



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
Stream Protection and Management Branch

## FIELD INVESTIGATION REPORT

FI2008102402 (East Maui, Hanehoi IIFS Site C)

<b>Date of Field Investigation:</b>	October 24, 2008	<b>Time (24-hour):</b>	0930 - 1300
<b>CWRM Staff:</b>	Dean Uyeno, Ken Kawahara, Chui Ling Cheng		
<b>Individuals Present:</b>	Agency staff - Matt Wong (USGS-Maui field technician), Skippy Hau (DAR staff); Honopou community - Lynn Scott, Beatrice Kekahuna, Sanford Kekahuna, and Wanda Vierra; Huelo community - Moke Kahiamoe, Moke Kahiamoe Jr., and Ernie Schupp; EMI staff - Kai Andaya (Supervisor), Sherman Hauupu (Crew Chief)		
<b>Hydrologic Unit:</b>	Hanehoi (6037)		
<b>Stream Name:</b>	Puolua (Huelo) Stream		
<b>Findings:</b>	<p>At approximately 0930 hours, staff crew (CWRM staff, Skippy Hau and Matt Wong), members from the Honopou and Huelo community, and EMI staff arrived at the Lowrie Ditch on Hanehoi Stream. Staff crew hiked up the ridge trail, that EMI staff had previously cleared, to access the section of Hanehoi Stream upstream of the waterfall and the Huelo community intake pipe. The trail begins on the left bank of Lowrie Ditch and ends above the waterfall. Once at the top of the waterfall, staff crew evaluated the section of the stream from the waterfall to approximately 150 feet upstream. Since there was a pond (with 4 feet deep of water) about 50 feet upstream from the waterfall, Matt Wong and Ken Kawahara hiked along the streambank to cross the pond and continue evaluating the stream section. Matt recommended two locations: 1) one for flow measurement; and 2) another to record gage height as well as for the possible installation of a staff gage. Together, these represent interim instream flow standard (IIFS) Site C as indicated in the staff submittal. The flow measurement location is approximately 1.5 feet upstream of the waterfall. The location chosen for gage height measurement was set approximately 3 feet from upstream of the waterfall.</p> <p>Under Matt Wong's supervision, the staff crew prepared the site for flow measurement. To ensure laminar flow, staff crew spent 30-40 minutes moving a large boulder to the side of the stream using a shovel and two large branches for leverage. Then, the site was flagged with yellow tape, labeled with the stream name, IIFS site, and the date. In addition to flow measurement, staff crew also recorded wind velocity, air temperature, water temperature and weather conditions. Matt Wong set up a reference point at the location chosen for gage height measurement. Matt used a hammer drill to install an anchor bolt to a rock on the stream bank. Matt did not use red spray paint to mark the location because the streambank was saturated. As computed back in the Honolulu Office, the flow at IIFS Site C was 0.071 cubic feet per second (0.046 million gallons per day), with no change in gage height.</p> <p>Staff crew left the IIFS Site C at approximately 1200 hours and hiked back down the ridge trail. One the way back, staff crew (excluding Matt Wong) hiked a short side trail to the bottom of the waterfall, where the Huelo community intake pipe is located. Photos were taken to document the height of the waterfall as well as the Huelo intake. Dean Uyeno measured the outside diameter of the pipe to be 2.5 inches wide.</p> <p>Once at Lowrie Ditch, CWRM staff took a volumetric measurement of the water flowing through the two 3.5-inch (O.D.) PVC pipes that bypasses the ditch. With a stopwatch, staff recorded the number of seconds both pipes took to fill a 2 gallon bucket. This process was repeated 5 times, making a total of 5 measurements. As computed back in the Honolulu Office, the flow from the pipes was 0.037 cubic feet per second (0.024 million gallons per day).</p> <p>Staff crew left Hanehoi IIFS Site C at approximately 1300 hours, and continued with the next field visit to select IIFS Site B on Palauhulu Stream. Refer to Field Investigation Report FI2008102403 (East Maui, Palauhulu IIFS Site B) for more information.</p>		
<b>Image Listing:</b>	(Attach PDF of image contact sheet)		
<b>File Name:</b>	<b>Brief Description:</b>		
20081024026	Hanehoi Stream downstream of the Lowrie Ditch and the EMI access road.		
20081024028	Lowrie Ditch at Hanehoi Stream.		
20081024029	Two bypass pipes of Lowrie Ditch at Hanehoi Stream.		
20081024033	Matt Wong selecting a location for gage height reading at IIFS Site C on Hanehoi Stream.		
20081024034	Hanehoi Stream upstream of the waterfall and the IIFS Site C.		
20081024036	A 4 feet deep pond upstream of the waterfall and the IIFS Site C on Hanehoi Stream.		

20081024038	CWRM staff preparing the location for flow measurement on Hanehoi Stream.
20081024041	Top of the waterfall upstream of the Huelo intake on Hanehoi Stream.
20081024043	Matt Wong installing an anchor bolt to the streambank for gage height reading on Hanehoi Stream.
20081024051	Staff crew moving a boulder to the side of Hanehoi Stream.
20081024055	Staff crew moving a boulder to the side of Hanehoi Stream.
20081024057	CWRM staff (Dean Uyeno) cutting a large tree branch to use as a tool to move the boulder on Hanehoi Stream.
20081024058	Staff crew moving a boulder to the side of Hanehoi Stream.
20081024060	CWRM staff (Chui Ling Cheng) and Matt Wong conducting flow measurement on Hanehoi Stream.
20081024064	Staff crew conducting flow measurement on Hanehoi Stream.
20081024067	CWRM staff (Chui Ling Cheng) conducting flow measurement on Hanehoi Stream.
20081024074	CWRM staff (Dean Uyeno), Skippy Hau, and Matt Wong recording flow measurements on Hanehoi Stream.
20081024079	Anchor bolt marking the reference point on Hanehoi Stream.
20081024082	Staff crew conducting flow measurement on Hanehoi Stream.
20081024086	Waterfall above the Huelo intake on Hanehoi Stream.
20081024089	Hanehoi Stream immediately downstream of the waterfall.
20081024099	Two bypass pipes at Lowrie Ditch on Hanehoi Stream.
20081024100	CWRM deputy (Ken Kawahara) taking volumetric measurement of the two bypass pipes at Lowrie Ditch on Hanehoi Stream.

**GPS Listing:**

**Shapefiles:** (List file names of all shapefiles created and a brief description of each)

<b>File Name:</b>	<b>Brief Description:</b>
East_Maui_POI.shp	Points of interest (POI) recorded with the GPS unit during the field visit. The file includes POI recorded from all the East Maui field investigations.

**Waypoints:** (List all waypoints in decimal degrees and provide a brief description of each)

<b>WP No.</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Brief Description:</b>

**Attachments:**

**Brief Description:**

1. Image Contact Sheet
2. Discharge Measurement and Gage Inspection Notes

**Recommendations:**

# IMAGE CONTACT SHEET



**20081024026.JPG**



**20081024028.JPG**



**20081024029.JPG**



**20081024033.JPG**



**20081024034.JPG**



**20081024036.JPG**



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**20081024041.JPG**



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# IMAGE CONTACT SHEET



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