The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 23, 2019, and executed by the Federal Railroad Administration and the State of California.
<table>
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<tr>
<th>Abbreviation</th>
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<td>VJA</td>
<td>Viaduct</td>
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<td>VOL</td>
<td>Volume</td>
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1. ROADWAY IMPROVEMENTS SHOWN ON ROADWAY PLANS.
2. TRACK ALIGNMENT CONTROL LINE IS THE CENTERLINE OF THE SB TRACK.
3. TRACK PROFILE SHOWN IS THE TOP OF THE LOW (NON-SUPERELEVATED) RAIL OF THE SB TRACK.
4. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
5. ROW LIMITS SHOWN ARE LIMITS OF PROPERTY TO BE OWNED BY CHSR AUTHORITY.
6. PTEF SHOWN IS LIMIT OF PERMANENT GROUND DISTURBANCE ASSOCIATED WITH THE PROJECT.
7. PPEF SHOWN IS LIMIT OF TEMPORARY GROUND DISTURBANCE ASSOCIATED WITH THE PROJECT.
8. ALL UTILITIES ARE TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
9. FOR DETAILED STRUCTURE DEPTH INFORMATION SEE STRUCTURAL PLAN SET.
### TRACK GEOMETRY DATA

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<th>Easting</th>
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<th>Lc</th>
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### NOTES:

1. Radii are positive in value by the convention of looking up station and turning right.
NOTES:
1. TRACKFORM SHOWN IS INDICATIVE.
2. SUPERELEVATION IS NOT SHOWN.  THE AMOUNT OF APPLIED SUPERELEVATION IS SHOWN IN THE CURVE TABLES.
3. FOR STRUCTURAL DIMENSIONS SEE ST TYPICAL SECTIONS.
4. FOR TUNNEL DETAILS SEE TN TYPICAL SECTIONS.
5. FOR TRACTION POWER FACILITY DETAILS SEE TP TYPICAL SECTIONS.
6. PROPOSED 4" CHSR WATERLINE FROM STATION 18458480 TO 18824999.
NOTES:

1. TRACKFORM SHOWN IS INDICATIVE.
2. SUPERELEVATION NOT SHOWN. THE AMOUNT OF APPLIED SUPERELEVATION IS SHOWN IN THE CURVE TABLES.
3. FOR STRUCTURAL DIMENSIONS SEE ST TYPICAL SECTIONS.
4. FOR TUNNEL DRAINAGE AND DETAILS SEE TN TYPICAL SECTIONS.
5. FOR TRACTION POWER FACILITY DETAILS SEE TP TYPICAL SECTIONS.
6. PROPOSED 4" CHSR WATERLINE FROM STATION 18458+00 TO 18824+99.

SECTION H
SINGLE TUNNEL - CUT AND COVER
STA 18550+00 TO 18556+00

SECTION J
SINGLE TUNNEL - DRILL AND BLAST
STA 18522+77 TO 18550+00
STA 18613+25 TO 18656+25
NOTES:

1. TRACKFORM SHOWN IS INDICATIVE.

2. SUPERELEVATION IS NOT SHOWN.
   THE AMOUNT OF APPLIED SUPERELEVATION IS SHOWN IN THE CURVE TABLES.

3. FOR STRUCTURAL DIMENSIONS SEE ST TYPICAL SECTIONS.

4. FOR TUNNEL DETAILS SEE TN TYPICAL SECTIONS.

5. FOR TRACTION POWER FACILITY DETAILS SEE TP TYPICAL SECTIONS.

6. PROPOSED 4" CHSR WATERLINE FROM STATION 18458+80 TO 18622+99.

SECTION P

STA 18458+80 TO 18463+56
STA 18475+16 TO 18522+77
STA 18546+00 TO 18564+59
STA 18700+50 TO 18718+57
STA 18764+19 TO 18770+50
STA 18775+12 TO 18781+19
STA 18808+19 TO 18810+51

SOUNDWALL
STA 18560+00 TO 18564+23
NOTES:
1. TRACKFORM SHOWN IS INDICATIVE.
2. SUPERELEVATION IS NOT SHOWN.
   THE AMOUNT OF APPLIED SUPERELEVATION IS SHOWN IN THE CURVE TABLES.
3. FOR STRUCTURAL DIMENSIONS SEE ST TYPICAL SECTIONS.
4. FOR TUNNEL DETAILS SEE TN TYPICAL SECTIONS.
5. FOR TRACTION POWER FACILITY DETAILS SEE TP TYPICAL SECTIONS.
6. PROPOSED 4" CHSR WATERLINES FROM STATION 18456+80 TO 18822+99.
7. BENCH SHALL BE INCLUDED WHERE SLOPE EXCEEDS 30' VERTICAL.

SECTION S

STA 18566+59 TO 18613+25
STA 18656+25 TO 18700+50
STA 18753+94 TO 18759+50
STA 18761+69 TO 18764+19
STA 18770+50 TO 18775+12
STA 18781+19 TO 18806+19
STA 18810+51 TO 18822+99
CCNM DESIGN OPTION

CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
CCNM DESIGN OPTION
TRACK GENERAL
KEY MAP
SHEET 1 OF 1

DRAWN BY
DESIGNED BY
CHECKED BY
IN CHARGE

CALIFORNIA HIGH-SPEED RAIL PROJECT

DRAWING NO.
SCALE
SHEET NO.
CONTRACT NO.
DATE
CHK
APP
REV
DESCRIPTION

DRAWN BY
DESIGNED BY
CHECKED BY
IN CHARGE

CALIFORNIA HIGH-SPEED RAIL AUTHORITY

RECORD

NOT FOR SUBMITTAL

PROJECT

03/06/2019
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE

"CCNM" TRACK PROFILE

Tehachapi Creek Fault Zone

Clearance Envelope for UPRR

Profile

"ALT 1, 2, 3, 5" Track Profile

ACCESS ROAD TURN-AROUND FOR DETAIL SHEET TT-Y5001 (TYP)

"ALT 1, 2, 3, 5" Track Guideway

Tehachapi Creek Fault Zone

PLAN AND PROFILE

18460+00  18465+00  18470+00  18475+00  18480+00  18485+00

2509.54' 2520.23' 2500.42' 2520.23' 2500.42' 2520.23'

2509.54' 2520.23' 2500.42' 2520.23' 2500.42' 2520.23'

"CCNM" DESIGN OPTION
MATCH EXIST

"ALT 1, 2, 3, 5" DESIGN OPTION
MATCH EXIST

CHSR STRUCTURE

25.25' PROP CHSR R/W

23.25' UPRR CLEARANCE ENVELOPE FOR UPRR

REALIGNMENT

25.25' PROP CHSR R/W

14.5' MIN VARIES

25.25' PROP CHSR R/W

CHSR STRUCTURE

E. CHSR SB ALIGNMENT "ALT 1, 2, 3, 5"

E. CHSR NB ALIGNMENT "ALT 1, 2, 3, 5"

STA 18458+80 TO 18485+00

JOINS "ALT 1, 2, 3, 5"

E. CHSR SB ALIGNMENT "CCNM"

E. CHSR NB ALIGNMENT "CCNM"

ACCESS ROAD

TRACK GUIDeway

TEHACHAPI CREEK FAULT ZONE

STA 18458+80.38 JOINS "ALT 1, 2, 3, 5"

ELEV 2424.07 TIE INTO "ALT 1, 2, 3, 5"
NOTES:

1. TURN-AROUNDS SHALL BE PROVIDED AT ALL DEAD-ENDS FOR ACCESS ROADS IN EXCESS OF 150'.
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE

CONSTRUCTION

NOT FOR SUBMITAL

---

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

---

PROFILE

E
AS
SW
PS

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

---

GENERAL NOTES

1. SB TRACK ALIGNMENT STATIONING IS PROVIDED.
2. PROPOSED PERMANENT ENVIRONMENTAL FOOTPRINT (PPEF) SHOWN IS LIMIT OF PERMANENT GROUND DISTURBANCE ASSOCIATED WITH THE PROJECT.
3. PROPOSED TEMPORARY ENVIRONMENTAL FOOTPRINT (PTEF) SHOWN IS LIMIT OF TEMPORARY GROUND DISTURBANCE ASSOCIATED WITH THE PROJECT.
4. ALL UTILITIES ARE TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
5. FOR DETAILED STRUCTURE DEPTH INFORMATION SEE STRUCTURAL PLAN SET.

---

UTILITIES

EXISTING AQUEDUCT
EXISTING ELECTRICAL TRANSMISSION
EXISTING GAS LINE

---

FOR DETAILED STRUCTURE DEPTH INFORMATION SEE STRUCTURAL PLAN SET.

---

ALL UTILITIES ARE TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

---

PROPOSED TEMPORARY ENVIRONMENTAL FOOTPRINT SHOWN IS LIMIT OF PERMANENT GROUND DISTURBANCE ASSOCIATED WITH THE PROJECT.

---

PROPOSED PERMANENT ENVIRONMENTAL FOOTPRINT SHOWN IS LIMIT OF PERMANENT GROUND DISTURBANCE ASSOCIATED WITH THE PROJECT.

---

SB TRACK ALIGNMENT STATIONING IS PROVIDED.

---

PROPOSED TUNNEL

---

STANDALONE RADIO SITE

---

AUTOMATIC TRAIN CONTROL SYSTEM SITE A

---

AUTOMATIC TRAIN CONTROL SYSTEM SITE B

---

AUTOMATIC TRAIN CONTROL SYSTEM SITE D

---

PROPOSED GRADE

---

ORIGINAL GROUND

---

FOR DETAILED STRUCTURE DEPTH INFORMATION SEE STRUCTURAL PLAN SET.

---

ALL UTILITIES ARE TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

---

PROPOSED TEMPORARY ENVIRONMENTAL FOOTPRINT SHOWN IS LIMIT OF PERMANENT GROUND DISTURBANCE ASSOCIATED WITH THE PROJECT.

---

PROPOSED PERMANENT ENVIRONMENTAL FOOTPRINT SHOWN IS LIMIT OF PERMANENT GROUND DISTURBANCE ASSOCIATED WITH THE PROJECT.

---

SB TRACK ALIGNMENT STATIONING IS PROVIDED.

---

PROPOSED TUNNEL

---

STANDALONE RADIO SITE

---

AUTOMATIC TRAIN CONTROL SYSTEM SITE A

---

AUTOMATIC TRAIN CONTROL SYSTEM SITE B

---

AUTOMATIC TRAIN CONTROL SYSTEM SITE D

---

PROPOSED GRADE

---

ORIGINAL GROUND

---

FOR DETAILED STRUCTURE DEPTH INFORMATION SEE STRUCTURAL PLAN SET.

---

ALL UTILITIES ARE TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

---

PROPOSED TEMPORARY ENVIRONMENTAL FOOTPRINT SHOWN IS LIMIT OF PERMANENT GROUND DISTURBANCE ASSOCIATED WITH THE PROJECT.

---

PROPOSED PERMANENT ENVIRONMENTAL FOOTPRINT SHOWN IS LIMIT OF PERMANENT GROUND DISTURBANCE ASSOCIATED WITH THE PROJECT.

---

SB TRACK ALIGNMENT STATIONING IS PROVIDED.

---

PROPOSED TUNNEL

---

STANDALONE RADIO SITE

---

AUTOMATIC TRAIN CONTROL SYSTEM SITE A

---

AUTOMATIC TRAIN CONTROL SYSTEM SITE B

---

AUTOMATIC TRAIN CONTROL SYSTEM SITE D

---

PROPOSED GRADE

---

ORIGINAL GROUND

---

FOR DETAILED STRUCTURE DEPTH INFORMATION SEE STRUCTURAL PLAN SET.

---

ALL UTILITIES ARE TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

---

PROPOSED TEMPORARY ENVIRONMENTAL FOOTPRINT SHOWN IS LIMIT OF PERMANENT GROUND DISTURBANCE ASSOCIATED WITH THE PROJECT.

---

PROPOSED PERMANENT ENVIRONMENTAL FOOTPRINT SHOWN IS LIMIT OF PERMANENT GROUND DistURBANCE ASSOCIATED WITH THE PROJECT.

---

SB TRACK ALIGNMENT STATIONING IS PROVIDED.
NOTE:
1. DIRT ROADS DESIGNED TO MAINTAIN EXISTING ACCESS AND ARE NOT DESIGNED TO PROVIDE HSR ACCESS.
2. DIRT ROAD "18473" SHALL BE ASPHALT PAVED (3'' HMA OVER 8'' AB) FROM STATION 15400 TO 19450.
3. ACCESS ROAD "18616" SHALL BE PCC PAVED FROM STATION 68400 TO 80400.

3. ACCESS ROAD "18593" SHALL BE PCC PAVED FROM STATION 68400 TO 80400.

"18473" (SEE NOTE 2)  
"18460"  
"18701"

"18593" (SEE NOTE 3)  
"18713"  
"18790"
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
CCNM DESIGN OPTION
ROADWAY
BOX CULVERT CROSSING "18497"
PLAN AND SECTIONS

SECTION A
SCALE 1"=20'

SECTION B
SCALE 1"=25'

MATCH EXIST

TOE OF SLOPE

PTEF

PPEF

HEADWALL

HEADWALL

18495+00
18496+00

DATUM ELEV = 2430'

DATUM ELEV = 2410'

CHSR R/W

CHSR R/W

TOE OF SLOPE

CHSR R/W

CHSR R/W

CUSHION MATERIAL
WILDLIFE CROSSING AND ACCESS ROAD

CUSHION MATERIAL
WILDLIFE CROSSING AND ACCESS ROAD

COMPOSITE MULTI-LAYER BED

COMPOSITE MULTI-LAYER BED

1"=25' HOR SCALE APPLICABLE FOR FULL SIZE ONLY

1"=20' HOR SCALE APPLICABLE FOR FULL SIZE ONLY

DATE: 03/06/2019

CHECKED BY: J. MEREDITH
DESIGNED BY: J. MEREDITH
DRAWN BY: S. LANDOLT
IN CHARGE: G. CAMPBELL

PROJECT NO.: HSR13-44
SHEET CV-R1599
AS SHOWN
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE

CCNM DESIGN OPTION
ROADWAY
BOX CULVERT CROSSING "18700"
PLAN AND SECTIONS

DRAWN BY
DESIGNED BY
CHECKED BY
IN CHARGE

DATE
REV
APP
CHK

TOR PROFILE GRADE
COMPOSITE MULTI-LAYER BED
CUSHION MATERIAL
WILDLIFE CROSSING AND ACCESS ROAD

PLAN

SECTION
SCALE 1"=20'

SECTION
SCALE 1"=25'

DATUM ELEV = 3010.00
6' DRAINAGE CLUVERT

18700400
18701400
18702400

18700400
18701400
18702400

DATE
2/27/2019
1:37:23 PM

QIC.ARivera
**PLAN**

**PROFILE**

**CURVE DATA**

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**LINE DATA**

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<td>3</td>
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<tr>
<td>4</td>
<td>S 28°55'43&quot; W</td>
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**PROPERTIES**

- CHSR NB ALIGNMENT "CCNM"
- CHSR SB ALIGNMENT "CCNM"

**DIMENSIONS**

- Box Culvert Crossing: See Sheet CV-R1599
- Proposed CHSR R/W: 17+00.00 Match Existing
- Proposed CHSR R/W: 17+64.88 Match Existing
- Proposed CHSR R/W: 17+24.89 Match Existing
- Proposed CHSR R/W: 17+64.88 Match Existing

**VIEWS**

- View 1: Elevation 2455.83
- View 2: Elevation 2473.47
- View 3: Elevation 2476.77
- View 4: Elevation 2471.68
- View 5: Elevation 2442.02
- View 6: Elevation 2438.11

**NOTES**

- DS = 15 MPH
- L = 110'
CALIFORNIA HIGH-SPEED RAIL PROJECT
Bakersfield to Palmdale
CCNM DESIGN OPTION
ROADWAY
EASTBOUND STATE ROUTE 58
PLAN AND PROFILE
### Line Data

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**Horizontal Alignment Data Table**

- **Access Road "18519"**
- **3/27/2019**
- **G. Campbell**
PLAN AND PROFILE

CONSTRUCTION DATE

S. LANDOLT

CHECKED BY

D. LOPEZ

DRAWN BY

G. CAMPBELL IN CHARGE

DESIGNED BY

CONTRACT NO.

SHEET NO.

CALIFORNIA HIGH-SPEED RAIL PROJECT
Bakersfield to Palmdale

CCNM DESIGN OPTION

H/R 13-44

ACCESS ROAD "18560"

PTEF PTEF

BEGIN "18560"

PROP CHSR R/W

U RR R/W

PROP CHSR R/W

PROP CHSR R/W

MATCH BELOW

MATCH ABOVE

CHSR SB ALIGNMENT "CCNM"

CHSR NB ALIGNMENT "CCNM"

UPRR R/W

50'00"

69+99.62 END "18650"

"18560"

88.35'

50'37'.25'

18560'

47.29'

88.48'

50'37'.25'

50'00"

DS = 15 MPH

1"=20' VERT

1:36:16 PM

150.64'

87.06'

71°55'23"

148.61'

88.48'

50'37'.25'

47.29'

88.48'

50'37'.25'

50'00"

DS = 15 MPH

1"=200' HOR

150.64'

87.06'

71°55'23"

148.61'

88.48'

50'37'.25'

47.29'

88.48'

50'37'.25'

50'00"

DS = 15 MPH

1"=200' HOR

150.64'

87.06'

71°55'23"

148.61'

88.48'

50'37'.25'

47.29'

88.48'

50'37'.25'

50'00"

DS = 15 MPH

1"=200' HOR

150.64'

87.06'

71°55'23"

148.61'

88.48'

50'37'.25'

47.29'

88.48'

50'37'.25'

50'00"
## Horizontal Alignments Data

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Bakersfield to Palmdale

Revised Record Set Submittal
Cesar Chavez National Monument (CCNM) Design Option

Drawings Addendum
Preliminary Engineering for Project Definition – March 2019

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**CALIFORNIA HIGH-SPEED RAIL PROJECT**

**Bakersfield to Palmdale**

**CCM DESIGN OPTION**

**GGENERAL ABREVIATIONS**

**SHEET 1 OF 3**
GENERAL NOTES

1. DETAILED CONSTRUCTION SEQUENCE FOR GRADE SEPARATIONS IS NOT PROVIDED IN THIS SET OF PLANS. UTILITY RELOCATIONS ARE NOT SHOWN.
2. TRAFFIC DETOURS ARE NOT SHOWN IN THIS SET OF PLANS.
3. CUT AREAS, FILL AREAS AND OTHER CONTRACTOR'S FACILITIES ARE INCLUDED IN THIS SET OF PLANS.
4. DETAILED PHASING OF LONG CHSR VIADUCTS ARE NOT SHOWN.
5. LMF (LIGHT MAINTENANCE FACILITY), MOIF (MAINTENANCE OF INFRASTRUCTURE FACILITY), RS-WA (RAIL STORAGE & WELDING AREA) ARE INCLUDED IN THIS SET OF PLANS.
6. DETAILED CONSTRUCTION SEQUENCE FOR GRADE SEPARATIONS IS NOT PROVIDED IN THIS SET OF PLANS. UTILITY RELOCATIONS ARE NOT SHOWN.
7. DRAINAGE OVERCROSSINGS ALONG THE ALIGNMENTS ARE NOT SHOWN IN THE SEQUENCING PLANS.

ABBREVIATIONS

CHSR CALIFORNIA HIGH-SPEED RAIL
CSS X-SELL
D&B DRILL AND BASTE
LMF LIGHT MAINTENANCE FACILITY
MOIF MAINTENANCE OF INFRASTRUCTURE FACILITY
RS-WA RAIL STORAGE & WELDING AREA
SEM SEQUENTIAL EXCAVATION METHOD
STA STATION
TPF TRACTION POWER FACILITY
TPS TRACTION POWER SUBSTATION
TBM TUNNEL BORING MACHINE
UP/UC UNDERPASS / UNDERCROSSING
UPRR UNION PACIFIC RAILROAD

CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
CONSTRUCTION SEQUENCING GENERAL NOTES & LEGEND

DRAWN BY
DESIGNED BY
CHECKED BY
IN CHARGE

CONSTRUCTION SEQUENCING GENERAL NOTES & LEGEND
DRAWING NO.
SCALE
SHEET NO.
CONTRACT NO.
DATE
BY
REV
DESCRIPTION

Legend
- NORTH ARROW
- PROPOSED TEMPORARY ENVIRONMENTAL FOOTPRINT
- PROPOSED PERMANENT ENVIRONMENTAL FOOTPRINT
- LIMITS OF EXCAVATION (CUT)
- LIMITS OF EMBANKMENT (FILL)
- CONSTRUCTION STAGING / LAYDOWN AREA, ROCK CRUSHING PLANT, OR ROCK CRUSHING & PRECAST OPERATIONS YARD
- PROPOSED RETAINING WALL

- PHASE 1
- PHASE 2
- PHASE 3
- CUT AREAS
- FILL AREAS
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
CONSTRUCTION SEQUENCING
CONTRACT NO. CV-I1101
AS SHOWN
SHEET 1 OF 1

11/19/2018

18500+00
18550+00
18600+00
18650+00
18700+00
18750+00
18800+00

ACCESS ROAD
ACCESS ROAD
ACCESS ROAD
ACCESS ROAD
ACCESS ROAD
ACCESS ROAD
ACCESS ROAD

PHASE 1
PHASE 2
PHASE 3

"ALL PHASING AT CONTRACTOR'S DISCRETION"

BOX CULVERT CROSSING
UPPR TRACK
ACCESS ROAD
PPFE
PTFE
ACCESS ROAD
ACCESS ROAD

2000
1000
500
0

0
600
1200
1800
2400

PROJECT W.R.

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0

SEGMNT 2

PHASE 1
PHASE 2
PHASE 3

"ALL PHASING AT CONTRACTOR'S DISCRETION"

BOX CULVERT CROSSING
UPPER TRACK
ACCESS ROAD
PPFE
PTFE
1. Culvert station designation is identified as HSR SB control line station at culvert intersection.
2. Onsite basin locations are schematic; grading to be completed during final engineering.
3. Proposed finished grading is not reflected near tunnels, bridge cones, and some maintenance facilities/roads; graded pads will be provided during final engineering.
4. Slope fill will be used as needed, to allow for positive onsite ditch drainage above the offsite proposed drainage culverts. These locations are labeled “onsite ditch in fill.”
5. Substantial natural watercourses that have been encroached into by access road or track fill may need to be realigned. The latter are labeled “watercourse improvements required,” these locations will be finalized during final engineering.
6. Traction power facility grading to be provided during final engineering.
7. Access road ditch improvements to be done during final engineering.

PROFILE NOTES
1. Profile cut along culvert alignment.
2. Culvert profiles, in some cases, do not reflect the proposed grading for roadway, control lines, and some access roads. Plan grading and profile to be completed during final engineering.
3. Culvert profiles reflect preliminary onsite basin, ditch, and/or LID BMP grading to be completed during final engineering.
4. Walls required at the upstream ends of culverts to prevent offsite drainage from entering cut sections or experiencing negative grade along cut section. These locations are noted as wall wall design to be completed during final engineering.

STORMWATER NOTES
1. Track and roadway undercrossing pump station designs shall be completed after consultation with the appropriate regulatory agencies during final engineering.
2. Access road curbed small direct stormwater to storm drain (SD), slope SD, or LID BMP. Access road as needed to direct stormwater to LID BMP. BMP designs to be addressed during final engineering.
3. The onsite ditches within track cut slope segments are labeled with the following global call out – "LID BMP.”

ROADWAY UNDERCROSSING PUMP STATION NOTES
1. Roadway undercrossing pump station locations are schematic; designs to be completed during final engineering.
2. Roadway undercrossing LID BMP may be used to treat stormwater prior to discharging into wet-well, designed to be completed during final engineering.

UTILITY NOTES
1. It is assumed that all existing drainage utilities that are located within the HSR Blc employee will be removed, and all offsite drainage utilities that are located within ROW or access road footprint will be protected in place, unless otherwise noted on plans.
2. The offsite disposition/reconnection of the removed drainage utilities will be determined during final engineering and in consultation with the jurisdictional agency and property owner.
3. The disposition of these existing drainage facilities that are located elsewhere, but within the project’s footprint, will be determined during final engineering, or as noted on the grading plans.
OFFSITE CULVERT TRANSITION
OFFSITE DITCH TO HW
FL ELEV 2434.24

FL ELEV 2406.34

OFFSITE CULVERT TRANSITION
OFFSITE DITCH TO HW
FL ELEV 2389.17

FL ELEV 2383.46

• NB
• SB

72" x 414' RCP

S = 10.9%

72" x 573' RCP

S = 4.0%

G. CAMPBELL

HSR SB LINE STA 18482+70

HSR SB LINE STA 18487+63

G. YAMANAKA

G. YAMANAKA

G. CAMPBELL

OFFSITE CULVERT PROFILE

CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
CCNM DESIGN OPTION
GRADING AND DRAINAGE
STA 18482+70, 18487+63
OFFSITE CULVERT PROFILE

AS SHOWN

03/06/2019

PROJECT NO.:
HSR13-44

DRAWN:

G. CAMPBELL

DESIGNED:

G. YAMANAKA

CHECKED:

G. YAMANAKA

IN CHARGE:

G. CAMPBELL

TYLUN INTERNATIONAL

CALIFORNIA HIGH-SPEED RAIL AUTHORITY

SCALE APPLICABLE FOR FULL SIZE ONLY

1" = 40'
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE

OFFSITE CULVERT PROFILE

MSR SB LINE STA 18493+35
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
CCNM DESIGN OPTION
GRADING AND DRAINAGE
STA 18497+486, 18500+469
OFFSITE CULVERT PROFILE

OFFSITE DITCH TO CULVERT TRANSITION

FL ELEV 2473.99
S = 6.8%
72" x 418' RCP

OFFSITE CULVERT TO WATERCOURSE TRANSITION

FL ELEV 2445.64

NB • SB

FL ELEV 2464.57

FG

FL ELEV 2433.24

OFFSITE CULVERT PROFILE

HSR SB LINE STA 18497+486

HSR SB LINE STA 18500+469

SCALE APPLICABLE FOR FULL SIZE ONLY
1" = 40'

G. CAMPBELL

G. YAMANAKA

G. YAMANAKA

G. CAMPBELL

03/06/2019

04/04/2019

04/04/2019

03/06/2019
CALIFORNIA HIGH-SPEED RAIL PROJECT
Bakersfield to Palmdale

HSR SB Line STA 18504+01

Offsite ditch to culvert transition

FL ELEV 2483.52

CALIFORNIA HIGH-SPEED RAIL PROJECT
CONSTRUCTION
NOT FOR SUBMITTAL

Description:

Fl ELEV 2483.52

- Offsite ditch to culvert transition
- Fl ELEV 2483.52

G. Yamanaka

G. Campbell

Offsite Culvert to Watercourse Transition

Fl ELEV 2484.08

Califonia High-Speed Rail Project

Bakersfield to Palmdale

Offsite Culvert Profile

G. Yamanaka

G. Campbell
CALIFORNIA HIGH-SPEED RAIL PROJECT
Bakersfield to Palmdale
CCNM Design Option
Grading and Drainage
STA 18561+59, 18658+50
Offsite Culvert Profile

HSR SB LINE STA 18561+59

Offsite Culvert to Watercourse Transition

FL ELEV 2699.95

FL ELEV 2642.83

OG

S=1.0%

72" x 404' RCP

72" x 222' RCP

FG

OG

S=1.42%

FL ELEV 2967.70

FL ELEV 2959.20

OG

HSR SB LINE STA 18658+50

Offsite Culvert to Watercourse Transition

FL ELEV 3060.99

FL ELEV 2959.92

OG

S=1.42%

72" x 222' RCP

72" x 778' RCP

FG

OG

S=1.0%

FL ELEV 2967.70

FL ELEV 2959.20

OG

G. CAMPBELL

G. YAMANAKA

80

40

40

1"=40' SCALE APPLICABLE FOR FULL SIZE ONLY
CULVERT TRANSITION
OFFSITE DITCH TO HW
FL ELEV 3045.98

72" x 603' RCP

72" x 96' RCP

Fl ELEV 3003.57

CULVERT TRANSITION
OFFSITE CULVERT TO HW
OG

Fl ELEV 2997.54

72" x 419' RCP

WATERCOURSE TRANSITION
OFFSITE CULVERT TO HW
OG

Fl ELEV 3036.04

FL ELEV 3015.83

S=1.0%

AS SHOWN

03/06/2019

CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
CONTRACTION NOT FOR SUBMITTAL

CCNM DESIGN OPTION

STA 18670+42, 18703+22

G. CAMPBELL

HSR SB LINE STA 18670+42

HSR SB LINE STA 18703+22

NOT FOR CONSTRUCTION

9/28/2019

FL ELEV 3045.98

5+4.88

72" x 419' RCP

California High-Speed Rail Authority

BY G. YAMANAKA

BY G. CAMPBELL

CALIFORNIA HIGH-SPEED RAIL PROJECT
Bakersfield to Palmdale
CCNM Design Option
Grading and Drainage
STA 18670+42, 18703+22
Offsite Culvert Profile

03/07/2019

0

40

80

1"=40'

SCALE APPLICABLE FOR FULL SIZE ONLY
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
CONTRACT NO. HSR13-44
CCNM DESIGN OPTION
GRADING AND DRAINAGE
STA 18760+49, 18765+43
OFFSITE CULVERT PROFILE

MSR SB LINE STA 18760+49

MSR SB LINE STA 18765+43

CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
CONTRACT NO. HSR13-44
CCNM DESIGN OPTION
GRADING AND DRAINAGE
STA 18760+49, 18765+43
OFFSITE CULVERT PROFILE

G. YAMANAKA
G. YAMANAKA
G. CAMPBELL

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2/28/2019
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TYLI\GYam anaka
CALIFORNIA HIGH-SPEED RAIL PROJECT
Bakersfield to Palmdale

Grading and Drainage

Drawn By
G. Campbell

Designed By
G. Yamanaka

Checked By
G. Yamanaka

In Charge
G. Campbell

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2/28/2019

Tyli
T. Yamana

California High-Speed Rail Project
Construction
Not For Submittal
PEPD
Draft

S = 1.0%

S = 3.1%

S = 20.5%

S = 35.6%

FL ELEV 3300.46
72" x 64' RCP

FL ELEV 3300.70
72" x 203' RCP

FL ELEV 3260.32
72" x 75' RCP

WATERCOURSE TRANSITION
OFFSITE CULVERT TO HW

FL ELEV 3310.54
FL ELEV 3296.92
FL ELEV 3295.15
FL ELEV 3268.62
FL ELEV 3263.18

HW
OG
FG
RW
MH

SR SB LINE STA 18769458

S = 28.2%

S = 11.1%

• NB
• SB

FL ELEV 3300.56
FL ELEV 3282.72

72" x 67' RCP

OFFSITE CULVERT TRANSITION
OFFSITE DITCH TO HW

FL ELEV 3260.54
72" x 177' RCP

OFFSITE CULVERT PROFILE

HW
OG
FG
MH

FL ELEV 3320
FL ELEV 3280
FL ELEV 3240
FL ELEV 3200
FL ELEV 3330
FL ELEV 3320
FL ELEV 3280
FL ELEV 3240
FL ELEV 3200
FL ELEV 3330

3320
3280
3240
3200
3330
3320
3280
3240
3200
3330

03/06/2019
040
040
80
80
1" = 40' SCALE APPLICABLE FOR FULL SIZE ONLY

OFFSITE CULVERT TO WATERCOURSE TRANSITION

OFFSITE DITCH TO HW

FL ELEV 3330
FL ELEV 3290
FL ELEV 3250
FL ELEV 3210

OFFSITE DITCH PROFILE

GS DESIGN OPTION

HSR SB LINE STA 18771412

HSR SB LINE STA 18769458

GSR13-44
CV-01409

AS SHOWN
NOT FOR CONSTRUCTION

Bakcersfield to Palmdale

03/06/2019
040
040
80
80
1" = 40' SCALE APPLICABLE FOR FULL SIZE ONLY

OFFSITE CULVERT TO WATERCOURSE TRANSITION

OFFSITE DITCH TO HW

FL ELEV 3330
FL ELEV 3290
FL ELEV 3250
FL ELEV 3210

OFFSITE DITCH PROFILE

GS DESIGN OPTION
HSR SB LINE STA 18771412

HSR SB LINE STA 18769458

GSR13-44
CV-01409

AS SHOWN
NOT FOR CONSTRUCTION
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
CCNM DESIGN OPTION
GRADING AND DRAINAGE
STA 18778437, 18780495
OFFSITE CULVERT PROFILE

HSR SB LINE STA 18778437

CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
CCNM DESIGN OPTION
GRADING AND DRAINAGE
STA 18780495
OFFSITE CULVERT PROFILE

HSR SB LINE STA 18780495

Drawing No.: CV-G1410
Scale: 1"=40'
Sheet No.: 03/06/2019

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2/28/2019
TYLI\GYam anaka

G. CAMPBELL
G. YAMANAKA

DRAWN BY: G. CAMPBELL
DESIGNED BY: G. YAMANAKA
CHECKED BY: G. CAMPBELL
IN CHARGE: G. YAMANAKA

DRAWN BY: G. CAMPBELL
DESIGNED BY: G. YAMANAKA
CHECKED BY: G. CAMPBELL
IN CHARGE: G. YAMANAKA

NOT FOR SUBMITTAL

PEPD
DRAFT
CALIFORNIA HIGH-SPEED RAIL PROJECT
Bakersfield to Palmdale

CONSTRUCTION NOT FOR SUBMITTAL

CCNM DESIGN OPTION
GRADING AND DRAINAGE
STA 18635+00 TO 18660+00
PLAN

DATE

DRAWN BY
DESIGNED BY
CHECKED BY
IN CHARGE

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DRAWING NO.
SCALE
SHEET NO.
CONTRACT NO.
DATE

G. CAMPBELL
G. YAMANAKA
G. CAMPBELL

EVERY 30' VERTICAL 2H TO 1V WITH 6' BENCHES

TUNNEL #6 PORTAL CUT SLOPE:
DRAINAGE CULVERT
PROP OFFSITE
ONSITE DITCH
ONSITE BASIN
PROP CHSR R/W
SD

• CHSR NB ALIGNMENT "CCNM"
• CHSR SB ALIGNMENT "CCNM"
PTEF
PPEF
PROP CHSR TUNNEL
PPEF
PROP CHSR TUNNEL
PTEF

PTEF

C
C

OFFSITE DITCH
PROP CHSR R/W
SD
ONSITE BASIN

18635+00
18640+00
18645+00
18650+00
18655+00
18660+00