SIERRA NORTHERN RAILWAY

221 1st Street
Davis, CA 95616
Tel: 530-759-9827 x506
Fax: 530-759-9872

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January 31, 2011

Joe Grindstaff, Executive Officer
Delta Stewardship Council
980 Ninth Street, Suite 1500
Sacramento, CA 95814

Re: Bay Delta Conservation Plan

Dear Mr. Grindstaff:

It has come to our attention that a Bay Delta Conservation Plan ("BDCP") is being prepared and that information is being collected, and options are being studied, concerning species and habitat restoration.

Sierra Northern Railway ("Sierra") is a common carrier railroad which provides freight and passenger service between West Sacramento and Woodland, California. Sierra's line includes the Fremont Trestle, which was constructed in the early 1900's and which crosses the Yolo Bypass parallel to Interstate 5. Sierra also owns a borrow pit (now a lake) immediately north of Sierra's line and west of the Conaway Sacramento River intake facility. Water serving the Conaway Ranch and others is pumped from the Sacramento River into one end of the lake and extracted at the other end for use by the benefitting parties.

We are considering selling our Fremont Trestle, our lake, and our related property in the area. In order to ensure that we are disclosing all relevant information to potential buyers, we are seeking to determine what, if any, rights other parties may claim to these properties. If you or your organization believes that you have any rights related to our trestle, lake, or any associated property (including any flowage rights or other easements over or through the properties), please provide us with copies of the documents that you believe grants such rights so that we can make the appropriate disclosures.

In the event that it is relevant to your BDCP, enclosed is a copy of an MBK Engineers' white paper providing details about water flows and the Fremont Trestle. Also enclosed is a description of a proposed relocation of our line that would provide alternate rail access to Woodland from Davis and West Sacramento while allowing the removal of the Fremont Trestle.

Please contact Val Toppenberg at (530) 759-9827 x 506 or vtoppy@gmail.com if you have any questions about the proposed rail relocation project; or Dave Magaw at (530) 666-9646 or davemagaw@gmail.com if you have questions about rail operations or the trestle.

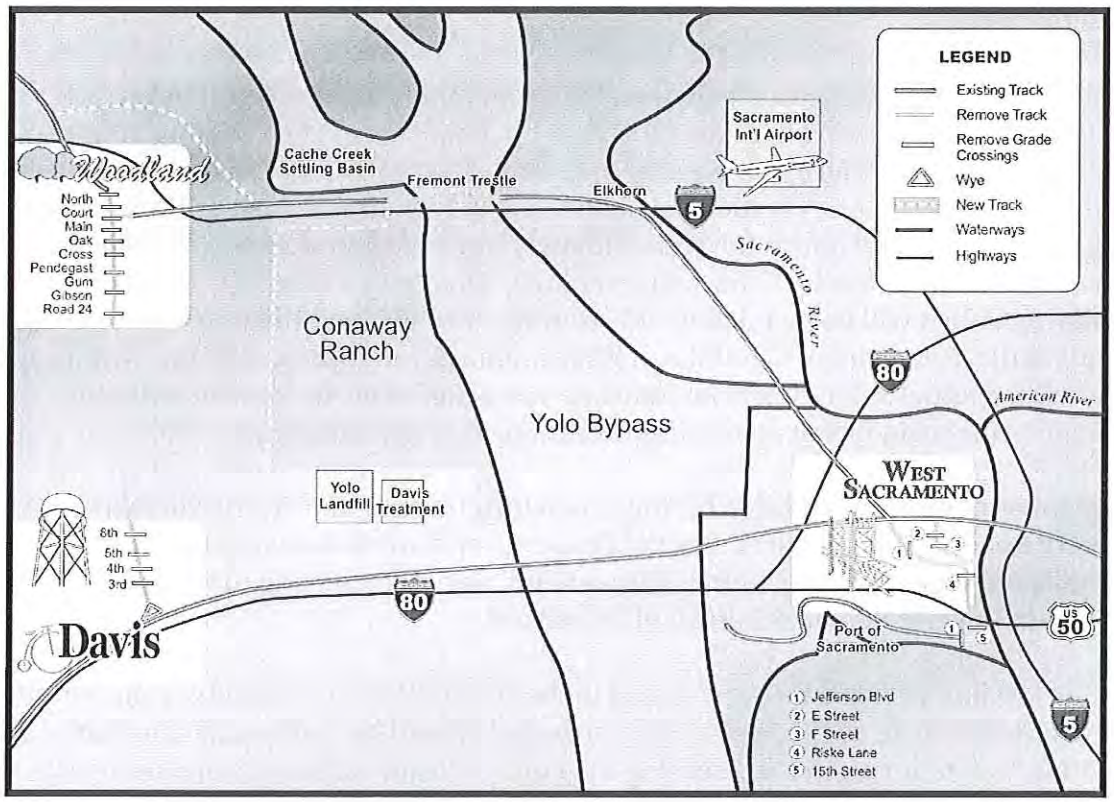
Sincerely,

Sierra Northern Railway

Yolo Rail Relocation Project Description

Summary

The YRRP is a multijurisdictional project which involves the construction of a new rail connection between the Union Pacific main line parallel to freeway I-80 approximately eight miles through Yolo county reconnecting to the Sierra Northern line; constructing a new line from the Sierra Northern line through Sugarfield to the California Northern line; and constructing a new connection between the UP main line to the Port of West Sacramento.



This new construction will allow the removal of the Fremont Trestle and the removal of the existing Sacramento Northern line between the cities of Davis and Woodland, and removal of the Westgate Yard in the city of West Sacramento.

The removal of the trestle will eliminate a significant flood protection obstacle within the Yolo Bypass area reducing risks of flooding for areas within Sacramento County and for the city of Woodland. The removal of the Sacramento Northern line and the other related work would allow the removal of 19 at grade rail crossings in the cities of Davis, Woodland and West Sacramento.

Track improvements north of Woodland will better serve industrial users in the north county and city of Woodland areas. Improvements in West Sacramento will provide improved rail service to the Port of West Sacramento and to many industrial customers in the city. The removal of the Westgate Yard will make that land available for development and improve access to the waterfront area and traffic flow into Southport.

The Project

The project includes the construction of approximately eight miles of new track beginning at the existing at grade crossing of E. Main Street and crossing under I-5 from the Sierra Northern line parallel to E. Main Street (County Road 22) just west of the existing Fremont Trestle. The new line will turn to the west at the northern edge of the Conaway Ranch for approximately one mile and then turn southerly parallel to County Road 103 for approximately three miles. Sensitive areas of the Conaway Ranch will be avoided by this routing. The line will then turn easterly just south of the Yolo Central Landfill and Willow Slough for approximately one mile and then turn southerly for approximately one and a half miles to connect with the Union Pacific main line at an existing switching area at Swingle near I-80.

Two miles of new rail will also be constructed connecting the Sierra Northern line at County Road 103 north past Sugarfield to serve industrial customers in the established industrial area north of Woodland, and reconnecting to the California Northern line paralleling I-5 north of Woodland.

A new rail line will also be constructed in the city of West Sacramento from the UP main line near I-80 at Enterprise Blvd, crossing under I-80 and connecting with existing Sierra Northern lines serving the Port of West Sacramento and industrial customers in the established Port Sacramento industrial area.

A new interchange railyard will be constructed along with the West Sacramento line to allow the removal of the Westgate yard from the waterfront "Bridge District" redevelopment area. The new interchange yard will improve service to the Port of West Sacramento and West Sacramento customers.

A new rail storage area will be constructed south of and parallel to I-5 between the interstate and the new track at the northern edge of Conaway Ranch. Construction of a new interchange railyard is also proposed at or near Swingle. This new interchange railyard would replace the existing rail interchange tracks parallel to 2nd Street near the existing wye in Davis.

In addition to improvements benefiting rail served customers, the project will allow the removal of the Fremont Trestle, the most important restriction to flood flows in the Yolo bypass and the Cache Creek settling basin. The complete project will also result in the elimination of ten at grade rail crossings in the city of Woodland, six from the city of West Sacramento and four from the city of Davis. At grade crossings in rural Yolo County will be relocated with the new line.

Rights of way acquired for new track may also be available for water lines, power lines or other utilities. The route of the rail provides the ideal opportunity for water facilities to be installed in a convenient and cost effective manner.

Flood Protection Improvements

A key project element is the removal of the Fremont Trestle. With trains diverted from their historic route along the west side of the Sacramento River and across the bypass, the primary need for the Fremont Trestle will be eliminated and the trestle can be removed.

The location of the trestle is at the narrowest point of the Yolo Bypass. According to hydraulic studies the trestle structure itself occupies approximately 34 percent of the flow capacity of the bypass at that constriction. Complicating things further, the piers of the wooden trestle serve as a collection screen for debris, logs and limbs which further obstructs floodwater flows.

By removing the trestle, hydrology studies calculate that the water surface elevation at flood stage immediately north of the trestle will be lowered by almost one foot. This will lower levee construction profiles and costs for areas in Sacramento County protected by water diversions to the bypass, as well as for the city of Woodland, as its storm waters drain into the Cache Creek Settling Basin.

Davis Improvements

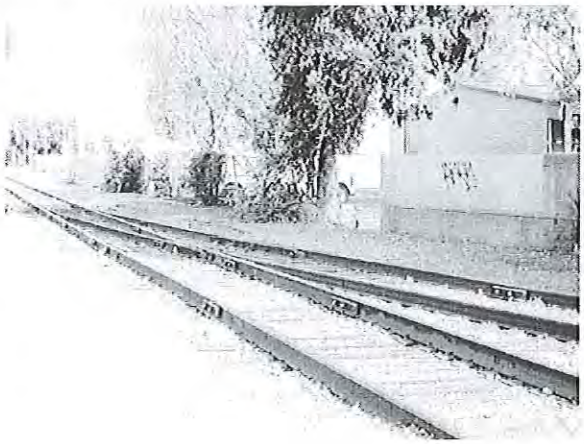
There are three rail facilities in the city of Davis that would be affected by the project: The California Northern (CNFR) line that runs through the heart of downtown Davis, the Wye at the connection between the CFNR operated line and the Union Pacific main line, and the existing interchange tracks along Second Street, parallel to the UP main line. These three facilities are proposed to be removed by this project.

The project will eliminate at grade rail crossings at 3rd Street, 4th Street, 5th Street and E. 8th Street. The removal of the Wye will also allow a connection of 2nd Street through what is now a parking area, and the connection of I Street to the new extension of 2nd Street. Removal of the rail and the wye will also open approximately 11 acres of of downtown Davis property for infill development. Property in the area is valued at approximately $1 million per acre and could accommodate development with values of $6 - 10 million per net acre. Infill development, which could occur on this newly available property, could accommodate as many as 400 infill residential units, or some combination of residential and commercial space, and significant new open space or recreation trails. Development on these properties could total $60 to $100 million and generate $1.5 million per year in tax increment revenue to the city.

Savings for grade crossings in Davis are projected to be $400,000 over a ten year period following their removal.

Woodland Improvements

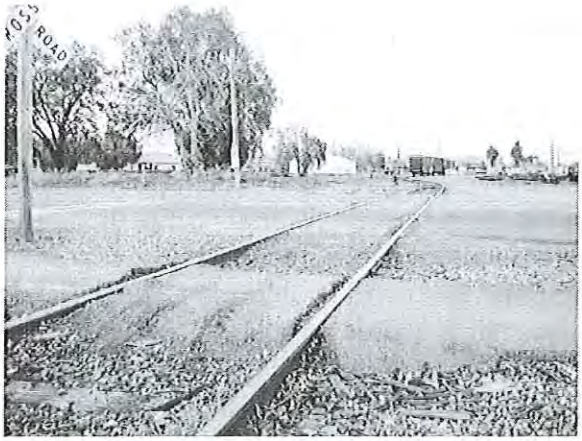
Construction of the complete project will allow removal of rail running parallel to East Street from the southern Woodland city limits to north of Beamer Street. This will eliminate ten at grade rail crossings in the city of Woodland. The project will result in at least 25 acres will either be freed up by the track removal or will be enhanced with new access and frontage by the project. Grade crossings at North Street, Court Street, Main Street, Oak Avenue, Cross Street, Pendegast Street, Gum Street, Gibson Road and County Road 24 will be eliminated. In addition to improving traffic flows and eliminating delays at grade crossings, annual maintenance costs for crossings estimated at $1 million over ten years will be saved.



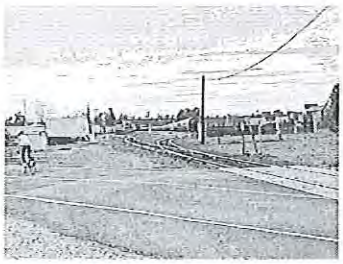
New access and frontage will be made available to at least four full blocks of developable land, approximately 18 acres. Assuming that redevelopment land sells for $300,000 per acre in Woodland, total land value is $4.2 million. In addition, approximately 7 acres worth approximately $2.1 million would be freed up from the removal of tracks and siding. Development on these properties could be valued at over $100 million generating $2 million annually in tax increment revenue to the city.

The complete project will also include new track connecting the Sierra Northern line to the California Northern line north of Woodland. This new connection will enhance rail services to industrial customers in north Woodland and Sugarfield areas. The project will require the relocation of one rail served customer in Central Woodland.

West Sacramento Improvements



Rail service in West Sacramento is essential to the community's varied industrial base and to the Port of West Sacramento. Growth in the community has created a new set of challenges. The Yolo Rail project coupled with the West Side rail relocation will result in the elimination of six at grade rail crossings in the city and will open access to dozens of acres of redevelopment land. In addition, better access to the riverfront redevelopment areas will greatly improve the development potential of these properties. The centerpiece of West Sacramento's redevelopment efforts is the Bridge District along the Sacramento River Waterfront between the Tower and Pioneer Bridges. The Westgate Yard is the single largest remaining challenge for development of the Bridge District, will be relocated as part of this project.



West Sacramento grade crossings that are proposed to be removed include the crossing at Jefferson Blvd north of West Capitol Avenue, E Street, F Street, Riske Lane in the Bridge District, 15th Street adjacent to Jefferson Blvd and Jefferson Blvd at Stone Lock. The elimination of rail crossings of Jefferson Blvd (Stone) and one at 15th Street, will remove a major safety and traffic challenge for the growing city. The safety issue is great as trucks hauling gasoline from the BP and Shell facilities frequently must stop with the tank across the active rail line at the traffic signal at Jefferson Blvd as they wait to make a right turn to access I-80 to the north.

Redevelopment land in West Sacramento ranges in value from $500,000 to $1.5 million per acre. Even assuming values at the low end of the range, the values in West Sacramento would be at least $15 million for redevelopment land alone. Development value should be expected to top $150 million and would likely be higher as the land opened by the removal of tracks improves the development potential of these properties.

Elimination of tracks adjacent to Jefferson Blvd will open the opportunity for at least four additional points of access to the emerging 100 plus acre Pioneer Bluffs redevelopment area. These new access points will allow the area to better connect with the existing fabric of the city and will result in a more favorable redevelopment project in the area.

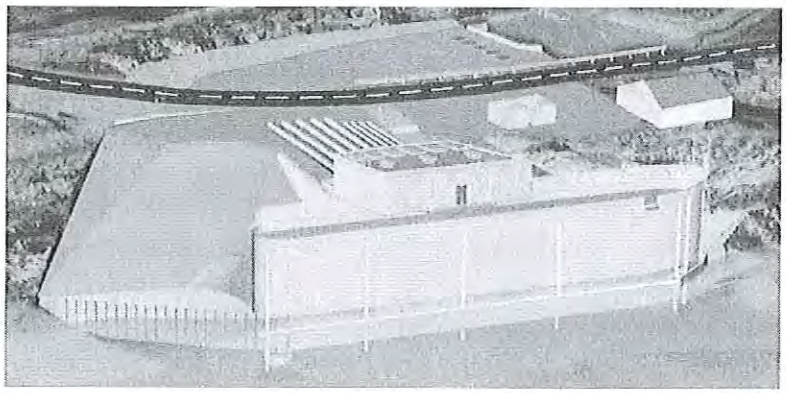
Savings of regular maintenance costs of grade crossings in West Sacramento over a ten year period is calculated at $700,000. Savings related to improved safety and traffic flow at 15th Street and Jefferson Blvd cannot be calculated. Savings related to the cost of a new grade separation of Jefferson Blvd near Stone Blvd are estimated at $18.5 million in capital costs.

Yolo County Improvements

New track is proposed to be constructed that will provide service to the Yolo County Central Landfill. Rail service will provide the opportunity for the Yolo landfill to bring additional waste to the site to improve tipping revenue, provide materials to a waste to energy facility or to transport fuel produced at the site.

Utility Corridor

The route of the proposed rail line from the west end of the Fremont Trestle along the west edge of the Conaway Ranch, past the Woodland Wastewater treatment facility, the Yolo Central Landfill and the Davis Wastewater Treatment facility provide the opportunity for installation of utilities. The proposed Davis-Woodland Surface Water Supply project will require rights of way for installation of the supply line from the new intake and treatment facility at the Sacramento River. The profile of the new rail line rights of way will provide ample property to allow for the supply lines to be installed within the same right of way. This will save additional funds otherwise required for the acquisition of right of way for the water line.



Cost savings will be realized because approximately 30 acres of land will not have to be acquired for the water line. These cost savings are estimated in the hundreds of thousands of dollars because of extensive costs of public acquisition and potentially condemnation actions that might otherwise be required.

Yolo Regional Freight Rail Improvement Project

November 2009

Prepared for:
City of Woodland, City of West Sacramento, City of Davis
Port of West Sacramento, Yolo County,
&
Yolo County Flood Control and Water Conservation District

Prepared by

MBK ENGINEERS
2450 Alhambra Blvd., 2nd Floor
Sacramento, CA 95817
916/456-4400
916/456-0253 (fax)

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Purpose

The purpose of this paper is to provide an overview of the proposed rail realignment project for reconnaissance level discussions related to project funding opportunities. Although the paper discusses preliminary project benefits and constraints, more detailed analysis will be required to assess alternatives for consideration. The primary goal of the project will be to develop a more efficient freight rail system in Yolo County that maintains or improves existing rail service, while it removes impediments to flood control and redevelopment within the affected cities.

Background

The Sierra Northern Railway (Sierra Northern) is located in Yolo County, California; and provides rail service between the cities of Woodland and West Sacramento, as shown on Figure 1. The Sierra Northern crosses the Yolo Bypass immediately upstream of the Interstate 5 (I-5) crossing. This trestle predates construction of the Yolo Bypass and flowage easements do not exist on the underlying parcel(s). The trestle has a significant adverse effect on flood stages in the Yolo Bypass in the vicinity of the Cache Creek Settling Basin. This is a result of the trestle having multiple piers, spaced closely together, and a bridge deck that gets pressure flow in large flood events. Debris also accumulates on the structure, further blocking flood flows.

In 1992, the Corps of Engineers raised the levees on the Cache Creek Settling Basin and increased the discharge for the low flow structure. The new location of the low flow structure discharges into the Yolo Bypass just upstream of the trestle. This has resulted in erosion around the piers of the trestle and presents a long term maintenance liability for the California Department of Water Resources (DWR) and Sierra Northern Railway.

In the City of Woodland, there are two railroad companies; Sierra Northern that runs east/west through the eastern portion of the City and perpendicular to the downtown area, and California Northern Railroad (Cal Northern) in the downtown area. The Cal Northern line currently acts as a switching yard and handles freight. Sierra Northern performs switching, handling, and storage of both non-hazardous and hazardous cargo railcars. There are 16 combined at-grade crossings for the two lines; and trains can block these crossings for up to 20 minutes, having a significant adverse impact to emergency response activities by the police and fire departments. Removal and/or relocation of portions of these rail lines will remove significant traffic constraints within the City and create commercial and industrial development opportunities in downtown Woodland and the industrial area in the northeast quadrant of the city. Removal or relocation of the Cal Northern switching yard will also reduce the public safety threat by relocating many of the rail operations away from more densely populated areas.

Rail operations present similar challenges in the City of West Sacramento and the Port of West Sacramento. Construction of a new interchange track will remove the need for the Sierra Northern–Union Pacific Railroad (Union Pacific) double-diamond crossing of Union Pacific's main line tracks between Sacramento and Oakland and the track from those diamonds to the connection point with the Port-UP track. Alternatives for the location and details of the new interchange would be developed in a more detailed study of the proposed project. This analysis

would also explore options for an improved crossing at Olive Drive in Davis. The existing UP-SN Westgate interchange yard in West Sacramento will be less utilized due to the alternate interchange in Davis for rail traffic bound for Woodland.

In the City of Davis, the existing California Northern line runs through residential areas and the commercial core area, until it connects with the Union Pacific line at the SP Depot. There are five at-grade road crossings (2nd, 3rd, 4th, 5th, and 8th Streets), an at-grade crossing into the SP Depot parking lot at the "triangle", an elevated road crossing at Covell Boulevard, and a bicycle undercrossing east of Community Park.

Relocation of the rail line to pass through the Yolo County landfill may also provide opportunities for rail-haul municipal waste transport and rail-haul of combustible energy created by converting landfill waste as part of the clean and green technology in Yolo County.

Project Description

The proposed project consists of relocating the existing Sierra Northern rail route to the west side of the Yolo Bypass along the western perimeter of Conaway Ranch to the Union Pacific mainline that is located on the north side of Highway 80 (Hwy 80), with a connection point just east of Davis. This will allow for the removal of the trestle that crosses the Yolo Bypass at I-5 and will lessen the existing rail interchange traffic with Union Pacific in West Sacramento by improving the interchange yard just east of the City of Davis. Sierra Northern's rail service within West Sacramento would be provided by stationing rail equipment in West Sacramento to handle interchanged railcars. Additionally, the project will consist of improved roadway crossings, three miles of railcar interchange yard improvements, and grade separation at an existing crossing in West Sacramento. The project would also eliminate major rail freight traffic through the residential/commercial areas of the communities of Davis and Woodland by constructing new trackage that facilitates rail freight movements through areas with appropriate land use for freight rail movements. This would require a trackage rights agreement between Cal Northern and Sierra Northern to establish fees and maintenance responsibilities for the trackage. Existing railcar interchange is reduced in the Bridge District of West Sacramento, furthering redevelopment planning and reducing traffic congestion associated with railcar switching. The construction of a grade separation at Jefferson and Stone will eliminate traffic congestion and a high risk rail crossing on a major arterial road, as well as facilitate more efficient railcar traffic.

The project also includes reclamation of the "notch" area in West Sacramento as a method of facilitating the rail relocation and additionally allows for expansion of the City's industrial area.

The project, which includes installation of approximately 18 miles of new track northeast of Woodland and in the Conaway Ranch west of the Yolo Bypass, allows for both Cal Northern and Sierra Northern railcar interchange with Union Pacific to occur by either improving the existing interchange or construction of a new one east of Davis. Cal Northern would then operate on the new Sierra Northern track, circumventing the core business district of Woodland under a trackage rights agreement.

Additionally, a new grade separation is constructed at Stone and Jefferson Boulevard in West Sacramento to eliminate vehicle traffic delays from train crossings into the Port and the adjacent industrial area until Phase II can be implemented. These improvements will eliminate the need for the Union Pacific-Sierra Northern Westgate interchange track in the West Sacramento Bridge District (Triangle).

The future rail improvement (Phase II) that will be facilitated by implementation of this project will be the installation of new track connecting to the Union Pacific mainline on the west side of West Sacramento and connecting to existing UPRR trackage also on the west side of West Sacramento. This component of the project would include a new railcar interchange to this main line into West Sacramento. This railyard would be constructed on the property between the western side of the existing businesses and the RD 900 Bypass levee. This new interchange track would facilitate handling longer trains into the industrial area and the Port. The most significant aspect of Phase II is that it will include removing the railcar interchange at the West Sacramento Westgate yard, eliminating rail traffic across multiple at-grade crossings in an area under significant redevelopment improvement.

Project Benefits

Flood Control

Reductions in Water Surface

The project, by removing the Fremont Trestle, results in a significant reduction in water surface elevations in the Yolo Bypass. The greatest benefit is immediately upstream of the trestle, at the Woodland gage near Cache Creek; and is a 0.63 ft decrease in water surface elevation for the 100-year flood event and a 0.70 ft decrease for the 200-year flood. The water surface reduction benefit attenuates to just over 0.1 ft at the Fremont Weir for both flood events. There is an increase of 0.02 ft. in water surface elevation downstream of the trestle at the 100-year flood event and 0.05 ft. at the 200-year flood that attenuates to 0.02 ft at the Sacramento Bypass for the 100-year event and 0.04 ft for the 200-year event.

Removal of Constraint for Regional Flood Damage Reduction Projects

The Central Valley Plan of Flood Control and the Bay Delta Conservation Plan are studying opportunities to modify the Sacramento River Flood Control Project to reduce flood damages and restore the ecosystem. Removal of the Fremont Trestle could benefit these projects by removing infrastructure from the floodway and reducing flood stages. In addition, the Department of Water Resources has indicated a desire to study widening of the Sacramento Bypass. The existing rail line crosses the Sacramento Bypass at the Sacramento Weir. Relocation of the rail line would eliminate this rail crossing and reduce the costs of widening the Sacramento Bypass. In addition, removing the railroad line from the downstream levee would benefit flood fighting and maintenance activities and reduce a rail crossing at the main entrance to the City of West Sacramento's Bryte Bend Water Treatment Plant.

FloodSAFE Yolo Pilot Program

The floodSAFE Yolo Pilot Program partners - City of Woodland, Yolo County Flood Control & Water Conservation District, and County of Yolo - are coordinating with the U.S. Army Corps of Engineers and DWR to investigate the feasibility of implementing a Cache Creek/Cache Creek Settling Basin flood risk reduction project. The conceptual solution that appears to be the most feasible and supported locally is one that aims to recover flood conveyance capacity over land that is now located within the Cache Creek Settling Basin. This conceptual solution involves the construction of a floodway through, or potentially adjacent to, the Settling Basin that would discharge into the Yolo Bypass in the vicinity of the Fremont Trestle.

The proposed relocation of the Sierra Northern would be beneficial to the conceptual solution envisioned for reducing the risk of flooding to the City of Woodland from Cache Creek. Relocation of the Sierra Northern, and removal of the railroad trestle and approximately two miles of railroad track immediately west of the Yolo Bypass, would accomplish or facilitate the following:

1. Lower flood stages in the Yolo Bypass as a result of removing the railroad trestle that will increase the "head" available to convey floodwater through the proposed floodway.
2. Facilitate rehabilitating the "pre-1993" Settling Basin south levee to obtain accreditation by FEMA.
3. Facilitate relocating the "pre-1993" Settling Basin south levee to create a floodway outside the Settling Basin.
4. Facilitate integrating environmental enhancement and recreational features with flood risk reduction projects as outlined in the Yolo County Integrated Regional Water Management Plan.

Transportation

Increased Transportation Efficiency

Locating rail traffic, rail interchanges, and rail car storage areas away from residential/commercial areas facilitates more efficient, and thus cleaner and safer, railcar switching and through traffic. New grade separated crossings allow for unimpeded, simultaneous rail and vehicular traffic flows, increasing both rail and commercial vehicle transportation efficiency.

Public Safety

Relocation of railroad traffic and storage from high population areas and elimination of a total of 22 at-grade crossings (5 in Davis, 16 in Woodland, and 1 in West Sacramento) will reduce the risk of train versus vehicle/pedestrian collisions, will improve emergency vehicle response times, and will relocate rail storage away from densely populated areas in Woodland.

Decrease in carbon emissions

Elimination of existing trackage through the communities will reduce vehicle traffic congestion and associated air emissions, improve traffic safety by eliminating numerous at-grade rail crossings, create opportunities for additional bicycle and pedestrian corridors, and provide additional opportunities for rail transport where not currently available. Additionally, the project would bring the community into greater compliance with Climate Action Registry goals.

Economic Development and Redevelopment Impacts and Benefits

Downtown Woodland

The relocation of freight rail traffic and the removal of railcar interchanges will remove a tremendous blight and eyesore from the Downtown Core area. The Downtown Specific Plan, the Woodland Redevelopment Agency Plan, Implementation Plan, and the East Street Corridor Specific Plan have all identified this area as a target area for redevelopment to a commercial/residential use compatible with the Downtown and pedestrian oriented traffic.

Woodland Industrial Area

An element of the project that would be studied in more detail during the next phase of investigation includes an evaluation of the current businesses that are served by the existing rail line, along with business that could be served by a new line. This would include an evaluation of removal of the Armfield boxcar storage area and the possible development of intermodal transfer station, relocation of SVHRR, and expansion of the Sacramento River Train. The project will provide greater efficiencies in serving the Woodland Park Specific Plan area, consisting of more than 800 acres of undeveloped land for future industrial and commercial uses, in addition to improved tracks in the older parts of the industrial quadrant of Woodland. There will also be better opportunities for development of a HUB Zone (subset of World Trade Zone) and CA State Enterprise Zone and strengthen the basic marketability of Woodland land, given its proximity to all major road, rail, and waterways.

Port of West Sacramento/West Sacramento

The separation of rail freight traffic from residential/commercial development also allows for greater freight traffic utilization of the Port of West Sacramento for regional and national economic benefits. The project will also relocate track in the City of West Sacramento Bridge District and facilitate reclamation of land in the "Notch". Both of these redevelopment areas are considered significant in the City of West Sacramento's master plan.

City of Davis

Relocation of the rail freight traffic and rail line presents opportunities for more commercial and residential development in Central Davis and the Downtown area that could act as a catalyst for redevelopment of adjoining areas.

Abandoned Rail Lines

Relocation of existing rail lines creates the opportunity for reuse of right-of-way for an alternative transit corridor or other transit related improvements between Davis and Woodland, consistent with the E-Trans plan. The next phase of investigation will include an evaluation of the opportunities presented by the portions of the rail line that would be abandoned as part of the proposed project.

Project Constraints

New Crossing of Interstate 5

The Sierra Northern currently runs parallel to, and on the north side, of Interstate 5 until east of the current trestle and Yolo Bypass. The current proposal to cross I-5 is to utilize a previously existing railroad undercrossing of I-5 (the railroad line was abandoned in the 1980s and is currently an improved dirt road) that is located at the land side toe of the Yolo Bypass west levee. A more detailed evaluation of this crossing, and other alternatives, should be conducted in the next phase of study.

Hydraulic Impacts

The localized increases in flood stages downstream of I-5 and as a result of reclamation of the Notch need to be evaluated to determine their significance. Additional project elements may need to be evaluated to mitigate these impacts.

Maintain Existing Service

The project would impact local service to Pacific International Rice Mill Inc. (PIRMI) and CalWest Seeds near downtown Woodland. Rail service to these businesses would need to be maintained or provided at an alternative business location. Alternatives to accomplish this will be studied in greater detail during the next phase of investigation.

Shared Trackage Rights Agreements

The project would also create the need for several shared trackage rights agreements, which may create the need to mitigate for rights and opportunities that are gained and/or lost. One objective of the proposed project is to ensure that the existing levels of service for the rail lines are maintained or improved.

Right of Way

Although the project will require significant right of way acquisition, there are only a limited number of landholders that would be involved, some of whom have previously been contacted regarding this project.

Interested Parties

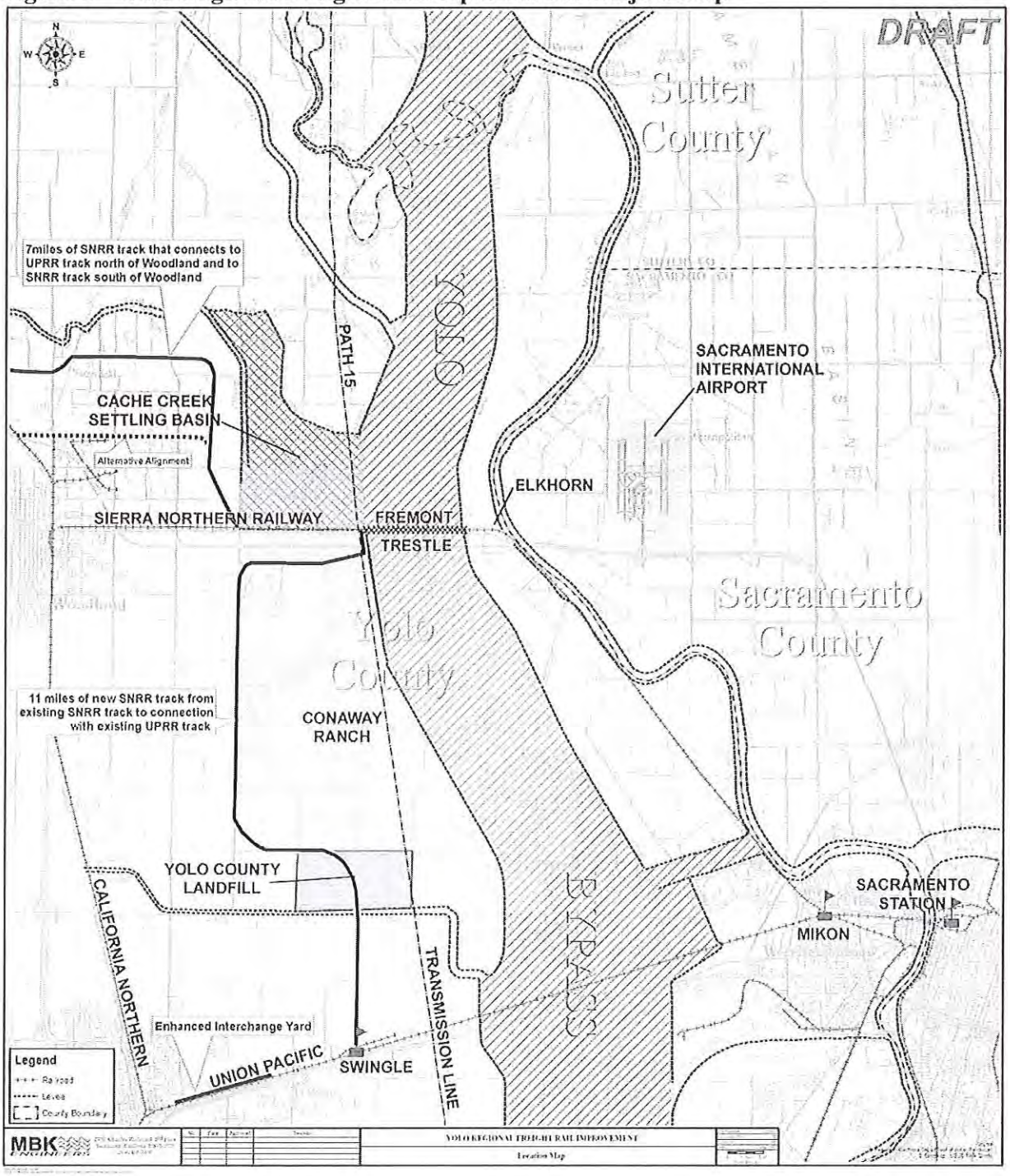
The following agencies, utilities, and private parties have a potential interest in the proposed project:

- City of West Sacramento
- Port of West Sacramento
- City of Davis
- City of Woodland
- Woodland Redevelopment Agency (as a financing agent)
- Yolo County Flood Control and Water Conservation District
- Yolo County
- Sierra Northern Railway
- Rail America (California Northern Railroad)
- Union Pacific Railroad
- Conaway Ranch
- Sacramento Area Flood Control Agency
- Sierra Holdings
- Cal Trans
- Department of Water Resources
- Central Valley Flood Protection Board
- United States Army Corps of Engineers
- Public Utilities Commission
- California Department of Fish and Game
- NOAA Marine Fisheries Service
- United States Fish and Wildlife Service
- California State Lands Commission

Next Steps

A more detailed study of the proposed action should be conducted to investigate the issues raised in this paper and develop detailed proposals to address each of the concerns and opportunities.

Figure 1 – Yolo Regional Freight Rail Improvement Project Map



Appendix A

Hydraulic Analysis of the Removal of the Fremont Trestle from the Yolo Bypass

Prepared for:

Sierra Railroad
221 First Street
Davis, CA 95616

Prepared by:

2450 Alhambra Blvd.
Sacramento, CA 95817

September 21, 2007
rev. November 5, 2009

1. Purpose and Background

The purpose of this report is to present an evaluation of the hydraulic impacts of removing the Fremont Trestle on the 1-in-100 and 1-in-200 Annual Exceedence Probability (AEP) water surface elevations in the Yolo Bypass and Sacramento River.. The Fremont Trestle runs east-west across the Yolo Bypass just north of Interstate 5. Figure 1 shows the location of the Fremont Trestle and its surrounding area.

Note: AEP is the probability that a flood event of the specified magnitude will occur in a given flood season. Thus, the 1-in-100 AEP flood event has a 1-in-100 chance of occurring in a given year.

2. Hydraulic Model

The MBK version of the Sacramento and San Joaquin River Basins Comprehensive Study (Comprehensive Study) Sacramento River UNET model adopted for the Natomas Levee Evaluation was used for this analysis. UNET is a one-dimensional unsteady open-channel flow model with the ability to simulate exchange of flow between river channels and floodplains. The software was developed by and is supported by the U.S. Army Corps of Engineers (USACE) Hydrologic Engineering Center. The downstream boundary of the Comp Study UNET model is the Sacramento River at Collinsville, and the upstream boundaries on the major rivers are:

- Sacramento River Woodson Bridge (River Mile 215.5)
- Feather River Thermalito Afterbay Outlet (River Mile 58.6)
- Yuba River Englebright Lake (River Mile 22.0)
- Bear River Wheatland Gage (River Mile 12.5)
- American River Fair Oaks Gage (River Mile 22.0)

Figure 1 shows the model cross-sections within the affected areas.

3. Hydrology

The USACE, as part of the Comprehensive Study, developed input flows for the Sacramento River Basin UNET model for a number of storm centerings designed to stress the system at various locations. Previous hydraulic analysis has shown that the storm centering that produces the highest water surface elevations in the project area is the Feather River at Shanghai Bend centering (Shanghai Centering).

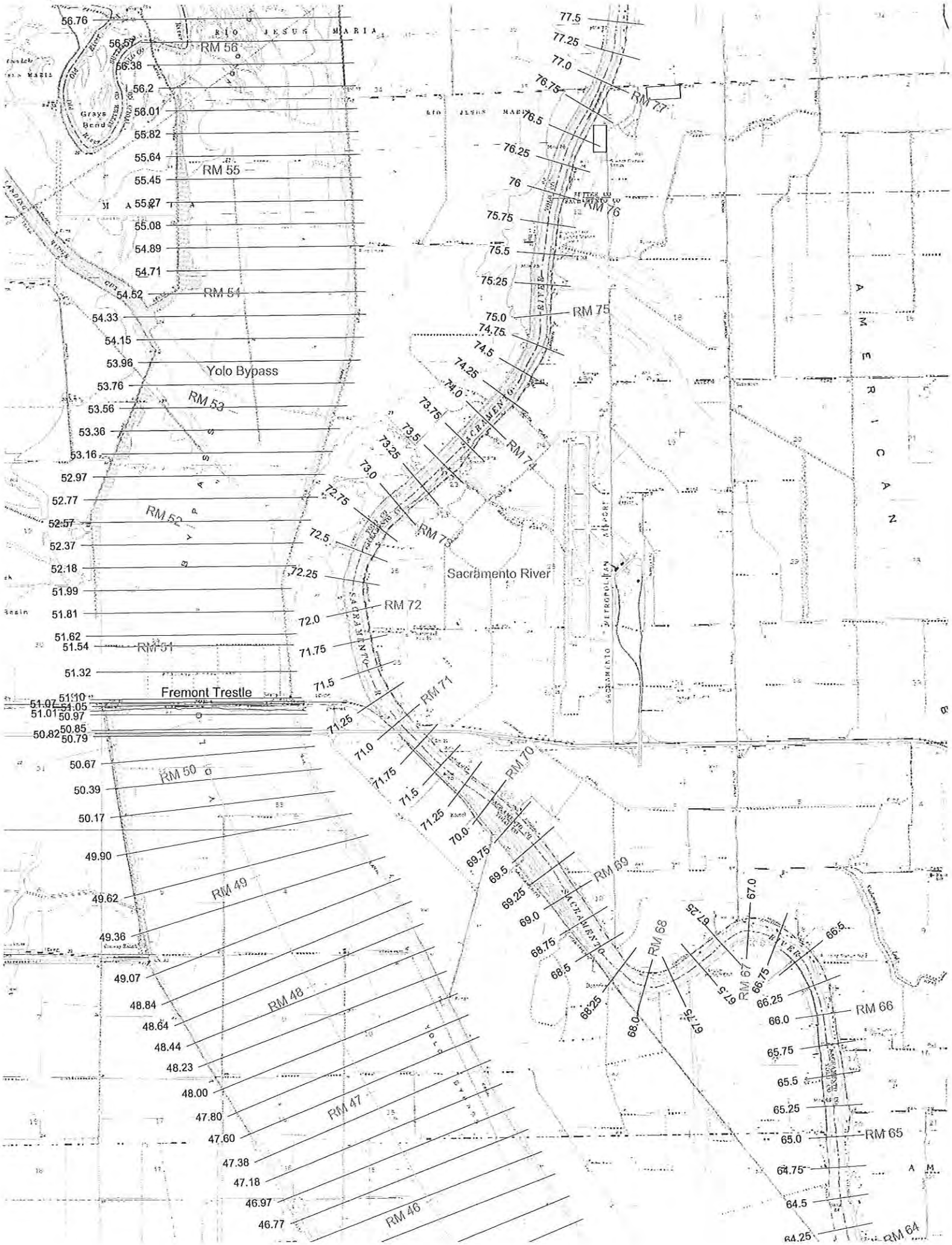
The American River input flow was modified to provide a peak flow of 145,000 cubic feet per second (cfs) for the 1-in-100 AEP flood and 160,000 cfs for the 1-in-200 AEP flood.

6. Conclusions

This analysis demonstrates a significant localized reduction of the water surface in the Yolo Bypass upstream of the Fremont Trestle which would benefit the levee districts in the Yolo Bypass. A smaller, less significant benefit was shown upstream of the Fremont Weir and along the Sacramento River.

7. References

United States Army Corps of Engineers (USACE), Sacramento and San Joaquin River Basins Comprehensive Study, California, Technical Studies, Appendix B, Synthetic Hydrology Technical Documentation, December 2002.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Yolo Bypass
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Figure 2 - Yolo Bypass
Maximum Water Surface Elevation Profile: 1-in-100 AEP

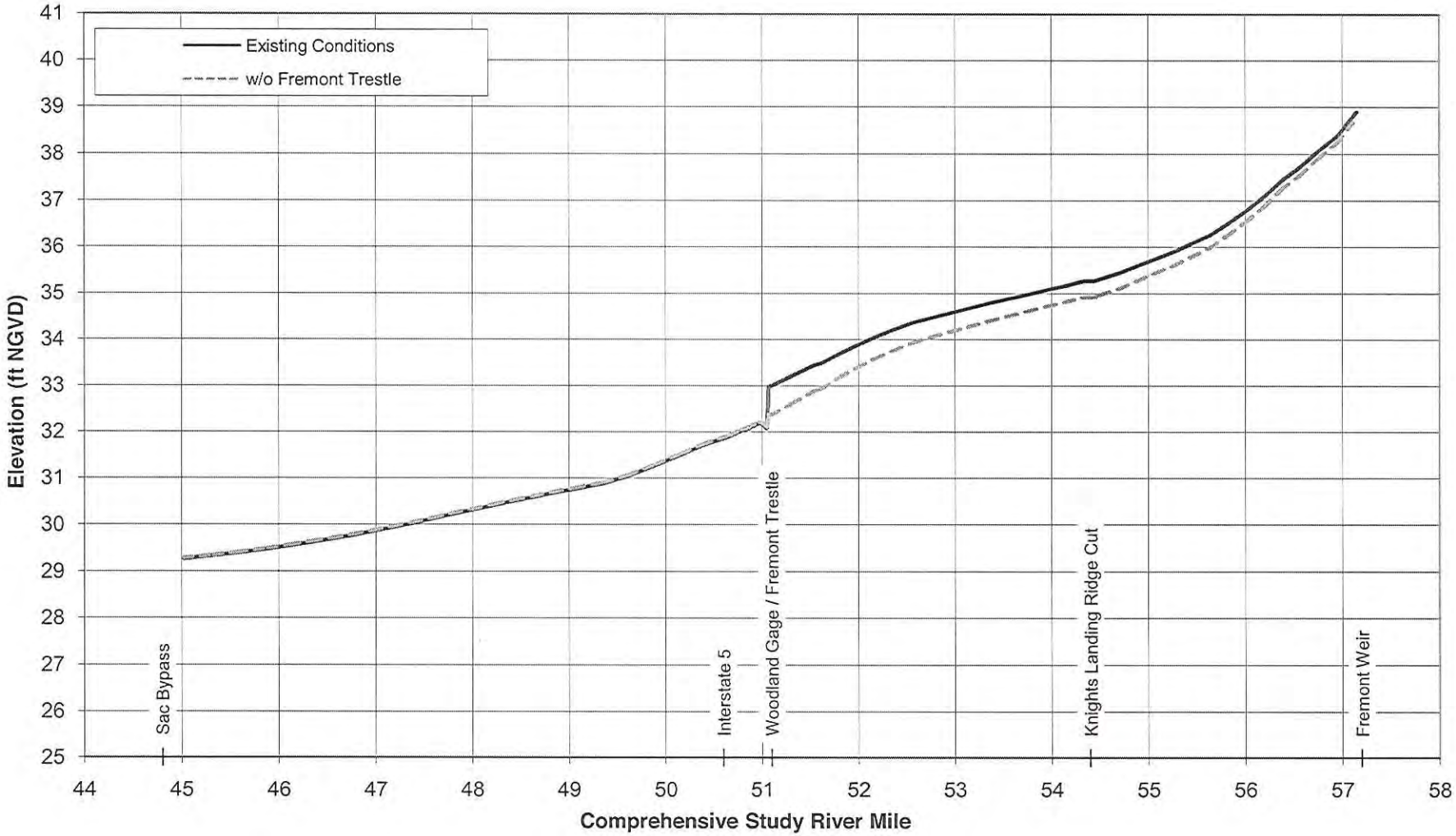


Figure 3 - Yolo Bypass
Maximum Water Surface Elevation Profile: 1-in-200 AEP

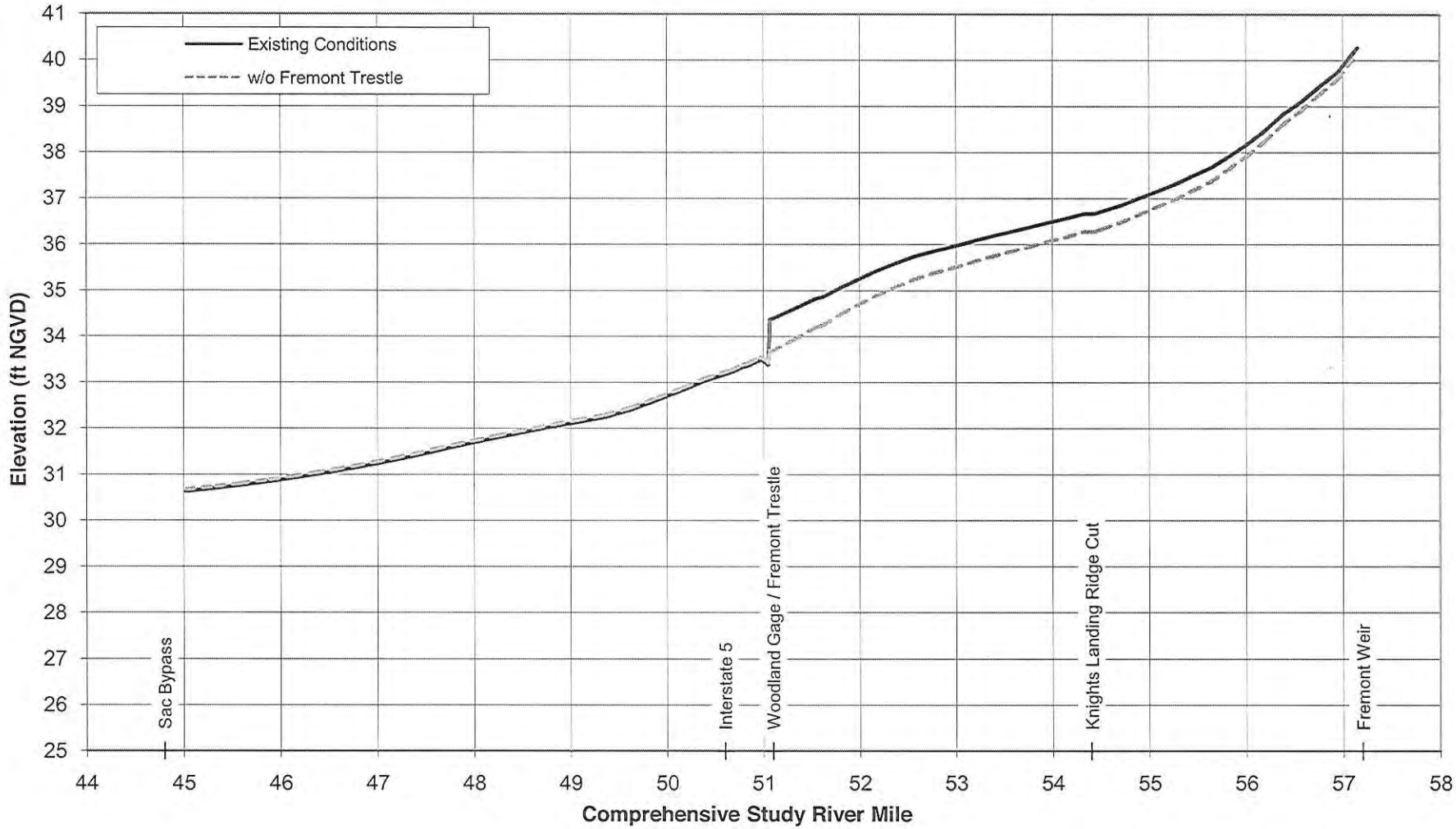


Figure 4 - Sacramento River
Maximum Water Surface Elevation Profile: 1-in-100 AEP

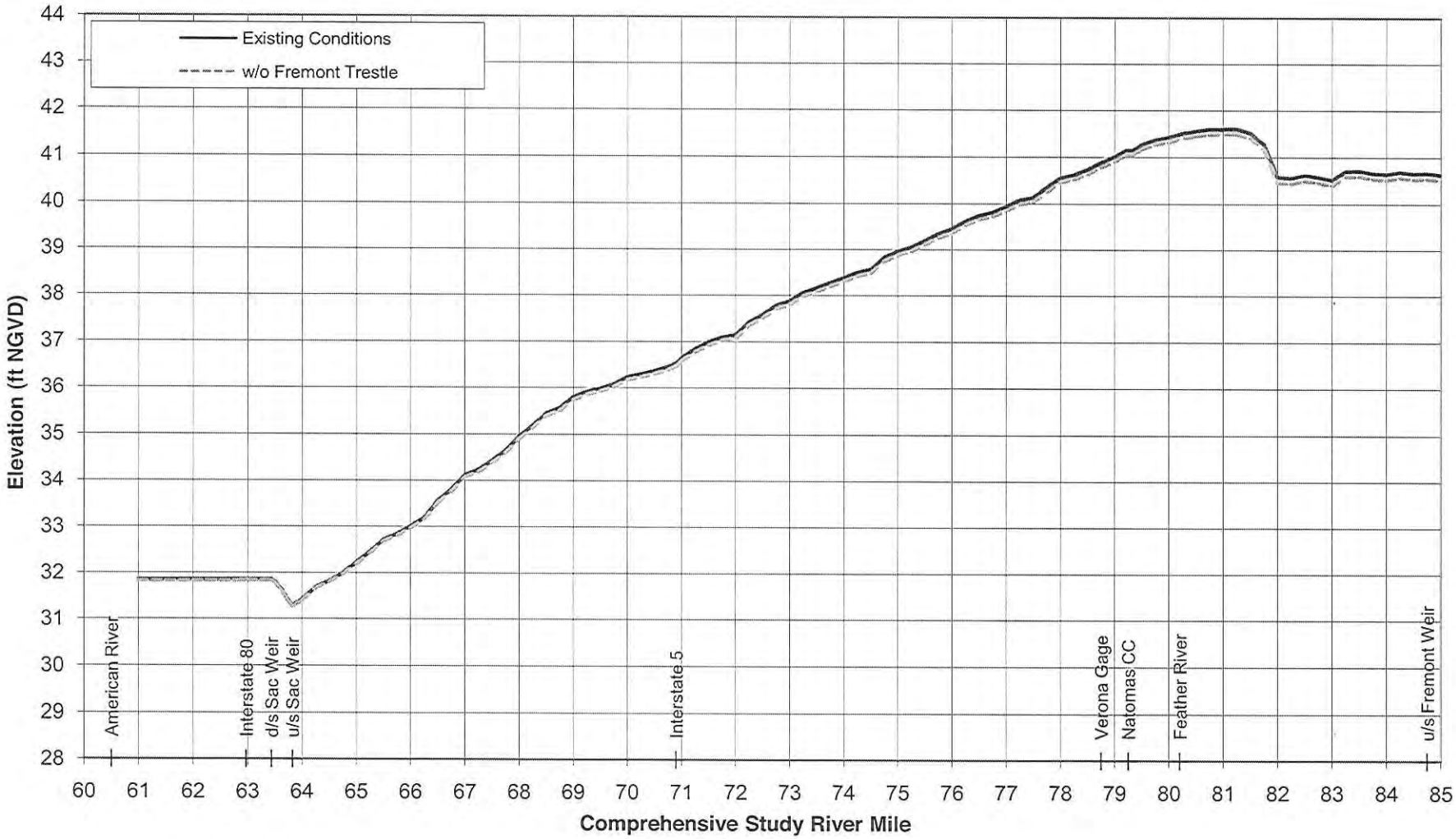
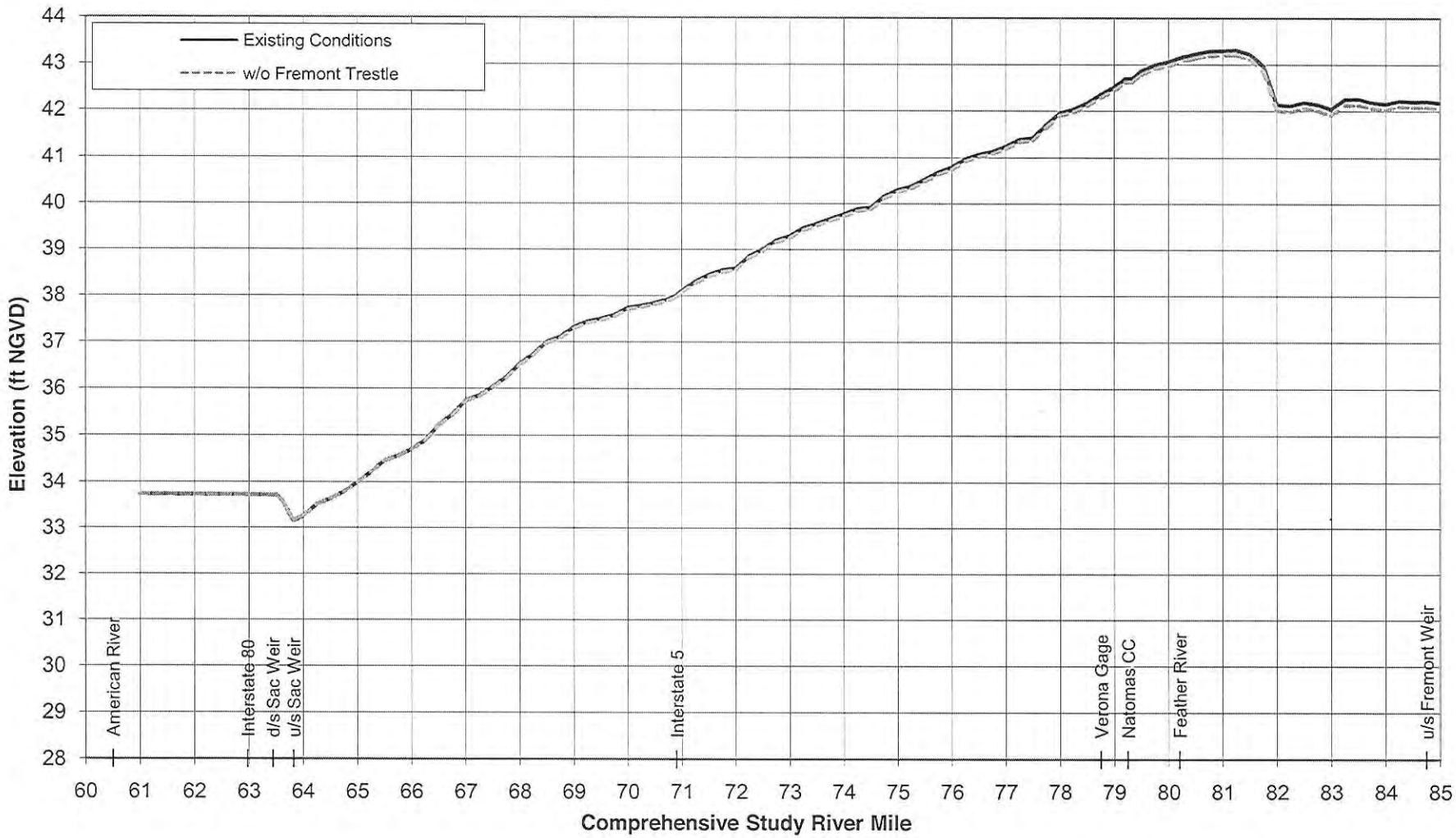


Figure 5 - Sacramento River
Maximum Water Surface Elevation Profile: 1-in-200 AEP



Appendix B

MBK ENGINEERS

Water Resources • Flood Control • Water Rights

MEMORANDUM

DATE: September 19, 2008

TO: Vinton Hawkins

FROM: Don Trieu, P.E.

SUBJECT: Hydraulic Impact Analysis of Removal of "West Sacramento Notch"

Sierra Holdings proposes to remove the "West Sacramento Notch" along the east side of the Yolo Bypass between the Sacramento Bypass and Interstate 80. A new levee would be constructed from the west end of the south levee of the Sacramento Bypass to the east levee of the Yolo Bypass at Interstate 80. This memorandum documents the hydraulic analysis to determine potential hydraulic impacts as a result of the proposed project.

Hydraulic Model

The United States Army Corps of Engineers (USACE) has developed a RMA2 two-dimensional (2-D) hydraulic model of the Yolo Bypass "expressly for the purpose of assessing the flood conveyance impacts of proposed land use changes in the Bypass, suitable to California State Reclamation Board (Rec Board) permitting standards" (USACE 2006).

RMA2 is a 2-D depth averaged finite element hydrodynamic numerical model. It computes water surface elevation and horizontal velocity components for sub-critical, free-surface 2-D flow fields.

The USACE Yolo Bypass model was modified by MBK for this analysis as follows. The upstream extent of the model was truncated at the Yolo Bypass at Woodland gage and the downstream extent of the model mesh is at the Yolo Bypass at Lisbon gage. The model mesh developed for this analysis is shown in Figure 1

Model Calibration

The 2-D finite element model was calibrated to the January 1997 flood event. This flood was used because it was a very large flood event, occurred relatively recently and a substantial amount of observed stage and flow data is available. Figure 2 shows the results of the model calibration comparing the computed water surface elevations versus the observed water surface elevations.

Impact Analysis Methodology

The hydraulic impact of the proposed project conditions was determined by comparing the computed water surface elevations and velocities from a base condition simulation with those from a project condition simulation. The hydrologic condition used for this simulation is the January 1997 flood event.

Base Condition

The Base Condition used for this analysis corresponds to conditions as they currently exist. The model results of the January 1997 flood calibration will serve as the Base Condition for comparison with Project Condition model results.

Project Condition

The base condition 2-D finite element mesh was modified to reflect the first project condition. Alternative 1 consists of construction of a new levee from the west end of south levee of the Sacramento Bypass connecting to the east levee of the Yolo Bypass at Interstate 80 (Figure 3). The new levee was simulated in the model by disabling the elements which represented the levee and areas (Notch Area) east of the new levee. The total estimated area of the Notch is 600 acres. Alternative 1 was modified to reflect the second project condition. Alternative 2 consists of the project condition levee in Alternative 1 and an embankment removal from the Southern Pacific Railroad Bridge crossing the Yolo Bypass, shown in Figure 3. Model elements were modified to represent floodplain elevation with bridge piers. The project condition alternatives were simulated using the January 1997 flood conditions and compared with the base condition.

Results

Figures 4 and 5 plot the maximum water surface elevation along the east and west levee, respectively, of the Yolo Bypass for the base condition, Alternative 1, and Alternative 2. Water surface differences plotted in Figures6 through 9 used the same alignments as the water surface profiles, shown in Figure 2. Tables 1 and 2 summarize the hydraulic impacts to the Yolo Bypass based on model results. Water surface impacts were greatest in the vicinity of the Notch.

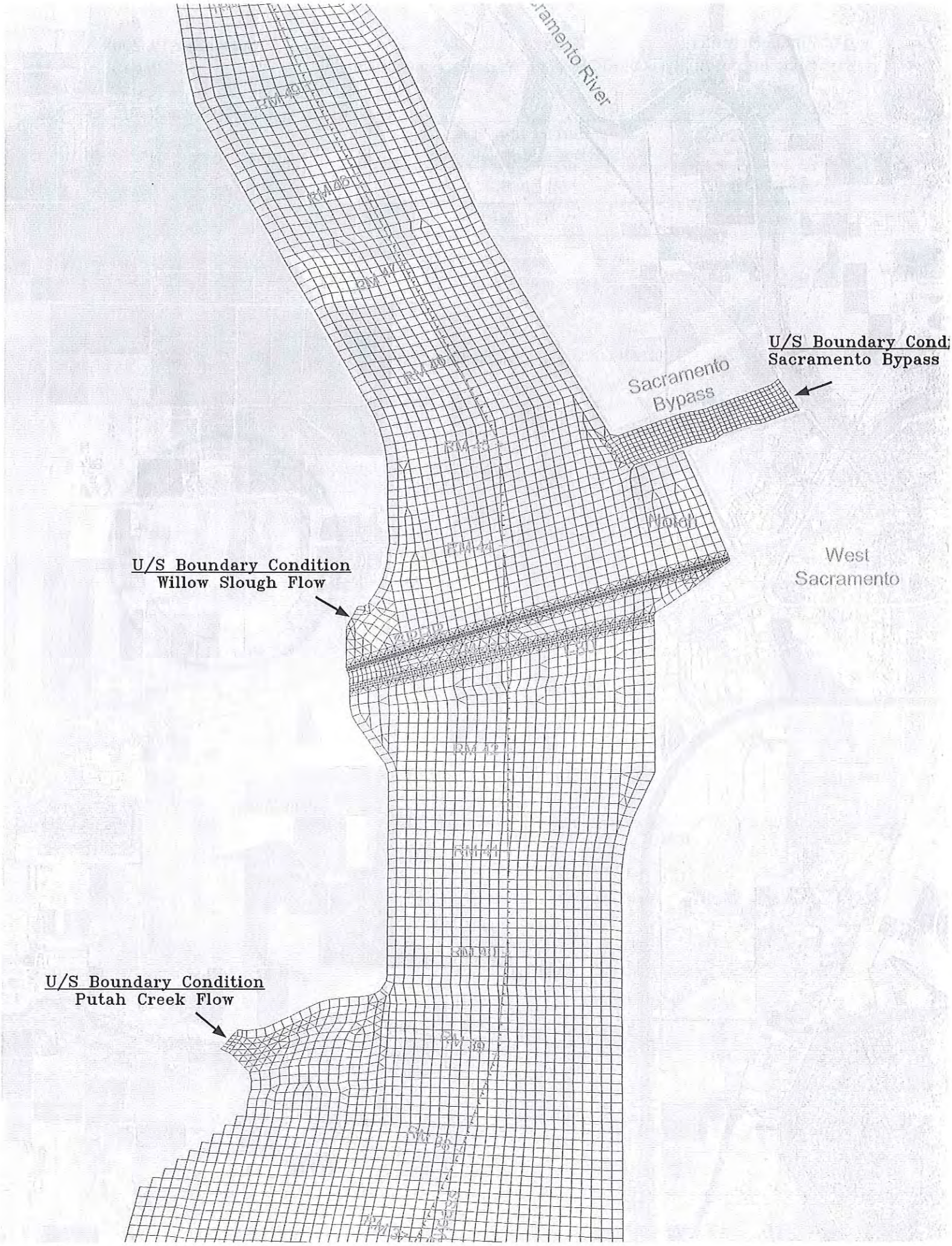
Table 1. East Levee

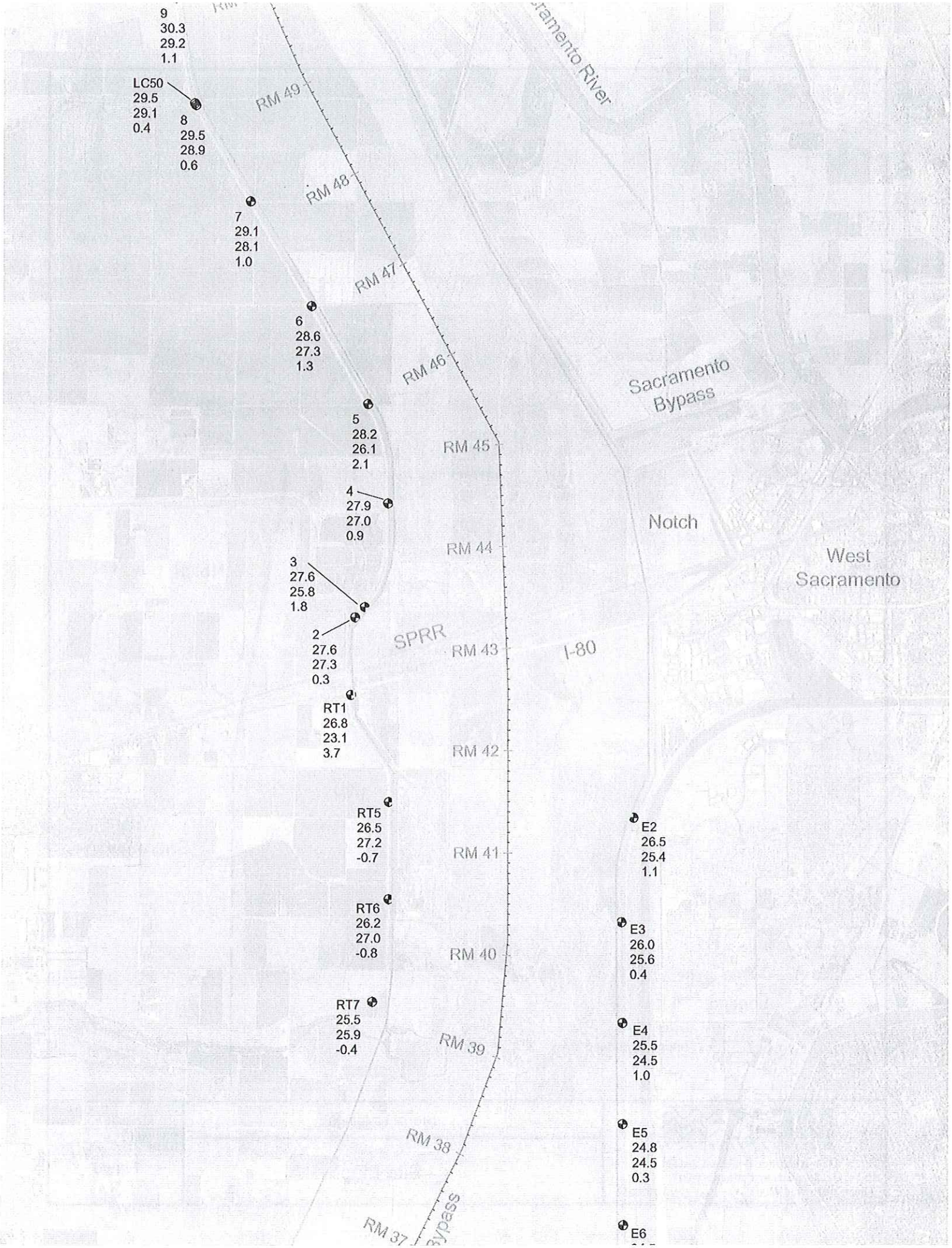
	Water Surface Impact (ft)	
	Downstream of the Sac. Bypass	Upstream of the Sac. Bypass
Alternative 1	0.3	0.1 to 0.2
Alternative 2	0.2	-0.1

Table 2. West Levee

	Water Surface Impact between SPRR and Interstate 5 (ft)
Alternative 1	0.1 to 0.2
Alternative 2	0 to -0.1

Don Trieu, P.E.


ramento River
U/S Boundary Cond
Sacramento Bypass
Sacramento
Bypass
Notch
West
Sacramento
U/S Boundary Condition
Willow Slough Flow
U/S Boundary Condition
Putah Creek Flow


9
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29.2
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LC50
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8
29.5
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27.2
-0.7
RT6
26.2
27.0
-0.8
RT7
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Sacramento River
Sacramento Bypass
Notch
West Sacramento
SPRR
I-80

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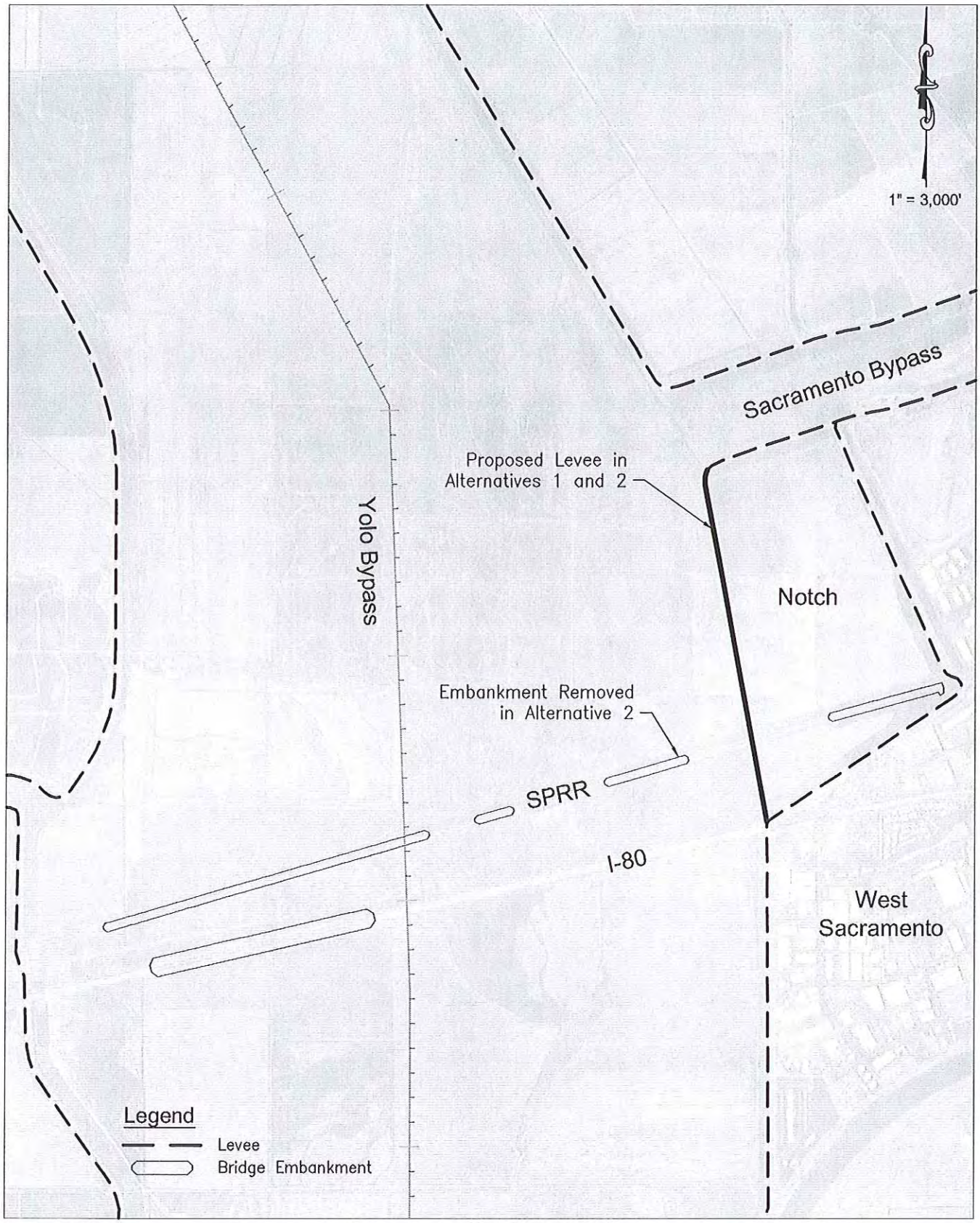

MBK ENGINEERS
2450 Alhambra Boulevard, 2nd Floor
Sacramento, California 95817
Phone: (916) 456-4400 • Fax: (916) 456-0253

Sierra Holdings

Site Map

SCALE:	1" = 3,000'
JOB NUMBER:	5005
DRAWN BY:	GP
DATE:	September 2008

Figure 3

Figure 4
Yolo Bypass East Levee
Maximum Water Surface Profile - Project and Base Conditions
January 1997 Flood

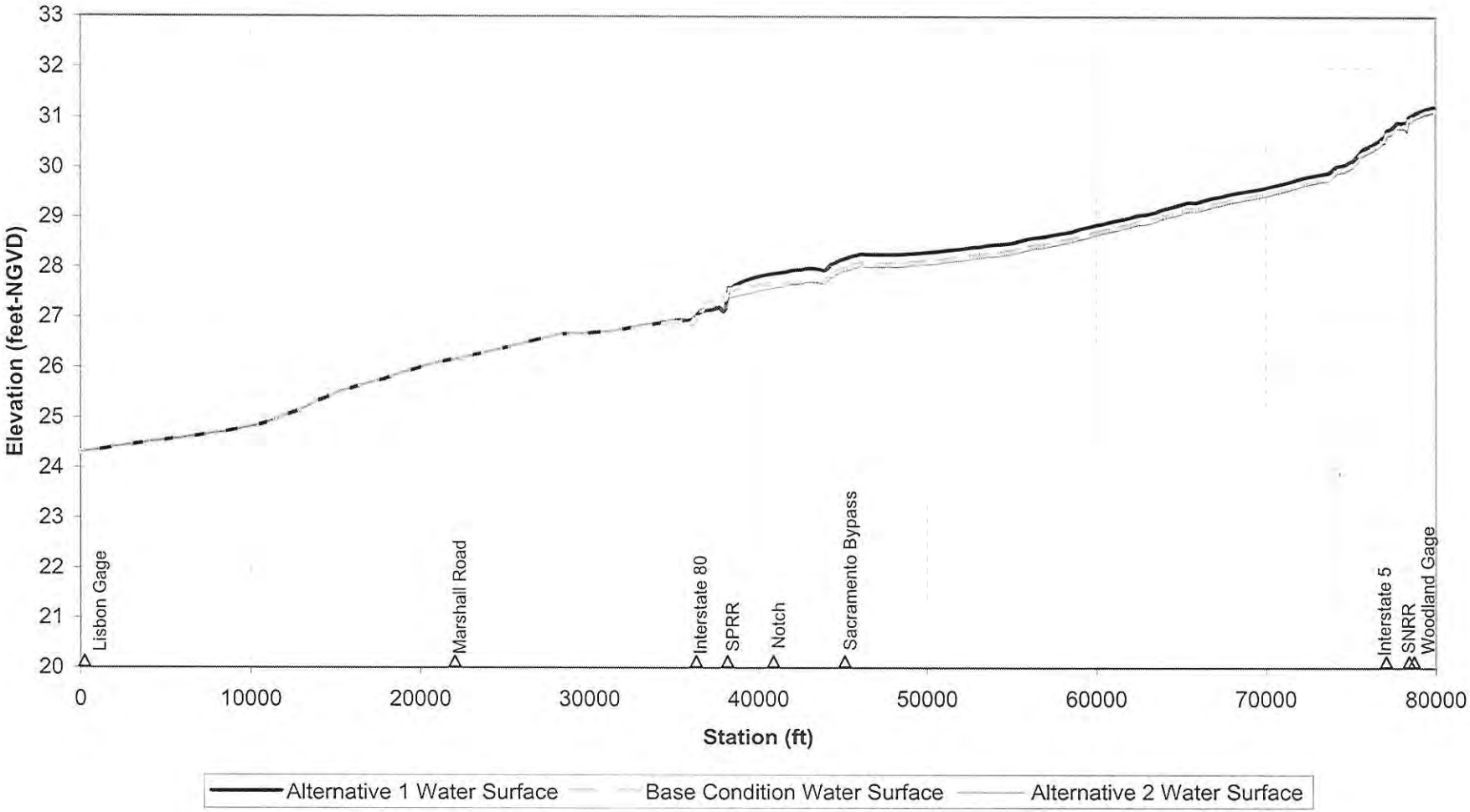

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Figure 5
Yolo Bypass West Levee
Maximum Water Surface Profile - Project and Base Conditions
January 1997 Flood

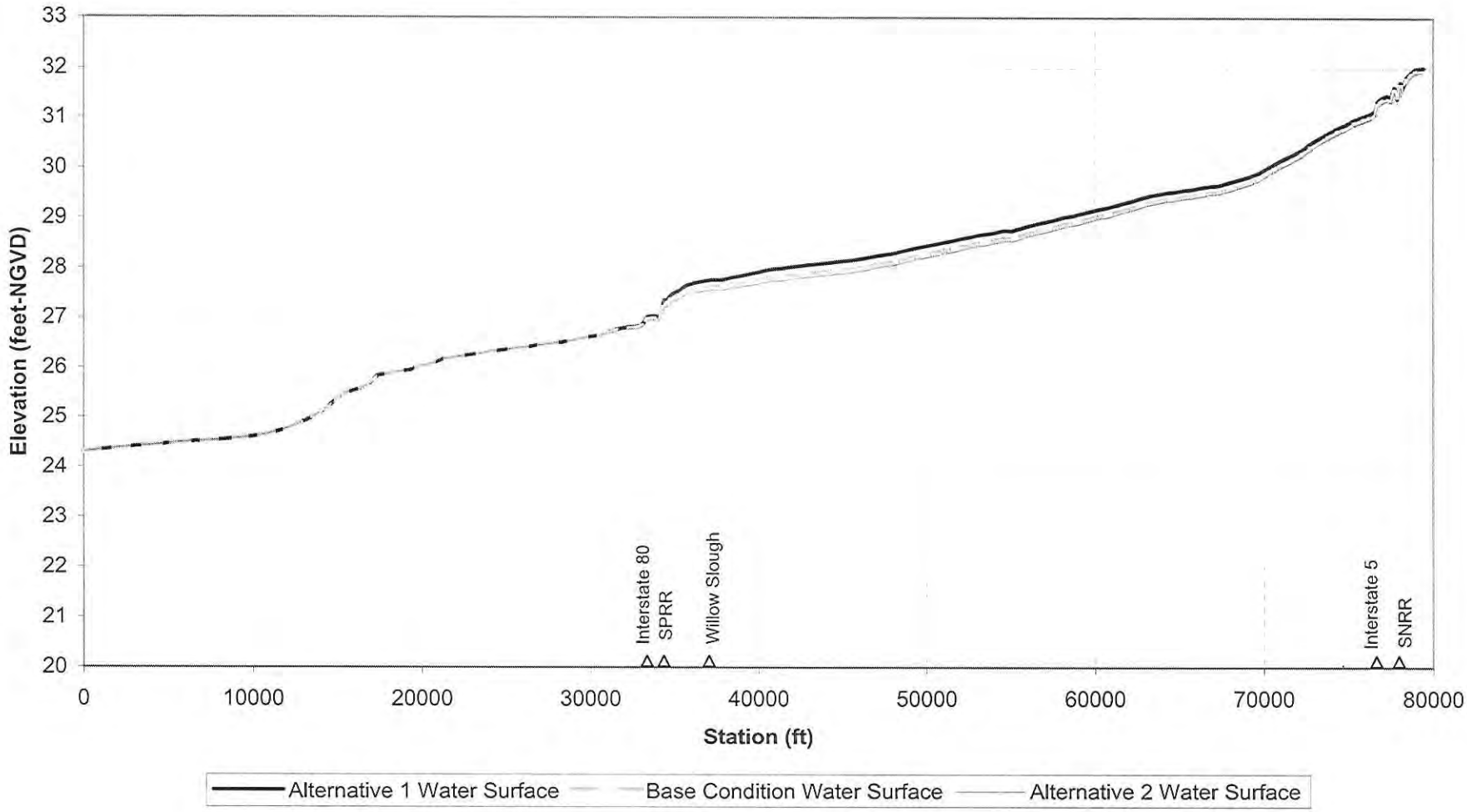

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Figure 6
Yolo Bypass Maximum Water Surface Elevation Difference
Alternative 1 Minus Existing Condition
East Levee

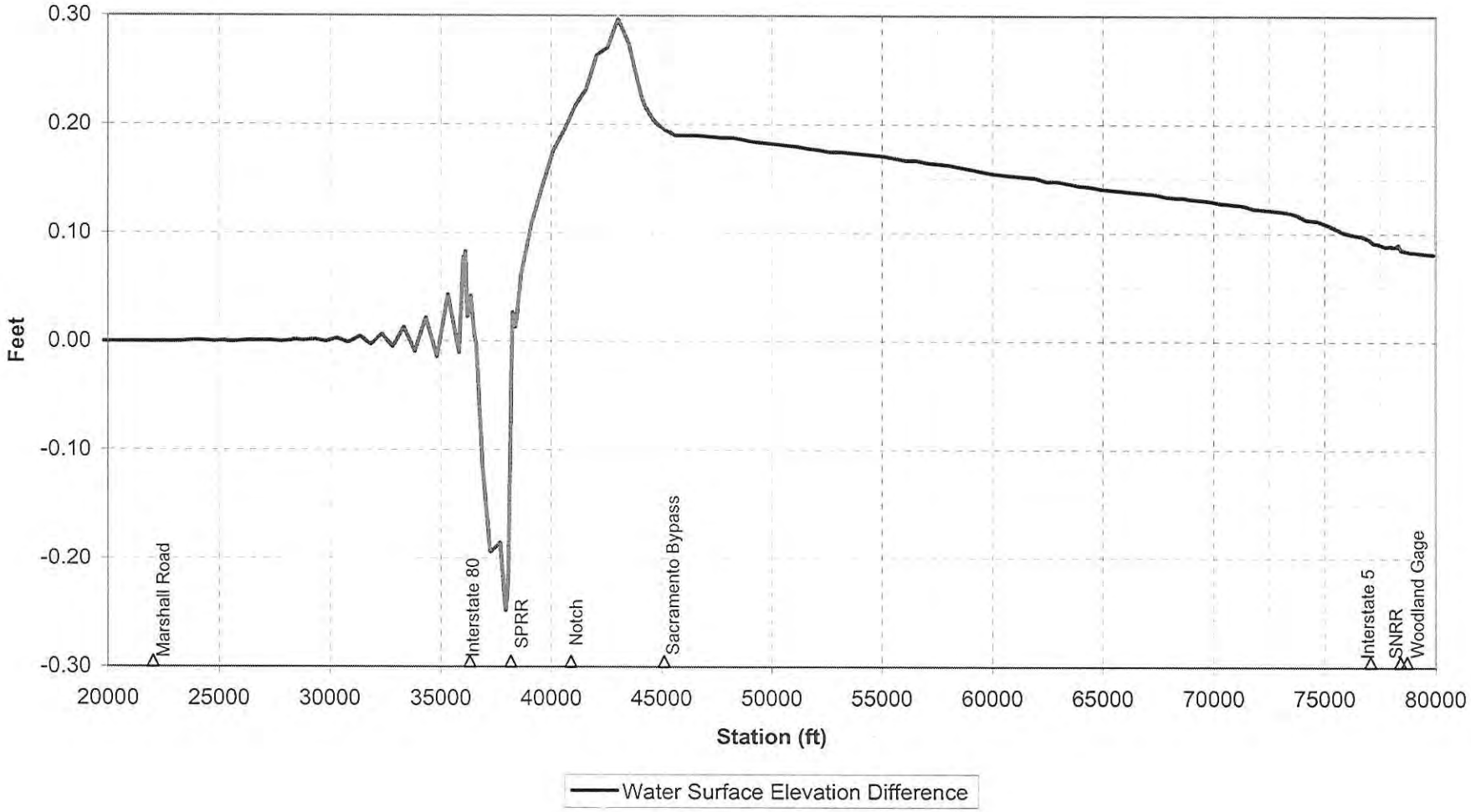

Figure 7
Yolo Bypass Maximum Water Surface Elevation Difference
Alternative 1 Minus Existing Condition
West Levee

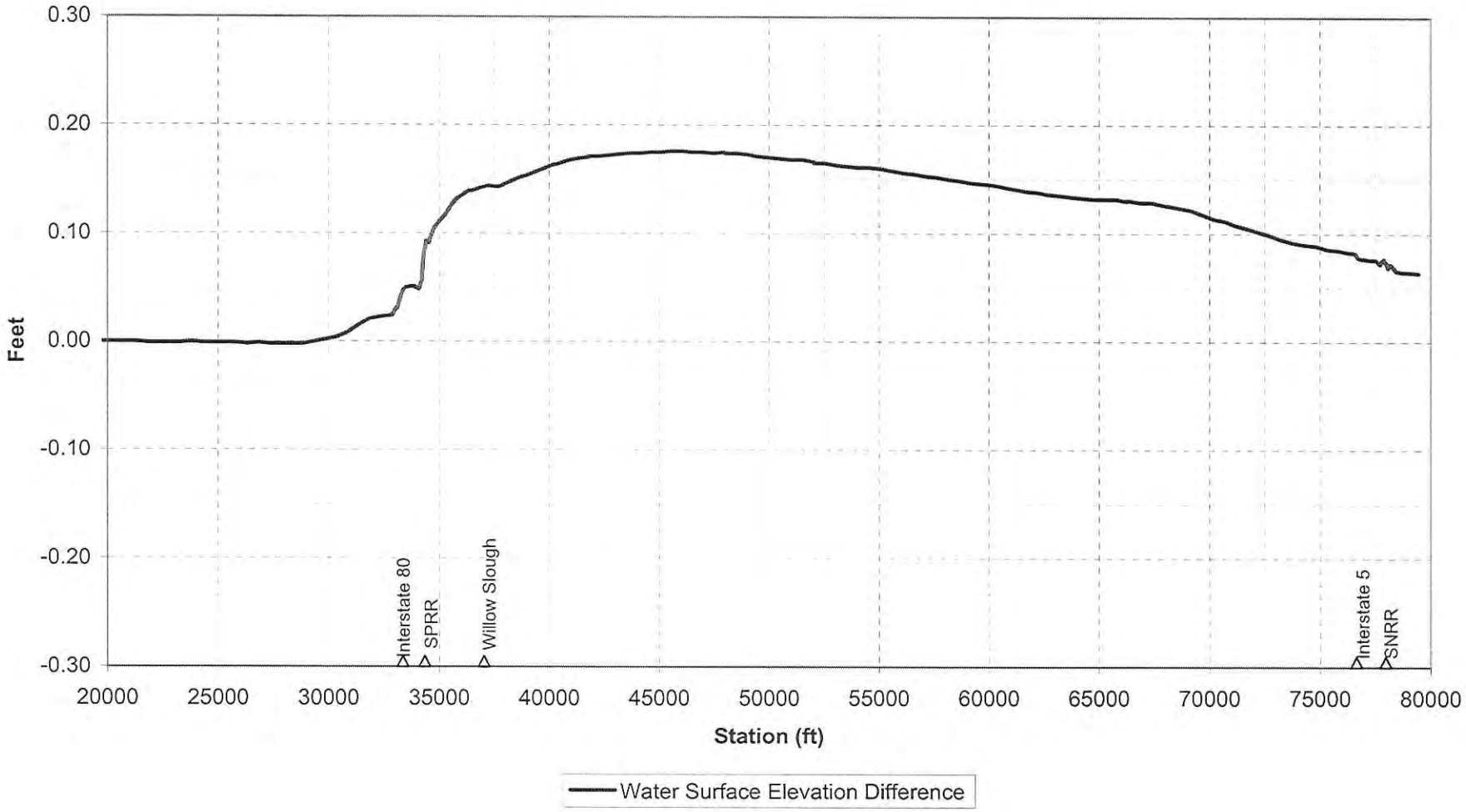

Figure 8
Yolo Bypass Maximum Water Surface Elevation Difference
Alternative 2 Minus Existing Condition
East Levee

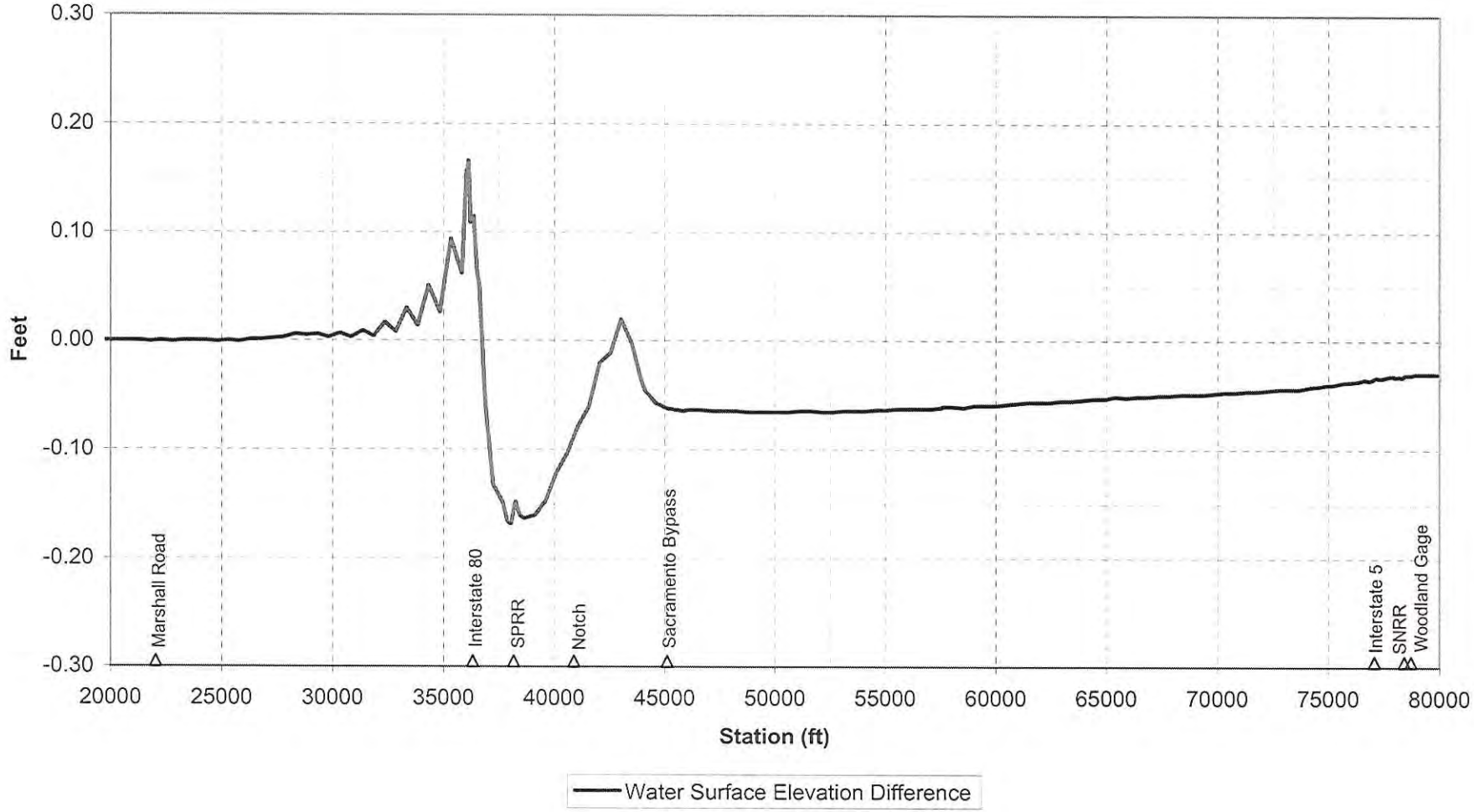
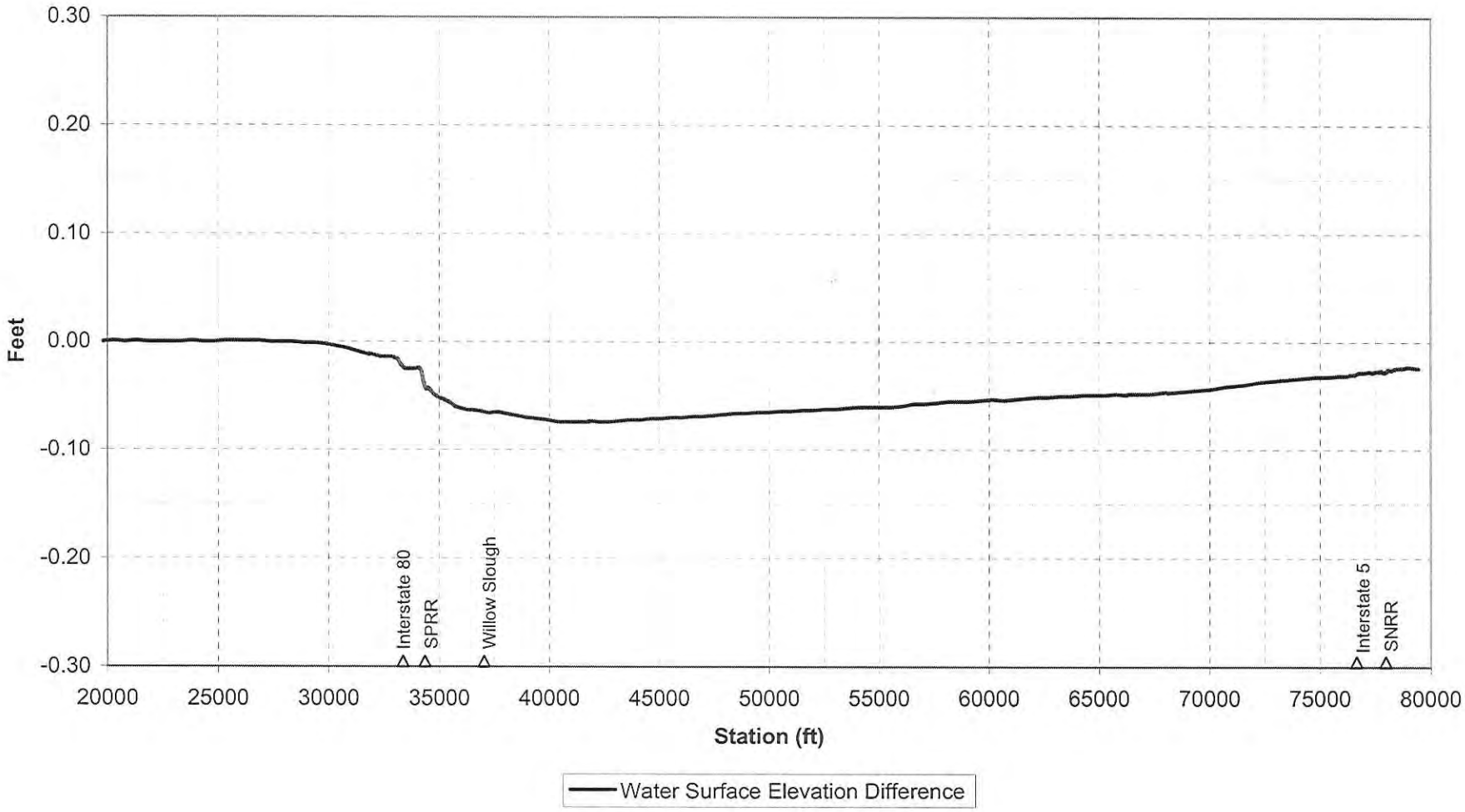
Figure 9
Yolo Bypass Maximum Water Surface Elevation Difference
Alternative 2 Minus Existing Condition
West Levee