# Appendix F

**PROGRAMMATIC AGREEMENT**
**AMONG THE U. S. BUREAU OF RECLAMATION,**
**U. S. FISH AND WILDLIFE SERVICE, U.S. BUREAU OF LAND MANAGEMENT,**
**HOOPA VALLEY TRIBE,**
**CALIFORNIA STATE HISTORIC PRESERVATION OFFICER, AND**
**THE ADVISORY COUNCIL ON HISTORIC PRESERVATION**
**REGARDING IMPLEMENTATION OF**
**THE TRINITY RIVER MAINSTEM FISHERY RESTORATION**

**WHEREAS, the U.S. Bureau of Reclamation (Reclamation), U. S. Fish and Wildlife Service (Service), U.S. Bureau of Land Management (Bureau), and the Hoopa Valley Tribe (Tribe) have determined that implementing the actions (Undertaking) outlined in the Trinity River Mainstem Fishery Restoration Environmental Impact Statement/Report (Trinity EIS/R) for purposes of protecting, restoring, and enhancing fish and wildlife, may affect historic properties; and**

**WHEREAS, Reclamation, the Service, the Bureau (agencies) and the Tribe have elected to comply with Section 106 of the National Historic Preservation Act(NHPA) for the Undertaking through execution and implementation of a Programmatic Agreement (Agreement) pursuant to 36 CFR Section 800.14, because not all Trinity EIS/R implementing actions have as yet been identified and because neither the scope and magnitude of the Undertaking's effects to historic properties nor the historic properties themselves have been identified at the time of execution of this Agreement; and**

**WHEREAS, the agencies, pursuant to 36 CFR 800.8(a)(1) and 800.8(a)(3), will coordinate compliance with the requirements of the National Environmental Policy Act (NEPA) for actions covered by this Agreement with the requirements of Subpart B of 36 CFR Part 800, and as part of this process of coordination, may use the NEPA process and associated documentation to supplement compliance with Subpart B; and**

**WHEREAS, pursuant to 36 CFR Section 800.2(c)(2)(ii), the Tribe=s representative shall be included in the term Tribal Historic Preservation Officer (THPO) for undertakings occurring on or affecting historic properties on its tribal lands and affecting properties of religious and cultural significance to the Tribe located on or off-tribal lands, and for any such undertakings, the primary responsible Federal agency (RFA) shall also consult with the THPO, in addition to the SHPO, where consultation is required under this Agreement; and**

**WHEREAS, the agencies have consulted with the California State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to Section 800.14 (b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470f) to resolve any adverse effects of the Undertaking on historic properties; and**

**WHEREAS, throughout the implementation of this Agreement, Reclamation and the Service the shall consult with Indian tribes, organizations and individuals that may attach religious and cultural significance to, or that may have concerns about the Undertaking's effects on historic properties,**

**NOW, THEREFORE, Reclamation, the Service, the Bureau, the Tribe, the SHPO, and the Council agree that the following stipulations shall be implemented in order to take into account the effects of the Undertaking on historic properties, and that these stipulations shall govern the Undertaking and all of its parts until this Agreement expires or is terminated.**

**STIPULATIONS**

**Reclamation and the Service shall ensure that the following measures are carried out:**

**I. ASSIGNMENT OF RESPONSIBILITY**

**Either Reclamation or the Service will be responsible for ensuring that the terms of this Agreement are carried out for all individual actions authorized or funded by the Department of the Interior comprising the Undertaking, irrespective of where or by whom the action will be carried out. Prior to preparation of environmental documentation for each action covered by this Agreement, Reclamation and the Service will consult to determine which agency will serve as primary responsible federal agency (RFA) for such action. The selected RFA will be responsible for implementing the terms of this Agreement with respect to the action proposed. The Service shall comply with the terms of this Agreement for the Undertaking and all individual actions therein, in lieu of the Programmatic Agreement among the Service, Council, and the SHPO executed on May 7, 1997.**

**II. AREAS OF POTENTIAL EFFECTS (APEs)**

**a. For purposes of this Agreement, the APE for the Undertaking in its entirety shall consist of the area within the 500 year floodplain of the Trinity River from the Trinity Reservoir downstream to the Hoopa Valley Indian Reservation, the area within the drawdown zones of the Trinity Reservoir, and ancillary areas within or outside of the 500 year floodplain that will be affected by implementing actions and associated facilities, such as material borrow sites, access roads, sediment pond construction and maintenance.**

**b. At the earliest stage of planning for any action comprising the Undertaking, the RFA will determine and document an area of potential effects (APE)in strict accordance with the definition set forth in 36 CFR 800.16(d). The APE for an action covered by this Agreement will be defined either before or concurrently with the earliest stages of NEPA compliance for the action.**

**III. REVIEW OF TRINITY EIS/R IMPLEMENTING ACTIONS**

**a. Coordination with NEPA**

**The RFA shall ensure that compliance with the terms of this Agreement is coordinated with NEPA compliance. When a specific Trinity EIS/R implementing action is identified, the RFA=s archaeologist will establish an APE pursuant to Stipulation III.B., below, and ensure that an appropriate level of effort is conducted to identify historic properties within that APE. Specific steps taken to comply with this Agreement will be included in an Environmental Assessment (EA) or categorical exclusion checklist (CEC) prepared for a Trinity EIS/R implementing action. An EA will, to the extent possible,**

**describe efforts to identify historic properties and, if applicable, identify and discuss measures that will avoid, minimize or mitigate potential adverse effects to historic properties. CECs will be prepared for minor actions where no historic properties have been identified within the APE. All CECs will be reviewed by Reclamation's Regional Archeologist, or by the Bureau=s Redding or Arcata Field Archeologist, or by the Service=s Regional Archeologist, to ensure that no historic properties will be affected by a proposed action. The final EIS or subsequent NEPA documentation for a Trinity EIS/R implementing action shall include, to the extent possible, appropriate documentation evidencing compliance with the terms of this Agreement. The RFA will ensure that the Finding of No Significant Impact or the Record of Decision for any action includes a plan for the treatment of historic properties adversely affected by such action.**

**b. IDENTIFYING HISTORIC PROPERTIES**

**36 CFR 800.4(b)(1) is the general standard which the RFA will use to determine the level of effort needed to identify historic properties within the APE of each Trinity EIS/R implementing action covered by this Agreement. In addition, as part of identification, the RFA will place special emphasis on the consultation prescribed by 36 CFR 800.4(a)(4) and by 36 CFR 800.4(b). The general standard set forth in 36 CFR 800.4(b)(1) will be supplemented by the following:**

**(1) The results of the cultural resources overview prepared for the Trinity River Mainstem Fishery Restoration EIS/R;**

**(2)Applicable inventory standards identified in Reclamation Instructions (376.3B) or in the Service's Administrative Manual and the Service's Cultural Resource Management Handbook (1985). Cultural resources and historic properties identified during inventory will be recorded as follows:**

**(a) A new or updated California Department of Parks and Recreation Form DPR 523 (series 1/95) will be completed in accordance with the Instructions for Recording Historical Resources (Office of Historic Preservation, March 1995). The RFA will ensure that forms are submitted to the appropriate Information Center of the California Historical Resources Information System (CHRIS) for assignment of permanent site numbers. These site numbers will be used to the extent possible as inventory reports are prepared.**

**(b) National Register Bulletin 38 will be the standard used by the RFA to identify and document traditional cultural properties, based on consultation with the Tribe and other tribes, organizations, or individuals who may attach religious and cultural significance to historic properties that may be affected by the Undertaking. Traditional cultural properties identified during inventory may be recorded on the DPR 523 unless the Tribe or another Indian tribe, organization or individual objects. If such objection arises, the properties may be recorded on a form and in a manner that is in accordance with the recommendations of the Tribe or other Indian tribes, organizations or individuals, subject to the confidentiality requirements set forth in Stipulation VI.C., below. If traditional cultural properties affiliated with**

**other parties are identified during inventory, these parties will be consulted by the RFA in accordance with 36 CFR 800.2(c)(6).**

**(c) The applicable cultural resource data base including information available from the appropriate Information Center of the California Historical Resources Information System (CHRIS), and professional staff estimation; and**

**(d) The National Park Service publication, "The Archeological Survey: Methods and Uses" (King 1978);**

**c. EVALUATING PROPERTIES AND DETERMINING EFFECTS**

**(1) A Trinity EIS/R implementing action will be exempt from further consideration under this Agreement if any of the following conditions are met:**

**(a) The RFA=s archaeologist determines that there are no cultural resources in the APE, based on the results of identification efforts outlined in Stipulation III.B. above; or**

**(b) The RFA=s archaeologist determines that no cultural resources will be affected, based on the results of identification efforts outlined in Stipulation III.B.and C.; or**

**(c) The RFA=s archaeologist determines that cultural resources may be affected, but based on the evaluation prescribed in paragraph C.2.of this stipulation, such resources are determined ineligible for inclusion in the National Register of Historic Places (NRHP).**

**(2) If the RFA=s archaeologist determines that an action covered by this Agreement may affect a cultural resource, the RFA=s archaeologist will evaluate the cultural resource in accordance with the process set forth in 36 CFR 800.4(c)(1) before any activity that may affect the resource is initiated. If the resource in question may be a traditional cultural property, the RFA will use National Register Bulletin 38 in conducting the evaluation.**

**(3) If the RFA determines pursuant to paragraph C.2. of this stipulation, that the cultural resources subject to effects are eligible for inclusion in the NRHP, the RFA=s archaeologist will follow 36 CFR 800.5 to determine whether such effects may be adverse.**

**(a) If this consultation results in a finding of no adverse effect to historic properties, the RFA=s archaeologist will conclude the consultation by complying with 36 CFR 800.5(d).**

**(b) If this consultation results in a finding that historic properties will be adversely affected, the RFA=s archaeologist will ensure that the adverse effects are taken into account in accordance with paragraph D. of this stipulation.**

**d. HISTORIC PROPERTY TREATMENT PLANS (HPTPs)**

**(1) The RFA=s archaeologist will develop HPTPs to resolve the adverse effects on historic properties of actions covered by this Agreement. Separate HPTPs may be prepared for individual Trinity EIS/R implementation actions. HPTPs will be developed by the RFA in consultation with the SHPO, the Tribe, other Indian tribes, organizations and individuals, and the Council if it so requests, and with any interested parties identified by the signatory parties to this Agreement. HPTPs will be submitted for review according to the procedures set forth in paragraph D.4. of this stipulation.**

**(2) HPTPs will be consistent with the AArchaeology and Historic Preservation: Secretary of Interior=s Standards and Guidelines (FR 44716-44742), including the "Secretary of the Interior's Standards and Guidelines for Archaeological Documentation" (48 FR 44734-37)" and the Council's "Recommended Approach for Consultation on Recovery of Significant Information from Archeological Sites" (64 FR 27085-87). HPTPs shall at a minimum:**

**Describe the historic property or portion of the property where treatment will be implemented. The HPTP shall contain a description of the values that make the property eligible for the National Register of Historic Places, and describe the measures proposed to protect each historic property. These measures may include, but not necessarily be limited to avoidance, monitoring, capping, fencing, land use policy and planning techniques such as zoning restrictions, protective covenants, etc. The preservation of historic properties is the preferred alternative, wherever feasible; if data recovery is proposed, the HPTP also shall:**

**(a) Specify the research questions to be addressed through recovery of data;**

**(b) Explain why it is in the public interest to address these research questions, including a description of any efforts to interpret the result of the investigations for the public;**

**(c) Explain how the historic properties subject to data recovery can address these research questions;**

**(d) Specify the methods to be used in field work and analysis, and explain how these methods are relevant to the research questions;**

**(e) Indicate how recovered material and records will be disposed of, taking into account the expressed wishes of the Tribe, of other Indian tribes, organizations, or individuals and, as applicable, of interested parties;**

**(f) Provide a schedule for completing data recovery, including analysis, reporting and disposition of materials and records;**

**(g) Include a schedule for providing the Tribe, other Indian tribes, organizations and individuals, SHPO and, as applicable, interested parties, with the opportunity to review and comment on reports documenting implementation of HPTPs.**

**(h) Include a schedule for completing final data recovery reports and specify when and to whom this report will be distributed;**

**(i) Provide for development and implementation of a Plan of Action in accordance with 43 CFR 10 for the management of Native American cultural items that will be repatriated to the Tribe or to other Indian tribes pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA); or, where non-federal property is involved, a plan providing for the treatment of Native American human remains and items associated with Native American burials in accordance with the requirements of Sections 5097.98 and 5097.991 of the California Public Resources Code;**

**(j) Specify that, following any repatriation pursuant to item I., above, the RFA will ensure that all records and all non-repatriated objects resulting from data recovery are curated in accordance with 36 CFR 79;**

**(k) Include a plan for the treatment of properties discovered during implementation of an action covered by this Agreement;**

**(l) Include a plan for monitoring construction activities that may affect historic properties; this plan shall include a monitoring schedule, provide for the participation of a professional archeologist, and, as appropriate, Tribal member(s), members of other Indian tribes, organizations, individuals and interested parties.**

**(3) The RFA will submit draft HPTPs to the SHPO, the Tribe, other Indian tribes, organizations and individuals, the Council if it so requests after being informed of its development, and to any interested parties identified by the signatory parties, for review and comment. These parties shall have 30 days from receipt of any draft HPTP to comment. Failure to respond within this time frame shall not preclude the RFA from finalizing the HPTP. Before it finalizes the HPTP, the RFA will provide the reviewing parties with documentation indicating whether and how any comments from the parties will be incorporated into the final HPTP. Unless the reviewing parties object to this documentation within 15 days following receipt, the RFA may finalize the HPTP as it deems appropriate, and proceed to implement the final HPTP. If the RFA proposes to change a final HPTP, it will notify the reviewing parties about the proposed changes. Reviewing parties will have 10 days from receipt of notification to comment. Failure to respond within this time frame shall not preclude the RFA from changing the final HPTP. Before it changes the final HPTP, the RFA will provide the reviewing parties with documentation indicating whether and how any comments from the parties will be incorporated into the proposed changes. Unless the parties object to this documentation within 10 days following receipt, the RFA may change the final HPTP as it deems appropriate, and proceed to implement the amended final HPTP.**

**IV. NATIVE AMERICAN CONSULTATION, CURATION AND TREATMENT OF CULTURAL MATERIALS AND HUMAN REMAINS OF NATIVE AMERICAN ORIGIN**

**a. Reclamation and the Service will ensure that Indian tribes, organizations and individuals are consulted during, and are invited to participate in, the implementation of the terms of this Agreement. Such**

**consultation and participation shall include the preparation of reports that document such implementation.**

**b. Reclamation and the Service shall ensure that all records and materials resulting from activities carried out pursuant to this Agreement are curated pursuant to 36 CFR 79 and the provisions of the NAGPRA, 43 CFR 10, as applicable.**

**c. Reclamation and the Service shall ensure that any Native American human remains and objects defined under NAGPRA encountered through activities carried out pursuant to this Agreement are treated with due respect, and according to the provisions of NAGPRA, its implementing regulations, 43 CFR 10, and, as appropriate, in accordance with applicable state law.**

**d. Reclamation and the Service will ensure that the expressed wishes of Indian tribes, organizations, and individuals are taken into account when decisions are made relating to the treatment and disposition of Native American archaeological materials and records not subject to the provisions of NAGPRA.**

## V. PUBLIC PARTICIPATION

**Reclamation and the Service shall use the NEPA process, and any other process they deem appropriate, to solicit public comment on the actions covered by this Agreement. The RFA shall ensure that historic preservation issues are included in notices of public meetings so that these issues can be considered and addressed in a timely manner.**

## VI. DOWNSTREAM AND RESERVOIR DRAWDOWN IMPACTS TO HISTORIC PROPERTIES

**Reclamation and the Service shall incorporate and consider effects to historic properties in its conduct of the overall adaptive management program for the Trinity River, should such program be carried out.**

**Within 1 year of the execution of this Agreement, Reclamation and the Service shall ensure that a cultural resources management plan is developed addressing the identification, evaluation, and assessment of effects to historic properties within the APE downstream of and within the drawdown zone of Trinity Dam that may be affected by inundation, erosion, vandalism, and other indirect effects of the Undertaking. A draft version of the Plan shall be provided to the signatories to this Agreement for a 30-day review, revised to address the comments received, and then implemented. The Plan, developed in consultation with the SHPO, the Tribe, the agencies, and other tribes, organizations, and individuals who may attach religious and cultural significance to historic properties within this specified area, shall discuss:**

**a. How historic properties will be identified and evaluated for their National Register of Historic Places eligibility;**

**b. How changes to the integrity and physical condition of historic properties attributable to erosion, inundation, vandalism, and other effects of the Undertaking will be identified and treated; and**

**c. A schedule for carrying out items 1 and 2, above.**

**VII. ADMINISTRATIVE STIPULATIONS**

**a. PROFESSIONAL STANDARDS**

**(1) All work required by this Agreement that addresses the identification, evaluation, treatment and documentation of historic or potentially historic properties shall be carried out by or under the direct supervision of a person or persons meeting at a minimum the Secretary of Interior=s Professional Qualifications Standards (48 FR 44738-39) (PQS) in the appropriate disciplines. However, nothing in this stipulation may be interpreted to preclude Reclamation and/or Service or any agent or contractor thereof from using the properly supervised services of persons who do not meet the PQS.**

**(2) All documentation required by this Agreement that addresses the identification, evaluation, and treatment of historic or potentially historic properties shall be responsive to contemporary professional standards, to the Secretary of Interior=s Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-40), National Park Service Bulletin 38, as well as to standards and guidelines established by the SHPO.**

**b. REPORT DISTRIBUTION**

**The RFA shall ensure that copies of all technical reports prepared to satisfy the terms of this Agreement are provided upon completion to the SHPO, the Tribe, other Indian tribes, the appropriate CHRIS Information Center, and to any interested parties designated by the signatory parties to this Agreement. The content of these reports shall be subject to the confidentiality requirements set forth in paragraph C. of this stipulation.**

**c. CONFIDENTIALITY**

**(1) Reclamation and the Service shall ensure that all sensitive information, as defined in Section 9 of the Archeological Resources Protection Act (ARPA), Section 304 of the NHPA, and NAGPRA, is managed in such a way that historic properties, traditional cultural properties, sacred objects, and human remains are not compromised, to the fullest extent available under law.**

**(2) Signatory and concurring parties to this Agreement shall safeguard information about the nature and location of archeological, historic, and traditional cultural properties, and not reveal that information to any additional parties, pursuant to Section 304 of the NHPA and Section 9 of the ARPA, without the express written permission of Reclamation or the Service.**

**d. REVIEWING IMPLEMENTATION OF THE AGREEMENT**

**(1) No later than one year after execution of this Agreement, and by the anniversary date of such execution each year thereafter, until the signatory parties to this Agreement agree in writing that its terms have been**

**fulfilled, Reclamation assisted by the Service, will prepare and provide to all parties to this Agreement, and to each Indian tribe involved in any action covered by this Agreement, a written report that includes, but is not necessarily limited to the following:**

**(a) A narrative that indicates how many actions were undertaken and that describes and discusses how and with what results, the requirements of Stipulations III. - V., inclusive, were met for each action;**

**(b) An assessment of the effectiveness of this Agreement;**

**(c) A discussion of any problems or unexpected issues encountered during the year;**

**(d) Any changes that Reclamation or the Service believe should be made in implementing this Agreement.**

**The reviewing parties shall have 45 days from the date of receipt to provide Reclamation and the Service with comments on the annual report. Reclamation and the Service shall take all comments received into account when considering modifications to this Agreement.**

**(2) At the request of any signatory, Reclamation or the Service shall hold a consultation meeting to facilitate review and comment on the annual report, or to resolve questions, issues or adverse comments that have been raised by the other signatories or by a member of the public. The signatory parties shall consult to identify other parties who may be invited to attend this meeting.**

**e. RESOLVING OBJECTIONS**

**(1) Should any signatory to this Agreement, any Indian tribe, organization or individual, or member of the public object in writing to Reclamation or to the Service regarding the manner in which the terms of this Agreement are carried out, or to any documentation prepared in accordance with and subject to the terms of this Agreement, the RFA shall consult with the objecting party to address the objection. The RFA shall determine a reasonable time frame for this consultation. If resolution is reached within this time frame, the RFA may proceed with its action in accordance with the terms of the resolution. If resolution is not reached within this time frame, the RFA shall forward all documentation relevant to the objection to the Council, including the RFA=s proposed response to the objection. Within 30 days after receipt of all pertinent documentation, the Council shall exercise one of the following options:**

**(a) Advise the RFA that the Council concurs in its proposed response to the objection, whereupon the RFA will respond to the objection accordingly. Thereafter, the RFA may proceed with its action in a manner consistent with its proposed response; or**

**(b) Provide the RFA with recommendations, which the RFA will take**

**into account in reaching a final decision regarding its response to the objection. Upon reaching its final decision, the RFA will notify the objecting party and the Council of its final decision, and may thereafter proceed with its action; or**

**(c) Notify the RFA that the objection will be referred for comment, pursuant to 36 CFR 800.7(a)(4), and proceed to refer the objection and comment. In this event, the RFA shall ensure that their agency heads are prepared to take the resulting comment into account in accordance with 36 CFR 800.7(c)(4) and Section 110(l) of the NHPA. Thereafter, the RFA shall notify the objecting party and the Council of its final decision regarding the objection ,and may thereafter proceed with its action.**

**(2) Should the Council not exercise one of the foregoing options within 30 days after receipt of all pertinent documentation, the RFA may assume the Council=s concurrence in its proposed response to the objection, advise the objecting party of that response and proceed with its action in a manner consistent with that response.**

**(3) Disputes pertaining to the NRHP eligibility of cultural resources covered by this Agreement shall be addressed through consultation among the signatories. If such consultation fails to resolve the dispute within a time frame deemed reasonable by the RFA, the dispute will be addressed by the RFA in accordance with 36 CFR ' 800.4(c)(2).**

**f. AMENDMENT AND TERMINATION**

**(1) If any signatory believes that this Agreement should be amended, that signatory may at any time propose amendments, whereupon the signatories will consult to consider the amendment pursuant to 36 CFR ' 800.6(c)(7) and 800.6(c)(8). This Agreement may be amended only upon the written concurrence of the signatory parties.**

**(2) Any signatory party may terminate this Agreement. Termination of this Agreement shall proceed in accordance with the applicable provisions of 36 CFR Part 800.**

**(3) If this Agreement is terminated and the RFAs elect to proceed with the Undertaking, the RFAs shall comply with 36 CFR ' 800.14(b)(2)(v).**

**g. DURATION OF THE AGREEMENT**

**This Agreement will remain in effect for a period of 20 years after all the signatory parties have executed it. At the end of this time period, the Agreement will become null and void, unless it is extended by written agreement of the signatory parties. Not later than 6 months prior to the expiration of the Agreement the RFAs will notify all other parties to the Agreement of its pending expiration and, if the parties choose to continue considering the Undertaking, the RFAs shall reinitiate review of the Undertaking in accordance with 36 CFR Part 800.**

**h. EFFECTIVE DATE**

**This Agreement shall take effect when it has been executed by all of the signatory parties.**

**EXECUTION of this Programmatic Agreement by Reclamation, the Service, the Bureau, the Tribe, the SHPO and the Council and implementation of its terms, evidence that Reclamation, the Service, the Bureau and the Tribe have afforded the Council a reasonable opportunity to comment on the implementation of the alternatives evaluated in the Trinity EIS/R and its effects on historic properties, and that Reclamation, the Service, the Bureau and the Tribe have taken into account the effects of each action comprising implementation of the Trinity River Mainstem Fishery Restoration program on historic properties.**

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 – Fax

February 3, 2006

RECEIVED

TRINITY COUNTY
PLANNING DEPARTMENT

Mr. Joshua Allen
Trinity County Planning Department
P.O. Box 2819
Weaverville, CA 96093

Re: Indian Creek Rehabilitation Project SCH# 2006012101

Dear Mr. Allen

Thank you for the opportunity to comment on the above-referenced document. The Commission was able to perform a record search of its Sacred Lands File for the project area, which failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the Sacred Lands File does not assure the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

We understand consultation with Native Americans with an interest in the project area will be conducted in accordance with Section 106 of the National Historic Preservation Act. The NAHC recommends that you also request a search of archaeological records held by the California Historic Resource Inventory System at California State University, Chico

Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. Lead agencies should consider avoidance, as defined in Section 15370 of the CEQA Guidelines, when significant cultural resources are that could be affected. Provisions should also be included for accidentally discovered archeological resources during construction per California Environmental Quality Act (CEQA), Public Resources Code §15064.5 (f). Health and Safety Code §7050.5, and Public Resources Code §5097.98 mandate the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery and should be included in all environmental documents. If you have any questions, please contact me at (916) 653-6251

Sincerely,

Carol Gaubatz
Program Analyst

Cc: State Clearinghouse

# United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

IN REPLY
REFER TO:
MP-153
ENV-3.00

MAY 16 2006



Mr. John W. Hayward,
Chairperson, Nor-Rel-Muk Nation
P.O. Box 673
Hayfork, CA 96041

Subject: Compliance with Section 106 of the National Historic Preservation Act for Habitat Restoration Projects on the Trinity River near Indian Creek, Trinity County, California

Dear Mr. Hayward:

The Bureau of Reclamation is planning to continue its Trinity River Restoration Program (Restoration Program) with a series of habitat improvement activities along Trinity River near Indian Creek at the confluence of Trinity River and Weaver Creek. The project area extends from the confluence at Douglas City, California upstream for two river miles. Activities include removing stream side vegetation, removing berms, grading feathered stream edges, materials spoiling, and creating open flood plains. The proposed project provides the opportunity to:

- Increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- Increase rearing habitat for juvenile salmonids, including coho, chinook, and steelhead;
- Increase the structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- Increase hydraulic and fluvial geomorphic diversity and complexity;
- Measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats.

Reclamation prepared an environmental impact statement for the larger Restoration Program and developed a programmatic agreement (PA) to manage the cultural resource compliance efforts. The Hoopa Valley Tribe signed the PA. In compliance with the PA and National Historic Preservation Act (NHPA) requirements, Reclamation conducted archeological inventories in the APE. This field work revealed mining features related to placer, hydraulic, and dredger mining during the late 1800s and early 1900s. No archeological resources were discovered, due, in part, to the extensive modification experienced within the project area.

Implementing regulations for Section 106 of the National Historic Preservation Act (NHPA) (16 USC 470 *et seq.*) require that Federal agencies seek information, as appropriate, from individuals and organizations likely to have knowledge of, or concerns with, historic properties in the APE

(36 CFR 800.4(a)(3)). The Native American Heritage Commission was contacted about the project and provided your name as a possible source of information regarding potential Native American concerns in Trinity County. Reclamation, as the Federal agency approving this suite of restoration actions along the Trinity River, invites your input regarding the presence of any properties of religious and cultural significance within the APE for the areas of habitat restoration. If these historic properties are confidential, 800.11(c) allows Federal agencies to withhold this information from the public.

Please contact Amy Lawrence at 916-978-5040, or via email at alawrence@mp.usbr.gov if you have questions or comments regarding this effort to identify Native American cultural resources along this segment of the Trinity River.

Sincerely,

sgd Michael Nepstad

Michael Nepstad
Deputy Regional Environmental Officer

Enclosures

Identical Letters Sent To:

Ms. Carol Y. Bowen
1797 Shasta Street
Anderson, CA 96007

Mr. Charles Ammon
Tsnungwe Council
P.O. Box 373
Salyer, CA 95563

Mr. Robert Burns
Wintu Educational and Cultural Council
12138 Lake Blvd.
Redding, CA 96003

cc: Mr. Dean Prat
Regional Water Quality Control Board, Region 1
915 Capitol Mall, Room 364
Sacramento, CA 95814
(w/o encl)

# United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

IN REPLY
REFER TO:



MP-153
ENV-3.00

MAY 16 2006

Mr. Clifford L. Marshall
Chairperson, Hoopa Valley Tribe
P.O. Box 1348
Hoopa, CA 95546

Subject: Compliance with Section 106 of the National Historic Preservation Act for Habitat Restoration Projects on the Trinity River near Indian Creek, Trinity County, California

Dear Mr. Marshall:

The Bureau of Reclamation is planning to continue its Trinity River Restoration Program (Restoration Program) with a series of habitat improvement activities along Trinity River near Indian Creek at the confluence of Trinity River and Weaver Creek. The project area extends from the confluence at Douglas City, California upstream for two river miles. Activities include removing stream side vegetation, removing berms, grading feathered stream edges, materials spoiling, and creating open flood plains. The proposed project provides the opportunity to:

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- Increase hydraulic and fluvial geomorphic diversity and complexity;
- Measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats.

Reclamation prepared an environmental impact statement for the larger Restoration Program and developed a programmatic agreement (PA) to manage the cultural resource compliance efforts. The Hoopa Valley Tribe signed the PA. In compliance with the PA and National Historic Preservation Act (NHPA) requirements, Reclamation conducted archeological inventories in the APE. This field work revealed mining features related to placer, hydraulic, and dredger mining during the late 1800s and early 1900s. No archeological resources were discovered, due, in part, to the extensive modification experienced within the project area.

Implementing regulations for Section 106 of the NHPA require that Federal agencies identify Indian Tribes that might attach religious and cultural significance to historic properties in the

APE (36 CFR 800.3(f)(2)). The Native American Heritage Commission was contacted about the project and provided your name as a possible source of information regarding potential Native American concerns in Trinity County. Reclamation, as the Federal agency approving this suite of restoration actions along the Trinity River, invites your input regarding the presence of any properties of religious and cultural significance within the APE for the areas of habitat restoration. If these historic properties are confidential, 800.11(c) allows Federal agencies to withhold this information from the public.

Please contact Amy Lawrence at 916-978-5040, or via email at alawrence@mp.usbr.gov if you have questions or comments regarding this effort to identify Native American cultural resources along this segment of the Trinity River.

Sincerely,

sgd Michael Nepstad

Michael Nepstad
Deputy Regional Environmental Officer

Enclosures

Identical Letters Sent To:

Ms. Tracy Edwards
Chairperson
Redding Rancheria
2000 Redding Rancheria Road
Redding, CA 96001

Ms. Barbara Murphy
Chief Executive Officer
Redding Rancheria
2000 Redding Rancheria Road
Redding, CA 96001

cc: Mr. Dean Prat
Regional Water Quality Control Board, Region 1
915 Capitol Mall, Room 364
Sacramento, CA 95814
(w/o encl)

# United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

IN REPLY
REFER TO:

MAY 17 2006



MP-153
ENV-3.00

Council Leadership
Wintu Tribe and Toyon-Wintu Center
2675 Bechelli Lane
Redding, CA 96001

Subject: Compliance with Section 106 of the National Historic Preservation Act for Habitat Restoration Projects on the Trinity River near Indian Creek, Trinity County, California

Dear Council Leadership:

The Bureau of Reclamation is planning to continue its Trinity River Restoration Program (Restoration Program) with a series of habitat improvement activities along Trinity River near Indian Creek at the confluence of Trinity River and Weaver Creek. The project area extends from the confluence at Douglas City, California upstream for two river miles. Activities include removing stream side vegetation, removing berms, grading feathered stream edges, materials spoiling, and creating open flood plains. The proposed project provides the opportunity to:

- Increase the diversity and area of habitat for salmonids, particularly habitat suitable for rearing;
- Increase rearing habitat for juvenile salmonids, including coho, chinook, and steelhead;
- Increase the structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- Increase hydraulic and fluvial geomorphic diversity and complexity;
- Measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats.

Reclamation prepared an environmental impact statement for the larger Restoration Program and developed a programmatic agreement (PA) to manage the cultural resource compliance efforts. The Hoopa Valley Tribe signed the PA. In compliance with the PA and National Historic Preservation Act (NHPA) requirements, Reclamation conducted archeological inventories in the APE. This field work revealed mining features related to placer, hydraulic, and dredger mining during the late 1800s and early 1900s. No archeological resources were discovered, due, in part, to the extensive modification experienced within the project area.

Implementing regulations for Section 106 of the National Historic Preservation Act (NHPA) (16 USC 470 *et seq.*) require that Federal agencies seek information, as appropriate, from individuals

and organizations likely to have knowledge of, or concerns with, historic properties in the APE (36 CFR 800.4(a)(3)). The Native American Heritage Commission was contacted about the project and provided your name as a possible source of information regarding potential Native American concerns in Trinity County. Reclamation, as the Federal agency approving this suite of restoration actions along the Trinity River, invites your input regarding the presence of any properties of religious and cultural significance within the APE for the areas of habitat restoration. If these historic properties are confidential, 800.11(c) allows Federal agencies to withhold this information from the public. Reclamation would also like to inquire who the Council's leadership official(s) might be so that correspondence may be more efficiently directed for your convenience.

Please contact Amy Lawrence at 916-978-5040, or via email at alawrence@mp.usbr.gov if you have questions or comments regarding this effort to identify Native American cultural resources along this segment of the Trinity River.

Sincerely,

sgd Michael Nepstad

Michael Nepstad
Deputy Regional Environmental Officer

Enclosures

cc: Mr. Dean Prat
Regional Water Quality Control Board, Region 1
915 Capitol Mall, Room 364
Sacramento, CA 95814
(w/o encl)

bc: NC-153(BGuthermuth)
(w/o encl)

WBR:ALawrence:RHeredia:16 May 06:978-5040
I:\153\Archaeology\Projects\Northern California Area\Trinity River Restoration\06-NCAO-023 Indian Creek\Correspondence\Tribal Trinity Indian Creek nonfederal ltr2.doc

# Appendix G

# *Indian Creek Location Hydraulics Report*

*June 20, 2006*

## 1 Introduction

Trinity and Lewiston Dams were constructed on the Trinity River in Northern California as part of the Trinity River Division (TRD) of the Central Valley Project (CVP). Since dam operations began in 1963, the TRD has diverted up to 90 percent of the Trinity River's average annual yield at Lewiston, California. Forty years of limited flow releases from Lewiston Dam have greatly reduced the ability of the downstream river to transport coarse sediments. The change in downstream river morphology has degraded riverine habitats, resulting in a sharp decline in salmon and steelhead populations.

In an effort to rehabilitate downstream fish habitat and partially restore the ability of the Trinity River to transport coarse sediments, the Trinity River Restoration Program (TRRP) of the Bureau of Reclamation (Reclamation) has been implementing increased flow releases from Lewiston Dam into the Trinity River mainstem. Implementation of an increased flow release schedule, recommended in the *Trinity River Flow Evaluation Final Report* (US Fish and Wildlife Service and Hoopa Valley Tribe, 1999), required modification of four existing downstream bridges to accommodate higher flows, purchase and removal of a residential structure and outbuildings that were very low in the floodplain, and relocation or reconstruction of various wells, pumps, outbuildings and other structures that may be impacted by the increased flow releases. In addition to the higher fishery flow releases, mechanical channel rehabilitation is required at numerous locations between Lewiston Dam and the North Fork Trinity River to initiate the geomorphic response and habitat creation expected to result in significantly increased salmonid populations.

## 2 Hydrology

Flood flow estimates used in the hydraulic modeling analyses were taken from three sources:

1) the Flood Plain Information Report-Trinity River Lewiston Lake to Junction City, Trinity County, California (USACE, 1976);
2) the Estimation of 50-and 100-Year Tributary Accretion Floods document (McBain, 2002), and;
3) the Flood Plain Infrastructure Modifications Spring Flow Events draft report (Reclamation, 2005).

The 1976 USACE report provides the 100-year and 500-year annual flood events and hydraulic analyses used by FEMA to develop the current flood insurance rate maps (FIRMs) for the Trinity River. The 2002 McBain report provides flood flows as measured at mainstem Trinity River Gages during the January 1997 flood and estimates of tributary accretion between mainstem gages during this event. The 2005 Reclamation draft report provides an estimate of 10-year and 100-year spring tributary flows during the time period when maximum fishery flows (MFF) (11,000 cubic feet per second [cfs]) would be occurring from Lewiston Dam. Because the 1976 USACE report only provided flow rates at Lewiston and Douglas City, the 2002 McBain report was used to approximate how flows would have accumulated between these locations if the flood assumed in the 1976 study was similar to that which occurred in 1997. Design flows, including the 1997 flood flows, used in this analysis are provided in Table 1.

Table 1. Design flood flows

| Location | Maximum Fishery Flow[a] | 1997 Flood[b] | FEMA 100-Year Flood[c] |
|---|---|---|---|
| Trinity River at Lewiston | 11,000 | 6,000 | 8,500 |
| Trinity River Below Rush Creek | 12,096 | 12,500 | 19,300 |
| Trinity River Below Grass Valley Creek | 13,692 | 15,050 | 23,600 |
| Trinity River Above Indian Creek | 14,549 | 15,200 | 23,800 |
| Trinity River Below Indian Creek | 15,771 | 19,000 | 30,200 |
| Trinity River Below Weaver Creek | 17,544 | 22,000 | 35,200 |
| Trinity River Below Reading Creek | 18,613 | 24,000 | 38,500 |

Notes:
[a] MFF=11,000 cfs Lewiston Dam Release plus 100-year spring tributary flows (2005 Reclamation draft report)
[b] 2002 McBain report
[c] 1976 USACE report (used in FIRM study)

# 3 Hydraulic Analyses

Hydraulic modeling for the reach between Reading Creek and Steel Bridge Road (river mile [RM] 92.89 to RM 97.52) was performed using HEC-RAS. Figure 1 illustrates the Douglas City/Indian Creek reach of the mainstem Trinity River). HEC-RAS is a numerical modeling software package developed by the Hydrologic Engineering Center for the US Army Corps of Engineers for performing one-dimensional, steady and unsteady flow, hydraulic computations (Brunner, 2001). Results of the hydraulic modeling were used to determine baseline hydraulic conditions (i.e., existing conditions) and to assess the impact of the proposed action and alternatives on flood elevations and to aid in the design process.

## *3.1 Model Assumptions*

The hydraulic model of the No Action (existing conditions) alternative used for this analysis was developed by the Department of Water Resources (DWR) and made available to the TRRP in February of 2006. A detailed hydraulics report is expected to be issued by the DWR in July of 2006. The following is a general description of the model, and the assumptions made in the preparation and use of it.

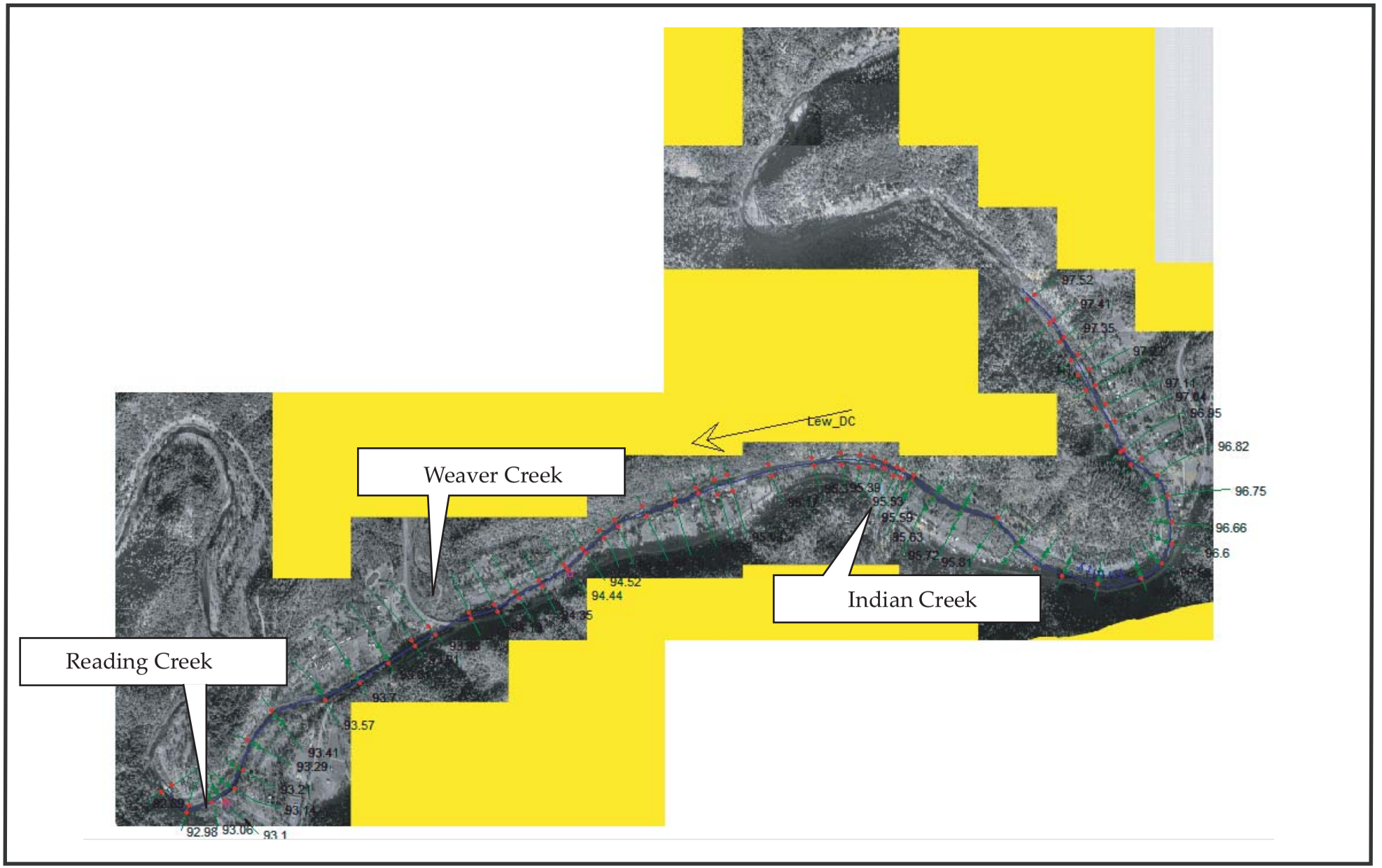
To begin the hydraulic backwater computations, the flow at the downstream end of the HEC-RAS model was assumed to be at normal depth. The slope of the energy grade line at the downstream end of the model (used to compute normal depth) was estimated as equal to the slope of the longitudinal thalweg profile for approximately the first mile (approximated at 0.0023 ft/ft).

The geometric cross section data was based on 2 recent surveys:

1) November 2001 photogrammetry by Reclamation for topography above the low flow water line; and;

2) December 2004 LiDAR bathymetry for topography beneath the low flow water elevation.

These 2 survey datasets were merged into one digital terrain model, and cross sections were extracted at least every 500 feet using the USACE ArcGIS extension GeoRAS. These cross-sections are illustrated in Figure 1. AutoCAD was used to digitize the river centerline based on aerial photographs of the mainstem Trinity River when releases from Lewiston Dam were 5,000 cfs.

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*Indian Creek Rehabilitation Site: Trinity River Mile 93.7-96.5*

Source: TRRP, 2006

**Figure 1**

HEC-RAS Cross Sections

Douglas City/Indian Creek Reach, Mainstem Trinity River

Roughness values were initially estimated based on typical channel roughness, and on riparian mapping (based on 2001 aerial photos and field surveys) performed in 2002 which classified vegetation types and densities within the floodplain. Main channel and overbank areas were initially assigned Manning's n roughness values based on typical values from the literature. Using GeoRAS, these roughness values were then assigned to cross section stationing for import to HEC-RAS.

## *3.2 Model Calibration*

The DWR established high water benchmarks during the spring of 2005 during Lewiston Dam releases of 7,000 cfs and 4,500 cfs. Benchmarks were located at 102 locations between Lewiston Dam and the North Fork Trinity River over the course of approximately 40 miles. After flows receded, the DWR surveyed each benchmark to determine the actual water surface elevation observed during the high flow releases. Mainstem USGS gage data were analyzed to determine the flow at each benchmark at the time it was established.

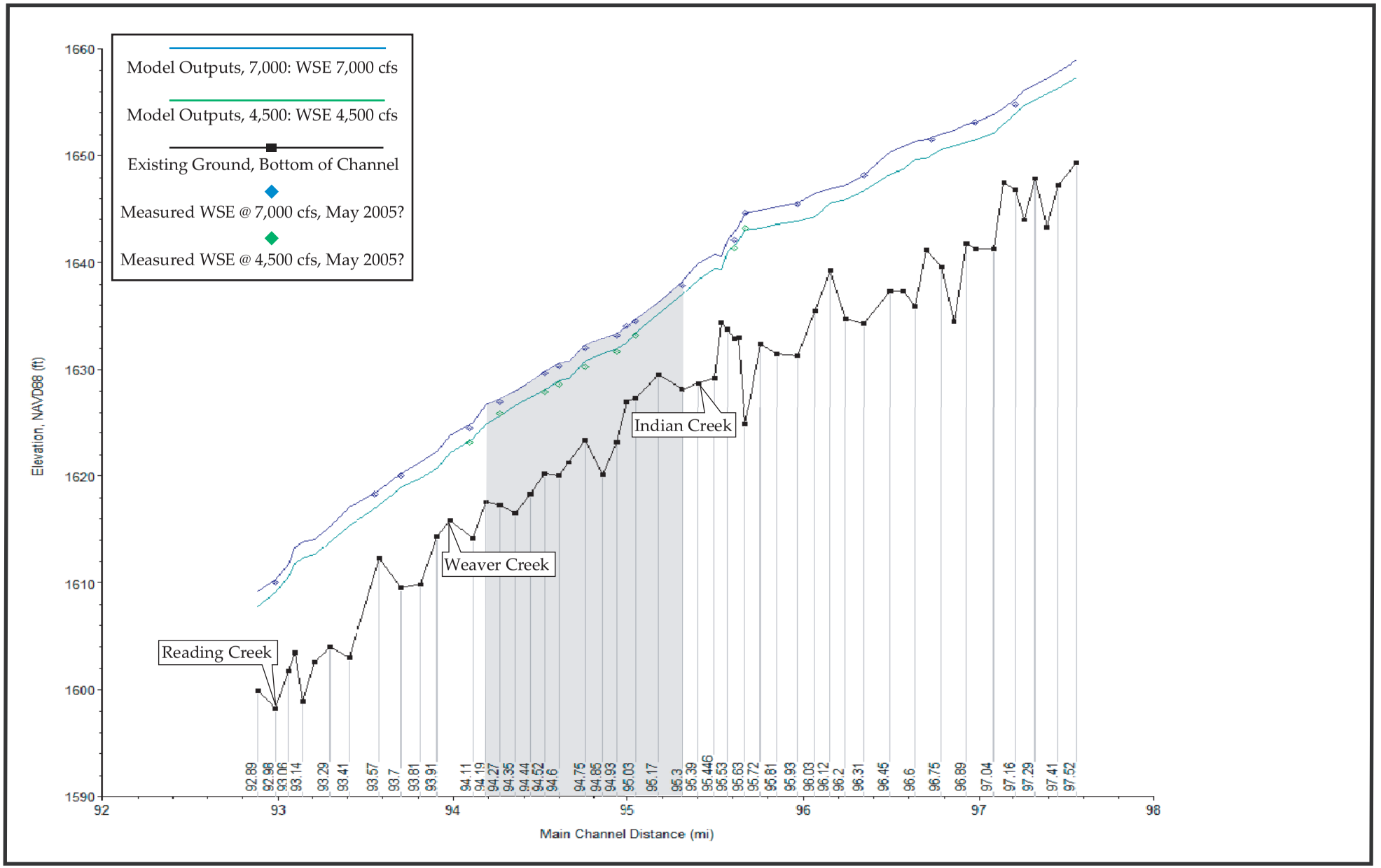
Main channel Manning's roughness values in each model were adjusted over a range from 0.030 to 0.040, and overbank Manning's roughness values typically varied between 0.080 and 0.200, to match DWR surveyed water surface elevations within 0.5 feet for the 4,500 and 7,000 cfs discharge. Figure 2 shows the model calibration results with computed versus measured water surface elevations within the Douglas City/Indian Creek study reach. Figure 2 also identifies the location of tributaries that provide accretion flow to this reach (i.e., Indian Creek, Weaver Creek and Reading Creek).

In May of 2006, the DWR again established benchmarks during the TRRP fishery flow releases of 10,000 cfs. These benchmarks have yet to be surveyed. However, at the time of the 10,000 cfs release, the HEC-RAS model developed by DWR was run at the same flows as were actually occurring at the time, with very little deviation (less than 6 inches in observed locations) between predicted and actual water surface elevations. Therefore, the TRRP believes that the HEC-RAS model for the No Action alternative may be used to accurately predict water surface elevations at flows in the Douglas City to within 6 inches.

## *3.3 Proposed Action*

The Proposed Action was modeled in HEC-RAS by modifying the cross section geometry to achieve desired inundation levels. For example, the cross sections for the sidechannel and floodplain features in Area R-8were iteratively adjusted and the model was run and re-run to achieve 1-foot of inundation at the design flows (1500 cfs for sidechannel and 4500 cfs for the floodplain). Chapter 2 of the EA/Draft EIR provides a sequence of typical cross sections that illustrate the rehabilitation activities incorporated into the Proposed Action. The overbank roughness values were also adjusted to range from 0.04 to 0.05 to account for the removal and subsequent partial regrowth of vegetation.

Figures 3 and 4 show the No Action (existing conditions) model versus the Proposed Action at the maximum fishery flow (11,000 cfs plus 100-year spring tributaries) and FEMA 100-year flood event, respectively. These figures also illustrate the thalweg elevation (deepest part) of the channel (existing ground line) as modeled at each cross section. As shown in Figure 3, the Proposed Action substantially reduces water surface elevations at the MFF flow between RM 94.19 and 95.3 (shaded area) with a maximum reduction of 1.3 feet near RM 94.6. Similarly shown in Figure 4, the Proposed Action substantially reduces water surface elevations at the FEMA 100-year flow as shown in the shaded area between RM 94.19 and 95.3, with a maximum reduction of 1.3 feet near RM 94.6. These figures also illustrate that no measurable change in

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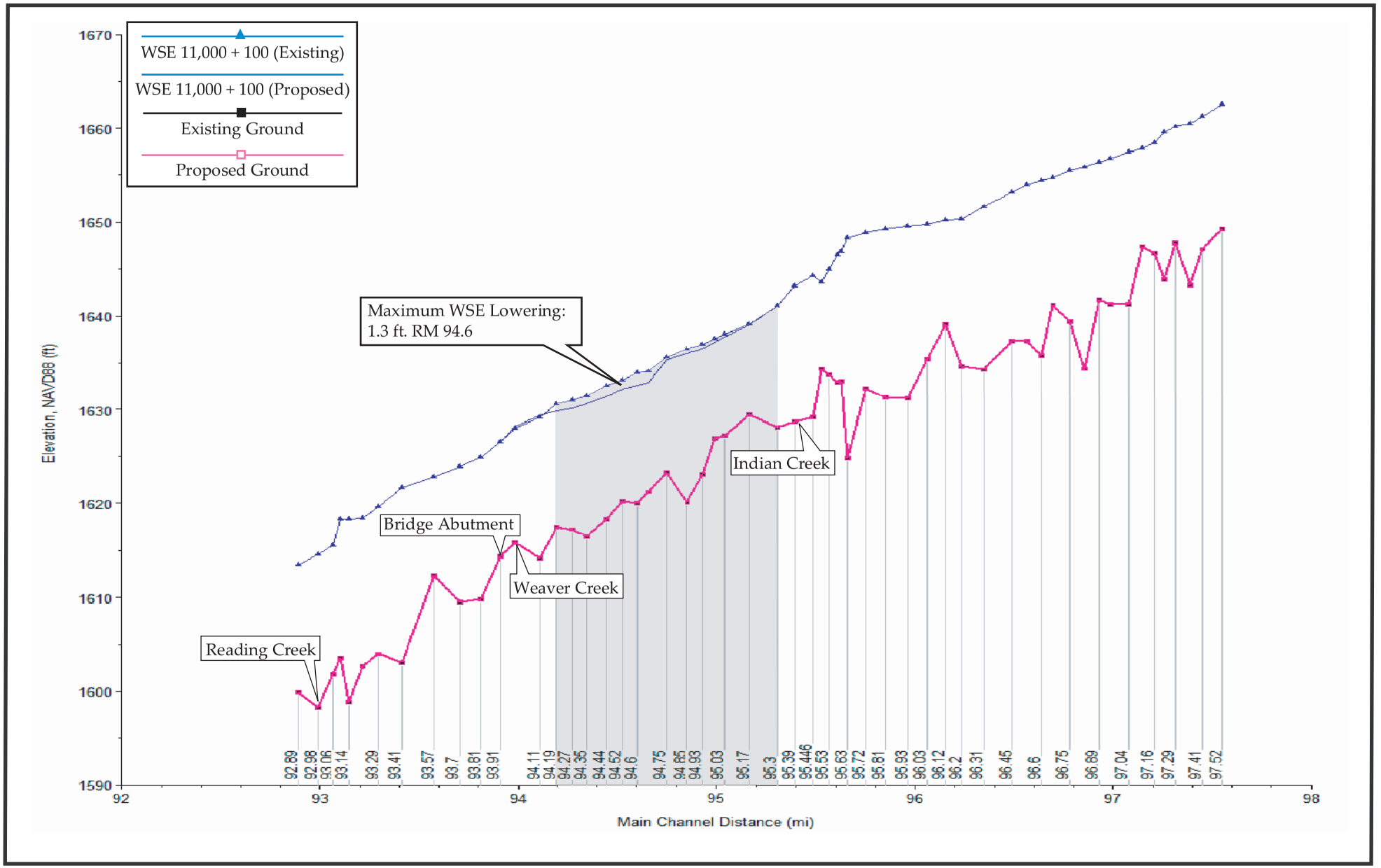
Source: TRRP, 2006

**Figure 2**

HEC-RAS Calibration at 4,500 cfs and 7,000 cfs
Douglas City/ Indian Creek Reach, Mainstem Trinity River

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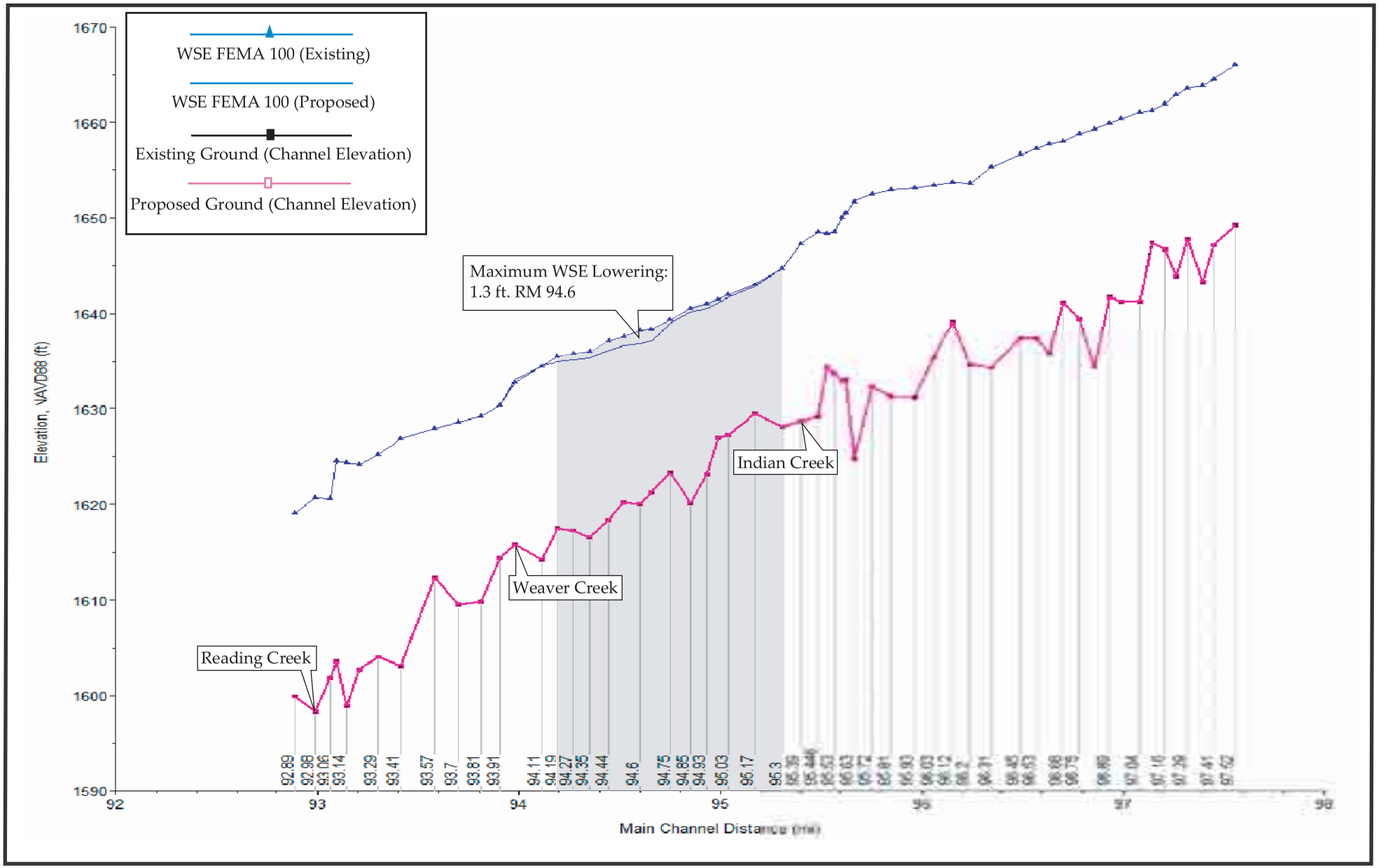
Source: TRRP, 2006

**Figure 3**

HEC-RAS Profile for Proposed Action at 11,000 cfs Lewiston Dam Release plus 100-year Spring Tributary Flows
Douglas City/Indian Creek Reach, Mainstem Trinity River

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*Indian Creek Rehabilitation Site: Trinity River Mile 93.7-96.5*

Source: TRRP, 2006

**Figure 4**

HEC-RAS Profile for Proposed Action at FEMA 100-year Flood Flow
Douglas City/Indian Creek Reach, Mainstem Trinity River

water surface elevation is observed in the vicinity of the Douglas City Bridge (RM 93.91). The TRRP recognizes that this report does not adequately address risks to bridge structures. Additional consultation and coordination with CalTrans will occur throughout the planning process.

It is important to note that this analysis should not be compared with the 1976 USACE hydraulics study since the channel conditions have changed significantly due to morphological changes (e.g., riparian encroachment and channel aggradation and degradation) in the mainstem Trinity River and the named tributaries. Rather, this analysis adopts the FEMA hydrology and used best available topographic data to evaluate the relative impact to base flood elevations due to this project.

### *3.4 Alternative Considered but Not Pursued*

During formal and informal meetings with residents and stakeholders in the study reach, it became apparent that there is a strong desire/belief in the local community for the channel to be excavated in order to increase conveyance and reduce flood risk. To address these concerns, a modified geometry file was created that assumed the center of the river channel was excavated for purposes of alternative development. It was assumed that between RM 93.81 and RM 94.85, the center of the river would be excavated 25 ft wide at a longitudinal slope of 0.002 ft/ft, with 2:1 sideslopes (see Figure 5 for typical cross section). This alternative required the excavation of approximately 103,000 cubic yards, based on HEC-RAS calculations. As shown in Figure 6, this alternative did not significantly increase conveyance through the study reach, and only reduced upstream water surface elevations by no more than 8-inches (0.68 ft) at RM 94.85, substantially less than that of the Proposed Action which focused on floodplain reconstruction and vegetation removal. This alternative:

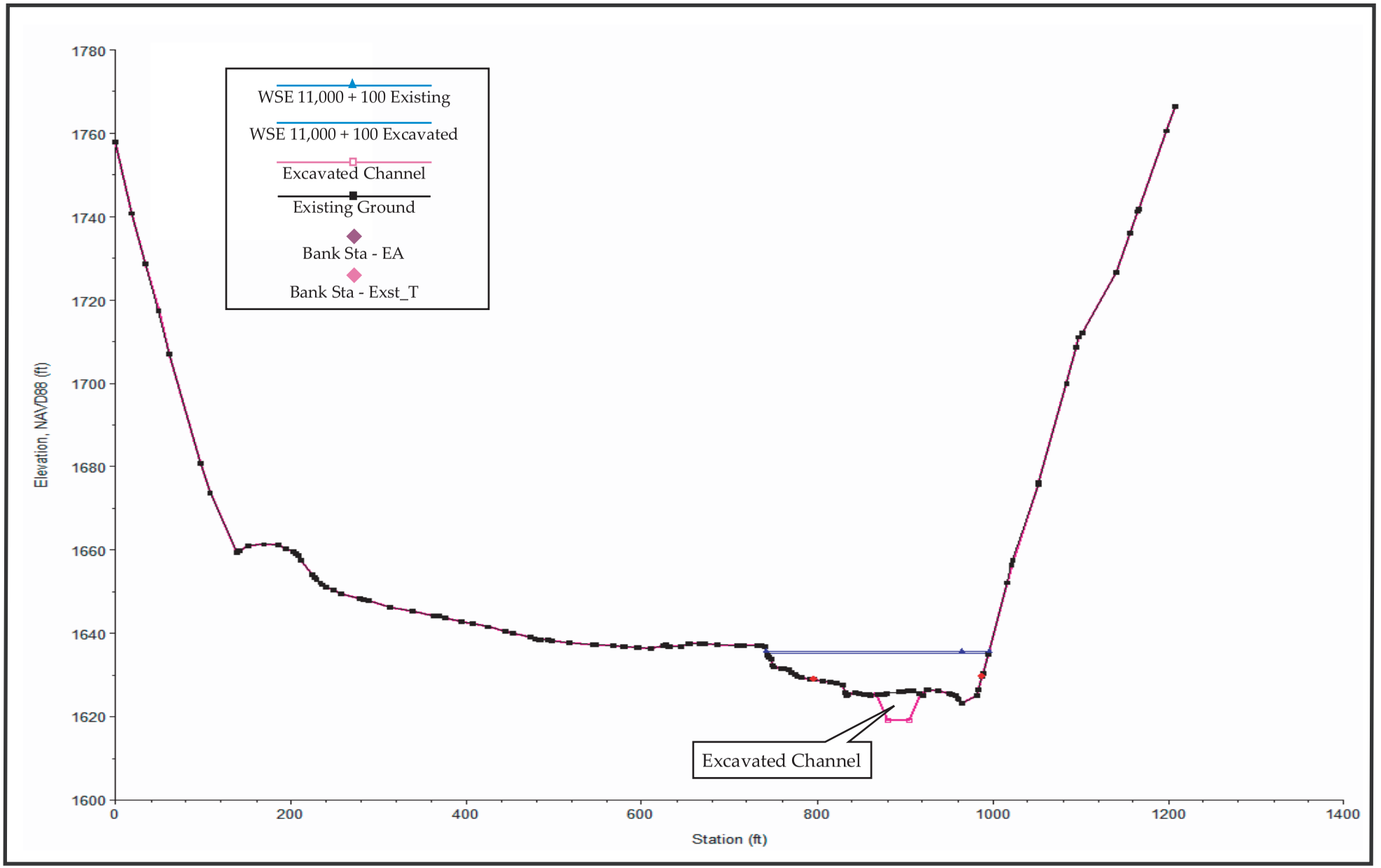
- would not provide additional juvenile salmonid habit;
- would be expected to have negative impacts to aquatic biota;
- would have much higher costs; and;
- would provide no assurance that the excavation would be maintained over time.

Therefore, the TRRP determined that it would not meet the standards of reasonableness required for environmental compliance.

# 4 Conclusions

Based on the modeling analyses described above and observations of similar floodplain hydraulics at the Hocker Flat rehabilitation site at flows in excess of 6,000 cfs, the Proposed Action will increase the hydraulic conveyance through the reach between RM 94.11 and RM 94.75. These analyses indicate that water surface elevations upstream of project area R-8 will decrease by 1.3 feet at the 11,000 cfs Lewiston Dam release plus 100-year spring tributary flow event. However, it should be noted that the model accuracy at these flows, which are rarely experienced and the hydraulic model has not yet been calibrated to, may be on the order of plus or minus 6-inches. At flows greater than the MFF, the model accuracy is likely on the order of plus or minus 1 foot.

When compared to the Proposed Action, the alternative of excavating the river channel would not meet the goals of this project of creating juvenile salmonid habitat and decreasing upstream water surface elevations. Furthermore, this alternative would likely cost double that of the

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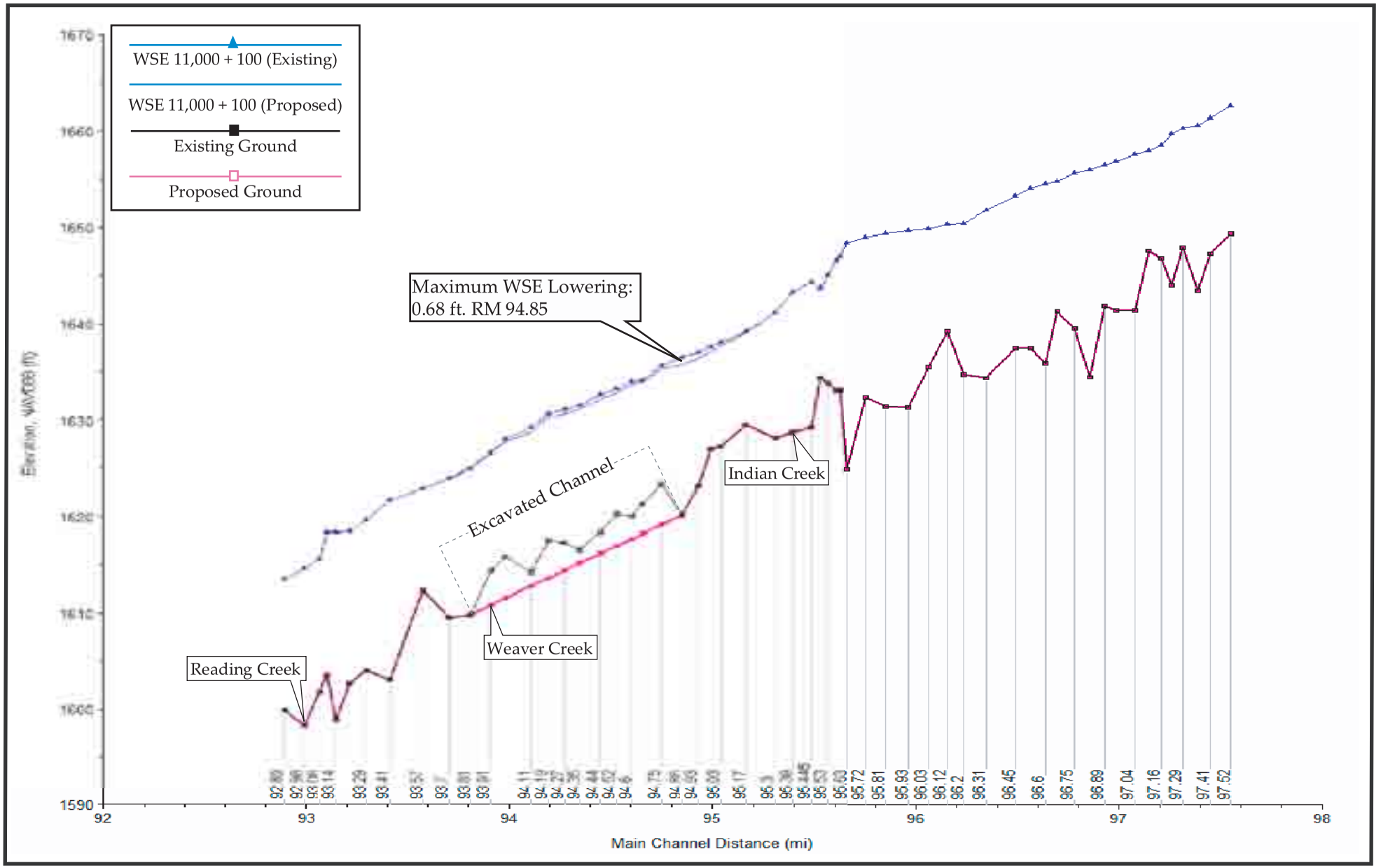
Source: TRRP, 2006

**Figure 5**

HEC-RAS Cross Section for Excavated Channel at RM 94.75
Douglas City/Indian Creek Reach, Mainstem Trinity River

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Source: TRRP, 2006

**Figure 6**

HEC-RAS Pofile for Excavated Channel Between RM93.81 and 94.85
Douglas City/Indian Creek Reach, Mainstem Trinity River

Proposed Action, be difficult to construct, and over time the river would likely aggrade to the same levels as before this activity.

# 5 References


Brunner, Gary W. January 2001. HEC-RAS River Analysis System: User's Manual, Version 3.0; US Army Corps of Engineers (USACE), Hydraulic Engineering Center: CPD-68.

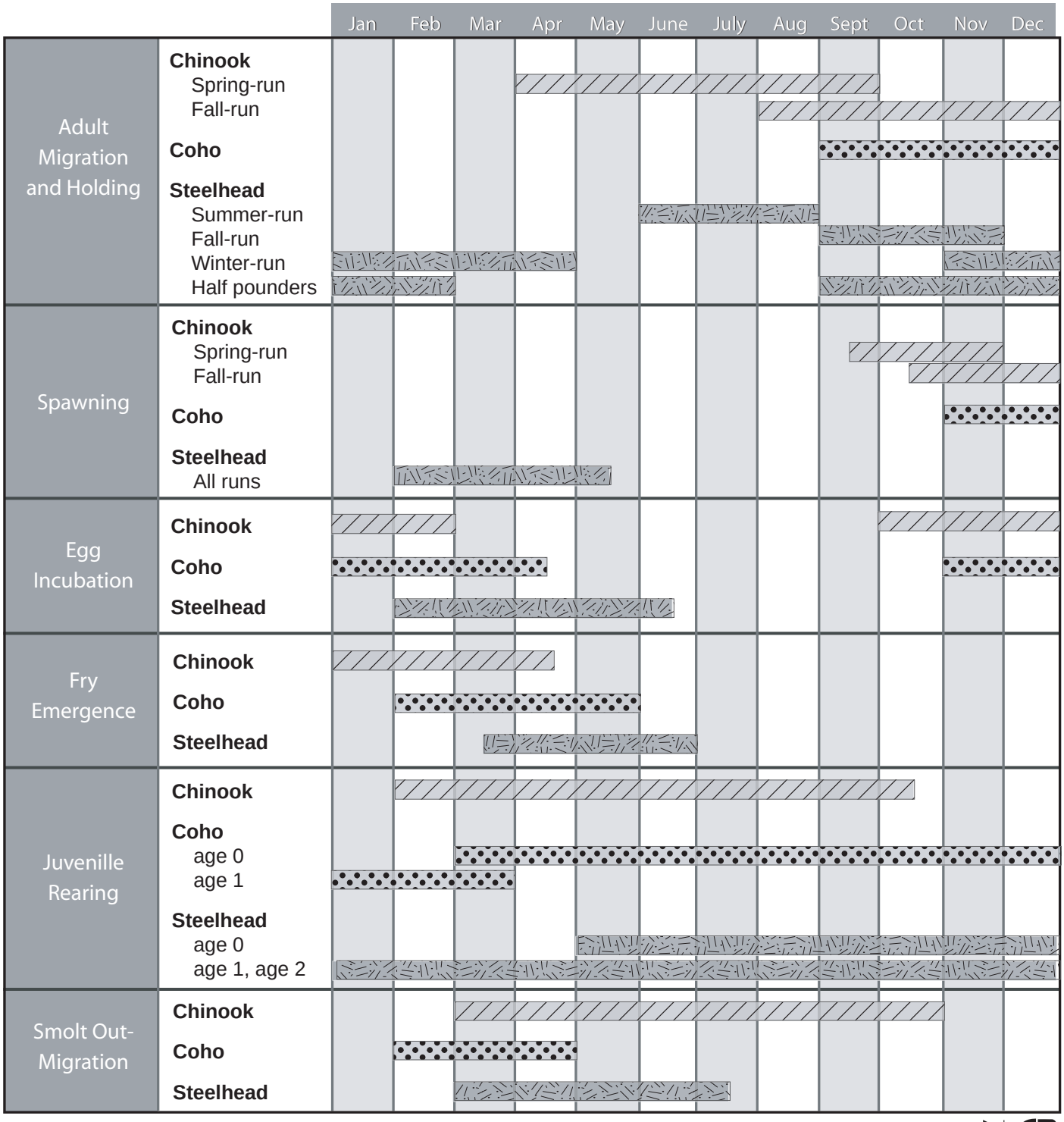
McBain, Scott. April 30, 2002. Estimation of 50-and 100-Year Tributary Accretion Floods, Lewiston Dam to Treadwell Bridge, Trinity River, California; McBain and Trush, Arcata, California.

US Army Corps of Engineers. April 1976. Flood Plain Information Report-Trinity River Lewiston Lake to Junction City, Trinity County, California.

US Bureau of Reclamation. November 2005. Trinity River, California Flood Plain Infrastructure Modifications Spring Flow Events DRAFT; Technical Service Center.

US Fish and Wildlife Service and Hoopa Valley Tribe. June 1999. Trinity River Flow Evaluation, Final Report; In consultation with the US Geological Survey, US Bureau of Reclamation, National Marine Fisheries Service, and the California Department of Fish and Game.

# Appendix H




R:Projects\10010 - Mechanical Channel Rehab Sites on Mainstem Trinity River\Indian Creek Site\Graphics\Fig_3.6-1_Salmonid_Patterns.pdf Source: Trinity River Flow Evaluation Final Report, 1999 05/25/06 SG

*Indian Creek Rehabilitation Site: Trinity River Mile 93.7 to 96.5*

**Salmonid Growth and Migration Patterns**

# Appendix I

**TABLE 3.6-1**
LIFE HISTORY AND HABITAT NEEDS FOR ANADROMOUS SALMONID FISH IN THE TRINITY RIVER BASIN

| Species | Migration | Spawning | Rearing | Habitat Requirements |
|---|---|---|---|---|
| Spring-run Chinook | Spring – Summer | Early Fall | Winter, Spring, Summer | Adults oversummer in deep, cool river pools. Spawns and rears in mainstem river and tributaries. Requires cool, swift water; clean, loose gravel for spawning; and shallow, slow-moving waters adjacent to higher water velocities for rearing and feeding. |
| Fall-run Chinook | Fall | Fall | Spring | Spawns and rears in mainstem river and tributaries. Requires cool, swift water; clean, loose gravel for spawning; and shallow, slow-moving waters adjacent to higher water velocities for rearing and feeding. |
| Winter-run Steelhead | Fall – Winter | February – April | Year-round | Spawns and rears in mainstem river and its tributaries. Requires cool, swift water; clean, loose gravel for spawning; runs and suitable pools in which to rear and over-summer; and clean cobble for refuge from high velocities. Juveniles overwinter for 1–2 or more years. |
| Summer-run Steelhead | Spring – Summer | February – April | Year-round | Adults ascend river and hold over in deep pools/runs through fall months. Spawns and rears in mainstem river and its tributaries. Requires cool, swift water, clean, loose gravel for spawning, suitable pools and riffles in which to rear and over-summer; and clean cobble for refuge from high velocities. Juveniles overwinter for 1–2 or more years. |
| Coho | October – December | November – December | Year-round | Spawns and rears in mainstem river and tributaries. Requires cool, swift water, clean, loose gravel for spawning, and suitable pools/runs in which to rear and over-summer. Juveniles prefer backwater/ slackwater areas and pool margins; juveniles overwinter for 1 year. |

Source: Leidy and Leidy 1984, Hassler 1987, U.S. Fish and Wildlife Service et al. 2000, Moyle 2002

**TABLE 3.6-2**
LIFE HISTORY AND HABITAT NEEDS FOR NON-SALMONID NATIVE ANADROMOUS FISH IN THE TRINITY RIVER BASIN

| Species | Migration | Spawning | Rearing | Habitat Requirements |
|---|---|---|---|---|
| Pacific Lamprey | April – July | Spring – Early Summer | Year-round | Spawns and rears in the mainstem and tributaries. Requires cool streams with clean, gravelly bottom for spawning. Developing larvae burrow into silty river-bottom, where they remain for 4–5 years before metamorphosing and emigrating to the ocean. |
| Green Sturgeon<br>White Sturgeon | February – July | March – July | Year-round | Adults spawn in large, mainstem river channels with cool water. Juveniles inhabit estuarine environments for 4–6 years before emigrating to the open ocean. |
| Eulachon | March – April | March – April | -- | Adults run up into the lower reaches of coastal streams to spawn. Adhesive eggs stick to small gravel/sand/detrital bottom until hatched; larvae are quickly transported downstream to ocean. |

**Source: U.S. Fish and Wildlife Service et al. 2000, Moyle 2002**

**TABLE 3.6-5**
SPECIAL-STATUS FISH SPECIES CONSIDERED FOR ANALYSIS

| Common Name (Scientific Name) | Status FED/ST | General Habitat | Comments |
|---|---|---|---|
| Green sturgeon (*Acipenser medirostris*) | SSC/SC | Known to spawn in Sacramento, Feather, and Klamath rivers, and juveniles may occur in estuaries. Occurs in San Francisco, San Pablo, and Suisun bays and in the Delta. Prefers to spawn in large cobble; eggs fertilized in relatively high water. | The species may be found in the lower Trinity River, but is not known to inhabit the upper Trinity River. **Project boundaries are outside the known range of the species.** |
| Pacific lamprey (*Lampetra tridentata*) | NW/-- | Spawn in freshwater rivers and streams with juveniles found in slow-moving current, silty bottom habitats; metamorphosed juveniles migrate through estuaries to the ocean. | Observed to spawn in tributaries of the upper river (Deibel 1988); Ammoecetes abundant during spring near the project reach. **The species may occur at the Indian Creek Rehabilitation Site.** |
| Southern Oregon/ Northern California Coasts ESU coho salmon (*Oncorhynchus kisutch*)<br>Designated critical habitat | T/T | Juveniles prefer deep (≥1 m) pools with dense overhead cover and clear water. Found over a range of substrates from silt to bedrock (Moyle et al. 1995). Trinity River is designated critical habitat and essential fish habitat for the species. | Suitable spawning, rearing, and/or migration corridor habitat exists at the Indian Creek project site. **The Indian Creek Rehabilitation site is within designated critical habitat. The species is known to occur at the Indian Creek Rehabilitation Site.** |
| Klamath Mts. Province ESU steelhead (*Oncorhynchus mykiss irideus*)<br>(summer/fall- and winter-run races) | NW/SSC | Freshwater rivers and streams (Trinity and Klamath Rivers and their tributaries). Steelhead require cool, swift, shallow water; clean, loose gravel for spawning; and suitable large pools in which to spend the summers (CNDDB, 2002). | Summer-run race is a state species of special concern. Suitable spawning, rearing, and/or migration corridor habitat exists at or near the project sites. **The species is known to occur at the Indian Creek Rehabilitation Site.** |
| Upper Klamath-Trinity Rivers ESU Chinook salmon<br>(*Oncorhynchus tshawytscha*)<br>(spring- and fall-run races) | NW/SSC | Freshwater rivers and streams. (Trinity and Klamath Rivers and their tributaries). Chinook salmon require cool streams with deep pools and riffles and gravel or cobble substrate. Trinity River is designated essential fish habitat for the species. | Spring-run race is a state species of special concern.<br>Suitable over-summering, spawning, rearing, and migration corridor habitat exists at or near the Indian Creek Rehabilitation site. **The species is known to occur at the Indian Creek Rehabilitation Site.** |

**Notes:**

**Federal (FED) and State (ST) Status Codes:**

**E = Endangered; T = Threatened; C = Candidate Species; NW = Not Warranted for Listing; SC = Species of Concern; SSC = Species of Special Concern**