CALIFORNIA HIGH-SPEED TRAIN
Bridges and Elevated Structures Plans

RECORD PEPD SUBMISSION
Bakersfield to Palmdale
Track and Roadway Structures

October 2017
### ROADWAY STRUCTURES

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### DRAWING DETAILS

- **Designed By**: Robert Barton
- **Drawn By**: Ivan Martin
- **Checked By**: R. Golchoobian
- **In Charge**: Steve Smith
- **Date**: 10/31/2017

### PROJECT INFORMATION

- **Contract No.**: HSR13-44
- **Drawing No.**: ST-B0002
- **Scale**: AS SHOWN

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**CALIFORNIA HIGH-SPEED RAIL PROJECT**

BAKERSFIELD TO PALMDALE

INDEX OF DRAWINGS

SHEET 2 OF 2

---

**NOT FOR CONSTRUCTION**
LEGEND

1. CONCRETE BARRIER INTRUSION PROTECTION
2. CONCRETE BARRIER TYPE 742
3. CONCRETE BARRIER TYPE 732M
4. SOLID METAL FENCE ON CONCRETE BARRIER WITHOUT SIDEWALK, SEE NOTE 11.
5. STRUCTURE APPROACH SLAB
6. RETAINING WALL
7. SOLID METAL FENCE ON CONCRETE BARRIER WITH SIDEWALK
8. CONCRETE BARRIER TYPE 732
9. METAL HANDRAIL
10. CHAIN LINK FENCE

GENERAL NOTES
1. UTILITY LOCATIONS TO BE DETERMINED.
2. FOR DETAILS NOT NOTED ON PLAN AND ELEVATION SHEETS, SEE TYPICAL SECTION SHEETS FOR TRACK STRUCTURES.
3. GRADE ELEVATIONS SHOWN ARE AT TOP OF RAIL.
4. ALL COLUMNS ARE NORMAL TO THE STATION LINE UNLESS OTHERWISE SHOWN.
5. REFER TO TRACK ALIGNMENT DRAWINGS FOR CURVE AND TANGENT INFORMATION.
6. NOT ALL PILES ARE SHOWN.
7. PILE SIZES AND LENGTHS TO BE DETERMINED.
8. SUPERSTRUCTURE CONSISTS OF PRECAST CONCRETE GIRDERS UNLESS OTHERWISE NOTED.
9. BEARINGS ARTICULATION FOR PC GIRDER SPANS ARE FIXED-ROLLER AT OPPOSING SPAN ENDS UNLESS OTHERWISE NOTED.
10. REFER TO ROADWAY DRAWINGS FOR GEOMETRIC INFORMATION OF ROADWAY STRUCTURES.
11. EXTEND SOLID FENCE 30 FEET FROM CENTERLINE OF OUTERMOST TRACK OR 10 FEET BEYOND THE OUTERMOST ENERGIZED CONDUCTOR OR COMPONENT, WHICHER IS GREATER.
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE

SECTION A
SCALE: 1/8"=1'-0"

STA 17285400 TO STA 17440412.05 (ALT 1,3,5)
STA 17566405 TO STA 17567440 (ALT 1,3,5)
STA 20118470 TO STA 20155470 (ALT 1,2,3,5)
STA 20361735 TO STA 2038167 (ALT 1,2,3,5)
STA 20469496 TO STA 20499166 (ALT 1,2,3,5)
STA 20619977 TO STA 20652477 (ALT 1,2,3,5)
STA 20641400 TO STA 20681440 (ALT 1,2,3,5)
STA 2073535 TO STA 20761465 (ALT 1,2,3,5)
STA 17285400 TO STA 17492402.05 (ALT 2, 5)
STA 17497470 TO STA 17530480 (ALT 2)
STA 17734435 TO STA 17759430 (ALT 2)
STA 17788430 TO STA 17823430 (ALT 2)
STA 2073535 TO STA 20761465 (ALT 5)
STA 17285400 TO STA 17370441.55 (ALT 3,4,5)
STA 17285400 TO STA 17370441.55 (ALT 6,3-2)

SECTION B
SCALE: 1/8"=1'-0"

STA 17873430 TO STA 17889470 (ALT 1,3,5)
STA 17841415 TO STA 17856415 (ALT 1,3,5)
STA 1807621 TO STA 18108411 (ALT 1,2,3,5)
STA 18158415 TO STA 18190445 (ALT 1,2,3,5)
STA 18239445 TO STA 18245425 (ALT 1,2,3,5)
STA 18463458 TO STA 18475416 (ALT 1,2,3,5)
STA 18694423 TO STA 18694443 (ALT 1,2,3,5)
STA 18561410 TO STA 18575470 (ALT 1,2,3,5)
STA 18700432 TO STA 18705432 (ALT 1,2,3,5)
STA 18717005 TO STA 18746475 (ALT 1,2,3,5)
STA 18828425 TO STA 18934445 (ALT 1,2,3,5)
STA 17843495 TO STA 17850465 (ALT 2)

NOTES:
1. 50'-8" AT TEHACHAPI WILLOW SPRINGS ROAD OVERHEAD-5 (ALT 3).
2. NOT AVAILABLE ON EDISON HIGHWAY.
3. 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".
4. PROPOSED 4" CHSR WATERLINE FROM STATION 18034000 TO 19591000.

CALIFORNIA HIGH-SPEED RAIL PROJECT
Bakersfield to Palmdale
General
Typical Sections
Sheet 1 of 10

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Designed By: Rob Barton
Drawn By: Yihong Wang
Checked By: R. Golchoobian
In Charge: Steve Smith

Date: 10/31/2017

Forbid for construction

Projects\701206.00_CHSRBP\00 CADD\Sheet Files\ST\BP-ST-B3001.dgn
NOTES:
1. BETWEEN STA 19458+00 TO STA 19473+80 ALT 1,2,3:
   A=38'-3"
   B=20'-9"
   C=25'-3"
2. STRUCTURES SHORTER THAN 1000 FEET SUPPORT BALLASTED TRACKS. THE DISTANCE BETWEEN TOP OF RAIL AND TOP OF DECK WILL VARY. Structures will be slightly higher and between 2'-4" and 3'-3".
3. PROPOSED 4" CHSR WATERLINE FROM STATION 18034+00 TO 19591+00.

SECTION D
SCALE: 1/12"=1'-0"
VARIABLE 50'-0" TO 60'-6"

VARIABLE 10'-6" TO 24'-0"

VARIABLE 10'-6" TO 6'-1"

TYPICAL SPAN

TYPICAL SPAN

BALANCED CANTILEVER SEGMENTAL CONCRETE

SEE TABLE FOR SIZE

OCTAGONAL CONCRETE COLUMN, WALKWAY (TYP)

3'-0" MIN TO 27'-0" VARIATION 16'-6"

10'-8" TO 6'-1"

SB HSR •

NB HSR •

2% 2%

COLUMN H

DETERMINED

PILE DIAMETER AND LENGTH TO BE

CIDH PILES (TYP)

CIDH PILES OR SINGLE LARGE DIAMETER PILE CAP WITH FOUR 6'-6" DIAMETER

NOTE 4

APPROX OG FG

DECK

TOP OF

VARIES 50'-0" TO 60'-6"

VARIES 10'-6" TO 24'-0"

VARIES 10'-6" TO 6'-1"

L1

L2

L1

NOTE 1

NOTE 2

2'-6"

12'-0"

NOTE 3

SEGMENTAL CONCRETE, PC, OR CIP, (TYP)

PARAPET (TYP)

CABLE (TYP)

20'-0" TO 27'-0"

10'-8"

6'-1"

STA17282+42.05 TO STA17287+12.05 (ALT 1,3,5)

STA17509+50 TO STA17512+50 (ALT 1,3,5)

STA17619+92 TO STA17622+92 (ALT 1,3,5)

STA17674+45 TO STA17677+45 (ALT 1,3,5)

STA17729+75 TO STA17732+75 (ALT 1,3,5)

STA18076+21 TO STA18108+11 (ALT 1,2,3,5)

STA18463+56 TO STA18475+16 (ALT 1,2,3,5)

STA18561+10 TO STA18575+70 (ALT 1,2,3,5)

STA18828+25 TO STA18874+85 (ALT 1,2,3,5)

STA20006+70 TO STA20011+55 (ALT 1,2,3,5)

STA20044+25 TO STA20048+15 (ALT 1,2,3,5)

STA20082+20 TO STA20085+80 (ALT 1,2,3,5)

STA20118+70 TO STA20133+70 (ALT 1,2,3,5)

STA20246+35 TO STA20249+95 (ALT 1,2,3,5)

STA20264+90 TO STA20269+60 (ALT 1,2,3,5)

STA20278+35 TO STA20281+35 (ALT 1,2,3,5)

STA20309+31 TO STA20312+91 (ALT 1,2,3,5)

STA20361+73 TO STA20367+57 (ALT 1,2,3,5)

STA20434+20 TO STA20437+80 (ALT 1,2,3,5)

STA20641+00 TO STA20649+82.05 (ALT 1,2,3,5)

STA20682+97 TO STA20686+37 (ALT 1,2,3,5)

STA20735+35 TO STA20761+65 (ALT 1,2,3,5)

STA19972+75 TO STA19975+75 (ALT 1,2,3,5)

STA17285+00 TO STA17440+82.05 (ALT B3-1,3,5)

STA17285+00 TO STA17370+41.55 (ALT B3-2)

STA25+74 TO STA28+74 (MOIS-ED)

BALANCED CANTILEVER SEGMENTAL CONCRETE

SCALE: 1/8"=1'-0"

SEGMENTAL CONCRETE

CIP, PC, OR (TYP)

PARAPET (TYP)

CABLE (TYP)

SECTION E

Scales: 1/8"=1'-0"

STA 17282+42.05 TO STA 17287+12.05 (ALT 1,3,5)

STA 17509+50 TO STA 17512+50 (ALT 1,3,5)

STA 17619+92 TO STA 17622+92 (ALT 1,3,5)

STA 17674+45 TO STA 17677+45 (ALT 1,3,5)

STA 17729+75 TO STA 17732+75 (ALT 1,3,5)

STA 18076+21 TO STA 18108+11 (ALT 1,2,3,5)

STA 18463+56 TO STA 18475+16 (ALT 1,2,3,5)

STA 18561+10 TO STA 18575+70 (ALT 1,2,3,5)

STA 18828+25 TO STA 18874+85 (ALT 1,2,3,5)

STA 20006+70 TO STA 20011+55 (ALT 1,2,3,5)

STA 20044+25 TO STA 20048+15 (ALT 1,2,3,5)

STA 20082+20 TO STA 20085+80 (ALT 1,2,3,5)

STA 20118+70 TO STA 20133+70 (ALT 1,2,3,5)

STA 20246+35 TO STA 20249+95 (ALT 1,2,3,5)

STA 20264+90 TO STA 20269+60 (ALT 1,2,3,5)

STA 20278+35 TO STA 20281+35 (ALT 1,2,3,5)

STA 20309+31 TO STA 20312+91 (ALT 1,2,3,5)

STA 20361+73 TO STA 20367+57 (ALT 1,2,3,5)

STA 20434+20 TO STA 20437+80 (ALT 1,2,3,5)

STA 20641+00 TO STA 20649+82.05 (ALT 1,2,3,5)

STA 20682+97 TO STA 20686+37 (ALT 1,2,3,5)

STA 20735+35 TO STA 20761+65 (ALT 1,2,3,5)

STA 19972+75 TO STA 19975+75 (ALT 1,2,3,5)

STA 17285+00 TO STA 17440+82.05 (ALT B3-1,3,5)

STA 17285+00 TO STA 17370+41.55 (ALT B3-2)

STA 25+74 TO STA 28+74 (MOIS-ED)
### Section F

**Balanced Cantilever Segmental**

**Scales:** 1/4"=1'-0"

**Columns Size**

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<td>18&quot;</td>
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<tr>
<td>150-220&quot;</td>
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**Notes:**

1. Girder side slope varies depending on structure depth at support.
2. 40'-0" between STA 19465+95 to STA 19471+05 (ALT 3).
3. 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".
4. Proposed 4" Chord Waterline from Station 18034+00 to 19591+00.

**Typical Span**

**Balanced Cantilever Segmental Concrete**

**Typical Span**

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**Projects**

- CONTRACT NO.: HSR13-44
- DRAWING NO.: ST-B3005
- SCALE: AS SHOWN
- SHEET NO.: 5 OF 10
SECTION G

SCALE: 1/16" = 1'-0"

STA 17744+35 TO STA 17757+00 (ALT 2)

NOTES:

1. MINIMUM WIDTH OF STRADDLE BENT SHALL BE EQUAL TO COLUMN SIZE PLUS 2 FT.

2. 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".

OCTAGONAL CONCRETE COLUMNS SEE TABLE FOR SIZE

APPROX OG/FG

CONCRETE COLUMN

150'-0"WAX & VARIES

FILE CAP WITH FOUR 6'-6" DIAMETER CEMENT FILES IN SINGLE LARGE DIAMETER CEMENT FILE CAP AND LENGTH TO BE DETERMINED

CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
GENERAL
TYPICAL SECTIONS
SHEET 6 OF 10

RECORD
PEPD
SUBMITTAL
NOT FOR CONSTRUCTION

CONTRACT NO. HSR13-44
DRAWING NO. ST-B3006
SCALE AS SHOWN
SHEET NO.
DATE CHK APP REV DESCRIPTION

PROJECT

Designed by

Rob Barton
Yihong Wang
R. Golchoobian
Steve Smith
Date

10/31/2017

0-29'8'
30-40'
40-60'
60-100'
100-150'
150-220'

0'
10'
12'
16'
18'
20'

COLUMN SIZE

COLUMN H SIZE

0-29'
30-40'
40-60'
60-100'
100-150'
150-220'

0'
10'
12'
16'
18'
20'

OCTAGONAL CONCRETE COLUMNS SEE TABLE FOR SIZE

APPROX OG/FG

CONCRETE COLUMN

150'-0"WAX & VARIES

FILE CAP WITH FOUR 6'-6" DIAMETER CEMENT FILES IN SINGLE LARGE DIAMETER CEMENT FILE CAP AND LENGTH TO BE DETERMINED

CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
GENERAL
TYPICAL SECTIONS
SHEET 6 OF 10

RECORD
PEPD
SUBMITTAL
NOT FOR CONSTRUCTION

CONTRACT NO. HSR13-44
DRAWING NO. ST-B3006
SCALE AS SHOWN
SHEET NO.
DATE CHK APP REV DESCRIPTION

PROJECT

Designed by

Rob Barton
Yihong Wang
R. Golchoobian
Steve Smith
Date

10/31/2017

0-29'8'
30-40'
40-60'
60-100'
100-150'
150-220'

0'
10'
12'
16'
18'
20'

COLUMN SIZE

COLUMN H SIZE

0-29'
30-40'
40-60'
60-100'
100-150'
150-220'

0'
10'
12'
16'
18'
20'

OCTAGONAL CONCRETE COLUMNS SEE TABLE FOR SIZE

APPROX OG/FG

CONCRETE COLUMN

150'-0"WAX & VARIES

FILE CAP WITH FOUR 6'-6" DIAMETER CEMENT FILES IN SINGLE LARGE DIAMETER CEMENT FILE CAP AND LENGTH TO BE DETERMINED

CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
GENERAL
TYPICAL SECTIONS
SHEET 6 OF 10

RECORD
PEPD
SUBMITTAL
NOT FOR CONSTRUCTION

CONTRACT NO. HSR13-44
DRAWING NO. ST-B3006
SCALE AS SHOWN
SHEET NO.
DATE CHK APP REV DESCRIPTION

PROJECT

Designed by

Rob Barton
Yihong Wang
R. Golchoobian
Steve Smith
Date

10/31/2017
SECTION H

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

STATION 126+47,36 TO 129+14,36 "MOIF LEAD" [ALT 1,2,3,5]
SECTION I

SCALE: 1/8"=1'-0"

STA 20462+30 TO STA 20474+00 (ALT 1,2,3,5)
STA 20558+82 TO STA 20568+62 (ALT 1,2,3,5)
STA 17675+79 TO STA 17679+49 (ALT 2)

SINGLE LARGE DIAMETER CIDH PILE TYP, DIAMETER AND LENGTH TO BE DETERMINED

DESIGNED BY
ROB BARTON

DRAWN BY
YIHONG WANG

CHECKED BY
R. GOLCHOOBIAN

IN CHARGE
STEVE SMITH

DATE
10/31/2017

RECORD
PEPD

SUBMITTAL
NOT FOR CONSTRUCTION

CONTRACT NO.
HSR13-44

DRAWING NO.
ST-B3008

SCALE
AS SHOWN

SHEET NO.
8 OF 10
SECTION J
SCALE: 1/2"=1'-0"

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

ELEVATED UTILITY CROSSINGS

NOTE:
FOR LOCATIONS OF CROSSINGS
SEE CV-G SHEET.
NOTE:

FOR LOCATIONS OF CROSSINGS SEE ST-6 SHEET.

ELEVATED WILDLIFE CROSSINGS
TOP OF RAIL " SB CHSR € "  
NO SCALE

TOTAL LENGTH = 15512'-0" (MEASURED ALONG "SB CHSR €")

ELEVATION
SCALE 1"= 40'

PLAN
SCALE 1"= 40'

CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE
ALTERNATIVES 1,3,5
TRACK STRUCTURES
VIADUCT STATION 17285+00 TO 17440+12.05
PLAN AND ELEVATION

Designed by ROBERT BARTON
Drawn by YIHONG WANG
Checked by R. GOLCHOOBIAN
In Charge STEVE SMITH
Date 10/31/2017

Record PEPM
Submital NOT FOR CONSTRUCTION

Contract No. HSR 13-44
Drawing No. ST-J1015
Scale AS SHOWN
Sheet No. 11:11:41 AM 10/30/2017 TYLI/YWang
TOP OF RAIL "SB CHSR E"

TOTAL LENGTH = 300'-0" (MEASURED ALONG "SB CHSR E")

EXIST BRIDGE TO BE REMOVED

TO BE REMOVED EXIST BRIDGE

CIP PS BOX GIRDER

TOP OF DECK

ELEV 804.77
17729+75.00
"SB CHSR •"

ELEV 815.06
17738+40.36
"SB CHSR •"

TOP OF RAIL

PLAN SCALE 1"= 40'

ELEVATION SCALE 1"= 40'

TOP OF DECK PARAPET

EDGE OF DECK

EDGE OF DECK

DATE
10/31/2017

DRAWN BY
YIHONG WANG

CHECKED BY
R. GOLCHOOBIAN

DESIGNED BY
ROBERT BARTON

IN CHARGE
STEVE SMITH

CONTRACT NO.
HSR 13-44

DRAWING NO.
ST-J1023

SCALE
AS SHOWN

SHEET NO.

RECORD
PEPD

SUBMITTAL

NOT FOR CONSTRUCTION

11/17/2017 10:52 AM TYLI\YWang
CALIFORNIA HIGH-SPEED RAIL PROJECT
BAKERSFIELD TO PALMDALE

ALTERNATIVES 1, 2, 3, 5

TRACK STRUCTURES

VIADUCT STATION 18076+21 TO 18107+11

PLAN AND ELEVATION

TOP OF RAIL "SB CHSR E"

TOTAL LENGTH = 3090'-0" (MEASURED ALONG "SB CHSR E")

APPROX OG

ELEV 1505.22
18082+21.00
"SB CHSR •"

ELEV 1499.24
18076+21.00
"SB CHSR •"

TOTAL LENGTH = 3090'-0" (MEASURED ALONG "SB CHSR E")

TOP OF DECK

TOP OF RAIL

TRANSITION SLAB

PARAPET

ABUT 1

BENT 2

BENT 3

BENT 4

BENT 5

BENT 6

DATUM ELEV 1260.00

MATCH LINE STA 18083+00

DRAWING NO. (ST-J1028)

MATCH LINE STA 18076+00

DRAWING NO. (ST-J1028)

SCALE 1"= 40'

PROFILE

SCALE 1"= 40'

PLAN

SCALE 1"= 40'

DESIGNED BY ROBERT BARTON
DRAWN BY YIHONG WANG
CHECKED BY R. GOLCHOOBIAN
IN CHARGE STEVE SMITH

DATE 10/31/2017

RECORD PEPD
SUBMITTAL NOT FOR CONSTRUCTION

CONTRACT NO. HSR13-44
DRAWING NO. ST-J1027
SCALE AS SHOWN
SHEET NO. 

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11:12:06 AM 10/30/2017 TYLI\YWang