Dr. Mel Lytle
Water Resources Coordinator
San Joaquin County Department of Public Works

On behalf of
San Joaquin County and the
Mokelumne River Water and Power Authority

# Testimony
Before the House Committee on Resources
United States House of Representatives

Hearing on H.R. 4045, feasibility study with respect to the
Mokelumne River
May 18, 2004

**H.R. 4045**
**To Authorize the Secretary of the Interior to Prepare a Feasibility Study with Respect to the Mokelumne River in California**

## Local and Regional Water Resource Issues

San Joaquin County is located in the heart of the vibrant agricultural communities of the Central Valley of California. It is uniquely situated at the confluence of the Sacramento and San Joaquin Rivers, the Bay-Delta, the source of water for two-thirds of California's population, and several eastside rivers flowing from the Sierra Nevada Mountains (See Figure 1). Grape production, dairy products and other crops are the major agricultural commodities that come from fields surrounding the burgeoning Cities of Stockton, Tracy, Lodi, Manteca, Lathrop and Escalon. In all, approximately 600,000 residents call the County home. Of late, population trends are increasing and are expected to double by 2040 due principally to migration from the San Francisco Bay Area and other areas of the State.

Currently, the necessary water supplies to sustain the County's diverse population, economy and sensitive habitats are not adequate. Opportunities to develop new water supplies are heavily constrained by current uses and availability including water that has been developed for use out of the Region by either the Central Valley or State Water Projects. The County is currently dependent on groundwater for 60% of its supply. This dependency has impacted the vital groundwater basin, which is seriously over drafted by 200,000 acre-feet per year (See Figure 2). The California State Department of Water Resources has designated the Eastern San Joaquin Basin a critically over drafted basin (DWR Bulletin 118). This has placed the groundwater basin and the City of Stockton's drinking water supply in jeopardy due to intrusion of saline groundwater underlying the San Joaquin River Delta (See Figure 3). Within the Delta, water quantity and quality is often inadequate for agricultural and urban users, limiting the types of crops that can be grown and lowering crop yields of those that are grown. In addition to local threats to water supplies, the County has been adversely affected by changes in State and Federal policies, which continue to erode existing supplies and have upset longstanding plans to bring new supplies. As a result, new water supply is vital to help sustain social, economic and environmental viability in the County and surrounding Region.

## Regional Water Supply Planning

Independently, county water districts and cities have found it difficult to wield the political and financial power necessary to implement large scale water supply projects to mitigate the conditions of groundwater basin overdraft (See Figure 4 & 5). Recognizing the need for a regional approach to water supply planning and implementation and with the aide of local, State and Federal representatives and a well represented stakeholder group consisting of over 25 agencies, the County in 2002 adopted the San Joaquin County Water Management Plan (WMP). The purpose of the WMP was to define the extent of groundwater overdraft and identify possible solutions and strategies necessary to secure supplemental water supplies using a consensus-based collaborative process.

In addition, the Northeastern San Joaquin County Groundwater Banking Authority (GBA) was organized to employ a consensus-based approach in solving this problem and with its goal to develop "…locally supported groundwater banking and recharge projects that improve water supply reliability in San Joaquin County…." Collaboration amongst the GBA member agencies has strengthened the potential for broad public support for groundwater management activities,

allowed members to speak with one regional voice as well as increased their ability to obtain local, state, and federal funding. The following is a list of GBA member agencies:

**Groundwater Banking Authority**
City of Stockton
City of Lodi
Woodbridge Irrigation District
North San Joaquin Water Conservation District
Central San Joaquin Water Conservation District
Stockton East Water District
Central Delta Water Agency
South Delta Water Agency
San Joaquin County Flood Control and Water Conservation District
California Water Service Company
San Joaquin Farm Bureau Federation (Associate Member)

In 2003, the GBA began the development of the East San Joaquin Basin Groundwater Management Plan (GWMP) to review, enhance, assess, and coordinate existing groundwater management policies and programs and to develop new policies and programs to ensure the long-term sustainability of groundwater resources in San Joaquin County. The GWMP establishes four basin management objectives (BMO) that relate to groundwater levels, groundwater quality, surface water quality and flow, and inelastic land subsidence (See Figure 7). To meet the established BMO's, the GBA member agencies have defined the Eastern Basin Conjunctive Use Program including the joint program of the Stockton East Water District and the US Army Corps of Engineers - Farmington Groundwater Recharge Program, in order to develop new and affordable surface water supplies for beneficial use or to recharge the underlying groundwater basin.

The **Mokelumne River Regional Water Storage and Conjunctive Use Project (MORE WATER)** is a major new supply component of both the WMP and the GWMP development efforts. The proposed Project will develop a new off-stream storage facility to capture flood waters from the Mokelumne River and regulate those flows to an integrated system of groundwater banking and recharge projects to help meet San Joaquin County water demands. In addition, there is a potential for MORE WATER to provide substantial regional benefits because of its strategic location next to the Delta. This conjunctive use program could be used to provide critical year flows to enhance water supply reliability, fisheries and maintain water quality standards to help meet CALFED Bay-Delta Program objectives. Fundamentally, groundwater recharge and conjunctive use is the major focus of the MORE WATER Project.

**MORE WATER Project Background**

In 1990, San Joaquin County acting as the Mokelumne River Water and Power Authority (MRWPA) filed a water right application with the California State Water Resources Control Board (SWRCB) for unappropriated wet year flows (flood waters) on the Mokelumne River. The application cited three project concepts including a reservoir at Middle Bar, an off-stream reservoir at Duck Creek or direct diversions off the lower Mokelumne River between Camanche Reservoir and Interstate 5. In addition, the MRWPA obtained a Federal Energy Regulatory Commission (FERC) Preliminary Permit for the proposed Duck Creek Reservoir, which allows the Authority to study the power generation potential at the proposed project site.

**Initial Studies**

In 2003, the MRWPA conducted an initial review of historic project concepts together with several other project alternatives that included a wide array of ideas ranging from a new on-stream reservoir, to desalinization, conservation and wastewater recycling. Additionally, the Authority began work to devise a regulatory strategy that would satisfy the requirements of the SWRCB, CEQA, NEPA, and all applicable permits to develop a preferred project alternative. Other work has shown that substantial new water supply is available from the Mokelumne River, potentially up to 100,000 acre-feet (average annual yield), however, the facilities necessary to capture significant water quantities must be sized to accommodate flows well beyond the average annual yield.

Thus far, efforts to complete the initial project investigations have been accomplished through a local cost-sharing agreement between the County and the Cities of Stockton and Lodi. Other local and regional support for the MORE WATER Project has come from the following agencies: the Central Delta Water Agency, Central San Joaquin Water Conservation District, Northeastern San Joaquin County Groundwater Banking Authority, North San Joaquin Water Conservation District, South Delta Water Agency, Stockton East Water District, San Joaquin County Flood Control and Water Conservation District and San Joaquin Farm Bureau Federation. Should Congress support the passage of H.R. 4045, the MRWPA would use the funds to undertake specifically the appraisal and feasibility studies together with the necessary environmental documentation and permitting support documents.

A result of this initial review identified five of approximately 20 alternatives to be carried forward in future engineering and economic feasibility analysis. Of those alternatives that were carried forward, no on-stream dam facilities including the historic Middle Bar concept were selected due to potential political, regulatory and environmental constraints. Some of the most promising alternatives are described below.

*Mokelumne River Storage System Re-operation*

This alternative includes re-operating East Bay Municipal Utility District (EBMUD) Pardee Dam and Reservoir, Camanche Dam and Reservoir, and Project 137 systems to generate additional water supply. Working with the USACE, it may be possible to redefine the flood control operating guidelines for the Mokelumne River. The latest trends in weather forecasting and hydrologic modeling could be utilized to operate the flood control capabilities of the Mokelumne storage system less conservatively to allow for greater conservation storage capacity. Re-operation could also consist of allocating more flood control storage to PG&E Project 137 thus reducing the required flood control storage defined by the rule-curves of Pardee and Camanche Reservoirs. The yield of the re-operation alternative is on the order of approximately 10,000 acre-feet.

*Off-Stream Regulating Reservoir at Duck Creek (Pardee or Camanche Diversion)*

The proposed Duck Creek Reservoir is an off-stream reservoir located in Eastern San Joaquin County within the Calaveras River watershed near the divergence of the Calaveras River and Mormon Slough at Bellota (See Figure 8). The Duck Creek facility would be used specifically to regulate flood waters for capture and conveyance to groundwater recharge projects in the East County. The optimal size of the reservoir will be determined in the engineering feasibility study.

Flood waters could be diverted at EBMUD Pardee Reservoir through a tunnel and pipeline complex or through a pump station and pipeline located at EBMUD Camanche Reservoir through to the Duck Creek Reservoir (See Figures 9& 10). A conceptual drawing of the proposed reservoir is shown in Figure 11. The water right application seeks to divert up to 1,000 cfs to storage and 620 cfs by direct diversion. The total maximum diversion capacity is 1,620 cfs from either Pardee or Camanche Reservoirs. Evaporation is potentially a major concern; however, the operation of would completely drain Duck Creek Reservoir for groundwater recharge to maximize use in anticipation of additional divertible flood flows in the following years.

*Lower River Diversions – Non-Structural and Structural*

The water right application includes diversions along the lower Mokelumne River during flood years from below Camanche Reservoir to Interstate 5. Non-Structural implies the use of existing facilities to divert flows with minor improvements. Under the non-structural alternative, existing diversion pumps and irrigations systems could be used to maximize recharge and in-lieu distribution. Additionally, the new Woodbridge Dam when completed will be able to supply the Woodbridge Irrigation District canal system year round thus enabling groundwater recharge from the City of Lodi to south to the City Stockton. Structural alternatives would consist of new diversion structures, pump stations and fish screens where flows would be diverted to supply direct recharge facilities or irrigation in-lieu deliveries.

**Next Steps**

The principal goal of future feasibility analysis for MORE WATER will be to identify opportunities to capture flood flows from the Mokelumne River for storage and beneficial use consistent with objectives identified in the WMP, GWMP and the requirements developed for the Department of the Interior. On a parallel track to the feasibility analysis, the MRWPA will complete a programmatic environmental impact report (EIR) to support the East Basin Conjunctive Use Program. Subsequently, a project specific EIR and environmental impact statement (EIS) will be prepared for the preferred alternative. The approach is indicative of the MRWPA's commitment to satisfying the California Environmental Quality Act, the National Environmental Protection Act, and the Federal Clean Water Act.

**Regional Cooperation**

MORE WATER is truly a collaborative effort that will strengthen the working relationship between the MRWPA, the Department of the Interior through the Bureau of Reclamation's Mid-Pacific Region, local water districts and cities, and other basin water users (See Attachments A, B & C). The MRWPA welcomes the Bureau of Reclamation's involvement in the development of the preferred MORE WATER alternative that will meet the needs of San Joaquin County while being sensitive to the rights of other water users and ensuring that the Mokelumne River will provide a source of pride and joy for years to come. Stakeholder input is genuinely welcomed in all phases of MORE WATER and is the backbone of regional planning efforts undertaken in San Joaquin County.

**MORE WATER Benefits**

MORE WATER will provide water to decrease groundwater overdraft, prevent saline groundwater intrusion, and improve water supply reliability for San Joaquin County. MORE

WATER is an integral component to the Eastern Basin Conjunctive Use Program as a supply and groundwater recharge element.

**Consistency with CALFED and Water 2025 Program Objectives**

While not a component of the CALFED Program, MORE WATER will provide information important to water resource and environmental protection efforts being conducted under the CALFED aegis. The CALFED Record of Decision outlines a myriad of program elements intended to implement the goals and objectives of the CALFED Program. MORE WATER is consistent with the following Program elements:

- *Water Storage* – Conjunctive use programs hinge on the ability for entities to capture surface water when available for direct use and groundwater recharge. Groundwater recharge is an integral part of the success of MORE WATER.
- *Ecosystem Restoration* –The Mokelumne River system is a source of pride for the San Joaquin County Community. Stakeholder led efforts such as the Lower Mokelumne Restoration Project to replace the aging Woodbridge Irrigation District Diversion Dam with anadromous fish friendly fish screens and ladders and the completion of a new fish hatchery at Camanche Reservoir by EBMUD and the California Department of Fish and Game are major successes. MORE WATER will be developed to maximize enhance or create ecosystem restoration benefits when feasible.
- *Watershed Management* – The Mokelumne River Watershed is represented by numerous grass roots organizations, interest groups, and authorities such as the Mokelumne River Forum and the Mokelumne River Authority. The MRWPA will continue to promote MORE WATER to these groups and will coordinate formal consultation with federal and State fisheries and resources agencies and other non-governmental organizations.
- *Water Transfers* – Groundwater banking in San Joaquin County has the potential to provide regional and statewide agencies the ability to store excess water in the underlying basin. San Joaquin County's proximity to the Sacramento-San Joaquin Delta would facilitate water transfers and exchanges of banked water to areas served by the State Water Project and the Central Valley Project. Banked groundwater could also be used for fisheries needs under the CALFED Environmental Water Account. The underground storage potential of Eastern San Joaquin County is estimated at approximately 1.5 to 2 million acre-feet, enough to supply 12 million people for one year. MORE WATER would provide the necessary infrastructure and improvements necessary to utilize this resource.

MORE WATER is also potentially a new standard of success for the "forward-looking focus" in water deficient areas of the West under the Department of the Interior's Water 2025 Program. MORE WATER is consistent with the following Program Key Tools:

- *Conservation, Efficiency, and Markets* – MORE WATER is currently being developed as part of a regional conjunctive use project to enhance urban, agricultural, and environmental water supplies. MORE WATER uses affordable approaches to capture, use, and recharge water as part of the Eastern Basin Conjunctive Use Program. MORE WATER infrastructure and improvements will help San Joaquin County to secure more reliable water supplies through the restoration of the underlying basin and potentially the establishment of a regional groundwater bank that is accessible to water markets throughout the State.

- *Collaboration* – MORE WATER and other regional planning efforts undertaken by San Joaquin County employ a consensus based approach to water supply planning and development. Successful collaborative efforts in the County include the WMP and the GWMP that involved over 40 local, State and Federal agencies. Stakeholder input is welcome during all phases of the MORE WATER process.

- *Improved Technology* – MORE WATER and other similar conjunctive use projects will require extensive knowledge of the underlying Basin. San Joaquin County is committed to establishing a science program for Basin research and monitoring. Basin stakeholders are currently working with the California Department of Water Resources and the USGS on a $2.5 million joint study to determine the source and extent of saline groundwater intrusion in the Basin. Efforts are also underway to establish the on-line San Joaquin County Groundwater Data Center using the latest tools in Geographical Information Systems.

- *Removal of Institutional Barriers and Inter Agency Cooperation* – MORE WATER is a high priority project for San Joaquin County. Extensive public outreach is a major component to the success of MORE WATER. Thus far, MRWPA staff has met with numerous State and Federal regulatory agencies and are also participants in numerous stakeholder led watershed group efforts to resolve differences in the Mokelumne River watershed.

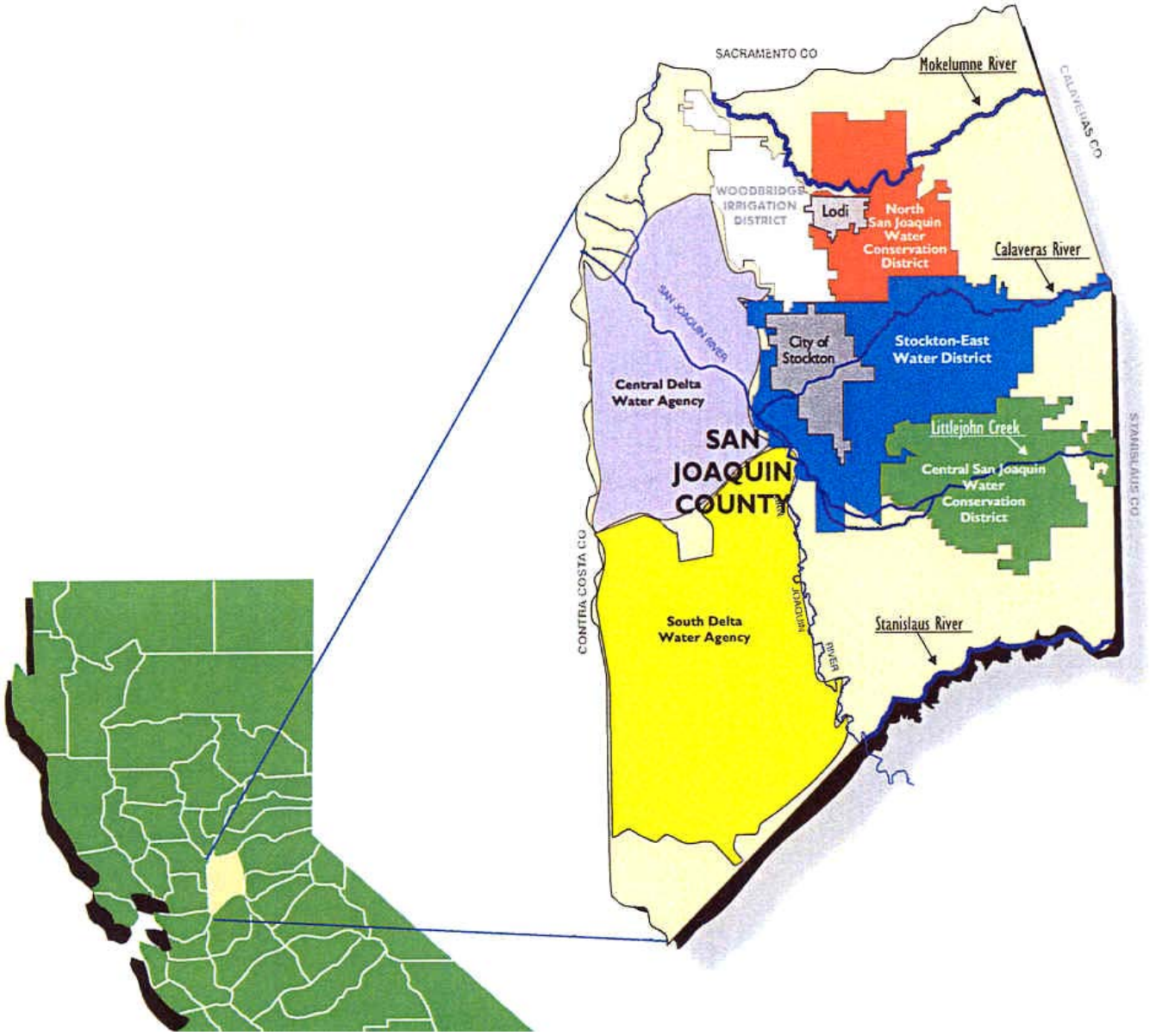


**Figure 1. Location Map of San Joaquin County, California**

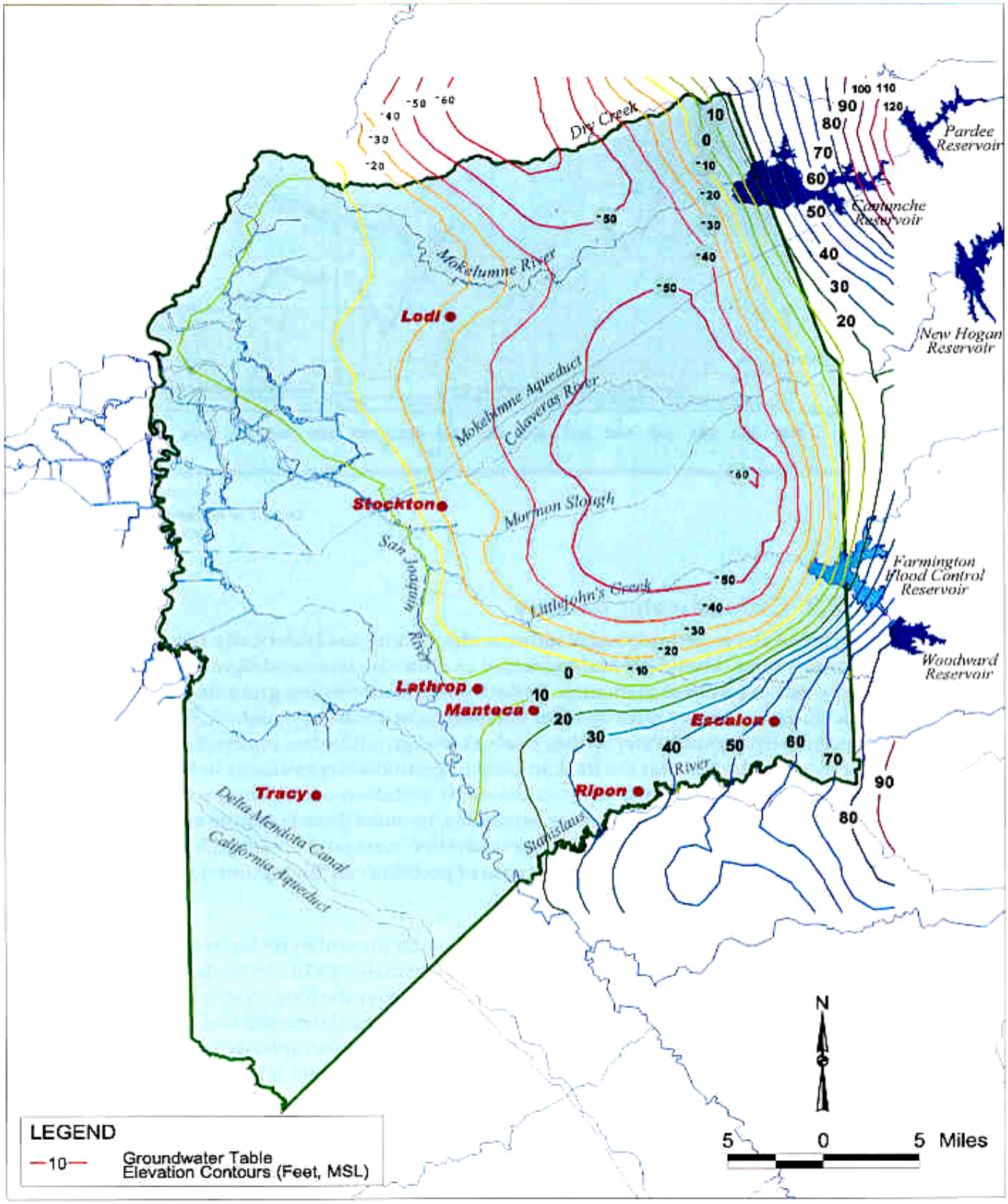


**Figure 2. Groundwater Level Contour Map of Depression in East San Joaquin Basin**

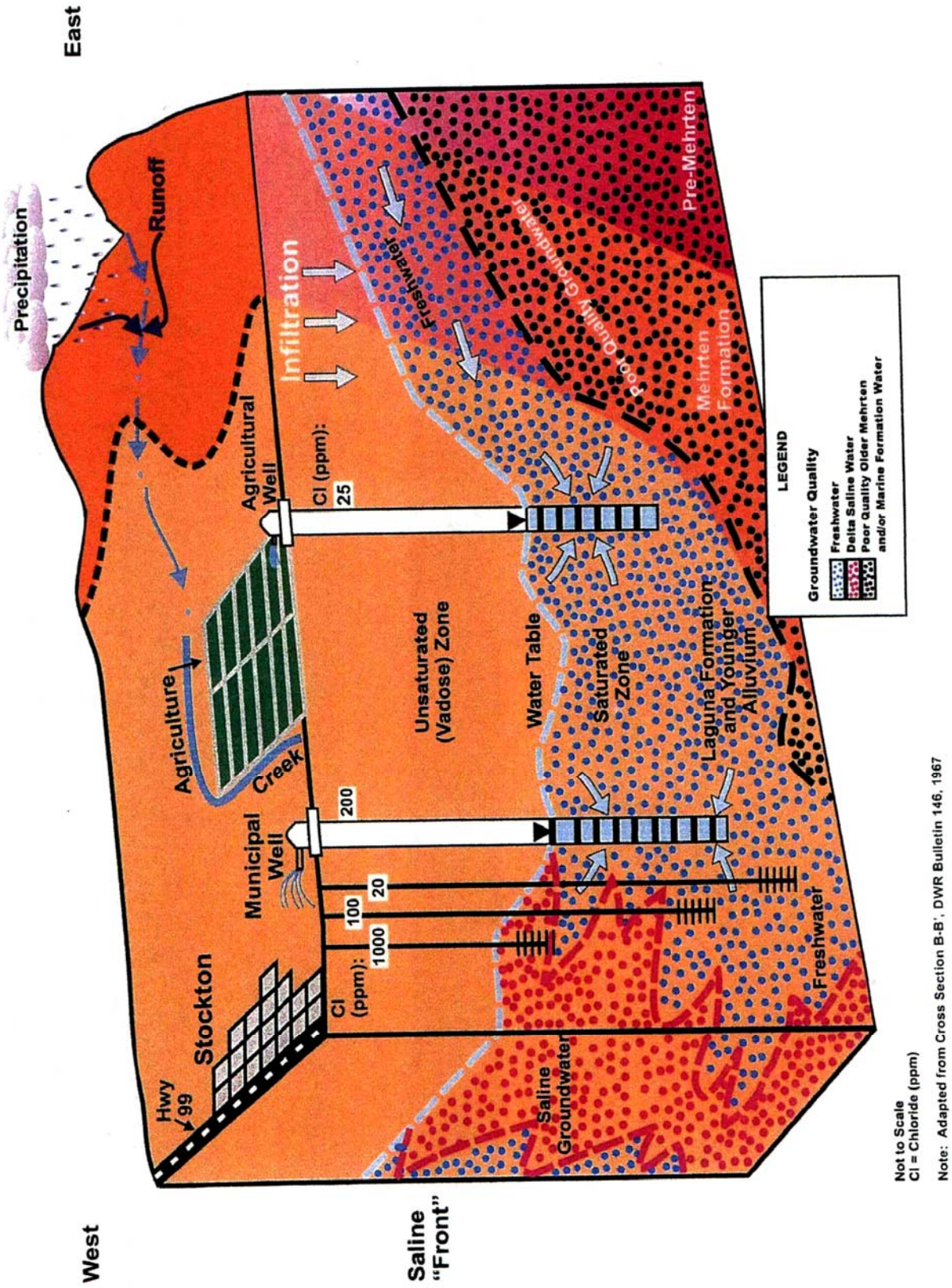


**Figure 3. Graphic of Saline Intrusion**

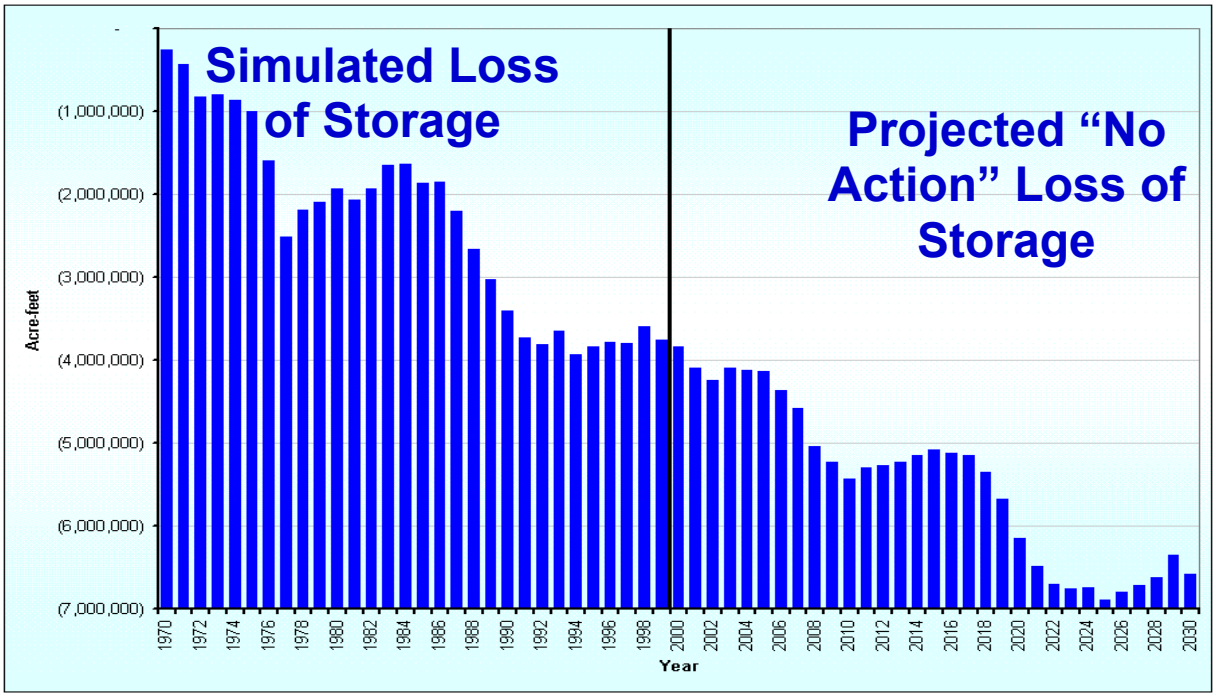


**Figure 4. Projected "No Action" Loss of Groundwater Storage (Courtesy of Northeastern San Joaquin County Groundwater Banking Authority)**

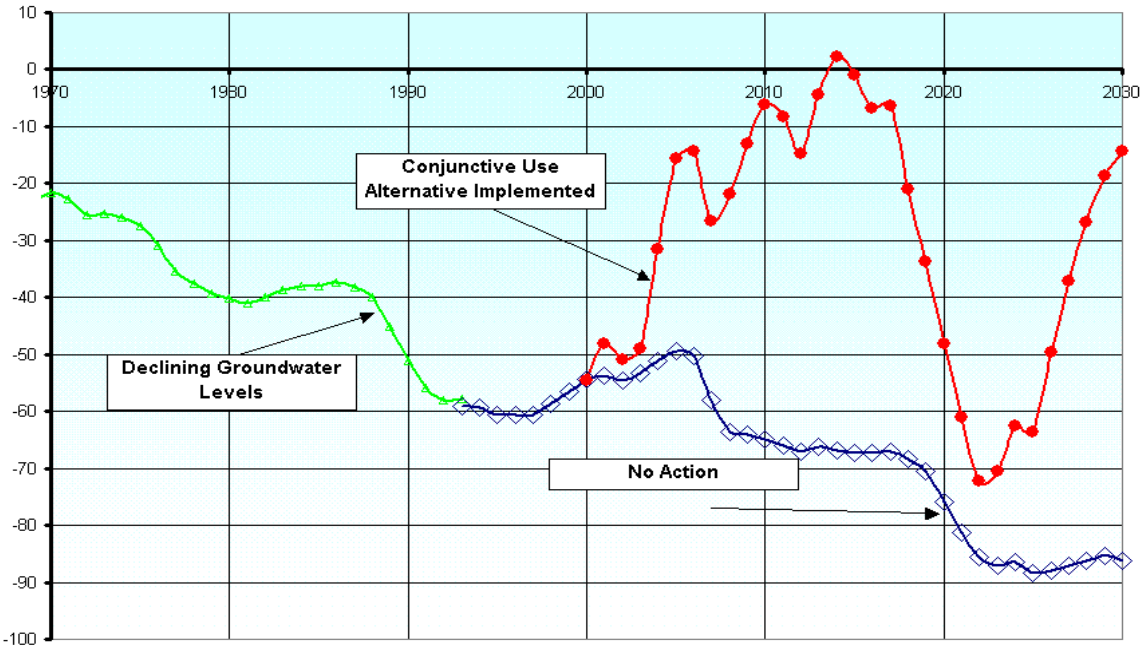


**Figure 5. Projected Groundwater Level Improvement with the Development of Conjunctive Use Project Alternative (Courtesy of Northeastern San Joaquin County Groundwater Banking Authority)**

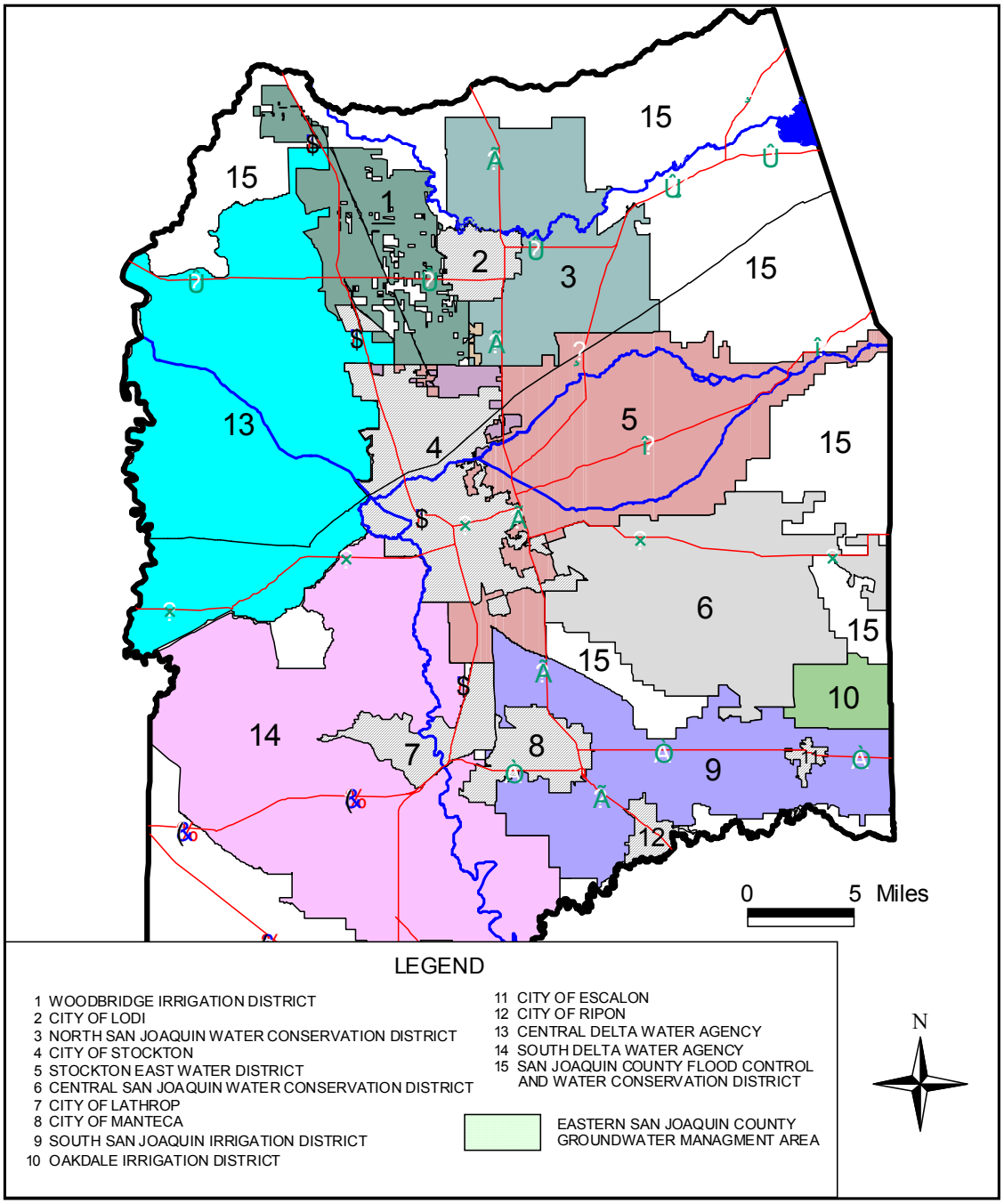


Figure 1-X
AGENCIES OVERLYING
THE GROUNDWATER MANAGMENT AREA

NORTHEASTERN SAN JOAQUIN COUNTY
GROUNDWATER BANKING AUTHORITY

**Figure 6. Local and Regional Interests that Overlying the East San Joaquin Groundwater Basin.**

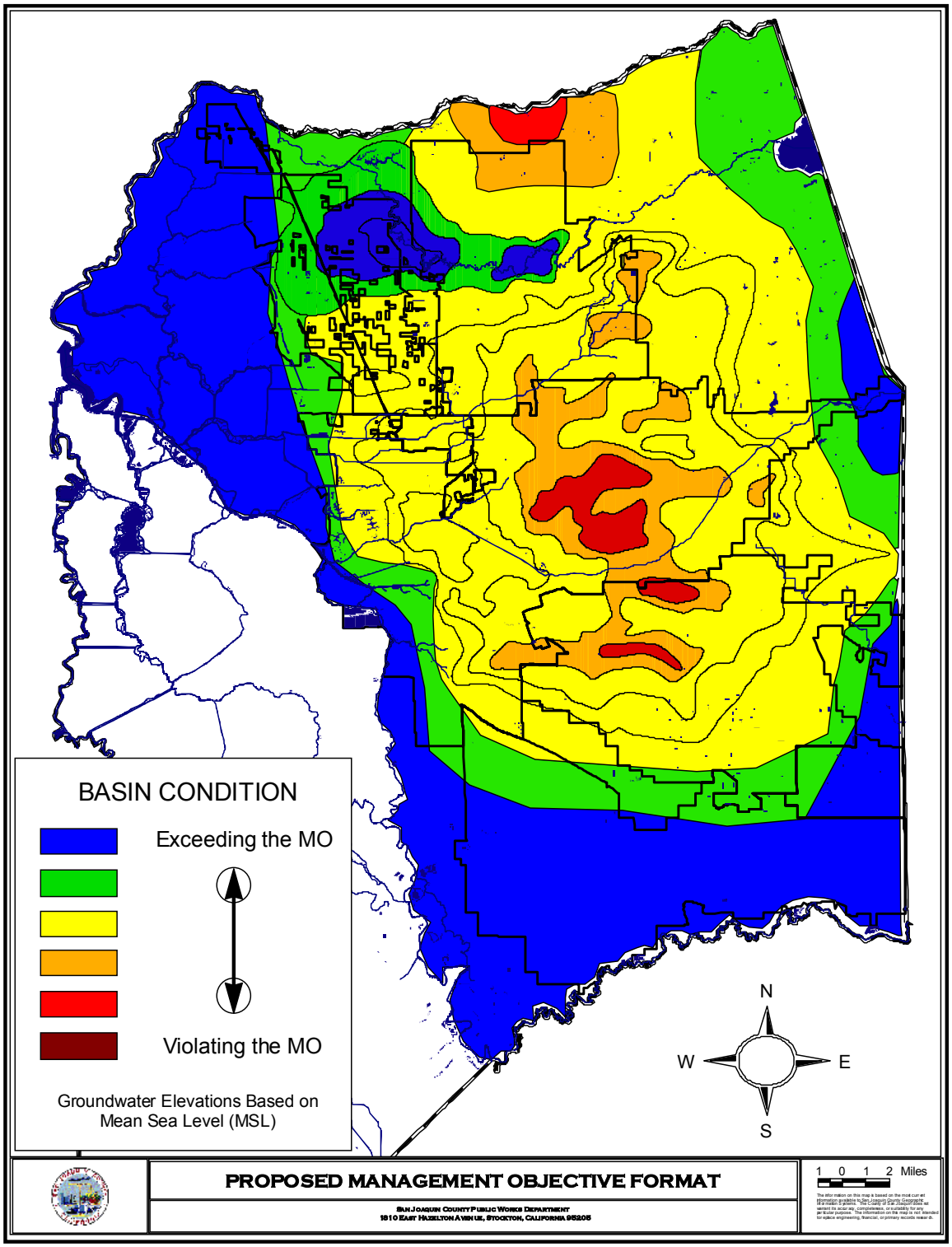


**Figure 7. Proposed Management Objective Format for Groundwater Level Conditions in East Basin Groundwater Management Plan.**

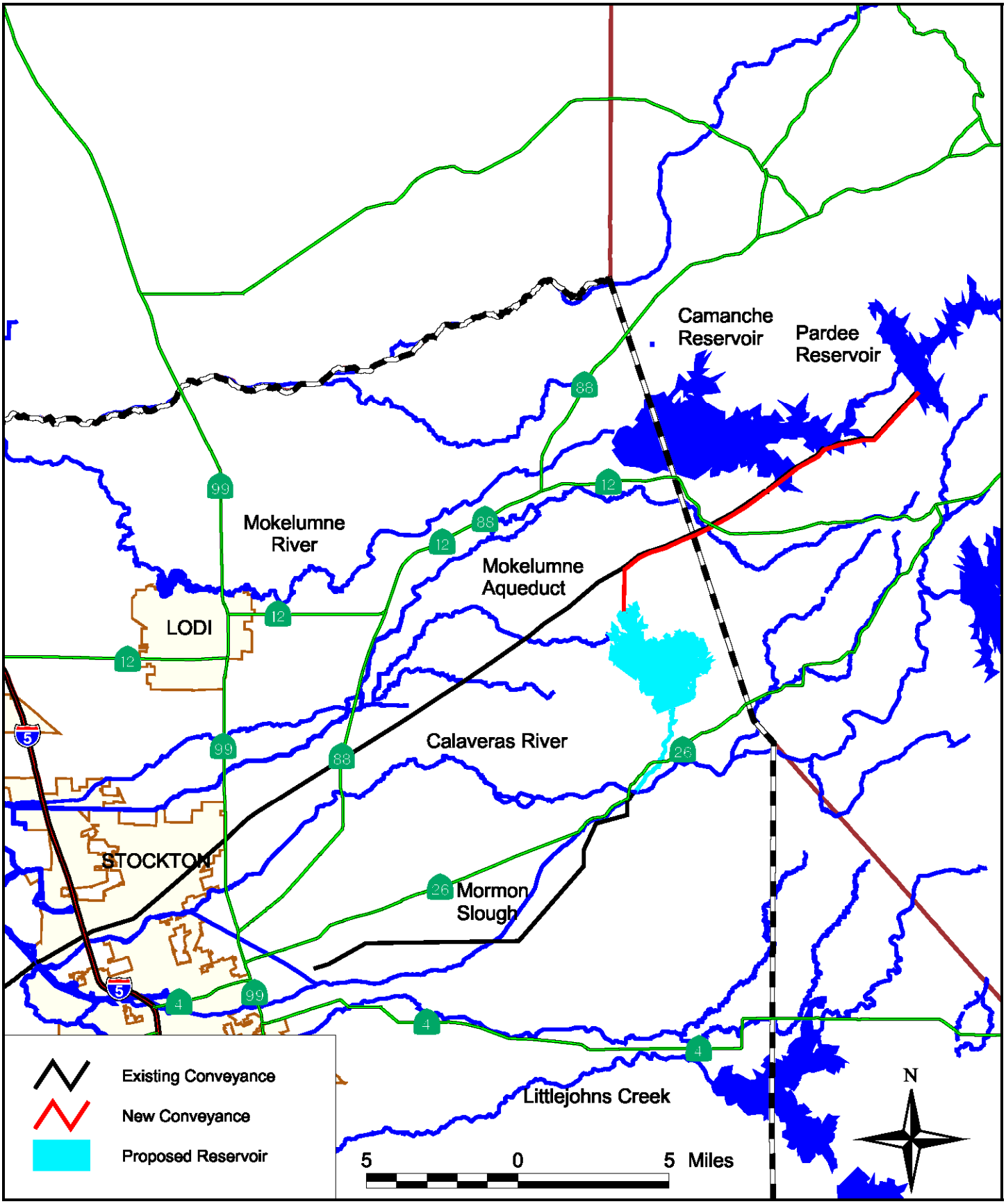


**Figure 8. Location Map of Proposed Regulating Reservoir on Duck Creek in San Joaquin County**

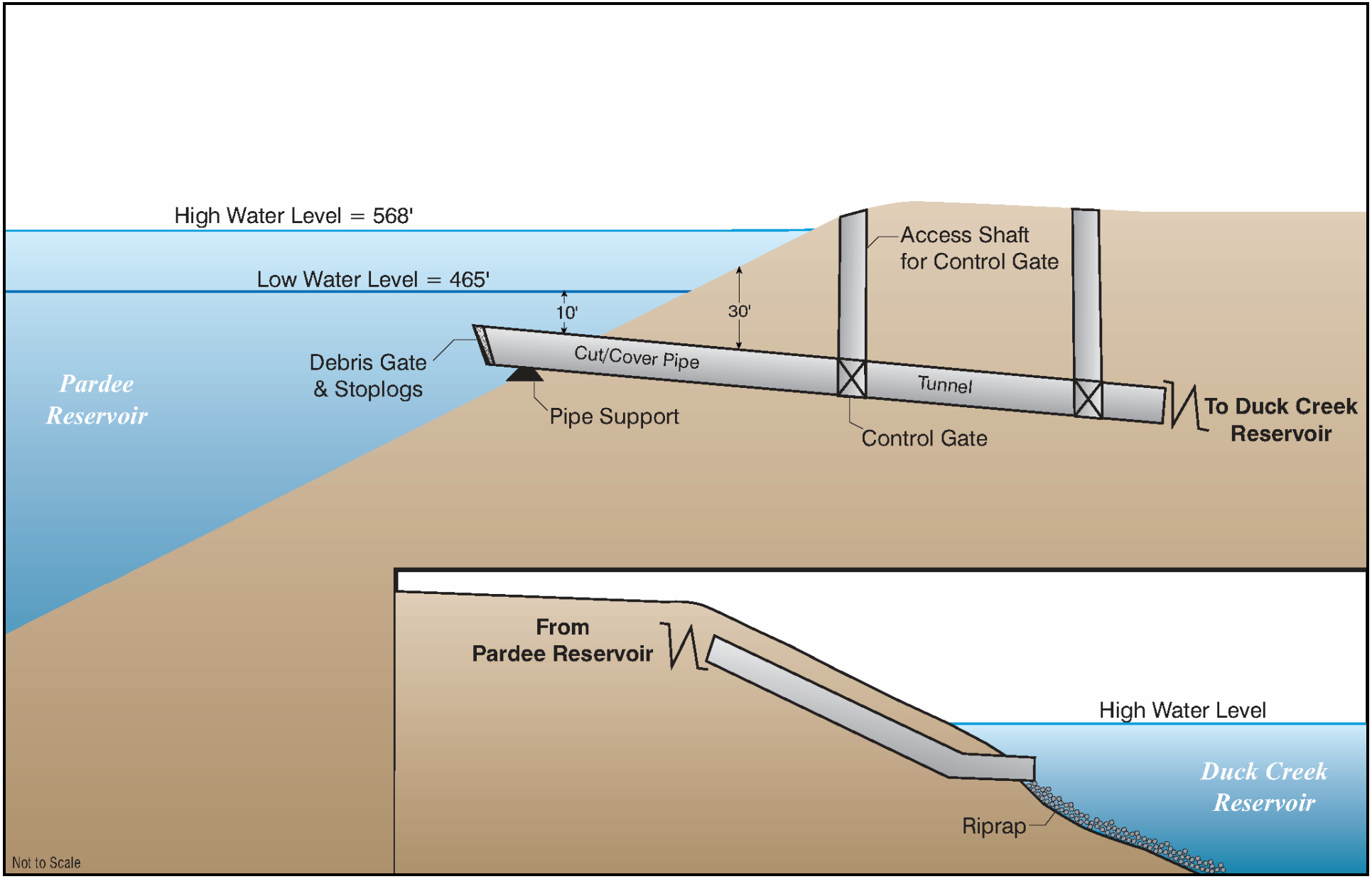


**Figure 9. Conceptual Drawing of Pardee Reservoir Diversion and Outlet to Regulating Reservoir on Duck Creek**
Source: HDR, Inc.

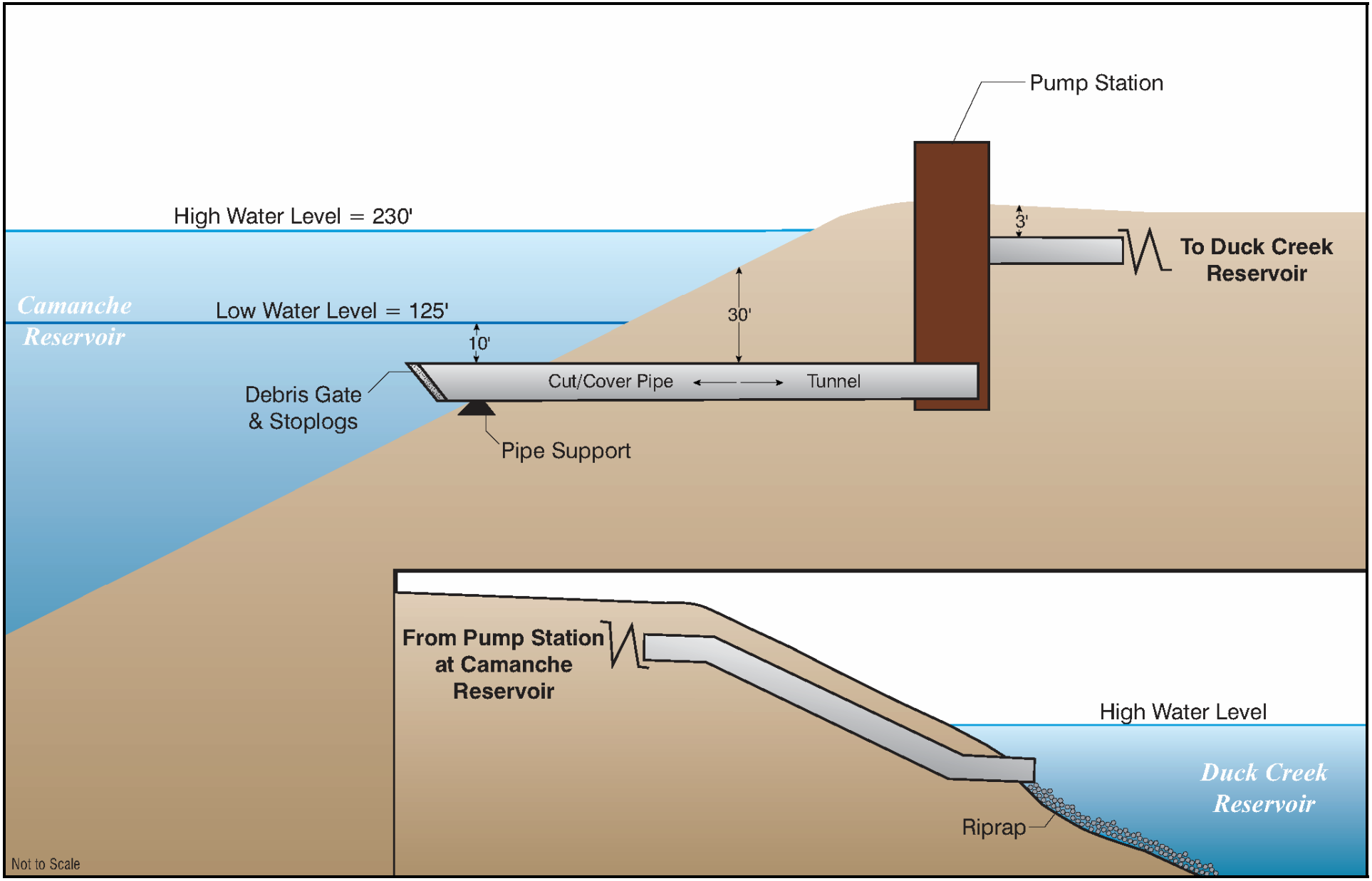


**Figure 10. Conceptual Drawing of Camanche Reservoir Diversion and Outlet to Regulating Reservoir on Duck Creek**
Source: HDR, Inc.

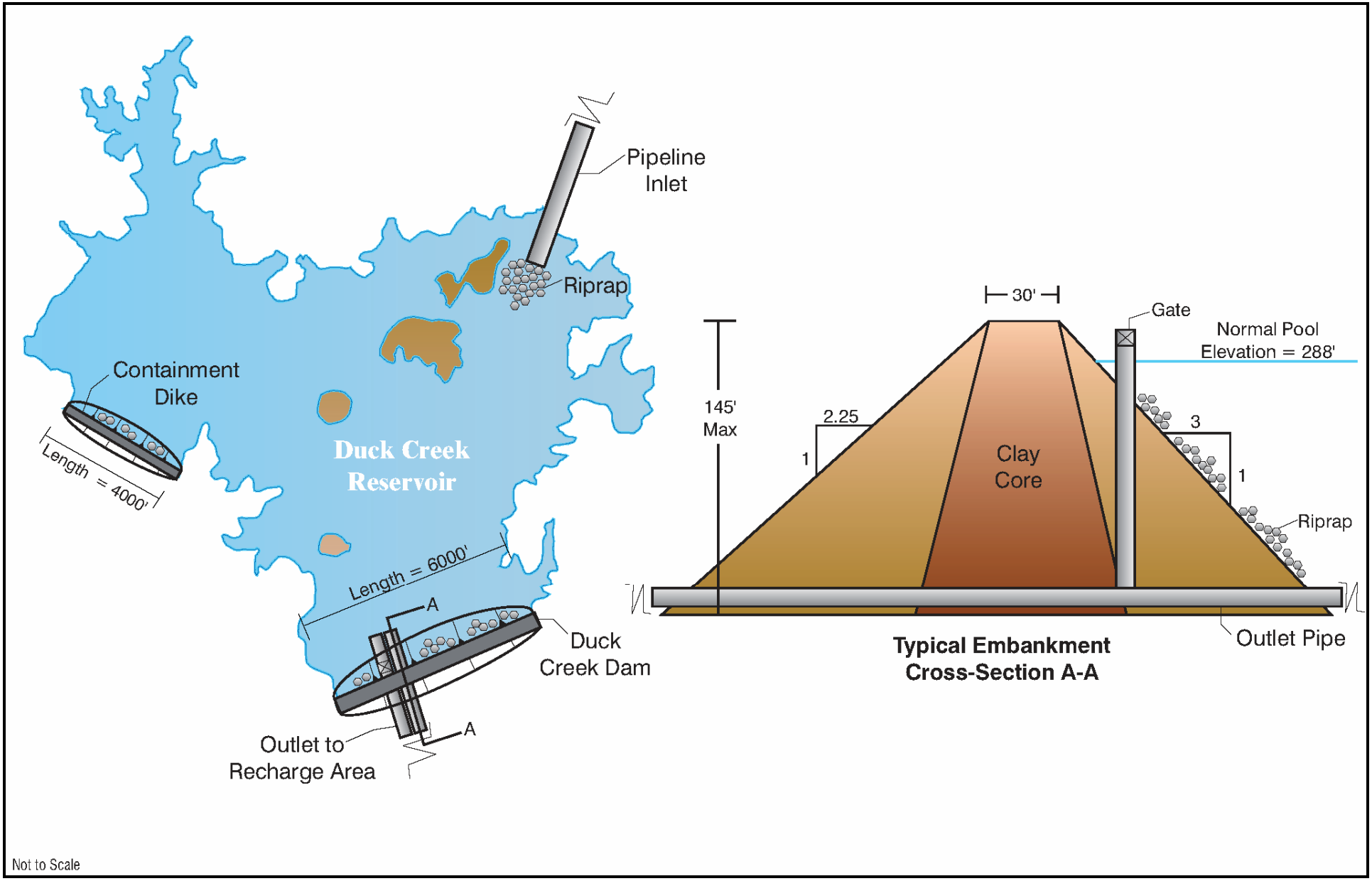


**Figure 11. Conceptual Drawing of Proposed Regulating Reservoir on Duck Creek**
Source: HDR, Inc.

## Follow Up Address Sheet

**C. Mel Lytle, Ph.D.**
**Water Resources Coordinator**
**1810 E. Hazelton Avenue**
**Post Office Box 1810**
**Stockton, California 95201**

**Telephone: (209) 468-3089**