

Marin County Flood Control and Water Conservation District

FLOOD CONTROL ZONE 7 ADVISORY BOARD MEETING
FEBRUARY 24, 2016

STAFF REPORT

Item 1. Election of Chairperson and Vice-Chairperson

Article VI of the Advisory Board's bylaws stipulate that officers of the Advisory Board be elected to a one-year term by a majority vote of the Advisory Board. There are two officers-chair and vice-chair.

Recommended Action: Elect chairperson and elect vice-chairperson

Item 2. Approval of Meeting Minutes: November 4, 2015

Recommended Action: Approve minutes.

Item 3. Open Time for Items Not on the Agenda

Comments will be heard for items not on the agenda (limited to three minutes per speaker).

Item 4. Zone Engineer's Report

a. FEMA Community Rating System (CRS) Update

The FEMA CRS program is a voluntary program that provides discounts directly to property owners who are paying for federally backed flood insurance for actions taken by the County above the base level requirements of the federal flood insurance program. The County completed our application and audit with FEMA last spring. The results of the scoring by FEMA have just arrived, and the County has received a CRS rating of Class 7, which is better than anticipated. This class rating translates to a 15% discount directly to rate payers as their flood insurance policies renew after May 2016. Future implementation of additional community floodplain management activities that exceed minimum National Flood Insurance Program requirements could result in increased discount rates. The County will be continuously striving to achieve a better Class rating that provides a higher discount rate to its residents. While the result is good, it is important to note that FEMA continues to raise their flood insurance rates, therefore, individual property owners will still likely see their overall rates rise, just at a rate 15% less than otherwise. The County has no input or control over the Federal flood insurance rates or payments.

b. Maintenance Update

There were unexpected maintenance items that came up. These items include:

- Replaced the tide gate at the end of Meadow Way as it was not functioning. Staff is also looking for options for extremely low-head check valves to improve the function of this system.
- Replaced the ladder into Pump Station No. 5 wet well which was disintegrating,
- Fixed the solar panel on the Estancia automatic portable pump. Additionally, complaints about the noise associated with the Estancia pump and concerns about the security and weathering of its parts led to the addition of a cover.

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c. Wooden Floodwall Update and Inspection Strategies Discussion

The biannual inspections of the wooden floodwall have been completed on properties along Vendola Drive where permission was granted by private owners. A summary of these inspections was included in the Santa Venetia Neighborhood Association newsletter and can be found at

<http://www.marinwatersheds.org/documents/2015SantaVenetiaInspectionsSummary.pdf>, along with preliminary raw data printouts for each property from the new program being piloted for inspections. Letters to individual properties were sent out at the end of January stating specific problems (if any) for each home containing a portion of the wooden floodwall on its property.

Floodwall inspections can only be completed if private property owners give District staff permission to enter. Typically 25% of properties along the floodwall do not provide permission. AB requested a discussion at this meeting of strategies to improve property owner responsiveness.

In response to another request from the AB, Staff has asked geotechnical consultant, Kleinfelder, to produce a memo (attached) reporting on the feasibility of raising the wooden floodwall by 1 foot, which could protect the neighborhood against tides up to 10' MLLW and provide 1 foot of freeboard. Although Kleinfelder did not recommend increasing the height of the existing structure beyond 2.5 feet, they did offer potential solutions which could be explored through Item 4.e.i. below.

d. Pump Station No. 2 Generator

Bids for the electrical work to install a receptacle and manual transfer switch along with additional site improvements to prepare for connection to a portable back-up generator were much higher than anticipated. Due to the higher than expected costs, Staff chose to proceed only with the electrical work at this time for \$33,200 after consultation with the Advisory Board Chairperson. The District anticipated this work would be completed by the end of December, but, due to a long lead time for a critical part, construction has been delayed until the last week of February.

e. FEMA Hazard Mitigation Funding Opportunities

Last fall, the California Valley and Butte Fires led to the declaration of a major disaster. As a result, the Federal Emergency Management Agency (FEMA) has made available hazard mitigation assistance to the State of California Office of Emergency Services (Cal OES). The District submitted notices of interest to use this funding for potential projects in Zone 7. Cal OES then reviewed all the notices of interest received across the state and selected ones most likely to attract hazard mitigation funding. As a result of this review, the District received an invitation for submittal of full applications for two projects by June 2016. The two projects for the Advisory Board to discuss and potentially recommend are:

i. Santa Venetia Timber-Reinforced Berm Improvement Project

This is a project that would target more vulnerable areas of the wooden floodwall (also known as a timber-reinforced berm) and make improvements where feasible. Improvements may include using alternatives to wood such as composite decking, increasing embedment of boards into the underlying earthen levee, and/or adding buttressing fill and deadman anchors. All modifications must be compatible with the adjacent structures.

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Project Budget:

\$300,000 Federal Share (FEMA)

\$100,000 Local Share (Flood Control Zone 7)

Initial estimate of application cost is \$25,000, with an additional \$25,000 expected in project development costs (preliminary design and analysis). This estimate is subject to change as the District has not yet received a proposal from Kleinfelder.

ii. Marin County Structure Elevation Program

This is a program whereby individual homeowners can raise their homes above the FEMA base flood elevation with 75% of their costs reimbursed by the federal government.

Project Budget:

\$3,000,000 Federal Share (FEMA)

\$1,000,000 Local Share (Individual Property Owners)

Costs to design and construct home elevations vary, but for reference may range between \$100,000 and \$250,000, including temporary relocation costs. Thus homeowner contributions would be \$25,000-\$62,500 per structure. Application costs to the Zone will vary depending on method of outreach and number of applicants from Zone 7, but an initial estimate could be \$25,000. Note: in 2007 the County applied for this funding on behalf of 11 property owners in Santa Venetia after performing a benefit-cost analysis for 20 interested and potentially eligible property owners. No homeowners in Santa Venetia ultimately received funding.

Item 5. Watershed Program Update

a. Status of Lower Gallinas Creek Sea Level Rise Vulnerability Assessment

The Gallinas Watershed Program engaged in the Lower Gallinas Creek Sea Level Rise Vulnerability Assessment in order to provide a concept-level assessment of potential impacts from direct bay coastal flooding on residential, commercial, and transportation infrastructure on the tidal creek shoreline as sea level rises due to climate disruption. Three scenarios of sea level rise were assessed without wave runoff: 1 ft, 3 ft, and 5 ft on top of MHHW. The Assessment will identify locations where existing barriers (levees, paths, roads) may be overtopped and where daily flooding could be expected with increased vulnerability to sea level rise. The study quantifies the number of homes, businesses, and streets potentially affected; identifies potential adaptation strategies, including flood walls, and earthen levees that could be constructed; and develops potential order-of-magnitude cost estimates for the various adaption strategies.

A public draft of the Assessment will be released in February and posted to the Gallinas Watershed webpage: http://www.marinwatersheds.org/gallinas_creek_flood_protection.html.

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b. Status of Upper Gallinas Restoration Opportunities Study

Upper Gallinas Creek was channelized into a concrete trapezoidal structure in the 1950's. The structure is nearing the end of its design life, and some Terra Linda residents would like to see the creek restored to a more natural condition. Restoring the channel would promote native plant species and provide wildlife habitat and corridors. Restoration also presents the opportunity to improve aesthetics and increase recreational opportunities by adding walking and bicycling paths.

The Gallinas Watershed Program, in its partnership with the City of San Rafael, is developing an Upper Gallinas Restoration Opportunities study to assess what a natural channel alignment could look like and whether it can be constructed within existing rights of way. The study presents and considers conceptual design alternatives to remove the concrete channel, restore the creek bed, and install high flow stormwater bypass; evaluates the potential for project phasing as the concrete channel approaches the end of its design life; and presents order of magnitude cost estimates for the considered alternatives.

A public draft of the Assessment will be released this Spring and posted to the Gallinas watershed webpage: http://www.marinwatersheds.org/gallinas_creek_flood_protection.html.

c. Gallinas Watershed Program Final Report

The Gallinas Watershed Program worked with its partners, Flood Control Zone Nos. 6 and 7, County Service Area No. 6, Las Gallinas Valley Sanitary District, City of San Rafael, and Marin County Parks to produce focused studies within the watershed to seek solutions to reduce flood risk, increase local re-use of sediments, and increase resiliency to sea level rise.

Projects and deliverables of the Gallinas Watershed Program include: Santa Venetia Interior Drainage Study, Las Gallinas Levee Evaluation (Santa Venetia), Lower Gallinas Creek Sea Level Rise Vulnerability Assessment, Gallinas Creek Geomorphic Dredge Assessment, McInnis Marsh Restoration Feasibility Study, Upper Gallinas Creek Restoration Opportunities Assessment.

The final report describes the current and historical conditions in the watershed; summarizes each of the studies and assessments; and draws connections among them. The public draft of the final report is scheduled for release this Spring and will be posted to the Gallinas Watershed webpage: http://www.marinwatersheds.org/gallinas_creek_flood_protection.html.

d. Community Meeting

The Gallinas Watershed Program anticipates holding a community meeting in March or April to showcase the final results of all its studies and assessments. The meeting will likely be held in Terra Linda.

e. Election Update

In November 2015, the Gallinas Watershed Program Policy Advisory Committee recommended moving ahead with planning to place a fee measure on the November 2016 ballot to fund watershed projects. Gallinas Watershed Program is investigating the options of a special (parcel) tax and a stormwater fee. Godbe Research has been hired to conduct polling. Poll results are expected in March. Staff will report on the schedule for polling, development of the ballot language, and Registrar of Voters deadlines.

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Item 6. Zone 7 FY 2016-17 Budget Review

The Zone 7 budget for FY 2015-2016 (begins July 1, 2016 and ends June 30, 2017) will be presented to the Board of Supervisors at a hearing this summer. A proposed budget summary will be presented to the AB by Staff for review. AB will also discuss and may recommend an action regarding anticipated maintenance budget shortfalls, potential revenue measures and associated schedules.

Recommended Action: Recommend Board of Supervisors approve budget.

Item 7. Bylaw Amendment

The current bylaws state the annual meetings shall be held on the third Wednesday of the month of February. Due to ski week conflicting with this date, Staff propose to change the annual meeting to the fourth Wednesday of the month of February.

Recommended Action: Amend the bylaws to reflect an annual meeting date on the fourth Wednesday of the month of February.

Item 8. Schedule Next Meetings

It is recommended that the Advisory Board consider the need for meetings in the upcoming year and adopt a meeting schedule for the year. Based on the election schedule, Staff propose the following meetings this year:

April 20, 2016 - review ballot language

May 18, 2016 - formally recommend ballot language

November 16, 2016 - review election results and winter preparedness activities



February 16, 2016
Kleinfelder Project No.: 96670.001A

Ms. Hannah Lee
Marin County Flood Control & Water Conservation District
Department of Public Works
3501 Civic Center Drive, Suite 304
San Rafael, CA 94903

**SUBJECT: Assessment of Redwood Box Floodwall / Timber Reinforced Berm
Las Gallinas Levee System
San Rafael, California**

Dear Ms. Lee:

This letter summarizes our conclusions regarding the existing redwood box floodwalls (also referred to as “timber reinforced berms”) and the District’s request to increase the height of the timber reinforced berms approximately 1 foot at the Las Gallinas Levee System (LGLS) project site in San Rafael, California. Our findings regarding the LGLS have been previously detailed in our Geotechnical Data Report (Kleinfelder, 2013) and our Geotechnical Alternatives Analysis (Kleinfelder, 2014).

BACKGROUND INFORMATION

The LGLS, as defined herein, includes levees along the southern and eastern bank of the south fork of Las Gallinas Creek. LGLS partially surrounds the community of Santa Venetia located north and east of the city of San Rafael in eastern Marin County, California. Stationing begins with Station 0+00 at the eastern end of the levee system near E. Vendola Drive near Pump Station #4 and increases westward to Station 32+00 near Pump Station #5 at the northeastern end of Vendola Drive. The levee then extends to the southwest along Las Gallinas Creek to Station 108+00 at the southwestern end of Vendola Drive.

LGLS is divided into two reaches for purposes of the geotechnical evaluations described in our 2013 geotechnical investigation report (Kleinfelder, 2013) and our 2014 alternatives analysis report (Kleinfelder, 2014). Reach 1 extends from station 0+00 to Station 32+00, and Reach 2 extends from Station 32+00 to Station 108+00.

The Santa Venetia Marsh Preserve pathway traverses the levee crown over the length of the levee in Reach 1. In Reach 2, the levee extends along the outside edge of existing residences’ backyards along Vendola Drive.

TIMBER REINFORCED BERM CONSTRUCTION

In 1983, to increase the level of flood protection, a timber reinforced berm was constructed along the top of the majority of the existing levee within Reach 2 (about 5,550 lineal feet). The timber reinforced berms are about 2.5 to 3.2 feet wide, measured perpendicular to levee crest,

and rise about 1 to 2½ feet above the earthen levee crown. The redwood boards used to construct these berms are minimally embedded in the underlying earthen levee by about 6 to 12 inches.

These timber reinforced berm were intended to raise the level of protection for the areas landside of the Reach 2 levees, and have provided some protection during high water events since their installation. These previously-constructed temporary levee improvements have been in place for almost 30 years and show signs of distress. It is our understanding that the District inspects, repairs, and replaces these timber reinforced berms on an ongoing basis, with an average of about two to three properties maintained each year.

TIMBER REINFORCED BERM PERFORMANCE

The redwood boxes/timber reinforced berms were constructed to increase freeboard along the levee and provide additional protection where the freeboard deficiency is small (i.e., less than two feet). In their current configuration they may not be considered robust enough to meet USACE or FEMA criteria for accreditation for height, stability, seepage protection or flood fighting / maintenance access. Regarding the District's request to increase the existing timber reinforced berm one foot, any additional increases in berm height using the current construction methods will likely diminish their overturning and sliding capacities. However, further assessment of these timber reinforced berms should be evaluated in addition to assessing modifications of the existing timber reinforced berm to create a viable flood protection element.



The timber reinforced berm could potentially be improved by using more durable materials (such as composite decking material), increasing embedment of the boards into the underlying earthen levee, adding buttressing fill or deadman anchors to improve sliding and overturning resistance, or other alternatives. To pursue such an improvement plan, additional geotechnical and structural analyses should be performed to determine the overturning or sliding factors of safety of the existing and/or proposed future raised flood protection elements. Note that Kleinfelder has not performed structural analyses at this time; such an analysis should be performed once detailed construction plans for improved/raised berms are developed.

CLOSURE

We appreciate the opportunity to be of continued assistance to the Marin County Flood Control & Water Conservation District on this project. If you have any questions or require additional information, please feel free to contact us at your convenience.

Sincerely,

KLEINFELDER

Craig A. Hall, PE, GE
Geotechnical Engineer


E. Morley Beckman, PE
Civil Engineer

cc: Mr. Jon Liang, EIT, Marin County

ESTIMATED 5-YEAR BUDGET NEEDS
FY 2014-2015 Fund Ending Balance:

\$ 331,141

Account Description	FY 2015-16 Estimate	FY 2016-17 Estimate	FY 2017-18 Estimate	FY 2018-19 Estimate	FY 2019-20 Estimate	5-year Total
Labor Costs						
Pump and Gate Operation and Maintenance	\$ 85,000	\$ 87,550	\$ 90,177	\$ 92,882	\$ 95,668	\$ 451,277
Levee and Ditch Maintenance	\$ 40,000	\$ 41,200	\$ 42,436	\$ 43,709	\$ 45,020	\$ 212,365
Fire Fuel Reduction	\$ 15,000	\$ 15,450	\$ 15,914	\$ 16,391	\$ 16,883	\$ 79,637
Engineering, Real Estate, and Outreach	\$ 65,000	\$ 66,950	\$ 68,959	\$ 71,027	\$ 73,158	\$ 345,094
Advisory Board and BOS Administration	\$ 5,100	\$ 5,253	\$ 5,411	\$ 5,573	\$ 5,740	\$ 27,077
Management and Accounting	\$ 30,000	\$ 30,900	\$ 31,827	\$ 32,782	\$ 33,765	\$ 159,274
Surveying (includes levee settlement survey)	\$ 10,000	\$ -	\$ -	\$ -	\$ 12,000	\$ 22,000
Salaries, Benefits, and Overhead	\$ 250,100	\$ 247,303	\$ 254,722	\$ 262,364	\$ 282,235	\$ 1,296,724
Professional Services	\$ 20,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 40,000
Utilities	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 50,000
Facility Rental (meeting locations and file storage)	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	
Maintenance & Repair Services - Equipment						
SV1 Pump Station - all 4 pumps Maintenance		\$ 10,000				\$ 10,000
SV2 Pump Station - pump No. 1 Maintenance				\$ 20,000		\$ 20,000
SV2 Pump Station - pump No. 2 Maintenance					\$ 20,000	\$ 20,000
Generator Receptacle and Switch at Pump Station No. 2	\$ 35,000	\$ 35,000				\$ 70,000
SV3 Pump Station - pump No. 1 Maintenance				\$ 25,000		\$ 25,000
SV3 Pump Station - Back-up pump Maintenance	\$ 25,000					\$ 25,000
SV4 Pump Station - pump No. 1 - New Pump			\$ 40,000			\$ 40,000
SV4 Pump Station - pump No. 2 - New Pump				\$ 40,000		\$ 40,000
SV5 Pump Station - pump No. 1 Maintenance			\$ 25,000			\$ 25,000
SV5 Pump Station - pumps No. 2 & No. 3 Maintenance				\$ 50,000		\$ 50,000
SV5 Pump Station Ladder	\$ 2,000					\$ 2,000
Estancia Pump Cover and Solar Panel	\$ 6,500					\$ 6,500
Replace Tide Gate at Meadow Way Ditch	\$ 2,500	\$ 2,500				\$ 5,000
Maintenance & Repair Services - Land & Buildings						
Vegetation/Sediment Maintenance and Storm Response	\$ 20,800	\$ 21,424	\$ 22,067	\$ 22,729	\$ 23,411	\$ 110,430
Tree/Fence Repair	\$ 6,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 18,000
Gopher Control	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 125,000
Redwood Box Repair	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 250,000
Supplies and Permits	\$ 15,560	\$ 15,560	\$ 15,560	\$ 15,560	\$ 15,560	\$ 12,560
Other	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 50,000
Service and Supplies	\$ 229,860	\$ 188,984	\$ 207,127	\$ 277,789	\$ 163,471	\$ 1,067,230
Total Expenditures	\$ 479,960	\$ 436,287	\$ 461,849	\$ 540,152	\$ 445,705	\$ 2,363,954
Revenues	\$ 381,443	\$ 381,443	\$ 381,443	\$ 381,443	\$ 381,443	
Reserves	\$ 232,624	\$ 177,780	\$ 97,374	\$ (61,335)	\$ (125,597)	

Discretionary expenses that may need to be performed on an emergency basis:

Abandon Outfall Adjacent to Pump Station No. 5					\$ 50,000
Timber-Reinforced Berm Improvement Project	\$ 50,000	\$ 50,000			
Interceptor Leak Repairs			\$ 50,000		
Meadow Way Ditch Sump Structure		\$ 40,000			
Rehabilitation of Pump Station No. 2 Outfall					\$ 250,000
Pump Station Structure at Pump Station No. 2					\$ 50,000
Pump Station No. 4 Power Upgrade & Well Expansion				\$ 180,000	
Annual Sum:	\$ 50,000	\$ 90,000	\$ 50,000	\$ 180,000	\$ 350,000
				Grand Total:	\$ 720,000

Shortfall if implementing all projects: \$ 845,597

Note: Design, management and environmental costs to implement not included

**MARIN COUNTY FLOOD CONTROL AND WATER CONSERVATION
DISTRICT**

BY-LAWS OF THE FLOOD CONTROL ZONE NO. 7 ADVISORY BOARD

ARTICLE I: NAME

This organization shall be called "The Marin County Flood Control and Water Conservation District (MCFC&WCD) Flood Control Zone No. 7 Advisory Board" existing by virtue of the Marin County Flood Control and Water Conservation District Act (Act), Water Code Appendix 68-6, and exercising the powers and authority and assuming the responsibilities delegated to it under said Act.

ARTICLE II: PURPOSE

The Flood Control Zone 7 Advisory Board shall respond to and issue a report on all matters such as annual zone budget, annual work plan or capital projects for that zone, referred to it by the Board of Supervisors of the Marin County Flood Control and Water Conservation District through the District Engineer. Said report shall be made within 30 days of receipt. The Advisory Board shall not have any authority to consider matters beyond those referred by the Board of Supervisors of the Marin County Flood Control and Water Conservation District.

ARTICLE III: MEMBERSHIP

The Advisory Board shall consist of five (5) members, who shall be residents of Flood Control Zone No. 7, appointed by the Board of Supervisors of Flood Control.

ARTICLE IV: TERM OF OFFICE

1. Term of Appointment

Each member shall be appointed for a four year term. Notwithstanding said term, any member may be removed without cause at any time by a majority vote of the Board of Supervisors of the Marin County Flood Control and Water Conservation District.

2. Vacancy

If a vacancy occurs, the Board of Supervisors shall appoint a new Advisory Board member to serve for the remaining duration of the

resigning member's four-year term, at which time the appointment shall be reviewed every four years thereafter.

3. Resignation

A resignation of an Advisory Board member shall be in writing and filed with the Clerk of the Board of Supervisors.

ARTICLE V: MEETINGS

1. General

All meetings of the Advisory Board shall comply with all applicable laws including the provisions set forth in California Government code 54950-54962, the Brown Act and the Americans with Disabilities Act.

2. Meeting Frequency

Annual meetings shall be held on the ~~third~~^{fourth} Wednesday of the month of February. At the annual meeting, the Advisory Board and District Engineer shall schedule all other regular meetings to be held that year. If there is no business to be conducted, regular meetings may be canceled by the District Engineer by noticing the Advisory Board and providing a written update on Zone activities. Special meetings may be called by the District Engineer when Marin County Flood Control and Water Conservation District business needs so dictate. Special meetings may also be called at the request of the Advisory Board Chairperson.

3. Meeting Time and Place

Meetings shall be held at a place within or near the boundaries of Flood Control Zone No. 7, or at the principal office of the Marin County Flood Control and Water Conservation District.

4. Quorum

Three (3) members of the Advisory Board shall constitute a quorum for the response and issuance of report on all referred items.

5. Conduct of Meetings

All meetings shall be conducted and governed by the rules set forth in Robert's Rules of Order.

ARTICLE VI: OFFICERS AND DUTIES

The officers of the Advisory Board shall be the chair and vice-chair.

1. Election and Term

Officers shall be elected to a two-year term by a majority vote of the Advisory Board.

2. Resignations

An officer may resign at any time upon giving written notice to the Advisory Board.

3. Vacancies

Any vacancies of the chair or vice-chair shall be filled by a majority vote of the Advisory Board.

4. Chair

The chair shall preside at all meetings of the Advisory Board consistent with Robert's Rules of Order. The chair shall perform such duties necessary to run meetings.

5. Vice-chair

The vice-chair shall carry out the duties of the chair during her/his absence or disability, or during a vacancy in the office of the chair.

ARTICLE VII: BYLAWS

These bylaws may be recommended for amendment by a majority vote of all Advisory Board Members only if said proposed amendment does not conflict with any provisions of the Marin County Flood Control and Water Conservation District Act.

No amendment to these bylaws shall take effect or be binding until said amendment(s) are approved by the Board of Supervisors.