

**FINAL MINUTES**

**FLOOD CONTROL BOARD  
FEBRUARY 17, 2010  
CORTE MADERA TOWN HALL COUNCIL CHAMBERS**

Boardmembers Robert Bundy, Chair  
Present: Stephanie Bennett  
Vaso Medigovich  
Barry Trailer  
Sanford Zeller

Staff Present: Town Manager David Bracken  
Public Works Director/Town Engineer Dan Ring

1. Call to Order

Chair Bundy opened the meeting at 7:34 p.m.

2. Open Forum for Public Expression

Chair Bundy stated the Boardmembers was appointed by the Council to serve on the Flood Control Board. They work and support the Town's efforts in dealing with flood control and drainage issues in a variety of ways.

3. Approval of Meeting Minutes (December 7, 2009)

M/s, Medigovich-Bennett, and carried unanimously to approve the minutes of December 7, 2009 as corrected.

4. Old Business

A. None

5. New Business

A. Discussion of the report: Town-Wide Storm Drainage and Flood Control Study- Phase 1 (potential solutions for the prevention of tidal flooding and curb ponding within area east of Hwy 101)

B. Discussion of the project: Golden Hind Pump Station and Storm Drainage Improvements at Cay Passage

Chair Bundy introduced Mr. Andre Jankowski, project engineer with AN West.

Mr. Jankowski stated his firm performed a storm drainage study for the Town of Corte Madera in 2007-08. He stated that Phase 1 included a review of Watersheds #5, #6, and #7. The problem areas turned out to be in Watersheds #5 and #6 in the Mariner Cove and Marina Village areas. The study included local drainage and tidal flooding issues and he noted that all the elevations were based on mean sea level (NGVD) data. One would need to add approximately 2.6 feet to those elevations to convert to the tide tables. The two main flooding conditions that were looked at were the following: 1) storm runoff in areas that have inadequate storm drainage systems and; 2) flooding due to tidal inundation from San Francisco Bay or San Clemente Creek. He discussed the interior drainage problems and stated they looked at and recorded the occurrences of curb ponding. They also looked at the Town's old flood records. They found that one of the major reasons for this ponding and undulating streets was localized differential settlement. They hired a geotechnical engineer to study the area and anticipate how much settlement has occurred and would occur

in the future. He referred to the tidal inundation problem and pointed to the current FEMA flood map and a map that plotted the flooding in the Mariner Cove and Marina Village areas. He stated they did some hydraulic and hydrologic analysis of the areas to come up with some solutions. These proposed improvements included storm drains and pump stations to handle the localized drainage. In addition, they are recommending using grated line drains to handle the localized curb ponding. These continuous drains along the concrete gutter would be connected to the local storm drain system. They also recommended installing a flood wall to alleviate the tidal inundation. Subsequent to the study, the Town asked AN West to design a pilot project to deal with the localized drainage. Improvements related to the drainage problems are far easier to implement than improvements related to flooding from tidal inundation from both a cost standpoint and environmental review. He discussed the pilot project planned in the Golden Hind area that would include a small, underground pump station, piping improvements, and grated line drains.

Boardmember Zeller asked if the pilot project also included a new duckbill valve. Mr. Jadkowski stated "yes" and noted the duckbill valve has already been installed. Town Manager Bracken stated they coined the term "pilot project" in order to show what the improvements could do in a particular area. This combination of improvements, including the pump station, valves, and the slot drains, needs to be done in six of the seven watersheds. He discussed possible funding for the other projects (General Fund, tax measure, assessment district, etc.).

Chair Bundy stated in the past that area along Golden Hind across from San Clemente School would be flooded during a high tide but the duckbilled check valve has prevented tidal inundation that would come back through the storm drains and flood the street. There is still some flooding in that area during heavy rains and high tides but the tide is no longer filling up the streets and as soon as the tide goes down the flooding decreases. The initial phase which includes the check valve has been very successful and has kept the streets from flooding the majority of the time. The next phase of the project is installation of the pump station which would take care of street flooding associated with the heavy rains. What it would not take care of would be an eight-foot tide that comes in between the houses and floods the streets. Mr. Jadkowski agreed. Chair Bundy stated the proposed solution to that problem would be the barrier project. He stated there were cost and environmental concerns associated with this phase of the study.

Mr. Harry Schriebman had a question about one of the elevations. Mr. Jadkowski stated it was a still water elevation. They did evaluate sea level rise conditions in the study and design, and he noted they have built in the ability to raise the sheet pile walls. They have designed for a deeper foundation. Mr. Schriebman had questions about the Mariner Cove development. Boardmember Medigovich stated when Mariner Cove was originally built the drainage worked fine until about 1980. He pointed to the chart that indicated the levels of subsidence throughout the years. He noted the bay mud was about 25 feet deep at Paradise Drive and at the first turn at Golden Hind (going in from the school) it is about 120 feet deep. The amount of settlement is directly proportional to the depth of the bay mud. The street ponding occurs randomly because the settlement occurred randomly. The pilot project basically builds the "plumbing" that would solve some of the problems in the neighborhoods during a storm.

A resident had questions about the pilot project map and drawings. Mr. Jadkowski referred to the map and stated the red/purple lines were new storm drains (underground) that are needed to increase capacity and the green line indicates the curb line drains that would go in the gutter itself.

A resident had questions about the proposed sheet pile wall including the location, cost estimates, etc. Mr. Jadkowski pointed to the overall map where the walls would be located. He pointed to San Clemente Creek and the San Francisco Bay and traced the perimeter of the proposed wall. He pointed to the sections for the design elevations and noted the wall would be at elevation eight above mean sea level, with the ability to raise the wall another five feet on the bay side and two feet on the creek side. Chair Bundy stated this was a recommendation from FEMA. Mr. Jadkowski stated they reviewed a number of studies. He stated the profiles show a wall that varies from three to five feet, with a measurement of seven feet in the deeper areas. The cost estimate obtained in May 2007 for the tidal inundation improvements was about \$15 million.

A resident asked if residents would have a choice to install the wall or whether it would be mandatory. Public Works Director Ring stated it would not really work unless everyone complied. The resident asked if this was something that would be voted on by the citizens or just decided by the Town Council. Chair Bundy stated there would probably be an assessment district that would require a vote of the citizens that were directly affected. Obtaining money from the Federal Government or other tax revenues was unrealistic given the cost. The resident discussed a project that included the Madera Gardens area and noted there was a Town-wide assessment/storm tax and not an assessment district. The same thing should happen for this project. Chair Bundy stated those issues were related to rainwater runoff and the usual causes of flooding. People that bought water front property might have gotten more than they bargained for and the tidal barrier would deal with tidal inundation for developments that probably should have not been developed in the first place. He felt there was a difference between tidal inundation and the usual flood issues that communities have to deal with. Discussions so far about financing have been speculative. The resident asked if the proposal includes building up the levy. Mr. Jankowski stated that would be part of the tidal inundation project.

A resident had questions about Marta's Marsh and noted it seemed to be "falling into the bay". Boardmember Medigovich stated "nature has taken the marsh". Chair Bundy stated this would be under the jurisdiction of the Department of Fish and Game and their goal is to have it return to its more natural habitat. The barrier they are discussing would be located further west. Mr. Jankowski stated Phase 1 of the project ended at the Marina Village pump station. There is another project that includes extending the levy north to Larkspur.

Chair Bundy stated the duckbilled check valve that keeps the tidal water from backing up through the storm drains and filling up the streets gives them a lot of "bang for the buck". The pump station helps keep the streets clear during moderately high tides and rainfall. This can be replicated in other areas. The tidal inundation issue would need to be decided down the road. In the long run they need some proposal that would protect everyone. The goal is to try to come up with a solution that would have the least environmental impact and raise the fewest red flags.

The resident asked if a levy would offer some type of protection. Chair Bundy stated the levy that was built around the turn of the century was really lining San Clemente Creek but did not offer a lot of protection because the creek is at the same level as the bay. Mr. Jankowski stated there were some areas where the water would just go between the houses.

A resident asked about creating an earthen berm. Mr. Jankowski stated this was reviewed along with the environmental impacts. The sheet piling wall would have a very narrow footprint that would lessen the impact. A levy would cover a much wider area and would need to be engineered fill. The bay mud would not be suitable.

Mr. Schriebman asked about using plastic (vinyl) retaining walls. Mr. Jankowski stated they have looked at this as a part of the preliminary evaluation. Mr. Schriebman stated the cost would be considerably less using this material. Mr. Jankowski stated he was not sure it would be ridged enough depending on how deep it would need to be driven. Boardmember Trailer asked about the cost of this material. Mr. Jankowski stated it was cheaper. Boardmember Trailer asked if this material offered the option of raising the wall at a later date. Mr. Jankowski stated it was more difficult to raise vinyl than steel. A resident asked about the problem with corrosion of the steel. Mr. Jankowski stated the steel could be coated. Chair Bundy stated once materials get into the bay mud they do not deteriorate due to the lack of oxygen. He noted the issues were; 1) the cost of installation; and 2) the disruption associated with going through backyards.

A resident asked about the next steps in moving forward. Chair Bundy stated the Town would be implementing some of the more immediate solutions such as the check valves and pump stations. Hopefully, they can find a cheaper way to implement the barrier. The resident asked if a pump station would be installed near San Clemente School. Public Works Director Ring stated "yes" and the plan is to install it in the summer. He stated that not all of the tributary areas need pump stations. Mr. Jankowski stated the study prioritizes the projects as high, medium, and low. Town Manager Bracken stated they

were focusing on the most immediate needs via the Flood Board. A resident stated they should get the matter on the ballot and start to accumulate the funds to do the project. Town Manager Bracken stated that was a good point and the pilot project shows that there are feasible solutions. He stated they might look at a combination of financing mechanisms including an assessment, grants, some General Fund money, etc.

Chair Bundy noted many homes in his neighborhood have been raised above the flood stage and there are some very good ways to raise the garage floor. However, this does not help solve the overall problem of high tides coming between the houses into the streets making them impassible. He is very pleased with the results of the initial phase of the pilot project. Boardmember Medigovich stated in some instances some improved landscaping was a very effective way of keeping bay water out of backyards. Boardmember Bennett agreed and stated a berm could easily be created. A resident asked if this type of work required any permits. Chair Bundy stated this was a question for staff. These types of improvements were effective but they need to look at more long-term solutions such as a more substantial barrier. Mr. Jadcowski noted any time fill is put on top of bay mud it will consolidate at a faster rate and effect the settlement.

Boardmember Bennett asked if Paradise Cay was built on fill and had similar problems. Town Manager Bracken stated he did not know the level of bay mud in that area but they do have settlement problems. This area is part of the Corte Madera Sanitary District and they have to repair the broken pipes. They do have the same type of problems although they were built at a higher elevation.

A resident asked if the firehouse has had any problems. He stated this structure was built at a higher level. He asked staff if it was built on pilings. Town Manager Bracken stated it was built on a mat foundation which helps with the settlement. The depth of bay mud in that area is less than other areas. Mr. Jadcowski agreed and pointed to the map.

A resident had questions about the FEMA Flood Map and flood insurance. Town Manager Bracken stated FEMA recently resurveyed flood areas and updated their maps. They did not change what they determined to be an elevation of flooding or the flood plain but rather resurveyed and found that some areas have settled which means that more areas are flooding with the same elevation of water. They have not changed the elevation of the flood plain. A resident asked if the proposed wall would change the new ratings. Mr. Jadcowski stated it would depend on the height of the wall. The resident asked if FEMA would factor in the wall in their ratings. Mr. Jadcowski stated "yes" if it was brought up to FEMA standards.

Chair Bundy asked for comments on how the Town and the Board could get the message out and get more feedback from residents. A resident stated many residents think that nothing would get done but a successful pilot project could change some minds. A resident stated the Mariner Cove Homeowners' Association was very active and the Town should post information on the Town Website and hold more community meetings. Boardmember Bennett encouraged residents to apply to serve on the Flood Board when there is an opening because it is educational and a way to get the word out.

A resident stated it was good to see that Marina Village was included in the project because that area had significant ponding problems. He stated there was a drainage easement on the east side of his property and he asked about its history and its effectiveness. He added a neighbor had filled in part of the easement many years ago. Public Works Director Ring stated that easement was built for the benefit of the residents behind his home and was supposed to drain into the street. Many residents have installed a pump in their backyards. He recently looked at the easement and it looked in good shape but could probably use some reworking.

A resident noted some areas were worse than others and he asked about those locations. Mr. Jadcowski stated the proposed pump stations were located in the high priority locations. Boardmember Bennett stated the Board goes over the priority list on an annual basis and makes adjustments as needed. She stated this list should be made available to the public. Chair Bundy stated the priority was the storm drains that have subsided to such a low elevation that the high tides back up through them. These are the ones where they would install the duckbilled check valves and the ones that are particularly low would get a pump. Town Manager Bracken referred to Staghound Passage and stated it was one of the most dramatic examples of differential settlement in the area. He noted there were sloughs that went through that area at one time.

Mr. Jadowski stated there were photographs in the AN West report of Mariner Cove and Marina Village in 1946, 1950, and 1958 that showed the sloughs prior to the placement of the fill. He noted it was like a "spider web" that covered the area. Town Manager Bracken stated they would ask the consultants to look at broadening the scope of the pilot projects.

A resident suggested extending or increasing the amount of the Flood Tax in order to accomplish some of these projects. She noted there was an obvious need for more money right now. Town Manager Bracken agreed and noted the intent of the pilot project was to let the public know that there were solutions to some of the problems.

Chair Bundy stated the issue is very complicated and they have come a long way in understanding the problems and coming up with solutions. He thanked everyone for his or her comments.

The meeting was adjourned at 9:08 p.m.