

California High-Speed Train Project



TECHNICAL MEMORANDUM

Design Submittal and Review Protocol In-progress and Draft 15% Design Submittals

TM 0.7

Prepared by: Signed document on file _____ 23 Aug 2010
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Revision	Date	Description
0	26 Aug 08	Initial Release
1	08 Jul 09	Add comment/response matrix; distribute submittal hardcopies via overnight mail service; combine Integration and Draft 15% Design Submittal; ProjectSolve update.
2	23 Aug 10	Shifted submittal review management responsibility from Engineering Team to Regional Manager Team

Note: Signatures apply for the latest technical memorandum revision as noted above.

Prepared by 

for the California High-Speed Rail Authority

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System Level Technical and Integration Reviews

The purpose of the review is to ensure:

- Technical consistency and appropriateness
- Check for integration issues and conflicts

System level reviews are required for all technical memorandums. Technical Leads for each subsystem are responsible for completing the reviews in a timely manner and identifying appropriate senior staff to perform the review. Exemption to the system level technical and integration review by any subsystem must be approved by the Engineering Manager.

System Level Technical Reviews by Subsystem:

Systems: NOT REQUIRED _____
Print Name: _____ Date _____

Infrastructure: NOT REQUIRED _____
Print Name: _____ Date _____

Operations: NOT REQUIRED _____
Print Name: _____ Date _____

Maintenance: NOT REQUIRED _____
Print Name: _____ Date _____

Rolling Stock: NOT REQUIRED _____
Print Name: _____ Date _____

Note: Signatures apply for the technical memorandum revision corresponding to revision number in header and as noted on cover.

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ABSTRACT

The process outlined in this technical memorandum creates an auditable trail for the In-progress and Draft 15% Design Submittals prepared by the Regional Consultant and reviews performed by the Program Management Team (PMT). The process is defined by an established protocol for: transmitting submittals, review comments, and responses; verifying action taken; resolving issues; and maintaining document control. The protocol also identifies where the In-progress, Draft, and Final 15% Design Submittals will be posted for review. The process is accomplished through the use of a database on the California High-Speed Train Project (CHSTP) ProjectSolve website.

Prior to the development of the Final 15% Design Submittal, the PMT will conduct six (6) submittal reviews, including:

- Five (5) In-progress Design Submittal Reviews
- One (1) Draft 15% Design Submittal Review

The PMT In-progress Design Submittal Reviews will correspond to In-progress Design Submittals at major stages of completion by design element. The Draft 15% Design Submittal Review will be performed on a Draft 15% Design Submittal, which will include all design elements and incorporate and/or address all comments received from the In-progress Design Submittal Reviews. This review will also consider system integration, including both boundary interface conditions and design integration within the segment. A Record Set 15% Design Submittal will represent the final product and will not be subject to review and comment by the PMT.

1.0 INTRODUCTION

1.1 PURPOSE OF TECHNICAL MEMORANDUM

The Design Submittal Review process supports the California High-Speed Rail Program in the following key areas:

- Confirm a system design approach by ensuring technical compliance with the CHSTP System Requirements and CHSTP Design Criteria
- Confirm there is a technically feasible and constructible option that meets the objectives of the CHSRA Program and can serve as the basis for a refined construction cost estimate

The process outlined in this technical memorandum creates an auditable trail for the In-progress and Draft 15% Design Submittals prepared by the Regional Consultant and reviews performed by the Program Management Team (PMT). The process is defined by an established protocol for: transmitting submittals, review comments, and responses; verifying action taken; resolving issues; and maintaining document control. The process is accomplished through the use of a database on the California High-Speed Train Project (CHSTP) ProjectSolve website.

Prior to the development of the Final 15% Design Submittal, the PMT will conduct six (6) submittal reviews, including:

- Five (5) In-progress Design Submittal Reviews
- One (1) Draft 15% Design Submittal Review

The intent of the In-progress and Draft 15% Design Submittal Reviews is to verify compliance with the 15% Design Scope Guidelines Technical Memorandum, TM 0.1, and corresponding CHSTP design criteria and system requirements.

The In-progress Design Submittal Reviews will correspond to In-progress Design Submittals at major stages of completion by design element, as identified in Table 1. In-progress Design Submittals may be combined as appropriate. The Draft 15% Design Submittal Review will be performed on a Draft 15% Design Submittal, which will include all design elements and incorporate and/or address all comments received from the In-progress Design Submittal Reviews. This review will also consider system integration, including both boundary interface conditions and design integration within the segment. A Record Set 15% Design Submittal will represent the final product for the 15% Design effort and will not be subject to review and comment by the PMT.

Table 1: In-progress and Draft 15% Design Submittals for Review

Submittal	Design Element
1	Alignment and Typical Sections
2	Structures, Viaducts, Tunnels
3	Stations, Maintenance Facilities including Storage
4	Traction Power
5	Utility Relocations, Maintenance of Way Facilities & Trackside Access, Other (to be determined)
6	Draft 15% Design

The In-progress, Draft, and Record Set 15% Design Submittals will be posted on the CHSTP ProjectSolve website within the appropriate alignment section site. All submittals and corresponding submittal review comments and responses will be located in the Design Submittals and Reviews folder within the Preliminary Engineering folder. The folder hierarchy is illustrated in Figures 1 and 2 of Appendix B.

The purpose of this document is to define the process for transmitting submittals, review comments, and responses, such that:

- An auditable trail for submittals transmitted by the Regional Consultant is established.
- An auditable trail for submittal reviews performed by the PMT is established.
- An auditable trail for verification of action taken by the Regional Consultant in response to PMT review is established.
- An auditable trail for the resolution of issues identified in the design review process is established.

Basis of Design reports may be provided to support the design submittals. Basis of design reports will not be reviewed for consistency with released design criteria and guidance. It is expected that the design submittals are prepared consistent with released design criteria and guidance except where a design variance is specifically identified and requested by the designer.

Other technical reports will be reviewed by the EMT as requested by the Regional Manager. Reports will be reviewed for completeness and consistency with industry standards. The designer is responsible for the analysis and conclusions of the technical reports specific to their sections, with the impacts and effect of the report analysis and conclusions subject to PMT Regional Manager acceptance.

1.2 GENERAL INFORMATION

1.2.1 Definition of Terms

Authority	California High-Speed Rail Authority
CHSTP	California High-Speed Train Project
EMT	Engineering Management Team
PMT	Project Management Team

1.3 ROLES AND RESPONSIBILITIES

The assignment of roles and responsibilities of the submittal review process is established to be efficient and have a high level of involvement and oversight of the reviews by the PMT Regional Manager teams. To achieve these objectives, the assigned roles and responsibilities for the design submittal review process is as follows:

- Overall management of the design submittal review process and schedule from receipt of the submittal to closure of the comments is to be the responsibility of the PMT Regional Manager or delegate. This includes distribution of submittals, setting up of the workshop meetings, and resolving outstanding comments/issues via Review Manager.
- The PMT Regional Management Team to perform reviews of the basic infrastructure elements including alignment, utilities, drainage, right-of-way, and grade separations.
- The EMT will provide support for all elements of the design submittals as requested by the Regional Managers with specific assigned responsibility on the more complex technical elements including viaducts, tunnels, trenches, geotechnical, seismic, traction power, OCS, train controls, and communications.

A RC Design Submittal Review Responsibility Matrix identifying the responsible party is included in Appendix B.

2.0 DEFINITION OF TECHNICAL TOPIC

Not used

3.0 ASSESSMENT / ANALYSIS

Not used

4.0 SUMMARY AND RECOMMENDATIONS

4.1 PROCEDURE

The procedure for transmitting design submittals, review comments, and responses is illustrated in the Design Submittal and Review Protocol Flowchart included as Appendix A. The flow chart identifies the related activities and responsibilities assigned to the Regional Consultant, the PMT Regional Manager, and the PMT Engineering Management Team (EMT) for each step of the protocol.

Each activity is numbered on the flow chart, and a corresponding written description follows.

The EMT comment/response matrix, identified in the Design Submittal and Review Protocol Flowchart, illustrates the process used to record EMT comments and subsequent Regional Consultant responses. The matrix is included as Appendix B.

5.0 SOURCE INFORMATION AND REFERENCES

The specific scope of work for each In-progress and Draft 15% Design Submittal is to be consistent with the most recent issue of the 15% Design Scope Guidelines Technical Memorandum, TM 0.1.

6.0 DESIGN MANUAL CRITERIA

Not used

APPENDICES

- A. Roles and Responsibility Matrix
- B. Design Submittal and Review Protocol Flowchart and Activity Descriptions
- C. Comment/Response Form

Appendix A

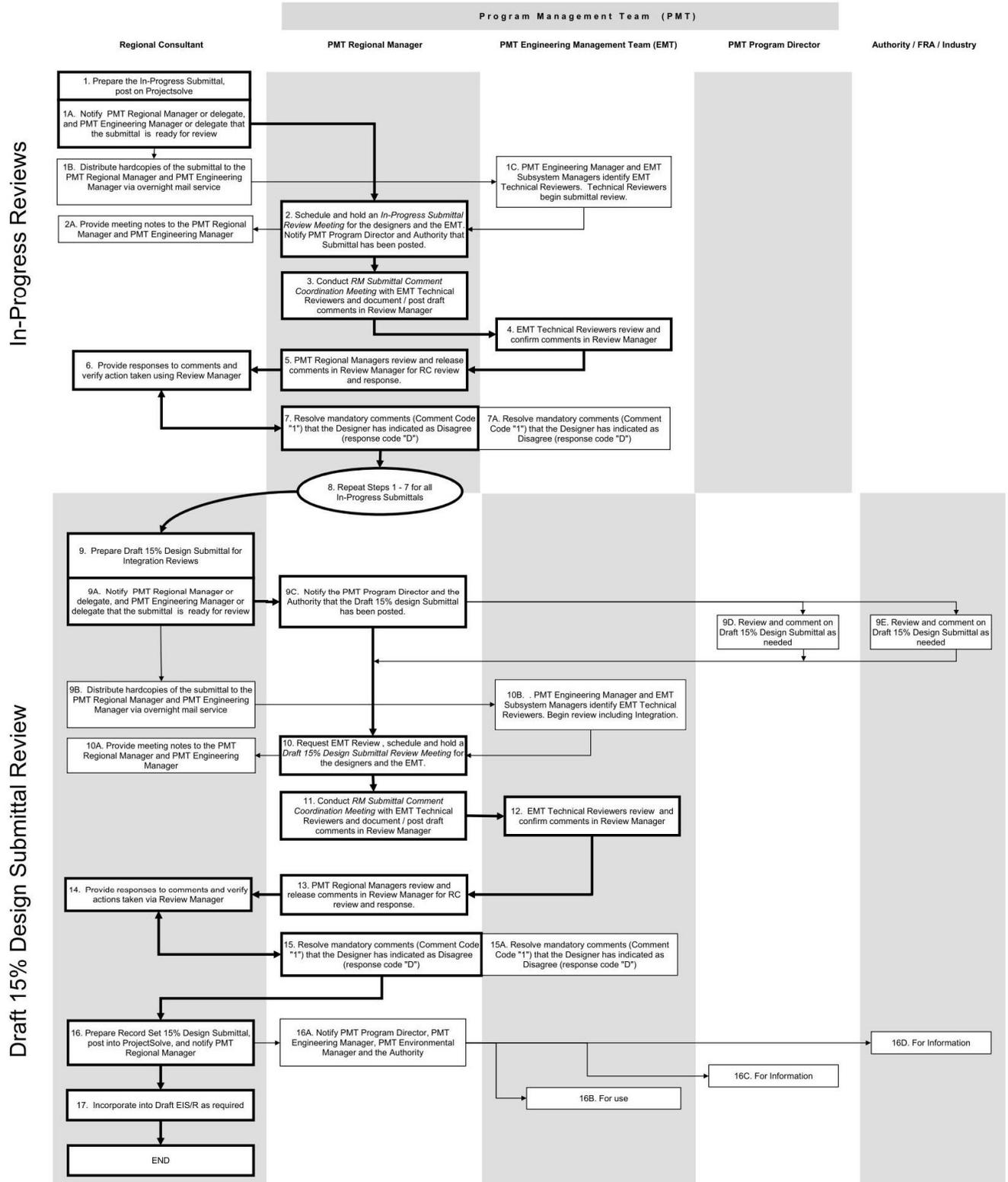
Design Submittal and Review Protocol

Roles and Responsibility Matrix

Step	15% Design Submittal Review Process Activity	RC	RM / RE	EMT	QA/QC
1	Receive and Distribute In-Progress Design Submittal	-	R	-	-
2	Schedule In-Progress Submittal Review Meeting	S	R	S	-
3,4,5	Review and Comment (overall mgmt)	-	R	-	-
a	Alignment	-	R	S	-
b	Structures/Tunnels	-	-	R	-
c	Grade Separations	-	R	S	-
d	Traction Power	-	-	R	-
e	Utilities	-	R	S	-
f	Right-of-Way	-	R	-	-
g	Stations	-	S	R	-
h	Maintenance Facilities	-	S	R	-
6	Respond to Comments	R	-	-	-
7	Review Responses and Resolve "Disagreements"	-	R	S	-
8	Verify that drawings/reports are updated per the agreed response to comments	R	-	-	-
8a	Audit Verification process	S	S	-	R
9	Prepare Draft Design Submittal for Integration Reviews	R	-	-	-
10	Schedule Draft Submittal Review Meeting	S	R	S	-
11, 12, 13	Review and Comment (overall mgmt)	-	R	-	-
a	Drawings	-	S	R	-
b	Cost Estimate	-	R	S	-
c	Design Variances	-	S	R	-
d	Technical Reports - Structures, Tunnels, Stations, Maint Facilities	-	S	R	-
e	Technical Reports - Other	-	R	S	-
14	Respond to Comments	R	-	-	-
15	Review Responses and Resolve "Disagreements"	-	R	S	-
16	Verify that drawings/reports are updated per the agreed response to comments	R	-	-	-
16a	Audit Verification process	S	S	-	R
17	Prepare Record Issue of Design Submittal	R	-	-	-

R = Responsible, S = Support

Appendix B Design Submittal and Review Protocol Flow Chart



Appendix B (continued)

Design Submittal and Review Protocol

Activity Descriptions

1. Regional Consultant to prepare the In-progress Design Submittal and post on ProjectSolve in the In-progress Design Submittals and Reviews folder (see Figures 1 and 2).

Create a new submittal and review folder identifying the contents of the In-progress Design Submittal. Add the submittal file to the folder (upload onto ProjectSolve) by selecting the "Add File" field or by dragging and dropping the file into the window.
- 1A. Regional Consultant to notify the PMT Regional Manager Team that the submittal is ready for review.

Use the ProjectSolve "Send an Alert" email notification feature (click on the "Paper Airplane" icon). This feature transmits a hyperlink to the location of the document. The subject/header line in the email transmittal must include the title of the In-progress Design Submittal.
- 1B. Regional Consultant to provide hardcopies of the In-progress Design Submittal to the PMT Regional Manager Team (one copy) and the EMT (two copies) via overnight mail service.
- 1C. PMT Engineering Manager and EMT Subsystem Managers identify technical resources to perform review
2. PMT Regional Manager Team to request EMT review, and schedule and hold an *In-Progress Submittal Review Meeting* for the Regional Consultant and the EMT. The purpose of the review meeting is to provide the EMT an overview and understanding of the Regional Consultant drawings package organization/presentation and application of the design criteria, including highlighting of potential design variance requests. PMT Regional Manager Team to notify the PMT Program Director and the Authority that the submittal has been posted.
- 2A. Regional Consultant targeted to provide meeting notes to the PMT Regional Manager and the PMT Engineering Manager within five (5) working days. Meeting notes will be posted on ProjectSolve in the corresponding submittal and review folder (see Figures 1 and 2) and serve as a record of the meeting, identifying attendees and main points of discussion.
3. Formal EMT comments on the submittal will be provided to the PMT Regional Manager Team following a *RM Submittal Comment Coordination Meeting*. Comments are targeted to be provided to the PMT Regional Manager Team and posted by the PMT Regional Manager Team in Review Manager within five (5) working days following the meeting.

Use the EMT comment/response process (see Appendix C). Comments will indicate priority using coded field: "1"=Mandatory, "2"=Recommended, "3"=Information (no response required), date, reviewer subsystem, and reviewer initials.
4. EMT to review posted comments and confirm or revise comments as appropriate for release by the PMT Regional Manager Team.
5. PMT Regional Manager Team to review comments in Review Manager and release comments to the Regional Consultant for review and response.

- 6 Regional Consultant targeted to provide responses to comments posted on ProjectSolve within ten (10) working days of release of comments in Review Manager.
- Complete response fields in Review Manager:
- Regional Consultant response in the “Action Taken” field should address how the comment is to be incorporated into the next submittal or justify why the comment does not apply.
 - Regional Consultant to code each response “A” (agree, will revise) or “D” (disagree, see explanation/action taken) or “N” (noted, this response is not applicable for Mandatory comments) and date.
 - Regional Consultant to verify and document completion of action item with initials and date in the “RC Verified” field. Verification can be done when the action has been incorporated into the drawings and will be subject to audit.
- 7/ 7A PMT Regional Manager Team targeted to resolve any coded “1” (Mandatory) comments with a response coded “D” within ten (10) working days of response. Where “D” is accepted with explanation, EMT to document acceptance of response with initials and date in the “EMT Sign-Off” field in Review Manager. Only Mandatory comments with a response code “D” requires EMT sign-off. Where Regional Consultant disagrees with comments coded as “2” (Recommended) or “3” (Information), Regional Manager Team should assess and resolve as appropriate, and EMT sign-off is not required.
- 8 Repeat Steps 1 to 7 for all In-progress Design Submittals.
- 9 Regional Consultant to prepare and post the Draft 15% Design Submittal on ProjectSolve in the Draft 15% Design Submittal and Review folder (see Figures 1 and 2).
- 9A. Regional Consultant to notify the PMT Regional Manager Team that the Draft 15% Design Submittal is ready for review.
- Use the ProjectSolve “Send an Alert” email notification feature.
- 9B. Regional Consultant to distribute hardcopies of the Draft 15% Design Submittal to the PMT Regional Manager (one copy) and the EMT (two copies) via overnight mail service.
- 9C/D/E. PMT Regional Manager to notify the PMT Program Director and the Authority that the Draft 15% Design Submittal has been posted for review and comment, as needed.
- Use the ProjectSolve “Send an Alert” email notification feature.
- 10 PMT Regional Manager to request EMT review, and schedule and hold a *Draft 15% Design Submittal Review Meeting* for the Regional Consultant and the EMT. The purpose of the review meeting is to provide the EMT an overview and understanding of the Regional Consultant intent and application of the Design Criteria including design variances.
- 10A Regional Consultant targeted to provide meeting notes to the PMT Regional Manager and the PMT Engineering Manager within five (5) working days. Meeting notes will be posted on ProjectSolve in the corresponding submittal and review folder and serve as a record of the meeting, identifying attendees and main points of discussion.
- 10B PMT Engineering Manager and EMT Subsystem Managers identify technical resources to perform review. Begin review including Integration. Review for conflicts within the design of infrastructure, systems, operations, maintenance and rolling stock requirements
- 11 Formal EMT comments on the submittal will be provided to the PMT Regional Manager Team following a *RM Submittal Comment Coordination Meeting*. Comments are targeted

to be provided to the PMT Regional Manager Team and posted by the PMT Regional Manager Team in Review Manager within five (5) working days following the meeting

Use the EMT comment/response process. (see Appendix C) Indicate priority using coded field: "1"=Mandatory, "2"=Recommended, "3"=Information (no response required) and complete fields for date, reviewer subsystem and reviewer initials.

EMT's review of the Draft 15% Design Submittal to include a system integration review confirming that the system elements in the Draft 15% Design Submittal are consistent with system design requirements.

PMT Regional Manager to perform integration review on boundary interface conditions and confirm design integration with adjacent segments.

- 12 EMT to review posted comments and confirm or revise comments as appropriate for release by the PMT Regional Manager Team

- 13 PMT Regional Manager Team to review comments in Review Manager and release comments to the Regional Consultant for review and response.

Use the ProjectSolve "Send an Alert" email notification feature.

- 14 Regional Consultant targeted to provide responses to comments via ProjectSolve within twenty (20) working days of notification by PMT Regional Manager that comments are ready for response.

Complete response fields in Review Manager:

- a. Regional Consultant response in the "Action Taken" field should address how the comment is to be incorporated into the next submittal or justify why the comment does not apply.
- b. Regional Consultant to code each response "A" (agree, will revise) or "D" (disagree, see explanation/action taken) or "N" (noted, this response is not applicable for Mandatory comments) and date.
- a. Regional Consultant to verify and document completion of action item with initials and date in the "RC Verified" field. Verification can be done when the action has been incorporated into the drawings and will be subject to audit..

- 15/15A PMT Regional Manager Team targeted to resolve any coded "1" (Mandatory) comments with a response coded "D" within twenty (20) working days of response. Where "D" is accepted with explanation, EMT to document acceptance of response with initials and date in the "EMT Sign-Off" field in Review Manager. Only Mandatory comments with a response code "D" requires EMT sign-off. Where Regional Consultant disagrees with comments coded as "2" (Recommended) or "3" (Information), Regional Manager Team should assess and resolve as appropriate, and EMT sign-off is not required.

- 16 Regional Consultant to prepare the "Record Set" 15% Design Submittal and post on ProjectSolve in the Final 15% Design Submittal folder (see Figures 1 and 2). Two hardcopies are to be provided to the PMT, one hardcopy for the Regional Manager and one hardcopy for the EMT.

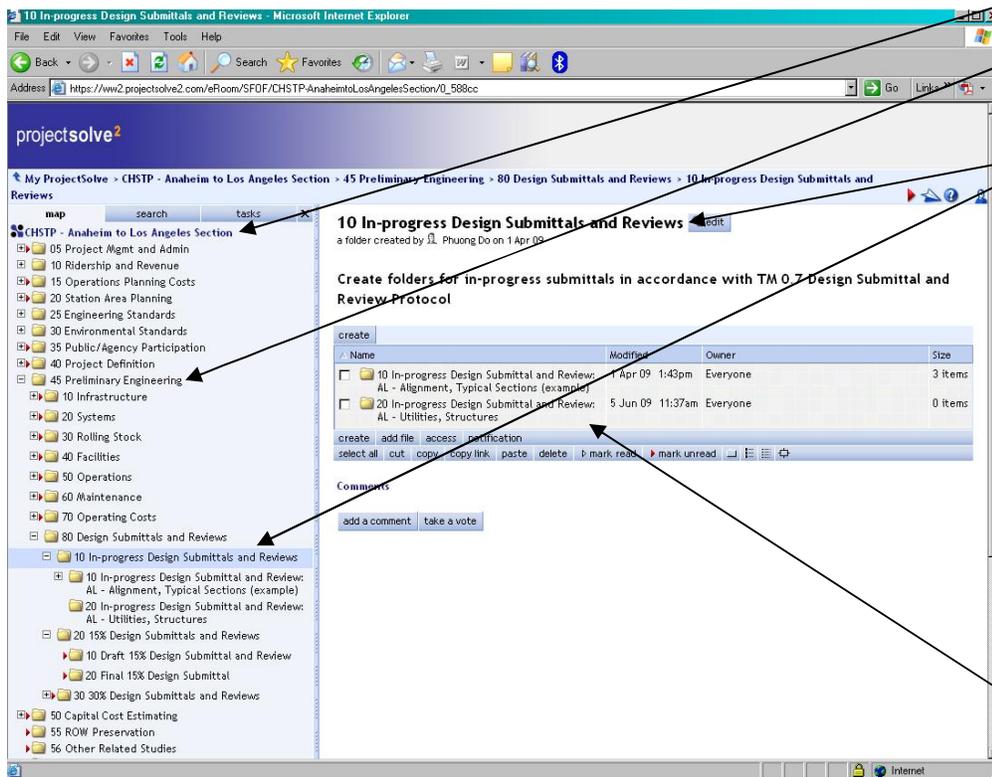
- 16A. PMT Regional Manager to notify the PMT Program Director, the PMT Engineering Manager, the PMT Environmental Manager, and the Authority that the "Record Set" 15% Design Submittal has been posted to ProjectSolve.

- 16B. PMT Regional Manager to alert the PMT Engineering and Environmental Managers via ProjectSolve that Record Set 15% Design Submittal is available for use.

- 16C/D. PMT Regional Manager to alert the PMT Program Director and the Authority via ProjectSolve that Record Set 15% Design Submittal is available for information.
- 17 Regional Consultant to incorporate the Record Set 15% Design Submittal into the Draft Environmental Documents as required.

END

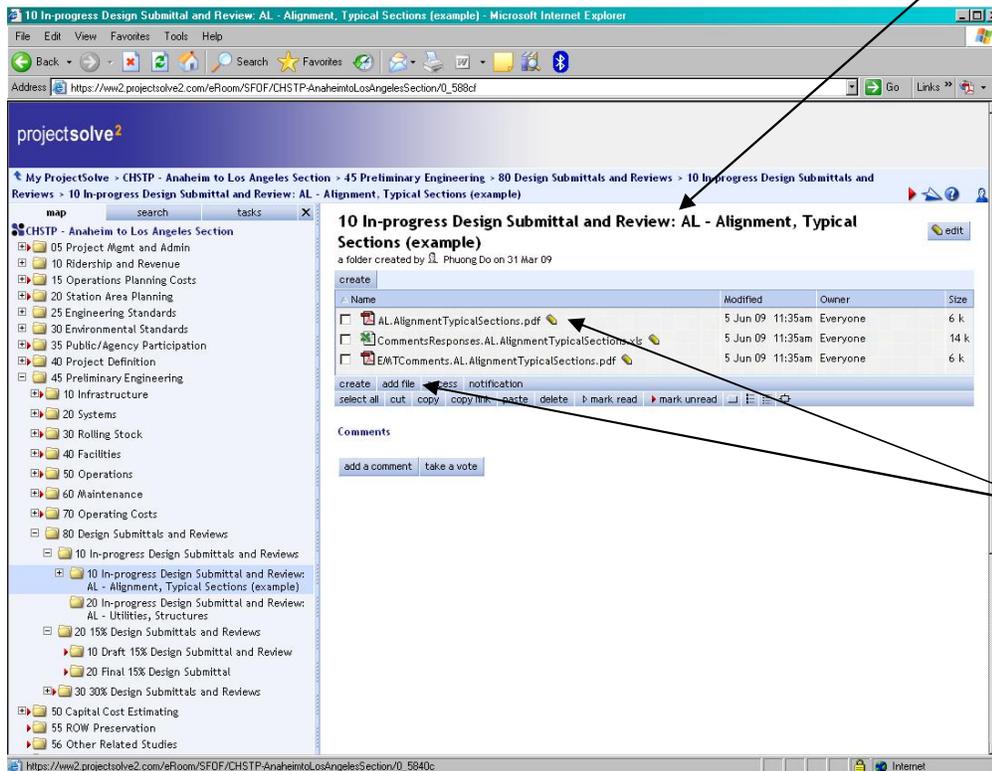
Appendix B (continued) Figure 1: Design Submittal and Review Folder Hierarchy



Alignment Section
Preliminary Engineering folder
In-progress Design Submittals and Reviews folder

For In-progress Design Submittals, create a new folder for each submittal that identifies submittal contents.

Figure 2: Submittal File Screen



Post submittal by selecting the "add file" field or by dragging and dropping into the window. Meeting minutes and EMT comments will also be posted in the corresponding submittal and review folder.

Appendix C Comment/Response Form

This form is provided for illustrative purposes. Formal comments and responses are to be made via Review Manager

 California High-Speed Train Project		Date Comments Posted: Date of Regional Consultant Submittal Meeting: Date Submittal Posted: Submittal Folder:											
Submittal Reviewer: CHSTP ENGINEERING MANAGEMENT TEAM Regional Consultant: Alignment Section: Submittal Review Document:													
REFERENCE		COMMENT PRIORITY LEVEL		RESPONSE									
Mstr No.	Cmnt No.	Dwg/Sec or Doc	Page/Sht	Comment Sht Type	Description	Subsystem Code	EMT Reviewer	Date	Response Code	Action Taken	Date	RC Verified by/date	EMT Sign-off (Ds only) by/date
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