

CALENDAR ITEM

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A 27

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MINUTE ITEM  
This Calendar Item No. C43  
was approved as Minute Item  
No. 73 by the State Lands  
Commission by a vote of 3  
to 0 at its 9/23/92  
meeting.

09/23/92  
W 24910  
J. Ludlow  
PRC 7656

APPROVAL OF A GENERAL PERMIT - PUBLIC AGENCY USE

APPLICANT:

California Department of Fish and Game  
Inland Fisheries Division  
4001 North Wilson Way  
Stockton, California 95205

AREA, TYPE LAND AND LOCATION:

A parcel of submerged land located in the San Joaquin River directly above the confluence with the Merced River near the City of Newman, Stanislaus County.

LAND USE:

Placement of a temporary electrical fish barrier and trapping facility for the purpose of repelling fish from straying from their upstream migration into the irrigation canals and drains, where no suitable spawning habitat is available.

PERMIT TERMS:

Permit period:  
Two (2) years beginning October 1, 1992.

CONSIDERATION:

The public use and benefit; with the State reserving the right at any time to set a monetary rental if the Commission finds such action to be in the State's best interest.

BASIS FOR CONSIDERATION:

Pursuant to 2 Cal. Code Regs. 2003.

APPLICANT STATUS:

Applicant is permittee of upland.

PREREQUISITE CONDITIONS, FEES AND EXPENSES:

Filing fee has been received.

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**STATUTORY AND OTHER REFERENCES:**

- A. P.R.C.: Div. 6, Parts 1 and 2; Div. 13.
- B. Cal. Code Regs.: Title 3, Div. 3; Title 14, Div. 6.

**AB 884:**  
03/15/93

**OTHER PERTINENT INFORMATION:**

1. This activity involves lands identified as possessing significant environmental values pursuant to P.R.C. 6370, et seq. Based upon the staff's consultation with the persons nominating such lands and through the CEQA review process, it is the staff's opinion that the project, as proposed, is consistent with its use classification.
2. A Negative Declaration SCH 92082076, was prepared and adopted for this project by the Department of Fish and Game. The State Lands Commission's staff has reviewed such document.
3. As an emergency measure to benefit the seriously depleted salmon stocks of the San Joaquin River Basin, the Applicant is planning to install a temporary electrical fish barrier on the San Joaquin River at the confluence with the Merced River. The barrier is designed to prevent adult chinook salmon from straying in their upstream migration into the irrigation canals and drains of western Merced County, where no suitable fish spawning habitat is available. The barrier will be placed in the river from October 1 through December 31, and its effectiveness will be determined. If the technology proves effective, a permanent barrier will be installed in 1993 or 1994 after the Department has obtained all of the required permits.
4. The fish barrier, as further described in Exhibit "C", will consist of a canvas sheet containing an electrode array stretched across the stream. To block or guide the fish, a graduated electrical field is created in the water column, purportedly repelling fish from the direction of the increasing electrical field.

5. The effectiveness of the barrier will be monitored with the installation of a salmon-trapping facility on the San Joaquin River approximately 150 feet upstream from the electrical barrier. The trapping facility will consist of a pipe rack weir structure and trap box placed across the width of the stream.
6. To prevent public safety problems, the barrier will utilize low frequency-pulsed DC current with very short pulse durations, which reduces electric shock hazard. All precautions will be taken to ensure that all personnel, the general public, and animals are kept clear of the electrified zone.
7. According to the Department of Fish and Game, no anadromous fish species, other than chinook salmon, occur in the project area.
8. Department of Fish and Game personnel will be on-site on a 24-hour basis during the project operation, to correct any malfunctions with the barrier operation, monitor fish behavior, and to monitor public safety.
9. The annual rental value of the site is \$ 90.00.

**APPROVALS OBTAINED:**

California Department of Fish and Game.

**FURTHER APPROVALS REQUIRED:**

United States Army Corps of Engineers, State Reclamation Board, California Regional Water Quality Control, and upland owner.

**EXHIBITS:**

- A. Land Description
- B. Location Map
- C. Negative Declaration

**IT IS RECOMMENDED THAT THE COMMISSION:**

1. FIND THAT A NEGATIVE DECLARATION WAS PREPARED AND ADOPTED FOR THIS PROJECT BY THE DEPARTMENT OF FISH AND GAME AND THAT THE COMMISSION HAS REVIEWED AND CONSIDERED THE INFORMATION CONTAINED THEREIN.

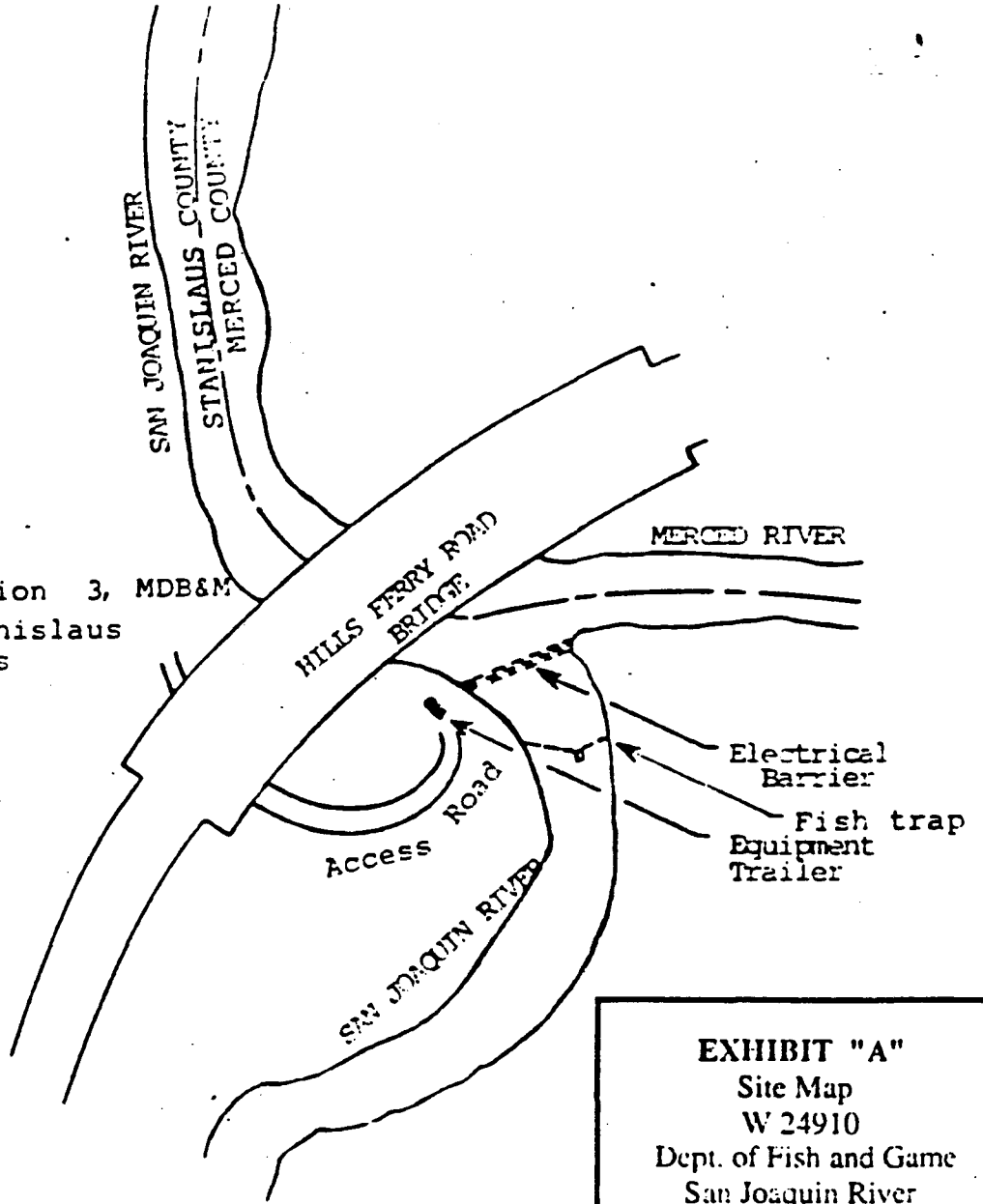
CALENDAR ITEM NO. 043 (CONT'D)

2. FIND THAT THIS ACTIVITY IS CONSISTENT WITH THE USE CLASSIFICATION DESIGNATED FOR THE LAND PURSUANT TO P.R.C. 6370, ET SEQ.
3. AUTHORIZE ISSUANCE TO THE CALIFORNIA DEPARTMENT OF FISH AND GAME OF A TWO-YEAR GENERAL PERMIT - PUBLIC AGENCY USE BEGINNING OCTOBER 1, 1992; IN CONSIDERATION OF THE PUBLIC USE AND BENEFIT, WITH THE STATE RESERVING THE RIGHT AT ANY TIME TO SET A MONETARY RENTAL IF THE COMMISSION FINDS SUCH ACTION TO BE IN THE STATE'S BEST INTEREST; FOR THE PLACEMENT OF A FISH BARRIER AND FISH-TRAPPING FACILITY ON THE LAND DESCRIBED ON EXHIBIT "A" ATTACHED AND BY REFERENCE MADE A PART HEREOF.

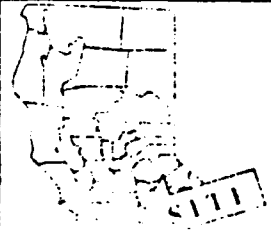


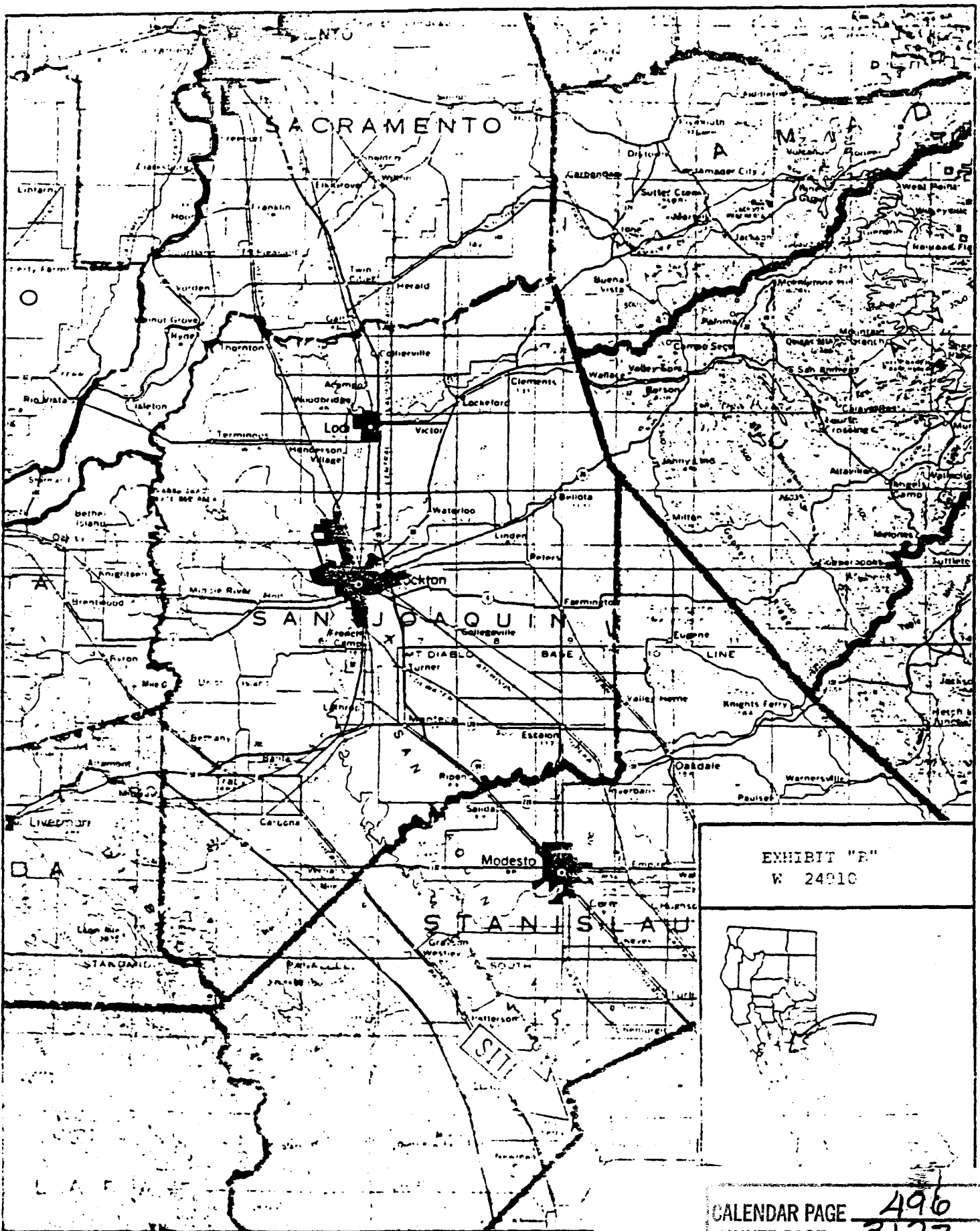
1" = 300'

T7S, R9E, Section 3, MDB&M  
Merced and Stanislaus  
Counties



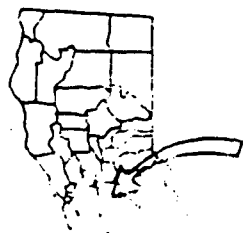
**EXHIBIT "A"**  
 Site Map  
 W 24910  
 Dept. of Fish and Game  
 San Joaquin River  
 STANISLAUS COUNTY





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EXHIBIT "R"  
W 24910



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# Notice of Completion *Supplementary Document M*

See NOTE below

SCH # 920-2076

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0613

**Project Title:** Temporary Electrical Fish Barrier - San Joaquin River

**Lead Agency:** Calif. Dept. Fish and Game, Inland Fisheries **Contact Person:** Terry Mills

**Street Address:** 1416 Ninth Street **Phone:** (916) 653-9642

**City:** Sacramento **Zip:** 95814 **County:** Sacramento

## Project Location

**County:** Stanislaus **City/Nearest Community:** Newman

**Cross Streets:** Hills Ferry Road & River Road **Zip Code:** 95360 **Total Acres:** 1

**Assessor's Parcel No.** 049-3703-700 **Section:** 3 **Twp.** 7S **Range:** 9E **Base:** MDB&M

**Within 2 Miles:** **State Hwy #:** \_\_\_\_\_ **Waterways:** San Joaquin River/Merced River

**Airports:** \_\_\_\_\_ **Railways:** \_\_\_\_\_ **Schools:** \_\_\_\_\_

## Document Type

- |              |   |  |              |                                    |               |   |
|--------------|---|--|--------------|------------------------------------|---------------|---|
| <b>CEQA:</b> | <input type="checkbox"/> NOP                | <input type="checkbox"/> Supplement/Subsequent | <b>NEPA:</b> | <input type="checkbox"/> NOI       | <b>Other:</b> | <input type="checkbox"/> Joint Document |
|              | <input type="checkbox"/> Early Cons         | <input type="checkbox"/> EIR (Prior SCH No.)   |              | <input type="checkbox"/> EA        |               | <input type="checkbox"/> Final Document |
|              | <input checked="" type="checkbox"/> Neg Dec | <input type="checkbox"/> Other                 |              | <input type="checkbox"/> Draft EIS |               | <input type="checkbox"/> Other          |
|              | <input type="checkbox"/> Draft EIR          |  |              | <input type="checkbox"/> FONSI     |               |   |

## Local Action Type

- |   |   |   |   |
|---|---|---|---|
| <input type="checkbox"/> General Plan Update    | <input type="checkbox"/> Specific Plan            | <input type="checkbox"/> Rezone   | <input type="checkbox"/> Annexation     |
| <input type="checkbox"/> General Plan Amendment | <input type="checkbox"/> Master Plan              | <input type="checkbox"/> Prezone  | <input type="checkbox"/> Redevelopment  |
| <input type="checkbox"/> General Plan Element   | <input type="checkbox"/> Planned Unit Development | <input type="checkbox"/> Use Permit   | <input type="checkbox"/> Coastal Permit |
| <input type="checkbox"/> Community Plan         | <input type="checkbox"/> Site Plan                | <input type="checkbox"/> Land Division (Subdivision, Parcel Map, Tract Map, etc.) | <input type="checkbox"/> Other          |

## Development Type

- |  |  |
|--|--|
| <input type="checkbox"/> Residential: <u>Units</u> _____ <u>Acres</u> _____                        | <input checked="" type="checkbox"/> Water Facilities: <u>Type</u> <u>Fish Barrier</u> <u>MGD</u> _____ |
| <input type="checkbox"/> Office: <u>Sq.ft.</u> _____ <u>Acres</u> _____ <u>Employees</u> _____     | <input type="checkbox"/> Transportation: <u>Type</u> _____   |
| <input type="checkbox"/> Commercial: <u>Sq.ft.</u> _____ <u>Acres</u> _____ <u>Employees</u> _____ | <input type="checkbox"/> Mining: <u>Mineral</u> _____  |
| <input type="checkbox"/> Industrial: <u>Sq.ft.</u> _____ <u>Acres</u> _____ <u>Employees</u> _____ | <input type="checkbox"/> Power: <u>Type</u> _____ <u>Watts</u> _____                                   |
| <input type="checkbox"/> Educational _____   | <input type="checkbox"/> Waste Treatment: <u>Type</u> _____  |
| <input type="checkbox"/> Recreational _____  | <input type="checkbox"/> Hazardous Waste: <u>Type</u> _____  |
|  | <input type="checkbox"/> Other: _____  |

## Project Issues Discussed in Document

- |   |  |  |   |
|---|--|--|---|
| <input type="checkbox"/> Aesthetic/Visual         | <input checked="" type="checkbox"/> Flood Plain/Flooding | <input type="checkbox"/> Schools/Universities            | <input checked="" type="checkbox"/> Water Quality   |
| <input type="checkbox"/> Agricultural Land        | <input type="checkbox"/> Forest Land/Fire Hazard         | <input type="checkbox"/> Septic Systems                  | <input type="checkbox"/> Water Supply/Groundwater   |
| <input type="checkbox"/> Air Quality              | <input type="checkbox"/> Geologic/Seismic                | <input type="checkbox"/> Sewer Capacity                  | <input checked="" type="checkbox"/> Wetland/Riparian  |
| <input type="checkbox"/> Archeological/Historical | <input type="checkbox"/> Minerals                        | <input type="checkbox"/> Soil Erosion/Compaction/Grading | <input checked="" type="checkbox"/> Wildlife  |
| <input type="checkbox"/> Coastal Zone             | <input type="checkbox"/> Noise                           | <input type="checkbox"/> Solid Waste                     | <input type="checkbox"/> Growth Inducing  |
| <input type="checkbox"/> Drainage/Absorption      | <input type="checkbox"/> Population/Housing Balance      | <input type="checkbox"/> Toxic/Hazardous                 | <input type="checkbox"/> Landuse  |
| <input type="checkbox"/> Economic/Jobs            | <input type="checkbox"/> Public Services/Facilities      | <input type="checkbox"/> Traffic/Circulation             | <input type="checkbox"/> Cumulative Effects   |
| <input type="checkbox"/> Fiscal                   | <input type="checkbox"/> Recreation/Parks                | <input checked="" type="checkbox"/> Vegetation           | <input checked="" type="checkbox"/> Other: <u>Public Navigation</u><br><u>Public Safety</u> |

## Present Land Use/Zoning/General Plan Use

Agriculture-40-Acre Minimum

## Project Description

Temporary electrical fish barrier across San Joaquin River immediately upstream of Merced River Confluence.

NOTE: Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. from a Notice of Preparation or previous draft document) please fill it in.

INDIAN PAGE 3121  
SUPPLEMENTAL INFORMATION

State of California  
The Resources Agency  
DEPARTMENT OF FISH AND GAME

Initial Study and Negative Declaration

PROPOSED TEMPORARY ELECTRICAL FISH BARRIER  
SAN JOAQUIN RIVER ABOVE THE CONFLUENCE WITH THE MERCED RIVER

Inland Fisheries Division

August, 1992

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Douglas P. Wheeler  
Secretary for Resources  
The Resources Agency

Pete Wilson  
Governor  
State of California

Boyd Gibbons  
Director  
Dept. of Fish and Game

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3125



State of California  
The Resources Agency  
Department of Fish and Game

NEGATIVE DECLARATION

PROPOSED TEMPORARY ELECTRICAL FISH BARRIER  
SAN JOAQUIN RIVER ABOVE THE CONFLUENCE WITH THE MERCED RIVER

The Project: The principal objective of this project is to prevent straying of adult chinook salmon into the drainage sloughs of western Merced County where no suitable spawning habitat is available. The project involves installation of a temporary electrical fish barrier on the San Joaquin River immediately above the confluence with the Merced River in Stanislaus and Merced counties in the fall of 1992 or 1993. The project is expected to significantly increase salmon production in the San Joaquin River basin, due to the significant numbers of fall-run salmon which will be guided to areas where natural spawning habitat is available.

The project will not require disturbance of existing vegetation in the project area, and will require only temporary minor disturbance of the San Joaquin River streambed. The project may have a significant benefit to chinook salmon production, and will not adversely impact other fish or wildlife species.

The Finding: The Department of Fish and Game finds that implementing the proposed project will have no significant impact on the environment.

Basis for the Finding: Based on the Initial Study, it was determined that there would not be any significant adverse environmental effects resulting from implementing the proposed project. The project is expected to achieve a net benefit to the environment by increasing natural chinook salmon spawning in the San Joaquin River basin.

Therefore, this Negative Declaration is filed pursuant to CEQA Guidelines Section 15073.

  
Boyd Gibbons, Director

Aug. 21, 1992  
Date

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State of California  
The Resources Agency  
Department of Fish and Game

INITIAL STUDY  
TEMPORARY ELECTRICAL FISH BARRIER  
SAN JOAQUIN RIVER ABOVE THE CONFLUENCE WITH THE MERCED RIVER

Introduction

Fall-run chinook salmon populations in the San Joaquin River basin have declined to seriously low levels in recent years. In the fall of 1991, estimated spawning escapements totalled fewer than 650 fish, compared to historic high levels of 70,000 fish in 1985, 80,500 fish in 1953, and 125,900 fish in 1940.

In recent years, agricultural drainage practices in western Merced County and release patterns from the eastside tributaries of the San Joaquin River (Stanislaus, Tuolumne, and Merced Rivers), have resulted in significant numbers of adult chinook salmon in the San Joaquin basin straying in their upstream migration into westside agricultural drains and canals. These fish do not enter the tributary streams, but continue up the mainstem San Joaquin River into Salt and Mud Sloughs, which carry significant quantities of drainage water, and where no suitable salmon spawning habitat is available.

As spawning runs have declined in recent years, the proportion of the San Joaquin River drainage salmon spawning runs entering the westside drains has increased. The following are estimated chinook salmon spawning escapements in the basin for the past four years, by tributary stream. In the fall of 1991, an estimated 31% of the run in the basin strayed into westside canals.

Year	Stanislaus	Tuolumne	Merced	Westside	Total
1988	12,300	6,300	3,200	2,300	24,100
1989	1,543	1,274	211	322	3,350
1990	492	96	73	280	941
1991	282	53	99	200	634

In an effort to salvage fish straying into the westside canals, the Department of Fish and Game began an adult trapping and salvage effort in 1988. Make-shift electrical barriers were installed on Salt Slough which shunted the majority of the strays into South End Mud Slough and the San Luis Canal. A guide fence, steepass fish ladder, and trap box were installed on an irrigation drop on the San Luis Canal near the Los Banos Wildlife Area headquarters. During the spawning season, trapped fish were spawned and the eggs transported to the Merced River Fish Facility for incubation and rearing. A total of 1,161 adults were trapped and spawned in 1988,

including fish netted in salvage efforts from the canals. In 1989, 166 fish were trapped and spawned; 140 fish were salvaged in 1990. In 1991, the trap location was moved to a site on the Los Banos Wildlife Area on Salt Slough below the confluence with Mud Slough, since this site was considered a better location to trap salmon entering the system, and did not require the use of the make-shift electrical barriers on Salt Slough used in previous years. A total of 100 fish was salvaged at this site in 1991.

Although the Department has had some success in salvaging eggs from fish straying into westside canals in recent years, a permanent solution to the straying problem is needed. In the fall of 1991, survival of eggs salvaged at the Los Banos site was extremely low; of the 100 fish trapped, 37 females were spawned, 212,722 eggs were collected, but only approximately 12,000 have survived to the smolt stage. This low survival is probably due to the poor water quality conditions which exist in the westside canals. The salvage operation is costly in terms of equipment and manpower, and will require significant funding on an annual basis. The operation has been funded since 1988 from the Augmented Salmon Stamp Account, on recommendation from the Commercial Salmon Trollers Advisory Committee. Additional funding was obtained in 1991 from the Emergency Drought Relief legislation.

The current trap and salvage operation also does not allow salmon the opportunity to spawn naturally. A preferable solution to the straying problem would be to guide fish into areas where natural spawning habitat is available.

#### Project Objective

The principal objective of this project is to prevent adult chinook salmon from straying into the drainage sloughs of western Merced County, and guide them to areas where natural spawning habitat is available. Through placement of a fish barrier across the San Joaquin River immediately above the confluence with the Merced River, passage to areas where suitable habitat is not available will be blocked, and fish will be guided into the lower Merced River. A significant increase in natural salmon spawning in the San Joaquin basin is expected to result.

#### Project Setting

The project site is on the mainstem San Joaquin River, immediately upstream from the confluence with the Merced River, in Merced and Stanislaus Counties (Figure 1). On the lower Merced River, the 24-mile reach from Crocker-Huffman Dam downstream to the town of Cressey is a designated chinook salmon spawning reach (Fish and Game Code Section 1505). This spawning reach is located on the east side of the San Joaquin Valley and consists of relatively low gradient stream coursing through primarily rural agricultural land.

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The San Joaquin River at the confluence with the Merced River is a relatively broad (125 foot wide), low-gradient stream. The floodplain of the river is leveed. Due to upstream water development, the river at this point carries primarily drainage water from westside irrigation sloughs, with occasional flood flows when upstream storage reservoirs spill. During the fall months when adult salmon migrate upstream, the river typically carries highly saline irrigation drain water. Flows in the fall of 1992 are expected to be relatively low (75 to 200 cfs), with high salinity. Water depths will be approximately 2 to 2 1/2 feet across the channel.

Land use in the project area is primarily cattle grazing, interspersed with other agricultural uses. Land adjacent to the project site is in private ownership.

Several resident warmwater fish species occur in the lower Merced and San Joaquin rivers, including black bass, sunfish, and carp. These fishes are not likely to be affected by the operation of the project, since they are not migratory. No anadromous fish species other than chinook salmon occur in the project area.

No threatened or endangered species have been observed in the project area. The California Natural Diversity Data Base lists several sensitive species in the general vicinity of the project, but it is highly unlikely that this project will affect any of these species (see Attachment 1).

### Project Description

The electrical barrier technology has been patented by Smith-Root, Inc. of Vancouver, Washington. Electrical fish barriers and guidance systems can be thought of as a barricade or repelling zone, consisting of electrical current passing through the water. To block or guide fish, a graduated electrical field is created in the water column, repelling fish from the direction of the increasing electrical field.

Upstream fish barriers are designed to totally block the passage of all upstream migrating fish. Electric pulses are generated to partially paralyze fish without causing physical damage. An alternate waterway located just downstream of the barrier, in this case, water flow from the mouth of the Merced River, will attract fish into the lower Merced River.

A temporary electrical fish barrier will be installed on the San Joaquin River immediately above the confluence with the Merced River from approximately October 1 through December 31, 1992 (during the fall salmon migration period). If all necessary permits are not obtained or waived for the project by October 1, 1992, the project will be postponed until approximately October 1 through December 31, 1993.

Figure 2 shows the location of the electrical barrier at the confluence of the streams.

The temporary barrier consists of an array of electrodes embedded in a canvas sheet. The sheet will be placed across the bottom of the streambed. The electrodes will be 3/8" diameter, stainless steel cables, held in the canvas sheet by sewn plastic netting. The array will be approximately 125 feet wide (covering the width of the stream channel), and 30 feet from the upstream to downstream edges. Figure 3 shows the barrier installed at the project site.

The barrier design requires higher water velocities at the downstream edge of the electrode array to sweep fish rapidly from the electrical field. Figure 4 shows a cross sectional view of the installed barrier. Sandbags will be placed at the stream edges and the center of the channel to increase water velocities. The canvas barrier will be stretched over the sandbag fill. The leading and trailing edges will be below the stream bottom to prevent water from flowing under the array. The leading edge will be staked every five feet with six foot steel fence posts. The same technique will extend up the stream banks to ensure that the banks will not wash out in the event of high flows.

Figure 5 shows a cross section of the stream channel with and without the barrier installed. The stream elevation is projected to be raised approximately seven inches with the installation of the barrier, at a flow of approximately 200 cfs. This will sufficiently increase water velocities over the barrier.

The project will not alter flood flows of the river. Flows in the fall of 1992 are expected to be very low, much lower than flood stages. Flood flows in this area would be due to releases from Friant Dam upstream. The U.S. Army Corps of Engineers, Fresno Office, will be notified of project installation, and will be requested to give notice of potential flood releases from Friant Dam during operation of the barrier. There is a 30 to 48-hour lag for water released from Friant Dam to reach the project area. If there is a threat of an upstream flood release, the barrier would be removed from the stream.

Placement of the sandbags and canvas sheet across the stream bottom will require minimal disturbance of the substrate (which consists primarily of silt and fine sands). No permanent alterations to the streambed or banks will be made. Slight temporary increases in water turbidity in the local area may occur during barrier placement, but no significant impacts are expected.

An equipment trailer (8 X 24 feet) will be placed on the west stream bank adjacent to the barrier to house electrical equipment. A 24-foot travel trailer will also be placed at the project site to allow monitoring personnel to be on-site on a 24 hour basis. These trailers will be brought to the site on existing dirt roads. Only minor road grading and improvement with gravel will be needed to allow vehicle access to the site. Electrical power will be brought

to the site by PG&E from existing power in the area.

No vegetation removal or other physical disturbance in the project area will occur.

The electrical barrier, as designed with electrodes on the stream bottom, will not alter normal water flow or collect debris. The electrodes are mounted above an insulating medium so that the electric current will flow through the water, not through the stream bottom.

To prevent public safety problems, several safety features will be included in the project design. The barrier will utilize low frequency pulsed DC current with very short pulse durations, which reduces electric shock hazard. The electrocution threshold of a typical adult human is well above the current level to be used in the barrier. However, precautions will be taken to ensure that all personnel, the general public, and animals are kept clear of the electrified zone.

Boat traffic in the project area is not common (water depths will be less than three feet), and personnel within a boat passing over the electrical field would not be affected. However, it is desirable to keep all boat traffic out of the project area to prevent people from touching or falling into the water. Portage signs will be placed across the stream channel upstream and downstream from the barrier site, and portage will be available on the west side of the river. To allow passage of any larger boats, the barrier will be turned off momentarily by on-site DFG personnel. Floating safety lines will be placed across the stream, both upstream and downstream of the barrier, to be available in case of emergency. Fencing will be installed on the sides of the channel adjacent to barrier, with flashing red lights and large signs warning of the electric shock hazard.

Department of Fish and Game personnel will be on-site on a 24-hour basis during project operation, to correct any malfunctions with barrier operation, monitor fish behavior in the vicinity of the barrier, assist with boat portage, and monitor public safety.

The effectiveness of the barrier in blocking salmon migration will be monitored with the installation of a salmon trapping facility on the San Joaquin River approximately 150 feet upstream from the temporary electrical barrier. The trapping facility will consist of a pipe rack weir structure and trap box placed across the width of the stream. Figure 6 shows the configuration of the weir and trap box.

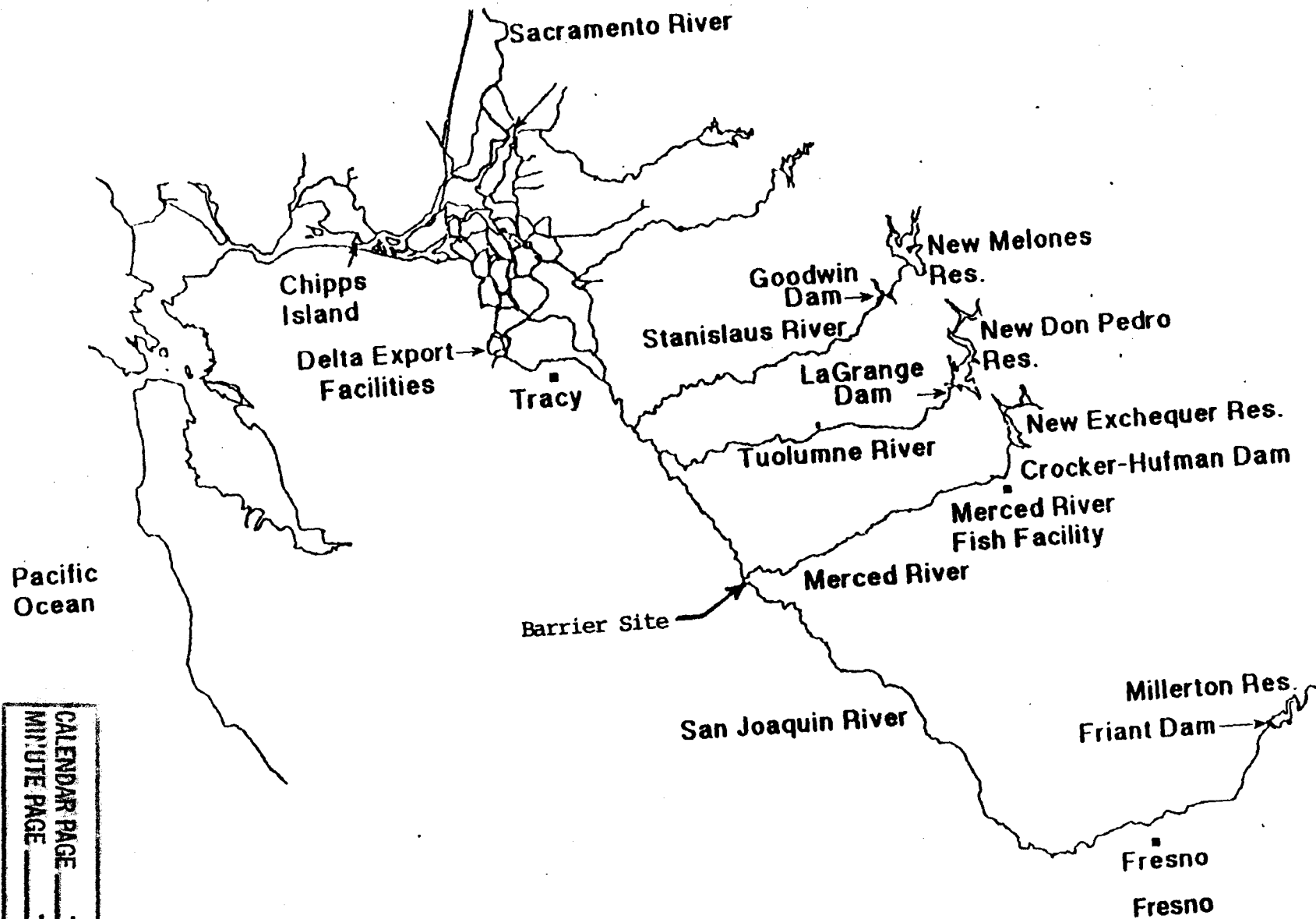
Installation of the weir will involve placement of erosion fabric, approximately 20' X 70', across the stream to provide a foundation for the rack structure. Metal posts will be driven into the substrate to anchor metal tripod frames at approximately five foot intervals. A series of pipe rack panels will be secured to the

tripod frames to form a weir. A wooden trap box will be placed between rack panels toward the east side of the channel, in the thalweg of the river, to trap adult salmon which may pass upstream of the electrical barrier. To allow boat passage, one ten foot section of the weir will consist of easily removable netting rather than pipe rack. On-site DFG personnel will assist with removal of the net section to allow boat passage. The pipe rack panels will be cleaned of debris a minimum of twice per day by on-site personnel. Fish trapped at this site will be spawned on-site, or moved to DFG's Merced River Fish Facility for spawning and egg incubation.

### Conclusion

No significant adverse environmental effects are expected to result from implementation of the proposed project. The project is expected to result in a net benefit to the environment by increasing the natural production of chinook salmon in the San Joaquin River basin.

Figure 1. Location of proposed electrical fish barrier in the San Joaquin River basin.





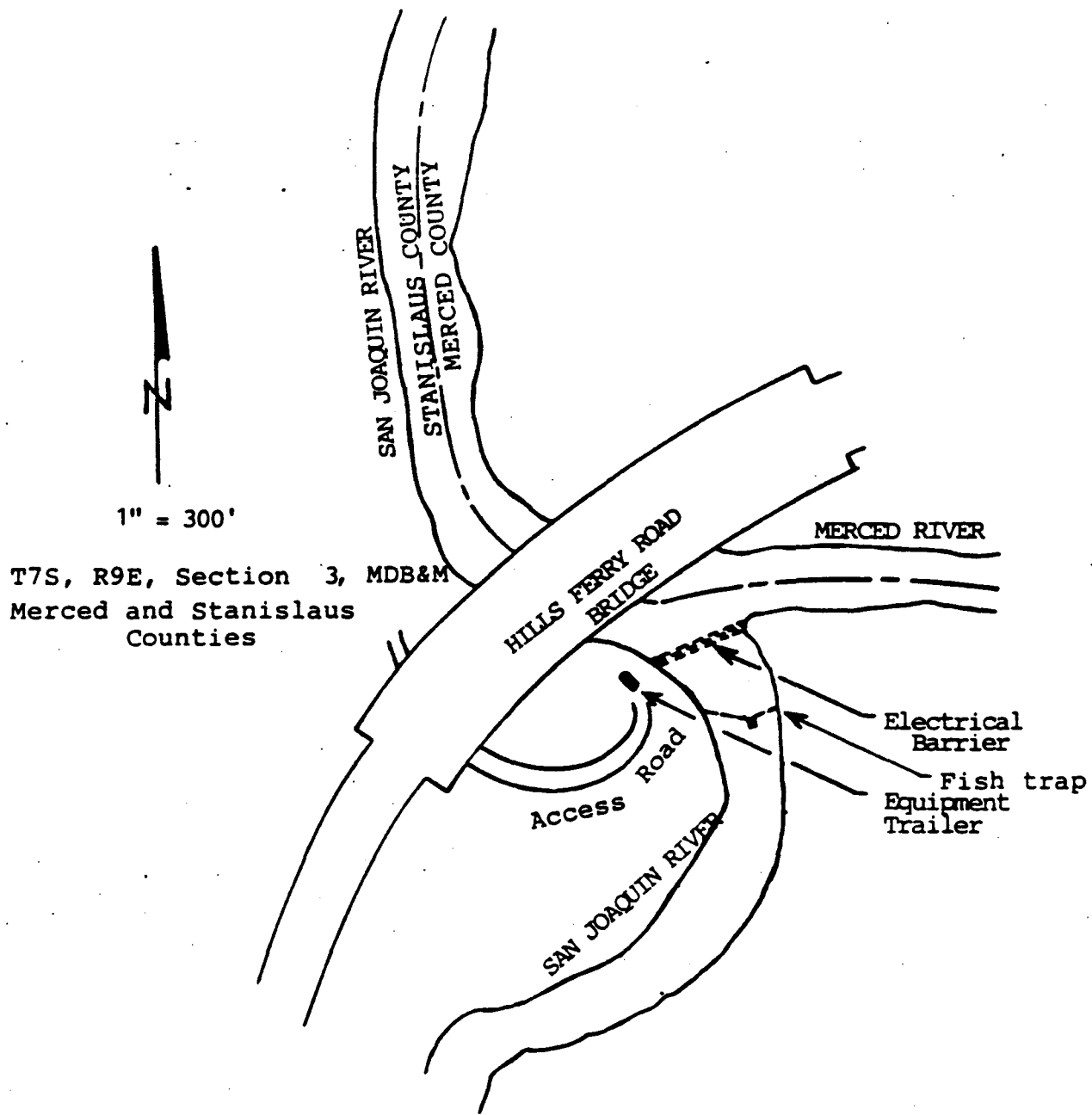


Figure 2. Electrical barrier site, San Joaquin River immediately upstream from confluence with Merced River.

San Joaquin River and Merced River Confluence

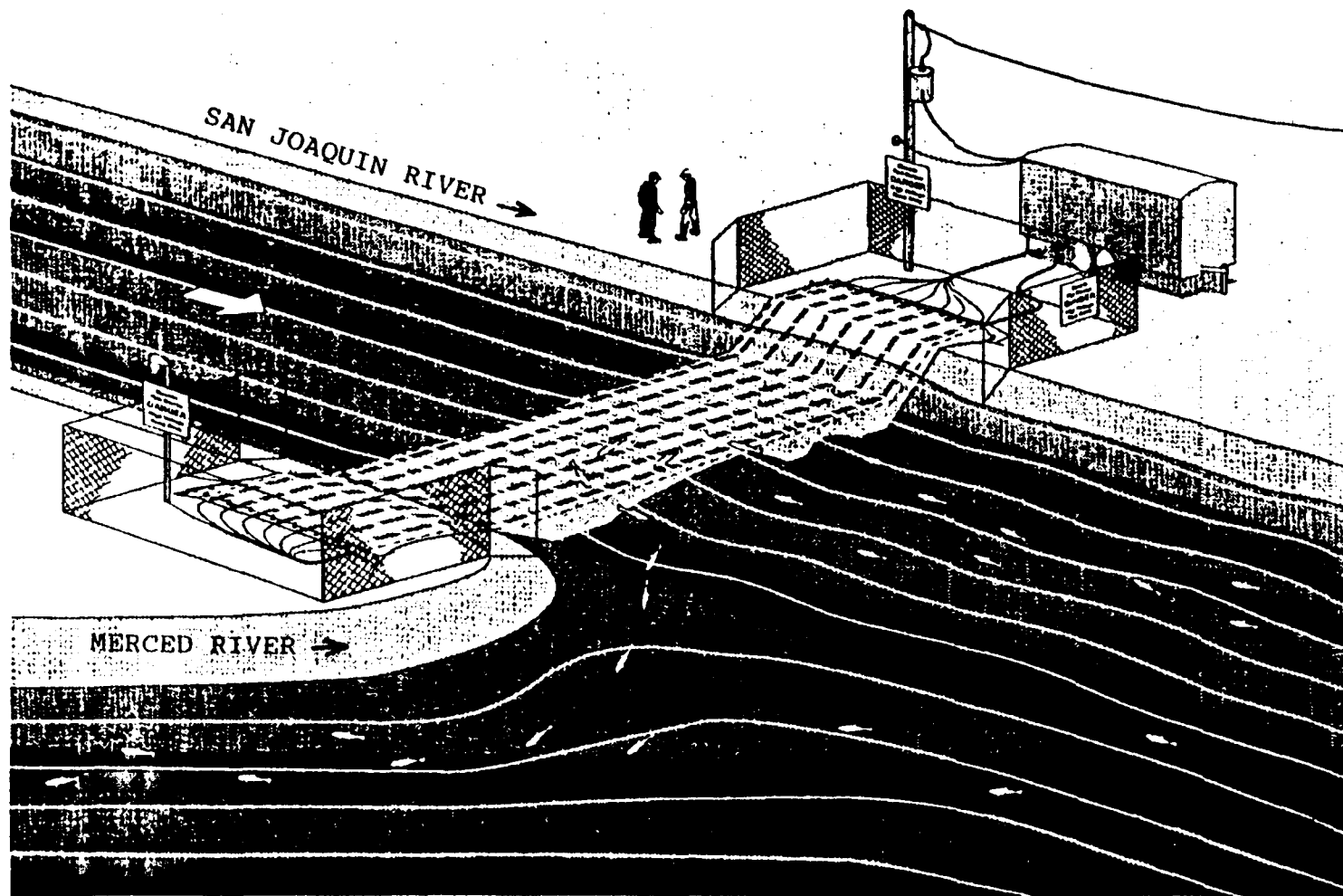
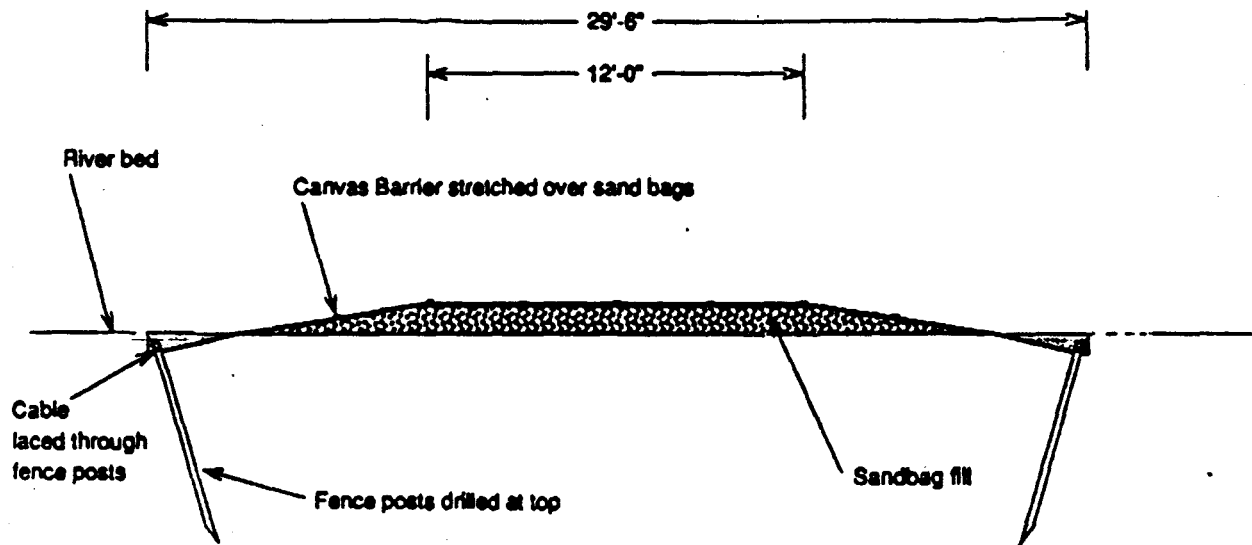


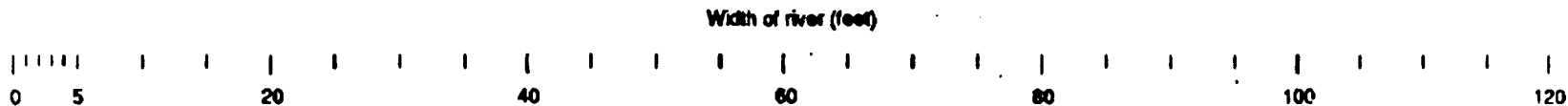
Figure 3. Temporary electrical fish barrier, San Joaquin River upstream from confluence with Merced River.

Figure 4.

**Cross Section of Fish Barrier  
At the San Joaquin river  
at the Merced river confluence**



Smith-Root, Inc.  
Vancouver WA  
206-573-0202  
7/31/92



Streambed profile of the San Joaquin river at the Merced river confluence

Depth above river bed: 2'-4 1/2"

Width: 120'-0"



Streambed profile after installation of raised fish barrier

Depth above river bed: 2'-11 1/2"

Width 123'-6"

Increase in depth: 7"

Increase in width: 3'-6"



Cross sectional area of water flow in both cases is 226 1/2 square feet

Figure 5. Streambed profiles with and without fish barrier installed.

Smith-Root, Inc.  
Vancouver WA  
206-573-0202  
7/31/92

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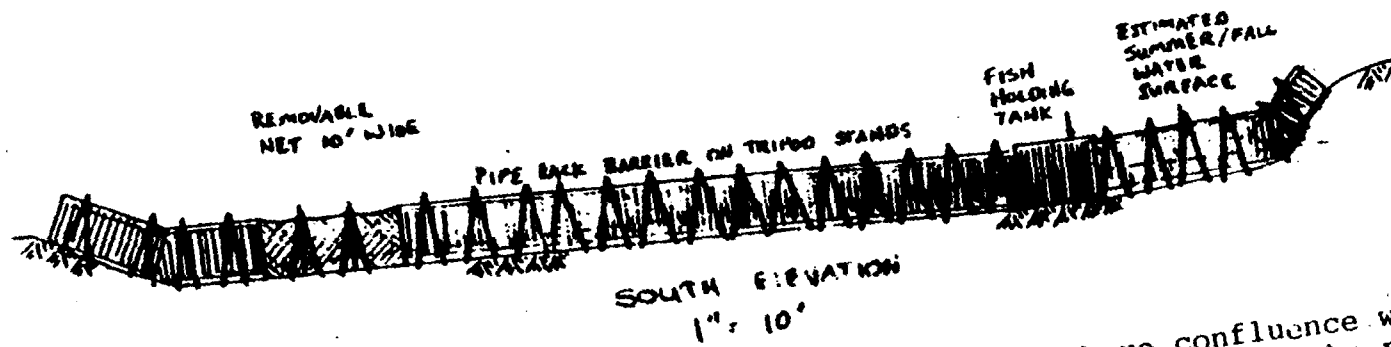
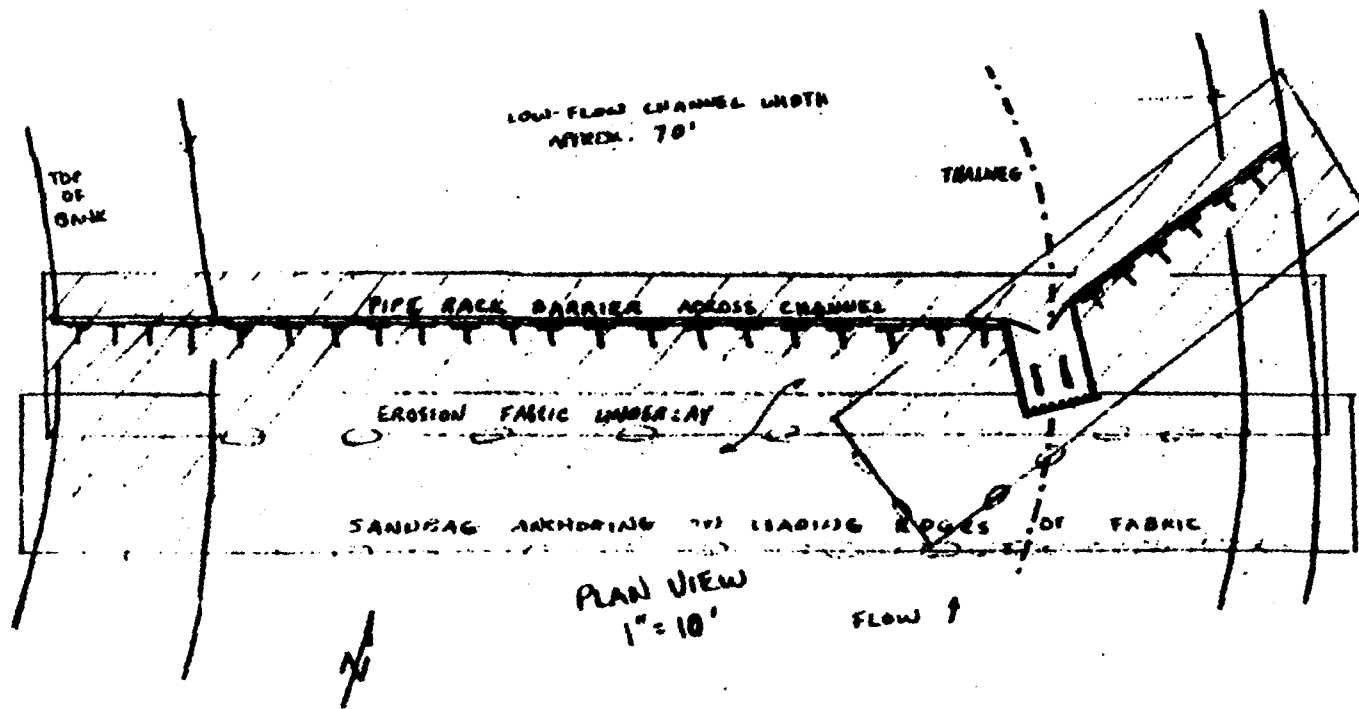


Figure 6. Fish trapping facility, San Joaquin River above confluence with Merced River. Pipe rack weir and trap box structure to be placed approximately 150 feet upstream from temporary electrical fish

Attachment 1.  
Electrical Barrier - San Joaquin River  
California Natural Diversity Database Search

A search of the California Natural Diversity Database was conducted on July 28, 1992, for the proposed temporary electrical barrier site on the San Joaquin River upstream from the confluence of the Merced River. Recorded occurrences of sensitive species within two miles of the proposed site were accessed. The following species and habitats were found:

Swainson's hawk (Buteo swainsoni) Calif. Threatened, Fed Cat 3C  
Tricolor Blackbird (Agelaius tricolor) Fed Cat 2  
Giant Garter Snake (Thamnophis gigas) Calif Threatened, Fed Cat 2  
Coastal and Valley Freshwater Marsh

The proposed project is highly unlikely to affect these species or habitat types. The Swainson's hawk, both juveniles and adults, were observed in the late 1970's and early 1980's within two miles of the project site. However, no nest sites have been observed at the project site, and project operation will occur in October through December, outside the nesting period for the species. Swainson's hawks breeding in California spend the winter in South America.

The tricolor blackbird has been observed in the general project area, nesting in bulrush/tule and cattail marsh habitats. The species nests colonially in freshwater marsh areas, with heavy growths of cattails and tules. No cattail or tule marsh habitat occurs at the immediate project site. Access to the barrier site will be from the west bank of the San Joaquin River, which currently does not have any vegetation growth. Project operation will also occur outside the nesting period for the species.

The Giant Garter Snake has been observed on Los Banos Creek, in the general project vicinity. The species is one of the most aquatic garter snakes, and is usually found in areas of freshwater marsh and low-gradient streams. There is no vegetative cover present in the stream channel or on the banks in the immediate project area; it is therefore highly unlikely that the species occurs on the project site.

Coastal and valley freshwater marsh habitat has been documented in the general project vicinity on the south side of the Merced River just upstream from George Hatfield State Park. This area has been identified as a good example of freshwater marsh; the USFWS wetlands map shows the area as palustrine intermittently flooded forested wetland/emergent wetland. The immediate project site is not located within this wetland area.

In summary, the proposed project is highly unlikely to impact the above-listed species or habitat types for the following reasons: 1) it is highly unlikely that the species occur on the project site, particularly during the October through December period, and 2) the project does not involve any vegetation removal, or disturbance of previously undisturbed ground.

ENVIRONMENTAL CHECKLIST FORM  
(To Be Completed By Lead Agency)

I. Background

1. Name of Proponent California Department of Fish and Game
2. Address and Phone Number of Proponent 1416 Ninth Street, Sacramento, California 95814 Phone No. (916)653-9642
3. Date of Checklist Submitted \_\_\_\_\_
4. Agency Requiring Checklist California Dept. Fish and Game
5. Name of Proposal, if applicable Electrical Fish Barrier, San Joaquin River above confluence with Merced River

II. Environmental Impacts

(Explanations of all "yes" and "maybe" answers are required on attached sheets.)

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
1. Earth. Will the proposal result in:			
a. Unstable earth conditions or in changes in geologic substructures?	—	—	<u>X</u>
b. Disruptions, displacements, compaction or overcovering of the soil?	—	—	<u>X</u>
c. Change in topography or ground surface relief features?	—	—	<u>X</u>
d. The destruction, covering or modification of any unique geologic or physical features?	—	—	<u>X</u>
e. Any increase in wind or water erosion of soils, either on or off the site?	—	—	<u>X</u>
f. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	—	<u>X</u>	—
g. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?	—	—	—



	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
2. Air. Will the proposal result in:			
a. Substantial air emissions or deterioration of ambient air quality?	—	—	<u>X</u>
b. The creation of objectionable odors?	—	—	<u>X</u>
c. Alteration of air movement, moisture, or temperature, or any change in climate, either locally or regionally?	—	—	<u>X</u>
3. Water. Will the proposal result in:			
a. Changes in currents, or the course of direction of water movements, in either marine or fresh waters?	—	<u>X</u>	—
b. Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	—	—	<u>X</u>
c. Alterations to the course or low of flood waters?	—	—	<u>X</u>
d. Change in the amount of surface water in any water body?	—	—	<u>X</u>
e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?	—	<u>X</u>	—
f. Alteration of the direction or rate of flow of ground waters?	—	—	<u>X</u>
g. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?	—	—	<u>X</u>
h. Substantial reduction in the amount of water otherwise available for public water supplies?	—	—	<u>X</u>
i. Exposure of people or property to water related hazards such as flooding or tidal waves?	—	—	<u>X</u>
4. Plant Life. Will the proposal result in:			
a. Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)?	—	—	<u>X</u>

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
b. Reduction of the numbers of any unique, rare or endangered species of plants?	—	—	<u>X</u>
c. Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?	—	—	<u>X</u>
d. Reduction in acreage of any agricultural crop?	—	—	<u>X</u>
5. <b>Animal Life.</b> Will the proposal result in:			
a. Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms or insects)?	—	—	<u>X</u>
b. Reduction of the numbers of any unique, rare or endangered species of animals?	—	—	<u>X</u>
c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?	—	—	<u>X</u>
d. Deterioration to existing fish or wildlife habitat?	—	—	<u>X</u>
6. <b>Noise.</b> Will the proposal result in:			
a. Increases in existing noise levels?	—	—	<u>X</u>
b. Exposure of people to severe noise levels?	—	—	<u>X</u>
7. <b>Light and Glare.</b> Will the proposal produce new light or glare?	—	—	<u>X</u>
8. <b>Land Use.</b> Will the proposal result in a substantial alteration of the present or planned land use of an area?	—	—	<u>X</u>
9. <b>Natural Resources.</b> Will the proposal result in:			
a. Increase in the rate of use of any natural resources?	—	—	<u>X</u>
10. <b>Risk of Upset.</b> Will the proposal involve:			
a. A risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?	—	—	<u>X</u>

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
b. Possible interference with an emergency response plan or an emergency evacuation plan?	—	—	X
11. <b>Population.</b> Will the proposal alter the location, distribution, density, or growth rate of the human population of an area?	—	—	X
12. <b>Housing.</b> Will the proposal affect existing housing, or create a demand for additional housing?	—	—	X
13. <b>Transportation/Circulation.</b> Will the proposal result in:			
a. Generation of substantial additional vehicular movement?	—	—	X
b. Effects on existing parking facilities, or demand for new parking?	—	—	X
c. Substantial impact upon existing transportation systems?	—	—	X
d. Alterations to present patterns of circulation or movement of people and/or goods?	—	—	X
e. Alterations to waterborne, rail or air traffic?	—	—	X
f. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?	—	—	X
14. <b>Public Services.</b> Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Fire protection?	—	—	X
b. Police protection?	—	—	X
c. Schools?	—	—	X
d. Parks or other recreational facilities?	—	—	X
e. Maintenance of public facilities, including roads?	—	—	X
f. Other governmental services?	—	—	X
15. <b>Energy.</b> Will the proposal result in:			
a. Use of substantial amounts of fuel or energy?	—	—	X

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?	---	---	<u>X</u>
16. Utilities. Will the proposal result in a need for new systems, or substantial alterations to the following utilities:	---	---	<u>X</u>
17. Human Health. Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?	---	<u>X</u>	---
b. Exposure of people to potential health hazards?	---	<u>X</u>	---
18. Aesthetics. Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?	---	---	<u>X</u>
19. Recreation. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?	---	---	<u>X</u>
20. Cultural Resources.			
a. Will the proposal result in the alteration of or the destruction of a prehistoric or historic archaeological site?	---	---	<u>X</u>
b. Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object?	---	---	<u>X</u>
c. Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values?	---	---	<u>X</u>
d. Will the proposal restrict existing religious or sacred uses within the potential impact area?	---	---	<u>X</u>
21. Mandatory Findings of Significance.			
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate			

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
important examples of the major periods of California history or prehistory?	_____	_____	_____X
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)	_____	_____	_____X
c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)	_____	_____	_____X
d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	_____	_____	_____X

III. Discussion of Environmental Evaluation  
(Narrative description of environmental impacts.)

IV. Determination  
(To be completed by the Lead Agency.)

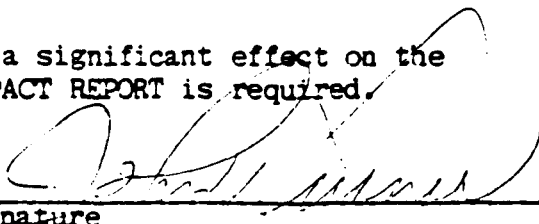
On the basis of this initial evaluation:

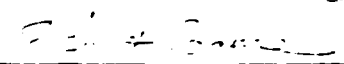
I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION WILL BE PREPARED.

I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Signature

For   
\_\_\_\_\_

(Note: This is only a suggested form. Public agencies are free to devise their own format for initial studies.)

III. Discussion of Environmental Evaluation

- 1.f. Project involves placement of a canvas mat across the stream bottom, and sandbags at the stream edges. Deposition of silts and sand in the vicinity of the barrier may be slightly altered temporarily by placement of these items.
- 3.a. Stream flow at the barrier will be confined to the center of the channel by the placement of sandbags along the edges of the channel.
- 3.e. Slight temporary increases in water turbidity may result during placement of the canvas electrode array on the stream bottom.
- 17. a & b. Project involves passage of electrical current into the water. There is the potential for human exposure to electrical shock. However, safety features have been incorporated into the project design which reduces this risk to a minimal level.

Notice of Determination

Supplementary Document P

To: X Office of Planning and Research  
1400 Tenth Street, Room 121  
Sacramento, CA 95814

From: (Public Agency) Calif. Dept. Fish & Game  
Inland Fisheries Division  
(Address)  
1416 Ninth Street  
Sacramento, California 95814

County Clerk  
County of \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Subject:

Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

Temporary Electrical Fish Barrier - San Joaquin River  
Project Title

SCH 92082076 Terry Mills (916) 653-9642  
State Clearinghouse Number Lead Agency Area Code/Telephone/Extension  
(If submitted to Clearinghouse) Contact Person

San Joaquin River at confluence with Merced River, Stanislaus County  
Project Location (include county)

Project Description:

Temporary electrical fish barrier across the San Joaquin River immediately upstream of Merced River confluence

This is to advise that the Calif. Dept. of Fish and Game has approved the above described project on 9-15-92 and has made the following determinations regarding the above described project  
(Date)  Lead Agency  Responsible Agency

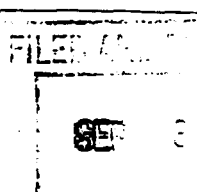
- 1. The project  will  will not have a significant effect on the environment.
- 2.  An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.  A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
- 3. Mitigation measures  were  were not made a condition of the approval of the project.
- 4. A statement of Overriding Considerations  was  was not adopted for this project.
- 5. Findings  were  were not made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval is available to the General Public at: Inland Fisheries Division, 4001 N. Wilson Way, Stockton, California 95205-2424

[Signature]  
Signature (Public Agency)

Sept. 17, 1992  
Date

Chief Deputy Director  
Title



Date received for filing at CPR:

CALENDAR PAGE 520.1  
MINUTE PAGE 3148