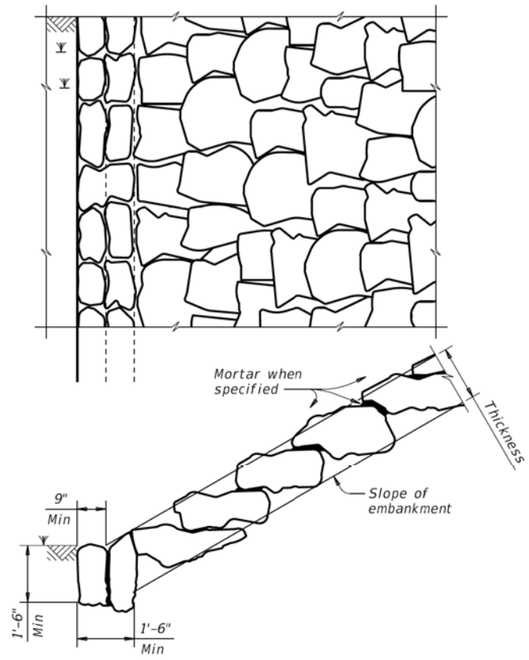


FIGURE 2 ~ TYPE F STONE RIPRAP

dry or mortared

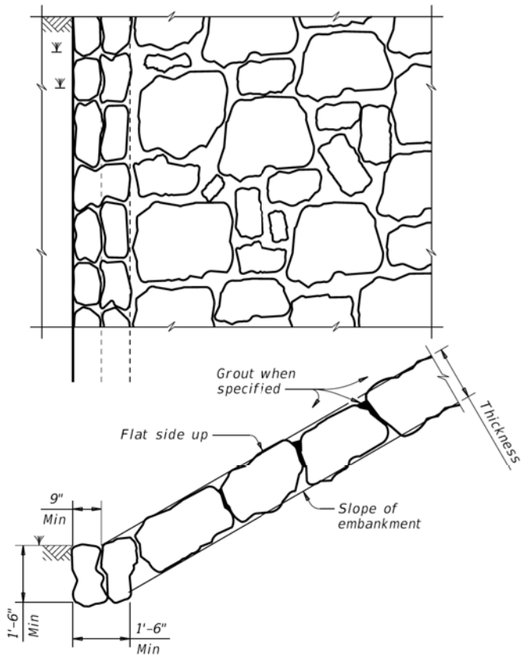


FIGURE 3 ~ TYPE F STONE RIPRAP

grouted

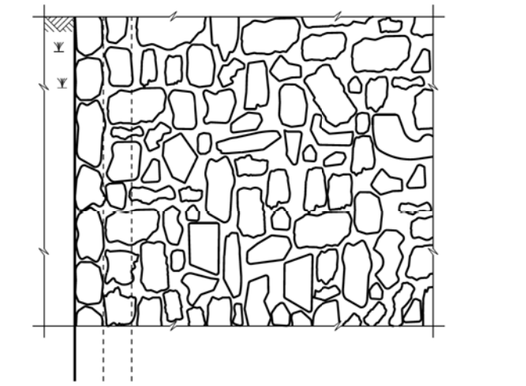


FIGURE 4 ~ COMMON STONE RIPRAP

dry or grouted

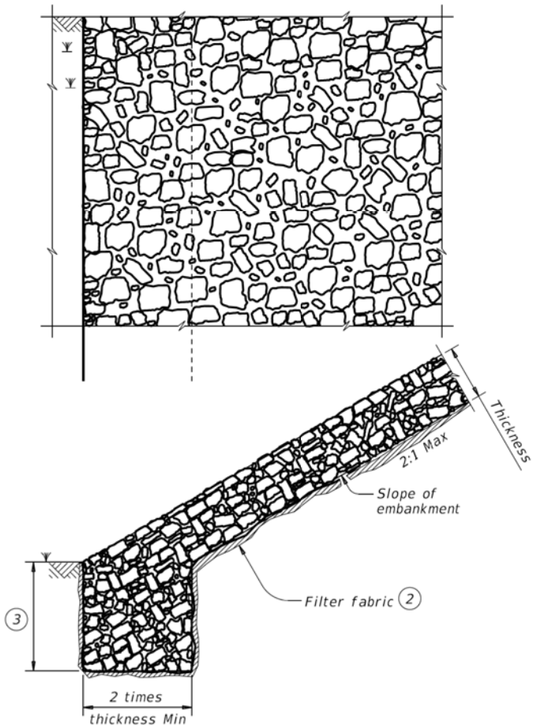


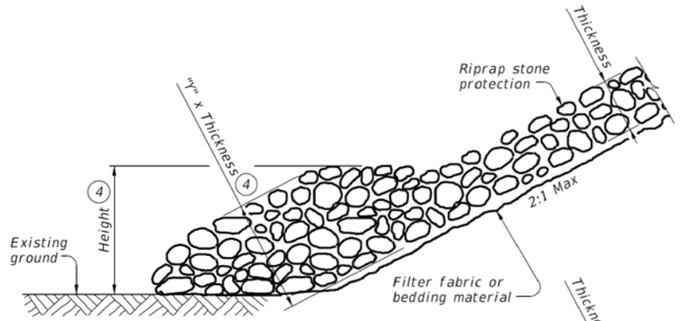
FIGURE 5 ~ PROTECTION STONE RIPRAP (5)

(2) Provide bedding material instead of filter fabric if shown elsewhere in plans. See Layout for thickness of bedding material.

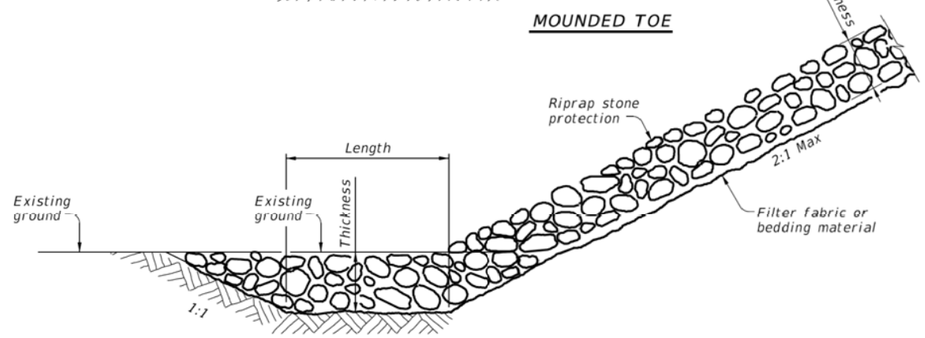
(3) Minimum toe depth is the larger of the maximum scour depth or 2 times the riprap thickness.

(4) "Y" and Height need to be defined. See layout or detail sheet for values if this option is used.

(5) List Stone Protection as size (XX inch) and thickness (YY inch) on the layout.
Example: Riprap (Stone Protection) XX inch, Thickness = YY inch.



MOUNDED TOE



EXTENDED ROCK FILLED TRENCH

PROTECTION STONE RIPRAP TOE OPTIONS (5)

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

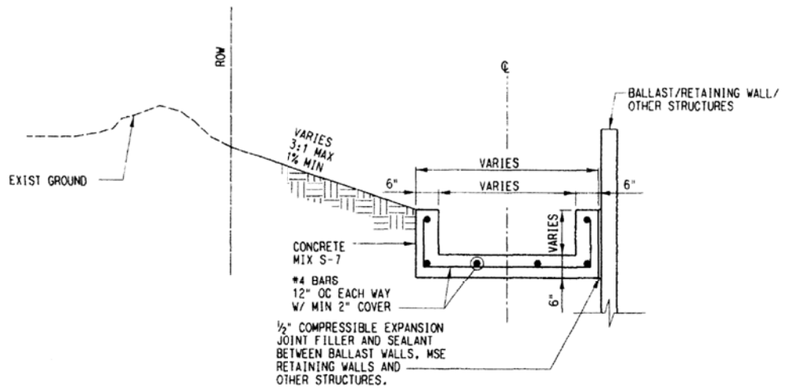
STONE RIPRAP

SRR

VELOWEB HIKE & BIKE TRAIL
COTTON BELT REGIONAL RAIL
SHEET NO. 339 OF 378
DWG NO. CC6-1730
CONTRACT NO. C-2033270-01

FILE: srrstde1-19.dgn	DN: AES	CK: JGD	DW: BWH	CK: AES
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

DWG No. CS6-0013



CONCRETE FLUME 1
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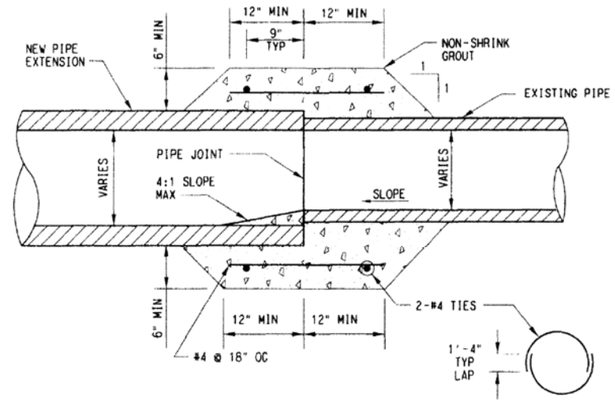

CONCRETE COLLAR FOR A PIPE CONNECTION FOR DISSIMILAR DIAMETERS 2
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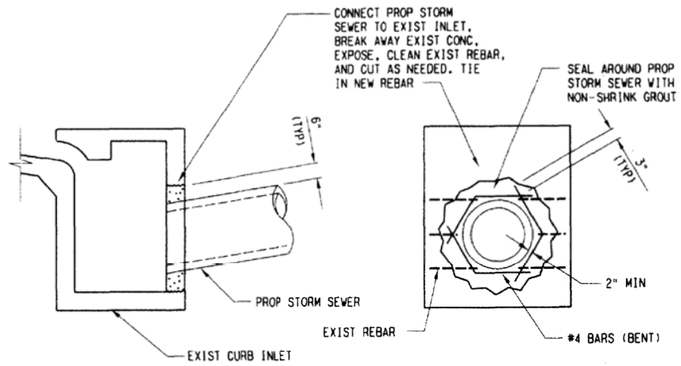

PIPE TO INLET CONNECTION DETAIL 3
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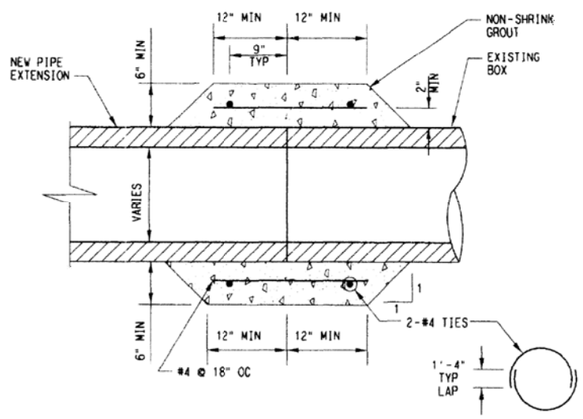

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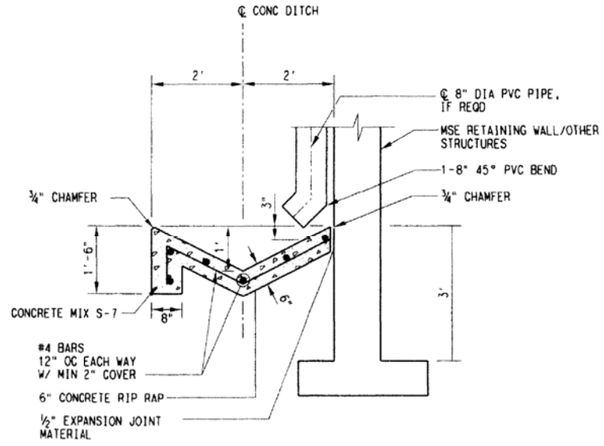

4' WIDE CONC DITCH DETAIL 4
NO SCALE

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 340 OF 378
DWG No. CC6-1731
CONTRACT No. C-2033270-01

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP
0								

B. N. REDDY CHIDANANDA
58001
REGISTERED PROFESSIONAL ENGINEER
12/23/05

CONFORMED

ACT 21
CARTER BURGESS
JACOBS CIVIL INC
STV INCORPORATED
KAI ALLIANCE

DART PROJECT

DART

CAES

SCALE	NO SCALE
DRAWN	B. SKINNER
DESIGNED	T. WILLIAMS
CHECKED	G. CELERIER
IN CHARGE	B.N. REDDY CHIDANANDA
DATE	30 NOV 05

CONTRACT SHEET No. 27 OF 307

CIVIL STANDARD

GUIDEWAY DRAINAGE
DRAINAGE DETAILS
SHEET 2 OF 6

CONTRACT	DWG No.	REV
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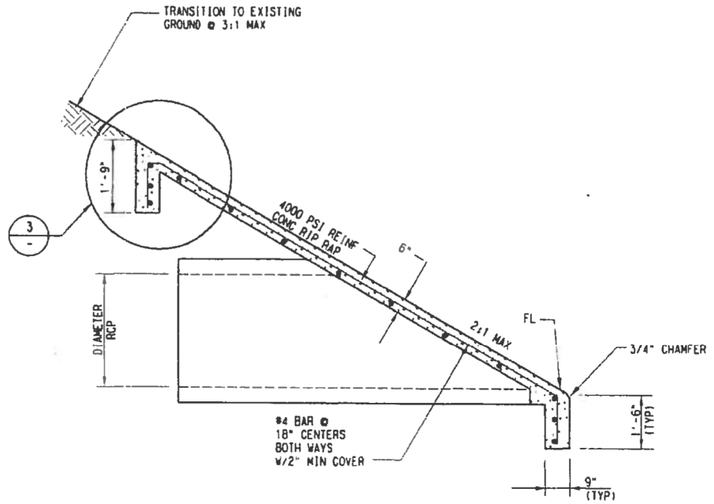
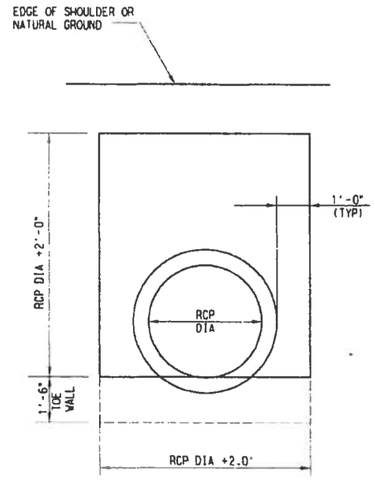


SIDE VIEW



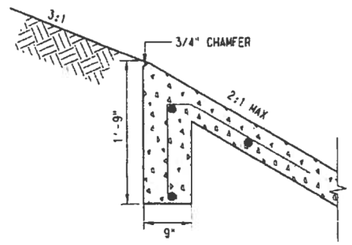
END VIEW

CONCRETE RIP RAP HEADWALL DETAIL 1/-

NO SCALE

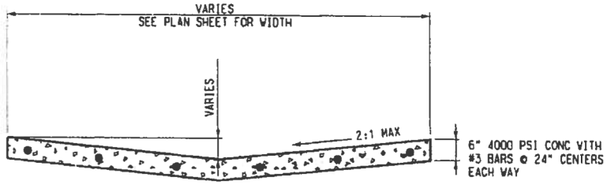
NOTES:

1. CONCRETE TO BE MIX S-7.
2. FILL SHALL BE SELECT FILL COMPACTED TO 95% STANDARD PROCTOR DENSITY.



HEADWALL FOOTING DETAIL 3/-

NO SCALE



CONCRETE V-DITCH 2/-

NO SCALE

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 341 OF 378
DWG No. CC6-1732
CONTRACT No. C-2033270-01

CONTRACT SHEET No. 28 OF 307

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP
0								

B. N. REDDY CHIDAMANDA 59001 LICENSED PROFESSIONAL ENGINEER 12/29/05

CARTER BURGESS
JACOBS CIVIL INC
STV INCORPORATED
KAI ALLIANCE

DART PROJECT

SCALE	NO SCALE
DRAWN	B. SKINNER
DESIGNED	T. VILLIANS
CHECKED	G. CLERIER
IN CHARGE	B.N. REDDY CHIDAMANDA
DATE	30 NOV 05

CAES

CIVIL STANDARD

GUIDEWAY DRAINAGE
DRAINAGE DETAILS
SHEET 3 OF 6

CONTRACT	DWG No.	REV
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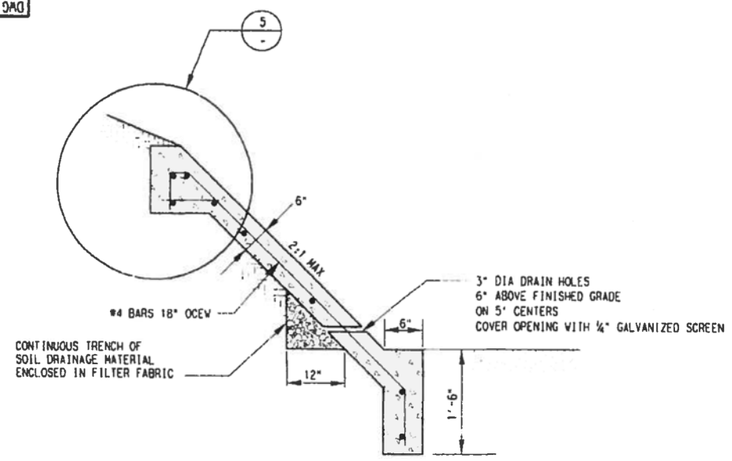
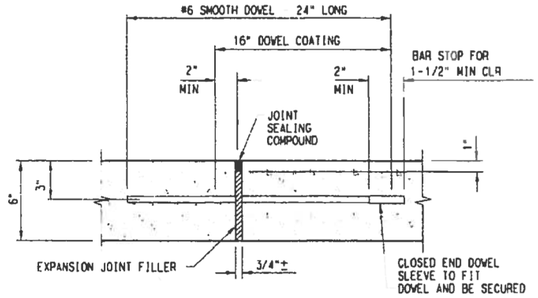
DWG No. CS6-0015



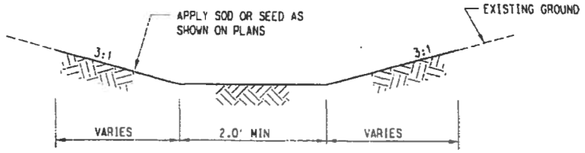
CONCRETE SLOPE PROTECTION 3
NO SCALE



EXPANSION JOINT FOR
CONCRETE SLOPE PROTECTION 4

GENERAL NOTES:

1. CONCRETE TO BE MIX "S-7".
2. CONCRETE DITCH TO BE PLACED ON UNDISTURBED SOIL OR SELECT FILL COMPACTED TO 95% STANDARD PROCTOR DENSITY.
3. EXPANSION JOINTS SHALL BE PLACED IN THE CONCRETE SLOPE PROTECTION AT 90° CENTERS (MAX).



UNLINED DITCH (TYPICAL) 1
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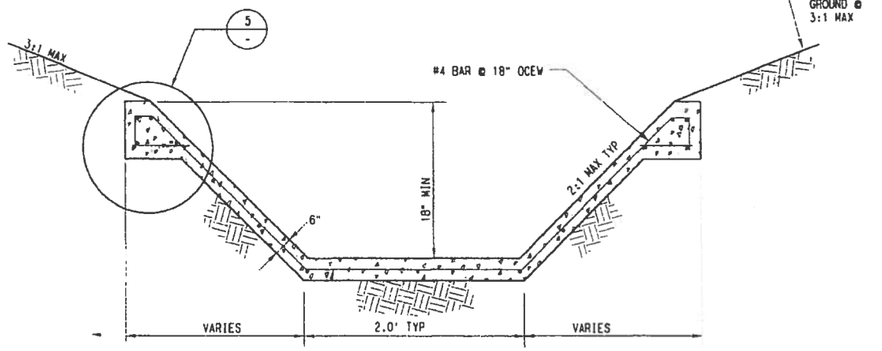

CONCRETE LINED TRAPEZOIDAL DITCH 2
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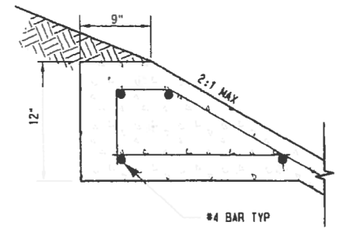

DITCH FOOTING DETAIL 5
NO SCALE

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 342 OF 378
DWG No. CC6-1733
CONTRACT No. C-2033270-01

CONTRACT SHEET No. 29 OF 307

REV	AMEND	DR	DATE	DESCRIPTION	BY	ENG	CHK	APP

B. N. REDDY CHIDANANDA
58001
LICENSED
PROFESSIONAL ENGINEER
12/23/05

CARTER BURGESS
JACOBS CIVIL INC
STV INCORPORATED
KAI ALLIANCE

DART PROJECT

SCALE	NO SCALE
DRAWN	B. SKINNER
DESIGNED	T. WILLIAMS
CHECKED	G. CELERIER
IN CHARGE	B.N. REDDY CHIDANANDA
DATE	30 NOV 05

CAES

CIVIL STANDARD

GUIDEWAY DRAINAGE
DRAINAGE DETAILS
SHEET 4 OF 6

CONTRACT	DWG No.	REV
	CS6-0015	0

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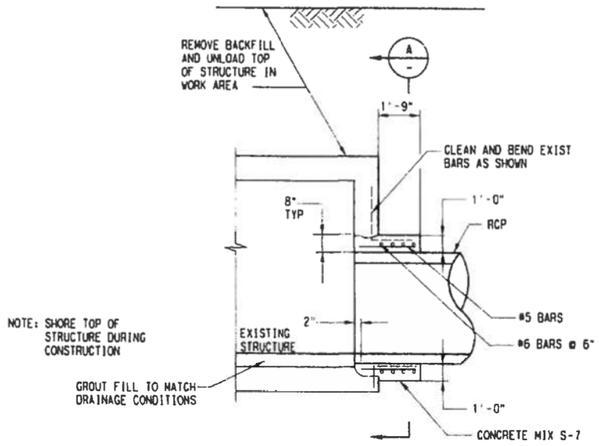
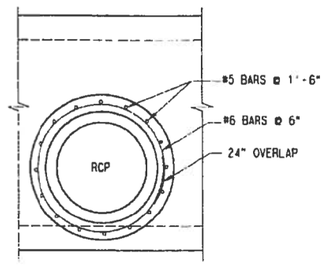
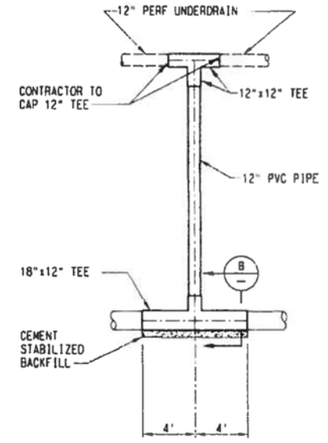
DWG No. CS6-0016





SECTION A
NO SCALE

RCP TIE INTO EXISTING STRUCTURE OTHER THAN INLETS 1
NO SCALE



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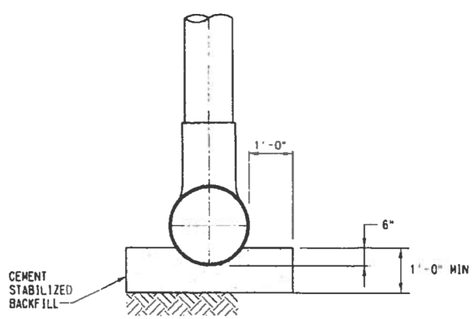

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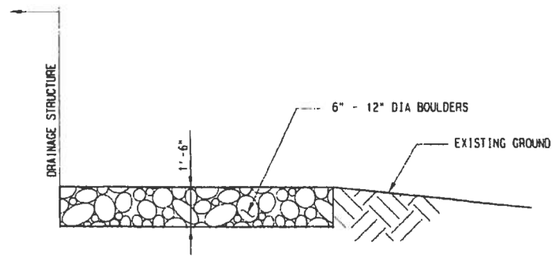

SEE DRAINAGE PLANS FOR LOCATIONS AND DIMENSIONS.

STONE RIP RAP 2
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 343 OF 378
DWG No. CC6-1734
CONTRACT No. C-2033270-01

CONTRACT SHEET No. 30 OF 307

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

STATE OF TEXAS — B. N. REDDY CHIDAMANDA — 58001 — LICENSED PROFESSIONAL ENGINEER — 12/23/05

CARTER BURGESS
JACOBS CIVIL INC
STV INCORPORATED
KAI ALLIANCE

DART PROJECT

SCALE	NO SCALE
DRAWN	B. SKINNER
DESIGNED	T. WILLIAMS
CHECKED	G. CELERIER
IN CHARGE	B.N. REDDY CHIDAMANDA
DATE	30 NOV 05

CAES

CIVIL STANDARD

GUIDEWAY DRAINAGE
DRAINAGE DETAILS
SHEET 5 OF 6

CONTRACT	DWG No.	REV
	CS6-0016	0

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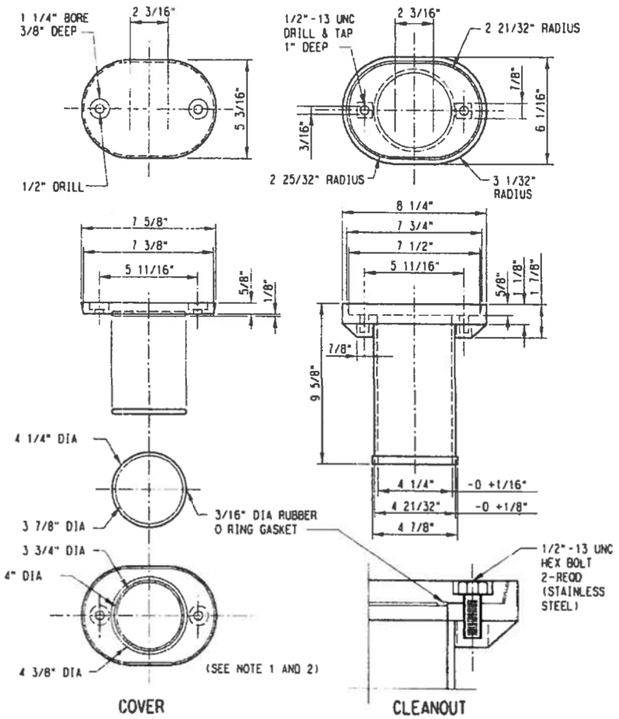
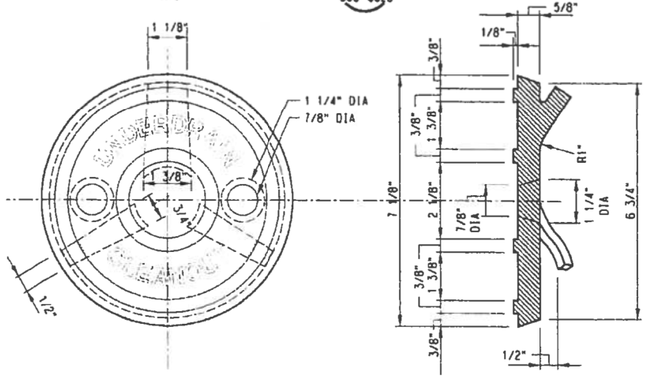
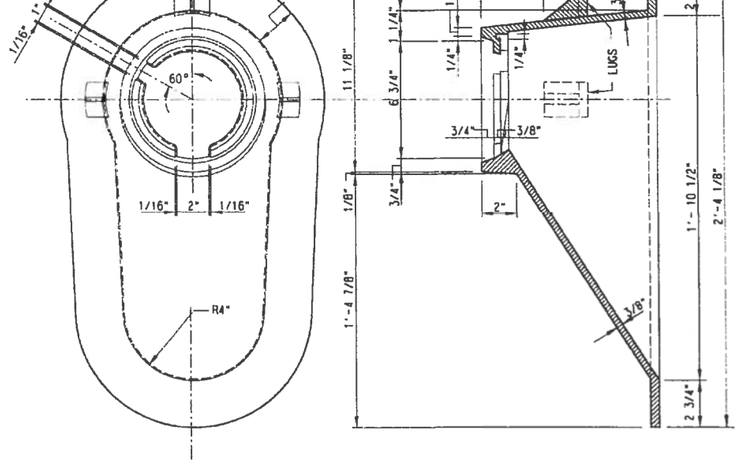
DWG No. CS6-0021



4" CLEANOUT CASTING DETAIL 1

NTS CS6-0023





CLEANOUT CASTING DETAIL 2

NTS CS6-0023

NOTES:

1. THE WORDS "UNDERDRAIN CLEANOUT" OR "CLEANOUT" SHALL BE CAST INTO TOP OF COVER ALONG WITH DART LOGO AS SHOWN ON DETAIL 4 SHEET CS6-0008. LOGO SHALL HAVE A DIAMETER OF 2".
2. PIPE MATERIAL TO BE PVC PLASTIC.
3. PIPE EMBEDMENT CLASSES FOR CLEANOUTS AND MIX M-1 CONCRETE SPECIFIED ON THIS SHEET ARE DESCRIBED IN THE STANDARD SPECIFICATIONS.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 344 OF 378
DWG No. CC6-1735
CONTRACT No. C-2033270-01

CONTRACT SHEET No. 35 OF 307

REV	AMEND	BY	DATE	DESCRIPTION	BY	ENG	CHK	APP

STATE OF TEXAS
B. N. REDDY CHIDAMADI
58001
LICENSED
PROFESSIONAL ENGINEER
12/22/05

CARTER BURGESS
JACOBS CIVIL INC
STV INCORPORATED
KAI ALLIANCE

DART PROJECT

SCALE	NO SCALE
DRAWN	B. SKINNER
DESIGNED	T. WILLIAMS
CHECKED	G. CELERIER
IN CHARGE	B.N. REDDY CHIDAMADI
DATE	30 NOV 05

CAES

CIVIL STANDARD

UNDERDRAIN DETAILS
SHEET 1 OF 4

CONTRACT	DWG No.	REV
	CS6-0021	0

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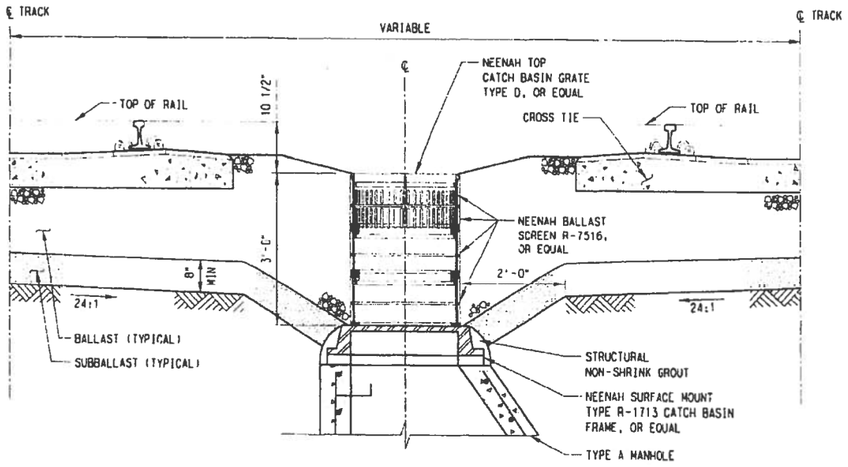
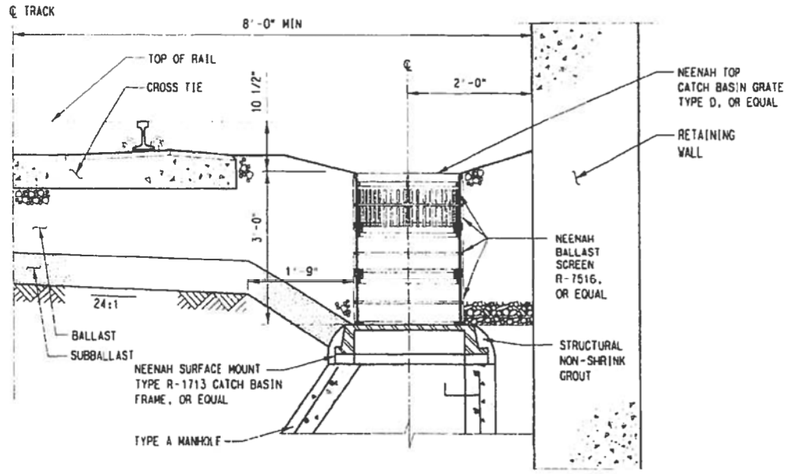
DWG No. CS6-0022



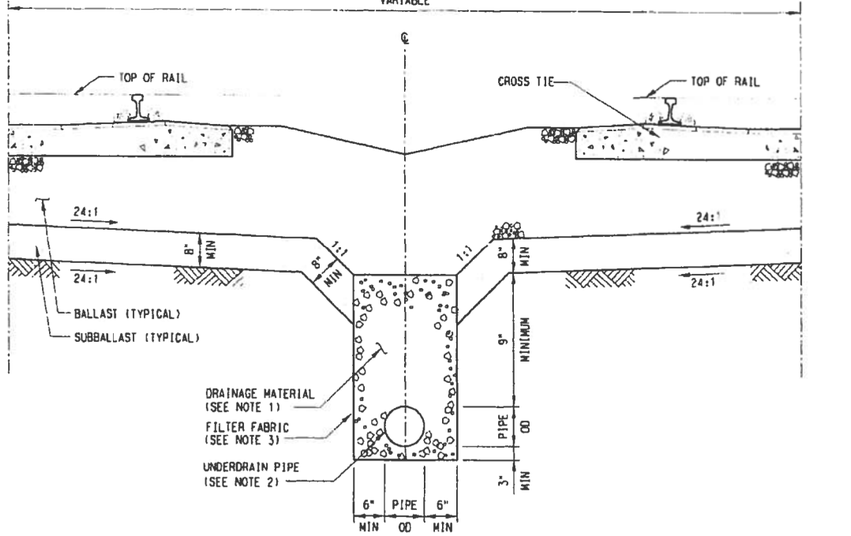
BETWEEN TRACK
BALLAST SCREEN DETAILS 1



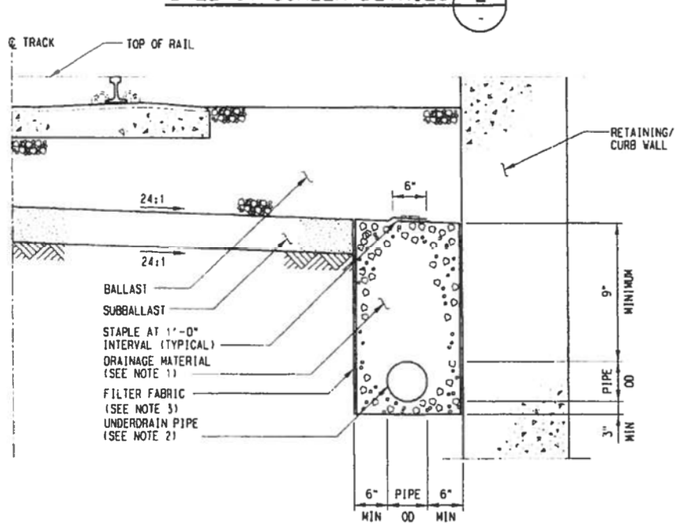
ADJACENT TO WALL
BALLAST SCREEN DETAILS 2

NOTES:

1. DRAINAGE MATERIAL SHALL CONSIST OF CLEAN, CRUSHED, ROCK, GRAVEL, WITH 1 1/2" MAXIMUM PARTICLE SIZE AND MAXIMUM 2 PERCENT BY WEIGHT PASSING SIZE 4 SIEVE.
2. UNDERDRAIN PIPE SHALL BE 8" MIN DIAMETER PERFORATED PIPE. SEE SECTION 02700 OF THE STANDARD SPECIFICATIONS. UNDERDRAIN PIPE SHALL BE INSTALLED WITH PERFORATIONS FACING DOWN. UNDERDRAIN SHALL BE WRAPPED IN GEOTEXTILE FABRIC.
3. NON-WOVEN FILTER FABRIC SEE SECTION 02700 OF THE STANDARD SPECIFICATIONS.



BETWEEN TRACK
UNDERDRAIN DETAILS 3



ADJACENT TO WALL
UNDERDRAIN DETAILS 4

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 345 OF 378
DWG No. CC6-1736
CONTRACT No. C-2033270-01

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

B. N. REDDY CHIDANANDA 58001 LICENSED PROFESSIONAL ENGINEER 12/23/05

CARTER BURGESS
JACOBS CIVIL INC
STV INCORPORATED
KAI ALLIANCE

DART PROJECT

SCALE	NO SCALE
DRAWN	G. SKINNER
DESIGNED	T. WILLIAMS
CHECKED	G. GELERIER
IN CHARGE	B.N. REDDY CHIDANANDA
DATE	30 NOV 05

CONTRACT SHEET No. 36 OF 307

CIVIL STANDARD

UNDERDRAIN DETAILS
SHEET 2 OF 4

CONTRACT	DWG No.	REV
	CS6-0022	0

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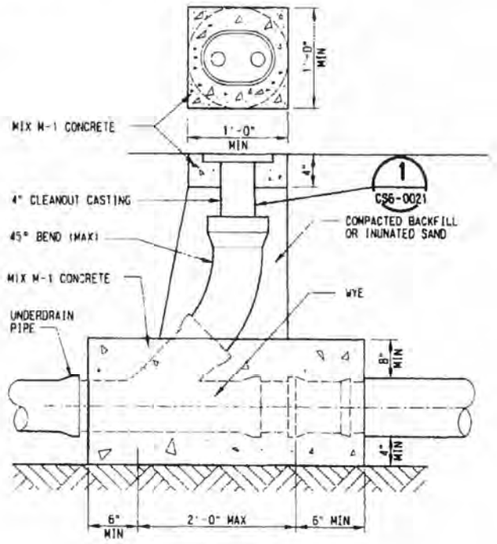
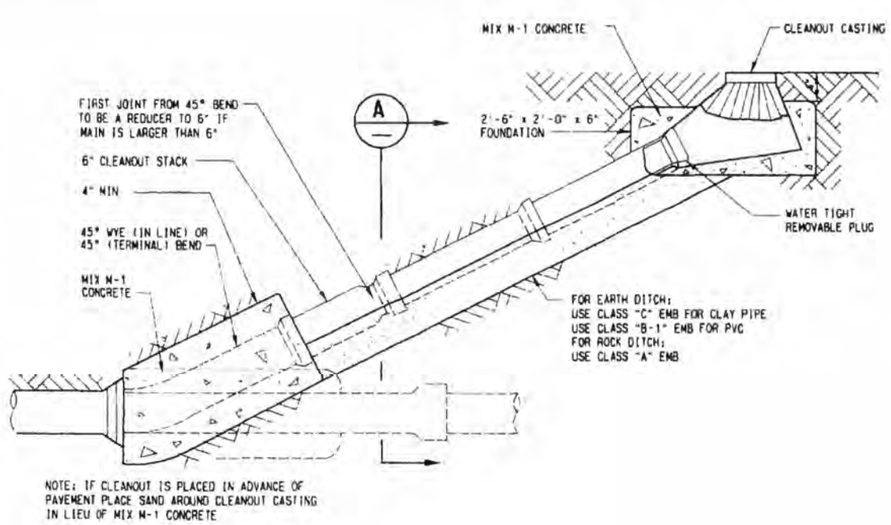
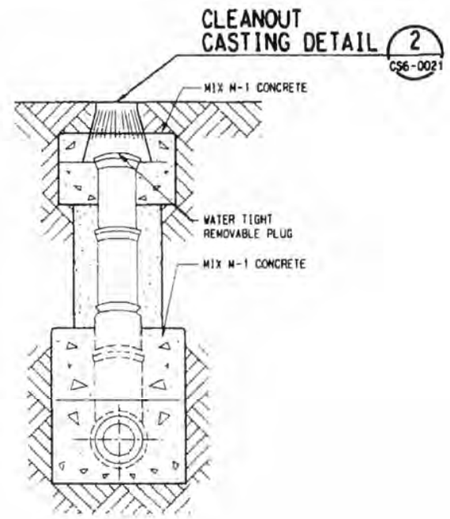
DWG No. CS6-0023



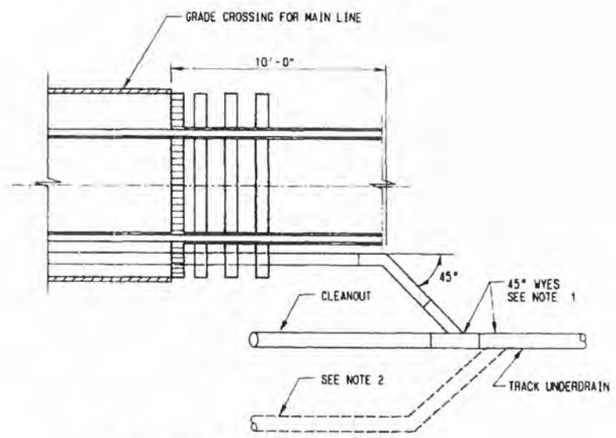
UNDERDRAIN CLEANOUT VERTICAL RISER DETAIL 1
NTS



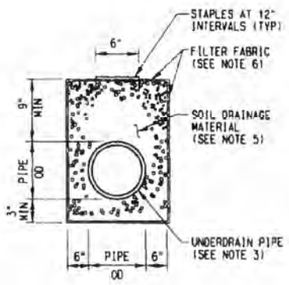
UNDERDRAIN CLEANOUT IN-LINE AND TERMINAL DETAIL 2
NTS



SECTION A
NTS



GRADE CROSING UNDERDRAIN TIE TO TRACK UNDERDRAIN 3
NTS



UNDERDRAIN DETAIL 4
NTS

(SEE NOTE 4)

NOTES:

1. CONTRACTOR TO CONNECT GRADE CROSSING UNDERDRAINS TO TRACK UNDERDRAINS AS SHOWN ON THIS SHEET.
2. WHEN THE TRACK UNDERDRAIN IS BETWEEN THE TRACKS, TWO 45° WYES WILL BE REQUIRED TO CONNECT THE GRADE CROSSING UNDERDRAINS. THEREFORE THE GRADE CROSSING UNDERDRAINS WILL BE DIFFERENT LENGTHS TO STAGGER THE CONNECTIONS.
3. UNDERDRAIN PIPE SHALL BE 8" MINIMUM DIAMETER PERFORATED PIPE. SEE SECTION 02700 OF THE STANDARD SPECIFICATIONS. PIPE SHALL BE WRAPPED IN FILTER FABRIC MATERIAL AND INSTALLED WITH PERFORATIONS DOWN.
4. THIS DETAIL TO BE USED FOR ALL UNDERDRAINS UNLESS NOTED OTHERWISE.
5. SOIL DRAINAGE MATERIAL SHALL CONSIST OF CLEAN, CRUSHED ROCK AND GRAVEL WITH 1 1/2" MAX PARTICLE SIZE AND MAX 2 PERCENT BY WEIGHT PASSING No.4 SIEVE. BALLAST DRAIN SHALL BE WRAPPED IN GEOTEXTILE FABRIC. OVERLAY FABRIC AT TOP AND PIN.
6. FILTER FABRIC SHALL BE NON-WOVEN GEOTEXTILE FABRIC AS DESCRIBED IN SPECIFICATION 02700.
7. SEE CASTING DETAILS SHEET CS6-0021.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 346 OF 378
DWG No. CC6-1737
CONTRACT No. C-2033270-01

CONTRACT SHEET No. 37 OF 307

REV	AMEND	CR	DATE	DESCRIPTION	BY	CHG	CHK	APP

B. N. REDDY CHIDAMANDA 58001 LICENSED PROFESSIONAL ENGINEER 12/23/05

CARTER BURGESS
JACOBS CIVIL INC
STV INCORPORATED
KAI ALLIANCE

DART PROJECT

SCALE	NO SCALE
DRAWN	B. SKINNER
DESIGNED	T. WILLIAMS
CHECKED	G. CELERIER
IN CHARGE	B.N. REDDY CHIDAMANDA
DATE	30 NOV 05

CAES

CIVIL STANDARD

UNDERDRAIN DETAILS
SHEET 3 OF 4

CONTRACT	DWG No.	REV
	CS6-0023	0

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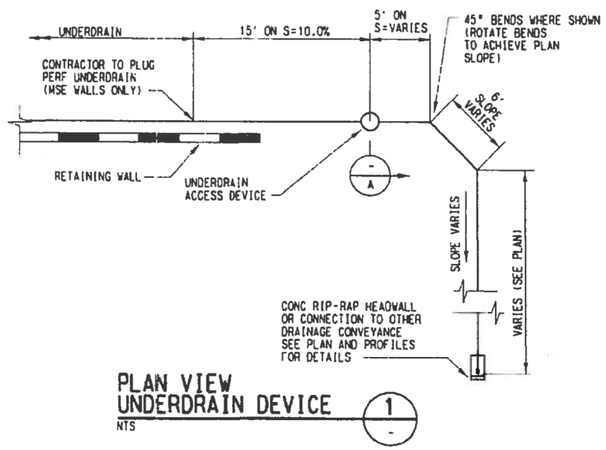
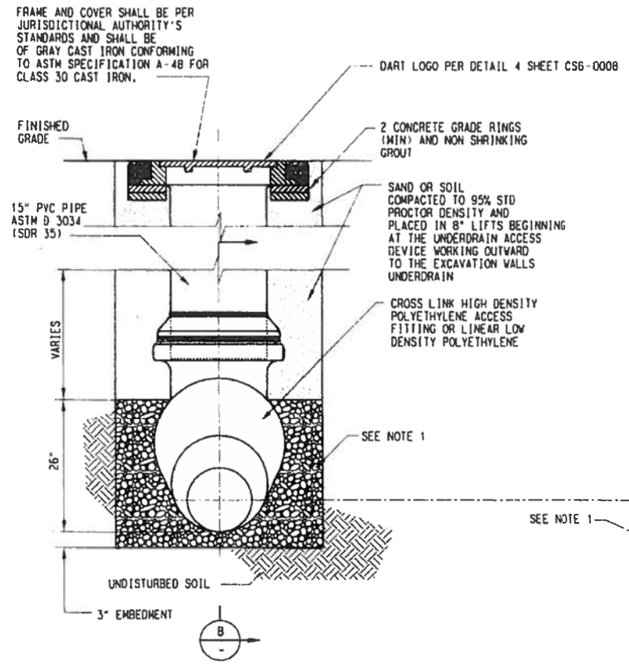
DWG No. CS6-0024



PLAN VIEW
UNDERDRAIN DEVICE (1)
NTS



SECTION (A)
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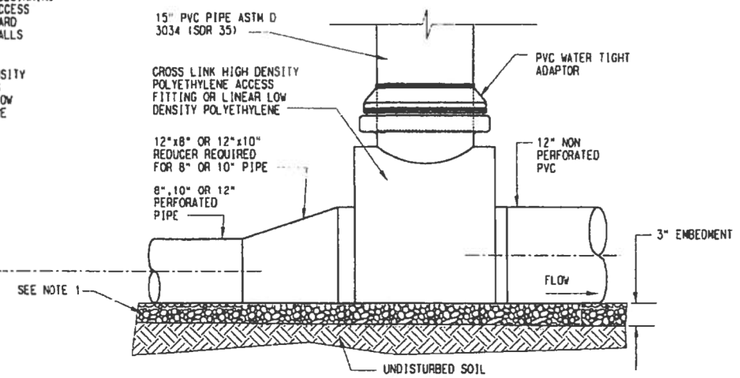
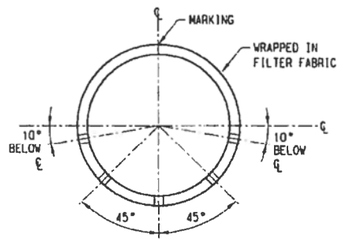


SECTION VIEW (B)
NTS



NOMINAL DIAMETER IN.	MINIMUM ROWS OF PERFORATIONS	HOLE SIZE IN.	HOLE SPACING IN.
8 & 10	4	3/8	3
12	6	3/8	3
15	6	3/8	3

UNDERDRAIN PERFORATION SCHEDULE (3)
NTS

NOTE:
1. FREE DRAINING CLEAN & CRUSHED ROCK OR GRAVEL WITH 1½INCH MAXIMUM PARTICLE SIZE. NO MORE THAN FIVE PERCENT BY WEIGHT MAY PASS A⅜-INCH SIEVE. CRUSHED LIMESTONE SHALL NOT BE USED.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET No. 347 OF 378
DWG No. CC6-1738
CONTRACT No. C-2033270-01

CONTRACT SHEET No. 38 OF 307

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP
0								

STATE OF TEXAS
B. N. REDDY CHIDANANDA
58001
LICENSED PROFESSIONAL ENGINEER
12/23/05

ACT 21
CARTER BURGESS
JACOBS CIVIL INC
STV INCORPORATED
KAI ALLIANCE

DART PROJECT

SCALE	NO SCALE
DRAWN	B. SKINNER
DESIGNED	T. WILLIAMS
CHECKED	G. CELERIER
IN CHARGE	B.N. REDDY CHIDANANDA
DATE	30 NOV 05

CAES

CIVIL STANDARD

UNDERDRAIN DETAILS
SHEET 4 OF 4

CONTRACT	DWG No.	REV
	CS6-0024	0

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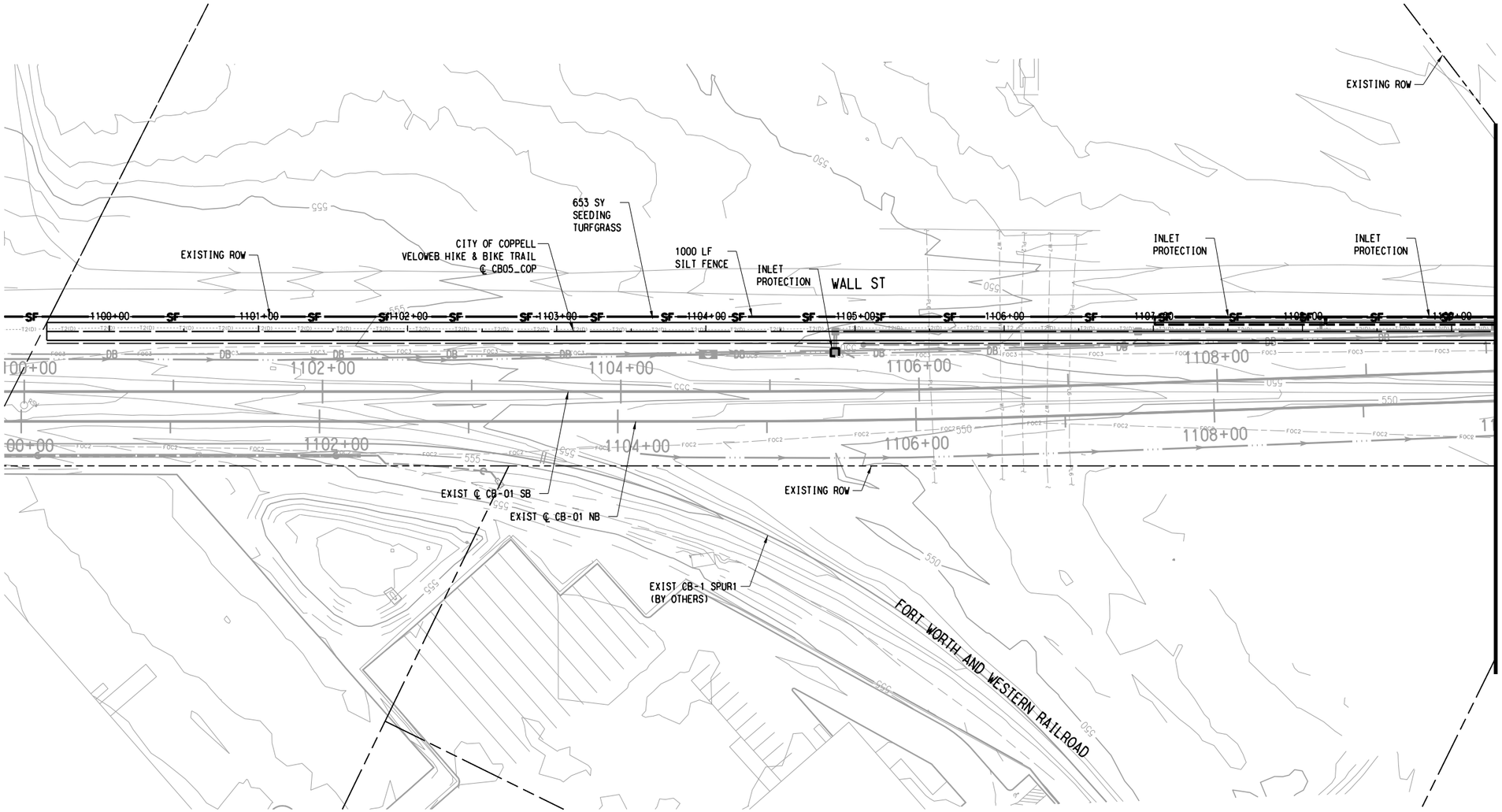
DWG No. OC2-1040



SCALE (IN FEET)
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LEGEND

- SF — SILT FENCE
- R — ROCK BERM
- DITCH CHECK
- SILT FENCE OR GRAVEL(STANDARD) INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDING OR RELOCATING TEMPORARY EROSION MEASURES WHEN NECESSARY. SEE TEMPORARY EROSION CONTROL TYPICAL INSTALLATION SHEETS IN THE NCTCOG PUBLIC WORKS CONSTRUCTION STANDARDS MANUAL FOR MORE INFORMATION.
2. A STORM WATER POLLUTION PREVENTION PLAN HAS BEEN PREPARED FOR THIS PROJECT. THE CONTRACTOR SHALL BE FAMILIAR WITH THE PROVISIONS AND REQUIREMENTS OF THIS PLAN AND KEEP A COPY ON THE JOBSITE AT ALL TIMES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING ALL THE VARIOUS EROSION CONTROL MEASURES AND SHALL BE REQUIRED TO COMPLY WITH THE POLLUTION PREVENTION PLAN PROVISIONS AND REQUIREMENTS.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR DEVELOPING AN EROSION CONTROL PLAN FOR ANY ADDITIONAL ACTIVITIES OR AREAS WHICH ARE NOT SHOWN IN THE PLANS (SUCH AS A TEMPORARY CONSTRUCTION ROAD OR ECL'S). THE EROSION CONTROL PLAN SHALL BE APPROVED BY DART PRIOR TO BEGINNING THESE ACTIVITIES.
5. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING ENTRANCE RAMPS AND DRAINAGE PIPES AT CONSTRUCTION ENTRANCES TO PREVENT DAMAGE TO CURBS AND MAINTAIN STREET DRAINAGE.
6. REFERENCE EROSION AND SEDIMENT CONTROL STANDARD DETAIL DRAWINGS INCLUDED IN THIS PACKAGE.

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 348 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

IN-PROGRESS REVIEW
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:
JUSTIN C. TOONE, P.E., 121959
ON
28-AUG-2023 09:16
IEA
TBPE FIRM NO. F-10161
IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

Jacobs
1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No, F-2966

IEA
18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
Phone: +1 (214) 884-4253
Firm Registration: F-10161

ARCHER WESTERN HERZOG

DART PROJECT

DART®

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SCALE	1"=40'
DRAWN	C.ALTAMERO
DESIGNED	F.CHARAKUPA
CHECKED	J.TOONE
IN CHARGE	J.TOONE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1100+00 TO STA 1110+00
SHEET 1 OF 20

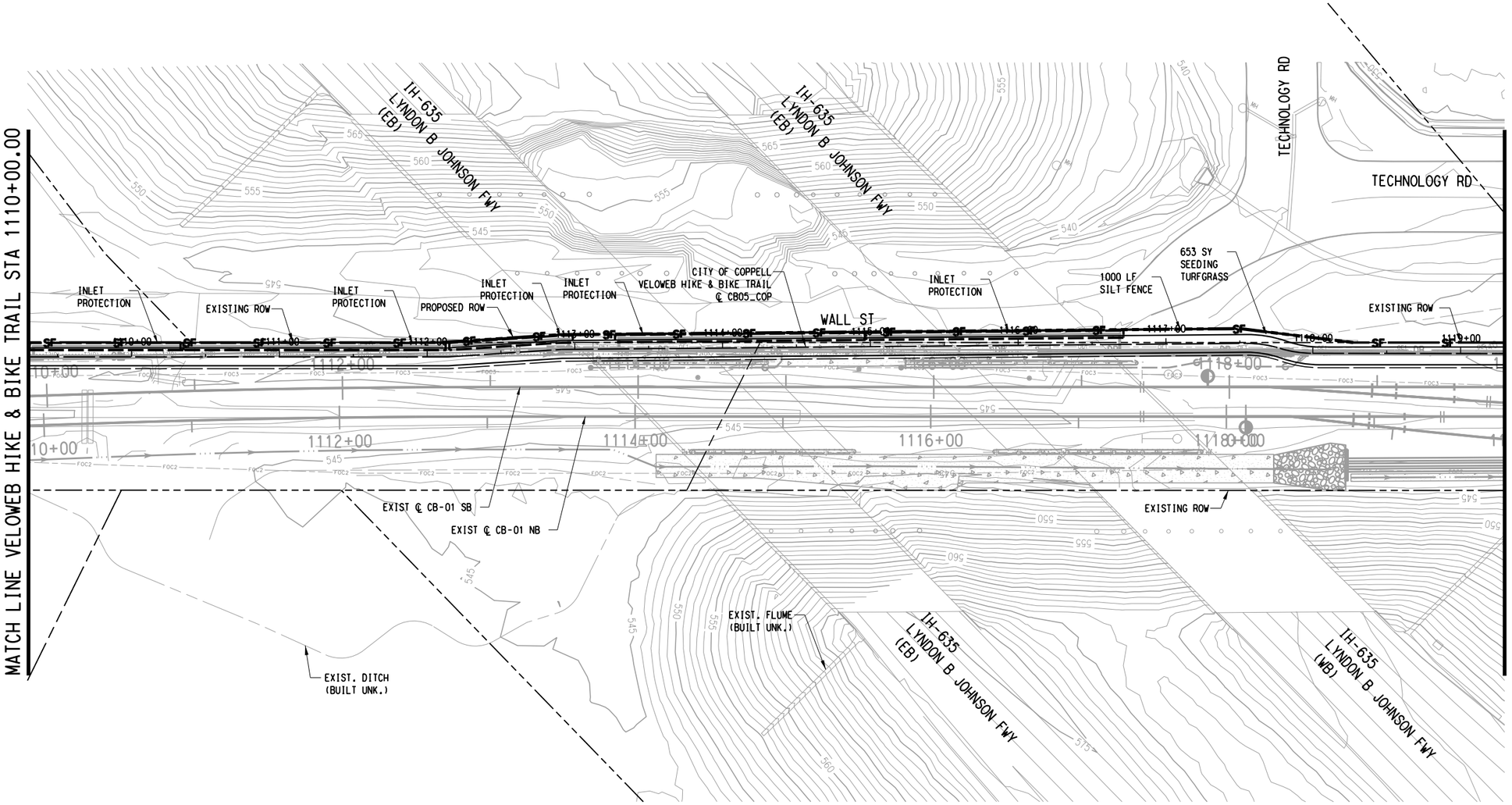
CONTRACT	DWG No.	REV
C-2033270-01	OC2-1040	D

CB05-OC2-1040.040

28-AUG-2023 09:16
CB05-OC2-1040.040

JEGSVCPAU01
Default

DWG No. OC2-1041



SCALE (IN FEET)
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LEGEND

- SF — SILT FENCE
- R — ROCK BERM
- DITCH CHECK
- SILT FENCE OR GRAVEL(STANDARD) INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDING OR RELOCATING TEMPORARY EROSION MEASURES WHEN NECESSARY. SEE TEMPORARY EROSION CONTROL TYPICAL INSTALLATION SHEETS IN THE NCTCOG PUBLIC WORKS CONSTRUCTION STANDARDS MANUAL FOR MORE INFORMATION.
2. A STORM WATER POLLUTION PREVENTION PLAN HAS BEEN PREPARED FOR THIS PROJECT. THE CONTRACTOR SHALL BE FAMILIAR WITH THE PROVISIONS AND REQUIREMENTS OF THIS PLAN AND KEEP A COPY ON THE JOBSITE AT ALL TIMES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING ALL THE VARIOUS EROSION CONTROL MEASURES AND SHALL BE REQUIRED TO COMPLY WITH THE POLLUTION PREVENTION PLAN PROVISIONS AND REQUIREMENTS.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR DEVELOPING AN EROSION CONTROL PLAN FOR ANY ADDITIONAL ACTIVITIES OR AREAS WHICH ARE NOT SHOWN IN THE PLANS (SUCH AS A TEMPORARY CONSTRUCTION ROAD OR ECL'S). THE EROSION CONTROL PLAN SHALL BE APPROVED BY DART PRIOR TO BEGINNING THESE ACTIVITIES.
5. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING ENTRANCE RAMPS AND DRAINAGE PIPES AT CONSTRUCTION ENTRANCES TO PREVENT DAMAGE TO CURBS AND MAINTAIN STREET DRAINAGE.
6. REFERENCE EROSION AND SEDIMENT CONTROL STANDARD DETAIL DRAWINGS INCLUDED IN THIS PACKAGE.

NOT AN APPROVED DRAWING
FINAL 100% DESIGN

CONTRACT SHEET No. 349 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

IN-PROGRESS REVIEW
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF:
JUSTIN C. TOONE, P.E., 121959
ON
28-AUG-2023 09:06
IEA
TBPE FIRM NO. F-10161
IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

Jacobs
1999 BRYAN ST, SUITE 1200
DALLAS, TX 75201-3136
Phone: +1 (214) 638-0145
FIRM REGISTRATION No. F-2966

IEA
18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
Phone: +1 (214) 884-4253
Firm Registration: F-10161

ARCHER WESTERN HERZOG

DART PROJECT

DART®

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CAES

SCALE	1"=40'
DRAWN	C.ALTAMERO
DESIGNED	F.CHARAKUPA
CHECKED	J.TOONE
IN CHARGE	J.TOONE
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1110+00 TO STA 1120+00
SHEET 2 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1041	D

CB05-OC2-1041.040

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CB05-OC2-1041.040

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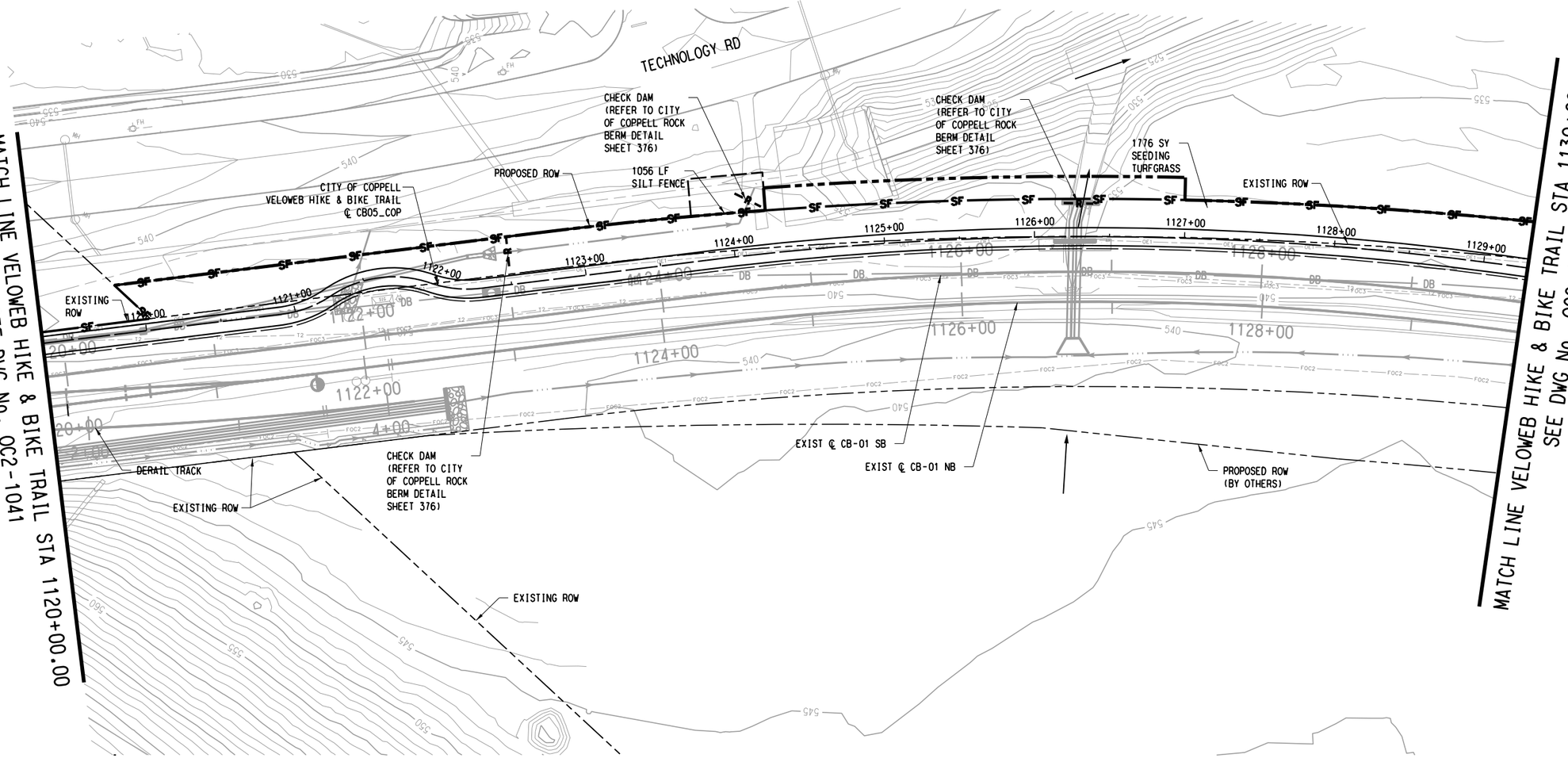
DWG No. OC2-1042



SCALE (IN FEET)
0 20 40 80

LEGEND

- SF — SILT FENCE
- R — ROCK BERM
- DITCH CHECK
- SILT FENCE OR GRAVEL(STANDARD) INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDING OR RELOCATING TEMPORARY EROSION MEASURES WHEN NECESSARY. SEE TEMPORARY EROSION CONTROL TYPICAL INSTALLATION SHEETS IN THE NCTCOG PUBLIC WORKS CONSTRUCTION STANDARDS MANUAL FOR MORE INFORMATION.
2. A STORM WATER POLLUTION PREVENTION PLAN HAS BEEN PREPARED FOR THIS PROJECT. THE CONTRACTOR SHALL BE FAMILIAR WITH THE PROVISIONS AND REQUIREMENTS OF THIS PLAN AND KEEP A COPY ON THE JOBSITE AT ALL TIMES.
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6. REFERENCE EROSION AND SEDIMENT CONTROL STANDARD DETAIL DRAWINGS INCLUDED IN THIS PACKAGE.

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CONTRACT SHEET No. 350 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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ARCHER WESTERN HERZOG

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SCALE	1"=40'
DRAWN	C.ALTAMERO
DESIGNED	F.CHARAKUPA
CHECKED	J.TOONE
IN CHARGE	J.TOONE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1120+00 TO STA 1130+00
SHEET 3 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1042	D

CB05-OC2-1042.040

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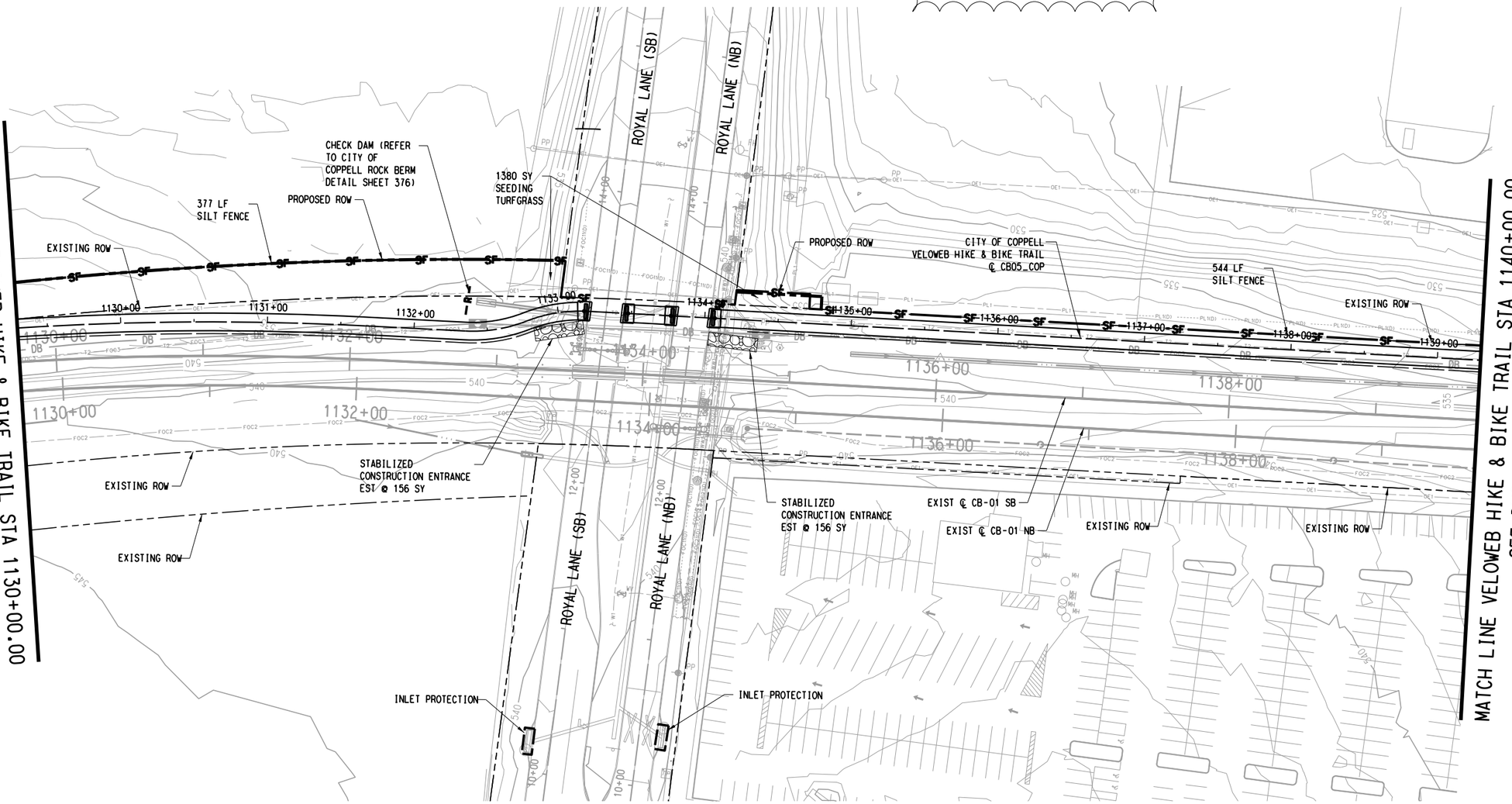
DWG No. OC2-1043

WARNING!!! EXPLORER'S HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE

AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION WITHIN 25 FEET OF EXPLORER'S PIPELINE, CONTACT EXPLORER PIPELINE AT (888) 876-0036



SCALE (IN FEET)
0 20 40 80

LEGEND

- SF — SILT FENCE
- R — ROCK BERM
- DITCH CHECK
- SILT FENCE OR GRAVEL(STANDARD) INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	F.CHARAKUPA
CHECKED	J.TOONE
IN CHARGE	J.TOONE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1130+00 TO STA 1140+00
SHEET 4 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1043	D

CB05-OC2-1043.040

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DWG No. OC2-1044

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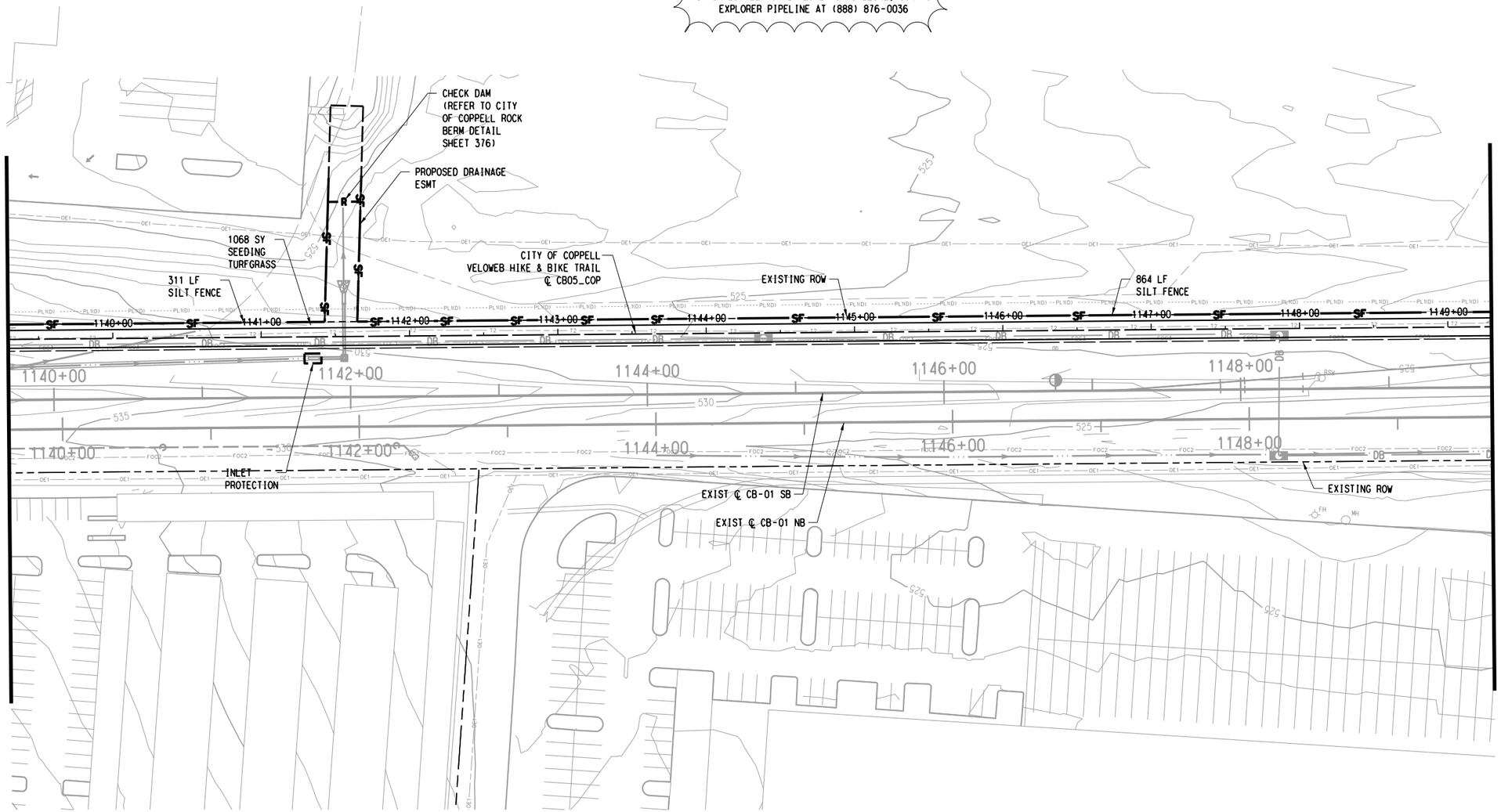

SCALE (IN FEET)
0 20 40 80

LEGEND

- SF — SILT FENCE
- R — ROCK BERM
- DITCH CHECK
- SILT FENCE OR GRAVEL(STANDARD) INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE

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DESIGNED	F.CHARAKUPA
CHECKED	J.TOONE
IN CHARGE	J.TOONE
DATE	25 AUG 23

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VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1140+00 TO STA 1150+00
SHEET 5 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1044	D

CB05-OC2-1044.040

DWG No. OC2-1045

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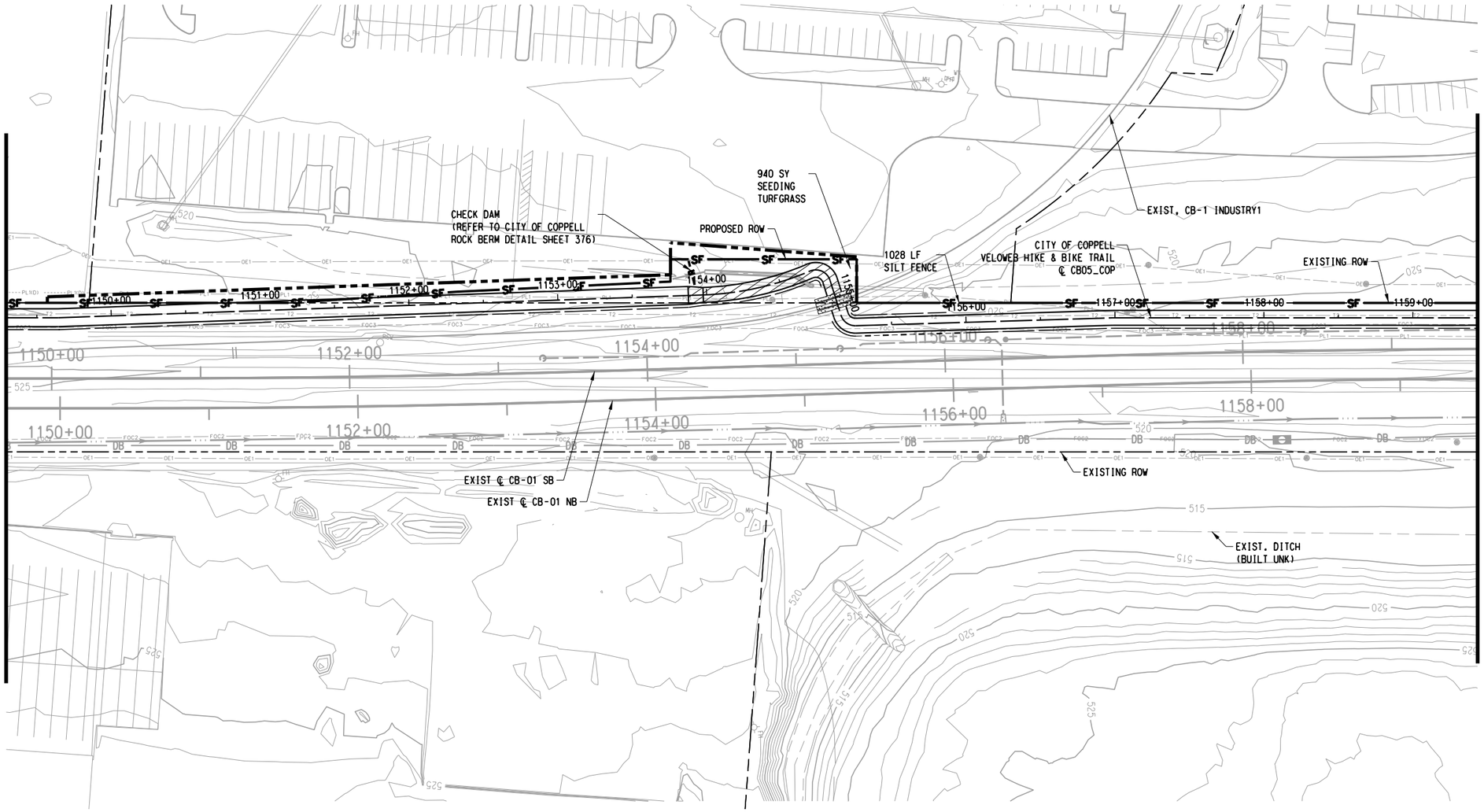

SCALE (IN FEET)
0 20 40 80

LEGEND

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- R — ROCK BERM
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SCALE	1"=40'
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DESIGNED	F.CHARAKUPA
CHECKED	J.TOONE
IN CHARGE	J.TOONE
DATE	25 AUG 23

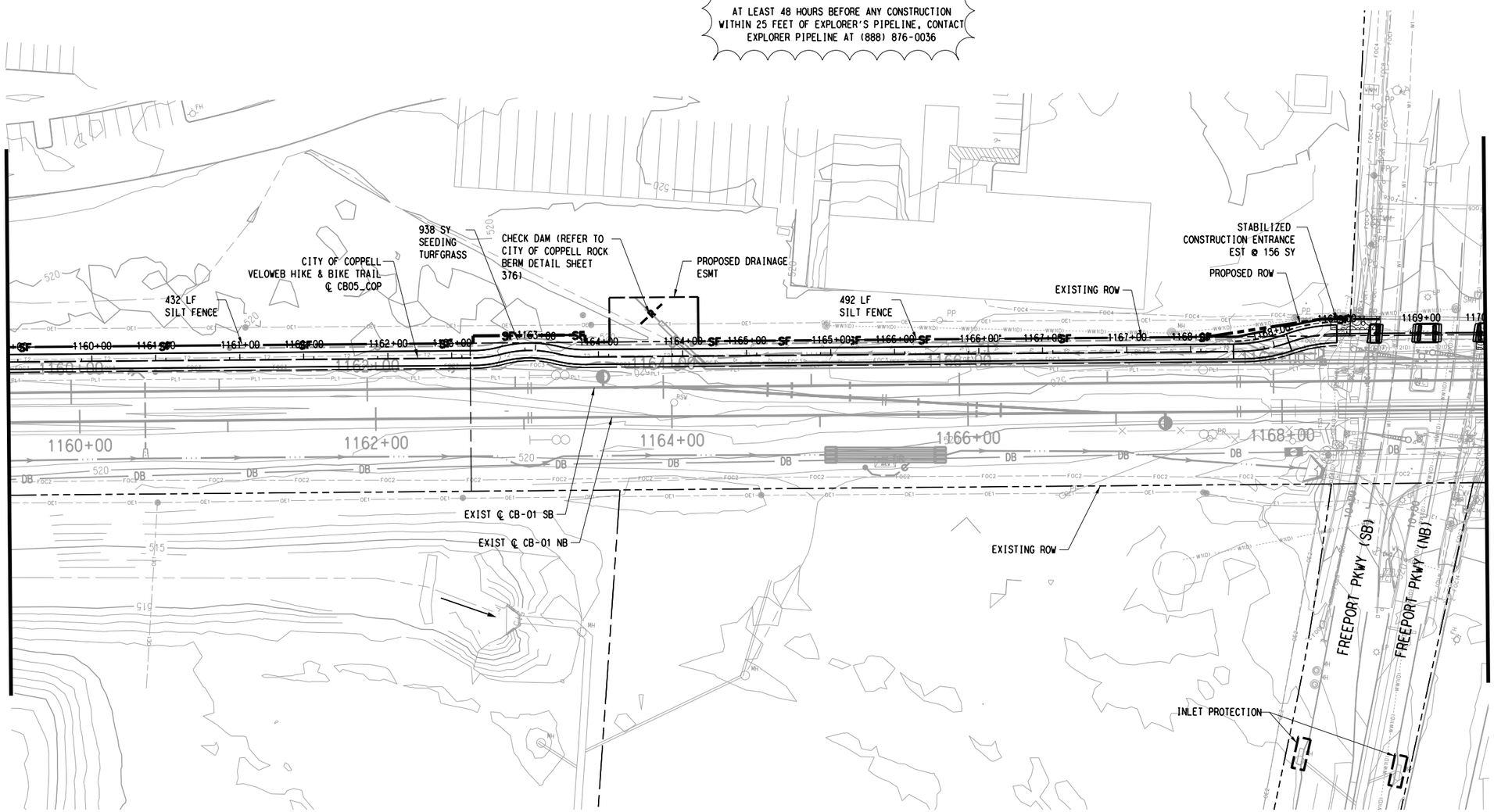
CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1150+00 TO STA 1160+00
SHEET 6 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1045	D

CB05-OC2-1045.040

DWG No. OC2-1046



SCALE (IN FEET)
0 20 40 80

LEGEND

- SF — SILT FENCE
- R — ROCK BERM
- DITCH CHECK
- SILT FENCE OR GRAVEL(STANDARD) INLET PROTECTION
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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	F.CHARAKUPA
CHECKED	J.TOONE
IN CHARGE	J.TOONE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1160+00 TO STA 1170+00
SHEET 7 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1046	D

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DWG No. OC2-1047

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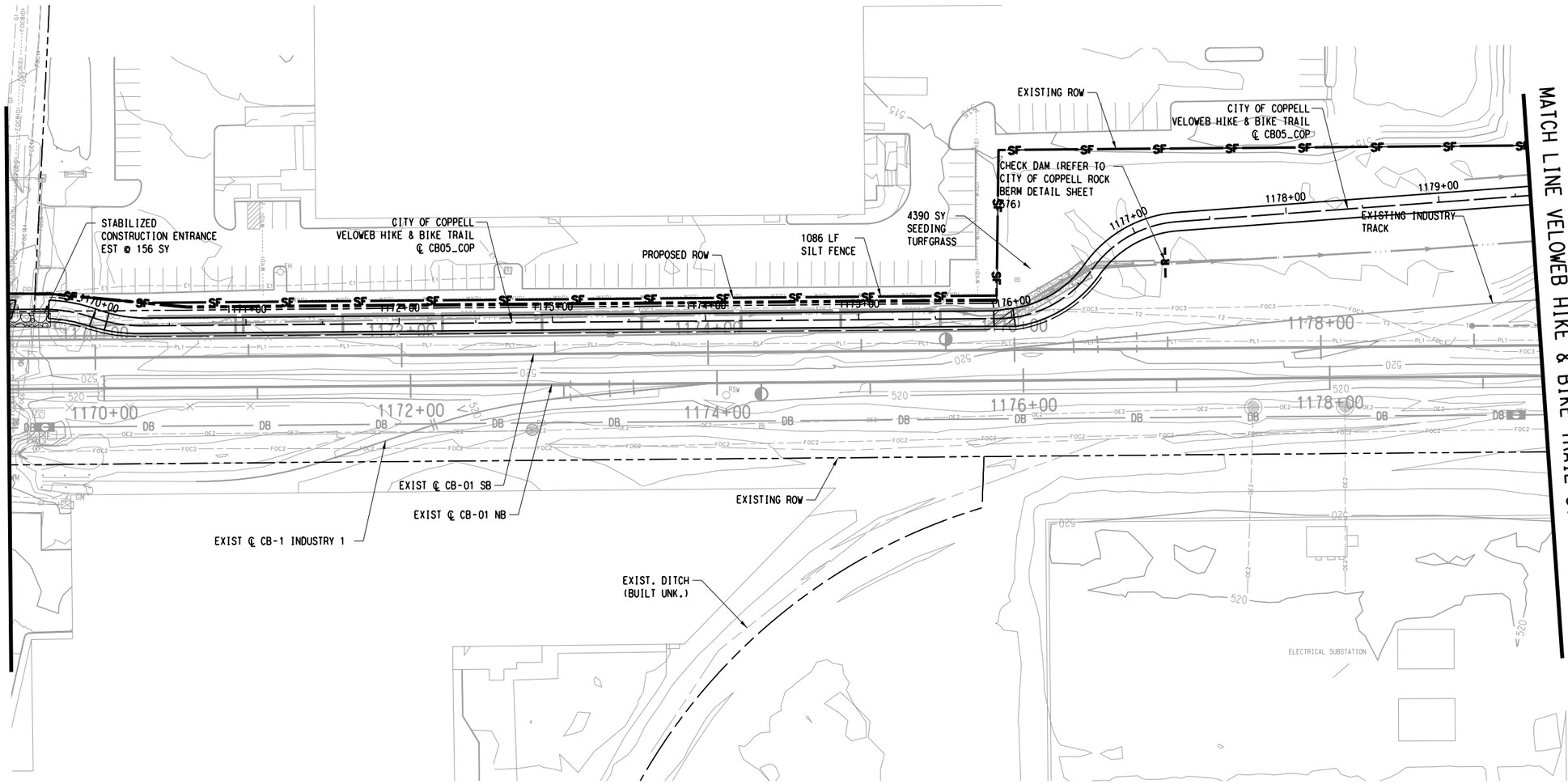

SCALE (IN FEET)
0 20 40 80

LEGEND

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REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	F.CHARAKUPA
CHECKED	J.TOONE
IN CHARGE	J.TOONE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1170+00 TO STA 1180+00
SHEET 8 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1047	D

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DWG No. OC2-1048

WARNING!!! EXPLORER'S HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE

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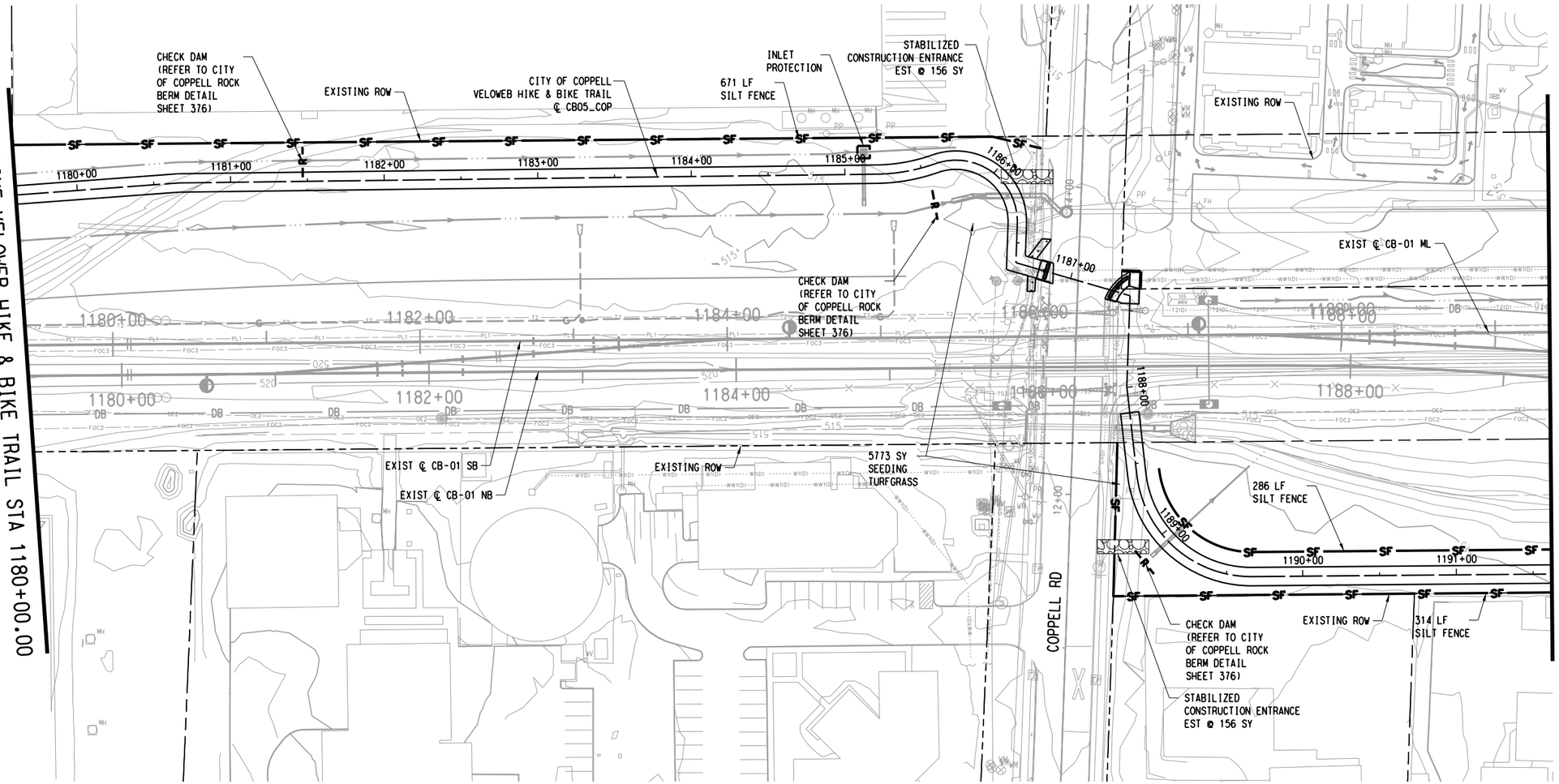

SCALE (IN FEET)
0 20 40 80

LEGEND

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SCALE	1"=40'
DRAWN	C. ALTAMERO
DESIGNED	F. CHARAKUPA
CHECKED	J. TOONE
IN CHARGE	J. TOONE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1180+00 TO STA 1191+50
SHEET 9 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1048	D

CB05-OC2-1048.040

28-AUG-2023 09:04
CB05-OC2-1048.040
JEGSVCPW001
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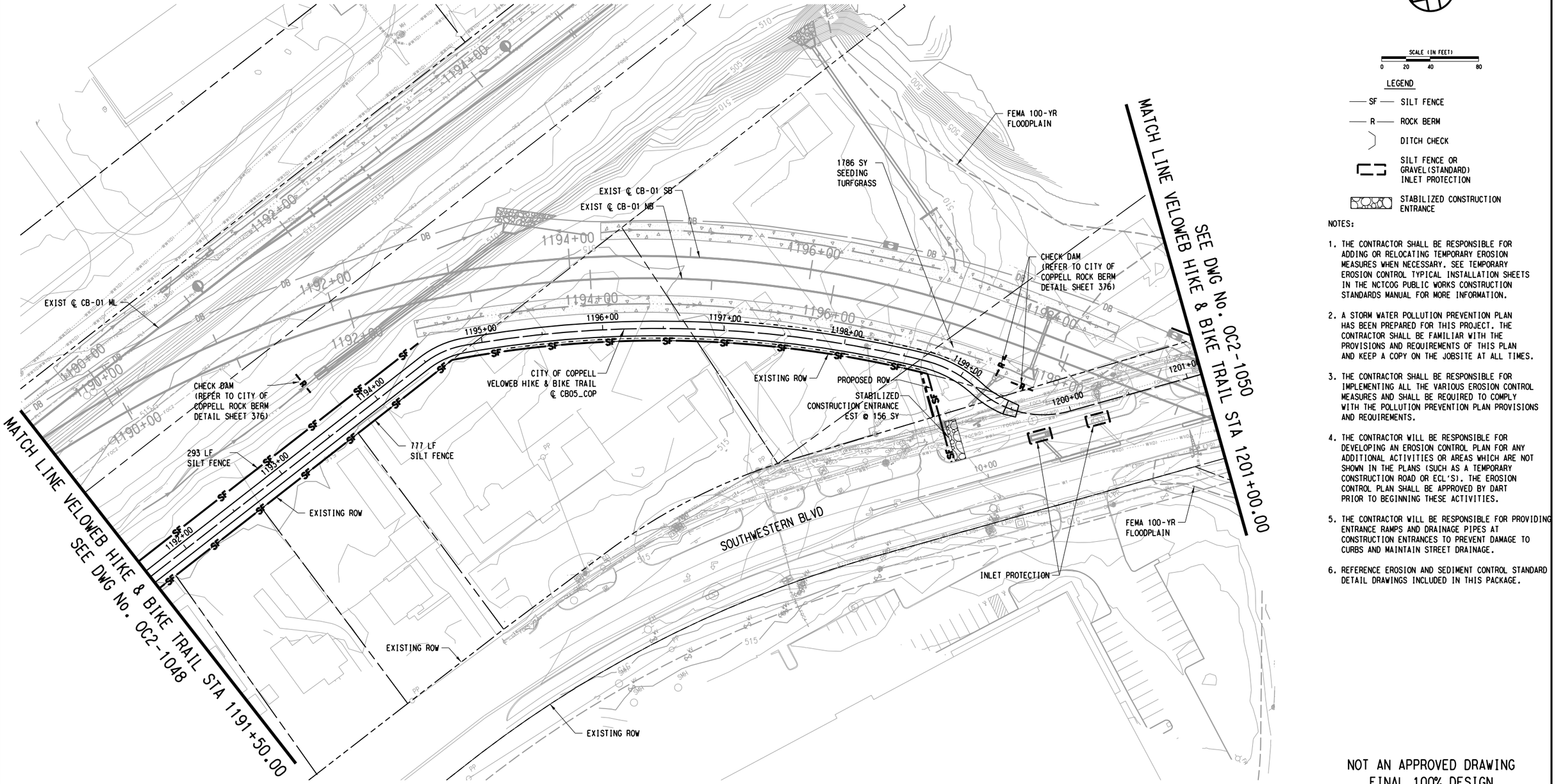
DWG No. OC2-1049



SCALE (IN FEET)
0 20 40 80

LEGEND

- SF — SILT FENCE
- R — ROCK BERM
- DITCH CHECK
- SILT FENCE OR GRAVEL(STANDARD) INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDING OR RELOCATING TEMPORARY EROSION MEASURES WHEN NECESSARY. SEE TEMPORARY EROSION CONTROL TYPICAL INSTALLATION SHEETS IN THE NCTCOG PUBLIC WORKS CONSTRUCTION STANDARDS MANUAL FOR MORE INFORMATION.
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6. REFERENCE EROSION AND SEDIMENT CONTROL STANDARD DETAIL DRAWINGS INCLUDED IN THIS PACKAGE.

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CONTRACT SHEET No. 357 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

IN-PROGRESS REVIEW
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1191+50 TO STA 1201+00
SHEET 10 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1049	D

CB05-OC2-1049.040

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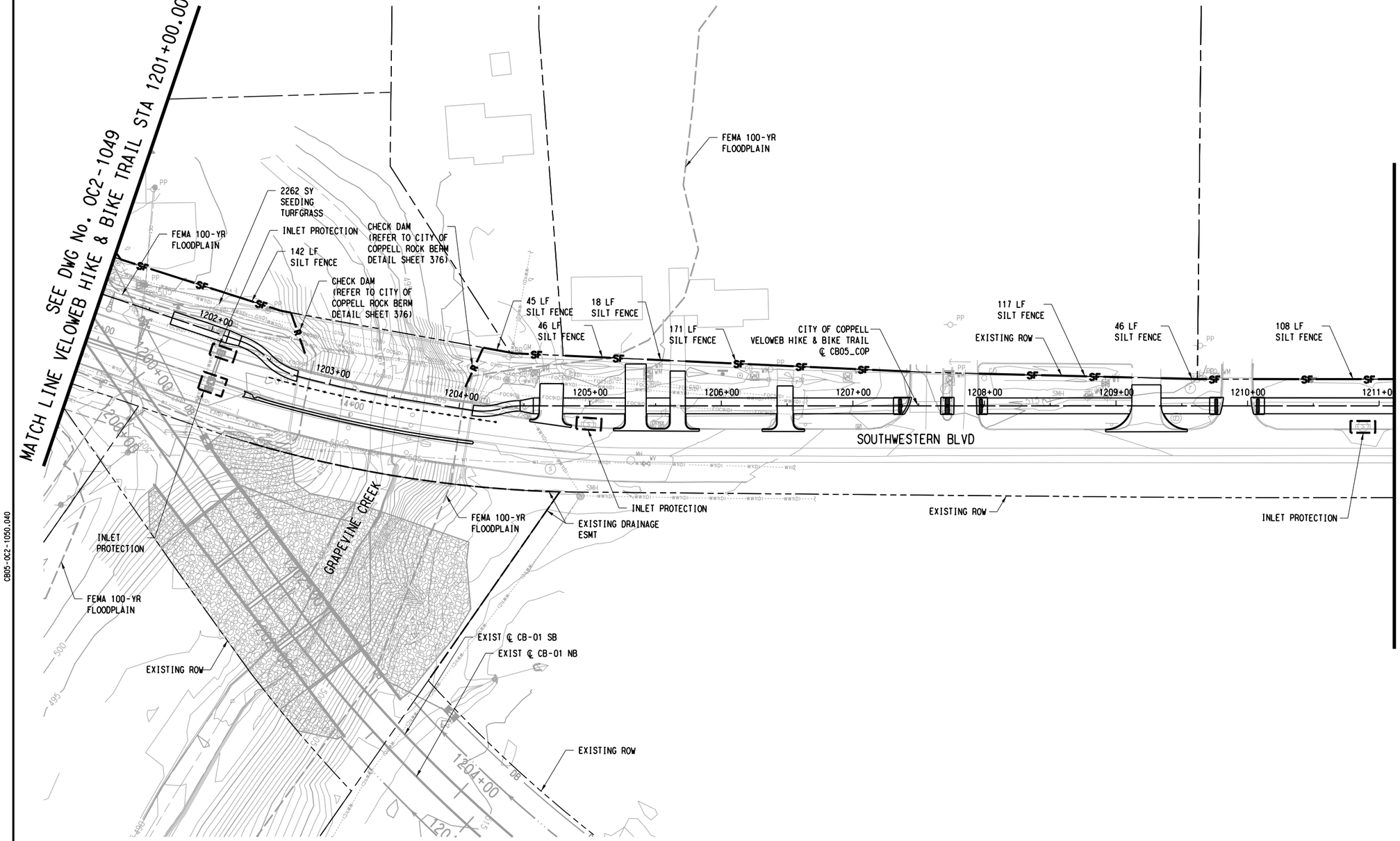
CB05-OC2-1049.040
JEGSVCPW001
Default

DWG No. OC2-1050



SCALE (IN FEET)
0 20 40 80

LEGEND

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Phone: +1 (214) 638-0145
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CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1201+00 TO STA 1211+00
SHEET 11 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1050	D

CB05-OC2-1050.040

28-AUG-2023 09:11
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JEGSVCPWU01
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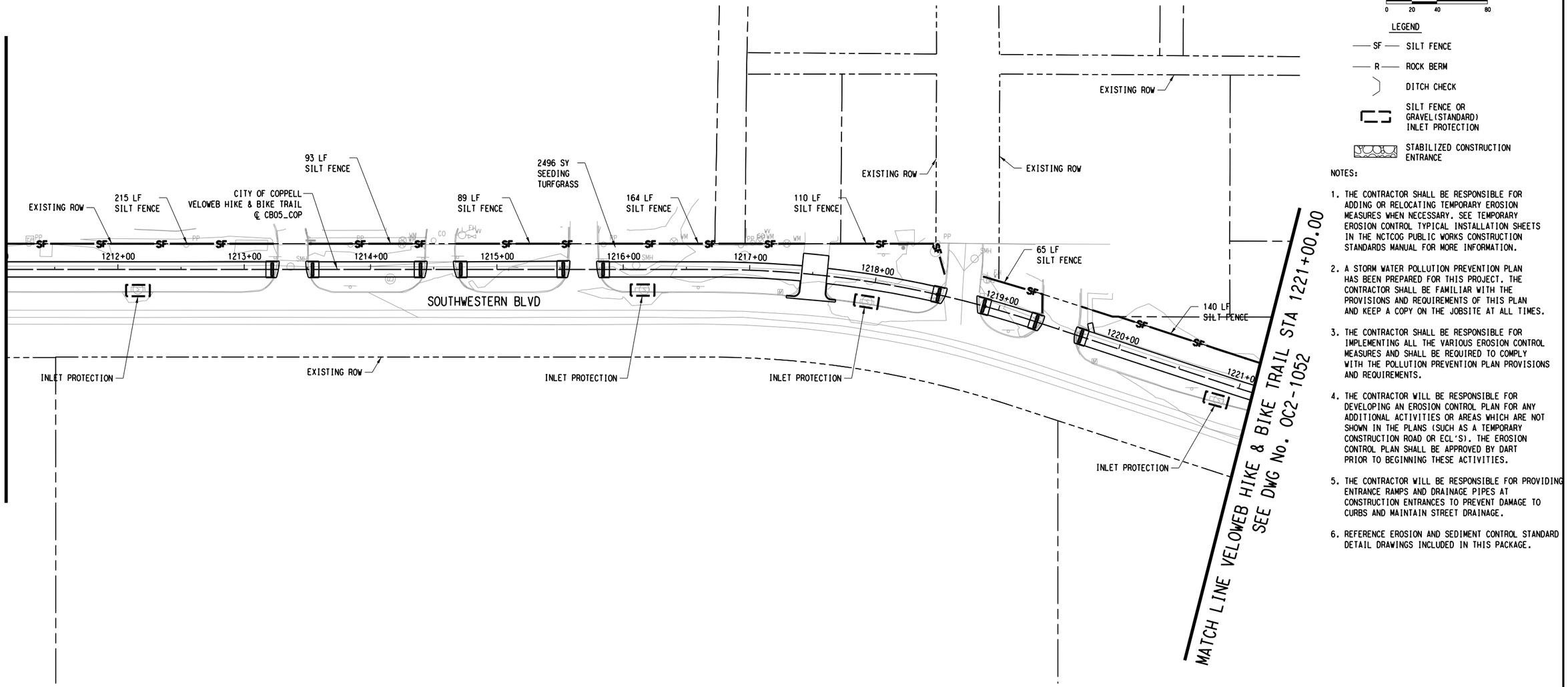
DWG No. OC2-1051



SCALE (IN FEET)
0 20 40 80

LEGEND

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Phone: +1 (214) 638-0145
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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1211+00 TO STA 1221+00
SHEET 12 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1051	D

CB05-OC2-1051.040

28-AUG-2023 09:11
CB05-OC2-1051.040

JEGSVCPWU01
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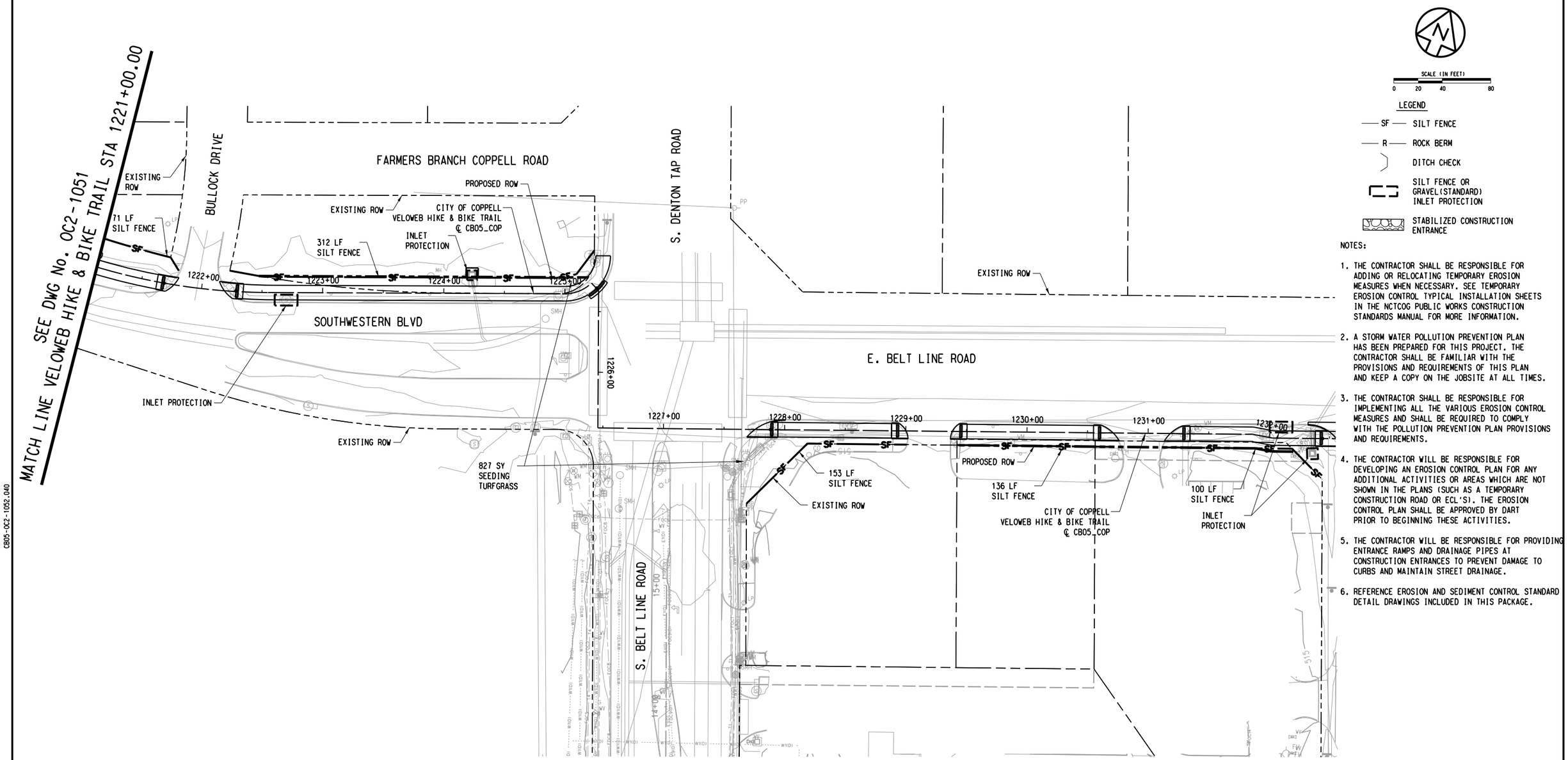
DWG No. OC2-1052



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CONTRACT SHEET No. 360 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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DESIGNED	F. CHARAKUPA
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IN CHARGE	J. TOONE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1221+00 TO STA 1232+50
SHEET 13 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1052	D

CB05-OC2-1052.040

28-AUG-2023 09:11
CB05-OC2-1052.040

JEGSVCPWJ01
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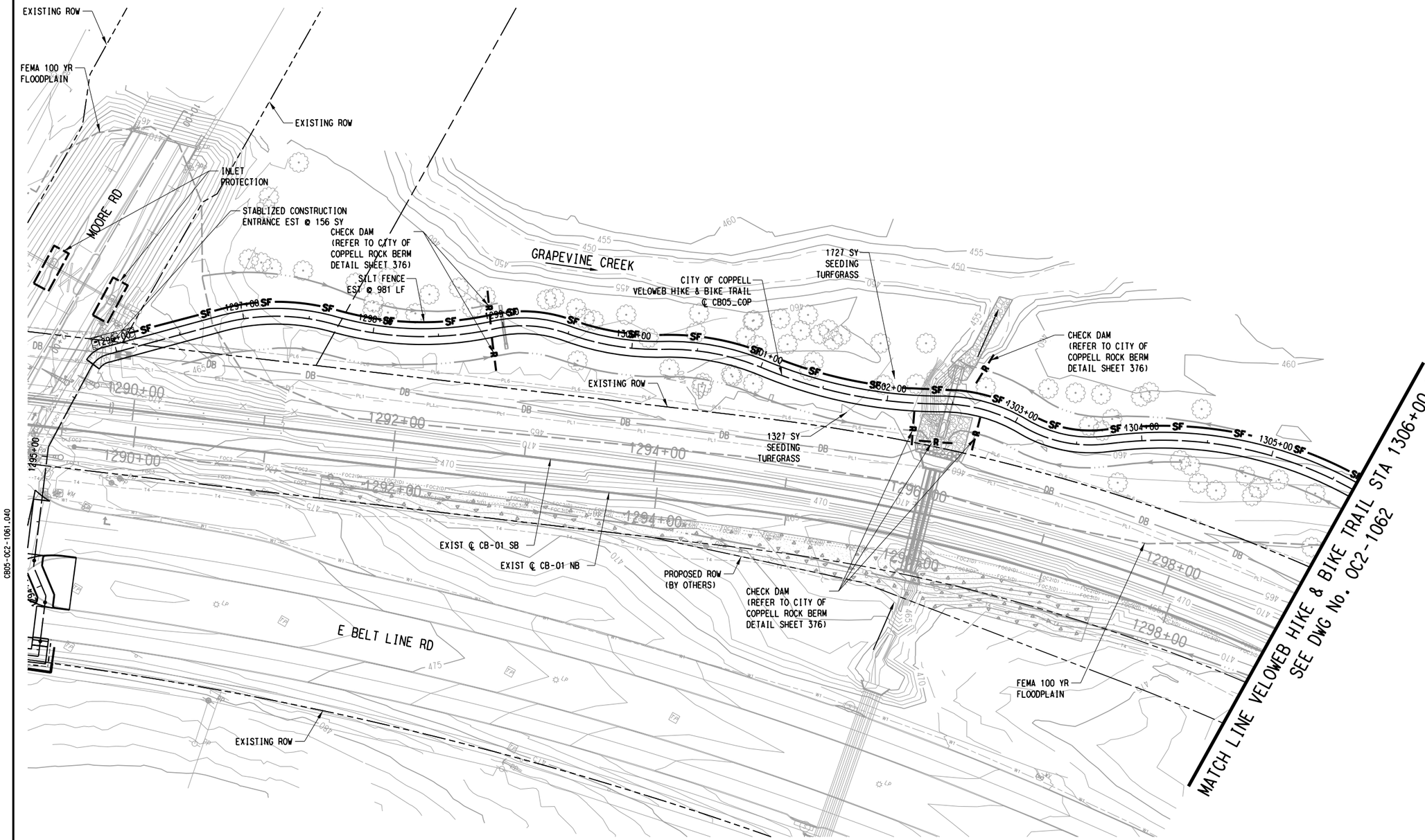
DWG No. OC2-1061



SCALE (IN FEET)
0 20 40 80

LEGEND

- SF — SILT FENCE
- R — ROCK BERM
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CONTRACT SHEET No. 361 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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IN CHARGE	J. TOONE
DATE	25 AUG 23

COTTON BELT REGIONAL RAIL VELOWEB HIKE & BIKE TRAIL

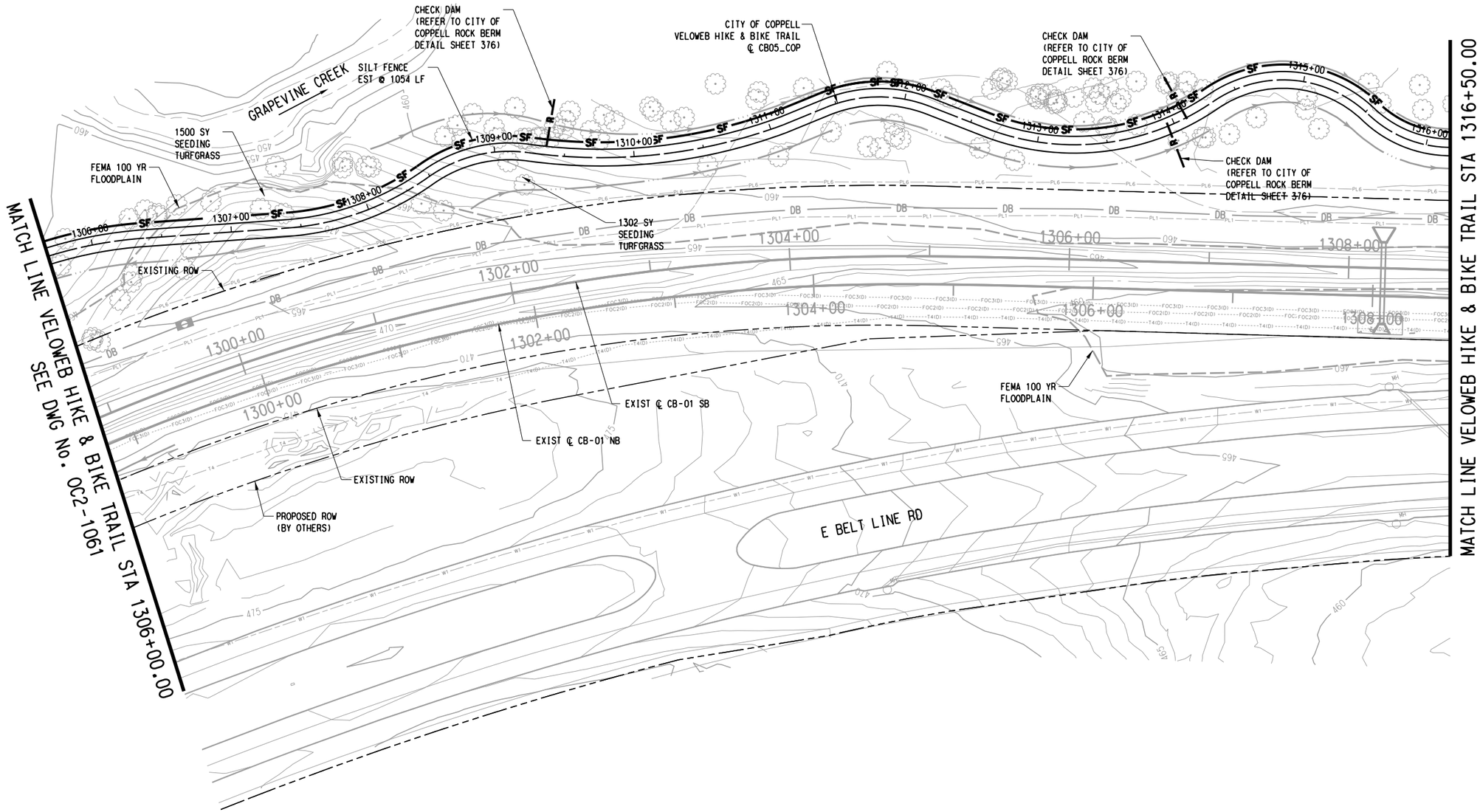
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1296+00 TO STA 1306+00
SHEET 14 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1061	D

CB05-OC2-1061.040

28-AUG-2023 09:03
CB05-OC2-1061.040
JEGSVCPWU01
Default

DWG No. OC2-1062



SCALE (IN FEET)
0 20 40 80

LEGEND

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CONTRACT SHEET No. 362 OF 378

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CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1306+00 TO STA 1316+50
SHEET 15 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1062	D

CB05-OC2-1062.040

28-AUG-2023 09:01
CB05-OC2-1062.040
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DWG No. OC2-1063

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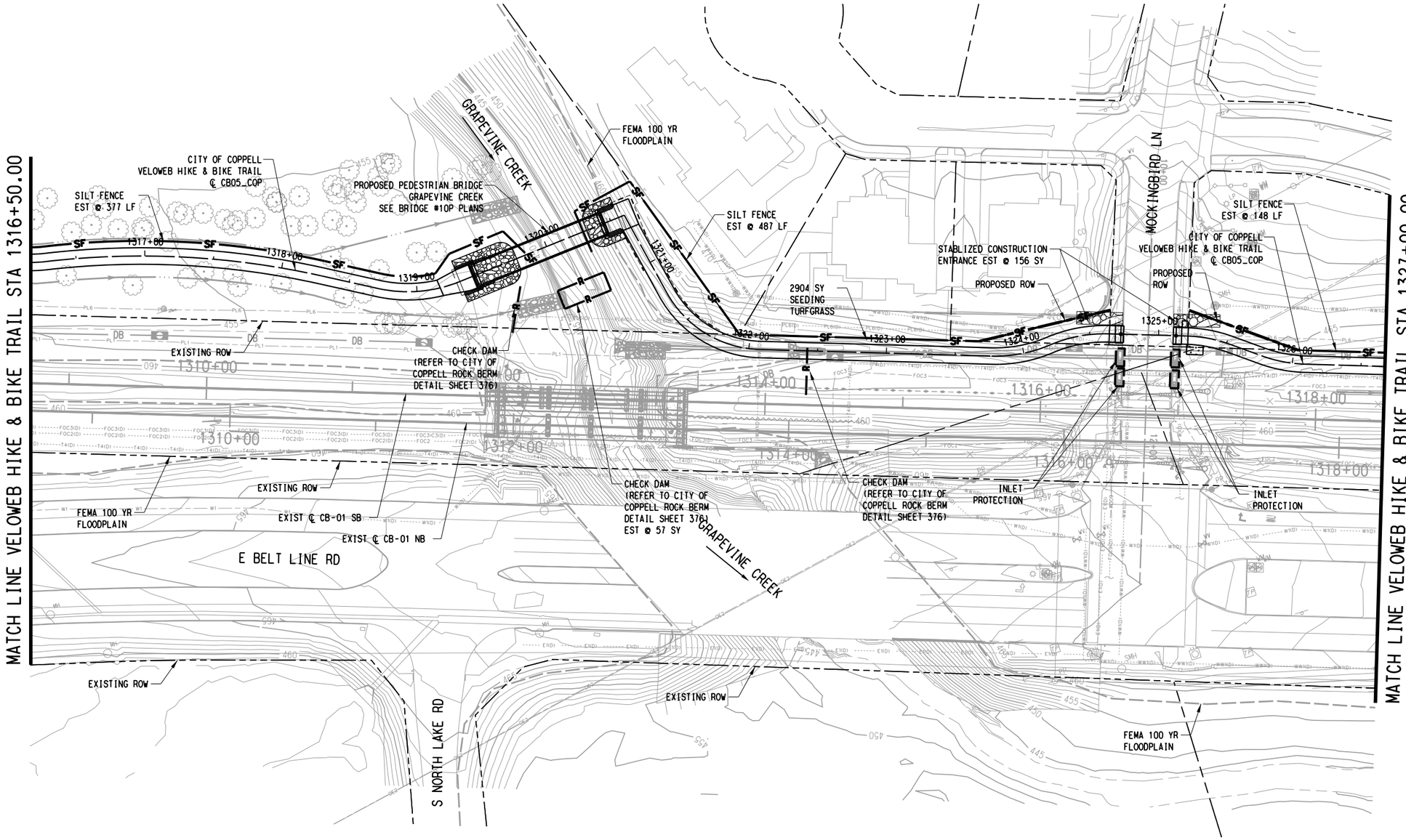
AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION WITHIN 25 FEET OF EXPLORER'S PIPELINE, CONTACT EXPLORER PIPELINE AT (888) 876-0036



SCALE (IN FEET)
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LEGEND

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VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1316+50 TO STA 1327+00
SHEET 16 OF 20

CONTRACT	DWG No.	REV
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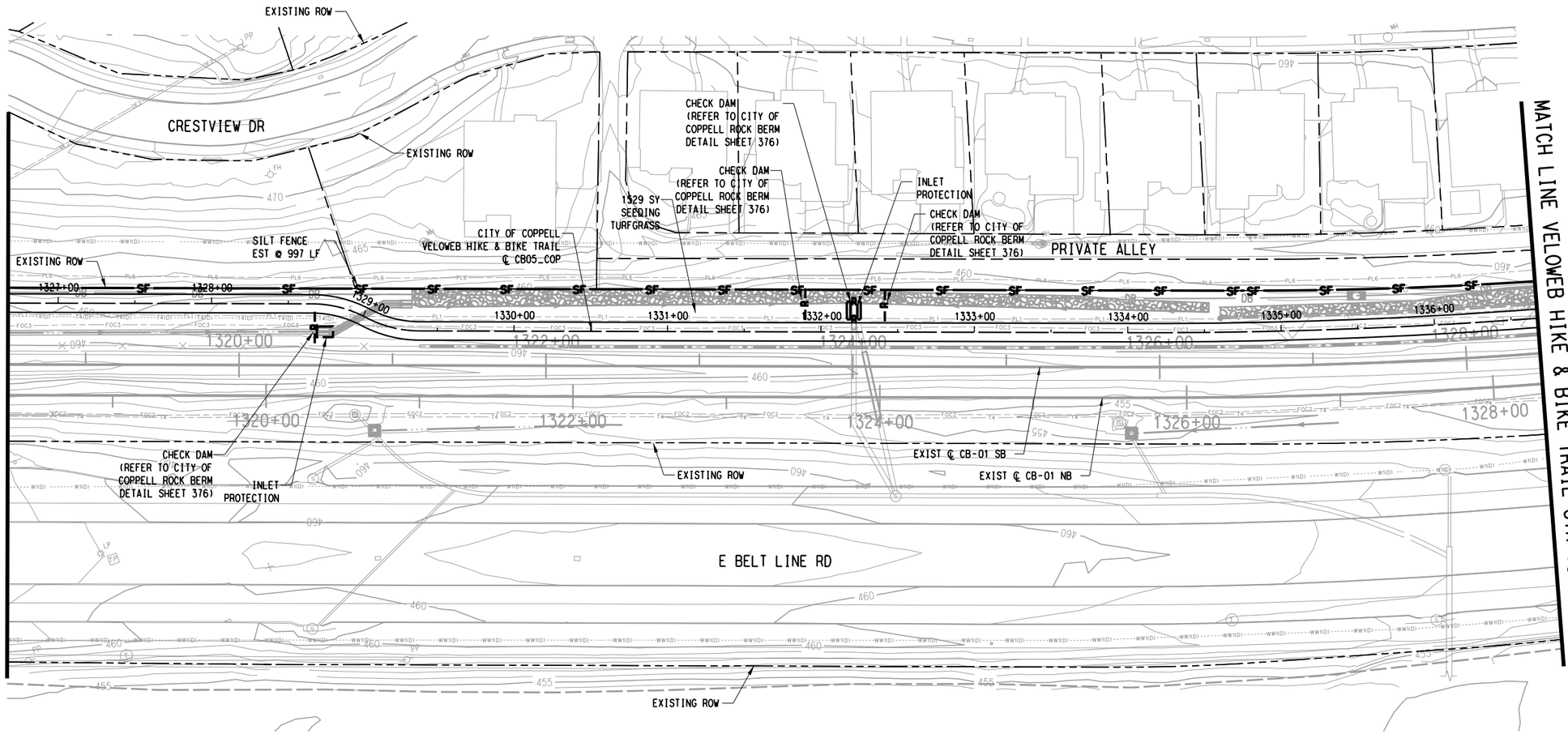
DWG No. OC2-1064

WARNING!!! EXPLORER'S HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE

AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION WITHIN 25 FEET OF EXPLORER'S PIPELINE, CONTACT EXPLORER PIPELINE AT (888) 876-0036



SCALE (IN FEET)
0 20 40 80

LEGEND

- SF — SILT FENCE
- R — ROCK BERM
- DITCH CHECK
- SILT FENCE OR GRAVEL(STANDARD) INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDING OR RELOCATING TEMPORARY EROSION MEASURES WHEN NECESSARY. SEE TEMPORARY EROSION CONTROL TYPICAL INSTALLATION SHEETS IN THE NCTCOG PUBLIC WORKS CONSTRUCTION STANDARDS MANUAL FOR MORE INFORMATION.
2. A STORM WATER POLLUTION PREVENTION PLAN HAS BEEN PREPARED FOR THIS PROJECT. THE CONTRACTOR SHALL BE FAMILIAR WITH THE PROVISIONS AND REQUIREMENTS OF THIS PLAN AND KEEP A COPY ON THE JOBSITE AT ALL TIMES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING ALL THE VARIOUS EROSION CONTROL MEASURES AND SHALL BE REQUIRED TO COMPLY WITH THE POLLUTION PREVENTION PLAN PROVISIONS AND REQUIREMENTS.
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5. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING ENTRANCE RAMPS AND DRAINAGE PIPES AT CONSTRUCTION ENTRANCES TO PREVENT DAMAGE TO CURBS AND MAINTAIN STREET DRAINAGE.
6. REFERENCE EROSION AND SEDIMENT CONTROL STANDARD DETAIL DRAWINGS INCLUDED IN THIS PACKAGE.

28-AUG-2023 09:00
CB05-OC2-1064.040

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CONTRACT SHEET No. 364 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

IN-PROGRESS REVIEW
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18383 PRESTON ROAD, SUITE 500
DALLAS, TX 75252
Phone: +1 (214) 884-4253
Firm Registration: F-10161

ARCHER WESTERN HERZOG

DART PROJECT

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SCALE	1"=40'
DRAWN	C. ALTAMERO
DESIGNED	F. CHARAKUPA
CHECKED	J. TOONE
IN CHARGE	J. TOONE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1327+00 TO STA 1337+00
SHEET 17 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1064	D

CB05-OC2-1064.040

DWG No. OC2-1065

WARNING!!! EXPLORER'S HIGH-PRESSURE PETROLEUM PRODUCTS PIPELINE

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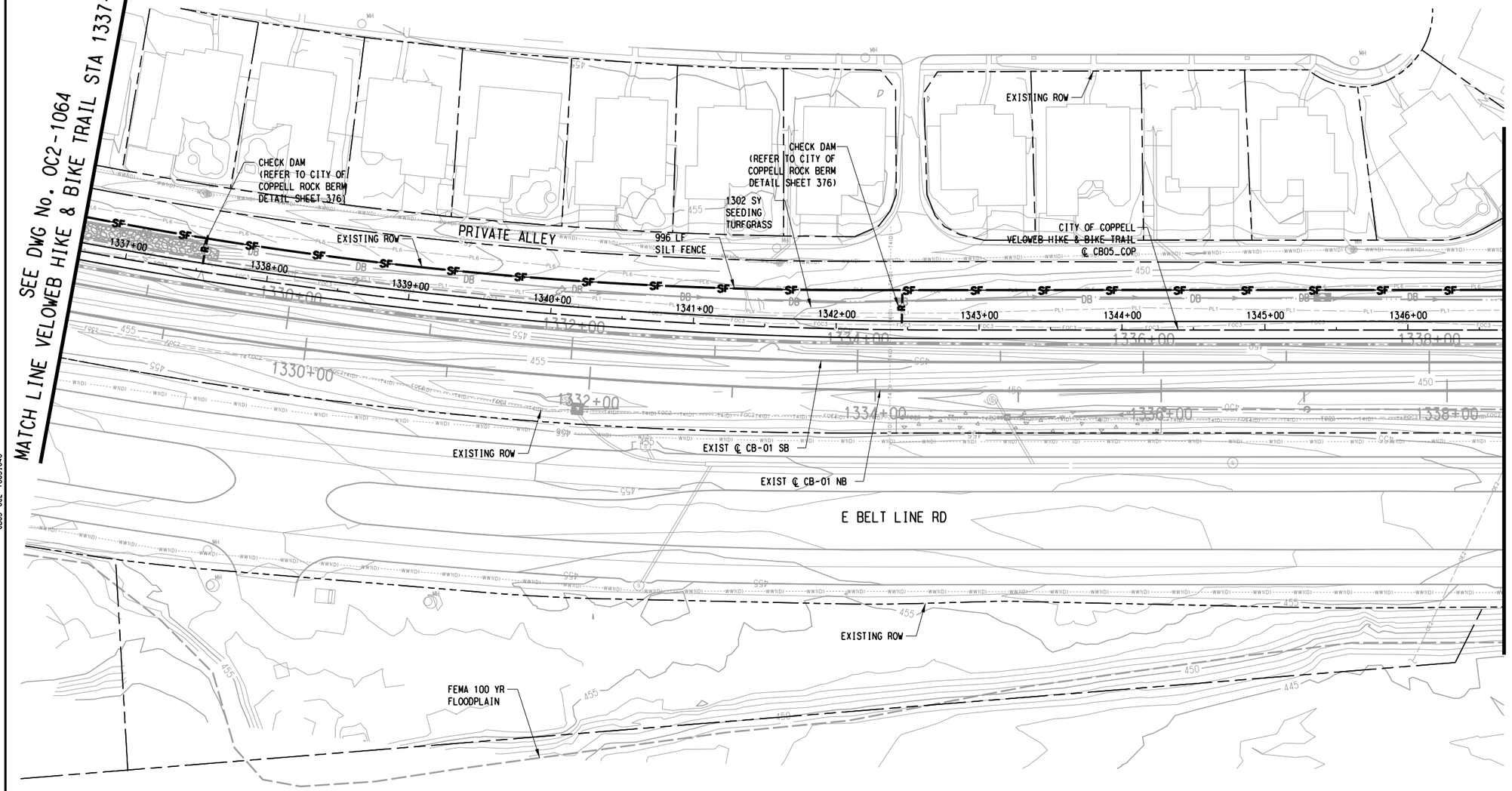

SCALE (IN FEET)
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LEGEND

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CONTRACT SHEET No. 365 OF 378

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DRAWN	C. ALTAMERO
DESIGNED	F. CHARAKUPA
CHECKED	J. TOONE
IN CHARGE	J. TOONE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1337+00 TO STA 1346+00
SHEET 18 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1065	D

CB05-OC2-1065.040

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DWG No. OC2-1066

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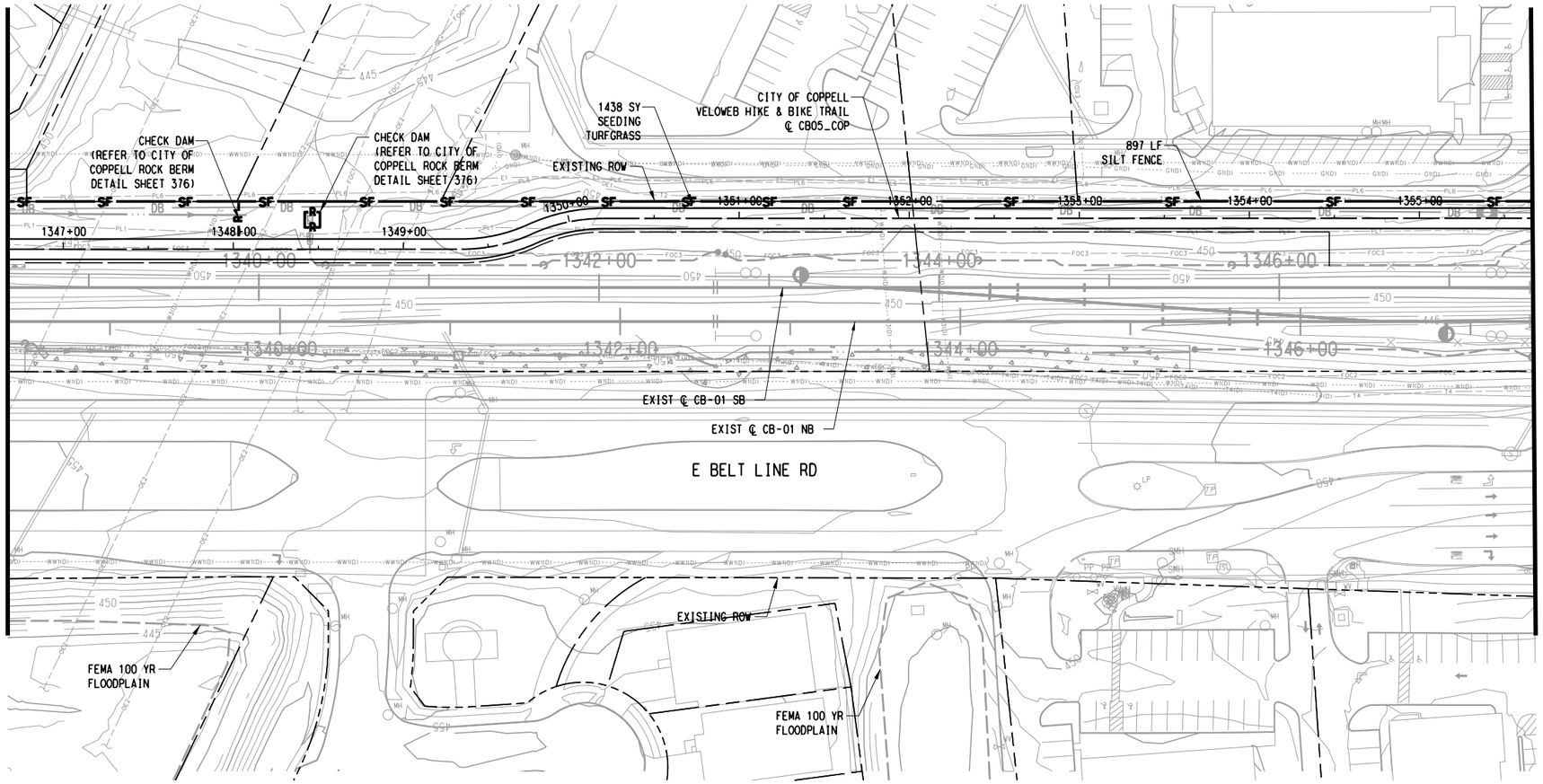

SCALE (IN FEET)
0 20 40 80

LEGEND

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CONTRACT SHEET No. 366 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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SCALE	1"=40'
DRAWN	C. ALTAMERO
DESIGNED	F. CHARAKUPA
CHECKED	J. TOONE
IN CHARGE	J. TOONE
DATE	25 AUG 23

CAES

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1346+00 TO STA 1356+00
SHEET 19 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1066	D

CB05-OC2-1066.040

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DWG No. OC2-1067

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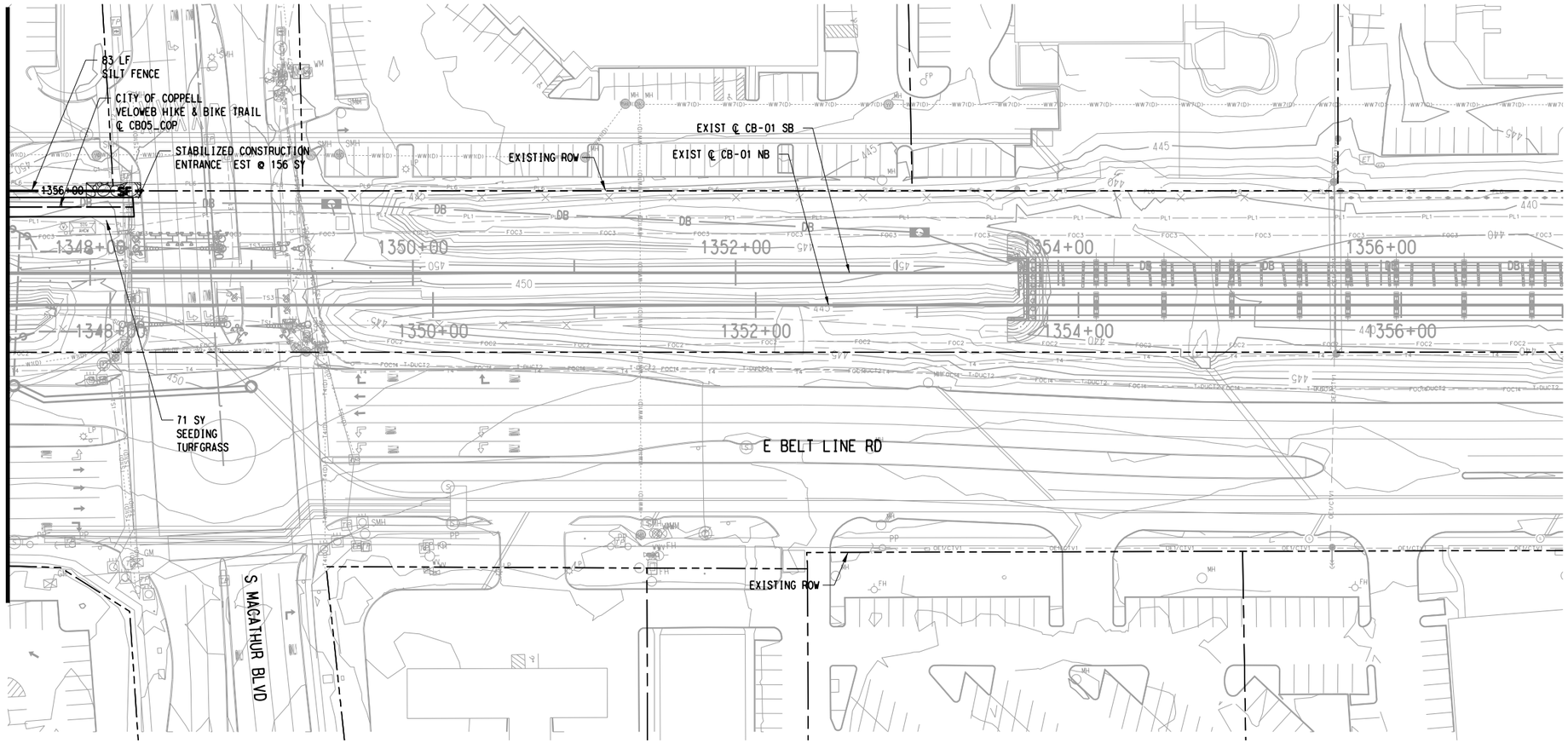

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CONTRACT SHEET No. 367 OF 378

REV	AMEND	CR	DATE	DESCRIPTION	BY	ENG	CHK	APP

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IN CHARGE	J. TOONE
DATE	25 AUG 23

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COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
CITY OF COPPELL
TEMPORARY EROSION CONTROL
STA 1356+00 TO STA 1366+00
SHEET 20 OF 20

CONTRACT	DWG No.	REV
C-2033270-01	OC2-1067	D

CB05-OC2-1067.040

28-AUG-2023 09:02
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NOTES:

1. STEEL POSTS WITH SAFETY CAP WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.

2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

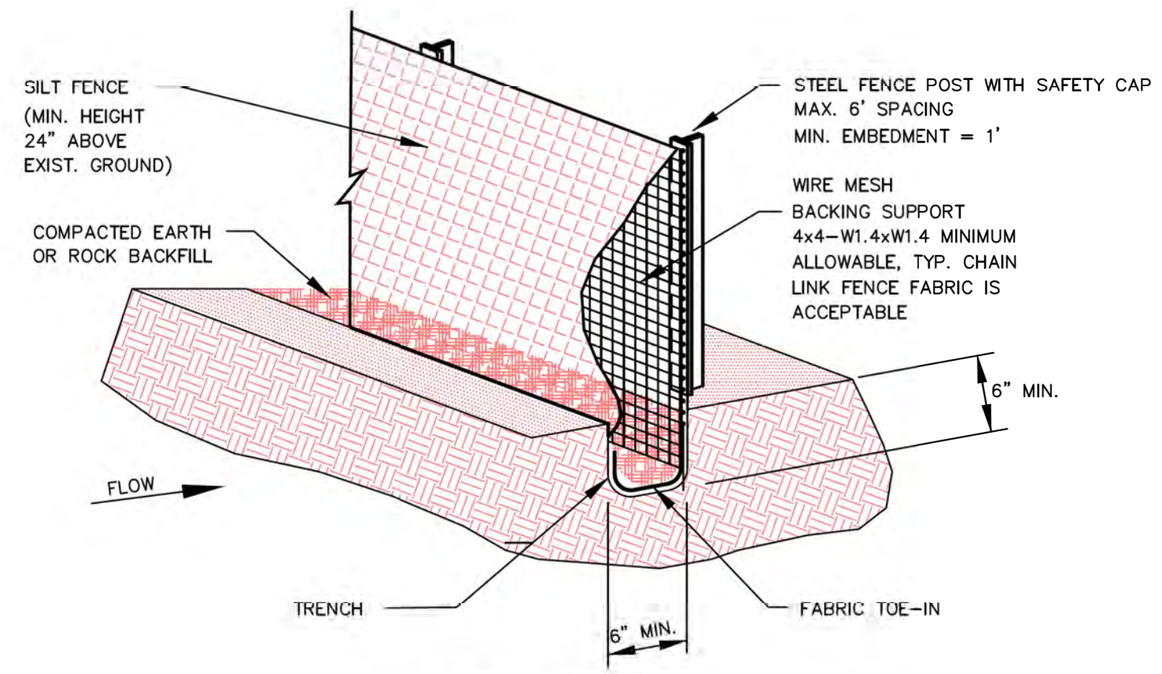
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

5. CONTRACTOR SHALL INSPECT SILT FENCE EVERY TWO WEEKS AND AFTER EACH 1/2" RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

8. SILT FENCING SHALL CONFORM TO T.P.D.E.S. AND T.C.E.Q. REQUIREMENTS.



ISOMETRIC PLAN VIEW

N.T.S.

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 368 OF 378
DWG NO. 0C9-1068
CONTRACT NO. C-2033270-01

NO.	LOCAL EXCEPTION	BY	DATE

THE CITY OF COPPELL
TEXAS 1890

STANDARD CONSTRUCTION DETAILS

EROSION AND SEDIMENTATION CONTROL
SILT FENCE

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE
201.5

STANDARD DETAIL
1020

28-AUG-2023 09:04
STD5-0C9-1068.001

NOTES:

1. USE ONLY OPEN GRADED ROCK 4–8 INCHES IN DIAMETER FOR STREAM FLOW CONDITION. USE OPEN GRADED ROCK 3–5 INCHES IN DIAMETER FOR OTHER CONDITIONS.

2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING A MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE SIZE OF 20 GAUGE AND SHALL BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP.

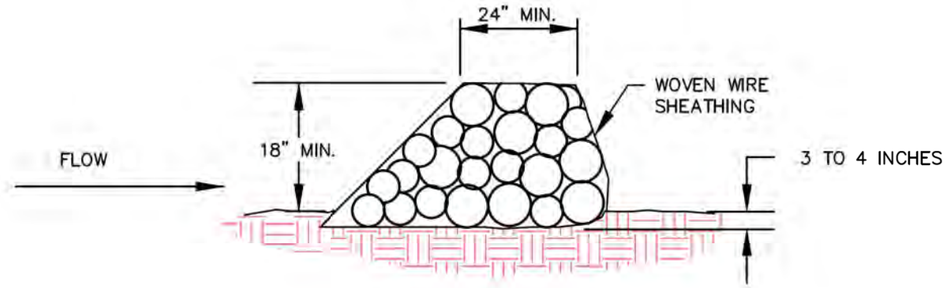
3. THE ROCK BERM SHALL BE INSPECTED EVERY TWO WEEKS OR AFTER EACH 1/2" RAIN EVENT AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

4. WHEN SILT REACHES A DEPTH EQUAL TO ONE–THIRD OF THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.

5. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

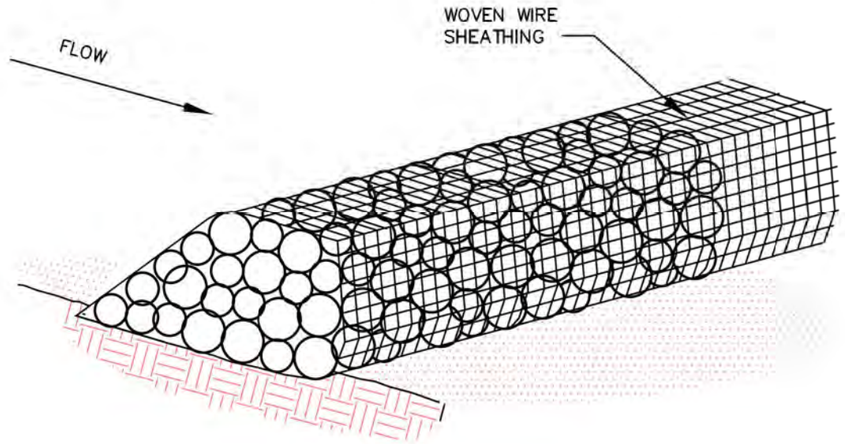
6. ROCK BERM SHOULD BE USED AS CHECK DAMS FOR CONCENTRATED FLOW AND ARE NOT INTENDED FOR USE IN PERIMETER PROTECTION.

7. ROCK BERM SHALL CONFORM TO T.P.D.E.S. AND T.C.E.Q. REQUIREMENTS.



CROSS SECTION

N.T.S.



ISOMETRIC PLAN VIEW

N.T.S.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 369 OF 378
DWG NO. 0C9-1069
CONTRACT NO. C-2033270-01

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

NO.	LOCAL EXCEPTION	BY	DATE

THE CITY OF COPPELL TEXAS 1890

STANDARD CONSTRUCTION DETAILS

EROSION AND SEDIMENTATION CONTROL
ROCK BERM

CITY OF COPPELL DALLAS COUNTY, TEXAS

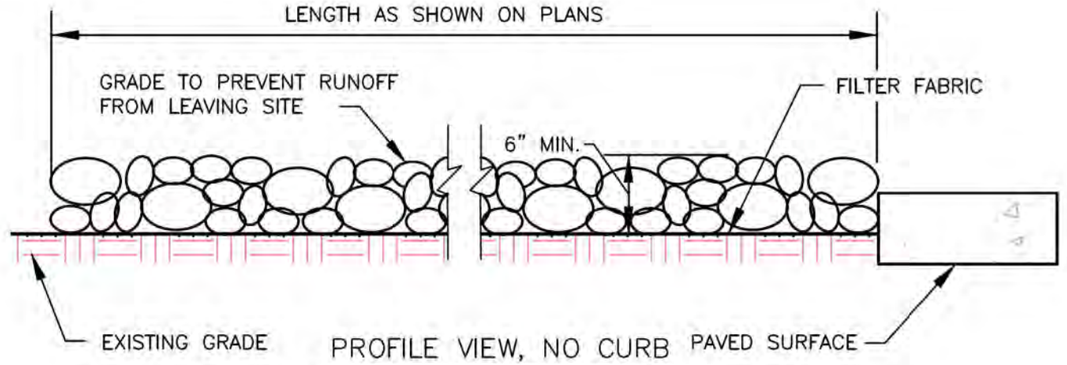
STD. SPEC. REFERENCE
201.9

STANDARD DETAIL
1060

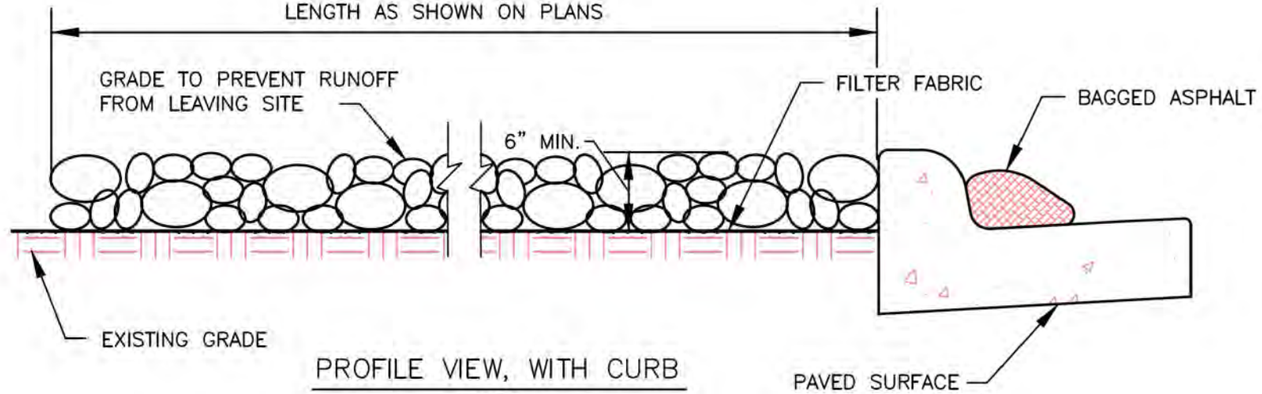
28-AUG-2023 09:02
STD5-0C9-1069.001

NOTES:

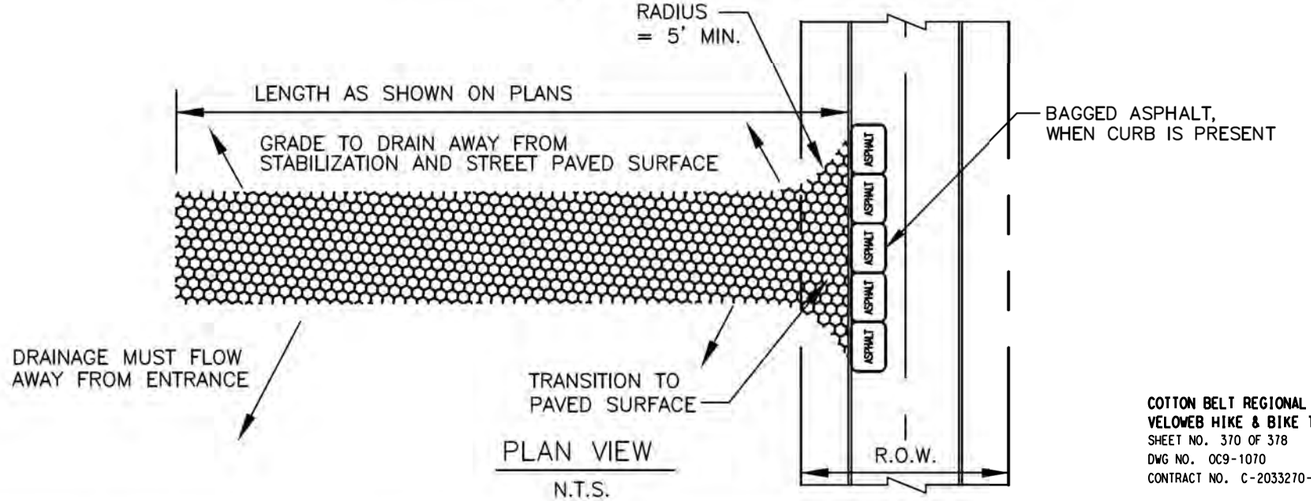
1. STONE SHALL BE 3 TO 5 INCH DIAMETER CRUSHED ROCK OR ACCEPTABLE CRUSHED PORTLAND CEMENT CONCRETE.
2. LENGTH SHALL BE SHOWN ON PLANS, WITH A MINIMUM LENGTH OF 30 FEET FOR LOTS WHICH ARE LESS THAN 150 FEET FROM EDGE OF PAVEMENT. THE MINIMUM DEPTH IN ALL OTHER CASES SHALL BE 50 FEET.
3. THE THICKNESS SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.
7. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
8. CONSTRUCTION ENTRANCE SHALL CONFORM TO T.P.D.E.S. AND T.C.E.Q. REQUIREMENTS.
9. DAMAGED CURB SHALL BE REPAIRED PER STANDARD CONSTRUCTION DETAIL 2120.
10. DRAINAGE IN GUTTERLINE MUST BE MAINTAINED AT ALL TIMES.



PROFILE VIEW, NO CURB
N.T.S.



PROFILE VIEW, WITH CURB
N.T.S.



PLAN VIEW
N.T.S.

North Central Texas Council of Governments

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NO.	LOCAL EXCEPTION	BY	DATE

THE CITY OF COPPELL TEXAS 1891

STANDARD CONSTRUCTION DETAILS

EROSION AND SEDIMENTATION CONTROL
STABILIZED CONSTRUCTION ENTRANCE

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE
201., 203.

STANDARD DETAIL
1070

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 370 OF 378
DWG NO. 0C9-1070
CONTRACT NO. C-2033270-01

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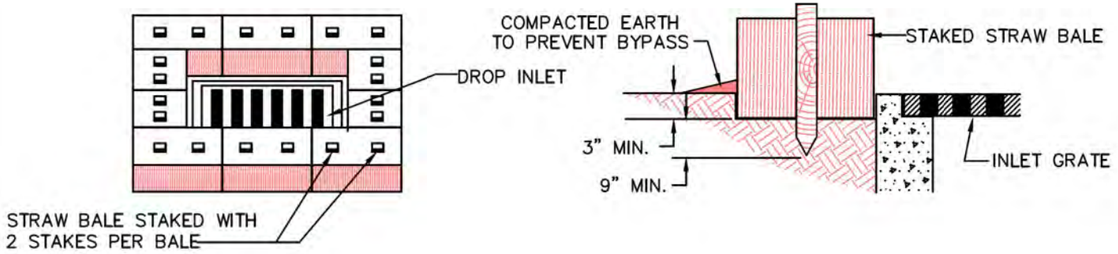
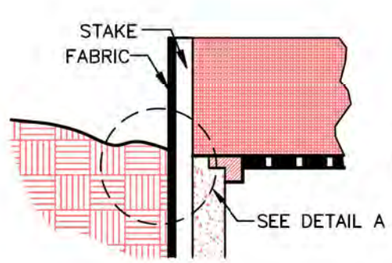
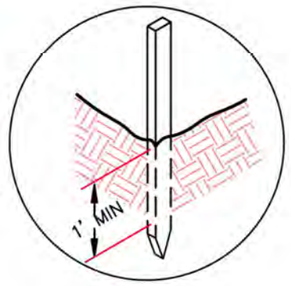
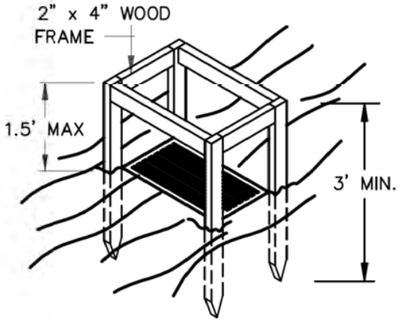




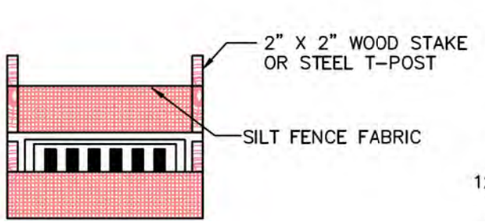
ELEVATION OF STAKE AND
FABRIC ORIENTATION

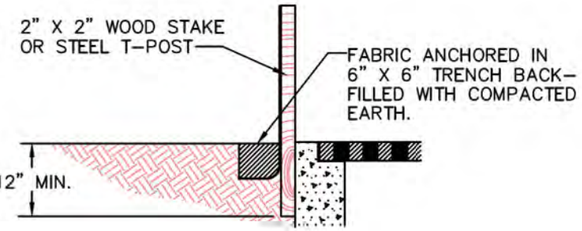


DETAIL A



PERSPECTIVE VIEW

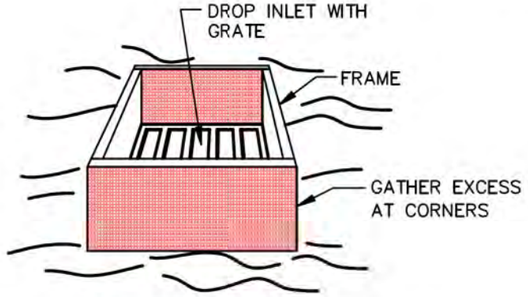




I. STANDARD INSTALLATION

STRAW BALE PROTECTION

N.T.S.



PERSPECTIVE VIEW

SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVER-LAND FLOWS (NOT TO EXCEED 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREETS OR HIGHWAY MEDIANS.

II. ALTERNATE INSTALLATION

FILTER FABRIC PROTECTION

N.T.S.

NOTE:

GRATE INLET FILTER BARRIER SHALL CONFORM TO T.P.D.E.S. AND T.C.E.Q. REQUIREMENTS.

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

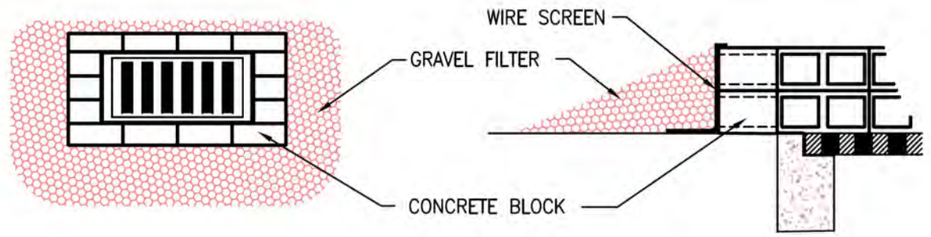
COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 371 OF 378
DWG NO. OC9-1071
CONTRACT NO. C-2033270-01

28-AUG-2023 09:04
STD5-0C9-1071.001

NO.	LOCAL EXCEPTION	BY	DATE

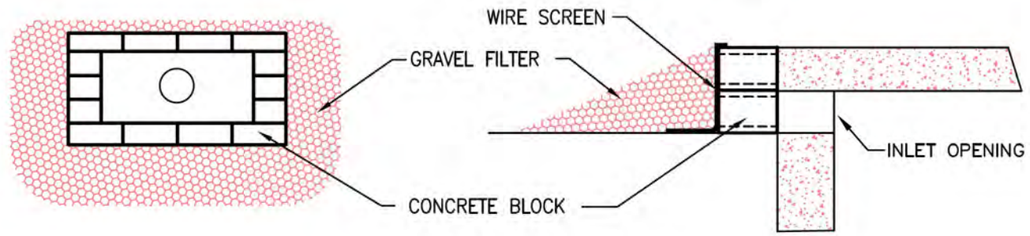
THE CITY OF COPPELL TEXAS 1890

STANDARD CONSTRUCTION DETAILS	STD. SPEC. REFERENCE
EROSION AND SEDIMENTATION CONTROL GRATE INLET FILTER BARRIER	201.
CITY OF COPPELL DALLAS COUNTY, TEXAS	STANDARD DETAIL 1120



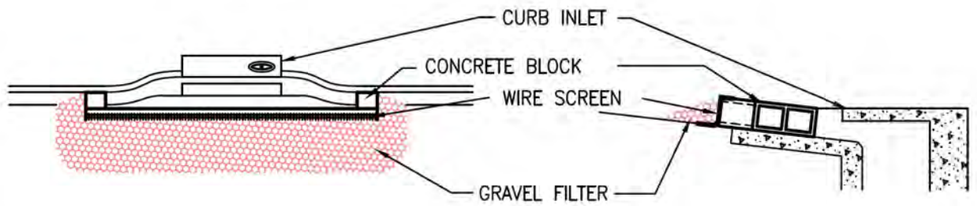
GRATE INLET PROTECTION

N.T.S.



DROP INLET PROTECTION

N.T.S.



NOTE:

INLET PROTECTION SHALL CONFORM TO T.P.D.E.S. AND T.C.E.Q. REQUIREMENTS.

CURB INLET PROTECTION (SHALL NOT BE USED IN ROADWAY)

N.T.S.

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 372 OF 378
DWG NO. 0C9-1072
CONTRACT NO. C-2033270-01

28-AUG-2023 09:03
STD5-0C9-1072.001

NO.	LOCAL EXCEPTION	BY	DATE

THE CITY OF COPPELL TEXAS 1890

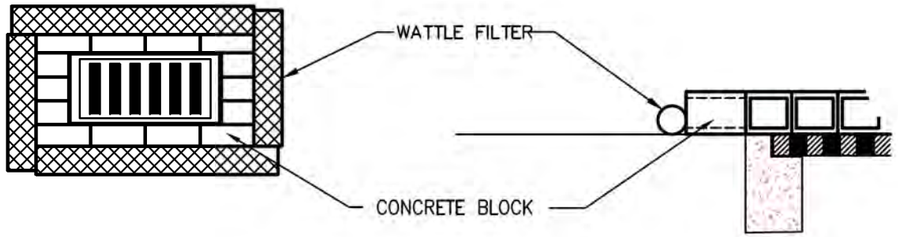
STANDARD CONSTRUCTION DETAILS

EROSION AND SEDIMENTATION CONTROL
INLET PROTECTION: BLOCK AND GRAVEL

CITY OF COPPELL DALLAS COUNTY, TEXAS

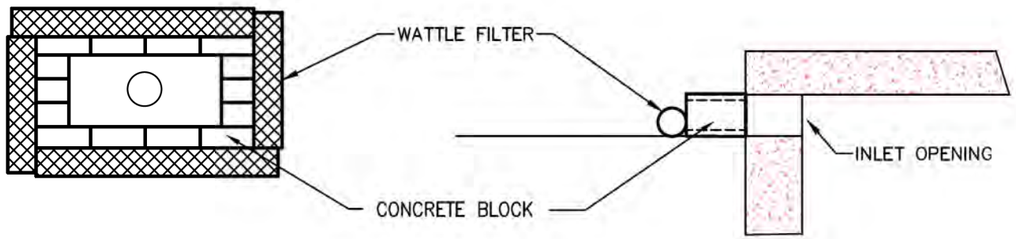
STD. SPEC. REFERENCE
201.

STANDARD DETAIL
1130



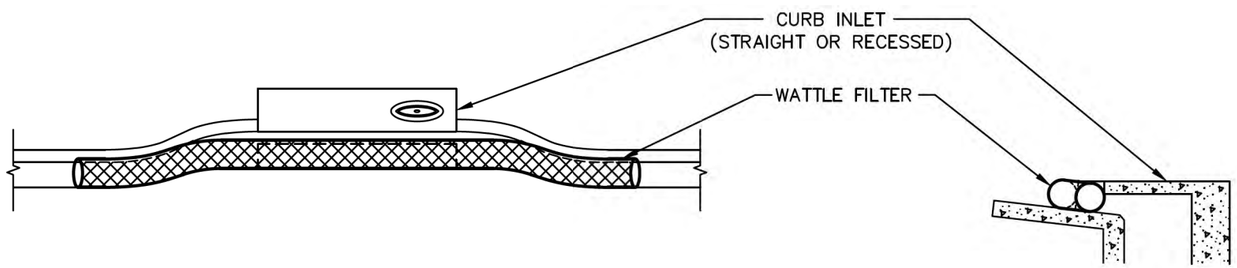
GRATE INLET PROTECTION

N.T.S.



DROP INLET PROTECTION

N.T.S.



NOTE:

WATTLE FILTER INLET PROTECTION SHALL CONFORM TO T.P.D.E.S. AND T.C.E.Q. REQUIREMENTS.

CURB INLET PROTECTION

N.T.S.

28-AUG-2023 09:05
STD5-0C9-1073.001

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 373 OF 378
DWG NO. 0C9-1073
CONTRACT NO. C-2033270-01

NO.	LOCAL EXCEPTION	BY	DATE

THE CITY OF COPPELL TEXAS 1891

STANDARD CONSTRUCTION DETAILS

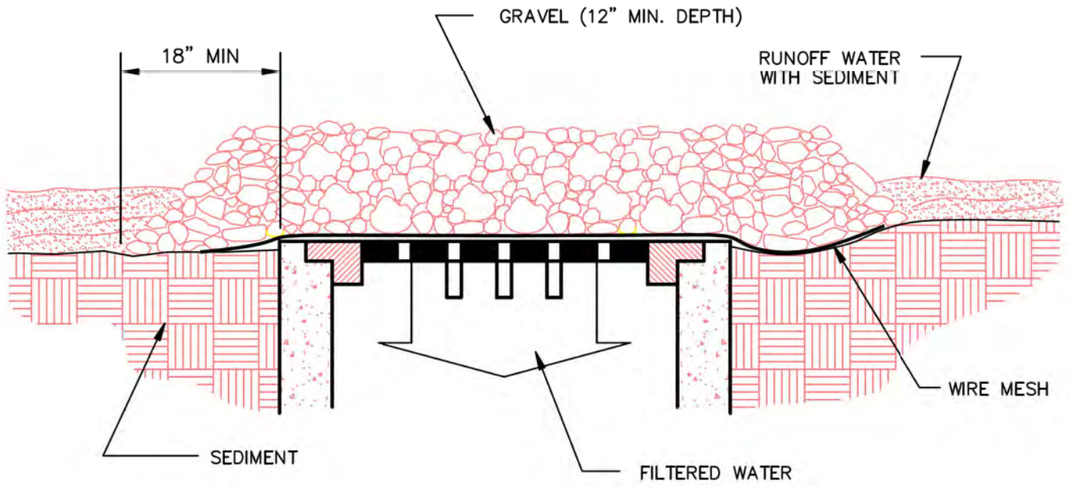
EROSION AND SEDIMENTATION CONTROL
INLET PROTECTION: WATTLE FILTER

CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE
201.

STANDARD DETAIL
1135

STD5-0C9-1073.001



CROSS SECTION

N.T.S.

SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY CONCENTRATION FLOWS ARE EXPECTED, BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE HAZARDOUS AND UNPROTECTED AREAS OF STANDING WATER.

NOTE:

INLET PROTECTION SHALL CONFORM TO T.P.D.E.S. AND T.C.E.Q. REQUIREMENTS.

North Central Texas Council of Governments

NOTE: STANDARDS ARE ADOPTED FROM THE NCTCOG STANDARD DRAWINGS DATED NOV. '96, WITH LOCAL EXCEPTIONS.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 374 OF 378
DWG NO. OC9-1074
CONTRACT NO. C-2033270-01

NO.	LOCAL EXCEPTION	BY	DATE

THE CITY OF COPPELL TEXAS 1891

STANDARD CONSTRUCTION DETAILS

EROSION AND SEDIMENTATION CONTROL
INLET PROTECTION: WIRE MESH AND GRAVEL

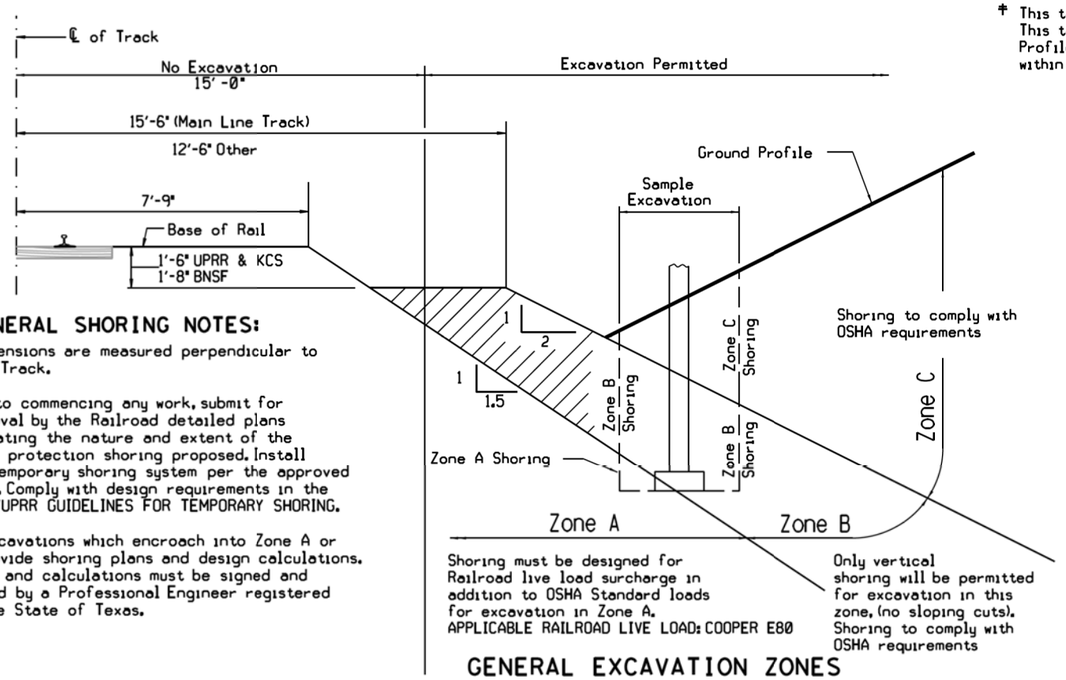
CITY OF COPPELL DALLAS COUNTY, TEXAS

STD. SPEC. REFERENCE
201.

STANDARD DETAIL
1140

28-AUG-2023 09:00
STD5-OC9-1074.001

STD5-OC9-1074.001



GENERAL EXCAVATION ZONES

GENERAL SHORING NOTES:

1. All dimensions are measured perpendicular to ℄ of Track.
2. Prior to commencing any work, submit for approval by the Railroad detailed plans indicating the nature and extent of the track protection shoring proposed. Install the temporary shoring system per the approved plans. Comply with design requirements in the BNSF/UPRR GUIDELINES FOR TEMPORARY SHORING.
3. For excavations which encroach into Zone A or B, provide shoring plans and design calculations. Plans and calculations must be signed and sealed by a Professional Engineer registered in the State of Texas.

GENERAL SHORING REQUIREMENTS *

RAILROAD GENERAL NOTES:

1. Railroad review and approval of shoring, erection, demolition, and falsework is required. Allow a minimum of four weeks for the review and approval of each submittal.
2. The proposed grade separation project shall not increase the quantity and/or characteristics of the flow in the Railroad's ditches and/or drainage structures. In the rare event that a grade separation project will increase the quantity and/or characteristics of flow in such elements, such a design must be reviewed and approved by the Railroad.
3. Verify the elevation of the existing top-of-rail profile before beginning construction. Bring all discrepancies to the attention of the Railroad prior to construction.
4. Submit a proposed method of erosion and sediment control for approval by the Railroad.
5. Design and construct all shoring systems that impact the Railroad's operations and/or support the Railroad's embankment per current Railroad Guidelines for Temporary Shoring.
6. Comply with Railroad Demolition Guidelines for all demolitions within the Railroad's right of way and/or demolition that may impact the Railroad's tracks or operations.
7. Design erection methods over the Railroad's right of way to cause no interruption to the Railroad's operation, enabling the track(s) to remain open to traffic per the Railroad's requirements. Coordinate construction work windows with the Railroad's Designated Representative.
8. Design all construction phasing that may impact the Railroad operations to cause no interruption to the Railroad's operations, enabling the track(s) to remain open to traffic per the Railroad's requirements. Coordinate construction work windows with the Railroad's Designated Representative.
9. Comply with minimum construction clearances for falsework outlined in the Railroad's Guidelines.
10. Verify all permanent clearances before project closing.
11. For Railroad coordination please refer to Sheets 2 and 3 and the TxDOT Standard Specifications.

For shoring/excavations in Zone A or B, TxDOT requires a predesigned and approved shoring design in the PS&E. If this is the case no Contractor submittal is required.

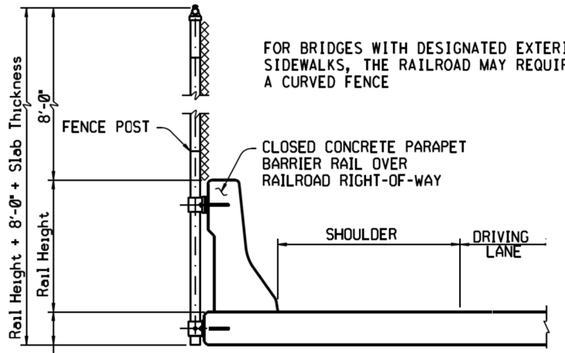
* This table is primarily required for overpass projects. This table is not required for underpass projects if the provided Plan and Profile sheets indicate this information at a minimum of every 100 ft and within bounds including 1500 ft before and after the limits of trackwork.

TABLE OF TOP OF RAIL PROFILE *

(STATIONS INCREASE WITH MILEPOST INCREASE)

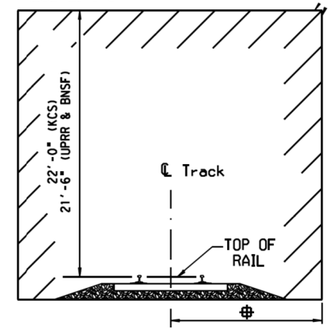
	MAIN LINE			
	ALIGNMENT: LEFT RAIL 100' STATIONS	ELEVATION	ALIGNMENT: RIGHT RAIL 100' STATIONS	ELEVATION
1000' PRIOR TO PROJECT	0+00	DATA FLD	0+00	DATA FLD
	1+00	DATA FLD	1+00	DATA FLD
	2+00	DATA FLD	2+00	DATA FLD
	3+00	DATA FLD	3+00	DATA FLD
	4+00	DATA FLD	4+00	DATA FLD
	5+00	DATA FLD	5+00	DATA FLD
	6+00	DATA FLD	6+00	DATA FLD
	7+00	DATA FLD	7+00	DATA FLD
	8+00	DATA FLD	8+00	DATA FLD
	9+00	DATA FLD	9+00	DATA FLD
WITHIN PROJECT	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
	0+00	DATA FLD	0+00	DATA FLD
1000' AFTER PROJECT	▬ 10+00	DATA FLD	▬ 10+00	DATA FLD
	11+00	DATA FLD	11+00	DATA FLD
	12+00	DATA FLD	12+00	DATA FLD
	13+00	DATA FLD	13+00	DATA FLD
	14+00	DATA FLD	14+00	DATA FLD
	15+00	DATA FLD	15+00	DATA FLD
	16+00	DATA FLD	16+00	DATA FLD
	17+00	DATA FLD	17+00	DATA FLD
	18+00	DATA FLD	18+00	DATA FLD
	19+00	DATA FLD	19+00	DATA FLD
	20+00	DATA FLD	20+00	DATA FLD

▬ ± EXISTING TRACK STA. 10+00
= t CONSTRUCTION STA. XX+XX



TYPICAL FENCE ON BARRIER DETAIL

ONLY REQUIRED ON OVERPASSES IF SHOWN ON BRIDGE LAYOUT. (AREAS WITH PEDESTRIANS ON BRIDGE, RAIL YARDS, OR HISTORY OF VANDALISM)



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

(NORMAL TO RAILROAD)
15'-0" (UPRR), (BNSF) and 14'-0" (KCS)

FOR THE FOLLOWING INFORMATION PLEASE REFER TO THE PLAN AND ELEVATION DRAWINGS OF THE BRIDGE PLANS. THE PLAN AND ELEVATION DRAWINGS SHALL SHOW ALL REQUIRED INFORMATION PER BNSF/UPRR GUIDELINES FOR RAILROAD GRADE SEPARATION PROJECT PLAN NO. 711100 SHEET 2.

1. Centerline of bridge and/or centerline of project.
2. Track layout and limits of Railroad right of way with respect to centerline of main lines.
3. Future tracks, access roadways and existing tracks as main line, siding, spur, etc.
4. Point of minumum vertical clearance and distance, Measured perpendicular, from the centerline of nearest track.
5. Horizontal clearance at right angle from centerline of nearest existing or future track to the face of obstruction such as substructure above grade.
6. Horizontal clearance at right angle from centerline of nearest existing or future track to the face of nearest foundation below grade.
7. Horizontal spacing at right angle between centerlines of existing and/or future tracks.
8. Limits of shoring and minimum distance at right angle from centerline of nearest track.
9. All existing facilities and utilities and their proposed relocation, if required.
10. Toe of riprap or earth slope and/or limits of retaining wall.
11. Existing and proposed contours. (not required if the existing groundlines or drainage characteristics in Railroad ROW will not be altered).
12. Railroad Milepost and direction of increasing Milepost.
13. Direction of flow for all drainage systems within project limits.
14. Limits of barrier rail and fence with respect to centerline of track.
15. Depth of foundation below bottom of tie. (for footings only)
16. Top and bottom of pier protection wall elevation relative to top of rail elevation.
17. Controlling dimensions of drainage ditches and/or drainage structures.
18. Top of rail elevations for all tracks.
19. Minimum permanent vertical clearance above top of high rail to the lowest point under the bridge.
20. Existing and proposed groundline & roadway profile.
21. Type of riprap slope paving.
22. Location of deck drains.
23. Total width of superstructure.
24. Width of shoulder and/or sidewalk.

GENERAL NOTES:

Design and Construction for Railroad Projects shall be in accordance with the AREMA Manual for Railway Engineering and BNSF/UPRR Guidelines for Railroad Grade Separation Projects or Kansas City Southern Guidelines for the Design and Construction of Overpasses and Underpasses, or DART Light Rail Project Design Criteria Manual, and the TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges AS APPLICABLE TO THE RAILROAD COMPANY INVOLVED.

See BNSF/UPRR Guidelines for Grade Seperation Projects Plan No. 711100 and TxDOT Railroad Fence Details Sheet for additional information. A curved top fence extending 8'-0" above top of sidewalk is acceptable only where there is a traffic rail between roadway and sidewalk.

See Kansas City Southern Guidelines for the Design and Construction of Overpasses and Underpasses for corresponding BNSF/UPRR sheets referenced.

P.E. SEAL REQUIRED

PRELIMINARY

SUBJECT TO REVISION

This document is released for informational purposes under the authority of

P.E. on .

It is not to be used for regulatory approval, permit, bidding, or construction purposes.

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 375 OF 378
DWG NO. GC5-7232
CONTRACT NO. C-2033270-01
RAILROAD REQUIREMENTS FOR BRIDGE CONSTRUCTION.dgn

Texas Department of Transportation — Rail Division

RAILROAD REQUIREMENTS FOR BRIDGE CONSTRUCTION

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS March 2020				
	DIST	COUNTY		SHEET NO.

DATE:
FILE:

PART 1 - GENERAL

1.01 DESCRIPTION

This project includes construction work within the right of way and/or properties of the Railroad Company and adjacent to its tracks, wire lines and other facilities. These sheets describe the minimum special requirements for coordination with the Railroad when working upon, over or under Railroad Right of Way or when impacting current or future railroad operations. Coordinate with the Railroad while performing the work outlined herein, and afford the same cooperation with the Railroad as with TxDOT. Complete all submittals and work in accordance with TxDOT Standard Specifications, Railroad Guidelines and AREMA recommendations as modified by these minimum special requirements or as directed in writing by the Railroad Designated Representative.

For purposes of this project, the Railroad Designated Representative is the person or persons designated by the Railroad Manager of Industry and Public Projects to handle specific tasks related to the project.

1.02 REQUEST FOR INFORMATION / CLARIFICATION

Submit Requests for Information ("RFI") involving work within any Railroad Right of Way to the TxDOT Engineer. The TxDOT Engineer will submit the RFI to the Railroad Designated Representative for review and approval for RFI's corresponding to work within Railroad Right of Way. Allow six (6) weeks total time for review and approval, which includes four (4) weeks for review and approval by the Railroad.

1.03 PLANS / SPECIFICATIONS

TxDOT has received written Railroad approval of the plans and specifications for this project. Any revisions or changes in the plans after award of the Contract must have the approval of TxDOT and the Railroad.

PART 2 - UTILITIES AND FIBER OPTIC

Construct all utility installations in accordance with current AREMA recommendations, Railroad, TxDOT and owning utility specifications and requirements. Railroad general guidelines can be found on the Railroad's website or by contacting the Railroad Designated Representative.

PART 3 - CONSTRUCTION

3.01 GENERAL

A. Perform all work in compliance with all applicable Railroad, FRA (Federal Railway Administration) and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of Railroad's train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.

B. Construction activities within 15 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 15 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.

C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor's machinery and materials at least 50 feet from the Railroad's nearest track.

D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with railroad approval.

E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.

3.02 RAILROAD OPERATIONS

A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.

B. All railroad tracks within and adjacent to the contract site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. Railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.

C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:

1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a railroad flag person will be required. At the direction of the Railroad's flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.

2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. A railroad flag person will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

A. Do not perform any work within Railroad Right of Way without a valid executed Right of Entry Agreement if required on this project.

B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right of Way and observe the Railroad's rules and regulations with respect thereto.

C. Perform all work upon Railroad Right of Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.18 for railroad flagging requirements.

D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
1. Exactly what the work entails.
2. The days and hours that work will be performed.
3. The exact location of work, and proximity to the tracks.
4. The type of window requested and the amount of time requested.
5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.

E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

3.04 INSURANCE

Do not begin work upon or over Railroad Right of Way until furnishing the Railroad with the insurance policies, binders, certificates and endorsements required by the "Contractor's Right of Entry Agreement", and until the Railroad Designated Representative has advised TxDOT that such insurance is in accordance with the Agreement.

3.05 RAILROAD SAFETY ORIENTATION

A. Complete the Railroad's course "Orientation for Contractor's Safety", and maintain current registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

"UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information."

B. Know and follow the "Contractor's Right of Entry Agreement" EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

3.06 COOPERATION

The Railroad will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of Railroad Right of Way in performing the work.

3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

Abide by the following minimum temporary clearances during the course of construction:
A. 15' - 0" (BNSF)(UPRR), and 14' - 0" (KCS) horizontal from centerline of track
B. 22' - 0" (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

For construction clearance less than listed above, obtain local Railroad Operating Unit review and approval.

3.08 APPROVAL OF REDUCED CLEARANCES

A. Maintain minimum track clearances during construction as specified in Section 3.07.

B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.

C. Do not commence work involving an approved infringement until receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

Texas Department of Transportation — Rail Division

RAILROAD REQUIREMENTS FOR
FOR BRIDGE CONSTRUCTION

COTTON BELT REGIONAL RAIL
VELOWEB HIKE & BIKE TRAIL
SHEET NO. 376 OF 378
DWG NO. GC5-7233
CONTRACT NO. C-2033270-01
RAILROAD REQUIREMENTS FOR BRIDGE CONSTRUCTION.dgn

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3.09 CONSTRUCTION AND AS-BUILT SUBMITTALS

A. Provide TxDOT submittals for construction materials and procedures as outlined below and indicated in TxDOT Standard Specifications. A summary of most TxDOT submittal requirements can be found at: www.dot.state.tx.us/publications/bridge/items reviewed.pdf

B. The tables below provide the Railroad's minimum submittal requirements for the construction items noted. Submittal requirements are in addition to those specified elsewhere in these bid documents. The review times indicated below represent the total time, including the Railroad's required four (4) weeks.

C. TxDOT will forward relevant submittals to the Railroad Manager of Industry and Public Projects unless otherwise directed by the Railroad. TxDOT and the Engineer of Record will review and include comments prior to forwarding to the Railroad. Submit items in Table 1 for both railroad overpass and underpass projects, as applicable. Submit items in Table 2 for railroad underpass projects only.

TABLE 1 - RAILROAD SUBMITTAL REQUIREMENTS FOR OVERPASS & UNDERPASS PROJECTS

ITEM	DESCRIPTION	SETS	REVIEW TIME
1	Shoring design and details	6	6 weeks
2	Falsework design and details	6	6 weeks
3	Drainage design provisions	6	6 weeks
4	Erection diagrams and sequence	6	6 weeks
5	Demolition diagram and sequence	6	6 weeks

TABLE 2 - RAILROAD SUBMITTAL REQUIREMENTS FOR UNDERPASS PROJECTS

ITEM	DESCRIPTION	SETS	NOTES	REVIEW TIME
1	Shop drawings	6	Steel and Concrete members	6 weeks
2	Bearings	6	For all structures	6 weeks
3	Concrete Mix Designs	6	For all structures	6 weeks
4	Rebar & Strand certifications	6	For superstructure only	6 weeks
5	28 day concrete strength	6	For superstructure only	6 weeks
6	Waterproofing material certifications and installation procedure	6	Waterproofing & protective boards	6 weeks
7	Structural steel certifications	6	All fracture critical members & other members requiring improved notch toughness	6 weeks
8	Fabrication and Test reports	6	All fracture critical members & other members requiring improved notch toughness	6 weeks
9	Welding Procedures and Welder Certification	6	AWS requirements	6 weeks
10	Foundation Construction Reports or Notes	6	Pile driving, drilled shaft construction, bearing pressure test reports for spread footings	6 weeks
11	Compaction testing reports for backfill at abutments	6	Must meet 95% maximum dry density, Modified Procter ASTM D1557	6 weeks

D. TxDOT shall submit As-Built Records to the Railroad when TxDOT has processed the final project plans. These records shall consist of the following items:

Overpass Projects

1. Electronic files of all structure design drawings with as constructed modifications shown, in Microstation J or Acrobat .PDF format.
2. Hard copies of all structure design drawings with as constructed modifications shown.

Underpass Projects

1. Electronic files of all structure design drawings with as constructed modifications shown, in Microstation J or Acrobat .PDF format.
2. Hard copies of all structure design drawings with as constructed modifications shown.
3. Final approved copies of shop drawings for concrete and steel members.
4. Foundation Construction Reports
5. Compaction testing reports for backfill at abutments

3.10 APPROVAL OF DETAILS

Submit details of the construction affecting Railroad's tracks and property not already included in the Contract Plans to the Railroad Designated Representative through TxDOT for the Railroad's review and written approval before such work is undertaken. Allow a total six (6) weeks for review and approval of these submittals, which includes the Railroad's four (4) week review time.

3.11 MAINTENANCE OF RAILROAD FACILITIES

A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.

B. Perform all such maintenance and repair of damages due to the Contractor's operations at Contractor's expense.

C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the Project Site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.12 SITE INSPECTIONS BY RAILROAD's DESIGNATED REPRESENTATIVE

A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
1. Pre-construction meetings.
2. Pile driving/drilling of caissons or drilled shafts.
3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
4. Erection of precast concrete or steel bridge superstructure.
5. Placement of waterproofing (prior to placing ballast on bridge deck).
6. Completion of the bridge structure.

B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.

C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.13 RAILROAD REPRESENTATIVES

Railroad representatives, conductors, flag person or watch person will be provided by the Railroad, at expense of TxDOT, to protect Railroad's facilities, property and movements of its trains or engines. In general, the Railroad will furnish such personnel or other protective services as follows:

A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other railroad facilities may be subject to settlement or movement.

C. During any clearing, grubbing, excavation or grading in proximity to Railroad's facilities, which, in the opinion of the Railroad Designated Representative, may endanger railroad facilities or operations.

D. During any contractor's operations when, in the opinion of the Railroad Designated Representative, Railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.

E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.14 WALKWAYS REQUIRED

Maintain along the outer side of each exterior track of multiple operated track, and on each side of single operated track, an unobstructed continuous space suitable for trainman's use in walking along trains, extending to a line not less than twelve feet (12') from centerline of track. Remove any temporary impediments to walkways and track drainage encroachments or obstructions allowed during work hours before the close of each work day. Construct walkways with railings over open excavation areas when in close proximity of track. Do not violate allowable clearances of these railings to centerline of track: 8' - 6" horizontally for tangent track or 9' - 6" horizontally for curved track.

3.15 COMMUNICATIONS AND SIGNAL LINES

If required, the Railroad will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by the Railroad's forces in connection with its operation at expense of TxDOT. This work by the Railroad, will be done by its own forces and it is not a part of the Work under this Contract.

3.16 TRAFFIC CONTROL

Coordinate any operations that control traffic across or around railroad facilities with the Railroad Designated Representative.

3.17 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".

B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

UPRR 1-800-336-9193
7:00 AM to 9:00 PM CST Monday-Friday except holidays,
staffed 24 hrs/day for emergencies
48 hrs notice required

BNSF 1-800-533-2891
24 hour number
5 working days notice required

KCS 1-800-344-8377
Texas One Call, a 24 hour number
48 hrs notice required, excluding weekends and holidays

If a telecommunications system is buried anywhere on or near Railroad's property, coordinate with TxDOT, the Railroad and the Telecommunication Company(ies) to arrange for relocation or protective measures prior to beginning work on or near railroad property. Refer to the project General Notes for additional information.

C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor-assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of 1/4 inch vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

3.18 RAILROAD FLAGGING

Per the RIGHT OF ENTRY agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor work and at least 30 working days in advance of any Contractor work in which any person or equipment will be within 25 feet of nearest rail or as specified in the Contractor Right of Entry (CROE).

3.19 CLEANING OF RIGHT-OF-WAY

When work is complete, remove all tools, implements, and other materials brought into Railroad Right of Way and leave the Right of Way in a clean and presentable condition to the satisfaction of TxDOT and the Railroad.

Texas Department of Transportation — Rail Division

RAILROAD REQUIREMENTS FOR BRIDGE CONSTRUCTION

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

DOT #: _____
Crossing Type: ** _____
RR Company Owning Track at Crossing: _____
Operating RR Company at Track: _____
RR MP: _____
RR Subdivision: _____
City: _____
County: _____
CSJ at this Crossing: _____
Highway/Roadway name crossing the railroad: _____
# of regularly scheduled trains per day at this crossing: ____
# of switching movements per day at this crossing: ____
% of estimated contract cost of work within railroad ROW: _____

Scope of Work at this Crossing to Be Performed by State Contractor:

_____
_____
_____
_____

Scope of Work at this Crossing to Be Performed by Railroad Company:

_____
_____
_____
_____

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

_____
_____
_____
_____

III. FLAGGING

of Days of Railroad Flagging Expected: ____

On this project, night or weekend flagging is:

☐ Expected
☐ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☐ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The railroad requires a 30 day notice if their flaggers are to be utilized. If contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

_____
_____
_____
_____
_____
_____

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☐ Not Required

Coordinate with TxDOT for any work to be performed by the railroad company. TxDOT must issue a work order for any work done by the rail road company prior to the work being performed.

V. RAILROAD INSURANCE REQUIREMENTS

Contractor shall provide the proper insurance as shown in the table below.

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several railroad companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

No direct compensation will be made to the contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $2,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	** / **

VI. CONTRACTOR'S RIGHT-OF-ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☐ Not Required
☐ Required: TxDOT to assist in obtaining (see Item 5, Article 8.3)

With the following railroad companies: _____

☐ Required: Contractor to obtain (see Item 5, Article 8.4)

With the following railroad companies: _____

To view previously approved ROE agreement templates agreed upon between the State and railroad company, see:

http://www.txdot.gov/inside-txdot/division/traffic/samples.html

Approved ROE agreement templates are not to be modified by the Contractor.

Contractor shall not operate within railroad rights of way without an executed Construction & Maintenance agreement between the state and the railroad and an executed ROE agreement between the contractor and the railroad if required on project.

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☐ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call ******* Railroad Emergency Line
at XXX-XXX-XXXX
Location: DOT ********
RR Milepost ***** ********** Subdivision

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RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS

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