

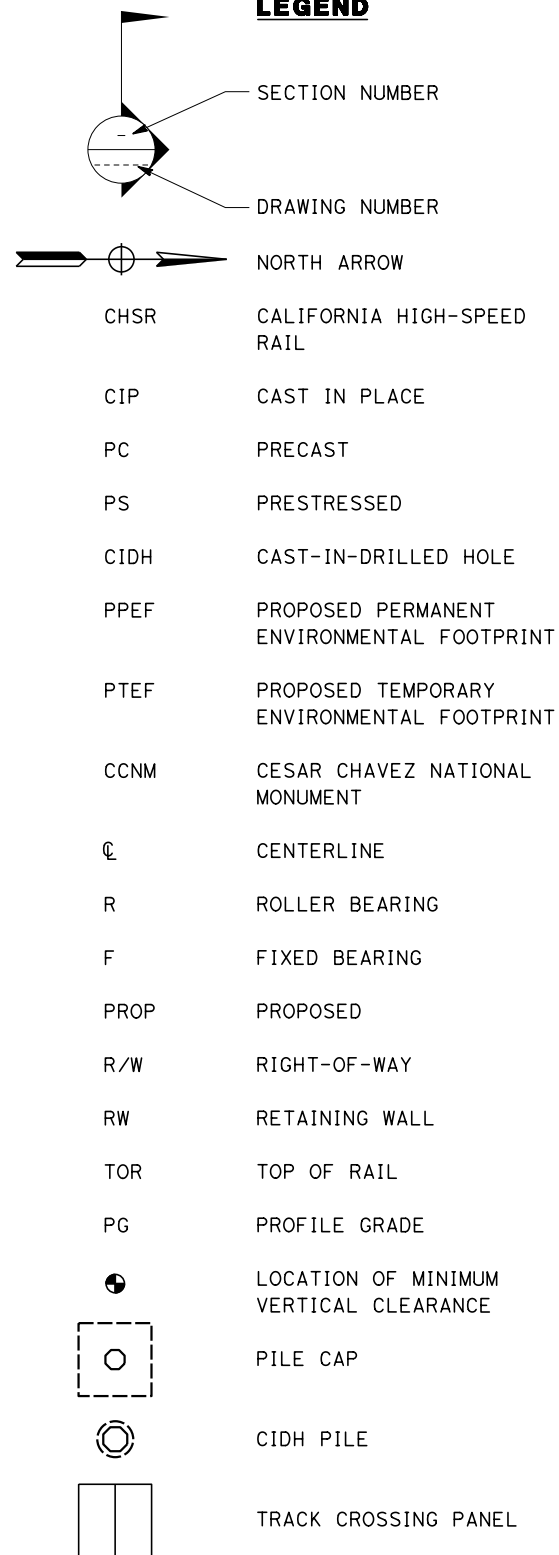
Projects\701206.00_CADD\CCNM Option D\Sheets\ST\BP-ST-B0101

9:47:20 PM

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LEGEND



- ① CONCRETE BARRIER INTRUSION PROTECTION
- ② PROPOSED RETAINING WALL
- RFND = REFINED
- OG ORIGINAL GROUND
- FG FINISHED GRADE
- ∨ TOP OR TOE OF SLOPE
- ▾ RETAINING WALL
- W-- WATERLINE

GENERAL NOTES

- A. UTILITY LOCATIONS TO BE DETERMINED.
- B. FOR DETAILS NOT NOTED ON PLAN AND ELEVATION SHEETS, SEE TYPICAL SECTION SHEETS FOR TRACK STRUCTURES.
- C. GRADE ELEVATIONS SHOWN ARE AT TOP OF RAIL.
- D. ALL COLUMNS ARE NORMAL TO THE STATION LINE UNLESS OTHERWISE SHOWN.
- E. REFER TO TRACK ALIGNMENT DRAWINGS FOR CURVE AND TANGENT INFORMATION.
- F. NOT ALL PILES ARE SHOWN.
- G. PILE SIZES AND LENGTHS TO BE DETERMINED.
- H. SUPERSTRUCTURE CONSISTS OF PRECAST CONCRETE GIRDERS UNLESS OTHERWISE NOTED.
- I. BEARINGS ARTICULATION FOR PC GIRDER SPANS ARE FIXED-ROLLER AT OPPOSING SPAN ENDS UNLESS OTHERWISE NOTED.
- J. REFER TO TRACK ALIGNMENT DRAWINGS FOR LIMITS OF RETAINING WALLS, UNLESS OTHERWISE SHOWN.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOBIAN

DRAWN BY
Y. WANG

CHECKED BY
R. BARTON

IN CHARGE
G. CAMPBELL

DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



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

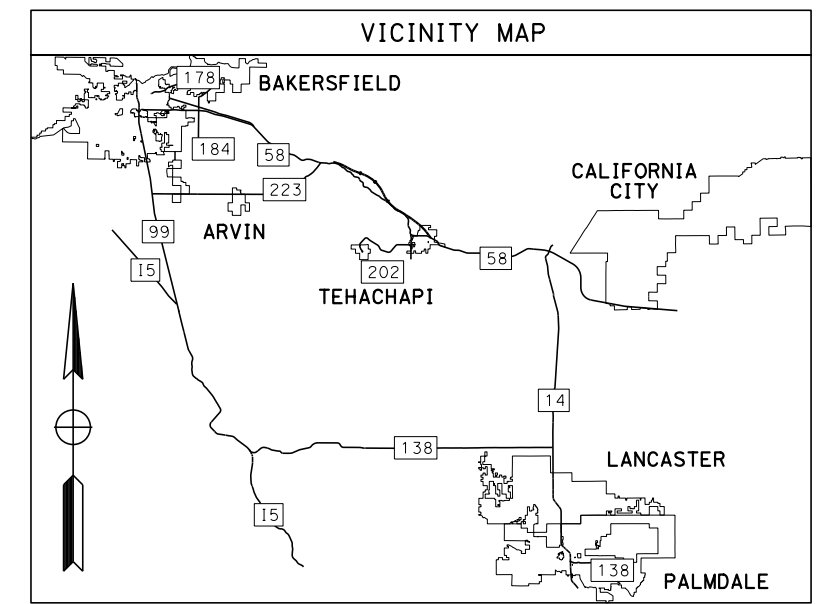
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
GENERAL NOTES AND LEGEND

CONTRACT NO.
HSR13-44

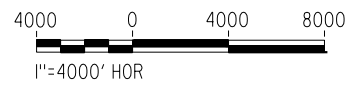
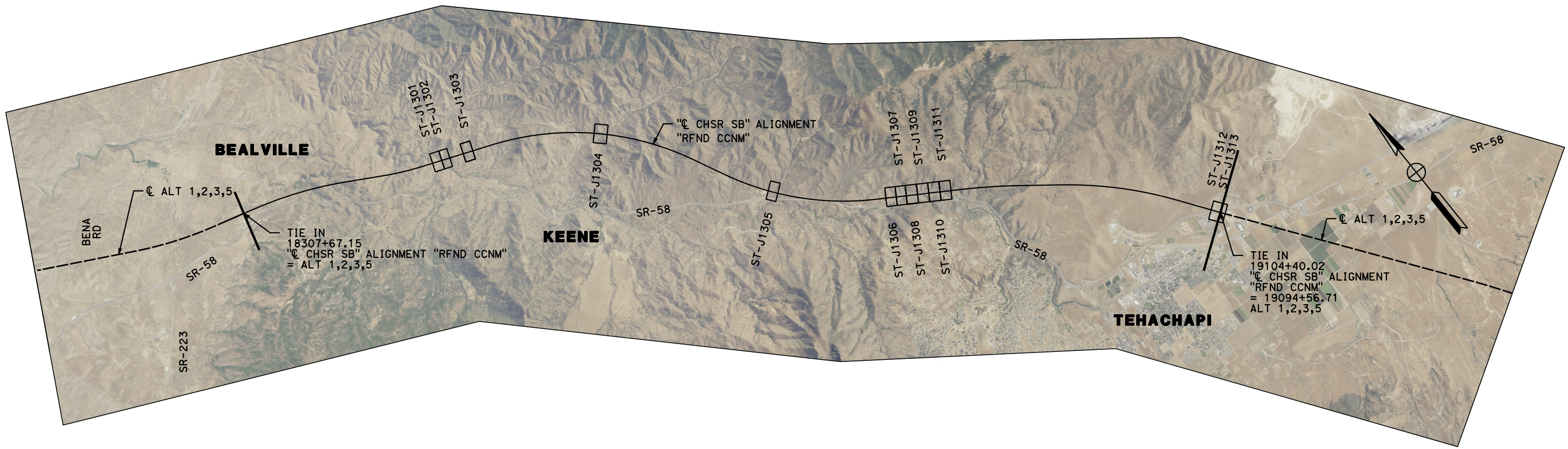
DRAWING NO.
ST-B0101

SCALE
NO SCALE

SHEET NO.



REFINED CCNM DESIGN OPTION



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOOBIAN

DRAWN BY
Y. WANG

CHECKED BY
R. BARTON

IN CHARGE
G. CAMPBELL

DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

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CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
 REFINED CCNM DESIGN OPTION
 TRACK STRUCTURES
 KEY MAP

CONTRACT NO.
HSR13-44

DRAWING NO.
ST-B0102

SCALE
AS SHOWN

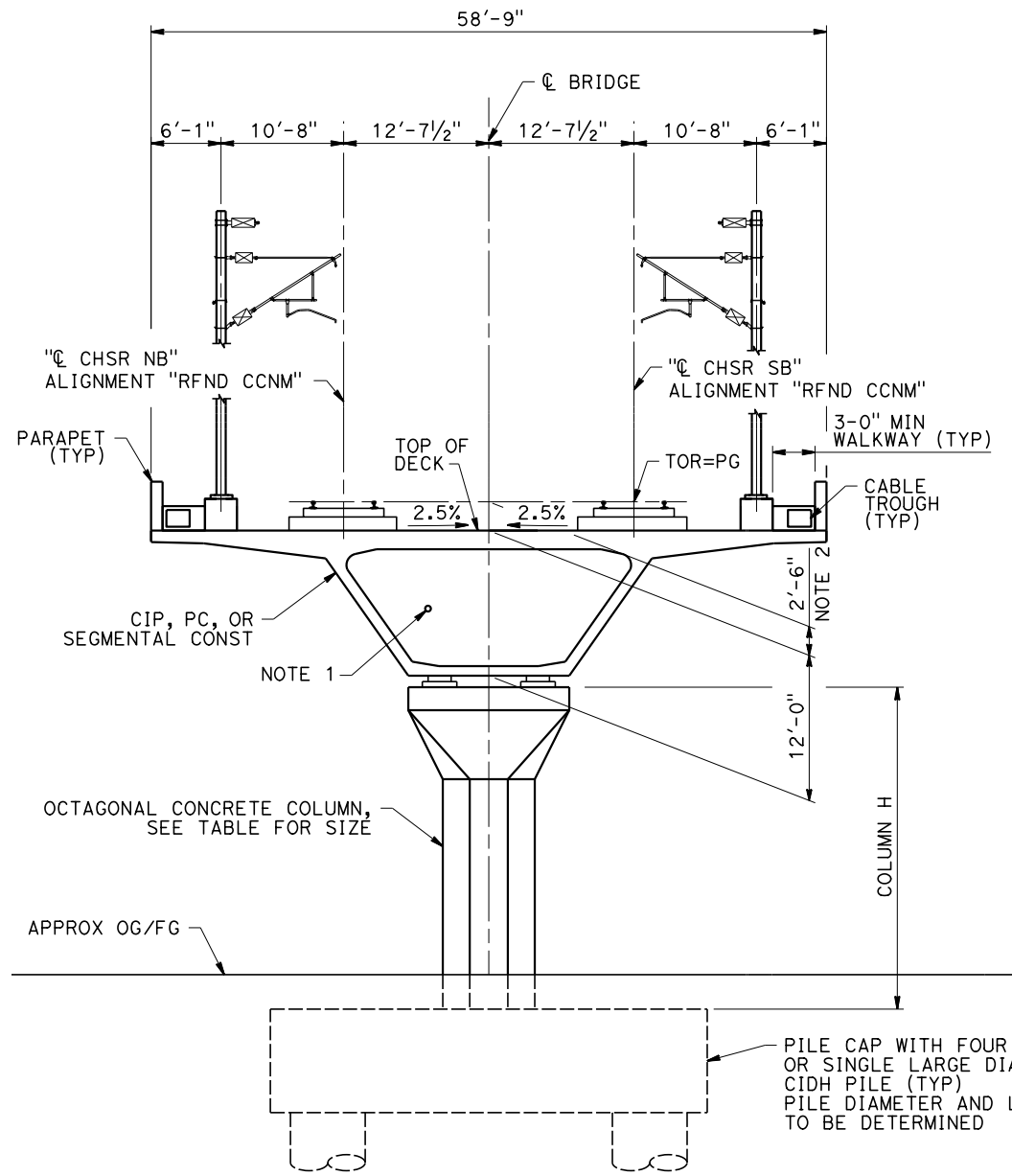
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Projects\701206.00_CADD\CCNM Option D\Sheets\ST\BP-ST-B3101

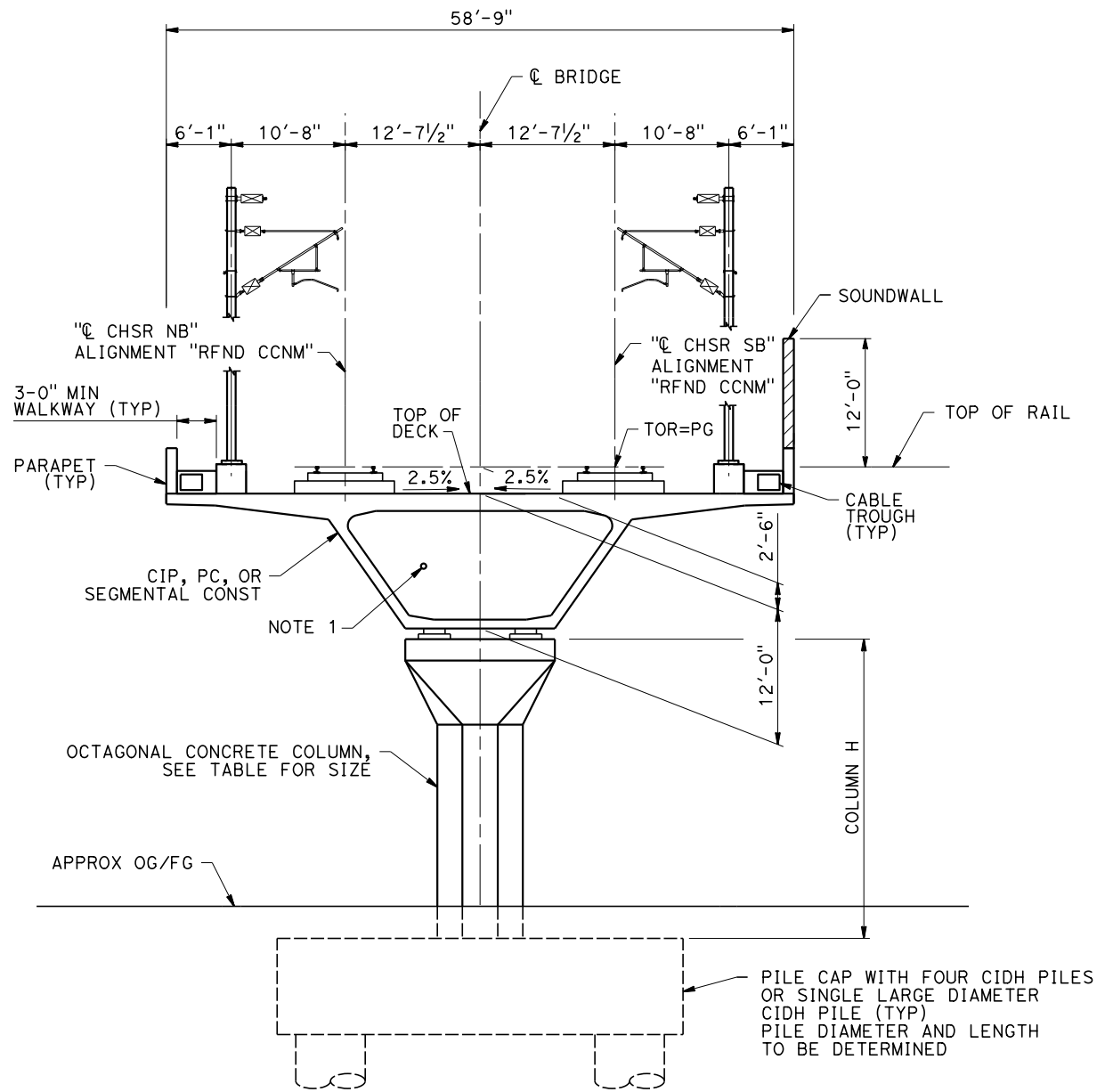
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COLUMN SIZE	
COLUMN H	SIZE
0-29'	8'
30-40'	10'
40-60'	12'
60-100'	16'
100-150'	18'



- NOTES:
- PROPOSED 4" CHSR WATERLINE.
 - STRUCTURES SHORTER THAN 1000 FEET SUPPORT BALLASTED TRACKS. THE DISTANCE BETWEEN TOP OF RAIL AND TOP OF DECK IN BALLASTED TRACK STRUCTURES WILL BE SLIGHTLY HIGHER AND BETWEEN 2'-6" AND 3'-0".

STA 18465+50	TO	STA 18467+45	(REFINED CCNM DESIGN OPTION)
STA 18474+05	TO	STA 18475+65	(REFINED CCNM DESIGN OPTION)
STA 18491+62	TO	STA 18493+45	(REFINED CCNM DESIGN OPTION)
STA 18744+33	TO	STA 18746+98	(REFINED CCNM DESIGN OPTION)
STA 18838+59	TO	STA 18842+19	(REFINED CCNM DESIGN OPTION)
STA 18845+79	TO	STA 18870+19	(REFINED CCNM DESIGN OPTION)
STA 18871+39	TO	STA 18877+29	(REFINED CCNM DESIGN OPTION)
STA 18883+29	TO	STA 18884+25	(REFINED CCNM DESIGN OPTION)

STA 18597+24 TO STA 18603+56 (REFINED CCNM DESIGN OPTION)

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY R. GOLCHOOBIAN
DRAWN BY Y. WANG
CHECKED BY R. BARTON
IN CHARGE G. CAMPBELL
DATE 01/24/2020

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PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



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

REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
TYPICAL SECTIONS
SHEET 1 OF 6

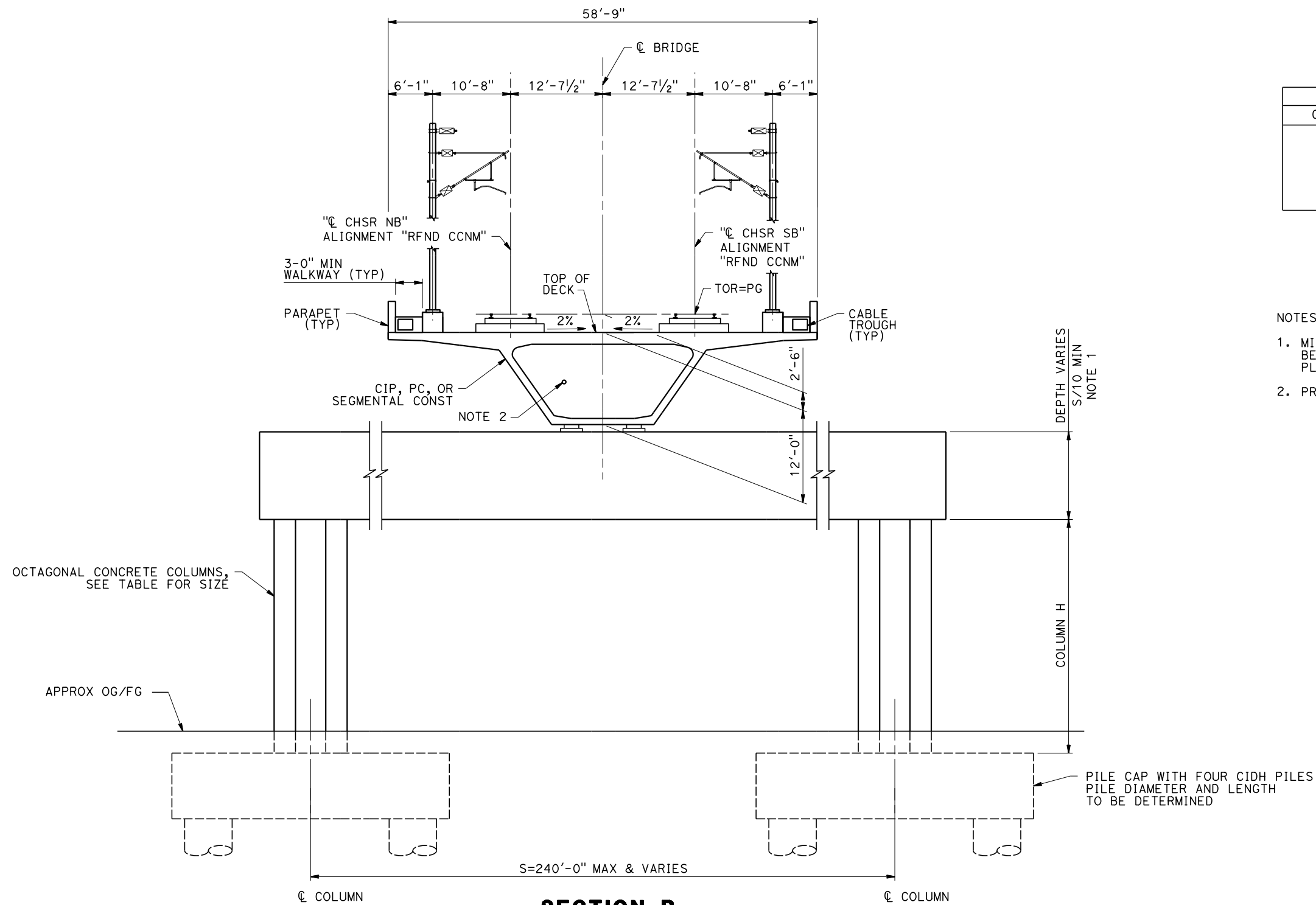
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DRAWING NO. ST-B3101
SCALE AS SHOWN
SHEET NO.

Projects\701206.00_CADD\CCNM Option D\Sheets\ST\BP-ST-B3102

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COLUMN SIZE	
COLUMN H	SIZE
0-29'	8'
30-40'	10'
40-60'	12'
60-100'	16'

- NOTES:
1. MINIMUM SEAT WIDTH OF STRADDLE BENT SHALL BE EQUAL TO COLUMN SIZE PLUS 2 FT.
 2. PROPOSED 4" CHSR WATERLINE.

SECTION B
SCALE: 1/2"=1'-0"

STA 18842+19 TO STA 18845+79 (REFINED CCNM DESIGN OPTION)
 STA 18870+19 (REFINED CCNM DESIGN OPTION)
 STA 18877+29 (REFINED CCNM DESIGN OPTION)

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOBIAN
 DRAWN BY
Y. WANG
 CHECKED BY
R. BARTON
 IN CHARGE
G. CAMPBELL
 DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
 REFINED CCNM DESIGN OPTION
 TRACK STRUCTURES
 TYPICAL SECTIONS
 SHEET 2 OF 6

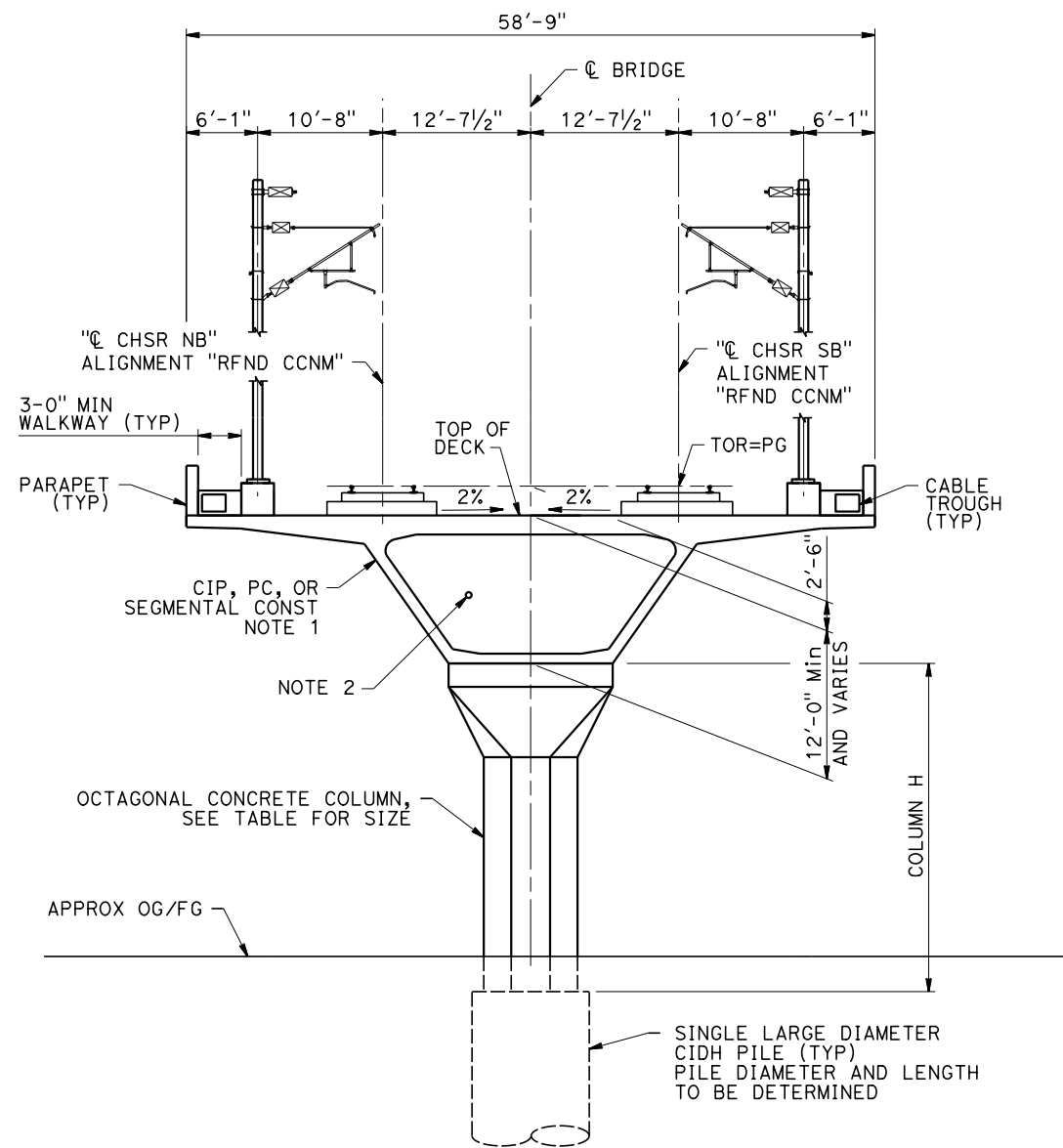
CONTRACT NO.
HSR13-44
 DRAWING NO.
ST-B3102
 SCALE
AS SHOWN
 SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST\BP-ST-B3103

9:49:02 PM

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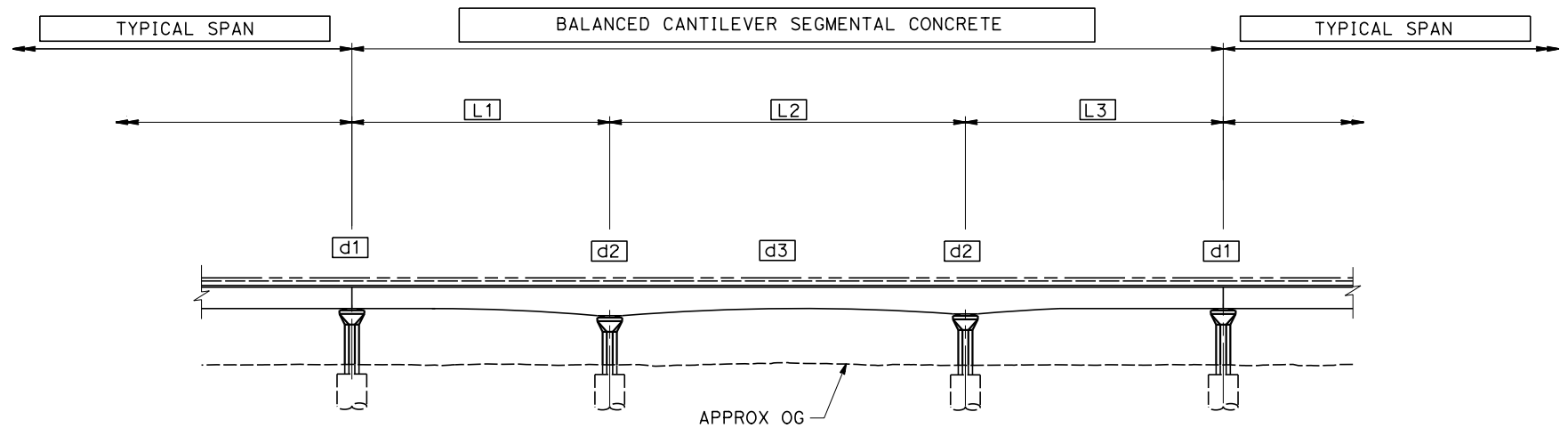
SECTION C
SCALE: 1/2"=1'-0"

STA 18878+29 TO STA 18883+29 (REFINED CCNM DESIGN OPTION)

COLUMN SIZE	
COLUMN H	SIZE
0-29'	8'
30-40'	10'
40-60'	12'
60-100'	16'
100-150'	18'

NOTES:

- GIRDER SIDE SLOPE VARIES DEPENDING ON STRUCTURE DEPTH AT SUPPORT.
- PROPOSED 4" CHSR WATERLINE.



BALANCED CANTILEVER SEGMENTAL
SCALE: 1/4"=1'-0"

- d1 = 12'-0"
- d2 = L2/12
- d3 = L2/20

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY R. GOLCHOBIAN
DRAWN BY Y. WANG
CHECKED BY R. BARTON
IN CHARGE G. CAMPBELL
DATE 01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



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

REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
TYPICAL SECTIONS
SHEET 3 OF 6

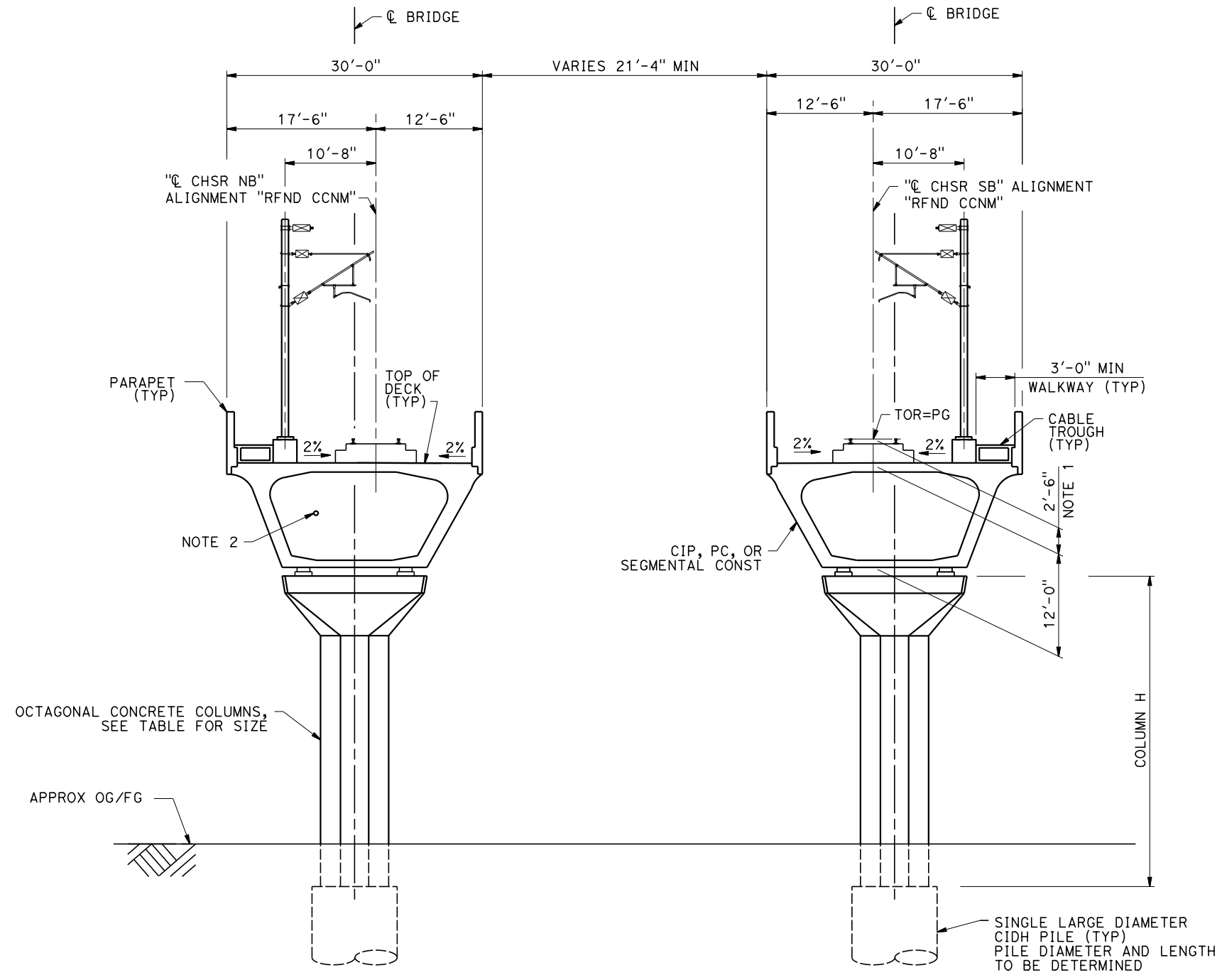
CONTRACT NO. HSR13-44
DRAWING NO. ST-B3103
SCALE AS SHOWN
SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST\BP-ST-B3104

9:49:18 PM

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COLUMN SIZE	
COLUMN H	SIZE
0-29'	8'
30-40'	10'
40-60'	12'

NOTES:

- STRUCTURES SHORTER THAN 1000 FEET SUPPORT BALLASTED TRACKS. THE DISTANCE BETWEEN TOP OF RAIL AND TOP OF DECK IN BALLASTED TRACK STRUCTURES WILL BE SLIGHTLY HIGHER AND BETWEEN 2'-6" AND 3'-0".
- PROPOSED 4" CHSR WATERLINE.

SECTION D
SCALE: 1 1/2"=1'-0"

STA 19102+97 SB (REFINED CCNM DESIGN OPTION) TO STA 19097+39.69 SB (ALT 1,2,3,5)
 STA 19104+73 NB (REFINED CCNM DESIGN OPTION) TO STA 19097+68.69 NB (ALT 1,2,3,5)

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOBIAN
 DRAWN BY
Y. WANG
 CHECKED BY
R. BARTON
 IN CHARGE
G. CAMPBELL
 DATE
01/24/2020

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CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
 REFINED CCNM DESIGN OPTION
 TRACK STRUCTURES
 TYPICAL SECTIONS
 SHEET 4 OF 6

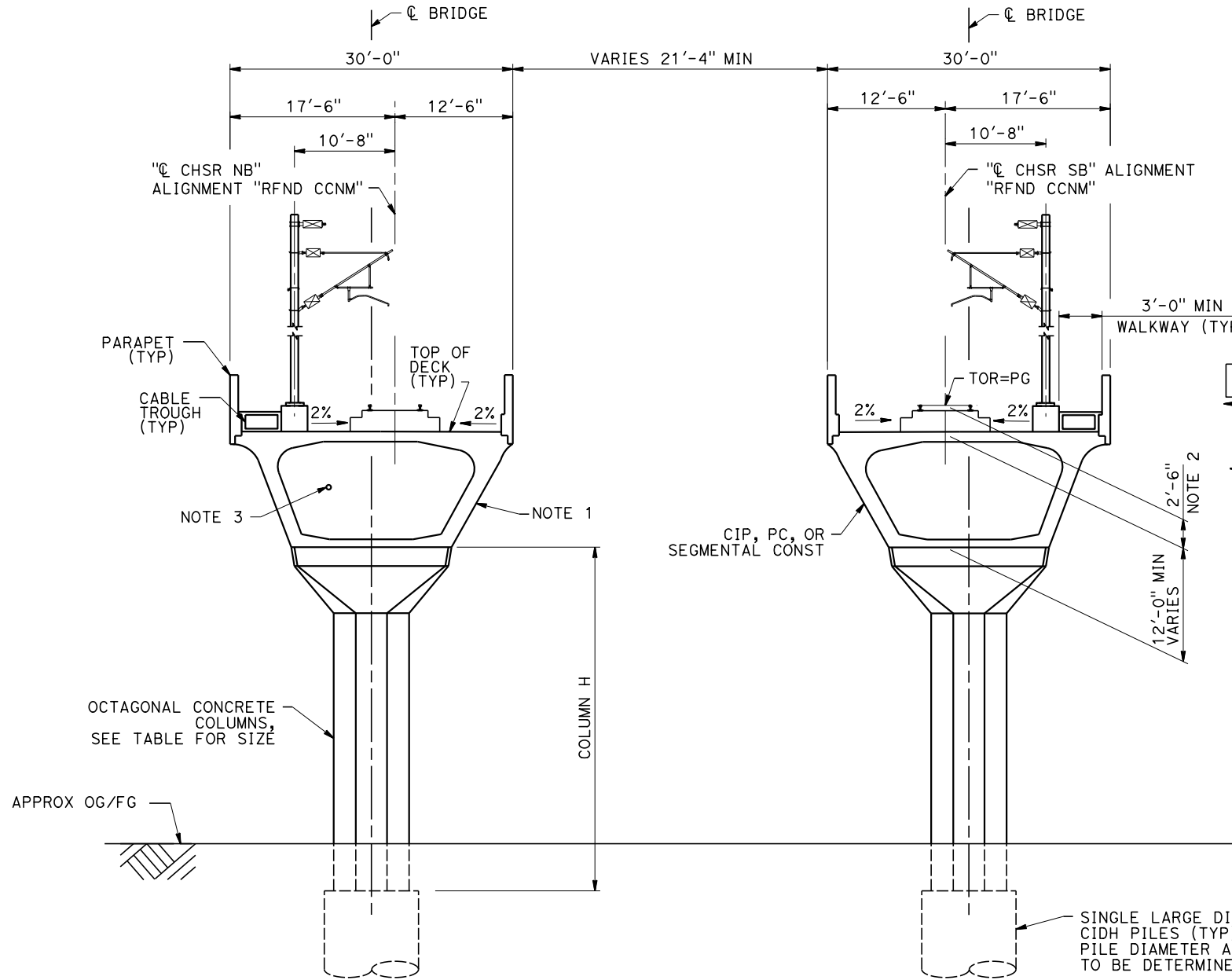
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DRAWING NO. ST-B3104
SCALE AS SHOWN
SHEET NO.

Projects\701206.00_CADD\CCNM Option D\Sheets\ST\BP-ST-B3105

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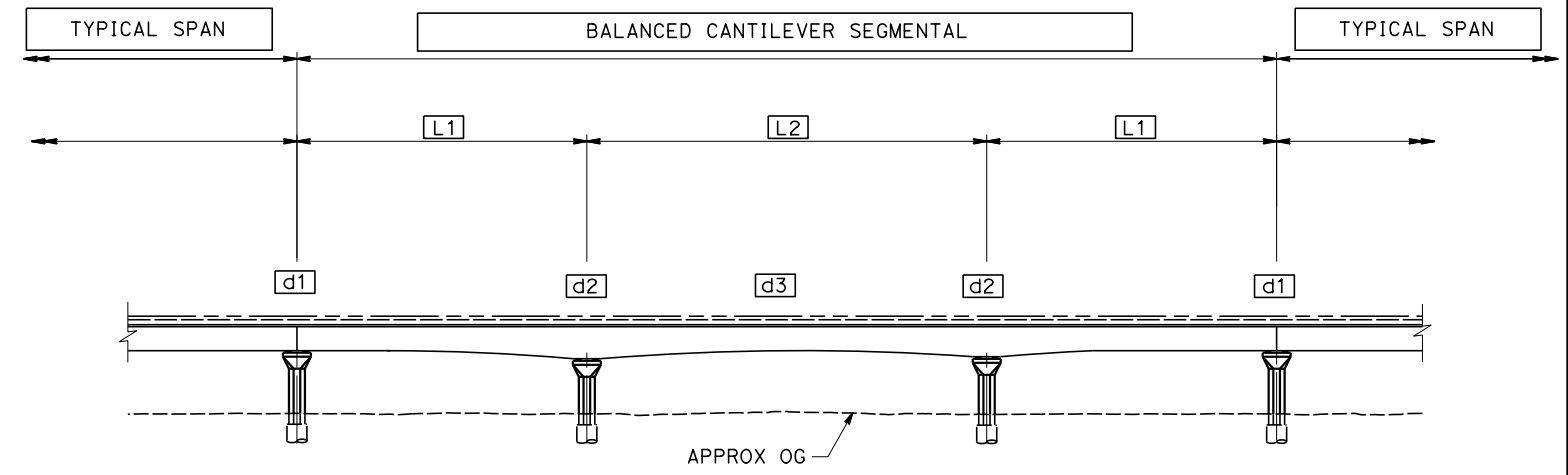


SECTION E
SCALE: 1/4"=1'-0"

STA 19097+53 TO STA 19102+97 SB (REFINED CCNM DESIGN OPTION)
STA 19099+22 TO STA 19104+69.61 NB (REFINED CCNM DESIGN OPTION)

COLUMN SIZE	
COLUMN H	SIZE
0-29'	8'
30-40'	10'
40-60'	12'

- NOTES:
- GIRDER SIDE SLOPE VARIES DEPENDING ON STRUCTURE DEPTH AT SUPPORT.
 - STRUCTURES SHORTER THAN 1000 FEET SUPPORT BALLASTED TRACKS. THE DISTANCE BETWEEN TOP OF RAIL AND TOP OF DECK IN BALLASTED TRACK STRUCTURES WILL BE SLIGHTLY HIGHER AND BETWEEN 2'-6" AND 3'-0".
 - PROPOSED 4" CHSR WATERLINE.



BALANCED CANTILEVER SEGMENTAL
SCALE: 1/4"=1'-0"

- d1 = 12'-0"
- d2 = L2/12
- d3 = L2/20

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOBIAN
DRAWN BY
Y. WANG
CHECKED BY
R. BARTON
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
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CONSTRUCTION**



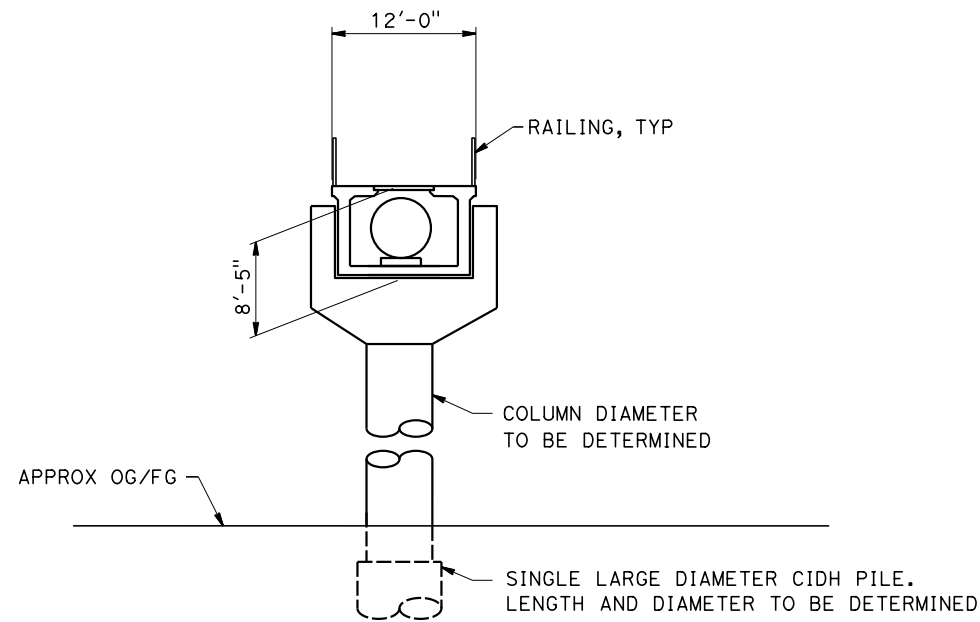
**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
TYPICAL SECTIONS
SHEET 5 OF 6

CONTRACT NO.
HSR13-44
DRAWING NO.
ST-B3105
SCALE
AS SHOWN
SHEET NO.

Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\ST\BP-ST-B3106

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SECTION J

SCALE: 1/2"=1'-0"

ELEVATED UTILITY CROSSINGS

NOTE:

FOR LOCATIONS OF CROSSINGS
SEE CV-G SHEETS.

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY R. GOLCHOBIAN
DRAWN BY Y. WANG
CHECKED BY R. BARTON
IN CHARGE G. CAMPBELL
DATE 01/24/2020

**RECORD
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SUBMITTAL**

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

REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
TYPICAL SECTIONS
SHEET 6 OF 6

CONTRACT NO. HSR13-44
DRAWING NO. ST-B3106
SCALE AS SHOWN
SHEET NO.

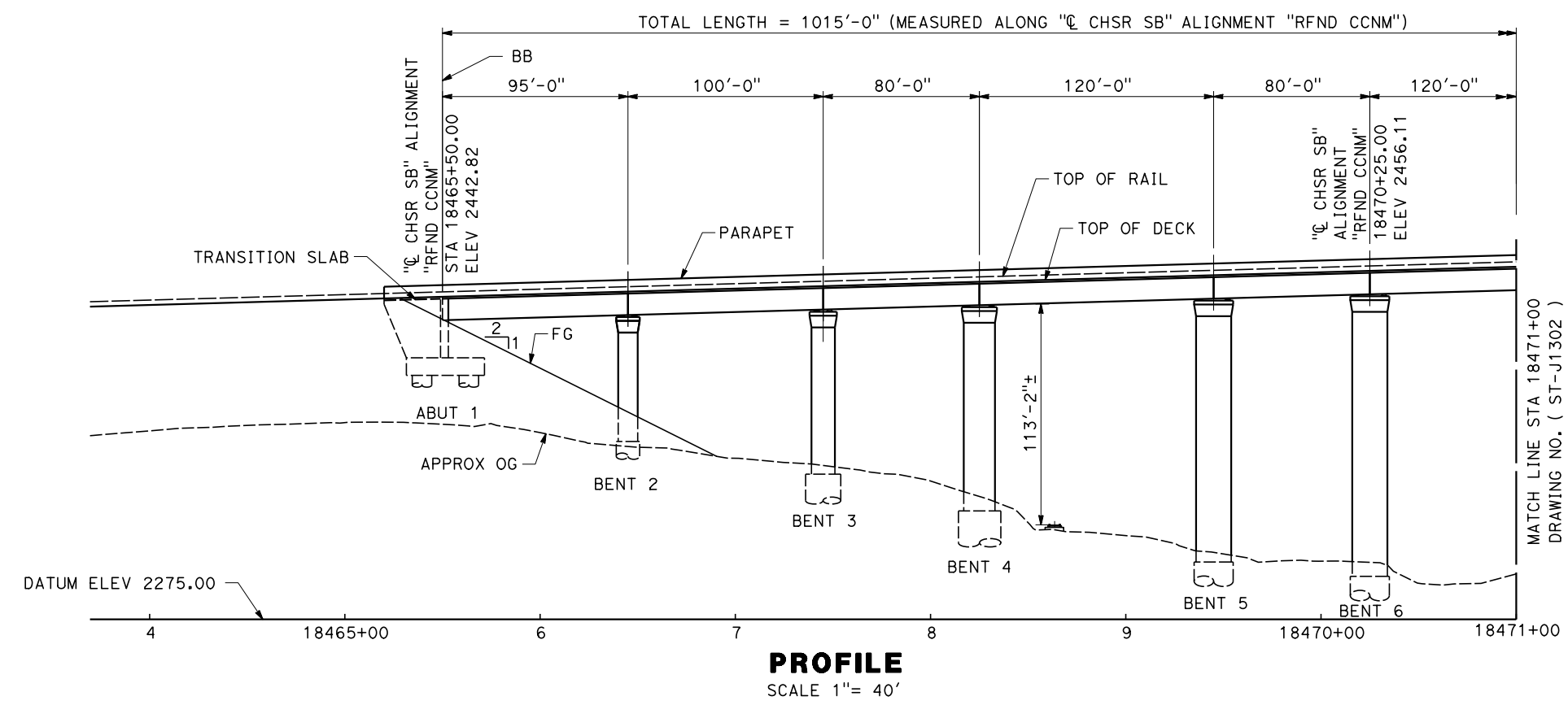
18177+60.72 EVC
ELEV 1637.18

+2.798%

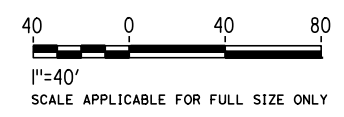
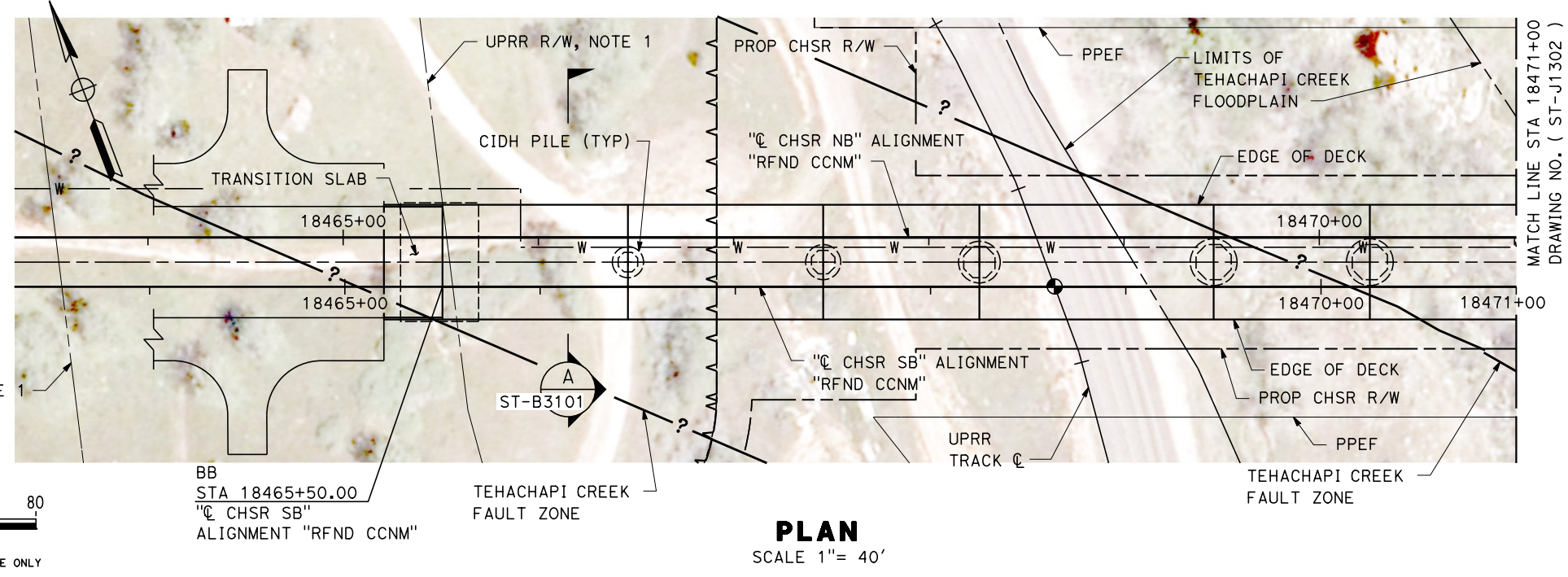
TOP OF RAIL "☉ CHSR SB" ALIGNMENT "RFND CCNM"

NO SCALE

18532+10.03 BVC
ELEV 2629.19



NOTE:
1. RECORD RIGHT-OF-WAY IS NOT CORRECT IN RELATION TO THE LOCATION OF RAILROAD TRACKS.



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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOOBIAN

DRAWN BY
Y. WANG

CHECKED BY
R. BARTON

IN CHARGE
G. CAMPBELL

DATE
01/24/2020

**RECORD
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CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
VIADUCT STATION 18465+50 TO 18475+65
PLAN AND ELEVATION

CONTRACT NO.
HSR13-44

DRAWING NO.
ST-J1301

SCALE
AS SHOWN

SHEET NO.

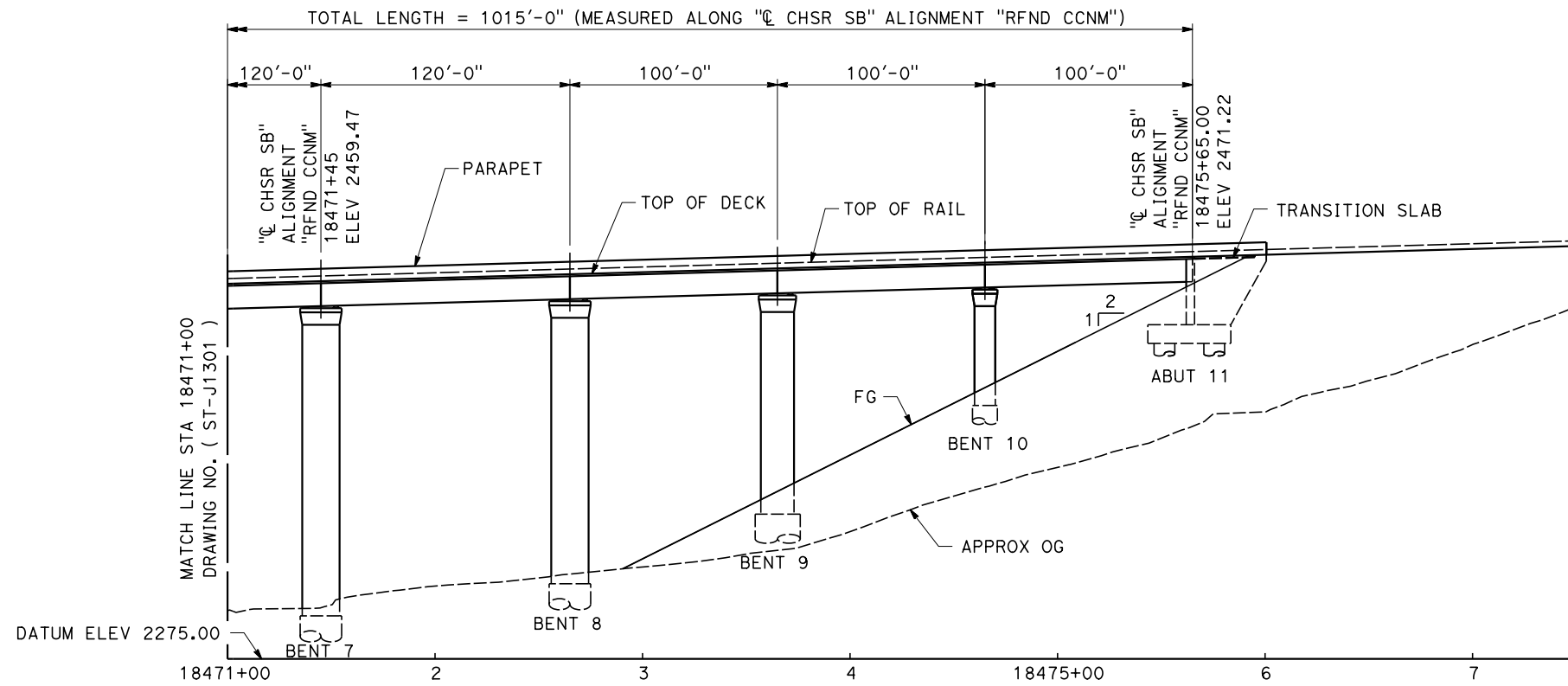
18177+60.72 EVC
ELEV 1637.18

+2.798%

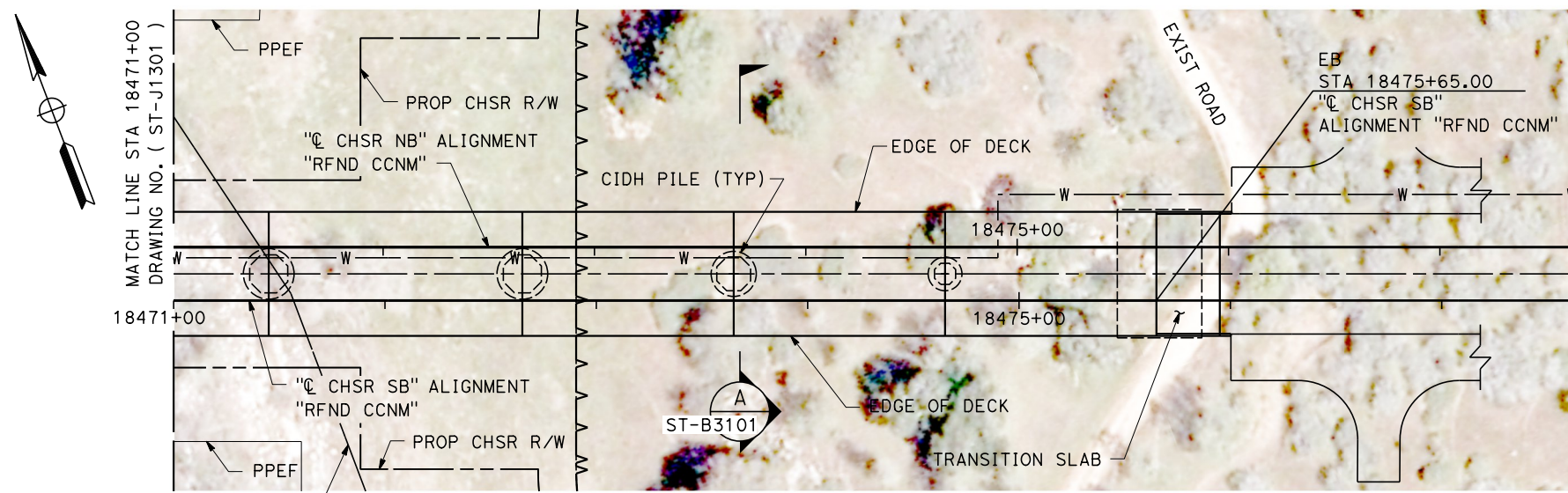
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NO SCALE

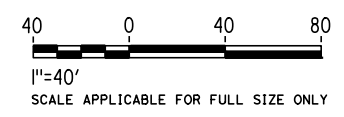
18532+10.03 BVC
ELEV 2629.19



PROFILE
SCALE 1"= 40'



PLAN
SCALE 1"= 40'



Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST_BP-ST-J1302

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
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G. CAMPBELL

DATE
01/24/2020

**RECORD
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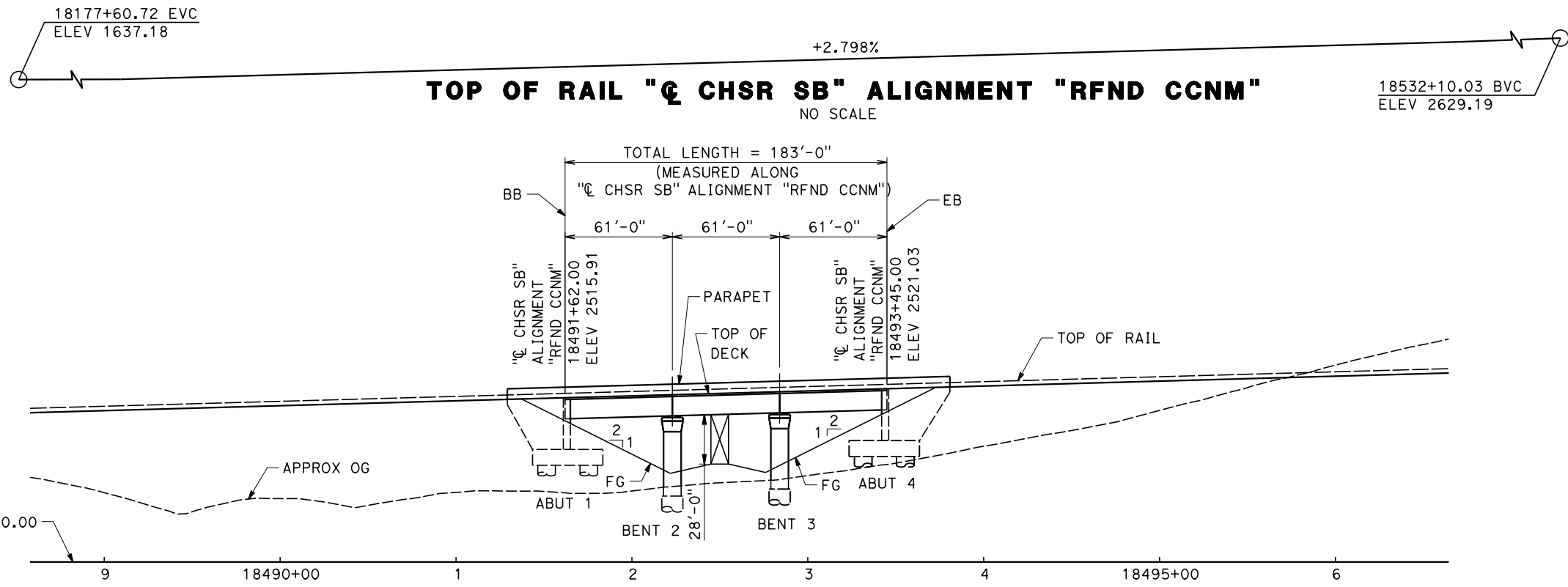
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
VIADUCT STATION 18465+50 TO 18475+65
PLAN AND ELEVATION

CONTRACT NO.
HSR13-44

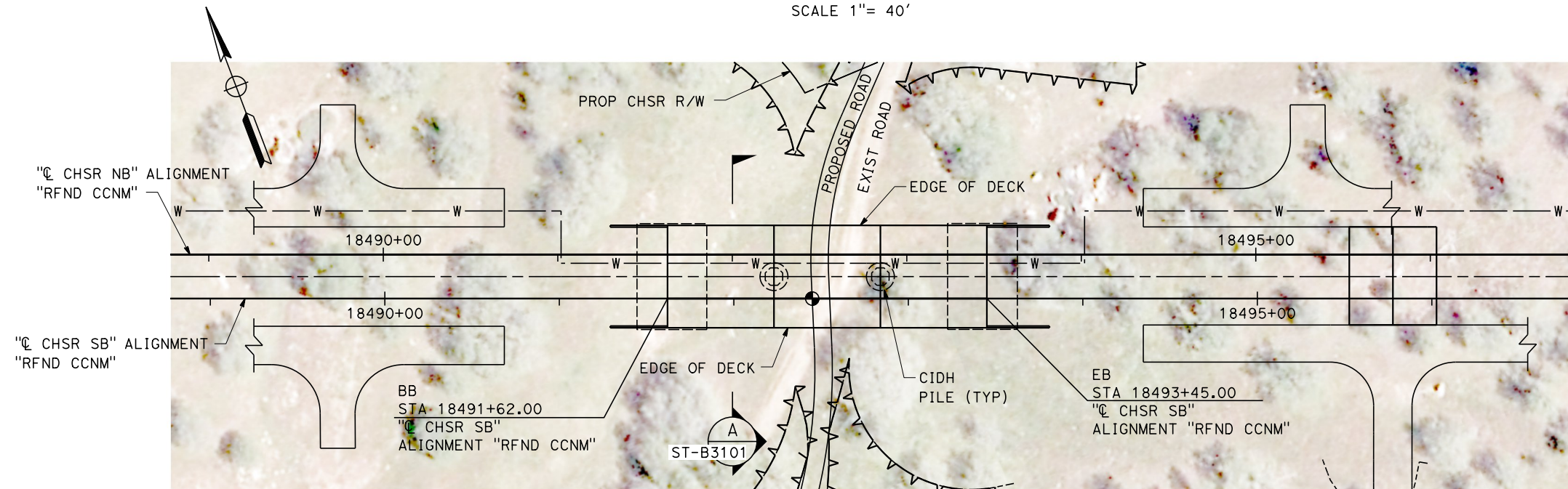
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ST-J1302

SCALE
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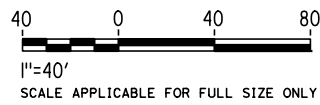
SHEET NO.



ELEVATION
SCALE 1" = 40'



PLAN
SCALE 1" = 40'



Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST\BP-ST-J1303

9:47:57 PM

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOBIAN
DRAWN BY
Y. WANG
CHECKED BY
R. BARTON
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

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**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
VIADUCT STATION 18491+62 TO 18493+45
PLAN AND ELEVATION

CONTRACT NO.
HSR13-44
DRAWING NO.
ST-J1303
SCALE
AS SHOWN
SHEET NO.

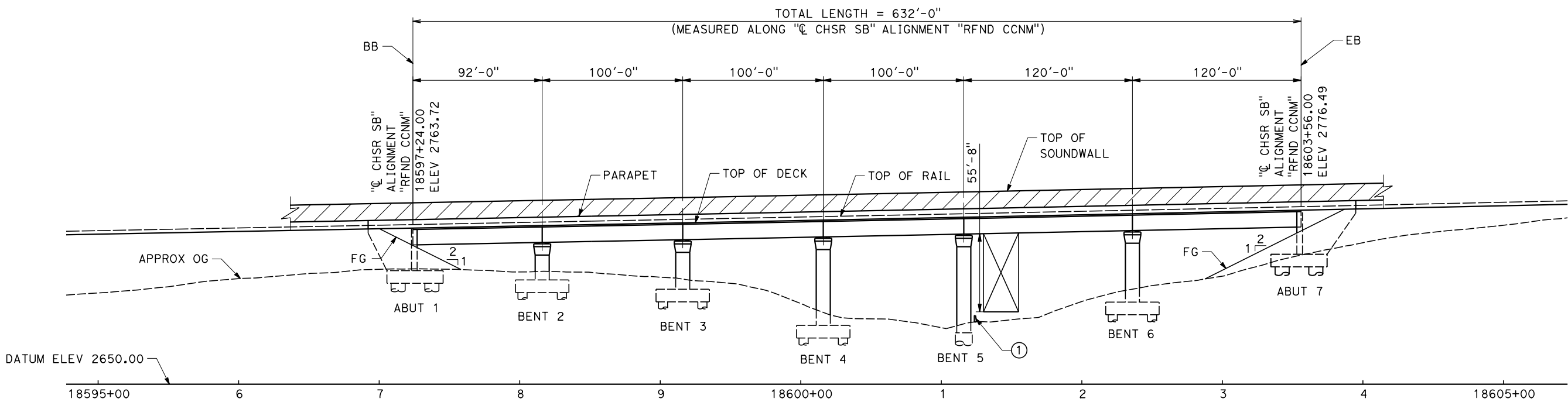
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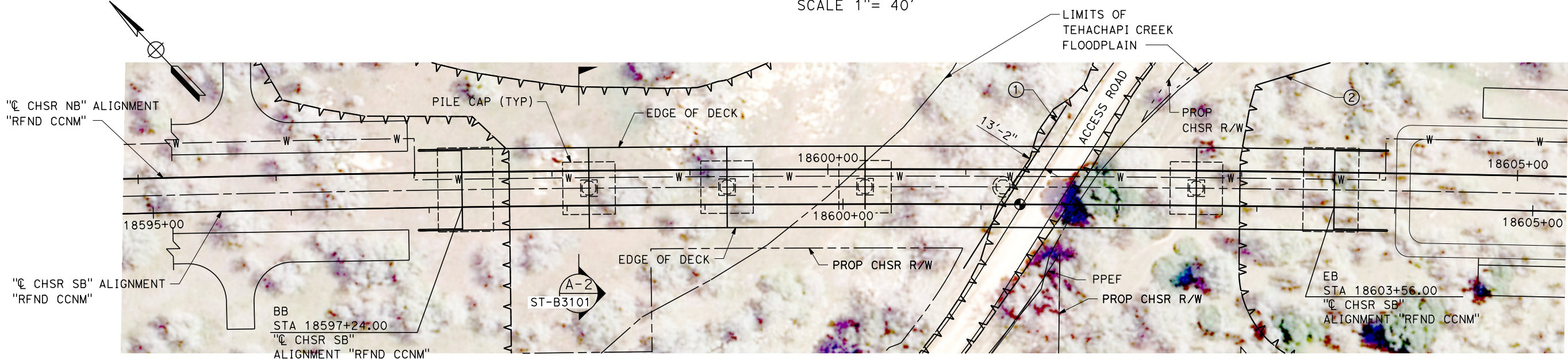
yihong.wang@tylin.com



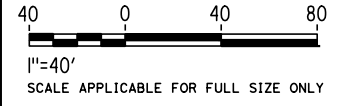
TOP OF RAIL "☉ CHSR SB" ALIGNMENT "RFND CCNM"
NO SCALE



ELEVATION
SCALE 1" = 40'



PLAN
SCALE 1" = 40'



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOOBIAN
DRAWN BY
Y. WANG
CHECKED BY
R. BARTON
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

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CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
VIADUCT STATION 18597+24 TO 18603+56
PLAN AND ELEVATION

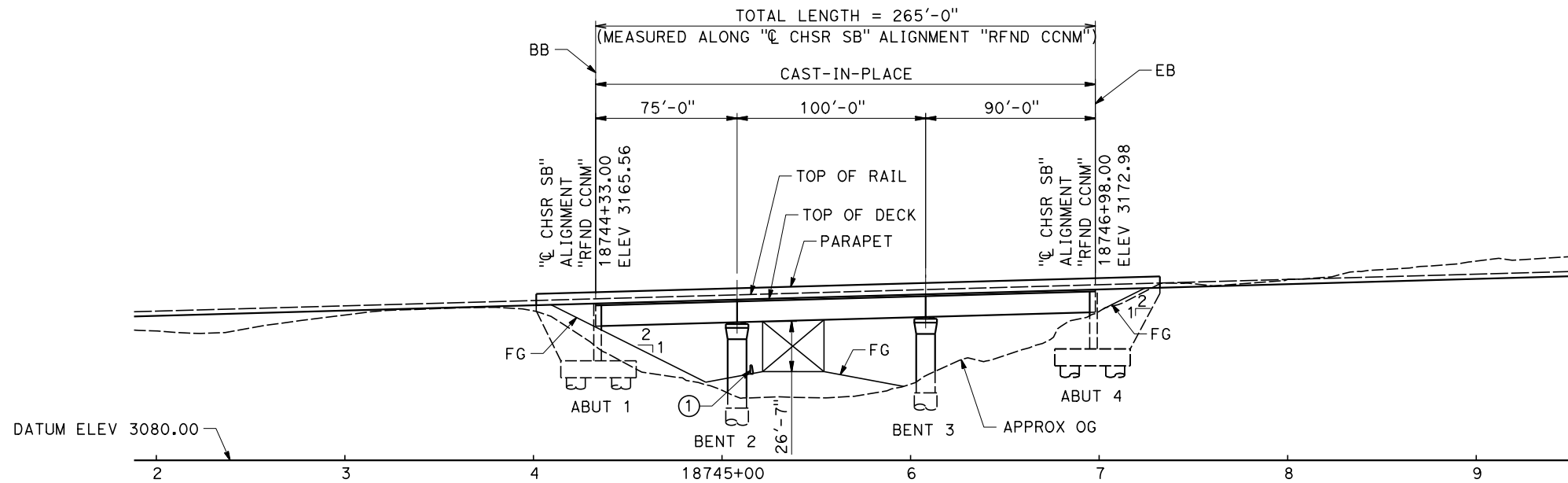
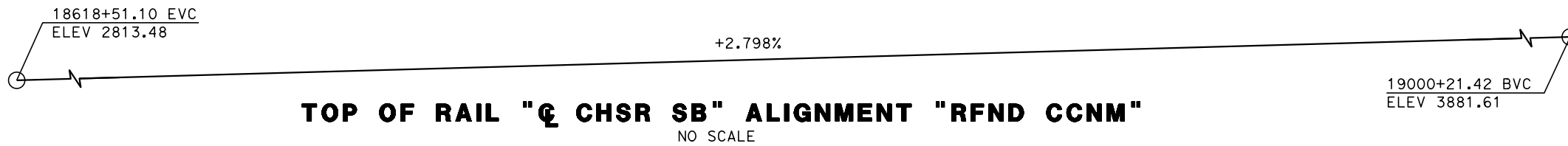
CONTRACT NO.
HSR13-44
DRAWING NO.
ST-J1304
SCALE
AS SHOWN
SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST\BP-ST-J1305

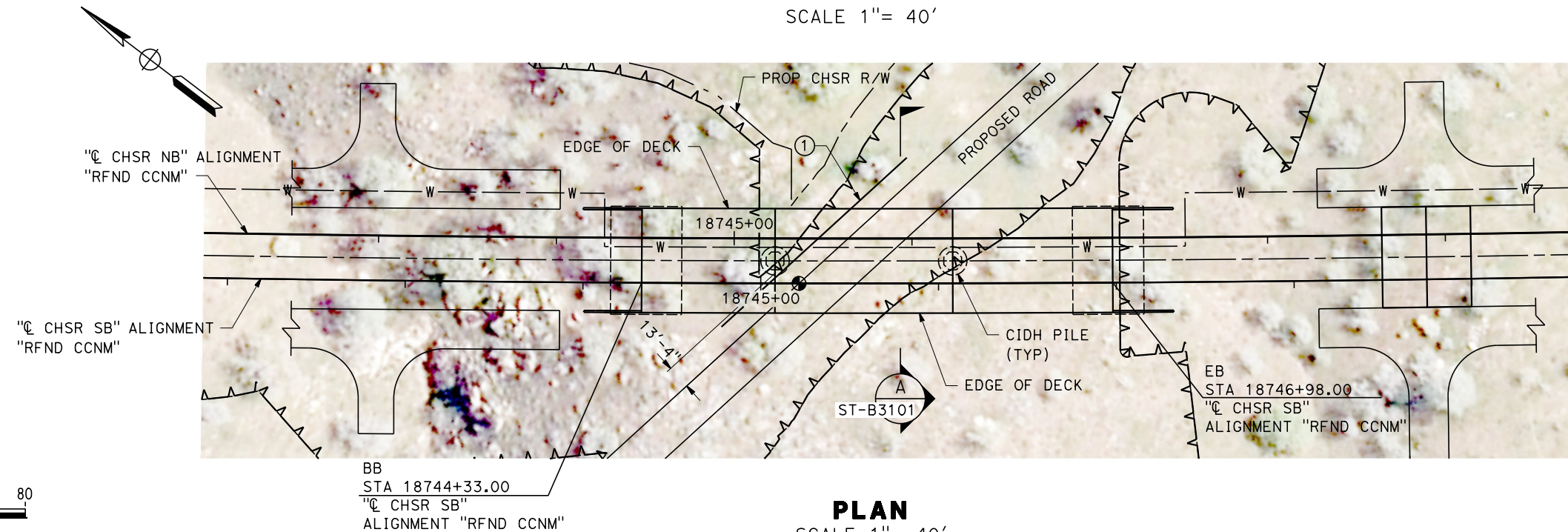
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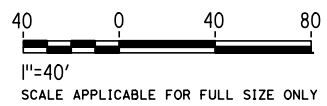
yihong.wang@tylin.com



ELEVATION
SCALE 1" = 40'



PLAN
SCALE 1" = 40'



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOBIAN
DRAWN BY
Y. WANG
CHECKED BY
R. BARTON
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

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CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
VIADUCT STATION 18744+33 TO 18746+98
PLAN AND ELEVATION

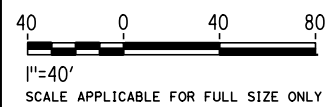
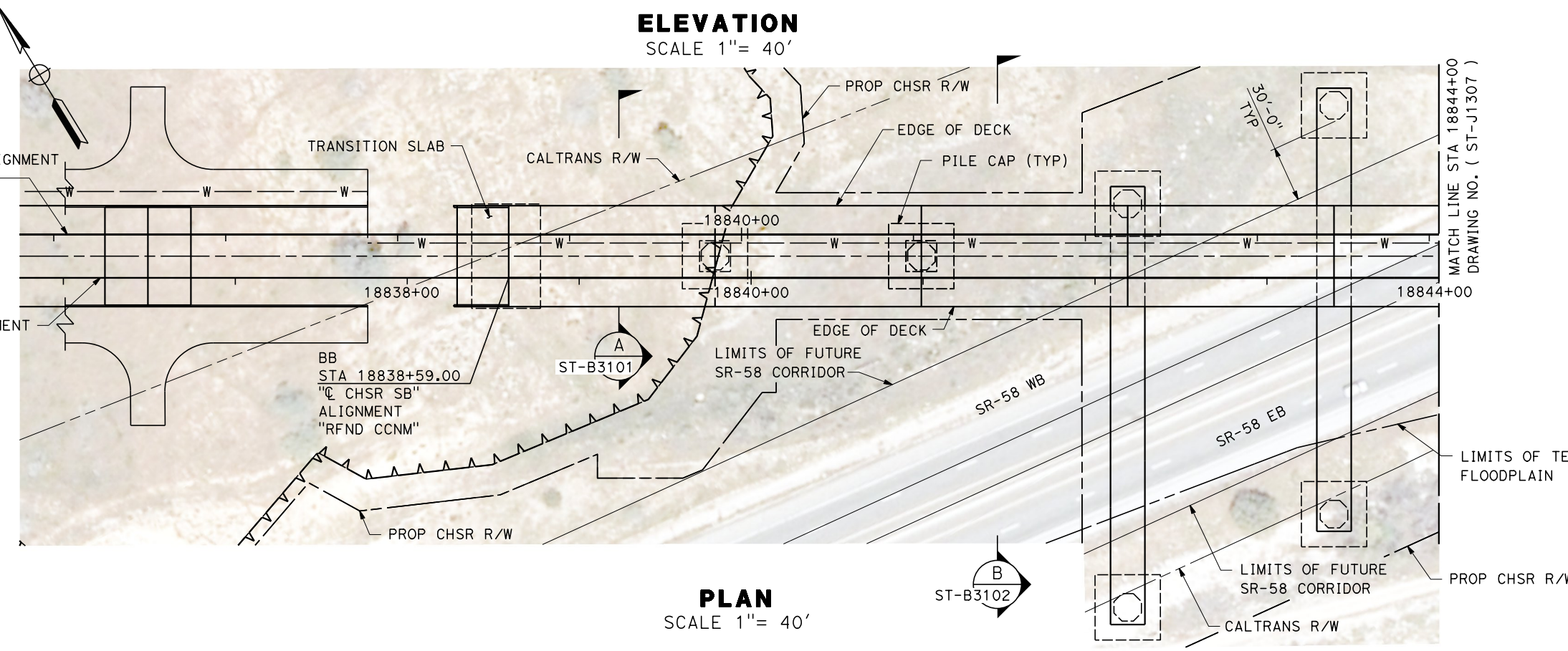
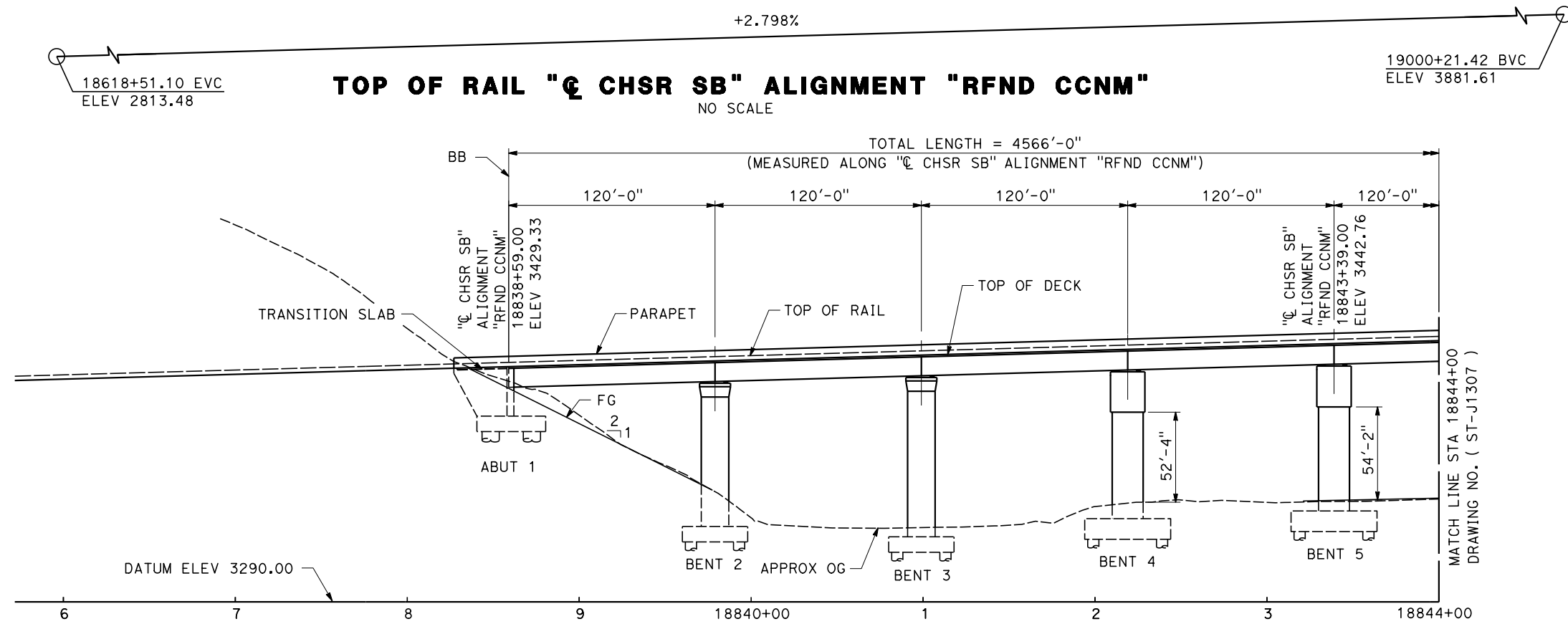
CONTRACT NO.
HSR13-44
DRAWING NO.
ST-J1305
SCALE
AS SHOWN
SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST\BP-ST-J1306

9:48:52 PM

1/20/2020

yihong.wang@tylin.com



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOOBIAN
DRAWN BY
Y. WANG
CHECKED BY
R. BARTON
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

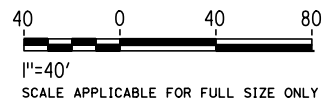
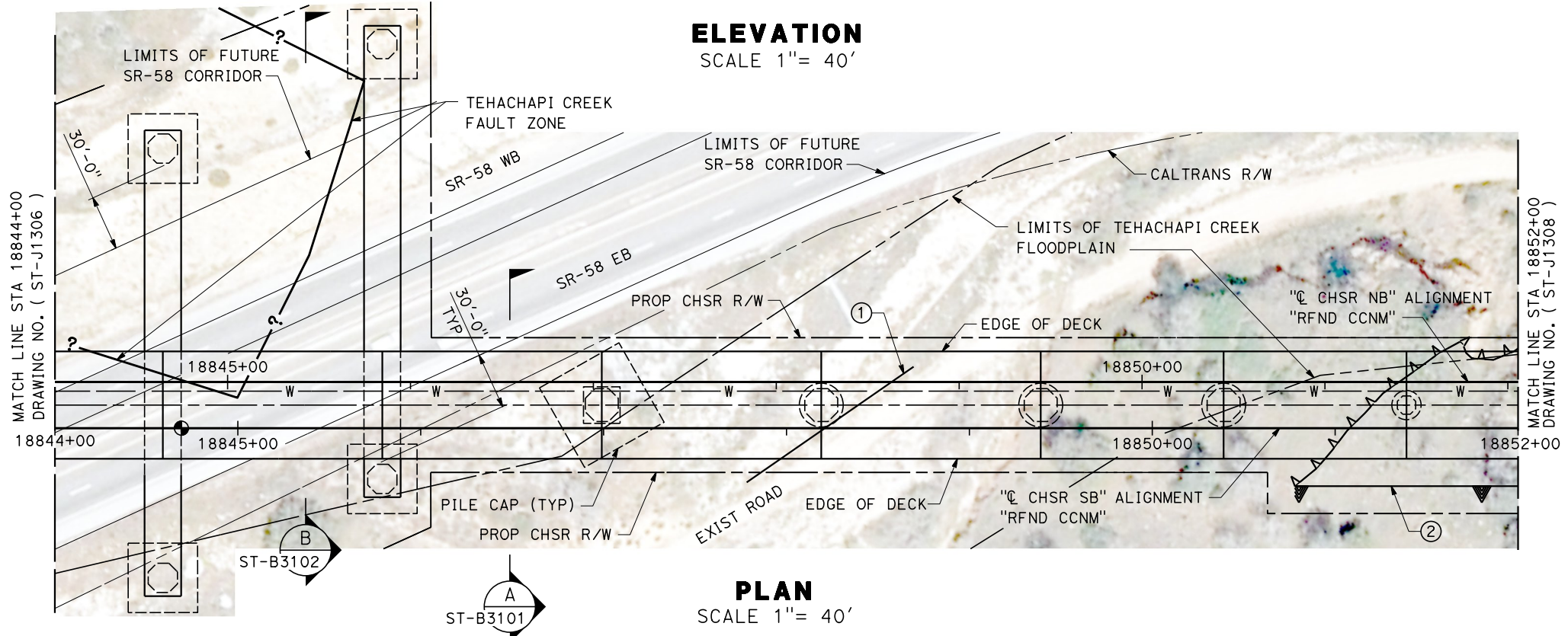
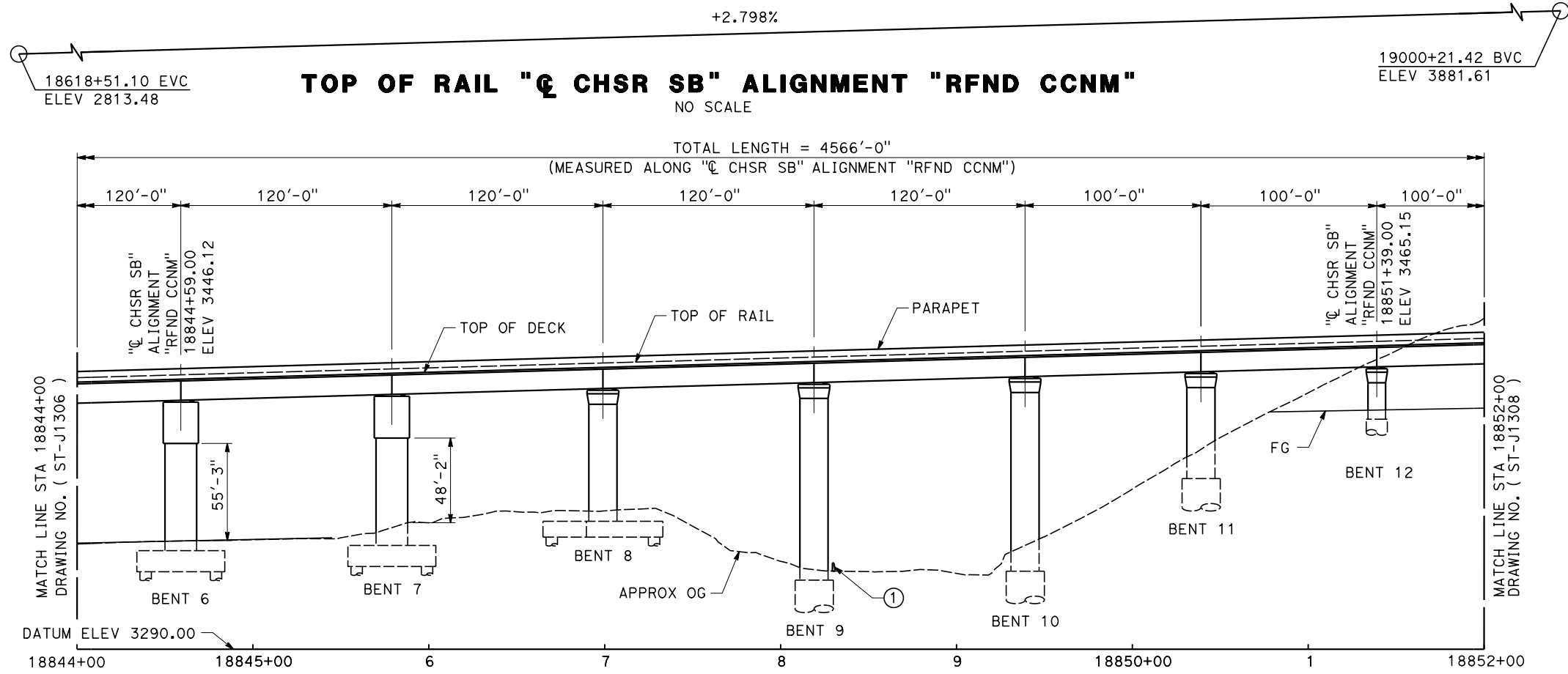
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PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
VIADUCT STATION 18838+59 TO 18884+25
PLAN AND ELEVATION

CONTRACT NO.
HSR13-44
DRAWING NO.
ST-J1306
SCALE
AS SHOWN
SHEET NO.



Projects\701206.00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST\BP-ST-J1307

1/20/2020 9:48:48 PM

yihong.wang@tylin.com

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOOBIAN

DRAWN BY
Y. WANG

CHECKED BY
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IN CHARGE
G. CAMPBELL

DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
VIADUCT STATION 18838+59 TO 18884+25
PLAN AND ELEVATION

CONTRACT NO.
HSR13-44

DRAWING NO.
ST-J1307

SCALE
AS SHOWN

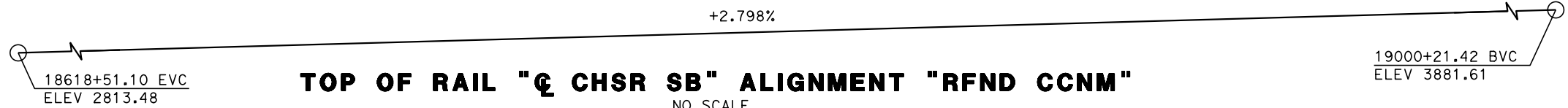
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Projects\701206.00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST\BP-ST-J1308

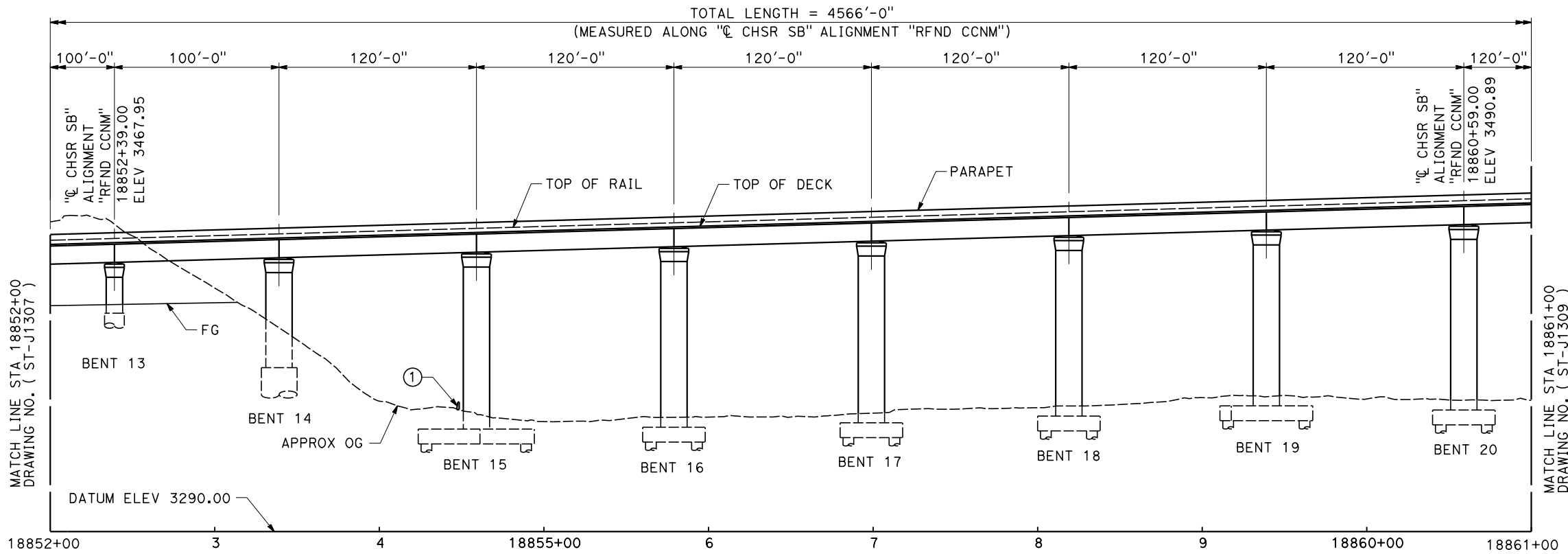
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1/20/2020

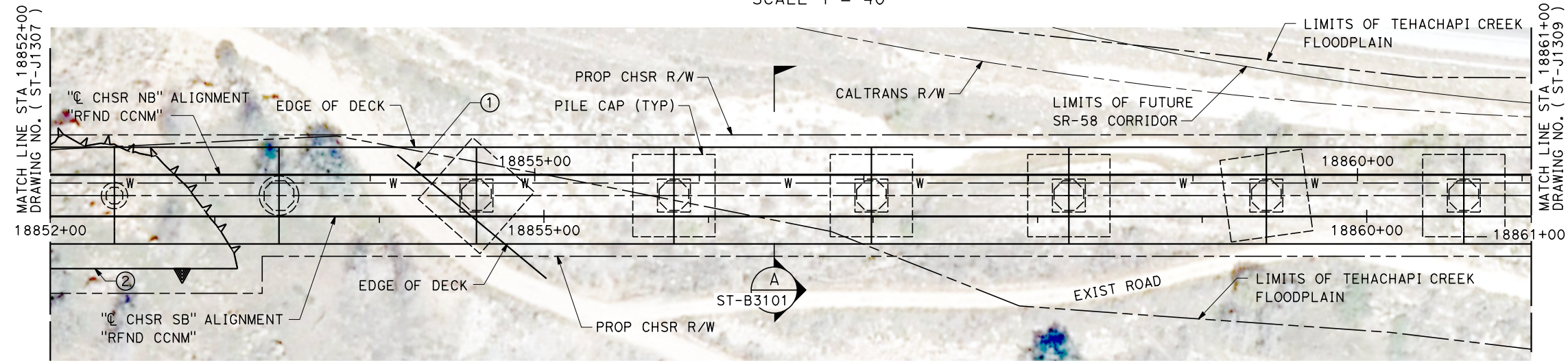
yihong.wang@tylin.com



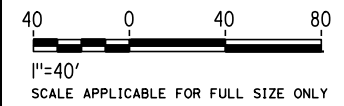
TOP OF RAIL "☉ CHSR SB" ALIGNMENT "RFND CCNM"
NO SCALE



ELEVATION
SCALE 1"= 40'



PLAN
SCALE 1"= 40'



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOOBIAN
DRAWN BY
Y. WANG
CHECKED BY
R. BARTON
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
VIADUCT STATION 18838+59 TO 18884+25
PLAN AND ELEVATION

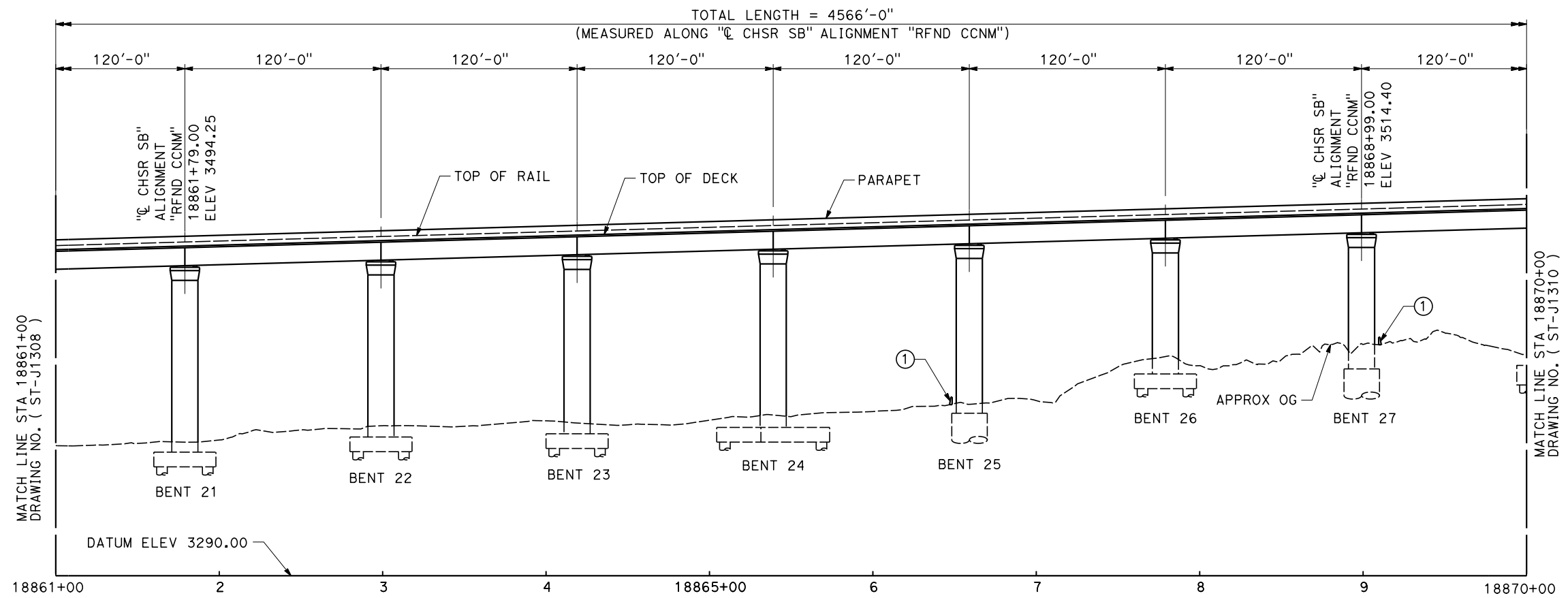
CONTRACT NO.
HSR13-44
DRAWING NO.
ST-J1308
SCALE
AS SHOWN
SHEET NO.

+2.798%

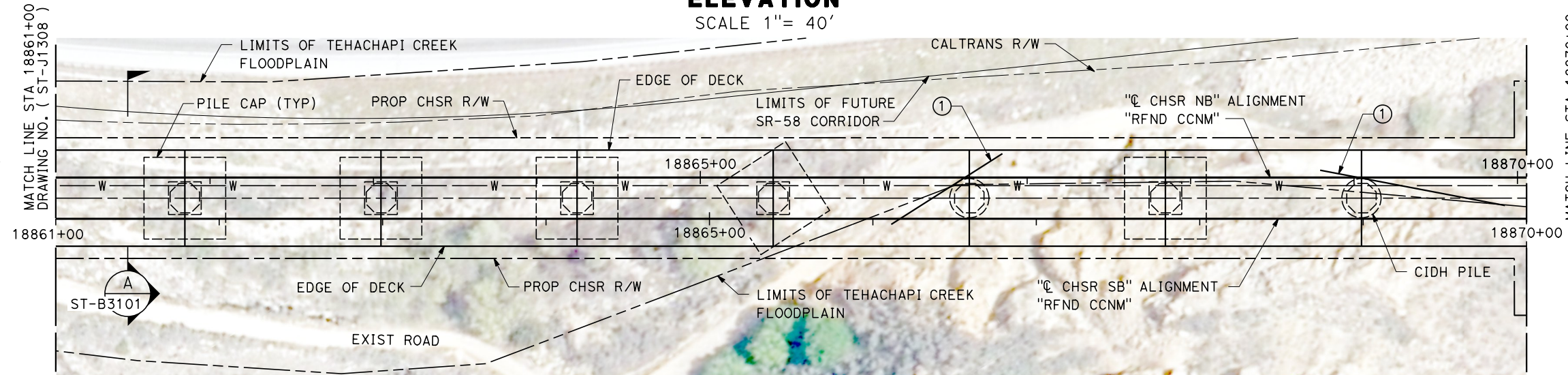
TOP OF RAIL "☉ CHSR SB" ALIGNMENT "RFND CCNM"
NO SCALE

18618+51.10 EVC
ELEV 2813.48

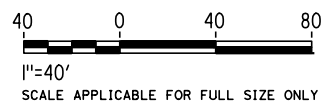
19000+21.42 BVC
ELEV 3881.61



ELEVATION
SCALE 1" = 40'



PLAN
SCALE 1" = 40'



Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST\BP-ST-J1309

1/20/2020 9:48:24 PM

yihong.wang@tylin.com

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOOBIAN

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CHECKED BY
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IN CHARGE
G. CAMPBELL

DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
VIADUCT STATION 18838+59 TO 18884+25
PLAN AND ELEVATION

CONTRACT NO.
HSR13-44

DRAWING NO.
ST-J1309

SCALE
AS SHOWN

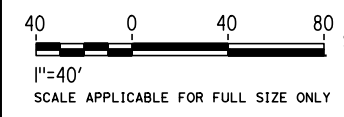
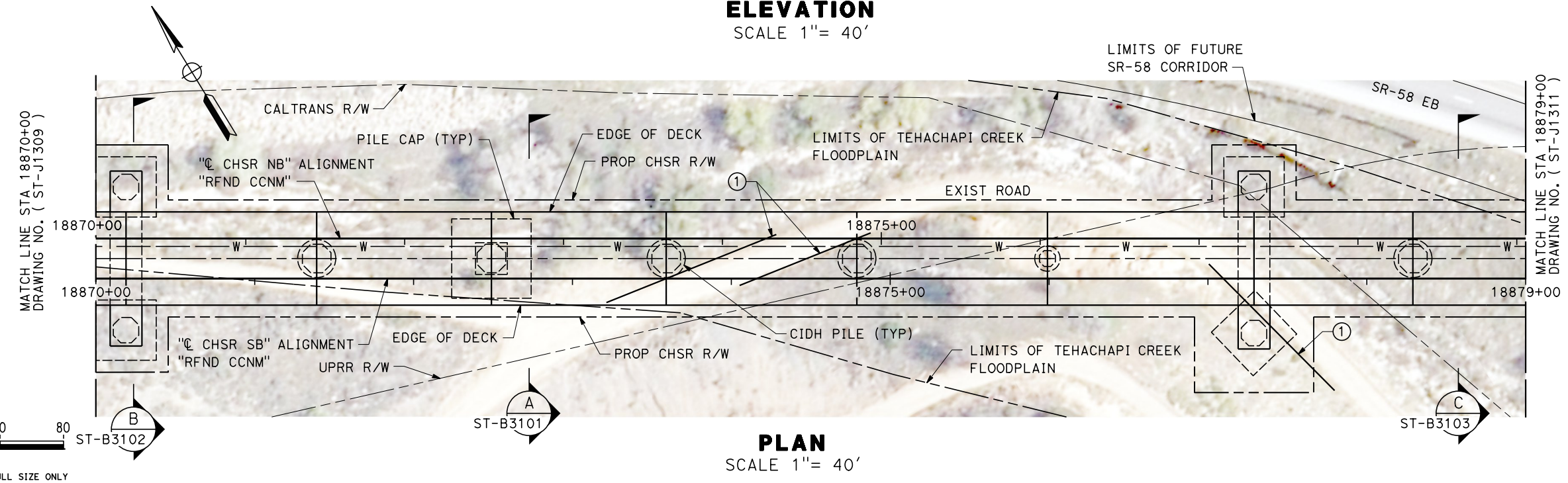
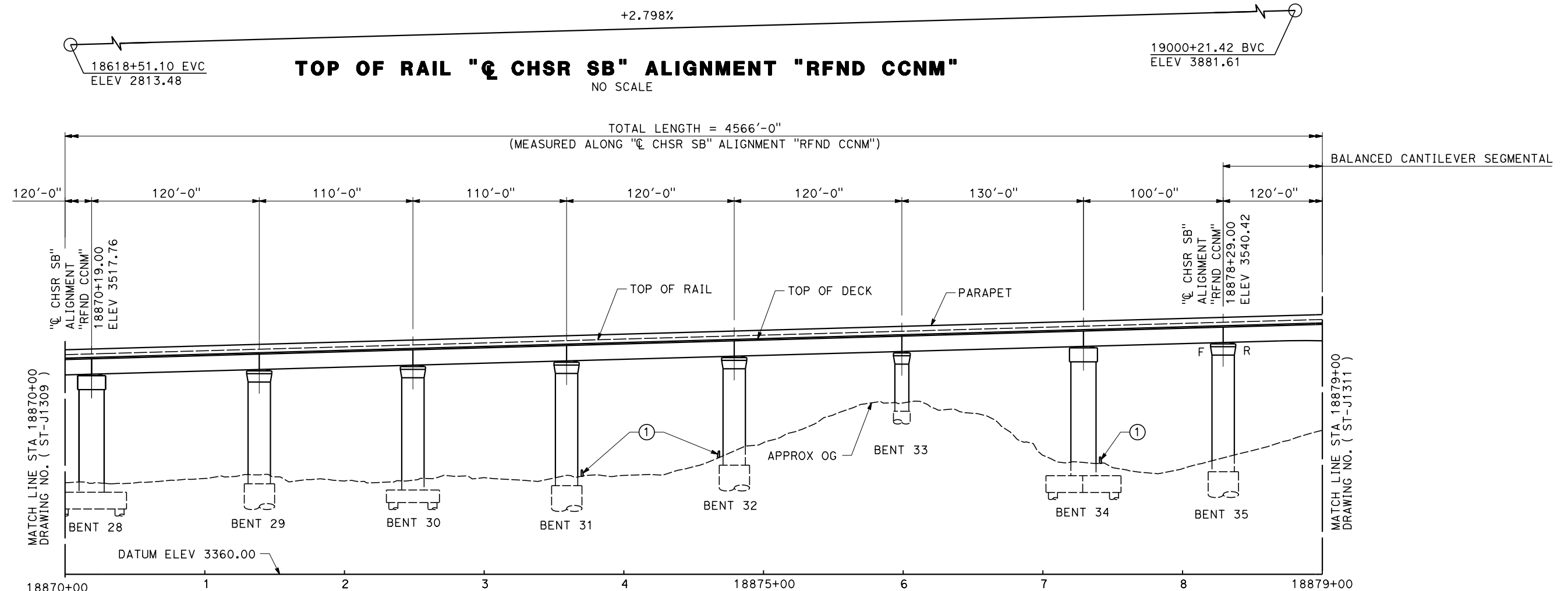
SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST\BP-ST-J1310

9:48:30 PM

1/20/2020

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REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOOBIAN

DRAWN BY
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CHECKED BY
R. BARTON

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G. CAMPBELL

DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

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CONSTRUCTION**



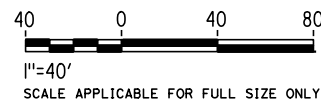
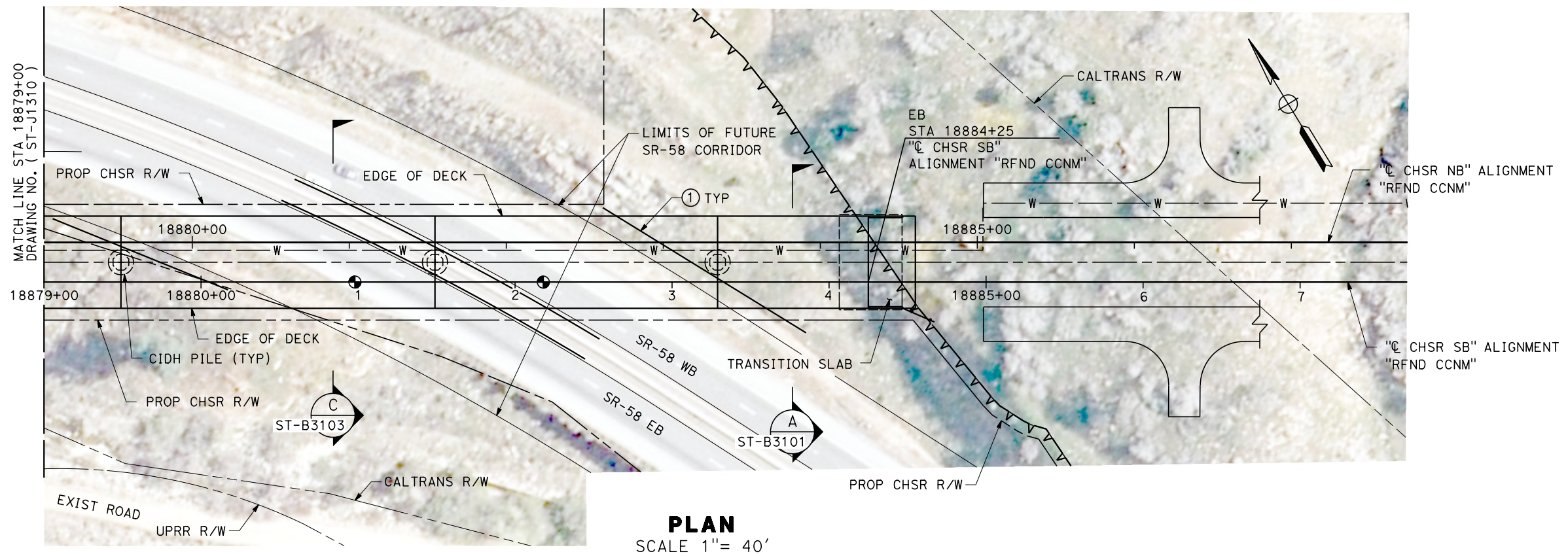
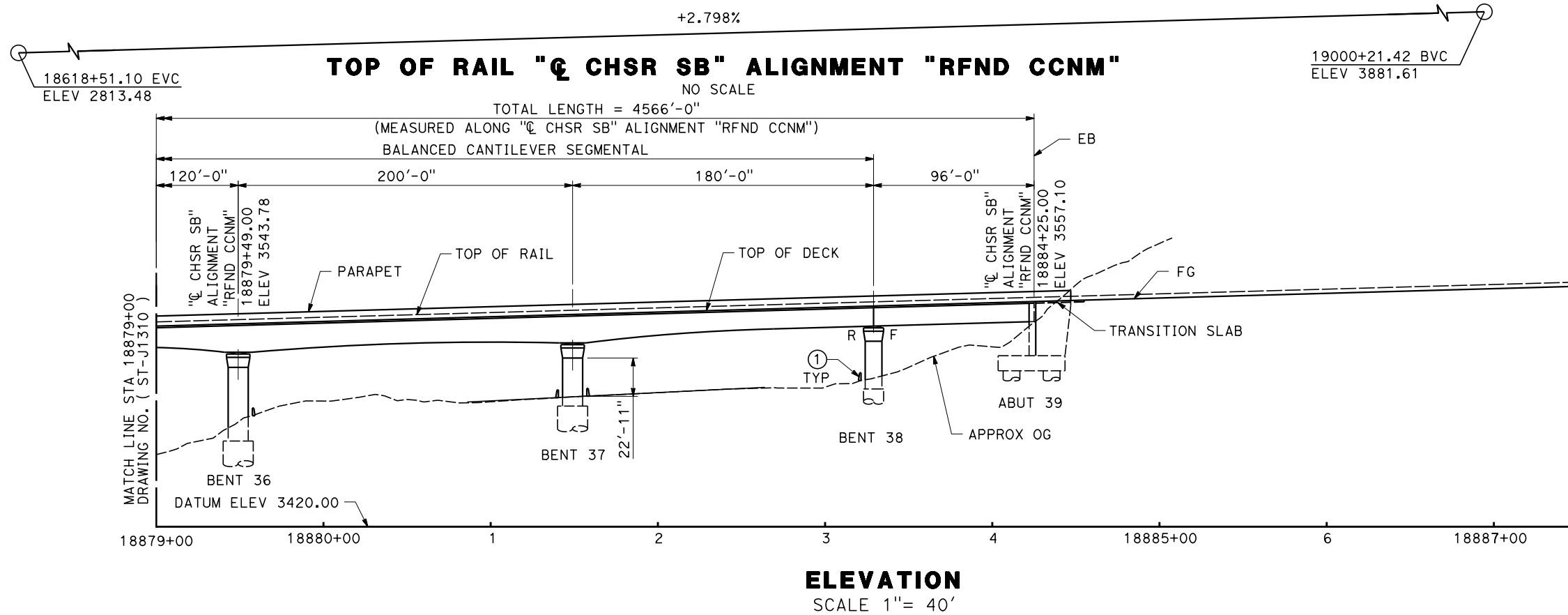
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
VIADUCT STATION 18838+59 TO 18884+25
PLAN AND ELEVATION

CONTRACT NO.
HSR13-44

DRAWING NO.
ST-J1310

SCALE
AS SHOWN

SHEET NO.



DESIGNED BY
R. GOLCHOBIAN
DRAWN BY
Y. WANG
CHECKED BY
R. BARTON
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

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CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
VIADUCT STATION 18838+59 TO 18884+25
PLAN AND ELEVATION

CONTRACT NO.
HSR13-44
DRAWING NO.
ST-J1311
SCALE
AS SHOWN
SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST\BP-ST-J1311 1/20/2020 9:48:27 PM yihong.wang@tylin.com

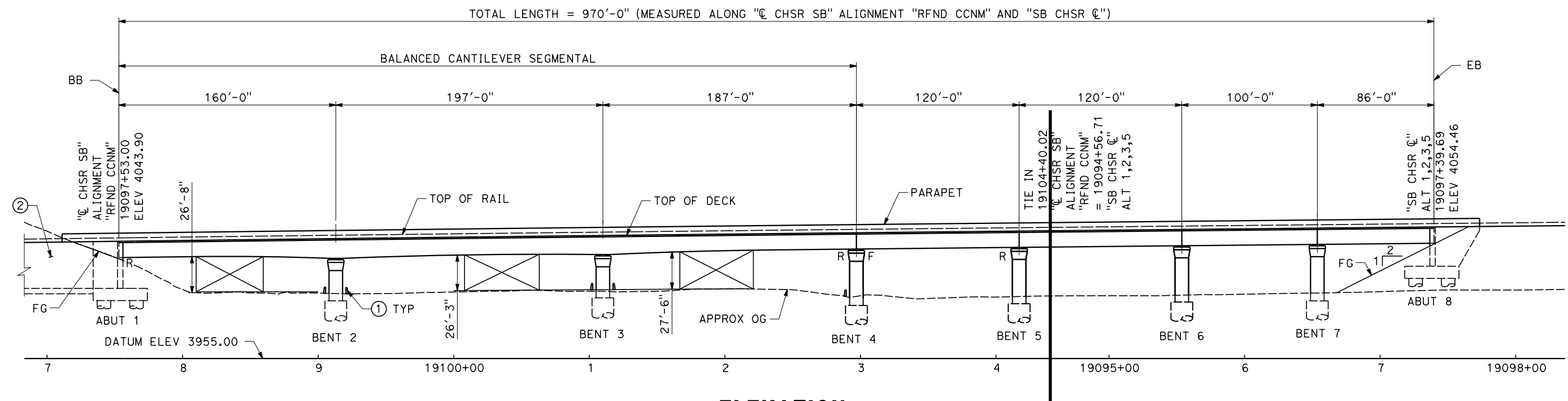
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Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST\BP-ST-J1312

9:48:55 PM

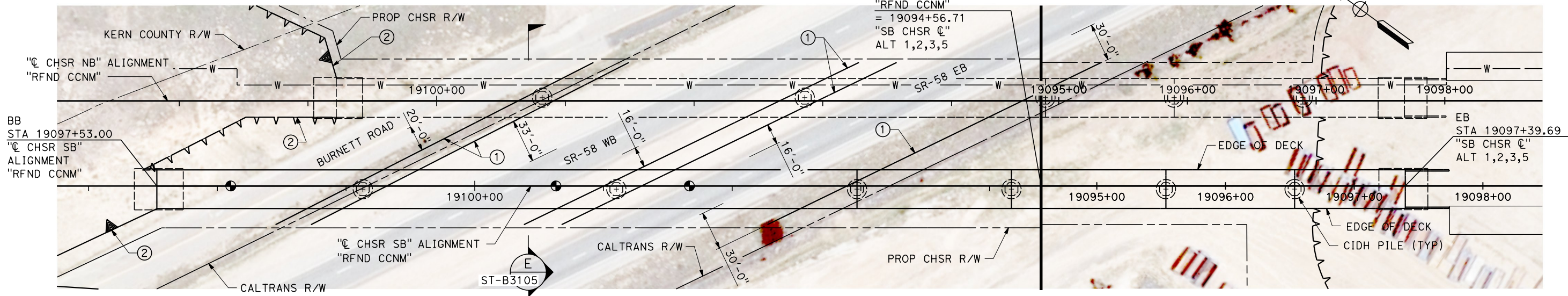
1/20/2020

yihong.wang@tylin.com

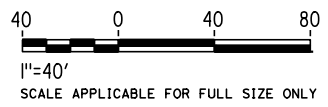


ELEVATION
SCALE 1"= 40'

TIE IN 19104+40.02
"C CHSR SB" ALIGNMENT
"RFND CCNM"
= 19094+56.71
"SB CHSR C" ALT 1,2,3,5



PLAN
SCALE 1"= 40'



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOBIAN
DRAWN BY
Y. WANG
CHECKED BY
R. BARTON
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

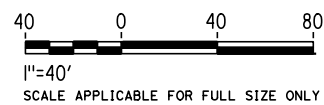
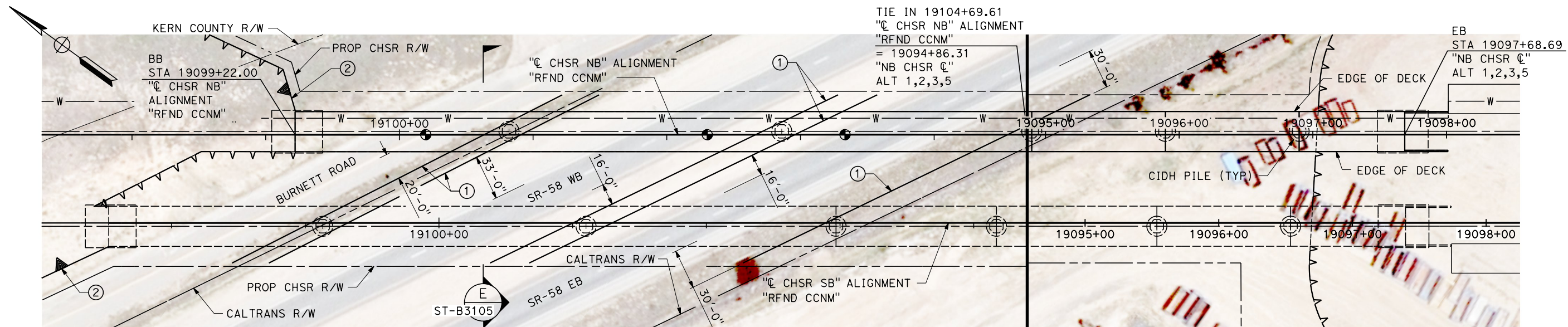
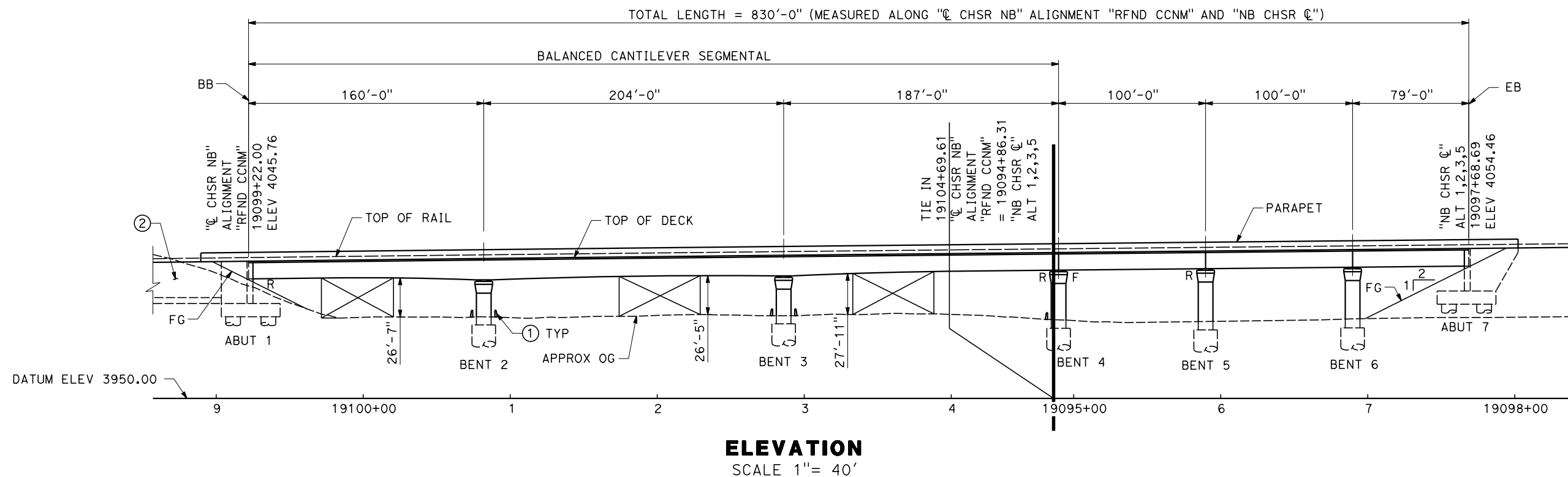
**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
SOUTH VIADUCT STA 19097+53 TO 19097+39.69 ALT 1,2,3,5
PLAN AND ELEVATION

CONTRACT NO.
HSR13-44
DRAWING NO.
ST-J1312
SCALE
AS SHOWN
SHEET NO.



PLAN

SCALE 1" = 40'

Projects\701206.00_CHSRBP\00_CADD\CCNM Option D\Sheets\ST\BP-ST-J1313

1/20/2020 9:49:03 PM yihong.wang@tylin.com

yihong.wang@tylin.com

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GOLCHOBIAN

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IN CHARGE
G. CAMPBELL

DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TRACK STRUCTURES
NORTH VIADUCT STA 19099+22 TO 19097+68.69 ALT 1,2,3,5
PLAN AND ELEVATION

CONTRACT NO.
HSR13-44

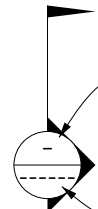




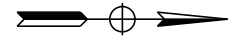

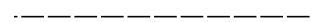

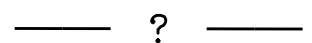




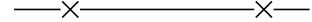









DRAWING NO.
ST-J1313

SCALE
AS SHOWN




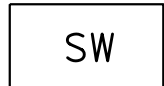

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LEGEND:


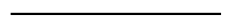
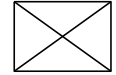
PLAN

-  SECTION NUMBER
-  DRAWING NUMBER
-  CURVE DATA (ALIGNMENTS, ROADWAYS)
-  CURVE DATA (STRUCTURES)
-  LINE DATA (ALIGNMENTS, ROADWAYS)
-  NORTH ARROW
-  EXIST RIGHT OF WAY
-  LIMITS OF EXCAVATION (CUT)
-  LIMITS OF EMBANKMENT (FILL)
-  FAULT ZONE
-  EXIST CALTRANS RIGHT OF WAY
-  EXIST RETAINING WALL
-  PPEF
-  PROPOSED COLUMN/FOOTING
-  PROPOSED FENCE
-  PROPOSED RETAINING WALL
-  PROPOSED CONCRETE BARRIER
-  PROPOSED RIGHT OF WAY
-  PROPOSED TUNNEL
-  PTEF
-  STANDALONE RADIO SITE
-  AUTOMATIC TRAIN CONTROL SYSTEM SITE A
-  AUTOMATIC TRAIN CONTROL SYSTEM SITE B
-  AUTOMATIC TRAIN CONTROL SYSTEM SITE D

PLAN

-  AUTOMATIC TRAIN CONTROL SYSTEM SITE E
-  TRACK CROSSING PANEL
-  SUBSTATION
-  SWITCHING STATION
-  PARALLELING STATION

PROFILE

-  ORIGINAL GROUND
-  PROPOSED CHSR ELEVATION
-  STRUCTURAL CLEARANCE ENVELOPE

Projects\701206.00_CHSRBP\00_CADD\CCNM_Option_D\Sheets\TP\BP-TP-B0201 6:49:01 PM

andrew.carson@tylin.com 1/21/2020

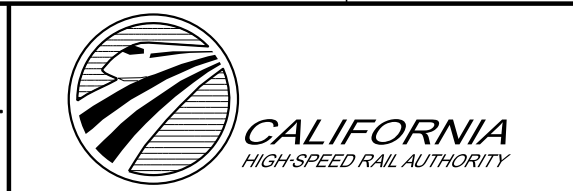
REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GARCIA
DRAWN BY
R. GARCIA
CHECKED BY
D. HOLMAN
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**

TYLININTERNATIONAL



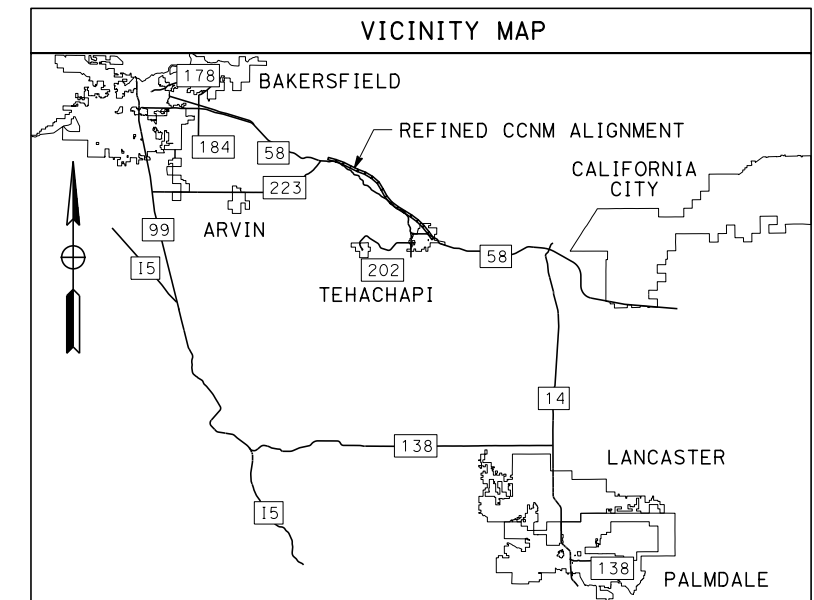
**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TRACTION POWER GENERAL
LEGEND

CONTRACT NO.
HSR13-44
DRAWING NO.
TP-B0201
SCALE
NO SCALE
SHEET NO.

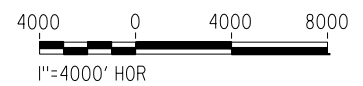
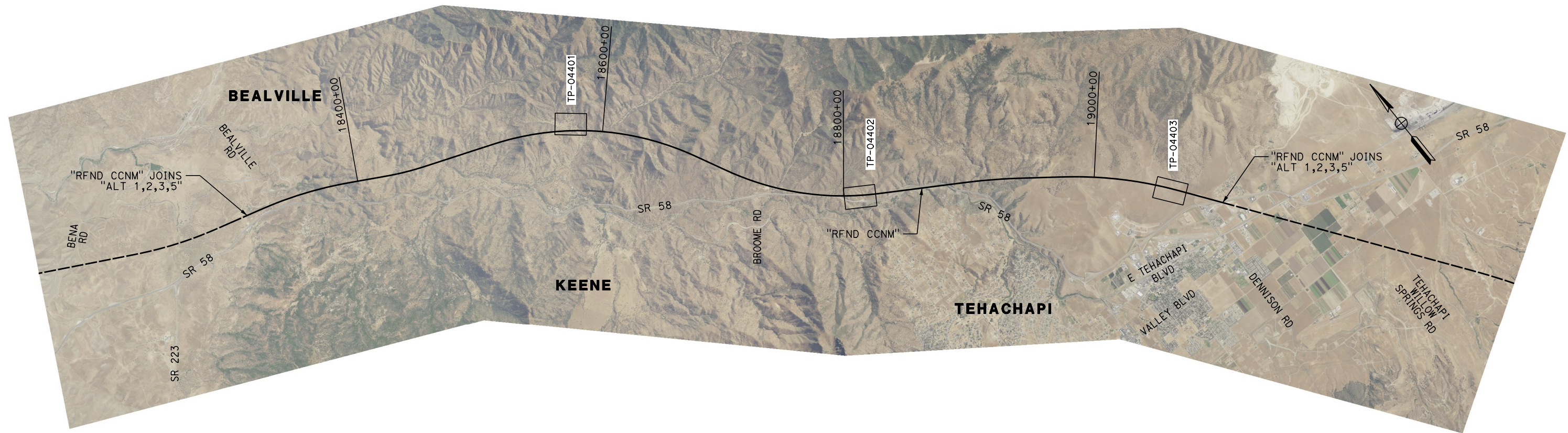
Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TP\BP-TP-B0202

6:46:23 PM

andrew.carson@tylin.com
1/21/2020



REFINED CCNM DESIGN OPTION



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. CARSON
DRAWN BY
A. CARSON
CHECKED BY
D. HOLMAN
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



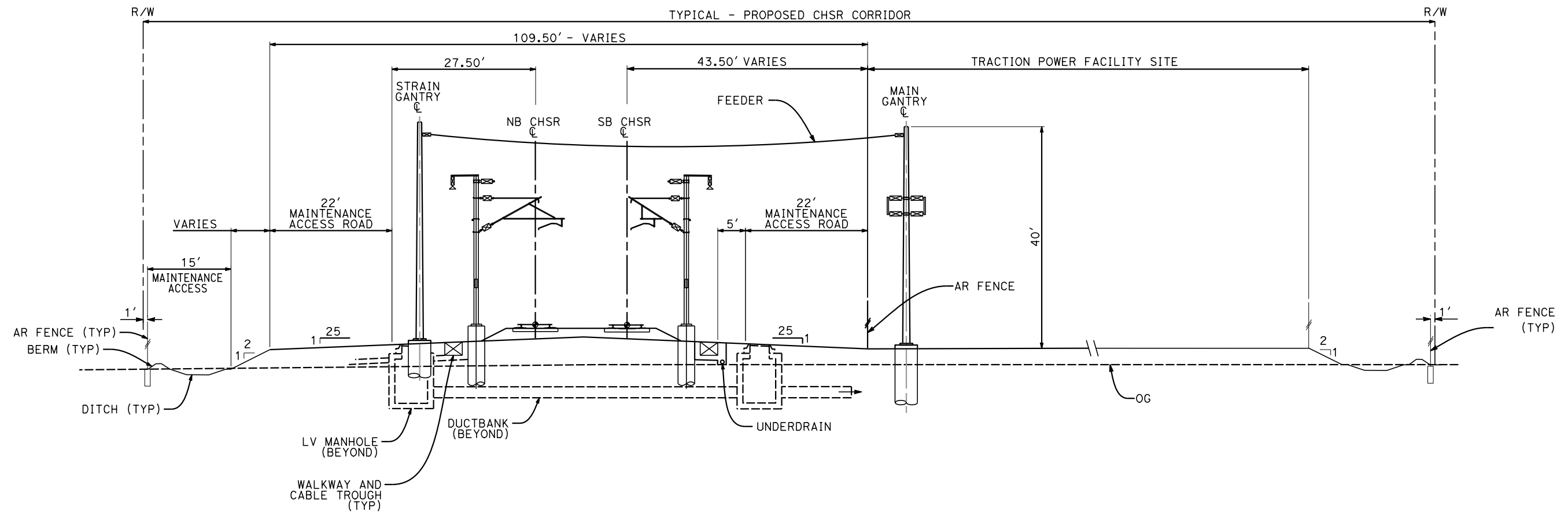
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TRACTION POWER GENERAL
KEY MAP

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

Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TP\BP-TP-B3201

6:46:09 PM

andrew.carson@tylin.com
1/21/2020



NOTES:

1. FOR STRUCTURAL DIMENSIONS
SEE STRUCTURAL CROSS SECTIONS
2. TRACKFORM SHOWN IS INDICATIVE
3. SUPERELEVATION IS NOT SHOWN.
THE AMOUNT OF APPLIED
SUPERELEVATION IS SHOWN IN THE
CURVE TABLES
4. SECTION IS REPRESENTATIVE;
DOES NOT ACCURATELY PORTRAY
TRACK PROFILE RELATIVE TO
EXISTING GROUND.

SECTION B

STA 18815+57.13 PARALLELING STATION (RFND CCNM)
STA 19060+35.00 SUBSTATION (RFND CCNM)

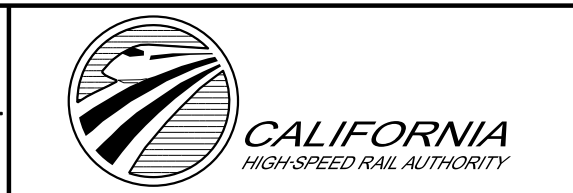


REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GARCIA
DRAWN BY
R. GARCIA
CHECKED BY
D. HOLMAN
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

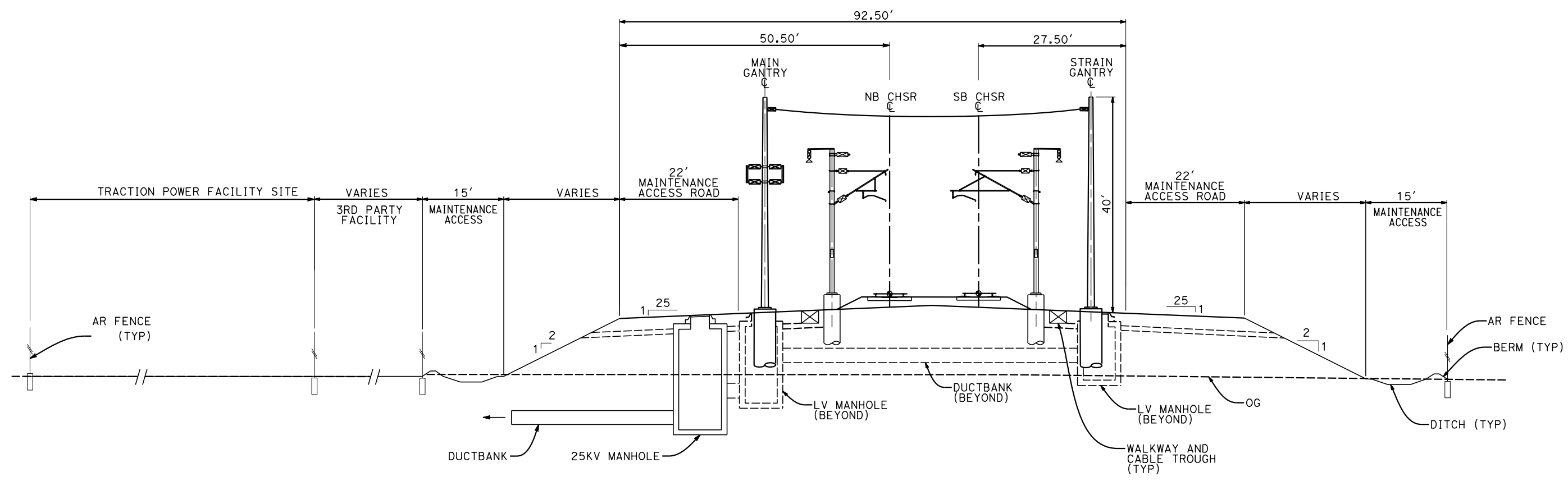
**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TRACTION POWER GENERAL
TYPICAL SECTIONS
SHEET 1 OF 2

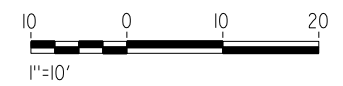
CONTRACT NO.
HSR13-44
DRAWING NO.
TP-B3201
SCALE
AS SHOWN
SHEET NO.



SECTION C

STA 18575+96.67 PARALLELING STATION (RFND CCNM)

- NOTES:**
- FOR STRUCTURAL DIMENSIONS SEE STRUCTURAL CROSS SECTIONS
 - TRACKFORM SHOWN IS INDICATIVE
 - SUPERELEVATION IS NOT SHOWN. THE AMOUNT OF APPLIED SUPERELEVATION IS SHOWN IN THE CURVE TABLES
 - SECTION IS REPRESENTATIVE; DOES NOT ACCURATELY PORTRAY TRACK PROFILE RELATIVE TO EXISTING GROUND.



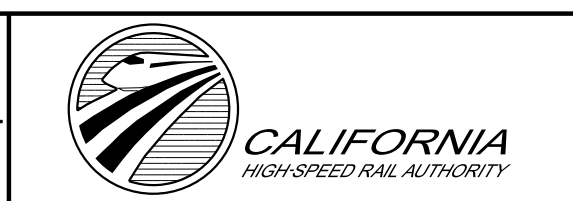
Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TP\BP-TP-B3202
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 1/21/2020
 andrew.carson@tylin.com

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GARCIA
 DRAWN BY
R. GARCIA
 CHECKED BY
D. HOLMAN
 IN CHARGE
G. CAMPBELL
 DATE
01/24/2020

**RECORD
 PEPD
 SUBMITTAL**

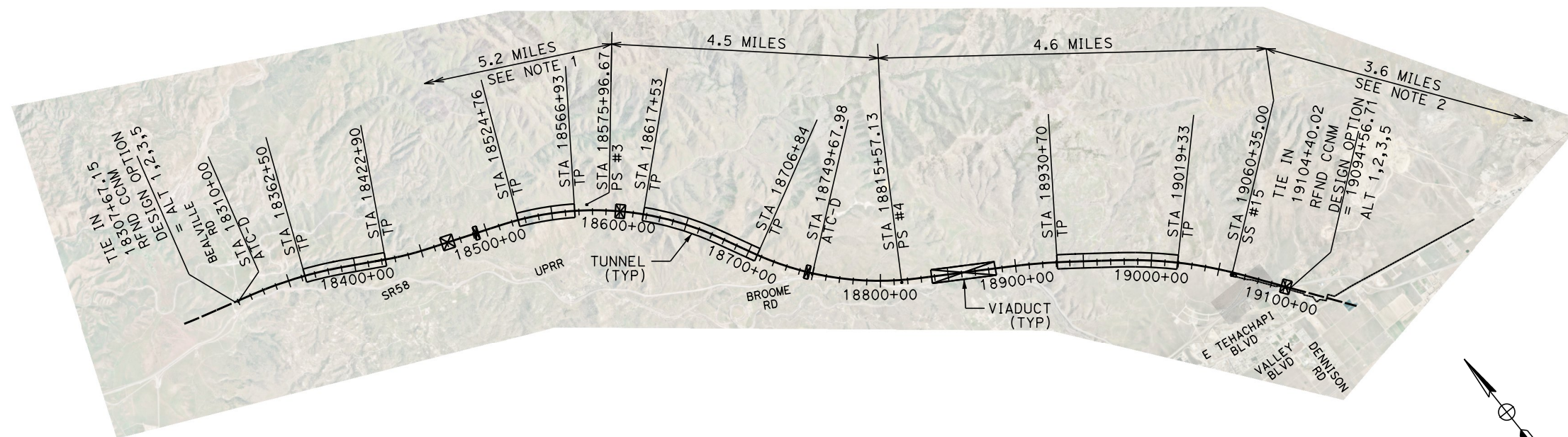
**NOT FOR
 CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
 REFINED CCNM DESIGN OPTION
 TRACTION POWER GENERAL
 TYPICAL SECTIONS
 SHEET 2 OF 2

CONTRACT NO.
HSR13-44
 DRAWING NO.
TP-B3202
 SCALE
AS SHOWN
 SHEET NO.

REFINED CCNM DESIGN OPTION



NOTES:

1. SEE "ALT 1,2,3,5" FOR SWS #2 STA 18302+00.
2. SEE "ALT 1,2,3,5" FOR PS #5 STA 19238+03.

Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TP\BP-TP-D0201

6:48:12 PM

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1/21/2020

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. CARSON

DRAWN BY
A. CARSON

CHECKED BY
D. HOLMAN

IN CHARGE
G. CAMPBELL

DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
 REFINED CCNM DESIGN OPTION
 TRACTION POWER FACILITY LAYOUT

CONTRACT NO.
HSR13-44

DRAWING NO.
TP-D0201

SCALE
AS SHOWN

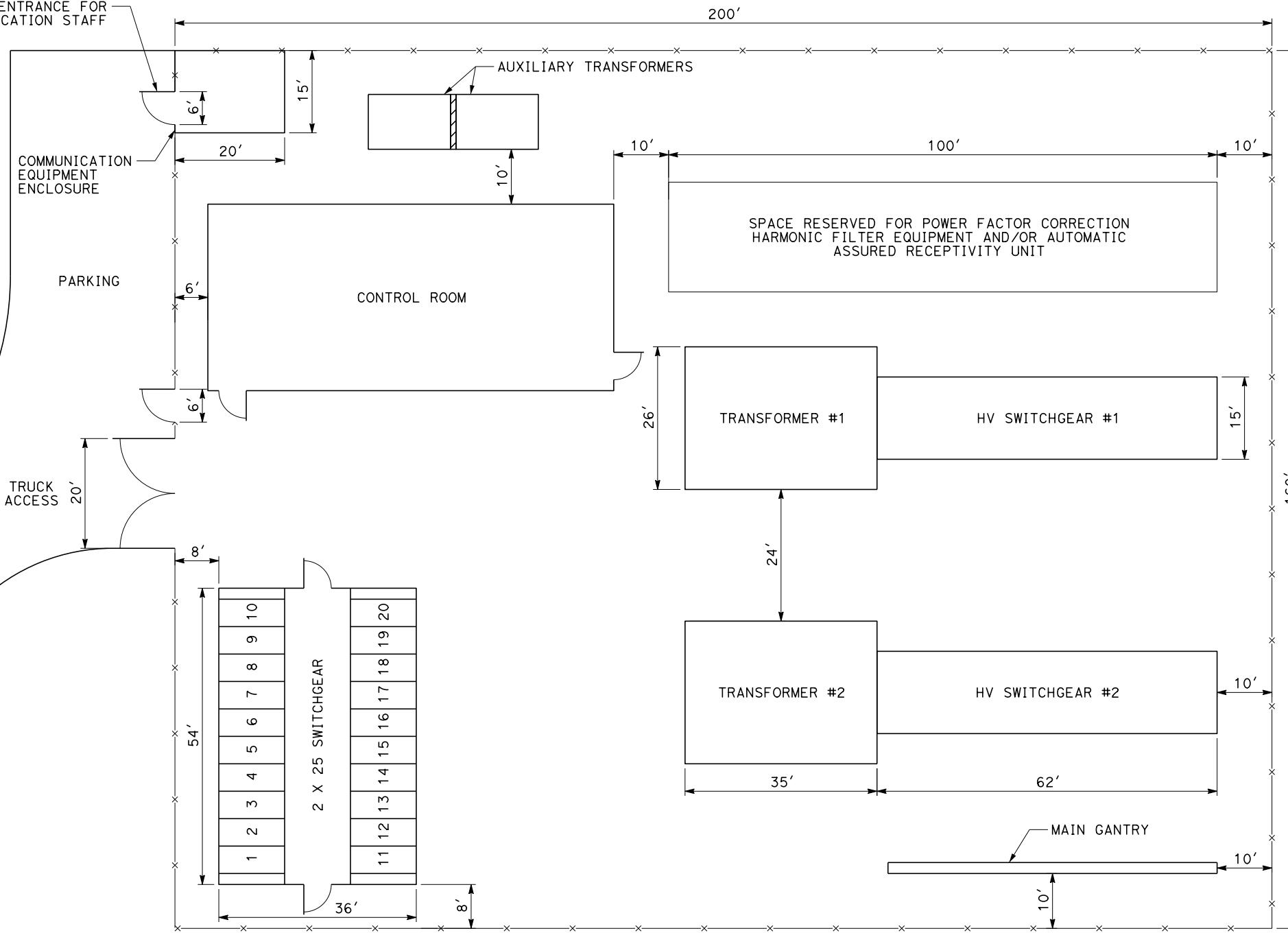
SHEET NO.

Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TP\BP-TP-E4201

6:48:54 PM

andrew.carson@tylin.com
1/21/2020

SEPARATE ENTRANCE FOR COMMUNICATION STAFF



NOTES:

1. THIS IS A TYPICAL LAYOUT AND THE ORIENTATION OF THE STATION WITH RESPECT TO TRACK, LOCATION OF UTILITY SUPPLY CIRCUITS, EQUIPMENT, AND ROAD ACCESS TO BE DETERMINED ON A SITE-BY-SITE BASIS.
2. THE MAIN GANTRY POSITION SHALL BE PARALLEL AND ADJACENT TO THE TRACK.
3. THERE WILL BE A STRAIN GANTRY LOCATED WITHIN THE RAILROAD R/W, PARALLEL TO AND ON THE OPPOSITE SIDE OF THE TRACK WITH FOOTPRINTS EXACTLY EQUAL TO THAT OF THE MAIN GANTRY.
4. IF THE TPF IS LOCATED AWAY FROM THE TRACK, THE MAIN GANTRY WILL BE LOCATED WITHIN THE RAILROAD R/W, PARALLEL TO AND TOWARDS TPF SIDE OF THE TRACK. IN THIS CASE AN ADDITIONAL 40' WIDE STRIP OF LAND WILL BE REQUIRED FROM THE TPF TO THE RAILROAD R/W FOR LAYING UNDERGROUND DUCT BANKS AND MANHOLES.
5. THE COMMUNICATION EQUIPMENT ROOM SHALL HOUSE COMMUNICATION INTERFACE EQUIPMENT FOR SCADA SYSTEM AND OTHER WAYSIDE COMMUNICATION EQUIPMENT.
6. THE GANTRIES SHALL BE 40' HIGH.
7. THIS LAYOUT IS PER TM 3.1.1.3-A AND SHOWN HERE FOR REFERENCE AND COMPLETENESS



PLAN

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GARCIA
DRAWN BY
R. GARCIA
CHECKED BY
D. HOLMAN
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**

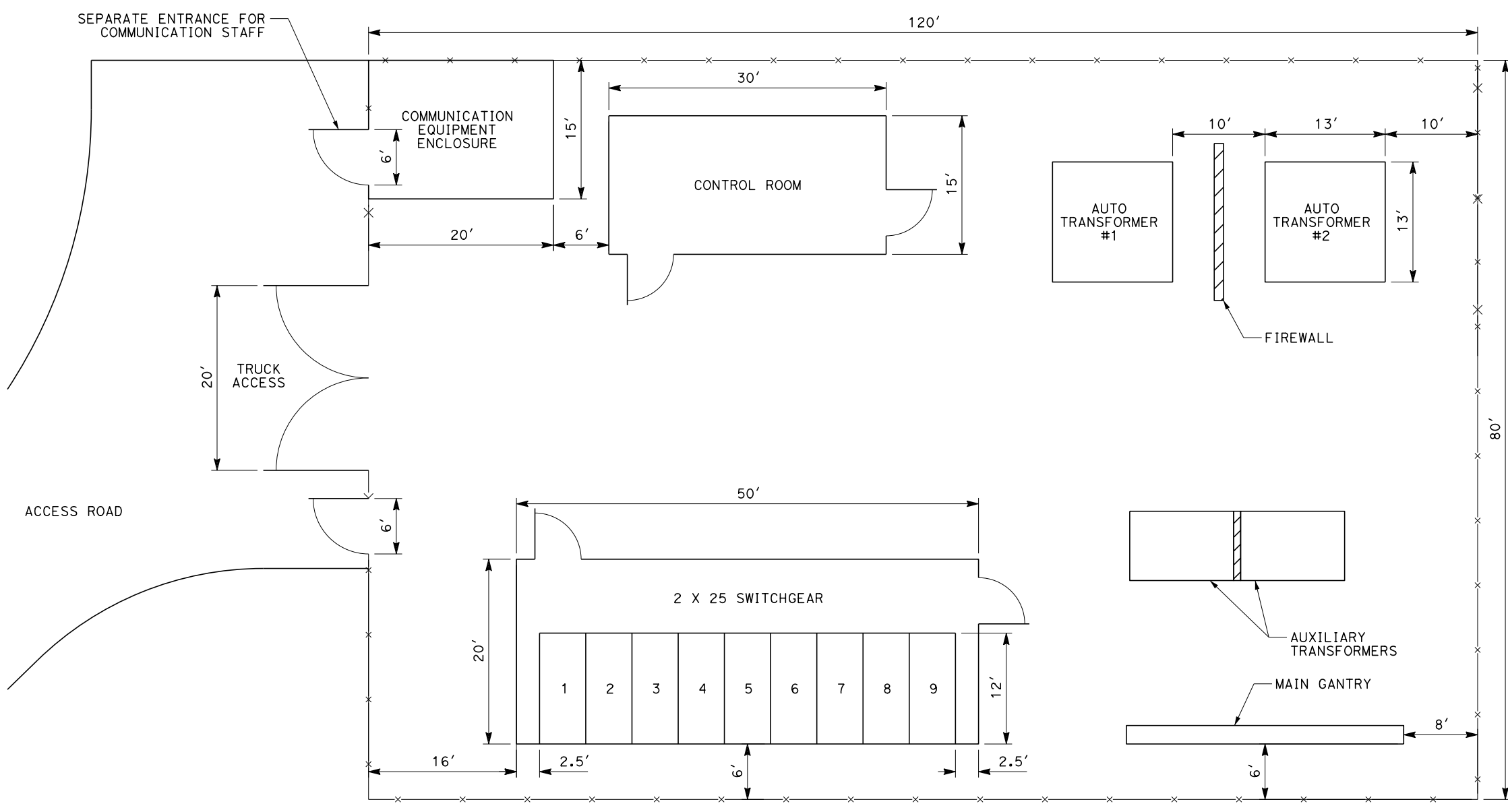


**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TYPICAL LAYOUT
TRACTION POWER SUBSTATION
WITH 2 HIGH VOLTAGE TRANSFORMERS

CONTRACT NO.
HSR13-44
DRAWING NO.
TP-E4201
SCALE
AS SHOWN
SHEET NO.

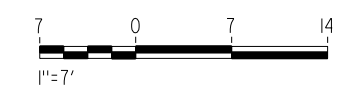
Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TP\BP-TP-E4202

andrew.carson@tylin.com
1/21/2020
6:46:07 PM



NOTES:

1. THIS IS A TYPICAL LAYOUT AND THE ORIENTATION OF THE STATION WITH RESPECT TO TRACK, LOCATION OF UTILITY SUPPLY CIRCUITS, EQUIPMENT, AND ROAD ACCESS TO BE DETERMINED ON A SITE-BY-SITE BASIS.
2. THE MAIN GANTRY POSITION SHALL BE PARALLEL AND ADJACENT TO THE TRACK.
3. THERE WILL BE A STRAIN GANTRY LOCATED WITHIN THE RAILROAD R/W, PARALLEL TO AND ON THE OPPOSITE SIDE OF THE TRACK WITH FOOTPRINTS EXACTLY EQUAL TO THAT OF THE MAIN GANTRY.
4. IF THE TPF IS LOCATED AWAY FROM THE TRACK, THE MAIN GANTRY WILL BE LOCATED WITHIN THE RAILROAD R/W, PARALLEL TO AND TOWARDS TPF SIDE OF THE TRACK. IN THIS CASE AN ADDITIONAL 40' WIDE STRIP OF LAND WILL BE REQUIRED FROM THE TPF TO THE RAILROAD R/W FOR LAYING UNDERGROUND DUCT BANKS AND MANHOLES.
5. THE COMMUNICATION EQUIPMENT ROOM SHALL HOUSE COMMUNICATION INTERFACE EQUIPMENT FOR SCADA SYSTEM AND OTHER WAYSIDE COMMUNICATION EQUIPMENT.
6. THE GANTRIES SHALL BE 40' HIGH.
7. THIS LAYOUT IS PER TM 3.1.1.3-D AND SHOWN HERE FOR REFERENCE AND COMPLETENESS



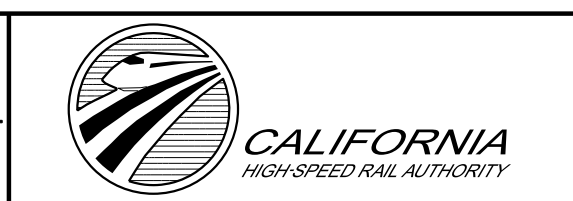
PLAN

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GARCIA
DRAWN BY
R. GARCIA
CHECKED BY
D. HOLMAN
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



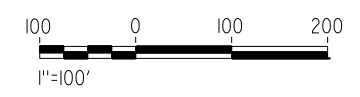
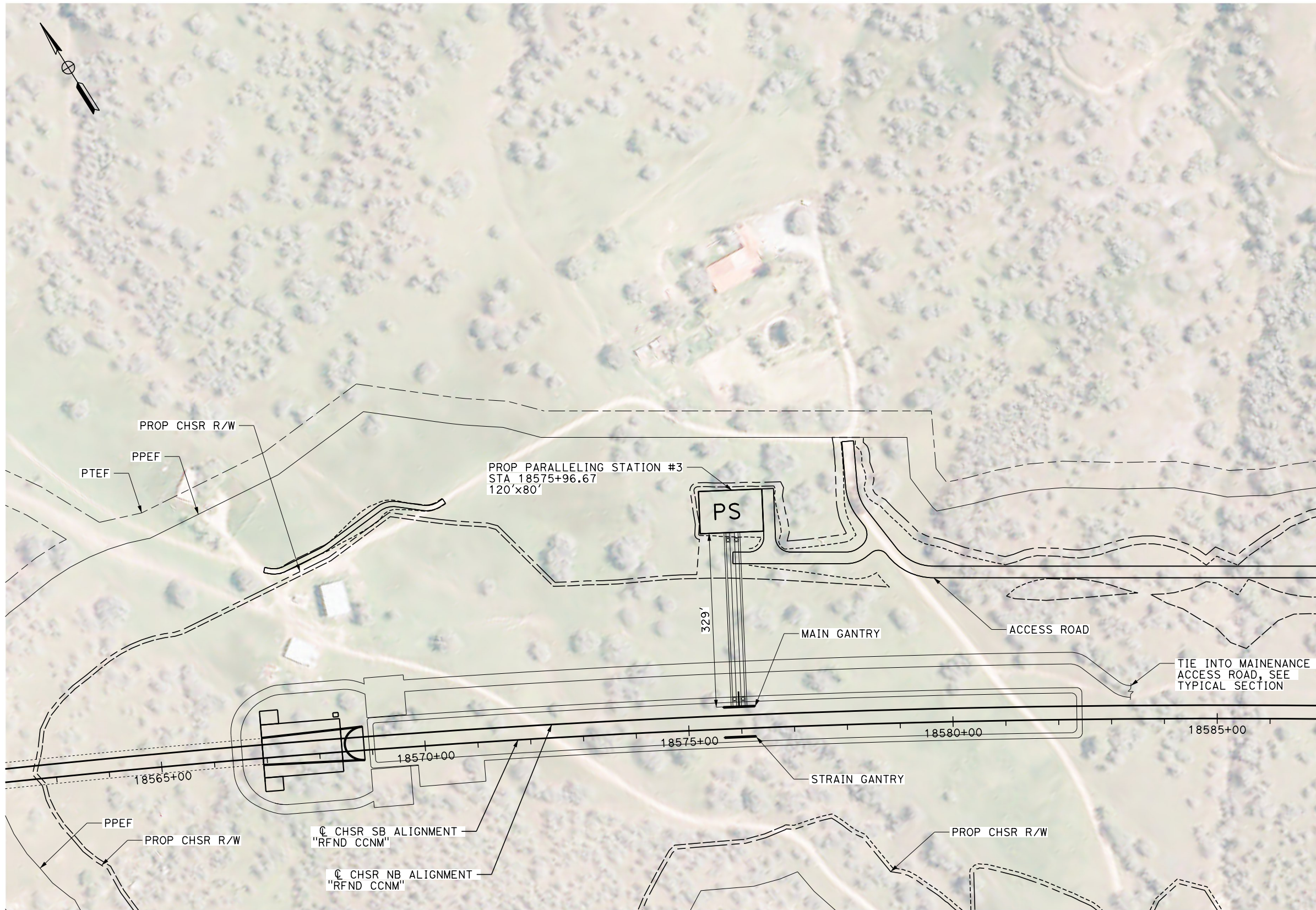
**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TYPICAL LAYOUT
PARALLELING STATION
WITH 2 AUTOTRANSFORMERS

CONTRACT NO.
HSR13-44
DRAWING NO.
TP-E4202
SCALE
AS SHOWN
SHEET NO.

Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TP\BP-TP-04401

6:49:32 PM

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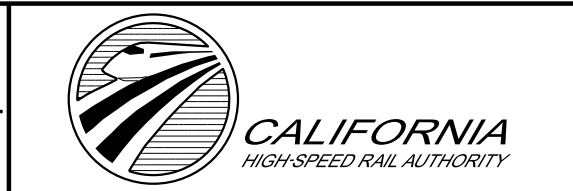
PLAN

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
R. GARCIA
DRAWN BY
R. GARCIA
CHECKED BY
D. HOLMAN
IN CHARGE
G. CAMPBELL
DATE
1/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



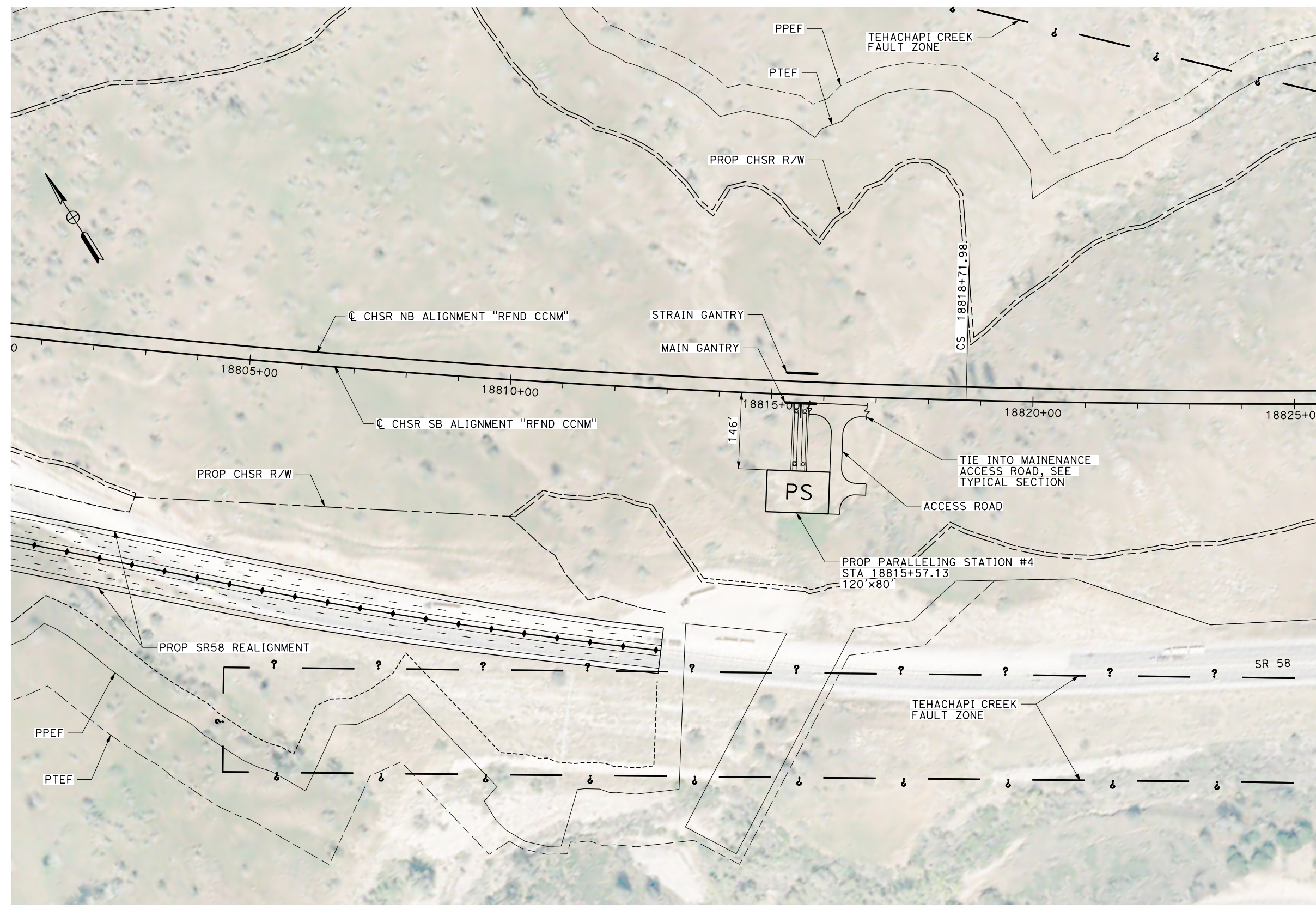
**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TRACTION POWER SITE PLAN
PROPOSED PARALLELING STATION 3

CONTRACT NO.
HSR13-44
DRAWING NO.
TP-04401
SCALE
AS SHOWN
SHEET NO.

Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TP\BP-TP-04402

6:49:48 PM

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1/21/2020



PLAN

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. CARSON
DRAWN BY
A. CARSON
CHECKED BY
D. HOLMAN
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

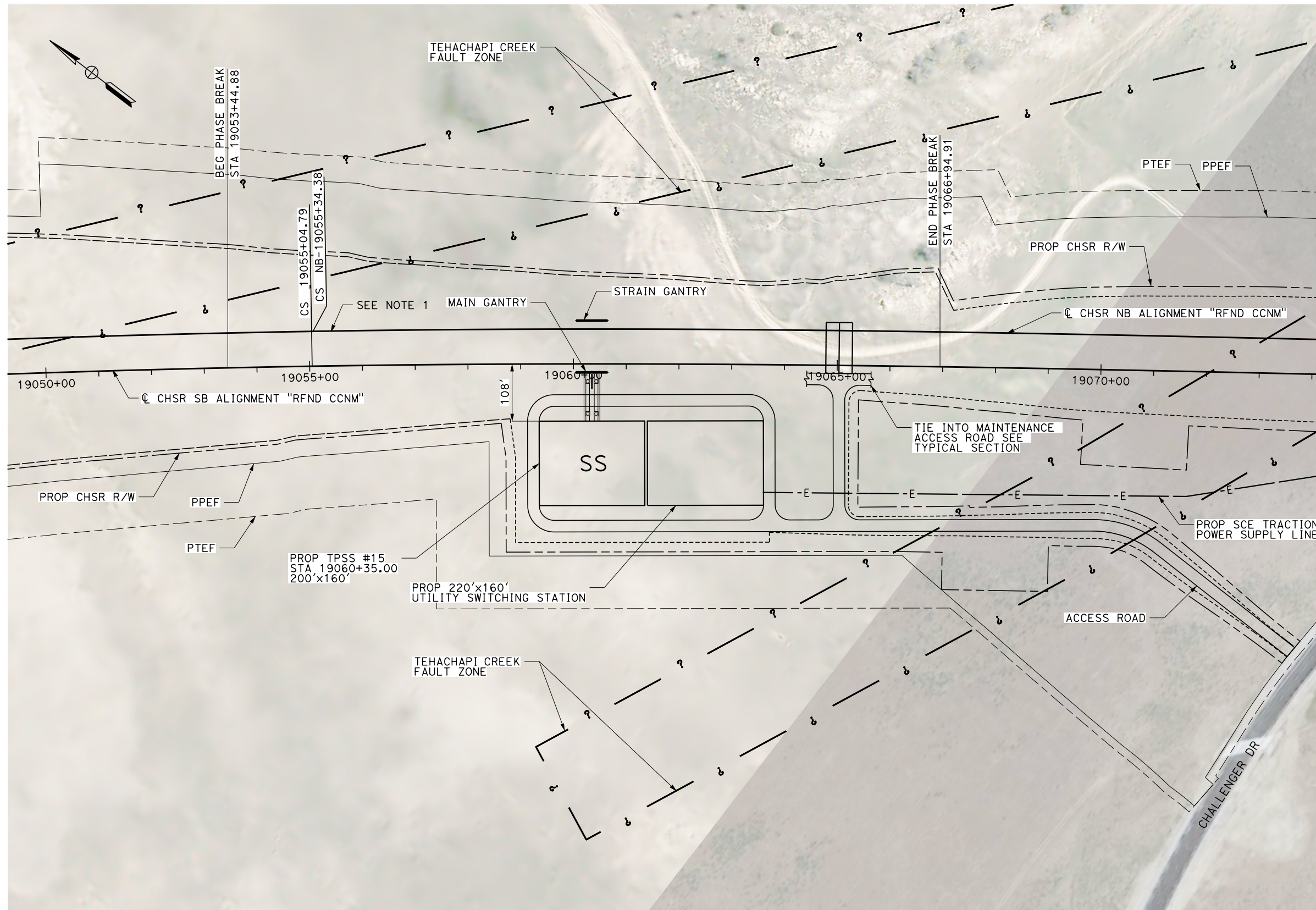
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CONSTRUCTION**



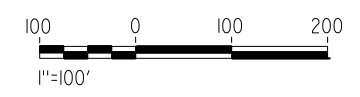
**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TRACTION POWER SITE PLAN
PROPOSED PARALLELING STATION 4

CONTRACT NO.
HSR13-44
DRAWING NO.
TP-04402
SCALE
AS SHOWN
SHEET NO.

Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TP\BP-TP-04403
 6:48:24 PM
 1/21/2020
 andrew.carson@tylin.com



NOTES
 1. PROPOSED TRACK GRADE THROUGH PHASE BREAK IS 1.47%



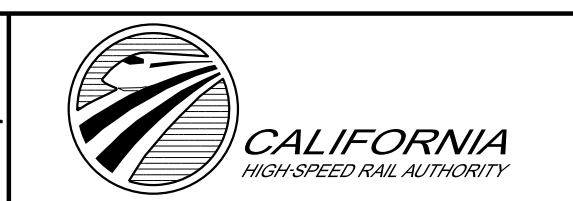
PLAN

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. CARSON
 DRAWN BY
A. CARSON
 CHECKED BY
D. HOLMAN
 IN CHARGE
G. CAMPBELL
 DATE
01/24/2020

**RECORD
 PEPD
 SUBMITTAL**

**NOT FOR
 CONSTRUCTION**


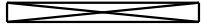
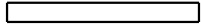

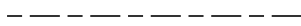

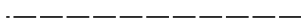
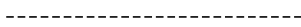




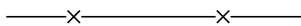


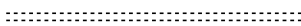
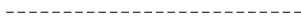









CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
 REFINED CCNM DESIGN OPTION
 TRACTION POWER SITE PLAN
 PROPOSED TPSS #15

CONTRACT NO.
HSR13-44
 DRAWING NO.
TP-04403
 SCALE
AS SHOWN
 SHEET NO.

LEGEND:

PLAN

-  NORTH ARROW
-  BRIDGE
-  VIADUCT
-  TUNNEL
-  PROPOSED RIGHT OF WAY
-  EXIST RIGHT OF WAY
-  LIMITS OF EXCAVATION (CUT)
-  LIMITS OF EMBANKMENT (FILL)
-  FAULT ZONE
-  EXIST RETAINING WALL
-  PPEF
-  PROPOSED COLUMN
-  PROPOSED FENCE
-  PROPOSED PHASE BREAK
-  PROPOSED RETAINING WALL
-  PROPOSED TUNNEL
-  PTEF
-  PROPOSED TURNOUT
-  SRS
STANDALONE RADIO SITE - SIZE: 40' X 25'
-  AUTOMATIC TRAIN CONTROL SYSTEM SITE A - SIZE: 70' X 35'
-  AUTOMATIC TRAIN CONTROL SYSTEM SITE B - SIZE: 30' X 35'
-  AUTOMATIC TRAIN CONTROL SYSTEM SITE D - SIZE: 100' X 65'
-  AUTOMATIC TRAIN CONTROL SYSTEM SITE E - SIZE: 110' X 65'
-  TRACK CROSSING PANEL

PLAN

 -E- PROPOSED TRACTION POWER SUPPLY LINE

Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TC\BP-TC-B0201

andrew.carson@tylin.com 1/21/2020 6:29:39 PM

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. CARSON
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A. CARSON
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D. HOLMAN
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**

TYLIN INTERNATIONAL



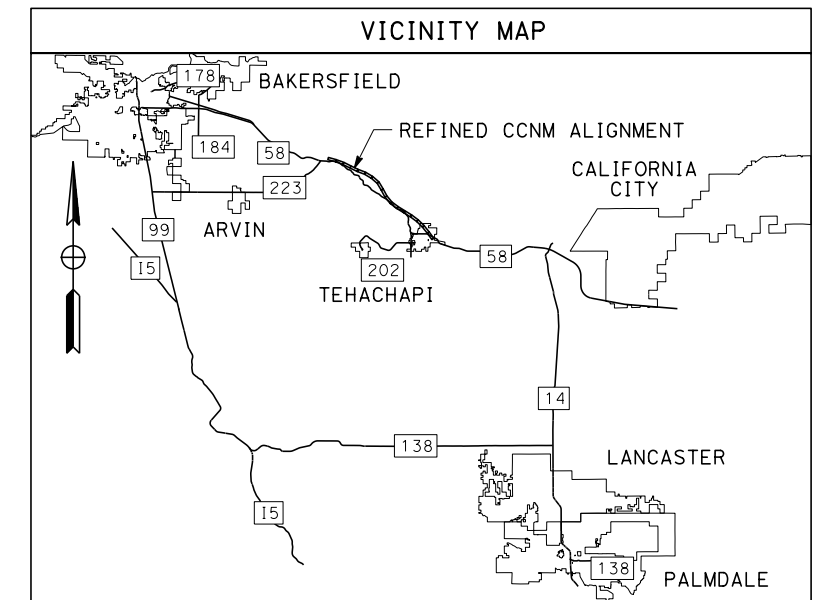
**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
AUTOMATIC TRAIN CONTROL GENERAL
ABBREVIATIONS AND LEGEND

CONTRACT NO.
HSR13-44
DRAWING NO.
TC-B0201
SCALE
NO SCALE
SHEET NO.

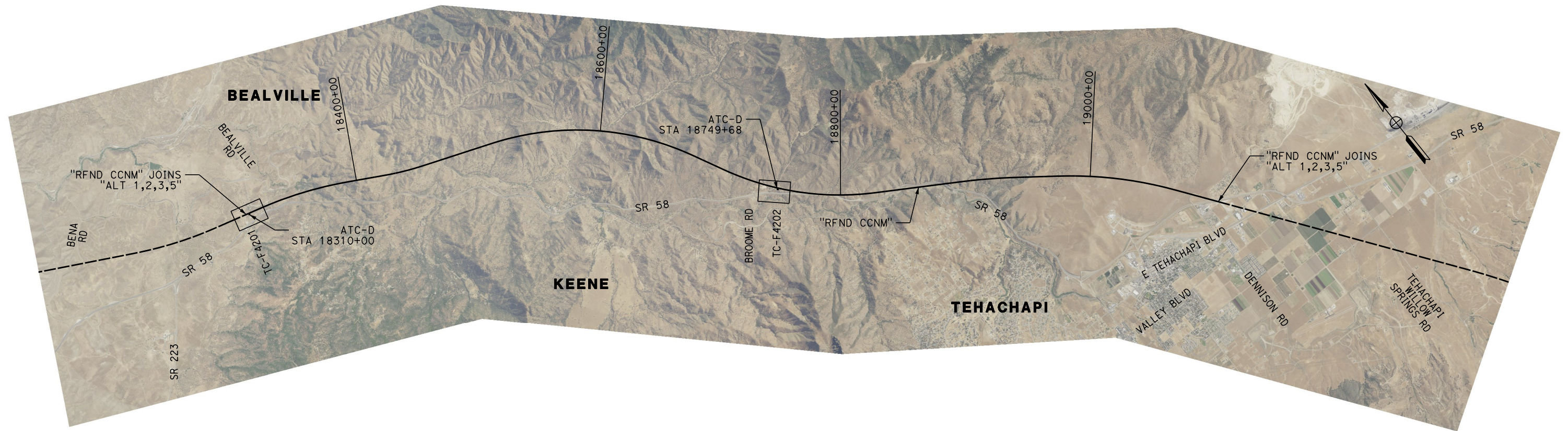
Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TC\BP-TC-B0202

6:46:33 PM

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1/21/2020



REFINED CCNM DESIGN OPTION



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. CARSON
DRAWN BY
A. CARSON
CHECKED BY
D. HOLMAN
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

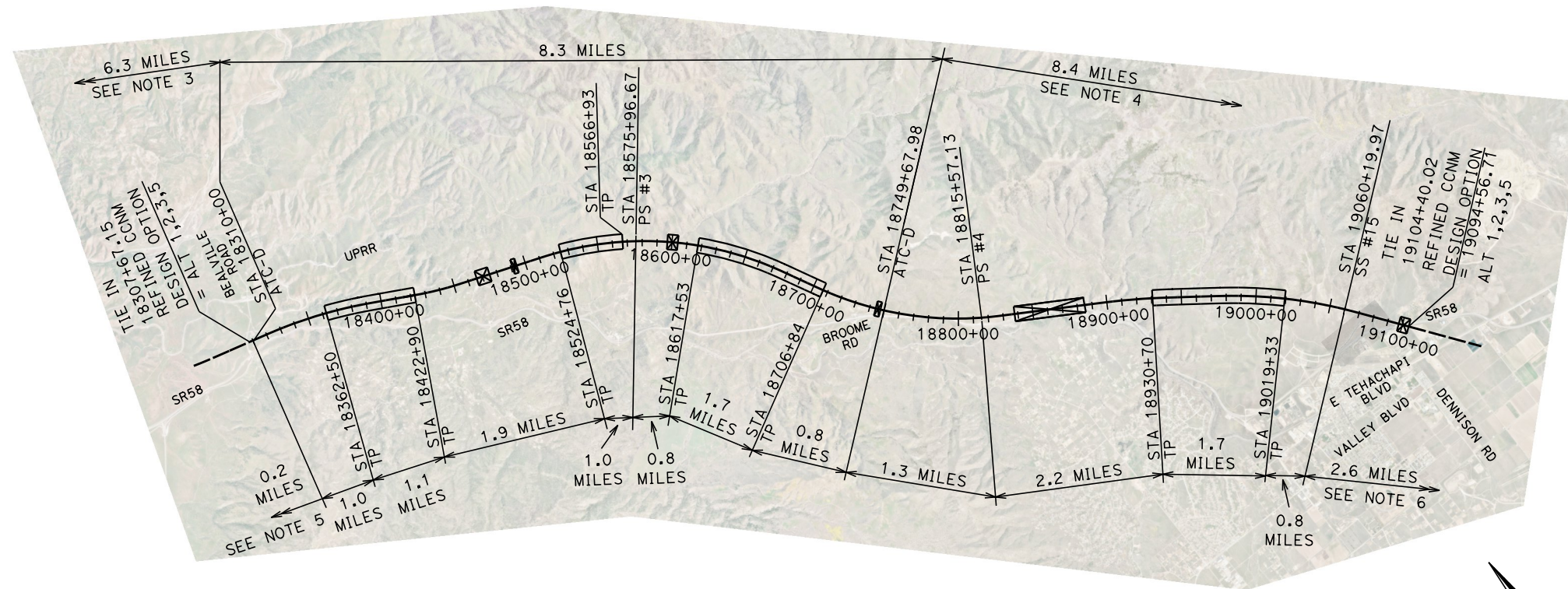
**NOT FOR
CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
AUTOMATIC TRAIN CONTROL GENERAL
KEY MAP

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

REFINED CCNM DESIGN OPTION



NOTES:

1. TP (TUNNEL PORTAL) SITES HAVE RADIO ANTENNAS
2. TP (TUNNEL PORTAL) SITE 18566+93 USES ANTENNA FROM PS#2.
3. SEE "ALT 1,2,3,5" FOR ATC-D STA 17980+00.
4. SEE "ALT 1,2,3,5" FOR ATC-E STA 19185+00.
5. SEE "ALT 1,2,3,5" FOR TP STA 18208+05.
6. SEE "ALT 1,2,3,5" FOR TP STA 19290+87.



Projects\701206.00_CHSRBP\00_CADD\CCNM_Option_D\Sheets\TC\BP-TC-B0203

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1/21/2020

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. CARSON

DRAWN BY
A. CARSON

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IN CHARGE
G. CAMPBELL

DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



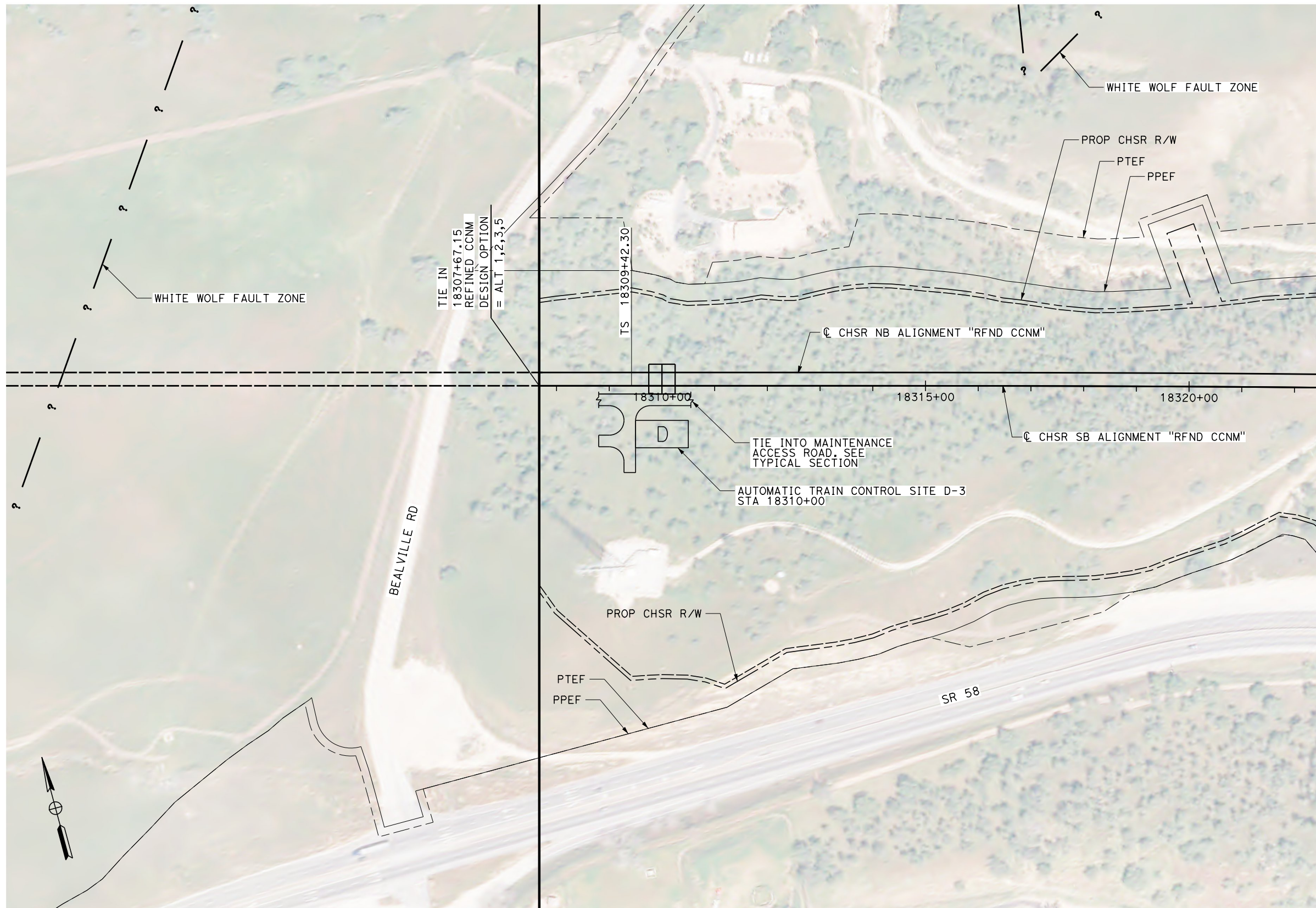
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
AUTOMATIC TRAIN CONTROL LAYOUT

CONTRACT NO.
HSR13-44

DRAWING NO.
TC-B0203

SCALE
AS SHOWN

SHEET NO.



PLAN

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. CARSON
DRAWN BY
A. CARSON
CHECKED BY
D. HOLMAN
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



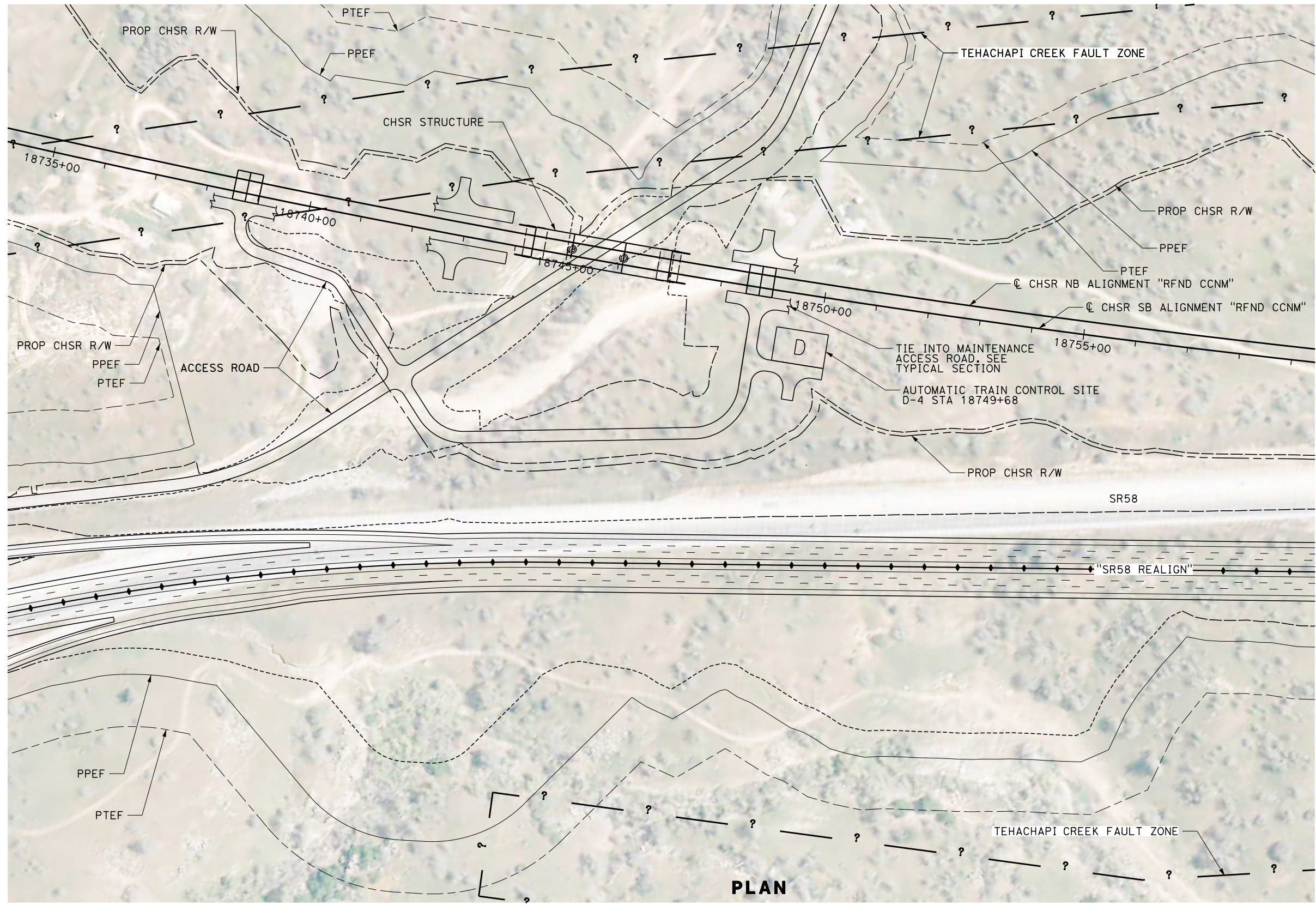
**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
AUTOMATIC TRAIN CONTROL SITE PLAN
SITE @ 18310+00

CONTRACT NO.
HSR13-44
DRAWING NO.
TC-F4201
SCALE
AS SHOWN
SHEET NO.

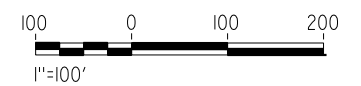
Projects\701206.00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TC\BP-TC-F4202

6:30:27 PM

andrew.carson@tylin.com
1/21/2020



PLAN



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
A. CARSON
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A. CARSON
CHECKED BY
D. HOLMAN
IN CHARGE
G. CAMPBELL
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**

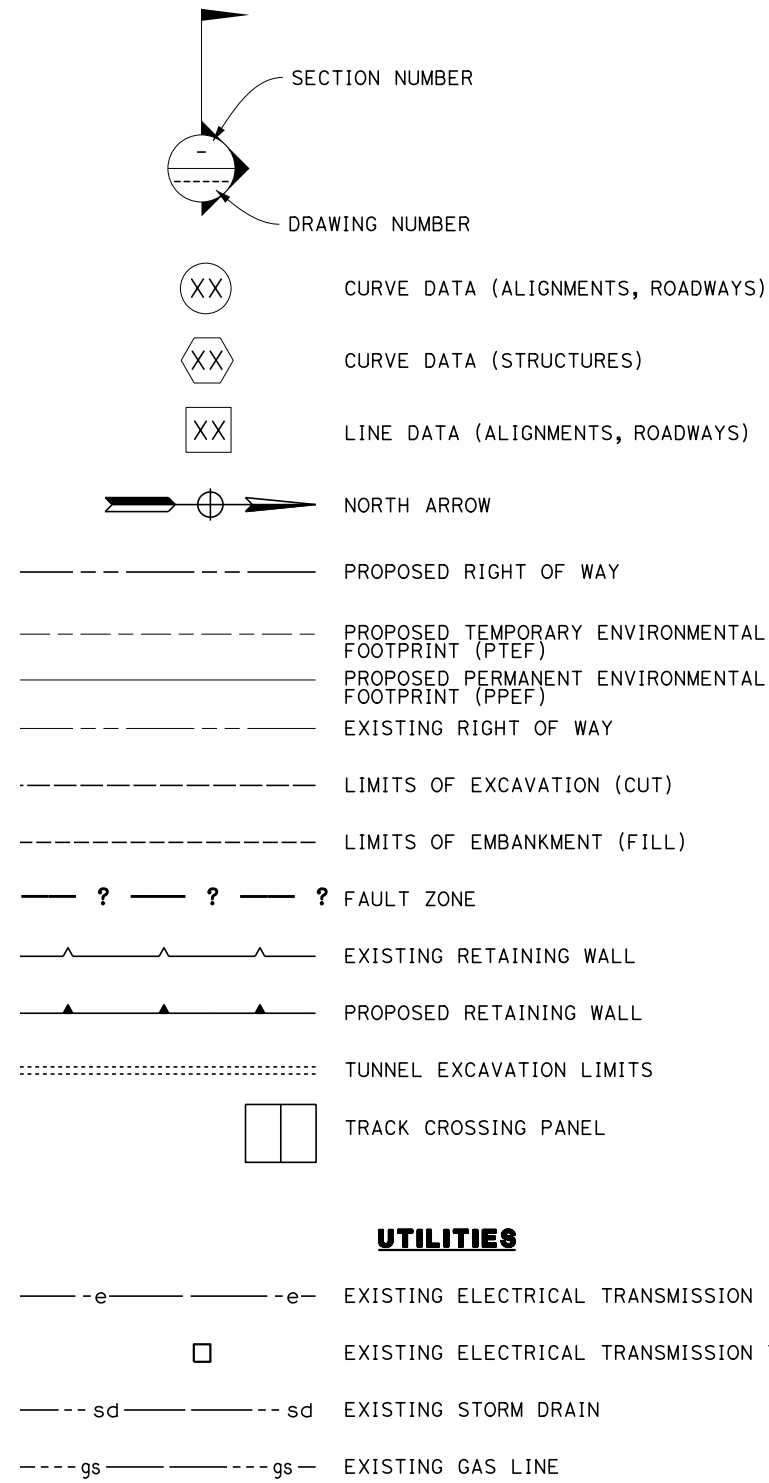


**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
AUTOMATIC TRAIN CONTROL SITE PLAN
SITE @ 18749+68

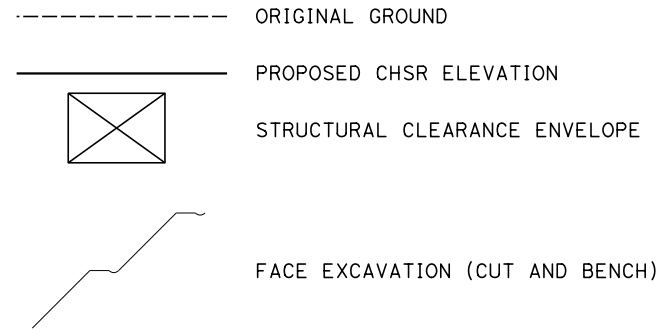
CONTRACT NO.
HSR13-44
DRAWING NO.
TC-F4202
SCALE
AS SHOWN
SHEET NO.

TUNNEL LEGEND

PLAN



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.dgn

1/21/2020 1:11:05 AM

kabr_cow

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA

DRAWN BY
K. BUNGER

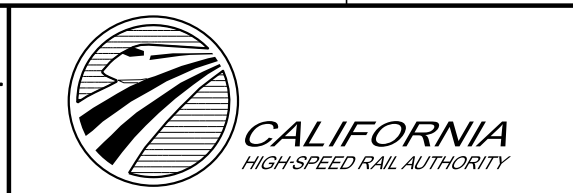
CHECKED BY
R. KUNDU

IN CHARGE
J. MORRISON

DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



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

REFINED CCNM DESIGN OPTION
TUNNEL LEGEND

CONTRACT NO.
HSR13-44

DRAWING NO.
TN-B0201

SCALE
NO SCALE

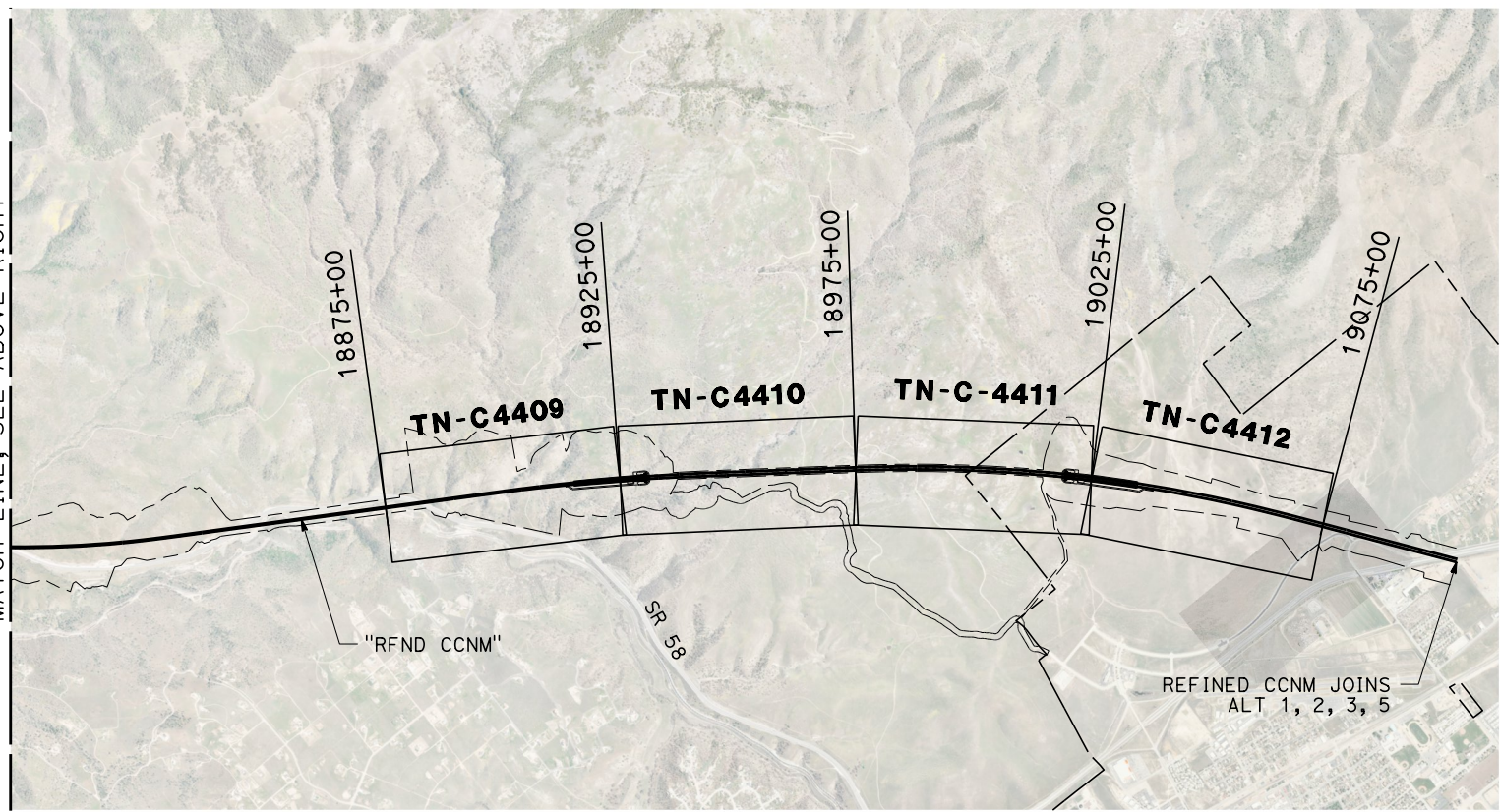
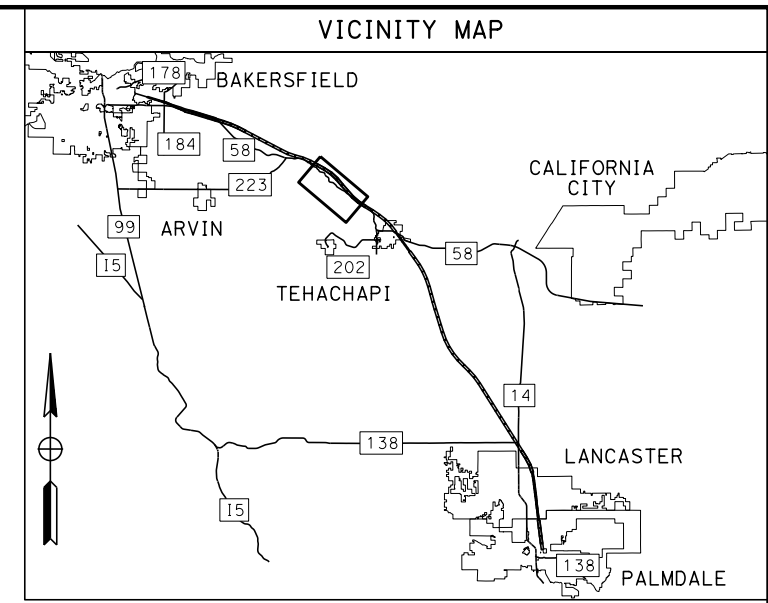
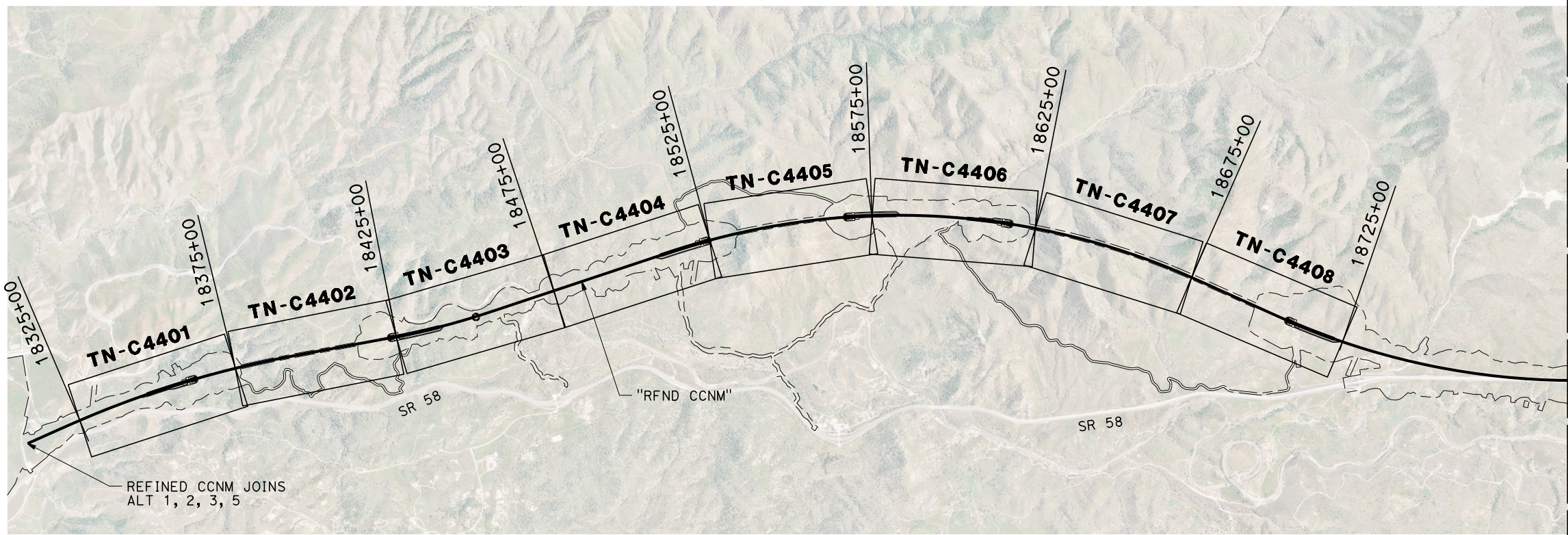
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Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\TN\TN-B0202.dgn

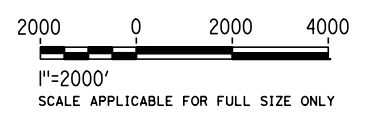
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1/21/2020

knbr_cow



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
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



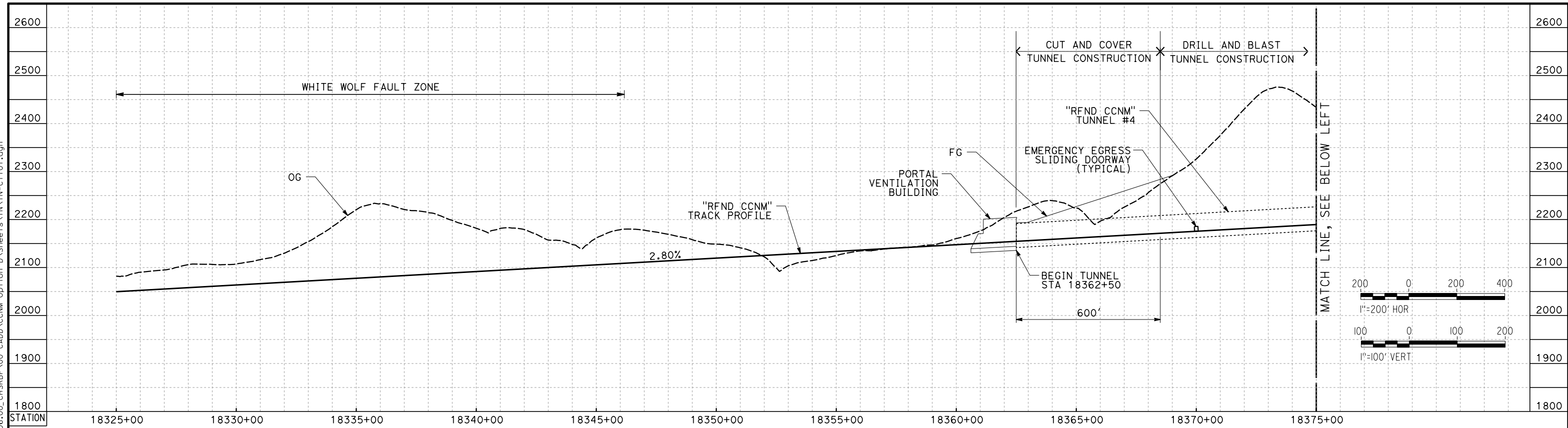
**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
KEY MAP
ALIGNMENT TUNNELS

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

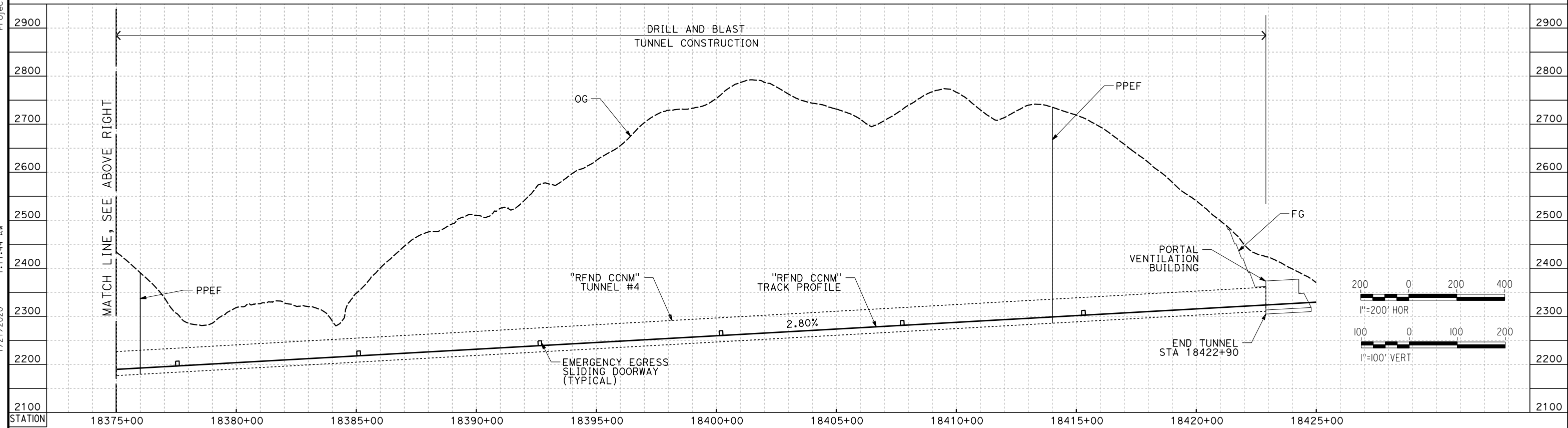
Projects\701206_00_CHSRBP\00_CADD\CCNM_Option D\Sheets\TN-TN-C1101.dgn

1/21/2020 1:17:44 AM

knbr_cow1



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
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TUNNEL PROFILE - TUNNEL 4
STA 18325+00 TO STA 18425+00

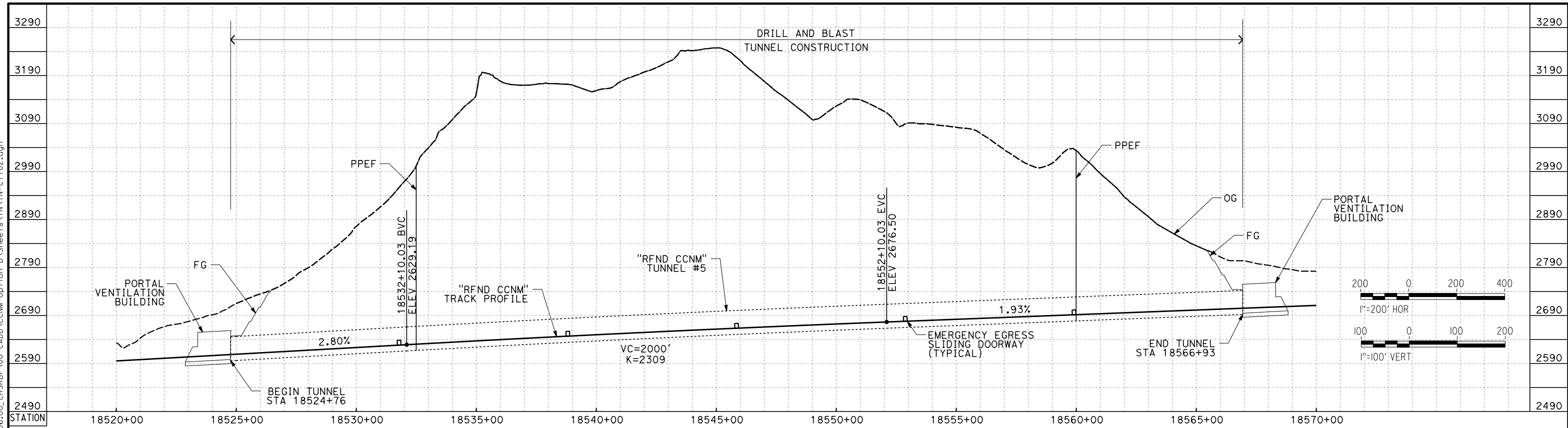
CONTRACT NO.
HSR13-44
DRAWING NO.
TN-C1101
SCALE
AS SHOWN
SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\TN-TN-C1102.dgn

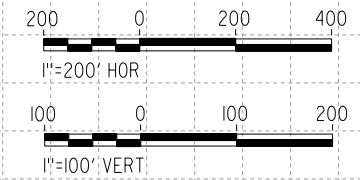
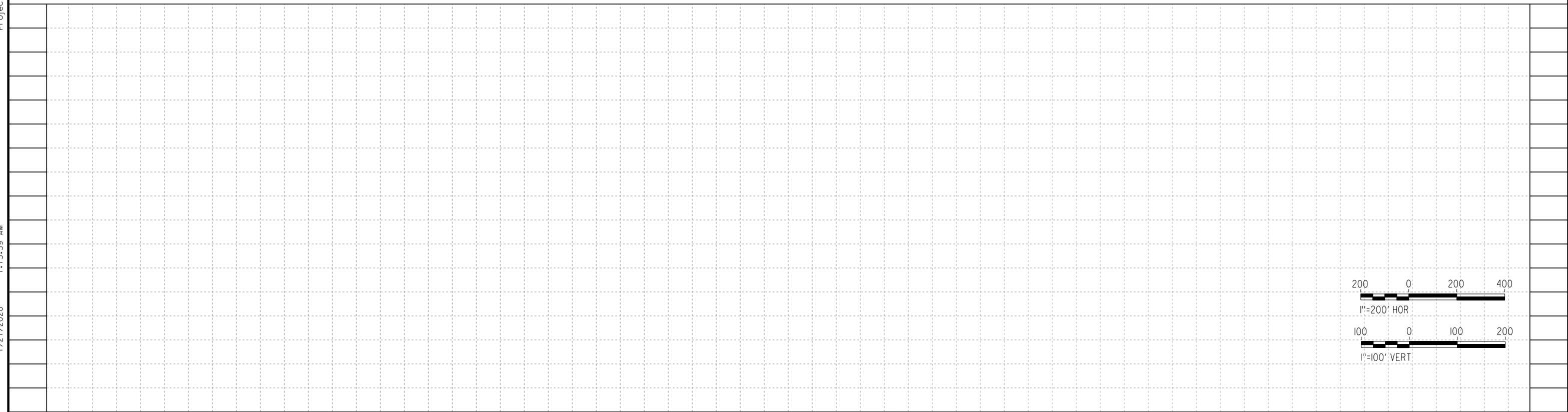
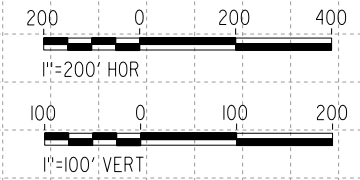
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1/21/2020

kabr_cow1



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
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



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

REFINED CCNM DESIGN OPTION
TUNNEL PROFILE - TUNNEL 5
STA 18520+00 TO STA 18570+00

CONTRACT NO.
HSR13-44

DRAWING NO.
TN-C1102

SCALE
AS SHOWN

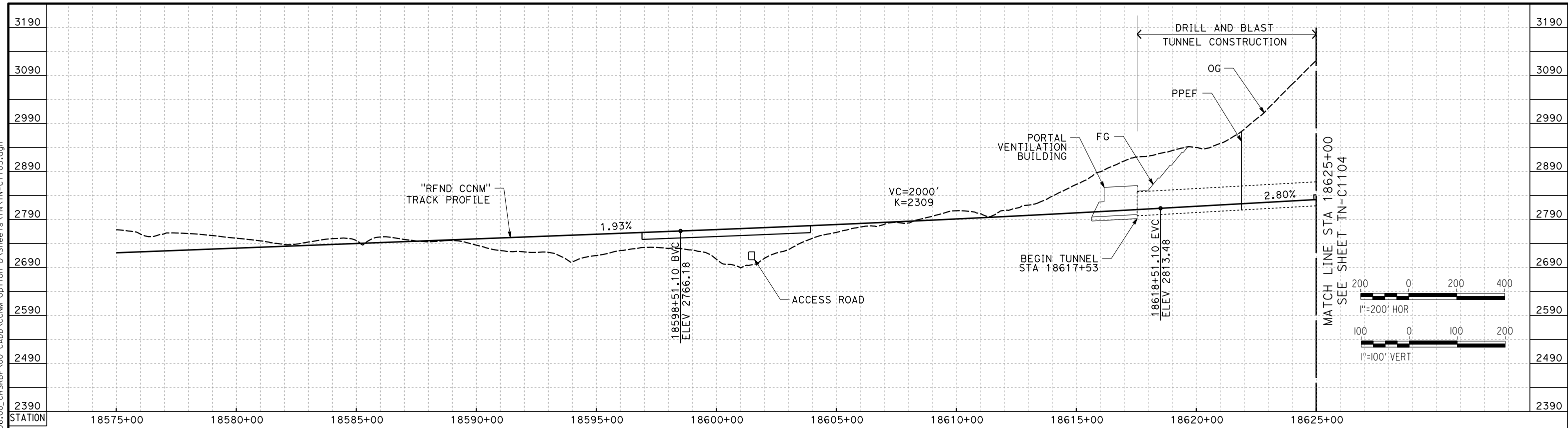
SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\TN-TN-C1103.dgn

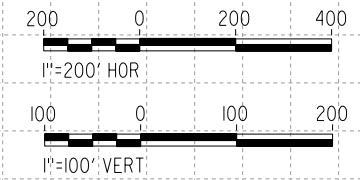
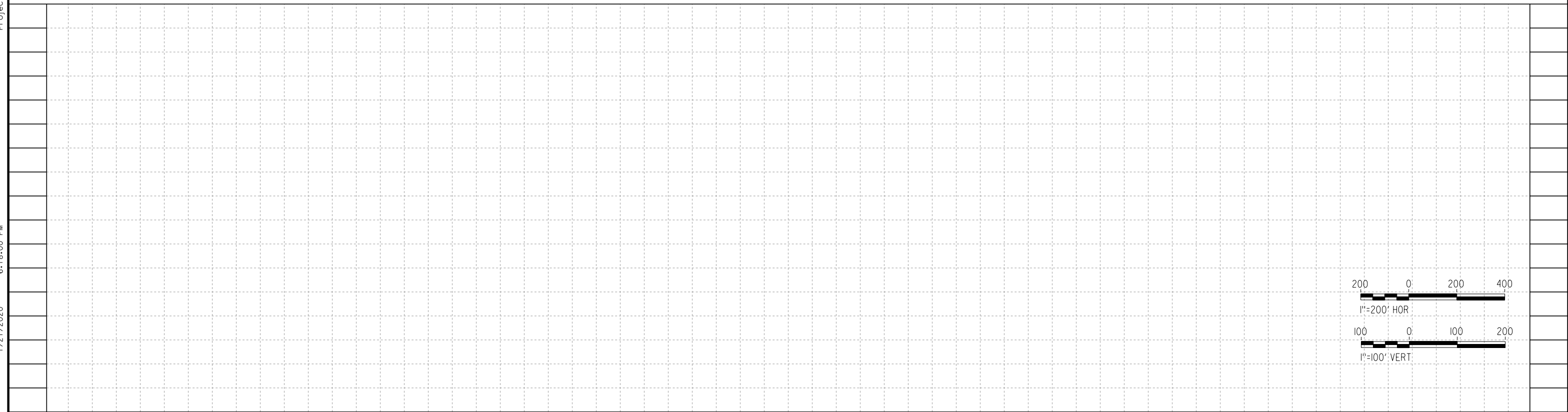
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1/21/2020

knbr_cow



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
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



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

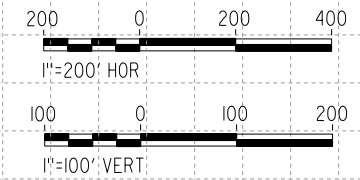
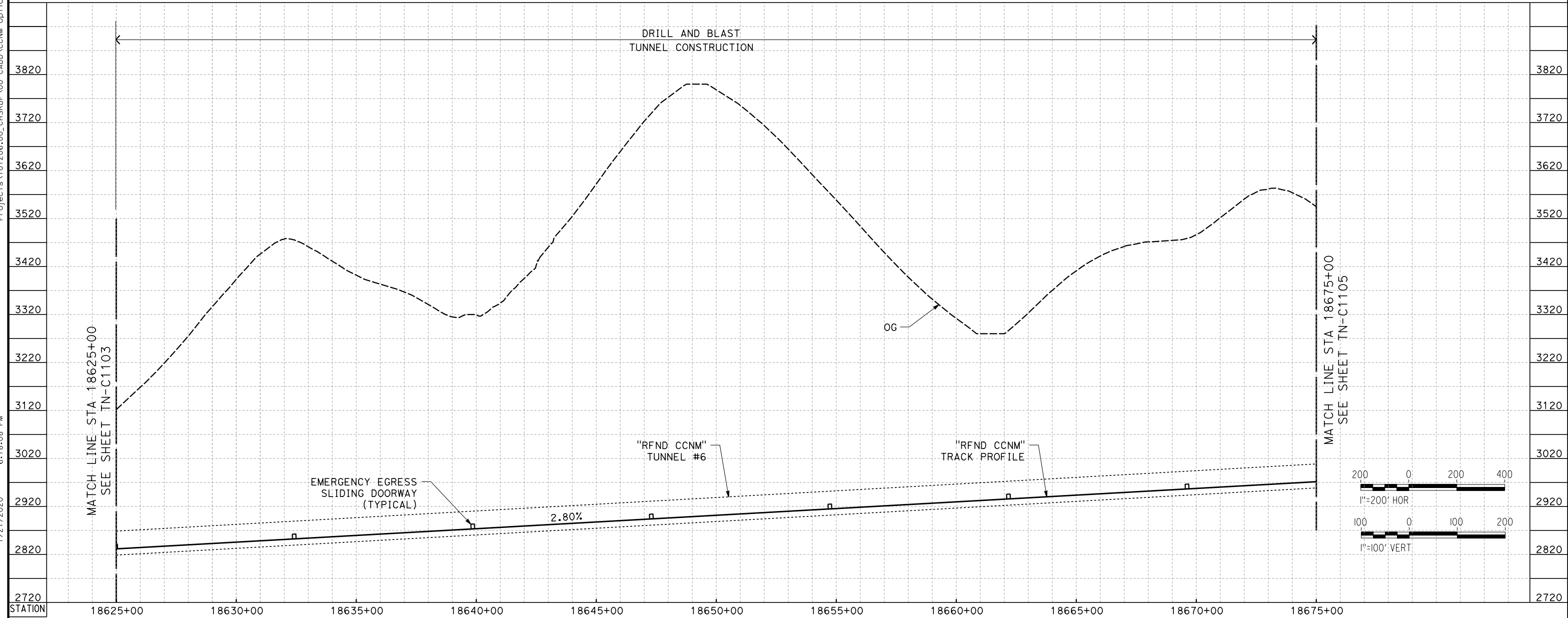
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HSR13-44
DRAWING NO.
TN-C1103
SCALE
AS SHOWN
SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM_Option_D\Sheets\TN\TN-C1104.dgn

6:18:08 PM

1/21/2020

kabr_cow1



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
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



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

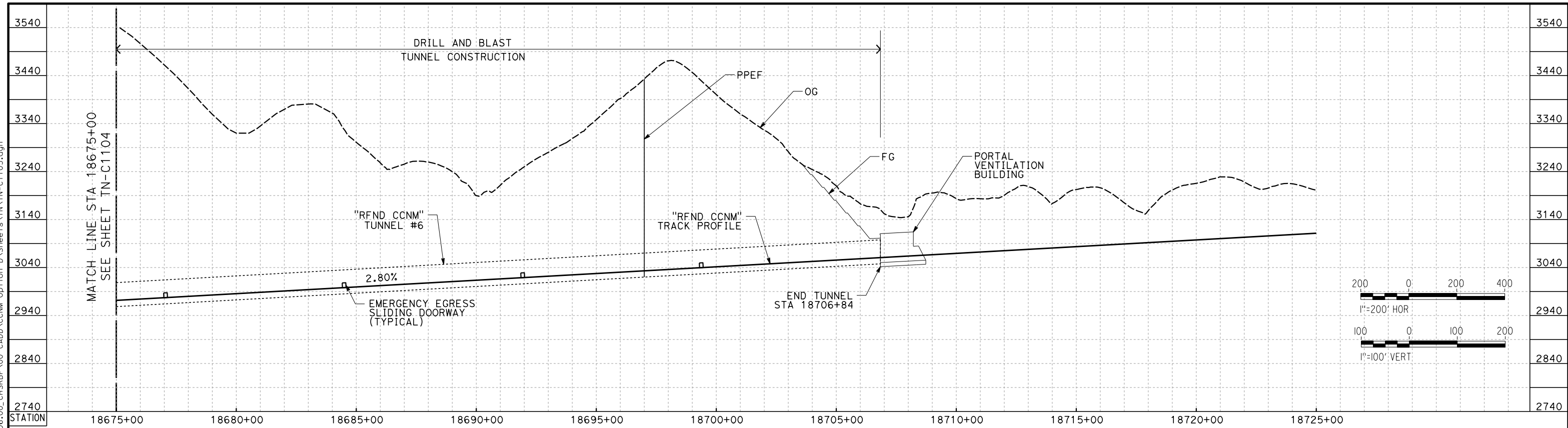
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HSR13-44
DRAWING NO.
TN-C1104
SCALE
AS SHOWN
SHEET NO.

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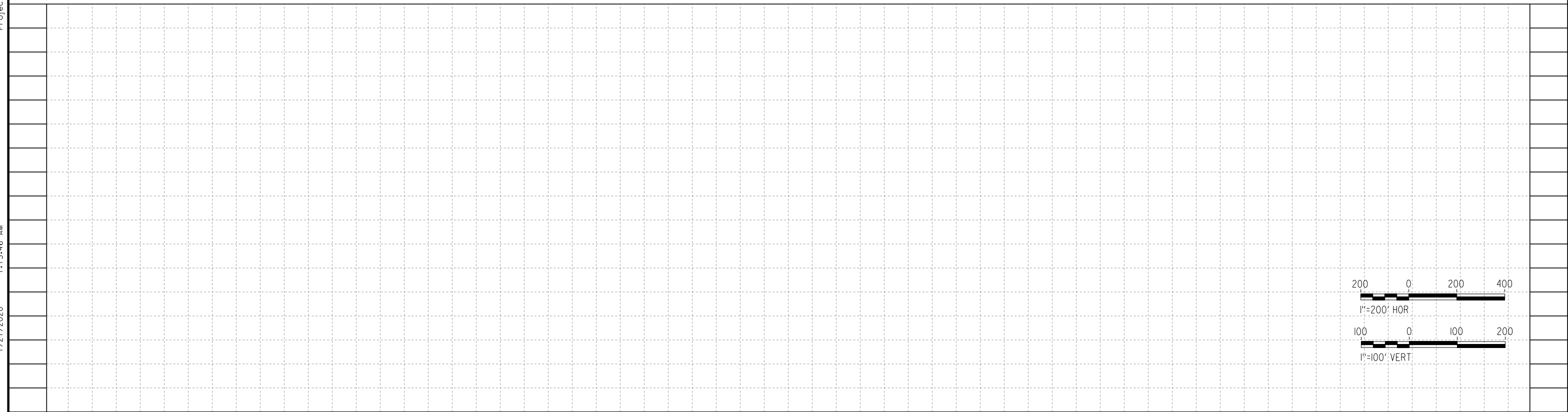
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1/21/2020

knbr_cow



TUNNEL 6



STATION

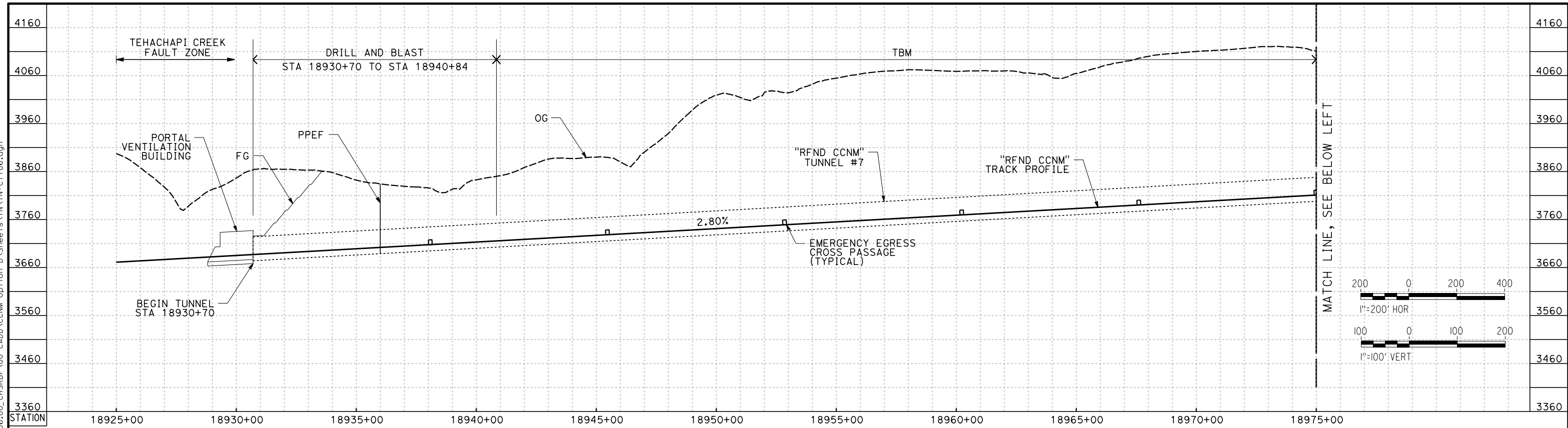
					DESIGNED BY Z. SKOVAJSOVA DRAWN BY K. BUNGER CHECKED BY R. KUNDU IN CHARGE J. MORRISON DATE 01/24/2020	RECORD PEPD SUBMITTAL NOT FOR CONSTRUCTION	TYLIN INTERNATIONAL COWI		CALIFORNIA HIGH-SPEED RAIL PROJECT BAKERSFIELD TO PALMDALE REFINED CCNM DESIGN OPTION TUNNEL PROFILE - TUNNEL 6 STA 18675+00 TO STA 18725+00	CONTRACT NO. HSR13-44 DRAWING NO. TN-C1105 SCALE AS SHOWN SHEET NO.
REV	DATE	BY	CHK	APP	DESCRIPTION					

Projects\701206_00_CHSRBP_00_CADD\CCNM_Option D\Sheets\TNTN-C1106.dgn

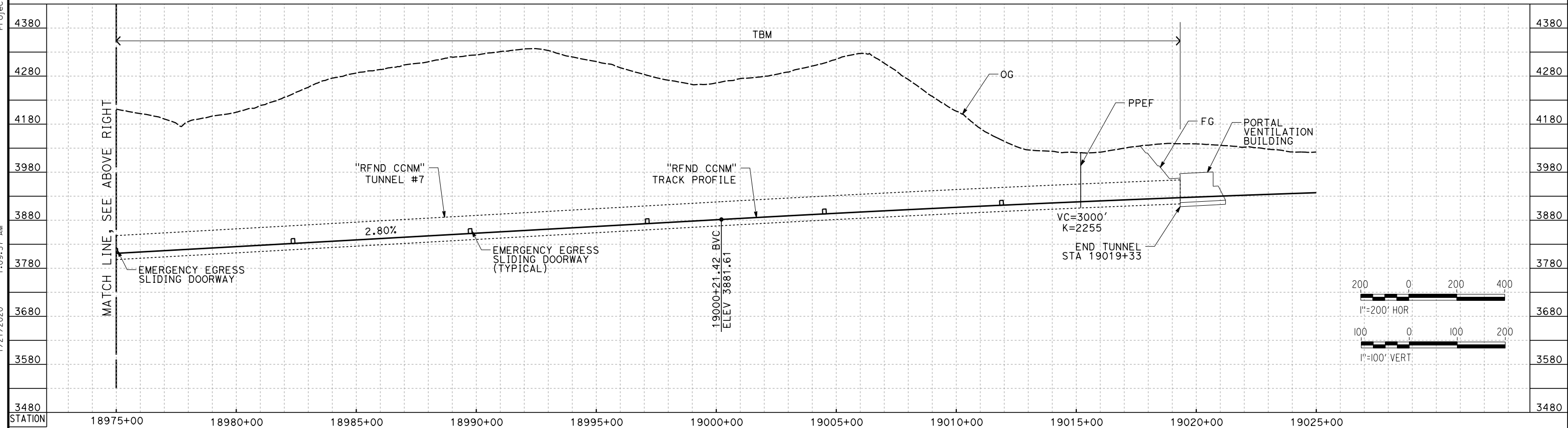
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1/21/2020

knbr_cow1



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
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



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

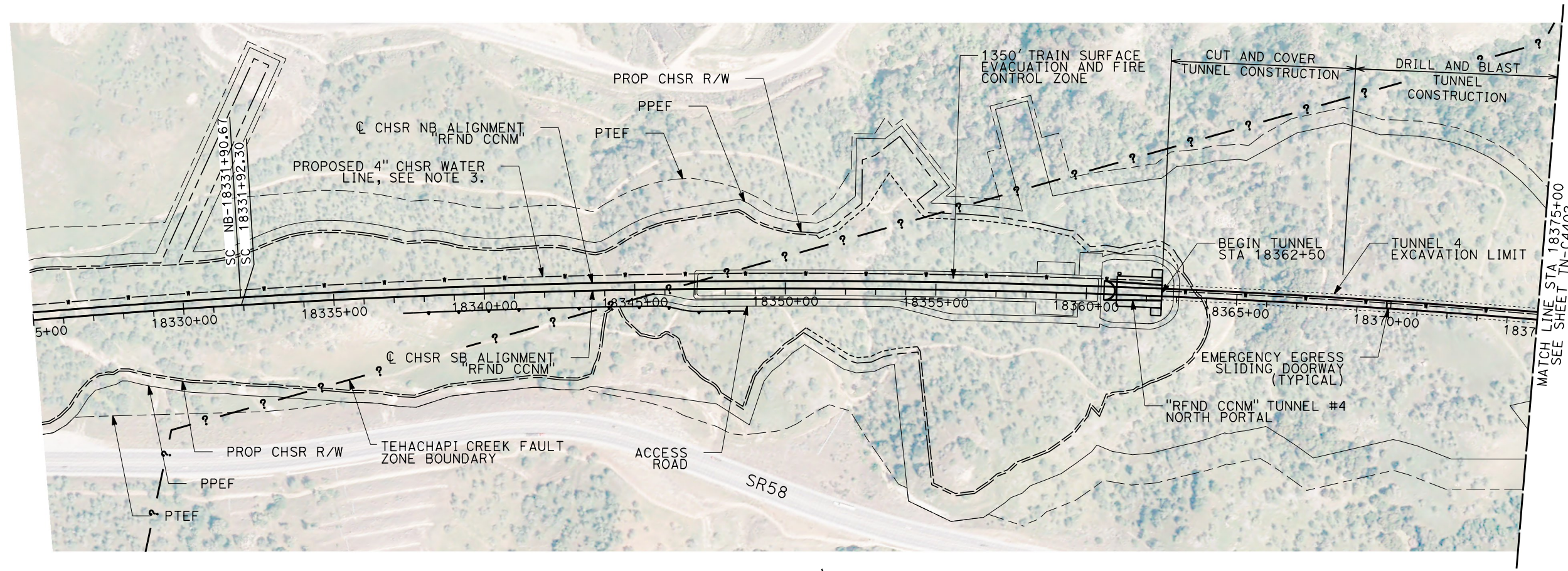
REFINED CCNM DESIGN OPTION
TUNNEL PROFILE - TUNNEL 7
STA 18925+00 TO STA 19025+00

CONTRACT NO.
HSR13-44

DRAWING NO.
TN-C1106

SCALE
AS SHOWN

SHEET NO.

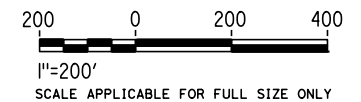


PLAN



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.
4. TUNNEL 4 WILL BE CONSTRUCTED BY CUT AND COVER METHODS BETWEEN STATION 18362+50 TO 18368+50.



Projects\701206.00_CADD\CCNM Option D\Sheets\TN\TN-C4401.dgn

4:00:23 PM

1/22/2020

kabr_cow

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA

DRAWN BY
K. BUNGER

CHECKED BY
R. KUNDU

IN CHARGE
J. MORRISON

DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



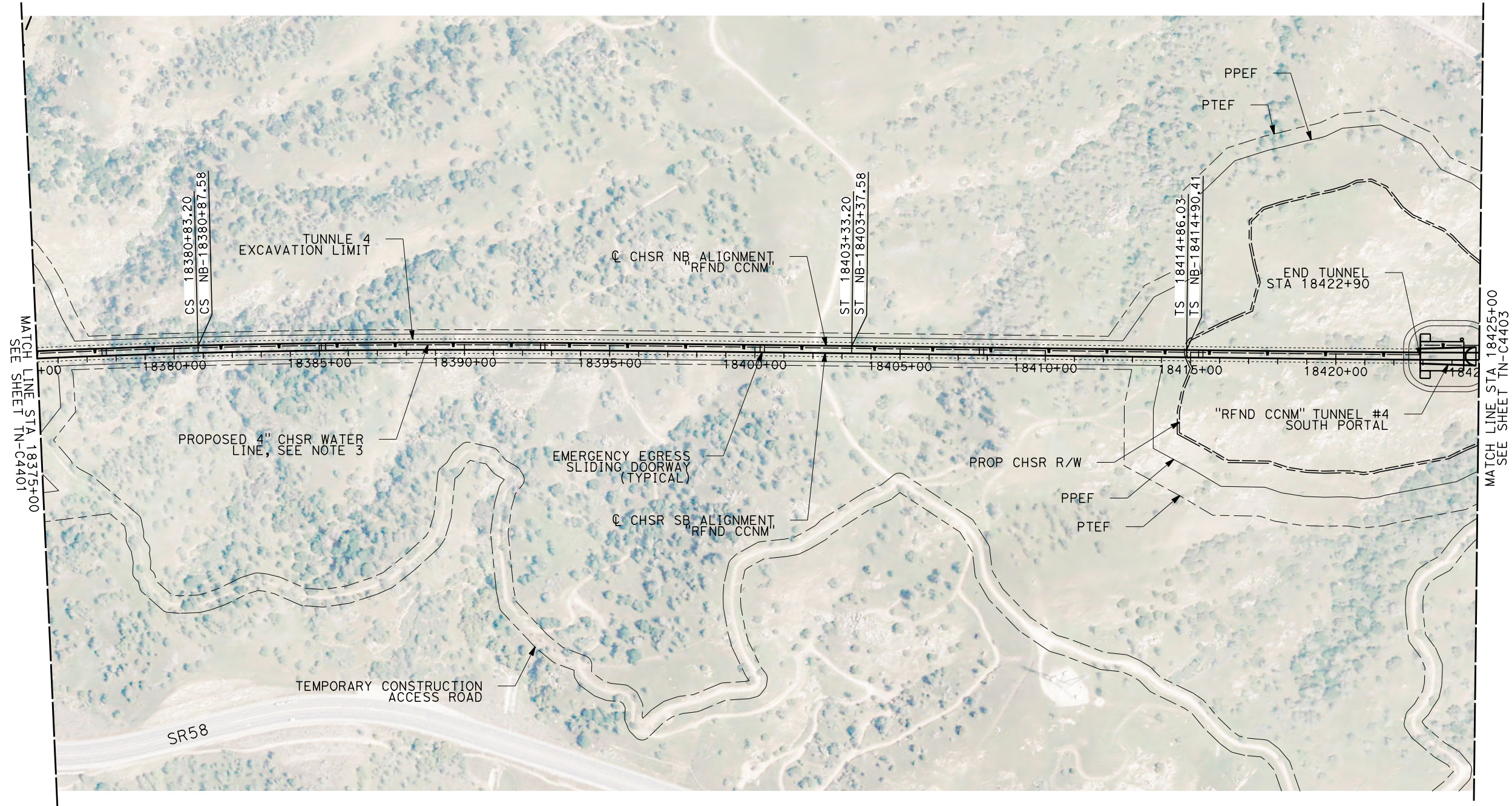
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFILED TO PALMDALE
 REFINED CCNM DESIGN OPTION
 TUNNEL 4
 STA 18325+00 TO STA 18375+00

CONTRACT NO.
HSR13-44

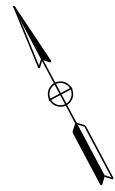
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TN-C4401

SCALE
AS SHOWN

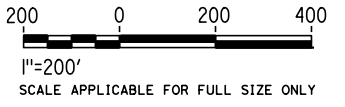
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PLAN



- 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.
 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 01/24/2020

**RECORD
PEPD
SUBMITTAL**

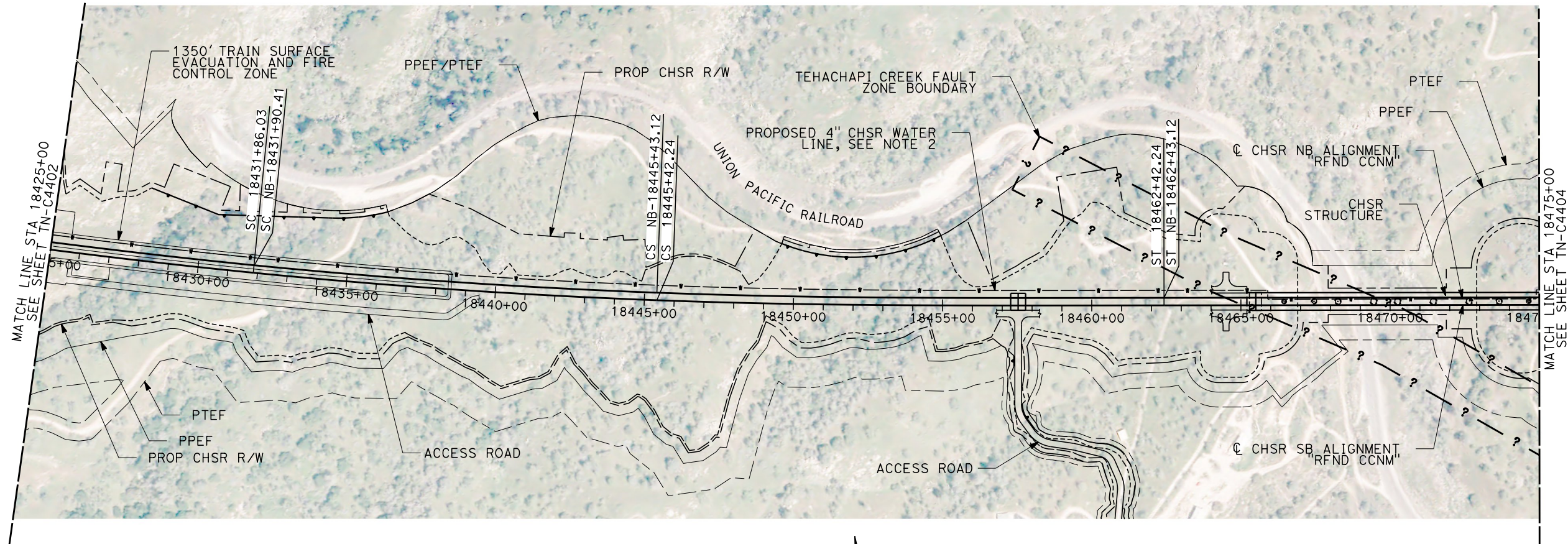
**NOT FOR
CONSTRUCTION**



**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.

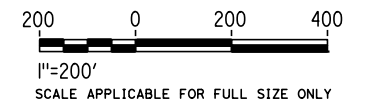


PLAN



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



Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\TN\TN-C4403.dgn
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 1/21/2020
 knbr_cow

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY Z. SKOVAJSOVA
DRAWN BY K. BUNGER
CHECKED BY R. KUNDU
IN CHARGE J. MORRISON
DATE 01/24/2020

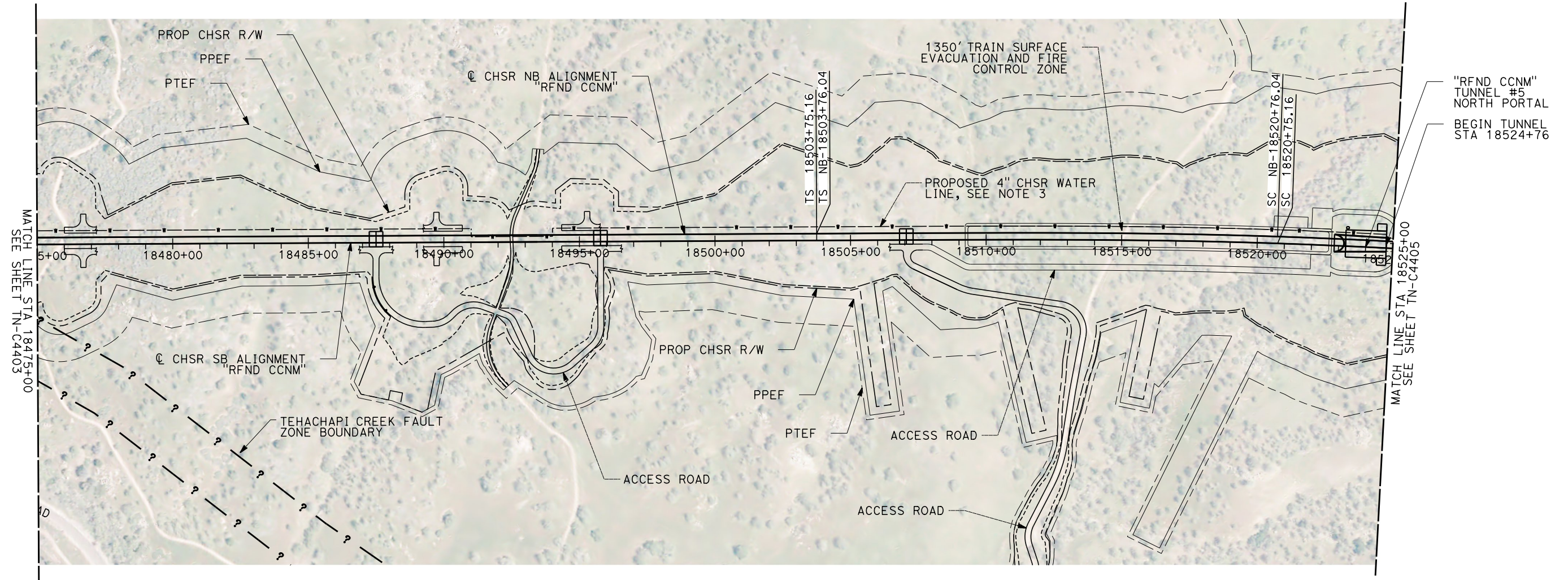
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PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**

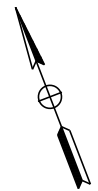


CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFILED TO PALMDALE
 REFINED CCNM DESIGN OPTION
 TUNNEL 4
 STA 18425+00 TO STA 18475+00

CONTRACT NO. HSR13-44
DRAWING NO. TN-C4403
SCALE AS SHOWN
SHEET NO.

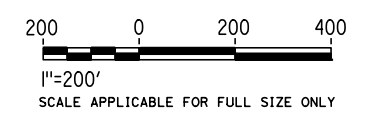


PLAN



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.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA

DRAWN BY
K. BUNGER

CHECKED BY
R. KUNDU

IN CHARGE
J. MORRISON

DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



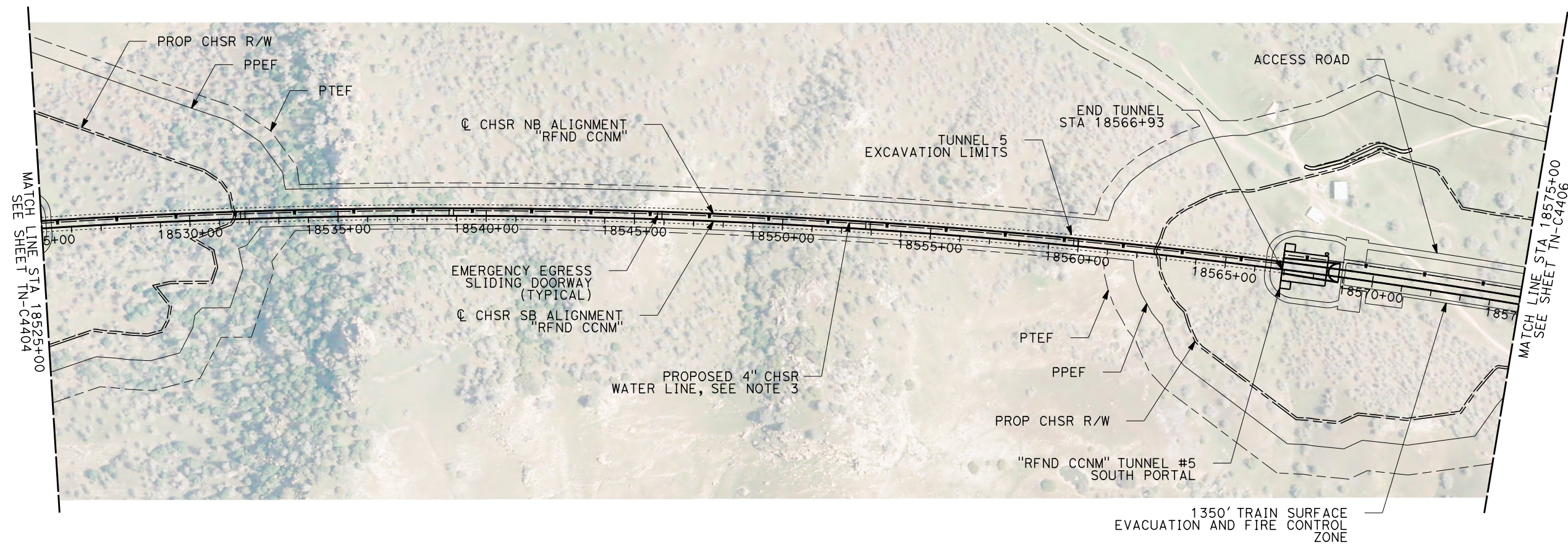
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BAKERSFIELD TO PALMDALE
 REFINED CCNM DESIGN OPTION
 TUNNEL 5
 STA 18475+00 TO STA 18525+00

CONTRACT NO.
HSR13-44

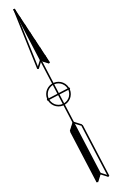
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SCALE
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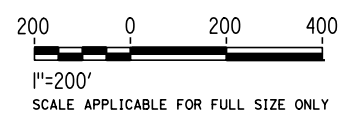


PLAN



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.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA

DRAWN BY
K. BUNGER

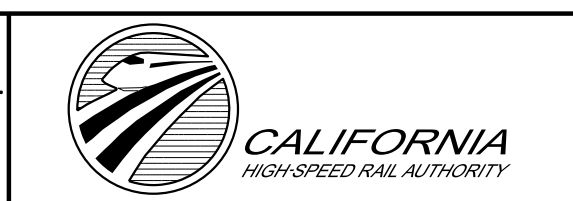
CHECKED BY
R. KUNDU

IN CHARGE
J. MORRISON

DATE
01/24/2020

**RECORD
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

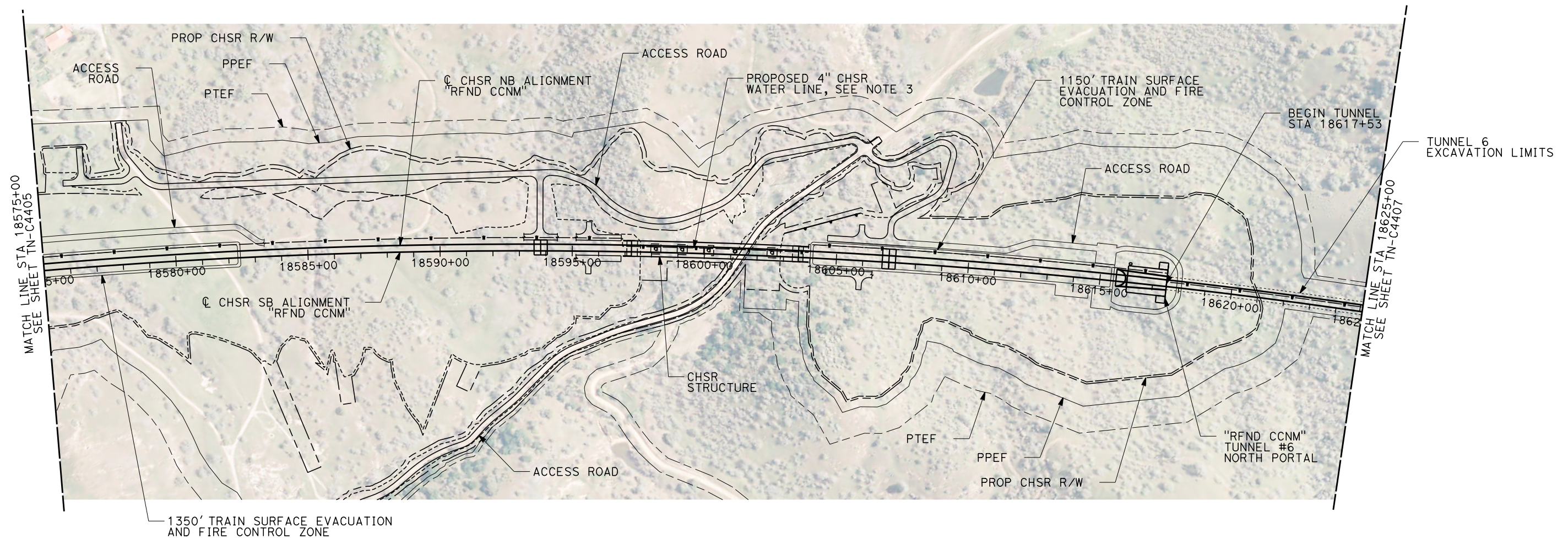
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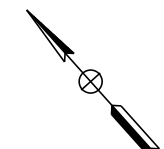
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1/21/2020

knbr_cow

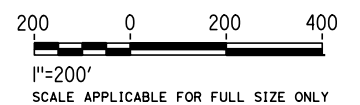


PLAN



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.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY Z. SKOVAJSOVA
DRAWN BY K. BUNGER
CHECKED BY R. KUNDU
IN CHARGE J. MORRISON
DATE 01/24/2020

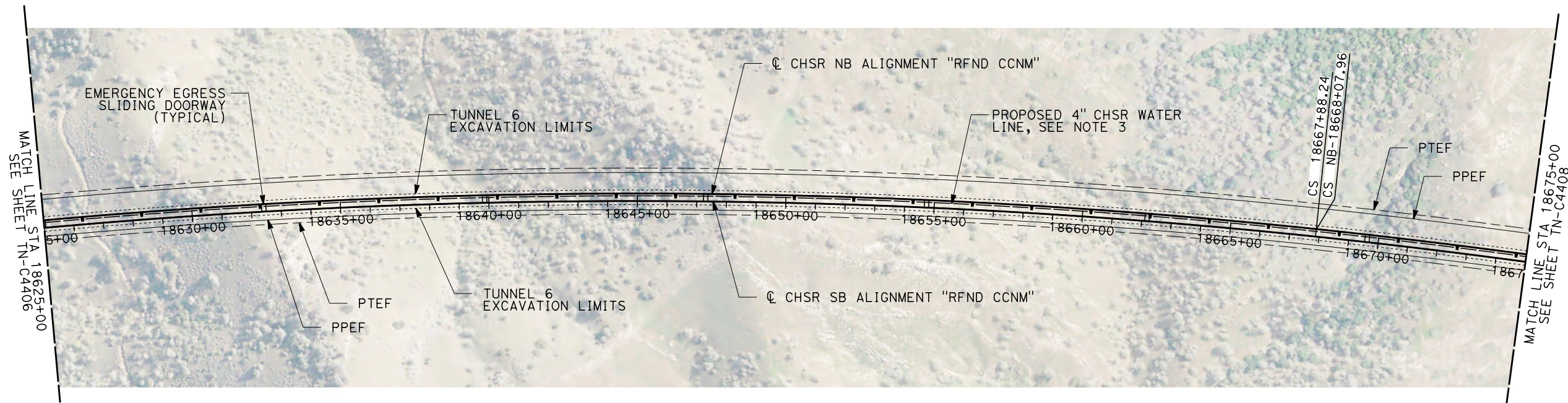
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PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



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

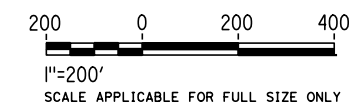
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DRAWING NO. TN-C4406
SCALE AS SHOWN
SHEET NO.



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.



Projects\701206.00_CHSRBP\00_CADD\CCNM Option D\Sheets\TN\C4407.dgn

1/21/2020 1:12:30 AM

kbr_cow

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA

DRAWN BY
K. BUNGER

CHECKED BY
R. KUNDU

IN CHARGE
J. MORRISON

DATE
01/24/2020

**RECORD
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

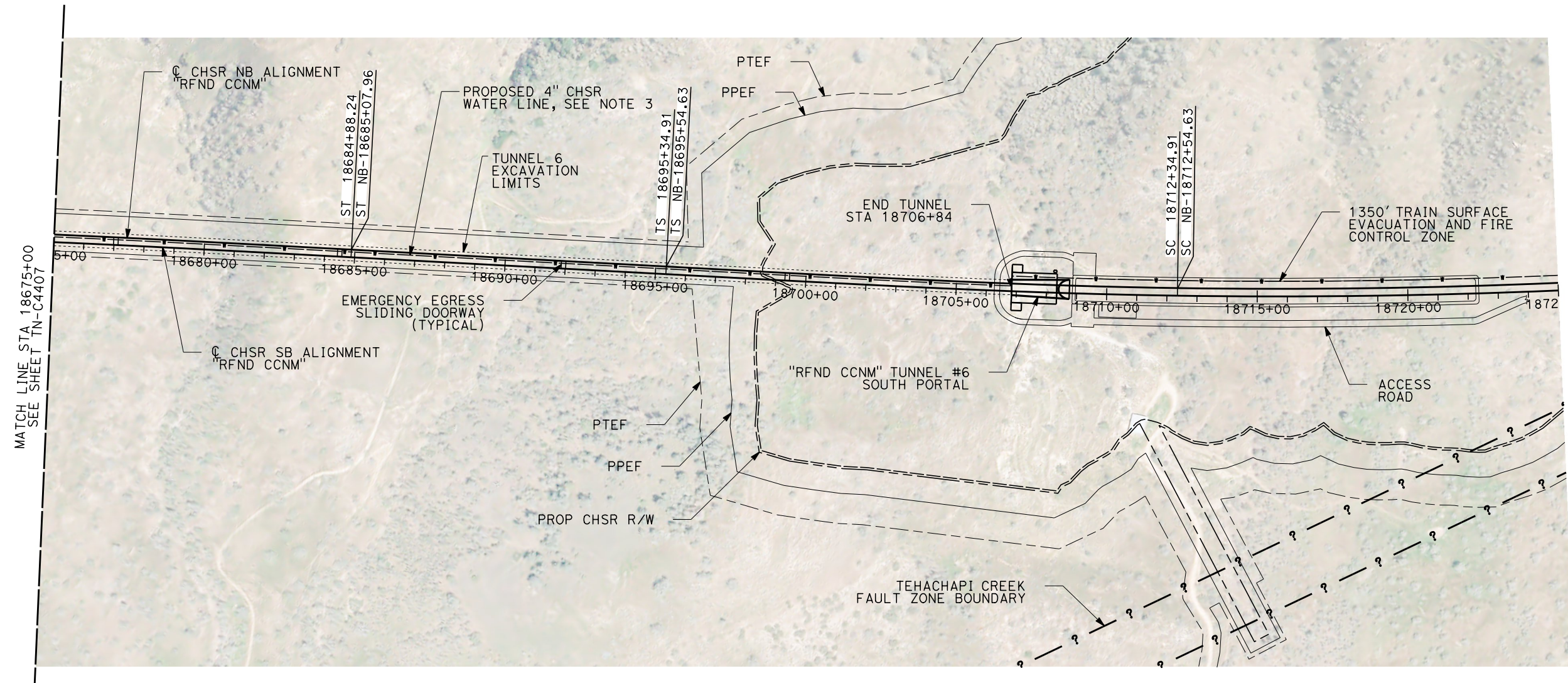
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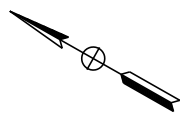
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1/21/2020

knbr_cow

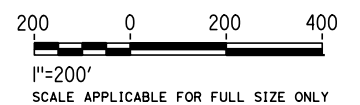


PLAN



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.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY Z. SKOVAJSOVA
DRAWN BY K. BUNGER
CHECKED BY R. KUNDU
IN CHARGE J. MORRISON
DATE 01/24/2020

**RECORD
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

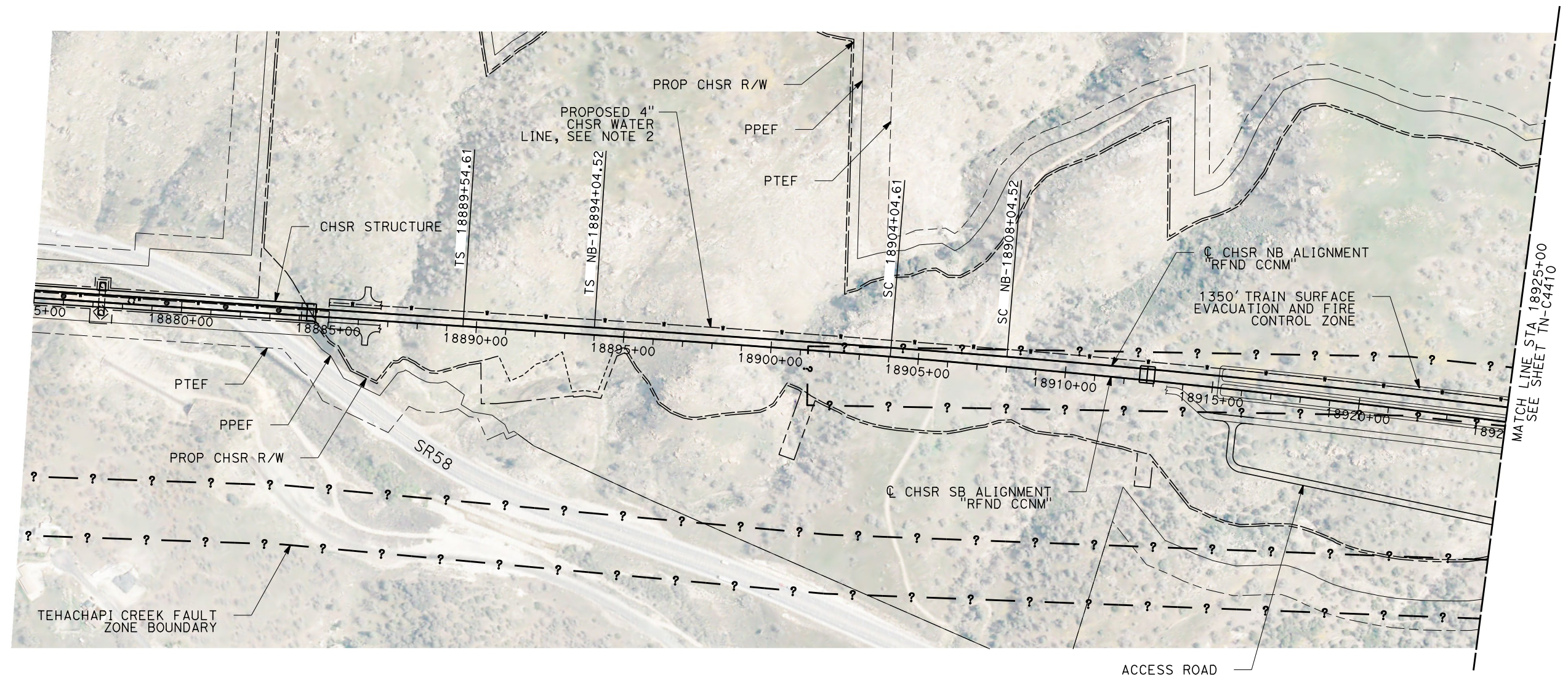
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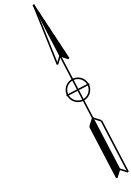
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1/21/2020

knbr_cow

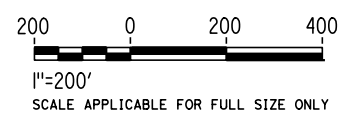


PLAN



NOTES:

1. FAULT ZONE LOCATIONS ARE APPROXIMATE, TO BE CONFIRMED.
2. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00.

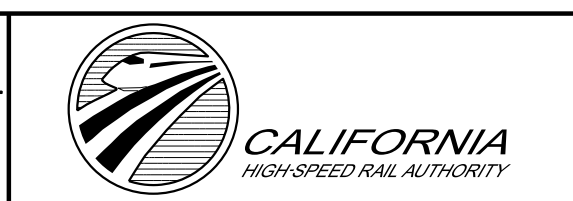


REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA
DRAWN BY
K. BUNGER
CHECKED BY
R. KUNDU
IN CHARGE
J. MORRISON
DATE
01/24/2020

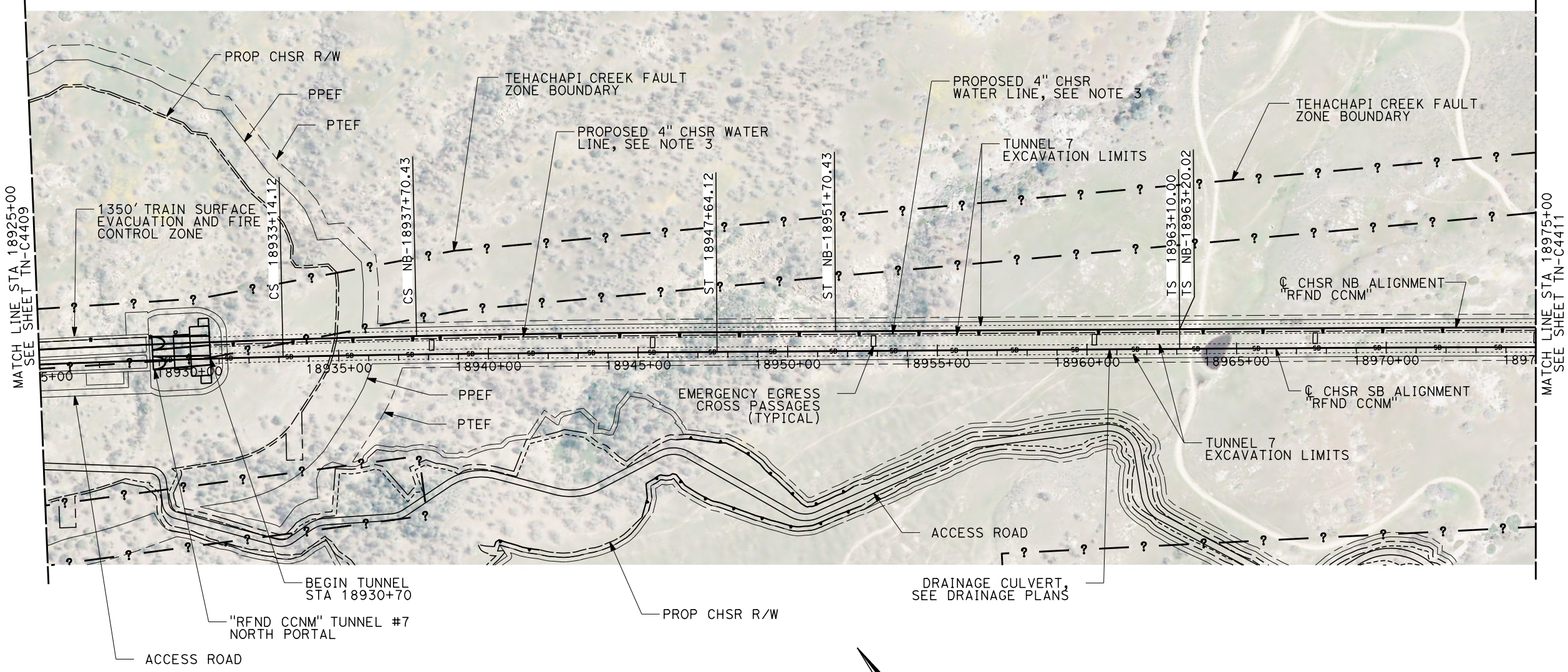
**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**

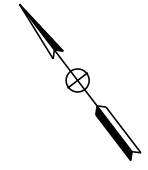


CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TUNNEL 7
STA 18875+00 TO STA 18925+00

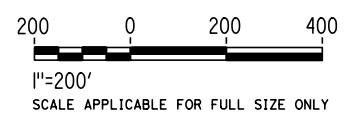
CONTRACT NO.
HSR13-44
DRAWING NO.
TN-C4409
SCALE
AS SHOWN
SHEET NO.



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.



Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\TN\TN-C4410.dgn

1/21/2020 1:15:17 AM

1/21/2020

kndr_cow

REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA

DRAWN BY
K. BLINGER

CHECKED BY
R. KUNDU

IN CHARGE
J. MORRISON

DATE
01/24/2020

**RECORD
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

CONTRACT NO.
HSR13-44

DRAWING NO.
TN-C4410

SCALE
AS SHOWN

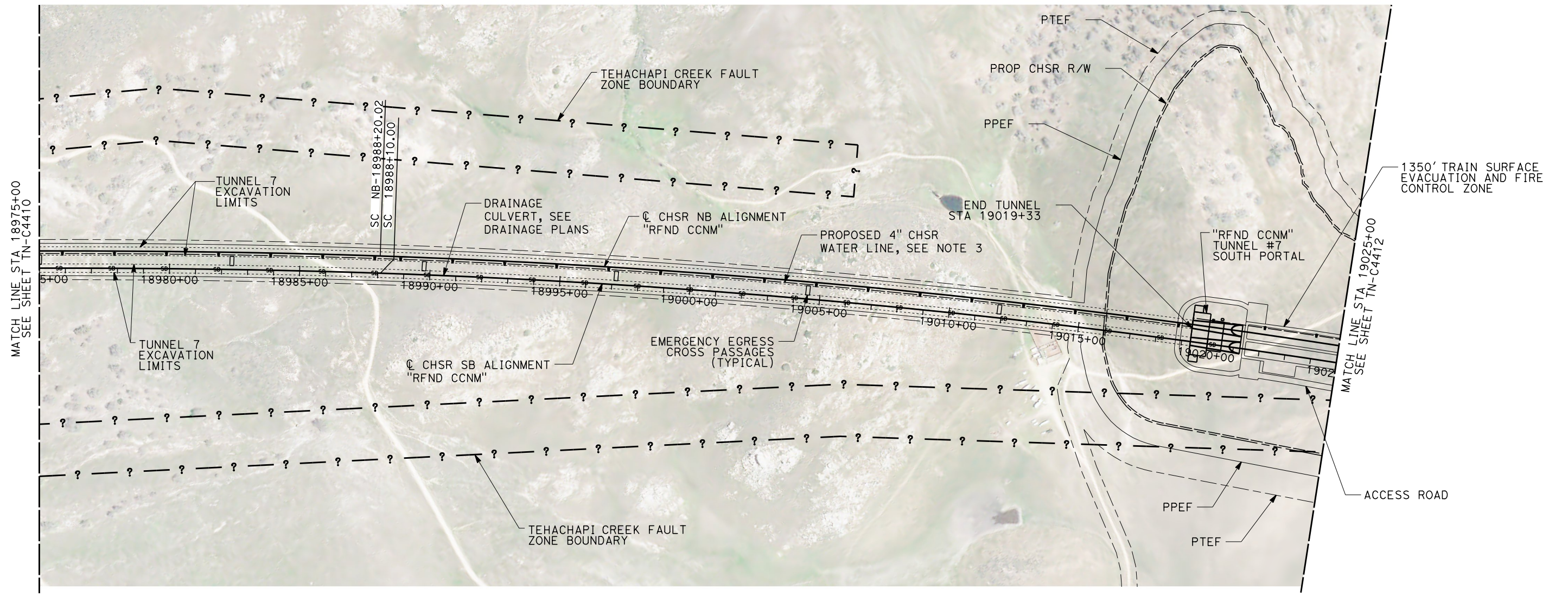
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Projects\701206_00_CHSRBP\00_CADD\CCNM_Option_D\Sheets\TN\TN-C4411.dgn

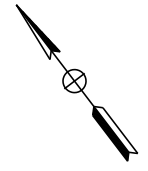
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knbr_cow

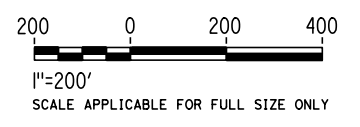


PLAN



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.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY Z. SKOVAJSOVA
DRAWN BY K. BUNGER
CHECKED BY R. KUNDU
IN CHARGE J. MORRISON
DATE 01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
 REFINED CCNM DESIGN OPTION
 TUNNEL 7
 STA 18975+00 TO STA 19025+00

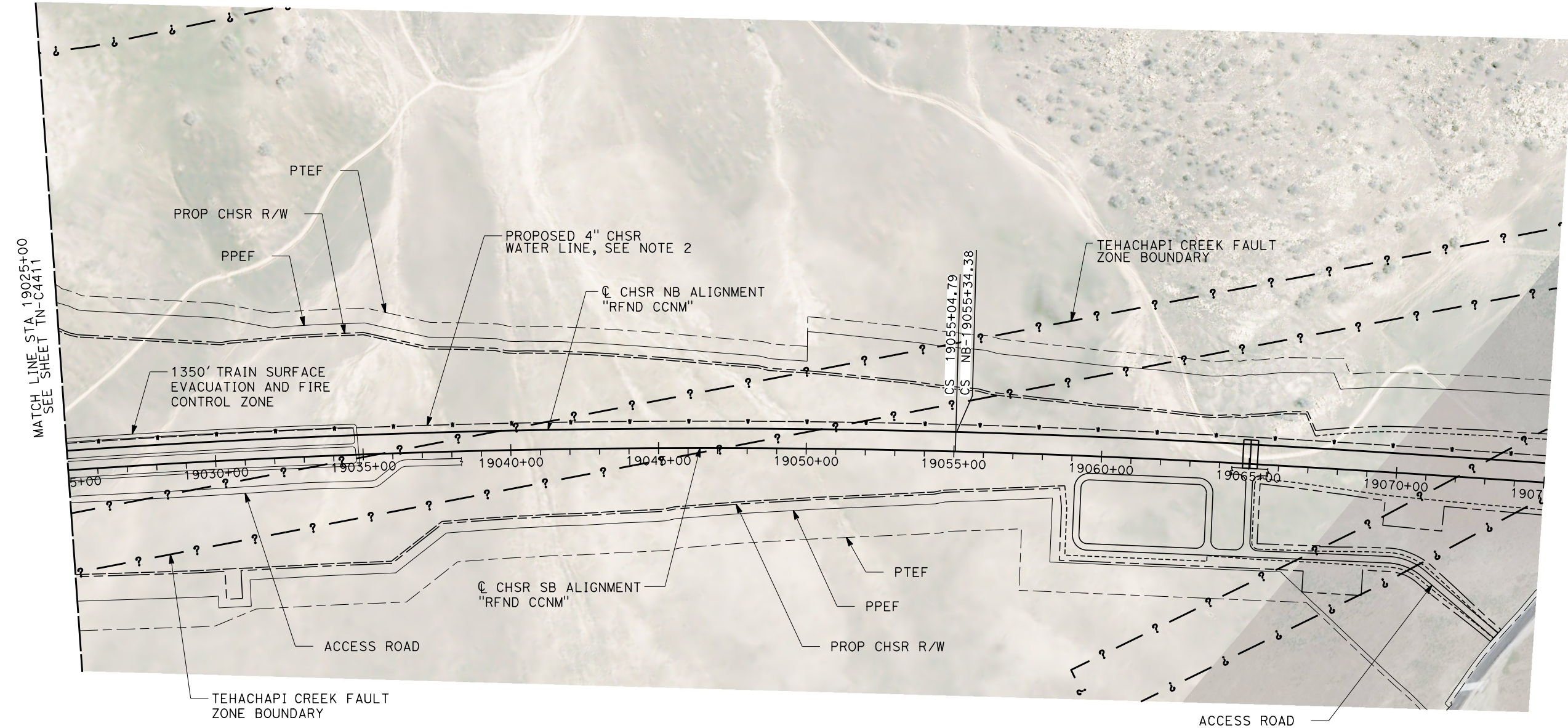
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DRAWING NO. TN-C4411
SCALE AS SHOWN
SHEET NO.

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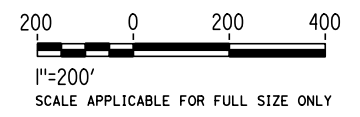
1/21/2020

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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.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA

DRAWN BY
K. BUNGER

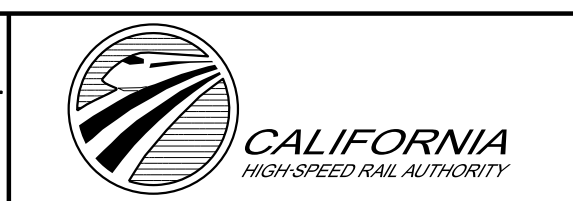
CHECKED BY
R. KUNDU

IN CHARGE
J. MORRISON

DATE
01/24/2020

**RECORD
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

CONTRACT NO.
HSR13-44

DRAWING NO.
TN-C4412

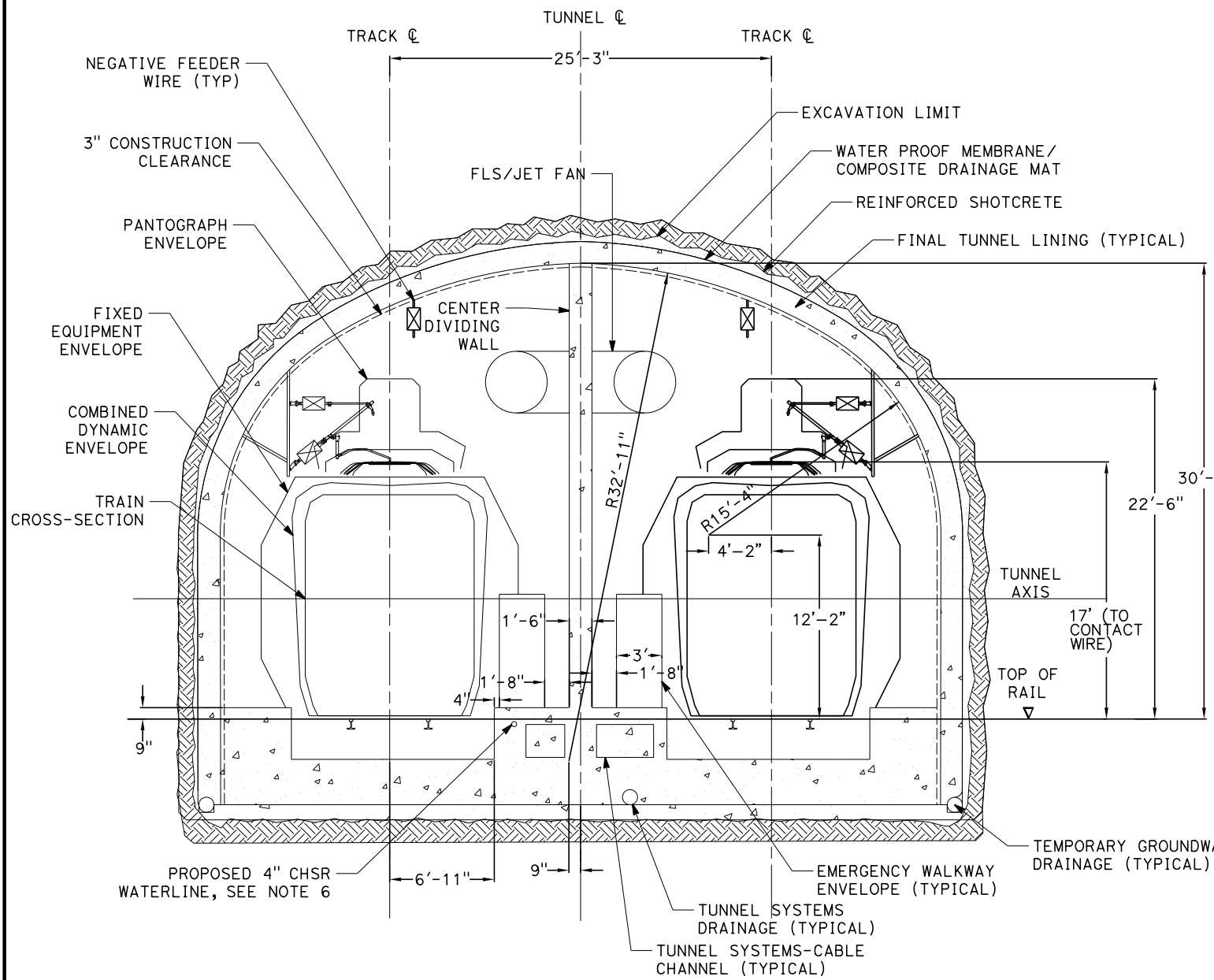
SCALE
AS SHOWN

SHEET NO.

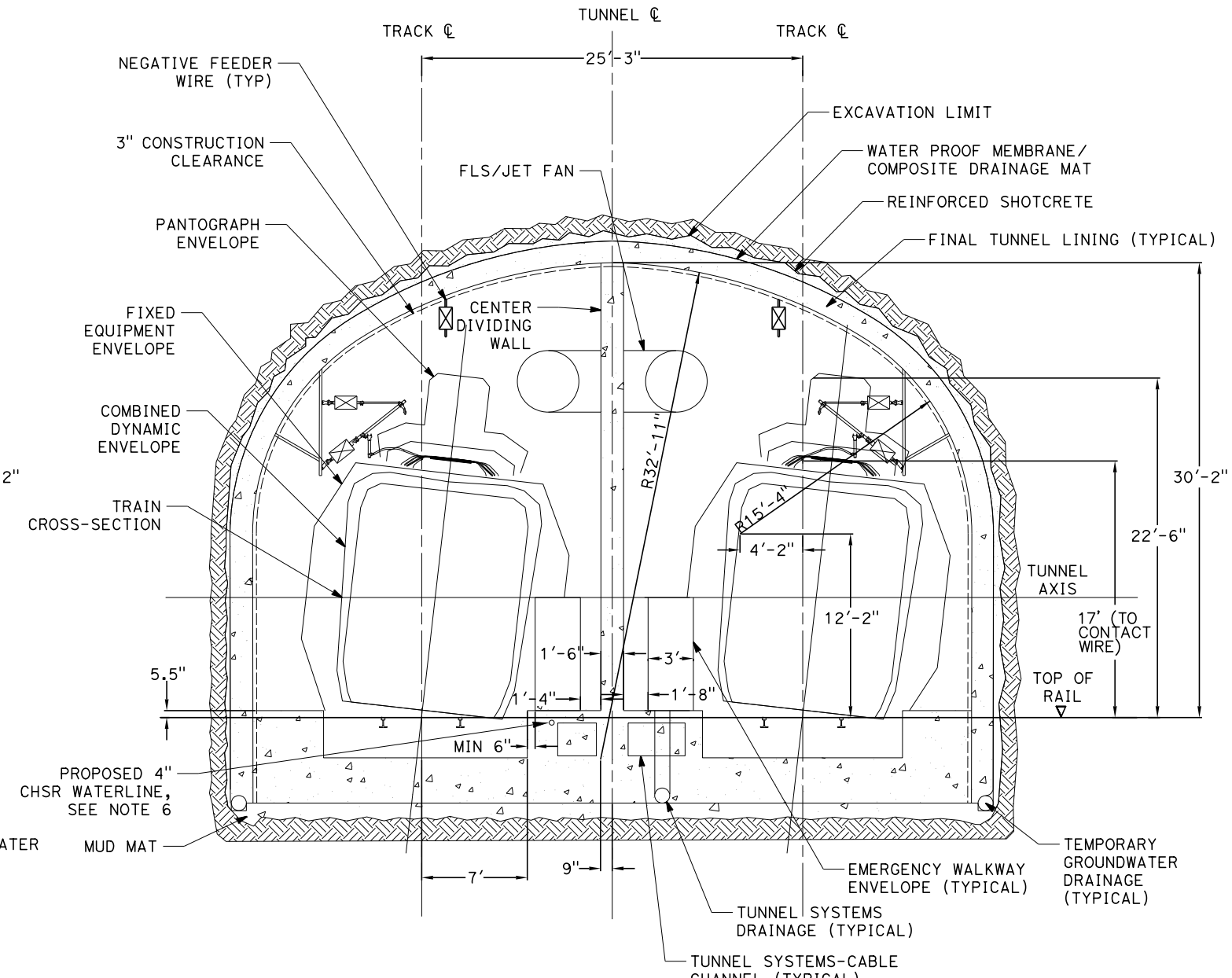
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knbr_cow



TANGENT TRACK



SUPER ELEVATED TRACK

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\"/>



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA
DRAWN BY
K. BUNGER
CHECKED BY
R. KUNDU
IN CHARGE
J. MORRISON
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



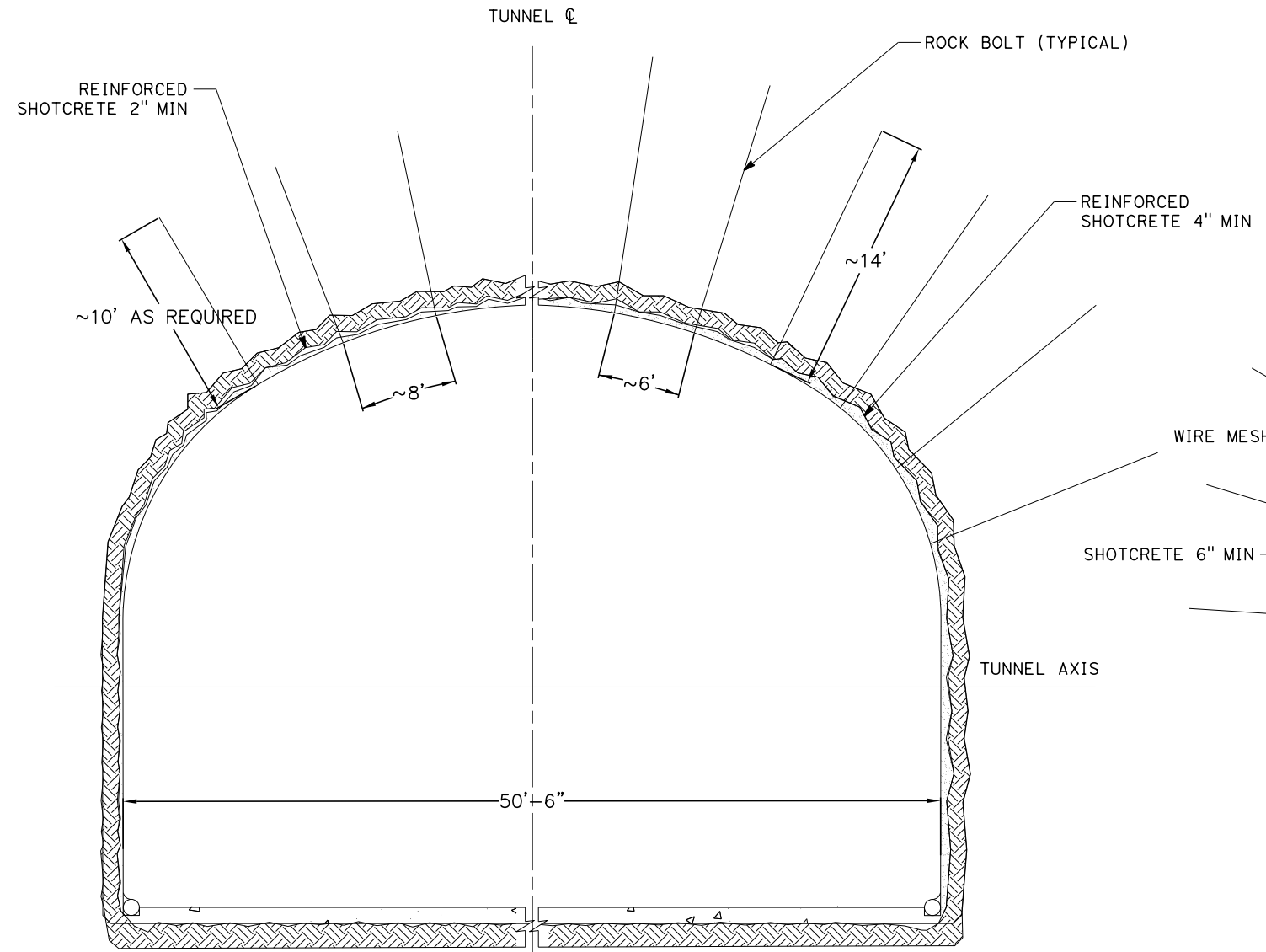
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
REFINED CCNM DESIGN OPTION
TUNNEL DRILL AND BLAST METHOD
SINGLE TUNNEL CLEARANCE DIAGRAM

CONTRACT NO.
HSR13-44
DRAWING NO.
TN-D3101
SCALE
AS SHOWN
SHEET NO.

Projects\701206.00_CHSRBP\00_CADD\CCNM Option D\Sheets\TN-D3102.dgn

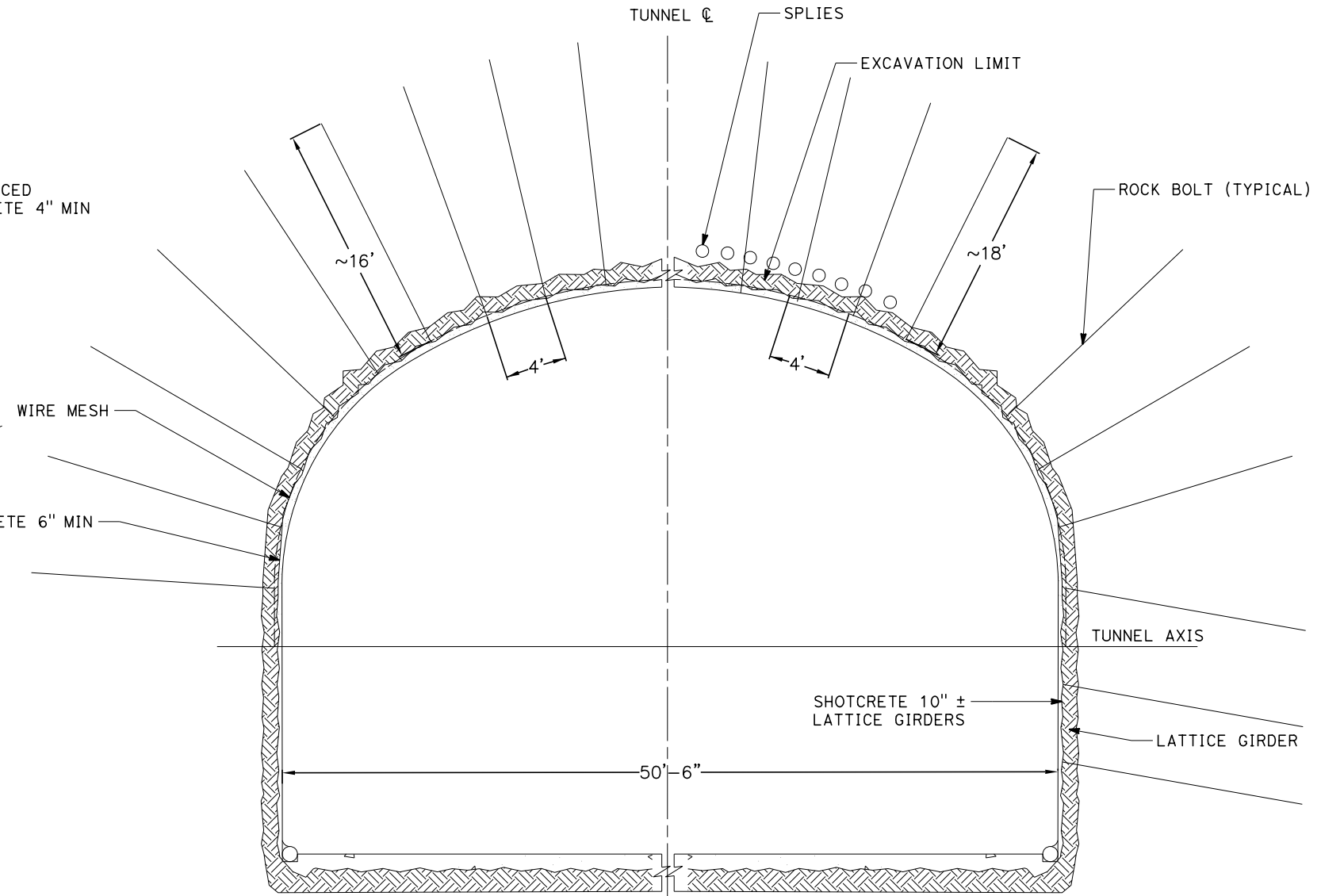
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knbr_cow



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
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IN CHARGE
J. MORRISON
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TUNNEL DRILL AND BLAST METHOD
SINGLE TUNNEL - INITIAL SUPPORT

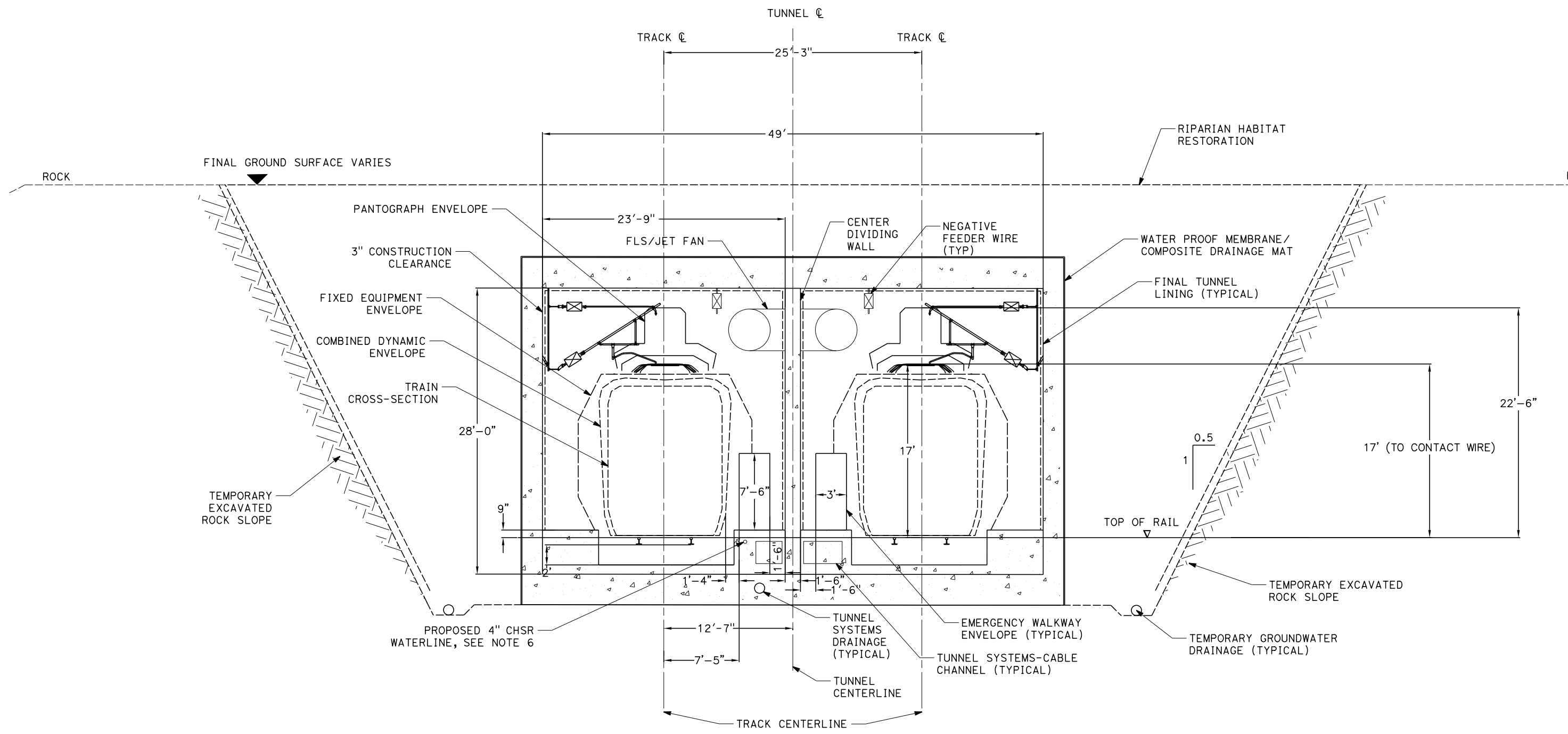
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HSR13-44
DRAWING NO.
TN-D3102
SCALE
AS SHOWN
SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\TN-D3103.dgn

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1/21/2020

knbr_cow



GENERAL NOTES:

1. TEMPORARY SLOPE AND BENCH GEOMETRIES SHOWN ARE BASED ON GUIDANCE PROVIDED IN TM 2.6.7.
2. SLOPE PROTECTION, DRAINAGE, STRUCTURAL DIMENSIONS, AND STABILIZATION PROVISIONS WILL BE DEVELOPED BASED ON SITE INVESTIGATION RESULTS AND SLOPE-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. EXCAVATION, GROUND SUPPORT, LINING AND WATERTIGHTNESS PROVISIONS WILL BE OPTIMIZED BASED ON SITE INVESTIGATION RESULTS AND CUT AND COVER-SPECIFIC DESIGN WORK.
5. CENTER DIVIDING WALL SHALL CONFORM TO NFPA 130 AND HAVE A 2 HOUR FIRE RATING.
6. PROPOSED 4" WATER LINE PARALLELS ALIGNMENT FROM STATION 18034+00 TO 19591+00.



DESIGNED BY Z. SKOVAJSOVA
DRAWN BY K. BUNGER
CHECKED BY R. KUNDU
IN CHARGE J. MORRISON
DATE 01/24/2020

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PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
 REFINED CCNM DESIGN OPTION
 TUNNEL CUT AND COVER BOX
 CLEARANCE DIAGRAM - TANGENT TRACK

CONTRACT NO. HSR13-44
DRAWING NO. TN-D3103
SCALE AS SHOWN
SHEET NO.

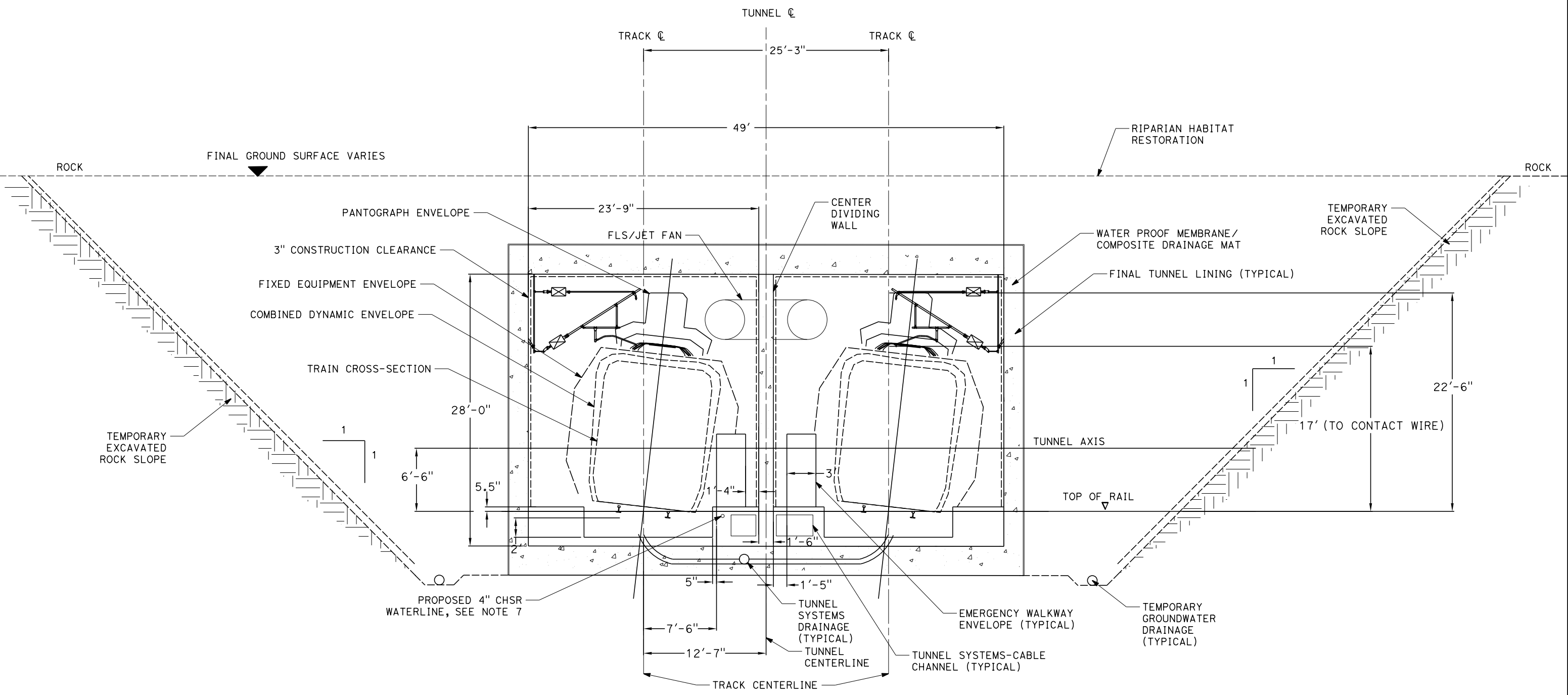
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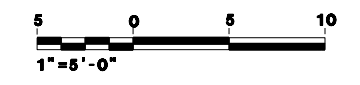
1/21/2020

knbr_cow



GENERAL NOTES:

1. TEMPORARY SLOPE AND BENCH GEOMETRIES SHOWN ARE BASED ON GUIDANCE PROVIDED IN TM 2.6.7
2. SLOPE PROTECTION, DRAINAGE, STRUCTURAL DIMENSIONS, AND STABILIZATION PROVISIONS WILL BE DEVELOPED BASED ON SITE INVESTIGATION RESULTS AND SLOPE-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. EXCAVATION, GROUND SUPPORT, LINING AND WATERTIGHTNESS PROVISIONS WILL BE OPTIMIZED BASED ON SITE INVESTIGATION RESULTS AND CUT AND COVER-SPECIFIC DESIGN WORK.
5. CUT AND COVER BOX TYPICAL SECTION TO BE USED AT TUNNEL 4, STATION 18362+50 TO 18368+50.
6. CENTER DIVIDING WALL SHALL CONFORM TO NFPA 101 AND HAVE A 2 HOUR FIRE RATING.
7. PROPOSED 4\"/>



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA

DRAWN BY
K. BUNGER

CHECKED BY
R. KUNDU

IN CHARGE
J. MORRISON

DATE
01/24/2020

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CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
 REFINED CCNM DESIGN OPTION
 TUNNEL CUT AND COVER BOX
 CLEARANCE DIAGRAM - SUPER ELEVATED TRACK

CONTRACT NO.
HSR13-44

DRAWING NO.
TN-D3104

SCALE
AS SHOWN

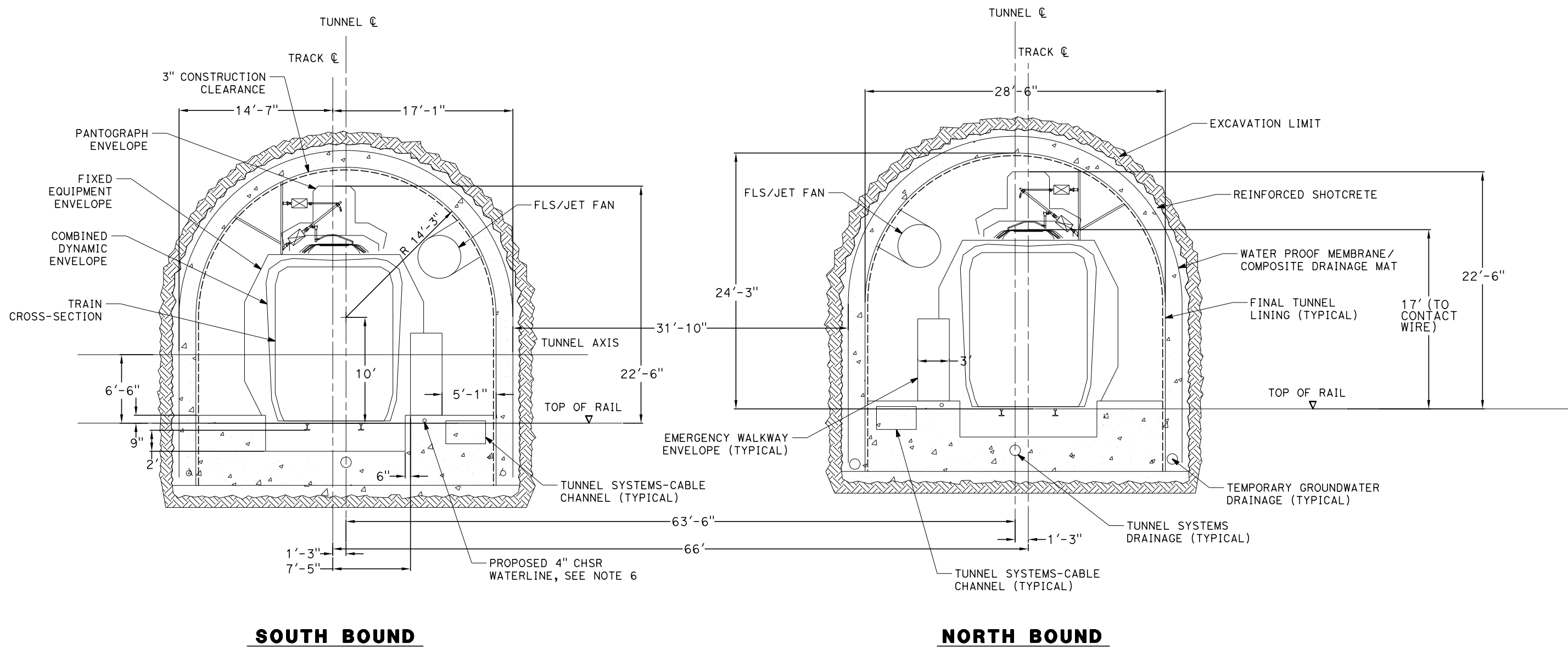
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kabr_cow



SOUTH BOUND

NORTH BOUND

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.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA

DRAWN BY
K. BUNGER

CHECKED BY
R. KUNDU

IN CHARGE
J. MORRISON

DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
 REFINED CCNM DESIGN OPTION
 TWIN TUNNEL DRILL AND BLAST METHOD
 CLEARANCE DIAGRAM - TANGENT TRACK

CONTRACT NO.
HSR13-44

DRAWING NO.
TN-D3105

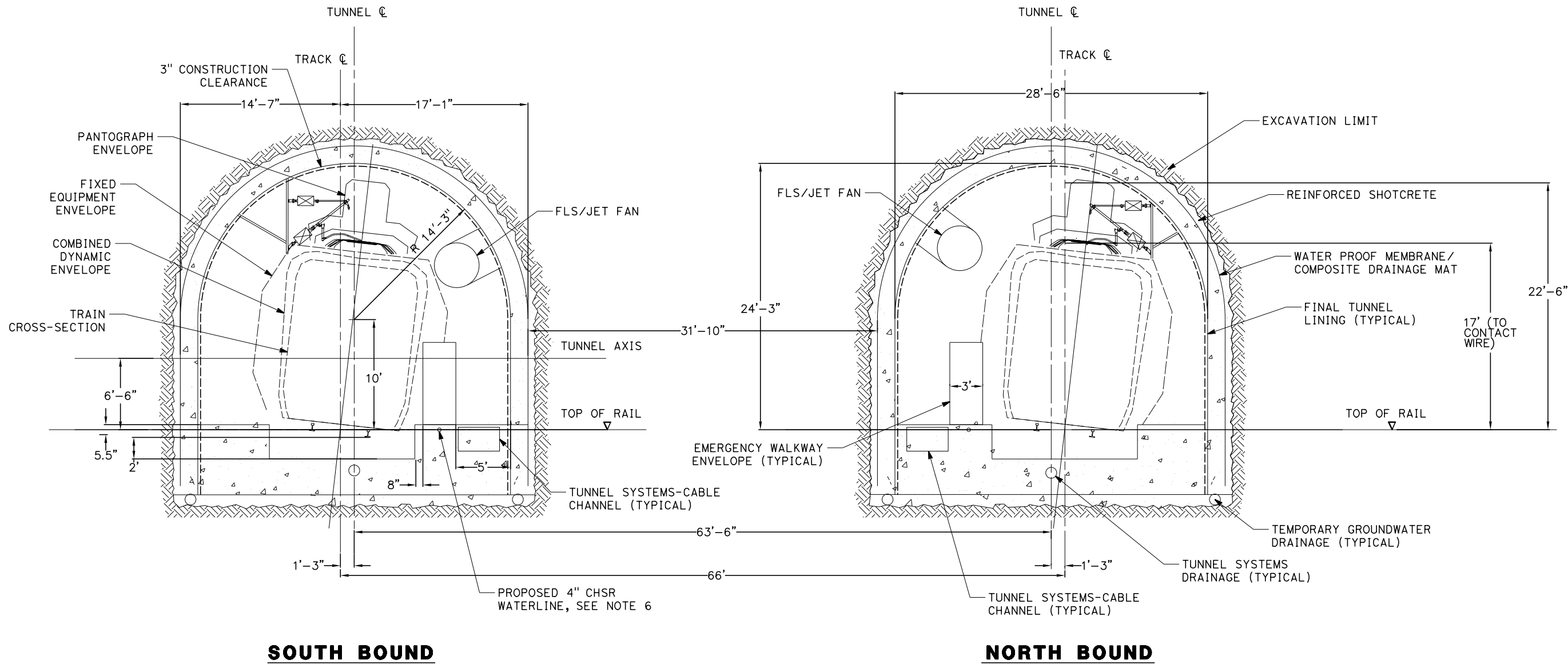
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SHEET NO.

Projects\701206.00_CHSRBP\00_CADD\CCNM_Option_D\Sheets\TN-D3106.dgn

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knbr_cow



SOUTH BOUND

NORTH BOUND

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



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA
DRAWN BY
K. BUNGER
CHECKED BY
R. KUNDU
IN CHARGE
J. MORRISON
DATE
01/24/2020

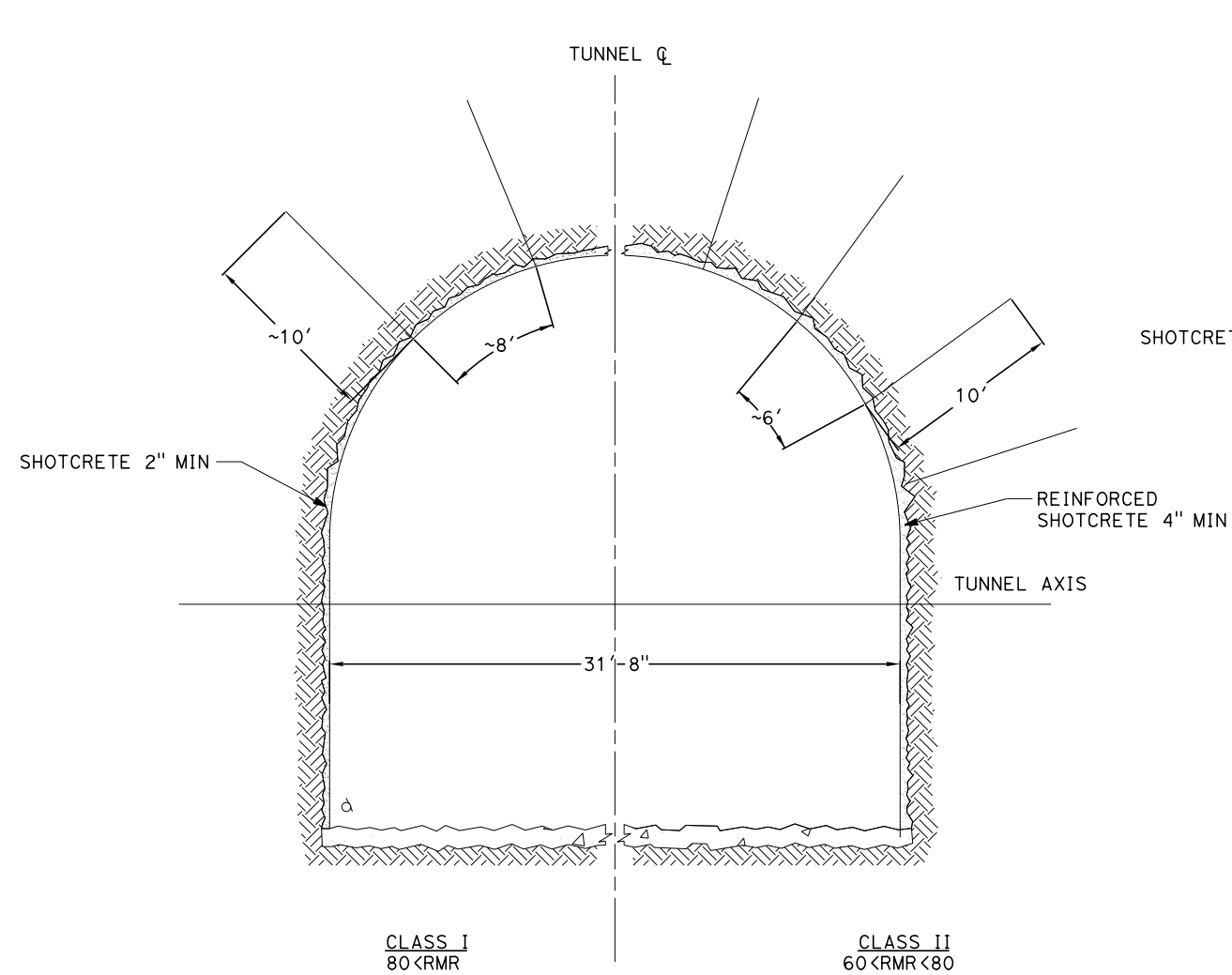
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SUBMITTAL**

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CONSTRUCTION**

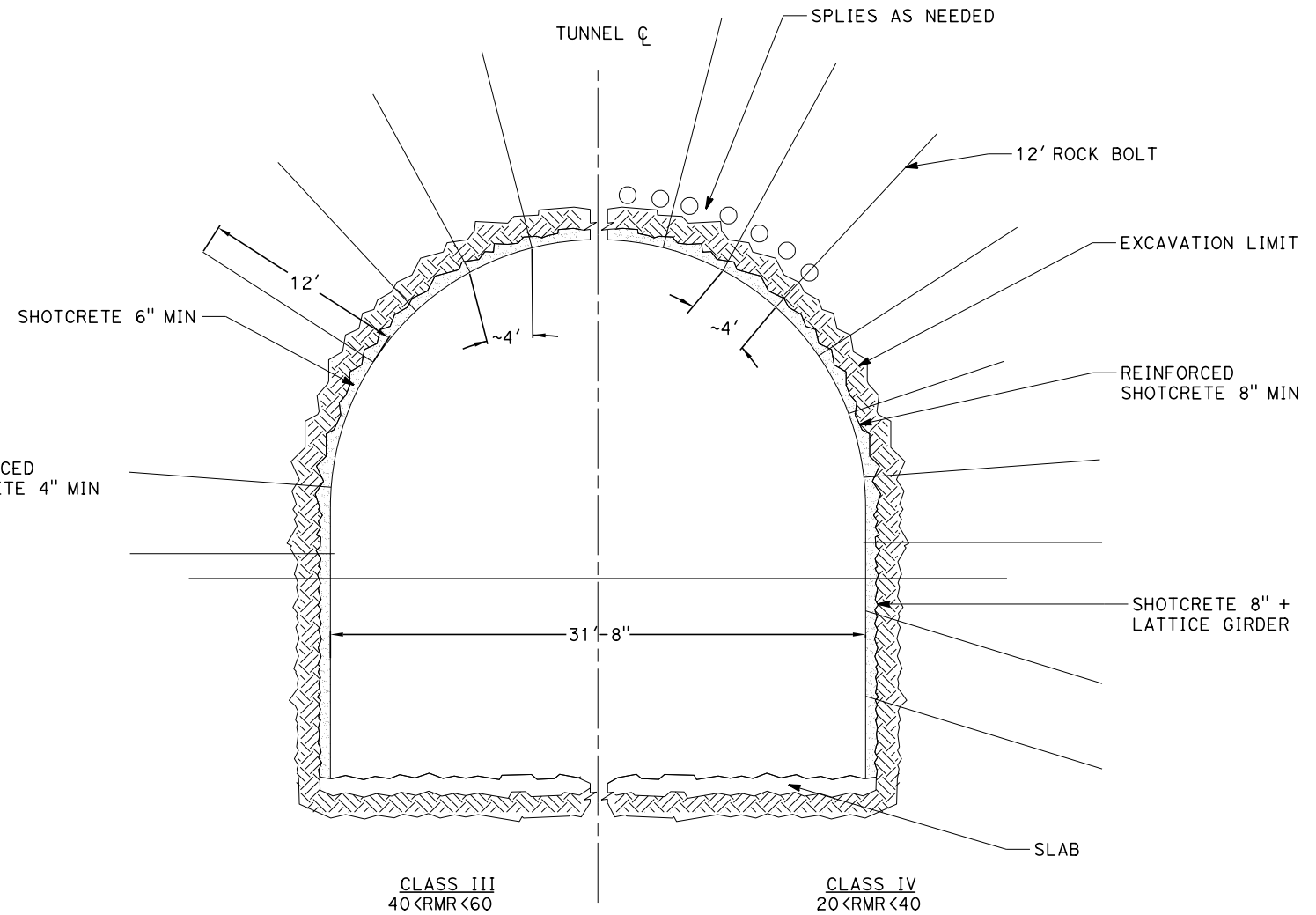


**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TWIN TUNNEL DRILL AND BLAST METHOD
CLEARANCE DIAGRAM - SUPER ELEVATED TRACK

CONTRACT NO.
HSR13-44
DRAWING NO.
TN-D3106
SCALE
AS SHOWN
SHEET NO.



SOUTH BOUND



NORTH BOUND

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 FROM STA 18930+70 TO STA 18940+84.
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
01/24/2020

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SUBMITTAL**

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CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TWIN TUNNEL DRILL AND BLAST METHOD
INITIAL SUPPORT

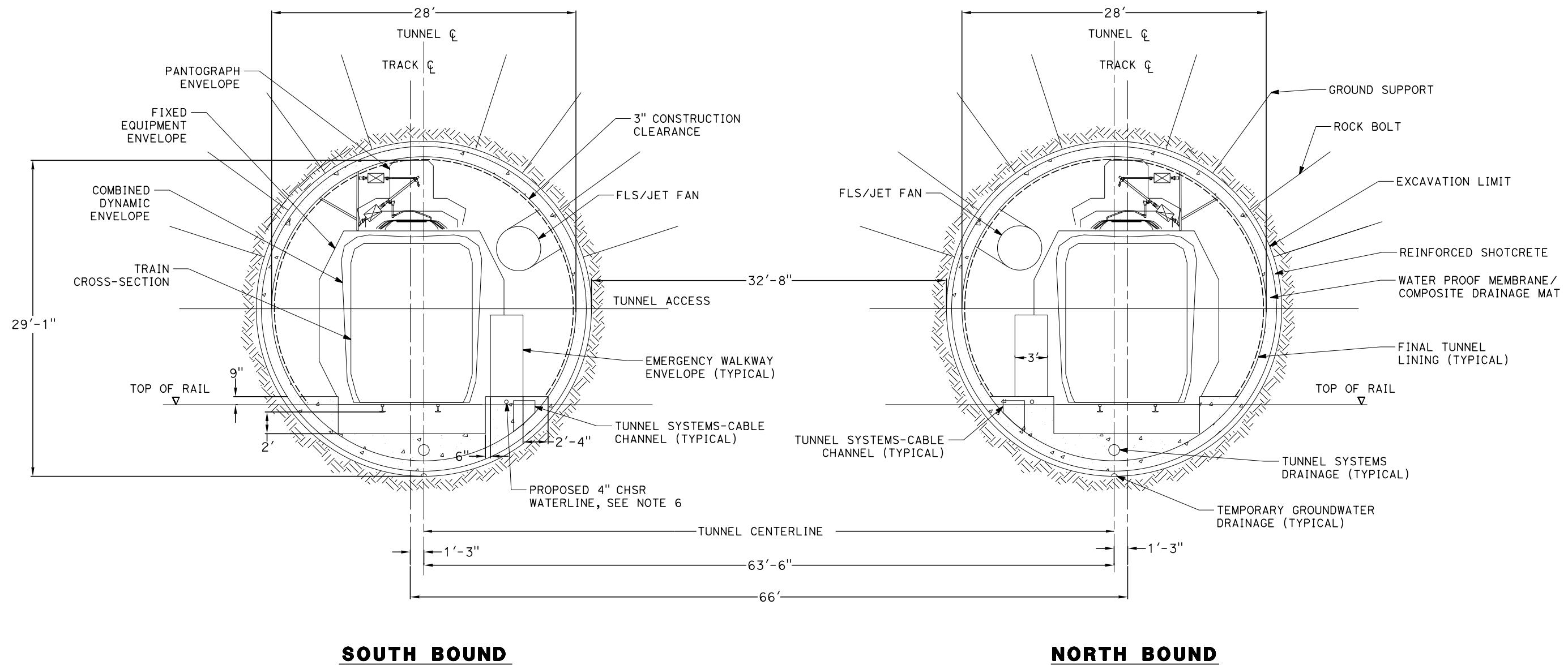
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HSR13-44
DRAWING NO.
TN-D3107
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AS SHOWN
SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\TN-D3108.dgn

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1/21/2020

kabr_cow



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, 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. 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.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA
DRAWN BY
K. BUNGER
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IN CHARGE
J. MORRISON
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



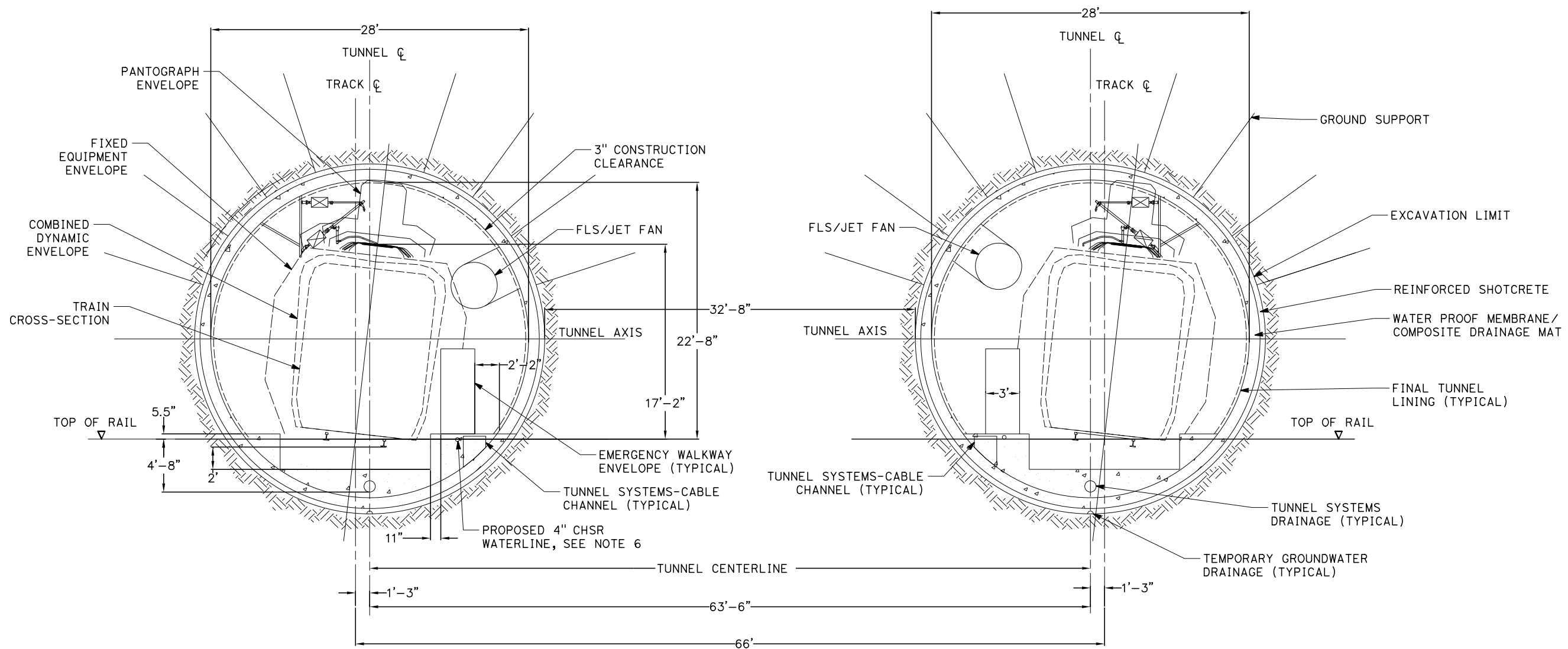
**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TUNNEL TWIN TBM BORED TUNNELS
CLEARANCE DIAGRAM - TANGENT TRACK

CONTRACT NO.
HSR13-44
DRAWING NO.
TN-D3108
SCALE
AS SHOWN
SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\TN\TN-D3109.dgn

1/21/2020 1:10:56 AM

knbr_cow



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, 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. 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.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA
DRAWN BY
K. BUNGER
CHECKED BY
R. KUNDU
IN CHARGE
J. MORRISON
DATE
01/24/2020

**RECORD
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SUBMITTAL**

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CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TUNNEL TWIN TBM BORED TUNNELS
CLEARANCE DIAGRAM - SUPER ELEVATED TRACK

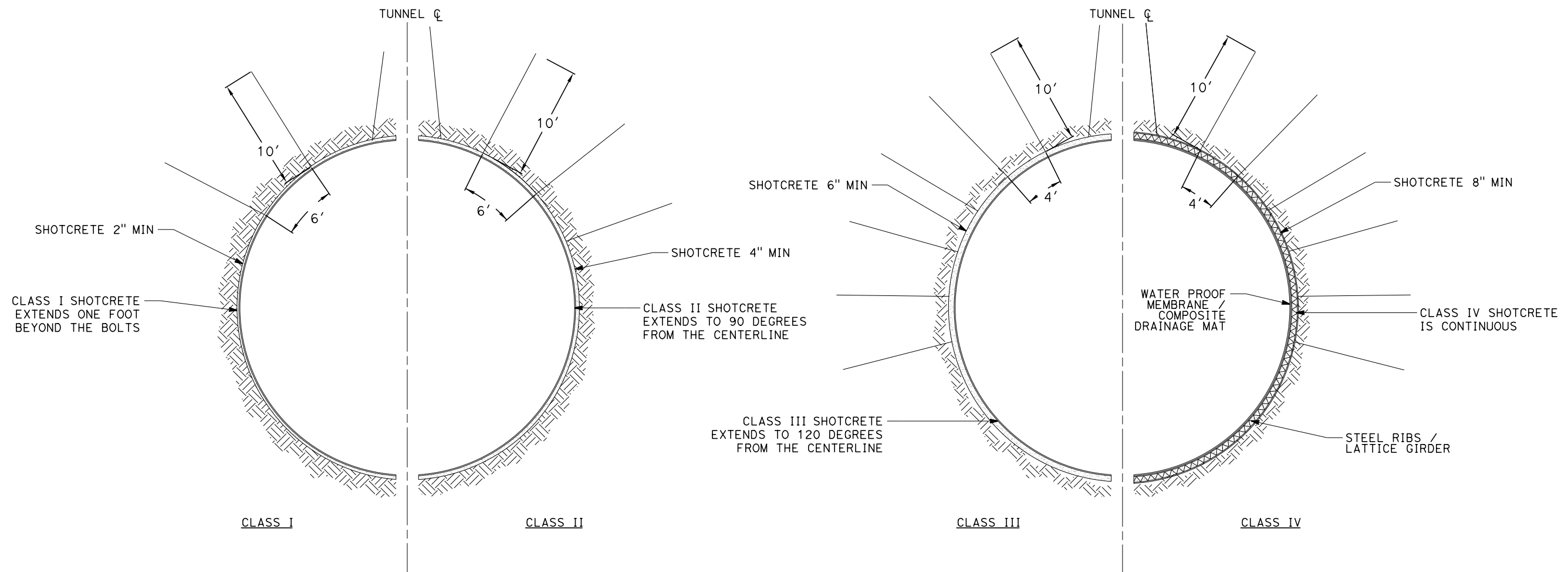
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HSR13-44
DRAWING NO.
TN-D3109
SCALE
AS SHOWN
SHEET NO.

Projects\701206_00_CHSRBP\00_CADD\CCNM Option D\Sheets\TN\TN-D3110.dgn

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1/21/2020

kabr_cow



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, 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.



REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
Z. SKOVAJSOVA
DRAWN BY
K. BUNGER
CHECKED BY
R. KUNDU
IN CHARGE
J. MORRISON
DATE
01/24/2020

**RECORD
PEPD
SUBMITTAL**

**NOT FOR
CONSTRUCTION**



**CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE**
REFINED CCNM DESIGN OPTION
TUNNEL TWIN TBM BORED TUNNELS
INITIAL SUPPORT

CONTRACT NO.
HSR13-44
DRAWING NO.
TN-D3110
SCALE
AS SHOWN
SHEET NO.