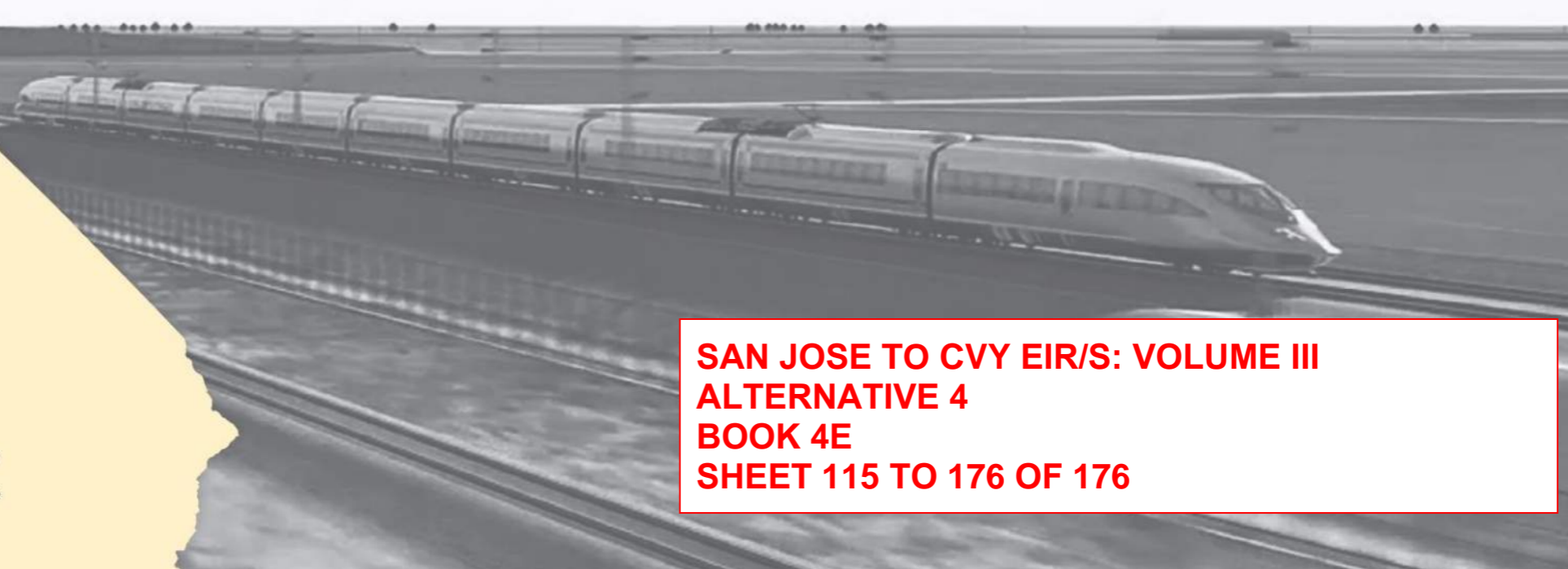
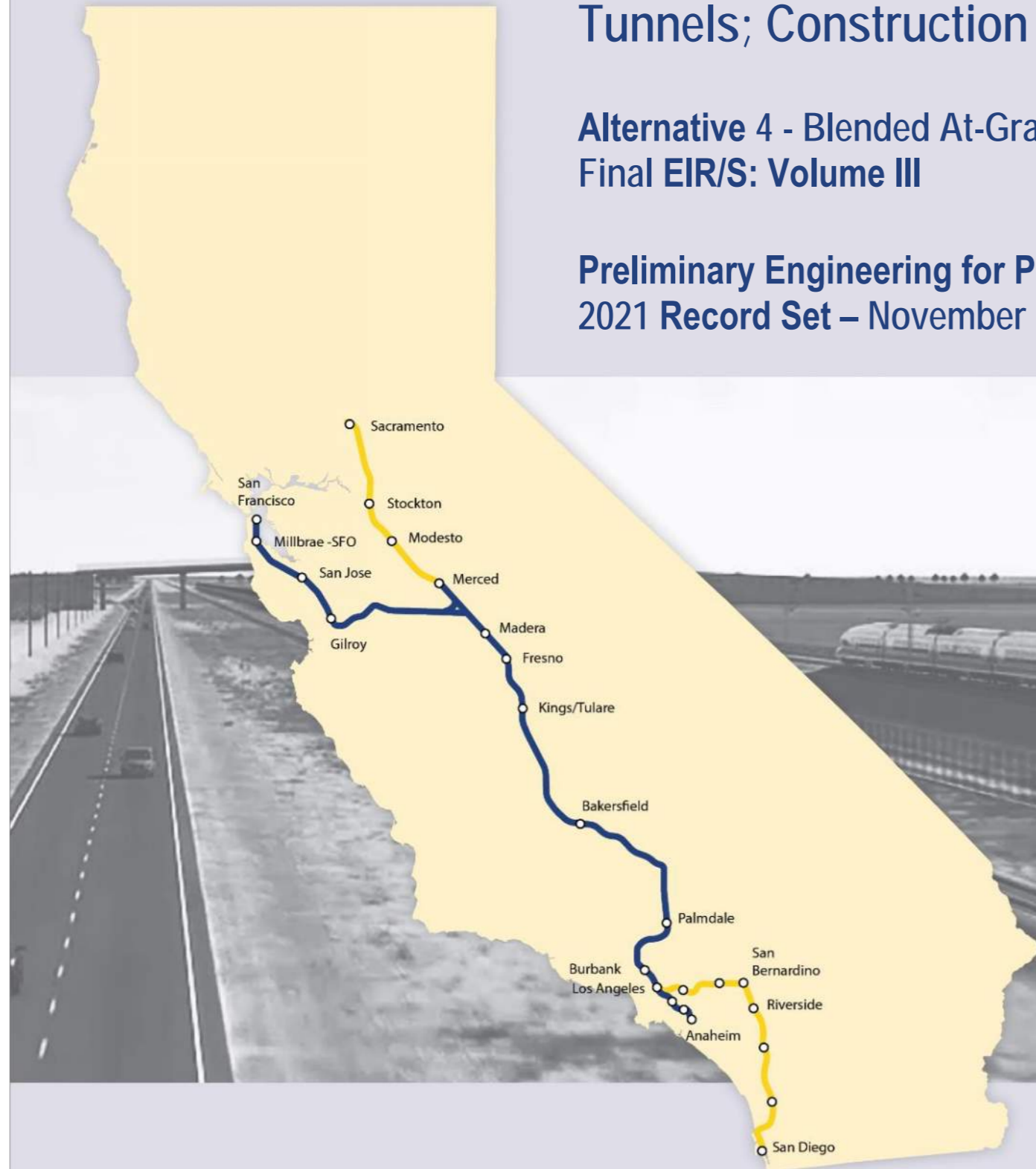


# San Jose to Merced Project Section: San Jose to Central Valley Wye

## Tunnels; Construction Staging; and Alignment Data Tables

Alternative 4 - Blended At-Grade to Downtown Gilroy  
Final EIR/S: Volume III

Preliminary Engineering for Project Definition  
2021 Record Set – November 2021



**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 115 TO 176 OF 176**

**ALTERNATIVE 4 - CP COAST TO DOWNTOWN GILROY**

BOOK	SHEET NO	DRAWING NO	SUBSECTION	GEOGRAPHIC LOCATION	ALIGNMENT OR FEATURE	SHEET DESCRIPTION	ADDITIONAL DESCRIPTION
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**COVER, INDEX OF DRAWING AND KEY MAPS**

BOOK 4E	A	COVER	SAN JOSE TO MERCED SECTION	N/A	SAN JOSE TO CENTRAL VALLEY WYE	ALTERNATIVE 4	
BOOK 4E	B	GE-A0405	ENTIRE ALTERNATIVE	TUNNELS, CONSTRUCTION STAGING	INDEX OF DRAWING	SHEET 5 OF 6	
BOOK 4E	C	GE-A0406	ENTIRE ALTERNATIVE	ALIGNMENT DATA TABLES	INDEX OF DRAWING	SHEET 6 OF 6	
BOOK 4E	D	GE-D0401	GENERAL	ENTIRE ALTERNATIVE	KEY MAP	COMPOSITE PLAN	
BOOK 4E	E	GE-D0402	GENERAL	ENTIRE ALTERNATIVE	KEY MAP	SYSTEMS SITES	SHEET 1 OF 2

**TUNNELS - PACHECO PASS**

BOOK 4E	115	TN-D1404	PACHECO PASS	N/A	TUNNEL	TUNNEL 2 - PORTAL 1	
BOOK 4E	116	TN-D1405	PACHECO PASS	ACCESS RD 1	TUNNEL	TUNNEL PORTAL 2 ACCESS ROAD	
BOOK 4E	117	TN-D1406	PACHECO PASS	CALIFORNIA AQUEDUCT	TUNNEL	TUNNEL PORTAL 2 ACCESS ROAD	
BOOK 4E	118	TN-D1407	PACHECO PASS	ACCESS RD 2	TUNNEL	TUNNEL PORTAL 2 ACCESS ROAD	
BOOK 4E	119	TN-D1408	PACHECO PASS	N/A	TUNNEL	LONGITUDINAL PROFILE	
BOOK 4E	120	TN-D1409	PACHECO PASS	N/A	TUNNEL	GRADING DETAIL	
BOOK 4E	121	TN-D1410	PACHECO PASS	N/A	TUNNEL	GRADING DETAIL	
BOOK 4E	122	TN-D1411	PACHECO PASS	N/A	TUNNEL	GRADING DETAIL	
BOOK 4E	123	TN-D1412	PACHECO PASS	N/A	TUNNEL	GRADING DETAIL	
BOOK 4E	124	TN-D1413	PACHECO PASS	I-5, FAHEY RD	TUNNEL	GRADING DETAIL	
BOOK 4E	125	TN-D1414	PACHECO PASS	N/A	TUNNEL	TUNNEL 2 - PORTAL 1	SECTIONS
BOOK 4E	126	TN-D1415	PACHECO PASS	N/A	TUNNEL	TUNNEL 2 - PORTAL 2	APPROACH 1
BOOK 4E	127	TN-D1416	PACHECO PASS	N/A	TUNNEL	TUNNEL 2 - PORTAL 2	APPROACH 2

**CONSTRUCTION STAGING**

BOOK 4E	128	CV-I1601	SAN JOAQUIN VALLEY	N/A	HENRY MILLER ROAD	CONSTRUCTION STAGING PLAN	GENERAL NOTES
BOOK 4E	129	CV-I1602	SAN JOAQUIN VALLEY	INGOMAR GRADE RD AT HENRY MILLER RD	HENRY MILLER ROAD	CONSTRUCTION STAGING PLAN	HENRY MILLER ROAD GRADE SEPARATION
BOOK 4E	130	CV-I1603	SAN JOAQUIN VALLEY	HENRY MILLER RD	HENRY MILLER ROAD	CONSTRUCTION STAGING PLAN	HENRY MILLER ROAD GRADE SEPARATION
BOOK 4E	131	CV-I1604	SAN JOAQUIN VALLEY	HENRY MILLER RD AT MERCY SPRINGS RD	HENRY MILLER ROAD	CONSTRUCTION STAGING PLAN	SR-165 / MERCY SPRINGS ROAD GRADE SEPARATION
BOOK 4E	132	CV-I1605	SAN JOAQUIN VALLEY	HENRY MILLER RD AT DELTA RD	HENRY MILLER ROAD	CONSTRUCTION STAGING PLAN	DELTA ROAD GRADE SEPARATION
BOOK 4E	133	CV-I1606	SAN JOAQUIN VALLEY	HENRY MILLER RD AT TURNER ISLAND RD	HENRY MILLER ROAD	CONSTRUCTION STAGING PLAN	TURNER ISLAND ROAD GRADE SEPARATION
BOOK 4E	134	CV-I1607	SAN JOAQUIN VALLEY	HENRY MILLER RD AT CARLUCCI RD	HENRY MILLER ROAD	CONSTRUCTION STAGING PLAN	CARLUCCI ROAD GRADE SEPARATION

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET B**

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	
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IN CHARGE	
DATE	

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NOVEMBER 30, 2021  
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**HNTB** 1111 Broadway  
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Oakland, CA 94607



**CALIFORNIA HIGH-SPEED TRAIN PROJECT  
SAN JOSE TO MERCED  
ALTERNATIVE 4  
INDEX OF DRAWING  
SHEET 5 OF 6**

CONTRACT NO.	HSR15-34
DRAWING NO.	GE-A0405
SCALE	NONE
SHEET NO.	

**ALTERNATIVE 4 - CP COAST TO DOWNTOWN GILROY**

BOOK	SHEET NO	DRAWING NO	SUBSECTION	GEOGRAPHIC LOCATION	ALIGNMENT OR FEATURE	SHEET DESCRIPTION	ADDITIONAL DESCRIPTION
BOOK 4E	135	TT-B4001	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C401 TO C404
BOOK 4E	136	TT-B4002	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C405 TO C408
BOOK 4E	137	TT-B4002A	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C405, C406A TO C409A - DIRIDON DESIGN VARIANT
BOOK 4E	138	TT-B4003	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C409 TO C414
BOOK 4E	139	TT-B4003A	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C409A TO C413A, C414 - DIRIDON DESIGN VARIANT
BOOK 4E	140	TT-B4004	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C415 TO C418
BOOK 4E	141	TT-B4005	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C419
BOOK 4E	142	TT-B4006	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C420 TO C423
BOOK 4E	143	TT-B4007	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C424 TO C427
BOOK 4E	144	TT-B4008	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C428 TO C431
BOOK 4E	145	TT-B4009	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C432 TO C435
BOOK 4E	146	TT-B4010	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C436 TO C439
BOOK 4E	147	TT-B4011	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C440 TO C443
BOOK 4E	148	TT-B4012	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C444 TO C447
BOOK 4E	149	TT-B4013	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C448 TO C451
BOOK 4E	150	TT-B4014	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C452 TO C453
BOOK 4E	151	TT-B4014A	ALTERNATIVE 4	N/A	BLENDED AT-GRADE	MT3 TRACK ALIGNMENT DATA TABLE	CURVE NO. C452 AND C453A - TUNNEL DESIGN VARIANT
BOOK 4E	152	TT-B0120	MORGAN HILL AND GILROY	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C127 AND C128
BOOK 4E	153	TT-B0120A	MORGAN HILL AND GILROY	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C127 AND C128A - TUNNEL DESIGN VARIANT
BOOK 4E	154	TT-B0121	MORGAN HILL AND GILROY	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C129
BOOK 4E	155	TT-B0121A	MORGAN HILL AND GILROY	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C129A - TUNNEL DESIGN VARIANT
BOOK 4E	156	TT-B0122	MORGAN HILL AND GILROY	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C130
BOOK 4E	157	TT-B0122A	MORGAN HILL AND GILROY	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C130A - TUNNEL DESIGN VARIANT
BOOK 4E	158	TT-B0123	PACHECO PASS	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C131
BOOK 4E	159	TT-B0123A	PACHECO PASS	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C131A - TUNNEL DESIGN VARIANT
BOOK 4E	160	TT-B0124	PACHECO PASS	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C132 AND C133
BOOK 4E	161	TT-B0124A	PACHECO PASS	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C132 AND C133
BOOK 4E	162	TT-B0125	PACHECO PASS	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C134 AND C135
BOOK 4E	163	TT-B0125A	PACHECO PASS	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C134A AND C135 - TUNNEL DESIGN VARIANT
BOOK 4E	164	TT-B0126	PACHECO PASS	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C136
BOOK 4E	165	TT-B0127	SAN JOAQUIN VALLEY	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C137
BOOK 4E	166	TT-B0128	SAN JOAQUIN VALLEY	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C138 AND C139
BOOK 4E	167	TT-B0129	SAN JOAQUIN VALLEY	N/A	TRACK GUIDEWAY	B2 TRACK ALIGNMENT DATA TABLE	CURVE NO. C140
BOOK 4E	168	TT-B0130	MORGAN HILL AND GILROY	N/A	TRACK GUIDEWAY	B1 TRACK ALIGNMENT DATA TABLE	CURVE NO. C230
BOOK 4E	169	TT-B0130A	MORGAN HILL AND GILROY	N/A	TRACK GUIDEWAY	B1 TRACK ALIGNMENT DATA TABLE	CURVE NO. C230A - TUNNEL DESIGN VARIANT
BOOK 4E	170	TT-B0131	MORGAN HILL AND GILROY	N/A	TRACK GUIDEWAY	B1 TRACK ALIGNMENT DATA TABLE	CURVE NO. C231 AND C231A
BOOK 4E	171	TT-B0131A	MORGAN HILL AND GILROY	N/A	TRACK GUIDEWAY	B1 TRACK ALIGNMENT DATA TABLE	CURVE NO. C231B AND C231C - TUNNEL DESIGN VARIANT
BOOK 4E	172	TT-B0132	PACHECO PASS	N/A	TRACK GUIDEWAY	B1 TRACK ALIGNMENT DATA TABLE	CURVE NO. C232 AND C233
BOOK 4E	173	TT-B0132A	PACHECO PASS	N/A	TRACK GUIDEWAY	B1 TRACK ALIGNMENT DATA TABLE	CURVE NO. C232A AND C233A - TUNNEL DESIGN VARIANT
BOOK 4E	174	TT-B0133	PACHECO PASS	N/A	TRACK GUIDEWAY	B1 TRACK ALIGNMENT DATA TABLE	CURVE NO. C234 AND C235
BOOK 4E	175	TT-B0133A	PACHECO PASS	N/A	TRACK GUIDEWAY	B1 TRACK ALIGNMENT DATA TABLE	CURVE NO. C234A AND C235 - TUNNEL DESIGN VARIANT
BOOK 4E	176	TT-B0134	PACHECO PASS	N/A	TRACK GUIDEWAY	B1 TRACK ALIGNMENT DATA TABLE	CURVE NO. C236

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET C**

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REV	DATE	BY	CHK	APP	DESCRIPTION

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DATE

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NOVEMBER 30, 2021  
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1111 Broadway  
9th Floor  
Oakland, CA 94607

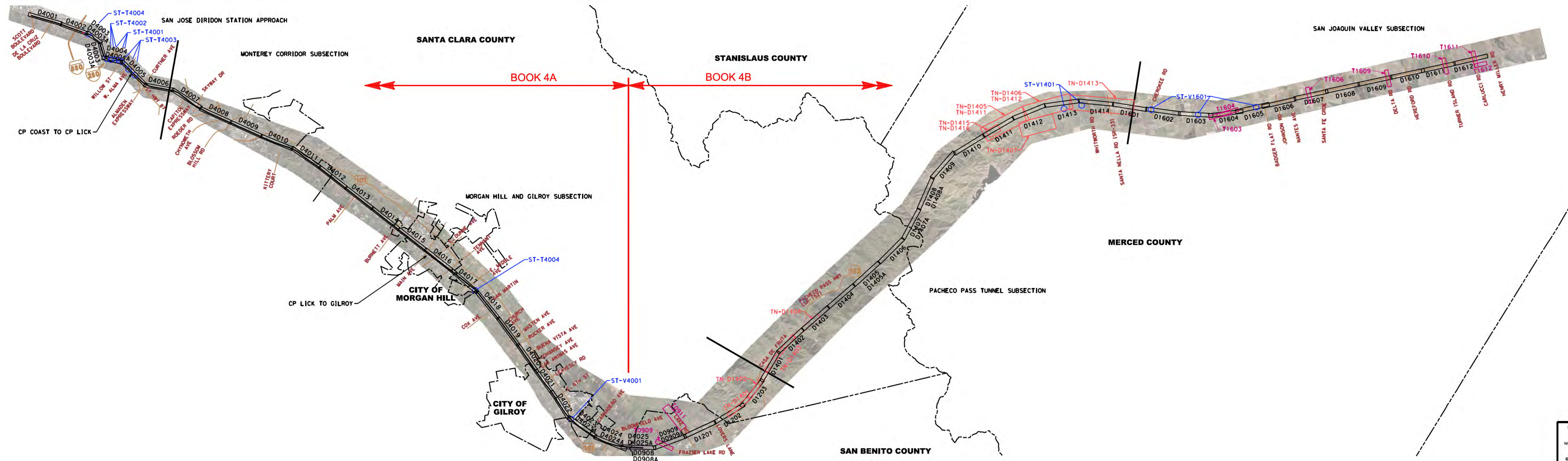


**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
ALTERNATIVE 4  
INDEX OF DRAWING  
SHEET 6 OF 6

CONTRACT NO.  
**HSR15-34**  
DRAWING NO.  
**GE - A0406**  
SCALE  
**NONE**  
SHEET NO.

**ALTERNATIVE 4 BOOK INDEX**

- BOOK 4A: COMPOSITE PLAN, PROFILE AND CROSS SECTIONS
- BOOK 4B: COMPOSITE PLAN, PROFILE AND CROSS SECTIONS
- BOOK 4C: STATIONS
- BOOK 4D: STRUCTURES, ROADWAY, MAINTENANCE OF WAY
- BOOK 4E: TUNNELS - PACHECO PASS, CONSTRUCTION STAGING, ALIGNMENT DATA TABLES

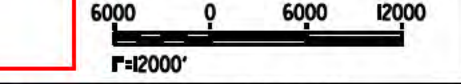
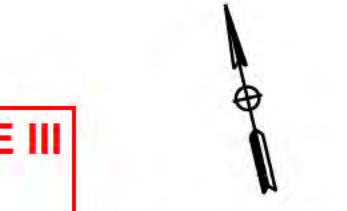


**NOTE:**  
ALTERNATIVE KEY MAP SHOWN SIDE BY SIDE FOR CLARITY.

**LEGEND**  
**KEY MAP LEGEND**

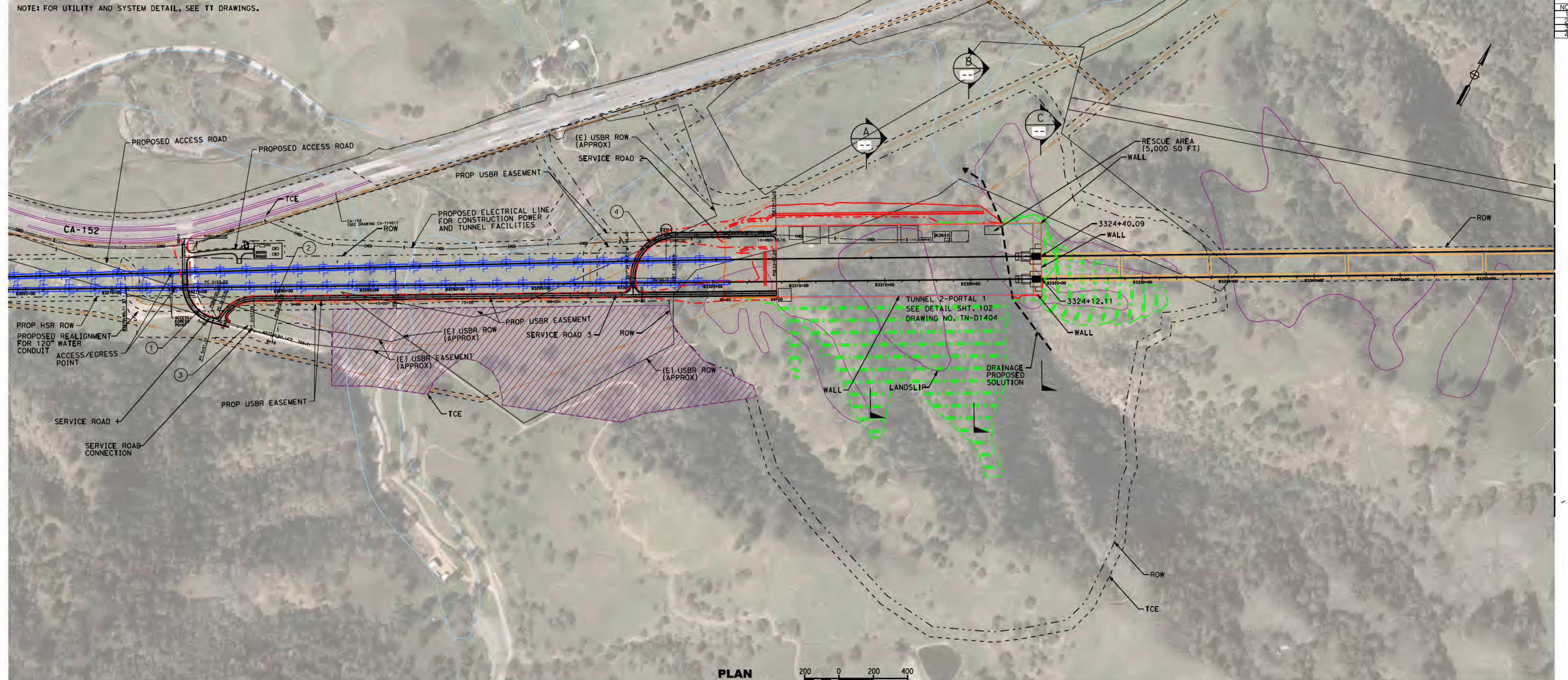
	AERIAL ORTHO-PHOTO
	COMPOSITE ROLL PLOTS
	GRADE SEPARATION ROLL PLOTS
	TUNNEL ROLL PLOTS
	STRUCTURES ROLL PLOTS
	SECTION BREAK
	CITY LIMITS
	COUNTY LINE
	EXISTING ROAD

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET D**



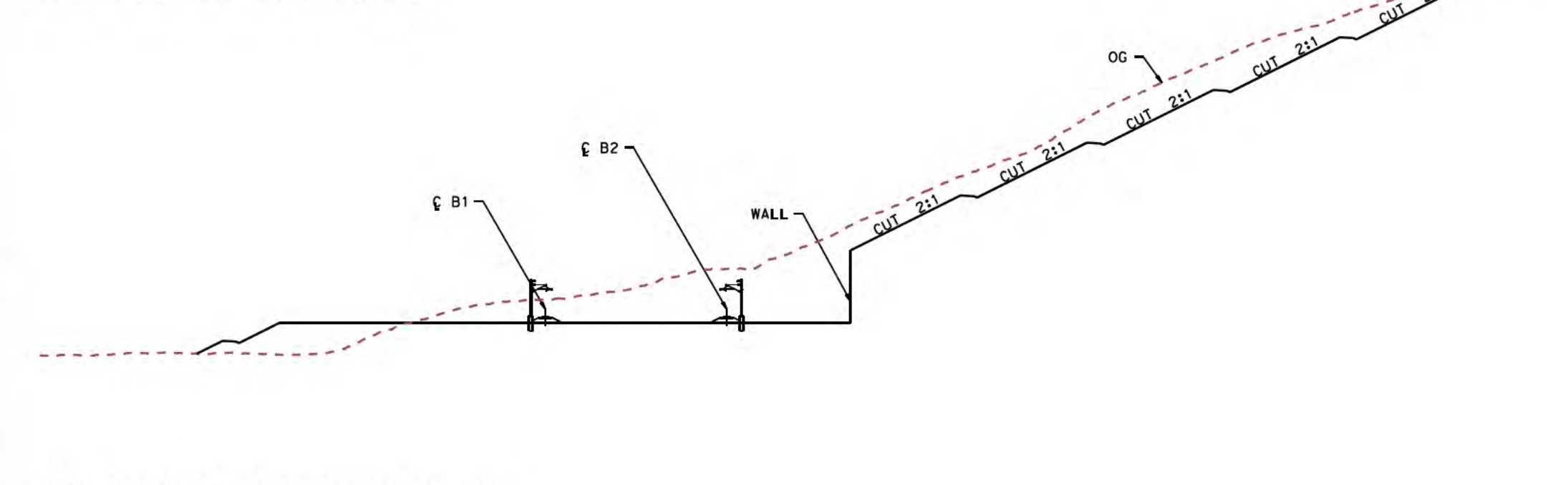
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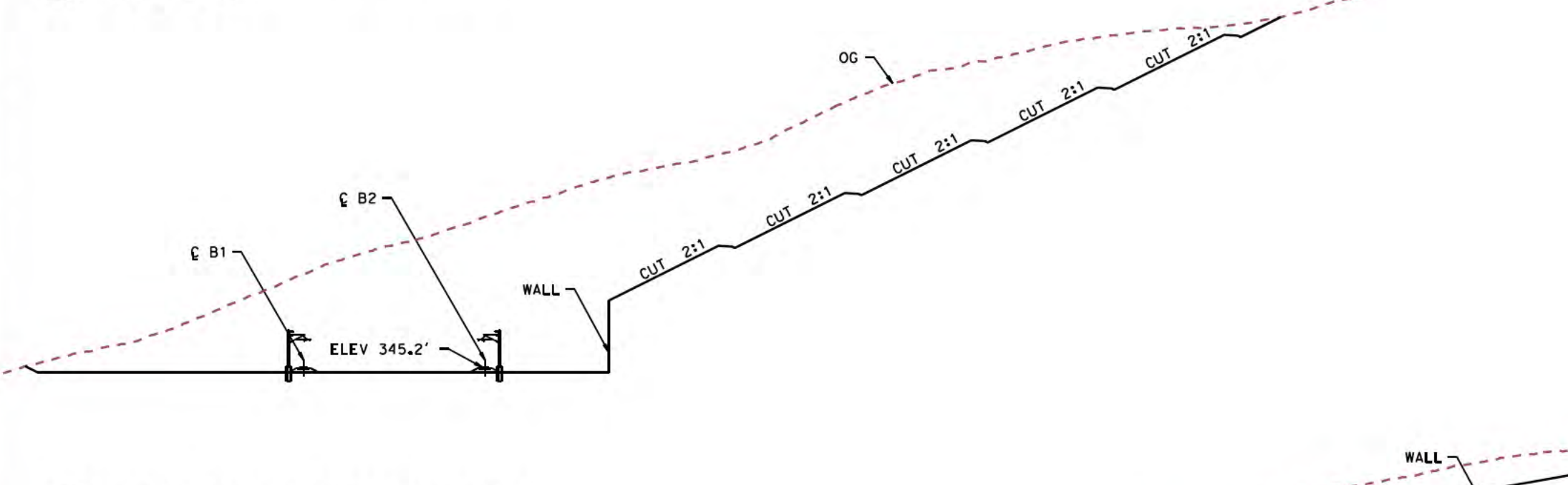


**PLAN**  
SCALE: 1"=200'  
1"=200' HOR

CURVE DATA SERVICE ROAD					
NO.	R	Δ	Δ	Δ	Δ
1	220	136° 35' 22.20"	524.466	552.688	
2	220	162° 35' 51.55"	176.890	162.014	
3	220	89° 59' 59.55"	174.933	162.014	
4	250	89° 59' 59.55"	392.699	249.999	



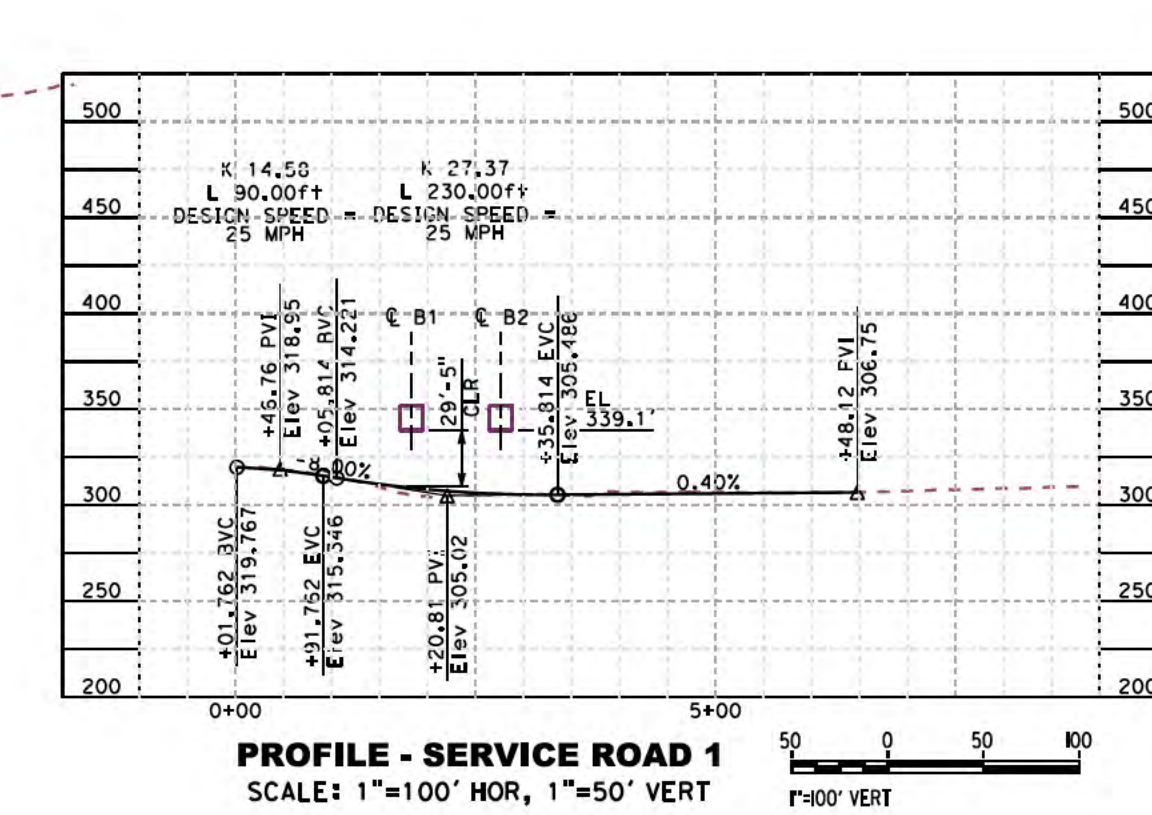
**PROFILE - SERVICE ROAD 1**  
SCALE: 1"=100' HOR, 1"=50' VERT  
1"=100' VERT



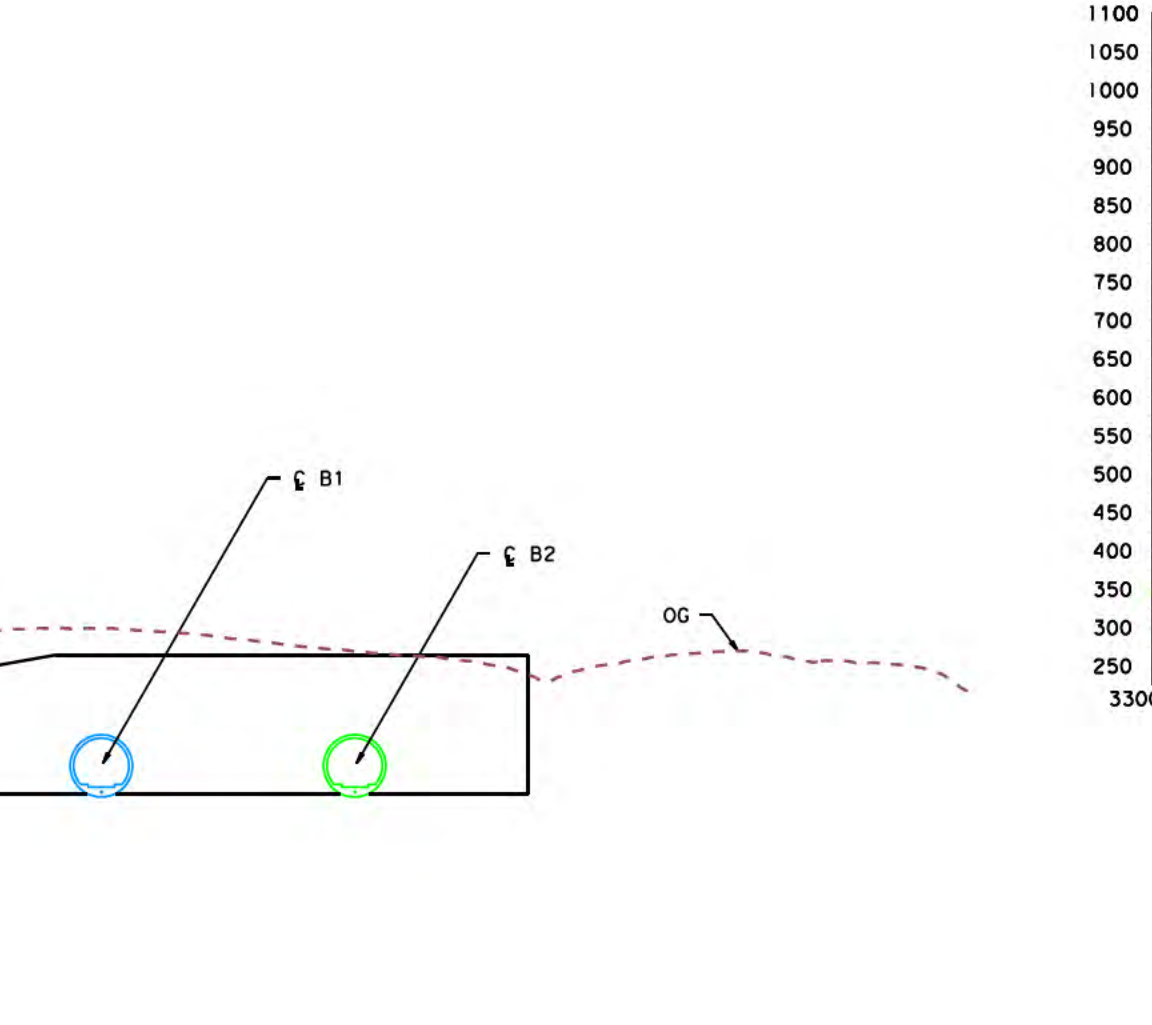
**TUNNEL 2-PORTAL 1 SECTION**  
SCALE 1"=50'



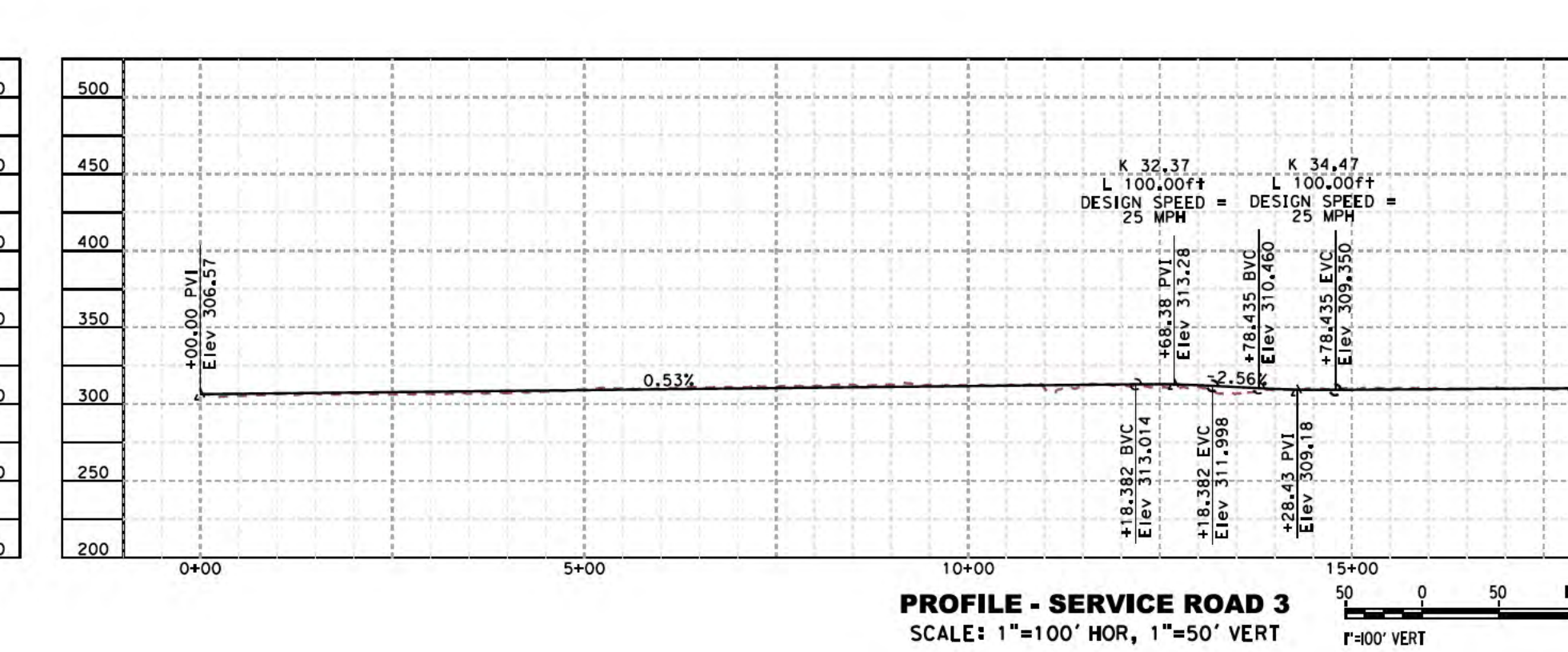
**TUNNEL 2-PORTAL 1 SECTION**  
SCALE 1"=50'



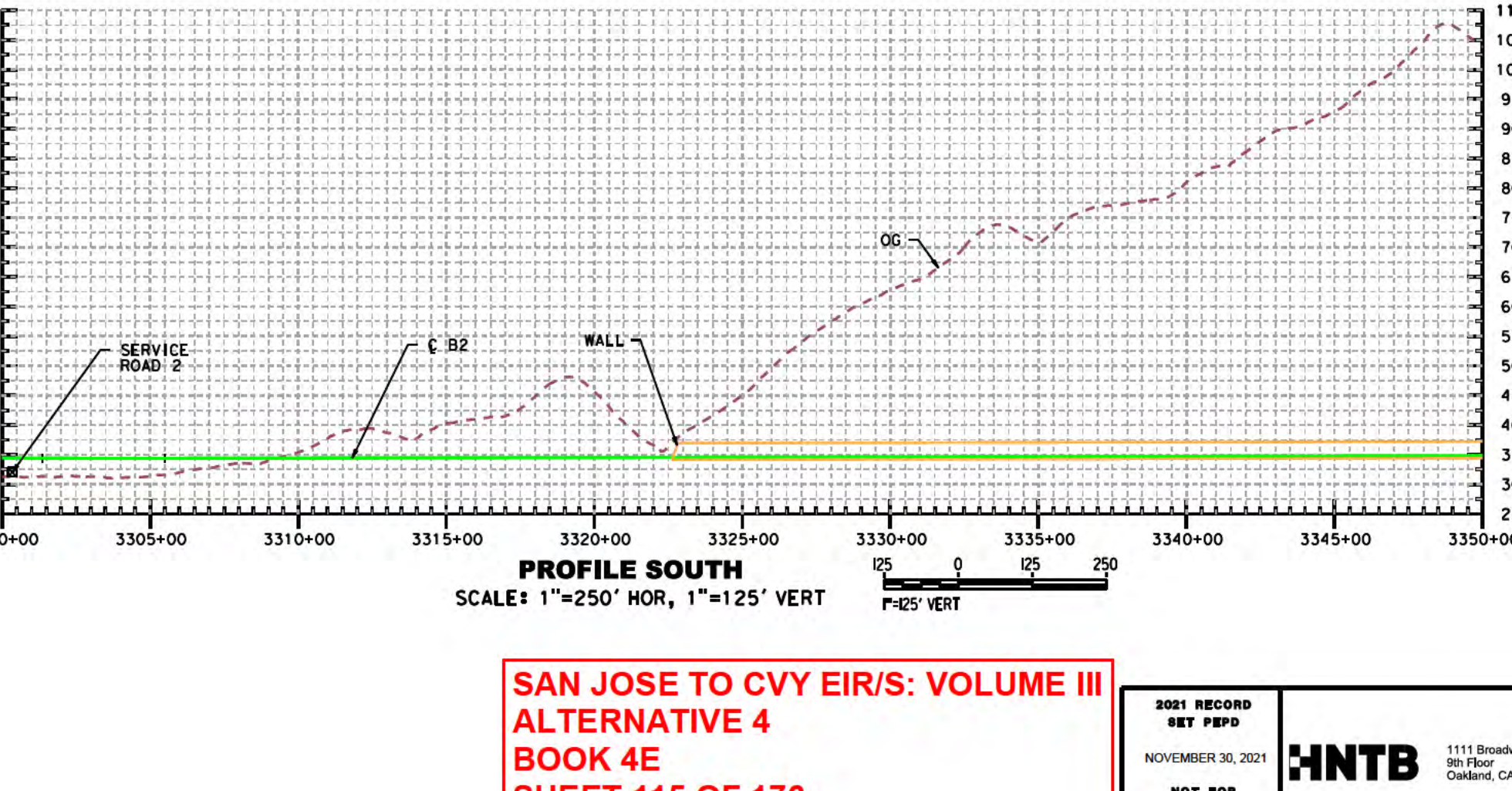
**PROFILE - SERVICE ROAD 3**  
SCALE: 1"=100' HOR, 1"=50' VERT  
1"=100' VERT



**PROFILE - SERVICE ROAD 2**  
SCALE: 1"=100' HOR, 1"=50' VERT  
1"=100' VERT

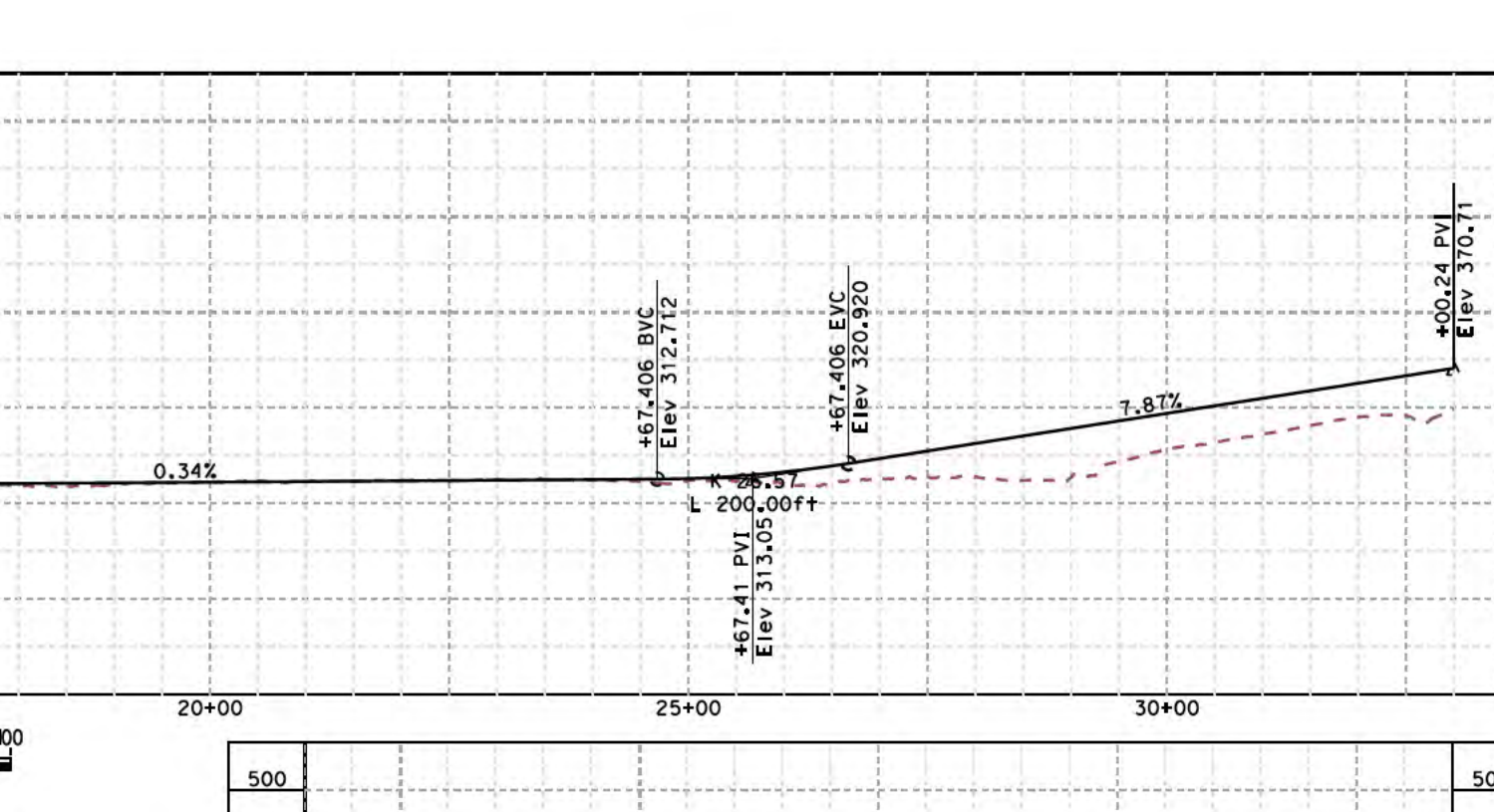


**PROFILE - SERVICE ROAD 3**  
SCALE: 1"=100' HOR, 1"=50' VERT  
1"=100' VERT

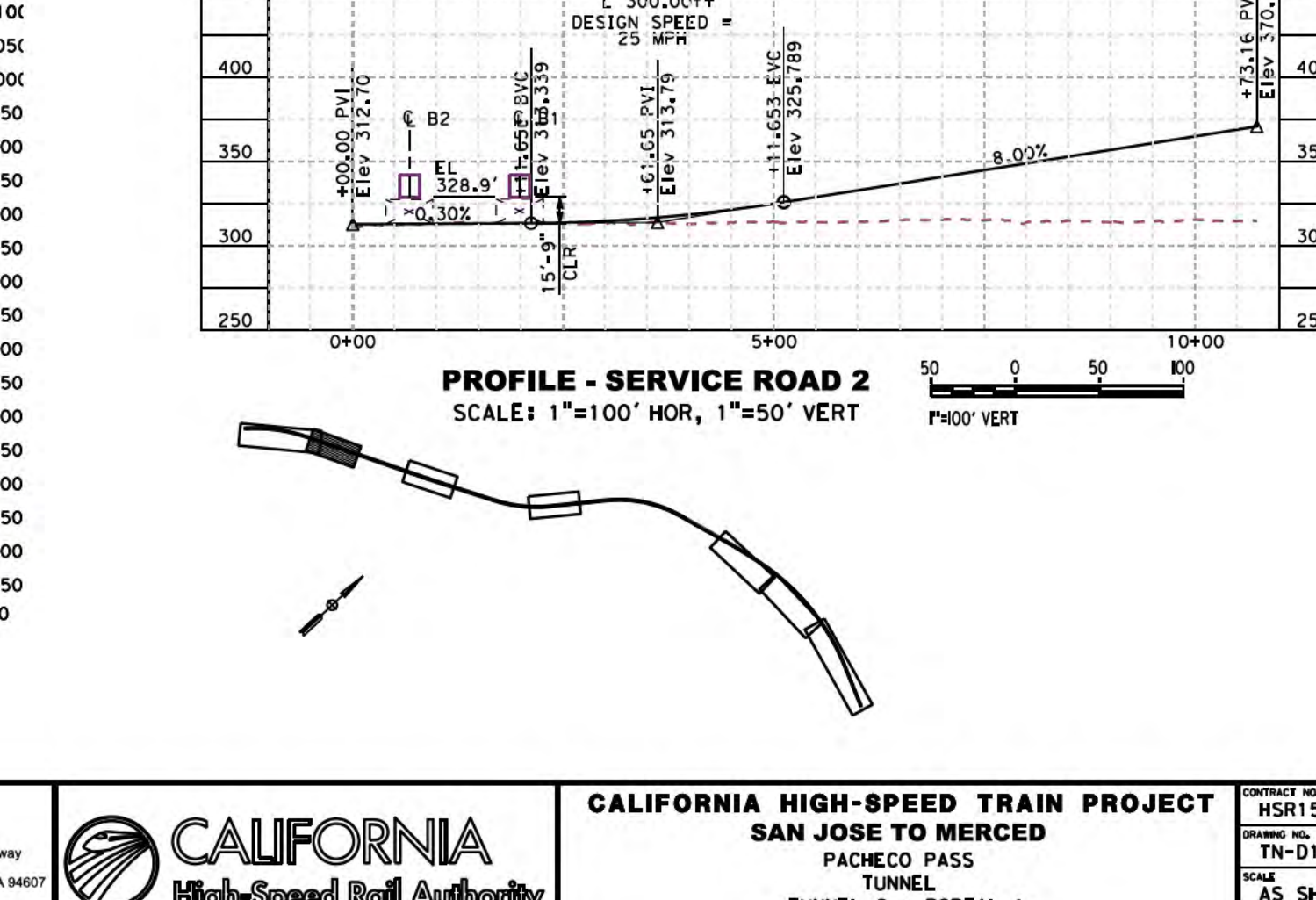


**PROFILE - SERVICE ROAD 2**  
SCALE: 1"=100' HOR, 1"=50' VERT  
1"=100' VERT

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 115 OF 176**



**PROFILE - SERVICE ROAD 3**  
SCALE: 1"=100' HOR, 1"=50' VERT  
1"=100' VERT

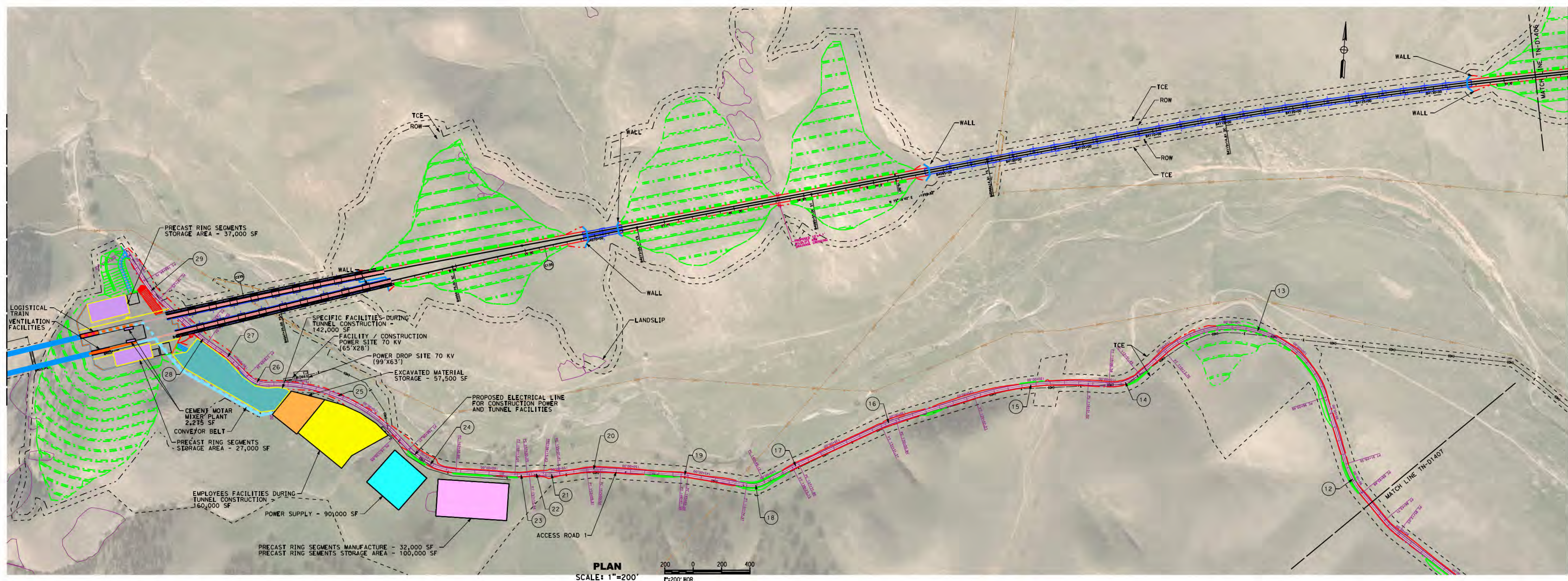


**PROFILE - SERVICE ROAD 2**  
SCALE: 1"=100' HOR, 1"=50' VERT  
1"=100' VERT

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 115 OF 176**

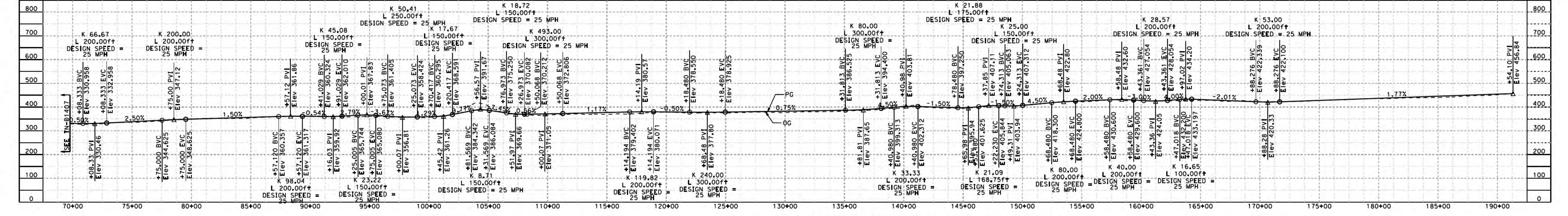
2021 RECORD SET P&P NOVEMBER 30, 2021 NOT FOR CONSTRUCTION	<b>HNTB</b> 1111 Broadway 9th Floor Oakland, CA 94607	<b>CALIFORNIA</b> High-Speed Rail Authority	<b>CALIFORNIA HIGH-SPEED TRAIN PROJECT</b> SAN JOSE TO MERCED PACHECO PASS TUNNEL TUNNEL 2 - PORTAL 1	CONTRACT NO. HSR15-34 DRAWING NO. TN-D-1404 SCALE AS SHOWN SHEET NO.
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**PLAN**  
 SCALE: 1"=200'  
 P=200' HOR

CURVE DATA ACCESS ROAD				
NO.	R	ANGLE	PC	PT
1	200	24°10'26.32"	84.383	42.829
2	225	31°00'52.48"	121.794	62.429
3	200	24°10'26.32"	141.955	73.811
4	130	90°1'43.45"	204.269	130.065
5	250	41°4'29.13"	178.222	93.857
6	200	35°23'39.02"	123.426	63.817
7	200	30°12'48.85"	105.465	53.990
8	100	57°17'44.81"	202.813	100.667
9	500	17°56'40.21"	150.395	78.944
10	300	11°32'59.99"	60.476	30.341
11	600	12°42'29.71"	131.681	66.106
12	600	22°29'22.50"	235.512	119.291
13	700	11°40'21.65"	139.323	107.682
14	300	44°52'23.37"	235.130	229.158
15	2250	20°38'3.81"	810.311	409.532
16	800	7°54'32.18"	110.430	55.303
17	1000	2°56'33.16"	51.857	25.684
18	200	37°11'55.44"	129.848	67.305
19	500	5°42'46.30"	49.854	21.948
20	500	11°28'43.98"	109.171	50.294
21	500	13°2'33.88"	113.819	57.157
22	500	11°50'23.37"	100.413	50.376
23	500	9°56'33.07"	86.455	43.492
24	500	42°48'20.04"	374.549	195.976
25	1150	49°15'53.32"	391.406	531.863
26	200	48°5'23.14"	160.041	89.339
27	600	10°45'46.18"	112.708	56.520
28	600	7°54'26.12"	82.981	41.957
29	600	16°11'57.94"	169.640	85.390



**PROFILE ACCESS ROAD 1**  
 SCALE: 1"=250' HOR, 1"=125' VERT  
 P=125' VERT

**NOTE:**  
 1. REFER TO GENERAL NOTES SHEETS GE-B0001 AND GE-B0002 FOR NOTES.

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 116 OF 176**

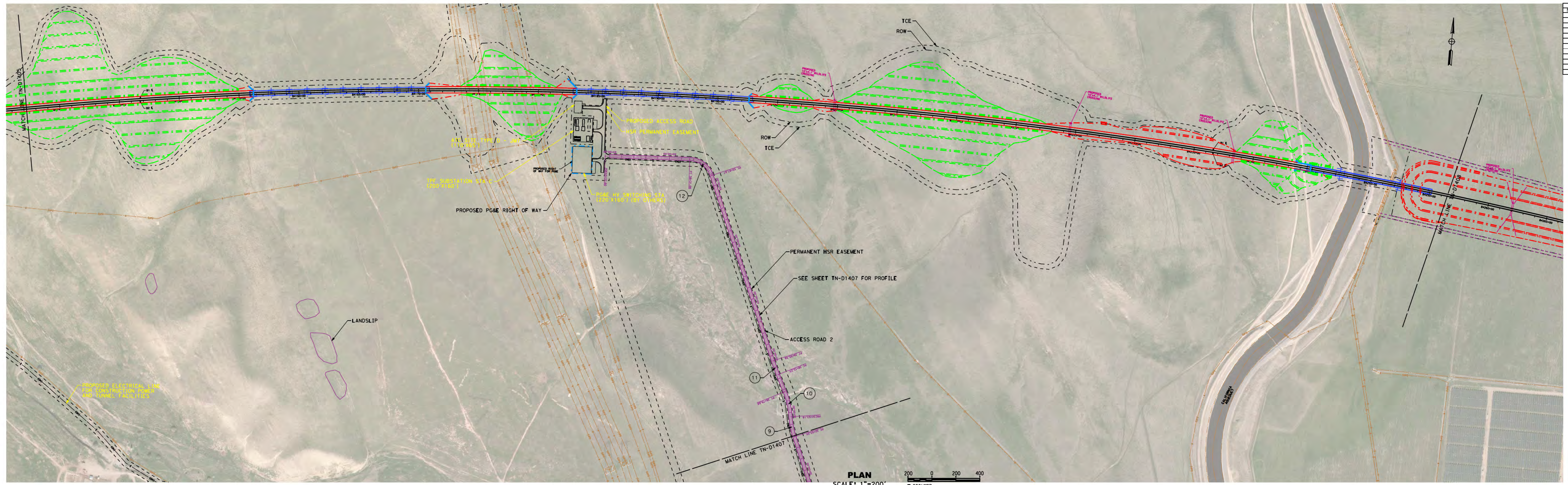
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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 TUNNEL  
 TUNNEL PORTAL 2 ACCESS ROAD

CONTRACT NO. HSR15-34  
 DRAWING NO. T1-D-1405  
 SCALE AS SHOWN  
 SHEET NO.

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CURVE DATA ACCESS ROAD 2					
NO.	R	Δ	L	P	T
1	50	17°35'37.70"	15.353	7.738	
2	500	7°18'49.17"	63.821	31.954	
3	500	12°26'28.27"	109.21	54.499	
4	500	10°56'19.97"	95.460	47.875	
5	500	15°46'22.20"	137.695	69.235	
6	500	10°01'23.19"	81.468	43.846	
7	292	19°16'47.16"	98.278	49.608	
8	2000	2°40'22.15"	203.837	102.607	
9	700	13°54'36.03"	189.943	95.391	
10	700	17°23'12.58"	216.493	109.117	
11	2000	1°10'18.19"	122.351	61.195	
12	200	69°44'2.72"	243.418	139.351	

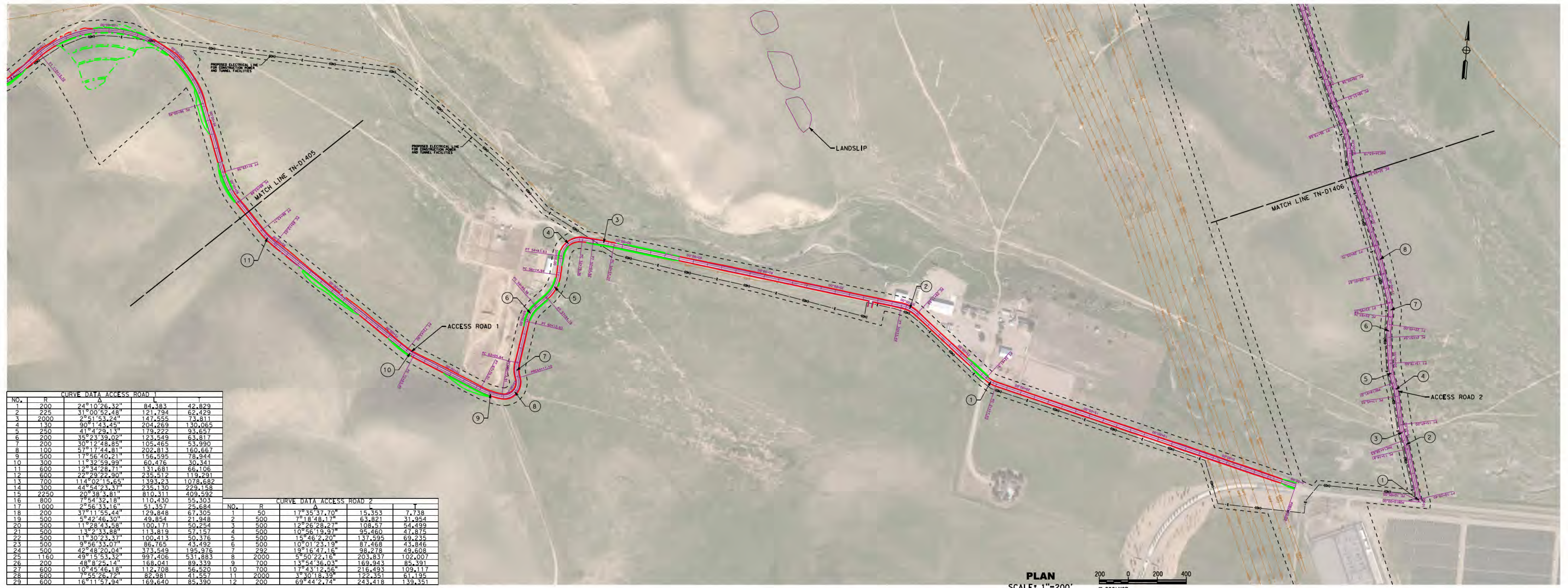
**NOTE:**  
 1. REFER TO GENERAL NOTES SHEETS GE-B0001 AND GE-B0002 FOR NOTES.

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 117 OF 176**

2021 RECORD SET PBD NOVEMBER 30, 2021 NOT FOR CONSTRUCTION		1111 Broadway 9th Floor Oakland, CA 94607		<b>CALIFORNIA HIGH-SPEED TRAIN PROJECT</b> <b>SAN JOSE TO MERCED</b> TUNNEL TUNNEL PORTAL 2 ACCESS ROAD	CONTRACT NO. HSR15-34 DRAWING NO. TN-D1406 SCALE AS SHOWN SHEET NO.
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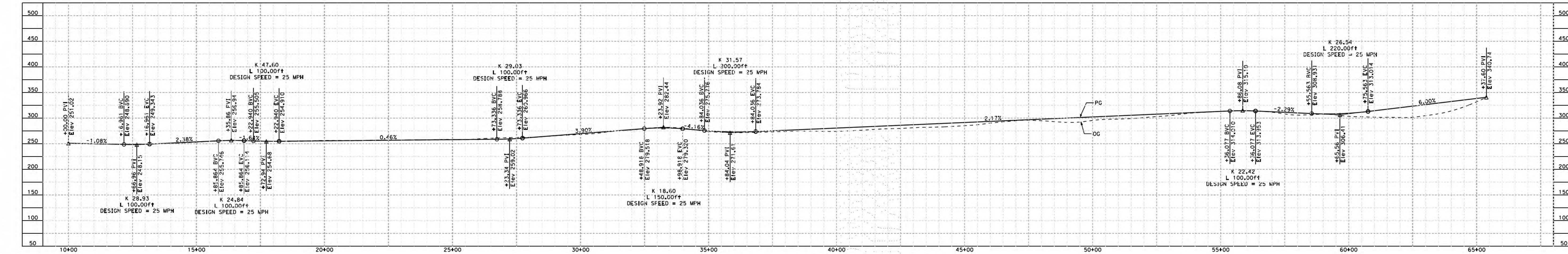


CURVE DATA ACCESS ROAD 1			
NO.	R	A	Y
1	200	24°10'26.32"	84.383
2	225	31°00'52.48"	121.794
3	2000	2°51'43.24"	147.459
4	130	90°14'43.45"	204.269
5	250	35°23'49.02"	123.226
6	200	30°12'48.85"	105.465
7	100	57°17'46.81"	202.813
8	500	17°56'40.81"	156.899
9	300	11°32'59.99"	60.476
10	600	12°34'28.71"	111.684
11	600	22°29'22.90"	235.412
12	700	114°02'15.65"	1393.23
13	300	42°54'23.37"	235.130
14	2250	2°56'33.16"	51.357
15	800	7°54'32.18"	110.430
16	1000	2°56'33.16"	51.357
17	1000	2°56'33.16"	51.357
18	200	37°11'55.44"	129.848
19	500	3°42'26.30"	49.854
20	500	11°28'23.58"	100.171
21	500	13°2'33.88"	113.819
22	500	11°30'23.37"	100.413
23	500	9°56'33.07"	86.165
24	500	42°48'20.04"	373.849
25	1150	48°15'53.32"	997.406
26	200	48°18'25.14"	189.041
27	600	10°45'46.18"	112.708
28	600	7°51'49.12"	82.381
29	600	16°11'47.94"	169.840

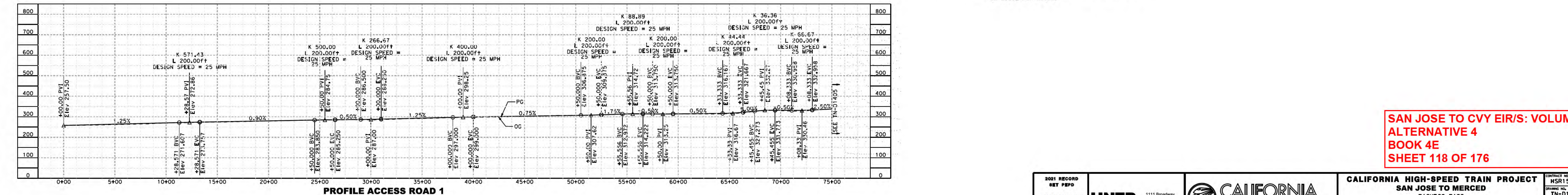
CURVE DATA ACCESS ROAD 2			
NO.	R	A	Y
1	50	17°35'37.70"	15.353
2	500	7°18'48.17"	63.821
3	500	12°28'28.27"	108.57
4	500	10°56'19.97"	95.460
5	500	15°46'2.20"	147.395
6	500	3°50'11.39"	122.351
7	292	19°16'47.16"	98.278
8	2000	5°50'22.15"	203.837
9	700	13°41'45.04"	163.943
10	700	17°43'12.56"	216.493
11	2000	3°50'11.39"	122.351
12	200	69°24'2.74"	245.218

PLAN  
SCALE: 1"=200'  
1"=200' HOR



PROFILE - ACCESS ROAD 2  
SCALE: 1"=100' HOR, 1"=50' VERT  
1"=50' VERT

NOTE:  
1. REFER TO GENERAL NOTES SHEETS GE-B0001 AND GE-B0002 FOR NOTES.

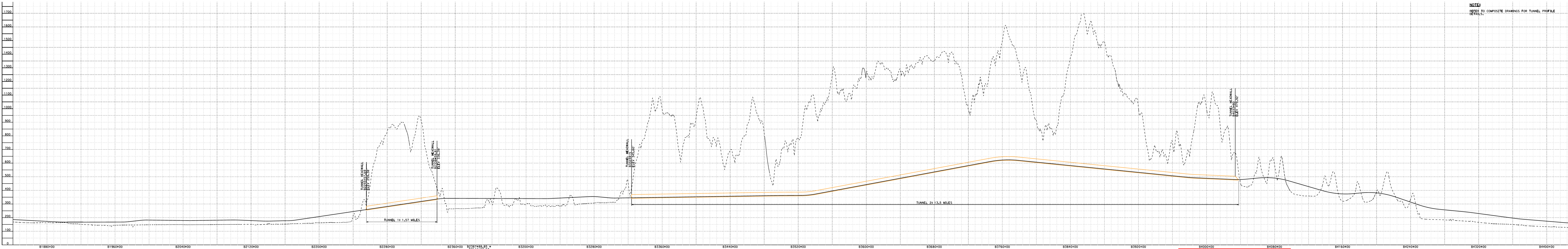


PROFILE ACCESS ROAD 1  
SCALE: 1"=250' HOR, 1"=125' VERT

2021 RECORD SET PPD NOVEMBER 30, 2021 NOT FOR CONSTRUCTION		1111 Broadway 9th Floor Oakland, CA 94607		<b>CALIFORNIA HIGH-SPEED TRAIN PROJECT</b> <b>SAN JOSE TO MERCED</b> PACHECO PASS TUNNEL TUNNEL PORTAL 2 ACCESS ROAD	CONTRACT NO. HSR15-34 DRAWING NO. TN-D1407 SCALE AS SHOWN SHEET NO.
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**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 118 OF 176**

NOTES:  
REFER TO COMPOSITE DRAWINGS FOR TUNNEL PROFILE DETAILS.



**PROFILE**  
SCALE: 1"=1600' HOR, 1"=100' VERT

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 119 OF 176**

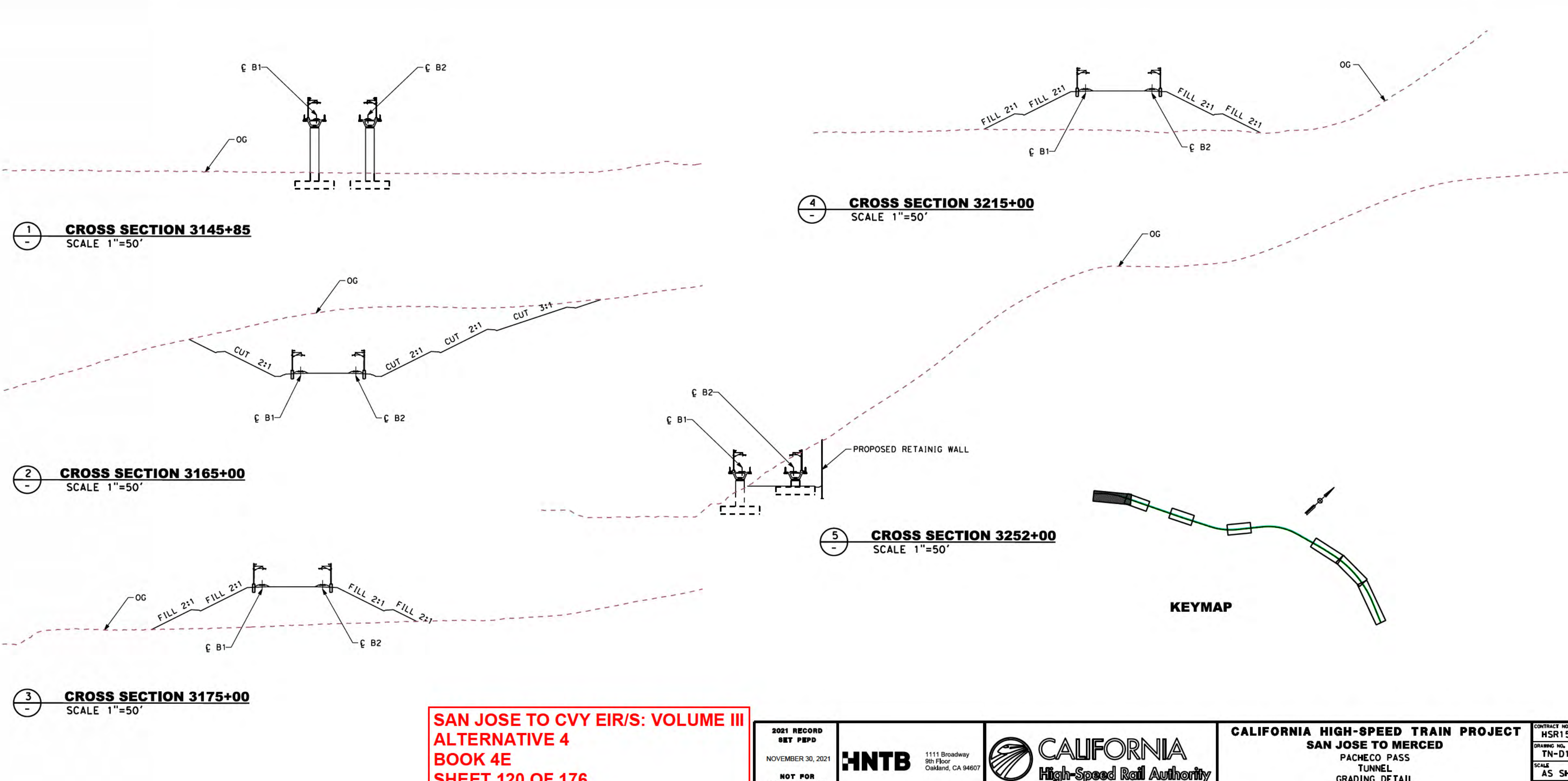
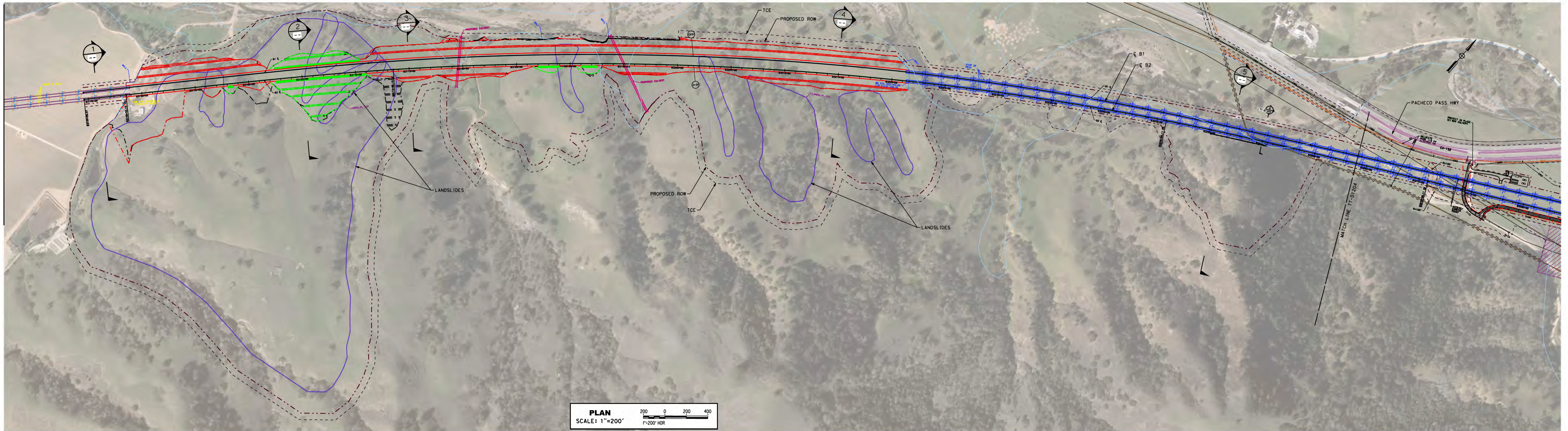
2021 RECORD SET PBD  
NOVEMBER 30, 2021  
NOT FOR CONSTRUCTION



**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
PACHECO PASS  
TUNNEL  
LONGITUDINAL PROFILE

CONTRACT NO. HSR15-34  
DRAWING NO. TN-D1408  
SCALE AS SHOWN  
SHEET NO.

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**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 120 OF 176**

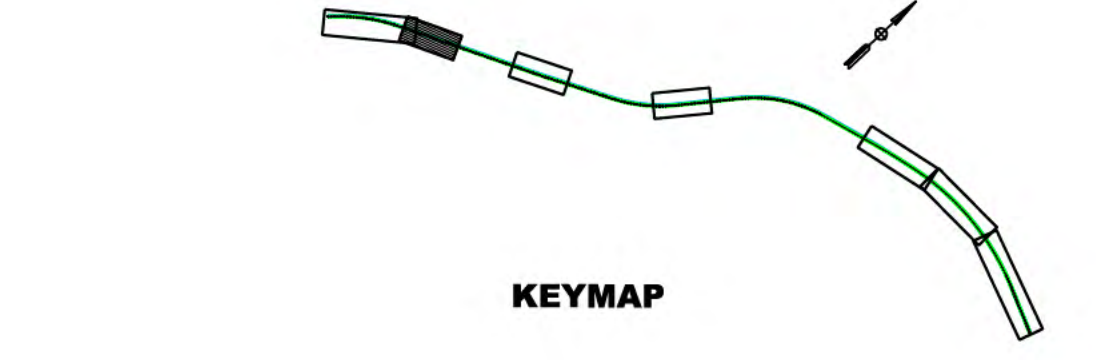
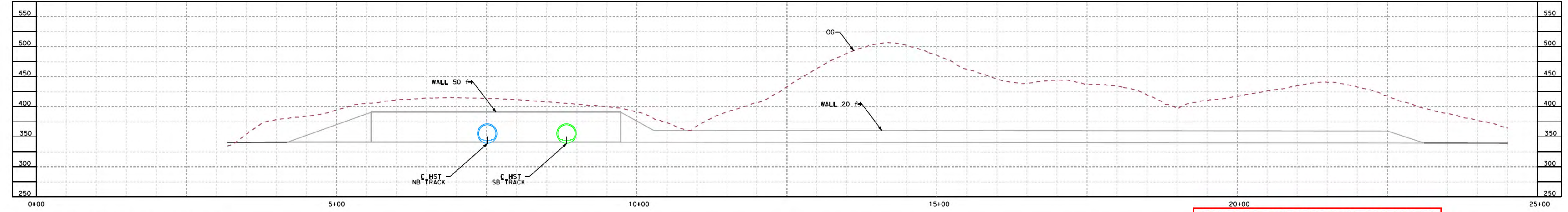
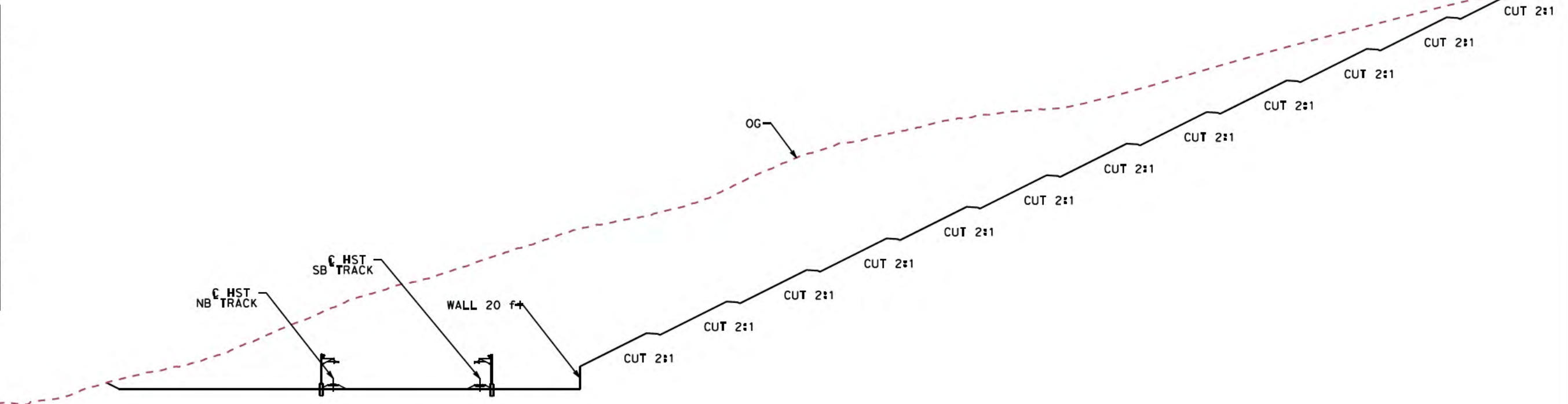
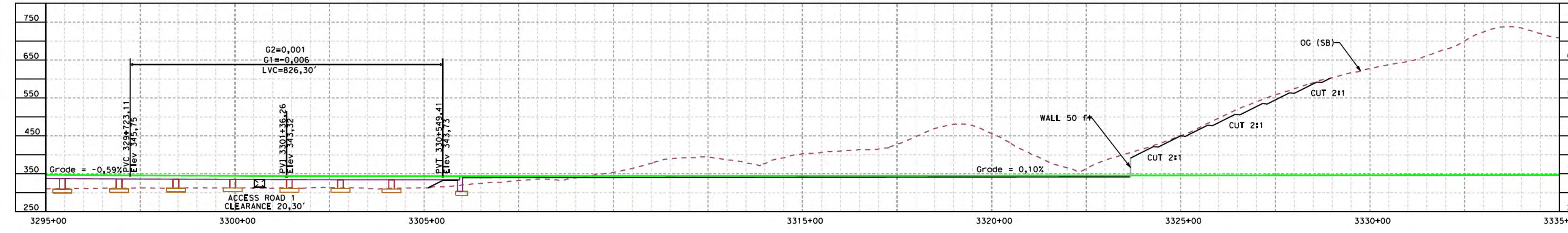
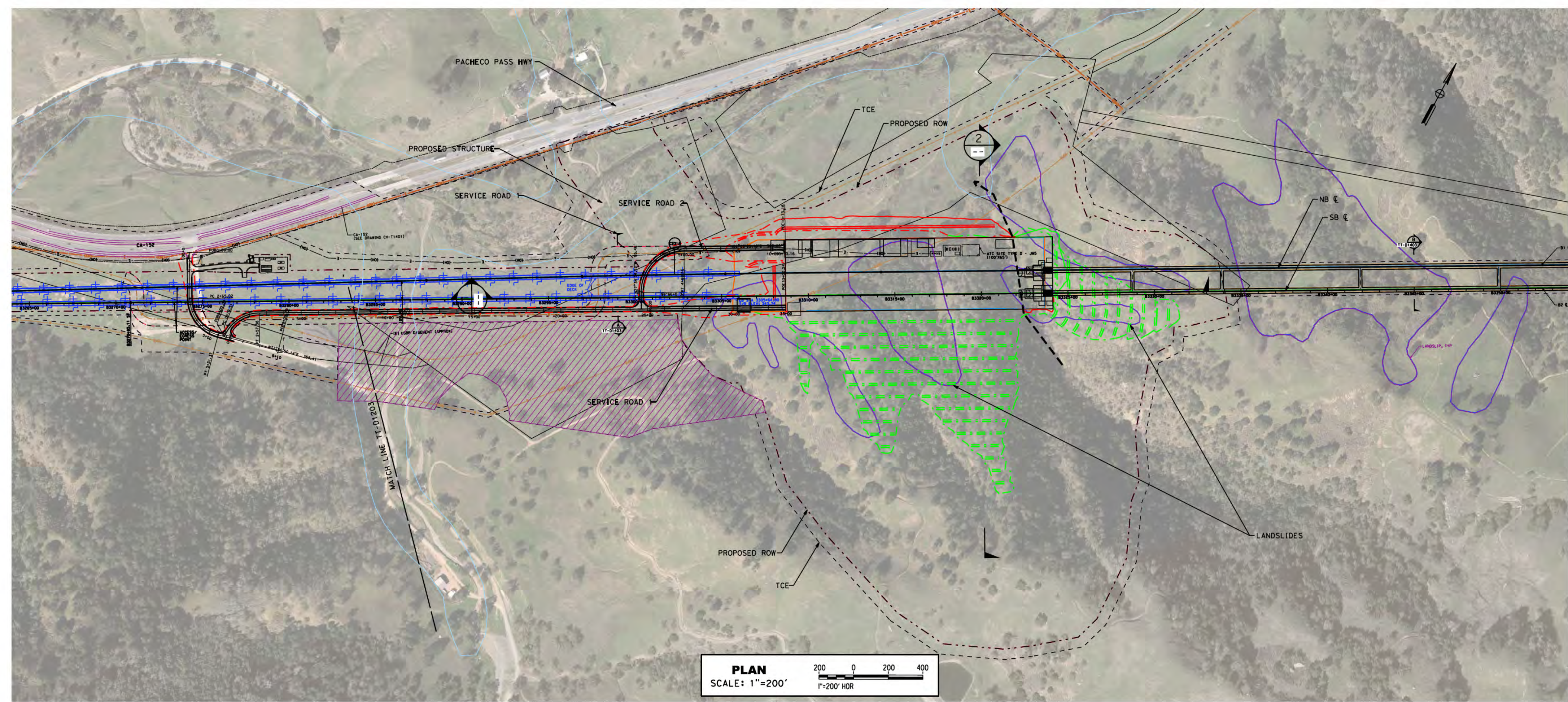
2021 RECORD SET PBD  
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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 PACHECO PASS  
 TUNNEL  
 GRADING DETAIL

CONTRACT NO. HSR15-34  
 DRAWING NO. TN-D1409  
 SCALE AS SHOWN  
 SHEET NO.



**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 121 OF 176**

2021 RECORD SET PERD  
NOVEMBER 30, 2021  
NOT FOR CONSTRUCTION

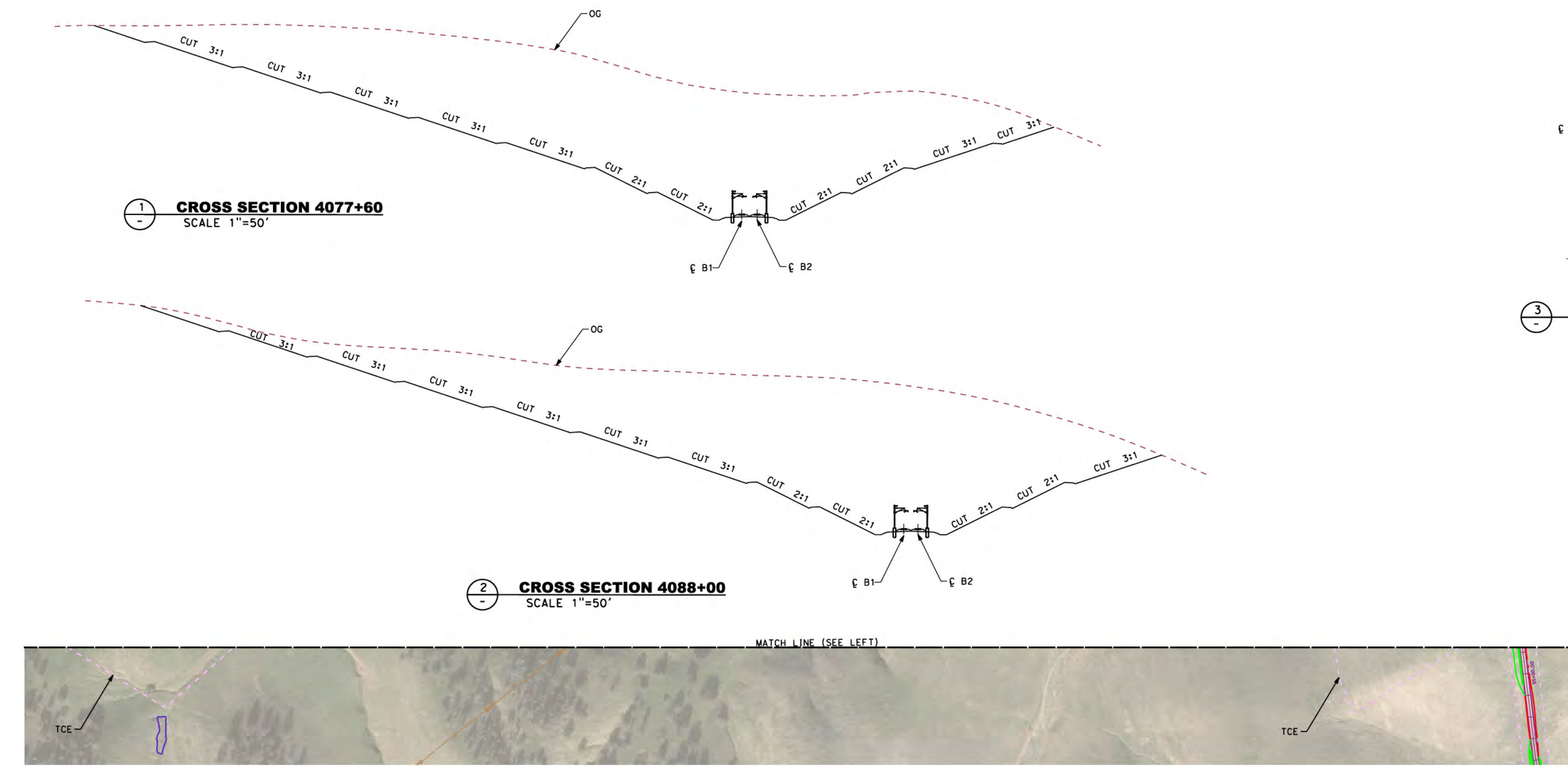
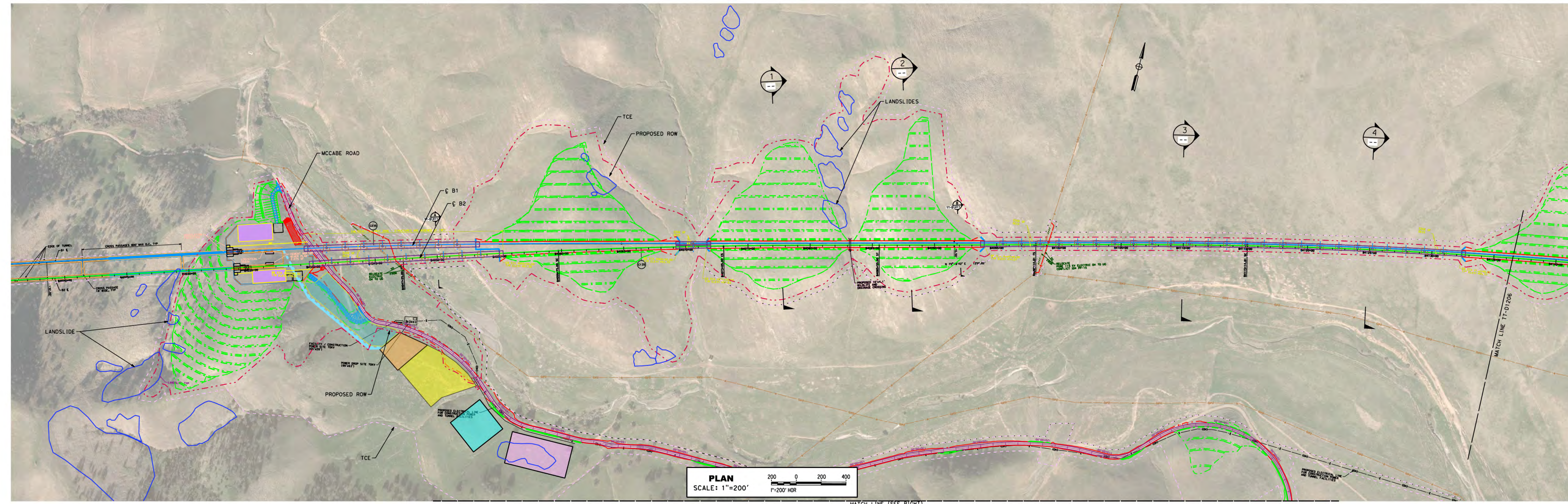
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High-Speed Rail Authority

**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
TUNNEL  
GRADING DETAIL

CONTRACT NO. HSR15-34  
DRAWING NO. TN-D1410  
SCALE AS SHOWN  
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**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 122 OF 176**

2021 RECORD SET PERD  
NOVEMBER 30, 2021  
NOT FOR CONSTRUCTION

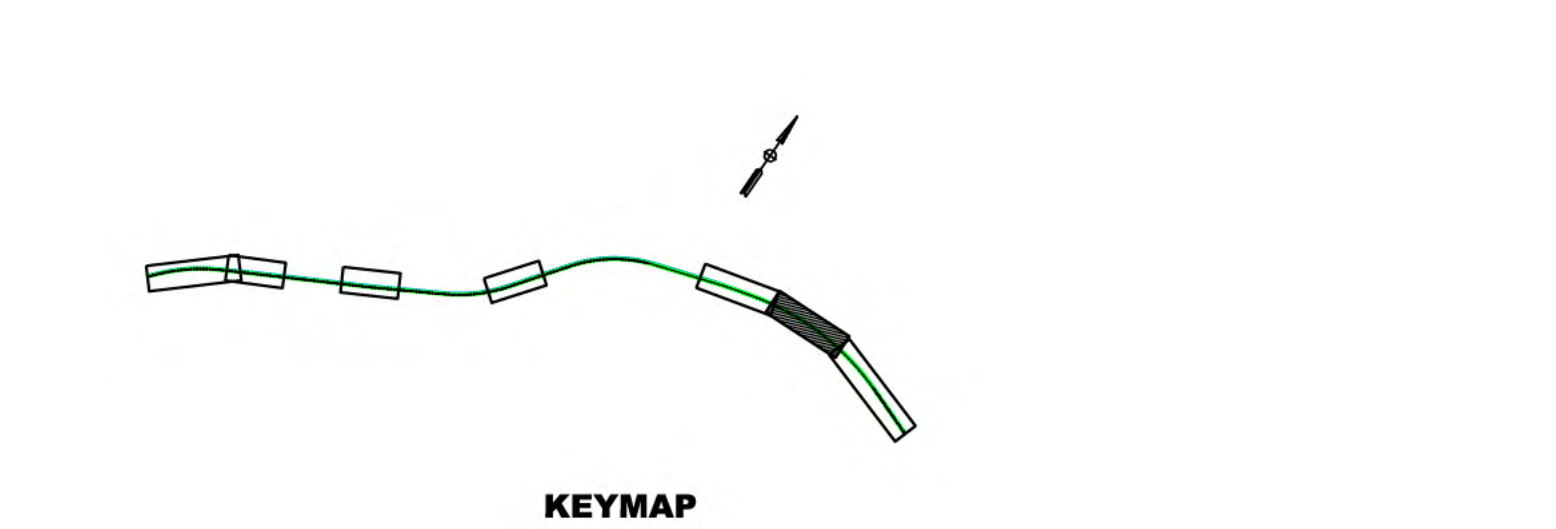
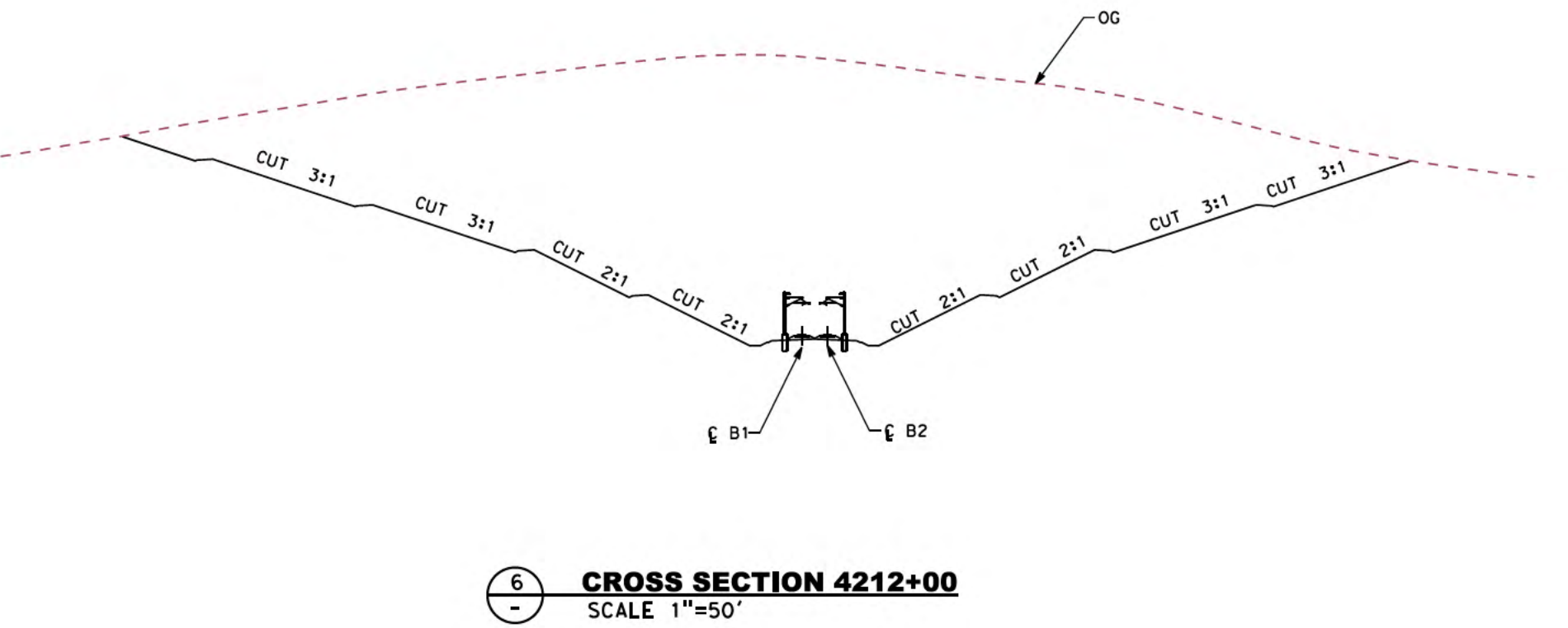
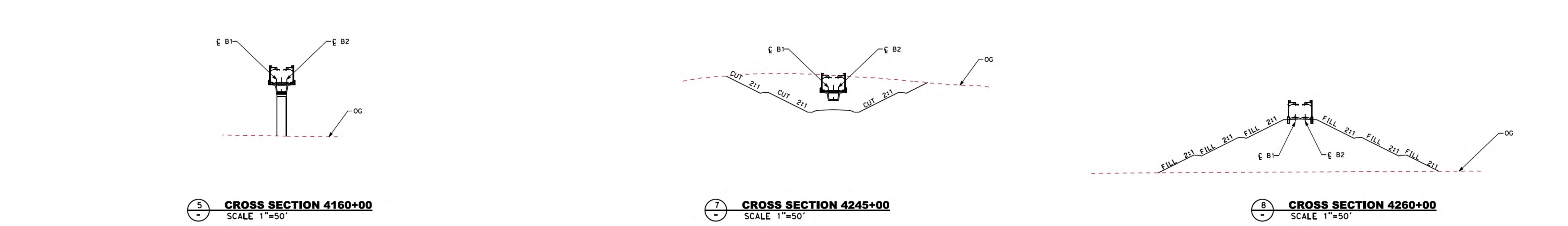
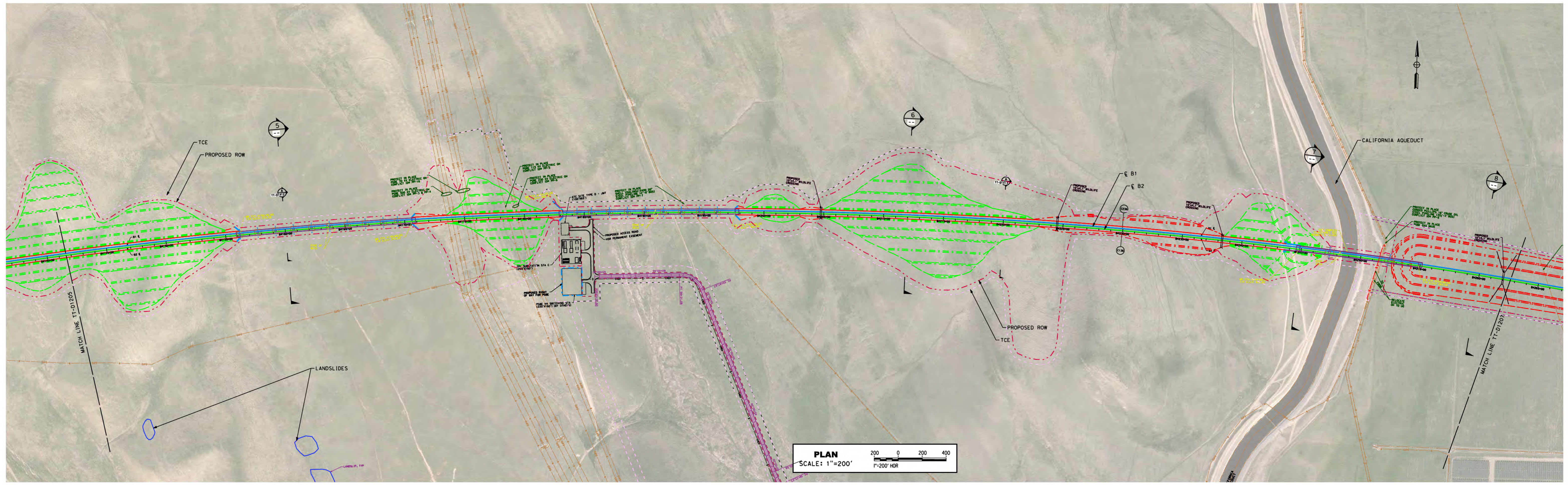
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Oakland, CA 94607

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High-Speed Rail Authority

**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
PACHECO PASS  
TUNNEL  
GRADING DETAIL

CONTRACT NO. HSR15-34  
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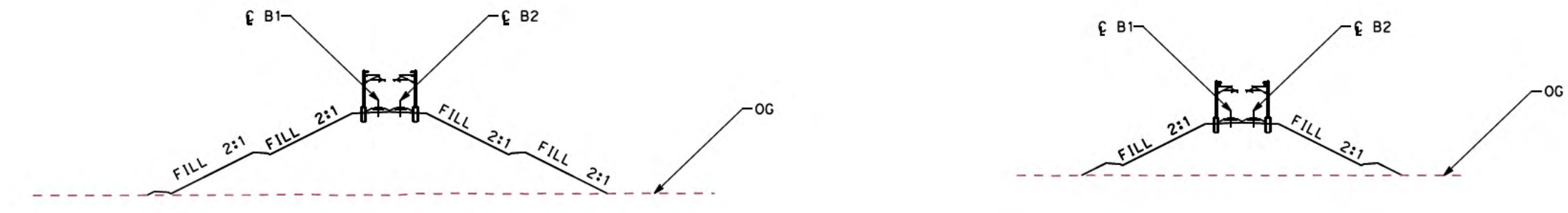
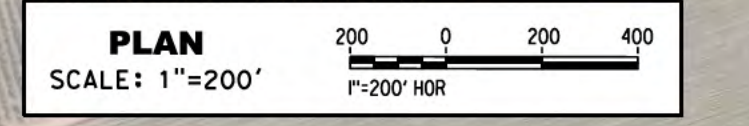
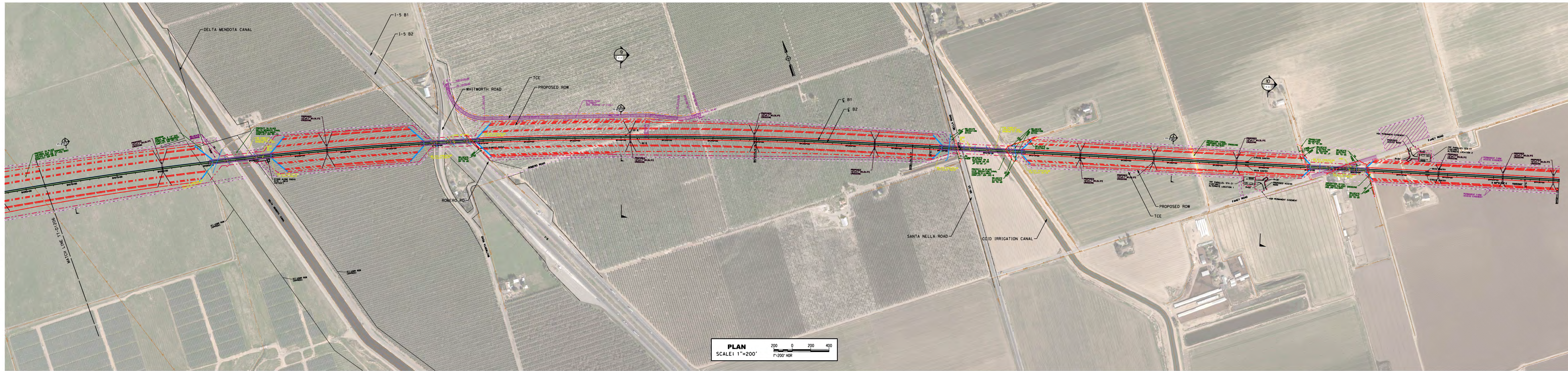
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**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 123 OF 176**

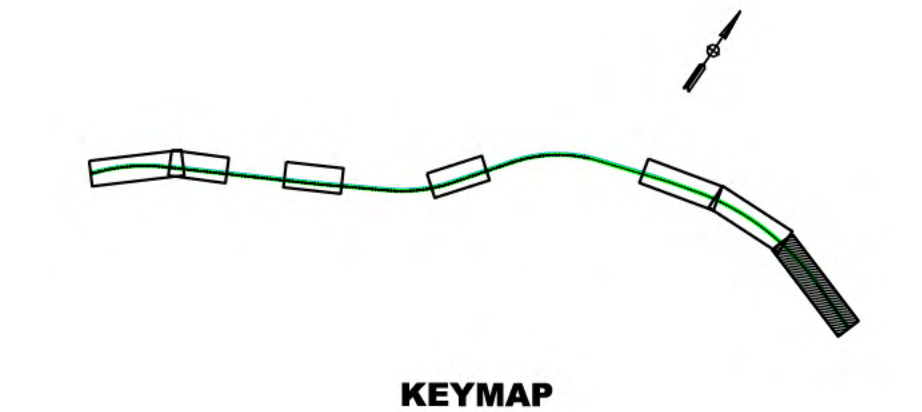
2021 RECORD SET PERD NOVEMBER 30, 2021 NOT FOR CONSTRUCTION	<b>HNTB</b> 1111 Broadway 9th Floor Oakland, CA 94607	<b>CALIFORNIA</b> High-Speed Rail Authority	<b>CALIFORNIA HIGH-SPEED TRAIN PROJECT</b> <b>SAN JOSE TO MERCED</b> PACHECO PASS TUNNEL GRADING DETAIL	CONTRACT NO. HSR15-34 DRAWING NO. TN-D1412 SCALE AS SHOWN SHEET NO.
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9 CROSS SECTION 4330+00  
SCALE 1"=50'

10 CROSS SECTION 4400+00  
SCALE 1"=50'



KEYMAP

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 124 OF 176**

2021 RECORD SET PERD  
 NOVEMBER 30, 2021  
 NOT FOR CONSTRUCTION

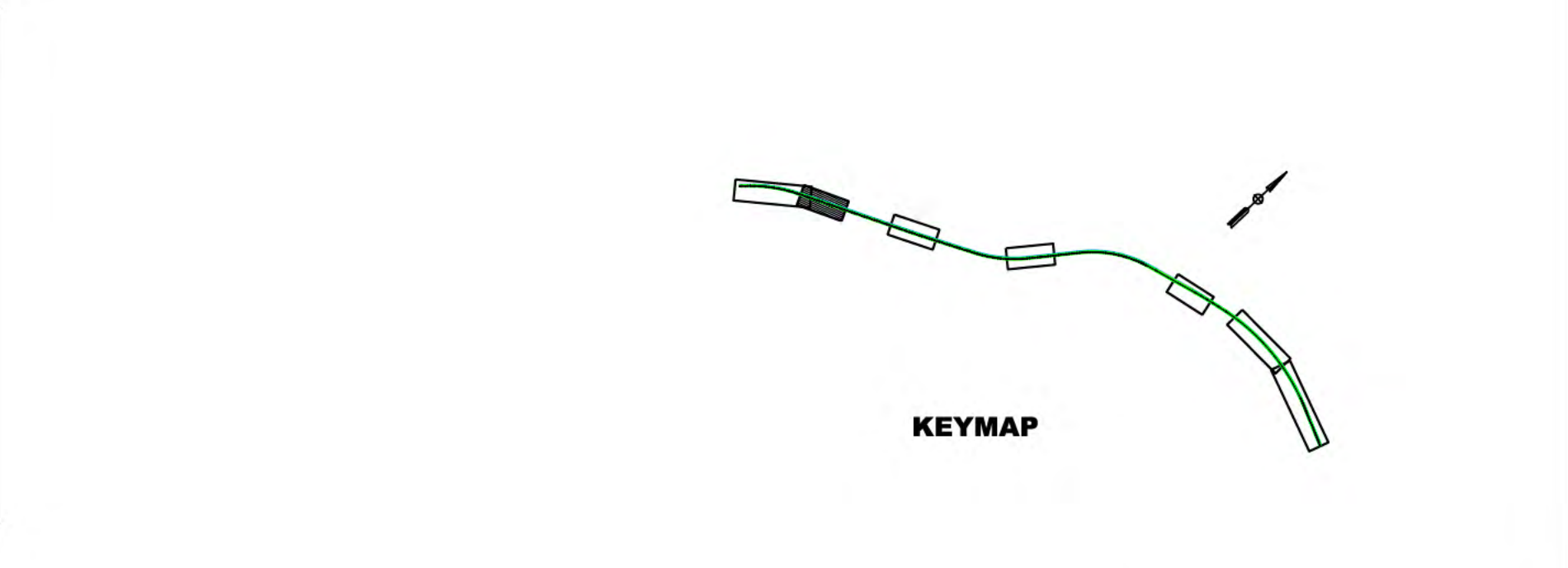
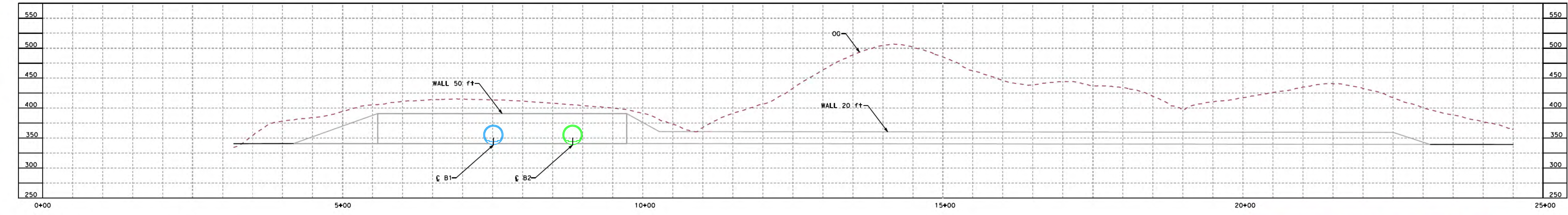
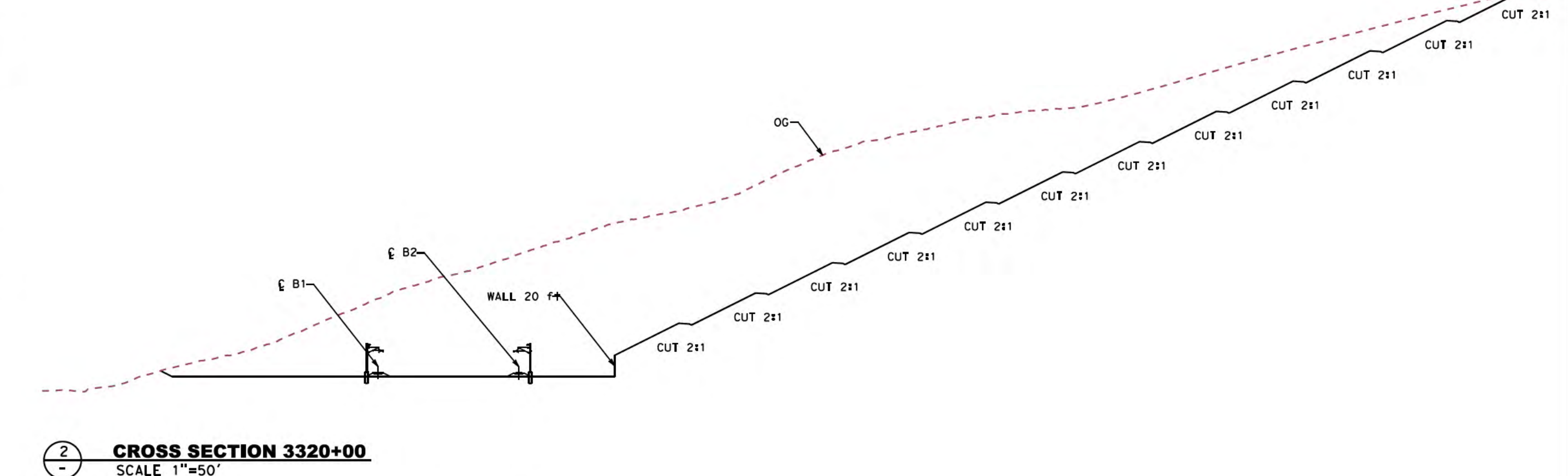
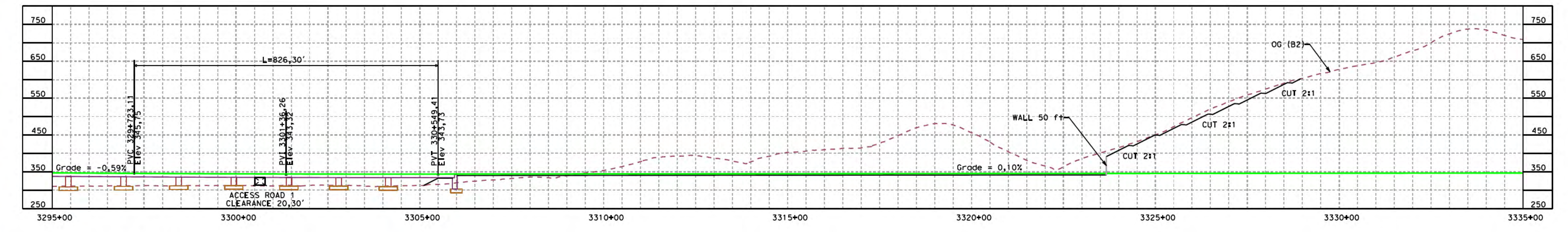
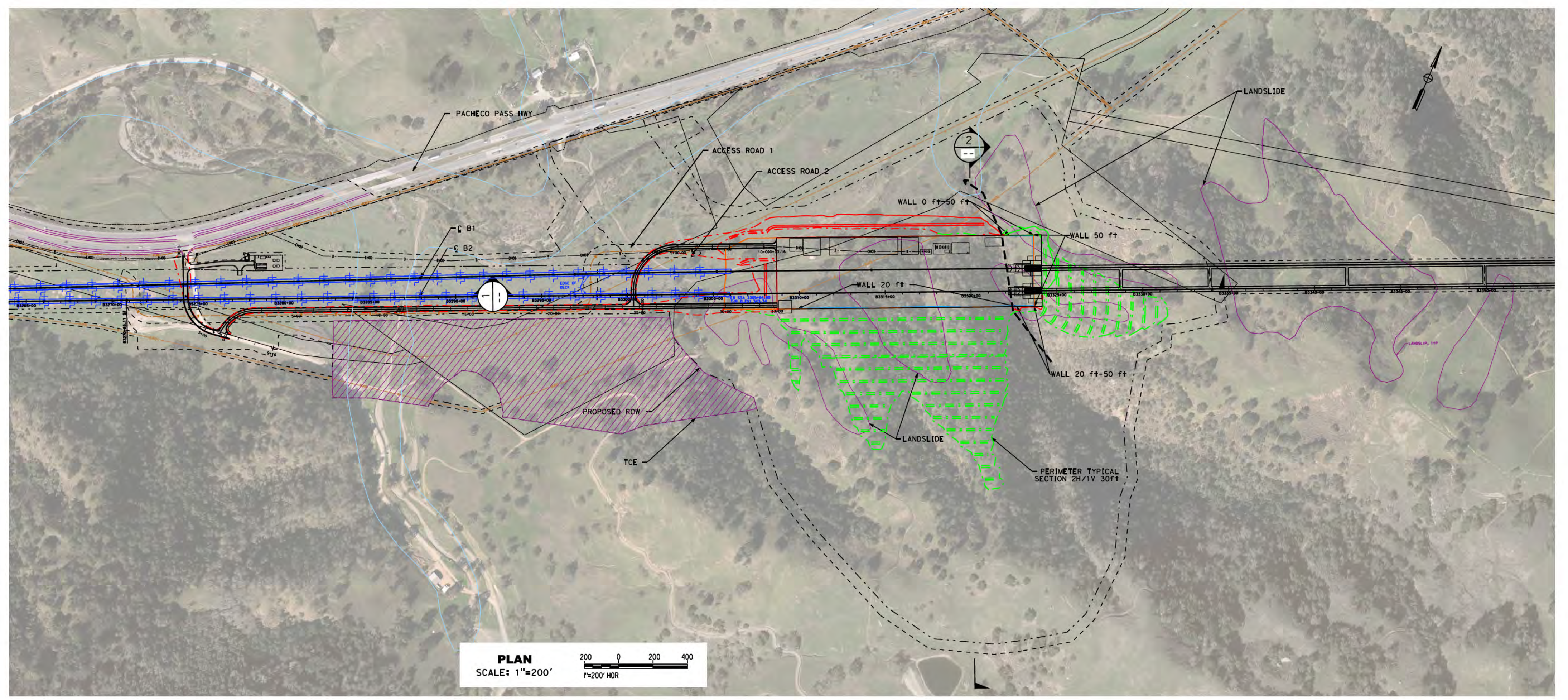


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 Oakland, CA 94607



**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 PACHECO PASS  
 TUNNEL  
 GRADING DETAIL

CONTRACT NO.	HSR15-34
DRAWING NO.	TN-D1413
SCALE	AS SHOWN
SHEET NO.	



**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 125 OF 176**

2021 RECORD SET PERIOD  
NOVEMBER 30, 2021  
NOT FOR CONSTRUCTION

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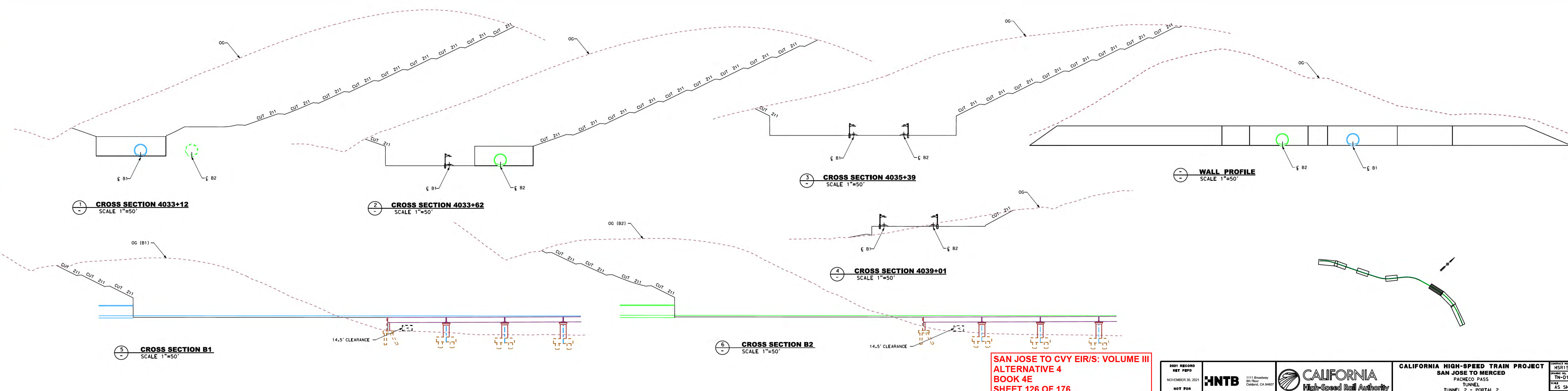
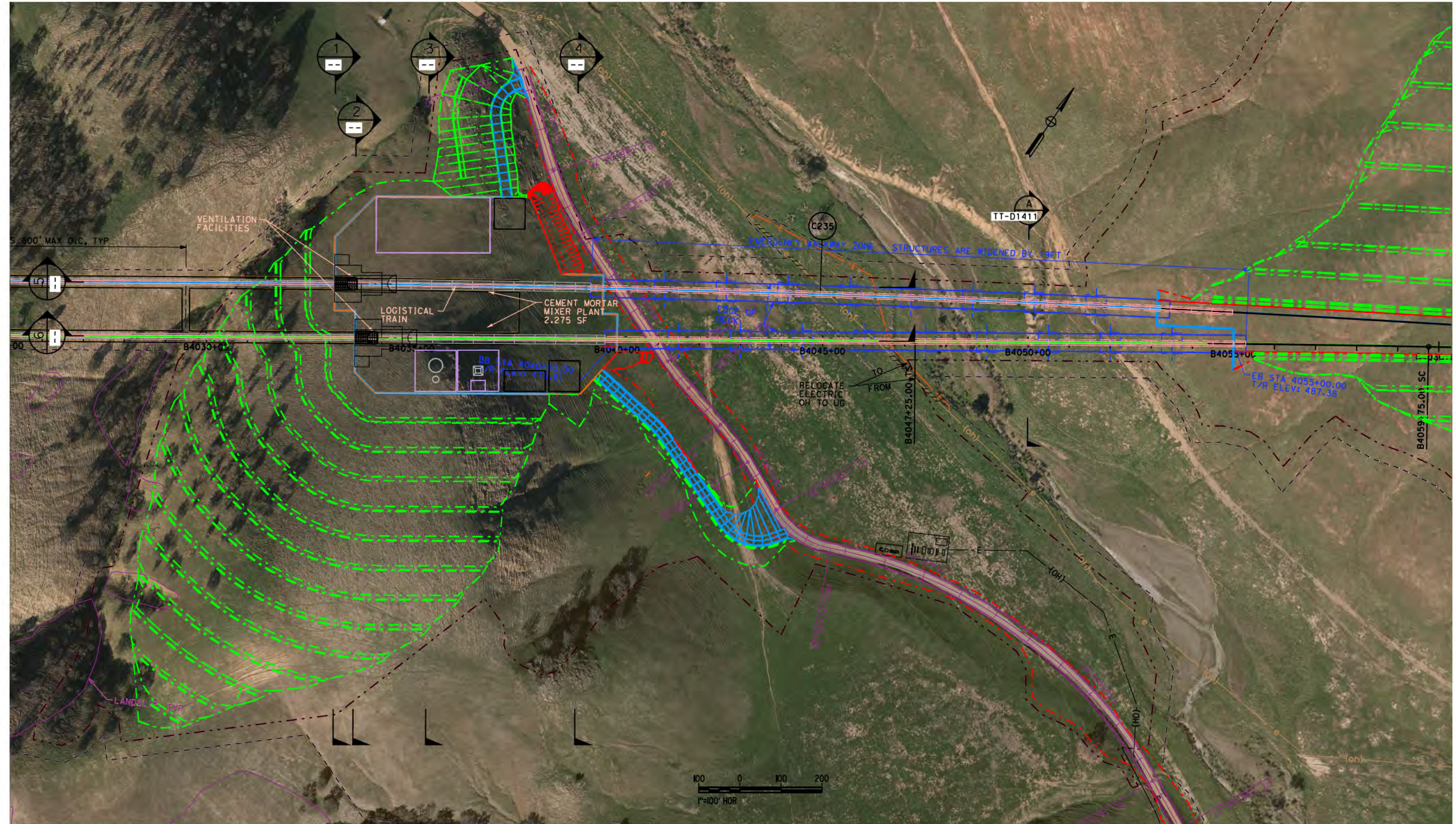
**CALIFORNIA**  
High-Speed Rail Authority

**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
TUNNEL  
PACHECO PASS  
TUNNEL 2 - PORTAL 1  
SECTIONS

CONTRACT NO.  
HSR15-34  
DRAWING NO.  
TN-D1414  
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AS SHOWN  
SHEET NO.



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**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 126 OF 176**

2021 RECORD SET PERD  
NOVEMBER 30, 2021  
NOT FOR CONSTRUCTION

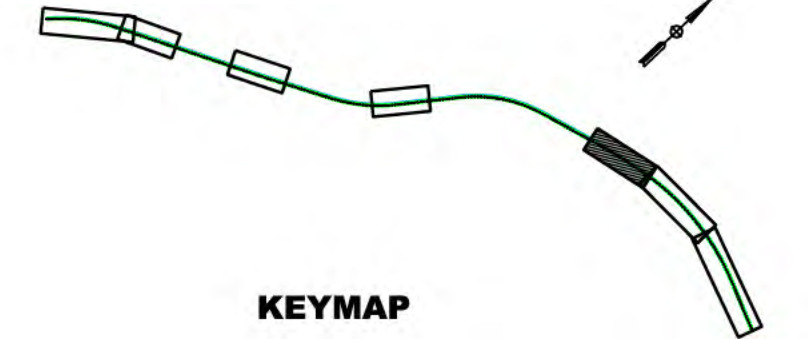
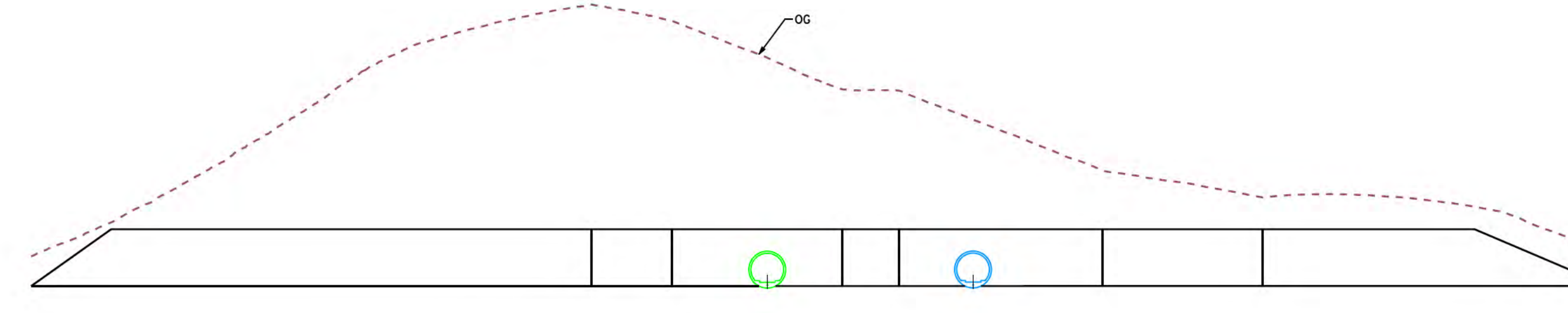
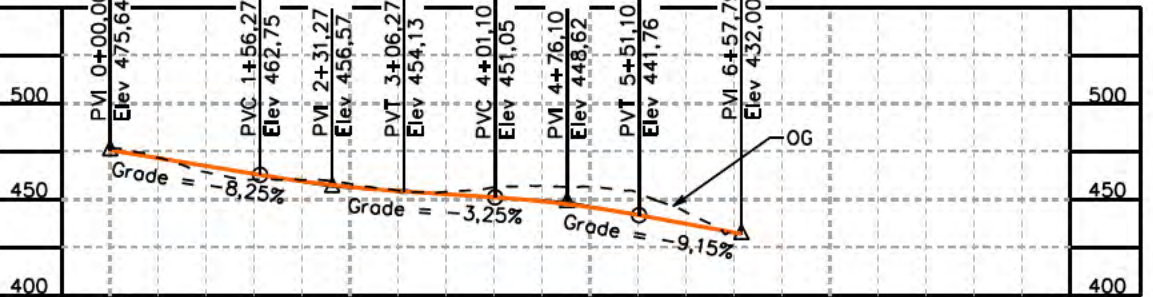
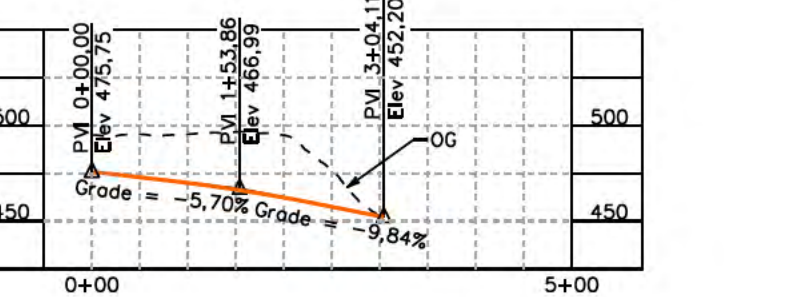
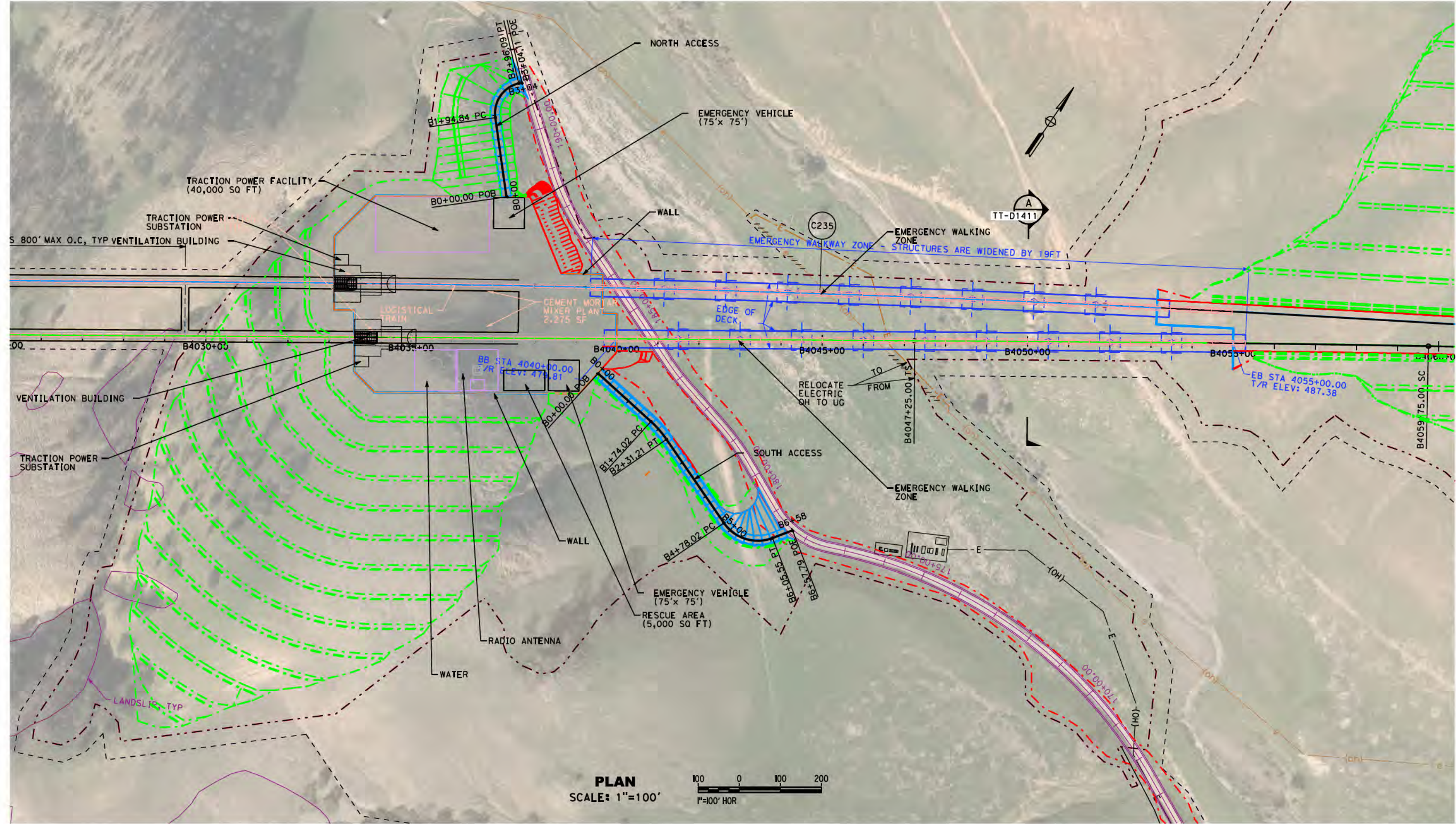
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High-Speed Rail Authority

**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
PACHECO PASS  
TUNNEL  
TUNNEL 2 - PORTAL 2  
APPROACH 1

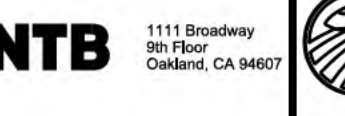
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**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 127 OF 176**

2021 RECORD SET PERD  
NOVEMBER 30, 2021  
NOT FOR CONSTRUCTION



**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
PACHECO PASS TUNNEL  
TUNNEL 2 PORTAL 2 APPROACH 2

CONTRACT NO. HSR15-34  
DRAWING NO. TN-D1416  
SCALE AS SHOWN  
SHEET NO.

**HENRY MILLER ROAD DETOUR:**

1. BUILD TEMPORARY ROADWAY ON NORTH SIDE OF HENRY MILLER ROAD. SEE DRAWINGS CV-11602 AND CV-11603 FOR DETAILS.
2. DIRECT TRAFFIC ONTO DETOUR AND CLOSE EXISTING ROADWAY TO ALLOW FOR CONSTRUCTION OF GRADE SEPARATION.
3. CLOSE VOLTA ROAD AND DETOUR TRAFFIC ONTO INGOMAR GRADE ROAD TO HENRY MILLER ROAD.
4. RESTORE TRAFFIC TO HENRY MILLER ROAD AFTER COMPLETION OF GRADE SEPARATION WORK.
5. CONSTRUCT REMAINING PORTION OF OF VOLTA RD.
6. REMOVE TEMPORARY ROADWAY.

**CARLUCCI ROAD DETOUR:**

1. BUILD TEMPORARY DETOUR ROADWAY ON EAST SIDE OF CARLUCCI ROAD. SEE DRAWING CV-11607 FOR DETAILS.
3. DIRECT TRAFFIC ONTO DETOUR AND CLOSE EXISTING CARLUCCI ROAD TO ALLOW FOR CONSTRUCTION OF GRADE SEPARATION.
4. RESTORE TRAFFIC TO CARLUCCI ROAD, REALIGNED HENRY MILLER ROAD, AND REALIGNED HUTCHINS ROAD UPON COMPLETION OF GRADE SEPARATION WORK.
5. REMOVE TEMPORARY ROADWAYS.

**NOTES:**

1. GRADE SEPARATION CONSTRUCTION SHALL BE PHASED TO AVOID CONCURRENT CLOSURE OF ANY TWO ROADWAYS WITHIN A 2-MILE RADIUS.

**SR-165 / MERCEY SPRINGS ROAD DETOUR:**

1. BUILD TEMPORARY DETOUR ROADWAY ON WEST SIDE OF SR-165 / MERCEY SPRINGS ROAD. SEE DRAWING CV-11604 FOR DETAILS.
2. DIRECT TRAFFIC ONTO DETOUR AND CLOSE EXISTING ROADWAY TO ALLOW FOR CONSTRUCTION OF GRADE SEPARATION.
3. RESTORE TRAFFIC TO SR-165 / MERCEY SPRINGS ROAD UPON COMPLETION OF GRADE SEPARATION WORK.
4. REMOVE TEMPORARY ROADWAY.

**DELTA ROAD DETOUR:**

1. BUILD TEMPORARY DETOUR ROADWAY ON EAST SIDE OF DELTA ROAD. SEE DRAWING CV-11605 FOR DETAILS.
2. DIRECT TRAFFIC ONTO DETOUR AND CLOSE EXISTING ROADWAY TO ALLOW FOR CONSTRUCTION OF GRADE SEPARATION AND FRONTAGE ROAD.
3. RESTORE TRAFFIC TO DELTA ROAD UPON COMPLETION OF GRADE SEPARATION WORK.
4. REMOVE TEMPORARY ROADWAY.

**TURNER ISLAND ROAD DETOUR:**

1. CONSTRUCT CONNECTOR ROAD AND TEMPORARY DETOUR ROADWAY ON WEST SIDE OF TURNER ISLAND ROAD. SEE DRAWING CV-11606 FOR DETAILS.
2. DIRECT TRAFFIC ONTO DETOUR / CONNECTOR ROAD DURING CONSTRUCTION OF GRADE SEPARATION.
3. RESTORE TRAFFIC TO TURNER ISLAND ROAD UPON COMPLETION OF GRADE SEPARATION WORK.
4. REMOVE TEMPORARY ROADWAY.

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 128 OF 176**

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	
DRAWN BY	
CHECKED BY	
IN CHARGE	
DATE	

**2021 RECORD  
SET PERP**  
  
NOVEMBER 30, 2021  
  
**NOT FOR  
CONSTRUCTION**

**HNTB** 1111 Broadway  
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**CALIFORNIA HIGH-SPEED TRAIN PROJECT  
SAN JOSE TO MERCED**  
SAN JOAQUIN VALLEY  
HENRY MILLER ROAD  
CONSTRUCTION STAGING PLAN  
GENERAL NOTES

CONTRACT NO.	HSR15-34
DRAWING NO.	CV-11601
SCALE	NO SCALE
SHEET NO.	

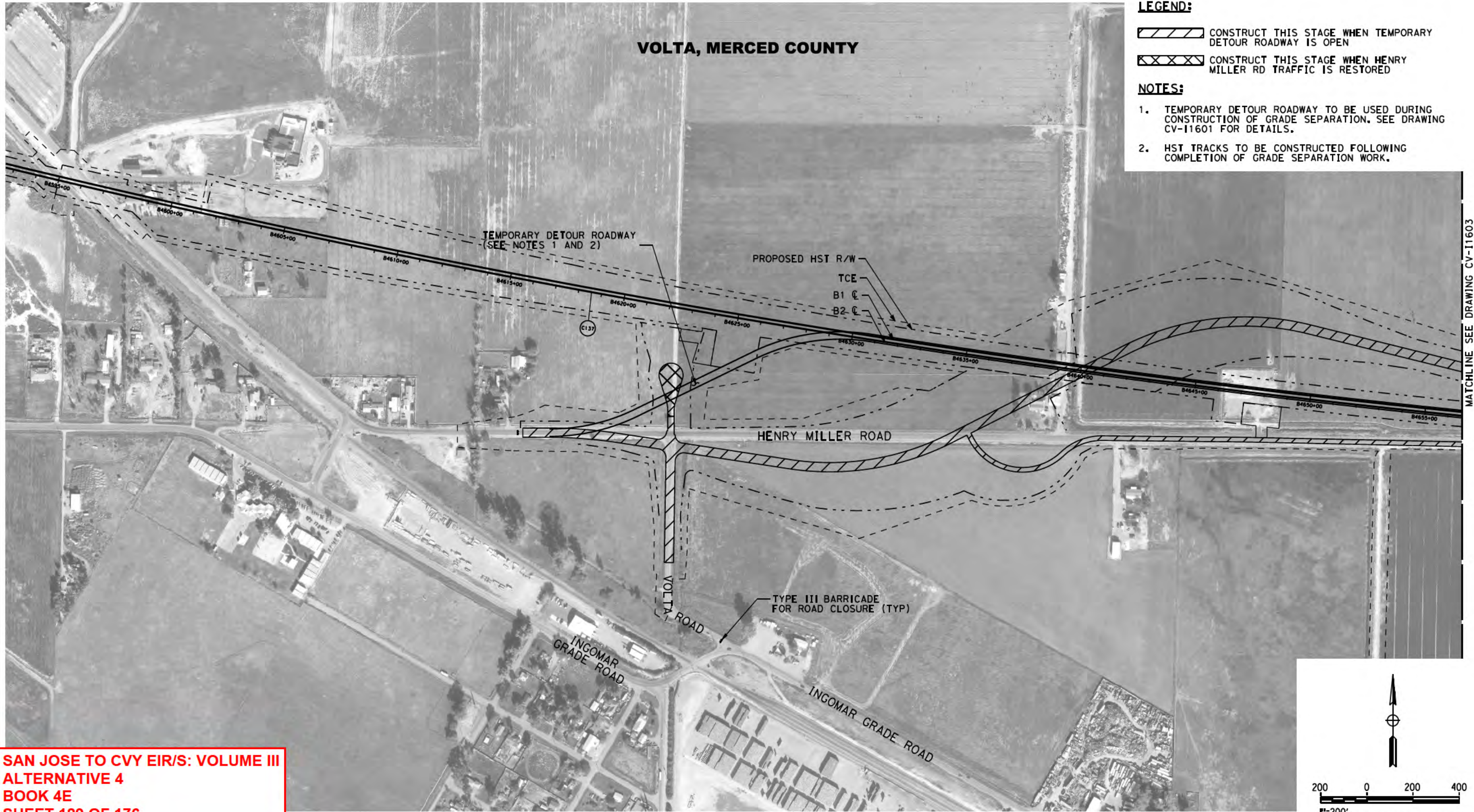
**VOLTA, MERCED COUNTY**

**LEGEND:**

-  CONSTRUCT THIS STAGE WHEN TEMPORARY DETOUR ROADWAY IS OPEN
-  CONSTRUCT THIS STAGE WHEN HENRY MILLER RD TRAFFIC IS RESTORED

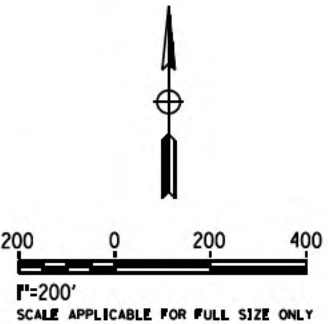
**NOTES:**

1. TEMPORARY DETOUR ROADWAY TO BE USED DURING CONSTRUCTION OF GRADE SEPARATION. SEE DRAWING CV-I1601 FOR DETAILS.
2. HST TRACKS TO BE CONSTRUCTED FOLLOWING COMPLETION OF GRADE SEPARATION WORK.



MATCHLINE SEE DRAWING CV-I1603

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 129 OF 176**



11/17/2021 10:18:17 PM CAHSR-fbl cnd\_pdf\_bw.plt c:\voad\17\pwworken\46037\_cohsr\dms18501\JM-CV-11602.dgn

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	
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IN CHARGE	
DATE	

**2021 RECORD  
SBT PMPD**

NOVEMBER 30, 2021

**NOT FOR  
CONSTRUCTION**

**HNTB** 1111 Broadway  
9th Floor  
Oakland, CA 94607



**CALIFORNIA HIGH-SPEED TRAIN PROJECT**


**SAN JOSE TO MERCED**

SAN JOAQUIN VALLEY  
HENRY MILLER ROAD  
CONSTRUCTION STAGING PLAN  
HENRY MILLER ROAD GRADE SEPARATION

CONTRACT NO.	HSR15-34
DRAWING NO.	CV-I1602
SCALE	AS SHOWN
SHEET NO.	

**VOLTA, MERCED COUNTY**

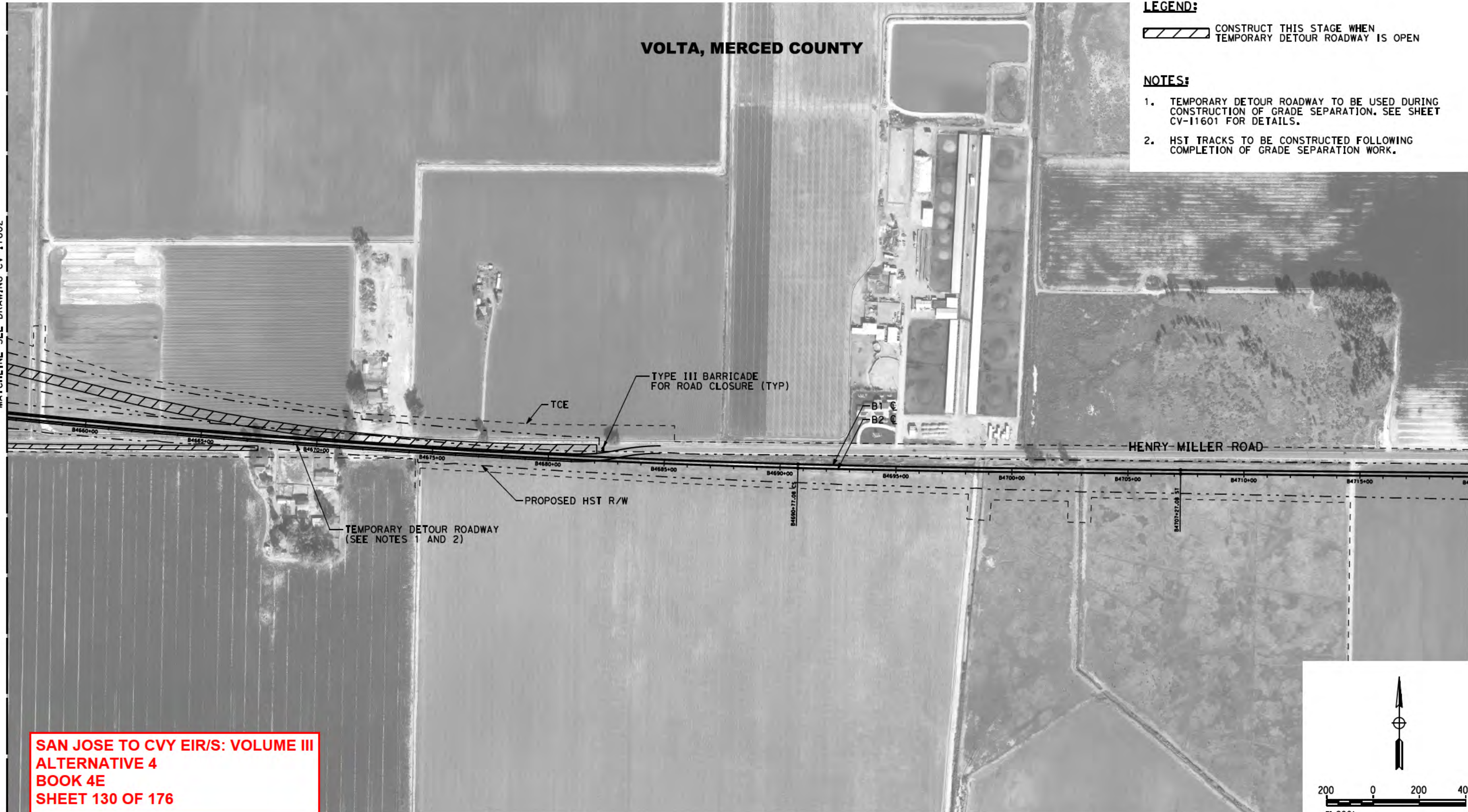
**LEGEND:**

 CONSTRUCT THIS STAGE WHEN TEMPORARY DETOUR ROADWAY IS OPEN

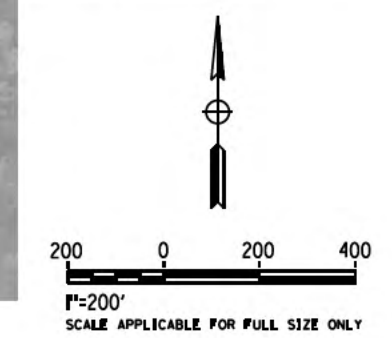
**NOTES:**

1. TEMPORARY DETOUR ROADWAY TO BE USED DURING CONSTRUCTION OF GRADE SEPARATION. SEE SHEET CV-11601 FOR DETAILS.
2. HST TRACKS TO BE CONSTRUCTED FOLLOWING COMPLETION OF GRADE SEPARATION WORK.

MATCHLINE SEE DRAWING CV-11602



**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 130 OF 176**



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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	
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CHECKED BY	
IN CHARGE	
DATE	

**2021 RECORD  
SBT PMPD**  
  
NOVEMBER 30, 2021  
  
**NOT FOR  
CONSTRUCTION**

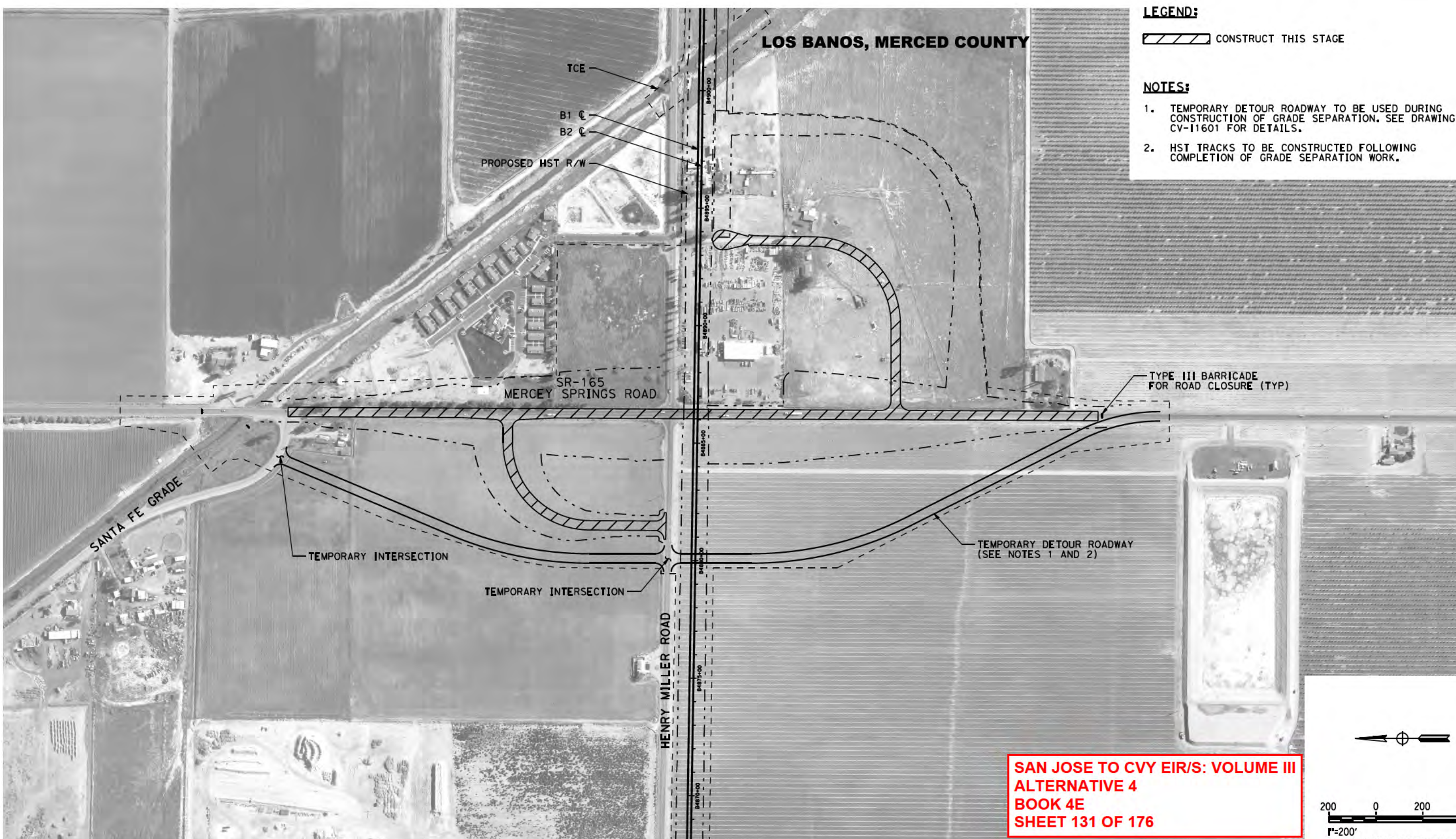
**HNTB** 1111 Broadway  
9th Floor  
Oakland, CA 94607

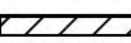


**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
SAN JOAQUIN VALLEY  
HENRY MILLER ROAD  
CONSTRUCTION STAGING PLAN  
HENRY MILLER ROAD GRADE SEPARATION

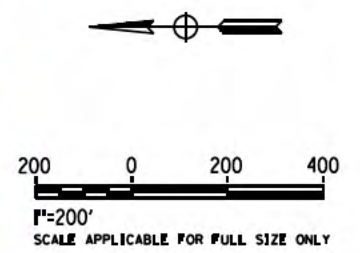
CONTRACT NO.	HSR15-34
DRAWING NO.	CV-11603
SCALE	AS SHOWN
SHEET NO.	

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- LEGEND:**  
 CONSTRUCT THIS STAGE
- NOTES:**
1. TEMPORARY DETOUR ROADWAY TO BE USED DURING CONSTRUCTION OF GRADE SEPARATION. SEE DRAWING CV-11601 FOR DETAILS.
  2. HST TRACKS TO BE CONSTRUCTED FOLLOWING COMPLETION OF GRADE SEPARATION WORK.

**SAN JOSE TO CVY EIR/S: VOLUME III  
 ALTERNATIVE 4  
 BOOK 4E  
 SHEET 131 OF 176**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	
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CHECKED BY	
IN CHARGE	
DATE	

**2021 RECORD  
 SBT PMPD**  
 NOVEMBER 30, 2021  
**NOT FOR  
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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 SAN JOAQUIN VALLEY  
 HENRY MILLER ROAD  
 CONSTRUCTION STAGING PLAN  
 SR-165 / MERCEY SPRINGS ROAD GRADE SEPARATION

CONTRACT NO.	HSR15-34
DRAWING NO.	CV-11604
SCALE	AS SHOWN
SHEET NO.	

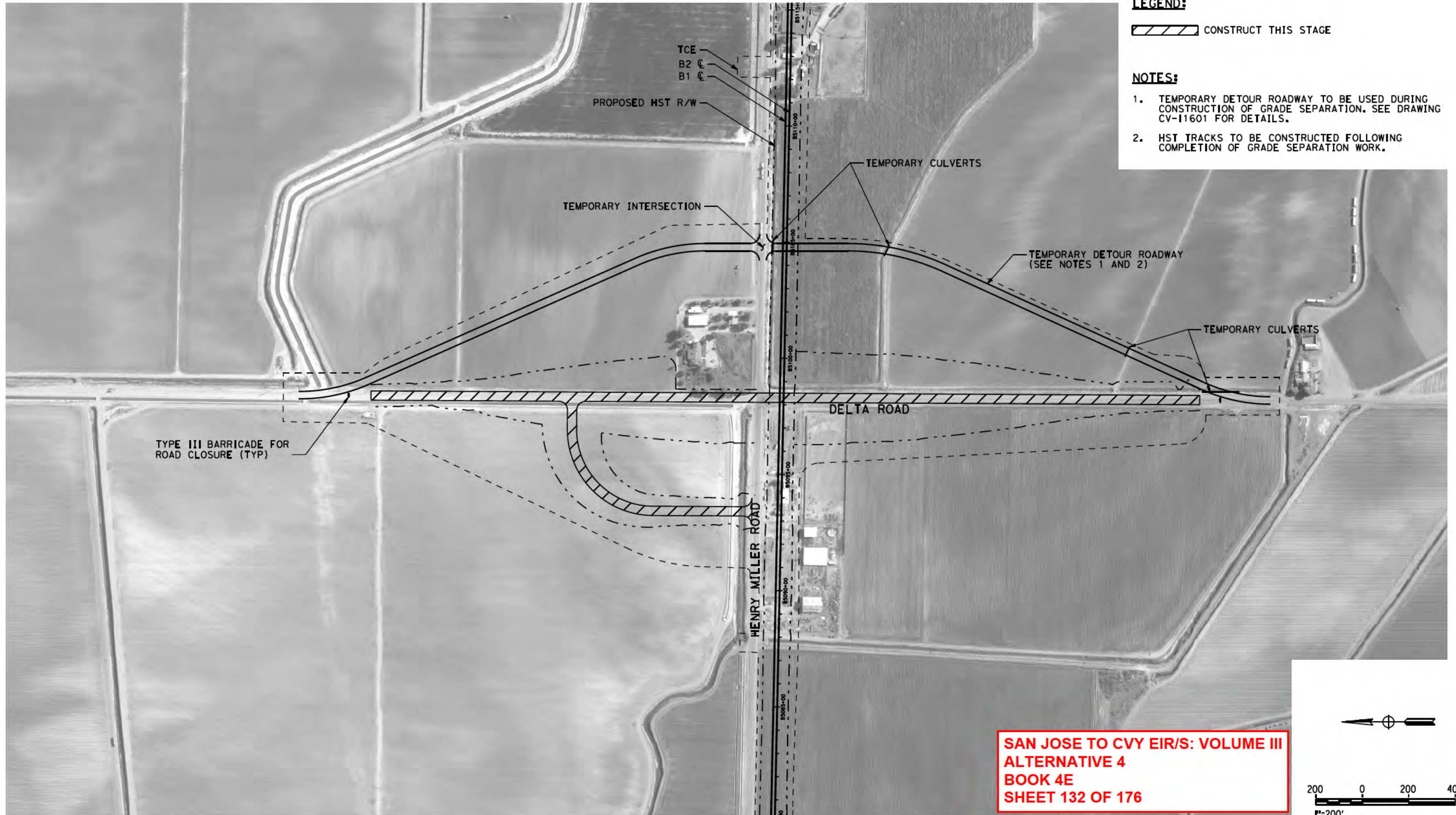
MERCED COUNTY

LEGEND:

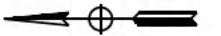
 CONSTRUCT THIS STAGE

NOTES:

1. TEMPORARY DETOUR ROADWAY TO BE USED DURING CONSTRUCTION OF GRADE SEPARATION. SEE DRAWING CV-11601 FOR DETAILS.
2. HST TRACKS TO BE CONSTRUCTED FOLLOWING COMPLETION OF GRADE SEPARATION WORK.



**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 132 OF 176**



200 0 200 400  
1"=200'

SCALE APPLICABLE FOR FULL SIZE ONLY

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REV	DATE	BY	CHK	APP	DESCRIPTION

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IN CHARGE	
DATE	

**2021 RECORD  
SET PERM**  
  
NOVEMBER 30, 2021  
  
**NOT FOR  
CONSTRUCTION**

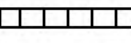
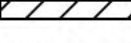

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Oakland, CA 94607



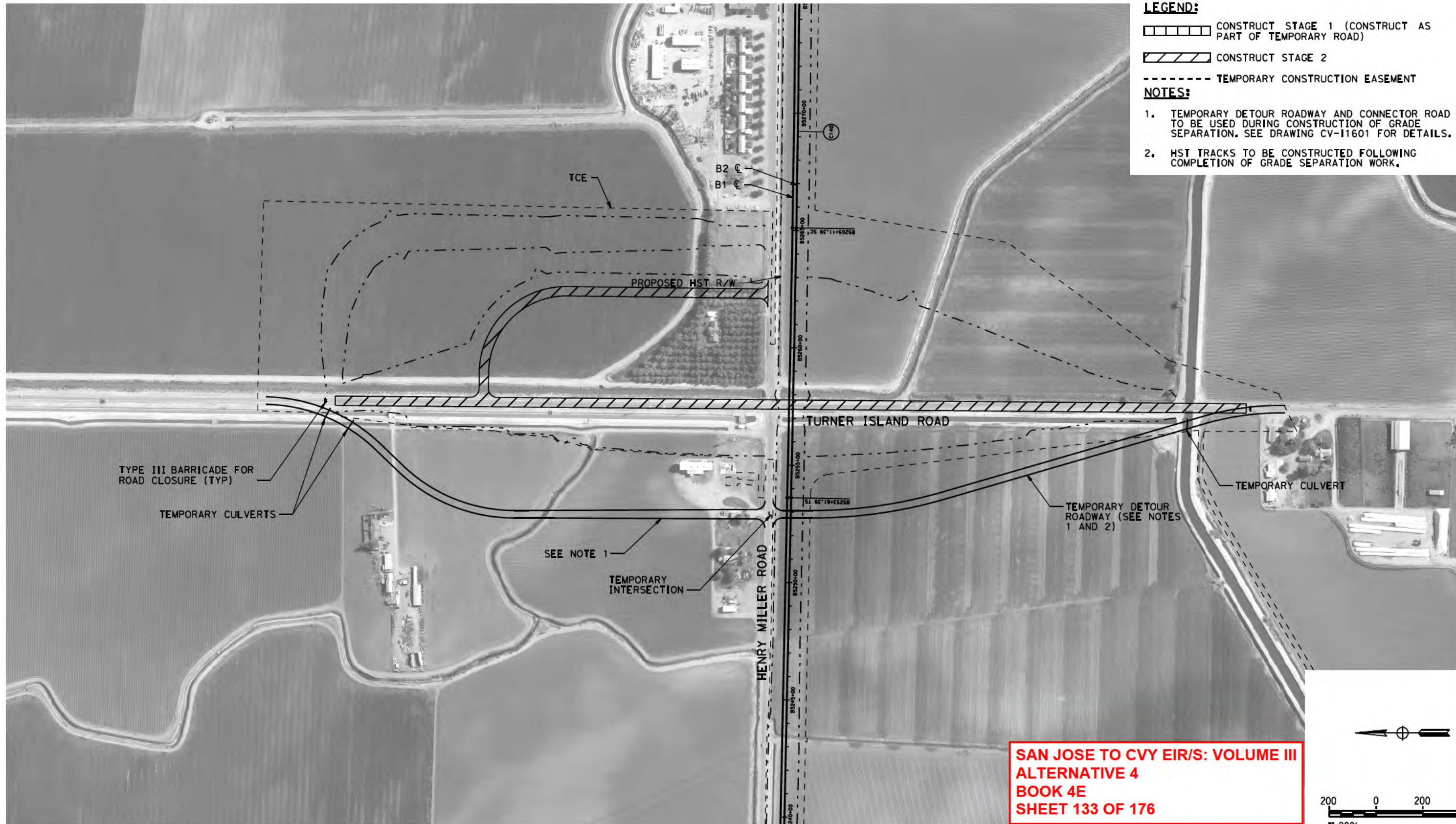
**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
SAN JOAQUIN VALLEY  
HENRY MILLER ROAD  
CONSTRUCTION STAGING PLAN  
DELTA ROAD GRADE SEPARATION

CONTRACT NO.	HSR15-34
DRAWING NO.	CV-11605
SCALE	AS SHOWN
SHEET NO.	

MERCED COUNTY

- LEGEND:**
-  CONSTRUCT STAGE 1 (CONSTRUCT AS PART OF TEMPORARY ROAD)
  -  CONSTRUCT STAGE 2
  -  TEMPORARY CONSTRUCTION EASEMENT

- NOTES:**
1. TEMPORARY DETOUR ROADWAY AND CONNECTOR ROAD TO BE USED DURING CONSTRUCTION OF GRADE SEPARATION. SEE DRAWING CV-I1601 FOR DETAILS.
  2. HST TRACKS TO BE CONSTRUCTED FOLLOWING COMPLETION OF GRADE SEPARATION WORK.



**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 133 OF 176**

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	
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IN CHARGE	
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**2021 RECORD  
SBT PMPD**

NOVEMBER 30, 2021

**NOT FOR  
CONSTRUCTION**

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Oakland, CA 94607



**CALIFORNIA HIGH-SPEED TRAIN PROJECT**

**SAN JOSE TO MERCED**

SAN JOAQUIN VALLEY  
HENRY MILLER ROAD  
CONSTRUCTION STAGING PLAN  
TURNER ISLAND ROAD GRADE SEPARATION

CONTRACT NO.	HSR15-34
DRAWING NO.	CV-I1606
SCALE	AS SHOWN
SHEET NO.	



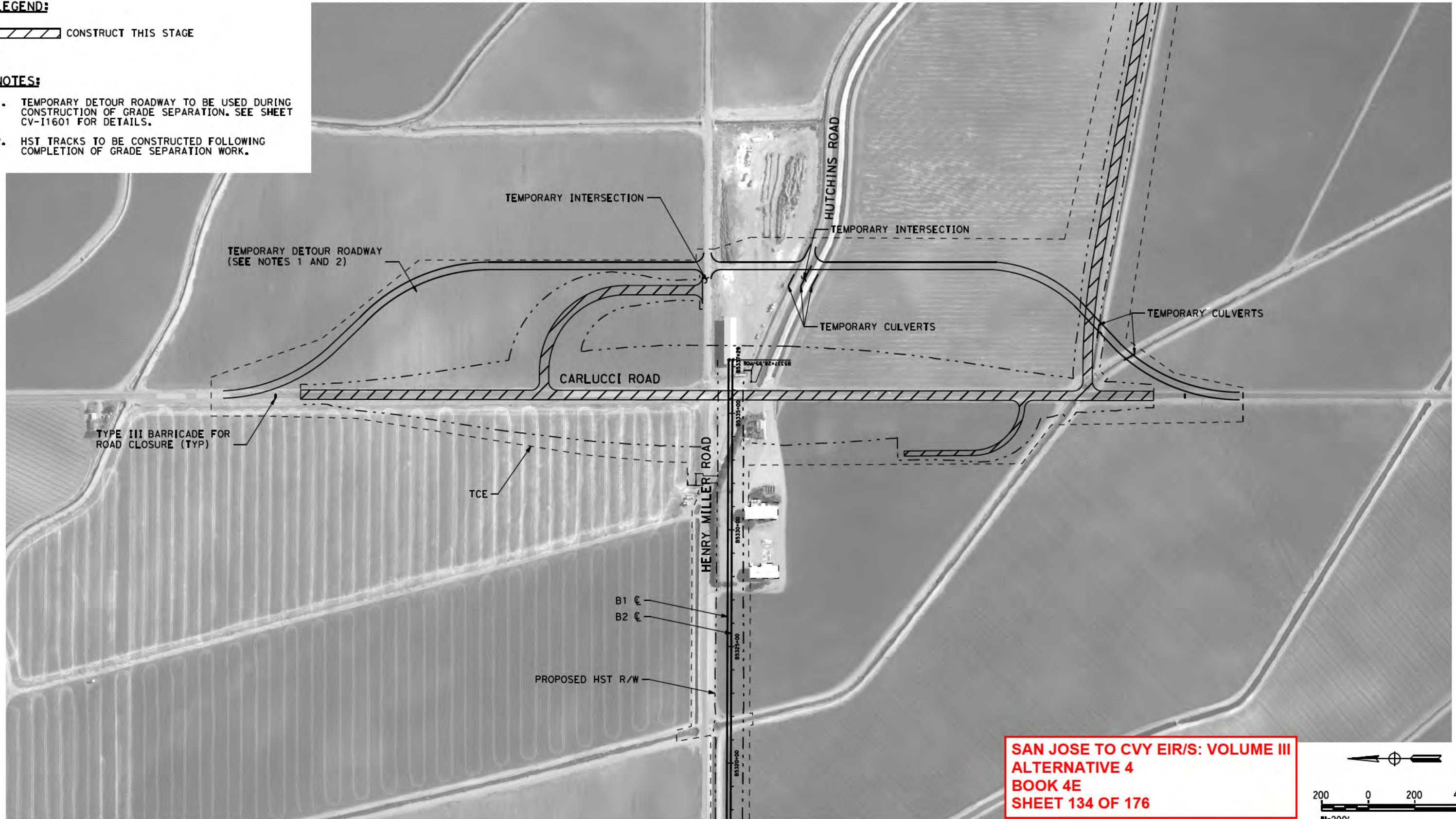
MERCED COUNTY

LEGEND:

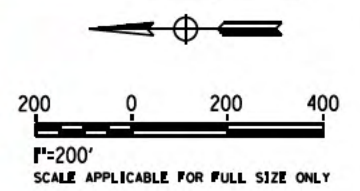
 CONSTRUCT THIS STAGE

NOTES:

1. TEMPORARY DETOUR ROADWAY TO BE USED DURING CONSTRUCTION OF GRADE SEPARATION. SEE SHEET CV-I1601 FOR DETAILS.
2. HST TRACKS TO BE CONSTRUCTED FOLLOWING COMPLETION OF GRADE SEPARATION WORK.



**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 134 OF 176**



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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY	
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DATE	

**2021 RECORD  
SBT PMPD**  
  
NOVEMBER 30, 2021  
  
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Oakland, CA 94607



**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
SAN JOAQUIN VALLEY  
HENRY MILLER ROAD  
CONSTRUCTION STAGING PLAN  
CARLUCCI ROAD GRADE SEPARATION

CONTRACT NO.	HSR15-34
DRAWING NO.	CV-I1607
SCALE	AS SHOWN
SHEET NO.	













TRACK ALIGNMENT DATA SUMMARY TABLE - JM SB TRACK

CURVE	ELEMENT	POINT TYPE	MT3 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	TNGT BEARING/ CHRD DEG. CV. (0°00'00")	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	TANGENT	ST	3222+64.38	1935449.908	6161373.031		610.14							S 31°56'18" E		
	TANGENT	TS	3228+74.52	1934932.130	6161695.799											
	CLOTHOID	TS	3228+74.52	1934932.130	6161695.799										S 31°56'18" E	S 38°28'54" E
	CLOTHOID	SPI	3237+51.24	1934188.134	6162159.586		1314.17	6°32'36"	656.80	12.50						
	CLOTHOID	SC	3241+88.70	1933844.793	6162432.513											
	ARC	SC	3241+88.70	1933844.793	6162432.513											
C419	ARC	PI	3254+96.30	1932821.193	6163246.189	5753.62	2571.53	25°36'28"			110	5.00	3.42	0°59'45"		
	ARC	CC		1937425.071	6166936.490											
	ARC	CS	3267+60.22	1932249.814	6164422.348											
	CLOTHOID	CS	3267+60.22	1932249.814	6164422.348										S 64°05'22" E	S 66°34'45" E
	CLOTHOID	SPI	3269+26.92	1932176.973	6164572.288		500.00	2°29'22"	249.98	1.81						
	CLOTHOID	ST	3272+60.22	1932044.466	6164878.188											
	TANGENT	ST	3272+60.22	1932044.466	6164878.188		4546.78							S 66°34'45" E		
EON	TANGENT	BK	3315+00.00	1930359.224	6168768.648											
EON	TANGENT	AHD	315+00.00	1930359.224	6168768.648									S 66°34'45" E		
	TANGENT	TS	318+07.00	1930237.198	6169050.353											

SAN JOSE TO CVY EIR/S: VOLUME III  
 ALTERNATIVE 4  
 BOOK 4E  
 SHEET 141 OF 176

11/12/2021 12:12:47 PM CAHSR.tbl cvd\_paf\_dw.plt c:\voad\17\p\hntb\_jesyong\46037\_cahsr\dms20204\JM-TT-B4005.dgn

REV	DATE	BY	CHK	APP	DESCRIPTION

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CALIFORNIA High-Speed Rail Authority

CALIFORNIA HIGH-SPEED TRAIN PROJECT  
 SAN JOSE TO MERCED  
 ALTERNATIVE 4  
 BLENDED AT-GRADE  
 MT3 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C419

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B4005
SCALE	NONE
SHEET NO.	











TRACK ALIGNMENT DATA SUMMARY TABLE - JM SB TRACK

Main data table with columns: CURVE, ELEMENT, POINT TYPE, MT3 TRACK STATION, COORDINATES (NORTHING, EASTING), RADIUS (FT), LENGTH (FT), DELTA, Δ, K, P, DESIGN SPEED (MPH), ACTUAL SUPERELEVATION (EA) (IN), UNBALANCED SUPERELEVATION (EU) (IN), TNGT BEARING/ CHRD DEG. CV. (0°00'00"), WCB (0°00'00") (START ANGLE, END ANGLE).

SAN JOSE TO CVY EIR/S: VOLUME III
ALTERNATIVE 4
BOOK 4E
SHEET 146 OF 176

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Revision table with columns: REV, DATE, BY, CHK, APP, DESCRIPTION.

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NOVEMBER 30, 2021
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CALIFORNIA HIGH-SPEED TRAIN PROJECT
SAN JOSE TO MERCED
ALTERNATIVE 4
BLENDED AT-GRADE
MT3 TRACK ALIGNMENT DATA TABLE
CURVE NO. C436 TO C439

CONTRACT NO. HSR15-34
DRAWING NO. TT-B4010
SCALE NONE
SHEET NO.









TRACK ALIGNMENT DATA SUMMARY TABLE - JM SB TRACK

CURVE	ELEMENT	POINT TYPE	MT3 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	TNGT BEARING/ CHRD DEG. CV. (0°00'00")	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	TANGENT	ST	1724+03.21	1820397.393	6252572.655		759.05							S 32°49'01" E		
	TANGENT	TS	1731+62.26	1819759.483	6252984.027											
	CLOTHOID	TS	1731+62.26	1819759.483	6252984.027										S 32°49'01" E	S 33°28'31" E
	CLOTHOID	SPI	1734+12.26	1819549.380	6253119.517		375.00	0°39'30"	187.50	0.36						
	CLOTHOID	SC	1735+37.26	1819445.113	6253188.465											
C452	ARC	SC	1735+37.26	1819445.113	6253188.465											
	ARC	PI	1747+64.54	1818421.412	6253865.405	16316.50	2449.94	8°36'11"			120	2.00	1.54	0°21'04"		
	ARC	CC		1828444.940	6266798.435											
	ARC	CS	1759+87.20	1817510.492	6254687.860											
	CLOTHOID	CS	1759+87.20	1817510.492	6254687.860										S 42°04'42" E	S 42°44'12" E
	CLOTHOID	SPI	1761+12.20	1817417.712	6254771.630		375.00	0°39'30"	187.50	0.36						
	CLOTHOID	ST	1763+62.20	1817234.091	6254941.289											
	TANGENT	ST	1763+62.20	1817234.091	6254941.289		2426.95							S 42°44'12" E		
	TANGENT	TS	1787+89.15	1815451.544	6256588.297											
	CLOTHOID	TS	1787+89.15	1815451.544	6256588.297										S 42°44'12" E	S 45°12'44" E
	CLOTHOID	SPI	1798+55.92	1814668.023	6257312.241		1600.00	2°28'32"	799.95	5.76						
	CLOTHOID	SC	1803+89.15	1814292.233	6257690.826											
C453	ARC	SC	1803+89.15	1814292.233	6257690.826											
	ARC	PI	1845+62.74	1811352.015	6260652.908	18516.50	8209.96	25°24'15"			200	6.00	2.65	0°18'34"		
	ARC	CC		1827433.787	6270735.378											
	ARC	CS	1885+99.11	1809966.841	6264589.924											
	CLOTHOID	CS	1885+99.11	1809966.841	6264589.924										S 70°36'59" E	S 73°05'31" E
	CLOTHOID	SPI	1891+32.54	1809789.802	6265093.116		1600.00	2°28'32"	799.95	5.76						
	CLOTHOID	ST	1901+99.11	1809479.544	6266113.774											
	TANGENT	ST	1901+99.11	1809479.544	6266113.774		2090.54							S 73°05'31" E		
	TANGENT	TS	1922+89.66	1808871.535	6268113.949											
	COSINE	TS	1922+89.66	1808871.535	6268113.949										S 73°05'31" E	S 75°29'04" E
	COSINE	SPI	1933+75.32	1808555.782	6269152.682		1545.00	2°23'33"	772.48	3.06						
	COSINE	SC	1938+34.66	1808440.613	6269597.507											

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 150 OF 176**

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REV	DATE	BY	CHK	APP	DESCRIPTION

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 NOVEMBER 30, 2021  
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**CALIFORNIA**  
 High-Speed Rail Authority

**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 ALTERNATIVE 4  
 BLENDED AT-GRADE  
 MT3 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C452 TO C453

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B4014
SCALE	NONE
SHEET NO.	

TRACK ALIGNMENT DATA SUMMARY TABLE - JM SB TRACK

CURVE	ELEMENT	POINT TYPE	MT3 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	TNGT BEARING/ CHRD DEG. CV. (0°00'00")	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	TANGENT	ST	1724+03.21	1820397.393	6252572.655		759.05							S 32°49'01" E		
	TANGENT	TS	1731+62.26	1819759.483	6252984.027											
	CLOTHOID	TS	1731+62.26	1819759.483	6252984.027										S 32°49'01" E	S 33°28'31" E
	CLOTHOID	SPI	1734+12.26	1819549.380	6253119.517		375.00	0°39'30"	187.50	0.36						
	CLOTHOID	SC	1735+37.26	1819445.113	6253188.465											
C452	ARC	SC	1735+37.26	1819445.113	6253188.465											
	ARC	PI	1747+64.54	1818421.412	6253865.405	16316.50	2449.94	8°36'11"			120	2.00	1.54	0°21'04"		
	ARC	CC		1828444.940	6266798.435											
	ARC	CS	1759+87.20	1817510.492	6254687.860											
	CLOTHOID	CS	1759+87.20	1817510.492	6254687.860										S 42°04'42" E	S 42°44'12" E
	CLOTHOID	SPI	1761+12.20	1817417.712	6254771.630		375.00	0°39'30"	187.50	0.36						
	CLOTHOID	ST	1763+62.20	1817234.091	6254941.289											
	TANGENT	ST	1763+62.20	1817234.091	6254941.289		2426.95							S 42°44'12" E		
	TANGENT	TS	1787+39.69	1815487.874	6256554.729											
	COSINE	TS	1787+39.69	1815487.874	6256554.729										S 42°44'12" E	S 45°22'01" E
	COSINE	SPI	1799+34.29	1814610.465	6257365.423		1700.00	2°37'49"	849.97	3.70						
	COSINE	SC	1804+39.69	1814255.244	6257725.223											
C453A	ARC	SC	1804+39.69	1814255.244	6257725.223											
	ARC	PI	1845+60.77	1811359.926	6260657.867	18516.50	8109.96	25°05'41"			220	7.00	3.46	0°18'34"		
	ARC	CC		1827431.974	6270734.242											
	ARC	CS	1885+49.65	1809981.687	6264541.644											
	COSINE	CS	1885+49.65	1809981.687	6264541.644										S 70°27'42" E	S 73°05'31" E
	COSINE	SPI	1890+55.26	1809812.594	6265018.138		1700.00	2°37'49"	849.97	3.70						
	COSINE	ST	1902+49.65	1809465.158	6266161.099											
	TANGENT	ST	1902+49.65	1809465.158	6266161.099		1963.42							S 73°05'31" E		
	TANGENT	TS	1922+13.07	1808894.120	6268039.649											
	COSINE	TS	1922+13.07	1808894.120	6268039.649										S 73°05'31" E	S 75°43'28" E
	COSINE	SPI	1934+07.68	1808546.685	6269182.610		1700.00	2°37'57"	849.97	3.70						
	COSINE	SC	1939+13.07	1808422.009	6269672.604											

SAN JOSE TO CVY EIR/S: VOLUME III  
 ALTERNATIVE 4  
 BOOK 4E  
 SHEET 151 OF 176

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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>BY</th> <th>CHK</th> <th>APP</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REV	DATE	BY	CHK	APP	DESCRIPTION																			DESIGNED BY DRAWN BY CHECKED BY IN CHARGE DATE	<b>2021 RECORD SET</b>  NOVEMBER 30, 2021  <b>NOT FOR CONSTRUCTION</b>	 1111 Broadway 8th Floor Oakland, CA 94607		<b>CALIFORNIA HIGH-SPEED TRAIN PROJECT</b> <b>SAN JOSE TO MERCED</b> ALTERNATIVE 4 BLENDED AT-GRADE MT3 TRACK ALIGNMENT DATA TABLE CURVE NO. C452 AND C453A - TUNNEL DESIGN VARIANT	CONTRACT NO. HSR15-34 DRAWING NO. TT-B4014A SCALE NONE SHEET NO.
REV	DATE	BY	CHK	APP	DESCRIPTION																									

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CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	COSINE	TS	1736+84.96	1823804.741	6251036.202										S 19°27'33.8" E	S 21°34'56.3" E
	COSINE	SPI	1743+38.46	1823188.574	6251253.906		930	2°07'22.5"	464.99	1.63						
	COSINE	SC	1746+14.96	1822931.387	6251355.642											
C127	ARC	SC	1746+14.96	1822931.387	6251355.642											
	ARC	PI	1766+98.51	1820993.916	6252122.048	12550	4129.42	18°51'09.0"			150	4.75	2.42			
	ARC	CC		1827547.744	6263025.764											
	ARC	CS	1787+44.38	1819408.035	6253473.401											
	COSINE	CS	1787+44.38	1819408.035	6253473.401										S 40°26'05.3" E	S 42°33'27.8" E
	COSINE	SPI	1790+20.96	1819197.520	6253652.784		930	2°07'22.5"	464.99	1.63						
	COSINE	ST	1796+74.38	1818716.157	6254094.765											
	TANGENT	ST	1796+74.38	1818716.157	6254094.765									S 42°33'27.8" E		
	TANGENT	TS	1843+65.65	1815260.587	6257267.620											
	COSINE	TS	1843+65.65	1815260.587	6257267.620										S 42°33'27.8" E	S 44°57'00.7" E
	COSINE	SPI	1854+51.31	1814460.891	6258001.890		1545	2°23'32.9"	772.48	3.06						
	COSINE	SC	1859+10.65	1814135.698	6258326.518											
C128	ARC	SC	1859+10.65	1814135.698	6258326.518											
	ARC	PI	1901+39.08	1811143.147	6261313.872	18500	8314.04	25°44'57.1"			200	5.75	2.90			
	ARC	CC		1827205.799	6271419.358											
	ARC	CS	1942+24.69	1809745.546	6265304.656											
	COSINE	CS	1942+24.69	1809745.546	6265304.656										S 70°41'57.8" E	S 73°05'30.8" E
	COSINE	SPI	1946+84.18	1809593.673	6265738.324		1545	2°23'32.9"	772.48	3.06						
	COSINE	ST	1957+69.69	1809277.920	6266777.057											

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 152 OF 176**

REV	DATE	BY	CHK	APP	DESCRIPTION

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**2021 RECORD SET PEPD**  
NOVEMBER 30, 2021  
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Oakland, CA 94607

**CALIFORNIA**  
High-Speed Rail Authority

**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
MORGAN HILL AND GILROY  
TRACK GUIDEWAY  
B2 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C127 AND C128

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0120
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	COSINE	TS	1736+84.96	1823804.741	6251036.202										S 19°27'33.8" E	S 21°34'56.3" E
	COSINE	SPI	1743+38.46	1823188.574	6251253.906		930	2°07'22.5"	464.99	1.63						
	COSINE	SC	1746+14.96	1822931.387	6251355.642											
	ARC	SC	1746+14.96	1822931.387	6251355.642											
C127	ARC	PI	1766+98.51	1820993.916	6252122.048	12550	4129.42	18°51'09.0"			150	4.75	2.42			
	ARC	CC		1827547.744	6263025.764											
	ARC	CS	1787+44.38	1819408.035	6253473.401											
	COSINE	CS	1787+44.38	1819408.035	6253473.401										S 40°26'05.3" E	S 42°33'27.8" E
	COSINE	SPI	1790+20.96	1819197.520	6253652.784		930	2°07'22.5"	464.99	1.63						
	COSINE	ST	1796+74.38	1818716.157	6254094.765											
	TANGENT	ST	1796+74.38	1818716.157	6254094.765		4613.6							S 42°33'27.8" E		
	TANGENT	TS	1842+87.98	1815317.798	6257215.090											
	COSINE	TS	1842+87.98	1815317.798	6257215.090										S 42°33'27.8" E	S 45°11'24.8" E
	COSINE	SPI	1854+82.58	1814437.859	6258023.038		1700	2°37'57.0"	849.97	3.70						
	COSINE	SC	1859+87.98	1814081.530	6258381.741											
	ARC	SC	1859+87.98	1814081.530	6258381.741											
C128A	ARC	PI	1901+34.94	1811158.936	6261323.805	18500	8159.04	25°16'08.9"			220	7.00	3.46	0°18'34.9"		
	ARC	CC		1827206.363	6271419.714											
	ARC	CS	1941+47.02	1809771.880	6265231.921											
	COSINE	CS	1941+47.02	1809771.880	6265231.921										S 70°27'33.7" E	S 73°05'30.8" E
	COSINE	SPI	1946+52.63	1809602.767	6265708.408		1700	2°37'57.0"	849.97	3.70						
	COSINE	ST	1958+47.02	1809255.331	6266851.369											

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 153 OF 176**

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**CALIFORNIA**  
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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 MORGAN HILL AND GILROY  
 TRACK GUIDEWAY  
 B2 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C127 AND C128A - TUNNEL DESIGN VARIANT

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0120A
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	TANGENT	ST	1957+69.69	1809277.920	6266777.057									S 73°05'30.8" E		
	TANGENT	TS	1971+66.98	1808871.535	6268113.949											
	COSINE	TS	1971+66.98	1808871.535	6268113.949										S 73°05'30.8" E	S 75°29'03.7" E
	COSINE	SPI	1982+52.64	1808555.782	6269152.682		1545	2°23'32.9"	772.48	3.06						
	COSINE	SC	1987+11.98	1808440.613	6269597.507											
C129	ARC	SC	1987+11.98	1808440.613	6269597.507											
	ARC	PI	2026+00.20	1807466.053	6273361.612	18500	7664.87	23°44'19.2"			200	5.75	2.90			
	ARC	CC		1826350.080	6274234.425											
	ARC	CS	2063+76.85	1808089.249	6277199.565											
	COSINE	CS	2063+76.85	1808089.249	6277199.565										N 80°46'37.1" E	N 78°23'04.2" E
	COSINE	SPI	2068+36.34	1808162.895	6277653.116		1545	2°23'32.9"	772.48	3.06						
	COSINE	ST	2079+21.85	1808381.486	6278716.547											
	TANGENT	ST	2079+21.85	1808381.486	6278716.547									N 78°23'04.2" E		
	TANGENT	POE	2160+00.00	1810007.966	6286629.265											

**SAN JOSE TO CVY EIR/S: VOLUME III  
 ALTERNATIVE 4  
 BOOK 4E  
 SHEET 154 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 MORGAN HILL AND GILROY  
 TRACK GUIDEWAY  
 B2 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C129

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0121
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	TANGENT	ST	1958+47.02	1809255.331	6266851.369		1241.97							S 73°05'30.8" E		
	TANGENT	TS	1970+88.99	1808894.120	6268039.649											
	COSINE	TS	1970+88.99	1808894.120	6268039.649										S 73°05'30.8" E	S 75°43'27.8" E
	COSINE	SPI	1982+83.59	1808546.685	6269182.610		1700	2°37'57.0"	849.97	3.70						
	COSINE	SC	1987+88.99	1808422.009	6269672.604											
C129A	ARC	SC	1987+88.99	1808422.009	6269672.604											
	ARC	PI	2025+96.35	1807483.163	6273362.403	18500	7509.87	23°15'31.0"			220	7.00	3.46	0°18'34.9"		
	ARC	CC		1826350.743	6274234.456											
	ARC	CS	2062+98.86	1808077.651	6277123.072											
	COSINE	CS	2062+98.86	1808077.651	6277123.072										N 81°01'01.2" E	N 78°23'04.2" E
	COSINE	SPI	2068+04.46	1808156.597	6277622.477		1700	2°37'57.0"	849.97	3.70						
	COSINE	ST	2079+98.86	1808397.122	6278792.614											
	TANGENT	ST	2079+98.86	1808397.122	6278792.614		8000.49							N 78°23'04.2" E		
	TANGENT	POE	2159+99.35	1810007.966	6286629.265											
			=2160+00.00													

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 155 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT  
SAN JOSE TO MERCED**  
MORGAN HILL AND GILROY  
TRACK GUIDEWAY  
B2 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C129A - TUNNEL DESIGN VARIANT

CONTRACT NO. HSR15-34
DRAWING NO. TT-B0121A
SCALE NONE
SHEET NO.

CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	TANGENT	POB	2160+00.00	1810007.966	6286629.265									N 78°23'04.2" E		
	TANGENT	TS	2182+25.40	1810456.034	6288809.090											
	COSINE	TS	2182+25.40	1810456.034	6288809.090										N 78°23'04.2" E	N 75°49'57.6" E
	COSINE	SPI	2199+82.16	1810809.745	6290529.870		2500	2°33'06.6"	1249.96	5.27						
	COSINE	SC	2207+25.40	1810991.728	6291250.786											
C130	ARC	SC	2207+25.40	1810991.728	6291250.786											
	ARC	PI	2284+49.03	1812882.124	6298739.506	28066	15074.12	30°46'23.9"			200	4.50	1.20			
	ARC	CC		1838204.101	6284381.500											
	ARC	CS	2357+99.52	1818337.898	6304206.594											
	COSINE	CS	2357+99.52	1818337.898	6304206.594										N 45°03'33.6" E	N 42°30'27.0" E
	COSINE	SPI	2365+43.05	1818863.109	6304732.894		2500	2°33'06.6"	1249.96	5.27						
	COSINE	ST	2382+99.52	1820158.170	6305919.911											
	TANGENT	ST	2382+99.52	1820158.170	6305919.911									N 42°30'27.0" E		
	TANGENT	POE	2387+88.85 = 3144+59.57	1820518.898	6306250.545											

SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 156 OF 176

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CONSTRUCTION



**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
MORGAN HILL AND GILROY  
TRACK GUIDEWAY  
B2 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C130

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0122
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	TANGENT	POB	2160+00.00	1810007.966	6286629.265									N 78°23'04.2" E		
	TANGENT	TS	2182+25.40	1810456.034	6288809.090											
	COSINE	TS	2182+25.40	1810456.034	6288809.090										N 78°23'04.2" E	N 75°49'57.6" E
	COSINE	SPI	2199+82.16	1810809.745	6290529.870		2500	2°33'06.6"	1249.96	5.27						
	COSINE	SC	2207+25.40	1810991.728	6291250.786											
C130A	ARC	SC	2207+25.40	1810991.728	6291250.786											
	ARC	PI	2284+49.03	1812882.124	6298739.506	28066	15074.12	30°46'23.9"			220	5.00	1.90			
	ARC	CC		1838204.101	6284381.500											
	ARC	CS	2357+99.52	1818337.898	6304206.594											
	COSINE	CS	2357+99.52	1818337.898	6304206.594										N 45°03'33.6" E	N 42°30'27.0" E
	COSINE	SPI	2365+43.05	1818863.109	6304732.894		2500	2°33'06.6"	1249.96	5.27						
	COSINE	ST	2382+99.52	1820158.170	6305919.911											
	TANGENT	ST	2382+99.52	1820158.170	6305919.911									N 42°30'27.0" E		
	TANGENT	POE	2387+88.85 = 3144+59.57	1820518.898	6306250.545											

NOTE: DESIGN VARIANT CURVE C130A CHANGES DESIGN SPEED AND SUPERELEVATION ONLY FOR CURVE C130, NO ALIGNMENT CHANGES - REFER TO BASE DESIGN COMPOSITE PLAN SHEETS FOR ALIGNMENT GEOMETRY AND LOCATION.

SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 157 OF 176

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**CALIFORNIA High-Speed Rail Authority**

**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
MORGAN HILL AND GILROY  
TRACK GUIDEWAY  
B2 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C130A - TUNNEL DESIGN VARIANT

CONTRACT NO. HSR15-34
DRAWING NO. TT-B0122A
SCALE NONE
SHEET NO.



CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Tangent	POB	2387+88.85 = 3144+59.57	1820518.898	6306250.545									N 42°30'27.0" E		
	Tangent	TS	3148+52.15	1820808.304	6306515.806											
	Cosine	TS	3148+52.15	1820808.304	6306515.806										N 42°30'27.0" E	N 45°03'55.3" E
	Cosine	SPI	3166+08.91	1822103.366	6307702.824		2500	2°33'28.3"	1249.96	5.29						
	Cosine	SC	3173+52.15	1822628.522	6308229.180											
C131	Arc	SC	3173+52.15	1822628.522	6308229.180											
	Arc	PI	3209+88.88	1825197.141	6310803.666	28000	7232.96	14°48'02.3"			200	3.00	2.71			
	Arc	CC		1802806.960	6328005.572											
	Arc	CS	3245+85.11	1827022.865	6313948.902											
	Cosine	CS	3245+85.11	1827022.865	6313948.902										N 59°51'57.6" E	N 62°25'25.9" E
	Cosine	SPI	3253+28.64	1827396.136	6314591.948		2500	2°33'28.3"	1249.96	5.29						
	Cosine	ST	3270+85.11	1828209.386	6316149.132											
	Tangent	ST	3270+85.11	1828209.386	6316149.132									N 62°25'25.9" E		
	Tangent	TS	3473+31.90	1837582.173	6334095.815											

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 158 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 PACHECO PASS  
 TRACK GUIDEWAY  
 B2 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C131

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0123
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Tangent	POB	2387+88.85 = 3144+59.57	1820518.898	6306250.545									N 42°30'27.0" E		
	Tangent	TS	3148+52.15	1820808.304	6306515.806											
	Cosine	TS	3148+52.15	1820808.304	6306515.806										N 42°30'27.0" E	N 45°03'55.3" E
	Cosine	SPI	3166+08.91	1822103.366	6307702.824		2500	2°33'28.3"	1249.96	5.29						
	Cosine	SC	3173+52.15	1822628.522	6308229.180											
C131A	Arc	SC	3173+52.15	1822628.522	6308229.180											
	Arc	PI	3209+88.88	1825197.141	6310803.666	28000	7232.96	14°48'02.3"			220	5.00	1.91			
	Arc	CC		1802806.960	6328005.572											
	Arc	CS	3245+85.11	1827022.865	6313948.902											
	Cosine	CS	3245+85.11	1827022.865	6313948.902										N 59°51'57.6" E	N 62°25'25.9" E
	Cosine	SPI	3253+28.64	1827396.136	6314591.948		2500	2°33'28.3"	1249.96	5.29						
	Cosine	ST	3270+85.11	1828209.386	6316149.132											
	Tangent	ST	3270+85.11	1828209.386	6316149.132									N 62°25'25.9" E		
	Tangent	TS	3473+31.90	1837582.173	6334095.815											

NOTE: DESIGN VARIANT CURVE C131A CHANGES DESIGN SPEED AND SUPERELEVATION ONLY FOR CURVE C131, NO ALIGNMENT CHANGES - REFER TO BASE DESIGN COMPOSITE PLAN SHEETS FOR ALIGNMENT GEOMETRY AND LOCATION.

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 159 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**

**SAN JOSE TO MERCED**

PACHECO PASS  
TRACK GUIDEWAY

B2 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C131A - TUNNEL DESIGN VARIANT

CONTRACT NO. HSR15-34
DRAWING NO. TT-B0123A
SCALE NONE
SHEET NO. 

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CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Cosine	TS	3473+31.90	1837582.173	6334095.815										N 62°25'25.9" E	N 62°09'43.8" E
	Cosine	SPI	3481+75.07	1837972.500	6334843.199		1200	0°15'42.1"	600	0.26						
	Cosine	SC	3485+31.90	1838139.129	6335158.734											
C132	Arc	SC	3485+31.90	1838139.129	6335158.734											
	Arc	PI	3493+91.00	1838540.304	6335918.414	131366	1718.18	0°44'57.8"			200	0.00	1.22			
	Arc	CC		1954302.509	6273814.663											
	Arc	CS	3502+50.08	1838951.381	6336672.783											
	Cosine	CS	3502+50.08	1838951.381	6336672.783										N 61°24'46.0" E	N 61°09'03.9" E
	Cosine	SPI	3506+06.91	1839122.123	6336986.111		1200	0°15'42.1"	600	0.26						
	Cosine	ST	3514+50.08	1839528.955	6337724.642											
	Tangent	ST	3514+50.08	1839528.955	6337724.642									N 61°09'03.9" E		
	Tangent	TS	3599+46.45	1843628.466	6345166.567											
	Cosine	TS	3599+46.45	1843628.466	6345166.567										N 61°09'03.9" E	N 58°48'44.9" E
	Cosine	SPI	3613+51.83	1844306.567	6346397.537		2000	2°20'19.0"	999.98	3.87						
	Cosine	SC	3619+46.45	1844614.582	6346906.381											
C133	Arc	SC	3619+46.45	1844614.582	6346906.381											
	Arc	PI	3660+91.36	1846760.988	6350452.261	24500	8212.07	19°12'17.2"			200	5.50	1.03			
	Arc	CC		1865573.770	6334219.284											
	Arc	CS	3701+58.51	1849954.345	6353094.759											
	Cosine	CS	3701+58.51	1849954.345	6353094.759										N 39°36'27.7" E	N 37°16'08.8" E
	Cosine	SPI	3707+53.32	1850412.601	6353473.965		2000	2°20'19.0"	999.98	3.87						
	Cosine	ST	3721+58.51	1851531.007	6354325.009											
	Tangent	ST	3721+58.51	1851531.007	6354325.009									N 37°16'08.8" E		
	Tangent	TS	3796+87.11	1857522.263	6358884.019											

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 160 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 PACHECO PASS  
 TRACK GUIDEWAY  
 B2 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C132 AND C133

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0124
SCALE	NONE
SHEET NO.	

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CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Cosine	TS	3473+31.90	1837582.173	6334095.815										N 62°25'25.9" E	N 62°09'43.8" E
	Cosine	SPI	3481+75.07	1837972.500	6334843.199		1200	0°15'42.1"	600	0.26						
	Cosine	SC	3485+31.90	1838139.129	6335158.734											
C132A	Arc	SC	3485+31.90	1838139.129	6335158.734											
	Arc	PI	3493+91.00	1838540.304	6335918.414	131366	1718.18	0°44'57.8"			220	0.00	1.47			
	Arc	CC		1954302.509	6273814.663											
	Arc	CS	3502+50.08	1838951.381	6336672.783											
	Cosine	CS	3502+50.08	1838951.381	6336672.783										N 61°24'46.0" E	N 61°09'03.9" E
	Cosine	SPI	3506+06.91	1839122.123	6336986.111		1200	0°15'42.1"	600	0.26						
	Cosine	ST	3514+50.08	1839528.955	6337724.642											
	Tangent	ST	3514+50.08	1839528.955	6337724.642									N 61°09'03.9" E		
	Tangent	TS	3599+16.15	1813628.166	6315166.567											
	Cosine	TS	3599+46.45	1843628.466	6345166.567										N 61°09'03.9" E	N 58°48'44.9" E
	Cosine	SPI	3613+51.83	1844306.567	6346397.537		2000	2°20'19.0"	999.98	3.87						
	Cosine	SC	3619+46.45	1844614.582	6346906.381											
C133A	Arc	SC	3619+46.45	1844614.582	6346906.381											
	Arc	PI	3660+91.36	1846760.988	6350452.261	24500	8212.07	19°12'17.2"			220	5.50	2.40			
	Arc	CC		1865573.770	6334219.284											
	Arc	CS	3701+58.51	1849954.345	6353094.759											
	Cosine	CS	3701+58.51	1849954.345	6353094.759										N 39°36'27.7" E	N 37°16'08.8" E
	Cosine	SPI	3707+53.32	1850412.601	6353473.965		2000	2°20'19.0"	999.98	3.87						
	Cosine	ST	3721+58.51	1851531.007	6354325.009											
	Tangent	ST	3721+58.51	1851531.007	6354325.009									N 37°16'08.8" E		
	Tangent	TS	3796+87.11	1857522.263	6358884.019											

NOTE: DESIGN VARIANT CURVES C132A, C133A CHANGES DESIGN SPEED AND SUPERELEVATION ONLY FOR CURVES C132, C133, NO ALIGNMENT CHANGES - REFER TO BASE DESIGN COMPOSITE PLAN SHEETS FOR ALIGNMENT GEOMETRY AND LOCATION.

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 161 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 PACHECO PASS  
 TRACK GUIDEWAY  
 B2 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C132A AND C133A - TUNNEL DESIGN VARIANT

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0124A
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Cosine	TS	3796+87.11	1857522.263	6358884.019										N 37°16'08.8" E	N 40°59'45.3" E
	Cosine	SPI	3816+98.44	1859122.880	6360101.999		2862	3°43'36.6"	1430.91	8.82						
	Cosine	SC	3825+49.11	1859765.459	6360660.504											
C134	Arc	SC	3825+49.11	1859765.459	6360660.504											
	Arc	PI	3880+36.23	1863906.901	6364260.087	22000	10754.82	28°00'33.7"			200	6.00	1.27			
	Arc	CC		1845333.340	6377265.140											
	Arc	CS	3933+03.92	1865872.838	6369382.942											
	Cosine	CS	3933+03.92	1865872.838	6369382.942										N 69°00'19" E	N 72°43'55.6" E
	Cosine	SPI	3941+55.29	1866177.869	6370177.795		2862	3°43'36.6"	1430.91	8.82						
	Cosine	ST	3961+65.92	1866774.911	6372098.469											
	Tangent	ST	3961+65.92	1866774.911	6372098.469									N 72°43'55.6" E		
	Tangent	TS	4047+25.00	1869315.585	6380271.771											
	Cosine	TS	4047+25.00	1869315.585	6380271.771										N 72°43'55.6" E	N 73°28'41.4" E
	Cosine	SPI	4056+03.31	1869576.302	6381110.493		1250	0°44'45.7"	625	0.77						
	Cosine	SC	4059+75.00	1869682.008	6381466.848											
C135	Arc	SC	4059+75.00	1869682.008	6381466.848											
	Arc	PI	4066+40.04	1869871.133	6382104.431	48000	1330	1°35'15.2"			250	3.50	1.71			
	Arc	CC		1823663.860	6395117.127											
	Arc	CS	4073+05.00	1870042.521	6382747.009											
	Cosine	CS	4073+05.00	1870042.521	6382747.009										N 75°03'56.6" E	N 75°48'42.4" E
	Cosine	SPI	4076+76.70	1870138.313	6383106.156		1250	0°44'45.7"	625	0.77						
	Cosine	ST	4085+55.00	1870353.594	6383957.674											

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 162 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 PACHECO PASS  
 TRACK GUIDEWAY  
 B2 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C134 AND C135

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0125
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Cosine	TS	3796+87.11	1857522.263	6358884.019										N 37°16'08.8" E	N 40°59'45.3" E
	Cosine	SPI	3816+98.44	1859122.880	6360101.999		2862	3°43'36.6"	1430.91	8.82						
	Cosine	SC	3825+49.11	1859765.459	6360660.504											
C134A	Arc	SC	3825+49.11	1859765.459	6360660.504											
	Arc	PI	3880+36.23	1863906.901	6364260.087	22000	10754.82	28°00'33.7"			220	6.00	2.80			
	Arc	CC		1845333.340	6377265.140											
	Arc	CS	3933+03.92	1865872.838	6369382.942											
	Cosine	CS	3933+03.92	1865872.838	6369382.942										N 69°00'19" E	N 72°43'55.6" E
	Cosine	SPI	3941+55.29	1866177.869	6370177.795		2862	3°43'36.6"	1430.91	8.82						
	Cosine	ST	3961+65.92	1866774.911	6372098.469											
	Tangent	ST	3961+65.92	1866774.911	6372098.469									N 72°43'55.6" F		
	Tangent	TS	4047+25.00	1869315.585	6380271.771											
	Cosine	TS	4047+25.00	1869315.585	6380271.771										N 72°43'55.6" E	N 73°28'41.4" E
	Cosine	SPI	4056+03.31	1869576.302	6381110.493		1250	0°44'45.7"	625	0.77						
	Cosine	SC	4059+75.00	1869682.008	6381466.848											
C135	Arc	SC	4059+75.00	1869682.008	6381466.848											
	Arc	PI	4066+40.04	1869871.133	6382104.431	48000	1330	1°35'15.2"			250	3.50	1.71			
	Arc	CC		1823663.860	6395117.127											
	Arc	CS	4073+05.00	1870042.521	6382747.009											
	Cosine	CS	4073+05.00	1870042.521	6382747.009										N 75°03'56.6" E	N 75°48'42.4" E
	Cosine	SPI	4076+76.70	1870138.313	6383106.156		1250	0°44'45.7"	625	0.77						
	Cosine	ST	4085+55.00	1870353.594	6383957.674											

NOTE: DESIGN VARIANT CURVE C134A CHANGES DESIGN SPEED AND SUPERELEVATION ONLY FOR CURVE C134, NO ALIGNMENT CHANGES - REFER TO BASE DESIGN COMPOSITE PLAN SHEETS FOR ALIGNMENT GEOMETRY AND LOCATION.

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 163 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
PACHECO PASS  
TRACK GUIDEWAY  
B2 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C134A AND C135 - TUNNEL DESIGN VARIANT

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0125A
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Tangent	ST	4085+55.00	1870353.594	6383957.674									N 75°48'42.4" E		
	Tangent	TS	4098+14.81	1870662.385	6385179.059											
	Cosine	TS	4098+14.81	1870662.385	6385179.059										N 75°48'42.4" E	N 77°01'45.5" E
	Cosine	SPI	4110+09.33	1870955.170	6386337.137		1700	1°13'03.1"	849.99	1.71						
	Cosine	SC	4115+14.81	1871068.638	6386829.767											
C136	Arc	SC	4115+14.81	1871068.638	6386829.767											
	Arc	PI	4233+20.38	1873718.430	6398334.115	40000	22959.31	32°53'12.4"			250	4.00	2.25			
	Arc	CC		1832089.239	6395807.876											
	Arc	CS	4344+74.12	1869696.938	6409433.621											
	Cosine	CS	4344+74.12	1869696.938	6409433.621										S 70°05'02.1" E	S 68°51'58.9" E
	Cosine	SPI	4349+79.65	1869524.733	6409908.916		1700	1°13'03.1"	849.99	1.71						
	Cosine	ST	4361+74.12	1869094.057	6411023.091											
	Tangent	ST	4361+74.12	1869094.057	6411023.091									S 68°51'58.9" E		
	Tangent	POE	4432+13.18 =4410+00.00	1866556.165	6417588.715											

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 164 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 PACHECO PASS  
 TRACK GUIDEWAY  
 B2 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C136

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0126
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	TANGENT	POB	4426+12.16 = 4410+00.00	1866556.165	6417588.715									S 68°51'58.9" E		
	TANGENT	TS	4522+81.61	1862488.645	6428111.548											
	COSINE	TS	4522+81.61	1862488.645	6428111.548										S 68°51'58.9" E	S 69°52'35.0" E
	COSINE	SPI	4534+40.99	1862070.639	6429192.946		1650	1°00'36"	825	1.38						
	COSINE	SC	4539+31.61	1861901.831	6429653.647											
C137	ARC	SC	4539+31.61	1861901.831	6429653.647											
	ARC	PI	4615+71.14	1859273.478	6436826.800	46800	15145.47	18°32'32"			250	4.00	1.34			
	ARC	CC		1905844.811	6445755.027											
	ARC	CS	4690+77.08	1859062.638	6444463.416											
	COSINE	CS	4690+77.08	1859062.638	6446113.202										S 88°25'06.7" E	S 89°25'42.8" E
	COSINE	SPI	4695+67.73	1859049.097	6444953.884		1650	1°00'36"	825	1.38						
	COSINE	ST	4707+27.08	1859037.534	6446113.202											
	TANGENT	ST	4707+27.08	1859037.534	6446113.200									S 89°25'42.8" E		
	TANGENT	TS	4816+47.36	1858928.618	6457032.942											

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 165 OF 176**

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High-Speed Rail Authority

**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 SAN JOAQUIN VALLEY  
 TRACK GUIDEWAY  
 B2 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C137

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0127
SCALE	NONE
SHEET NO.	



CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	COSINE	TS	4816+47.36	1858928.618	6457032.942										S 89°25'42.8" E	S 89°21'23.5" E
	COSINE	SPI	4822+65.69	1858922.451	6457651.237		880	0°04'19"	440	0.05						
	COSINE	SC	4825+27.36	1858919.513	6457912.895											
C138	ARC	SC	4825+27.36	1858919.513	6457912.895											
	ARC	PI	4831+20.89	1858912.847	6458506.388	350000	1187.06	0°11'40"			250	0.00	0.71			
	ARC	CC		1508941.586	6453982.139											
	ARC	CS	4837+14.42	1858904.168	6459099.854											
	COSINE	CS	4837+14.42	1858904.168	6459099.854										S 89°09'43.9" E	S 89°05'24.6" E
	COSINE	SPI	4839+76.09	1858900.342	6459361.500		880	0°04'19"	440	0.05						
	COSINE	ST	4845+94.42	1858890.524	6459979.748											
	TANGENT	ST	4845+94.42	1858890.524	6459979.748									S 89°05'24.6" E		
	TANGENT	TS	4977+06.47	1858682.317	6473090.146											
	COSINE	TS	4977+06.47	1858682.317	6473090.146										S 89°05'24.6" E	S 89°01'12.5" E
	COSINE	SPI	4983+24.80	1858672.498	6473708.394		880	0°04'12"	440	0.05						
	COSINE	SC	4985+86.47	1858668.023	6473970.030											
C139	ARC	SC	4985+86.47	1858668.023	6473970.030											
	ARC	PI	4990+27.67	1858660.478	6474411.165	360000	882.4	0°08'26"			250	0.00	0.69			
	ARC	CC		1498720.668	6467813.635											
	ARC	CS	4994+68.87	1858651.852	6474852.281											
	COSINE	CS	4994+68.87	1858651.852	6474852.281										S 88°52'46.9" E	S 88°48'34.8" E
	COSINE	SPI	4997+30.55	1858646.736	6475113.906		880	0°04'12"	440	0.05						
	COSINE	ST	5003+48.87	1858633.891	6475732.098											

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 166 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
SAN JOAQUIN VALLEY  
TRACK GUIDEWAY  
B2 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C138 AND C139

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0128
SCALE	NONE
SHEET NO.	

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CURVE	ELEMENT	POINT TYPE	B2 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	TANGENT	ST	5003+48.87	1858633.891	6475732.098									S 88°48'34.8" E		
	TANGENT	TS	5253+61.39	1858114.287	6500739.223											
	COSINE	TS	5253+61.39	1858114.287	6500739.223										S 88°48'34.8" E	S 89°02'41.9" E
	COSINE	SPI	5261+69.43	1858097.501	6501547.089		1150	0°14'07"	575	0.22						
	COSINE	SC	5265+11.39	1858091.801	6501889.002											
C140	ARC	SC	5265+11.39	1858091.801	6501889.002											
	ARC	PI	5271+05.93	1858081.892	6502483.461	140000	1189.07	0°29'12"			250	0.75	1.04			
	ARC	CC		1998072.354	6504222.431											
	ARC	CS	5277+00.47	1858077.032	6503077.982											
	COSINE	CS	5277+00.47	1858077.032	6503077.982										S 89°31'53.8" E	S 89°46'01.0" E
	COSINE	SPI	5280+42.43	1858074.236	6503419.932		1150	0°14'07"	575	0.22						
	COSINE	ST	5288+50.47	1858070.949	6504227.965											
	TANGENT	ST	5288+50.47	1858070.949	6504227.965									S 89°46'01.0" E		
	TANGENT	POE	5337+28.93	1858051.106	6509106.386											

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 167 OF 176**

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 DATE

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 SAN JOAQUIN VALLEY  
 TRACK GUIDEWAY  
 B2 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C140

CONTRACT NO.  
 HSR15-34  
 DRAWING NO.  
 TT-B0129  
 SCALE  
 NONE  
 SHEET NO.

CURVE	ELEMENT	POINT TYPE	B1 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	TANGENT	POB	2159+87.24	1810024.197	6286625.928									N 78°23'03.1" E		
	TANGENT	TS	2176+93.64	1810367.778	6288297.384											
	COSINE	TS	2176+93.64	1810367.778	6288297.384										N 78°23'03.1" E	N 76°03'04.7" E
	COSINE	SPI	2194+50.38	1810721.493	6290018.137		2500	2°19'58.4"	1249.97	4.82						
	COSINE	SC	2201+93.64	1810900.718	6290739.721											
	ARC	SC	2201+93.64	1810900.718	6290739.721											
	ARC	PI	2222+48.39	1811396.022	6292733.882	30700	4103.38	7°39'29.5"			200	4.00	1.21			
	ARC	CC		1840695.435	6283339.395											
	ARC	CS	2242+97.02	1812152.655	6294644.250											
	COMPOUND COSINE	CS	2242+97.02	1812152.655	6294644.250										N 68°23'35.2" E	N 66°02'44.0" E
C230	COMPOUND COSINE	SPI	2249+08.29	1812377.747	6295212.566		1200	2°20'51.2"	52.76	0.11						
	COMPOUND COSINE	SC	2254+97.02	1812616.846	6295750.742											
	ARC	SC	2254+97.02	1812616.846	6295750.742											
	ARC	PI	2306+81.51	1814721.801	6300488.684	28000	10252.86	20°58'48.7"			200	4.00	1.71			
	ARC	CC		1838205.166	6284382.460											
	ARC	CS	2357+49.88	1818383.604	6304158.851											
	COSINE	CS	2357+49.88	1818383.604	6304158.851										N 45°03'55.3" E	N 42°30'27.0" E
	COSINE	SPI	2364+93.41	1818908.760	6304685.207		2500	2°33'28.3"	1249.96	5.29						
	COSINE	ST	2382+49.88	1820203.822	6305872.225											

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 168 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 MORGAN HILL AND GILROY  
 TRACK GUIDEWAY  
 B1 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C230

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0130
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B1 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	TANGENT	POB	2159+87.24	1810024.197	6286625.928									N 78°23'03.1" E		
	TANGENT	TS	2176+93.64	1810367.778	6288297.384											
	COSINE	TS	2176+93.64	1810367.778	6288297.384										N 78°23'03.1" E	N 76°03'04.7" E
	COSINE	SPI	2194+50.38	1810721.493	6290018.137		2500	2°19'58.4"	1249.97	4.82						
	COSINE	SC	2201+93.64	1810900.718	6290739.721											
	ARC	SC	2201+93.64	1810900.718	6290739.721											
	ARC	PI	2222+48.39	1811396.022	6292733.882	30700	4103.38	7°39'29.5"			220	4.00	2.31			
	ARC	CC		1840695.435	6283339.395											
	ARC	CS	2242+97.02	1812152.655	6294644.250											
	COMPOUND COSINE	CS	2242+97.02	1812152.655	6294644.250										N 68°23'35.2" E	N 66°02'44.0" E
C230A	COMPOUND COSINE	SPI	2249+08.29	1812377.747	6295212.566		1200	2°20'51.2"	52.76	0.11						
	COMPOUND COSINE	SC	2254+97.02	1812616.846	6295750.742											
	ARC	SC	2254+97.02	1812616.846	6295750.742											
	ARC	PI	2306+81.51	1814721.801	6300488.684	28000	10252.86	20°58'48.7"			220	4.00	2.91			
	ARC	CC		1838205.166	6284382.460											
	ARC	CS	2357+49.88	1818383.604	6304158.851											
	COSINE	CS	2357+49.88	1818383.604	6304158.851										N 45°03'55.3" E	N 42°30'27.0" E
	COSINE	SPI	2364+93.41	1818908.760	6304685.207		2500	2°33'28.3"	1249.96	5.29						
	COSINE	ST	2382+49.88	1820203.822	6305872.225											

NOTE: DESIGN VARIANT CURVE C230A CHANGES DESIGN SPEED AND SUPERELEVATION ONLY FOR CURVE C230, NO ALIGNMENT CHANGES - REFER TO BASE DESIGN COMPOSITE PLAN SHEETS FOR ALIGNMENT GEOMETRY AND LOCATION.

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 169 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT  
SAN JOSE TO MERCED  
MORGAN HILL AND GILROY  
TRACK GUIDEWAY  
B1 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C230A - TUNNEL DESIGN VARIANT**

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0130A
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B1 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Tangent	POB	2387+88.85 = 3144+59.57	1820563.494	6306201.890									N 42°30'27.0" E		
	Tangent	TS	3155+25.93	1821349.600	6306922.413											
	Cosine	TS	3155+25.93	1821349.600	6306922.413										N 42°30'27.0" E	N 44°13'38.9" E
	Cosine	SPI	3166+50.20	1822178.400	6307682.069		1600	1°43'11.8"	799.99	2.27						
	Cosine	SC	3171+25.93	1822519.356	6308013.952											
	Arc	SC	3171+25.93	1822519.356	6308013.952											
C231	Arc	PI	3207+71.14	1825131.428	6310556.517	26650	7245.46	15°34'38.2"			200	3.50	2.50			
	Arc	CC		1803930.752	6327110.713											
	Arc	CS	3243+71.38	1826964.781	6313707.132											
	Cosine	CS	3243+71.38	1826964.781	6313707.132										N 59°48'17.0" E	N 61°31'28.8" E
	Cosine	SPI	3248+47.19	1827204.090	6314118.384		1600	1°43'11.8"	799.99	2.27						
	Cosine	ST	3259+71.38	1827740.121	6315106.644											
	Tangent	ST	3259+71.38	1827740.121	6315106.644									N 61°31'28.8" E		
	Tangent	TS	3288+23.11	1829099.770	6317613.380											
	Cosine	TS	3288+23.11	1829099.770	6317613.380										N 61°31'28.8" E	N 61°45'32.6" E
	Cosine	SPI	3294+55.49	1829401.275	6318169.256		900	0°14'03.8"	450	0.17						
	Cosine	SC	3297+23.11	1829527.909	6318405.021											
	Arc	SC	3297+23.11	1829527.909	6318405.021											
C231A	Arc	PI	3301+36.26	1829723.404	6318768.994	110000	826.3	0°25'49.4"			200	0.00	1.45			
	Arc	CC		1732621.688	6370454.847											
	Arc	CS	3305+49.41	1829916.160	6319134.425											
	Cosine	CS	3305+49.41	1829916.160	6319134.425										N 62°11'22.1" E	N 62°25'25.9" E
	Cosine	SPI	3308+17.03	1830041.019	6319371.135		900	0°14'03.8"	450	0.17						
	Cosine	ST	3314+49.41	1830333.764	6319931.674											

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 170 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
MORGAN HILL AND GILROY  
TRACK GUIDEWAY  
B1 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C231 AND C231A

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0131
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B1 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Tangent	POB	2387+88.85 = 3144+59.57	1820563.494	6306201.890									N 42°30'27.0" E		
	Tangent	TS	3155+25.93	1821349.600	6306922.413											
	Cosine	TS	3155+25.93	1821349.600	6306922.413										N 42°30'27.0" E	N 44°13'38.9" E
	Cosine	SPI	3166+50.20	1822178.400	6307682.069		1600	1°43'11.8"	799.99	2.27						
	Cosine	SC	3171+25.93	1822519.356	6308013.952											
	Arc	SC	3171+25.93	1822519.356	6308013.952											
C231B	Arc	PI	3207+71.14	1825131.428	6310556.517	26650	7245.46	15°34'38.2"			220	5.00	2.26			
	Arc	CC		1803930.752	6327110.713											
	Arc	CS	3243+71.38	1826964.781	6313707.132											
	Cosine	CS	3243+71.38	1826964.781	6313707.132										N 59°48'17.0" E	N 61°31'28.8" E
	Cosine	SPI	3248+47.19	1827204.090	6314118.384		1600	1°43'11.8"	799.99	2.27						
	Cosine	ST	3259+71.38	1827740.121	6315106.644											
	Tangent	ST	3259+71.38	1827740.121	6315106.644									N 61°31'28.8" E		
	Tangent	TS	3288+23.11	1829099.770	6317613.380											
	Cosine	TS	3288+23.11	1829099.770	6317613.380										N 61°31'28.8" E	N 61°45'32.6" E
	Cosine	SPI	3294+55.49	1829401.275	6318169.256		900	0°14'03.8"	450	0.17						
	Cosine	SC	3297+23.11	1829527.909	6318405.021											
	Arc	SC	3297+23.11	1829527.909	6318405.021											
C231C	Arc	PI	3301+36.26	1829723.404	6318768.994	110000	826.3	0°25'49.4"			220	0.00	1.76			
	Arc	CC		1732621.688	6370454.847											
	Arc	CS	3305+49.41	1829916.160	6319134.425											
	Cosine	CS	3305+49.41	1829916.160	6319134.425										N 62°11'22.1" E	N 62°25'25.9" E
	Cosine	SPI	3308+17.03	1830041.019	6319371.135		900	0°14'03.8"	450	0.17						
	Cosine	ST	3314+49.41	1830333.764	6319931.674											

NOTE: DESIGN VARIANT CURVES C231B, C231C CHANGES DESIGN SPEED AND SUPERELEVATION ONLY FOR CURVES C231, C231A, NO ALIGNMENT CHANGES - REFER TO BASE DESIGN COMPOSITE PLAN SHEETS FOR ALIGNMENT GEOMETRY AND LOCATION.

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 171 OF 176**

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**NOT FOR CONSTRUCTION**



**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
MORGAN HILL AND GILROY  
TRACK GUIDEWAY  
B1 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C231B AND C231C - TUNNEL DESIGN VARIANT

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0131A
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B1 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Tangent	ST	3314+49.41	1830333.764	6319931.674									N 62°25'25.9" E		
	Tangent	TS	3473+59.21	1837698.838	6334034.058											
	Cosine	TS	3473+59.21	1837698.838	6334034.058										N 62°25'25.9" E	N 62°09'43.3" E
	Cosine	SPI	3482+02.38	1838089.165	6334781.443		1200	0°15'42.6"	600	0.26						
	Cosine	SC	3485+59.21	1838255.794	6335096.977											
	Arc	SC	3485+59.21	1838255.794	6335096.977											
C232	Arc	PI	3494+17.58	1838656.629	6335856.009	131300	1716.71	0°44'56.9"			200	0.00	1.22			
	Arc	CC		1954360.672	6273783.460											
	Arc	CS	3502+75.92	1839067.354	6336609.735											
	Cosine	CS	3502+75.92	1839067.354	6336609.735										N 61°24'46.5" E	N 61°09'03.9" E
	Cosine	SPI	3506+32.75	1839238.094	6336923.063		1200	0°15'42.6"	600	0.26						
	Cosine	ST	3514+75.92	1839644.926	6337661.593											
	Tangent	ST	3514+75.92	1839644.926	6337661.593									N 61°09'03.9" E		
	Tangent	TS	3599+57.59	1843737.348	6345090.649											
	Cosine	TS	3599+57.59	1843737.348	6345090.649										N 61°09'03.9" E	N 58°48'22.2" E
	Cosine	SPI	3613+62.98	1844415.449	6346321.620		2000	2°20'41.7"	999.98	3.88						
	Cosine	SC	3619+57.59	1844723.521	6346830.431											
	Arc	SC	3619+57.59	1844723.521	6346830.431											
C233	Arc	PI	3660+88.57	1846863.100	6350364.152	24434	8184.56	19°11'31.7"			200	5.50	1.05			
	Arc	CC		1865624.853	6334175.206											
	Arc	CS	3701+42.15	1850045.429	6352998.115											
	Cosine	CS	3701+42.15	1850045.429	6352998.115										N 39°36'50.5" E	N 37°16'08.8" E
	Cosine	SPI	3707+36.96	1850503.643	6353377.372		2000	2°20'41.7"	999.98	3.88						
	Cosine	ST	3721+42.15	1851622.050	6354228.417											
	Tangent	ST	3721+42.15	1851622.050	6354228.417									N 37°16'08.8" E		
	Tangent	TS	3796+77.89	1857618.997	6358791.757											

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 172 OF 176**

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 1111 Broadway  
 9th Floor  
 Oakland, CA 94607


**CALIFORNIA**  
 High-Speed Rail Authority

**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 PACHECO PASS  
 TRACK GUIDEWAY  
 B1 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C232 AND C233

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0132
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B1 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Tangent	ST	3314+49.41	1830333.764	6319931.674									N 62°25'25.9" E		
	Tangent	TS	3473+59.21	1837698.838	6334034.058											
	Cosine	TS	3473+59.21	1837698.838	6334034.058										N 62°25'25.9" E	N 62°09'43.3" E
	Cosine	SPI	3482+02.38	1838089.165	6334781.443		1200	0°15'42.6"	600	0.26						
	Cosine	SC	3485+59.21	1838255.794	6335096.977											
	Arc	SC	3485+59.21	1838255.794	6335096.977											
C232A	Arc	PI	3494+17.58	1838656.629	6335856.009	131300	1716.71	0°44'56.9"			220	0.00	1.47			
	Arc	CC		1954360.672	6273783.460											
	Arc	CS	3502+75.92	1839067.354	6336609.735											
	Cosine	CS	3502+75.92	1839067.354	6336609.735										N 61°24'46.5" E	N 61°09'03.9" E
	Cosine	SPI	3506+32.75	1839238.094	6336923.063		1200	0°15'42.6"	600	0.26						
	Cosine	ST	3514+75.92	1839644.926	6337661.593											
	Tangent	ST	3514+75.92	1839644.926	6337661.593									N 61°09'03.9" E		
	Tangent	TS	3599+57.59	1843737.348	6345090.649											
	Cosine	TS	3599+57.59	1843737.348	6345090.649										N 61°09'03.9" E	N 58°48'22.2" E
	Cosine	SPI	3613+62.98	1844415.449	6346321.620		2000	2°20'41.7"	999.98	3.88						
	Cosine	SC	3619+57.59	1844723.521	6346830.431											
	Arc	SC	3619+57.59	1844723.521	6346830.431											
C233A	Arc	PI	3660+88.57	1846863.100	6350364.152	24434	8184.56	19°11'31.7"			220	5.50	2.42			
	Arc	CC		1865624.853	6334175.206											
	Arc	CS	3701+42.15	1850045.429	6352998.115											
	Cosine	CS	3701+42.15	1850045.429	6352998.115										N 39°36'50.5" E	N 37°16'08.8" E
	Cosine	SPI	3707+36.96	1850503.643	6353377.372		2000	2°20'41.7"	999.98	3.88						
	Cosine	ST	3721+42.15	1851622.050	6354228.417											
	Tangent	ST	3721+42.15	1851622.050	6354228.417									N 37°16'08.8" E		
	Tangent	TS	3796+77.89	1857618.997	6358791.757											

NOTE: DESIGN VARIANT CURVES C232A, C233A CHANGES DESIGN SPEED AND SUPERELEVATION ONLY FOR CURVES C232, C233, NO ALIGNMENT CHANGES - REFER TO BASE DESIGN COMPOSITE PLAN SHEETS FOR ALIGNMENT GEOMETRY AND LOCATION.

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 173 OF 176**

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Oakland, CA 94607

**CALIFORNIA**  
High-Speed Rail Authority

**CALIFORNIA HIGH-SPEED TRAIN PROJECT  
SAN JOSE TO MERCED**  
PACHECO PASS  
TRACK GUIDEWAY  
B1 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C232A AND C233A - TUNNEL DESIGN VARIANT

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0132A
SCALE	NONE
SHEET NO.	



CURVE	ELEMENT	POINT TYPE	B1 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Cosine	TS	3796+77.89	1857618.997	6358791.757										N 37°16'08.8" E	N 40°59'05.2" E
	Cosine	SPI	3816+89.22	1859219.613	6360009.736		2862	3°42'56.5"	1430.91	8.79						
	Cosine	SC	3825+39.89	1859862.298	6360568.114											
	Arc	SC	3825+39.89	1859862.298	6360568.114											
C234	Arc	PI	3880+48.04	1864020.309	6364180.680	22066	10795.67	28°01'54.0"			200	6.00	1.25			
	Arc	CC		1845390.124	6377225.380											
	Arc	CS	3933+35.56	1865992.777	6369323.544											
	Cosine	CS	3933+35.56	1865992.777	6369323.544										N 69°00'59.2" E	N 72°43'55.6" E
	Cosine	SPI	3941+86.93	1866297.653	6370118.454		2862	3°42'56.5"	1430.91	8.79						
	Cosine	ST	3961+97.56	1866894.695	6372039.126											
	Tangent	ST	3961+97.56	1866894.695	6372039.126									N 72°43'55.6" E		
	Tangent	TS	4025+52.66	1868781.141	6378107.789											
	Cosine	TS	4025+52.66	1868781.141	6378107.789										N 72°43'55.6" E	N 73°28'37.1" E
	Cosine	SPI	4034+66.10	1869052.287	6378980.060		1300	0°44'41.4"	650	0.8						
	Cosine	SC	4038+52.66	1869162.228	6379350.668											
	Arc	SC	4038+52.66	1869162.228	6379350.668											
C235	Arc	PI	4045+46.46	1869359.543	6380015.811	50000	1387.5	1°35'23.8"			250	3.50	1.50			
	Arc	CC		1821226.954	6393570.706											
	Arc	CS	4052+40.16	1869538.327	6380686.173											
	Cosine	CS	4052+40.16	1869538.327	6380686.173										N 75°04'00.9" E	N 75°48'42.4" E
	Cosine	SPI	4056+26.73	1869637.943	6381059.689		1300	0°44'41.4"	650	0.8						
	Cosine	ST	4065+40.16	1869861.835	6381945.267											
	Tangent	ST	4065+40.16	1869861.835	6381945.267									N 75°48'42.4" E		
	Tangent	TS	4098+71.53	1870678.382	6385175.015											

**SAN JOSE TO CVY EIR/S: VOLUME III**  
**ALTERNATIVE 4**  
**BOOK 4E**  
**SHEET 174 OF 176**

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High-Speed Rail Authority

**CALIFORNIA HIGH-SPEED TRAIN PROJECT**  
**SAN JOSE TO MERCED**  
 PACHECO PASS  
 TRACK GUIDEWAY  
 B1 TRACK ALIGNMENT DATA TABLE  
 CURVE NO. C234 AND C235

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0133
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B1 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Cosine	TS	3796+77.89	1857618.997	6358791.757										N 37°16'08.8" E	N 40°59'05.2" E
	Cosine	SPI	3816+89.22	1859219.613	6360009.736		2862	3°42'56.5"	1430.91	8.79						
	Cosine	SC	3825+39.89	1859862.298	6360568.114											
	Arc	SC	3825+39.89	1859862.298	6360568.114											
C234A	Arc	PI	3880+48.04	1864020.309	6364180.680	22066	10795.67	28°01'54.0"			220	6.00	2.77			
	Arc	CC		1845390.124	6377225.380											
	Arc	CS	3933+35.56	1865992.777	6369323.544											
	Cosine	CS	3933+35.56	1865992.777	6369323.544										N 69°00'59.2" E	N 72°43'55.6" E
	Cosine	SPI	3941+86.93	1866297.653	6370118.454		2862	3°42'56.5"	1430.91	8.79						
	Cosine	ST	3961+97.56	1866894.695	6372039.126											
	Tangent	ST	3961+97.56	1866894.695	6372039.126									N 72°43'55.6" E		
	Tangent	TS	4025+52.66	1868781.141	6378107.789											
	Cosine	TS	4025+52.66	1868781.141	6378107.789										N 72°43'55.6" E	N 73°28'37.1" E
	Cosine	SPI	4034+66.10	1869052.287	6378980.060		1300	0°44'41.4"	650	0.8						
	Cosine	SC	4038+52.66	1869162.228	6379350.668											
	Arc	SC	4038+52.66	1869162.228	6379350.668											
C235	Arc	PI	4045+46.46	1869359.543	6380015.811	50000	1387.5	1°35'23.8"			250	3.50	1.50			
	Arc	CC		1821226.954	6393570.706											
	Arc	CS	4052+40.16	1869538.327	6380686.173											
	Cosine	CS	4052+40.16	1869538.327	6380686.173										N 75°04'00.9" E	N 75°48'42.4" E
	Cosine	SPI	4056+26.73	1869637.943	6381059.689		1300	0°44'41.4"	650	0.8						
	Cosine	ST	4065+40.16	1869861.835	6381945.267											
	Tangent	ST	4065+40.16	1869861.835	6381945.267									N 75°48'42.4" E		
	Tangent	TS	4098+71.53	1870678.382	6385175.015											

NOTE: DESIGN VARIANT CURVE C234A CHANGES DESIGN SPEED AND SUPERELEVATION ONLY FOR CURVE C234, NO ALIGNMENT CHANGES - REFER TO BASE DESIGN COMPOSITE PLAN SHEETS FOR ALIGNMENT GEOMETRY AND LOCATION.

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 175 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT  
SAN JOSE TO MERCED**  
PACHECO PASS  
TRACK GUIDEWAY  
B1 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C234A AND C235 - TUNNEL DESIGN VARIANT

CONTRACT NO.	HSR15-34
DRAWING NO.	TT-B0133A
SCALE	NONE
SHEET NO.	

CURVE	ELEMENT	POINT TYPE	B1 TRACK STATION	COORDINATES		RADIUS (FT)	LENGTH (FT)	DELTA, Δ	K	P	DESIGN SPEED (MPH)	ACTUAL SUPERELEVATION (EA) (IN)	UNBALANCED SUPERELEVATION (EU) (IN)	BEARING (0°00'00") (TANGENT)	WCB (0°00'00")	
				NORTHING	EASTING										START ANGLE	END ANGLE
	Cosine	TS	4098+71.53	1870678.382	6385175.015										N 75°48'42.4" E	N 77°01'43.7" E
	Cosine	SPI	4110+66.04	1870971.167	6386333.093		1700	1°13'01.3"	849.99	1.71						
	Cosine	SC	4115+71.53	1871084.639	6386825.722											
	Arc	SC	4115+71.53	1871084.639	6386825.722											
C236	Arc	PI	4233+82.35	1873735.710	6398335.164	40016.5	22969.48	32°53'16.1"			250	4.00	2.25			
	Arc	CC		1832089.239	6395807.876											
	Arc	CS	4345+41.01	1869712.333	6409439.572											
	Cosine	CS	4345+41.01	1869712.333	6409439.572										S 70°05'00.3" E	S 68°51'58.9" E
	Cosine	SPI	4350+46.54	1869540.123	6409914.865		1700	1°13'01.3"	849.99	1.71						
	Cosine	ST	4362+41.01	1869109.447	6411029.040											
	Tangent	ST	4362+41.01	1869109.447	6411029.040									S 68°51'58.9" E		
	Tangent	POE	4432+80.06= 4410+00.00	1866571.556	6417594.664											

**SAN JOSE TO CVY EIR/S: VOLUME III  
ALTERNATIVE 4  
BOOK 4E  
SHEET 176 OF 176**

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT  
SAN JOSE TO MERCED**  
PACHECO PASS  
TRACK GUIDEWAY  
B1 TRACK ALIGNMENT DATA TABLE  
CURVE NO. C236

CONTRACT NO. HSR15-34
DRAWING NO. TT-B0134
SCALE NONE
SHEET NO.

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