GENERAL NOTES

LOAD & RESISTANCE FACTOR DESIGN

DESIGN: AASHTO-LRFD BRIDGE DESIGN SPECIFICATIONS 8TH EDITION WITH CALIFORNIA AMENDMENTS. (AASHTO-CA BDS-8)

SEISMIC DESIGN: CALTRANS SEISMIC DESIGN CRITERIA (SDC), VERSION 2.0 APRIL 2019

DEAD LOAD: INCLUDES 35 PSF FOR FUTURE WEARING SURFACE

LIVE LOAD: HL-93 WITH LOW-BOY AND PERMIT DESIGN LOAD

SEISMIC DESIGN: CAL TRANS SEISMIC DESIGN CRITERIA (SDC), VERSION 2.0 APRIL 2019

REINFORCED CONCRETE: f'c = 4,000 psi (UNLESS NOTED OTHERWISE)

STEEL GIRDER: SEE "STRUCTURAL STEEL NOTES" SHEET PIER 2

THE BRIDGE DESIGN WAS BASED ON THE GEOTECHNICAL REPORT BY LEIGHTON

RELATED CONTRACT DOCUMENTS

1. CONSTRUCTION SPECIFICATIONS: CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS 2018
2. STANDARD PLANS: CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS 2018

RIPRAP SCOUR PROTECTION NOTES:

1. RIPRAP SCOUR PROTECTION DEVICE REQUIRED FOR DEBRIS CONTROL TO PREVENT SCOUR AT ABUTMENT 1, PIER 2, AND PIER 3.
2. RIPRAP INSTALLATION SEQUENCE: EXCAVATION FOR RIPRAP PLACEMENT; PLACE GEOTEXTILE; PLACE RIPRAP; BACKFILL AS NECESSARY TO TIE TO SURROUNDING GRADE.
3. THE RIPRAP SHALL HAVE A MINIMUM THICKNESS OF 6 FT AT ABUTMENT 1, PIER 2, AND PIER 3 AND A MINIMUM THICKNESS OF 4 FT AT THE BRIDGE LOW CHORD ELEVATION.
4. ROCK MATERIAL MUST MEET THE STANDARDS DESCRIBED IN SECTION 72-2.02C OF THE CALTRANS STANDARD SPECIFICATIONS.
5. GEOTEXTILE MUST BE RSP (ROCK SLOPE PROTECTION) FABRIC AS DESCRIBED IN SECTION 72-2.02C.
6. DESIGNER MUST BE RIP (ROCK SLOPE PROTECTION) FABRIC AS DESCRIBED IN SECTION 72-2.02C OF THE CALTRANS STANDARD SPECIFICATIONS.

HYDRAULIC SUMMARY DATA TABLE

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>FREQUENCY</th>
<th>SECOND</th>
<th>FIRST</th>
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<tr>
<td>DISCHARGE</td>
<td>34,000</td>
<td>38,000</td>
<td>30,600</td>
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<td>WATER SURFACE ELEV.</td>
<td>344.93</td>
<td>344.53</td>
<td>346.29</td>
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<td>Recording Date</td>
<td>10/08/2021</td>
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SCOUR DATA TABLE

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<tr>
<th>SUPPORT NO.</th>
<th>LONG TERM (DEBRIS CONTROL)</th>
<th>SHORT TERM (LOCAL)</th>
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<tr>
<td>ABUTMENT 1</td>
<td>327.0 15</td>
<td>327.0 11.5</td>
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<tr>
<td>ABUTMENT 2</td>
<td>327.0 15</td>
<td>327.0 11.5</td>
</tr>
<tr>
<td>ABUTMENT 3</td>
<td>327.0 15</td>
<td>327.0 11.5</td>
</tr>
</tbody>
</table>

NOTES:
1. DESIGN BY ELEVATIONS ARE CONTROLLED BY: (A-I) COMPRESSION (STRENGTH LIMIT), (B-I) TENSION (STRENGTH LIMIT), (C) SETTLEMENT, (D) LATERAL (EXTREME EVENT-I).
2. THE SPECIFIED TIP ELEVATION SHALL NOT BE RAISED WITHOUT APPROVAL FROM ENGINEER.

GENERAL NOTES

SANDIA CREEK ROAD BRIDGE REPLACEMENT
SAN DIEGO, CALIFORNIA

FIRST IMPROVEMENT PLAN SUBMITTAL - NOT FOR CONSTRUCTION
PLAN

BEARING OF ABUTMENT 1 AND PIER 2 = 39°24'07" W
BEARING OF PIER 3 AND ABUTMENT 4 = 40°24'22" W
CAST IN DRILLED HOLE PILE DETAILS

NOTES:
1. CIDH PILES SHALL BE EXTENDED ONLY IN ACCORDANCE WITH DETAILS SHOWN IN THE PROJECT PLANS.

2. VERTICAL CIDH PILE/COLUMN REINFORCEMENT SHALL NOT BE SPLICED.

3. HOOPS SHALL BE WELDED BY WELDED UL TMA BUTT SPLICE. STAGGER SPLICES BY 90 DEGREES AT EACH PLACEMENT.

4. INTERPRETED BEDROCK ELEVATIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY ELEVATIONS PRIOR TO ORDERING MATERIAL.

DESIGN NOTES:
REINFORCED CONCRETE
fy = 60,000 psi
f' = 6,000 psi

COMPRESSION:
1850 KIP (STRENGTH)
3000 KIP (EXTREME)

1667 KIP (SERVICE STATE)
1807 KIP (NORMAL AXIAL STRUCTURAL RESISTANCE)

SECTION A-A
3/4" = 1'-0"

SECTION B-B
3/4" = 1'-0"

PIER 2 & 3 ELEVATION
3/4" = 1'-0"

ABUTMENT 1 & 4 ELEVATION
3/4" = 1'-0"
ELEVATION ABUTMENT 1

1/2" = 1'-0"

* CROSS SLOPE NORMAL TO 1 BRIDGE

LEFT COLUMN REINFORCEMENT AND DETAIL SHOWN

FROM CIVIL SHEETS

CONSTRUCTION JOINT WITH REINFORCED
SURFACE (TOP)

BREAK IN HOOP SPACING AS REQUIRED
FOR PLACEMENT OF CROSSBEAM REINFORCEMENT
(3'-0" MARGINAL TO FIRST HOOP)

ELEV 341.87
ELEV 344.02

C PILE
CIDH PILE
ELEVATION PIER 2

1/4" = 1'-0"

- Cross slope normal to bridge
- Left column reinforcement and detail shown
- Right column similar

SECTION A-A

CONSTRUCTION JOINT
WITH POLISHED SURFACE (TYP)

BREAK IN HOOP SPACING AS REQUIRED
FOR PLACEMENT OF CROSSBEAM REINFORCEMENT
(3" MAXIMUM TO FIRST HOOP)

TOP OF EXISTING GRADE

ELEV 335.25

ELEV 344.20

ELEV 335.75

ELEV 344.00

ELEV 305.00
PIER 2 CROSSBEAM PLAN

ELEVATIONS SHOWN ARE AT THE TOP OF GROUT PADS ALONG THE CENTRELINE BEARING.

PIER 2 CROSSBEAM ELEVATION

* CROSS SLOPE NORMAL TO E BRIDGE

NOTES:
1. SPLICES OF #6 AND #11 BARS SHALL BE A MECHANICAL OR WELDED SERVICE SPLICE. SPLICE OF BARS OVER COLUMN NOT PERMITTED.
2. SPLICES OF #6 BARS SHALL BE 2'-9"
3. STAGGER SPLICES OF ADJACENT BARS, UNLESS OTHERWISE NOTED.

SANDIA CREEK ROAD BRIDGE REPLACEMENT
SAN DIEGO, CALIFORNIA

FIRST IMPROVEMENT PLAN SUBMITTAL - NOT FOR CONSTRUCTION
PIER 3 CROSSBEAM PLAN

NOTES:
1. SPLICES OF #14 AND #11 BARS SHALL BE A MECHANICAL OR WELDED SERVICE SPLICE. SPLICE OF BARS OVER COLUMN NOT PERMITTED.
2. SPLICES OF #6 BARS SHALL BE 2'-9"
3. STAGGER SPLICES OF ADJACENT BARS, UNLESS OTHERWISE NOTED.

NO. DATE BY REVISION DRAWN: SQ PROJECT NO.: 1009200011a

SANDIA CREEK ROAD BRIDGE REPLACEMENT
SAN DIEGO, CALIFORNIA

PIER 3 CROSSBEAM PLAN AND ELEVATION

* CROSS SLOPE NORMAL TO PIER 3 BEARING

* ELEVATIONS SHOWN ARE AT THE TOP OF GROUT PADS ALONG THE CENTERLINE BEARING.
ABUTMENT 4 ELEVATION

- Cross slope normal to bridge
- Left column reinforcement and detail shown
- Right column similar

- Cross section normal to bridge
- Construction joint with roughened surface (typ)
- Top of existing grade

- Pile in slope spaced as required
- Cross section normal to bridge
- 3" min. to first hoop

- Elevation 342.08
- Elevation 313.00

- Foundation details shown
- Details as shown

- Design: PKF
- Scale: AS SHOWN
- Checked: AMS
- Date: 10/08/2021

SANDIA CREEK ROAD BRIDGE REPLACEMENT
SAN DIEGO, CALIFORNIA

ABUTMENT 4 ELEVATION
ABUTMENT 4 CROSSBEAM PLAN

3/8" = 1'-0"

* ELEVATIONS SHOWN ARE AT THE TOP OF
GROUT PADS ALONG THE CENTERLINE BEARING.

ABUTMENT 4 CROSSBEAM ELEVATION

3/8" = 1'-0"

* CROSS SLOPE NORMAL TO BRIDGE

NOTES:
1. SPACERS OF #14 AND #11 BARS SHALL BE A
MECHANICAL OR WELDED SERVICE SPLICE.
SPLICE OF BARS OVER COLUMN NOT PERMITTED.
2. SPACERS OF #6 BARS SHALL BE 2'-9"
3. 3/8" CHAMFER NOT SHOWN FOR QUALITY

GIR 3A

GIR 3B

GIR 3C

GIR 3D

CIDH PILE

CONSTRUCTION JOINT WITH ROUGHENED SURFACE

APPROACH SLAB SEE STANDARD
PLAN B9-1 FOR NEW

CONSTRUCTION JOINT

SECTION A-A

2'-0" CENT TYP

4'-0" CENT TYP

NOT SHOWN FOR QUALITY

BO 17,000# OVER COLUMN

BO 17,000# OVER COLUMN

BO 17,000# OVER COLUMN

BO 17,000# OVER COLUMN

ELEV 347.08

ELEV 347.08

ELEV 347.08

ELEV 347.08

BLOCKOUT FOR EXPANSION JOINT
BEARING PLAN

SCALE 3/16" = 1'-0"

PIER 3

ABUTMENT 4

B16
TYPICAL GROUT PAD PLAN

PIER 2 AND 3
SANDIA CREEK ROAD BRIDGE REPLACEMENT
SAN DIEGO, CALIFORNIA

ABUTMENT 1 AND 4

SECTION B-B

BEARING VIEW A-A

BEARING DESIGN TABLE

NOTES:
1. Elastomeric bearing shall have an elastomer shear modulus of 165 psi (11 MPa) minimum to ASTM D 557
2. Top of gusset pad shall be level and have a broom finish
3. Bottom of sole plate shall be level after deck has been placed

SCALE: 3"=1'-0"

ANCHOR BOLT DETAIL

SCALE: 3/4"=1'-0"

ELASTOMERIC BEARING PAD DETAIL "A"

SCALE: 3/8"=1'-0"

TYPICAL GROUT PAD PLAN

SANDIA CREEK ROAD BRIDGE REPLACEMENT
SAN DIEGO, CALIFORNIA

BEARING DETAILS

BEARING DESIGN TABLE

NOTES:
1. Elastomeric bearing shall have an elastomer shear modulus of 165 psi (11 MPa) minimum to ASTM D 557
2. Top of gusset pad shall be level and have a broom finish
3. Bottom of sole plate shall be level after deck has been placed

BEARING DESIGN TABLE

LOCATION    ELASTOMERIC SHEAR MODULUS 165 PSI (11 MPa) MINIMUM TO ASTM D 557
NUMBER OF     INNER LAM THICKNESS, NUMBER OF LAMS AND SHIMS
LAM (IN)      UNLOADED       LOADED          (IN)       HEIGHT (IN)
INNER LAM (IN)  (IN)            (IN)            (IN)          (IN)
ABUTMENT 1  326  342  6  2  7  1/2  4.02  3.92  1.75
PIER 2  582  345  4  2  4  1/2  3.17  2.85  1.75
PIER 3  454  317  4  2  4  1/2  3.17  2.85  1.75
PIER 4  178  155  6  2  7  1/2  4.02  3.92  1.75

BEARING PAD DETAIL "A"

SCALE: 3/8"=1'-0"

TACK WELD NUT TO PL

1/4"x4 1/2" PL W/ 2 1/16" HOLE IN CENTER
5/8"x6 1/2" PL W/ 2 1/16" HOLE IN CENTER

COVER PL, TYP
TAPERED SOLE PL 45x16

ANCHOR BOLT, SEE DETAIL "A"
NOTES:

1. Placement of girder shall not be made until after erection of all structural steel.
2. Concrete shall be placed in one continuous placement within the limits shown in the slab placement sequence.
3. The concrete compressive strength shall exceed 1500 psi before the subsequent placement is made.
4. Transverse construction joints shall be parallel to the cross frames shown on the girder layout sheets.

NOT TO SCALE

TOTAL DEAD LOAD CAMBER (IN) 0 1.54 2.84 3.16 4.23 3.78 2.96 1.92 0.87 0 -0.36 -0.52 -0.49 -0.35 -0.28 -0.21 -0.21 -0.21 -0.21 -0.21 0 0.66 1.50 2.32 2.89 3.33 3.33 2.96 2.23 1.20
SELF WEIGHT OF STEEL CAMBER (IN) 0 0.72 1.34 1.78 2.02 2.03 1.83 1.45 0.96 0.44 0.21 0.34 0.36 0.33 0.29 0.25 0.22 0.20 -0.14 0.27 0.60 0.91 1.15 1.28 1.27 1.12 0.84 0.45

TOTAL DEAD LOAD CAMBER (IN) 0 1.55 2.87 3.18 4.28 3.83 3.00 1.96 0.89 0 -0.38 -0.57 -0.57 -0.49 -0.40 -0.37 -0.38 -0.38 -0.39 -0.39 0.69 1.53 2.36 3.02 3.38 3.38 3.00 2.25 1.22
SELF WEIGHT OF STEEL CAMBER (IN) 0 0.73 1.35 1.79 2.03 2.05 1.85 1.46 0.97 0.45 0.22 0.35 0.39 0.37 0.35 0.29 0.26 0.22 0.15 0.28 0.61 0.93 1.17 1.30 1.29 1.14 0.89 0.46

TOTAL DEAD LOAD CAMBER (IN) 0 1.57 2.90 3.17 4.32 3.88 3.05 2.00 0.91 0 -0.40 -0.61 -0.65 -0.59 -0.52 -0.48 -0.47 -0.44 -0.33 0.71 1.57 2.41 3.07 3.43 3.42 3.03 2.28 1.23
SELF WEIGHT OF STEEL CAMBER (IN) 0 0.73 1.36 1.80 2.04 2.06 1.86 1.48 0.98 0.58 0.22 0.38 0.41 0.40 0.29 0.28 0.28 0.23 -0.15 0.22 0.62 0.94 1.18 1.31 1.30 1.15 0.86 0.46

TOTAL DEAD LOAD CAMBER (IN) 0 1.59 2.92 3.17 4.36 4.37 3.92 3.05 2.03 0.83 0.41 0.65 0.72 0.68 0.62 0.55 0.49 0.35 0.20 0.73 1.66 2.45 3.11 3.47 3.46 3.06 2.20 1.24
SELF WEIGHT OF STEEL CAMBER (IN) 0 0.74 1.36 1.82 2.08 2.07 1.87 1.49 0.99 0.48 0.22 0.37 0.43 0.39 0.35 0.29 0.21 0.16 0.08 0.23 0.64 0.99 1.20 1.33 1.32 1.16 0.87 0.47
1. All structural steel shall be structural for high-strength anchor bolts. All connections with cutters are shown in the shop drawings and approved by the engineer.

2. All field and shop connections shall be TIG, orbital or MIG, with weld strength equal to the steel. Welds shall be of the same type as the steel. Welding shall be performed by qualified welders. Welds shall be made in a manner approved by the engineer.

3. Welding shall be equal in strength to the parent metal and small cracks shall not occur. The welding procedure and welder shall be qualified. The welding procedure and welder shall be qualified. Welding shall be performed in accordance with the welding procedure.

4. All welding shall be done to minimize distortion. The welding sequence shall be (1) flanges to web, (2) flanges to flange, and (3) web to web.

5. Pier cross frames and all bearing and jacking stiffeners shall be designed in accordance with the specifications. The stiffeners shall be fabricated full length between field splices prior to welding.

6. All dimensions are horizontal and vertical unless otherwise shown.

7. All proposed butt splices shall be shown on the shop drawings submitted for approval. The engineer shall submit a list of splices on the shop plans.

8. All welding shall conform to the current specifications of the American Welding Society. All welding shall be done to minimize distortion. The welding sequence shall be (1) flanges to web, (2) flanges to flange, and (3) web to web.

9. Bolt holes remaining in girder webs upon removal of deck formwork and shop bolting may be used where approved by the engineer.

10. Bolt holes remaining in girder webs upon removal of deck formwork and shop bolting may be used where approved by the engineer.

11. The contractor shall provide, as required, temporary bracing and/or scaffolding at locations where slab forms are attached to unbraced components of flexural members and shall meet the longitudinal Charpy V-notch test as specified in the Caltrans standard specifications.

12. The contractor shall provide, as required, temporary bracing and/or scaffolding at locations where slab forms are attached to unbraced components of flexural members and shall meet the longitudinal Charpy V-notch test as specified in the Caltrans standard specifications.

13. The contractor shall provide, as required, temporary bracing and/or scaffolding at locations where slab forms are attached to unbraced components of flexural members and shall meet the longitudinal Charpy V-notch test as specified in the Caltrans standard specifications.

14. The contractor shall provide, as required, temporary bracing and/or scaffolding at locations where slab forms are attached to unbraced components of flexural members and shall meet the longitudinal Charpy V-notch test as specified in the Caltrans standard specifications.

15. All welding shall conform to the current specifications of the American Welding Society. All welding shall be done to minimize distortion. The welding sequence shall be (1) flanges to web, (2) flanges to flange, and (3) web to web.
GIRDER LAYOUT - SPAN 1

1/8" = 1'-0"
GIRDER LAYOUT - SPAN 2 AND 3

- CROSS FRAME SPACING:
  - (8) ED SPA = 115'-0" (ANGLE VARIES FROM 18° AT PIER 2 TO PERPENDICULAR)
  - (5) ED SPA = 61'-0"

- FIELD SPLICE:
  - Field Splice 3
  - Field Splice 5

- Pier Details:
  - Pier 2 & Pier Diaphragm
  - Pier 3 & Pier Diaphragm
  - Pier 4 & Pier Diaphragm

- Structural Elements:
  - Girder A
  - Girder B
  - Girder C
  - Girder D

- Additional Information:
  - Design:PKG Scale: AS SHOWN
  - Checked: AMS Date: 10/08/2021
  - Drawing No. B21
GIRDER ELEVATION - SPAN 1
GIRDER ELEVATION - SPAN 2

PLATE LENGTH (L) TABLE

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<tr>
<th>LETTER</th>
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<tr>
<td>A</td>
<td>93'-3 7/8&quot;</td>
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<tr>
<td>B</td>
<td>82'-2 5/16&quot;</td>
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<tr>
<td>C</td>
<td>88'-2 11/16&quot;</td>
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<tr>
<td>D</td>
<td>82'-8 1/8&quot;</td>
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GIRDER ELEVATION - SPAN 2
FLANGE SPLICE DETAILS

STA 15+30 TO STA 17+80

TYPICAL GIRDER SECTION

Scale: 1" = 1'-0"

UNEQUAL THICKNESS  EQUAL THICKNESS

FLANGE SPLICE DETAILS

TYPICAL FITTEL WELD TERMINATION DETAIL

OPTIONAL WEB SPLICE - ELEVATION

SECTION A-A

EXTERIOR GIRDER DRIP PLATE DETAILS

SANDIA CREEK ROAD BRIDGE REPLACEMENT SAN DIEGO, CALIFORNIA

GIRDER DETAILS

FIRST IMPROVEMENT PLAN SUBMITTAL - NOT FOR CONSTRUCTION
SANDIA CREEK ROAD BRIDGE REPLACEMENT
SAN DIEGO, CALIFORNIA

GIRDER FIELD SPLICE DETAILS

TOP FLANGE - SECTION A-A

BOTTOM FLANGE - SECTION B-B

ELEVATION

GIRDER FIELD SPLICE 2

SECTION C-C
GIRDER FIELD SPLICE 5

SANDIA CREEK ROAD BRIDGE REPLACEMENT
SAN DIEGO, CALIFORNIA

1601 5th Avenue, Suite 1300
Seattle, Washington 98101
(206) 382-0600   Fax (206) 382-0500

FIRST IMPROVEMENT PLAN SUBMITTAL - NOT FOR CONSTRUCTION

TOP FLANGE - SECTION A-A

BOTTOM FLANGE - SECTION B-B

ELEVATION

GIRDER FIELD SPLICE DETAILS

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

SECTION C-C
INTERMEDIATE CROSS FRAME DETAIL

SPAN 3 SECTION SHOWN, OTHER SPANS SIMILAR

NOTES:
1. ALL WELDS ARE 5/16" EXCEPT AS OTHERWISE INDICATED.
2. INTERMEDIATE CROSS FRAMES TO BE PLACED PARALLEL WITH ROADWAY CROSS SLOPE EXCEPT AS NOTED IN SPAN 2.

SCALE: 3/4" = 1'-0"
NOTE:
1. NO MORE THAN 50% OF BARS SHALL BE SPliced AT ONE LOCATION.
2. FOR TYPICAL SECTION, SEE TYPICAL SECTION AND SLAB REINFORCEMENT SHEET.
3. CURB BARS NOT SHOWN. SEE "BARRIER" SHEETS FOR DETAILS.
SLAB REINFORCING PLAN - SPAN 2 & 3

Note:
1. No more than 50% of bars shall be spliced at one location.
2. For typical section, see typical section and slab reinforcement sheet.
3. Curb bars not shown; see "barrier" sheets for details.

kpff

SANDIA CREEK ROAD BRIDGE REPLACEMENT
SAN DIEGO, CALIFORNIA

DRAWN: SQ PROJECT NO.: 10092000118
CHECKED: AMS DATE: 10/08/2021
DESIGN: PKG SCALE: AS SHOWN
DRAWING NO.: 48 of 54
SLAB TYPICAL SECTION - OVER PIER

\[ \frac{7}{8} \times 1 = 1' \]

PER 3 SHOWN, PIER 2 SIMILAR.

SLAB TYPICAL SECTION - MID SPAN

\[ \frac{7}{8} \times 1 = 1' \]

SPAN 3 SHOWN, OTHER SPANS SIMILAR.
NOTE:
1. ALTERNATIVELY, FILLET OR COMPLETE PENETRATION WELDS MAY BE USED AT ANCHOR STUDS.
2. ALTERNATE TYPES OF ANCHOR STUDS MAY BE PERMITTED SUBJECT TO THE AUTHORIZATION BY THE ENGINEER.
3. JOINT SEAL ASSEMBLY TO BE USED IN CONJUNCTION WITH CLOSURE POUR. [SEE OTHER SHEETS FOR LIMITS]. CLOSURE POUR SHALL NOT BE PLACED UNTIL FINAL DECK SURFACE IS WITHIN THE TOLERANCES SPECIFIED.
4. USE JOINT AT CROWN OF ROADWAY, AT ANY CHANGE IN TRANSVERSE SLOPE IN DECK AND AT CHANGES IN HORIZONTAL DIRECTION. PLACE OTHER JOINTS AT OR NEAR LANES. ALL METAL PARTS TO BE PAINTED OR GALVANIZED AFTER FABRICATION.
5. SHEET NEOPRENE SHALL BE FABRICATED IN ONE CONTINUOUS PIECE, AND SHALL BE FABRICATED TO BEND AROUND CORNERS. FIELD SPLICES OF THE NEOPRENE ARE NOT ALLOWED.

6. INSERT ASSEMBLY OR EXPANSION ANCHORAGE FOR 5/8"x 3/4" BOLTS. USE INSTALLATION BOLTS EXTENDED 1/2" MINIMUM PAST NUT AND COAT WITH BOND BREAKER, AFTER CONCRETE HAS CURED, REMOVE INSTALLATION BOLTS, INSTALL HS BOLTS AND SHEET NEOPRENE.
7. USE SIDEWALK DETAIL AT ALL SIDEWALK JOINTS. USE BARRIER DETAIL LOW SIDE AT BOTH SIDES IF THE ROADWAY IS CROWNED, OR IF THE DIFFERENCE IN ELEVATION BETWEEN THE ENDS OF THE SEAL IS 6 INCHES OR LESS.
8. \( \epsilon_p \) IS THE THERMAL EXPANSION COEFFICIENT FOR STEEL.
9. ANCHOR STUDS SHALL CONFORM TO ASTM A108.

\[ W = 1/2'' + \left[ \left( \text{Max Str temperature in } ^\circ F \right) - \left( \text{actual Str temperature in } ^\circ F \right) \right] \times \left( \epsilon_p \right) \times \left( \text{contributory L in feet} \right) \]
NOTE: 1" GAP UNLESS NOTED OTHERWISE ON DETAIL PLANS.

RAIL SPLICE SHALL BE ALIGNED WITH CURB EXPANSION JOINTS.

MAKE SPLICE TUBE FROM PL 1/4" DIAMETER BAR.

APPROXIMATE GEOMETRY NOT SHOWN FOR clarity.

BAR "A" AS SHOWN.

SIDE WELD

SEAL WELD

GAP WELD

DRAWING NO.

SHEET NO. OF

CHECKED AND DATE 10/08/2021

DRAWN NO.

SANDIA CREEK ROAD BRIDGE REPLACEMENT
SAN DIEGO, CALIFORNIA
BARRIER 1

SCALE: 3" = 1'-0"

SCALE: 3 1/2" = 1'-0"

SCALE: 3/4" = 1'-0"

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

PLAN

ELEVATION

PLATE "D"

DUMMY JOINT DETAIL

RAIL SPLICE DETAILS

WIRE SPLICE TUBE FROM PL 1/4"

GRIND ALL EDGES PRIOR TO GALVANIZING TO ASSURE PROPER FIT.

DUMMY JOINTS, TYP.

RAIL SPLICE, TYP.

EACH POST, UNLESS OTHERWISE NOTED. ONGRAINING TO ASSURE PROPER FIT.

RAIL SPLICE SMALLE OR ADMID WITH CURB EXPANSION JOINTS.

BE SURE PROPER FIT 2'-5 3/4" TYP.

BE SURE 2'-6" TYP AT EACH POST, UNLESS OTHERWISE NOTED.

PRODUCE CONTINUOUS RAIL OVER 2 OR MORE POSTS.

POST SPACING, TYP.

POST SPACING, TYP.

L/4 & 6", TYP.

L/4 POST SPACING.

BAR "A" TYP.

NOTE: 1" GAP UNLESS NOTED OTHERWISE ON DETAIL PLANS.

RAIL SPLICE SMALLE OR ADMID WITH CURB EXPANSION JOINTS.

BE SURE PROPER FIT 2'-5 3/4" TYP.

BE SURE 2'-6" TYP AT EACH POST, UNLESS OTHERWISE NOTED.

PRODUCE CONTINUOUS RAIL OVER 2 OR MORE POSTS.

POST SPACING, TYP.

POST SPACING, TYP.

L/4 & 6", TYP.

L/4 POST SPACING.

BAR "A" TYP.

NOTE: 1" GAP UNLESS NOTED OTHERWISE ON DETAIL PLANS.

RAIL SPLICE SMALLE OR ADMID WITH CURB EXPANSION JOINTS.

BE SURE PROPER FIT 2'-5 3/4" TYP.

BE SURE 2'-6" TYP AT EACH POST, UNLESS OTHERWISE NOTED.

PRODUCE CONTINUOUS RAIL OVER 2 OR MORE POSTS.

POST SPACING, TYP.

POST SPACING, TYP.

L/4 & 6", TYP.

L/4 POST SPACING.

BAR "A" TYP.

NOTE: 1" GAP UNLESS NOTED OTHERWISE ON DETAIL PLANS.

RAIL SPLICE SMALLE OR ADMID WITH CURB EXPANSION JOINTS.

BE SURE PROPER FIT 2'-5 3/4" TYP.

BE SURE 2'-6" TYP AT EACH POST, UNLESS OTHERWISE NOTED.

PRODUCE CONTINUOUS RAIL OVER 2 OR MORE POSTS.

POST SPACING, TYP.

POST SPACING, TYP.

L/4 & 6", TYP.

L/4 POST SPACING.
GENERAL NOTES:
1. ALL PLATES AND ROLLED SECTIONS SHALL BE STRUCTURAL LOW ALLOY STEEL AASHTO A874 OR A588 GRADE SOW.
2. NUTS, BOLTS, AND WASHERS SHALL CONFORM TO ASTM F3125 A325 BLACK WEATHER.
3. ANCHOR BOLTS SHALL BE ASTM A1554 GRADE 105.
4. FABRICATE RAILING TO THE HORIZONTAL AND VERTICAL ALIGNMENT OF THE STRUCTURE. INSTALL NUTS NORMAL TO GRADE.
5. PROVIDE RAIL SPLICE AS SHOWN ON BARRIER SHEET.
6. HOT DIP GALVANIZE FASTENERS IN ACCORDANCE WITH AASHTO M111/M232 AFTER FABRICATION, EXCEPT AS NOTED.

DESIGN CAPACITIES
\[ P_p(\text{POST}) = 41.2 \text{ KIPS} \]
\[ M_p(\text{POST}) = 62.7 \text{ KIP-FT} \]
\[ \text{WGT.} = 2.014 \text{ KIP/POST (INCLUDES 7" CURB)} \]
\[ \text{CENTER OF GRAVITY} = 0.908 \text{ FT} \]

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

DESIGN: PKG SCALE: AS SHOWN
CHECKED: AMS DATE: 10/08/2021
DRAWING NO.: B39
SHEET NO.: 52 of 54

SANDIA CREEK ROAD BRIDGE REPLACEMENT
SAN DIEGO, CALIFORNIA
BARRIER 2
PLAN - TRANSITION CONNECTION

SECTION A-A

PLAN - TRANSITION CONNECTION

SECTION B-B

GUARDRAIL CONNECTION PLATE DETAILS

SECTION C-C

NOTE:
1. RAIL ELEMENTS FOR THE STRUCTURAL TUBING CONFORMING TO ASTM SPECIFICATION A500 GRADE B, A618 OR A501.
2. PROVIDE STEEL POSTS AND PLATES CONFORMING TO ASTM SPECIFICATIONS AND UNLESS OTHERWISE NOTED.
3. ANCHOR BOLTS SHALL BE ASTM A1554 GRADE 105.
4. FABRICATE RAILING TO THE HORIZONTAL AND VERTICAL ALIGNMENT OF THE STRUCTURE.
5. PROVIDE REINFORCING STEEL CONFORMING TO ASTM A615 OR AASHTO M31 (ASTM A615).
6. PROVIDE RAIL SPLICE AS SHOWN ON BARRIER 1 SHEET.
7. HOT DIP GALVANIZED STRUCTURAL STEEL BUILDING MATERIALS IN ACCORDANCE WITH AASHTO M111/M232 AFTER FABRICATION, EXCEPT AS NOTED.

GENERAL NOTES:

- 5/8" HOLES THRU EACH RAIL TUBE, EXTEND THRU BOTH TOP AND BOTTOM FACES OF TUBE
- BACK OF RAIL POST TO BE TAPERED 1'-8 1/2" CURB TAPER
- PLATE "D", SEE SHEET S16
- CONNECTION PLATE TO BE FLUSH WITH BACK OF PLATE
- (2) 1" HOLES FOR 7/8" BOLTS (ASTM A325) SHOWN PLUS (SNUG TIGHTEN) SEE DETAIL "A"
- (6) 1" HOLES FOR 7/8" BOLTS (ASTM A325) SHOWN PLUS (SNUG TIGHTEN) 9

DESIGN CAPACITIES

- POST (POST) = 41.2 KIPS
- MP (POST) = 62.7 KIP-FT
- WGT. = 2.014 KIP/POST (INCLUDES 7" CURB)
- CENTER OF GRAVITY = 0.908 FT

SANDIA CREEK ROAD BRIDGE REPLACEMENT
SAN DIEGO, CALIFORNIA

BARRIER 3

DETAIL "D"
Provided image and text content do not form a coherent narrative or question that can be directly converted into plain text without context. Please provide more specific or context-based content for conversion into plain text.