

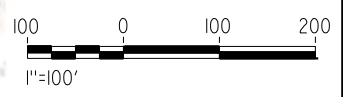
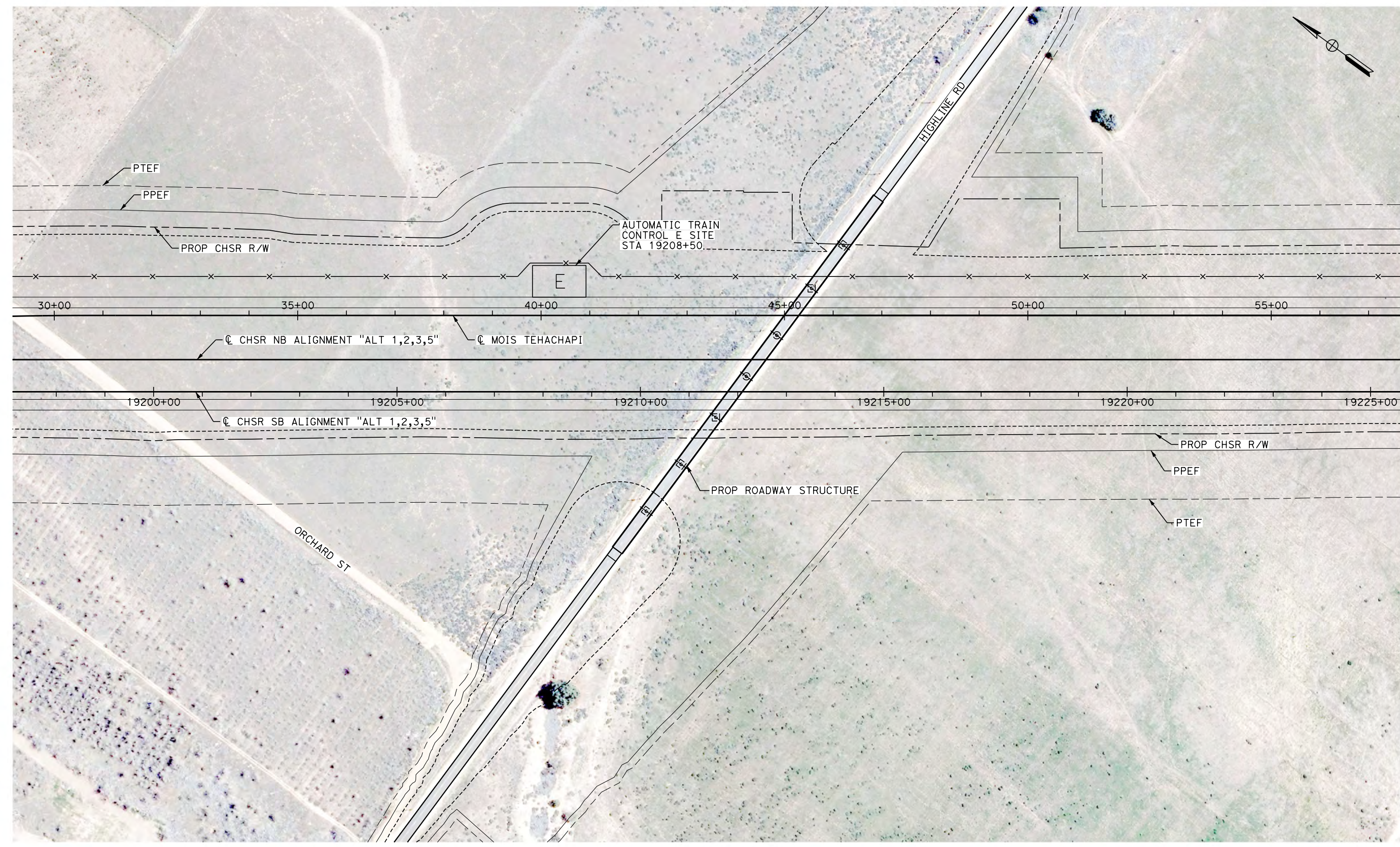
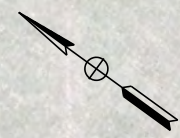
Projects\701206\_00\_CHSRBP\00\_CADD\Sheet Files\TC\BP-TC-F4010

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1/20/2021

ics\_user\_17609

NOTE  
1. SITE E SIZE: 110' X 65'



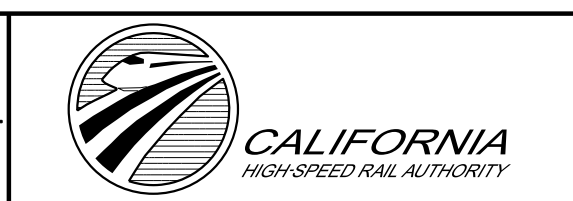
**PLAN**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**J. MEREDITH**  
DRAWN BY  
**J. MEREDITH**  
CHECKED BY  
**S. LANDOLT**  
IN CHARGE  
**G. CAMPBELL**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



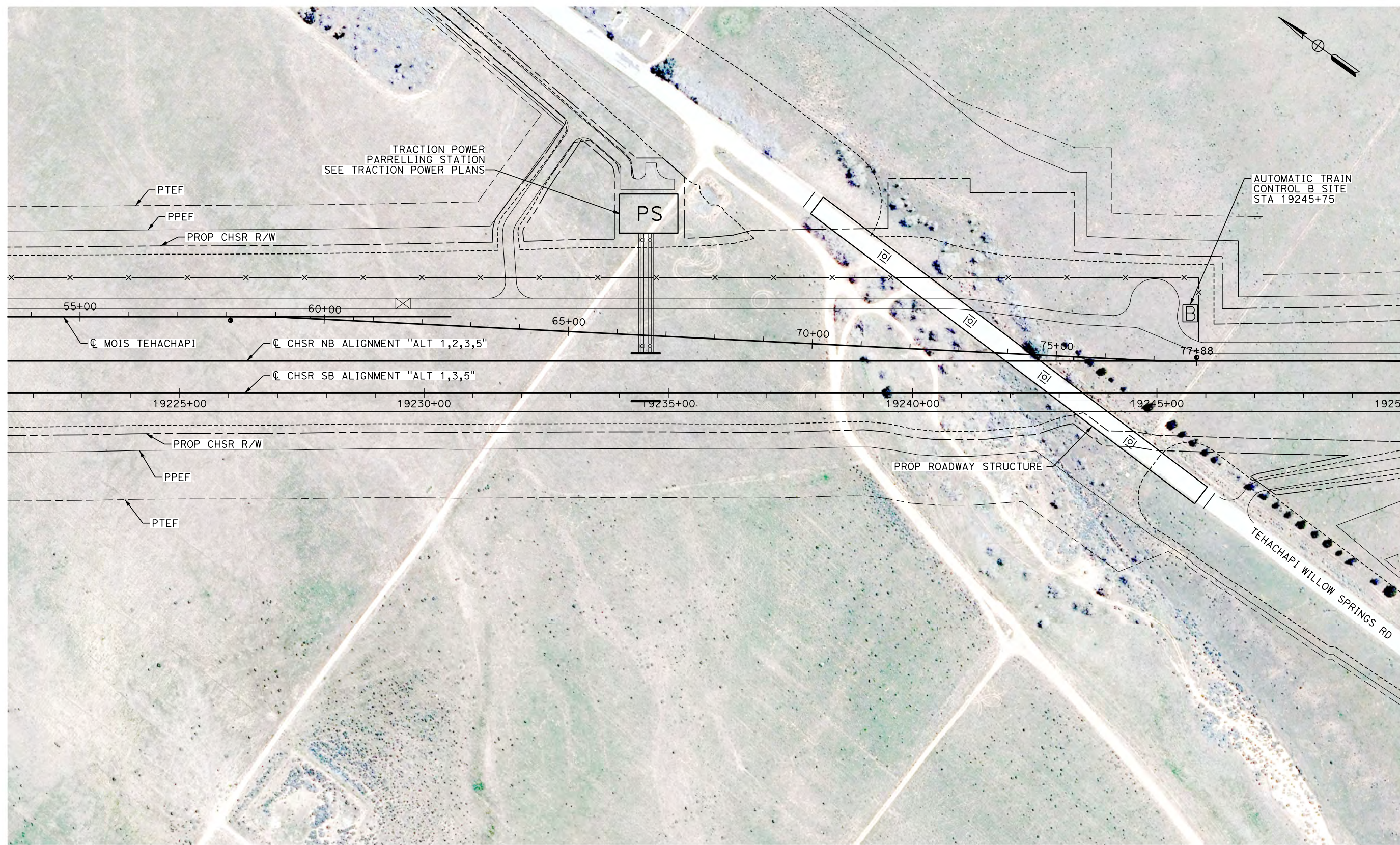
**CALIFORNIA HIGH-SPEED RAIL PROJECT  
BAKERSFIELD TO PALMDALE**

ALTERNATIVE 1,2,3,5  
AUTOMATIC TRAIN CONTROL SITE PLAN  
ATC-E SITE 19208+50

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TC-F4010  
SCALE  
AS SHOWN  
SHEET NO.  
1017



NOTE  
1. SITE B SIZE: 30' X 35'



**PLAN**

Projects\701206\_00\_CHSRBP\00\_CADD\Sheet Files\TC\BP-TC-F4011  
 5:25:56 AM  
 1/20/2021  
 jcs\_user\_17609

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**J. MEREDITH**  
 DRAWN BY  
**J. MEREDITH**  
 CHECKED BY  
**S. LANDOLT**  
 IN CHARGE  
**G. CAMPBELL**  
 DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**  
  
**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
 ALTERNATIVE 1,2,3,5  
 AUTOMATIC TRAIN CONTROL SITE PLAN  
 ATC-B SITE 19245+75

CONTRACT NO.  
HSR13-44  
 DRAWING NO.  
TC-F4011  
 SCALE  
AS SHOWN  
 SHEET NO.  
1018



Projects\701206\_00\_CHSRBP\00\_CADD\Sheet Files\TC\BP-TC-F4012

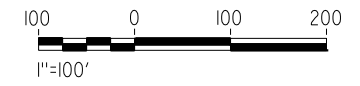
5:35:19 AM

1/20/2021

ics\_user\_17609



NOTE  
1. SITE D SIZE: 100' X 65'



**PLAN**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**J. MEREDITH**  
DRAWN BY  
**J. MEREDITH**  
CHECKED BY  
**S. LANDOLT**  
IN CHARGE  
**G. CAMPBELL**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALTERNATIVE 1,2,5  
AUTOMATIC TRAIN CONTROL SITE PLAN  
ATC-D SITE 19607+00

CONTRACT NO.  
**HSR13-44**

DRAWING NO.  
**TC-F4012**

SCALE  
**AS SHOWN**

SHEET NO.  
**1019**

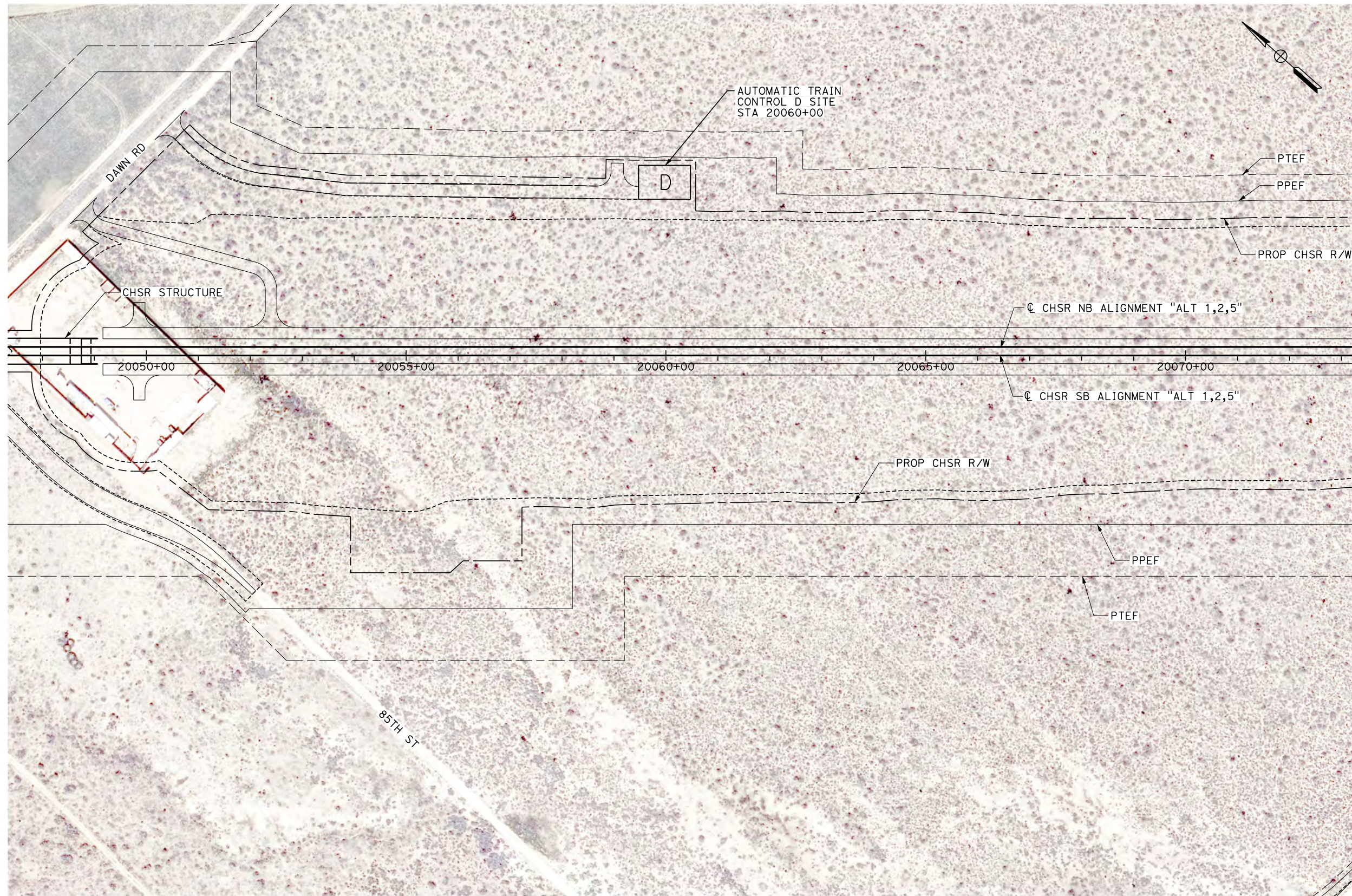


Projects\701206\_00\_CHSRBP\00\_CADD\Sheet Files\TC\BP-TC-F4013

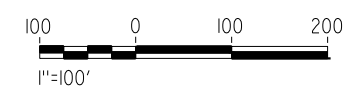
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1/20/2021

jcs\_user\_17609



NOTE  
1. SITE D SIZE: 100' X 65'



**PLAN**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**J. MEREDITH**  
DRAWN BY  
**J. MEREDITH**  
CHECKED BY  
**S. LANDOLT**  
IN CHARGE  
**G. CAMPBELL**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALTERNATIVE 1,2,5  
AUTOMATIC TRAIN CONTROL SITE PLAN  
ATC-D SITE 20060+00

CONTRACT NO.  
**HSR13-44**

DRAWING NO.  
**TC-F4013**

SCALE  
**AS SHOWN**

SHEET NO.  
**1020**

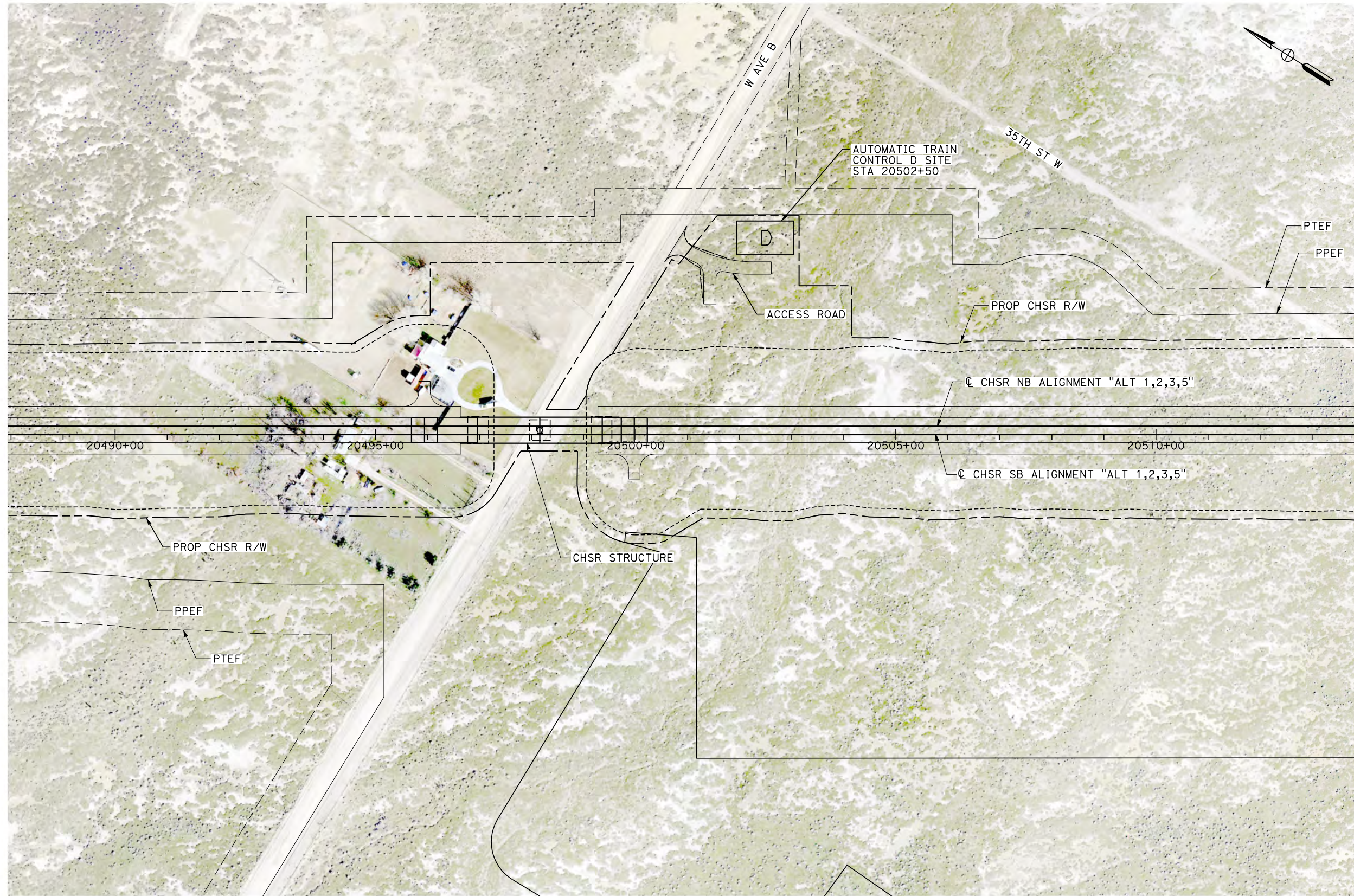


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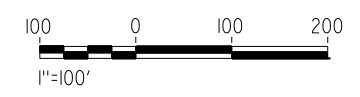
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1/20/2021

jcs\_user\_17609



NOTE  
1. SITE D SIZE: 100' X 65'



**PLAN**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**J. MEREDITH**  
DRAWN BY  
**J. MEREDITH**  
CHECKED BY  
**S. LANDOLT**  
IN CHARGE  
**G. CAMPBELL**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALTERNATIVE 1,2,3,5  
AUTOMATIC TRAIN CONTROL SITE PLAN  
ATC-D SITE 20502+50

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TC-F4015  
SCALE  
AS SHOWN  
SHEET NO.  
1021

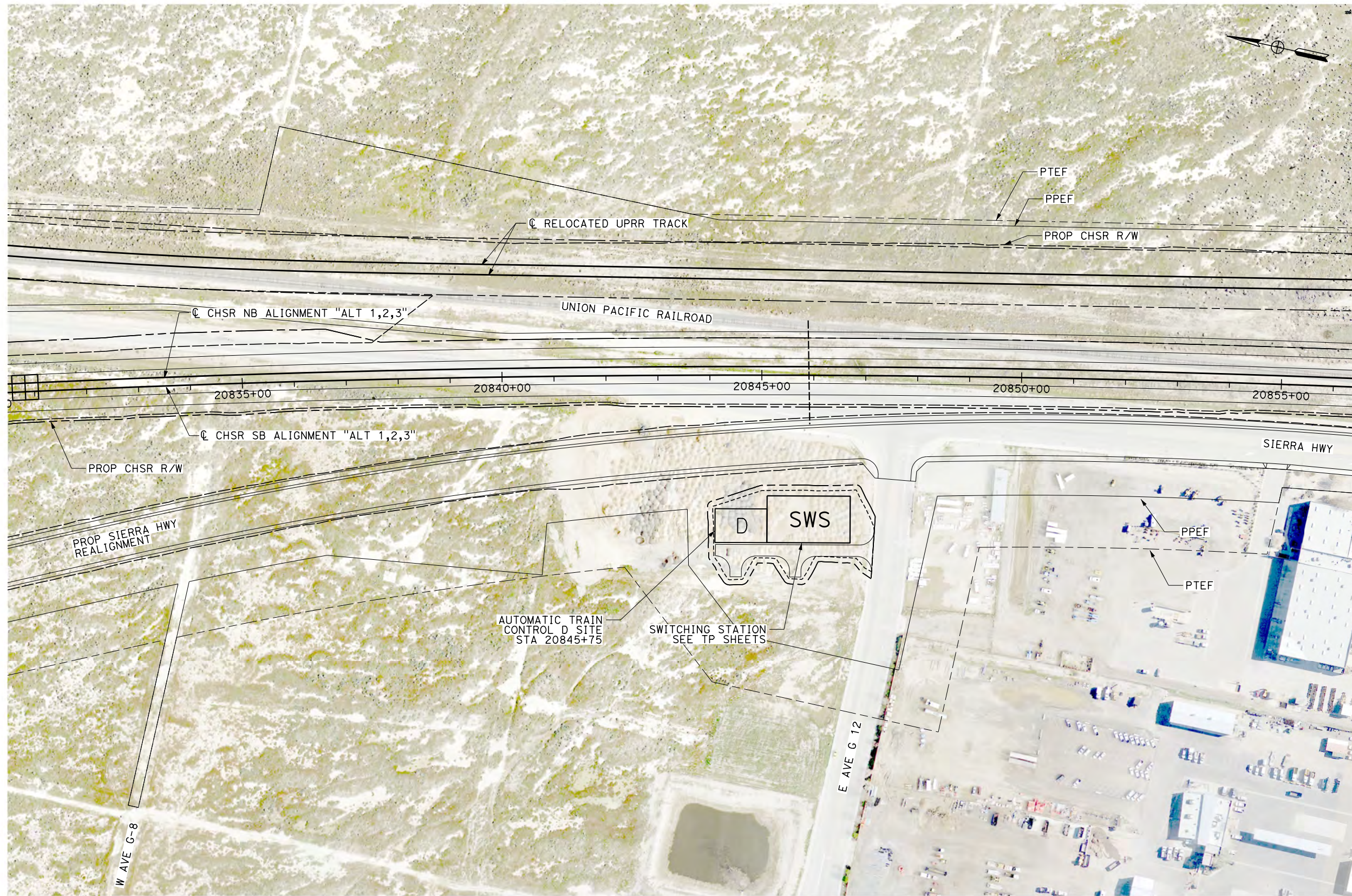


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1/20/2021

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NOTE  
1. SITE D SIZE: 100' X 65'



**PLAN**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**J. MEREDITH**  
DRAWN BY  
**J. MEREDITH**  
CHECKED BY  
**S. LANDOLT**  
IN CHARGE  
**G. CAMPBELL**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALTERNATIVE 1,2,3  
AUTOMATIC TRAIN CONTROL SITE PLAN  
ATC-D SITE 20845+75

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TC-F4017  
SCALE  
AS SHOWN  
SHEET NO.  
1022

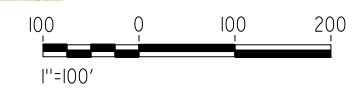


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 1/20/2021 5:18:09 AM  
 jcs\_user\_17609



NOTE  
 1. SITE B SIZE: 30' X 35'

**PLAN**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**J. MEREDITH**  
 DRAWN BY  
**J. MEREDITH**  
 CHECKED BY  
**S. LANDOLT**  
 IN CHARGE  
**G. CAMPBELL**  
 DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**

**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
 ALTERNATIVE 1,2,3  
 AUTOMATIC TRAIN CONTROL SITE PLAN  
 ATC-B SITES 21025+64, 21035+64, 21046+00

CONTRACT NO.  
**HSR13-44**  
 DRAWING NO.  
**TC-F4018**  
 SCALE  
**AS SHOWN**  
 SHEET NO.  
**1023**

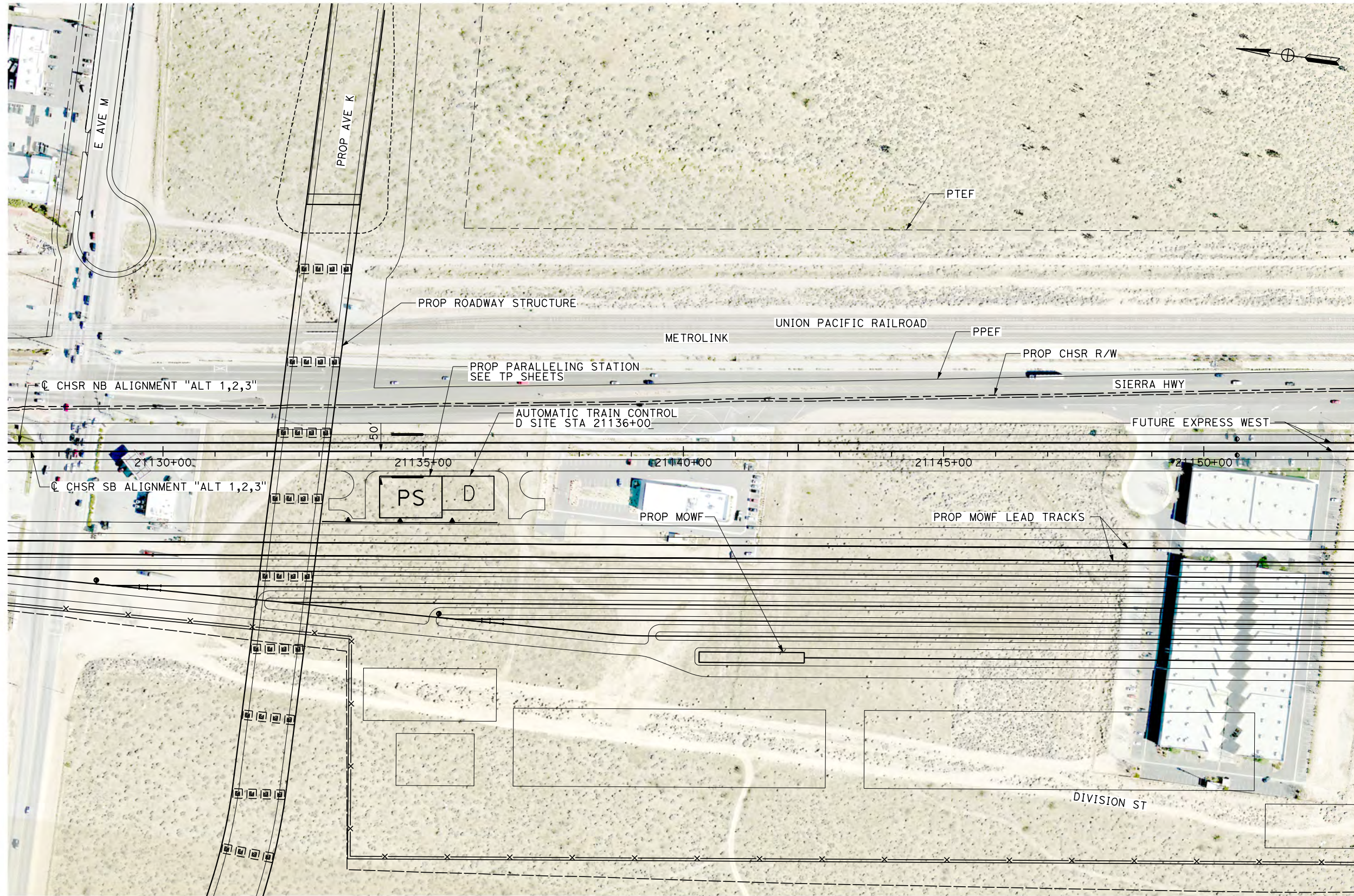


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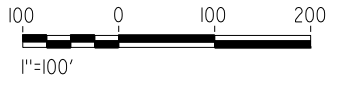
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1/20/2021

jcs\_user\_17609



NOTE  
1. SITE D SIZE: 100' X 65'



**PLAN**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**J. MEREDITH**  
DRAWN BY  
**J. MEREDITH**  
CHECKED BY  
**S. LANDOLT**  
IN CHARGE  
**G. CAMPBELL**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
BAKERSFIELD TO PALMDALE**  
ALTERNATIVE 1,2,3  
AUTOMATIC TRAIN CONTROL SITE PLAN  
ATC-D SITE 21136+00

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TC-F4019  
SCALE  
AS SHOWN  
SHEET NO.  
1024



Projects\701206\_00\_CHSRBP\00\_CADD\Sheet Files\TNBP-TN-B0003

5:35:29 AM

1/20/2021

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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  
 BFFSA BAKERSFIELD F STREET STATION ALIGNMENT  
 BIT CTD BITUMINOUS COATED  
 BK BACK  
 BKF BACKFILL  
 BLDG BUILDING  
 BLM BRIDGE-LOG MILE  
 BLVD BOULEVARD  
 BM BENCH MARK  
 BND BOUND  
 BNSF BURLINGTON NORTH & SANTA FE  
 BOT BOTTOM  
 BR BRIDGE  
 BRG BEARING  
 BTU BRITISH THERMAL UNIT  
 BVC BEGIN VERTICAL CURVE  
 BW BARBED WIRE

**C**

C CUT  
 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  
 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 CAST-IN-PLACE, CAST IRON PIPE  
 CIPCP CAST IN PLACE CONCRETE PIPE  
 CISS CAST-IN-STEEL-SHELL  
 CJP COMPLETE JOINT PENETRATION  
 CL CENTERLINE, CLASS  
 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 PAVEMENT  
 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  
 CVFPB CENTRAL VALLEY FLOOD PROTECTION BOARD  
 CULV CULVERT  
 C CENTERLINE

**D**

D DEPTH  
 D & B DRILL AND BLAST  
 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  
 DS DESIGN SPEED  
 DTBB DOUBLE THRIE BEAM BARRIER  
 DWG DRAWING  
 DWP DEPARTMENT OF WATER AND POWER  
 DWY DRIVEWAY

**E**

E EAST, EASTING, ELECTRICAL  
 EA ACTUAL SUPERELEVATION  
 EU UNBALANCED SUPERELEVATION  
 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  
 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  
 EXWY EXPRESSWAY  
 EXT EXTERIOR

**F**

F FILL, FIXED BEARING  
 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  
 FLS FIRE AND LIFE SAFETY  
 FNBT FACING NORTHBOUND TRAFFIC  
 FOC FACE OF CONCRETE  
 FR RD FRONTAGE ROAD  
 FS FAR SIDE, FINISHED SURFACE  
 FSBT FACING SOUTHBOUND TRAFFIC  
 FT FOOT, FEET  
 FTG FOOTING  
 FWBT FACING WESTBOUND TRAFFIC  
 FWY FREEWAY  
 FPLM FULL SPAN PRECAST LAUNCHING METHOD

**G**

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

**H**

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

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
 DRAWN BY  
**K. BUNGER**  
 CHECKED BY  
**R. KUNDU**  
 IN CHARGE  
**J. MORRISON**  
 DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
BAKERSFIELD TO PALMDALE**  
 ALTERNATIVE 1, 2, 3, 5  
 GENERAL  
 ABBREVIATIONS AND LEGENDS  
 SHEET 1 OF 4

CONTRACT NO.  
HSR13-44  
 DRAWING NO.  
TN-B0003  
 SCALE  
AS SHOWN  
 SHEET NO.  
1025



**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  
 LCB LEAN CONCRETE BASE  
 LID BMP LOW IMPACT DEVELOPMENT BEST MANAGEMENT PRACTICES  
 LN LANE  
 LOC LOCATION  
 LOL LAYOUT LINE  
 LONG LONGITUDE  
 LONGIT LONGITUDINAL  
 LS LENGTH OF SPIRAL  
 LC LENGTH OF CURVE  
 LT LEFT

**M**

MAINT MAINTENANCE  
 MAX MAXIMUM  
 MB METAL BEAM  
 MBB METAL BEAM BARRIER  
 MBGR METAL BEAM GUARD RAILING  
 MED MEDIAN  
 MH MANHOLE  
 MIN MINIMUM  
 MISC MISCELLANEOUS  
 MISC I & S MISCELLANEOUS IRON AND STEEL  
 MKR MARKER  
 M/L MAIN LINE (RAILWAY)  
 MOD MODIFIED, MODIFY  
 MON MONUMENT  
 MOIF MAINTENANCE OF INFRASTRUCTURE FACILITY  
 MOIS MAINTENANCE OF INFRASTRUCTURE SIDING  
 MP METAL PLATE  
 MPGR METAL PLATE GUARD RAILING  
 MPH MILES PER HOUR

**M CONTINUED**

MR MOVEMENT RATING  
 MSE MECHANICALLY STABILIZED EARTH  
 MTL MATERIAL  
 MSS MOVING SCAFFOLDING SYSTEM

**N**

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

**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  
 OSS ONSITE STORMWATER DETENTION

**P**

P PAGE  
 PAP PERFORATED ALUMINUM PIPE  
 PB PULL BOX  
 PC POINT OF CURVATURE, PRECAST  
 PCC POINT OF COMPOUND CURVE,  
 PORTLAND CEMENT CONCRETE  
 PCVC PERFORATED CONCRETE PIPE,  
 PRESTRESSED CONCRETE PIPE  
 PED POINT OF COMPOUND VERTICAL CURVE  
 PED OC PEDESTRIAN  
 PED UC PEDESTRIAN OVERCROSSING  
 PERM MTL PEDESTRIAN UNDERCROSSING  
 PG PERMEABLE MATERIAL  
 PI PROFILE GRADE  
 PJP POINT OF INTERSECTION  
 P,PL PARTIAL JOINT PENETRATION  
 P/L PLATE  
 PM PROPERTY LINE  
 PN POST MILE, TIME FROM NOON TO MIDNIGHT  
 POB PAVING NOTCH  
 POC POINT OF BEGINNING  
 POINT OF HORIZONTAL CURVE

**P CONTINUED**

POE POINT OF ENDING  
 POT POINT OF TANGENT  
 POVC POINT OF VERTICAL CURVE  
 PP PIPE PILE, PLASTIC PIPE, POWER POLE  
 PPEF PROPOSED PERMANENT ENVIRONMENTAL FOOTPRINT  
 PPL PREFORMED PERMEABLE LINER  
 PPP PERFORATED PLASTIC PIPE  
 PRC POINT OF REVERSE CURVE  
 PRF PAVEMENT REINFORCING FABRIC  
 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  
 PTEF PROPOSED TEMPORARY ENVIRONMENTAL FOOTPRINT  
 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  
 RP RADIUS POINT, REFERENCE POINT  
 RR RAILROAD  
 RSP ROCK SLOPE PROTECTION  
 RT RIGHT  
 RTE ROUTE  
 RW REDWOOD, RETAINING WALL  
 R/W RIGHT OF WAY  
 RWY RAILWAY

**S**

S SOUTH, SUPPLEMENT, SLOPE, STATION LINE, SEWER  
 SAE STRUCTURE APPROACH EMBANKMENT  
 SALV SALVAGE  
 SAPP STRUCTURAL ALUMINUM PLATE PIPE  
 SB SOUTHBOUND  
 SC SPIRAL TO CURVE  
 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,  
 SWITCHING STATION  
 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  
 SJVR SAN JOAQUIN VALLEY RAILROAD

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
 DRAWN BY  
**K. BUNGER**  
 CHECKED BY  
**R. KUNDU**  
 IN CHARGE  
**J. MORRISON**  
 DATE  
**01/29/2021**

**RECORD SET  
 PEPD  
 SUBMITTAL**

**NOT FOR  
 CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
 BAKERSFIELD TO PALMDALE**  
 ALTERNATIVE 1, 2, 3, 5  
 GENERAL  
 ABBREVIATIONS AND LEGENDS  
 SHEET 2 OF 4

CONTRACT NO.  
 HSR13-44  
 DRAWING NO.  
 TN-B0004  
 SCALE  
 AS SHOWN  
 SHEET NO.  
 1026



Projects\701206.00\_CADD\Sheet Files\TNBP-TN-B0005

5:22:55 AM

1/20/2021

jcs\_user\_17609

**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  
 TF TOP OF FOOTING  
 TG TOP OF GRADE  
 TM TECHNICAL MEMORANDUM  
 TOR TOP OF RAIL  
 TOT TOTAL  
 TP TELEPHONE POLE  
 TPB TREATED PERMEABLE BASE  
 TPF TRACTION POWER FACILITY  
 TPM TREATED PERMEABLE MATERIAL  
 TPS TRACTION POWER SUPPLY SYSTEM  
 TPSS TRACTION POWER SUBSTATION  
 TRANS TRANSITION, TRANSVERSE  
 TS TRAFFIC SIGNAL, TUBULAR STEEL,  
 TANGENT TO SPIRAL  
 TSMF TERMINAL STORAGE AND MAINTENANCE FACILITY  
 TW TOP OF WALL  
 TYP TYPICAL

**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, WATER  
 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

**Z**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
 DRAWN BY  
**K. BUNGER**  
 CHECKED BY  
**R. KUNDU**  
 IN CHARGE  
**J. MORRISON**  
 DATE  
**01/29/2021**

**RECORD SET  
 PEPD  
 SUBMITTAL**

**NOT FOR  
 CONSTRUCTION**



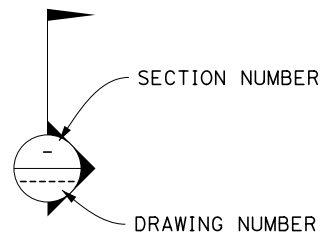








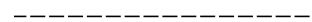
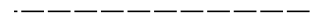









**CALIFORNIA HIGH-SPEED RAIL PROJECT  
 BAKERSFIELD TO PALMDALE**  
 ALTERNATIVE 1, 2, 3, 5  
 GENERAL  
 ABBREVIATIONS AND LEGENDS  
 SHEET 3 OF 4

CONTRACT NO.  
HSR13-44  
 DRAWING NO.  
TN-B0005  
 SCALE  
AS SHOWN  
 SHEET NO.  
1027

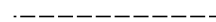

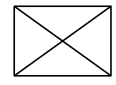
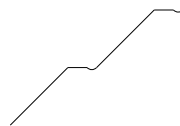


**LEGEND:**

**PLAN**

-  SECTION NUMBER  
DRAWING NUMBER
  -  CURVE DATA (ALIGNMENTS, ROADWAYS)
  -  CURVE DATA (STRUCTURES)
  -  LINE DATA (ALIGNMENTS, ROADWAYS)
  -  NORTH ARROW
  -  PROPOSED RIGHT OF WAY
  -  PROPOSED TEMPORARY ENVIRONMENTAL FOOTPRINT (PTEF)
  -  PROPOSED PERMANENT ENVIRONMENTAL FOOTPRINT (PEF)
  -  EXISTING RIGHT OF WAY
  -  LIMITS OF EXCAVATION (CUT)
  -  LIMITS OF EMBANKMENT (FILL)
  -  FAULT ZONE
  -  EXISTING RETAINING WALL
  -  PROPOSED RETAINING WALL
  -  TUNNEL EXCAVATION LIMITS
  -  TRACK CROSSING PANEL
- UTILITIES**
-  EXISTING ELECTRICAL TRANSMISSION
  -  EXISTING ELECTRICAL TRANSMISSION TOWER
  -  EXISTING STORM DRAIN
  -  EXISTING GAS LINE

**PROFILE**

-  ORIGINAL GROUND
-  PROPOSED CHSR ELEVATION
-  STRUCTURAL CLEARANCE ENVELOPE
-  FACE EXCAVATION (CUT AND BENCH)

**GENERAL NOTES**

1. ROADWAY IMPROVEMENTS NOT PART OF THIS SET.
2. FOR PROPOSED RETAINING WALL SEE SHEET SERIES ST-G.

Projects\701206\_00\_CHSRBP\00\_CADD\Sheet Files\TNBP-TN-B0006

5:35:54 AM

1/20/2021

ics\_user\_17609

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

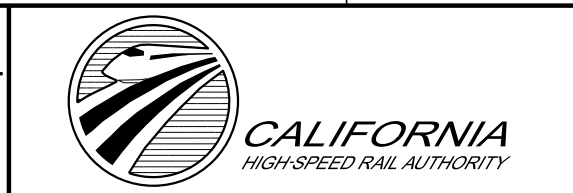
CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALTERNATIVE 1, 2, 3, 5  
GENERAL  
ABBREVIATIONS AND LEGENDS  
SHEET 4 OF 4

CONTRACT NO.  
HSR13-44

DRAWING NO.  
TT-B0006

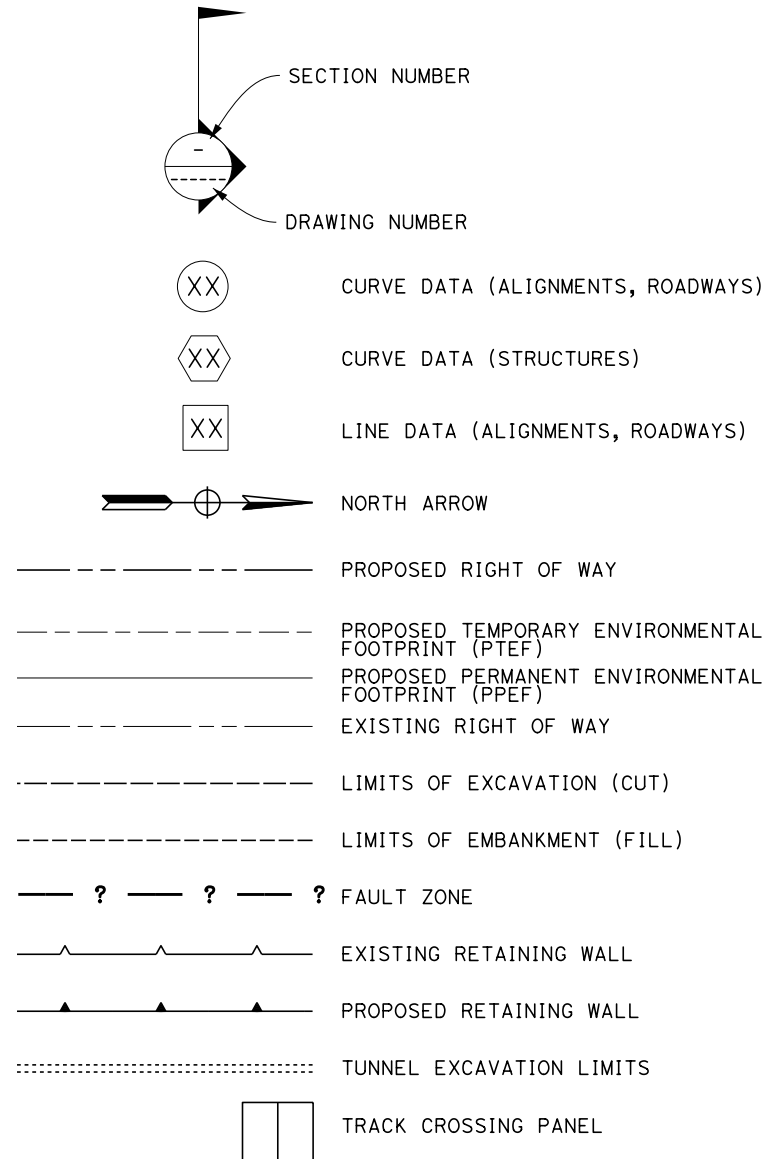
SCALE  
AS SHOWN

SHEET NO.  
1028

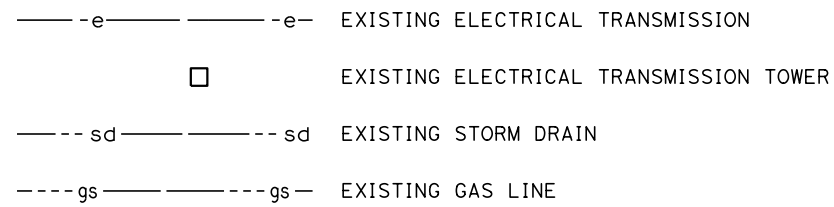


## TUNNEL LEGEND

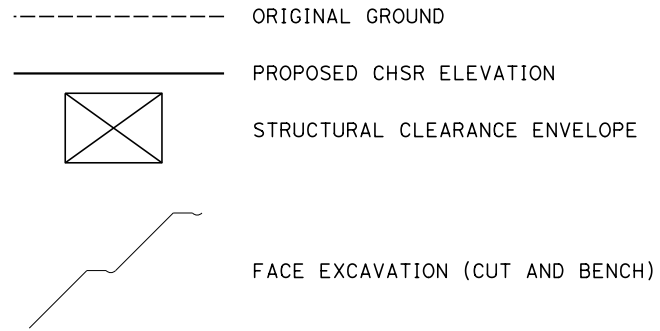
### PLAN



### UTILITIES



### PROFILE



### GENERAL NOTES

1. ROADWAY IMPROVEMENTS NOT PART OF THIS SET.
2. FOR PROPOSED RETAINING WALL SEE SHEET SERIES ST-G.

Projects\701206\_00\_CHSRBP\00\_CADD\CCNM Option D\Sheets\TN\TN-B0201 6:10:34 AM 1/20/2021 i\_cs\_user\_17609

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

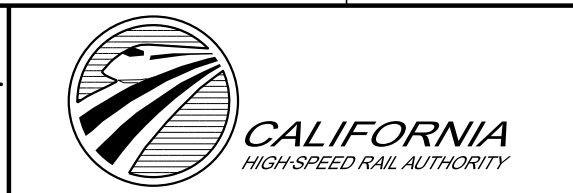
CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**

**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL LEGEND

CONTRACT NO.  
HSR13-44

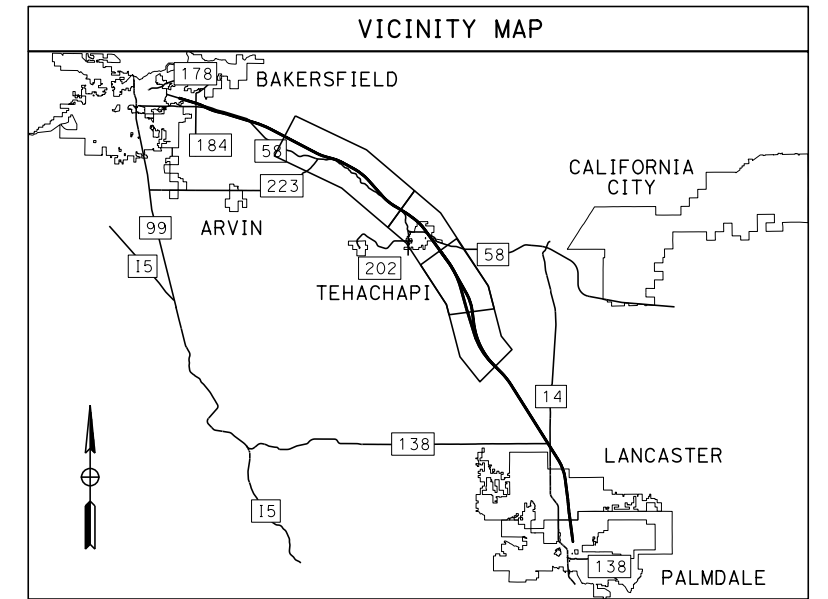
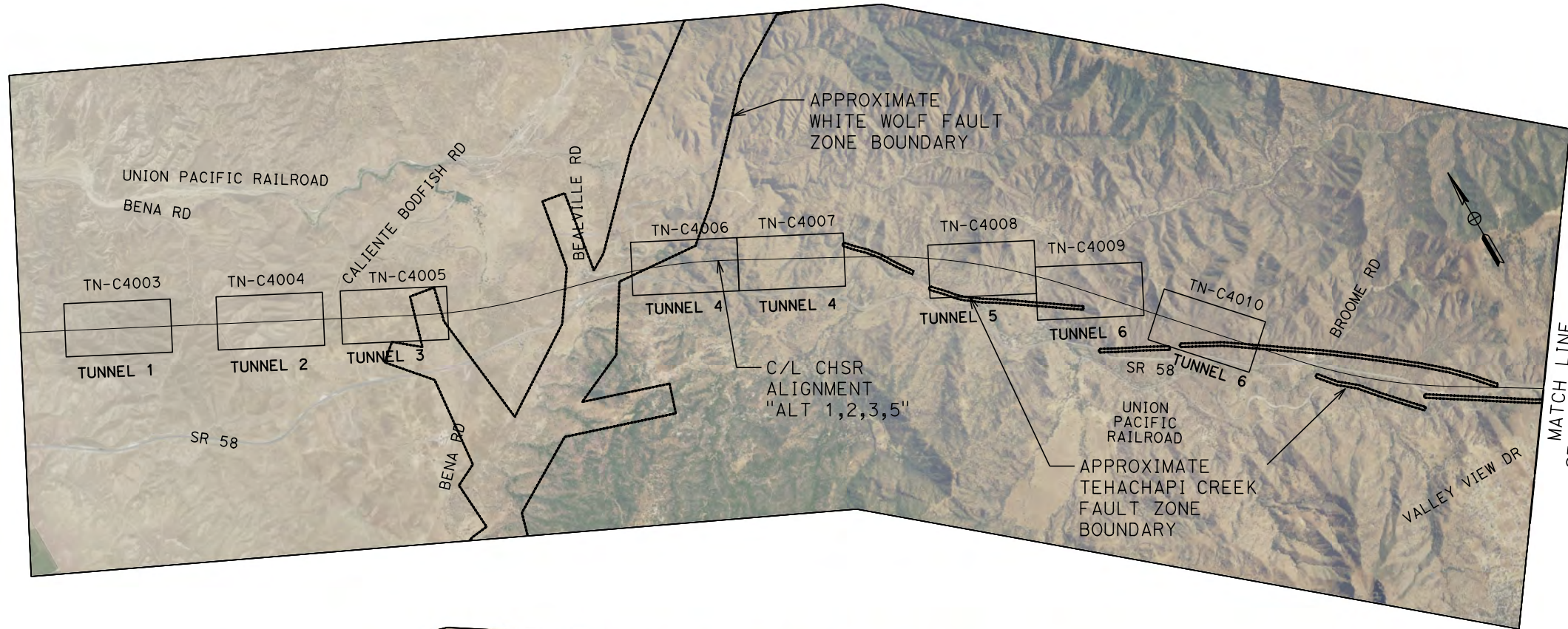
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TN-B0201

SCALE  
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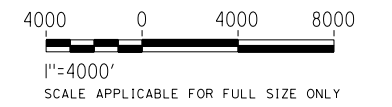
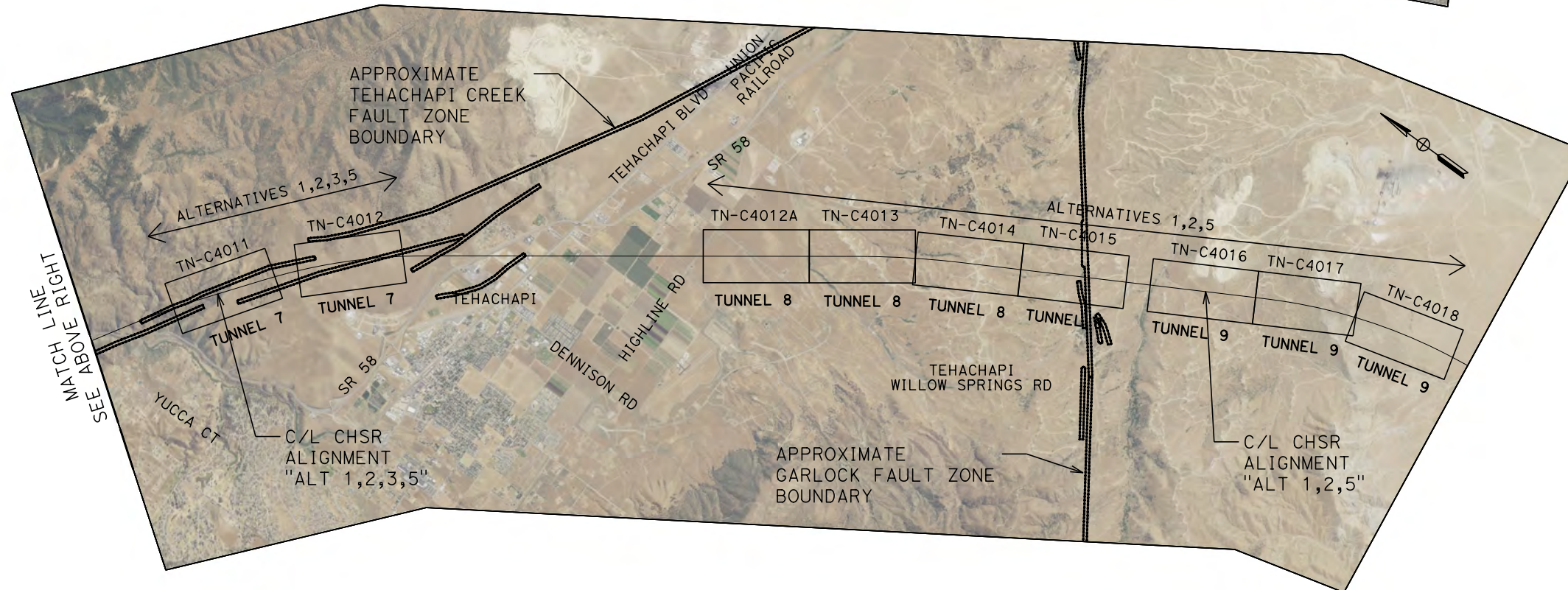
SHEET NO.  
1029



ALIGNMENT "ALTERNATIVES 1,2,3,5"



MATCH LINE  
SEE BELOW LEFT



Projects\701206.00\_CHSRBP\00\_CADD\Sheet Files\TN\BP-TN-B0007

5:22:49 AM

1/20/2021

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALTERNATIVE 1, 2, 3, 5

TUNNELS KEY MAP  
SHEET 1 OF 1

CONTRACT NO.  
HSR13-44

DRAWING NO.  
TN-B0007

SCALE  
AS SHOWN

SHEET NO.  
1030

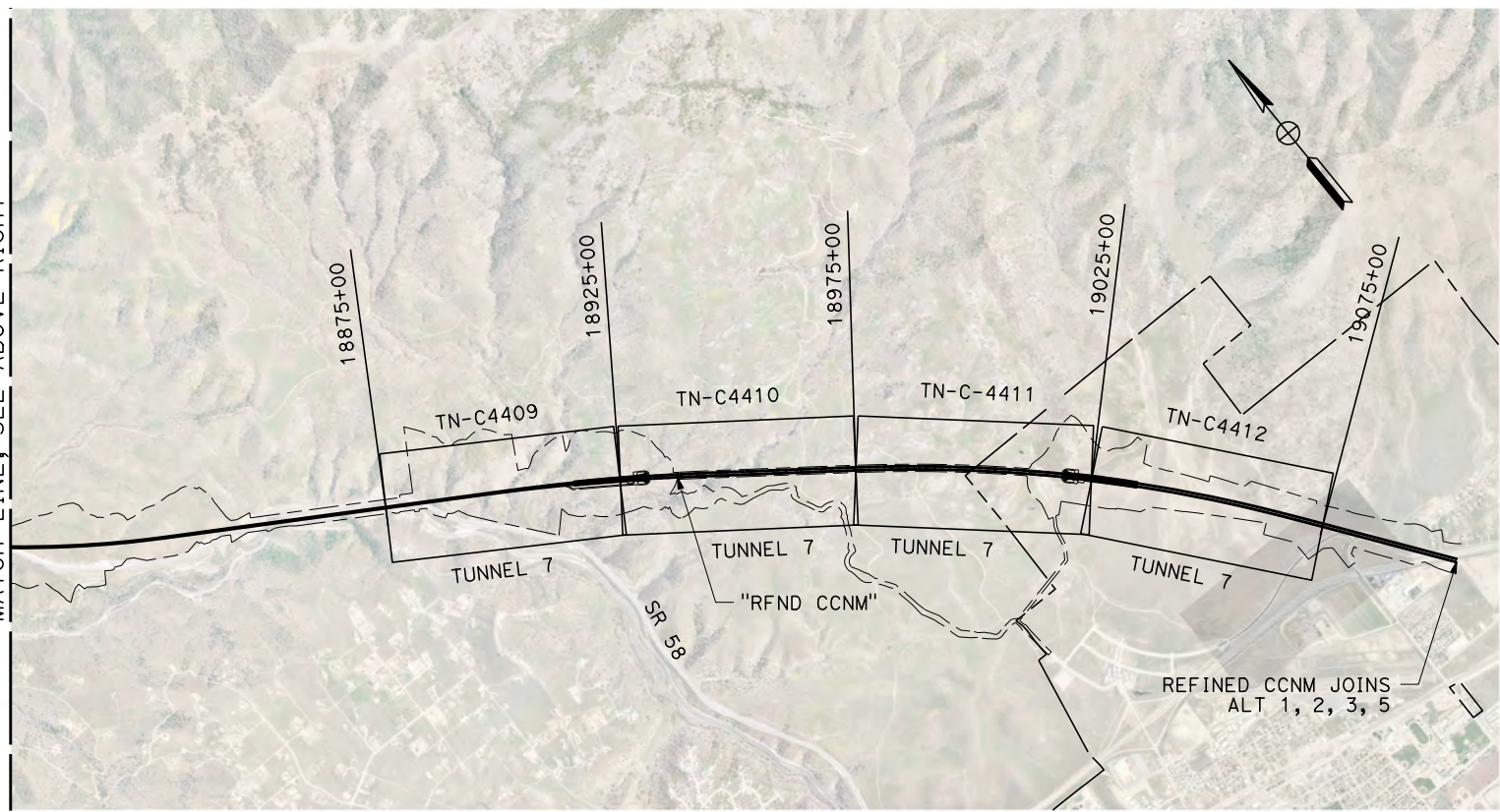
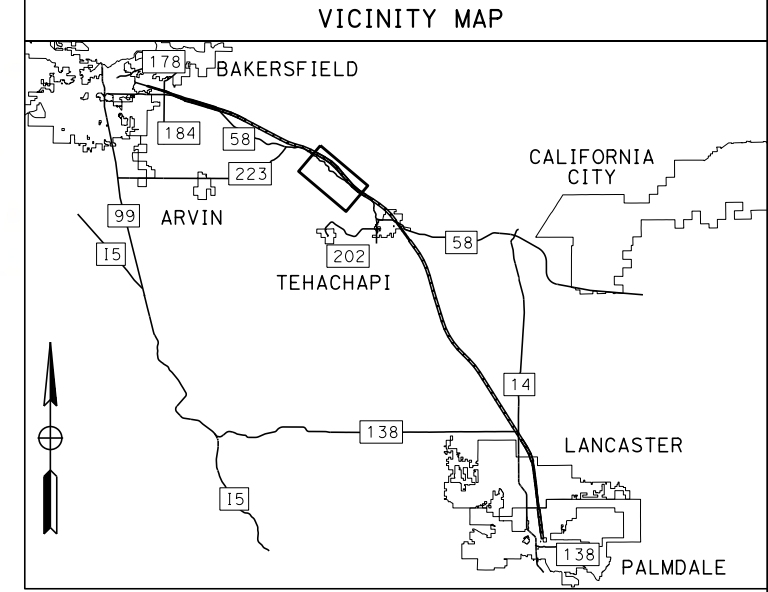
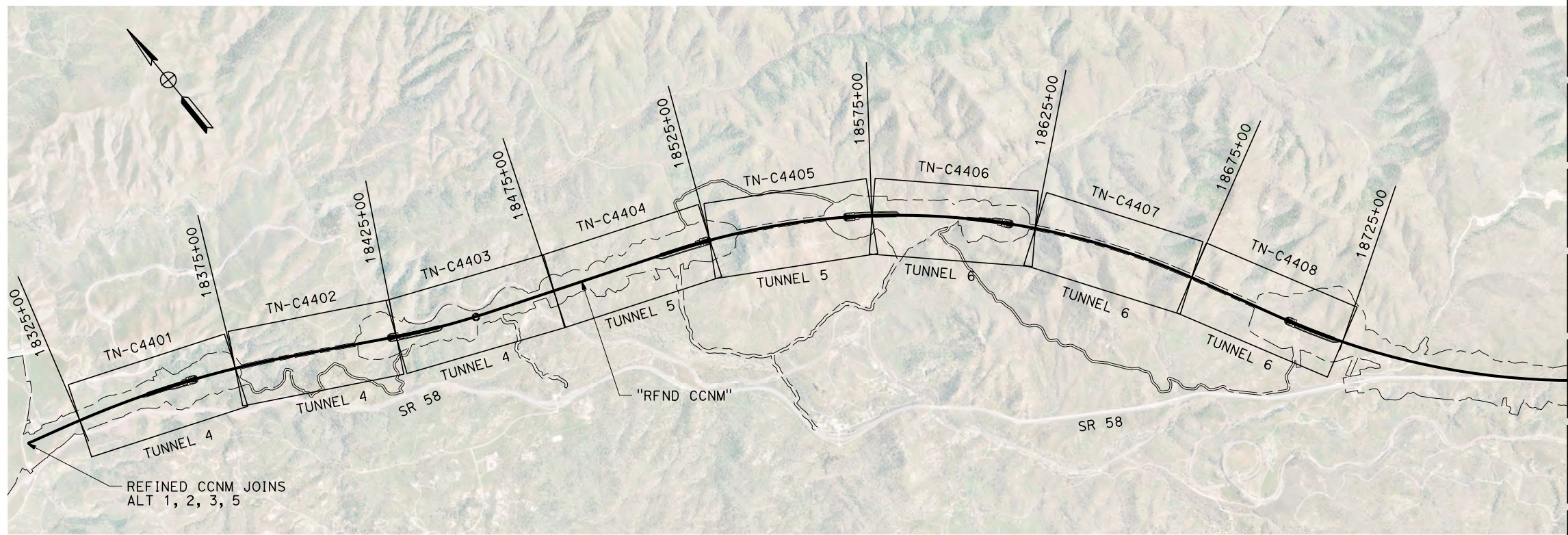


Projects\701206\_00\_CHSRBP\00\_CADD\CCNM Option D\Sheets\TN\TN-B0202

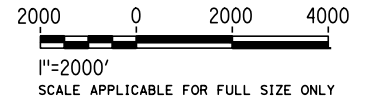
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1/20/2021

ics\_user\_17609



**REFINED CCNM DESIGN OPTION**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
BAKERSFIELD TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
KEY MAP  
ALIGNMENT TUNNELS

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-B0202  
SCALE  
AS SHOWN  
SHEET NO.  
1031

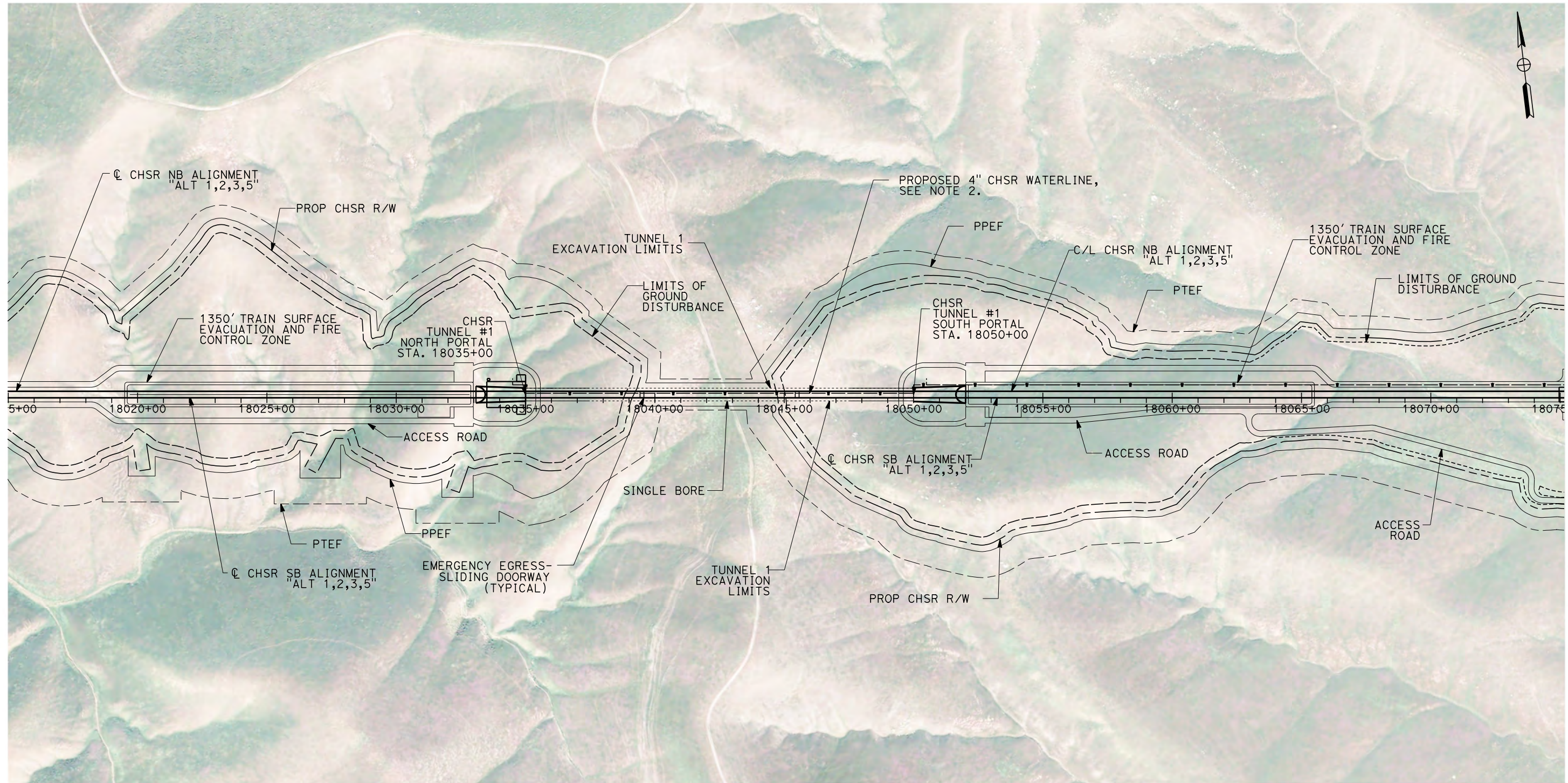


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1/27/2021

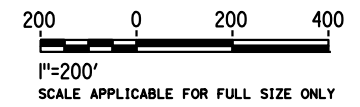
ics\_user\_17609



**GENERAL NOTES:**

- FOR PROFILE INFORMATION, SEE SHEET TN-Y1001.
- PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.
- PROPOSED ELECTRICAL SERVICE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.

**PLAN**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>Z. SKOVAJSOVA</b>
DRAWN BY <b>K. BUNGER</b>
CHECKED BY <b>R. KUNDU</b>
IN CHARGE <b>J. MORRISON</b>
DATE <b>01/29/2021</b>

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALIGNMENT ALT 1, 2, 3, 5  
TUNNEL 1  
STATION 18015+00 TO 18075+00

CONTRACT NO. <b>HSR13-44</b>
DRAWING NO. <b>TN-C4003</b>
SCALE <b>AS SHOWN</b>
SHEET NO. <b>1032</b>

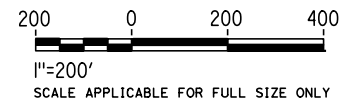
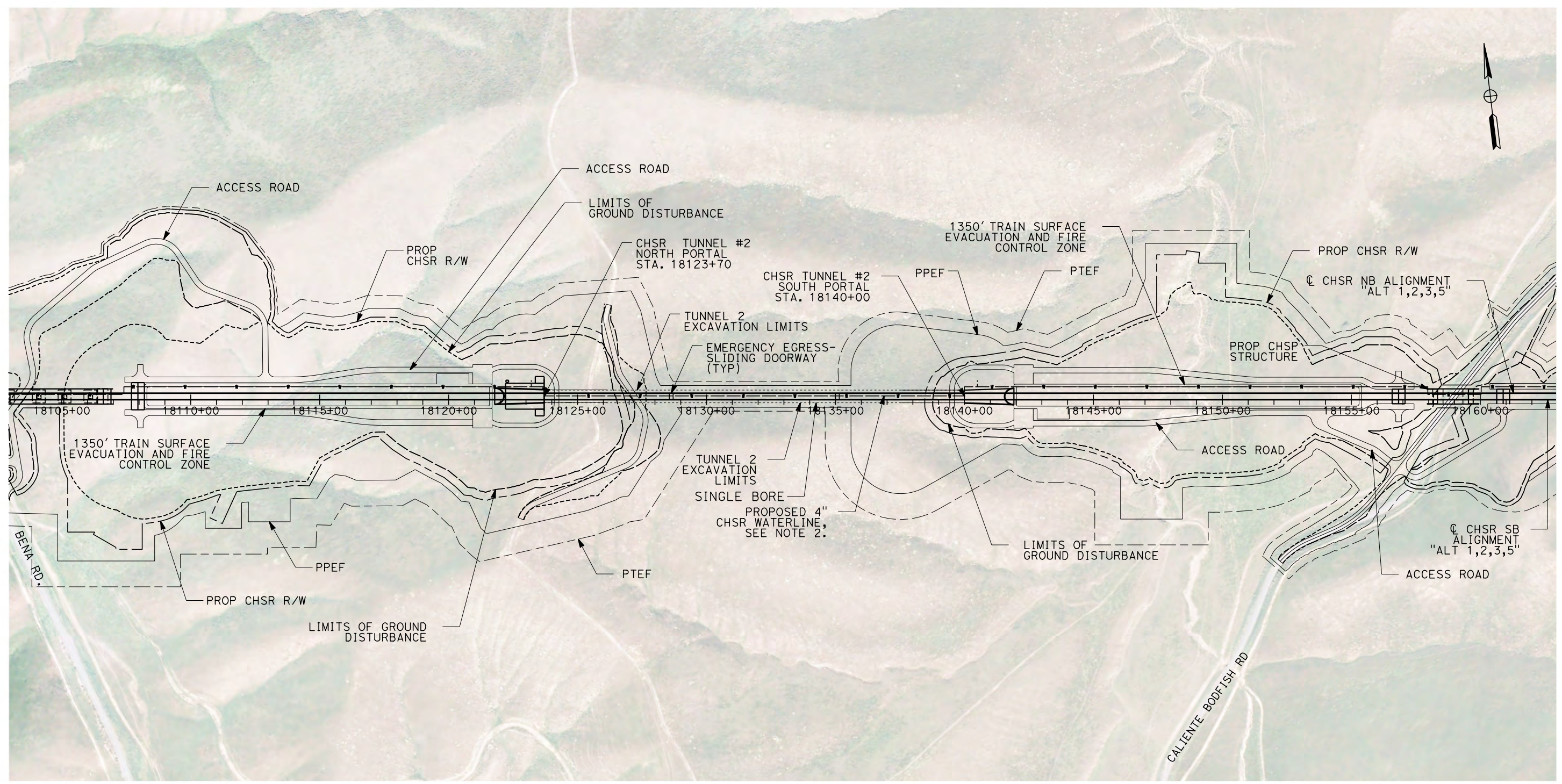


Projects\701206\_00\_CHSRBP\00\_CADD\Sheet\_Files\TN\BP-TN-C4004

4:34:24 AM

1/27/2021

ics\_user\_17609



**GENERAL NOTES:**

1. FOR PROFILE INFORMATION, SEE SHEET TN-Y1001.
2. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.
3. PROPOSED ELECTRICAL SERVICE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.

**PLAN**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALIGNMENT ALT 1, 2, 3, 5  
TUNNEL 2  
STATION 18103+00 TO 18163+00

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-C4004  
SCALE  
AS SHOWN  
SHEET NO.  
1033

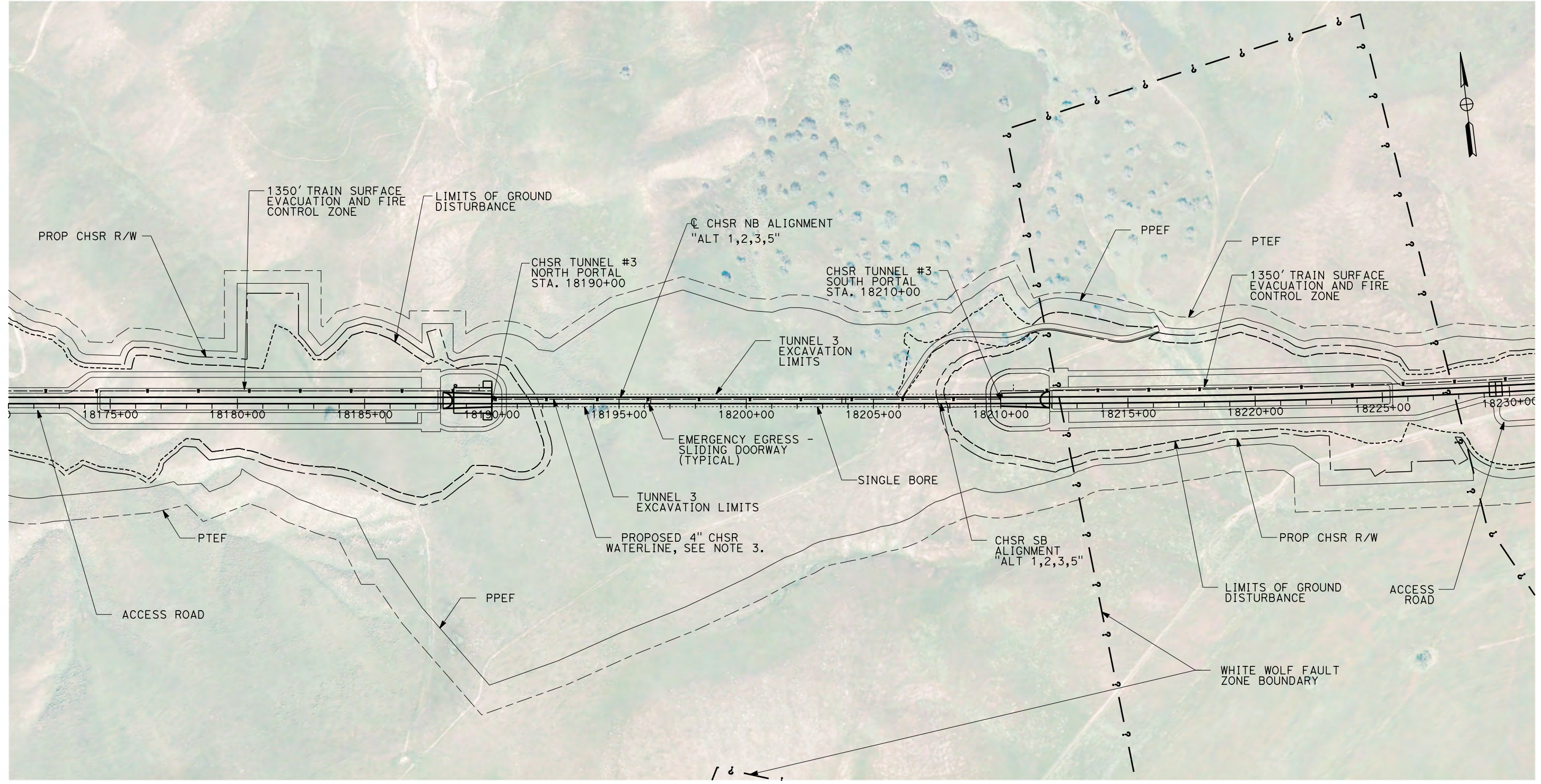


Projects\701206\_00\_CHSRBP\00\_CADD\Sheet\_Files\TN\BP-TN-C4005

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1/27/2021

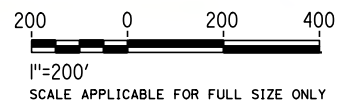
jcs\_user\_17609



**GENERAL NOTES:**

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. FOR PROFILE INFORMATION SEE SHEET TN-Y1002.
3. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.
4. PROPOSED ELECTRICAL SERVICE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.

**PLAN**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**

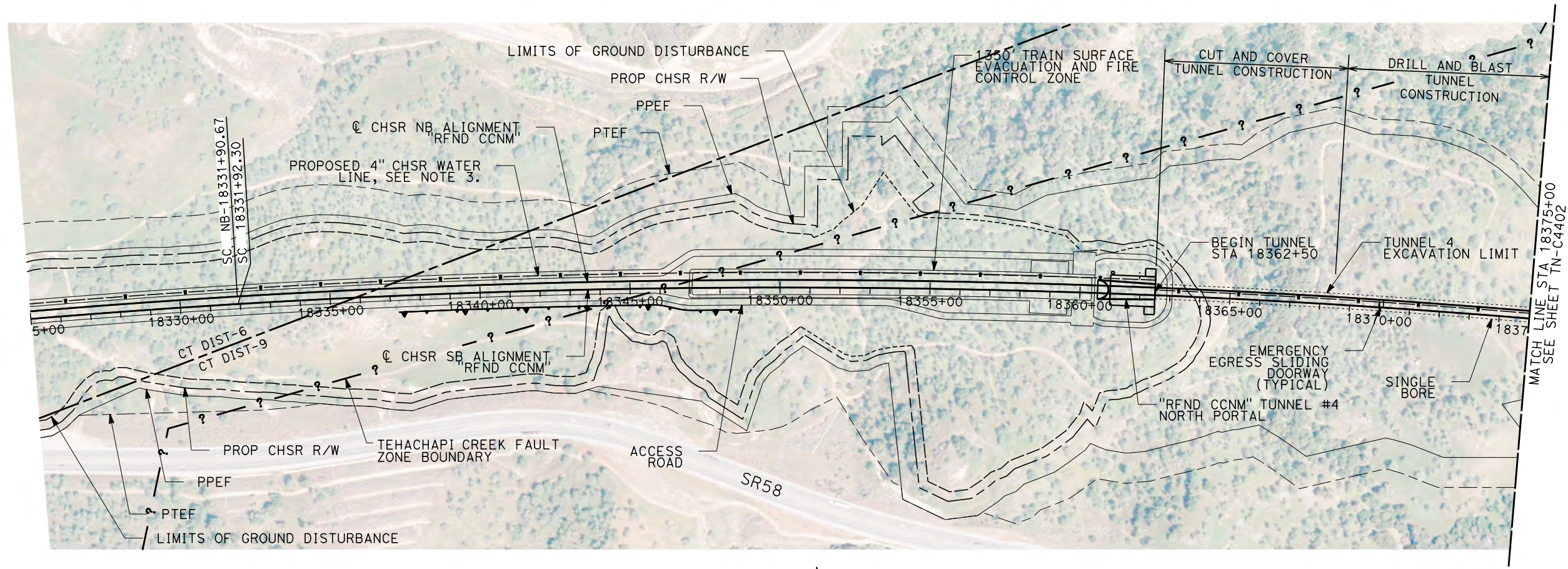


**CALIFORNIA HIGH-SPEED RAIL PROJECT  
BAKERSFIELD TO PALMDALE**

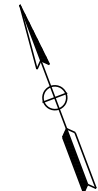
ALIGNMENT ALT 1, 2, 3, 5  
TUNNEL 3  
STATION 18171+00 TO 18231+00

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-C4005  
SCALE  
AS SHOWN  
SHEET NO.  
1034



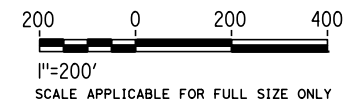


**PLAN**



**NOTES:**

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. FOR PROFILE INFORMATION SEE SHEET TN-C1101.
3. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNEL IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.
4. TUNNEL 4 WILL BE CONSTRUCTED BY CUT AND COVER METHODS BETWEEN STATION 18362+50 TO 18368+50.



Projects\701206\_00\_CHSRBP\00\_CADD\CCNM\_Option\_D\Sheets\TN\TN-C4401

6:25:38 AM

1/20/2021

jcs\_user\_17609

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**

**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFILED TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL 4  
STA 18325+00 TO STA 18375+00

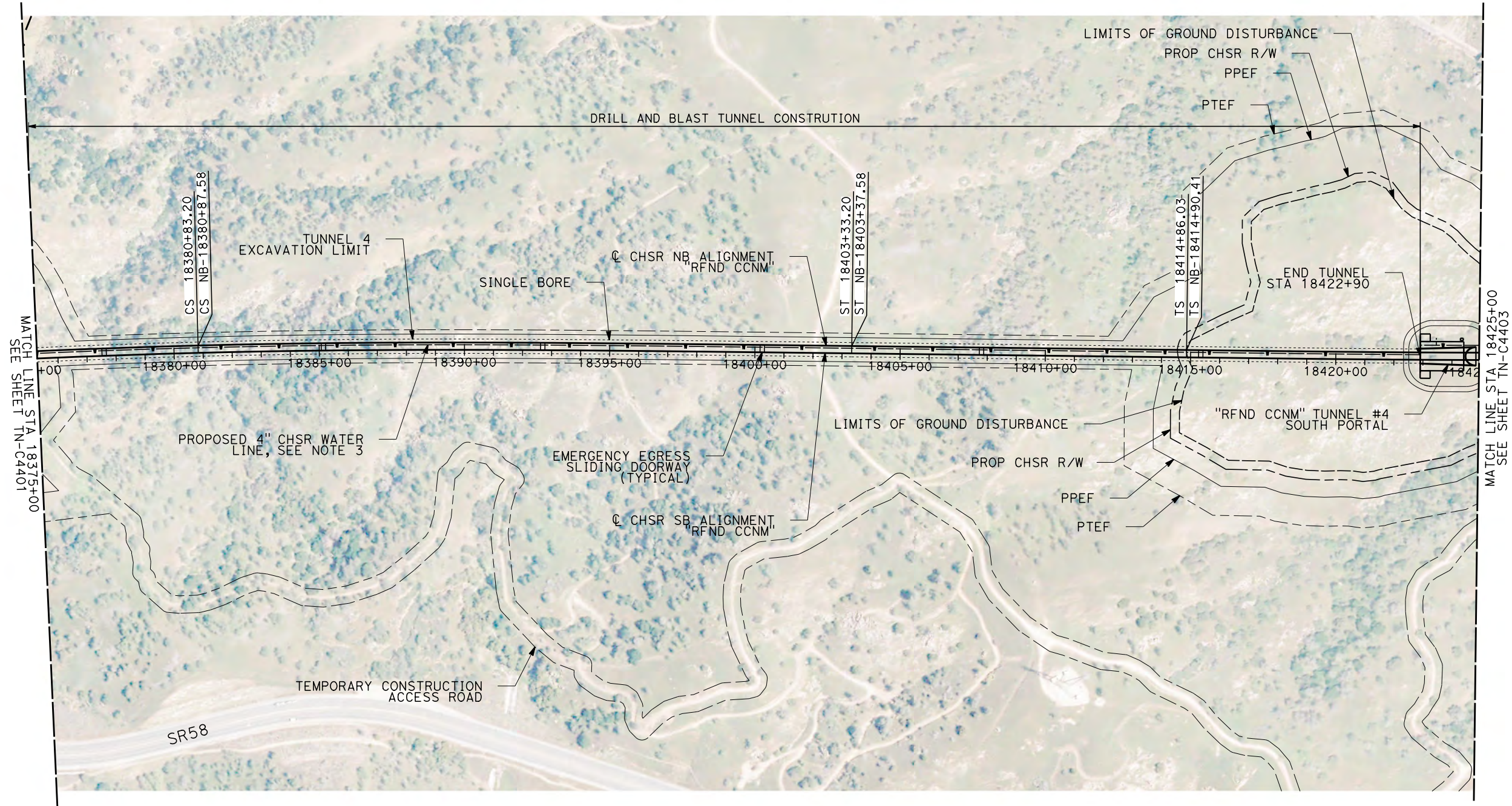
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HSR13-44

DRAWING NO.  
TN-C4401

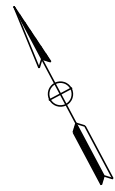
SCALE  
AS SHOWN

SHEET NO.  
1035

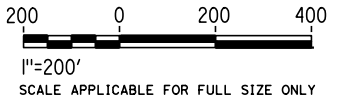




**PLAN**



- NOTES:**
1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
  2. FOR PROFILE INFORMATION SEE SHEET TN-C1101.
  3. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNEL IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.
  4. TUNNEL 4 WILL BE CONSTRUCTED BY CUT AND COVER METHODS BETWEEN STATION 18362+50 TO 18368+50.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**

**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFILED TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL 4  
STA 18375+00 TO STA 18425+00

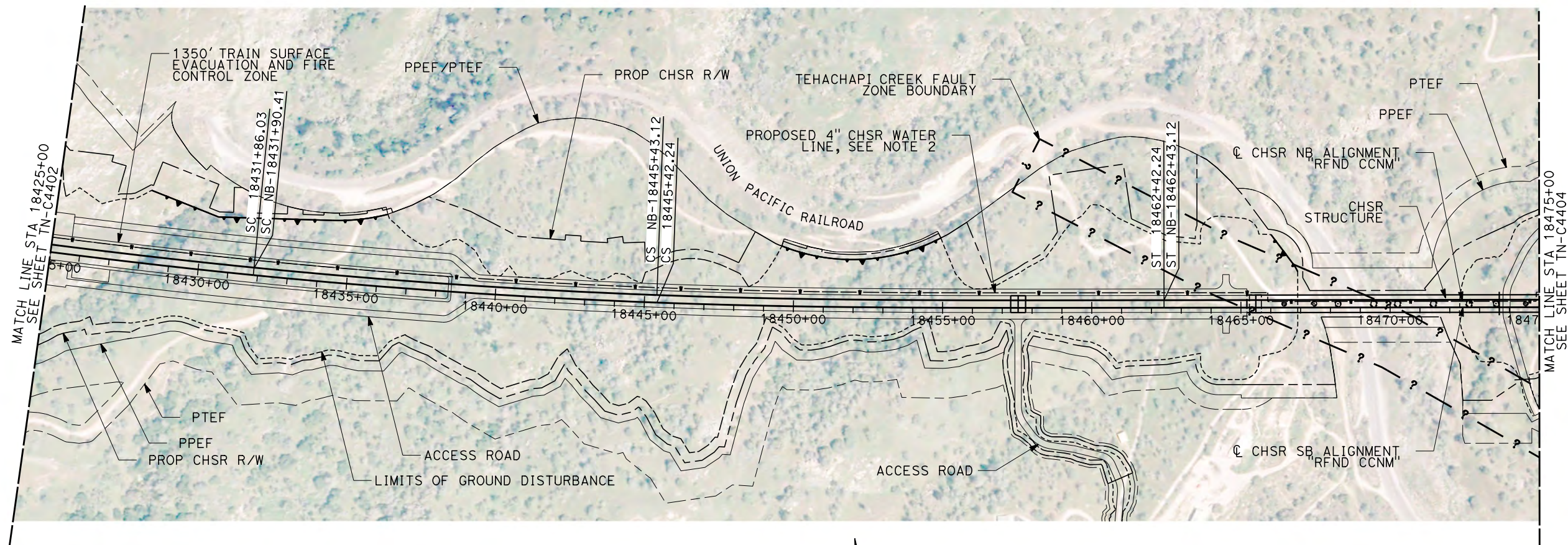
CONTRACT NO.  
HSR13-44

DRAWING NO.  
TN-C4402

SCALE  
AS SHOWN

SHEET NO.  
1036



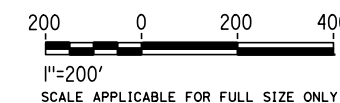


**PLAN**



**NOTES:**

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00.
3. TUNNEL 4 WILL BE CONSTRUCTED BY CUT AND COVER METHODS BETWEEN STATION 18362+50 TO 18368+50. IN THE TUNNEL IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



Projects\701206\_00\_CHSRBP\00\_CADD\CCNM Option D\Sheets\TN\TN-C4403

6:10:45 AM

1/20/2021

jcs\_user\_17609

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**

**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL 4  
STA 18425+00 TO STA 18475+00

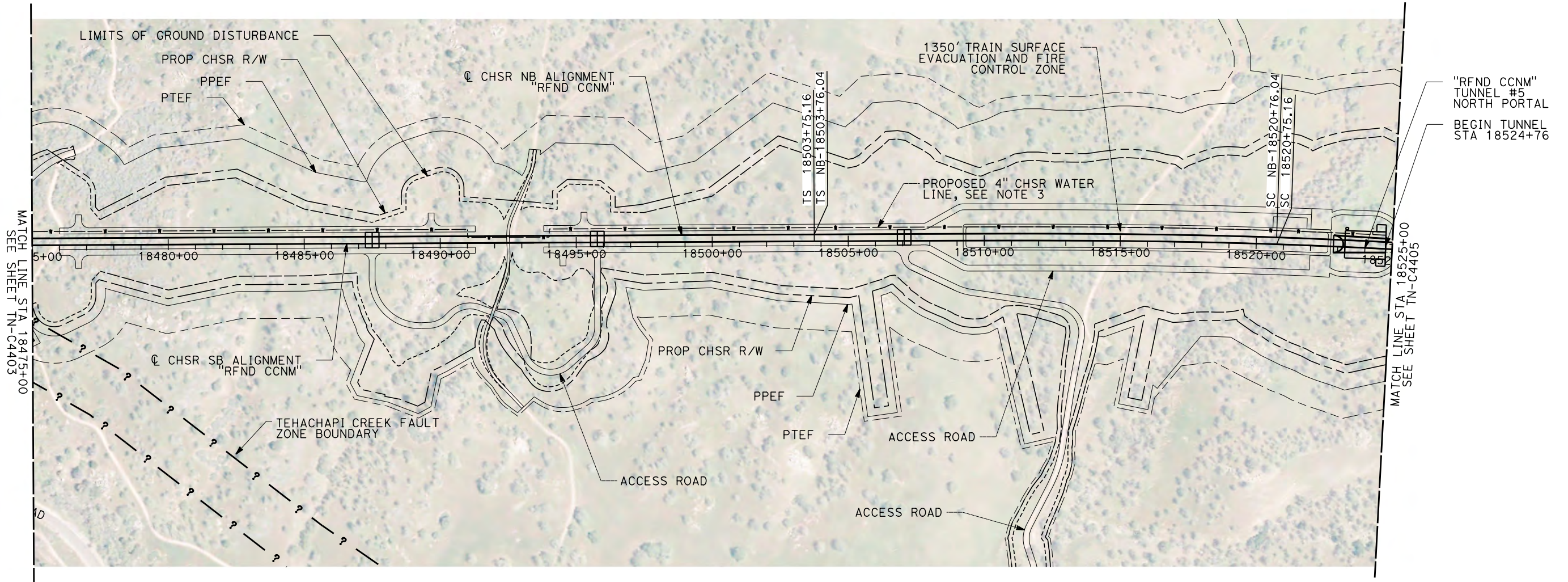
CONTRACT NO.  
HSR13-44

DRAWING NO.  
TN-C4403

SCALE  
AS SHOWN

SHEET NO.  
1037



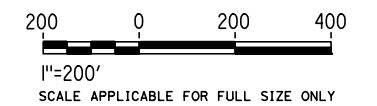


**PLAN**



**NOTES:**

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. FOR PROFILE INFORMATION SEE SHEET TN-C1102.
3. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNEL IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



Projects\701206.00\_CADD\CCNM Option D\Sheets\TN-C4404 1/20/2021 6:47:36 AM jcs\_user\_17609

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

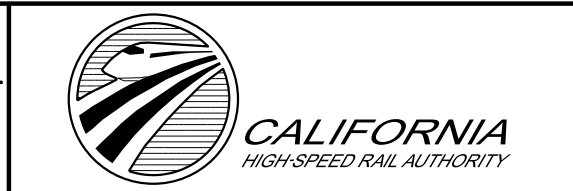
CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**

**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL 5  
STA 18475+00 TO STA 18525+00

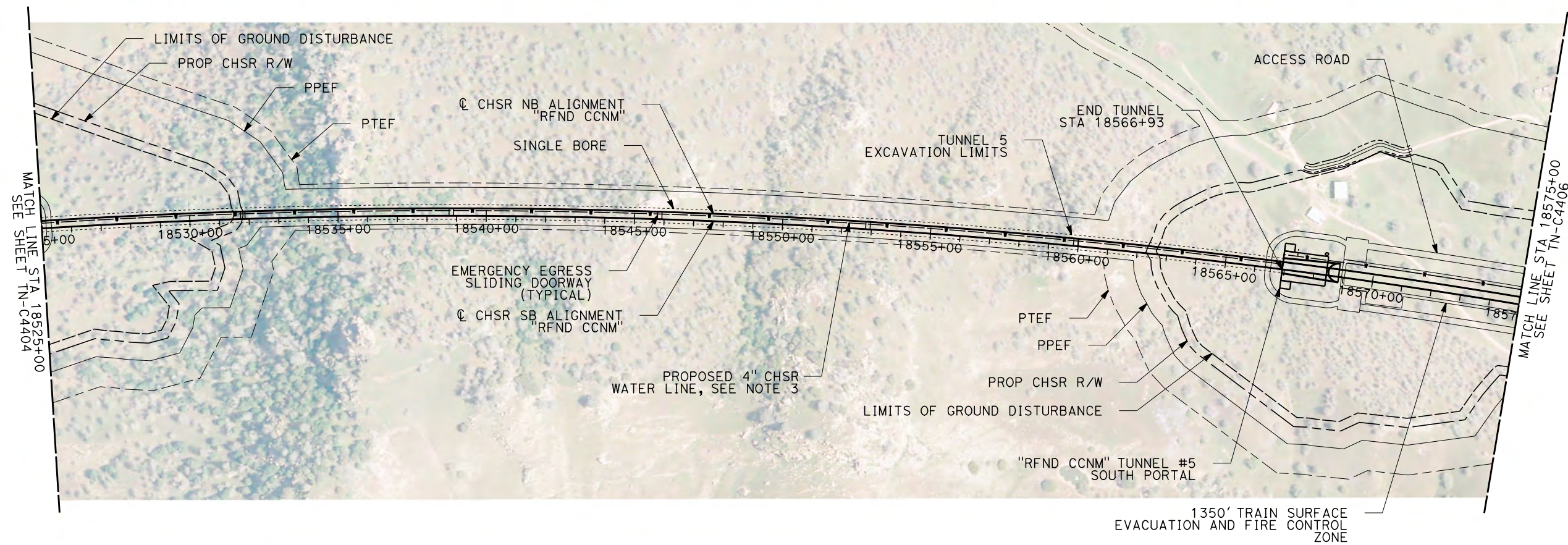
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HSR13-44

DRAWING NO.  
TN-C4404

SCALE  
AS SHOWN

SHEET NO.  
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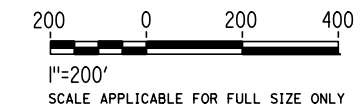


**PLAN**



**NOTES:**

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. FOR PROFILE INFORMATION SEE SHEET TN-C1102.
3. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNEL IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**

**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFILED TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL 5  
STA 18525+00 TO STA 18575+00

CONTRACT NO.  
HSR13-44

DRAWING NO.  
TN-C4405

SCALE  
AS SHOWN

SHEET NO.  
1039

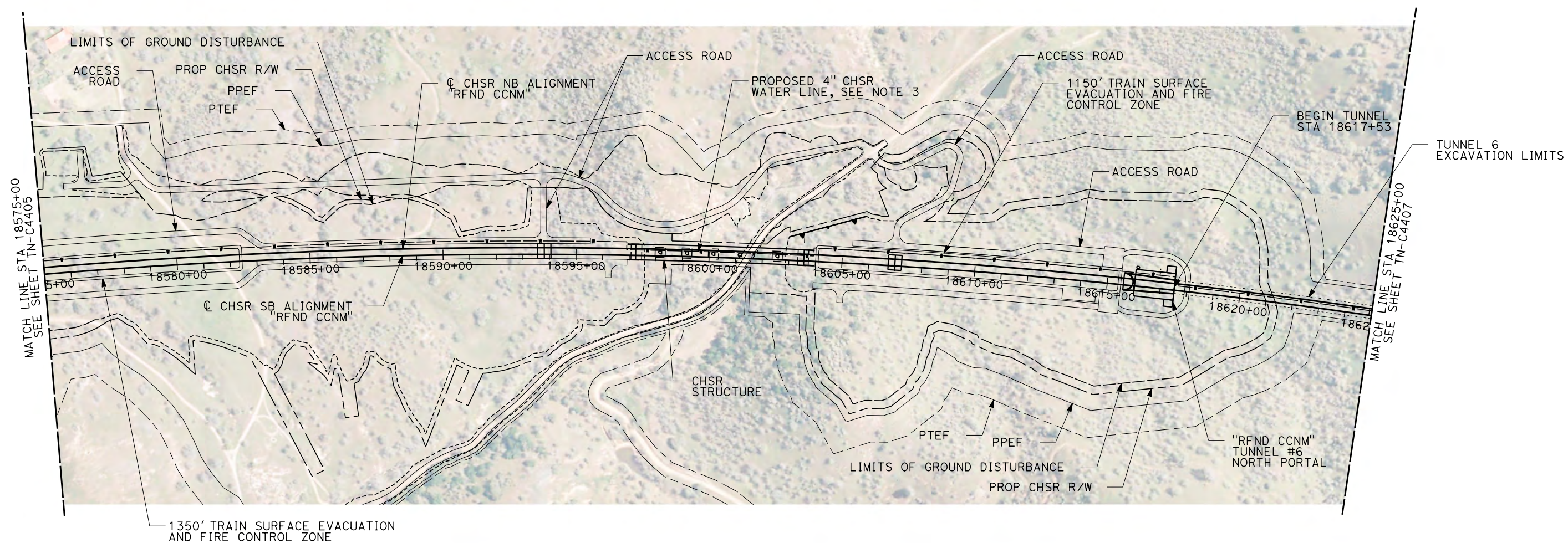


Projects\701206\_00\_CHSRBP\00\_CADD\CCNM Option D\Sheets\TN-TN-C4406

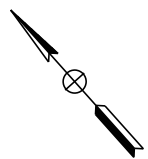
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1/20/2021

jcs\_user\_17609

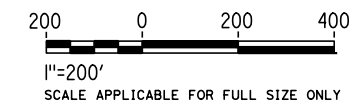


**PLAN**



**NOTES:**

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. FOR PROFILE INFORMATION SEE SHEET TN-C1103.
3. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNEL IS IT INSTALLED BELOW THE EMERGENCY WALKWAY.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>Z. SKOVAJSOVA</b>
DRAWN BY <b>K. BUNGER</b>
CHECKED BY <b>R. KUNDU</b>
IN CHARGE <b>J. MORRISON</b>
DATE <b>01/29/2021</b>

**RECORD SET  
PEPD  
SUBMITTAL**

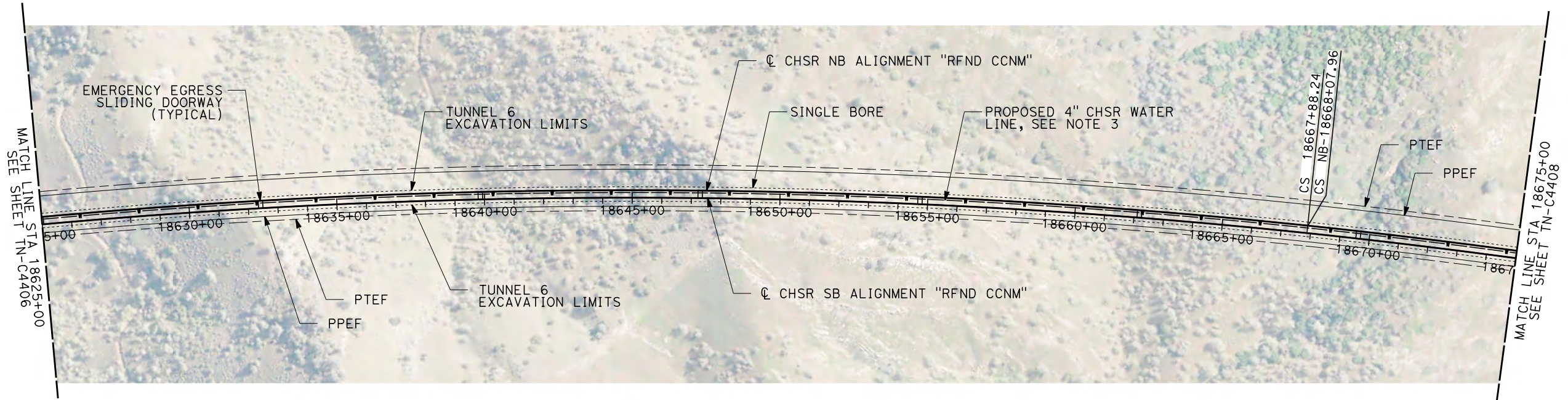
**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
 REFINED CCNM DESIGN OPTION  
 TUNNEL 6  
 STA 18575+00 TO STA 18625+00

CONTRACT NO. <b>HSR13-44</b>
DRAWING NO. <b>TN-C4406</b>
SCALE <b>AS SHOWN</b>
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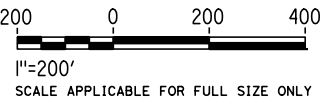




**PLAN**

**NOTES:**

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. FOR PROFILE INFORMATION SEE SHEET TN-C1104.
3. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNEL IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



Projects\701206\_00\_CHSRBP\00\_CADD\CCNM Option D\Sheets\TN\TN-C4407

6:29:02 AM

1/20/2021

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
 REFINED CCNM DESIGN OPTION  
 TUNNEL 6  
 STA 18625+00 TO STA 18675+00

CONTRACT NO.  
HSR13-44

DRAWING NO.  
TN-C4407

SCALE  
AS SHOWN

SHEET NO.  
1041

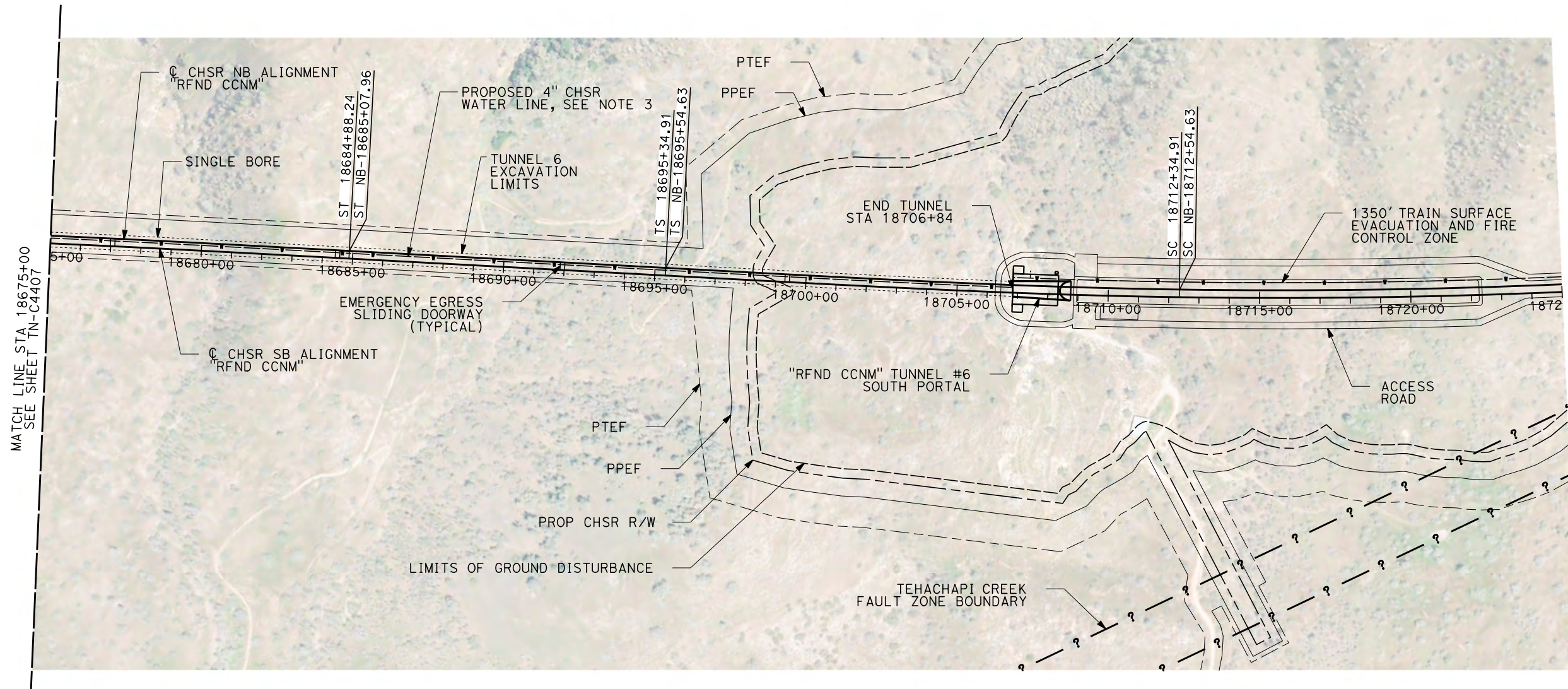


Projects\701206\_00\_CHSRBP\00\_CADD\CCNM Option D\Sheets\TN\TN-C4408

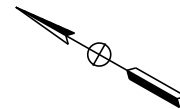
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1/20/2021

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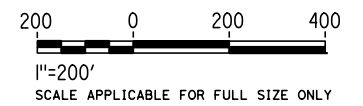


**PLAN**



**NOTES:**

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. FOR PROFILE INFORMATION SEE SHEET TN-C1105.
3. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNEL IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.

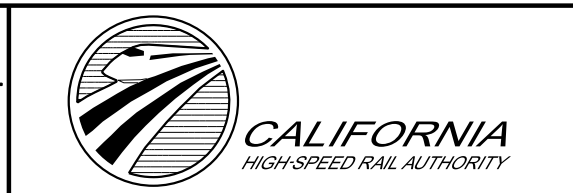


REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>Z. SKOVAJSOVA</b>
DRAWN BY <b>K. BUNGER</b>
CHECKED BY <b>R. KUNDU</b>
IN CHARGE <b>J. MORRISON</b>
DATE <b>01/29/2021</b>

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



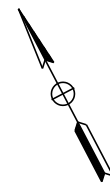
**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
 REFINED CCNM DESIGN OPTION  
 TUNNEL #6  
 STA 18675+00 TO STA 18725+00

CONTRACT NO. <b>HSR13-44</b>
DRAWING NO. <b>TN-C4408</b>
SCALE <b>AS SHOWN</b>
SHEET NO. <b>1042</b>



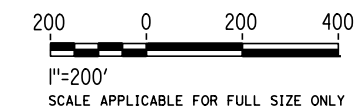


**PLAN**



**NOTES:**

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNEL IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>Z. SKOVAJSOVA</b>
DRAWN BY <b>K. BUNGER</b>
CHECKED BY <b>R. KUNDU</b>
IN CHARGE <b>J. MORRISON</b>
DATE <b>01/29/2021</b>

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**

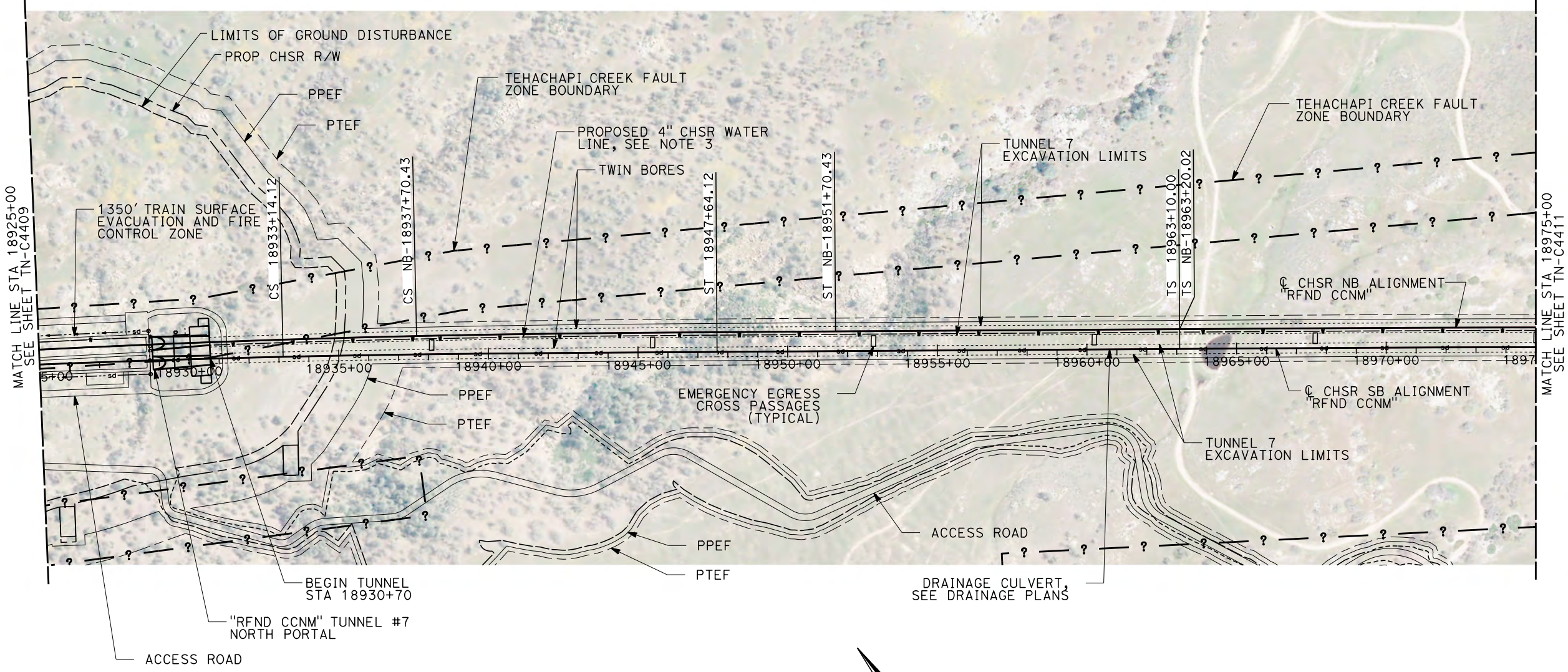


**CALIFORNIA HIGH-SPEED RAIL PROJECT  
BAKERSFIELD TO PALMDALE**

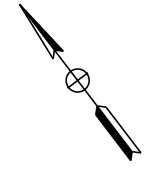
REFINED CCNM DESIGN OPTION  
TUNNEL 7  
STA 18875+00 TO STA 18925+00

CONTRACT NO. <b>HSR13-44</b>
DRAWING NO. <b>TN-C4409</b>
SCALE <b>AS SHOWN</b>
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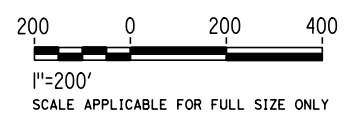




**PLAN**



- NOTES:**
1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
  2. FOR PROFILE INFORMATION SEE SHEET TN-C1106.
  3. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNEL IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



Projects\701206\_00\_CHSRBP\00\_CADD\CCNM Option D\Sheets\TN-TN-C4410 6:25:05 AM 1/20/2021 jcs\_user\_17609

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**

**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL 7  
STA 18925+00 TO STA 18975+00

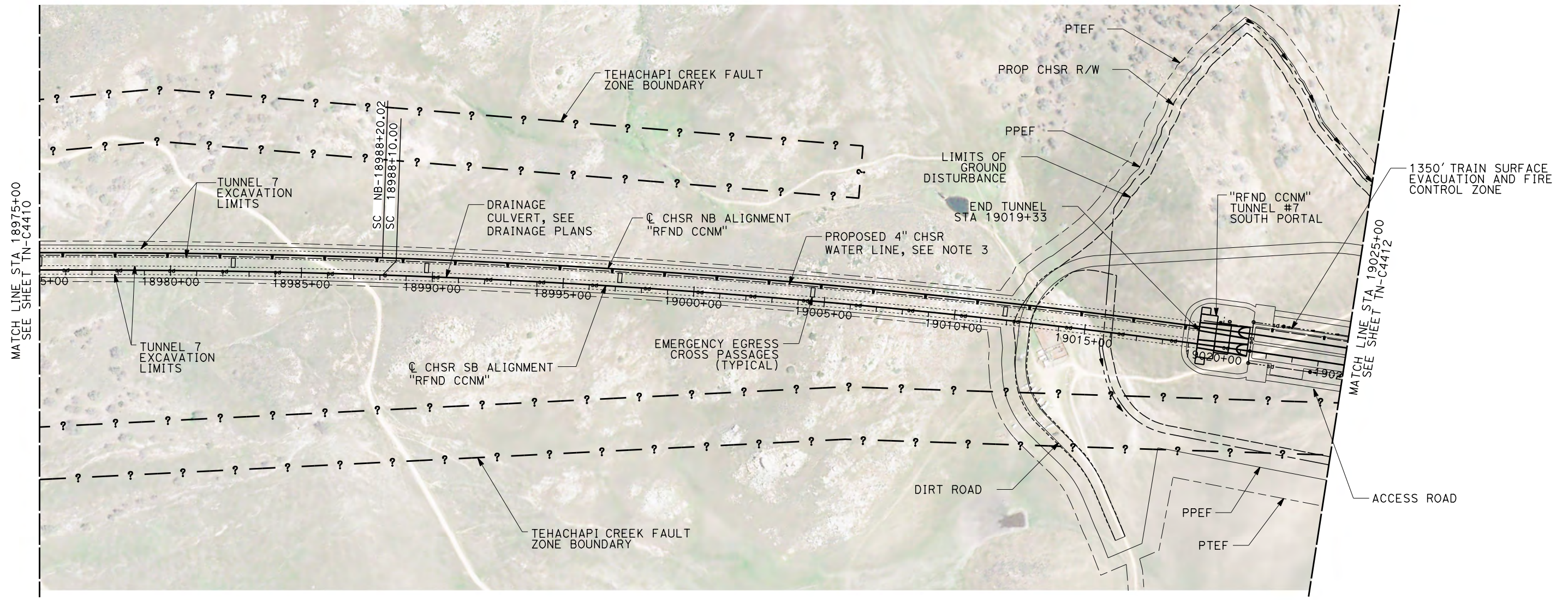
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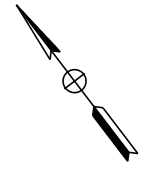
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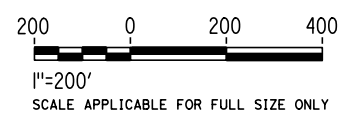


**PLAN**



**NOTES:**

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. FOR PROFILE INFORMATION SEE SHEET TN-C1106.
3. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNEL IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>Z. SKOVAJSOVA</b>
DRAWN BY <b>K. BUNGER</b>
CHECKED BY <b>R. KUNDU</b>
IN CHARGE <b>J. MORRISON</b>
DATE <b>01/29/2021</b>

**RECORD SET  
PEPD  
SUBMITTAL**

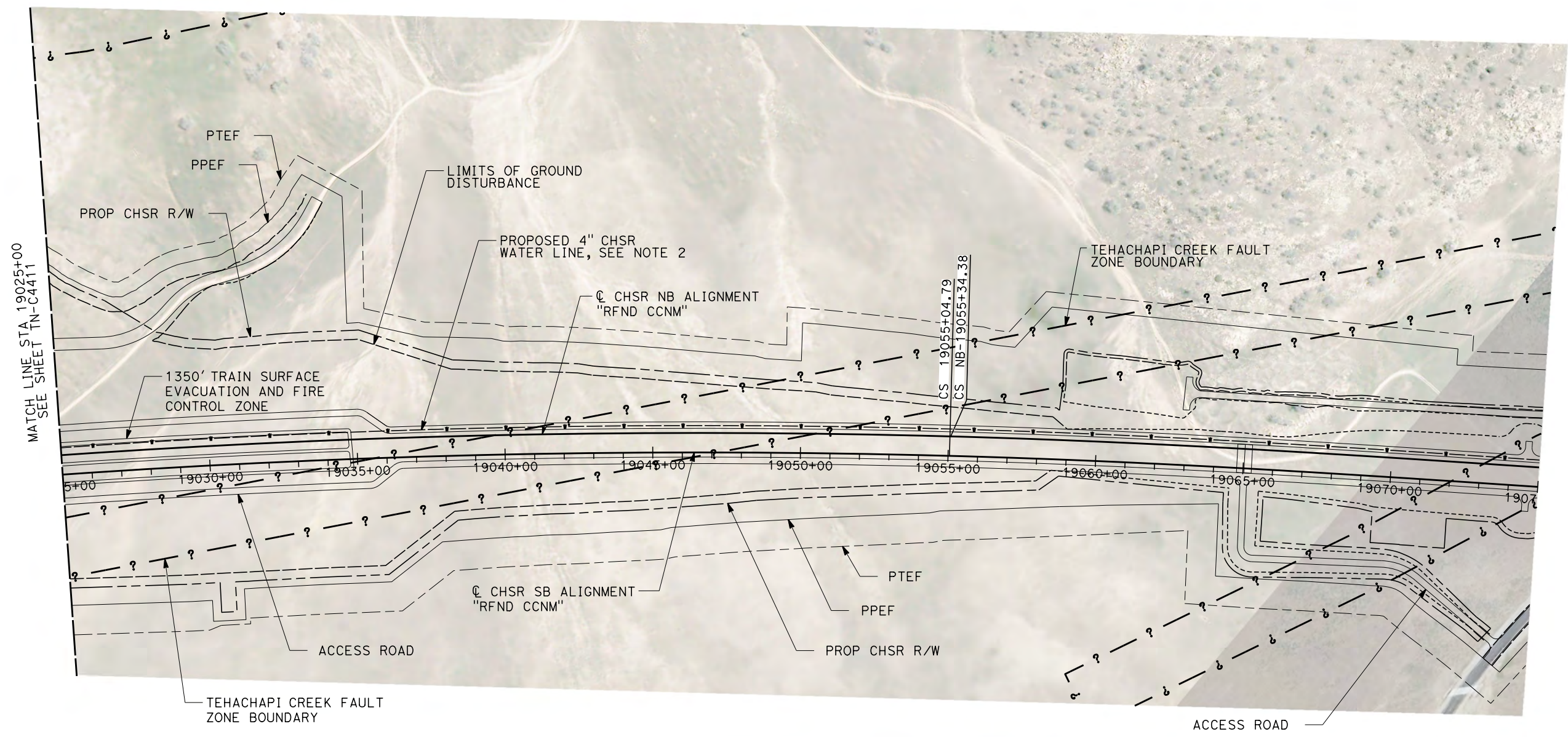
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CONSTRUCTION**



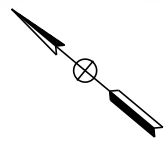
**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
 REFINED CCNM DESIGN OPTION  
 TUNNEL 7  
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CONTRACT NO. HSR13-44
DRAWING NO. TN-C4411
SCALE AS SHOWN
SHEET NO. 1045

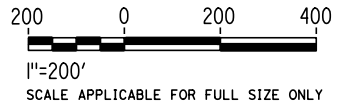




**PLAN**



- NOTES:**
1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
  2. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNEL IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**

**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL 7  
STA 19025+00 TO STA 19075+00

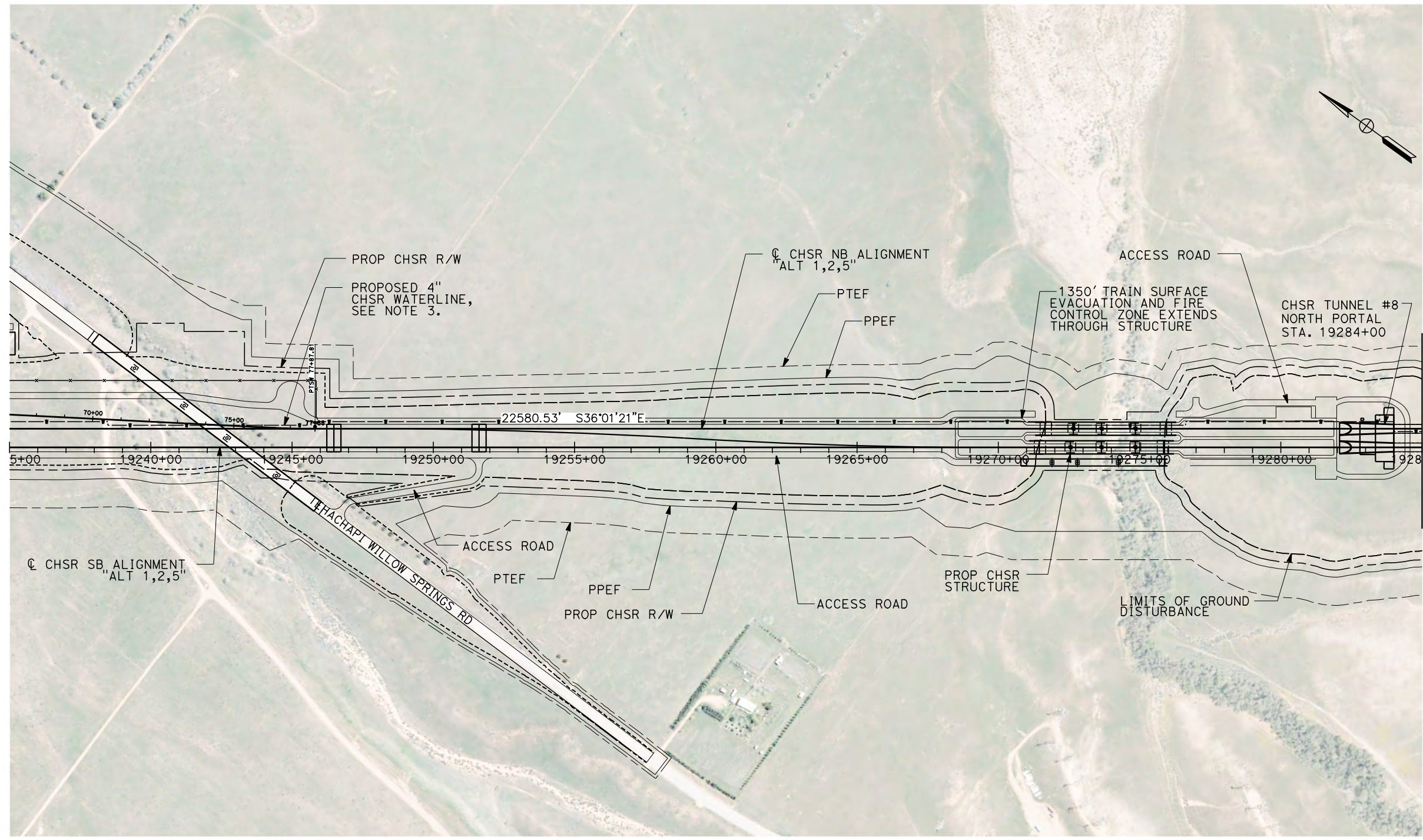
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DRAWING NO.  
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SCALE  
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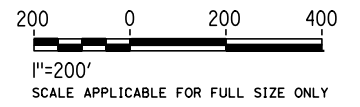
SHEET NO.  
1046





**GENERAL NOTES:**

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. FOR PROFILE INFORMATION SEE SHEET TN-Y1005.
3. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.
4. PROPOSED ELECTRICAL SERVICE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



**PLAN**

Projects\701206\_00\_CHSRBP\00\_CADD\Sheet\_Files\TN\BP-TN-C4012A  
 1/27/2021 4:36:55 AM  
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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>Z. SKOVAJSOVA</b>
DRAWN BY <b>K. BUNGER</b>
CHECKED BY <b>R. KUNDU</b>
IN CHARGE <b>J. MORRISON</b>
DATE <b>01/29/2021</b>

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALIGNMENT ALT 1, 2, 5  
TUNNEL 8  
STATION 19235+00 TO 19285+00

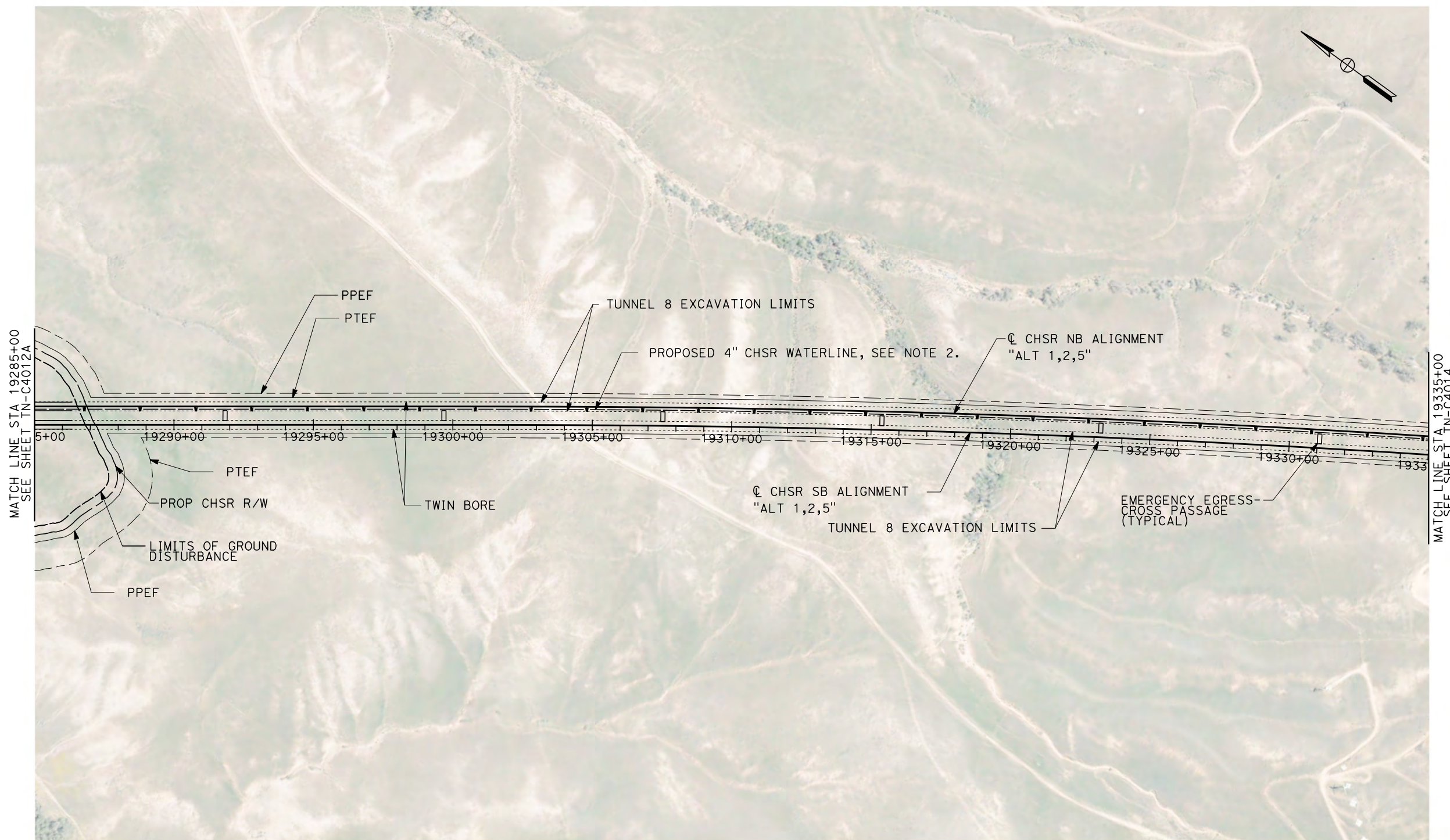
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DRAWING NO. <b>TN-C4012A</b>
SCALE <b>AS SHOWN</b>
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1/27/2021 4:35:24 AM

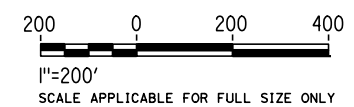
ics\_user\_17609



**GENERAL NOTES:**

1. FOR PROFILE INFORMATION SEE SHEET TN-Y1006.
2. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.
3. PROPOSED ELECTRICAL SERVICE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.

**PLAN**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALIGNMENT ALT 1, 2, 5  
TUNNEL 8  
STATION 19285+00 TO 19335+00

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-C4013  
SCALE  
AS SHOWN  
SHEET NO.  
1048

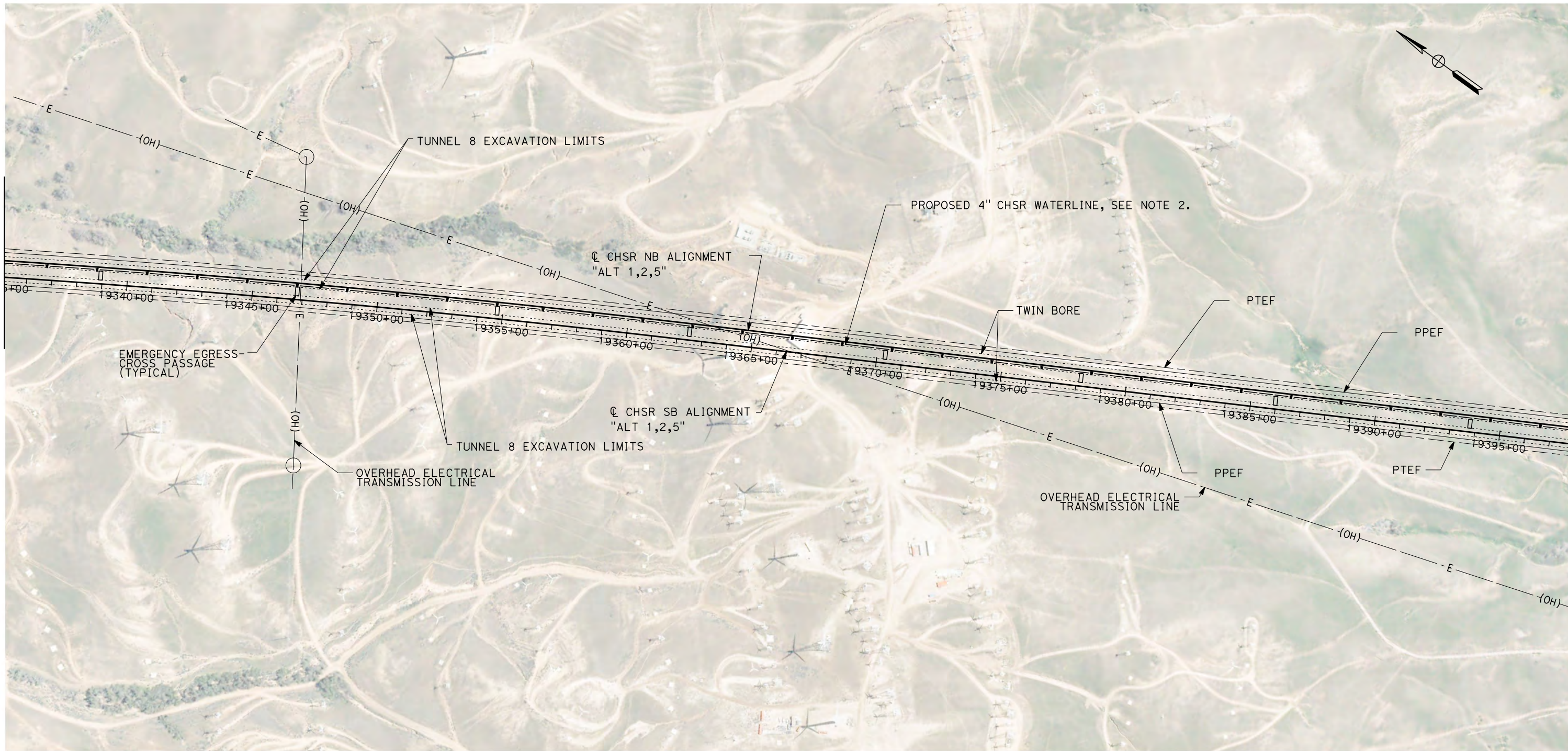


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4:36:32 AM

1/27/2021

ics\_user\_17609

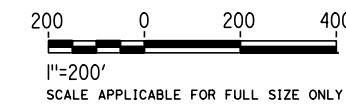


MATCH LINE STA 19335+00  
SEE SHEET TN-C4013

MATCH LINE STA 19398+00  
SEE SHEET TN-C4015

**GENERAL NOTES:**

1. FOR PROFILE INFORMATION SEE SHEETS TN-Y1006 AND TN-Y1007.
2. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.
3. PROPOSED ELECTRICAL SERVICE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



**PLAN**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALIGNMENT ALT 1, 2, 5  
TUNNEL 8  
STATION 19335+00 TO 19398+00

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-C4014  
SCALE  
AS SHOWN  
SHEET NO.  
1049

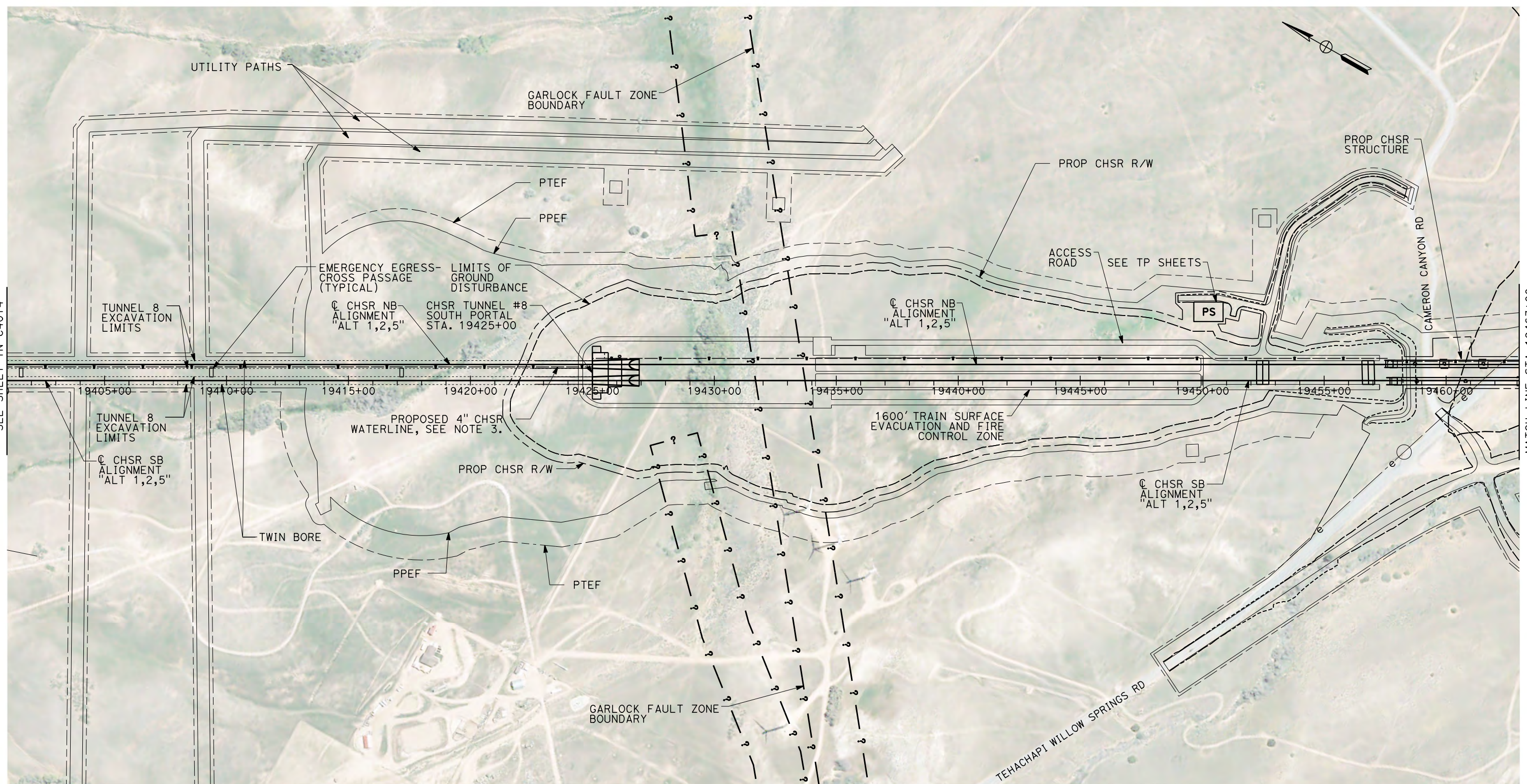


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4:35:51 AM

1/27/2021

jcs\_user\_17609



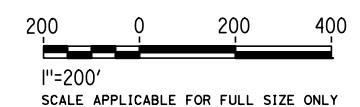
MATCH LINE STA 19401+00  
SEE SHEET TN-C4014

MATCH LINE STA 19463+00  
SEE SHEET TN-C4016

**GENERAL NOTES:**

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. FOR PROFILE INFORMATION SEE SHEET TN-Y1007.
3. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.
4. PROPOSED ELECTRICAL SERVICE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.

**PLAN**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALIGNMENT ALT 1, 2, 5  
TUNNEL 8  
STATION 19398+00 TO 19463+00

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-C4015  
SCALE  
AS SHOWN  
SHEET NO.  
1050

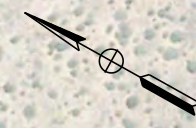
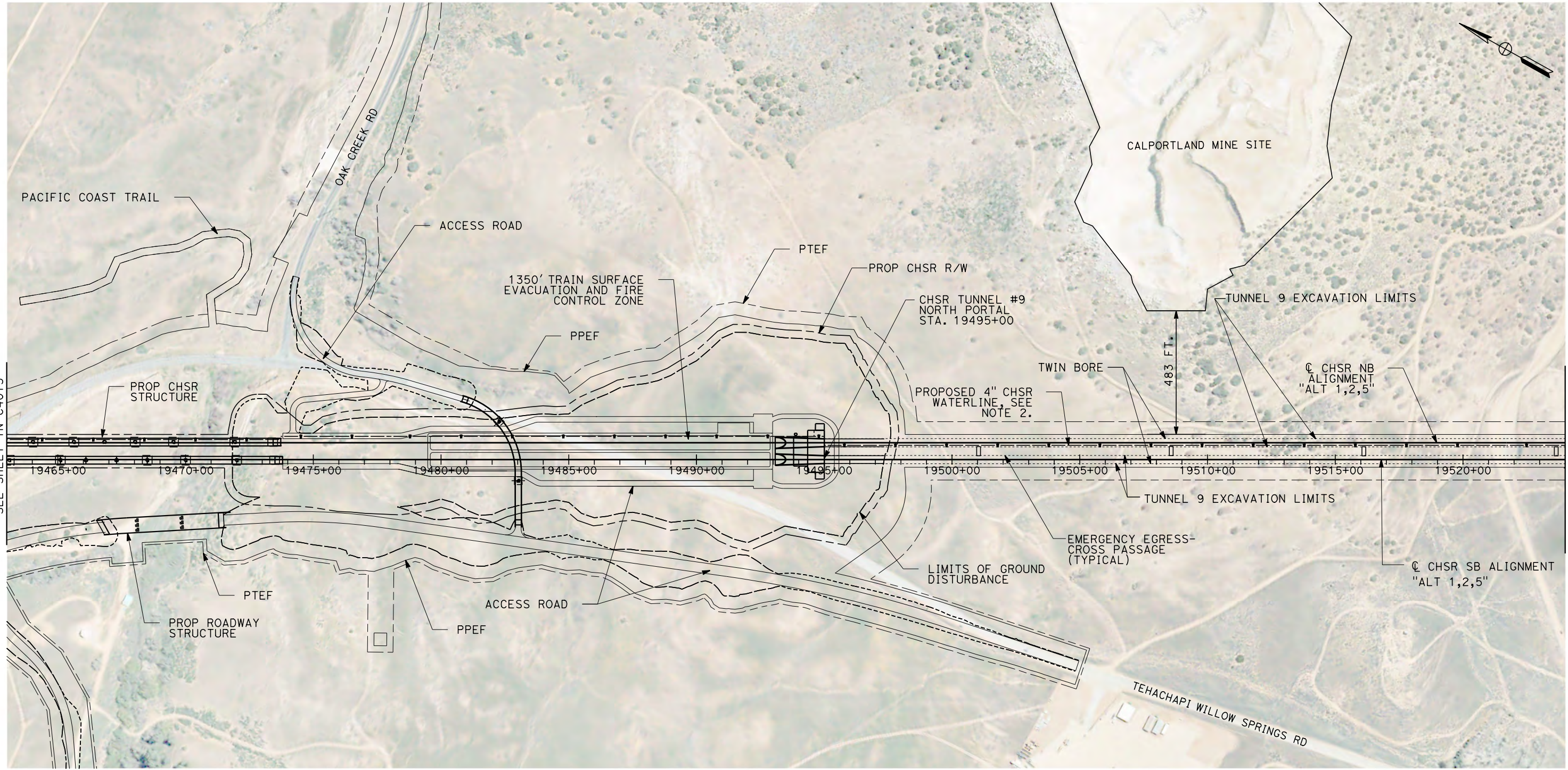


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1/27/2021

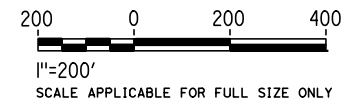
jcs\_user\_17609



**GENERAL NOTES:**

1. FOR PROFILE INFORMATION SEE SHEETS TN-Y1007 AND TN-Y1008.
2. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.
3. PROPOSED ELECTRICAL SERVICE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.

**PLAN**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>Z. SKOVAJSOVA</b>
DRAWN BY <b>K. BUNGER</b>
CHECKED BY <b>R. KUNDU</b>
IN CHARGE <b>J. MORRISON</b>
DATE <b>01/29/2021</b>

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALIGNMENT ALT 1, 2, 5  
TUNNEL 9  
STATION 19463+00 TO 19524+00

CONTRACT NO. <b>HSR13-44</b>
DRAWING NO. <b>TN-C4016</b>
SCALE <b>AS SHOWN</b>
SHEET NO. <b>1051</b>

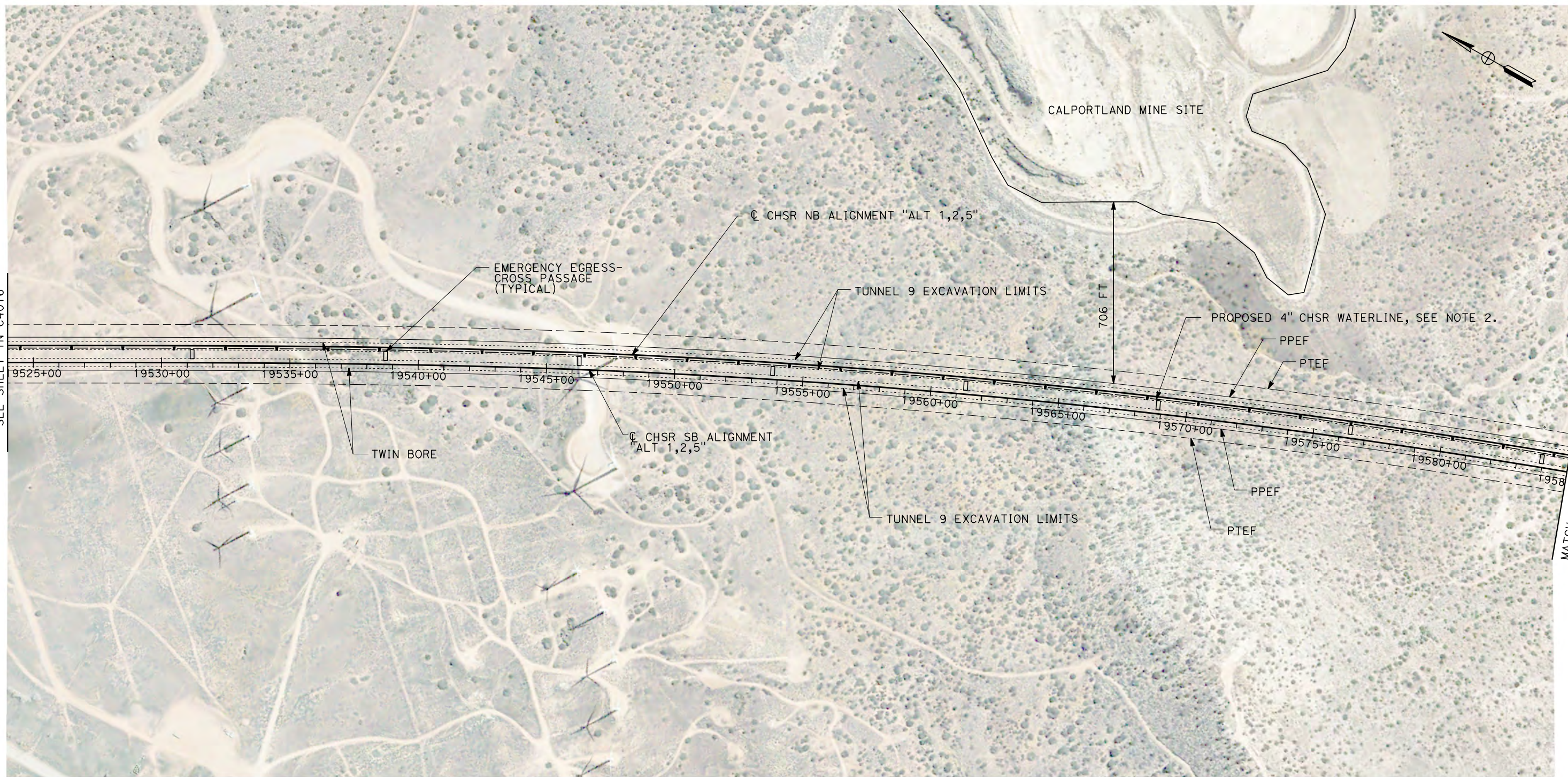


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1/27/2021

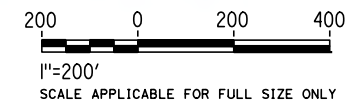
jcs\_user\_17609



**GENERAL NOTES:**

1. FOR PROFILE INFORMATION SEE SHEET TN-Y1008.
2. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.
3. PROPOSED ELECTRICAL SERVICE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.

**PLAN**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY <b>Z. SKOVAJSOVA</b>
DRAWN BY <b>K. BUNGER</b>
CHECKED BY <b>R. KUNDU</b>
IN CHARGE <b>J. MORRISON</b>
DATE <b>01/29/2021</b>

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALIGNMENT ALT 1, 2, 5  
TUNNEL 9  
STATION 19524+00 TO 19585+00

CONTRACT NO. <b>HSR13-44</b>
DRAWING NO. <b>TN-C4017</b>
SCALE <b>AS SHOWN</b>
SHEET NO. <b>1052</b>

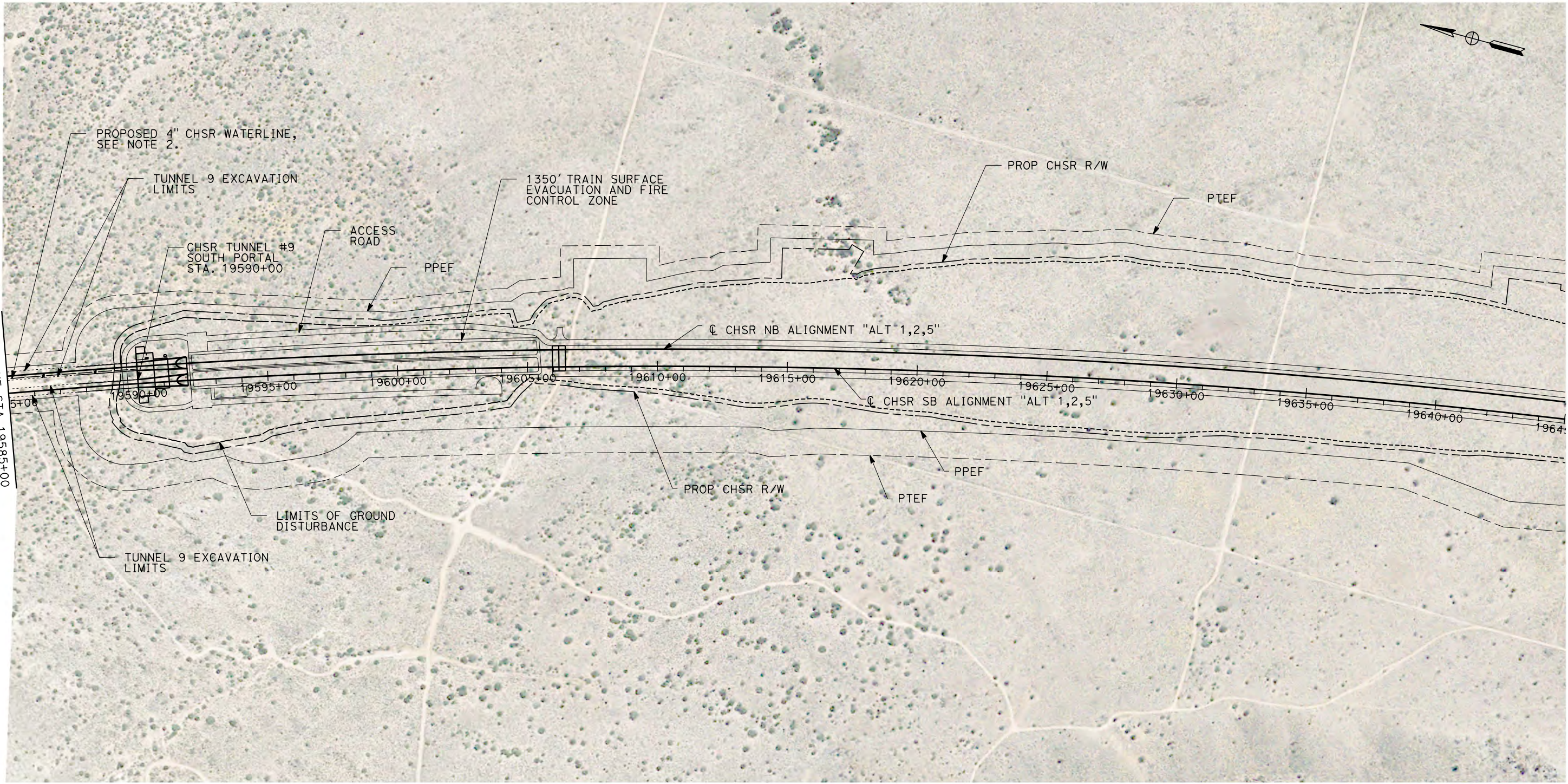


Projects\701206\_00\_CHSRBP\00\_CADD\Sheet Files\TN\BP-TN-C4018

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1/27/2021

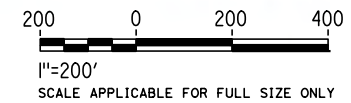
jcs\_user\_17609



**GENERAL NOTES:**

1. FOR PROFILE INFORMATION SEE SHEET TN-Y1008.
2. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.
3. PROPOSED ELECTRICAL SERVICE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.

**PLAN**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**

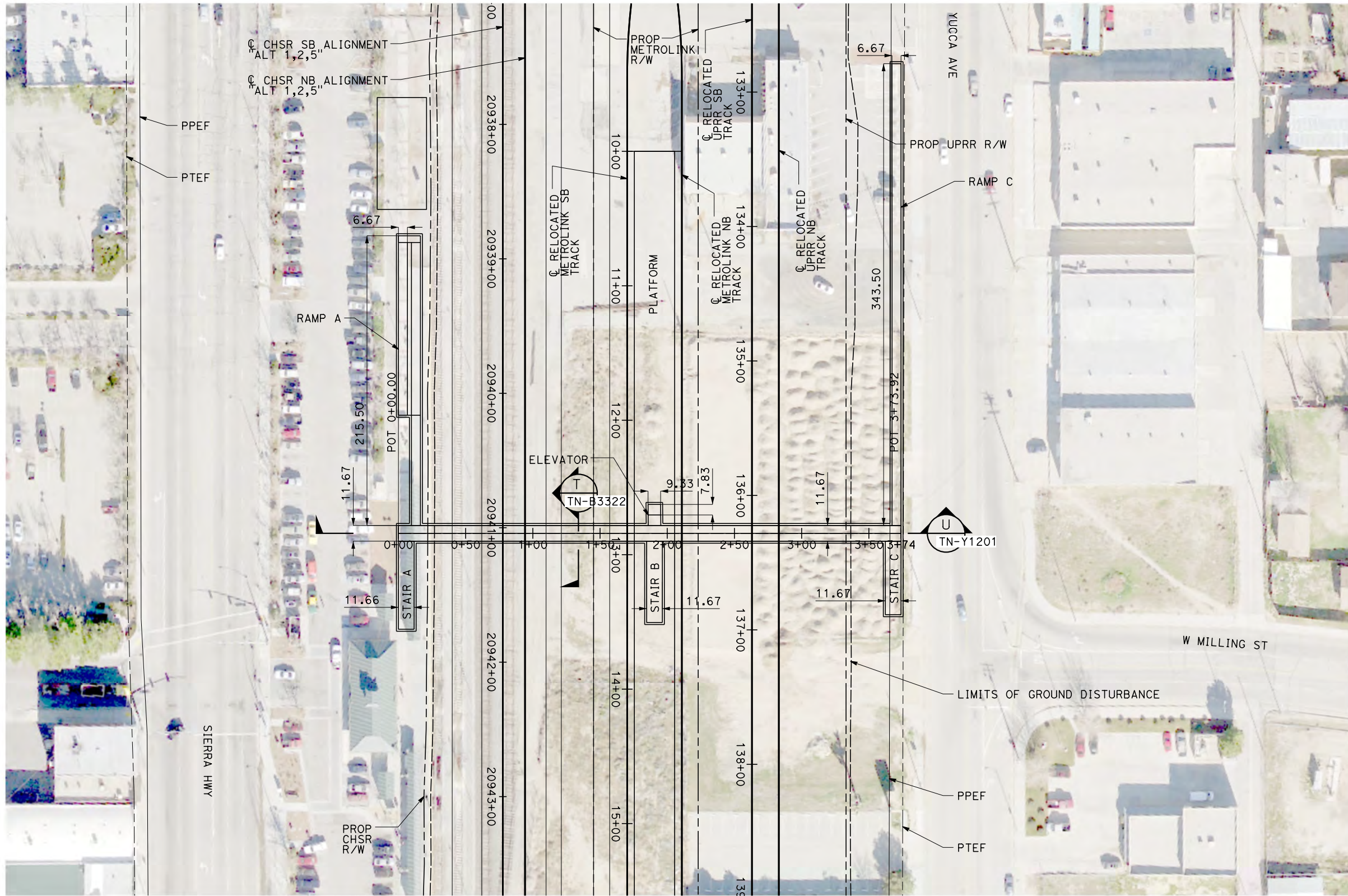


**CALIFORNIA HIGH-SPEED RAIL PROJECT  
BAKERSFIELD TO PALMDALE**

ALIGNMENT ALT 1, 2, 5  
TUNNEL 9  
STATION 19585+00 TO 19645+00

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-C4018  
SCALE  
AS SHOWN  
SHEET NO.  
1053





**PLAN**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALTERNATIVE 1, 2, 3  
TYPICAL UNDERPASS LAYOUT

CONTRACT NO.  
HSR13-44

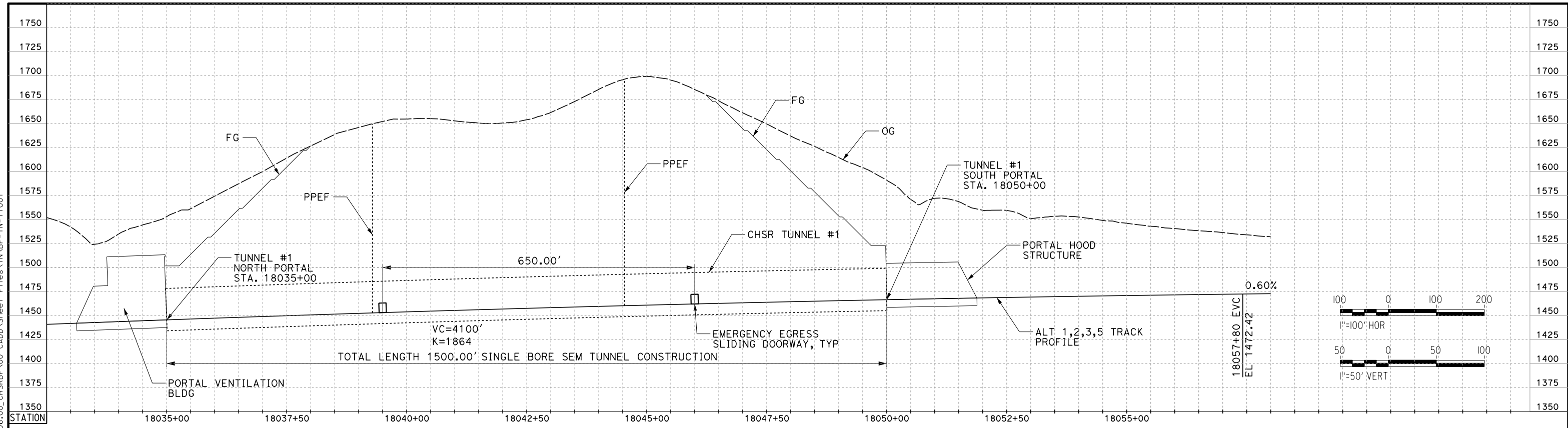
DRAWING NO.  
TN-C4201

SCALE  
AS SHOWN

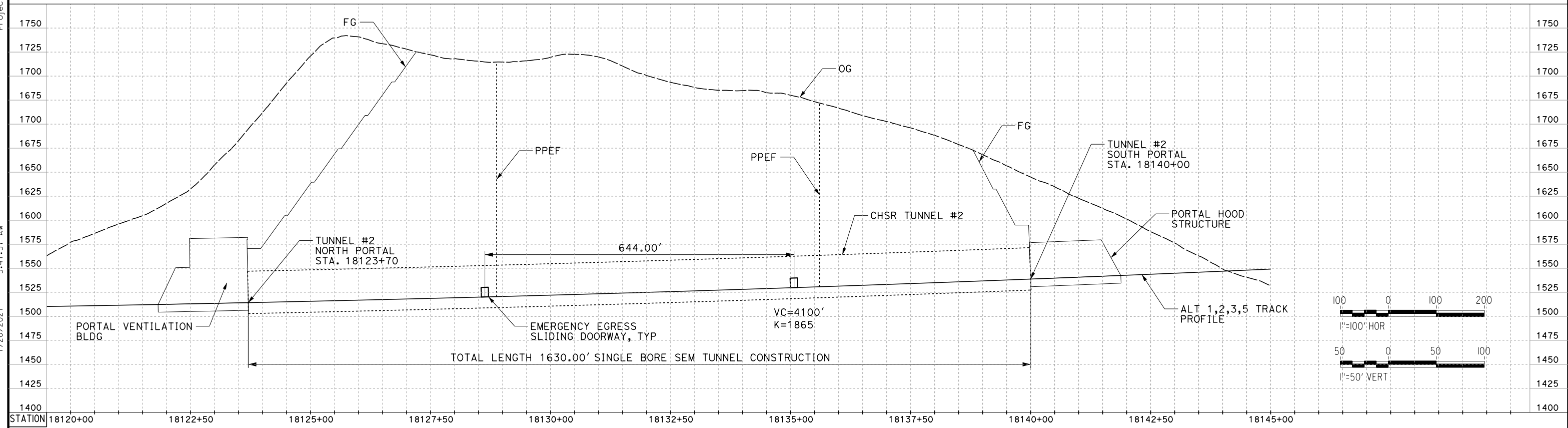
SHEET NO.  
1054



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 1/20/2021 5:41:57 AM  
 jcs\_user\_17609



**TUNNEL 1**



**TUNNEL 2**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
 DRAWN BY  
**K. BUNGER**  
 CHECKED BY  
**R. KUNDUN**  
 IN CHARGE  
**J. MORRISON**  
 DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**  
  
**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
  
 ALT 1,2,3,5  
 TUNNEL PROFILES  
 TUNNEL 1 AND TUNNEL 2

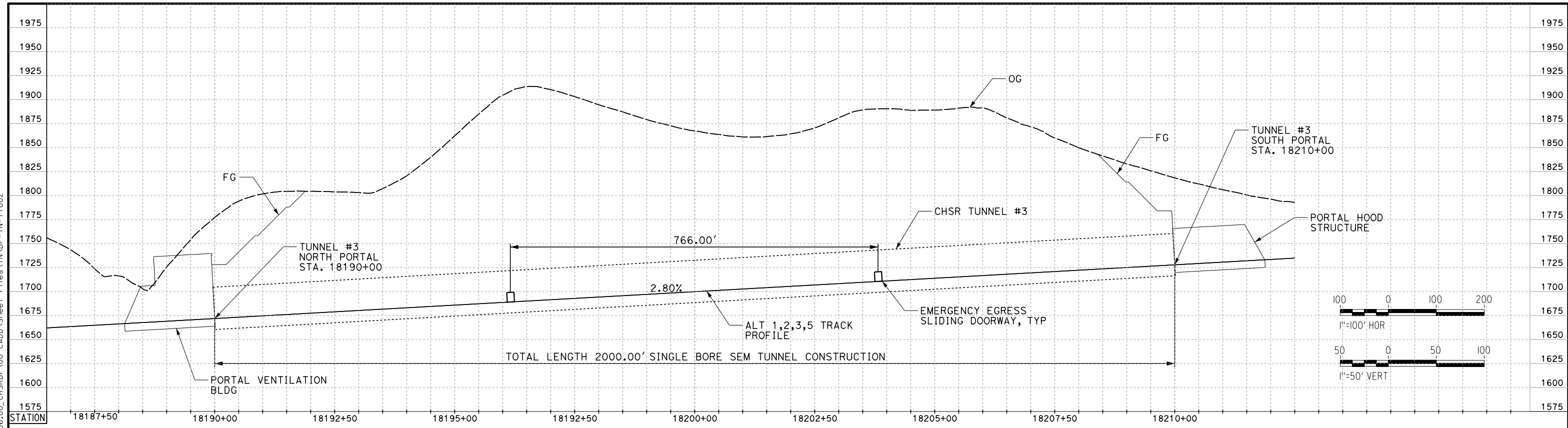
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 DRAWING NO.  
**TN-Y1001**  
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**AS SHOWN**  
 SHEET NO.  
**1055**



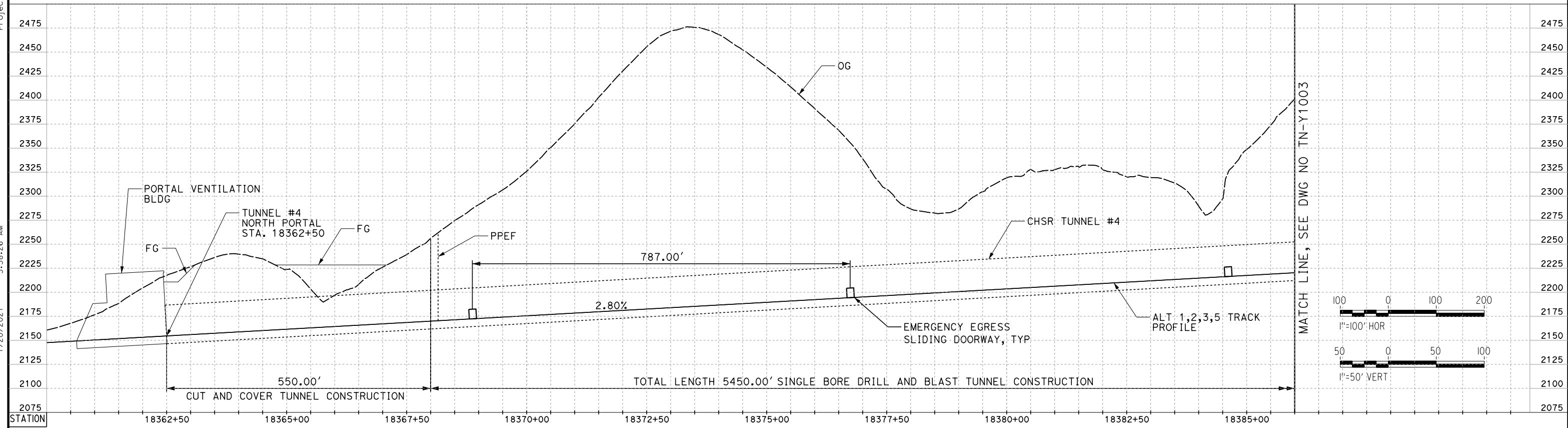
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1/20/2021 5:38:26 AM

ics\_user\_17609



**TUNNEL 3**



**TUNNEL 4**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KONDUN**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALT 1,2,3,5  
TUNNEL PROFILES  
TUNNEL 3 AND TUNNEL 4

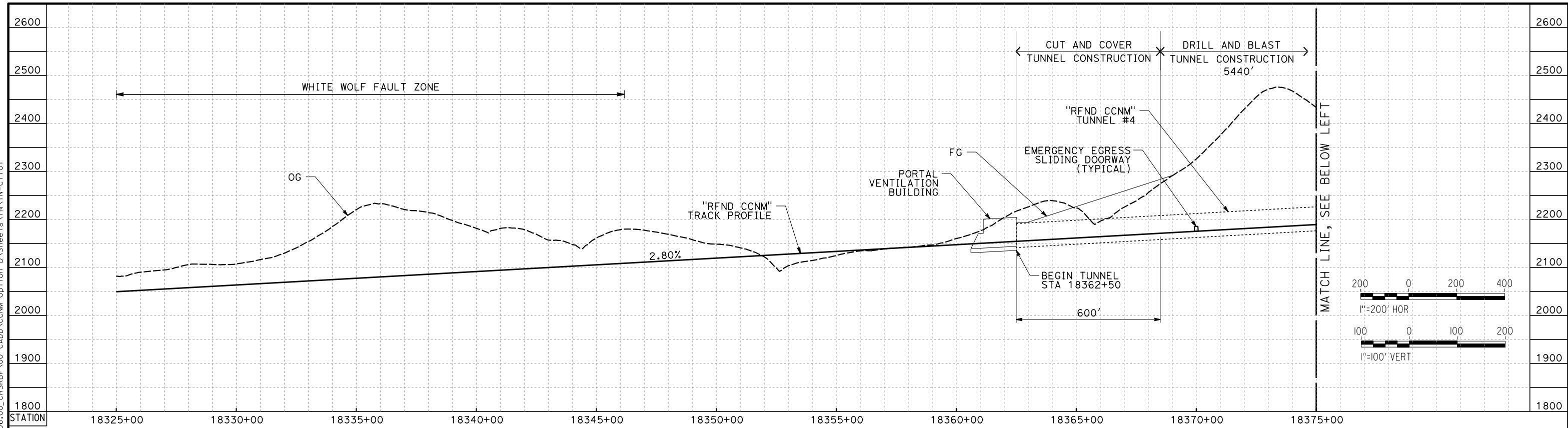
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HSR13-44  
DRAWING NO.  
TN-Y1002  
SCALE  
AS SHOWN  
SHEET NO.  
1056



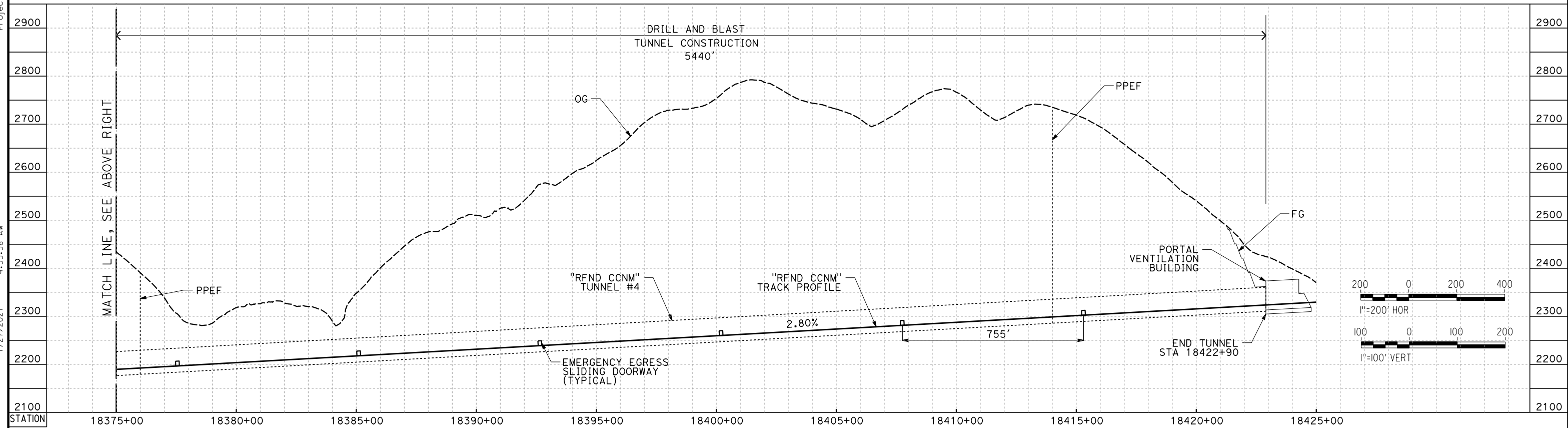
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1/27/2021 4:55:58 AM

jcs\_user\_17609



**TUNNEL 4**



**TUNNEL 4**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

REFINED CCNM DESIGN OPTION  
TUNNEL PROFILES - TUNNEL 4

CONTRACT NO.  
**HSR13-44**

DRAWING NO.  
**TN-C1101**

SCALE  
**AS SHOWN**

SHEET NO.  
**1057**

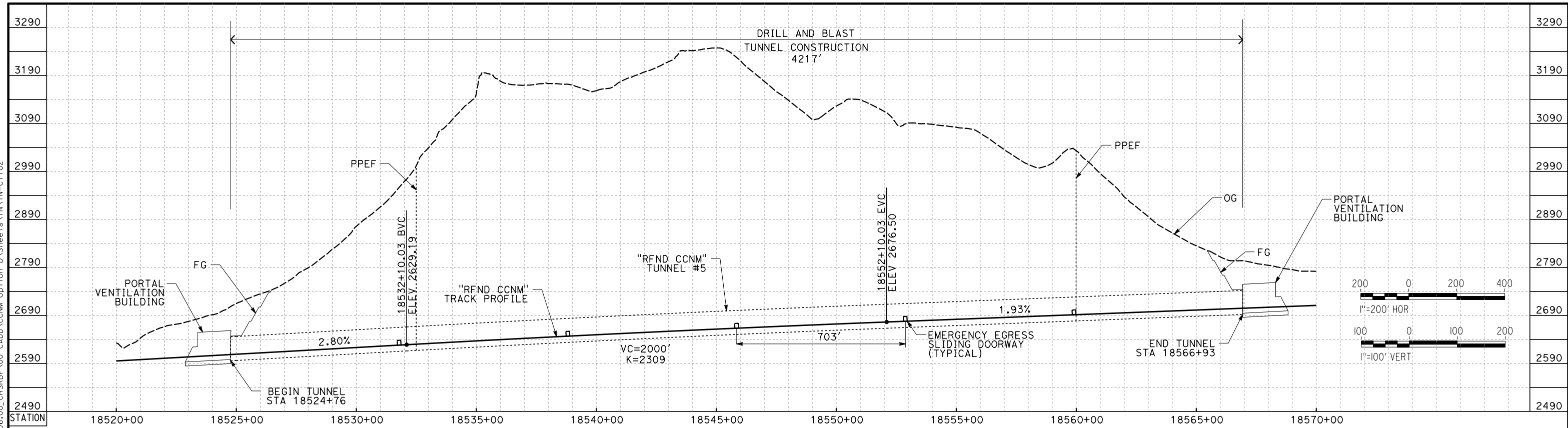


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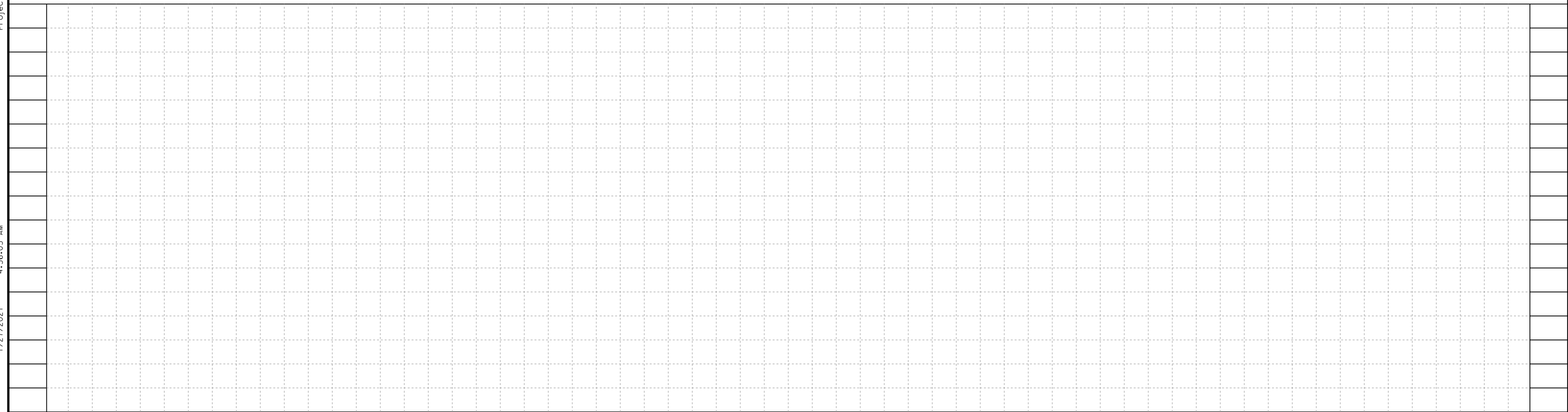
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1/27/2021

jcs\_user\_17609



**TUNNEL 5**



STATION

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
BAKERSFILED TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL PROFILES - TUNNEL 5

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-C1102  
SCALE  
AS SHOWN  
SHEET NO.  
1058

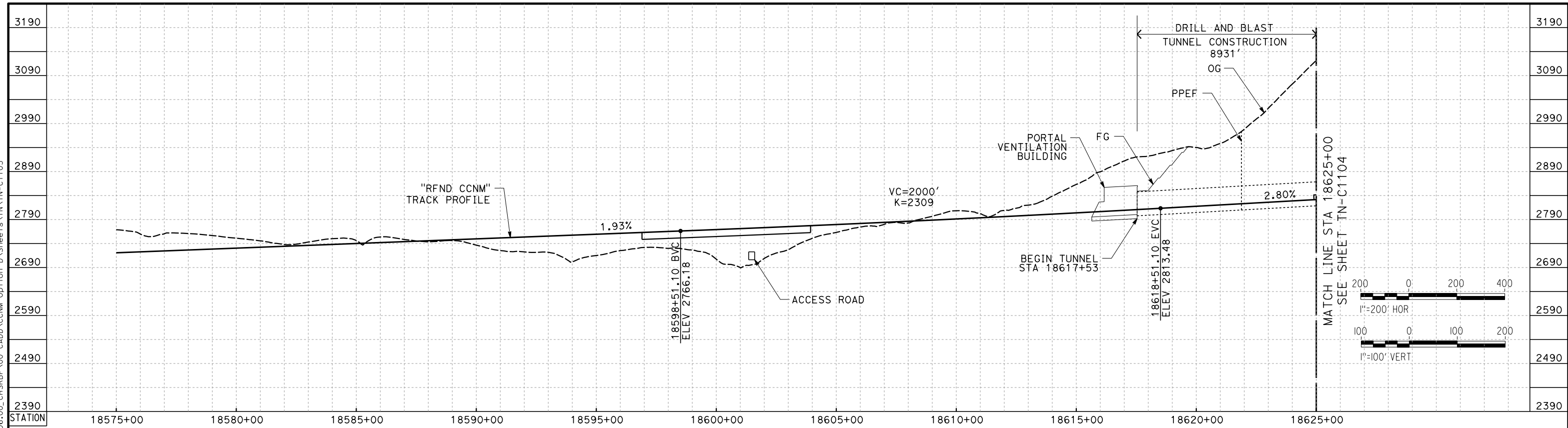


Projects\701206\_00\_CHSRBP\00\_CADD\CCNM Option D\Sheets\TN-TN-C1103

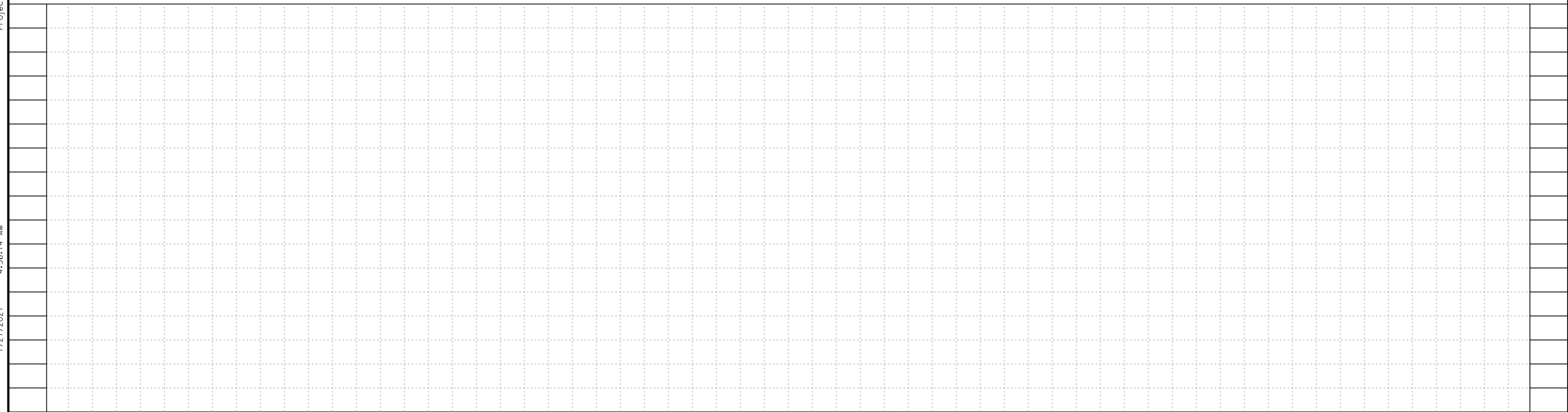
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1/27/2021

jcs\_user\_17609



**TUNNEL 6**



STATION

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
BAKERSFILED TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL PROFILES - TUNNEL 6

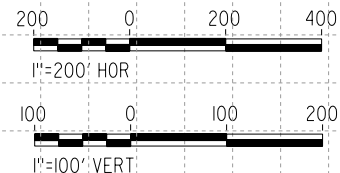
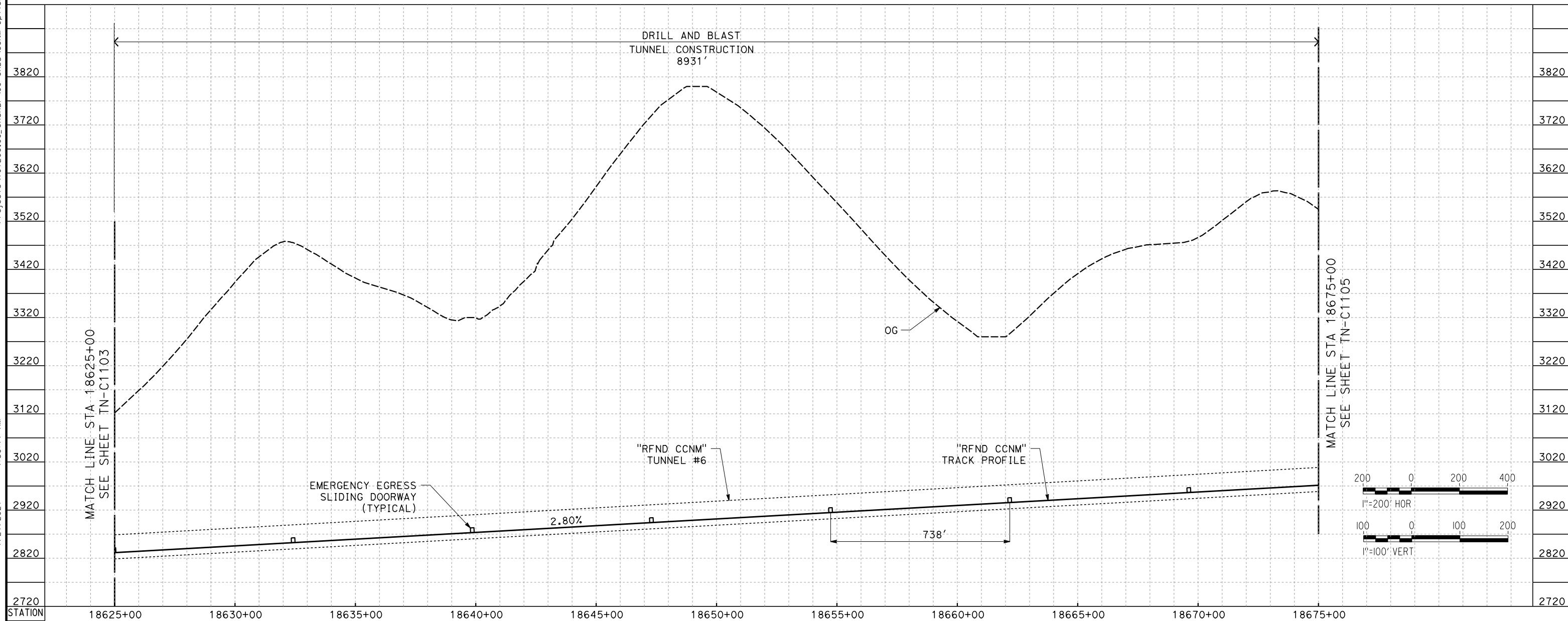
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DRAWING NO.  
TN-C1103  
SCALE  
AS SHOWN  
SHEET NO.  
1059



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1/27/2021 4:56:11 AM

jcs\_user\_17609



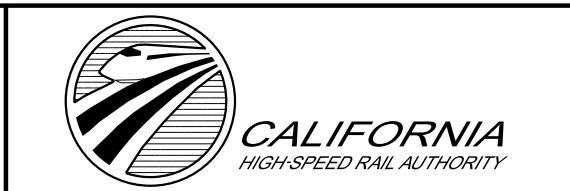
**TUNNEL 6**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
BAKERSFIELD TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL PROFILES - TUNNEL 6

CONTRACT NO.  
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DRAWING NO.  
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SCALE  
**AS SHOWN**  
SHEET NO.  
**1060**

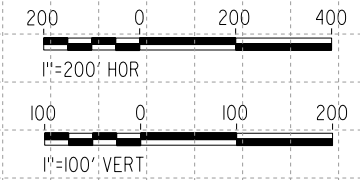
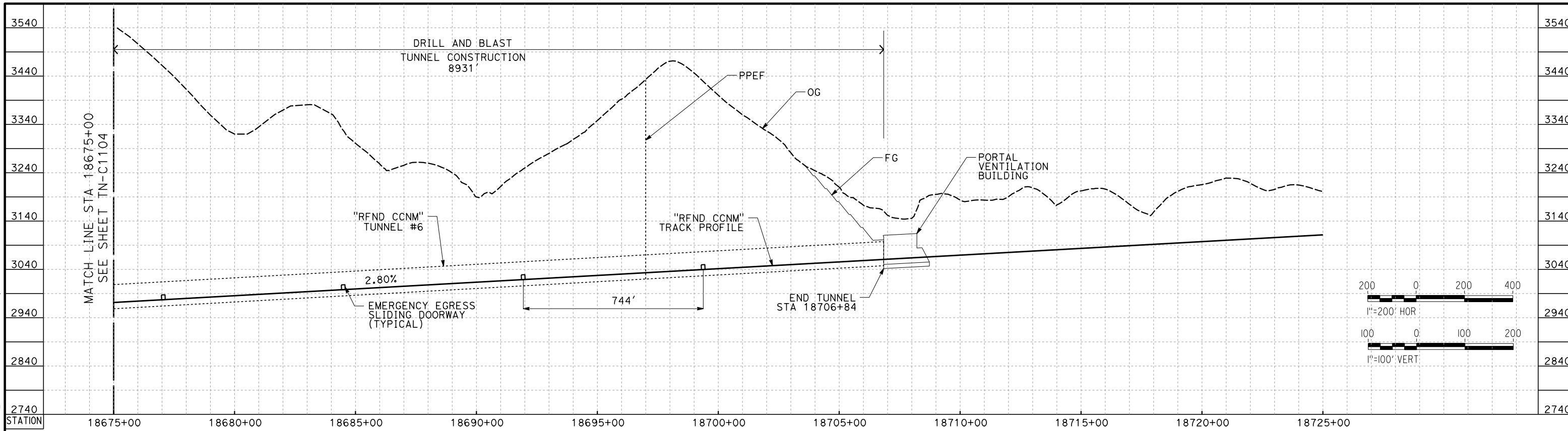


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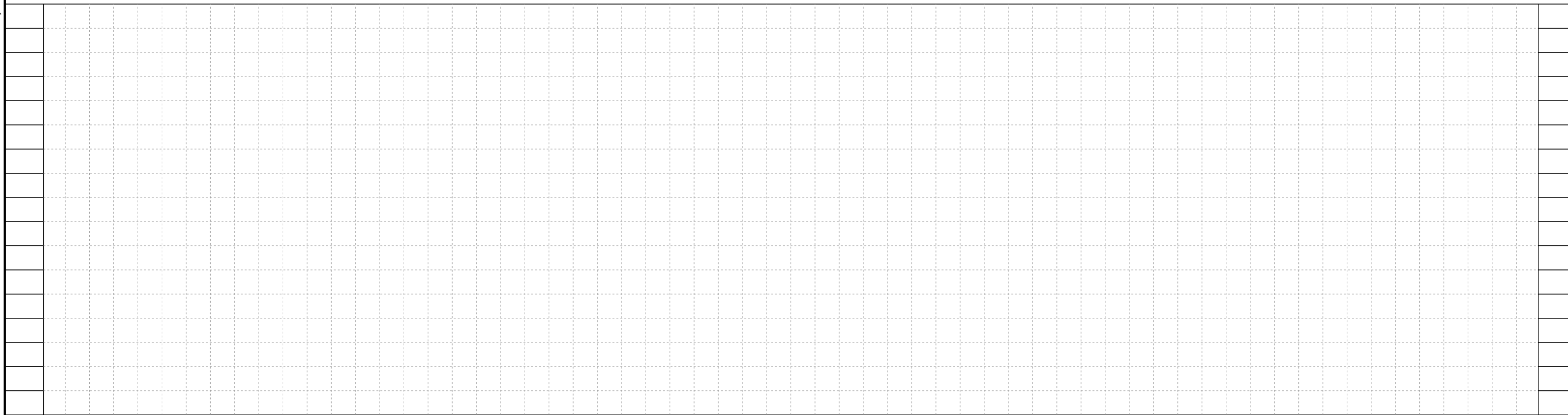
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1/27/2021

jcs\_user\_17609



**TUNNEL 6**



STATION

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
BAKERSFILED TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL PROFILES - TUNNEL 6

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-C1105  
SCALE  
AS SHOWN  
SHEET NO.  
1061

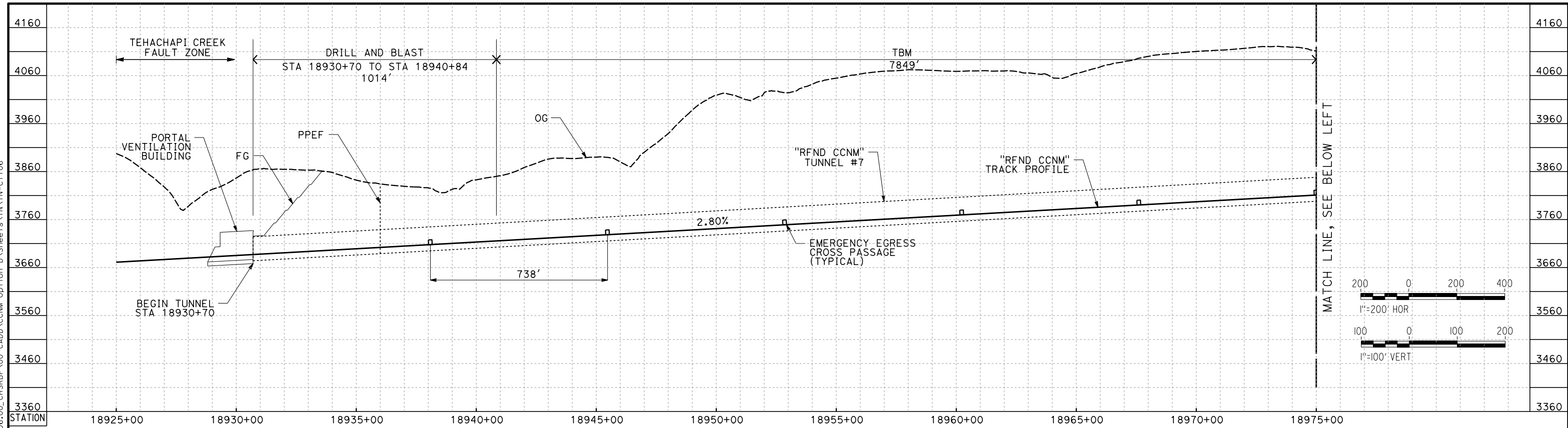


Projects\701206\_00\_CHSRBP\00\_CADD\CCNM\_Option D\Sheets\TNTN-C1106

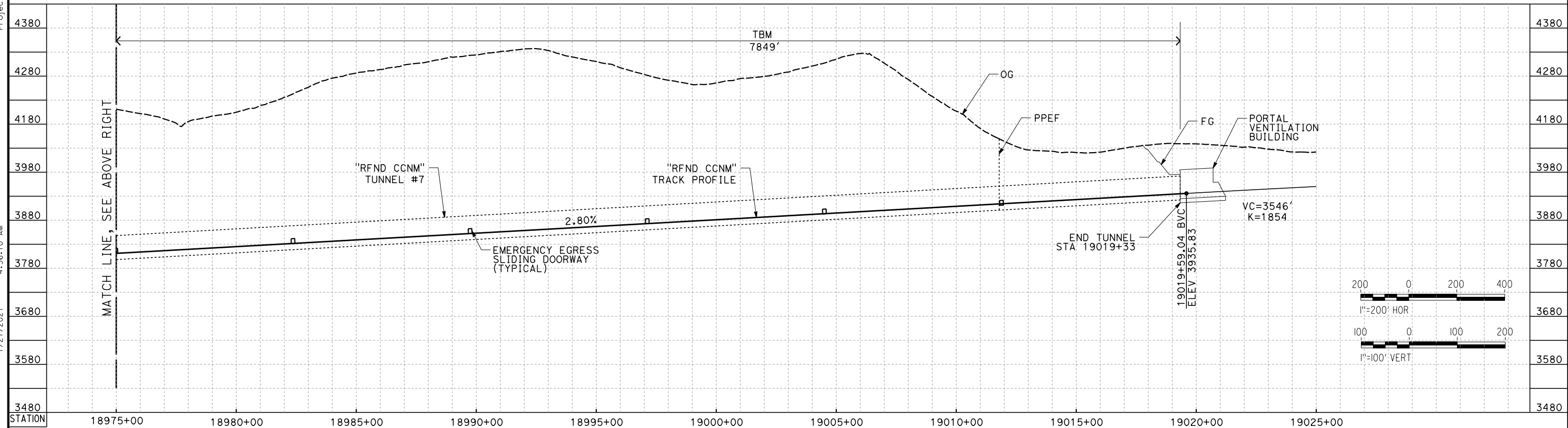
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1/27/2021

jcs\_user\_17609



**TUNNEL 7**



**TUNNEL 7**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**

**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
REFINED CCNM DESIGN OPTION  
TUNNEL PROFILES - TUNNEL 7

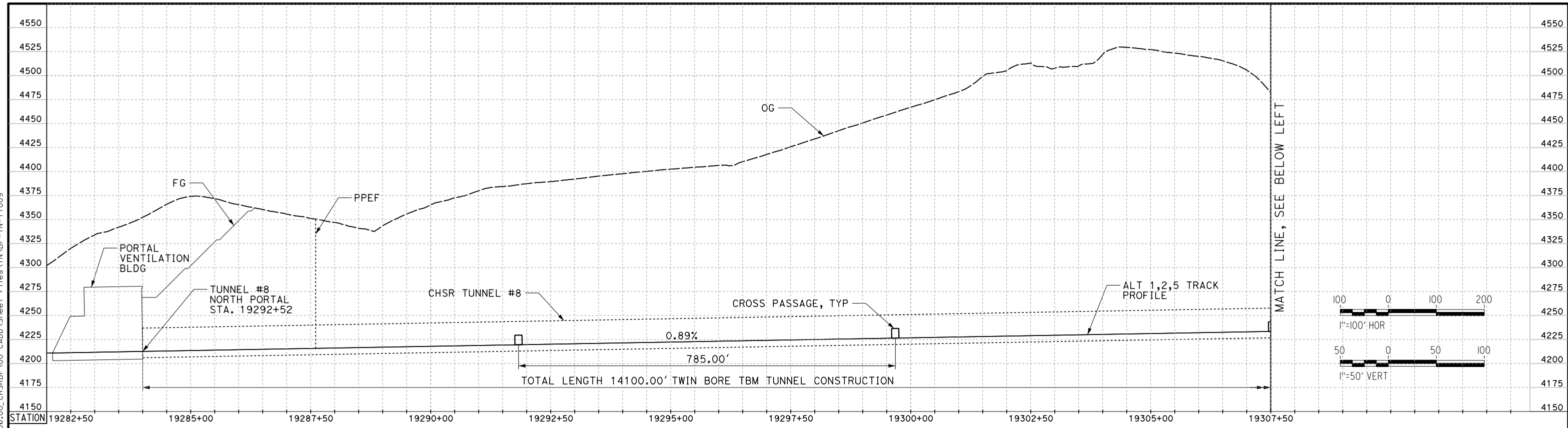
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SCALE  
**AS SHOWN**  
SHEET NO.  
**1062**



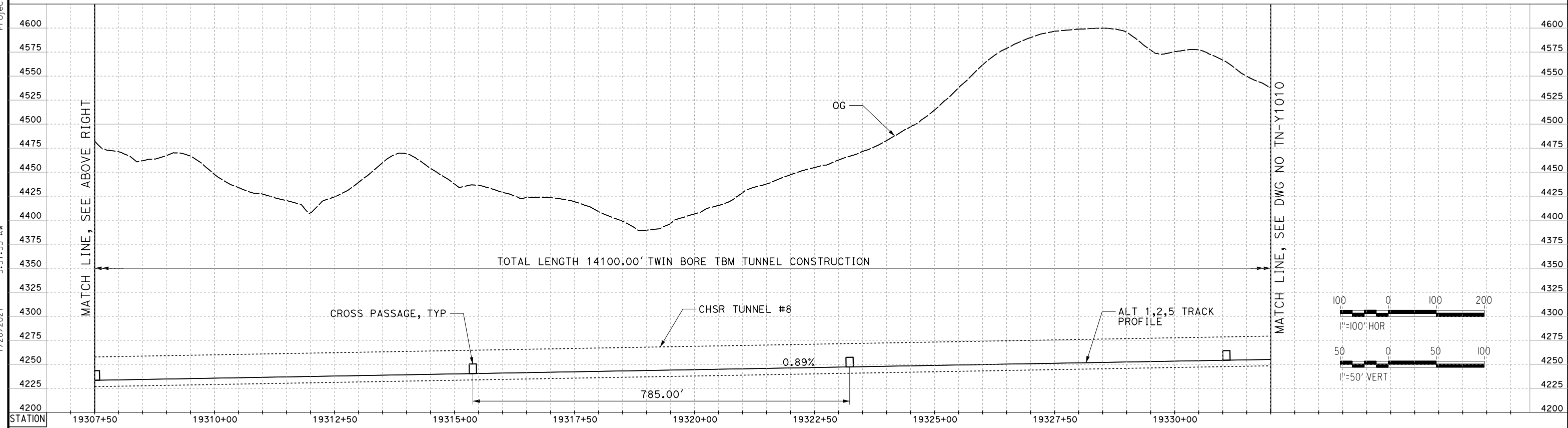
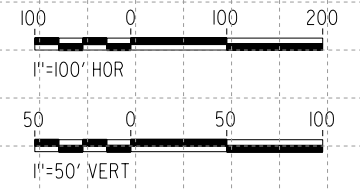
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1/20/2021 5:37:53 AM

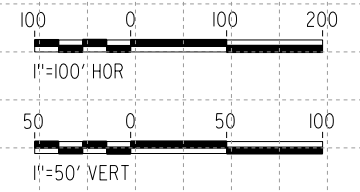
ics\_user\_17609



**TUNNEL 8**



**TUNNEL 8**



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KONDUN**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALT 1, 2, 5  
TUNNEL PROFILES  
TUNNEL 8 - SHEET 1

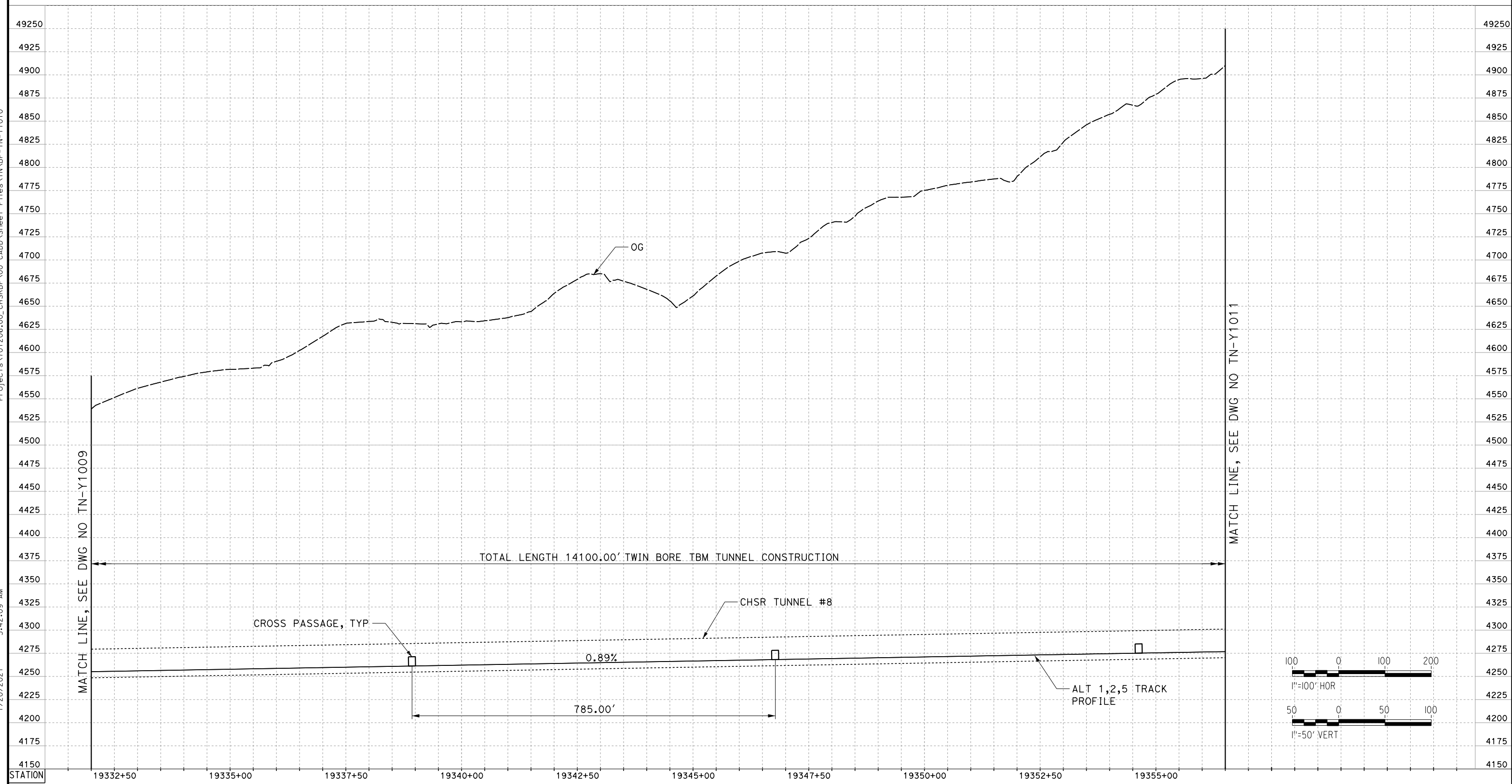
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DRAWING NO.  
TN-Y1009  
SCALE  
AS SHOWN  
SHEET NO.  
1063



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1/20/2021 5:42:09 AM

jcs\_user\_17609



### TUNNEL 8

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KONDUN**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALT 1, 2, 5  
TUNNEL PROFILES  
TUNNEL 8 - SHEET 2

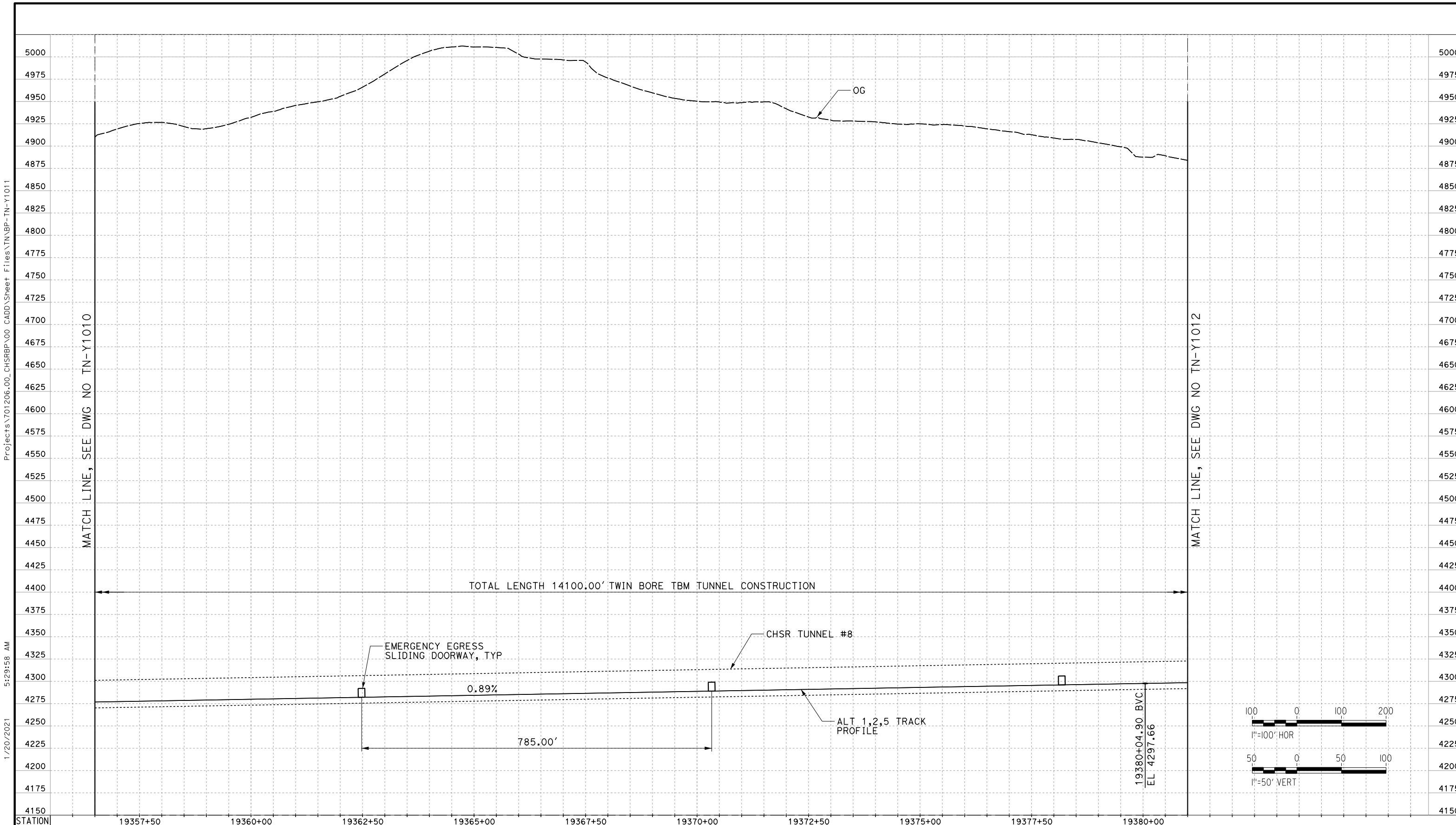
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HSR13-44

DRAWING NO.  
TN-Y1010

SCALE  
AS SHOWN

SHEET NO.  
1064





**TUNNEL 8**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KONDUN**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALT 1, 2, 5  
TUNNEL PROFILES  
TUNNEL 8 - SHEET 3

CONTRACT NO.  
HSR13-44

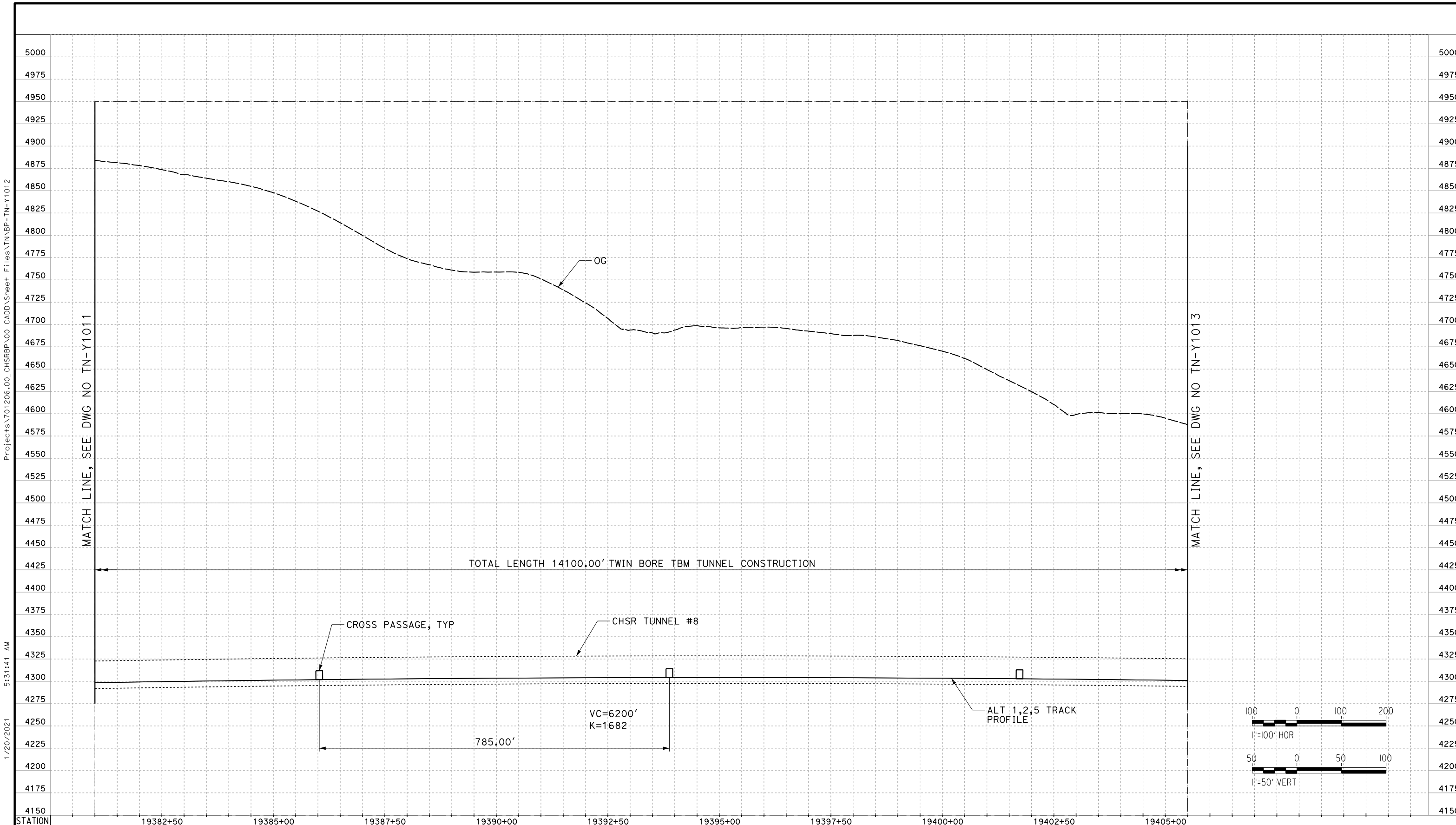
DRAWING NO.  
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SCALE  
AS SHOWN

SHEET NO.  
1065

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 jcs\_user\_17609





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 jcs\_user\_17609

**TUNNEL 8**

REV	DATE	BY	CHK	APP	DESCRIPTION

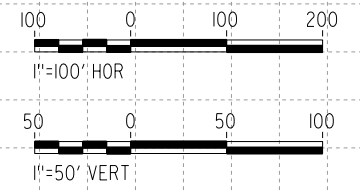
DESIGNED BY  
**Z. SKOVAJSOVA**  
 DRAWN BY  
**K. BUNGER**  
 CHECKED BY  
**R. KONDUN**  
 IN CHARGE  
**J. MORRISON**  
 DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**  
  
**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
  
 ALT 1, 2, 5  
 TUNNEL PROFILES  
 TUNNEL 8 - SHEET 4

CONTRACT NO.  
**HSR13-44**  
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**AS SHOWN**  
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**1096**

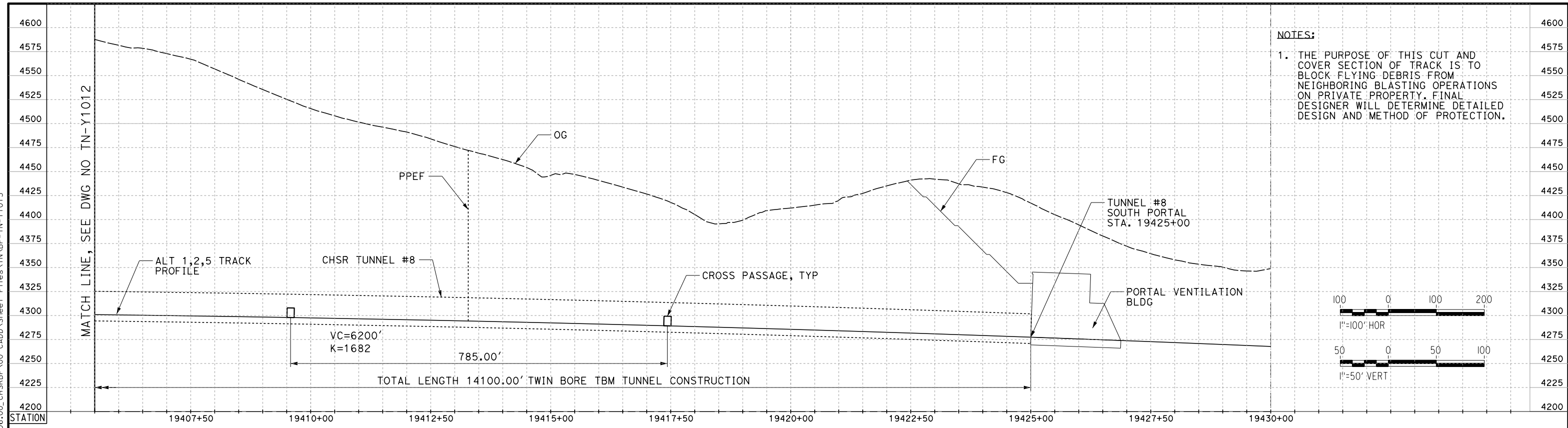




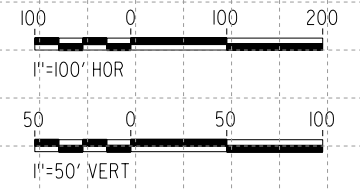
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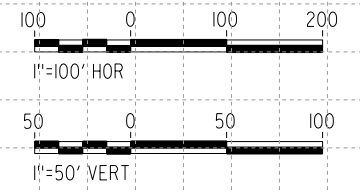
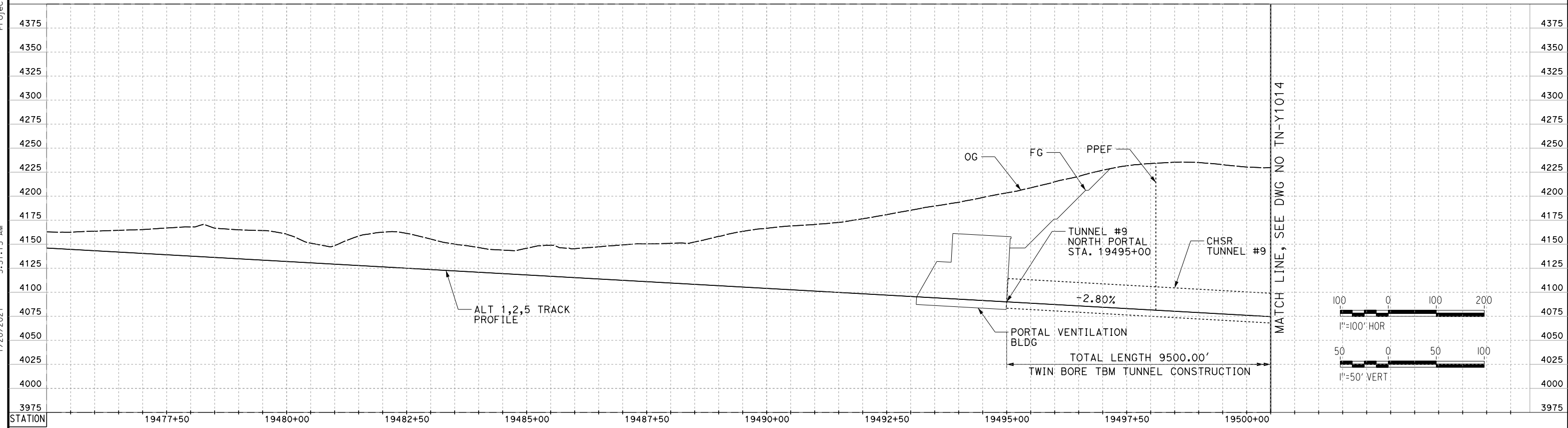
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**NOTES:**  
 1. THE PURPOSE OF THIS CUT AND COVER SECTION OF TRACK IS TO BLOCK FLYING DEBRIS FROM NEIGHBORING BLASTING OPERATIONS ON PRIVATE PROPERTY. FINAL DESIGNER WILL DETERMINE DETAILED DESIGN AND METHOD OF PROTECTION.



**TUNNEL 8**



**TUNNEL 9**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDUN**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALT 1, 2, 5  
TUNNEL PROFILES  
TUNNEL 8 AND TUNNEL 9

CONTRACT NO.  
HSR13-44

DRAWING NO.  
TN-Y1013

SCALE  
AS SHOWN

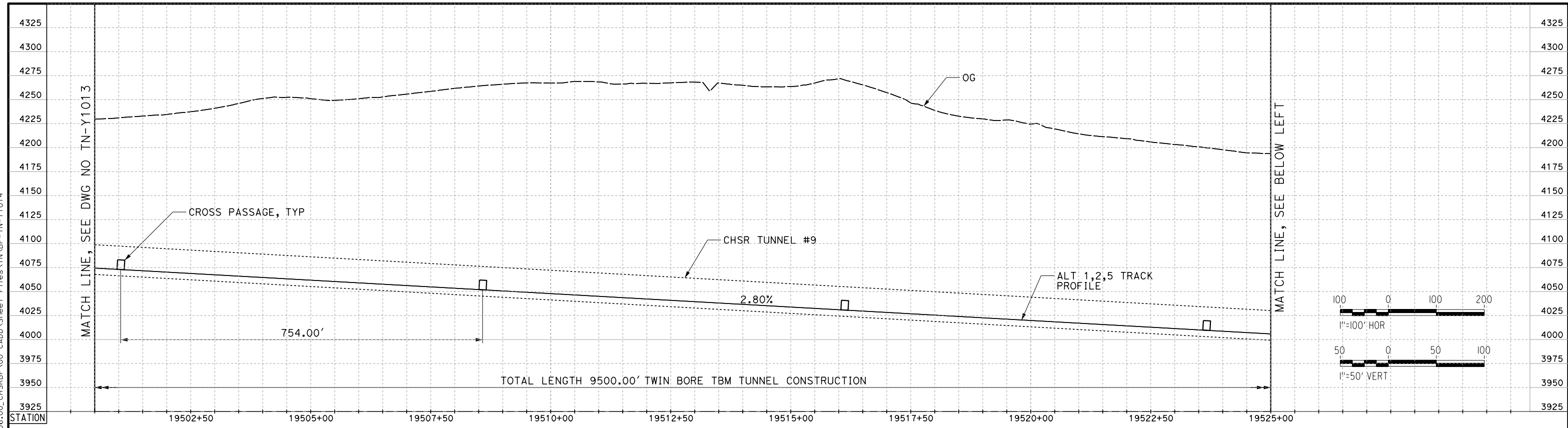
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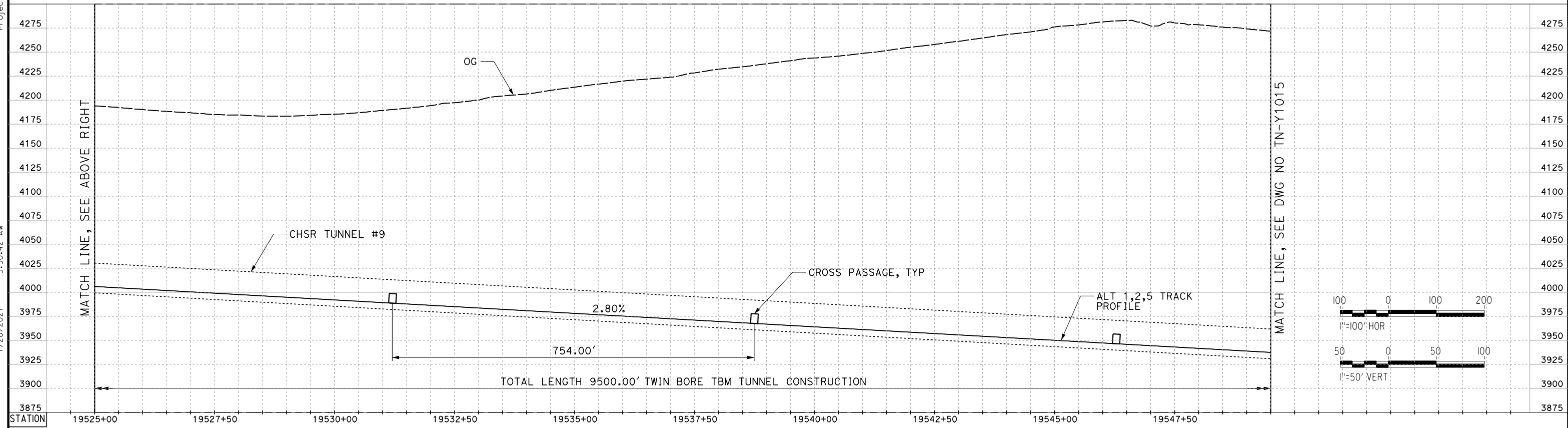
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**TUNNEL 9**



**TUNNEL 9**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDUN**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALT 1, 2, 5  
TUNNEL PROFILES  
TUNNEL 9 - SHEET 1

CONTRACT NO.  
HSR13-44

DRAWING NO.  
TN-Y1014

SCALE  
AS SHOWN

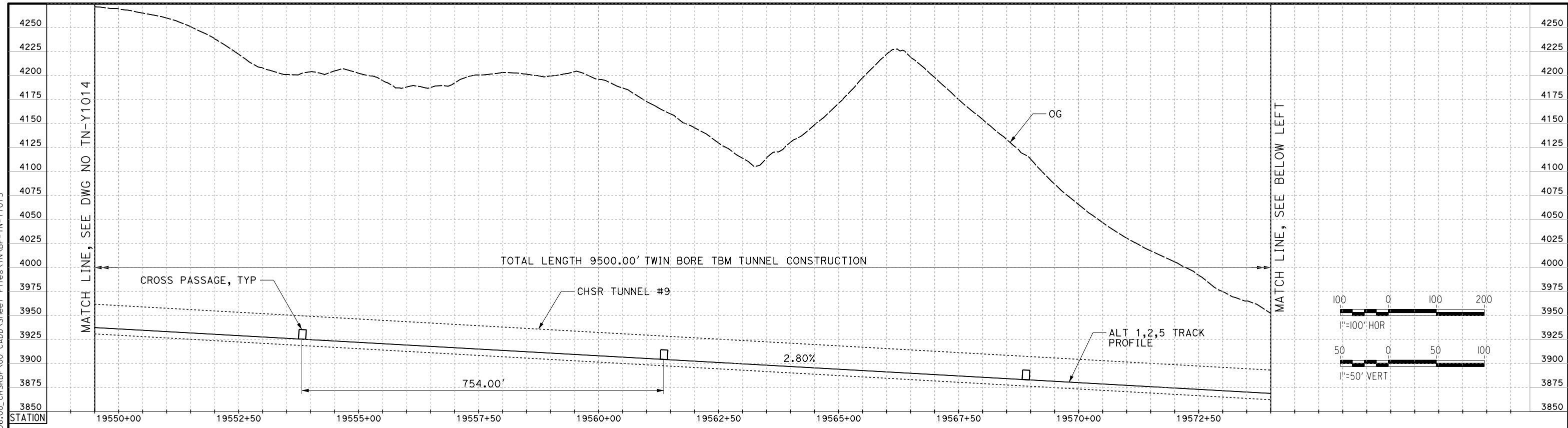
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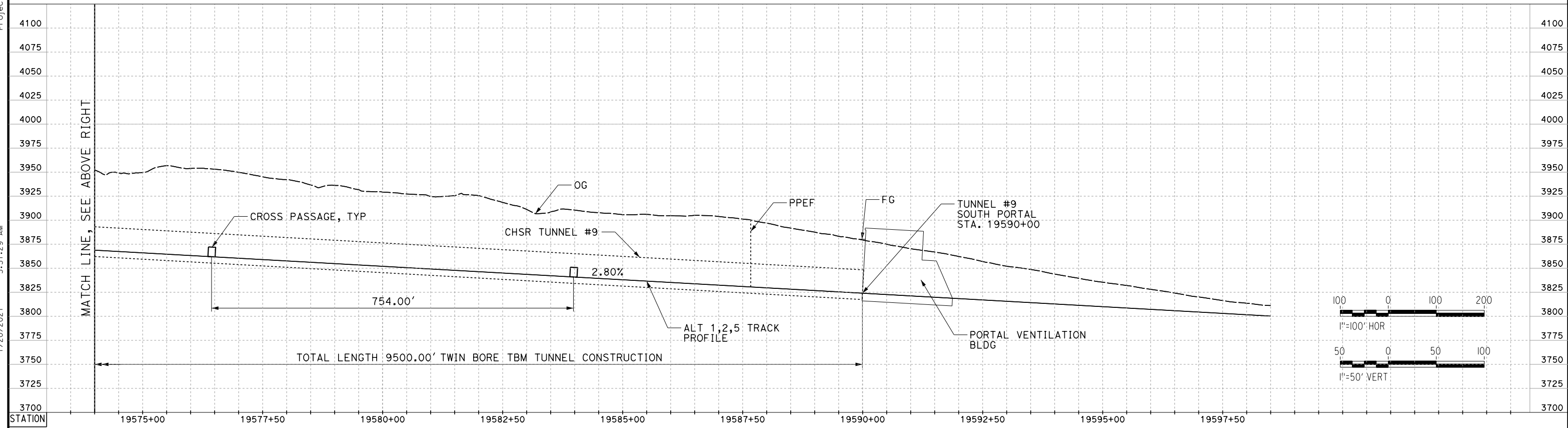
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1/20/2021 5:31:29 AM

ics\_user\_17609



**TUNNEL 9**



**TUNNEL 9**

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDUN**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALT 1, 2, 5  
TUNNEL PROFILES  
TUNNEL 9 - SHEET 2

CONTRACT NO.  
HSR13-44

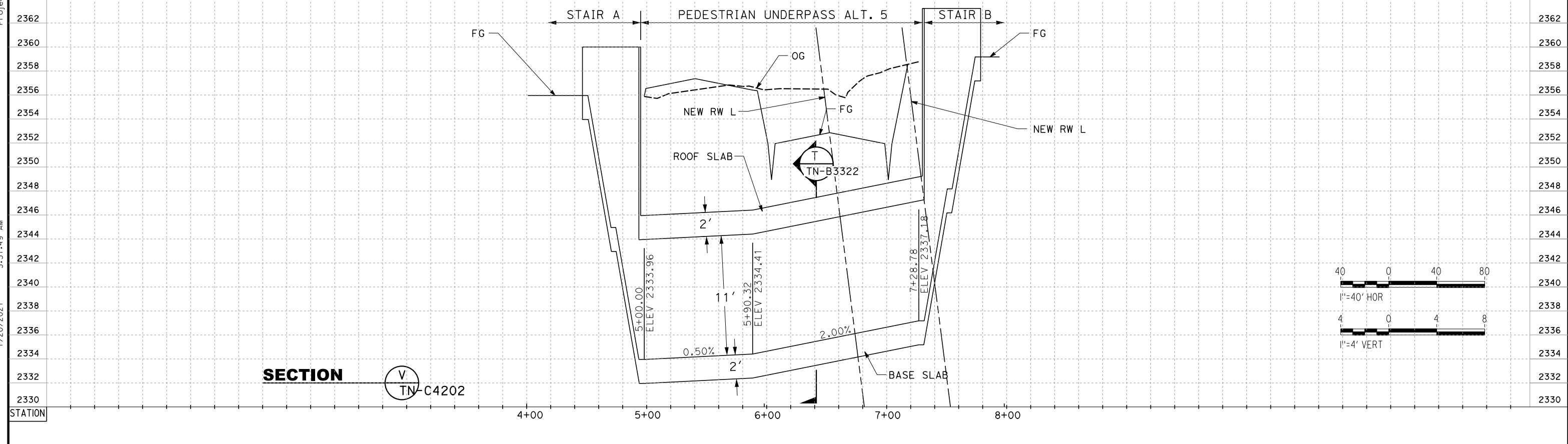
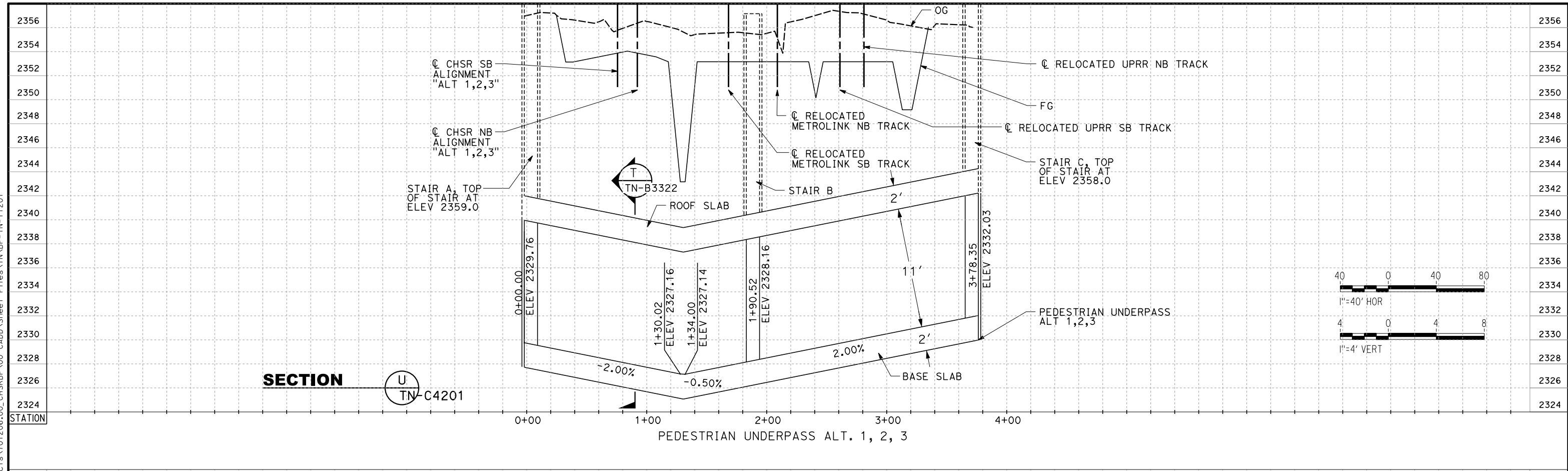
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SCALE  
AS SHOWN

SHEET NO.  
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 jcs\_user\_17609



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALT 1, 2, 3, 5  
PROFILE VIEW  
TYPICAL UNDERPASS PROFILE

CONTRACT NO.  
HSR13-44

DRAWING NO.  
TN-Y1201

SCALE  
AS SHOWN

SHEET NO.  
1070

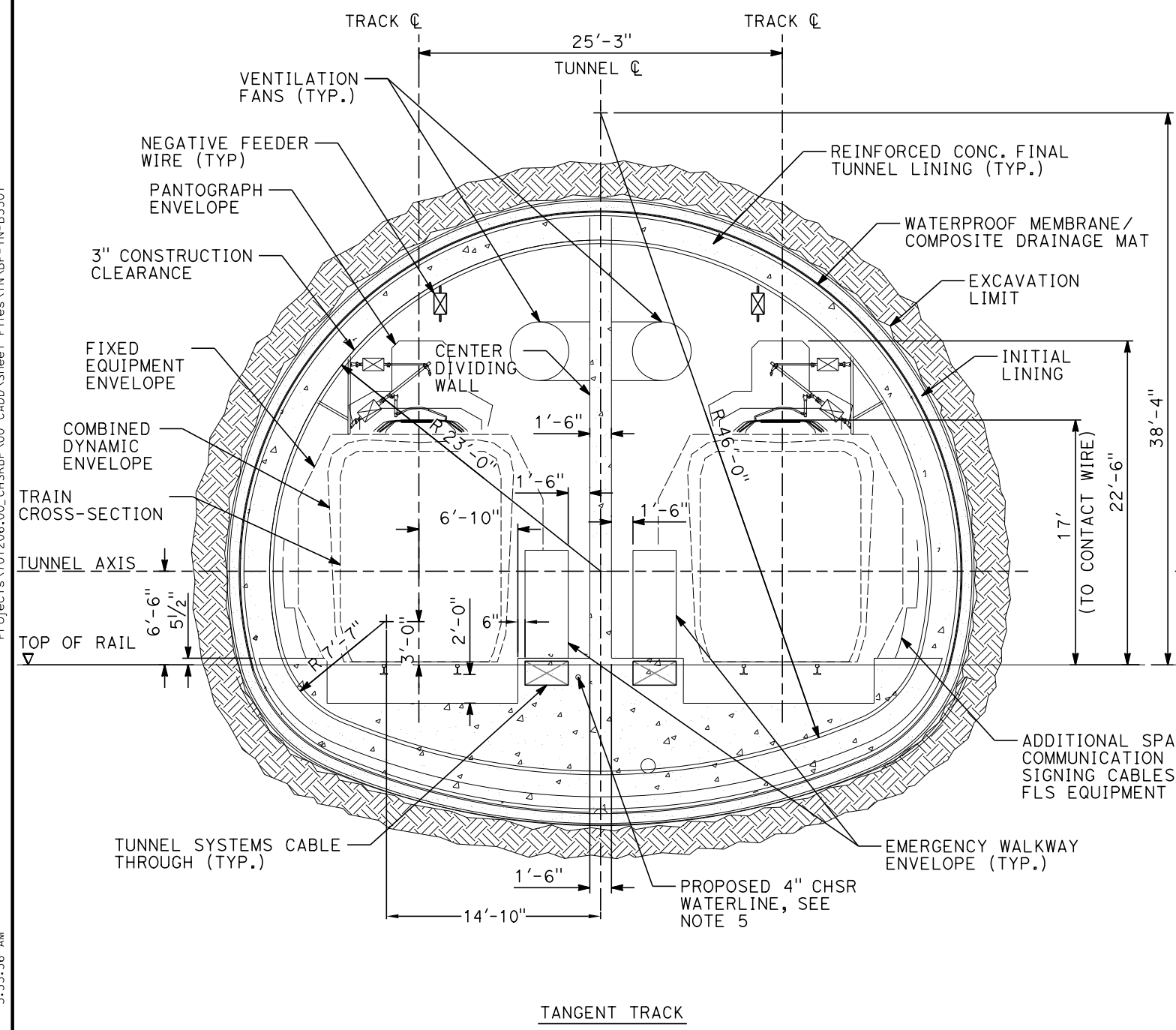


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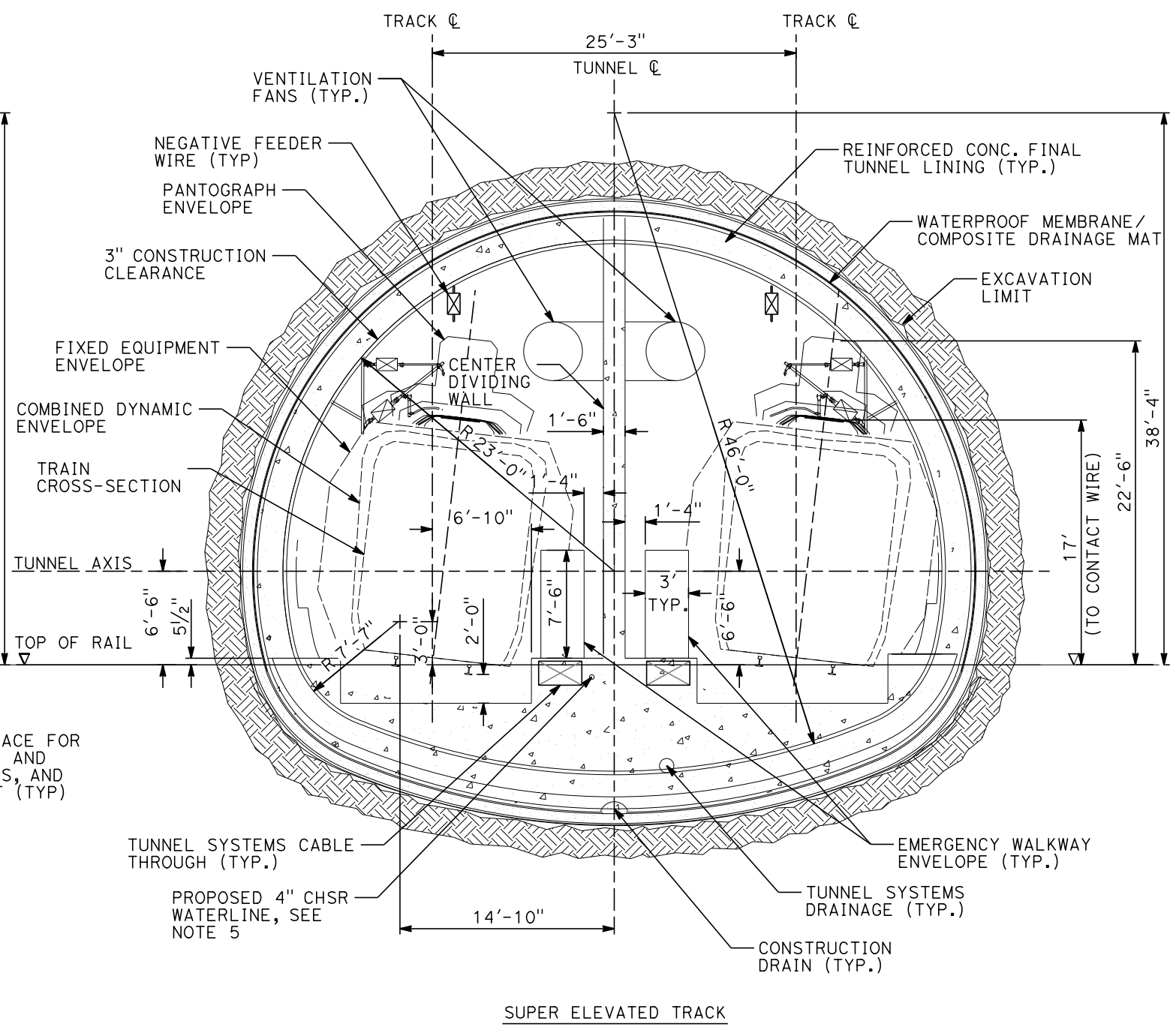
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1/20/2021

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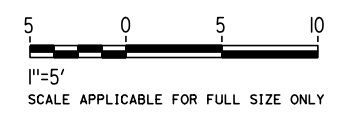
TANGENT TRACK



SUPER ELEVATED TRACK

**GENERAL NOTES:**

1. SEQUENTIAL EXCAVATION METHODS ARE ADOPTED FOR THE 15% IN-PROGRESS DESIGN OF DOUBLE-TRACK, TUNNEL 1, 2 & 3, SITED IN FANGLOMERATE.
2. EXCAVATION, GROUND SUPPORT, LINING THICKNESS, WATERTIGHTNESS AND GAS-TIGHTNESS PROVISIONS WILL BE OPTIMIZED BASED ON SITE INVESTIGATION RESULTS AND TUNNEL-SPECIFIC DESIGN WORK.
3. TYPICAL CROSS-SECTION REQUIRES FURTHER STUDY TO EVALUATE DYNAMIC AIRFLOW/PRESSURE LEVELS UNDER HIGH SPEED OPERATING CONDITIONS, AND TO FURTHER REFINE SPACE ALLOTTED FOR STRUCTURES, EQUIPMENT, AND EGRESS.
4. CENTER DIVIDING WALL SHALL CONFORM TO NFPA 130 AND HAVE A 2 HOUR FIRE RATING.
5. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.

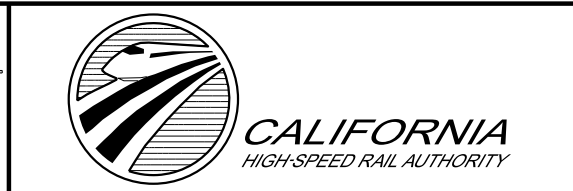


REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**

**NOT FOR CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
ALTERNATIVE 1, 2, 3, 5  
TUNNEL SEQUENTIAL EXCAVATION METHOD  
SINGLE TUNNEL CLEARANCE DIAGRAM  
TANGENT TRACK

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-B3301  
SCALE  
AS SHOWN  
SHEET NO.  
1071

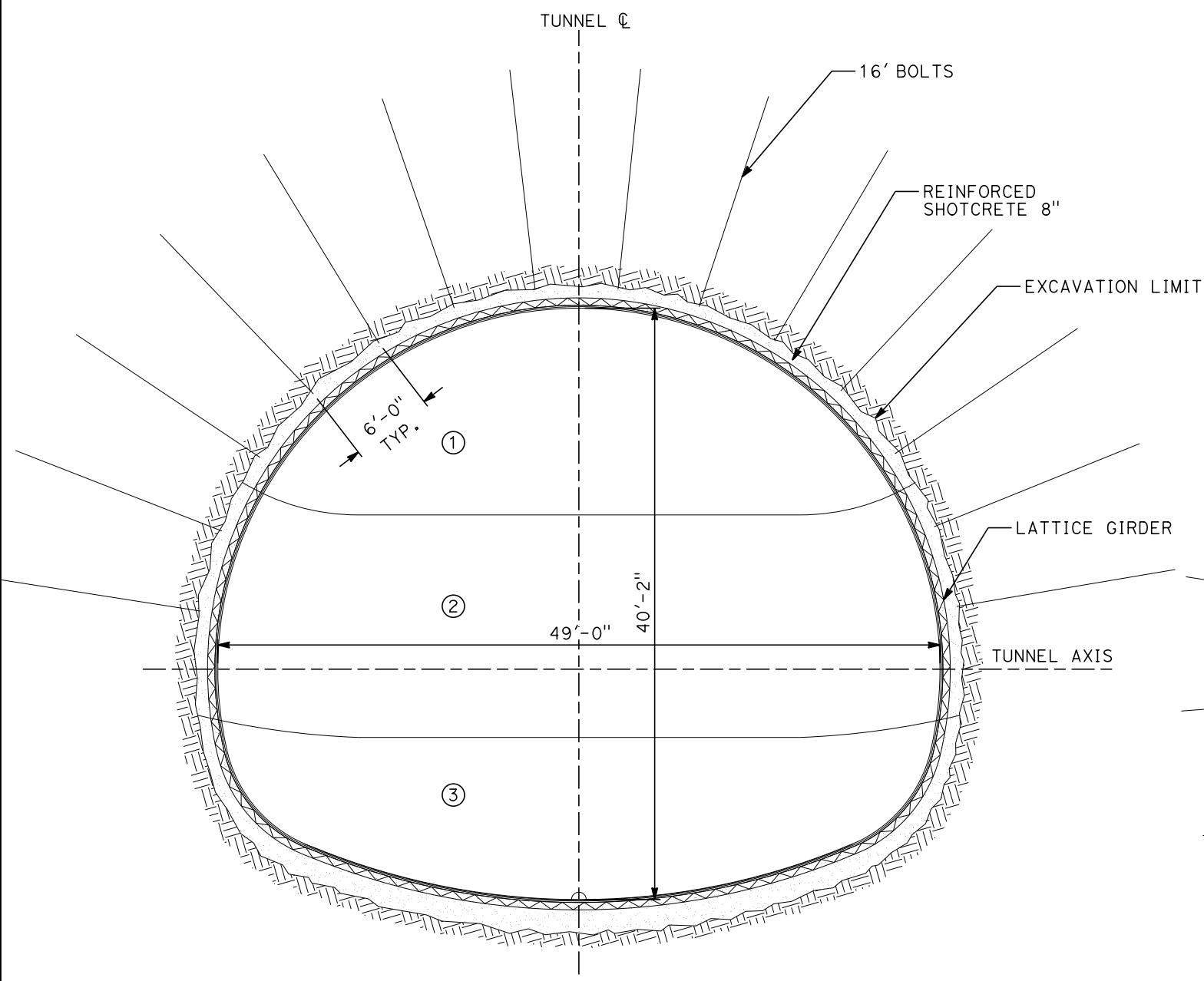


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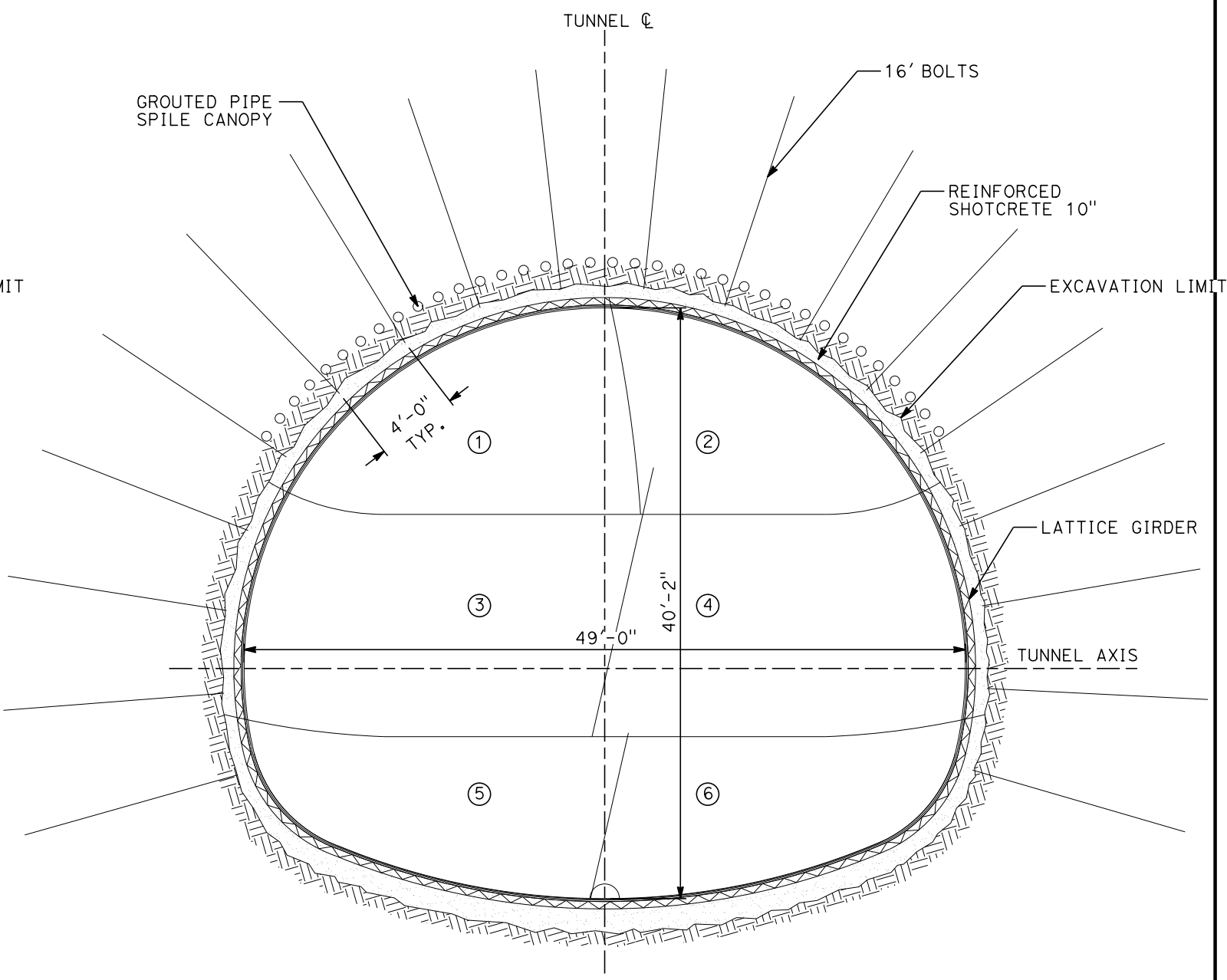
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1/20/2021

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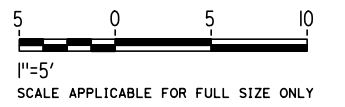
**SEM CLASS V**  
STABLE GROUND



**SEM CLASS VI**  
BLOCKY AND SEAMY GROUND

**GENERAL NOTES:**

1. SEQUENTIAL EXCAVATION METHODS IS IDENTIFIED FOR THE 15% IN-PROGRESS DESIGN OF DOUBLE-TRACK TUNNEL FOR TUNNEL 1, 2 & 3, SITED IN FANGLOMERATES.
2. EXCAVATION, GROUND SUPPORT, LINING THICKNESS, WATERTIGHTNESS AND GASTIGHTNESS PROVISIONS WILL BE OPTIMIZED BASED ON SITE INVESTIGATION RESULTS AND TUNNEL-SPECIFIC DESIGN WORK.
3. TYPICAL CROSS-SECTION REQUIRES FURTHER STUDY TO EVALUATE DYNAMIC AIRFLOW/PRESSURE LEVELS UNDER HIGH SPEED OPERATING CONDITIONS, AND TO FURTHER REFINE SPACE ALLOTTED FOR STRUCTURES, EQUIPMENT, AND EGRESS.
4. SEM IN BLOCKY OR SEAMY GROUND WILL REQUIRE FACE SUPPORT INCLUDING SHOTCRETE AND FACE DOWELS. SUPPORT OF TEMPORARY SIDEWALLS WILL BE SHOWN IN THE NEXT DESIGN STAGE.
5. BLOCKY OR SEAMY GROUND MAY INCLUDE SEM TOOL BOX ITEMS, PROBE DRILLING, FLASHCRETE, FACE DOWELS, FACE WEDGES, SPILING-FOREPOLING AND PRE-EXCAVATED GROUTING.
6. SEM IN STABLE GROUND MAY REQUIRE FACE SUPPORT.

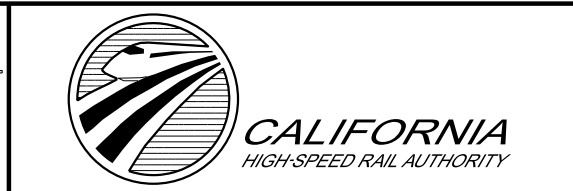


REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**

**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
ALTERNATIVE 1, 2, 3, 5  
TUNNEL SEQUENTIAL EXCAVATION METHOD  
EXCAVATION SEQUENCE  
INITIAL SUPPORT

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-B3302  
SCALE  
AS SHOWN  
SHEET NO.  
1072

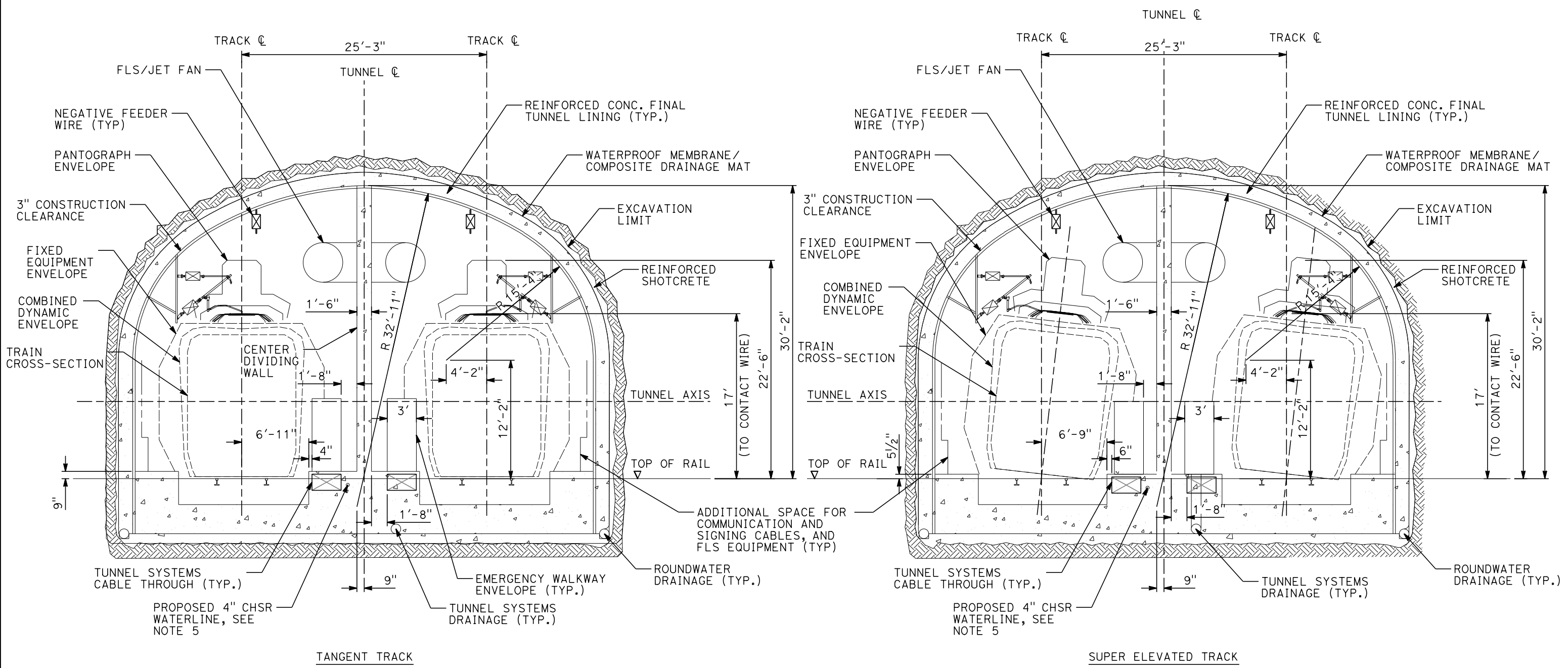


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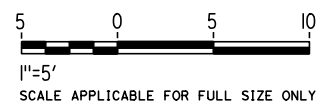
1/20/2021

ics\_user\_17609



**GENERAL NOTES**

1. DRILL AND BLAST METHOD IS IDENTIFIED FOR THE 15% IN-PROGRESS DESIGN OF DOUBLE TRACK TUNNEL FOR TUNNEL 4, 5 AND 6 IN HARD ROCK UNITS.
2. EXCAVATION, GROUND SUPPORT, LINING THICKNESS AND WATERTIGHTNESS PROVISIONS WILL BE OPTIMIZED BASED ON SITE INVESTIGATION RESULTS AND TUNNEL-SPECIFIC DESIGN WORK.
3. TYPICAL CROSS-SECTION REQUIRES FURTHER STUDY TO EVALUATE DYNAMIC AIRFLOW/PRESSURE LEVELS UNDER HIGH SPEED OPERATING CONDITIONS, AND TO FURTHER REFINE SPACE ALLOTTED FOR STRUCTURES, EQUIPMENT, AND EGRESS.
4. CENTER DIVIDING WALL SHALL CONFORM TO NFPA 130 AND HAVE A 2 HOUR FIRE RATING.
5. THE COMPOSITE VEHICLE STATIC AND DYNAMIC ENVELOPES SHOWN FOLLOW TM1.1.10-A AND C.
6. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

**RECORD SET**

**PEPD**

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**NOT FOR**

**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**

**BAKERSFIELD TO PALMDALE**

ALTERNATIVE 1, 2, 3, 5

TUNNEL DRILL AND BLAST METHOD

SINGLE TUNNEL

CLEARANCE DIAGRAM

CONTRACT NO.  
HSR13-44

DRAWING NO.  
TN-B3303

SCALE  
AS SHOWN

SHEET NO.  
1073

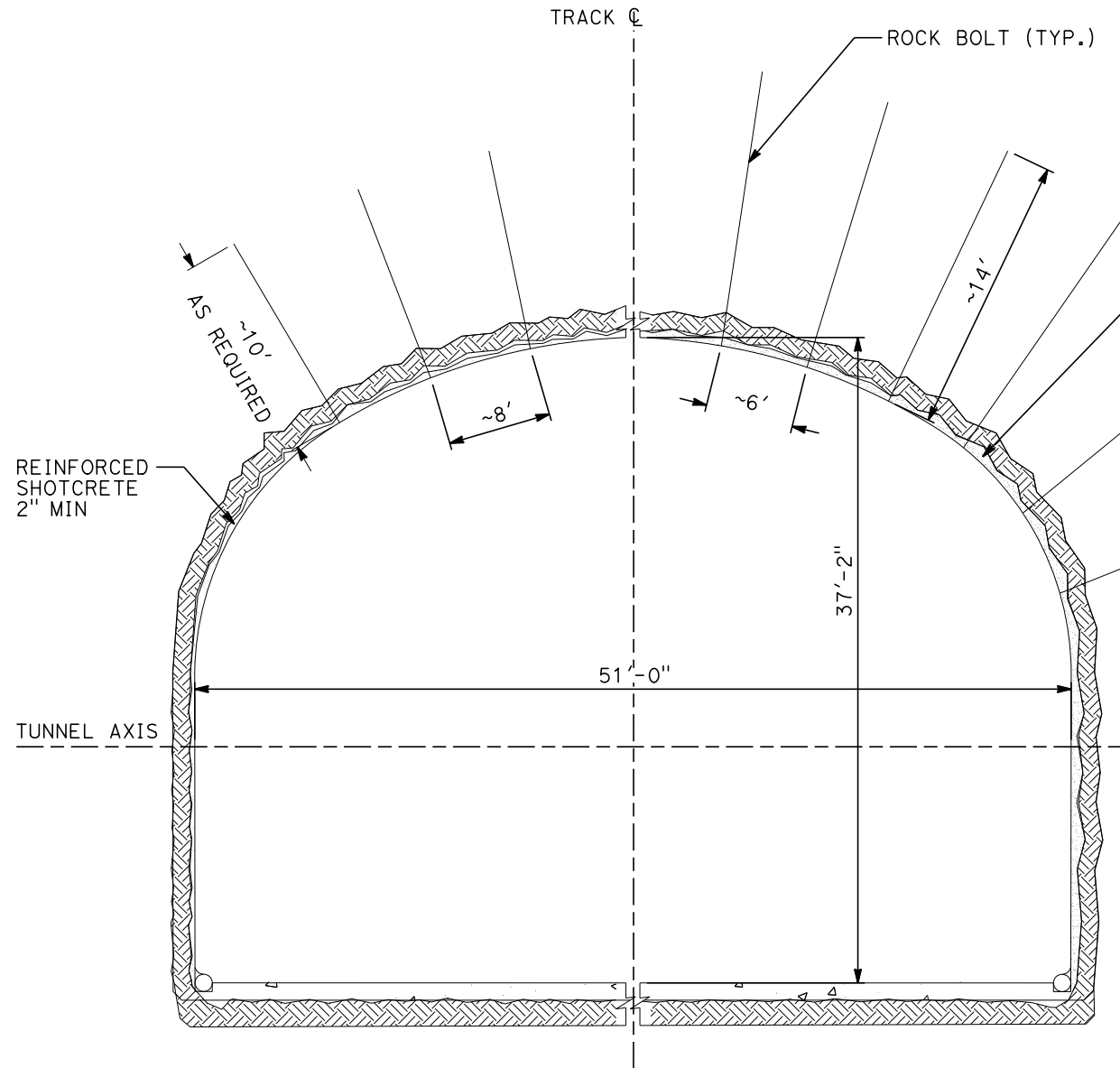


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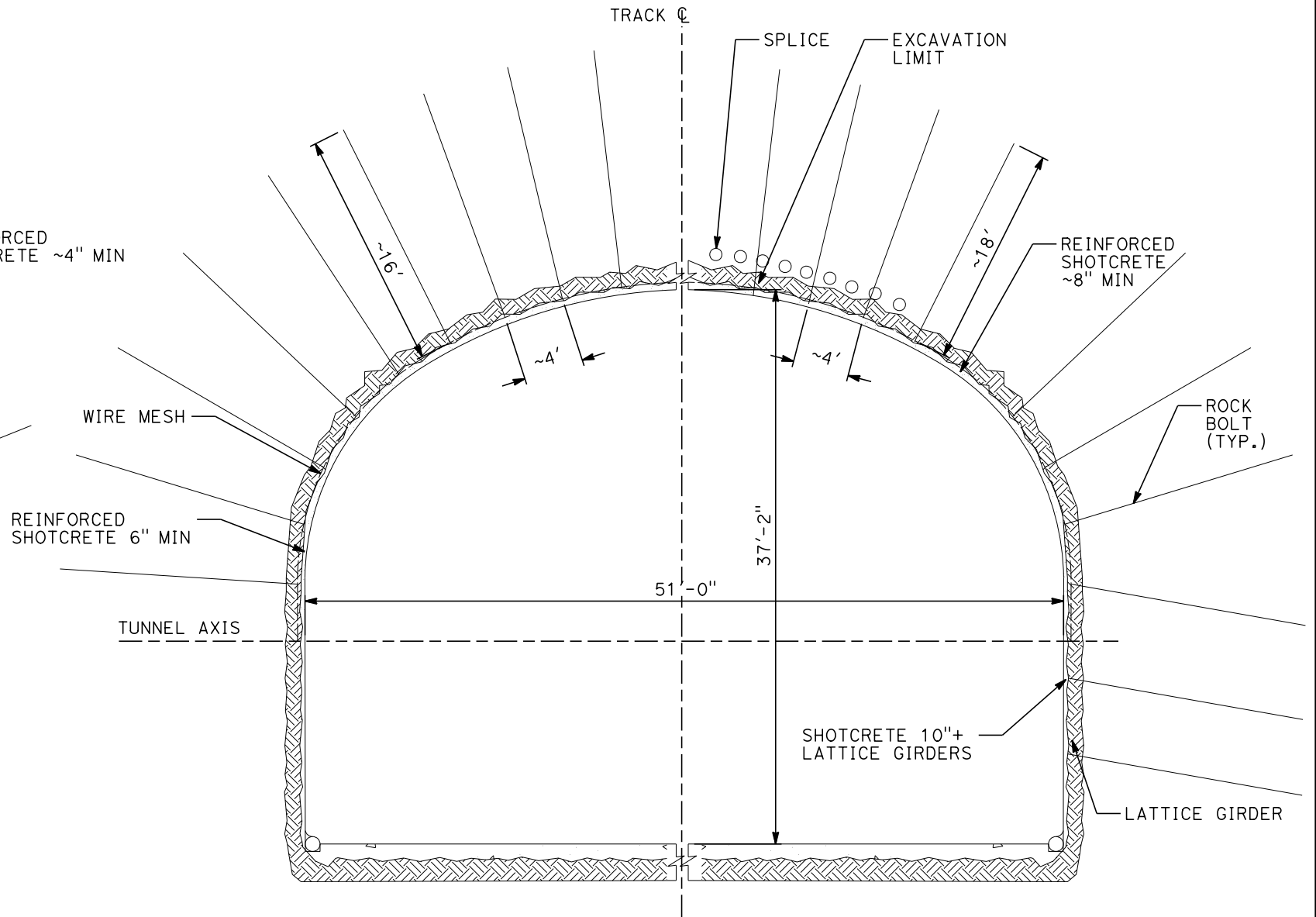
1/20/2021

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**CLASS I**  
RMR >80

**CLASS II**  
60 < RMR < 80

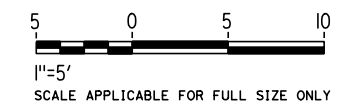


**CLASS III**  
40 < RMR < 60

**CLASS IV**  
20 < RMR < 40

**GENERAL NOTES:**

1. A DRILL AND BLAST OPTION IS IDENTIFIED FOR THE 15% IN-PROGRESS DESIGN OF TWIN, SINGLE TRACK TUNNELS FOR TUNNEL 4, 5 AND 6 IN HARD ROCK UNITS.
2. EXCAVATION, GROUND SUPPORT, LINING THICKNESS AND WATERTIGHTNESS PROVISIONS WILL BE OPTIMIZED BASED ON SITE INVESTIGATION RESULTS AND TUNNEL-SPECIFIC DESIGN WORK.
3. TYPICAL CROSS-SECTION REQUIRES FURTHER STUDY TO EVALUATE DYNAMIC AIRFLOW/PRESSURE LEVELS UNDER HIGH SPEED OPERATING CONDITIONS, AND TO FURTHER REFINE SPACE ALLOTTED FOR STRUCTURES, EQUIPMENT, AND EGRESS.
4. CLASS I AND II MAY BE EXCAVATED FULL FACE. CLASS III MAY REQUIRE HEADING AND BENCH EXCAVATION WITH FACE SUPPORT AS REQUIRED. CLASS IV MAY REQUIRE TOP HEADING AND BENCH WITH SIDE SLASH, SPILES, AND FACE SUPPORT AS NEEDED. CLASS IV MAY REQUIRE A CHANGE IN EXCAVATION METHOD TO AN SEM CONSTRUCTION ALTERNATIVE.
5. THE COMPOSITE VEHICLE STATIC AND DYNAMIC ENVELOPES SHOWN FOLLOW TM1.1.10-A AND C



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

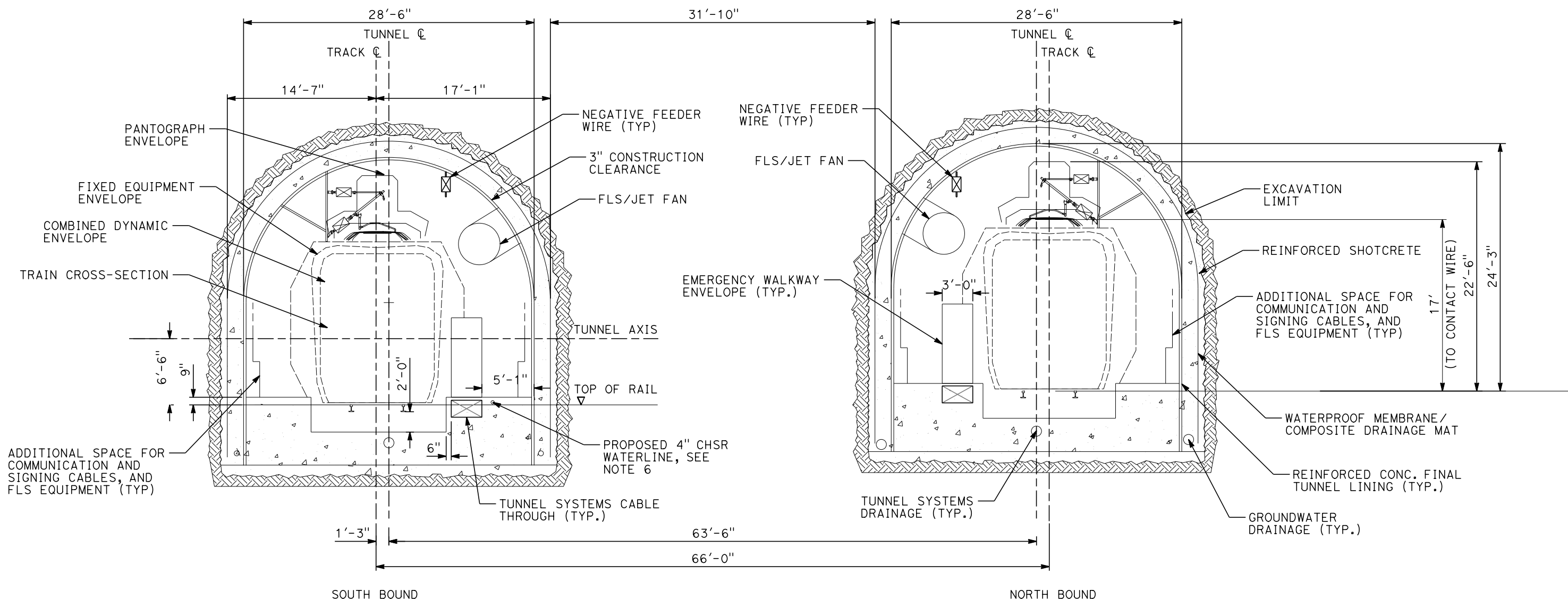
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**PEPD**  
**SUBMITTAL**  
  
**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
ALTERNATIVE 1, 2, 3, 5  
TUNNEL DRILL AND BLAST METHOD  
SINGLE TUNNEL  
INITIAL SUPPORT

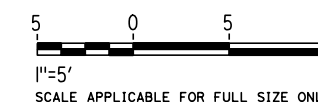
CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-B3304  
SCALE  
AS SHOWN  
SHEET NO.  
1074





**GENERAL NOTES:**

1. A DRILL AND BLAST OPTION IS IDENTIFIED FOR THE 15% IN-PROGRESS DESIGN OF TWIN, SINGLE TRACK TUNNELS FOR TUNNEL 7 THROUGH THE TEHACHAPI FAULT ZONE.
2. EXCAVATION, GROUND SUPPORT, PILLAR WIDTH, LINING THICKNESS AND WATERTIGHTNESS PROVISIONS WILL BE OPTIMIZED BASED ON SITE INVESTIGATION RESULTS AND TUNNEL-SPECIFIC DESIGN WORK.
3. TYPICAL CROSS-SECTION REQUIRES FURTHER STUDY TO EVALUATE DYNAMIC AIRFLOW/PRESSURE LEVELS UNDER HIGH SPEED OPERATING CONDITIONS, AND TO FURTHER REFINE SPACE ALLOTTED FOR STRUCTURES, EQUIPMENT, AND EGRESS.
4. PILLAR WIDTH BETWEEN TUNNELS TO BE ONE TUNNEL DIAMETER OR MORE BASED ON GUIDANCE IN TM 2.4.6
5. THE COMPOSITE VEHICLE STATIC AND DYNAMIC ENVELOPES SHOWN FOLLOW TM 1.1.10-A AND C.
6. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET**  
**PEPD**  
**SUBMITTAL**  
  
**NOT FOR**  
**CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT**  
**BAKERSFIELD TO PALMDALE**  
ALTERNATIVE 1, 2, 3, 5  
TUNNEL DRILL AND BLAST METHOD  
TWIN TUNNELS - CLEARANCE DIAGRAM  
TANGENT TRACK

CONTRACT NO.  
**HSR13-44**  
DRAWING NO.  
**TN-B3305**  
SCALE  
**AS SHOWN**  
SHEET NO.  
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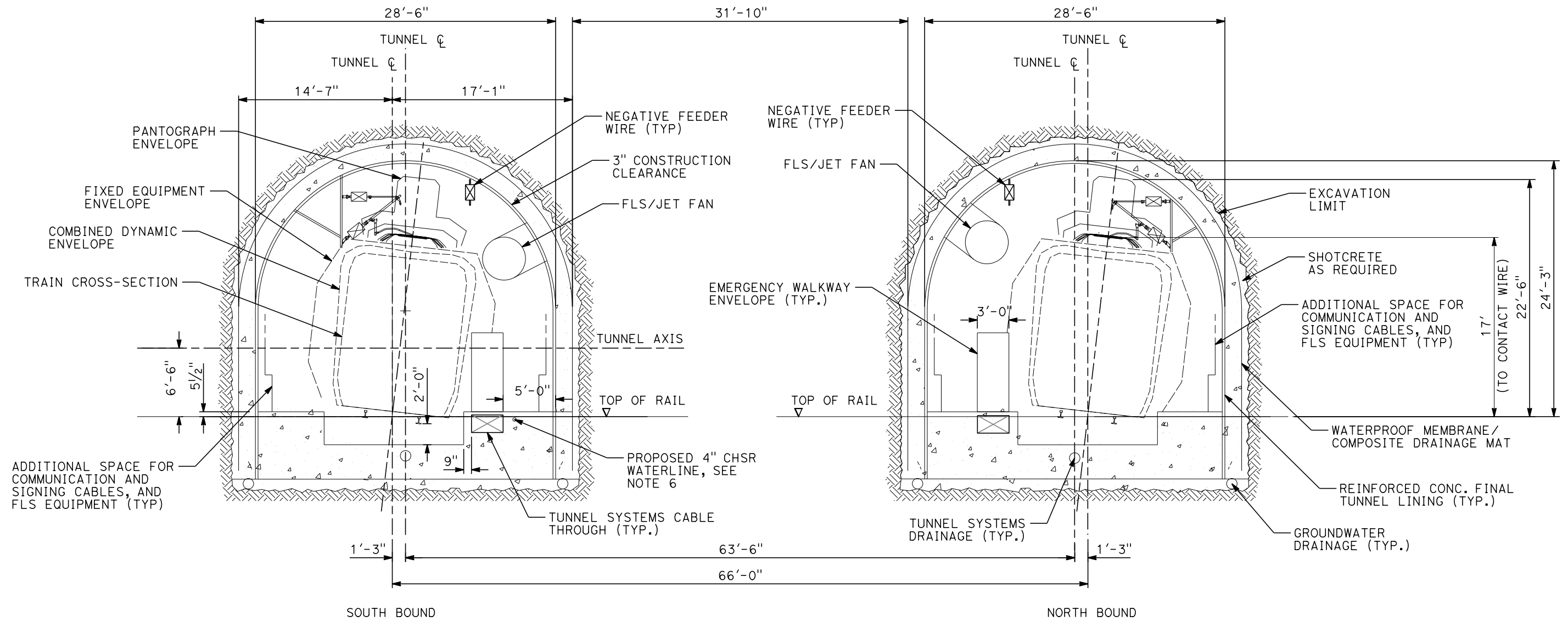


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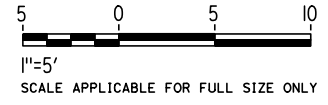
1/20/2021

jcs\_user\_17609



**GENERAL NOTES:**

1. A DRILL AND BLAST OPTION IS IDENTIFIED FOR THE 15% IN-PROGRESS DESIGN OF TWIN, SINGLE TRACK TUNNELS FOR TUNNEL 7 THROUGH THE TEHACHAPI FAULT ZONE.
2. EXCAVATION, GROUND SUPPORT, PILLAR WIDTH, LINING THICKNESS AND WATERTIGHTNESS PROVISIONS WILL BE OPTIMIZED BASED ON SITE INVESTIGATION RESULTS AND TUNNEL-SPECIFIC DESIGN WORK.
3. TYPICAL CROSS-SECTION REQUIRES FURTHER STUDY TO EVALUATE DYNAMIC AIRFLOW/PRESSURE LEVELS UNDER HIGH SPEED OPERATING CONDITIONS, AND TO FURTHER REFINE SPACE ALLOTTED FOR STRUCTURES, EQUIPMENT, AND EGRESS.
4. PILLAR WIDTH BETWEEN TUNNELS TO BE ONE TUNNEL DIAMETER OR MORE BASED ON GUIDANCE IN TM 2.4.6.
5. THE COMPOSITE VEHICLE STATIC AND DYNAMIC ENVELOPES SHOWN FOLLOW TM 1.1.10-A AND C.
6. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**

DRAWN BY  
**K. BUNGER**

CHECKED BY  
**R. KUNDU**

IN CHARGE  
**J. MORRISON**

DATE  
**01/29/2021**

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**CONSTRUCTION**



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

ALTERNATIVE 1, 2, 3, 5  
TUNNEL DRILL AND BLAST METHOD  
TWIN TUNNELS - CLEARANCE DIAGRAM  
SUPER ELEVATED TRACK

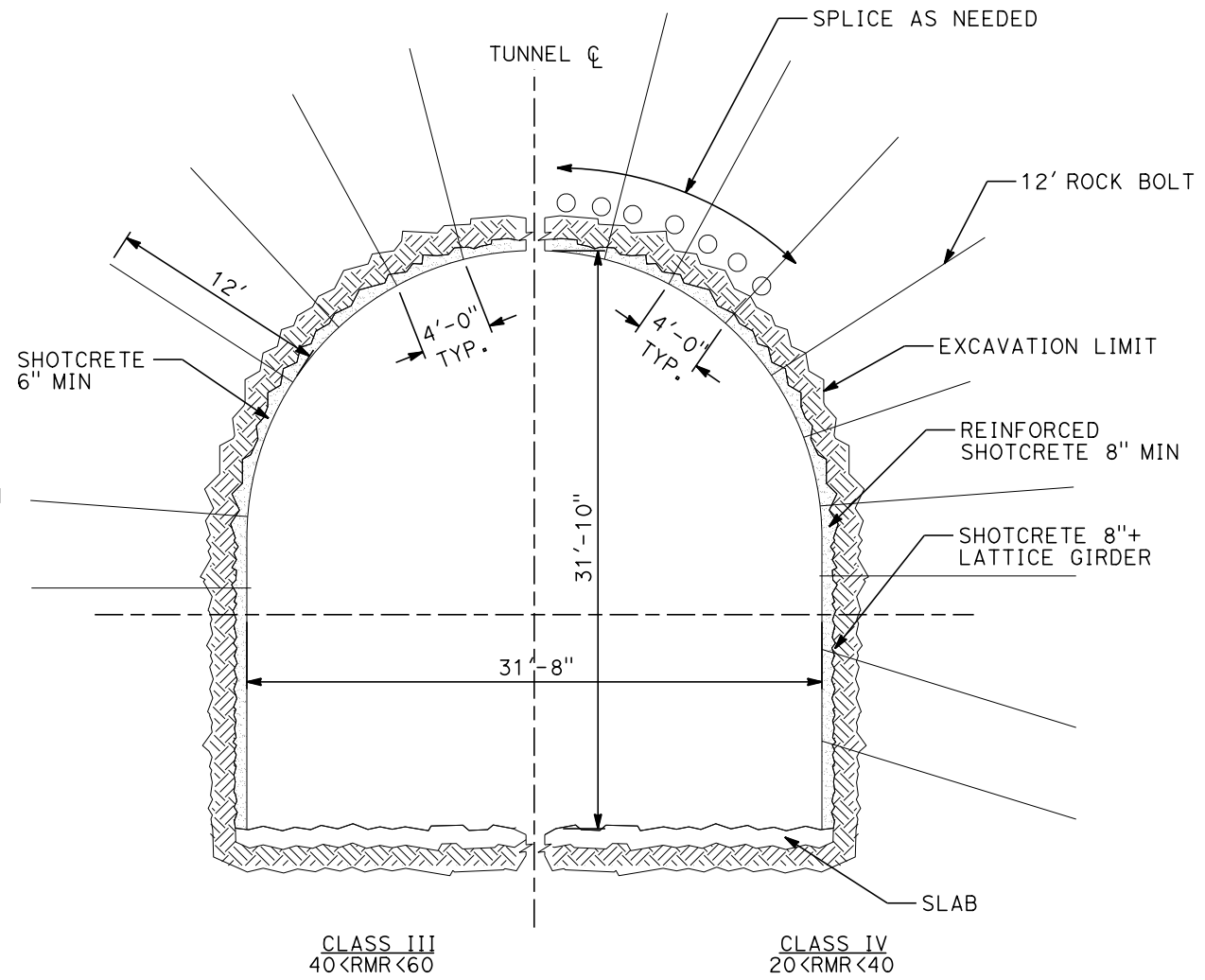
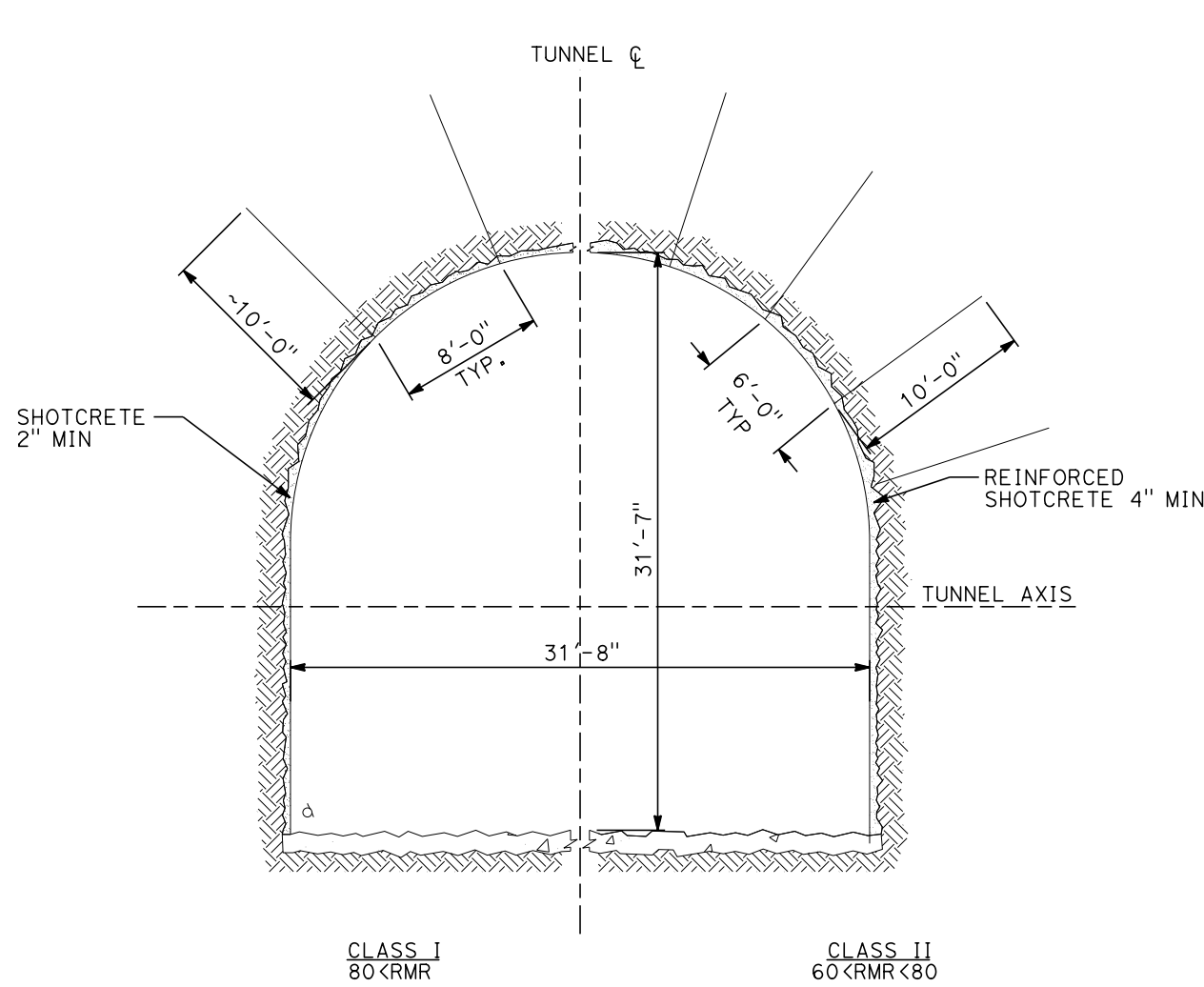
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HSR13-44

DRAWING NO.  
TN-B3306

SCALE  
AS SHOWN

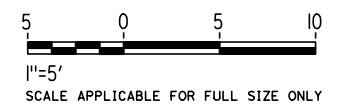
SHEET NO.  
1076





**GENERAL NOTES:**

1. DRILL AND BLAST OPTION IS IDENTIFIED FOR THE 15% IN-PROGRESS DESIGN OF TWIN, SINGLE TRACK TUNNELS FOR TUNNEL 7 THROUGH THE TEHACHAPI FAULT ZONE.
2. EXCAVATION, GROUND SUPPORT, PILLAR WIDTH, LINING THICKNESS AND WATERTIGHTNESS PROVISIONS WILL BE OPTIMIZED BASED ON SITE INVESTIGATION RESULTS AND TUNNEL-SPECIFIC DESIGN WORK.
3. TYPICAL CROSS-SECTION REQUIRES FURTHER STUDY TO EVALUATE DYNAMIC AIRFLOW/PRESSURE LEVELS UNDER HIGH SPEED OPERATING CONDITIONS, AND TO FURTHER REFINE SPACE ALLOTTED FOR STRUCTURES, EQUIPMENT, AND EGRESS.
4. PILLAR WIDTH BETWEEN TUNNELS TO BE ONE TUNNEL DIAMETER OR MORE BASED ON GUIDANCE IN TM 2.4.6
5. CLASSES I AND II MAY BE EXCAVATED FULL FACE. CLASS III MAY REQUIRE HEADING AND BENCH EXCAVATION WITH FACE SUPPORT AS REQUIRED. CLASS IV MAY REQUIRE TOP HEADING AND BENCH WITH SIDE SLASH, SPILES, AND FACE SUPPORT AS NEEDED. CLASS IV MAY REQUIRE A CHANGE IN EXCAVATION METHOD TO AN SEM CONSTRUCTION ALTERNATIVE.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY  
**Z. SKOVAJSOVA**  
DRAWN BY  
**K. BUNGER**  
CHECKED BY  
**R. KUNDU**  
IN CHARGE  
**J. MORRISON**  
DATE  
**01/29/2021**

**RECORD SET  
PEPD  
SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT  
BAKERSFIELD TO PALMDALE**  
ALTERNATIVE 1, 2, 3, 5  
TUNNEL DRILL AND BLAST METHOD  
TWIN TUNNELS  
INITIAL SUPPORT

CONTRACT NO.  
**HSR13-44**  
DRAWING NO.  
**TN-B3307**  
SCALE  
**AS SHOWN**  
SHEET NO.  
**1077**

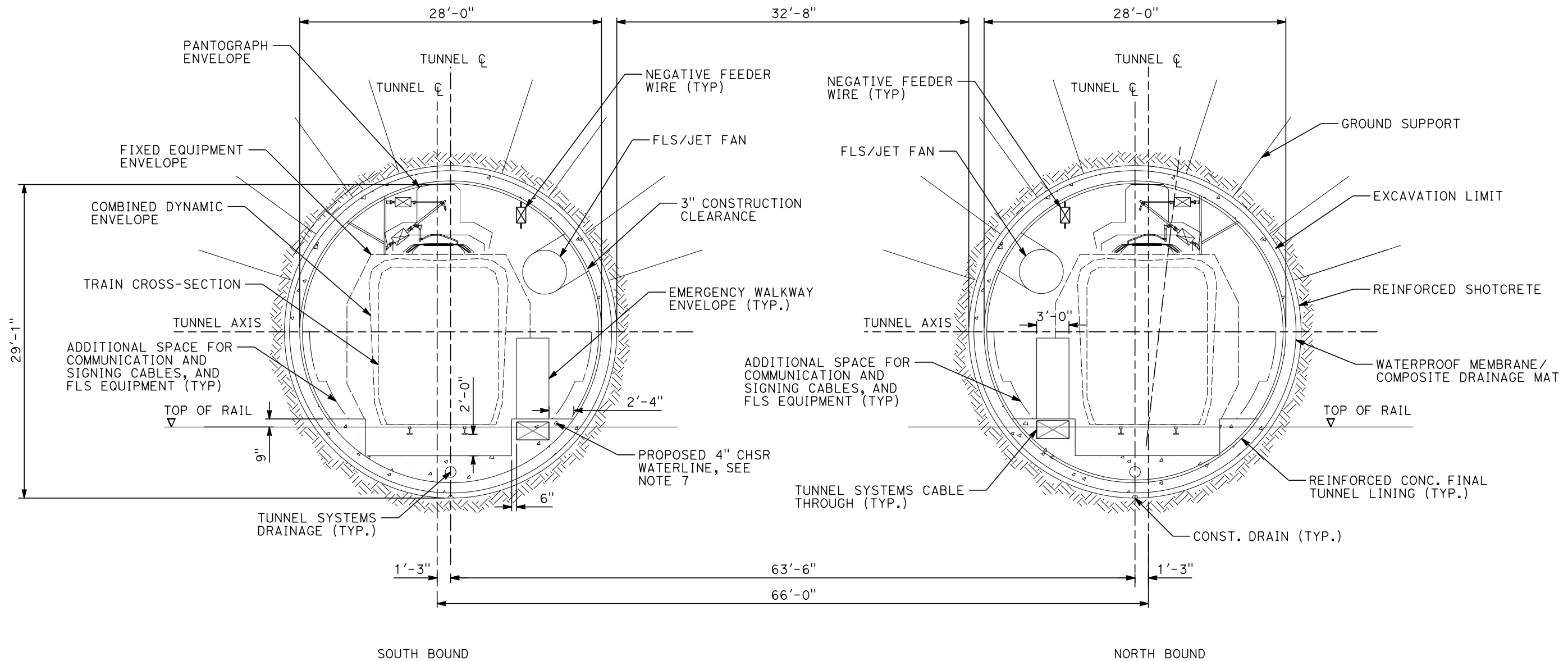


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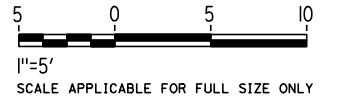
1/20/2021

jcs\_user\_17609



**GENERAL NOTES:**

1. OPEN TBM METHODS ARE ADOPTED FOR THE 15% IN-PROGRESS DESIGN OF THE LONGER (GREATER THAN 1 MILE) TWIN, SINGLE TRACK 7, 8 & 9, SITED IN HARD ROCK UNITS.
2. EXCAVATION, GROUND SUPPORT, PILLAR WIDTH, LINING THICKNESS AND WATERTIGHTNESS PROVISIONS WILL BE OPTIMIZED BASED ON SITE INVESTIGATION RESULT AND TUNNEL SPECIFIC DESIGN WORK.
3. TYPICAL CROSS-SECTION REQUIRES FURTHER STUDY TO EVALUATE DYNAMIC AIRFLOW/PRESSURE LEVELS UNDER HIGH SPEED OPERATING CONDITIONS, AND TO FURTHER REFINE SPACE ALLOTTED FOR STRUCTURES, EQUIPMENT, AND EGRESS.
4. PILLAR WIDTH BETWEEN TUNNELS TO BE ONE TUNNEL DIAMETER OR MORE BASED ON GUIDANCE IN TM 2.4.6.
5. A DUAL DRAINAGE SYSTEM WILL BE USED IN TUNNEL 8 AT INVERT GRADIENTS OF LESS THAN 0.25% AND GREATER THAN -0.25%.
6. THE COMPOSITE VEHICLE STATIC AND DYNAMIC ENVELOPES SHOWN FOLLOW TM 1.1.10-A AND C.
7. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.



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

ALTERNATIVE 1, 2, 3, 5  
TUNNEL TWIN TBM BORED TUNNELS  
CLEARANCE DIAGRAM  
TANGENT TRACK

CONTRACT NO.  
HSR13-44

DRAWING NO.  
TN-B3308

SCALE  
AS SHOWN

SHEET NO.  
1078

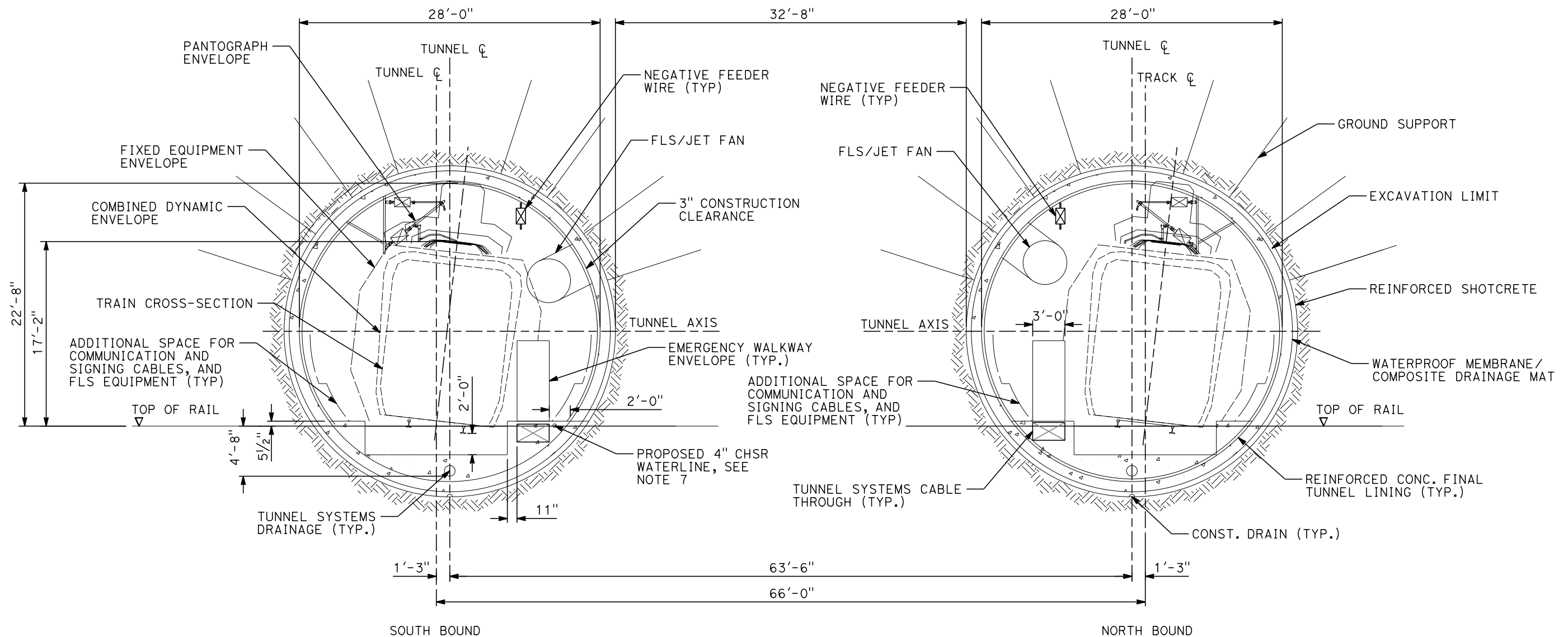


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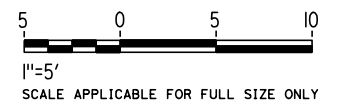
1/20/2021

jcs\_user\_17609



**GENERAL NOTES:**

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3. TYPICAL CROSS-SECTION REQUIRES FURTHER STUDY TO EVALUATE DYNAMIC AIRFLOW/PRESSURE LEVELS UNDER HIGH SPEED OPERATING CONDITIONS, AND TO FURTHER REFINE SPACE ALLOTTED FOR STRUCTURES, EQUIPMENT, AND EGRESS.
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5. A DUAL DRAINAGE SYSTEM WILL BE USED IN TUNNEL 8 AT INVERT GRADIENTS OF LESS THAN 0.25% AND GREATER THAN -0.25%.
6. THE COMPOSITE VEHICLE STATIC AND DYNAMIC ENVELOPES SHOWN FOLLOW TM 1.1.10-A AND C.
7. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00. IN THE TUNNELS IT IS INSTALLED BELOW THE EMERGENCY WALKWAY.

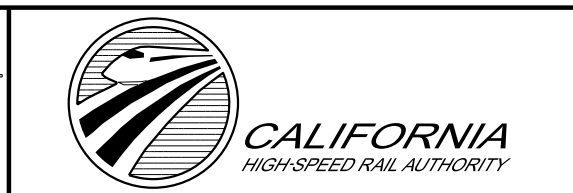


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DESIGNED BY  
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SUBMITTAL**

**NOT FOR  
CONSTRUCTION**



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

ALTERNATIVE 1, 2, 3, 5  
TUNNEL TWIN TBM BORED TUNNELS  
CLEARANCE DIAGRAM  
SUPER ELEVATED TRACK

CONTRACT NO.  
HSR13-44  
DRAWING NO.  
TN-B3309  
SCALE  
AS SHOWN  
SHEET NO.  
1079