

**Meeting of the Central Valley Flood Protection Board
July 22, 2016**

Staff Report

**California High Speed Rail Authority
High-Speed Rail Bridge across San Joaquin River, Fresno County**

1.0 – ITEM

Consider approval of Permit 18956-2 BD (Attachment B) to construct a high-speed rail bridge across the San Joaquin River floodway.

2.0 – APPLICANT

California High-Speed Rail Authority (HSRA)

3.0 – PROJECT LOCATION

The proposed bridge will cross over the San Joaquin River floodway approximately 400 feet upstream from State Route 99 north of the City of Fresno (Attachment A).

4.0 – PROJECT DESCRIPTION

HSRA proposes to construct an elevated viaduct (long bridge) structure to support high speed train use crossing over the San Joaquin River. The viaduct will be 4,741 feet long; and the 1,440 foot-long floodway crossing will be supported on 11 bents in the floodplain, each 12 feet in diameter at the base, and spaced 100 to 120 feet apart, plus two bents on each end of the crossing. At the bridge abutments the alignment will transition to a mechanically stabilized earth embankment system. The bridge is a component of Construction Package 1 of the California High Speed Train (HST) Project, which entails developing approximately 29 miles of track along an alignment from Avenue 17 in Madera County to American Avenue in Fresno County.

5.0 – AUTHORITY OF THE BOARD

California Water Code § 8534, 8590 – 8610.5, and 8700 – 8710

California Code of Regulations, Title 23, Division 1 (Title 23):

- § 6, Need for a Permit

- § 13, Evidentiary Hearings
- § 112, Streams Regulated and Nonpermissible Work Periods
- § 116, Borrow and Excavation Activities – Land and Channel
- § 121, Erosion Control
- § 128, Bridges

6.0 – PROJECT ANALYSIS

6.1– Project Background

HSRA proposes to construct, operate, and maintain an electric-powered High Speed Train (HST) system in California. When completed, the nearly 800-mile long system would provide new passenger rail service to more than 90% of California's population. The system would connect and serve major metropolitan areas of California, extending from San Francisco and Sacramento in the north to San Diego in the south.

The High Speed Train Design-Build Project, Construction Package 1 (Project) is part of the Initial Construction Segment of the California High Speed Train System. The Project plans to construct approximately 29 miles of new high speed rail from south of Avenue 17 in the City of Madera to south of Santa Clara Street in the City of Fresno. The Project alignment will include at-grade sections, aerial structures, trench sections, and a short tunnel. The Project will also include a number of grade separations to mitigate the rail alignment's crossing of existing roads. The Project is being designed and constructed as a Design-Build contract (Attachment C). Only the portion of the bridge crossing the floodway is subject to the Board's regulations. There is no local maintaining agency associated with this portion of the San Joaquin River floodway.

6.2– Hydraulic Analysis

Based on HSRA's revised hydraulic analysis report, dated September 2015, the proposed HST bridge will result in an insignificant localized increase in water surface elevation in the vicinity of the proposed structure relative to the existing conditions.

The proposed bridge will have 36.4 feet of freeboard at the 500-year flow of 151,100 cubic feet per second (Attachment D).

Computed average channel flow velocities for the existing and proposed conditions indicate no increases in average channel velocities are anticipated at cross sections upstream and downstream of the proposed bridge.

Scour analyses for the proposed bridge predict a maximum scour depth of 15.9 feet which was considered in the bridge foundation analysis by assuming that there was no soil in place from the lowest point elevation in the river to the scour depth elevation. This means the bridge is expected to remain stable even if a maximum scour occurs.

Based on the HSRA hydraulic modeling Board staff concludes that the proposed project is expected to result in no adverse hydraulic impacts to the San Joaquin River floodway.

6.3– Geotechnical Analysis

Board staff reviewed the “Geotechnical Engineering Design Report San Joaquin river Viaduct, California High Speed Train Project, Construction Package 1” dated March 11, 2016.

Geotechnical investigations were performed to collect site specific data for design of deep foundations and to perform seismic analysis. Deep foundations include eight- and ten-foot diameter shafts. The seismic impacts were also incorporated into the foundation design.

Based on the HSRA geotechnical data and analyses, Board staff concludes that the proposed project is expected to result in no adverse geotechnical impacts to the San Joaquin River floodway.

7.0 – AGENCY COMMENTS AND ENDORSEMENTS

The comments and endorsements associated with the project are as follows:

- The U.S. Army Corps of Engineers 33 U.S.C. 408 decision letter has not yet been received for this application. Staff anticipates receipt of a letter by late July indicating that the USACE District Engineer has no comments or recommendations regarding flood control because the proposed work does not affect a federally constructed project. Upon receipt of the letter, board staff will incorporate the letter into the permit as Exhibit A.

8.0 – CEQA ANALYSIS

Board staff has prepared the following California Environmental Quality Act (CEQA) findings:

The Board, acting as a responsible agency under CEQA, has independently reviewed the California High-Speed Train Project Merced to Fresno Section Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) (SCH No. 2009091125, August 2011), Final Environmental Impact Report/Environmental Impact Statement (Final EIR/EIS) (SCH No. 2009091125, April 2012), Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Plan (MMRP) prepared by the lead agency, High Speed Rail Authority (incorporated herein by reference). These documents, including project design, may be viewed or downloaded from the Board website at <http://www.cvfpb.ca.gov/meetings/2016/07-22-2016.cfm> under a link for this agenda item, and are also available for review in hard copy at the Board's and High Speed Rail Authority's offices.

The Board previously approved the High Speed Rail Authority California High-Speed Train Project Merced to Fresno Section on April 24, 2015 through Permit 18956-1 and adopted CEQA findings and a Statement of Overriding Considerations pursuant to CEQA Guidelines (incorporated by reference) in Resolution 2015-05 (Attachment E). The Board finds the proposed elevated structure to support high-speed train use across the San Joaquin River, parallel to the Burlington Northern Santa Fe railroad bridge is within the scope of the previously adopted DEIR and FEIR.

The Board finds that no new environmental effects could occur and no new mitigation measures are required pursuant to CEQA Guidelines section 15161. The documents and other materials which constitute the record of the Board's proceedings in this matter are in the custody of the Executive Officer, Central Valley Flood Protection Board, 3310 El Camino Ave., Suite 170, Sacramento, California 95821.

9.0 – CALIFORNIA WATER CODE SECTION 8610.5 CONSIDERATIONS

- Evidence that the Board admits into its record from any party, State or local public agency, or nongovernmental organization with expertise in flood or flood plain management:

The Board has considered all the evidence presented in this matter, including the original application for Permit 18956-2 and technical documentation provided by the Authority on the California High-Speed Train Project, Staff Report and

attachments, the original Environmental Impact Report on the California High-Speed Train Project, Merced to Fresno Section (Draft and Final Versions), Authority Resolution HSRA 12-20 including findings, Statement of Overriding Considerations, and the MMRP.

- The best available science that related to the scientific issues presented by the executive officer, legal counsel, the Department or other parties that raise credible scientific issues.

The accepted industry standards for the work proposed as regulated by Title 23 have been applied to the review of this project. To evaluate hydraulic impacts of the proposed bridge, HSRA used the HEC-RAS one-dimensional flow model. This model is considered by experts as one of the best available scientific tools for modeling river hydraulics in this region.

- Effects of the decision on the facilities of the State Plan of Flood Control, and consistency of the proposed project with the Central Valley Flood Protection Plan as adopted by Board Resolution 2012-25 on June 29, 2012.

This project has no adverse effect on facilities of the State Plan of Flood Control and is consistent with the adopted 2012 Central Valley Flood Protection Plan and Title 23 standards because there are no significant increases in water surface elevation or flow velocities anticipated as a result of the proposed project.

- Effects of reasonable projected future events, including, but not limited to, changes in hydrology, climate, and development within the applicable watershed:

There will be no effects to the proposed project from reasonable projected future events due to abundant existing freeboard available to accommodate potential changes in river hydraulics as a result of climate change, hydrology and development within the existing watershed.

10.0 – STAFF RECOMMENDATION

Board staff recommends that the Board:

Adopt:

The CEQA findings;

Approve:

Draft Encroachment Permit 18956-2 (in substantially the form provided), and conditioned upon receipt of the anticipated USACE no comments or recommendations letter; and

Direct:

The Executive Officer to execute the permit and file a Notice of Determination pursuant to CEQA with the State Clearinghouse.

11.0 – LIST OF ATTACHMENTS

A – Project Vicinity and Location Maps

B – Draft Permit No.18956-2

Exhibit A – USACE Decision Letter

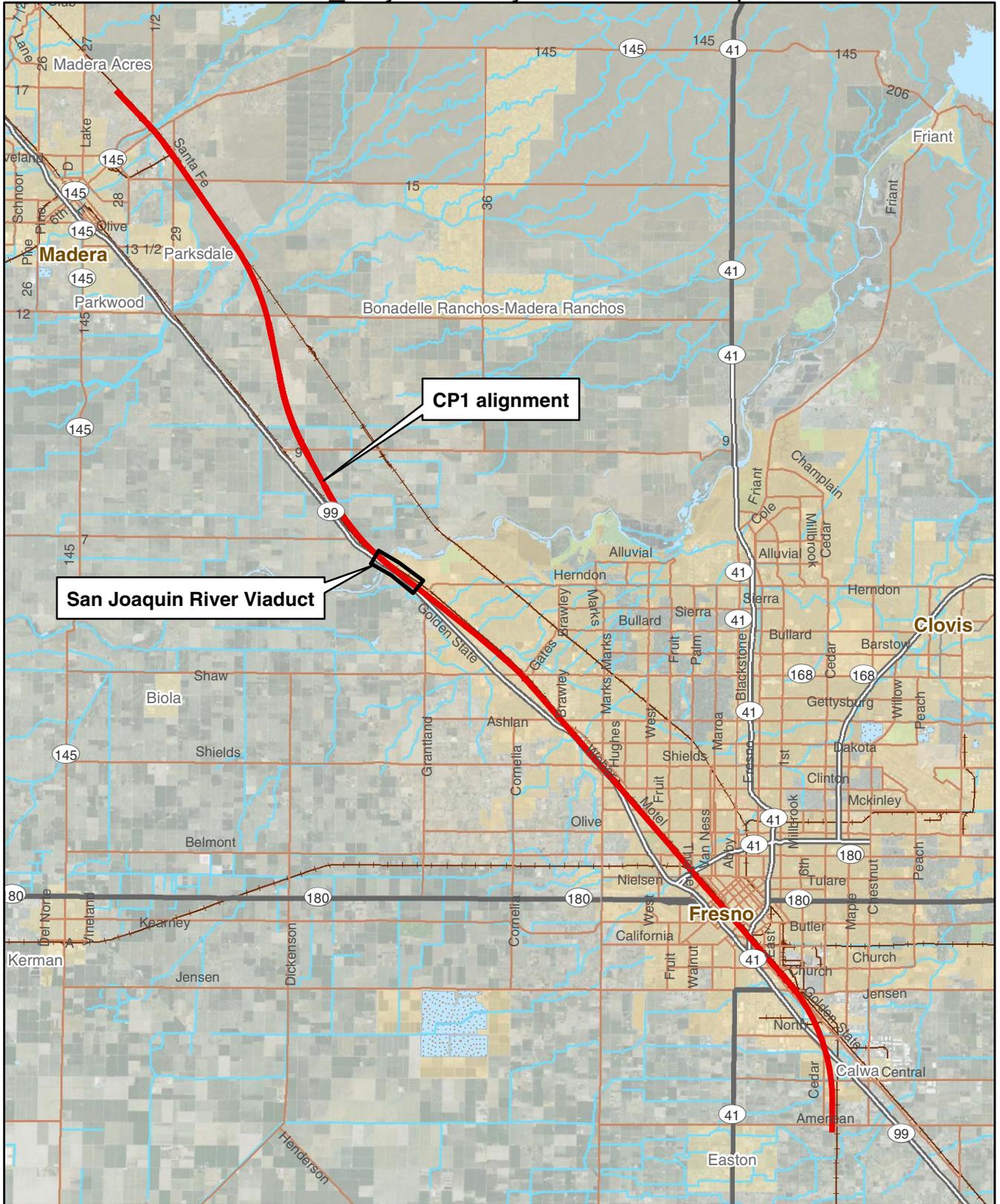
C – Typical Project Design Cross Sections

D – Upstream Face of the Proposed HST Bridge

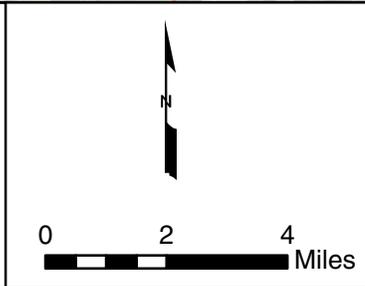
E – Board Resolution 2015-05

Prepared by: Ali Porbaha, Senior Engineer
Environmental Review: James Herota, Senior Environmental Scientist
Andrea Buckley, Acting Environmental Services and Land Management Branch Chief
Document Review: Gary Lemon, PE, Permitting Section Chief
Eric Butler PE, Plan Implementation and Compliance Branch Chief
Mitra Emami, PE, Acting Chief Engineer
Jit Dua, Board Counsel

Attachment A Project Vicinity and Location Maps



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SITE VICINITY MAP
San Joaquin River Viaduct
CHSTP CP1
Fresno and Madera Counties, California

Date: 12/17/2015	Project No. OD13165180.02.14
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Figure
1

Attachment B_Draft Permit

STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18956-2 BD

This Permit is issued to:

High Speed Rail Authority
1401 Fulton Street
Suite 300
Fresno, California 93721

To construct an elevated viaduct (long bridge) structure to support high speed train use crossing over the San Joaquin River floodway. The 1,440 foot-long floodway crossing will be supported on 11 bents in the floodplain, each 12 feet in diameter at the base and spaced 100 to 120 feet apart, plus 2 bents on each end of the crossing. The bridge is a component of Construction Package 1 of the California High Speed Train Project, which entails developing approximately 29 miles of track along an alignment extending from Avenue 17 in Madera County to American Avenue in Fresno County.

The project will cross over the San Joaquin River floodway approximately 400 feet upstream from State Route 99 north of the City of Fresno (Section 31, T12S, R19E, MDB&M, San Joaquin River, Fresno County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: _____

Executive Officer

Attachment B_Draft Permit

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection Board.

SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15 days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 18956-2 BD

THIRTEEN: All work completed under this permit, as directed by the general and special conditions herein, shall be accomplished to ensure that the work is not injurious to adopted plans of flood control, regulated streams, and designated floodways under Central Valley Flood Protection Board (Board) jurisdiction, as defined in California Code of Regulations, Title 23. This permit only applies to the completion of work in the project description located within, or adjacent to and having bearing on Board jurisdiction, and which directly or indirectly affects the Board's jurisdiction. This special condition shall apply to all subsequent conditions herein.

LIABILITY AND INDEMNIFICATION

FOURTEEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the Board, the Department of Water Resources, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof,

Attachment B_Draft Permit

arising out of failure on the permittee's part to perform the obligations under this permit, the permittee shall defend and shall hold each of them harmless from each claim. This condition shall supersede condition TEN.

FIFTEEN: The permittee shall defend, indemnify, and hold the Board, the Department of Water Resources, and their respective officers, agents, employees, successors and assigns, safe and harmless, of and from all claims and damages related to the Board's approval of this permit, including but not limited to claims filed pursuant to the California Environmental Quality Act. The Board and the Department of Water Resources expressly reserve the right to supplement or take over their defense, in their sole discretion.

SIXTEEN: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend, indemnify, and hold the Board, the Department of Water Resources, and their respective officers, agents, employees, successors and assigns, safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The Board and the Department of Water Resources expressly reserve the right to supplement or take over their defense, in their sole discretion.

SEVENTEEN: The Board and Department of Water Resources shall not be held liable for damages to the permitted encroachment(s) resulting from releases of water from reservoirs, flood fight, operation, maintenance, inspection, or emergency repair.

AGENCY CONDITIONS

EIGHTEEN: If the permittee does not comply with the conditions of this permit and enforcement by the Board is required, the permittee shall be responsible for bearing all costs associated with the enforcement action, including reasonable attorney's fees. Permittee acknowledges that State law allows the imposition of fines in enforcement matters.

NINETEEN: Permittee shall pay to the Board, an inspection fee(s) to cover inspection cost(s), including staff and/or consultant time and expenses, for any inspections before, during, post-construction, and regularly thereafter as deemed necessary by the Board.

TWENTY: A letter received from the Department of the Army (U.S. Army Corps of Engineers, Sacramento District) dated "July XX, 2016" is attached to this permit as Exhibit A in reference to this project.

TWENTY-ONE: The permittee agrees to incur all costs for compliance with local, State, and federal permitting, and to resolve conflicts between any of the terms and conditions that agencies might impose under the laws and regulations they administer and enforce.

PRE-CONSTRUCTION

TWENTY-TWO: The permittee shall contact the Board by telephone at (916) 574-0609 to schedule a preconstruction conference. Failure to do so at least 20 working days prior to start of work may result

Attachment B_Draft Permit

in delay of the project.

TWENTY-THREE: The permittee shall provide construction supervision and inspection services acceptable to the Board.

TWENTY-FOUR: Thirty (30) calendar days prior to the start of any demolition and / or construction activities within the floodway the permittee shall submit to the Board's Chief Engineer two sets of detailed plans and specifications and supporting geotechnical and / or hydraulic impact analyses, for any and all temporary in channel work that may have an impact during the flood season from November 1 through July 15. The Board shall acknowledge receipt of this submittal in writing within ten (10) working days of receipt, and shall work with the permittee to review and respond to the request as quickly as possible. Time is of the essence. The Board may request additional information as needed and will seek comment from the U.S. Army Corps of Engineers and / or the local maintaining agency when necessary. The Board will provide written notification to the permittee if the review period is likely to exceed thirty (30) working days.

CONSTRUCTION

TWENTY-FIVE: All work approved by this permit shall be in accordance with the submitted drawings and specifications except as modified by special permit conditions herein. No work, other than that approved by this permit, shall be done in the project area without prior approval of the Board.

TWENTY-SIX: All addenda and contract change orders made to the approved plans and / or specifications by the permittee after Board approval of this permit shall be submitted to the Board's Chief Engineer for review and approval prior to incorporation into the permitted project. The submittal shall include all supplemental plans, specifications, and necessary supporting geotechnical, hydrology and hydraulics, or other technical analyses. The Board shall acknowledge receipt of the addendum or change submittal in writing within ten (10) working days of receipt, and shall work with the permittee to review and respond to the request as quickly as possible. Time is of the essence. The Board may request additional information as needed and will seek comment from the U.S. Army Corps of Engineers and / or local maintaining agencies when necessary. The Board will provide written notification to the permittee if the review period is likely to exceed thirty (30) calendar days. Upon approval of submitted documents the permit shall be revised, if needed, prior to construction related to the proposed changes.

TWENTY-SEVEN: No construction work of any kind shall be done during the flood season from November 1st to July 15th without prior approval of the Board.

TWENTY-EIGHT: All debris generated by this project shall be disposed outside of the San Joaquin River floodway.

TWENTY-NINE: No material stockpiles, temporary buildings, access ramps or equipment shall remain in the floodway during the flood season from November 1 to July 15, and shall be removed after completion of the project.

THIRTY: Backfill material for excavations within 10 feet of bridge supports within the floodway shall be placed in 4- to 6-inch layers and compacted to a minimum of 90 percent relative compaction per

Attachment B_Draft Permit

ASTM Method D1557 or 97 percent per ASTM D 698 and above optimum moisture content. Field density tests shall be taken by a certified soils laboratory to verify compaction of the fill.

THIRTY-ONE: Except with respect to the activities expressly allowed under this permit, the work area shall be restored to the condition that existed prior to start of work.

THIRTY-TWO: The bridge pier shall be constructed parallel to the direction of flow.

THIRTY-THREE: Any temporary ramps that will be constructed for access to or within the project shall be promptly removed and the ground surface shall be regraded to the condition that existed prior to commencement of the project.

VEGETATION / ENVIRONMENTAL MITIGATION

THIRTY-FOUR: Cleared trees and brush shall be completely burned or removed from the floodway, and downed trees or brush shall not remain in the floodway during the flood season from November 1 to July 15.

THIRTY-FIVE: In the event that bank erosion injurious to facilities of the State Plan of Flood Control occurs at or adjacent to and as a result of the project, the permittee shall repair the eroded area and propose measures, to be approved by the Board, to prevent further erosion.

POST-CONSTRUCTION

THIRTY-SIX: Within 120 days of completion of the project, the permittee shall submit to the Board as-built drawings and a certification report, stamped and signed by a licensed civil engineer registered in the State of California, certifying the work was performed and inspected in accordance with the Board permit conditions and submitted drawings and specifications.

OPERATIONS AND MAINTENANCE

THIRTY-SEVEN: The permittee shall be responsible for repair of any damages to the San Joaquin River floodway due to construction, operation, or maintenance of the proposed project.

THIRTY-EIGHT: The permittee shall maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of the Board, Department of Water Resources, or any other agency responsible for maintenance.

THIRTY-NINE: If the bridge is damaged to the extent that it may impair the channel or floodway capacity, it shall be repaired or removed prior to the next flood season.

FORTY: Drainage from the bridge shall not be discharged directly into the San Joaquin River floodway without proper erosion control measures in-place.

FORTY-ONE: If the permitted encroachment(s) results in any adverse hydraulic impact or scouring

Attachment B_Draft Permit

the permittee shall provide appropriate mitigation measures subject to review and approval of the Board.

FORTY-TWO: All debris that may accumulate around the bridge piers and abutments within the San Joaquin River floodway shall be completely removed from the floodway following each flood season.

FORTY-THREE: The permitted encroachment(s) shall not interfere with the flood conveyance capability of San Joaquin River. If the permitted encroachment(s) are determined by any agency responsible for operation or maintenance of the flood control project to interfere, the permittee shall be required, at permittee's cost and expense, to modify or remove the permitted encroachment(s) under direction of the Board or Department of Water Resources. If the permittee does not comply, the Board may modify or remove the encroachment(s) at the permittee's expense.

PROJECT ABANDONMENT, CHANGE IN PLAN OF FLOOD CONTROL

FORTY-FOUR: If the project, or any portion thereof, is to be abandoned in the future, the permittee shall abandon the project under direction of the Board at the permittee's cost and expense.

FORTY-FIVE: The permittee may be required, at permittee's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted project works if removal, alteration, relocation, or reconstruction is necessary as part of or in conjunction with implementation of the Central Valley Flood Protection Plan or other future flood control plan or project, or if damaged by any cause. If the permittee does not comply, the Board may perform this work at the permittee's expense.

END OF CONDITIONS

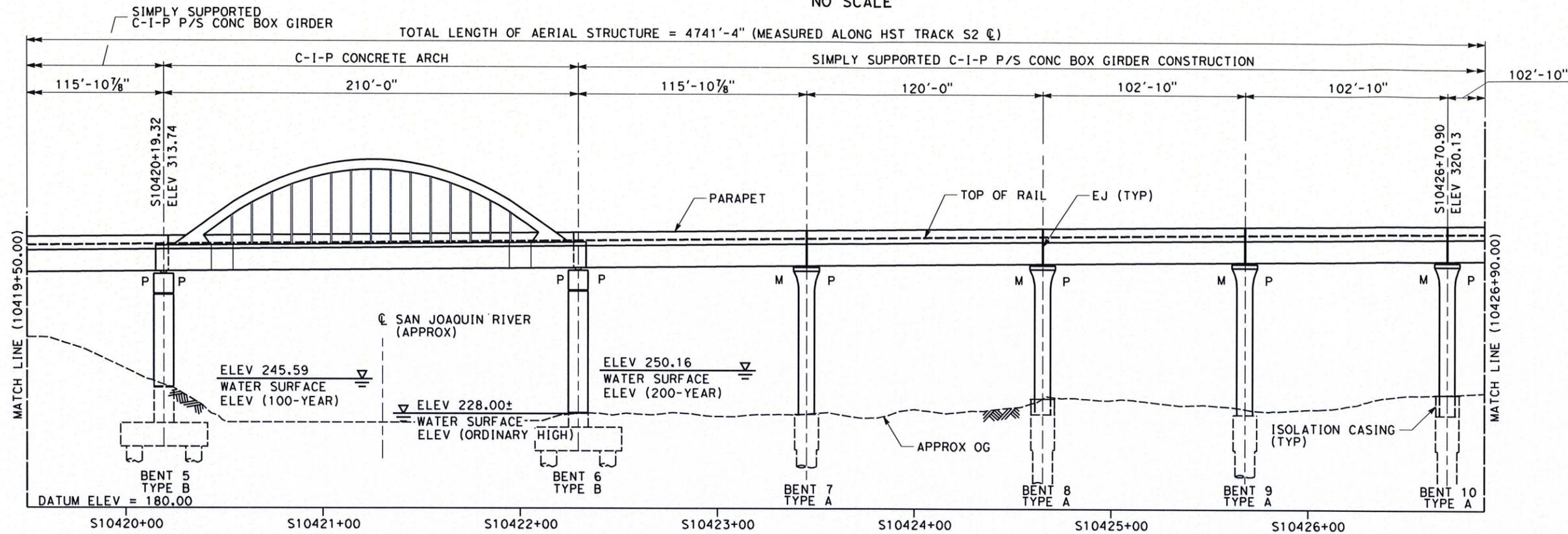
Attachment C_Typical Project Design Cross Sections

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NOTES:

1. FOR NOTES, SEE DRAWING NO. ST-J1100-SJA.

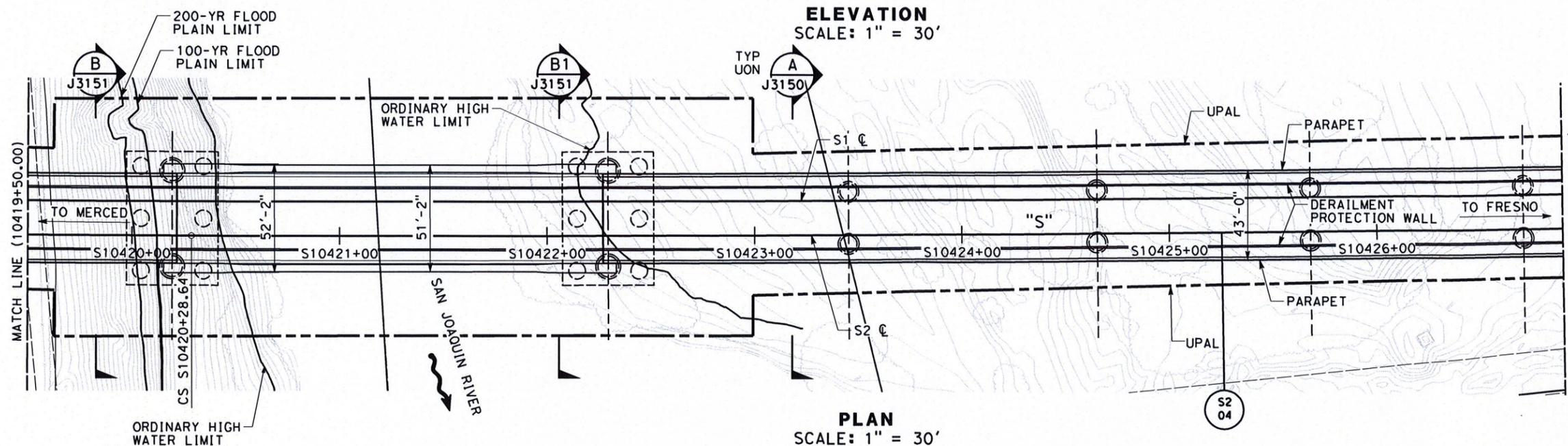
**PROFILE GRADE
NO SCALE**



LEGEND:

- P PINNED CONNECTION
- M CONNECTION IS FREE TO MOVE LONGITUDINALLY

**ELEVATION
SCALE: 1" = 30'**



**PLAN
SCALE: 1" = 30'**

FID: S-AS-180.9

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REV	DATE	BY	CHK	APP	DESCRIPTION
E	01/07/16				60% DESIGN SUBMITTAL
D	08/31/15				TYPE SELECTION REPORT SUBMITTAL - REV 1
C	08/25/15				DESIGN BASELINE REPORT PART 5 REV 1
B	03/27/15				TYPE SELECTION REPORT SUBMITTAL
A	03/19/15				DBR PART 5 REV 0

DESIGNED BY D. JONES
DRAWN BY J. PATTON
CHECKED BY R. WONG
IN CHARGE D. JONES
DATE 01/07/2016

NOT FOR CONSTRUCTION

CALIFORNIA HIGH-SPEED TRAIN PROJECT CP-1 AGREEMENT NO. HSR13-06 SUBMITTAL REVIEW IN ACCORDANCE WITH BOOK 2, PART B - GENERAL PROVISIONS - SECTION 61.2 APPROVED

SIGNED _____ DATE _____

Tutor Perini

ZACHRY

PARSONS
A joint venture



**CALIFORNIA HIGH-SPEED TRAIN PROJECT
CONSTRUCTION PACKAGE 1**

SAN JOAQUIN RIVER VIADUCT - ATC
GENERAL PLAN AND ELEVATION
SHEET 2 OF 7

CONTRACT NO. HSR13-06
DRAWING NO. ST-J1101-SJA
SCALE AS SHOWN
SHEET NO.

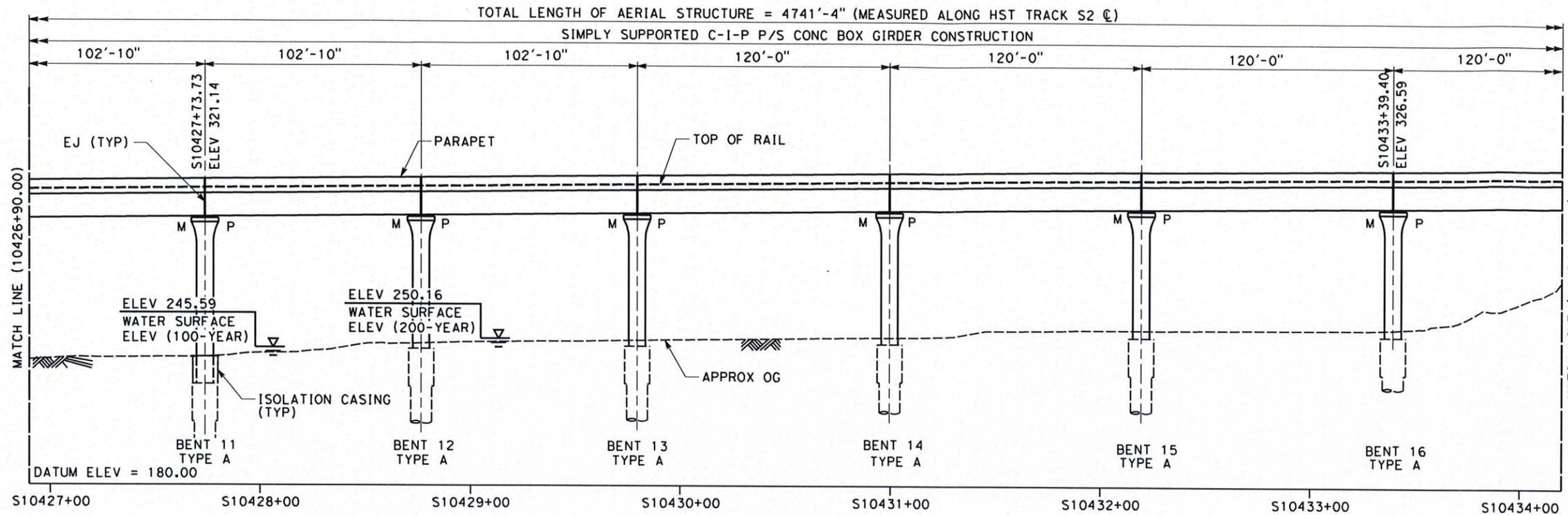
Attachment C - Typical Project Design Cross Sections

0.981%

BOVC 031+50.00
ELEV 324.83

3500.00' VC
R/C = -0.055% /STA

PROFILE GRADE NO SCALE



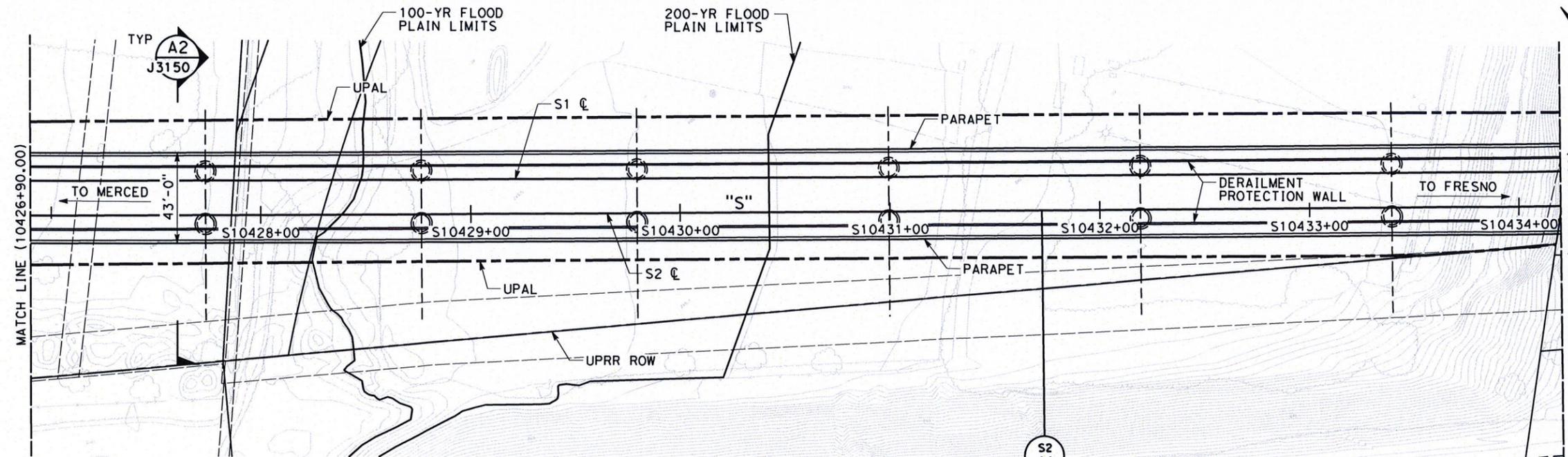
ELEVATION
SCALE: 1" = 30'

NOTES:

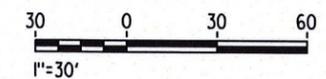
- FOR NOTES, SEE DRAWING NO. ST-J1100-SJA.

LEGEND:

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- M CONNECTION IS FREE TO MOVE LONGITUDINALLY



PLAN
SCALE: 1" = 30'



FID: S-AS-180.9

REV	DATE	BY	CHK	APP	DESCRIPTION
E	01/07/16				60% DESIGN SUBMITTAL
D	08/31/15				TYPE SELECTION REPORT SUBMITTAL - REV 1
C	08/25/15				DESIGN BASELINE REPORT PART 5 REV 1
B	03/27/15				TYPE SELECTION REPORT SUBMITTAL
A	03/19/15				DBR PART 5 REV 0

DESIGNED BY D. JONES	NOT FOR CONSTRUCTION
DRAWN BY J. PATTON	
CHECKED BY R. WONG	
IN CHARGE D. JONES	
DATE 01/07/2016	

CALIFORNIA HIGH-SPEED TRAIN PROJECT CP-1 AGREEMENT NO. HSR13-06 SUBMITTAL REVIEW IN ACCORDANCE WITH BOOK 2, PART B - GENERAL PROVISIONS - SECTION 6L2

APPROVED

SIGNED _____

DATE _____

Tutor Perini

ZACHRY

PARSONS
A joint venture

CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

CALIFORNIA HIGH-SPEED TRAIN PROJECT

CONSTRUCTION PACKAGE 1

SAN JOAQUIN RIVER VIADUCT - ATC
GENERAL PLAN AND ELEVATION
SHEET 3 OF 7

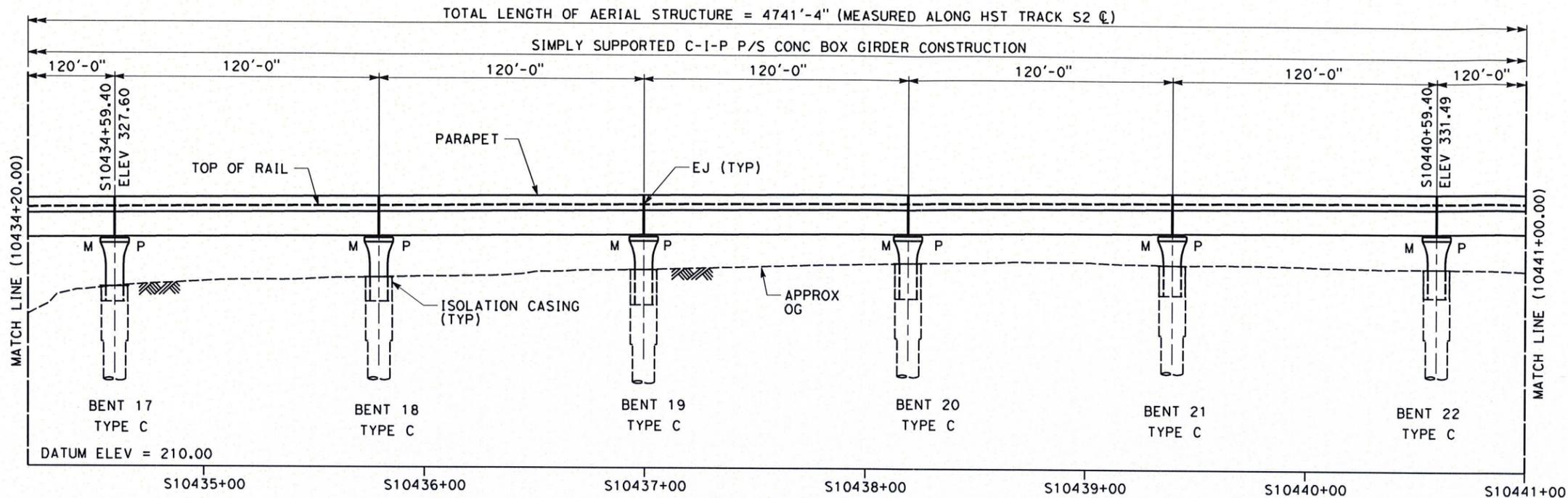
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DRAWING NO. ST-J1102-SJA
SCALE AS SHOWN
SHEET NO.

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Attachment C Typical Project Design Cross Sections

3500.00' VC
R/C = -0.055% /STA

PROFILE GRADE NO SCALE



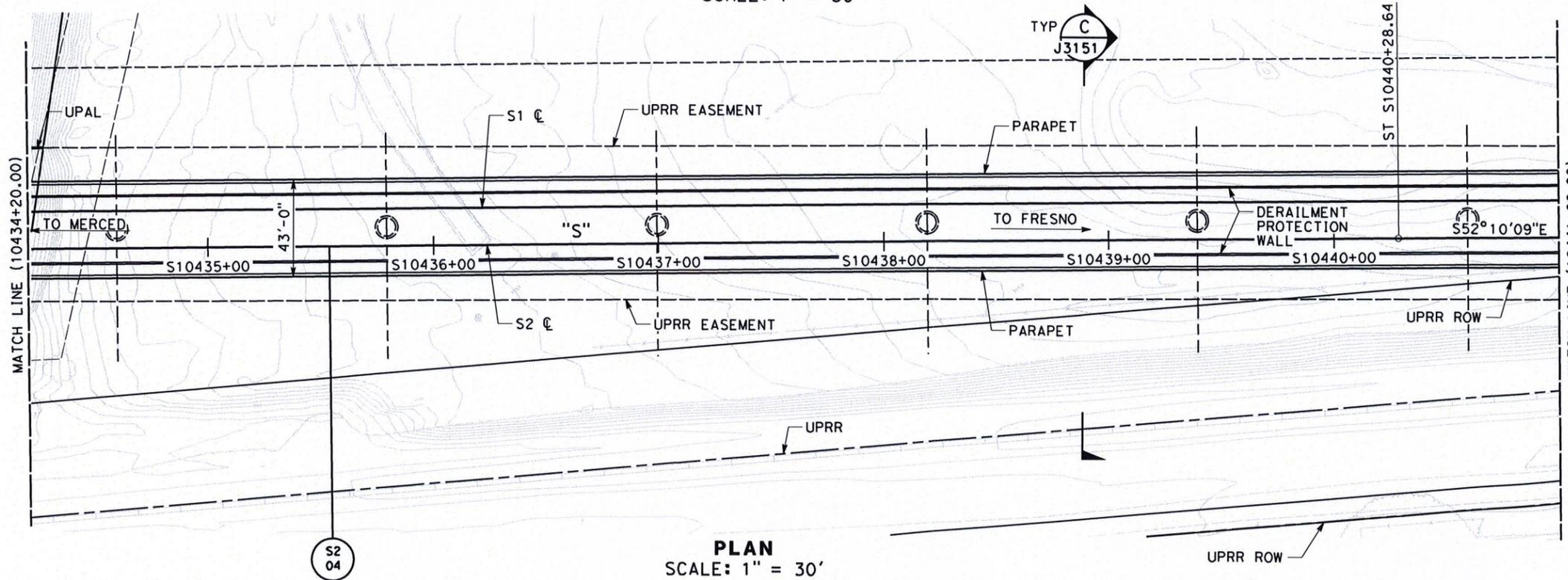
NOTES:

- FOR NOTES, SEE DRAWING NO. ST-J1100-SJA.

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ELEVATION
SCALE: 1" = 30'



PLAN
SCALE: 1" = 30'



FID: S-AS-180.9

REV	DATE	BY	CHK	APP	DESCRIPTION
E	01/07/16				60% DESIGN SUBMITTAL
D	08/31/15				TYPE SELECTION REPORT SUBMITTAL - REV 1
C	08/25/15				DESIGN BASELINE REPORT PART 5 REV 1
B	03/27/15				TYPE SELECTION REPORT SUBMITTAL
A	03/19/15				DBR PART 5 REV 0

DESIGNED BY D. JONES
DRAWN BY J. PATTON
CHECKED BY R. WONG
IN CHARGE D. JONES
DATE 01/07/2016

NOT FOR
CONSTRUCTION

CALIFORNIA HIGH-SPEED
TRAIN PROJECT CP-1
AGREEMENT NO. JHSR13-06
SUBMITTAL REVIEW IN
ACCORDANCE WITH BOOK 2,
PART B - GENERAL
PROVISIONS - SECTION 6L2

APPROVED

SIGNED _____

DATE _____

Tutor Perini

ZACHRY

PARSONS
A joint venture



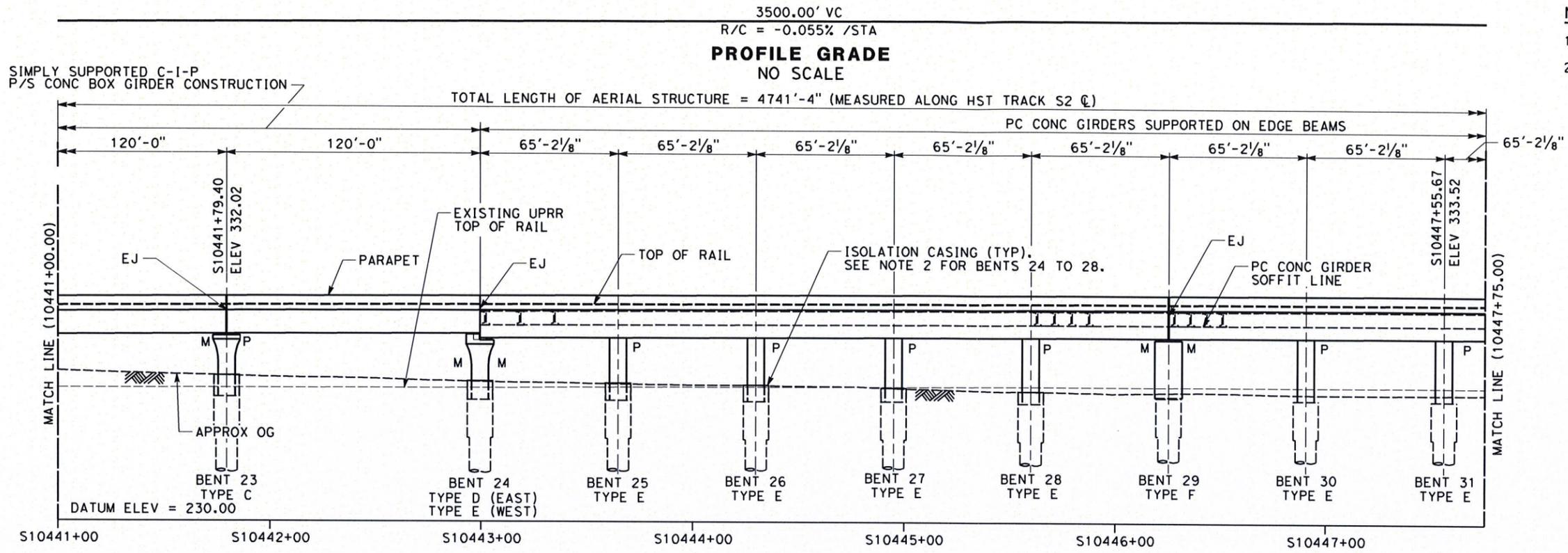
**CALIFORNIA HIGH-SPEED TRAIN PROJECT
CONSTRUCTION PACKAGE 1**

SAN JOAQUIN RIVER VIADUCT - ATC
GENERAL PLAN AND ELEVATION
SHEET 4 OF 7

CONTRACT NO. HSR13-06
DRAWING NO. ST-J1103-SJA
SCALE AS SHOWN
SHEET NO.

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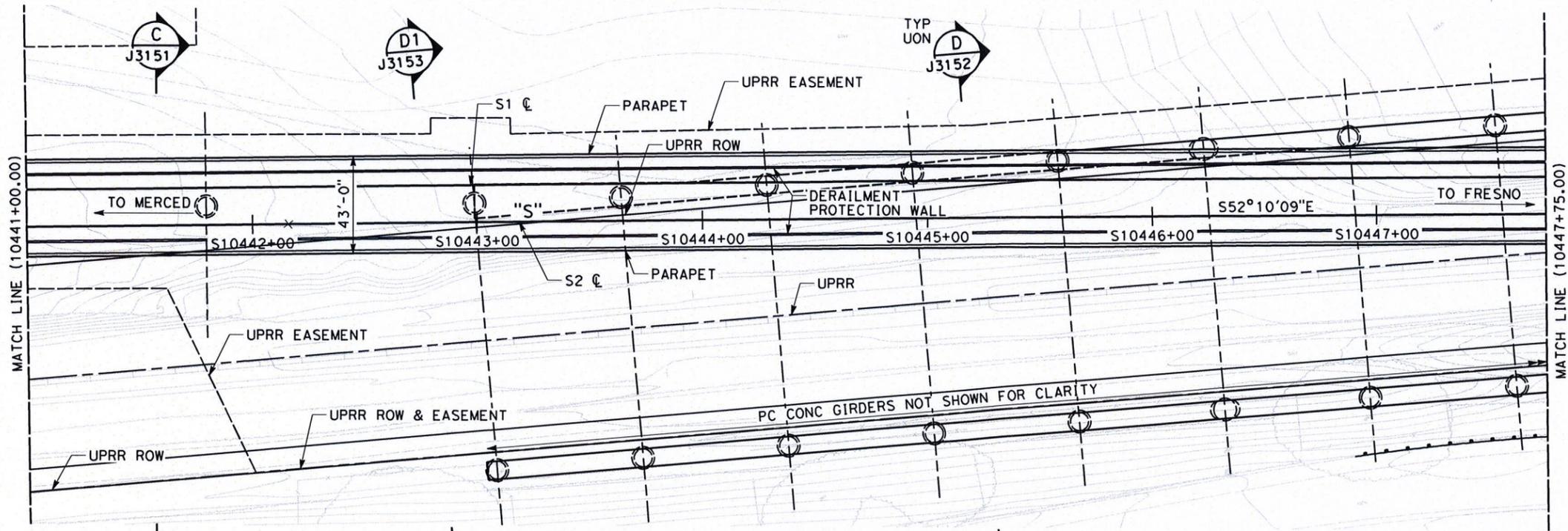
Attachment C_Typical Project Design Cross Sections



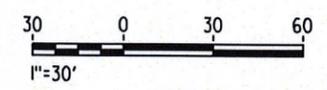
- NOTES:**
- FOR NOTES, SEE DRAWING NO. ST-J1100-SJA.
 - ISOLATION CASING FOR BENT 24 TO 28 ARE REQUIRED ON EAST COLUMNS ONLY.

- LEGEND:**
- P PINNED CONNECTION
 - M CONNECTION IS FREE TO MOVE LONGITUDINALLY

ELEVATION
SCALE: 1" = 30'



PLAN
SCALE: 1" = 30'



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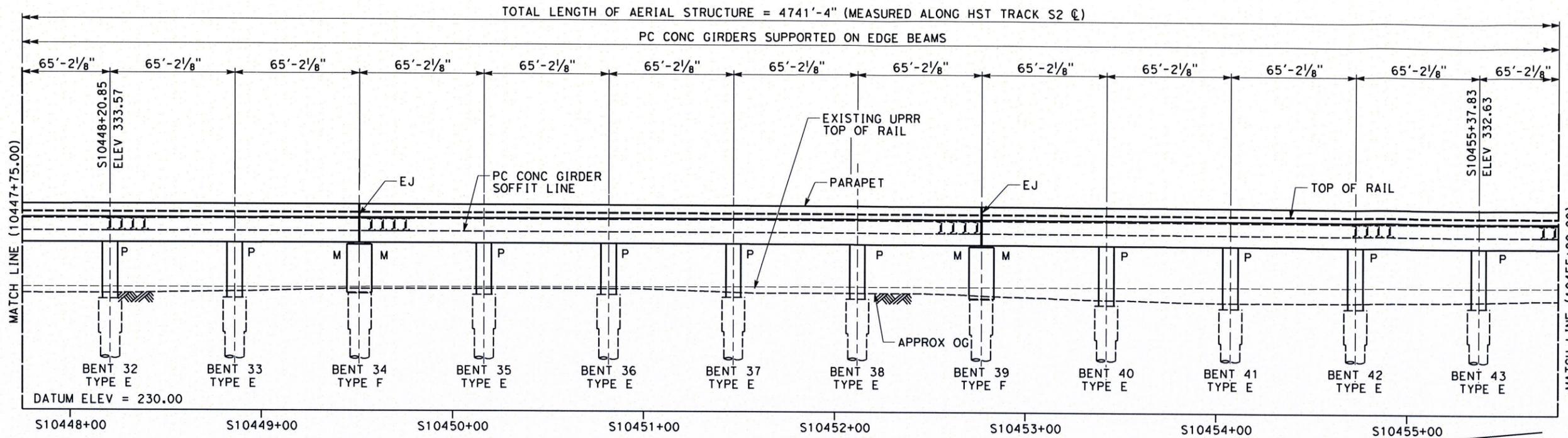
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E	01/07/16			60% DESIGN SUBMITTAL	DESIGNED BY D. JONES	NOT FOR CONSTRUCTION	CALIFORNIA HIGH-SPEED TRAIN PROJECT CP-1 AGREEMENT NO. HSR13-06 SUBMITTAL REVIEW IN ACCORDANCE WITH BOOK 2, PART B - GENERAL PROVISIONS - SECTION 61.2 APPROVED SIGNED: _____ DATE: _____	 		CALIFORNIA HIGH-SPEED TRAIN PROJECT CONSTRUCTION PACKAGE 1 SAN JOAQUIN RIVER VIADUCT - ATC GENERAL PLAN AND ELEVATION SHEET 5 OF 7	CONTRACT NO. HSR13-06
D	08/31/15		TYPE SELECTION REPORT SUBMITTAL - REV 1	DRAWN BY J. PATTON	DRAWING NO. ST-J1104-SJA						
C	08/25/15		DESIGN BASELINE REPORT PART 5 REV 1	CHECKED BY R. WONG	SCALE AS SHOWN						
B	03/27/15		TYPE SELECTION REPORT SUBMITTAL	IN CHARGE D. JONES	SHEET NO.						
A	03/19/15		DBR PART 5 REV 0	DATE 01/07/2016							
REV	DATE	BY	CHK	APP	DESCRIPTION						

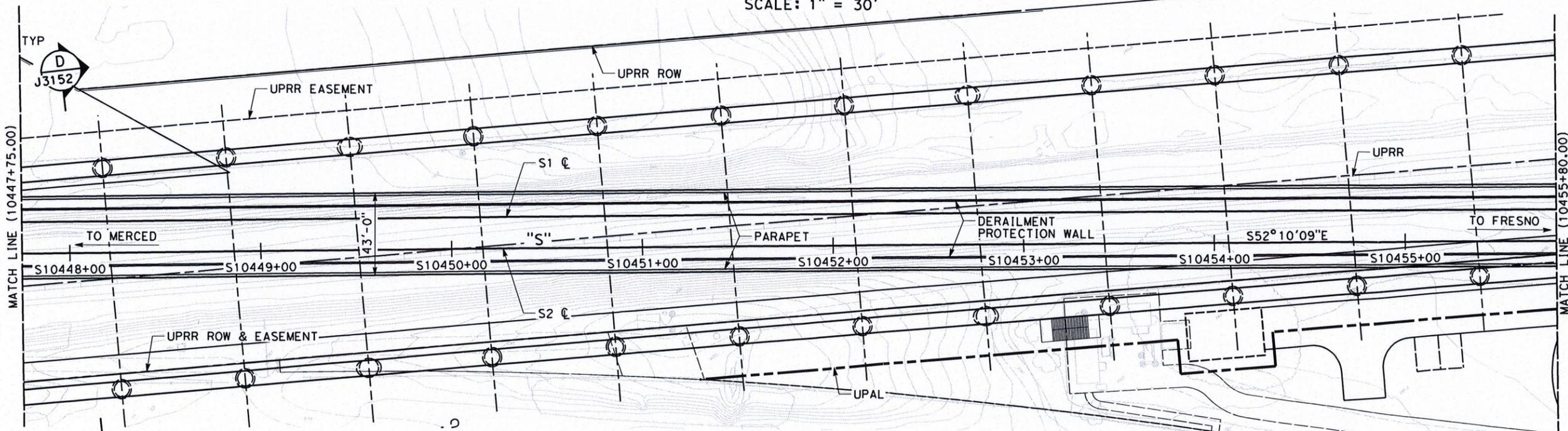
Attachment C_Typical Project Design Cross Sections

PROFILE GRADE NO SCALE

3500.00' VC
R/C = -0.055% /STA



ELEVATION SCALE: 1" = 30'



PLAN SCALE: 1" = 30'

NOTES:

1. FOR NOTES, SEE DRAWING NO. ST-J1100-SJA.

LEGEND:

- P PINNED CONNECTION
- M CONNECTION IS FREE TO MOVE LONGITUDINALLY



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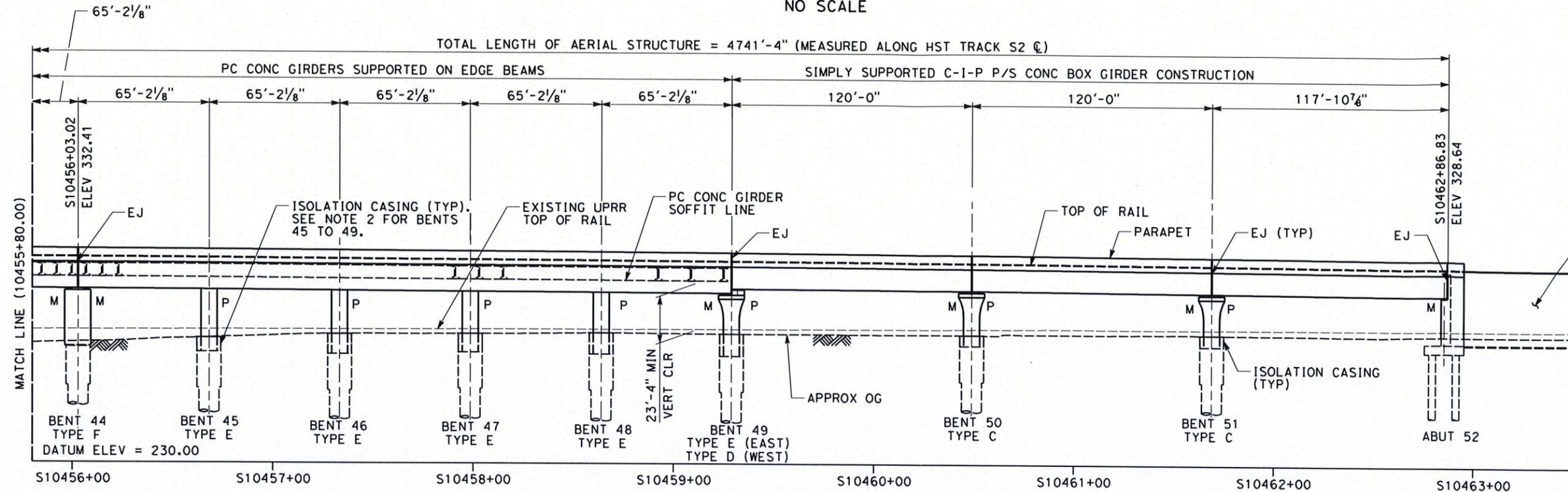
Attachment C_Typical Project Design Cross Sections

POINT 10466+50.00
ELEV 325.60

3500.00' VC
R/C = -0.055% /STA

-0.937%

PROFILE GRADE NO SCALE



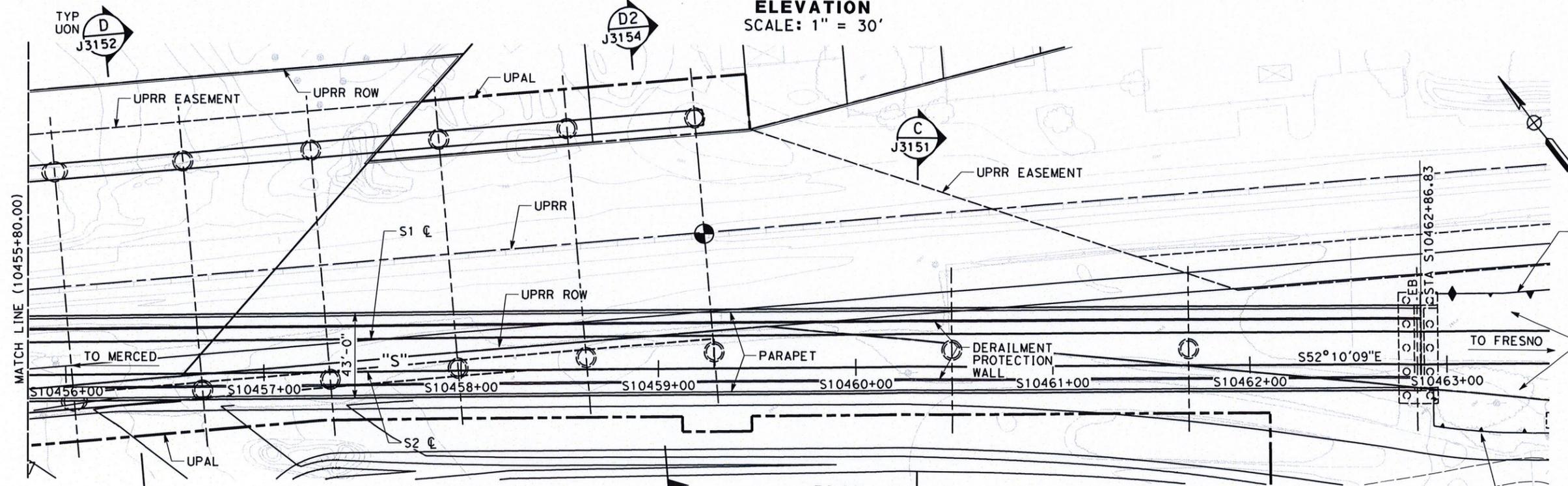
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- FOR NOTES, SEE DRAWING NO. ST-J1100-SJA.
- ISOLATION CASING FOR BENTS 45 TO 49 ARE REQUIRED ON BOTH EAST AND WEST COLUMNS.

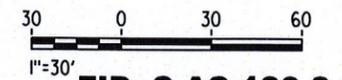
LEGEND:

- POINT OF MINIMUM VERTICAL CLEARANCE TO TOP OF RAIL AT EXISTING UPRR
- P PINNED CONNECTION
- M CONNECTION IS FREE TO MOVE LONGITUDINALLY

ELEVATION SCALE: 1" = 30'



PLAN SCALE: 1" = 30'



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C	08/25/15				DESIGN BASELINE REPORT PART 5 REV 1
B	03/27/15				TYPE SELECTION REPORT SUBMITTAL
A	03/19/15				DBR PART 5 REV 0

DESIGNED BY D. JONES
DRAWN BY J. PATTON
CHECKED BY R. WONG
IN CHARGE D. JONES
DATE 01/07/2016

NOT FOR CONSTRUCTION

CALIFORNIA HIGH-SPEED TRAIN PROJECT CP-1 AGREEMENT NO. 1 HSR13-06 SUBMITTAL REVIEW IN ACCORDANCE WITH BOOK 2, PART B - GENERAL PROVISIONS - SECTION 61.2

APPROVED

SIGNED _____

DATE _____

Tutor Perini

ZACHRY

PARSONS
A joint venture

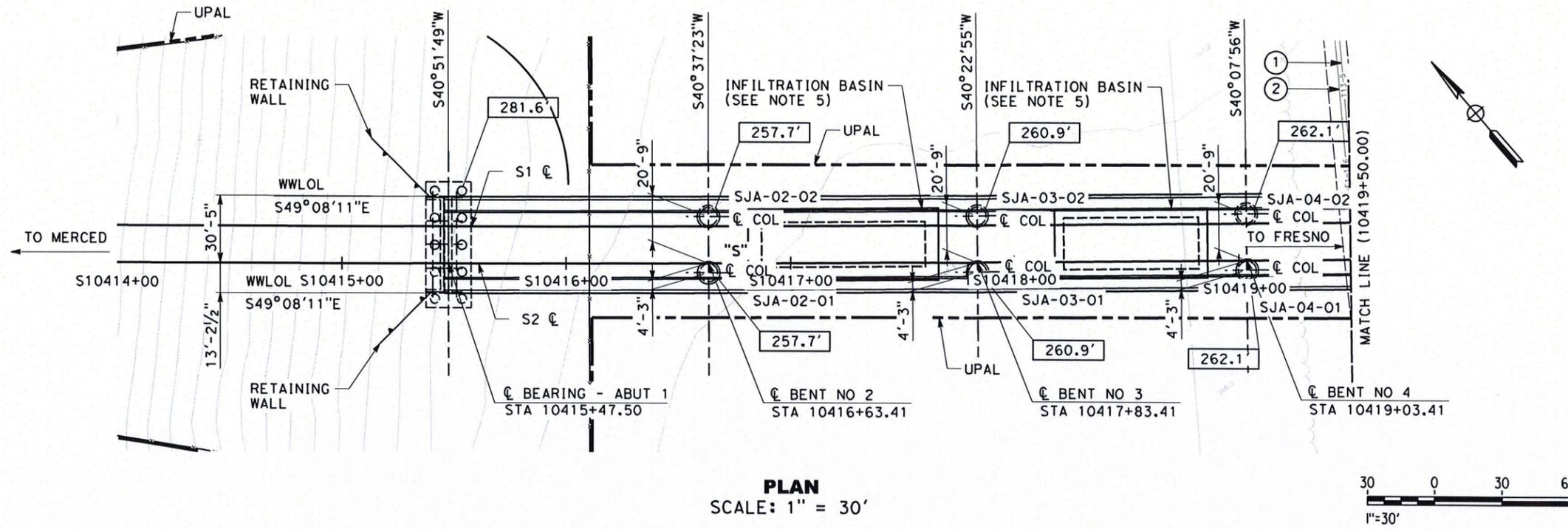
CALIFORNIA HIGH-SPEED RAIL AUTHORITY

**CALIFORNIA HIGH-SPEED TRAIN PROJECT
CONSTRUCTION PACKAGE 1**

SAN JOAQUIN RIVER VIADUCT - ATC
GENERAL PLAN AND ELEVATION
SHEET 7 OF 7

CONTRACT NO. HSR13-06
DRAWING NO. ST-J1106-SJA
SCALE AS SHOWN
SHEET NO.

Attachment C_Typical Project Design Cross Sections



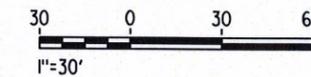
NOTES:

1. CONTOURS SHOWN ARE EXISTING.
2. DENOTES BOTTOM OF FOOTING ELEVATION OR CIDH PILE CUT-OFF.
3. FOR PILE DESIGNATIONS AT ABUTMENTS, SEE DRAWINGS NO. ST-J4250-SJA AND ST-J4251-SJA.
4. FOR PILE DESIGNATIONS AT BENTS 5 AND 6, SEE DRAWING NO. ST-J5320-SJA.
5. FOR DETAILS OF INFILTRATION BASINS, SEE GUIDE WAY DRAWINGS.

HYDRAULIC DATA:

1. 100 - YEAR RETURN PERIOD:
 FLOW Q = 74,300 CFS
 AVERAGE CHANNEL VELOCITY = 8.0 FT/S
 WATER SURFACE ELEVATION = 245.6 FT NAVD 88
2. 200 - YEAR RETURN PERIOD:
 FLOW Q = 92,500 CFS
 AVERAGE CHANNEL VELOCITY = 7.8 FT/S
 WATER SURFACE ELEVATION = 250.2 FT NAVD 88

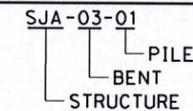
PLAN
SCALE: 1" = 30'



UTILITY ABBREVIATIONS:

- E ELECTRICAL / POWER
- G GAS
- GT TRANSMISSION GAS
- O OIL
- T TELECOM

PILE DESIGNATION



SURVEY:

THE HORIZONTAL COORDINATES ARE CCS83, ZONE 4. VALUES IN FEET. THE HORIZONTAL DATUM IS NAD83 (NSRS2007).

THE VERTICAL ELEVATIONS ARE IN FEET. THE VERTICAL DATUM IS NAVD 88.

PRIMARY CONTROL POINT S180:
N 2194397.68 E 6287297.21 ELEV 291.85

PRIMARY CONTROL POINT S182P:
N 2187855.88 E 6292923.69 ELEV 300.64

SUPPLEMENTAL CONTROL POINT NO. SSC 08:
N 2188852.71 E 6287777.00 ELEV 291.59

EXISTING UTILITY INFORMATION

NO.	FACILITY	CONFLICT NO.	SIZE	OWNER	DISPOSITION
①	OH TELECOM	T13-5	UNKNOWN	PG&E	NO CONFLICT (NIC)
②	POWER	E1-176	UNKNOWN	PG&E	NO CONFLICT (NIC)

TRACK GEOMETRY DATA

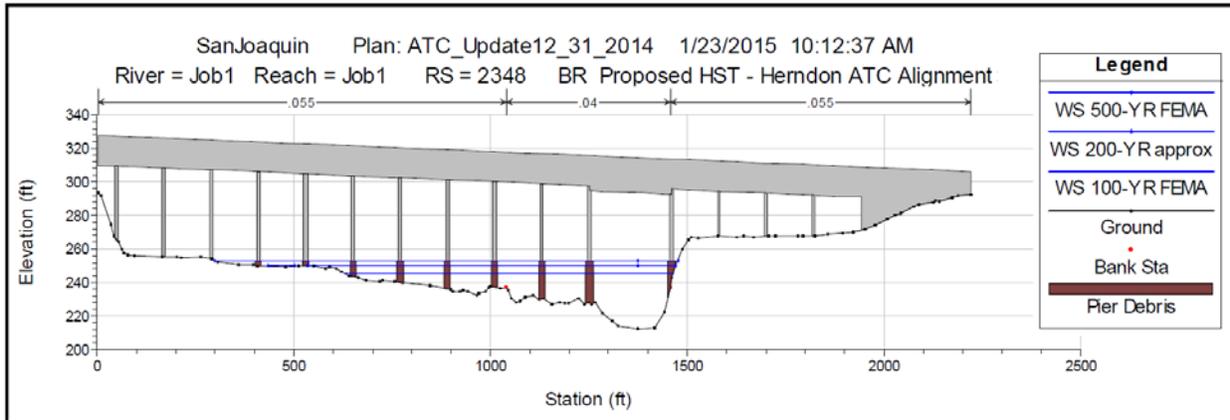
CURVE NO.	DESCRIPTION	STATION	NORTHING	EASTING	BEARING	DISTANCE (FT)	R (FT)	Lc (FT)	SPIRAL TYPE	Ls (FT)	Ea (IN)	Eu (IN)
S2-04	TS	S10304+45.33	2200877.44	6281547.73								
	SC	S10324+45.33	2199129.81	6282519.99								
	CS	S10420+28.64	2191859.15	6288691.34			28016.50	9583.32	COSINE	2000.00	6.00	2.92
	ST	S10440+28.64	2190615.86	6290257.79	S 52°10'09" E	4834.08			COSINE	2000.00	6.00	2.92

FID: S-AS-180.9

DESIGNED BY K. CHARAN DRAWN BY J. PATTON CHECKED BY R. SIMPSON IN CHARGE D. JONES DATE 01/07/2016	NOT FOR CONSTRUCTION	CALIFORNIA HIGH-SPEED TRAIN PROJECT CP-1 AGREEMENT NO. HSR13-06 SUBMITTAL REVIEW IN ACCORDANCE WITH BOOK 2, PART B - GENERAL PROVISIONS - SECTION 61.2 APPROVED SIGNED _____ DATE _____	 A joint venture		CALIFORNIA HIGH-SPEED TRAIN PROJECT CONSTRUCTION PACKAGE 1 SAN JOAQUIN RIVER VIADUCT - ATC FOUNDATION PLAN SHEET 1 OF 7	CONTRACT NO. HSR13-06 DRAWING NO. ST-J4200-SJA SCALE AS SHOWN SHEET NO.												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>BY</th> <th>CHK</th> <th>APP</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>01/07/16</td> <td></td> <td></td> <td></td> <td>60% DESIGN SUBMITTAL</td> </tr> </tbody> </table>	REV	DATE	BY	CHK	APP	DESCRIPTION	A	01/07/16				60% DESIGN SUBMITTAL						
REV	DATE	BY	CHK	APP	DESCRIPTION													
A	01/07/16				60% DESIGN SUBMITTAL													

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 12/1/15 10:10:36 AM CHSTP.tbi
 P003285A

Attachment D



Upstream Face of Proposed HST Bridge
(Reference: HSRA hydraulic report, September 2015, page 10)

Attachment E_Resolution 2015-05

STATE OF CALIFORNIA
THE RESOURCES AGENCY
CENTRAL VALLEY FLOOD PROTECTION BOARD

RESOLUTION NO. 2015-05

FINDINGS AND DECISION AUTHORIZING ISSUANCE OF
ENCROACHMENT PERMIT NO. 18956-1
CALIFORNIA HIGH SPEED RAIL AUTHORITY
BRIDGE TO SUPPORT HIGH SPEED TRAIN USE ACROSS THE FRESNO RIVER
MADERA COUNTY

WHEREAS, The California High-Speed Rail Authority (Authority) proposes to construct the California High-Speed Train Project, Merced to Fresno Section consisting of an 80-mile portion of a larger high-speed train (HST) system which is intended to connect to sections traveling west to San Francisco, south to Los Angeles, and later north to Sacramento; and

WHEREAS, The Authority submitted Application No. 18956-1 to the Central Valley Flood Protection Board on May, 12, 2014 to construct an elevated viaduct (long bridge) structure to support high speed train use across the Fresno River parallel to the existing BNSF railroad bridge just northeast of the City of Madera, California; and

WHEREAS, The Authority released a Notice of Preparation initiating a 30-day public comment period on September 29, 2009 and ending on October 29, 2009; and

WHEREAS, The Authority as lead agency under the California Environmental Quality Act, Public Resources Code sections 21000 *et seq.* ("CEQA") prepared a Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) (SCH No. 2009091125, August 2011) and Final Environmental Impact Report/Environmental Impact Statement (Final EIR/EIS) (SCH No. 2009091125, April 2012) and Mitigation Monitoring and Reporting Plan (MMRP) on the California High-Speed Train (HST) Project Merced to Fresno Section (incorporated herein by reference and available at the Central Valley Flood Protection Board offices or Authority office); and

WHEREAS, The Authority approved the California High-Speed Train (HST) Project Merced to Fresno Section (Authority Resolution HSRA 12-20); FEIS/EIR, MMRP, approved findings and a statement of overriding considerations pursuant to the CEQA Guidelines (incorporated herein by reference), and filed a Notice of Determination with the State Clearinghouse on May 3, 2012; and

WHEREAS, The U.S. Army Corps of Engineers (USACE) decision letter was received on April 23, 2015 for this application. The USACE District Engineer has no objection to the project, subject to conditions which have been incorporated into the permit as Exhibit A; and

WHEREAS, Board staff completed a technical review of Permit Application No. 18956-1; and

Attachment E_Resolution 2015-05

WHEREAS, The Board has conducted a public hearing on Permit Application No. 18956-1 and has reviewed the Reports of its staff, the documents and correspondence in its file, and the environmental documents prepared by the Authority;

NOW, THEREFORE, BE IT RESOLVED THAT,

Findings of Fact.

1. The Board hereby adopts as findings the facts set forth in the Staff Report.
2. The Board has reviewed all Attachments, Exhibits, Figures, and References listed in the Staff Report

CEQA Findings.

3. The Board, as a responsible agency, has independently reviewed the analyses in the DEIS/DEIR (SCH No. SCH No. 2009091125, August 2011) and the FEIS/EIR (April 2012) which includes the MMEP, and Authority Lead Agency findings, and has reached its own conclusions.
4. The Board, after consideration of the DEIS/DEIR (SCH No. SCH No. 2009091125, August 2011) and the FEIS/EIR (April 2012) on the HST Project Merced to Fresno Section, submitted by the Authority, and the Authority Lead Agency findings, adopts the project description, analysis and findings which are relevant to the project.
5. **Findings regarding Significant Impacts.** Pursuant to CEQA Guidelines sections 15096(h) and 15091, the Board determines that the Authority findings, attached to the Staff Report, and incorporated herein by reference, summarize the FEIS/EIR determinations regarding impacts of the HST Project Merced to Fresno Section, before and after mitigation. Having reviewed the FEIS/EIR, the Authority findings, the Board makes its findings as follows:

a. Findings Regarding Significant and Unavoidable Impacts.

The Board finds that the HST Project Merced to Fresno Section, may have the following significant, unavoidable impacts, as more fully described in the Authority findings. Mitigation has been adopted for each of these impacts, although it does not reduce the impact to less than significant. The impacts and mitigation measures are set forth in more detail in the Authority findings.

Noise and Vibration - The Authority finds that uncertainty about the effectiveness of noise mitigation measures remains because of the important role that local jurisdictions and communities will play in determining the use of sound barriers. Out of an abundance of caution, the Authority therefore finds that operational noise impacts from the HST are significant and unavoidable under CEQA, even though in many instances mitigation measures will effectively reduce the impact to a less than significant level.

Attachment E_Resolution 2015-05

Agricultural Lands - The Authority will fund the California Farmland Conservancy Program's work to identify suitable agricultural land for mitigation of impacts and to fund the purchase of agricultural conservation easements from willing sellers. The permanent conversion of agricultural land to nonagricultural use for the project is considered a significant and unavoidable impact under CEQA.

Parks, Recreation, and Open Space - The multiple planned projects in and around Roeding Park, including the HST would result in permanent closure of a portion of the park and result in noise, dust, and visual impacts.

Aesthetics and Visual Resources – The proposed project includes elevated guideways that run parallel to the boulevard and nearby residences. Sound barriers and retaining walls would block views. The alteration of the overall cohesion in the view would substantially alter the visual character and reduce the visual quality of the West of SR 99 Landscape Unit.

Cultural and Paleontological Resources – Construction will impact historically significant built environmental resources including Roeding Park.

Finding: The Board finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen such impacts, as set forth more fully in the Authority findings, but that each of the above impacts remains significant after mitigation. Such mitigation measures are within the responsibility of another agency, or the Authority, and should implement the described mitigation measures. Specific economic, legal, social, technological or other considerations, rendered infeasible mitigation or alternatives that would have reduced these impacts to less than significant.

b. Findings regarding Significant Impacts that can be Reduced to Less Than Significant.

The significant impacts and the mitigation measures to reduce them to less than significant are described in the FEIR and in the Authority Adopted Resolution HSRA 12-20, dated May 3, 2012. This Resolution includes a Statement of Facts, Findings, Impacts and Mitigation Measures, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Program. Based on its independent review of the FEIR and Authority Resolution HSRA 12-20, the Board finds that for each of the significant impacts described, changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the FEIR. Moreover, such changes or alterations are within the responsibility and jurisdiction of another public agency (Authority) and such changes have been adopted by that agency. It is hereby determined that the impacts addressed by these mitigation measures will be mitigated to a less-than-significant level or avoided by incorporation of these mitigation measures into the project.

As a responsible agency, the Board has responsibility for mitigating or avoiding only the direct or indirect environmental effects of those parts of the Project which it decides to

Attachment E_Resolution 2015-05

carry out, finance, or approve. The Board confirms that it has reviewed the MMRP, and confirmed that the Authority has adopted and committed to implementation of the measures identified therein. The Board agrees with the analysis in the MMRP and confirms that there are no feasible mitigation measures within its powers that would substantially lessen or avoid any significant effect the project would have on the environment. None of the mitigation measures in the MMRP require implementation by the Board directly, although continued implementation of the MMRP shall be made a condition of issuance of the Permit. However, the measures in the MMRP may be modified to accommodate changed circumstances or new information not triggering the need for subsequent or supplemental analysis under CEQA Guidelines sections 15062 or 15063.

6. **Statement of Overriding Considerations.** Pursuant to CEQA Guidelines sections 15096(h) and 15093, the Board has balanced the economic, social, technological and other benefits of the Project described in Permit Application No. 18956-1, against its significant and unavoidable impacts, listed in paragraph 5(a) above, and finds that the benefits of the Project outweigh these impacts and they may, therefore, be considered “acceptable”.

The Central Valley Flood Protection Board finds the HST system would meet the need for a safe and reliable mode of travel that would link the major metropolitan areas of the state and deliver predictable, consistent travel times sustainable over time. The HST system also would provide quick, competitive travel times between California’s major intercity markets. For intermediate intercity trips such as Fresno to Los Angeles, the HST system would provide considerably quicker travel times than either air or automobile transportation, and would bring frequent HST service to portions of the state such as the Central Valley that are not well served by air transportation. In addition, the passenger cost for travel via the HST service would be lower than for travel by air for the same intercity markets. The Merced to Fresno section is the backbone of the HST system and the preferred Hybrid Alternative would provide comparable travel times to the UPRR/SR 99 Alternative, but would avoid the higher cost of additional elevated construction and the greater community impacts associated with other alternatives.

7. **Custodian of Record.** The custodian of the CEQA record for the Board is its Acting Executive Officer, Leslie Gallagher, at the Central Valley Flood Protection Board Offices at 3310 El Camino Avenue, Room 151, Sacramento, California 95821.

Considerations pursuant to Water Code section 8610.5.

8. **Evidence Admitted into the Record.** The Board has considered all the evidence presented in this matter, including the original application for Permit No. 18956-1 and technical documentation provided by the Authority on the California High-Speed Train Project, Staff Report and attachments, the original Environmental Impact Report on the California High-Speed Train Project, Merced to Fresno Section (Draft and Final Versions), Authority Resolution HSRA 12-20 including findings, Statement of Overriding Considerations, and the MMRP.

Attachment E_Resolution 2015-05

- 9. **Best Available Science.** The accepted industry standards for the work proposed as regulated by Title 23 have been applied to the review of this project. In making its findings, the Board has used the best available science relating to the issues presented by all parties and the design is in compliance with the standards.
- 10. **Effects on State Plan of Flood Control.** This project has no adverse effect on facilities of the State Plan of Flood Control and is consistent with the adopted 2012 Central Valley Flood Protection Plan and Title 23 standards because there is no significant increase in water surface elevation or velocities anticipated for the proposed project.
- 11. **Effects of Reasonably Projected Future Events.** There will be no effects to the proposed project from reasonable projected future events due to excessive freeboard available for potential changes as a result of climate change, hydrology and development within the existing watershed.

Other Findings/Conclusions regarding Issuance of the Permit.

- 12. This resolution shall constitute the written decision of the Board in the matter of Permit No. 18956-1.

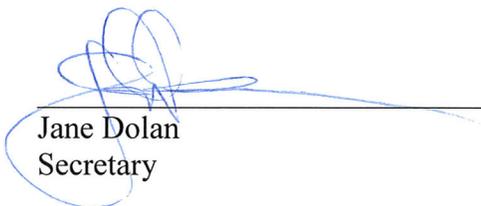
Approval of Encroachment Permit No. 18956-1.

- 15. The Board adopts the CEQA findings and Resolution 2015-05, and
- 16. Based on the foregoing, the Board hereby approves issuance of Permit No. 18956-1 in substantially the form provided in the Staff Report for Permit 18956-1.
- 17. The Board directs the Executive Officer to take the necessary actions to prepare and execute Permit No. 18956-1 and all related documents and to prepare and file a Notice of Determination under the California Environmental Quality Act for the California High-Speed Train Project, Merced to Fresno Section.

PASSED AND ADOPTED by vote of the Board on 4-24- _____, 2015



William H. Edgar
President



Jane Dolan
Secretary