

FOR CONTRACT NO.: 03-1A4324

INFORMATION HANDOUT

PERMITS

STATE LANDS COMMISSION

PERMIT NO. 1766.9

AGREEMENTS

UNITED STATES FISH AND WILDLIFE SERVICE
(Biological Opinion)

MATERIALS INFORMATION

ABC (BUBBLE CURTAIN) SAMPLE DETAIL

ADDED PER ADDENDUM No. 3 DATED MARCH 30, 2010

ROUTE: 03-SUT-99-10.9/14.7

RECORDED AT THE REQUEST OF
AND WHEN RECORDED MAIL TO:
STATE OF CALIFORNIA
State Lands Commission
Attn: Title Unit
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

STATE OF CALIFORNIA
OFFICIAL BUSINESS
Document entitled to free recordation
pursuant to Government Code Section 27383

SPACE ABOVE THIS LINE FOR RECORDER'S USE

A.P.N. 025-090-006
County: Sutter

STATE OF CALIFORNIA
STATE LANDS COMMISSION

AMENDMENT OF PUBLIC AGENCY LEASE PRC 1766.9

WHEREAS, the State of California, acting through the State Lands Commission, hereinafter called Lessor, and, the **California Department of Transportation** hereinafter called the Lessee, have heretofore entered into an agreement designated as Lease PRC 1766.9, authorized by the State Lands Commission on May 9, 1996 and executed May 13, 1996, whereby the Lessor granted to said Lessee a Public Agency Lease (101.5) covering certain State Land situated in Sutter County; and

WHEREAS, by reason of the foregoing, it is now the desire of the parties to amend the foregoing Agreement.

NOW THEREFORE, the parties hereto agree to amend the lease as follows:

1. Amend the right of way map, pursuant to the provisions of Section 101.5 of the Streets and Highway Code, approved by the Commission at its May 9, 1996, meeting to include a temporary construction use area in the bed of the Feather River for the Highway 99 Feather River bridge widening project as shown on the attached Exhibit A.
2. The temporary construction area shall include the placement of a temporary trestle supported by approximately 75 pilings which will be used to access the construction site by equipment and material associated project.
3. The pilings for the temporary trestle shall be driven into the River bottom using a method approved by the California Department of Fish and Game, which will be either by a standard pile driver or vibration method.
4. The authorization for the temporary construction use area will expire on December 1, 2013. The trestle and all pilings shall be removed from the temporary construction use area by

December 1, 2013. Sovereign land within the temporary construction use area must be restored to its condition prior to the placement of the trestle and pilings to the satisfaction of the Lessors staff.

5. Lessee shall obtain all necessary approvals prior to the beginning of any construction on the Lease Premises, from all agencies having jurisdiction over this project and submit to Lessor copies of all approvals and/or permits.
6. No refueling, repairs or maintenance of vehicles or equipment will take place on the Lease Premises.
7. Warning signs and/or safety buoys shall be in place, both upstream and downstream of the construction site in the River at all times during construction and removal activities in order to provide notice to recreational users of potential safety hazards associated with the construction activities that are taking place in the River and to exercise caution. Construction activities shall not impede the public's right to access the River through the right of way.

The effective date of this amendment to the aforesaid Agreement shall be June 1, 2009.

This Amendment is a portion of document number PRC 1766.9, with a beginning date of May 9, 1996, with a total of three pages.

All other terms and conditions of the lease shall remain in full force and effect.

This Agreement will become binding on the Lessor only when duly executed on behalf of the State Lands Commission of the State of California.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date hereafter affixed.

LESSEE:

CALIFORNIA DEPARTMENT OF
TRANSPORTATION

By: Bruce C. Wilson
Attorney in Fact
BRUCE C. WILSON

Title: Senior Right of Way Agent

Date: 5/19/09

LESSOR:

STATE OF CALIFORNIA
STATE LANDS COMMISSION

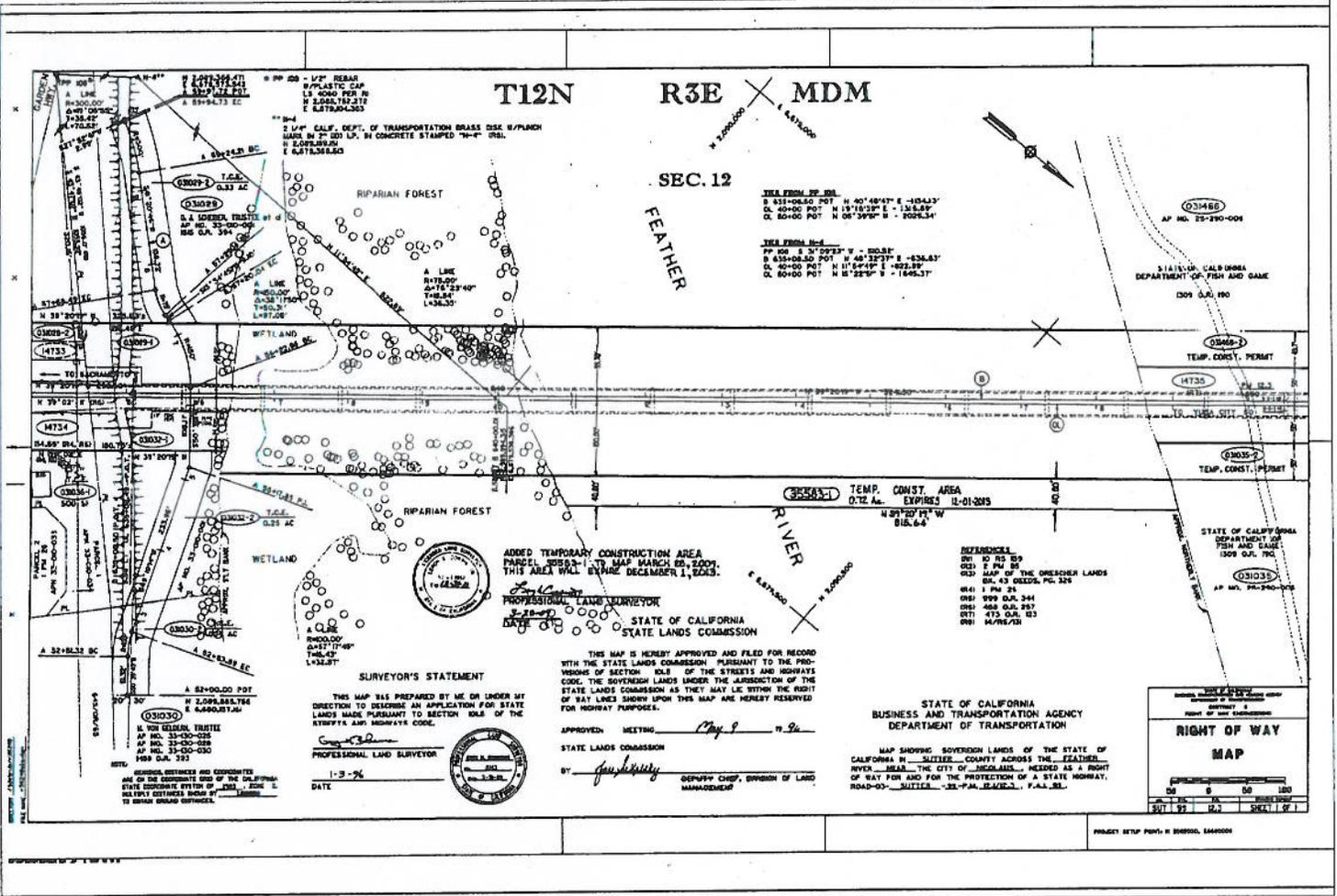
By: [Signature]
Title: Chief, Division of
Land Management

Execution of this document was authorized by the
State Lands Commission

on 06/01/09

NO SCALE

SITE



HIGHWAY 99 AT THE FEATHER RIVER, NEAR NICOLAUS

NO SCALE

LOCATION

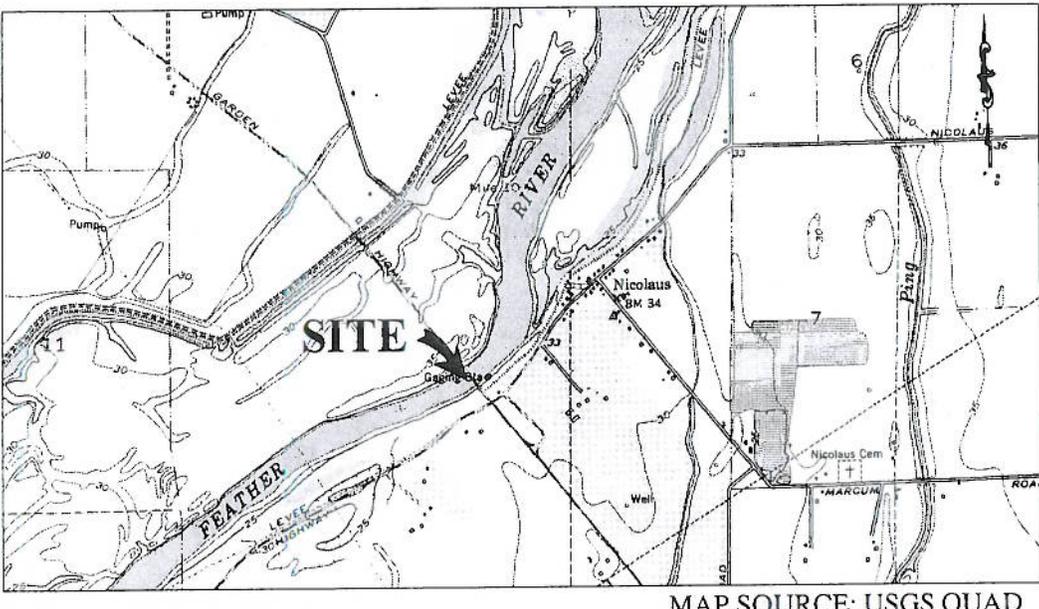


Exhibit A

PRC 1766.9
 CALIFORNIA
 DEPARTMENT OF
 TRANSPORTATION
 GENERAL LEASE
 PUBLIC AGENCY USE
 SUTTER COUNTY



This Exhibit is solely for purposes of generally defining the lease premises, is based on unverified information provided by the Lessee or other parties and is not intended to be, nor shall it be construed as, a waiver or limitation of any State interest in the subject or any other property.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, CA 95825-1846

IN REPLY REFER TO:
1-1-03-F-0089

MAY 15 2003

Mr. Gary N. Hamby
California Division Administrator
Federal Highway Administration
980 Ninth Street, Suite 400
Sacramento, California 95814-2724

Subject: Formal Endangered Species Consultation on the State Route 99 Safety and Operational Improvement Project, Sutter County, California (Federal Highway Administration File HDA-CA, 03-SUT-99, PM 8.7-14.3/16.8-23.0, Document P43325)

Dear Mr. Hamby:

This transmits a biological opinion in response to the Federal Highway Administration's (Administration) January 30, 2003, request for consultation, pursuant to section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)(Act), on the effects of the proposed State Route (SR) 99 Safety and Operational Improvement Project, Sutter County, California (proposed action). Your letter was received by the U.S. Fish and Wildlife Service (Service) on February 4, 2003. Please note the current room number in the letterhead address, above; your January 23, 2003 letter utilizes a long-superseded east-wing room number.

The Service has reviewed the effects of the proposed action and has determined that it will adversely affect, but will not jeopardize the continued existence of, the threatened giant garter snake (*Thamnophis gigas*) (snake). Critical habitat has not been designated for the snake, therefore, none will be affected. The Service has also determined that the proposed action will adversely affect, but will not jeopardize the continued existence of, the threatened Sacramento splittail (*Pogonichthys macrolepidotus*) (splittail). Critical habitat has not been designated for the splittail, therefore, none will be affected. The Service concurs with the Administration's determination that the proposed action is not likely to adversely affect the threatened bald eagle (*Haliaeetus leucocephalus*) (eagle) due the low likelihood that the species will be in the action area during construction.

This biological opinion is based on information provided in: (1) the California Department of Transportation's (Caltrans) November 2002 *Biological Assessment: State Route 99 Safety and Operational Improvement Project* (BA) and associated supporting documentation; (2) the Administration's January 30, 2003, letter; (3) the Service's June 15, 2001, biological opinion on

the SR 70 project in Yuba and Sutter counties (Service file 1-1-00-F-0224) and its March 18, 2002, amendment (Service file 1-1-02-F-0069); (4) May 4 and May 9, 2001, commitments by the County of Sutter and the County of Yuba boards of supervisors, respectively, endorsing a commitment to prepare a Habitat Conservation Plan (HCP), to address the growth-inducing effects of the proposed SR 70 and SR 99 projects in Sutter and Yuba counties; (5) the contents of electronic mail exchanges between Service and Caltrans staff during April and May 2003; and (6) other relevant published and unpublished literature. A complete administrative record of this consultation is on file at the Sacramento Fish and Wildlife Office (SFWO).

BIOLOGICAL OPINION

Consultation History

September 16, 1999: The Service concluded informal consultation on a segment of SR99 between kilometer post 20.65 and 29.07 in Sutter County, California. This segment is now referred to as Segment 3.

June 15, 2001: The Service transmitted a biological opinion (Service file 1-1-00-F-0224) on increments of the SR 70 upgrade project to the Administration. This biological opinion included assurances by the Sutter and Yuba counties that an HCP would be prepared to address the effects of various local development projects interdependent on and interrelated with the SR 70 and 99 corridor projects.

March 18, 2002: The Service transmitted an amendment (Service file 1-1-02-F-0069) to the June 15, 2001, SR 70 biological opinion.

January 30, 2003: The Service received the BA for the proposed SR 99 project from the Administration.

March 18, 2003: Larry Combs of the County of Sutter discussed the biological opinion time line with Craig Aubrey of the Service via telephone.

April 9, 2003: The Service requested and Caltrans provided an electronic version of the BA.

April and May 2003: Service and Caltrans staff exchanged electronic mail messages regarding the effects of the proposed action. Of particular applicability to the effects analysis were two May 8, 2003, electronic mail messages from Caltrans staff to the Service. These messages

clarified the respective acreages of temporary and permanent habitat loss and further defined the cumulative effects area¹ relative to local agency urban planning efforts.

¹Note that the "cumulative effects boundary", as defined here and within the Habitat Conservation Plan section of this biological opinion, refers to the planning area associated with local governments' commitments to engage in regional planning. It is distinct from cumulative effects areas identified in the BA and used for National Environmental Policy Act and California

May 5, 2003: Larry Combs indicated to Cay Goude of the Service that the commitments made by the counties to allow issuance of the June 15, 2001, biological opinion, were intended to apply to all SR70/99 corridor projects.

Description of the Proposed Action

The Administration and Caltrans propose to widen SR 99 in Sutter County. The proposed project begins at the Intersection of SR 99 and 70 in Sutter County and extends north to O'Banion Road. Segment 1 starts at the Sutter 99/70 split and extends north three miles to the East Nicholas Road overcrossing. Intersections will occur at Striplin and Powerhouse Roads. The waterways include Bunkham Slough, Coon Creek and Ping Slough. Segment 2 includes the Nicholas overcrossing, south levee crossing, a new Feather River bridge and after crossing the north levee, the segment extends north to Sacramento Avenue. The waterways include the Feather River and Nelson Slough. Segment 3 starts at Sacramento Avenue and extends north to Central Avenue. Segment 4 starts just north of Central Avenue and extends north, towards Yuba City where it ends at O'Banion Road. Detailed, segment-by-segment descriptions of the proposed project elements follow.

Segment 1 will widen SR 99 from a two-lane highway to a four-lane highway with a continuous left-turn lane. The proposed starting date for Segment 1 is Summer of 2004 with an end date of Fall of 2005. It is anticipated that the earthwork will be completed the first year and the paving completed the second year.

Segment 1 widening will occur east of existing alignment of SR 99. The existing facility is two 3.66 meter wide lanes and 2.44 meter wide shoulders. Following construction, the new roadway will be two northbound and two southbound 3.66 meter wide lanes, a single 3.66 meter wide center turn lane, 2.44 meter shoulders and an average of 6.0 meters of clearance as a recovery zone. The side slopes will be 1:4. Average new right of way area will be approximately 35 meters, at intersections the right of way may be slightly more than 35 meters. Segment 1 has an intersection at Striplin Road; crosses Irrigation Ditch Number 1, Irrigation Ditch Number 2, Coon Creek and Ping Slough; there's another intersection at Powerline Road and a crossing at Irrigation Ditch Number 3.

Segment 2 will upgrade the existing facility to a four-lane highway with a continuous left-turn lane. Segment 2 is proposed to start construction the spring of 2007. Construction is expected to last three seasons, until Fall of 2009. This segment continues widening SR 99 to the east beginning just south of Nicholas Road where a new intersection will be constructed and will also include a new parallel bridge for two north-bound lanes of traffic at the Feather River.

The proposed new 928-meter Feather River bridge will parallel to the existing bridge, and will provide for two lanes of northbound traffic. The bridge leaves the levee of the Feather River, crosses the river proper, the California Department of Fish and Game's (CDFG) Feather River Wildlife Area, and Nelson Slough before crossing the north levee and tying back in to a four lane conventional highway with a center turn lane. There will be twelve piers constructed in the Feather River's active channel, including the two in the backwater slough area south of the

Environmental Quality Act analyses.

Feather River. The fill of each pier is approximately 0.02 acres for a total fill in the active channel and slough of approximately 0.25 acre. During construction it is estimated that with the cofferdams, falsework, and trestle there will be an additional approximately 0.25 acre in the active channel.

The existing Segment 2 facility, consists of two 3.66-meter wide lanes and two 2.44 meter wide shoulders. Following construction, the new roadway will be two northbound and two southbound 3.66 meter wide lanes, a single 3.66 meter wide center turn lane, 2.44 meter shoulders and an average of 6.0 meters of clearance as a recovery zone. The side slopes will be 1:4. Average new right of way area will be approximately 35 meters, at intersections the right of way may be somewhat more than 35 meters.

Permanent right of way acquisition at the Feather River Bridge will be the minimal amount necessary (approximately 4 acres) to perform maintenance on the structure. There will be a temporary effect of 30 acres (in the dry) to the Feather River Wildlife Area for construction activities such as sediment basins and material storage. Any material or equipment stored within the confines of the levee must be removed each season, prior to October 15. Improvements at Nicolaus/Garden Highway roads, just south of the Feather River crossing will require a larger area of permanent right of way acquisition. Culvert improvement is proposed at two irrigation ditches on the north end of Segment 2. It is north of the culvert improvement that Segment 2 then connects to the recently-constructed Segment 3.

Segment 3 has been previously upgraded to a four-lane highway with a continuous left turn lane. Work in Segment 3 will be limited to the north and south end connections to the new upgrades. Segment 3 was constructed under a separate, informal consultation issued by the Service on September 16, 1999 (Service file 1-1-99-I-1939). Construction was completed in 2000. Segment 3 will connect to Segment 4 just to the north of Central Avenue.

Segment 4 is a two-phase construction project. The first phase will widen SR 99 to a four-lane highway with a continuous left turn lane that will be located to the south of the town of Tudor. Segment 4 also includes a bypass lane section around the town of Tudor. The features of this proposed Tudor Bypass, and the overall construction scheme, are outlined below. The second, ultimate phase consists of the construction of the interchanges discussed below. In the interim, however, at-grade intersections will be constructed.

Segment 4's first phase includes major construction activities. From just north of Central Avenue to north of Tudor Road (SR 113), SR 99 will be realigned south of the existing alignment as an expressway with 3.6-meter lanes, 3.0-meter shoulders, and a 6.6-meter paved median. The bypassed section of the existing SR 99 will be relinquished to Sutter County. The existing SR 99 will be closed off at the location where the new expressway branches off from the existing highway. Wilson Road will be realigned, resulting in a 90° at-grade intersection with the Tudor Bypass, to provide access from the existing SR 99 to the new expressway.

Right of way for the widening of the existing highway, proposed Tudor Bypass, and planned interchanges will be acquired as part of this project. The right of way requirement for the future interchanges was determined based on embankment side slopes 1:4 or flatter to prevent erosion, provide recoverable side slopes, and facilitate landscape maintainability.

As part of this project the configuration of the existing curved tee intersection at SR 99/Garden Highway will be modified. The existing SR 99 will tee into Garden Highway becoming the stop-controlled minor road. From just north of SR 113 to the end of the project SR 99 will be widened on both sides of the existing alignment from 2 lanes to 4 lanes with a center 3.6-meter two-way left-turn lane. Private driveways disturbed by this widening will be replaced. Local road connections to SR 99 will be improved to provide turning radii to accommodate the California Truck template. The east leg of O'Banion Road will be shifted north to match the existing west leg alignment. There will be culvert work at four irrigation ditches.

While Caltrans will be acquiring right of way for the interchanges (see above) associated with the ultimate phase of Segment 4, the interchanges are projected for the future and include too many unknowns to be able to estimate their construction initiation dates at this time; at-grade interchanges will be utilized during the initial phases of Segment 4. The existing traffic levels do not warrant the ultimate, with-interchanges design at this time. Environmental analysis and consultation will be reinitiated prior to construction of the ultimate phase.

Once both phases are completed, Segment 4 is likely to include all or some of the following features: (1) a frontage road parallel to the existing SR 99 will be required to provide access to existing residences located on the southeast quadrant of the new interchange when the south interchange is completed; (2) A partial type L-12 interchange is planned as a second phase of Segment 4 (following right-of-way acquisition and widening); (3) a flyover ramp would provide access for southbound traffic from the existing SR 99 to the new expressway; (4) a northbound off-ramp will serve traffic exiting the new expressway; (5) SR 113 will be realigned to tie into the new expressway with a signalized four-legged intersection; and (6) a combined type L-9/L-2 interchange is planned for future development at this location (north interchange).

Description of the Proposed Avoidance, Minimization, and Conservation Measures

The three segments of the proposed project will be constructed independently of one another. Avoidance, minimization, and conservation measures were thus proposed for each segment. Caltrans has proposed that the measures be implemented prior to implementation of each discrete segment.

Caltrans and the Administration have proposed the utilization of Environmentally Sensitive Areas (ESA) to minimize adverse effects of the project. ESAs are areas that will be protected from construction activities. They will be protected through fencing or flagging. In some cases the installation of fencing will be significant and may be more of an adverse effect than a benefit, particularly along the levees and adjacent to the rice fields. The areas for ESA are marked on maps in Appendix E of the BA, and are also attached to this biological opinion. Equipment will be kept out of the ESA and from any area outside the Environmental Study Limit.

Caltrans has numerous Best Management Practices (BMPs) that are incorporated into every project. These practices focus on maintaining water quality, properly winterizing construction areas, preventing erosion, keeping hazardous materials away from water, etc. The range of BMPs that will be implemented, as appropriate, into the proposed action appear in Appendix F of the BA.

Segments 2 and 4 may go to construction in 2007; however, funding shortfalls may delay

implementation. Should there be any significant changes between this document and construction, Caltrans will reinitiate consultation. Because construction will be in the future for two of the three segments, effects and compensation have been determined per segment. Caltrans proposes to have the agreed-upon compensation implemented prior to the construction for each segment. Caltrans and the Administration are also referred to the section entitled Reinitiation - Closing Statement for additional information on the responsibilities associated with such an appreciably delayed project implementation date.

Caltrans has proposed to protect water quality to minimize adverse effects on aquatic species. All in-water work will need to comply with the State Water Control Boards, Central Valley Basin Plan, which includes water quality standards and recommended control measures for use by the other local, state or federal agencies. In addition, the contractor's work will need to comply with the water pollution protection provisions of Section 7-1.01G of the Caltrans Standard Specifications, as well as, all conditions contained within regulatory permits.

Prior to excavation, temporary erosion control fencing will be placed down slope of areas where disturbance of native soil is anticipated. The temporary fence will be maintained in a functional condition until soil disturbance activities are completed and permanent erosion control is applied. Loose soil built up behind the fencing will be incorporated into the slope or taken off site.

The revegetation/erosion control for this project proposes salvaging the top 4 inches of topsoil (in areas determined appropriate by the Caltrans Landscape Architect and District Biologist), stockpiling the material along the outer limits of the work area and reapplying it at the completion of work. Soils are proposed to be amended with compost to increase long term nutrient loads and with slow-release organic fertilizers to provide readily-available nutrients during the first year. Mulches proposed for use on the project shall be from source materials that will not introduce exotic species. No wheat, barley or rice straw should be used on the project because of the potential to introduce weeds. Only certified weed-free straws, native grass straw or wood chips will be utilized. The contract specifications shall require the use of California shrub, forb and grass species, collected from the vicinity of the project (same elevation and geographic area).

Caltrans proposes continued surveys on the three proposed segments so that the most up to date information can be used to determine if there have been any changed conditions. Surveys will focus primarily on bird species and habitat changes. Vegetation surveys will continue to be performed for listed plant species. Again, the Service refers Caltrans and the Administration to the Reinitiation - Closing Statement section of this biological opinion for additional information.

Species-Specific Conservation Measures

Sacramento Splittail

Caltrans proposes the following measures to avoid, minimize, and/or compensate for adverse effects on splittail:

1. A limited operating period for in-water work is proposed for July 1 through October 15.
2. A fish salvage plan will be developed by the approved biologist/environmental monitor

prior to construction and approved by the agencies.

3. Construction will occur during the low-flow periods of the year.
4. The water quality measures listed above as well as those in Appendix F of the BA and those outlined in the 1601, 401 and 404 permits will be implemented. These measures include the development and implementation of Best Management Practices (BMPs), a Stormwater Pollution Prevention Plan (SWPPP), and a Spill Prevention and Countermeasure Plan (SPCP).
5. Caltrans will develop, with assistance from the Service, a conservation plan that will be implemented prior to the onset of in-water work that permanently affects splittail habitat. Based on the present understanding of the likely bridge design, the adverse effect on splittail is expected to be approximately 3.203 acres.

Giant Garter Snake

The following proposed avoidance, minimization, and conservation measures are modeled after those contained in the Service's November 13, 1997, *Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake* (Programmatic Consultation) (File 1-1-97-F-0149), including its appendices (*Guidelines for Restoration and/or Replacement of Giant Garter Snake Habitat* (Guidelines) and the *Standard Avoidance and Minimization Measures During Construction Activities in Giant Garter Snake Habitat* (Avoidance Measures). Note, however, that the Programmatic Consultation applies only to those actions whereby the U.S. Army Corps of Engineers's is the lead agency.

1. Both upland and aquatic habitat including rice fields and habitat lost at irrigation canals and sloughs will be compensated for at a ratio to be determined (but based on the current Service policy of 1:1 conservation ratios for temporary effects and 3:1 for permanent effects, however this project exceeds the maximum effects allowed under those guidelines. It is expected that the Biological Opinion will have required creation and preservation acres.
2. Construction activities in giant garter snake habitat will be limited to May 1 through October 1.
3. The biologist/environmental monitor will conduct a survey for Giant Garter Snake within 24 hours of the start of construction in identified habitat. No Giant Garter Snake can be handled without obtaining prior approval from the Service². If a snake becomes trapped during construction a pre-approved (by the Service) biologist will remove the snake to a downstream location. The Service will be notified of the presence of the snake within 24

²Note that the Service deleted the proposal to allow monitoring biologists to "passively moving" giant garter snakes. When snakes are encountered, work must be stopped and the animal permitted to leave the construction site of their own volition (see Term and Condition 7, which implements Reasonable and Prudent Measure 1).

hours

4. The project shall be re-inspected whenever a lapse in construction activity of 2 weeks or greater has occurred.
5. Any dewatered habitat must remain dry for at least 15 days after April 15 and prior to excavating and filling.
6. All construction personnel shall participate in a Service-approved worker environmental program to learn about the species, its habitat and the laws.
7. Movement of heavy equipment to and from the project site shall be restricted to established roadways or areas surveyed by the guidelines above and after May 1.
8. Following construction, areas of temporary disturbance shall be returned to their pre-project conditions; vegetation shall be native species as noted in the conservation measures

Habitat Conservation Plan

The proposed action is interrelated with local urban planning efforts, and while intended primarily as a safety enhancement, the Service has determined that the improvements and intersections associated with the proposed action will encourage and facilitate planned and/or yet-to-be planned growth. This growth, while associated with the project, is not subject to Administration or Caltrans control; it is the responsibility of local planners.

The approach agreed to by Caltrans during the consultation on the SR 70 project in Yuba and Sutter Counties, and finalized in that project's June 15, 2001, biological opinion and its March 18, 2002, amendment (Service files 1-1-00-F-0224 and 1-1-02-F-0069 respectively), is for the local jurisdictions to address the effects of growth on listed species through a regional planning effort and to pursue incidental take permits directly from the Service in accordance with section 10(a)(1)(B) of the Act. To address these indirect, growth-inducing effects of the project, Caltrans agreed to support and facilitate efforts to establish an Habitat Conservation Plan(s) (HCP) with Sutter and Yuba Counties and the Sacramento Area Council of Governments SACOG in association with SR 70/99 corridor project, including SR 99 south of O'Banion Road. The HCP(s) will outline adequate conservation measures for potential Federal and State listed species in the area.

1. At a minimum, the HCP(s) will address the Federal and State listed species known at this time that may be affected by actions that are reasonably foreseeable as a result of the current action. Additional HCP-covered species may be added as the HCP(s) is being developed.
2. The HCP(s) will be coordinated with CDFG and will include any appropriate State listed species in the HCP(s).
3. The HCP(s) will address actions that are within the land use authority of Sutter and Yuba Counties and are reasonably foreseeable as a result of the current action including land

- use approvals that are related to entitlements. Additional activities may be added as the HCP(s) is developed.
4. The HCP(s) will cover an area (cumulative effects boundary area) that is reasonably foreseeable as a result of the highway upgrade, including the area in the vicinity of the SR 99 corridor south of O'Banion Road.
 5. A draft HCP(s) will be completed by July 1, 2004. In the event of a delay in the schedule, the Counties of Sutter and Yuba, and Caltrans will continue to work diligently to complete the HCP(s) in a reasonable time.

Interim Measures and Processes

The following define the interim conservation measures and processes for the time period between implementation of the State Route 99 Safety and Operational Improvements and the approval of the HCP(s). These measures only apply to those areas along the Highway 70/99 Corridor, within Yuba and Sutter counties, further defined as the "cumulative effects boundary," unless otherwise noted. Implementation of these measures and processes is intended to promote conservation of Federal and State listed species, should they be directly impacted as a result of the improvements to SR 99, and are to remain in effect until the HCP(s) are completed.

1. The Service, NMFS, CDFG, Yuba and Sutter Counties, and Caltrans recognize a mutual interest in working together for the orderly planning and growth that benefits listed species. In order to achieve this goal, the above referenced agencies will create a working group to facilitate information exchange, decision-making, and implementation of endangered species conservation measures. This will promote implementation of the interim conservation measures, and the timely completion of the HCP(s). The working group will be made up of representatives from each of the affected agencies, and will meet regularly (generally monthly, or as necessary) during this interim period, until the HCP(s) are completed. Through this process, the Counties and Caltrans anticipate receiving guidance from the Service, NMFS, and CDFG regarding the development and implementation of any necessary conservation measures. This group shall also be responsible for identifying the need to bring any other stakeholders who may be affected by the HCP(s) into the process.

Timing: Immediate and on-going until the HCP(s) is completed.

2. Yuba and Sutter counties will require new project proponents, within the "cumulative effect boundary" to provide evidence of compliance with the Endangered Species Act, prior to approval of any action or project such as a General Plan Amendment, zone change, or related discretionary action. Such compliance will be carried out through the normal California Environmental Quality Act (CEQA) environmental review process. However, this does not apply to ministerial actions, previously approved projects, on-going agricultural operations, or to rebuilding or minor additions and expansions on previously developed areas, pursuant to Zoning Codes of both Yuba and Sutter counties. This procedural requirement will be met by the following process:
 - a. As part of the CEQA process, Yuba and Sutter counties will include the following language as part of the initial study or environmental impact report (EIR) for a

project, if either indicates that threatened or endangered species will be adversely affected by the project:

“The applicant is hereby notified of additional conditions as stipulated by the U.S. Fish and Wildlife Service (Service). Features of the applicant’s project may adversely affect Federal or State listed threatened or endangered species. In the event of a direct impact, an applicant has the option to go through one of two processes to obtain authorization to take a Federal or State listed species incidental to completing this project. First, when the authorization or funding of a Federal agency is an aspect of a project that may affect federally listed species, section 7 of the Endangered Species Act requires the Federal agency to formally consult with the Service. Formal consultation is concluded when the Service issues a biological opinion to the Federal agency. The biological opinion includes terms and conditions to minimize the effect of take on listed species. The Federal agency must make the terms and conditions of the biological opinion into binding conditions of its own authorization to the project applicant. An example of this process is when the U.S. Army Corps of Engineers consults with the Service prior to issuing a permit to fill jurisdictional waters under Section 404 of the Clean Water Act. The terms and conditions of the biological opinion become binding on the project applicant through the Corps’ 404 authorization. Second, when no Federal funding or authorization is involved in a project, an applicant must prepare an HCP or obtain a permit directly from the Service in accordance with section 10(a)(1)(B) of the Act. For additional information on these processes please contact the Endangered Species Division of the U.S. Fish and Wildlife Service’s Sacramento Fish and Wildlife Office at (916) 414-6600.”

- b. If either the initial study or EIR for a project indicates that threatened or endangered species will be adversely affected by the project, Yuba and Sutter counties will not undertake any discretionary action or project (including issuance of grading or other permits, plan amendments, zoning changes) without demonstration of compliance with the Act by the project proponent, as implemented through the CEQA process. Commensurate with the normal CEQA environmental review process, compliance may be in the form of either: (1) a letter from the Service expressing no concerns that the project will adversely affect listed species; (2) a biological opinion issued for a Federal authorization of the project (e.g., for a Section 404 permit); or (3) a permit issued by the Service pursuant to section 10(a)(1)(B) of the Act, to authorize incidental take on federally listed species for the project.
- c. If either county has questions regarding the application of this measure, or when coordination with the Service is required, the Service and other corresponding regulatory agencies will provide additional guidance through the working sessions described above.

Timing: Upon completion of this Biological Opinion, the Counties and Caltrans will implement the above.

- 3. In addition to the processes described above, locations of federally listed species or

habitat areas within the "cumulative effects boundary." As part of the interim process, Caltrans will provide both Yuba and Sutter Counties with a map showing any areas of potential habitat sensitivity within the "cumulative effect boundary." In the event a discretionary project application is submitted, prior to the completion of the HCP(s), the Counties and Caltrans agree to take all steps practical to avoid impacts or degradation to species or habitats of special concern. An example of such actions by the Counties or Caltrans would be the incorporation of the Service's Standard Avoidance and Minimization Measures During Construction Activities in Giant Garter Snake Areas into the CEQA compliance documentation. This will be accomplished through referencing the above noted map and additional biological surveys for the specific project, in compliance with CEQA. Actions or projects shall not include ministerial actions, previously approved projects, on-going agricultural operations, or rebuilding or minor additions and expansions on previously developed lands.

Timing: The sensitivity map shall be prepared by Caltrans on or before December 31, 2003. Additional conservation or avoidance measures shall be developed by the working group, concurrent with the submittal of any discretionary project application within the "cumulative effect boundary."

4. Through the map of sensitive habitat areas, the Counties, Caltrans, Service, NMFS, and CDFG will determine the need for developing any additional interim conservation measures within the "cumulative effect boundary". Such measures shall be developed as part of the HCP(s) process, and may become necessary in the event a discretionary project or action is requested during the interim period prior to completion of the HCP(s).

Timing: On-going activity, to be administered through the working group.

5. The Counties, Caltrans, Service, NMFS and CDFG agree to not expand the "cumulative effect boundary," unless by consent of the involved agencies.

Timing: On-going until completion of the HCP(s).

6. The Counties and Caltrans agree to retain the necessary technical expertise to assist with the development and/or implementation of any interim conservation measures, development of the HCP(s), and preparation of any supporting CEQA/NEPA documentation.

Timing: On or before March 15, 2004, the working group shall determine the need for any additional technical support. Upon completion of the Draft HCP(s), the working group shall determine the need and process for retaining any additional technical assistance for the preparation of a NEPA/CEQA compliance document.

Status of the Species

Giant Garter Snake

The Service published a proposal to list the giant garter snake as an endangered species on

December 27, 1991 (56 FR 67046). The Service reevaluated the status of the giant garter snake before adopting the final rule. The giant garter snake was listed as a threatened species on October 20, 1993 (58 FR 54053).

Description

The giant garter snake is one of the largest garter snakes and may reach a total length of at least 64 inches (160 centimeters). Females tend to be slightly longer and proportionately heavier than males. The weight of adult female giant garter snakes is typically 1.1-1.5 pounds (500-700 grams). Dorsal background coloration varies from brownish to olive with a checkered pattern of black spots, separated by a yellow dorsal stripe and two light-colored lateral stripes. Background coloration and prominence of a black-checkered pattern and the three yellow stripes are geographically and individually variable (Hansen 1980). The ventral surface is cream to olive or brown and sometimes infused with orange, especially in northern populations.

Historical and Current Range

This species formerly occurred throughout the wetlands that were extensive and widely distributed in the Central Valley. Fitch (1941) described the historical range of the giant garter snake as extending from the vicinity of Sacramento and Contra Costa Counties southward to Buena Vista Lake, near Bakersfield, in Kern County. Prior to 1970, the giant garter snake was recorded historically from 17 localities (Hansen and Brode 1980). Five of these localities were clustered in and around Los Banos, Merced County. The paucity of information makes it difficult to determine precisely the species' former range. Nonetheless, these records coincide with the historical distribution of large flood basins, fresh water marshes, and tributary streams. Destruction of wetlands for agriculture and other purposes apparently extirpated the species from the southern one-third of its range by the 1940s -1950s, including the former Buena Vista Lake and Kern Lake in Kern County, and the historic Tulare Lake and other wetlands in Kings and Tulare Counties (Hansen and Brode 1980, Hansen 1980). Surveys over the last two decades have found the giant garter snake as far north as the Butte Basin in the Sacramento Valley. As recently as the 1970s, the range of the giant garter snake extended from near Burrell, Fresno County (Hansen and Brode 1980), northward to the vicinity of Chico, Butte County (Rossman and Stewart 1987).

Essential Habitat Components

Endemic to wetlands in the Sacramento and San Joaquin valleys, the giant garter snake inhabits marshes, sloughs, ponds, small lakes, low gradient streams, and other waterways and agricultural wetlands, such as irrigation and drainage canals and rice fields, and the adjacent uplands. The giant garter snake feeds on small fishes, tadpoles, and frogs (Fitch 1941, Hansen 1980, Hansen 1988). Essential habitat components consist of: (1) wetlands with adequate water during the giant garter snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) upland habitat with grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for escape cover (vegetation, burrows) and underground refugia (crevices and small mammal burrows) (Hansen 1980).

Reproductive Ecology

The breeding season extends through March and April, and females give birth to live young from late July through early September (Hansen and Hansen 1990). Brood size is variable, ranging from 10 to 46 young, with a mean of 23 (Hansen and Hansen 1990). At birth young average about 20.6 cm snout-vent length and 3-5 grams. Young immediately scatter into dense cover and absorb their yolk sacs, after which they begin feeding on their own. Although growth rates are variable, young typically more than double in size by one year of age, and sexual maturity averages three years in males and five years for females (58 FR 54053).

Movements and Habitat Use

The giant garter snake typically inhabits small mammal burrows and other soil crevices throughout its winter dormancy period (November to mid-March). The giant garter snake also uses burrows as refuge from extreme heat during their active period. While the giant garter snakes usually remain in close proximity to wetland habitats, the Biological Resource Division of the USGS (BRD) has documented giant garter snakes using burrows as much as 165 feet (50 meters) away from the marsh edge to escape extreme heat (Wylie *et al.* 1997). Overwintering giant garter snakes have been documented to use burrows as far as 820 feet (250 meters) from the edge of marsh habitat. Giant garter snakes typically select south- and west-facing burrows as hibernacula (58 FR 54053).

In studies of marked giant garter snakes in the Natomas Basin, giant garter snakes moved about 0.25 to 0.5 mile per day (Hansen and Brode 1993). However, total activity varies widely between individuals, and individual giant garter snakes have been documented moving up to 5 miles (8 kilometers) over the period of a few days in response to dewatering of habitat (Wylie *et al.* 1997). In agricultural areas, giant garter snakes were documented using rice fields in 19-20 percent of the observations, marsh habitat in 20-23 percent of observations, and canal and agricultural waterway habitats in 50-56 percent of the observations (Wylie 1999). Telemetry studies have also shown that active giant garter snakes use uplands extensively—more than 31 percent of observations were in uplands (Wylie 1999). Almost all giant garter snakes observed in uplands during the active season were near vegetative cover, where cover exceeded 50 percent in the area within 0.5 m (1.6 ft) of the giant garter snake; less than 1 percent of observations were of giant garter snakes in uplands with less than 50 percent cover nearby (Wylie 1999).

Reasons for Decline and Threats to Survival

The current distribution and abundance of the giant garter snake is much reduced from former times. Loss of habitat due to agricultural activities and flood control have extirpated the giant garter snake from the southern one third of its range in former wetlands associated with the historic Buena Vista, Tulare, and Kern lakebeds. These lakebeds once supported vast expanses of ideal giant garter snake habitat, consisting of cattail and bulrush dominated marshes. Vast expanses of bulrush and cattail floodplain habitat also typified much of the Sacramento Valley historically (Hinds 1952). Prior to reclamation activities beginning in the mid to late 1800s, about 60 percent of the Sacramento Valley was subject to seasonal overflow flooding in broad, shallow flood basins that provided expansive areas of giant garter snake habitat (Hinds 1952). Valley floor wetlands are subject to the cumulative effects of upstream watershed modifications, water storage and diversion projects, as well as urban and agricultural development; all natural

habitats have been lost and an unquantifiable but small percentage of semi-natural wetlands remain extant. Only a small percentage of extant wetlands currently provide habitat suitable for the giant garter snake.

Ongoing maintenance of aquatic habitats for flood control and agricultural purposes eliminate or prevent the establishment of habitat characteristics required by giant garter snakes and can fragment and isolate available habitat, prevent dispersal of giant garter snakes among habitat units, and adversely affect the availability of the giant garter snake's food items (Hansen 1988, Brode and Hansen 1992). In many areas, the restriction of suitable habitat to water canals bordered by roadways and levee tops renders giant garter snakes vulnerable to vehicular mortality. Fluctuation in rice and agricultural production affects stability and availability of habitat. Recreational activities, such as fishing, may disturb giant garter snakes and disrupt basking and foraging activities. Nonnative predators, including introduced predatory gamefish, bullfrogs, and domestic cats also threaten giant garter snake populations. While large areas of seemingly suitable giant garter snake habitat exist in the form of duck clubs and waterfowl management areas, water management of these areas typically does not provide the summer water needed by giant garter snakes. Although giant garter snakes on national wildlife refuges are relatively protected from many of the threats to the species, degraded water quality continues to be a threat to the species both on and off refuges. A number of land use practices and other human activities currently threaten the survival of the giant garter snake throughout the remainder of its range. Although some giant garter snake populations have persisted at low levels in artificial wetlands associated with agricultural and flood control activities, many of these altered wetlands are now threatened with urban development.

Status with Respect to Recovery

The draft recovery plan for the giant garter snake subdivided its historic range into four recovery units (Service 1999b). These are: (1) the Sacramento Valley unit, extending from the vicinity of Red Bluff south to the confluence of the Sacramento and Feather Rivers; (2) the Mid-Valley unit, extending from the American and Yolo Basins south to Duck Creek near the City of Stockton; (3) the San Joaquin Valley unit, extending south from Duck Creek to the Kings River; and (4) the South Valley unit, extending south of the Kings River to the Kern River Basin. Portions of Mid-Valley recovery unit are within the action area.

The Sacramento Valley Recovery Unit at the northern end of the species' range is known to support relatively large, stable populations of the giant garter snake. This unit contains three populations (Butte Basin, Colusa Basin, and Sutter Basin) and a large amount of suitable habitat, in protected areas on state refuges and refuges of the Sacramento National Wildlife Refuge (NWR) Complex in the Colusa and Sutter Basins, and along waterways associated with rice farming (Service 1999b).

The Mid-Valley Recovery Unit, directly to the south of the Sacramento Valley Recovery Unit, includes seven populations: American Basin, Yolo Basin-Willow Slough, Yolo Basin-Liberty Farms, Sacramento Area, Badger Creek/Willow Creek, Caldoni Marsh, and East Stockton. The status of the seven giant garter snake populations in the Mid-Valley Recovery Unit is very uncertain. The East Stockton population may be extirpated, and is not considered recoverable as a result of urban encroachment into habitat (Service 1999b). Five of the remaining six populations within the recovery unit are very small, highly fragmented and isolated, and, except

for the Badger Creek/Willow Slough population, are also threatened by urbanization. This latter population is within a small isolated area. Within the Mid-Valley unit, only the American Basin population supports a sizeable giant garter snake population which is dependent largely upon rice lands. The American Basin population, although threatened by urban development, receives protection from the approved Metro Air Park and in-progress Natomas Basin habitat conservation plans (HCPs), which share a regional strategy to maintain a viable giant garter snake population in the basin.

The remaining two recovery units are located to the south in the San Joaquin Valley, where the best available data indicate that the giant garter snake's status is precarious. The San Joaquin Valley Recovery Unit contains three historic giant garter snake populations: North and South Grasslands; Mendota Area; and Burrel/Lanare Area (Service 1999b). This recovery unit formerly supported large giant garter snake populations, but numbers have declined severely in recent decades, and recent survey efforts indicate numbers are very low compared to Sacramento Valley populations.

No surviving giant garter snake populations are known from the fourth recovery unit, the South Valley Recovery Unit, at the southern end of the giant garter snake's historic range; this unit includes only extirpated populations, including the historic but lost Tulare and Buena Vista lakes.

The draft recovery criteria require multiple, stable populations within each of the four recovery units, with subpopulations well-connected by corridors of suitable habitat. Currently, only the Sacramento Valley Recovery Unit, at the northern end of the species' range, is known to support relatively large, stable populations. Habitat corridors connecting populations or subpopulations, even for the Sacramento Valley Recovery Unit, are not present and/or protected.

In 1994, the BRD (then the National Biological Survey) began a study of the life history and habitat requirements of the giant garter snake in response to an interagency request from the Service. Since April of 1995, the BRD has further documented occurrences of giant garter snakes within some of the known populations. The BRD has studied giant garter snake subpopulations at the Sacramento and Colusa NWRs within the Colusa Basin, at Gilsizer Slough within the Sutter Basin, the Badger Creek area of the Cosumnes River Preserve within the Badger Creek-Willow Creek area, and the Natomas area within the American Basin (Wylie *et al.* 1997, Wylie 1999). These subpopulations represent the largest known extant subpopulations. With the exception of the American Basin, these subpopulations are largely protected from many of the threats to the species. Outside of these protected areas, giant garter snakes in these populations are still subject to all the threats identified in the final listing rule. The remaining nine populations identified in the final rule are distributed discontinuously in small isolated patches and are vulnerable to extirpation by stochastic environmental, demographic, and genetic processes. The 13 extant populations are largely isolated from each other, with any dispersal corridors between them limited and not protected. When small populations are extirpated, the recolonization is unlikely in most cases, given the isolation from larger populations and the lack of dispersal corridors between them.

Sacramento Splittail

The final rule to list the splittail was published on February 8, 1999 (64 FR 5963). For further information on the splittail refer to the final rule.

Species Description and Life History

Splittail were first described in 1854 by W.O. Ayres as *Leuciscus macrolepidotus* and by S.F. Baird and C. Girard as *Pogonichthys inaequilobus*. Although Ayres' species description is accepted, the species was assigned to the genus *Pogonichthys* in recognition of the distinctive characteristics exhibited by the two California splittail species *P. ciscoides* and *P. macrolepidotus* (Hopkirk 1973). *Pogonichthys ciscoides*, endemic to Clear Lake, Lake County, California, has been extinct since the early 1970s. The splittail represents the only extant species in its genus in California.

The splittail is a large cyprinid fish that can exceed 40 centimeters (16 inches) in length (Moyle 1976, Moyle 2002). Adults are characterized by an elongated body, distinct nuchal hump, and small, blunt head, usually with barbels at the corners of the slightly subterminal mouth. The enlarged dorsal lobe of the caudal fin distinguishes the splittail from other minnows in the Central Valley of California. Splittail are dull, silvery-gold on the sides and olive-gray dorsally. During spawning season, pectoral, pelvic, and caudal fins are tinged with an orange-red color. Splittail are relatively long-lived, frequently reaching 5 to 7 years of age. Females are highly fecund, with the largest females producing over 250,000 eggs (Daniels and Moyle 1983).

Populations fluctuate annually depending on spawning success, which is highly correlated with freshwater outflow and the availability of shallow-water habitat with submerged vegetation (Daniels and Moyle 1983). Fish usually reach sexual maturity by the end of their second year. The onset of spawning is associated with rising water levels, increasing water temperatures, and increasing day length. Peak spawning occurs from the months of March through May, although records of spawning exist for late January to early July (Wang 1986). In some years, most spawning may take place within a limited period of time. For instance, in 1995, a year of extraordinarily successful spawning, most splittail spawned over a short period in April, even though larval splittail were captured from February through early July (Moyle 2002). Within each spawning season older fish reproduce first, followed by younger individuals (Caywood 1974). Spawning occurs over flooded vegetation in tidal freshwater and euryhaline habitats of estuarine marshes and sloughs and slow-moving reaches of large rivers. Larvae remain in shallow, weedy areas close to spawning sites for 10 to 14 days and move into deeper water as they mature and swimming ability increases (Wang 1986 and Sommer *et al.* 1997).

Splittail are benthic foragers. In Suisun Marsh, they feed primarily on opossum shrimp (*Neomysis mercedis*, and presumably, the exotic *Acanthomysis* spp. as well), benthic amphipods (*Corophium*), and harpacticoid copepods, although detrital material makes up a large percentage of their stomach contents (Daniels and Moyle 1983). In the Sacramento-San Joaquin Delta (Delta), clams, crustaceans, insect larvae, and other invertebrates also are found in the diet. Predators include striped bass (*Morone saxatilis*) and other piscivores (Moyle 1976, Moyle 2002).

In recent years, splittail have been found most often in slow moving sections of rivers and sloughs and dead-end sloughs (Moyle *et al.* 1992, Daniels and Moyle 1983), though they range up the Sacramento River at least as far as the Red Bluff Diversion Dam (Baxter 1999a, 1999b). Reports from the 1950's, however, mention Sacramento River spawning migrations and catches of splittail during fast tides in Suisun Bay (Caywood 1974). Because they require flooded vegetation for spawning and rearing, splittail are frequently found in areas subject to flooding.

Historically, the major flood basins distributed throughout the Sacramento and San Joaquin valleys provided spawning and rearing habitat. These flood basins have all been reclaimed or modified for flood control purposes (e.g., Yolo and Sutter bypasses). Although primarily a freshwater species, splittail can tolerate salinities as high as 10 to 18 parts ppt (Moyle 1976, Moyle 2002, Moyle and Yoshiyama 1992). The CDFG survey data from 1979 through 1994 indicate that the highest abundances occurred in shallow areas of Suisun and Grizzly bays.

Recent research indicates that splittail will use the Yolo and Sutter bypasses during the winter and spring months for foraging and spawning (Sommer *et al.* 1997). However, the Yolo bypass may only be used by splittail during wet winters, when water from Sacramento River over-tops the Fremont Weir and spills over the Sacramento Weir into the bypass. In 1998, the Yolo and Sutter bypasses provided good habitat for fish, particularly splittail, when they were flooded for several weeks in March and April. In order to provide spawning habitat for splittail, water must

remain on the bypasses until fish have completed spawning, and larvae are able to swim out on their own, during the draining process.

Historical and Current Distribution

Splittail are endemic to California's Central Valley, where they were once widely distributed (Moyle 1976, Moyle 2002). Historically, splittail were found as far north as Redding on the Sacramento River (at the Battle Creek Fish Hatchery in Shasta County), as far south as the present-day site of Friant Dam on the San Joaquin River, and up the tributaries of the Sacramento River as far as the current Oroville Dam site on the Feather River and Folsom Dam site on the American River (Rutter 1908). Recreational anglers in Sacramento reported catches of 50 or more splittail per day prior to the damming of these rivers (Caywood 1974). Splittail were captured in the past in southern San Francisco Bay and at the mouth of Coyote Creek in Santa Clara County, but they are no longer present there (Moyle 2002). The species was part of the Central Valley Native American diet (Caywood 1974).

Environmental Baseline

Giant Garter Snake

The dominant land use surrounding the project area is agriculture, consisting primarily of rice, with lesser acreages engaged in row crop production or utilized as pasture. The water-intensive nature of rice production renders much of the land suitable for giant garter snakes. The Sutter National Wildlife Refuge is managed for waterfowl, shorebirds, and other obligate and facultative wetland species, including giant garter snakes.

Status of the Giant Garter Snake Within the Action Area

The action area is within the Sutter Basin giant garter snake population. The Sutter Basin population is within the Sacramento Valley Recovery Unit (Service 1999b). The status of the population is outlined below, along with a description of the recovery unit.

Five California Natural Diversity Database (CNDDDB 1998) locality records are known from the Sutter Basin and tributary streams/canals. These locality records include the Snake River,

Gilsizer Slough, and various canals within the basin. Gilsizer Slough's intersection with the Sutter Bypass' East Canal is located downstream from the project area. Gilsizer Slough supports a population of giant garter snakes and has been a study site for the BRD telemetry study. The BRD estimated that the 3,500-acre Gilsizer Slough study site supported approximately 206 individuals in 1995 and 170 individuals in 1996 (G. Wylie pers. comm. 1998). Giant garter snakes have also been tracked using the East Borrow Ditch (upstream from the East Borrow Canal and connected to it via Gilsizer Slough) within the Sutter Bypass/Sutter NWR (G. Wylie pers. comm. 1998). Although Gilsizer Slough and the Sutter NWR are relatively protected and support a large population of giant garter snakes, no large protected wetland areas exist outside these two Sutter Basin sites. An additional CNDDDB record exists for Yankee Slough, where SR 70 spans the Bear River. SFWO records also indicate giant garter snakes have been detected south of Olivehurst, near Pluma Arboga Road, and in the Sutter Bypass at O'Banion Road. Given the regional preponderance of rice lands, refuges and waterfowl areas, and other wetlands, and the extensive canal service to both rice lands and orchards, giant garter snakes are expected to occur throughout the project area wherever suitable habitat exists.

Distribution of Habitat and Movement Corridors within the Action Area.

The recovery strategy for the giant garter snake requires that corridors of suitable habitat between existing giant garter snake populations be maintained or created to enhance population interchange, as a counter to threats to the species (Service 1999b). Because of its location, the Butte Creek/Butte Slough system a key part of the primary habitat and hydrologic connection between the apparently concentrated giant garter snake population in Gilsizer Slough and surrounding canals and ricelands within the south/southeastern portions of the greater Sutter Basin area.

The information provided in the BA indicates that Butte Slough and adjoining ricelands are relatively reliable as giant garter snake habitat and as a movement corridor. The East Side and West Side channels have long served this function, and by virtue of their location are likely to continue to provide wetland habitat for the giant garter snake with upland habitat on the adjacent banks and levee.

Factors Affecting the Giant Garter Snake Within the Action Area

Several flood control programs administered by the U.S. Army Corps of Engineers (Corps) are completed or ongoing in the general vicinity of the project site. Large completed projects include the Sacramento River Flood Control Project, which constructed and/or improved levees and other flood control features which make up the Federal Sacramento River Flood Control System; this system includes the levee which would receive bank protection under the Corps' proposed action. Subsequent to the 1986 flood events, the Corps initiated the ongoing Sacramento River Flood Control System Evaluation (SRFCSE) to examine the existing flood control system and to develop remedial repair plans to restore the designed level of protection. Project areas for Phases II, III, and V include the Colusa and Sutter Basins, the Sutter Bypass and its associated levees and drainage system, and drainage and flood control systems within the Colusa Basin. Although the Corps has consulted on previous projects and is expected to continue to do so on future projects, the ongoing nature of these activities and the administration under various programs makes it difficult to determine the continuing and accumulative effects of these activities.

A number of State, local, private, and unrelated Federal actions have occurred within the action area and adjacent region affecting the environmental baseline of the species. Some of these projects have been subject to prior section 7 consultation. These actions have resulted in both direct and indirect effects on giant garter snake habitat within the region. In addition to projects already discussed, projects affecting the environment in the action area include communication projects (e.g., installation of cable systems) and transportation projects with Federal, county or local involvement. The Corps has consulted the Service on the issuance of wetland fill permits for several bridge replacement projects within the Sutter Basin that affected giant garter snake habitats. The direct effect of these projects is often small and localized, but transportation projects which improve access can indirectly affect giant garter snakes by facilitating development of habitat, and by increasing traffic mortality, and these effects are not quantifiable.

Ongoing agricultural activities also affect the environmental baseline for the giant garter snake, and are largely not subject to section 7 consultation. Some agriculture, such as rice farming, can provide valuable seasonal foraging and upland habitat for the giant garter snake. Although rice fields and agricultural waterways can provide habitat for the giant garter snake, agricultural activities such as waterway maintenance, weed abatement, rodent control, and discharge of contaminants into wetlands and waterways can degrade giant garter snake habitat and increase the risk of giant garter snake mortality (Service 1999b). Ongoing maintenance of agricultural waterways can also eliminate or prevent establishment of giant garter snake habitat, eliminate food resources for the giant garter snake, and can fragment existing habitat and prevent dispersal of giant garter snakes (Service 1999b). Flood control and maintenance activities which can result in giant garter snake mortality and degradation of habitat include levee construction, stream channelization, and the riprapping of streams and canals (Service 1999b).

Surveys over the last two decades have located the giant garter snake as far north as the Butte Basin in the Sacramento Valley. Currently, the Service recognizes 13 separate populations of giant garter snake, with each population representing a cluster of discrete locality records (58 FR 54053). The 13 extant population clusters largely coincide with historical riverine flood basins and tributary streams throughout the Central Valley (Hansen 1980, Brode and Hansen 1992): (1) Butte Basin, (2) Colusa Basin, (3) Sutter Basin, (4) American Basin, (5) Yolo Basin-Willow Slough, (6) Yolo Basin-Liberty Farms, (7) Sacramento Basin, (8) Badger Creek-Willow Creek, (9) Caldoni Marsh, (10) East Stockton-Diverting Canal and Duck Creek, (11) North and South Grasslands, (12) Mendota, and (13) Burrell-Lanare. These populations span the Central Valley from just southwest of Fresno (Burrell-Lanare) north to Chico (Hamilton Slough). The 11 counties where the giant garter snake is still presumed to occur are: Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, Yolo, and Yuba.

Since April of 1995, the BRD has further documented occurrences of giant garter snakes within some of the 13 populations identified in the final rule. The BRD has studied populations of giant garter snakes at the Sacramento and Colusa National Wildlife Refuges within the Colusa Basin, at Gilsizer Slough within the Sutter Basin, at the Badger Creek area of the Cosumnes River Preserve within the Badger Creek-Willow Creek area, and in the Natomas Basin within the American Basin. These populations of giant garter snakes represent the largest extant populations. The American Basin population is threatened by rapid urban development in the Sacramento metropolitan area; other populations exist under lesser, though appreciable degrees of threat. Outside of protected areas, giant garter snakes in these population clusters are still subject to all threats identified in the final rule. The remaining nine population clusters identified

in the final rule are distributed discontinuously in small isolated patches and are vulnerable to extirpation by stochastic environmental, demographic, and genetic processes. Recent surveys conducted by California Department of Fish and Game in cooperation with BRD in the Grasslands Area in the San Joaquin Valley have detected giant garter snakes, but in numbers much lower than those found in the Sacramento Valley populations. All 13 population clusters are isolated from each other with no protected dispersal corridors. Opportunities for recolonization of small populations which may become extirpated is unlikely given the isolation from larger populations and lack of dispersal corridors between them.

The proposed project occurs within the Sutter Basin population of giant garter snakes, within the Sacramento Valley Recovery Unit identified by the giant garter snake recovery team. Five CNDDDB locality records are known from the Sutter Basin and tributary streams/canals. These locality records include the Snake River, Gilsizer Slough, and various canals within the basin. The slough is intersected by the Sutter Bypass. Gilsizer Slough supports a population of giant garter snakes and has been a study site for the BRD telemetry study. The BRD estimated that the 1,430-hectare (3,500-acre) Gilsizer Slough study site supported approximately 206 individuals in 1995 and 170 individuals in 1996 (G. Wylie pers. comm. 1998). Giant garter snakes have also been tracked using the East Borrow Ditch within the Sutter Bypass/Sutter NWR (G. Wylie pers. comm. 1998). Although Gilsizer Slough and the Sutter NWR are relatively protected and support a large population of giant garter snakes, no large protected wetland areas exist outside these two sites.

Sacramento Splittail

The decline of the splittail has been documented by the Service in an analysis of a multiple linear regression model developed by Reclamation and CDFG (Reclamation/CDFG MLR model). An initial version of this analysis appeared in the Federal Register on March 21, 2002 (67 FR 13095). The decline in splittail abundance has taken place during a period of increased human-induced changes to the seasonal hydrology of the Delta, especially the increased exports of freshwater from the Delta and increased diversions of water to storage. These changes include alterations in the temporal, spatial, and relative ratios of water diverted from the system. These hydrological effects, coupled with severe drought years, introduced aquatic species, the loss of shallow-water habitat to reclamation activities, and other human-caused actions, have reduced the species' capacity to recover from natural seasonal fluctuations in hydrology for which it was adapted. Diversions, dams and reduced outflow, coupled with severe drought years, introduced aquatic species such as the Asiatic clam (*Potamocorbula amurensis*) (Nichols *et al.* 1986), and loss of wetlands and shallow-water habitat apparently have likely perpetuated the species' decline.

In response to issues raised during the first three post-listing reopening of comment periods on splittail status and abundance (66 FR 2828, 66 FR 23181, and 66 FR 43145), the Service developed a new statistical analysis of an abundance index based on a Multiple Linear Regression (MLR) model jointly developed and submitted by the CDFG (Rempel 2001) and Reclamation (Michny 2001). The model is hereafter referred to as the CDFG/Reclamation MLR model and is described in detail at 67 FR 13095, a fourth solicitation for comments. The present model provides what the Service feels is most sound basis, to date, for statistically evaluating temporal trends of splittail abundance data. Though comments on this model have been solicited

and are awaiting analysis, the CDFG/Reclamation MLR model presently represents the best available scientific or commercially-available information and therefore supercedes results reported in prior biological opinions' Environmental Baseline sections, where trends were reported based on the techniques employed by Meng and Moyle (1995) and/or Sommer *et al.* (1997).

The CDFG/Reclamation MLR model includes HYDROLOGY and TIME (year) as independent variables and ABUNDANCE INDICES as the dependent variable. It also incorporates corrected splittail abundance data (Rempel 2001). The Service considers this statistical approach superior to the previous practice of using unstratified Mann-Whitney U-tests (Meng and Moyle 1995; Sommer *et al.* 1997) because it does not require arbitrarily dividing an inherently continuous data set into "before" and "after" categories (see previous discussion of this issue in 66 FR 43145). The CDFG/Reclamation MLR model also explicitly controls for potential confounding effects of hydrological year type, the factor that is nearly unanimously viewed as the single strongest predictor of splittail year class strengths (e.g., Moyle *et al.* 2001 in prep.)

Model results indicate that, of 20 indices, the four highest, statistically significant (at traditional levels) probabilities of a nonzero downward splittail population trend are exhibited by the Suisun Marsh survey (Age-0 and adult) and in the data collected via fish salvage operations at the State Water Project (SWP) Skinner Delta Fish Protective Facility (Age-1, and Age-2 and greater). The decline evident in the Chipps Island Trawl (Age-2 and greater) is nearly statistically significant at traditional levels (94.3 percent probability). Two additional probabilities of a nonzero downward splittail population trend are evident at the 80 percent probability level; Chipps Island Trawl (Age-1) and SWP (Age-0). The Service considers these data compelling, and notes that the statistically significant ($p=0.05$) declines evident are in the Suisun Marsh surveys for adult and young-of-the-year (YOY) abundance and in adult abundance at the Delta water export facilities, as these sites are located within the core area of the splittail population.

Splittail's occurrence in the Feather River was first noted in published literature by Rutter (1908) and while dams (i.e. Oroville Dam) have served to much reduce the range of the species, splittail still persist well upstream in the valley-floor portion of the Feather River. McEwan (1999, *in* Interagency Ecological Program 1999) captured splittail in rotary screw traps just upstream of the Thermalito Outlet. This location, approximately at Feather River Mile (FRM) 60, is located well upstream of the existing and proposed SR 99 bridge sites. Splittail's migratory behavior requires that the species pass the bridge site twice; first as upstream adults and then again as downstream migrating adults and outmigrating young-of-the year. The species is therefore present in the proposed action area.

Splittail in the Feather River are members of a larger, mobile Delta-Sacramento River-tributary stream population of fish. The splittail that occur within the Feather River therefore exist under the same threats faced by the greater population, primarily human-induced changes to the seasonal hydrology of the Delta, and increased exports of fresh water in particular. These changes include alterations in the amounts of water diverted from the system, and in the locations and timing of the diversions. These hydrologic effects, coupled with severe drought years, the continued introduction of nonnative aquatic species, the loss of shallow-water habitat to reclamation activities, the presence of environmental contaminants, and other human-caused actions, have reduced the splittail's capacity to recover from changes to those natural seasonal fluctuations in hydrology for which it was adapted.

Effects of the Proposed ActionGiant Garter Snake

The proposed action will adversely affect the giant garter snake through loss of habitat and from the harassment and mortality associated with construction activities.

The proposed project will result in permanent and temporary effects on giant garter snakes inhabiting approximately 154.767 acres of snake habitat. This habitat consists of approximately 76.619 acres of upland terrestrial giant garter snake habitat and 1.268 acre of aquatic giant garter snake habitat that will be destroyed (or disturbed for longer than one construction/growing season) by removal of vegetation and near-shore features to accommodate road construction activities. It also incorporates an estimated 76.7 acres of temporary disturbance in uplands and an estimated 0.180 acre of temporary disturbance in aquatic habitat. The 0.180 acre of upland disturbance involving modification of vegetated habitat will be restored. These adverse effects represent the total acreage over Segments 1, 2, and 4. The individual acreage values appear in the table, below, and may be implemented as separate conservation actions prior to the groundbreaking for each respective segment.

Construction activities may remove vegetative cover and basking sites, fill or crush burrows or crevices, and decrease the prey base. The construction, earthwork activities, and earth surface modifications will permanently and temporarily disturb aquatic and upland habitats and/or obstruct giant garter snake movement. Because giant garter snakes utilize small mammal burrows and soil crevices as retreat sites, giant garter snakes may be crushed, buried, or otherwise injured from construction activities. Giant garter snakes may be killed or injured by construction equipment or other vehicles accessing the construction site. Giant garter snakes may also be killed or injured by becoming entangled in netting used for erosion control (Stuart *et al.* 2001, Black 2003). Disturbance from construction activities may also cause giant garter snakes to temporarily move into or across areas of unsuitable habitat where they may be prone to higher rates of mortality from vehicles and predation. The giant garter snake may be precluded from inhabiting areas containing suitable aquatic habitat, if appropriate shoreline vegetation is not replanted. Appropriate shoreline can provide cover, foraging, and other habitat functions for the giant garter snake. Upland plants can provide a buffer between the water and human activities such as walking or fishing. However, disturbed soils that are not replanted quickly may provide optimum soil conditions for colonization by noxious weeds such as yellow star-thistle (*Centaurea solstitialis*). Yellow star-thistle can form a dense impenetrable barrier that may preclude giant garter snakes from moving through. Restoration and revegetation of the temporarily disturbed area with locally collected native plants would minimize the adverse effects resulting from the temporal loss of vegetative cover.

Indirect effects to the giant garter snake could also occur due to loss of wetland vegetation following herbicide use and disturbance due to staging or maneuvering of equipment or vehicles. Additional indirect effects include mortality from predatory fish and birds, vehicular traffic, agricultural practices, and maintenance of water channels. Also, contaminants such as selenium and increased salinity contribute to the declining status of the giant garter snake, and are a significant threat to populations in portions of the Sacramento Valley.

Table 1, below, identifies the specific adverse effects, in acres, for the giant garter snake. The

Service also notes that changes in land use, including changes in rice and/or waterway habitat utilized by giant garter snakes, has been considered in the calculation of permanent habitat loss.

Table 1: Summary of adverse effects per segment for giant garter snake

Species	Effect Duration	Pre-construction drilling ac (ha)	Segment 1 ac (ha)	Segment 2 ac (ha)	Segment 4 ac (ha)	Total ac (ha)
giant garter snake (aquatic habitat)	Temporary	0(0)*	0.180 (0.073)	0 (0)	0 (0)	0.180 (0.073)
	Permanent	0(0)	0.146 (0.059)	0.686 (0.278)	0.436 (0.176)	1.268 (0.513)
giant garter snake (upland habitat)	Temporary	54.15 (21.91)	22.551 (9.13)	0 (0)	0 (0)	76.7 (31.04)
	Permanent	0(0)	4.759 (1.92)	60.30 (24.40)	14.56(5.89)	76.619 (32.21)

*There will be temporary disturbance to this species as a result of the drilling activity; but no loss of habitat.

The implementation of the measures described in the Description of the Proposed Avoidance, Minimization, and Conservation Measures section will offset the effects of habitat loss and harassment of giant garter snakes over 154,767 acres of permanently and temporarily-affected terrestrial and aquatic habitat. The site revegetation component will result in the restoration of all temporary effects to within 76.7 acres of giant garter snake upland habitat, and Caltrans' proposal to pursue 1:1 compensation for this temporarily-disturbed habitat will compensate for the large aerial extent of the disturbance by providing well-managed, protected habitat elsewhere. The 77.887 acres of permanent effects has also been proposed to be compensated for by the purchase of an appropriate amount of giant garter snake habitat from a Service-approved conservation bank (Wildlands, Inc. Dolan Ranch Conservation Bank or another site prior to groundbreaking.

Sacramento splittail

Construction of the new bridge section over the Feather River will permanently and temporarily adversely affect a total of 3,203 acres of splittail habitat. Permanent direct effects will result from the placement of 12 bridge piers in the active channel of the Feather River. The 0.02 acre of estimated fill associated with each pier will result in the permanent loss of approximately 0.25 acres of splittail habitat in Ping Slough and Coon Creek and approximately 2.804 acres in the Feather River (3.054 acres, total). Portions of the permanent effects in the Feather River are not the result of bridge pier fill; they are the result of temporary placement of cofferdams, falsework, and construction trestles in the active channel over some or all of three years of construction. The in-channel work in the Feather River (2.804 acres; see Table 2, below) is therefore considered permanent for analysis of effects on splittail.

An indirect effect of the placement of additional bridge piers in the Feather River is the potential for the channel to undergo geomorphic adjustments to accommodate possibly-changed flow dynamics. These adjustments will occur for a period until the stream reaches a new state of dynamic equilibrium with the new structures. While short term effects are expected, they are likely to occur during infrequent, "channel-forming" flows and well away from the river-margin habitat splittail would be utilizing for migration, pre-spawn foraging, spawning, rearing, and emigration. Moreover, the new piers are likely to be superposed on the alignment of the existing piers (to minimize impediment of flow) and/or fewer in number (due to newer technologies). Adverse effects of the bridge pier construction are thus unlikely to reach the level where take would occur.

Direct effects may also result from salvage operations proposed to be conducted in the cofferdams as they are dewatered. Splittail trapped within the cofferdams would be subject to adverse effects such as predation, increased sediment loading, diminished oxygen, and predation from piscivores. Splittail would also be harassed during removal, which can be expected to include measures such as hazing/herding, dip netting, seining, and electrofishing. Given that in-water work has been proposed to begin no earlier than July 1, the likelihood of trapping splittail is low. The Service estimates that salvage would harm or harass no more than 100 individual splittail.

Other adverse effects typical to project requiring near- and in-water work are increased sedimentation during and immediately following construction. The proposed action will involve temporary adverse effects on water quality. Excavation and pile driving will cause disruption of the bed and bank sediments. Rock slope protection (riprap bank protection) has not been proposed to accompany this project. These sediment-liberating processes could cause temporary degradation of water quality and fish habitats. Construction activities adjacent to the Feather River would disturb soils and could cause sediment to be transported into the river; this would result in temporary increases in turbidity and sedimentation downstream of construction sites. Periods of localized, high suspended sediment concentrations and turbidity owing to channel disturbance can result in a reduction of feeding opportunities for sight-feeding fish, and clogging and abrasion of gill filaments. As well, increased sediment loading can degrade food-producing habitat downstream of the project area. It can also interfere with photosynthesis of aquatic flora and result in the displacement of aquatic fauna. Pile driving may not only increase sediment loading, it may result in mortality of fish through burst swim bladders and other organs and/or from increased predation during disorientation. The specific decibel level at which this effect would be noted in splittail in the Feather River is not known, but studies on juvenile salmonids (Anderson 1990; Feist *et al.* 1996) in the American Pacific northwest have revealed sublethal and lethal effects. Feist *et al.* (1996) noted that shock waves generated by pile driving could potentially disrupt foraging behavior or trigger startle responses, causing the fish to move away from near-shore areas. Feist *et al.* (1996) also determined that salmonids were capable of detecting the sound of drop-hammer pile driving at least 600 meters (1,968 feet) away, and that the sound was at least 20 decibels (dB) above ambient levels at 593 meters (1,946 feet). Table 2, below, identifies the specific adverse effects, in acres, for the Sacramento splittail.

Table 2: Summary of adverse effects per segment for Sacramento splittail

Species	Effect Duration	Pre-construction drilling ac (ha)	Segment 1 ac (ha)	Segment 2 ac (ha)	Segment 4 ac (ha)	Total ac (ha)
Sacramento splittail	Temporary	0(0)*	0.122(0.049)	0.25 (0.101)**	0 (0)	0.372 (.15)
	Permanent	0(0)	0.027 (0.011)	2.804 (1.13)	0 (0)	2.831 (1.141)

*There will be temporary disturbance to this species as a result of the drilling activity; but no loss of habitat.

** This is an approximate amount based on how it is expected that the contractor will construct the bridge. The number was based on past construction activities and the amount of disturbance that is expected to occur at any given time.

The temporary adverse effects are expected to be offset and/or fully minimized by the implementation of the proposed conservation measures, including: (1) BMPs, the SWPPP and a Spill Prevention and Countermeasure Plan; (2) restriction of in-water construction and pre-project test drilling to between July 1 and October 1; and (3) restriction near-water work to low-flow periods, would avoid and/or sufficiently minimize adverse effects on water quality.

The harm and harassment associated with salvage efforts require no compensation; the salvage itself is a measure designed to reduce the mortality associated with cofferdam closure and dewatering. Salvage operation, however, must incorporate measures to minimize the mortality of splittail. Such measures will be incorporated and finalized during Caltrans, and the Administration's development of and upon the Service's approval of a specific salvage plan.

The permanent loss of approximately 2.831 acres of splittail habitat in the active channel of the Feather River was proposed in the BA to be offset by the implementation of measures to be determined during consultation with the Service. A May 8, 2003, electronic mail message indicated that Caltrans is presently searching for potential conservation sites along the Feather and Sacramento Rivers.

Effects of Regional Growth

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. The proposed SR 70/99/149 Caltrans/FHWA transportation corridor projects between Sacramento and Chico, including the Marysville Bypass, SR 149 Freeway Upgrade, Yuba County Motorplex Interchange, SR 70 Freeway Extension/Ophir Road Interchange, Third Feather River Bridge, Sutter 99 Highway Upgrade, and the proposed project, upgrade of SR 70, are interrelated projects. As defined in 50 CFR § 402.02, "Interrelated actions are those that are part of a larger action and depend on the larger action for their justification." Relevant plans we considered in assessing growth potential included the:

7. Sutter County: Yuba City Urban Plan;
8. Yuba County: Yuba County General Plan, North Arboga Study Area, Plumas Lake Specific Plan, East Linda Specific Plan, Yuba County Motorplex and Amphitheater, City of Marysville General Plan, North Marysville Specific Plan, Spring Valley Specific Plan; and
9. Butte County: City of Oroville General Plan, City of Chico General Plan.

Commitments have been made by the counties of Yuba and Sutter to prepare an HCP(s) to address indirect effects of the upgrade of SR 99, excluding the Yuba City Urban Plan. While project proponents and local land use jurisdictions have discussed preparation of HCPs to support application for incidental take permits, no HCPs have been finalized or incidental take permits issued for these developments. If the project proponents continue to pursue development of HCPs and applications for incidental take permits (ITPs), the effects of the planned developments will be addressed through future consultations pursuant to section 7 of the Act. However, the HCP process is voluntary and preparation of an HCP or issuance of an incidental take permit is not guaranteed. The decision to obtain incidental take permits lies ultimately with the prospective permit applicants. Some portions of the proposed developments are not otherwise subject to Federal permitting processes and may not be subject to section 7 consultation through other means. If development proceeds within portions of the proposed development areas, take of federally listed species may or may not result, depending on site specific conditions. Regardless of whether direct take will result from limited development within these proposed areas, indirect effects to federally listed species are expected to result from all portions of the proposed developments.

In the interim, applicants have to demonstrate compliance with the Act before local permits are issued. A process will be put in place to help minimize the indirect effects. These other projects are anticipated to occur later in time, and the effects will not happen all at once.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed SR 99 project are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

An undetermined number of future land use conversions and routine agricultural practices are not subject to Federal authorization or funding and may alter the habitat or increase incidental take of giant garter snakes, or Sacramento splittail and are, therefore, cumulative to the proposed project. Most of these future non-Federal projects are considered indirect effects of the proposed action and effects are addressed through an interim process of project approval and HCP development.

Giant garter snake

Because the snake inhabits wetlands and adjacent uplands in highly modified portions of the Central Valley, the Service anticipates that a wide range of activities will continue to incrementally adversely affect this species. For example, a significant but undetermined number of future land-use conversions and routine agricultural practices around the project site are not subject to Federal permitting processes and may convert or otherwise alter habitat or disturb, kill, or injure giant garter snakes. These cumulative effects include: (1) fluctuations in acres of aquatic habitat due to water management and/or the number of acres of rice grown annually; (2) a wide range of water diversions; (3) levee maintenance and repairs by various entities; (4) the riprapping or lining of canals and stream banks; (5) dredging, mechanical clearing, spraying with herbicides and burning to remove vegetation from or adjacent to irrigation canals, ditches, and streams; (6) use of burrow fumigants for rodent control along ditches, levees, canal banks and other potential upland refugia; (7) release of contaminated runoff related to agriculture and urbanization; (8) use of various pesticides in rice crops and other agricultural lands that provide snake habitat, or which are adjacent to and/or drain into snake habitat; (9) steadily increasing vehicular traffic along many roads and levees; (10) increasing human intrusion into habitat; and (11) increased predation by human pets, including cats, as the human population continues to increase.

Non-Federal flood control and maintenance activities which can result in snake mortality and degradation of habitat include levee construction, stream channelization, and stream- and canal-bank protection efforts with riprap and other methods.

Sacramento splittail

Beginning in the 1930s and 1940s, and continuing until today, non-Federal riprapping projects have also been installed along the river system. The non-Federal work includes riprapping by (a) the State, under its Delta Levees Subvention Program and other authorities; (b) various levee and reclamation districts; and (c) private individuals. The Corps' April 12, 2000, letter to the Service stated that data on the location and extent of such non-

Federal riprapping is currently unavailable, but Service/Corps mapping efforts are currently underway.

Without knowledge of the amounts and locations of all non-Federal riprap placed in the past, informed projections of future cumulative non-Federal riprap likely for the lower Sacramento River system are somewhat problematic. Nevertheless, it is clear that non-Federal riprapping is continuing today and is likely to continue in the future.

A reasonable projection of future non-Federal riprapping, in lieu of and until better estimates become available from the Corps' Sacramento-San Joaquin Rivers Comprehensive Study or through other venues, can be made using past data and a few key assumptions. First, it is known that since 1963, about 245 kilometers (152 miles) of riprap have been placed along the lower Sacramento River system by the Corps' Sacramento River bank Protection Project (SRBPP) alone (Service 2000). If we assume non-Federal riprapping has been 10 percent of the SRBPP amount over the same 37-year period, the non-Federal total is 24 kilometers (15 miles) or 650 meters (2,140 linear feet) per year since 1963. Furthermore, assuming that non-Federal riprapping has, like SRBPP, now slowed to a much lower annual rate than in the past (due to overall gradually improving levee conditions), a reasonable estimate is that non-Federal riprapping is currently averaging only about 50 percent of the former 650 meters (2,140 feet) per year, or 326 meters (1,070 feet) per year. Thus, annual non-Federal riprap work totaling a similar order of magnitude to the present efforts is likely occurring now and will continue to occur in foreseeable future, as new erosion trouble spots develop along the river or as new private developments desiring riprap occur on the river's banks.

Such non-Federal riprapping has the same or greater, effects to ecosystems processes and functions, and therefore to the splittail, as the ongoing SRBPP-related riprapping. Since set-back levees, which allow avoidance of all aquatic and fisheries effects, are not being implemented by non-Federal interests, temporal and spatial losses of submerged, vegetated areas, including shaded riverine aquatic (SRA) habitat and LWD, are both common and significant as is preclusion of setback levee alternatives that could otherwise significantly offset effects and contribute to the conservation needs of listed species. As with SRBPP riprapping, non-Federal riprapping poses threats as described above to the splittail's adult spawning needs; adult pre-spawning foraging needs; juvenile rearing and perhaps migration needs; and general refugia needs. Non-Federal riprapping also includes similar adverse effects to the splittail. The net result of these cumulative effects is a steady, incremental reduction in the environmental baseline for the splittail.

There are also non-Federal, cumulative effects resulting from activities other than bank protection. Water diversions are an incrementally small adverse effect but cumulatively are likely a significant adverse effect on the splittail. Although fish screens are being installed on many major diversions, many more smaller diversions remain capable of entraining and killing listed fish. Further, some screens are designed to create approach velocities suitable for juvenile salmonids.

Environmental contaminants variously affect the splittail's health, reproductive ability, disease resistance. Metals such as copper, zinc, and cadmium, present in the vicinity of highly industrialized near shore areas of the lower San Francisco Bay estuary, can be directly toxic to splittail, especially in their sensitive larval stages. These metals damage gills and alter liver and

nervous system functions causing death, behavioral changes, and reduced growth and reproduction. These metals can have the same effects on food items of the splittail, reducing their prey base and placing additional stress on the splittail.

Mercury harms adult splittail by causing neurological damage which in turn, adversely affects behavior. Mercury accumulated by female splittail is transferred to the embryo where it causes reduced hatching, developmental abnormalities, altered growth, and behavioral changes. Splittail are especially vulnerable to mercury bioaccumulation as they are relatively long-lived, benthic foragers.

The primary source of this contamination is from mercury mines in the Coast Range and from gold mines in the Sierra Nevada range. Recent findings indicate that the Delta locales with the most elevated biotic mercury concentrations were linked to the Cosumnes River and Yolo Bypass systems (Skorupa, pers. comm.), both spawning areas for splittail. Sediments in the undammed Cosumnes River are a significant source of methyl mercury. Yolo Bypass receives runoff from Clear Lake via Cache Creek. Cache Creek is also elevated in mercury concentration. Further, the Yolo Bypass may be hydrologically connected to Suisun Marsh, which means that mercury is conducted directly to the splittail's core rearing area. Mercury is also likely to enter the splittail's habitat from the Bear and Yuba Rivers. The aggregated effect of mercury contamination is the suppression of reproductive success across generations.

Selenium is also present at higher than background levels within the range of the splittail and, like mercury, reaches high concentrations in fish within and near the core portion of the splittail population. Splittail tissue from collections made in Montezuma Slough, Mud Slough, and Salt Slough has contained selenium in concentrations sufficient to reduce reproductive performance which, in turn, results in poor post-hatch survivorship (Beckon *et al.* 1999, Stewart *et al.* unpublished data).

The uptake of selenium by splittail has been worsened in recent years by the introduction of the nonnative Asiatic clam into the estuary (Luoma and Presser 2000). This clam filters typical splittail prey items such as copepods from the water and, in the process, bioaccumulates selenium. The splittail has subsequently shifted to feeding heavily on the Asiatic clam, thus causing an associated increase in selenium in the fish.

Pesticides are a pervasive contaminant within the range of the splittail. Dangerously elevated exposures to mercury, selenium, toxaphene, and DDE have already been directly confirmed for various portions of splittail populations. Foreseeable trends in contaminant loadings to splittail environments, and in splittail feeding ecology, will lead to a worsening of contaminant threats in the near-term future.

High concentrations of organophosphate and carbamate pesticides from agriculture enter the estuary in concentrations acutely and chronically toxic to zooplankton and fish. During rainfall runoff events, acutely toxic pulses of pesticides move down the rivers and through the Estuary with remarkable persistence and relatively little dilution (Kuivila and Foe 1995). The periods of pesticide use coincide with the timing of migration, spawning, and early development of splittail. Splittail are also vulnerable to organochlorines because the most important remaining floodplain spawning areas are actively farmed using chemical-intensive techniques during the non-flood seasons. Toxaphene and DDE have been documented in splittail tissue at levels exceeding those

known to be toxic and known to adversely affect reproduction in tested species of fish. Toxaphene is a known piscicide. Effects extend beyond death of splittail, as organochlorines asserts their respective effects at concentrations below those required for direct mortality.

Runoff is seldom contaminated with only one chemical. Irrigation drain water of the Colusa Basin Drainage Canal has been documented to be significantly toxic to larvae of striped bass and ricefish (*Oryzias latipes*), and to opossum shrimp, which is the major food organism of splittail (Bailey *et al.* 1991). Splittail may be similarly affected by agricultural and industrial chemical run-off, particularly, because like striped bass, adults migrate upriver to spawn and young rear upriver until waters recede in late spring. Contaminant loading is also a significant concern as it is reducing the quality of habitat found in otherwise highly productive splittail spawning sites, such as the Yolo Bypass and the lower reaches of the Cosumnes River.

Contaminant loading, absent any appreciable effort at remediation, is emerging as a significant factor in depressing baseline conditions for the splittail. Water quality, therefore, may become a limiting factor in the recovery of the species.

Angling pressure on the splittail is not considered highly detrimental at this time but could become a significant adverse effect as human populations increase. Further, anglers seeking to catch splittail may be most desirous of ripe females, as the roe is considered a delicacy. Removal of spawning females has the potential to reduce populations. The Fish and Game Commission has elected not to regulate or prohibit sportfishing for the splittail.

These cumulative effects further contribute to reducing the respective environmental baseline for the splittail.

Conclusion

Implementation of the State Route 99 Safety and Operational Improvement Project will harm giant garter snakes by permanently destroying and temporarily disturbing 154.767 acres of habitat. This giant garter habitat consists of approximately 76.619 acres of upland terrestrial giant garter snake habitat and 1.268 acre of aquatic giant garter snake habitat that will be destroyed (or disturbed for longer than one construction/growing season) by removal of vegetation and near-shore features to accommodate road construction activities. It also incorporates an estimated 76.7 acres of temporary disturbance in uplands and an estimated 0.180 acre of temporary disturbance in aquatic habitat.

Implementation Segments 1 and 2 of the State Route 99 Safety and Operational Improvement Project will also harm splittail by permanently destroying and temporarily disturbing approximately 3.203 acres of habitat in the Feather River, Ping Slough, and Coon Creek. The proposed action will harm splittail by permanently altering 0.027 acre of habitat in Segment 1 and 2.804 acres of habitat in Segment 2; a loss of 2.831 acres of splittail habitat. The proposed action will harm splittail by temporarily altering 0.122 acre of habitat in Segment 1 and 0.25 acre of habitat in Segment 2; a temporary disturbance of 0.372 acre of splittail habitat. Pre-construction drilling activities incorporate avoidance measures and are unlikely to reach the level of effect where take would be expected to occur. Further, up to 100 splittail subjected to salvage, recovery, and repatriation operations will be harmed.

After reviewing the current status of the giant garter snake and splittail, environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that implementation of the State Route 99 Safety and Operational Improvement Project in Sutter County, California, *once the conservation measures have been identified and implemented*, will be not likely to jeopardize the continued existence of the species. No critical habitat has been proposed or designated for the giant garter snake or splittail, therefore, none will be affected.

The following Reasonable and Prudent Measures, and the Terms and Conditions that implement them, contain non-discretionary measures that the Administration *must* follow, and/or ensure that Caltrans follows, in order for this biological opinion to be valid and for its Incidental Take Statement, and associated exemption in section 7(o)(2), to apply to the proposed action.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act, provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are nondiscretionary for listed species in this opinion and must be implemented by the Administration so they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Administration has a continuing duty to regulate the activity that is covered by this incidental take statement. If the Federal agency (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

Construction of the State Route 99 Safety and Operational Improvement Project will result in adverse effects on 154.767 acres of giant garter snake habitat, 3.203 acres of splittail habitat, and up to 100 individual splittail from the fish salvage operation.

The Service anticipates that incidental take of the giant garter snake will be difficult to detect or quantify for the following reasons: giant garter snakes are cryptically colored, secretive, and known to be sensitive to human activities. Snakes may avoid detection by retreating to burrows, soil crevices, vegetation, or other cover. Individual snakes are difficult to detect. Most

close-range observations represent chance encounters that are difficult to predict. It is not possible to make an accurate estimate of the number of snakes that will be harassed, harmed or killed during construction activities (staging areas, work on canal banks, soil borrow areas, and vehicle traffic to and from borrow areas). In instances when take is difficult to detect, the Service estimates take in numbers of individuals per acre of habitat lost or affected as a result of the action. Therefore, the Service anticipates that up to five giant garter snakes inhabiting 154.767 acres of combined upland and aquatic giant garter snake habitat affected may be harassed, harmed, or killed by modification and degradation of habitat as a result of the exploratory drilling associated with the proposed project.

The Service anticipates that up to 100 splittail may be harmed, harassed, or killed during salvage operations in the coffer dams prior to dewatering. Identification of splittail to approximately the 30mm in total length size class is possible due to the characteristic asymmetrical caudal fin. Measurements need not be taken, however, as rapidity should be emphasized in repatriation efforts. Further, it is not anticipated that splittail will be present during closure of the coffer dams (post-July 1 of each construction year). Tracking of splittail numbers is provided herein only so that salvage efforts may identify the fish. If greater than 100 splittail are salvaged, it will require a reconsideration of the July 1 in-water work window.

Construction activities will disturb and destroy splittail habitat, thus taking the species. The Service anticipates that any take of splittail via construction activities and habitat loss will be difficult to detect and quantify for a number of reasons: they have a relatively small body size; they are relatively secretive; their presence in the Sacramento River generally coincides with high, turbid flow conditions, which makes their detection difficult; and additionally, their presence in flooded vegetation makes them difficult to detect. Therefore, it is not possible to provide precise numbers of splittail that will be harassed, harmed, or killed during and/or after in-water construction of the bridge piers. Accordingly, the Service is partially quantifying take incidental to the project as the acres of stream bed that will be temporarily affected by construction activities. The Service anticipates that all splittail inhabiting 3.203 acres of stream bed will be incidentally taken as a result of the proposed action.

The Service has developed the following incidental take statement based on the premise that the reasonable and prudent measures will be implemented. Upon implementation of the following reasonable and prudent measures, five giant garter snakes inhabiting 154.767 acres of habitat, all splittail inhabiting 3.203 acres of habitat, and up to 100 individual splittail captured during salvage, will become exempt from the prohibitions described under section 9 of the Act for direct and indirect effects. The Service will address the remaining acreages identified in the Effects of the Proposed Action and Amount or Extent of Take sections under reinitiation of this formal consultation, to be conducted once conservation sites have been selected and plans developed.

Effect of the Take

The Service has determined that the authorized and likely future levels of anticipated take is not likely to result in jeopardy to the splittail. Since critical habitat has not been proposed or designated for the splittail, none will be adversely modified or destroyed.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize incidental take of listed species:

1. The effects of construction activities on the giant garter snake and its habitat shall be minimized.
2. The effects of construction activities on the splittail and its habitat shall be minimized.
3. The effects of entrainment of splittail within cofferdams shall be minimized.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, the Administration must ensure compliance with the following terms and conditions, which implement the Reasonable and Prudent Measures described above. These terms and conditions are nondiscretionary:

The following terms and conditions restate and refine the measures proposed by the Administration in the Description of the Proposed Action section and implement Reasonable and Prudent Measure 1 above:

1. As proposed in the BA the Administration shall ensure that the proposed minimization measures or, as applicable, compensation, involving acquisition via fee title or recordation of a Service-approved conservation easement on a Service-approved site in the Sutter Basin giant garter snake population boundaries, of giant garter snake habitat sufficient to offset adverse effects on the acreage associated with the respective construction segments. The total acreage for the preconstruction drilling and three construction segments are: (1) 0.180 acre of temporarily-affected aquatic habitat; (2) 1.268 acres of permanently-affected aquatic habitat; (3) 76.7 acres of temporarily-affected upland habitat, and (4) 76.619 acres of permanently-affected upland habitat. The acreages associated with each segment are as follows:
 - A. Preconstruction drilling: 54.15 acres of temporarily-disturbed upland habitat
 - B. Segment 1 effects: (1) 0.180 acre of temporarily-affected aquatic habitat; (2) 0.146 acre of permanently-affected aquatic habitat; (3) 22.551 acres of temporarily-affected upland habitat, and (4) 4.759 acres of permanently-affected upland habitat.
 - C. Segment 2 effects: (1) 0.686 acre of permanently-affected aquatic habitat; and (2) 60.30 acres of permanently-affected upland habitat.
 - D. Segment 4 effects: (1) 0.436 acre of permanently-affected aquatic habitat; and (2) 14.56 acres of permanently-affected upland habitat.
2. The compensatory portions of the measures identified in Items 1, and Items (A) through (D), above, shall be completed no later than one calendar year after groundbreaking on the respective segments.
3. Construction activity within giant garter snake habitat shall be conducted between May 1 and October 1.
4. Between April 15 and October 1 any dewatered habitat must remain dry for at least 15

consecutive days prior to excavating or filling of the dewatered habitat.

5. Construction personnel shall receive Service-approved worker environmental awareness training as outlined in the biological assessment. This training instructs workers to recognize giant garter snakes and their habitat(s). Proof of such training shall be submitted to the Service prior to start of construction.
6. No plastic, monofilament, jute, or similar erosion control matting that could entangle snakes shall be placed on the project site. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
7. Project area shall be surveyed by a Service-approved biologist for giant garter snake 24 hours prior to construction activities, and resurveyed if a lapse of two weeks or greater has occurred. The monitoring biologist shall have the authority to stop construction activities if a snake is encountered during construction until appropriate corrective measures have been completed or until the snake is determined to be unharmed. Snakes should be allowed to move away from the area on their own. Sightings shall be immediately reported to the Service at (916) 414-6600. *Note that this Term and Condition supercedes a measure proposed by Caltrans (see Item 3 of the Species-Specific Conservation Measures for giant garter snake, above).*
8. Movement of heavy equipment to and from the project site shall be restricted to established roadways to minimize habitat disturbance.
9. After completion of construction activities, any temporary fill and construction debris shall be removed and disturbed areas shall be restored to preproject conditions as outlined in the biological assessment. The project site shall be monitored for 1 year and a report submitted to the Service as outlined in the biological assessment.
10. Confine clearing to the minimal area necessary to facilitate construction activities. Flag and designate avoided giant garter snake habitat within or adjacent to the project area as Environmentally Sensitive Areas. This area shall be avoided by all construction personnel.
11. A post-construction compliance report prepared by the monitoring biologists shall be forwarded to the SFWO within 60 calendar days of the completion of construction activity. This report shall detail (i) dates that construction occurred; (ii) pertinent information concerning the success of the Project in meeting compensation and other conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on federally listed species, if any; (v) occurrences of incidental take of federally listed species, if any; and (vi) other pertinent information.
12. The Administration shall ensure compliance with the Reporting Requirements below.

The following terms and conditions restate and refine the measures proposed by the Administration in the Description of the Proposed Action section and implement Reasonable and Prudent Measure 2 above:

1. The Administration shall ensure that the proposed compensation, involving acquisition of fee title or recordation of a Service-approved conservation easement on a Service-

approved site in Sutter County, (approximately 9.609 acres, reflecting typical 3:1 wetland conservation ratios for 3.203 acres of adverse effect) occurs no later than 1 year after the first construction activity involving in-water work. This applies only to Segments 1 and 2; preconstruction drilling requires no compensatory action as it is sufficiently minimized in effect.

2. The Administration shall ensure that Caltrans implements the minimization and conservation measures as described in the Description of the Proposed Action and Description of the Proposed Avoidance, Minimization, and Conservation Measures sections, above.
3. Any incidental take of splittail shall be reported to the Service immediately by telephone or electronic mail at (916) 414-6600 and within three (3) days in writing at the letterhead address (Attention: Chief, Endangered Species). The Administration shall also comply with the below specific reporting requirements.
4. Stockpiling of construction materials, including portable equipment, vehicles and supplies, including chemicals, shall be restricted to the designated construction staging areas and exclusive of the riparian and wetlands avoidance areas.
5. Erosion control measures (best management practices) that prevent soil or sediment from entering the river shall be placed, monitored for effectiveness, and maintained throughout the construction operations. All best management practices required by the Regional Water Quality Control Board and/or Corps Regulatory Branch in association with Clean Water Act section 401 certification and Department of the Army permits, respectively, shall be implemented.
6. All litter, debris and unused materials, equipment or supplies shall be removed from below the ordinary high water line daily, and deposited at an appropriate site.
7. Any spills of hazardous materials within Sacramento splittail habitat shall be cleaned up immediately and reported to the Service's Contaminants Division *and* Chief of Endangered Species within 24 hours. Such spills, and the success of the efforts to clean them up, shall be reported in post-construction compliance reports.
8. A representative shall be appointed by the Administration who will be the contact for any employee or contractor who might incidentally take a living or find a dead, injured, or entrapped Sacramento splittail. This representative shall be identified to the employees and contractors during an employee education program conducted by the Administration on Sacramento splittail.
9. If requested by the Service, during or upon completion of construction activities, the Administration project manager or property owner shall accompany Service personnel on an on-site inspection of the sites to review project effects.

The following terms and conditions restate and refine the measures proposed by the Administration in the Description of the Proposed Action section and implement Reasonable and Prudent Measure 3 above:

1. The Administration shall ensure that a salvage and repatriation plan is developed and

implemented in a manner that minimizes mortality on fish. The salvage plan shall be submitted to the Service for approval no earlier than 60 days from the expected date of occurrence. The point of contact is the Service's Chief of the Endangered Species Division.

2. The results of the approved fisheries salvage operation shall be reported to the Service, in writing, no later than 60 days after salvage operations have concluded. The point of contact is the Service's Chief of Endangered Species.

Reporting Requirements

The Service should be notified immediately via telephone and in writing within three (3) working days of the finding of any dead or injured splittail. The Service contact for this information is the Chief of the Endangered Species Division at (916) 414-6600.

Any killed specimens of fish have been taken should be properly preserved in accordance with Natural History Museum of Los Angeles County policy of accessioning (10% formalin in quart jar or freezing). Information concerning how the fish was taken, length of the interval between death and preservation, the water temperature and outflow/tide conditions, and any other relevant information should be written on 100% rag content paper with permanent ink and included in the container with the specimen. Any dead or injured giant garter snakes or other listed species must be relinquished to the California Department of Fish and Game (CDFG), Environmental Services Division, for care or analysis. The CDFG telephone number at their Sacramento Regional Headquarters is (916) 355-0978; for immediate assistance, call the State Dispatch office at (916) 445-0045. Any killed specimens of snake or fish that have been taken shall be properly preserved in accordance with Natural History Museum of Los Angeles County policy of accessioning (10 percent formalin in quart jar or freezing). Preserved specimens shall be delivered to the Service's Division of Law Enforcement at 2800 Cottage Way, Room W-2928, Sacramento, California 95825-1846, phone (916) 414-6660.

Conservation Recommendations

Section 7(a)(1) of Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information and data bases.

1. The Administration should assist the Service in the implementation of the Draft Recovery Plan for the Giant Garter Snake and, once published, the species' Final Recovery Plan.
2. The Administration should incorporate into bidding documents the "Standard Avoidance and Minimization Measures for Construction Activities in Giant Garter Snake Habitat" as well as well as other conservation measures outlined for the splittail and beetle when appropriate.
3. The Administration should develop maintenance guidelines for the Administration's projects that will reduce adverse effects of routine maintenance on giant garter snakes and its habitat. Such actions may contribute to the delisting and recovery of the species by preventing degradation of existing habitat and increasing the amount and stability of

suitable habitat.

4. Future road improvement/widening projects under the jurisdiction of the Administration are anticipated throughout California. It is recommended that the Administration request a programmatic consultation for the snake similar to the 1997 Administration's programmatic for projects with relatively small effects on the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*).
5. The Administration should conduct studies, review pertinent literature, and explore options that would address enhancement of floodplain habitat within the Sacramento River and its tributaries
6. The Administration should implement the Delta Native Fishes Recovery Plan (which includes recovery objectives for the splittail and other listed and sensitive fish).

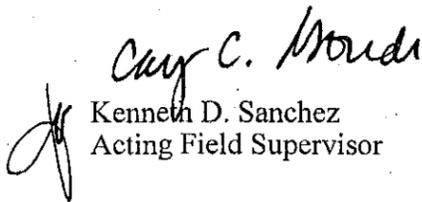
To be kept informed of actions minimizing or avoiding adverse effects or benefitting listed and proposed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION AND CLOSING STATEMENT

This concludes the Service's review of the actions presented in your January 30, 2003, request for formal consultation on the State Route 99 Safety and Operational Improvement Project, Sutter County, California. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this review; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded any and all operations causing such take must cease pending reinitiation and Service review.

If you have any questions or concerns about this review, please contact Jason Douglas, Sacramento Valley Branch Senior Biologist, or Justin Ly, Sacramento Valley Branch Chief at (916) 414-6645.

Sincerely,


Kenneth D. Sanchez
Acting Field Supervisor

Enclosure

cc:

ARD-ES, Portland, Oregon

U.S. Fish and Wildlife Service, Sacramento, California (Attn: Jerry Bielfeldt)

National Marine Fisheries Service, Sacramento, California (Attn: Mike Aceituno)

U.S. Army Corps of Engineers, Sacramento, California (Attn: Tom Cavanaugh)

California Department of Fish and Game, Rancho Cordova, California (Attn: Terry Roscoe)

California Department of Fish and Game, Redding, California (Attn: Jack Miller)

State Water Resources Control Board, Sacramento, California (Attn: Gary Carlton)

California Department of Transportation, Sacramento, California (Attn: Suzanne Melim)

County of Sutter, Yuba City, California (Attn: Larry Combs)

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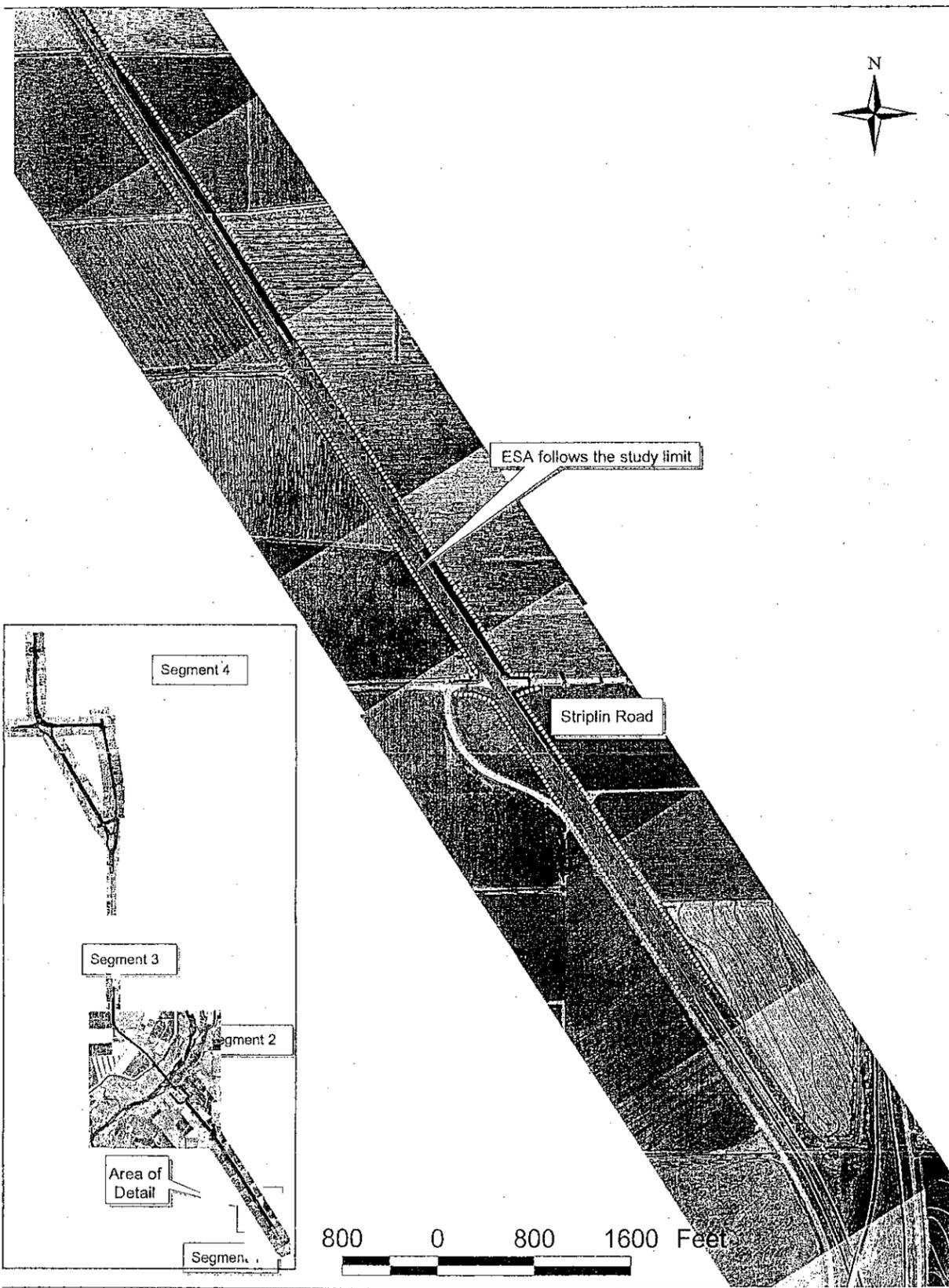
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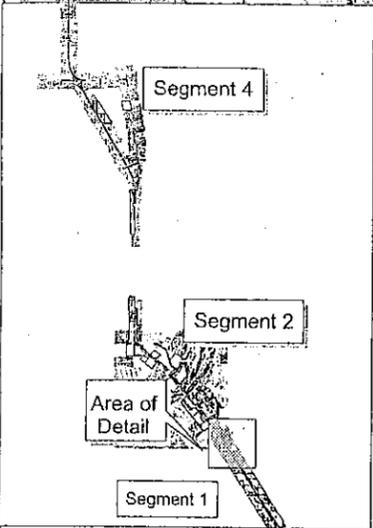
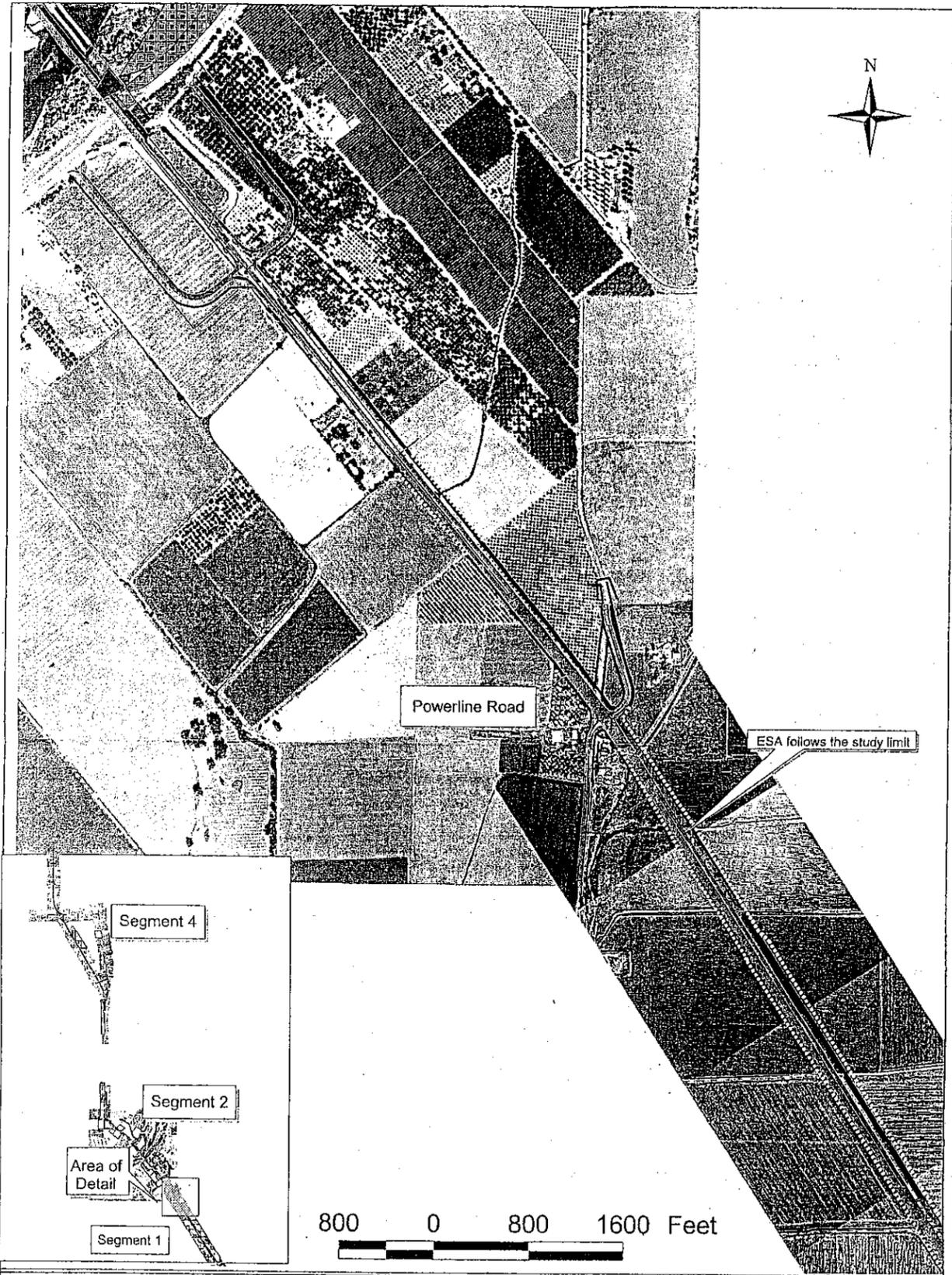
Environmentally Sensitive Areas

	GGS: Permanent Aquatic		Upland crops/fallow fields
	GGS: Temporary Aquatic		Orchard
	GGS: Permanent Upland		Cut and Fill
	GGS: Temporary Upland		Environmental Study Limit
	Rice fields		Environmentally Sensitive Area Fencing



Sutter 99 Safety and Operational Improvement Project

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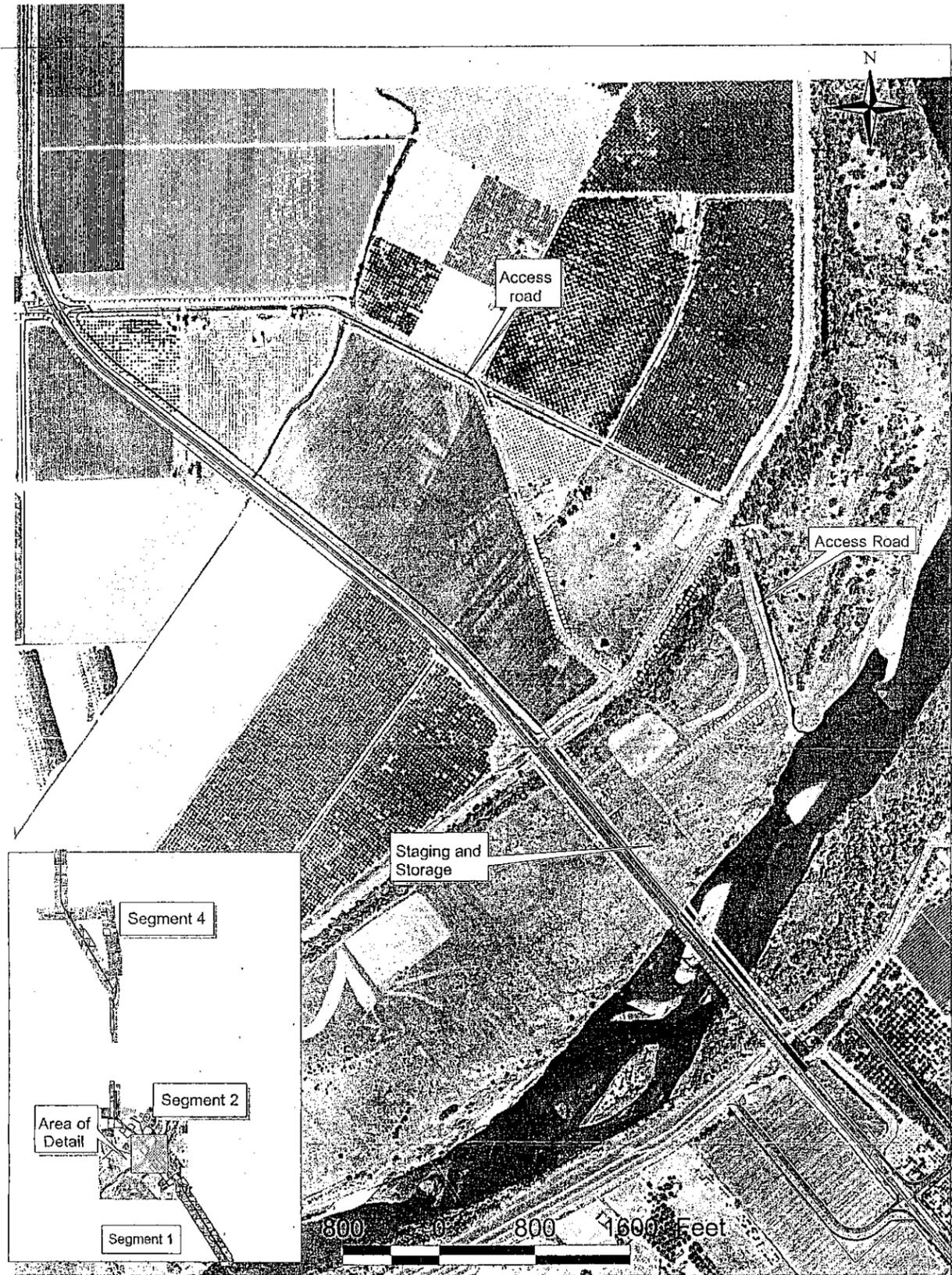
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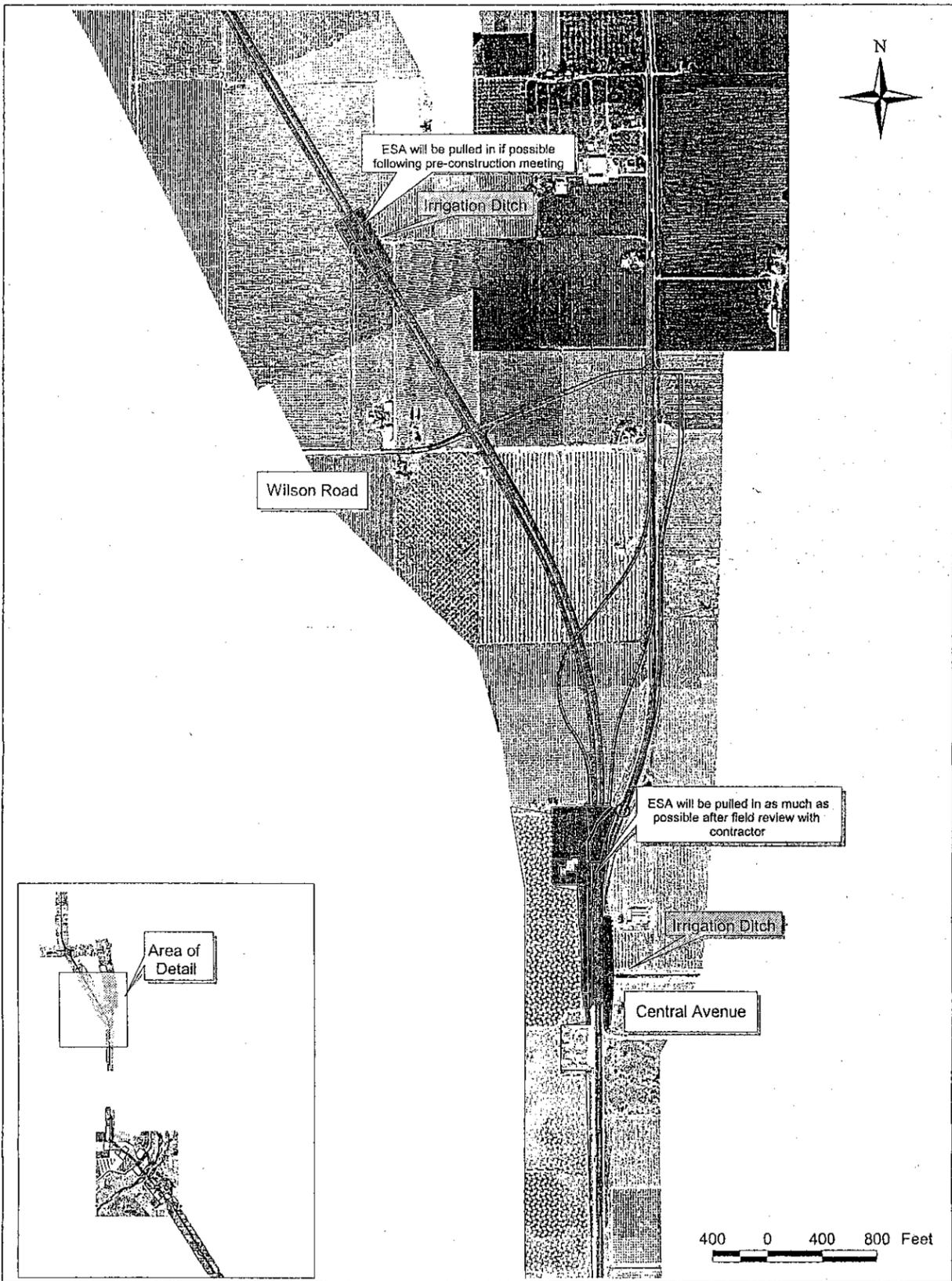
Environmentally Sensitive Areas

-  Environmentally Sensitive Area Fencing
-  Temporary Construction Easement
-  Environmental Study Limit
-  Cut and Fill



Sutter 99 Safety and Operational Improvement Project

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 KP 13.9-23.0/27.0-37.0
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It is possible that once the contractor is selected that the ESA can be refined so that less impact occurs. Habitat take was calculated on the maximum effect

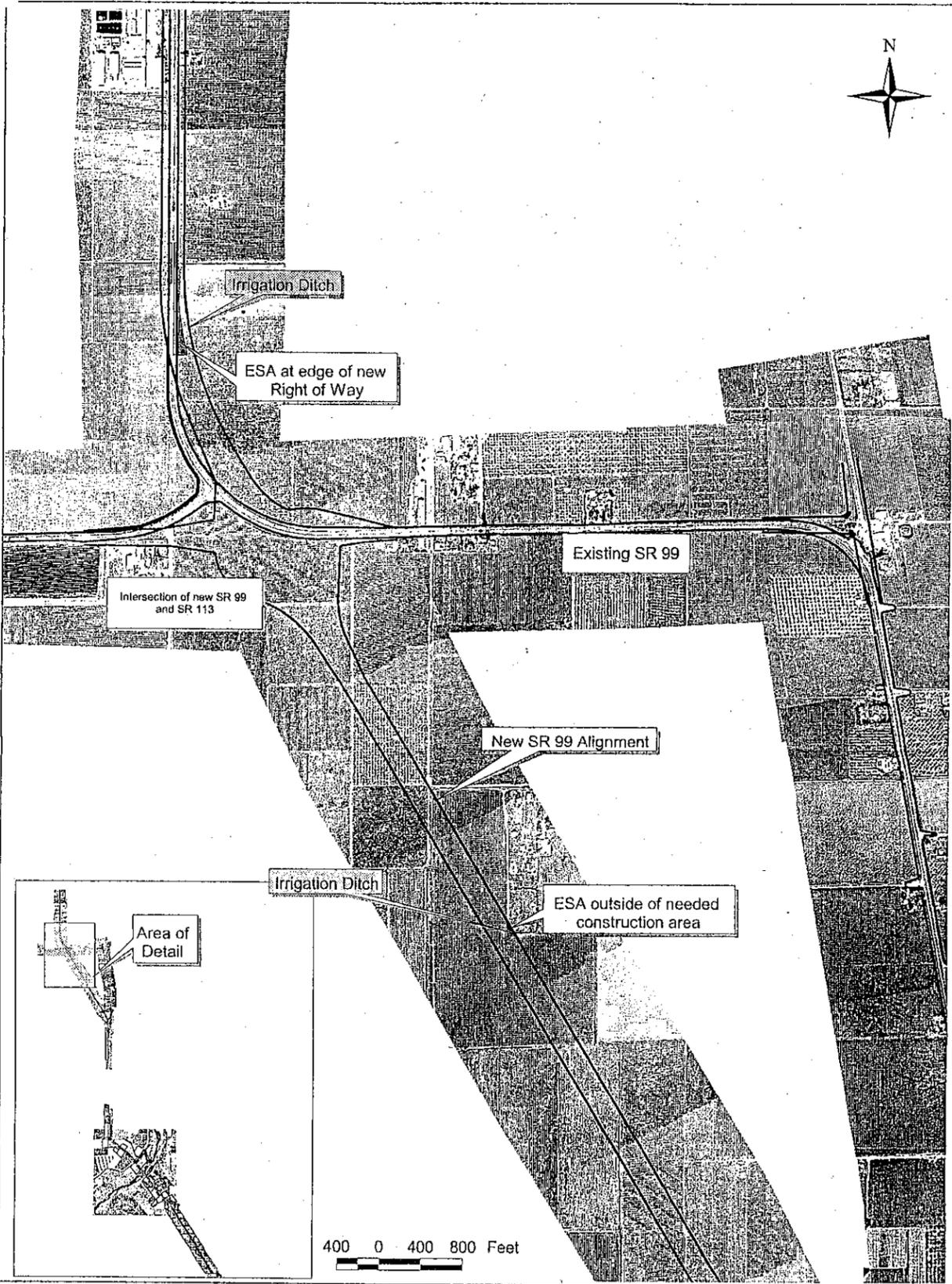


Environmentally Sensitive Areas

-  Environmentally Sensitive Area Fencing
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-  Environmental Study Limit
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Sutter 99 Safety and Operational Improvement Project

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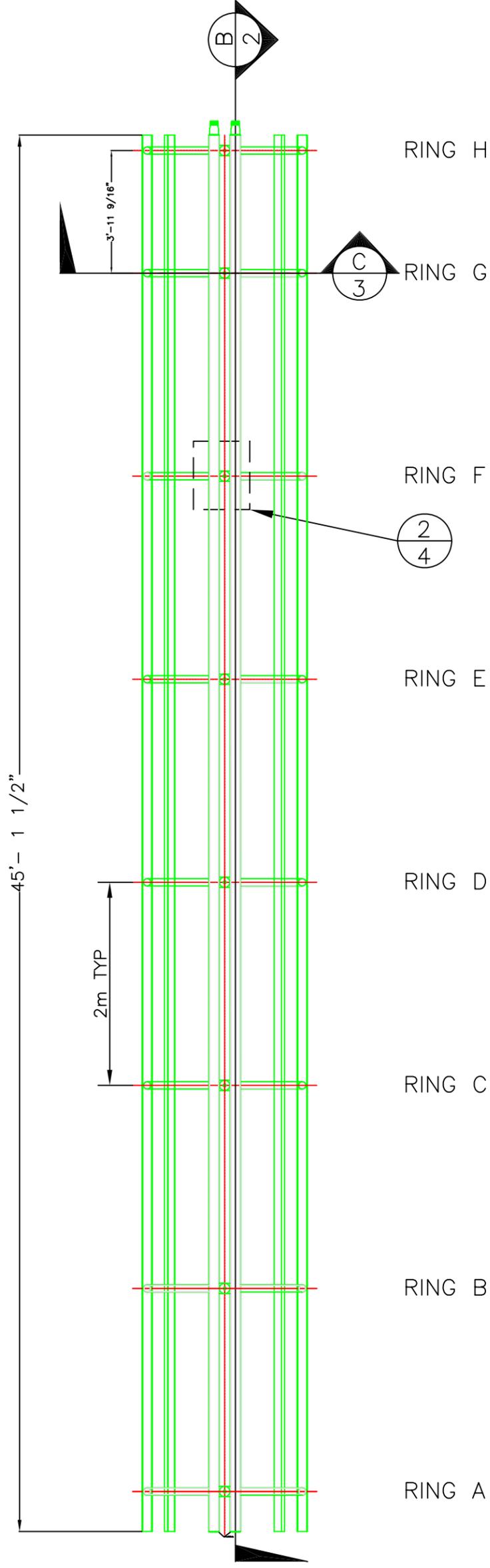
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Sutter 99 Safety and Operational Improvement Project

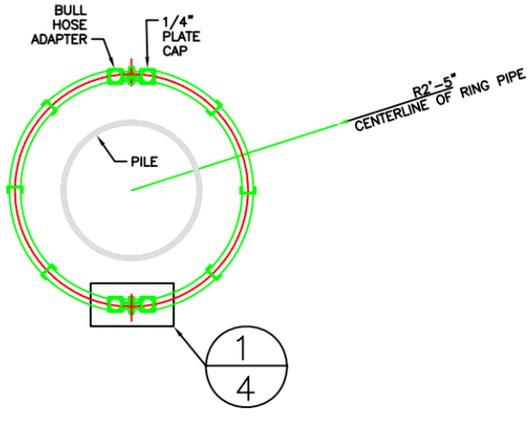
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BUBBLATOR ELEVATION VIEW

BUBBLATOR PLAN VIEW



NOTE:

1. Rings A,B,C,D,E,F,G,H will be drilled with air holes 1.6mm in diameter and shall be spaced approximately 20mm apart. Air holes shall be placed in four adjacent rows along the ring. (See sheet 5 for Manifold Hole Configuration)
2. Horizontal rings are 2-1/2" schedule 40 pipe - typical. EXCEPT ring (H) is 2-1/2" DOUBLE EXTRA STRONG PIPE (Schedule 80).
3. A minimum length 20 foot sling shall be used to choke and pick the bubbulator from the top ring.
4. The bubbulator structure will consist of two halves bolted together.
5. Bolts shall comply with ASTM A325 Standards.
6. Structural steel shall conform to ASTM A36.
7. All welding shall be done with E70XX electrodes in conformance with AWS d1.1.
8. This is a multi-section Bubbulator sectioned at three locations to make four sections. (See sheet 10 for section details).

SUBJECT ABC for Proposed Temporary Access Trestle

SCALE

ABC - 45 Foot Front View

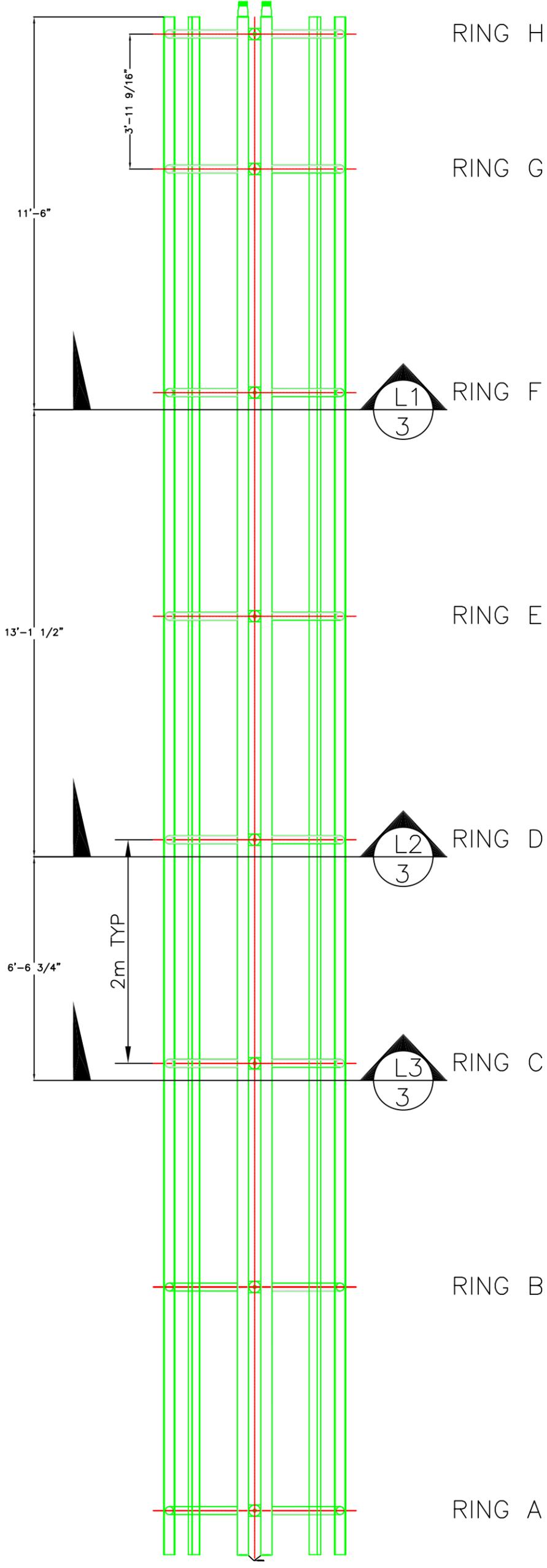
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SHEET 1 OF 11

DESIGNER Glenn Fleming DATE July 20, 2009

CHECKED Bernard Hammonds DATE July 20, 2009

FILE -



Bubbulator Elevation View

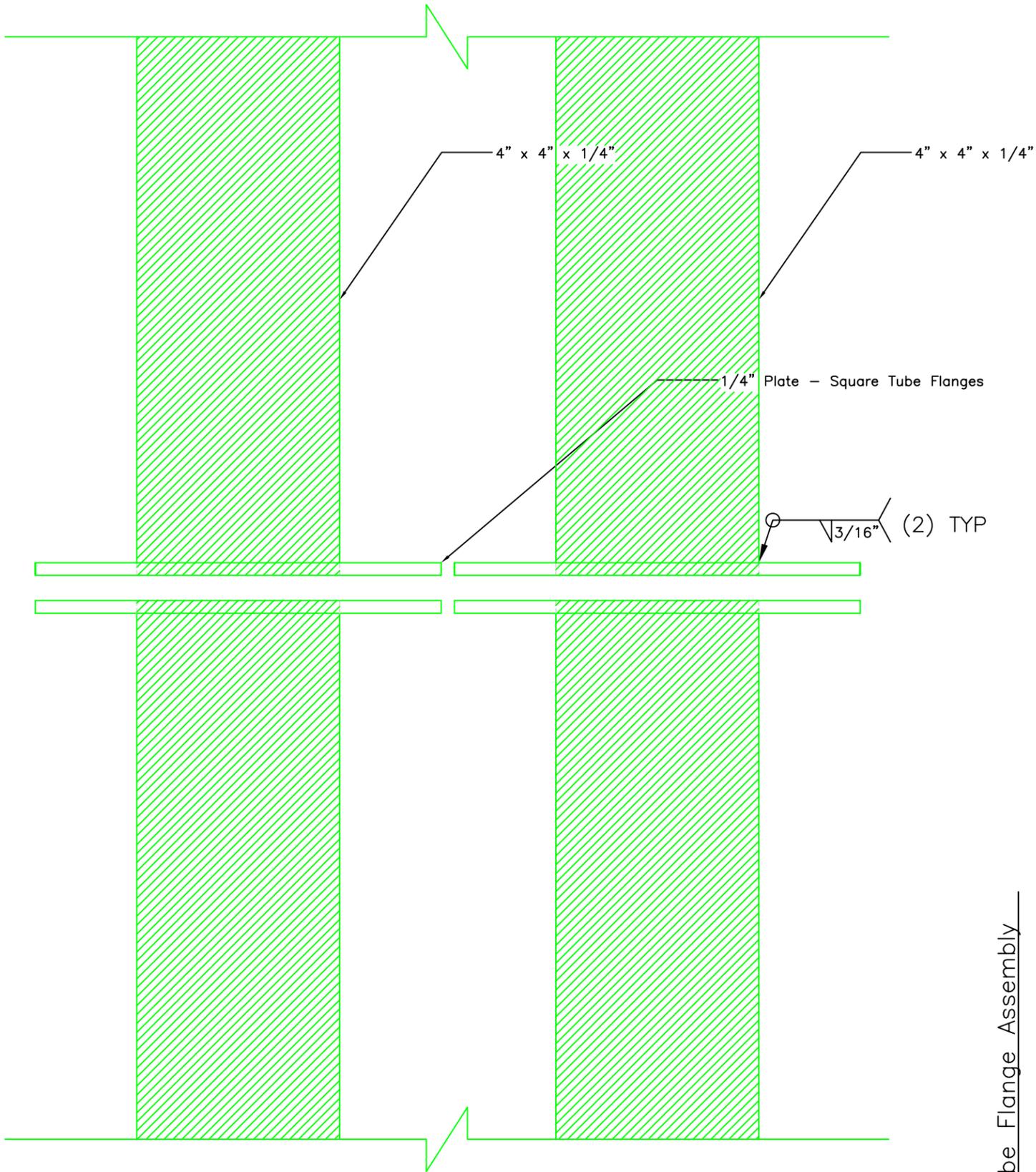
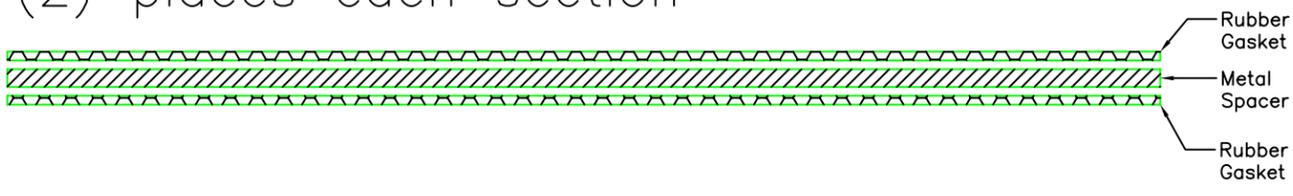
NOTE:

1. The Bubbulator will be sectioned into 4 pieces at L1, L2, and L3.
2. Flanges shall be welded to the ends of the sectioned square tubes (4) at each section.
3. 1/2" bolts shall be used to join the two sections.
4. The six channels shall be joined with splice plate and 1/2" bolts.
5. The final assembly shall incorporate rubber-metal-rubber gasket assembly between the flanges of the square tubing.
6. Bolts will comply with ASTM A325 Standards.
7. Structural steel shall conform to ASTM A36.
8. All welding shall be done with E70XX Electrodes in conformance with AWS D1.1.
9. The square tube flanges are not intended to take the load of the structure below them. Always use the six channel splice plates.

SUBJECT ABC for Proposed Temporary Access Trestle

SCALE	REVISION	SAS-TT-03
ABC - Multiple Section Data	DESIGNER	Glenn Fleming
FILE -	CHECKED	Bernard Hammonds
	SHEET	10 OF 11
	DATE	July 20, 2009
	DATE	July 20, 2009

Square tube flange gasket assembly
(2) places each section



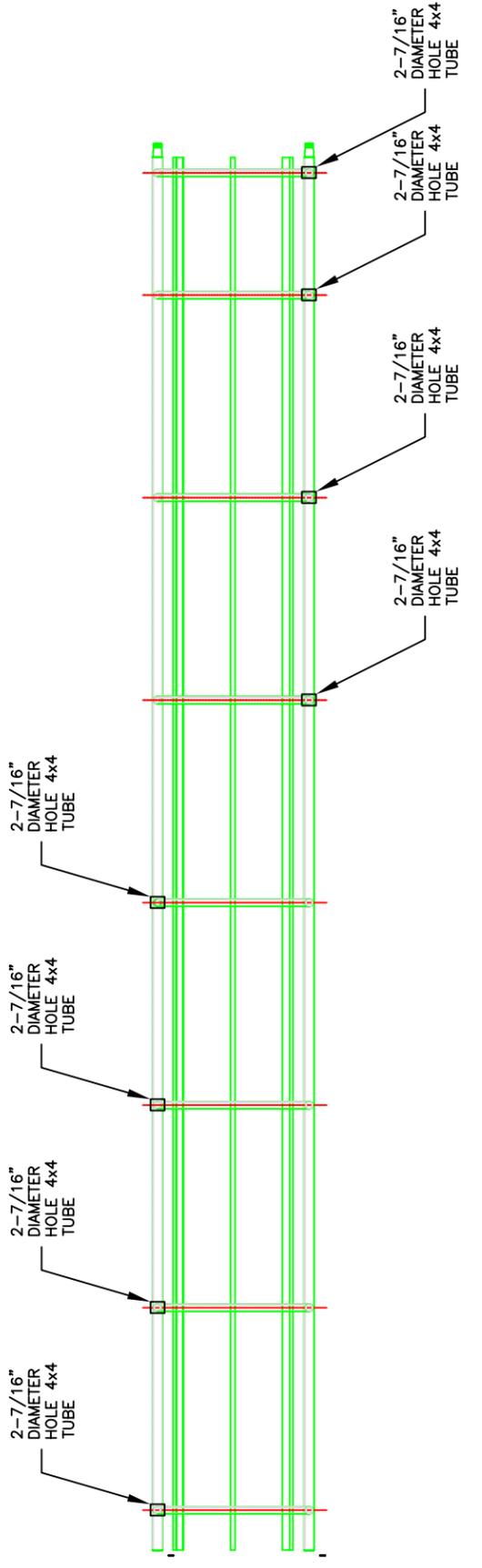
Bolt holes in square tube flanges, rubber and metal gaskets not shown for clarity

Square Tube Flange Assembly

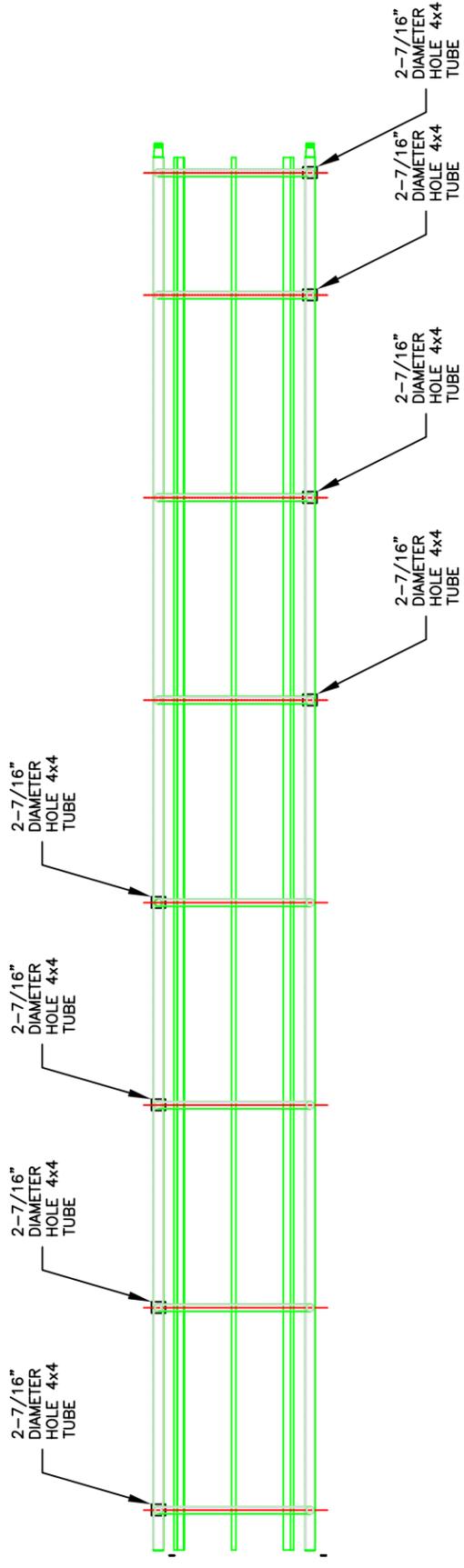
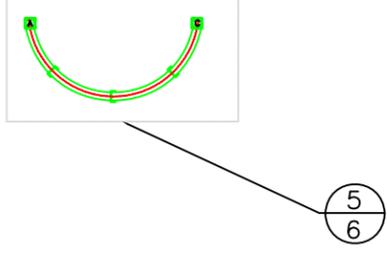
NOTE:

1. Square tube flanges shall be join with 1/2" bolts and separated by rubber-metal-rubber gasket assembly.
2. The metal gasket shall be stainless steel.
3. A gasket sealant compound may be used on gasket assembly.

SUBJECT	ABC for Proposed Temporary Access Trestle		
	SCALE	REVISION	SAS-IT-03
FILE	ABC - Square Tube Flange Connection		
	DESIGNER	SHEET	11 OF 11
	CHECKED	DATE	July 20, 2009
		DESIGNER	Glenn Fleming
		CHECKED	Bernard Hammonds
		DATE	July 20, 2009



Bubblator Section View



BUBBLATOR PLAN VIEW

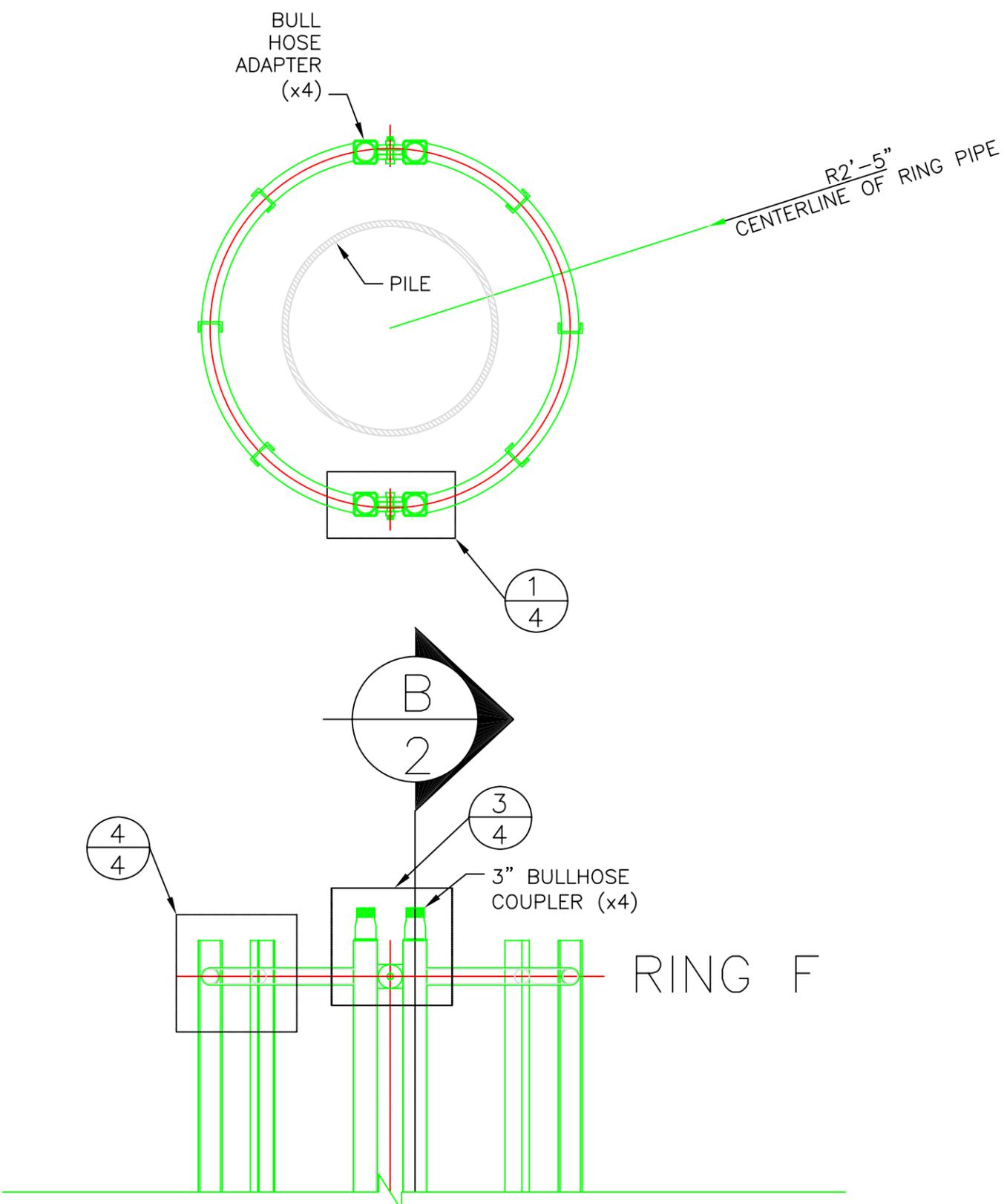


NOTE:

1. The 2-7/16" hole in the structural steel tube is to allow air flow into the respective manifold ring.
2. There are 16 holes, one for each manifold half.
3. The manifold rings shall be made of 2-1/2' SCHEDULE 40 PIPE.
4. See sheet 6 "ABC Air Supply Distribution" for air distribution configuration.

SUBJECT **ABC for Proposed Temporary Access Trestle**

SCALE	REVISION	SAS-IT-03
DESIGNER	SHEET	2 OF 11
CHECKED	DATE	July 20, 2009
FILE	DESIGNER	Glenn Fleming
	CHECKED	Bernard Hammonds
	DATE	July 20, 2009



C
3

DETAIL - Bull Hose Coupler

SUBJECT ABC for Proposed Temporary Access Trestle

REVISION SAS-TT-03

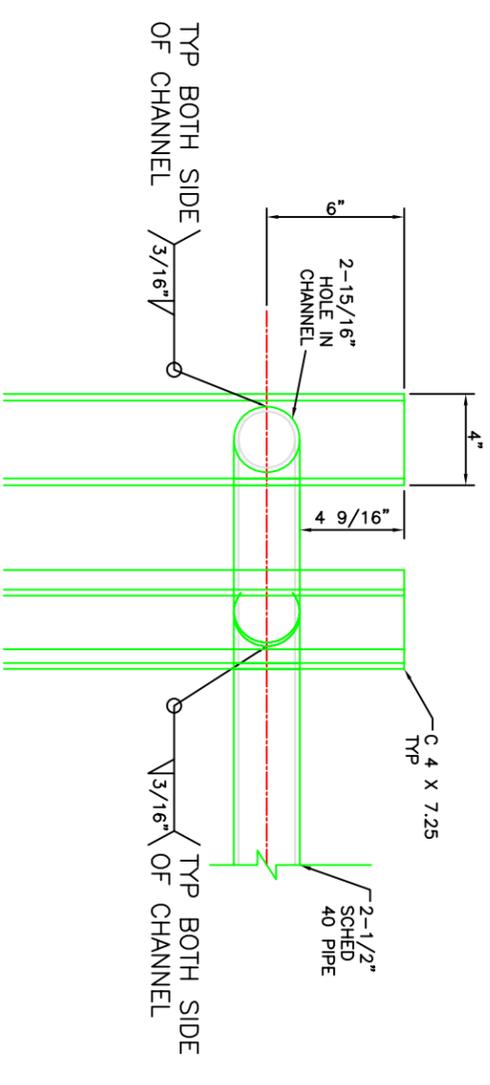
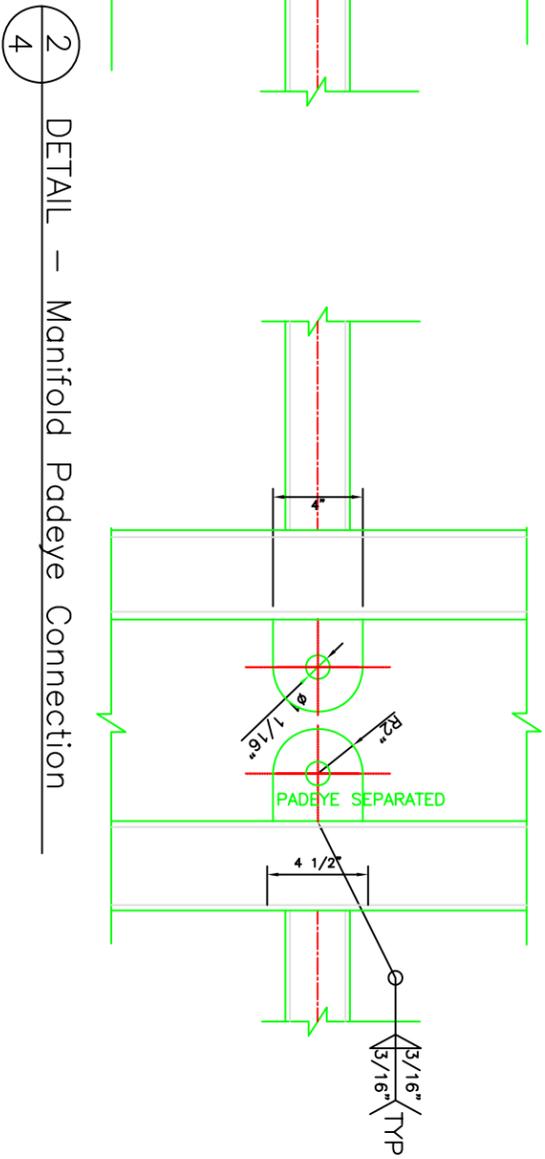
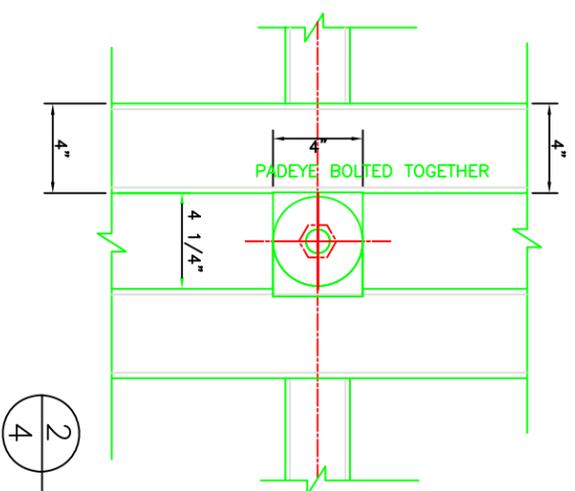
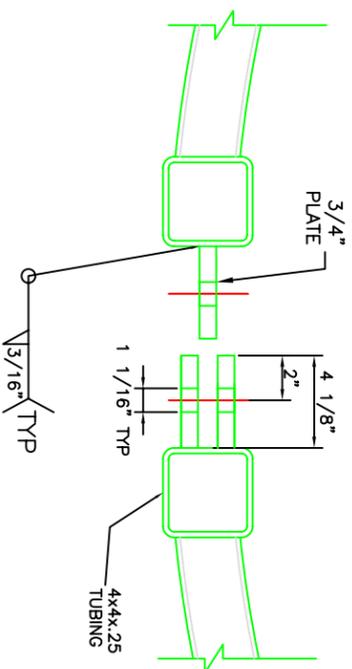
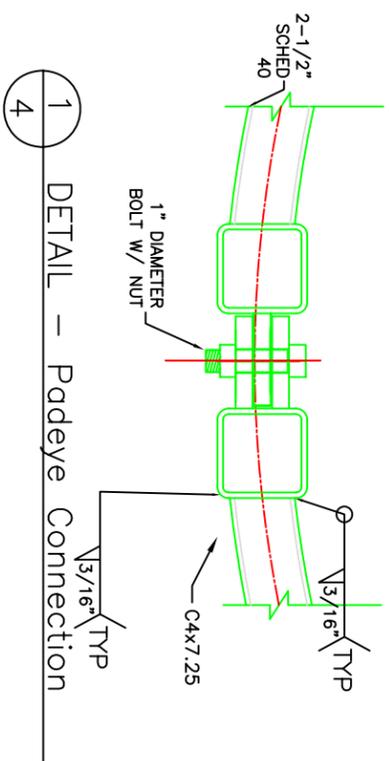
SCALE SHEET 3 OF 11

ABC - Ring (1)

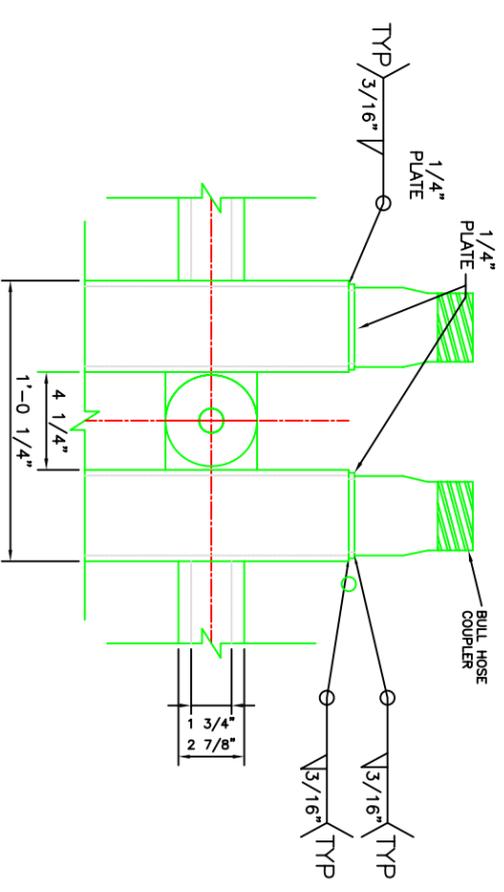
DESIGNER Glenn Fleming DATE July 20, 2009

CHECKED Bernard Hammonds DATE July 20, 2009

FILE -

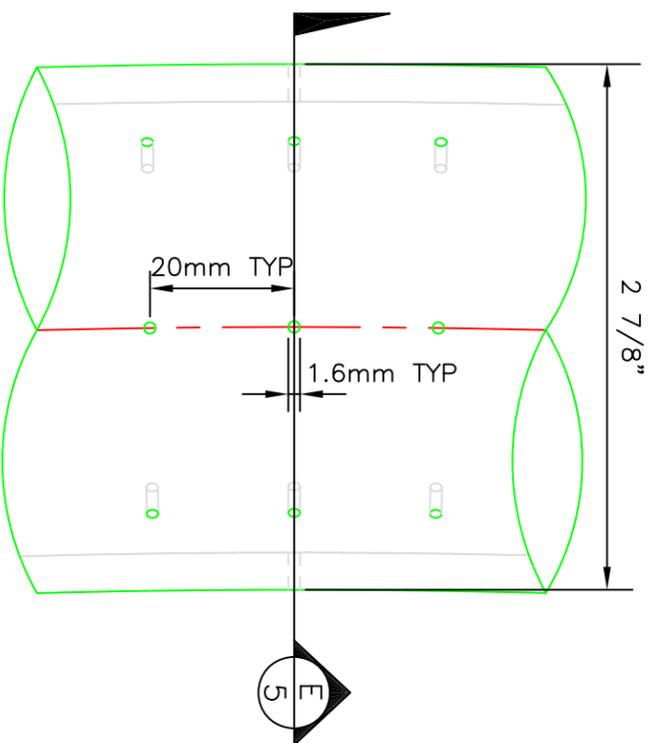


4
4
DETAIL - Channel Thru Holes

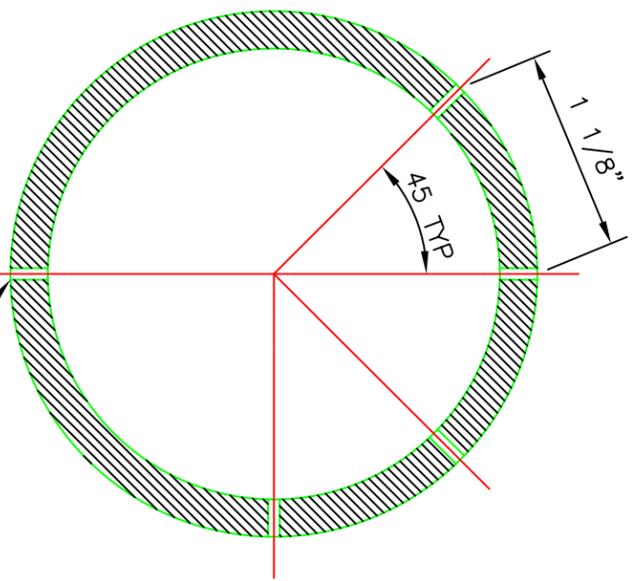


3
4
DETAIL - Bull Hose Coupler

SUBJECT		ABC for Proposed Temporary Access Trestle		REVISION		SAS-TT-03	
SCALE		SHEET 4 OF 11		DESIGNER		Glenn Fleming	
DESIGNER		Glenn Fleming		DATE		July 20, 2009	
CHECKED		Bernard Hammonds		DATE		July 20, 2009	
FILE		ABC - Details (1)		FILE		-	



Bubble Ring – Manifold
SCALE 1"=1"



BOTTOM HOLE 1/8" ϕ
DRILLED APPROX. 2' O.C.
(3 PER RING HALF)

SECTION – Manifold Hole Configuration

E
5

SUBJECT		REVISION	
ABC for Proposed Temporary Access Trestle		SAS-TT-03	

SCALE	SHEET 5 OF 11
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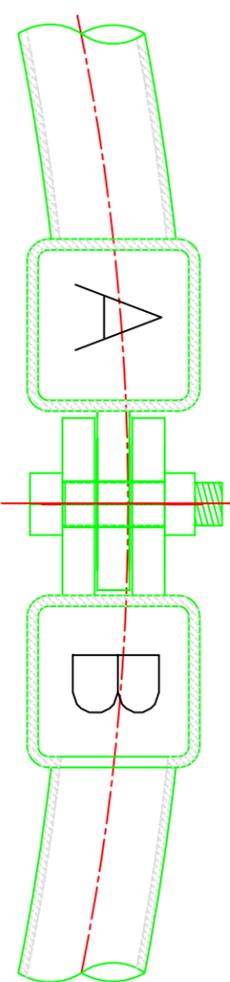
DESIGNER	DATE
Glenn Fleming	July 20, 2009

CHECKED	DATE
Bernard Hammonds	July 20, 2009

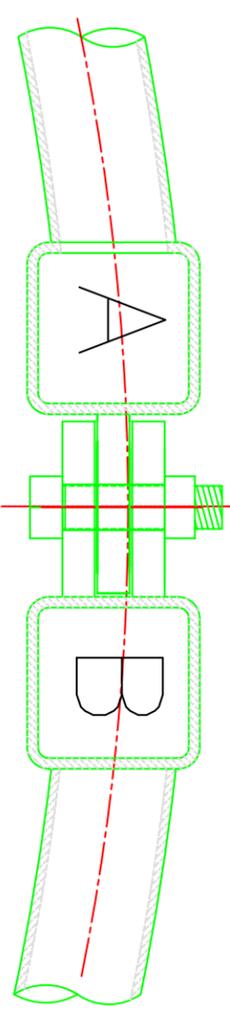
ABC – Ring (2)

FILE

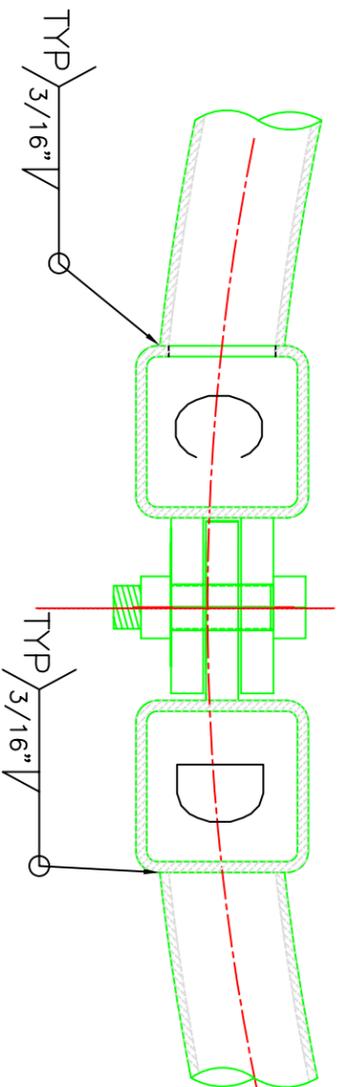
2-7/16" Diameter Hole in 4x4 Tube (B)
in Positions B5, B6, B7, B8



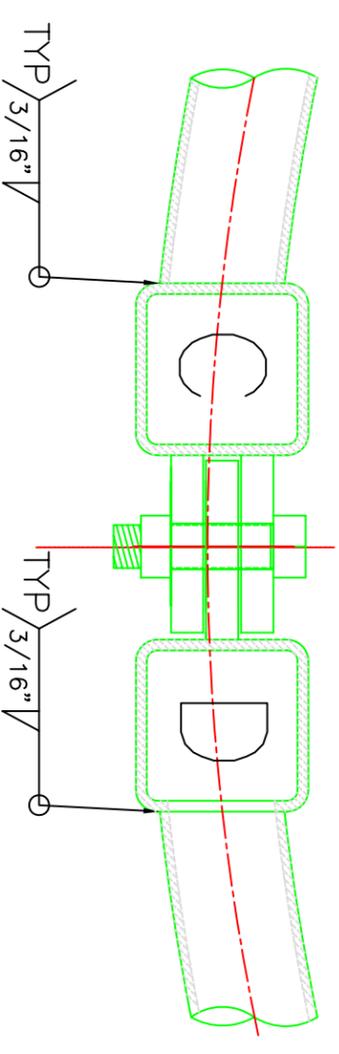
2-7/16" Diameter Hole in 4x4 Tube (A)
in Positions A5, A6, A7, A8



2-7/16" Diameter Hole in 4x4 Tube (C)
in Positions C1, C2, C3, C4



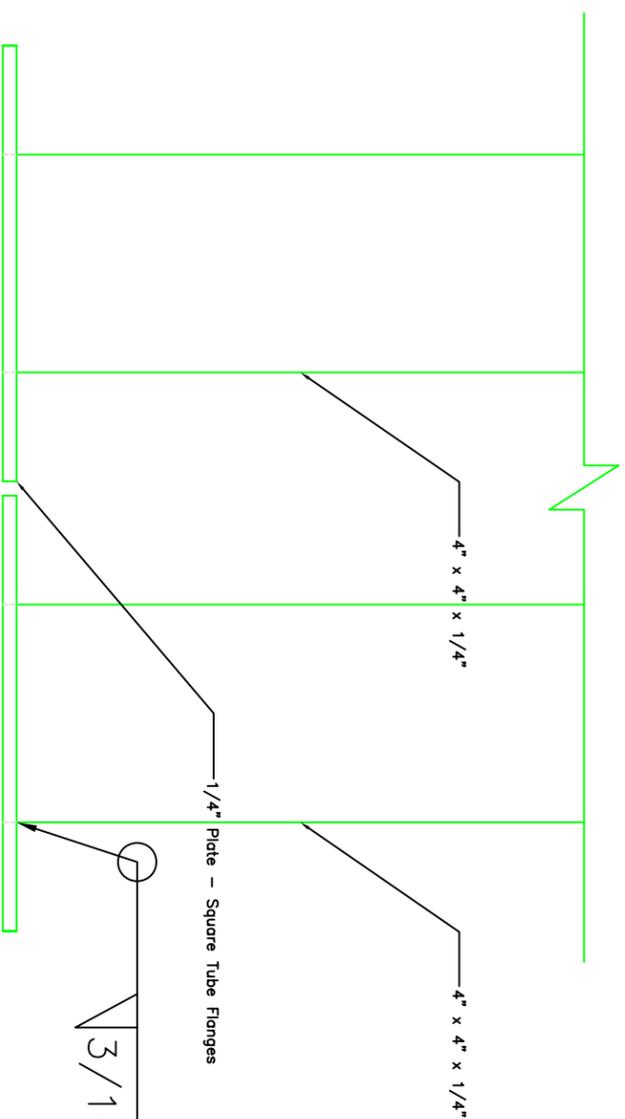
2-7/16" Diameter Hole in 4x4 Tube (D)
in Positions D1, D2, D3, D4



SUBJECT		REVISION	
BUBBLE CURTAIN AIR SUPPLY SCHEME		SAS-TT-03	

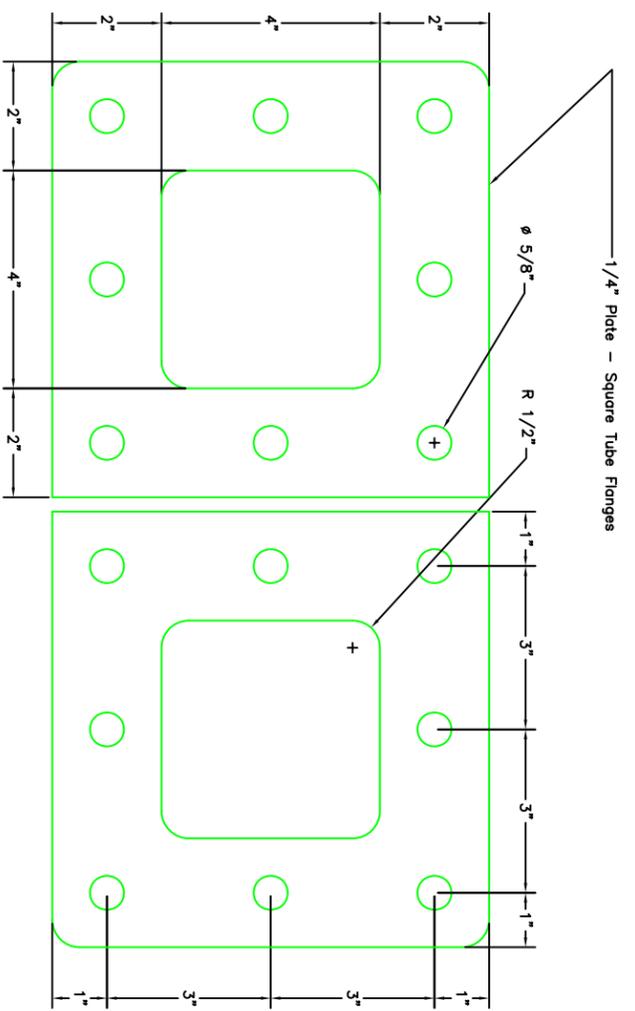
ABC - 8 Manifold - Air hole Assignment for Square Tubing		SHEET 6 OF 11	
DESIGNER Glenn Fleming		DATE July 20, 2009	
CHECKED Bernard Hammonds		DATE July 20, 2009	

FILE	
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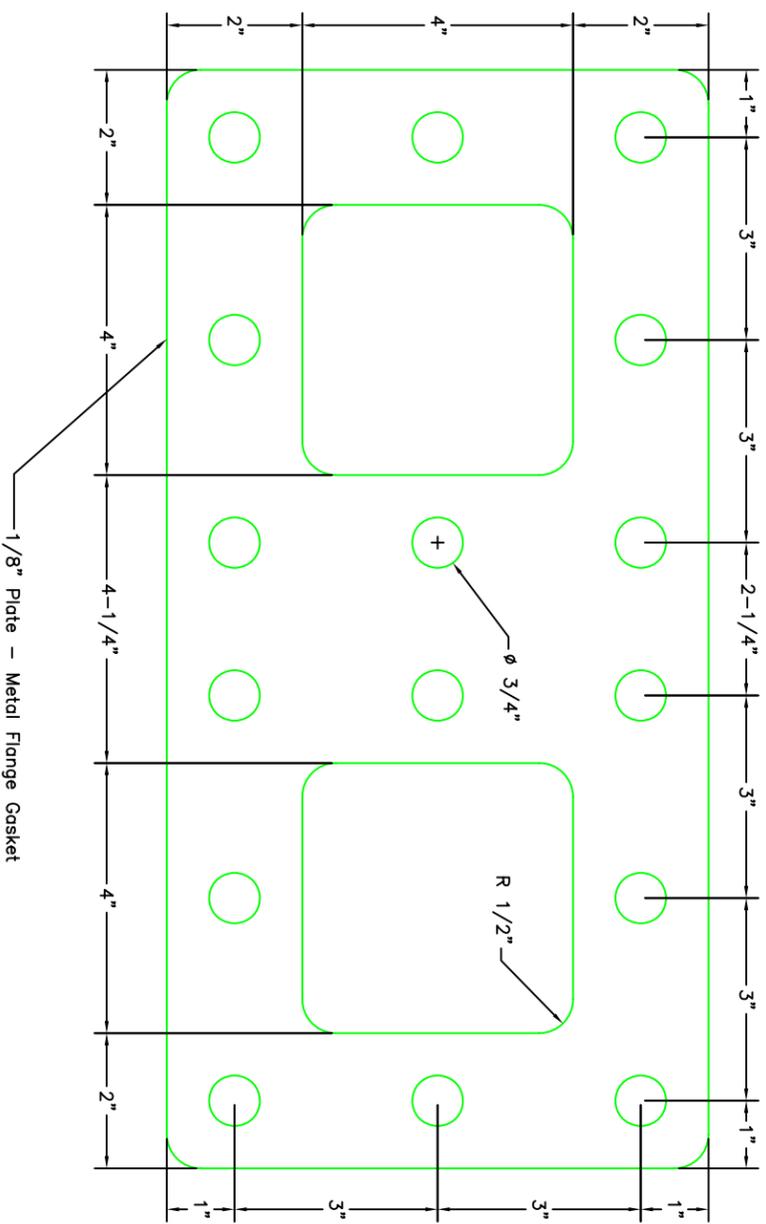
3/16" (2) TYP

9
7
DETAIL - 4" x 4" x 1/4" Flange Connections

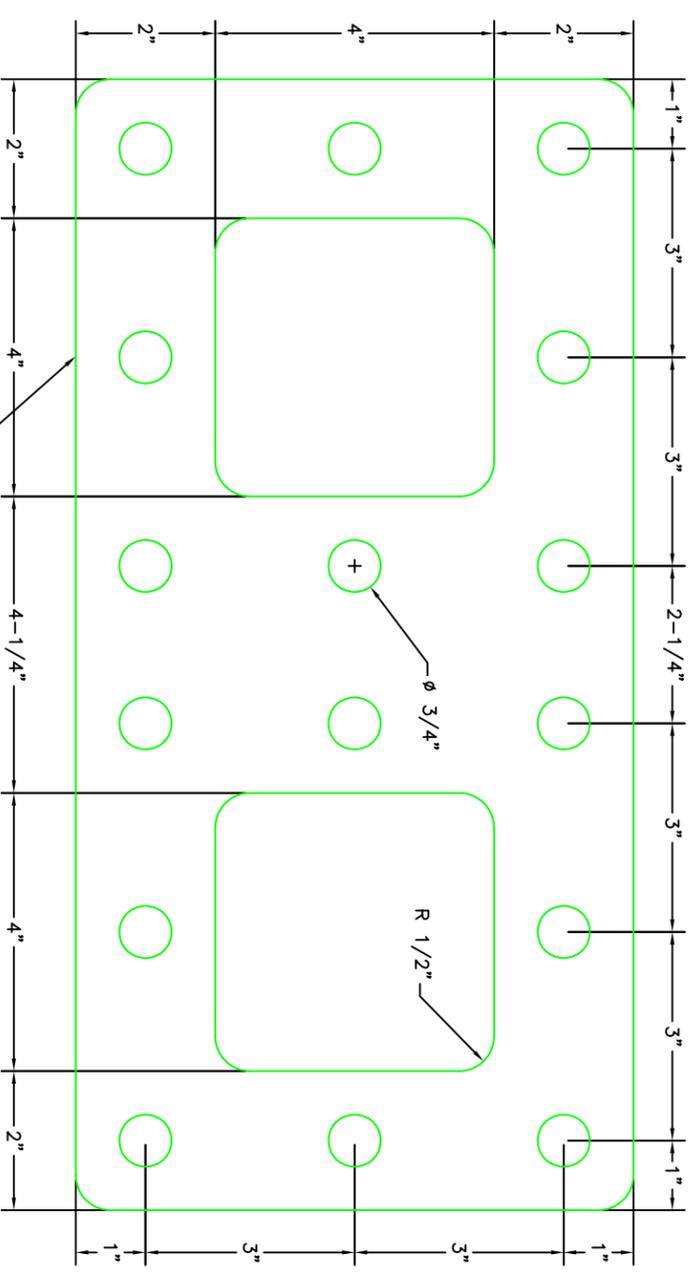


10
7
DETAIL - 4" x 4" x 1/4" Flanges

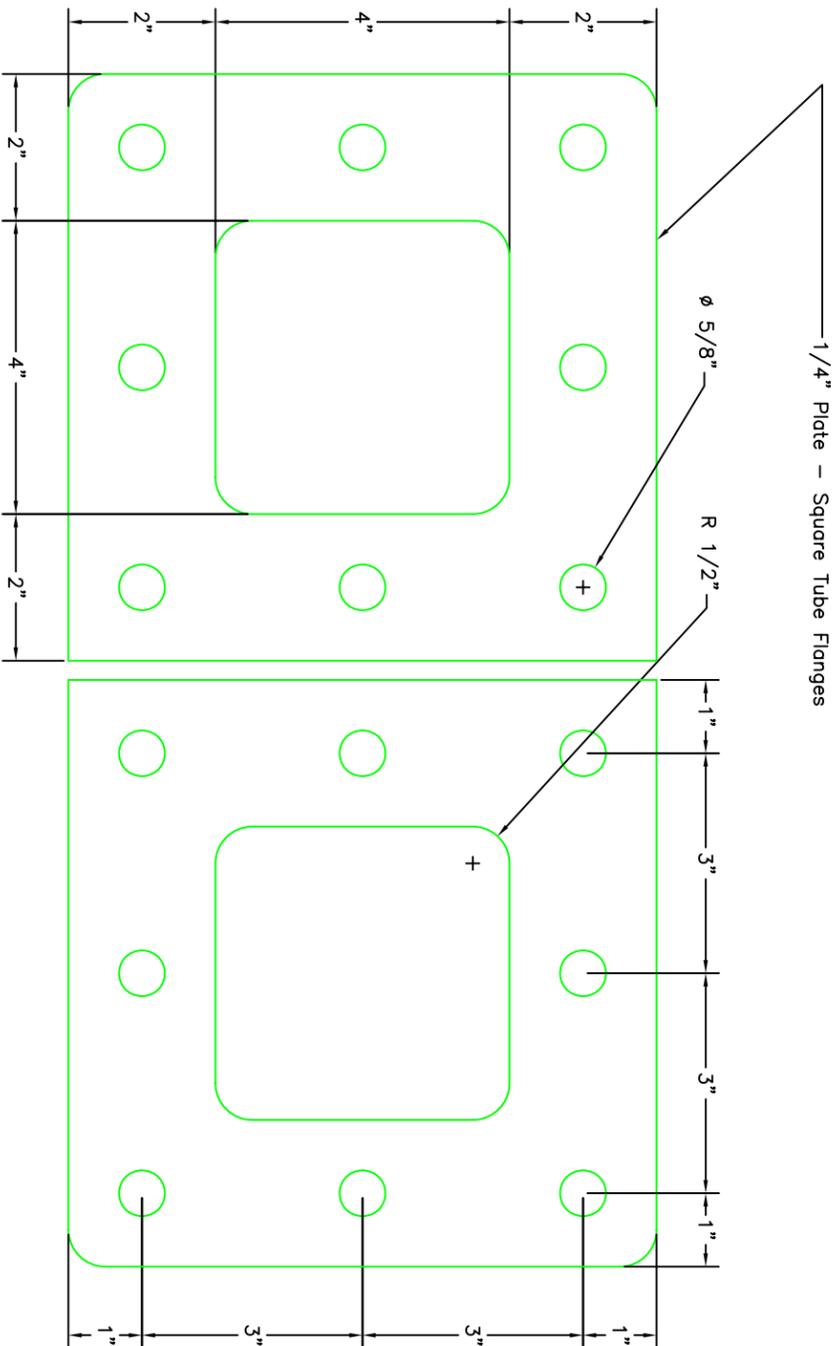
SUBJECT		ABC for Proposed Temporary Access Trestle		REVISION		SAS-TT-03	
SCALE		SHEET 7 OF 11		DESIGNER		Glenn Fleming	
DATE		July 20, 2009		CHECKED		Bernard Hammonds	
DATE		July 20, 2009		FILE		ABC - Details (2)	



6 DETAIL – Metal Flange Gasket



7 DETAIL – Rubber Flange Gaskets



8 DETAIL – Square Tube Flanges

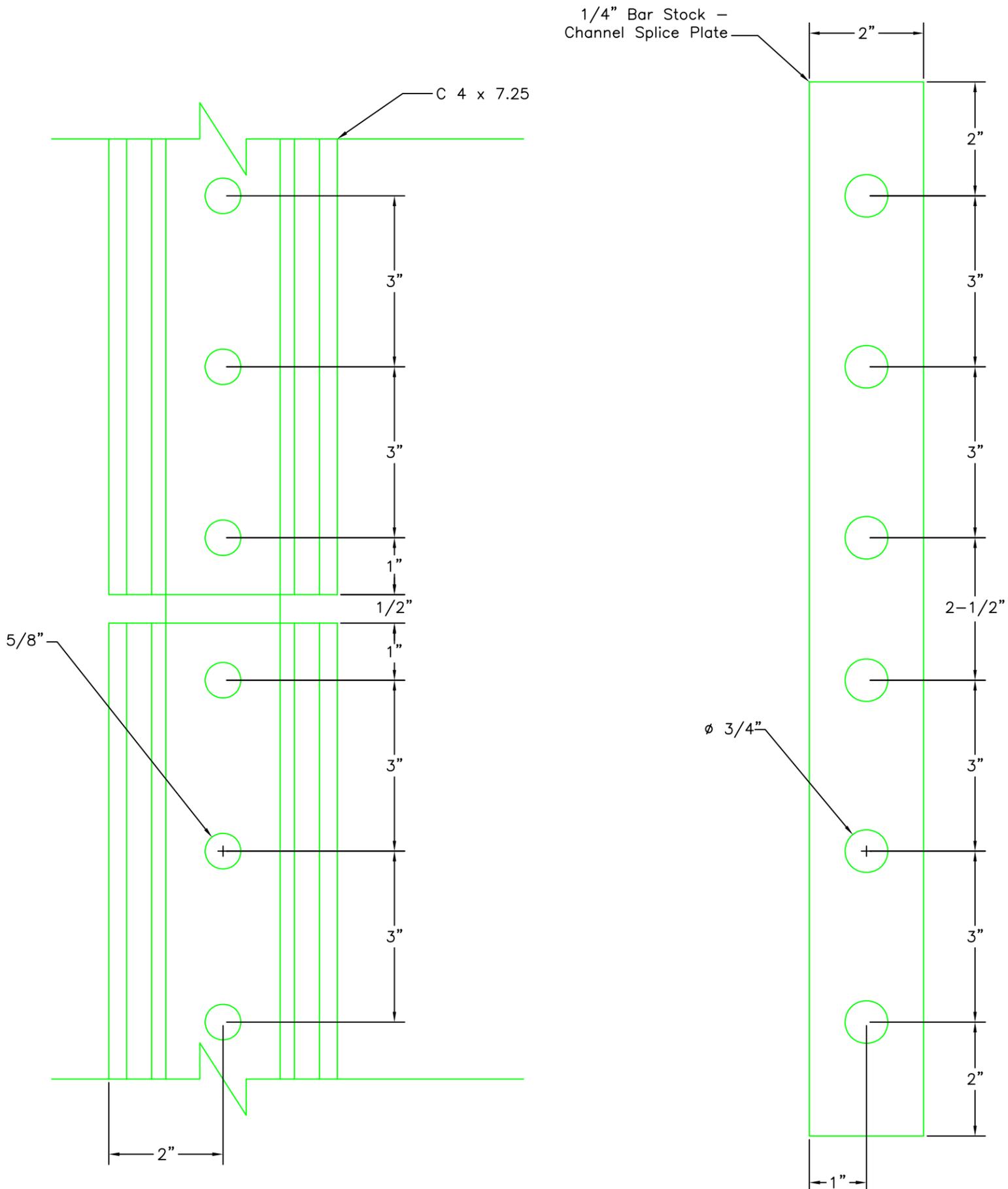
SUBJECT **ABC for Proposed Temporary Access Trestle** REVISION SAS-TT-03

SCALE SHEET 8 OF 11

DESIGNER Glenn Fleming DATE July 20, 2009

CHECKED Bernard Hammonds DATE July 20, 2009

FILE



ALTERNATE DESIGN FOR ENERGY ATTENUATION SYSTEM- MOCK UP

REVISION	SAS-TT-03
SHEET	9 OF 11
DESIGNER	Glenn Fleming
DATE	July 20, 2009
CHECKED	Bernard Hammonds
DATE	July 20, 2009

Channel Splice Plate - Front View