



**BROCKWAY**  
ENGINEERING  
P.L.L.C.

Hydraulics

Hydrology

Water Resources

*INSPECTION and  
New Water Connection*

December 1, 1997

Mr. Patrick Brown  
Hepworth, Lezamiz & Hohnhorst  
133 Shoshone St. N.  
P.O. Box 389  
Twin Falls, ID 83303-0389

Re: O'Crowley v. Olivas, Court Case No. 94-00013  
Geothermal water delivery system recommendations

Dear Pat:

This letter report is to document our findings with regard to the O'Crowley geothermal delivery system in Murphy Hot Springs, and to make recommendations to ensure the reliable delivery of the water. A site visit was made to the property on October 20, 1997. The configuration of the geothermal delivery system, including the spring collector, supply pipeline, and in-house distribution system were documented.

The geothermal water is collected at two springs located on the talus slope on the west side of the Jarbidge River canyon. The two springs are locally known as the north spring and the south spring. Water collected from the two springs runs in 3-inch PVC pipes parallel to the talus slope. The two pipes join approximately halfway between the springs, and continue directly down the slope to Mr. Olivas' structures.

On the north side of Mr. Olivas' hot tub shelters, the pipeline splits into a north line and a south line. The south line splits again, with one line feeding the hot tubs and one line being routed through a pump. The pump was running at the time of the site inspection, and appeared to be pumping water eastward across the river to an unknown destination. The north leg runs northward to the O'Crowley property line, then eastward to an unknown destination. Overflow from the hot tubs is diverted through several pipes to a small ditch running north onto the O'Crowley property. This water is covered under license 51-7138 for 0.1 cfs. At the time of the investigation, this overflow was estimated at 10 to 15 gpm.

Upstream of the first split, a 3/4-inch tee is located in the pipeline, which is intended to deliver water to the O'Crowley property under a domestic water right claimed under A51-10220 for the amount of 0.01 cfs (5 gpm). The tee is

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oriented pointing horizontally, and the 3-inch pipe was not flowing full at the time of inspection. This is a result of 1) insufficient discharge from the springs for the given elevation drop; and 2) a reduction of the level due to the effect of Mr. Olivas' pump. The water level in the pipe is apparently below the level of the tee, thereby reducing the discharge delivered to the O'Crowley property to unusable levels, as evidenced by a maximum flow of 0.5 gpm measured at the kitchen faucet.

In order to restore the delivery of water to the O'Crowley property, it is recommended that the existing method of tapping Mr. Olivas' system be abandoned in favor of a direct connection at the north spring. However, the spring is entirely captured and enclosed by unformed concrete, to which the Olivas pipe is connected. This precludes the construction of an independent collection device for the O'Crowley pipeline without constructing a new collection mechanism for both pipelines. Therefore, it is recommended that a saddle tee be installed in the existing pipe just downstream of the concrete and upstream of the regulating valve, as shown on the enclosed drawing. This would provide a relatively tamper-proof connection for the O'Crowley residence.

An elevation survey was performed to ensure that sufficient head exists to deliver the flow rate from the spring. Approximately 30 feet of head is available from the north spring to the residence, which is sufficient. The total discharge from the north spring was measured by shutting off the downstream valve, removing the threaded cap, and measuring the flow rate issuing from the pipe with a bucket and stopwatch. A total of 21 gpm was measured at this point, which is more than adequate to supply 5 gpm to the O'Crowley residence.

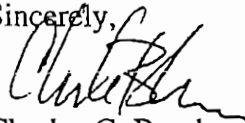
The following specific recommendations are made (please reference the enclosed drawing):

1. Install a saddle connection on the collection pipe for the north springs, in the location shown on the drawing. The size of the connection should be 1-1/2 inch (or 2-inch reduced to 1-1/2 inch), and the connection must face straight down.
2. Install a 1-1/2 inch pipe running directly down the slope from the north spring. Cut the existing 1-1/2 inch pipe running along the toe of the slope and connect the new pipe.

3. Pursue an order that Mr. Olivas remove his pump from the system, thereby increasing the overflow rate to historical levels for delivery under license 51-7138.
4. Regulate and measure the domestic water delivered to the O'Crowley property for compliance purposes. An existing valve located where the water enters the spa room can be utilized to regulate the flow. The flow rate can be measured with a bucket and stopwatch at a standpipe located at the south end of the patio.

If you have any questions or need further information, please do not hesitate to call.

Sincerely,



Charles G. Brockway

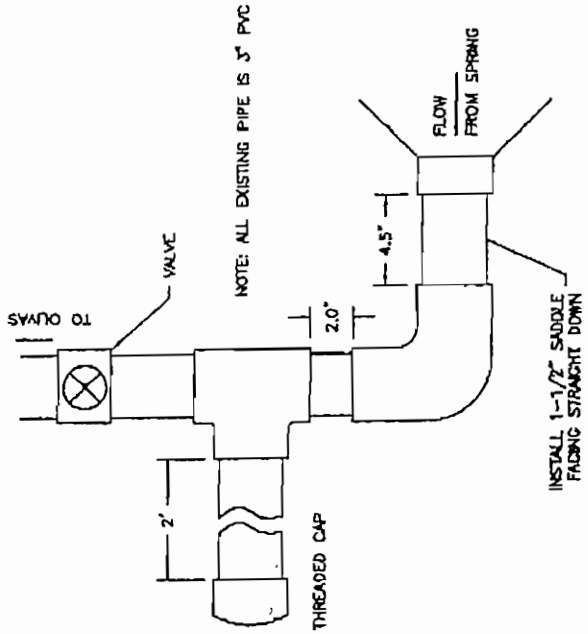
enclosure

cc: Janet O'Crowley

| ZONE | REV | DESCRIPTION | DATE | APPROVED |
|------|-----|-------------|------|----------|
|      |     |             |      |          |

TO RESIDENCE / O'CROWLEY PROPERTY LINE

SPRING FLOW COLLECTOR (PLAN VIEW)

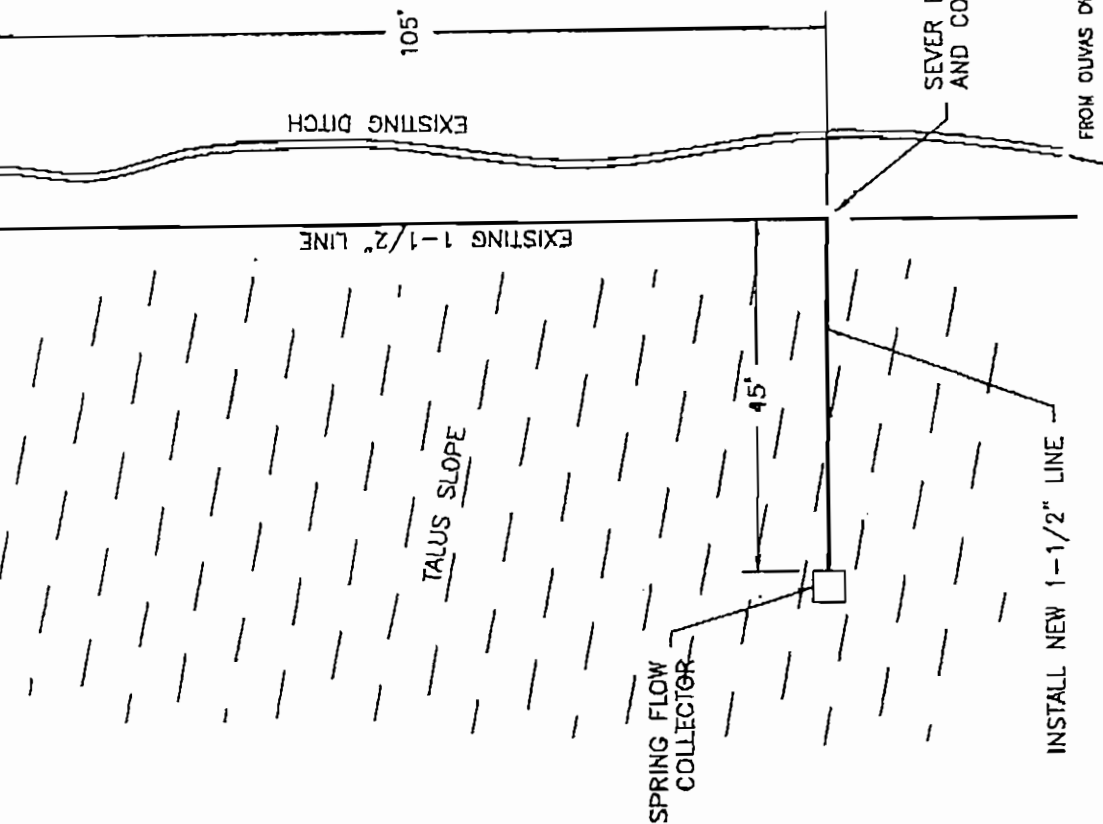


NOTE: ALL EXISTING PIPE IS 3" PVC

INSTALL 1-1/2" SADDLE  
FACING STRAIGHT DOWN

|             |  |                                  |  |
|-------------|--|----------------------------------|--|
| PROJECT     |  | GEOTHERMAL WATER DELIVERY SYSTEM |  |
| ENGINEERING |  | O'CROWLEY PROPERTY               |  |
| DATE        |  | MURPHY HOT SPRINGS, IDAHO        |  |
| 10/22/97    |  | CGB                              |  |
| SCALE       |  | NONE                             |  |
| SHEET       |  | 1 OF 1                           |  |

TO RESIDENCE / O'CROWLEY PROPERTY LINE



SPRING FLOW  
COLLECTOR

SEVER EXISTING LINE  
AND CONNECT NEW LINE

INSTALL NEW 1-1/2" LINE

FROM OUVAS OVERFLOW

RECEIVED

JAN 31 2011

DEPARTMENT OF  
WATER RESOURCES

