Town of Moraga	Agenda Item
Ordinances, Resolutions, Requests for Action	11. B.

Meeting Date: July 8, 2020

TOWN OF MORAGA **STAFF REPORT**

To: **Honorable Mayor and Councilmembers**

From: **Shawn Knapp, Public Works Director / Town Engineer**
Mark Summers, Associate Engineer

Subject: **Receive Update on Laguna Creek Restoration Project and Provide Direction to Staff**

Background

The proposed Laguna Creek Restoration Project (Project) is located at the Town-owned Hacienda de las Flores property (Hacienda) at 2100 Donald Drive. The Project consists of removing an underground culvert near the Pavilion building (Pavilion) and restoring a natural channel in its place in order to provide improved flood protection for the Pavilion and other adjacent facilities at the Hacienda. The upstream (northern) end of the culvert is located adjacent to the Pavilion, about 400 feet south of Donald Drive.

The contributing watershed at this location is about two (2) square miles and includes the neighborhoods of Campolindo, Carol Ranch, and Rheem Valley, among others. Laguna Creek generally flows southward, variably within large underground storm drain pipes or in open channel creeks, eventually discharging into the Upper San Leandro Reservoir.

Upstream of the culvert at the Hacienda, Laguna Creek flows as an open channel creek where it is joined by a tributary creek from Donald Drive. Downstream of this confluence, Laguna Creek flows into an 8-foot (96-inch) diameter corrugated metal culvert near the Pavilion. After traveling through the 240-foot long culvert, the creek "daylights" into an open channeled creek again for about 100 feet before entering a 12-foot by 14-foot rectangular culvert that flows beneath Devin Drive.

The Project started in 2005 although the portion of the Hacienda property near where the creek enters the 8-foot diameter culvert has been subject to flooding over the years as the culvert is not adequately sized to handle large peak flows. A timeline and outline of the history of the Project follows.

Winter 2005-2006

During the 2005-2006 winter storms, heavy rains caused Laguna Creek to rise and flow over the banks in the vicinity of the Pavilion. This resulted in significant damage, including damage to the wooden footbridge, a wrought iron gate, more than 200 feet of chain link fence, walkways, and banks of the creek bend were washed away. The creek slope failed resulting in damages to the facilities causing flooding within the Pavilion. The retaining walls, headwalls, wing walls, and banks were washed out and damaged.

June 2007

On June 13, 2007, the Town Council awarded a $37,000 construction repair contract to Mark Scott Construction to repair the 2005-06 Winter Storm flood damage to the Pavilion. The work included replacing 12 electrical outlets; preparing surfaces and repainting interior walls; baseboards; four exterior doors; four interior doors; ground floor windows; repairing hardwood flooring; replacing kitchen and bathroom flooring and underlayment; installing a new bar window; and installing a new sump pump.

On June 27, 2007, the Town Council authorized staff to enter a professional services contract for the Laguna Creek Embankment Repairs below the Pavilion with 1) LSA Associates, Inc. not to exceed $10,000; and 2) Kleinfelder, Inc. not to exceed $15,000. Additionally, Town Council authorized staff to enter into a professional services contract with Kleinfelder, Inc. not to exceed $15,000 for Hacienda Foundation Repairs.

November 2007

On November 28, 2007, the Town Council authorized a professional services contract with LSA Associates, Inc. for environmental permitting services for the Laguna Creek Retaining Wall Repair (CIP Project No. 08-203). The contract included environmental permitting services associated with repairs of the retaining wall, headwalls, wing walls, apron, creek slopes, and streambed on Laguna Creek upstream and downstream of the Pavilion.

December 2007

On December 12, 2007, Town Council authorized a design services contract with Cal Engineering and Geology, Inc. in an amount not to exceed $100,000 for the design and preparation of plans, specifications, and bid documents associated with repairs of the retaining wall, headwalls, wing walls, apron, and creek slopes, and streambed on Laguna Creek upstream and downstream of the Pavilion at the Hacienda.

October 2009

As part of the environmental investigation work by LSA, Laguna Creek was determined to be a habitat for the California Red-Legged Frog, a Federally listed threatened species. Per the requirements of the California Environmental Quality Act, an Initial Study and Mitigated Negative Declaration was prepared and circulated for public comments. On October 14, 2009, the Town Council passed Resolution 62-2009, adopting the Initial Study and Mitigated Negative Declaration for the Laguna Creek Retaining Wall Project. (See Attachment D.)

December 2012

On December 5, 2012, the Town entered into a consultant services agreement with WRECO to evaluate alternatives to protect the Hacienda facilities against flood risk from a 100-year flood event. WRECO provided engineering services to assess the existing conditions of Laguna Creek within the Hacienda property and recommendations to protect the Pavilion and adjacent facilities.

June 2013

Town Council awarded a consultant services contract to BKF Engineers on June 12, 2013, to provide construction management and inspection services for the Laguna Wall Repair and Bank Stabilization Project (CIP 08-203).

On June 26, 2013, the Council awarded a $603,940 plus 15% contingency construction contact to Pavex Construction to construct the Laguna Creek Wall Repair and Bank Stabilization Project. The project received significant funding from state and federal grants. The project sought to replace the failed or "washed out" walls and to repair and stabilize the banks. However, it did not address providing sufficient hydraulic capacity in the creek to abate future flood risks up to a 100-year return event at the Hacienda facilities.

A summary of the total project budget follows.

Cost Category	**Estimate**
Administration	$67,455
Design/Environmental Permitting (Consultants, Permits)	$167,514
Construction Management/Inspection (Consultant)	$58,500
Construction Contract	$603,940
15% Contingency	$90,591
Total Project Estimated Cost Estimate	**$988,000**

Funding Source	**Amount**
FEMA (Public Assistance Grant)	$737,000
Cal EMA (State-California Disaster Assistance Act)	$246,000
Measure J (Fund 210)	$5,000
Total Funding	**$988,000**

September 2013

On September 25, 2013, the Council authorized a $13,000 amendment to the consulting services agreement with LSA Association for a total amount not to exceed $25,000. The amendment provided for an onsite biologist to monitor red-legged frogs, an endangered species that was found on the site as part of the environmental permitting process.

October 2013

On October 9, 2013, the Town Council received a presentation by WRECO detailing the project site and limited space between the existing culvert and the Pavilion, previous flooding issues, flow constrictions downstream of the Pavilion and the three options explored for reducing flooding. Several discussion points included: building flood walls

around the Pavilion; elevating or moving the Pavilion building out of the flood plain; and making flood improvements that accept certain levels of flood damage based on the size of the flood event. Town Council directed staff and WRECO to explore additional options for solving the flooding problems at the Pavilion and report back. The Council also adopted Resolution 71-2013 amending the consulting services agreement with WRECO for the completion of a Hydraulic Study of Laguna Creek and Preparation of Grant Applications in an amount not to exceed $15,000. (See Attachment D.)

Also, on October 9, 2013, the Council approved a $12,000 budget transfer from the annual Minor Corrugated Metal Pipe Repair Program to the Laguna Creek Wall Repair and Bank Stabilization Project to execute a contract change order with Pavex Construction for grouting the existing metal culvert.

December 2013

On December 11, 2013, the Council authorized the execution of an additional $2,981 in change orders for the total change order amount of $105,572 for the construction of the Laguna Creek Wall Repair and Bank Stabilization Project. The final construction total was $709,512. The Town Council at the same meeting accepted the project as completed and directed the Certificate of Completion be recorded. The total preject costs are listed in the below table:

Cost Category	**Projected**
Administration	$70,000
Design (including Environmental)	$180,600
Construction (Contract $603,940 + Contingency $105,572	$709,512
Construction Management (incl. $61,400 BKF Engineers contract)	$76,400
TOTAL	**$1,036,512**

April 2014

WRECO was tasked with providing recommendations to lower the water surface elevations of Laguna Creek to provide a least 1.0-foot freeboard for the finished floor elevation of the Pavilion for the 100-year flood event, preparing a technical memo summarizing the results of the hydraulic analysis, and making recommendations for potential improvements. On April 23, 2014, the Council received a presentation from WRECO outlining ten alternatives that were studied in the Hydraulic Study to relieve flooding at the Pavilion. (See Attachments A and B.) They were:

1. No build
2. Line inside of existing culvert with smooth lining
3. Construction of parallel 9-foot diameter reinforced concrete pipe culvert
4. Construction of a 9-foot diameter reinforced concrete pipe culvert and relocation of the existing sewer main
5. Replace existing culvert with larger 14-ft by 12-ft reinforced concrete box (RCB) culvert
6. Install upstream detention basin
7. Raise Pavilion floor elevation above 100-year flood elevation
8. Relocate entire Pavilion structure outside 100-year floodplain
9. Construct flood wall around Pavilion
10. Daylight and restore Laguna Creek to contain a 100-year flow

Only two of the alternatives (Alternatives 5 and 10), improved the channel capacity to convey the 100-year flow of Laguna Creek and provided flood protection to the Pavilion during the 100-year storm event. WRECO determined that restoration of the natural channel would have a lower construction cost than the box culvert and would be eligible for grant funding as a channel restoration project. Alternative 10 was therefore recommended to Council.

On April 23, 2014, Council adopted Resolution 34-2014 to accept the Hydraulic Study and choose the recommendation to restore the natural channel based on the study and the presentation. (See Attachment D.) Council directed staff to prepare the recommended natural channel restoration (daylighting) project documentation to be "shovel ready" for grant opportunities and to pursue grant funding for the Project. The Council also amended WRECO's Hydraulic Study contract, increasing it by $15,000 for a total amount not to exceed $29,800.

Grant Technical Assistance

WRECO, through their on-call consultant contract, has assisted the Town in providing technical information and exhibits for Town's grant application efforts. The table below provides a list of WRECO's Work Authorizations for technical support for grant applications:

On-Call Year	Work Authorization	Work Tasks	Invoice Totals
FY 2014-15	WA No. 1 and 1A	CA River Parkways Grant	$12,865
FY 2015-16	WA No. 2	CA National Resources Agency Grant	$1,328
FY 2017-18	WA No. 5 and 6	FEMA HMGP Grant	$7,378
FY 2018-20	WA No. 8	FEMA Grant and Technical Support (on-going)	$6,500

Discussion

Preferred Alternative

The Council preferred Creek Daylighting project was determined to generally entail: removal of the existing 8-foot diameter pipe; removal of the existing inlet headwall; potential removal of the existing retaining walls depending on the project's engineering analysis; and restoration of an open channel that mimics a natural stream. The project would require relocating an existing sewer main and installing a natural-bottom arch culvert (acting as a bridge from the Moraga Road access) to maintain connectivity with the main Hacienda building. The removal of the culvert and creation of the channel is intended to provide sufficient capacity to convey the 100-year storm event, prevent flooding to the Pavilion building, provide a natural amenity to the public, and improve the potential for California red-legged frog habitat by creating aquatic habitat. The project was officially renamed the Laguna Creek Restoration Project (CIP 16-2014) (Project) and included in the FY 2016-17 Operating and Capital Improvement Program Budget.

Hydrology

As discussed in the 2014 WRECO Hydraulic Study, there are two sources of peak flow data: 1) FEMA; and 2) Contra Costa County Flood Control District (CCCFD). The FEMA peak flows (last revised in March 2017) are used for flood insurance purposes and were calculated based on approximate methods using data from nearby watersheds. (See Attachment C.) The CCCFD peak flows were calculated in 1992 and assumed "full buildout of the Town" conditions. This means they assumed 100 percent development per the General Plan in 1992 and are much higher than the FEMA peak flow rates.

	FEMA	CCCFD
10-year Peak Flow	660	1,100
50-year Peak Flow	1,100	1,560
100-year Peak Flow	1,300	1,720

Since 1992, stormwater regulations designed to reduce peak flow rates have been adopted. Also, the Moraga Open Space Ordinance (MOSO) has limited development in certain areas. For these reasons, staff believes that the 1992 CCCFD data likely reflects an overly conservative "full buildout of the Town" peak flow rates.

The WRECO 2014 Hydraulic Study utilized the flow rates obtained from CCCFD, which assume full build-out. For this reason, the recommendations for a 14 foot by 12 foot box culvert differ from the 2015 Storm Drain Masterplan recommendation of an 8 foot by 10 foot box culvert which utilized FEMA flows for the analyses therein.

During the October 9, 2013 presentation to Council, WRECO made a statement about suggesting limited downstream capacity of the system. (See Attachment E.) Below is an excerpt from the minutes of the meeting:

> *Mr. Torshido[1], Engineer for WRECO, explained that for the hydraulic model shown in the presentation, the downstream limit was identified at the culvert at Corliss Drive. He explained that for 50- and 100-year flood events, the water surface elevation could back up to the level where it would be very close to where the Pavilion was currently located, although the flooding experienced at the Pavilion was primarily from the undersized eight-foot culvert inside the facility, not the downstream culvert at Corliss Drive. He described the culvert at Corliss Drive as a reinforced concrete box culvert at 12 feet in width and 10 feet in height.*

Staff received clarification from Mr. Tsurushita that he was referring to the capacity of the 12-foot by 10-foot culvert running under Devin Drive, not Corliss Drive. His remarks relate to the hydraulic model results showing that the 50-year and 100-year CCCFD peak flows would back up at the entrance to the 12-foot by 10-foot culvert under Devin Drive. However, recall that the CCCFD peak flows assumuptions are based on 1992 development "full buildout" assumptions. Also of note is that the 50-year CCCFC peak flow rate is larger than the 100-year FEMA peak flow rate. Mr. Tsurushita also clarified that the 12-foot by 10-foot culvert under Devin Drive has more than five times the capacity of the 8-foot diameter pipe that has overtopped in the past.

[1] The correct spelling is Tsurushita.

The design flow that will ultimately be utilized for the Laguna Creek Restoration Project should account for future development based on current General Plan estimates and storm water regulations for development, but the 1992 CCCFD flow rates may be too high. Staff recommends that a Phase 1 hydraulic study be conducted during the early phases of design engineering to determine the appropriate solution/right size of the creek channel.

Grant Funding Sources

Town Council provided clear direction to staff to pursue grant funding for the daylighting the creek channel option. Over the years staff applied for multiple grants for the daylinging Project and explored opportunities to add improvements and amenities to the Project.

The Town was successful in being awarded three Project grants[2]:

California River Parkways, California Natural Resources Agency	$399,980
Measure WW Urban Creek Grant, East Bay Regional Parks District	$599,743
Hazard Mitigation Grant Program, FEMA	$803,331

The California River Parkways, California Natural Resources Agency (CNRA) grant was prepared by WRECO, submitted in September 2015, and awarded in June 2018. This grant expires on May 1, 2022, and cannot be extended. Unfortunately, the CNRA grant is not compatible with the FEMA grant in that CNRA will not split/share Project bid item costs in a way that would be compatible with the utilization of the FEMA grant funding.

The Measure WW Urban Creek Grant, East Bay Regional Park District (EBRPD) grant was prepared by staff, submitted in February 2018, and awarded in May 2018. This grant expires on December 31, 2025, and cannot be extended. EBRPD has agreed to work with the Town to cover the Project costs that the FEMA grant does not.

The Hazard Mitigation Grant Program, Federal Emergency Management Agency (FEMA)[3] grant was prepared by WRECO, submitted in November 2017, and awarded in March 2020. The award was based on an estimated Project cost of approximately $1.2 million, with FEMA covering 66 percent of the total, or $803,331. The grant award is based on meeting FEMA's 1.0 benefit to cost ratio. FEMA calculated the benefit to be $1.47 million; therefore, FEMA's contribution could increase to $970,200.

FEMA releases funding in phases: Phase 1 – Preliminary Engineering; Phase 2 – Final Engineering; and Phase 3 - Construction. This is similar to the Federal-Aided grant process administered by Caltrans for the Town's grant-funded street projects. The Town must complete each phase successfully before funds are released for the next phase.

FEMA has approved the Town to proceed with Phase 1, which includes the following tasks:

[2] Grant Application packages are available for inspection upon request.
[3] FEMA has approved Phase 1 Preliminary Engineering only, which is described in more detail below.

- Project Management
- Field Investigation and Survey
- Hydraulic Study
- Biological Resources Study
- Environmental and Technical Studies (CEQA)
- Preparation of 65 percent complete Plans, Specifications, and Estimates

Project Cost Estimate

The daylighting Project cost estimate in 2017 was $1.2 million. In 2020, WRECO updated the estimate to $1.58 million to account for inflation. It is important to note that this is a very preliminary planning level estimate as there is not yet an engineering design to price. As the Phase 1 engineering design (65% Level of Effort Design Plans) unfolds, a more accurate cost estimate will emerge.

Because the CNRA grant was not functionally compatible with the FEMA grant, staff recommends the Town pursue the use of only the FEMA and EBRPD grants. Based on the FEMA not-to-exceed grant amount of $970,200 (66% of the $1.47 million Project benefit), and the $599,743 EBRPD grant, grant funding is available for a Project of up to $1.57 million.

The Project estimates and funding are summarized in the following table.

Original Cost Estimate (2017)	Maximum Allowable Project Cost per FEMA	Updated Cost Estimate (2020)	Grant Funding[4]
$1.20 Million	$1.47 Million	$1.58 Million	$1.57 Million

Should the Project proceed through construction, the FEMA 100-year flood zone would be amended and the Town's flood insurance policy would change. Specifically, the deductible for the Pavilion building would be reduced from $250,000 to $100,000, and the annual insurance premium would decrease by approximately $200 per year.

Proposed Engineering Design Process

Based on engineering staff understanding of Town Council's previous direction for this Project, a Request for Qualifications and Proposal (RFP/Q) will be advertised on July 7, 2020, for the Phase 1 – Preliminary Engineering tasks. An RFP/Q process is typically a two to three month process from advertisement of the RFP/Q to consultant contract award. The Town Council has the option of withdrawing or amending the RFP/Q at any time and is not obligated to award any contract related to the RFP/Q.

The RFP/Q includes the following scope of work.

- Field Investigation and Survey
- Hydraulic Study
- Biological Resources Study
- Environmental and Technical Studies (CEQA)

[4] Possible combined total of FEMA and EBRPD grant funding.

- Preparation of 15% designs and presentation of designs at a Community workshop
- Three Council updates at 15%, 30% and 65% design
- Preparation of 65% complete Plans, Specifications, and Estimates

At the completion of Phase 1 – Preliminary Engineering Design and FEMA determination on authorizing funding for additional phases of work, the Town Council can evaluate a comprehensive report on the Project merits and refined Project cost estimates in order to determine whether to continue with the Phase 2 – Final Engineering Design and Phase 3 – Construction work. If Council concurs with proceeding with Phase 2, a design services contract amendment would be issued to complete the design.

The total Phase 1 cost allocated by FEMA (of which they will pay 66 percent) is $192,144. EBRPD will reimburse the other 34 percent. However, EBRPD will retain 20 percent of their share until the total Project (all three phases) is completed. Therefore, if the Project does not proceed after Phase 1, the retained cost will be borne by the Town. This retained cost for the Town amount is estimated to be $13,066[5] and would be paid from Department 730 - Storm Drain Maintenance. The Town may also invest unreimburseable staff costs of approximately $10,000 for phase 1.

Staff plans to continue to utilize WRECO for support to prepare the RFP/Q and grant under their on-call Civil Engineering contract. Staff estimates future support services and quality control review for Phase 1 would be approximately $15,000. It is unclear if these costs qualify for FEMA reimbursement. Should these costs not be reimbursable, they would be paid from Department 730 - Storm Drain Maintenance.

Fiscal Impact

Up to $28,066 in Project costs will be incurred by the Town to complete phase 1. $15,000 may be reimburseable and the remaining $13,066 would be reimbursed by the EBMUD grant if the Project was completed. Adequate funding is available in Department 730 – Storm Drain Maintenance (101-730-026-01).

Reviewed by Norm Veloso, Administrative Services Director

Environmental Review

Phase 1 studies and design work are categorically exempt from the California Environmental Quality Act (CEQA) per § 15306. CEQA analysis for construction of the Project (should it proceed) will be conducted as part of the scope of services under the design contract.

[5] This number was calculated as 20 percent of the EBRPD 34 percent share of the allocated $192,144 for Phase 1.

Alternatives

1. Continue the Phase 1 RFP/Q process and bring to the Town Council at a future meeting recommendations for consideration of awarding an engineering design services contract.
2. Continue the Phase 1 RFP/Q but amend the scope of services.
3. Do not continue the Phase 1 RFP/Q process and provide direction to staff.

Recommendation

Staff recommends that the Council provide direction to staff to proceed with the RFP/Q and Phase 1 – Preliminary Engineering process underway. Staff will prepare an agenda item for the Council to review the RFP/Q results and consider awarding Phase 1 - Preliminary Engineering Design contract at the August 26, 2020, or later meeting.

Report reviewed by: Cynthia Battenberg, Town Manager

Attachments:

A. April 14, 2014, Hydraulic Study and Alternatives by WRECO Request for Qualifications and Proposal (RFP/Q)
B. April 23, 2014 Presentation to Council by WRECO
C. Contra Costa County Flood Control District Watershed Map and Peak Flow Data
D. Previous Council Resolutions
E. Excerpt from October 9, 2013, Council Meeting Minutes

ATTACHMENT A

April 14, 2014 Hydraulic Study and Alternatives by WRECO

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Final Memorandum

Date: **April 14, 2014**

To: **Edric Kwan, Public Works Director/Town Engineer - Town of Moraga**

From: **Grant Wilcox/Kazuya Tsurushita/Sonia Leung - WRECO**

Subject: **Laguna Creek Hydraulic Study Project**

Background

The Laguna Creek Hydraulic Study Project (Project) is located in the Hacienda de Las Flores Park in the Town of Moraga (Town), Contra Costa County, California. Laguna Creek, within the Project limits, is contained within an 8-ft diameter, 242-ft long corrugated metal pipe (CMP) culvert. The Pavilion located on the southwest side of the culvert experiences flooding during rain events, and the Town is currently seeking alternatives to relieve impacts created by flows draining in the 8-ft CMP culvert.

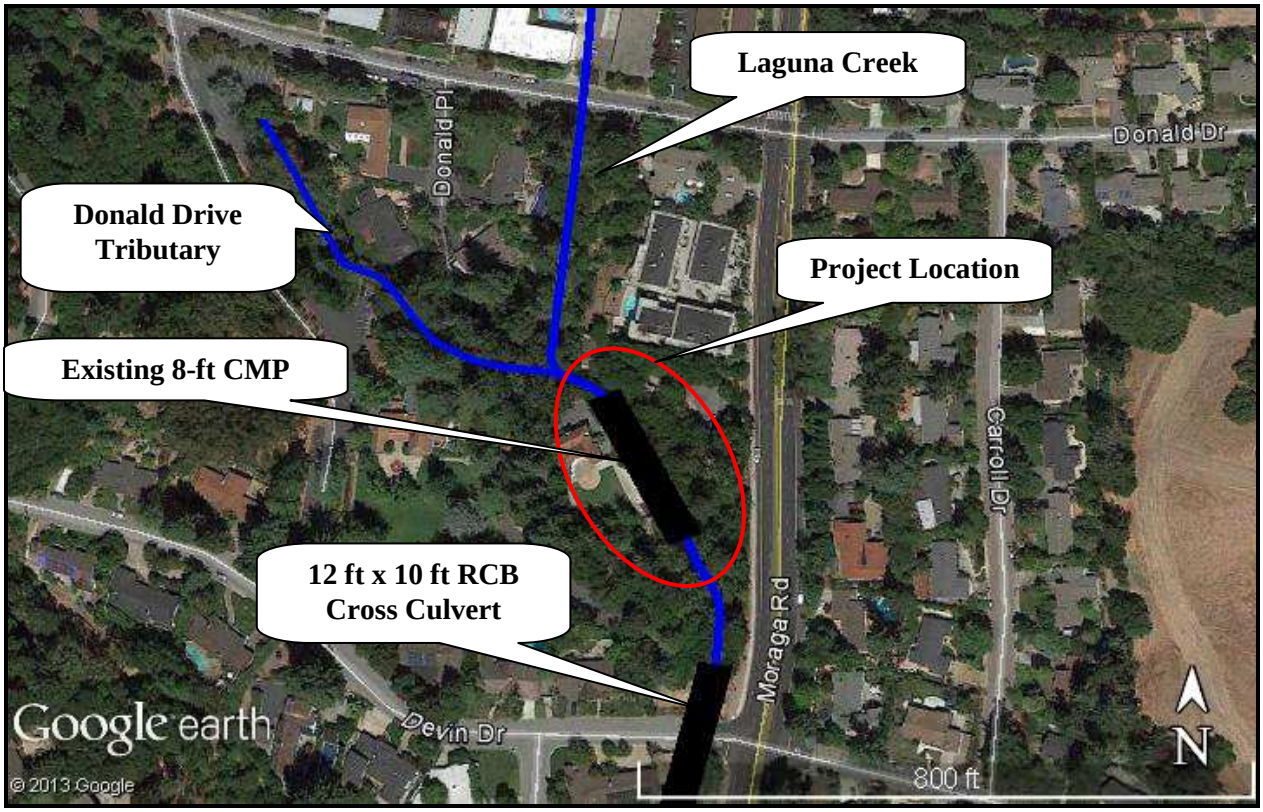

Figure 1. Project Location Map

Source: Google Earth

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1. Purpose of Study

The purpose of this study is to evaluate the feasibility of the various alternatives to lower the water surface elevations (WSEs) of Laguna Creek, raise or protect the Pavilion, and prevent future flooding within the Project limits.

2. Watershed

The Project is located within the San Francisco Bay hydrologic region, sub-area No. 204.20 per the California Department of Transportation (Caltrans) Water Quality Planning Tool. Laguna Creek generally flows in a southeast direction. Approximately 2 mi downstream of the Project site, Laguna Creek joins the Upper San Leandro Reservoir. Based on data from the U.S. Geological Survey (USGS), Laguna Creek drains a watershed area of 1.94 square mi (mi^2) at the Project site. The watershed delineation from the USGS digital elevation model (DEM) is presented in Figure 2. The USGS DEM standard is a geospatial file format for storing a raster-based elevation model.

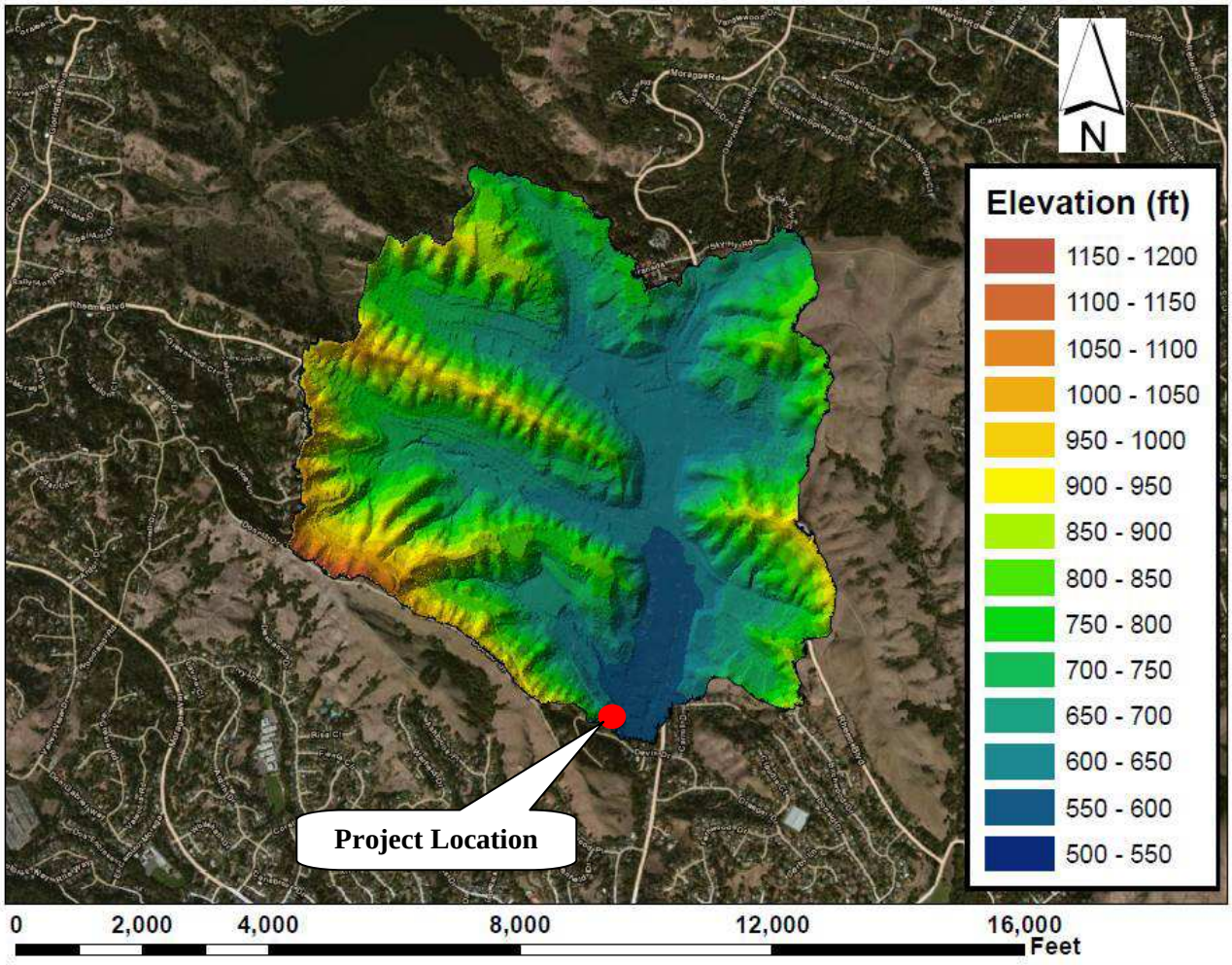

Figure 2. Watershed Draining to the Project

Source: USGS and Google Earth

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3. Description of Stream and Site

About 50 ft upstream of the existing 8-ft diameter CMP culvert, Laguna Creek flows through a sharp 90 degree turn and converges with Donald Drive Tributary; see Photo 1. This sharp turn is caused by the relocation of the channel in the 1930's; Laguna Creek used to run where the Pavilion is now located and the turn angle was more moderate. Immediately upstream of the confluence, the Central Contra Costa Sanitary District (CCCSD) installed a concrete spillway apron to protect an existing 18-in sewer line; see Photo 2. This sewer line is nearly parallel to the existing culvert, and it flows from northwest to southeast. The inlet face of the existing CMP culvert was repaired during the construction project 2013; see Figure 3. About 110 ft downstream from the CMP culvert's inlet face, the top of the CMP is exposed; see Photo 3. These photos were taken on December 19, 2013 during WRECO's site visit.

Photo 1. Upstream of Existing 8-ft CMP Culvert

Photo 2. Concrete Spillway Apron

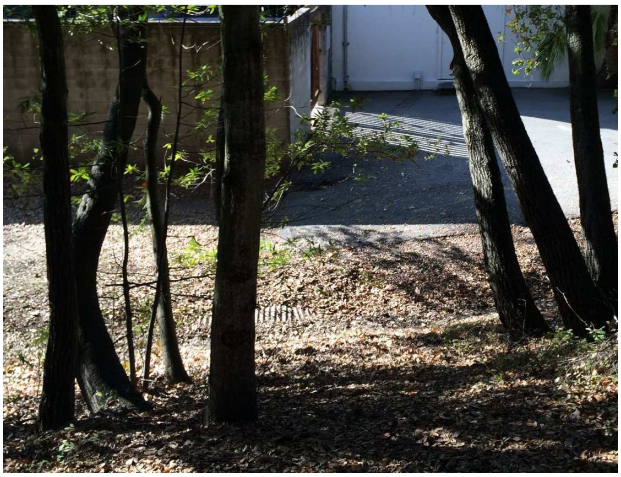

Photo 3. Exposed Existing CMP

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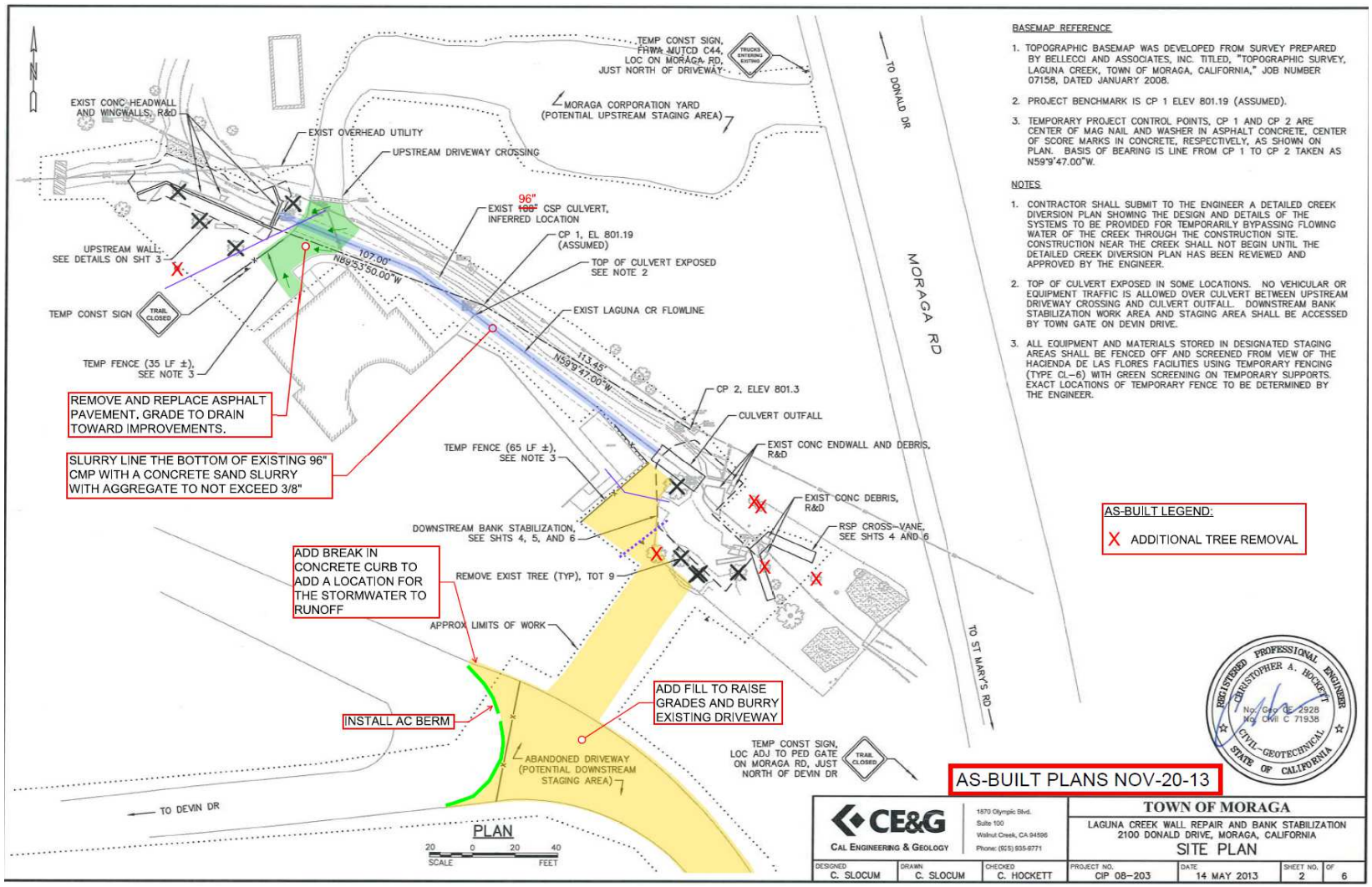

Figure 3. Existing Project Condition

Source: Town of Moraga

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Before the construction project in 2013, the retaining wall on the downstream side of the existing 8-ft CMP culvert fell into the creek after the storm events in 2005. The outfall from the culvert was causing a scouring problem to the downstream and the broken concrete pieces from the failed headwall and wing walls were left in the stream. The construction project in 2013 repaired the scoured channel by providing the 1-ton rock slope protection (RSP) at the outlet face of the 8-ft CMP culvert (see Photo 4) to prevent further erosion caused by the outflows from the existing 8-ft CMP culvert. The RSP was also installed at the damaged channel slope to provide additional channel protection (see Photo 5). The wing walls left in the stream were removed and replaced by the RSP cross vane (see Photo 6).

Photo 4. Downstream Face of the Existing 8-ft CMP Culvert

Photo 5. Laguna Creek Looking Downstream from the Existing 8-ft CMP Culvert

Photo 6. RSP Cross Vane

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4. Hydrology

Design discharges were retrieved from two sources including a study on the Federal Emergency Management Agency's (FEMA) *Flood Insurance Study* (FIS), and calculated flows between Donald Drive and Devin Drive that were provided by the Contra Costa County Flood Control District (CCCFCD).

The published design discharges from the effective FEMA FIS (2009) presents the 50- and 100-year flows for Laguna Creek at Rheem Boulevard and Corliss Drive (see Figure 4). Rheem Boulevard and Corliss Drive are located approximately 0.60 mi upstream and 0.35 mi downstream of the Project site, respectively. The effective FIS states that the flow was estimated based on approximate methods. The peak discharges were estimated to be 450 cfs for the 10-year design storm, 750 cfs for the 50-year design storm and 850 cfs for the 100-year design storm at Rheem Boulevard; and 660 cfs for the 10-year design storm, 1,100 cfs for the 50-year design storm, and 1,300 cfs for the 100-year design storm at Corliss Drive.

In addition to the design discharges from the FEMA FIS, the CCCFCD also provided hydrologic information of Laguna Creek watershed in the Project vicinity. The study included 10-, 50-, and 100-year flows for Laguna Creek between Donald Drive and Devin Drive, which includes the Project location (see Figure 4). The resulting flows were estimated to be 1,110 cfs for the 10-year design storm, 1,560 cfs for the 50-year design storm, and 1,720 cfs for the 100-year design storm.

Figure 4. FEMA FIS Flow Locations

Source: FEMA and Google Earth

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The flows provided by the CCCFCD are more site-specific, and the values were more conservative than the flows estimated using the FEMA FIS. Therefore, WRECO adopted the flows that were based on the CCCFCD flows information for this study. The design discharges from the CCCFCD are summarized in Table 1.

Table 1. Summary of Design Discharges

Flow Condition	Design Discharge (cfs)
10-year Recurrence Interval	1,110
50-year Recurrence Interval	1,560
100-year Recurrence Interval	1,720

Source: Contra Costa County

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5. Proposed Alternatives

There are 10 proposed alternatives, which will be detailed in this section.

Alternative 1 – No Build

For this alternative, there would be no change to the existing 8-ft diameter CMP. Inspection and maintenance on the existing pipe may be required for this alternative.

Alternative 2 – Line Existing Culvert with Smooth Pipe

The inside of the existing culvert would be lined with a smaller smooth pipe in this alternative. This alternative would prevent further structural damage to the existing culvert, but it would not resolve the backwater at the inlet face of the culvert. In 2013, the Town's contractor filled gaps and voids in the bottom of the existing culvert with grout, which were caused by corrosion.

Alternative 3 – Parallel 9-ft Reinforced Concrete Pipe (RCP)

An additional 9-ft diameter RCP would be installed parallel to the existing sewer line on the northeast in this alternative; see Figure 5. A flow diversion structure would be required upstream of the concrete spillway apron to divert some flow into the new pipe. However, the downstream connection from the RCP to Laguna Creek would be a challenge because of the existing sewer pipe that runs parallel to Laguna Creek. The existing culvert would need to be inspected and may require maintenance. See Figure 6 for cross sections for this alternative. The additional 9-ft diameter RCP would prevent overtopping at the upstream face of culvert for 50-year or smaller intensity storm events.

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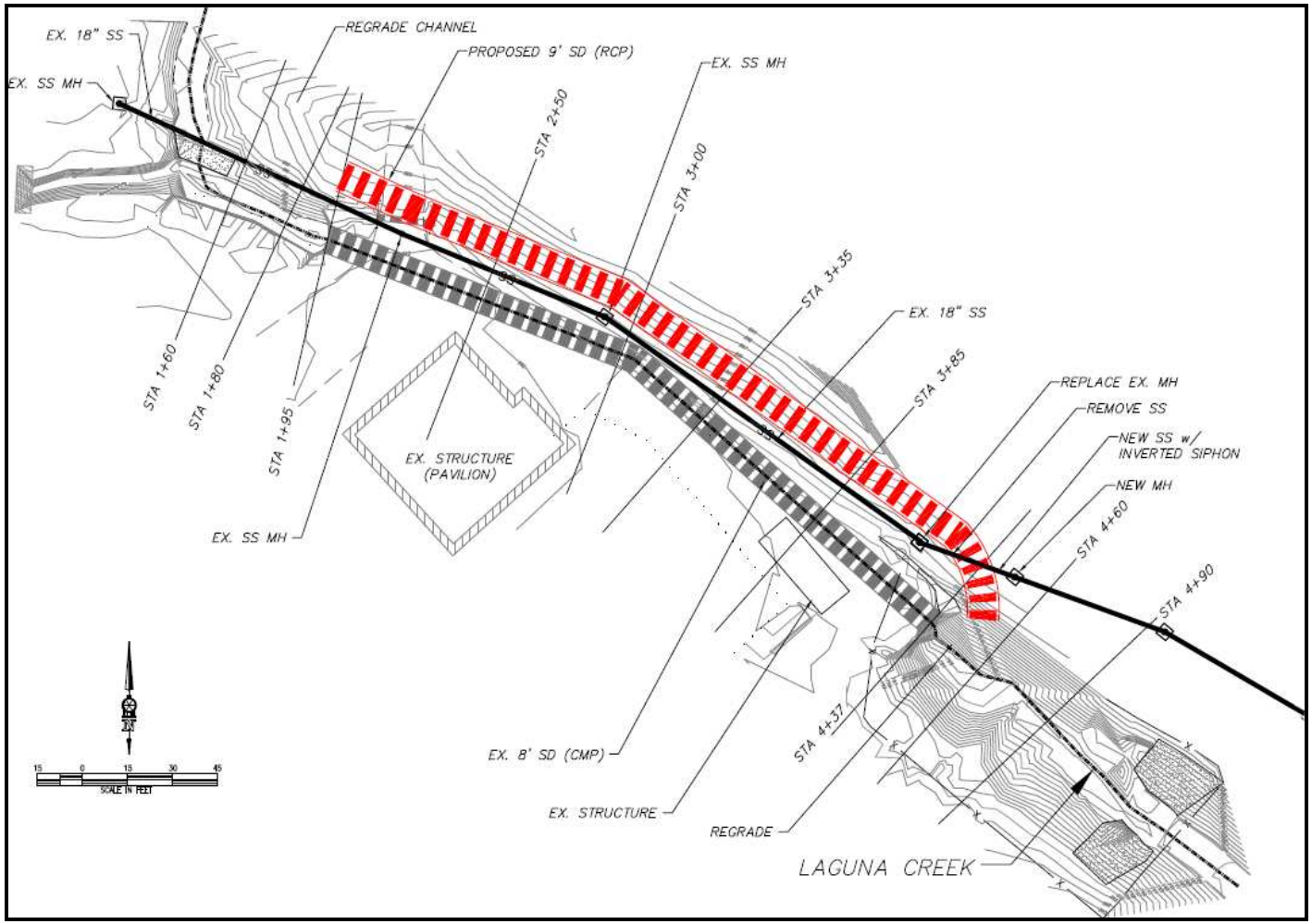

Figure 5. Plan for Alternative 3 – Parallel 9-ft RCP

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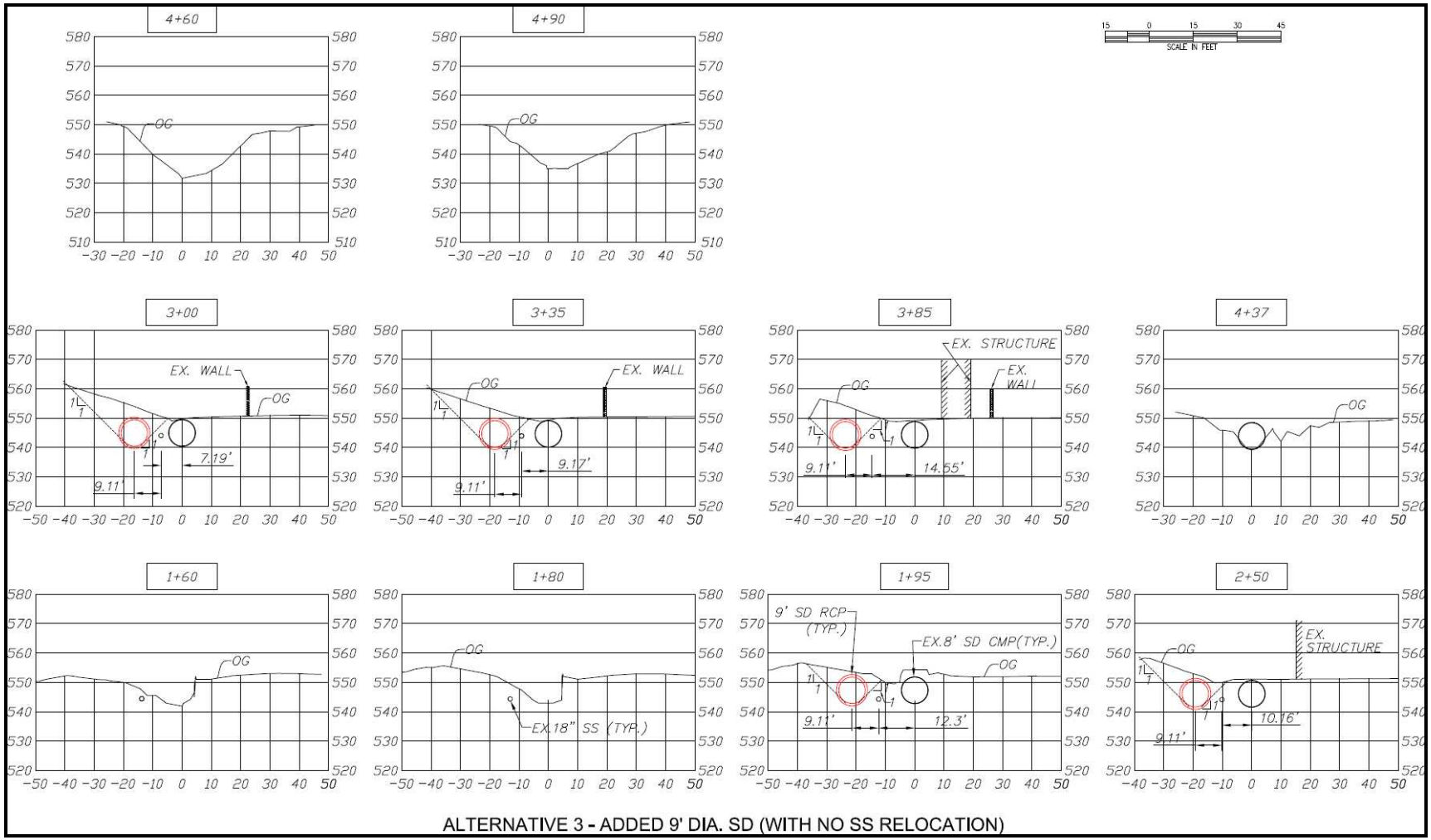

Figure 6. Cross Sections for Alternative 3 – Parallel 9-ft RCP

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Alternative 4 – Parallel 9-ft RCP and Sewer Line Relocation

An additional 9-ft diameter RCP would be installed parallel to the existing culvert on the northeast. The existing sewer line would be relocated to the northeast of the new culvert; see Figure 7. Excavation would be required to widen the channel to fit the additional culvert, and new headwalls would need to be installed. Also, additional easement, permit, and fees by the Town of Moraga and the Central Contra Costa Sanitary District (CCCSD) would be required for the sewer line relocation. The existing culvert would need to be inspected and may require maintenance. See Figure 8 for cross sections for this alternative. The additional 9-ft diameter RCP would prevent overtopping at the upstream face of culvert for 50-year or smaller intensity storm events.

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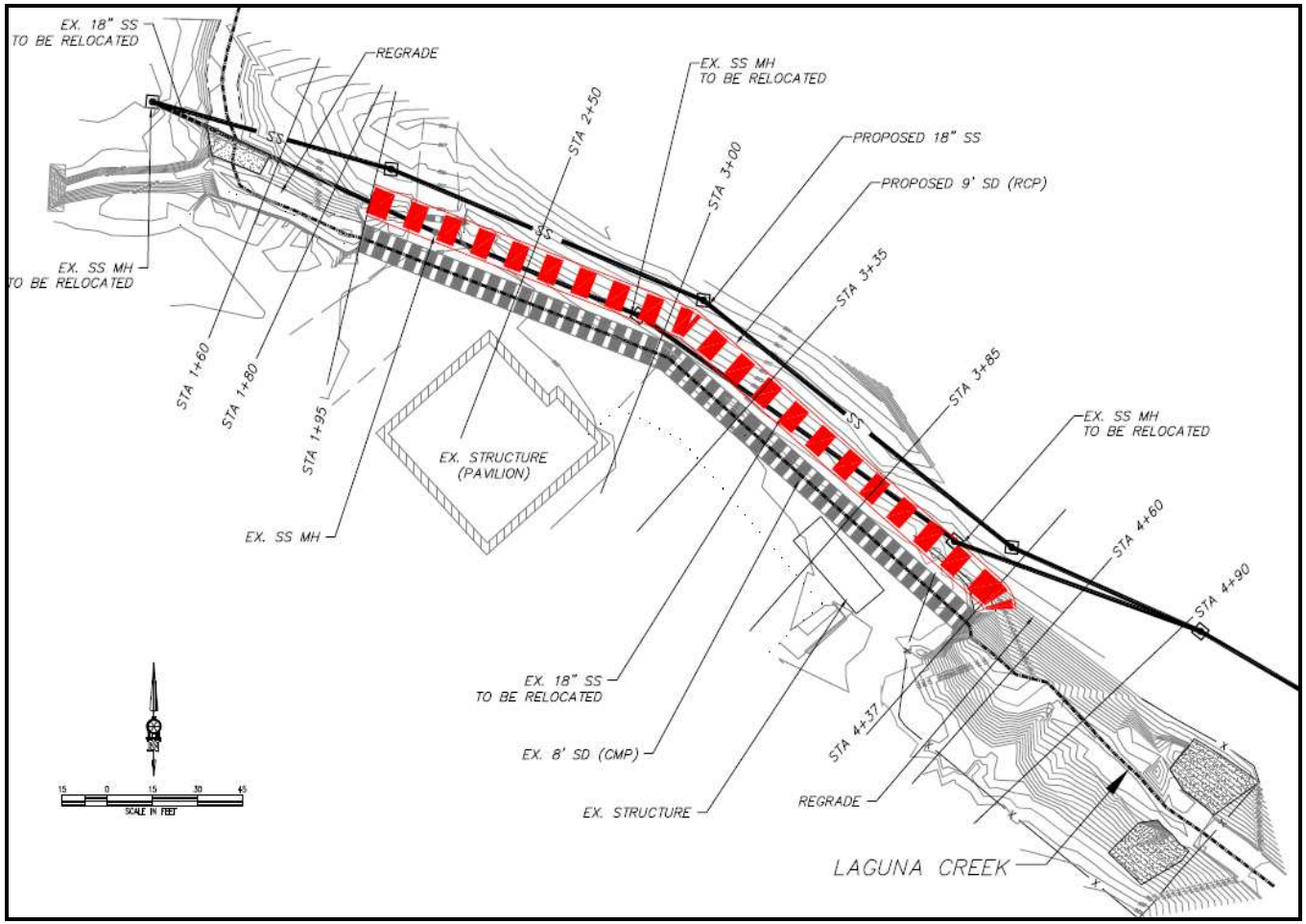

Figure 7. Plan for Alternative 4 – Parallel 9-ft RCP and Sewer Line Relocation

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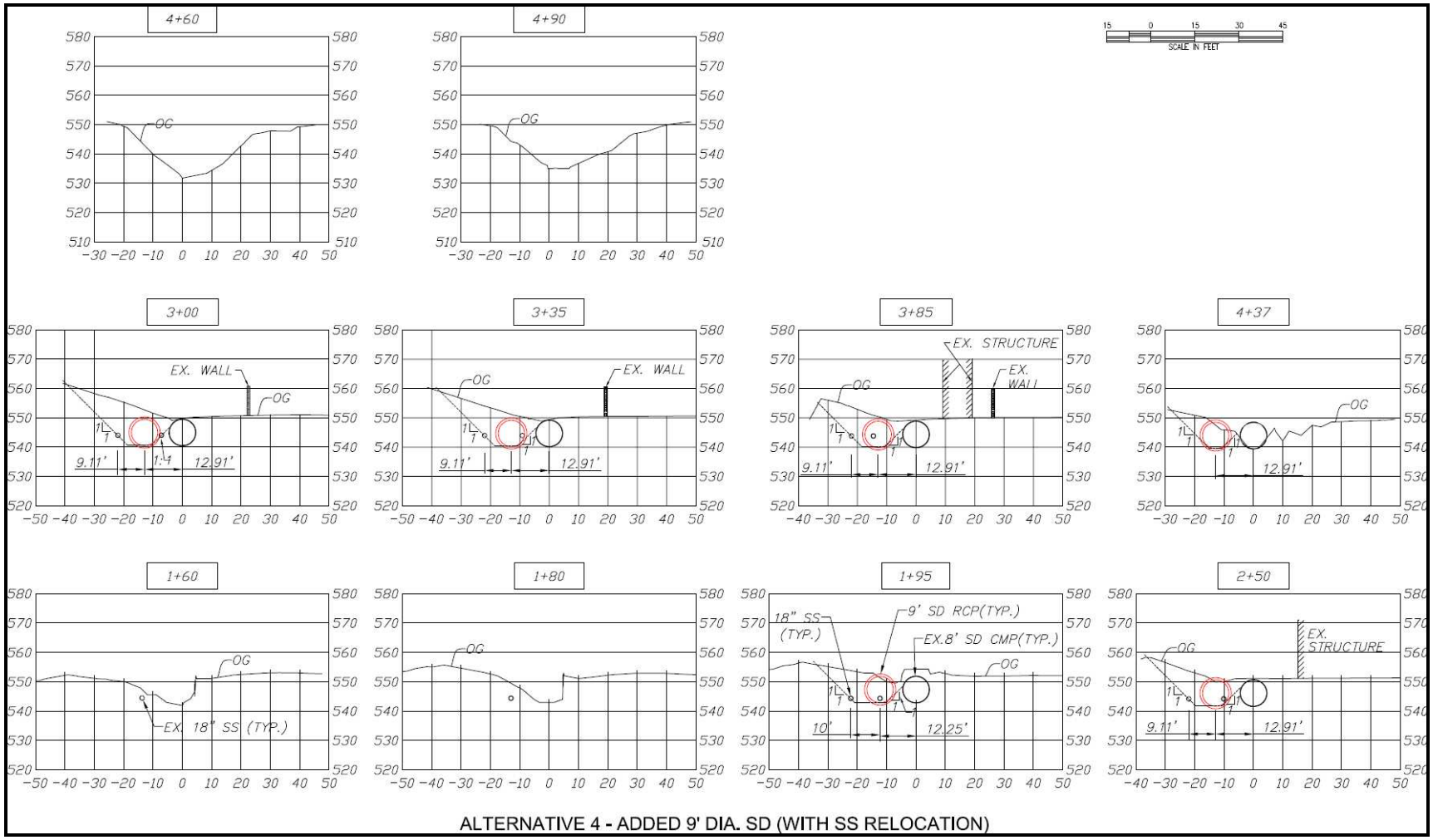

Figure 8. Cross Sections for Alternative 4 – Parallel 9-ft RCP and Sewer Line Relocation

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Alternative 5 – Replace Existing Culvert with 14-ft by 12-ft Reinforced Concrete Box Culvert

In this alternative, the existing 8-ft diameter CMP would be replaced by a 14-ft by 12-ft reinforced concrete box (RCB) culvert. In general, the new culvert would have the same alignment with the existing 8-ft culvert; see Figure 9. Because the proposed box culvert is wider than the existing 8-ft diameter CMP, the existing storage shed southwest of the CMP would need to shift southwest to fulfill the horizontal clearance requirement of the Town. See Figure 10 for cross sections for this alternative.

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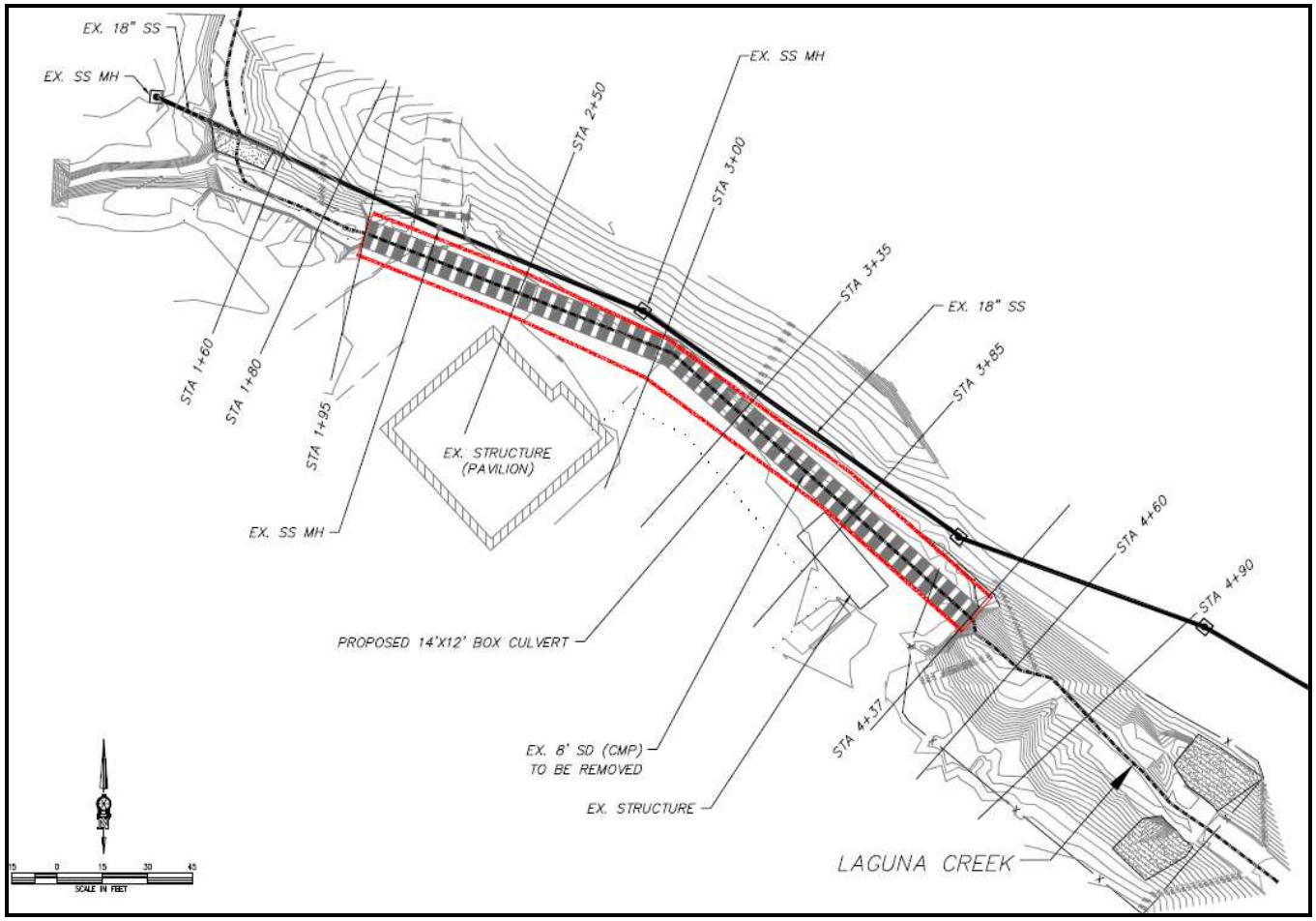

Figure 9. Plan for Alternative 5 – Replace Existing Culvert with 14-ft by 12-ft RCB Culvert

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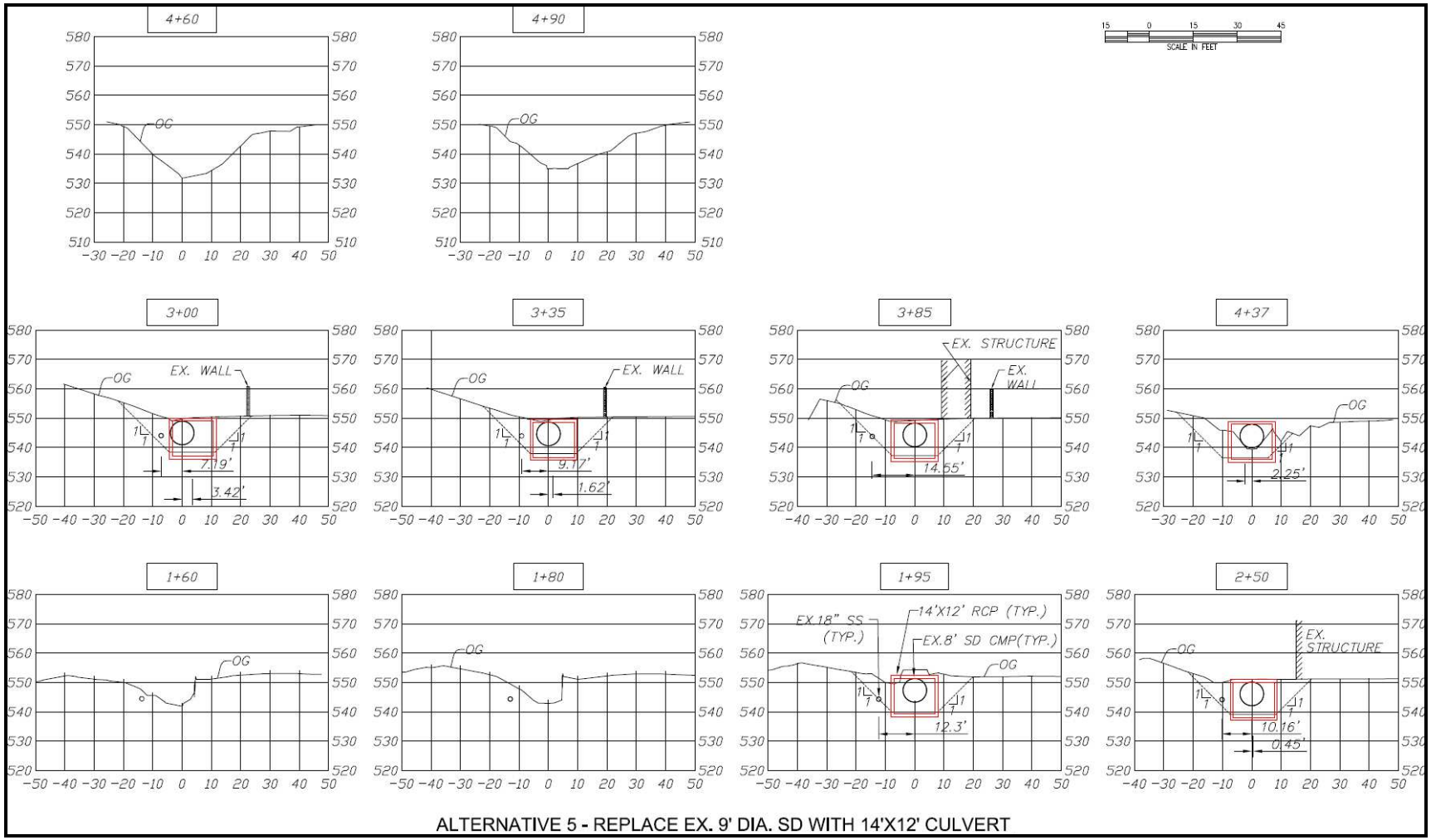

Figure 10. Cross Sections for Alternative 5 – Replace Existing Culvert with 14-ft by 12-ft Box Culvert

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Alternative 6 – Detention Basin Upstream

In this alternative, a detention basin would be constructed upstream of the Project limits. WRECO estimated that a storage volume of approximately 60 acre-ft would be needed for the proposed detention basin to prevent overtopping at the upstream face of the existing 8-ft CMP culvert during 100-year, 12-hour storm event. See Figure 11 for the three potential locations. Location 1 is a multi-use field at the Campolindo High School. Location 2 is playfield at the Donald Rheem Elementary School. Location 3 is parking lot at the Rheem Valley Shopping Center. The areas potentially usable for on-surface or underground detention basin for each location is summarized in Table 2

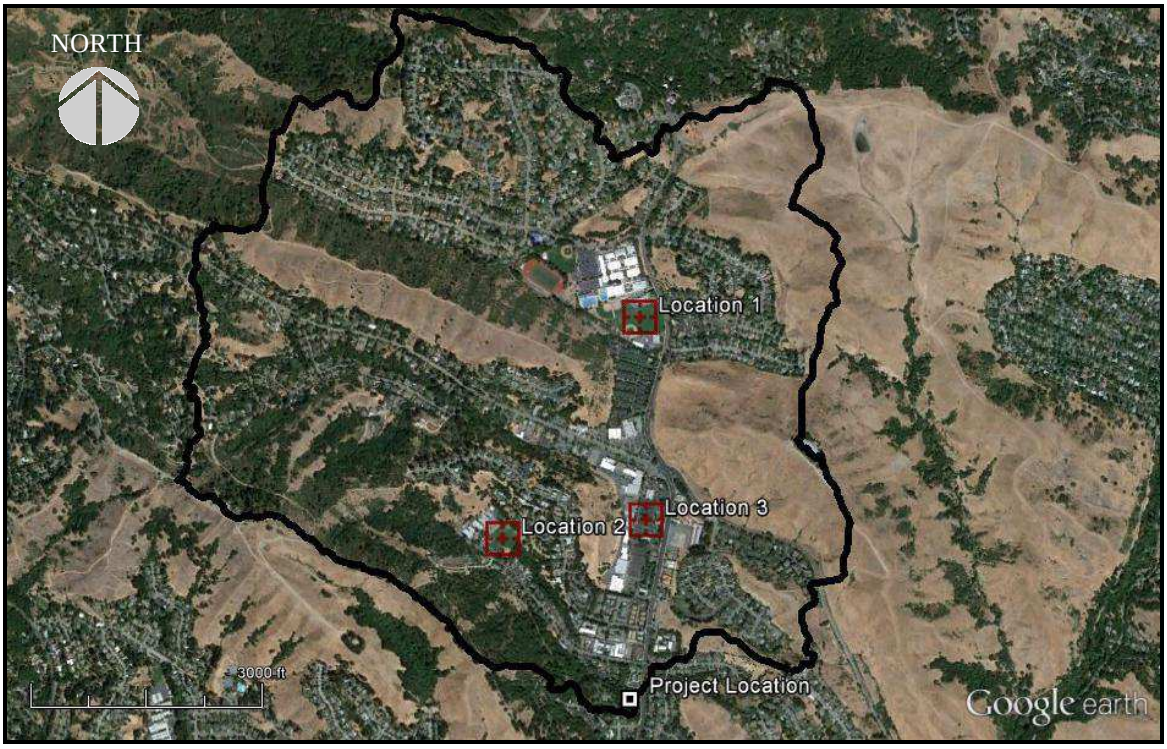

Figure 11. Potential Locations of Detention Basin for Alternative 6

Source: USGS and Google Earth

Table 2. Areas Potentially Usable for Detention Basin

Location	Area (ac)
Campolindo High School	7
Donal Rheem Elementary School	4
Rheem Valley Shopping Center	17

This alternative will require large area to provide storage volume of approximately 60 acre-ft. It will also require coordination with the property owners and stakeholders (Acalanes Union High School District, Moraga School District, Rheem Valley Shopping Center, Parent and Teacher Association, etc.).

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Alternative 7 – Raise Pavilion Above 100-year WSE

The Pavilion is located on the southwest side of the 8-ft CMP culvert, approximately 30 ft southeast from the upstream headwall. Records show that the building experiences flooding during rain events, so WRECO considered raising the finish floor elevation of the building. According to the Federal Emergency Management Agency's (FEMA's) *Homeowner's Guide to Retrofitting*, elevating the house is one of the most common retrofitting methods to protect the home from flooding.

The foundation of the Pavilion should be raised approximately 4 ft above the existing ground level to raise the floor level above the 100-year flood elevation. The elevation techniques would be selected based on the construction type and existing structure condition of the Pavilion (see Figure 12 for sample technique). Stairs and/or ramps should be installed to provide access to enter the raised Pavilion. Raising the courtyard to match the raise of the Pavilion structure requires significant fill volume inside the floodplain and also increases the cost and construction time period. This option was not evaluated further in this study.

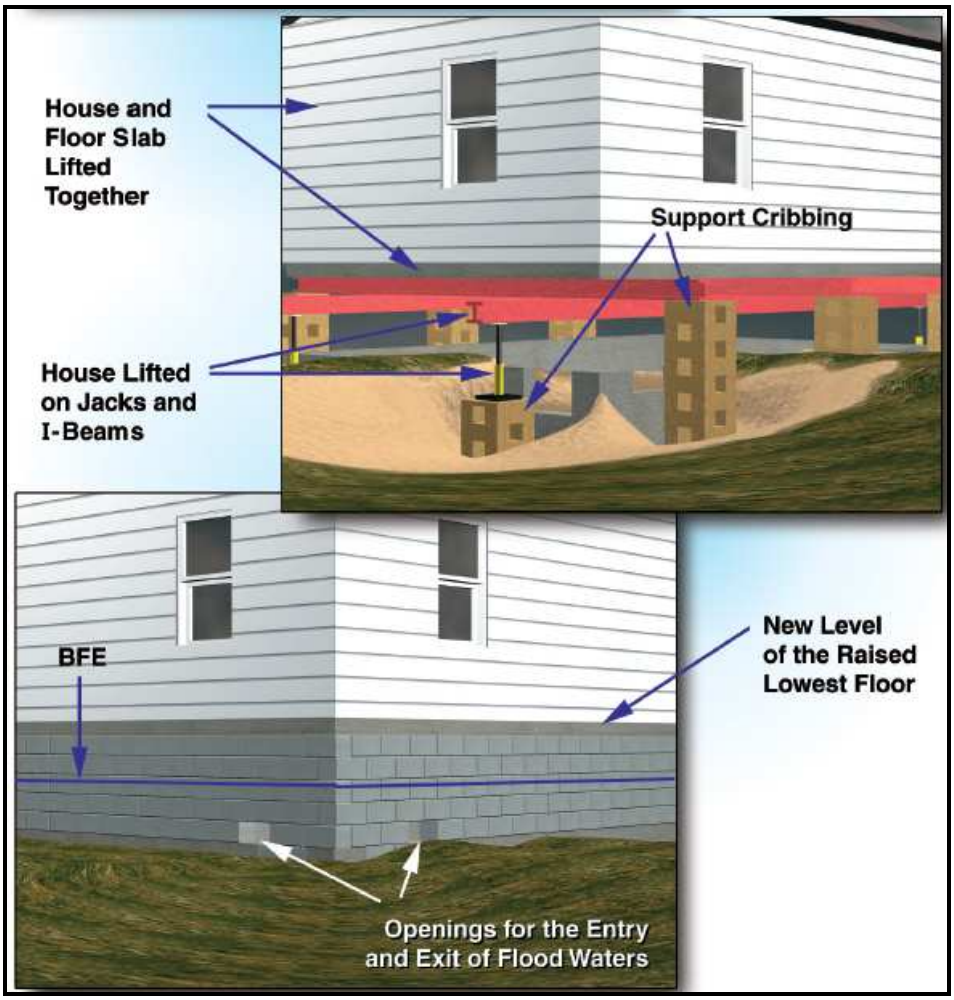

Figure 12. Sample Technique to Raise the Building above Base Flood Elevation

Source: FEMA

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In 2001, the City of Roseville completed a home elevation program that elevated 27 homes and two home buy-outs inside the FEMA 100-year floodplain with the cost of approximately $1 million. This effort resulted in 22 flood-prone homes with raised floor levels higher than the floodplain level (see Photo 7 and Photo 8).

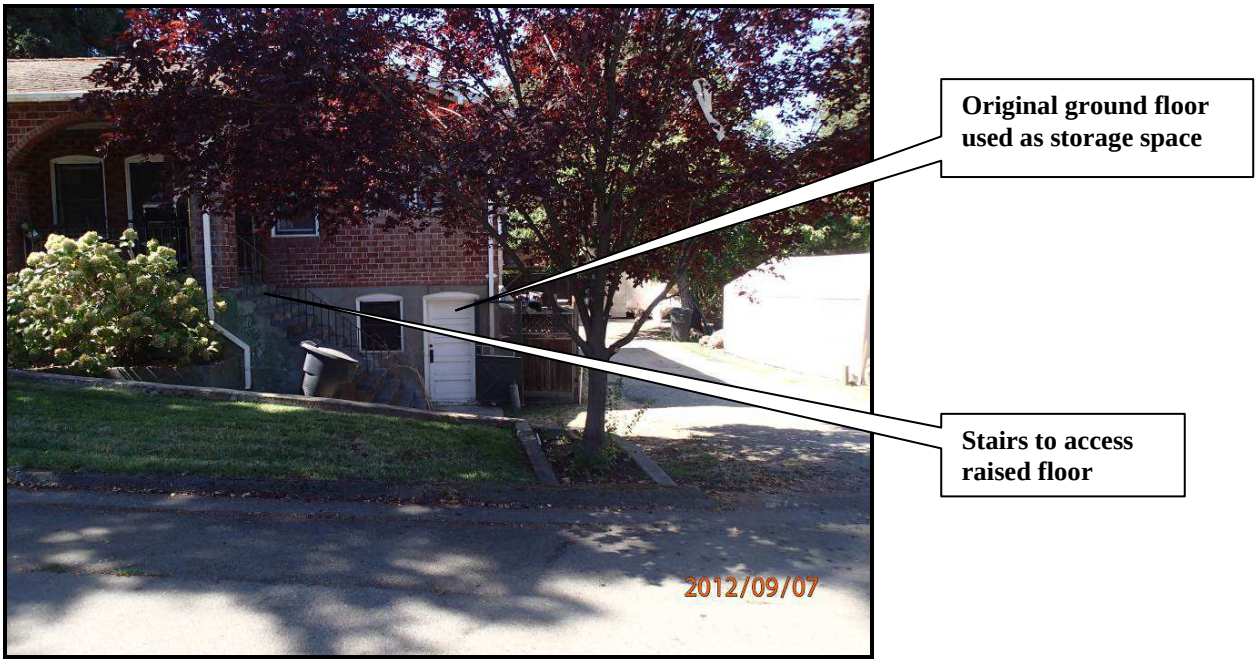

Photo 7. Elevated Home in the City of Roseville, Example 1

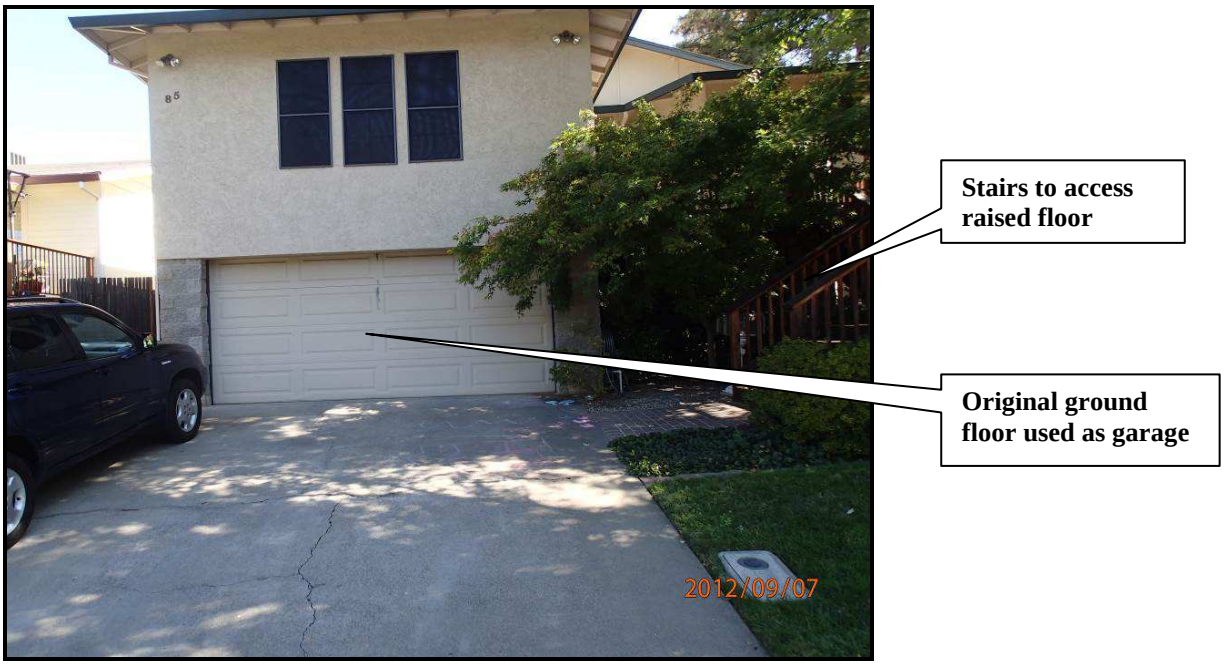

Photo 8. Elevated Home in the City of Roseville, Example 2

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Alternative 8 – Relocate Pavilion outside of the 100-year Floodplain

Unlike the other buildings in Hacienda de Las Flores, the Pavilion structure and surrounding grounds are only a few feet above Laguna Creek. WRECO considered moving the Pavilion building to higher grounds that would not receive flood flows from Laguna Creek and also be outside of the FEMA designated floodplain. The relocation process involves lifting a building off its foundation, placing it on a heavy-duty trailer, hauling it to a new site, and lowering onto the new foundation. This alternative would provide protection from flooding and alleviate concern of future floods. However, the large trees and steeply sloped ground make this method impractical for consideration.

When considering Alternatives 7 and 8, it should be noted that a couple of local historic buildings were raised and moved. A Victorian style home build in 1877 was moved from Lora Nita farm to current location at the Forest Home Parks Historic in San Ramon in the late 1990s. The Masonic Temple in the City of Concord built in 1927 at 1765 Galindo Street was relocated across the street to 1928 Clayton Road, Concord on May 25, 2013. Both of these buildings were raised and moved without damage. See below for the pictures taken when moving the Masonic Temple.

Photo 9. Inserting I-Beam below Masonic Temple

Photo 10. Hydraulic Jack used to Lift the Masonic Temple

Photo 11. Winch Cable used to pull the Temple

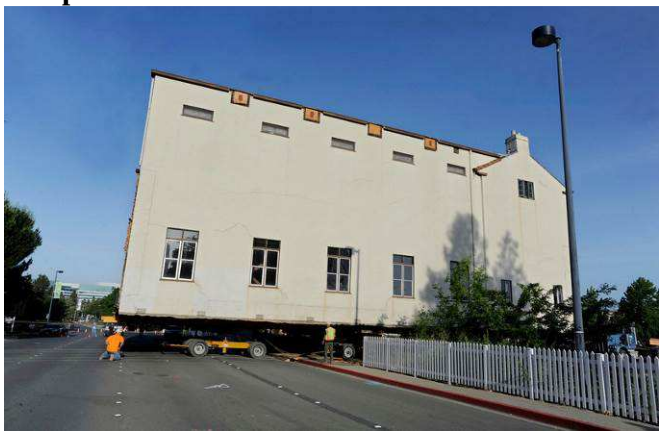

Photo 12. Temple Crossing the Street

Source: Mercurynews.com

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Photo 13. Underbelly of Temple When Moving

Photo 14. Masonic Temple at 1928 Clayton Road
Source: Mercurynews.com

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Alternative 9 – Construct Flood Wall Around Pavilion

A flood wall constructed around the northwest and northeast sides of the Pavilion is another option to be considered to protect the building from flooding (see Figure 13). Concrete, masonry, or a combination of both is typically used as a material to build a flood wall.

See Figure 13 for the conceptual plan for constructing the flood wall to protect the Pavilion. The proposed flood wall should be at least at an elevation of 556 ft when referencing North American Vertical Datum of 1988 (NAVD88) as vertical datum to provide 1 ft of freeboard above the 100-year WSE. The elevation of floodwall will be approximately 5 to 6 ft when measured from the existing pavement elevation around the pavilion. Photos on the following page show the floodwall and floodwall gate at the Roseville Veterans Memorials Hall in the City of Roseville, CA to protect the historic building from the flooding of Dry Creek.

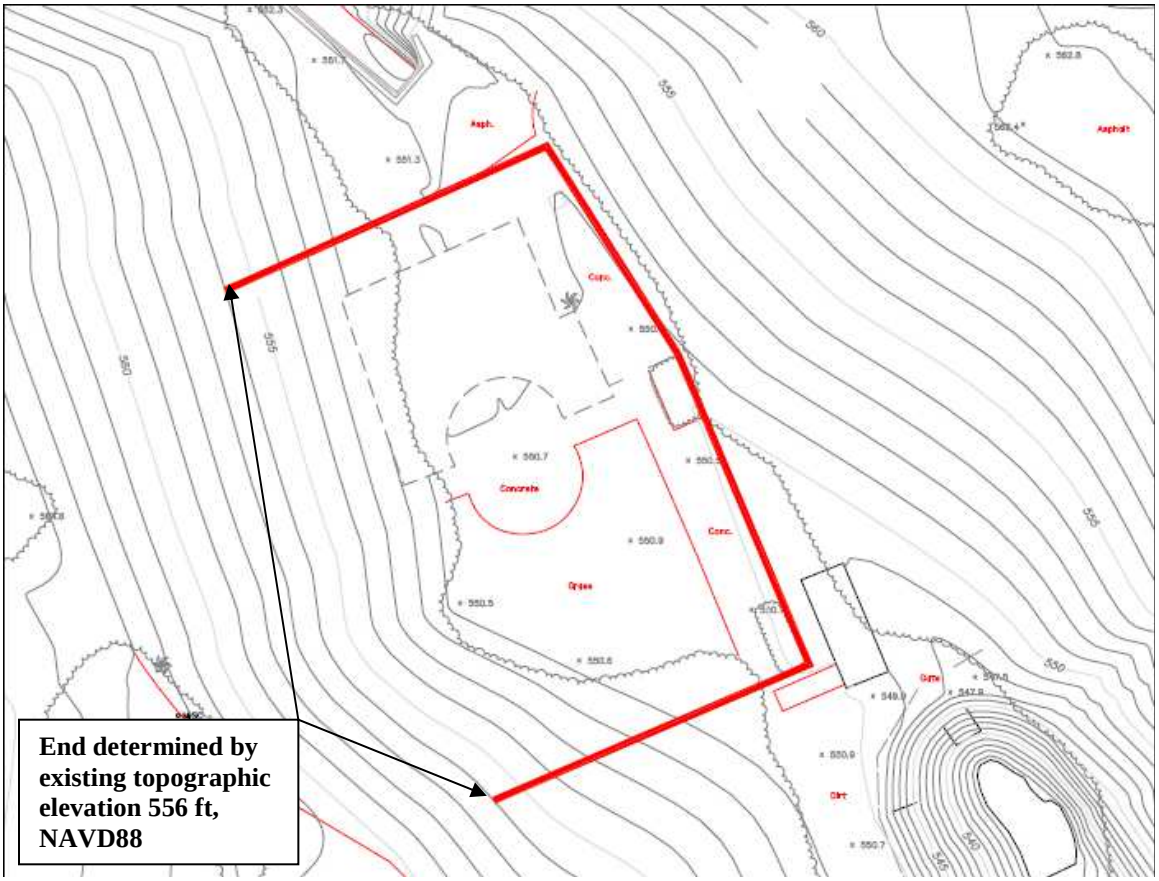

Figure 13. Conceptual Plan of Flood Wall

* Floodwall must extend up to the conform point (556 ft NAVD88 based on local survey provided by Bellecci and Associates, Inc and BKF Engineers).

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Photo 15. Floodwall at the Roseville Veterans Memorial Hall

Photo 16. Floodwall Gate at the Roseville Veterans Memorial Hall

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Alternative 10 – Restore Natural Channel

Another alternative at the Project location would be the complete removal of the existing 8' CMP culvert and restoration of the natural stream channel. "Daylighting" describes projects that deliberately expose some or all of the flow of previously covered streams. It re-establishes a waterway in its old channel where feasible, or in a new channel threaded between the structures now present in the vicinity of the stream site.

This alternative would remove the existing 8-ft CMP culvert and the restored channel would be designed to provide sufficient capacity to convey the 100-year flow. This method would prevent flooding at the Pavilion by removing the inlet face of the culvert that is currently acting as a choke point. In addition, there are other benefits to daylighting:

- Amenity for the Public and an educational opportunity
- Replacing deteriorating culverts with an open drainage system that can be easily monitored and repaired.
- The cost is less, or only marginally more, than replacing the existing culvert with a proposed culvert that has the capacity to convey the 100-year flow.
- Recreate aquatic habitat and improving fish passage.
- Would create red-legged frog habitat (larger agencies such as California Department of Transportation are always looking for off-site mitigation).
- May be able to qualify as a mitigation site or for grant funding

The San Francisco Bay Area features the highest concentration of daylighting activity in the United States. See the following pages for the pre-and post-project photos for Strawberry Creek daylighting (Photo 17 and Photo 18) and Codornices Creek daylighting in Berkeley (Photo 19).

This alternative would still require a short culvert or bridge to provide access to the upper parking area. The culvert could be an arched culvert with natural bottom, which would provide unimpeded passage of fishes, macroinvertebrates, and sediments (see Photo 20 and Photo 21).

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Photo 17. (Left) Strawberry Creek Prior to Daylighting
Photo 18. (Right) Daylighted Section of Strawberry Creek

Source: Rocky Mountain Institute and Ecocity Builders

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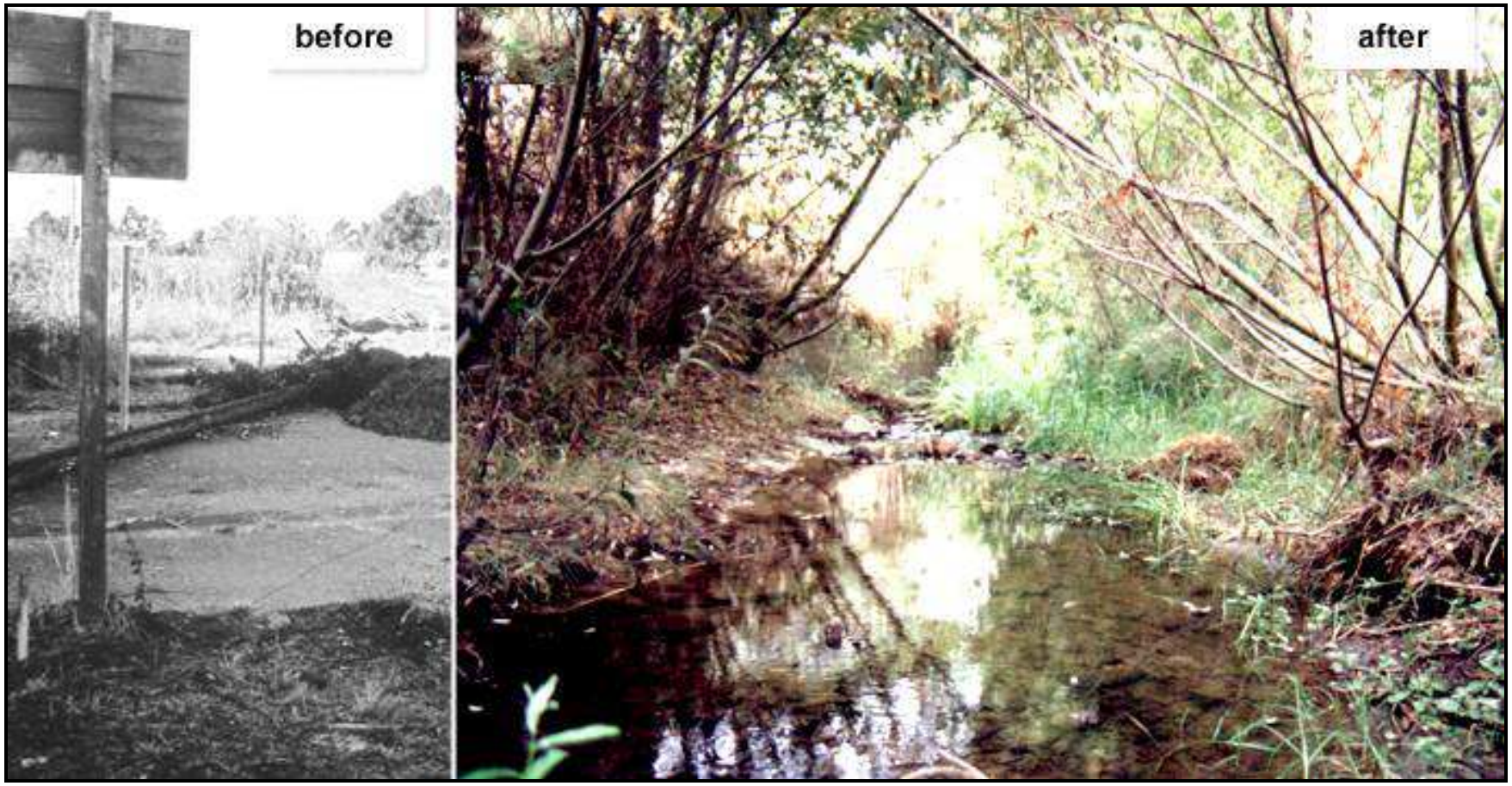

Photo 19. Codornices Creek, Before and After Daylighting

Source: Ecocity Builders

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Photo 20. (Left) Sickle Creek Precast Concrete Arch with Wingwalls
Photo 21. (Right) West Weaver Creek Bottomless Arch Culvert

Source: United States Forest Service

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6. Hydraulics

The hydraulics at Laguna Creek in the study area under the existing and proposed conditions were evaluated using the USACE's Hydrologic Engineering Center River Analysis System (HEC-RAS) Version 4.1.0, hydraulic modeling software.

The model geometry was developed using topographic survey provided by Bellecci & Associates, Inc. and surface data downstream of the CMP culvert provided by Cal Engineering & Geology. A total of 19 cross sections were used in the hydraulic model for each alternative. The hydraulic model extends approximately 89 ft upstream of the inlet face and 105 ft downstream of the outlet face of the existing CMP culvert. The downstream limit of the hydraulic model is also the upstream face of the existing 12 ft x 10 ft RCB cross culvert below Devin Drive. The cross section naming convention is by river stations (RS), starting with 0 at the most downstream cross section.

The normal depth condition was used as the upstream control, and the hydraulic grade line elevation at the inlet face of the existing 12 ft x 10 ft RCB cross culvert was set as the downstream control in the HEC-RAS model.

7. Water Surface Elevations

The WSEs in Laguna Creek were estimated for Alternatives 1, 2, 3, 4, 5, and 10. For Alternatives 3 and 4, differences in the design of the headwall were assumed to have an insignificant impact to the hydraulic analysis. Therefore, Alternatives 3 and 4 were evaluated using the same hydraulic model.

For Alternative 6, a hydrologic analysis was not performed to evaluate the performance of the proposed basins. Therefore, 50- and 100-year flows of Laguna Creek at the Project location were not estimated to perform the hydraulic analysis.

Alternatives 7 through 9 did not modify the existing 8-ft CMP culvert. The hydraulic conditions upstream of the CMP culvert inlet face and downstream of the CMP culvert outlet face were assumed to remain the same as in the existing condition.

The 50- and 100-year WSEs of Laguna Creek at the Project location are summarized in Table 3 and Table 4, respectively.

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Table 3. 50-year Water Surface Elevations

Location	Water Surface Elevation				
	Alternative 1 No Build (ft, NAVD88)	Alternative 2 Smooth Lining (ft, NAVD88)	Alternative 3/4 Parallel 9-ft RCP (ft, NAVD88)	Alternative 5 14x12 ft RCB (ft, NAVD88)	Alternative 10 Daylighting (ft, NAVD88)
50 ft Upstream of Existing CMP Culvert	557.2	557.2	555.2	553.4	554.2
At Upstream Face of CMP Culvert	557.1	557.1	554.8	551.2	550.6
At Downstream Face of CMP Culvert	548.3	548.3	548.3	548.3	548.5
Downstream Limit of Hydraulic Model (100 ft Downstream of the CMP Culvert Downstream Face)	548.2	548.2	548.2	548.2	548.2

Table 4. 100-year Water Surface Elevations

Location	Water Surface Elevation				
	Alternative 1 No Build (ft, NAVD88)	Alternative 2 Smooth Lining (ft, NAVD88)	Alternative 3/4 Parallel 9-ft RCP (ft, NAVD88)	Alternative 5 14x12 ft RCB (ft, NAVD88)	Alternative 10 Daylighting (ft, NAVD88)
50 ft Upstream of Existing CMP Culvert	557.5	557.5	556.1	553.9	554.8
At Upstream Face of CMP Culvert	557.5	557.4	555.7	552.0	551.1
At Downstream Face of CMP Culvert	550.1	550.1	550.1	550.1	550.2
Downstream Limit of Hydraulic Model (100 ft Downstream of the CMP Culvert Downstream Face)	550.0	550.0	550.0	550.0	550.0

Notes:
The elevation of the culvert wingwall is approximately 555 ft. The pavement elevation around the pavilion is approximately 551 ft.

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8. Preliminary Cost Estimate

Alternative 1 is the no build alternative; there would be no cost for that. Annual maintenance costs were not considered because all alternatives would require maintenance. Alternatives 3 (parallel 9-ft RCP culvert), 6 (upstream detention basin), and 8 (relocate pavilion) are not feasible for this Project because of the existing sewer line location, limited space for a new detention basin, and moving the Pavilion outside of the existing 100-year floodplain would be problematic. Alternative 2 (Smooth lining of the existing pipe) would also offer no benefit for the Project location. Therefore, costs for these alternatives were not estimated in this memorandum.

The unit cost of construction items are based on the information available from the California Department of Transportation's *Contract Cost Data* and FEMA *Homeowner's Guide to Retrofitting*. Based on limited data and preliminary alternatives design, the costs for Alternatives 4, 5, 7, 9, and 10 are summarized in Table 5.

9. Potential Extra Cost Required with Sanitary Sewer Line Relocation

Alternatives 4 (parallel 9-ft RCP culvert with sewer relocation) and 10 (daylighting) would involve an existing sewer line relocation and granting an additional easement. This will require coordination between the Town of Moraga and CCCSD. The process time for granting an additional easement may take up to 6 months, and sewer line relocation may take up to an additional 6 months.

10. Recommendation and Decision

The flow capacity of the culvert for Alternatives 1, 2, 3, and 4 would not be able to convey the peak 100-year flow of Laguna Creek at the Project location. These design alternatives would not be able to prevent potential flooding at the Pavilion during the 100-year storm event. Alternatives 7, 8, and 9 would provide protection to the Pavilion during the 100-year storm event, but they would not resolve the existing flooding issues at the Project location. Alternative 6 would reduce the peak 100-year flow at the Project location, but this alternative may not be feasible because of the required storage (160 ac-ft) volume to reduce the peak 100-year flow and unavailable basin sites within the watershed.

Alternatives 5 (14 ft x 12 ft RCB culvert) and 10 would improve the channel capacity to convey the 100-year flow and would provide flood protection to the Pavilion during the 100-year storm event. Alternative 10, daylighting, would require less construction cost than Alternative 5, installation of 14 ft x 12 ft RCB culvert (see Table 5). In addition, daylighting would be eligible for the mitigation credit for channel restoration and would have more potential funding sources than Alternative 5.

Based on this study, the most feasible proposed alternative for the Project is Alternative 10, daylighting the creek and restoring a natural channel.

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Table 5. Estimated Construction Costs for Alternatives 4, 5, 7, 9, and 10

Item Description	Unit Price	Unit Measure	Alternative 4 9-ft RCP Culvert		Alternative 5 14 ft x 12 ft RCB Culvert		Alternative 7 Raise Pavilion		Alternative 9 Flood Wall		Alternative 10 Daylighting (Recommended)	
			Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
Funding Source	-	-	FEMA Flood Mitigation Assistance		FEMA Flood Mitigation Assistance		FEMA Flood Mitigation Assistance		FEMA Flood Mitigation Assistance		FEMA Flood Mitigation Assistance Local Agencies	
Design and Town Approval	-	-	6 month		6 month		6 month		6 month		6 month	
Environmental Permits	-	-	9 month		9 month		9 month		9 month		9 month	
Duration of Work	-	-	2 month (±2 weeks)*		2 month (±2 weeks)*		1 month (±1 week)**		1 month (±1 week)**		2 month (±2 weeks)*	
Remove Culvert	$40	LF	0	$ -	242	$ 9,680	0	$ -	0	$ -	242	$ 9,680
Smooth Line Existing Culvert	$1,000	LF	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
9-ft RCP Culvert	$1,200	LF	242	$ 290,400	242	$ 290,400	0	$ -	0	$ -	0	$ -
18-in. Sanitary Sewer	$250	LF	435	$ 108,750	0	$ -	0	$ -	0	$ -	435	$ 108,750
14 ft x 12 ft Box Culvert	$5,100	LF	0	$ -	242	$ 1,234,200	0	$ -	0	$ -	0	$ -
Pipe Culvert Headwall	$9,500	EA	2	$ 19,000	0	$ -	0	$ -	0	$ -	0	$ -
Box Culvert Headwall	$2,200	EA	0	$ -	2	$ 4,400	0	$ -	0	$ -	0	$ -
Raise Building Foundation	$125	SF	0	$ -	0	$ -	3000	$ 375,000	0	$ -	0	$ -
Building Relocation	$120	SF	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Floodwall	$800	LF	0	$ -	0	$ -	0	$ -	400	$ 320,000	0	$ -
Interior Drainage System	$7,200	EA	0	$ -	0	$ -	0	$ -	1	$ 7,200	0	$ -
Channel Excavation	$25	CY	0	$ -	0	$ -	0	$ -	0	$ -	8500	$ 212,500
Rock Slope Protection (1/2 Ton)	$200	CY	0	$ -	0	$ -	0	$ -	0	$ -	630	$ 126,000
Rock Slope Protection (Backing No.1)	$150	CY	0	$ -	0	$ -	0	$ -	0	$ -	280	$ 42,000
Transplant Tree	$1,000	EA	50	$ 50,000	50	$ 50,000	0	$ -	0	$ -	80	$ 80,000
New Culvert/Bridge	-	LS	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 75,000
Construction Management	-	LS	1	$ 40,000	1	$ 40,000	1	$ 20,000	1	$ 20,000	1	$ 40,000
Subtotal (rounded up to nearest $1,000)				$ 509,000		$ 1,629,000		$ 395,000		$ 348,000		$ 694,000
Project Administration (5%)				$ 26,000		$ 82,000		$ 20,000		$ 18,000		$ 35,000
Contingency (30%)				$ 152,700		$ 488,700		$ 118,500		$ 104,400		$ 208,200
Design Cost (10%)				$ 50,900		$ 162,900		$ 39,500		$ 34,800		$ 69,400
Total				**$ 738,600**		**$ 2,362,600**		**$ 573,000**		**$ 505,200**		**$ 1,006,600**

Notes:
*Construction activity can only be performed from April 15 to October 15
**Construction can be performed any time of the year, preferably from April 15 to October 15

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Walnut Creek, CA 94596
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Fax: 925.941.0018
www.wreco.com

References:

Bellecci & Associates, Inc. (January 2008). *Topographic Survey Laguna Creek Town of Moraga, California*.

BKF Engineers. (February 2014). *Topographic Survey, Hacienda De Las Flores, County Communicty Center and Botanical Garden*.

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ATTACHMENT B

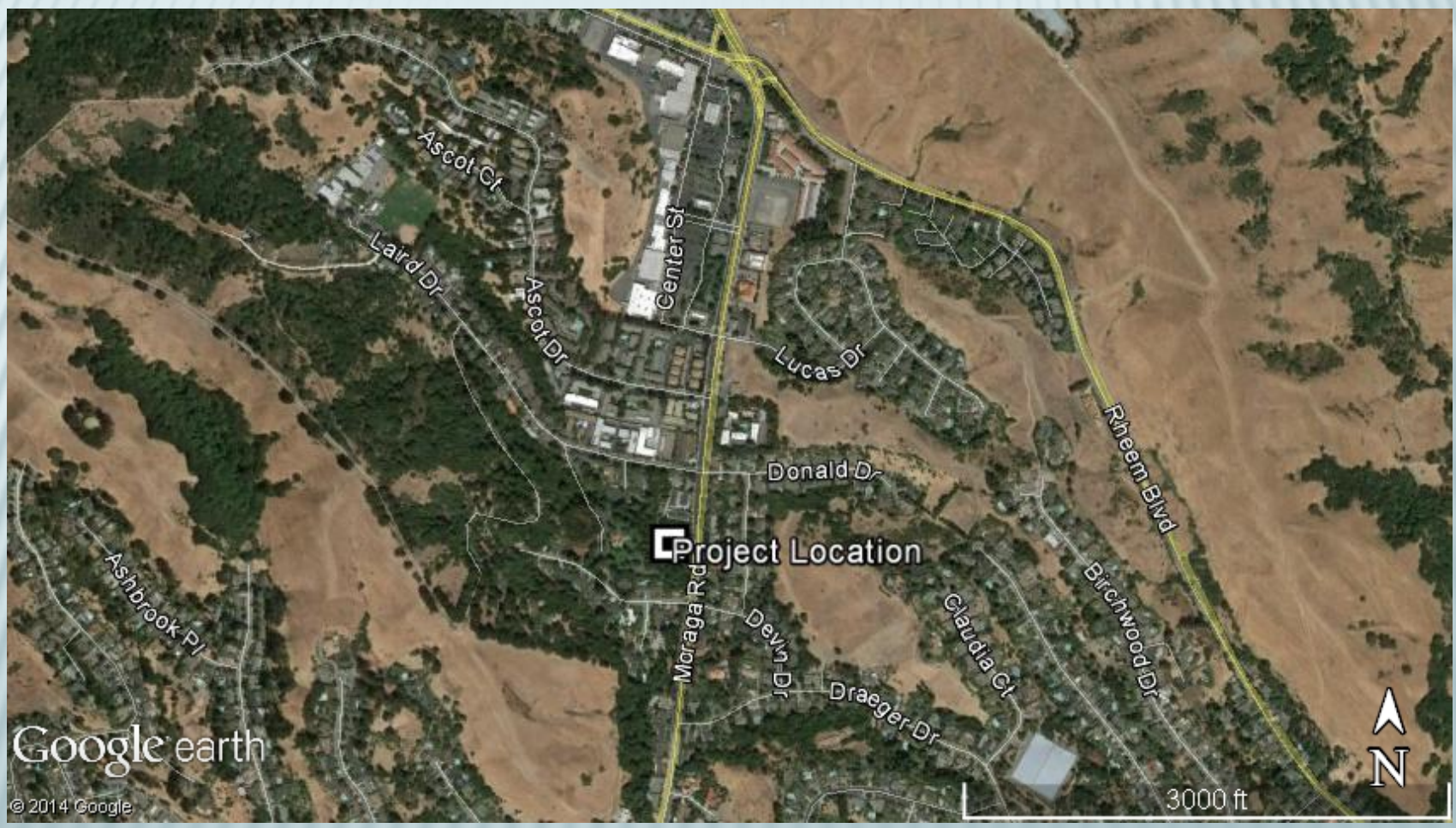
April 23, 2014 Presentation to Council by WRECO

LAGUNA CREEK DRAINAGE IMPROVEMENT STUDY AT HACIENDA DE LAS FLORES PROPERTY FOR TOWN OF MORAGA

Presented By: WRECO

April 23, 2014

PROJECT LOCATION



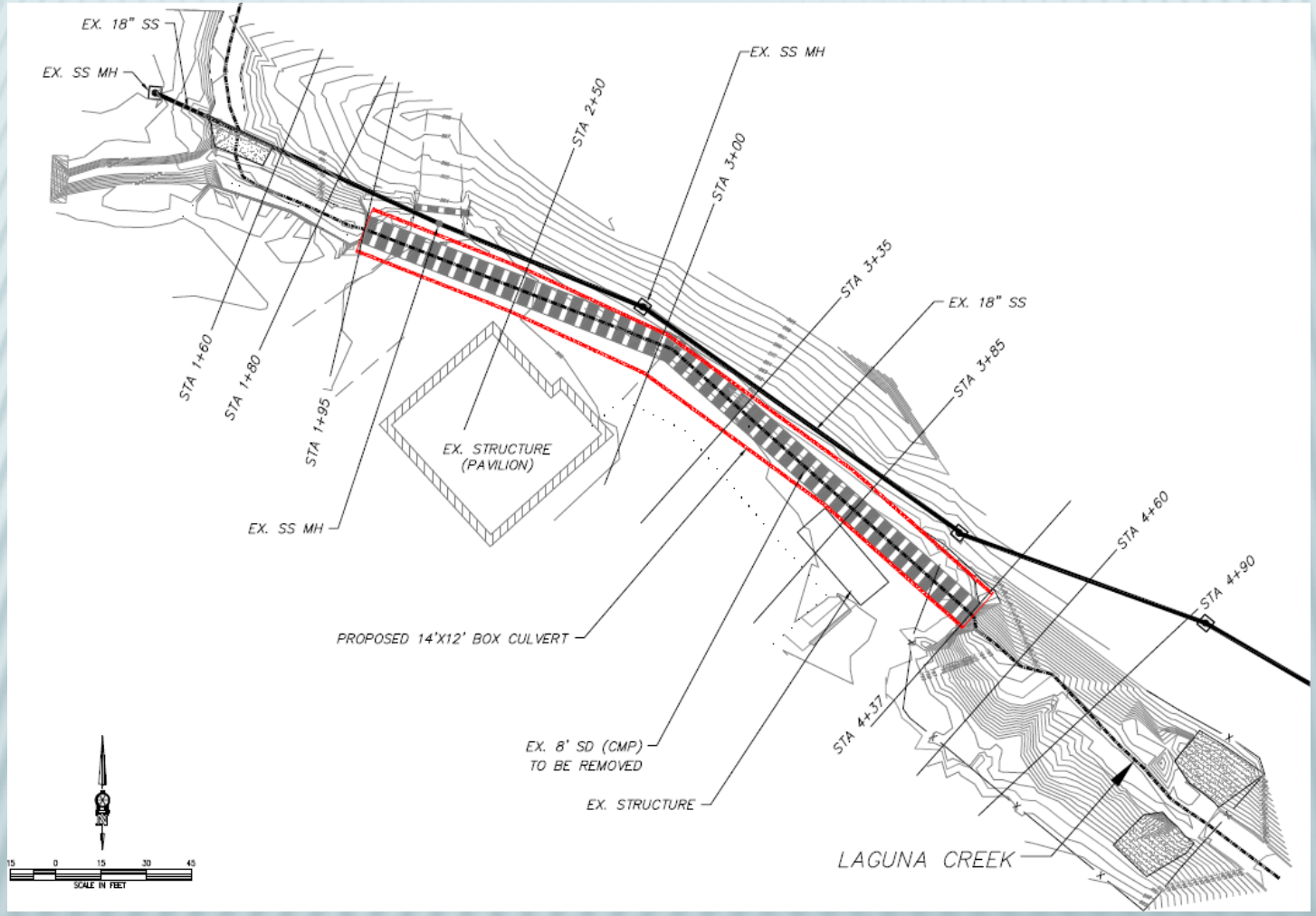
WRECO

EXISTING CONDITION/NO BUILD

EXISTING CONDITION/NO BUILD

WRECO

REPLACE EXISTING CULVERT WITH 14 FT X 12 FT BOX CULVERT



Preliminary Plan View

REMOVE CULVERT AND RESTORE NATURAL STREAM

Saw Mill River, Yonkers, New York

CASE STUDY: STRAWBERRY CREEK, BERKELEY, CALIFORNIA

Watershed:	2.0 square miles
Year daylighted:	1984
Length daylighted:	200 ft
Projected Cost:	$50,000 for daylighting
	$580,000 for total park cost

CASE STUDY: CODORNICES CREEK, BERKELEY, CALIFORNIA

Watershed:	1.5 square miles
Year daylighted:	1994
Length daylighted:	400 ft
Projected Cost:	$33,000 (plus donations and volunteer labor)

REMOVE CULVERT AND RESTORE NATURAL STREAM

REMOVE CULVERT AND RESTORE NATURAL STREAM

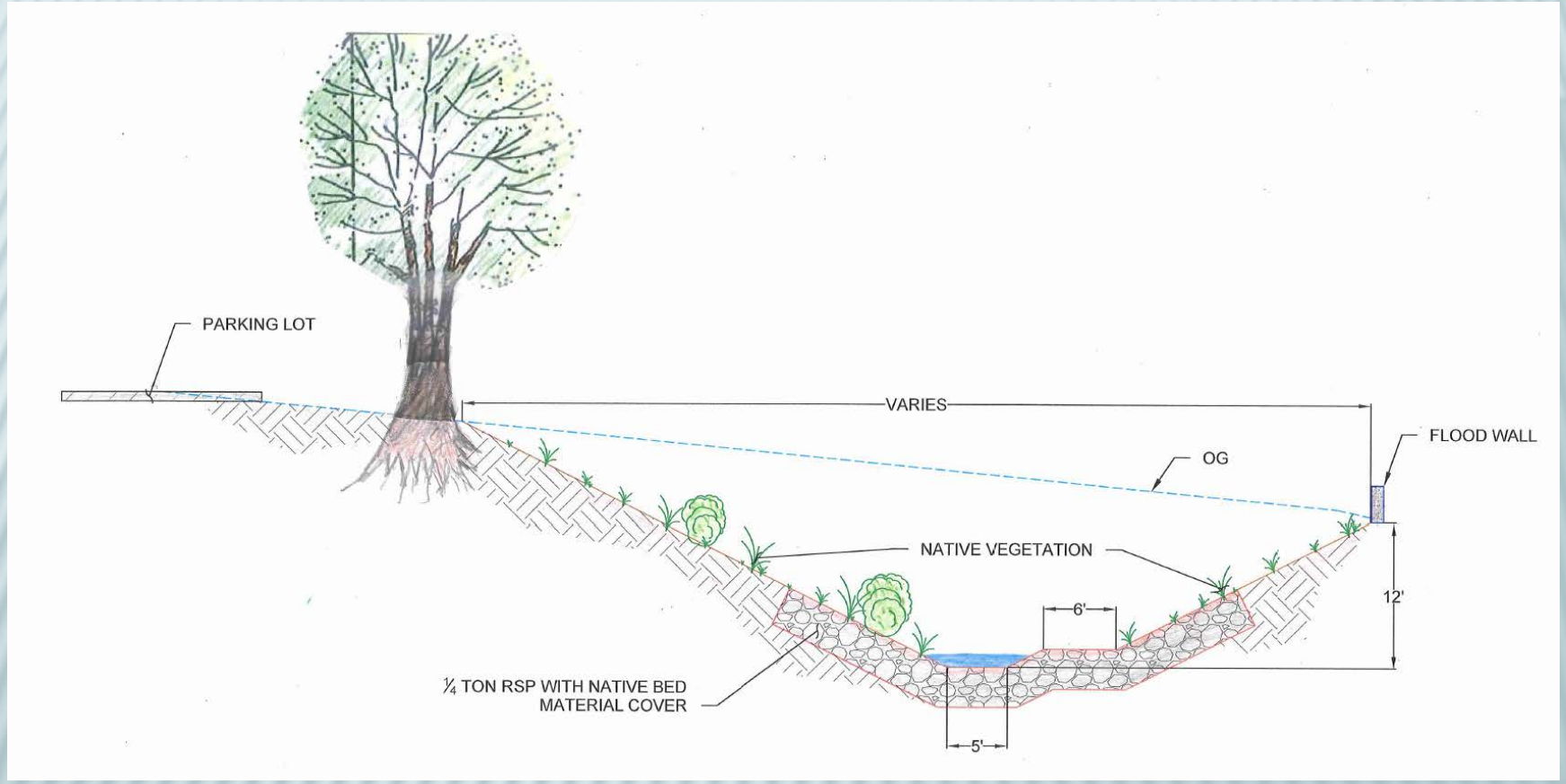
REMOVE CULVERT AND RESTORE NATURAL STREAM

Preliminary Plan View

REMOVE CULVERT AND RESTORE NATURAL STREAM

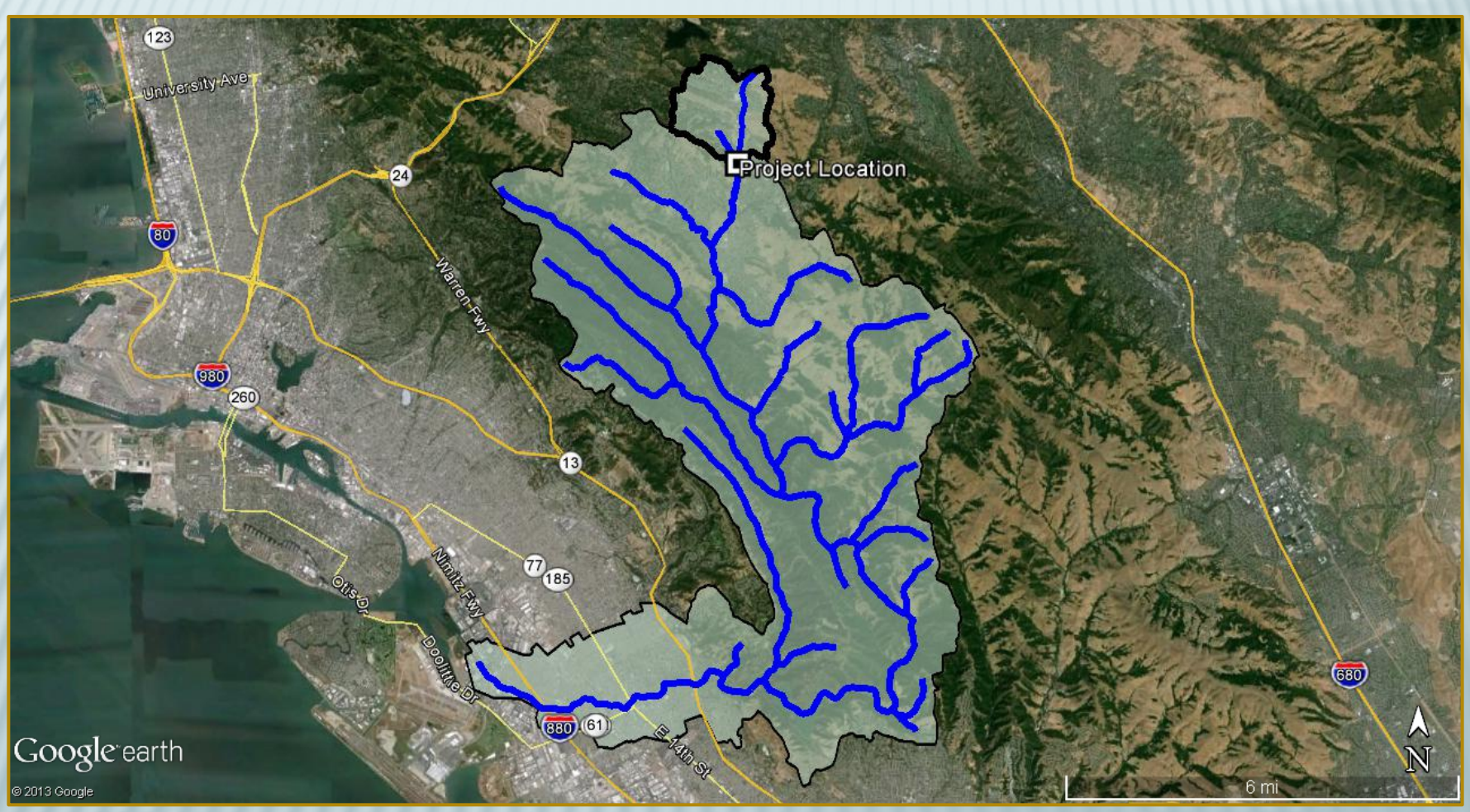
Mynot Creek Road over Minot Creek, near Klamath, CA

REMOVE CULVERT AND RESTORE NATURAL STREAM



Preliminary Cross Sectional View

DOWNSTREAM WATERSHED

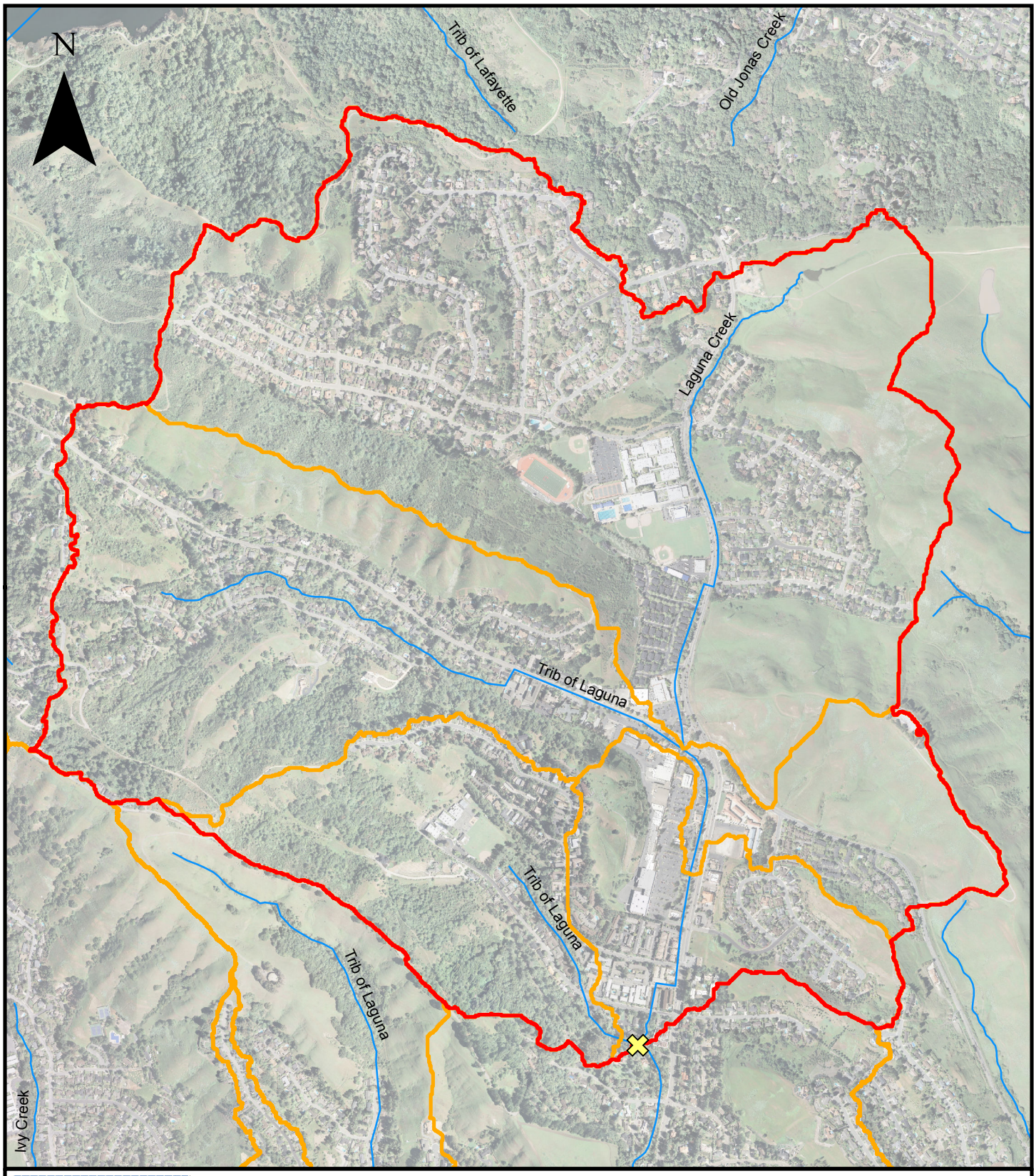


Bay Area Integrated Regional Water Management Plan (IRWMP)

- For improving water supply reliability, protecting water quality, managing flood protection, maintaining public health standards, protecting habitat and watershed resources, and enhancing the overall health of the San Francisco Bay.
- Overreaching goals include:
  - Promote environmental, economic and social sustainability
  - Improve water quality
  - Protect and improve watershed health and function and Bay water quality
  - Improve regional flood management
  - Create, protect, enhance, and maintain environmental resources and habitats
- Current round of subregional concept submittals due April 30th; regional concept submittals were due March 31st
- 25% matching requirement
- Projects must be over $500K and less than $1M

ATTACHMENT C

Contra Costa County Flood Control District Watershed Map and Peak Flow Data



Contra Costa County Flood Control & Water Conservation District

DA 30, 103 and 119 Watersheds

0.25 Miles

Legend

- Watershed Point
- Watershed
- Other Watershed Boundaries
- Major Drainages

Watershed Point No. 4 of 57

Path: P:\ArcHydro\DA39-103-119-126\DA_39-103-119-126.mxd

This map was created by the Contra Costa County Public Works Department with data from the Contra Costa County GIS Program. This map may be reproduced in its current state if the source is cited. Users of this map agree to read and accept the County of Contra Costa disclaimer of liability for geographic information.

DATE : JUNE 25, 1992

DA 103 RHEEM TO MORAGA

PREPARED BY : M. WESTON

Sub-Area		Fr.	A	MSP	D	I	L	L_{ca}	ΔH	n	Peak Flow ft³/s			
Point	Description		mi²	in	hr	in/hr	mi	mi	ft		Q_{10}	Q_{25}	Q_{50}	Q_{100}
1	Rheem Blvd & M Rd		.87	28.0		.12	1.36	.68	250	.070	510	610	710	780
2	Σ to So. end Rheem		1.57	28.75		.12	1.70	.55	260	.065	950	1130	1320	1450
3	Rheem School Area		.23	29.0		.14	.98	.49	540	.070	150	175	205	225
4	Bet. Donald Dr + Dean		1.98	28.75		.14	2.01	.80	290	.060	1110	1330	1560	1720
5	Jct. above Moraga		.34	29.0		.13	1.67	.97	644	.065	205	245	285	315
6	" " "		2.37	28.75		.135	2.95	1.52	354	.060	1010	1210	1420	1570
7	St. Marys to jct.		.92	28.5		.16	1.70	.78	374	.065	520	625	730	805
8	Σ after jct.		3.64	28.75		.14	2.95	1.29	354	.062	1540	1860	2180	2410
9	Laguna CK US Rheem CK		3.73	28.8		.14	3.55	1.61	405	.062	~~1540~~ 1490	~~1860~~ 1800	~~2180~~ 2110	~~2410~~ 2340
22			3.28	30.0		.15	3.10	1.56	710	.052	1660	2000	2350	2590
23	Σ 9+22		7.01	29.3		.145	3.33	1.56	558	.057	3000	3620	4260	4710

MB 2007 use pts flows.

ATTACHMENT D

Previous Council Resolutions

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In the Matter of:

Adoption of the Initial Study and Mitigated Negative Declaration for Laguna Creek Retaining Wall	)	Resolution No. 62-2009

WHEREAS, heavy rains during the winter of 2005-2006 resulted in a Federal Disaster Declaration (FEMA -1628-DR); and

WHEREAS, Laguna Creek on the Hacienda property experienced embankment and slope erosion; undermining of the retaining wall; and damage to headwall, wingwall, and retaining wall structures; and

WHEREAS, funding for repair and restoration of the damage is available from FEMA; and

WHEREAS, Laguna Creek has been determined to be habitat for the California Red-Legged Frog, a Federally listed threatened species; and

WHEREAS, an Initial Study and Mitigated Negative Declaration has been prepared and circulated for public comments in accordance with the requirements of the California Environmental Quality Act and comments addressed; and

WHEREAS, adoption of this Initial Study and Mitigated Negative Declaration is necessary in order to continue with the permitting process and repair the damage;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Moraga that the Initial Study and Mitigated Draft for Laguna Creek is hereby adopted;

BE IT FURTHER RESOLVED, that the Town Council of the Town of Moraga authorizes the staff to file a Notice of Determination with Contra Costa County on behalf of the Town;

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on October 14, 2009 by the following vote:

AYES:	Mayor Trotter, Vice Mayor Chew, Councilmembers Harpham, Mendonca and Metcalf
NOES:	None
ABSTAIN:	None
ABSENT:	None

Dave Trotter, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In the Matter of:

Authorizing the Town Manager to Execute a Contract with Kleinfelder, Inc. for Laguna Creek Embankment Repair, CIP Project 08-202	)))))	Resolution No. 10-2010

WHEREAS, the Town sustained damage to the Town Grounds, including damage to paths, fences, and banks at Laguna Creek downstream of the Hacienda were washed away and the slope failed during the Federally Declared Winter Storms Disaster of 2005-2006; and

WHEREAS, on June 27, 2007, the Town Council awarded a professional services contract to Kleinfelder, Inc. for design and geotechnical engineering services for the Creek Embankment Repairs on Laguna Creek below the Pavilion; and

WHEREAS, Laguna Creek has been determined to be habitat for the threatened California Red-Legged Frog, and environmental permitting review by regulatory agencies as been longer than originally foreseen; and

WHEREAS, the original contract has expired due to permitting time delays beyond the control of the Town or Kleinfelder, Inc.; and

WHEREAS, the project expenses related to the repair of the damaged creek facilities are reimbursable through CalEMA and FEMA; and

WHEREAS, this repair is necessary to restore Town facilities at the Hacienda.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Moraga authorizes the Town Manager to execute a contract with Kleinfelder, Inc. for design and geotechnical services related to the Laguna Creek Embankment Repair in the amount of $30,000.

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on January 27, 2010 by the following vote:

AYES: Mayor Chew, Vice Mayor Mendonca, Councilmembers Harpham, Metcalf and Trotter
NOES: None
ABSTAIN: None
ABSENT: None

Ken Chew, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In the Matter of:

Authorizing the Town Manager to Execute a Contract with Cal Engineering and Geology, Inc. for Laguna Creek Retaining Wall Repair, CIP Project 08-203	)))))	Resolution No. 11-2010

WHEREAS, the Town sustained damage to the Laguna Creek retaining wall, creek banks, head walls and wing walls, and related facilities at the Hacienda during the Federally Declared Winter Storms Disaster of 2005-2006; and

WHEREAS, on December 12, 2007, the Town Council awarded a design contract to Cal Engineering and Geology, Inc. for design services for the Laguna Creek Retaining Wall Repair; and

WHEREAS, Laguna Creek has been determined to be habitat for the threatened California Red-Legged Frog, and environmental permitting review by regulatory agencies as been longer than originally foreseen; and

WHEREAS, the original contract has expired due to permitting time delays beyond the control of the Town or Cal Engineering; and

WHEREAS, the Town has received a Notice of Obligation and Payment from the State of California and project expenses related to the repair of the damaged creek facilities are reimbursable through CalEMA and FEMA; and

WHEREAS, this repair is necessary to restore Town facilities at the Hacienda.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Moraga authorizes the Town Manager to execute a contract with Cal Engineering and Geology, Inc. for design and geotechnical services related to the Laguna Creek Retaining Wall Repair in the amount of $75,000.

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on January 27, 2010 by the following vote:

AYES: Mayor Chew, Vice Mayor Mendonca, Councilmembers Harpham, Metcalf and Trotter
NOES: None
ABSTAIN: None
ABSENT: None

Ken Chew, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In the Matter of:

Authorizing the Town Manager to Execute a Contract with LSA Associates, Inc. for Laguna Creek Embankment Repair, CIP Project 08-202	)	Resolution No. 12-2010

WHEREAS, the Town sustained damage to the Town Grounds, including damage to paths, fences, and banks at Laguna Creek downstream of the Hacienda were washed away and the slope failed during the Federally Declared Winter Storms Disaster of 2005-2006; and

WHEREAS, on June 27, 2007, the Town Council awarded a professional services contract to LSA Associates, Inc. for environmental permitting services for the Creek Embankment Repairs on Laguna Creek below the Pavilion; and

WHEREAS, Laguna Creek has been determined to be habitat for the threatened California Red-Legged Frog, and environmental permitting review by regulatory agencies has been longer than originally foreseen; and

WHEREAS, the original contract has expired due to permitting time delays beyond the control of the Town or LSA Associates, Inc.; and

WHEREAS, the project expenses related to the repair of the damaged creek facilities are reimbursable through CalEMA and FEMA; and

WHEREAS, this repair is necessary to restore Town facilities at the Hacienda.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Moraga authorizes the Town Manager to execute a contract with LSA Associates, Inc. for environmental services related to the Laguna Creek Embankment Repair in the amount of $9,000.

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on January 27, 2010 by the following vote:

AYES:	Mayor Chew, Vice Mayor Mendonca, Councilmembers Harpham, Metcalf and Trotter
NOES:	None
ABSTAIN:	None
ABSENT:	None

Ken Chew, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In the Matter of:

Authorizing the Town Manager to Execute a Contract with LSA Associates, Inc. for Laguna Creek Retaining Wall Repair, CIP Project 08-203	)	Resolution No. 13-2010

WHEREAS, the Town sustained damage to the Laguna Creek retaining wall, creek banks, head walls and wing walls, and related facilities at the Hacienda during the Federally Declared Winter Storms Disaster of 2005-2006; and

WHEREAS, on November 28, 2007, the Town Council awarded a professional services contract to LSA Associates, Inc. for environmental permitting services for the Laguna Creek Retaining Wall Repair; and

WHEREAS, Laguna Creek has been determined to be habitat for the threatened California Red-Legged Frog, and environmental permitting review by regulatory agencies as been longer than originally foreseen; and

WHEREAS, the original contract has expired due to permitting time delays beyond the control of the Town or LSA Associates, Inc.; and

WHEREAS, the Town has received a Notice of Obligation and Payment from the State of California and project expenses related to the repair of the damaged creek facilities are reimbursable through CalEMA and FEMA; and

WHEREAS, this repair is necessary to restore Town facilities at the Hacienda.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Moraga authorizes the Town Manager to execute a contract with LSA Associates, Inc. for environmental permitting and biological monitoring services related to the Laguna Creek Retaining Wall Repair in the amount of $9,000.

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on January 27, 2010 by the following vote:

AYES: Mayor Chew, Vice Mayor Mendonca, Councilmembers Harpham, Metcalf and Trotter
NOES: None
ABSTAIN: None
ABSENT: None

Ken Chew, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In the Matter of:

Authorizing the Town Manager to Execute a Contract with Cal Engineering and Geology, Inc for Laguna Creek Embankment Restablization, Capital Improvement Project 08-202 for Design and Geotechnical Services in an Amount Not to Exceed $53,230 for Storm Repair Work Previously Awarded in 2007 and Renewed in 2010	Resolution No. 47-2012

WHEREAS, the Town sustained damage to the Town grounds, including the Laguna Creek retaining wall, creek banks, head walls and wing walls and banks at Laguna Creek downstream of the Hacienda during the Federally declared Winter Storms Disaster of 2005-2006; and

WHEREAS, in December 2007 and January 2010, the Town Council awarded a design contract to Cal Engineering and Geology, Inc for design services for the Laguna Creek Retaining Wall Restabilization; and

WHEREAS, Laguna Creek has been determined to be habitat for the threatened California Red-Legged Frog, and environmental permitting review by regulatory agencies has taken longer than originally foreseen; and

WHEREAS, the original contracts have expired due to permitting time delays beyond the control of the Town or Cal Engineering; and

WHEREAS, the project expenses related to the repair of the damaged creek facilities are reimbursable through CalEMA and FEMA; and

WHEREAS, this repair is necessary to restore Town facilities at the Hacienda.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Moraga hereby authorizes the Town Manager to execute a contract with Cal Engineering and Geology, Inc for Laguna Creek embankment restabilization, Capital Improvement Project 08-202 for design and geotechnical services in the amount not to exceed $53,230 for storm repair work previously awarded in 2007 and renewed in 2010.

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on June 13, 2012 by the following vote:

AYES:	Mayor Metcalf, Vice Mayor Harpham, Councilmembers Chew, Mendonca and Trotter
NOES:	None
ABSTAIN:	None
ABSENT:	None

Michael Metcalf, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In the Matter of:

Authorizing the Town Manager to Execute a Contract with LSA Associates, Inc for an Amount Not to Exceed $12,500 for Laguna Creek Embankment Restabilization Project Permitting Work Previously Awarded in 2007 and Renewed in 2010	)	Resolution No. 48-2012

WHEREAS, the Town sustained damage to the Town grounds, including the Laguna Creek retaining wall, creek banks, head walls and wing walls and banks at Laguna Creek downstream of the Hacienda during the Federally declared Winter Storms Disaster of 2005-2006; and

WHEREAS, in June 2007, and January 2010, the Town Council awarded professional services contracts to LSA Associates, Inc for environmental permitting services for the Laguna Creek Embankment Repairs; and

WHEREAS, Laguna Creek has been determined to be habitat for the threatened California red-legged frog, and environmental permitting review by regulatory agencies has taken longer than originally foreseen; and

WHEREAS, the original contracts have expired due to permitting time delays beyond the control of the Town or LSA Associates; and

WHEREAS, the project expenses related to the repair of the damaged creek facilities are reimbursable through CalEMA and FEMA; and

WHEREAS, this repair is necessary to restore Town facilities at the Hacienda.

NOW, THEREFORE, BE IT RESOLVED the Town Council of the Town of Moraga hereby authorizes the Town Manager to execute a contract with LSA Associates, Inc for an amount not to exceed $12,500 for Laguna Creek embankment restabilization project permitting work previously awarded in 2007 and renewed in 2010.

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on June 13, 2012 by the following vote:

AYES:	Mayor Metcalf, Vice Mayor Harpham, Councilmembers Chew, Mendonca and Trotter
NOES:	None
ABSTAIN:	None
ABSENT:	None

Michael Metcalf, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In the Matter of:

Authorizing the Town Manager to Award a Consultant Services Contract to BKF Engineers (Walnut Creek) in an Amount not to Exceed $58,500 for Construction Management and Inspection Services for the Laguna Creek Wall Repair and Bank Stabilization Project (CIP 08-203)

Resolution No. 45 - 2013

WHEREAS, the Town embarked on a Request for Proposal (RFP) process to select the most qualified and experienced consultant firm to provide construction management and inspection services for the Laguna Creek Wall Repair and Bank Stabilization project; and

WHEREAS, the Town issued the RFP on April 30, 2013 and received five (5) proposals by May 14, 2013 that were independently evaluated and scored; and

WHEREAS, BKF Engineers was deemed the most qualified and experienced consultant for construction management and inspection services with experience on similar projects within the Bay Area.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Moraga hereby authorizes the Town Manager to award a consultant services contract to BKF Engineers (Walnut Creek) in the amount of $58,500 for construction management and inspection services for the Laguna Creek Wall Repair and Bank Stabilization Project (CIP 08-203).

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on June 12, 2013 by the following vote:

AYES: Vice Mayor Chew, Councilmembers Arth, Metcalf and Wykle
NOES: None
ABSTAIN: None
ABSENT: Mayor Trotter

Dave Trotter

Dave Trotter, Mayor

Attest:

Marty C. McInturf

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In The Matter Of:

Deeming the Bid Submitted by HM Construction as Non-Responsive and not a Responsible Bidder for the Purposes of this Project, Authorizing the Town Manager to Award a Construction Contract to Pavex Construction (San Jose) in the Amount of $603,940 for the Construction of the Laguna Creek Wall Repair and Bank Stabilization Project (CIP 08-203), and Executing Contract Change Orders up to 15% of the Contract Amount

Resolution No. 54 - 2013

WHEREAS, a design services contract was previously awarded to Cal Engineering & Geology to develop the plans, specifications, estimate, and bid documents, as well as a professional services contract with LSA Associates, Inc. for environmental permitting associated with the project; and

WHEREAS, on May 14, 2013, the approved project plans went out to bid and were advertised on the Town's website, in the Contra Costa Times, and numerous builders' exchanges; and

WHEREAS, on May 24, 2013, a mandatory pre-bid meeting was held with fourteen (14) prospective contractors in attendance; and

WHEREAS, on June 4, 2013, the bid opening was held with six (6) bid packages received; and

WHEREAS, on June 12, 2013, Council awarded a professional services contract to BKF Engineers to provide construction management and inspection services; and

WHEREAS, the lowest bidder, HM Construction, submitted an incomplete Statement of Experience and Qualifications Form by only listing two contracts in the last three years instead of five contracts. as required as part of the bid package, and is deemed incomplete and therefore non-responsive; and

WHEREAS, the lowest bidder, HM Construction, is not a responsible bidder for purposes of this project for two reasons: First, HM Construction provided references in the required Contractor's Experience and Qualification form for two (2) private building projects that involved building, structural, elevator, and seismic retrofit elements. This experience varies vastly from the scope-of-work for the Laguna Creek Wall Repair and Bank Stabilization project. Second, HM only submitted two contracts in the last three years that were satisfactorily completed which demonstrates the lack of experience to perform the work required for this project.

NOW, THEREFORE BE IT RESOLVED that the Town Council:

1. Deems the bid submitted by HM Construction as non-responsive and not a responsible bidder for the purposes of this project; and

2. Hereby authorizes the Town Manager to award a construction contract to Pavex Construction (San Jose) in the amount of $603,940 for the construction of the Laguna Creek Wall Repair and Bank Stabilization Project (CIP 08-203) and to execute contract change orders up to 15% of the contract amount.

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on June 26, 2013 by the following vote:

AYES:	Mayor Trotter, Vice Mayor Chew, Councilmembers Arth, Metcalf and Wykle
NOES:	None
ABSTAIN:	None
ABSENT:	None

Dave Trotter, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In The Matter Of:

Authorizing the Town Manager to Amend the Consultant Services Agreement with WRECO (Walnut Creek) for Completion of a Hydraulic Study of Laguna Creek and Preparation of Grant Applications in an Amount Not to Exceed $15,000, Funded Through the Storm Drain Maintenance Operating Budget, for a Total Amount of $29,800 for the Laguna Creek Hydraulic System on the Hacienda de las Flores Grounds (2100 Donald Drive)

Resolution No. 71 - 2013

WHEREAS, on December 5, 2012, the Town entered into a consultant services agreement with WRECO to provide engineering services to assess the existing conditions of Laguna Creek within the Town-owned property of the Hacienda de las Flores, perform detailed hydraulic analysis of the upstream and downstream boundary conditions in the vicinity of the existing culvert, recommend alternatives to lower the water surface elevation of Laguna Creek to provide at least 1.0 foot of freeboard for the finished floor elevation of the Pavilion building for the 100-year flood event, and prepare a technical memo summarizing the results of the hydraulic analysis and make recommendations for potential improvements; and

WHEREAS, Town staff reviewed the draft technical memo prepared by WRECO and requested additional investigation of additional alternatives that were not previously presented in the draft technical memo; and

WHEREAS, Town staff desires to seek funding opportunities to fund the design and construction of the recommended alternative to reduce the potential for flooding of the Pavilion building; and

WHEREAS, WRECO has qualified staff, biologists, and hydraulic engineers capable of performing these additional requested services for the Town and has access to resources to research grants administered by the U.S. EPA, FEMA, California Department of Water Resources, and other Federal and State agencies; and

WHEREAS, WRECO has provided an additional scope of work and estimated cost for the requested services in the amount not to exceed $15,000 for a total amount of $29,800.

NOW, THEREFORE BE IT RESOLVED that the Town Council of the Town of Moraga hereby authorizes the Town Manager to amend the Consultant Services Agreement with WRECO (Walnut Creek) for completion of a hydraulic study of Laguna Creek and preparation of grant applications in an amount not to exceed $15,000, funded through the Storm Drain Maintenance Operating Budget, for a total amount of $29,800 for the Laguna Creek Hydraulic System on the Hacienda de las Flores grounds (2100 Donald Drive).

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on October 9, 2013 by the following vote:

AYES:	Mayor Trotter, Councilmembers Metcalf and Wykle
NOES:	None
ABSTAIN:	None
ABSENT:	Vice Mayor Chew, Councilmember Arth

Dave Trotter, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In The Matter Of:

Authorizing the Town Manager to Approve a Budget Transfer from the Minor Corrugated Metal Pipe Repair Program (Annual) (CIP 14-202) to the Laguna Creek Wall Repair and Bank Stabilization Project (CIP 08-203) for the Grouting of the Existing Metal Culvert in the Amount of $12,000 and to Execute Contract Change Orders for an Additional $12,000 with Pavex Construction (San Jose)

Resolution No. 72 - 2013

WHEREAS, during the 2005-2006 winter storms, heavy rains caused Laguna Creek to rise and flow over the banks, resulting in various damages to the facilities upstream and downstream of the culvert near the Pavilion on the Hacienda de las Flores grounds; and

WHEREAS, on June 26, 2013, Town Council awarded a construction contract to Pavex Construction (San Jose) in the amount of $603,940 for the construction of the Laguna Creek Wall Repair and Bank Stabilization project and authorized the Town Manager to execute contract change orders up to 15% of the contract amount; and

WHEREAS, it was recently discovered that there is significant deterioration at the bottom of the existing 96" corrugated metal pipe culvert, which connects the new upstream retaining walls and the newly stabilized banks downstream, and as corrosion increases and additional water enters the subgrade, the potential for failure of the culvert increases, comprising the integrity of the new repairs that are underway with this project; and

WHEREAS, to repair the condition, staff proposes to have Pavex Construction fill both the void area and the corroded portion of the culvert with grout as a Contract Change Order (CCO); and

WHEREAS, the estimated cost for the repair received from the contractor is approximately $12,000 for the CCO, which is not an eligible expenditure that the FEMA or Cal-EMA grant funding can reimburse because the corrosion of the culvert is caused by the age of the metal pipe rather than the 2005-2006 winter storms.

NOW, THEREFORE BE IT RESOLVED that the Town Council of the Town of Moraga hereby authorizes the Town Manager to approve a budget transfer from the Minor Corrugated Metal Pipe Repair Program (Annual) (CIP 14-202) to the Laguna Creek Wall Repair and Bank Stabilization Project (CIP 08-203) for the grouting of the

existing metal culvert in the amount of $12,000 and to execute Contract Change Orders for an additional $12,000 with Pavex Construction (San Jose).

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on October 9, 2013 by the following vote:

AYES:	Mayor Trotter, Councilmembers Metcalf and Wykle
NOES:	None
ABSTAIN:	None
ABSENT:	Vice Mayor Chew, Councilmember Arth

Dave Trotter, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In The Matter Of:

Authorizing the Town Manager to Execute Contract Change Orders with Pavex Construction (San Jose) for an Additional $2,981.60 for a Total Contract Change Order Amount of $105,572.60 that is Included in the Total Construction Contract Amount of $709,512.60 for the Laguna Creek Wall Repair and Bank Stabilization Project (CIP 08-203)

Resolution No. 79 - 2013

WHEREAS, on May 14, 2013, the approved project plans went out to bid and were advertised on the Town's website, in the Contra Costa Times, and numerous builders' exchanges; and

WHEREAS, on May 24, 2013, a mandatory pre-bid meeting was held with fourteen (14) prospective contractors in attendance; and

WHEREAS, on June 4, 2013, the bid opening was held with six (6) bid packages received; and

WHEREAS, on June 26, 2013, Council awarded a construction contract to Pavex Construction (San Jose) to construct the project; and

WHEREAS, on October 9, 2013, Council authorized the Town Manager to increase the Contract Change Order (CCO) amount by $12,000 to grout the existing metal culvert, which was discovered to be corroded along the flow line, exposing the soil subgrade below; and

WHEREAS, during construction, there was a need to increase the quantities of certain bid items to complete the work, which resulted in the total construction contract cost to exceed the original bid amount resulting in the need to increase the CCO amount by $2,987.60.

NOW, THEREFORE BE IT RESOLVED that the Town Council of the Town of Moraga hereby authorizes the Town Manager to execute Contract Change Orders (CCO) with Pavex Construction (San Jose) for an additional $2,981.60 for a total CCO amount of $105,572.60 that is included in the total construction contract amount of $709,512.60 for the construction of the Laguna Creek Wall Repair and Bank Stabilization Project (CIP 08-203).

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on December 11, 2013 by the following vote:

AYES:	Mayor Chew, Councilmembers Arth, Metcalf and Trotter
NOES:	None
ABSTAIN:	None
ABSENT:	Vice Mayor Wykle

Ken Chew, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In the Matter of:

Accepting the Recommendation to Restore the Natural Channel Based on the Hydraulic Study of Laguna Creek, Prepared by WRECO (Walnut Creek) for the Laguna Creek Hydraulic System on the Hacienda de las Flores Grounds (2100 Donald Drive)

Resolution No. 34 - 2014

WHEREAS, in December 2012, the Town entered into a consultant services agreement with WRECO (Walnut Creek) to provide engineering services to assess the existing conditions of Laguna Creek within the Town-owned property of the Hacienda de las Flores (2100 Donald Drive), perform detailed hydraulic analysis of the upstream and downstream boundary conditions in the vicinity of the existing culvert, recommend alternatives to lower the water surface elevation of the creek to provide at least 1.0 foot of freeboard for the finished floor elevation of the Pavilion building for the 100-year flood event, and prepare a technical memo summarizing the results of the hydraulic analysis and make recommendations for potential improvements; and

WHEREAS, in October 2013, Town Council was presented with the alternatives that WRECO investigated as a preview of the potential improvements of the storm drainage system on the property, and authorized a contract amendment for the completion of the hydraulic study and preparation of grant applications; and

WHEREAS, in April 2014, WRECO finalized the hydraulic study in a technical memo presenting each alternative and its benefits, as well as the costs associated with each of the feasible alternatives, and has researched a number of potential funding sources and grant opportunities that the Town can pursue.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Moraga hereby accepts the recommendation to restore the natural channel based on the hydraulic study of Laguna Creek, prepared by WRECO (Walnut Creek) for the Laguna Creek hydraulic system on the Hacienda de las Flores grounds (2100 Donald Drive).

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on April 23, 2014 by the following vote:

AYES:	Mayor Chew, Vice Mayor Wykle, Councilmembers Arth, Metcalf and Trotter
NOES:	None
ABSTAIN:	None
ABSENT:	None

Ken Chew, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In the Matter of:

Endorsing the Laguna Creek Restoration Project Application for an Urban Streams Restoration Program Grant and Determining Appropriate Environmental Impact Document, Conditionally Accepting Grant if Offered, and Designating Project Representative, Contract Manager, and Fiscal Agent	)	Resolution No. 86 - 2014

WHEREAS, the California Department of Water Resources, FloodSAFE Environmental Stewardship and Statewide Resources Office, Urban Streams Restoration Program has announced the availability of funds for grants; and

WHEREAS, said grants are intended to help solve flooding and erosion problems in a way that provides environmental enhancement; and

WHEREAS, the Town of Moraga has proposed to sponsor a grant application with a non-profit organization in Town; and

WHEREAS, the Town of Moraga has concluded the project proposed for funding with grants would be environmentally beneficial and will comply with all requirements of CEQA and other environmental permits prior to implementation of the project; and

WHEREAS, the Town of Moraga considers the prospects of receiving a grant to be reasonably likely.

NOW, THEREFORE, BE IT RESOLVED, that the Town Council of the Town of Moraga, hereby approves the joint application with a non-profit organization in Town for an Urban Streams Restoration Program grant; if offered such a grant, the Town Council authorizes the Town Manager or designee to accept and sign any contract or agreement for administration of the grant funds, and Town Manager or designee to act as Project Manager for the project, and hereby delegates authority to the Project Manager to manage the agreement including the submission of invoices, and to delegate authority to others to provide management and support services required for performance of the work and administration of the agreement.

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on December 10, 2014 by the following vote:

AYES:	Mayor Chew, Vice Mayor Wykle, Councilmembers Arth, Metcalf and Trotter
NOES:	None
ABSTAIN:	None
ABSENT:	None

Ken Chew, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In the Matter of:

Authorizing the Public Works Director to Submit an Application for Grant Funds for the California River Parkways Grant Program for the Laguna Creek Restoration Project	)))))	Resolution No. 72 - 2015

WHEREAS, the Legislature and Governor of the State of California have provided funds for the program shown above; and

WHEREAS, the California Natural Resources Agency has been delegated the responsibility for the administration of this grant program, establishing necessary procedures; and

WHEREAS, said procedures established by the California Natural Resources Agency require a resolution certifying the approval of application by the Town Council of the Town of Moraga before submission of said application to the State; and

WHEREAS, the Applicant, if selected, will enter into an agreement with the State of California to carry out the project.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Moraga:

1. Approves the filing of an application for the Laguna Creek Restoration project; and

2. Certifies that Applicant understands the assurances and certification in the application; and

3. Certifies that Applicant or title holder will have sufficient funds to operate and maintain the project consistent with the land tenure requirements, or will secure the resources to do so; and

4. Certifies that it will comply with all provisions of Section 1771.5 of the California Labor Code; and

5. If applicable, certifies that the project will comply with any laws and regulations including, but not limited to, the *California Environmental Quality Act* (CEQA), legal requirements for building codes, health and safety codes, disabled access laws, and,

that prior to commencement of construction, all applicable permits will have been obtained; and

6. Certifies that applicant will work towards the State Planning Priorities intended to promote equity, strengthen the economy, protect the environment, and promote public health and safety as included in the Government Code Section 65041.1; and

7. Appoints the Public Works Director, or designee, as agent to conduct all negotiations, execute and submit all documents including, but not limited to applications, agreements, payment requests and so on, which may be necessary for the completion of the aforementioned project.

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on July 8, 2015 by the following vote:

AYES:	Mayor Wykle, Vice Mayor Metcalf, Councilmembers Arth, Onoda and Trotter
NOES:	None
ABSTAIN:	None
ABSENT:	None

Roger N. Wykle, Mayor

Attest:

Marty C. McInturf, Town Clerk

BEFORE THE TOWN COUNCIL OF THE TOWN OF MORAGA

In the Matter of:

Authorizing the Public Works Director to Submit an Application for a WW Urban Creeks Grant from the East Bay Regional Park District for the Laguna Creek Restoration Project (CIP 16-201)

Resolution No. 9 - 2018

WHEREAS, the people of the East Bay Regional Park District (EBRPD) have enacted the Measure WW Park Bond Extension which provides funds for the acquisition and restoration of urban creeks; and

WHEREAS, the EBRPD Board of Directors has the responsibility for the administration of the grant program, setting up necessary procedures; and

WHEREAS, said procedures require the Applicant's Governing Body to certify by resolution the approval of the Applicant to apply for the WW Urban Creeks Grant funds; and

WHEREAS, if awarded the grant, the Applicant will enter into a Contract with the EBRPD.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Moraga approves the submission of a grant application to the WW Urban Creeks Grant Program under the EBRPD Measure WW Park Bond Extension; and

BE IT FURTHER RESOLVED that if awarded a grant, Town Council of the Town of Moraga approves the execution of a grant contract from the WW Urban Creeks Grant Program under the EBRPD Measure WW Park Bond Extension; and

BE IT FURTHER RESOLVED that the Town Council of the Town of Moraga certifies that it has or will have sufficient funds to operate and maintain the Project; and

BE IT FURTHER RESOLVED that the Town Council of the Town of Moraga certifies that the Applicant has reviewed, understands and agrees to the General Provisions contained in the Contract shown in the Procedural Guide; and

BE IT FURTHER RESOLVED that the Town Council of the Town of Moraga appoints the Public Works Director as agent to conduct all negotiations, execute and submit all documents including, but not limited to, applications, agreements, amendments, payment requests and so on, which may be necessary for the completion of the Project.

PASSED AND ADOPTED by the Town Council of the Town of Moraga at a regular meeting held on February 14, 2018 by the following vote:

AYES:	Mayor Trotter, Vice Mayor Onoda, Councilmembers Fritzky and Wykle
NOES:	None
ABSTAIN:	None
ABSENT:	Councilmember Korpus

Dave Trotter

Dave Trotter, Mayor

Attest:

Marty C. McInturf

Marty C. McInturf, Town Clerk

ATTACHMENT E

Excerpt from October 9, 2013 Council Meeting Minutes

TOWN OF MORAGA
TOWN COUNCIL REGULAR MEETING

October 9, 2013
MINUTES

7:00 P.M. Regular Meeting

Joaquin Moraga Intermediate School Auditorium
1010 Camino Pablo, Moraga, California 94556

I. CALL TO ORDER

The regular meeting was called to order at 7:01 P.M. by **Mayor Dave Trotter**.

ROLL CALL

Councilmembers present: Mayor Dave Trotter, and Councilmembers Michael Metcalf and Roger Wykle

Councilmembers absent: Vice Mayor Chew, Councilmember Arth

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XI. ORDINANCES, RESOLUTIONS AND REQUESTS FOR ACTION

A. Consider Resolution 71-2013 Authorizing the Town Manager to Amend the Consulting Services Agreement with WRECO (Walnut Creek) for Completion of a Hydraulic Study of Laguna Creek and Preparation of Grant Applications in an Amount Not to Exceed $15,000, funded through the Storm Drain Maintenance Operating Budget, for a Total Amount of $29,800 for the Laguna Creek Hydraulic System on the Hacienda de las Flores Grounds (2100 Donald Drive)

Public Works Director/Town Engineer Edric Kwan presented the request to authorize the Town Manager to amend the Consulting Services Agreement with WRECO for the completion of a Hydraulic Study of Laguna Creek and preparation of grant applications in an amount not to exceed $15,000, funded through the Storm Drain Maintenance Operating Budget, for a total amount of $29,800 for the Laguna Creek Hydraulic System on the Hacienda de las Flores grounds. He reported that WRECO had been required to provide three options, although staff had determined that additional options should be explored in order to exhaust all potential solutions to address the flooding issues, which would be provided to the Town Council at a later date. Additional information had also been requested on the cost estimates for the different options, with the consultant to explore various types of funding and grant options.

Grant Wilcox, Senior Engineer, WRECO, Walnut Creek, presented a PowerPoint presentation on the project, and stated the firm had been retained to address the flooding issues at Laguna Creek on the Hacienda de las Flores grounds. He described the project site and the proposed options to improve flows; identified the pros and cons of each option particularly related to the Pavilion; and identified the types of grants that could be available to the Town including Pre-Disaster

Mitigation Grants, the Flood Mitigation Assistance Program, and the Urban Stream and Restoration Program.

Responding to the Council about restoring Laguna Creek's culverted portion, Mr. Wilcox identified the only area of the slope that would be armored adjacent to the building where a short retaining wall to support the slope may be necessary, although the idea would be to replant the slopes with willows, for example, where the root systems would help to prevent erosion. Anchored netting or decomposing mesh would help to prevent short-term erosion.

Mr. Torshido, Engineer for WRECO, explained that for the hydraulic model shown in the presentation, the downstream limit was identified at the culvert at Corliss Drive. He explained that for 50- and 100-year flood events, the water surface elevation could back up to the level where it would be very close to where the Pavilion was currently located, although the flooding experienced at the Pavilion was primarily from the undersized eight-foot culvert inside the facility, not the downstream culvert at Corliss Drive. He described the culvert at Corliss Drive as a reinforced concrete box culvert at 12 feet in width and 10 feet in height.

Mr. Wilcox identified the Pavilion at 802.4 feet with a 100-year flood event at the headwall of almost 802 feet. Improving that area would assist with addressing flooding issues. He also affirmed that cleaning out the creek would have benefits but would be a continual maintenance program. As to the option to raise the Pavilion building, he presented the Town Council with information on a historic building that had recently been relocated in the City of Concord, and stated that real cost estimates to raise the building could be obtained.

Mr. Kwan emphasized the need to provide the Council with options and real numbers, and stated the amendment to the contract would allow that research to be provided. It would also allow the consultant to identify the timeline for the improvements, potential funding sources, and details on the pros and cons of each of the alternatives, to allow the Town Council to provide direction to staff at a later date when seeking funding sources. Information could also be provided on raising the ground level around the Pavilion as well as raising or relocating the Pavilion to ensure the Town Council had all information to evaluate.

Mr. Wilcox explained that the option to completely replace the culvert with a 14 x 12-foot box culvert would be in the same footprint. He clarified that the grounds may not have to be raised completely, and what ruined the building was water damage to the floors. He suggested the landscaping may have to be modified around the Pavilion, and building a masonry concrete flood wall around the Hacienda may also be required. He offered a plan for the boundaries of the box culvert and the existing culvert, identified the Pavilion building, and identified the location of the recent Federal Emergency Management Agency (FEMA) work that had just been completed on the property. He noted that Cal Engineering and Geology had consulted with WRECO on the design, and the work recently done by FEMA could be removed and replaced since it consisted of rip rap material.

Mr. Kwan identified the location of Moraga Road on the north alongside the creek, the existing head wall and the retaining wall, and commented that they had also looked at the head wall to see what could be salvaged. There was the potential to salvage some of the FEMA work that had been completed. The specific scope of FEMA work to repair the damage done by storms in 2005-2006 included repair only and no improvements.

Councilmember Wykle stated his preferred alternative was to open the creek to its natural state which was larger than the box culvert and which would better handle the flows.

Mr. Wilcox clarified that opening the creek would be along the same alignment with the removed culvert, and if opened up, a meander may be added to avoid a part of the Pavilion building where

some cutting may be required. He also clarified that the area of the culvert that would potentially be removed to open the creek was not where FEMA monies had been used.

Councilmember Metcalf recognized that an option needed to be identified to solve the flooding problems even if it meant tearing up recently completed FEMA work. Mr. Kwan affirmed the work would be done right and in the best interests of the Town.

PUBLIC COMMENTS OPENED

Bob Reynolds, Moraga, reported that the Hacienda Foundation had considered alternatives for the Pavilion, funding options, and had reviewed a FEMA Floodplain Map, which had taken the floodplain almost up to Moraga Road and placed the Pavilion mostly underwater. He suggested that any repair work on the Pavilion should be to make it safe, let it flood in heavy rainfall years but make repairs when the water subsided, an option he had not yet seen considered.

Mr. Wilcox agreed Mr. Reynolds had offered a great idea, although it would be expensive to modify and repair a historic building with hardwood floors and expensive fixtures.

PUBLIC COMMENTS CLOSED

Mayor Trotter suggested the Council should look broadly at the potential choices to solve the flooding issue. He noted he would not prejudge the options before getting all the facts to make a decision. He supported the resolution.

Councilmember Wykle also supported the effort to provide information on all the options to allow the Council to make a decision.

Councilmember Metcalf concurred that a broad look at the potential choices to solve the flooding issues should be considered to allow a review of those options that had a chance of working, and provide all information to determine whether an option should be disqualified if that was the case.

ACTION: It was M/S (Wykle/Metcalf) to adopt Resolution 71-2013 Authorizing the Town Manager to Amend the Consulting Services Agreement with WRECO (Walnut Creek) for Completion of a Hydraulic Study of Laguna Creek and Preparation of Grant Applications in an Amount Not to Exceed $15,000, funded through the Storm Drain Maintenance Operating Budget, for a Total Amount of $29,800 for the Laguna Creek Hydraulic System on the Hacienda de las Flores Grounds (2100 Donald Drive). Vote 3-0-2. Absent: Chew, Arth.