Ex. "8":

City of Manteca "*General Plan 2023, Policy Document*"
Adopted October 6, 2003 (Resource Conservation); Pages
8-10 and 8-11

Goal RC-9. To promote the continuation of agricultural uses in the Manteca area and to discourage the premature conversion of agricultural land to nonagricultural uses, while providing for the urban development needs of Manteca.

8.8.1 Policies: Agricultural Resources

RC-P-19. The City shall support the continuation of agricultural uses on lands designated for urban use, until urban development is imminent.

RC-P-20. The City shall provide an orderly and phased development pattern so that farmland is not subjected to premature development pressure.

RC-P-21. In approving urban development near existing agricultural lands, the City shall take actions so that such development will not unnecessarily constrain agricultural practices or adversely affect the viability of nearby agricultural operations.

RC-P-22. Nonagricultural uses in areas designated for agriculture should be redirected to urban areas.

RC-P-23. Protect designated agricultural lands, without placing an undue burden on agricultural landowners.

RC-P-24. Provide buffers at the interface of urban development and farmland; in order to minimize conflicts between these uses.

RC-P-25. The City shall ensure, in approving urban development near existing agricultural lands, that such development will not unnecessarily constrain agricultural practices or adversely affect the economic viability of nearby agricultural operations.

RC-P-26. The City shall restrict the fragmentation of agricultural land parcels into small rural residential parcels except in areas designated for estate type development in the General Plan Land Use Diagram.

RC-P-27. The City shall discourage the cancellation of Williamson Act contracts outside the Primary Urban Service Boundary line.

RC-P-28. The City shall not extend water and sewer lines to premature urban development that would adversely affect agricultural operations.

RC-P-29. The City shall encourage Manteca Unified School District and the Delta Community College District to maintain the school farm facilities and associated education programs in the City.

RC-P-30. The City of Manteca will participate in a county-wide program to mitigate the conversion of Prime Farmland and Farmlands of Statewide Importance to urban uses.

8.8.2 Implementation: Agricultural Resources

RC-I-30. Apply the following conditions of approval where urban development occurs next to farmland.

- Require notifications in urban property deeds that agricultural operations are in the vicinity, in keeping with the City's right-to-farm ordinance.
- Require adequate and secure fencing at the interface of urban and agricultural use.
- Require phasing of new residential subdivisions; so as to include an interim buffer between residential and agricultural use.

RC-I-31. Work with San Joaquin County on the following issues:

- Pesticide application and types of agricultural operations adjacent to urban uses.
- Support the continuation of County agricultural zoning in areas designated for agricultural land use in the Area Plan.

Ex. "9":

Reclamation District No. 17 (Prepared by AECOM) "*Final Environmental Impact Report Phase 3-RD 17 Levee Seepage Repair Project*" dated March 2015 (SCH #2010042073); Page 3.2-16

~~also~~ result in permanent conversion of Important Farmland for construction of setback levees in Elements IIab, ~~and~~ Ivc, and VIcde~~IVe~~. The Important Farmland on the waterside of the setback levee would be converted to nonagricultural uses, such as habitat or open space. ~~The~~This impact on the permanent conversion of Important Farmland ~~under Alternative 2~~ would be significant.

Applicant's Preferred Alternative

Table 3.2-2 shows the acreage of Important Farmland that would be converted to nonagricultural uses under the Applicant's Preferred Alternative. Under this alternative, Important Farmland acreage would be required for construction of seepage berms, a setback levee, and an access road. As described under Alternative 1, construction of seepage berms would be considered a permanent conversion of Important Farmland to nonagricultural uses. This impact on the permanent conversion of Important Farmland would be significant.

Mitigation Measure 3.2-a: Minimize Important Farmland Conversion to the Extent Practicable and Feasible.

Alternative 1—Minimum Footprint Alternative, Alternative 2—Maximum Footprint Alternative, and the ~~Alternatives and 1 and 2~~ Applicant's Preferred Alternative

RD 17 shall implement the following measures ~~listed below~~ concerning Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to minimize adverse effe~~imp~~acts on these lands:

a) During ~~project~~ Phase 3 Repair Project construction, utilities disturbance ~~of utilities~~ that ~~are~~ is needed for agricultural purposes (including wells, pipelines, and power lines) and agricultural drainage systems ~~shall~~ will be minimized so that agricultural operations are not substantially disrupted. If any agricultural infrastructure, such as wells, pipelines, and drainage canals, ~~must~~ need to be removed during project construction, ~~restore~~ the function of these facilities will be restored as soon as possible for lands that are to remain in agricultural production.

b) Disturbance of agricultural land and agricultural operations during Phase 3 Repair Project construction ~~shall~~ will be minimized by locating construction staging areas on sites that are fallow, that already are ~~already~~ developed or disturbed, or that are to be discontinued for use as agricultural land, and by using existing roads to the extent possible to access project construction ~~areas~~sites.

To the extent practicable and feasible, when expanding the footprint of a flood ~~damage reduction~~control facility (e.g., levee or berm) onto agricultural land, the most productive topsoil from the project construction footprint ~~shall~~ will be salvaged and redistributed to less-productive agricultural lands near the project construction ~~area~~ site that ~~could~~ can benefit from the introduction of good-quality soil. By agreement between the implementing agencies or landowners of affected properties and the recipient(s) of the topsoil, the recipient(s) ~~shall~~ will be required to use the topsoil for agricultural purposes. RD 17 shall implement all terms and conditions of agreements.

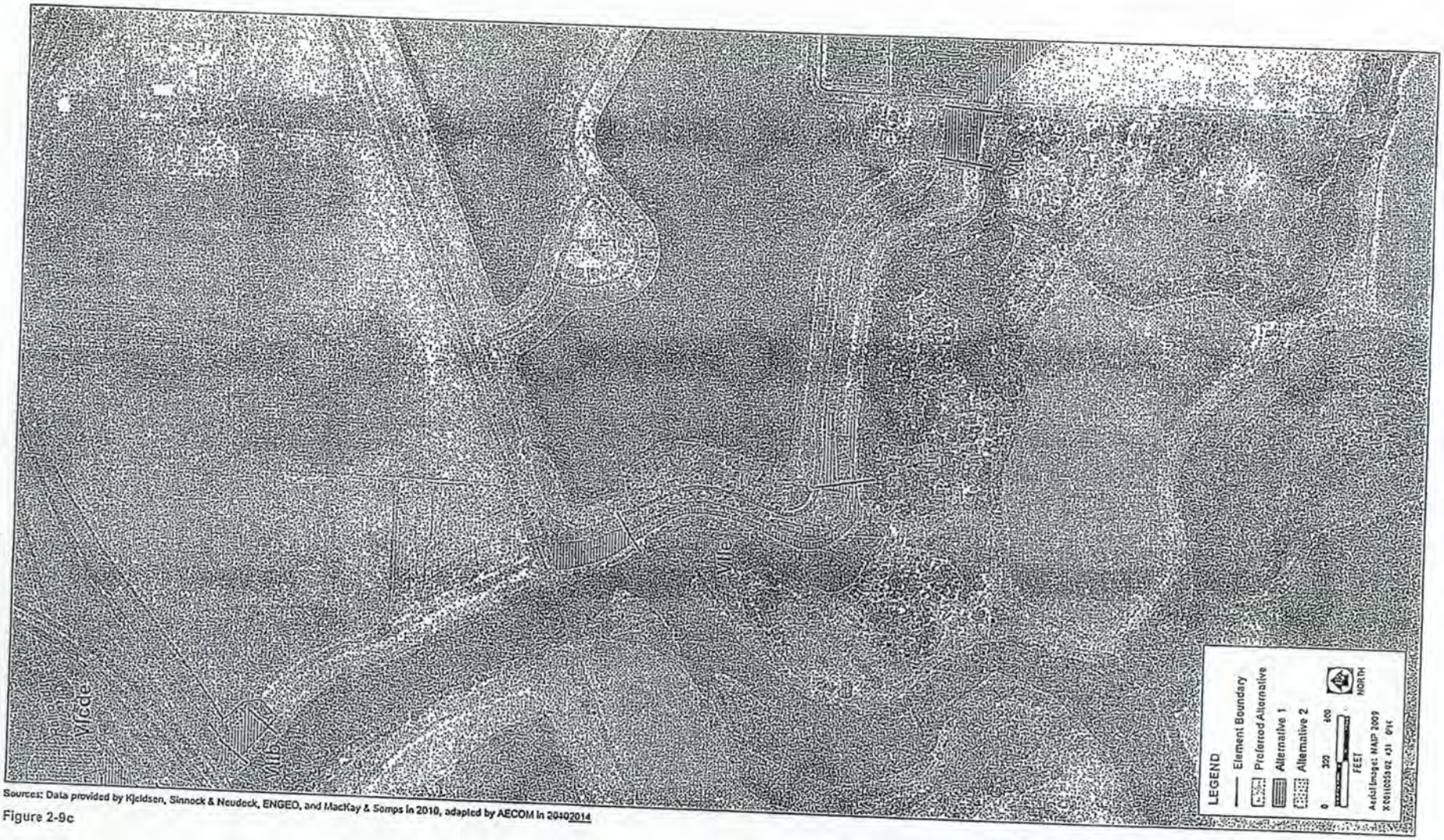
Responsibility: ~~Project proponent~~RD 17.

Timing: Minimize loss of Important Farmland and reuse topsoil before construction and avoid disruption to current agricultural operations during construction. Replace function of agricultural infrastructure as soon as possible after construction in ~~the~~ a particular ~~area~~ location is complete.

~~Implementing~~ Implementation of Mitigation Measure 3.2-a would reduce ~~this~~ the impact on Important Farmland associated with the three a~~A~~lternatives ~~2~~, but not to a less-than-significant level. The impact would remain **significant and unavoidable** for ~~both~~ all alternatives because of the permanent conversion of Important Farmland to nonagricultural uses.

Ex. "10":

Reclamation District No. 17 (Prepared by AECOM) "*Final Environmental Impact Report Phase 3-RD 17 Levee Seepage Repair Project*" dated March 2015 (SCH #2010042073); Page 2-25



Sources: Data provided by Kjeldsen, Sinnock & Neudeck, ENGEO, and MacKay & Somps in 2010, adapted by AECOM in 20102014

Figure 2-9c

Phase 3 Repair Project Levee Elements in Reaches VI–VII

Ex. "11":

US Army Corps of Engineers, Sacramento District "*San Joaquin River Basin Lower San Joaquin River, CA DRAFT Integrated Interim Feasibility Report/Environmental Impact Statement/Environmental Impact Report*" dated February 2015; Page 5-23

narrows to approximately 500 feet. However, there is one oxbow reach where the floodway is approximately 2,000 feet wide. Flood stages within this reach are dominated by runoff from the San Joaquin River.

Approximately 1 mile downstream of Paradise Cut on the right bank is Wetherbee Lake and the upstream tieback levee of RD 17. The Wetherbee Lake levee segment along the San Joaquin River was a feature of the San Joaquin Flood Control Project which cut off Walthall slough from the San Joaquin River to reduce damages to a resort development along the river. The RD 17 tieback levee is located downstream of Walthall Slough and extends east along the right bank of the slough to high ground. The RD 17 tieback levee is higher than the right bank levee of the San Joaquin River and diverts any floodwaters on the right overbank back into the San Joaquin River. This situation occurred in the flood of January 1997 and is shown on Plate 10. Flood stages within this channel reach are dominated by runoff from the San Joaquin River. Flood stages in the right overbank are dominated by runoff from the San Joaquin River and Stanislaus River.

Old River to French Camp Slough. Old River defines the upstream extent of this reach. Old River is a distributary from the San Joaquin River and conveys floodwaters west into the Sacramento-San Joaquin Delta. There is no hydraulic structure to manage the flow split. The flow split is defined by the hydraulic characteristics of Old River and the San Joaquin River downstream of the flow split.

Within this reach the San Joaquin River further transitions to a less sinuous plan form. The main channel varies in width from 200 to 300 feet. The floodway is contained by left and right bank levees that are approximately 10 to 15 feet tall. From Burns Cutoff to approximately 4 miles downstream, the right bank levee is approximately 3 feet taller than the left bank. The floodway width between the levees varies from 300 feet to 400 feet and widens to 1,400 feet at a few meander bends. The waterside levee face forms the channel bank along most of this reach. Flood stages within this reach are dominated by runoff from the San Joaquin River.

French Camp Slough to Burns Cutoff. French Camp Slough defines the upstream extent of this reach. French Camp Slough is a tributary to the San Joaquin River. The reach characteristics of French Camp slough are described below. The main channel varies in width from 200 to 300 feet. The floodway is contained by left and right bank levees that are approximately 10 to 15 feet tall. The floodway width between the levees varies from 300 feet to 400 feet. The waterside levee face is next to the channel bank along most of this reach. Flood stages within this reach are dominated by runoff from the San Joaquin River. However, influence of ocean tides is evident in flood stage hydrographs.

Burns Cutoff to Deep Water Ship Channel. Burns Cutoff defines the upstream extent of this reach. Burns cutoff is a secondary channel of the San Joaquin River which conveys water on the west side of Rough and Ready Island. Burns cutoff flows

Ex. "12":

US Army Corps of Engineers, Sacramento District "*San Joaquin River Basin Lower San Joaquin River, CA DRAFT Integrated Interim Feasibility Report/Environmental Impact Statement/Environmental Impact Report*" dated February 2015; Pages 4-11 and 4-13

the levee to the proposed toe shown in Figure 4-5. The proposed toe could be located along an imaginary line extending from the landward face of the proposed levee to existing grade. During the current feasibility planning the maximum extent of the reconstruction berm is shown in order to show the maximum impacts which could occur.

Deep soil mixing augers would be used to construct a continuous grouping of cells spaced equally in both the longitudinal and transverse direction to the levee alignment as shown in the plan view in Figure 4-5. The deep soil mixing is a seismic strengthening feature meant to keep the levee from liquefying during seismic activity. After construction is completed, the levee crest would then be topped with a 6-inch aggregate road, and slopes would be hydroseeded for erosion control. This degrading and reconstruction effort would occur along 3 miles of Fourteenmile Slough and Tenmile Slough.

4.3.10 Closure Structures

This measure would include construction of closure structures at the mouths of backwater sloughs at Smith Canal and Fourteenmile Slough to provide flood risk management along those sloughs. The closure structures would control back-flooding from the San Joaquin River and Delta during high water events. The gates would be operated typically between November 1st to April 30th which covers the rainy season and the period when high tides occur in this area. Specifically, the gates will be operated when the high tide is forecast to reach, or exceed +8.00 ft NAVD88 to prevent high flows from entering the canal/slough. The gate would be closed at the lowest tide prior to the forecasted high tide and remain closed until the high tide begins to recede. The gate would then be opened to allow any accumulated interior drainage behind the gate structure to flow out. This would limit the level and duration of water saturation and reduce the risk of levee damage or failure. Due to the tidal influence of the Delta, high water events could last from a few days to a few weeks, depending on river conditions. During development of the alternatives, Smith Canal and Fourteenmile Slough were identified as appropriate locations for closure structures.

The proposed closure structures would consist of a fixed sheet pile wall structure with an opening gate structure sufficiently large to allow for the safe passage of boats and other watercrafts. Fish and other aquatic organisms would also be able to pass through these gates when they are open. The opening portion of the closure structure would be an automated gate that may open upward or outward. The gate would be approximately 50-feet wide, and would be constructed of stainless steel. The gate would be attached to a concrete foundation using stainless steel anchor bolts. A small building would be built on land directly adjacent to the closure structures to store equiopment required to operate the gate. As needed, a sheet pile floodwall would be constructed adjacent to the control structures to tie the structures into the adjacent levee or high ground areas.

Construction would require dredging or draglining, construction of a temporary cofferdam, in-water excavation, and placement of some structural features in the water.

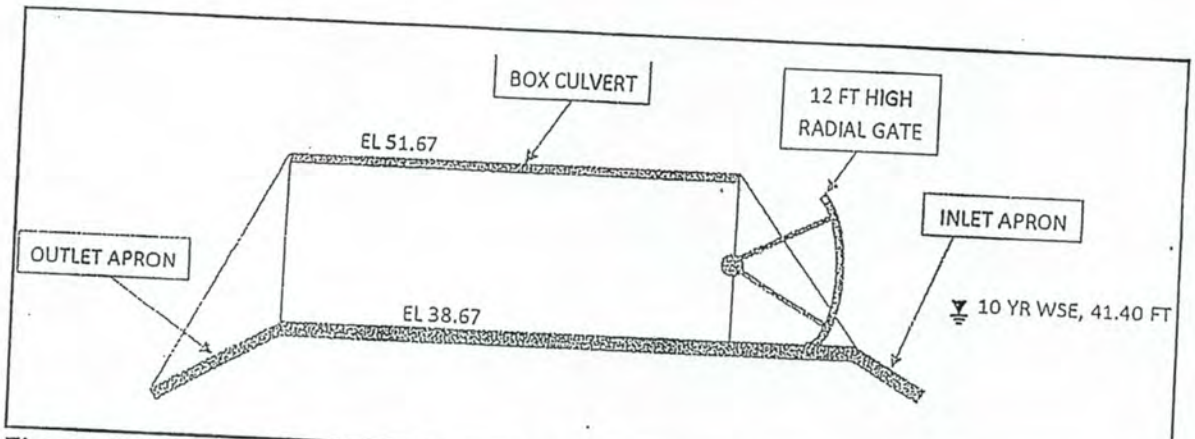


Figure 4-6. Mormon Channel Control Structure.

4.4 ALTERNATIVES

4.4.1 Alternative 1 – No Action

Under no action, the USACE would not participate in flood risk management in the study area as part of the LSJRFS. Although State or local agencies would likely repair area levees in the future to meet Federal (FEMA) or State (SB 5 200-year protection) flood protection obligations, this alternative assumes that flood risk management measures would not be implemented and that the current level of risk of flooding would continue. This risk, as represented by conditions in the study analysis area, would continue to leave both residents and property in and near the cities of Stockton, Lathrop, and Manteca vulnerable to flooding.

In response to major floods in the early 1950s, the USACE constructed several dams, miles of levees, and other features in and near the study analysis area as part of the Lower San Joaquin River and Tributaries project. Since that time, the engineering performance and potential reliability of these project levees have decreased due to identified structural deficiencies, including through- and under-seepage, slope stability, overtopping, and erosion. Under no action, these deficiencies would continue and likely become worse, increasing the risk of future levee failure during high flows.

Climate change also appears to be affecting world-wide temperatures and seasonal climate patterns. Future projections show rises in sea level and changes in inland climate patterns that could result in higher future water-surface elevations in the lower San Joaquin River and tributaries. The no action alternative would not include design features, such as raising levees, to account for potential effects of these higher elevations combined with the identified deficiencies on levee performance. An estimated 264,000 residents and $21 billion in damageable property would continue to be at risk of unexpected levee failure and flooding in the study analysis area.

JOHN MINNEY; CIVIL ENGINEER
17137 Road 37
Madera CA 93636
559-275-5937 559-645-0870

March 31, 2015

Job F14030

Ms. Tanis Toland
U.S. Army Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95814-2922

SUBJECT: LOWER SAN JOAQUIN RIVER PROJECT INTERIM REPORT

Dear Ms. Toland:

As requested by an almond grower in the RD 17 area of the proposed levee project, I have reviewed relevant portions of the overall project as it relates to an existing almond orchard operation. Specifically, the almond operation is on the extreme southern end of the levee project.

I am a civil engineer, geotechnical engineer and licensed well drilling contractor in the State of California. I have previously been licensed in Oregon, Missouri and Michigan. I have been in the construction business with emphasis on soil and water for 45 years. I did a substantial amount of work on the USACE Lock & Dam 26 project just outside St. Louis in the 1970's.

The increased flood protection afforded by levee projects such as this is clearly a public benefit. However, the levees and associated construction also can adversely affect immediately adjacent property. The primary adverse effect that I am referring in the specific case of the almond orchards on the extreme south end of the levee project are changes in the groundwater table. Groundwater in that area is historically known to be shallow and the almond trees are susceptible to damage if the root zone is flooded.

Typically, the levees will impound water but can have seepage going under the levee driven by the impounded head of water. That seepage can adversely affect the structural stability of the levees so there typically is a seepage control mechanism incorporated under the levee. The seepage control mechanisms are typically some combination of cutoff walls and/or drainage trenches.

The issue of cut-off walls is discussed in numerous places in the document. Attached are portions of the document where the same comment is inserted on multiple locations. My comment is as follows:

THIS DISCUSSION SECTION APPEARS INCOMPLETE BECAUSE IT DOES NOT CONSIDER THE USE OF DRAINS AS OPPOSED TO, OR IN CONJUNCTION WITH, CUT-OFF WALLS TO ENHANCE STRUCTURAL PERFORMANCE DURING HIGH WATER IMPOUNDMENT PERIODS. THE CUT-OFF WALL WOULD TYPICALLY BE MORE COST-EFFECTIVE FROM THE STANDPOINT OF BUILDING AND MAINTAINING THE LEVEES BUT THE CROPS, PARTICULARLY ALMOND TREES, CAN BE FLOODED OUT IN THE ROOT ZONE IN ANY TIME OF HIGH GROUNDWATER BECAUSE THE NATURAL SUBSURFACE DRAINAGE IS LITERALLY CUT-OFF BY A CUT-OFF WALL. THIS ROOT ZONE FLOODING CAN HAPPEN EVEN IF NO ABOVE-GROUND FLOODING OCCURS. BY INSTALLING ONLY A CUTOFF WALL BARRIER UNDER THE PROPOSED LEVEES, THE CURRENT DESIGN EFFECTIVELY GUARANTEES THAT THERE WILL BE MORE

PROBLEMS WITH SHALLOW ROOT ZONE FLOODING AND TREE ROOT DROWNING EVEN IF NO FLOODING WOULD HAVE OCCURRED. THIS IS BECAUSE THE MINIMAL NATURAL DRAINAGE WHICH PERIODICALLY RESULTS IN TREE KILLS WILL BE SUBSTANTIALLY WORSENED BY THE CUTOFF BARRIER. A DRAIN SYSTEM IN COMBINATION WITH THE CUTOFF WALL IS ABSOLUTELY ESSENTIAL TO LONG TERM TREE GROWTH BEHIND THE LEVEES.

MY RECOMMENDATION IS TO INSTALL A SUBDRAIN SYSTEM ON THE INSIDE TOE OF THE LEVEE WHICH WOULD MAINTAIN THE GROUNDWATER LEVEL AT LEAST 5 FEET BELOW THE BOTTOM OF THE ROOT ZONE OF THE ALMOND TREES. THE SYSTEM WOULD INCLUDE A GRAVEL INTERCEPTOR TRENCH TO WITHIN NOMINALLY 3 FEET OF THE ORIGINAL GROUND SURFACE WITH THE GRAVEL ENCAPSULATED IN FILTER FABRIC AND A PERFORATED COLLECTOR PIPE IN THE BASE OF THE GRAVEL. A DEDICATED PUMP WOULD LIFT THE COLLECTED WATER FOR DISPOSAL ELSEWHERE. THE PUMP WOULD ACTIVATE AUTOMATICALLY BY FLOAT CONTROL.

THE WATER SO COLLECTED WOULD REQUIRE DISCHARGE OFF-SITE. BECAUSE THE SHALLOW GROUNDWATER SO COLLECTED IS MORE THAN LIKELY TO CONTAIN CONSTITUENT LEVELS HIGHER THAN THE LARGE FLOOD WATERS, A WAIVER TO ALLOW AUTOMATIC DISCHARGE OF THE COLLECTED GROUNDWATER WOULD NEED TO BE OBTAINED.

If you have any questions or comments in this regard, please do not hesitate to contact me.

Respectfully submitted,

REGISTERED PROFESSIONAL ENGINEER
JOHN M. MINNEY
No. 32537
EXP 6/30/15
CIVIL
STATE OF CALIFORNIA

John Minney, CE 32537

LOWER SAN JOAQUIN RIVER PROJECT INTERIM REPORT

SAN JOAQUIN COUNTY, CALIFORNIA

DRAFT

INTEGRATED INTERIM FEASIBILITY REPORT/ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTNAL IMPACT REPORT

FEBRUARY 2015

JOHN MINNEY COMMENTS INSERTED IN BOLD RED TYPE

Type of Statement: Draft integrated Feasibility Report/Environmental Impact Statement/Environmental Impact Report (FR/EIS/EIR)

Lead NEPA Agency: U.S. Army Corps of Engineers, Sacramento District

Lead CEQA Agency: San Joaquin Area Flood Control Agency

Cooperating/Responsible Agency: State of California Central Valley Flood Protection Board

Abstract: The U.S. Army Corps of Engineers and its non-Federal sponsors, the San Joaquin Area Flood Control Agency (SJAFCA) and the State of California Central Valley Flood Protection Board, propose to improve flood risk management to North and Central Stockton by repairing and enhancing the levees that surround the city, and by constructing and operating closure structures on Fourteenmile Slough and Smith Canal. The draft FR/EIS/EIR describes the environmental resources in the project area; evaluates the direct, indirect, and cumulative environmental effects of the seven alternative plans; and identifies avoidance, minimization, and mitigation measures. Most potential adverse effects would be either short term, or would be avoided or reduced using best management practices. However, there are some significant and unavoidable impacts associated with this project.

Public Review and Comment: The public review period will begin on February 27, 2015 and the official closing date for receipt of comments on the draft FR/EIS/EIR will be April 13, 2015. A public workshop will be held Wednesday, April 8, 2015, at the Stockton Civic Auditorium, South Hall, 525 North Center Street, Stockton, CA from 6:00-8:00 p.m. All comments received will be considered and incorporated into the final EIS/EIR, as appropriate. Written comments or questions concerning this document should be directed to the following: U.S. Army Corps of Engineers, Sacramento District; Attn: Ms. Tanis Toland; 1325 J Street; Sacramento, California 95814-2922, or by .e-mail: Tanis.J.Toland@usace.army.mil or San Joaquin Area Flood Control Agency; Attn: Mr. Juan Neira, 22 East Weber Avenue, Suite 301, Stockton, California 95202-2317, or by email at Juan.Neira@stocktongov.com.

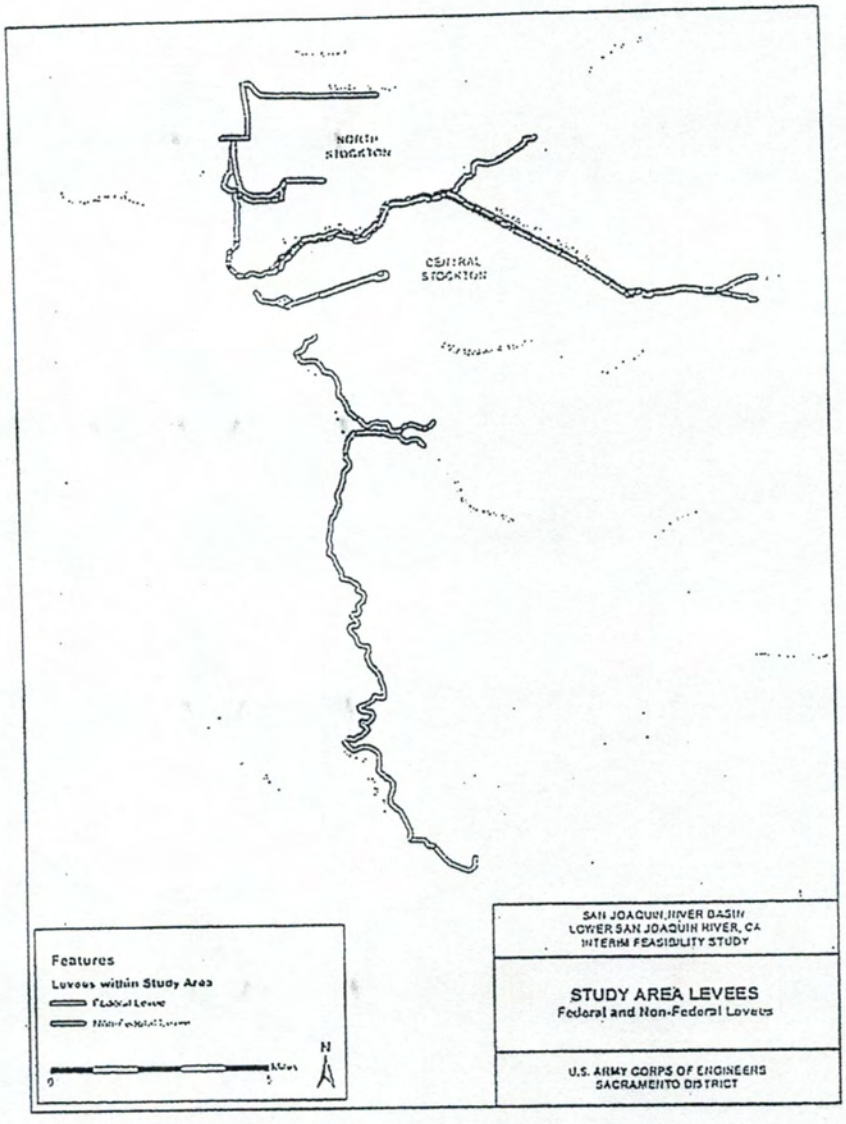


Figure 2-5: Study Area Levees.

The primary risk of flooding in the study area is geotechnical failure of the existing project levees, and not hydrologic or hydraulic factors that result in levee overtopping. Recent geotechnical analysis and evaluation of historical performance during past flood events have resulted in a greater understanding of under-seepage and a revision of levee design criteria. Geomorphologic and geotechnical studies identified subsurface features, such as former river channels, and meanders. The potential for seepage problems to occur along the existing levees in the project area is created by discontinuous layers of coarse-grained pervious soils (i.e., sands and gravels). These are found at varying depths of up to 100 feet. During high-water events, water from the river can enter the pervious soil layers and then move laterally through these layers under/through the levee. Excessive seepage can erode soil within the levee and lead to a rapid collapse and subsequent breach. Historically, foundation conditions were evaluated assuming homogeneous materials, but the floods of 1986 and 1997 and the resulting levee failures throughout the Central Valley resulted in a revision of the criteria for the evaluation of under-seepage. The risk of levee failure is not due to design deficiency or to lack of O&M of the existing levees, but to a better understanding of the mechanics of under-seepage in the Central Valley. The project levees within the study area do not meet current USACE levee design criteria and are at risk of breach failure at stages considerably less than levee crest elevations. This is evidenced by historical levee boils and heavy seepage at river stages less than design flows.

Geotechnical related issues such as under-seepage breach failures result in large volume flood flows at high velocities that are sudden and unpredictable. These failures have minimal warning time and minimal time for effective implementation of evacuation and emergency plans. Study area flood events generally occur during the winter months when colder air and water temperatures significantly increase the risk of death by exposure. The risk probability of unexpected levee failure coupled with the consequence of basin-wide flooding presents a continued threat to public safety, property, and critical infrastructure in the Lower San Joaquin River basin.

The existing levee system within the study area protects over 71,000 acres of mixed-use land with a current population estimated at 264,000 residents and an estimated $21 billion in damageable property. In addition to the residents and property, the levee system protects approximately 23 structures considered to be critical infrastructure (hospitals, police and fire stations, etc.) as well as the Interstate 5 and State Highway 99 corridors.

Ring Levees for Critical Infrastructure

This measure would protect specific critical infrastructure or facilities through placement of ring levees around those features. Ring levees would be built to a height adequate to reduce expected frequency of inundation of the structure without modifying the flood plain (See Section 3.1). Typical design for a ring levee would include a top width of 12 to 20 feet and side slopes with a ratio of 3 to 1. A cut-off wall for seepage issues may be required depending on the geotechnical analysis of the levee foundation.

Relocations/Buy-outs

This measure would remove at-risk structures and individuals from the flood plain. Structures would either be moved to sites outside the flood plain or demolished and the material recycled or disposed of as appropriate.

Comprehensive Flood Warning Emergency Evacuation Planning

Flood Warning System

This measure would allow for timely warning and evacuation of at-risk areas. This could be accomplished through media announcements and reverse 911 automated calling to residents and businesses with the area.

Implement Emergency Evacuation Plan

This measure is an activity that the non-Federal sponsors would implement to meet the study objective of reducing flood risk to public health, safety and life. Evacuation routes from areas within the flood plain would be identified and provided to the public on maps showing the routes, emergency response staging areas, and contact information for emergency service agencies.

Flood Plain Management

Restrictive Zoning/Land Use Planning

This measure would implement land use planning and zoning restrictions for areas within the flood plain to minimize risk in those areas. Implementation of this measure would include the creation and use of a Flood Plain Management Plan (FMP) for the project area in accordance with Section 402 of the Water Resources Development Act of 1986, as amended (33 USC 701b-12), when a project is implemented.

Manage Land Use within Flood-prone Areas

This measure is an activity that the non-Federal sponsors would implement to meet the study objective of reducing flood risk to public health, safety and life. California SB 5 described in Section 2.2.2 is such a measure.

3.1.2 Structural Measures

Levee Raises

Raising levee height to increase the level of performance of existing levees is the focus of this measure. Increase in levee height may require additional levee footprint area to meet design requirements for minimum levee slope and top width. Levee raises would be accomplished by adding material to achieve the desired height. Height increases would be accomplished while maintaining design top width and side slopes, and may require additional landside easement(·s) to allow for the increase in levee footprint and necessary access easements.

Cut-off Walls

This measure would be implemented to address through- and under-seepage issues that affect levee performance and safety. Installation of the cut-off wall is accomplished by degrading the levee to one-half height and creating the wall with a soil-bentonite mix. Once the mix has cured, the levee is restored to design height and side slopes to meet current design standards. The depth of the cut-off walls will typically befrom 20 to 80 feet, depending on subsurface conditions, which will be determined moreprecisely during the PED phase through additional borings and corresponding depth required to stop through and under-seepage.

THIS DISCUSSION SECTION APPEARS INCOMPLETE BECAUSE IT DOES NOT CONSIDER THE USE OF DRAINS AS OPPOSED TO, OR IN CONJUNCTION WITH, CUT-OFF WALLS TO ENHANCE STRUCTURAL PERFORMANCE DURING HIGH WATER IMPOUNDMENT PERIODS. THE CUT-OFF WALL WOULD TYPICALLY BE MORE COST-EFFECTIVE FROM THE STANDPOINT OF BUILDING AND MAINTAINING THE LEVEES BUT THE CROPS, PARTICULARLY ALMOND TREES, CAN BE FLOODED OUT IN THE ROOT ZONE IN ANY TIME OF HIGH GROUNDWATER BECAUSE THE NATURAL SUBSURFACE DRAINAGE IS LITERALLY CUT-OFF BY A CUT-OFF WALL. THIS ROOT ZONE FLOODING CAN HAPPEN EVEN IF NO ABOVE-GROUND FLOODING OCCURS. BY INSTALLING ONLY A CUTOFF WALL BARRIER UNDER THE PROPOSED LEVEES, THE CURRENT DESIGN EFFECTIVELY GUARANTEES THAT THERE WILL BE MORE PROBLEMS WITH SHALLOW ROOT ZONE FLOODING AND TREE ROOT DROWNING EVEN IF NO FLOODING WOULD HAVE OCCURRED. THIS IS BECAUSE THE MINIMAL NATURAL DRAINAGE WHICH PERIODICALLY RESULTS IN TREE KILLS WILL BE SUBSTANTIALLY WORSENED BY THE CUTOFF BARRIER. A DRAIN SYSTEM IN COMBINATION WITH THE CUTOFF WALL IS ABSOLUTELY

ESSENTIAL TO LONG TERM TREE GROWTH BEHIND THE LEVEES.

MY RECOMMENDATION IS TO INSTALL A SUBDRAIN SYSTEM ON THE INSIDE TOE OF THE LEVEE WHICH WOULD MAINTAIN THE GROUNDWATER LEVEL AT LEAST 5 FEET BELOW THE BOTTOM OF THE ROOT ZONE OF THE ALMOND TREES. THE SYSTEM WOULD INCLUDE A GRAVEL INTERCEPTOR TRENCH TO WITHIN NOMINALLY 3 FEET OF THE ORIGINAL GROUND SURFACE WITH THE GRAVEL ENCAPSULATED IN FILTER FABRIC AND A PERFORATED COLLECTOR PIPE IN THE BASE OF THE GRAVEL. A DEDICATED PUMP WOULD LIFT THE COLLECTED WATER FOR DISPOSAL ELSEWHERE. THE PUMP WOULD ACTIVATE AUTOMATICALLY BY FLOAT CONTROL.

THE WATER SO COLLECTED WOULD REQUIRE DISCHARGE OFF-SITE. BECAUSE THE SHALLOW GROUNDWATER SO COLLECTED IS MORE THAN LIKELY TO CONTAIN CONSTITUENT LEVELS HIGHER THAN THE LARGE FLOOD WATERS, A WAIVER TO ALLOW AUTOMATIC DISCHARGE OF THE COLLECTED GROUNDWATER WOULD NEED TO BE OBTAINED.

Deep Soil Mixing (Seismic)

This measure would be implemented to provide seismic stability to the Delta Front levees where required. The measure addresses seismic risk in the Delta Front levees due to the makeup of the foundational geomorphology. The Delta area soils are typically unconsolidated alluvial deposits. The deep soil mixing (seismic) measure would involve installation of a grid of drilled soil-cement mixed columns aligned longitudinally with, and transverse to the levee extending beyond the levee prism. Thismeasure acts to minimize lateral deformation of the levee during seismic events.

Setback Levees

Where in-place improvements of levees may not be effective, and adequate footprint area exists, this measure could be implemented to improve the hydraulic capacity and overall effectiveness of the levee system. This measure would allow for ecosystem restoration measures on the water side of the new levee. Setback levees would be built to a height equal to that of the existing levee system. Typical design for a setback levee would include a top width of 12 to 20 feet and side slopes with a ratio of 3 to 1. A cut-off wall for seepage issues may be required depending on the geotechnical analysis of the levee foundation. Depending on goals, the existing levee could be degraded, breached or left in place after construction of the setback levee.

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Seepage / Stability Berms

Installation of seepage/stability berms in areas where land-side footprint allows, would increase levee stability and reduce through- and under-seepage resulting in increased levee performance and safety. The berm would be installed on the land-sideof the existing levee to control seepage exit gradients that occur during an event. Typically the berms are five to 10 feet thick and vary in width extending landward from the landside levee toe from 100 to 200 feet. Actual dimensions will vary depending on the seepage gradients present.

Erosion Protection

This measure would consist of protection of the water-side banks of levees to prevent or reduce erosion due to high flows, tides, or wave action. Bank protection could be placed on existing banks or at the toe and side of the levee to above the design water surface elevation, as necessary. Protection would consist of rock sized to withstand expected flows, tidal action, and wave run-up for the reach of levee installed on which the protection is placed.

Bridge Modifications for Flow Conveyance

This measure would be used to address areas where existing bridges may be identified as a localized limit to hydraulic capacity. Bridge modifications could include raising or widening bridges to increase hydraulic capacity through the bridge crossing. Low water road crossings will be replaced by bridges as a component of this measure.

Upstream Bypass of High Flow

This measure would consist of increased diversion of high flows from the mainstem of the San Joaquin River via bypass channels such as Paradise Cut and the Mariposa bypass. New bypass areas could potentially be identified and implemented. Increasing bypass of flows could be accomplished by widening the bypasses via levee setbacks, or redesign of diversion structures to maximize efficiency at specified flows.

Channel Modifications for Conveyance Improvements

This measure would be implemented for improvements to the channels of Paradise Cut or Mormon Channel. Conveyance improvements would reduce stages on the mainstem of the San Joaquin River, the Stockton Diverting Canal and Lower Calaveras River. Channel modification would entail removal of material (vegetation and soil) from within the channel to allow for greater capacity. Existing channel width would be maintained during implementation of this measure. Removed material could potentially be used for levee improvements or would be disposed of appropriately. Currently, channel maintenance is not required under the existing Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) manuals, but implementation of this measure would include updates to the OMRR&R manuals to include requirements for maintenance to maintain design capacities.

Bypass Channels

This measure involves improvements to bypass channels such as Paradise Cut and Mormon Channel. Improvements to these channels would potentially result in stage decreases on the San Joaquin River, Diverting Canal and Lower Calaveras River. Improvements to the bypass channels would include channel modifications as described above, the addition of a diversion structure at Mormon Channel and modification to the existing diversion structure at Paradise Cut. Channel modifications would include removal of vegetation and soil as required for flow efficiencies. Diversionstructure modifications would include height or width changes upstream of Paradise Cut to allow maximum flows at the desired flow elevations.

Mormon Channel Control Structure

This measure would involve construction of a control structure at the upstream end of the Diverting Canal to divert flows into Mormon Channel. The control structurewould

consist of gated culverts placed in the Stockton Diverting Canal left bank levee to allow flow into Mormon Channel. The culverts would be sized to allow control of flows up to the design capacity of the Mormon Channel.

Levee Extensions

This measure would involve extension of the southern tie-in levee on the south end of RD 17 to an appropriate elevation to reduce flood risk in the southern Manteca area. The levee extension would be combined with repairs or improvements to the existing tie-in levee to meet current standards. Levee extension may also be implemented for the right bank levee of French Camp Slough in RD 404. The levee extensions would be built to a height equal to that of the existing levee system, or to meet the height of included improvements. Typical design for an extension levee would include a top width of 12 to 20 feet and side slopes with a ratio of 3 to 1. A cut-off wall to reduce seepage may be required depending on the geotechnical analysis of the levee foundation.

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RD17-G, SJR Setback and Tieback Extension: This alternative addresses the San Joaquin River as the flooding source, and includes a setback levee to limit protection of already developed but not urbanized flood plain within RD 17. It extends the tieback levee at the southern-most end of the RD to minimize probability of flanking during extreme high water events. The alternative covers 113,500 linear feet (21.5 miles) of levee.

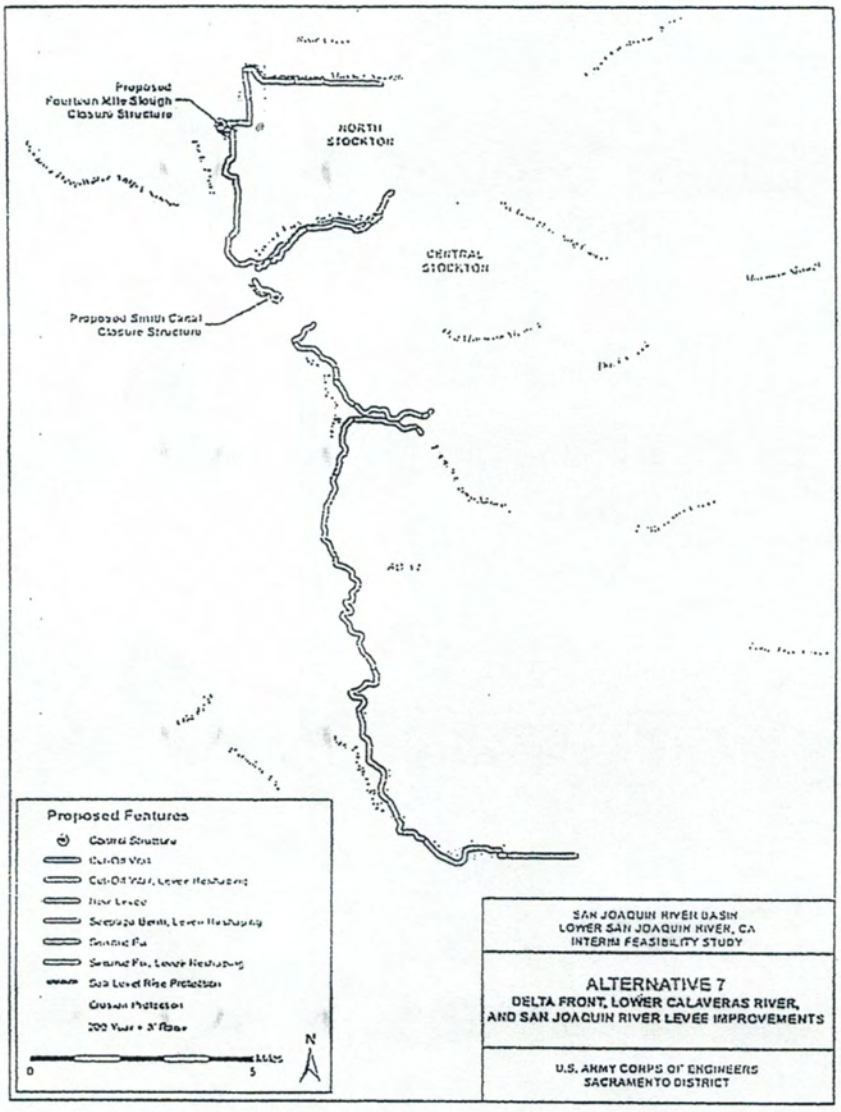

Figure 3-8. Alternative 7.

Central Stockton:

- No Action: This alternative would involve no Federal action within the base flood plain as a result of this study. No additional reductions in flood risk to the area would be realized.

- Improvement of Paradise Cut: This was screened out because the cost exceeded the benefits and because it did not address geotechnical levee failure modes.

- Flood proofing and raising existing structures and infrastructure: This was determined to not be a cost effective alternative.

- Reservoir reoperation: This alternative was screened out due to potential system-wide effects, and because it did not address geotechnical failure modes.

- Reduce geotechnical failure probability and increase height of existing levees: These measures were retained. The geotechnical issues addressed are primarily through- and under-seepage with areas on the Delta Front requiring seismic stabilization.

RD 17:

- No Action: This alternative would involve no Federal action within the base flood plain as a result of this study. No additional reductions in flood risk to the area would be realized.

- Improvement of Paradise Cut: Tl1is was screened out because the cost exceeded the benefits and because it did not address geotechnical levee failure modes.

- Flood proofing and raising existing structures and infrastructure: This was determined to not be a cost effective alternative.

- Reservoir reoperation: This alternative was screened out due to potentialsystem-wide effects, and because it did not address geotechnical failure modes.

- Ring levees: Inclusion of ring levees may be effective in some study areas, but will need to be incrementally cost effective to be a practicable alternative.

- Set-back levees: This was determined to be cost effective for one reach in RD 17 with a length of approximately 3,500 feet.

- Reduce geotechnical failure probability and increase height of existing levees: These measures were retained. The geotechnical issues addressed are primarily through- and under-seepage with areas on the Delta Front requiring

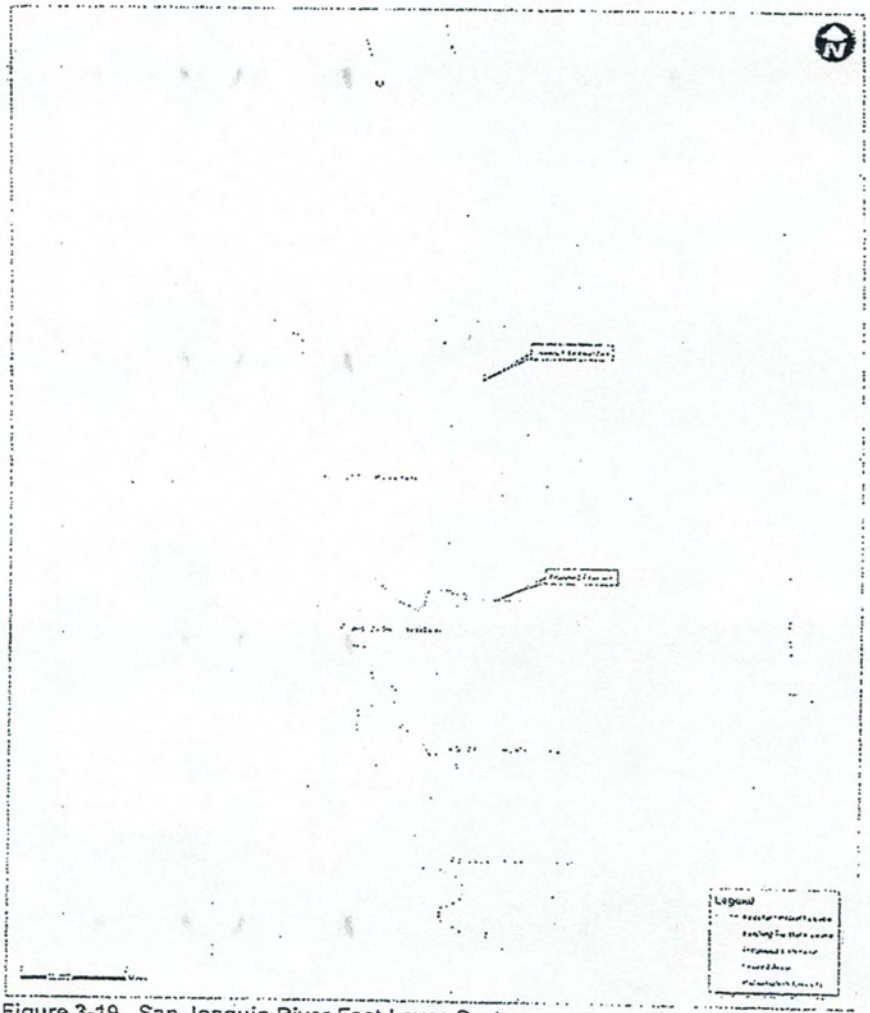

Figure 3-19. San Joaquin River East Levee System.

Figure 3-20. Existing Landuse in Study Area.

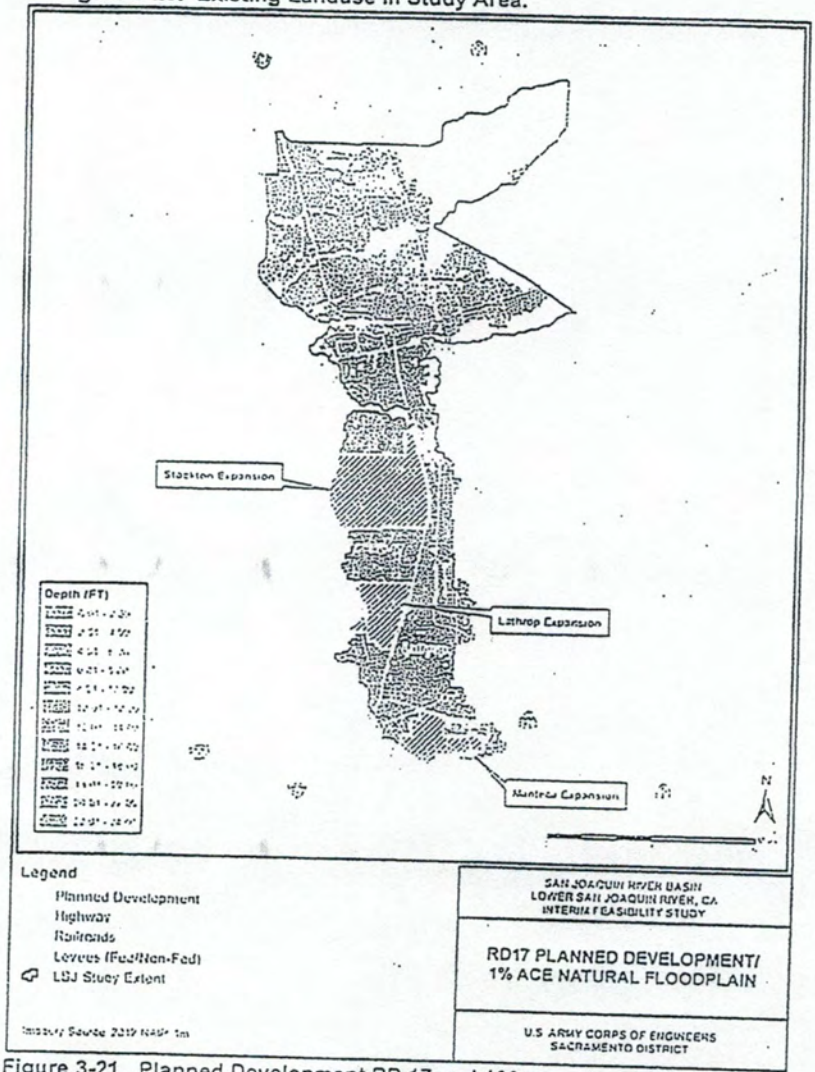

Figure 3-21. Planned Development RD 17 and 100-year Inundation Area.

alternatives for identification of the NED and TSP plans: Alternative 7a, Alternative Sa, and Alternative 9a.

It is understood that RD 17, with funding assistance from the State, is currently pursuing a phased strategy of levee improvements to initially increase the resistance of RD 17's levee system to under seepage and through seepage. Upon completion of that work, RD 17 and the non-Federal sponsors intend to pursue USACE participation in additional studies/improvements necessary to achieve the non-Federal objective of 200-year (0.5 percent ACE) flood risk management in order to meet SB 5 requirements. Consideration of future Federal participation would be subject to demonstration of a Federal interest in such incremental improvements.

3.7 Environmental Considerations and Mitigation

All appropriate environmental resources were analyzed during development of the proposed alternatives to fully comply with NEPA and CEQA. Most impacts to resources as a result of implementation of a proposed project can be mitigated, but there are challenges related to impacts to riparian habitats within the study area.

3.7.1 Regional Context

Riparian habitats are substantially reduced from their historical extents throughout the Central Valley. Only about 2-5 percent of the historic riparian habitat still exists (RHJV 2004). This is true along the San Joaquin River as well. Establishment of the FRM system, with levees set immediately adjacent to the main rivers and tributaries contributed to this decline and continues to result in conflicts between ecosystem health and sustainability and maintenance of the FRM system. Upstream of the proposed project area, considerable Federal and state investment has been made to improve the riparian corridor as part of the San Joaquin River Restoration Program and the Federal and state refuge systems.

In general, riparian communities are among the richest community types, in terms of structural and biotic diversity, of any plant community found in California. Riparian vegetation provides important ecological functions, including: wildlife hijbitat; migratory corridors for wildlife; pollution filtration and waterway shading, thereby improving water quality; provides connectivity between waterways and nearby uplands; and biomass (nutrients, insects, large woody debris, etc.) to adjacent waterways. Riparian forests and woodlands – even remnant patches – are important to resident and migratory fish, birds, and other wildlife.

3.7.2 Study Area

The riparian corridor in the study area is severely constrained by the proximity of the flood management levees to the rivers, tributaries and sloughs. Throughout most of the corridor vegetation is highly altered and fragmented. Nevertheless, this vegetation is all that remains as habitat to resident and migratory fish and wildlife in the proposed

Based on the information presented above, Alternative ?a is identified as the NED plan and is selected as the TSP.

3.10 THE TENTATIVELY SELECTED PLAN

The TSP is Alternative 7a, North and Central Stockton – Delta Front, Lower Calaveras River, and San Joaquin River Levee Improvements excluding RD 17 (Figure 3-12). This plan meets the study objectives of reducing flood risk and flood damages. With the TSP in place, the North Stockton impact area improves from an approximate 15% annual chance of flooding in the highest risk areas to less than 1% annual chance of flooding. The Central Stockton impact area improves from a 12% annual chance of flooding in the highest risk areas to an approximate 2% annual chance of flooding. Further information about specific annual exceedance probabilities and the performance of levees for a range of hydrologic events within sub-impact areas can be found in the Economic Appendix. However, this plan will result in no risk reduction for 43,000 people and critical infrastructure within RD 17.

The structural features of Alternative 7a include approximately 23 miles of levee improvements and two closure structures, one at Fourteenmile Slough and the other at Smith Canal. The levee improvements are comprised of a cutoff wall, deep soil mixing (seismic), a new levee, levee geometry improvements, and erosion protection.

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In addition to the structural features, the recommended plan also includes several non-structural features to further reduce the consequences of flooding. These include the following measures: Comprehensive Flood Warning Emergency Evacuation Planning and Flood Plain Management.

Table 3-19 below contains a first cost break-out for the TSP, Alternative 7a, North and Central Stockton – Delta Front, Lower Calaveras River, and San Joaquin River Levee Improvements excluding FD 17. These costs are preliminary and will change during additional analysis.

CHAPTER 4 - DESCRIPTION OF FINAL ALTERNATIVES*

4.1 INTRODUCTION

This chapter provides additional details related to the final array of alternatives identified in Chapter 3. NEPA requires a greater level of detail in order to properly analyze the potential effects of the proposed alternatives on the natural and human environment. Under NEPA, both the proposed project and the project alternatives are each analyzed at the same level. CEQA project alternatives are usually analyzed at a lesser degree than the proposed project, and the primary comparison is as an alternative to the proposed project. The common objective of both CEQA and NEPA is to identify the potential impacts on the human environment that would potentially arise if the preferred alternative is approved – and consider alternatives that could also address the purpose and objectives of the project.

NEPA and CEQA take a slightly different approach to considering alternatives to the proposed project however, both sets of environmental laws have the same overall objective – to inform the decision makers and the public of the environmental effects of a project and ways those effects could be mitigated through measures to avoid, minimize, rectify, reduce or compensate for adverse impacts.

This Chapter is followed by Chapter 5, which includes a discussion of the affected environment and the potential environmental effects of the proposed alternatives that are described below.

4.2 ALTERNATIVES CONSIDERED IN DETAIL

As discussed in Chapter 3, the Feasibility Study screened the alternative plans down to the following final array of alternatives (with options). The difference between the two options for the action alternatives is that option "a" excludes levee work in RD 17, while option "b" includes levee work in RD 17.

- Alternative 1, No Action
- Alternative 7a, North and Central Stockton, Delta Front, and Lower Calaveras River and San Joaquin River Levee Improvements (see Chapter 3, Figure 3-12)
- Alternative 7b, Norih and Central Stockton, Delta Front, Lower Calaveras River, San Joaquin River Levee Improvements, and RD 17 Levee Improvements (see Chapter 3, Figure 3-13)
- Alternative Sa, North and Central Stockton, Delta Front, Lower Calaveras River, San Joaquin River, and Stockton Diverting Canal Levee Improvements (see Chapter 3, Figure 3-14)

4.3.1 Cutoff Walls

Seepage cutoff walls are vertical walls of low hydraulic conductivity material constructed through the embankment and foundation to cut off potential through- and under-seepage. In order to be effective in reducing under-seepage, cutoff walls usually tie into an impervious sub-layer. Prior to construction, the construction site and staging areas would be cleared and grubbed. The levee is typically degraded by one half the levee height to provide a sufficient working surface and prevent hydraulic fracture of the levee. The cutoff walls for the project area would be a minimum of 3-feet in width; the cutoff wall would be constructed from a working surface elevation to a design depth at least 3-feet into an impermeable layer. During construction, bentonite-water slurry is used to keep the trench open and stable prior to backfilling with the permanent wall material. Soil is mixed with bentonite (SB) and then pushed into the trench, displacing the bentonite-water slurry. After a predetermined settlement period, an impervious cap is constructed above the cutoff wall and the levee is reconstructed using suitable material (Type 1 levee fill) to the correct design elevation and current USACE levee design criteria.

The conventional slurry method for SB walls is an open trench method that uses an excavator with a long-stick boom to excavate the slurry trench. The conventional method has a maximum depth of about 70 to 80 feet. Cutoff walls in North and Central Stockton would extend up to 70 feet below the working surface elevation. Some areas in RD 17 would require cutoff walls using Deep Mixing Method and would need to be up to 120 feet below the working surface elevation. The Deep Mixing Method involves blending the existing soil with cementitious material using blade or auger based mixing tools. Figure 4-1 shows a typical plan for a cutoff wall.

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4.3.2 Levee Reshaping (also called "Geometric Fix")

This measure would include reshaping the existing levees to restore them to I:JSACE levee design criteria for side slopes and crown width. For the LSJRFS area, the minimum crest width for mainline or major tributary levees is 20 feet; the minimum crest width for minor tributary levees is 12 feet. Existing levees with landside and waterside slopes as steep as 2H:1V (i.e., for every 2 feet of horizontal distance, there is a 1 foot increase in height) may be acceptable if slope performance has been good and if the slope stability analyses determined the factors of safety to be adequate. Newly constructed levees should have 3H:1V waterside and landside slopes.

For new levees constructed in the LSJRFS area, a minimum permanent landside toe clear access easement of 20 feet is required; for existing levees within the LSJRFS area, a minimum permanent landside toe clear access easement of 10 feet is required. For both new and existing levees in the LSJRFS a minimum permanent watersidEj toe vegetation free zone (VFZ) of 15 feet is required unless a variance is approved by USACE.

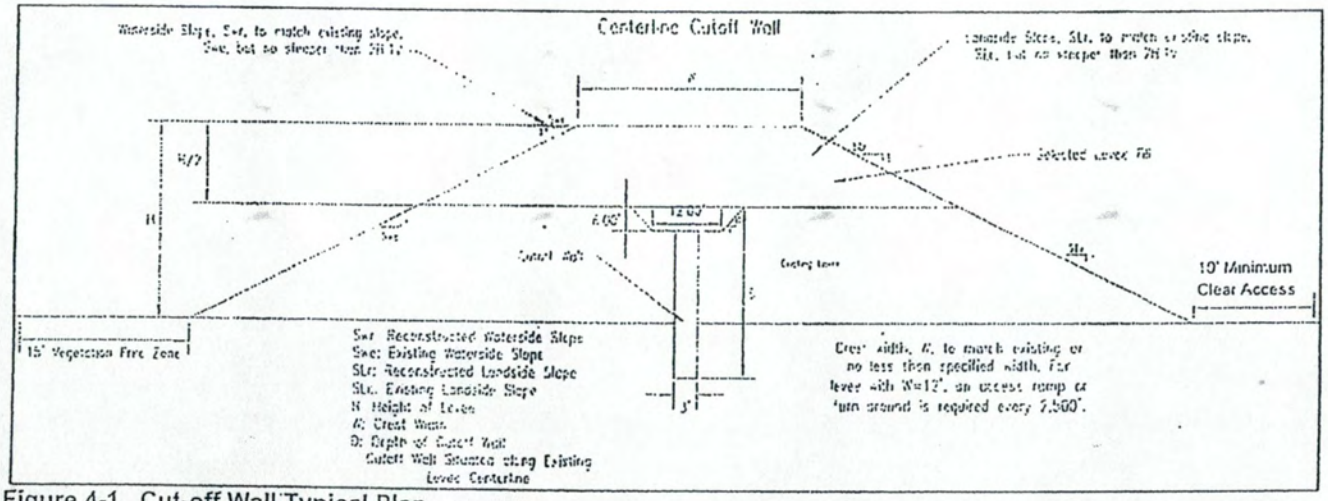


Figure 4-1. Cut-off Wall Typical Plan.

Note that the landside easement (right side) shown would be the minimum easement; landside easements would range from 10 feet to 20 feet from the levee toe.

Prior to construction, the waterside levee crest edge would be cleared and grubbed and the crown and existing landside slope would be stripped to remove at least 2 feet of material. To correct levee geometry, suitable material would be placed along the landside of existing levee slopes where needed to provide the minimum slope, required height, and crest width to meet current USACE levee design criteria, as detailed above. After construction, slopes would be hydroseeded for erosion control.

The additional area added to the landside toe by widening varies from 1 to 30 feet, depending on the existing width of the levee. The slope reshaping typical plan is shown on Figure 4-2. Slope reshaping and levee height fixes may require relocation of landside toe drains and ditches. These toe drains and ditches would be reestablished landward of the improved levee toe and would continue to function as they did before the levee improvements were constructed.

4.3.3 Levee Raise (Levee Height Fix)

This measure describes the construction action that would be taken to repair the levee height in locations where the crown has slumped and to raise the existing levee height to reasonably maximize net benefits. Where SLR was a design consideration, the height could increase up to 5 feet. An increase in levee height may require additional levee footprint area to meet design requirements for minimum levee slope and crown width. Prior to construction, the waterside levee crest edge would be cleared and grubbed and the crown and existing landside slope would be stripped to remove at least 2 feet of material. To construct a levee raise, suitable material would. be placed along the crown and landside of existing levee slopes, where needed, to provide the minimum slopes, required height, and crest width that meet current USACE levee design criteria. The typical plan for a levee raise is shown in Figure 4-2.

4.3.4 Seepage Berm

Seepage berms are proposed to address levee stability, under- and through-seepage which are affecting levee performance and safety. A seepage berm is typically built adjacent to the landside of the levee and consists of layers of sand, gravel, and soil. The purpose of the berm is to control seepage flows and reduce the risk of the levee being undermined during a high-water event. The seepage berm acts as a cap, controlling the seepage flow below the berm surface and allowing the flow to reach an exit location in such a way that the undermining of levee soils is reduced or eliminated, thereby preventing boils and piping.

The seepage berm width could range from 100 to 200 feet from the landside toe of the existing levee with a maximum width of 300 feet. The seepage berms would be approximately 5 feet thick at the toe of the existing levee and would gradually slope downward to about 3 feet thick at the landside edge, with a 3:1 slope to ground level.

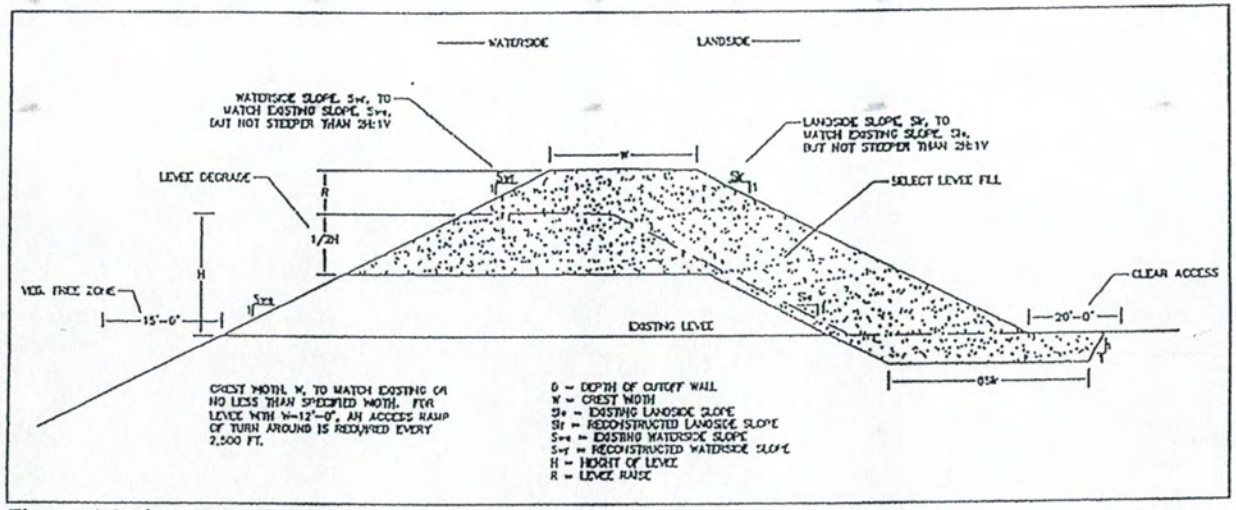


Figure 4-2. Levee Reshaping and Levee Raise Typical Plan.
Note that the landside easement (right side) shown would be the maximum clear access easement; landside easements would range from 10 feet to 20 feet from the levee toe. Half levee degradation is generally not proposed unless a cutoff wall would be installed. Instead, an internal drain may be constructed between the existing levee materials and the new fill.

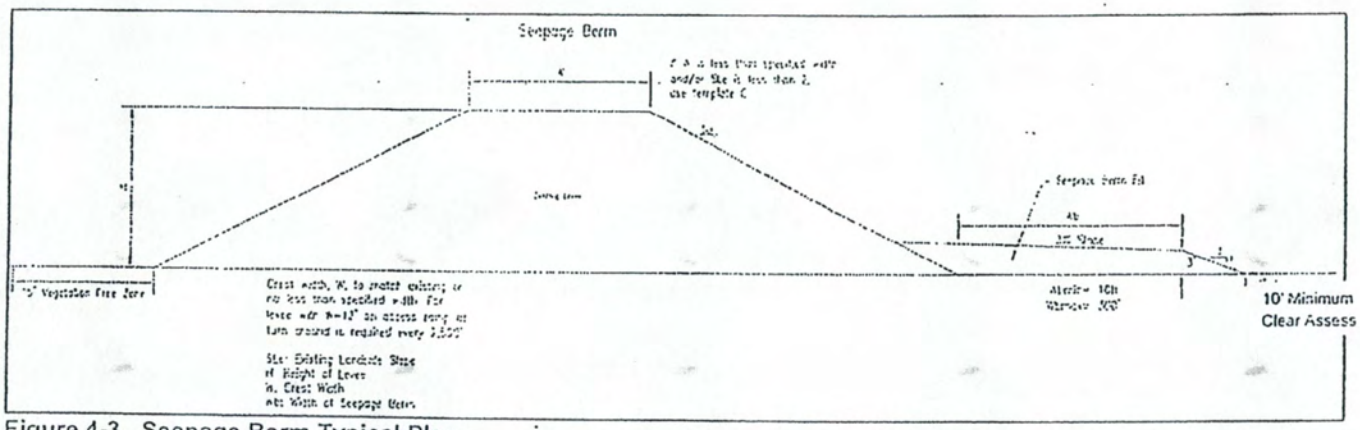


Figure 4-3. Seepage Berm Typical Plan.

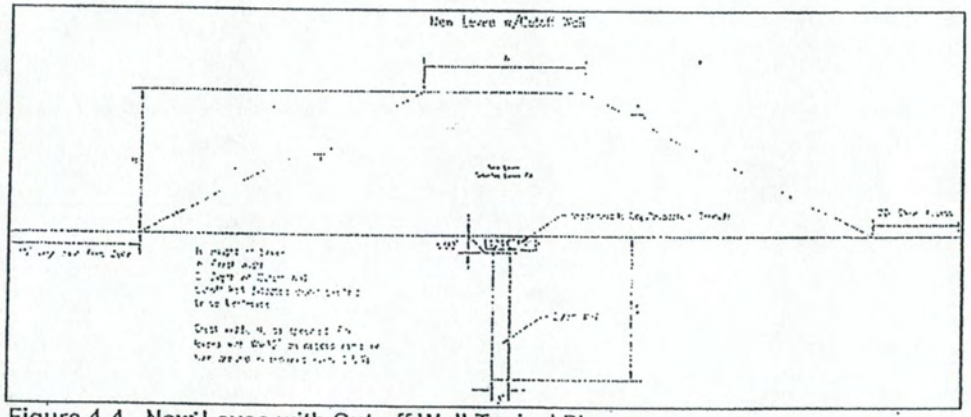


Figure 4-4. New Levee with Cut-off Wall Typical Plan.

Approximately 75,000 tons of quarry stone riprap would be imported by truck and would be placed to a thickness of 2 feet along the landside to prevent wind wave erosion during high water. A sand filter would also be placed prior to the riprap layer to prevent the migration of fines causing gravel instability and decreased erosion protection performance.

4.3.7 Floodwall

This measure consists of construction of about 825 linear feet of sheetpile floodwall from the southern portion of Dad's Point to high ground at Louise Park. Thewall height would be an average of three to four feet above the ground surface. A metal cap may be placed on the top of the sheetpile or the sheetpile maybe encased in concrete. The floodwall would be approximately 12 to 18 inches wide.

4.3.8 New Bridges

This measure would consist of constructing three bridges over Old Mormon Channel to replace low water road crossings that are currently inundated periodically. This measure is included in Alternatives 9a and 9b. The measure would include removing the existing road and grading the area to allow flood flows to move unimpeded from the Stockton Diverting Canal through the Old Mormon Channel, into Mormon Slough and then into the San Joaquin River.

4.3.9 Seismic Remediation

This measure would be implemented to provide seismic stability to the Delta Front levees of North Stockton that are frequently loaded (due to slough water surface elevations that are tidally influenced) and that are also subject to potentially significant deformations due to a seismic event. The seismic (deep soil mixing) remediation measure would involve installation of a grid of drilled soil-cement mixed columns aligned longitudinally with. and transverse to, the alignment of the levee extending beyond the levee prism. This measure would minimize significant deformation of the levee during a seismic event.

The seismic remediation would involve degrading approximately the top half of the levee and placing the degraded material landward as shown in Figure 4-5. Prior to construction, the construction area would be cleared and grubbed. The material obtained from degrading the levee would extend up to 60 feet beyond the existing levee landside and would be compacted such that the material forms an extension to the existing levee. The crest of the levee would then be reconstructed with suitable material to comply with the USACE levee design criteria. A determination may be made during the future design that all of the degraded material may not be necessary to extend

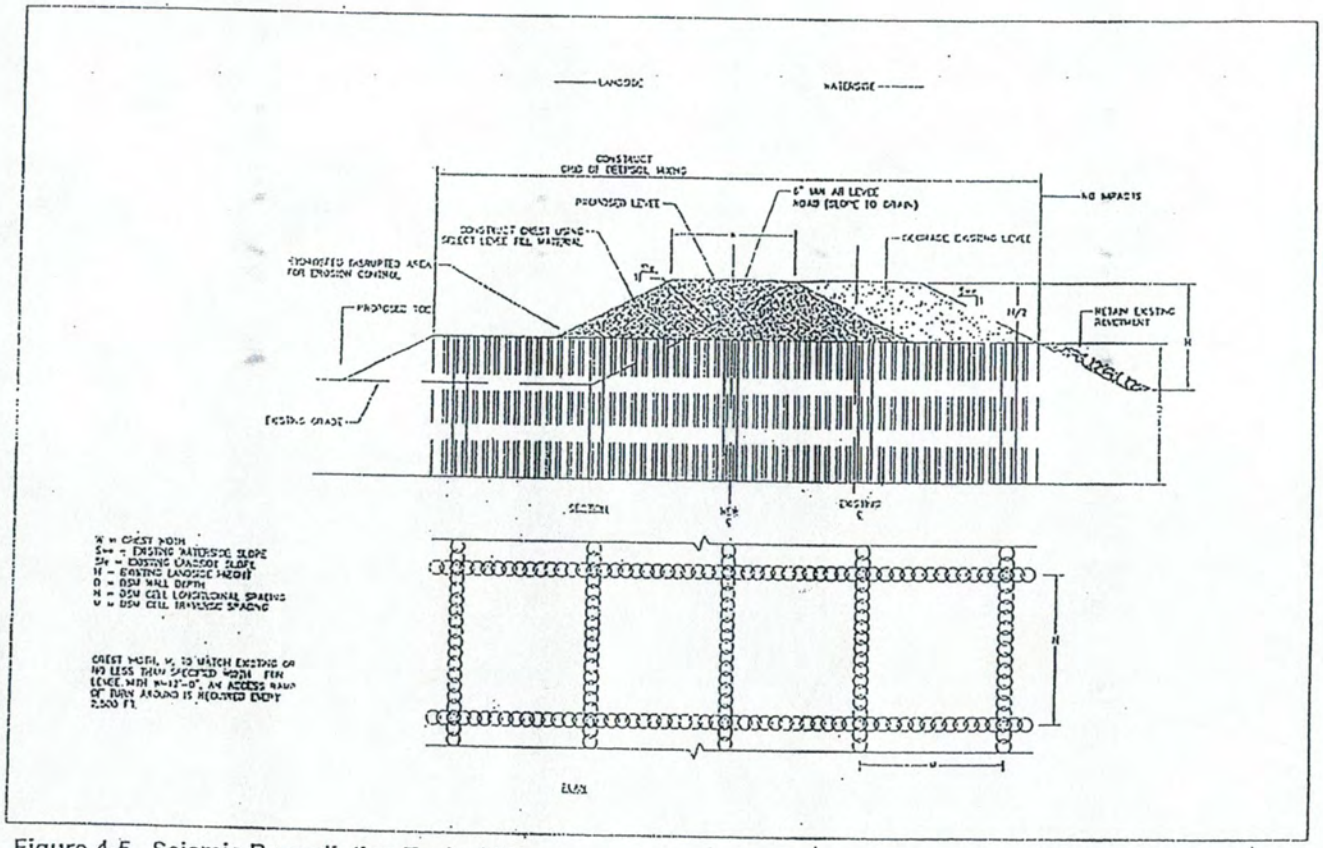


Figure 4-5. Seismic Remediation Typical Plan.

the levee to the proposed toe shown in Figure 4-5. The proposed toe could be located along an imaginary line extending from the landward face of the proposed levee to existing grade. During the current feasibility planning the maximum extent of the reconstruction berm is shown in order to show the maximum impacts which could occur.

Deep soil mixing augers would be used to construct a continuous grouping of cells spaced equally in both the longitudinal and transverse direction to the levee alignment as shown in the plan view in Figure 4-5. The deep soil mixing is a seismic strengthening feature meant to keep the levee from liquefying during seismic activity. After construction is completed, the levee crest would then be topped with a 6-inch aggregate road, and slopes would be hydroseeded for erosion control. This degrading and reconstruction *effort* would occur along 3 miles of Fourteenmile Slough and TenmileSlough.

4.3.10 Closure Structures

This measure would include construction of closure structures at the mouths of backwater sloughs at Smith Canal and Fourteenmile Slough to provide flood risk management along those sloughs. The closure structures would control back-flooding from the San Joaquin River and Delta during high water events. The gates would be operated typically between November 1st to April 30th which covers the rainy season and the period when high tides occur in this area. Specifically, the gates will be operated when the high tide is forecast to reach, or exceed +8.00 ft NAVD88 to prevent high flows from entering the canal/slough. The gate would be closed at the lowest tide prior to the forecasted high tide and remain closed until the high tide begins to recede. The gate would then be opened to allow any accumulated interior drainage behind the gate structure to flow out. This would limit the level and duration of water saturation and reduce the risk of levee damage or failure. Due to the tidal influence of the Delta, high water events could last from a few days to a few weeks, depending on river conditions. During development of the alternatives, Smith Canal and Fourteenmile Slough were identified as appropriate locations for closure structures.

The proposed closure structures would consist of a fixed sheet pile wall structure with an opening gate structure sufficiently large to allow for the safe passage of boats and other watercrafts. Fish and other aquatic organisms would also be able to pass through these gates when they are open. The opening portion of the closure structure would be an automated gate that may open upward or outward. The gate would be approximately 50-feet wide, and would be constructed of stainless steel. The gate would be attached to a concrete foundation using stainless steel anchor bolts. A small building would be built on land directly adjacent to the closure structures to store equiopment required to operate the gate. As needed, a sheet pile floodwall would be constructed adjacent to the control structures to tie the structures into the adjacent levee or high ground areas.

Construction would require dredging or draglining, construction of a temporary cofferdam, in-water excavation, and placement of some structural features in the water.

CHAPTER 5 - AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES*

This chapter describes the affected environment and environmental consequences of each of the alternatives in the final array, mitigation measures for potential impacts, cumulative effects, and other environmental considerations for implementing the LSJR project.

NEPA and CEQA require that the environmental effects of a project be analyzed for significance. Under NEPA, significant impacts are impacts that are considered significant because of their context (location sensitivity) and intensity (magnitude of impact) (40 CFR Section 1508.27). Under CEQA, impacts are assessed for significance based on specific significance criteria consistent with State CEQA Guidelines Appendix G (14 California Code of Regulations 15000 et seq.). For the purposes of CEQA, potential effects are determined by assessing the potential impacts of the proposed action on the existing conditions for each resource. For the purposes of NEPA, potential project effects assessed in relation to the conditions described in the No Action Alternative. For the purpose of this impact analysis, effects are evaluated against existing conditions since these conditions either reasonably represent future conditions in the project area or because using existing conditions will facilitate full evaluation and disclosure of the greatest potential impacts of the proposed project.

The CEQA existing (baseline) environmental conditions assumed in the preparation of this chapter consist of the existing environment as of January 15, 2010, when USACE published the Notice of Intent (NOi) to prepare an EIS in the *Federal Register* and SJAFCA published the Notice of Preparation (NOP) to prepare an EIR with the State Clearinghouse (State Clearinghouse Number (SCH#) 2010012027). Resource conditions were reassessed and updated between fall 2013 and spring 2014. Changes in the existing conditions during that time were not substantial.

The alternatives evaluated in this chapter are described in Chapter 4. They are listed below for ease of reference:

Alternative 1 – No Action

Alternative 7a – North and Central Stockton – Delta Front, Lower Calaveras River, and San Joaquin River Levee Improvements excluding RD 17

Alternative 7b – North and Central Stockton – Delta Front, Lower Calaveras River, and San Joaquin River Levee Improvements including RD 17

Alternative Ba – North and Central Stockton – Delta Front, Lower Calaveras River, San Joaquin River, and Stockton Diveriing Canal Levee Improvements excluding RD 17
Alternative Sb – North and Central Stockton – Delta Front, Lower Calaveras River, San Joaquin River, and Stockton Diverting Canal Levee Improvements including RD 17

Alternative 9a – North and Central Stockton – Delta Front, Lower Calaveras River, San Joaquin River Levee Improvements and Mormon Channel Bypass excluding RD 17

Alternative 9b - North and Central Stockton – Delta Front, Lower Calaveras River, San Joaquin River Levee Improvements and Mormon Channel Bypass including RD 17

This chapter is organized to meet NEPA .requirements for determination of the overall impact of each alternative, but will also meet CEQA requirements for an irnpact-by-irnpact determination of effect. The terms *environmental consequences*, *environmental impacts*, and *environmental effects* are considered synonymous in this analysis.

The structure of each section is described below.

- **Environmental Setting**
  - Regulatory Framework. This section lists the laws, regulations and policies that are considered in the assessment of effects on the resource. These regulatory requirements are more fully described in Chapter 7, Compliance with Applicable Laws, Policies, and Plans.
  - Existing Conditions. This section describes the environmental setting and considers the environmental conditions in the area at the time that the NOP (CEQA) and NOi (NEPA) were published (January 15, 2010). Resource conditions were reassessed and updated between fall 2013 and spring 2014.
- **Environmental Consequences**
  - Assessment Methods. This section describes the methods, models, process, and procedures, data sources, and/or assumptions used to conduct the effect analysis. Where possible, effects are evaluated quantitatively. Where quantification is not possible, effects are evaluated qualitatively.
  - Basis of Significance. This section provides the criteria used in this document to define the level at which an effect would be considered

Potential seismic hazards from a nearby moderate to major earthquake are generally classified as primary and secondary. The primary effect is fault ground rupture, also called surface faulting. Because there are no active faults in the project area and the area is not located within an Alquist-Priolo Earthquake Fault Zone, fault ground rupture is negligible. Common secondary seismic hazards include ground shaking, liquefaction, subsidence, and seiches.

Although located in an area of low seismic risk, Stockton, Manteca, and San Joaquin County require all new development and substantial renovations to comply with current seismic standards for construction. Geotechnical engineering studies are also required for major new buildings or earthworks.

Table 5-2. Maximum Credible Earthquake Magnitudes

Fault	Estimated Distance from Project Site	Fault Class [1]	Maximum Credible Earthquake[2]	Slip Rate {mm/yr)
Greenville Fault Zone, North Section	20 miles	B	6.6	2.0
Greenville Fault Zone, South Section	24 miles	B	6.6	2.0
Calaveras Fault-Northern Segment	34 miles	B	6.8	6
Concord- Green Valley	38 miles	B	6.2	5.0
Hayward Fault - North Segment	45 miles	A	6.4	9

Notes:
1 Faults with an "A" classification are capable of producing large magnitude (M) events (M greater than 7.0), have a high rate of seismic activity (e.g., slip rates greater than 5 millimeters per year), and have well-constrained paleoseismic data (e.g., evidence of displacement within the last 700,000 years). Class B faults are those that lack paleoseismic data necessary to constrain the recurrence intervals of large-scale events. Faults with a "B" classification are capable of producing an event of M 6.5 or greater.
2. The moment magnitude scale is used by seismologists to compare the energy released by earthquakes. Unlike other magnitude scales, it does not saturate at the upper end, meaning that there is no particular value beyond which all earthquakes have about the same magnitude, which makes it a particularly valuable tool for assessing large earthquakes.
Sources: Cao et al., 2003; Jennings 1994; Petersen et al., 1996; data compiled by USACE in 2014

Liquefaction and Settlement

Liquefaction is the liquefying of certain sediments during seismic ground-shaking, resulting in temporary loss of support to overlying sediments and structures. Differential settlement occurs when the layers that liquefy are not of uniform thickness, a common problem when the liquefaction occurs in artificial fills. Poorly consolidated, water-saturated fine sands located within 30 to 50 feet of the surface typically are considered the most susceptible to liquefaction. Dry soils and sediments consisting of finer grained materials are generally not susceptible to liquefaction.

Many of the levees in the project area are constructed over alluvial deposits and may be susceptible to liquefaction or degradation due to a seismic event. The area is unusual in that it contains infrequently water-saturated levees in Central and South Stockton, but also frequently saturated levees in North Stockton and Delta Front. Frequently saturated levees are likely to be sensitive to seepage, leading to breach with seismic-event induced transverse cracking or displacement.

As part of the design effort, USACE conducted liquefaction triggering analyses and identified liquefiable material along several levees in the project area. Static limit equilibrium stability analyses were then conducted for these levees. Based on the analyses, the flood protection ability after a 200-year seismic event was judged to be compromised at several locations. Thus, a large regional earthquake during a major flood event would increase the potential liquefaction, settlement, and levee failure. The greatest susceptibility is along the Delta Front and North Stockton. Details of the liquefaction analyses are included in Appendix B.

5.2.2 Assessment Methods and Basis of Significance

Assessment Methods

The types and extent of potential effects and significance were assessed by reviewing seismic fault and event maps, reviewing seismic studies, discussing seismic aspects with professional staff, and then considering the work proposed under each alternative.

Basis of Significance

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

  - rupture a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
  - strong seismic ground shaking;
  - seismic-related ground failure, including liquefaction; or
  - landslides.

- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse.

The project area is not located within or adjacent to an Alquist-Priolo Fault Zone or any known active fault. Therefore, the risk of surface fault rupture is negligible and is not evaluated further. Additionally, the project area is relatively flat, and there would be no adverse impacts related to landslides. Therefore, landslides are not addressed further.

5.2.3 Alternative 1 - No Action

Under the no action alternative, no construction activities would occur. As a result, the existing seismic faults and potential for ground movement would be expected to remain the same. Prior to the implementation of the proposed measures to reduce flood damage to the Stockton, Lathrop and Manteca area, the structural integrity of existing levees, berms, and bridges would continue to be at risk from high magnitude seismic events on active faults to the west. Some of the levees in tidally influenced areas would also continue to be at risk from seismically induced structural instability and/or failure due to liquefaction of soils. The magnitude of the impact of flooding resulting from levee failure would depend on the location of the levee breach, severity of the storm, and river flows at the time of flooding. Predicting these events and providing a determination of significance is not possible based on the information available atthis time. Therefore identification of potential effects is too speculative for meaningful consideration.

5.2.4 Alternatives 7a, 7b, *Ba*, 8b, 9a, and 9b

These alternatives would have no effects on known seismic faults or cause ground movement along faults because of the type of proposed work and the nature of seismicity. The work would be limited to borrow sites activities and improvements along surface waterways, while seismic forces are subsurface and regional. In addition, there are no identified active faults in the project area.

Seismic ground shaking is an unavoidable hazard for facilities within and/or near the San Francisco Bay Area. The proposed project could experience at least one earthquake within the life of the project. Design, construction, and maintenance must comply with the regulatory standards of USACE and CVFPB, the latest industry standards and building code requirements for seismic design. The design and construction of the cut-off walls, floodwalls and/or levees would meet or exceed applicable design standards for static and dynamic stability , seismic ground shaking, liquefaction, subsidence, and seepage, minimizing the potential for significant damage. Therefore, the existing geology and seismicity of the area would not affect the proposed project or expose people or structures to potential risk or injury.

Consistent with project objectives, the completed project would provide long-term flood risk management benefits by improving the structure and functioning of the existing levee system. This includes designing the proposed features to avoid or minimize any potential for seismic-related ground failure, such liquefaction, in tidally influence areas in the project area. As a result, none of the alternatives would cause any seismic-related ground failure, and therefore would result in no effects on seismicity.

The Geotechnical Investigation prepared for the proposed project (Appendix C) did not indicate evidence of instability because of landslides, subsidence, or collapse.

Liquefaction analysis indicates some existing levees within the project area are constructed over alluvial deposits that could be susceptible to liquefaction or degradation due to a seismic event. Design recommendations to address this condition are provided in the Geotechnical Investigation and would be implemented. The proposed project would implement standard grading and soil engineering practices to ensure that foundations are adequately supported and do not settle or otherwise fail. This includes excavating the existing soils and replacing it with compacted engineered fill. In addition, all structures associated with the proposed project would be designed in accordance with USACE, and CVFPB standards, and the provisions of the California Building Standards Code. The California Building Standards Code requirements establish minimum structural load requirements for foundations. Because project facilities would be designed, constructed and maintained in accordance with applicable standards risk of failure due to a seismic event would be minimized and this impact is less-than-significant.

5.2.5 Mitigation

There would be no significant effects from seismicity, therefore no mitigation is required.

5.3 SOILS AND MINERAL RESOURCES

This section describes the affected environmental and environmental consequences relating to soils and mineral resources for the LSJR project. The significance of the impacts and mitigation measures to reduce impacts are also discussed.

5.3.1 Environmental

Setting Regulatory

Framework

Federal

- Clean Water Act (CWA) Section 402

State

- California Surface Mining and Reclamation Act of 1975
- National Pollutant Discharge Elimination System (NPDES) Permit
- California Building Standards Code
- California Code of Regulations: Title 23, Division 1, Article 8, Sections 111-137

Regional and Local

- San Joaquin County General Plan 2010

quarrying, and are intended to ensure that mineral resources will be available when their development is necessary or economically feasible (CDC, 2013). However, the MRZ-2 sector between Lathrop and Manteca lies outside the area that would be affected by the alternatives in the Lower San Joaquin River study.

5.3.2 Assessment Methods and Basis of

Significance Basis of Significance

- Result in substantial erosion of soil or loss of topsoil;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; or
- Result in the loss of availability of a known mineral resource of economic value to the region and the residents of the state or a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

The project would not involve the use of wastewater disposal systems of any kind, including septic systems, and there would be no impacts. Therefore, this issue is not addressed further in this document.

5.3.3 Alternative 1 - No Action

Under the no action alternative, no construction activities would occur. As a result, the soil types and their characteristics on the alluvial fan in San Joaquin County would be expected to remain the same as deposited over time. Prior to the implementation of the proposed measures to reduce flood damage to the Stockton, Lathrop and Manteca area, water and wind erosion of exposed and recently disturbed soils would continue, and continue to weaken the structure of levees along the San Joaquin River and tributaries. The risk of levee failure and flooding would also continue, resulting in soil scouring and substantial loss< of nearby valuable topsoil in the event of a breach. The eroded soils could be carried by the floodwaters and deposited in developed areas, causing damage to residences, businesses, and infrastructure. This would be considered a potentially significant effect. Implementation of USACE levee vegetation management requirements in not expected to occur under the No Action alternative, therefore removal of waterside and landside vegetation would not occur, reducing potential erosion impacts.

The magnitude of the impact of flooding resulting from levee failure would depend on the location of the levee breach, severity of the storm, and river flows at

time of flooding. In the event of a flood, levee failures could result in soil scouring, erosion, and permanent loss of top soil in localized areas within several hundred feet of a levee breach. Depending on the location and severity of the levee failure and duration of flooding, the location and extent of damage and impacts related to soil erosion could be minor to extensive. Predicting these events and providing a determination of significance is not possible based on the information available at this time. Therefore identification of potential effects is too speculative for meaningful consideration.

The principal mineral resources in San Joaquin County are deposits of sand and gravel aggregate, and many companies are currently mining and processing these deposits as regulated by the State and County. Mining operations would continue to be at risk of disruption, damage, or loss of mineral resources in the event of levee failure and flooding. This disruption could affect the local economy. The substantial soil subsidence in the valley due to over-pumping of groundwater and drainage of lowlands by agricultural and municipal interests would also continue. These would be considered as potentially significant effects.

5.3.4 Alternatives 7a, 7b, *Ba,* 8b, 9a, and 9b

These alternatives would have no effect on the soil types or their characteristics on the alluvial fan. However, they would have short-term effects on soils in the project area during construction. These would include disturbing soils at staging areas; clearing, excavating, and clearing soils during site preparation; excavating, stockpiling, and/or removing soil material at borrow sites; and depositing and shaping soils at the work site. Table 5-3 lists the approximate area of disturbance by alternative. These activities could result in the potential for surface water to carry sediment from onsite erosion into the stormwater and local waterways or increase air-borne dust, resulting in potential effects on existing water quality and air quality. These short-term effects would increase with the increasing extent, type, and amount of work proposed under the alternatives; e.g., 7a would have fewer effects than 9b. The potential effects on water quality and air quality of the alternatives, BMPs, and mitigation measures are discussed in detail under Sections 5.5 and 5.8, respectively.

elements would be supported by a site-specific geotechnical investigation, which would include an evaluation of site soils and recommendations to ensure project elements are appropriately designed and constructed, consistent with the current California Building Code earthwork standards, and USACE and CVFPB standards. With adherence to the current California Building Code and any additional recommendations of the site-specific geotechnical investigation, impacts associated with potential adverse soils conditions would be less-than-significant, and no mitigation is required.

These alternatives would have no short-term or long-term effects on the acquisition, mining, or processing of the mineral resources in the project area. None of the existing sand and gravel mining or processing operations are located at the work sites. Implementation of the project would not reduce or eliminate availability of mineral resources. However, consistent with the project objectives, the completed project would provide long-term flood risk management benefits by improving the structure and functioning of the existing levee system. This would include reducing the potential for loss of soils or mineral resources due to erosion and levee failure. The potential loss of locally or regionally significant mineral resources would be a less-than-significant impact. No mitigation would be required.

To identify potential locations for borrow material, soil maps and land use maps were obtained for a 25-mile radius surrounding the project area. Whenever possible, borrow sites would be obtained from willing sellers and located on land to minimize effects on the environment. Once details of borrow locations have been finalized, coordination with the California Department of Conservation (CDC) State Mining and Geology Board (SMGB) would occur to ensure compliance with the SMARA, as stated in Chapter 4, including any additional permitting, CEQA (as determined by the SMARA lead agency (SMGB), or NEPA required prior to commencing surface mining at the borrow sites. After material is extracted, borrow sites would be returned to their existing use whenever possible.

5.3.5 Mitigation

There would be no significant effects on soils and mineral resources, therefore no mitigation is required.

5.4 HYDROLOGY AND HYDRAULICS

This section describes the affected environmental and environmental consequences relating to hydrology and hydraulics for the LSJR project. The significance of the impacts and mitigation measures to reduce impacts are also discussed.

narrows to approximately 500 feet. However, there is one oxbow reach where the floodway is approximately 2,000 feet wide. Flood stages within this reach are dominated by runoff from the San Joaquin River.

Approximately 1 mile downstream of Paradise Cut on the right bank is Wetherbee Lake and the upstream tieback levee of RD 17. The Wetherbee Lake levee segment along the San Joaquin River was a feature of the San Joaquin Flood Control Project which cut *off* Walthall slough from the San Joaquin River to reduce damages to a resort development along the river. The RD 17 tieback levee is located downstream of Walthall Slough and extends east along the right bank of the slough to high ground. The RD 17 tieback levee is higher than the right bank levee of the San Joaquin River and diverts any floodwaters on the right overbank back into the San Joaquin River. This situation occurred in the flood of January 1997 and is shown on Plate 10. Flood stages within this channel reach are dominated by runoff from t11e San Joaquin River. Flood stages in the right overbank are dominated by runoff from the San Joaquin River and Stanislaus River.

Old River to French Camp Slough. Old River defines the upstream extent of this reach. Old River is a distributary from the San Joaquin River and conveys floodwaters west into the Sacramento-San Joaquin Delta. There is no hydraulic structure to manage the flow split. The flow split is defined by the hydraulic characteristics of Old River and the San Joaquin River downstream of the flow split.

Within this reach the San Joaquin River further transitions to a less sinuous plan form. The main channel varies in width from 200 to 300 feet. The floodway is contained by left and right bank levees that are approximately 10 to 15 feet tall. From Burns Cutoff to approximately 4 miles downstream, the right bank levee is approximately 3 feet taller than the left bank. The floodway width between the levees varies from 300 feet to 400 feet and widens to 1,400 feet at a few meander bends. The waterside levee face forms the channel bank along most of this reach. Flood stages within this reach are dom.inated by runoff from the San Joaquin River.

French Camp Slough to Burns Cutoff. French Camp Slough defines the upstream extent of this reach. French Camp Slough is a tributary to the San Jogquin River. The reach characteristics of French Camp slough are described below. The main channel varies in width from 200 to 300 feet. The floodway is contained by left and right bank levees that are approximately 10 to 15 feet tall. The floodway width between the levees varies from 300 feet to 400 feet. The waterside levee face is next to the channel bank along most of this reach. Flood stages within this reach are dominated by runoff from the San Joaquin River. However, influence of ocean tides is evident in flood stage hydrographs.

Bums Cutoff to Deep Water Ship Channel. Burns Cutoff defines the upstream extent of this reach. Burns cutoff is a secondary channel of the San Joaquin River which conveys water on the west side of Rough and Ready Island. Burns cutoff flows

TERRA LAND GROUP, LLC

December 16, 2014

VIA HAND DELIVERY & U.S. MAIL

Manteca City Council
1001 W. Center Street
Manteca, CA 95337

RE: Unidentified and/or unresolved impacts relating to 200-year flood protection (Manteca City Council Meeting 12/16/14 Agenda Item B.07.)

Dear Council Members:

Terra Land Group, LLC ("**TLG**") owns approximately two hundred thirty (230) acres of farm ground ("**Property**") located within the two hundred year ("**200-year**") floodplain and further situated in the southwest corner of the incorporated area of the City of Manteca. The Property is further identified as APNs:

241-330-32 (approx. 203.33 acres)
241-330-33 (approx. 17.10 acres)
241-320-60 (approx. 10.13 acres)

Currently, approximately 31,000 (thirty-one thousand) almond trees are planted on the Property, with access to irrigation water provided by means of 2 (two) deep-water wells specifically located on TLG APN 241-330-032.

Further, TLG is presently involved in negotiations with South San Joaquin Irrigation District ("**SSJID**") to allow TLG to receive SSJID surface water by means of annexation into SSJID.

The costs associated with the annexation into SSJID are significant and are subject to increases on an annual basis.

As of the date of this letter, the costs associated with annexation into SSJID involve:

1) TLG payment of an annexation fee approximating $2,300 (two thousand three hundred dollars) per acre.
2) TLG responsibility to pay all costs involved to construct any and all irrigation water conveyance, storage and delivery infrastructure necessary to distribute water throughout the TLG farm Property.

At this time, TLG is in receipt of a December 8, 2014 Public Works Staff Report recommendation from Phil Govea to the Manteca City Council. (See Exhibit "1")

As I understand it, Senate Bill 5 ("SB5"), as administrated by the United States Army Corps of Engineers and the State of California Department of Integrated Water Management, will significantly limit the ability of urban communities to approve residential, commercial and industrial development projects after July, 2016, unless communities have either:

1) Constructed all improvements needed to provide an Urban Level of Flood Protection for a 200-year storm event (200-year Flood Protection), or
2) Made a finding of adequate progress toward providing 200-year Flood Protection.

Other requirements leading to the completion of SB5 200-year levee flood protection improvements indicate that all such improvements are to be completed by 2025.

Prior to that date, various work products need to be completed to demonstrate that the permitting agency can make a defensible "finding of adequate progress".

<u>Scope of Work Products Involved</u>

1) Development of a master model to simulate a 200-year flood event
2) Significant engineering and geotechnical efforts involving
    a) Identifying deficiencies in the existing levee system
    b) Preparing levee design criteria that meets state and federal standards
    c) Identifying rehabilitation measures to fix any deficiencies found in the existing levee system
    d) Preparing cost estimates for the rehabilitation work
    e) Vetting the analyses and design criteria in a series of workshops with a panel of independent experts, as well as state agencies.
3) Preparation of a financing plan and the initiation of construction on some of the needed improvements by July, 2016, in order to comply with SB5 requirements by supporting a "finding of adequate progress".

With this in mind, I, Martin Harris, representing TLG, attended a 12/9/14 Reclamation District 17 ("RD17") Board meeting.

At that meeting, RD17 representative Dante Nomellini explained to those in attendance that RD17 was working with the City of Manteca to conduct levee improvements that were described as a "seepage repair project" involving bench berms and changes to the levee bank slope on both the leading and tail sides of the levee.

Mr. Nomellini added that the initial levee improvements were of an intermediate nature and were not meant to satisfy final SB5 200-year levee flood protection requirements.

Finally, Mr. Nomellini stated that the City of Manteca's continued participation in an ongoing Regional Feasibility Study was an important component in meeting the adequate progress goals for 200-year levee protection compliance.

I inquired as to whether the levee design slopes currently anticipated to affect the TLG farm Property would be designed in accordance with the levee design map presented on Page 3-32 of the March 2011 Terra Ranch Subdivision Final EIR. (See **Exhibit "2"**)

RD17 representative Chris Nudeck indicated that the levee design would follow the 3:1 (three-to-one) slope indicated on the drawing.

I also brought the RD17 Board's attention to a December 29, 2010, letter from Dante Nomellini which indicated that "excavations for swimming pools and other purposes outside the levee easements are increasingly being recognized as having the potential for affecting under seepage and therefore levee stability".

Further, the 12/29/10 letter goes on to state that "Location of ample open space along the levees coupled with a single loaded street as a buffer from development is highly recommended. The Terra Ranch Plan appears to incorporate the single loaded street and a setback. The setback may have to be increased and excavations as far away as 300 (three hundred) feet may be restricted". (See **Exhibit "3"**)

Chris Nudeck confirmed the need for a setback standard and indicated that the greatest concern would involve uses such as a stormwater pond.

The meeting ended.

<u>Other Historical Meeting Information Supporting This Letter</u>

December 3, 2013, SSJID negotiations begin
On December 3, 2013, TLG began discussions with SSJID to prepare to annex the TLG farm Property into SSJID. (See Exhibit "4")

November 7, 2014: SSJID, Supplemental Annexation Plan:
On 11/7/14, I, Martin Harris, attended an 8:00 a.m. meeting at SSJID to discuss a newly created Supplemental Annexation Plan that may clear a path for TLG to be allowed access to SSJID surface farm irrigation water.

Present at the meeting were: Jeff Shields, SSJID; Bere Lindley, SSJID, Sam Bologna, SSJID, Forest Killingsworth, SSJID, myself (Martin Harris), TLG and Josh Harris, TLG.

In addition, SSJID also presented that the City of Manteca was considering the annexation of the entire developable portion of the Zone 39 Storm Drainage Region into SSJID.

Jeff Shields went on to state that Manteca's participation in the Supplemental Annexation Plan could allow Manteca to:

A. discharge their stormwater utilizing portions of existing stormwater discharge conveyance facilities to access and convey water north to the SSJID French Camp storm drain outlet; and
B. have access to surface water to supplement groundwater well pumping and improve the overall quality of the municipal drinking water serving the Zone 39 area.

Certain advantages were discussed in coordinating the timing of both the City of Manteca and TLG's Supplemental Annexation application submissions for SSJID review, processing and board approval.

I stated to everyone present that TLG was very interested and would return to the TLG offices to evaluate the design and feasibility of the TLG surface water storage and receiving infrastructure required.

The meeting then ended.

At 11:27 a.m. that same day, I received an email from SSJID providing a Term Sheet and Water Service Agreement. (See **Exhibit "5"**)

Total acreage shown on the documents presented indicated two hundred twenty and five tenths (220.5) acres which differed from TLG's past conversations with SSJID for total acres involved. (See **Exhibits "4" and "5"**)

November 13, 2014: SSJID, Supplemental Annexation Plan, continued:
On November 13, 2014, Josh Harris and I met with SSJID staff for the purpose of gaining additional information and identifying the minimum TLG facility requirements necessary to connect with SSJID surface water conveyance facilities currently in place.

Several questions relating to fully understanding information to be submitted by TLG on the SSJID application followed.

Eventually, I raised the question as to how SSJID determined, as specified by SSJID on the rate sheet, that TLG was only looking to annex two hundred twenty and five tenths (220.5) of the approximate two hundred thirty and six tenths (230.6) acres that had been discussed previously.

SSJID responded by presenting a City of Manteca Storm Drainage Zone 39 Subarea Map ("Zone 39 Map") that, to my surprise, clearly showed a significant portion of the RD17 levee relocated to a position substantially south of its current location. (See Exhibit "6")

As shown on the Zone 39 Map, the realignment of the RD17 levee for the portion to be repositioned on the TLG Property, straightens the levee in accordance with the current position of the RD17 levee east of the TLG Property, while interrupting TLG's ability to provide irrigation water to a significant portion of the TLG Property. (See Exhibit "6")

In fact, the resulting segmented portion of TLG Property involved could affect the entire TLG APN 241-320-60 parcel and more.

The meeting then ended.

For some time now, TLG has actively participated in numerous discussions with Manteca City staff and various development interests involved to resolve issues and seek protections relating to any and all environmental impacts that have previously been identified and have the potential to affect the TLG Property.

Further, TLG had formed an opinion that the efforts put forth by the various parties involved were approaching a reasonable conclusion.

For this reason, TLG was disappointed to discover that the portion of the existing RD17 levee separating TR Land Company's APN 241-320-59 and TLG's APN 241-320-60 was apparently being relocated to a southern position that could significantly impact the TLG farm Property.

<u>This makes TLG question:</u>

1) What was the City of Manteca's intent in altering the location of the RD17 levee as shown on the Zone 39 Map presented to TLG by SSJID staff on November 13, 2014? (See Exhibit "6")
2) Why were TLG APNs 241-330-32 and 241-330-33 located south of the Zone 39 reconfigured levee clearly identified by APNs shown on the Zone 39 Map, while TLG APN 241-320-60 is left unidentified on that same Zone 39 Map? (See Exhibit "6")
3) Why does the Zone 39 Map clearly show the TLG's APN 241-320-60 northern jagged edged levee boundary a substantial distance within the total area that the City of Manteca is looking to annex into SSJID as part of the developing area included in its Zone 39 Stormwater Drainage Plan? (See Exhibit "6")
4) What parties will stand to benefit from the new location of the reconfigured levee?
5) What purpose does the Zone 39 Map's bold print "DRY LAND LEVEE" designation have in describing the location of the Zone 39 reconfigured levee placement if not to depict a new location for the Dry Land Levee? (See Exhibit "6")

6) What additional flood related impacts will a levee relocation create?
7) What affect will a levee relocation have on flood water flows and flood water elevation levels impacting neighboring properties?
8) Doesn't the public have a right to know that their property could be subject to unidentified and unanticipated flood impacts?
9) At what point will these potential flood levee impacts be presented to the public?
10) How can TLG justify the costs of annexation into SSJID while significant unidentified impacts remain that may ultimately affect TLG's continued right or ability to farm?
11) At this point, how can any affected property owners address known and/or anticipated impacts affecting their property, when the total list of known impacts is unreliable and continually changes over time?
12) If the information presented to the public does not accurately describe the City of Manteca's intentions relating to a final SB5 levee plan; is it unreasonable for the public to question the costs involved or the validity of any engineering or geotechnical data collected?

In closing, TLG believes that significant and unidentified environmental impacts, with the potential to adversely affect the TLG Property exist.

In addition, TLG believes that certain related impacts may extend to neighboring property owners as well.

These impacts are expected to involve levee related separations to property parcels with impacts that may involve potential flood water elevations, stormwater drainage, continued opportunity to distribute irrigation water, equipment access and the continuing right and/or feasibility to farm.

As a result, TLG requests that the City of Manteca hold public workshops to present a complete levee compliance overview, identifying the City of Manteca's intentions and to allow for public feedback relating to SB5 200-year flood levee requirements.

Thank you for you attention to this very important matter.

Yours Truly,

Martin Harris
Terra Land Group, LLC

MH/jas

Enclosures:

1) Ex. "1": *Manteca City Council Agenda Item No. B.07*
2) Ex. "2": *Page 3-32 of the March 2011 Terra Ranch Subdivision Final EIR*
3) Ex. "3": *December 29, 2010 Nomellini, Grilli & McDaniel PLCs email to Erika Durrer*
4) Ex. "4": *December 3, 2013 Sam Bologna/SSJID email to Martin Harris with Enclosures*
5) Ex. "5": *November 7, 2014 SSJID to TLG Proposed Terms of Supplement to Annexation and Water Service Agreement*
6) Ex. "6": *{Map appears to indicate April 2014} City of Manteca Public Works Department Storm Drainage Zone 39 Subareas Map*

cc:
Manteca City Council
Mark Meissner, City of Manteca Planning Department
Karen McLaughlin, Manteca City Manager
Mark Houghton, City of Manteca Public Works
Jeff Shields, South San Joaquin Irrigation District
Manteca Development Group
TR Land Company
Rosi Cerri Foundation
Reclamation District No. 17
Brian Jones, North Star Engineering Company
Title Company

EXHIBIT "1"

City Council Agenda
December 16, 2014
Consent Calendar
Agenda Item No. B.07

Reviewed by
City Mgr's office: /KLM

Memo to: Manteca City Council

From: Phil Govea, Deputy Director of Public Works

Date: December 8, 2014

Subject: 200-Year Flood Protection Update

Recommendation:

Receive report on 200-year flood protection, and provide direction to staff as appropriate.

Background:

Senate Bill 5 was passed by the California Legislature in 2007, and later amended in 2012 by SB 1278 (SB5). Among its many requirements, SB5 significantly limits the ability of urban communities to approve residential, commercial and industrial development projects after July 2016 unless communities have either: 1) Constructed all improvements needed to provide an Urban Level of Flood Protection for a 200-year storm event (200-year Flood Protection), or 2) Made a finding of adequate progress toward providing 200-year Flood Protection. Since completing all needed improvements by July 2016 is not practical, most communities impacted by SB5 are instead working toward making a "finding of adequate progress," which is what the cities of Lathrop and Manteca have been working toward over the last several months. Ultimately, SB5 requires that all improvements needed to provide 200-year flood protection are completed by July 2025.

Before a permitting agency can make a defensible "finding of adequate progress," various work products need to be completed as described below. The first work product involves developing a computer model to simulate 200-year flood events and, from this information, preparing maps of the effected properties should the levees fail. In February 2014, the cities of Lathrop and Manteca jointly funded an agreement with an engineering firm (Peterson Brustad, Inc. [PBI]) to develop a computer model, to calculate the 200-year water surface profile in the San Joaquin River, and to develop 200-year floodplain maps for the cities of Lathrop

and Manteca and the unincorporated areas of the County that are within Lathrop's or Manteca's General Plan boundaries. The modeling and mapping work was completed, and a presentation was provided to Council at the June 17, 2014 meeting. Figure 1 shows the 200-year floodplain for the cities of Lathrop and Manteca.

The next work products needed to support a finding of adequate progress involve significant engineering and geotechnical efforts, and again, Lathrop and Manteca contracted with PBI to complete the necessary work. Specifically, the work involves :1) Conducting field surveying and reconnaissance to identify deficiencies in the existing levee system, 2) Preparing levee design criteria that meets State and Federal standards, 3) Identifying rehabilitation measures to fix the deficiencies, 4) Preparing cost estimates for the rehabilitation work, and 5) Vetting the analyses and design criteria in a series of workshops with a panel of independent experts, as well as with State agencies. The work on these tasks has progressed far enough that PBI has prepared a preliminary cost estimate of $145 million needed to repair the 20 miles of levees that protect the cities of Lathrop and Manteca. Assuming State funding is available for 50% of the costs, and assuming a 2/3-Lathrop, 1/3-Manteca split on the remaining costs (based on land area located within the 200-year floodplain), the total cost for Manteca is conservatively estimated at $24 million.

In addition to the above work, a financing plan needs to be prepared and construction on some of the needed improvements must be under way by July 2016 in order to make a finding of adequate progress. Regarding a financing plan, staff from the cities of Lathrop and Manteca are soliciting proposals from qualified firms to prepare the plan. Regarding construction, Reclamation District 17 (RD 17) is the local agency responsible for maintaining the levee system in the vicinity of Lathrop, Manteca, Stockton and portions of the San Joaquin County. RD 17 has an existing levee improvement project soon to be in construction, and the plan is to leverage this project as a qualifying construction activity to support a finding of adequate progress. It should be noted that, while RD 17's levee project makes needed improvements to this existing levees, the project by itself does not provide 200-year flood protection for the region. Significant additional work is needed to achieve 200-year flood protection as described later in this report.

As for next steps, staff has a goal of completing the work needed to make findings of adequate progress by February 2016, such that the Lathrop and Manteca City Councils can take action at their February or March 2016 Council meetings.

From July 2016 to July 2025, significant work will then continue toward achieving 200-year flood protection. These work activities will include: implementing a financing plan; designing and preparing construction documents for the levee improvements; obtaining environmental clearance for the improvements; acquiring property; and construction of the improvements.

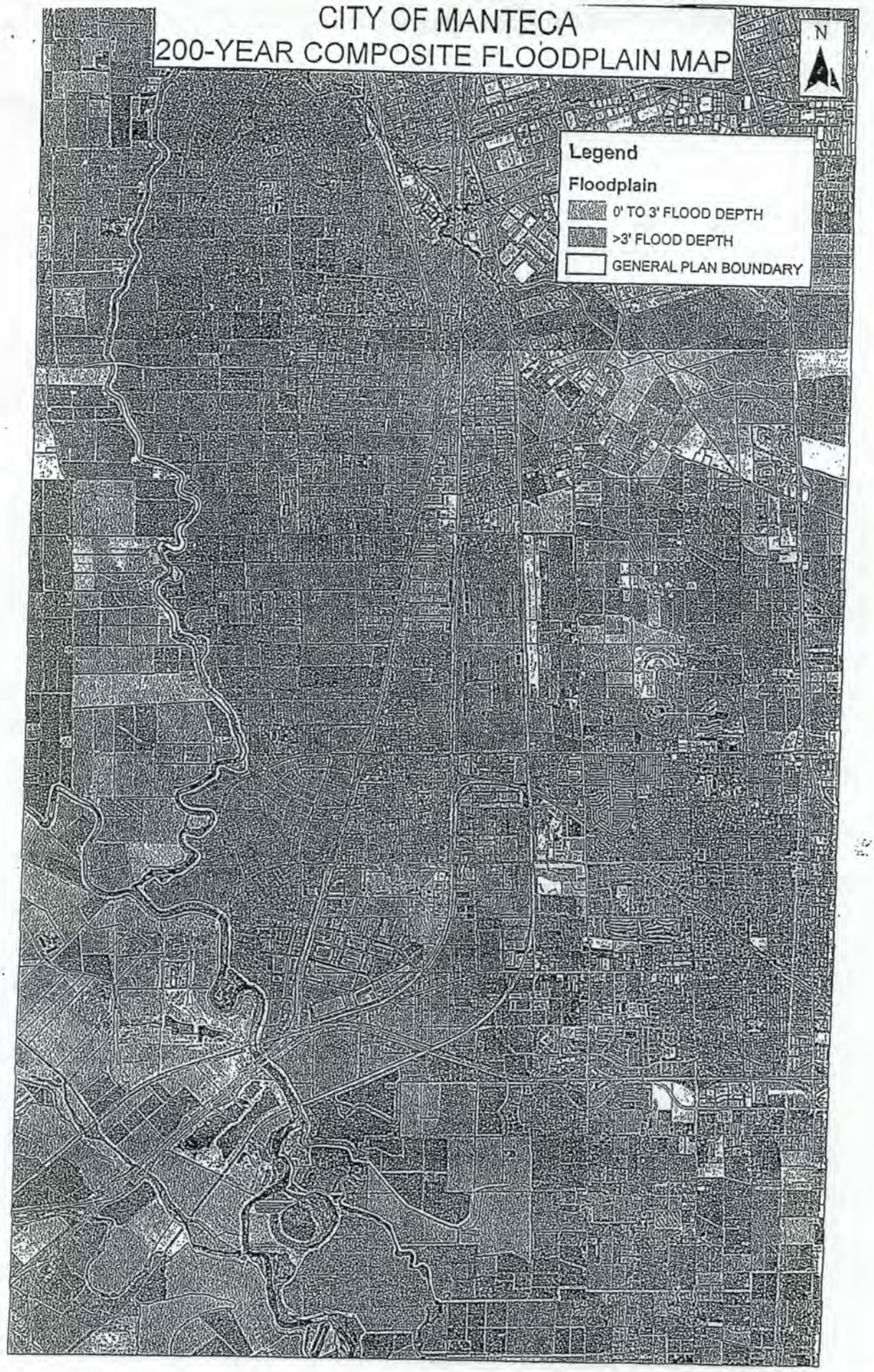
It should also be noted that only Lathrop and Manteca have come forward to fund the SB5 compliance work to date, although the work also benefits Stockton and the unincorporated areas of San Joaquin County.

Fiscal Impact:

The fiscal impact to Manteca of providing 200-year flood protection is estimated at $24 million. Identifying a financing plan to recover these costs is part of the next steps in the process.

Attachment:
Figure 1

CITY OF MANTECA
200-YEAR COMPOSITE FLOODPLAIN MAP

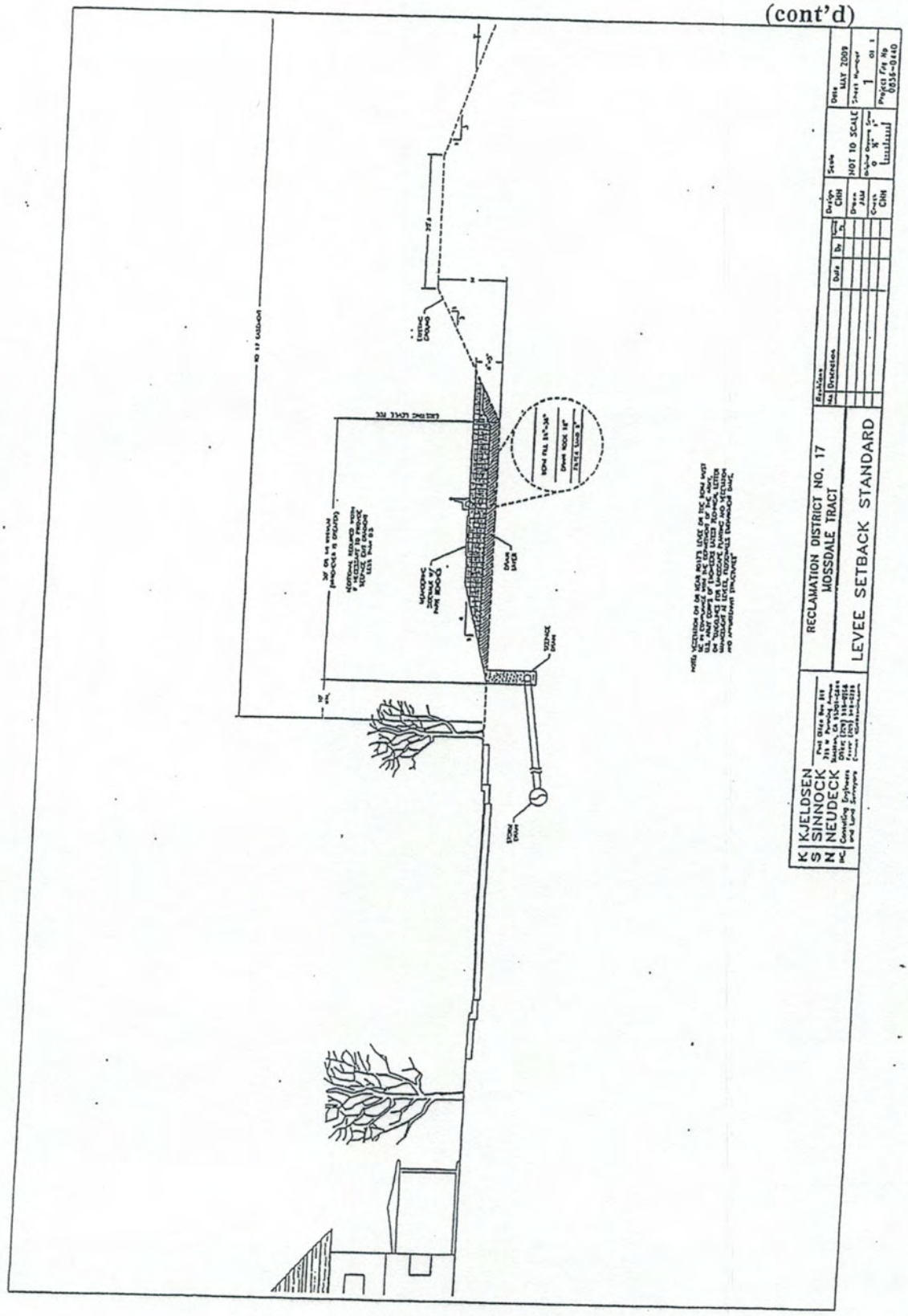


TERRA LAND GROUP, LLC

EXHIBIT "2"

5151 E. ALMONDWOOD DRIVE MANTECA, CA 95337

Letter 7
(cont'd)



TERRA LAND GROUP, LLC

EXHIBIT "3"

5151 E. ALMONDWOOD DRIVE MANTECA, CA 95337

From: Nomellini, Grilli & McDaniel PLCs [mailto:ngmplcs@pacbell.net]
Sent: Wednesday, December 29, 2010 4:48 PM
To: Durrer, Erika
Cc: Chris Neudeck'; Stone, Jim
Subject: Terra Ranch Subdivision DEIR Sch#.2010072054

Letter 7

7-1 Erika Durrer: Reclamation District No. 17 submits the following comments: Attached please find copy of May 19, 2009 letter from Kjeldsen, Sinnock & Neudeck, Inc to Mark Meissner commenting on the preliminary tentative map for the Trails e project which are relevant to this project as well. Such comments are incorporated herein.

7-2 Since such comments were submitted the setback required by DWR and the USACE has increased from 10ft to 15ft and poswibly 20ft. The RD 17 Levee Setback Standard should be adjusted accordingly.

7-3 Engineering and O&M requirements are evolving and becoming more rigid. Excavations for swimming pools and other purposes outside the levee easements are increasingly being recognized as having the potential for affecting under seepage and therefore levee stability. Location of ample open space along the levees coupled with a single loaded street as a buffer from development is highly recommended. The Terra Ranch plan appears to incorporate the single loaded street and a setback. The setback may have to be increased and excavations as far as 300ft may be restricted. The single loaded street with an adequate setback will add flexibility to accommodate future levee requirements, avoid conflicting encroachments and improve access for patrol and floodlighting.

7-4 Thank you for your consideration. Dante John Nomellini, Secretary and Counsel for Reclamation District No 17

Nomellini, Grilli & McDaniel
Professional Law Corporations
235 East Weber Avenue
Stockton, CA 95202
Mailing address:
P.O. Box 1461
Stockton, CA 95201-1461
Telephone: (209) 465-5883
Facsimile: (209) 465-3956
Email: ngmplcs@pacbell.net

TERRA LAND GROUP, LLC

EXHIBIT "4"

5151 E. ALMONDWOOD DRIVE MANTECA, CA 95337

From: Sam Bologna <sbologna@ssjid.com>
To: Marty Harris (harrismw1@aol.com) <harrismw1@aol.com>
Cc: Sam Bologna <sbologna@ssjid.com>
Subject: Water levels
Date: Tue, Dec 3, 2013 2:55 pm
Attachments: Lateral_W_water_levels.PDF (4327K)

Marty,

Attached are a couple of maps that show the irrigation supply line (Lateral "W"), where you plan to make your connection. The Lateral is a 42" pipeline that will handle 25 CFS flow. The elevations on the maps show where the high water marks are in the systems that are taken from the upstream box, east of Airport way. Unfortunately, we could not find any water surface elevation information at the end of the line. Please let me know if there is anything else you might need.

Sam Bologna

Engineering Department Manager

South San Joaquin Irrigation District

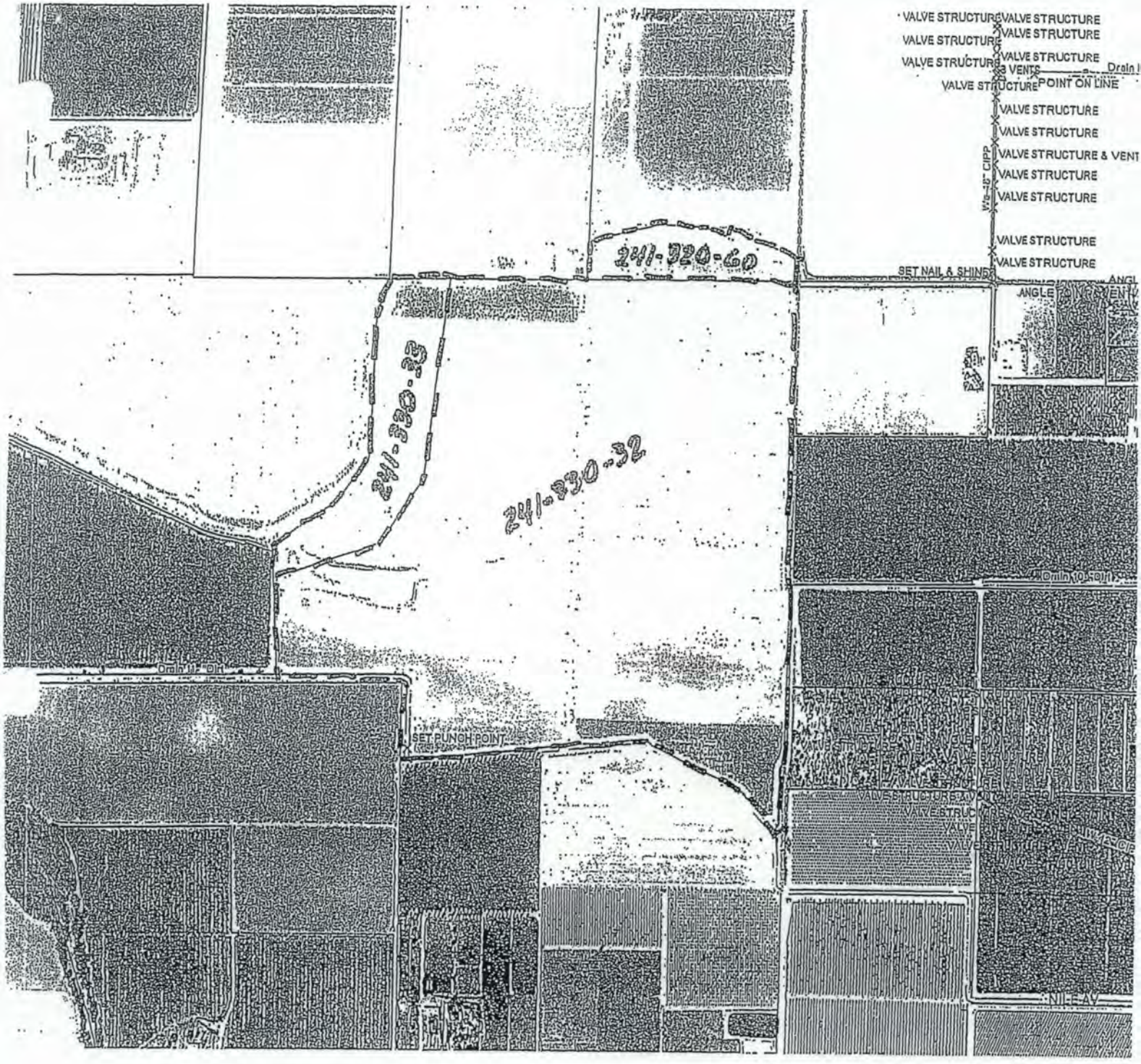
P.O. Box 747

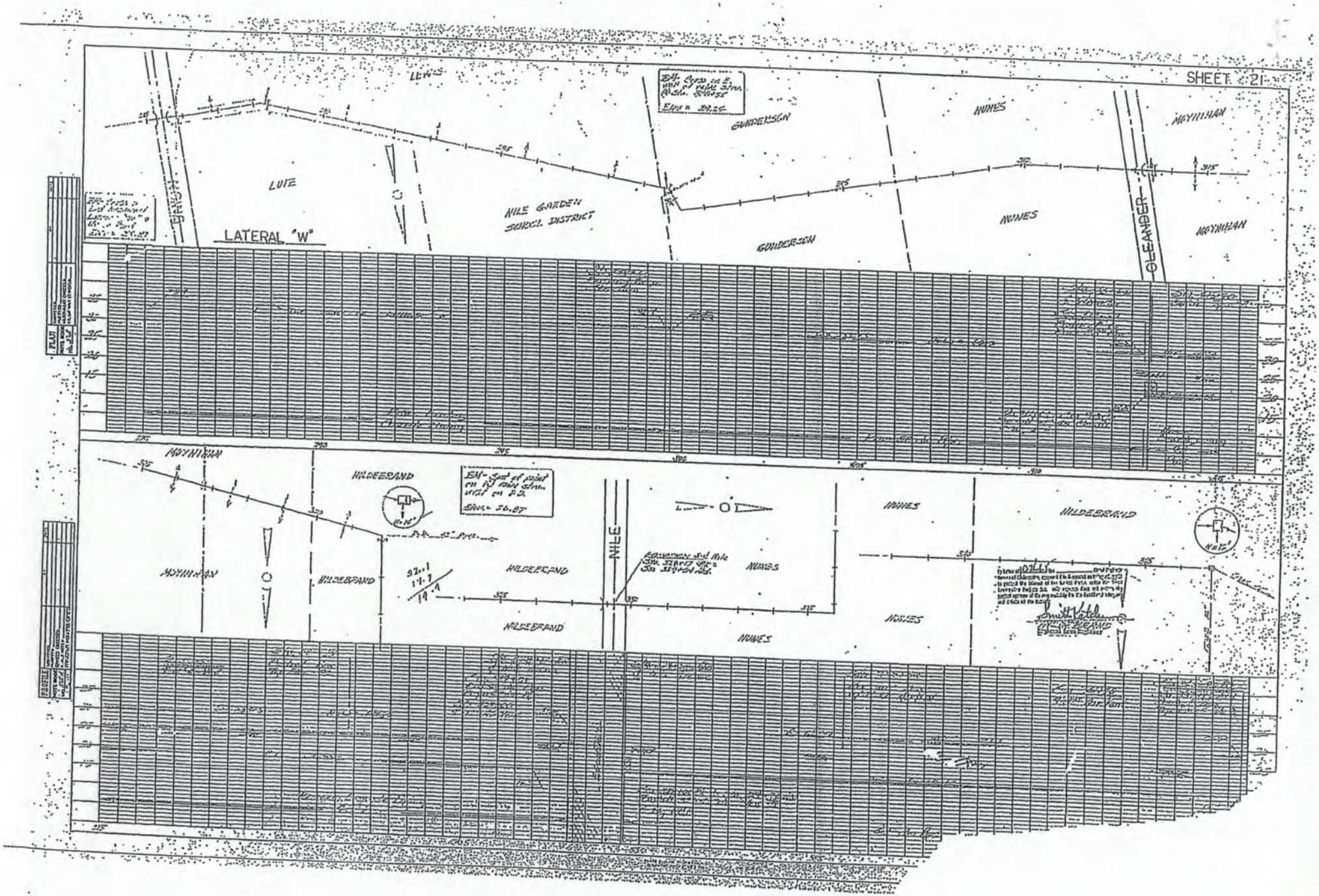
Ripon, Ca. 95366

(209) 249-4617 direct phone

(209) 249-4651 direct fax

(209) 456-1574 cell phone


VALVE STRUCTURE
VALVE STRUCTURE
VALVE STRUCTURE
VALVE STRUCTURE
VALVE STRUCTURE
VALVE STRUCTURE
3 VENTS
Drain
VALVE STRUCTURE
POINT ON LINE
VALVE STRUCTURE
VALVE STRUCTURE
VALVE STRUCTURE & VENT
VALVE STRUCTURE
VALVE STRUCTURE
Ws-18" CIPP
VALVE STRUCTURE
VALVE STRUCTURE
SET NAIL & SHINER
ANGL
ANGLE POINT & VENT
241-320-60
241-330-33
241-330-32
SET PUNCH POINT
VALVE STRUCTURE
VALVE STRUC
VALVE
VALVE


SHEET 21
LEWIS
GUNDERSON
HUNES
MCYNIHAN
LUTE
NILE GARDEN SCHOOL DISTRICT
LATERAL "W"
OLEANDER
HILDEBRAND
NILE

TERRA LAND GROUP, LLC

EXHIBIT "5"

5151 E. ALMONDWOOD DRIVE MANTECA, CA 95337

Proposed Terms of Supplement to Annexation Agreement

November 7, 2014

1. The supplemental agreement entitles landowner to buy water transferred from the District under the following terms.
2. SSJID and landowner will make all reasonable efforts to complete annexation expeditiously.
3. Regardless of when or whether annexation is approved by LAFCo, SSJID will make water available during the annual irrigation season as soon as:
    a. Landowner has applied to the District for annexation and has paid the portion of the annexation fee required with the application.
    b. The Board has taken such action as is required by CEQA and approved the agreement.
    c. All District and private facilities necessary to provide service to the land are installed and in a condition satisfactory to District.
    d. Other requisite conditions are satisfied (i. e., environmental review), and,
4. All provisions relating to new facilities are identical to provisions in the annexation agreement. So, the cost for installing new District facilities is at landowner's expense.
5. The land will have the same Tier 2 priority for water supply under this supplemental agreement as it will have after annexation.
6. The entitlement fee entitles landowner to the rights granted in the supplemental agreement:
    a. The amount of the entitlement fee is 75% of the annexation fee.
    b. The entitlement fee is due upon Board approval of the supplemental agreement.
    c. The entitlement fee becomes nonrefundable upon board approval of the supplemental agreement.
    d. The payment schedule for the financing plan is coordinated with the annexation payment schedule:
        i. The 25% portion of the <u>annexation</u> fee paid with the annexation application counts toward the entitlement fee. This amount equals 1/3 of the entitlement fee. This leaves an amount equal to 2/3 of the <u>entitlement</u> fee due upon Board approval of this agreement (See examples below). SSJID may agree to a reasonable financing plan for this 2/3 portion of the entitlement fee, including interest on the deferred portion.

ii. All of the entitlement fee will be credited toward the annexation fee if annexation is approved by LAFCo.

7. The supplemental agreement has a long term of years (25 – 50 years?) in order to justify the amount of the entitlement fee and to constitute an acceptable alternative to annexation for the landowner. The long term is justified by the fact that the District and the landowner are willing to annex in perpetuity.

8. Landowner would pay 300% of the average water charges paid by in-district irrigators. In-district irrigators pay an average of $10/acre-foot, so landowner would pay $30/acre-foot.

9. The water charge changes when in-district charges change, by the same percentage.

10. The supplemental agreement should be signed by landowner before Board consideration.

11. The supplemental agreement lapses upon annexation when all the usual terms of annexation would apply.

Annual Cost per Acre if <u>Entitlement Fee</u> is Spread Over the Term of the Agreement

	Entitlement Fee	Estimated Water Charges @ $30/a-ft	Total Annual Cost
Annexation fee per acre	$2,297.00		
Entitlement fee @75%	$1,722.75	*Assuming 42 inches per year*	
Cost per year for:			
25 years	$68.91	$105.00	$173.91
30 years	$57.43	$105.00	$162.43
40 years	$43.07	$105.00	$148.07
50 years	$34.46	$105.00	$139.46

Annual <u>Annexation</u> Cost per Acre for the Same Time Periods

	Annexation Fee	Estimated Water Charges @ $30/a-ft	Total Annual Cost
Annexation fee per acre	$2,297.00		
Cost per year for:		*Assuming 42 inches per year*	
25 years	$91.88	$34.50	$126.38
30 years	$76.57	$34.50	$111.07
40 years	$57.43	$34.50	$91.93
50 years	$45.94	$34.50	$80.44

Illustration of How Fee Payments are Coordinated

Without Using Payment Plan

	Annexation Fee	Entitlement Fee
Acres	220.5	220.5
25% of annexation fee is due with annexation application and applies toward the entitlement fee	$126,622	$126,622
The balance of the entitlement fee is due upon Board approval of the supplemental agmt, and applies to the annexation fee	253,244	253,244
IF LAFCO APPROVES ANNEXATION: The balance of the annexation fee is due 14 days after LAFCo approval of the annexation	126,622	
Total Paid	$506,489	$379,866

Illustration of How Fee Payments are Coordinated

With a Payment Plan

	Annexation Fee	Entitlement Fee
Acres	220.5	220.5
25% of annexation fee is due with annexation application and applies toward the entitlement fee	$126,622	$126,622
IF LAFCO APPROVES ANNEXATION: Balance of annexation fee is paid in a max of 5 annual payments *(plus 5% interest not included here)* :		
Year 1	75,973	
Year 2	75,973	
Year 3	75,973	
Year 4	75,973	
Year 5	75,973	
IF LAFCO DENIES ANNEXATION: Balance of entitlement fee is paid in a max of 5 annual payments *(plus 5% interest not included here)*		
Year 1		50,649
Year 2		50,649
Year 3		50,649
Year 4		50,649
Year 5		50,649
Total Paid *(Not Including Int.)*	$506,489	$379,866

RECORDING REQUESTED BY AND
AFTER RECORDING RETURN TO:

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
11011 East Highway 120
Manteca, California 95336

WATER SERVICE AGREEMENT

This Water Service Agreement is entered into this _____ day of _____, 2014 between South San Joaquin Irrigation District ("SSJID" or "District") and _____ ("Landowner"). District and Landowner are collectively referred to as "Parties".

RECITALS

WHEREAS, District operates under and by virtue of Division 11 of the California Water Code; and

WHEREAS, District adopted an annexation policy on October 14, 2014, by resolution number 14-11-P90-18-0 ("Annexation Policy"); and

WHEREAS, Landowner has submitted an application dated _____ for annexation of its real property described in Exhibit A ("Property") to the District ("Application") in order to receive irrigation service as a member of the District; and

WHEREAS, District and Landowner desire to set forth the terms under which District will provide irrigation service to the Property until either the Property is annexed to the District or this Agreement terminates in accordance with its terms, whichever occurs sooner,

NOW, THEREFORE, the Parties, on the terms and conditions herein set forth, agree as follows:

AGREEMENT

1. Agreement to Serve: District agrees to provide irrigation service to Landowner=s Property during the District=s annual irrigation season as determined annually by the District's Board of Directors on the terms in this Agreement.

2. Conditions: The Property will be entitled to irrigation service when the following conditions are satisfied:

A. Landowner has installed its own facilities that are necessary for the Property to receive irrigation service from District's Lateral "____" at approximately station _____ as shown on the plat attached as Exhibit B ("Delivery Point"). Landowner is responsible for installing such other facilities as Landowner determines to be necessary for distribution of the irrigation water from the Delivery Point throughout the Property. Landowner shall obtain a structure permit from District before connecting any structures to District's facilities.

B. Landowner has installed at Landowner's expense a flowmeter and SCADA facilities to measure the application of District water to the Property at the Delivery Point. The meter and all other facilities shall conform to District's specifications and will be owned by District. Landowner shall execute and deliver an agreement in recordable form acceptable to District providing District with the right to access the Property to access, read, maintain, repair and replace the meter and SCADA facilities or dedicate a separate easement for that purpose at the discretion of the District.

C. District's determination that its actions in accordance with this Agreement do not cause any significant environmental impacts pursuant to the California Environmental Quality Act (CEQA) and that an environmental impact report is not required, and the applicable time period for challenging the District's actions under CEQA has expired without the filing of a legal challenge.

D. District has obtained such regulatory or other approvals as are agreed upon by the Parties.

E. Landowner has paid the Entitlement Fee to District as specified in this Agreement.

F. Terms of Service: The following provisions govern the District's provision of irrigation service to the Property:

G. Landowner, as owner of the Property is entitled to equal benefits to the District's water supply to the extent of District's water supply, its water rights and its available water delivery facilities, subject to the Tier II provisions below, so long as Landowner is not in default of any payments due the District, of the terms and conditions of this Agreement, of the rules and regulations of the District, or of applicable federal, state or local laws and regulations.

H. The District will provide service at the Delivery Point and Landowner is responsible for all other facilities necessary to accept water service as described in Section 2.

I. The Property will be entitled to receive irrigation service on the terms and conditions of this Agreement, District's water rules, regulations and policies,

including the Tier II provisions below, as such policies are currently in effect or as may be added or modified from time to time, subject to federal, state and local laws and regulations.

J. The Property is subject to the Tier II restrictions in the District's Annexation Policy by which irrigation service to Landowner, as owner of the Property, is subject to reduction in whole or in part in any year when the District's Board of Directors determines such action to be necessary in order for District to serve Tier I landowners, which are those landowners whose property was within the District as of November 14, 2000, and to satisfy the District's contractual obligations to the cities of Manteca, Escalon, Ripon, Lathrop and Tracy.

K. Landowner must pay the water charges due from time to time as described in Section 6.

L. The District shall be relieved of its obligations in this Agreement to the extent it is unable to do so due to a failure of the District's water delivery facilities.

3. Term of Agreement: The term of this Agreement shall be ___ years from the date in the first paragraph above, provided that this Agreement will expire at such time that annexation of the Property to the District is complete, as evidenced by the recording of a certificate of completion.

4. Entitlement Fee: Landowner shall pay District an Entitlement Fee of $___, which is $___ per acre for the __ acres comprising the Property.

A. The Entitlement Fee is due before this Agreement is submitted to the District's Board of Directors for approval. The Entitlement Fee becomes nonrefundable upon approval of this Agreement by the District's Board of Directors. The Entitlement Fee is refundable if the District's Board of Directors rejects this Agreement.

B. The Entitlement Fee is payable as follows:

1). Any portion of the annexation fee for the Property paid to District is credited towards the Entitlement Fee.

2). The balance of the Entitlement Fee is payable upon approval of this Agreement by the District's Board of Directors. Landowner may elect at such time to pay the balance of the Entitlement Fee in a maximum of five equal annual payments. In such event, the unpaid balance will accrue interest at 5% per annum, commencing upon approval of this Agreement by District's Board of Directors. Annual installments, including accrued interest, will be billed and are due in accordance with Section 5B (3) below.

3). Annual payments on the deferred portion of the Entitlement Fee are due on receipt of each annual bill issued on or about November 1 of each year and are payable in two installments. The first installment is delinquent if not paid by 4:30 p.m. on December 20 of each year, and the second installment is delinquent if not paid by 4:30 p.m. on June 20 of the following year. If any required payment is delinquent, District shall collect the unpaid amounts, plus the fees, penalties, and charges authorized by the District's Collection Policy adopted in Resolution No. 2001-04-F, "Policy Governing Collection of Fees, Charges and Penalties" or any subsequent resolution which supersedes Resolution No. 2001-04-F ("Collection Policy"), and the unpaid amounts, including fees, charges and penalties, such constitute liens on the land in accordance with the Collection Policy.

C. The portion of the Entitlement Fee paid to District shall be credited to the annexation fee due from Landowner according to the Annexation Policy, when the annexation of the Property to District is complete.

5. Water Charges and Measurement: Landowner agrees to pay District a water charge of $30 per acre-foot of water received by Landowner for the Property based on data from the flow meter described in Section 2B. This charge is subject to annual increase based on changes to the consumer price index as shown on the urban wage earners and clerical workers, US city average (CPI – W) ("Index") for the 12 month period concluding with the August CPI index of each year. Effective October 1 of each year, commencing October 1, 2015, the charge shall be adjusted, based on the same percentage that the index as published in August of each year has adjusted as compared to the index published in August of the preceding year, provided, however, that the adjustment in any year shall not result in an decrease in the charge then in effect nor exceed 5%.

During any month when data from the flow meter is not available, District will bill Landowner and Landowner agrees to pay water charges based on District's good faith estimate of the water delivered to the Property for the month.

6. Billing and Payment: District will bill customer for water used in each month during the irrigation season on or about the 10th day of the following month. Bills are due on receipt and are delinquent if not paid by the 30th day of that month. District may decline to provide service to Landowner whenever Landowner's account is delinquent for more than 10 working days.

7. Annexation: District and Landowner will make all reasonable efforts to complete annexation of the Property.

8. Water Rights and Regulatory Approval: District intends to use its pre-1914 water rights to provide irrigation service to the Property. These rights permit District to divert a set flow rate from the natural flow in the Stanislaus River from March 1 to November 1

of each year to irrigate land within the boundaries of the District at the time of the adjudication in 1929. The place of use of these rights can be changed in order to provide irrigation service to the Property without regulatory approval. District will provide Landowner with a copy of the court decree upon Landowner's request. District shall inform Landowner if it determines that any regulatory approvals are necessary for the District to provide irrigation service to the Property, the process it would follow to obtain the necessary approvals, and provide a justification for the process selected.

9. Termination: District has the right to terminate this Agreement before expiration of the term in Section 4, as set forth below:

A. If legal action is brought in federal or state court, or proceedings are instituted by any regulatory agency, against District challenging its providing service to the Property under this Agreement, District may, in its discretion, defend or settle the action or regulatory proceeding on such terms as it deems to be in its best interests. If, the result of such action or proceeding, whether by judgment or decision or by settlement, District is prohibited from serving the Property, then the District may terminate this Agreement.

B. In the event of termination under this paragraph, the Parties shall thereafter be under no further obligation or responsibility hereunder and will release each other from further obligations under this Agreement.

10. Cooperation: To the extent reasonably required, each Party to this Agreement shall, in good faith, assist the other in obtaining all such necessary approvals and preparation of required environmental documents. The Parties agree to cooperate and assist each other in good faith in meeting such requirements of regulatory agencies as may be applicable to performance of any terms of the Agreement.

11. Resale: Landowner may not resell the water under this Agreement.

12. Waiver of Rights: Any waiver, at any time, by any Party of its rights with respect to a breach or default, or any other matter arising in connection with this Agreement, shall not be deemed to be a waiver with respect to any other breach, default or matter.

13. Successors and Assigns: The covenants of Landowner in this Agreement shall be binding on the heirs, successors, grantees, and assigns of the owners of Subject Property and the other provisions of this Agreement shall inure to the benefit of and be binding on District and upon the heirs, successors, grantees, and assigns of the owners of Subject Property.

14. Other Agreements: Nothing contained herein restrict the District from providing water services and sales to others as authorized by law which do not unreasonably interfere with District's obligation hereunder.

15. Entire Agreement: This Agreement constitutes the entire Agreement between the District and Landowner and supersedes any oral agreement, statement or promise between them relating to the subject matter of the Agreement. Any amendment, including oral modifications, must be reduced to writing and signed by all Parties to be effective.

16. Effective Date: The effective day and date of this Agreement shall be the day and date first above written.

"DISTRICT"

South San Joaquin Irrigation District

By _____
Title _____

"LANDOWNER"

By _____

EXHIBITS

A. Legal description of Property

B. Plat showing District's Lateral "____" and the Property

From: Sam Bologna <sbologna@ssjid.com>
To: Marty Harris (harrismw1@aol.com) <harrismw1@aol.com>
Subject: Annexation
Date: Fri, Nov 7, 2014 11:27 am
Attachments: Annexation_Supplemental_Agreement_10-23-14.docx (45K), Supplemental_Agreement_Proposed_Terms_11-07-2014.docx (136K)

Hi Marty,

It was good talking to you today. Attached are copies of a term sheet and sample Water Service Agreement that we talked about today. These should help give you some idea of costs associated with your specific annexation. Please feel free to contact me if you have questions.

Sam Bologna

Engineering Department Manager

South San Joaquin Irrigation District

P.O. Box 747

Ripon, Ca. 95366

(209) 249-4617 direct phone

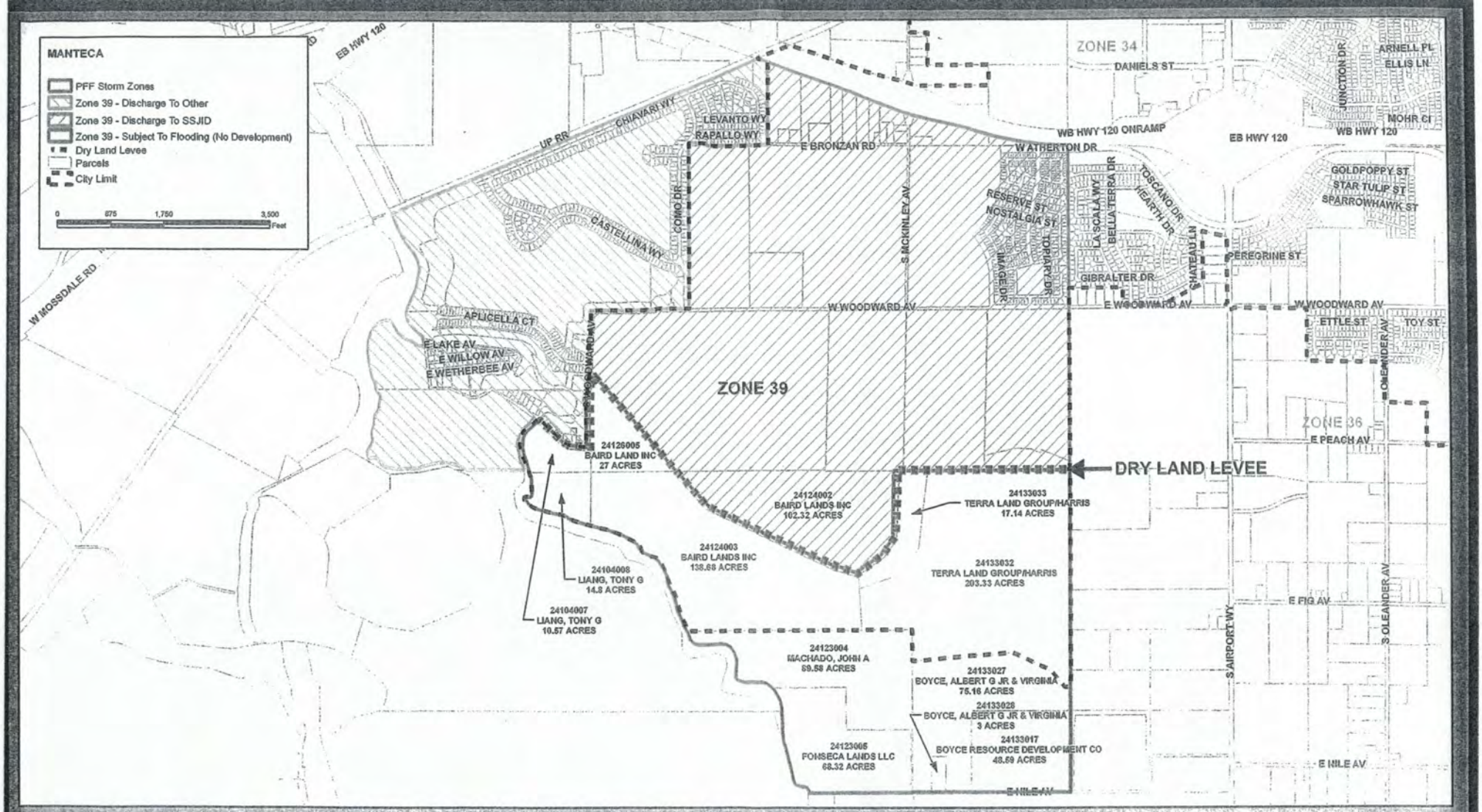
(209) 249-4651 direct fax

(209) 456-1574 cell phone

TERRA LAND GROUP, LLC

EXHIBIT "6"

5151 E. ALMONDWOOD DRIVE MANTECA, CA 95337



STORM DRAINAGE ZONE 39 SUBAREAS

CITY OF MANTECA PUBLIC WORKS DEPARTMENT
1001 W CENTER STREET MANTECA, CA 95337

W/L Harris Ranches, LLC

5151 E. Almondwood Drive, Manteca, CA 95337

Tel. (209) 239-1361 Fax (209) 239-7086

July 19, 2016

VIA EMAIL

Manteca City Council
1001 W. Center St.
Manteca, CA 95337
MayorCouncilClerk@mantecagov.com
% lblackmon@ci.manteca.ca.us

Re: Manteca City Council July 19, 2016 Meeting Agenda Item for Preferred Alignment for the Dryland Levee (SB5) originally scheduled for 07/19/16 as noticed to the public by Drake Haglan and Associates at the Dryland Levee Public Workshops and listed in tonight's agenda under Section C, Community Development, and reports that the "Preferred Alignment for the Dryland Levee (SB5) will be heard at the August 16, 2016 Regular City Council Meeting"

Dear Council Members,

My name is Lucille Harris. I am the manager of W/L Harris Ranches, LLC ("Harris Ranches").

Harris Ranches owns approximately 37 acres of farmland described by APN 241-330-34 and is located at 21611 S. Airport Way in Manteca.

The property is further described as having a southern boundary line running along the interior quarter section center line of Section 13 as identified by monuments 10 and 11 and extending east to the east quarter corner of said Section 13 located at or near the center of Airport Way, as illustrated on Record of Survey 38-155 attached as **Exhibit "1"**. Record of Survey 38-155 also identifies the locations of Fonseca APN 241-330-05 and Cambra APN 241-330-36 to the north as well as adjacent parcels 241-330-08, 241-330-09 and 241-330-10 to the south.

To further clarify property lines for the Harris Ranches property parcel APN 241-330-34, I have attached three each survey maps as recorded in San Joaquin County, (a) 36-199 (b) 25-106 and (c) 6-127, attached as **Exhibits "2", "3" and "4"**, respectively.

I have enclosed a copy of the APN 241-330-34 deed recorded in San Joaquin County described in a document recorded on July 1, 1996, as Instrument No. 96069351, Official

Records, being more particularly described in the title document and Assessor's parcel map attached as **Exhibit "5"**.

In addition, the South San Joaquin Irrigation District ("SSJID") owns an easement and operates a surface tail water irrigation drain ("Drain #10") at or near the western and northern Harris Ranches APN 241-330-34 boundary lines.

This is evidenced in the recorded SSJID easement deed and map attached as **Exhibit "6"**.

At this time, Harris Ranches is aware of several dryland levee alignments that the City of Manteca is considering.

Further, Harris Ranches is informed and believes that the intent of the City of Manteca is to place all levee and other development-related infrastructure needed at or on easements or property boundary lines if at all possible.

I. **Concerns relating to conflicting Record of Surveys 37-150 and 38-155**:

On December 16, 2015, VVH Engineering Consultants ("VVH") recorded Record of Survey 38-155 that appears to have found and identified monument 11, represented as a ¾ rebar, tagged LS 7454 for center of section 13 per Record of Survey 36-199. The survey 36-199 was performed by Michael Turnrose. (**See Exhibits "1" and "2"**)

The 36-199 Record of Survey Map appears to call out an iron pin that represents the south west corner of the Harris Ranches property as further detailed in VVH's Record of Survey 38-155 recorded on 12/16/2015.

Harris Ranches calls your attention to a Record of Survey 37-150 (**See Exhibit "7"**) recorded on 12/14/2011 that appears to have not made any call or reference to the center of Section 13 iron pin that appears to have been called out on other deeds and surveys. (**See Exhibits "1", "2", "3", "4" and "5"**)

With this in mind, Harris Ranches once again calls your attention to Record of Survey 37-150 and the alleged relocation of the section corner common to Sections 11, 12, 13 and 14 that TLG believes was set in 2011 and tagged LS 6406 at the time of the 37-150 Record of Survey.

Subsequent to the alleged relocation of the section corner referenced above, the neighboring property immediately west of Harris Ranches, Terra Land Group, a single parcel consisting of APNs 241-330-32, 241-330-33 and 241-320-60, was contacted

by email and informed that the boundary lines of their property were incorrect. (**See Exhibit "8"**)

A parcel map 25-124 was included with the emailed letter and a quit claim document was also attached apparently for the purpose of expediting the process of changing the boundary lines previously accepted and recognized by neighboring property owners for many years. (**See Exhibit "8"**)

Of special concern is Harris Ranches belief that at least one local developing property owner in the area that may be affected by the 37-150 Record of Survey has apparently been invited to enter into a boundary line agreement to resolve any disputes with neighboring property owners while possibly protecting its property against the potential for any cloud on title. (**See Exhibit "9"**)

At this time, no one has contacted Harris Ranches about any affect that the 37-150 Record of Survey may have on its title or its property lines as well as SSJID Drain #10 easements and access road easements currently in place and benefitting Harris Ranches as well as other neighboring properties.

This should be of particular interest to the City of Manteca since it is Harris Ranches belief that any change to the Harris Ranches west property line will also change the boundary line identifying which areas are located within the city limits and governed by the City of Manteca and which areas are located outside the city limits and governed by San Joaquin County.

This leads Harris Ranches to believe that a boundary line agreement should be strongly considered, that once executed, will protect all property lines previously recognized and accepted to serve the best interests of everyone that may be affected.

In the meantime, Harris Ranches believes that it has no other equitable alternative other than to move forward with any improvements and more beneficial cultural plans on its property based on the boundaries and easement locations historically accepted and described on the survey maps referenced and attached to this letter.

This is especially important when you consider that two weeks ago, Harris Ranches submitted a map to SSJID as a preliminary step in constructing a culvert pipe crossing over the SSJID Drain #10 at or near the north west corner of the Harris Ranches property (**See Exhibit "10"**). The location of the culvert pipe crossing is

W/L Harris Ranches, LLC

5151 E. Almondwood Drive, Manteca, CA 95337

Tel. (209) 239-1361 Fax (209) 239-7086

based on property lines represented in recorded deeds and surveys 36-199, 6-127, 25-106 and 38-155. (**See Exhibits "1, "2", "3", "4" and "5"**)

In this way, Harris Ranches can move forward with improvements planned while relying on surveys and deeds previously recorded that have resulted in establishing easements and/or various occupation lines as evidenced by roadways, irrigation and drainage infrastructure and other improvements currently in place and positioned in reliance on those same surveys and deeds previously recorded.

As a result, Harris Ranches is looking to the City of Manteca, as the lead agency for development in southwest Manteca, to mitigate any and all costs associated with safeguarding and protecting the property rights of every landowner that may be affected by the alleged relocation of any section corner or quarter corner section marker or any alleged erroneous omission of any previously identified quarter section or center section monument that Harris Ranches believes and is concerned may have occurred relating to Record of Survey 37-150. (**See Exhibits "1", "2", "3", "4", "5" and "7"**)

Thank you,

Lucille Harris
W/L Harris Ranches, LLC

LH/jas

Enclosures:

1. Ex. "1": Record of Survey 38-155 and Record of Survey 38-155A, VVH Consulting Engineers, recorded 12/16/2015
2. Ex. "2": Record of Survey 36-199, Turnrose Land Surveying, recorded 10/07/2008
3. Ex. "3": Map of Survey 25-106, John M. Lopes, recorded 04/15/1974
4. Ex. "4": Map of Survey 6-127, recorded 10/04/1945
5. Ex. "5": Grant Deed #2013-145352, San Joaquin County Recorder, recorded 11/22/2013
6. Ex. "6": Grant of Easement for Right of Way, recorded 01/23/1950
7. Ex. "7": Record of Survey 37-150, Keith Spencer, recorded 12/14/2011
8. Ex. "8": 09/30/2013 Letter from Kim Smith to Martin Harris
9. Ex. "9": Lot Line Adjustment for The Trails, City of Manteca, NorthStar Engineering Group, Inc. (dated 05/14/2015)

W/L Harris Ranches, LLC

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Tel. (209) 239-1361 Fax (209) 239-7086

10. Ex. "10": 07/06/2016 Email from VVH Consulting Engineers to Forest Killingsworth/SSJID

cc: Mark Meissner, City of Manteca Planning Department
Mark Houghton, City of Manteca Public Works
Elena Reyes, Manteca City Manager
Matt Satow, Drake Haglan & Associates
Frederic Clark, City of Manteca Community Development Director
Kevin Jorgensen, Manteca City Engineer
San Joaquin County Department of Public Works, Surveyor's Division
Reclamation District No. 17

W/L Harris Ranches, LLC

5151 E. Almondwood Drive, Manteca, CA 95337

Tel. (209) 239-1361 Fax (209) 239-7086

EXHIBIT "1"

Record of Survey 38-155 and Record of Survey 38-155A, VVH Consulting Engineers, recorded 12/16/2015

38-155

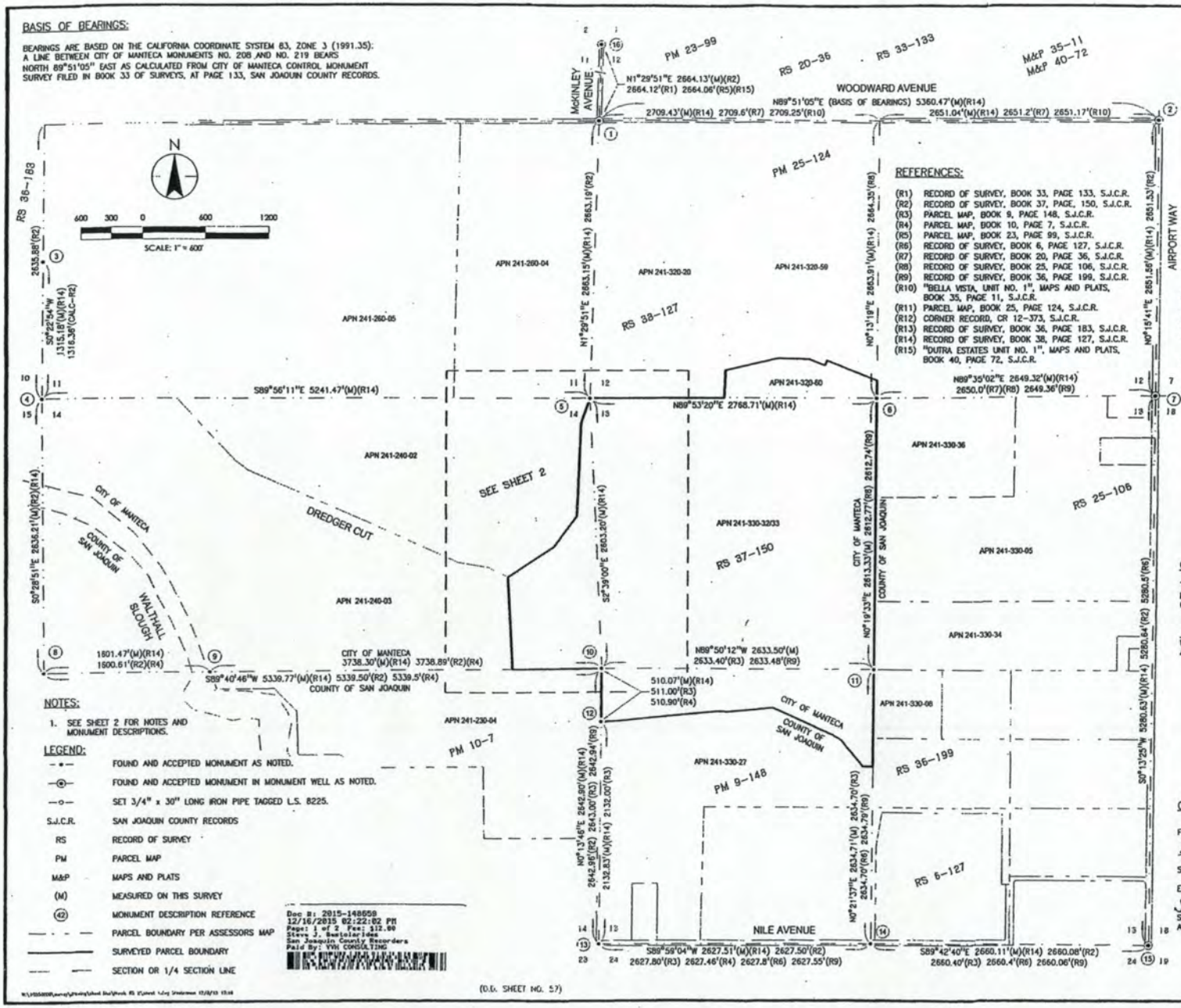
RECORD OF SURVEY

BEING A SURVEY OF PORTIONS OF SECTIONS 11, 12, 13, AND 14, TOWNSHIP 2 SOUTH, RANGE 6 EAST, MOUNT DIABLO BASE AND MERIDIAN
CITY OF MANTECA,
SAN JOAQUIN COUNTY, CALIFORNIA
AUGUST, 2015

VWH CONSULTING ENGINEERS
430 10th Street
Modesto, CA 95354
Tel.209.568.4477 Fax.209.568.4478

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM 83, ZONE 3 (1991.35): A LINE BETWEEN CITY OF MANTECA MONUMENTS NO. 208 AND NO. 219 BEARS NORTH 89°51'05" EAST AS CALCULATED FROM CITY OF MANTECA CONTROL MONUMENT SURVEY FILED IN BOOK 33 OF SURVEYS, AT PAGE 133, SAN JOAQUIN COUNTY RECORDS.



REFERENCES:

(R1) RECORD OF SURVEY, BOOK 33, PAGE 133, S.J.C.R.
(R2) RECORD OF SURVEY, BOOK 37, PAGE, 150, S.J.C.R.
(R3) PARCEL MAP, BOOK 9, PAGE 148, S.J.C.R.
(R4) PARCEL MAP, BOOK 10, PAGE 7, S.J.C.R.
(R5) PARCEL MAP, BOOK 23, PAGE 99, S.J.C.R.
(R6) RECORD OF SURVEY, BOOK 6, PAGE 127, S.J.C.R.
(R7) RECORD OF SURVEY, BOOK 20, PAGE 36, S.J.C.R.
(R8) RECORD OF SURVEY, BOOK 25, PAGE 106, S.J.C.R.
(R9) RECORD OF SURVEY, BOOK 36, PAGE 199, S.J.C.R.
(R10) "BELLA VISTA, UNIT NO. 1", MAPS AND PLATS, BOOK 35, PAGE 11, S.J.C.R.
(R11) PARCEL MAP, BOOK 25, PAGE 124, S.J.C.R.
(R12) CORNER RECORD, CR 12-373, S.J.C.R.
(R13) RECORD OF SURVEY, BOOK 36, PAGE 183, S.J.C.R.
(R14) RECORD OF SURVEY, BOOK 38, PAGE 127, S.J.C.R.
(R15) "OUTRA ESTATES UNIT NO. 1", MAPS AND PLATS, BOOK 40, PAGE 72, S.J.C.R.

NOTES:

1. SEE SHEET 2 FOR NOTES AND MONUMENT DESCRIPTIONS.

LEGEND:

—•—	FOUND AND ACCEPTED MONUMENT AS NOTED.
—⊙—	FOUND AND ACCEPTED MONUMENT IN MONUMENT WELL AS NOTED.
—○—	SET 3/4" x 30" LONG IRON PIPE TAGGED L.S. 8225.
S.J.C.R.	SAN JOAQUIN COUNTY RECORDS
RS	RECORD OF SURVEY
PM	PARCEL MAP
M&P	MAPS AND PLATS
(M)	MEASURED ON THIS SURVEY
(42)	MONUMENT DESCRIPTION REFERENCE
— · — · —	PARCEL BOUNDARY PER ASSESSORS MAP
———	SURVEYED PARCEL BOUNDARY
— — —	SECTION OR 1/4 SECTION LINE

Doc #: 2015-148658
12/16/2015 02:22:02 PM
Page: 1 of 2 Fee: 112.00
Steve J. Bestolarides
San Joaquin County Recorders
Paid By: VWH CONSULTING

(D.D. SHEET NO. 57)

SURVEYOR'S STATEMENT:

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT AT THE REQUEST OF MARTIN HARRIS IN AUGUST, 2015.

DATED THIS 8 DAY OF DECEMBER, 2015.

RYAN VANCE, L.S. 8225

LICENSED LAND SURVEYOR RYAN VANCE No. 8225 STATE OF CALIFORNIA

COUNTY SURVEYOR'S STATEMENT:

THIS MAP HAS BEEN EXAMINED IN ACCORDANCE WITH SECTION 8766 OF THE PROFESSIONAL LAND SURVEYORS' ACT THIS 16TH DAY OF DECEMBER, 2015.

WARREN D. SMITH, PLS 4842
ACTING COUNTY SURVEYOR

PROFESSIONAL LAND SURVEYOR WARREN D SMITH No 4842 STATE OF CALIFORNIA

COUNTY RECORDER'S STATEMENT:

FILED THIS 16TH DAY OF DECEMBER, 2015, AT 2:22 P.M. IN BOOK 38 OF SURVEYS, AT PAGE 155, SAN JOAQUIN COUNTY RECORDS, AT THE REQUEST OF VWH CONSULTING ENGINEERS.

STEVE J. BESTOLARIDES
ASSESSOR-RECORDER-COUNTY CLERK

BY: ASSISTANT/DEPUTY RECORDER
JEANETTE JAVIS

SHEET 1 OF 2

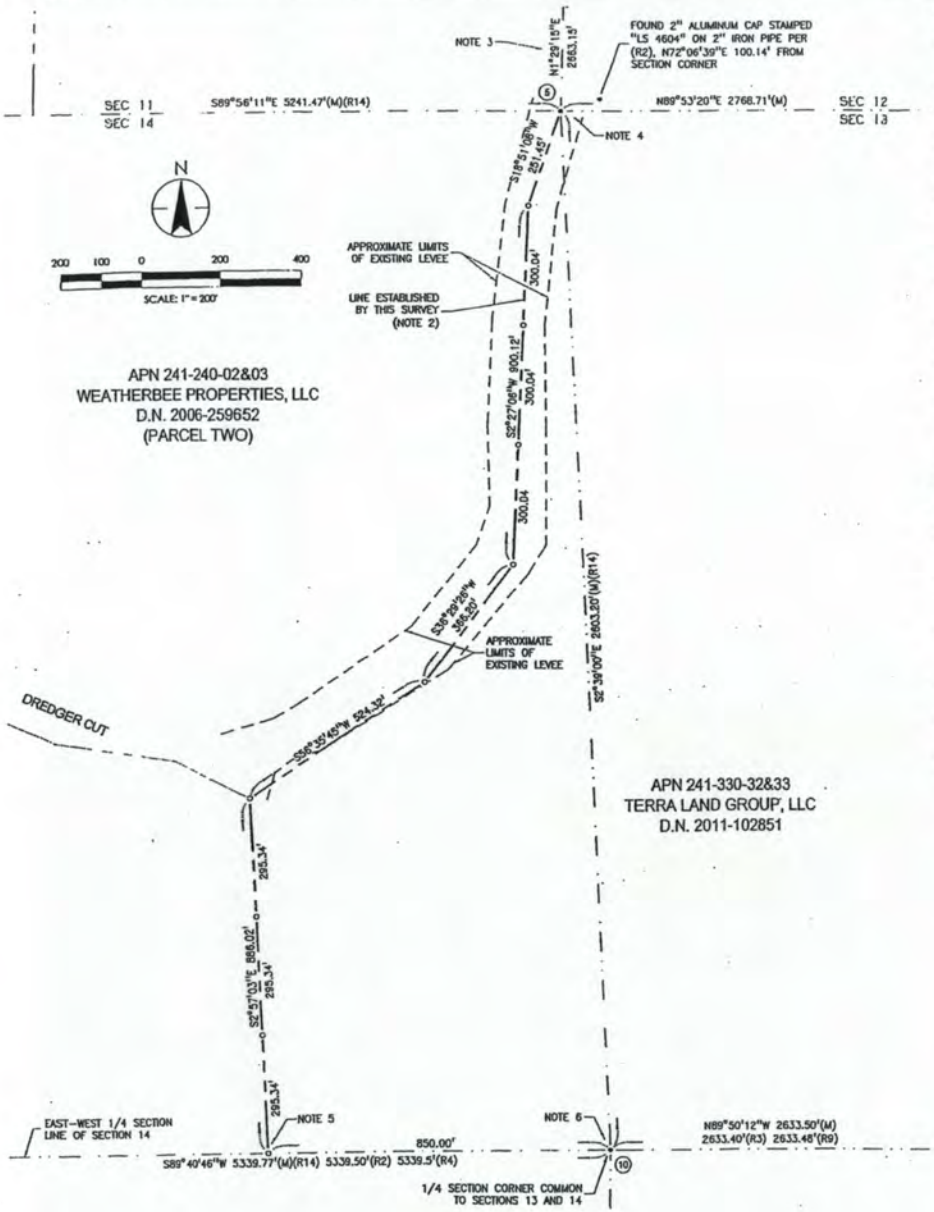
38-155

38-155A

RECORD OF SURVEY

BEING A SURVEY OF PORTIONS OF SECTIONS 11, 12, 13, AND 14, TOWNSHIP 2 SOUTH, RANGE 6 EAST, MOUNT DIABLO BASE AND MERIDIAN
CITY OF MANTECA,
SAN JOAQUIN COUNTY, CALIFORNIA
AUGUST, 2015

CONSULTING ENGINEERS
430 10th Street
Modesto, CA 95354
Tel.209.568.4477 Fax.209.568.4478



MONUMENT LIST:

1. FOUND BRASS DISC WITH PUNCH MARK, NO TAG, IN MONUMENT WELL PER (R5)(R7)(R14) FOR WEST 1/4 CORNER OF SECTION 12, CITED AS BOLT AND WASHER IN MONUMENT WELL PER (R2)(R10)(R11).
2. FOUND 3/4" IRON PIPE TAGGED "LS 8159" IN MONUMENT WELL PER (R12)(R14) FOR EAST 1/4 CORNER OF SECTION 12.
3. FOUND 3/4" IRON PIPE TAGGED "LS 5230" PER (R13)(R14). (R2) INCORRECTLY REFERENCED 36-RS-178.
4. FOUND 2" ALUMINUM CAP STAMPED "LS 6406" IN IRON PIPE PER (R2)(R14) FOR SOUTHWEST CORNER OF SECTION 11.
5. FOUND 2" IRON PIPE, NO TAG, PER (R14). FOR SOUTHWEST CORNER OF SECTION 12 (SEE NOTES ON THIS SHEET).
6. FOUND 3/4" REBAR, NO TAG, PER (R14). FOR SOUTH 1/4 CORNER OF SECTION 12.
7. FOUND BOLT AND WASHER IN MONUMENT WELL FOR SOUTHEAST CORNER OF SECTION 12 PER (R6)(R7)(R8)(R9)(R14) CITED AS 2" IRON PIN IN MONUMENT WELL PER (R2).
8. FOUND 2" ALUMINUM CAP STAMPED "LS 4604" IN IRON PIPE PER (R2)(R14) FOR WEST 1/4 CORNER OF SECTION 13.
9. FOUND 3/4" REBAR, NO TAG, PER (R14). CITED AS 3/4" IRON PIN TAGGED "LS 4450" PER (R2)(R4).
10. FOUND 3" IRON PIPE, NO TAG, PER (R2)(R6)(R9)(R14) FOR WEST 1/4 CORNER OF SECTION 13, CITED AS 3x3 STAKE OVER 3" IRON PIPE PER (R3)(R4).
11. FOUND 3/4" REBAR, TAGGED "LS 7454" FOR CENTER 1/4 OF SECTION 13 PER (R9). CITED AS 3/4" REINFORCING ROD PER (R3) AND 3x3 STAKE OVER IRON PIN PER (R6).
12. FOUND 3/4" REBAR, NO TAG, PER (R3)(R4)(R14)
13. FOUND 5/8" REBAR, NO TAG, PER (R2)(R4)(R6)(R9)(R14) FOR SOUTHWEST CORNER OF SECTION 13, CITED AS ROD PER (R3).
14. FOUND 3/4" IRON PIPE, NO TAG, PER (R2)(R9)(R14) FOR SOUTH 1/4 CORNER OF SECTION 13, CITED AS IRON PIPE PER (R3) AND 3x3 STAKE PER (R4).
15. FOUND BOLT AND WASHER IN MONUMENT WELL FOR SOUTHEAST CORNER OF SECTION 13 PER (R2)(R3)(R6)(R9)(R14).
16. FOUND BRASS DISC WITH PUNCH MARK IN MONUMENT WELL FOR NORTHWEST CORNER OF SECTION 12 PER (R15)

NOTES:

1. THE PURPOSE OF THIS SURVEY IS TO MONUMENT THE BOUNDARY BETWEEN THE PROPERTIES DESCRIBED IN D.N. 2011-102851 AND D.N. 2006-259652.
2. THE PROPERTY DESCRIBED AS PARCEL TWO IN D.N. 2006-259652 IS DESCRIBED AS THE NORTH HALF OF SECTION 14, EXCLUDING LAND CONVEYED TO RUDY BONZI, ET AL, BY DEED RECORDED OCTOBER 15, 1968 IN BOOK 3246 OF OFFICIAL RECORDS, PAGE 171 (OR 3246-171). THIS SURVEY IS ESTABLISHING THE LINE OF THAT EXCEPTION.
3. THE DEED DESCRIPTION OF OR 3246-171 COMMENCES AT THE NORTHWEST CORNER OF THE SOUTHWEST 1/4 OF SECTION 12 (THE WEST 1/4 CORNER OF SECTION 12, MONUMENT 1 ON THIS SURVEY) AND THE FIRST COURSE IS CALLED TO RUN SOUTH 2°30' WEST ALONG THE SOUTHERLY EXTENSION OF THE CENTERLINE OF MCKINLEY AVENUE. AS THERE IS NO BASIS OF BEARINGS GIVEN IN THE DEED DESCRIPTION, THE CALL ALONG THE SOUTHERLY EXTENSION WAS HELD TO ESTABLISH THE POINT OF BEGINNING.
4. THE DISTANCE GIVEN FROM THE POINT OF COMMENCEMENT TO THE POINT OF BEGINNING IN THE DEED DESCRIPTION IS GIVEN AS 2663.40 FEET. THIS SURVEY FOUND A 2" IRON PIPE AT A DISTANCE OF 2663.15 FEET (SHOWN AS MONUMENT 5 ON THIS SURVEY). THIS PIPE WAS SHOWN AS FOUND ON (R2) AND (R14) BUT HAS NO OTHER RECORD REFERENCES. DUE TO THE PROXIMITY OF THIS MONUMENT'S LOCATION TO THE POSITION DESCRIBED IN THE DEED, THIS MONUMENT WAS TAKEN AS THE POINT OF BEGINNING OF THE DEED DESCRIPTION.
5. THE COURSES ALONG THE DEED DESCRIPTION WERE FOLLOWED AS CITED IN OR 3246-171 UNTIL THEY INTERSECTED WITH THE SOUTH LINE OF THE NORTH HALF OF SECTION 14. THE DEED DESCRIPTION DOES NOT MAKE A CALL OUT TO THIS 1/4 SECTION LINE, HOWEVER THE GRANTORS OF THIS DEED (BAIRD LANDS, INC.) ONLY HELD TITLE TO THE NORTH 1/2 OF SECTION 14 (PER DEED RECORDED 18 DECEMBER 1928 IN VOLUME 255 OF OFFICIAL RECORDS, PAGE 493) AND THEREFORE COULD NOT HAVE GRANTED TITLE TO ANY LAND SOUTH OF THIS LINE.
6. THE DEED DESCRIPTION DOES NOT CALL OUT THE 1/4 SECTION CORNER COMMON TO SECTIONS 13 AND 14, BUT AS STATED IN NOTE 5, THE LAND OWNED BY BAIRD LANDS, INC DID NOT INCLUDE ANY PART OF THE SOUTH 1/2 OF SECTION 14.
7. ON 31 JANUARY 2006 A LOT LINE ADJUSTMENT WAS APPROVED BY THE CITY OF MANTECA (LLA 05-19) THAT INCLUDED THE LAND THAT WAS ORIGINALLY DESCRIBED IN OR 3246-171. THIS RESULTED IN A NEW LEGAL DESCRIPTION BEING CREATED FOR THE LAND. THE NEW LEGAL DESCRIPTION SET THE POINT OF BEGINNING AS THE SECTION CORNER COMMON TO SECTION 11, 12, 13, AND 14. AT THIS TIME, THERE WERE NO RECORDED SURVEYS THAT HAD SHOWN THAT SECTION CORNER AS BEING SET. THE POINT OF BEGINNING IN THE ORIGINAL DEED DESCRIPTION OF OR 3246-171 WAS NOT CALLED OUT AS THE SECTION CORNER (SEE NOTES 3 AND 4).
8. ON 14 DECEMBER, 2011, A RECORD OF SURVEY WAS FILED WITH THE SAN JOAQUIN COUNTY RECORDER (REFERENCED AS R2 ON THIS SURVEY). THIS SURVEY USED THE PROCEDURES AS OUTLINED IN THE MANUAL OF SURVEYING INSTRUCTIONS TO ESTABLISH SEVERAL MONUMENTS IN THE AREA, INCLUDING THE SECTION CORNER COMMON TO SECTIONS 11, 12, 13, AND 14. A MONUMENT WAS SET AT THIS NEWLY ESTABLISHED POSITION, WHICH WAS APPROXIMATELY 100 FEET NORTHEASTERLY OF THE 2" IRON PIPE NOTED ABOVE IN NOTE 4. THIS NEWLY ESTABLISHED POSITION FOLLOWS THE ACCEPTED METHOD OF ESTABLISHING THE POSITION OF A LOST SECTION CORNER. HOWEVER, USING THIS POSITION AS THE POINT OF BEGINNING FOR THE LEGAL DESCRIPTIONS THAT DESCRIBE THIS PROPERTY IN THE DEEDS OF RECORD FROM LLA 15-19 FORWARD DOES NOT RESULT IN A POSITION FOR THE BOUNDARY LINES THAT REFLECTS THE EXISTING OCCUPATION LINE (THE RECLAMATION DISTRICT LEVEE IN THIS CASE) OR THE ASSESSMENT LINES AND AREAS SHOWN ON THE ASSESSMENT ROLLS.

LEGEND:

—•—	FOUND AND ACCEPTED MONUMENT AS NOTED.
—⊙—	FOUND AND ACCEPTED MONUMENT IN MONUMENT WELL AS NOTED.
—o—	SET 3/4" x 30" LONG IRON PIPE TAGGED L.S. 8225.
S.J.C.R.	SAN JOAQUIN COUNTY RECORDS
RS	RECORD OF SURVEY
PM	PARCEL MAP
M&P	MAPS AND PLATS
(M)	MEASURED ON THIS SURVEY
(42)	MONUMENT DESCRIPTION REFERENCE
— · · —	PARCEL BOUNDARY PER ASSESSORS MAP
— — —	SURVEYED PARCEL BOUNDARY
— · · —	SECTION OR 1/4 SECTION LINE

38-155A

W/L Harris Ranches, LLC

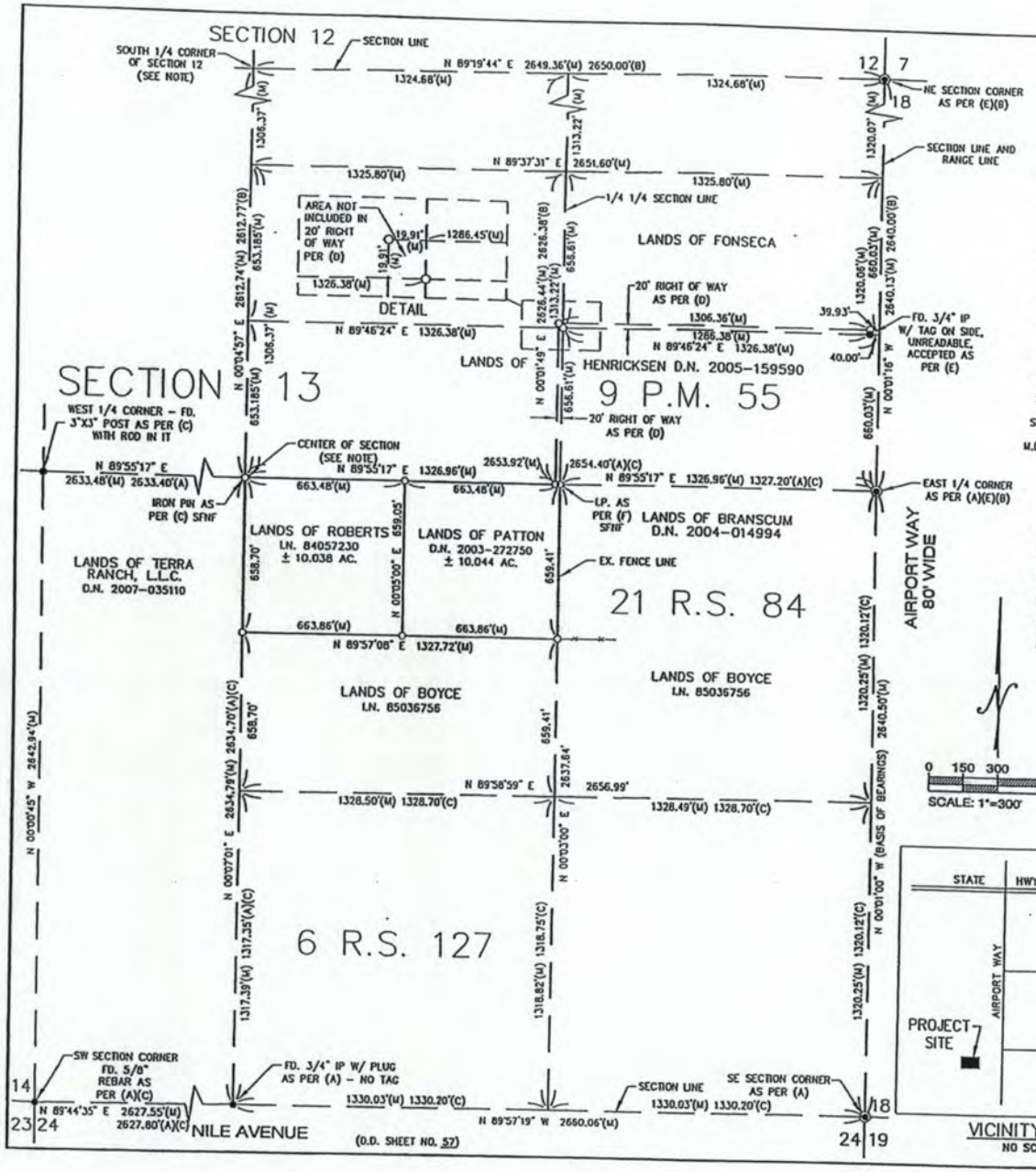
5151 E. Almondwood Drive, Manteca, CA 95337

Tel. (209) 239-1361 Fax (209) 239-7086

EXHIBIT "2"

Record of Survey 36-199, Turnrose Land Surveying, recorded 10/07/2008

36-199



LEGEND & NOTES

- ○ INDICATES SET 3/4"X 30" IRON PIPE WITH PLUG "TURNROSE L.S. 7454" IN FEBRUARY, 2007
- ⊗ INDICATES FOUND 2" IRON PIPE IN MONUMENT WELL AS PER REFERENCE NOTED
- ● INDICATES FOUND REBAR OR IRON PIPE AS NOTED
- (M) INDICATES MEASURED AS PER THIS SURVEY
- R.S. RECORD OF SURVEY
- P.M. PARCEL MAP
- I.N. INSTRUMENT NUMBER
- IP IRON PIPE
- D.N. DOCUMENT NUMBER
- SFNF SEARCHED FOR NOT FOUND
- S.J.C.R. SAN JOAQUIN COUNTY RECORDS
- M.D.B.&M. MOUNT DIABLO BASE AND MERIDIAN

DISTANCES SHOWN ARE IN FEET OR DECIMALS THEREOF

REFERENCES:

- (A) PARCEL MAP -- 9 P.M. 148
- (B) RECORD OF SURVEY -- 25 R.S. 106
- (C) RECORD OF SURVEY -- 6 SURVEYS 127
- (D) GRANT DEED -- D.N. 2003-272750
- (E) PARCEL MAP -- 9 P.M. 55
- (F) RECORD OF SURVEY -- 21 SURVEYS 84

Doc #: 2008-162195
Tue Oct 07 14:39:14 PDT 2008
Page: 1 of 1 Fee: $8.00
Gary W. Freeman
San Joaquin County Recorders
Paid By: SHOWN ON DOCUMENT

SURVEYOR'S STATEMENT

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT AT THE REQUEST OF JOHN AND CLARA PATTON AND REX ROBERTS IN JANUARY 2007.

Michael T. Turnrose
MICHAEL T. TURNROSE L.S. 7454
LICENSE EXPIRES 12/31/08

9-19-08

LICENSED LAND SURVEYOR MICHAEL T. TURNROSE No. 7454 EXP. 12/31/08 STATE OF CALIFORNIA

BASIS OF BEARINGS

THE BEARING NORTH 00°01'00" WEST BEING THE CENTERLINE OF AIRPORT WAY AND THE EAST LINE OF THE SOUTHEAST 1/4 OF SECTION 13, TOWNSHIP 2 SOUTH, RANGE 6 EAST AS SHOWN IN BOOK 9 OF PARCEL MAPS AT PAGE 148 WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS MAP.

COUNTY SURVEYOR'S STATEMENT

THIS MAP HAS BEEN EXAMINED IN ACCORDANCE WITH SECTION 8766 OF THE PROFESSIONAL LAND SURVEYORS' ACT

THIS 6TH DAY OF OCTOBER 2008.

John G. May
FOR: THOMAS R. FLINN, R.C.E. 23341
COUNTY SURVEYOR
REGISTRATION EXPIRATION DATE: 12/31/09

3/31/2010

RECORDER'S STATEMENT

FILED THIS 7 DAY OF October 2008,
AT 10:59 A. M. IN BOOK 36 OF SURVEYS,
AT PAGE 199 AT THE REQUEST OF MICHAEL TURNROSE.
FEE: $8.00

Gary W. Freeman By: Christina Moreno
GARY W. FREEMAN ~~ACCOUNTY~~ DEPUTY RECORDER
ASSESSOR-RECORDER-
COUNTY CLERK

NOTE:

THE CENTER OF SECTION 13 WAS ESTABLISHED BY A BEARING-BEARING INTERSECTION USING FOUND MONUMENTS AT THE EAST AND WEST 1/4 CORNERS AND A RECORD BEARING AS PER (C) FROM THE FOUND MONUMENT AT THE SOUTH 1/4 CORNER. THE SOUTH 1/4 CORNER OF SECTION 12 WAS ESTABLISHED BY A BEARING-BEARING INTERSECTION AS PER (B). THE 1/4 CORNER FALLS ON A LEVEE, SO ANY EVIDENCE IS ASSUMED TO HAVE BEEN DESTROYED. ALSO REFERENCE (C) SHOWS NO MONUMENT HAVING BEEN SET OR FOUND. ADDITIONALLY, WE FOUND NO EVIDENCE OF THE SOUTHWEST CORNER OF SECTION 12 HAVING BEEN ESTABLISHED. THIS SECTION WAS PARTIALLY INCLUDED IN THE SWAMP AND OVERFLOWED LANDS AS PER THE ORIGINAL GOVERNMENT PLAT DATED SEPTEMBER 16, 1869.

VICINITY MAP
NO SCALE

RECORD OF SURVEY

OF THE WEST AND EAST 1/2 OF THE NORTH 1/2 OF THE OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 13, TOWNSHIP 2 SOUTH, RANGE 6 EAST, M.D.B.&M.

SAN JOAQUIN COUNTY — CALIFORNIA
SCALE: 1" = 300' — OCTOBER 2007

TURNROSE LAND SURVEYING
125 EAST MAIN STREET
SUITE 4
RIPON, CA 95366
PH: (209) 599-5100
FAX: (209) 599-5119

REV. 5/29/08 — SHEET 1 OF 1 SHEET — JOB NO. 07-01

36-199

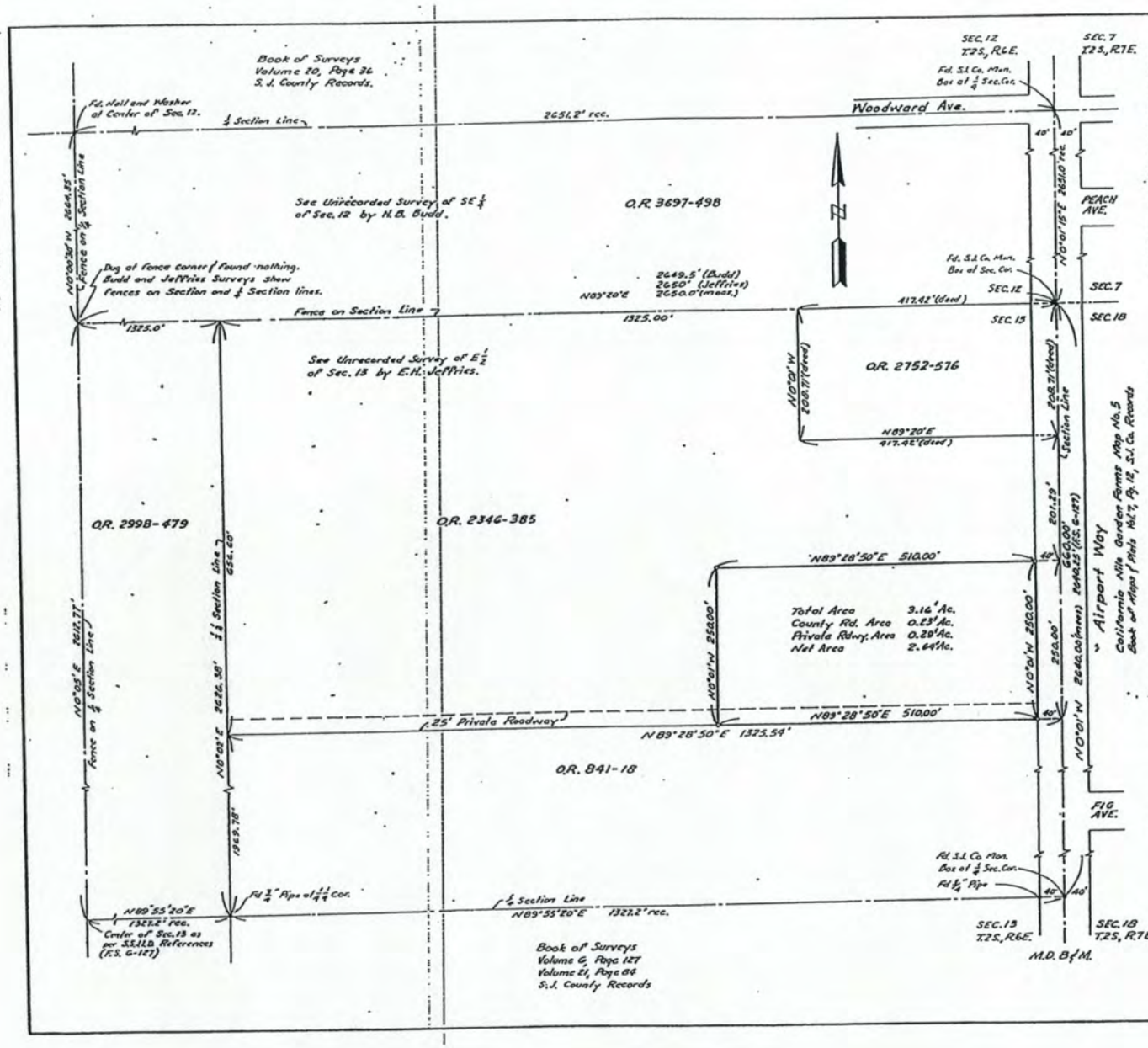
W/L Harris Ranches, LLC

5151 E. Almondwood Drive, Manteca, CA 95337

Tel. (209) 239-1361 Fax (209) 239-7086

EXHIBIT "3"

Map of Survey 25-106, John M. Lopes, recorded 04/15/1974



MAP OF SURVEY

OF A PORTION OF THE NORTHEAST 1/4 OF THE NORTHEAST 1/4 OF SECTION 13, T.2S., R.6E., M.D.B&M. IN SAN JOAQUIN COUNTY, CALIFORNIA

BASIS OF BEARING:

The bearing N 0°01'W for the East Line of the NE 1/4 of Section 13, T.2S., R.6E., M.D.B&M. as per Book of Surveys, Volume G, Page 127, San Joaquin County Records.

MONUMENTS SET:

Iron pipes, 3/4" diameter, 30" long with brass tags attached stamped R.C.E. 16705 shown thus —o—.

SURVEYOR'S CERTIFICATE:

This map correctly represents a survey made by me or under my direction in conformance with the requirements of the Land Surveyor's Act at the request of Rod Boiros in December, 1973.

John M. Lopes, R.C.E. 16705

COUNTY SURVEYOR'S CERTIFICATES:

This map has been examined for conformance with the requirements of the Land Surveyor's Act this 1st day of Mar., 1974.

Charles B. Wong
San Joaquin County Surveyor

I HEREBY CERTIFY that this record of survey of land complies with the provisions of the Subdivision Map Act, Chapter 2 (commencing with Section 11500) Division 4 of the Business and Professions Code and any applicable local ordinance enacted pursuant thereto.

Dated: 3/1/74

Charles B. Wong, County Surveyor

17821

RECORDER'S CERTIFICATE:

Filed this 15 day of APR, 1974 at 2:16 P.m. in Book 25 of Surveys at page 106, at the request of John M. Lopes.

Fee 5.00

George H. Kasparian
San Joaquin County Recorder

by _____
Deputy

REFERENCES:

1. (F.S.) refers to Filed Survey by Volume and Page as filed in Book of Surveys, San Joaquin County Records.
2. (meas.) measured, (rec.) recorded.
3. This map represents a survey of Parcel A per Division of Land Map 74-61.

Surveyed by: John M. Lopes
Civil Engineer

Scale: 1" = 100'

25-106

25-106

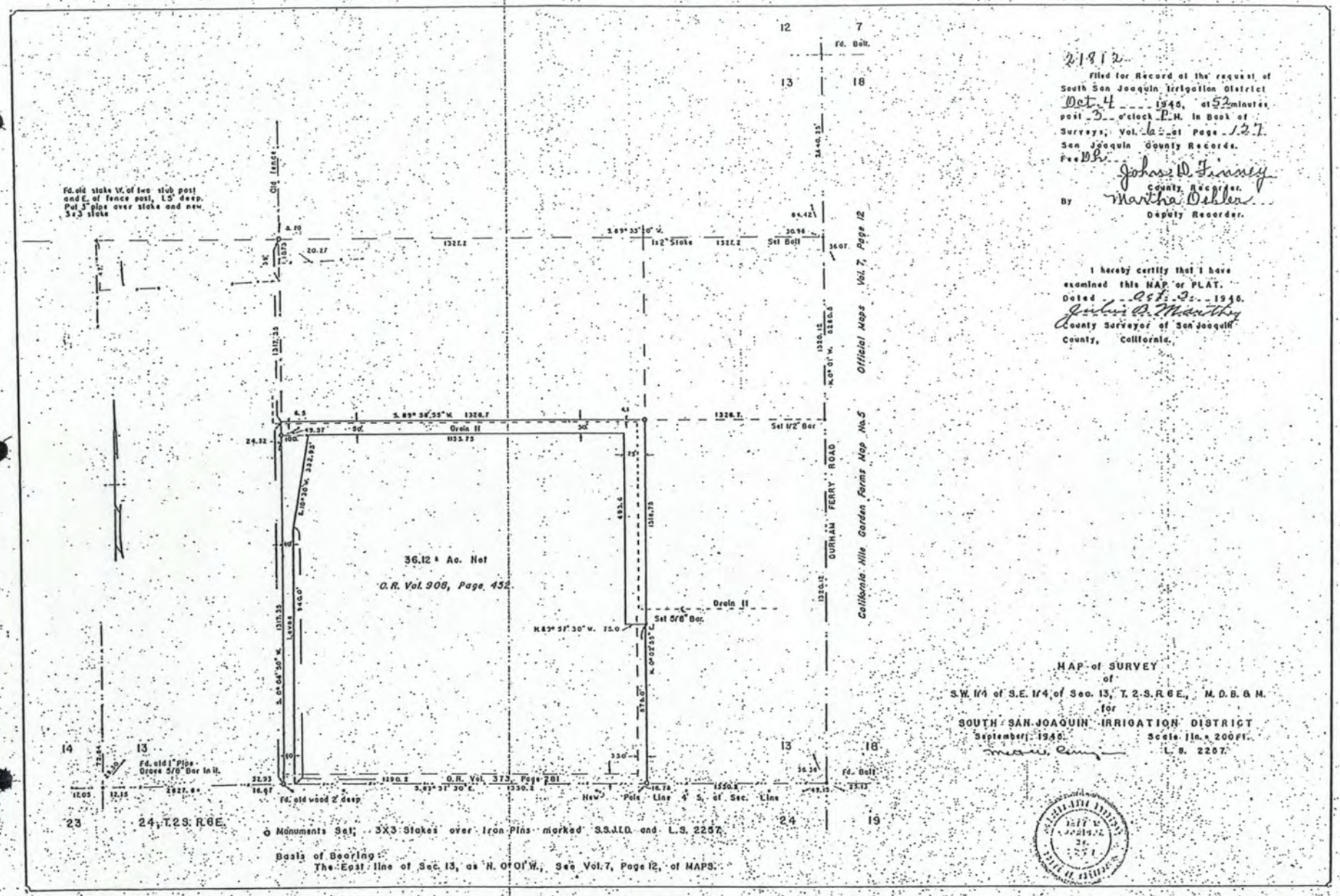
W/L Harris Ranches, LLC

5151 E. Almondwood Drive, Manteca, CA 95337

Tel. (209) 239-1361 Fax (209) 239-7086

EXHIBIT "4"

Map of Survey 6-127, recorded 10/04/1945



21812

Filed for Record at the request of South San Joaquin Irrigation District Oct. 4 1946, at 52 minutes past 3 o'clock P.M. in Book of Surveys, Vol. 6 at Page 127. San Joaquin County Records. Fee DH.

Johas D. Finney
County Recorder.
By Martha Oehler
Deputy Recorder.

I hereby certify that I have examined this MAP or PLAT. Dated Oct. 2 1946.
Julius A. Martby
County Surveyor of San Joaquin County, California.

MAP of SURVEY
of
S.W. 1/4 of S.E. 1/4 of Sec. 13, T. 2 S. R 6 E., M.D.B. & M.
for
SOUTH SAN JOAQUIN IRRIGATION DISTRICT
September, 1946. Scale 1 in. = 200 ft.
L.S. 2257.