

**BIGGS CARDOSA
ASSOCIATES INC**
STRUCTURAL ENGINEERS

1871 The Alameda, Suite 200
San Jose, CA 95126-1752
Telephone 408-296-5515
Facsimile 408-296-8114

July 24, 2006

Santa Cruz County
Regional Transportation Commission
1523 Pacific Avenue
Santa Cruz, CA 95060

Attention: Luis Mendez

Subject: Santa Cruz Branch Line Peer Review
Independent QA/QC Summary Letter

Dear Luis:

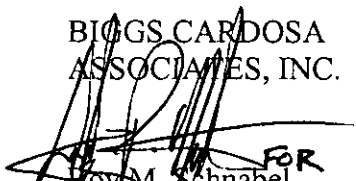
Biggs Cardosa Associates, Inc. (BCA) has completed our peer review of the Santa Cruz Industrial Lead Supplemental Structural Assessment Report documents as requested by the Santa Cruz County Regional Transportation Commission (SCCRTC). We have found the structural assessment by HNTB to be comprehensive and in accordance with the anticipated project scope of work. BCA is in general agreement with the findings and recommendations included in the reviewed documents. Our independent quality assurance/ quality control peer review included structural review of the following documents:

- Draft Santa Cruz Industrial Lead Supplemental Assessment Report dated May 17, 2006.
- Draft Santa Cruz Industrial Lead Supplemental Assessment Report Appendixes A through G dated May 8, 2006.
- Responses to Review Comments generated by BCA dated June 7, 2006
- Santa Cruz Industrial Lead Supplemental Assessment Report dated June 16, 2006.
- Santa Cruz Industrial Lead Supplemental Assessment Report Appendixes A through G dated June 23, 2006.
- Responses to Supplemental Review Comments generated by BCA dated July 18, 2006

Should you have any questions, please do not hesitate to call

Sincerely,

BIGGS CARDOSA
ASSOCIATES, INC.


FOR
Roy M. Schnabel
Principal

REVIEW COMMENT FORM

Job# 2005166.1 Project Title Santa Cruz Branch Line Peer Review Rev. Date June 7, 2006

Description Santa Cruz Industrial Lead Supplemental Structural Assessment Report

Report by HNTB Quality Control by Biggs Cardosa Associates Approved by
(A. Notaro; H, Wang)

| No. | Dwg/Calc. Page # | Comment | Type | Designer Response | Action |
|-----|--------------------|---|------|--|--------|
| | Main Report | Santa Cruz Industrial Lead Supplemental Structural Assessment Report | | | |
| 1. | General | See hardcopy for miscellaneous comments not incorporated into summary form | E | Additional comments are noted | C |
| 2. | P.6 | Summary of Structure Condition: Does some/ all/ none of the recommended repair work needs to be made in order to continue freight service at the current levels? The calcs appear to assume some items (such as the severely corroded cross bracing at MP9.09) are replaced/ repaired when calculating the capacities of other controlling elements. Summary of Recommended Repair Work & Costs: Identify which repair work, if any, is required to maintain current service levels. | M | Based on the comparison of the calculated bridge load ratings and the equivalent ratings for the equipment used on this line, the current freight service over all of the bridges in this report can remain at current levels. Added recommendation to replace longitudinal and transverse cross bracing and connections. The evaluation indicates that current service levels may continue without immediate repairs, however recommended repair work should be completed in the near future in | C |

COMMENT TYPE: E – Editorial
D – Discretionary
M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
B – Designer disagrees for reasons noted; discussion may be required.
C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Designer Response | Action |
|-----|------------------|---|------|---|--------|
| | | | | order to maintain the current load carrying capacities of the bridges. | |
| 3. | P.11 | MP15.89c is located in an established historical district. | D | Will Comply. This information will be added to table 2 for MP 15.89c. | A |
| 4. | P.28 | Typically AREMA is the governing code. Provide justification for the use of the 1996 AREA Manual for calculating the Longitudinal Force. Typically, AREA will provide less conservative results than AREMA. | M | The AREMA is not defined as a code but is designated as a 'recommended practice' as defined in the Manual of Railway Engineering. The design provisions for the longitudinal load were changed after 1996 and are not entirely accepted by some of the Class 1 railroads for use on their existing structures or for ratings (there are 1000's of existing bridges designed to the older standard). The UPRR practice is to use the older standard on their existing bridges and on their own current standard plans for new steel structures. Further testing and verification of these new lateral loads need to be performed on all types of bridges and lengths. The longitudinal force used in the calculations is closer to the design loading for the original structural. The limiting use of 4-axle locomotives along this line restricts the use of higher adhesion AC locomotives and other 6-axle locomotives that are able to produce higher longitudinal forces. No change required | C |
| 5. | P.30 | Include paragraphs with key assumptions for MP1.06 & MP9.09 similar to the paragraphs provided for MP15.89 | D | Paragraph included for MP 1.06, MP 9.09, and MP 19.43b. Refer to Appendix for | A |

COMMENT TYPE: E – Editorial
D – Discretionary
M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
B – Designer disagrees for reasons noted; discussion may be required.
C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Designer Response | Action |
|-----|------------------|---|------|---|--------|
| | | and MP19.43. Include all major assumptions such as MP9.09 calcs assume adequate column bracing/connections (i.e. Repair or replace existing deteriorated bracing/ connections). | | further clarification of assumptions. | |
| 6. | P.30 | Update table to reflect comments made to calculations. Recommend MP1.06 to have two member entries (Girders; Floor Beams) and MP9.09 to have three member entries (Girders; Columns; Bracing) | D | The rating entries given are the controlling ones for the structure depending on the component. Other member ratings are in the Appendix for reference. We wanted to keep the table simple with only the most important controlling ratings. Including the other values will only confuse the reader. | C |
| 7. | P.30 | No calculation provided for E-65.1 (Stringer, Maximum @ 10mph). Rating not verified. | | Will Comply. Calculation to be added. | A |
| 8. | P.35 | Preliminary seismic assessment appears to focus on superstructure elements. Potential for substructure/ foundation mitigation is not addressed in the preliminary cost estimates. Recommend conducting simplified rocking analysis to verify substructure/ foundation adequacy. If foundation mitigation required, retrofit costs are likely to increase. | D | The strategy for the proposed the retrofit is to isolate the superstructure from the substructure through the use of isolation bearings so that a costly substructure retrofit can be avoided. This scheme is feasible since the truss railroad bridge is relatively light when comparing to the live load and tracks provide a good restraining system. The cost of isolations bearings has been included. | C |
| 9. | P.35, 43 & 44 | Do steel structure costs account for likely lead based paint issues/ mitigation? | D | The cost presented includes the additional cost associated with lead paint issues. | C |
| 10. | P.39 | Is bi-annual maintenance program recommendation for MP15.89c correct? P.31 recommends more frequent inspections for this structure since it may be consistently loaded beyond the Normal Load rating. | D | This will be changed from bi-annual to <u>quarterly</u> inspection | A |

COMMENT TYPE: E – Editorial
D – Discretionary
M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
B – Designer disagrees for reasons noted; discussion may be required.
C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Designer Response | Action |
|-----|---------------------------------|---|------|---|--------|
| | Appendix A | Pajaro River Crossing (MP1.06b) | | | |
| A1. | General | See hardcopy for miscellaneous comments not incorporated into summary form | E | Additional comments are noted | C |
| A2. | General | Reconcile and/or provide more detail on the steel material property assumptions used between the four steel bridge structures: <ul style="list-style-type: none"> • MP1.06 1906 30 ksi • MP9.09 1927 30 ksi • MP15.89 <1910 33 ksi • MP19.43 1904 35 ksi | M | Bridges at MP 1.06, 9.09, and 19.43 were all rated using 30 ksi steel per AREMA 15-7.3.4.3 (a) for open hearth steel. Bridge 15.89: 33 ksi was in the load rating that was performed in 1977. Steel yielding stress in 1900's ranged from 30 ksi to 35 ksi per <u>Historical Record, History of ASTM Structural Steel Specification Stresses</u> . 33 ksi yielding stress is believed a reasonable assumption for this bridge. | C |
| A3. | P.16 - 18 | These pages are repeats of the Inspection Notes. Delete redundant sheets. | D | Will comply. Sheets will be deleted. | A |
| A4 | Pajaro River Appendix A Page 21 | Top SM is smaller and should be used | | Top section modulus should be used and calculations will be corrected | A |
| A5 | Pajaro River Appendix A Page 22 | Top flange angle should be 5/8" thick | | Agree with 5/8" thick angle | A |

COMMENT TYPE: E – Editorial
D – Discretionary
M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
B – Designer disagrees for reasons noted; discussion may be required.
C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Designer Response | Action |
|-----|---------------------------------------|---|------|---|--------|
| A6 | Pajaro River Appendix A Page 24 | Top SM is smaller and should be used | | Top section modulus should be used and calculations will be corrected | A |
| A7 | Pajaro River Appendix A Page 33 | Missing demand calculations, moment and shear rating charts | | Will comply. Additional calculations will be provided | A |
| | Appendix B | Leonard Gulch (La Selva Beach) (MP9.09) | | | |
| B1. | P.50 - 79 | These pages are repeats of the Inspection Notes. Delete redundant sheets. | D | Will comply. Sheets will be deleted. | A |
| B2. | P.93 | Include impact when calculating E_{LL+I} Shear Rating similar to calculation for E_{LL+I} Moment Rating | M | Impact was included in the final shear rating but was not included for the E-1 shear | C |
| B3. | P.94 - 95 | Use AREMA code for calculating the Longitudinal Force tributary to the bents. Load to bent braces is under estimated by a factor of ~1.5 to 2.0. Existing bracing capacity is exceeded. Replacement of longitudinal bracing required. | M | See response to No. 4 above. | A |
| B4. | P.98 | Column capacity/ rating assumes the heavily deteriorated lateral bracing and connections are adequate. If bracing or connections fail, then the column unsupported lengths significantly increase and the column capacity/ rating significantly decreases. Therefore, bent/ substructure capacity is likely to be controlled by the bracing capacity. | M | Agree that the ratings are affected by the condition of the lateral bracing and connections. It is assumed that the bracing and connections will be replaced in the near term to continue train operations. | C |
| B5. | P105 - 106 | Cannot verify the Equivalent Cooper E-Rating curves generated. No back-up data provided. | M | Information on the Cooper E-Rating curves is based on simple span maximum shear and moment values for various load configurations, calculated by Association of American Railroads (AAR) program. | B |

COMMENT TYPE: E – Editorial
D – Discretionary
M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
B – Designer disagrees for reasons noted; discussion may be required.
C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Designer Response | Action |
|-----|--------------------|---|------|--|--------|
| B6. | Missing Calc | No calculations were provided for checking the adequacy of the deteriorated column/ bracing/ foundation connections. Given the poor condition of these elements they are likely to control bent capacities. | M | See answer to B4. Agree that the ratings are affected by the condition of the foundation connections. It is assumed that deteriorated foundation connections will be replaced in the near term to continue train operations. | C |
| B7 | Appendix B Page 93 | Impact needs to be included in shear rating | | Impact is included in shear rating but not included in E-1 shear | C |
| B8 | Appendix B Page 94 | Longitudinal force is not calculated correctly | | LF is based upon 1996 AREA where LF = 15% LL, the existing trestle was not designed for current AREMA LF. Based on historical AREA criteria, bridges of this vintage were more likely designed for approximately 15% of LL. | B |
| B9 | Appendix B Page 95 | Revise loads per page 94 comments | | Page 94 loads are correct | B |
| B10 | Appendix B Page 98 | Repeat comment B4 | | See comment # B4 | |
| B11 | Appendix B Page 98 | Top plate should be 3/8" thick | | Agree with 3/8" thick top plate | A |
| | Appendix C | Seascape Trestle (MP 10.45) | | | |
| C1. | P.18 - 33 | Cannot verify Stringer Condition Evaluation Worksheet. Supporting information regarding formulas, etc was not included. Only worksheet input values were reviewed. | E | Noted | C |
| C2. | P.5, 18, 20 & 25 | Inspection notes indicate that the inspection records were confirmed and determined to be accurate. However, the stringer condition rating used in the | D | When stringers were observed in the field to be in worse condition than previously noted, the poorer conditions were used in the | C |

COMMENT TYPE: E – Editorial
D – Discretionary
M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
B – Designer disagrees for reasons noted; discussion may be required.
C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Designer Response | Action |
|-----|-------------------|--|------|--|---------------------|
| | | calculations do not match at the following spans: 1045-1; 1045-3; 1045-8. In general the calculations assume a more heavily deteriorated stringer than previously noted. Were these values modified due to field observations? If so, observations should be noted in the field notes. | | condition rating. | |
| | Appendix D | Capitola Crossing (MP15.89) | | | |
| D1. | General | See hardcopy for miscellaneous comments not incorporated into summary form Appendix D P.35 See Appendix D comment D4 Appendix D P.37 Reconcile steel strength assumptions Appendix D P.40, P.43, P.45 Section properties overestimated. | E | Additional comments are noted. See response to Appendix D comment D4 33 ksi was in the load rating that was performed in 1977. Steel yielding stress in 1900's ranged from 30 ksi to 35 ksi per <u>Historical Record, History of ASTM Structural Steel Specification Stresses</u> . 33 ksi yielding stress is believed a reasonable assumption for this bridge. The section properties of the members are primarily based on the shop drawings with visual verification when possible. Field measuring of each individual member was not part of the scope of this project. | B B C |

COMMENT TYPE: E – Editorial
D – Discretionary
M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
B – Designer disagrees for reasons noted; discussion may be required.
C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Designer Response | Action |
|-----|------------------|--|------|---|--------|
| | | Appendix D P.47, P. 48, P. 49, P. 53, P. 59 Verify section dimensions | | See above response | C |
| | | Appendix D P.73 Missing Shear Rating Calculations | | By engineering judgment, shear rating would not control on steel members. | C |
| | | Appendix D P.74 Wrong dimension | | The dimension between coal cars 6.8 feet. | B |
| | | Appendix D P.85 Missing Shear Rating Calculations | | By engineering judgment, shear rating would not control on steel members. | C |
| | | Appendix D P.86 Wrong dimension | | The dimension between coal cars 6.8 feet. 3.4 foot is half that distance, but 6.8 foot was used in the calculation. | B |
| D2. | General 15.89C | Several truss and cross framing member sizes were assumed. Field verify to confirm assumptions. | D | The section properties of the members are primarily based on the shop drawings with visual verification when possible. Field measuring of each individual member was not part of the scope of this project. | C |
| D3. | P.10 | Inspection notes indicate that the inspection records were confirmed and determined to be accurate with a few variations. The stringer condition rating used in the calculations do not match the values previously noted at | D | When stringers were observed in the field to be in worse condition than previously noted, the poorer conditions were used in the condition rating. 1589-B-1 and 1589-B-7 | A,C |

COMMENT TYPE: E – Editorial
D – Discretionary
M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
B – Designer disagrees for reasons noted; discussion may be required.
C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Designer Response | Action |
|-----|------------------|--|------|---|--------|
| | | the following spans: 1589-B-1, 3, 5, 7, 8 & 13. In general the calculations assume a more heavily deteriorated stringer than noted previously except at 1589-B-7. Recommend that you verify the stringer codes used in the calculations and that any specific revisions to the stringer codes noted during inspection be specifically noted in your Inspection Notes. | | will be corrected. | |
| D4. | P.35 | Verify truss panel assumptions. Panel A appears to be the panel omitted from the seven-panel truss configuration. Therefore, the five-panel truss constructed would likely consist of an End Panel, Panel BR, Panel C, Panel BL, End Panel. The Field photos also indicate that the first interior panels have cross bracing consistent with Panels BR & BL (steel bar and steel rod cross bracing) rather than the single brace configuration of Panel A (bar brace only). Verify that truss panel assumptions are applied consistently throughout calcs. | M | The shop drawings, field notes, and photos were used to determine the truss geometry and section properties. The calculations were performed assuming that additional bracing was added and the original cross bracing on the truss was altered to fit the condition (as usual). The configuration shown on page 1 of the calculations was used for the rating model with modifications made to truss members made based on field review photos of the truss. Field verification and measurement of each individual member was not included in the scope of work. | B |
| D5. | P.37 | See Appendix A comment A2. | M | See response to Appendix A comment A2 | B |
| D6. | P.110 - 127 | Cannot verify Stringer Condition Evaluation Worksheet. Supporting information regarding formulas, etc was not included. Only worksheet input values were reviewed. | E | Noted | C |
| D7. | Missing Calc | No calculations are provided verifying the capacity/rating of the truss connections. The connections often determine the strength of the truss spans. | M | Truss connections have traditionally designed for the strength of the member. In general, the connections are stronger than | B |

COMMENT TYPE: E – Editorial
D – Discretionary
M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
B – Designer disagrees for reasons noted; discussion may be required.
C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Designer Response | Action |
|-----|-------------------|---|------|---|------------------------------|
| | | | | the members. It's very unlikely the connection will govern the rating. The rating of the truss connections are believed to be a more detailed structural assessment which is out of scope for this phase of the project. | |
| | Appendix E | San Lorenzo River Bridge (MP19.43) | | | |
| E1. | General | See hardcopy for miscellaneous comments not incorporated into summary form Comment, Appendix E page 31 MP 14.93 should be MP 19.43 Comment, Appendix E page 31 Reconcile assumptions between structures Comment, Appendix E page 38 9 1/8 in overall depth versus 8 1/2" depth Comment, Appendix E page 38 Adjust section properties. | E | Additional comments are noted Corrected Disagree...There is no need to reconcile allowable stresses. More information regarding the actual steel was available on the shop drawings for MP 19.43. Section properties were recomputed. Min radius of gyration did not change nor areas. Disagree, comment was based on load sheet for shop drawings; however, actual member sizes were used in computation of areas. | A B A B |

COMMENT TYPE: E – Editorial
D – Discretionary
M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
B – Designer disagrees for reasons noted; discussion may be required.
C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Designer Response | Action |
|-----|------------------------------|---|------|---|-------------------|
| | | <p>Comment, Appendix E page 41 9 in overall depth versus 8 ½" depth</p> <p>Comment, Appendix E page 49 Confusing, only show calc based on 7' stringer spacing</p> | | <p>Section properties were recomputed. Min radius of gyration did not change nor areas.</p> <p>7' stringer spacing is used in the calculation.</p> | <p>A</p> <p>C</p> |
| E2. | P.31 | See Appendix A comment A2. | M | See response to Appendix A comment A2 | B |
| E3. | P.76, 77 & 79 | Verify bracing and additional loads are correctly entered into program. PP No. L6 & L7 appear to be under loaded. | M | Will comply. Additional calculations will be provided. | A |
| E4. | P.114 - 117 | Cannot verify the Equivalent Cooper E-Rating curves generated. No back-up data provided. | M | Information on the Cooper E-Rating curves is based on simple span maximum shear and moment values for various load configurations, calculated by Association of American Railroads (AAR) program. | C |
| E5. | P. 116 & 117 Missing Calc | Cannot verify capacity rating. The calculations for the deck plate girders (14.93b) are not included. | M | Will comply. Additional calculations will be provided. | A |
| E6. | Missing Calc | No longitudinal force calculation was provided for checking bearing and pier capacity. | D | Will comply. Additional calculations will be provided. | A |
| | Appendix F | Meder Creek Crossing (MP23.54) | | | |

COMMENT TYPE: E – Editorial
D – Discretionary
M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
B – Designer disagrees for reasons noted; discussion may be required.
C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Designer Response | Action |
|-----|-------------------|--|------|-------------------|--------|
| F1. | P.11 | Cannot verify Stringer Condition Evaluation Worksheet. Supporting information regarding formulas, etc was not included. Only worksheet input values were reviewed. | E | Noted | C |
| | Appendix G | Retaining Walls | | | |
| G1. | General | Section reviewed. No issues/ comments noted. | | Noted | C |

File: Review Comment Responses with RTC requested text Edits.doc

COMMENT TYPE: E – Editorial
 D – Discretionary
 M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
 B – Designer disagrees for reasons noted; discussion may be required.
 C – Answer provided; no action needed.

REVIEW COMMENT FORM

Job# 2005166.1 Project Title Santa Cruz Branch Line Peer Review Rev. Date July 18, 2006

Description Santa Cruz Industrial Lead Supplemental Structural Assessment Report – Supplemental Comments

Report by HNTB Quality Control by Biggs Cardosa Associates Approved by
(A. Notaro; H, Wang)

| No. | Dwg/Calc. Page # | Comment | Type | Response | Action |
|-----|--------------------|--|------|---|--------|
| | Main Report | Santa Cruz Industrial Lead Supplemental Structural Assessment Report | | | |
| 4a. | P.28 | <p>We acknowledge that AREMA is defined as a “Recommended Practice” rather than a code, as is the 1996 AREA. Based on the data presented in the 2005 AREMA there is a general feel that the longitudinal forces to be transferred to the existing structures as recommended by the 1996 AREA may be under estimated. Granted, additional studies are still on-going, but the current findings indicate that the Branch Line structures are likely candidates to see high Longitudinal Forces as noted below:</p> <ul style="list-style-type: none"> • High longitudinal forces are related to lower speeds of approximately 15 mph or less (Given the current Branch Line 10 mph limit, the potential transfer of high longitudinal forces to the structures should be considered likely) • High longitudinal forces due to braking can occur at any location, particularly if an emergency brake application occurs (Given the high volume of | D | <p>Comment on the lateral forces is noted. The previous response to comments regarding the issue of the longitudinal force remains unchanged. The use of the 1996 AREA provision is appropriate for the rating of the existing structures based on our observation of the line use, alignment and grade considerations, and current UPRR standards. The Santa Cruz industrial lead has the restriction on locomotive use in place on the line currently. For the final design of the repairs and replacement of members and connections, the use of the current recommendations on longitudinal force can be used. The use of these current recommendations for longitudinal force will not affect the estimated cost of repairs to the structures as stated in</p> | |

COMMENT TYPE: E – Editorial
 D – Discretionary
 M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
 B – Designer disagrees for reasons noted; discussion may be required.
 C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Response | Action |
|-----|------------------|---|------|-------------|--------|
| | | <p>pedestrian traffic along the Branch Line corridor, and the proximity of several structures to beach access points; the potential for slowing down or an unplanned or emergency braking situation should be considered likely).</p> <p>HNTB has noted that the locomotives currently used on the Branch Line are limited to 4-axle locomotives, which are supposed to produce less tractive effort. We are not certain that the axle limitation is in and of itself a guaranteed limiter to the longitudinal forces as newer, more efficient vehicles, regardless of size, may potentially produce higher longitudinal forces as described by the AREMA commentary. If the Branch Line is currently limiting the type of locomotives, then the SCCRTC would also need to impose similar restrictions on any potential short line operators for the duration of any continued freight service.</p> <p>In light of the AREMA commentary and that Longitudinal Forces are a controlling load condition on several substructure elements affecting lateral stability for the La Selva Crossing (MP9.09); we believe that it would be prudent to use the more conservative AREMA values for the longitudinal force analysis. It appears that switching to the 2005 AREMA values will affect only a few additional bracing elements and associated connections for a minimal increase in rehabilitation costs. We recommend that repair/ replacement of these members be based on the current “recommended practice.”</p> | | the report. | |

COMMENT TYPE: E – Editorial
 D – Discretionary
 M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
 B – Designer disagrees for reasons noted; discussion may be required.
 C – Answer provided; no action needed.

REVIEW COMMENT FORM

| No. | Dwg/Calc. Page # | Comment | Type | Response | Action |
|------|-------------------|---|------|---|--------|
| | Appendix B | Leonard Gulch (La Selva Beach)(MP9.09) | | | |
| B2a. | P.93 | Agree. Impact should be considered in the final shear rating. However, it is not clear to the reviewer how this was addressed in the calcs. | D | Refer to the updated (June 23, 2006) calculations in Appendix B Page 64. The summary table has been revised to include the effects of impact in the shear rating. | |
| B3a. | P.94 - 95 | See comment 4a. above. | D | See response above. | |
| | Appendix D | Capitola Crossing (MP15.89) | | | |
| D7a. | Missing Calc | We agree that the truss members are typically designed for the strength of the adjacent framing members. However, we would expect that given the relative levels of deterioration in some of the framing members that the connections would also be experiencing similar deterioration. Your inspection records did not specifically address the connections. Based on your field review, please confirm that there were no visual indicators that the existing truss connections would likely control the truss rating. Do the estimates include a sufficient contingency to account for potential repair of any questionable connections? | D | Our field investigation of the truss reviewed the connections along with the members. We did not locate any connections that would indicate that they controlled the rating of the structure. The estimate would include costs for repairs to the structure and would cover a limited number of connection repairs if it would be required. | |

File: Review Comment Supplement A.doc

COMMENT TYPE: E – Editorial
 D – Discretionary
 M – Mandatory

ACTION CODES: A – Designer agrees and will comply/take action
 B – Designer disagrees for reasons noted; discussion may be required.
 C – Answer provided; no action needed.