

February 1, 2023



6930.06

County of Humboldt Planning and Building Department  
3015 H Street  
Eureka, California 95501

Attention: Trevor Estlow

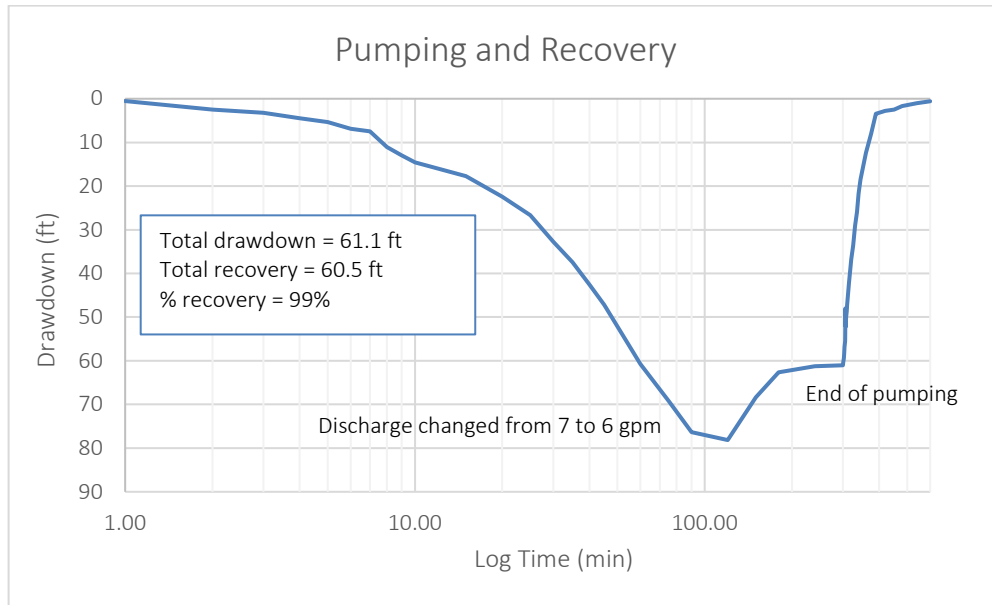
Subject: Hooven Lot Split – Dry Season Well Testing  
2190 Hooven Road, McKinleyville, CA; APN 511-191-003  
PLN-2022-17660

Dear Mr. Estlow:

LACO Associates (LACO) was retained by Mr. Art Hooven (Applicant) to resolve outstanding questions in a proposed lot split at the above-referenced parcel. In your letter dated March 4, 2022, you indicate that there may be deficiencies in a dry season pumping test conducted by Rich's Well Drilling on August 17, 2021. I believe the data that were originally presented to the county may not have been on the County's forms with all of the required test information. Those data have since been transcribed onto the drawdown and recovery test data forms and are attached to this letter.

Humboldt County Division of Environmental Health's *Water Production Standards and Test Procedures* (July 30, 2021), states that a well with an anticipated one to two connections should undergo a pumping test for sustainable yield lasting 12 hours and that the time may be reduced to 8 hours if the pump never breaks suction and the calculated specific capacity is greater than 0.05. During the August pumping test, the pump operated continuously and the specific capacity was 0.11. However, the pumping test was conducted over a period of six hours rather than eight. We hope to provide sufficient evidence to allow the County to accept this pumping test as adequate with the provision that on-site storage is provided.

Discharge for the pumping test started at 7 gallons per minute (gpm) and stayed at this rate for 2½ hours. At that point, the drawdown was still increasing, and the discharge rate was dropped to 6 gpm for the remainder of the test. At 6 gpm drawdown stabilized with less than 1 percent change in drawdown over the final two hours of the testing. Recovery was monitored over an additional six-hour period with 99 percent recovery at the close of testing. The results of the pumping test indicate that the aquifer did not stabilize under the initial condition of discharge at a rate of 7 gpm, but that at 6 gpm, stabilization was readily attained with drawdown stabilized to within 4 percent of the final value 30 minutes after the reduction in discharge rate. The chart below illustrates the results and the computed recovery value.



The site currently has a storage tank with a capacity of approximately 2,000 gallons and the Applicant proposes adding a second tank for a total of approximately 4,000 gallons. Two residences with an assumed three bedroom each require 900 gallons per day under County guidelines. We propose restricting the well to a discharge rate of no greater than 5 gpm. The well will fill the storage tanks directly after which water will flow to a pressure tank prior to distribution to the residences. Once the tanks are initially filled, residential use will require no more than 3 hours of pumping from the well per day for replenishment. At 5 gpm, this should not induce stress on the aquifer.

The Applicant is hoping to start on this project this year and waiting until the next dry season in August is a hardship. Please contact me at [manhartc@lacoassociates.com](mailto:manhartc@lacoassociates.com) if you have any questions.

Sincerely,  
LACO Associates



Christine S. Manhart, CHG  
Lic. 1080, Exp. 3/31/23

CSM:mal

P:\6300\6390 Hooven & Company\6390.06 2190 Hooven Rd Water Supply Well Study\04 Correspondence\Regulatory\6930.06 Hooven Lot Split Ltr to County 20230201.docx

References:

Humboldt County Division of Environmental Health. 7/30/21. Water Production Standards and Test Procedures.



(Attachment 1) DRY WEATHER WATER PRODUCTION TEST DRAWDOWN DATA

Owner: Tipiro LLC

APN: 511-191-003

Well Location latitude:

longitude:

_____ 1/4	_____ 1/4	_____ 1/4	Section: _____	Township _____ N/S	Range _____ E/W
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Type of Water Measuring Equipment: Sounder & Tape Measure Date Test Performed: 8/17/21

Company Performing Test: Rich Well Drilling Measured By: Stuart Dickey

TIME DATA	WATER LEVEL DATA	DISCHARGE DATA
<b>PUMP ON</b> Date: <u>8/17/21</u> Time: <u>7:59<sup>AM</sup></u> (t <sub>0</sub> )	STATIC WATER LEVEL: <u>102.65</u>	HOW WAS DISCHARGE MEASURED? <u>5 Gal. Bucket and Stopwatch</u>
<b>PUMP OFF</b> Date: _____ Time: _____ (t <sub>1</sub> )	MEASURING POINT: <u>TOP OF Well</u>	DEPTH OF PUMP/AIRLINE: <u>245'</u>
<b>DURATION OF AQUIFER TEST</b> Pumping: _____ Recovery: _____	HEIGHT OF MEASURING POINT ABOVE GROUND: <u>24"</u>	

Pumping Data:

Specific Capacity:

Date	Clock Time	Time Since Pump Started (min.) t <sub>0</sub>	Pumping Water Level Measurement (ft)	Pump Rate (discharge) gpm	Comments on Factors Affecting Test Data
<u>8/17/21</u>	<u>8 AM</u>	<u>1</u>	<u>103.18</u>	<u>76 GPM</u>	
	<u>8:01</u>	<u>2</u>	<u>105.1</u>		
	<u>8:02</u>	<u>3</u>	<u>105.9</u>		
	<u>8:03</u>	<u>4</u>	<u>107.1</u>		
	<u>8:04</u>	<u>5</u>	<u>108</u>		
	<u>8:05</u>	<u>6</u>	<u>109.3</u>		
	<u>8:06</u>	<u>7</u>	<u>110.1</u>		
	<u>8:07</u>	<u>8</u>	<u>113.7</u>		
	<u>8:08</u>	<u>9</u>	<u>115.6</u>		
	<u>8:09</u>	<u>10</u>	<u>117.2</u>		
	<u>8:14</u>	<u>15</u>	<u>120.4</u>		
	<u>8:19</u>	<u>20</u>	<u>125.05</u>		
	<u>8:24</u>	<u>25</u>	<u>129.3</u>		
	<u>8:29</u>	<u>30</u>	<u>135.4</u>		
	<u>8:34</u>	<u>35</u>	<u>140.05</u>		
	<u>8:39</u>	<u>40</u>	<u>145.2</u>		
	<u>8:44</u>	<u>45</u>	<u>149.8</u>		
	<u>8:49</u>	<u>60</u>	<u>163.4</u>		
	<u>9:15</u>	<u>75</u>	<u>171.8</u>		
	<u>9:30</u>	<u>90</u>	<u>179</u>		
	<u>10:00</u>	<u>120</u>	<u>180.8</u>		<u>Reduced Flow to 66 GPM</u>
	<u>10:30</u>	<u>150</u>	<u>171</u>	<u>66 GPM</u>	
	<u>11:00</u>	<u>180</u>	<u>185.3</u>		
	<u>12:</u>	<u>240</u>	<u>163.9</u>		
	<u>1 PM</u>	<u>300</u>	<u>163.7</u>		

(Attachment 1) DRY WEATHER WATER PRODUCTION TEST DRAWDOWN DATA

Owner: TIPRO LLC APN: 511-191-003

Well Location latitude: \_\_\_\_\_ longitude: \_\_\_\_\_

____ 1/4	____ 1/4	____ 1/4	Section: _____	Township _____ N/S	Range _____ E/W
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Type of Water Measuring Equipment: \_\_\_\_\_ Date Test Performed: STUART DICKEY

Company Performing Test: Rich Well Drilling Measured By: 8/17/21

TIME DATA	WATER LEVEL DATA	DISCHARGE DATA
<b>PUMP ON</b> Date: <u>8/17</u> Time: _____ (to)	STATIC WATER LEVEL: _____	HOW WAS DISCHARGE MEASURED? _____
<b>PUMP OFF</b> Date: <u>8/17</u> Time: <u>1:01 PM</u> (t <sub>1</sub> )	MEASURING POINT: <u>TOPO F Casing</u>	DEPTH OF PUMP/AIRLINE: _____
<b>DURATION OF AQUIFER TEST</b> Pumping: _____ Recovery: <input checked="" type="checkbox"/>	HEIGHT OF MEASURING POINT ABOVE GROUND: <u>24"</u>	_____

Pumping Data: \_\_\_\_\_ Specific Capacity: \_\_\_\_\_

Date	Clock Time	Time Since Pump off <del>Started</del> (min.) to	Pumping Water Level Measurement (ft)	Pump Rate (discharge) gpm	Comments on Factors Affecting Test Data
	<u>10:1 PM</u>	<u>1</u>	<u>167.8</u>		
		<u>2</u>	<u>162.10</u>		
		<u>3</u>	<u>161</u>		
		<u>4</u>	<u>159.5</u>		
		<u>5</u>	<u>158.1</u>		
		<u>6</u>	<u>156.6</u>		
		<u>7</u>	<u>154.9</u>		
		<u>8</u>	<u>152.7</u>		
		<u>9</u>	<u>151.3</u>		
	<u>1:11</u>	<u>10</u>	<u>150</u>		
	<u>1:16</u>	<u>15</u>	<u>144.8</u>		
	<u>1:21</u>	<u>20</u>	<u>139.4</u>		
	<u>1:1</u>	<u>25</u>	<u>136.3</u>		
		<u>30</u>	<u>131.7</u>		
		<u>35</u>	<u>128.6</u>		
		<u>40</u>	<u>124.3</u>		
		<u>45</u>	<u>121.1</u>		
	<u>2:01</u>	<u>60</u>	<u>115.0</u>		
		<u>75</u>	<del>111.7</del>	<u>110.7</u>	
		<u>90</u>	<u>106.1</u>		
		<u>120</u>	<u>105.4</u>		
		<u>150</u>	<u>105.1</u>		
		<u>180</u>	<u>104.3</u>		
		<u>240</u>	<u>103.7</u>		
		<u>300</u>	<u>103.2</u>		