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DEPARTMENT OF WATER RESOURCES SOUTH BAY AQUEDUCT IMPROVEMENT AND ENLARGEMENT PROJECT

Environmental Impact Report

September 2004

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Prepared for:

California Department of Water Resources

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S. SUMMARY

S.1 INTRODUCTION

This Environmental Impact Report (EIR) assesses the potential environmental impacts of the Department of Water Resources (DWR) South Bay Aqueduct Improvement and Enlargement Project. This document has been prepared in accordance with the California Environmental Quality Act (CEQA) statute and guidelines. DWR is the lead agency for this CEQA process. Inquiries about the project and the CEQA process should be directed to:

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S.2 PROJECT BACKGROUND

In developing the Proposed Project, the Zone 7 Water Agency (Zone 7) implemented a series of technical analyses to identify water supply needs within the Zone 7 service area. Based upon updated water demand projections, Zone 7 identified an immediate need for Zone 7 to acquire additional water supplies. Subsequently, Zone 7 and DWR worked together to identify infrastructure needs for delivery of that supply. The following discussion presents an overview of this planning process, and its relationship to the Proposed Project.

ZONE 7 1999 WATER SUPPLY PLANNING PROGRAM-PROGRAM EIR

In 1999, Zone 7 certified the *Water Supply Planning Program – Program EIR* (1999 WSPP EIR; ESA, 1999). The 1999 WSPP EIR examined the *Water Supply Planning Study Update* (Water Transfer Associates, 1999), which included a comprehensive review of projected water demands associated with buildout of the General Plans within the Zone 7 service area, and identified a program for water supply acquisition, and treatment and conveyance facility requirements necessary to meet these demands. Based upon updated water demand projections, Zone 7 identified an immediate need for Zone 7 to acquire additional water supplies. Chapter 6 of the 1999 WSPP EIR included program level discussion of necessary treatment and conveyance facilities necessary to meet long-term demands. Improvements of the SBA to increase its conveyance capacity was one of the facility improvements identified for implementation. As

such, this SBA Improvements and Enlargement Project EIR is from the program level analysis presented in the 1999 WSPP EIR and incorporates that EIR by reference.

The 1999 WSPP EIR identified the potential indirect, or secondary, growth impacts associated with buildout of the approved General Plans within the Zone 7 service area, as well as the mitigation programs that local jurisdictions have adopted to minimize the effects of growth. As a water agency, Zone 7 does not have the authority to make land use decisions, which lies with the local municipal agencies within its service area. However, acknowledging that the provision of adequate water supply removes one potential obstacle to growth, the Zone 7 Board of Directors adopted a Statement of Overriding Considerations regarding these potential secondary effects of growth within the Zone 7 service area. DWR has previously relied on the 1999 WSPP EIR and adopted a Statement of Overriding Considerations in approving water transfers initially analyzed in the 1999 WSPP EIR.

This DEIR is tiering from the *Zone 7 Water Supply Planning Program* (WSPP) – *Program EIR* (ESA, 1999). Section 15152 of CEQA Guidelines allows the use of a Program EIR in a tiering situation and defines tiering as follows:

> "Tiering" refers to using the analysis of general matters contained in a broader EIR (such as one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project.

ZONE 7 UNTREATED WATER CONVEYANCE STUDY

In 2000, following completion of the 1999 WSPP EIR, Zone 7 conducted an extensive analysis of potential conveyance mechanisms for delivery of SWP water into its service area. The objective of this analysis was to identify Zone 7's conveyance capacity needs to meet municipal and agricultural demands at buildout under the approved General Plans within its service area, and to examine potential alternatives to provide this necessary capacity. The *Water Conveyance Study* prepared by Camp Dresser and McKee (CDM, 2000), identified a conveyance capacity need of an additional 130 cfs to meet peak monthly demands within the Zone 7 service area at buildout under the approved General Plans within its service area.

DWR SOUTH BAY AQUEDUCT IMPROVEMENTS AND ENLARGEMENT FEASIBILITY STUDY

Based upon the two above documents, Zone 7 formally requested DWR to prepare a feasibility report identifying the facilities and costs associated with enlargement of the SBA by 130 cfs. This document was circulated as draft in December 2003, and was finalized by DWR in May 2004. The document presents a technical design description and cost estimate for meeting Zone 7's capacity increase request, and provides the basis for the project description examined in this Draft EIR.

S.3 PROJECT DESCRIPTION

DWR proposes improvements to and expansion of the existing South Bay Aqueduct (SBA) facilities. The Proposed Project would make improvements to bring the existing capacity of the water conveyance system up to its design capacity (300 cubic feet per second [cfs]). The expansion portion of the project would add 130 cfs of conveyance capacity pursuant to the request of Zone 7 to meet its future conveyance capacity needs, thereby providing a total conveyance capacity of 430 cfs. In addition, the proposed facilities would allow DWR to reduce State Water Project (SWP) peak power consumption by providing for variation in pumping and delivery schedule.

Improvement and enlargement of the SBA system involves modifications and construction of a number of facilities, including:

- Installation of additional pumps at the South Bay Pumping Plant (SBPP), including expansion of the existing pump building, a new service bay, and new electrical switchyard;
- Construction of a third Brushy Creek pipeline and surge tank parallel to existing dual pipeline (Stage 1 and Stage 2) system. DWR refers to this third pipeline as "Stage 3";
- Construction of a 500 acre-foot (af) reservoir (425 af active storage plus 75 af inactive storage) served by the Stage 3 Brushy Creek Pipeline;
- Raising the height of canal embankments, canal lining and canal overcrossing structures and bridges for the Dyer, Livermore, and Alameda Canals, including Patterson Reservoir;
- Modification of check structures and siphons along the Dyer, Livermore, and Alameda Canals; and
- Construction of new drainage over crossing structures to eliminate drainage into canals.

S.4 PROJECT OBJECTIVES

The Proposed Project would allow the existing SBA to function at its design capacity of 300 cfs, as well as meet the conveyance capacity identified to meet seasonal demand projections associated with buildout under the approved general plans within the Zone 7 service area. Implementation of the Proposed Project would remedy the existing deficiency in peak flow capacity and allow DWR to meet operational criteria by maintaining a backup pump unit for use during emergencies and maintenance. The proposed facilities would also allow DWR to reduce SWP peak power consumption by providing for variation in pumping and delivery schedule. Project implementation would increase the overall reliability and flexibility of the system during normal operation and emergency events. Project implementation would not alter pumping limits established for Harvey O. Banks through agreements with regulatory agencies. The project would also meet several operational objectives, which are identified below:

- Provide Conveyance Capacity Necessary to Meet Treated and Untreated Demands Associated with Buildout under the Approved General Plans within the Zone 7 service area. Water demands associated with buildout under the approved General Plans in the

Zone 7 service area were estimated in the *Water Supply Planning Study Update* (Water Transfer Associates, 1999). This analysis identified a long-term annual water demand of 100,300 af to meet buildout demands. Conveyance capacity necessary to meet this annual demand was identified in the *Water Conveyance Study*, prepared by Camp, Dresser and McKee (CDM, 2000). This analysis identified a conveyance capacity need of 430 cfs within the SBA to meet projected demands at buildout. From this analysis, Zone 7 requested a capacity increase of 130 cfs. No additional capacity has been identified for the other two SBA Contractors (ACWD and SCVWD).

- Increase Operational Reliability for SBA Contractors. The Proposed Project would construct the 3rd Stage of the SBPP and Brushy Creek Pipeline system, providing adequate conveyance capacity and redundancy to continue a substantial portion of SBA operations in the event that one of the three pipelines is taken out of service for either maintenance or under an emergency scenario. Currently, maintenance requires substantial reductions in delivery capacity. Additionally, provision of storage in the upper reaches of the SBA would provide operational flexibility for future and existing treatment facilities.

- Provide Adequate Freeboard Along Canals. DWR requires a 3- to 4-foot freeboard criteria for canal facilities, which is not currently available at design capacity along the SBA due to canal degradation and design deficiencies.

- Provide Off-Peak Power Efficiency. Within the context of recent power shortages, design facilities to minimize power demands during peak power periods. Current design of the SBA system does not provide for diurnal variation of pumping rates. Dyer Reservoir provides an opportunity to increase daily off-peak pumping at the SBPP, thereby reducing power demand during peak load periods.

- Provide Water Quality Benefits. Project implementation would provide additional conveyance capacity, allowing Zone 7 to import and recharge water with lower total dissolved solids during spring months. This is a key objective for Zone 7's groundwater management. Additionally, control of drainage currently entering the SBA canals and Bethany Forebay Inlet Channel would reduce sediment loads.

S.5 ROLE OF THE EIR

DWR intends to use this EIR to approve implementation of the SBA Improvement and Enlargement Project. As Lead Agency, DWR will approve the Proposed Project, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts.

Other agencies with discretionary authority over the Proposed Project include Zone 7 Water Agency, which will fund construction of the Enlargement portion of the Project, and is therefore a Responsible Agency. The Improvements portion of the Proposed Project, which includes restoring the SBA's current peak delivery capacity of 270 cfs to its design capacity of 300 cfs, will be implemented by DWR under its existing authority and will be billed to the SBA Contractors in accordance with the long-term water supply contracts between DWR and each of the State water contractors.

DWR would also use the analysis contained within this EIR to support the acquisition of the following regulatory permits or approvals:

- USACOE: 404 Clean Water Act - Individual Permit
- United States Fish and Wildlife Service. Section 7 Consultation
- California Department of Fish and Game: 1603 Stream Bed Alteration Agreement
- Regional Water Quality Control Board: 401 Water Quality Certification
- Alameda County Public Works – Roadway Encroachment Permit, Watercourse Permit, Drilling Permit

S.6 SUMMARY OF IMPACTS AND MITIGATIONS

Table S-1, at the end of this chapter, presents a complete list of the impacts and mitigation measures identified for the South Bay Aqueduct Improvement and Enlargement project. Impacts are related to the construction or operation of the proposed improvements. The discussion associated with these impacts is presented in **Chapter 3, Environmental Setting, Impacts, and Mitigation Measures**. The level of significance for each impact was determined using significance criteria (thresholds) developed for each category of impacts; these criteria are also presented in the appropriate sections of Chapter 3. Significant impacts are those adverse environmental impacts that meet or exceed the significance thresholds; less-than-significant impacts would not exceed the thresholds. **Table S-1** indicates the measures to avoid, minimize, or otherwise reduce significant impacts to less-than-significant levels. As indicated in **Table S-1**, all project specific impacts would be reduced to a less than significant level through mitigation measures established by this DEIR. Potentially significant and unavoidable impacts are limited to the Proposed Project's contribution to cumulative impacts associated with short-term construction impacts (water quality, land use, air quality, noise, traffic, hazardous materials, public services and utilities, and visual resources), and the Proposed Project's contribution to the intensification of land use within the Altamont Hills area.

S.7 ANALYSIS OF ALTERNATIVES

The CEQA Guidelines require EIRs to describe and evaluate a range of reasonable alternatives to a project, or to the location of a project, which would feasibly attain most of the basic project objectives and avoid or substantially lessen significant project impacts. **Chapter 6, Analysis of Alternatives**, evaluates the potential alternatives to the Proposed Project. This analysis includes consideration of alternatives *to* the project that are other projects entirely, or other approaches to achieving the project objectives rather than the project or modified project. Additionally, alternatives *of* the project that include modified project components, such as alternative project sites or processes and/or modified facilities, layout, size, and scale, that could avoid potential impacts are considered. Potential alternatives examined for the Proposed Project include:

NO PROJECT ALTERNATIVE

Under the No Project Alternative, DWR would not implement construction of facilities identified under the Proposed Project. This would maintain the current SBA delivery capacity of less than

300 cfs, and would not improve design capacity, allow off-peak pumping, or implement facilities necessary to increase the SBA delivery capacity to 430 cfs.

Implementation of the No Project Alternative avoid or reduce the impacts identified in Table S-1. This alternative would not meet any of the stated project objectives, and would not address conveyance capacity shortfalls associated with the SBA system. As such, Zone 7 would be unable to meet service demands associated with development under the approved General Plans within its service area, operational flexibility associated with facilities in the upper reaches of the SBA would not be improved, and the energy saving benefits associated with off-peak pumping would not occur.

Under the No Project Scenario, reasonably foreseeable future condition, Zone 7 would continue to face a shortfall in the conveyance capacity necessary to meet buildout demands under the approved General Plans within the Zone 7 service area. As demands increase over time, Zone 7 would continue to review other conveyance options, and would likely select for implementation one of alternatives identified in the *Water Conveyance Study* (CDM, 2000). These alternatives, and their potential environmental impacts, are further discussed below. As noted in this discussion, these alternatives were screened for economics/capital costs, reliability/flexibility, implementation, and environmental factors, and were not identified as superior to the Proposed Project from either an overall, or purely environmental, standpoint.

IMPROVEMENTS PROJECT ONLY ALTERNATIVE

Under this alternative, DWR would implement the Improvements component of the Proposed Project to re-establish the SBA facility design capacity of 300 cfs. These facilities would be limited to those improvements necessary for DWR to meet its contractual obligation of 300 cfs to the SBA Contractors. DWR has contractual obligations under its long-term water supply contracts with the three SBA Contractors (Zone 7, Alameda County Water District, and Santa Clara Valley Water District) to provide a delivery capacity of 300 cfs to the 3 SBA Contractors. These improvements would be limited to improvements at the SBPP pumping plant to install a spare (45 cfs) pumping unit and connect it to the Stage 2 mainfold, improvements to the Stage 2 surge tank, and raising of the Dyer, Livermore, Patterson Reservoir and Alameda canal lining approximately 1.0 foot.

Implementation of this alternative would avoid or reduce the impacts identified in Table S-1. Although the level of impacts associated with this alternative would be less than those identified for the Proposed Project, implementation of this alternative would not meet any of the stated project objectives, other than the re-establishment of the SBA system design capacity of 300 cfs. Zone 7 would be unable to meet service demands associated with development under the approved General Plans within its service area and operational flexibility associated with Stage 3 Brushy Creek Pipeline and provision of storage in the upper reaches of the SBA would not be improved. In addition, the energy saving benefits associated with off-peak pumping would not occur. Therefore, this alternative is not considered superior to the proposed project because it would not meet the stated project objectives.

ALTERNATIVES TO THE PROJECT

The *Untreated Water Conveyance Alternative Analysis* prepared by Camp Dresser and McKee (CDM, 2000), identified a conveyance capacity need of an additional 130 cfs to meet monthly peak demands within the Zone 7 service area at buildout under the approved General Plans within its service area. In order to meet this conveyance capacity need, Zone 7 examined a wide range of project types, including increased storage within its service area, increased conveyance capacity, and a combination of these two primary options. Facilities examined as part of this analysis include the following:

- Storage Alternatives
  - Del Valle Reservoir Storage
  - Upper Del Valle Reservoir Storage
  - Doolan Canyon Reservoir
  - Main Basin Conjunctive Use
    - Well Master Plan
    - Chain of Lakes
- Transmission Alternatives
  - SBA Parallel Pipeline
    - Brushy Creek Pipeline
    - Dyer-Alameda Canal
  - SBA Intermediate Improvements
  - In-Valley Conveyance

After screening the individual facility alternatives, these facilities were then combined to meet the system-wide needs for Zone 7. In order to evaluate these combined facilities, five operational scenarios were developed. The scenarios identify different ways to meet the future system requirements. Each of the scenarios included different sizes and combinations of the storage and transmission facilities. These Scenarios were then screened for economics/capital costs, reliability/flexibility, implementation, and environmental factors. Based on the comparison of the different scenarios, Scenario A, which includes maximizing the use of the SBA through enlargement, was recommended as the most effective scenario to meet the future conveyance requirements for Zone 7. Scenario A provides the best approach to meeting long-term Zone 7 needs based on the level of reliability and flexibility provided by these facilities, the overall cost of both capital costs and maintenance costs, the ability to phase Scenario A facility improvements as necessary, and the level of environmental effects. Therefore, this alternative was considered superior for implementation.

ALTERNATIVES OF THE PROJECT

Facility alternatives included in the analysis include alternative locations for SBPP Expansion, Brushy Creek Pipeline alignments, and alternative sites for Dyer Reservoir.

South Bay Pumping Plant and Brushy Creek Pipeline Alternatives

- Brushy Creek Pipeline Northern Alignment
- Brushy Creek Southern Pipeline Alignment

These alternatives consist of alternative sites for the SBPP expansion, and alternative pipeline routes between the SBPP and the proposed Dyer Reservoir. Implementation of these alternative would result in an equivalent or increased disturbance of sensitive species habitat and wetland area. Implementation of the Northern Alignment Alternative would result in potentially significant impacts to known cultural resources. Implementation of the Southern Alignment Alternative would result in substantial effects to wetland areas tributary to Bethany Reservoir. Due to the increased elevations, an additional 150 feet of pumping head would be required for this alternative. Additionally, due to the increased distance to the alignment high point, a surge chamber would be required near the pump station. These factors result in an estimated capital cost increase of $5 million for implementation for the Southern Pipeline Alignment, in addition to an annual pumping cost increase of $3-5 million.

Implementation of either alternative would result in substantial new easement acquisition by DWR, and would not consolidate facilities along the existing SBA corridor, which has been previously disturbed. As such, these facility alternative would not reduce or avoid any of the impacts identified for the Proposed Project, and would likely result in equivalent impacts to biological and significant impacts to known cultural resources. Therefore, although these alternatives would meet the project objectives, they are not considered environmentally superior to the Proposed Project.

Reservoir Alternatives

- No Off-Peak Pumping Alternative - 100 Acre-Foot Storage West of Dyer Canal
- No Off-Peak Pumping Alternative - 200 Acre-Foot Storage West of Dyer Canal
- West of Dyer Canal – 500 Acre-Foot Storage
- Patterson Reservoir

No Off-Peak Pumping Alternative - 100 Acre-Foot Storage West of Dyer Canal

This alternative would include construction of a 100 af reservoir immediately east of and adjacent to Dyer Road, between the roadway and Dyer Canal. The reservoir would be formed by open trench excavation and would be centered on the existing parcel. The western edge of the reservoir would front Dyer Road for approximately 800 feet. Excavation for this reservoir alternative is estimated at 440,000 cy. Spoils generated by this alternative would be recontoured onsite or at areas east of Dyer Canal. Hydrologic connection to Dyer Canal would be via a 100-foot wide weir structure located on the eastern embankment. Implementation at this location would have the potential for effects to wetland areas along the eastern edge of the site, which provide potential breeding habitat for California Tiger Salamander. A major detriment to this reservoir location is its elevation below Dyer Canal. Although passive flow to the reservoir is possible, flow back to Dyer Canal would require a pump station to lift stored supplies back to the

canal. Implementation of this alternative would not provide for off-peak pumping, as the reservoir would not be adequately sized. As this alternative would result in potential impacts to biological resources, visual resources, and operational noise, and would not meet the stated project objectives, it is not considered environmentally superior.

No Off-Peak Pumping Alternative - 200 Acre-Foot Storage West of Dyer Canal

This alternative would include construction of a 200 af reservoir immediately east of and adjacent to Dyer Road, between the roadway and Dyer Canal. The reservoir would be formed by open trench excavation and would be centered on the existing parcel. Excavation for this reservoir alternative is estimated at 730,000 cy. Spoils generated by this alternative would be recontoured onsite or at areas east of Dyer Canal. Hydrologic connection to Dyer Canal would be via a 100-foot wide weir structure located on the eastern embankment. Implementation of this alternative would reduce the overall size of the reservoir, thereby reducing overall footprint and excavation requirements. The reservoir embankment would directly front Dyer Road for approximately 1,500 feet, and could be perceived as have a more direct visual impact on this roadway. Setback advantages of the proposed Dyer Reservoir site, which is located approximately 800 feet east of Dyer Road, would be lost. Implementation at this location would also have the potential for effects to wetland areas along the eastern edge of the site, which provide potential breeding habitat for California Tiger Salamander. A major detriment to this reservoir location is its elevation below Dyer Canal. Although passive flow to the reservoir is possible, flow back to Dyer Canal would require a pump station to lift stored supplies back to the canal. Implementation of this alternative would not provide for off-peak pumping, as the reservoir would not be adequately sized. Therefore, this alternative would not meet one of the stated objectives of the Proposed Project. As this alternative would result in potential impacts to biological resources, visual resources, and operational noise, and would not meet the stated project objectives, it is not considered environmentally superior.

West of Dyer Canal – 500 Acre-Foot Storage

This alternative would include construction of a 500 af reservoir on the same site immediately east of and adjacent to Dyer Road. The reservoir would be situated, between the roadway and Dyer Canal, and due to its size, would encompass the entire parcel. The reservoir would be formed by open cut excavation and embankments with a maximum height of approximately 15 feet above current grade. The western edge of the reservoir would front Dyer Road for approximately 3,100 feet. Excavation for this reservoir alternative is estimated at 1,220,000 cy. Spoils generated by this alternative would be recontoured onsite or at areas east of Dyer Canal. Access to the facility would be via the existing Dyer Canal access road to the south. The access road would be re-aligned to provide access to Dyer Canal and the private lands to the east of Dyer Canal. Hydrologic connection to Dyer Canal would be via a 150-foot wide weir structure located on the eastern embankment. Implementation of this alternative would have an equivalent footprint to the Proposed Project, and would have similar excavation requirements. Embankment size would be equivalent to the Proposed Project. The reservoir embankment would directly front Dyer Road for approximately 3,100 feet, and could be perceived as have a more direct visual impact on this roadway. Setback advantages of the proposed Dyer Reservoir site, which is

located approximately 800 feet east of Dyer Road, would be lost. Implementation at this location would also have the potential for effects to wetland areas along the eastern edge of the site, which provide potential breeding habitat for California Tiger Salamander. A major detriment to this reservoir location is its elevation below Dyer Canal. Although passive flow to the reservoir is possible, flow back to Dyer Canal would require a pump station to lift stored supplies back to the canal. As this alternative would increase grading, and would result in potential impacts to biological resources, visual resources, and operational noise, it is not considered environmentally superior.

Patterson Reservoir

This alternative would involve expansion of the existing Patterson Reservoir to provide an additional 200 af of storage. Two design configurations for this expansion were reviewed, both involving construction of new embankment to the east on lands currently owned by DWR. Embankments would be similar to the 30-foot high embankments of the existing facility. Under the first configuration, the existing southeastern embankment of the reservoir would be demolished, and the new embankment would extend across the existing DWR access road from Patterson Reservoir to the adjacent parcel. Under the second configuration, a self contained reservoir would be constructed on the adjacent parcel, with a pipeline connection to the existing reservoir. Excavation and embankment quantities for both reservoir alternatives are estimated at 190,000 cy and 80,000 cy, respectively.

Implementation of this alternative would result in impacts related to visual resources, biological resources, and would place additional storage within proximity to the Greenville Fault. Operational flexibility associated with Stage 3 Brushy Creek Pipeline and provision of storage in the upper reaches of the SBA would not be improved. Implementation of this alternative would not provide for off-peak pumping. Because this alternative would result in similar impacts to the Proposed Project, and would not meet the stated project objectives, it is not considered environmentally superior.

S.8 SECONDARY EFFECTS OF GROWTH

The CEQA *Guidelines* require that an EIR evaluate the growth-inducing impact of a proposed action. **Chapter 4, Growth Inducement Potential and Secondary Effects of Growth**, evaluates the secondary effects of growth associated with the implementation of this project.

Growth potential and secondary impacts of growth associated with buildout under the approved General Plans within the Zone 7 service area were evaluated in detail in the *Zone 7 Water Supply Planning Program* (WSPP) - *Program EIR* (1999 WSPP EIR; ESA, 1999). In providing adequate water supply and infrastructure to meet demands at buildout, the 1999 WSPP EIR acknowledged that implementation of the WSPP would remove a potential impediment to growth, and that indirect, or secondary, effects would be associated with growth. The 1999 WSPP EIR identified the potential secondary impacts associated with growth in the approved General Plans within the Zone 7 service area, as well as the mitigation programs that local jurisdictions have adopted to reduce or avoid these effects. As a water agency, Zone 7 does not

have the authority to make land use decisions, which lies with the local municipal agencies within its service area. However, acknowledging that the provision of adequate water supply removes one potential obstacle to growth, the Zone 7 Board of Directors adopted a Statement of Overriding Considerations regarding these potential secondary effects of growth within the Zone 7 service area.

The potential secondary effects of growth associated with the provision of water would be similar to, or less than, those identified in the 1999 WSPP EIR. The analysis in the 1999 WSPP EIR represents the worst case scenario associated with secondary effects of growth. No new indirect growth impacts beyond those previously identified in the 1999 WSPP EIR are expected to occur. As a result, the potential for growth inducement associated with the Proposed Project has been addressed, and implementation of the SBA Improvement and Enlargement Project would not result in additional, significant impacts beyond those identified in the 1999 WSPP EIR.

Implementation of the Proposed Project would allow the Department of Water Resources (DWR) to provide water requested by its water supply contractor, Zone 7. The Proposed Project would not result in a direct increase in population or employment, but would indirectly support growth that is consistent with the local General Plans and regional growth management projections. Therefore, some potentially adverse secondary effects could result from development of planned land uses in the cities and unincorporated county areas within the Zone 7 service area. DWR does not have any authority to make land use decisions within the Zone 7 service area, or to mitigate for the secondary effects of those land use decisions. The cities of Dublin, Pleasanton and Livermore, and Alameda County have primary land use jurisdiction and responsibility to regulate growth through the land use planning and development approval process.

S.9 CUMULATIVE IMPACTS

The CEQA Guidelines require that the cumulative impacts of a project are discussed in an EIR when the project's incremental effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects.

Chapter 5, Cumulative Impacts, evaluates the significant cumulative impacts resulting from implementation of the Project in combination with other projects or conditions, and indicates the severity of the impacts and their likelihood of occurrence. Concurrent construction of several infrastructure projects within the SBA project corridor, and capital improvement and development projects within the Livermore Valley, could result in cumulative short-term impacts associated with construction activities. These include short-term impacts to water quality, land use, air quality, noise, traffic, hazardous materials, public services and utilities, and visual resources. In some areas, particularly along Dyer Road, these impacts, while individually short term in nature, would be potentially significant due to their aggregate effect; however, construction-related impacts would not result in long-term alteration of the environment.

REFERENCES – Summary

Camp Dresser & McKee (CDM), *Zone 7 Water Agency Water Conveyance Study*, December 2000.

Department of Water Resources, *South Bay Aqueduct Improvement and Enlargement Study*, December 2003.

Environmental Science Associates (ESA), *Zone 7 Water Agency Water Supply Planning Program – Program Environmental Impact Report (SCH# 98041040)*, January 1999.

Water Transfer Associates, *Water Supply Planning Study Update*, January 1999.

RED STRIKE TEXT = CHANGES FROM FINAL EIR
BLUE STRIKE TEXT = CHANGES FROM MMRP

TABLE S-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Geology, Soils and Seismicity		
3.1-1: In the event of a major earthquake in the Bay Area Region, proposed facilities could be subject to ground shaking capable of causing localized collapse or damage of engineered fills, structural damage, pipeline rupture, or equipment topple. Damage to project facilities could result in service interruptions. (Less than Significant with Mitigation.)	**3.1-1:** Department of Water Resources (DWR) shall update their Earthquake Preparedness and Response Plan to prescribe actions to identify and remedy potential hazards related to earthquake-related equipment topple, employee injury, fire, and equipment failure for the new facilities. The Plan shall include a detailed post-earthquake inspection procedure and schedule to identify conditions that compromise workers safety or could result in extensive service interruptions. In updating the plan, DWR will solicit input from local regulatory agencies and with the Office of Emergency Services (OES). The plan will include public safety measures identified by OES relating to earthquake preparedness.	Less than Significant
3.1-2: Surface fault rupture during an earthquake on the Greenville Fault Zone or along the Las Positas fault could cause structural damage or collapse at proposed facilities. (Less than Significant.)	No mitigation measures are required.	Less than Significant
3.1-3: Proposed facilities could be subjected to ground failure due to non-seismic conditions or in the event of an earthquake. Ground failure, including slope failure, differential settlement, or loss of bearing strength, could occur beneath the proposed components resulting is structural or mechanical damage and temporary disruption in service. (Less than Significant.)	No mitigation measures are required.	Less than Significant
3.1-4: Proposed facilities could interfere with and alter shallow groundwater conditions such that existing downstream groundwater conditions change. (Less than Significant.)	No mitigation measures are required.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Water Resources and Water Quality		
3.2-1: Construction of proposed facilities could result in increased erosion and subsequent sedimentation, with impacts to water quality and/or storm drain capacity. Additionally, discharge of groundwater, release of fuels, or release of other hazardous materials associated with construction activities could degrade water quality. (Less than Significant with Mitigation.)	**3.2-1a:** For all project construction components, a Storm Water Pollution Prevention Plan (SWPPP) will be developed for construction activities as required by the State Water Resources Control Board for construction of projects exceeding 5 acres. The objectives of the SWPPP are to identify pollutant sources that may affect the quality of stormwater discharge and to implement control practices to reduce pollutants in stormwater discharges. The SWPPP for this project will include implementation of a minimum of the following elements: ■ Source identification ■ Preparation of a site map ■ Description of construction materials, practices, and equipment storage and maintenance ■ List of pollutants likely to contact stormwater ■ Estimate of the construction site area ■ Erosion and sedimentation control practices including: soils stabilization, re-vegetation, and runoff control to limit increases in sediment in stormwater runoff: such as detention basins straw bales, silt fences, drainage swales, and sand bag dikes ■ List of provisions to eliminate or reduce discharge of materials to storm waters ■ Description of waste management practices ■ Maintenance and training practices	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Water Resources and Water Quality (cont.)		
	3.2-1b: Dredging Activities. DWR shall acquire appropriate permits for excavation and dredging of Bethany Forebay Inlet Channel, including permits from the ~~United States Army Corps of Engineers (~~USACOE~~)~~, ~~Regional Water Quality Control Board (~~RWQCB~~)~~, and ~~California Department of Fish and Game (~~CDFG~~)~~, as applicable. DWR shall abide by permit requirements, which may require use of Best Management Practices (BMPs), such as sediment barriers to isolate work areas from the larger reservoir.	
	3.2-1c: Dredge Material Disposal. Dredged materials shall be disposed of in accordance with *Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines, Draft Staff Report* ~~(RWQCB, 2000)~~.	
3.2-2: Installation of the proposed facilities would have the potential to alter drainage patterns, runoff rates, and flow volumes. (Less than Significant with Mitigation.)	**3.2-2a:** All proposed facilities shall be designed to include appropriate drainage infrastructure to convey flows generated onsite and from upstream areas. Drainage designs shall be integrated with existing drainage systems, and shall be designed to avoid or minimize effects to downstream areas and infrastructure.	Less than Significant
3.2-3: Installation of the proposed facilities would have the potential to alter groundwater flow patterns, with secondary effects to private well operations. (Less than Significant with Mitigation.)	**3.2-3:** DWR shall monitor groundwater conditions at the Dyer Reservoir site to ensure that substantial decreases in groundwater levels onsite are not observed following installation of the reservoir structure and sub-drain systems.	Less than Significant
3.2-4: Catastrophic failure of Dyer Reservoir as a result of improper design, construction, or operation, would result in potential flooding hazards. (Less than Significant.)	No mitigation measures are required.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Biological Resources		
3.3-1: Construction of the Proposed Project would have the potential to affect grassland along the ~~South Bay Aqueduct (~~SBA~~)~~ project corridor, including sensitive plant species that may occur. Sensitive plant surveys conducted for all facilities indicate that the Stage 3 Brushy Creek Pipeline would impact 1.0 acres of fragrant fritillary habitat and approximately 400 individual plants. . (Less than Significant with Mitigation.)	**3.3-1a: Soil Salvage and Site Restoration.** To ensure the re-establishment of California annual grassland disturbed by pipeline installation, the upper 6-12 inches (minimum of 6 inches and maximum of 12 inches based on geology and depth to bedrock) of soil will be salvaged and then placed back onto trenches as the last material added to restore the original contours as practicable and feasible. All disturbed areas will be reseeded with a grassland palette appropriate for the Altamont Foothills and approved by CDFG. **3.3-1b: Sensitive Plant Mitigation.** DWR shall mitigate for population loss through either seed collection and revegetation, or participation in a mitigation bank, as described below: ■ Seed Collection. Prior to the start of construction, a qualified biologist, working in association with an expert in native plant horticulture, shall harvest and transplant mature fragrant fritillary bulbs to a suitable mitigation site. The mitigation site shall be protected in perpetuity, through a conservation easement or other similar instrument. ■ Mitigation Bank. Land that supports a known population of fragrant fritillary outside the SBA project corridor shall be purchased at a ratio of 1.5:1, or as established in regulatory permits, and protected in perpetuity.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Biological Resources (cont.)		
3.3-2: Construction of the Proposed Project could result in impacts to potentially jurisdictional wetlands or waters of the U.S. under the jurisdiction of the USACOE and waters of the state under the jurisdiction of the SWRCB or Regional Water Quality Control Board (RWQCB). The Proposed Project could also result in impacts to the streambed and banks under jurisdiction of CDFG. Potential impacts include sedimentation of channels downstream of the construction areas during trenching and excavating activities, and loss of riparian and instream wetland vegetation. (Less than Significant with Mitigation.)	**3.3-2a: Implement Standard BMPs to Maintain Water Quality and Control Erosion and Sedimentation.** Standard measures to maintain water quality and control erosion and sedimentation shall be implemented in Brushy Creek and in wetland areas along the canal alignments, as required by compliance with the General National Pollution Discharge Elimination System (NPDES) Permit for Construction Activities and established by **Measure 3.2-1a**. **3.3-2b:** Construction within jurisdictional features will require permit approval from the USACOE for fill in wetlands and other waters of the U.S. pursuant to Section 404 of the Clean Water Act ~~(CWA)~~. Water quality certification from the RWQCB will also be required pursuant to Section 401 of the CWA. In addition, the CDFG has jurisdiction pursuant to Sections 1601-1603 of the Fish and Game Code, and the pipeline construction in Brushy Creek will require a Streambed Alteration Agreement from CDFG. Terms and conditions of the permits will include measures to protect and maintain water quality, restore work sites, and mitigate for permanent and temporary wetland impacts.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Biological Resources (cont.)		
	Measure 3.3-2c: To offset the permanent impacts to wetlands and other waters of the U.S., compensatory mitigation will be provided as required by regulatory permits. Mitigation would be provided through one of the following mechanisms: ■ Purchase or dedication of land to provide suitable wetland restoration or creation. If restoration is available and feasible, then a ratio of 2:1 would be proposed. If creation is required, a 3:1 ratio will be implemented to off-set losses. Where practical and feasible, on-site mitigation will be implemented. ■ A wetland mitigation and monitoring plan will be developed that will outline mitigation and monitoring obligations for temporary and permanent impacts to wetlands and other waters as a result of construction activities. This Plan will include thresholds of success, monitoring and reporting requirements, and site specific plans to compensate for wetland losses resulting from the project. The mitigation and monitoring plan will be submitted to the appropriate regulatory agencies for approval.	
3.3-3: Construction of the Proposed Project would result in temporary and permanent loss of potential habitat for San Joaquin kit fox. (Less than Significant with Mitigation.)	**3.3-3a:** The following measures are derived from the ~~United States Fish and Wildlife Service (~~USFWS~~)~~ *Standardized Recommendations for Protection of the San Joaquin kit fox* (USFWS, 1997b). These measures shall be implemented for construction at the ~~South Bay Pumping Plant (~~SBPP~~)~~, Brushy Creek Pipeline, and Dyer Reservoir site. ■ Preconstruction surveys will be conducted within 200-feet of work areas to identify potential kit fox dens or other refugia in and surrounding work stations. The survey for potential kit fox dens would be performed	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Biological Resources (cont.)	by a qualified biologist 14-30 days prior to the commencement of construction activities. All identified potential dens would be monitored for evidence of kit fox use by placing tracking material at den entrances and monitoring for at least three consecutive nights. If no activity is detected at these dens, they may be closed (with prior concurrence from the USFWS). Alternatively, fencing may be used to establish construction exclusion zones, with concurrence from USFWS. ■ If kit fox occupancy is determined at a given site, closure activities would immediately be halted and the USFWS would be contacted. Depending on the den type, reasonable and prudent measures to avoid effects to kit fox may include seasonal limitations on project construction at the site (i.e., restricting the construction period to avoid spring-summer pupping season), or establishing a construction exclusion zone around the identified site, or resurveying the den following a brief (i.e., 7 days) period to determine species presence or absence. ■ During project construction, project-related vehicles would observe a maximum 20-mile-per-hour speed limit on private roads in kit fox habitat to minimize the possibility for inadvertent kit fox mortality. Off-road construction traffic outside the designated construction area would be prohibited in areas that provide kit fox habitat. ■ To prevent accidental entrapment of kit fox or other animals during construction, all excavated holes or trenches greater than 2 feet deep would be covered at the end of each work day with suitable materials, or escape routes would be constructed of earthen materials or wooden planks. Before such holes are filled, they shall be thoroughly inspected for trapped animals. ■ All food-related trash items such as wrappers, cans, bottles, and food scraps would be disposed of in closed containers and removed from the project site.	

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Biological Resources (cont.)	▪ To prevent kit fox harassment, mortality, or destruction of dens, no pets would be allowed with construction personnel on the project site. ▪ Although not currently proposed, in the event that limited nighttime construction is required, all construction activities will conform to the above measures and will be actively monitored to minimize potential effects to kit fox. **3.3-3b:** To compensate for temporary and permanent losses to San Joaquin kit fox habitat, DWR will provide compensatory mitigation at a ratio of 1.1:1 for temporary and 3:1 for permanent losses. Provision of compensatory mitigation may be provided through one, or a combination of, the following mechanisms: ▪ Establishment of conservation easement on lands currently owned by DWR adjoining Bethany Reservoir. ▪ Participation in an approved mitigation bank program; ▪ Establishment of conservation easement or purchase of private lands to be set aside as managed kit fox habitat.	
3.3-4: Construction of the Proposed Project would result in the temporary and permanent loss of potential aquatic and breeding habitat for California red-legged frog ~~(CRLF)~~ and California tiger salamander ~~(CTS)~~. (Less than Significant with Mitigation.)	**3.3-4a: Measures to minimize and avoid California red-legged frog and California tiger salamander habitat.** Measures to minimize and avoid "take" of CRLF would be implemented for the project. These measures shall also provide protection for CTS. These measures are derived from the Programmatic Biological Opinion (PBO) for impacts to CRLF ~~(USFWS 199)~~. This project will not likely be covered under the PBO. However, the PBO summarizes typical project effects that could occur as a result of the proposed action and provides generic preventive measures that will substantially reduce the risk of incidental "take" of CRLF. Prior to and during construction, the following actions will be performed to minimize adverse effects to CRLF and CTS:	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Biological Resources (cont.)	■ The name and credentials of a biologist qualified to act as construction monitor will be submitted to USFWS for approval at least 15 days prior to commencement of work. ■ A USFWS-approved biologist shall survey the work sites two weeks before the onset of construction activities. If California red-legged frog, tadpoles, or eggs are found, the approved biologist shall contact USFWS to determine if moving any of these life-stages is appropriate. If USFWS approves moving the animals, the approved biologist shall be allowed sufficient time to move frogs from the work sites before work activities begin. If California red-legged frog are not identified, construction may proceed at these sites. ■ All work activities within or adjacent to potential CRLF aquatic habitat shall be completed between May 1 and November 1. ■ Exclusionary fencing (i.e. silt fences) shall be installed around all construction areas that are within 100 feet of or adjacent to potential California red-legged frog habitat. ■ A USFWS-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the California red-legged frog and its habitat, the importance of the California red-legged frog and its habitat, the general measures that are being implemented to conserve California red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. ■ A USFWS-approved biologist shall be present at active work sites until such time that the removal of California red-legged frog, instruction of workers, and habitat disturbance have been completed. After this time, the contractor or permittee shall designate a person to monitor on-site compliance with all minimization measures. The USFWS-approved biologist shall ensure that this individual receives training outlined in the PBO.	

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Biological Resources (cont.)	▪ During work activities, all trash that may attract predators shall be properly contained, removed from the work site and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas. ▪ Staging areas shall be situated at least 60 feet from any riparian habitat or water body. All fueling and maintenance of vehicles and other equipment shall occur at least 60 feet from any riparian habitat or water body. The USACOE and permittee shall ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the USACOE shall ensure that the permittee has prepared a plan to allow a prompt and effective response to any accidental spills. ▪ Project sites shall be revegetated with an appropriate assemblage of native upland vegetation, and if necessary, riparian and wetland vegetation, suitable for the area. A plan describing pre-project conditions, and restoration and monitoring success criteria will be prepared prior to construction. **3.3-4b: Consultation with USFWS.** Facilities that are located within occupied or suspected CRLF and CTS habitat, shall be subject to formal Section 7 consultation under the Endangered Species Act. Consultation with USFWS would likely establish additional reasonable and prudent measures to avoid CRLF and CTS take and require mitigation for temporary and permanent impacts to CRLF habitat. These measures will be in addition to those minimization measures implemented under **Measure 3.3-4a**. **3.3-4c:** DWR shall provide compensation for the temporary disruption (1.1:1 ratio) and permanent loss of CRLF and CTS habitat (3:1 ratio), or similar ratios approved by CDFG and USFWS through one, or a combination of, the following mechanisms: ▪ Establishment of conservation easement on lands currently owned by DWR adjoining Bethany Reservoir.	

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Biological Resources (cont.)	▪ Participation in an approved mitigation bank program; ▪ Establishment of conservation easement or purchase of private lands to be set aside as managed CRLF and CTS ~~kit fox~~ habitat. ▪ Enhancement and revegetation along the SBA project corridor. This may include enhancement of Brushy Creek along the construction area (approximately 3,000 linear feet) to provide suitable aquatic breeding habitat for CRLF. Methods of enhancement and restoration may include, but are not limited to: reducing erosion, installing breeding ponds, excluding cattle, and other measures to increase water quality within the reach.	
3.3-5: Construction of the Proposed Project would result in the temporary and permanent loss of habitat capable of supporting listed vernal pool invertebrates, including Longhorn fairy shrimp and Vernal pool fairy shrimp. (Less than Significant with Mitigation.)	**3.3-5a: Complete Seasonal Surveys**. Surveys shall be completed for 2004 dry season and 2004/05 wet season to complete the USFWS survey protocol. If results are negative, no additional mitigation measures are required. **3.3-5b:** Agency Consultation. If vernal pool invertebrates are found within the SBA project corridor, ~~formal or informal~~ consultation with USFWS will ~~would~~ be required. DWR shall provide compensation for the permanent loss of vernal pool habitat at a 3:1 ratio, or similar ratio approved by CDFG and USFWS through one, or a combination of, the following mechanisms: ▪ Establishment of conservation easement on lands currently owned by DWR adjoining Bethany Reservoir. ▪ Participation in an approved mitigation bank program; ▪ Establishment of conservation easement or purchase of private lands to be set aside as managed vernal pool habitat. ▪ Enhancement and revegetation along the SBA project corridor	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Biological Resources (cont.)		
3.3-6: Construction of the Proposed Project would result in the temporary and permanent loss of occupied habitat for burrowing owl. (Less than Significant with Mitigation.)	**3.3-6a:** Preconstruction surveys for burrowing owls shall be conducted by a qualified biologist 14-30 days prior to the start of construction according to current CDFG protocol. Surveys shall cover grassland areas within 250 feet of individual facility construction areas (SBPP, Brushy Creek Pipeline, and Dyer Reservoir). Surveys along canals will be limited to DWR right-of-way, due to the limited nature of construction and availability of access. If owls are detected during surveys, occupied burrows will not be disturbed. The proposed Dyer Reservoir site is a significant breeding location for burrowing owl. The following measures to avoid, minimize, or mitigate impacts to burrowing owls would be incorporated into the project. If other areas of the SBA project corridor are occupied by burrowing owls, the following measures would apply as well: ■ Construction exclusion areas would be established around the occupied burrows in which no disturbance would be allowed to occur. During the non-breeding season (September 1 through January 31), the exclusion zone would extend 160 feet around occupied burrows. During the breeding season (February 1 through August 31), exclusion areas would extend 250 feet around occupied burrows. ■ If the above requirements cannot be met, passive relocation of on-site owls may be implemented as an alternative, but only during the non-breeding season and only with CDFG approval. Passive relocation would be accomplished by installing one-way doors on the entrances of burrows located within 160 feet of the project site. The one-way doors would be left in place for 48-hours to ensure the owls have left the burrow. The burrows would then be excavated with a qualified biologist present.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Biological Resources (cont.)	▪ Burrows within the construction area would be excavated using hand tools, and then refilled to prevent reoccupation. If any burrowing owls are discovered during excavation, excavation would cease and the owl would be allowed to escape. Excavation may be completed when the biological monitor confirms the burrow is empty. ▪ For each burrow excavated by project construction, two alternative unoccupied natural or artificial burrows would be provided outside the 160-foot buffer zone ~~(CDFG, 1995)~~. The alternate burrows would be monitored daily for seven days to confirm that the owls have moved and acclimated. **3.3-6b:** To compensate for permanent loss of burrowing owl habitat from the Proposed Project (SBPP – 7.5 acres; Brushy Creek Pipeline – 0.67 acres; Dyer Reservoir – 27 acres), DWR will compensate this loss at a minimum ratio of 3:1 or similar ratio deemed appropriate by CDFG. **3.3-6c:** Temporary losses of burrowing owl habitat will be mitigated by site restoration, and where required, by installation of artificial burrows (see **Measure 3.3-6a**). Given the regional importance of the burrowing owl colony at Dyer Reservoir, artificial burrows will be established at a ratio of 3:1 for all burrows occupied at the time of construction disturbance or as recorded in the 2004 survey, whichever is higher. Artificial burrows will be established through one of the following mechanisms: ▪ Once construction of Dyer Reservoir is completed, artificial burrows will be established on the spoil site east of the proposed reservoir. ▪ Installation of a similar number of artificial burrows at the conservation easement established to mitigate for San Joaquin kit fox habitat (see **Measure 3.3-3b**). ▪ Participation in a USFWS-approved mitigation bank providing offset mitigation credits for loss of burrowing owl habitat.	

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Biological Resources (cont.)		
3.3-7: Construction of the Proposed Project would result in temporary construction disturbance to pond turtle habitat. (Less than Significant with Mitigation.)	**3.3-7a:** Prior to the start of construction activities, a qualified biologist shall perform pond turtle surveys within Brushy Creek and in other ponded areas affected by the Proposed Project. Surveys may include a search for nests as well as individual turtles. The qualified biologist will be responsible for the survey and for the relocation of adult turtles. Construction will not proceed until the SBA project corridor can be deemed free of turtles and nests. If nests are observed, a biologist with the appropriate permits from CDFG, may move the eggs to a suitable facility for incubation, and release hatchlings into the creek system in the following fall.	Less than Significant
3.3-8: Construction of the Proposed Project would result in disturbance to nesting habitat for breeding raptors and passerine birds. (Less than Significant with Mitigation.)	**3.3-8a: Protection to nesting and breeding birds and raptors.** The following mitigation measures will be implemented to address potential impacts to nesting and breeding birds and raptors in the vicinity of the construction sites: ▪ To the extent feasible, construction activities shall avoid the nesting season between March 15 and August 15. If construction must occur during this period, all sites shall be surveyed prior to construction by a qualified biologist to verify the presence or absence of nesting birds or raptors. If the survey indicates the potential presence of nesting birds or raptors, the results would be coordinated with CDFG and suitable avoidance measures would be developed and implemented. Construction shall observe the CDFG avoidance guidelines which require a minimum 500-foot buffer zone surrounding active raptor nests and a 250-foot buffer zone surrounding nests of other birds. Buffer zones shall remain until young have fledged. **3.3-8b:** Construction activities within 500 feet of MP ~~milepost~~ 8.60 along Livermore Canal in the vicinity of the known golden eagle nest and tricolored blackbird nesting colony, will be avoided during these species nesting and breeding periods. The nesting period for golden eagle is between February and April. The nesting period for tricolored blackbirds is between April and July. Nest activity will be confirmed by site monitoring prior to construction.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Biological Resources (cont.)		
3.3-9: Construction of the Proposed Project could result in impacts to heritage or other significant trees within the SBA project corridor. (Less than Significant with Mitigation.)	**3.3-9a:** DWR shall conduct a tree survey along the SBA project corridor and avoid removal or damage to protected trees. If complete avoidance is infeasible, implement **Measures 3.3-8a** and **3.3-8b**. This measure applies to those project components that occur within the County of Alameda right-of-way. **3.3-9b:** If tree removal is required, a permit from the County of Alameda Public Works Department shall be obtained, and mitigation developed in coordination with the County. Mitigation may be required and could include replacing disturbed or removed trees or compensating the County for the appraised valued of the impacted trees. Trees will be replanted at the same location following construction with appropriate setback from pipeline. Maintenance of the replanted trees until established may be required by the County to ensure survival.	Less than Significant
3.3-10: Construction of the Proposed Project could result in impacts to common plant and animal species. (Less than Significant with Mitigation.)	**3.3-10a:** For construction at all facilities, one of the following shall be implemented: cover all open trench areas at the end of work days; provide escape ramps; or have the biological monitor check trenches daily.	Less than Significant
Land Use, Planning and Recreation		
3.4-1: Project construction would result in short-term disturbance to some adjacent land uses along the project construction corridor. (Less than Significant with Mitigation.)	**3.4-1a:** DWR shall require its contractor to prepare a Traffic Control Plan specifying measures for maintaining access to residences along the construction route, including Dyer Road (see **Section 3.8, Traffic and Circulation**). **3.4-1b:** DWR shall coordinate access to wind turbine facilities with operators, and shall include provisions to maintain access or provide alternative access to wind turbine facilities during construction (see **Section 3.8, Traffic and Circulation**). Additional mitigation measures for construction disturbance to residential receptors are identified in **Sections 3.6, Air Quality** and **3.7, Noise ~~and~~ Vibration.**	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Land Use, Planning and Recreation (cont.)		
3.4-2: Project construction could result in long-term effects to existing and planned land uses in the vicinity of proposed facilities. (Less than Significant with Mitigation.)	**3.4-2a:** DWR shall negotiate with wind turbine operators to provide replacement compensation for the loss of ~~two~~ turbine~~s~~ along the Stage 3 Brushy Creek Pipeline. This negotiation shall occur concurrently with ~~as part of~~ permanent right-of-way acquisition for the pipeline route. **3.4-2b:** DWR shall negotiate with Waste Management of Alameda County (WMAC) ~~Incorporated (WMI)~~ to ensure that easement acquisition does not preclude WMI from meeting its mitigation obligation as identified in C-5512 and subsequent regulatory permits. This may include identification of appropriate lands to offset open space acreage permanently removed from conservation, estimated at 27~~.11~~ acres.	Less than Significant
3.4-3: Project construction could result in short-term and long-term disturbance of recreational facility uses. (Less than Significant with Mitigation.)	**3.4-3a:** Implement **Measure 3.4-1a**.	Less than Significant
3.4-4: Implementation of the Proposed Project could result in the disturbance of land designated by the Department of Conservation FMMP ~~Farmland Mapping and Monitoring Program~~ as Farmland of Statewide Importance, Grazing Land and lands under the Williamson Act contract. (Less than Significant with Mitigation.)	**3.4-4:** Implement provisions in Article 6 of the Williamson Act (Government Code Sections 51290-51295, as amended by Senate Bill 1534 in 1994) regarding acquisition of contracted land for public use. Specific provisions define procedures that DWR must follow in notifying the Director of the Department of Conservation, conditions under which a public improvement may not be located within an agricultural preserve, and public improvements which are exempt from these conditions.	Less than Significant
3.4-5: In the event that a conservation easement is established at Bethany Reservoir for biological resource mitigation, implementation of a conservation easement could have secondary effects to recreational uses associated with limiting potential future recreational uses at Bethany Reservoir within the conservation easement area. (Less than Significant with Mitigation.)	**3.4-5a:** Establishment of biological resource conservation easements at Bethany Reservoir shall include provisions to allow for passive or guided recreational access, as appropriate within the context of the conservation easement goals. DWR shall coordinate with California Department of Parks and Recreation with respect to establishment of conservation easements at Bethany Reservoir.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Cultural Resources		
3.5-1: Construction of proposed facilities would have the potential to impact known archaeological resources. (Less than Significant with Mitigation.)	**3.5-1a:** Known prehistoric and historic archaeological sites located within, or just outside of the project APE ~~Areas of Potential Effect~~, should be designated as Environmentally Sensitive Areas. Construction personnel and equipment will be instructed on avoidance of Environmentally Sensitive Areas. **3.5-1b:** All construction personnel shall be trained regarding the recognition of possible buried cultural remains, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. DWR shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials. The following issues shall be addressed in training or in preparation for construction: ■ Any subsurface disturbance shall require the education of construction personnel regarding the potential for inadvertent exposure of buried archaeological deposits. ■ DWR shall provide a background briefing for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential Environmentally Sensitive Areas and anticipated procedures to treat unexpected discoveries. ■ Upon discovery of potential buried cultural materials, work in the immediate area of the find shall be halted and a qualified archaeologist notified. Once the find has been identified, the archaeologist will make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the finds are found to be significant according to CEQA.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Cultural Resources (cont.)	**3.5-1c:** DWR shall develop a Cultural Resources Management Plan that includes procedures for the protection and avoidance of sensitive areas and Archaeological High-Probability Areas; evaluation and treatment of the unexpected discovery of cultural resources including Native American burials; detailed reporting requirements by the Project archaeologist; curation of any cultural materials collected during the Project; and requirements that archaeologists and other discipline specialists meet the Professional Qualifications Standards mandated by the California Office of Historic Preservation. Specific protective measures shall be defined in the Cultural Resources Management Plan to reduce the potential adverse impacts on any presently undetected cultural resources to a less-than-significant level. **3.5-1d:** The Cultural Resources Management Plan shall define construction procedures for areas near known/recorded cultural sites. Wherever trenches, access roads, equipment, etc., must be placed or accessed within 100 feet of a recorded, reported, or known archaeological site eligible or potentially eligible for the California Register of Historic Resources, the site will be flagged on the ground as an Environmentally Sensitive Area (without disclosure of the exact nature of the environmental sensitivity). Archaeological monitoring of Project construction will be focused in the immediate vicinity of the designated Environmentally Sensitive Areas. **3.5-1e:** Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historic and prehistoric resources that could be encountered along the transmission line corridor. Monitoring shall occur in all locations specified below or at the discretion of the principle archaeologist. The qualifications of the principle archaeologist shall be approved by DWR. Monitored locations will include the Archaeological High-Probability Areas along Brushy Creek.	

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Cultural Resources (cont.)	**3.5-1f:** Should unanticipated finds be uncovered during construction, work in the immediate vicinity must cease until an archaeologist is informed and an assessment of the historic or prehistoric resources is conducted. In the event that Native American human remains or funerary objects are discovered, the provisions of the California Health and Safety Code should be followed. Section 7050.5(b) of the California Health and Safety Code should be implemented in the event that human remains or possible human remains are located. The County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the Native American Heritage Commission within 24 hours. The Commission has various powers and duties to provide for the ultimate disposition of any Native American remains, as does the assigned Most Likely Descendant. Sections 5097.98 and 5097.99 of the Public Resources Code also call for "protection to Native American human burials and skeletal remains from vandalism and inadvertent destruction." A combination of preconstruction worker training and intermittent construction monitoring by a qualified archaeologist, will achieve compliance with this requirement regarding protection of human remains. Workers will be trained regarding the potential for discovery of cultural or human remains, and both the need for proper and timely reporting of such finds, and the consequences of failure thereof.	

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Air Quality		
3.6-1: Construction and demolition activities associated with facility construction would generate short-term emissions of criteria pollutants, including suspended and inhalable particulate matter and equipment exhaust emissions. (Less than Significant with Mitigation.)	**3.6-1:** DWR shall require the contractor to prepare and implement a Dust Abatement Program to minimize fugitive dust generation. At a minimum, contractor(s) shall include the following measures as applicable[1]: *~~Bay Area Air Quality Management District (~~BAAQMD~~)~~ Basic Control Measures* ■ Water all active construction sites at least twice daily, and more often on days when winds exceed 10 to 15 miles per hour (mph). ■ Cover all trucks hauling soil, sand, and other loose materials *or* require all trucks to maintain at least 2 feet of freeboard. ■ Pave, apply water three times daily, or apply non-toxic chemical soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. ■ Sweep daily with water sweepers all paved access roads, parking areas, and staging areas at construction sites. ■ Sweep streets daily with water sweepers if visible soil material is carried onto adjacent public streets. ■ Enclose, cover, water twice daily, or apply non-toxic chemical soil binders to exposed stockpiles (dirt, sand, etc.). ■ Limit the speed of all construction vehicles to 15 mph while on unpaved roads at the project site. In addition to the Basic Control Measures, the following measures, as applicable, will be implemented because the construction site is greater than 4 acres in area and is located near sensitive receptors: ■ Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).	Less than Significant

[1] Control measures for construction emissions of PM10 were selected from BAAQMD's CEQA Guidelines for Assessing the Air Quality Impacts of Projects and Plans.

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Air Quality (cont.)	■ Enclose, cover, water twice daily or apply (non-toxic) chemical soil stabilizers to exposed stockpiles (dirt, sand, etc.). ■ Limit traffic speeds on unpaved roads to 15 mph. ■ Install sandbags or other erosion control measures to prevent silt runoff to public roadways. ■ Replant vegetation in disturbed areas as quickly as possible. ■ Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving a construction site. ■ Install wind breaks, or plant trees/vegetative wind breaks at windward side(s) of construction areas. ■ When winds (instantaneous gusts) exceed 25 mph, watering will need to occur more frequently. ■ Limit the area subject to excavation, grading, and other construction activity at any one time. ■ Pave all roadways, driveways, sidewalks, etc. as soon as practical. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used. ■ Designate a person or persons to monitor the dust control program and order increased watering, as necessary, to prevent transport of dust offsite. The name and telephone number of such persons shall be provided to the BAAQMD prior to the start of construction.	
3.6-2: Operation of Proposed Project components would result in operational air emissions from powering of pumps, testing and potential use of emergency generators, and from increased employee trips. Emissions from these sources would not be substantial and would not exceed significance criteria of the BAAQMD. (Less than Significant.)	No mitigation ~~measures are~~ R~~r~~equired.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Air Quality (cont.)		
3.6-3: Project operation could result in operational odor emissions. (Less than Significant.)	No mitigation ~~measures are~~ R~~r~~equired.	Less than Significant
Noise		
3.7-1: Construction activities would intermittently and temporarily generate noise levels above existing ambient levels in the project vicinity. (Less than Significant with Mitigation.)	**3.7-1a:** For Brushy Creek Pipeline along Dyer Canal (Sta 172+00 to Sta 197+00), Dyer Reservoir, and Canal Improvements, construction contractors shall adhere to the Alameda County General Code, Title 6 Health & Safety, Chapter 6.60 Noise, Sections 6.60.070(E) and 6.60.070(G): ▪ Construction hours shall be limited to between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and 8:00 a.m. and 5:00 p.m. on Saturdays and Sundays; and ▪ All equipment used on the project shall be muffled and maintained in good operating condition. All internal combustion engine-driven equipment shall be fitted with intake and exhaust mufflers which are in good condition. **3.7-1b:** Construction contractors shall locate fixed construction equipment such as compressors as far as possible from noise-sensitive receptors during construction. With mitigation, construction activities would still increase ambient noise levels along the project corridors. However, mitigation would reduce the increase in noise due to construction and would reduce the chance of exposing people to substantial noise levels. Because of the limited and non-permanent duration of the impact, the residual impact would be less than significant.	Less than Significant
3.7-2: Construction truck traffic would generate noise levels above existing ambient levels along haul routes used to transport excavated materials. (Less than Significant with Mitigation.)	**3.7-2:** Implement **Measure 3.7-1a**.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Noise (cont.)		
3.7-3: Operational activities would generate noise levels above existing ambient levels in the project vicinity. (Less than Significant.)	No mitigation ~~measures are~~ Rrequired.	Less than Significant
3.7-4: Construction activities such as shoring, grading, excavation and controlled detonation could result in vibration impacts which could affect adjacent structures and create human annoyance. (Less than Significant with Mitigation.)	**3.7-4.** In the event that controlled detonation is required in order to effectively remove bedrock, DWR shall require contractors to comply with Bureau of Mines criteria of 2.0 in/s (high frequency >40 Hz) or 0.5 in/s (low frequency <40 Hz), or more stringent criteria as applicable for individual facilities.	Less than Significant
Traffic and Circulation		
3.8-1: Construction activities would intermittently and temporarily generate increases in vehicle trips by construction workers and construction vehicles on area roadways and would require single lane closures on major roadways. (Less than Significant with Mitigation.)	**3.8-1a:** DWR shall obtain the necessary road encroachment permits prior to construction and will comply with the applicable conditions of approval. Road encroachment permits may be necessary on the following roadways: Patterson Pass Road, Tesla Road and Mines Road. **3.8-1b:** DWR will require the contractor to prepare a Traffic Control Plan in accordance with professional engineering standards prior to construction. The Traffic Control Plan could include the following requirements: ▪ DWR shall post advanced warning of construction activities to allow motorists to select alternative routes in advance. ▪ DWR shall arrange for a telephone resource to address public questions and complaints during project construction. ▪ DWR shall comply with roadside safety protocols, so as to reduce the risk of accident. ▪ For roadways requiring single lane closures, DWR (and the construction contractor) shall maintain alternate one-way traffic flow and utilize flagger-controls.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Traffic and Circulation (cont.)		
	3.8-1c: During periods when Dyer Road is used by project construction trucks, DWR shall install warning signs (in compliance with County permit conditions) on Altamont Pass Road in advance of the Dyer Road intersection to alert drivers of slow-moving trucks turning onto Altamont Pass Road. **3.8-1d:** During periods when Dyer Road is used by project construction trucks, DWR shall install warning signs on Dyer Road in advance of the train trestle to alert drivers of narrowed pavement width at the trestle undercrossing.	
3.8-2: Construction activities would generate a demand for parking spaces for construction worker vehicles. (Less than Significant.)	No mitigation ~~measures are~~ R~~r~~equired.	Less than Significant
3.8-3: Construction activities would intermittently and temporarily increase potential traffic safety hazards for vehicles, bicyclists and pedestrians on public roadways. (Less than Significant with Mitigation.)	**Measure 3.8-3:** DWR or its contractors shall obtain the necessary road encroachment permits prior to construction and will comply with the applicable conditions of approval. As deemed necessary by the governing jurisdiction, the road encroachment permits will require the contractor to prepare a traffic control plan in accordance with professional engineering standards prior to construction (see **Measure 3.8-1b**).	Less than Significant
3.8-4: Construction activities would increase wear-and-tear on the designated haul routes used by construction vehicles to access the project work sites. (Less than Significant with Mitigation.)	**3.8-4:** DWR and the affected jurisdiction(s) shall enter into an agreement prior to construction that will detail the pre-construction conditions and the post-construction requirements of the rehabilitation program. Roads damaged by construction would be repaired to a structural condition equal to that which existed prior to construction activity.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Hazardous Materials		
3.9-1: Construction excavation could encounter contaminated materials, causing an increase in risk of exposure (human and the environment) to hazardous materials. (Less than Significant with Mitigation.)	**3.9-1a:** DWR shall incorporate into contract specifications, the requirement that, in the event that previously unidentified hazardous substances are encountered during construction, the contractor(s) will have a contingency plan for sampling and analysis of potentially hazardous substances and will coordinate with the appropriate regulatory agencies, if necessary. Evidence of potential hazardous contamination includes soil discoloration, noxious odors, presence of underground storage tanks, or buried building material. The required disposal method shall depend on the types and concentrations of chemicals identified in the soil. Any site investigations or remediation shall comply with applicable laws. **3.9-1b:** If unknown USTs ~~underground storage tanks~~ are discovered during construction, the ~~underground storage tank system (~~USTs~~)~~, associated piping, and impact soil shall be removed by a licensed and experienced UST removal contractor. The UST and contaminated soil shall be removed in compliance with applicable county and state requirements governing UST removal.	Less than Significant
3.9-2: Construction activities requiring the use of hazardous materials may increase the risk of exposure to hazardous materials. (Less than Significant with Mitigation.)	**3.9-2a:** Consistent with Storm Water Pollution Prevention Plan requirements identified in **Measure 3.2-1a**, DWR shall require the contractor to implement best management practices for handling hazardous materials onsite. The use of construction best management practices would minimize the potential negative effects on groundwater and soils, and will include the following: ■ Follow manufacturer's recommendations and regulatory requirements for use, storage and disposal of chemical products and hazardous materials used in construction; ■ Avoid overtopping construction equipment fuel gas tanks; ■ During routine maintenance of construction equipment, properly contain and remove grease and oils. ■ Properly dispose of discarded containers of fuels and other chemicals.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Hazardous Materials (cont.)	**3.9-2b:** In the event of an inadvertent release of hazardous materials during project operations, containment and cleanup shall occur in accordance with the applicable regulatory requirements. **3.9-2c:** Oil and other solvents used during maintenance of construction equipment shall be recycled or disposed of in accordance with all applicable regulatory requirements. All hazardous materials shall be transported, handled, and disposed of in accordance with all applicable regulatory requirements. **3.9-2d:** Abrasive blasting, or water blasting and metal work including weldings, cutting, and torch burning that involves removal of lead-based paints or primers shall be completed in strict compliance with worker safety regulations outlined in OSHA's Lead in Construction Standard, Title 8 CCR 1532.1, as applicable. Implementation of BMPs including, but not limited to, constant light water spray, structure tenting, or fume hoods, would capture vapors, fumes, and dust generated from the painted metal work. Water, soil, or other media contaminated by lead dusts and fumes shall be removed from the site and disposed of. Excavations to capture spray or high-pressure stripping water shall be lined with impermeable materials (i.e., plastic sheeting) and constructed to direct water to lined sumps. Water in sumps shall be pumped into storage tanks prior to removal and disposal to an appropriate treatment, storage and disposal facility. Verification soil samples~~d~~ shall be collected in fall-out area following project completion to document the presence or absence of residual lead. **3.9-2e:** A construction health and safety plan shall be prepared which describes hazardous materials used during construction and their associated health hazards, as required by the California Occupational Safety and Health Administration.	

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Hazardous Materials (cont.)		
3.9-3: Construction activities in grassland areas would have the potential to expose people or equipment to risk of loss, injury, or death involving wildland fires. (Less than Significant with Mitigation.)	**3.9-3a:** DWR will work closely with local fire districts to develop a fire safety plan which describes various potential scenarios and action plans in the event of a fire. **3.9-3b:** During construction all staging areas, welding areas, or areas slated for development using spark producing equipment, will be cleared of dried vegetation or other materials that could serve as fuel. Any construction equipment that includes a spark arrestor will be equipped with an arrestor in good working order.	Less than Significant
Public Services and Utilities		
3.10-1: Construction of the proposed facilities could result in temporary, planned or accidental disruption of water deliveries to the three South Bay Contractors: Zone 7 Water Agency, Alameda County Water Agency, and Santa Clara County Water Agency. (Less than Significant with Mitigation.)	**3.10-1:** Consistent with its current operational practices, DWR shall coordinate construction activities and delivery outage schedules with SBA Contractors and other affected agencies, as appropriate.	Less than Significant
3.10-2: Pipeline construction could result in temporary, planned or accidental disruption to utility services. (Less than Significant with Mitigation.)	**3.10-2:** A detailed study identifying utilities along the affected portions of the project alignment shall be conducted during the ~~pre-~~design stages of the project to complement the existing utilities study for the disturbed portions of the project alignment. For locations with adverse impacts, the following mitigations will be implemented: a. Utility excavation or encroachment permits shall be required from the appropriate agencies. These permits include measures to minimize utility disruption. DWR and its contractors shall comply with permit conditions, and such conditions shall be included in construction C~~c~~ontract S~~s~~pecifications. b. Utility locations shall be verified through field survey (potholing) and use of the Underground Service Alert services.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Public Services and Utilities (cont.)	c. Detailed specifications shall be prepared as part of the design plans to include procedures for the excavation, support, and fill of areas around utility cables and pipes. All affected utility services shall be notified of DWR's construction plans and schedule. Arrangements shall be made with these entities regarding protection, relocation, or temporary disconnection of services. d. DWR shall employ special construction techniques in areas where the pipeline would parallel underground utility lines. These special measures, which would be included in the engineering specifications, should include trench wall-support measures to guard against trench wall failure and possible resulting loss of structural support for the excavated areas. e. Residents and businesses in the SBA project corridor shall be notified of any planned utility service disruption two to four days in advance, in conformance with county and State standards.	
3.10-3: Construction may result in utility conflicts or require relocation of existing utilities. (Less than Significant with Mitigation.)	**3.10-3:** In conjunction with **Measure 3.10-**1, the following measures shall be implemented: ■ Disconnected cables and lines shall be reconnected promptly. ■ DWR shall observe ~~Department of Health Services (~~DHS~~)~~ standards which require (1) a 10-foot horizontal separation between parallel sewer and water mains (gravity or force mains); (2) 1-foot vertical separation between perpendicular water and sewer line crossings. (In the event that separation requirements could not be maintained, DWR shall obtain DHS variance through provisions of sewer encasement, or other means deemed suitable by DHS.); and (3) encasing sewer mains in protective sleeves where a new water line crosses under or over an existing wastewater main. ■ DWR shall coordinate final construction plans and specifications with affected utilities such as PG&E ~~Pacific Gas & Electric Company~~ and DHS Sanitary Engineering Branch.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Public Services and Utilities (cont.)		
3.10-4: Construction operations could require the displacement of ~~two~~ power generation wind turbine~~s~~ in the Altamont Pass area. (Less than Significant.)	Implement Measure 3.4-2a.~~No mitigation measures are required.~~	Less than Significant
3.10-5: Construction operations would potentially disrupt access to wind turbines in the Dyer Road area. (Less than Significant with Mitigation.)	**3.10-5:** Implement **Measures 3.4-1a** and **3.4-1b** in **Section 3.4, Land Use, Planning and Recreation**; and **Measures 3.8-1a through 3.8-1d** in **Section 3.8, Traffic and Circulation**.	Less than Significant
3.10-6: Construction activities for all facilities could require short-term police and fire protection services to assist in traffic management or in the event of an accident. (Less than Significant with Mitigation.)	**3.10-6:** DWR shall provide, upon request, a copy of the Traffic Control Plan to the County sheriff's department, local police departments, County fire department, and local fire departments for their review prior to construction. DWR shall provide 72-hour notice to the local service providers prior to construction of individual pipeline segments. Discussion on the Traffic Control Plan is provided in **Section 3.8, Traffic and Circulation**, under **Measure 3.8-1b**. Implementation of **Measure 3.10-5**, above, would reduce potential impacts to a less than significant level. No additional measures would be required.	Less than Significant
3.10-7: Project implementation would incrementally increase electrical demands at the SBPP. However, project implementation would provide for shifting of SBPP electrical demands to off-peak periods, thereby reducing peak electrical demands. (Beneficial Impact.)	No mitigation ~~measures are~~ R~~r~~equired.	Beneficial Impact

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Visual Resources		
3.11-1: Proposed facilities could diminish the visual aesthetics at certain proposed sites. (Less than Significant with Mitigation.)	**3.11-1a:** Following construction activities, the Department of Water Resources (DWR) shall restore disturbed areas by reestablishing existing topography and reseeding with a native seed mix typical of the immediately surrounding area. **3.11-1b:** DWR shall use design elements to enhance visual integration of the proposed above-ground facilities with their surroundings. Proposed facilities shall be painted low-glare earth-tone colors that blend with the surrounding terrain. **3.11-1c:** DWR shall ensure that lighting used for nighttime construction is shielded and directed downward to minimize impacts to neighboring residential areas. **3.11-1d:** DWR shall construct berms around the reservoir and vegetate the berms with native seed mixes.	Less than Significant
3.11-2: Construction of the project components would introduce new sources of light onto the project sites and increase ambient light in the SBA project corridor. (Less than Significant with Mitigation.)	**3.11-2a:** DWR shall ensure that all exterior lighting is shielded and directed downward to minimize impacts to neighboring residential areas. If necessary, landscaping shall be provided around proposed facilities. The vegetation shall be selected, placed, and maintained to minimize off-site light and glare onto surrounding areas. In addition, highly reflective building materials and/or finishes shall not be used in the designs for proposed structures.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Growth Inducement		
4.1: The SBA Improvement and Enlargement Project would suport a level of growth that is consistent with the amount planned and approved by the planning agencies within Zone 7's service area. No appreciable growth in population or employment would occur as a direct result of construction or operation of the project facilities. However, the growth accomodated by the project would result in secondary environmental effects. Significant, unavoidable impacts could occur as a result of planned growth in the following areas: traffic and traffic congestion, air pollution, loss of agricultural land and open space, loss of wildlife habitat, alteration of the Valley's visual character, grading and permanent changes in topography, increased traffic noise, increased demand for solid waste disposal and parks, increased flooding potential, increased urban runoff pollutants, and increased energy demand.	No mitigation Required.	

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Cumulative Impacts		
5.1: Concurrent construction of several infrastructure projects within the SBA project corridor, and capital improvement and development projects within the Livermore Valley, could result in cumulative short-term impacts associated with construction activities. These include short-term impacts to water quality, land use, air quality, noise, traffic, hazardous materials, public services and utilities, and visual resources. In some areas, particularly along Dyer Road, these impacts, while individually short term in nature, would be potentially significant due to their aggregate effect; however, construction-related impacts would not result in long-term alteration of the environment. (Significant, Cumulative, Unavoidable and Short-Term. Partially Reduced with Mitigation.)	**5.1:** Zone 7 and DWR shall coordinate construction activities along selected alignments to identify overlapping pipeline routes, project areas, and construction schedules. To the extent feasible, construction activities shall be coordinated to consolidate the occurrence of short-term construction-related impacts.	Significant, Cumulative, Unavoidable. Short-Term, partially reduced with Mitigation
5.2: Concurrent construction of projects within the Altamont Foothills, and capital improvement and development projects within the Livermore Valley, could result in cumulative long-term risk of upset impacts related to groundshaking and surface fault rupture during major earthquakes. (Less than Significant.)	No mitigation ~~measures are~~ R~~r~~equired.	Less than Significant
5.3: Concurrent construction of projects within the Altamont Foothills, and capital improvement and development projects within the Livermore Valley, could result in cumulative long-term impacts to water resource, water quality, and flooding impacts associated with alteration of drainage patterns and increases in impervious surface areas. (Less than Significant.)	No mitigation ~~measures are~~ R~~r~~equired.	Less than Significant

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
Cumulative Impacts (cont.)		
5.4: Concurrent construction of projects within the Altamont Foothills, and capital improvement and development projects within the Livermore Valley, would result in cumulative long-term impacts to sensitive grassland, wetland and vernal pool habitats, with secondary effects to special-status species, including: San Joaquin kit fox, burrowing owl, California red-legged frog, and California tiger salamander, fairy shrimp and fragrant fritillary and nesting sensitive birds. (Less than Significant with Mitigation.)	**5.4:** Implement **Measures 3.3-1** and **3.3-2cb**.	Less than Significant
5.5: Concurrent construction of projects within the Altamont Foothills, and capital improvement and development projects within the Livermore Valley, could result in cumulative long-term impacts to land use. (Less than Significant with Mitigation.)	**5.5:** Implement **Measures 3.4-2a** and **3.4-2b**.	Less than Significant
5.6: Concurrent construction of projects within the Altamont Foothills, and capital improvement and development projects within the Livermore Valley, could result in cumulative long-term impacts to cultural resources. (Less than Significant with Mitigation.)	**5.6:** Implement **Measures 3.5-1** and **3.5-2**.	Less than Significant
5.7: Concurrent construction of projects within the Altamont Foothills, and capital improvement and development projects within the Livermore Valley, could result in cumulative long-term impacts to visual resources. (Less than Significant with Mitigation.)	**5.7:** Implement **Measures 3.11-1** and **3.11-2**.	Less than Significant

CHAPTER 1
INTRODUCTION

1.1 PURPOSE OF THE EIR

The California Department of Water Resources (DWR), as the lead agency, has prepared this Draft Environmental Impact Report (DEIR) to provide the public, and Responsible and Trustee Agencies reviewing this project, information about the potential effects, both beneficial and adverse, of the Proposed Project on the local and regional environment. This DEIR was prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended) and the California Administrative Code, Title 14.

The DEIR describes the environmental impacts of the various components of the project, and suggests mitigation measures for reducing impacts to less-than-significant levels. The impact analyses in this report are based on a variety of sources, including agency consultation, hazardous materials release reports in the South Bay Aqueduct (SBA) project corridor, archaeological reports on the project sites, and field surveys completed by Environmental Science Associates staff.

1.2 RELATED DOCUMENTS

This DEIR is tiering from the *Zone 7 Water Supply Planning Program* (WSPP) – *Program EIR* (ESA, 1999). This DEIR incorporates the WSPP by reference in accordance with Section 15168(d) of CEQA Guidelines, and considers and incorporates the programmatic mitigation measures in Table 6-6 of the WSPP to the degree applicable (CEQA Guidelines §15168(c)(3)). Section 15152 of CEQA Guidelines allows the use of a Program EIR in a tiering situation and defines tiering as follows:

> "Tiering" refers to using the analysis of general matters contained in a broader EIR (such as one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project.

Zone 7 intended to use the 1999 WSPP EIR to: a) support approval of the proposed near-term water transfers, the purchase of additional groundwater storage capacity, and acquisition of the remaining unallocated SBA conveyance capacity; and b) provide the foundation for tiering future CEQA review and documentation on specific future program actions proposed to obtain additional supply, manage demand, and develop the necessary additional treatment, storage, and transmission facilities to serve long-term demand. The 1999 WSPP EIR and other supporting

documents are available for review at: DWR Division of Engineering, Bonderson Building, 901 P Street, Sacramento, California; and the Zone 7 Administrative Offices located at 5997 Parkside Drive, in Pleasanton, California.

1.3 CEQA EIR PROCESS

1.3.1 NOTICE OF PREPARATION

In accordance with Sections 15063 and 15082 of CEQA Guidelines, DWR, as lead agency, prepared a Notice of Preparation (NOP) of an EIR (Appendix B). The NOP was circulated to local, state, and federal agencies, to all adjacent landowners, and to other interested parties in September 2003. No Initial Study was prepared because DWR decided that an EIR would be required for this project.

As indicated in the NOP, the DEIR addresses a full range of resource analyses, including: Geology and Soils; Water Resources and Water Quality; Biological Resources; Cultural Resources; Land Use; Cultural Resources; Air Quality; Noise; Traffic and Circulation; Hazardous Materials; Public Services and Utilities; and Visual Resources. The NOP provided a description of the proposed action, a description of sites for proposed facilities and upgrades, construction methods, and a preliminary list of potential environmental impacts.

1.3.2 PUBLIC SCOPING MEETINGS

Public scoping meetings for the *South Bay Aqueduct Improvement and Enlargement Project DEIR* were held on September 9, and September 16, 2003 in Pleasanton and Livermore. Public notices were placed in local newspapers informing the general public of the scoping meetings. The purpose of the meetings was to present the Proposed Project to the public through use of display maps, route alignments and handouts describing project components, construction techniques, and potential environmental impacts. DWR staff, Zone 7 Water Agency staff, management, and members of the public attended the scoping meetings. Attendees were provided an opportunity to voice comments or concerns regarding potential effects of the project. Verbal and written comments received during scoping are included in Appendix B.

Issues raised during the NOP scoping period included concerns regarding the following construction impacts: the disruption of sensitive land uses, including residential and recreation; traffic congestion and street closures; damage to pavement; effects to surface and groundwater; aesthetics at Dyer Reservoir; and air quality impacts related to dust.

The scope of the DEIR includes issues raised in the NOP and at the public scoping meetings. Issues not related to environmental effects such as financing are not addressed in the DEIR, but may be considered by DWR before making a final decision on the Proposed Project.

1.3.3 DRAFT EIR

This document constitutes the DEIR. It contains a description of the project, description of the environmental setting, identification of project impacts and mitigation measures for impacts found to be significant, and an analysis of project alternatives. The DEIR addresses environmental issues that could result in potentially significant environmental effects from project implementation.

Significance criteria have been developed for each environmental issue analyzed in this DEIR and are defined at the beginning of each impact analysis section. Impacts are categorized as follows:

1) Significant and unavoidable
2) Potentially significant, but can be mitigated to a less-than-significant level
3) Less than significant (mitigation is not required under CEQA, but may be recommended)
4) No impact
5) Beneficial

CEQA requires that a lead agency shall neither approve nor carry out a project as proposed unless the significant environmental effects have been reduced to an acceptable level, where possible (CEQA Guidelines §15091 and §15092). An acceptable level is defined as eliminating, avoiding, or substantially lessening the significant effects. If such a reduction is not possible, a lead agency must adopt a Statement of Overriding Considerations. As defined in CEQA Guidelines §15093, a Statement of Overriding Considerations balances the benefits of a project against its unavoidable environmental consequences.

1.3.4 PUBLIC REVIEW

This document is being circulated to local, state, and federal agencies and to interested organizations and individuals who wish to review and comment on the report. Publication of this DEIR marks the beginning of a 45-day public review period, during which written comments may be submitted to DWR at the following address:

Department of Water Resources
Division of Engineering
P.O. Box 942836
Sacramento, CA 94236-0001
Attn: Terry Becker, Bonderson Building, Room 313-A

During the 45-day review period, DWR will conduct informal public information workshops/scoping meetings to answer questions on the DEIR and hold a formal public hearing on the DEIR.

1.3.5 FINAL EIR PUBLICATION

Written and oral comments received in response to the DEIR will be addressed in a Response to Comments document which, together with the DEIR, will constitute the Final EIR. DWR will then consider EIR certification (CEQA Guidelines §15090). Once the EIR has been certified, DWR may proceed to consider project approval. Prior to approving the project, DWR must make written findings with respect to each significant environmental effect identified in the EIR in accordance with Section 15091 of CEQA Guidelines.

1.3.6 MITIGATION MONITORING AND REPORTING

CEQA requires lead agencies to "adopt a reporting and mitigation monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment" (CEQA Section 21081.6, CEQA Guidelines Section 15097). The specific "reporting or monitoring" program is not required by CEQA Guidelines to be included in the EIR. Throughout the DEIR, however, mitigation measures have been clearly identified and presented in language that will facilitate establishment of a monitoring program. Any measures adopted by DWR as conditions for approval of the project will be included in a Mitigation Monitoring and Reporting Program to ensure compliance.

1.4 PUBLIC AND AGENCY INVOLVEMENT

Early coordination with the general public, appropriate public agencies, and local jurisdictions is encouraged in the environmental review process in order to determine the scope of the environmental document, the level of analysis, and related environmental requirements. Two scoping meetings were held to allow agency consultation and public involvement for the DEIR. Additionally, DWR has continued to coordinate with the SBA contractors on a monthly basis.

1.4.1 CONSULTATION AND COORDINATION WITH PUBLIC AGENCIES

The South Bay Aqueduct Improvement and Enlargement Project is subject to CEQA. DWR is the lead agency for development of the DEIR, which incorporates input and coordination provided by member agencies, other responsible agencies, and local jurisdictions. In compliance with CEQA requirements, the NOP for the DEIR was distributed in September 2003 to over 50 public agencies, elected officials, community groups, and other interested parties.

1.4.2 RESPONSIBLE AND TRUSTEE AGENCIES

Zone 7, which will fund construction of the Enlargement Project, has discretionary authority over the Proposed Project, and is therefore a Responsible Agency. DWR may approve the Improvements portion of the Proposed Project, which includes restoring the SBA's current peak delivery capacity of 270 cfs to its design capacity of 300 cfs under its existing authority, in

accordance with the long-term water supply contracts between DWR and the SBA Contractors. In addition to Zone 7, other potential responsible and trustee agencies include:

- United States Army Corp of Engineers
- United States Fish and Wildlife Service
- California Department of Fish and Game
- Regional Water Quality Control Board
- Alameda County Public Works

REFERENCES – Introduction

Environmental Science Associates (ESA), *Zone 7 Water Agency Water Supply Planning Program - Program Environmental Impact Report (SCH#98041040)*, January 1999.

RED STRIKE TEXT = CHANGES FROM FINAL EIR
BLUE STRIKE TEXT = CHANGES FROM MMRP

CHAPTER 2

PROJECT DESCRIPTION

2.1 INTRODUCTION

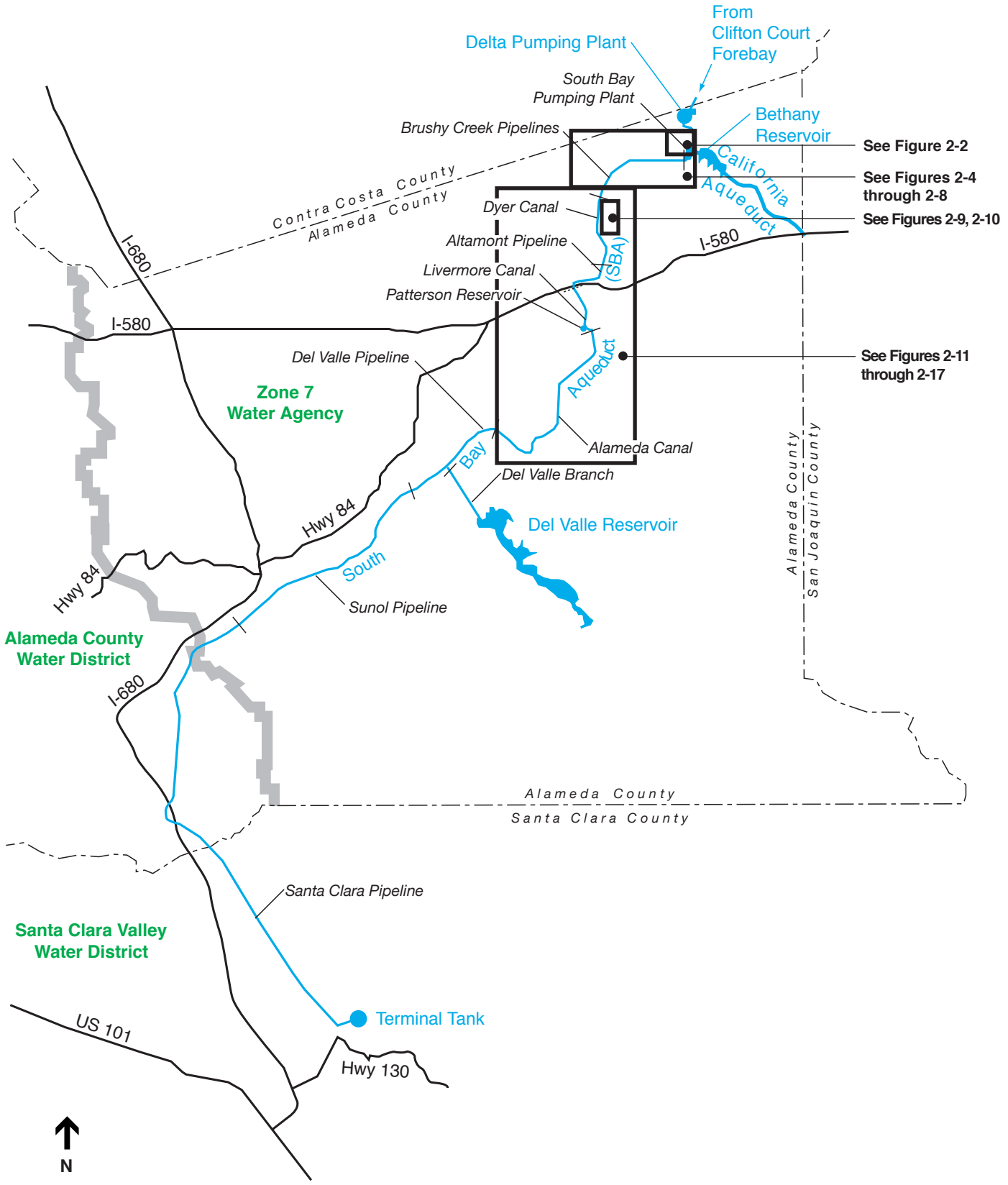
The Department of Water Resources (DWR) proposes improvements to and expansion of the existing South Bay Aqueduct (SBA) facilities. The Proposed Project would make improvements to bring the existing capacity of the water conveyance system up to its design capacity (300 cubic feet per second [cfs]). The expansion portion of the project would add 130 cfs of conveyance capacity pursuant to the request of Zone 7 Water Agency (Zone 7) to meet its future conveyance capacity needs, thereby providing a total conveyance capacity of 430 cfs. In addition, the proposed facilities would allow DWR to reduce State Water Project (SWP) peak power consumption by providing for variation in pumping and delivery schedule. A schematic of SBA facilities is shown in **Figure 2-1**. This figure also shows the location of proposed improvements. Improvement and enlargement of the SBA system would include the following:

- Installation of additional pumps at the South Bay Pumping Plant (SBPP), including expansion of the existing pump building, a new service bay, and new electrical switchyard;
- Construction of a third Brushy Creek pipeline and surge tank parallel to existing dual pipeline (Stage 1 and Stage 2) system. DWR refers to this third pipeline as "Stage 3";
- Construction of a 500 acre-foot (af) reservoir (425 af active storage plus 75 af inactive storage) served by the Stage 3 Brushy Creek Pipeline;
- Raising the height of canal embankments, canal lining and canal overcrossing structures and bridges for the Dyer, Livermore, and Alameda Canals, including Patterson Reservoir;
- Modification of check structures and siphons along the Dyer, Livermore, and Alameda Canals; and
- Construction of new drainage over crossing structures to eliminate drainage into canals.

The proposed modifications and improvements to the SBA system would occur north of Del Valle Reservoir, as shown on **Figure 2-1**. **Table 2-1** provides a summary of project components. The Proposed Project is scheduled for completion in 2008.

This Project Description is organized as follows:

- Section 2.2, Project Location and Overview;
- Section 2.3, Project Background;



SOURCE: Camp Dresser & McKee, 2001

DWR SBA Improvement and Enlargement Project / 202456 ■

Figure 2-1
South Bay Aqueduct Index Map

TABLE 2-1
SBA IMPROVEMENT AND ENLARGEMENT PROJECT
SUMMARY OF PROPOSED IMPROVEMENTS

SBA System Component	Improvements
South Bay Pumping Plant	Enlarge pumping plant though installation of four 45 cfs pump units (proposed Stage 3[1]); construct new electrical switchyard and relocate equipment; re-contour hillside north and northeast for slope stability.; excavate shoreline of SBPP inlet to install new intakes; establish drying pond for periodic dredging of inlet.
Stage 3 Brushy Creek Pipeline	Install Discharge and Brushy Creek Pipelines (proposed Stage 3)
Stage 3 Surge Tank	Construct new surge tank adjacent to existing surge tanks. Improvements to Stage 1and 2 Surge Tanks.
Dyer Reservoir	Construct reservoir to provide 500 af storage (425 af active, 75 af inactive) adjacent and east of Dyer Canal
Canal Embankment and Lining	Raise existing canal embankments between 1.0 to 2.0 feet and to accommodate lining increases of up to 3.0 feet, including Patterson Reservoir (1.5 feet); localized increases of up to 4.0 feet may be necessary.
Canal Overcrossings	Raise canal over crossing structures, drainage overchutes, bridges, and pipelines; install new overchutes to reduce drainage into canal.
Canal Check Structures and Siphons	Modify check structures to add more cross sectional area; install second siphon barrels at five sites

- Section 2.4, Objectives and Need, which describes previous studies conducted to date directly relating to the need for the proposed improvements or relevant to the Proposed Project, discussion of the existing hydraulic capacity, and the objectives and need of the project;
- Section 2.5, Existing Facilities and Project Description, which is organized by individual project components, and includes descriptions of the existing facilities followed by project descriptions for the Improvement and Enlargement Projects;
- Section 2.6, Construction;
- Section 2.7, Alternatives;
- Section 2.8, Right-of-Way Issues / Permits Required; and
- Section 2.9, Intended Uses of the Environmental Impact Report (EIR).

[1] To distinguish this construction from the earlier two stages of the SBPP and Brushy Creek Pipelines, the proposed facilities are herein referred to as Stage 3.

2.2 PROJECT LOCATION AND OVERVIEW

The SBA is owned and operated by DWR; it supplies water contractors with SWP water from Bethany Reservoir via the SBPP. A schematic of SBA facilities is shown in **Figure 2-1**. Use of the SBA is currently shared by three water districts with long-term water supply contracts with DWR: Zone 7, Alameda County Water District (ACWD), and the Santa Clara Valley Water District (SCVWD). Through these agencies, the SBA provides service to the Livermore Valley, Fremont, and San Jose areas for the following municipalities: Livermore, Pleasanton, Dublin, San Ramon, Fremont, Newark, Union City, Milpitas, Santa Clara, San Jose, and other SCVWD Retailers. The SBA is one of several existing conduits that transports water from the Delta to the Bay Area, supplying potable water to over 2 million people.

The SBA, the first delivery system completed under the SWP, consists of a 44.7 mile conveyance system for untreated water. The SBA extends from the SBPP at Bethany Reservoir southwest through Alameda County to Santa Clara County. It consists of 10.8 miles of canal, 32.1 miles of pipeline, and 1.8 miles of tunnel[2], as well as pumping plants and reservoirs. The SBPP pumps water from Bethany Reservoir into the SBA. Flow regulation and storage are provided by Del Valle Reservoir and Del Valle Pumping Plant. The SBA ends in east San Jose at the Santa Clara Terminal Reservoir, an above ground tank at SCVWD's Penitencia Water Treatment Plant (WTP). The SBA has a design capacity of 300 cfs; however the current peak operational capacity of the SBA is approximately 270 cfs (see Section 2.4 for further discussion).

From Bethany Reservoir (north) to the Terminal Tank (south), the following pumping facilities, pipelines and canals comprise the SBA. Pipeline and canal locations are shown in **Figure 2-1**:

- Brushy Creek Pipelines
- Dyer Canal
- Altamont Pipeline
- Livermore Canal
- Alameda Canal
- Del Valle Pipeline
- Del Valle Branch Pipeline (to Del Valle Reservoir)
- Sunol Pipeline
- Santa Clara Pipeline

2.3 PROJECT BACKGROUND

In developing the Proposed Project, Zone 7 implemented a series of technical analyses to identify water supply needs within the Zone 7 service area. Based upon updated water demand projections, Zone 7 identified an immediate need for Zone 7 to acquire additional water supplies. Subsequently, Zone 7 and DWR worked together to identify infrastructure needs for delivery of that supply. The following discussion presents an overview of this planning process, and its relationship to the Proposed Project.

ZONE 7 1999 WATER SUPPLY PLANNING PROGRAM-PROGRAM EIR

In 1999, Zone 7 certified the *Water Supply Planning Program – Program EIR* (1999 WSPP EIR; ESA, 1999). The 1999 WSPP EIR examined the *Water Supply Planning Study Update* (Water Transfer Associates, 1999), which included a comprehensive review of projected water demands associated with buildout of the General Plans within the Zone 7 service area, and identified a program for water supply acquisition, and treatment and conveyance facility requirements necessary to meet these demands. Based upon updated water demand projections, Zone 7 identified an immediate need for Zone 7 to acquire additional water supplies. Chapter 6 of the 1999 WSPP EIR included program level discussion of necessary treatment and conveyance facilities necessary to meet long-term demands. Improvements of the SBA to increase its conveyance capacity was one of the facility improvements identified for implementation. As such, this SBA Improvements and Enlargement Project EIR is from the program level analysis presented in the 1999 WSPP EIR and incorporates that EIR by reference.

The 1999 WSPP EIR identified the potential indirect, or secondary, growth impacts associated with buildout of the approved General Plans within the Zone 7 service area, as well as the mitigation programs that local jurisdictions have adopted to minimize the effects of growth. As a water agency, Zone 7 does not have the authority to make land use decisions, which lies with the local municipal agencies within its service area. However, acknowledging that the provision of adequate water supply removes one potential obstacle to growth, the Zone 7 Board of Directors adopted a Statement of Overriding Considerations regarding these potential secondary effects of growth within the Zone 7 service area. DWR has previously relied on the 1999 WSPP EIR and adopted a Statement of Overriding Considerations in approving water transfers initially analyzed in the 1999 WSPP EIR.

ZONE 7 WATER CONVEYANCE STUDY

In 2000, following completion of the 1999 WSPP EIR, Zone 7 conducted an extensive analysis of potential conveyance mechanisms for delivery of SWP water into its service area. The objective of this analysis was to identify Zone 7's conveyance capacity needs to meet municipal and agricultural demands at buildout under the approved General Plans within its service area, and to examine potential alternatives to provide this necessary capacity. The Water Conveyance Study prepared by Camp Dresser and McKee (CDM, 2000), identified a conveyance capacity need of an additional 130 cfs to meet peak monthly demands within the Zone 7 service area at buildout under the approved General Plans within its service area.

DWR SOUTH BAY AQUEDUCT IMPROVEMENTS AND ENLARGEMENT FEASIBILITY STUDY

Based upon the two above documents, Zone 7 formally requested DWR to prepare a feasibility report identifying the facilities and costs associated with enlargement of the SBA by 130 cfs. This document was circulated as draft in December 2003, and was finalized by DWR in May

[2] The SBA has three tunnels: Altamont, La Costa, and Mission.

2004. The document presents a technical design description and cost estimate for meeting Zone 7's capacity increase request, and provides the basis for the project description examined in this Draft EIR.

2.4 OBJECTIVES AND NEED

As part of the Feasibility Study for increased conveyance capacity, DWR conducted hydraulic analyses using flow test data (obtained from 1999 through 2002) to determine the current existing hydraulic capacity of the SBA. Based on this study, the current capacity of the upper reaches of the SBA does not meet its design capacity of 300 cfs. **Table 2-2** shows the design and existing capacities for specific canal segments along the SBA.

The Proposed Project would allow the existing SBA to function at its design capacity of 300 cfs, as well as provide the additional conveyance capacity required to meet seasonal demand projections under the approved general plans within the Zone 7 service area. Implementation of the Proposed Project would remedy the deficiency in peak capacity and allow DWR to meet operational criteria by maintaining a backup pump unit for use during emergencies and maintenance. Project implementation would not alter pumping limits established for Harvey O. Banks through agreements with regulatory agencies, including the Two Fisheries Agreement (1986) between DWR and CDFG, the 1995 SWRCB Water Rights Decision 95-06, a 1993 Biological Opinion issued by the National Marine Fisheries Service to protect Winter-Run Chinook Salmon, and a 1995 Biological Opinion issued by the U.S. Fish and Wildlife Service to protect Delta smelt.

The proposed facilities would also allow DWR to meet future seasonal water demands of Zone 7 and reduce SWP peak power consumption by providing for variation in pumping and delivery schedule**.** Project implementation would increase the overall reliability and flexibility of the system during normal operation and emergency events. The project would also meet several operational objectives, which are identified below:

- Provide Conveyance Capacity Necessary to Meet Treated and Untreated Demands Associated with Buildout under the Approved General Plans within the Zone 7 service area. Water demands associated with buildout under the approved General Plans in the Zone 7 service area were estimated in the *Water Supply Planning Study Update* (Water Transfer Associates, 1999). This analysis identified a long-term annual water demand of 100,300 af to meet buildout demands. Conveyance capacity necessary to meet this annual demand was identified in the *Water Conveyance Study*, prepared by Camp, Dresser and McKee (CDM, 2000). This analysis identified a conveyance capacity need of 430 cfs within the SBA to meet projected demands at buildout. From this analysis, Zone 7 requested a capacity increase of 130 cfs. No additional capacity has been identified for the other two SBA Contractors (ACWD and SCVWD).

TABLE 2-2
SOUTH BAY AQUEDUCT HYDRAULIC CAPACITY (cfs)

Segment	Design Capacity	Existing Capacity [f]
South Bay Pumping Plant	300 [a]	270 [a]
Brushy Creek Pipelines	345 [a]	310
Dyer Canal	300	260
Dyer: Backsurge pool – Check 1	--	260
Dyer: Outlet dyer Siphon – Check 2	--	260
Altamont Pipeline	390 [b]	390
Livermore Canal	300	270
Livermore: Outlet Altamont Pipeline – Check 3	--	270
Alameda Canal	300	270
Alameda: Inlet Patterson Pass Siphon – Check 3	--	270
Alameda: Outlet Patterson Pass Siphon – Check 4	--	270
Alameda: Check 4 – Check 5	--	270
Alameda: Outlet Arroyo Seco – Tesla Road	--	270
Alameda Outlet Tesla Road – Check 6	--	270
Alameda: Outlet Arroyo Mocho – Check 7	--	270
Del Valle Pipeline	300–363 [c]	305-455
Sunol Pipeline	255–305 [d]	255
Santa Clara Pipeline	184	184

[a] Original design capacity for the SBPP is 345 cfs. Four pumps were installed for Stage 1 and five pumps were installed for Stage 2, and the current installed capacity of the SBPP is 300 cfs. Actual operational capacity is 270 cfs with one spare pump unit.

[b] Improvements on the Altamont Pipeline and Tunnel segments in 2001 / 2002 increased the flow capacity from 300 cfs to approximately 390 cfs. This capacity improvement for the Altamont Pipeline and Tunnel was conducted as part of the South Bay Aqueduct Maintenance and Improvement Project.

[c] 300 cfs for 84-inch pipe, 363 cfs for 90-inch pipe

[d] 305 cfs for 90 inch pipe, 255 cfs for 84-inch pipe

[e] Information based on DWR Flow Test Report, 1999 and CDM Appendix B, Evaluation of South Bay Aqueduct Capacity, September 29, 2000.

[f] Information based on DWR South Bay Aqueduct Enlargement and South Bay Aqueduct Improvement Study, Feasibility Study – increased Conveyance Capacity, December 2003. Flow tests that form the basis of this study was conducted from October 1999 through August 2002.

- Increase Operational Reliability for SBA Contractors. The Proposed Project would construct the 3rd Stage of the SBPP and Brushy Creek Pipeline system, providing adequate conveyance capacity and redundancy to continue a substantial portion of SBA operations in the event that one of the three pipelines is taken out of service for either maintenance or under an emergency scenario. Currently, maintenance requires substantial reductions in delivery capacity. Additionally, provision of storage in the upper reaches of the SBA would provide operational flexibility for future and existing treatment facilities.

- Provide Adequate Freeboard Along Canals. DWR requires a 3- to 4-foot freeboard criteria for canal facilities, which is not currently available at design capacity along the SBA due to canal degradation and design deficiencies.

- Provide Off-Peak Power Efficiency. Within the context of recent power shortages, design facilities to minimize power demands during peak power periods. Current design of the SBA system does not provide for diurnal variation of pumping rates. Dyer Reservoir provides an opportunity to increase daily off-peak pumping at the SBPP, thereby reducing power demand during peak load periods.

- Provide Water Quality Benefits. Project implementation would provide additional conveyance capacity, allowing Zone 7 to import and recharge water with lower total dissolved solids during spring months. This is a key objective for Zone 7's groundwater management. Additionally, control of drainage currently entering the SBA canals and Bethany Forebay Inlet Channel would reduce sediment loads.

2.5 EXISTING FACILITIES AND PROJECT DESCRIPTION

The proposed facility improvements and enlargements are described below, grouped by facility type and location:

- South Bay Pumping Plant
- Brushy Creek Pipeline, including Surge Tank
- Dyer Reservoir
- Canal and Siphon Improvements

2.5.1 SOUTH BAY PUMPING PLANT

Existing Facility

The SBPP is located on the upper end of Bethany Reservoir at the beginning of the SBA (in the northeastern corner of Alameda County). The plant lifts water from Bethany Reservoir into the SBA. It consists of an indoor plant with structural dimensions approximately 207 feet by 33 feet (length and width), and a height of 21 feet. The plant contains nine pumping units of three different capacities: one rated at 15 cfs with a 1,250-horsepower (hp) motor, three at 30 cfs with 2,500-hp motors, two at 45 cfs with 3,500-hp motors, and three at 45 cfs with 4,000-hp motors. The pumping plant was built in two stages, Stage 1 in 1960 and Stage 2 in 1963, and corresponds with the two stages of construction for the switchyard, discharge lines, surge tanks, and Brushy Creek Pipelines. Stage 1 pumps include the 15 cfs and three 30 cfs units. The remaining pumps

were built during Stage 2. The rated capacity of all nine pumps (based on unit nameplate rating) of the SBPP is 345 cfs, but due to friction losses the plant operates at 300 cfs when all the pumps are running (DWR, 2003)[3]. Power is currently supplied to the SBPP via a Pacific Gas and Electric (PG&E) 70 kilovolt (kV) transmission line. Separate switchyards containing electrical equipment are located adjacent to the buildings containing the Stage 1 and Stage 2 pumping units. The majority of the equipment in the existing switchyards is owned and maintained by PG&E.

Proposed Stage 3 Expansion

DWR proposes to expand the existing SBPP structure to accommodate four additional 45 cfs pump units, motors (rated at 4,000 hp), valves, and piping. The existing plant (6,900 square feet) would be expanded northward, adding an additional 4,440 square feet (120 x 37) to the structure (**Figure 2-2**). An additional 3,600 square-foot service bay would be constructed southwest of the existing SBPP structure. Facility height and exterior design would be similar to that of the existing SBPP structure, which is 30 feet tall, with concrete walls with louvered vents for pumping equipment. To distinguish this expansion from the earlier stages of construction, the proposed facilities associated with the expansion of the SBPP will be herein referred to as Stage 3. As part of the SBPP Stage 3 expansion, DWR also proposes to relocate the existing electrical switchyard, install a drying basin for periodic maintenance dredging of the Bethany Forebay Inlet Channel, and install a sediment catchment basin to reduce sediment loads to the Bethany Forebay Inlet Channel.

A new 200-foot by 50-foot electrical switchyard would be constructed west of the expanded pumping plant structure to consolidate electrical facilities at this location. DWR would request PG&E to upgrade existing electrical service to the SBPP through either enlargement of the existing 70-kV transmission line serving the SBPP, or construction of a new 230-kV transmission line to accommodate the electrical load necessary to power the enlarged SBPP. Implementation of this upgrade is at the discretion of PG&E; as such, PG&E would be the Lead Agency for any California Environmental Quality Act (CEQA) analysis or permitting requirements associated with the requested upgrade of their facilities.

Site Grading and Excavations

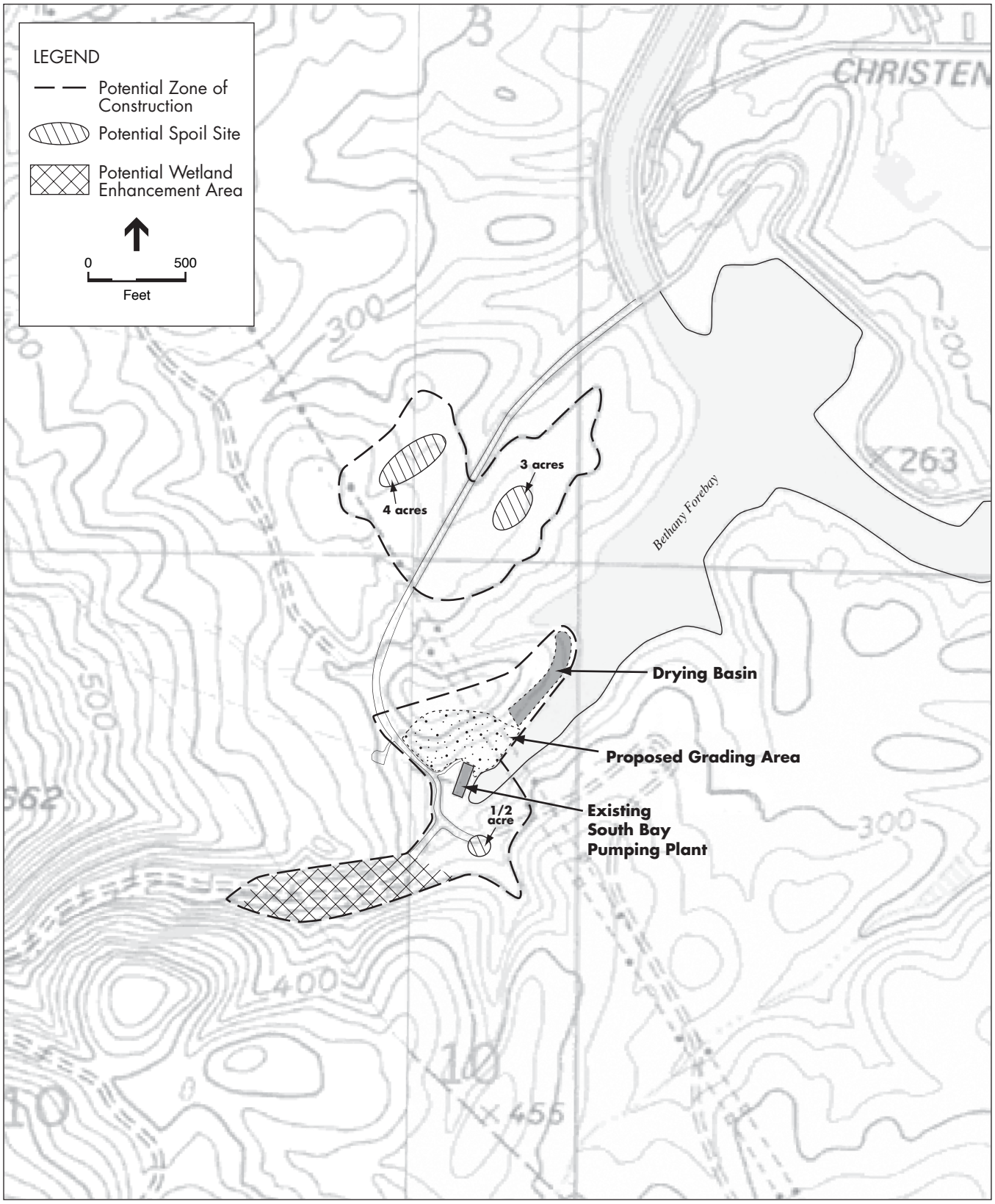
Expansion of the existing pumping plant, installation of pump inlets, construction of the new switchyard, and installation of the drying basin, would require grading and re-contouring of the hillside immediately north and northeast of the existing facility to provide a 2:1 slope. All disturbances, including excavation associated with building construction and regrading of the hillside, would generate approximately 120,000 cubic yards (cy) of material. This material would be disposed of locally in the vicinity of the SBPP, as determined by DWR. **Figure 2-3** shows the three potential spoil site locations (0.5 acre, 3 acres, and 4 acres). Stockpile locations would be graded to be consistent with existing topographic gradients, and would be reseeded to maintain continuity with surrounding grasslands. Grading would be implemented in phases, including: rough grading of the site; excavations to establish building foundations and

[3] All pumps running is not an operational situation.

SOURCE: Department of Water Resources, 2004

DWR SBA Improvement and Enlargement Project / 202456 ■

Figure 2-2
Proposed Improvements at the South Bay Pumping Plant



SOURCE: USGS Basemap from Maptech;
Drawn by Environmental Science Associates

DWR SBA Improvement and Enlargement Project / 202456 ■

Figure 2-3
Proposed South Bay Pumping Plant
Grading and Spoil Locations

switchyard; slope excavation and re-contouring; excavation of intake locations; construction of drying basin; re contouring of inlet shoreline; and finished site grading and revegetation.

Pump Intake Installation and SBPP Inlet Dredging

The SBPP pumps water from the Bethany Forebay Inlet Channel, which was excavated in 1968 from the Bethany Forebay portion of Bethany Reservoir to feed the pump station. The inlet is a trapezoidal excavation, with a circular terminus at the SBPP pump intake structure. The design elevation of the Bethany Forebay Inlet Channel ranges from 218 feet above mean sea level (msl) to 220 feet above msl; the existing SBPP intake structure is set at 218 feet above msl. Due to sedimentation processes, current elevations within the Bethany Forebay Inlet Channel at the SBPP intakes are estimated to range from 226 feet above msl to 228 feet above msl.

Construction of Stage 3 would include installation of a new intake structure to feed the proposed Stage 3 pumping units. This intake structure would be constructed north of and adjacent to the existing SBPP intake structure, and would require excavation and re-contouring of the Bethany Forebay Inlet Channel shoreline to establish a finished elevation of 218 feet above msl at the pump intakes. Current elevation of the intake shoreline is 260 feet above msl. Construction methods would include a standard excavation at the proposed intake location, located approximately 45 feet north of the existing inlet shoreline. Construction of a sheet pile barrier to support or isolate portions of the excavation may be required. Following excavation and installation of shoring as necessary, concrete foundations would be poured and the intakes placed using a crane or other appropriate equipment. The intakes would then be watered up by excavation and dredging of the remaining area (16,000 cy) to establish a finished elevation of 218 feet above msl. This re-contouring of Bethany Reservoir would incrementally increase the capacity of Bethany Reservoir by 8 acre feet. Dredging of approximately 750 feet of the inlet channel is anticipated in order to reestablish the design elevation of 211 feet above msl for proper inlet operation for both the existing and Stage 3 pump intakes.

Drying Basin and Wetland Enhancement

Construction of an approximately 1.5-acre drying basin would be integrated into site grading, and would include the establishment of a linear basin along the north side of Bethany Forebay Inlet Channel (**Figure 2-3**). Due to sedimentation, DWR periodically dredges the Bethany Forebay Inlet Channel to maintain hydraulic capacity and water quality at the SBPP intake structure. The Bethany Forebay Inlet Channel has been dredged once per decade since its construction in 1968. Establishment of the drying basin would provide for drying and eventual disposal of the materials locally. Basin design would include an outlet weir and catchment basin that would be designed to retain dredge materials for drying; no decanting would occur. During non-use periods when materials have dried and stabilized, the weir would be open to provide for drainage of the facility during storm events.

Wetlands occurring within a tributary drainage southwest of the SBPP may be enhanced to provide for mitigation and to reduce sediment loading to the Bethany Forebay Intake Channel, thereby reducing dredging requirements (**Figure 2-3**). Small catchment basins may also be

installed at one or more of the major drainages discharging to the Intake Channel, and would consist of establishment of a weir structure to reduce stormflow velocities and drop out suspended solids. Any alteration to jurisdictional wetlands would be implemented in accordance with applicable permit requirements.

2.5.2 STAGE 3 BRUSHY CREEK PIPELINE

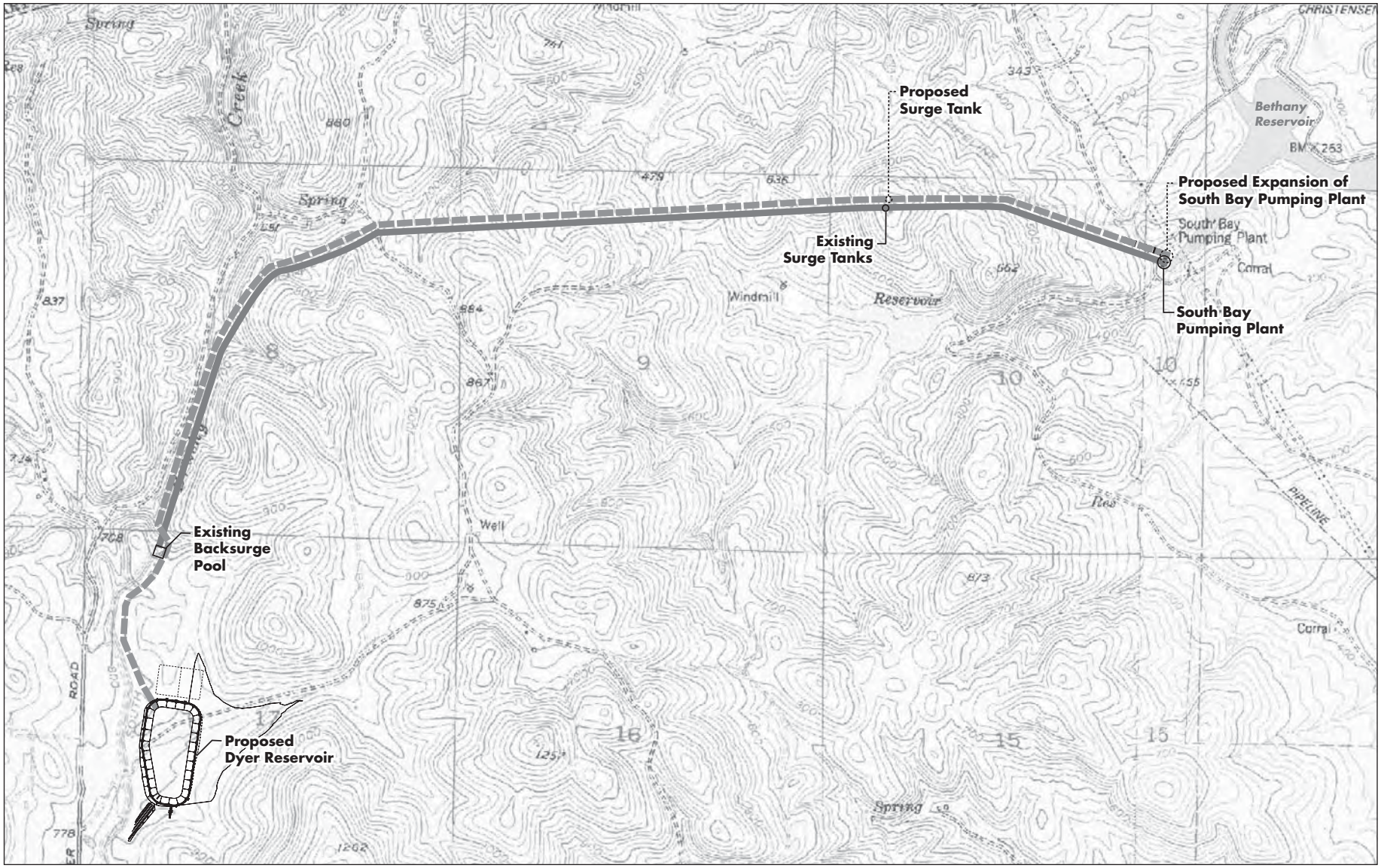
DWR proposes to construct a third Brushy Creek Pipeline (Stage 3), consisting of 78-inch diameter concrete or welded steel pipeline, buried and parallel to and north of the existing dual pipelines (see **Figure 2-4**). The Stage 3 Brushy Creek Pipeline would extend from the SBPP approximately 19,737 feet (3.73 miles) to the proposed Dyer Reservoir. The construction easement will range between 80 and 145 feet in width; actual construction easement would vary with topography, to provide the contractor with layout areas in level terrain. The existing Brushy Creek Pipelines consist of the Stage 1 (54-inch diameter) and Stage 2 (66-inch diameter), buried concrete pipelines of approximately 3.26 miles in length each. The dual pipelines are generally parallel to each other, with the Stage 1 pipeline located approximately 100 feet south of the Stage 2 pipeline for most of its length. The Brushy Creek pipelines extend between Bethany Reservoir and the backsurge pool of Dyer Canal within unincorporated Alameda County lands used for grazing and windmill operation (see **Figure 2-5**). The new Stage 3 Brushy Creek Pipeline would extend from the SBPP to the proposed Dyer Reservoir, and would consist of the elements described below.

STAGE 3 SURGE TANK

The Stage 3 Surge Tank would be located approximately 100 feet north of the existing Stage 2 Surge Tank (see **Figure 2-6**). The proposed surge tank would be similar in design and visual appearance, although it would be located at a slightly lower elevation (than both Stage 1 and Stage 2 tanks. The tank would be approximately 20 feet in diameter and 100 feet above ground surface. Construction activities would require excavation to a depth of 30 feet for tank construction. The total disturbance area would be approximately 150 by 175 feet, the size of the pad. In order to address current hydraulic limitations, DWR would also raise the Stage 2 Surge Tank 10 to 15 feet, providing a total height of 115 feet. Currently, this tank overtops when all Stage 2 pump units are in operation. When that occurs, one of the 45 cfs units must be shut down, reducing pumping capacity. Raising the surge tank would ensure that the SBPP could operate at design capacity without resulting in surge tank overflow. Additional upgrades include sandblasting and repainting of both surge tanks to remove lead based paint, as well as thickening the shell of the tanks as part of seismic upgrades. Containment would be placed around each tank during sandblasting to reduce the potential for runoff of lead-based paint and other material into the surrounding environment.

BRUSHY CREEK PIPELINE

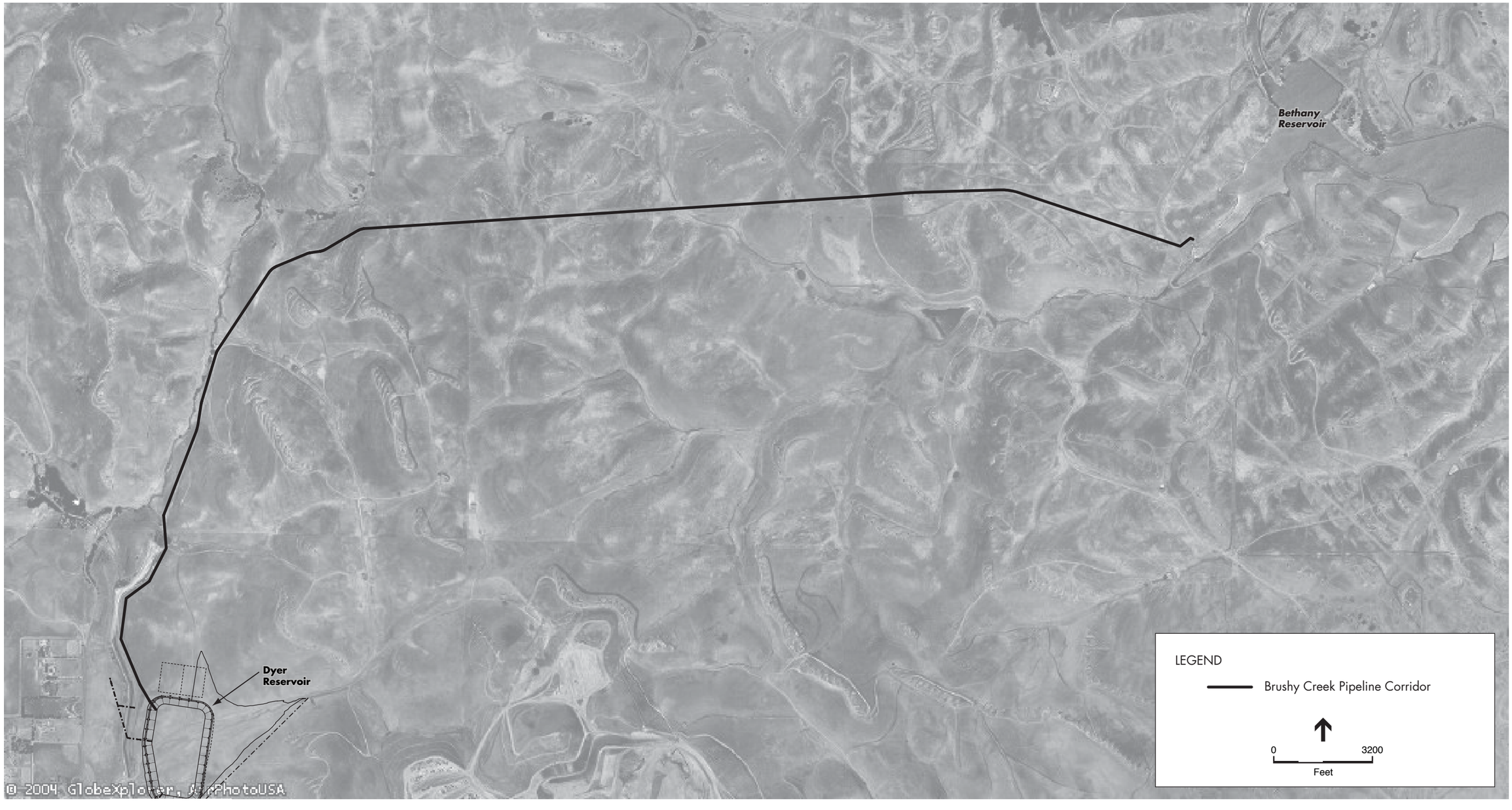
Brushy Creek pipeline would extend approximately 19,737 feet (3.73 miles) from the surge tank to the proposed Dyer Reservoir. The buried pipeline would be located approximately 100 feet north of the Stage 2 Pipeline; actual distance will vary according to topography. Typical layout



SOURCE: Department of Water Resources, 2004

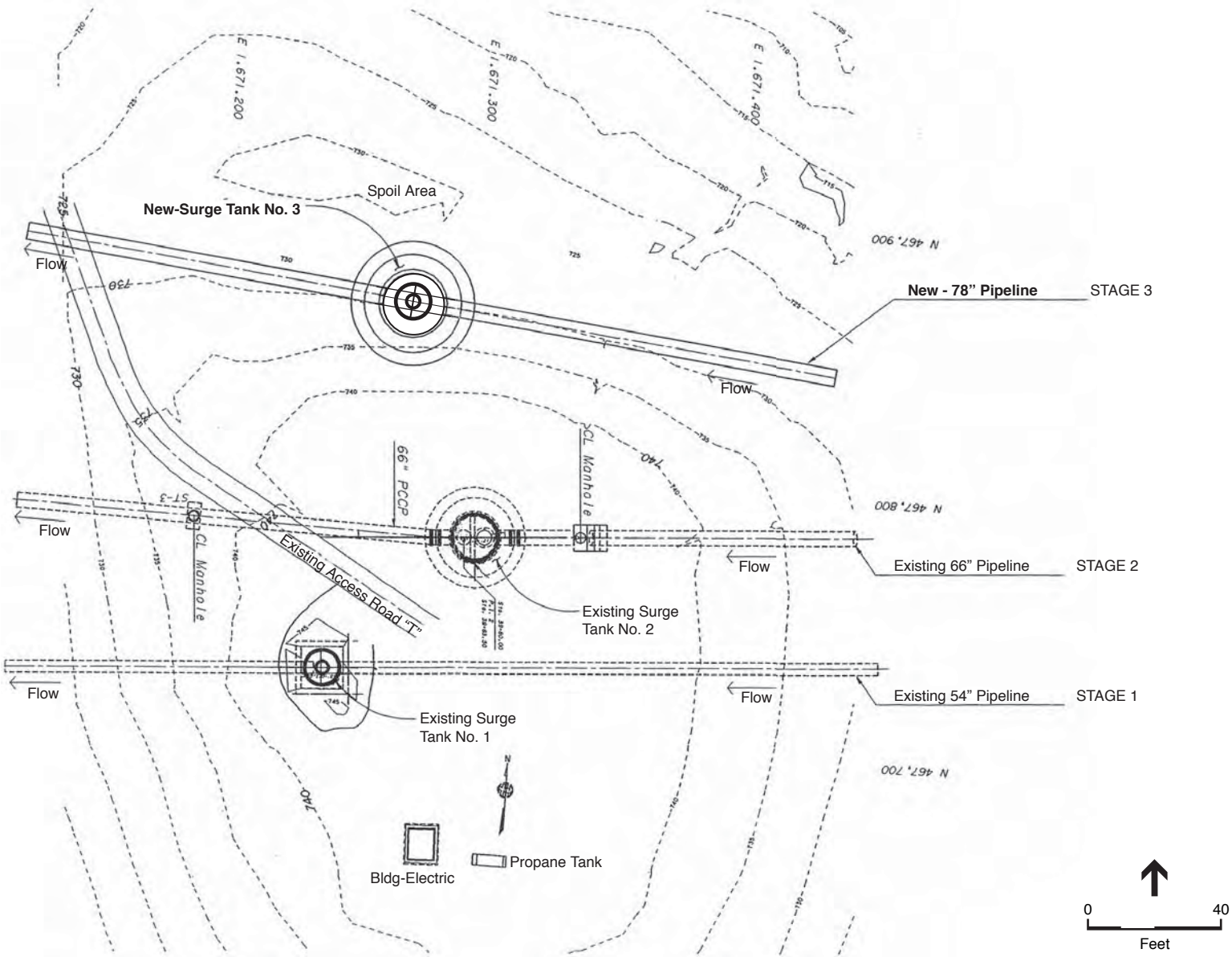
Figure 2-4

Proposed Brushy Creek Corridor Improvements



SOURCE: Department of Water Resources, 2004

Figure 2-5
Brushy Creek Pipeline Corridor



SOURCE: Department of Water Resources, 2004

Figure 2-6
Proposed Stage 3 Surge Tank

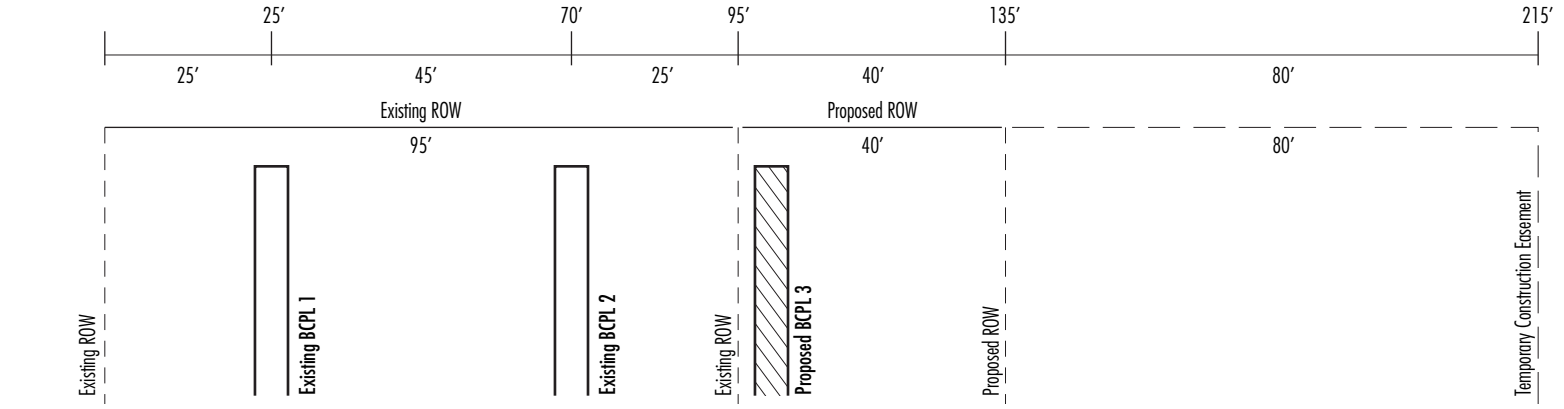
of the pipelines, including easements, is shown in **Figure 2-7**. Construction easement will range between 80 and 145 feet in width; actual construction easement would vary with topography, to provide the contractor with layout areas in level terrain. Minimum depth to top of pipe is anticipated to be approximately 5 feet at most locations. Reference stationing for the pipeline is provided at 100 foot intervals from the SBPP (Sta 1+00) to Dyer Reservoir (Sta 197+00).

At the western end of the corridor, at approximately Sta 140+00, the pipeline route turns south along Brushy Creek towards Dyer Canal. Along this reach, the available route is constrained by the existing Stage 1 and Stage 2 pipelines to the east, and Brushy Creek immediately to the west. In order to avoid installation within Brushy Creek, the distance between the proposed Stage 3 pipeline and the existing Stage 2 pipeline would be reduced to 40 feet for approximately 3,000 feet (Sta 140+00 to 170+00). To minimize the depth of excavation immediately downslope of the Stage 2 pipeline, the Stage 3 Brushy Creek Pipeline installation depth will be reduced, and the pipeline encased in concrete along this reach. Finished depth to pipeline surface would be approximately 1 foot below grade. Top of trench would be located less than 50 feet from top of bank for approximately 1,700 feet along this reach. At two locations where the creek channel meanders to the east, shoring would be installed to reduce trench width and maintain separation of at least 10 feet between the top of trench and top of bank. Maintaining setbacks to minimize impacts to Brushy Creek, the pipeline route would extend southward to Sta 166+50, where the pipeline would be routed to the east side of Dyer Canal, under the existing Stage 2 and Stage 1 pipelines. The pipeline would then extend within DWR right of way along the eastern side of Dyer Canal to its terminus within the proposed Dyer Reservoir.

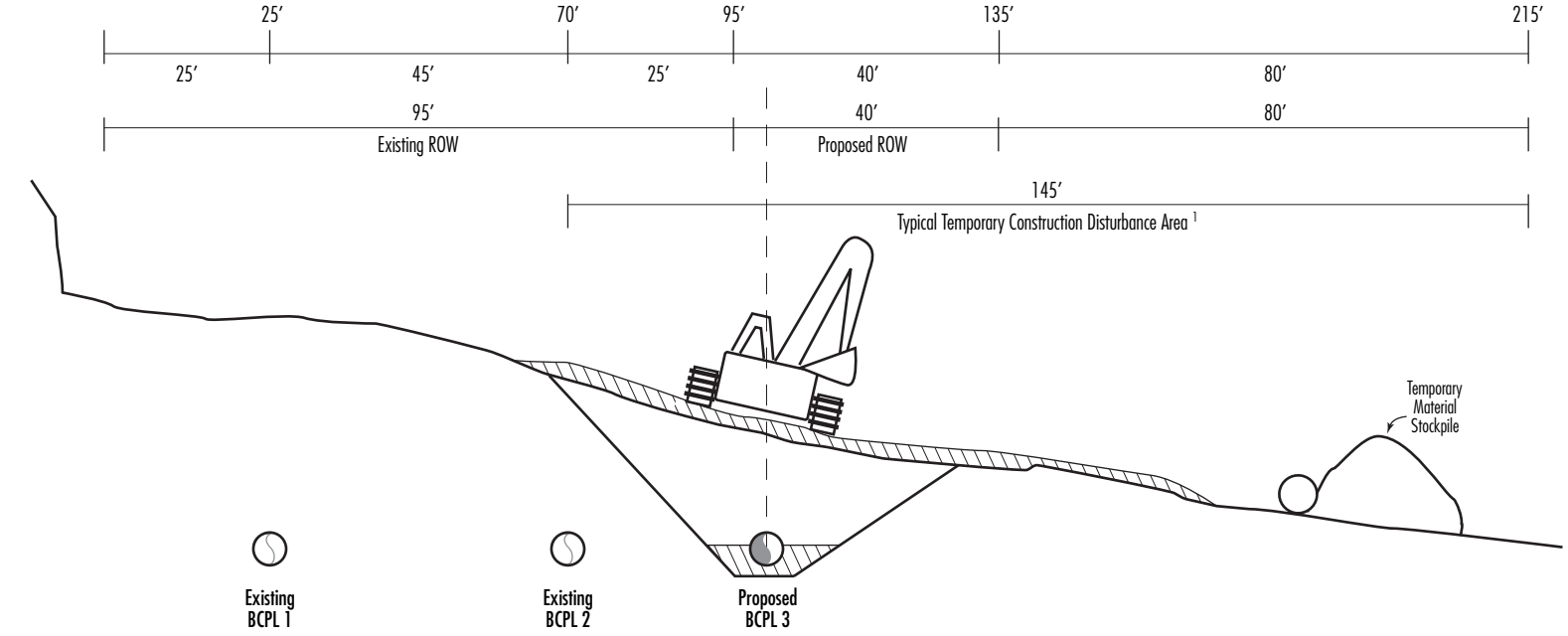
As with the existing Stage 1 and 2 pipelines, air valves and blow off valves would be constructed an average of approximately every 1,000 feet, at high and low points of the pipeline alignment. Twenty-one concrete access vaults would be constructed to provide access to all the valves and manhole accesses to the pipeline. Vault design would be similar to those currently along the Stage 1 and Stage 2 pipelines, with finished vault heights approximately 18- to 30-inches above ground, with an 8-foot (96 -inch) exterior diameter. Existing vault structures are shown in **Figure 2-8**. DWR would construct approximately 0.5 mile of new roads to access 8 of these vault structures; the remaining can be accessed from existing access roads. In addition, cathodic protection would be provided to protect the pipeline from the corrosive soil environment, and corrosion test stations would be installed at approximately 1,000 feet intervals along the pipeline.

2.5.3 DYER RESERVOIR

A reservoir providing approximately 500 af of storage (425 af active storage, 75 af inactive storage) would be constructed east of the existing Dyer Canal, approximately 700 feet from Dyer Road (see **Figure 2-9**). The reservoir would be constructed within an approximately 72-acre construction area. The 500 af reservoir would have dimensions of approximately 1,500 feet by 800 feet, covering an area of approximately 27 acres **(Figure 2-10)**. The reservoir would store water pumped by the SBPP during off-peak periods. Off-peak pumping would reduce overall energy cost and would increase both operational flexibility and reliability of the SBA system by ensuring that water was available to SBA Contractors in the event of a shut-down of upstream SBA facilities during regular maintenance or emergency repairs. The reservoir would have a



Permanent and Temporary Easements – Plan View



Typical Pipeline Construction Layout – Cross Section

[1] Temporary Construction Easement will vary with topography

SOURCE: Drawn by Environmental Science Associates based on information proveded by DWR

Figure 2-7
Typical Permanent and Temporary Construction Easements, Brushy Creek Pipeline

Vault structures along existing Brushy Creek Pipelines

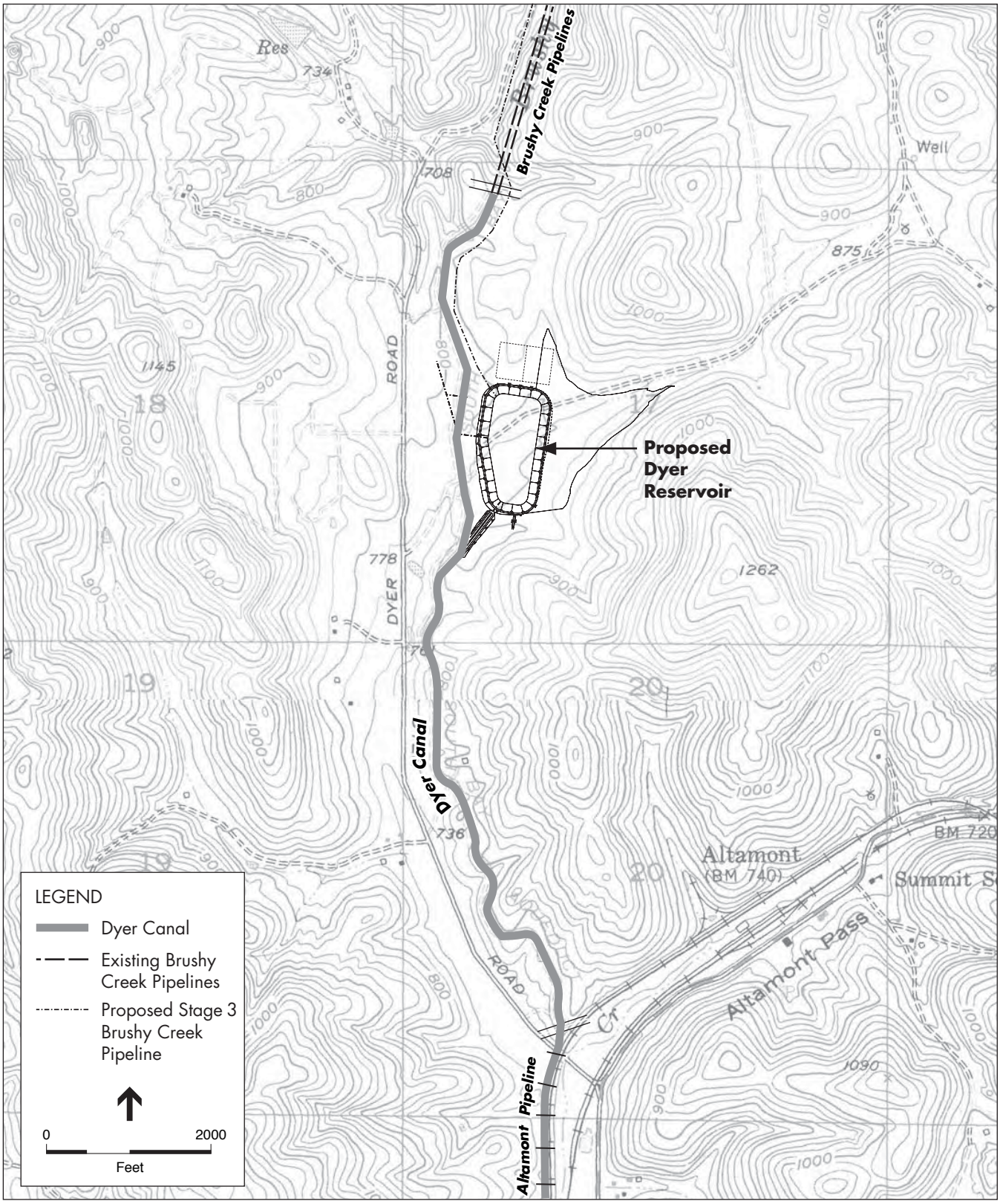
Example of finished vault structure

SOURCE: Environmental Science Associates

DWR SBA Improvement and Enlargement Project / 202456 ■

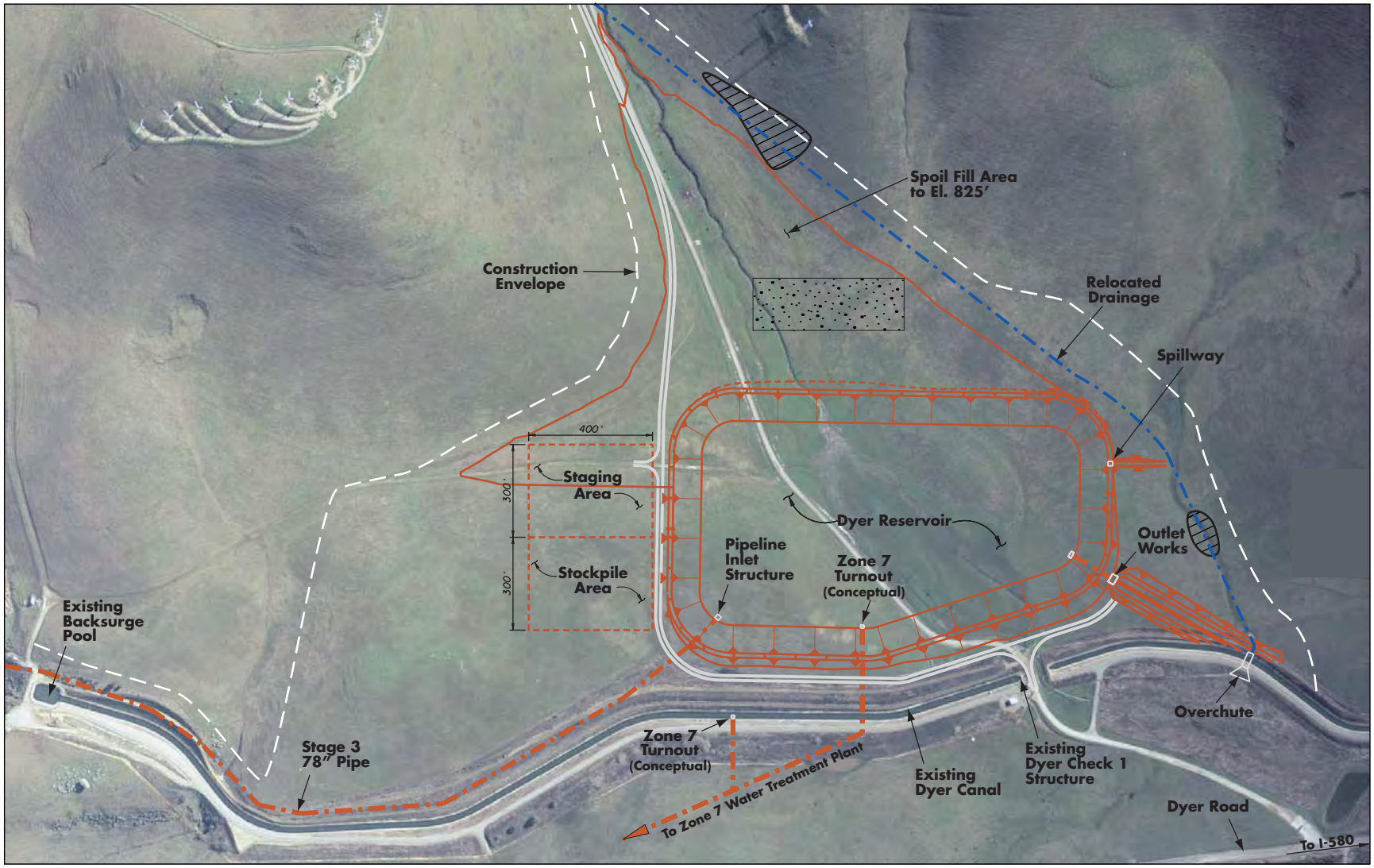
Figure 2-8

Existing Vault Structures - Brushy Creek Pipeline



SOURCE: USGS Basemap from Maptech;
Drawn by Environmental Science Associates

Figure 2-9
Proposed Dyer Reservoir



SOURCE: Department of Water Resources, 2004

Figure 2-10
Proposed Dyer Reservoir Facilities

maximum water surface elevation of 805 feet, and the facility would be located approximately 10 feet above Dyer Road. Embankment heights along the west and south side of the reservoir would range between 10 to 25 feet. The reservoir would be connected to the existing Dyer Canal by an outlet works at the south end of the reservoir.

Of the 500 af of storage, 200 af would be allocated to provision of short-term water supply for the proposed Zone 7 Altamont WTP to ensure constant flow rates to the plant. The reservoir would include a stub out pipeline from the reservoir's northwest corner under the existing Dyer Canal to provide a future turnout for the Zone 7 Altamont WTP. Of the remaining 300 af, 225 af would provide the ability for the SBA system to be operated during off-peak energy demand periods, thereby reducing energy demands during peak demand periods and providing an energy efficiency savings. The remaining 75 af is dead storage that is not available due to hydraulic limits.

Construction of the reservoir would include re-routing of an access road around the northern end of the reservoir to maintain access to land uses east of the reservoir, including windmill leases, ranching lands, and secondary access to Altamont Landfill. Approximately 3,000 linear feet of ephemeral drainage channel would also be rerouted around the southern end of the reservoir to convey drainage around the reservoir. A new overchute structure would be located over Dyer Canal to convey this drainage to the western side of the canal.

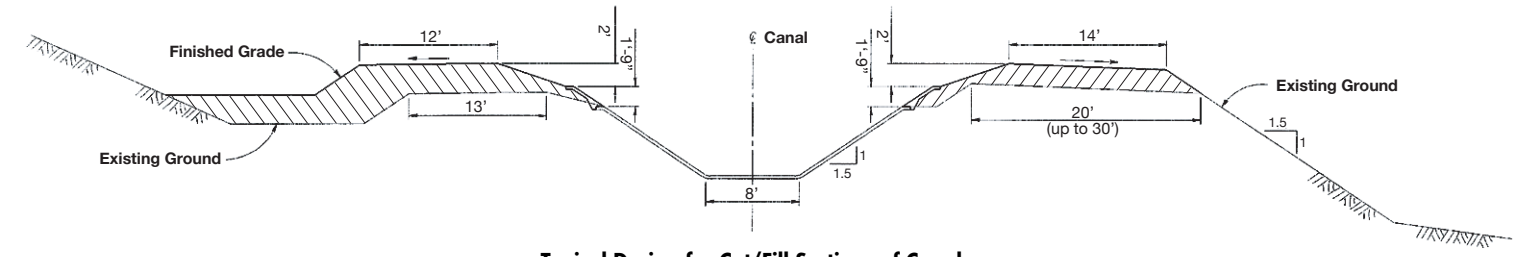
2.5.4 CANAL IMPROVEMENTS

RAISING CANAL EMBANKMENTS AND EXTENDING CANAL LINING

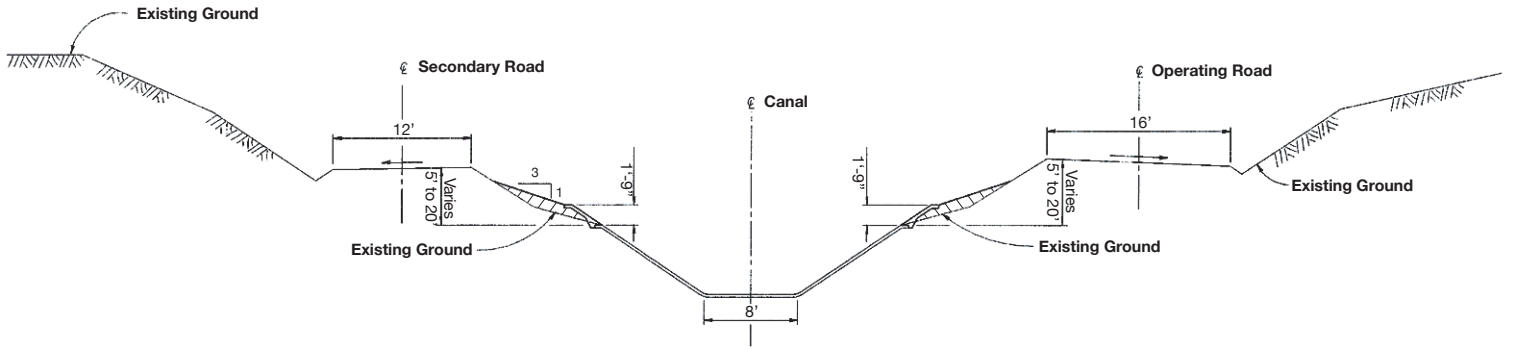
DWR proposes to extend the existing canal lining to increase flow capacity (see **Figure 2-11**). To support the lining, canal embankments would be raised approximately 1.0 to 2.0 feet for Dyer, Livermore and Alameda Canals; localized increases of up to 4.0 feet may be necessary. In general, this increase in embankment height would be implemented by placement of material on the existing operational roads. At some locations, where the outboard slope of the canal embankment is less than 2:1, additional fill material would be placed on the outboard slope of the embankment. This treatment is generally limited to the areas around existing drainage culverts, overchutes, and drop inlets (see **Figure 2-12**). Excess excavated material from Dyer Reservoir and a 17-acre borrow site east of and adjacent to Zone 7's Patterson Pass WTP would be used to raise the embankments. All canal improvement would be implemented while the canals remain in service, in order to limit delivery disruption to the SBA Contractors.

CHECK STRUCTURES AND SIPHONS

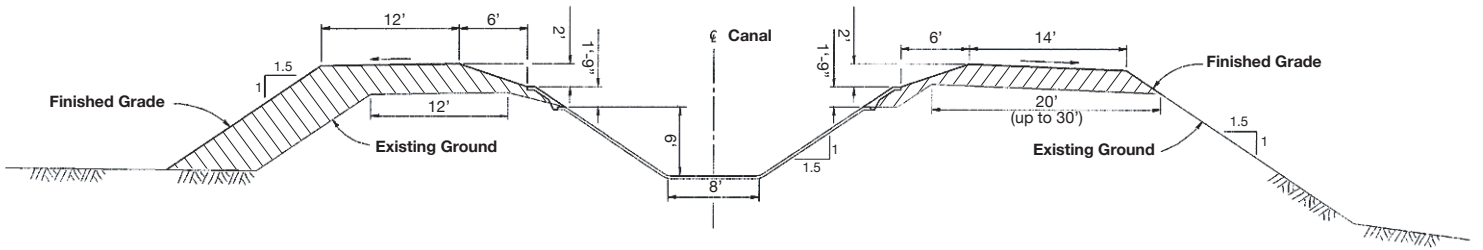
Siphons are located throughout the SBA canal system, primarily where the canal system crosses under other infrastructure, such as roadways or creek crossings. Check structures include radial gates that allow DWR to control the rate of flow into siphons, thereby controlling water surface elevations within individual canals. The project would modify existing check structures located within the canals by raising radial gate elevations to avoid potential corrosion associated with the new water surface elevation within the canals. Additionally, a second siphon barrel would be



Typical Design for Cut/Fill Sections of Canal



Typical Design for Cut Sections of Canal

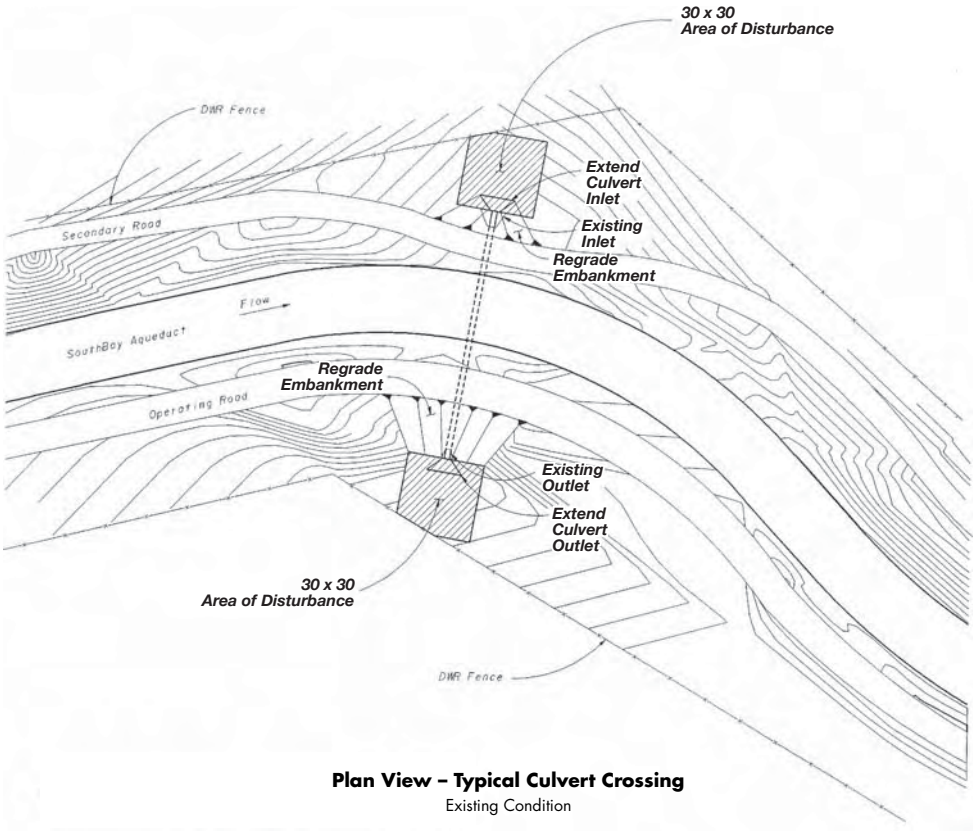


Typical Design for Fill Sections of Canal

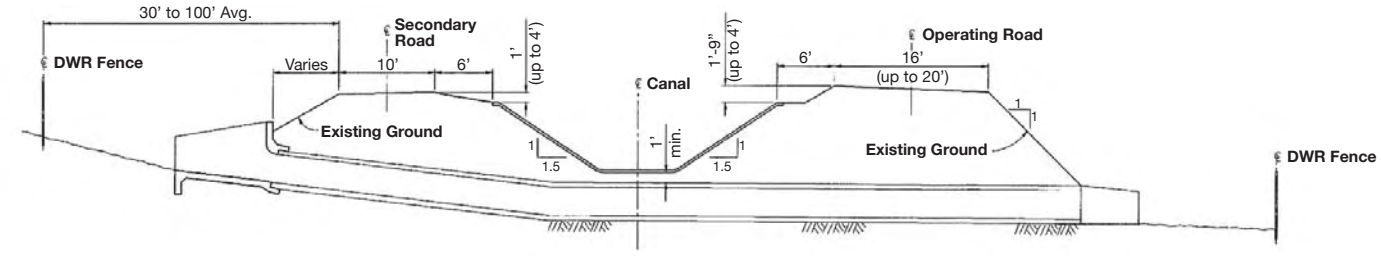
Fill

SOURCE: Department of Water Resources, 2004

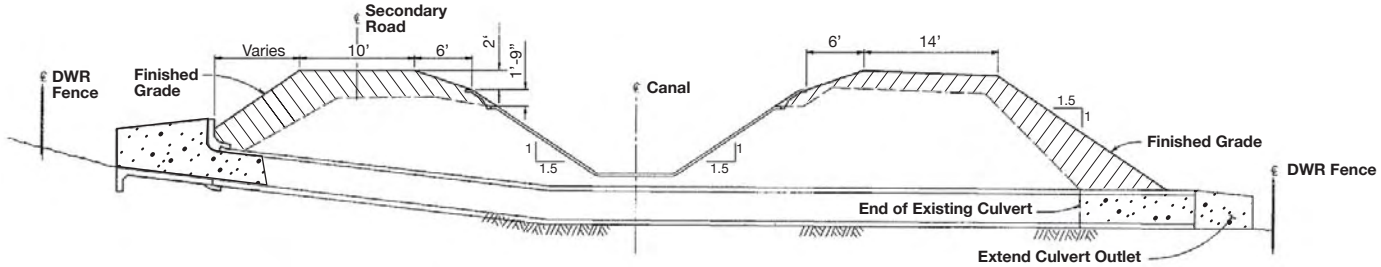
Figure 2-11
Typical SBA Canal Cross Section Showing Proposed Extension of Canal Embankments and Lining



Plan View – Typical Culvert Crossing
Existing Condition



Typical Existing Culvert Profile



Profile View – Typical Culvert Crossing

Fill

Culvert Extension

SOURCE: Department of Water Resources, 2004

Figure 2-12
Typical Design – Culvert Crossings

installed at five existing siphon locations to reduce hydraulic losses at these locations, and to increase operational flexibility for maintenance (see **Figure 2-13**). The siphons would vary in dimensions, and would be either box siphons or pipelines depending on the length of the crossing. The proposed activities for each check structure and siphon are provided below:

- Dyer Check 1: Check Structure and Siphon. The Dyer Check 1 siphon crosses underneath the existing access road to the proposed Dyer Reservoir site. DWR proposes to construct a second 5- by 8-foot concrete siphon approximately 2 feet east of the existing 5- by 8- siphon. The combined length of the siphon and inlet and outlet structures would be approximately 132 feet in length. The void between the siphons would be filled with slurry, and the remaining excavated area around the siphon would be filled with compacted backfill.

- Patterson Pass Check 3. Gate elevations would be adjusted to accommodate new water surface elevations. All work would occur within the canal structure.

- Patterson Pass Siphon. DWR proposes to construct a second siphon barrel beneath Patterson Pass Road. The proposed 7-foot diameter siphon would be located east of the existing siphon at a distance of up to 22 feet. The two siphons would receive and discharge water via combined inlet and outlet structures, which separate the flows at the beginning and end of the siphons.

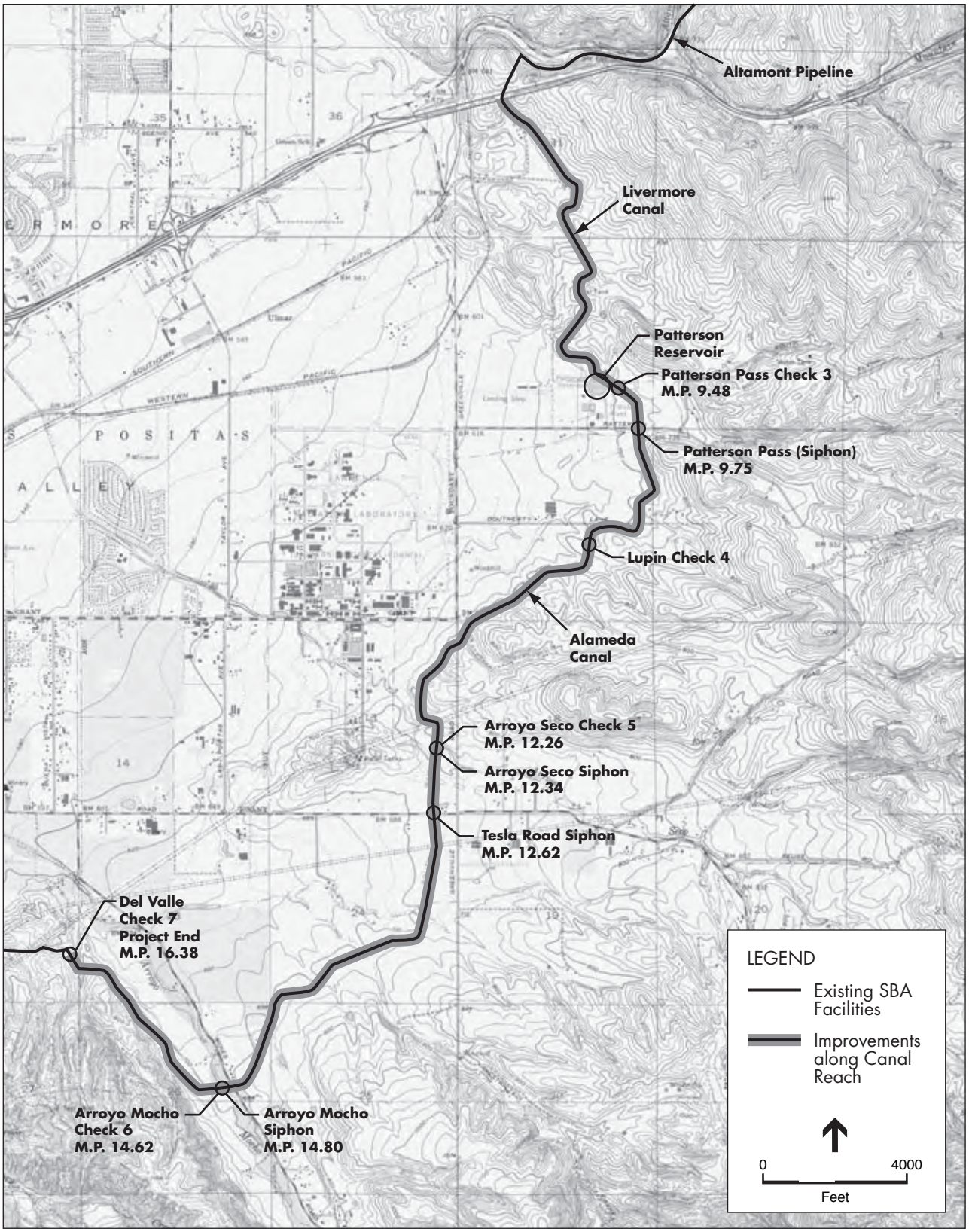
- Lupin Check 4. Gate elevations would be adjusted to accommodate new water surface elevations. All work would occur within the canal structure.

- Arroyo Seco Check 5. A second gate would be added at this location, and gate elevations would be adjusted to accommodate new water surface elevations. All work would occur within the canal structure.

- Arroyo Seco Siphon. DWR proposes to construct a second siphon barrel beneath Arroyo Seco. The proposed 7-foot diameter siphon would extend approximately 440 feet, and would be located west of the existing siphon, immediately upstream of the existing access apron that extends across the creek channel. Trench installation would be used, with an anticipated construction area width of 60 feet within the creek area. Construction areas adjacent to the creek would widen to DWR's right-of-way, estimated at 180 feet. Similar to the existing siphon, a concrete vault and blowoff structure, including blowoff discharge pipe, would be constructed north of the creek's centerline. Consistent with existing blowoff design, the blowoff discharge pipe would be underlain by a mat of stone slope protection to dissipate the energy from raw water discharged into the creek. A plan and profile for the siphon at Arroyo Seco is shown in **Figure 2-14**.

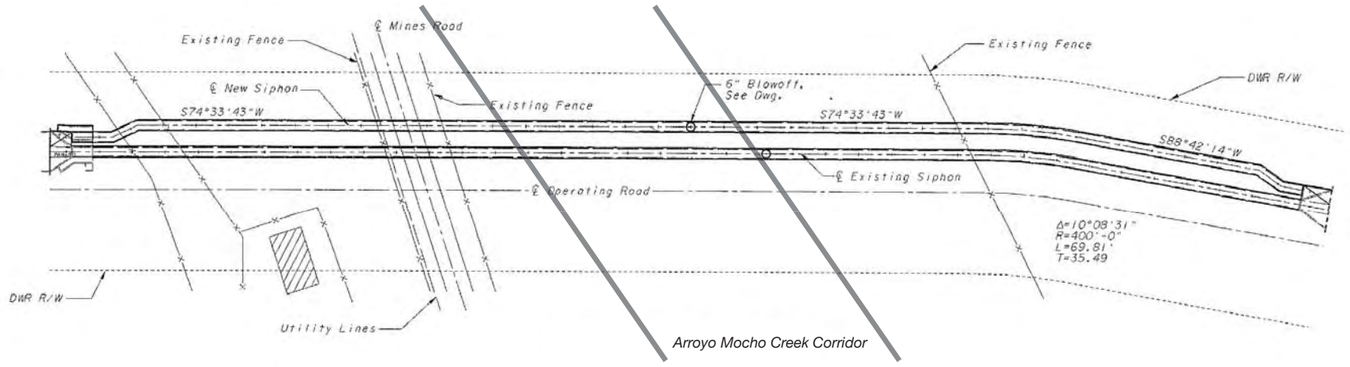
- Tesla Road Siphon. DWR proposes to construct a second siphon barrel beneath Tesla Road. The proposed 7-foot diameter siphon would be located about 11 to 22 feet (measured from centerline of two pipes) east of the existing siphon. The two siphons would receive and discharge water via combined inlet and outlet structures, which separate the flows at the beginning and end of the siphons.

- Arroyo Mocho Check 6. A second gate would be added at this location, and gate elevations would be adjusted to accommodate new water surface elevations. All work would occur within the canal structure.

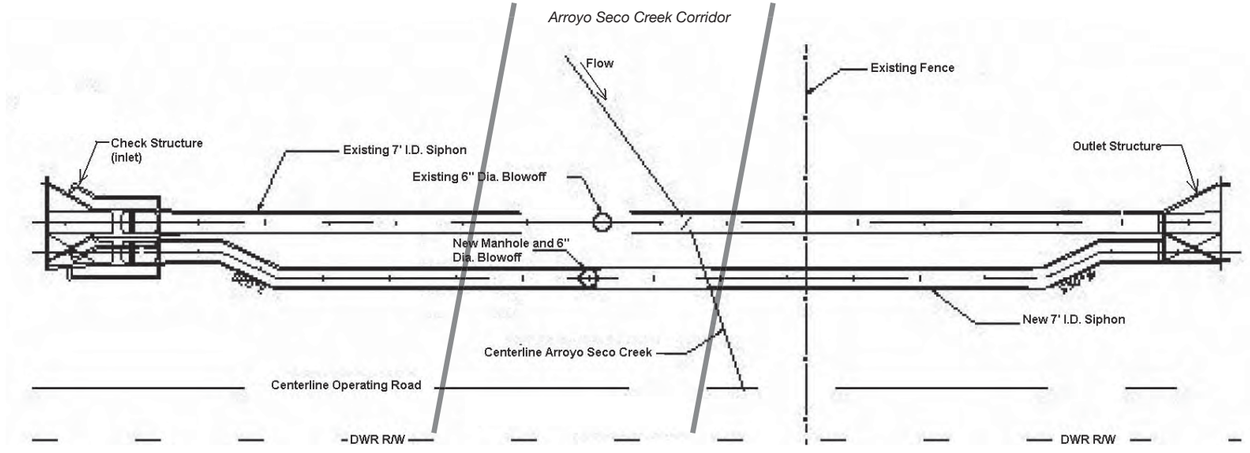


SOURCE: USGS Basemap from Maptech;
Drawn by Environmental Science Associates

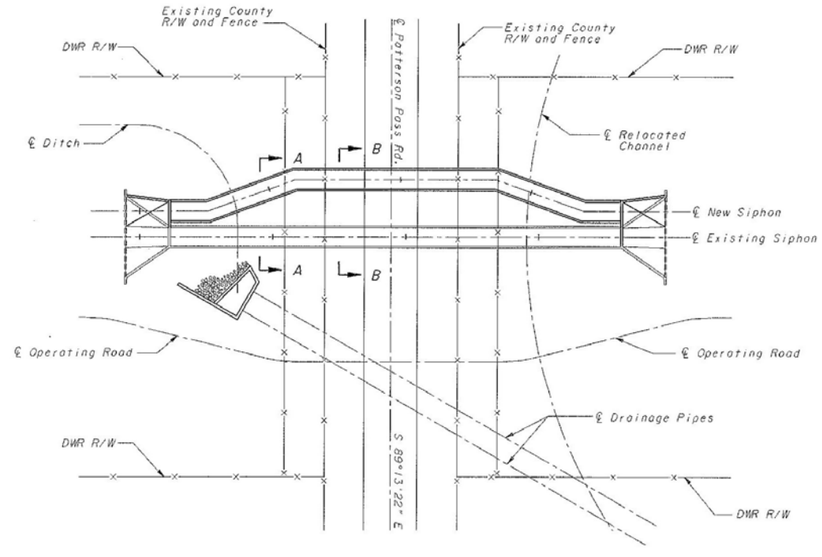
Figure 2-13
Proposed Check and Siphon Improvements on Livermore and Alameda Canals



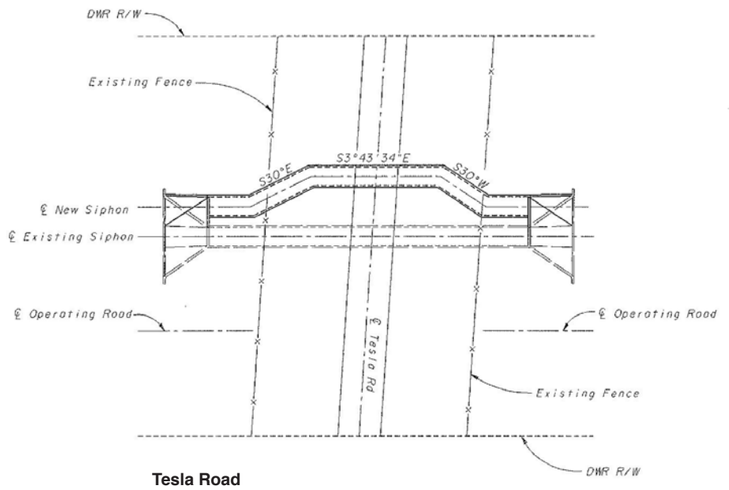
Arroyo Mocho



Arroyo Seco



Patterson Pass



Tesla Road

N

SOURCE: Department of Water Resources, 2004

Figure 2-14

Arroyo Mocho, Arroyo Seco, Patterson Pass, and Tesla Road Siphon Installation Plan

- Arroyo Mocho Siphon. DWR proposes to construct a second siphon barrel beneath Mines Road and the Arroyo Mocho. The new siphon would include a pipeline connection to the existing turnout at Arroyo Mocho. The proposed 7-foot diameter siphon would extend approximately 885 feet, and would be located up to 22 feet south and upstream of the existing siphon. Trench installation would be used, with an anticipated construction area width of 60 feet within the creek area. Construction areas adjacent to the creek would widen to DWR's right-of-way, estimated at 180 feet. Similar to the existing siphon, a concrete vault and blowoff structure, including blowoff discharge pipe, would be constructed north of the creek's centerline. The blowoff discharge pipe would be underlain by a mat of stone slope protection to dissipate the energy from raw water discharged into the creek. A plan and profile for the siphon at Arroyo Seco is shown in **Figure 2-14**.

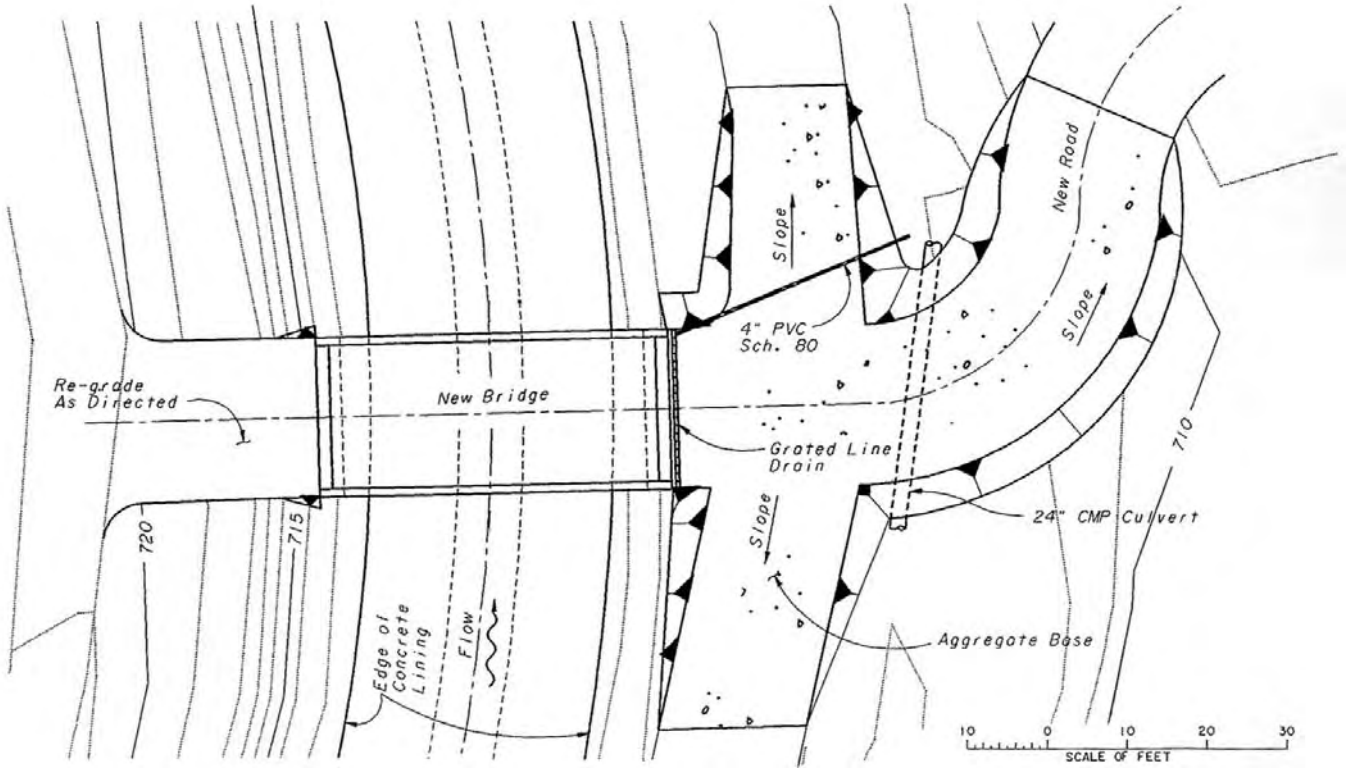
Canal Crossing Structures (Bridges, Overchutes, Pipelines)

There are 11 bridges, eight overchutes, nine pipelines, 19 drain inlets, and 29 culverts crossing the various canals that comprise the SBA. Bridges consist of farm and county road crossings. Farm bridges, primarily constructed of timber, have a 20-foot wide roadway to accommodate farm machines and concrete footings. County Road bridges consist of reinforced concrete designed as simple-span structures with cast-in-place pipe-supported abutments. Cross drainage is conveyed under the canal in culverts, over the canal in pipes or box overchutes, or into the canal, depending on the existing topographic conditions. Drainage into the canals from adjacent agricultural and grazing land has been identified as a significant water quality concern. Sediments entering the canal affect downstream water quality, and results in increased maintenance by DWR Operations and Maintenance (O & M) staff for sediment removal. DWR proposes to raise over-crossing structures and pipelines to provide adequate clearance for the higher water surface elevation. All bridges, pipelines, and overchutes with less than 1 foot of clearance would be raised as part of the project. Those structures having more than 1 foot of clearance would be raised on a case-by-case basis. Raising of all structures is assumed in this EIR. (Specific improvements by milepost are included in **Appendix 2.0**.) A typical construction detail for bridge and overchute replacement is provided in **Figures 2-15** and **2-16**. Ramps from existing roadways to final bridge elevations would be installed.

PATTERSON RESERVOIR

Patterson Reservoir is located north of Zone 7's Patterson Pass WTP, off of Patterson Pass Road (east of the City of Livermore). The reservoir is situated adjacent to the junction of the Livermore and Alameda Canals, and was constructed to serve the WTP. The reservoir has a surface area of four acres, with a maximum depth of approximately 30 feet and embankment slopes of 2:1. The storage capacity of the reservoir is 100 af. A 175-foot-long concrete-lined weir conveys water from the Livermore Canal into Patterson Reservoir.

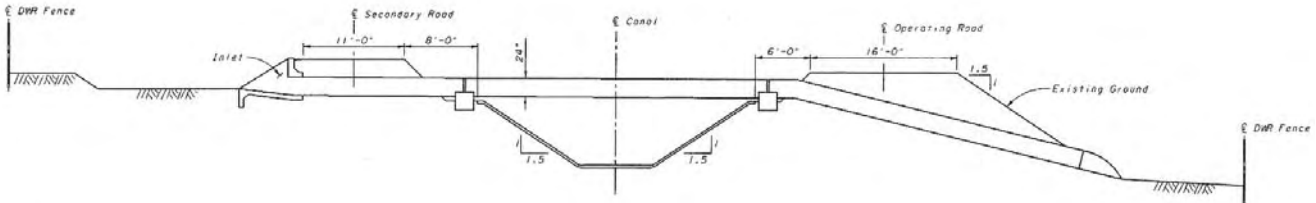
DWR proposes to raise the crest of the reservoir embankment 1.5-feet in order to raise the existing maximum water surface elevation from 710 feet to 711 feet. This would increase the storage of the reservoir from 100 af to 105 acre feet. The 1.5 foot embankment raise will be accomplished by placing 10-foot wide new embankment materials on the downstream slope up to the crest of the existing embankment. Preliminary design of embankment improvements is



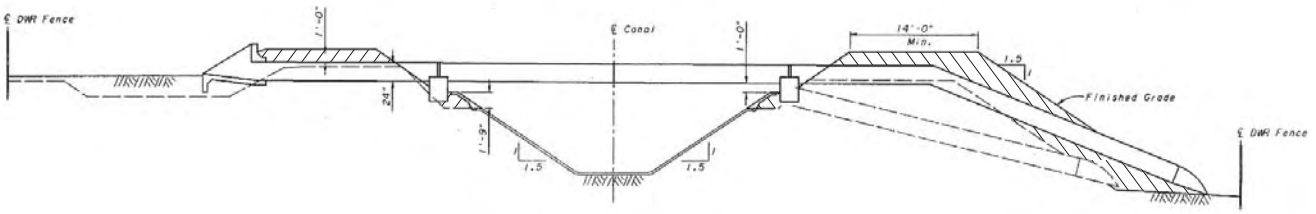
Concrete Bridge
Replacement Detail

SOURCE: Department of Water Resources, 2004

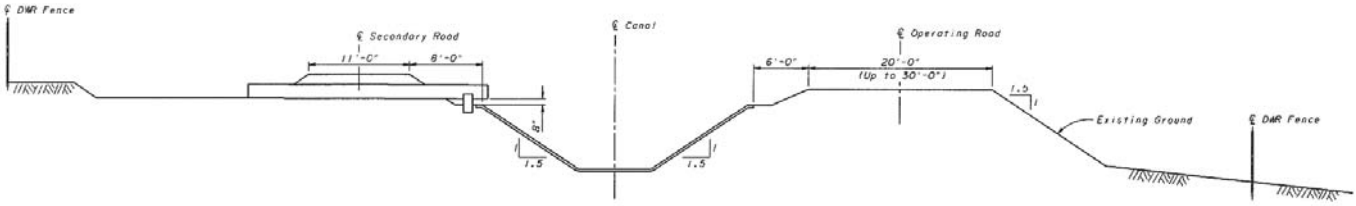
Figure 2-15
Bridge Detail



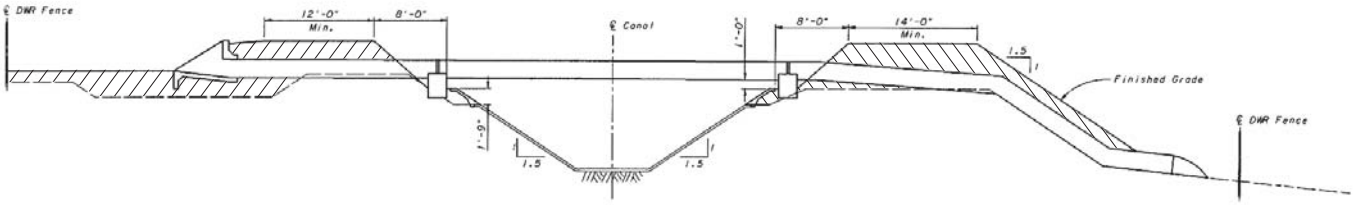
Typical Existing Overchute Profile



Typical Proposed Overchute Profile



Typical Existing Drain Inlet Profile – Discharge to Canal



Typical Proposed Overchute Profile – Conveyance Across Canal

Fill

SOURCE: Department of Water Resources, 2004

Figure 2-16

Typical Design, Overchutes and Drain Inlets

shown in **Figure 2-17**. In addition to the embankment improvements, a multi-level intake would be installed within the reservoir embankment to improve water quality from the reservoir to Zone 7's Patterson Water Treatment Plant. This improvement would be internal to the reservoir structure, and would be authorized by Zone 7 during the course of the construction period.

EMBANKMENT BORROW AREA

Embankment material for canal improvements and Patterson Reservoir may be borrowed from an undeveloped parcel adjacent to and east of the Zone 7 Patterson Pass WTP. This 17-acre parcel is owned by DWR, and is currently used for periodic dredging of Patterson Reservoir (once every 5 years) and spoils storage by DWR O & M. Approximately 50,000 cy of fill could be generated from excavation of material from this parcel, and placed as fill at Patterson Reservoir and/or the Livermore and Alameda Canals. DWR would confirm material suitability for use through geotechnical sampling. In the event that this location is used as a borrow site, final grading of the site would include establishment of a permanent drying basin on the northern portion of the site. The remainder of the site would then be restored to either its pre-project condition, or enhanced to provide wetland habitat for sensitive species.

2.6 CONSTRUCTION

2.6.1 CONSTRUCTION SCENARIO

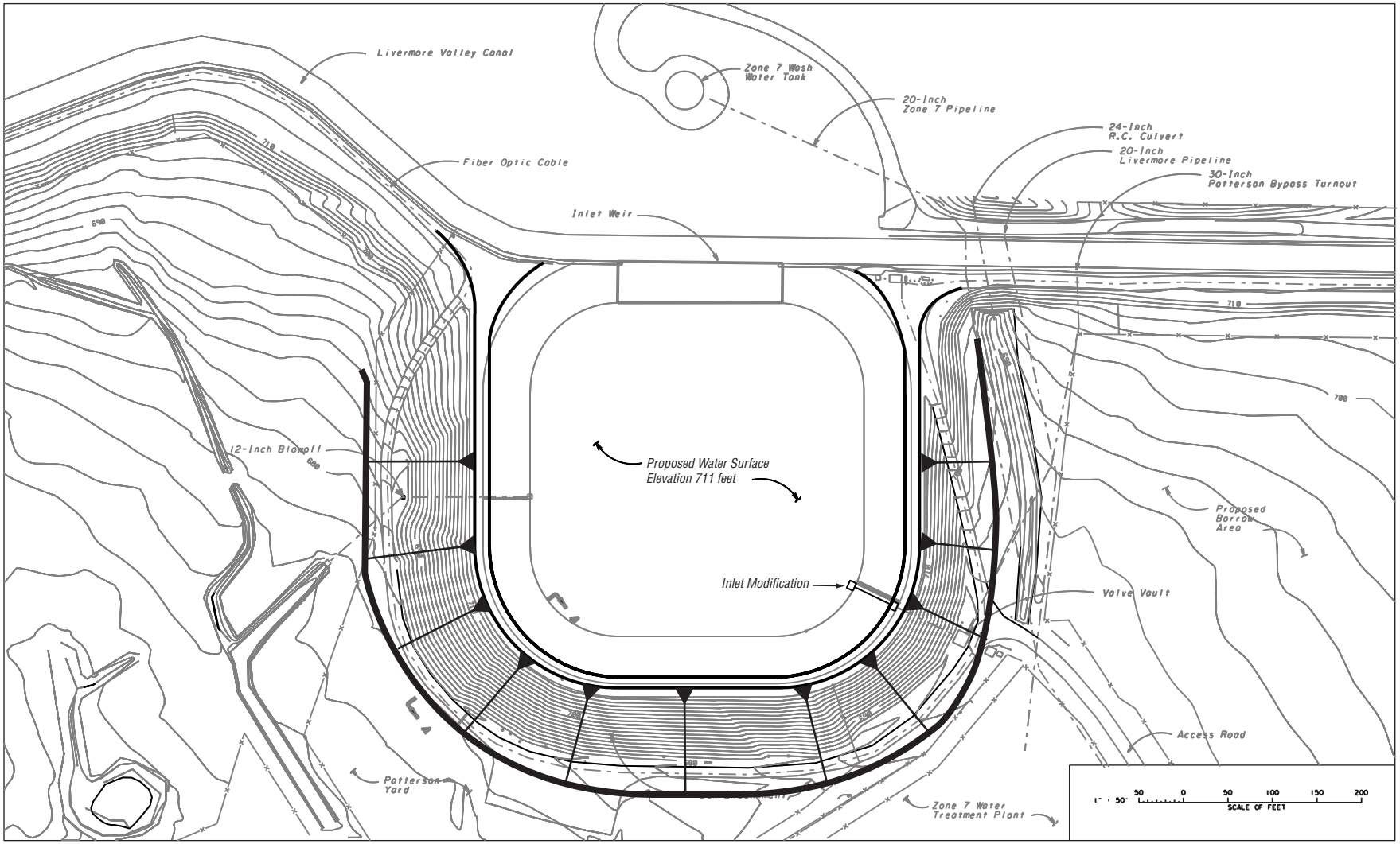
Construction activities for all components would require initial clearing and grading at each site to accommodate excavation and staging activities. The excavation and construction zone for each component would differ depending on the location and type of activity. Construction of the proposed facilities would require disturbance of primarily undeveloped land (i.e., grazing land) that is located immediately adjacent to existing facilities, or would be contained with in DWR right of way. All disturbed areas would be restored to pre-construction conditions. Implementation of facilities will be scheduled, designed and phased to provide continual levels of delivery. ~~No outages to SBA Contractors are anticipated.~~

Construction of the Proposed Project would result in a large amount of excavated spoils, primarily associated with construction of the SBPP, excavation of the Stage 3 Brushy Creek Pipeline, and construction of Dyer Reservoir. Excess spoils, which could be used to accommodate extension of the canal embankment, would be reused to the extent feasible.

Truck deliveries would be based on the type and intensity of activity at each site, as well as the amount of equipment and exported / imported material required. Haul routes would include private farm roads and public roads (including Dyer Road, Altamont Pass Road, Greenville Road, Patterson Pass Road, Tesla Road, Mines Road, and Interstate 580).

SOUTH BAY PUMPING PLANT EXPANSION

Construction would include grading of a foundation pad and adjacent slope areas, placing concrete for foundations, structural excavation, building construction, construction of a switchyard and transmission line tie-in, inlet excavation and installation, and pumping unit



SOURCE: Department of Water Resources, 2004

Figure 2-17
Patterson Reservoir Modifications

installation. Grading and excavation would generate approximately 120,000 cy of material. This material would be disposed of at spoil sites adjacent to the SBPP (**Figure 2-3**). Grading would be implemented in phases under two contracts. The Initial Contract, estimated at 18 months, would include the majority of earthwork activities, including: rough grading of the site; excavations to establish building foundations and switchyard; slope excavation and re-contouring; excavation of intake location; construction of drying basin; re-contouring of inlet shoreline; finished site grading. Minor earthwork would occur under the Completion Contract, estimated at 16 months. Total work duration at the site would be approximately 34 months, although construction would be essentially complete under the Initial Contract. Depending upon geologic conditions and the success of conventional methods, limited controlled detonation could be used to more efficiently crack bedrock for removal. Contractor staging would be onsite or adjacent to the existing facility within existing DWR right of way or temporary construction easement. Construction crews are estimated at 10 to 15 workers over the course of the 34 month construction period (see **Table 2-3**). Equipment anticipated for construction of the SBPP is identified in **Table 2-4**.

BRUSHY CREEK PIPELINE INSTALLATION

Construction of the Brushy Creek Pipeline would utilize open trench installation techniques. Construction easement will range between 80 and 145 feet in width; actual construction easement would vary with topography, to provide the contractor with layout areas in level terrain. Trench depth is estimated at 10 to 27 feet, with trench widths of 30 to 60 feet. Trench depths near Brushy Creek would be 10 to 15 feet to accommodate shallower bedrock conditions and minimize impacts to Brushy Creek. Bedrock material would be ripped using conventional equipment along this portion of the alignment. Depending upon geologic conditions and the success of conventional methods, limited controlled detonation could be used to more efficiently crack bedrock for removal. Two existing wind turbine towers and an electric power pole located along the pipeline corridor may require removal.

The pipeline would be constructed using typical trench excavation and installation techniques, and would generally include the following: alignment grubbing and clearing, excavation, pipeline staging and placement in the trench, connection of pipeline segments and placement of engineered backfill in the lower portion of the trench, backfill of trench with excavated materials, and final alignment grading. Remaining spoils material generated by the volume of the pipeline would be graded across the pipeline corridor, and the pipeline corridor would be reseeded to restore disturbed areas.

The pipeline would be constructed by up to two or more construction crews totaling up to approximately 20-25 employees. A typical construction corridor layout is shown in **Figure 2-6**. Construction equipment anticipated for construction of the pipeline is shown in **Table 2-4**.

RESERVOIR CONSTRUCTION

Dyer Reservoir would be constructed east of the existing Dyer Canal. The reservoir would be constructed to provide a maximum water surface elevation of 805 feet above msl. An excavation of approximately 790,000 cy of material is anticipated, with placement of approximately

TABLE 2-3
SUMMARY OF ANTICIPATED CONSTRUCTION ACTIVITIES FOR PIPELINE ALIGNMENTS

Construction Activity	South Bay Pumping Plant	Stage 3 Brushy Creek Pipeline	Dyer Reservoir	Canal Improvements	
Construction duration, months	18 (Initial Contract)[a]	17	20	23	
Excavation, cubic yards (cy)	120,000	274,630	790,000	19,400	
Exported Embankment Materials	0	0	60,000[b]	0	
Backfill Material, cy	13,920[c]	274,630	25,000	0	
Concrete, cy	2,400	4,224	1,500	6,190	
Imported Aggregate Materials, cy	2,400	10,000	25,000	105,640	
Embankment, cy	100,000	NA	150,000	99,450[d]	
Other Major Deliveries	Structural Steel	19,800 LF 78" Pipe 1,056 T steel reinforcement/rebar	50,000 cy Asphalt Concrete	60 T steel reinforcement	
Likely haul routes	Mountain House Rd. Kelso Road	Mountain House Rd. Kelso Road Altamont Pass Road Dyer Road	Dyer Road Altamont Pass Road	Dyer Road Altamont Pass Rd Patterson Pass Rd	Greenville Road Telsa Road Mines Road
Depth of excavation, feet	34	9-20	30	NA	
Crew size	15-20	20 – 25	15-30	10-15	
Construction Traffic					
Average Daily Truck Trips	10	24	68	20	
Average Daily One-Way Trips[e]	20	48	136	40	
One Way Peak-hour truck trips	3	8	21	6	
Peak daily construction worker trip (2.5 x crew size)	50	63	75	50	
Peak-hour worker trips	20	25	30	20	

a Initial contract of 18 months includes the majority of exterior site work. Completion contract will extend an additional 16 months for internal pump station modifications.
b Exported to SBA Dyer Livermore and Alameda Canals to raise embankment.
c Includes compacted backfill for structure, pipeline
d Most pipeline work will likely be done with two crews at two locations.
e Counting each truck delivery as two truck trips.

TABLE 2-4
CONSTRUCTION EQUIPMENT ESTIMATES

Equipment	South Bay Pumping Plant	Brushy Creek Pipeline	Dyer Reservoir	Canal Improvements
Bulldozer	2	2	2	1
Backhoe	1	2	1	2
Hydraulic Impact Hammer	1	1	1	0
Forklift	1	1	1	0
Loader	1	2	3	1
Small Compactor	1	1	2	2
Roller	1	1	1	2
Pickup	2	5	5	2
Road Grader	1	1	1	2
Compactor	1	1	2	2
Flat Bed Truck	1	4	2	1
Scraper	1	2	4	0
Paver	1	0	1	0
Excavator	1	2	2	1
Trencher	0	2	0	1
Water Truck	1	2	2	1
Crane	0	0	1	0

SOURCE: Compiled by Environmental Science Associates.

150,000 cy of embankment material. Excess material would be spoiled onsite on the east side of the reservoir. The earthwork for the reservoir would occur over 20 months. Depending upon geologic conditions and the success of conventional methods, limited controlled detonation could be used to more efficiently crack bedrock for removal.

The facility would be constructed in accordance with Division of Safety of Dams (DSOD) *Statutes and Regulations Pertaining to Supervision of Dams and Reservoirs*. The exact construction scenario would vary, depending on the contractor selected. However, the main tasks would be as follows:

- Clearing and grubbing of the construction area, which involves the removal of vegetation or other materials;
- Excavation of the embankment foundations and reservoir impoundment area;
- Scarification and recompaction of the reservoir impoundment area to minimize potential water losses from the reservoir;
- Construction of embankments, including placement and compaction of earthen materials (earthen embankments are commonly constructed by placing selected materials in layers of 6 to 18-inches, and compacting them with a heavy roller);
- Concrete work, including construction of the inlet, outlet, turnout and spilling structures;
- Installation of piping and appurtenant structures; and
- Finish work on the embankment and reservoir, consisting of placement of slope protection or lining on the interior reservoir slopes and constructing a roadway on the dam crest for access and maintenance.

Construction staging would be adjacent to the reservoir, and a construction crew of 30 employees at the peak of construction is anticipated. Constuction equipment anticipated for construction of the reservoir is shown in **Table 2-4**.

CANAL EMBANKMENT IMPROVEMENTS

Improvements would include placement and compaction of fill along interior embankments and on embankment roadways. Fill would be placed by dump trucks along the surface of the existing embankment, then compacted using rollers. The concrete lining of the canal would be placed using concrete trucks operating from the embankments. The SBA would remain in service during embankment improvements.

For Dyer Canal, fill material would be generated from the Dyer Reservoir construction and portion of the Brushy Creek Pipeline that will be adjacent to Dyer Canal. This material would be trucked directly to Dyer Canal from the adjacent Dyer Reservoir and Brushy Creek Pipeline site, and would not require the use of roadways. For improvements to Livermore Canal and Alameda Canal, including improvements to Patterson Reservoir, fill may be exported from the Dyer Reservoir site to access points along the canals. It is estimated that this scenario would involve the transport of approximately 60,000 cy of material. Assuming a haul rate of 10 cy per truck load, this would result in approximately 6,000 truck trips. Export of fill from the Dyer Reservoir site would occur as needed for improvements to the Livermore Canal, Patterson Reservoir, and Alameda Canal. Construction schedules for these improvements are anticipated to require a 9 month construction window. At peak construction, export of fill could generate a maximum of 50 to 80 truck trips per day between Dyer Reservoir and the Livermore Canal. Primary haul routes for this export would be Dyer Road, Altamont Pass Road, Greenville Road, and Patterson Pass Road.

Alternatively, a borrow site adjacent to and east of Zone 7's Patterson Pass WTP may potentially be used to generate the 60,000 cy of material needed for improvements to these canals. Use of this borrow site would provide access directly to Livermore Canal and Patterson Pass Road. Material for Alameda Canal would be transported from the borrow site to access points along Alamada Canal using Patterson Pass Road, Greenville Road, Tesla Road, and Mines Road.

SIPHON INSTALLATION

Construction of second siphon barrels crossing Arroyo Mocho and Arroyo Seco (both under the jurisdiction of the U.S. Army Corps of Engineers [USACOE]) would use open trench methods, as both channels are crossed by existing concrete aprons. DWR would construct siphons during the dry season, when flow is absent or minimal. All areas would be restored to their pre-construction conditions. For crossing of major roadways, pipeline installation would use open trench excavation during dry season. The siphons would be installed in a trench with 2:1 side slopes, with 1 foot of bedding material below the siphon and 5 feet of cover material. Trench width would range from 36 to 44 feet and trench depth would average 12 feet. The active work area along the open trench would be about 5 feet on one side of the trench and 10 to 12 feet on the other side for access by trucks and loaders.

2.6.2 CONSTRUCTION SCHEDULE

Construction activities for the Proposed Project are scheduled to be completed in about a 3-year timeframe. Construction is anticipated to begin early 2005, and be completed in 2008. Construction duration at each facility would vary depending upon the level of work proposed, but all facilities would be completed within this timeframe. **Table 2-3** provides a breakdown of anticipated construction duration for each facility. Siphon installation across Arroyo Seco and Arroyo Mocho would be limited to the dry season.

2.7 ALTERNATIVES

An EIR must describe a range of reasonable alternatives to the Proposed Project or alternative project locations that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts to the Proposed Project. The alternatives analysis must include the "No Project Alternative" as a point of comparison. The No Project Alternative includes existing conditions and reasonably foreseeable future conditions that would exist if the project were not approved (CEQA §15126(d)). Alternatives examined are discussed below.

2.7.1 NO PROJECT ALTERNATIVE

Under the No Project Alternative, DWR would not implement construction of facilities identified under the Proposed Project. This would maintain the current SBA delivery capacity of less than 300 cfs, and would not improve design capacity, provide for operational flexibility, provide for off-peak pumping, or implement facilities necessary to increase the SBA delivery capacity to 430 cfs.

2.7.2 IMPROVEMENTS PROJECT ONLY ALTERNATIVE

Under this alternative, DWR would implement the Improvements component of the Proposed Project to meet the SBA facility design capacity of 300 cfs. These facilities would be limited to those improvements necessary for DWR to meet its contractual obligation of 300 cfs to the SBA Contractors. DWR has a contractual obligation under its Water Service Agreement to provide a delivery capacity of 300 cfs to the three SBA Contractors. These improvements would be limited to improvements at the SBPP pumping plant to install a spare (45 cfs) pumping unit and connect it to the Stage 2 mainfold, improvements to the Stage 2 surge tank, and raising of the Dyer, Livermore, Patterson Reservoir and Alameda canal lining approximately 1.0 foot.

2.7.3 BRUSHY CREEK PIPELINE NORTHERN ALIGNMENT

This alternative would include construction of a pumping station on the west side of the California Aqueduct upstream of the Bethany Reservoir (see **Figure 6-5, Chapter 6, Alternatives Analysis**). This pump station location is located on an approximately five acre area approximately 7,200 feet upstream of the current SBPP Bethany Reservoir inlet. The pipeline route would extend west from this location approximately 4.4 miles to the Dyer Reservoir site. From the pump station, the pipeline would extend 1,700 feet across undeveloped land to an existing access road for wind power facilities, continuing along this roadway alignment approximately 3,000 feet. The pipeline would then continue up the eastern face of a small foothill approximately 1,700 feet to meet the existing SBA easement. From this point the pipeline would extend west parallel to and north of the existing SBA approximately 6,800 feet to the dirt road extension of Dyer Road. The pipeline would follow this alignment for approximately 1,600 feet to Brushy Creek, where it would trench across Brushy Creek. The pipeline would extend upslope approximately 800 feet west of the Brushy Creek to avoid lateral installation on high slope areas along the creek, and then would extend south approximately 7,500 feet for a second trench crossing of Brushy Creek to route the pipeline back to the eastern side of Dyer Canal for access to Dyer Reservoir.

2.7.4 BRUSHY CREEK PIPELINE SOUTHERN ALIGNMENT

This pipeline route would include construction of a pump station south of the SBPP inlet. The pumping plant would be constructed on an existing 2 acre site that appears to have been established as part of the grading for the SBPP. From this location, the pipeline would extend approximately 3.5 miles west to the Dyer Reservoir, following topographic opportunity south of the existing SBA easement (see **Figure 6-5, Chapter 6, Alternatives Analysis**). From the pump station site, the pipeline would extend west overland along a narrow drainage approximately 3,500 feet to an existing stock reservoir. The pipeline would then follow a jeep trail alignment west approximately 3,900 feet along a tributary to the stock reservoir, turning south to follow an access road alignment approximately 5,700 feet over the foothill crest (900 feet msl) to an existing access road associated with wind power facilities. The pipeline would then extend west along this access road alignment approximately 5,600 feet to the Dyer Reservoir site.

2.7.5 ALTERNATIVE DYER RESERVOIR SITES

NO OFF PEAK PUMPING ALTERNATIVE - 100 ACRE-FOOT STORAGE WEST OF DYER CANAL

This alternative would include construction of a 100 af reservoir immediately east of and adjacent to Dyer Road, between the roadway and Dyer Canal. The reservoir would be formed by open trench excavation and would be centered on the existing parcel. The western edge of the reservoir would front Dyer Road for approximately 800 feet. Excavation for this reservoir alternative is estimated at 440,000 cy. Spoils generated by this alternative would be recontoured onsite or at areas east of Dyer Canal. Access to the facility would be via the existing Dyer Canal access road to the south, which would be realigned to maintain access to Dyer Canal and private lands to the east. Hydrologic connection to Dyer Canal would be via a 150-foot wide weir structure located on the eastern embankment. Reservoir location and layout are shown in **Figure 6-6**, **Chapter 6, Analysis of Alternatives**.

WEST OF DYER CANAL - 200 ACRE-FOOT STORAGE

This alternative would include construction of a 200 af reservoir immediately east of and adjacent to Dyer Road, between the roadway and Dyer Canal. The reservoir would be formed by open trench excavation and would be centered on the existing parcel. The western edge of the reservoir would front Dyer Road for approximately 1,500 feet. Excavation for this reservoir alternative is estimated at 730,000 cy. Spoils generated by this alternative would be recontoured onsite or at areas east of Dyer Canal. Access to the facility would be via the existing Dyer Canal access road to the south. Hydrologic connection to Dyer Canal would be via a 100-foot wide weir structure located on the eastern embankment. Reservoir location and layout are shown in **Figure 6-6**, **Chapter 6, Analysis of Alternatives**.

WEST OF DYER CANAL – 500 ACRE-FOOT STORAGE

This alternative would include construction of a 500 af reservoir on the same site immediately east of and adjacent to Dyer Road. The reservoir would be situated, between the roadway and Dyer Canal, and due to its size, would encompass the entire parcel. The reservoir would be formed by open cut excavation and embankments with a maximum height of approximately 15 feet above current grade. The western edge of the reservoir would front Dyer Road for approximately 3,100 feet. Excavation for this reservoir alternative is estimated at 1,220,000 cy. Spoils generated by this alternative would be recontoured onsite or at areas east of Dyer Canal. Access to the facility would be via the existing Dyer Canal access road to the south. The access road would be re-aligned to provide access to Dyer Canal and the private lands to the east of Dyer Canal. Hydrologic connection to Dyer Canal would be via a 150-foot wide weir structure located on the eastern embankment. Reservoir location and layout are shown in **Figure 6-6**, **Chapter 6, Analysis of Alternatives**.

PATTERSON RESERVOIR

This alternative would involve expansion of the existing Patterson Reservoir to provide an additional 200 af of storage. Two design configurations for this expansion were reviewed, both involving construction of new embankment to the east on lands currently owned by DWR. Embankments would be similar to the 30-foot high embankments of the existing facility. Under the first configuration, the existing southeastern embankment of the reservoir would be demolished, and the new embankment would extend across the existing DWR access road from Patterson Reservoir to the adjacent parcel. Under the second configuration, a self contained reservoir would be constructed on the adjacent parcel, with a pipeline connection to the existing reservoir. A layout for both configurations is provided in **Figure 6-7**, **Chapter 6, Analysis of Alternatives**. Excavation and embankment quantities for both reservoir alternatives are estimated at 190,000 cy and 80,000 cy, respectively.

2.8 RIGHT-OF-WAY ISSUES / PERMITS REQUIRED

The proposed activities are sited within both private lands and existing DWR easements. Acquisition of right-of-way and temporary construction easements would be required for the construction of the SBPP, Stage 3 Brushy Creek Pipeline, Dyer Reservoir, new siphon barrels, and modifications to check structures and canal overcrossings. Temporary construction easements will also be required for contractor staging areas and equipment and materials storage.

Construction of the Stage 3 Brushy Creek Pipeline facilities, siphon barrels, Dyer Reservoir, and canal embankment extension may require permits from the USACOE, the U.S. Fish and Wildlife Service, California Department of Fish and Game, and the San Francisco Regional Water Quality Control Board.

DWR's DSOD supervises the construction, enlargement, alteration, repair, maintenance, operation, and removal of dams and reservoirs. The DSOD has jurisdiction over all dams in the State that are not federally owned, that are 25 feet or higher (regardless of storage capacity), and that have a storage capacity of 50 af of water or greater (regardless of height). The Division of Engineering would coordinate with DSOD in the design and construction of Dyer Reservoir and upgrade of Patterson Reservoir.

2.9 INTENDED USES OF THE EIR

DWR intends to use this EIR to consider implementation of the SBA Improvement and Enlargement Project. As Lead Agency, DWR may use this EIR to approve the Proposed Project, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts.

Zone 7, which will fund construction of the Enlargement Project, also has discretionary authority over the Proposed Project, and is therefore a Responsible Agency. DWR may approve the Improvements portion of the Proposed Project, which includes restoring the SBA's current peak

delivery capacity of 270 cfs to its design capacity of 300 cfs under its existing authority, in accordance with the long-term water supply contracts between DWR and the SBA Contractors.

DWR would also use the analysis contained within this EIR to support the acquisition of the following regulatory permits or approvals:

- USACOE: 404 Clean Water Act – Individual Permit
- United States Fish and Wildlife Service. Section 7 Consultation
- California Department of Fish and Game: 1603 Stream Bed Alteration Agreement
- Regional Water Quality Control Board: 401 Water Quality Certification
- Alameda County Public Works – Roadway Encroachment Permit, Watercourse Permit, Drilling Permit

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REFERENCES – Project Description

Camp Dresser & McKee (CDM), *Zone 7 Water Agency Water Conveyance Study*, December, 2000.

Department of Water Resources, *South Bay Aqueduct Improvement and Enlargement Study*, December 2003.

Department of Water Resources, *CAD Drawings*, 2004.

Environmental Science Associates (ESA), *Zone 7 Water Agency Water Supply Planning Program – Program Environmental Impact Report (SCH# 98041040)*, January 1999.

Water Transfer Associates, *Water Supply Planning Study Update*, January 1999.