

# CALIFORNIA HIGH-SPEED TRAIN

## Engineering Plans

### Burbank to Los Angeles

#### Option B Revised Alignment

#### Volume 3.7

HSR Burbank Airport Station

August 2021



FOR REFERENCE ONLY - FOR THE LATEST PLANS,  
SEE HSR PALMDALE TO BURBANK SECTION



California High-Speed Rail Authority

# Palmdale to Burbank Project Section

DRAFT PEPD REV01  
Burbank Station Area Plans

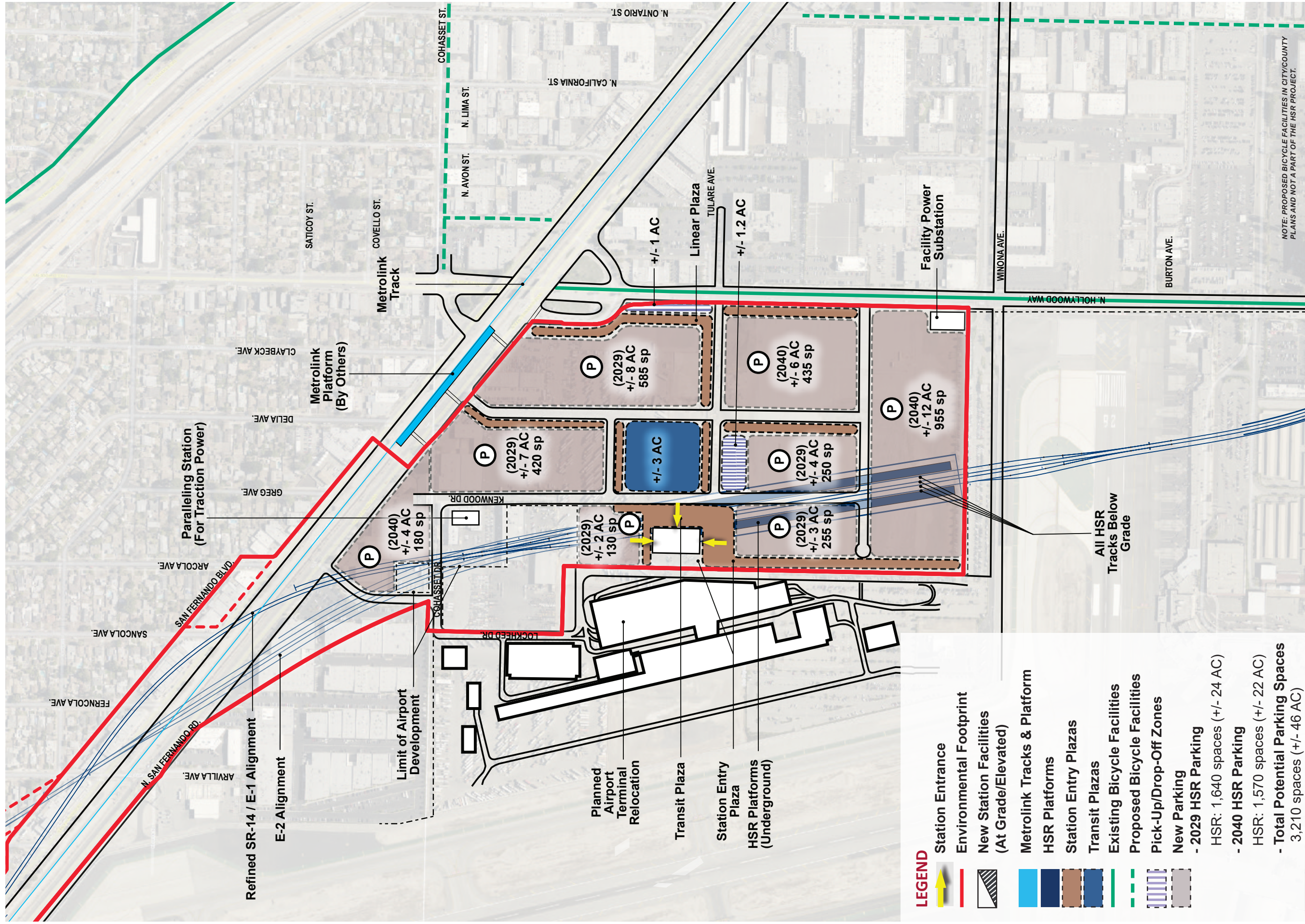
February 2019



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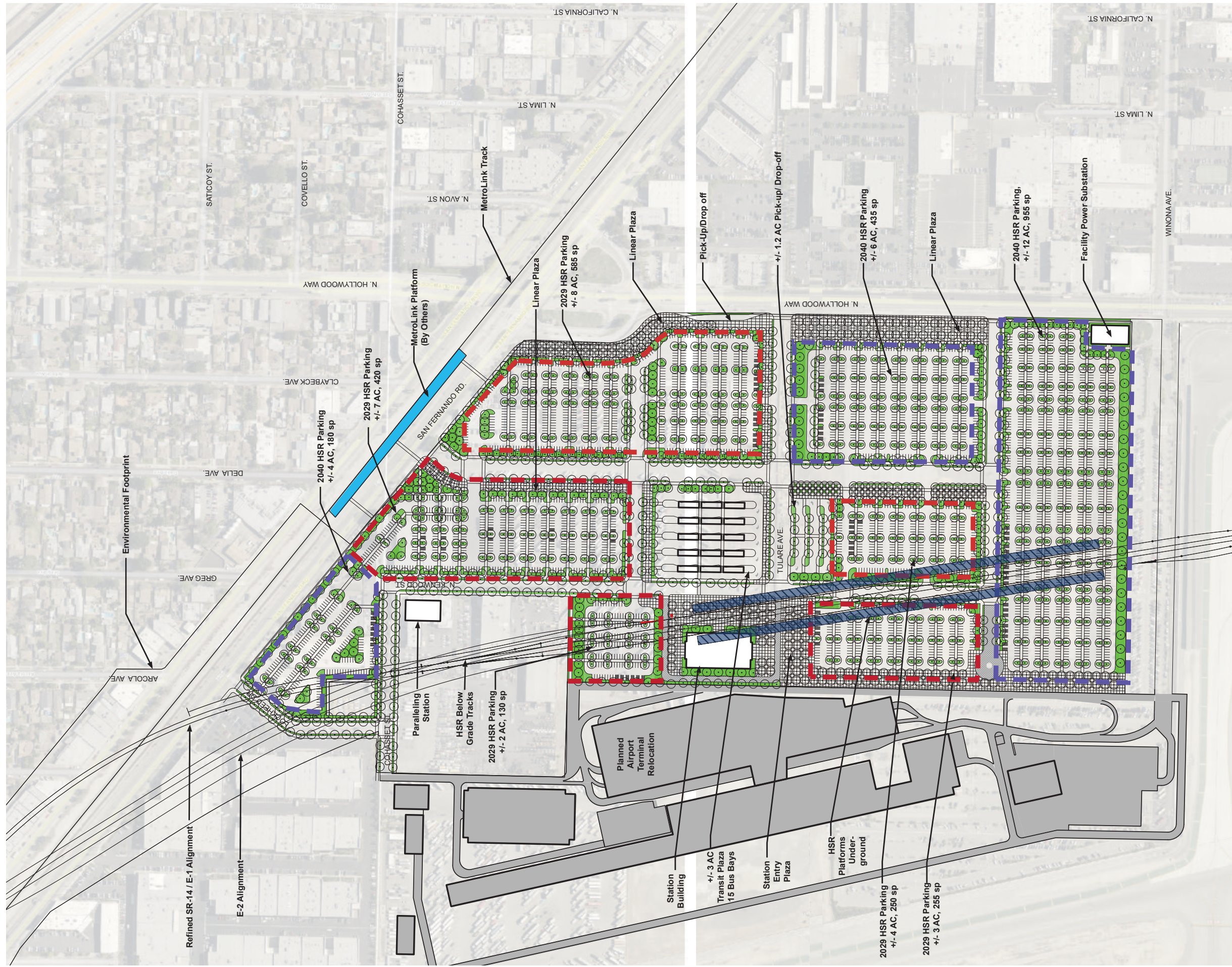
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**CALIFORNIA HIGH-SPEED RAIL AUTHORITY  
PALMDALE TO BURBANK PROJECT SECTION  
BURBANK STATION**



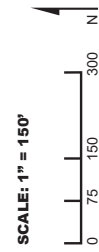
*Burbank Station General Site Plan*

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PALMDALE TO BURBANK PROJECT SECTION  
BURBANK STATION**

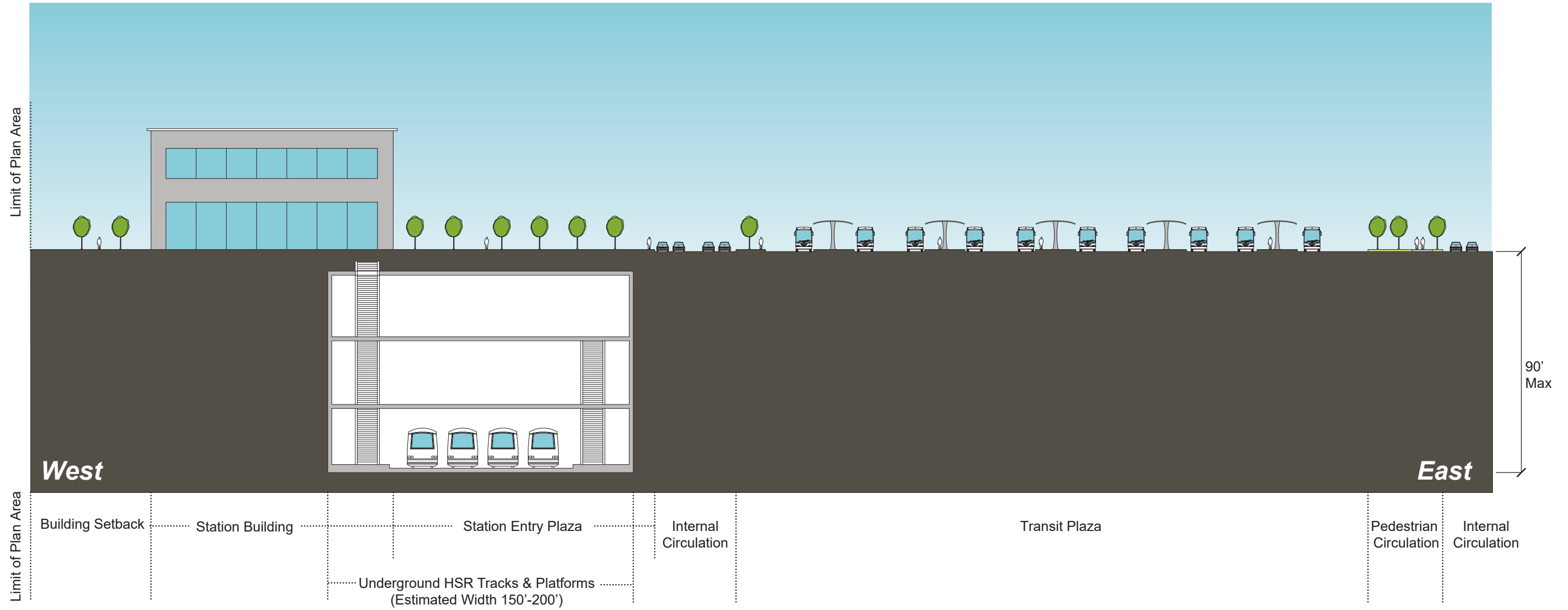


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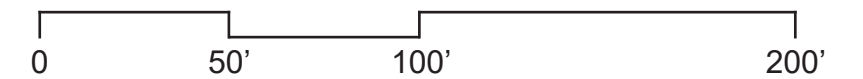
- |  |                                       |  |  |
|--|---------------------------------------|--|--|
|  | <b>2029 HSR Parking</b>               |  | <b>New Station Facilities</b>              |
|  | 1,640 spaces (+/- 24 AC)              |  | <b>MetroLink Platform</b>                  |
|  | <b>2040 HSR Parking</b>               |  | <b>HSR Platform (Underground)</b>          |
|  | 1,570 spaces (+/- 22 AC)              |  | <b>Planned Airport Terminal Relocation</b> |
|  | <b>Total Potential Parking Spaces</b> |  | <b>Landscaping</b>                         |
|  | 3,210 spaces (+/- 46 AC)              |  |  |



**CALIFORNIA HIGH-SPEED RAIL AUTHORITY  
PALMDALE TO BURBANK PROJECT SECTION  
BURBANK STATION**



*Burbank Station Cross Section | West-East Site Section Looking North*



**CALIFORNIA HIGH-SPEED RAIL AUTHORITY  
PALMDALE TO BURBANK PROJECT SECTION  
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*Burbank Station Massing Model | Perspective A*



**NOT TO SCALE**

**CALIFORNIA HIGH-SPEED RAIL AUTHORITY  
PALMDALE TO BURBANK PROJECT SECTION  
BURBANK STATION**



*Burbank Station Massing Model | Perspective B*



**NOT TO SCALE**



**CALIFORNIA HIGH-SPEED RAIL AUTHORITY  
PALMDALE TO BURBANK PROJECT SECTION  
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**CALIFORNIA HIGH-SPEED RAIL AUTHORITY  
PALMDALE TO BURBANK PROJECT SECTION  
BURBANK STATION**

Burbank Station Programming & Area Requirements Table				
Function Name	Description	Formula	Required Area (Net SF) Minimum	Comments
Burbank Daily Peak Ridership Boardings 2040	Long distance + Short Distance Boardings	12,800	12,800	CHSR 2016 Business Plan
P360B	Highest Daily Boardings X Conversation Factor for Boardings=6hour Boardings	Highest Daily Boardings x 0.67=P360B 12,800 x 0.67	8,576	California HSTP Design Criteria, Chapter 14-Stations, Oct 2015, Working Draft, Rev.2 Table 14-1 Passenger Ridership Assumptions Table 14-3 Concourse Circulation and Waiting Areas
P360A	Peak 6 Hour Boardings X Conversation Factor for Alightings =6hour Alightings	P360B x 0.75=P360A 8576 x 0.75	6,432	
P60B	Peak 6 hour Boardings x Peak hour conversion Factor for Boardings=Peak Hour Boardings	P360B x 0.17=P60B 8576 X 0.17	1,458	
P60A	Peak Hour Boardings x Peak Hour Conversion Factor for Alightings=Peak Hour Alightings	P60B x 0.75=P60A 552 x 0.75	1,094	
P30B	Peak Hour Boardings /2 x Surge Factor = Peak 30-minute Boardings	(P60B /2) x 1.2=P30B (1458/2) x 1.2	875	
P30A	Peak 30-minute Boardings x Conversion Factor = Peak 30 minute Alightings	P30B x 0.075=P30A 875 x 0.75	656	
P15B	Peak Hour Boardings / 4 x Surge Factor = Peak 15- minute Boardings	(P60B / 4) x 1.3= P15B (1458 /4) x 1.3	474	
P15A	Peak 15-minute Boardings x Conversion Factor=Peak 15 minute Alightings	P15B x 0.75=P15A 474 x 0.75	356	
P5B	Peak Hour Boardings /12 x Surge Factor = Peak 5-minute Boardings	(P60B / 12) x 1.4= P5B (1458/12) x 1.4	170	
P5A	Peak 5-minute Boardings x Conversion Factor = Peak 5-minute Alightings	P5B x 0.75=P5A 170 x 0.75	128	
P1B	Peak Hour Boardings /60 x Surge Factor=Peak 1 Minute Boardings	(P60B /60) x 1.5=P1B (1458 /60) x 1.5	36	
P1A	Peak 1-minute Boardings x Conversion Factor for Alightings=Peak 1 Minute Alightings	P1Bx0.75 36x0.75	27	
Cf	Unobstructed Net Concourse Free Public Area Circulation Width	(P15B+P15A)/(15x10 people/ft/min) or 16 ft min. (474+356)/(15x10 people/ft/min)	476	
Wf	Net Waiting Area in Concourse Free Public Area	((P15Bx1.1) + (P15Ax0.1))x 14 square feet ((474x1.1) +(356x0.1)) x 14	7,798	
Public Restrooms	Women + Men + Unisex accessible restroom for each group	(P15B+P15A) / 2 (474+356) /2	415	
Passenger Amenity Space Allocation	Station Design Target Year Daily Boardings	More than 10,000	9,000	Table 14-7, Chapter 14 March 2016, corrected as directed Comment 45_3-09-2017
Ticket Windows	Station Quantity	P60B/600 638:600	2	Table 14-5: HST Ticket Sales Facilities
Ticket Vending Machines		P60B/280 638/280	3	
Value Added Machines	2 Per Platform Minimum			
Fare Gates Intermediate		P1B /50 ppm 36/50 One additional gate to be provided if under 10	2	Table 14-6 Fare Gates
Emergency Gates			2	14.3.3.6
Side Platform Station	Peak- hour boarding and fully occupied train alighting	P60B + 900 p	2358	14.3.6.2
Sr	Seating at Concourse Free Waiting Area	((P15B x 1.1) + (P15A x 0.1)) x .25	139	Table 14-22: Station Seating

**CALIFORNIA HIGH-SPEED RAIL AUTHORITY  
PALMDALE TO BURBANK PROJECT SECTION  
BURBANK STATION**

Burbank Station Facility Sizing Table					
Burbank Projected Daily Ridership (2040) 25,600 (12,800 Boardings + 12,800 Alightings), based on CHSR Authority 2016 Business Plan					
STATION TYPE: Intermediate, Full-Service, Large: based on Chapter 14 Stations Design Criteria, Table 14-3					
	Function Name	Required Area (Net SF) Minimum	Formula	Chapter 14:Stations	Comments
Concourse Public Free Areas	Station Concourse (Free Area - Main Hall)	29,050	P15 x 35 SF/person	14.3.5.1	P15 = P15 B + P15 A = 474 + 356 = 830 ,use 35 SF/person
	Entrances	107 Ln.Ft.	(P60B x 1.1)/15 Ln.Ft.	14.3.5.2	P60B=552, 15 ft width at least one entrance
	Mezzanine	0			N/A tracks and platform underground
	Passenger Waiting Area	7,798	((P15B x 1.1)+(P15Ax0.1)) x 14 SF	14.3.5.3.B.C Table 14-3	California HSTP Design Criteria, Chapter 14-Stations, March 2016, Rev 2 and October 2015, Working draft, Rev 2. Table 14-1 Passenger Ridership Assumptions, Table 14-3
	Ticket Vending Machines (TVM)	72	P60B/280	Table 14-5, 14.3.5.6 B	P60B = 1458, 6 TVM, Minimum 2 required
	Concessionaire	9,000		Table 14-7	More than 10,000 Boardings
	Business Lounge	600		14.3.5.7.C	
	Public Restrooms	1,100	CBC 2016, CPC 2016 (P15B + P15A)/2	14.3.5.4	P15 = 830 A-3 Assembly Occupancy, 415 Male, 415 Female: 8 Water Closets, 5 Lavatories Male: 3 Water closets, 4 Urinal, 3 Lavatories Drinking Fountains: 3
	Unisex Restrooms	100		14.3.5.4	1 Unisex (or family) accessible restroom for each group of restrooms
	Janitor Closets	60		14.3.7.1.D	
Staffed Areas	Ticket Office Counter	1		14.3.5.7A	Minimum 1 required
	Ticket Office Window Quality	3	P60B/600	14.3.5.6.B 14.3.5.7A	P60B = 552, Minimum 1 + 1 ADA accessible
Security	Police Office	500		14.3.6.2.A	Includes Lockers
	Janitor Closets	60		14.3.7.1.D	
	Security Guard Office	144		14.3.6.2.B	
Access Facilities	HSR Platform			14.3.2.1	
	Metrolink Platform			14.3.2.1	
	Station Entry Plazas (Total Area)			14.4.4.8	
	Transit Plazas (Total Area)			14.4.2.4	
	Transit Plazas (Sizing Assumptions)			14.4.2.4	
	Pick-up Drop Off (Total Area)			14.4.2.5	
	Pick-up Drop Off (Sizing Assumptions)			14.4.2.5	
	2029 Parking Totals				Sidewalks and landscaping are also included in parking area.
	2040 Parking Totals				Sidewalks and landscaping are also included in parking area.

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PALMDALE TO BURBANK PROJECT SECTION  
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	Function Name	Required Area (SF) Minimum	Formula	Chapter 14:Stations	Comments
Non-Public Station Staff Only	Ticket Sales Office	225		14.3.5.7.A	75 SF per window , 3 ticket sales windows
	Ticket Admin., Handling & Storage	260		14.3.5.6.B 14.3.5.7 14.3.6.2.C-D	Ticket Administration Office
	Lost & Found & First Aid Room	200		14.3.6.1E-F	
	Station Control Room (SCR)	1,100		14.3.6.2.E	
	SCR Dedicated Computer Room	500		14.3.6.2.F	
	Temporary Incident Command Post (CP)	300		14.3.6.2.G	
	SOR Workroom	1,100		14.3.6.2.H	
	SOR Dedicated Computer Room	500		14.3.6.2.F-H	
	Staff Lockers, Showers, Restrooms	780	CBC 2016, CPC 2016	14.3.6.1.I	2016_ Business Plan Operations and Maintenance Cost Model, Table 20- Station Service Level C, Table 21, Table 24, Table 28. Assumed administration staff, police, security and cleaning personnel 27. B Business Occupancy, 14 Male, 14 Female. Female: 2 Watercloset, 1 Lavatory Male: 1 Watercloset, 1 Urinal, 1 Lavatory 2 Staff Shower Rooms adjacent to Locker rooms and Restrooms
	Janitor Closets	60		14.3.7.1.C	
	Staff Breakroom & Meeting Rooms	675	27/shift x 25SF	14.3.6.1G-H	200 SF min or as req to provide 25 SF /staff
	Station Manager Office	270		14.3.6.1A	270 SF
	Facility Manager's Office	270		14.3.6.1C	
	Admin Office Space	270		14.3.6.1.B	
	Facilities Maintenance Office	330		14.3.6.1.C	
Station General Storage Rooms	200		14.3.7.1.E	Add 60 SF for misc. if required.	
Platform Area Op. Mgt. Booth	200	100 SF x (2)	14.3.6.2.I	OMB shall be provided on each platform, 2 platforms	
Building Services and Plant Rooms	Mech., Elec. & Plumbing Rooms	1,000		14.3.7.2	
	Battery Room	400	200 SF x ( 2 )	14.3.7.4.B	Two rooms req, including one room at each end of station for LV batteries.
	UPS Room	1,800	900 SF x ( 2 )	14.3.7.2.C	Two rooms req., one at each end of station for low voltage (LV) distribution, transforming, EP
	Fire Detection & Protection Rooms	100		14.3.7.2.C	
	Train Control /Communications Room	1,915		14.3.7.2.E	Table 14-8 For the train control and communications equipment
	Entrance Facility Room	240		14.3.7.2.E	Table 14-8 For entry of service cabling into the building. May be co-located with the TCC room.
	3rd Party Telecom Room	120		14.3.7.2.E	Table 14-8
	Communications Closets	390	130 SFx (3)	14.3.7.2.E	Table 14-8 Number TBD. Locate close to center of each 10,000 SF of Station Floor Area
	Renewable Energy/Stormwater	0			

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 PALMDALE TO BURBANK PROJECT SECTION  
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	Function Name	Required Area (SF) Minimum	Formula	Chapter 14:Stations	Comments
Maint. Support Areas	Main Station Building Recycling/Refuse	150		14.3.7.1.A	
	Secondary Station Building Recycling	60		14.3.7.1.C	
	Landscape Maintenance Room	100		14.3.7.1.F	
	Loading Zone and Service Entrance	800		14.3.7.1.G	
	Loading Dock	480	24 Ft wide x 20 Ft deep	14.3.7.1.H	
<b>SUBTOTAL</b>		<b>70,977 SF</b>			
<b>Efficiency Factor</b>		<b>2</b>			
<b>TOTAL AREA- MAIN STATION BUILDING</b>		<b>141,954 SF</b>			
<b>TOTAL AREA-Substation:</b>		<b>10,000 SF</b>			
<b>TOTAL:</b>		<b>151,954 SF</b>			

California High-Speed Rail Authority

# Burbank Subsection

DRAFT PEPD REV01

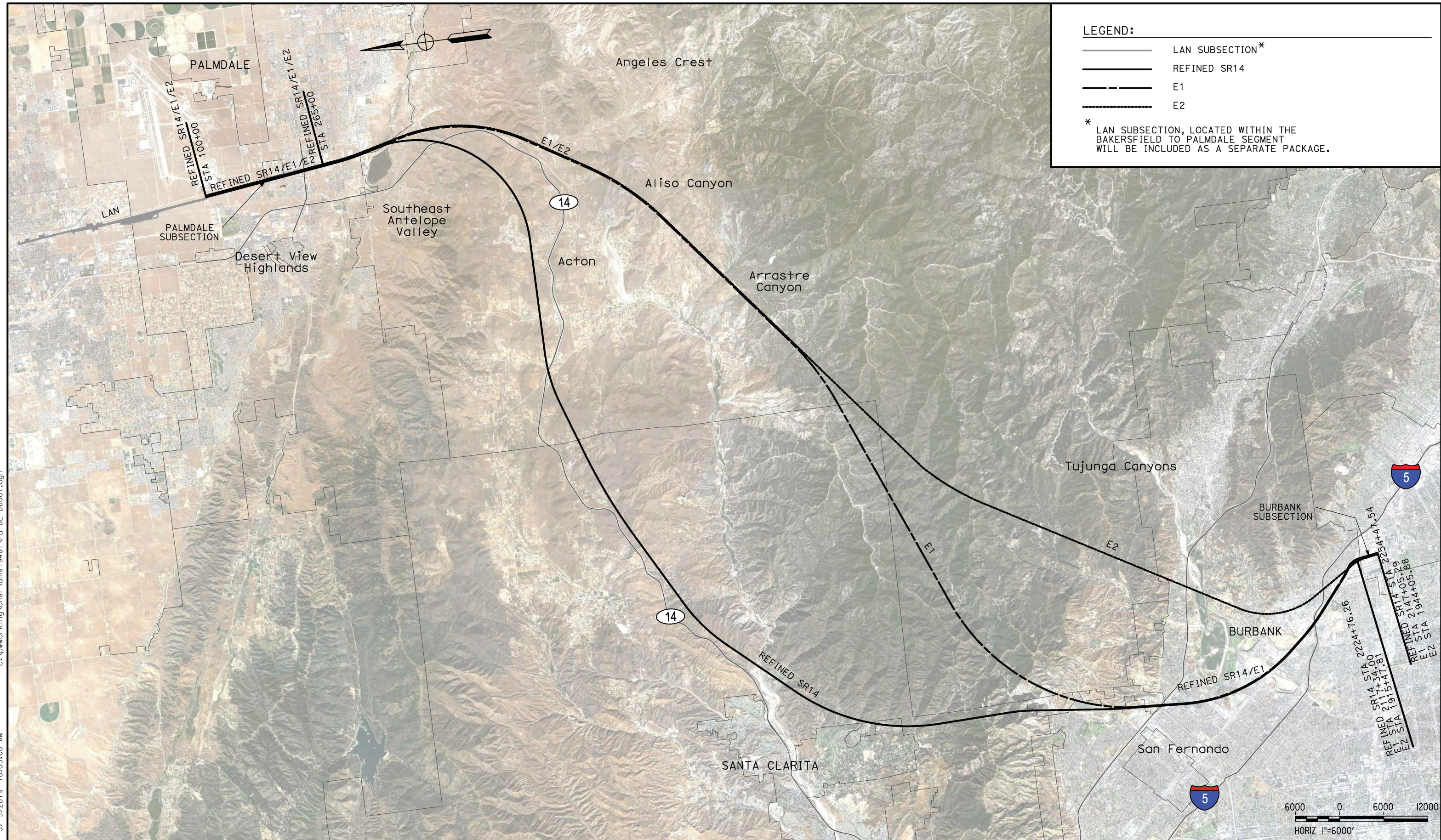
Track Alignment Plans  
February 2019



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**LEGEND:**

- LAN SUBSECTION\*
- Refined SR14
- - - E1
- E2

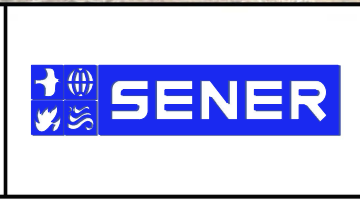
\* LAN SUBSECTION, LOCATED WITHIN THE BAKERSFIELD TO PALMDALE SEGMENT WILL BE INCLUDED AS A SEPARATE PACKAGE.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
JC ALAMILLA  
DRAWN BY  
JC ALAMILLA  
CHECKED BY  
R. RODRIGUEZ  
IN CHARGE  
A. RELANO  
DATE  
02/01/2019

**BURBANK  
SUBSECTION  
DRAFT PEPD  
REV 01**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
OVERALL PROJECT SEGMENTS  
ALIGNMENTS "REFINED SR14/E1/E2"

CONTRACT NO.  
HSR14-42  
DRAWING NO.  
GE-D6001  
SCALE  
AS SHOWN  
SHEET NO.

**GENERAL**

DRAWING NO.	DESCRIPTION	SHEET NO.
GE-D6001	OVERALL PROJECT SEGMENTS	
TT-B0001	INDEX OF DRAWINGS	
TT-B0004	ABBREVIATIONS	
TT-B0005	ABBREVIATIONS AND LEGEND	

**BURBANK AIRPORT STATION**

DRAWING NO.	DESCRIPTION	SHEET NO.
TT-C6001-BUR	HIGH SPEED RAIL PLANS - KEY MAP	
TT-D1001A-BUR	PLAN AND PROFILE - STA 2226+00.00 TO STA 2254+47.54	
TT-D1002A-BUR	SB PLATFORM TRACK - PLAN AND PROFILE - STA 3220+87.48 TO STA 3254+47.54	
TT-D1003A-BUR	NB PLATFORM TRACK - PLAN AND PROFILE - STA 4230+87.49 TO STA 4296+77.55	
TT-D1004A-BUR	NB REFUGE TRACK - PLAN AND PROFILE - STA 5219+79.818 TO STA 5239+77.524	

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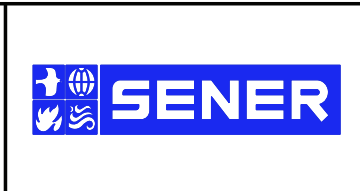
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**BURBANK  
SUBSECTION  
DRAFT PEPD  
REV 01**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
PALMDALE TO BURBANK**

BURBANK SUBSECTION

GENERAL  
INDEX OF DRAWINGS

CONTRACT NO.	HSR14-42
DRAWING NO.	TT-B0001
SCALE	NO SCALE
SHEET NO.	



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**A**

AB AGGREGATE BASE  
 ABBC ASBESTOS BONDED BITUMINOUS COATED  
 ABM AIR-BLOWN MORTAR  
 ABN ABANDON  
 ABUT ABUTMENT  
 AC ASPHALT CONCRETE  
 ACB ASPHALT CONCRETE BASE  
 ACP ASBESTOS CEMENT PIPE  
 ADL ADDED DEAD LOAD  
 ADJ ADJUST  
 AFES ALTERNATIVE FLARED END SECTION  
 AHD AHEAD  
 ALT ALTERNATE  
 AM TIME FROM MIDNIGHT TO NOON  
 AP ALTERNATIVE PIPE  
 APC ALTERNATIVE PIPE CULVERT  
 APPROX APPROXIMATE  
 APU ALTERNATIVE PIPE UNDERDRAIN  
 ARS ACCELERATION RESPONSE SPECTRUM  
 AR ACCESS RESTRICTION  
 AS AGGREGATE SUBBASE  
 ASRP ALUMINUM SPIRAL RIB PIPE  
 ASSY ASSEMBLY  
 ATPB ASPHALT TREATED PERMEABLE BASE  
 ATPM ASPHALT TREATED PERMEABLE MATERIAL  
 AVE AVENUE  
 AVG AVERAGE  
 @ AT

**B**

BAGR BRIDGE APPROACH GUARD RAILING  
 BB BEGINNING OF BRIDGE  
 BC BEGIN HORIZONTAL CURVE  
 BCC BALANCED CANTILEVER CONSTRUCTION  
 BCR BEGIN CURB RETURN  
 BEG BEGIN  
 BIT CTD BITUMINOUS COATED  
 BK BACK  
 BKF BACKFILL  
 BLDG BUILDING  
 BLM BRIDGE-LOG MILE  
 BLVD BOULEVARD  
 BM BENCH MARK  
 BND BOUND  
 BOT BOTTOM  
 BR BRIDGE  
 BRG BEARING  
 BTU BRITISH THERMAL UNIT  
 BVC BEGIN VERTICAL CURVE  
 BW BARBED WIRE

**C**

CAA CABLE ANCHOR ASSEMBLY  
 CAP CORRUGATED ALUMINUM PIPE  
 CAPA CORRUGATED ALUMINUM PIPE ARCH  
 CAS CONSTRUCTION AREA SIGN  
 CB CONCRETE BARRIER  
 CBW CONCRETE BLOCK WALL  
 C-C CENTER TO CENTER

**C CONTINUED**

CHSRA CALIFORNIA HIGH SPEED RAIL AUTHORITY  
 CHST CALIFORNIA HIGH SPEED TRAIN  
 CHSR CALIFORNIA HIGH SPEED RAIL  
 CG CENTER OF GRAVITY  
 CHNL CHANNEL  
 CI CAST IRON  
 CIDH CAST-IN-DRILLED-HOLE  
 CIP,C-I-P CAST-IN-PLACE, CAST IRON PIPE  
 CIPCP CAST IN PLACE CONCRETE PIPE  
 CISS CAST-IN-STEEL-SHELL  
 CJP COMPLETE JOINT PENETRATION  
 CL CENTERLINE, CLASS  
 CL CENTERLINE  
 CL2 CLASS 2  
 CL-6 CHAIN LINK FENCE (6 FT)  
 CLR CLEAR, CLEARANCE  
 CM CORRUGATED METAL  
 CMP CORRUGATED METAL PIPE  
 CO COUNTY  
 COL COLUMN  
 CONC CONCRETE  
 COND CONDUIT  
 CONN CONNECTOR  
 CONST CONSTRUCT, CONSTRUCTION  
 CONT CONTINUOUS  
 COORD COORDINATE  
 CP CANDLEPOWER  
 CR CREEK  
 CRCP CONTINUOUS REINFORCED CONCRETE PAVT  
 CRSP CONCRETED ROCK SLOPE PROTECTION  
 CS CURVE TO SPIRAL  
 CSP CORRUGATED STEEL PIPE  
 CSPA CORRUGATED STEEL PIPE ARCH  
 CTB CEMENT TREATED BASE  
 CTPB CEMENT TREATED PERMEABLE BASE  
 CTPM CEMENT TREATED PERMEABLE MATERIAL  
 CTRS CENTERS  
 CULV CULVERT  
 CVFPB CENTRAL VALLEY FLOOD PROTECTION BOARD

**D**

D DEPTH  
 DD DOWNDRAIN, DIRECTIVE DRILLING  
 DBL DOUBLE  
 DEG DEGREE  
 DEL DELINEATOR  
 DET DETAIL, DETOUR  
 DF DOUGLAS FIR  
 DI DRAINAGE INLET, DROP INLET  
 DIA DIAMETER  
 DIAPH DIAPHRAGM  
 DIST DISTANCE, DISTRICT  
 DMBB DOUBLE METAL BEAM BARRIER  
 DR DRIVE  
 DTBB DOUBLE THRIE BEAM BARRIER  
 DWY DRIVEWAY

**E**

E EAST, EASTING  
 EA ACTUAL SUPERELEVATION  
 EU UNBALANCED SUPERELEVATION

**E CONTINUED**

EASE EASEMENT  
 EB END OF BRIDGE, EASTBOUND  
 EC END HORIZONTAL CURVE  
 ECR END CURB RETURN  
 ED EDGE DRAIN  
 EDC EDGE DRAIN CLEANOUT  
 EDO EDGE DRAIN OUTLET  
 EDV EDGE DRAIN VENT  
 ELEC ELECTROLIER  
 ELECT ELECTRIC  
 ELEV ELEVATION  
 ELLN EXTRALEGAL LEAD NETWORK  
 EMB EMBANKMENT  
 ENGR ENGINEER  
 EOD EDGE OF DECK  
 EP EDGE OF PAVEMENT  
 EQ EQUATION, EQUAL  
 ES EDGE OF SHOULDER  
 ETW EDGE OF TRAVELED WAY  
 EVC END VERTICAL CURVE  
 EW ENDWALL  
 EXC EXCAVATION  
 EXIST, EX. EXISTING  
 EXP EXPANSION  
 EXP JT EXPANSION JOINT  
 EXT EXTERIOR  
 EXWY EXPRESSWAY

**F**

F & C FRAME AND COVER  
 F & G FRAME AND GRATE  
 FB FLOOR BEAM  
 F-B FRESNO TO BAKERSFIELD  
 FDN FOUNDATION  
 FEBT FACING EASTBOUND TRAFFIC  
 FES FLARED END SECTION  
 FF FILTER FABRIC  
 FG FINISHED GRADE  
 FH FIRE HYDRANT  
 FIG FIGURE  
 FL FLOW LINE  
 FNBT FACING NORTHBOUND TRAFFIC  
 FOC FACE OF CONCRETE  
 FPLM FULL SPAN PRECAST LAUNCHING METHOD FRONTAGE ROAD  
 FR RD FRONTAGE ROAD  
 FS FAR SIDE, FINISHED SURFACE  
 FSBT FACING SOUTHBOUND TRAFFIC  
 FT FOOT, FEET  
 FTG FOOTING  
 FUT FUTURE  
 FWBT FACING WESTBOUND TRAFFIC  
 FWY FREEWAY

**G**

G ACCELERATION DUE TO GRAVITY  
 GA GAGE  
 GALV GALVANIZED  
 GP GRADING PLANE  
 GR GUARD RAILING  
 GSP GALVANIZED STEEL PIPE  
 GTR GUTTER

**H**

H HEIGHT  
 HD HORIZONTAL DRAIN  
 HDC HIGH DESERT CORRIDOR  
 HDWL HEADWALL  
 HEX HD HEXAGONAL HEAD  
 HMA HOT MIXED ASPHALT  
 HORIZ HORIZONTAL  
 HP HINGE POINT, HORSEPOWER  
 HPS HIGH PERFORMANCE STEEL  
 HR HOUR  
 HS HIGH STRENGTH  
 HSR HIGH SPEED RAIL  
 HST HIGH SPEED TRAIN  
 HW HEADWALL, HIGH WATER  
 HWM HIGH WATER MARK  
 HWY HIGHWAY

**I**

IB IMPORTED BORROW  
 ID INSIDE DIAMETER  
 IF INSIDE FACE  
 IN INCH, INCHES  
 INT INTERIOR  
 INV INVERT  
 IRR IRRIGATION

**J**

JCT JUNCTION  
 JP JOINT POLE  
 JPCP JOINTED PLAIN CONCRETE PAVEMENT  
 JS JUNCTION STRUCTURE  
 JT JOINT

**K**

K DISTANCE TO ACHIEVE 1% GRADE CHANGE

**L**

L LENGTH  
 LAT LATITUDE  
 LC LENGTH OF CURVE  
 LCB LEAN CONCRETE BASE  
 LMF LIGHT MAINTENANCE FACILITY  
 LN LANE  
 LOC LOCATION  
 LOL LAYOUT LINE  
 LONG LONGITUDE  
 LONGIT LONGITUDINAL  
 LS LENGTH OF SPIRAL  
 LT LEFT

**M**

MAINT MAINTENANCE  
 MAX MAXIMUM  
 MB METAL BEAM  
 MBB METAL BEAM BARRIER  
 MBGR METAL BEAM GUARD RAILING  
 MED MEDIAN  
 M-F MERCED TO FRESNO  
 MH MANHOLE  
 MIN MINIMUM  
 MISC MISCELLANEOUS  
 MISC I & S MISCELLANEOUS IRON AND STEEL  
 MKR MARKER  
 M/L MAIN LINE (RAILWAY)

**M CONTINUED**

MOD MODIFIED, MODIFY  
 MON MONUMENT  
 MP METAL PLATE  
 MPGR METAL PLATE GUARD RAILING  
 MPH MILES PER HOUR  
 MR MOVEMENT RATING  
 MSE MECHANICALLY STABILIZED EARTH  
 MSS MOVING SCAFFOLDING SYSTEM  
 MT MAIN TRACK  
 MTL MATERIAL

**N**

N NORTH, NORTHING  
 N/A NOT APPLICABLE  
 NB NORTHBOUND  
 NO. NUMBER (MUST HAVE PERIOD)  
 NOS. NUMBERS (MUST HAVE PERIOD)  
 NPS NOMINAL PIPE SIZE  
 NS NEAR SIDE  
 NTS NOT TO SCALE

**O**

OBLR OBLITERATE  
 OC OVERCROSSING  
 OCS OVERHEAD CONTACT SYSTEM  
 OD OUTSIDE DIAMETER  
 OF OUTSIDE FACE  
 OG ORIGINAL GROUND  
 OGAC OPEN GRADED ASPHALT CONCRETE  
 OH OVERHEAD  
 O-O OUT TO OUT  
 OPP OPPOSITE

**P**

P PAGE  
 PAP PERFORATED ALUMINUM PIPE  
 PB PULL BOX  
 PC POINT OF CURVATURE, PRECAST  
 PCC POINT OF COMPOUND CURVE, PORTLAND CEMENT CONCRETE  
 PCP PERFORATED CONCRETE PIPE, PRESTRESSED CONCRETE PIPE  
 PCVC POINT OF COMPOUND VERTICAL CURVE  
 PED PEDESTRIAN  
 PED OC PEDESTRIAN OVERCROSSING  
 PED UC PEDESTRIAN UNDERCROSSING  
 PERM MTL PERMEABLE MATERIAL  
 PG PROFILE GRADE  
 PI POINT OF INTERSECTION  
 PJP PARTIAL JOINT PENETRATION  
 P,PL PLATE  
 P/L PROPERTY LINE  
 PM POST MILE, TIME FROM NOON TO MIDNIGHT  
 PN PAVING NOTCH  
 POB POINT OF BEGINNING  
 POC POINT OF HORIZONTAL CURVE  
 POE POINT OF ENDING  
 POT POINT OF TANGENT  
 POVVC POINT OF VERTICAL CURVE  
 PP PIPE PILE, PLASTIC PIPE, POWER POLE  
 PPL PREFORMED PERMEABLE LINER  
 PPP PERFORATED PLASTIC PIPE  
 PRC POINT OF REVERSE CURVE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
JC ALAMILLA  
 DRAWN BY  
JC ALAMILLA  
 CHECKED BY  
R. RODRIGUEZ  
 IN CHARGE  
A. RELANO  
 DATE  
02/01/2019

**BURBANK  
SUBSECTION  
DRAFT PEPD  
REV 01**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
PALMDALE TO BURBANK**  
 BURBANK SUBSECTION

GENERAL  
ABBREVIATIONS

CONTRACT NO.  
HSR14-42  
 DRAWING NO.  
TT-B0004  
 SCALE  
NO SCALE  
 SHEET NO.

P CONTINUED

PRF PAVEMENT REINFORCING FABRIC  
 PROP PROPOSED  
 PRVC POINT OF REVERSE VERTICAL CURVE  
 PS&E PLANS, SPECIFICATIONS AND ESTIMATES  
 PS, P/S PRESTRESSED, PARALLEL STATION  
 PSP PERFORATED STEEL PIPE  
 PT POINT OF TANGENCY  
 PVC POLYVINYL CHLORIDE  
 PVI POINT OF VERTICAL INTERSECTION  
 PVMT PAVEMENT  
 PVP MAINTENANCE VEHICLE PULLOUT

Q

QTY QUANTITY

R

R RADIUS  
 R & D REMOVE AND DISPOSE  
 R & S REMOVE AND SALVAGE  
 R/C RATE OF CHANGE  
 RCA REINFORCED CONCRETE ARCH  
 RCB REINFORCED CONCRETE BOX  
 RCP REINFORCED CONCRETE PIPE  
 RCPA REINFORCED CONCRETE PIPE ARCH  
 RD ROAD  
 REINF REINFORCED, REINFORCEMENT, REINFORCING  
 REL RELOCATE  
 REPL REPLACEMENT  
 RET RETAINING  
 REV REVISED  
 RDWY ROADWAY  
 RM ROAD-MIXED  
 R/W, ROW RIGHT OF WAY  
 RP RADIUS POINT, REFERENCE POINT  
 RR RAILROAD  
 RSP ROCK SLOPE PROTECTION  
 RT RIGHT  
 RTE ROUTE  
 RW REDWOOD, RETAINING WALL  
 RWY RAILWAY

S

S SOUTH, SUPPLEMENT, STATION LINE  
 SAE STRUCTURE APPROACH EMBANKMENT  
 SALV SALVAGE  
 SAPP STRUCTURAL ALUMINUM PLATE PIPE  
 SB SOUTHBOUND  
 SC SPIRAL TO CURVE  
 SCRR SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 SCSP SLOTTED CORRUGATED STEEL PIPE  
 SD STORM DRAIN  
 SEC SECOND  
 SECT SECTION  
 SEP SEPARATION  
 SG SUBGRADE  
 SHLD SHOULDER  
 SHT SHEET  
 SIM SIMILAR  
 SM SELECTED MATERIAL  
 SPEC SPECIAL, SPECIFICATIONS  
 SPP SLOTTED PLASTIC PIPE  
 SS SLOPE STAKE, SPIRAL TO SPIRAL

S CONTINUED

SSBM STRAP AND SADDLE BRACKET METHOD  
 SSD STRUCTURAL SECTION DRAIN  
 SSPA STRUCTURAL STEEL PLATE ARCH  
 SSPP STRUCTURAL STEEL PLATE PIPE  
 SSPPA STRUCTURAL STEEL PLATE PIPE ARCH  
 SSRP STEEL SPIRAL RIB PIPE  
 SR STATE ROUTE  
 ST STREET, SPIRAL TO TANGENT STATION  
 STBB SINGLE THRIE BEAM BARRIER  
 STD STANDARD  
 STR STRUCTURE  
 SRS STAND ALONE RADIO SITE  
 SURF SURFACING  
 SW SIDEWALK, SOUND WALL  
 SWR SEWER  
 SWS SWITCHING STATION  
 SYM SYMMETRICAL  
 S4S SURFACE 4 SIDES

T

T SEMI-TANGENT  
 TAB TABLET  
 TAN TANGENT  
 TBB THRIE BEAM BARRIER  
 TBR TIMBER  
 TC TOP OF CURB, TANGENT TO CURVE  
 TCB TRAFFIC CONTROL BOX  
 TEL TELEPHONE  
 TEMP TEMPORARY  
 TG TOP OF GRADE  
 TM TECHNICAL MEMORANDUM  
 TOT TOTAL  
 TP TELEPHONE POLE  
 TPB TREATED PERMEABLE BASE  
 TPM TREATED PERMEABLE MATERIAL  
 TPSS TRACTION POWER SUPPLY STATION  
 TRANS TRANSITION, TRANSVERSE  
 TANGENT TO SPIRAL  
 TSMF TERMINAL STORAGE AND MAINTENANCE FACILITY  
 TYP TYPICAL  
 TOR TOP OF RAIL

U

UC UNDERCROSSING  
 UD UNDERDRAIN  
 UON UNLESS OTHERWISE NOTED  
 UP UNDERPASS  
 UPRR UNION PACIFIC RAILROAD  
 USFWS UNITED STATES FISH AND WILDLIFE SERVICE

V

V VALVE,  
 DESIGN SPEED  
 VAR VARIABLE  
 VC VERTICAL CURVE  
 VCP VITRIFIED CLAY PIPE  
 VERT VERTICAL  
 VIA VIADUCT  
 VOL VOLUME

W

W WEST,  
 WIDTH  
 WB WESTBOUND  
 WH WEEP HOLE  
 WM WIRE MESH  
 WS WATER SURFACE  
 WSP WELDED STEEL PIPE  
 WT WEIGHT  
 WV WATER VALVE  
 WW WINGWALL  
 WWL WINGWALL LAYOUT LINE  
 W/ WITH

X

X SEC CROSS SECTION  
 XING CROSSING

Y

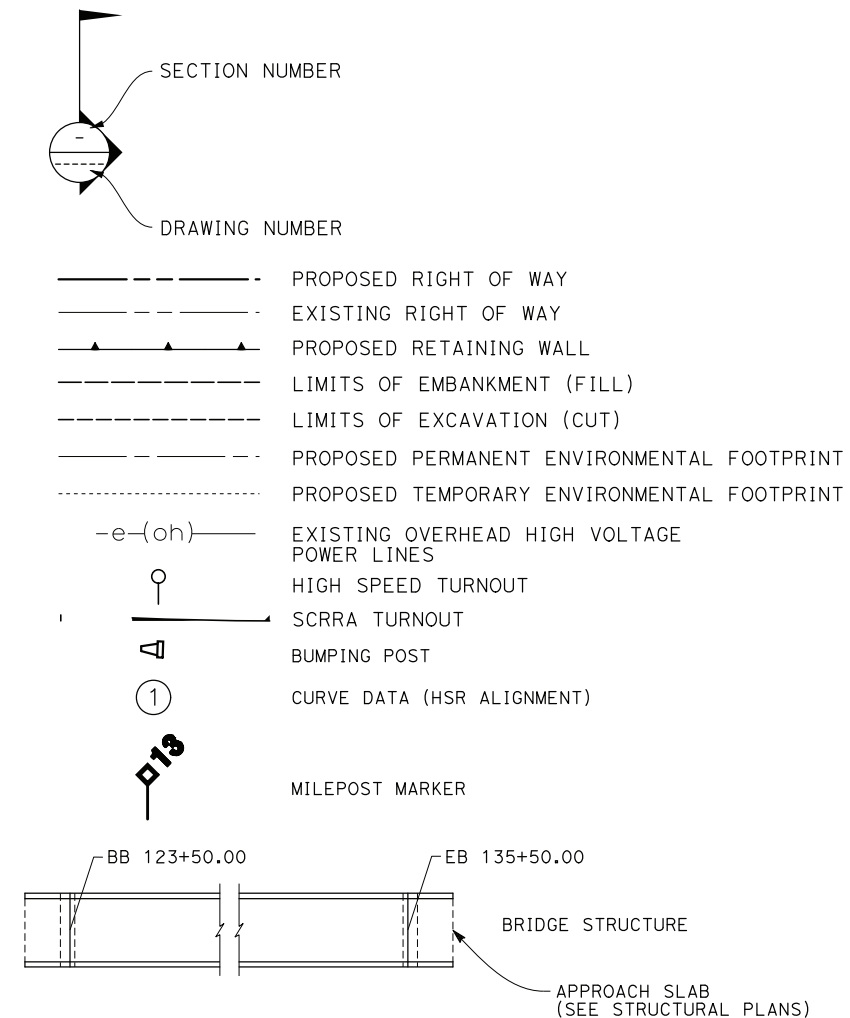
YR YEAR  
 YRS YEARS

GENERAL NOTES

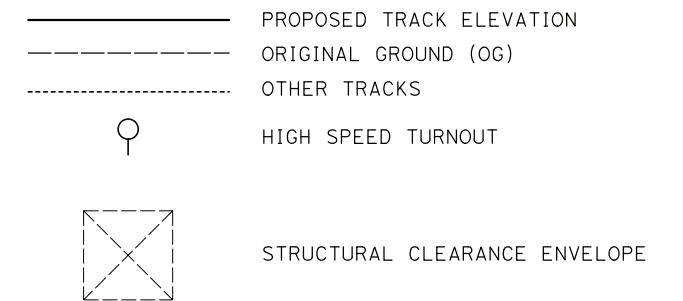
1. TRACK PROFILE IS DESIGNED AS CENTERLINE AT THE TOP OF THE SB LOW RAIL.
2. MINIMUM VERTICAL CLEARANCE REQUIREMENTS TO CANALS AND DITCHES ARE NOT KNOWN. FURTHER CONSULTATION WITH THE WATERCOURSE OWNERS WILL BE REQUIRED TO DETERMINE NECESSARY CLEARANCES. 3'-0" FREEBOARD HAS BEEN ALLOWED OVER THE 100-YEAR FLOOD LEVEL ELEVATIONS OF THE WASHES AND LA RIVER.
3. THE FOLLOWING ARE ROADWAY DESIGN STANDARD AND GUIDELINES:  
 A. CALTRANS HIGHWAY DESIGN MANUAL (2006)  
 B. AASHTO ROADSIDE DESIGN GUIDE (2006)  
 C. APPLICABLE LOCAL DESIGN STANDARD AND GUIDELINES (I.E., CITY OF LOS ANGELES)
4. FOR ROADWAY IMPROVEMENTS, SEE ROADWAY PLANS.
5. FINAL SLOPES TO BE DEFINED AT A LATER STAGE, WHEN THE GEOTECHNICAL STUDY IS AVAILABLE.
6. STRUCTURE DIMENSIONS ARE INDICATIVE.

LEGEND

PLAN



PROFILE



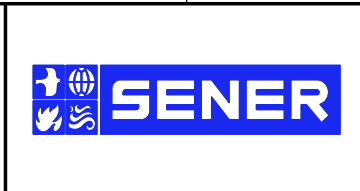
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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
 JC ALAMILLA  
 DRAWN BY  
 JC ALAMILLA  
 CHECKED BY  
 R. RODRIGUEZ  
 IN CHARGE  
 A. RELANO  
 DATE  
 02/01/2019

**BURBANK  
 SUBSECTION  
 DRAFT PEPP  
 REV 01**

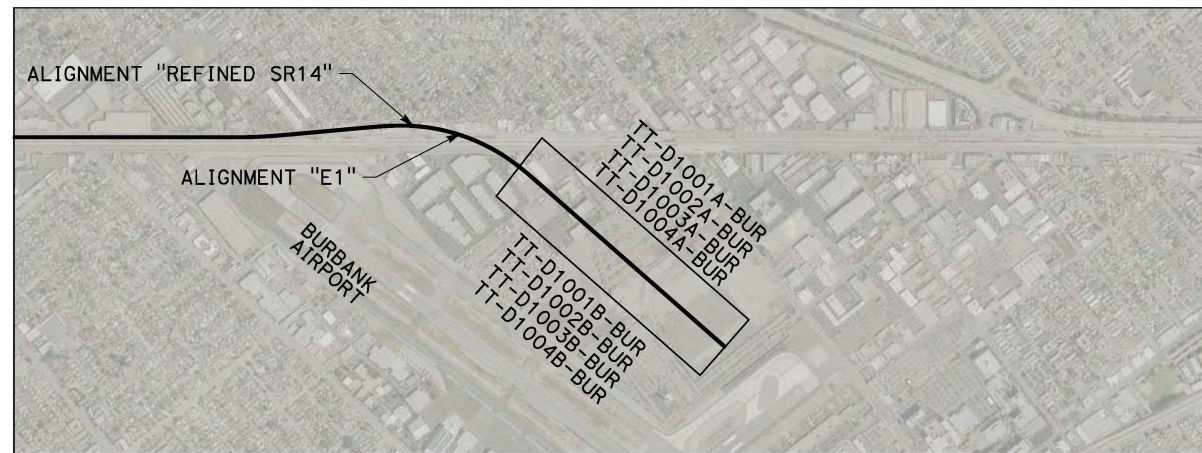
**NOT FOR  
 CONSTRUCTION**



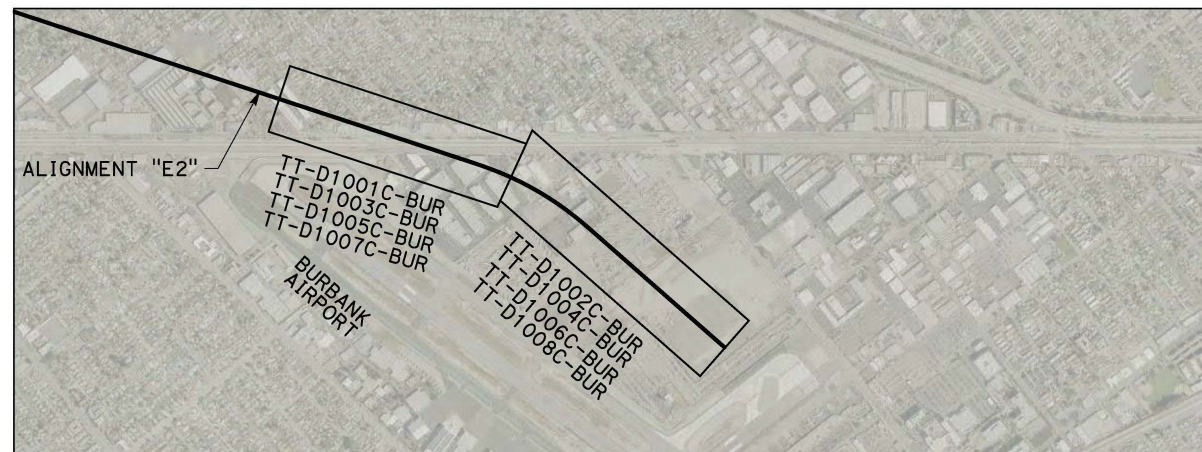
**CALIFORNIA HIGH-SPEED RAIL PROJECT  
 PALMDALE TO BURBANK**  
 BURBANK SUBSECTION

GENERAL  
 ABBREVIATIONS AND LEGEND

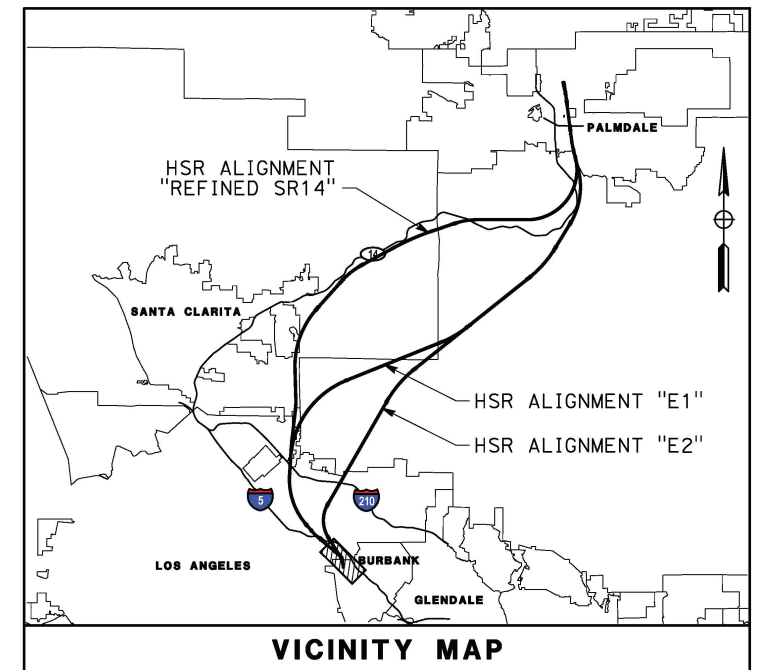
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 DRAWING NO.  
 TT-B0005  
 SCALE  
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 SHEET NO.



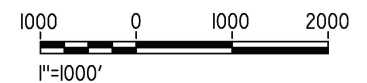
**BURBANK AIRPORT STATION TRACKS**



**BURBANK AIRPORT STATION TRACKS**



	E1	REFINED SR14
MAINLINE	TT-D1001B-BUR	TT-D1001A-BUR
SB STATION TRACK	TT-D1002B-BUR	TT-D1002A-BUR
NB STATION TRACK	TT-D1003B-BUR	TT-D1003A-BUR
NB REFUGE TRACK	TT-D1004B-BUR	TT-D1004A-BUR
	E2	
MAINLINE	TT-D1001C-BUR	TT-D1002C-BUR
SB STATION TRACK	TT-D1003C-BUR	TT-D1004C-BUR
NB STATION TRACK	TT-D1005C-BUR	TT-D1006C-BUR
NB REFUGE TRACK	TT-D1007C-BUR	TT-D1008C-BUR



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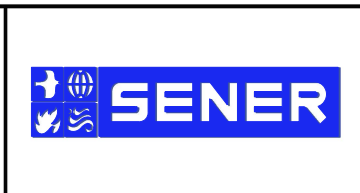
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0400061

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
JC ALAMILLA  
DRAWN BY  
JC ALAMILLA  
CHECKED BY  
R. RODRIGUEZ  
IN CHARGE  
A. RELANO  
DATE  
02/01/2019

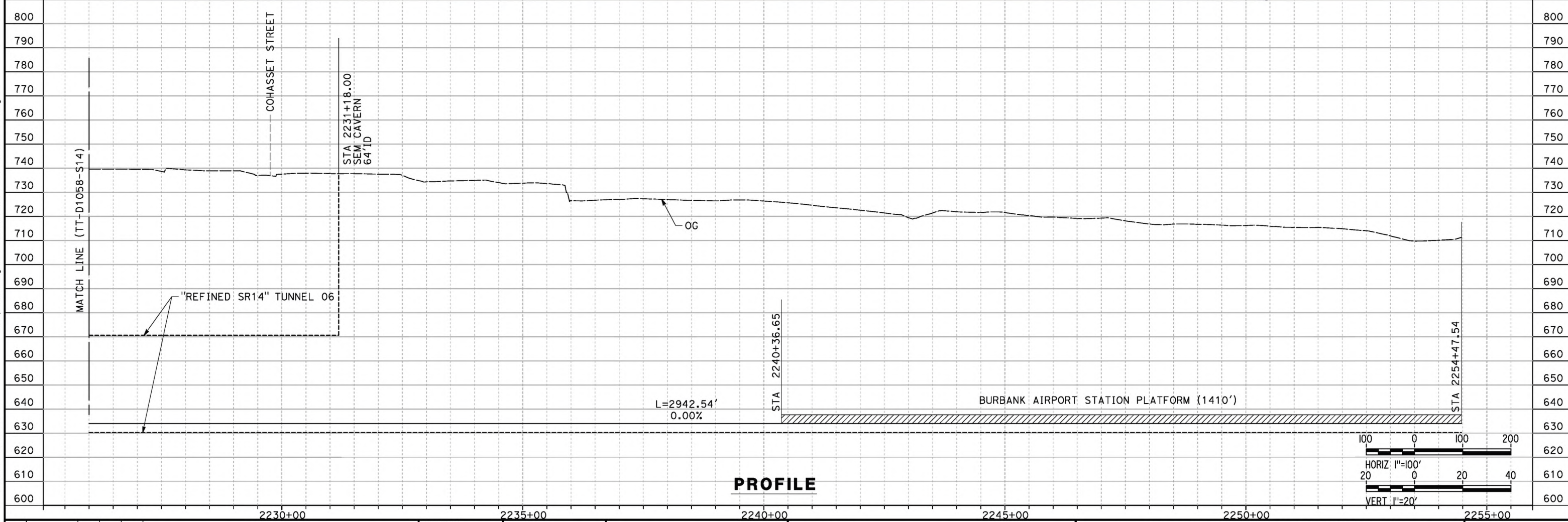
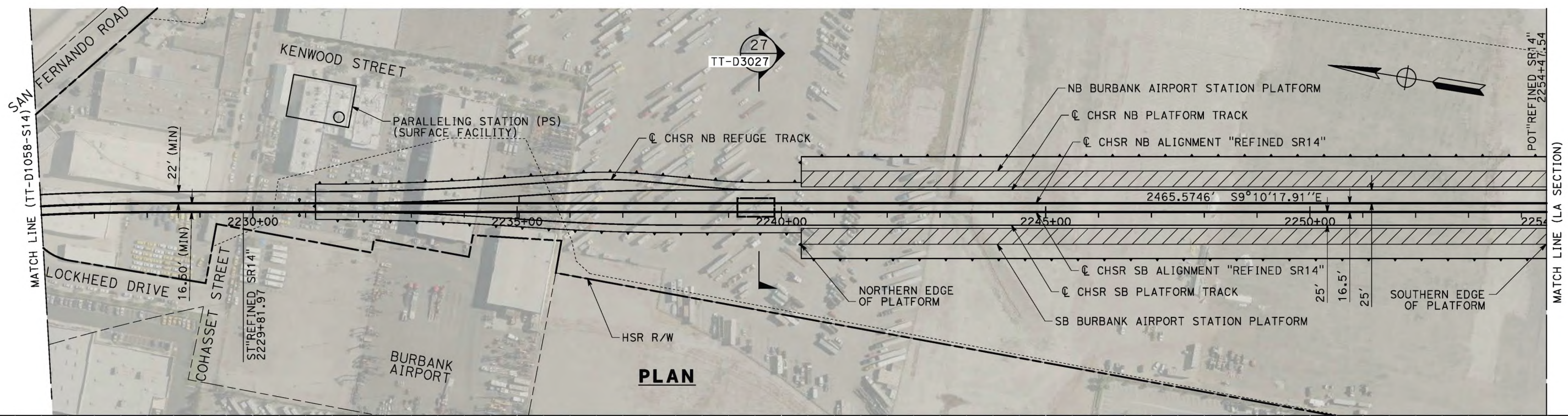
**BURBANK  
SUBSECTION  
DRAFT PEPP  
REV 01  
  
NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
PALMDALE TO BURBANK  
BURBANK SUBSECTION  
  
HIGH SPEED RAIL PLANS  
KEY MAP**

CONTRACT NO.  
HSR14-42  
DRAWING NO.  
TT-C6001-BUR  
SCALE  
AS SHOWN  
SHEET NO.

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
JC ALAMILLA  
DRAWN BY  
JC ALAMILLA  
CHECKED BY  
R. RODRIGUEZ  
IN CHARGE  
A. RELANO  
DATE  
02/01/2019

**BURBANK  
SUBSECTION**  
**DRAFT PEPD  
REV 01**  
**NOT FOR  
CONSTRUCTION**



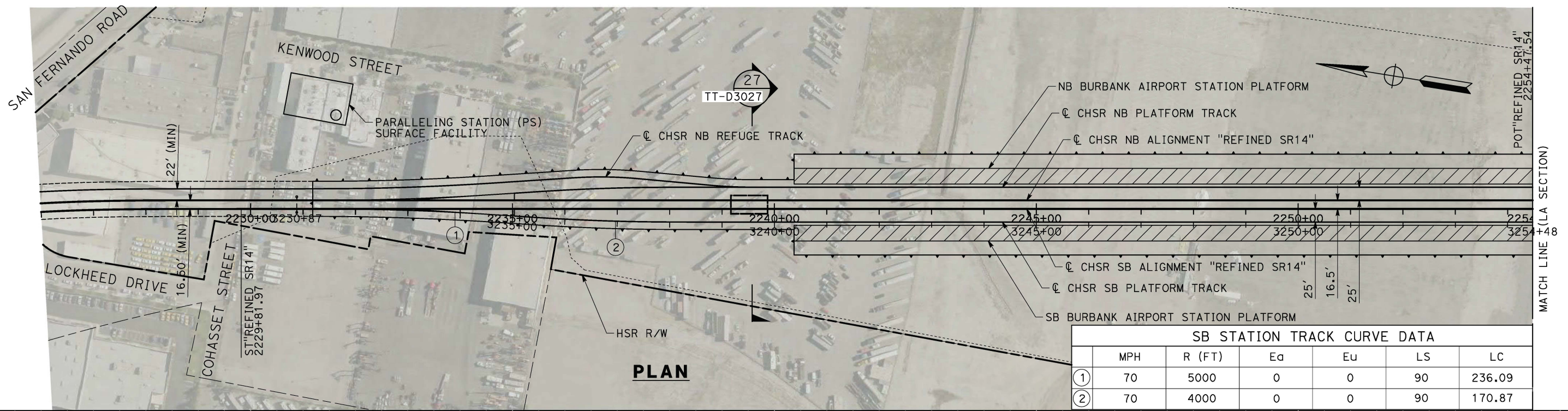
**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
ALIGNMENT "REFINED SR14"  
PLAN AND PROFILE  
STA 2226+00.00 TO STA 2254+47.54

CONTRACT NO.  
**HSR14-42**  
DRAWING NO.  
**TT-D1001A-BUR**  
SCALE  
**AS SHOWN**  
SHEET NO.

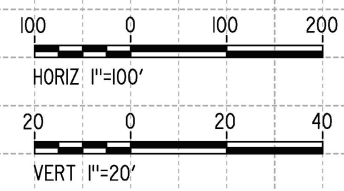
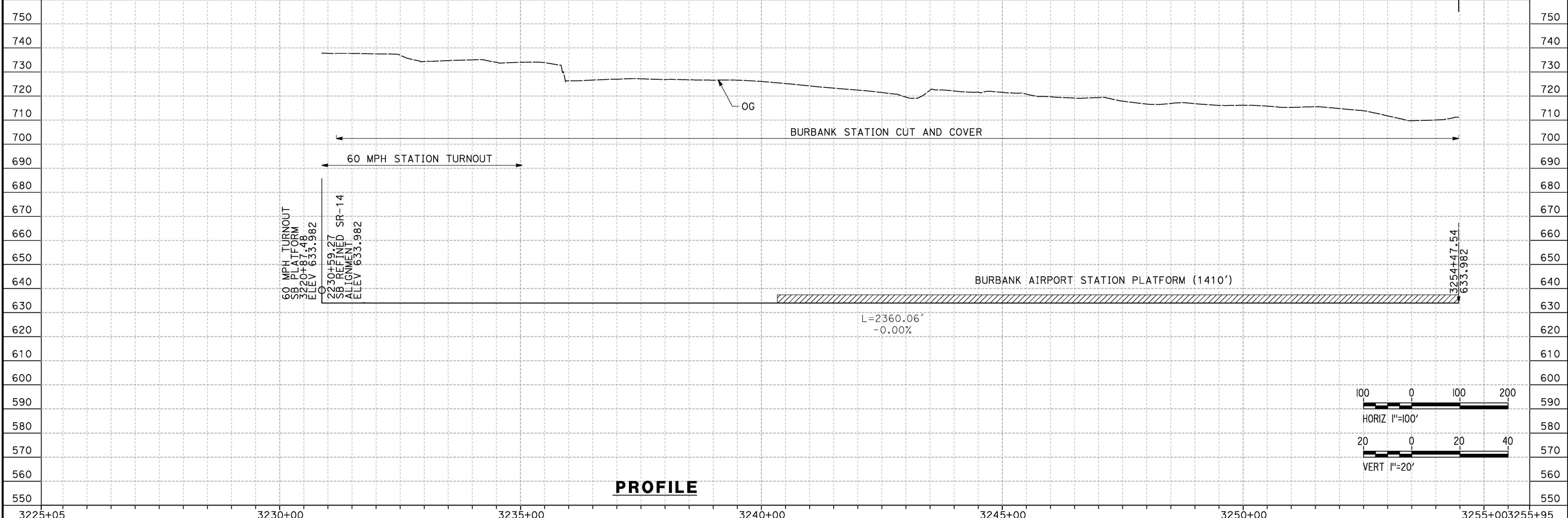
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SB STATION TRACK CURVE DATA						
	MPH	R (FT)	Ea	Eu	LS	LC
①	70	5000	0	0	90	236.09
②	70	4000	0	0	90	170.87



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
JC ALAMILLA  
DRAWN BY  
JC ALAMILLA  
CHECKED BY  
R. RODRIGUEZ  
IN CHARGE  
A. RELANO  
DATE  
02/01/2019

**BURBANK SUBSECTION**  
**DRAFT PEPPD REV 01**  
**NOT FOR CONSTRUCTION**



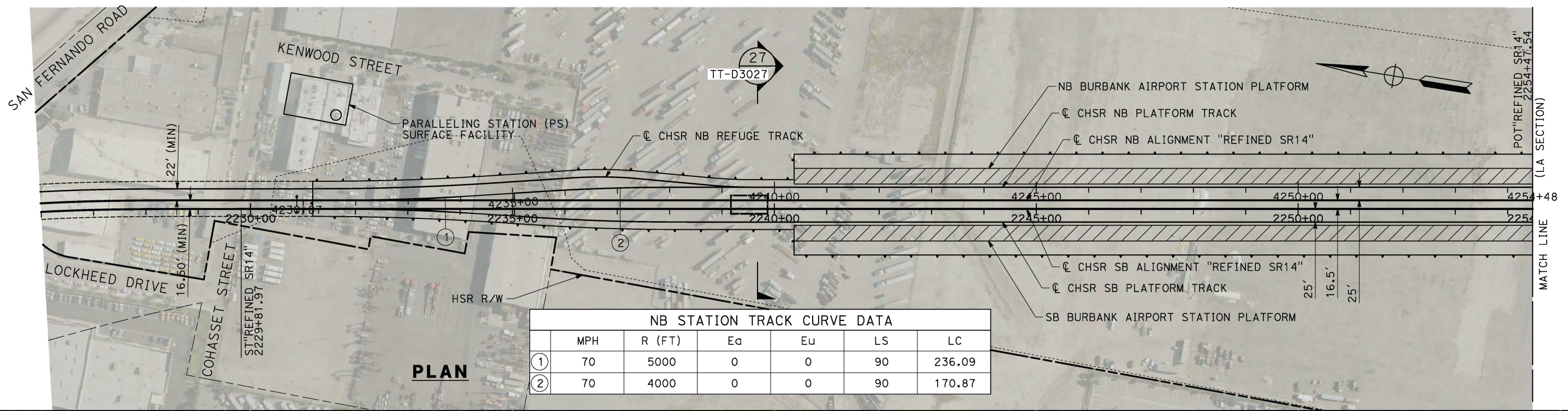
**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
SB BURBANK AIRPORT STATION PLATFORM TRACK "REFINED SR14"  
PLAN AND PROFILE  
STA 3220+87.48 TO STA 3254+47.54

CONTRACT NO.  
HSR14-42  
DRAWING NO.  
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SCALE  
AS SHOWN  
SHEET NO.

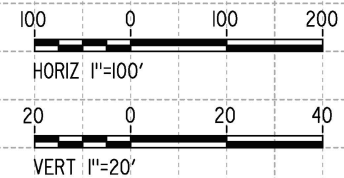
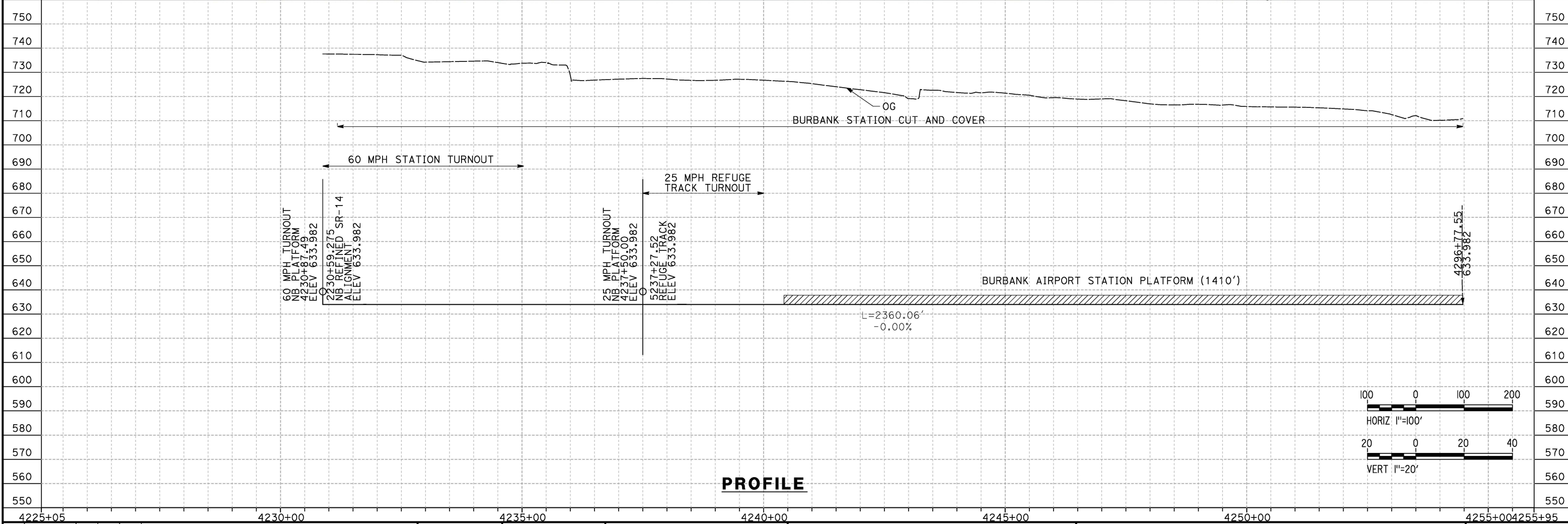
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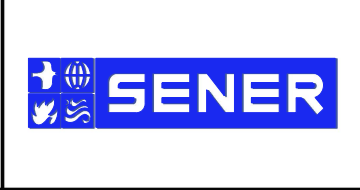
NB STATION TRACK CURVE DATA						
	MPH	R (FT)	Ea	Eu	LS	LC
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②	70	4000	0	0	90	170.87



REV	DATE	BY	CHK	APP	DESCRIPTION

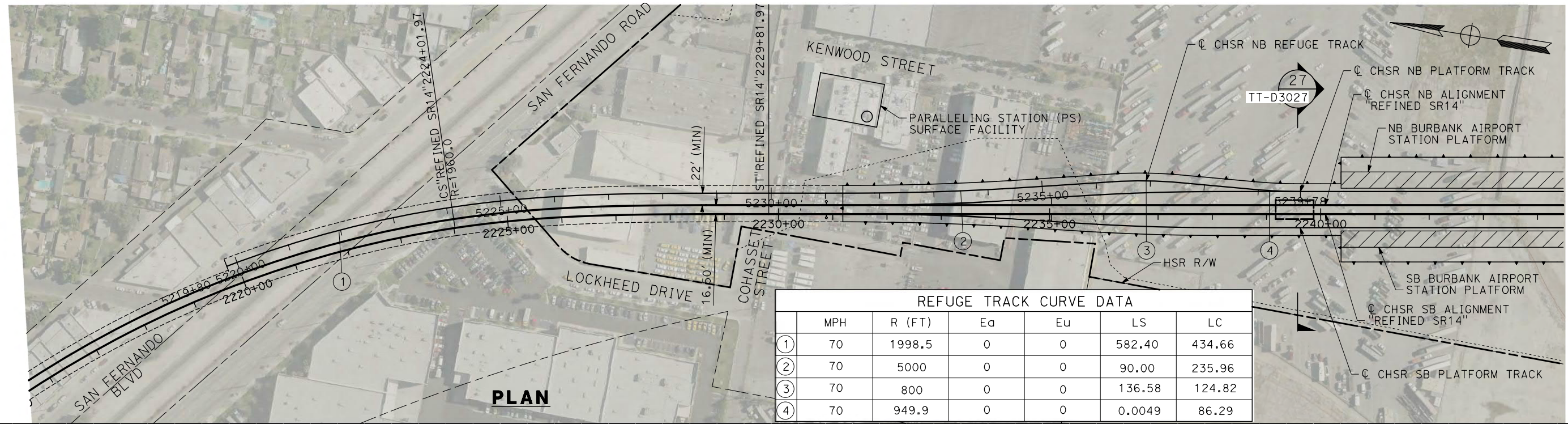
DESIGNED BY  
JC ALAMILLA  
DRAWN BY  
JC ALAMILLA  
CHECKED BY  
R. RODRIGUEZ  
IN CHARGE  
A. RELANO  
DATE  
02/01/2019

**BURBANK SUBSECTION**  
**DRAFT PEPPD REV 01**  
**NOT FOR CONSTRUCTION**

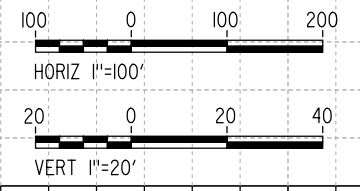
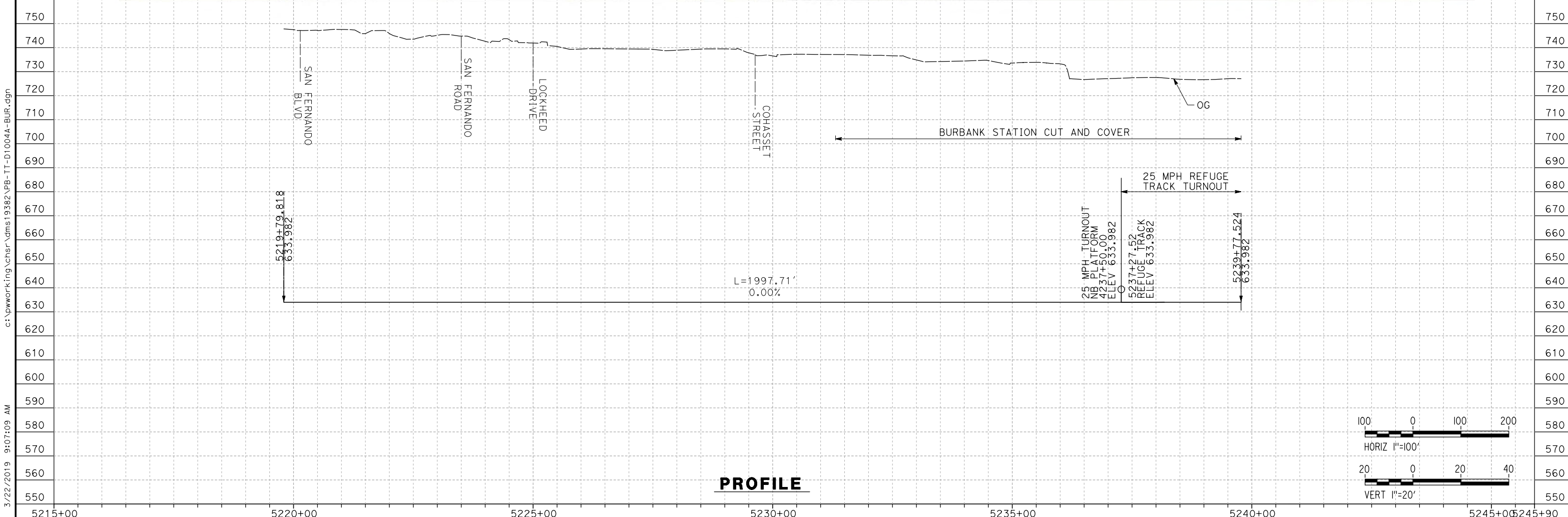


**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
NB BURBANK AIRPORT STATION PLATFORM TRACK "REFINED SR14"  
PLAN AND PROFILE  
STA 4230+87.49 TO STA 4296+77.55

CONTRACT NO.  
HSR14-42  
DRAWING NO.  
TT-D1003A-BUR  
SCALE  
AS SHOWN  
SHEET NO.



REFUGE TRACK CURVE DATA						
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②	70	5000	0	0	90.00	235.96
③	70	800	0	0	136.58	124.82
④	70	949.9	0	0	0.0049	86.29



**PROFILE**

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
JC ALAMILLA  
DRAWN BY  
JC ALAMILLA  
CHECKED BY  
R. RODRIGUEZ  
IN CHARGE  
A. RELANO  
DATE  
02/01/2019

**BURBANK SUBSECTION**  
**DRAFT PEPP REV 01**  
**NOT FOR CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
NB BURBANK AIRPORT STATION REFUGE TRACK "REFINED SR14"  
PLAN AND PROFILE  
STA 5219+79.818 TO STA 5239+77.524

CONTRACT NO.  
HSR14-42  
DRAWING NO.  
TT-D1004A-BUR  
SCALE  
AS SHOWN  
SHEET NO.

California High-Speed Rail Authority

# Burbank Subsection

DRAFT PEPD REV 01

Tunnels Plans

February 2019





**GENERAL**

DRAWING NO.	DRAWING DESCRIPTION	SHEET NO.
TN-B0003	INDEX OF DRAWINGS	
TN-B0004	ABBREVIATIONS AND LEGEND	
TN-B0005	FAULT KEY MAP	
TN-B0007	SCHEMATIC LINEAR DIAGRAMS	

**BURBANK AIRPORT STATION**

DRAWING NO.	DRAWING DESCRIPTION	SHEET NO.
TN-B6002-S14	KEY MAP - HIGH SPEED RAIL TUNNEL PLANS	
TN-D4038-S14	PLAN	
TN-Y1021-S14	PROFILE	

**TYPICAL SECTIONS AND DETAILS**

DRAWING NO.	DRAWING DESCRIPTION	SHEET NO.
TN-C0902	TUNNEL TYPICAL SECTION AND DETAILS. SEM SINGLE TUNNEL, 2 TRACKS+REFUGE TRACK. CLEARANCE DIAGRAM - TANGENT & SUPERELEVATED TRACK	
TN-C0903	CONSTRUCTION SEQUENCE AND SUPPORT MEASURES - SEM SINGLE TUNNEL, 2 TRACKS+REFUGE TRACK	
TN-C1104	SINGLE CELL BOX 2 TRACKS + REFUGE TRACK CUT-AND-COVER TUNNEL. TYPICAL SECTION	
TN-C1105	SINGLE CELL 4 TRACKS + REFUGE TRACK CUT-AND-COVER TUNNEL. TYPICAL SECTION	
TN-C1106	SINGLE CELL 4 TRACKS. CUT-AND-COVER TUNNEL. TYPICAL SECTION	
TN-C1109	BURBANK STATION PLATFORM. CUT-AND-COVER TUNNEL. TYPICAL SECTION	

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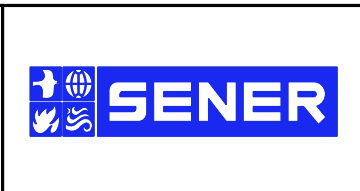
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0205240

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E.VELASCO**  
DRAWN BY  
**F.J.DOMINGUEZ**  
CHECKED BY  
**A.NAVARRO**  
IN CHARGE  
**A.RELANO**  
DATE  
**02/01/2019**

**BURBANK  
SUBSECTION**  
  
**DRAFT PEPD REV01**  
  
**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
  
INDEX OF DRAWINGS

CONTRACT NO.  
HSR14-42  
DRAWING NO.  
TN-B0003  
SCALE  
NO SCALE  
SHEET NO.

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13/03/2019 15:24:57

0205240

<b>A</b>	ANGELES NATIONAL FOREST APPROXIMATE
<b>B</b>	BOULEVARD PRESSURE UNIT
<b>C</b>	CANYON CALIFORNIA HIGH-SPEED RAIL CALIFORNIA HIGH-SPEED TRAIN PROJECT
<b>CL</b>	CENTER LINE
<b>C&amp;C</b>	CUT-AND-COVER
<b>CGS</b>	CALIFORNIA GEOLOGICAL SURVEY
<b>CP</b>	CROSS-PASSAGE, FOR EMERGENCY EGRESS
<b>CT</b>	COMMUNICATION TOWER
<b>E</b>	EASTING, EAST
<b>E.G.</b>	FOR EXAMPLE
<b>EQ</b>	EARTHQUAKE
<b>ET</b>	EMERGENCY TELEPHONE
<b>ETD</b>	ENLARGED TUNNEL DIAMETER
<b>F</b>	FIRE HYDRANT
<b>FH</b>	FIRE HYDRANT
<b>FT</b>	FEET
<b>FWY</b>	FREEWAY
<b>G</b>	ONE OF THE TSI REFERENCE GAUGES, USED IN DEVELOPING CLEARANCES FOR THE CHSTP
<b>GC</b>	ONE OF THE TSI REFERENCE GAUGES, USED IN DEVELOPING CLEARANCES FOR THE CHSTP
<b>GWP</b>	GROUND WATER PRESSURE
<b>H</b>	HAZARDOUS FAULT ZONE
<b>HFZ</b>	HAZARDOUS FAULT ZONE
<b>HSR</b>	HIGH SPEED RAIL
<b>HWY</b>	HIGHWAY
<b>I</b>	INNER DIAMETER
<b>ID</b>	INNER DIAMETER
<b>IW</b>	INTERMEDIATE WINDOW (FOR CONSTRUCTION PURPOSES ONLY)
<b>I-210</b>	I-210 FREEWAY
<b>K</b>	KILOGRAM
<b>KG</b>	KILOGRAM
<b>L</b>	FLOOD LIGHTS, LENGTH
<b>L</b>	FLOOD LIGHTS, LENGTH
<b>M</b>	METER
<b>MI</b>	MILE, MINED TUNNEL IN ROCK
<b>MIM</b>	MINIMUM
<b>MPH</b>	MILES PER HOUR

<b>N</b>	NORTHING, NORTH
<b>NATM</b>	NEW AUSTRIAN TUNNELING METHOD
<b>NB</b>	NORTH BOUND
<b>NFPA</b>	NATIONAL FIRE PROTECTION ASSOCIATION
<b>O</b>	OVERHEAD CATENARY SYSTEM
<b>OCS</b>	OVERHEAD CATENARY SYSTEM
<b>OG</b>	ORIGINAL GROUND
<b>P</b>	TUNNEL PORTAL WITH PERMANENT FACILITIES
<b>PERM.</b>	PERMANENT
<b>PROP.</b>	PROPOSED
<b>PHFZ</b>	POTENTIALLY HAZARDOUS FAULT ZONE
<b>POT</b>	POINT OF TANGENT (ALIGNMENT RELATED)
<b>PS</b>	TRACTION POWER PARALLELLING STATION
<b>R</b>	RADIUS
<b>RC</b>	REINFORCED CONCRETE
<b>RD</b>	ROAD
<b>R/W, ROW</b>	RIGHT OF WAY
<b>S</b>	SOUTH
<b>SB</b>	SOUTH BOUND
<b>SEM</b>	SEQUENTIAL EXCAVATION METHOD
<b>SQFT</b>	SQUARE FEET
<b>SS</b>	TRACTION POWER SUBSTATION
<b>ST</b>	STREET, SINGLE TUNNEL
<b>STA</b>	STATION
<b>SGFZ</b>	SAN GABRIEL FAULT ZONE
<b>SCRRA</b>	SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
<b>T,+</b>	THICKNESS
<b>TBD</b>	TO BE DECIDED
<b>TBM</b>	TUNNEL BORING MACHINE
<b>TCSA</b>	TEMPORARY CONSTRUCTION STAGING AREA FOR TUNNELS
<b>TH-21,</b>	STEEL ARCHES IN OMEGA PROFILE.
<b>TH-29</b>	FOR GROUND SUPPORT IN MINED/SEM TUNNELS
<b>TM</b>	TECHNICAL MEMORANDUM
<b>TOR</b>	TOP OF RAIL
<b>TPPS</b>	TRACTION POWER PARALLELLING STATION
<b>TR</b>	CROSS-PASSAGE, FOR TECHNICAL EQUIPMENT
<b>TSEFZ,</b>	TRAIN SURFACE EVACUATION AND
<b>TSEFCZ</b>	FIRE CONTROL ZONE
<b>TSI</b>	THE EUROPEAN UNION'S (EU) TECHNICAL SPECIFICATIONS FOR INTEROPERABILITY
<b>TYP</b>	TYPICAL
<b>U</b>	UNDERGROUND PARALLELING STATION
<b>USGS</b>	U.S. GEOLOGICAL SURVEY
<b>UPS</b>	UNDERGROUND PARALLELING STATION

<b>V</b>	VIADUCT
<b>VCP</b>	VENTILATION CONTROL PANEL
<b>VC</b>	VERTICAL CURVE (ALIGNMENT RELATED)
<b>W</b>	WAYSIDE POWER CONTROL CUBICLE
<b>W</b>	WASH
<b>WWM</b>	WELDED WIRE MESH

**GENERAL NOTES**

- STRUCTURE DIMENSIONS ARE INDICATIVE. TO BE CONFIRMED.
- TUNNEL DIMENSIONS ARE INDICATIVE. TO BE CONFIRMED.
- TUNNEL SURFACE FACILITIES ARE INDICATIVE. TO BE CONFIRMED.
- RAILWAY INSTALLATIONS ARE INDICATIVE. TO BE CONFIRMED.
- FINAL SLOPES TO BE DEFINED AT A LATER STAGE, WHEN THE GEOTECHNICAL STUDY IS AVAILABLE.
- FAULTS AND EXTENT OF FAULT ZONES SHOWN ARE ONLY ORIENTATIVE AND, ARE SUBJECT TO CHANGE, SOURCE: FAULT - USGS QUATERNARY FAULT AND FOLD DATABASE AND CGS GEOLOGIC MAP DATA BASES FAULT ZONE ACTIVITY CLASSIFICACION - CHSR 15% DRAFT FAULT HAZARD EVALUATION REPORT, 2015.
- ALL DIMENSIONS ARE IN FEET UNLESS NOTED OTHERWISE.
- TWIN TUNNELS CROSS-PASSAGES DISTRIBUTED ALONG ALIGNMENTS: CP FOR EMERGENCY EGRESS, EVERY 800 FT. CP FOR TECHNICALROOMS, EVERY MILE.

**LEGEND**

**PLAN**

	PROPOSED PERMANENT ENVIRONMENTAL FOOTPRINT
	CONSTRUCTION STAGING AREA / PROPOSED TEMPORARY ENVIRONMENTAL FOOTPRINT
	FENCE LINE / HSR ROW
	LIMITS OF EMBANKMENT (FILL)
	LIMITS OF EXCAVATION (CUT)
	PROPOSED RETAINING WALL
	PROPOSED TUNNEL
	INCLINED DESCENDING GALLERY
	UNDERGROUND EASEMENT FOR EMERGENCY/RESCUE STATION
	TRACTION POWER FACILITY
	100 YEAR FLOOD ZONE
	ANGELES NATIONAL FOREST BOUNDARY

CONTROL LINE EXAMPLE "A" LINE  
255+00      260+00      265+00

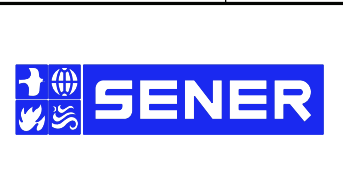
**PROFILE**

	PROPOSED TRACK ELEVATION ( SB TRACK)
	ORIGINAL GROUND (OG)
	PROPOSED TUNNEL HEADWALL
	PROPOSED TUNNEL

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>E. VELASCO</b>
DRAWN BY <b>F.J. DOMINGUEZ</b>
CHECKED BY <b>A. NAVARRO</b>
IN CHARGE <b>A. RELAÑO</b>
DATE <b>02/01/2019</b>

**BURBANK SUBSECTION**  
**DRAFT PEPP REV01**  
**NOT FOR CONSTRUCTION**



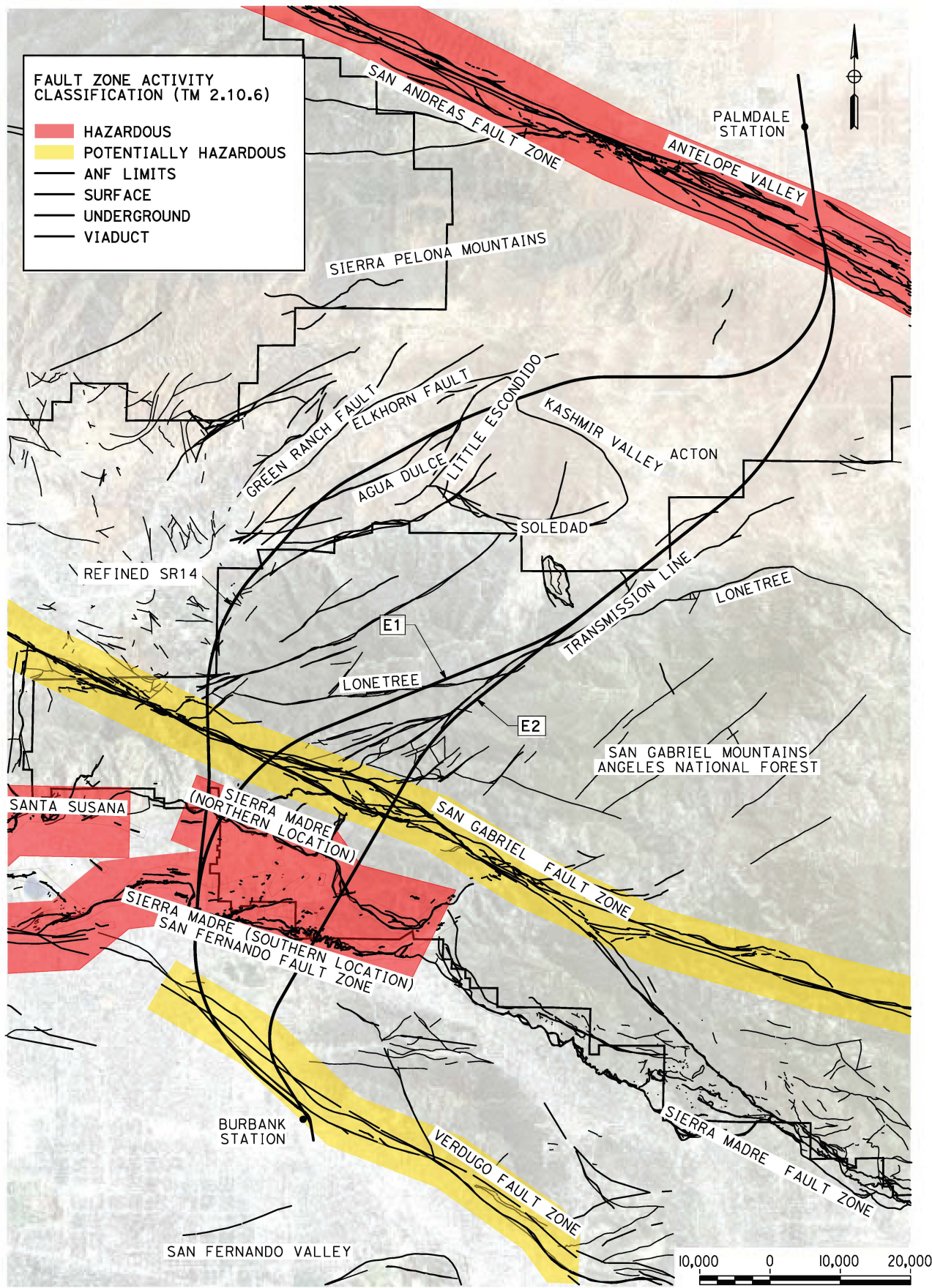
**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
ABBREVIATIONS AND LEGEND

CONTRACT NO. HSR14-42
DRAWING NO. TN-B0004
SCALE NO SCALE
SHEET NO.

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**NOTE:**

PRELIMINARY DRAFT/SUBJECT TO CHANGE

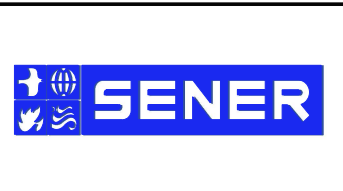
**SOURCE:**

FAULTS - USGS QUATERNARY FAULT AND FOLD DATABASE AND CGS GEOLOGIC MAP DATABASES  
 FAULT ZONE ACTIVITY CLASSIFICATION - CHSR 15% DRAFT FAULT HAZARD EVALUATION REPORT, 2015.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E.VELASCO**  
 DRAWN BY  
**F.J.DOMINGUEZ**  
 CHECKED BY  
**A.NAVARRO**  
 IN CHARGE  
**A.RELAÑO**  
 DATE  
**02/01/2019**

**BURBANK SUBSECTION**  
**DRAFT PEPD REV01**  
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**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
 BURBANK SUBSECTION  
**FAULT KEY MAP**

CONTRACT NO.  
HSR14-42  
 DRAWING NO.  
TN-B0005  
 SCALE  
AS SHOWN  
 SHEET NO.

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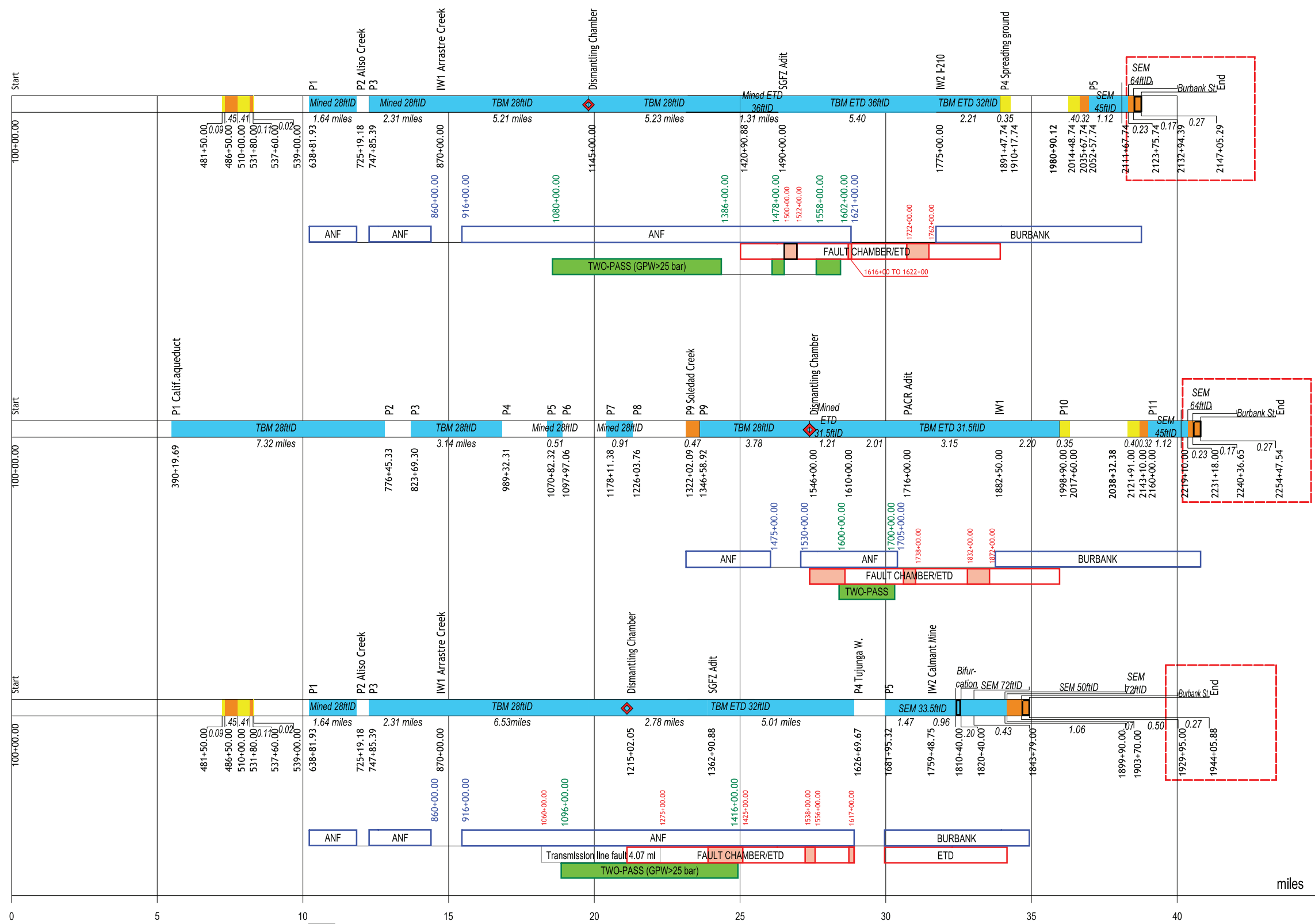
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E1  
38.77 miles

REFINED  
SR14  
40.80 miles

E2  
34.93 miles



- Tunnel (TOR depth >100ft)
- Open trench (TOR depth <35ft)
- Cut-and-Cover (35ft < TOR depth <100ft)
- Burbank Station C&C
- Fault chamber

- ETD Enlarged Tunnel Diameter
- ID Internal diameter
- GWP Groundwater Pressure
- ST Single Tunnel, double track
- ANF Angeles National Forest
- ISGFZ San Gabriel Fault Zone
- TBM Tunnel Boring Machine
- SEM Sequential Excavation Method
- PACR Pacoima reservoir
- P Tunnel portal with permanent facilities
- IW Tunnel Intermediate Window (for construction)
- ◇ TBM underground dismantling chamber

DESIGNED BY  
**E. VELASCO**  
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**F.J. DOMINGUEZ**  
CHECKED BY  
**A. NAVARRO**  
IN CHARGE  
**A. RELAÑO**  
DATE  
**02/01/2019**

**BURBANK  
SUBSECTION**  
**DRAFT PEPP REV01**  
**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
SCHEMATIC LINEAR DIAGRAMS

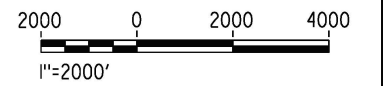
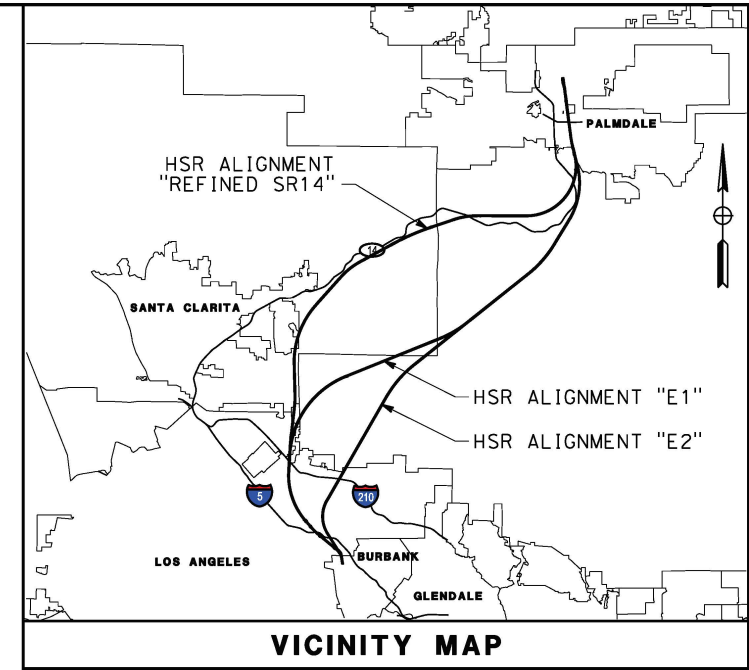
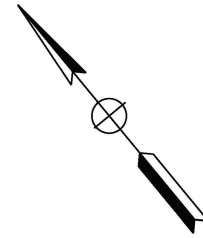
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DRAWING NO.  
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SHEET NO.

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**E.VELASCO**

DRAWN BY  
**F.J.DOMINGUEZ**

CHECKED BY  
**A.NAVARRO**

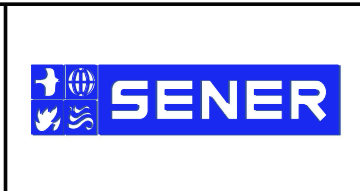
IN CHARGE  
**A.RELAÑO**

DATE  
**02/01/2019**

**BURBANK  
SUBSECTION**

**DRAFT PEPD REV01**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**

**PALMDALE TO BURBANK**

BURBANK SUBSECTION

KEY MAP  
HIGH SPEED RAIL TUNNEL PLANS

CONTRACT NO.  
HSR14-42

DRAWING NO.  
TN-B6002-S14

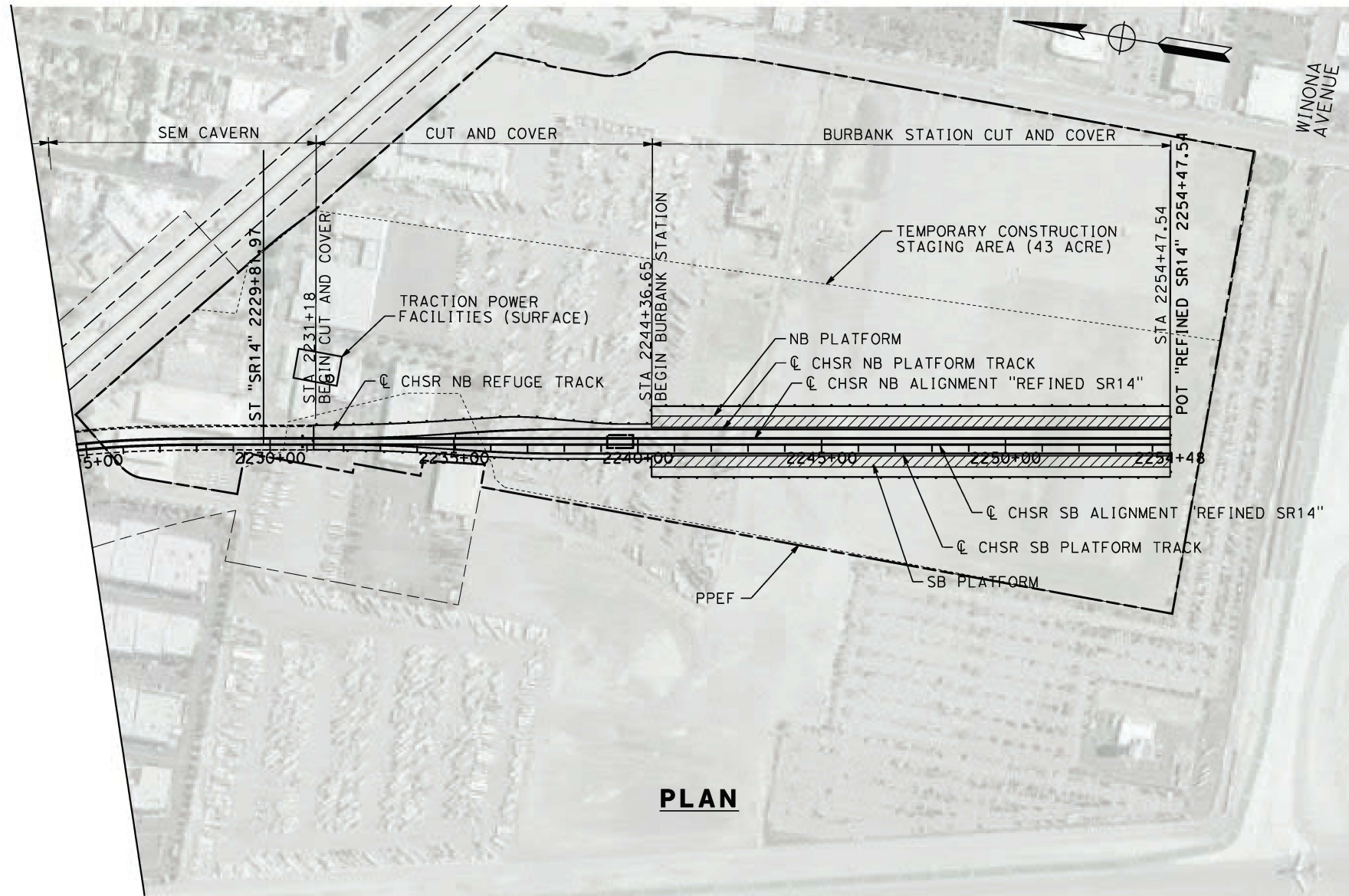
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SHEET NO.

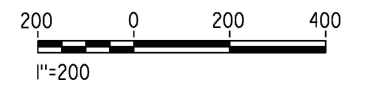
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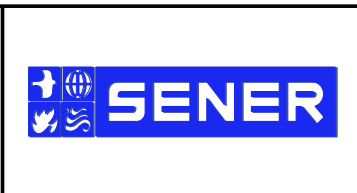
**PLAN**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E.VELASCO**  
DRAWN BY  
**F.J.DOMINGUEZ**  
CHECKED BY  
**A.NAVARRO**  
IN CHARGE  
**A.RELAÑO**  
DATE  
**02/01/2019**

**BURBANK  
SUBSECTION**  
**DRAFT PEPD REV01**  
**NOT FOR  
CONSTRUCTION**



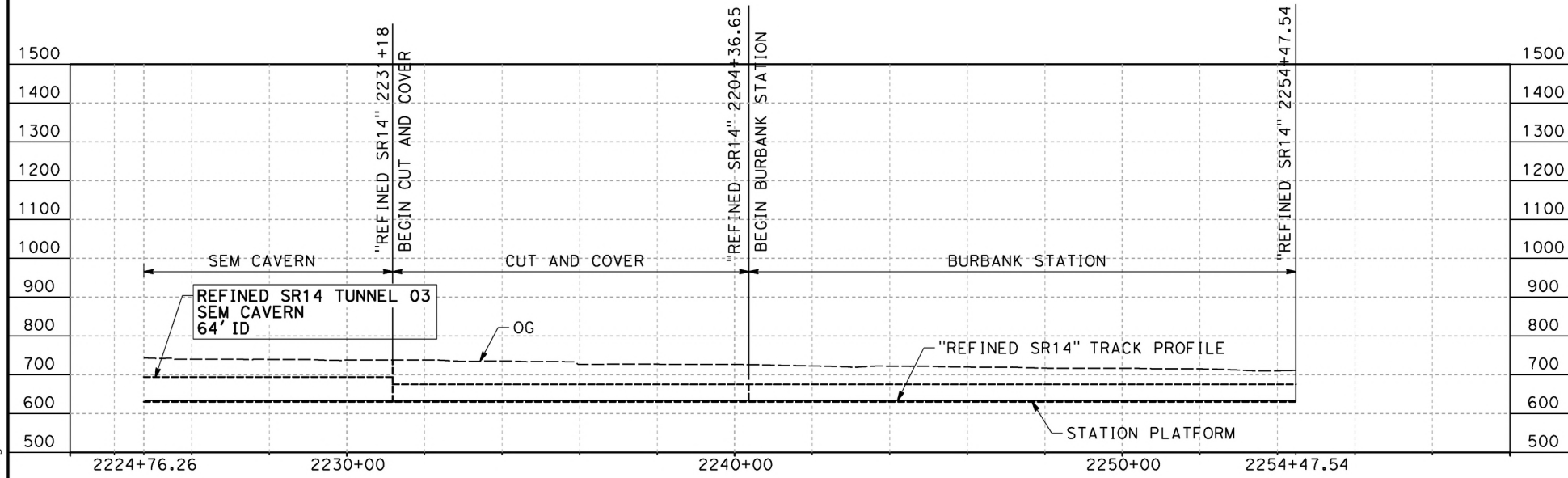
**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
  
PLAN

CONTRACT NO.  
HSR14-42  
DRAWING NO.  
TN-D4038-S14  
SCALE  
AS SHOWN  
SHEET NO.

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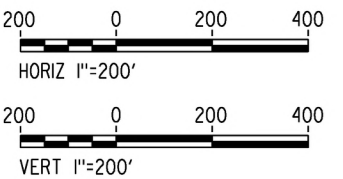
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**PROFILE**

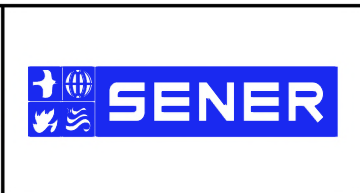
**NOTE:**  
FAULT ZONES LIMITS APPROXIMATE ONLY



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E.VELASCO**  
DRAWN BY  
**F.J.DOMINGUEZ**  
CHECKED BY  
**A.NAVARRO**  
IN CHARGE  
**A.RELAÑO**  
DATE  
**02/01/2019**

**BURBANK SUBSECTION**  
**DRAFT PEPD REV01**  
**NOT FOR CONSTRUCTION**

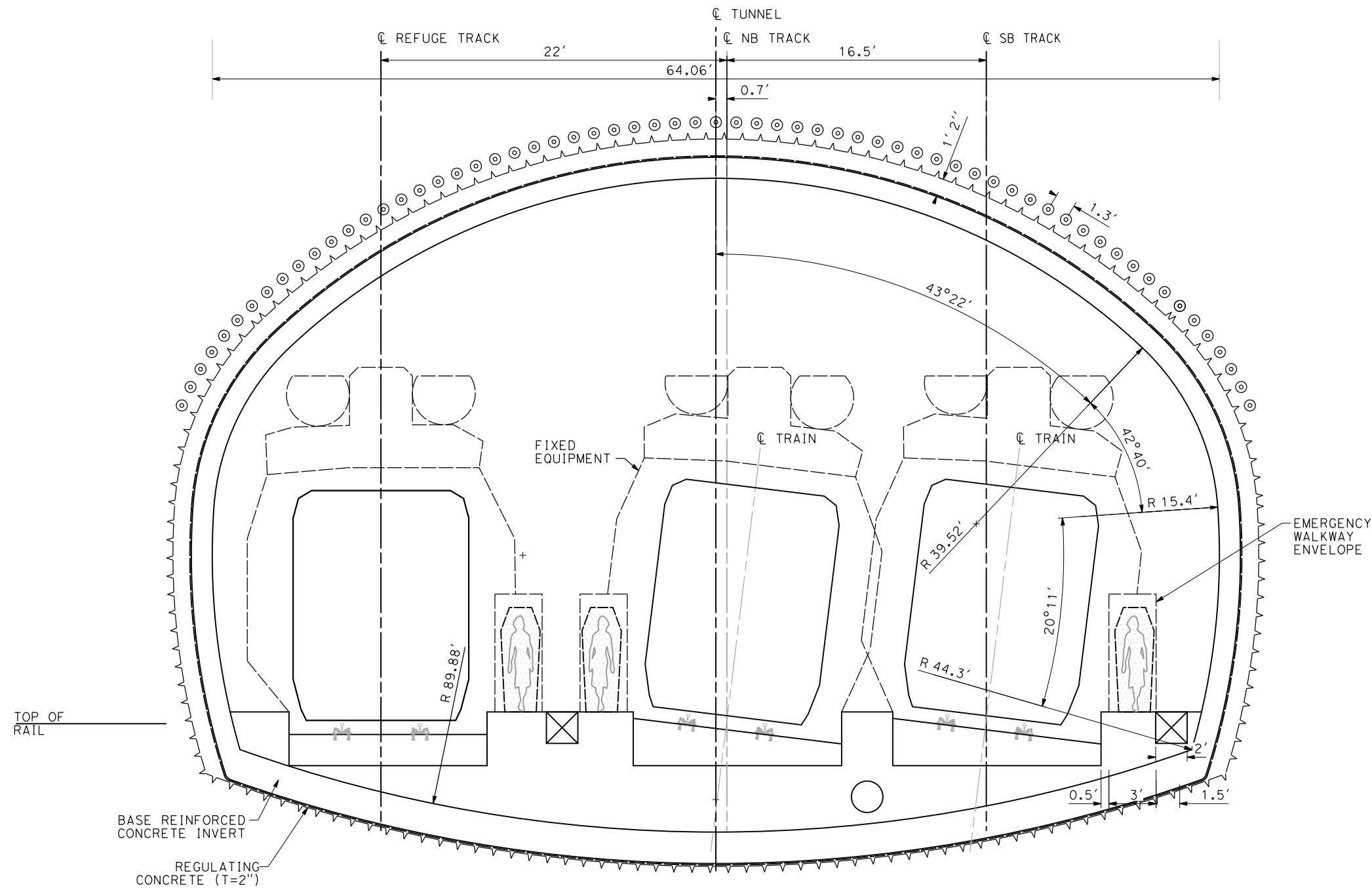


**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
PROFILE

CONTRACT NO.  
**HSR14-42**  
DRAWING NO.  
**TN-Y1021-S14**  
SCALE  
**AS SHOWN**  
SHEET NO.

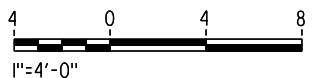
**NOTES:**

1. SINGLE MINED TUNNEL, DOUBLE TRACK IS AN OPTION FOR SHORT TUNNELS AT BURBANK AREA.
2. EXCAVATION, GROUND SUPPORT, DRAINAGE, TUNNEL LINING AND WATER AND GAS TIGHTNESS PROVISIONS TBD.
3. FOR EQUIPMENT STRUCTURE GAUGES, REFER TO DRAWINGS TN-C0004 TO TN-C0007.
4. SPACE PROOFING REQUIRES FARTHER STUDY TO EVALUATE DYNAMIC AIRFLOW/PRESSURE LEVELS UNDER HIGH SPEED OPERATING CONDITIONS, AND TO FARTHER DEFINE SPACE ALLOTTED FOR STRUCTURES, EQUIPMENT, DRAINAGE AND EGRESS.
5. EMERGENCY EGRESS SHALL NOT BE FARTHER THAN 2500 FT APART (NFPA 130).
6. CROSS-SECTION SHOWN HAS A FREE TUNNEL CROSS-SECTIONAL AREA OF 1195 SQ FT, COMPLIANT WITH THE MINIMUM AREA OF 2x595 SQ FT REQUIRED FOR 220 MPH DESIGN SPEED AND TUNNEL LENGTH FROM 0.6 TO 22 MILES (REF. TN 2.42-C). OTHER TUNNEL LENGTH REQUIRES A DIFFERENT MINIMUM FREE CROSS-SECTIONAL AREA.
7. SPACE PROOFING REQUIRES FARTHER STUDY TO EVALUATE DYNAMIC AIRFLOW/PRESSURE LEVELS UNDER HIGH SPEED OPERATING CONDITIONS, AND TO FARTHER DEFINE SPACE ALLOTTED FOR STRUCTURES, EQUIPMENT, DRAINAGE AND EGRESS.



34.72'  
6.87'

**TUNNEL TYPICAL SECTION SEM SINGLE TUNNEL (2 TRACKS + REFUGE TRACK)  
TANGENT & SUPERELEVATED TRACK**



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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E. VELASCO**  
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**F.J. DOMINGUEZ**  
CHECKED BY  
**A. NAVARRO**  
IN CHARGE  
**A. RELAÑO**  
DATE  
**02/01/2019**

**BURBANK  
SUBSECTION**  
**DRAFT PECD REV01**  
**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
SEM SINGLE TUNNEL, 2 TRACKS + REFUGE TRACK  
CLEARANCE DIAGRAM - TANGENT AND SUPERELEVATED TRACK

CONTRACT NO.  
**HSR14-42**  
DRAWING NO.  
**TN-C0902**  
SCALE  
**AS SHOWN**  
SHEET NO.



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BASIC QUANTITIES PER FT OF TUNNEL	
SEM SINGLE TUNNEL	PRIMARY LINING TYPE
SEM SINGLE TUNNEL	
EXCAVATION AREA (SQ.FT.)	2641.3
TUNNEL PRIMARY LINING AREA (SQ.FT.)	155.7
REGULATING CONCRETE (2 in) (SQ.FT.) (INVERT)	10.6
LATTICE GIRDER (FT)	125/3=41.7
WATER & GAS PROOFING MEMBRANE (FT)	185.9
FORMWORK (FT)	114
SECONDARY LINING AREA CONCRETE (sides&corn) (SQ.FT.)	154
SECONDARY LINING AREA CONCRETE (invert) (SQ.FT.)	128.5
MICROPILES CANOPY (FT)	83.8
PHASE 1, 2, 3 PRIMARY LINING (SQ.FT.)	116.4
PHASE 1, 2, 3 LATTICE GIRDER (FT)	105.1/3=35
PHASE 3 AND 4 (SQ.FT.) REGULATING CONCRETE	6.4

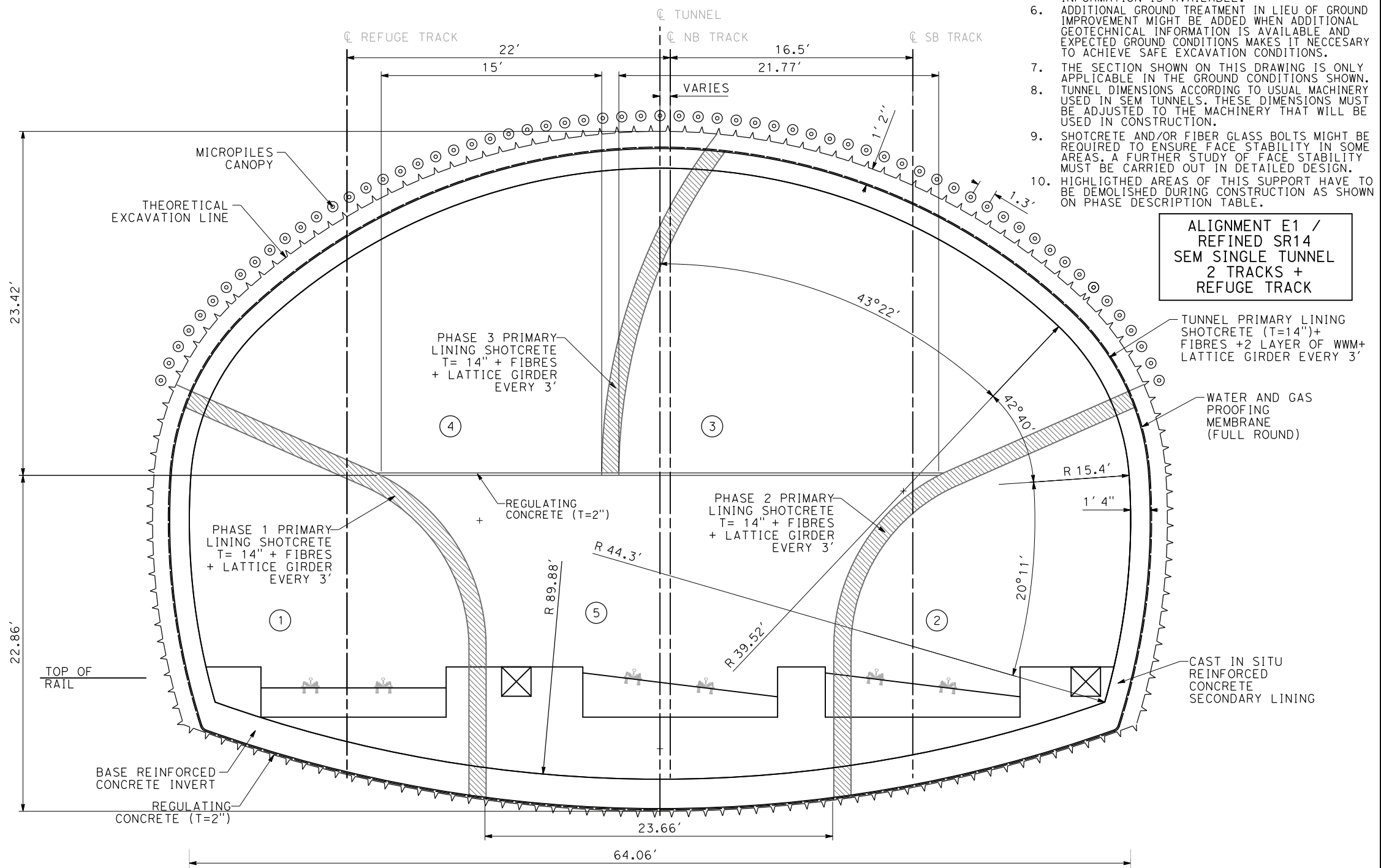
PRIMARY LINING (EXAMPLE ONLY, NOT ACTUAL DESIGN)					
DENOMINATION	SHOTCRETE THICKNESS (in)	STEEL ARCHES	REINFORCEMENT	ADVANCE LENGTH (ft)	PIPE CANOPY
*SOIL CONDITIONS	14	LATTICE GIRDER EVERY 3'	FIBRES & 2 LAYERS WWM	3' TOP HEADING AND PHASE 1 6' BENCH	YES

\*FINE-MEDIUM GRAIN SAND WITH SILT DENSE TO VERY DENSE. NO GROUNDWATER EXPECTED.

- NOTES:**
- SINGLE SEM TUNNEL, DOUBLE TRACK IS AN OPTION FOR SHORT TUNNELS AT BURBANK AREA. THIS DRAWING IS NOT ACTUAL DESIGN. ITS PURPOSE IS TO BUILD UNIT PRICES AT PEPP LEVEL.
  - EXCAVATION, GROUND SUPPORT, DRAINAGE, TUNNEL LINING AND WATER AND GAS TIGHTNESS PROVISIONS TBD.
  - TYPICAL SUPPORT MEASURES AND INNER LINING THICKNESSES ARE GIVEN WITH ORIENTATIVE PURPOSES ONLY. ACTUAL DESIGN WILL REQUIRE RESULTS OF ADEQUATE GEOTECHNICAL INVESTIGATION.
  - EXCAVATION SEQUENCE AND PHASE (INCLUDING A POSSIBLE SUBDIVISION OF THE TOP HEADING) MUST BE REVISITED WHEN ADEQUATE GEOTECHNICAL INFORMATION IS AVAILABLE.
  - ADDITIONAL GROUND TREATMENT IN LIEU OF GROUND IMPROVEMENT MIGHT BE ADDED WHEN ADDITIONAL GEOTECHNICAL INFORMATION IS AVAILABLE AND EXPECTED GROUND CONDITIONS MAKES IT NECESSARY TO ACHIEVE SAFE EXCAVATION CONDITIONS.
  - THE SECTION SHOWN ON THIS DRAWING IS ONLY APPLICABLE IN THE GROUND CONDITIONS SHOWN. TUNNEL DIMENSIONS ACCORDING TO USUAL MACHINERY USED IN SEM TUNNELS. THESE DIMENSIONS MUST BE ADJUSTED TO THE MACHINERY THAT WILL BE USED IN CONSTRUCTION.
  - SHOTCRETE AND/OR FIBER GLASS BOLTS MIGHT BE REQUIRED TO ENSURE FACE STABILITY IN SOME AREAS. A FURTHER STUDY OF FACE STABILITY MUST BE CARRIED OUT IN DETAILED DESIGN.
  - HIGHLIGHTED AREAS OF THIS SUPPORT HAVE TO BE DEMOLISHED DURING CONSTRUCTION AS SHOWN ON PHASE DESCRIPTION TABLE.

PHASE	DESCRIPTION
0	-MICROPILES CANOPY INSTALLATION (EVERY 30')
1&2	-EXCAVATION OF PHASES 1 AND 2, AND APPLICATION OF A STABILIZATION LAYER OF SHOTCRETE. -INSTALLATION OF LATTICE GIRDERS OF PHASES 1 AND 2. -SPRAYING OF REINFORCING SHOTCRETE + 2 LAYERS OF WWM. -INSTALLATION OF WATER AND GAS PROOFING MEMBRANE. -INSTALLATION OF INNER LINING (SECONDARY). FIRST INVERT AND SECOND SIDE.
3	-EXCAVATION OF PHASE 3 AND APPLICATION OF A STABILIZATION LAYER OF SHOTCRETE. -INSTALLATION OF LATTICE GIRDERS OF PHASE 3. -SPRAYING OF REINFORCING SHOTCRETE + 2 LAYERS OF WWM. -INSTALLATION OF WATER AND GAS PROOFING MEMBRANE. -INSTALLATION OF INNER LINING (SECONDARY). FIRST INVERT AND SECOND SIDE.
4	-EXCAVATION OF PHASE 4, AND APPLICATION OF A STABILIZATION LAYER OF SHOTCRETE. -DEMOLITION OF TEMPORAL SUPPORT OF PHASE 3 AND INSTALLATION OF LATTICE GIRDERS OF PHASE 4. -SPRAYING OF REINFORCING SHOTCRETE + 2 LAYERS OF WWM. -DEMOLITION OF THE UPPER PART OF TEMPORAL SUPPORT OF PHASES 1 AND 2 -INSTALLATION OF WATER AND GAS PROOFING MEMBRANE. -INSTALLATION OF INNER LINING (SECONDARY) IN CROWN (PHASES 3 AND 4).
5	-EXCAVATION OF PHASE 5. -DEMOLITION OF THE UPPER PART OF TEMPORAL SUPPORT OF PHASES 1 AND 2 -INSTALLATION OF WATER AND GAS PROOFING MEMBRANE. -INSTALLATION OF INNER LINING (SECONDARY) IN INVERT.

\*NOTE: DISTANCE BETWEEN EXCAVATION PHASES TO BE DEFINED.



**TUNNEL TYPICAL SECTION SEM SINGLE TUNNEL (2 TRACKS + REFUGE TRACK) FOR TANGENT & SUPERELEVATED TRACK**

REV	DATE	BY	CHK	APP	DESCRIPTION

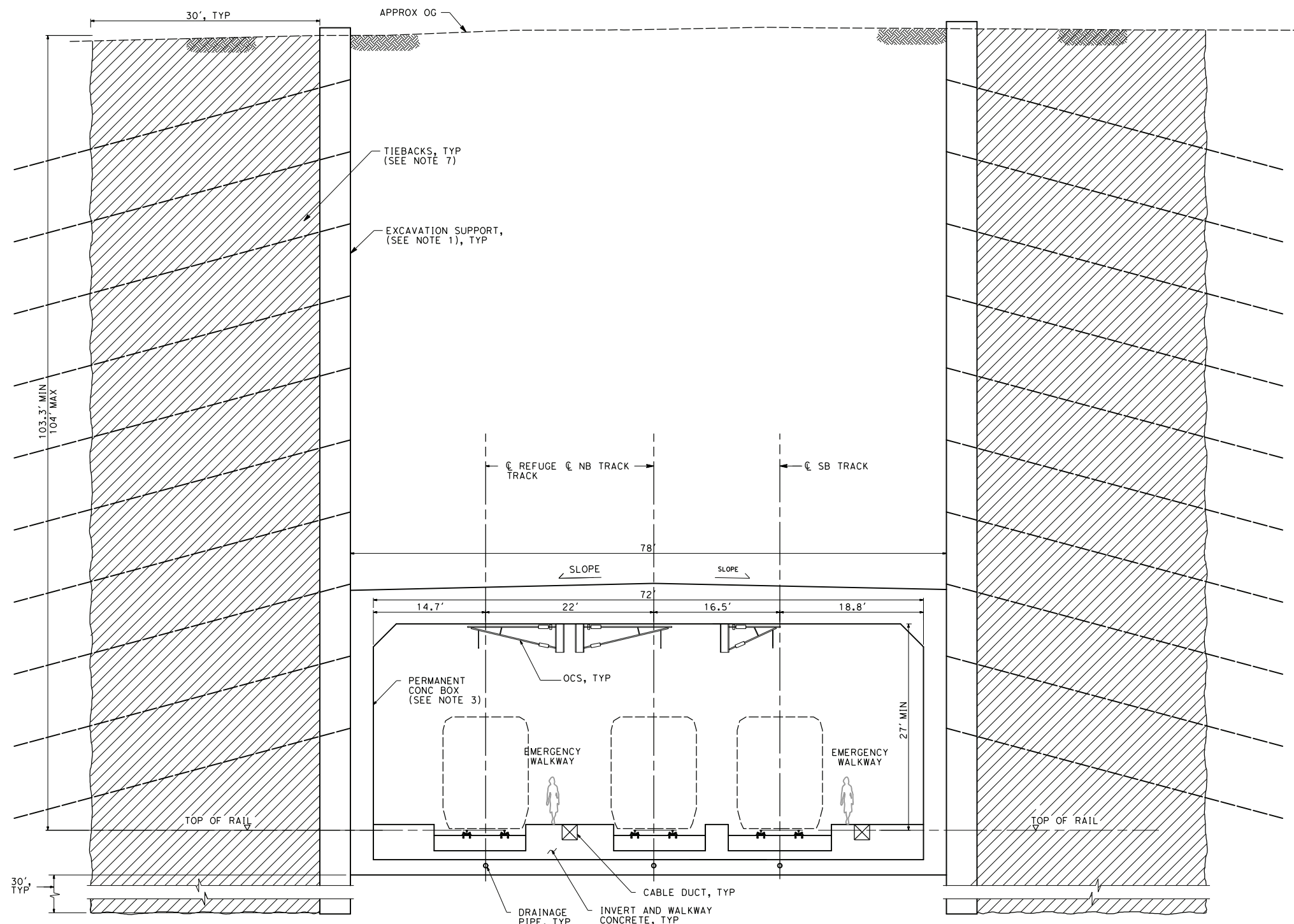
DESIGNED BY  
**E. VELASCO**  
DRAWN BY  
**F.J. DOMINGUEZ**  
CHECKED BY  
**A. NAVARRO**  
IN CHARGE  
**A. RELAÑO**  
DATE  
**02/01/2019**

**BURBANK SUBSECTION**  
**DRAFT PEPP REV01**  
**NOT FOR CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
CONSTRUCTION SEQUENCE AND SUPPORT MEASURES  
SEM SINGLE TUNNEL, 2 TRACKS + REFUGE TRACK

CONTRACT NO.  
**HSR14-42**  
DRAWING NO.  
**TN-C0903**  
SCALE  
**AS SHOWN**  
SHEET NO.



**TYPICAL SECTION - 2 TRACKS + REFUGE TRACK**

**NOTES:**

1. TYPES, LOCATIONS AND DIMENSIONS OF EXCAVATION SUPPORT NOT DESIGNED. RIGID EXCAVATION SUPPORTS WITH TIEBACKS AND TEMPORARY INTERNAL BRACING ANTICIPATED.
2. PERMANENT LINING ASSUMED WATERTIGHT/UNDRAINED IN PERMANENT CASE.
3. STRUCTURE COMPONENTS ARE NOT DESIGNED. DRAWINGS NOT BASED ON ACTUAL DESIGN AND ARE DEVELOPED FOR PRELIMINARY COST ESTIMATE.
4. TRACK, OPENINGS, PLATFORM, STATION LAYOUT, CABLE DUCTS AND DRAINAGE ARE SCHEMATIC AND DO NOT REPRESENT DESIGN.
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8. TYPICAL SECTION ON THIS SHEET IS APPLICABLE AT THE FOLLOWING LOCATIONS:

ALIGNMENT	SUB-SECTION	BEGIN STA	END STA
REFINED SR14	BURBANK	2231+18.00	2231+77.00

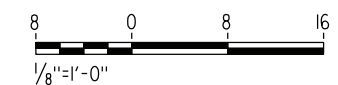
**CONSTRUCTION SEQUENCE:**

STAGE	DESCRIPTION
0	INSTALL MOVEMENT MONITORING SYSTEMS
1	INSTALL GROUND IMPROVEMENT
2*	INSTALL RIGID EXCAVATION SUPPORT SYSTEMS USING HEAVILY REINFORCED SLURRY WALLS
3A	EXCAVATE IN LIFTS FROM ORIGINAL GROUND
3B	DEWATER AS NEEDED
3C	INSTALL TIEBACKS AND/OR TEMPORARY INTERNAL BRACING AS REQUIRED FOR THE SYSTEM STABILITY
4	REPEAT STAGE 3 TO BOTTOM OF STATION/TUNNEL GRADE SLAB
5	CONSTRUCT BOTTOM GRADE SLAB AND TIE IN TO THE EXCAVATION SUPPORT AS A PERMANENT BRACING SYSTEM
6	CONSTRUCT THE INTERIOR OF THE STATION/TUNNEL (INTERIOR WALLS, SLABS...)
7	CONSTRUCT STATION/TUNNEL ROOF SLAB AND TIE IN TO THE EXCAVATION SUPPORT SYSTEM AS PERMANENT BRACING SYSTEM
8	WATERPROOF THE ROOF SLAB, BACKFILL AND RESTORE THE GROUND

\* SLURRY WALLS ARE ONE TYPE OF COMMON RIGID EXCAVATION SUPPORT SYSTEM. OTHER SUITABLE RIGID EXCAVATION SUPPORT SYSTEMS SUCH AS TANGENT/SECANT PILES MIGHT BE CONSIDERED FOR THIS LOCATION. HEAVY REINFORCEMENT WILL BE REQUIRED.

**LEGEND:**

GROUND IMPROVEMENT ZONE (SEE NOTE 6)



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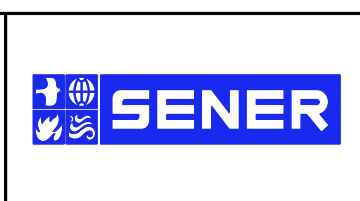
13/03/2019 15:59:37

0205240

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E. VELASCO**  
DRAWN BY  
**F.J. DOMINGUEZ**  
CHECKED BY  
**A. NAVARRO**  
IN CHARGE  
**A. RELANO**  
DATE  
**02/01/2019**

**BURBANK SUBSECTION**  
**DRAFT PECD REV01**  
**NOT FOR CONSTRUCTION**



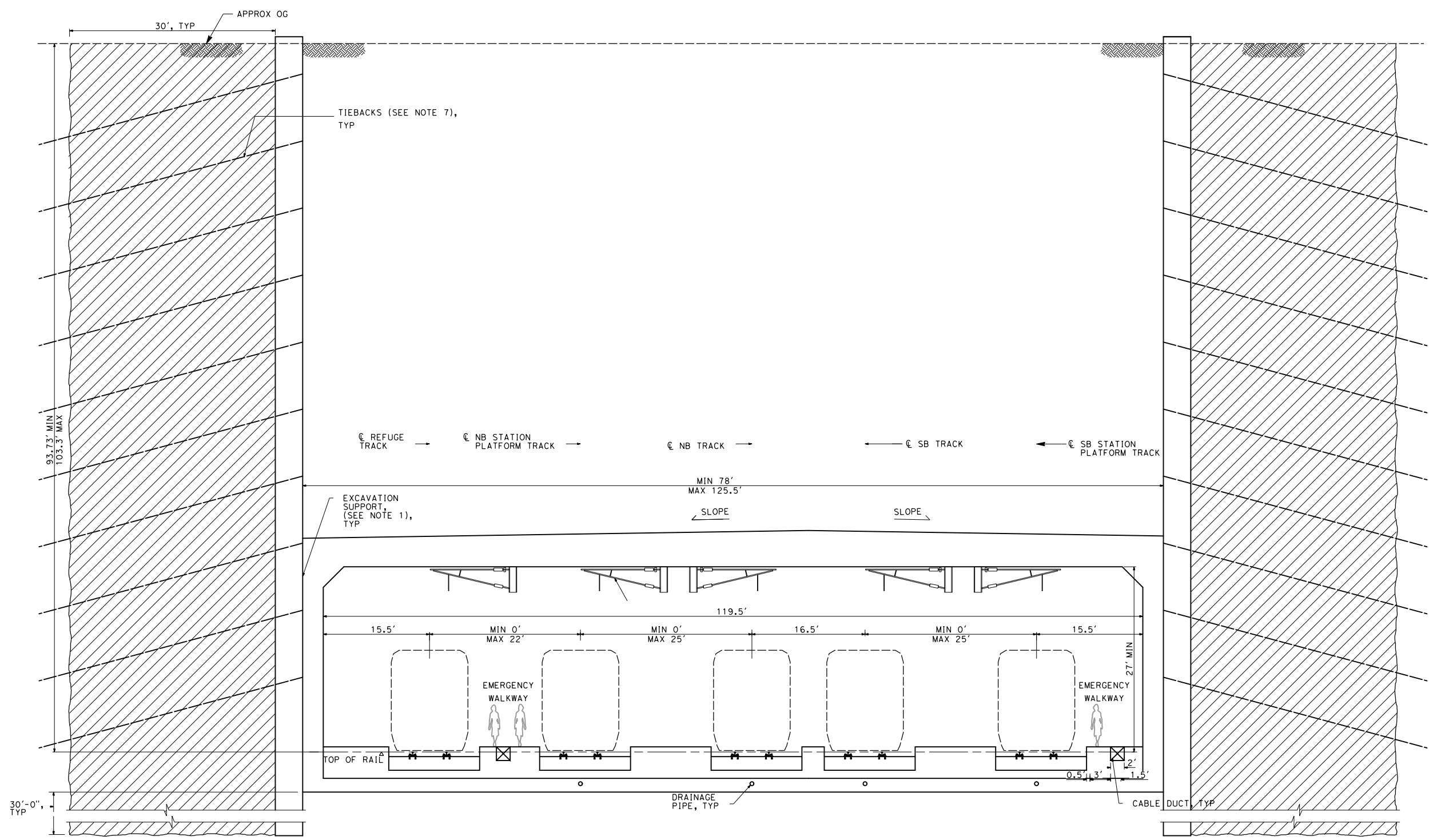
**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
SINGLE CELL BOX 2 TRACKS + REFUGE TRACK  
CUT-AND-COVER TUNNEL  
TYPICAL SECTION

CONTRACT NO.  
**HSR14-42**  
DRAWING NO.  
**TN-C1104**  
SCALE  
**AS SHOWN**  
SHEET NO.

ct:\pwworking\chsr\vdms24129\PB-TN-C1105.dgn

13/03/2019 16:15:53

0205240



**NOTES:**

1. TYPES, LOCATIONS AND DIMENSIONS OF EXCAVATION SUPPORT NOT DESIGNED. RIGID EXCAVATION SUPPORTS WITH TIEBACKS AND TEMPORARY INTERNAL BRACING ANTICIPATED.
2. PERMANENT LINING ASSUMED WATERTIGHT/ UNDRAINED IN PERMANENT CASE.
3. STRUCTURE COMPONENTS ARE NOT DESIGNED. DRAWINGS NOT BASED ON ACTUAL DESIGN AND ARE DEVELOPED FOR PRELIMINARY COST ESTIMATE.
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REFINED SR14	BURBANK	2231+18.00	2231+77.00

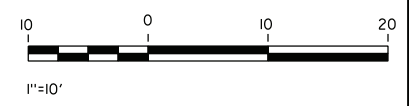
**CONSTRUCTION SEQUENCE:**

STAGE	DESCRIPTION
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**LEGEND:**  
 GROUND IMPROVEMENT ZONE (SEE NOTE 6)

**CUT & COVER - 4 TRACKS + REFUGE TRACK**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E.VELASCO**  
 DRAWN BY  
**F.J.DOMINGUEZ**  
 CHECKED BY  
**A.NAVARRO**  
 IN CHARGE  
**A.RELANO**  
 DATE  
**02/01/2019**

**BURBANK SUBSECTION**  
**DRAFT PEPD REV01**  
**NOT FOR CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
 BURBANK SUBSECTION  
 SINGLE CELL 4 TRACKS + REFUGE TRACK  
 CUT-AND-COVER TUNNEL  
 TYPICAL SECTION

CONTRACT NO.  
**HSR14-42**  
 DRAWING NO.  
**TN-C1105**  
 SCALE  
**AS SHOWN**  
 SHEET NO.

**NOTES:**

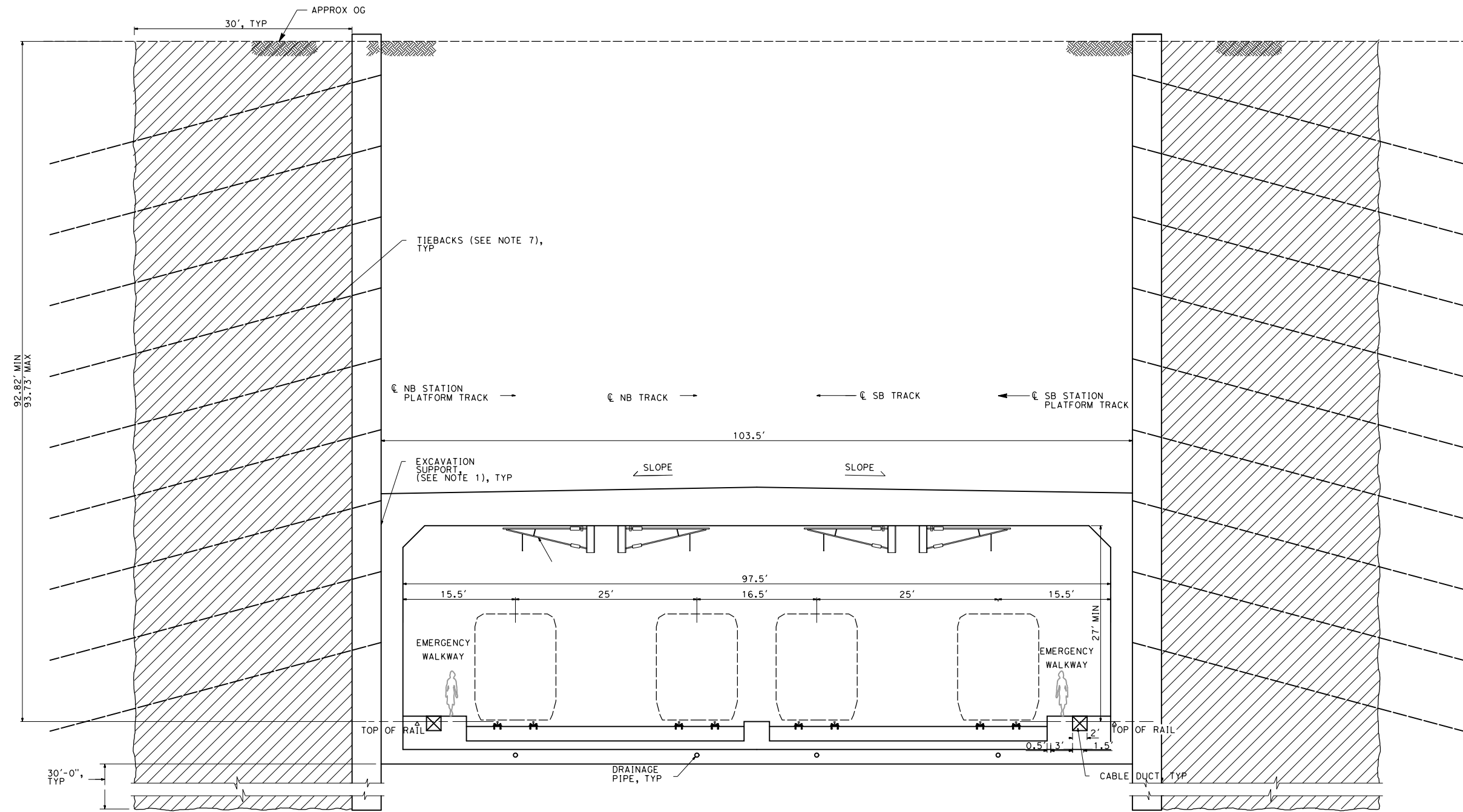
1. TYPES, LOCATIONS AND DIMENSIONS OF EXCAVATION SUPPORT NOT DESIGNED. RIGID EXCAVATION SUPPORTS WITH TIEBACKS AND TEMPORARY INTERNAL BRACING ANTICIPATED.
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REFINED SR14	BURBANK	2231+18.00	2231+77.00

**CONSTRUCTION SEQUENCE:**

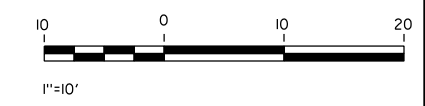
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**LEGEND:**  
 GROUND IMPROVEMENT ZONE

**CUT & COVER - 4 TRACKS**



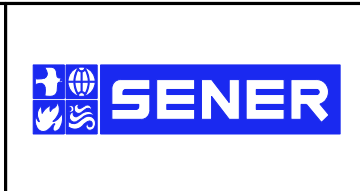
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13/03/2019 16:18:40 0205240

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E. VELASCO**  
 DRAWN BY  
**F.J. DOMINGUEZ**  
 CHECKED BY  
**A. NAVARRO**  
 IN CHARGE  
**A. RELAÑO**  
 DATE  
**02/01/2019**

**BURBANK SUBSECTION**  
**DRAFT PECD REV01**  
**NOT FOR CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
 BURBANK SUBSECTION  
 SINGLE CELL 4 TRACKS  
 CUT-AND-COVER TUNNEL  
 TYPICAL SECTION

CONTRACT NO.  
**HSR14-42**  
 DRAWING NO.  
**TN-C1106**  
 SCALE  
**AS SHOWN**  
 SHEET NO.

**NOTES:**

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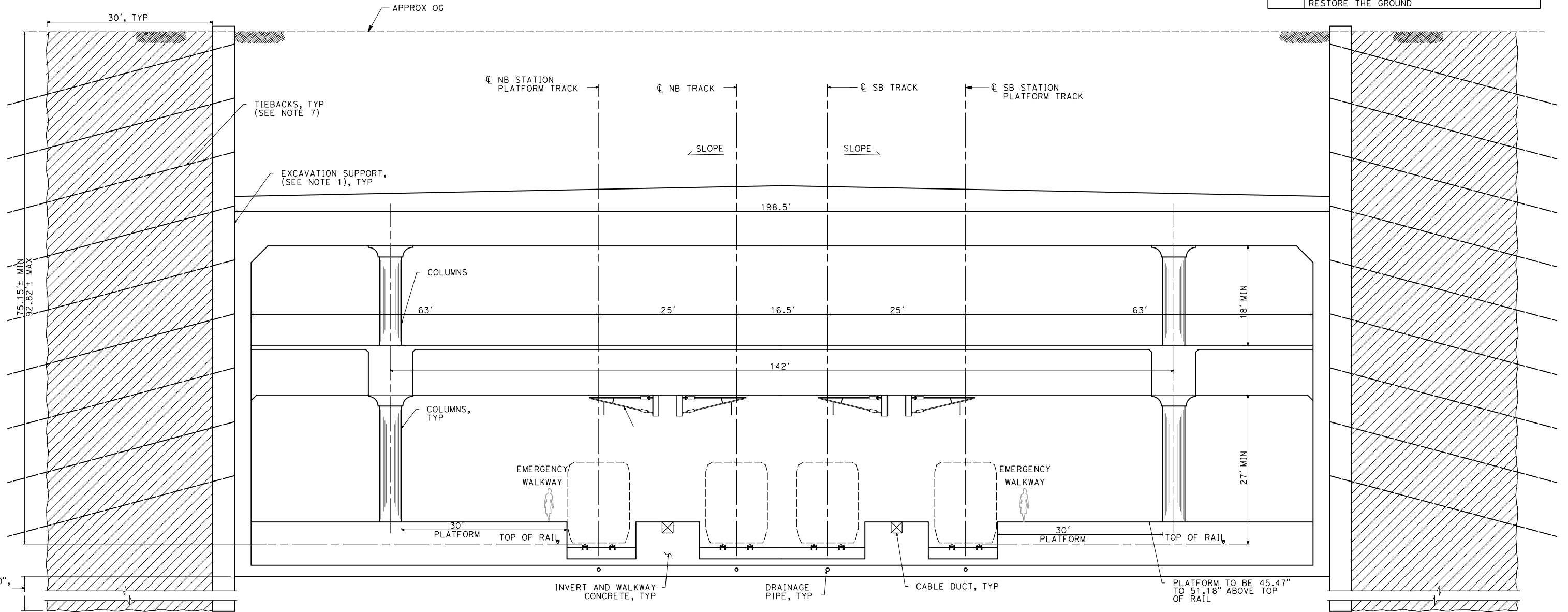
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**LEGEND:**  
 GROUND IMPROVEMENT ZONE

**TYPICAL SECTION - 4 TRACKS**



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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E. VELASCO**  
 DRAWN BY  
**F.J. DOMINGUEZ**  
 CHECKED BY  
**A. NAVARRO**  
 IN CHARGE  
**A. RELAÑO**  
 DATE  
**02/01/2019**

**BURBANK SUBSECTION**  
**DRAFT PEPP REV01**  
**NOT FOR CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
 BURBANK SUBSECTION  
 BURBANK STATION PLATFORM  
 CUT-AND-COVER TUNNEL  
 TYPICAL SECTION

CONTRACT NO.  
**HSR14-42**  
 DRAWING NO.  
**TN-C1109**  
 SCALE  
**AS SHOWN**  
 SHEET NO.

California High-Speed Rail Authority

# Burbank Subsection

DRAFT PEPD REV01

Utility Relocation Plans

February 2019



### BURBANK SUBSECTION

DRAWING NO.	DRAWING DESCRIPTION	SHEET NO.
UT-B0001-BUR	BURBANK SUBSECTION - RELOCATION UTILITY PLANS - INDEX OF DRAWINGS	
UT-B0002-BUR	BURBANK SUBSECTION - RELOCATION UTILITY PLANS - ABBREVIATIONS AND LEGEND	
UT-B0003-BUR	BURBANK SUBSECTION - RELOCATION UTILITY PLANS - KEY MAP	
UT-C4086-BUR	BURBANK SUBSECTION - RELOCATION UTILITY PLANS - STA 2215+00 TO STA 2230+00	
UT-C4087-BUR	BURBANK SUBSECTION - RELOCATION UTILITY PLANS - STA 2230+00 TO STA 2254+47.54	

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**A. TRONCOSO**

DRAWN BY  
**L. GUERRERO**

CHECKED BY  
**N. TIZANI**

IN CHARGE  
**A. RELANO**

DATE  
**02/28/2019**

**BURBANK  
SUBSECTION**

**DRAFT PEPD REV01**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
 BURBANK SUBSECTION  
 RELOCATION UTILITY PLANS  
 INDEX OF DRAWINGS

CONTRACT NO.  
HSR14-42

DRAWING NO.  
UT-B0001-BUR

SCALE  
NO SCALE

SHEET NO.

### LEGEND AND SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		ELECTRICAL UNDERGROUND
		ELECTRICAL OVERHEAD
		FIBER OPTIC UNDERGROUND
		FIBER OPTIC OVERHEAD
		GAS
		NATURAL GAS
		OIL
		STORM DRAIN
		SEWER
		STEAM
		TELECOMMUNICATION UNDERGROUND
		TELECOMMUNICATION OVERHEAD
		TELEPHONE UNDERGROUND
		TELEPHONE OVERHEAD
		TELEVISION UNDERGROUND
		TELEVISION OVERHEAD
		WATER
		RETAINING WALL
		RIGHT-OF-WAY
		HSR RIGHT-OF-WAY
		HSR TUNNEL
		HSR TRACK CENTERLINE
		PERMANENT ENVIRONMENTAL FOOTPRINT
		TEMPORARY ENVIRONMENTAL FOOTPRINT
		FUTURE TRACK CENTERLINE
		NATIONAL FOREST BOUNDARY
		PTC TOWER
		WELL LOCATION
		POWER TRANSMISSION TOWER
		HEADWALL
		TRACK SWITCH
		STRUCTURES (BRIDGE, VIADUCT)
		KEY NOTE
		PUMP STATION

### ABBREVIATIONS

ABN	ABANDON	PROP	PROPOSED
ACP	ASBESTOS CEMENT PIPE	PPEF	PROPOSED PERMANENT ENVIRONMENTAL FOOTPRINT
ALT	ALTERNATIVE	PS	POWER STATION
APPROX	APPROXIMATE		
AVE	AVENUE	R	RADIUS
		RCP	REINFORCED CONCRETE PIPE
BEG	BEGIN	RD	ROAD
BLDG	BUILDING	REINF	REINFORCED, REINFORCEMENT, REINFORCING
BLVD	BOULEVARD	REL	RELOCATE
BO	BLOW-OFF	REPL	REPLACEMENT
		R/W, ROW	RIGHT OF WAY
CB	CATCH BASIN	RT	RIGHT
CD	CURB DRAIN	RTE	ROUTE
CHSR	CALIFORNIA HIGH-SPEED RAIL		
CIP	CAST IRON PIPE	S	SOUTH
		SB	SOUTHBOUND
CL	CENTERLINE	SCRRRA	SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
CMP	CORRUGATED METAL PIPE	SD	STORM DRAIN
CTV	CABLE TELEVISION	SR	STATE ROUTE
		ST	STREET
D	DEPTH	STA	STATION
DI	DRAINAGE INLET, DROP INLET	STBB	SINGLE THRIE BEAM BARRIER
DIA	DIAMETER	STD	STANDARD
DIP	DUCTILE IRON PIPE	STR	STRUCTURE
DWG	DRAWING	SRS	STAND ALONE RADIO SITE
		SW	SIDEWALK, SOUND WALL
ED	EDGE DRAIN	SWR	SEWER
EDC	EDGE DRAIN CLEANOUT	TEL	TELEPHONE
EDO	EDGE DRAIN OUTLET	TEMP	TEMPORARY
EDV	EDGE DRAIN VENT	TOT	TOTAL
ELEC	ELECTRIC	TP	TELEPHONE POLE
ELEV	ELEVATION	TPSS	TRACTION POWER SUPPLY STATION
ENV	ENVIRONMENTAL	TSMF	TERMINAL STORAGE AND MAINTENANCE FACILITY
EXIST	EXISTING	TYP	TYPICAL
EXP	EXPANSION	UG	UNDERGROUND
		UNK	UNKNOWN
FL	FLOW LINE	UPRR	UNION PACIFIC RAILROAD
FO	FIBER OPTIC		
FP	FOOTPRINT	W	WATER, WEST, WIDTH
G	GAS	WB	WESTBOUND
GALV	GALVANIZED	WM	WATER MAIN
		WSP	WELDED STEEL PIPE
HDC	HIGH DESERT CORRIDOR	WT	WEIGHT
HSR	HIGH-SPEED RAIL	WV	WATER VALVE
INV	INVERT		
IRR	IRRIGATION		
L	LENGTH		
LT	LEFT		
LMF	LIGHT MAINTENANCE FACILITY		
MAX	MAXIMUM		
MIN	MINIMUM		
MT	MAIN TRACK		
N	NORTH		
NB	NORTHBOUND		
PROP	PROPOSED		
P.S.	POWER STATION		

### UTILITY OWNERS

AIR TOUCH	AIR TOUCH CELLULAR
AVEK W	ANTELOPE VALLEY - E. KERN WATER
AT&T DIST	AT&T DISTRIBUTION
AT&T TRANS	AT&T TRANSMISSION
BURBANK AIRPORT	BURBANK GLENDALE PASADENA AIRPORT AUTHORITY
BWP	BURBANK WATER & POWER
CENTURY L	CENTURYLINK
CITY OF BURBANK	CITY OF BURBANK
CITY OF GLENDALE	CITY OF GLENDALE
CITY OF LA	CITY OF LOS ANGELES - RECORDS SECTION
CITY OF SC	CITY OF SANTA CLARITA
CITY OF PALMDALE	CITY OF PALMDALE
CITY OF S FERNANDO	CITY OF SAN FERNANDO
CLEAR CHANNEL	CLEAR CHANNEL OUTDOOR
CROWN CASTLE	CROWN CASTLE
EL DORADO MWC	EL DORADO MUTUAL WATER COMPANY
EXXON	EXXON MOBIL PIPELINE CO
LACDPW	LA COUNTY DEPARTMENT OF PUBLIC WORKS
LACDPW-WW	LA COUNTY WATER WORKS
LACSD	LOS ANGELES COUNTY SANITATION DISTRICT
LADWP	LOS ANGELES DEPARTMENT OF WATER & POWER
LEVEL 3	LEVEL 3 COMMUNICATIONS
LIBERMAN	LIBERMAN BROADCASTING
NEWHALL CW	NEWHALL COUNTY WATER
MARCUS	MARCUS CABLE
MCI	MCI (VERIZON BUSINESS)
MWD	METROPOLITAN WATER DISTRICT
PALMDALE WD	PALMDALE WATER DISTRICT
PAAP	PLAINS ALL AMERICAN PIPELINE
PPS	PACIFIC PIPELINE
PT & T	PACIFIC TEL & TELEGRAPH
QWEST	QWEST COMMUNICATION
SCWC	SANTA CLARITA WATER CO
SCE TEL	SC EDISON - TELECOM
SCE DIST	SC EDISON - DIST/TELECOM
SCE	SOUTHERN CALIFORNIA EDISON
SCG	SC GAS - LANCASTER
SCG TRANS	SC GAS - TRANSMISSION
SUNESYS	SUNESYS, LLC
SPRINT	SPRINT
SPV WC	SPV WATER COMPANY
CA DWR	STATE DEPARTMENT WATER RESOURCES
TESORO	TESORO
T-MOBILE	T-MOBILE USA
TWC	TIME WARNER CABLE
VERIZON	VERIZON - IRWINDALE
WSP MWC	WEST SIDE PARK MUTUAL WATER COMPANY
WILSHIRE CONN	WILSHIRE CONNECTION LLC
XO COMM	XO COMMUNICATIONS
ZAYO	ZAYO FNA ABOVE NET

### GENERAL NOTES

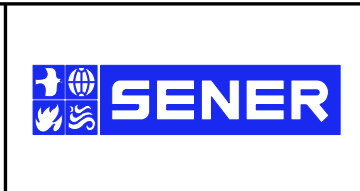
- EXISTING UTILITIES IDENTIFIED WITH THE DISPOSITIONS 'RELOCATE', 'REMOVE' OR 'PROTECT IN PLACE' PERTAIN TO THAT PORTION OF THE UTILITY THAT IS LOCATED WITHIN THE PROPOSED, PERMANENT HSR RIGHT-OF-WAY

\$FILE \$  
 \$DATE \$  
 \$TIME \$  
 \$USER \$

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>A. TRONCOSO</b>
DRAWN BY <b>L. GUERRERO</b>
CHECKED BY <b>N. TIZANI</b>
IN CHARGE <b>A. RELANO</b>
DATE <b>02/28/2019</b>

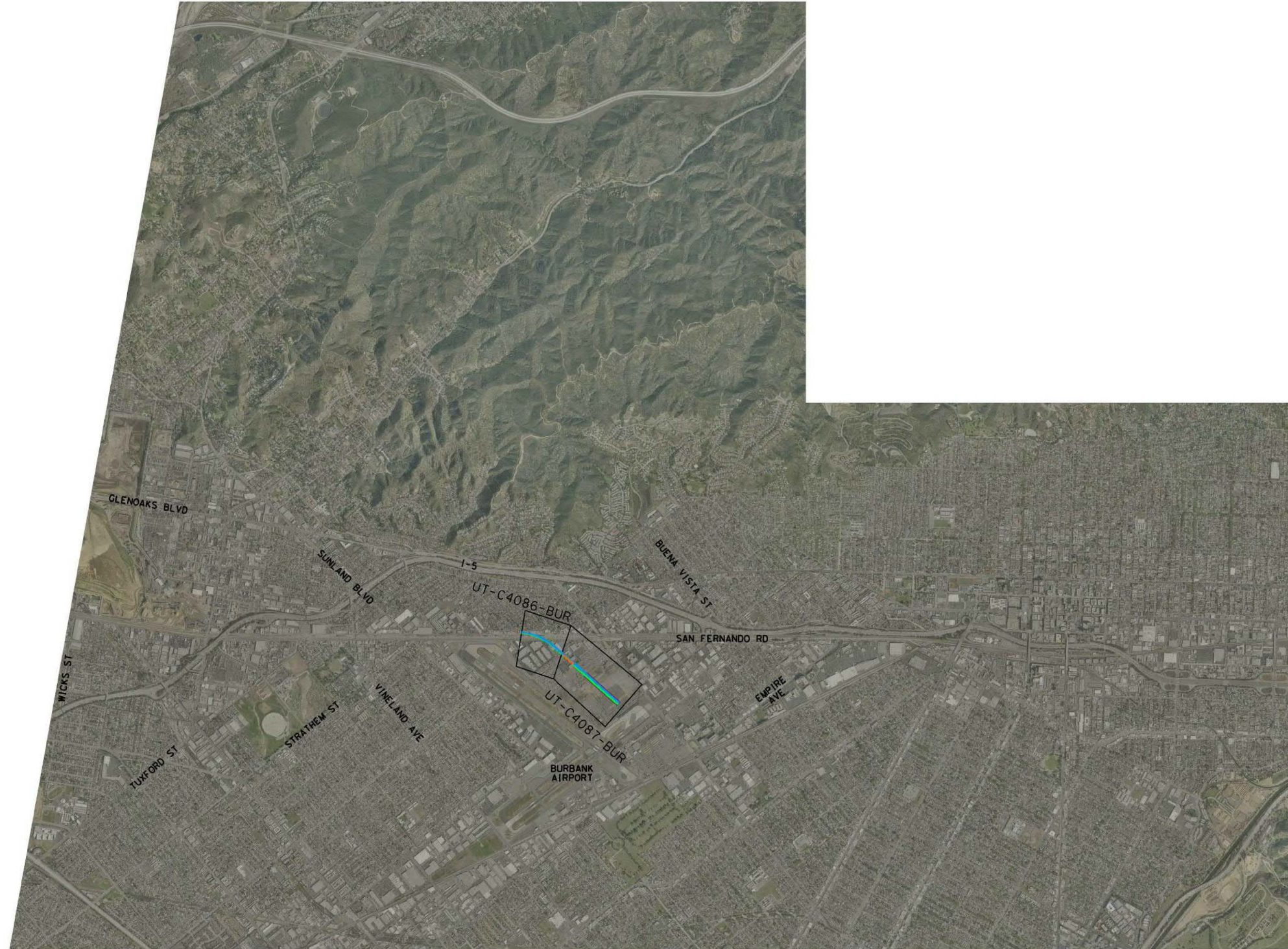
**BURBANK SUBSECTION**  
**DRAFT PEPP REV01**  
**NOT FOR CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
 ALIGNMENT "BUR"  
 RELOCATION UTILITY PLANS  
 ABBREVIATIONS AND LEGEND

CONTRACT NO. HSR14-42
DRAWING NO. UT-B0002-BUR
SCALE NO SCALE
SHEET NO.





\$FILE \$  
 \$DATE \$ \$TIME \$  
 \$USER \$

REV	DATE	BY	CHK	APP	DESCRIPTION

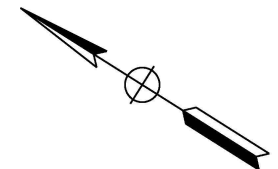
DESIGNED BY  
**A. TRONCOSO**  
 DRAWN BY  
**L. GUERRERO**  
 CHECKED BY  
**N. TIZANI**  
 IN CHARGE  
**A. RELANO**  
 DATE  
**02/28/2019**

**BURBANK  
 SUBSECTION**  
**DRAFT PEPPD REV01**  
**NOT FOR  
 CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
 BURBANK SUBSECTION  
 RELOCATION UTILITY PLANS  
 KEY MAP

CONTRACT NO.  
 HSR14-42  
 DRAWING NO.  
 UT-B0003-BUR  
 SCALE  
 AS SHOWN  
 SHEET NO.

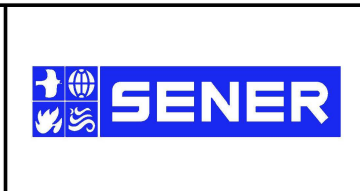


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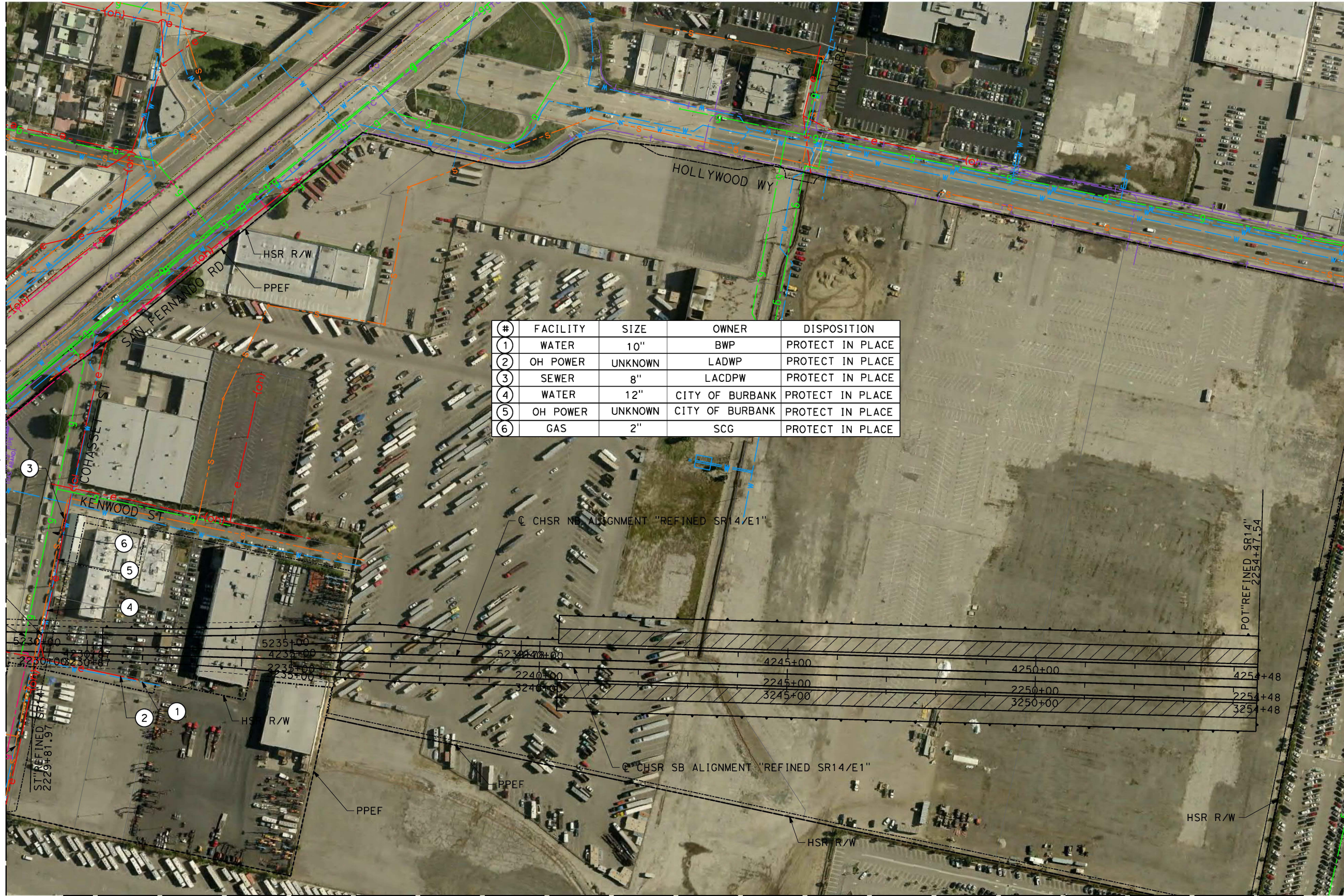
DESIGNED BY  
**A. TRONCOSO**  
 DRAWN BY  
**L. GUERRERO**  
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**A. RELANO**  
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**02/28/2019**

**BURBANK  
 SUBSECTION**  
**DRAFT PEPP REV01**  
**NOT FOR  
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**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
 BURBANK SUBSTATION  
 RELOCATION UTILITY PLANS  
 STA 2215+00 TO STA 2230+00

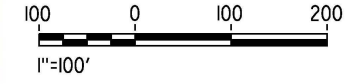
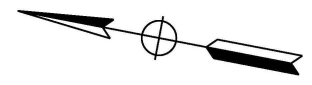
CONTRACT NO.  
 HSR14-42  
 DRAWING NO.  
 UT-C4086-BUR  
 SCALE  
 AS SHOWN  
 SHEET NO.



#	FACILITY	SIZE	OWNER	DISPOSITION
1	WATER	10"	BWP	PROTECT IN PLACE
2	OH POWER	UNKNOWN	LADWP	PROTECT IN PLACE
3	SEWER	8"	LACDPW	PROTECT IN PLACE
4	WATER	12"	CITY OF BURBANK	PROTECT IN PLACE
5	OH POWER	UNKNOWN	CITY OF BURBANK	PROTECT IN PLACE
6	GAS	2"	SCG	PROTECT IN PLACE

MATCH LINE ( UT-C4086-BUR )

MATCH LINE ( UT-C4562-S14 )



\$DATE\$ \$TIME\$ \$USER\$

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**A. TRONCOSO**  
DRAWN BY  
**L. GUERRERO**  
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DATE  
**02/28/2019**

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**DRAFT PEPP REV01**  
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CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSTATION  
RELOCATION UTILITY PLANS  
STA 2230+00 TO STA 2254+47.54

CONTRACT NO.  
HSR14-42  
DRAWING NO.  
UT-C4087-BUR  
SCALE  
AS SHOWN  
SHEET NO.

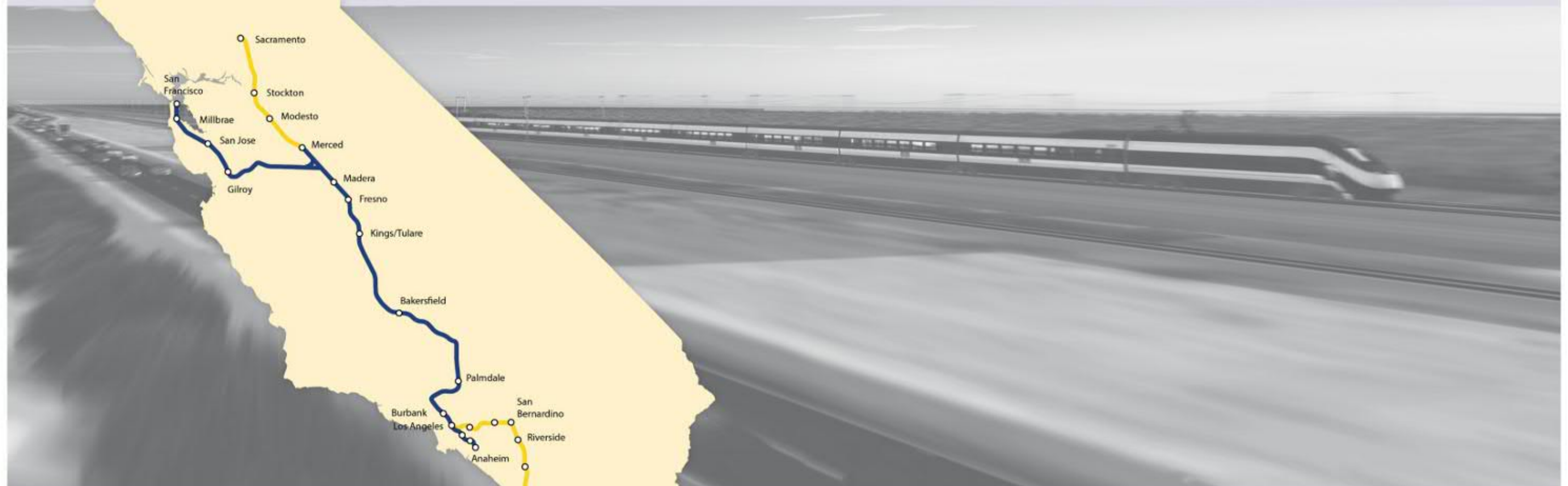
California High-Speed Rail Authority

# Burbank Subsection

DRAFT PEPD REV 01

Railway Systems Plans

February 2019



**GENERAL SHEETS**

DRAWING NO.	DRAWING DESCRIPTION	SHEET NO.
TP-B0001	INDEX OF DRAWINGS	
TP-B0002	ABBREVIATIONS	
TP-B0003	ABBREVIATIONS AND LEGEND	

**CHSR ALIGNMENT "REFINED SR14" RAILWAY SYSTEMS AND FACILITIES**

DRAWING NO.	DRAWING DESCRIPTION	SHEET NO.
TP-D0001-S14	TRACTION POWER FACILITIES - LOCATION LAYOUT	

**BURBANK AIRPORT STATION TYPICAL SECTIONS AND LAYOUTS**



DRAWING NO.	DRAWING DESCRIPTION	SHEET NO.
TP-04008-S14	TRACTION POWER FACILITIES - PARALLELING STATION 7	

**TRAIN CONTROL SYSTEM**

DRAWING NO.	DRAWING DESCRIPTION	SHEET NO.
TC-E6005	INTERLOCKING SITES - BURBANK STATION	
TC-B6001-S14	RAILWAY SYSTEMS - KEY MAP	
TC-F5001-S14	INTERLOCKING SITES - STA 2233+00 TO STA 2245+00	

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22/03/2019 10:53:35

	DESIGNED BY <b>R. RODRIGUEZ</b> DRAWN BY <b>F.J. DOMINGUEZ</b> CHECKED BY <b>A. NAVARRO</b> IN CHARGE <b>A. RELAÑO</b> DATE <b>02/01/2019</b>	BURBANK SUBSECTION  DRAFT PEPD REV01  NOT FOR CONSTRUCTION			CALIFORNIA HIGH-SPEED RAIL PROJECT PALMDALE TO BURBANK BURBANK SUBSECTION ALIGNMENT "REFINED SR14" GENERAL INDEX OF DRAWINGS	CONTRACT NO. HSR14-42 DRAWING NO. TP-B0001 SCALE NO SCALE SHEET NO.																														
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**A**

AB AGGREGATE BASE  
 ABBC ASBESTOS BONDED BITUMINOUS COATED  
 ABM AIR-BLOWN MORTAR  
 ABN ABANDON  
 ABUT ABUTMENT  
 AC ASPHALT CONCRETE  
 ACB ASPHALT CONCRETE BASE  
 ACP ASBESTOS CEMENT PIPE  
 ADL ADDED DEAD LOAD  
 ADJ ADJUST  
 AFES ALTERNATIVE FLARED END SECTION  
 AHD AHEAD  
 ALT ALTERNATE  
 AM TIME FROM MIDNIGHT TO NOON  
 AP ALTERNATIVE PIPE  
 APC ALTERNATIVE PIPE CULVERT  
 APPROX APPROXIMATE  
 APU ALTERNATIVE PIPE UNDERDRAIN  
 ARS ACCELERATION RESPONSE SPECTRUM  
 AR ACCESS RESTRICTION  
 AS AGGREGATE SUBBASE  
 ASRP ALUMINUM SPIRAL RIB PIPE  
 ASSY ASSEMBLY  
 ATPB ASPHALT TREATED PERMEABLE BASE  
 ATPM ASPHALT TREATED PERMEABLE MATERIAL  
 AVE AVENUE  
 AVG AVERAGE  
 @ AT

**B**

BAGR BRIDGE APPROACH GUARD RAILING  
 BB BEGINNING OF BRIDGE  
 BC BEGIN HORIZONTAL CURVE  
 BCC BALANCED CANTILEVER CONSTRUCTION  
 BCR BEGIN CURB RETURN  
 BEG BEGIN  
 BIT CTD BITUMINOUS COATED  
 BK BACK  
 BKF BACKFILL  
 BLDG BUILDING  
 BLM BRIDGE-LOG MILE  
 BLVD BOULEVARD  
 BM BENCH MARK  
 BND BOUND  
 BOT BOTTOM  
 BR BRIDGE  
 BRG BEARING  
 BTU BRITISH THERMAL UNIT  
 BVC BEGIN VERTICAL CURVE  
 BW BARBED WIRE

**C**

CAA CABLE ANCHOR ASSEMBLY  
 CAP CORRUGATED ALUMINUM PIPE  
 CAPA CORRUGATED ALUMINUM PIPE ARCH  
 CAS CONSTRUCTION AREA SIGN  
 CB CONCRETE BARRIER  
 CBW CONCRETE BLOCK WALL  
 C-C CENTER TO CENTER

**C CONTINUED**

CHSRA CALIFORNIA HIGH SPEED RAIL AUTHORITY  
 CHST CALIFORNIA HIGH SPEED TRAIN  
 CHSR CALIFORNIA HIGH SPEED RAIL  
 CG CENTER OF GRAVITY  
 CHNL CHANNEL  
 CI CAST IRON  
 CIDH CAST-IN-DRILLED-HOLE  
 CIP,C-I-P CAST-IN-PLACE, CAST IRON PIPE  
 CIPCP CAST IN PLACE CONCRETE PIPE  
 CISS CAST-IN-STEEL-SHELL  
 CJP COMPLETE JOINT PENETRATION  
 CL CENTERLINE, CLASS  
 CL CENTERLINE  
 CL2 CLASS 2  
 CL-6 CHAIN LINK FENCE (6 FT)  
 CLR CLEAR, CLEARANCE  
 CM CORRUGATED METAL  
 CMP CORRUGATED METAL PIPE  
 CO COUNTY  
 COL COLUMN  
 CONC CONCRETE  
 COND CONDUIT  
 CONN CONNECTOR  
 CONST CONSTRUCT, CONSTRUCTION  
 CONT CONTINUOUS  
 COORD COORDINATE  
 CP CANDLEPOWER  
 CR CREEK  
 CRCP CONTINUOUS REINFORCED CONCRETE PAVT  
 CRSP CONCRETED ROCK SLOPE PROTECTION  
 CS CURVE TO SPIRAL  
 CSP CORRUGATED STEEL PIPE  
 CSPA CORRUGATED STEEL PIPE ARCH  
 CTB CEMENT TREATED BASE  
 CTPB CEMENT TREATED PERMEABLE BASE  
 CTPM CEMENT TREATED PERMEABLE MATERIAL  
 CTRS CENTERS  
 CULV CULVERT  
 CVFPB CENTRAL VALLEY FLOOD PROTECTION BOARD

**D**

D DEPTH  
 DD DOWNDRAIN, DIRECTIVE DRILLING  
 DBL DOUBLE  
 DEG DEGREE  
 DEL DELINEATOR  
 DET DETAIL, DETOUR  
 DF DOUGLAS FIR  
 DI DRAINAGE INLET, DROP INLET  
 DIA DIAMETER  
 DIAPH DIAPHRAGM  
 DIST DISTANCE, DISTRICT  
 DMBB DOUBLE METAL BEAM BARRIER  
 DR DRIVE  
 DTBB DOUBLE THRIE BEAM BARRIER  
 DWY DRIVEWAY

**E**

E EAST, EASTING  
 EA ACTUAL SUPERELEVATION  
 EU UNBALANCED SUPERELEVATION

**E CONTINUED**

EASE EASEMENT  
 EB END OF BRIDGE, EASTBOUND  
 EC END HORIZONTAL CURVE  
 ECR END CURB RETURN  
 ED EDGE DRAIN  
 EDC EDGE DRAIN CLEANOUT  
 EDO EDGE DRAIN OUTLET  
 EDV EDGE DRAIN VENT  
 ELEC ELECTROLIER  
 ELECT ELECTRIC  
 ELEV ELEVATION  
 ELLN EXTRALEGAL LEAD NETWORK  
 EMB EMBANKMENT  
 ENGR ENGINEER  
 EOD EDGE OF DECK  
 EP EDGE OF PAVEMENT  
 EQ EQUATION, EQUAL  
 ES EDGE OF SHOULDER  
 ETW EDGE OF TRAVELED WAY  
 EVC END VERTICAL CURVE  
 EW ENDWALL  
 EXC EXCAVATION  
 EXIST, EX. EXISTING  
 EXP EXPANSION  
 EXP JT EXPANSION JOINT  
 EXT EXTERIOR  
 EXWY EXPRESSWAY

**F**

F & C FRAME AND COVER  
 F & G FRAME AND GRATE  
 FB FLOOR BEAM  
 F-B FRESNO TO BAKERSFIELD  
 FDN FOUNDATION  
 FEBT FACING EASTBOUND TRAFFIC  
 FES FLARED END SECTION  
 FF FILTER FABRIC  
 FG FINISHED GRADE  
 FH FIRE HYDRANT  
 FIG FIGURE  
 FL FLOW LINE  
 FNBT FACING NORTHBOUND TRAFFIC  
 FOC FACE OF CONCRETE  
 FPLM FULL SPAN PRECAST LAUNCHING METHOD FRONTAGE ROAD  
 FR RD FRONTAGE ROAD  
 FS FAR SIDE, FINISHED SURFACE  
 FSBT FACING SOUTHBOUND TRAFFIC  
 FT FOOT, FEET  
 FTG FOOTING  
 FUT FUTURE  
 FWBT FACING WESTBOUND TRAFFIC  
 FWY FREEWAY

**G**

G ACCELERATION DUE TO GRAVITY  
 GA GAGE  
 GALV GALVANIZED  
 GP GRADING PLANE  
 GR GUARD RAILING  
 GSP GALVANIZED STEEL PIPE  
 GTR GUTTER

**H**

H HEIGHT  
 HD HORIZONTAL DRAIN  
 HDWL HEADWALL  
 HEX HD HEXAGONAL HEAD  
 HMA HOT MIXED ASPHALT  
 HORIZ HORIZONTAL  
 HP HINGE POINT, HORSEPOWER  
 HPS HIGH PERFORMANCE STEEL  
 HR HOUR  
 HS HIGH STRENGTH  
 HSR HIGH SPEED RAIL  
 HST HIGH SPEED TRAIN  
 HW HEADWALL, HIGH WATER  
 HWM HIGH WATER MARK  
 HWY HIGHWAY

**I**

IB IMPORTED BORROW  
 ID INSIDE DIAMETER  
 IF INSIDE FACE  
 IN INCH, INCHES  
 INT INTERIOR  
 INV INVERT  
 IRR IRRIGATION

**J**

JCT JUNCTION  
 JP JOINT POLE  
 JPCP JOINTED PLAIN CONCRETE PAVEMENT  
 JS JUNCTION STRUCTURE  
 JT JOINT

**K**

K DISTANCE TO ACHIEVE 1% GRADE CHANGE

**L**

L LENGTH  
 LAT LATITUDE  
 LC LENGTH OF CURVE  
 LMF LIGHT MAINTENANCE FACILITY  
 LN LANE  
 LOC LOCATION  
 LOL LAYOUT LINE  
 LONG LONGITUDE  
 LONGIT LONGITUDINAL  
 LS LENGTH OF SPIRAL  
 LT LEFT

**M**

MAINT MAINTENANCE  
 MAX MAXIMUM  
 MB METAL BEAM  
 MBB METAL BEAM BARRIER  
 MBGR METAL BEAM GUARD RAILING  
 MED MEDIAN  
 M-F MERCED TO FRESNO  
 MH MANHOLE  
 MIN MINIMUM  
 MISC MISCELLANEOUS  
 MISC I & S MISCELLANEOUS IRON AND STEEL  
 MKR MARKER  
 M/L MAIN LINE (RAILWAY)

**M CONTINUED**

MOD MODIFIED, MODIFY  
 MON MONUMENT  
 MP METAL PLATE  
 MPGR METAL PLATE GUARD RAILING  
 MPH MILES PER HOUR  
 MR MOVEMENT RATING  
 MSE MECHANICALLY STABILIZED EARTH  
 MSS MOVING SCAFFOLDING SYSTEM  
 MT MAIN TRACK  
 MTL MATERIAL

**N**

N NORTH, NORTHING  
 N/A NOT APPLICABLE  
 NB NORTHBOUND  
 NO. NUMBER (MUST HAVE PERIOD)  
 NOS. NUMBERS (MUST HAVE PERIOD)  
 NPS NOMINAL PIPE SIZE  
 NS NEAR SIDE  
 NTS NOT TO SCALE

**O**

OBLR OBLITERATE  
 OC OVERCROSSING  
 OCS OVERHEAD CONTACT SYSTEM  
 OD OUTSIDE DIAMETER  
 OF OUTSIDE FACE  
 OG ORIGINAL GROUND  
 OGAC OPEN GRADED ASPHALT CONCRETE  
 OH OVERHEAD  
 O-O OUT TO OUT  
 OPP OPPOSITE

**P**

P PAGE  
 PAP PERFORATED ALUMINUM PIPE  
 PB PULL BOX  
 PC POINT OF CURVATURE, PRECAST  
 PCC POINT OF COMPOUND CURVE, PORTLAND CEMENT CONCRETE  
 PCP PERFORATED CONCRETE PIPE, PRESTRESSED CONCRETE PIPE  
 PCVC POINT OF COMPOUND VERTICAL CURVE  
 PED PEDESTRIAN  
 PED OC PEDESTRIAN OVERCROSSING  
 PED UC PEDESTRIAN UNDERCROSSING  
 PERM MTL PERMEABLE MATERIAL  
 PG PROFILE GRADE  
 PI POINT OF INTERSECTION  
 PJP PARTIAL JOINT PENETRATION  
 P,PL PLATE  
 P/L PROPERTY LINE  
 PM POST MILE, TIME FROM NOON TO MIDNIGHT  
 PN PAVING NOTCH  
 POB POINT OF BEGINNING  
 POC POINT OF HORIZONTAL CURVE  
 POE POINT OF ENDING  
 POT POINT OF TANGENT  
 POVC POINT OF VERTICAL CURVE  
 PP PIPE PILE, PLASTIC PIPE, POWER POLE  
 PPL PREFORMED PERMEABLE LINER  
 PPP PERFORATED PLASTIC PIPE  
 PRC POINT OF REVERSE CURVE

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E. VELASCO**  
 DRAWN BY  
**F.J. DOMINGUEZ**  
 CHECKED BY  
**A. NAVARRO**  
 IN CHARGE  
**A. RELANO**  
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**DRAFT PEPP REV01**  
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**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
 BURBANK SUBSECTION  
 ALIGNMENT "REFINED SR14"  
 GENERAL  
 ABBREVIATIONS

CONTRACT NO.  
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**P CONTINUED**

PRF PAVEMENT REINFORCING FABRIC  
 PROP PROPOSED  
 PRVC POINT OF REVERSE VERTICAL CURVE  
 PS&E PLANS, SPECIFICATIONS AND ESTIMATES  
 PS, P/S PRESTRESSED, PARALLEL STATION  
 PSP PERFORATED STEEL PIPE  
 PT POINT OF TANGENCY  
 PVC POLYVINYL CHLORIDE  
 PVI POINT OF VERTICAL INTERSECTION  
 PVMT PAVEMENT  
 PVP MAINTENANCE VEHICLE PULLOUT

**Q**

QTY QUANTITY

**R**

R RADIUS  
 R & D REMOVE AND DISPOSE  
 R & S REMOVE AND SALVAGE  
 R/C RATE OF CHANGE  
 RCA REINFORCED CONCRETE ARCH  
 RCB REINFORCED CONCRETE BOX  
 RCP REINFORCED CONCRETE PIPE  
 RCPA REINFORCED CONCRETE PIPE ARCH  
 RD ROAD  
 REINF REINFORCED, REINFORCEMENT, REINFORCING  
 REL RELOCATE  
 REPL REPLACEMENT  
 RET RETAINING  
 REV REVISED  
 RF RADIO FREQUENCY  
 RM ROAD-MIXED  
 R/W, ROW RIGHT OF WAY  
 RP RADIUS POINT, REFERENCE POINT  
 RR RAILROAD  
 RSP ROCK SLOPE PROTECTION  
 RT RIGHT  
 RTE ROUTE  
 RW REDWOOD, RETAINING WALL  
 RWY RAILWAY

**S**

S SOUTH, SUPPLEMENT, STATION LINE  
 SAE STRUCTURE APPROACH EMBANKMENT  
 SALV SALVAGE  
 SAPP STRUCTURAL ALUMINUM PLATE PIPE  
 SB SOUTHBOUND  
 SC SPIRAL TO CURVE  
 SCRRA SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 SCSP SLOTTED CORRUGATED STEEL PIPE  
 SD STORM DRAIN  
 SEC SECOND  
 SECT SECTION  
 SEP SEPARATION  
 SG SUBGRADE  
 SHLD SHOULDER  
 SHT SHEET  
 SIM SIMILAR  
 SM SELECTED MATERIAL  
 SPEC SPECIAL, SPECIFICATIONS  
 SPP SLOTTED PLASTIC PIPE  
 SS SLOPE STAKE, SPIRAL TO SPIRAL

**S CONTINUED**

SSBM STRAP AND SADDLE BRACKET METHOD  
 SSD STRUCTURAL SECTION DRAIN  
 SSPA STRUCTURAL STEEL PLATE ARCH  
 SSPP STRUCTURAL STEEL PLATE PIPE  
 SSPPA STRUCTURAL STEEL PLATE PIPE ARCH  
 SSRP STEEL SPIRAL RIB PIPE  
 SR STATE ROUTE  
 ST STREET, SPIRAL TO TANGENT  
 STA STATION  
 STBB SINGLE THRIE BEAM BARRIER  
 STD STANDARD  
 STR STRUCTURE  
 SRS STAND ALONE RADIO SITE  
 SURF SURFACING  
 SW SIDEWALK, SOUND WALL  
 SWR SEWER  
 SWS SWITCHING STATION  
 SYM SYMMETRICAL  
 S4S SURFACE 4 SIDES

**T**

T SEMI-TANGENT  
 TAB TABLET  
 TAN TANGENT  
 TBB THRIE BEAM BARRIER  
 TBR TIMBER  
 TC TOP OF CURB, TANGENT TO CURVE  
 TCB TRAFFIC CONTROL BOX  
 TEL TELEPHONE  
 TEMP TEMPORARY  
 TG TOP OF GRADE  
 TM TECHNICAL MEMORANDUM  
 TOT TOTAL  
 TP TELEPHONE POLE  
 TPB TREATED PERMEABLE BASE  
 TPF TRACTION POWER FACILITY  
 TPM TREATED PERMEABLE MATERIAL  
 TPSS TRACTION POWER SUPPLY STATION  
 TRANS TRANSITION, TRANSVERSE  
 TANGENT TO SPIRAL  
 TSMF TERMINAL STORAGE AND MAINTENANCE FACILITY  
 TYP TYPICAL  
 TOR, T/R TOP OF RAIL

**U**

UC UNDERCROSSING  
 UD UNDERDRAIN  
 UON UNLESS OTHERWISE NOTED  
 UP UNDERPASS  
 UPRR UNION PACIFIC RAILROAD  
 USFWS UNITED STATES FISH AND WILDLIFE SERVICE

**V**

V VALVE,  
 DESIGN SPEED  
 VAR VARIABLE  
 VC VERTICAL CURVE  
 VCP VITRIFIED CLAY PIPE  
 VERT VERTICAL  
 VIA VIADUCT  
 VOL VOLUME

**W**

W WEST,  
 WIDTH  
 WB WESTBOUND  
 WH WEEP HOLE  
 WM WIRE MESH  
 WS WATER SURFACE  
 WSP WELDED STEEL PIPE  
 WT WEIGHT  
 WV WATER VALVE  
 WW WINGWALL  
 WWLW WINGWALL LAYOUT LINE  
 W/ WITH

**X**

X SEC CROSS SECTION  
 XING CROSSING

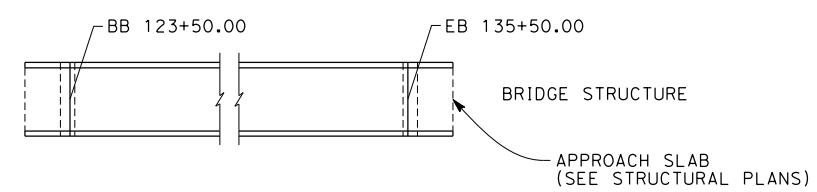
**Y**

YR YEAR  
 YRS YEARS

**LEGEND**

**PLAN**

- PROPOSED RIGHT OF WAY
- EXISTING RIGHT OF WAY
- ▲▲▲ PROPOSED RETAINING WALL
- LIMITS OF EMBANKMENT (FILL)
- LIMITS OF EXCAVATION (CUT)
- PROPOSED PERMANENT ENVIRONMENTAL FOOTPRINT
- PROPOSED TEMPORARY ENVIRONMENTAL FOOTPRINT
- PROPOSED TUNNEL
- e-(oh)- EXISTING OVERHEAD HIGH VOLTAGE POWER LINES
- HIGH SPEED TURNOUT
- ┆ SCRRR TURNOUT
- ① CURVE DATA (HSR ALIGNMENT)



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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
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**F.J. DOMINGUEZ**  
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**LEGEND**

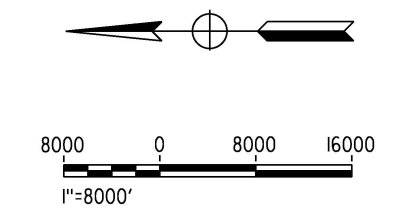
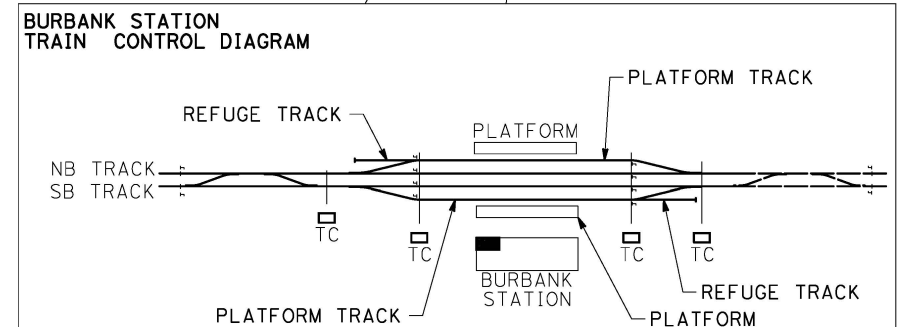
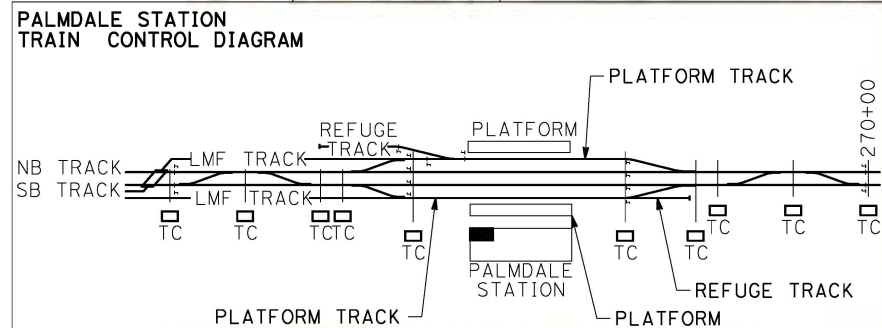
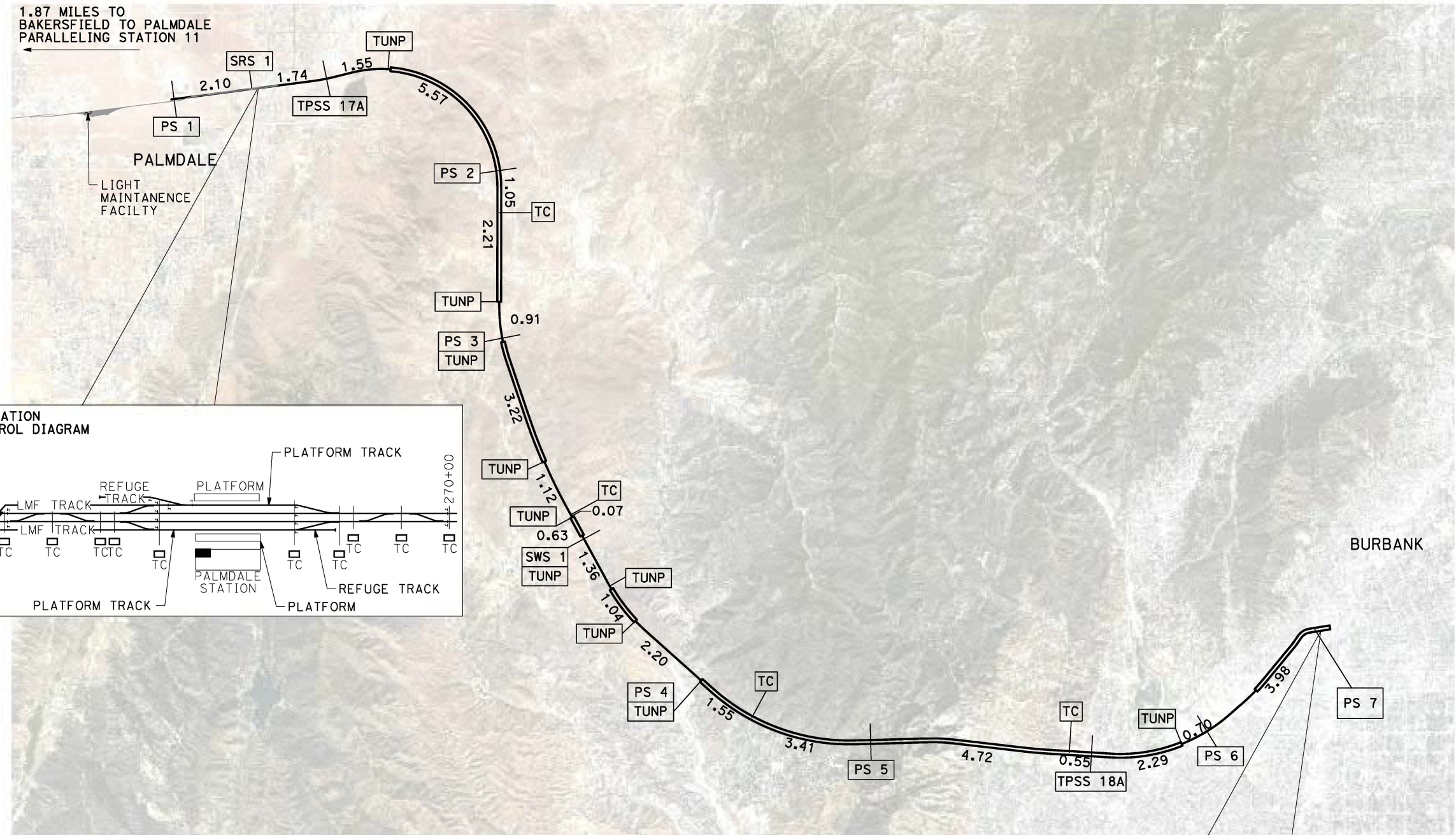
RAILWAY SYSTEMS FACILITY SPACING (MILES)	5.0
AT- GRADE / ELEVATED	—————
UNDERGROUND	=====

**ABBREVIATIONS:**

TPSS:	TRACTION POWER SUBSTATION
PS:	PARALLELING STATION
SWS:	SWITCHING STATION
TUNP:	TUNNEL PORTAL FACILITIES
SRS:	STANDALONE RADIO SITE
TC:	TRAIN CONTROL FACILITY

**NOTE:**

1. SITE STATIONING GIVEN IS APPROXIMATE AND WILL BE FINALIZED IN FUTURE DESIGN PHASE.
2. IN UNDERGROUND SECTIONS, RF COMMUNICATION WILL BE USING DIRECTIONAL ANTENNAS OR RADIANT CABLES.
3. TRACTION POWER FACILITIES HAVE RADIO ANTENNAS.
4. PS1 IS NEEDED IN PLACE IN CASE B-P SECTION IS NOT BUILT, AS THE LMF FACILITY WILL BE POWERED FROM TP SS 17A.
5. ALL TUNNEL PORTALS (TUNP) HAVE RADIO ANTENNAS.



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12/03/2019 13:26:53

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E. VELASCO**

DRAWN BY  
**F.J. DOMINGUEZ**

CHECKED BY  
**A. NAVARRO**

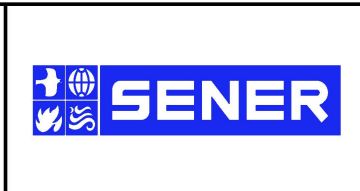
IN CHARGE  
**A. RELAÑO**

DATE  
**02/01/2019**

**BURBANK SUBSECTION**

**DRAFT PEPP REV01**

**NOT FOR CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**

**PALMDALE TO BURBANK**

BURBANK SUBSECTION  
ALIGNMENT "REFINED SR14"  
TRACTION POWER FACILITIES  
LOCATION LAYOUT

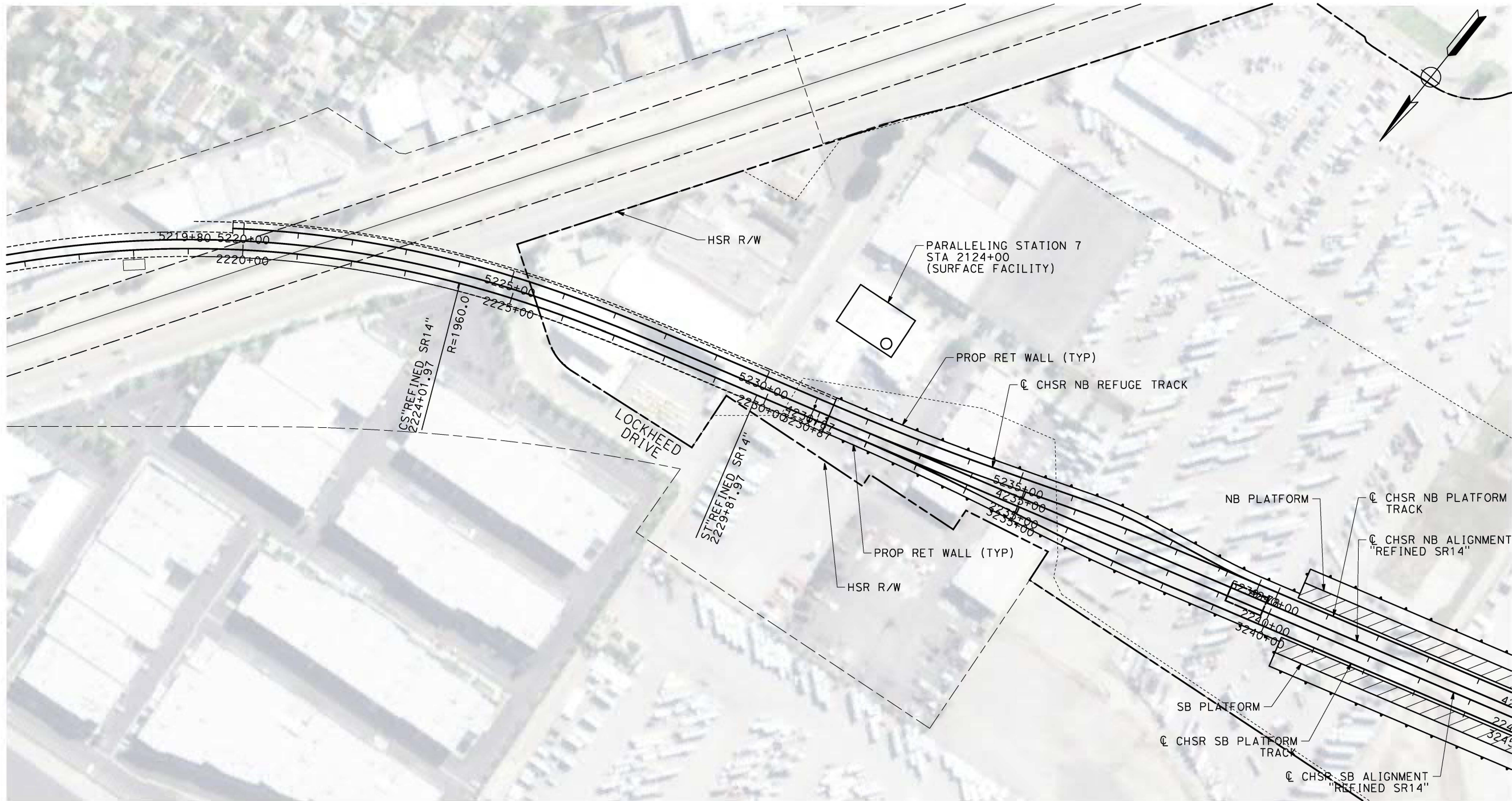
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DRAWING NO.	TP-D0001-S14
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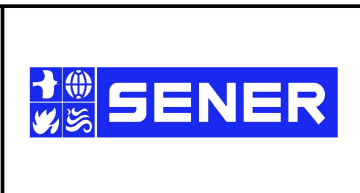
**PLAN**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**R. RODRIGUEZ**  
DRAWN BY  
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**A. RELANO**  
DATE  
**02/01/2019**

**BURBANK  
SUBSECTION**  
**DRAFT PEPP REV01**  
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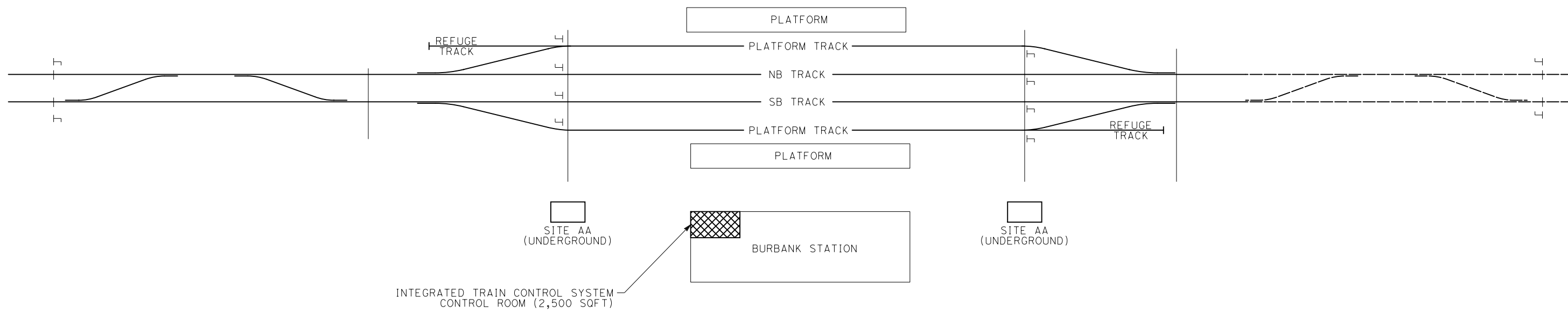
**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
ALIGNMENT "REFINED SR14"  
TRACTION POWER FACILITIES  
PARALLELING STATION 7

CONTRACT NO.  
**HSR14-42**  
DRAWING NO.  
**TP-04008-S14**  
SCALE  
**AS SHOWN**  
SHEET NO.

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**BURBANK STATION**

NOTE:  
1. THIS SCHEMATIC DIAGRAM IS APPLICABLE TO ALL ALTERNATIVES.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E. VELASCO**  
DRAWN BY  
**F.J. DOMINGUEZ**  
CHECKED BY  
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**A. RELANO**  
DATE  
**02/01/2019**

**BURBANK SUBSECTION**  
**DRAFT PEPP REV01**  
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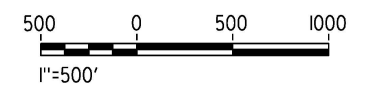
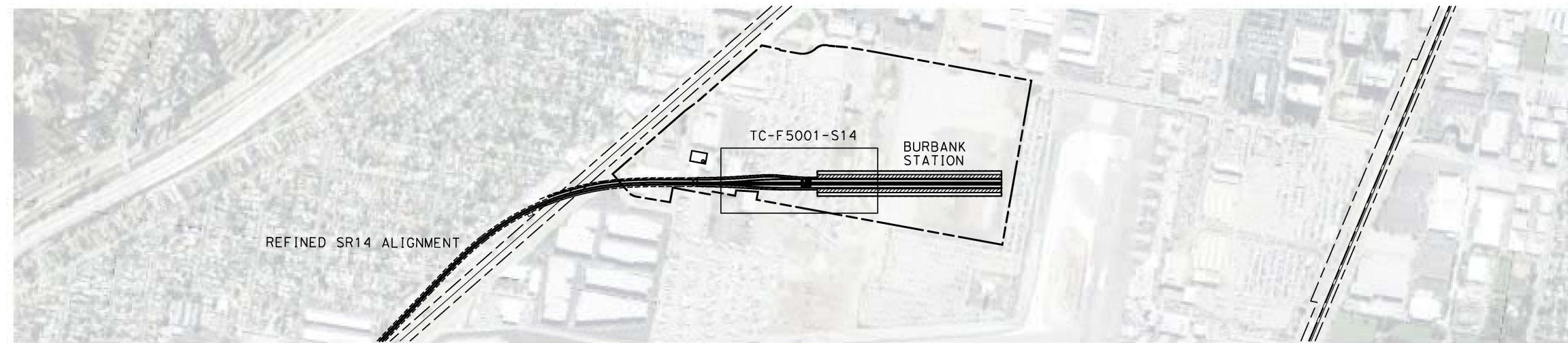
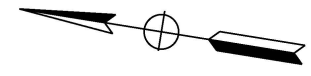
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**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
ALIGNMENT "REFINED SR14"  
TRAIN CONTROL SYSTEM  
INTERLOCKING SITES

CONTRACT NO.  
HSR14-42  
DRAWING NO.  
TC-E6005  
SCALE  
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SHEET NO.

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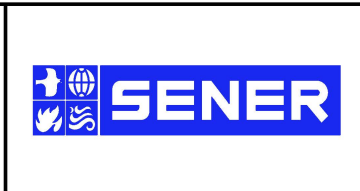
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DESIGNED BY  
**E. VELASCO**  
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**F.J. DOMINGUEZ**  
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**A. NAVARRO**  
IN CHARGE  
**A. RELANO**  
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**02/01/2019**

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SUBSECTION**  
**DRAFT PEPD REV01**  
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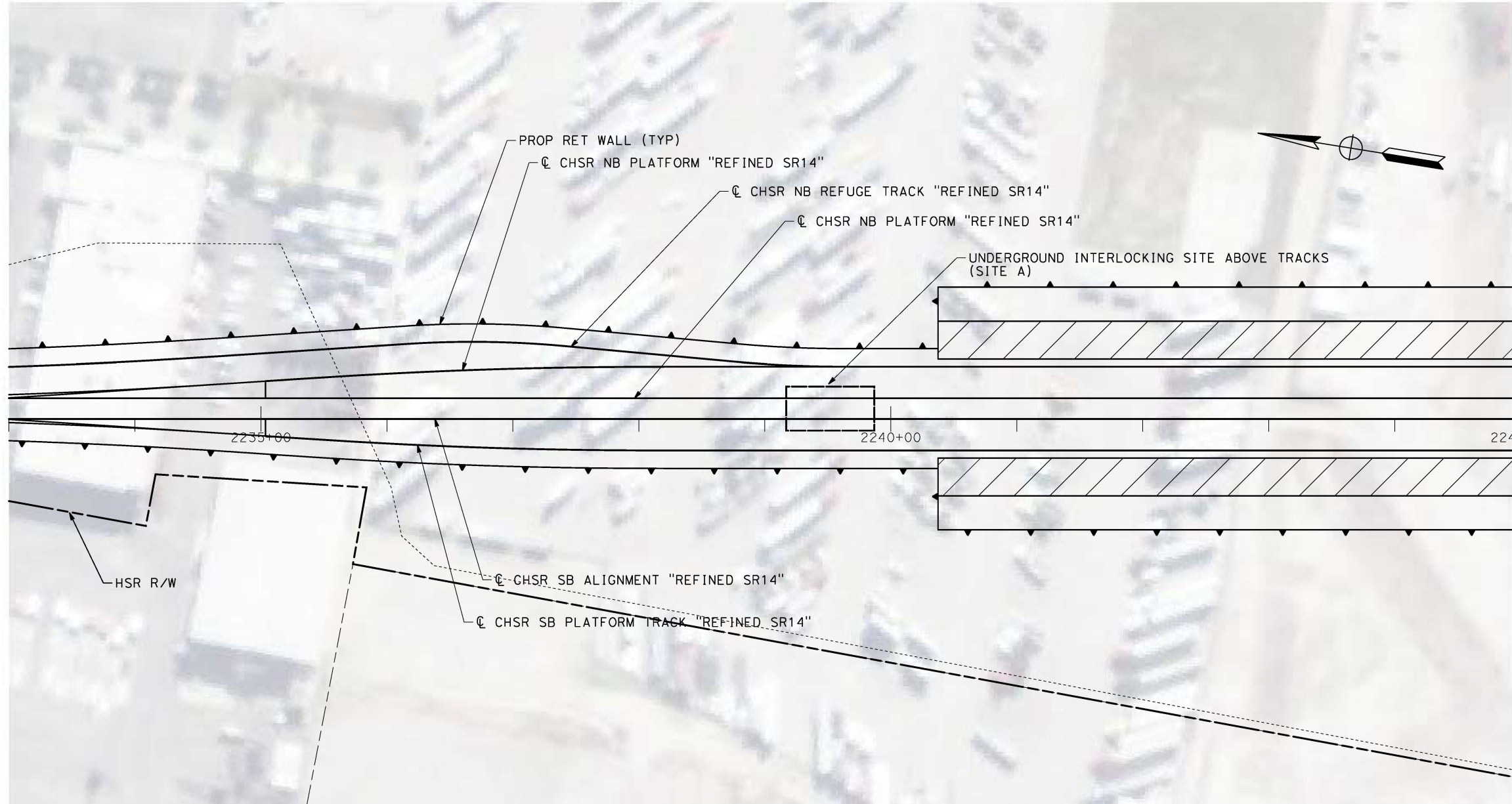
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**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
ALIGNMENT "REFINED SR 14"  
RAILWAY SYSTEMS  
KEY MAP

CONTRACT NO.  
HSR14-42  
DRAWING NO.  
TC-B6001-S14  
SCALE  
AS SHOWN  
SHEET NO.

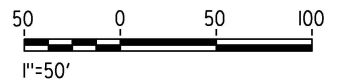
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**PLAN**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**A. VELASCO**  
DRAWN BY  
**F.J. DOMINGUEZ**  
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**A. NAVARRO**  
IN CHARGE  
**A. RELANO**  
DATE  
**02/01/2019**

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SUBSECTION**  
**DRAFT PEPD REV01**  
**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**PALMDALE TO BURBANK**  
BURBANK SUBSECTION  
TRAIN CONTROL SYSTEM  
INTERLOCKING SITES  
STA 2233+00 TO STA 2245+00

CONTRACT NO.  
HSR14-42  
DRAWING NO.  
TC-F5001-S14  
SCALE  
AS SHOWN  
SHEET NO.

California High-Speed Rail Authority

# Burbank Subsection

DRAFT PEPD REV 01

Construction Staging

February 2019



## GENERAL SHEETS

DRAWING NO.	DRAWING DESCRIPTION	SHEET NO.
CV-10001	INDEX OF DRAWINGS	

## CONSTRUCTION STAGING SHEETS

DRAWING NO.	DRAWING DESCRIPTION	SHEET NO.
CV-14003-S14	BURBANK SUBSECTION. CONSTRUCTION STAGING	

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E. VELASCO**

DRAWN BY  
**F.J. DOMINGUEZ**

CHECKED BY  
**A. NAVARRO**

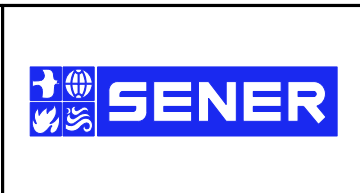
IN CHARGE  
**A. RELAÑO**

DATE  
**02/01/2019**

**BURBANK  
SUBSECTION**

**DRAFT PEPD REV01**

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CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
PALMDALE TO BURBANK**

BURBANK SUBSECTION  
GENERAL  
INDEX OF DRAWINGS

CONTRACT NO.  
HSR14-42

DRAWING NO.  
CV-10001

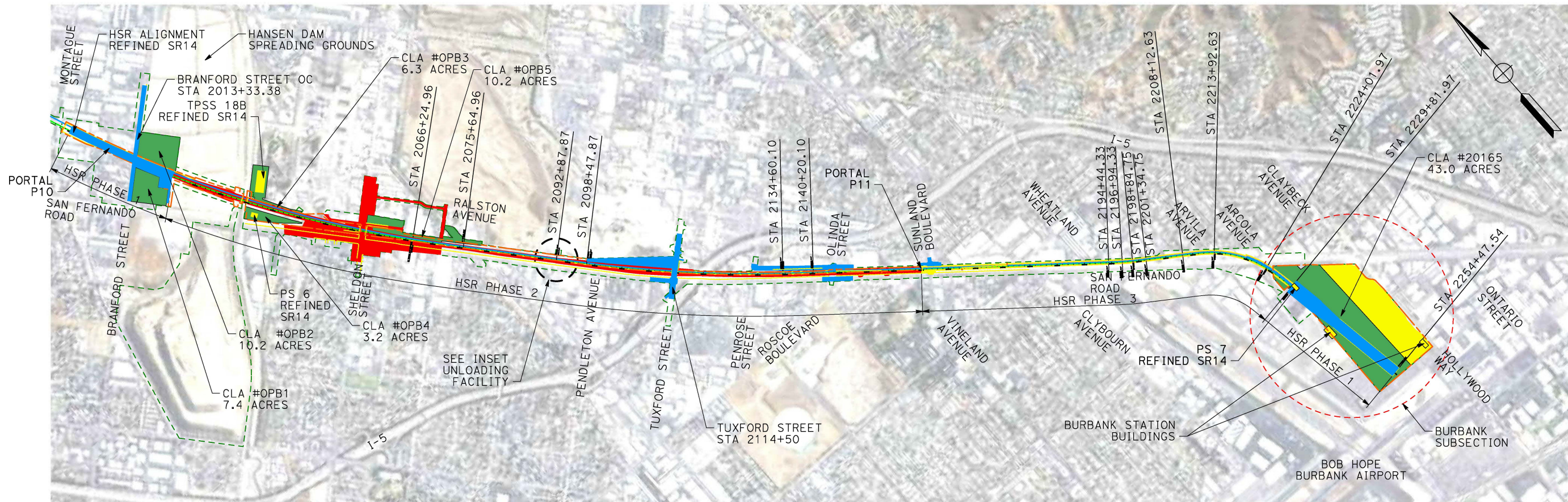
SCALE  
NO SCALE

SHEET NO.

- PHASE 1**
- BUILD LOCAL ROADS, ADD UTILITIES AND DRAINAGE IMPROVEMENTS. CONSTRUCTION OF TUXFORD STREET GRADE SEPARATION IN THE VICINITY OF HSR ALIGNMENT
  - EXCAVATION OF PORTAL P10
  - BUILD PROPOSED VULCAN UNLOADING FACILITY AND PROPOSED VULCAN TRACK
  - REALIGN SAN FERNANDO BLVD BETWEEN PENROSE ST AND SUNLAND BLVD. SUN VALLEY METROLINK STATION RELOCATION SOUTH OF OLINDA ST.
  - CONSTRUCT HSR CUT AND COVER FROM COHASSET STREET TILL THE END OF PROJECT.

- PHASE 2**
- SHIFT VULCAN TRAINS TRAFFIC TO NEW PROP VULCAN TRACK. BUILD NEW HSR STRUCTURE AND DRAINAGE STRUCTURE OVER UNLOADING FACILITY
  - CONSTRUCT SHELDON STREET GRADE-SEPARATION
  - PERFORM CIVIL WORKS FOR HSR INFRASTRUCTURE, INCLUDING TRENCH AND CUT AND COVER UNTIL SUNLAND BLVD
  - BUILD NEW HSR STRUCTURE OVER TUXFORD ST.

- PHASE 3**
- CONSTRUCT HSR SEM TUNNEL AND CIVIL WORKS
  - CONSTRUCT HSR TRACK AND SYSTEMS FACILITIES
  - CONSTRUCT BURBANK STATION BUILDINGS
  - INSTALL ALL STATION FACILITIES, LAND-SIDE TRANSIT AMENITIES, WAY FINDING SIGNAGE, HARDSCAPING, AND LAND SCAPING AROUND STATION.



**GENERAL NOTES:**

- DETAILED CONSTRUCTION SEQUENCE FOR GRADE SEPARATIONS IS NOT PROVIDED IN THIS SET OF PLANS. UTILITY RELOCATIONS ARE NOT SHOWN. TRAFFIC DETOURS ARE NOT SHOWN IN THIS SET OF PLANS.
- LAYDOWN AREAS, STAGING AREAS AND OTHER CONTRACTOR'S FACILITIES ARE INCLUDED IN THIS SET OF PLANS.
- CONSTRUCTION PHASES WILL OVERLAP AS NEEDED TO REDUCE CONSTRUCTION DURATIONS.
- HSR TRACK AND SYSTEMS TO BE CONSTRUCTED IN THE LAST PHASE. HATCHED AREAS ONLY REFER TO CIVIL WORKS.

**TRAFFIC PHASING NOTES:**

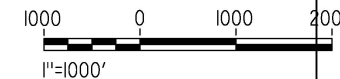
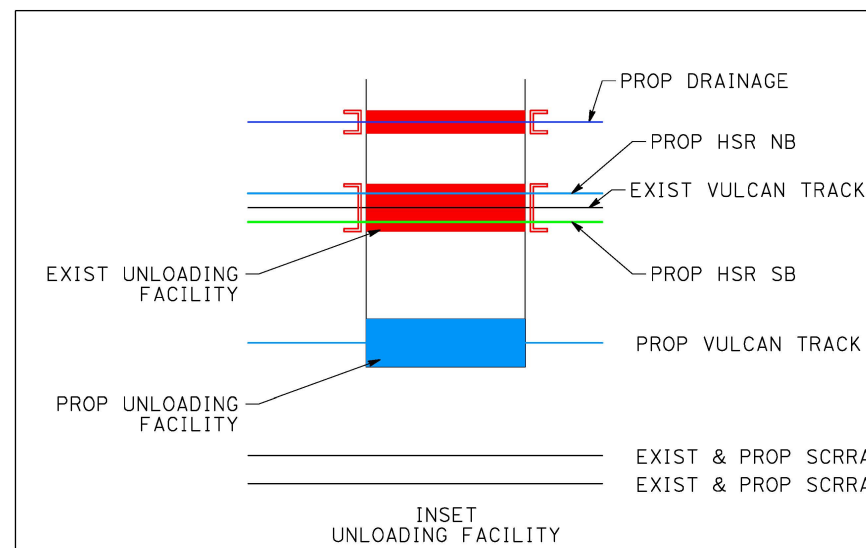
- PHASE 1: E-W VEHICULAR TRAFFIC THROUGH EXISTING SHELDON ST AND PENROSE ST.  
 PHASE 2: E-W VEHICULAR TRAFFIC THROUGH REALIGNED BRANFORD ST, REALIGNED TUXFORD ST.  
 PHASE 3: E-W VEHICULAR TRAFFIC THROUGH REALIGNED ROADWAYS (BRANFORD ST, SHELDON ST, SAN FERNANDO RD, TUXFORD ST, OLINDA ST).

**LEGEND :**

- █ PHASE 1
- █ PHASE 2
- █ PHASE 3
- █ CONSTRUCTION STAGING/ LAYDOWN AREA (CLA)
- - - PROPOSED PERMANENT ENVIRONMENTAL FOOTPRINT
- - - PROPOSED RIGHT OF WAY

**ABBREVIATIONS:**

- CLA CONSTRUCTION STAGING/ LAYDOWN AREA
- HSR HIGH SPEED RAIL
- OC OVERCROSSING
- SCRRA SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
- UP UNDERPASS
- UPRR UNION PACIFIC RAILROAD
- PS PARALLELING STATION
- TPSS TRACTION POWER SUB STATION



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21/03/2019 15:53:15

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**E. VELASCO**

DRAWN BY  
**F.J. DOMINGUEZ**

CHECKED BY  
**A. NAVARRO**

IN CHARGE  
**A. RELAÑO**

DATE  
**02/01/2019**

**BURBANK SUBSECTION**

**DRAFT PEPP REV01**

**NOT FOR CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**

**PALMDALE TO BURBANK**

BURBANK SUBSECTION  
CONSTRUCTION STAGING

CONTRACT NO.  
HSR14-42

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SCALE  
AS SHOWN

SHEET NO.