7.2 Bridge Inspection Report Narrative

All bridge inspection reports shall include a brief but comprehensive description of the physical conditions observed on each bridge component and element during the inspection. The inspector shall document the condition inspection results, accurately describing locations and characteristics of deficiencies so future inspectors can readily compare conditions and record changes. All comments in the narrative should be clear, concise, grammatically correct, and represent an objective evaluation. Dimensional units shall be US Customary Units measured and reported to the nearest whole inch or as otherwise required to properly communicate the conditions described in the Caltrans Element Inspection Manual. Abbreviations or symbols for dimensional units such as feet or inches shall not be used.

This narrative shall also include a discussion on the scope of the inspection, how the bridge was accessed for the inspection, a summary of repairs and/or modifications, and information important to monitor the condition of the structure. Changes to the inspection data and the results of technical analyses such as load rating, scour evaluation, and material testing not recorded elsewhere in the report must also be documented.

The inspection report narrative is divided into two categories:

- ***ELEMENT INSPECTION NOTES*** consisting of element condition comments for each bridge element and defect;
- ***GENERAL INSPECTION NOTES*** consisting of other inspection related comments that cannot be associated with a bridge element.

7.2.1 Element Inspection Notes

The element condition comments provide a brief but comprehensive description of the physical condition of each bridge element. These comments are written in the ***ELEMENT INSPECTION NOTES*** portion of the inspection report. These descriptions should quantify the dimensions and location of any defects, damage, or deterioration resulting in a quantity of an element or defect in Condition State 2, 3, or 4. A brief statement shall be included, even if no defects were noted during the inspection. Element inspection notes specific to Fracture Critical and Underwater Inspections should be identified by inspection type. Element inspection notes for Damage, In-Depth and Other Inspections should be identified by inspection type and may include an inspection date for clarity.

In accordance with the ***Caltrans Element Inspection Manual***, if more than one defect operates within a defined space, only the predominant one shall be recorded in the Element Table along with a description of that defect. The other defect(s) shall be described in the Element Inspection Notes for the parent element or, if necessary in the General Inspection Notes under the appropriate condition heading. See the ***Caltrans Element Inspection Manual, Section 1.5***.

In cases where bridge components cannot be directly attributed to a defined element or where the bridge element condition comments are voluminous, contains tabular data or is otherwise impractical to include in ***ELEMENT INSPECTION NOTES***, the comments may be written in ***GENERAL INSPECTION NOTES*** using the headings listed in ***Section 7.2.2***. In this case, a brief summary of the element condition coding is still required in the ***ELEMENT INSPECTION NOTES*** when applicable.

Comments regarding upgrades or revisions to elements due to work performed shall be included in ***ELEMENT INSPECTION NOTES*** with the appropriate elements. Changes in element quantities, additions of elements, or upgrades to elements when no work was completed must be explained.

Example: *"Abutment 1 has full height vertical cracks spaced at average 6 foot intervals. The crack sizes vary randomly from 0.03 to 0.07 inches. Half the cracks are CS 2 and half are CS 3. This condition has not changed since first reported in 1996."*

Example: *"There are several hairline diagonal cracks as close as 3 feet on center in the exterior faces of the box girder at both abutments. The cracks stop approximately 15 feet from the face of the abutment. These cracks were first noted in 2001 and there has been no change since. "*

Example: *"There were no significant defects noted."*

Example: *"Notes from the last Underwater Investigation: 50 columns are in CS 3 due to abrasion with loose coarse aggregate. 25 columns are in CS 2 due to abrasion exposing coarse aggregate which remains secure. The remaining 25 columns have insignificant defects and are in CS 1."*

7.2.2 General Inspection Notes

Inspection comments, discussion exclusive of element conditions, and element inspection notes which are too large for the element table shall be organized in the ***GENERAL INSPECTION NOTES*** portion of the bridge inspection report and presented under the four general categories outlined below. Standard headings from the following four categories shall be utilized in the order shown. (Note: categorical headings will not be printed on the inspection reports).

1) Inspection Information

SCOPE AND ACCESS
NUMBERING CONVENTION
HISTORY
REVISIONS
MISCELLANEOUS

2) Condition Information

DECK AND ROADWAY
SUPERSTRUCTURE
SUBSTRUCTURE
CULVERT

3) Operational Information

SAFE LOAD CAPACITY
OPERATIONAL SIGNS
EXISTING POSTING
RECOMMENDED POSTING
RESCIND POSTING
ROADWAY CLEARANCE

4) Other

WATERWAY
RECOMMENDATIONS

7.2.2.1 Inspection Information

SCOPE AND ACCESS

This is a required heading on all bridge inspection reports.

Under this heading, describe the scope of the inspection and methods used to access the bridge. Scope describes the type of inspection and whether or not a complete inspection was performed; access describes the methods by which the inspection was completed. For fracture critical, underwater, and complex bridge inspections, reference shall be made to the approved inspection plan.

The following information shall be documented under this heading:

1. Portion(s) of the bridge inspected.
    - The ABME/inspector should clearly state that a complete inspection of the bridge was performed or that portions of the bridge were inspected in accordance with an inspection plan.
    - If portions of the structure due for inspection could not be inspected, the inspector should clearly note the following:
        - Which portions of the bridge were not inspected.
        - Why it was not inspected.
        - When it was last inspected.
        - Indicate the plan for completing the inspection.
    - If the purpose of the inspection is focused only on a portion of the bridge as in Damage inspections, the inspector shall indicate what portions of the bridge were inspected.

2. The access method, access equipment, special tools, inspection techniques, etc. used to perform the inspection.

3. When a bridge is over a waterway, state which span(s) the water was flowing under and the water depth.
    - A statement should be included if the waterway was dry.
    - When water is present, indicate locations of submerged substructure elements that were inspected and how they were inspected (visual, probing, or diving) including maximum water depth.
    - For underwater inspections when bridge supports are located in bodies of water where the surface elevation is subject to large fluctuations such as reservoirs, the report shall also state the water surface elevation at the time of inspection.

4. In cases where the inspection could not be performed during the month it is scheduled due to severe weather, concern for inspector safety, concern for inspection quality, the need to optimize scheduling with other bridges, or other unique situations, the inspection report shall contain a statement describing why the inspection could not be completed as regularly scheduled.

Example: *"The creek was dry and a complete inspection of all bridge elements was performed."*

Example: *"Piers 2 through 5 were located in the river with a maximum depth of 5 feet at Pier 5 and 10 feet at Piers 2, 3 and 4. The portion of Piers 2 through 5 above the waterline and the soffit were inspected from the bank with binoculars. An underwater inspection for Piers 2 through 5 was last performed on May 25, 2016."*

Example: *"The substructure inspection could not be completed during the January 2016 routine inspection due to unanticipated flows in the canal. The substructure inspection will be rescheduled for February 2016.The last substructure inspection was completed in January 2014 with no defects noted."*

Example: *"A fracture critical member (FCM) inspection was conducted concurrently with the routine in accordance with the Fracture Critical Member Inspection Plan dated September 28, 2006. The FCMs were accessed with a ladder from the ground. A hands-on visual inspection was performed on the steel girders of the railroad car frame in Span 1."*

Example: *"The scope of this inspection was limited to Girders 1 and 2 in Span 2 that were struck by an over height load. A description of the damage resulting from the impact on portions of Element 107 is included in this report. All other condition and appraisal narrative and data are carried over from previous inspections."*

NUMBERING CONVENTION

SM&I uses the following standard convention for numbering bridge supports:

- **For structures that carry state routes**, the standard is to number the supports looking ahead on route in the direction of increasing post miles.
- **For structures passing over state routes**, the standard is to number the supports from left to right while looking ahead on the state route beneath the structure.
- **For all other structures**, the standard is to number the supports from south to north or west to east.

Use this heading in the report when the as-built plans do not follow the standard SM&I numbering convention or when it is not immediately clear which support is Abutment 1 so that the support numbering used during the inspection is easily identified:

1. Indicate that the support numbering on the as-built plans does not follow the standard SM&I numbering convention.
2. Describe which support is Abutment 1 for reporting purposes. When the location of Abutment 1 is not clear, it is necessary to identify Abutment 1 so that subsequent inspection reports follow the same component designation and member identification.

Example: *"The support numbering system used on the as-built plans for this structure is reversed from the standard numbering convention used by Structure Maintenance & Investigations. For this structure, the southerly support is Abutment 1 and the northerly support is Abutment 3. This report and all subsequent reports will follow the SM&I numbering convention."*

Example: *"The alignment of the structure from southeast to northwest making the location of Abutment 1 unclear. For this structure, the southeast abutment is Abutment 1 and the northwest abutment is Abutment 3. "*

HISTORY

Use this heading in the report to document the following:

1. When a new bridge replaces an existing bridge.
2. When major changes are made to an existing structure (e.g. widenings, retrofits, scour mitigation, etc.). For State bridges, contract numbers for this work shall be included.

3. Structural concerns or unique conditions that may be useful to inform the reader or future inspector about various on-going issues (e.g. settlement issues, external forces affecting bridge integrity, etc.).

4. Initial inventory inspections for bridges new to the NBI.

Some historic narrative may be included in subsequent reports, if necessary. As examples, narrative about a bridge replacement need not be carried through to subsequent reports. However, narrative regarding slope stability issues affecting the bridge should be included in subsequent reports.

Example: *"This is a new structure on new alignment completed in 2011 under contract number 06-######. This bridge replaces 50-#### which was on a different alignment and has been removed."*

Example: *"This structure has slope stability problems. It has a long history of earth movement dating back to 10/28/1965. The landslide at Abutment 1 has caused Abutment 1 to move towards Abutment 4. All of the joints at the hinges are closed due to this movement. Previous attempts to mitigate this situation included installation of horizontal drains into the area of the slide and the installation of a polystyrene cushion behind Abutment 1 to isolate it from the moving earth."*

REVISIONS

Use this heading in the report to document the following:

1. All revisions to the NBI data since the last routine inspection that are not documented elsewhere in the report.

2. All deletions of Elements.

In cases where significant physical changes to a structure occur that affect several NBI data items, such as widenings, etc., revisions to the NBI data shall be summarized with one general statement rather than itemizing each individual change.

Example: *"Item #36, Traffic Safety Features, has been changed from 0000 to 1111. The bridge rail and approach metal beam guardrail features meet current standards."*

Example: *"Item #54, Minimum Vertical Underclearance, has been changed from 5.30 to 5.05 feet."*

Example: *"Item #29, Average Daily Traffic, was updated by SM&I Bridge Management since the last routine inspection."*

Example: *"All of the affected NBI items have been revised to reflect the changes resulting from the 2012 widening under contract 03-XXXXXX."*

MISCELLANEOUS

Use this heading in the report to document any general comments that do not fit under other headings.

Example: *"There is a 6 inch diameter wrapped, steel water pipe attached to the left edge of deck (upstream side) with a tree branch wedged between it, the exterior girder, and the bridge rail. (See photos no. 2, 3 and 4) causing its utility hanger to bend."*

7.2.2.2 Condition Information

Whenever possible, element condition comments should be associated with a bridge element or defect and should be written in ***ELEMENT INSPECTION NOTES*** portion of the bridge report.

In cases where components of a bridge cannot be directly attributed to a defined element, when several defects exist in the same location (unless described under the parent element), or where the bridge element condition comments are voluminous, contains tabular data or is otherwise impractical to include in the ***ELEMENT INSPECTION NOTES***, the element condition comments may be written as ***GENERAL INSPECTION NOTES*** under the following headings:

DECK AND ROADWAY

Document the following under this heading:

1. The physical condition of all bridge components inspected from the bridge deck or roadway that have no associated bridge element, including sidewalks, approach rails, AC approach pavement, etc.

2. The condition of all features inspected from the roadway over a culvert including the roadway itself, MBGR, fencing, etc.

3. Bridge element condition comments that are voluminous, contain tabular data or are otherwise impractical to include in the ***ELEMENT INSPECTION NOTES***.

Example: "*The bridge approach metal beam guard rail on the left side at Abutment 1 has been damaged by vehicular impact for a length of about 15 feet. Refer to attached photo number 2.*"

Example: *"There are minor shallow 6 inch diameter spalls spaced at 8 feet on the surface of the sidewalk. There is no exposed reinforcing steel. These appear to be old failed patches from a previous rail installation. See photo 5."*

Example: *"The following table lists the locations and sizes of deck spalls from Spans 1-22. These Element Inspection Notes for Element 12-1180, RC Deck-Spall, are presented here for clarity."*

SUPERSTRUCTURE

Document the following under this heading:

1. Bridge element condition comments that are voluminous contain tabular data or are otherwise impractical to include in the ***ELEMENT INSPECTION NOTES.***

Example: *"The following table lists the sizes and location of fatigue cracks in the steel girder webs. These Element Inspection Notes are associated with Element 107-1010, Steel Open Girder/Beam-Cracking, but is presented here for clarity."*

SUBSTRUCTURE

Document the following under this heading:

1. Bridge element condition comments that are voluminous, contain tabular data or are otherwise impractical to include in the ***ELEMENT INSPECTION NOTES.***

2. The physical condition of all substructure elements and components not associated with a bridge element. This applies to elements both above and below the waterline. Comments may include a description of the condition of wingwalls, debris accumulation, erosion from runoff, graffiti, fender conditions, etc.

Example: *"The following table lists the locations and widths of longitudinal cracks on the RC columns at Bents 1- 46. These Element Inspection Notes are associated with Element 205-1130, RC Column-Cracking, but is presented here for clarity."*

Example: *"The left wingwall at Abutment 1 is cracked, delaminated, and spalled up to 6 inches wide, full height along its joint at the abutment."*

CULVERT

Document the following under this heading:

Bridge element condition comments that are voluminous, contain tabular data, describe multiple defects in a single location, or are otherwise impractical to include in the ***ELEMENT INSPECTION NOTES.*** The condition of features associated with the roadway over a culvert that do not have an associated bridge element should be described in the ***DECK AND ROADWAY*** heading.

7.2.2.3 Operational Information

SAFE LOAD CAPACITY

This is a required heading in all routine bridge inspection reports except for pedestrian overcrossing and railroad underpass inspections.

The following information shall be provided under this heading:

1. The basis of the Inventory, Operating, and Permit ratings contained in the bridge inspection report. These ratings are typically based on load rating calculations but in some instances, these ratings may be assigned. See ***Section 5.10*** for assigned ratings.

2. ***For all structures***, the narrative under this heading should be consistent with one of the following example statements for the appropriate case:

Case 1: A Load Rating Summary Sheet is already archived in BIRIS.

Example: *"A Load Rating Summary Sheet dated XX/XX/XXXX is on file for this structure. While this report does not include a check of that analysis, it does verify that the structural conditions observed during this inspection are consistent with those assumed in that analysis. The current rating is based on (state type of rating data, i.e.; assigned, BDS computer output, hand calculations, etc.) dated XX/XX/XXXX."*

Case 2: A Load Rating Summary Sheet is not archived in BIRIS for ratings performed by ABME/Inspector.

Example: *"A Load Rating Summary Sheet is included with this bridge inspection report.*

The current rating is based on calculations dated XX/XX/XXXX."

OR…

The current rating has been assigned on XX/XX/XXXX in accordance with SM&I procedures."

Case 3: A Work Request has been sent to Ratings Branch requesting a rating analysis.

Example: *"The load rating for this structure is being reviewed by SM&I Ratings Branch under Work Request No. XXXX. An updated Load Rating Summary Sheet will be archived when this review is complete.*

The current rating is based on (state type of rating data, i.e.; BDS/CDC computer output, hand calculations, etc.) dated XX/XX/XXXX."

OR…

The current rating has been temporarily assigned on XX/XX/XXXX to this structure in accordance with SM&I procedures."

Case 4: A Rating Analysis to be done by Ratings Branch in accordance SM&I ratings procedures.

Example: *"The load rating for this structure is being reviewed by SM&I Ratings Branch. An updated Load Rating Summary Sheet will be archived when this review is complete.*

The current rating is based on (state type of rating data, i.e.; BDS/CDC computer output, hand calculations etc.) dated XX/XX/XXXX."

OR…

The current rating has been temporarily assigned to this structure on XX/XX/XXXX in accordance with SM&I procedures."

3. ***For posted structures***, the narrative under this heading shall include the following additional information:

    - Allowable loads for each posting vehicle,
    - The controlling members for the posting,
    - The material stresses used in the calculations,
    - The thickness of the overlay used in the calculations and
    - A statement that no extra-legal weight permit loads are permissible.

Example: *"A Load Rating Summary Sheet dated 09/10/2014 is on file for this structure. While this report does not include a check of that analysis, it does verify that the structural conditions observed during this inspection are consistent with those assumed in that analysis. The current rating is based on hand calculations dated 07/22/1984.*

The calculations indicate the safe load capacity of this structure to be:

17 TONS PER VEHICLE
26 TONS PER SEMI-TRAILER COMBINATION
33 TONS PER TRUCK AND FULL TRAILER

No extra-legal weight permit vehicles are permissible.

The capacity is controlled by the girders in bending at mid span using an allowable stress of 36 ksi. This capacity was determine with 6 inches of AC on the bridge deck."

Example: *"A new Load Rating Summary Sheet is included with this bridge inspection report.*

As described previously in this report, there is extensive deterioration of the reinforced concrete of Girder 1 in Span 1. The exposed rebar has significant section loss. Since there are no as-built plans available to assess the remaining capacity of the member, the following safe load capacity has been assigned based on field evaluation and engineering judgment:

4 TONS PER VEHICLE

No extra-legal weight permit vehicles are permissible.

Example: *"A new Load Rating Summary Sheet is included with this bridge inspection report.*

The current rating is based on new hand calculations dated 09/10/2015 that indicate that the safe load capacity of this structure has changed from:

17 TONS PER VEHICLE
26 TONS PER SEMI-TRAILER COMBINATION
33 TONS PER TRUCK AND FULL TRAILER

To:

7 TONS PER VEHICLE
12 TONS PER SEMI-TRAILER COMBINATION
15 TONS PER TRUCK AND FULL TRAILER

No extra-legal weight permit vehicles are permissible.

The capacity is controlled by the girders in bending at mid span using an allowable stress of 36 ksi. The reduction was due to additional dead load placed on the deck. This capacity was determine with 8 inches of AC on the bridge deck."

See ***Section 7.8 – Posted Bridge Procedures*** for more information on how to present this information in the bridge inspection report.

OPERATIONAL SIGNS

The following information shall be provided under this heading:

1. The location and message of any operational restriction sign on or at the approaches to the bridge that are physically present or signs that were in place but are missing. This includes speed or load limit signs, narrow bridge signs, one lane bridge signs, or similar advisory signs.

Example: *"There are "NARROW BRIDGE" signs at each approach to the bridge."*

2. Any information related to vertical clearance signs should be described under the ***ROADWAY CLEARANCE*** heading.

3. ***For posted structures***, the commentary under this heading should include narrative consistent with one of the following example statements for the appropriate case:

Case 1: The posting signs are in place for the correct loading per the safe load capacity calculations.

Example: *"Regulatory signs that indicate the following restrictions are present at both approaches to the structure:*

17 TONS PER VEHICLE
26 TONS PER SEMI-TRAILER COMBINATION
33 TONS PER TRUCK AND FULL TRAILER"

Case 2: The posting signs are in place, but the safe load capacity calculations indicate that the structure can carry legal loads.

Example: *"Regulatory signs that indicate the following restriction are present at both approaches to the structure:*

10 TONS PER VEHICLE

The safe load capacity calculations indicate that the structure is capable of carrying all legal loads. However, the local agency has chosen to restrict the size of the vehicles on the roadway."

Case 3: The posting sign is in place, but is unreadable.

Example: *"The posting sign present at the approach to Abutment 1 has multiple bullet holes and is no longer legible."*

Case 4: The posting signs are missing.

Example: *"There are no regulatory signs present at the structure to indicate the recommended load/speed restrictions."*

See ***Section 7.8 – Posted Bridge Procedures*** for more information reporting the information found on the load posting signs.

EXISTING POSTING

The following information shall be provided under this heading:

1. The method that the structure was posted for load/speed (by Order Establishing Load Limits or Local Agency Ordinance).

2. The recommended load or speed.

Example: *"This structure has been posted by an Order Establishing Load Limits from the Director of the California Department of Transportation dated 6/20/2007 for the following:*

17 TONS PER VEHICLE
26 TONS PER SEMI-TRAILER COMBINATION
33 TONS PER TRUCK AND FULL TRAILER"

Example: *"This structure is not posted by an Order Establishing Load Limits from the Director of the California Department of Transportation or Local Agency Ordinance."*

See Section ***7.8 - Posted Bridge Procedures*** for more information on how to present this information in the bridge inspection report.

RECOMMENDED POSTING

The following information shall be provided under this heading:

1. New recommendations to post the structure or a revision of the previous posting.

2. The current status of the posting process for the structure.

The commentary under this heading should include narrative consistent with one of the following example statements for the appropriate case:

Case 1: New posting or a revision of an existing posting that has been changed.

Example: *"Post the structure for the following:*

17 TONS PER VEHICLE
26 TONS PER SEMI-TRAILER COMBINATION
33 TONS PER TRUCK AND FULL TRAILER"

Case 2: Existing posting to remain unchanged.

Example: *"Retain the existing posting."*

Case 3: Recommendation to close the bridge.

Example: *"Close the bridge to all traffic."*

Case 4: Structure has an outstanding posting recommendation.

Example: *"The bridge report dated 12/17/2014 recommended that this structure be posted for the following:*

17 TONS PER VEHICLE
26 TONS PER SEMI-TRAILER COMBINATION
33 TONS PER TRUCK AND FULL TRAILER

The local agency erected temporary posting signs on 02/02/2015. An effort to repair the structure is in the planning stage. The local agency has no plans to hold a posting hearing at the time."

See Section ***7.8 - Posted Bridge Procedures*** for more information on how to present this information in the bridge inspection report

RESCIND POSTING

The following information shall be provided under this heading:

1. A recommendation for the removal of an existing posting established by a Caltrans Director's Order when the posting is no longer applicable.

When a new posting is recommended, either to increase or reduce the posting loads, the existing posting should not be rescinded until the new posting order has been signed.

Any posted bridge which has been replaced shall have the existing posting order rescinded. See ***Section 7.8 - Posted Bridge Procedures*** for more information on how to present this information in the bridge inspection report.

Example: *"Rescind the existing Order Establishing Load and Speed Limits dated 05/07/1981."*

ROADWAY CLEARANCE

This section of the report is used to document the following:

1. The documentation and verification of vertical and horizontal clearances associated with the bridge.

Example: *"The roadway clearances for this structure were measured. A Vertical Clearance Diagram dated xx/xx/xxxx was prepared and is attached to this report.*

Example: *"The roadway clearance data contained in this report was taken from the LIDAR measured Vertical Clearance Diagram dated xx/xx/xxxx, which is included with this report.*

A reasonable check was performed in accordance with SM&I procedures with no discrepancies noted."

2. The revision of vertical and/or horizontal clearances associated with the bridge.

Example: *"The Vertical Clearance Diagram in the bridge records dated xx/xx/xxxx (with revision date if applicable) was reviewed during the current inspection, and discrepancies were found the lateral/vertical clearances shown in the diagram. An updated clearance diagram is attached to this report showing the revised clearances."*

Example: *"The pavement under the bridge was recently overlain resulting in changes to the roadway clearances under the structure. A new Vertical Clearance Diagram dated xx/xx/xxxx was prepared and is attached to this report."*

Example: *"The Vertical Clearance Diagram in the bridge records dated xx/xx/xxxx (with revision date if applicable) was reviewed during the current inspection. HOV lanes have been added to the roadway beneath the structure since the diagram was created. The new clearances could not be measured due lack of safe access because of the volume of traffic. The revised clearances will be measured and an updated clearance diagram will be scanned into the bridge records when traffic control can be arranged."*

Example: *"The roadway clearance data contained in this report was taken from the LIDAR measured Vertical Clearance Diagram dated xx/xx/xxxx with exception of NBI Item xx, which was measured/taken from the SM&I Clearance Diagram dated xx/xx/xxxx. A revised clearance diagram is attached which combines the clearances of these two diagrams."*

Example: *"The bridge clearances shown on the Clearance Change Notice dated xx/xx/xxxx were verified during this inspection and the road clearance data contained in this report updated. An updated Vertical Clearance Diagram is attached showing the revised clearances."*

3. The location and content of vertical clearance signs.

Example: *"There are signs indicating vertical clearances of "15 FT - 0 IN" posted over southbound Lane 1 and "14 FT - 11 IN" posted over northbound Lane 2."*

Example: *"There were no signs indicating the minimum vertical clearances posted on the structure.*

In accordance with the 2010 California Manual for Uniform Traffic Control Devices, low clearance signs are required for structures over streets and highways with underclearances of 15 ft. 6 in or less. The underclearance at this structure is less than 15 feet 6 inches."

Example: *"The following vertical clearance sign is posted on both sides of the structure and at both approaches to the structure on Sausalito Road: "14 FT – 4 IN". However, the minimum vertical clearance indicated on the Vertical Clearance Diagram is 14 FT – 0 IN."*

See ***Section 7.6 – Roadway Clearances*** for more information on how to present this information in the bridge inspection report.

7.2.2.4 Other

WATERWAY

Use this heading to document the following:

1. State if the bridge is scour critical or bridge has an unknown foundation. Indicate that the channel section was both spot checked or re-measured and changes were noted, and that a Scour Plan of Action is on file.

2. Physical conditions and information about the channel such as waterway adequacy, alignment, bank erosion, migration of the thalweg, high water data, or any other hydraulic issues. This description will help determine NBI Item 61 – Channel and Channel Protection.

3. Channel cross-section information including a comparison to the previous channel section. Also include results of channel degradation or aggradation analysis, if available. Indicate why there is no channel cross section for a bridge i.e., due to the height of the bridge above the channel or other obstacle.

4. The condition of the bank protection outside of the bridge limits.

Example: *"The analysis documented in the hydraulics report dated 06/16/99 determined that this structure is scour critical. There is a Scour Plan of Action dated 10/28/2005 on file. The plan calls for placing riprap and a regular monitoring program.*

The channel cross section was measured during this inspection and there was no significant change in the critical elevations when compared to the channel cross section taken on 06/29/2010."

Example: *"A channel cross section was taken during this inspection and is included with this report. Since the bridge rail has been replaced, it was necessary to establish a new datum for a channel cross section. The previous measurements need to be adjusted +6 inches to reflect the difference between the old rail height and the new barrier."*

Example: *"A channel cross section was taken during this inspection and is included with this report. The cross section was compared with the previous cross section taken on 11/16/93. The results of that comparison indicate that the channel has degraded 12 inches at Pier 2 and 6 inches at Pier 3."*

RECOMMENDATIONS

Use this heading to for the following:

1. Recommendations that are not repair activities such as monitoring or additional investigative work.