



**Stantec Consulting Ltd.**  
500-311 Portage Avenue, Winnipeg MB R3B 2B9

February 29, 2016  
Stantec File: 111440070  
Manitoba Conservation and Water Stewardship File: 5577.00

**Attention: Peter Crocker, District Supervisor**  
Manitoba Conservation and Water Stewardship  
Environmental Compliance and Enforcement Branch  
Box 13, 1129 Queens Avenue  
Brandon, MB R7A 1L9

Dear Mr. Crocker,

**Reference: Daly Irrigation Project – 2015 Monitoring Report – Licence No. 3010**

Stantec Consulting Ltd. (Stantec) submits the following 2015 Final Monitoring Report for the Daly Irrigation Project (the Project), on behalf of the Daly Irrigation Development Group (DIDG; the Licencee). This letter provides a summary and status of monitoring data collected in 2015, as required by *Environment Act* Licence No. 3010 (the Licence), issued on July 5, 2012.

The following information is presented:

- Upstream and downstream flows, volumes and rates of water pumped, and durations of pumping as prescribed by Clause 21 of the Licence.
- Results of the Dissolved Oxygen Monitoring Program as prescribed by Clause 22 of the Licence.
- Photographs of the Little Saskatchewan River riffle bed exposure immediately downstream of the diversion point of the Project as prescribed by Clause 23 of the Licence.

**MEASUREMENT OF UPSTREAM AND DOWNSTREAM FLOW RATES**

In accordance with Clause 21 of the Licence flow rates are to be recorded daily on a continual basis. For monitoring purposes, daily flow rates are monitored at two sites, upstream and downstream from the Project diversion point, as described below:

- The upstream flow gauging station (ID: 05MF018), operated by Water Survey of Canada, is in operation close to the crossing of Highway 25 over the Little Saskatchewan River, just downstream of the reservoir outlet at Rivers, Manitoba.
- A stream flow monitoring station was installed downstream of the pump intake on June 17, 2015. This monitoring station consists of two data loggers: one (ID: DIVER S8844) was installed at the bottom of the river to measure total water pressure and water temperature, and the other (ID: DIVER U3297) was installed at the surface, adjacent to the pumping station to measure atmospheric pressure and air temperature.



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For purposes of this report, flow rates upstream and downstream of the diversion point were compared during the irrigation period from June 11 to August 21, 2015. The Water Survey of Canada website was used to retrieve measured flows at the upstream gauging station (05F018). Figure 1 shows estimated flow rates ( $\text{m}^3/\text{sec}$ ) recorded daily at the upstream (black) and downstream (red) monitoring stations in 2015 relative to the minimum in-stream flow of  $0.524 \text{ m}^3/\text{sec}$  prescribed in the Licence.

During the irrigation season, downstream flow was generally lower than upstream, indicating withdrawals at the diversion. The estimated flow downstream of the diversion throughout the 2015 irrigation season was above the minimum instream flow requirement of  $0.524 \text{ m}^3/\text{sec}$ .

### **DISSOLVED OXYGEN CONCENTRATION**

In accordance with Clause 22 of the Licence, a Dissolved Oxygen (DO) Monitoring Program was implemented in spring of 2015 with deployment of the HOB0® U26-001 DO Logger.

The purpose of the DO Monitoring Program was to determine if the Project had an impact on DO concentration and fish habitat within the Little Saskatchewan River downstream from the diversion point. Impacts to fish habitat are conceivable when DO concentration drops to 2-4 mg/L. Fish kills may occur at DO concentrations of <2 mg/L. Optimal habitat conditions within the river are considered to be achieved at a DO concentration of 5-8 mg/L.

The DO logger was deployed on June 17, 2015, and recorded DO and temperature values at 10-minute intervals until the logger was retrieved on October 6, 2015. Daily average, minimum and maximum DO concentration and temperature were recorded and are summarized in Figure 2.

Daily average DO concentration did not fall below 5 mg/L during the irrigation season and the average concentration during the recording period was found to be 8.1 mg/L. Daily minimum DO concentrations fell below 5 mg/L multiple times during periods in July and August and fell below 4 mg/L during three discrete periods in those months. DO concentration did not drop below 2 mg/L at any point recorded during the monitoring period. The lowest DO concentration recorded was 2.55 mg/L on July 15; however this was of short duration.

### **RIFFLE MONITORING**

Under Clause 23 of the Licence, the Licencee is required to provide photographs of the riffle bed exposure in the Little Saskatchewan River downstream from the Project's diversion point during the irrigation season. A trail camera was used to record daily photographs of the riffle from June 4 until August 29, 2015.

Attachment B includes photographs that show the riffle during active irrigation dates on June 25, July 13, July 27 and August 6, 2015. The photos from June 25 (Photo 1) and August 6 (Photo 2)



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show riffle conditions during relatively high streamflows, while photos from July 13 (Photo 3) and July 27 (Photo 4) show conditions from relatively low streamflows during the irrigation period. A complete set of photographs taken by the trail camera are included on CD-ROM (submitted to Manitoba Conservation and Water Stewardship).

**CLOSURE**

We trust the information presented satisfies the annual monitoring report requirements under the Licence. Should you have any questions on the information presented, please contact me.

Regards,

**STANTEC CONSULTING LTD.**

David Whetter, M.Sc., P.Ag.  
Senior Associate, Project Manager  
Phone: 204-488-5706  
Fax: 204-453-9012  
david.whetter@stantec.com

Attachment: Attachment A – Water Use Summary; Attachment B – Riffle Monitoring Photographs

c. Bruce Webb (Manitoba Conservation and Water Stewardship);  
Ed Waldner (Daly Irrigation Development Group)

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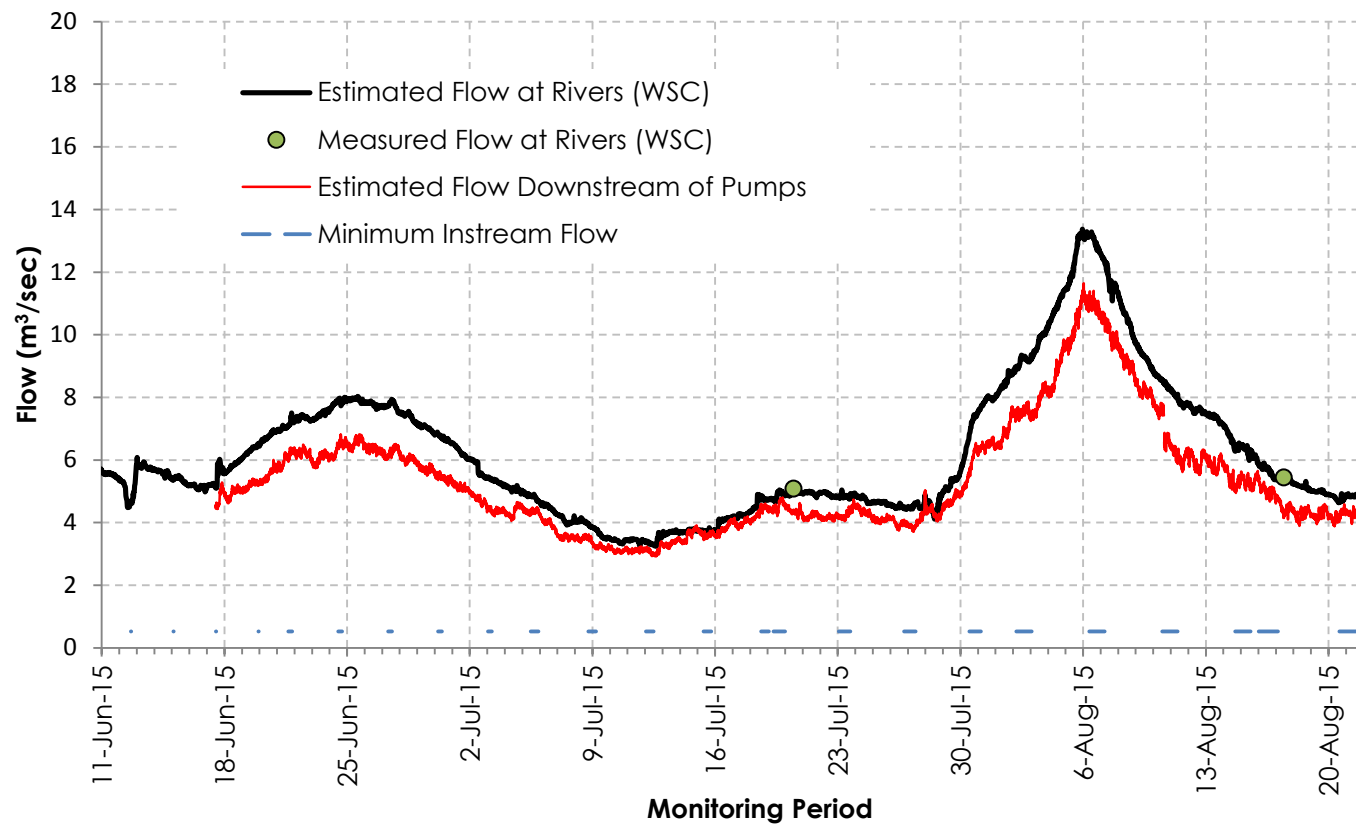


Figure 1: Streamflow Upstream and Downstream from Diversion



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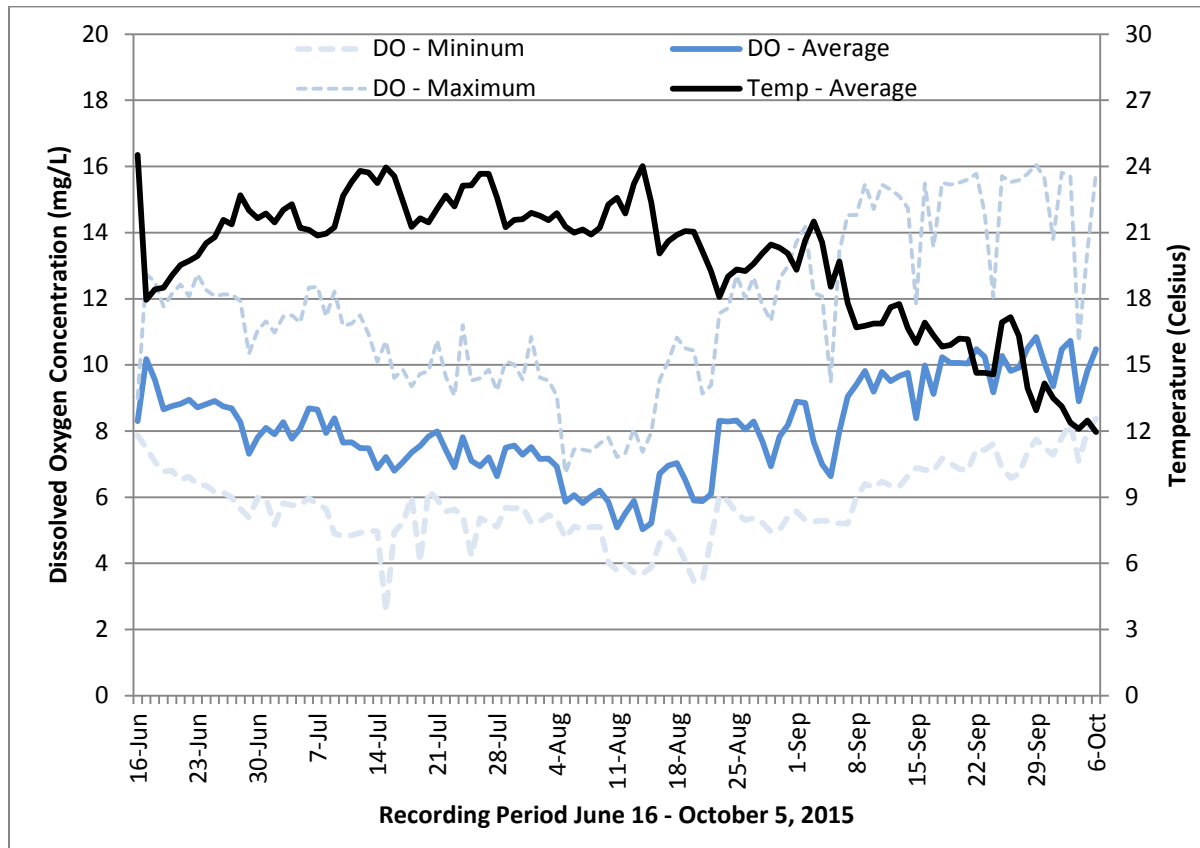


Figure 2: Measured Dissolved Oxygen Concentration and Temperature

**Attachment A – Water Use Report**  
**Reference: Daly Irrigation Project – 2015 Monitoring Report – Licence No. 3010**

**Table 1: 2015 Water Use Report**

Date (2015)	Keywest					Redfern					Sundance (Pump 1)					Sundance (Pump 2)					Diversion Point Combined Pumps  Pumping Rate (m <sup>3</sup> /s)
	Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					
	Pump Capacity: 2400 US gpm (0.1514 m <sup>3</sup> /s)					Pump Capacity: 2400 US gpm (0.1514 m <sup>3</sup> /s)					Pump Capacity: 2400 US gpm (0.1514 m <sup>3</sup> /s)					Pump Capacity: 1600 US gpm (0.1001 m <sup>3</sup> /s)					
	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		
6/10	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
6/11	2721.03	689472.81	0.17	2609.94	NW 21-12-21 NE 21-12-21 SW 21-12-21	3607.45	798313.38	0.23	3021.94	SW 5-12-21 SE 1-12-22 SW 1-12-22	2961.35	985458.19	0.19	3730.37	NW 31-11-22 NW 5-12-21 E 1/2 8-11-21	0	0	0	0		<b>0.586</b>
6/12	2355.11	464991.28	0.15	1760.18	NW 21-12-21 NE 21-12-21 SW 21-12-21	2625.71	1472024.75	0.17	5572.22	SW 5-12-21 SE 1-12-22 SW 1-12-22	2908.34	244646.97	0.18	926.09	NW 31-11-22 NW 5-12-21 E 1/2 8-11-21	0	0	0	0		0.498
6/13	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
6/14	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
6/15	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
6/16	2535.25	1280189	0.16	4846.04	NW 21-12-21 NE 21-12-21 SW 22-12-21	3012.02	1907359.75	0.19	7220.14	NW 6-12-21 SE 6-12-21 SW 5-12-21	2970.77	2189826.1	0.19	8289.39	NW 31-11-22 NW 5-12-21 E 1/2 8-11-21	0	0	0	0		0.537

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	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		
6/17	1730.44	1306042.13	0.11	4943.91	SW 21-12-21 SW 22-12-21	2665.36	2002018.5	0.17	7578.46	SW 5-12-21 SW 6-12-21 SE 1-12-22	0	0	0	0		1605.29	148471.75	0.10	562.03	SE 18-12-21 NW 7-12-21	0.379
6/18	2306.59	1115306.88	0.15	4221.90	NW 21-12-21 NE 21-12-21 SW 22-12-21	1769.41	78017.44	0.11	295.33		0	0	0	0		1516.64	887591.75	0.10	3359.90	SE 18-12-21 NW 7-12-21	0.353
6/19	2273.12	3164222.75	0.14	11977.89	NW 21-12-21 NE 21-12-21 SW 22-12-21	2549.2	911197.75	0.16	3449.26	NW 6-12-21 SE 6-12-21 SW 5-12-21	2697.67	1420103.4	0.17	5375.68	NW 31-11-22 NW 5-12-21 NE 5-12-21	1504.89	2096608.75	0.09	7936.53	SE 18-12-21 NW 7-12-21	<b>0.569</b>
6/20	2435.27	1730486.63	0.15	6550.60	NW 21-12-21 NE 21-12-21 SW 21-12-21	2733.01	3753184.75	0.17	14207.35	NW 6-12-21 SE 6-12-21 SW 5-12-21	2501.08	3511688.25	0.16	13293.19	NW 31-11-22 NW 5-12-21 NE 5-12-21	1625.29	2096007.5	0.10	7934.25	SE 18-12-21 NW 7-12-21	<b>0.586</b>
6/21	0	0	0	0		2560.74	2338333.5	0.16	8851.56	NW 6-12-21 SE 5-12-21 SW 1-12-22	2424.57	26340.37	0.15	99.71	NW 31-11-22 NW 5-12-21 NE 5-12-21	1481.28	25890.31	0.09	98.01	SE 7-12-21 NE 7-12-21	0.408
6/22	2224.75	1183782.88	0.14	4481.11	NW 21-12-21 NE 21-12-21 SW 21-12-21	2426.43	1141879	0.15	4322.48	NW 6-12-21 SE 6-12-21 SE 1-12-22	0	0	0	0		1595.5	750728.25	0.10	2841.82	SE 7-12-21 NE 7-12-21	0.394
6/23	2443	3102604.75	0.15	11744.64	NW 21-12-21 NE 21-12-21 SW 21-12-21	2583.8	3378329	0.16	12788.37	NW 6-12-21 SE 6-12-21 SE 1-12-22	2898.77	1266925.3	0.18	4795.83	NW 31-11-22 NW 5-12-21 E 1/2 8-11-21	1806.81	2194899.75	0.11	8308.60	SE 18-12-21 NW 7-12-21	<b>0.614</b>

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6/24	2146.13	1952160.88	0.14	7389.73	NW 22-12-21 SW 21-12-21 SW 22-12-21	2562.99	3363989.75	0.16	12734.09	NW 6-12-21 SE 6-12-21 SW 6-12-21	2962.9	3448320.5	0.19	13053.31	NW 31-11-22 NW 5-12-21 E 1/2 8-11-21	1520.25	2156328.25	0.10	8162.59	SE 18-12-21 NW 7-12-21	<b>0.580</b>
6/25	1590.23	1657639.38	0.10	6274.85	NW 22-12-21 SW 21-12-21 SW 22-12-21	2561.86	3183210	0.16	12049.76	SE 5-12-21 SW 5-12-21 SW 1-12-22	1950.23	2223652.25	0.12	8417.44	NW 5-12-21 E 1/2 8-11-21	1734.97	2187168.75	0.11	8279.33	SE 18-12-21 NW 7-12-21	0.494
6/26	2551.71	2700285.75	0.16	10221.69	NW 21-12-21 NE 21-12-21 SW 22-12-21	2356.4	3166240.25	0.15	11985.52	NW 6-12-21 SE 6-12-21 SW 1-12-22	2719.19	3007232.5	0.17	11383.61	NW 31-11-22 NW 5-12-21 E 1/2 8-11-21	1614.05	2187097.75	0.10	8279.07	SE 18-12-21 NW 7-12-21	<b>0.583</b>
6/27	2611.19	3241501	0.16	12270.42	NW 21-12-21 NE 21-12-21 NW 22-12-21	2352.32	3168202.5	0.15	11992.95	NW 6-12-21 SE 6-12-21 SW 5-12-21	2741.27	3529315.25	0.17	13359.91	NW 31-11-22 NW 5-12-21 NE 5-12-21	1512.41	2128916.25	0.10	8058.82	SE 18-12-21 NW 7-12-21	<b>0.582</b>
6/28	2579.27	3204910.25	0.16	12131.91	NW 21-12-21 NE 21-12-21 NW 22-12-21	2423.2	3149976.75	0.15	11923.96	NW 6-12-21 SE 6-12-21 SW 5-12-21	2460.57	3419752.5	0.16	12945.17	NW 31-11-22 NW 5-12-21 NE 5-12-21	1470.77	2099556.25	0.09	7947.68	SE 18-12-21 NW 7-12-21	<b>0.564</b>
6/29	2206.89	3110216.5	0.14	11773.45	NW 21-12-21 NE 21-12-21 SW 22-12-21	2378.9	3036622.25	0.15	11494.87	NW 6-12-21 SE 6-12-21 SE 1-12-22	2623.7	3472401.5	0.17	13144.47	NW 31-11-22 NW 5-12-21 E 1/2 8-11-21	1584.47	2061297.38	0.10	7802.86	SE 18-12-21 NW 7-12-21	0.555
6/30	2375.92	3078472	0.15	11653.28	NW 21-12-21 NE 21-12-21 SW 22-12-21	2274.41	2949380.5	0.14	11164.62	SE 6-12-21 SW 5-12-21 SE 1-12-22	2726.22	3165255.75	0.17	11981.80	E 1/2 8-11-21 NW 8-11-21 SW 8-11-21	1634.98	2057992.63	0.10	7790.35	SE 7-12-21 NE 7-12-21	<b>0.569</b>



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	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		
7/1	2187.76	3060064	0.14	11583.60	NW 22-12-21 SW 21-12-21 SW 22-12-21	2201.99	2868720	0.14	10859.29	SE 5-12-21 SW 5-12-21 SW 1-12-22	2278.04	3148175.5	0.14	11917.14	E 1/2 8-11-21 NW 8-11-21 SW 8-11-21	1449.84	2050993.88	0.09	7763.86	SE 7-12-21 NE 7-12-21	0.512
7/2	2132.49	3004597.5	0.13	11373.64	NW 22-12-21 SW 21-12-21 SW 22-12-21	2090.47	2859730	0.13	10825.26	NW 6-12-21 SE 5-12-21 SW 6-12-21	2192.54	3070676.75	0.14	11623.78	NE 5-12-21 E 1/2 8-11-21 NW 8-11-21	1487.05	1933057.38	0.09	7317.42	SE 18-12-21 NW 7-12-21	0.499
7/3	2250.76	2934557.5	0.14	11108.51	NW 21-12-21 NE 21-12-21 NW 22-12-21	2192.14	2716051.75	0.14	10281.37	NW 6-12-21 SE 6-12-21 SW 5-12-21	2587.28	3127216.75	0.16	11837.80	NW 31-11-22 NW 5-12-21 NE 5-12-21	1431.39	1916287	0.09	7253.94	SE 18-12-21 NW 7-12-21	0.534
7/4	2033.21	1509372.63	0.13	5713.60	NW 21-12-21 NE 21-12-21 NW 22-12-21	1921.29	1396427.5	0.12	5286.05	NW 6-12-21 SE 6-12-21 SW 5-12-21	2298.01	1713139.75	0.14	6484.94	NW 31-11-22 NW 5-12-21 NE 5-12-21	1318.1	998516.31	0.08	3779.80	SE 18-12-21 NW 7-12-21	0.478
7/5	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
7/6	2373.11	1946250.38	0.15	7367.36	NW 21-12-21 NE 21-12-21 NW 22-12-21	2202.97	1105445.88	0.14	4184.57	NW 6-12-21 SE 6-12-21 SE 5-12-21	2718.91	1023404.75	0.17	3874.01	NW 31-11-22 NW 5-12-21 E 1/2 8-11-21	1642.4	820108.88	0.10	3104.45	SE 18-12-21 NW 7-12-21	<b>0.564</b>
7/7	2131.93	2613161.25	0.13	9891.89	NW 21-12-21 NE 21-12-21 SW 21-12-21	2028.31	2760115.75	0.13	10448.17	NW 6-12-21 SE 6-12-21 SE 5-12-21	2574.06	3340823.5	0.16	12646.39	NW 31-11-22 NW 5-12-21 NW 8-11-21	1410.05	2005996.75	0.09	7593.52	SE 18-12-21 NW 7-12-21	0.514

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7/8	2058.8	2367713	0.13	8962.77	NW 21-12-21 NE 21-12-21 SW 21-12-21	2014.81	2837025	0.13	10739.31	NW 6-12-21 SE 6-12-21 SE 5-12-21	2688.11	3365503.25	0.17	12739.82	NW 31-11-22 NW 5-12-21 NW 8-11-21	1492.41	1987920.88	0.09	7525.10	SE 18-12-21 NW 7-12-21	0.521
7/9	2208.71	2891943.75	0.14	10947.20	NW 22-12-21 SW 21-12-21 SW 22-12-21	2046.17	2752456.75	0.13	10419.18	NW 6-12-21 SE 6-12-21 SE 5-12-21	2632.28	3458915.25	0.17	13093.42	NW 31-11-22 NW 5-12-21 SW 8-11-21	1359.85	1919260.25	0.09	7265.19	SE 18-12-21 NW 7-12-21	0.520
7/10	1972.46	2774212	0.12	10501.53	NW 22-12-21 SW 21-12-21 SW 22-12-21	2039.84	2684377	0.13	10161.47	NW 6-12-21 SE 6-12-21 SW 5-12-21	2593.05	3341524.5	0.16	12649.05	NW 31-11-22 NW 5-12-21 SW 8-11-21	1312.43	1843908.5	0.08	6979.95	SE 18-12-21 NW 7-12-21	0.500
7/11	2019.71	2734583.25	0.13	10351.52	NW 22-12-21 SW 21-12-21 SW 22-12-21	1926.07	2611652.25	0.12	9886.18	NW 6-12-21 SE 6-12-21 SE 1-12-22	2434.42	3159884	0.15	11961.46	NW 31-11-22 NW 5-12-21 E 1/2 8-11-21	1449.84	1846377.75	0.09	6989.30	SE 18-12-21 NW 7-12-21	0.494
7/12	2165.96	2758845.5	0.14	10443.37	NW 22-12-21 SW 21-12-21 SW 22-12-21	1888.1	2614926.5	0.12	9898.57	NW 6-12-21 SE 6-12-21 SW 6-12-21	2383.79	2942565.25	0.15	11138.82	NW 31-11-22 NW 5-12-21 NE 5-12-21	1407.48	1834301.13	0.09	6943.59	SE 7-12-21 NE 7-12-21	0.495
7/13	1960.22	2766131	0.12	10470.94	NW 21-12-21 NE 21-12-21 NW 22-12-21	2006.93	2645256.75	0.13	10013.39	NW 6-12-21 SE 6-12-21 SW 1-12-22	1769.39	2206910.75	0.11	8354.07	NW 31-11-22 NW 5-12-21	1254.81	880038.75	0.08	3331.31	SE 7-12-21 NE 7-12-21	0.441
7/14	2102.82	1073654	0.13	4064.22	NW 21-12-21 NE 21-12-21 NW 22-12-21	2003.84	1199691.63	0.13	4541.33	SW 5-12-21 SE 5-12-21 SE 1-12-22	1626.37	858410.13	0.10	3249.44	NE 5-12-21 E 1/2 8-11-21	0	0	0	0		0.362

**Attachment A – Water Use Report**  
**Reference: Daly Irrigation Project – 2015 Monitoring Report – Licence No. 3010**

**Table 1: 2015 Water Use Report**

Date (2015)	Keywest					Redfern					Sundance (Pump 1)					Sundance (Pump 2)					Diversion Point Combined Pumps
	Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					
	Pump Capacity: 2400 US gpm (0.1514 m³/s)					Pump Capacity: 2400 US gpm (0.1514 m³/s)					Pump Capacity: 2400 US gpm (0.1514 m³/s)					Pump Capacity: 1600 US gpm (0.1001 m³/s)					
	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		
7/15	0	0	0	0		1932.54	1521998.25	0.12	5761.39	SW 5-12-21 SE 5-12-21 SW 1-12-22	2262.43	87152.74	0.14	329.91	NE 5-12-21 E 1/2 8-11-21	0	0	0	0		0.265
7/16	0	0	0	0		2027.18	2579532	0.13	9764.59	SE 5-12-21 SW 1-12-22 SE 1-12-22	0	0	0	0		0	0	0	0		0.128
7/17	0	0	0	0		1318.41	1404226.13	0.08	5315.57	SE 1-12-22 SW 6-12-21	0	0	0	0		0	0	0	0		0.083
7/18	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
7/19	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
7/20	1858.55	1491142.63	0.12	5644.59	NW 22-12-21 SW 21-12-21 SW 22-12-21	2124.08	679338.38	0.13	2571.58	NW 6-12-21 SW 5-12-21 SE 1-12-22	2542.28	1790981.63	0.16	6779.60	NW 31-11-22 NW 5-12-21 E 1/2 8-11-21	1452.21	1253853.25	0.09	4746.35	SE 18-12-21 NW 7-12-21	0.503
7/21	2121.81	2620028	0.13	9917.88	NW 22-12-21 SW 21-12-21 SW 22-12-21	2069.51	2884495	0.13	10919.00	NW 6-12-21 SW 5-12-21 SE 1-12-22	2417.4	3282600.25	0.15	12425.99	NW 31-11-22 NW 5-12-21 NE 5-12-21	1437.99	1932292	0.09	7314.52	SE 18-12-21 NW 7-12-21	0.508

**Attachment A – Water Use Report**  
**Reference: Daly Irrigation Project – 2015 Monitoring Report – Licence No. 3010**

**Table 1: 2015 Water Use Report**

Date (2015)	Keywest					Redfern					Sundance (Pump 1)					Sundance (Pump 2)					Diversion Point Combined Pumps
	Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					
	Pump Capacity: 2400 US gpm (0.1514 m³/s)					Pump Capacity: 2400 US gpm (0.1514 m³/s)					Pump Capacity: 2400 US gpm (0.1514 m³/s)					Pump Capacity: 1600 US gpm (0.1001 m³/s)					
	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		
7/22	2045.73	2660815.75	0.13	10072.28	NW 21-12-21 NE 21-12-21 SW 22-12-21	2234.75	2915642.25	0.14	11036.91	NW 6-12-21 SE 6-12-21 SE 1-12-22	2435.54	3261494.25	0.15	12346.10	NW 31-11-22 NW 5-12-21 NE 5-12-21	1357.79	1923740.25	0.09	7282.15	SE 18-12-21 NW 7-12-21	0.509
7/23	2063.16	2014565.38	0.13	7625.96	NW 21-12-21 NE 21-12-21 SW 21-12-21	2211.55	1865775.5	0.14	7062.73	NW 6-12-21 SE 6-12-21 SW 6-12-21	2283.8	1521687.75	0.14	5760.21	NW 31-11-22 NW 5-12-21 E 1/2 8-11-21	1430.87	865614.88	0.09	3276.71	SE 18-12-21 NW 7-12-21	0.504
7/24	0	0	0	0		2346.56	1340396	0.15	5073.95	SE 6-12-21 SE 5-12-21 SW 6-12-21	0	0	0	0		1279.96	818891.56	0.08	3099.84	SE 7-12-21 NE 7-12-21	0.229
7/25	0	0	0	0		2178.5	2983336	0.14	11293.16	NW 6-12-21 SE 6-12-21 SE 5-12-21	1801.17	1239930.25	0.11	4693.65	NW 8-11-21 SW 8-11-21	1381.19	1728734	0.09	6543.97	SE 18-12-21 NW 7-12-21	0.338
7/26	2046.01	1876318.38	0.13	7102.64	NW 21-12-21 NE 21-12-21 SW 21-12-21	2233.35	2868258.75	0.14	10857.54	NW 6-12-21 SE 6-12-21 SE 5-12-21	2268.2	2828420.75	0.14	10706.74	NW 31-11-22 NW 5-12-21 NE 5-12-21	1275.53	1819956.38	0.08	6889.28	SE 18-12-21 NW 7-12-21	0.494
7/27	2034.62	2035740	0.13	7706.11	NW 21-12-21 NE 21-12-21 SW 21-12-21	2137.58	2436712.25	0.13	9223.96	NW 6-12-21 SE 6-12-21 SW 1-12-22	2279.59	1993151	0.14	7544.90	NW 31-11-22 NW 5-12-21 NE 5-12-21	1396.96	1288052	0.09	4875.81	SE 18-12-21 NW 7-12-21	0.495
7/28	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000

**Attachment A – Water Use Report**  
**Reference: Daly Irrigation Project – 2015 Monitoring Report – Licence No. 3010**

**Table 1: 2015 Water Use Report**

Date (2015)	Keywest				Redfern					Sundance (Pump 1)				Sundance (Pump 2)				Diversion Point Combined Pumps			
	Intake Location: NW10-12-21W				Intake Location: NW10-12-21W					Intake Location: NW10-12-21W				Intake Location: NW10-12-21W							
	Pump Capacity: 2400 US gpm (0.1514 m <sup>3</sup> /s)				Pump Capacity: 2400 US gpm (0.1514 m <sup>3</sup> /s)					Pump Capacity: 2400 US gpm (0.1514 m <sup>3</sup> /s)				Pump Capacity: 1600 US gpm (0.1001 m <sup>3</sup> /s)							
	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		Max Pumping Rate (gpm)	Volume Pumped (gallons)		Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )	
7/29	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
7/30	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
7/31	2035.04	1642361.75	0.13	6217.02	NW 21-12-21 NE 21-12-21 SW 22-12-21	2360.62	1700647	0.15	6437.65	NW 6-12-21 SE 6-12-21 SW 5-12-21	2292.66	2086242.38	0.14	7897.29	NW 31-11-22 NW 5-12-21 NE 5-12-21	1492.93	742655.69	0.09	2811.26	SE 18-12-21 NW 7-12-21	0.516
8/1	2045.44	1972911.38	0.13	7468.28	NW 21-12-21 NE 21-12-21	2224.21	2601992.75	0.14	9849.61	NW 6-12-21 SE 6-12-21 SE 5-12-21	2328.81	2458492.25	0.15	9306.41	NW 31-11-22 NW 5-12-21 SW 8-11-21	1313.57	537255.25	0.08	2033.73	SE 18-12-21 NW 7-12-21	0.499
8/2	1392.22	1091569	0.09	4132.04	NW 21-12-21 NE 21-12-21	2363.15	1968818	0.15	7452.79	NW 6-12-21 SE 6-12-21 SE 5-12-21	1805.95	1266634	0.11	4794.73	NW 31-11-22 NW 5-12-21	1485.1	994593	0.09	3764.94	SE 18-12-21 NW 7-12-21	0.445
8/3	1645.22	2086873.63	0.10	7899.68	NW 21-12-21 NE 21-12-21	1994.7	2260336.5	0.13	8556.30	SW 1-12-22 SW 5-12-21 SE 5-12-21	1637.48	1489893.63	0.10	5639.86	NW 31-11-22 NW 5-12-21	1267.7	1807892	0.08	6843.62	SE 18-12-21 NW 7-12-21	0.413
8/4	1615.82	1368987.88	0.10	5182.18	NW 21-12-21 NE 21-12-21	1844.22	1276013.5	0.12	4830.24	SE 1-12-22 SW 6-12-21 SE 5-12-21	1524.41	784957.5	0.10	2971.39	NW 31-11-22 NW 5-12-21	1260.38	1173501	0.08	4442.18	SE 18-12-21 NW 7-12-21	0.394

**Attachment A – Water Use Report**  
**Reference: Daly Irrigation Project – 2015 Monitoring Report – Licence No. 3010**

**Table 1: 2015 Water Use Report**

Date (2015)	Keywest					Redfern					Sundance (Pump 1)					Sundance (Pump 2)					Diversion Point Combined Pumps
	Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					
	Pump Capacity: 2400 US gpm (0.1514 m³/s)					Pump Capacity: 2400 US gpm (0.1514 m³/s)					Pump Capacity: 2400 US gpm (0.1514 m³/s)					Pump Capacity: 1600 US gpm (0.1001 m³/s)					
	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		
8/5	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
8/6	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
8/7	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
8/8/2015	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
8/9/2015	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
8/10	1497.56	1106428.13	0.09	4188.29	NW 21-12-21 NE 21-12-21	2096.8	910688	0.13	3447.33	NW 6-12-21 SE 6-12-21 SE 5-12-21	1557.18	633575.25	0.10	2398.34	NW 31-11-22 NW 5-12-21	1406.86	1028225.19	0.09	3892.26	SE 18-12-21 NW 7-12-21	0.414
8/11	1834.22	2190024.25	0.12	8290.14	NW 21-12-21 NE 21-12-21	2035.62	2737364.75	0.13	10362.05	NW 6-12-21 SE 6-12-21 SW 1-12-22	2307.29	2582218.75	0.15	9774.76	NW 31-11-22 NW 5-12-21 NE 5-12-21	1373.36	1801925	0.09	6821.03	SE 18-12-21 NW 7-12-21	0.476
8/12	2068.37	2727978.5	0.13	10326.52	NW 21-12-21 NE 21-12-21	2079.92	2780129.25	0.13	10523.93	NW 6-12-21 SE 6-12-21 SE 5-12-21	2349.06	2646181.75	0.15	10016.89	NW 31-11-22 NW 5-12-21 NE 5-12-21	1244.71	1769982.75	0.08	6700.11	SE 18-12-21 NW 7-12-21	0.488

**Attachment A – Water Use Report**  
**Reference: Daly Irrigation Project – 2015 Monitoring Report – Licence No. 3010**

**Table 1: 2015 Water Use Report**

Date (2015)	Keywest					Redfern					Sundance (Pump 1)					Sundance (Pump 2)					Diversion Point Combined Pumps
	Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					
	Pump Capacity: 2400 US gpm (0.1514 m³/s)					Pump Capacity: 2400 US gpm (0.1514 m³/s)					Pump Capacity: 2400 US gpm (0.1514 m³/s)					Pump Capacity: 1600 US gpm (0.1001 m³/s)					
	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m³/s)	Volume Pumped (m³)		
8/13	2012.96	2007817.63	0.13	7600.42	NW 21-12-21 NE 21-12-21	2114.52	2659222.5	0.13	10066.25	NW 6-12-21 SE 6-12-21 SW 6-12-21	2175.94	2702324.5	0.14	10229.41	NW 31-11-22 NW 5-12-21 NE 5-12-21	1416.24	1743317.13	0.09	6599.17	SE 18-12-21 NW 7-12-21	0.487
8/14	580.8	403716.44	0.04	1528.23	SW 22-12-21	1962.49	2460252	0.12	9313.07	NW 6-12-21 SE 5-12-21 SW 6-12-21	2069.91	1505403.13	0.13	5698.57	NW 31-11-22 NW 5-12-21	1182.04	1680845.38	0.07	6362.69	SE 18-12-21 NW 7-12-21	0.366
8/15	0	0	0	0		1948.85	915549.94	0.12	3465.73	SW 1-12-22 SW 6-12-21 SE 5-12-21	0	0	0	0		1151.52	493468.06	0.07	1867.98	SE 7-12-21 NE 7-12-21	0.196
8/16	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
8/17	1892.44	1520698.75	0.12	5756.47	NW 21-12-21 NE 21-12-21	1910.74	1646060.13	0.12	6231.02	NW 6-12-21 SE 6-12-21 SW 6-12-21	2127.71	1795040.25	0.13	6794.97	NW 31-11-22 NW 5-12-21	1292.64	971519.19	0.08	3677.60	SE 7-12-21 NE 7-12-21	0.456
8/18	1980.76	2233915	0.12	8456.29	NW 21-12-21 NE 21-12-21	2013.12	2700660.5	0.13	10223.11	NW 6-12-21 SE 6-12-21 SE 5-12-21	2072.44	2950797.25	0.13	11169.98	NW 31-11-22 NW 5-12-21 NE 5-12-21	1191.93	1693920.88	0.08	6412.19	SE 18-12-21 NW 7-12-21	0.458
8/19	1407.55	1337666.38	0.09	5063.62	NW 21-12-21 NE 21-12-21	1969.1	2672415.25	0.12	10116.19	NW 6-12-21 SE 6-12-21 SW 6-12-21	2062.46	748762.88	0.13	2834.38	NW 31-11-22 NW 5-12-21	1283.57	1716498.13	0.08	6497.65	SE 18-12-21 NW 7-12-21	0.424

**Attachment A – Water Use Report**  
Reference: Daly Irrigation Project – 2015 Monitoring Report – Licence No. 3010

Table 1: 2015 Water Use Report

Date (2015)	Keywest					Redfern					Sundance (Pump 1)					Sundance (Pump 2)					Diversion Point Combined Pumps
	Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					Intake Location: NW10-12-21W					
	Pump Capacity: 2400 US gpm (0.1514 m <sup>3</sup> /s)					Pump Capacity: 2400 US gpm (0.1514 m <sup>3</sup> /s)					Pump Capacity: 2400 US gpm (0.1514 m <sup>3</sup> /s)					Pump Capacity: 1600 US gpm (0.1001 m <sup>3</sup> /s)					
	Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		Max Pumping Rate (gpm)	Volume Pumped (gallons)	Max Pumping Rate (m <sup>3</sup> /s)	Volume Pumped (m <sup>3</sup> )		
8/20	565.89	222584.53	0.04	842.57	SW 21-12-21	1900.62	2644904.5	0.12	10012.05	SE 5-12-21 SW 6-12-21 SW 1-12-22	0	0	0	0		1194.61	1101873.88	0.08	4171.05	SE 18-12-21 NW 7-12-21	0.231
8/21	0	0	0	0		1811.18	919491.38	0.11	3480.65	SE 5-12-21 SW 6-12-21 SW 1-12-22	0	0	0	0		0	0	0	0		0.114
8/22	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0.000
<b>Total (US gallons)</b>	<b>100,029,514</b>					<b>127,184,413</b>					<b>106,324,011</b>					<b>74,003,930</b>					
<b>Total (m<sup>3</sup>)</b>	<b>378,651</b>					<b>481,445</b>					<b>402,480</b>					<b>280,135</b>					
<b>Total (ac-ft)</b>	<b>307</b>					<b>390</b>					<b>326</b>					<b>227</b>					



**Attachment B – Riffle Monitoring Photographs**

**Reference: Daly Irrigation Project – 2015 Monitoring Report – Licence No. 3010**



**Bushnell** ⓘ Camera Name

06 - 25 - 2015 20:00:32

**Photo 1 – Close-up of riffle on June 25, 2015 during relatively high streamflow period.**

**Attachment B – Riffle Monitoring Photographs**

**Reference: Daly Irrigation Project – 2015 Monitoring Report – Licence No. 3010**



**Bushnell**

**08 - 06 - 2015 13:00:55**

**Photo 2 – Riffle on August 6, 2015 during relatively high streamflow period.**



**Attachment B – Riffle Monitoring Photographs**

**Reference: Daly Irrigation Project – 2015 Monitoring Report – Licence No. 3010**



**Bushnell** ⓘ Camera Name

07 - 13 - 2015 10:00:28

**Photo 3 – Close-up of riffle on July 13, 2015 during relatively low streamflow period.**

**Attachment B – Riffle Monitoring Photographs**

**Reference: Daly Irrigation Project – 2015 Monitoring Report – Licence No. 3010**



**Bushnell**

**07 - 27 - 2015 20:00:09**

**Photo 4 – Riffle on July 27, 2015 during relatively low streamflow period.**