WATERSHED PLAN AND ENVIRONMENTAL IMPACT STATEMENT

Tehachapi Watershed

Kern County, California

United States Department of Agriculture
Soil Conservation Service

WATERSHED PLAN AND

ENVIRONMENTAL IMPACT STATEMENT

TEHACHAPI WATERSHED

Kern County, California

Prepared under the Authority of the Watershed Protection and flood Prevention Act, Public Law 83-566, as amended (16 USC 1001-1008) and in accordance with Section 102(2)(C) of the National Environmental Policy Act of 1969, Public Law 91-190, as amended (42 USC 4321 et seq).

Prepared by: Tehachapi Resource Conservation District
Tehachapi-Cummings County Water District
City of Tehachapi
Kern County Water Agency
U.S. Department of Agriculture, Soil Conservation Service
U.S. Department of Agriculture, Forest Service

July 1980

PREFACE

Enclosed are two documents--the Watershed Plan and Environmental Impact Statement for the Tehachapi Watershed, Kern County, California.

The Watershed Plan has been developed by the local sponsors with the assistance of the U.S. Department of Agriculture and is the basis for the authorization of federal assistance to implement the proposed project in accordance with the Watershed Protection and Flood Prevention Act, Public Law 83-566, as amended (16 USC 1001-1008).

The Environmental Impact Statement has been prepared by the U.S. Department of Agriculture in compliance with Section 102(2)(C) of the National Environmental Policy Act of 1969, Public Law 91-190, as amended (42 USC 4321 et seq).

The Environmental Impact Statement contains the detailed information on project area, planned project, problems, impacts, alternatives, resource commitments, and consultation.

Two changes in the plan and EIS have been made since the document was sent out for interagency review. These changes may not be readily apparent to the reader; consequently, they have been listed here. These are:

(1) Land Treatment

Under current guidelines the land treatment and grade stabilization components of the draft plan did not contribute sufficiently to the NED and EQ objectives. Consequently, these measures were not included in the selected plan.

(2) Interest Rates

In the draft plan and EIS, $6^{7}/_{8}$ percent interest rate was used for economic evaluations. The Water Resources Council has advised that the interest rate for FY-80 is $7^{1}/_{8}$. Consequently, costs presented in the draft circulated for interagency review will be slightly less than presented in the final plan and EIS.

FINAL
WATERSHED PLAN

TEHACHAPI WATERSHED

KERN COUNTY, CALIFORNIA

JULY 1980

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TEHACHAPI WATERSHED PLAN

KERN COUNTY, CALIFORNIA

SUMMARY AND DESCRIPTION

The Tehachapi Watershed in Kern County, California, contains 50.6 square miles (32,420 acres) and is located at the junction of the Sierra Nevada and Tehachapi Mountain Ranges. The watershed includes the city of Tehachapi, which has a population of about 4,240. 1/ Elevations within the watershed range from 3,800 to 7,960 feet above mean sea level. The watershed is traversed by State Highway 58 and by the Southern Pacific and Santa Fe Railroads. Bakersfield, the largest city in Kern County, is about 40 miles northwest of the watershed.

A major problem in the watershed is flooding of agricultural and urban land, accompanied by erosion and sedimentation. Following high-intensity rainfall, flood flows come from the mountain canyons along the south side of the watershed. Damaging flows are primarily from Antelope and Blackburn Canyons. Water originating in the steeper reaches of these watersheds flows across agricultural land, depositing sediment and boulders and destroying crops. It then passes through the city of Tehachapi, flooding homes, businesses, roads and the railroad.

This plan proposes a program of structural measures to alleviate these problems. The structural measures will be installed by project sponsors with assistance from the Soil Conservation Service. The project is sponsored by the Tehachapi Resource Conservation District, the Tehachapi-Cummings County Water District, the City of Tehachapi, and the Kern County Water Agency.

The structural program will include floodwater retarding structures with diversion inlets at the mouths of Antelope and Blackburn Canyons, 0.2 miles of channel enlargement, and 20.5 acres of wildlife habitat development.

Outflow from the Antelope flood detention reservoir will be discharged into an existing channel system which will carry it west around Tehachapi. Outflow from the Blackburn reservoir will be released eastward to follow existing watercourses to Proctor Lake. The channel work is on an existing channel near the east end of the Kern County Airport, and will carry runoff from the area below the reservoirs.

1/ California Department of Finance, Population Estimates of California Cities and Counties, January 1, 1967 and January 1, 1977, Report 77 E-1, May 10, 1977.

The project will reduce flood damages in the city of Tehachapi and on about 3,130 acres of agricultural land. The city and about 2,440 acres of cropland will be protected from the 1 percent chance flood. The remaining 690 acres of cropland will receive a lower level of protection. Future development in this area will be subject to the provisions of the county's Flood Hazard Zoning Ordinance. Debris deposits from flooding will be reduced. Average annual groundwater recharge within the watershed will be increased.

Land and water management will be improved throughout the watershed. Erosion and subsequent sedimentation will be reduced and wildlife habitat will be improved. The topography and landscape at the dam sites will be altered, with the structures requiring about 1.1 million cubic yards of earthfill.

Estimated project installation costs are as follows:

	PL-566 Funds	Other Funds	Total
Floodwater Retarding Structures	$ 5,814,000	$241,000	$6,055,000
Channel Work	151,000	28,000	179,000
Wildlife Habitat Development	11,000	10,000	21,000
Project Administration	608,000	41,000	649,000
TOTAL	$6,584,000	$320,000	$6,904,000

Following approval for installation, structural measures will be installed within a four year period. The structural measures and wildlife habitat development will be installed, operated and maintained by the Tehachapi-Cummings County Water District through an improvement district to be formed for that purpose. The estimated average annual operation and maintenance cost for the structural measures is $32,100.

The estimated average annual cost of the structural measures is $524,500. The portion of this allocated to national economic development (NED) is $522,000. The remainder is allocated to environmental quality (EQ). Estimated average annual NED benefits are $718,800, yielding a benefit-cost ratio of 1.4 to 1.

PLANNED PROJECT

The project will be carried out by the sponsoring local organizations, with financial and technical assistance from the Soil Conservation Service. Its purposes are flood prevention and wildlife development. Planned structural measures include:

-- Two floodwater retarding structures with diversion inlets, one at the mouth of Antelope Canyon and one at the mouth of Blackburn Canyon.

-- Two tenths miles of channel work on an existing channel near the east end of the Kern County Airport.

-- 20.5 acres of plantings and three watering facilities for wildlife habitat development.

The locations of these structures are shown on the project map in Appendix E of the Environmental Impact Statement.

Floodwater Retarding Structures

The two floodwater retarding structures will be built below the mouths of Antelope and Blackburn Canyons. Both will be earthfill structures and will be designed as dry dams. Each will have an ungated conduit for principal spillway and an open-channel emergency spillway. Elevations, dimensions, capacities, and other data are shown on Table 3.

The structure on Antelope Canyon will require about 645,000 cubic yards of compacted earthfill. It will be designed to control runoff from a 1 percent chance storm. Outflow will be discharged through the principal spillway into the existing Improvement District No. 3 system, which conveys flows west around the city of Tehachapi to Tehachapi Creek. The principal spillway will empty the reservoir in three days. The emergency spillway will be earth, with a concrete key installed at its crest. It will be located on the east side of the reservoir.

The Antelope inlet diversion will be approximately 1,900 feet long, with the upper 1,800 feet being concrete lined. Box culverts will be provided at two road crossings. The channel will also cross a buried telephone cable, which will be lowered. A concrete overflow structure will be installed at the head of the diversion to allow flows in excess of the design discharge to continue to follow their present course, through an existing concrete chute and box culvert under Dennison Road.

The structure on Blackburn Canyon will include an existing gravel pit in its reservoir. The needed storage will be provided by excavation of about 630,000 cubic yards of material and construction of a compacted earthfill of about 463,000 cubic yards. Any material not used in the fill will be piled at a site adjacent to the reservoir, where it can continue to be used as a gravel source. A concrete chute will be installed at the inlet, to

lower flows from the canyon safely into the reservoir. Runoff from storms up to a 4 percent chance event will be discharged through the principal spillway, which will empty the reservoir in three days. Larger storms will cause flow through the emergency spillway, which will be a concrete drop structure. The discharge from both spillways will flow eastward to Proctor Lake.

The Blackburn inlet diversion will be an earth channel, with a length of about 5,500 feet. Its outlet will be a concrete chute, which will release its flows into the gravel pit at the reservoir. The channel will cross an unpaved private road along the west side of the pit, where a ford will be installed. Five existing small debris basins along the route of the diversion will be maintained to reduce the amount of coarse sediment entering the diversion.

Vegetation will be established at both sites to control erosion and to improve the appearance of the structures. It will also have some wildlife habitat value. Both structures will have special design features, including increased thickness and height, to assure seismic safety.

Channel Work

Approximately 0.2 miles of existing channel will be enlarged. Its general alignment is shown in Appendix E of the Environmental Impact Statement. Capacities, dimensions, and other design data are shown in Table 3A.

The Tehachapi Channel will be enlarged at the Tehachapi Boulevard and railroad crossing, and will carry the 4 percent chance peak flow from the area below the dam. The water will be picked up with an inlet at the southwest corner of the intersection of Tehachapi Boulevard and Dennison Road and will then be carried just beyond the east end of the landing strip of the Kern County Airport, where it will be released into the existing channel and floodway. This location is about 400 feet downstream of the railroad crossing. Below this point, the water will follow its existing course, passing through the culverts at Mill Street to Tehachapi Creek.

The purpose of the planned improvement is to construct a surface water side inlet along the west side of Dennison Road. The road will be reconstructed for approximately 400 feet to provide a flat entrance condition. An earthen dike will be constructed along the west side of the constructed inlet. The height of the dike will range from one to three feet. The existing box culverts under Tehachapi Boulevard and the railroad will be used, with their inlet conditions improved to maximize their capacity. Downstream of the railroad 300 feet of riprap-lined channel will be installed. At this point the channel will be transitioned into the existing flood plain.

When flows greater than 1,100 cubic feet per second occur, they will overtop Tehachapi Boulevard. Approximately 50 percent of the excess flow will cross the railroad at this point while the rest will continue to flow west. This flow will combine with the urban runoff. These waters will follow Tehachapi Boulevard until they again cross the railroad approximately 2,200 feet west of Dennison Road, but local waters will continue to flow west in the street. All the flows will be either confined to the street and existing

channel areas or will be shallow overland flow. These flows will affect one residence and six commercial properties. The remaining damages to these properties can be reduced with the installation of a storm drainage system by the city of Tehachapi.

Wildlife Habitat Development

Three major areas will be developed for wildlife habitat. They include 3.5 acres at the east side of Blackburn Dam; two areas adjacent to the east and west sides of Antelope Dam, totaling 5.2 acres; and 11.8 acres along the Blackburn Diversion. These areas will be planted with selected grasses, shrubs and trees. Primary species to be used are intermediate wheatgrass, fourwing saltbush, Arizona cypress, brutia pine, and pinon pine. Three wildlife watering facilities will also be provided. One will be located at each reservoir and the third at one of the debris basins along the Blackburn Diversion.

The wildlife habitat features will all be installed within the rights-of-way required for the floodwater retarding structures or on land already owned by the Tehachapi-Cummings County Water District. The locations are shown in the wildlife plan included as Appendix B in the Environmental Impact Statement.

INSTALLATION COSTS - MONETARY

The estimated costs of the project measures are shown in Tables 1 and 2, and include costs for construction, engineering services, land rights, relocation payments and project administration.

Construction costs include:

-- The cost of building the dams and channels and their appurtenances.

-- The cost of vegetative work associated with the dams and channels.

-- The cost of plantings and watering facilities for wildlife habitat development.

The construction costs shown herein are based on quantity estimates for the proposed structures and recent unit prices for similar work done under comparable conditions. The computed cost was increased by a 15 percent contingency factor to obtain the estimated construction cost.

Engineering costs include those for surveys, investigations, designs, and preparation of plans and specifications. They are estimated at 12 percent of the construction cost.

Land rights costs include the cost of acquiring rights-of-way and easements for structural measures, the cost of related surveys and legal services, and the cost of road crossings and utility modifications. Land and easement costs are based on recent sales of similar properties in the area. Surveys and legal services were estimated at $1,000 per parcel.

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 provides for service and payments to displaced persons or businesses. The cost estimate for Blackburn Dam includes a relocation payment for moving the present gravel operation to a location outside the pit. This cost, estimated at $20,000, is for moving the small sheds, fuel tanks and gravel sorter to the excess gravel pile adjacent to the Blackburn site.

Federal project administration includes the cost of construction inspection and other Soil Conservation Service expenses for contract administration and general supervision of project installation. Local project administration costs include those for relocation assistance advisory services, state dam filing fees, and other local administrative expenses which will be paid by the sponsors.

Cost Allocation

Costs were allocated both to objectives and to purposes. Table 2A shows the allocated installation costs.

Objectives, as defined by the U.S. Water Resources Council, are national economic development and environmental quality. Wildlife habitat costs are allocated to environmental quality. All other costs are allocated to national economic development.

Purposes of the project are flood prevention and wildlife development. The floodwater retarding structures, and channel work are flood prevention items. Wildlife habitat costs are allocated to fish and wildlife development.

Cost Sharing

The costs of the project measures will be shared in accordance with the percentages shown in the AGREEMENT section of this plan.

ECONOMIC BENEFITS

Project benefits are tabulated in Tables 5 and 6. The total average annual floodwater damage reduction benefits in the watershed are $590,400. Included in these benefits are crop and pasture damage reduction benefits of $333,600 to 3,130 acres of cropland to the south and east of the city of Tehachapi. Much of this is irrigated cropland producing high-value crops such as turfgrass, apples, pears, and alfalfa. High-value crops are expected to predominate in the future. Other agricultural damage reduction, i.e. reduction in damages to farm buildings, irrigation systems, machinery, livestock, etc., is estimated to be $88,000 on an average annual basis.

Floodwater damage reduction benefit to the residential and commercial property within the city of Tehachapi is $125,000. The remaining annual damages of $13,500 primarily occur along Tehachapi Boulevard and affect one residence and six commercial properties at the 1% event. Other nonagricultural property such as roads and bridges and the railroad will also benefit. Non-agricultural benefits will total $207,400 annually.

Reductions in sediment and erosion damage to agricultural lands will accrue benefits of $22,300 annually.

Indirect damage reduction will amount to $78,800 annually. All told, the estimated average annual flood damage reduction benefits equal $685,900 or 93 percent of total benefits. The remaining 7 percent is composed of savings in reducing the cost of floodproofing future construction in the floodplain, benefits from stabilizing a critical eroding area, and benefits from providing employment opportunities in project construction to unemployed and underemployed workers.

Total annual NED benefits are $718,800, and total average annual costs are $524,500. Annual costs allocated to NED are $522,000, yielding a benefit-cost ratio of 1.4 to 1.

INSTALLATION AND FINANCING

Project measures will be installed over a four-year period. Neither floodwater retarding structure will be built until at least half the land in its drainage area is adequately protected from erosion, as judged by SCS standards. Installation of the structural measures will generally be in accordance with the following schedule:

Year	Preparation of Designs, Plans & Specifications	Acquisition of Land Rights	Construction
1	Antelope Dam and inlet.	Antelope Dam and inlet.	
2	Blackburn Dam and inlet.	Blackburn Dam and inlet.	Antelope Dam and inlet.
3	Tehachapi Channel	Tehachapi Channel	Blackburn Dam and inlet.
4	----------	----------	Tehachapi Channel

Revegetation of disturbed areas and installation of wildlife habitat adjacent to the various structures will be done as soon as possible after the completion of each structure.

Estimated year-by-year installation costs are as follows:

Year	PL-566 Funds	Other Funds	Total
1	$ 460,000	$ 45,000	$ 505,000
2	3,033,000	222,000	3,255,000
3	2,793,000	42,000	2,835,000
4	289,000	11,000	309,000
	$ 6,584,000	$ 320,000	$ 6,904,000

The Tehachapi-Cummings County Water District will fulfill all sponsor responsibilities for the installation of the structural measures. These include the following:

-- Acquiring land rights. The District will acquire all necessary land rights for the project and will arrange for the appraisals needed to acquire these rights. The District will exercise the power of eminent domain if necessary.

-- Arranging for the installation or modification of roads, culverts, and utilities.

-- Obtaining all needed permits and assuring compliance with all appropriate laws and regulations.

-- Providing relocation assistance advisory services. The District will provide personally, or by first class mail, written notice of displacement with appropriate forms. The District will provide the advisory services required, assist in filing and reviewing the application, and make the relocation payment. The Soil Conservation Service will assist the District in carrying out these responsibilities.

The water district plans to carry out these responsibilities by forming an improvement district for the watershed, to be administered by the Tehachapi-Cummings County Water District Board of Directors.

Financing the local share of the project will be done through the improvement district. The water district presently owns land at the Antelope site and along the route of the inlet diversion at the Blackburn site. Excess land is available at these sites and will be sold to finance part of the cost of additional land rights. The improvement district will also request funds from the State of California for reimbursement of part of the land rights costs, under existing state law. The improvement district will have the authority to collect assessments or taxes on all ownerships within its boundaries and will use this authority to obtain the funds required for the remaining project cost.

The Soil Conservation Service (SCS) will provide engineering services for surveys, investigations, designs, and preparation of plans and specifications for structural measures. The SCS will also let and administer all construction contracts and inspect construction of the structural measures. The Tehachapi-Cummings County Water District will be the sponsor responsible for dealing with the SCS on design and construction matters.

An investigation has failed to reveal any significant historical or archeological resources. However, construction contracts will make provisions for actions to be taken if cultural properties are discovered during construction. 2/ These will include instructions to all construction personnel

2/ See USDA-SCS, 7 CFR 656.

to report such findings promptly and to avoid unnecessary destruction of artifacts and features. The provisions will also include the suspension of operations which might damage the findings until the State Historical Preservation Officer or the Heritage Conservation and Recreation Service (as appropriate) has been notified and a decision on needed action has been obtained. Such action will follow the procedures of Public Law 93-291. Since this is a federally assisted local project, there will be no change in the responsibilities of any federal agency under Executive Order 11593 with respect to archeological or historical resources.

The Soil Conservation Service will contribute Public Law 566 funds for structural measures in accordance with the cost-sharing provisions described in this plan. The sponsoring local organizations are aware that the financial and other assistance to be provided by the Soil Conservation Service is conditioned on the fulfillment of the local obligations presented in this plan, and is contingent on congressional appropriation of the required funds.

OPERATION, MAINTENANCE AND REPLACEMENT

The Tehachapi-Cummings County Water District will be responsible for the maintenance of all structural measures included in this plan. The District will collect assessments or taxes to obtain the needed funds.

The estimated average annual operation, maintenance and replacement cost for the structural measures is $32,100. The cost includes $14,800 for removing sediment from the two reservoirs and the debris basins in the diversion inlet channels, $12,900 for maintaining the floodwater retarding structures and appurtenances, $3,400 for maintenance of the channels, and $1,000 for maintaining the wildlife development measures. These costs include all labor, materials, equipment, and management needed for both routine maintenance and occasional structural repairs.

The sediment pools in the floodwater retarding structures will have to be cleaned out from time to time. Sediment yield from Antelope Canyon is estimated to average 6.4 acre feet per year, and that from Blackburn is estimated at 15.5 acre feet per year. Capacity sufficient to store the sediment brought in by a 1 percent chance flood will be maintained in each reservoir at all times. This requires at least 68 acre feet to be kept available in the Antelope reservoir and 120 acre feet in the Blackburn reservoir. The Tehachapi-Cummings County Water District will be responsible for monitoring the reservoirs to assure that this requirement will be met throughout the life of the project.

Prolonged flows of clear water from the principal spillway may cause some degradation of the channel below the Blackburn reservoir. Maintenance of this channel will be included in the sponsors' maintenance responsibilities.

All completed structural works of improvement will be inspected annually to determine the maintenance required. Inspections will also be conducted after any unusual event or condition that might adversely affect a structural measure. The inspection group will consist of representatives of the Tehachapi-Cummings County Water District, the Tehachapi Resource Conservation District, the City of Tehachapi and the Soil Conservation Service, and may include representatives of other interested agencies.

Specific maintenance agreements will be executed prior to the issuing of invitations to bid for any construction contract. An operation and maintenance plan will be prepared for each structural measure, and the maintenance agreement will refer to the SCS California Operation and Maintenance Handbook. The agreement will also contain provisions for retention and disposal of any real or personal property acquired in whole or part with Public Law 566 funds. These provisions will conform to the requirements of GSA Federal Management Circular 74-7. The Tehachapi-Cummings County Water District is fully aware of its responsibilities with regard to maintenance of project structural measures.

AGREEMENT

Between the following local organizations:

Tehachapi Resource Conservation District
Tehachapi-Cummings County Water District
City of Tehachapi
Kern County Water Agency
(Referred to herein as sponsors)
State of California
and the
Soil Conservation Service
United States Department of Agriculture
(Referred to herein as SCS)

Whereas, application has heretofore been made to the Secretary of Agriculture by local organizations for assistance in preparing a plan for works of improvement for the Tehachapi Watershed, State of California, under the authority of the Watershed Protection and Flood Prevention Act (16 U.S.C. 1001-1008); and

Whereas, the responsibility for administration of the Watershed Protection and Flood Prevention Act, as amended, has been assigned by the Secretary of Agriculture to the Soil Conservation Service (SCS); and

Whereas, there has been developed through the cooperative efforts of local organizations and SCS this plan for works of improvement for the Tehachapi Watershed, State of California:

Now, therefore, in view of the foregoing considerations, the Secretary of Agriculture, through the Soil Conservation Service, and the sponsors hereby agree on this plan and that the works of improvement for this project will be installed, operated, and maintained in accordance with the terms, conditions, and stipulations provided for in this watershed plan and including the following:

1. The sponsors will acquire, with other than PL-566 funds, such land rights as will be needed in connection with the works of improvement. (Estimated cost $267,000).

2. The sponsors assure that comparable replacement dwellings will be available for individuals and persons displaced from dwellings, and will provide relocation assistance advisory services and relocation assistance, make the relocation payments to displaced persons, and otherwise comply with the real property acquisition policies contained in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646, 84 Stat. 1894) effective as of January 2, 1971, and the Regulations issued by the Secretary of Agriculture pursuant thereto. The cost of relocation payments will be shared by the sponsors and SCS as follows:

	Sponsors (percent)	SCS (percent)	Estimated Relocation Payment Costs (dollars)
Relocation Payments	9.3	90.7	20,000

3. The sponsors will acquire or provide assurance that landowners or water users have acquired such water rights pursuant to state law as may be needed in the installation and operation of the works of improvement.

4. The percentages of construction costs to be paid by the sponsors and by SCS are as follows:

Works of Improvement	Sponsors (percent)	SCS (percent)	Estimated Construction Costs (dollars)
Floodwater Retarding Structures and Channel Work	0	100	5,310,000
Wildlife Habitat Development	50	50	20,000

5. The percentages of the engineering costs to be borne by the sponsors and SCS are as follows:

Works of Improvement	Sponsors (percent)	SCS (percent)	Estimated Engineering Costs (dollars)
Floodwater Retarding Structures and Channel Work	0	100	637,000
Wildlife Habitat Development	0	100	1,000

6. The sponsors and SCS will each bear the costs of Project Administration which it incurs, estimated to be $41,000 and $608,000 respectively.

7. The sponsors will obtain agreements from owners of not less than 50 percent of the land above each floodwater retarding structure that they will carry out conservation farm or ranch plans on their land.

8. The sponsors will be responsible for the operation, maintenance and replacement of the works of improvement by actually performing the work or arranging for such work in accordance with agreements to be entered into prior to issuing invitations to bid for construction work.

9. The costs shown in this plan represent preliminary estimates. In finally determining the costs to be borne by the parties hereto, the actual costs incurred in the installation or works of improvement will be used.

10. This agreement is not a fund obligating document. Financial and other assistance to be furnished by SCS in carrying out the plan is contingent upon the fulfillment of applicable laws and regulations and the availability of appropriations for this purpose.

11. A separate agreement will be entered into between SCS and sponsors before either party initiates work involving funds of the other party. Such agreements will set forth in detail the financial and working arrangements and other conditions that are applicable to the specific works of improvement.

12. This plan may be amended or revised only by mutual agreement of the parties hereto except that SCS may deauthorize funding at any time it determines that the sponsor has failed to comply with the conditions of this agreement. In this case, SCS shall promptly notify the sponsor in writing of the determination and the reasons for the deauthorization of project funding, together with the effective date. Payments made to the sponsor or recoveries by SCS shall be in accord with the legal rights and liabilities of the parties when project funding has been deauthorized. An amendment to incorporate changes affecting a specific measure may be made by mutual agreement between SCS and the sponsor(s) having specific responsibilities for the measure involved.

13. No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this plan, or to any benefit that may arise-therefrom; but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

14. The program conducted will be in compliance with all requirements respecting nondiscrimination as contained in the Civil Rights Act of 1964, as amended, and the regulations of the Secretary of Agriculture (7 CFR 15.1 - 15.12), which provide that no person in the United States shall on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any activity receiving federal financial assistance.

Tehachapi Resource Conservation District
P. O. Box 57
Tehachapi, California 93561

By _____

Title _____

Date _____

The signing of this plan was authorized by a resolution of the governing body of the Tehachapi Resource Conservation District adopted at a meeting held on _____

_____ _____
Address Zip Code

Date _____

Tehachapi-Cummings County Water District
P. O. Box 326
Tehachapi, California 93561

By _____

Title _____

Date _____

The signing of the plan was authorized by a resolution of the governing body of the Tehachapi-Cummings County Water District adopted at a meeting held on _____

_____ _____
Address Zip Code

Date _____

City of Tehachapi
Tehachapi City Hall
129 East "F" Street
Tehachapi, California 93561

By _____

Title _____

Date _____

The signing of this plan was authorized by a resolution of the governing body of the City of Tehachapi adopted at a meeting held on _____

_____ _____
Address Zip Code

Date _____

Kern County Water Agency
1415 18th Street, Room 418
Bakersfield, California 93301

By _____

Title _____

Date _____

The signing of this plan was authorized by a resolution of the governing body of the Kern County Water Agency adopted at a meeting held on _____

_____ _____
Address Zip Code

Date _____

Appropriate and careful consideration has been given to the environmental impact statement prepared for this project and to the environmental aspect thereof.

Soil Conservation Service

United States Department of Agriculture

Approved by:

_____

State Conservationist

_____

Date

TABLE 1 - ESTIMATED INSTALLATION COST

Tehachapi Watershed, California

Installation Cost Item	Number		Estimated Cost (Dollars) 1/				
			PL-566 Funds		Other Funds		
	Unit	Non-Federal Land	SCS 2/	Total	SCS 2/	Total	TOTAL
PROJECT MEASURES							
Floodwater Retarding Structure	No.	2	5,814,000	5,814,000	241,000	241,000	6,055,000
Channel Work (M) 3/	Miles	0.2	151,000	151,000	28,000	28,000	179,000
Wildlife Habitat Development	Acres	20.3	11,000	11,000	10,000	10,000	21,000
SUBTOTAL - STRUCTURAL COST			5,976,000	5,976.000	279,000	279,000	6,255,000
PROJECT ADMINISTRATION							
Construction Inspection			266,000	266,000			266,000
Other			342,000	342,000	40,000	40,000	382,000
Relocation Assistance - Advisory Services					1,000	1,000	1,000
SUBTOTAL - ADMINISTRATION			608,000	608,000	41,000	41,000	649,000
TOTAL PROJECT COST			6,584,000	6,584,000	320,000	320,000	6,904,000

1/ Price base, 1978.

2/ Federal agency responsible for assisting in installation of works of improvement.

3/ Type of channel before project: (M) - manmade ditch or previously modified channel.

July, 1980

TABLE 2 - ESTIMATED COST DISTRIBUTION

Tehachapi Watershed, California
(Dollars) 1/

Item	Installation Cost - PL-566 Funds				Installation Cost - Other Funds				Total Installation Cost
	Construction	Engineering	Relocation Payments	Total PL-566	Construction	Land Rights	Relocation Payments	Total Other	
STRUCTURAL MEASURES									
Floodwater Retarding Structures									
Antelope Dam and Diversion	2,568,000	308,000	-0-	2,876,000	-0-	109,000 2/	-0-	109,000	2,985,000
Blackburn Dam and Diversion	2,607,000	313,000	18,000	2,938,000	-0-	130,000 3/	2,000	132,000	3,070,000
Channel Work 4/									
Tehachapi Channel (M) 87+00 - 96+70	135,000	16,000	-0-	151,000	-0-	28,000 5/	-0-	28,000	179,000
SUBTOTAL	5,310,000	637,000	18,000	5,965,000	-0-	267,000	2,000	269,000	6,234,000
WILDLIFE HABITAT DEVELOPMENT	10,000	1,000	-0-	11,000	10,000	-0-	-0-	10,000	21,000
SUBTOTAL STRUCTURAL	5,320,000	638,000	18,000	5,976,000	10,000	267,000 6/	2,000	279,000	6,255,000
PROJECT ADMINISTRATION				608,000				41,000	649,000
GRAND TOTAL	5,320,000	638,000	18,000	6,584,000	10,000	267,000	2,000	320,000	6,904,000

1/ Price base, 1978.
2/ Includes $68,000 for road crossings and telephone line alteration
3/ Includes $5,000 for road crossings.
4/ Type of channel before project: (M) Man-made ditch.
5/ Includes $20,000 for road modification.
6/ Includes $10,000 for survey, legal fees and other costs.

July, 1980

TABLE 2A - COST ALLOCATION AND COST SHARING SUMMARY

Tehachapi Watershed, California
(Dollars) 1/

Item	COST ALLOCATION			COST SHARING					
	PURPOSE			PL-566			OTHER		
	Flood Prevention	Fish and Wildlife	TOTAL	Flood Prevention	Fish and Wildlife	TOTAL	Flood Prevention	Fish and Wildlife	TOTAL
Structural Measures	6,234,000	21,000	6,255,000	5,965,000	11,000	5,976,000	269,000	10,000	279,000
GRAND TOTAL	6,234,000	21,000	6,255,000	5,965,000	11,000	5,976,000	269,000	10,000	279,000

1/ Price base 1978

July, 1980

TABLE 3B - STRUCTURAL DATA

GRADE STABILIZATION STRUCTURES

Tehachapi Watershed, California

Site	Drainage Area	Design Capacity	Associated Frequency and Duration of Storm	Drop	Volume of Concrete	Structure
	(sq.mi.)	(cfs)	(%chance and hours)	(ft.)	(cu.yds.)	
Blackburn Diversion Outlet	1.48	2780	1%-24hours	30.0	385	chute
Blackburn Reservoir Inlet	5.60	7260	1%-24 hours	50.0	641	chute

July, 1980

TABLE 4 - ANNUAL COST

Tehachapi Watershed, California
(Dollars) 1/

Evaluation Unit	Amortization Installation Cost 2/	Operation, Maintenace and Replacement Cost	Total
Flood Water Retarding Structures and Cahnnel Work	444,600	31,100 4/	475,700
Wildlife Habitat Development	(1,500) 3/	(1,000) 3/	(2,500) 3/
SUBTOTAL	444,600	31,100	475,700
Project Administration	46,300	---	46,300
GRAND TOTAL	490,900	31,100	522,000

1/ Price base 1978.
2/ Amortized at 7 1/8 percent interest rate for 100 years.
3/ Environmental quality cost.
4/ Encludes $14,800 for removal of sediment from structures.

July, 1980

TABLE 5 - ESTIMATED AVERAGE ANNUAL FLOOD DAMAGE REDUCTION BENEFITS

Tehachapi Watershed, California
(Dollars) 1/

Item	Estimated Average Annual Damage 3/		Damage Reduction Benefit 2/ 3/
	Without Project	With Project	
FLOODWATER AND SEDIMENT			
Crop and Pasture	357,400	23,800	333,600
Other Agricultural	88,000	-0-	88,000
Nonagricultural			
Residential and Commercial	138,500	13,500	125,000
Roads and Bridges	28,000	1,600	26,400
Railroad	18,400	1,000	17,400
Subtotal	630,300	39,900	590,400
SEDIMENT			
Overbank deposition	16,700	-0-	16,700
Subtotal	16,700	-0-	16,700
EROSION			
Floodplain Scour	5,600	-0-	5,600
Subtotal	5,600	-0-	5,600
INDIRECT	78,800	5,600	73,200
TOTAL	731,400	45,500	685,900

1/ Price base: current normalized prices for crop and pasture; 1978 prices for all other.
2/ Excludes effects of accelerated land treatment measures.
3/ Damage reduction benefits will accrue from floods of greater magnitude than 100 year frequency, but were not evaluated.

July, 1980

TABLE 6 - COMPARISON OF BENEFITS AND COSTS

Tehachapi Watershed, California
(Dollars)

Evaluation Unit	AVERAGE ANNUAL BENEFITS 1/				Average 3/ Annual Cost	Benefit Cost Ratio
	Damage 2/ Reduction	Floodproofing Savings	Employment	Total		
Tehachapi Watershed	685,900	7,300	25,600	718,800	475,700	1.5 : 1
Project Administration					46,300	
GRAND TOTAL	685,900	7,300	25,600	718,800	522,000	1.4 : 1

1/ Price base: Crop and Pasture, current normalized prices; all others, 1978 prices.
2/ From Table 5.
3/ From Table 4.

July, 1980

FINAL

ENVIRONMENTAL IMPACT STATEMENT

TEHACHAPI WATERSHED

Kern County, California

JULY 1980

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ENVIRONMENTAL IMPACT STATEMENT

TEHACHAPI WATERSHED PROJECT

KERN COUNTY, CALIFORNIA

PREPARED IN ACCORDANCE WITH SEC. 102 (2) (c) of P.L. 91-190

SUMMARY

I. FINAL
II. SOIL CONSERVATION SERVICE
III. ADMINISTRATIVE
IV. PROJECT PURPOSES AND ACTION

This project providing flood prevention and wildlife habitat development will be implemented by the sponsoring local organizations with federal assistance under provisions of the Watershed Protection and Flood Prevention Act, Public Law 83-566, 83rd Congress, 68 Stat. 666, as amended (16 USC 1001-1008), and in accordance with the watershed plan for Tehachapi Watershed in Kern County, California.

Proposed flood prevention measures will provide protection to 3,130 acres of agricultural land. The city of Tehachapi and 2,440 acres of the agricultural land will be protected from the 1 percent chance event (See Appendix A). The remaining 690 acres of agricultural land in the floodplain will receive protection to a lesser degree. Included are two floodwater retarding structures with inlet diversions and 0.2 miles of channel enlargement. Wildlife habitat will be developed on about 20.5 acres in conjunction with 3 wildlife watering facilities (guzzlers).

PROJECT MEASURES

Floodwater Retarding Structures

The structure on Antelope Canyon will be about 56 feet high and will require about 645,000 cubic yards of compacted earthfill. Outflow will be discharged through the principal spillway into the existing Improvement District No. 3. The emergency spillway will be of earth and will be located on the east side of the reservoir. A diversion will be installed to divert 0.85 square miles of additional watershed into the reservoir. It will be approximately 1,900 feet long, with the upper 1,800 feet being concrete lined. Box culverts will be provided at two road crossings.

The structure on Blackburn Canyon will be about 46 feet high and will include an existing gravel pit in its reservoir. The needed storage will be provided by excavation of about 630,000 cubic yards of material and construction of a compacted earthfill of about 463,000 cubic yards. The material not used in the fill will be stored at a site adjacent to the reservoir. A concrete chute will be installed at the inlet to convey flows from the canyon into the

reservoir. Runoff from storms up to a 4 percent chance event will be discharged through the principal spillway. Larger storms will cause flow through the emergency spillway, which will be a concrete drop structure. The discharge from both spillways will flow eastward to Proctor Lake. A diversion will be installed to divert 1.5 square miles of additional watershed into the reservoir. The diversion will be about 5,500 feet and will be vegetated. Its outlet will be a concrete chute which will direct flows into the reservoir. Five existing small debris basins along the route of the diversion will be maintained.

Channels

The Tehachapi channel will be enlarged and improved for a short distance at the Tehachapi Boulevard and railroad crossing, and will carry the 4 percent chance peak flow for the area below the dam. The water will be picked up with an inlet at the southwest corner of the intersection of Tehachapi Boulevard and Dennison Road and then carried just beyond the east end of the landing strip of the Kern County Airport, where it will be released into the existing channel and floodway.

Wildlife Enhancement

Wildlife habitat will be improved by revegetating the construction area with grasses beneficial to wildlife and by developing about 20.5 acres for additional wildlife habitat. Three wildlife watering facilities will be installed as well as the establishment of tree and shrub plantings. These will be located adjacent to the Antelope and Blackburn floodwater retarding structure and the Blackburn Diversion. (See Appendix B.)

Costs

The total installation cost is estimated to be $6,904,000. The average annual cost of the structural measures is estimated to be $524,500, of which $522,000 is allocated to National Economic Development (NED). The remainder is allocated to Environmental Quality (EQ). Estimated average annual benefits are $718,800 yielding a benefit-cost ratio of 1.4 to 1.

V. SUMMARY OF IMPACTS

1. Decrease in frequency and magnitude of flooding in the city of Tehachapi reducing average annual nonagricultural damages from $184,900 to $16,100.

2. Reduction of average annual sediment deposition on Tehachapi Valley land by approximately 16.6 acre feet.

3. Increase in average annual groundwater recharge of approximately 76 acre feet to a closed groundwater basin.

4. Decrease in agricultural damages on 3,130 acres, reducing average annual agricultural damages from $445,400 to $23,800.

5. Conversion of 137 acres to reservoirs, wildlife habitat and other structural measures.

6. Excavation of 147,000 cubic yards of extra material from the upper gravel pit. The fuel necessary to remove the yardage for normal gravel pit operation will have served a dual purpose thus saving fuel over the long term.

7. Decrease in quality of natural scenery by the presence of structural measures.

8. Temporary reduction in air quality in vicinity of structural measures due to dust and vehicle emissions during construction.

9. Reduction of average annual sediment damages from $16,700 to $0.0.

10. Reduction of average annual erosion damages from $5,600 to $0.0.

11. Increase in employment both during and following construction.

12. Reduction in future flood proofing costs.

13. Conversion of 20.5 acres of poor rangeland to wildlife habitat.

14. Improvement in water quality by removing sediment.

VI. LIST OF ALTERNATIVES

Several alternative methods of solving the watershed problems were investigated. Included in the alternatives are no project, land treatment, nonstructural flood prevention and structural measures.

The following is a listing of the alternatives:

(1) No Project

(2) Land Treatment Only

(3) Nonstructural Flood Prevention

(4) Structural

(a) One floodwater retarding structure on Antelope Canyon.

(b) One floodwater retarding structure on each of Antelope and Blackburn Canyons.

(c) One floodwater retarding structure on each of Antelope and Blackburn Canyons plus the modification of the bridge crossing at Tehachapi Boulevard and Dennison Road.

(d) One floodwater retarding structure on each of Antelope and Blackburn Canyons plus the installation of a new crossing under Tehachapi Bouldvard and the railroad.

(e) One floodwater retarding structure on each of Antelope and Blackburn Canyons with a joint outlet system discharging into the existing borrow pit east of Tehachapi.

(f) One large floodwater retarding structure along Highline Road with an outlet system to Proctor Lake.

(g) One large diversion with a debris basin on each of Antelope, Blackburn and Mendiburu Canyons, and a concrete channel through Tehachapi.

(h) One floodwater retarding structure on Antelope Canyon with a levee and concrete channel through the City of Tehachapi.

(i) One floodwater retarding structure on Antelope Creek, a debris basin on Blackburn Creek with an outlet to Proctor Lake, plus an improved crossing under Tehachapi Boulevard and the railroad.

(j) One floodwater retarding structure on each of Antelope and Blackburn Canyons, a grade stabilization structure above the Blackburn site, and the development of 20.5 acres for wildlife enhancement.

An incremental analysis was made on the selected plan to obtain the most feasible project, and is presented later in the document.

VII. COMMENTS WERE RECEIVED FROM THE FOLLOWING:

Federal Agencies

U.S. Environmental Protection Agency
U.S. Department of Agriculture, Office of the Secretary
U.S. Department of Agruculture, Forest Service
U.S. Department of the Army, Office of the Assistant Secretary
U.S. Department of the Army, Los Angeles District, Corps of Engineers
U.S. Department of the Army, Sacramento District, Corps of Engineers
U.S. Department of Commerce, Assistant Secretary for Science and Technology
U.S. Department of Commerce, Assistant Secretary for Policy
U.S. Department of Health, Education and Welfare
U.S. Department of Interior, Bureau of Indian Affairs

Federal Agencies - continued

U.S. Department of Interior, Geological Survey
U.S. Department of Interior, Office of the Secretary
U.S. Department of Interior, Heritage Conservation and Recreation Service

State Agencies

The Resources Agency of California
California Department of Forestry, South Sierra Region

County Agencies

Kern County Planning Department

Others

Lucious A. Green, Tehachapi, California

VIII. DRAFT STATEMENT TRANSMITTED TO EPA IN JULY 1979.

AUTHORITY

This plan has been developed by the local sponsors with the assistance of the U. S. Department of Agriculture. It is the basis for the authorization of federal assistance to implement the proposed project in accordance with the Watershed Protection Act, Public Law 83-566, 83rd Congress, 68 Stat. 666, as amended (16 USC 1001-1008). This project is in compliance with Executive Orders 11988 and 11990.

SPONSORING LOCAL ORGANIZATIONS

Tehachapi Resource Conservation District

City of Tehachapi

Tehachapi-Cummings County Water District

Kern County Water Agency

PROJECT PURPOSES AND GOALS

The purposes of the project are watershed protection, flood prevention and wildlife development. Goals of the sponsors are to employ a combination of structural and land treatment measures which will: (1) provide for stabilization of cropland, rangeland, forestland and critically eroding areas thus reducing their erosion hazard and sediment production, (2) reduce damages from floodwater and sediment, (3) provide improved wildlife habitat within the project area, (4) reduce the incidence and magnitude of range and forest fires, (5) allow more groundwater recharge, and (6) improve the management of land and water resources.

PLANNED PROJECT

FLOODWATER RETARDING STRUCTURES

The structure on Antelope Canyon will be about 56 feet high and will require about 645,000 cubic yards of compacted earthfill. It is designed to control runoff from a 1 percent chance event. Outflow will be discharged through the principal spillway into the existing Improvement District No. 3 system, which conveys flows west around the city of Tehachapi to Tehachapi Creek. The principal spillway will empty the reservoir in three days. The emergency spillway will be earth, with a concrete key installed at its crest. It will be located on the east side of the reservoir. A diversion will be installed to divert 0.85 square miles of additional watershed into the reservoir. The diversion will be approximately 1,900 feet long, with the upper 1,800 feet being concrete-lined. Box culverts will be provided at two road crossings. The channel will also cross a buried telephone cable, which will be lowered. A concrete overflow structure will be installed at the head of the diversion to allow flows in excess of the design discharge to continue to follow their present course through an existing concrete chute and box culvert under Dennison Road.

The structure on Blackburn Canyon will be about 46 feet high and will include an existing gravel pit in its reservoir. The needed storage will be provided by excavation of about 630,000 cubic yards of material and construction of a compacted earthfill of about 463,000 cubic yards. Any material not used in the fill will be stored at a site adjacent to the

reservoir, where it can continue to be used as a gravel source. A concrete chute will be installed at the inlet, to convey flows from the canyon safely into the reservoir. Runoff from storms up to a 4 percent chance event will be discharged through the principal spillway, which will empty the reservoir in three days. Larger storms will cause flow through the emergency spillway, which will be a concrete drop structure. The discharge from both spillways will flow eastward to Proctor Lake. All of the water flowing to Proctor Lake, less the evaporation loss, plus some of that retained in the reservoirs will infiltrate into the groundwater. Average annual groundwater recharge is estimated to be increased by 76 acre feet. A diversion will be constructed to divert 1.5 square miles of additional watershed into the reservoir. The diversion will be vegetated with a length of about 5,500 feet. Its outlet will be a concrete chute, which will release its flows into the gravel pit at the reservoir. The channel will cross an unpaved private road along the west side of the pit where a ford will be installed. Five existing small debris basins along the route of the diversion will be maintained to reduce the amount of coarse sediment entering the diversion.

CHANNELS

Approximately 0.2 miles of existing earth channel will be enlarged. The general alignments are shown in Appendix E. All channel modifications will be in compliance with the USFW-SCS channel modification guidelines.

The Tehachapi channel will be enlarged and improved for a short distance at the Tehachapi Boulevard and railroad crossing, and will carry the 4 percent chance peak from the area below the dams. The water will be picked up with an inlet at the southwest corner of the intersection of Tehachapi Boulevard and Dennison Road and then carried just beyond the east end of the landing strip of the Kern County Airport, where it will be released into the existing channel and floodway. This location is about 400 feet downstream of the railroad crossing. Below this point, the water will follow its existing course, passing through the culverts at Mill Street to Tehachapi Creek.

The planned improvement is to construct a surface water side inlet along the west side of Dennison Road. The road will be reconstructed for approximately 400 feet to provide a flat entrance condition. An earthen dike will be constructed along the west side of the constructed inlet. The height of the dike will range from one to three feet. The existing box culverts under Tehachapi Boulevard and the railroad will be used, with their inlet conditions improved to maximize their capacity. Downstream of the railroad, 300 feet of riprap-lined channel will be installed. At this point the channel will be transitioned into the existing flood plain.

When flows greater than 1,100 cubic feet per second occur, they will overtop Techahapi Boulevard. Approximately 50 percent of the excess flow will cross the railroad at the intersection of Dennison Road and Tehachapi Boulevard, while the remaining waters will continue to flow west. This flow will combine with the urban runoff. These waters will follow Tehachapi Boulevard until they again cross the railroad approximately 2,200 feet west of Dennison Road; however, the local waters will continue to flow west in the street. All the flows will be either continued to the street and

existing channel areas or will be shallow overland flow. These flows will affect one residence and six commercial properties. The remaining damages to these properties can be reduced with the installation of a storm drainage system by the City of Tehachapi.

WILDLIFE HABITAT DEVELOPMENT

Three areas totaling about 20.5 acres will be developed for wildlife habitat. They include 3.5 acres at the east side of Blackburn Dam; two areas adjacent to the east and west sides of Antelope Dam, totaling 5.2 acres; and 11.8 acres along the Blackburn Diversion. These areas will be planted with selected grasses, shrubs and trees. Primary species to be used are intermediate wheatgrass, fourwing saltbush, Arizona cypress, bruita pine, and pinon pine. Three wildlife watering facilities will also be provided. One will be located at each reservoir and the third at one of the existing debris basins along the Blackburn Diversion.

The wildlife habitat features will all be installed within the rights-of-way required for the floodwater retarding structures or on land already owned by the Tehachapi-Cummings County Water District. The locations are shown in the wildlife plan included in Appendix B.

INSTALLATION SCHEDULE AND RESPONSIBILITY

Project measures will be installed within a four-year period following approval of construction. Construction will be done during spring, summer and fall months when there is little or no flow in the ephemeral streams, with minimal effects on water quality. Neither floodwater retarding structure will be built until at least 50 percent of the land in its drainage area is adequately protected from erosion, as judged by SCS standards. The sponsors will be responsible for all installation work including obtaining necessary permits and complying with applicable laws and regulations.

OPERATION AND MAINTENANCE

The Tehachapi-Cummings County Water District will assume all responsibility for operation and maintenance of structural improvements installed. An agreement will be made between the District and SCS prior to issuance of invitation to bid on construction contracts. It will state operation and maintenance requirements.

The estimated average annual operation, maintenance and replacement cost for the structural measures is $32,100. The cost includes $14,800 for removing sediment from the two reservoirs and the debris basins in the diversion channels, $12,900 for maintaining the floodwater retarding structures and appurtenances, $3,400 for maintenance of the channels and $1,000 for maintaining the wildlife development measures. These costs include all labor, materials, equipment, and management needed for both routine maintenance and occasional structural repairs. The sediment pools in the floodwater retarding structures will have to be cleaned out from time to time. Sediment yield from Antelope Canyon is estimated to average 6.4 acre feet per year, and that from Blackburn is estimated at 15.5 acre feet per year. Capacity sufficient to store the sediment brought in by a one percent chance flood will be maintained in each reservoir at all times. This requires at least 68 acre-feet to be kept available in the Antelope reservoir and 120 acre feet in the Blackburn reservoir. The Tehachapi-Cummings County Water District will be responsible for monitoring the reservoirs to assure that this requirement will be met throughout the life of the project.

PROJECT ECONOMICS

The average annual cost of structural measures, including the operation, maintenance and replacement (OM&R) is $522,000. The average annual benefits are $718,800, resulting in benefit-cost ratio of 1.4 to 1.

ENVIRONMENTAL SETTING

INTRODUCTION

The Tehachapi Watershed, within the Tehachapi Resource Conservation District, in south-central Kern County, California, contains 50.6 square miles (32,420 acres). It is a large valley at the juncture of the Sierra Nevada Mountains

on the north, and the Tehachapi Mountain Range on the south. It is traversed east-west by State Highway 58 and Southern Pacific and Santa Fe Railroads. The only city in the watershed is Tehachapi located at the west end of the valley, with a population of 4,240, (1977). Bakersfield, the county seat and largest city in Kern County, is about 40 miles northwest of the watershed.

PHYSICAL RESOURCES

Land Use

Land use within the watershed has not changed significantly within the past several years, with the exception of rangeland. Much of the land once grazed within the Blackburn-Mendiburu sub-watershed has been converted to recreational homes or cottages and is now only seasonally occupied. Approximately 3,127 acres of prime farmland exists within the watershed. Of this, approximately 81 percent of this is irrigated. The rangeland is seasonally grazed, mostly by sheep. The forestland is in the upper reaches of the watershed and very little if any is used commercially. Specific land uses (1976) are as follows:

Land Use	Acres	% of Total
Cropland	5,080	15.7
Irrigated	(2,560)	(7.9)
Nonirrigated	(1,390)	(4.3)
Idle	(1,130)	(3.5)
Rangeland	11,425	35.2
Recreation Land	4,690	14.5
Camping/Park Areas	(650)	(2.0)
Brushland/Hunting	(4,040)	(12.5)
Forestland	4,250	13.1
Urban	6,535	20.2
Developed	(2,360)	(7.3)
Undeveloped	(4,175)	(12.9)
Farmsteads	220	0.6
Surface Mines	220	0.7
TOTAL	32,420	100.0

With the exception of about 640 acres, all land within Tehachapi Watershed is privately owned. Portions of the 640 acres belong to BLM and to Kern County. There are more than 800 private landowners outside of the urban area, with parcels ranging in size from less than an acre to more than 10,000 acres.

Major irrigated crops are deciduous orchards, pears, turf grass, alfalfa and potatoes. Dryland crops are primarily wheat and barley. Recreation land includes recreational home sites, a private campground, a private

hunting club and a county park where camping and picnicking are the major attractions. Most of the foothill land is rangeland, largely in annual grasses and is primarily used for grazing cattle and sheep.

Climate

Climate of Tehachapi Watershed is a continentally modified Mediterranean type, characterized by cool, moderately wet winters and warm, dry summers. Because of the elevation, however, colder winters occur than are typical of the Mediterranean climate. Mean monthly temperature for the year is reported to be 54° F with extremes of 105° F and -4° F. The growing season at the valley floor averages 168 days (April 28 - October 13).

The mean annual precipitation at Tehachapi is 10.2 inches, 85 percent of which falls during the period November through April. Annual precipitation at higher elevation approaches 20 inches. Snowfall commonly occurs from December through March. Summer storms are infrequent, but rainfall may exceed 2 inches per 24 hours in August and September.

Topography and Drainage

Elevations range from 3,800 to 7,960 feet above mean sea level. The Tehachapi Valley is oblong, about 15 miles long east and west and about 5 miles north and south. The valley is fed by a number of ephemeral streams emerging from the south, including Water Canyon Creek, Pine Tree Creek, Antelope Creek (Lime Kiln Canyon), Blackburn Creek and Mendiburu Creek. Whiterock Creek enters the valley from the north. A drainage divide exists approximately in the middle of the valley, oriented roughly in a north-south direction.

Surface runoff east of this divide, including portions of that from Blackburn Creek and all of the Mendiburu and Whiterock Creeks, drains to Proctor Lake. The western half of the valley is drained by Brite Creek on the north and others on the south, which join Tehachapi Creek flowing northwest out of the watershed.

Geology

In general, the area is characterized lithologically by large expanses of acid igneous rocks of the granite family. Complexes of gneiss, schist, limestone, quartzite and some igneous intrusives are scattered throughout the area. Complexes of diorite, quartz diorite and granodiorite compose the major portion of the north side as well as portions in the southwest area. Sedimentary beds of pyroclastic (volcanic) rocks are found scattered in lithological areas, generally located in headwaters of subwatersheds. Alluvial deposits of various ages dominate the surface of valley floors.

The area is highly faulted. Active major faults near the area are the Garlock, approximately 5 miles east; the White Wolf, approximately 16 miles west; and the San Andreas, approximately 30 miles south. All of these faults have shown movement within the past 200 years.

Mineral Resources

Several abandoned limestone quarries and a gold-tungsten mine are within the watershed boundaries. However, the last reported activity at any of the mines was in 1943 when a small amount of tungsten ore was reportedly recovered.

Soils

The soils are on two major landforms. Most of the cultivated soils are on alluvial fans and terraces of the mountain valley. Land classes of the floodplain and low fans and terraces are primarily IIe and IIIe. Higher fans and terraces are largely IVe. They are primarily the Steuber, Tehachapi and Havala series and are very deep. The Steuber soils are sandy loam throughout. In some places, large boulders are found beneath the soil. The Tehachapi and Havala series have sandy loam surfaces and sandy clay loam subsoil. The other landform is composed of mountainous uplands, which are used primarily for range. Land classes are largely VIe and VIIe. The Walong, Anaverde, Edmunston, Goode, Tollhouse and Tweedy are the primary soil series. Goode and Tollhouse are sandy loams, shallow to bedrock. Walong and Edmunston soils are moderately deep sandy loams. The Anaverde soils are deep and have a gravelly loam surface and a gravelly sandy loam subsoil. Tweedy soils have a sandy loam surface, a sandy clay loam subsoil, and they are underlain by bedrock at moderate depths. Edmunston, Goode and Tollhouse soils, in the southwestern woodland region of the watershed, support substantial timber stands.

Groundwater

The Tehachapi Valley has a closed groundwater basin with limited recharge. The annual groundwater yield is estimated to be 5,500 acre feet.

Water Quality

Wells and the California Aqueduct are the major sources of water utilized for agricultural, municipal and industrial purposes within Tehachapi Watershed. Seven known springs occur within the watershed and provide some water for esthetics, wildlife, and livestock. However, the water from these springs results in little or no stream flow since it is quickly absorbed by the soil. The water from these sources has been analyzed and rated as excellent for domestic and agricultural uses. At the present time, the groundwater requires no treatment for municipal and industrial use.

Hydrology

The area is subject to high intensity thunderstorms and intense general rains in the summer, fall, and winter. Since 1900 past floods have taken place in 1913, 1914, 1931, 1932, 1938, 1945, 1955, 1958, 1963, and 1970. The largest floods recorded were those of 1932, 1938 and 1945 which were of nearly equal magnitude. The 1932 and 1945 storms occurred as convective storms in late summer, while the 1938 event occured from February 28th to March 4th as a series of high intensity, long duration storms. Other

floods have occured in the summer from short high intensity storms. The rainfall amounts from the two summer floods were considerably larger than that of February, but dry ground conditions reduced flooding somewhat.

Precipitation varies in the watershed by elevation for individual storms. Runoff volumes are low, but peak flows are high and of a short duration. Most of the flooding that occurs takes place in shallow flows spreading over large areas.

ANIMAL AND PLANT RESOURCES

Native Vegetation

The vegetation of more than half of the watershed above the proposed structures is pinon-juniper chaparral, and woodland with conifers and broadleaf trees occasionally mixed with some sagebrush at lower elevations. The remainder of the upper watershed is either woodland with grass or grassland, primarily annual-type.

On moderate to steeply sloping foothills, scrub oak and canyon live oak (Quercus dumosa and Quercus chrysolepis) contribute over 20 percent canopy and pinon pine (Pinus monophylla) and juniper (Juniper spp.) form an overstory canopy exceeding 20 percent. Cheatgrass, desert needlegrass, and pine bluegrass, (Bromus tectorum, Stipa speciosa and Poa scabrella) are common ground cover plants.

The forested upland at the higher elevations is usually dominated by one or more commercial species of timber. Jeffrey pine and white fir (Pinus ponderosa var. Jeffreyi and Abies concolor) are the principal species.

At the middle and lower elevations there are some stands of broadleaf trees in which the canopy exceeds 50 percent. Principal species are Blue oak, Valley white oak, and California black oak (Quercus douglasii, Q. lobata, and Q. keloggii). The understory is principally annual grasses, such as Bromus spp., including forbs, which frequently exceed 50 percent of the cover. There are some areas in which big sagebrush (Artimesia tridentata) invades as an understory to oaks occupying up to 20 percent of the canopy cover. Cheatgrass predominates the ground cover.

The proposed structures will be in a gently sloping grassy area with some barren spots. This area contains few trees and is mostly annual grasses with less than 5 percent canopy. Dominant species are Bromus spp. with some annual fescues Festuca spp. Red stem filaree (Erodium cicutarium) is frequently present. In a few areas, perennial bunchgrass consisting of bluegrasses (Poa spp.), needlegrasses (Stipa spp.), and squirrel tail (Sitanion hystrix) may occupy up to 20 percent of the ground cover.

Wildlife

Wildlife species within the watershed are limited primarily to the upper watershed area where more woody vegetation occurs. Common species include mule deer (Odocoelius hemionus), mountain quail (Oreorty pictus), valley

quail (Lophortyr californicus), and various song birds. Elk (Cervus canadensis) and the California condor (Gymnogyps californians) both can be seen in the watershed on rare occasions, as their ranges overlap somewhat in the Tehachapi Watershed. Approximately 290 acres of Type 9 wetlands (as described by U.S. Fish and Wildlife Circular 39) occur within the watershed. These are all located within saline flats of Proctor Lake, a dry lake bed.

Fish

There is very little surface water within the watershed and therefore, only a limited fishery resource exists. Since both reservoirs to be constructed are to be dry, there is no opportunity to enhance the fishery resource. However, two impoundments near the watershed provide good to excellent fishing and are managed by the county and state.

Threatened or Endangered Species

The California condor, on rare occasions, can be seen soaring near the Tehachapi Mountains. According to the Federal Register (September 22, 1977, Vol. 42 #184), Tehachapi Valley is not a nesting area for the condor, nor is the valley critical to its habitat. Also, three rare and endangered plants are found within the watershed. These are the Alpine phacelia (Phacelia humilus), Kernville poppy (Eschscholzia procera Greene), and calico flower (Mimulus pictus (Curr.) Gray). Each is listed by the California Native Plant Society. A list of plant and animal species has been requested from the U.S. Fish and Wildlife Service; coordination will continue in order to assure that no adverse impacts to these species will occur.

CULTURAL RESOURCES

Human Use Elements

The area is well served by transportation facilities. State Highway 58 connects Tehachapi with Bakersfield to the northwest and with Mojave to the east. Southern Pacific and Santa Fe Railroads pass through Tehachapi. Kern County Airport No. 4 in Tehachapi handles small noncommercial aircraft. From Bakersfield, plane connections can be made world-wide.

The urban area is centered around the only city, Tehachapi, with a population of 4,240 (1977). It is the primary location of business and community activities in the area. A cement manufacturing plant, employing about 500 persons, is located about 5 miles east of the city. Next to the plant is the site of the former company town of Monolith, which no longer exists. The watershed area provides some recreation in the form of camping and hunting.

Archaeological, Historical, and Unique Scenic Resources

An archaeological investigation was conducted by Robert Schiffman 1/ in 1976. The study revealed some evidence of occupation and milling areas adjacent to the creek in Antelope Canyon. However, no known archeological, historical or unique scenic resources on or eligible for the National Register of Historic Places were found.

1/ Robert A. Schiffman is an archaeologist in the Department of Anthropology at Bakersfield College, Bakersfield, California.

WATER AND RELATED LAND RESOURCE PROBLEMS

INTRODUCTION

The Tehachapi Watershed has a long history of floodwater, sediment, and erosion damage. Antelope, Blackburn and Mendiburu Creeks have no defined channels after entering the valley. Floodwaters from Antelope Creek, and a portion of Blackburn Creek combine on the alluvial fan and flow north and west through the city of Tehachapi into Tehachapi Creek. Runoff waters from Mendiburu Creek and a portion of Blackburn Creek combine and flow north and east to the normally dry Proctor Lake. Major floods have occurred in 1932, 1938, and 1945. During the 1932 flood, at least twenty lives were lost in the Tehachapi area and immediately downstream. An unknown number of transients on a Southern Pacific freight train were buried in Tehachapi Creek during this flood. The 1945 flood took six lives and did extensive damage.

The people of Tehachapi have attempted to work out solutions for their flood problems. Since 1948, there have been numerous efforts to initiate action to alleviate the flood problems in the watershed. Local people have already installed some works of improvement. The Tehachapi-Cummings County Water District operates two flood control improvement districts, which include debris basins, flood channels, and a diversion-detention reservoir. Works of improvement, built in 1968-69 by District No. 2, protect a subdivision south of Tehachapi from sediment and peak flows. The cost of these improvements was approximately $200,000. Works of improvement, constructed in 1968-69 by District No. 3 at a cost of approximately $1,300,000, protect a portion of the city of Tehachapi against a one percent chance flood. These works of improvement have functioned well, and have reduced property damage during recent storms.

FLOODWATER DAMAGE

The agricultural floodplain occupies 3,130 acres. It is composed primarily of high value irrigated crops, such as turf grass, apples, pears, alfalfa and miscellaneous other specialty crops. It is expected that the tendency to grow more high value crops will continue due to the high price of irrigation water.

The average annual flooded agricultural area is 299 acres. The estimated average annual crop and pasture damage is $357,400. Other agricultural damage, such as damage to fences, farm equipment, irrigation systems, etc., is estimated to be $88,000 annually.

Nonagricultural damage occurs to some residential and commercial property in the city of Tehachapi. Under present conditions, approximately 194 residences and 24 commercial units are subject to flooding from a one percent chance flood.

The direct damages to nonagricultural property from a one percent chance flood are estimated at $2,667,900. The average annual flood damages to these properties are estimated at $227,600.

SEDIMET DAMAGE

Sediment deposition has caused considerable damage to agricultural land during past floods. Storm runoff generally transports a substantial load of coarse sediment, which is deposited on the flatter slopes of the alluvial fan. Estimates reveal a one percent chance flood would severely damage 615 acres of high value cropland causing over $410,000 damage. The estimated average annual sediment damages in the watershed are $16,700. Sediment damages in the nonagricultural areas of Tehachapi are included in the sediment overbank deposition.

EROSION DAMAGE

Floodplain scour has caused damage to the agricultural lands in past floods. Cultivated land and orchards are susceptible to the erosive forces of high velocity flood flows. Investigations reveal that a one percent chance flood will cause extensive floodplain scour damage to 345 acres of cropland, amounting to $75,600. The estimated average annual erosion damages are $5,600.

GROUNDWATER SUPPLY

The groundwater basin over which the Tehachapi watershed is located has been adjudicated to establish prescribed groundwater rights of all parties, to gain a physical solution to the overdraft and to establish a groundwater management program. This would allow the integration of imported supplemental water with local water supplies. On December 16, 1966, the Board of Directors of the Tehachapi-Cummings County Water District signed two contracts with the Kern County Water Agency for entitlement to State Water Project water. One contract was for an annual entitlement of 5,000 acre feet of agricultural water. The other was for an annual entitlement of 15,000 acre feet of municipal and industrial water. In 1971, voters approved loans and a bond issue totaling 9 million dollars. The purpose was to construct a water system to convey imported state water to the Tehachapi-Cummings District. Construction began in 1972, and in November 1973, the first state water was pumped from the state aqueduct system. First deliveries of State Project Water and the use of the exchange pool within the Tehachapi groundwater basin were inititated in early 1974. Legal judgements have named the Tehachapi-Cummings County Water District as the water master. The judgements further established allowable pumping allocations and restricted total extractions within the Tehachapi Basin to the safe yield of 5,500 acre-feet. With this extraction, it is estimated to take 12-15 years to bring the ground water basin back to a safe level that may permit increased pumping allocations.

CRITICAL ERODING AREAS

Twenty-seven acres of critically eroding areas have been identified in the upper watershed. They are all adjacent to access roads and are somewhat scattered. There are a total of four acres within the recreation homesite area. Three acres are scattered along three miles of Blackburn Canyon access road. Six acres consist of a badly eroded gully near Oak Creek Pass.

RELATIONSHIP TO LAND USE PLANS, POLICIES AND CONTROLS

Implementation of the Tehachapi Watershed Plan will provide watershed protection and flood prevention, improve wildlife habitat, increase groundwater recharge, increase agricultural production and farm income, encourage retention of agricultural lands and improve the human environment of the area. These objectives fit within the plans of California, Kern County and all of the sponsors.

Kern County has a flood hazard ordinance which regulates development within flood plains and conforms with the National Floodplain management program. The Kern County Water Agency reviews development plans for conformance to the ordinance. The project is consistent with the ordinance.

ENVIRONMENTAL IMPACTS

CLIMATE AND AIR QUALITY

The project is not expected to alter the existing climate. There will be a short-term effect on air quality from dust and engine emissions during construction. Except for the stream channel, construction areas are about 2 miles from the urban area and construction is not expected to create excessive noise.

HYDRAULICS

At Antelope Reservoir, the peak flow from a one percent chance event will be reduced from 4200 cfs to 143 cfs. At Blackburn Reservoir, the peak flow from a one percent event will be reduced from 8400 cfs to 2800 cfs. Flows from Blackburn and Mendiburu Canyons will be diverted east and north to Proctor Lake, a dry lake bed. The peak flow below structures entering the east side of Tehachapi for the one percent event will be reduced from 7500 cfs to 2000 cfs. Of this, 1100 cfs will be routed under the railroad and around the north side of the airport. The remaining 900 cfs will flow down Tehachapi Boulevard where it will sheet flow over the railroad without danger to loss of life.

SEDIMENTATION

Project works will reduce the average annual sediment delivery below the structures by about 16.6 acre feet.

WATER QUALITY

Water quality will improve due to the trap efficiencies of the debris basins. The decreased flooding will result in better use of fertilizers and pesticides thus reducing these pollutants' effects on both surface and groundwater resources.

BIOLOGICAL

With the planned revegetation of the disturbed areas, the overall effects for wildlife will be beneficial. Approximately 20.5 acres of additional wildlife habitat will be established. Three wildlife watering facilities will be installed with the plantings. Approximately 56 acres will be revegetated for erosion control and the plant species used will also be beneficial to wildlife. See Appendix B for details.

The diversion to Blackburn adds a 1.5 square mile drainage area that will contribute additional water to Proctor Lake. This may create a few acres of wetland in the existing dry lake bed. It should also slightly improve forage production in the lake bed.

GROUNDWATER

The project will result in an average annual increase in groundwater recharge of approximately 76 acre feet within the basin.

VISUAL

The dams will be located near the base of the mountain. Both the Antelope Canyon structure, which will be 56 feet high, and the Blackburn Canyon structure, which is 46 feet high, will be constructed from local materials, so they should blend into the adjacent landscape. Little or no loss of the visual resource is anticipated. The erosion control plants, in addition to the wildlife habitat plantings, will help reduce any adverse visual effects.

MINERAL RESOURCES

Project implementation will not adversely affect the mineral resource base.

LAND USE

The project is not expected to significantly change the land use in the watershed. The rangeland to be converted will change from a vegetative cover of annual grasses composed primarily of cheat grasses and filaree to one of perennial grasses mixed with some woody vegetation. The area is now in poor range condition and is being grazed periodically by sheep. A summary of direct land use change expected to result immediately from project installation is presented below in Table 1. Long-term land use is not expected to change as a result of the project.

TABLE 1

DIRECT LAND USE CHANGES WITH PROJECT RIGHTS-OF-WAY

LAND USE	ACRES EXISTING	ACRES WITH PROJECT
Rangeland	112	16
Urban Stream Channel	1	1

Table 1 Cont'd

LAND USE	ACRES EXISTING	ACRES WITH PROJECT
Urban Undeveloped	4	2
Mined Land	20	2
Wildlife Land	0	21
Dams and Appurtenant Structures	0	95
	137	137

ECONOMIC AND SOCIAL

The project will provide flood protection from a one percent chance event for 2,440 acres of agricultural lands, and less protection for about 690 acres of agricultural lands. About 58 separate landowners which are conducting some type of agricultural enterprise will be protected. Minority groups and low income persons will not be affected any differently than others living in the impacted area. Below Blackburn Reservoir where the existing channel crosses State Highway 58, the flood protection approaches zero. The city of Tehachapi will be protected from a one percent event. Protection will be afforded to 193 houses and 18 businesses. Debris and sedimentation will be reduced considerably on the floodplain.

During construction, an estimated 4.2 man years of additional employment will be provided annually in the Tehachapi area for five years. This will result in about 21 man years of employment during construction.

TABLE 2

AGRICULTURAL AREA FLOODED BY VARIOUS FREQUENCY FLOODS

FREQUENCY OF FLOOD EVENT, PERCENT CHANCE	ACRES FLOODED WITHOUT PROJECT	ACRES FLOODED WITH PROJECT
1	3130	690
2	2404	525
4	1700	376
10	944	206
20	469	102
50	0	0

ARCHEOLOGICAL, HISTORICAL AND UNIQUE SCENIC RESOURCES

There are no apparent archaeological, historical or unique scenic resources within the works of improvement in the project area; thus, no impacts to these resources will result.

UNAVOIDABLE ADVERSE IMPACTS

There will be short-term air and noise pollution normally associated with construction activities; however construction sites, except for the stream channel, are located about two miles from urban areas and the impacts will be minimal. About 137 acres will be dedicated to works of improvement; however, almost the entire acreage will be re-established in vegetation. The loss of fuels necessary for construction will be irretrievable. A short-term increase of sediment in the ephemeral streams will result, but should be minimal.

FAVORABLE IMPACTS

At Antelope Reservoir the peak flow from a one percent chance event will be reduced from 4,200 cfs to 143 cfs. The peak flow from a one percent chance event will be reduced below Blackburn Reservoir from 8,400 cfs to 2,800 cfs. The entire Blackburn flow will be directed toward Proctor Lake, a dry lake bed, where it may create some wetlands, and increased forage. Groundwater recharge within the Tehachapi Watershed will be increased by 76 acre feet annually. Average annual sediment rates will be reduced below structures about 16.6 acre feet per year, or about 76 percent. Wildlife resources will be improved by habitat plantings, and the development of three wildlife watering facilities. Flood protection from a one percent chance event will be provided for 2,440 acres of agricultural lands and less protection will be provided for the other 690 acres. The city of Tehachapi will be protected against a one percent chance event. Approximately 4.2 man years of employment will be provided in the Tehachapi area each year for five years during construction.

ALTERNATIVES

INTRODUCTION

Several alternative methods of solving the watershed problems were investigated. Included in the alternatives were land treatment, nonstructural, and structural measures. Presented below are the various systems of reservoirs, debris basins, channels, diversion channels, etc., which were considered.

NO PROJECT

Existing conditions or no project would result in continued flooding, with associated sedimentation and debris deposition, from creeks in the southern portion of the watershed. Average annual damages of about $780,500 would continue to occur. The condition of the upper watershed would remain as is or it could even deteriorate. Benefits from the wildlife development would be foregone.

A large flood would cause excessive damage to the city of Tehachapi and to some of the land now devoted to turf farming. In the event of the one percent flood, it is estimated that 194 residences and 24 businesses would receive damage and high cost would be involved in the clean-up. The cost of reclaiming turf land following flooding and debris deposition is extremely

high. The average annual benefits of $421,600 would be foregone for the agricultural lands and would mainly affect the high value crops of turf, flowers and orchards.

ACCELERATED LAND TREATMENT

Watershed treatment is currently being carried out through the ongoing program of the Tehachapi Resource Conservation District (TRCD). Under the land treatement program, individual landowners and users apply conservation practices, with technical assistance from the TRCD and the Soil Conservation Service. The purpose of the treatment is to reduce runoff, erosion and sediment deposits and to improve land and water management. This program could be accelerated as part of the project with features such as fire control added.

Typical conservation practices would include conservation cropping systems on cropland, proper grazing on rangeland and critical area stabilization along several areas of various land uses. Additional companion practices would be included to assure accomplishment of management objectives.

As part of the accelerated land treatment program, three levels of fire protection were investigated. Level I was quite intensive and included items such as fuelbreaks, road betterment, helispots, water development, emergency evacuation areas, fire weather station, fire danger signs and a daily fire danger indicator. Level II included fuel management, roadside hazard reduction, road betterment, road crossing and water source development. Level III included about 750 acres of fuel management.

Even though the above measures would reduce the average annual sediment yield by 0.25 acre-feet, high intensity storms would still induce flooding and sediment damages.

Since the cost to install the above measures exceed monetary benefits and no resources deemed environmentally significant would be protected, the accelerated land treatment program was pursued no further.

NONSTRUCTURAL FLOOD PREVENTION

Nonstructural measures alone would fail to prevent flooding of either urban or agricultural land in the watershed. However, certain nonstructural measures could be employed by the City of Tehachapi or by individual owners, in lieu of structural measures, which would minimize flood damage in the city. These are:

(1) Improve and expand flood warning and community preparedness.

(2) Continue to implement the National Flood Plain Insurance Program. This will guide future use of the floodplain. The 100-Year Flood Plan Map (Appendix E-6) can be used for guidance in planning future urban development.

(3) Floodproof individual buildings, including using sealers, erecting barricades, installing backflow preventors, and elevating and/or diking individual structures. Flood warning systems or floodproofing measures installed as part of a watershed plan would be eligible for financial assistance under Public Law 566.

If a strictly nonstructural alternative was selected and installed, the city would be provided some flood protection. However, the larger floods would still continue to cause damages. The agricultural benefits would be foregone and the wildlife development and enhancement would be foregone as well. No increase in groundwater recharge or any improvement in water quality would occur.

STRUCTURAL

Formulation of the structural alternatives which follow was based on the premise that plans must conform to USDA statutory policy, congressional and institutional constraints, and be acceptable and implementable by a public entity. Varying levels of protection for both the urban and agricultural areas were evaluated. A summary of each alternative's component parts including damage reductions resulting from the plan, benefits, costs, net benefits and benefit/cost ratio is shown in Table 3, page 28.

Alternative A

This alternative consists of the Antelope floodwater retarding structure alone. The structure would be as shown in the selected plan. Floodwater storage would be for the 1 percent event, and sediment storage would be 80 acre-feet. This level of protection is required because the watershed is located directly above the city of Tehachapi and the highly damageable agricultural area. Analysis of the reservoir size indicated it to be the most economical structure.

The installation of this reservoir and appurtances would require 66 acres for the dam, sediment pool and diversion. The sediment pool reservoir would provide some additional ground water recharge and 5.2 acres for potential wildlife enhancement. Impacts on wildlife species would be similar to those of the selected plan. Estimated total installation cost is $3,301,000.

Alternative B

This alternative constists of the structure in Alternative A with the addition of Blackburn reservoir. Both reservoirs would be the same as shown in the selected plan. Blackburn reservoir was designed to maximize net benefits without increasing peak flows to Proctor Lake. This reservoir would provide floodwater retention storage up to the four percent event and sediment storage of 150 acre feet. With this alternative, there would be no apparent risk of loss of life in the city of Tehachapi during a one percent chance event. However, approximately 25 percent of the average annual floodwater damages would still occur.

These works of improvement would require 124 acres for the installation of the dam, reservoir and the diversions. The groundwater recharge and wildlife species affected would be virtually the same as the selected plan.

Estimated total installation cost of this alternative is $6,686,000. The average annual incremental cost for adding Blackburn Reservoir is $259,400 while the average annual benefits would increase $274,200.

Alternative C (NED Plan)

This alternative consists of the two structures in Alternative B and the modification of the bridge crossing under Tehachapi Boulevard and the railroad at Dennison Road. Both reservoirs and the crossing improvement would be the same as shown in the selected plan.

The entrance and outlet conditions for the bridge crossing would be modified to allow its maximum capacity of approximately 1100 cfs. When flows exceed 1100 cfs, part of the flow would continue down Tehachapi Boulevard and join local waters. This alternative would provide protection for the majority of the agricultural and urban areas.

The works of improvement would require 126 acres for the installation of the reservoir, dams, and crossing improvements. The groundwater recharge and wildlife species that would be affected are virtually the same as the selected plan.

Estimated total installation cost of this alternative is $6,882,000. The average annual incremental cost of adding the crossing improvement is $14,200 while the average annual benefits increase $35,100. This alternative maximizes national economic development benefits.

Alternative D

This alternative consists of the structures in Alternative B and the installation of a new crossing under Tehachapi Boulevard and the railroad. The channel upstream and downstream of the new crossing would also be improved. The construction of the new crossing and channel improvement would allow for the passage of all floodwaters from the one percent event which flow into Tehachapi from the east, thereby preventing any additions to the existing local waters. Damages would still occur in one residence and five commercial properties because of local urban flows.

The works of improvement would require 138 acres of land for the installation of the reservoirs, dams and channel improvements. The groundwater recharge and wildlife species that would be affected are virtually the same as the selected plan.

Estimated total installation cost is $7,963,000. The average annual incremental cost of adding this protection over alternative C is $77,600, while the average annual benefits increase $11,200.

Alternative E

This alternative consists of two floodwater retarding structures, one each on Antelope and Blackburn Canyons, with a combined outlet system. The outlet system would include a channel discharging into the existing borrow pit east of Tehachapi. When the borrow pit filled and overflowed, a second channel would carry the flow along Tehachapi Boulevard to Dennison Road and release it through the existing crossing under the road and railroad.

The locations of the floodwater retarding structures are different from those in the first four alternatives. The Antelope Canyon site is approximately three-fourths of a mile south of Highline Road and the Blackburn Creek site would be upstream of the glider port. Runoff from three subwatersheds between the two sites would flow directly into the Blackburn Reservoir. The reservoirs would be large enough to contain the flows from a one percent event. The channel outlet system would be an earth channel for about 15,900 feet and would have 18 grade control structures. The last 200 feet would be concrete-lined at the Dennison Road outlet.

Structural problems involved with the development of this alternative are numerous. Construction of Antelope dam would require the relocation of a major gas line and one abutment is on a possible fault line. The Blackburn site was found to have collapsible soils under half of the proposed embankment.

This alternative would provide protection for the majority of the agricultural and urban areas within the watershed. As in the selected plan, the 690 acres of agricultural lands below the junction of Blackburn and Mendiburu Creeks would be afforded limited protection since Mendiburu Creek would still flow uncontrolled to Proctor Lake.

The works of improvement would require 159 acres for reservoirs, dams, and channels. The borrow pit and sediment pools would provide additional groundwater recharge and potential area for wildlife enhancement and/or recreation use. Impacts on wildlife species would be similar to those of the selected plan; however, the wildlife habitat development would be reduced to approximately 15.0 acres with this alternative.

The estimated total installation cost is $8,165,000.

Alternative F

This alternative consists of one large floodwater retarding structure along Highline Road which would contain the floodwater from a one percent event and sediment accumulation for 100 years. This dam would control 15.2 square miles of watershed area of Antelope, Blackburn and Mendiburu Canyons. It would require the construction of an outlet system from the reservoir to Proctor Lake. This outlet channel would run 830 feet north in a concrete channel to an earth channel. The earth channel would then flow east to Proctor Lake and would be 14,400 feet long with 20 grade stabilization structures. This plan would maximize the floodwater and sediment storage and would provide the greatest amount of total benefits. However, design problems, including the presence of collapsible soils under two-thirds of the proposed dam and the need for many stabilizers in the outlet channel, make it extremely costly.

This alternative would maximize protection to the agricultural lands and would prevent the majority of the urban damages. The works of improvement would require 345 acres for reservoir, dam and channels. The sediment pool would provide approximately 2100 acre feet of temporary floodwater storage, part of which would enter the groundwater table. Impacts on wildlife species would be similar to those of the selected plan; however, the wildlife habitat development plan would be changed considerably.

The estimated installation cost is $11,773,000.

Alternative G

This alternative consists of a large diversion with debris basins above the agricultural area and a concrete channel and associated levees through the city of Tehachapi.

The large earth diversion would be constructed along the base of the mountains. It would intercept the 10 percent chance flood flows from Antelope, Blackburn, Mendiburu and other intervening areas and outlet them to Proctor Lake. Debris basins would be constructed on Antelope, Blackburn and Mendiburu Canyons to remove sediment from the flow. The debris basins would be large enough to trap the sediment from a one percent event and several smaller events. A concrete channel would be constructed along the north side of the railroad through Tehachapi to pass the one percent chance peak flow (8000 cfs). This includes runoff from below the diversion and runoff that exceeds the capacity of the diversion. The channel would begin at Dennison Road and would extend 7,500 feet west. A levee system would be included to assure that the flood waters were diverted around town and forced to enter the concrete channel. An earth inlet channel, 1,000 feet long, would be constructed east of Dennison along Tehachapi Boulevard.

Works of improvement would require 107 acres for diversion, channel and levees. Environmental impacts associated with the channel construction would be more adverse than those of the selected plan. The concrete-lined channel would reduce potential groundwater recharge and wild-life habitat.

The estimated total installation cost is $8,252,000.

Alternative H

This alternative consists of the floodwater retarding structure on Antelope Creek with a levee and concrete channel around the city of Tehachapi.

The dam would be located on the downstream fan of Antelope Canyon with flows released into the Improvement District No. 3 channel as in the selected plan. Antelope Reservoir would contain sediment storage for the one percent event flow plus several smaller storms. The sediment would have to be removed periodically to provide the necessary protection. Approximately 7,500 feet of concrete channel would be necessary to safely pass the one percent event peak flow (4600 cfs) through Tehachapi. The channel would be located on the north side of the railroad. A levee inlet system for the channel along the south east edge of the city would be included to assure that the floodwaters from Blackburn Canyon would not enter the city of Tehachapi.

This alternative would provide floodwater and sediment protection to agricultural and urban areas downstream of Antelope Canyon, but would offer no protection to the area flooded by Blackburn-Mendiburu runoff. Protection for the city of Tehachapi would be provided for the one percent chance event. Works of improvement would require 83 acres for the dam, sediment pool and channel. Impacts on the wildlife resources would be similar to the selected plan; however, the 20.5 acres of wildlife habitat development would be reduced to approximately 5 acres.

The estimated installation cost is $8,018,000.

Alternative I

This alternative consists of a floodwater retarding structure on Antelope Channel, a debris basin with a small amount of floodwater retarding storage on Blackburn Creek, an outlet channel from the Blackburn basin to Proctor Lake, and an improved crossing under Tehachapi Boulevard and the railroad. The flood retention structure on Antelope Creek and the improved crossing would be as shown in the selected plan. On Blackburn Creek, the gravel pit would be enlarged to provide 420 acre feet of floodwater storage and 150 acre feet of sediment storage. The existing gravel pit would discharge 400 cfs and the emergency spillway would begin to function at approximately the 10 percent event. A concrete channel would be installed for 11,500 feet and would be designed to handle the principal spillway discharge flows from Blackburn along with flows from Mendiburu and other intervening flow areas.

Adverse environmental impacts associated with this plan would be more severe than those of the selected plan. The concrete-lined channel would cause the removal of approximately 2 acres of woody habitat east of Willow Springs Road and reduce groundwater recharge. The works of improvement would require approximately 102 acres from the dam, reservoirs and channel.

The estimated installation cost for this alternative is $8,800,000.

Alternative J (EQ Plan)

This alternative consists of the same structures as in alternative B, with the addition of a grade control structure in Blackburn Canyon and the development of 20.5 acres for wildlife enhancement. The wildlife plan for the 20.5 acres would be the same as in the selected plan.

This alternative would provide upland wildlife habitat, including water, food and cover, and would reduce erosion and sedimentation in the watershed. It would also reduce flood damage on the agricultural lands and the city of Tehachapi. The installation of the works of improvement would require 145 acres of land for the dams, sediment pools and wildlife enhancement area.

This large grade control structure would be installed in the main channel of Blackburn Canyon, about one mile above the proposed floodwater retarding reservoir. The structure is designed for the one percent chance peak flow and would stabilize about 1,000 feet of channel along a main road in the Old West Ranch subdivision. No resource of environmental significance is below the grade control structure.

The estimated total installation cost is $7,340,000.

TABLE 3

COMPARISON OF STRUCTURAL ALTERNATIVES

COMPONENTS	ALTERNATIVES										
	A	B	(NED) C	D	E	F	G	H	I	(EQ) J	Selected
Floodwater Retarding Structure (No.)	1	2	2	2	2	1 3/	0	1	1	2	2
Improvement of Tehachapi Channel Crossing			X	X							
Diversion							X				
Grade Stabilization Structure										X	
Major Channel Work (Miles)				.6	3.0	2.0	1.8	2.1	2.2		
Debris Basin							X		X		
Levees							X	X			
Wildlife Development	1/	1/		1/	1/	1/	1/	1/	1/	X	X
Percent Damage Reduction											
Urban	61	75	91	93	91	92	100	100	91	75	91
Agricultural Land West of Stucher Road	64	97	97	97	98	98	37	72	97	97	97
Agricultural Land East of Stucher Road	0	63	63	63	63	90	28	0	30	63	63
Sediment and Erosion 2/	57	100	100	100	100	100	100	57	100	100	100
Average Annual Benefits (Dollars)	427,900	696,000	724,500	734,700	731,800	763,400	575,400	555,500	733,600	696,700	718,800
Average Annual Costs (Dollars)	248,200	507,700	521,900	599,500	609,300	849,700	603,500	586,800	659,600	537,600	524,500
Net Benefits (Dollars)	179,900	188,300	202,600	135,200	122,500	-86,300	-28,100	-31,000	74,000	175,300	194,300
Benefit/Cost Ratio	1.7:1	1.4:1	1.4:1	1.2:1	1.2:1	0.9:1	0.9:1	0.9:1	1.1:1	1.3:1	1.4:1
Meets Sponsors' Objectives	NO	YES	YES	YES	YES	YES	NO	YES	YES	YES	YES

1/ Wildlife development could be developed on any of these plans.

2/ From Antelope and Blackburn.

3/ Includes Mendiburn Canyon.

July, 1980

SHORT-TERM VS. LONG-TERM USE OF RESOURCES

Both the short-term and long-term use of the project area is agricultural and urban. The project would protect agricultural land against unacceptable flooding. It would also allow landowners and operators to apply conservation practices compatible with short and long-term projected land-uses. The life of the project is expected to exceed any current projections for future use within the Tehachapi area. With proper O and M and the application of conservation practices in the upper watershed above structures, the project is expected to be effective beyond the design period. The project is compatible with existing land use plans of Kern County and the City of Tehachapi.

IRREVERSIBLE AND IRRETRIEVABLE COMMENTS OF RESOURCES

With the exception of labor, energy and materials, there will be no irreversible or irretrievable commitment of resources. The majority of land required for the project will still be suitable for the same use as before project.

CONSULTATION AND REVIEW WITH APPROPRIATE AGENCIES AND OTHERS

Sponsors made application for assistance in 1967 and planning was authorized in 1976. At that time, a summary of preliminary studies was distributed to numerous federal, state and local agencies. During the planning and assessment phases of the project, several public meetings were conducted. State, county, local agencies and organizations were invited and participated.

Below is a list of public meetings held in the Tehachapi area since late 1974.

Date	Place	Purpose
10-31-74	Mountain Inn	Define objective for Watershed Investigation Report (WIR)
03-20-75	SCS Field Office	Present WIR Alternatives
01-06-76	High School Library	Present WIR
10-06-76	Wells School Auditorium	Define objectives for Watershed Plan
12-07-76	Mountain Inn	Environmental Assessment Team-Open Workshop
07-20-77	Wells School Auditorium	Present Alternative B and outlet alternatives, plus report progress on other items.

Date	Place	Purpose
02-15-78	Tehachapi-Cummings County Water District	Present Preliminary Report with potential plan elements.
08-14-79	Tompkins Elementary School	Public presentation of draft workplan and EIS during inter-agency review.

The following is a list of agencies who assisted in the environmental assessment:

California Department of Fish and Game

California Department of Forestry

Kern County Fire Department

United States Forest Service

An Archaeological Reconnaissance was conducted by Robert A. Schiffman. 1/ The investigation found no significant archaeological resources.

Preliminary drafts of the plan and EIS were sent to the following agencies for informal review in May 1978.

California Department of Water Resources

California Department of Fish and Game

California Department of Forestry

Kern County Fire Department

State Water Resources Control Board

U. S. Corps of Engineers

U. S. Bureau of Reclamation

U. S. Fish and Wildlife Service

1/ Robert A. Schiffman is an archaeologist in the Department of Anthropology at Bakersfield College, Bakersfield, California.

SUMMARY OF COMMENTS AND RESPONSES

Each concern is summarized and a response given on the following pages. Where agencies have supplied multiple comments, they have been listed numerically. Copies of the original letters received during the review process appear in Appendix F.

U.S. Environmental Protection Agency

Comment: The EPA's comments on the DEIS have been classified as Category LO-1. Definitions of the categories are provided on the enclosure. The classification and the date of the EPA's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clear Air Act. Our procedure is to categorize our comments on both the environmental consequences of the proposed action and the adequacy of the environmental statement.

Response: Noted.

U.S. Department of Agriculture, Office of the Secretary

Comment: We have reviewed the Draft Statement but cannot find any reference to your assessment of the effects of the proposed action upon the minority population.

Response: The statement "Minority groups or low income persons will be affected in no way different than others living in the area" has been added to the section concerning social and economic impacts.

U.S. Department of Agriculture, Forest Service

Comment: We have reviewed the July 1979, Interagency Draft Watershed Plan and Environmental Statement for the Tehachapi Watershed Project and have no comments.

Response: Noted.

U.S. Department of the Army, Office of the Assistant Secretary

(1) Comment: Measures described in the watershed plan would not conflict with any existing flood control program by the U.S. Army Corps of Engineers. However, the Corps Sacramento District has recently initiated an investigation of the Caliente Creek Stream Group to determine the feasibility of implementing flood protection measures to the area southeast of Bakersfield, California, which could be affected by your proposed project. Accordingly, I would appreciate your keeping the Sacramento District informed of the progress on your proposed project.

Response: Noted.

(2) Comment: The EIS should discuss the need for a Department of the Army permit as required under Section 404 of the Clean Water Act (33 USC 1344). Local sponsors should be advised to coordinate with the Corps to determine the type of authorization needed on any individual project.

Response: On page E-25 of the Draft EIS, it was noted that "The sponsors will be responsible for all installation work including obtaining necessary permits and complying with applicable laws and regulations". Before the Soil Conservation Service obligates funding for construction, we will assure ourselves that the sponsors are in compliance with applicable laws and regulations.

U.S. Department of the Army, Los Angeles District, Corps of Engineers

Comment: The proposed plan does not conflict with existing or authorized plans of the US Army Corps of Engineers, Los Angeles District. The major portion of the watershed lies within the geographical limits of the Sacramento District. We have no comments on the environmental statement or work plan for the proposed action.

Response: Noted.

U.S. Department of the Army, Sacramento District, Corps of Engineers

Comment: We have completed our review of your Watershed Plan and Environmental Impact Statement for the Tehachapi Watershed in Kern County, California, as requested in your letter dated 16 July 1979.

We have forwarded our comments to the Secretary of the Army who will provide a consolidated set of comments.

Response: Noted.

U.S. Department of Commerce, Assistant Secretary for Science and Technology

Comment: Geodetic control survey monuments may be located in the proposed project area. If there is any planned activity which will disturb or destroy these monuments, NOS requries not less than 90 days' notification in advance of such activity in order to plan for their relocation. NOS recommends that funding for this project includes the cost of any relocation required for NOS monuments. Attached are data locating and describing monuments in the vicinity of the proposed project.

Response: After review of the material your agency furnished, we have noted one monument (H-368) located in the work area. However, as planned, the project will not impact the monument.

U.S. Department of Health, Education and Welfare

(1) Comment: We did not find any plans in the statement that addressed the secondary development of the Blackburn and Antelope Reservoirs once they are constructed. It would be helpful to know how the quality of water in these reservoirs will be maintained.

Response: The structures are designed to temporarily store flood waters and not permanent water. As mentioned on pages E-20 and E-21 of the draft EIS, the flood waters will be emptied in three days; thus the water quality within the reservoirs is not a concern.

(2) Comment: Also, we have reviewed this statement for potential vector-borne disease impacts. Projects of this type which include drainage improvements generally benefit vector mosquito problems by eliminating or minimizing certain breeding habitats. While no significant adverse impacts are expected from this development, we believe the final EIS should address any potential problems that may be associated with vectors. This is particularly important in view of the statement (page E-46, lines 9 and 10) that "All Blackburn flow will be directed toward Proctor Lake, a dry lake bed, where it may create some wetlands and increased forage".

Response: It is true that all Blackburn flow will be directed toward Proctor Lake; however, the quantity and frequency of the water reaching Proctor Lake will be insignificant. This is due to several reasons. The distance to Proctor Lake is approximately 2.5 miles and the soil between Blackburn Reservoir and Proctor Lake is very permeable. It is estimated that the only water to reach Proctor Lake would occur during a storm that would produce runoff that equals or exceeds the 4 percent event (25 year storm). In addition, the Blackburn watershed area is an insignificant amount when compared to the total watershed area contributing to Proctor Lake.

U.S. Department of the Interior, Bureau of Indian Affairs

Comment: We have reviewed the Tehachapi Watershed Project, Draft Work Plan and Draft Environmental Impact Statement, Kern County, California, and found no Indian lands under the jurisdiction of this office are involved.

Response: Noted.

U.S. Department of the Interior, Geological Survey

Comment: We are returning your draft work plan and draft environmental impact statement for the Tehachapi Watershed Project. It is Department of the Interior Policy that formal draft or final environmental statements prepared by a Federal Agency should

be referred to our Office of Environmental Project Review for a coordinated review. I note on page E-10 of your document that you have, in fact, submitted a copy of the document to that office. Therefore, there is no need for comment from my office.

Response: Noted.

U.S. Department of the Interior, Office of the Secretary

(1) Comment: The selected plan includes measures that would compensate for unavoidable losses to the wildlife resource base as well as provide for some measure of habitat improvement. Further, the flood retarding structures would be dry most of the time and provide little opportunity to develop a fishery resource. Since there appears to be little impact on the programs and missions of this Department, we have no objection to the processing of this report to the Congress.

Response: Noted.

(2) Comment: The report should indicate whether the proposed project is in compliance with the Executive Orders 11988, Floodplain Management, and 11990, Protection of Wetlands.

Response: A statement has been added to the environmental impact statement under "AUTHORITY" to indicate compliance with Executive Orders 11988 and 11990.

(3) Comment: Several limestone quarries and a gold-tungsten mine are within the watershed boundaries. Beginning in the 1880's, the Summit Lime Company and its successor, the Union Lime Company, produced burned lime from material recovered from several limestone quarries in the Antelope Canyon area, mostly from a large quarry on the east side of the canyon in the SW ¼ sec. 35, T. 12 N., R. 15 W., SBM. There has been no limestone production since 1928. During World War II, a few hundred pounds of tungsten ore was apparently recovered from a limestone-igneous contact zone.

Another Antelope Canyon quarry along the north edge of sec. 2 T. 11 N., R. 15 W., SBM, was operated by the City of Los Angeles from 1909 to 1912. Material from the quarry supplied the Monolith cement plant during the construction of Haiwee Reservoir-Los Angeles aqueduct. Currently, limestone for the cement plant is obtained from a quarry about two miles northeast of Tehachapi.

An unknown amount of gold was produced from the Pine Tree mine (also known as the American or Victoria mine) NE ¼ sec. 4, T. 11 N., R. 15 W., SBM, between 1876 ad 1907. The ore consisted of free gold with minor amounts of scheelite in

quartz veins in granitic rocks. The last reported activity at the mine was in 1942 and 1943 when a small amount of tungsten ore was reportedly recovered.

While the SCS proposal will not adversely impact on the mineral resource base of the study area, we believe the discussion of this resource base requires adequate coverage in the EIS. Further, the statement should assess whether the mineral activity would affect the natural foundations of the proposed structures from a safety standpoint.

Response: Statements have been added in the environmental impact statement under Mineral Resources in both the "environmental setting" and in the "impacts" sections as requested.

Adequate subsurface studies are made in the preliminary investigations to help determine site location, feasibility, and safety. More intensive studies will be completed prior to final design.

(4) Comment: Endangered Species Act Compliance - The statement, on page E-35, that formal consultation has been initiated under Section 7(c) of the Endangered Species Act Amendments of 1978 is not correct. A list of endangered species has been provided under provisions of Section 7(c) of the Endangered Species Act Amendments of 1978. The formal consultation process will not begin until receipt by the Fish and Widllife Service of the Biological Assessment of endangered species and a formal consultation request is made by the SCS. Formal consultation would only be initiated if there is a possibility that work planned would impact endangered or threatened species or result in destruction or adverse modification of habitat.

Response: It is true that only a list of endangered species has been provided. Since this list contains only plants that may be potentially impacted, additional studies to verify any impacts will be initiated in the spring of 1980 when plant identification is made easier by lack of snow cover as well as the beginning of vegetative growth. Coordination with the U.S. Fish and Wildlife Service will continue and no fund obligating documents will be signed prior to the resolution of the endangered species issue.

(5) Comment: Cultural Resources - With regard to historic and archeological resources, page 36, we suggest that Dr. Robert Schiffman's report be appended to the final statement. If the State Historic Preservation Office (SHPO) has not already been provided copies of this statement as well as the archeological report, his comments should be solicited. The final statement should include some evidence of consultation with the SHPO.

Response: We disagree with appending Dr. Schiffman's report. However, the State Historic Preservation Office (SHPO) has been provided a copy of Dr. Schiffman's original report as well as recent supplements.

(6) Comment: Alternatives - Little distinction has been made between the EQ and NED alternatives, (pages E-59 and 60). The major objective of an EQ plan is to maximize, within reason, environmental values for comparison to the more traditional measures that require a benefit/cost analysis. In this respect, measures designed primarily to protect urban and agricultural lands are not appropriate under the categories of Other Areas of Natural Beauty and Land Quality.

Flood-retarding structures costing $6,000,000 should not be included in an EQ plan unless there were some outstanding areas of natural beauty, ecological, or biological values that needed protection. We concur that land treatment measures planned would be suitable under this plan.

Response: Under current SCS policy, only plans that have a reasonable chance of being implemented are considered as possible EQ plans. Since the principal objective of the sponsors is flood damage reduction, the EQ plan should make a major contribution to that goal; therefore, measures that produce flood prevention benefits are included in the EQ plan if they do not cause significant adverse environmental effects.

The Resources Agency of California

(1) Comment: From the wording of the statement on page E-6 of the subject EIS, it is unclear if properties were located which were deemed ineligible for inclusion in the National Register, or if no properties were identified in the project's impact area. We request that the report prepared by the archeologist be provided to the Office of Historic Preservation demonstrating compliance with the applicable federal mandates.

Response: Your reference to page E-6 must mean E-36. Wording has been changed to clarify the issue. In addition, Dr. Schiffman's original report was mailed to you on September 12, 1979. On March 22, 1980, supplements to the original report was mailed to you. These reports document that no properties on or eligible for the National Register were located, nor would any sites be impacted.

(2) Comment: The Department of Water Resources finds the proposed project financially feasible and eligible for State financial assistance under the California Watershed Protection and Flood Prevention Law commencing at Section 12850 of the Water Code. We further find that the project does not include land enhancement.

Response: Noted.

(3) Comment: The Department notes that the first full paragraph on page P-10, the Dennison Road reconstruction, as described, is not a relocation cost as defined by State guidelines. This cost would, therefore, not be eligible for State cost sharing under the aforementioned law.

Response: Noted.

(4) Comment: Also, referring to Table 6 in the blue pages of the Tehachapi Watershed Plan and Table 4 of the Environmental Impact Statement (page E-60), the cost and benefit figures show in these tables for the selected plan do not agree. This should be corrected or explained.

Response: The cost figure in Table 4 of the EIS was in error and should be $718,800. This has been corrected and now reflects the cost figure as presented in Table 6 of the work plan.

California Department of Forestry, South Sierra Region

(1) Comment: Page P-22, lines 22, 23 and page E-45, line 4. At one time, the old lime kiln was considered to be of historical interest to the Kern County Historical Society. Has this been changed?

Response: The old lime kiln is still of interest to the local people, and has been proposed as a county land mark; however, no official action has been taken. The project will not affect the lime kiln.

(2) Comment: Page E-12. State Forester should be changed to Director and California Division of Forestry should be changed to California Department of Forestry.

Response: Noted and Corrected.

(3) Comment: Page E-13. Kern County Fire Department was omitted from your list.

Response: Noted.

Lucious A. Green, Tehachapi, California

(1) Comment: What will it cost by the time it is ready to take action and to begin to move dirt?

Response: Based on present inflation rates the estimated construction cost of the project will increase another 10 to 14 percent by the time installation begins. The new cost based on present estimates is expected to be 8.6 million dollars.

(2) Comment: How long will it be before it is off to a running start?

Response: The project has to go through several more steps before installation can begin in 1982. These steps and estimated time requirements are:

	Step	Date Completed
A.	Independent Review (Washington D.C.)	April, 1980
B.	Office of Management and Budget (Washington,D.C.)	July, 1980
C.	Congressional Approval (Washington, D.C.)	April, 1981
D.	Authorized for Installation (Washington, D.C.)	May, 1981
E.	Final Design for Construction (Davis, CA)	May, 1982

Total construction time, once started, would be on-going for four years.

(3) Comment: Will this just benefit Mr. Nunes farming operations and three other small apple orchards?

Response: The project will protect about 58 separate landowners which are conducting some type of agricultural enterprise and 194 homes and 18 businesses in the city of Tehachapi.

(4) Comment: Why are the taxpayers of the Tehachapi Valley having their taxes increased to benefit such a few individuals? We feel we are being taxed too much now.

Response: People often burden themselves with taxes which they do not want in order to deal with some disastrous event which has occurred previously and will likely occur again. Flooding is one of those disastrous type of things. As shown in the answer to question 3, many people will benefit from the project and not just Mr. Nunes.

(5) Comment: Isn't this another Welfare Program for the taxpayers to support that would benefit only a small number of growers.

Response: Flood damages cause a direct loss to the landowner. However, this is also a direct loss to the Nation since the labor, money, and goods used in producing crops will yield no return. Studies show that the reduction in losses and other allowable changes brought about by this project will bring about an additional return of $1.50 to the Nation for every dollar spent on installing the project.

(6) Comment: How can we keep wildlife in the area above Tehachapi without a big expense to the Water System? We are now paying too much for wildlife protection and we risk being arrested if we do hunt.

Response: The law requires the projects installed with Federal assistance must protect the natural environment. Wildlife, being part of the environment, has to be protected. This even includes all the little animals which we do not hunt. More specifically the plan calls for planting species of vegetation beneficial to wildlife and providing water in areas already owned by the Tehachapi-Cummings Water District. The water will be a small quantity and most of it will be obtained from the two floodwater retarding reservoirs. It is not planned that wildlife will be confined to this 20.5 acres but that they could use this area as a feeding and watering area.

(7) Comment: Why create more taxes for the nusiance to come into this area? It will cost more to pay for an employee to protect of wildlife.

Response: Congress in its passage of environmental legislation has established as national policy that wildlife will be protected. Much thought was given to this before these laws were passed. They are for our own good. The rationale used here is similar to building waste treatment plants to keep pollution levels low or having safety seat belts in cars to protect people in an accident.

No additional personnel is required to protect the wildlife.

(8) Comment: Why not let every farmer big or small pay for his own insurance? Homeowners now pay for flood, wind, hail, dust, and fire insurance.

Response: Buying insurance is an option to the project. However, insurance at best would only come close to covering the losses from floods. The project as previously mentioned, will bring about additional returns of about $1.50 for every dollar spent. This benefits the landowner and all taxpayers since it prevents waste of the Nation's scarce resources.

APPENDIX A

Appendix A

The One-Percent Event

The one percent event is that flow of water from a drainage area that has a one percent chance (probability of 0.01) of occurring in any given year. It is equivalent to the so-called 100-year flood, but it should not be thought of as an event that occurs regularly every 100th year or one that lasts for 100 years. Instead, it is the flood that would occur no more often than once in 100 years on the average. It is possible that two repetitions of this flood flow could occur in a single year, or that a single event may not occur for 200 years.

The one percent flood has a small risk of occurrance in the given year, but this risk is accumulative. When compared with the 20-year life of an average home loan, for example, the chance that it will occur is quite large. During the 30-year loan period, the chance that a one percent flood will occur, or be exceeded approaches 30 percent.

APPENDIX B

APPENDIX B

WILDLIFE PLAN

Introduction

The project will have a beneficial effect on the wildlife habitat, as well as on the human environment. Generally, two beneficial treatment measures will be discussed. These are: (1) enhancement by revegetating areas disturbed during construction and (2) enhancement by developing an additional 20.5 acres with plant species desirable to wildlife and installing three wildlife watering facilities (guzzlers). These measures are summarized in Table B-1 on page B-3, and will be discussed as four treatment areas. These are: (1) Antelope Reservoir, (2) Antelope Diversion, (3) Blackburn Reservoir and Blackburn Diversion.

Antelope Reservoir

Revegetation will include establishing selected vegetation along the north and east side of the dam. The north strip will be approximately 30 feet wide and 2,175 feet long (about 1.5 acres). The east strip will be approximately 30 feet wide and 1,375 feet long (about 1.0 acres). The plants will be a mixture of intermediate wheatgrass and fourwing saltbush. Interspersed among these strips will be small clusters and single tree plantings of Arizona cypress, pinyon pine, and brutia pine. An additional 15.5 acres of reservoir and 3 acres of emergency spillway will be established in grasses only for erosion control and wildlife benefit. Revegetation with plant species desirable to wildlife will enhance the existing wildlife resources. An additional 5.25 acres will be developed specifically for wildlife. This enhancement will consist of two block plantings consisting of the above plant mixture. One block will be established on both the east and west sides of the reservoir. The east block will be approximately 3.5 acres, and the west block 1.75 acres in size. One wildlife watering facility (guzzler) will be installed in association with this planting.

Antelope Diversion

The diversion to Antelope reservoir (about 2 acres) will be revegetated to a mixture of intermediate wheatgrass/fourwing saltbush for erosion control and wildlife enhancement.

Blackburn Reservoir

Revegetation will include establishing selected vegetation along the north and east sides of the dam. The north strip will be approximately 30 feet wide and 1,125 feet long (about 0.75 acres). The east strip will be approximately 30 feet wide and 1,450 feet long (about 1.0 acre). The plant species will be a mixture of intermediate wheatgrass and fourwing saltbush. Cluster and single tree plantings of Arizona cypress, pinyon pine, and brutia pine will be interspersed throughout the plantings. An additional

13.25 acres of reservoir and 2 acres of emergency spillway will be established in grasses for erosion control. Revegetation will enhance the existing wildlife resources.

Further enhancement will result from developing one block planting of about 3.5 acres consisting of intermediate wheatgrass and fourwing saltbush mixture. It will be located at the northeast corner of the dam. A wildlife watering facility (guzzler) will be installed in combination with the vegetative planting.

Blackburn Diversion

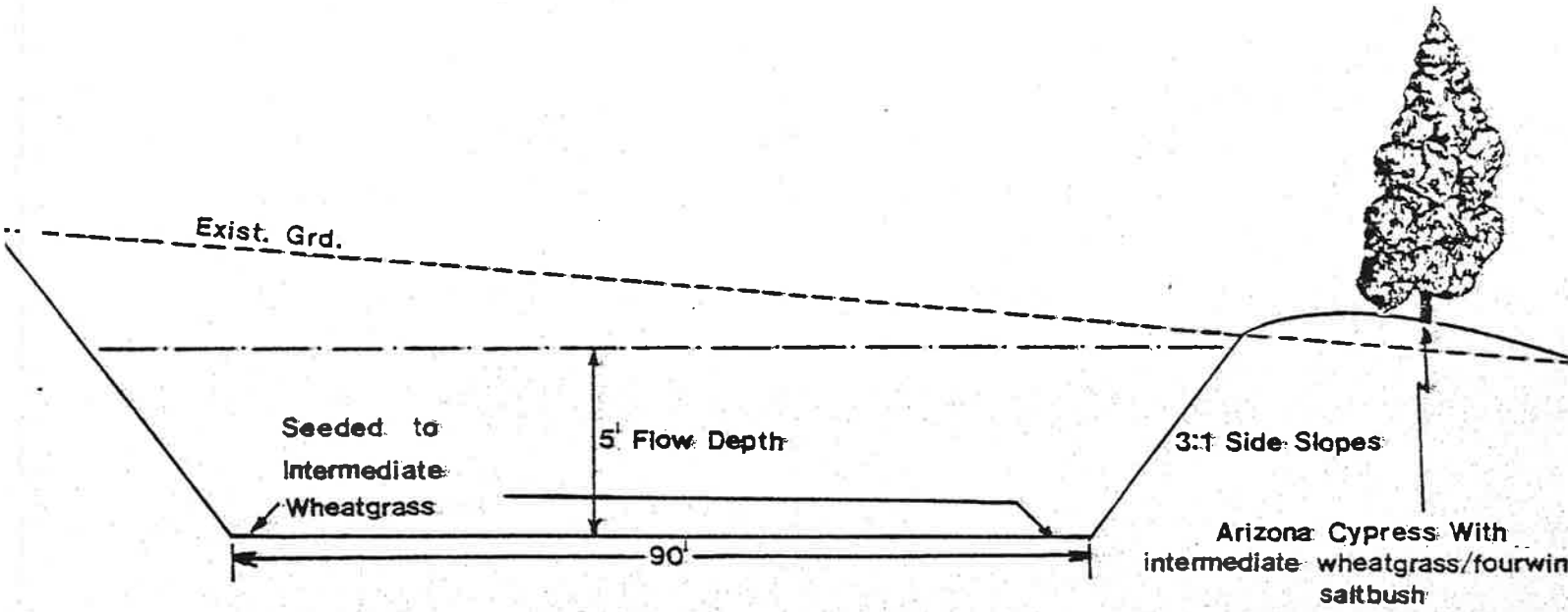
Revegetation will include seeding the entire length of the diversion. The channel bottom (about 8 acres) will be seeded to intermediate wheatgrass only. The balance of the diversion (about 8 acres) will be seeded to a mixture of intermediate wheatgrass/fourwing saltbush. Except for the length of fill comprising the dike, this mixture will be interspersed with cluster and single tree plantings of Arizona cypress, pinyon pine, and brutia pine. This will enhance the existing wildlife resources in the area.

Further enhancement will result from the development of a 11.75 acre parcel of land. The area is located between the diversion and Dennison Road and will be established with a mixture of intermediate wheatgrass and fourwing saltbush. Cluster and single tree plantings of Arizona cypress, pinyon pine, and brutia pine will be interspersed throughout the parcel. In addition, a wildlife watering facility (guzzler) will be installed near one of the existing small debris dams.

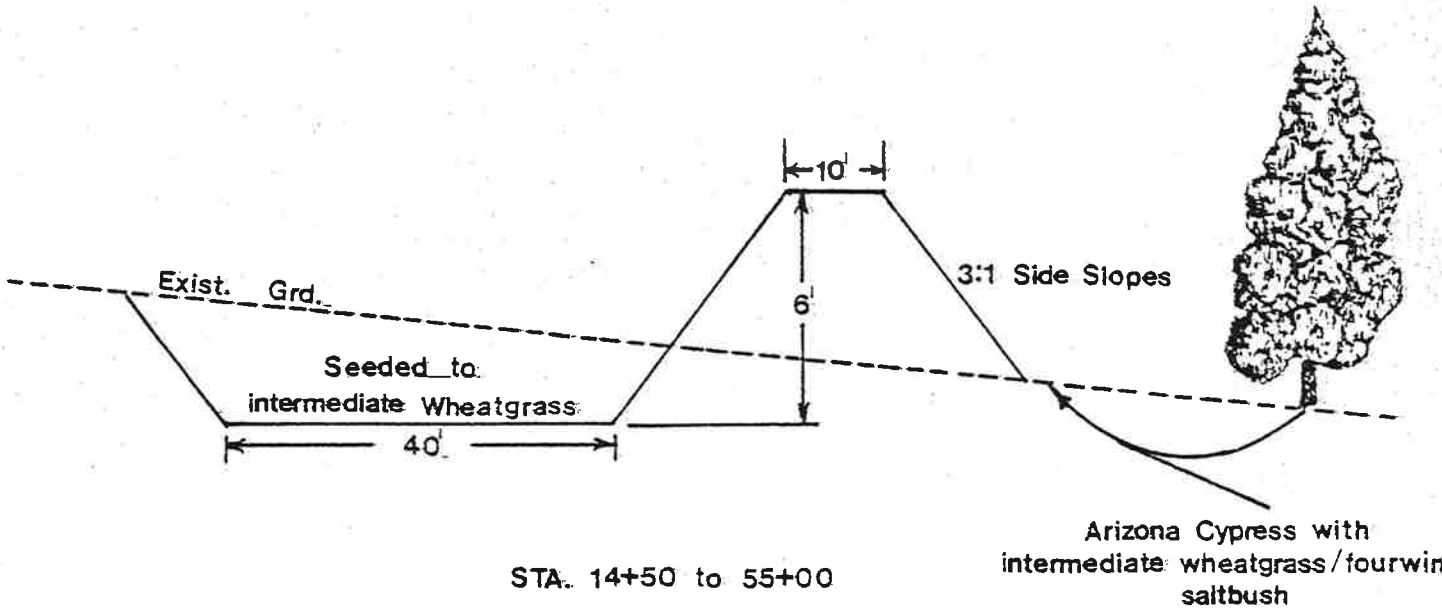
TABLE B-1

REVEGETATIVE AND ENHANCEMENT PLANTING SUMMARY

Location	Purpose	Acres	
Antelope Res.	Revegetation	2.5	(Strips)
		18.5	(Balance of Res. Land)
		21.0	
	Enhancement	5.25	
Antelope Div.	Revegetation	2.0	
Blackburn Res.	Revegetation	1.75	(Strips)
		15.25	(Balance of Res. Land)
		17.0	
	Enhancement	3.5	
Blackburn Div.	Revegetation	16.0	
	Enhancement	11.75	
TOTAL	Revegetation	56.0	
	Enhancement	20.5	



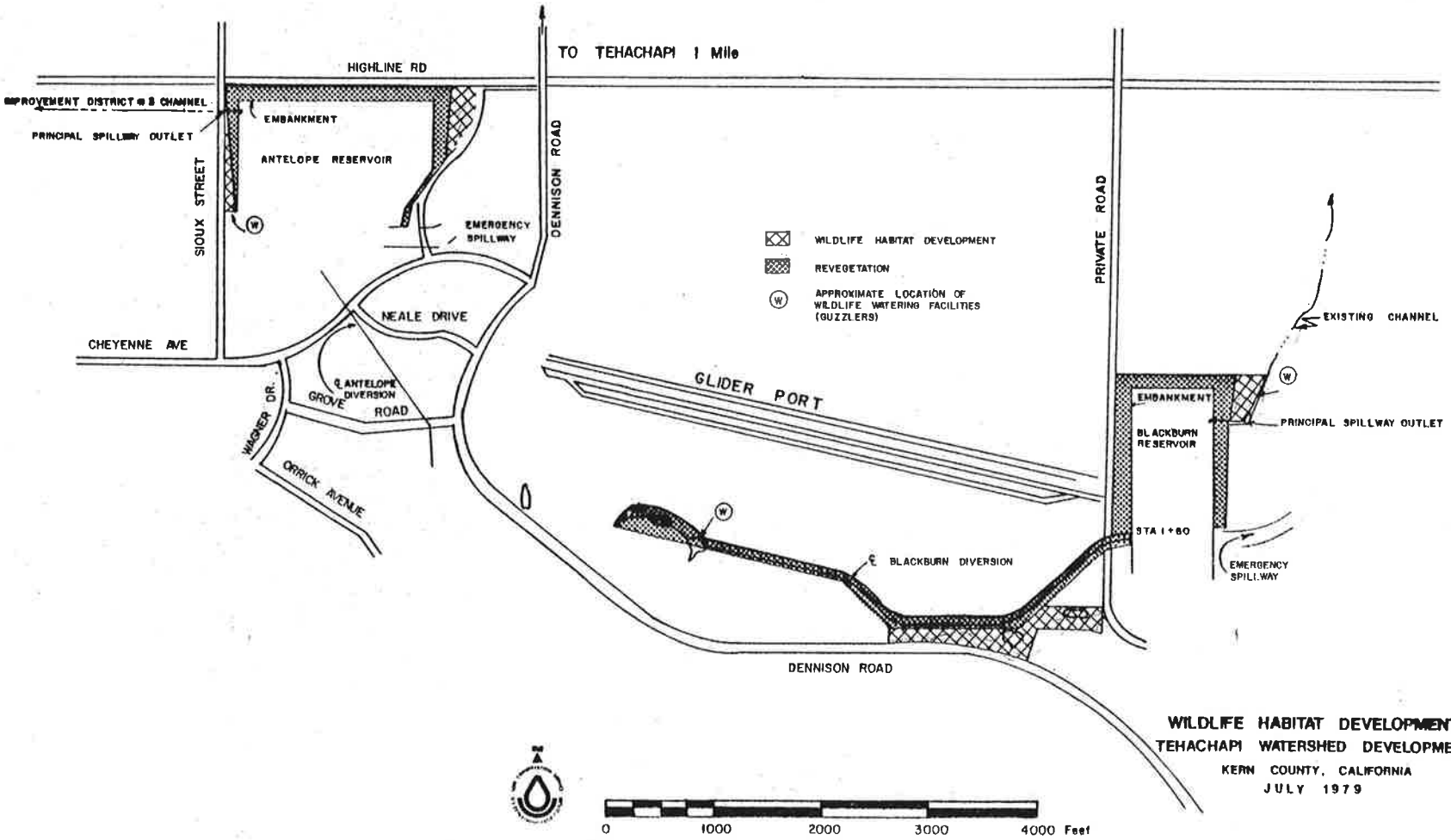
STA. 1+50 to 14+50



STA. 14+50 to 55+00

BLACKBURN DIVERSION

Typical Cross Sections
Showing Wildlife Habitat
and Erosion Control Plantings



WILDLIFE HABITAT DEVELOPMENT
TEHACHAPI WATERSHED DEVELOPMENT
KERN COUNTY, CALIFORNIA
JULY 1979

APPENDIX C

SELECTED ALTERNATIVE

NATIONAL ECONOMIC DEVELOPMENT ACCOUNT

Tehachapi Watershed, California

Components	Measures of Effects (Average Annual) 1/2/	Components	Measures of Effects (Average Annual) 1/2/
Beneficial effects:		Adverse Effects:	
The value to users of increased outputs of goods and services.		The value of resources required for a plan:	
1. Flood prevention	$685,000	1. Floodwater retarding structures and diversions, Tehachapi Channel	
2. Floodproofing savings	7,300		
3. Utilization of unemployed and underemployed labor sources			
a. Project construction	25,600	Project installation	$444,600
		OM&R	31,100
		2. Project administration	46,300
Total beneficial effects	$718,800	Total adverse effects	$522,000
Net beneficial effects	$196,800		

NOTE: Wildlife habitat development installation costs are estimated to be $21,000. Wildlife habitat OM&R costs are $1,000.

1/ 100 years at $7^1/_8$ interest
2/ Price Base: Current normalized prices for crop and pasture; 1978 prices for all others.

SELECTED ALTERNATIVE

REGIONAL DEVELOPMENT ACCOUNT

Tehachapi Watershed, California

Components	Measures of effects (Average Annual) 1/2/ California	Nation
Income:		
Beneficial effects:		
A. The value of increased output of goods and services to users residing in the region		
1. Flood prevention	$ 685,900	0
2. Floodproofing savings	7,300	0
3. The utilization of regional unemployed or underemployed labor resources		
a. Project construction	25,600	0
B. The value of output to users residing in the region from pecuniary external economics		
1. Indirect activities associated with increased net returns from flood prevention	191,100	272,500
Total beneficial effects 3/	$ 909,900	$272,500

Components	Measures of effects (Average Annual) 1/2/ California	Nation
Income:		
Adverse effects:		
A. The value of resources contributed from within the region to achieve the outputs		
1. Floodwater retarding structures channel work 3/		
a. Project installation	$ 19,900	426,200
b. OM&R	31,100	0
2. Project administration	2,900	44,400
Total adverse effects 3/	$ 53,900	$470,600
Net beneficial effects 3/	$ 856,000	$ 198,100

1/ 100 years at $7^{1}/_{8}$ percent interest.
2/ Price Base: Crop and pasture, current normalized prices; all others, 1978 prices.
3/ Wildlife habitat development and benefits were not included.

SELECTED ALTERNATIVE

REGIONAL DEVELOPMENT ACCOUNT - CONTINUED

Tehachapi Watershed, California

Components	Measures of effects		Components	Measures of effects	
	California	Nation		California	Nation
Employment: Beneficial effects:			Employment: Adverse effects:	--	--
A. Increase in the number and types of jobs			Total adverse effects	--	--
1. Employment for project construction	4.2 semi-skilled jobs for 5 years				
Indirect and induced employment for project installation and output of projects goods and services	1.0 permanent semi-skilled jobs				
Total beneficial effects	4.2 semi-skilled jobs for 5 years		Net beneficial effects	4.2 semi-skilled jobs for 5 years	
	1.0 permanent semi-skilled jobs			1.0 permanent semi-skilled jobs	

SELECTED ALTERNATIVE

REGIONAL DEVELOPMENT ACCOUNT - CONTINUED

Tehachapi Watershed, California

Components	Measures of effects	
	California	Nation
Population Distribution		
Beneficial effects:	Creates 1.0 permanent semi-skilled jobs, and 4.2 semi-skilled jobs for 5 years primarily in a secluded small urban area which has experienced limited growth in the past 10 years.	--
		--
Adverse effects:	-------	--
Regional Economic Base and Stability		
Beneficial effects:	Provides urban flood protection for the City of Tehachapi and agricultural flood prevention for the farmlands in the Tehachapi Valley, both of which will help stabilize the local economy and encourage growth. Creates 1.0 permanent semi-skilled jobs and 4.2 short-term semi-skilled jobs.	--

SELECTED ALTERNATIVE

ENVIRONMENTAL QUALITY ACCOUNT

Tehachapi Watershed, California

Components	Measures of effects
Beneficial and Adverse effects:	
A. Areas of natural beauty.	1. Sediment and debris from Antelope and Blackburn Canyons will no longer be deposited on valley agricultural land.
	2. The dam on Antelope Canyon will be 56 feet high, consisting of 645,000 cubic yards of earthfill. The reservoir will be dry between storms, but will have 690 acre-feet of floodwater storage.
	3. The dam on Blackburn Canyon will be 46 feet high, consisting of 463,000 cubic yards of earthfill. The reservoir will be dry between storms, but will have 640 acre-feet of floodwater storage.
	4. The diversion channel to Blackburn reservoir will be earth, 5,600 feet long, varying from 40 to 90 feet wide. It's outlet at the reservoir will be a concrete chute.
	5. The diversion channel to Antelope reservoir will be 1,900 feet long with 1,800 feet of it being concrete lined. The remaining 100 feet is a riprap transition section into the Antelope Reservoir inlet.
	6. A concrete overlow is to be installed at the head end of the Antelope diversion to allow flow in excess of the design discharge to follow their present course through the existing concrete chute and box culvert under Dennison Road.
	7. The reservoirs and diversions will be located on rangeland.
	8. Existing channel will be enlarged for a distance of 400 feet north of the railroad.
	9. An earth dike will be needed to collect over land flows and convey them to the inlet channel. It will run along the west side of Dennison Road. It will have a length of 520 feet and a maximum height of 3 feet.
	10. Wildlife enhancement Plantings of intermediate wheatgrass and fourwing saltbush at the reservoirs and diversion will improve the visual quality.
B. Quality consideration of water, land and air resources.	1. With the project installed, approximately 3,130 acres of agricultural land will be protected from inundation and erosion caused by flooding.
	2. Groundwater recharge would be increased incidentally.
	3. With the project installed, the urban area will be concerned only with local storm drainage.
	4. Water quality may be lowered somewhat during and immediately following construction; however, over the long term, water quality will be improved by the removal of sediment.

SELECTED ALTERNATIVE

ENVIRONMENTAL QUALITY ACCOUNT - CONTINUED

Tehachapi Watershed, California

Components	Measures of Effects
Beneficial and Adverse Effects:	
C. Biological resources and selected ecosystems	1. Wildlife habitat will be enhanced by intermediate wheatgrass and fourwing saltbush plantings at selected locations along the Blackburn diversion and adjacent to the dams. Plantings will total 20.5 acres. Three guzzlers added between the dams will supply drinking water for wildlife.
	2. The project will result in some runoff from Blackburn flowing to Proctor Lake instead of Tehachapi Creek. This additional flowing will promote natural vegetation and improve the grazing potential at Proctor Lake.
	3. The diversions and reservoirs will occupy 95 acres of rangeland, some of which is wildlife habitat. Erosion control measures will include planting 67 acres of fourwing saltbush and intermediate wheatgrass for stabilization.
D. Unique, archeological, historical, geological, cultural resources	1. No effect. There are no known unique, archeological, historical, geological or cultural resources within the project area.
E. Irreversible or irretrievable commitments	1. Installation of the structural measures will reduce the agricultural and urban land by 135 acres--most of it currently rangeland.
	2. The Blackburn reservoir site includes an existing commercial gravel pit. The project will partially restrict access to the pit and will limit the area that can be mined in the future.
	3. Construction of the project will consume energy and materials.

SELECTED ALTERNATIVE

SOCIAL WELL-BEING ACCOUNT

Tehachapi Watershed, California

Components	Measures of effects
Beneficial and adverse effects:	
A. Real income distribution	1. Create one low to medium income permanent jobs for area residents.
	2. Create regional income benefit distribution of $1,134,300 income class as follows:

Income class (dollars)	Percentage of Adjusted Gross Income in Class	Percentage Benefits in Class
Less than 5,000	4	8
5,000 - 15,000	28	62
More than 15,000	68	30

3. Local costs to be borne by the region total $53,000 with distribution by income class as follows:

Income class (dollars)	Percentage of Adjusted Gross Income in Class	Percentage Contributions in Class
Less than 5,000	4	8
5,000 - 15,000	28	62
More than 15,000	68	30

B. Life, health and safety

1. Provide one percent level of flood protection to urban areas of the City of Tehachapi, roads, railroad, airport and gliderport.

APPENDIX D

SUMMARY COMPARISON OF ALTERNATIVE PLANS

Tehachapi Watershed, California

ACCOUNT	SELECTED PLAN	NATIONAL ECONOMIC DEVELOPMENT PLAN	ENVIRONMENTAL QUALITY PLAN
National Economic Development			
Beneficial Effects	$718,800	$724,500	$696,700
Adverse Effects	522,000	521,900	521,400
Ned Beneficial Effects	196,800	202,600	175,300
Environmental Quality			
Beneficial and Adverse Effects:			
A. Areas of Natural Beauty	No effect.	No effect.	No effect.
	Wildlife enhancement plantings of intermediate wheatgrass and fourwing saltbush at the reservoirs and diversion will improve the visual quality.	Slight decrease in visual quality due to reservoir and diversions.	Wildlife enhancement planting of intermediate wheatgrass and fourwing saltbush at the reservoirs and diversion will improve the visual quality.
	Decrease in visual quality due to construction of levee and concrete inlet.	Decrease in visual quality due to construction of levee and concrete inlet.	No effect.
B. Quality Considerations Water, Land and Air Resources	No effect.	No effect.	Grade stabilization structure will reduce erosion and sedimentation within the upper watershed.
	Reservoir construction will reduce sedimentation in agricultural areas.	Reservoir construction will reduce sedimentation in agricultural areas.	Reservoir construction will reduce sedimentation in agricultural areas.
	Provide flood protection to 3,130 acres of cropland.	Provide flood protection to 3,130 acres of cropland.	Provide flood protection to 3,130 acres of cropland.
	Incidental increase in groundwater recharge.	Incidental increase in groundwater recharge.	Incidental increase in groundwater recharge.
C. Biological Resources and Selected Ecosystems	Wildlife habitat will be enhanced by intermediate wheatgrass and fourwing saltbush plantings at selected locations along the Blackburn diversion and adjacent to the dams. Plantings will total 20.5 acres. Three guzzlers added between the dams will supply drinking water for wildlife.	No effect.	Wildlife habitat will be enhanced by intermediate wheatgrass and fourwing saltbush plantings at selected locations along the Blackburn diversion and adjacent to the dams. Plantings will total 20.5 acres. Three guzzlers added between the dams will supply drinking water for wildlife.

SUMMARY COMPARISON OF ALTERNATIVE PLANS - CONTINUED

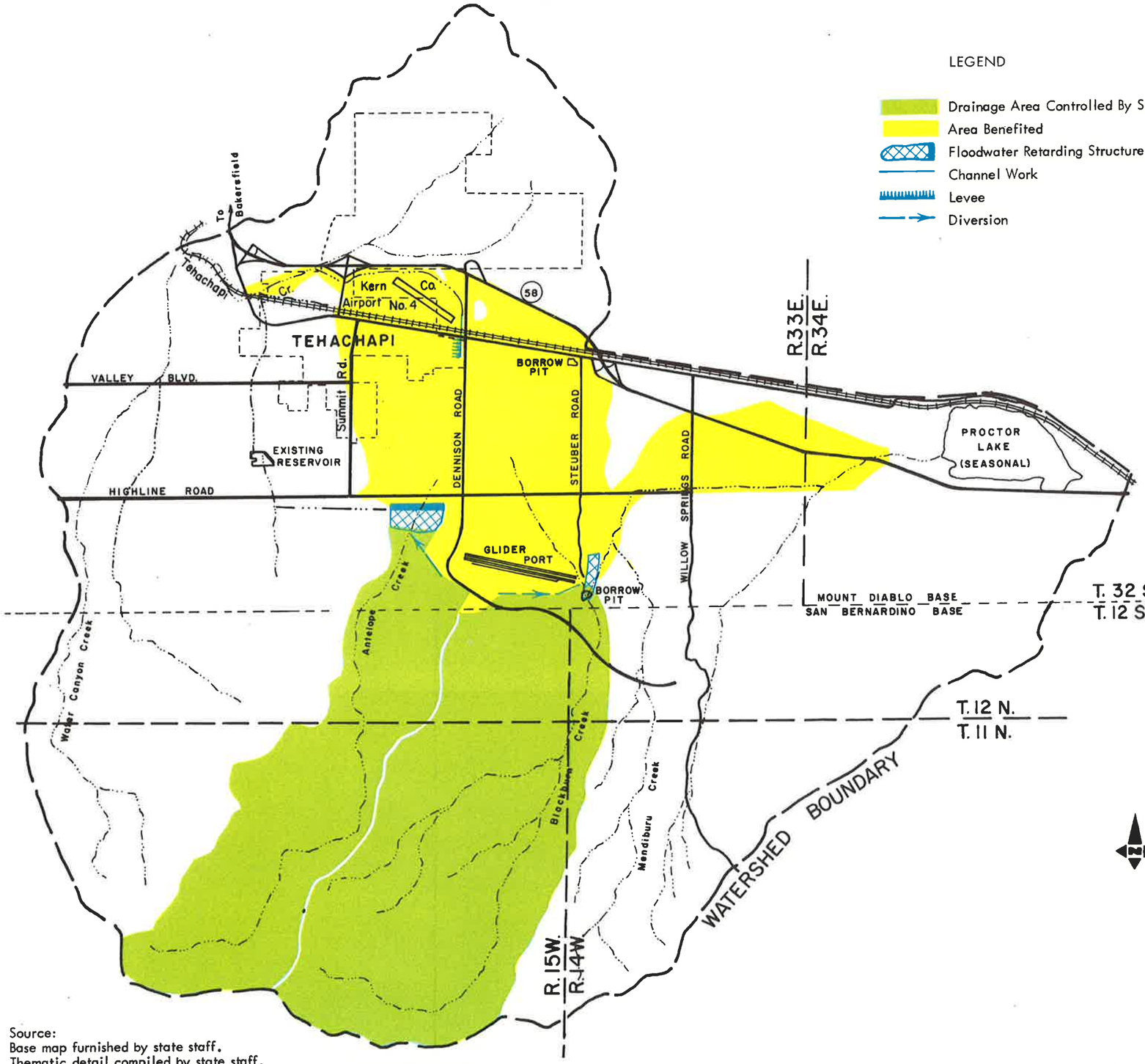
Tehachapi Watershed, California

ACCOUNT	SELECTED PLAN	NATIONAL ECONOMIC DEVELOPMENT PLAN	ENVIRONMENTAL QUALITY PLAN
D. Unique, Archeological, Historical, Geological, Cultural Resources	No effect. There are no known unique, archeological, historical, geological or cultural resources within the project area.	No effect.	No effect. There are no known unique, archeological, historical, geological or cultural resources within the project area.
E. Irreversible or Irretrievable Commitments	Implementing wildlife enhancement and installing planned works will consume more energy and materials.	Installing planned works will consume more energy and materials.	Less energy and fewer materials consumed.
Regional Development State of California			
A. Income:			
Beneficial Effects	$ 909,900	$ 909,900	$ 909,900
Adverse Effects	53,900	52,100	52,300
Net Beneficial Effects	856,000	857,800	857,600
B. Employment:			
Project Construction	4.2 semi-skilled jobs for 5 years	4.2 semi-skilled jobs for 5 years	4.2 semi-skilled jobs for 5 years
Project Operation and Maintenance	1.0 permanent semi-skilled job	1.0 permanent semi-skilled job	1.0 permanent semi-skilled job
Social Well-Being	Provide 91 percent damage reduction for City of Tehachapi.	Provide 91 percent damage reduction for City of Tehachapi.	Provide 75 percent reduction for City of Tehachapi.

APPENDIX E

LEGEND

- Drainage Area Controlled By Structure
- Area Benefited
- Floodwater Retarding Structure
- Channel Work
- Levee
- Diversion



PROJECT MAP
TEHACHAPI WATERSHED

AUGUST 1980

1 0 1 2 3 MILES

SCALE 1:62,500

Source:
Base map furnished by state staff.
Thematic detail compiled by state staff.
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

USDA-SCS-PORTLAND, OR 1980

M7-N-23955

LEGEND

- Floodwater Retarding Structure
- Diversion
- Earth Channel
- Levee

KERN COUNTY AIRPORT NO.4

MILL ST

Tehachapi Channel

TEHACHAPI BLVD

TEHACHAPI CITY LIMIT

VALLEY BLVD.

BORROW PIT

ATCHISON TOPEKA AND SANTA FE & SOUTHERN PACIFIC RAILROAD

STATE HIGHWAY 58

EXISTING RESERVOIR

SUMMIT RD.

DENNISON ROAD

STEUBER ROAD

SPRINGS ROAD

HIGHLINE ROAD

Impvt. Dist. #3 Channel

ANTELOPE RESERVOIR

Antelope

CHEYENNE AVE.

Blackburn Creek

PRIVATE ROAD

BLACKBURN RESERVOIR

GLIDER PORT

Antelope Diversion

Blackburn Diversion

GRAVEL PIT

Mendiburu Creek

WILLOW

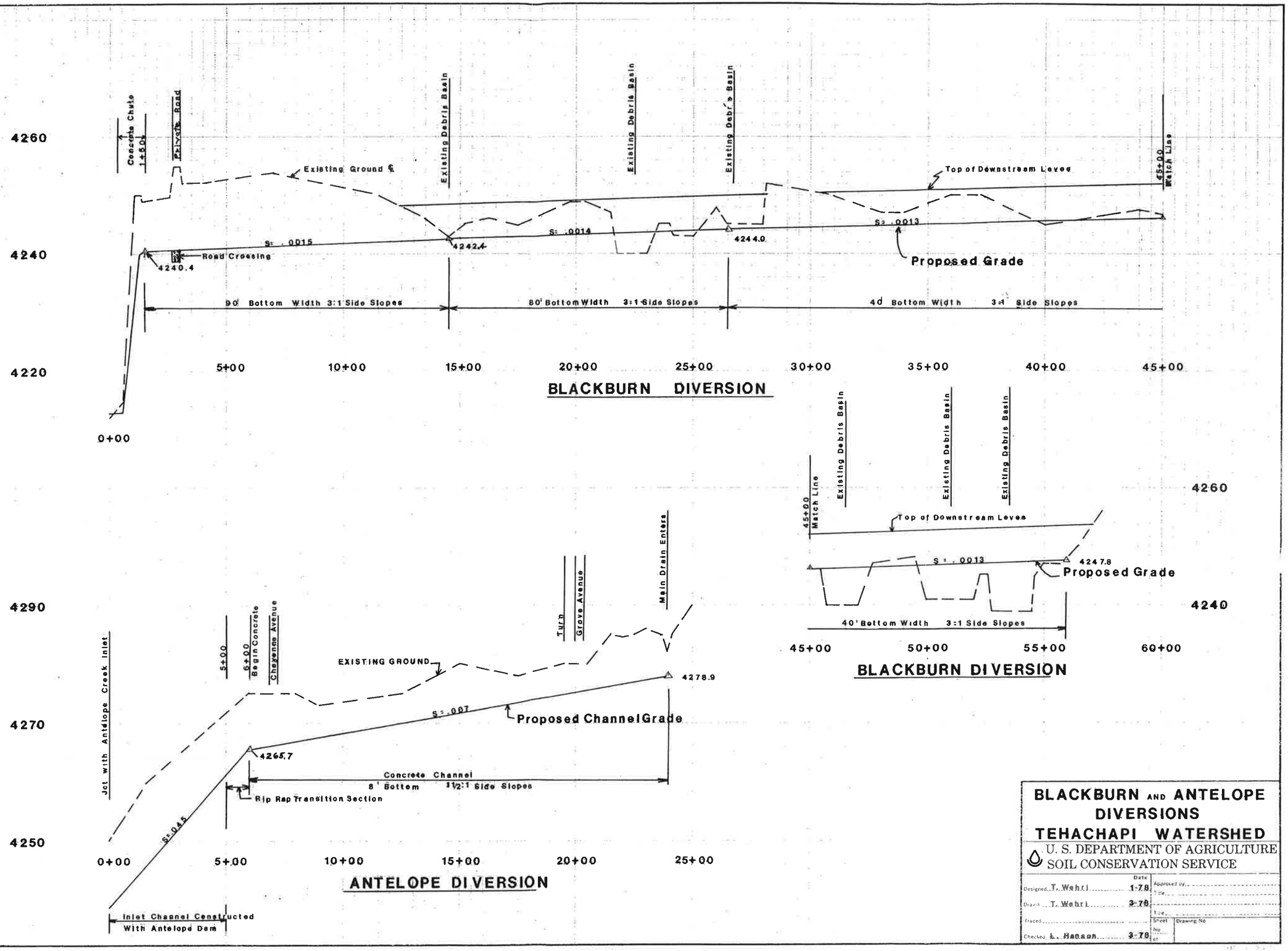
WORKS OF IMPROVEMENT
TEHACHAPI WATERSHED PROJECT
KERN COUNTY, CALIFORNIA

April 1979

0 1/4 2/4 3/4 1

SCALE 1:24000

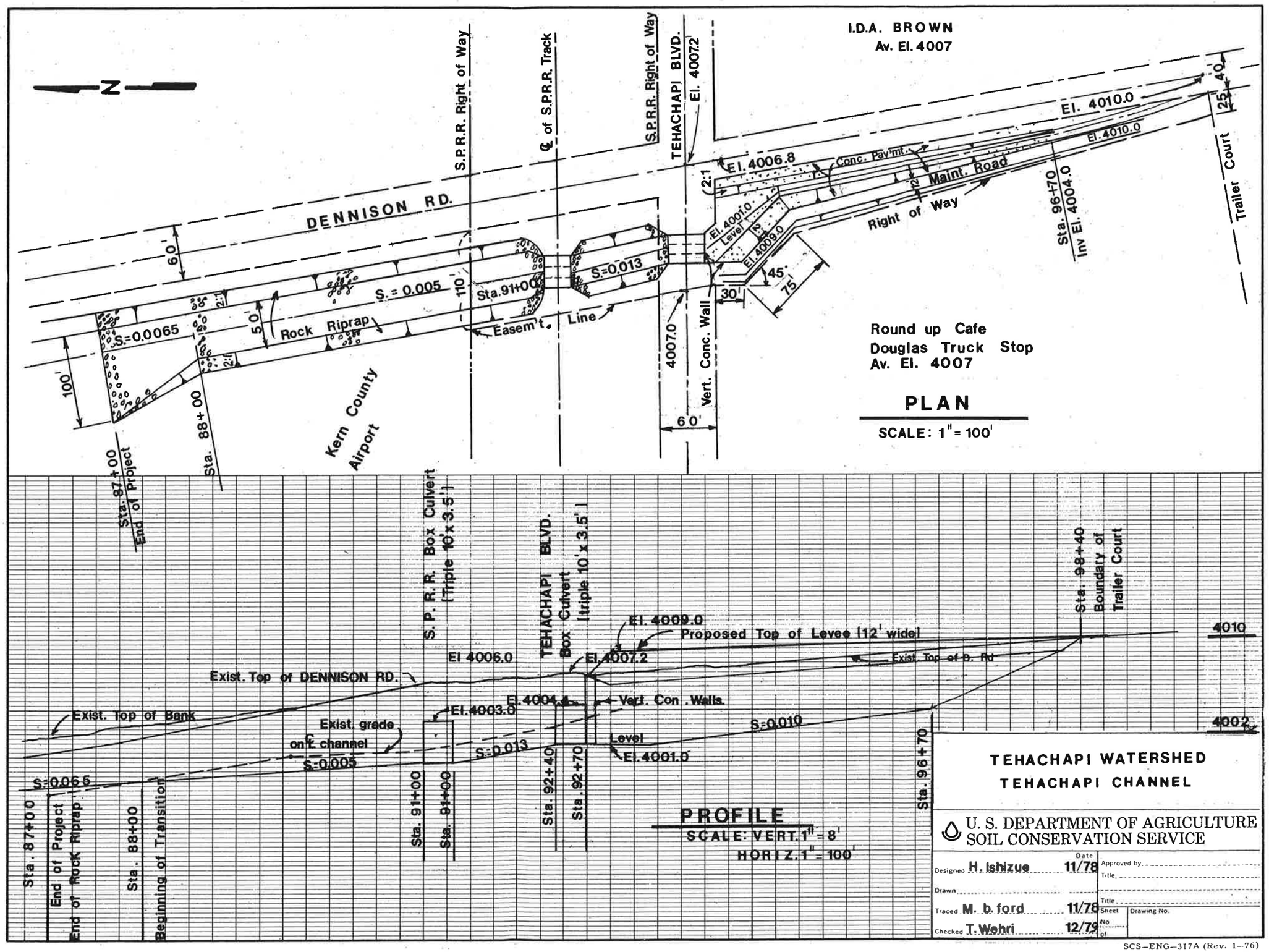
urnished by state staff.
letail compiled by state staff.
ARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE



BLACKBURN AND ANTELOPE DIVERSIONS
TEHACHAPI WATERSHED

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

	Date		
Designed T. Wehri	1-78	Approved by	
Drawn T. Wehri	3-78	Title	
Traced		Sheet No. of	Drawing No.
Checked L. Hanson	3-78		

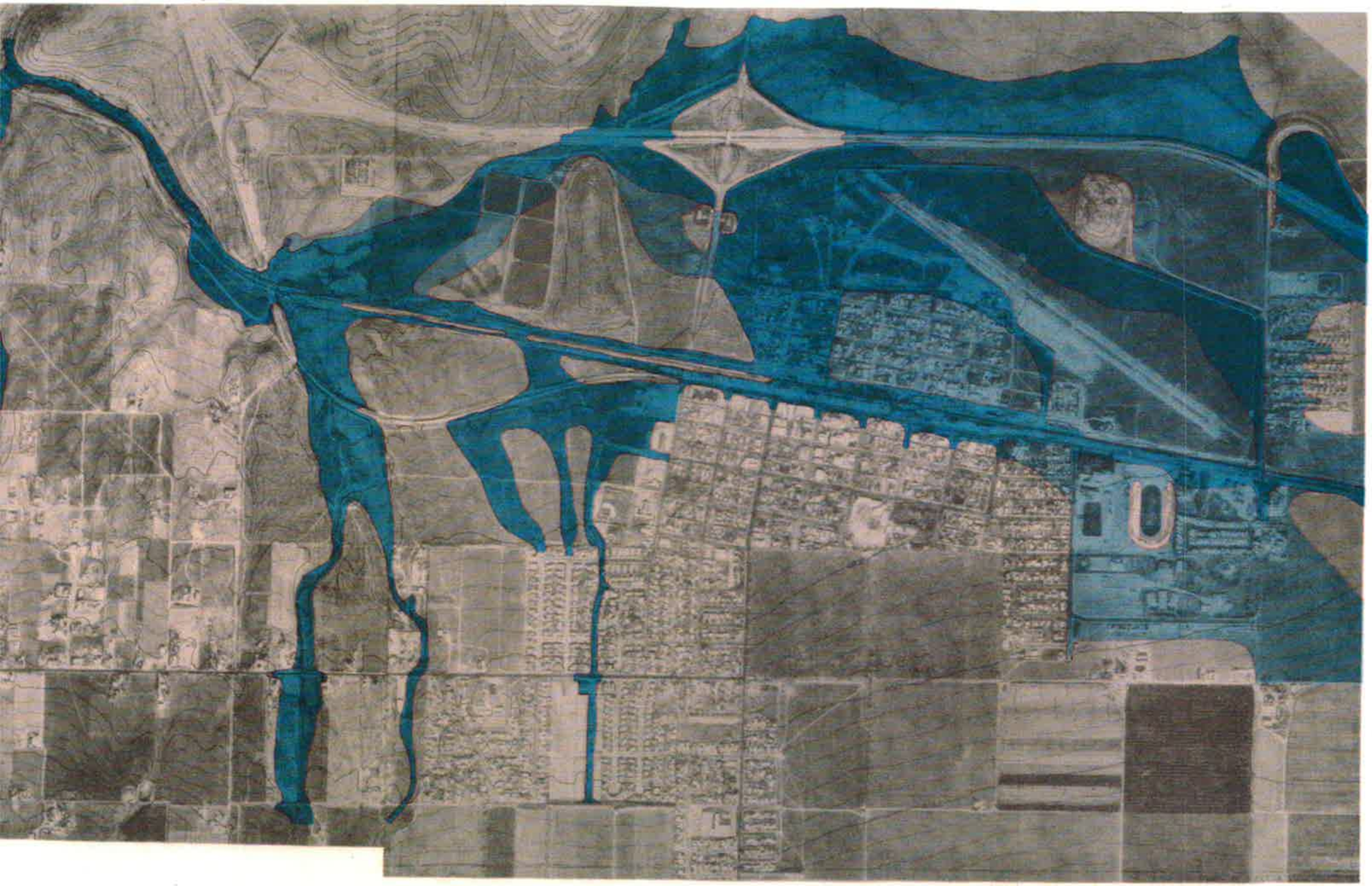


TEHACHAPI WATERSHED
TEHACHAPI CHANNEL

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed H. Ishizue	Date 11/78	Approved by	
Drawn		Title	
Traced M. b. ford	11/78	Title	
Checked T. Wehri	12/79	Sheet No. of	Drawing No.

SCS—ENG—317A (Rev. 1—76)



LEGEND

100-Year Flood Plain Without Project

100-Year Flood Plain With Project

100-YEAR FLOOD PLAIN
TEHACHAPI AND VICINITY
TEHACHAPI WATERSHED PROJECT

KERN COUNTY, CALIFORNIA

FEBRUARY 1979

1000 500 0 500 1000 FEET

SCALE 1"=2,000

APPENDIX F

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

Project #D-SCS-K36032-CA

AUG 2 3 1979

Mr. Francis C.H. Lum
State Conservationist
United States Department of Interior
Soil Conservation Service
2828 Chiles Road
Davis California 95616

Dear Mr. Lum:

The Environmental Protection Agency (EPA) has received and reviewed the draft environmental impact statement (DEIS) titled TEHACHAPI WATERSHED PLAN, KERN COUNTY, CALIFORNIA.

The EPA's comments on the DEIS have been classified as Category LO-1. Definitions of the categories are provided on the enclosure. The classification and the date of the EPA's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act. Our procedure is to categorize our comments on both the environmental consequences of the proposed action and the adequacy of the environmental statement.

The EPA appreciates the opportunity to comment on this draft environmental impact statement and requests three copies of the final environmental impact statement when available.

If you have any questions regarding our comments, please contact Betty Jankus, EIS Coordinator, at (415)556-6695.

Sincerely yours,

Carl C. Kohnert, Jr.

Carl C. Kohnert, Jr., Director
Surveillance and Analysis Division

Enclosure

EIS CATEGORY CODES

Environmental Impact of the Action

LO--Lack of Objections

EPA has no objection to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER--Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these aspects.

EU--Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1--Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2--Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3--Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20250

OFFICE OF EQUAL OPPORTUNITY

IN REPLY REFER TO: 8140 Supplement 8 AUG 6 1979

SUBJECT: Draft Environmental Impact Statement, Tehachapi Watershed Project, California

TO: Francis C. H. Lum
State Conservationist

Verne M. Bathurst
Deputy Administrator for
Administration, SCS

We have reviewed the Draft Statement but cannot find any reference to your assessment of the effects of the proposed action upon the minority population. SCS General Guidelines For Compliance With NEPA, 7 CFR 650.8(b)(3), indicates that:

> ...in general, the EIS will describe the impacts of the proposed action on ... demographic and social effects, including civil rights impacts on minority groups and low income persons.

In general, most watershed projects result in net positive benefits to an area. To be certain that no adverse effects result for minority persons, the Final Statement should identify the race or national origin of the population affected and describe any impacts upon that population. The final action selected should not result in any adverse effects for minorities.

Thank you for this opportunity to review your Draft Statement.

JAMES FRAZIER
Director

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
630 Sansome Street
San Francisco, California 94111

1950

September 10, 1979

Mr. Francis C.H. Lum
State Conservationist
USDA Soil Conservation Service
2828 Chiles Road
Davis, California 95616

Dear Francis:

We have reviewed the July, 1979, Interagency Draft Watershed Plan and Environmental Statement for the Tehachapi Watershed Project.

We have no comments.

Sincerely,

ZANE G. SMITH, JR.
Regional Forester

6200-11 (1/69)

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, D.C. 20310

14 SEP 1979

Mr. Francis G. H. Lum
State Conservationist
Soil Conservation Service
2828 Chiles Road
Davis, California 95616

Dear Mr. Lum:

This is in response to your letter of 16 July 1979 requesting comments on the draft Watershed Plan and Environmental Impact Statement (EIS) for the Tehachapi Watershed in Kern County, California.

Measures described in the watershed plan would not conflict with any existing flood control programs by the U. S. Army Corps of Engineers. However, the Corps Sacramento District has recently initiated an investigation of the Caliente Creek Stream Group to determine the feasibility of implementing flood protection measures to the area southeast of Bakersfield, California, which could be affected by your proposed project. Accordingly, I would appreciate your keeping the Sacramento District informed of the progress on your proposed project.

The EIS should discuss the need for a Department of the Army permit as required under Section 404 of the Clean Water Act (33 USC 1344). Local sponsors should be advised to coordinate with the Corps to determine the type of authorization needed on any individual project.

Sincerely,

Michael Blumenfeld

Michael Blumenfeld
Assistant Secretary of the Army
(Civil Works)

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2711
LOS ANGELES, CALIFORNIA 90053

SPLED-E

5 September 1979

Mr. Francis C. H. Lum
State Conservationist
Soil Conservation Service
2828 Chiles Road
Davis, California 95616

Dear Mr. Lum:

This is in response to a letter from your office, dated 16 July 1979, which requested review and comments on the Draft Work Plan and Draft Environmental Impact Statement, Tehachapi Watershed, Kern County, California.

The proposed plan does not conflict with existing or authorized plans of the US Army Corps of Engineers, Los Angeles District. The major portion of the watershed lies within the geographical limits of the Sacramento District. We have no comments on the environmental statement or work plan for the proposed action.

Thank you for the opportunity to review and comment on this statement.

Sincerely,

NORMAN ARNO
Chief, Engineering Division

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
650 CAPITOL MALL
SACRAMENTO, CALIFORNIA 95814

REPLY TO
ATTENTION OF

SPKED-W

22 August 1979

Mr. Francis C. H. Lum
State Conservationist
Soil Conservation Service
2828 Chiles Road
Davis, CA 95616

Dear Mr. Lum:

We have completed our review of your Watershed Plan and Environmental Impact Statement for the Tehachapi Watershed in Kern County, California, as requested in your letter dated 16 July 1979.

We have forwarded our comments to the Secretary of the Army who will provide a consolidated set of comments.

Thank you for the opportunity to comment on your proposed project.

Sincerely,

GEORGE C. WEDDELL
Chief, Engineering Division

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230
(202) 377- 4335

September 14, 1979

Mr. Francis C. H. Lum
State Conservationist
USDA Soil Conservation Service
2828 Chiles Road
Davis, California 95616

Dear Mr. Lum:

The Department of Commerce has received the draft environmental impact statement entitled, "Tehachapi Watershed, Kern County, California" which accompanied your letter of July 16, 1979 to the Secretary of Commerce. We have reviewed the statement and are forwarding comments from the National Oceanic and Atmospheric Administration (NOAA) National Ocean Survey, and data describing monument locations in the vicinity of the proposed project.

Thank you for giving us the opportunity to provide comments to you. We would appreciate 5 copies of the final environmental statement.

Sincerely,

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

Enclosures: Memo with attachments from Gordon Lill, NOS/NOAA

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

OA/C52x6:JLR

SEP 4 1979

TO: PP - Richard L. Lehman

FROM: for OA/Cx1 - Gordon Lill

SUBJECT: DEIS #7907.44 - Tehachapi Watershed; Kern County, California (Watershed Plan and EIS)

The subject statement has been reviewed within the areas of NOS responsibility and expertise, and in terms of the impact of the proposed action on NOS activities and projects.

The following comment is offered for your consideration.

Geodetic control survey monuments may be located in the proposed project area. If there is any planned activity which will disturb or destroy these monuments, NOS requires not less than 90 days' notification in advance of such activity in order to plan for their relocation. NOS recommends that funding for this project includes the cost of any relocation required for NOS monuments. Attached are data locating and describing monuments in the vicinity of the proposed project.

Attachments

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Policy
Washington, D.C. 20230

September 18, 1979

Mr. Francis C.H. Lum
State Conservationist
U.S. Dept. of Agriculture
2828 Chiles Road
Davis, CA 95616

Dear Mr. Lum:

The Department's review of the Tehachapi Watershed Plan has not produced any comment other than those submitted by Dr. Sidney Galler's office. Thank you for the opportunity to review the subject study.

Sincerely,

Berton J. Braley
Acting Deputy Assistant Secretary
for Policy

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL
ATLANTA, GEORGIA 30333

September 10, 1979

Mr. Francis C. H. Lum
U.S. Department of Agriculture
Soil Conservation Service
2828 Chiles Road
Davis, California 95616

Dear Mr. Lum:

We have reviewed the Watershed Plan and Draft Environmental Impact Statement (EIS) for the Tehachapi Watershed, Kern County, California. We are responding on behalf of the Public Health Service.

In our review of the document, it appears the proposed project will have beneficial effects for the people located in the Tehachapi Watershed. However, it would be helpful if the following issues were addressed in the final EIS.

We did not find any plans in the statement that addressed the secondary development of the Blackburn and Antelope Reservoirs once they are constructed. It would be helpful to know how the quality of water in these reservoirs will be maintained.

Also, we have reviewed this statement for potential vectorborne disease impacts. Projects of this type which include drainage improvements generally benefit vector mosquito problems by eliminating or minimizing certain breeding habitats. While no significant adverse impacts are expected from this development, we believe the final EIS should address any potential problems that may be associated with vectors. This is particularly important in view of the statement (page E-46, lines 9 and 10) that "All Blackburn flow will be directed toward Proctor Lake, a dry lake bed, where it may create some wetlands, and increased forage."

Thank you for the opportunity of reviewing this statement. We would appreciate receiving a copy of the final EIS when it is issued.

Sincerely yours,

Frank S. Lisella

Frank S. Lisella, Ph.D.
Chief, Environmental Affairs Group
Environmental Health Services Division
Bureau of State Services

IN REPLY REFER TO:

Land Operations

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
Sacramento Area Office
2800 Cottage Way
Sacramento, California 95825

AUG 22 1979

Mr. Francis C. H. Lum
State Conservationist
U. S. Dept. of Agriculture
Soil Conservation Service
2828 Chiles Rd.
Davis, CA 95616

Dear Mr. Lum:

We have reviewed the Tehachapi Watershed Project, Draft Work Plan and Draft Environmental Impact Statement, Kern County, California, and found no Indian lands under the jurisdiction of this office are involved.

Sincerely yours,

William E. Finale

William E. Finale
Area Director

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

District Office
Water Resources Division
855 Oak Grove Avenue
Menlo Park, California 94025

July 24, 1979

Francis C. H. Lum
State Conservationist
Soil Conservation Service
2828 Chiles Road
Davis, CA 95616

Dear Mr. Lum:

We are returning your draft work plan and draft environmental impact statement for the Tehachapi Watershed Project. It is Department of the Interior Policy that formal draft or final environmental statements prepared by a Federal Agency should be referred to our Office of Environmental Project Review for a coordinated review. I note on page E-10 of your document that you have, in fact, submitted a copy of the document to that office. Therefore, there is no need for comment from my office.

Respectfully,

Richard M. Bloyd

Attachments

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

ER 79/699

OCT 1 1979

Mr. Francis C. H. Lum
State Conservationist
Soil Conservation Service
Department of Agriculture
2828 Chiles Road
Davis, California 95616

Dear Mr. Lum:

This is in reply to your letter of July 16, 1979, requesting our views and comments on a watershed work plan and draft environmental statement for the Tehachapi Watershed, Kern County, California.

Work Plan

The selected plan includes measures that would compensate for unavoidable losses to the wildlife resource base as well as provide for some measure of habitat improvement. Further, the flood retarding structures would be dry most of the time and provide little opportunity to develop a fishery resource. Since there appears to be little impact on the programs and missions of this Department, we have no objection to the processing of this report to the Congress.

The report should indicate whether the proposed project is in compliance with the Executive Orders 11988, Floodplain Management, and 11990, Protection of Wetlands.

Draft Environmental Statement

We have the following comments that warrant consideration in the preparation of the final environmental statement for this proposal.

Mineral Resources

Several limestone quarries and a gold-tungsten mine are within the watershed boundaries. Beginning in the 1880's, the Summit Lime Company and its successor, the Union Lime Company, produced burned lime from material recovered from several limestone

quarries in the Antelope Canyon area, mostly from a large quarry on the east side of the canyon in the SW1/4 sec. 35, T. 12 N., R. 15 W., SBM. There has been no limestone production since 1928. During World War II, a few hundred pounds of tungsten ore was apparently recovered from a limestone-igneous contact zone.

Another Antelope Canyon quarry along the north edge of sec. 2, T. 11 N., R. 15 W., SBM, was operated by the City of Los Angeles from 1909 to 1912. Material from the quarry supplied the Monolith cement plant during the construction of Haiwee Reservoir-Los Angeles aqueduct. Currently, limestone for the cement plant is obtained from a quarry about 2 miles northeast of Tehachapi.

An unknown amount of gold was produced from the Pine Tree mine (also known as the American or Victoria mine) NE1/4 sec. 4, T. 11 N., R. 15 W., SBM, between 1876 and 1907. The ore consisted of free gold with minor amounts of scheelite in quartz veins in granitic rocks. The last reported activity at the mine was in 1942 and 1943 when a small amount of tungsten ore was reportedly recovered.

While the SCS proposal will not adversely impact on the mineral resource base of the study area, we believe the discussion of this resource base requires adequate coverage in the EIS. Further, the statement should assess whether the mineral activity would affect the natural foundations of the proposed structures from a safety standpoint.

Endangered Species Act Compliance

The statement, on page E 35, that formal consultation has been initiated under Section 7(c) of the Endangered Species Act Amendments of 1978 is not correct. A list of endangered species has been provided under provisions of Section 7(c) of the Endangered Species Act Amendments of 1978. The formal consultation process will not begin until receipt by the Fish and Wildlife Service of the Biological Assessment of endangered species, and a formal consultation request is made by the SCS. Formal consultation would only be initiated if there is a possibility that work planned would impact endangered or threatened species or result in destruction or adverse modification of habitat.

Cultural Resources

With regard to historic and archeological resources, page 36, we suggest that Dr. Robert Schiffman's report be appended to the

final statement. If the State Historic Preservation Officer (SHPO) has not already been provided copies of this statement as well as the archeological report, his comments should be solicited. The final statement should include some evidence of consultation with the SHPO.

Alternatives

Little distinction has been made between the EQ and NED alternatives, (pages E 59 and 60). The major objective of an EQ plan is to maximize, within reason, environmental values for comparison to the more traditional measures that require a benefit/cost analysis. In this respect, measures designed primarily to protect urban and agricultural lands are not appropriate under the categories of Other Areas of Natural Beauty and Land Quality.

Flood-retarding structures costing $6,000,000 should not be included in an EQ plan unless there were some outstanding areas of natural beauty, ecological, or biological values that needed protection. We concur that land treatment measures planned would be suitable under this plan.

We wish to thank you for the opportunity to review this work plan and environmental statement.

Sincerely,

Larry E. Meierotto
Assistant SECRETARY

United States Department of the Interior

HERITAGE CONSERVATION AND RECREATION SERVICE
PACIFIC SOUTHWEST REGION
SAN FRANCISCO, CALIFORNIA 94102

REPLY REFER TO:

743

Interagency Archeological Services
450 Golden Gate Avenue, Box 36065

October 11, 1979

Francis C. H. Lum
State Conservationist
Soil Conservation Service
2828 Chiles Road
Davis, California 95616

Dear Mr. Lum:

We have received the Draft Environmental Impact Statement for the Tehachapi Watershed Project, Kern County, California, and in addition have studied the archeological report prepared for this project, "Archaeological Reconnaissance of the Tehachapi Creek Watershed Project" by Robert Schiffman, 1976. The following does not constitute Department of Interior comment on the Environmental Impact Statement but is offered as technical input.

Since the project has been modified, it appears that the three prehistoric and one historic sites, Ker-481, 482, 483 and 484 discovered by Schiffman, will not be directly impacted by the project. We recommend consultation with the California State Historic Preservation Office to determine if there will be indirect impacts. We are concerned also that the areas to be utilized for the Antelope and Blackburn Reservoirs be surveyed to identify and evaluate cultural resources, as they are outside of the area surveyed by Schiffman in 1976.

We appreciate the opportunity to offer this technical advice. If we may be of further assistance, please do not hesitate to call us.

Sincerely,

Garland J. Gordon

Garland J. Gordon, Chief
Interagency Archeological Services
San Francisco

cc: California SHPO
ACHP, Denver
Regional Director PSW 200
Chief, Div. of Env. and Comp. Rev. 550

OFFICE OF THE SECRETARY
RESOURCES BUILDING
1416 NINTH STREET
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EDMUND G. BROWN JR.
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CALIFORNIA

Department of Conservation
Department of Fish and Game
Department of Forestry
Department of Navigation and
Ocean Development
Department of Parks and Recreation
Department of Water Resources

Air Resources Board
California Coastal Commission
California Conservation Corps
Colorado River Board
Energy Resources Conservation and
Development Commission
Regional Water Quality Control Boards
San Francisco Bay Conservation and
Development Commission
Solid Waste Management Board
State Coastal Conservancy
State Lands Commission
State Reclamation Board
State Water Resources Control Board

THE RESOURCES AGENCY OF CALIFORNIA
SACRAMENTO, CALIFORNIA

1979 SEP 6

Mr. Francis C. H. Lum
State Conservationist
U.S. Department of Agriculture
Soil Conservation Service
2828 Chiles Road
Davis, CA 95616

Dear Mr. Lum:

The State of California has reviewed the "Draft Watershed Plan and Environmental Impact Statement Tehachapi Watershed Kern County, California", submitted through the Office of Planning and Research in the Governor's Office.

The State's review, which fulfills the requirements of Part II of Office of Management and Budget Circular A-95 and the National Environmental Policy Act of 1979, was coordinated with the Departments of Conservation, Fish and Game, Food and Agriculture, Health Services, Parks and Recreation, and Water Resources; the Air Resources, Solid Waste Management, and State Water Resources Control Boards; and the State Lands Commission.

The Department of Parks and Recreation notes that since the proposed undertaking will require assistance from the Department of Agriculture, Soil Conservation Service, federal legislative mandates for the protection of archaeological and other cultural resources should be fully addressed. Section 106 of the National Historic Preservation Act of 1966 and 36 CFR 800 states that any undertaking using federal assistance identify all cultural properties located within the proposed project's area of potential environmental impact. The inventory should include all properties currently included in, or potentially eligible for inclusion in the National Register of Historic Places. Copies of the inventory should be provided to the Office of Historic Preservation for a determination of eligibility for inclusion in the National Register.

From the wording of the statement on page E-6 of the subject EIS, it is unclear if properties were located which were deemed ineligible for inclusion in the National Register, or if no properties were identified in the project's impact area. We request that the report prepared by the archaeologist be provided to the Office of Historic Preservation demonstrating compliance with the applicable federal mandates.

If you have any questions, please contact Nicholas Del Cioppo, Office of Historic Preservation, by calling (916) 322-8703.

The Department of Water Resources finds the proposed project financially feasible and eligible for State financial assistance under the California Watershed Protection and Flood Prevention Law commencing at Section 12850 of the Water Code. We further find that the project does not include land enhancement.

The Department notes that the first full paragraph on page P-10, the Dennison Road reconstruction, as described, is not a relocation cost as defined by State guidelines. This cost would, therefore, not be eligible for State cost sharing under the aforementioned law.

Also, referring to Table 6 in the blue pages of the Tehachapi Watershed Plan and Table 4 of the Environmental Impact Statement (page E-60), the cost and benefit figures shown in these tables for the selected plan do not agree. This should be corrected or explained.

We appreciate having been given an opportunity to review this report.

Sincerely,

JAMES W. BURNS
Assistant Secretary for Resources

cc: (See attached list.)

cc: Tehachapi Resources Conservation District
P.O. Box 57
Tehachapi, CA 93561

Tehachapi-Cummings County Water District
P.O. Box 326
Tehachapi, CA 93561

City of Tehachapi
Tehachapi City Hall
129 East "F" Street
Tehachapi, CA 93561

Kern County Water Agency
1415 18th Street, Room 418
Bakersfield, CA 93301

Director of Management Systems
State Clearinghouse
Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814
(SCH No. 79080103)

PARTMENT OF ~~XXXXXXXXX~~
~~XXXXXXXXX~~ FORESTRY
1234 East Shaw Avenue
:esno, California 93710
:lephone: (209) 222-3714

September 13, 1979

R2-9-13

Mr. Francis C. H. Lum
State Conservationist
Soil Conservation Service
2828 Chiles Road
Davis, CA 95616

Dear Mr. Lum:

Although I made telephone contact with your Tehachapi office a month or so ago, I almost neglected to correspond with you regarding several items in question regarding the draft of the Watershed Plan and Environmental Impact Statement for the Tehachapi Watershed in Kern County. Following are my comments:

Page P-22, lines 22, 23 and page E-45, line 4. At one time, the old lime kiln was considered to be of historical interest to the Kern County Historical Society. Has this been changed?

Page E-12. State Forester should be changed to Director and California Division of Forestry should be changed to California Department of Forestry.

Page E-13. Kern County Fire Department was omitted from your list.

Thank you for the opportunity to review the draft. I feel it is comprehensive but not "wordy."

Sincerely,

GERVICE F. NASH, CHIEF
South Sierra Region

By Bud Wolfram

H. W. Wolfram
Range and Watershed Advisor

HWW:cjr

KERN COUNTY PLANNING DEPARTMENT

1103 Golden State Avenue
BAKERSFIELD, CALIFORNIA-93301
Telephone (805) 861-2615

August 10, 1979 File: EIR Misc.

Francis C. H. Lum, State Conservationist
Soil Conservation Service
2828 Chiles Road
Davis, CA 95616

Re: Tehachapi Watershed Project, Draft Work Plan
and Draft Environmental Impact Statement,
Kern County, California

Dear Mr. Lum:

The Kern County Planning Department has reviewed the referenced document and has no comment.

Very truly yours,

TED HILTON
Planning Director

By: Melinda Moore
MELINDA MOORE
Junior Planner

mh

Francis C. H. Lum
State Conservationist
Soil Conservation Service
2828 Chiles Road
Davis Calif. 95616

Francis C.H. Lume

When these Smal dam were first talked About building this dams for Flood protection to the farming near Tehachapi it was a lot less than $7.535,000.

(1) Question?

What will it cost by the time it is ready to take action And to begin moving dirt?

(2) Question?

And how long will it be befor it is off to a Running Start.?

(3) Question?

Will this just benifit Munis the gran farme for turf And a Appl Orchard And about 3 other small apple

Orchards, nunes the largest of them all with his pear orchard. nunes a millionare already.

~~Question~~

4) Question?

why should all the Tehachapy Valley Land and Home Owner Insure him of a flood to protect him with another property tax aded on to all of the poor, and senior sitteesons in this valley. We are up to our neck in being ~~[illegible]~~ taxed to deth now. and Peoped fed up on taxes.

(5) Question?

Wouldent this just be another way for the Tax payers to support the Grass growers and a few apple orchard growers. just to support another like Welfare Program the Growers to Insure them that they wont be wiped out By a flood?

(6) Question

How could such a thing as a Wild life be kept up in that eary above Tehachapi without a big expense to the water system we are now paying to muth for Wild life protection now, and no Wild life, that we can Hunt without geting Rested and hafo pay a fine

(7) Question

So why create more taxes for such a museum to come into this eary, it will Cost the Tax Payes more taxes for another employe to Protect Wild-lif

(8) Question

So why not let every Big farmer large or small pap for his own insurang, that just what each Homeowner Hast to do if he wants any kind of Insurance Flood, Wind, Hail, or Dust, Fire

I wish to thinks you for your quick action on thes Question and think them our very careful and I will see your Rpesentive at the next Public Hearing. So dont put the notice in the Tehachapi pape our on the last Page please put it on the front Page for at least 6 Ishues of the ~~Pappr~~ Pappor for our audisence is geting smaller every meeting.

Thanks

Lucious A Green
329, West D. Street
Tehachapi Calif 93561
Phone (805) 822-4877