



# Kona Soil and Water Conservation District

81-948 Waena'Oihana Loop # 101 - Kealahou, HI 96750 - 808-322-2484 - FAX 808-322-3735

June 10, 2011

Mayor William Kenoi  
25 Aupini St.  
Hilo, HI 96720

**RE: Storm Event of May 6, 2011**

Dear Mayor Kenoi:

On May 6<sup>th</sup> the Kealahou area received rain at the rate of 3.4 inches per hour as reported by Hawaii Civil Defense. This rainfall resulted in the temporary closure of Mamalahou Highway and centralized flood damage. There were businesses in Kainaliu and some area farms and ranches that suffered damage as a result of this event.

On May 20<sup>th</sup> our staff walked a portion of the Lehuula watercourse from Mamalahou Highway to the Hokulia Bypass. A photo-documentation report of that inspection is enclosed.

On June 2<sup>nd</sup> members of our Board of Directors, staff, USDA's Natural Resource Conservation Service staff, Hawaii County Department of Public Works staff and some local residents toured and inspected flood control structures KD-4, KD-5 and KD-2 mauka of Kainaliu. Photo-documentation, maps and a GPS log of that tour is enclosed.

The Kona SWCD found that the watercourses did not contain all of the rainwater. It is believed this was primarily the result of the volume of rain. At the northern end of flood control structure KD-4 a resident's rain gauge with 6" capacity overflowed in less than 2.5 hours. This was at the 1800' elevation. There was some overflow at this end of the structure.

It is recommended that the county's Department of Public Works remove sediment from diversions KD-4 and KD-5. In KD-4 there is grouted rock rip rap at the southern end some depth of which is likely to be covered up. In diversion KD-5 ground level should be lower than the box inlet. This will allow sediment to fall out of suspension so that cleaner water can enter the box inlet preventing debris from creating an obstruction within the box or the lava tube the box empties into.

The Kona SWCD understands that the area around KD-5 will be a difficult area to work in to remove sediment due to the presence of lava tubes and potential hazards to Public Works Department work crews. We recommend smaller sized earth moving equipment be used in this area to minimize any potential threat to the work crews.

Board of Directors

Kawika Marquez

William "Skip" Cowell

Greg Hendrickson

Rick Robinson

We are happy to continue working with the Department of Public Works to ensure our community is protected from the hazards of flooding.

Best regards,

A handwritten signature in brown ink, appearing to read 'RR', with a long horizontal line extending to the left.

Rick Robinson  
Chairperson, Kona Soil and Water Conservation District

Board of Directors

Kawika Marquez

William "Skip" Cowell

Greg Hendrickson

Rick Robinson

# PHOTO DOCUMENTATION FORM

Client/Business:	<b>Hawaii County Dept. of Public Works</b>	Date Form Completed:	<b>6/7/11 (Draft, to be approved by KSWCD Board of Directors)</b>	
Photographer:	<b>Mary Robblee</b>	Plot ID:		TMK: <b>Various</b>

These photos were taken on 6/2/11 during a flood control structure tour. On 5/6/11 there was a storm event that brought more than 6 inches of rain to this area in less than 3 hours. This was an inspection requested by property owners who have these structures within their parcel.

	
<p>Diversion south of GPS point 322/323 with recently mowed vegetation.</p>	<p>Another view of the diversion with mowed grass</p>
	
<p>Visible rocks are part of a grouted rock rip/rap lining on makai side of swale. Per the design drawings dated March 1967 the rocks should be at least 6' in height.</p>	<p>An African Tulip Tree within the diversion. It is recommended that it be removed otherwise the fence along side could be damaged. There are telephone and/or cable line through its branches.</p>



Description: GPS points 322 & 323 on map. This picture shows the debris that collected at Ken Springer's fence. The modifications made to his fence worked and water was allowed to flow under it.



Description: This is on the fence on eastern side of the gate, note the debris.



Description: Sediment that collected within the flood control structure. The entire channel should be checked for grade and sediment should be removed where needed. All bare areas should be reseeded with an appropriate grass species.



Description: Looking northerly through the flood control structure. The grass is in need of cutting.



Description: This picture was taken at GPS point 324 and is looking southerly. At the opening in gate seen in the distance is a road that cuts through the flood control structure. Beyond that is the grassy area shown in the previous picture.



Description: Heading northerly through the flood control structure. In the left hand corner of the photo is roof. This is the area of the concrete channel that brings flood water into a lava tube/cave, note the line of debris, indicated by black arrows, caused by high water. It is believed this grass swale has to be dug out so that meets its original capabilities.



Description: This is the end of the grassy area shown in the previous photo. It is the beginning of the concrete channel that flows into a lava tube/cave.



Description: This is a close-up of the debris collected along a fence at the beginning of the concrete channel. Debris collected in the fence is approximately one foot above the concrete structure.



Description: This picture shows the rain gauge that was over topped during the storm event on 5/6/11. This picture at GPS point 325. At the end of the grassy area is the fenced off area where the concrete channel flows into the lava tube/cave.



Description: This shows where the concrete channel enters the lava tube/cave. This picture was taken at GPS point 326.



Description: A hole in the side of the concrete channel. This is expected to be repaired.



Description: Picture taken from GPS point 328. It shows where the water came onto the property, looking north easterly.



Description: Where the water went from GPS point 328.



Description: GPS point 329, where the county used to access a flood control structure. Due to a fence and extensive christmasberry growth they are no longer able to do so. They plan to dig out some of this so that water can flow more easily into the sediment basin area from the road instead of traveling down the road.



Description: Flood control structure #3 at GPS point 330. After the 5/6 storm event .large boulders were covering this grate.



Description: Another shot of flood control structure KD-5. The shows the depth of sediment in front of the concrete lined pit. Normal sediment level should be approximately two feet below the inlet to the structure.



Description: Sediment and debris have damaged this fence. This is where water flowed (GPS point 331) from the sediment basin onto the makai property in the area of GPS point 328. It is believed this sediment basin needs to be dug out so that it meets its original capabilities.



Description: A close up picture of the downed fence.



Description: Damage to the road caused by the 5/6 storm event.



Description: The most mauka flood control structure visited on 6/2 KD-2. There is no sign of flooding, there is no debris line shown along the berms of the grassed swale. It is estimated only 1-2 inches of rain fell in this area on 5/6. This is GPS point 333.



Flood Control Structure GPS Point Log 6/2/11

Point Number	Description
322/323	Ken Springer's Gate Approximate elevation, 1,800 feet
324	Gate Approximate elevation, 1,800 feet
325	Rain gauge, overtopped during storm event on 5/6/11. Rain gauge capacity, 6 inches Approximate elevation, 1,800 feet
326	Fence around area of cave that the concrete channel flows into. Approximate elevation, 1,780 feet
327	Northeast corner of Barnett Home Approximate elevation, 1,900 feet
328	Where 2 pictures were taken along Barnett property. One picture is the eastern view showing where the water traveled, the other picture shows where the water came from. Approximate elevation, between 1,840 & 1,880 feet
329	Where the county used to access a flood control structure. They no longer access from this area because of the overgrowth of christmasberry and a fence. Approximate elevation, just above 1,880 feet
330	Grated flood control structure. Per engineering drawings this is flood control structure KD-5. Approximate elevation, between 1,840 & 1,880 feet
331	Downed fence, this is where the water came from in point 328 Approximate elevation, between 1,840 & 1,880 feet
332	Driveway entrance to home occupied by Ryan Barnett. Approximate elevation, just above 1,840 feet
333	Flood Control Structure KD- Approximate elevation, 2440 feet

# Flood Control Structure Tour

## June 2, 2011



### Legend

- 6.2.11 Flood Control Structure GPS Points
- 6.2.11 Flood Control Structure GPS Tracks

1 inch equals 700 feet



# Flood Control Structure Tour June 2, 2011



**Legend**

- 6.2.11 Flood Control Structure GPS Points
- 6.2.11 Flood Control Structure GPS Tracks

