





Date: March 12, 2015 HCP Ref No.: CZN6788

From: John Wilcockson

To: David Harpley – Canadian Zinc Corporation

Subject: Prairie Creek Proposed All Season Road - Stream Crossing Habitat Assessments,

August and September, 2014

1.0 INTRODUCTION

In 2014 Hatfield participated in two field programs to assess habitat at and near potential stream crossings associated with a proposed all-season road from the Prairie Creek mine (Km 0) to the Nahanni Butte connector road (Km 175]. Between July 27 and 29, 2014, John Wilcockson (Hatfield) and David Harpley (Canadian Zinc) visited or assessed from the air several locations from Km 36 to Km 173 on the proposed all-season road. Mr. Johnathan Tsetso and Dr. Garry Scrimgeour accompanied John and Dave on July 27 and 28 in order to assess crossings within the Park. Results of these site visits were summarized in two technical memos produced by Hatfield in 2014^{1,2}.

Chris Jaeggle (Hatfield Consultants) and David Harpley (Canadian Zinc) returned to the proposed road crossings between September 21 and 26, 2014. Fish habitat data were collected during both field programs; hydrological data also were collected in September. Data were intended to be used to support the selection of appropriate stream crossing structures at crossing locations selected by Canadian Zinc and engineers from Allnorth Consultants (Prince George, BC).

A summary of sites assessed and the type of assessment done is provided in Table 1. Results of a bathymetric study conducted on the Liard River at the proposed Liard River crossing on September 25, 2014 were provided in a separate document³.

1 Hatfield Consultants. 2014. Habitat Assessment of Sundog Creek Channels for Realignment - Draft, Memo written for Canadian Zinc Corp, September 9, 2014.

² Hatfield Consultants. 2014. All Season Road – Review of Stream Crossings in NNPR - Draft, Memo written for Canadian Zinc Corp, September 4, 2014.

³ Hatfield Consultants. 2014. September 25, 2014 Liard River Bathymetry and Bank Survey - Draft, Memo written for Canadian Zinc Corp, January 16, 2015.

Table 1 Matrix of stream data collected for assessment of a proposed all-season road to Prairie Creek Mine, August and September 2014.

| Location | Coordinates | Date | Assessment from air only | Site Visit | Habitat Sheet filled out | hydrometric data recorded | Discussed in memos to Parks |
|-----------------------------------|---------------------|--------|--------------------------|------------|-----------------------------|------------------------------|-----------------------------|
| July/August Program | | | | | | | |
| Sundog Location 2 | 10 V 426324 6829305 | 27-Jul | - | Х | X | - | Х |
| Sundog Location 1 | 10 V 427040 6829338 | 27-Jul | - | Χ | Х | - | X |
| KP43.5 Tributary to Sundog | 10 V 431394 6830360 | 27-Jul | - | Χ | - | - | X |
| KP45-53 Small Tribs to Polje Ck | 10 V 434623 6829284 | 28-Jul | Х | - | - | _ | Х |
| Polje Creek | 10 V 440688 6830794 | 28-Jul | - | Χ | Х | - | X |
| Trib to Polje Ck | 10 V 440509 6830759 | 28-Jul | - | Х | X | _ | Х |
| KP55-63 Creeks draining to Poljes | | 28-Jul | Х | - | - | - | X |
| Inlet to Mosquito Lake | 10 V 446766 6825508 | 28-Jul | Х | - | - | - | X |
| KP87.7 Tetcela River | 10 V 461330 6815569 | 28-Jul | Х | - | - | _ | Х |
| Fishtrap Creek | 10 V 465062 6813912 | 28-Jul | - | Х | - | _ | Х |
| Various tribs to Liard River | | | Х | - | - | - | - |
| September Program | | | | | | | |
| KP27.1 Sundog Creek | 10 6828332 418911 | 22-Sep | | Х | X | - | - |
| KP27.5 Sundog Creek | 10 6828089 419225 | 22-Sep | | Х | Х | - | - |
| KP28.4 Sundog Creek | | 22-Sep | | Χ | Х | Х | - |
| KP29.2 Sundog Creek | 10 V 420601 6827089 | 22-Sep | | Х | Х | - | - |
| KP39.8 Sundog Creek | 11 6830273 428369 | 21-Sep | | Χ | Х | Х | - |
| KP47.0 Polje Trib | 10 6829338 434240 | 21-Sep | | Х | X | Х | - |
| KP50.2 Polje Trib | 10 6829737 436944 | 21-Sep | | Χ | Х | Х | - |
| KP54.3 | 10 V 440622 6830769 | 26-Sep | | Х | X | Х | - |
| KP87.7 Tetcela mainstem | 10 V 460241 6812386 | 24-Sep | | Χ | Х | Х | - |
| Tetcela trib - at old road | 10 V 460369 6813941 | 24-Sep | | Х | X | Х | - |
| Tetcela main - at old road | 10 V 461369 6815670 | 24-Sep | | Χ | Х | Х | - |
| KP122.8 Granger Trib | 10 V 477151 6798715 | 23-Sep | | Χ | Х | Х | - |
| KP123.7 Granger Main | 10 V 478319 6799043 | 23-Sep | | Х | Х | Х | - |
| KP125.1 Granger Main | 10 V 479157 6799517 | 23-Sep | | Х | X | Х | - |
| KP131.3 Granger Trib | 10 V 481988 6794966 | 26-Sep | | Х | Х | X | - |
| KP133.7 Granger Trib | 10 V 482671 6793161 | 24-Sep | | Х | X | Х | _ |
| KP135.6 Granger Trib | 10 V 482380 6791274 | 25-Sep | | Х | X | Х | - |
| KP136.7 Granger Trib | 10 V 483132 6790094 | 26-Sep | | Х | X | X | - |
| KP154.4 Liard Trib | 10 V 486500 6774900 | 22-Sep | | Х | X | Х | - |

2.0 PROCEDURES

2.1 GENERAL

Sites were accessed primarily by helicopter. The exception was Sun Dog Creek sites between Km 27.1 and 28, which were accessed by quads on September 22, 2014.

At all sites, photographs (Attachment A), field data (Attachment B and C) and field notes (Attachment D) were collected.

2.2 HABITAT DATA

Habitat data was collected using a fish habitat data sheet modeled after the RISC fish habitat datasheets⁴. Data collected at each site included stream width, depth, velocity, stream morphology, presence of cover for fish, substrate composition, instream vegetation, riparian vegetation and in-situ water quality variables (i.e. dissolved oxygen, temperature, pH and conductivity). An annotated site sketch was also made at each location. Stream flow measurements were recorded using a March-McBirney Flo-Mate Model 2000 at 60% of measured water depth and at several locations across a single transect perpendicular to flow, water depth was measured using a wading rod. Stream width was measured using an Eslon tape. DO was measured using a Lamotte dissolved oxygen titration kit, while conductivity, pH and temperature were measured using an Hanna HI 98129 pH EC TDS conductivity pen.

2.3 HYDROLOGIAL DATA

Hydrological data were collected at each of the sites visited in September 2014. At the preferred crossing location, Hatfield staff conducted surveys of the channel cross-section (from bank top to bank top), longitudinal stream-reach surveys (for channel slope), and flow and depth data along a single stream cross-section.

Channel cross-section and longitudinal surveys were conducted using a level survey kit, consisting of an engineer's level mounted onto a tripod, and a stadia rod. After setting up and levelling the tripod and engineer's level near the top of the bank, several points along the cross-section, including top of bank, high water mark, water level surface, stream bed, and several points between the top of bank and water surface, were surveyed. The top of bank survey point was given an arbitrary datum of 100.000 m, which was used to calculate relative elevations of the other survey points. The channel bed was also surveyed at several points upstream and downstream of the crossing area (longitudinal survey). This survey used the same arbitrary datum as the cross-section survey. Horizontal distance between each survey point was measured using an Eslon tape or a laser rangefinder. Longitudinal survey data was used to calculate an average channel reach slope.

Flow measurements were performed using an Eslon tape, a 2.0-m top-setting wading rod, and a Sontek Flowtracker Acoustic Doppler Velocimeter (ADV). Measurements consisted of horizontal distance (perpendicular to the flow direction, measured with an Eslon tape), depth of water (measured with the

⁴ BC Fisheries Information Services Branc, 2001, Reconnaissance (1:20 000) fish and fish habitat inventory standards and procedures, prepared for Resources Inventory Committee, April 2001 Ver 2.0.

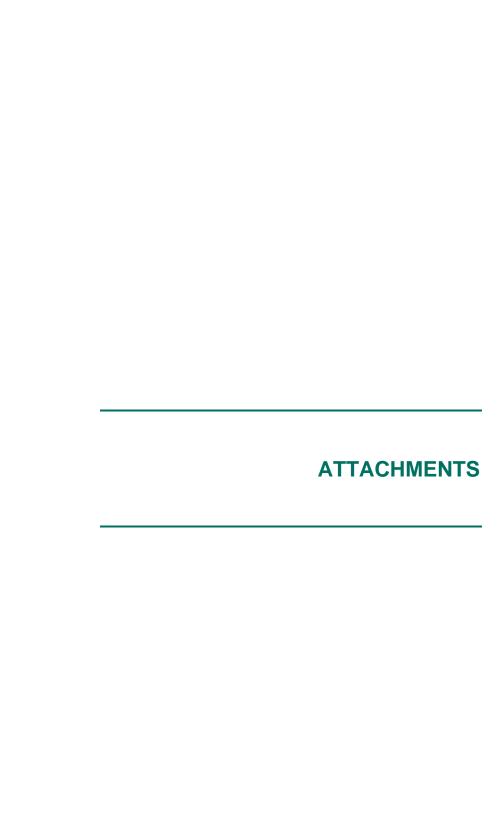
wading rod), and average water velocity (measured with the ADV, positioned at 60% of the measured water depth, for forty seconds) at all measured at several points (panels) along the channel cross-section. Flow measurements typically consisted of at least twenty measurement panels per cross-section; however, channel size and morphology (i.e., roughness) dictated the number of panels that could be measured at each cross-section. Using the area-velocity method, instantaneous streamflow was then calculated from the data collected (Attachment E and F).

3.0 DATA

All data are attached to this memo as attachments:

- Attachment A photographs;
- Attachment B fish habitat field datasheets;
- Attachment C hydrology field datasheets;
- Attachment D scanned field note book;
- Attachment E Hydrometric station cross-section/reach survey field record; and
- Attachment F hydrometric measurement/site visit record.

For additional information, please contact either Chris Jaeggle or John Wilcockson at (604) 926-3261.



Attachment A
Photographs

Photograph 1 Sundog Creek at Km 27.1, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 2 Sundog Creek at Km 27.1, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 3 Sundog Creek at Km 27.1, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 4 Sundog Creek at Km 27.1, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 5 Sundog Creek at KP27.2 facing north (upstream), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 6 Sundog Creek at KP27.4 facing north-northeast (cross-steam), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 7 Sundog Creek at Km 27.5, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 8 Sundog Creek at Km 27.5, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 9 Sundog Creek at Km 27.5, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 10 Sundog Creek at Km 27.5, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 11 Tributary to Sundog Creek at Km 27.5, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 12 Sundog Creek at Km 28.4, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 13 Sundog Creek at Km 28.4, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 14 Sundog Creek at Km 28.4, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 15 Sundog Creek at Km 28.4, Prairie Creek all season road stream crossing study, September 22, 2014.



Photograph 16 Sundog Creek at KP29 facing east-southeast (downstream), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 17 Sundog Creek at Km 29.2, Prairie Creek all season road stream crossing study, September 23, 2014.



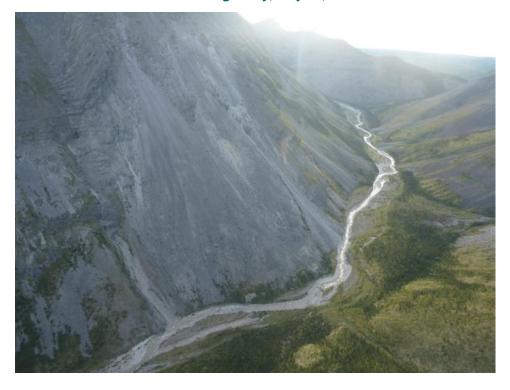
Photograph 18 Sundog Creek at Km 29.2, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 19 Sundog Creek at Km 29.2, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 20 Sundog Creek at KP30.5 facing east-southeast (downstream), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 21 Sundog Creek at KP 30.5 facing north-northwest (upstream), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 22 Sundog Creek at KP30.7 facing west-northwest (upstream), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 23 Sundog Creek at Km 37.5, Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 24 Sundog Creek at Km 37.5, Prairie Creek all season road stream crossing study, July 27, 2014.



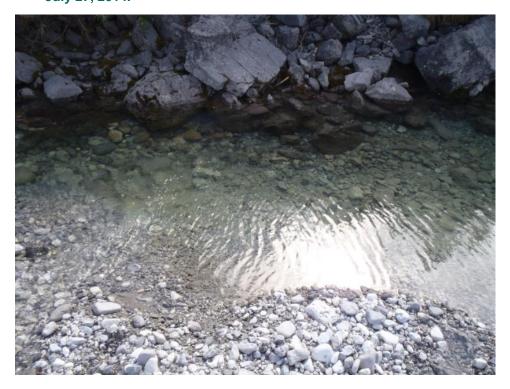
Photograph 25 Sundog Creek at Km 37.5, Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 26 Sundog Creek at Km 37.5, Prairie Creek all season road stream crossing study, July 27, 2014.



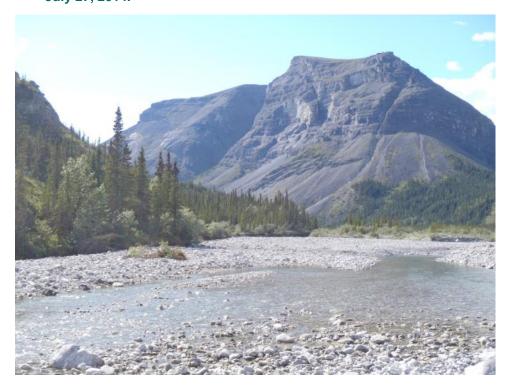
Photograph 27 Sundog Creek at Km 37.5, Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 28 Sundog Creek at Km 37.5, Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 29 Sundog Creek at Km 37.5, Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 30 Sundog Creek at KP37.8 facing east (downstream), Prairie Creek all season road stream crossing study, July 28, 2014.



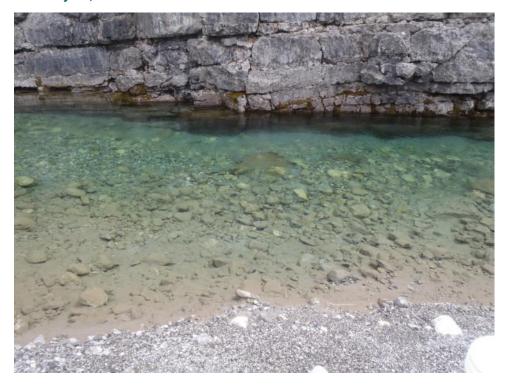
Photograph 31 Sundog Creek at Km 38 facing northeast (downstream), Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 32 Sundog Creek at Km 38.1, Prairie Creek all season road stream crossing study, July 27, 2014.



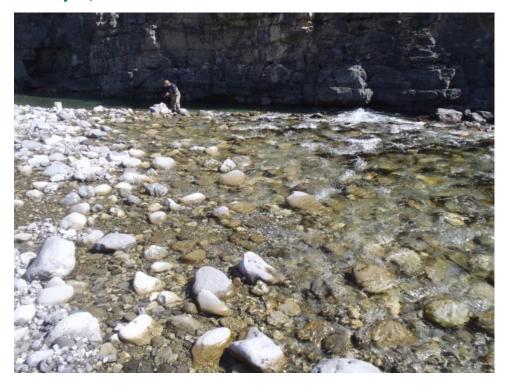
Photograph 33 Sundog Creek at Km 38.1, Prairie Creek all season road stream crossing study, July 27, 2014.



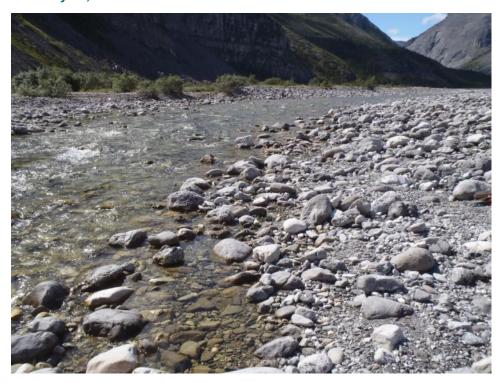
Photograph 34 Sundog Creek at Km 38.1, Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 35 Sundog Creek at Km 38.1, Prairie Creek all season road stream crossing study, July 27, 2014.



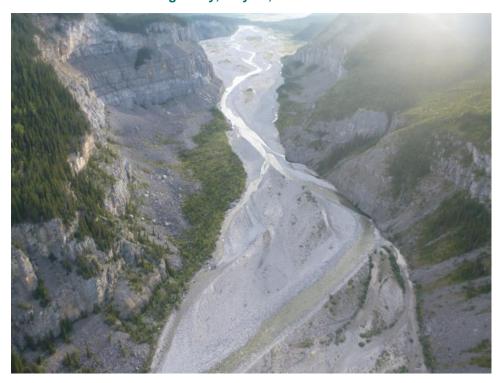
Photograph 36 Sundog Creek at Km 38.1, Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 37 Sundog Creek at KP38.2 facing southwest (upstream), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 38 Sundog Creek at KP38.2 facing northeast (downstream), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 39 Sundog Creek at KP38.8 facing northeast (downstream), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 40 Sundog Creek at KP39.3 facing northeast (downstream), Cat Camp shown in top quarter of photo, Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 41 Sundog Creek at Km 39.9, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 42 Sundog Creek at Km 39.9, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 43 Sundog Creek at Km 39.9, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 44 Sundog Creek at Km 39.9, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 45 Sundog Creek at Km 39.9, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 46 Sundog Creek at Km 39.9, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 47 Sundog Creek at Km 39.9, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 48 Tributary to Sundog Creek downstream of Km 43.5, Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 49 Tributary to Sundog Creek downstream of Km 43.5, Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 50 Tributary to Sundog Creek downstream of Km 43.5, Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 51 Tributary to Sundog Creek downstream of Km 43.5, Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 52 Tributary to Sundog Creek downstream of Km 43.5 looking east (upstream), Prairie Creek all season road stream crossing study, July 27, 2014.



Photograph 53 Tributary to Poljie Creek at Km 46, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 54 Tributary to Poljie Creek at Km 46, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 55 Tributary to Poljie Creek at Km 46, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 56 Tributary to Poljie Creek at Km 47, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 57 Tributary to Poljie Creek at Km 47, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 58 Tributary to Poljie Creek at Km 47, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 59 Tributary to Poljie Creek at Km 47, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 60 Tributary to Poljie Creek at Km 47, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 61 Tributary to Poljie Creek at Km 49.1, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 62 Tributary to Poljie Creek at Km 49.1, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 63 Tributary to Poljie Creek at Km 49.1, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 64 Poljie Creek at Km 49.4, no tributary found, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 65 Poljie Creek at Km 49.4, no tributary found, Prairie Creek all season road stream crossing study, September 21, 2014.



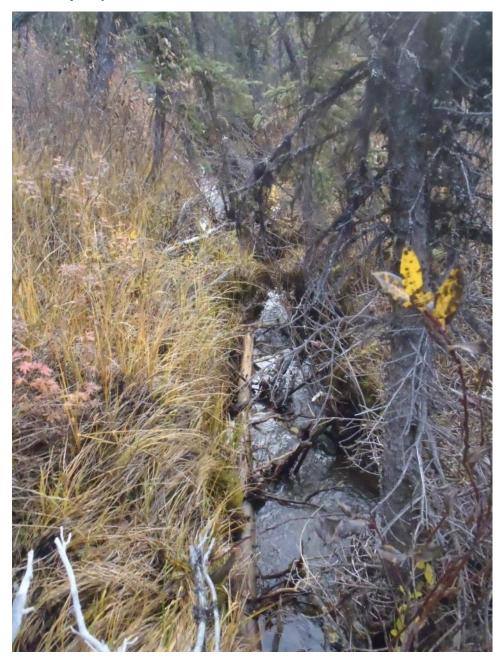
Photograph 66 Km 49.4, no tributary found, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 67 Tributary to Poljie Creek at Km 50.2, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 68 Tributary to Poljie Creek at Km 50.2, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 69 Tributary to Poljie Creek at Km 50.2, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 70 Tributary to Poljie Creek at Km 54.2, Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 71 Tributary to Poljie Creek at Km 54.2, Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 72 Tributary to Poljie Creek at Km 54.2, Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 73 Tributary to Poljie Creek at Km 54.2, Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 74 Tributary to Poljie Creek at Km 54.3, Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 75 Tributary to Poljie Creek at Km 54.3, Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 76 Tributary to Poljie Creek at Km 54.3, Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 77 Tributary to Poljie Creek at Km 54.3, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 78 Tributary to Poljie Creek at Km 54.3, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 79 Tributary to Poljie Creek at Km 54.3, Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 80 Poljie Creek at Km 54.4, Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 81 Poljie Creek (Km 54.4), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 82 Poljie Creek (Km 54.4), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 83 Poljie Creek (Km 54.4), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 84 Poljie Creek (Km 54.4), Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 85 Poljie Creek (Km 54.4), Prairie Creek all season road stream crossing study, September 21, 2014.



Photograph 86 Poljie Creek (Km 54.5), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 87 Mosquito Lake (Km 64.6), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 88 Mosquito Lake inlet (Km 64.6), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 89 Mosquito Lake inlet (Km 64.6), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 90 Small Tributary to Tetcela River - Helicopter Recon (Km 86.7), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 91 Small Tributary to Tetcela River - Helicopter Recon (Km 86.7), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 92 Small Tributary to Tetcela River - Helicopter Recon (Km 86.7), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 93 Small Tributary to Tetcela River - Helicopter Recon (Km 86.8), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 94 Large Tributary to Tetcela River (first Tetcela crossing, Km 87.7), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 95 Large Tributary to Tetcela River (first Tetcela crossing, Km 87.7), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 96 Large Tributary to Tetcela River (first Tetcela crossing, Km 87.7), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 97 Large Tributary to Tetcela River (first Tetcela crossing, Km 87.7), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 98 Tetsela River Mainstem (second Tetcela crossing, Km 90.1), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 99 Tetsela River Mainstem (second Tetcela crossing, Km 90.1), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 100 Tetsela River Mainstem (second Tetcela crossing, Km 90.1), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 101 Tetsela River Mainstem (second Tetcela crossing, Km 90.1), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 102 Tetsela River Mainstem (second Tetcela crossing, Km 90.1), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 103 Mainstem Tetsela River (second Tetcela crossing, Km 90.1), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 104 Fish Trap Creek (Km 95), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 105 Fish Trap Creek (Km 95), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 106 Fish Trap Creek (Km 95), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 107 Fish Trap Creek (Km 95), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 108 Fish Trap Creek (Km 95), Prairie Creek all season road stream crossing study, July 28, 2014.



Photograph 109 Fish Trap Creek (Km 95), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 110 Unnamed Creek (KP 105), Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 111 Tributary of Gap Lake at Km 122.8, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 112 Tributary of Gap Lake at Km 122.8, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 113 Tributary to Gap Lake (200 m south of Km 122.8), Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 114 Tributary to Gap Lake (approx. 500 m north of Km 122.8), Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 115 South End of Gap Lake at Km 123.1, Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 116 Flow out of Gap Lake (Km 123.1), Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 117 Gap Lake flowing in to Granger River (Km 123.2), Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 118 Gap Lake flowing in to Granger River (Km 123.2), Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 119 Gap Lake flowing in to Granger River (Km 123.3), Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 120 Tributary to Granger River at Km 123.3, Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 121 Granger River at Km 123.3, Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 122 Granger River at Km 123.3, Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 123 Granger River at Km 123.3, Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 124 Granger River at Km 123.3, Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 125 Granger River at Km 123.5, Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 126 Debris fan some flow to Granger River at Km 123.5, Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 127 Granger River at Km 123.5, Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 128 Granger River at Km 123.7, Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 129 Granger River at Km 123.7, Prairie Creek all season road stream crossing study, July 29, 2014.



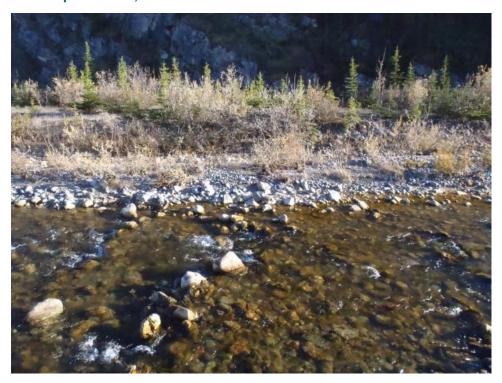
Photograph 130 Granger River at Km 123.7, Prairie Creek all season road stream crossing study, July 29, 2014.



Photograph 131 Granger River at Km 127.7, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 132 Granger River at Km 123.7, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 133 Granger River at Km 123.7, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 134 Granger River at Km 123.7, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 135 Granger River at Km 125.1, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 136 Granger River at Km 125.1, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 137 Granger River at Km 125.1, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 138 Granger River at Km 125.1, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 139 Granger River at Km 125.1, Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 140 Tributary to Granger River at Km 131.3, Prairie Creek all season road stream crossing study, September 26, 2014.



Photograph 141 Tributary to Granger River at Km 131.3, Prairie Creek all season road stream crossing study, September 26, 2014.



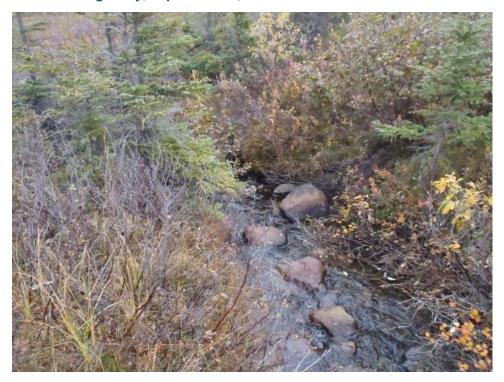
Photograph 142 Tributary to Granger River at Km 131.3, Prairie Creek all season road stream crossing study, September 26, 2014.



Photograph 143 Tributary to Granger River at Km 133.7, Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 144 Tributary to Granger River at Km 133.7, Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 145 Tributary to Granger River at Km 133.7, Prairie Creek all season road stream crossing study, September 24, 2014.



Photograph 146 Creek at Km 135.6, Prairie Creek all season road stream crossing study, September 25, 2014.



Photograph 147 Creek at Km 135.6, Prairie Creek all season road stream crossing study, September 25, 2014.



Photograph 148 Creek at Km 135.6, Prairie Creek all season road stream crossing study, September 25, 2014.



Photograph 149 Creek at Km 135.6, Prairie Creek all season road stream crossing study, September 25, 2014.



Photograph 150 Creek at Km 136.7, Prairie Creek all season road stream crossing study, September 26, 2014.



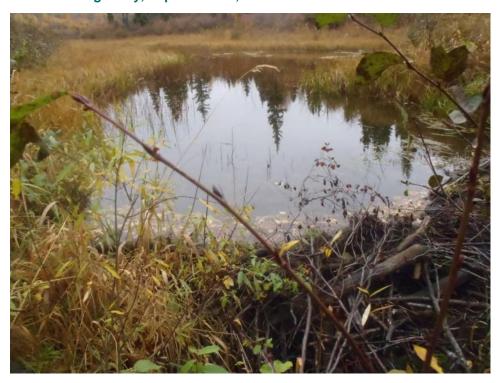
Photograph 151 Creek at Km 136.7, Prairie Creek all season road stream crossing study, September 26, 2014.



Photograph 152 Creek at Km 136.7, Prairie Creek all season road stream crossing study, September 26, 2014.



Photograph 153 Creek draining Triangle Lake (Km 144.7), Prairie Creek all season road stream crossing study, September 25, 2014.



Photograph 154 Creek draining Triangle Lake (Km 144.7), Prairie Creek all season road stream crossing study, September 25, 2014.



Photograph 155 Creek draining Triangle Lake (Km 144.7), Prairie Creek all season road stream crossing study, September 25, 2014.



Photograph 156 Creek draining Triangle Lake (Km 144.7), Prairie Creek all season road stream crossing study, September 25, 2014.



Photograph 157 Creek draining Triangle Lake (Km 144.7), Prairie Creek all season road stream crossing study, September 25, 2014.



Photograph 158 Creek draining Triangle Lake (Km 144.7), Prairie Creek all season road stream crossing study, September 25, 2014.



Photograph 159 Creek draining Triangle Lake (Km 144.7), Prairie Creek all season road stream crossing study, September 25, 2014.



Photograph 160 Bluefish Creek near Blurefish Lake (~7 km west of 146 km), Prairie Creek all season road stream crossing study, September 26, 2014.



Photograph 161 Bluefish Creek (~7 km west of 146 km), Prairie Creek all season road stream crossing study, September 26, 2014.



Photograph 162 Bluefish Creek (~7 km west of 146 km), Prairie Creek all season road stream crossing study, September 26, 2014.



Photograph 163 Bluefish Creek (~7 km west of 146 km), Prairie Creek all season road stream crossing study, September 26, 2014.



Photograph 164 Bluefish Creek (~7 km west of 146 km), Prairie Creek all season road stream crossing study, September 26, 2014.



Photograph 165 Bluefish Creek (~7 km west of 146 km), Prairie Creek all season road stream crossing study, September 26, 2014.



Photograph 166 Tributary to Liard River (Km 154.4), Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 167 Tributary to Liard River (Km 154.4), Prairie Creek all season road stream crossing study, September 23, 2014.



Photograph 168 Tributary to Liard River (Km 154.4), Prairie Creek all season road stream crossing study, September 23, 2014.



Attachment B
Fish Habitat Field Datasheets

| | Stream Hab | itat Information | - | |
|--|---|---|------------------------------------|------------------------------|
| Data Collectors / Jon T | Date 27 July 2 14 | 1 | Time (24 H) 330 | |
| Site Paol | | U/3 of 37) | Project CZN - a | 11 season road |
| UTM NAD | Upstream Northing 64 | KW 242 | Upstream Easting | 10 |
| Aggrega | Downstream Northing | | | <u> 19</u> |
| Access | Downstream Northing 0424078 | | Downstream Eastin | 2 |
| Morphology | | , | | |
| Stream Morphology Types (%) | Length (m) | | Veloc | ity (60% depth or surface) |
| Run Riffle Pool Fall Other: | Depth Transect (m) | @ 25% width 50% | 75% 25 | |
| Depth/Pool (m) | 2 /3 | 18 cm 42cm | 72 cm 0.14 | |
| Channel Slope (°) # 0.5 ° | ; 3 | 24cm 20cm | 46 cm 0,2 | |
| Wetted Width 6 / 13 / 17 / | m Channel Width (m) | 1/621/621 157 | Unstable Banks (5%) | |
| Meander Frequency + 1 | m Regula / Irregular me | anders | Bank slope (5°) | , L R |
| Instream Cover | 0.0/11 | -/ON-3(-1-1-) | (O. f. division) | |
| Instream Cover (Detritus) Instream Cover (logs, etc) | % Instream Cover (Twig. % Instream vegetation | | Substrate (as cover) Undercut Bank | 5% % |
| Woody Debris Description (log jams, faller | | | iff | all one side |
| | | | | |
| L | | · . | | |
| | Instream Vegetaion (Sum 100%) | | e (25 m Buffer) | circle |
| | Rooted Emergent Rooted Submergent | O % Mixed Fores O % Grasses | | erous Forest) uous Forest |
| % Organics | Rooted Floating | () % Grasses () % Re-growth for | | |
| % Silt - | Free-floating | O % Flooded | Sedge | |
| | Floating Algae | ⊘ % Roads | Cutlin | es |
| | Attached Algae | < 1 % | | |
| % Cobble 40 50 80 50 50 | Periphyton Filamentous | | scription/Notes/Drav | |
| | Aquatic Moss | 15 % Bak P41 | 1-20 18 | 23 |
| | Flooded Terrestrial Plants | ბ % | | |
| Overhead Cover | Out | \big \big \big \big \big \big \big \big | | , 00 |
| | Overhead Litter >150 mm (%) Overhanging Trees | 0 % | 30 m C | (1) |
| | Overhanging Shrubs | | | |
| Miscellaneous | | Weather | .11.12 | ool deep or 1 |
| High water mark | / ₄ 5 m | previous 24 H Ciffle | Pool! - | 6M Eri |
| Flood Evidence (Debris on plants, etc) | m | Coudy 17 | run 13 m | - c'14 1 |
| Air Temperature | 2/ °C | dry the | Sm 1 1 | one sirily |
| Cloud Cover (5%) Wind Direction + speed (km/h) | 810 NE 5 | ory 14 J | 4 | 33 |
| | [77.00] | | gravel Flood Pl | |
| In situ Water Parameters Sample Depth (m) | <u> </u> | | 1 | 1 |
| Dissolved Oxygen (%) 94.8 | ÷ | | Flood Pl | an 1 |
| Dissolved Oxygen (mg/L) // L | | | 7 200 | |
| Secchi Depth (m) | | 112 | -M | |
| Temperature (°C) 8.6 pH 8.60 | | | | |
| Turbidity (TCU) | | | | • |
| Conductivity (uS/cm) 2.60 | | | | |
| Landscape (Beyond 25 m Buffer) | circle Visible Disturbance of | ircle | Bank | 2 |
| Mixed Forest Coniferous Forest | Roads Surface Debris | Culvert | | |
| Grasses Deciduous Forest | | Weir | diffs | J.N . |
| Re-growth forest Shrubs (| Hills Collapsed Bank | | · · | |
| Photos | | Channel Fea | itures # | Dimensions |
| <u>'</u> | | lslands Bars | | |
| | | . Dais | · | - - |
| | | | | |
| Notes | | | | |
| [* | | | | |

| ata Cunectors | | | Date | 1 1 1 | bitat Information | · | Time (24 H) | | |
|--|------------------|--|----------------|---|--|--------------|----------------------------------|---------------|---------------------------------------|
| Jata Collectors | <u>/</u> | - | 2 | 7 July 16 | <u>†</u> | | Time (24 H) | 1416 | |
| ite Rifi | Fle (| us of |) Station S | | 200 m US | (生) | Project CZ | N678 | * |
| TM NAD | | wp20 | Upstream | Northing 270 33 | | ···/ | Upstream Eas | ing 7 ≪ | |
| .ccess | | · · · · · · · · · · · · · · · · · · · | Downstre | am Northing | | | | | |
| | | WP21 | 1 4 | am Northing 27055 | | | Downstream 8 20 | 1344 | |
| forphology | | | | | | | | | |
| Stream Morpholog | y Types (% | | | Length (m) | | | | | 60% depth or surface) |
| | Riffle Other: | Poo | d | Depth Transect (m) | | | 75% | 25% | 50% 75% |
| all | Viner: | | - | 1 1 | 22 | 40 | 26 | 129 | 1.75 .61 |
| Depth/Pool (m) Channel Slope (°) | | 0 | | 2 | 32 28 | 32 | 22 42 | .59 | 1,20 1,06 |
| Vetted Width | 110 1 | 191 | 1) m | Channel Width (m) | | 91 * | Unstable Bank | | 1,20 1,06 |
| Aeander Frequent | | | | Regular / Irregular n | | | Bank slope (5° | | L R |
| | -1 | | | · · · · · · · · · · · · · · · · · · · | | | | · | |
| nstream Cover | otritus\ | | | Inchan Court /Tou | ine/Ctickes -4-1 | | Cubatanta (== | | 1 20 0/1 |
| nstream Cover (D | | | | Instream Cover (Two Instream vegetation | | | Substrate (as o Undercut Bank | | 0 % |
| nstream Cover (lo Voody Debris Des | | n jame fallo | | | | () % | Jondercut Bank | 1 | <u> </u> |
| TOOLY DEUTIS DES | ouhuon (10¢ | , jains, iaile | ir ii cea, pea | roi activity, Ctc/ | | | | | |
| | <u> </u> | | | | | | | | |
| Substrate Compo | sition (Sur | n 100%) | Instream V | /egetaion (Sum 100º | %) | Riprian Zon | e (25 m Buffer |) | circle |
| | , `, | Embed. (%) | | | 0 % | Mixed Fores | | Coniferous | |
| 6 Organics | | T | Rooted Sub | omergent | <i>O</i> % | Grasses | | Deciduous | |
| 6 Clay | | - | Rooted Floa | ating | 7 % | Re-growth fo | orest (| Shrubs | |
| 6 Silt | | <u> </u> | Free-floatin | | U % | Flooded | · · | Sedges | |
| % Şand | -200 | - | Floating Alg | | | Roads | | Cutlines | |
| Gravel | 20 | i | Attached Al | - | <1 % | | | | |
| Cobble Cobble | 720 | L | 1 | Periphyton | | | scription/Note | s/Drawing | |
| 6 Boulder | 20 | | J | Filamentous | 0 % | Bolls | 1- 23 2 | 8 29 | 2 * of active |
| 6 Bedrock | | | Aquatic Mo | | O % | 1 | 1 23 2 | 0 4 | Chamas |
| _ | | | Flooded Te | rrestrial Plants | 0 % | ł | | | of active channel flood plo |
| verhead Cover | <u>د</u> | <u> </u> | Our de la | Mark 450 (0/) | | 1 | | | T WOOD PIO |
| overhead Litter <1 | | | | itter >150 mm (%) | 0 % | 1 | | 4 | • |
| verhead Undercu | | | Overhangin | | 20 % | 1 | , | slide | |
| verhanging Grass | 552 | (3 % | Overhangin | y Siliuus | | 1.00 | E | عااالا | |
| liscellaneous | | | | | Weather | cliff | = | | 10 |
| igh water mark | | .44.5 | | | m previous 24 H | ł | ., | | sido Chame |
| lood Evidence (De | edns on pla | nts, etc) | ··· | 73 - | E cloudy | | | | · · · · · · · · · · · · · · · · · · · |
| ir Temperature | | | | 4-7 | VI. 0 1 | Peol | 1 | b | ar wishabs |
| loud Cover (5%) /ind Direction + sp | need /km/h | , | | NE 5 | getting sum | 7601 | lin | J. Sandara | _ |
| ratio Difection + Sp | seen (KIII)N | | | ハトラ | ואפוו בן | | / S. | <i>,</i> | 1 |
| situ Water Para | meters | | | | | | - And | riffle | 10m/ |
| ample Depth (m) | | | | | | l | , | $\sim 1^{18}$ | WI! |
| issolved Oxygen | | <u> </u> | | £. | | | | * | 7/ |
| issolved Oxygen | (mg/L) | | | Λ | | 1 | | _ | ¥ / |
| ecchi Depth (m) | | | 10 10 | 9 | | l | | | \prec |
| emperature (°C) | | (2) | ~\^O | | <u> </u> | l | | | |
| H | | | | بول | | l | | | |
| urbidity (TCU) | | | 1 51 | · | | | | | |
| onductivity (uS/cn | n) | i | | L | | | 1 | .1 | |
| andscape (Beyor | | | | Visible Disturbance | | • | | N | |
| | Coniferous | | Roads | Surface Debris | Culvert | | A | | |
| | Deciduous | | | Beaver Dam | Weir | I. | | | |
| a acousth facact | | | Hills | Collapsed Bank | | | ·········· | | |
| e-growth forest | can | グ ^{・1} | | | | Channel Fea | itures | # | Dimensions |
| hotos | | | | | | Islands | | | |
| | | | <u> </u> | | | | | | |
| | | | | | | Bars | | | |
| | | | | | | | | | |

| ata Collectors | Date | | itat Informatio | 11 | Time (24 H) | | | |
|---|-----------------------------------|---------------------|---------------------------------------|----------------|---|---------------------|--------------------------|------------------|
| John W / Jon T | | 27-July- | 2014 | - | <u></u> | 15:26 | 1 | |
| ite 1 (15wes) Sundag | Station Sun | 100,2-1 | A | | Project Ca | ZN678 | 38 | |
| TM NAD | Upstream North | ning 4263/56 | · · · · · · · · · · · · · · · · · · · | | Upstream Ea | | | |
| ccess | Downstream No | orthing | | ·· ·· | Downstream | Easting | | |
| | | 426418 | | | 6 | 829265 | 2 | |
| orphology ream Morphology Types (%) | llast | ath (m) | | 1 | · , · · · · · · · · · · · · · · · · · · | Nalasih (C | 00/ | |
| in Riffle Pool | A Dep | th Transect (m) | @ 25% width | 50% | 75% | Velocity (60 25% | <u>0% аертл о</u> 50% | r surrace 75% |
| Il Other: CClose | to wall | 1 | 1 8 | 1 11 | 10 | 0.13 | 0.34 | 0.26 |
| epth/Pool (m) | | 2 | 6 | 14 | 15 | 0.36 | 0.40 | 0.52 |
| hannel Slope (°) 3° | | 3 | (1 | 22 | 44 | 0.08 | 0,27 | 0.31 |
| etted Width / 27 / 15 * / | | nnel Width (m) | 1.1 | 1 | Unstable Bank | s (5%) | | · · · · · · |
| eander Frequency / / / / | m Regi | ular / Irregular me | eanders | | Bank slope (5° |) , | L | R |
| stream Cover | | | | | | | | |
| stream Cover (Detritus) | | eam Cover (Twig | s/Sticks; etc) | | Substrate (as | | 2 % | |
| stream Cover (logs, etc) | | eam vegetation | | <u>8</u> | Undercut Bank | | 0 % | |
| oody Debris Description (log jams, fallen | trees, beaver ac | tivity, etc) | | | | <u>b</u> | m. Iders | |
| | • | | , | ····· | | | _ | |
| bstrate Composition (Sum 100%) | Instream Vegeta | ion (Sum 100%) |) | Riprian Zon | e (25 m Buffer |) | circle | |
| | Rooted Emergen | | | Mixed Fores | | Coniferous | | |
| | Rooted Submerg | | | Grasses | 5 | Deciduous. | | |
| | Rooted Floating | | | Re-growth fo | orest C | Shrubs | | |
| | Free-floating | | | Flooded | | Sedges | | |
| | Floating Algae | | | Roads | , | Cutlines | | |
| | Attached Algae | | 0 % | | | | | |
| Cobble 55 60 0 | _ | hyton | | | scription/Note | s/Drawing | | |
| Boulder 20 25 | • | nentous | 0 % | | | | | |
| | Aquatic Moss | ionious. | 8 % | i j | Bank full h | idth. 4 | 2 51 | BAL |
| | Aqualic Moss Flooded Terrestri | al Plante | 7 % | . ' | wes - | | 7つ. | 62 |
| rerhead Cover | LICOUCU TEHESIII | ur iaina | () 70 | * \ \ | (424) 3 | • | | |
| | Overhead Litter > | 150 mm /9/ \ | 0 % | | JR. | | | |
| verhead Undercut Banks | Overhead Litter > | 130 11111 (76) | 0 % | | - Sections | | | |
| | Overhanging Shr | | 7 % | | · · · · | _ dr | oth 72 elucity 0 | |
| rerhanging Grasses O % | Overnanging Sin | uus | | | (O) | _ / ' | - (| |
| scellaneous . | | | Weather | 1\ / ` | 1 m | Cooled | Cliff | ž. |
| gh water mark | | | previous 24 H | 6.6 | | Los X | | |
| ood Evidence (Debris on plants, etc) | | | Cloudy | $1 \wedge $ | ~ \ | R | / | trees 1 |
| Temperature | | <u>72 °°</u> | | \times | - (| Rifiz Co | | المعرومان |
| oud Cover (5%) | | _5 | dry | / ` | | (| | \Rightarrow |
| nd Direction + speed (km/h) | | / <u>5</u> 5 | U | 1 | 48 | χ | | |
| situ Water Parameters | | | | | | / _ < | > <i>/</i> | ~~ ~ |
| mple Depth (m) | | <u></u> | | Į | ×. | \ | \sim | 6.Bac |
| solved Oxygen (%) 101.7 | | 1 | | 1 | / \ | ` \ | | \ |
| solved Oxygen (mg/L) 12.19 | | | | I | 1.1.1.1 | | | ~ |
| cchi Depth (m) | | | | l | Floodylai | · G.bal | | |
| mperature (°C) 3.4 | | | | l . ′ | / | | / | 11/ |
| 8,63 | | | | Lon | ation | | | /, |
| bidity (TCU) | | | <u> </u> | elev | alion | | | \ |
| nductivity (uS/cm) 233 | | | | | | 1 | | ` |
| | ····· | le Disturbance o | | ' | { | 7 | | |
| 1 | | ce Debris | Culvert | l | Ψ | J | | |
| | | | Weir | I | | | | |
| asses Deciduous Forest (| Hills Collar | psed Bank | | * ~2m | wide small | travel bar | mel·in in | حقد إربحبول |
| sses Deciduous Forest (| TIIIS COIIA | | | | | | | |
| asses Deciduous Forest C -growth forest Shrubs F | niis Icona | | | Channel Fea | ntures | # [| Dimensions | i |
| asses Deciduous Forest C -growth forest Shrubs F | TIRS COITA | | | Channel Fea | itures | # [| Dimensions | |
| asses Deciduous Forest (| TIRS COIIIa | | | | ntures | # [| Dimensions | • |

Notes Slope = total slope of reach - shoes of included channels will be lower.

6-pe = 3%. Slightly more periphyton than France.

| | Stream Habi | tat Information | 1 | | | | |
|---|--|-----------------|--|---|-----------------------|------------|----------|
| Data Collectors てい, ひら | I | | | Time (24 H) | 11:01 | , | · |
| <u> </u> | Date 27 July 14 | <u> </u> | | | 1610 F. | | |
| Site Sundog realign 2 | Station 3 | | | Project Ca | en6789 | 8 | |
| UTM NAD | Upstream Northing | | | Upstream Eas | stina | <u> </u> | |
| Access | H26255 | <u>.</u> | | 6829 Downstream | 1318 | | |
| Access | Downstream Northing 426323 | | | 6829 | 505 | | |
| Morphology | | | | | | | |
| Stream Morphology Types (%) | Length (m) | | | ··· ₁ | Velocity (60 | % depth or | surface) |
| Run Riffle Pool | Depth Transect (m) | @ 25% width | 50% | 75% | 25% | 50% | 75% |
| Fall Other: | 1 | 15 | 18 | 14 | 0.27 | 0.79 | 0.1 |
| Depth/Pool (m) Channel Slope (°) 3° | 2 3 | 90 | 76 19 | 68 | 0.12 | 0.14 | 0.05 |
| Wetted Width 3 / 4 / 5 / | m Channel Width (m) | 16317 | | Jnstable Bank | | 0.25 | 0,06 |
| Meander Frequency / / / / | m Regular / Irregular me | anders | , ,]E | 3ank slope (5° |) , [| _ | R |
| Instream Cover | | | | | | | _ |
| Instream Cover (Detritus) | instream Cover (Twigs | s/Sticks; etc) | | Substrate (as o | | % | |
| Instream Cover (logs, etc) Woody Debris Description (log jams, faller | % Instream vegetation | T(00 L | | Indercut Bank | . [| 2 % | |
| TOOK DESCRIPTION (TOO Jame, latter | Dearer activity, etc/ | 1158/ - | <u> </u> | الر سعت | | · | |
| | | | | · · | | | |
| Substrate Composition (Sum 100%) | Instream Vegetaion (Sum 100%) | | | (25 m Buffer |)(| ircle | |
| | Rooted Emergent | | Mixed Forest | | Coniferous T | | |
| % Organics | Rooted Submergent Rooted Floating | | Grasses Re-growth for | | Deciduous E Shrubs | förest | |
| % Silt — - | Free-floating | | Flooded | | Sedges | | |
| | Floating Algae | | Roads | Ì | Cutlines | | |
| | Attached Algae | Ø % | | | | | |
| % Cobble 25 25 | Periphyton | | Channel Des | cription/Note | s/Drawing | | |
| % Boulder 15 25 | Filamentous | O % | | . 7 | ···. | ٨ | |
| | Aquatic Moss Flooded Terrestrial Plants | <i>O</i> % |) | 31/13 | | 1' N | |
| Overhead Cover | Tiooda Torrocalari land | | welld \ | 100 | | . | |
| Overhead Litter <150 mm % | Overhead Litter >150 mm (%) | % | 7m | | | | |
| | Overhanging Trees Overhanging Shrubs | — % — % | -11 | | | • | Γ |
| | Overhanging Shrubs | | , | \ V | | | |
| Miscellaneous , | | Weather | 9 | 5 /- [| mayer | , | / / |
| High water mark Flood Evidence (Debris on plants, etc) | 1,2 m | previous 24 H | - - | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | par | (| } |
| Air Temperature | 2.2 °C | | _ | 30 / Ja | • • 1/2 , | | 1 |
| Cloud Cover (5%) | 3 | | | -7-13 | wetted | | $ \psi $ |
| Wind Direction + speed (km/h) | WS | | , | ال تعسم | UPC TREE | ļ | |
| In situ Water Parameters | | | | | | / | ' } |
| Sample Depth (m) Dissolved Oxygen (%) | | | | 1 + 41 | n we Hed | | ļ |
| Dissolved Oxygen (%) Dissolved Oxygen (mg/L) | X | | | 1 1 | | | |
| Secchi Depth (m) | 7/5 | | Tt. \ | ().: | 571 | | } |
| Temperature (°C) | | | 3.1 | 7-1 | inc Hed | . دوامد در | . [|
| pH 5* Turbidity (TCU) | | | | 1 1 1 | \setminus | FLOW | |
| Conductivity (uS/cm) | | | The state of the s | / / // | | K, | / |
| | circle Visible Disturbance o | ircle | • | \ \ \ | | | |
| | | Culvert | | | _/ | | |
| Grasses Deciduous Forest | Cutlines Beaver Dam | Weir | | | | | |
| | Hills Collapsed Bank | | | | / | | |
| Photos Cargon | · · · · · · · · · · · · · · · · · · · | | Channel Feat | ures | # D | imensions | |
| | | | slands | | | | - |
| | | | | | | | |
| | | | Bars | | | | |
| | | <u></u> | Bars | | | | |
| Notes 30 Slope | | | Bars | | | | • |

(

| | Stream Hah | itat Information | |
|---|---|---------------------------------------|--|
| Data Collectors, | Data - | 7L | Time (24 H) |
| JW, DH, Garry, Joh | 28 July 1 | 7 , | 1 0944 |
| JSite | Station Creek | (of londing) | Project PAGACO |
| UTM NAD LOSS MY | | (PT 0) (0M(01-1) | Unatroom Easting |
| WP 3.1 | Upstream Northing 10V 44068 | (centre) | Upstream Easting |
| | Downstream Northing | | Downstream Easting |
| Access Helecoptes | | | |
| Morphology | | • | |
| Stream Morphology Types (%) | Length (m) | | Velocity (60% depth or surface) |
| Riffle Pool | Depth Transect (m) | @ 25% width 50% | 75% 25% 50% 75% |
| Fall Other: | _ 1 | · · · · · · · · · · · · · · · · · · · | |
| Depth/Pool (m) Channel Slope (°) | 2 3 | | |
| Wetted Width / \$ / 8 / | m Channel Width (m) | 1/0 / 11 / 11 | ⊎nstable Banks (5%) |
| Meander Frequency / / / / | m Regular / Irregular me | | Bank slope (5°) L 30 R 70 |
| Instream Cover | | | |
| Instream Cover (Detritus) | % Instream Cover (Twig | s/Sticks etc) / % | Substrate (as cover) - % |
| Instream Cover (logs, etc) | 1 / % Instream vegetation | | Undercut Bank , 2 % |
| Woody Debris Description (log jams, fallen | trees, beaver activity, etc) | | · |
| | | | |
| | | | |
| | Instream Vegetaion (Sum 100%) | | e (25 m Buffer) circle |
| | Rooted Emergent | O % Mixed Fores | |
| | Rooted Submergent Rooted Floating | / % Grasses / Re-growth for | Deciduous Forest orest Shrubs |
| | Free-floating | % Flooded | Sedges |
| | Floating Algae | % Poods | |
| | Attached Algae | 0 % | evidence of old writer road |
| % Cobble 20 50 | Periphyton | | scription/Notes/Drawing |
| % Boulder | Filamentous | 8 % ZN | head of |
| | Aquatic Moss Flooded Terrestrial Plants | 1 9(85%) | word of |
| Overhead Cover | riboded Terrestrial Flamis | 9 % SPINCE | < or children |
| | Overhead Litter >150 mm (%) | 6 % SY / | |
| Overhead Undercut Banks 2- % | Overhanging Trees | | - chrubs 1 dech 2 |
| Overhanging Grasses / % | Overhanging Shrubs | | 8 STOSS |
| Miscellaneous | | Weather | dind Steep dirt |
| High water mark | /m m | previous 24 H | bark |
| Flood Evidence (Debris on plants, etc) | . m | clear | gravel cobble |
| Air Temperature | °C | l*. | graner coole |
| Cloud Cover (5%) Wind Direction + speed (km/h) | 60 thin cir | iv. | Alec |
| | ET The board | | randles Sednet 1 Leg |
| | 'SI , Titration | | Sednet 1 100 |
| Sample Depth (m) | - 3h | | Mud RIV |
| Dissolved Oxygen (%) (97.6) Dissolved Oxygen (mg/L) (12.21) | 70.8 | A | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |
| Secchi Depth (m) | 70,0 | 7 (0. | - Links |
| | | Sprule | Shrubs/ Spince |
| pH 39 | | | grase A |
| Turbidity (TCU) | | | |
| Conductivity (uS/cm) 355 | | <u> </u> | -30m -3 dead trees |
| Landscape (Beyond 25 m Buffer) | circle Visible Disturbance of | ircle | incol two 05 |
| | Roads Surface Debris | Culvert | dead treat |
| | ■ | Weir | , |
| | | V0 | <u> </u> |
| Photos dead frees | • | Channel Fea | tures # Dimensions |
| U/S D/S CC. | | Islands | · · · · · · · · · · · · · · · · · · · |
| | | Bars | |
| : | | t , | |
| Notes CI 1 7 -01' a hard | and stores | | <u></u> |
| | | | · · · · · · · · · · · · · · · · · · · |
| - Flat To F Conse | | • | · • |
| Notes - Flat 75% enbedd - Mease foot pr | 4 | • | • |

| | | | Stream Hab | itat Information | | | | | |
|-------|---|--|--------------------------|------------------|-----------------|-----------------|--------------|---------------------------------------|---------------|
| | Data Collectors | Date | .1 | <i>*</i> 15 | · | Time (24 H) | | | |
| | PHAD CK Crossua | 2 | mall trib (| west) | | Time (24 H) | 0:09 | <u></u> | |
| | Site JW, DH, Gory, JON | - | 28 July | 14: | | | en678 | | |
| (| UTM NAD WP032 | Upstream 10 V | Northing 440615 | (centre | ,) . | Upstream Eas | もなり | ł | |
| | Access Helecoptor | Down <u>stre</u> | eam Northing | | | Downstream | Easting | | _ |
| | Morphology | | | | | | | | |
| | Stream Morphology Types (%) | | Length (m) | | | , | Velocity (6) | 0% depth or | surface) |
| (| Run Riffle Poo | ol | Depth Transect (m) | @ 25% width | 50% | 75% | 25% | 50% | 75% |
| • | Fall Other: | | 1 | | | 1 | 1 20 /3 | 1 | |
| | Depth/Pool (m) | | 2 | · · · | | | | | |
| | Channel Slope (°) | | 3 | | | | | | |
| | Wetted Width 1,4 / 1,9 / | · г | n Channel Width (m) | 11.611. | 6/2,0 | Unstable Bank | s (5%) | <u></u> | |
| | Meander Frequency / / / / | n | n Regular / Irregular me | | | Bank slope (5° | | L 60 | R 60 |
| | Instream Cover | | | • | | - | | | |
| | Instream Cover (Detritus) |] 0 | 6 Instream Cover (Twig | e/Sticket atc) | 20 % | Substrate (as o | יסייטיגן | 0/1 | |
| | Instream Cover (logs, etc) | | 6 Instream vegetation | arcticks; etc; | | Undercut Bank | | 10 % | , |
| | Woody Debris Description (log jams, falle | | | | -5 /0 | Olidercat Bank | • | 10 % | |
| | woody Debris Description (log jams, lane | sii uees, bea | iver activity, etc) | | | | | | |
| بير | | | | ····· | | · | | <u> </u> | |
| | | | | | | | | | |
| | Substrate Composition (Sum 100%) | | Vegetaion (Sum 100%) | | | e (25 m Buffer | | circle | |
| | Embed. (% | Rooted En | | | Mixed Fores | t (| Coniferous | | |
| | % Organics | Rooted Su | - | | Grasses | | Deciduous | Forest | |
| | % Clay | Rooted Flo | | | Re-growth fo | orest (| Shrubs | | |
| 1 | % Silt | Free-floatii | | | Flooded | | Sedges | - | |
| | % Sand - | Floating Al | | 0 % | Roads | <i></i> | Quilines | | |
| | | Attached A | _ | <u> </u> | V | old roa | | ∨. | |
| | % Cobble | 1 | Periphyton | | | scription/Note | s/Drawing | · · · | |
| | % Boulder | 1 | Filamentous | 0 % | | (/ I | a.n.n.≤ | | |
| 1 | % Bedrock | Aquatic Mo | | 0 % | | dead t | Ter- | | i |
| C | Overhead Cover | | errestrial Plants | 0 % | | | | | 2 |
| | | | Litter >150 mm (%) | % % | 1.6 | | | | > |
| | | Overhangii | | <u>%</u> | Spille | | - | | |
| | Overhanging Grasses % | Overhangii | ng Shrubs | % | 3 1 | 11 | | | |
| | Miscellaneous . | | | Weather | Y/ | - // | | | ļ |
| | High water mark | | . Com | previous 24 H | ₩ | Jeller 10 | SAX-65 | 4 . 4 | , I |
| | Flood Evidence (Debris on plants, etc) | | (0 m | ' <u> </u> | _ 141_ | 97053/ | 1 | <u> </u> | |
| | Air Temperature | | °C | clear: | No. | 11 | 12 // | | <u>'</u> |
| | Cloud Cover (5%) | | Circus 60% | - | 15/ | // . | , " | | · |
| | Wind Direction + speed (km/h) | | 0 | | | f = f f = 1 | | | . |
| , | 200 | probe | ا ابد | | 1 | MAN | 11.6 | \\ | i |
| _ | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | ے د ن ہے | titration | | 1 | VIII V | 11/10 | W-V- | |
| | Sample Depth (m) | - A A- | <u> </u> | | | Mgras | S | • | - |
| | Dissolved Oxygen (%) | 8.45 | -7.5 | | | pho- Shri | 55 | | ŀ |
| | Dissolved Oxygen (mg/L) | 8.42 | 7,2 | | | Show | " ط | | 1 |
| | Secchi Depth (m) | | - | • | alder | | | 1 | |
| ı | Temperature (°C) | 8.6 | <u> </u> | | 1 | 10 | น | > / | |
| | pH 7.1 | 8.0 | | | | | | | |
| | Turbidity (TCU) Conductivity (uS/cm) 480 | | | | | , , | 1 | • | ľ |
| L | CONGUCTIVITY (GO/CITE) | | <u> </u> | | | dead n wide | Trees | • | |
| | Landscape (Beyond 25 m Buffer) | circle | Visible Disturbance of | circle | • | - | - | | |
| ſ | Mixed Forest Coniferous Eorest | Roads | Surface Debris | Culvert | | | Slow | mov~ | ۱ ۱ |
| | Grasses Deciduous Forest | Cutlines | I . | Weir 😗 | 1,51 | w mige | | _ | <i>)</i> |
| | Re-growth forest (Shrub) | Hills | Collapsed Bank | <u> </u> | | | | | |
| - | Photos Venel Trees (to | restt | YE) | | Channel Fea | turae | # | Dimonologo | |
| r | riiotos | | | | Islands | 10162 | # | Dimensions | |
| ŀ | | | | | isianos Bars | | | | |
| ŀ | | | | · | nais | | | | |
| _ L | | | | | , | | | · · · · · · · · · · · · · · · · · · · | |
| · · · | Motos // | . 0 | *1 | | | | | - | 1 |
| | Notes 4 | ₹ 8 | | | | | • | | i |

| Data Collectors | | Date | | bitat Information | | ime (24 H) | aren | | |
|--|------------------|--------------------------------|-----------------------|--|--|--|-------------|---------------------------|---------|
| CJ, 8H | | | 21-5cy-2014 | | | | 9:50 | | |
| te KP 50.2 | (Polije Trib.) | | KP 50.2 | | | Project CZN GZ88 Upstream Easting 142 (AUL) | | | |
| UTM NAD | | Upstream | Northing 682 | 6829737 Upstream | | | ting 43 | 36944 | |
| Access Heli | | Downstre | am Northing | D | ownstream I | Easting | | | |
| Morphology | | | | | 5 | | | | |
| Stream Morphology T | Types (%) | | Length (m) | | | | Velocity (6 | 60% depth or su | ırface) |
| | iffle | Pool | Depth Transect (m) | @ 25% width | 50% | 75% | 25% | 50% | 75% |
| Fall O Depth/Pool (m) | ther: | | 1 2 | | | | | | |
| Channel Slope (°) | | | 3 | | | | | | |
| Wetted Width | 1 1 | | Channel Width (m) | 11 | | nstable Bank | | | |
| Meander Frequency | 1 1 1 | / n | Regular / Irregular n | neanders | JB | ank slope (5° | | L R | |
| Instream Cover | :h\ | | Instream Cover (Tw | iga/Cticko# oto\ | I 24 0/10 | ubstrate (as o | over) | 1 % | |
| Instream Cover (Detr Instream Cover (logs | | | Instream Cover (1w | THE RESERVE THE PROPERTY OF THE PERSON NAMED IN COLUMN TWO IN COLUMN TO THE PERSON NAMED IN COLUMN TWO IN COLUMN T | Committee of the Commit | ndercut Bank | | 5 % | |
| Woody Debris Descri | | | | | ,,, | | | | |
| | | | ome causing st | eps, smaller | sticks al | 50 | | | |
| | | | U | | | 100 100 100 | | | |
| Substrate Composit | | | /egetaion (Sum 100 | | Riprian Zone | (25 m Buffer | | circle | |
| % Organics | Emb | ed. (%) Rooted En Rooted Su | | | Mixed Forest Grasses | | Coniferous | 7,11.70.70.70 | |
| % Clay | | - Rooted Flo | | | Re-growth for | est | Shrubs | o i orest | |
| % Silt | 90 | - Free-floati | | | Flooded | | Sedges | | |
| % Sand | 10 | - Floating A | • | % | Roads | | Cutlines | | |
| % Gravel | 30 | Attached A | | % | | | | | |
| % Cobble * | | 100 000 | Periphyton | % | Channel Des | cription/Note | s/Drawing | | |
| % Boulder | | | Filamentous | % | | | | | |
| Bedrock | | - Aquatic Me | oss | % | | | | | |
| | , | | errestrial Plants | % | | | L. | | |
| Overhead Cover | * | | | | - | 1.1 | | | -/ |
| Overhead Litter <150 | mm 📝 | | Litter >150 mm (%) | 20 % | | . a side | 1 1 | A | |
| Overhead Undercut E | Banks 5 | | | 5 % | | channe | | 2 | |
| Overhanging Grasses | s I | % Overhangi | ng Shrubs | 10 % | Nom | hain dra | not ? | 10 | |
| Miscellaneous | | -41 | | Weather | | channel main dra Soft | | Flory | |
| High water mark | | | | m previous 24 H | \ | Saturat | ed | V | |
| Flood Evidence (Deb | ris on plants, e | etc) | | m |) | 1 BLUCE | | | Hil |
| Air Temperature | | | | °C | 1 | 1,00 | | Log step | 1,40 |
| Cloud Cover (5%) Wind Direction + spe | ed (km/h) | | 95% calm | - | Gr. X | | MI | 0.1 | |
| | | | Carm | | Hill | | | all log jan | |
| In situ Water Param | | 10 | | | 1 | | A > 0 | 5m (Cross sec location | tion |
| Sample Depth (m) Dissolved Oxygen (% | 6) | | | - | 1 | 1 | 1 | (scatio | r) |
| Dissolved Oxygen (% | | | 1 | 7 | | 25 | The L | L du | |
| Secchi Depth (m) | 19/2) | | | | 7 | -10 | A N | \$ 1/S | |
| Temperature (°C) | 3.4 | | | | 1 | 1 | 2 | TIME | |
| pH | 7. | | | 1 | | | 1./ | 1 | |
| Turbidity (TCU) | | | | | 1 | ~ 10 m | 1 | () | |
| Conductivity (uS/cm) | 50 | 00 | | | 3.1 | | | 1, | |
| Landscape (Beyond | 25 m Buffer) | circle | Visible Disturbanc | e circle | 21/4 | | | | |
| | oniferous Fore | | Surface Debris | Culvert | 1 | | | | |
| Control of the Contro | eciduous Fore | | Beaver Dam | Weir | | | | | |
| Re-growth forest S | hrubs | Hills | Collapsed Bank | | 1 | | | - | |
| Photos | | W | | | Channel Feat | ures | # | Dimensions | |
| | | | | | Islands | | | | |
| | | | | | | | | | |
| | 100 | | | | Bars | | | | |
| | let. | | | | Bars | | | | |

| | | | | bitat Information | - | | | | |
|---|---|---|---|----------------------------|----------------------|--|--|--------|------|
| Data Collectors | | Date | 21-Sep-14 | , | | Time (24 H) | 14:15 | | |
| ite KP 47.0 | | Station | 1 | | | Project CZN 6788 | | | |
| ITM NAD | - 1 | Jpstream | Northing 6829 | 220 | | Upstream Easting 434240 | | | |
| need of the | | | | Dawwatera | | 19 290 | | | |
| Access Holi/Hiking | | Jownstre | am Northing | | | Downstream | Easting | | |
| Norphology | | | | | 1 | | | | |
| Stream Morphology Types (% | | | Length (m) | 0.050/ | | | Velocity (6 | | |
| Run Riffle all Other: | Pool | | Depth Transect (m) | @ 25% width | 50% | 75% | 25% | 50% | 759 |
| Depth/Pool (m) | | | 2 | | | | | | + |
| Channel Slope (°) | | | 3 | | | | | | |
| Wetted Width / | 1 1 | | Channel Width (m) | / · / | | Unstable Bank | | | - |
| Meander Frequency / | | - " | Regular / Irregular n | leanuers | - | Bank slope (5 | , | L | R |
| nstream Cover | | //- 0 | (I) (T. | (Cti-l (-t-) | 1 0/ | IO 1-1-1-1-1- | unation of the | 1 = 0 | 1771 |
| nstream Cover (Detritus) | - | | Instream Cover (Twi | | | Substrate (as | | | 40 |
| nstream Cover (logs, etc) | L | | Instream vegetation | | 0 % | Undercut Ban | κ , | 5 9 | 이 |
| Woody Debris Description (Id | og jams, tallen | trees, bea | iver activity, etc) | | | | * | | |
| W. W. | | | | | | | | | |
| 2000 C C C C C C C C C C C C C C C C C C | | | | | 17. 25.65 | | | | |
| Substrate Composition (Su | | | Vegetaion (Sum 100% | | | ne (25 m Buffe | | circle | |
| / Owneries | | Rooted En | | | Mixed Fore | st | Coniferous | | |
| % Organics | | Rooted Su Rooted Flo | bmergent | | Grasses Re-growth | orest | Deciduous Shrubs | Forest | |
| % Silt 20 | | ree-floati | | 9/6 | Flooded | orest | Sedges | | |
| % Sand 80 | | loating Al | • | | Roads | | Cutlines | | |
| 6 Gravel | | Attached A | | 9/6 | | | | | |
| % Cobble | | | Periphyton | % | | escription/Note | es/Drawing | , | |
| % Boulder | | | Filamentous | % | | a10m | 1 | | |
| Bedrock | | Aquatic Mo | | % | | 1 | 1 | . 7 | |
| | F | looded Te | errestrial Plants | % | , , , | |) | 1 FLOW | 7 |
| Overhead Cover | | | | | 1 | | / / | V | |
| | | | | | - | 0 -01 | / / | V | |
| | | | Litter >150 mm (%) | 5 % | | B0994 | // | * | |
| Overhead Undercut Banks | 60 % | Overhangi | ng Trees | 0 % | | 30994 Area | // | | |
| Overhead Undercut Banks | 60 % | Overhangi | | | | ATRA | STE | P | |
| Overhead Undercut Banks Overhanging Grasses | 60 % | Overhangi | ng Trees ng Shrubs | 30 % Weather | | Area (Some | | P | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark | 60 % 5 % | Overhangi | ng Trees ng Shrubs | 30 % | | Area (Some | | · e | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pl | 60 % 5 % | Overhangi | ng Trees ng Shrubs | Weather m previous 24 H | | ATRA | | e L | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plant Temperature | 60 % 5 % | Overhangi | ng Trees ng Shrubs | 30 % Weather previous 24 H | | Area (Some | | e L | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plant Temperature Cloud Cover (5%) | 60 % 5 % (dants, etc) | Overhangi | ng Trees ng Shrubs | Weather m previous 24 H | | Area (Some | | Ž. | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plair Temperature Cloud Cover (5%) | 60 % 65 % 60 Mants, etc) | Overhangi | ng Trees ng Shrubs | Weather m previous 24 H | | Area (Some | | Ž. | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plair Temperature Cloud Cover (5%) Wind Direction + speed (km/m situ Water Parameters | 60 % 6 5 % 6 6 6 6 6 6 6 6 6 | Overhangi | ng Trees ng Shrubs | Weather m previous 24 H | | Area (Some | 0.55 | * sn | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plair Temperature Cloud Cover (5%) Wind Direction + speed (km/n situ Water Parameters Eample Depth (m) | 60 % 65 % 60 Mants, etc) | Overhangi | Ing Trees Ing Shrubs | Weather m previous 24 H | | Area (Some | 0.55 | Ž. | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plair Temperature Cloud Cover (5%) Wind Direction + speed (km/n situ Water Parameters Eample Depth (m) Dissolved Oxygen (%) | 60 % 6 5 % 6 6 6 6 6 6 6 6 6 | Overhangi | ng Trees ng Shrubs | Weather m previous 24 H | | Area (Some | 0.55 | * sn | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plair Temperature Cloud Cover (5%) Wind Direction + speed (km/n situ Water Parameters Eample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) | 60 % 6 5 % 6 6 6 6 6 6 6 6 6 | Overhangi | Ing Trees Ing Shrubs | Weather m previous 24 H | | Area (Some | 0.55 | * sn | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plair Temperature Cloud Cover (5%) Wind Direction + speed (km/n situ Water Parameters Gample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) | 60 % 6 6 6 6 6 6 6 6 6 | Overhangi | Ing Trees Ing Shrubs | Weather m previous 24 H | | Area (Some | 0.55 | * sn | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pl Air Temperature Cloud Cover (5%) Wind Direction + speed (km/ In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Femperature (°C) | 60 % 5 % 60 % | Overhangi | Ing Trees Ing Shrubs | Weather m previous 24 H | | Area (Some | 0.55 | * sn | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pl Air Temperature Cloud Cover (5%) Wind Direction + speed (km/ In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Femperature (°C) OH | 60 % 6 6 6 6 6 6 6 6 6 | Overhangi | Ing Trees Ing Shrubs | Weather m previous 24 H | | Area (Some | 0.55 | * sn | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plair Temperature Cloud Cover (5%) Wind Direction + speed (km/n situ Water Parameters Floor Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Femperature (°C) OH Furbidity (TCU) | 60 % 5 % 60 % | Overhangi | Ing Trees Ing Shrubs | Weather m previous 24 H | | Area (Some | 0.55 | * sn | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plair Temperature Cloud Cover (5%) Wind Direction + speed (km/lin situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) OH Turbidity (TCU) Conductivity (uS/cm) | 60 % 6 | Overhangi | Ing Trees Ing Shrubs If S Ing Shrubs If S Ing Shrubs If S Ing Shrubs | Weather previous 24 H | | Area (Some | 0.55 | * sn | |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pl Air Temperature Cloud Cover (5%) Wind Direction + speed (km/ Mn situ Water Parameters Sample Depth (m) Dissolved Oxygen (mg/L) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) DH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m E | 60 % 6 | Overhangi Overhangi | rig Trees ng Shrubs 15 (0%) (old) (old) Visible Disturbance | Weather previous 24 H | | Area (Some | 0.55 | * sn | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plair Temperature Cloud Cover (5%) Wind Direction + speed (km/lin situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) DH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m E | 60 % 6 | Overhangi Overhangi Sircle Roads | Visible Disturbance Surface Debris | Weather previous 24 H | | Area (Some | 0.55 | * sn | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plair Temperature Cloud Cover (5%) Wind Direction + speed (km/lin situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Femperature (°C) OH Furbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m E Mixed Forest Grasses Deciduou | 60 % 6 | Overhangi Overhangi Sircle Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | Weather previous 24 H | | Area (Some | 0.55 | * sn | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plair Temperature Cloud Cover (5%) Wind Direction + speed (km/log) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Femperature (°C) OH Furbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m E Mixed Forest Coniferous Grasses Deciduous Re-growth forest Shrubs | 60 % 6 | Overhangi Overhangi Sircle Roads | Visible Disturbance Surface Debris | Weather previous 24 H | | Area (Some FLOW BUT INFLUTRATES | 10.55 LW | D+SWD | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plair Temperature Cloud Cover (5%) Wind Direction + speed (km/lin situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) DH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m E | 60 % 6 | Overhangi Overhangi Sircle Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | Weather previous 24 H | Channel F | Area (Some FLOW BUT INFLUTRATES | 0.55 | * sn | าร |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pl Air Temperature Cloud Cover (5%) Wind Direction + speed (km/d) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) DH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m E Mixed Forest Coniferous Grasses Deciduous Re-growth forest Shrubs | 60 % 6 | Overhangi Overhangi Sircle Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | Weather previous 24 H | Channel Fo | Area (Some FLOW BUT INFLUTRATES | 10.55 LW | D+SWD | ns |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pl Air Temperature Cloud Cover (5%) Wind Direction + speed (km/d) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) DH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m E Mixed Forest Coniferous Grasses Deciduous Re-growth forest Shrubs | 60 % 6 | Overhangi Overhangi Sircle Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | Weather previous 24 H | Channel F | Area (Some FLOW BUT INFLUTRATES | 10.55 LW | D+SWD | าร |

li.

| | | | | Stream Hal | oitat Informatio | n | | | | |
|---------------------------------------|---------------|-------------------|-------------|--|------------------|-------------------|--------------------------------|------------|-----------------------|-------|
| Data Collectors | 6H | | Date | L1-SEP-14 | | | Time (24 H) | 17:00 | , | |
| te KP39 | | 006 | Station | | | | Project | | | |
| UTM NAD | | | Upstream | Northing 68302 | 73 | | Upstream Ea | sting 42 | 369 | |
| Access Heli | | | Downstre | eam Northing | | | Downstream | Easting | | |
| Total States | | | | | | | | | | |
| Morphology Stream Morpholog | Tunas (9/ | | | Length (m) | | 7 | , | IV-Ii | COO/ | |
| Run | Riffle | Poc | ol | Depth Transect (m) | @ 25% widtl | h 50% | 75% | 25% | 60% depth or s 50% | 75% |
| Fall | Other: | | | 1 | 1 | | 1 | 2070 | 1 | 1070 |
| Depth/Pool (m) | 0.0 | | | 2 | | | | | | |
| Channel Slope (°) | | | | 3 | 1 | | | | | |
| Wetted Width Meander Frequen | 1 1 | 1 1 | | m Channel Width (m) m Regular / Irregular m | | | Unstable Bani Bank slope (5 | | L R | 3 |
| ATTRICON MISSE NA | icy / / | 1 1 | | IIII regular / III egular II | leanders | | Bank slope (5 | | | |
| Instream Cover | \-A-14\ | | 1 0 | / Instrume Course / Twi | /Ctick-tatal | 1 - 0/ | Cubatasta (as | | 1 000 001 | |
| Instream Cover (I | | | | Instream Cover (Twi | gs/Sucks; etc) | | Substrate (as Undercut Ban | | 95 % | |
| Instream Cover (le Woody Debris De | | g jams, falle | | | | 70 | Tourier cut pan | | 3 % | |
| | - Silphon (lo | 5 Jan. 10 1 10110 | | | | | | | | |
| | | | | | | | | | | |
| Substrate Comp | osition (Su | m 100%) | Instream | Vegetaion (Sum 100% | 6) | Riprian Zor | ne (25 m Buffe | r) | circle | |
| | | Embed. (% |) Rooted Er | mergent | | % Mixed Fores | | Coniferou | is Forest | / |
| % Organics | | | | ubmergent | | % Grasses | | Deciduou | is Forest | |
| % Clay | | - | Rooted Fl | | | Re-growth f | orest | Shrubs | | |
| % Silt | 5 30 CT | | Free-floati | | | % Flooded | | Sedges | | |
| % Sand | 30 CT | - | Floating A | | | % Roads | | Cutlines | | |
| % Gravel % Cobble | 50 | 5 | Attached A | Periphyton | | | escription/Not | oc/Drawin | | |
| % Boulder | 15 | 20 | 1 | Filamentous | | % | SCHPHOIMAGE | ESIDIAWIII | | |
| Bedrock | 12 | - | Aquatic M | 74 (CO (101) 100 0 | | % | | | | |
| 0 Dodrook | | | | errestrial Plants | | % | UPSTREAM | | | |
| Overhead Cover | | | | | | 1 74- | Non Hon | | | |
| Overhead Litter < | 150 mm | 0 9 | 6 Overhead | Litter >150 mm (%) | | /0 | DOM | , | | |
| Overhead Underc | ut Banks | | 6 Overhang | | | /0 | HOLE! | 1 | | |
| Overhanging Gras | sses | 0 9 | 6 Overhang | ing Shrubs | 5 9 | % / | 1 | | COBRLE/GRA | WEL |
| Miscellaneous | | | | | Weather | 1/ | . /- | \ | FLOOD PLAIN | /BANK |
| High water mark | | | | | m previous 24 H | 1 / | 1 | 1 2 | 1 COOM : - 1.0 | 1 |
| Flood Evidence (D | Debris on pla | ants, etc) | | | m | // | - | 1 4 | \ | |
| Air Temperature | | | | ۰ | C | // | 1 1 * | 1 | - ROAD | |
| Cloud Cover (5%) | | | | | 4 | CLIFF | 1/2 | 1 | CRO | DM150 |
| Wind Direction + s | speed (km/r | 1) | | 1 | 4 | FACE | 1-6 | | -7 | |
| In situ Water Pai | rameters | | | | | 1,100 | 30.3 m | , , | 1 | |
| Sample Depth (m | | | | | | | 11 13 | 21 | 12 = | |
| Dissolved Oxyger | | | | ž. | | -// | 1 .1- | -1- | | |
| Dissolved Oxyger | | | - | | | -// | / -/ | 1 34 | | |
| Secchi Depth (m) Temperature (°C) | | + | + | | - | 1/ | | 1 7 | 1 | |
| pH | | | + | + | + | | BBLE// | SHRW | 35 / | |
| Turbidity (TCU) | | | | | | GRAN | | GROWI | | |
| Conductivity (uS/c | cm) | 1 | A | | | BANK | - / | IN DRY | | |
| Landscape (Bey | ond 25 m P | uffer) | circle | Visible Disturbance | e circle | | / - | CHANN | 9- | |
| Mixed Forest | Coniferous | | Roads | Surface Debris | Gulvert | - | DOWNSTR | En. | | |
| MINOR FOREST | Deciduous | | Cutlines | | Weir | () B | W31K | CHIN | | |
| Grasses | | | Hills | Collapsed Bank | 377.75 | | | | | |
| Grasses Re-growth forest | | | | | | Channel Fe | aturas | # | Dimensions | |
| Re-growth forest | | | | | | | | | | |
| Re-growth forest | | | | | | The second second | atures | 1 | Dimensions | |
| | - | | | | | Islands | atures | # | Dimensions | - |
| Re-growth forest | ÷ | | | | | The second second | atures | # | Dimensions | |

| | | | | - | | | | |
|--|-----------------------------------|---|-----------------------|--|---|------------------------------------|-------------|--------------------------------|
| Data Collectors | Date | | itat Information | | Time /24 LIV | | | - |
| Data Collectors | Date | 22-5ep-14 | | | Time (24 H) 16:30 | | | |
| te Sunday Creek | Station | Kp 27.1 | | | | ZN 678 | X | |
| UTM NAD | Upstream | am Northing 6828332 | | | Upstream Ea | | - | - |
| A | Downste | eam Northing | 8332 | | Downstream | | 111 | |
| Access ATV /Hilling | Downstr | eam Northing | | | Downstream | Easting | | |
| Morphology | | | | 6 | | | | |
| Stream Morphology Types (%) | -177 | Length (m) | | | | | 0% depth or | |
| | Pool | Depth Transect (m) | @ 25% width | 50% | 75% | 25% | 50% | 75% |
| Fall Other: Depth/Pool (m) | | 1 2 | 0.0 | 0.00 | 0.21 | 5 sec | 6.5 see/ | 5 SE |
| Channel Slope (°) | | 3 | | | | 1 | 111 | 1.1 |
| Wetted Width / / | | | 4.5 1 . 1 | 1 | Unstable Ban | ks (5%) | | |
| Meander Frequency / / / | 1 | m Regular / Irregular me | eanders | | Bank slope (5 | °) , | | R |
| nstream Cover | | 0/[1-1 | - (Oti -) A | | 10.1 | | 1. | |
| Instream Cover (Detritus) | | % Instream Cover (Twig | s/Sticks, etc) | | Substrate (as Undercut Ban | | 100 % | |
| Instream Cover (logs, etc) Woody Debris Description (log jams, | | % Instream vegetation aver activity, etc) | | 6 % | Jondercut Ban | κ , | 0 % | |
| | | 2.51 201111, 010/ | | | | | | |
| | | | | | | | | |
| Substrate Composition (Sum 100% | | Vegetaion (Sum 100% | | Company of the Compan | ne (25 m Buffe | THE RESERVE OF THE PERSON NAMED IN | circle | |
| | . (%) Rooted E | | | Mixed Fore | st | Coniferous | C'A CAMPAGA | |
| % Organics D - | Rooted S Rooted F | ubmergent | | Grasses Re-growth | forest | Deciduous Shrubs | Forest | |
| % Silt 0 - | Free-float | | | Flooded | lorest | Sedges | | |
| % Sand 30 - | Floating A | | | Roads | | Cutlines | | ı |
| % Gravel 30 | Attached | | % | | | | | |
| % Cobble 40 | | Periphyton | % | Channel D | escription/Not | es/Drawing | , 16 | |
| % Boulder 30 | | Filamentous | % | | | 1-1 | | 1000 |
| Bedrock 0 - | Aquatic M | loss Terrestrial Plants | % | | 3 | DRY / | 1 | 60m |
| Overhead Cover | Flooded | refrestrial Plants | 70 | | · B | MIDERS | / | |
| Overhead Litter <150 mm | % Overhead | d Litter >150 mm (%) | 0 % | | 1 | | | |
| Overneau Line: \130 mm | | | | | | | 1 1 | |
| | % Overhang | ging Trees | 0 % | | - 5 | | 1 | |
| Overhead Undercut Banks | | | O % | | 1 | | 1 | |
| Overhead Undercut Banks Overhanging Grasses | % Overhang | | 0 % | | × | | ek : | |
| Overhead Undercut Banks | % Overhang | | ⊘ % Weather | | * | | ek . | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark | % Overhang % Overhang | ging Shrubs m | Weather previous 24 H | STEEP | * | | * | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc.) | % Overhang % Overhang | ging Shrubs m m | Weather previous 24 H | | * | | * | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) | % Overhang % Overhang | ging Shrubs m m co | Weather previous 24 H | STEEP ALLLSI DE | * | ROSSING | * | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) | % Overhang % Overhang | ging Shrubs m m | Weather previous 24 H | | * | ROSSING | ** | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters | % Overhang % Overhang | ging Shrubs m m co | Weather previous 24 H | | * | ROSSING 8.5M | ** | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) | % Overhang % Overhang | m m m co | Weather previous 24 H | | * | ROSSING 8.5m_ | *** | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) | % Overhang % Overhang | ging Shrubs m m co | Weather previous 24 H | | X X | 8.5m_ | ** | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) | % Overhang % Overhang | m m m co | Weather previous 24 H | HILLS DE | * | BOULLERS, | *** | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) | % Overhang % Overhang | m m m co | Weather previous 24 H | | *************************************** | 8.5m_ | 1 | |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH | % Overhang % Overhang | m m m co | Weather previous 24 H | ALLLSI DE | , L | BOULLERS, | * * * Ym | . Hisu |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc. Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) | % Overhang % Overhang | m m m co | Weather previous 24 H | ALLLSI DE | AIGH (| BOULLERS/ | 1 | 1000 |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc. Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) | % Overhang % Overhang | m m m co | Weather previous 24 H | ALLISI DE | HIGH ATER | BOULLERS/ | 4m | 7 WAT |
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| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Grasses Deciduous Forest Deciduous Forest | Overhang Circle Roads Cutlines | wisible Disturbance Surface Debris Beaver Dam | Weather previous 24 H | ALLISI DE | HIGH ATER | BOULLERS/ | 4m | BAN |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc. Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Grasses Re-growth forest Shrubs | Overhang Circle Roads | wisible Disturbance Surface Debris | Weather previous 24 H | ALLISIDE ROAD , | Alight Arrea | BOULLERS, COBBLES/ GRAVEL | 4m | 7 WATE |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Coniferous Forest | Overhang Circle Roads Cutlines | wisible Disturbance Surface Debris Beaver Dam | Weather previous 24 H | ROAD BAN | Alight Arrea | BOULDERS, COBBLES/ GRAVEL | 4m | HIGH TWATE BAN V 65 m |
| Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on plants, etc. Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) DH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Grasses Coniferous Forest Grasses Re-growth forest Shrubs | Overhang Circle Roads Cutlines | wisible Disturbance Surface Debris Beaver Dam | Weather previous 24 H | ALLISIDE ROAD , | Alight Arrea | BOULLERS, COBBLES/ GRAVEL | 4m | 7 WATI BAN V 65 M |

| Data Callestone | In-t- | Stream Hab | itat Information | | 7: (0.1.1) | | | |
|---|-----------------------|---|------------------|--|--------------------|--------------|-----------------------------------|---------------------------|
| Data Collectors | Date | 22-5ep-14 | | | Time (24 H) | 17:00 | , | |
| ite Syndog Creek | Station | KP 27.5 | | | Project C | ZN 6788 | | |
| JTM NAD | Upstream | n Northing 682808 | 90 | | Upstream Ea | sting III | 9225 | |
| Access | Downstra | eam Northing | 57 | | Downstream | | 1225 | |
| HIKING /ATV | Downsta | | | | DOWNSU CUIT | Lusting | | |
| Morphology Stream Morphology Types (%) | | II anoth (m) | | | _ | IValaait. (6 | 2007 | |
| Run Riffle 50 | Pool | Length (m) Depth Transect (m) | @ 25% width | 50% | 75% | 25% | 50% depth or 50% | suпасе 75% |
| all 50 Other: | , | 1 | 0.10 | 0.19 | 0.32 | 5 Sec/ | 5 sec/ | 6 500 |
| Depth/Pool (m) | | 2 | | | | 3 m | 3 m | 3 m |
| Channel Slope (°) | | 3 | | | | | | |
| Wetted Width / / | 1 13.2 | m Channel Width (m) | 19,51.1 | 1 | Unstable Ban | ks (5%) | | |
| Meander Frequency / / / | 1 | m Regular / Irregular me | eanders | | Bank slope (5 | °) , | L | R |
| nstream Cover | | | | | | | | |
| Instream Cover (Detritus) | 10 | % Instream Cover (Twig | s/Sticks* etc) | 7 % | Substrate (as | cover) | 100 % | |
| Instream Cover (logs, etc) | | % Instream vegetation | jorotiono, ctoj | The second secon | Undercut Ban | | | |
| | | | | 76 | Ondercut Ban | | 0 % | |
| Noody Debris Description (log jams, | fallen trees, be | aver activity, etc) | | | | | | |
| | | | | | | - | | |
| | | | | | | | | |
| Substrate Composition (Sum 100% | | Vegetaion (Sum 100% | | | e (25 m Buffe | | circle | |
| Embed | | | | Mixed Fores | t | Coniferous | | |
| % Organics 5 - | | ubmergent | % | | | Deciduous | s Forest | |
| % Clay O - | Rooted FI | | | Re-growth for | orest | Shrubs | | |
| % Silt 0 - | | | | Flooded | | Sedges | | |
| % Sand 5 - | Floating A | | % | Roads | | Cutlines | | |
| % Gravel 20 | Attached | Algae | % | | | | | |
| % Cobble 45 | | Periphyton | % | Channel De | scription/Not | es/Drawing | | |
| % Boulder 30 | | Filamentous | % | | 1 | 1 | 1 | 11 |
| Bedrock O - | Aquatic M | loss | % | 1 | \ FLO | wy | | A 40 |
| / | Flooded T | errestrial Plants | % | 1 | | V | 1 | |
| Overhead Cover | | | | 1 | // | | 12 | |
| Overhead Litter <150 mm | % Overhead | Litter >150 mm (%) | 0 % | 1 | 2 | | 12 | |
| Overhead Undercut Banks | % Overhang | | 6 % | | | | 1 1 | |
| | % Overhang | | 4 % | | ~ \ | | 1 1 | |
| Overhanging Grasses n | | | | 1 | + - 0 | Roscinia | 4 1 | 1 |
| | | | | | | - W 331101 | 1 1 | |
| Miscellaneous , | | | Weather | | 1 | SSING A | REA | - 1 |
| Miscellaneous , | | | previous 24 H | 1 | X | ROSSING A | REA | |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc | c) | m | previous 24 H | | ¥ k | | REA | |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature | c) | 10 °C | previous 24 H | | ¥ K | 13.2m | REA | |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) | 5) | 10 °C | previous 24 H | | ¥ K | | REA | |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) | :) | 10 °C | previous 24 H | | * * | | REA | |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) | :) | 10 °C | previous 24 H | | 4m | 13.2m | 24 4 | 1441 |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters | | 10 °C | previous 24 H |) | 4m | 13.2m | 24 4 | 14H MCGA |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) | | 10 °C 5.90 40 km/L E | previous 24 H |) × | 4m | 13.2m | 24 4 | 2.2 |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) | | 10 °C | previous 24 H | , 米 | 4m | | 24 4 | 2.2 |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) | | 10 °C 5.90 40 km/L E | previous 24 H |) × | 44 | 13.2m | 2M H | MGR _ |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) | | 10 °C 5.90 40 km/L E | previous 24 H |) × | 44 | 13.2m | 24 4 | MGR _ |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) 7.5 | | 10 °C 5.90 40 km/L E | previous 24 H |) , × | 4m C | 13.2m | 2M H | artial - |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) Discolved Oxygen (%) | | 10 °C 5.90 40 km/L E | previous 24 H |) X H H HISTORICAL | 4m C | 13.2m | ZM H | HICH PEK |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) OH Turbidity (TCU) | | 10 °C 5.90 40 km/L E | previous 24 H |) JE H H LISTORICAL JAIGH | 4m C | 13.2m | EA STEE BOULD LANDS | HICH PEK |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) PH Turbidity (TCU) Conductivity (uS/cm) High water mark Conductivity (uS/cm) | 8 | 10 °C 5.76 40 km/L E | previous 24 H | HISTORICAL HIGH WATER | 4m C | 13.2m | ZM H | HICH PEK |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) PH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) | Scircle | m 10 °C 5 fo fo ken/L € | previous 24 H |) JE H H LISTORICAL JAIGH | 4m C | 13.2m | EA STEE BOULD LANDS | HICH PEK |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc. Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) PH 4.9 Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest (Coniferous-Forest) | circle Roads | Visible Disturbance Surface Debris | previous 24 H | HISTORICAL HIGH WATER | 4m C | 13.2m | EA STEE BOULD LANDS | HICH PEK |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) PH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Grasses Deciduous Forest Grasses | circle Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | previous 24 H | HISTORICAL HIGH WATER | 4m C | BOULDERS | EA STEE BOULD LANDS | ANGA SP EK LIDE/ |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) PH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest (Coniferous-Forest | circle Roads | Visible Disturbance Surface Debris | previous 24 H | HISTORICAL HIGH WATER | 4m C | 13.2m | EA STEE BOULD LANDS | HICH PEK |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) PH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Grasses Deciduous Forest Grasses Re-growth forest Shrubs | circle Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | previous 24 H | HISTORICAL HISTORICAL HIGH WATER STEP | 4 AND CO CHARLES C | BOULDERS | EA STEE BOULD LANDS HILL | FP EX LIDE/ |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) PH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Grasses Deciduous Forest Grasses | circle Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | previous 24 H | AUSTORICAL MATER AUSTORICAL | 4 AND CO CHARLES C | BOULDERS | EA STEE BOULD LANDS | FP EX LIDE/ |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc. Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) DH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Grasses Coniferous Forest Grasses Re-growth forest Shrubs | circle Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | previous 24 H | HISTORICAL HISTORICAL HIGH WATER STEP | 4 AND CO CHARLES C | BOULDERS | EA STEE BOULD LANDS HILL | FP EX LIDE/ |

| Grasses Deciduous Forest Cutlines Beaver Dam Weir | Mixed Forest Grasses Re-growth forest | | | Hills | Collapsed Bank | | Islands | atures | # | Dimensions | |
|--|--|---------------|-------------|--|-----------------------|--|---------|---------------|--------------|------------|----------|
| Date Collectors Station Collectors Station Collectors Station Collectors Station Collectors Collecto | Mixed Forest Grasses Re-growth forest | | (| Hills | Collapsed Bank | | | atures | # | Dimensions | |
| Date Collectors Station Collectors Station Collectors Station Collectors Station Collectors Collecto | Mixed Forest Grasses Re-growth forest | | (| Hills | Collapsed Bank | | | | | | 4 |
| Date | Latinacape (Defet | Coniferous | Forest | Roads Cutlines | Beaver Dam | | 1 | , -1 | 10 | 00 | 1 |
| Date | | nd 25 m Bu | | THE RESERVE TO THE RE | | | / [[| , | | 00 |) |
| Date Collectors Date D | | 1) | 440 | | | | 11-110 | JOL 1 | 10 | | 1 |
| Date Collectors | | | 7.4 | - | | | 11/1 | 1 | 10 | 00 | 1 |
| Date Collectors Date D | Temperature (°C) | | | | | | STEPS | 1/205 | 0/ | 00 | 1 |
| Date | | mg/L) | | | | | BEDRAK | 111 | 20/0 | 00 | 1 |
| Date | | | - | | 3 | | 200 / | / / | | 00 | 1 |
| Date | | | | | | | X | / / / / | () () | 8.4m | 7 |
| Date | In situ Water Para | meters | | | | | | () () | | t | = - |
| Date | | eed (km/h |) | | 7/ | | | 11m 0 | - | 1000 | 1 |
| Date | | | | | | H | | 10 | 0 000 | 0/0 | |
| Date | | bris on pla | nts, etc) | | | | | | | 0/11 11 | ATTO |
| Date Access Composition | High water mark | | | | | Control of the latest and the latest | (- | | 0 0 | 0 00 4 | 161 |
| Date Access Station Access Downstream Northing Downstream Easting Downstream Ea | Said Division Co. | | | | | Weather | VF | WATER | U | 01 | |
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| CONTRACTOR CONTRACTOR | | | Flooded T | errestrial Plants | 0 % | 1/2 | EVE | 1 | 2 | |
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| lood Evidence (Deb | ris on pla | nts, etc) | | r | | ĺ | 0 1 | ¥0 | 1143 | |
| Air Temperature | | | | (0 °(| 2 | (| Tho = 16.2 | The second second | 118 2 | |
| Cloud Cover (5%) | | | | 2% | | 1 | TOP OF 10.2 | STEP | SWD I | |
| Vind Direction + spe | ed (km/h |) | | calm | 1 | 1 | BANK" | 1 de | 1200 | |
| n situ Water Param | eters | | | | | | 1 1 | 0.75m | + I II TOP OF | RANK !! |
| ample Depth (m) | | 0.10 | | | | | 1 /0 | 8055/NG X | 1 HISTOR | CAL |
| Dissolved Oxygen (% | | _ | | ž. | | 1 | A /N | LOSTING K | DOS HIGH | WATER |
| Dissolved Oxygen (m | ng/L) | 11.2 | | | | 1 | 7/-11 | 11/1 | is a | |
| Secchi Depth (m) | | - | - | | 1 | ~ | 1 / 7 | 1/1/0 | no with | |
| emperature (°C) | | 8.4 | - | | | | 3/ (| 11/1 | (| |
| H | | 7.7 | + | | + | 0 | 8/ | 1/ | Les | |
| urbidity (TCU) Conductivity (uS/cm) | | 515 | | | | 1 | / FLOW | /1118 | 1 | |
| | | | | Malbie Blad | airele | * | 11 0 | = CN | | |
| andscape (Beyond | | | Roads | Visible Disturbance Surface Debris | | | 1 1/ | 1/2 | | |
| Aired Econot | | Grasses Deciduous Forest Re-growth forest Shrubs | | | Culvert Weir | | | 2/ | | 800 |
| Grasses D | nrubş | | | Collapsed Bank | | | | | A REPORT OF THE PARTY OF | - |
| Brasses D Re-growth forest (S | nrubş | | | | | Channel E | aturas | # | Dimensions | |
| Grasses D | nrubş | | | | | Channel Fe | atures | # | Dimensions | - |
| Brasses D Re-growth forest (S | nrubş | | Ţ | | | Islands Bars | eatures | # | Dimensions | |

| Data Collectors | | | Date | Stream Ha | bitat Informatio | n | Time (24 H) | | | |
|---|----------------|-----------|---------------------------|--------------------------|------------------|-------------------|----------------|--------------------|------------------|-----|
| CJ | HG. | | Date | 23-Sep-14 | | | (24 11) | 15:20 | 1 | |
| ie Granger | THID, | l, a | Station · | KP 122.8 | | | Project Ca | LN 6788 | 5 | |
| UTM NAD | | | Upstream | Northing (298 | 715 . | | Upstream Eas | sting 4 | 77151 | |
| Access | | | Downstre | am Northing | | | Downstream | | | _ |
| Heli. | - | | | | | | | | | |
| Morphology Stream Morphology Ty | | _ | | Length (m) | | 1 | | IValenit / | COO/ double and | |
| Run 60 (Riff | | Pool | ı | Depth Transect (m) | @ 25% width | 1 50% | 75% | 25% | 60% depth or 50% | 75% |
| | ner: | | | 1 | | | | | | |
| Depth/Pool (m) | | | | 2 | | | | - | | |
| Channel Slope (°) Vetted Width / | - 1 | 1 | 1.6 1 | m Channel Width (m) | 11 | 11.75 | Unstable Bank | (s (5%) | 1 | |
| Meander Frequency | 1 1 | 1 1 | | n Regular / Irregular r | | | Bank slope (5° | | , L | R |
| nstream Cover | | | | | | | | | | |
| Instream Cover (Detrito | | | | Instream Cover (Tw | | | Substrate (as | | 55 % | |
| Instream Cover (logs, | | | | Instream vegetation | | 0 % | Undercut Bank | ٠, | 10 % | |
| Woody Debris Descrip | tion (log jarr | ns, falle | n trees, bea | aver activity, etc) | | | | | | |
| | _ | | | | | | -> | | | |
| Substrate Composition | on /Sum 10 | 10%) | Instream | Vegetaion (Sum 100 | %) | Riprian Zon | e (25 m Buffe | rl | circle | |
| ABOUALO COMPONIA | | | Rooted Er | nergent | 0 9 | Mixed Fores | | | s Forest | |
| % Organics | 5 | 1 | | ubmergent | | 6 Grasses | | Deciduou | s Forest | |
| % Clay | D | - | Rooted Flo | | | 6 Re-growth fo | orest | Shrubs | | |
| % Silt % Sand | 5 | - | Free-floati Floating A | | | 6 Roads | | Sedges Cutlines | | |
| 6 Gravel | 5 | | Attached / | | | 6 | | Oddinios | | |
| % Cobble | 20 | | | Periphyton | | | scription/Note | s/Drawing | 3 | |
| o Bouldo. | 35 | | | Filamentous | | 6 | | . 1 | A. | (DV |
| Bedrock | | • | Aquatic M | oss errestrial Plants | | 6 | 1- Bours | ERS \ | 毛 | 1 |
| Overhead Cover | | | r looded 1 | errestriai Fiants | 0 % | | 华人公 | 0 | 一条 | |
| Overhead Litter <150 r | mm | 5 % | Overhead | Litter >150 mm (%) | | 6 K | | De | 0 / | - 1 |
| Overhead Undercut Ba | anks | | Overhang | | | | 15 KWI | 1 | 0) | 1 |
| Overhanging Grasses | | 5 % | Overhang | ing Shrubs | 15 9 | 6 | 定 | | 1 | |
| Miscellaneous | , | | | | Weather | | | | (% | 1 |
| High water mark | | | | | m previous 24 H | 1 | oilm ! 1 | 1 | 2 | |
| Flood Evidence (Debris Air Temperature | s on plants, | etc) | | 16 | °C | | M | (| 1 | |
| Cloud Cover (5%) | | | | 30% | ~ | 1/7/ | op of 1/1 | 6m |) 郛 | |
| Wind Direction + speed | d (km/h) | | | Calne | | 8 | ink", | FLOW, | 71 1- | .) |
| n situ Water Parame | ters | | | | | 經 | 10 | 1 | 11 条 | |
| Sample Depth (m) | | 2.15 | | | | | 1 1/4 / | LARGE DOULDER | 4, | |
| Dissolved Oxygen (%) | | _ | | ₹. | | L | D + M | | 1 | te |
| Dissolved Oxygen (mg | /L) / | 0.4 | | | _ | 5 | Oly on | ~ Ol | 1 | 仁 |
| Secchi Depth (m) Temperature (°C) | 8. | 0 | 1 | | - | - | 1 | SOL | 3 o.lom | |
| oH | | 7.4 | | | | 1 | 11 0 | M | 1 | |
| Turbidity (TCU) | | | | | | 1 | | - | 1 "Top of Ba | nk" |
| Conductivity (uS/cm) | 4: | 21 | | | | 手 | 11- | | | |
| Landscape (Beyond | 25 m Buffer | r)_ | circle | Visible Disturband | e circle | | 100 | 5 0 | 1 | - 1 |
| Mixed Forest (Cor | niferous For | | Roads | Surface Debris | Culvert | | | | 12 | |
| | ciduous For | est | Cutlines | Beaver Dam | Weir | | M | | N | (8) |
| | TI IDC | | Hills | Collapsed Bank | | 1 | 111 | | 1 | (DA |
| Grasses Dec Re-growth forest Shr | lubs | | | | | OL I F. | 28000230 | - 11 | Dimensions | |
| Re-growth forest Shr | lubs | | | | | Channel Fe | atures | # | Dimensions | |
| | iubs | | | | | Islands | atures | # | Dimensions | |
| Re-growth forest Shr | LUDS | | | | | The second second | atures | # | Dimensions | į P |

| | | | | Stream Ha | bitat Information | on | | | |
|---------------------------------------|--|--------------------|---------------------------------|--|---|--|-------------------------------|--------------|-----------------------|
| Data Collectors | , DH | | Date | 3- Sep-14 | | | Time (24 H) | 17:11 | 5. |
| ie atoinger | | and. | Station | KP 123.7. | * | | Project 6 | 788 | **** |
| UTM NAD | India Cr | anne | Upstream | | 9643 | | Upstream Ea | | 178319 |
| | | | Dawnotes | | 1013 | | Downstream | | 17031 |
| Access Heli | | 194 | Downstre | eam Northing | | _ | Downstream | Easting | |
| Morphology | ÷ | | | | | | | | |
| Stream Morphology | | | | Length (m) | 0.050/ | - F00/ | 750/ | | 60% depth or surface) |
| | Riffle 60 Other: | Poo | 1 | Depth Transect (m) | @ 25% widt | th 50% | 75% | 25% | 50% 75% |
| Depth/Pool (m) | Jaioi. | VA | | 2 | | | | | |
| Channel Slope (°) | | | | 3 | | | | | |
| Wetted Width | 1 1 | | | m Channel Width (m) m Regular / Irregular r | | | Unstable Ban Bank slope (5 | | L R |
| Meander Frequency | | | | in Regular / irregular i | neanuers | | bank slope (5 | , | L K |
| Instream Cover Instream Cover (Det | ritus) | | 1 15 | Instream Cover (Tw | igs/Sticks* etc) | 1 0 % | Substrate (as | cover) | 6 % |
| Instream Cover (logs | | | - | Instream vegetation | 3 TO 1 TO | | Undercut Bar | | 0 % |
| Woody Debris Descr | | jams, falle | | | | - " | V | 75° (\$) | |
| | | | | | | | | | |
| | | | | | | | | | * |
| Substrate Compos | ition (Sun | | THE RESERVE THE PERSON NAMED IN | Vegetaion (Sum 100 | | | e (25 m Buffe | | circle |
| | , | Embed. (%) | Rooted Er | | | Mixed Fores | t | Coniferou | |
| % Organics % Clay | 0 | - | Rooted St | ubmergent | | % Grasses % Re-growth fo | rest | Shrubs | s Forest |
| % Silt | 5 | | Free-float | | | % Flooded | rest | Sedges | |
| % Sand | 10 | Marie Constitution | Floating A | | | % Roads | | Cutlines | |
| % Gravel | 10 | | Attached A | | | % | | | |
| % Cobble | 35 | | | Periphyton | 10 | | scription/Not | es/Drawing | |
| % Boulder | 40 | | Aquatic M | Filamentous | | % | / \ | | \ 357 |
| Bedrock | 0 | - | | errestrial Plants | | % 2/5 | , | | ` 1 |
| Overhead Cover | | | | | | The same of the sa | . 1 | C O O RIFFLE | ^ ' |
| Overhead Litter <150 | 0 mm | | | Litter >150 mm (%) | | % | 1 / | 00000 | 0 / \) |
| Overhead Undercut | Control of the Contro | | Overhang | | | % | | MITTLE | |
| Overhanging Grasse | S | 0 % | Overhang | ing Shrubs | 15 | % HIGH | | | - 1 3/2 |
| Miscellaneous | | | | | Weather | WATE | 0 | | |
| High water mark | | | | | m previous 24 | H | .1m | | HIGH |
| Flood Evidence (Del | oris on pla | nts, etc) | | 12 | °C | | 7 | | WATER |
| Air Temperature Cloud Cover (5%) | | | | 30 % | 4 | FLAT 1. | 5 | - 05. | 47m 2.4h |
| Wind Direction + spe | ed (km/h |) | | 25 Koh W | | 141STORICAL - | Tes | 1.85m | *** |
| In situ Water Paran | neters | | | | | FLOODFLANSUR | ugs C C | 000 | 1 1 |
| Sample Depth (m) | | D-10 | | | T | | V RI | FLOW | |
| Dissolved Oxygen (% | 6) |) | | i i | | | 4 | 4 | |
| Dissolved Oxygen (r | | 10.6 | | | | | | THAI | |
| Secchi Depth (m) | | 7 11 | - | | | - | | 1 4000 | |
| Temperature (°C) pH | | 7.4 | | | | 1/2 | | | |
| Turbidity (TCU) | | 1 | | | | =(-) | | | Gravel |
| Conductivity (uS/cm) | | 370 | | | | | | | Bar |
| Landscape (Beyon | d 25 m Bu | iffer) | circle | Visible Disturbanc | e circle | , | | | |
| | oniferous | | Roads | Surface Debris | Culvert | | \ | 1.0 | 10 |
| Grasses D | Deciduous | Forest | Cutlines | Beaver Dam | Weir | 1 | | | 40 m |
| Re-growth forest S | nrups | | Hills | Collapsed Bank | | 21 | | | |
| Photos | | | | | | Channel Fe | atures | # | Dimensions |
| | | | - | | | Islands | | 1 | 1/100 |
| | | | 1 | | | Bars | | 1 | 4.7 M Wide 35Ml |

Notes Dry side channel (2.4m wide) on RB - separated from main channel by gravel bar noted above.

| | | | Stream Habi | itat Information | | | | |
|--|--|---|--|--|-------------------------------|---------------------|-----------------|--------------------------------------|
| Data Collectors CJ, DH | D | 23 | - Sept - 14 | | | Time (24 H) | | 4 |
| · Grainger mainst | em si | tation | KP 125,1 | | | Project | EN 678 | 8 |
| UTM NAD | | pstream N | Northing 6299 | 1517 | | Upstream Eas | ting 4 | 79156 |
| Access Heli Hiking | D | ownstream | m Northing | | | Downstream I | | |
| Herr / Tribing | | | | | | | | |
| Morphology | | | Longth (m) | | 1 | - | Malacity /6 | 00/ double as a face) |
| Stream Morphology Types (% Riffle 50 | Pool | | Length (m) Depth Transect (m) | @ 25% width | 50% | 75% | 25% | 0% depth or surface) 50% 75% |
| Fall Other: | , , , , | 1 | 1 | 1 | 1 | 1070 | 2070 | 1 1 1 |
| Depth/Pool (m) | 30 | | 2 | | | | | |
| Channel Slope (°) | | | 3 | | | | | |
| Wetted Width / / | 1 | m | Channel Width (m) | 1 1 | 1 | Unstable Bank | s (5%) | |
| Meander Frequency / / | 1 1 | | Regular / Irregular me | eanders | | Bank slope (5° | | L R |
| Instream Cover | | | | | | | | |
| Instream Cover (Detritus) | | 0 % | Instream Cover (Twig | s/Sticks* etc) | 6 % | Substrate (as | over) | 100 % |
| Instream Cover (logs, etc) | - | | Instream vegetation | arotions, ctoj | | Undercut Bank | | 6 % |
| | iomo follon tr | | | | 0 /0 | Jondercut Bank | | 0 70 |
| Woody Debris Description (log | g jams, fallen tr | ees, beav | er activity, etc) | | | · | | |
| | | | | | | | | |
| | | | | | | | | |
| Substrate Composition (Sur | m 100%) In | stream Ve | egetaion (Sum 100% |) | Riprian Zon | ne (25 m Buffer |) | circle |
| | Embed. (%) Ro | ooted Eme | | | Mixed Fore | | Coniferous | |
| % Organics 20 | | ooted Sub | | % | Grasses | | Deciduous | |
| % Clay | | ooted Floa | | % | | orest | Shrubs | 1 Ordot |
| % Silt | | ree-floating | • | % | | 0,000 | Sedges | |
| 70 O.I.C | | oating Alg | • | % | Charles and the second second | | Cutlines | |
| % Sand 0 | | ttached Alg | | % | | | Cutilities | |
| | | | | 1 % | | | ~/D | , |
| % Cobble 50 | | | Periphyton | | | escription/Note | S/Drawing | 7/ 11: |
| % Boulder 20 | — | | Filamentous | \ % | | 1// | | 55 M |
| Bedrock | | quatic Mos | | % | | K34/84R | Flor | 11/1 |
| | (F) | noded Ter | | 0/2 | | 1 | | 1 / 1 |
| | | ooded Ter | restrial Plants | 1 % | SIDE / | | 1 | 1 2000 |
| | | | | | 210E | 300 | 1 | BEOROCK |
| Overhead Cover Overhead Litter <150 mm | 0 %0 | verhead Li | itter >150 mm (%) | 0 % | 1 CHANNET | 300 | 7 | BEDROCK FACE |
| Overhead Litter <150 mm | 0 %0 | verhead Li verhanging | itter >150 mm (%) g Trees | 0 % | CHANNEL | 3.0 | 7 | |
| | 0 %0 | verhead Li | itter >150 mm (%) g Trees | 0 % | CHANNEL | 3.7 | n (| |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses | 0 %0 | verhead Li verhanging | itter >150 mm (%) g Trees | 0 % 0 % | CHANNEL | 3.7 A 25 | n T | |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous | 0 %0 | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs | / % 0 % 0 % Weather | CHANNEL | 30 mg 25 | n | |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark | 0 % O | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs | % % Weather previous 24 H | CHANNEL | | n | FACE |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla | 0 % O | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs m | % Weather | CHANNEL | GRAVEL | n | Boursers |
| Overhead Litter <150 mm Overhead Undercut Banks | 0 % O | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs | % Weather | CHANNEL | GRAVEL BAR | | FACE |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature | 0 % O | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs m | % Weather | CHANNEL | GRAVEL BAR | n IIn | Boursers |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) | 0 % On | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs m m /6, 0 °C | % Weather | CHANNEL | GRWEL BAR 3M | | Boursers |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h | 0 % On | verhead Li verhanging | g Trees g Shrubs m /6.0 000 | % Weather | CHONNEL | GRWEL BAR 3M | llm | BOULDERS |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h | 0 % On Ants, etc) | verhead Li verhanging | g Trees g Shrubs m /6.0 000 | % Weather | CHANNEL | GRWEL BAR 3M | llm | BOULDERS QUAL |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) | 0 % On mants, etc) | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs m m /6.0 consecutive 20 kph W | % Weather | CHONNEL! | GRWEL BAR 3M | llm | BOUNDERS |
| Overhead Litter < 150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) | 0 % Or mants, etc) | verhead Li verhanging | g Trees g Shrubs m /6.0 000 | % Weather | CHONNEL! | GRWEL BAR 3M | llm | BOULDERS OF HIGH |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) | 0 % On mants, etc) | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs m m /6.0 consecutive 20 kph W | % Weather | CHONNEL! | GRWEL BAR 3M | llm | Bombers Un |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) | 0 % On % O | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs m m /6.0 consecutive 20 kph W | % Weather | CHONNEL! | GRWEL BAR 3M | llm | Boursers O HIGH |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) | 0 % On % O | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs m m /6.0 consecutive 20 kph W | % Weather | CHONNEL / | GRWEL BAR 3M | llm | BOULDERS OF HIGH |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH | 0 % On % O | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs m m /6.0 consecutive 20 kph W | % Weather | CHONNEL / | GRWEL BAR 3M | llm | Boursers O HIGH |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) | 0 % On | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs m m /6.0 consecutive 20 kph W | % Weather | CHONNEL / | GRWEL BAR 3M | llm | BOULDERS O HIGH O WATER O BEDROCK |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) | 0 % On which will be set of the s | verhead Li verhanging | itter >150 mm (%) g Trees g Shrubs m m /6.0 consecutive 20 kph W | % Weather | CHANNEL / | GRWEL BAR 3M | llm | BOULDERS O HIGH O WATER O BEDROCK |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/r In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) | 0 % On | verhead Li verhanginç verhanginç | itter >150 mm (%) g Trees g Shrubs m m m /6.0 co | Ø % Ø % Weather previous 24 H | CHONNEL / | GRWEL BAR 3M | llm | BOULDERS O HIGH O WATER O BEDROCK |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m B | 0 % On | verhead Li verhanging verhanging | itter >150 mm (%) g Trees g Shrubs m m m m m m m solution solutio | / % % Weather previous 24 H | CHANNEL / | GRWEL BAR 3M | llm | BOULDERS O HIGH O WATER O BEDROCK |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m B Mixed Forest Coniferous | 0 % On % O | verhead Li verhanging verhanging | itter >150 mm (%) g Trees g Shrubs m m m m m construction Again Visible Disturbance Surface Debris | / % / % / Weather / previous 24 H / Circle Culvert | CHANNEL / | GRWEL BAR 3M | llm | BOULDERS O HIGH O WATER O BEDROCK |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m B Mixed Forest Grasses Deciduous | 0 % On % O | verhead Li verhanging verhanging verhanging rcle oads utlines | itter >150 mm (%) g Trees g Shrubs m m m /6.0 °C 20 Kph W Visible Disturbance Surface Debris Beaver Dam | / % % Weather previous 24 H | CHANNEL / | GRWEL BAR 3M | llm | BOUNDERS CONTROL HIGH |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m B Mixed Forest Grasses Deciduous | 0 % On % O | verhead Li verhanging verhanging verhanging rcle oads utlines | itter >150 mm (%) g Trees g Shrubs m m m m m construction Again Visible Disturbance Surface Debris | / % / % / Weather / previous 24 H / Circle Culvert | CHANNEL / | GRWEL BAR 3M | llm | BOULDERS O HIGH O WATER O BEDROCK |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m B Mixed Forest Grasses Deciduous Re-growth forest (Shrubs) | 0 % On % O | verhead Li verhanging verhanging verhanging rcle oads utlines | itter >150 mm (%) g Trees g Shrubs m m m /6.0 °C 20 Kph W Visible Disturbance Surface Debris Beaver Dam | / % / % / Weather / previous 24 H / Circle Culvert | CHANNEL STORE | GRAVEL BAR 3M | llm CROSSING | BOULDERS O HIGH O HATER O HATER |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m-B Mixed Eorest Coniferous | 0 % On % O | verhead Li verhanging verhanging verhanging rcle oads utlines | itter >150 mm (%) g Trees g Shrubs m m m /6.0 °C 20 Kph W Visible Disturbance Surface Debris Beaver Dam | / % / % / Weather / previous 24 H / Circle Culvert | Channel Fo | GRAVEL BAR 3M | llm | BOUNDERS CONTROL HIGH |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m B Mixed Forest Grasses Deciduous Re-growth forest Solved Oxygen (Shrubs) | 0 % On % O | verhead Li verhanging verhanging verhanging rcle oads utlines | itter >150 mm (%) g Trees g Shrubs m m m /6.0 °C 20 Kph W Visible Disturbance Surface Debris Beaver Dam | / % / % / Weather / previous 24 H / Circle Culvert | Channel Fe | GRAVEL BAR 3M | llm CROSSING | BOULDERS O HIGH O HATER O HATER |
| Overhead Litter <150 mm Overhead Undercut Banks Overhanging Grasses Miscellaneous High water mark Flood Evidence (Debris on pla Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m B Mixed Forest Grasses Deciduous Re-growth forest Source (Shrubs) | 0 % On % O | verhead Li verhanging verhanging verhanging rcle oads utlines | itter >150 mm (%) g Trees g Shrubs m m m /6.0 °C 20 Kph W Visible Disturbance Surface Debris Beaver Dam | / % / % / Weather / previous 24 H / Circle Culvert | Channel Fo | GRAVEL BAR 3M | llm CROSSING | BOULDERS O HIGH O HATER O HATER |

| Data Collectors | -T A.I | **** | Date | 24 - Sep - 14 | itat Information | | Time (24 H) | 9:00 | | |
|--------------------------|--------------|-------------|---------------|-------------------------|--|-------------------------|----------------|-------------|--------------|----------|
| C | J, DH | U] | Station | | | | Project | 1.00 | 1 | |
| | A TO | 164 | | (P 133.7 | | * | | | | |
| UTM NAD | | | Upstream | Northing 679 | 3161 | | Upstream Eas | sting 4 | 82671 | |
| Access Heli | | | Downstre | am Northing | | | Downstream | Easting | | |
| Morphology | | | | | | | | | | |
| Stream Morphology | Types (%) |) | | Length (m) | | | | Velocity (6 | 0% depth or | surface) |
| | Riffle / Vb | Poo | ol | Depth Transect (m) | @ 25% width | 50% | 75% | 25% | 50% | 75% |
| Fall Depth/Pool (m) | Other: | | | 1 2 | | | | | | |
| Channel Slope (°) | | | | 3 | | | | | | |
| Wetted Width | 1 1 | 1 | 1.7 r | m Channel Width (m) | 1 . 1 | 12.6m | Unstable Bank | s (5%) | | |
| Meander Frequency | y / / | 1 1 | -2.÷ r | n Regular / Irregular m | eanders | | Bank slope (5° |) . | L | R |
| Instream Cover | | | | | | | | | | |
| Instream Cover (De | etritus) | | 15 9 | 6 Instream Cover (Twig | gs/Sticks, etc) | 5 % | Substrate (as | cover) | 80 % | |
| Instream Cover (log | | | | 6 Instream vegetation | | | Undercut Bank | | 10 % | |
| Woody Debris Desc | | jams, falle | en trees, bea | aver activity, etc) | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Substrate Compos | sition (Sun | 100%) | Instream | Vegetaion (Sum 100% | 5) | Riprian Zor | e (25 m Buffer | r) | circle | |
| | | Embed. (%) | | | The state of the s | Mixed Fores | | Coniferous | | |
| % Organics | 6 | - | | bmergent | 0 % | Grasses | | Deciduous | | |
| % Clay | 0 | | Rooted Flo | oating | | Re-growth for | orest (| Shrubs | | |
| % Silt | 0 | - | Free-floati | | | Flooded | | Sedges | | |
| % Sand | 20 | | Floating A | | | Roads | | Cutlines | | |
| % Gravel | 0 | | Attached A | | 0 % | | | | | |
| % Cobble | 4D | 20 | 1 | Periphyton | | | scription/Note | s/Drawing | | |
| 10.0000000 | | 30 | - | Filamentous | | | Jon phony i de | Jointaining | 27:1 | 11. |
| % Boulder | 40 | | Aquatic M | | | | YIL | | JVB ' | 10 m |
| Bedrock | D | • | | | | | 1 | | X4-1 | 1 |
| | | | Flooded 1 | errestrial Plants | 0 % | 1/15 | 1,110 | (| 1 | |
| Overhead Cover | | | | | | | 11// | | -X1 2 | |
| Overhead Litter <15 | | | | Litter >150 mm (%) | 5 % | | X 0 | > _ | 437 | |
| Overhead Undercut | t Banks | | Overhangi | | 15 % | | 1/1 | 0 | HI. | (|
| Overhanging Grass | es | 5 % | Overhangi | ing Shrubs | 60 % | TOP OF | , / | | White ! | |
| Miscellaneous | | | | | Weather | OF EL | 1 | <_ | 711 | 1 |
| | | | | | The second second second second | outer. | 0.05/~ | | 11/1 | |
| High water mark | hala aa ala | -44-\ | | + | | | 4) U 1 | | 11/ | 1. |
| Flood Evidence (De | on pia | nts, etc) | | 8 °(| | 0.5m | , , | | TOP | 0. |
| Air Temperature | | | | | 4 | $\langle \cdot \rangle$ | 60 1 | 740 | Bo | ink / |
| Cloud Cover (5%) | and flowerth | | | 80 % | 4 | 1 1 | | | > >0.0 | 5m / |
| Wind Direction + sp | eea (km/n |) | | 5 kph E | 1 | 1 1 | closs | 1109 | 4 | _ |
| In situ Water Para | meters | | | | | HIG | 4) 0 | | (+70.0 | 45m |
| Sample Depth (m) | | 0,10 | | | | 1 WAT | EFIN | | High | |
| Dissolved Oxygen (| %) | _ | | 1 | | 1 | 161 | 10 | WATER | |
| Dissolved Oxygen (| | 12.6 | | | | 1 | 1 | ~ _ | 2 MULIEL | 1 |
| Secchi Depth (m) | | | | | | 1 | / | | 120 | 1 |
| Temperature (°C) | | 4.4 | | | | 1 1 | | | 1 | 1 |
| pH | | 7.7 | | | | 1 - X | | | 3 | 1 |
| Turbidity (TCU) | | _ | | | | 1 1 | | | | |
| Conductivity (uS/cm | 1) | 429 | | | | 1 11 | | 1- | 100 | 1 |
| | | 7.50 | 14.30 | Walle Distanta | airela | 146 | // | of FLOW | AC | 1 |
| Landscape (Beyon | | | circle | Visible Disturbance | | - | 1/ | V | HI | 1 |
| Barred Connect // | Coniferous | | Roads | Surface Debris | Culvert | 1 | | | 1,11 | - 1 |
| | Deciduous | Forest | Cutlines | Beaver Dam | Weir | |) | | 1 | V |
| Grasses | | | Hills | Collapsed Bank | | | / | | | lor |
| | Shrubs | | | | | TANK BUNDAN | A | | Dimension | • |
| Grasses Re-growth forest | Shrubs | | | | | Channel Fe | atures | # | Difficusion | 3 |
| Grasses Re-growth forest | Shrubs | | | | | Channel Fe | atures | # | Dimension | 5 |
| Grasses | Shrubs | | | | | Islands | atures | # | Difficusions | <u> </u> |
| Grasses Re-growth forest | Shrubs | | | | | | atures | # | Differsions | , |

| Data Collectors | | Date | | bitat Informatio | Time (24 H | | | |
|--|-------------------|--|-------------------------|------------------|--------------------------------|--------------------------------|--|--|
| Data Collectors | 2 | 2 | 4-50-14 | | Time (24 M | 14:06 , | | |
| 'e Tetella main | | Station | KP 86.88: | | Project | ZN C788 | | |
| UTM NAD | | Upstream | n Northing | 19 4 68 (23) | 6 Upstream Easting 482458 4602 | | | |
| Access Heli | , | Downstre | eam Northing | | Downstrea | m Easting | | |
| | | | | | | | | |
| Morphology Stream Morphology Type | s (%) | | Length (m) | | 1 | Velocity (60% depth or surface | | |
| Run 499 90 Riffle | | ol | Depth Transect (m) | @ 25% width | h 50% 75% | 25% 50% 75° | | |
| Fall Other | | | 1 | | | | | |
| Depth/Pool (m) | | | 2 | | | | | |
| Channel Slope (°) Wetted Width / | 1 1631 | 227 | m Channel Width (m) | 22.1 / 1 | / Illnotoble D | anks (5%) | | |
| Wetted Width / Meander Frequency / | 1 1 1 | | m Regular / Irregular n | | / Unstable Bank slope | | | |
| | | | | | Dank slope | (C) , L N | | |
| Instream Cover Instream Cover (Detritus) | | 1 | % Instream Cover (Tw | ine/Sticke* atal | 0/ Cubatrata / | as cover) 1 75 o/1 | | |
| Instream Cover (Detritus) | | | % Instream Cover (Tw | | % Substrate (a | | | |
| Woody Debris Description | | | | | 70 Officercut B | 2010 | | |
| J = 55.10 D G G I ptiol | , and James, Idah | 200, 200 | | | | | | |
| | | | | | | | | |
| Substrate Composition | (Sum 100%) | Instream | Vegetaion (Sum 100 | %) | Riprian Zone (25 m But | ffer) circle | | |
| | Embed. (% | Rooted E | mergent | | Mixed Forest | (Coniferous Forest) | | |
| % Organics /O | | | ubmergent | | % Grasses | Deciduous Forest | | |
| % Clay 6 | | Rooted FI | • | | Re-growth forest | Shrubs | | |
| % Silt 5 | - 1 | Free-float | | | % Flooded | Sedges | | |
| 70 Cdi 10 | - | Floating A Attached | | 9/ | Roads | Cutlines | | |
| % Gravel 45 % Cobble 45 | | Allached | Periphyton | | Channel Description/N | otos/Drawing | | |
| % Boulder | | - | Filamentous | 9/ | | 1 1 1/2 | | |
| Bedrock | | Aquatic M | | 9/ | | BAR 1: 1 40 | | |
| Bedrook | | The state of the s | errestrial Plants | | 4 HOKEMAN | 1 | | |
| Overhead Cover | | | | | 1 Ocque | 7 | | |
| Overhead Litter <150 mm | | | Litter >150 mm (%) | 0 % | 6 Covit: 15 | 1 | | |
| Overhead Undercut Bank | | Overhang | | 25 % | 6 Focest 1 | HIGH T | | |
| Overhanging Grasses | 15 9 | 6 Overhang | ing Shrubs | 25 % | 6 | WATER O. UM Conif | | |
| Miscellaneous | | | | Weather | TOP OF | Forces | | |
| High water mark | | | | m previous 24 H | w / / / / | TMALL RIFFLE | | |
| Flood Evidence (Debris o | n plants, etc) | | | m | 0.9 m]] | MALL KIFFELD WITUP | | |
| Air Temperature | | | 8 | °C | | 34 | | |
| Cloud Cover (5%) | | | 106 % | | | 16.3m | | |
| Wind Direction + speed (| km/h) | | Celm | 1 | - // | CRUSSING | | |
| In situ Water Parameter | s | | | | 1 8 m | 1 | | |
| Sample Depth (m) | 0.10 | | | | | F 1 | | |
| Dissolved Oxygen (%) | | | · · | | 473 | 1 | | |
| Dissolved Oxygen (mg/L) | 12.8 | | | | - | K 1 | | |
| Secchi Depth (m) | 5.7 | - | + | - | - 1 | 1.0 | | |
| Temperature (°C) pH | 7.8 | - | | | GRAVEL | Ti. | | |
| Turbidity (TCU) | 112 | | | | BAR | 1 Flori | | |
| Conductivity (uS/cm) | 277 | | | | | I FLOW | | |
| The state of the s | | circlo | Visible Disturbanc | e circle | 13 | | | |
| Landscape (Beyond 25 Mixed Forest Conife | rous Forest | circle Roads | Surface Debris | Culvert | - | 13 | | |
| | Jous Forest | Cutlines | Beaver Dam | Weir | 3 | 1:1 , | | |
| Re-growth forest Shrub | | Hills | Collapsed Bank | 1.0 | | 1 45 | | |
| | | | | | Channel Features | # Dimensions | | |
| Photos | | T | | - | Islands | # Dimensions | | |
| | | 1 | | | Bars | | | |
| To the second | | | | | | | | |
| | | | | | Daio | | | |

| | | | | Stream Hab | itat Information | 1 | | |
|--|---------------|----------------|---------------|--------------------------|-------------------|-------------------------|-----------------|------------------------|
| Data Collectors | T DH | | Date | 14-Jep-L4 | | Time (| (24 H) (6:30 | |
| te Tetobla | 1 | | Station | At Old Road | | Projec | | ť |
| UTM NAD | 1110- | | Unstream | | cl | Unstre | CZN 679 | 38 |
| OTM NAD | | | | 6812 | 141 | | eam Easting 4 | 60369 |
| Access Heli | | | Downstre | eam Northing | | Down | stream Easting | |
| Morphology | | | | | | | | |
| Stream Morphology | Types (% |) | | Length (m) | | | Velocity | (60% depth or surface) |
| | Riffle 50 | Poo | l | Depth Transect (m) | @ 25% width | 50% 7 | 5% 25% | 50% 75% |
| | Other: | | | 1 | - | | | |
| Depth/Pool (m) | | | | 2 | | | | |
| Channel Slope (°) Wetted Width | 1 | , , | 4.9 | m Channel Width (m) | 1 1 | 117-2 Unstat | ole Banks (5%) | |
| Meander Frequency | 1 1 | 1 1 | | m Regular / Irregular me | | | slope (5°) | , L R |
| | | | | mprogular / mogular m | Januara | Dank | лоро (о) | |
| Instream Cover | ritus) | | 16 | % Instream Cover (Twig | o/Sticks* etc) | 1 0/ Cubete | ate (as cover) | 1 % 0/1 |
| Instream Cover (Det Instream Cover (logs | | | | % Instream Cover (Twig | ja/alicka; elc) | 5 % Substr | | 80 % 5 % |
| Woody Debris Descr | | n iame falle | | | | | cut Darik , | 5 % |
| Troody Debits Desci | יטוו ווטויקיי | g jains, iaile | 11 ti CO3, DC | avor activity, 6to/ | | | | |
| | | | | | | | | |
| Substanta Comment | Man /6 | 4000/1 | Instrum | Venetaion (Sum 4000) | , | Dingion Zono /25 | D. Harl | aluata |
| Substrate Composi | tion (Sui | | Rooted E | Vegetaion (Sum 100% | | Riprian Zone (25 r | | circle ous Forest |
| % Organics | 5 | Embed. (%) | | ubmergent | 9/0 | | | us Forest |
| % Clay | D | - | Rooted FI | | | Re-growth forest | Shrubs | us rolest |
| % Silt | 0 | | Free-float | | 9/8 | | Sedges | |
| % Sand | 20 | - | Floating A | | | Roads | Cutlines | |
| % Gravel | D | | Attached | | 9/6 | | | |
| % Cobble | 40 | | | Periphyton | 9/6 | Channel Descripti | on/Notes/Drawir | ng ` |
| % Boulder | 35 | | | Filamentous | 9/6 | | | 1 40m |
| Bedrock | 0 | - 1 | Aquatic M | loss | % | | |) A |
| Jan 1980 | | | Flooded 7 | errestrial Plants | 9/ | | | |
| Overhead Cover | | | | | | | | |
| Overhead Litter <150 | | | | Litter >150 mm (%) | 5 % | | 1 | |
| Overhead Undercut | | | Overhang | | 30 % | | CONFIL | alce / |
| Overhanging Grasse | S | 0 % | Overnang | ing Shrubs | 10 % | - | 1/ ~ | 111614 |
| Miscellaneous | , | | | | Weather | 0.45m High | RI RI | FLE WATER |
| High water mark | | | | n | previous 24 H | C. Corol | Bom OU | 1 1 1 |
| Flood Evidence (Deb | oris on pla | ants, etc) | | n | | SIDE CHANNELY | / 0 | 00 1000 |
| Air Temperature | | | | 8 °0 | 2 | \ \ - '/- | GRAIN O | OOO ROAD |
| Cloud Cover (5%) | - d // | | | 90% | | \ // | GRAJEL O | 00 |
| Wind Direction + spe | ed (KITI/I | 1) | | Calm | 1 | - V / | | X30.60 |
| In situ Water Paran | neters | | | | | 1/1 | 7.6m | 4.9 |
| Sample Depth (m) | | 0.10 | | | | KE | 1 | 17.2 |
| Dissolved Oxygen (% | | - | | | | OLD . | | 17.0 |
| Dissolved Oxygen (n | ng/L) | 12.1 | | | | ROAS | | |
| Secchi Depth (m) | | 7-1 | - | | 1 | | 1 | |
| Temperature (°C) | | 7.7 | | | | 1 | 11 | 1/1 |
| pH Turbidity (TCU) | | 7.81 | 1 | | 1 | 1 | 1 | |
| Conductivity (uS/cm) | | 575 | | | | 1 | COBRLE/ | |
| | | | | Water Street | Sec. 12 | 1. | BOULDERS | / |
| Landscape (Beyon | | | circle | Visible Disturbance | The second second | 4 | | FLOW Y |
| The second secon | oniferous | | Roads | Surface Debris | Culvert | | | 1 |
| | eciduous | Forest | Cutlines | Beaver Dam | Weir | | | 1 |
| Re-growth forest S | nruds | | Hills | Collapsed Bank | | | | 30 M |
| Photos | | | | | | Channel Features | # | Dimensions |
| | | | | | | Islands | | 30 m long X 7,6 m wide |
| | | | L. ye | | | Bars | 1 | 2 |
| | | | | | | | | |
| | | | | | | | | |

Notes Lots of LWB washed up on LB, evidence of past flooding.
Very little flow in side channel

| Data Collectors | TDH | | Date | -52p-14 | abitat Informatio | on | Time (24 H) | 10.15 | |
|--|---|---------------------------|-------------------|--|-------------------|-----------------|-----------------|------------------------|--|
| C | 1 | | Station | | | | | 17:15 | <u> </u> |
| Tetella | mounsta | en | | old Road Cross | | | (£ | N 6788 | |
| UTM NAD | | | Upstream | Northing 68 | 15670 | | Upstream Eas | sting 4 | 01376 |
| Access Heli | | | Downstre | eam Northing | | | Downstream | | |
| Morphology | | | | | | | | | |
| Stream Morphology | Types (%) |) | | Length (m) | | | | Velocity (6 | 60% depth or surface) |
| The state of the s | Riffle ID | Poo | d | Depth Transect (m) | @ 25% widt | h 50% | 75% | 25% | 50% 75% |
| Fall C Depth/Pool (m) | Other: | | | 1 2 | - | | | 1 | |
| Channel Slope (°) | | | | 3 | | | | / 12:- | |
| Wetted Width | 1 1 | | | m Channel Width (m) | | 1 | Unstable Bank | | |
| Meander Frequency | 1 1 | 1 1 | | n Regular / Irregular | meanders | | Bank slope (5° |) . | L R |
| Instream Cover | | , A | | | | | | | |
| Instream Cover (Det | | | | 6 Instream Cover (Tv | | | Substrate (as | | 0 % |
| Instream Cover (logs | | iomo follo | | Instream vegetation | 1 | 6 | Undercut Bank | | 6 % |
| Woody Debris Desci | ription (log | jams, raile | n trees, bea | aver activity, etc) | | | | | |
| | | | | | | | | | |
| | | 40000 | | | | | | | A Committee of the Comm |
| Substrate Compos | ition (Sun | | Rooted Er | Vegetaion (Sum 100 | | Mixed Fore | ne (25 m Buffer | Coniferous | circle |
| % Organics | 5 | Embed. (%) | | nergent ubmergent | | % Grasses | SI | Deciduous | |
| % Clay | 0 | | Rooted Flo | | | % Re-growth | forest | Shrubs | rolest |
| % Silt | 0 | | Free-floati | | | % Flooded | 101001 | Sedges | |
| % Sand | 15 | | Floating A | | | % Roads | | Cutlines | |
| % Gravel | 35 | 20 | Attached A | | | % | | Outilites | |
| % Cobble | 40 | 30 | 1. | Periphyton | | | escription/Note | s/Drawing | |
| % Boulder | 5 | | 1 | Filamentous | | % | - COOLINGTO | Sibiaming | 1 110 |
| Bedrock | 0 | | Aquatic M | | | % | 11- | | 450 |
| Dedrock | 0 | | | errestrial Plants | | % | SMALL RIFE | Æ | BAR 1 ,1 |
| Overhead Cover | | | i loodod i | orrodular ramo | - | ~ | | | |
| Overhead Litter <150 | 0 mm | 0 % | Overhead | Litter >150 mm (%) | 100 | % | min | | |
| Overhead Undercut | | | Overhang | | | %/5AND/1 | Y | | - DLO, ADAS |
| Overhanging Grasse | | | Overhang | | | GRAVEL | 1.2m 15. | 4.0 | 1 Wan |
| | | | | | | BAR | | | 124.9 |
| Miscellaneous | | | | - | Weather | OLD ROAD | CROSS | ING | 1-1-1 |
| High water mark | | | | | m previous 24 h | 11 | -\ | | 1/- |
| Flood Evidence (Del | oris on pla | nts, etc) | | | m | 1 | 1 | | HIGH WATER |
| Air Temperature | | | | 4 4 | °C | 1 1. | 1 | | |
| Cloud Cover (5%) | d ///b- | | | Calm | | HIGHTER | . | | 1. 3 |
| | eea (km/n | | | Carry | | LIATER | | | 11 1 |
| | | | | | | | 7 | | |
| Wind Direction + spe | | | | | | 1/ | | | |
| Wind Direction + spe In situ Water Paran Sample Depth (m) | neters | 0.10 | | | | KT 6 | u | | 1, |
| Wind Direction + spe In situ Water Paran Sample Depth (m) Dissolved Oxygen (%) | meters %) | - | | | | 1 6 | n | | |
| Wind Direction + spe In situ Water Paran Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (n) | meters %) | 0.10 | | -2: | | 16 | u ' | | 1 |
| Wind Direction + spe In situ Water Paran Sample Depth (m) Dissolved Oxygen (no Dissolved Oxygen (no Secchi Depth (m) | meters %) | 11.2 | | | | 1 6. | n | | |
| Wind Direction + spe In situ Water Paran Sample Depth (m) Dissolved Oxygen (no Dissolved Oxygen (no Secchi Depth (m) Temperature (°C) | meters %) | - 11.2 - 5.9 | | | , | 1 6 | n | UNSTAT | BLE T |
| Wind Direction + spe In situ Water Paran Sample Depth (m) Dissolved Oxygen (notes of the control of the cont | meters %) | 11.2 | | *** | | 3 | n ' | UNSTAT BANK | |
| Wind Direction + spe In situ Water Paran Sample Depth (m) Dissolved Oxygen (notes of the control of the cont | meters %) mg/L) | 11.2 - 5A 7.9 | | | | Forest | n ' | UNSTAT BANK | BLE TOREST |
| Wind Direction + spe In situ Water Paran Sample Depth (m) Dissolved Oxygen (notes of the control of the cont | meters %) mg/L) | - 11.2 - 5.9 | | | | 3 | n ' | BANK | |
| Wind Direction + spe In situ Water Paran Sample Depth (m) Dissolved Oxygen (note) Dissolved Oxygen (note) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) | meters %) mg/L) | 11.2 5A 7.9 - | circle | Visible Disturbano | ce circle | 3 | n ' | UNSTAI BANK FLOW | |
| Wind Direction + spe In situ Water Paran Sample Depth (m) Dissolved Oxygen (note) Dissolved Oxygen (note) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) | meters %) mg/L) | 11.2 5.9 7.9 786 | | | ce circle Culvert | 3 | n ' | BANK | |
| Wind Direction + spe In situ Water Paran Sample Depth (m) Dissolved Oxygen (note) Dissolved Oxygen (note) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyone Mixed Forest | meters %) mg/L) d 25 m BL Coniferous | 786 affer) | Roads | Visible Disturband | Culvert | 3 | | BANK | |
| Wind Direction + spe In situ Water Paran Sample Depth (m) Dissolved Oxygen (note) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyone Mixed Forest Grasses | meters %) ng/L) d 25 m Bu Coniferous Deciduous | 786 affer) | | Visible Disturband Surface Debris Beaver Dam | | 3 | | BANK | FOREST |
| Wind Direction + spein situ Water Paran Sample Depth (m) Dissolved Oxygen (n) Dissolved Oxygen (n) Secchi Depth (m) Temperature (n) Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond Mixed Forest Corasses Exe-growth forest Security (uS/cm) | meters %) ng/L) d 25 m Bu Coniferous Deciduous | 786 affer) | Roads Cutlines | Visible Disturband | Culvert | FOREST | | FLOW | FOREST 45 M |
| Wind Direction + spein situ Water Paran Sample Depth (m) Dissolved Oxygen (n) Dissolved Oxygen (n) Secchi Depth (m) Temperature (n) Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond Mixed Forest Corasses Exe-growth forest Section 19 pt | meters %) ng/L) d 25 m Bu Coniferous Deciduous | 786 affer) | Roads Cutlines | Visible Disturband Surface Debris Beaver Dam | Culvert | Foles Channel F | | BANK | FOREST |
| Wind Direction + spe In situ Water Paran Sample Depth (m) Dissolved Oxygen (note) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyone Mixed Forest | meters %) ng/L) d 25 m Bu Coniferous Deciduous | 786 affer) | Roads Cutlines | Visible Disturband Surface Debris Beaver Dam | Culvert | Channel F | | FLOW | FOREST 45 M |
| Wind Direction + spein situ Water Paran Sample Depth (m) Dissolved Oxygen (9) Dissolved Oxygen (n) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond Mixed Forest Grasses C Grasses C Re-growth forest | meters %) ng/L) d 25 m Bu Coniferous Deciduous | 786 affer) | Roads Cutlines | Visible Disturband Surface Debris Beaver Dam | Culvert | Foles Channel F | | FLOW | FOREST 45 M |

| te CRENCER TRUS Station Rep 135.4 Project Can USS Under the CREATION Rep 135.4 Project Can Use the CREATION Rep | Data Collectors | Date | 111 | itat Informatio | n | Time (24 H) | | |
|---|---|---|--|--|-------------|-----------------|---------------|------------------|
| UTM NAD Upstream Northing | Data Collectors CJ, DH | Date | 25-5ep-14 | | | 111116 (2411) | 18:45 | |
| Access Downstream Northing Downstream Easting Downstream Easting Downstream Easting Downstream Easting Steep (%) Ste | ite GRAINGER TRIB. | | | | | CE | N 6788 | |
| Size and Morphology Types (%) Care Car | UTM NAD | Upstream | Northing 679 | 1274 | | Upstream Eas | sting 482 | 380 |
| Length (m) | Access Heli | Downstre | eam Northing | 7) | | Downstream | Easting | - |
| Langth (m) | Morphology | | | | A. | | | |
| Depth Transect (m) Depth T | | | Length (m) | | | - | Velocity (60% | depth or surface |
| DepthyPool (m) 2 | Run 50 Riffle 50 Po | ool | | @ 25% width | h 50% | 75% | | |
| Channel Slope (*) Wested Wich | | 11 | | | | | | |
| Wetted Width | | | | 1 | + | | | |
| Mander Frequency | | 0.9 | | 1.1 | 12.8 | Unstable Bank | s (5%) | - |
| Instream Cover (Detritus) Instream Cover (Oes, etc) | | | | eanders | | | | R |
| Instream Cover ((Deritrus) | Instream Cover | | | | | | | 15 |
| Substrate Composition (Sum 100%) Instream Vegetaion (Sum 100%) Riprian Zone (25 m Buffer) Circle | | 40 | Instream Cover (Twig | gs/Sticks, etc) | £05 % | Substrate (as | cover) | |
| Substrate Composition (Sum 100%) Embod. (\$) Rototed Emergent % Mixed Forest Coniferous Forest % Clay % Rototed Submergent % Grasses Deciduous Forest % Sit % Re-growth forest % Shrubs % Shrubs Shrubs % Shrubs Shru | Instream Cover (logs, etc) | 6 | Instream vegetation | Service and | | | | 85% |
| Substrate Composition (Sum 100%) Instream Vegetaion (Sum 100%) Riprian Zone (25 m Buffer) circle Configure Co | | llen trees, bea | aver activity, etc) | | | | _ | |
| | | | | | | 4 | | |
| | | | | | | | | |
| % Cray | | | | 5) | Riprian Zor | ne (25 m Buffer | r) cir | cle |
| % Clay | | | | | | st | Coniferous Fo | rest |
| % Silt 2.0 - Free-Roating % Flooded Sedges % Gravel 5.0 - Floating Algae Attached Algae | | | | | | | | rest |
| % Sand | | | | | | orest | | |
| Attached Algae Periphyton Bedrock Aguatic Moss Bedrock Aguatic Moss Bedrock Aquatic Moss Bedrock Bedrock Aquatic Moss Flooded Terrestrial Plants Overhead Litter <150 mm Voerhead Litter <150 mm Voerhead Litter <150 mm Voerhead Undercut Banks Overhanging Grasses Voerhanging Grasses Voerhanging Grasses Veather High water mark Bedrock Weather Flood Evidence (Debris on plants, etc) Mix Temperature Cloud Cover (5%) Mix Temperature Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Flood Evidence (CD Grasses) Sample Depth (m) Firemperature (*C) Deschi Depth (m) Fremperature (*C) Deschi | | | | | | | | |
| Periphyton Periphyton Robble Robble Periphyton Per | | | | | | | Cutlines | |
| ## Sedrock | | Attached | | | | | - (D | |
| Aquatic Moss Flooded Terrestrial Plants | 70 OODDIG | _ | | | | scription/Note | s/Drawing | |
| Overhead Cover Overhead Litter <150 mm | | | United States of the States of | | | 4 | | 1 5 |
| Overhead Cover Overhead Litter <150 mm | Bedrock - | | | | | The to | | 13 |
| Overhead Litter <150 mm | | Flooded T | errestrial Plants | 1 9 | % | 21 XS | 1. | No! |
| Overhanging Grasses | | | | | 4 | 11 | Flow | 1 |
| Overhanging Grasses % Overhanging Shrubs % Miscellaneous Weather High water mark Flood Evidence (Debris on plants, etc) mprevious 24 H Air Temperature 5 °C Cloud Cover (5%) (00 Wind Direction + speed (km/h) (00 Wind Direction + speed (km/h) (00 Mind Direc | | | | | | | XVIII | ()) |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc) Air Temperature 5 °C Cloud Cover (5%) Wind Direction + speed (km/h) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH 8 · 2 Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Crasses Deciduous Forest Re-growth forest Collapsed Bank Weather m previous 24 H Cool Mixed Forest Conferous Forest Conferous Forest Conferous Forest Re-growth forest Shrubs Weather previous 24 H Cool Mixed Forest Conferous Forest Conferous Forest Conferous Forest Collapsed Bank Channel Features # Dimensions | | | | | | 1 | =\\' \ | |
| Miscellaneous High water mark Flood Evidence (Debris on plants, etc) Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (mg/L) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (*C) Ph Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Circle Mixed Forest Coniferous Forest Grasses Deciduous Forest Collapsed Bank Channel Features Weather Previous 24 H Mr | Overhanging Grasses | % Overhang | ing Shrubs | 1 9 | <u>//</u> | 1.1- | 1 Small | Ø. |
| High water mark Flood Evidence (Debris on plants, etc) Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (*C) PH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Grasses Deciduous Forest Grasses Deciduous Forest Grasses Re-growth forest Shrubs Channel Features m previous 24 H m previous | Miscellaneous | | | Weather | | 1.16 | | N/ |
| Flood Evidence (Debris on plants, etc) Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) PH S-2 Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Wisible Disturbance circle Mixed Forest Coniferous Forest Roads Grasses Deciduous Forest Cutlines Re-growth forest Shrubs Photos Channel Features # Dimensions | | | | | Ŧ | 5 | N. | 1 |
| Air Temperature Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Temperature (°C) PH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Wised Forest Grasses Deciduous Forest Re-growth forest Shrubs Channel Features **Dimensions** | | *************************************** | | A Committee of the Comm | | 1 1/ | V | |
| Cloud Cover (5%) Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH 8.72 Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Grasses Deciduous Forest Grasses Deciduous Forest Grasses Deciduous Forest Re-growth forest Shrubs Channel Features # Dimensions | | | | | | 1 / | (a) | |
| Wind Direction + speed (km/h) In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Grasses Deciduous Forest Grasses Deciduous Forest Cutlines Re-growth forest Shrubs Channel Features # Dimensions Islands | 1-40 | | 100 | | | 4 1 / | - CERN | 1 |
| In situ Water Parameters Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Coniferous Forest Grasses Deciduous Forest Cuttines Re-growth forest Shrubs Photos CRossing CRos | | | | | | 4-1 | 0.9 | V |
| Sample Depth (m) Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) PH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Coniferous Forest Roads Grasses Deciduous Forest Cutlines Re-growth forest Shrubs Collapsed Bank Channel Features # Dimensions | | | | | 7 | 11 1 | 0 000 | 1 |
| Dissolved Oxygen (%) Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Grasses Deciduous Forest Grasses Deciduous Forest Re-growth forest Shrubs Channel Features # Dimensions Islands | | | | - | -1 | 1 | K033 ING | 1 |
| Dissolved Oxygen (mg/L) Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Grasses Deciduous Forest Grasses Deciduous Forest Re-growth forest Shrubs Collapsed Bank Channel Features # Dimensions | | | 1 | | - | im | | |
| Secchi Depth (m) Temperature (°C) pH Solution Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Grasses Deciduous Forest Grasses Deciduous Forest Re-growth forest Shrubs Collapsed Bank Channel Features # Dimensions | | | t | | - | - | 10.9 | ne . |
| Temperature (°C) | | _ | | + | - | ~ \ | K | 7 |
| Photos Terriperature (C) pH S-7 Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Circle Visible Disturbance circle Visible Disturbance circle Mixed Forest Coniferous Forest Grasses Deciduous Forest Cuttlines Beaver Dam Weir Collapsed Bank Channel Features Dimensions Islands | Secon Depth (III) | + | 1 | + | - | Topot | / | Top of |
| Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) circle Visible Disturbance circle Mixed Forest Coniferous Forest Roads Grasses Deciduous Forest Cutlines Re-growth forest Shrubs Hills Collapsed Bank Photos Channel Features # Dimensions Islands | | _ | | | 1 | Bant 1 | | Rank |
| Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) circle Visible Disturbance circle Mixed Forest Coniferous Forest Grasses Deciduous Forest Cutlines Hills Collapsed Bank Photos Channel Features # Dimensions | Temperature (°C) 4.5 | 1 | No. of the last of | | _ | 1 2 | 12/1 | 3 |
| Landscape (Beyond 25 m Buffer) circle Visible Disturbance circle Mixed Forest Coniferous Forest Roads Grasses Deciduous Forest Cutlines Hills Collapsed Bank Photos Channel Features # Dimensions Islands | Temperature (°C) 4.5 pH 8.2 | + | | | | 1 / 1 | 1 V 2 | |
| Mixed Forest Coniferous Forest Roads Surface Debris Culvert Grasses Deciduous Forest Cutlines Beaver Dam Weir Re-growth forest Shrubs Hills Collapsed Bank Channel Features # Dimensions Islands | Temperature (°C) 4.5 pH 8.2 Turbidity (TCU) | | | | - | 1// | 1 1/2 | |
| Grasses Deciduous Forest Cutlines Beaver Dam Weir Re-growth forest Shrubs Hills Collapsed Bank Collapsed Bank Channel Features # Dimensions Islands | Temperature (°C) 4.5 pH 8.2 Turbidity (TCU) Conductivity (uS/cm) 49.0 | | | | | WE | 17 | |
| Re-growth forest Shrubs Hills Collapsed Bank 5/1 Photos Channel Features # Dimensions Islands | Temperature (°C) 4.5 pH 8.2 Turbidity (TCU) Conductivity (uS/cm) 4.9 Landscape (Beyond 25 m Buffer) | | | | | 4 | 17 | |
| Photos Channel Features # Dimensions Islands | Temperature (°C) 4.5 pH 8.7 Turbidity (TCU) Conductivity (uS/cm) 49 Landscape (Beyond 25 m Buffer) Mixed Forest Coniferous Forest | Roads | Surface Debris | Culvert | | 4 |) 7, | |
| Islands | Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Grasses Deciduous Forest Deciduous Forest | Roads Cutlines | Surface Debris Beaver Dam | Culvert | | 4 |) 4, | |
| Islands | Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Grasses Deciduous Forest Deciduous Forest | Roads Cutlines | Surface Debris Beaver Dam | Culvert | | 4 |) ¥, | 5 |
| | Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Grasses Coniferous Forest Deciduous Forest Re-growth forest Shrubs | Roads Cutlines | Surface Debris Beaver Dam | Culvert | Channel Fe | eatures | # Die | I TO COLOR |
| | Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Grasses Coniferous Forest Deciduous Forest Re-growth forest Shrubs | Roads Cutlines | Surface Debris Beaver Dam | Culvert | | eatures | # Dir | I TO COLOR |
| | Temperature (°C) pH Turbidity (TCU) Conductivity (uS/cm) Landscape (Beyond 25 m Buffer) Mixed Forest Grasses Coniferous Forest Deciduous Forest Re-growth forest Shrubs | Roads Cutlines | Surface Debris Beaver Dam | Culvert | Islands | eatures | # Dir | I TO COLOR |

| D-4- C "- 1 | | | | Stream Hab | itat Information | n | | | |
|--|--|--|-------------------|--|------------------|-------------|---------------------------------|--|---------------------|
| Data Collectors | T DH | | Date | 26- Sep-14 | | | Time (24 H) | 11:00 | 1 |
| ite Granger | 1 | | Station | KP 136.7 | | | Project C9 | HN 6788 | |
| UTM NAD | | * | Upstream | Northing 67 | 90094 | | Upstream Eas | ting 48 | 3132 |
| Access Heli | | | Downstre | eam Northing | | | Downstream I | Easting | |
| | | | | | | | | - 1 | |
| Morphology Stream Morpholog | v Types (% | 1 | | Length (m) | | * | -,- | Velocity (6 | 0% depth or surface |
| Run | Riffle 100 | | of a | Depth Transect (m) | @ 25% width | 50% | 75% | 25% | 50% 75% |
| all | Other: | | | 1 | | | | | |
| Depth/Pool (m) | | | | 2 | | | | | |
| Channel Slope (°) Wetted Width | 1 | , , | 07 1 | M Channel Width (m) | 1 1 | 1/14 | Linetable Bank | (F9/) | |
| Meander Frequent | cv / / | 1-1 | | m Regular / Irregular me | | 1119 | Unstable Bank Bank slope (5° | | L R |
| | ., , , | | | III rogalai / III ogalai III | Jandoro | | Darik Slope (o | , | |
| Instream Cover | otrituo) | | 1 5 0 | % Instream Cover (Twig | sc/Sticks* ote) | T = 0/ | Cubatrata (as a | | 1/- 0/1 |
| Instream Cover (D | 10 To 10 Sec. 10 10 | | | | is/Sucks; etc) | | Substrate (as o | | 10 % |
| Instream Cover (lo | | | | Instream vegetation | | 5 % | Undercut Bank | | 2 % |
| Woody Debris Des | scription (log | jams, falle | en trees, bea | aver activity, etc) | | | | | |
| | The second second | | | | | | | | |
| | | | | | | | | | |
| Substrate Compo | sition (Su | n 100%) | Instream | Vegetaion (Sum 100% |) | Riprian Zo | ne (25 m Buffer |) | circle |
| | | | Rooted Er | | | Mixed Fore | | Coniferous | |
| % Organics | D | - | | ubmergent | | Grasses | | Deciduous | 11 31351 |
| % Clay | 0 | - | Rooted FI | TO THE STATE OF TH | | Re-growth f | orest | Shrubs | Torost |
| % Silt | 10 | - | Free-float | | | Flooded | 0.000 | Sedges | |
| % Sand | 10 | | Floating A | | | Roads | | Cutlines | |
| % Gravel | 0 | | Attached | | 0 % | | | Cutimes | |
| % Cobble | | | - Macrica / | Periphyton | | | scription/Note | a/Drawina | , |
| | 80 | 30 | - | Control of the Contro | | | scription/Note | Sibrawing | |
| % Boulder | 10 | 50 | - | Filamentous | 70 | -8 | 1 | 1 | 81 |
| Bedrock | 0 | - | Aquatic M | | 80 % | _1 | , / | 1 | 1 |
| | | | Flooded T | errestrial Plants | 6 % | | 1 | 1 | 1 |
| Overhead Cover | | | | | | 3 | - | - 6 | |
| Overhead Litter <1 | 50 mm | | | Litter >150 mm (%) | 3 % | | | 6 | 1 |
| Overhead Undercu | ut Banks | 2 % | Overhang | ing Trees | 255 % | | | / | - L |
| Overhanging Gras | ses | 5 % | Overhang | ing Shrubs | 25 % | Thick. |) / | 1 | 1 Thick |
| | | | | | S. Change | Shrubs | 11/ N | / | 1 Thick Struts |
| Miscellaneous | | | | | Weather | 1 | XX/ F | LOW X/E | 2014 |
| High water mark | | | | n | previous 24 H | | 17 | AY | |
| Flood Evidence (D | ebris on pla | ints, etc) | | m | | | , / | /) / | |
| Air Temperature | | | | 5 °C | | 1 | / / | 1 17 | op of |
| Cloud Cover (5%) | | | | 100 % | 1 | 101 | E Down | K-Y' | 1 |
| Wind Direction + s | peed (km/h | 1) | | Calle | | Tol | - Control | 0.41- | Bank. |
| | ameters | | | | | Bar | 6 | 7 | - |
| In city Motor D | aineteis | | | | | | D.7M | 1 | 1 |
| | | ~ | | | | | 103m | tra | Vie |
| Sample Depth (m) | | 0.05 | - | | - | 4 | 0.51 | (A) | |
| Sample Depth (m) Dissolved Oxygen | (%) | ~ | | - i | | 1 | 10314 | 49 A | 10 |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen | (%) | 0.05 | - | ė | | | 1031-1 | 1 | 1 |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) | (%) | 11.8 | | ě. | | | 1 831-4 | ₹0 - ⊕ | 1 |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) | (%) | 11.8 | | ě. | | | 1 | 40 -00 -00 -00 -00 -00 -00 -00 -00 -00 - | Debris Dan |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) pH | (%) | 11.8 | | ě. | | | 1 | 40 m | Debris Dan |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) DH Turbidity (TCU) | (%) (mg/L) | 11.8 | | ě. | | | 1 | | Debris Dan |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) DH Turbidity (TCU) | (%) (mg/L) | 11.8 | | 1 | | | 1 | | Debris Dan |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/ci | (%) (mg/L) | 11.8 5.7 7.9 - | circle | | circle | | 1 | | Debris Dan |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/ci | (%) (mg/L) m) nd 25 m B | 11.8 5.7 4.9 - 462 uffer) | circle | Visible Disturbance | | | 100 | | Debris Dan |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/ci Landscape (Beyo Mixed Forest | (%) (mg/L) m) nd 25 m B Coniferous | 11.8 5.7 2.9 - 462 uffer) | Roads | Visible Disturbance Surface Debris | Culvert | | 100 | | Debris Dan |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/ci Landscape (Beyo Mixed Forest Grasses | (%) (mg/L) m) nd 25 m B Coniferous Deciduous | 11.8 5.7 2.9 - 462 uffer) | Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | | | | | 京李 |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/ci Landscape (Beyo Mixed Forest Grasses | (%) (mg/L) m) nd 25 m B Coniferous | 11.8 5.7 2.9 - 462 uffer) | Roads | Visible Disturbance Surface Debris | Culvert | | | | Debris Dan |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/conductivity (uS/conductivity) Landscape (Beyon Mixed Forest Grasses Re-growth forest | (%) (mg/L) m) nd 25 m B Coniferous Deciduous | 11.8 5.7 2.9 - 462 uffer) | Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | Culvert | Channel Fe | | # | 京李 李 |
| In situ Water Para Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/conductivity (uS/co | (%) (mg/L) m) nd 25 m B Coniferous Deciduous | 11.8 5.7 2.9 - 462 uffer) | Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | Culvert | Channel Fe | | # | 京李 |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/conductivity (uS/conductivity) Landscape (Beyon Mixed Forest Grasses Re-growth forest | (%) (mg/L) m) nd 25 m B Coniferous Deciduous | 11.8 5.7 2.9 - 462 uffer) | Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | Culvert | Islands | | # | 京李 李 |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/conductivity (uS/conductivity) Landscape (Beyon Mixed Forest Grasses Re-growth forest | (%) (mg/L) m) nd 25 m B Coniferous Deciduous | 11.8 5.7 2.9 - 462 uffer) | Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | Culvert | | | # | 京李 李 |
| Sample Depth (m) Dissolved Oxygen Dissolved Oxygen Secchi Depth (m) Temperature (°C) pH Turbidity (TCU) Conductivity (uS/conductivity (uS/conductivity) Landscape (Beyon Mixed Forest Grasses Re-growth forest | (%) (mg/L) m) nd 25 m B Coniferous Deciduous | 11.8 5.7 2.9 - 462 uffer) | Roads Cutlines | Visible Disturbance Surface Debris Beaver Dam | Culvert | Islands | | # | 京李 李 |

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| | | | | Stream Hab | itat Information | 1 | | | 4- | |
|---|--------------------------------------|---------------|-------------------|---|--|--|---------------------------------|--------------|----------------------|--|
| Data Collectors | Z DH | | Date 2 | 6-5ep-14 | | | Time (24 H) | 12:10 | | |
| ite Granger T | tib. | | Station | KP # 131. | 3 | .4 | | F& NS | 38 | |
| UTM NAD | | | Upstream | Northing 6791 | 1966 | | Upstream Easting 481988 | | | |
| Access Heli | | - | Downstre | eam Northing | | | Downstream | Easting | | |
| Morphology | | | | | | - | | - | - | |
| Stream Morphology | Types (% | 3) | | Length (m) | | | | IVelocity (6 | 0% depth or surface) | |
| | Riffle 100 | | ol | Depth Transect (m) | @ 25% width | 50% | 75% | 25% | 50% 75% | |
| Fall | Other: | - 1 | | 1 | | | | | | |
| Depth/Pool (m) | | | | 2 | | | | | | |
| Channel Slope (°) | - | | N ed F | 3 | | , , , , | | | | |
| Wetted Width Meander Frequency | 1 1 | 1 1 | | m Channel Width (m) m Regular / Irregular me | /·· / | 12.7m | Unstable Bank Bank slope (5° | | 1 0 | |
| | y / / | 1 1 | | mpkegulai / irregulai me | anders | | bank slope (5 | , | L R | |
| Instream Cover | | | | | | | | | | |
| Instream Cover (De | | | | Instream Cover (Twig | s/Sticks* etc) | | Substrate (as | | 10 % | |
| Instream Cover (log | | £.11 | | Instream vegetation | | 5 % | Undercut Bank | | 2 % | |
| Woody Debris Desc | cription (lo | g jams, falle | en trees, be | aver activity, etc) | | * | | | | |
| | | R | | | | | | | | |
| | | | | | | | | | | |
| Substrate Compos | sition (Su | m 100%) | | Vegetaion (Sum 100% | | | ne (25 m Buffer |) | circle | |
| | | Embed. (% | | | | Mixed Fores | st | Coniferous | | |
| % Organics | 0 | 311112 | | ubmergent | | Grasses) | | Deciduous | Forest | |
| % Clay | 0 | - | Rooted FI | | | Re-growth f | orest | Shrubs | | |
| % Silt | 0 | • | Free-float | | | Flooded | | Sedges | | |
| % Sand | 20 | - | Floating A | | | Roads | | Cutlines | | |
| % Gravel | 20 | (0 | Attached | | 0 % | | | - | | |
| % Cobble | 30 | 10 | 4 | Periphyton | | | scription/Note | s/Drawing | | |
| % Boulder | 30 | 58 | - | Filamentous | 0 % | | | | 15 M | |
| Bedrock | 0 | | Aquatic M | errestrial Plants | 0 % | | 100 | | ~ 个 | |
| Overhead Cover | | | Flooded 1 | errestriai Flants | 0 70 | | . Jan | 1 | 1 | |
| Overhead Litter <15 | 50 mm | 1 0 | / Overhead | Litter >150 mm (%) | % | 1 | 1 | 1) | Forest | |
| Overhead Undercut | | | 6 Overhang | | % | | 1 / 000 | 1 - | 1000 | |
| Overhanging Grass | | | 6 Overhang | | % | | 1008 | 1 | k | |
| | 10000 | | | | 9.010.00 | | / GRIG | de | 军 | |
| Miscellaneous | | | | | Weather | | , | 1 | 1 | |
| High water mark | | | | | previous 24 H | | 1 | 200 | TOP LB | |
| Flood Evidence (De | bris on pla | ants, etc) | | m | | | 11 | BRELI | LOF TO | |
| Air Temperature | | | | 5 °C | | | TOP, | 1 - Cie Ce | 1 | |
| Cloud Cover (5%) | ood (km/l | -1 | | | | N | RB , | 0.85m | 2 | |
| Wind Direction + sp | eed (KIII/I | 1) | | 3 kph E | | 5 | 1 | > | 1.05m | |
| In situ Water Para | meters | | | | | 个 | 10.7 | 5 BK | 7/10014 | |
| Sample Depth (m) | | | | | | , i | Pre | 9 | X. | |
| Dissolved Oxygen (| | | | | | 1 | 1 | 9 4 | 11) | |
| Dissolved Oxygen (| mg/L) | | | | | 杂 | 1 | A (6) | 1 | |
| Secchi Depth (m) | | 100 | | | | 1 | , | (A) (B) | / 1/ | |
| I amparatura (°C) | | 5.2 | 1 | | | Forest |) | 8 | | |
| | | 7.8 | 1 | + | - | 1 | - | 1 | 1 | |
| pH | | 457 | + | | | 4 | | FIO | | |
| pH Turbidity (TCU) | 1) | | | | | | | 1.0 | 10 | |
| pH Turbidity (TCU) Conductivity (uS/cm | | | | 10. 11. D. C. L. | circle | 100 | | | | |
| pH Turbidity (TCU) Conductivity (uS/cm Landscape (Beyon | nd 25 m B | uffer) | circle | Visible Disturbance | CITOIC | 1 | | | | |
| pH Turbidity (TCU) Conductivity (uS/cm Landscape (Beyon Mixed Forest | nd 25 m B Coniferous | uffer) | Roads | Surface Debris | Culvert | | | | 0 | |
| pH Turbidity (TCU) Conductivity (uS/cm Landscape (Beyon Mixed Forest Grasses | od 25 m B Coniferous Deciduous | uffer) | Roads Cutlines | Surface Debris Beaver Dam | The second secon | | | | | |
| pH Turbidity (TCU) Conductivity (uS/cm Landscape (Beyon Mixed Forest Grasses | od 25 m B Coniferous Deciduous | uffer) | Roads | Surface Debris | Culvert | | | | 1500 | |
| pH Turbidity (TCU) Conductivity (uS/cm Landscape (Beyon Mixed Forest Grasses Re-growth forest | od 25 m B Coniferous Deciduous | uffer) | Roads Cutlines | Surface Debris Beaver Dam | Culvert | Channel Fa | atures | # | CASA CITOTACI | |
| | od 25 m B Coniferous Deciduous | uffer) | Roads Cutlines | Surface Debris Beaver Dam | Culvert | Channel Fe | atures | # | Dimensions | |
| pH Turbidity (TCU) Conductivity (uS/cm Landscape (Beyon Mixed Forest Grasses Re-growth forest | od 25 m B Coniferous Deciduous | uffer) | Roads Cutlines | Surface Debris Beaver Dam | Culvert | Islands | eatures | # | CASA CITOTACI | |
| pH Turbidity (TCU) Conductivity (uS/cm Landscape (Beyon Mixed Forest Grasses Re-growth forest | od 25 m B Coniferous Deciduous | uffer) | Roads Cutlines | Surface Debris Beaver Dam | Culvert | Warner of the same | eatures | # | CASA CITOTACI | |

Attachment C
Hydrology Field Datasheets

| Project: | CZN 6788 |
|------------|----------|
| Site Name: | KP 50.2 |
| Reach: | |
| UTM: | |

| | Initials | Date |
|------------------|----------|-----------|
| Field Personnel: | CT, 8H | 21-566-14 |
| Data Entry: | CT | 21-Sep-14 |
| Data Check: | | L L |



| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
|------------|--------|--------------------------|--|-------------|----------------------|----------|
| B HW | 0.5 | 0.959 | | | A CARLANA MANAGEMENT | |
| all sales | 1.00 | | | 0.969 | | |
| 2 | 1.2 | | | 1.229 | | |
| rop of RB | 2.4 | | | 1.322 | | |
| RB | 3.1 | | | 1.648 | WL = 0.187 Cut | |
| 1 charrel | 3.3 | | | 2,194 | = 0.280at | |
| in channel | 3.5 | | | 2.288 | =0.206 cut | |
| in chance | 3.9 | | | 2,217 | | |
| TOO LB | 4.1 | | | 1.614 | | |
| | 4.6 | 是是自身的特殊 | | 1.35/ | | * |
| | 5.7 | | | 1.243 | | 8 |
| | 6.4 | | | 1.400 | | 4 |
| | 6.9 | | | 1.485 | | 4 5 4 |
| LB HW | 7.2 | President Administration | | 1.343 | | D |
| | | | | | | |
| 051 | 6 DS | | | 2.737 | | |
| 1252 | 10 DS | | | 3.050 | | |
| US 1 | 5 US | | E TENNES DE L'ANGE | 1.949 | | |
| 1152 | 10 US | | | 1.604 | | |
| | | | Party College Bar | | | ne comin |
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| | | | | | | 54 |
| | | | | | | grain |
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| | | EN ALVANIA DE | | | | |
| | | | | | | |
| | | 2 mg/s = 10.25 | | | | |
| Section 1 | | | | Secretary 5 | | What C |
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| | | | The state of the s | | | |

| Notes: | HW= hi | gh water | + rak | , | , | |
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| ity (m/s) |
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| icy (111/3) |
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| Flow Measu | rement Details: |
|------------------|------------------|
| Start Time: | 10:20 |
| End Time: | 10:39 |
| Method: | walding |
| Equipment: | ADV |
| River Condition: | LOW Flow |
| Weather: | cloudy, calm, 10 |

| Flow Me | easurem | ent Notes: | 1-14 |
|---------|---------|------------|------|
| 7/ | | | 4 |
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| Project: | CZN 6788 |
|------------|----------|
| Site Name: | KP 47.0 |
| Reach: | |
| UTM: | |

| | Initials | Date |
|------------------|----------|-----------|
| Field Personnel: | CJ, DA | 21-SEP-14 |
| Data Entry: | CJ | 21-SEP-14 |
| Data Check: | | |



| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
|-----------|------------|------------------|---------|---------|----------------|-----------|
| BHW | 11.2 | 1,176 | | | | Mark Con- |
| 1 | 8.8 | | | 1.238 | | |
| 2 | 7.6 | | | 1.357 | | |
| 3 | 7.2 | | | 1.315 | | |
| L | 7.0 | | | 1.140 | | |
| 5 | 6.3 | | | 1.122 | | |
| op of LB | 5.5 | | | 1.244 | | |
| Mid LB. | 5.0 | | 44 | 1.645 | Cut 1.135 | |
| h channel | 4.9 | | | 1.954 | 0,210 | |
| 4 | 4.75 | | | 2.033 | 0.120 | |
| 11 | 4-5 | | | 1.977 | | |
| 13 Mid | 4.4 | | | 1.644 | | |
| 00 RB | 3.8 | And the state of | | 1.3(7 | | |
| | 31 | | 11000 | 1.126 | | |
| | 2.2 | | | 1.140 | | |
| | 1.7 | | | 0.905 | | |
| | 1.3 | | | 0.888 | | |
| | | | | | | |
| P5 | DS 5m | | | 2.180 | | |
| DS2 | 12 M 20 | | | 2.470 | | |
| D53 | 20 | | | 2.843 | | |
| | | | | | | |
| usl | 7 | | | 1.829 | | |
| 432 | 14 | | | 1.517 | | |
| 453 | 22 | | | 1.198 | | |
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| Notes: | | |
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| | | Sept. of |
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| Mmt: | Offset | Depth (m): | Velocity (m/s): |
|-----------|--------|------------------|-----------------|
| RB | 4,4 | | |
| B | 4,95 | | |
| 100000 | 4,5 | 0,15 | 0.098 |
| 2 | 4,6 | 0.14 | 0,283 |
| 3 | 47 | 0,16 | 0.300 |
| - | 4.8 | 0.17 | 0.232 |
| 5 | 419 | 0,16 | 0.164 |
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| Section 1 | | | |
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| S. Sileke | | | |
| | | Andrew Salakia | |
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| AVERAGE I | | | |
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| Flow Measur | ement Details: |
|------------------|----------------|
| Start Time: | |
| End Time: | |
| Method: | |
| Equipment: | |
| River Condition: | |
| Weather: | |

| Flow Measurement Notes | : |
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| Project: | CZN 6788 |
|------------|----------|
| Site Name: | KP 54.3 |
| Reach: | |
| UTM: | |

| | Initials | Date |
|------------------|----------|----------|
| Field Personnel: | CJ, DH | 21-Sep-M |
| Data Entry: | | |
| Data Check: | | |



| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
|---|-------------|---------|--|-------------|-------------------|----------|
| LB HW | 7.3 | 2.275 | | | | |
| Botton (AW | 6.8 | 2.602 | | 2.602 | E Charles and the | |
| | 6.2 | | | 2.464 | | |
| LB | 5.9 | | | 2.533 | | |
| BWL. | 5.6 | | | 3.149 | cut= 0.110 | |
| wh middle | 5.1 | | | 3.209 | = 0.195 | |
| RB WL | 4.4 | | | 3.207 | cut = 0.195 | |
| RB | 4.0 | | | 2.470 | | |
| RB HW | #\$ 2.4 | | | 2.06 | | |
| D5 | 1 10 | | | 3,546 | | |
| D52 | 22 | | Social district in the fi | 3,781 | | |
| usi | | | | 3.207 | | |
| USI | 10 | | | 3,142 | | |
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| Manual Manual Report of the Control | | | | | | 10000000 |

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| ow Measure | | T 5 11 () | T 1/1 1: / /) |
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| Mmt: | Offset | Depth (m): | Velocity (m/s): |
| RB | 午,拿3 | | |
| LB | 5,55 | | |
| | 4,4 | 0.11 | 0.036 |
| B | 4,6 | 0.13 | 0.042 |
| 3 | 478 | 0.16 | 0,038 |
| 4 | 5.0 | 0.16 | 0.046 |
| 5 | 5,8 | 0.17 | 0.035 |
| 6 | 5.4 | 0.16 | 0.003 |
| | Transaction and | | |
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| Flow Measu | rement Details: |
|------------------|--------------------|
| Start Time: | ~ 16:00 |
| End Time: | 16:10 |
| Method: | Wading |
| Equipment: | AN |
| River Condition: | LOW flow |
| Weather: | Overcast, calm, 15 |

| Flow Measu | remen | t Notes: | 1 | |
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| Project: | 6788 |
|------------|----------------|
| Site Name: | KP 39.8 SUNDES |
| Reach: | |
| UTM: | |

| | Initials | Date |
|------------------|----------|-----------|
| Field Personnel: | CT. DA | 21-SEP-14 |
| Data Entry: | | |
| Data Check: | | |



| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
|---------------|-------------------|--|--|----------------|--|-----------|
| RB HW | 2.00 | 1.351 | Carlo Carlo | | DESCRIPTION OF THE PARTY OF THE | |
| | 3.4 | | | 1.646 | | |
| | 4.6 | | | 2.057 | | Market He |
| 50000 | 10.2 | | | 2.285 | | |
| West Sale | 8.7 | | | 2.448 | | |
| | 11.9 | | | 2.468 | | |
| LIGHT WILLIAM | 15.0 | | | 2.300 | | |
| | 17.9 | | | 2.214 | | |
| | 19.2 | | | 2.229 | | |
| | 2,2 | | | 2.378 | Correct States | |
| | 24.4 | | | 2.012 | | |
| | 26.8 | | to select the select t | 1.911 | | |
| | 28.5 | Control of the second | | 1.889 | | . 1. 1 |
| | 28.7 | | | 1.945 | | |
| | 31.3 | | | 1.528 | | |
| LB HW | 32.3 | | Marine Inch | 0.979 | | |
| BREVASA. | | | | | | |
| 451 | 36 | | | 2.202 | | |
| Mary Flat | 20 | | AND THE STANCE | 2.35/ | | |
| CENTRE | 0 | A STATE OF THE STA | | 2.363 | | |
| P5 | 27 | | | 2.791 | | |
| DS 2 | 55. | | | 3,763 | | |
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| | he classification | | | | | |
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| Notes: | No water in ch | annel. | | |
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| ow Measurement: | | | | | | |
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| Mmt: | Offset | Depth (m): | Velocity (m/s): | | | |
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| Flow Measur | Flow Measurement Details: | | |
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| Start Time: | | | |
| End Time: | | | |
| Method: | | | |
| Equipment: | | | |
| River Condition: | | | |
| Weather: | | | |

| Flow Measurement Notes | <u>:</u> |
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| Project: | |
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| Site Name: | ILP 27.5 |
| Reach: | |
| UTM: | THE RESERVE OF THE PARTY OF THE |

| | Initials | Date |
|------------------|----------|------------|
| Field Personnel: | O, DA | 22- Sep-LY |
| Data Entry: | (c) | 72-Sep-14 |
| Data Check: | | |



| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
|---------------|--------|-------------------|------------------------|--|-------------------|-----------------|
| RB HW | -2.2 | 1.429 | | Entire Antaria | | 4 |
| Hom HW bank | 0.4 | | | 1.998 | | |
| botton | 1.1 | | | 2.388 | | |
| | 1.8 | | | 2.556 | | |
| RB edge | 2.7 | | | 2.556 | | No. of the last |
| have " single | 3.8 | | | 2.889 | Cut= 0.15 | No. |
| themel wat | . 4.3 | | | 3.031 | = 0,30 | |
| channel 68 | 5.3 | | | 3.023 | = 0.32 | |
| | 6.3 | | | 2.817 | = 0.08 | |
| Bedge | 8.4 | Market Burk Story | | 2.670 | | |
| 10 | 11.3 | NE STEED WINDS | | 2.453 | A ARESON YES INC. | |
| | 14.3 | | | 2.324 | | |
| bottom | 14.3 | | | 2.063 | | |
| BHW SOCK | 22.2 | | | 1.930 | | |
| LB Allew | 22.7 | | | 1.678 | | |
| DS 1 | 13 | | | 3,584 | | |
| -DS-2 | 37- | | Emiliar State Frontier | é | | |
| 1 | 111 | | | The last of the Control of the Contr | | |
| usl | 14 23 | | | 2.543 | | |
| ush | 23 | | | 2.079 | | |
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| Notes: | | | | |
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Fall Des

| low Measur | ement: | | |
|------------|--------|------------|-----------------|
| Mmt: | Offset | Depth (m): | Velocity (m/s): |
| KB | 219 | | |
| LB | 7,9 | | |
| | 3.7 | 0.14 | 0.604 |
| 2 | 4.2 | 0.36 | 0.135 |
| 3 | 4.7 | 0,26 | 0,325 |
| 4 | 5.0. | 0.21 | 0.790 |
| 5 | 6.1 | 0.15 | 0,120 |
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| Flow Measurement Details: | | |
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| Start Time: | | |
| End Time: | | |
| Method: | | |
| Equipment: | | |
| River Condition: | SERVEN STATE | |
| Weather: | | |

Flow Measurement Notes: RB to Ist measurement, no flow-boulders, Sth measurement to LB, no flow.

| Project: | |
|------------|----------|
| Site Name: | KP 154.4 |
| Reach: | |
| UTM: | |

CJ

| | Initials | Date |
|------------------|----------|-----------|
| Field Personnel: | CJ, OH | 23-54-14 |
| Data Entry: | CJ | 23-582-14 |
| Data Check: | | |



| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
|--|-------------------|-------------------------|-----------------------|----------------|------------------------|-----------|
| RB Hist HW | 0.0 | 1.565 | | | | |
| | 0.6 | | | 1.878 | | |
| 2B HW | 0.8 | | | 2.134 | | |
| WL RB | 0.9 | | 图1772 (1975) 1980 | 2.315 | cut = 0.04 | Valle 1 |
| WL | 1.3 | | | 2.335 | Cut = 0.06 | NAME OF |
| Wh | 1.55 | | | 2.356 | Cut= 0.08 | |
| INL LB | 1.85 | | | 2.326 | =0.05 | |
| LO HW | 1.9 | | | 2.142 | | |
| 8 HIST-HAT | 216 | | | 1.650 | Ve Acceleration of the | eine da |
| _B Hist, HW | 3.0 | | | 1.547 | | |
| | | | | 50754.2.184.W | | |
| D5 1 | 5.0 | | | 2,549 | | |
| 252 | 9.0 | | | 2.817 | | |
| | | | | 2148 | | |
| 451 | 7.0 | | | 2.148 | | |
| 452 | 12.0 | | | 1,879 | | |
| | | A PARTY OF THE STATE OF | | THE PARK SHAPE | | 0.000 |
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| Section 1 | | | | Alter tenant | 电影影响 人名 | |
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| ow Measurement: | | | | |
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| Mmt: | Offset | Depth (m): | Velocity (m/s): | |
| RB | | Zerot de la company | | |
| LB | 19 | | | |
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| Flow Measu | Flow Measurement Details: | | |
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| Start Time: | | | |
| End Time: | | | |
| Method: | | | |
| Equipment: | | | |
| River Condition: | | | |
| Weather: | | | |

| Flow Measurement No | otes: |
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| Project: | CZN (788 |
|------------|--|
| Site Name: | KP 122.8 |
| Reach: | CORPORATE SECURIOR STATES OF THE SECURIOR SECURI |
| UTM: | |

| | Initials | Date |
|------------------|----------|-----------|
| Field Personnel: | CJ, DH | 23-5ep-14 |
| Data Entry: | CZ | 23-Sep14 |
| Data Check: | | |



| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
|-----------|--------------|---------|------------|--------------------|----------------|-----------|
| op of LB | 0.5 | 0.812 | | | | |
| 10.00 | 1.0 | | | 1.691 | | |
| BHW | 1.25 | | | 1.381 | + | |
| Bedge | 1.2 | | | 1.545 | cut= 0.030 | |
| n channel | 1.8 | | | 1,764 | = 0.295 | |
| 1) | 1.6 | | Value 1986 | 1.522 | = 0.65 | |
| D | 2.1 | | | 1.591 | = 0,11 | |
| | 2.4 | | | 1.690 | = 0.2(5 | |
| Butch | 2.5 | | | 1.609 | = 6.14 | |
| | 2.6 | | | 1.688 | =0.21 | Sign Halv |
| RB edge | 2.7 | | | 1.199 | 5 0.72 | |
| RB HO | 2.7 | | | 1.310 | | |
| | 2.9 | | | 0.971 | | |
| Typ of RB | 3.4 | | | 0.849 | | |
| | | | | | | |
| 451 | 15 | | | 1.590 | | |
| 452 | 19 | | | 1.479 | | |
| | | | | | | |
| DSI | 6 | | | 1,963 | | |
| 052 | -3 | | | 2.089 | | |
| DS 3 | -14 | | | 2.060 | | |
| | | | | OF CHEEN ASSESSED. | | |
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| | SEPTEMBER 10 | | | | | |
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| Notes: | | | |
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| w Measur | | Donath (ma): | Valente I - I - I |
|-----------|----------------|--------------|-------------------|
| Mmt: | Offset | Depth (m): | Velocity (m/s): |
| KB | 2.8 | | |
| _B | 1.1 | | |
| | 1.3 | 0.15 | 0.003 |
| 2 | 1,5 | 0.21 | 0.132 |
| 3 | 1.7 | 0.13 | 0.123 |
| + | 1.9 | 0.12 | 0.082 |
| 5 | 2.1 | 0:13 | 0,019 |
| 6 | 2,3 | 0,24 | 0,029 |
| 7 | 2,5 | 0.18 | 0.0 |
| 01953 | | | Carle Service |
| | A SECTION PROD | | A SAN DISCOURS |
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| APP STORY | | | |

| Flow Measurement Details: | | |
|---------------------------|--|--|
| Start Time: | | |
| End Time: | | |
| . Method: | | |
| Equipment: | | |
| River Condition: | | |
| Weather: | | |

| Flow N | Neasure | ement Notes | • |
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| . 1= | | | |
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| Project: | CZN 6788 |
|------------|----------|
| Site Name: | 123.7 |
| Reach: | |
| UTM: | |

| | Initials | Date |
|------------------|----------|-----------|
| Field Personnel: | OH, CT | 23-5cp 14 |
| Data Entry: | CJ | 23-580-14 |
| Data Check: | | |



| Cross-Section | Cross-Section/Longitudinal Reach Survey: | | | | | | | |
|---------------|--|--|------------|-------------------------|------------------|---------------|--|--|
| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? | | |
| LB HOT | 0.0 | 1.527 | | | | | | |
| LB AJ | 0.0 | A RIGID LA FEITHER | | 1.572 | | | | |
| HW bottom | 0.9 | | | 1.572 | | | | |
| | 1.8 | | | 2.292 | | | | |
| LB edge | 2.6 | | | 2.449 | | | | |
| in channel | 3.3 | | | 2.605 | cut = 0.139 | | | |
| LV | 3.8 | | | 2.654 | = 6.20 | | | |
| (1) | 4.4 | | | 2.601 | = 0.14 | | | |
| 11 | 5.1 | The state of the s | | 2.707 | = 0.21 | | | |
| 11 | 5.7 | | | 2.552 | = 0.66 | Vere year | | |
| 11 | (0.0 | | | 2.703 2.758 2.681 | = 0.190 | | | |
| -ti | 6.7 | | | 2.758 | = 0.27 | | | |
| fr. | 7.1 | | | 2.68 | = 0.19 | | | |
| 14 | 8.0 | | | 2.589 | = 0.09 | | | |
| RT3 Rage | 8.7 | Black Flore Land | | 2.510 | | | | |
| Bat | 10.0 | | | 2,348 | | ABOUT SE | | |
| 18 | (1.0 | | | 2.187 | | | | |
| p | 12.5 | | | 2.306 | | | | |
| Bty Side Chan | 10b 13,4 | | | 2.716 | | | | |
| 11 | 14.2 | THE PERSON NAMED IN | | 2.816 | | | | |
| et . | 15.2 | | | 2.768 | | | | |
| 11 | 15.8 | | | 2.611 | | | | |
| BONKERB AIN | 16.0 | | | 2.437 | | | | |
| | 16.5 | | TRENESH OF | 2.087 | | | | |
| Florddain | 17.0 | | | 1,944 | | | | |
| | | | | | | dienis | | |
| USI | lle-0 | | | 2.522 | | | | |
| 452 | 34.6 | | | 2.500 | | 20120 | | |
| DS 1 | 19.0 | | \$515 BANK | 3.052 | E SAVERS THE STR | Bally and the | | |
| 052 | 40.0 | Lugar de la lacement | | 3,755 | | | | |

| Notes: | | |
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| Mmt: | Offset | Depth (m): | Velocity (m/s): |
|------|--------|---|-----------------|
| LB | 3,0 | | |
| RB | 8,85 | | |
| | 3,6 | 0.10 | 0,366 |
| 2 | 4,2 | 0.10 | 0.954 |
| 3 | 4.8 | 0.15 | 0.189 |
| - | 5,9 | 0,16 | 0.142 |
| 5 | 6,3 | 0,21 | 0,436 |
| 5 | 6.7 | 0,23 | 0,468 |
| 1 | 7,4 | 0:15 | 0.034 |
| 3 | 80 | 0.08 | 0.362 |
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| | | Name of the Party | |
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| Flow Measure | ement Details: |
|------------------|----------------|
| Start Time: | |
| End Time: | |
| Method: | |
| Equipment: | |
| River Condition: | |
| Weather: | |

| the state of the s | |
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| Flow Measurement Notes: | and the second |
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| Project: | CZN 6788 |
|------------|--------------------|
| Site Name: | KP 125.1 (Granger) |
| Reach: | |
| UTM: | |

| | Initials | Date |
|------------------|----------|----------|
| Field Personnel: | CJ, JA | 23-59214 |
| Data Entry: | | |
| Data Check: | | |



| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
|--|--------------------------|------------------------|--|---|---|--------------|
| Floodplain | 0.0 | 1.144 | | | | |
| 11 | 0.65 | | | 1.088 | | |
| HW | 1,6 | | | 1.724 | | (Alagana |
| 13 edge | 2.4 | | DECEMBER OF THE PARTY OF THE PA | 2.685 | | and the same |
| 48 edge | 5.1 | Great of the second | MARKET STOLLE | 2.467 | | haiteas |
| in channel | 6.0 | | | 2.600 | cut=0.12 | CONTRACT OF |
| 11 | 8.6 | | | 2.763 | = 0.29 | 5 |
| 11 | 7.2 | | all value of less | 2.786 | 20.20 | 7-22 |
| 1 | 7.9 | | THE PARTY OF THE | 2.758 | = 0.28 | |
| 1) | 8.6 | | | 2.608 | 3 6,11 | |
| 28 edge | 10.0 | | | 2.508 | = 0.02 | |
| As the | 10.6 11.2 | | | 2.461 | = 0.00 | |
| ð | 12.5 | | A STATE OF THE STA | 2.434 | | |
| RB AW | 13.7 | | | 2.086 | | |
| ST HO | 14.5 | Trace and the least of | | 1.520 | | |
| BALL CHARLES | | | | | | |
| usl | 24 | | | 2,508 | | |
| US2 | 33 | | | 2.545 | | |
| | | | | | | |
| DS 1 | 18 | | | 2.722 | Part Part Control | |
| D52 | 33 | | | 3.068 | | |
| | | | | | | N accept |
| 8111 | | | to be the second | ACCOUNT NOW AND ADDRESS OF THE PARTY OF THE | B 15 16 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18 | |
| A STATE OF THE STA | | | | | NEW TOTAL PLAN | |
| | | | | | of the second second | |
| | Programme and the second | | | 100000000000000000000000000000000000000 | of the second second | 31 74 (4) |
| | | | | William Contact to | The West | Harris Co. |
| | | TO REPORT OF SEC. | | | | |
| 196 | | | A TOP HEAD | | | |
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| Notes: | | | | | | |
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| low Measurement: | | | | | |
|------------------|--------|------------|-----------------|--|--|
| Mmt: | Offset | Depth (m): | Velocity (m/s): | | |
| LB | 5,2 | | | | |
| RB | 10:0 | | | | |
| 1 | 6.3 | 0.16 | 0/112 | | |
| 2 | 65 | 0,20 | 0,025 | | |
| 3 | 6,7 | 0,25 | 0/163 | | |
| 4 | 6.9 | 0,27 | 0,370 | | |
| 5 | 7.1 | 0,25 | 0,426 | | |
| 9 | 7,3 | 0,28 | 0.485 | | |
| 7 | 7.5 | 0,24 | 0.540 | | |
| 80 | 7.7 | 0,25 | 0,530 | | |
| 0 | 79 | 0119 | 0.462 | | |
| 0 | 00 | 0.18 | 01320 | | |
| 11 | 8.45 | 0,06 | 0,191 | | |
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| Flow Measur | ement Details: |
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| Start Time: | |
| End Time: | |
| Method: | |
| Equipment: | |
| River Condition: | |
| Weather: | |

| Flow Measure | ment Notes: | 1 0 0 0 0 0 |
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|------------|-----------------------------------|
| Project: | CZN 6 188 |
| Site Name: | Kb (22.4 |
| Reach: | |
| UTM: | de transfer and the second second |

| | Initials | Date |
|------------------|----------|-----------|
| Field Personnel: | CJ, PH | 24-54p-10 |
| Data Entry: | CJ | 24-5ep-14 |
| Data Check: | | |



| Cores Coction | /Longitudinal Reach | Survey: | 111/11/11 | FS (m): | Elevation (m): | Photo |
|---|--|------------------------|--|--|----------------|--------------|
| Cross-Section, | Offset | D3 (111) | HI (m): | TO THE WAY A STATE OF THE PARTY | | |
| Mmt: | 0.90 | 1.224 | | 1.673 | | |
| TOP RB | 1.4 | | | 1.858 | | |
| RB HW | 1.45 | | | 1.964 | aut = 0.14 | |
| RB edge | 1.6 | | | 1.871 | = 0.04 | |
| in channel | 1.7 | | | 1.936 | = 0.095 | |
| The state of the state of | 1.9 | | | 2.014 | = 0.18 | |
| 11 | 2.0 | | | 1.968 | =0.14 | |
| | 2.3 | | | 1.983 | = 0.16 | |
| - 11 | 2.6 | | | 1.889 | = 0.05 | |
| (1 | 3.0 | | | 1.651 | | |
| 13 edg | 3.05 | | | 1.308 | | |
| Ray 7 | 3.5 | | | 1,500 | | |
| 7 | 3.0 | 700 四条 100 生态 | | 1.8931.9 | 13 | |
| 112 1 | 610 | | | 1.95 | | |
| USI | 11.0 | 43 (4) (4) (4) (4) (5) | | 2 | | No. |
| 452 | 10 | | | 2-1-1 2.4 | 12 | |
| 7 5 1 | 5.0 | | | 2.947 | | |
| DS 1 | 8.0 | | | | | |
| D52 | O Lebe | | | | | |
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| | Maria Care Care Care Care Care Care Care Car | | | | | |
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| (0.4)(2.10=3.10 | | SU THE PERSON | | FRANK NAMES N | | |
| | | | THE RESERVE OF THE PARTY OF THE | | | |
| THE REAL PROPERTY. | | | | | | |
| W. C. | The state of the s | | and the second second | | | THE PARTY OF |

| tes: | | |
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| Mmt: | Offset | Depth (m): | Velocity (m/s): |
|-------------|--------|-----------------------------|-------------------|
| LB | 3.05 | | velocity (III/S). |
| RB | 1.4 | | |
| | 2.1 | 0.06 | 0.000 |
| 2 | 2,35 | 0.13 | 0,093 |
| 3 | 2,6 | 0.11 | |
| 4 | | | 0.063 |
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| | | | Statement of the |
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| Allega - ba | | | |
| | | | MANUAL PROPERTY. |
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| | | Many State of the Discourse | |
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| Flow Measurement Details: | | |
|---------------------------|---|--|
| Start Time: | 4-17-18-December 18-18-18-18-18-18-18-18-18-18-18-18-18-1 | |
| End Time: | Mark Translation | |
| Method: | | |
| Equipment: | | |
| River Condition: | THE SHEET STATES | |
| Weather: | | |

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| Flow Measurement | |
| 1000 | ALE CHAIN |
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| Project: | CZN 6788 | | |
|------------|----------|--|--|
| Site Name: | KP 87.7 | | |
| Reach: | | | |
| UTM: | | | |

| | Initials | Date |
|------------------|----------|-----------|
| Field Personnel: | 4,84 | 24-549-14 |
| Data Entry: | CI | 24-54-14 |
| Data Check: | | |



| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
|------------|--------|-------------|-----------|------------------|--------------------|-------------|
| BTOP | 2.7 | 0.536 | STATES TA | A STATE OF STATE | | |
| B HW | 3.6 | | | 0.982 | | September 1 |
| Bedge | 4.5 | | | 1.478 | is possible of the | |
| whete | 10:3 | | | 1.501 | | |
| channel | 14.9 | | | 1.567 | cut = 0.03 | |
| 0 | 17-0 | | | 1.671 | = 0.01 | |
| N | 19.8 | (美国市 G 生) | | 1.774 | = 0.18 | |
| N N | 22.5 | | | 1.817 | = 0.02 | |
| - FI | 23.2 | Section 1 | | 1.840 | = 0.23 | |
| 11 | 24.5 | | | 1.748 | = 0.16 | |
| 1) | 25.8 | | | 1,779 | = 0.20 | |
| | 26.3 | | | 1.841 | = 0.26 | |
| LB W Edge | 26.6 | | | (.825 | = 6,24 | |
| BHW | 26.6 | | | 1.166 | | |
| 100 | 27.6 | | | 0.065 | | |
| Sp Charles | 28.0 | | | 0.048 | | |
| | | | | | | |
| USI | 23 | | | 1.550 | | |
| USZ | 39 | | | 1.529 | | |
| | | | | | | |
| 120 | 18 | | | 2.06 | | |
| 552 | 43 | | | 2.467 | | |
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| 944,4 | | | | | | |
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| <u>Notes:</u> | | |
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LB

| Mmt: | Offset | Depth (m): | Velocity (m/s): |
|------|--------|--|-----------------|
| RB | 9,9 | | |
| B | 26,6 | | |
| | 16,3 | 0.05 | 0,753 |
| 2 | 17,3 | 0112 | 0,678 |
| 3 | 18,3 | 0.13 | 0,788 |
| 4 | 1913 | 0112 | 0,952 |
| 5 | 20.3 | 016 | 0.688 |
| 6 | 21.3 | 0,16 | 0,747 |
| 7 | 22,3 | 0,16 | 0,934 |
| 3 | 23,3 | 0119 | 0,424 |
| 9 | 243 | 0.15 | 0,44-5 |
| 0 | 25,3 | 0.14 | 0.355 |
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| | | N. S. C. | |
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| Flow Measurement Details: | | |
|---------------------------|--|--|
| Start Time: | | |
| End Time: | | |
| Method: | | |
| Equipment: | | |
| River Condition: | | |
| Weather: | | |

| Flow Measurement N | Votes: |
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| Project: | CZN 6788 | | | | |
|------------|--------------------------|--|--|--|--|
| Site Name: | old Road at Tetcela Trib | | | | |
| Reach: | | | | | |
| UTM: | | | | | |

| | Initials | Date | |
|------------------|----------|-----------|--|
| Field Personnel: | CJ, BH | 24-Sep-14 | |
| Data Entry: | a | 24-529-14 | |
| Data Check: | | 5 + V. | |



| 101011 | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
|----------------|--------|--|--|---------|----------------|--------|
| LB Top Bank | 0.0 | 1.178 | | | | |
| | 0.3 | | | 1.425 | | |
| LB HW | 0.5 | A TOTAL MARKET | | 1.879 | | |
| LB We edge | 11 | Part Control | | 2.249 | | |
| in channel | 2.5 | Service of the servic | e de la companya de l | 2.525 | Cut = 0.27 | |
|) · | 3-6 | | | 2.615 | = 0.36 | |
| 11 | 4.3 | | | 2.653 | =0.41 | |
| RB WL edge | 60 | The Commission | | 2.249 | | |
| gravel box | 7.4 | | | 2-010 | | |
| 1 | 10.4 | | | 1.877 | | |
| ıl | 11.6 | | | 1.525 | | |
| 11 | 13.0 | | | 1.499 | | |
| BAU | 13.6 | | | 1.838 | | |
| Wedge. | 14.3 | | | 1.952 | | |
| in side channe | (15.3 | | | 2.046 | =0.09 | |
| - 11 | 15,9 | | | 2.133 | = 0.17 | |
| BB Wedge | 16.6 | | | 2.028 | | |
| RB HW | 16.75 | | | 1.585 | | |
| | 16.85 | | | 1.395 | | |
| RB TOP Bank | 17.2 | | | 1.295 | | |
| | | | | | | |
| 451 | 17 | | | 2.227 | | |
| 452 | 25 | | | 1,65 | | |
| | | | | | | |
| DS 1 | 14 | All Services | | 2.471 | | |
| DSZ | 32 | | | 2,690 | | |
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| <u>ivotes:</u> | | - 4 | | | - 10 | | |
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| Flow Measurement: | | | | | |
|-------------------|----------|--|----------------|--|--|
| Mmt: | Offset | Depth (m): | Velocity (m/s) | | |
| RB | 6,0 | | | | |
| LB | 1.05 | | | | |
| 1 | 17 | 0,09 | 0.033 | | |
| 2 | 2.1 | 0.08 | 0,023 | | |
| 3 | 2.6 | 0,28 | 0.039 | | |
| 4 | 2.95 | 0,28 | 0.04-2 | | |
| 5 | 3,5 | 0,32 | 0.074 | | |
| 6 | 3,8 | 0,39 | 0.103 | | |
| 7 | 4.3 | 0,39 | 0.082 | | |
| 8 | 4.85 | 0,24 | 01101 | | |
| 9 | 5,4 | 0,16 | 0.111 | | |
| #F | -4-3- BA | R | 0.010 | | |
| 10 | 15,1 | 0.05 | 0,018 | | |
| RB | 1613 | TO STATE OF THE ST | | | |
| LR | 14.3 | | | | |
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| Flow Measurement Details: | | |
|---------------------------|--|--|
| Start Time: | | |
| End Time: | | |
| Method: | | |
| Equipment: | | |
| River Condition: | | |
| Weather: | | |

| Flow Me | asurement Notes: | |
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| FIOW IVIE | usurement Notes. | |
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| Project: | CZN 6788 |
|------------|------------------------------|
| Site Name: | old Road at Tetcela mainsten |
| Reach: | |
| UTM: | |

| | Initials | Date | |
|------------------|----------|-----------|--|
| Field Personnel: | H4,0 | 24-5ep-14 | |
| Data Entry: | C1 | 24-5ep-14 | |
| Data Check: | | | |



| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
|----------------|----------------------------|---------------|---------|---------|----------------|----------|
| RB top Bank | 0.6 | 0.806 | | | | |
| NICH IS | 2.2 | | | 1,183 | | |
| 213 44 | 2.9 | | | 1.515 | | |
| 28 WLedge | 7.8 | | | 2.140 | | |
| n channel | 11.7 | | | 2.248 | cut = 0,100 | |
| 11 | 13.6 | | | 2.292 | = 0.15 | |
| (1 | 17.4 | | | 2.339 | = 0.20 | HANGE CO |
| 11 | 20:2 | | | 2.401 | = 0.28 | |
| 1) | 21.9 | | | 2.374 | =0.26 | |
| 8 WL edge | 23.1 | | | 2.127 | | |
| 13 HW | 24.3 | | | 1.789 | | |
| | 26.0 | | | 1.342 | | |
| B Top Buk | 26.0 | | | 1.259 | | |
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| D5 1 | (6 | | | 2.339 | | |
| 752 | 31 | | | 2.555 | | |
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| usl | 19 | | | 2.432 | | |
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| Mmt: | Offset | Depth (m): | Velocity (m/s): |
|-----------|--------|------------|-----------------|
| B | 7,9 | | |
| B | 22.9 | | |
| | 9,2 | 0,05 | 0,173 |
| 2 | 10.7 | 0.06 | 0.362 |
| 3 | 1119 | 0,14 | 0.315 |
| 4 | 13.2 | 0.13 | 01534 |
| <u>VI</u> | 14.6 | 0,18 | 0,513 |
| 0 | 15.9 | 0.14 | 0.549 |
| 1 | 16.9 | 0116 | 0.525 |
| , | 7.9 | 0.17 | 0.578 |
| 1 | 18,9 | 0,20 | 0.636 |
|) | 19.9 | 0,22 | 0.680 |
| | 20,9 | 0,21 | 0,576 |
| 2 | 21.9 | 0,20 | 0.451 |
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| Flow Measurement Details: | | |
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| Start Time: | | |
| End Time: | | |
| Method: | | |
| Equipment: | | |
| River Condition: | | |
| Weather: | | |

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Hatfield Consultants Hydrometric Visit Fieldsheet

| Project: | CZN 6788 |
|------------|-------------------------|
| Site Name: | KP 135, 6 (GRAINGER TEL |
| Reach: | |
| UTM: | |

| | Initials | Date |
|------------------|----------|-----------|
| Field Personnel: | CI DH | 25-54-14 |
| Data Entry: | CI | 25-Sep-14 |
| Data Check: | | |



| Mmt: | /Longitudinal Reach Offset | BS (m): | HI (m): | TC (m) | Elevation (m): | Photo? |
|-----------------|-------------------------------|------------------|--------------------|----------------------------------|------------------|--------|
| | | | mi (m): | FS (m): | Elevation (III): | Photor |
| Top LB | 0.6 | 1.819 | | | | |
| 48 AW | 1.25 | | | 7.39s | ~ | |
| wheelige | 1.3 | | | 2.6431 | cut = 0.095 | |
| in channel | 1.5 | | | 2.592 | = 0.055 | |
| RB edge | 1.8 | | | 2.395 2.592 2.565 2.338 | = 0.025 | |
| たり、 | 1.8 | | | 2.338 | | |
| | 2.3 | | | 1.800 | | |
| RB TUP | 2.8 | | | 1.563 | | |
| | | | | | | |
| 551 | 6.0 | | | 2.885 | | |
| 752 | 1.0 | | | 3,176 | | |
| | | | | | | |
| 451 | 5.0 | | | 2.154 | | |
| US 2 | 10.0 | | | 1.995 | | |
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| Mmt: | Offset | Depth (m): | Velocity (m/s): |
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| RB | 119 | | |
| B | 1.0 | | |
| | 1,6 | 0.10 | 0,104 |
| 2 | 1.8 | 0,036 | 0.229 |
| 3 | 13 | 0,103 | 0,212 |
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| Flow Measurem | nent Details: |
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| Start Time: | |
| End Time: | |
| Method: | |
| Equipment: | |
| River Condition: | |
| Weather: | |

| Flow Measure | ement Notes: | |
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Hatfield Consultants Hydrometric Visit Fieldsheet

| Project: | CZN 6788 |
|------------|----------|
| Site Name: | KP 136.7 |
| Reach: | |
| UTM: | |

| ** IL | Initials | Date |
|------------------|----------|-----------|
| Field Personnel: | CI, DH | 26-54-14 |
| Data Entry: | CT | 26-540-14 |
| Data Check: | | |



| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
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| Top LB | F.0 | 1.340 | | | | |
| HW | (.05 | | CONTRACTOR OF | 1.708 | | |
| whedge | (. (| | | 1.828 | aut = 0.05 | |
| in channel | 1.35 | | | 1.891 | = 0.015 | Transista |
| rl . | 1.6 | | | 1.878 | = 0.065-0 | J 0.1 |
| whedge | 1.8 | | | 1.830 | =0.05 | |
| KU | 1.9 | | | 1.691 | | |
| TOP RB | 2.1 | | | 1.550 | | |
| | | | | | | |
| usl | 4.0 | | | 1.675 | | |
| US 2 | 8.0 | | | 1.118 | | |
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| D5 1 | 5.0 | | | 2.146 | | |
| D52. | 8.0 | | | 2.610 | | |
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| Flow Measur | Flow Measurement Details: | | | | |
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| Start Time: | | | | | |
| End Time: | | | | | |
| Method: | | | | | |
| Equipment: | | | | | |
| River Condition: | | | | | |
| Weather: | | | | | |

| Flow Measuren | nent Notes: | |
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| 19.4 | | |
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Hatfield Consultants Hydrometric Visit Fieldsheet

| Project: | CZN 6788 |
|------------|----------|
| Site Name: | 16 131,3 |
| Reach: | |
| UTM: | |

| | Initials | Date |
|------------------|----------|----------|
| Field Personnel: | CJ, SH | 26-5ep-1 |
| Data Entry: | CJ | 26-Sep-1 |
| Data Check: | | |



| Mmt: | Offset | BS (m): | HI (m): | FS (m): | Elevation (m): | Photo? |
|---------------|---------------------|---------|---------|--------------------|-----------------------|-----------|
| LBTop | 0.75 0.5 345 [.] | 1.518 | | | | |
| | 345 [.] | | | 1.702 | | |
| HU | 1.5 | | | 2.099 | | - |
| It edge | 1.55 | | | 2.357 | cut = 0.05 | |
| in change | (.9 | | | 2.439 | = 0.12 | |
| lv. | 2.0 | | | 2,433 . | = 0.13 | |
| ul'edge | 2.45 | | | 2,368 | = 0.02 | |
| HW | 2.85 | | | 2.127 | | |
| AB TOP | 3.2 | | | 1.831 | | |
| | | | | | | |
| DSI | 8.0 | | | 2.699 | | |
| D5 2 | 15.0 | | | 2.943 | | |
| | | | | | | |
| usl | 5.0 | | | 1,956 | | |
| us2 | 11.0 | | | 1.395 | | |
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| В | 2,4 | | |
| 1 | 1.7 | 0.09 | 0,091 |
| 2 | 1.85 | 0110 | 0,007 |
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| Flow Measure | ment Details: |
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| Start Time: | |
| End Time: | 1-4-05 |
| Method: | |
| Equipment: | |
| River Condition: | |
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Attachment D
Scanned Field Note Book

| | | | CZN 6788 25 July 14 1 |
|------|-----------|------|--|
| | CONTENTS | | Pupose: Trip up to mine. |
| PAGE | REFERENCE | DATE | Left Vancouver @ 9-15 on |
| | | | central mountain air. Transferred |
| | | | to Villers early afternoon. |
| | | | Arrived @ mine before dinner. |
| | · | | Dave + I on CMA, Farnie + |
| | · | | - Brian (road engineering technitions) |
| | | | joined us @ Ft Nelson, Garry |
| | | | 5 scringeour armed at dinner. |
| | | | General safety orventation |
| | | | and ATV orientation |
| | | | Talked wy Garry after Linner |
| | | | Eat about plan tomowow, |
| | | | |
| | | | Calibration of 02-2907 AK |
| | | | pre post 23,1 |
| | | | 7.01 6.63 7.11 |
| | | - | 4.01 3.88 3.96 |
| | · . | | 1413 1245 1415 |
| | | | 02-4776AJ |
| | | . 6 | pre post 23.4 |
| | · | - | 7.01 6.87 6.7.01 |
| | · | | 4,01 4,09 3,97 |
| | | | 1413,5 1170 1415 |
| | | | calibration solution into -2 |
| | | | TW Rite in the Rain |

CZN6788 25 JW5 14 Hanna Calibration sachels CZN6788 Purpose: Cabin Sampling on pH4.01 Lot 6406 Exp 07 4628 EXP 06 17 Prame 1413 µS/cm 6111 Exp 05 18 Crew: John W + Garry S. weather: Clear, coolin morning leaving warehouse @ 8 AM started d/s of mm closest to Harrison, so we were close to mine in case we forgot anything Sittle Parks Site 43 ~ 3,1 km of and then proceeding to site 46 and site 44, which is just upstream of the confluence with Galeena Ck (which is also on the opposite side of prairie), All sites had very low periphyton densities, Finished about 2pm. For the benthos used the bucket mace approach, discording the heavy sound gravel substrate Next sampled 47, which is located at the southern TW 42-49 Rite in the Rain

26 July 19 8 26 July 19 (A) CZN 6788 CZN6788 most corner of the water Perophyton was still very storage pond. Then 73, low, but slightly higher then most d/s locations. which was just 4/5 of the AEMP reference location This site may also received some influence from a trib. while at the site, walked Noted "dr Seuess" flowers upstream to last years sampling in blune in Flood plain. location and noted a change Vever seen these before, substantial increase in suggesting that warm day perphytion dansity on rocks. 13PC-Ref is just upstream of summer thus far, may be advancing growth / maturity a confluence of a small stream. Water appears to be entering of local natural systems; Brainie Creek through coarse Took a photo, material u/s of the confhere. Garry noted damp soil + water, between rocks on left bank of practice, apparently from the trib. Garry suggested assissing nutrients from the trib and prairie in a couple locations in an attent to characterize natural, variability of meterents in Prairie Ck. Next Str 72 ~1 km 5 of Casket Ck,

_ 27 JULY 14 (I) CZN6788 CZN6788 .27 July 14 WP 11 Catcamp 731569 Km 43 Crossing WP 012 Purpose: First day of Road assessment - 5undag to cat camp + Polge (Bubbling WP13 AT Trib to Sundag Springs) Ck. Electrofishor sunday + net/trap mosquito long Shute a 75m S Photo + Photo north Crew: John, Dave, Gary + Jon ~ 150 m long agars + back coloned cliff 10°shpe ~ 12° further upstream in Electrofishing Settings used in past last year 425v + 25v 30HZ chute Duty cycle 12% (New!) WP 14 Down strea poul) US: sculpin-400V 50HZ 20DC Dave saw Fish ~ 10cm Trout - 40 HZ upstream of pool ~10° Furthest D/S point Km 44 look at potential migration barrier prefer culvert over bridge. WP15 Km 35-38 - possible re-allignment, shocking here. WPIF Trib to Polge Ububbly springs) Km 24 - falls 1215 @ Sundog Ck reallignment up 10 drop of electrofish location #1 gear. ~ Km3. 221 MS (AJ) 44 fish migratur barner . 47-49 all grant 260 n Stein AVR 8,68°C

27 July 14 CZN6788 27 July 14 (9) CZN6788 up stream viffle flows I depths 99.4% 11.83 mg/L Do meter (AJ) pH8,63, 7,4°C 233,45 50 075 40cm bottom 75% Do titration 10.2 mg/L 10) 76 CM. second sunday teallign site 159 Mis 25 32cm Location B 46cm Top wpt 025 426 255 6829318 Bottom 25 28 .92. Bottom upt 026 426323. 50 32 ,20 6829305 42cm End ~ 1635. Pilot late picking us up -DO on meter 11,20 mg/L decided to send just Garry + Dave to Sunday trib to 10,8 mg/L Do fritation electrofish 1730-1815 back @ camp about 1835 WP22 Sunday goesto For the Sunday allignment ground locations, Jon and + did Second sunday site habitat sheets, while Garry + Dave electrotished Top WP023 476356 6829278 Botton WP024 426418 1348 sec A sunday 1, site A 6829265 ARGR FL (mm): 190, 183, 184, 192 Cond 268,5/9,1°C/7,40 SLSC FL (mm): 81, 92, 93, ? (Ak)

(10) CZN6788 27 July 14 28 July 14 CZN6788 Purpose: - habitat ass @ Polje Settings for Sites A+B 1+2 5001, Freq:50 Creek crossings + assess tribs. Trapping near outlet For the Sunday Alligament, site of mosquito. + Flying much of road alligment where ds location (A) - no fish 327 sec crosthere are crossings Crew: - Dave H, Gary S, Jonathan For trib to Sunday Crisited earlier To John W. in day) Broken high overcast took off 724 sec wp 27 (431594/6829949 to wp 28 (431514/6829743 Road allignment from air photos assume sinusosity of 2.0 2,5M WP28 assume wetted width Picked up gear (nets + traps) + Iropped at "Ing" lake near polyick - then dropped two people in at a time to Polgi Ck. ~ Km 53 wit 28, 13 landing spot created / pg landrag pad. Walked to two small tobs to west - second tob

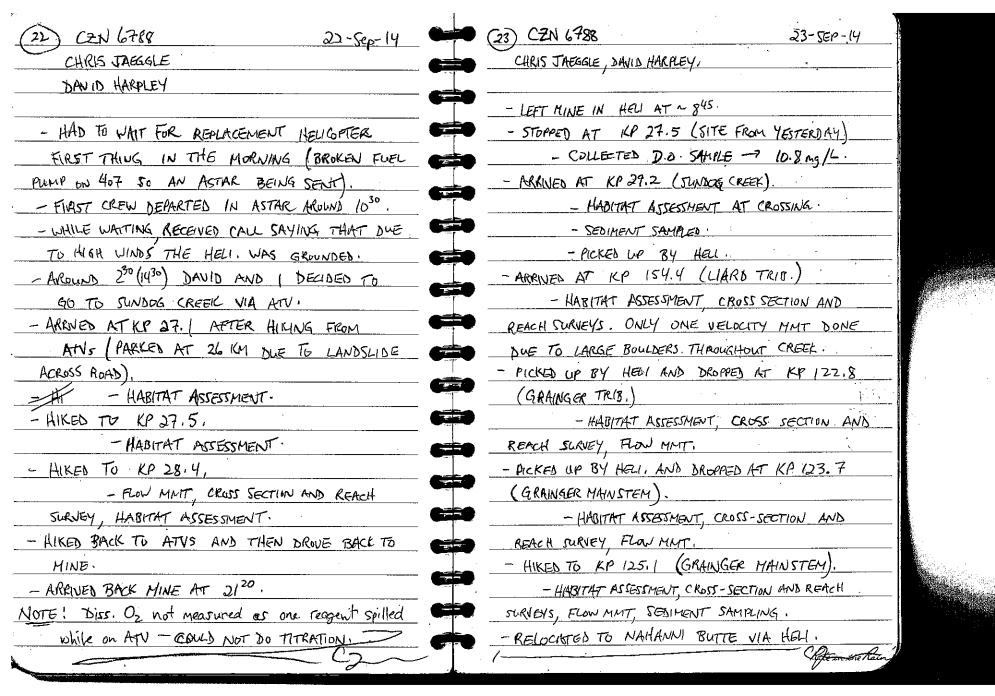
28 July 14 28 July 14 (13) CZN6788 CZN6788 WP 34/35 likely grown dot on map not flowing + no defined chamel glos moss, sed shrubs t holes w/ dogs, walked further last 4 photos MP40 100 m to confirm that Second chamel was not missod Polgres Tetsela - last photo (hp29, 277 m from landing 5/2) Amon, Photo WINES Crossnex Next photos second trossing Lab tea , dworf spruce, lichen, moss, horse toul. Larch (?) 2nd stream West WP30 Fishtrap-last few + next photo WNES (before this photo) WP 42 Flow ~ 0.02 m/s (garry's estrate Following road ball looking for Pen: 20,3°C 589,15. PH8,08 45 I (Do calibrated) 19,700 11,3 mg/L tribs WP B3 Small defined channel 124° 2025 at pH 8,54, 476 ms < Im wide Water striders noted on Surface Gary said that they are a WP 34/35 larger trib gugte encised dead + falling tracs good indicator for Fish absence. in chanel since they get hammered by Fish, Gary also believes that WP36 small defined chamel 2 Im Wide DO of Fish Trap would be - WP 37 another small chamel much loweres in at sight when 1 he 1 4029 before agnotic plants start using last 3 photos WP39

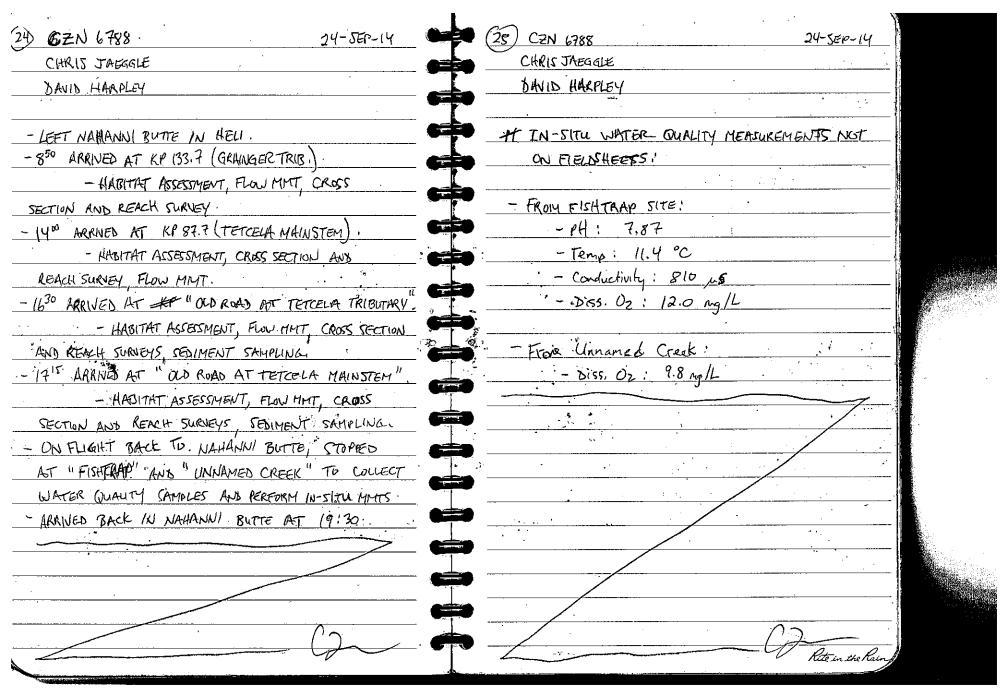
(ZN6788 28 July 14 29 July 14 CZN6788 Purpose: Flying road east sampling site WP 043 of park to characterize Bank height ~ Im DO titration 9,8 mg/L 4 crossings 1345 Fmish + Fish cut - collected nets + minnow traps Crew: John W, Dave, H + Brian & Earnie from All Month on way back, - Took multiple photos of wall sundog creek reallygment Broken cloud - 86% Departury 8 AM. - Back a camp ate lunch + downloaded photos. using the camera w/ gps - went out w/ Dave to look Road engineers looking at Tetsela @ casket ck comp habitat + Fish Krap upened up some channels, Exploring hew route east of silent holls, higher, saw a young grizzbay. elevation: less smaller Then to water storage pond. Stream crossnys (Photo before) took 4 cores for geoteck + after - draws, but brush too purposes, donse to see water -> Grange gap + back two large moose, then strean ~ 3-4m wide. new route is close to 104+ Km/0 but further west - prefer top of ridge to hall side - East Stopes typically more unstable

CZN 6788 29 July 14 (H) (b) CZN6788 29 July 14 Checking out an strip From refuting will take a look at 2 wetland crossings 05 Inlet to Grager Lake welland lots of beaver dans instream veg. Flow not some comes from beaver imponded take some liffle + some lost of comectally, from swanpy low flow (in moddle), Theen observed in some locations Down Stream granger gap river - crossing to south -Granger gap dropped off + CYOSEN). walking west to culvert Wr56 KN137 crossing of wet land 138 WP 47 52/5 as close as WP57 detred chance we can get to charmel 2 lm south of Granger Lake, dry 5 trear wet don't have waders on. 60 small stron 0948, May take road south outwash from slope to avoid chavel from Carrage Hake chamel + bottom of Fan Refuly agai at 1227 - Signs of beaver activity (trails) 1249 take off + mose foot puts 54 - Fan - mostly dry except Start 138KM 141/2 km (took photo of po near Granger Some 50 Surface flow Glow of Gronger appears to Souble up 062 bridge Last proto 16 in 151 - mostly as it passes fan = lots of sub dry fan - some standry swrace flow. on south side flow come out water amongst tall trees. from draw next to cliff wf 055

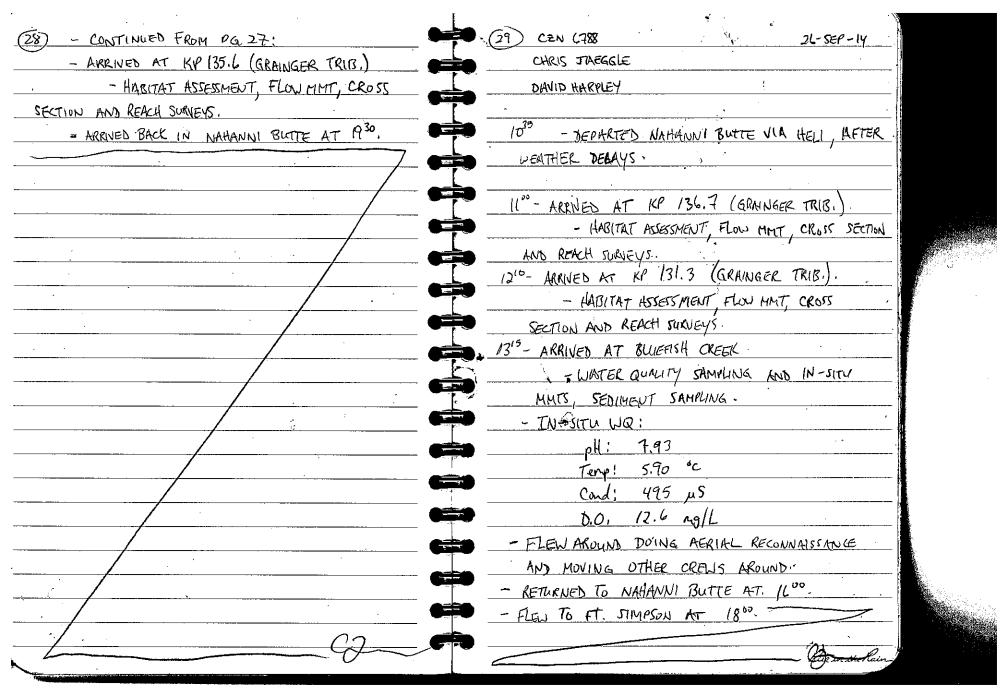
29 July 14 CZN6788 Battery just about dead on blue Cemera 144 km wp 65 < 154kp Just downstream in words Km 163 Wessey UF Irand CHUSSIAN 12m 16th Km 168.4 Km1722 1430 - finish w/ helicopter wait till 1680 for Islander out of Nahanni Bute 1700 take Off on Ne 1830 mountar timo overnight in Fort Nelson 15,15 pacific 1 1315 pacific Flight (contra) montan air) home next Rite in the Rain

| | 1 | (U) | | |
|-------------------------------------|-----------------|--|---------------------|---------------|
| (20) CZN 6788 | 21-5EP-14 | - PICKED WY BY HELL. | | |
| CHRIS THEGGLE | | - ARRNED AT KP 39.8 (SUNDOG) | | |
| DAVID HARPLEY | | - COMPLETELY DRY, INCLUDING | SUNDOR MAIN | |
| - DEPARTED MINE AT 8:30. | | CHANNEL. | | |
| - ARRIVED AT KP 50.2 (TRIBUTAR | Y TO POLITE | - CROSS SECTION AND REACH JU | irveys, | |
| -FLOW MMT CROSS SECTION AND REA | , | - PARTIAL HABITAT ASSESSMENT (| SEE FIELD SHEET). | |
| - HABITAT ASSESSMENT | | - COLLECTED SEDIMENT SAMPLES. | | |
| | | - RETURNED TO MINE AT 19:00. | | |
| - MARNED AT KP 49.1 CRUSTAG (PO | ILJIE TRIB.) | | | |
| - NO ASSESSMENT NEEDES - | , | | · · | |
| GOES INTO GROUND (WHER SLUNGHED B | | | | in the Carlot |
| FISH BEARING CREEK! | | | | |
| | | | | |
| - ARRIVED AT KP 49.4. | | | | |
| - NO VISIBLE WATER FLOWING IN | YTO MAIN | | • | |
| POLITE CHANNEL - NO ASSESSMENT. | | | | |
| - PICKED UP BY HELICOPTER. | | | | |
| | | | | |
| -ARRIVED AT KP 46 | | | 1 | |
| - NO WATER - NO ASSESSMENT | | | | Š. V. S. C. |
| - ARRIVEN AT KP 47. | | | | |
| - FLOW HMT, CRUSS-SECTION AND REA | ACH SURVEY | | ··· | A PROPERTY. |
| - HABITAT ASSESSMENT | . 5.7 | | | |
| - ARRNED AT HELES KP 54.3 (POWE MI | tin channel). | | | |
| - FLOW MMT, CROSS SECTION AND C | HUNNEL SURVEYS. | | | |
| - AKRIVED AT 54.4. | | | | |
| - SEDIMENT SAMPLING. | | | of Rite in the Rain | |
| | | And the second s | | |





| (2C) CZN C788 | 25-52p-14 (27) | 7 CZN 6788 25-5e0-14 |
|---------------------------|----------------|--|
| CHRIS TAEGGE | | CHRIS JAEGGLE |
| DAVID HARDLEY | | DAVID HARRIEY. |
| LIARD RIVER US RB SHEVEY. | | |
| | | - 8'D DEPARTED NAHANNI BUTTE VIA HELI. |
| MMT READ WAS | No FE | - WEATHER DICTATED THAT WE RETURN, DUE |
| TUP AB - 3.5 0.081 _ | | TO LOW CEILING AND LOWTEMP (FREEZING RAIN POSSIBLE). |
| -19 0.474 | | |
| 14W -1.3 0.989 | | BECIDES TO PERFORM LINES BATTYMETRY SURVEY |
| 1,3.8 2.009 | | INSTEAD OF HELL SITES DEPARTED VIA BOAT |
| 13 3.199 | | 1/1/ROUND 1030. |
| 24 4.725 | | - PERFORMED BATHYMETRY OF CROSSING (AND |
| JL 38 6.071 | | ODTIONAL) AREAS WITH DEPTH SOUNDER. |
| | | - DEPTH SOUNDER OFFSET = 0.148 m |
| LB SCRUEY | | PERFORMED BANK SURVEYS ON LB AND RB OF |
| The HW - 10 0.161 | | MAIN PROPOSED CROSSING AREA (SEE DATA ON PG 25). |
| 0.2 1.613 | 6 | DURING BATHYMETRY SURVEY ALSO RECORDED |
| 2.0 2.233 | | MULTANEOUS PHOTOS AND GRS WAYPOINTS (LASELLED" |
| 7.0 3.610 | | 18 to 198", |
| 17 4.971 | | RETURNED TO NAHANNI BUTTE AROUND 1430. TO |
| *WL 1.35 5.174 | | NAIT OUT WEATHER |
| | | JEATHER LIFTED ENOUGH AND DEPARTED IN HELL AT 1630. |
| | | ARRIVED AT KP 144.7 (TRIANGLE LAKE OUTLET). |
| | | - FROM OUTLET PAST CROSSING IS HIGHLY BEAVER |
| | | IPOUNDED AND IMPASSABLE FOR FISH - SEE PHOTOS, |
| | c) | - NO ASSESSMENT FOR HABITAT, FLOW, ETC. |
| | | Kite in five Rain |



Attachment E

Hydrometric Station Cross-Section/Reach Survey Field Record

 Site Name:
 KP 28.4 (Sundog Creek)

 UTM Location:

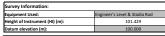
 Visit Date:
 September 22, 2014

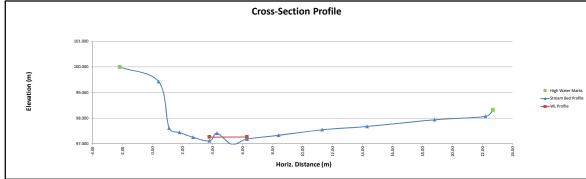
 Visit Time:
 16:30

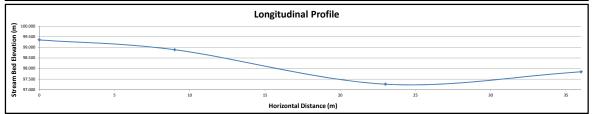
| Intel 8: RB High Water Mark BB High Water Mark Sep Bottom 1 1 2 RB W Ledge Channel Bed 92 W # 81 Channel Bed 92 W# 82 Channel Bed 92 W# 82 Channel Bed 93 W# 84 LB W Ledge 3 4 LB High Water Mark LB High Water Mark LB High Water Mark | 7fset - 2.20 0.40 1.10 1.80 2.70 3.80 3.80 4.30 4.30 5.30 5.30 6.30 6.30 8.40 11.30 13.80 13.30 22.20 | BS (m): 1.429 | FS (m): 1.998 2.388 2.536 2.745 2.889 3.031 3.023 2.817 2.670 2.453 2.324 2.063 | 0.150 0.300 0.320 | Elevation (m): 100.000 99.431 97.612 97.644 97.255 97.111 97.261 97.411 97.711 97.721 97.729 97.297 97.283 |
|---|---|------------------|---|-------------------------|--|
| R8 High Water Mark Step Bottom 1 R8 Wt. edge Channel Bed #1 Wt. #1 Channel Bed #2 Wt. #2 Channel Bed #3 Wt. #2 Channel Bed #3 Wt. #3 Channel Bed #3 Wt. #3 Channel Bed #3 Wt. #3 Channel Bed #4 A | 0.40 1.10 1.80 2.70 3.80 3.80 3.80 4.30 5.30 6.30 6.30 8.40 11.30 14.30 18.80 | 1.429 | 2.388 2.556 2.745 2.889 3.031 3.023 2.817 2.670 2.453 2.324 | 0.300 | 99.431 97.612 97.444 97.255 97.111 97.261 97.411 96.977 97.297 97.293 97.283 97.263 97.330 97.547 |
| 1 2 R8 WI. edge Channel Bed #1 WI. #1 Channel Bed #2 WI. #2 Channel Bed #2 WI. #2 Channel Bed #3 WII. #3 Channel bed #4 WIII. #4 LB WI. edge 3 4 4 5 LB High Water Mark Step Bottom | 1.10 1.80 2.70 3.80 3.80 4.30 4.30 4.30 5.30 6.30 6.30 8.40 11.30 14.30 14.30 | | 2.388 2.556 2.745 2.889 3.031 3.023 2.817 2.670 2.453 2.324 | 0.300 | 97.612 97.444 97.255 97.111 97.261 97.411 97.711 96.977 97.297 97.183 97.263 97.330 97.547 |
| RB WL edge Channel Bed #1 WL #1 Channel Bed #2 WL #2 Channel Bed #2 WL #2 Channel bed #3 WL #3 Channel bed #4 WL #3 Channel bed #4 WL #3 Channel bed #4 LB WL edge LB WL edge LB WL #4 S B B B B B B B B B B B B B B B B B B B | 1.80 2.70 3.80 3.80 4.30 4.30 5.30 5.30 6.30 6.30 8.40 11.30 14.30 | | 2.556 2.745 2.889 3.031 3.023 2.817 2.670 2.453 2.324 | 0.300 | 97.444 97.255 97.111 97.261 97.411 97.711 96.977 97.297 97.293 97.263 97.330 |
| RB WL edge Channel Bed #1 WL #1 Channel Bed #2 WL #1 Channel Bed #2 WL #2 Channel Bed #3 WL #2 Channel Bed #3 WL #4 LB WL edge 3 4 4 5 UR #4 UR | 2.70 3.80 4.30 4.30 5.30 5.30 6.30 6.30 8.40 11.30 14.30 18.80 22.20 | | 2.745 2.889 3.031 3.023 2.817 2.670 2.453 2.324 | 0.300 | 97.255 97.111 97.261 97.411 97.711 96.977 97.297 97.183 97.263 97.330 97.547 |
| Channel Bed #1 W. #1 Channel Bed #2 W. #2 Channel Bed #2 W. #2 Channel bed #3 W. #3 Channel bed #4 W. #4 W. #4 U. | 3.80 3.80 4.30 4.30 5.30 6.30 6.30 6.30 11.30 14.30 18.80 22.20 | | 2.889 3.031 3.023 2.817 2.670 2.453 2.324 | 0.300 | 97.111 97.261 97.411 97.711 96.977 97.297 97.183 97.263 97.330 97.547 |
| W. P.I. Channel Bed #2 W. R2 Channel Bed #3 W. R3 Channel Bed #3 W. R3 Channel Bed #4 LB W. cege 3 4 4 5 LB W. Ege 4 5 LB High Water Mark Step Bottom | 3.80 4.30 4.30 5.30 5.30 6.30 6.30 8.40 11.30 14.30 18.80 22.20 | | 3.031 3.023 2.817 2.670 2.453 2.324 | 0.300 | 97.261 97.411 97.711 96.977 97.297 97.183 97.263 97.330 97.547 |
| Channel Bed #2 WL #2 Channel bed #3 WL #3 Channel bed #4 WL #4 LS WL edge 3 4 5 LB High Water Mark Step Bottom | 4.30 4.30 5.30 5.30 6.30 6.30 6.30 8.40 11.30 14.30 18.80 22.20 | | 3.023 2.817 2.670 2.453 2.324 | 0.300 | 97.411 97.711 96.977 97.297 97.183 97.263 97.330 97.547 |
| WL RZ Channel bed #3 WL R3 Channel bed #4 WL #4 LB WL edge 3 4 LB High Water Mark Step Bottom | 4.30 5.30 5.30 6.30 6.30 8.40 11.30 14.30 18.80 22.20 | | 3.023 2.817 2.670 2.453 2.324 | 0.320 | 97.411 97.711 96.977 97.297 97.183 97.263 97.330 97.547 |
| WL RZ Channel bed #3 WL R3 Channel bed #4 WL #4 LB WL edge 3 4 LB High Water Mark Step Bottom | 5.30 5.30 6.30 6.30 8.40 11.30 14.30 18.80 22.20 | | 3.023 2.817 2.670 2.453 2.324 | 0.320 | 97.711 96.977 97.297 97.183 97.263 97.330 97.547 |
| WL #3 Channel bed #4 WL #4 LB WL edge 3 4 4 LB High Water Mark Step Bottom | 5.30 6.30 6.30 8.40 11.30 14.30 18.80 22.20 | | 2.817 2.670 2.453 2.324 | | 97.297 97.183 97.263 97.330 97.547 |
| Channel bed #4 WL. #4 LB WL edge 3 4 5 LB High Water Mark Step Bottom | 6.30 6.30 8.40 11.30 14.30 18.80 22.20 | | 2.670 2.453 2.324 | | 97.183 97.263 97.330 97.547 |
| WL #4 LB WL edge 3 4 5 LB High Water Mark Step Bottom | 6.30 8.40 11.30 14.30 18.80 22.20 | | 2.670 2.453 2.324 | 0.080 | 97.263 97.330 97.547 |
| LB WL edge 3 4 5 LB High Water Mark Step Bottom | 8.40 11.30 14.30 18.80 22.20 | | 2.453 2.324 | 0.080 | 97.330 97.547 |
| 3 4 5 LB High Water Mark Step Bottom | 11.30 14.30 18.80 22.20 | | 2.453 2.324 | | 97.547 |
| 4 5 LB High Water Mark Step Bottom | 14.30 18.80 22.20 | | 2.324 | | |
| 5 LB High Water Mark Step Bottom | 18.80 22.20 | | | | 97.676 |
| LB High Water Mark Step Bottom | 22.20 | | 2.063 | | |
| | | | | | 97.937 |
| LB High Water Mark | | | 1.930 | | 98.070 |
| | 22.70 | | 1.678 | | 98.322 |
| | | | | | |

| | | Channel Slope Surve | y Data | | |
|------------------------------|---------------------------------|---------------------|-----------------|---------------------|-----------|
| Measured Data | | | Calculated Data | Channel Reach Notes | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate |
| | 14.0 | 2.543 | 98.886 | Riffle | |
| | 23.0 | 2.079 | 99.350 | Riffle | |
| Upstream | | | | | |
| At Cross-section | 0.0 | | 97.261 | Riffle | |
| | 13.0 | 3.584 | 97.845 | Riffle | |
| Downstream | | | | | |
| | | | | | |

| Slope Dat | a: |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 36.0 |
| Change in Channel Elevation: | 1.505 |
| Average Channel Slope (%): | 4.181 |







| General Notes: | | |
|----------------|--|--|
| | | |
| | | |
| | | |

| Field Personnel: | CJ, DH | Trip Date: | 22-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 6-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 KP 39.8 (Sundog Creek Tributary)

 UTM Location:
 428369 E, 6830273 N

 Visit Date:
 September 21, 2014

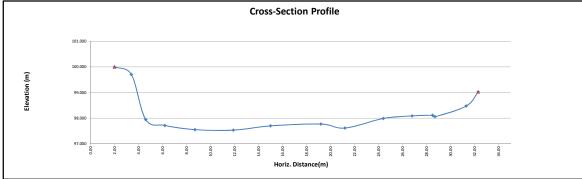
 Visit Time:
 17:00

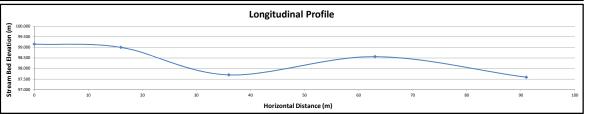
| Cross-Section/Bank Survey Data | | | | | | |
|--------------------------------|--------|---------|---------|----------|----------------|--|
| mt #: | Offset | BS (m): | FS (m): | Cut (m): | Elevation (m): | |
| RB High Water Mark | 2.00 | 1.351 | | | 100.000 | |
| 1 | 3.40 | | 1.646 | | 99.705 | |
| 2 | 4.60 | | 2.057 | | 97.943 | |
| 3 | 6.20 | | 2.285 | | 97.715 | |
| 4 | 8.70 | | 2.448 | | 97.552 | |
| 5 | 11.90 | | 2.468 | | 97.532 | |
| 6 | 15.00 | | 2.300 | | 97.700 | |
| 7 | 17.90 | | 2.214 | | 97.700 | |
| 8 | 19.20 | | 2.229 | | 97.771 | |
| 9 | 21.20 | | 2.387 | | 97.613 | |
| 10 | 24.40 | | 2.012 | | 97.988 | |
| 11 | 26.80 | | 1.911 | | 98.089 | |
| 12 | 28.50 | | 1.889 | | 98.111 | |
| 13 | 28.70 | | 1.945 | | 98.055 | |
| 14 | 31.30 | | 1.528 | | 98.472 | |
| LB High Water Mark | 32.30 | | 0.979 | | 99.021 | |
| | | | | | | |

| | | Channel Slope Surve | y Data | | |
|------------------------------|---------------------------------|---------------------|-----------------|---------------------|-----------|
| Mea | Measured Data | | Calculated Data | Channel Reach Notes | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate |
| | 20.0 | 2.351 | 99.000 | | |
| | 36.0 | 2.202 | 99.149 | | |
| Upstream | | | | | |
| At Cross-section | 0.0 | 2,363 | 97.700 | | |
| | 27.0 | 2.791 | 98.560 | | |
| | 55.0 | 3.763 | 97.588 | | |
| Downstream | 55.0 | 3.763 | 97.588 | | |

| Slope Data: | |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 91.0 |
| Change in Channel Elevation: | 1.561 |
| Average Channel Slope (%): | 1.715 |







| General Notes: | |
|-----------------------------------|--|
| -River channel was completely dry | |
| | |
| | |
| | |

| Field Personnel: | CJ, DH | Trip Date: | 21-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 6-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 KP 47.0 (Polje Creek Tributary)

 UTM Location:
 434240 E, 6829338 N

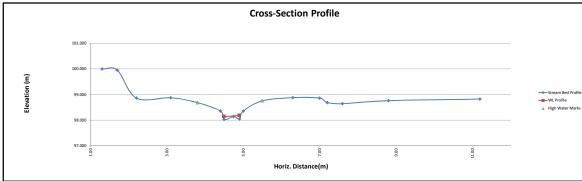
| Channel Slope Survey Data | | | | | |
|------------------------------|---------------------------------|----------------|-----------------|------------|------------|
| Me | asured Data | | Calculated Data | Channel Re | each Notes |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate |
| | 7.0 | 1.829 | 99.029 | Run | |
| | 14.0 | 1.517 | 99.341 | Run | |
| | 22.0 | 1.198 | 99.660 | Run | |
| Upstream | | | | | |
| At Cross-section | 0.0 | | 98.143 | Run | |
| | 5.0 | 2.180 | 98.678 | Run | |
| | 12.0 | 2.470 | 98.388 | Run | |
| | 20.0 | 2.843 | 98.015 | Run | |
| Downstream | | | | | |
| | | | | | |
| | | | | | |

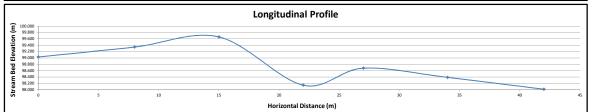
| Slope Data: | |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 42.0 |
| Change in Channel Elevation: | 1.645 |
| Average Channel Slope (%): | 3.917 |

Visit Date: September 21, 2014

Visit Time: 14:15

| Survey Information: | | |
|--------------------------------|-------------------------------|--|
| Equipment Used: | Engineer's Level & Stadia Rod | |
| Height of Instrument (HI) (m): | 100.858 | |
| Datum elevation (m): | 100.000 | |
| | | |





| General Notes: | | |
|----------------|--|--|
| | | |
| | | |
| | | |

| Field Personnel: | CJ, DH | Trip Date: | 21-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 30-Sep-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 KP 50.2 (Polje Tributary)

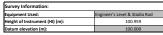
 UTM Location:
 436944 E, 6829737 N

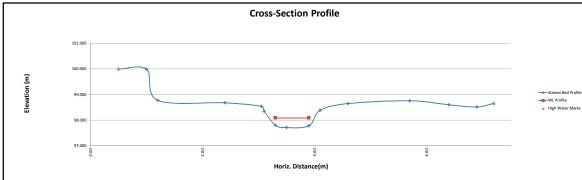
Visit Date: Visit Time: September 21, 2014 9:50

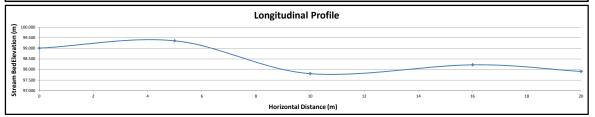
| Cross-Section/Bank Survey Data | | | | | |
|--------------------------------|--------|---------|---------|----------|----------------|
| #: | Offset | BS (m): | FS (m): | Cut (m): | Elevation (m): |
| RB High Water Mark | 0.50 | 0.959 | | | 100.000 |
| 1 | 1.00 | | 0.969 | | 99.990 |
| 2 | 1.20 | | 1.229 | | 98.771 |
| Top of RB | 2.40 | | 1.322 | | 98.678 |
| RB WL edge | 3.05 | | 1.461 | | 98.539 |
| channel bed #1 | 3.10 | | 1.648 | | 98.352 |
| channel bed #2 | 3.30 | | 2.194 | 0.280 | 97.806 |
| WL elevation | 3.30 | | | | 98.086 |
| channel bed #3 | 3.50 | | 2.288 | | 97.712 |
| LB WL edge | 3.90 | | 2.217 | | 97.783 |
| Top of LB | 4.10 | | 1.614 | | 98.386 |
| 3 | 4.60 | | 1.351 | | 98.649 |
| 4 | 5.70 | | 1.243 | | 98.757 |
| 5 | 6.40 | | 1.400 | | 98.600 |
| 6 | 6.90 | | 1.485 | | 98.515 |
| LB High Water Mark | 7.20 | | 1.343 | | 98.657 |
| | | | | | |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |
| | | | | - | |

| Channel Slope Survey Data | | | | | |
|------------------------------|---------------------------------|----------------|-----------------|---------------------|-----------|
| Measured Data | | | Calculated Data | Channel Reach Notes | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate |
| | 5.0 | 1.949 | 99.010 | Run | |
| | 10.0 | 1.604 | 99.355 | Run | |
| Upstream | | | | | |
| At Cross-section | 0.0 | | 97.806 | Run | |
| | 6.0 | 2.737 | 98.222 | Run | |
| | 10.0 | 3.050 | 97.909 | Run | |
| Downstream | | | | | |
| | | | | | |

| Slope Data: | |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 20.0 |
| Change in Channel Elevation: | 1.446 |
| Average Channel Slope (%): | 7.230 |







| General Notes: | |
|----------------|--|
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| | |

| Field Personnel: | CJ, DH | Trip Date: | 21-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 30-Sep-14 |
| Data Check Personnel: | TL | Date: | 28-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 KP 54.3 (Polje Creek Tributary)

 UTM Location:
 440622 E, 6830769 N

| Survey Information: | |
|--------------------------------|-------------------------------|
| Equipment Used: | Engineer's Level & Stadia Rod |
| Height of Instrument (HI) (m): | 102.061 |
| Datum alauntian (m). | 100.000 |

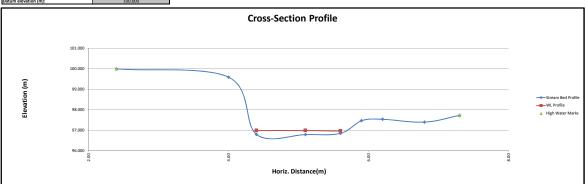
Visit Date:

Visit Time:

| Cross-Section/Bank Survey Data | | | | | | |
|--------------------------------|--------|---------|---------|----------|----------------|--|
| Imt#: | Offset | BS (m): | FS (m): | Cut (m): | Elevation (m): | |
| RB High Water Mark | 2.40 | 2.061 | | - | 100.000 | |
| RB WL edge | 4.00 | | 2.470 | - | 99.591 | |
| channel bed | 4.40 | | 3.207 | 0.195 | 96.793 | |
| WL | 4.40 | | | | 96.988 | |
| channel bed | 5.10 | | 3.209 | 0.195 | 96.791 | |
| WL | 5.10 | | | | 96.986 | |
| channel bed | 5.60 | | 3.149 | 0.110 | 96.851 | |
| WL | 5.60 | | | | 96.961 | |
| LB WL edge | 5.90 | | 2.533 | | 97.467 | |
| 1 | 6.20 | | 2.464 | - | 97.536 | |
| Bottom of HW Step | 6.80 | | 2.602 | - | 97.398 | |
| LB High Water Mark (Step) | 7.30 | | 2.275 | | 97.725 | |
| | | | | | | |

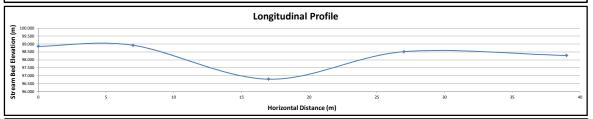
| Channel Slope Survey Data | | | | | | |
|------------------------------|---------------------------------|----------------|-----------------|------------|------------|--|
| Mei | sured Data | | Calculated Data | Channel Re | each Notes | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate | |
| | 10.0 | 3.207 | 98.854 | Run | | |
| | 17.0 | 3.142 | 98.919 | Run | | |
| Upstream | | | | | | |
| At Cross-section | 0,0 | | | _ | | |
| At Cross-section | | | 96.791 | Run | | |
| | 10.0 | 3.546 | 98.515 | Run | | |
| Downstream | 22.0 | 3.781 | 98.280 | Run | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| Slope Data: | |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 39.0 |
| Change in Channel Elevation: | 0.639 |
| Average Channel Slope (%): | 1.638 |



September 21, 2014

15:45



| neral Notes: | |
|--------------|--|
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| | |
| | |
| | |
| | |

| Field Personnel: | CJ, DH | Trip Date: | 21-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 30-Sep-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 KP 87.7 (Tetcela River)

 UTM Location:
 460241 E, 6812386 N

 Visit Date:
 September 24, 2014

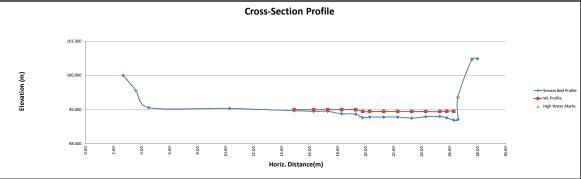
 Visit Time:
 14:00

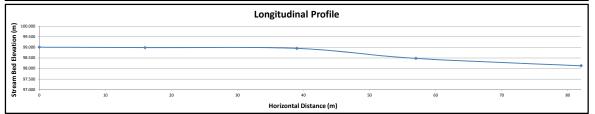
| #: | Offset | BS (m): | FS (m): | Cut (m): | Elevation (m): |
|--------------------|--------|---------|---------|----------|----------------|
| Top of RB | 2.70 | 0.536 | | | 100.000 |
| RB High Water Mark | 3.60 | | 0.982 | | 99.554 |
| 1 | 4.50 | | 1.478 | | 99.058 |
| RB WL edge | 10.30 | | 1.501 | | 99.035 |
| Channel bed #1 | 14.90 | | 1.567 | | 98,969 |
| WL#1 | 14.90 | | | 0.030 | 98,999 |
| Channel bed #2 | 16.30 | | 1.567 | 0.000 | 98.949 |
| WL #2 | 16.30 | | | 0.050 | 98,999 |
| Channel bed #3 | 17.30 | | 1.567 | 0.000 | 98,949 |
| WL #3 | 17.30 | | | 0.120 | 98.999 |
| Channel bed #4 | 18.30 | | 1.567 | | 98.879 |
| WL #4 | 18.30 | | | 0.130 | 98.999 |
| Channel bed #5 | 19.30 | | 1.567 | | 98.869 |
| WL #5 | 19.30 | | | 0.120 | 98.999 |
| Channel bed #6 | 19.80 | | 1.774 | | 98.762 |
| WL #6 | 19.80 | | | 0.180 | 98.942 |
| Channel bed #7 | 20.30 | | 1.774 | | 98.782 |
| WL #7 | 20.30 | | | 0.160 | 98.942 |
| Channel bed #8 | 21.30 | | 1.774 | | 98.782 |
| WL#8 | 21.30 | | | 0.160 | 98.942 |
| Channel bed #9 | 22.30 | | 1.774 | | 98.782 |
| WL #9 | 22.30 | | | 0.160 | 98.942 |
| Channel bed #10 | 23.30 | | 1.774 | | 98.752 |
| WL#10 | 23.30 | | | 0.190 | 98,942 |
| Channel bed #11 | 24.30 | | 1.774 | | 98.792 |
| WL#11 | 24.30 | | | 0.150 | 98.942 |
| Channel bed #12 | 25.30 | | 1.774 | | 98.802 |
| WL#12 | 25.30 | | | 0.140 | 98.942 |
| Channel bed #13 | 25.80 | | 1.779 | | 98.757 |
| WL#13 | 25.80 | | | 0.200 | 98.957 |
| Channel bed #14 | 26.30 | | 1.841 | | 98.695 |
| WL#14 | 26.30 | | | 0.260 | 98.955 |
| LB WL edge | 26.60 | | 1.825 | | 98.711 |
| LB High Water Mark | 26.60 | | 1.166 | | 99.370 |
| 2 | 27.60 | | 0.065 | | 100.471 |
| Top of LB | 28.00 | | 0.048 | | 100.488 |
| | | | | | |

| Channel Slope Survey Data | | | | | | |
|------------------------------|---------------------------------|----------------|-----------------|---------------------|-----------|--|
| Mea | Measured Data | | Calculated Data | Channel Reach Notes | | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate | |
| | 23.0 | 1.550 | 98.986 | Run | | |
| | 39.0 | 1.529 | 99.007 | Riffle | | |
| Upstream At Cross-section | | | | | | |
| | 0.0 | | 98.949 | Run | | |
| | 18.0 | 2.061 | 98.475 | Run | | |
| | 43.0 | 2.407 | 98.129 | Run | | |
| Downstream | | | | | | |
| | | | | | | |

| Slope Data | 1: |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 82.0 |
| Change in Channel Elevation: | 0.878 |
| Average Channel Slope (%): | 1.071 |







| General Notes: | | |
|----------------|--|--|
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| Field Personnel: | CJ, DH | Trip Date: | 24-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | C1 | Date: | 8-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 KP 122.8 (Grainger Tributary)

 UTM Location:
 477151 E, 6798715 N

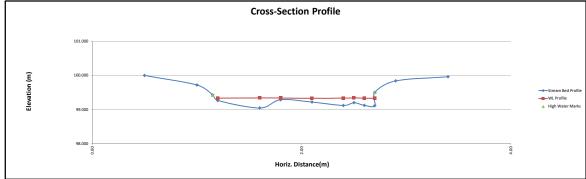
| Visit Date: | September 23, 2014 | | |
|-------------|--------------------|--|--|
| Visit Time | 15:20 | | |

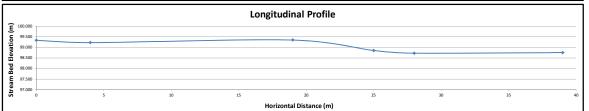
| Mmt #: Offset BS (m): FS (m): Cut (m): Elevation | | | | | |
|--|----------|-------|---------|----------|----------------|
| | | | FS (m): | Cut (m): | Elevation (m): |
| Top of LB | 0.50 | 0.812 | | _ | 100.000 |
| 1 | 1.00 | | 1.091 | | 99.721 |
| LB High Water Mark | 1.15 | | 1.381 | | 99.431 |
| LB edge | 1.20 | | 1.545 | | 99.267 |
| LB edge WL | 1.20 | | | 0.070 | 99.337 |
| Channel bed #1 | 1.60 | | 1.764 | | 99.048 |
| WL #1 | 1.60 | | | 0.295 | 99.343 |
| Channel bed #2 | 1.80 | | 1.522 | | 99.290 |
| WL #2 | 1.80 | | | 0.050 | 99.340 |
| Channel bed #3 | 2.10 | | 1.591 | | 99.221 |
| WL #3 | 2.10 | | | 0.110 | 99.331 |
| Channel bed #4 | 2.40 | | 1.690 | | 99.122 |
| WL #4 | 2.40 | | | 0.215 | 99.337 |
| Channel bed #5 | 2.50 | | 1.609 | | 99.203 |
| WL #5 | 2.50 | | | 0.140 | 99.343 |
| Channel bed #6 | 2.60 | | 1.688 | | 99.124 |
| WL #6 | 2.60 | | | 0.210 | 99.334 |
| RB edge | 2.70 | | 1.699 | | 99.113 |
| RB edge WL | 2.70 | | | 0.220 | 99.333 |
| RB High Water Mark | 2.70 | | 1.310 | | 99.502 |
| 2 | 2.90 | | 0.971 | | 99.841 |
| Top of RB | 3.40 | | 0.849 | | 99.963 |
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| | | Channel Slope Surve | ey Data | | |
|------------------------------|---------------------------------|---------------------|-----------------|---------------------|-----------|
| Mea | asured Data | | Calculated Data | Channel Reach Notes | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate |
| | 15.0 | 1.590 | 99.222 | Riffle | |
| | 19.0 | 1.479 | 99.333 | Riffle | |
| Upstream | | | | | |
| At Cross-section | 0.0 | | 99.343 | Riffle | |
| | 6.0 | 1.963 | 98.849 | Run | |
| | 9.0 | 2.089 | 98.723 | Run | |
| Downstream | 20.0 | 2.060 | 98.752 | Run | |
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| Slope Dat | a: |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 39.0 |
| Change in Channel Elevation: | 0.610 |
| Average Channel Slope (%): | 1.564 |







| General Notes: | |
|------------------------------------|--|
| -Large boulders throughout channel | |
| | |
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| Field Personnel: | CJ, DH | Trip Date: | 23-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 7-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 KP 123.7 (Grainger River)

 UTM Location:
 478319 E, 6799043 N

 Visit Date:
 September 23, 2014

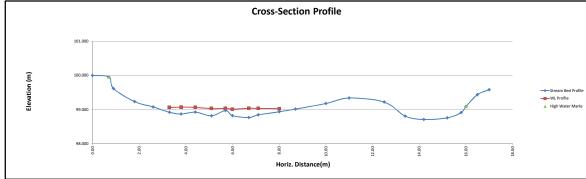
 Visit Time:
 17:10

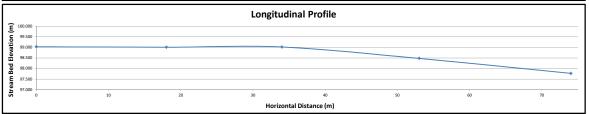
| t #: | Offset | BS (m): | FS (m): | Cut (m): | Elevation (m): |
|------------------------------|--------|---------|---------|----------|----------------|
| LB Upper Floodplain | 0.00 | 1.527 | | | 100.000 |
| LB High Water Mark (On Step) | 0.70 | | 1.572 | | 99.955 |
| LB Step Bottom | 0.90 | | 1.911 | | 99.616 |
| 1 | 1.80 | | 2.292 | | 99.235 |
| LB WL edge | 2.60 | | 2.449 | | 99.078 |
| Channel bed #1 | 3.30 | | 2.605 | | 98.922 |
| WL#1 | 3.30 | | | 0.139 | 99.061 |
| Channel bed #2 | 3.80 | | 2.654 | | 98.873 |
| WL#2 | 3.80 | | | 0.200 | 99.073 |
| Channel bed #3 | 4.40 | | 2.601 | | 98.926 |
| WL #3 | 4.40 | | | 0.140 | 99.066 |
| Channel bed #4 | 5.10 | | 2.707 | | 98.820 |
| WL #4 | 5.10 | | | 0.210 | 99.030 |
| Channel bed #5 | 5.70 | | 2.552 | | 98.975 |
| WL #5 | 5.70 | | | 0.060 | 99.035 |
| Channel bed #6 | 6.00 | | 2.703 | | 98.824 |
| WL #6 | 6.00 | | | 0.190 | 99.014 |
| Channel bed #7 | 6.70 | | 2.758 | | 98.769 |
| WL #7 | 6.70 | | | 0.270 | 99.039 |
| Channel bed #8 | 7.10 | | 2.681 | | 98.846 |
| WL#8 | 7.10 | | | 0.190 | 99.036 |
| Channel bed #9 | 8.00 | | 2.589 | | 98.938 |
| WL#9 | 8.00 | | | 0.090 | 99.028 |
| RB WL edge (Gravel bar edge) | 8.70 | | 2.510 | | 99.017 |
| Gravel bar | 10.00 | | 2.348 | | 99.179 |
| Gravel bar | 11.00 | | 2.187 | | 99.340 |
| Gravel bar | 12.50 | | 2.306 | | 99.221 |
| Dry Side Channel | 13.40 | | 2.716 | | 98.811 |
| Dry Side Channel | 14.20 | | 2.816 | | 98.711 |
| Dry Side Channel | 15.20 | | 2.768 | | 98.759 |
| Dry Side Channel | 15.80 | | 2.611 | | 98.916 |
| RB High Water Mark | 16.00 | | 2.437 | | 99.090 |
| 2 | 16.50 | | 2.087 | | 99.440 |
| RB Upper Floodplain | 17.00 | | 1.944 | | 99.583 |
| | | | | | |

| | | Channel Slope Surve | y Data | | |
|------------------------------|---------------------------------|---------------------|-----------------|---------------------|----------|
| Mei | sured Data | | Calculated Data | Channel Reach Notes | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrat |
| | 16.0 | 2.522 | 99.005 | Run | |
| | 34.0 | 2.500 | 99.027 | Run | |
| Upstream At Cross-section | | | | | |
| | 0.0 | | 99.014 | Riffle | |
| | 19.0 | 3.052 | 98.475 | Riffle | |
| Downstream | 40.0 | 3.755 | 97.772 | Run | |
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| Slope Data: | |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 74.0 |
| Change in Channel Elevation: | 1.255 |
| Average Channel Slope (%): | 1.696 |







| 9 | General Notes: |
|----|--|
| -4 | gravel bar followed by a dry side channel are present on the right side of the active channel. |
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| Field Personnel: | CJ, DH | Trip Date: | 23-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 7-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 KP 125.1 (Grainger River)

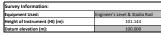
 UTM Location:
 479156 E, 6799517 N

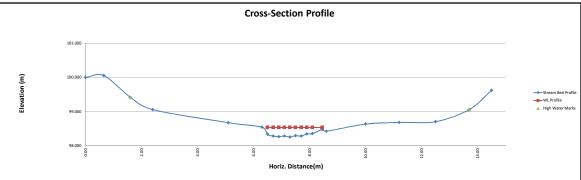
| Visit Date: | September 23, 2014 | | |
|-------------|--------------------|--|--|
| Visit Time | 18:30 | | |

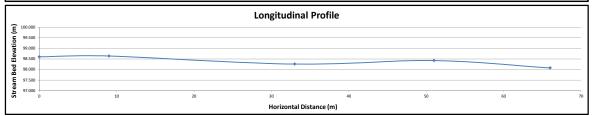
| t#: | Offset | BS (m): | FS (m): | Cut (m): | Elevation (m): |
|---------------------|--------|---------|---------|----------|----------------|
| LB Upper Floodplain | 0.00 | 1.144 | | | 100.000 |
| 1 | 0.65 | | 1.088 | | 100.056 |
| LB High Water Mark | 1.60 | | 1.724 | | 99,420 |
| 2 | 2.40 | | 2.085 | | 99.059 |
| LB WL edge | 5.10 | | 2.467 | | 98,677 |
| Channel bed #1 | 6.30 | | 2.600 | | 98.544 |
| WL#1 | 6.30 | | | 0.120 | 98.664 |
| Channel bed #2 | 6.50 | | 2.608 | | 98,336 |
| WL#2 | 6.50 | | | 0.200 | 98,536 |
| Channel bed #3 | 6.70 | | 2.608 | | 98.286 |
| WL#3 | 6.70 | | | 0.250 | 98.536 |
| Channel bed #4 | 6.90 | | 2.608 | | 98.266 |
| WL#4 | 6.90 | | | 0.270 | 98.536 |
| Channel bed #5 | 7.10 | | 2.608 | | 98.286 |
| WL#5 | 7.10 | | | 0.250 | 98.536 |
| Channel bed #6 | 7.30 | | 2.608 | | 98.256 |
| WL#6 | 7.30 | | | 0.280 | 98.536 |
| Channel bed #7 | 7.50 | | 2.608 | | 98.296 |
| WL#7 | 7.50 | | | 0.240 | 98.536 |
| Channel bed #8 | 7.70 | | 2.608 | | 98.286 |
| WL#8 | 7.70 | | | 0.250 | 98.536 |
| Channel bed #9 | 7.90 | | 2.608 | | 98.346 |
| WLII9 | 7.90 | | | 0.190 | 98.536 |
| Channel bed #10 | 8.10 | | 2.608 | | 98.356 |
| WL#10 | 8.10 | | | 0.180 | 98.536 |
| Channel bed #11 | 8.45 | | 2.608 | | 98.476 |
| WL#11 | 8.45 | | | 0.060 | 98.536 |
| Channel bed #12 | 8.60 | | 2.608 | | 98.426 |
| WL#12 | 8.60 | | | 0.110 | 98.536 |
| Channel bed #13 | 10.00 | | 2.508 | | 98.636 |
| WL#13 | 10.00 | | | 0.020 | 98.656 |
| RB WL edge | 11.20 | | 2.461 | | 98.683 |
| 3 | 12.50 | | 2.437 | | 98.707 |
| RB High Water Mark | 13.70 | | 2.086 | | 99.058 |
| RB bedrock face | 14.50 | | 1.520 | | 99.624 |
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| | | Channel Slope Surve | y Data | | |
|------------------------------|---------------------------------|---------------------|-----------------|---------------------|-----------|
| Measured Data | | | Calculated Data | Channel Reach Notes | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate |
| | 24.0 | 2.508 | 98.636 | Run | |
| | 33.0 | 2.545 | 98.599 | Run | |
| Upstream | | | | | |
| At Cross-section | 0.0 | | 98.256 | Run | |
| | 18.0 | 2.722 | 98.422 | Riffle | |
| Downstream | 33.0 | 3.068 | 98.076 | Riffle | |

| Slope Data | 1: |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 66.0 |
| Change in Channel Elevation: | 0.560 |
| Average Channel Slope (%): | 0.848 |







| General Notes: | | | |
|---|-----|--|--|
| -Gravel bars and dry side channel (LB) are downstream of surveyed cross sec | ion | | |
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| Field Personnel: | CJ, DH | Trip Date: | 23-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | C1 | Date: | 7-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 KP 131.3 (Grainger Tributary)

 UTM Location:
 481988 E, 6794966 N

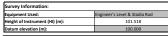
 Visit Date:
 September 26, 2014

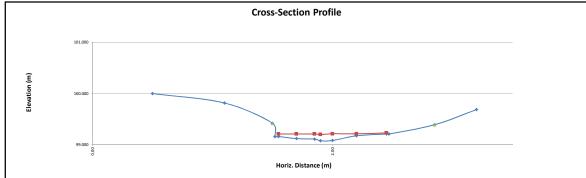
 Visit Time:
 12:10

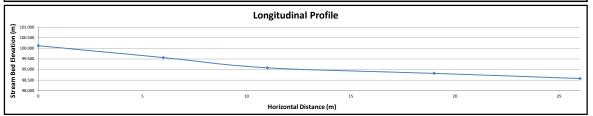
| | | Cross-Section/Ba | ank Survey Data | | |
|--------------------|--------|------------------|-----------------|----------|----------------|
| Amt #: | Offset | BS (m): | FS (m): | Cut (m): | Elevation (m): |
| Top of LB | 0.50 | 1.518 | | | 100.000 |
| 1 | 1.10 | | 1.702 | | 99.816 |
| LB High Water Mark | 1.50 | | 2.099 | | 99.419 |
| LB WL edge | 1.52 | | 2.357 | | 99.161 |
| Channel bed #1 | 1.55 | | 2.357 | | 99.161 |
| WL#1 | 1.55 | | | 0.050 | 99,211 |
| Channel bed #2 | 1.70 | | 2.357 | 0.000 | 99.121 |
| WL #2 | 1.70 | | | 0.090 | 99.211 |
| Channel bed #3 | 1.85 | | 2.357 | 0.050 | 99.111 |
| WL#3 | 1.85 | | | 0.100 | 99.211 |
| Channel bed #4 | 1.90 | | 2.439 | | 99.079 |
| WL #4 | 1.90 | | | 0.120 | 99.199 |
| Channel bed #5 | 2.00 | | 2.433 | | 99.085 |
| WL#5 | 2.00 | | | 0.130 | 99.215 |
| Channel bed #6 | 2.20 | | 2.433 | | 99.175 |
| WL #6 | 2.20 | | | 0.040 | 99.215 |
| Channel bed #7 | 2.45 | | 2.308 | | 99.210 |
| WL #7 | 2.45 | | | 0.020 | 99.230 |
| RB WL edge | 2.47 | | 2.308 | | 99.210 |
| RB High Water Mark | 2.85 | | 2.127 | | 99.391 |
| Top of RB | 3.20 | | 1.831 | | 99.687 |
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| | | Channel Slope Surve | y Data | | |
|------------------------------|---------------------------------|---------------------|-----------------|---------------------|-----------|
| Measured Data | | | Calculated Data | Channel Reach Notes | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate |
| | 5.0 | 1.955 | 99.563 | Riffle | |
| | 11.0 | 1.395 | 100.123 | Riffle | |
| Upstream | | | | | |
| At Cross-section | 0.0 | | 99.079 | Riffle | |
| | 8.0 | 2.699 | 98.819 | Riffle | |
| | 15.0 | 2.943 | 98.575 | Riffle | |
| Downstream | | | | | |
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| Slope Data | : |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 26.0 |
| Change in Channel Elevation: | 1.548 |
| Average Channel Slope (%): | 5.954 |







| General Notes: | |
|---|--|
| -Lots of embedded cobble and boulders throughout the channel. | |
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| Field Personnel: | CJ, DH | Trip Date: | 26-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 8-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 KP 133.7 (Grainger Tributary)

 UTM Location:
 482671 E, 6793161 N

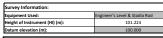
 Visit Date:
 September 24, 2014

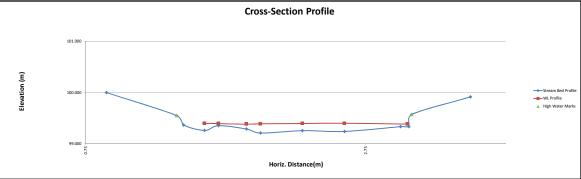
 Visit Time:
 9:00

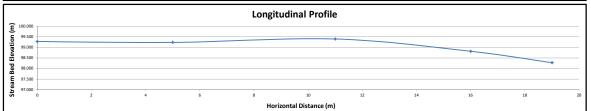
| | | Cross-Section/Ba | | | |
|--------------------|--------------|------------------|---------|----------|----------------|
| Vimt #: | Offset | BS (m): | FS (m): | Cut (m): | Elevation (m): |
| Top of RB | 0.90 | 1.224 | | | 100.000 |
| RB High Water Mark | 1.40 | | 1.673 | | 99.551 |
| RB WL edge | 1.45 | | 1.858 | | 99.366 |
| Channel bed #1 | 1.60 | | 1.964 | | 99.260 |
| WL#1 | 1.60 | | | 0.140 | 99.400 |
| Channel bed #2 | 1.70 | | 1.871 | | 99.353 |
| WL#2 | 1.70 | | | 0.040 | 99.393 |
| Channel bed #3 | 1.90 | | 1.936 | | 99.288 |
| WL #3 | 1.90 | | | 0.095 | 99.383 |
| Channel bed #4 | 2.00 | | 2.014 | | 99.210 |
| WL #4 | 2.00 | | | 0.180 | 99.390 |
| Channel bed #5 | 2.30 | | 1.968 | | 99.256 |
| WL#5 | 2.30 | | | 0.140 | 99.396 |
| Channel bed #6 | 2.60 | | 1.983 | | 99.241 |
| WL#6 | 2.60 | | | 0.160 | 99.401 |
| Channel bed #7 | 3.00 | | 1.889 | | 99.335 |
| WL #7 | 3.05 | | | 0.050 | 99.385 |
| LB WL edge | 3.06 | | 1.889 | | 99.335 |
| LB High Water Mark | 3.08 | | 1.651 | | 99.573 |
| Top of LB | 3.50 | | 1.308 | | 99.916 |
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| | | Channel Slope Surve | y Data | | |
|------------------------------|---------------------------------|---------------------|-----------------|---------------------|-----------|
| Mea | Measured Data | | Calculated Data | Channel Reach Notes | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate |
| | 6.0 | 1.993 | 99.231 | Riffle | |
| | 11.0 | 1.951 | 99.273 | Riffle | |
| Upstream | | | | | |
| At Cross-section | 0.0 | | 99.393 | Riffle | |
| | 5.0 | 2.412 | 98.812 | Riffle | |
| | 8.0 | 2.947 | 98.277 | Riffle | |
| Downstream | | | | | |
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| Slope Data: | |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 19.0 |
| Change in Channel Elevation: | 0.996 |
| Average Channel Slope (%): | 5.242 |







| neral Notes: | |
|--------------|--|
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| Field Personnel: | CJ, DH | Trip Date: | 24-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 7-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 KP 135.6 (Grainger Tributary)

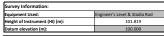
 UTM Location:
 482380 E, 6791274 N

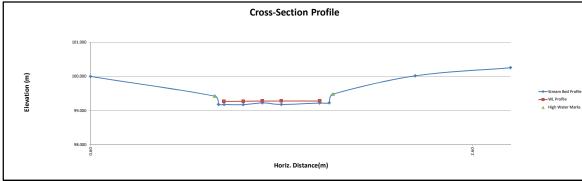
| Visit Date: | September 25, 2014 | | |
|-------------|--------------------|--|--|
| Visit Time: | 18:45 | | |

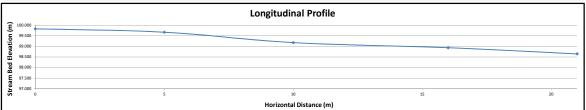
| Cross-Section/Bank Survey Data | | | | | |
|--------------------------------|--------|---------|---------|----------|----------------|
| /lmt #: | Offset | BS (m): | FS (m): | Cut (m): | Elevation (m): |
| Top of LB | 0.60 | 1.819 | | | 100.000 |
| LB High Water Mark | 1.25 | | 2.395 | | 99.424 |
| LB WL edge | 1.27 | | 2.640 | | 99.179 |
| Channel bed #1 | 1.30 | | 2.640 | | 99.179 |
| WL#1 | 1.30 | | | 0.095 | 99.274 |
| Channel bed #2 | 1.40 | | 2.640 | | 99.174 |
| WL#2 | 1.40 | | | 0.100 | 99.274 |
| Channel bed #3 | 1.50 | | 2.592 | | 99.227 |
| WL#3 | 1.50 | | | 0.055 | 99.282 |
| Channel bed #4 | 1.60 | | 2.592 | | 99.182 |
| WL #4 | 1.60 | | | 0.100 | 99.282 |
| Channel bed #5 | 1.80 | | 2.592 | | 99.222 |
| WL #5 | 1.80 | | | 0.060 | 99.282 |
| RB WL edge | 1.85 | | 2.592 | | 99.227 |
| RB High Water Mark | 1.87 | | 2.338 | | 99.481 |
| 1 | 2.30 | | 1.800 | | 100.019 |
| Top of RB | 2.80 | | 1.563 | | 100.256 |
| | | | | | |
| | | | | | |

| Channel Slope Survey Data | | | | | | |
|------------------------------|---------------------------------|-----------------|---------------------|------------|-----------|--|
| Measured Data | | Calculated Data | Channel Reach Notes | | | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate | |
| | 5.0 | 2.154 | 99.665 | Riffle | | |
| | 10.0 | 1.995 | 99.824 | Riffle | | |
| Upstream | | | | | | |
| At Cross-section | 0.0 | | 99.174 | Run | | |
| | 6.0 | 2.885 | 98.934 | Run | | |
| | 11.0 | 3.176 | 98.643 | Riffle | | |
| Downstream | | | | | | |

| Slope Data: | | |
|-------------------------------|-------|--|
| Horizontal Distance Surveyed: | 21.0 | |
| Change in Channel Elevation: | 1.181 | |
| Average Channel Slope (%): | 5.624 | |







| General Notes: | |
|--|--|
| -Large cobble and boulders throughout stream | |
| | |
| | |

| Field Personnel: | CJ, DH | Trip Date: | 25-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | C1 | Date: | 8-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 KP 136.7 (Grainger Tributary)

 UTM Location:
 483132 E, 6790094 N

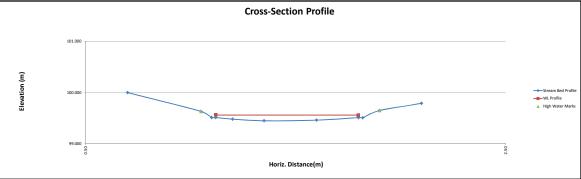
| Visit Date: | September 26, 2014 |
|-------------|--------------------|
| Visit Time: | 11:00 |

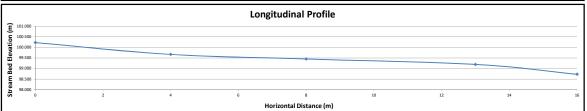
| | T | Cross-Section/Ba | | | |
|--------------------|--------|------------------|---------|----------|----------------|
| Imt #: | Offset | BS (m): | FS (m): | Cut (m): | Elevation (m): |
| Top of LB | 0.70 | 1.34 | | | 100.000 |
| LB High Water Mark | 1.05 | | 1.708 | | 99.632 |
| LB WL edge | 1.10 | | 1.828 | | 99.512 |
| Channel bed #1 | 1.12 | | 1.828 | | 99.512 |
| WL#1 | 1.12 | | | 0.050 | 99.562 |
| Channel bed #2 | 1.20 | | 1.828 | | 99.482 |
| WL #2 | 1.20 | | | 0.080 | 99.562 |
| Channel bed #3 | 1.35 | | 1.891 | | 99.449 |
| WL#3 | 1.35 | | | 0.015 | 99.464 |
| Channel bed #4 | 1.60 | | 1.878 | | 99.462 |
| WL #4 | 1.60 | | | 0.100 | 99.562 |
| Channel bed #5 | 1.80 | | 1.830 | | 99.510 |
| WL #5 | 1.80 | | | 0.050 | 99.560 |
| RB WL edge | 1.82 | | 1.830 | | 99.510 |
| RB High Water Mark | 1.90 | | 1.691 | | 99.649 |
| Top of RB | 2.10 | | 1.550 | | 99.790 |
| | | | | | |
| | | | | | |

| Channel Slope Survey Data | | | | | | |
|------------------------------|---------------------------------|----------------|-----------------|---------------------|-----------|--|
| Mea | Measured Data | | Calculated Data | Channel Reach Notes | | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate | |
| | 4.0 | 1.675 | 99.665 | Riffle | | |
| | 8.0 | 1.118 | 100.222 | Riffle | | |
| Upstream | | | | | | |
| At Cross-section | 0.0 | | 99.449 | Riffle | | |
| | 5.0 | 2.146 | 99.194 | Riffle | | |
| | 8.0 | 2.610 | 98.730 | Riffle | | |
| Downstream | | | | | | |
| | | | | | | |

| Slope Data | : |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 16.0 |
| Change in Channel Elevation: | 1.492 |
| Average Channel Slope (%): | 9.325 |







| General Notes: | ٦ |
|--|---|
| -Large boulders throughout stream. | - |
| -A debris dam was present several meters downstream of the cross section | ı |
| | - |
| | ı |

| Field Personnel: | CJ, DH | Trip Date: | 26-Sep-14 |
|-----------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 8-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| | | | |

 Site Name:
 KP 154.4 (Liard Tributary)

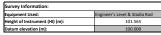
 UTM Location:
 486500 E, 6774900 N

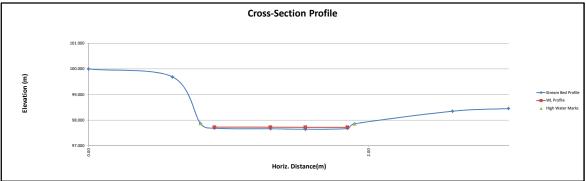
| Visit Date: | September 23, 2014 | | |
|-------------|--------------------|--|--|
| Visit Time: | 13:40 | | |

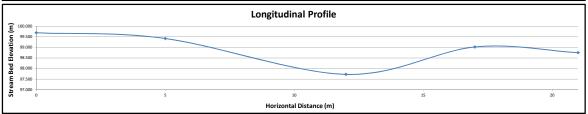
| mt#: | Offset | BS (m): | FS (m): | Cut (m): | Elevation (m): |
|-------------------------------|--------|---------|---------|----------|----------------|
| RB Historical High Water Mark | 0.00 | 1,565 | | | 100,000 |
| 1 | 0.60 | | 1.878 | | 99.687 |
| RB High Water Mark | 0.80 | | 2.134 | | 97.866 |
| Channel bed #1 | 0.90 | | 2.315 | | 97.685 |
| WL#1 | 0.90 | | | 0.040 | 97.725 |
| Channel bed #2 | 1.30 | | 2.335 | | 97.665 |
| WL #2 | 1.30 | | | 0.060 | 97.725 |
| Channel bed #3 | 1.55 | | 2.356 | | 97.644 |
| WL #3 | 1.55 | | | 0.080 | 97.724 |
| Channel bed #4 | 1.85 | | 2.326 | | 97.674 |
| WL #4 | 1.85 | | | 0.050 | 97.724 |
| LB High Water Mark | 1.90 | | 2.142 | | 97.858 |
| 2 | 2.60 | | 1.650 | | 98.350 |
| LB Historical High Water Mark | 3.00 | | 1.547 | | 98.453 |
| | | | | | |
| | | | | | |

| Channel Slope Survey Data | | | | | | |
|------------------------------|---------------------------------|----------------|-----------------|---------------------|-----------|--|
| Measured Data | | | Calculated Data | Channel Reach Notes | | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate | |
| | 7.0 | 2.148 | 99.417 | Run | | |
| | 12.0 | 1.879 | 99.686 | Run | | |
| Upstream | | | | | | |
| At Cross-section | 0.0 | | 97.725 | Run | | |
| | 5.0 | 2.549 | 99.016 | Run | | |
| | 9.0 | 2.817 | 98.748 | Run | | |
| Downstream | 9.0 | 2.817 | 36.746 | Kun | | |

| Slope Data | a: |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 21.0 |
| Change in Channel Elevation: | 0.938 |
| Average Channel Slope (%): | 4.467 |







| Field Personnel: | CJ, DH | Trip Date: | 23-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 6-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 Old Road at Tetcela River (Mainstem)

 UTM Location:
 461370 E, 6815670 N

 Visit Date:
 September 24, 2014

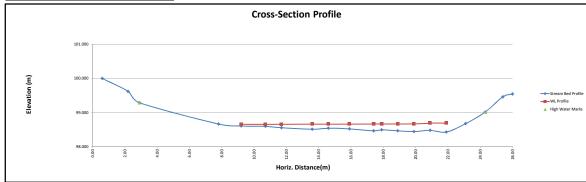
 Visit Time:
 17:15

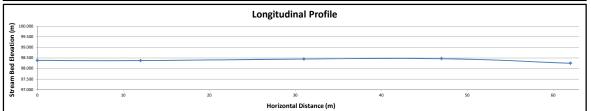
| Top of RB Top of RB I RB High Water Mark RB WL edge Channel bed #1 WL #1 Channel bed #2 WL #2 Channel bed #3 WL #2 Channel bed #3 | 0.60 2.20 2.90 7.80 9.20 9.20 10.70 | BS (m): 0.806 | FS (m): 1.183 1.515 2.140 2.248 | Cut (m): | Elevation (m): 100.000 99.623 99.291 98.666 |
|--|---------------------------------------|------------------|---|----------|---|
| RB High Water Mark RB WL edge Channel bed #1 WL #1 Channel bed #2 WL #2 Channel bed #3 | 2.90 7.80 9.20 9.20 10.70 | | 1.515 2.140 | | 99.291 98.666 |
| RB High Water Mark RB WL edge Channel bed #1 WL #1 Channel bed #2 WL #2 Channel bed #3 | 2.90 7.80 9.20 9.20 10.70 | | 2.140 | | 98.666 |
| RB WL edge Channel bed #1 WL #1 Channel bed #2 WL #2 Channel bed #3 | 7.80 9.20 9.20 10.70 | | 2.140 | | 98.666 |
| Channel bed #1 WL #1 Channel bed #2 WL #2 Channel bed #3 | 9.20 9.20 10.70 | | | | |
| WL #1 Channel bed #2 WL #2 Channel bed #3 | 9.20 10.70 | | 2.240 | | 98,608 |
| Channel bed #2 WL #2 Channel bed #3 | 10.70 | | | 0.050 | 98.658 |
| WL #2 Channel bed #3 | | | 2.248 | 0.030 | 98.598 |
| Channel bed #3 | 10.70 | | 2.248 | 0.060 | 98.658 |
| | 11.70 | | 2.248 | 0.000 | 98.558 |
| | 11.70 | | 2.240 | 0.100 | 98,658 |
| Channel bed #4 | 13.60 | | 2.292 | 0.100 | 98.514 |
| WL #4 | 13.60 | | | 0.150 | 98,664 |
| Channel bed #5 | 14.60 | | 2.292 | 0.000 | 98.544 |
| WL #5 | 14.60 | | | 0.120 | 98.664 |
| Channel bed #6 | 15.90 | | 2.292 | | 98.524 |
| WI #6 | 15.90 | | | 0.140 | 98.664 |
| Channel bed #7 | 17.40 | | 2.339 | | 98.467 |
| WL #7 | 17.40 | | | 0.200 | 98.667 |
| Channel bed #8 | 17.90 | | 2.339 | 0.200 | 98,497 |
| WL#8 | 17.90 | | | 0.170 | 98,667 |
| Channel bed #9 | 18.90 | | 2.339 | 0.010 | 98,467 |
| WL#9 | 18.90 | | | 0.200 | 98.667 |
| Channel bed #10 | 19.90 | | 2.339 | | 98,447 |
| WL#10 | 19.90 | | | 0.220 | 98.667 |
| Channel bed #11 | 20.90 | | 2.374 | 0.220 | 98.482 |
| WL#11 | 20.90 | | | 0.210 | 98.692 |
| Channel bed #12 | 21.90 | | 2.374 | | 98.432 |
| WL#12 | 21.90 | | | 0.260 | 98.692 |
| LB WL edge | 23.10 | | 2.127 | | 98,679 |
| LB High Water Mark | 24.30 | | 1.789 | | 99.017 |
| 2 | 25.40 | | 1.342 | | 99,464 |
| Top of LB | 26.00 | | 1.259 | | 99,547 |

| | | Channel Slope Surve | y Data | | | |
|------------------------------|---------------------------------|---------------------|---------------|------------|-----------|--|
| Mea | sured Data | Calculated Data | Channel Re | each Notes | | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate | |
| | 19.0 | 2.432 | 98.374 | Run | | |
| | 31.0 | 2.424 | 98.382 | Run | | |
| Upstream | | | | | | |
| At Cross-section | 0.0 | | 98.447 | Run | | |
| | 16.0 | 2.339 | 98.467 | Run | | |
| | 31.0 | 2.555 | 98.251 | Riffle | | |
| Downstream | | | | | | |
| | | | | | | |

| Slope Dat | a: |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 62.0 |
| Change in Channel Elevation: | 0.131 |
| Average Channel Slope (%): | 0.211 |







| General Notes: | |
|----------------|--|
| | |
| | |
| | |
| | |

| Field Personnel: | CJ, DH | Trip Date: | 24-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 8-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

 Site Name:
 Old Road at Tetcela Tributary

 UTM Location:
 460369 E, 6813941 N

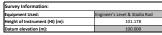
 Visit Date:
 September 24, 2014

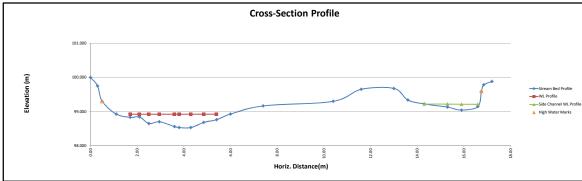
 Visit Time:
 8-Oct-14

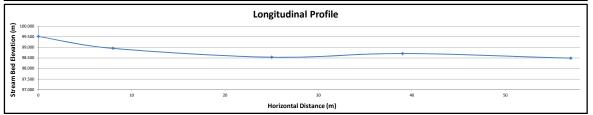
| mt #: | Offset | BS (m): | FS (m): | Cut (m): | Elevation (m): |
|---------------------------|--------|---------|---------|----------|----------------|
| Top of LB | 0.00 | 1.178 | | | 100,000 |
| 1 | 0.30 | | 1.425 | | 99.753 |
| LB High Water Mark | 0.50 | | 1.879 | | 99 299 |
| LB (main channel) WL edge | 1.10 | | 2.249 | | 98,929 |
| Channel bed #1 | 1.70 | | 2.525 | | 98.833 |
| WL#1 | 1.70 | | 2.020 | 0.090 | 98.923 |
| Channel bed #2 | 2.10 | | 2.525 | 0.090 | 98.843 |
| WL#2 | 2.10 | | 2.323 | 0.080 | 98.923 |
| Channel bed #3 | 2.50 | | 2.525 | 0.000 | 98,653 |
| WI #3 | 2.50 | | | 0.270 | 98,923 |
| Channel bed #4 | 2.95 | | 2.525 | 0.0.0 | 98,703 |
| WL #4 | 2.95 | | | 0.220 | 98.923 |
| Channel bed #5 | 3.60 | | 2.615 | | 98.563 |
| WL #5 | 3.60 | | | 0.360 | 98.923 |
| Channel bed #6 | 3.80 | | 2.615 | | 98.533 |
| WL #6 | 3.80 | | | 0.390 | 98.923 |
| Channel bed #7 | 4.30 | | 2.615 | | 98.533 |
| WL#7 | 4.30 | | | 0.390 | 98.923 |
| Channel bed #8 | 4.85 | | 2.615 | | 98.683 |
| WL#8 | 4.85 | | | 0.240 | 98.923 |
| Channel bed #9 | 5.40 | | 2.615 | | 98.763 |
| WL #9 | 5.40 | | | 0.160 | 98.923 |
| RB (main channel) WL edge | 6.00 | | 2.249 | | 98.929 |
| Gravel bar | 7.40 | | 2.010 | | 99.168 |
| Gravel bar | 10.40 | | 1.877 | | 99.301 |
| Gravel bar | 11.60 | | 1.525 | | 99.653 |
| Gravel bar | 13.00 | | 1.499 | | 99.679 |
| Gravel bar | 13.60 | | 1.838 | | 99.340 |
| LB (of bar) WL edge | 14.30 | | 1.952 | | 99.226 |
| Side channel bed #1 | 15.30 | | 2.046 | | 99.132 |
| Side channel WL #1 | 15.30 | | | 0.090 | 99.222 |
| Side channel bed #2 | 15.90 | | 2.133 | | 99.045 |
| Side channel WL #2 | 15.90 | | | 0.170 | 99.215 |
| RB (of bar) WL edge | 16.60 | | 2.028 | | 99.150 |
| RB High Water Mark | 16.75 | | 1.585 | | 99.593 |
| 2 | 16.85 | | 1.395 | | 99.783 |
| Top of RB | 17.20 | | 1.295 | | 99.883 |

| | | Channel Slope Surve | ey Data | | | |
|------------------------------|---------------------------------|---------------------|---------------|------------|-----------|--|
| Mea | asured Data | Calculated Data | Channel Re | each Notes | | |
| Direction from Cross-section | Distance from Cross- section | Survey Reading | Elevation (m) | Morphology | Substrate | |
| | 17.0 | 2.227 | 98.951 | Riffle | | |
| | 25.0 | 1.665 | 99.513 | Riffle | | |
| Upstream | | | | | | |
| | | | | | | |
| At Cross-section | 0.0 | | 98.533 | Riffle | | |
| | 14.0 | 2.471 | 98.707 | Run | | |
| | 32.0 | 2.690 | 98.488 | Run | | |
| Downstream | | | | | | |
| | | | | | | |
| | | | | | | |

| Slope Data: | |
|-------------------------------|-------|
| Horizontal Distance Surveyed: | 57.0 |
| Change in Channel Elevation: | 1.025 |
| Average Channel Slope (%): | 1.798 |







| <u>Gen</u> | neral Notes: |
|-------------------|---|
| -Upstr -At the | ream of the crossing, two channels converge at the end of a large gravel bar, which is followed by a sizeable riffle. e stream crossing, flows are slightly diverged into a main channel and small side channel by another gravel bar. There is very little flow in the side channel. |
| | |
| | |

| Field Personnel: | CJ, DH | Trip Date: | 24-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 8-Oct-14 |
| Data Check Personnel: | TL | Date: | 30-Oct-14 |
| Entered Digitally in the Field: | No | | |

Attachment F

Hydrometric Measurement/Site Visit Record

Site: KP 27.1 (Sundog Creek) **UTM Location:** 418911 E, 6828332 N

Site Visit Date: Site Visit Time (MST): September 22, 2014 16:30

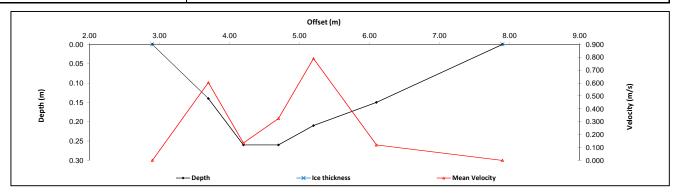


| | Measured Data | | | | | | | | | | | | Calculated Data | | | |
|-------|---------------|-----------|--------------|---------------|----------|---------|----------|---------|------------|------------|--------|------------------|--------------------------|-------------------|---------------------|-----------------------|
| | | Depth | | | | Depth | | Depth | | | | | | | | |
| | | from | | | Velocity | of Obs. | Velocity | of Obs. | | Velocity | | | | | | |
| | | bottom to | WS to bottom | Depth of Obs. | @ 0.6 | @ 0.8 | @ 0.8 | @ 0.2 | Velocity @ | Correction | Pannel | Effective Pannel | Effective Average Pannel | | | |
| Bank/ | Offset | WS | of ice | @ 0.6 Depth | Depth | Depth | Depth | Depth | 0.2 Depth | Factor | Width | Depth | Velocity | Pannel Area | Pannel Discharge | Percent of total flow |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| RB | 2.90 | 0.00 | 0.00 | | 0.000 | | 0.000 | | 0.000 | 1.00 | 0.40 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 3.70 | 0.14 | | 0.08 | 0.604 | | | | | 1.00 | 0.65 | 0.14 | 0.604 | 0.09 | 0.055 | 22% |
| 2 | 4.20 | 0.26 | | 0.16 | 0.135 | | | | | 1.00 | 0.50 | 0.26 | 0.135 | 0.13 | 0.018 | 7% |
| 3 | 4.70 | 0.26 | | 0.16 | 0.325 | | | | | 1.00 | 0.50 | 0.26 | 0.325 | 0.13 | 0.042 | 17% |
| 4 | 5.20 | 0.21 | | 0.13 | 0.790 | | | | | 1.00 | 0.70 | 0.21 | 0.790 | 0.15 | 0.116 | 46% |
| 5 | 6.10 | 0.15 | | 0.09 | 0.120 | | | | | 1.00 | 1.35 | 0.15 | 0.120 | 0.20 | 0.024 | 10% |
| LB | 7.90 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 1.00 | 0.90 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | • | · | | | | | | | | | · | Total Flov | v | 0.255 | 100% |

| Flow Measurement Details: | | | | | | | |
|--|-------|--|--|--|--|--|--|
| Metering Section Location (describe): At stream crossing | | | | | | | |
| Meas. Start Time (MST): | 16:45 | | | | | | |
| Meas. End Time (MST): | 16:55 | | | | | | |

| Meas. Start Time (MST): | 16:45 |
|-------------------------|--------------------------------|
| Meas. End Time (MST): | 16:55 |
| Equipment: | ADV |
| Method: | Wading |
| River Condition: | Low flow |
| Channel Edges: | Trapezoidal Edge (e.g. stream) |
| Weather: | Sunny, windy, 15 C |

| Flow characteristics: | | |
|-----------------------|-------|---------------------|
| Total Flow: | 0.255 | (m ³ /s) |
| Cross Section Area: | 0.70 | (m ²) |
| Wetted Width: | 5.00 | (m) |
| Hydraulic Depth: | 0.14 | (m) |
| Mean Velocity: | 0.36 | (m/s) |
| Froude Number: | 0.31 | |



General Notes:

-Lots of boulders in the channel making flow measurement difficult lots of eddy effects.

-less than 20 measurements collected due to the rough channel morphology

| Field Personnel: | CJ, DH | Trip Date: | 22-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 6-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

Site: KP 47.0 (Polje Creek Tributary)
UTM Location: 434240 E, 6829338 N

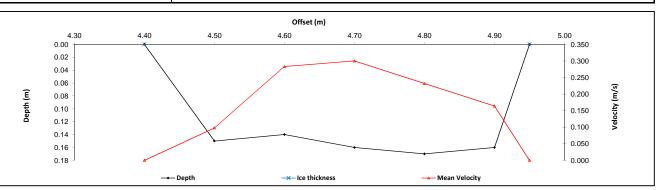
Site Visit Date: September 21, 2014
Site Visit Time (MST): 14:15



| | Measured Data | | | | | | | | | | | | Calculated Data | | | |
|-------|---------------|-------|--------|---------------|-------------------|-------|-------|------------------|------------|------------------------|--------|------------------|--------------------------|-------------------|---------------------|-----------------------|
| | | Depth | | | | Depth | | Depth | | | | | | | | |
| | | | | Depth of Obs. | Velocity @ 0.6 | @ 0.8 | @ 0.8 | of Obs. @ 0.2 | Velocity @ | Velocity Correction | Pannel | Effective Pannel | Effective Average Pannel | | | |
| Bank/ | Offset | WS | of ice | @ 0.6 Depth | Depth | Depth | Depth | Depth | 0.2 Depth | Factor | Width | Depth | Velocity | Pannel Area | Pannel Discharge | Percent of total flow |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| RB | 4.40 | 0.00 | 0.00 | | 0.000 | | 0.000 | | 0.000 | 1.00 | 0.05 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 4.50 | 0.15 | | 0.09 | 0.098 | | | | | 1.00 | 0.10 | 0.15 | 0.098 | 0.01 | 0.001 | 9% |
| 2 | 4.60 | 0.14 | | 0.08 | 0.283 | | | | | 1.00 | 0.10 | 0.14 | 0.283 | 0.01 | 0.004 | 25% |
| 3 | 4.70 | 0.16 | | 0.10 | 0.300 | | | | | 1.00 | 0.10 | 0.16 | 0.300 | 0.02 | 0.005 | 30% |
| 4 | 4.80 | 0.17 | | 0.10 | 0.232 | | | | | 1.00 | 0.10 | 0.17 | 0.232 | 0.02 | 0.004 | 24% |
| 5 | 4.90 | 0.16 | | 0.10 | 0.164 | | | | | 1.00 | 0.08 | 0.16 | 0.164 | 0.01 | 0.002 | 12% |
| LB | 4.95 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 1.00 | 0.02 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | | | | | | | | | | | | Total Flov | V | 0.016 | 100% |

| Flow Measurement Detail | <u>s:</u> |
|---|--------------------------------|
| Metering Section Location (de At stream crossing | scribe): |
| Meas. Start Time (MST): | 14:30 |
| Meas. End Time (MST): | 14:40 |
| Equipment: | ADV |
| Method: | Wading |
| River Condition: | low flow |
| Channel Edges: | Trapezoidal Edge (e.g. stream) |
| Weather: | Partial cloud, calm, 15 |

| Flow characteristics: | | | | | | | | | |
|-----------------------|-------|---------------------|--|--|--|--|--|--|--|
| Total Flow: | 0.016 | (m ³ /s) | | | | | | | |
| Cross Section Area: | 0.07 | (m²) | | | | | | | |
| Wetted Width: | 0.55 | (m) | | | | | | | |
| Hydraulic Depth: | 0.13 | (m) | | | | | | | |
| Mean Velocity: | 0.22 | (m/s) | | | | | | | |
| Froude Number: | 0.19 | | | | | | | | |



General Notes:

-Not able to collect further velocity measurements due to very low water depths and presence of large cobble and boulders obstructing flow.

| Field Personnel: | CJ, DH | Trip Date: | 21-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 30-Sep-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

Site: KP 50.2 (Polje Tributary)

UTM Location: 436944 E, 6829737 N

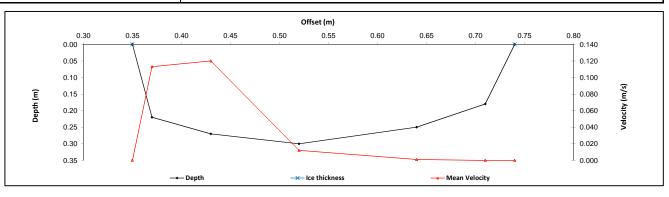
Site Visit Date: September 21, 2014
Site Visit Time (MST): 09:50



| FIOW IV | ieasure | ement: | | | | | | | | 1 | | | | | | |
|---------|---------------|-----------|--------------|---------------|----------|---------|----------|---------|------------|------------|--------|------------------|--------------------------|-------------------|---------------------|-----------------------|
| | Measured Data | | | | | | | | | | | | Calculated Data | | | |
| | | Depth | | | | Depth | | Depth | | | | | | | | |
| | | from | | | Velocity | of Obs. | Velocity | of Obs. | | Velocity | | | | | | |
| | | bottom to | WS to bottom | Depth of Obs. | @ 0.6 | @ 0.8 | @ 0.8 | @ 0.2 | Velocity @ | Correction | Pannel | Effective Pannel | Effective Average Pannel | | | |
| Bank/ | Offset | WS | of ice | @ 0.6 Depth | Depth | Depth | Depth | Depth | 0.2 Depth | Factor | Width | Depth | Velocity | Pannel Area | Pannel Discharge | Percent of total flow |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| RB | 0.35 | 0.00 | 0.00 | | 0.000 | | 0.000 | | 0.000 | 1.00 | 0.01 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 0.37 | 0.22 | | 0.13 | 0.113 | | | | | 1.00 | 0.04 | 0.22 | 0.113 | 0.01 | 0.001 | 26% |
| 2 | 0.43 | 0.27 | | 0.16 | 0.120 | | | | | 1.00 | 0.08 | 0.27 | 0.120 | 0.02 | 0.002 | 63% |
| 3 | 0.52 | 0.30 | | 0.18 | 0.012 | | | | | 1.00 | 0.11 | 0.30 | 0.012 | 0.03 | 0.000 | 10% |
| 4 | 0.64 | 0.25 | | 0.15 | 0.001 | | | | | 1.00 | 0.10 | 0.25 | 0.001 | 0.02 | 0.000 | 1% |
| 5 | 0.71 | 0.18 | | 0.11 | 0.000 | | | | | 1.00 | 0.05 | 0.18 | 0.000 | 0.01 | 0.000 | 0% |
| LB | 0.74 | 0.00 | 0.00 | _ | 0.00 | _ | 0.00 | | 0.00 | 1.00 | 0.02 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | | | | | | | | | | | | Total Flov | N | 0.004 | 100% |

| Flow Measurement Detail | <u>ls:</u> | | | | |
|--|--------------------------------|--|--|--|--|
| Metering Section Location (describe): At centre of road crossing Meas. Start Time (MST): Meas. End Time (MST): Equipment: ADV Method: Wading River Condition: Channel Edge: Transgrids Efge (e.g. stream) | | | | | |
| Meas. Start Time (MST): | 10:20 | | | | |
| Meas. End Time (MST): | 10:30 | | | | |
| Equipment: | ADV | | | | |
| Method: | Wading | | | | |
| River Condition: | Low flow | | | | |
| Channel Edges: | Trapezoidal Edge (e.g. stream) | | | | |
| Weather: | Overcast, calm, 10 | | | | |

| Flow characteristics: | | |
|-----------------------|-------|--------|
| Total Flow: | 0.004 | (m³/s) |
| Cross Section Area: | 0.09 | (m²) |
| Wetted Width: | 0.39 | (m) |
| Hydraulic Depth: | 0.24 | (m) |
| Mean Velocity: | 0.04 | (m/s) |
| Froude Number: | 0.03 | |



General Notes:

-Not able to collect further velocity measurements due to low water depths and presence of large cobble and boulders obstructing flow

| Field Personnel: | CJ, DH | Trip Date: | 21-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 30-Sep-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

Site: KP 54.3 (Polje Creek Tributary)
UTM Location: 440622 E, 6830769 N

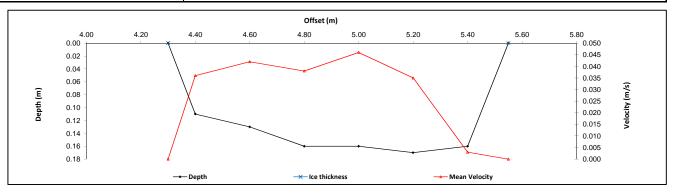
Site Visit Date: September 21, 2014
Site Visit Time (MST): 15:45



| Flow IV | | | | Measured | l Data | | | | | Calculated Data | | | | | | |
|---------|-------------------|-----------|--------------|---------------|----------|-------|----------|---------|------------|-----------------|--------|------------------|--------------------------|-------------------|---------------------|-----------------------|
| | Depth Depth Depth | | | | | | | | | | | | Gaiotalatou Data | | | |
| | | from | | | Velocity | | Velocity | of Obs. | | Velocity | | | | | | |
| | | bottom to | WS to bottom | Depth of Obs. | @ 0.6 | @ 0.8 | @ 0.8 | @ 0.2 | Velocity @ | Correction | Pannel | Effective Pannel | Effective Average Pannel | | | |
| Bank/ | Offset | WS | of ice | @ 0.6 Depth | Depth | Depth | Depth | Depth | 0.2 Depth | Factor | Width | Depth | Velocity | Pannel Area | Pannel Discharge | Percent of total flow |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| RB | 4.30 | 0.00 | 0.00 | | 0.000 | | 0.000 | | 0.000 | 1.00 | 0.05 | 0.00 | 0.000 | 0.00 | 0.000 | • |
| 1 | 4.40 | 0.11 | | 0.07 | 0.036 | | | | | 1.00 | 0.15 | 0.11 | 0.036 | 0.02 | 0.001 | 11% |
| 2 | 4.60 | 0.13 | | 0.08 | 0.042 | | | | | 1.00 | 0.20 | 0.13 | 0.042 | 0.03 | 0.001 | 19% |
| 3 | 4.80 | 0.16 | | 0.10 | 0.038 | | | | | 1.00 | 0.20 | 0.16 | 0.038 | 0.03 | 0.001 | 22% |
| 4 | 5.00 | 0.16 | | 0.10 | 0.046 | | | | | 1.00 | 0.20 | 0.16 | 0.046 | 0.03 | 0.001 | 26% |
| 5 | 5.20 | 0.17 | | 0.10 | 0.035 | | | | | 1.00 | 0.20 | 0.17 | 0.035 | 0.03 | 0.001 | 21% |
| 6 | 5.40 | 0.16 | | 0.10 | 0.003 | | | | | 1.00 | 0.17 | 0.16 | 0.003 | 0.03 | 0.000 | 1% |
| LB | 5.55 | 0.00 | 0.00 | - | 0.00 | | 0.00 | _ | 0.00 | 1.00 | 0.07 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | | | | | | | | • | | • | | Total Flov | v | 0.006 | 100% |

| Flow Measurement Details: | | | | | |
|--|--------------------------------|--|--|--|--|
| Metering Section Location (describe): At stream crossing | | | | | |
| Meas. Start Time (MST): 16:00 | | | | | |
| Meas. End Time (MST): | 16:10 | | | | |
| Equipment: | ADV | | | | |
| Method: | Wading | | | | |
| River Condition: | Low flow | | | | |
| Channel Edges: | Trapezoidal Edge (e.g. stream) | | | | |
| Weather: | Overcast, calm, 15 | | | | |

| Flow characteristics: | | | | | | |
|-----------------------|-------|---------------------|--|--|--|--|
| Total Flow: | 0.006 | (m ³ /s) | | | | |
| Cross Section Area: | 0.17 | (m²) | | | | |
| Wetted Width: | 1.25 | (m) | | | | |
| Hydraulic Depth: | 0.13 | (m) | | | | |
| Mean Velocity: | 0.03 | (m/s) | | | | |
| Froude Number: | 0.03 | | | | | |



General Notes:

-Not able to collect further velocity measurements due to low water depths and presence of large boulders and cobble obstructing flow.

| Field Personnel: | CJ, DH | Trip Date: | 21-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 30-Sep-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

Site: KP 87.7 (Tetcela River)

UTM Location: 460241 E, 6812386 N

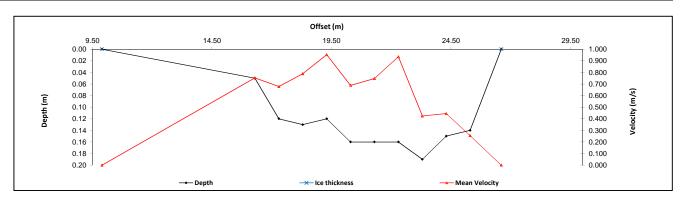
Site Visit Date: September 24, 2014
Site Visit Time (MST): 14:00



| Flow N | w Measurement: | | | | | | | | | | | | | | | |
|--------|----------------|----------------------------------|---------------------|------------------------------|----------------------------|------------------------------------|----------------------------|------------------------------------|----------------------|----------------------------------|-----------------|---------------------------|-----------------------------------|-------------------|---------------------|-----------------------|
| | Measured Data | | | | | | | | Calculated Data | | | | | | | |
| Bank/ | Offset | Depth from bottom to WS | WS to bottom of ice | Depth of Obs. @ 0.6 Depth | Velocity @ 0.6 Depth | Depth of Obs. @ 0.8 Depth | Velocity @ 0.8 Depth | Depth of Obs. @ 0.2 Depth | Velocity @ 0.2 Depth | Velocity Correction Factor | Pannel Width | Effective Pannel Depth | Effective Average Pannel Velocity | Pannel Area | Pannel Discharge | Percent of total flow |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| RB | 9.90 | 0.00 | 0.00 | | 0.000 | | 0.000 | | 0.000 | 1.00 | 3.20 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 16.30 | 0.05 | | 0.03 | 0.753 | | | | | 1.00 | 3.70 | 0.05 | 0.753 | 0.19 | 0.139 | 14% |
| 2 | 17.30 | 0.12 | | 0.07 | 0.678 | | | | | 1.00 | 1.00 | 0.12 | 0.678 | 0.12 | 0.081 | 8% |
| 3 | 18.30 | 0.13 | | 0.08 | 0.788 | | | | | 1.00 | 1.00 | 0.13 | 0.788 | 0.13 | 0.102 | 10% |
| 4 | 19.30 | 0.12 | | 0.07 | 0.952 | | | | | 1.00 | 1.00 | 0.12 | 0.952 | 0.12 | 0.114 | 11% |
| 5 | 20.30 | 0.16 | | 0.10 | 0.688 | | | | | 1.00 | 1.00 | 0.16 | 0.688 | 0.16 | 0.110 | 11% |
| 6 | 21.30 | 0.16 | | 0.10 | 0.747 | | | | | 1.00 | 1.00 | 0.16 | 0.747 | 0.16 | 0.120 | 12% |
| 7 | 22.30 | 0.16 | | 0.10 | 0.934 | | | | | 1.00 | 1.00 | 0.16 | 0.934 | 0.16 | 0.149 | 15% |
| 8 | 23.30 | 0.19 | | 0.11 | 0.424 | | | | | 1.00 | 1.00 | 0.19 | 0.424 | 0.19 | 0.081 | 8% |
| 9 | 24.30 | 0.15 | | 0.09 | 0.445 | | | | | 1.00 | 1.00 | 0.15 | 0.445 | 0.15 | 0.067 | 7% |
| 10 | 25.30 | 0.14 | | 0.08 | 0.255 | | | | | 1.00 | 1.15 | 0.14 | 0.255 | 0.16 | 0.041 | 4% |
| LB | 26.60 | 0.00 | 0.00 | _ | 0.00 | _ | 0.00 | | 0.00 | 1.00 | 0.65 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | · | · | | • | | | | | • | | · | | Total Flov | v | 1 | 100% |

| Flow Measurement Details: | | | | | |
|--|--------------------------------|--|--|--|--|
| Metering Section Location (describe): At stream crossing | | | | | |
| Meas. Start Time (MST): 14:15 | | | | | |
| Meas. End Time (MST): | 14:25 | | | | |
| Equipment: | ADV | | | | |
| Method: | Wading | | | | |
| River Condition: | Low flow | | | | |
| Channel Edges: | Trapezoidal Edge (e.g. stream) | | | | |
| Weather: Cloudy, calm, 8 C | | | | | |

| Flow characteristics: | | | | | |
|-----------------------|-------|---------------------|--|--|--|
| Total Flow: | 1.000 | (m ³ /s) | | | |
| Cross Section Area: | 1.54 | (m²) | | | |
| Wetted Width: | 16.70 | (m) | | | |
| Hydraulic Depth: | 0.09 | (m) | | | |
| Mean Velocity: | 0.65 | (m/s) | | | |
| Froude Number: | 0.69 | | | | |



| General | Notes: |
|---------|--------|
| | |

| Field Personnel: | CJ, DH | Trip Date: | 24-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 7-Oct-14 |
| Data Check Personnel: | TL | Date: | 30-Oct-14 |
| Entered Digitally in the Field: | No | | |

Site: KP 122.8 (Grainger Tributary)
UTM Location: 477151 E, 6798715 N

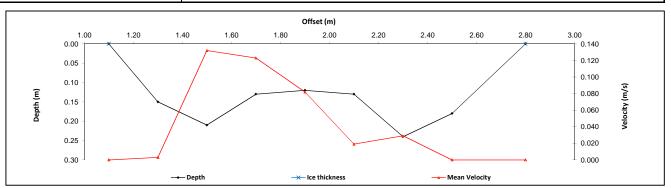
Site Visit Date: September 23, 2014 Site Visit Time (MST): 15:20



| | Measured Data | | | | | | | Calculated Data | | | | | | | | |
|-------|---------------|------|--------|------------------------------|----------------------------|------------------------------------|----------------------------|------------------------------------|----------------------|----------------------------------|-----------------|---------------------------|--------------------------------------|-------------|--------|-----------------------|
| Bank/ | Offset | WS | of ice | Depth of Obs. @ 0.6 Depth | Velocity @ 0.6 Depth | Depth of Obs. @ 0.8 Depth | Velocity @ 0.8 Depth | Depth of Obs. @ 0.2 Depth | Velocity @ 0.2 Depth | Velocity Correction Factor | Pannel Width | Effective Pannel Depth | Effective Average Pannel Velocity | Pannel Area | | Percent of total flow |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m²) | (m³/s) | (%) |
| LB | 1.10 | 0.00 | 0.00 | | 0.000 | | 0.000 | | 0.000 | 1.00 | 0.10 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 1.30 | 0.15 | | 0.09 | 0.003 | | | | | 1.00 | 0.20 | 0.15 | 0.003 | 0.03 | 0.000 | 1% |
| 2 | 1.50 | 0.21 | | 0.13 | 0.132 | | | | | 1.00 | 0.20 | 0.21 | 0.132 | 0.04 | 0.006 | 44% |
| 3 | 1.70 | 0.13 | | 0.08 | 0.123 | | | | | 1.00 | 0.20 | 0.13 | 0.123 | 0.03 | 0.003 | 25% |
| 4 | 1.90 | 0.12 | | 0.07 | 0.082 | | | | | 1.00 | 0.20 | 0.12 | 0.082 | 0.02 | 0.002 | 15% |
| 5 | 2.10 | 0.13 | | 0.08 | 0.019 | | | | | 1.00 | 0.20 | 0.13 | 0.019 | 0.03 | 0.000 | 4% |
| 6 | 2.30 | 0.24 | | 0.14 | 0.029 | | | | | 1.00 | 0.20 | 0.24 | 0.029 | 0.05 | 0.001 | 11% |
| 7 | 2.50 | 0.18 | | 0.11 | 0.000 | | | | | 1.00 | 0.25 | 0.18 | 0.000 | 0.05 | 0.000 | 0% |
| RB | 2.80 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 1.00 | 0.15 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | | | | | | | | | | | | Total Flov | v | 0.0127 | 100% |

| Flow Measurement Details: | | | | | |
|--|----------------------------------|--|--|--|--|
| Metering Section Location (describe): At stream crossing | | | | | |
| Meas. Start Time (MST): 15:40 | | | | | |
| Meas. End Time (MST): | 15:50 | | | | |
| Equipment: | ADV | | | | |
| Method: | Wading | | | | |
| River Condition: | Low flow | | | | |
| Channel Edges: | Straight Edge (e.g. bridge/pier) | | | | |
| Weather: | Partial cloud, calm, 10 C | | | | |

| Flow characteristics: | | | | | |
|-----------------------|-------|--------|--|--|--|
| Total Flow: | 0.013 | (m³/s) | | | |
| Cross Section Area: | 0.24 | (m²) | | | |
| Wetted Width: | 1.70 | (m) | | | |
| Hydraulic Depth: | 0.14 | (m) | | | |
| Mean Velocity: | 0.05 | (m/s) | | | |
| Froude Number: | 0.04 | | | | |



General Notes:

-Large boulders throughout channel obstructing the flow, not able to collect further velocity measurements

| Field Personnel: | CJ, DH | Trip Date: | 23-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 7-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

Site: KP 123.7 (Grainger River) **UTM Location:** 478319 E, 6799043 N

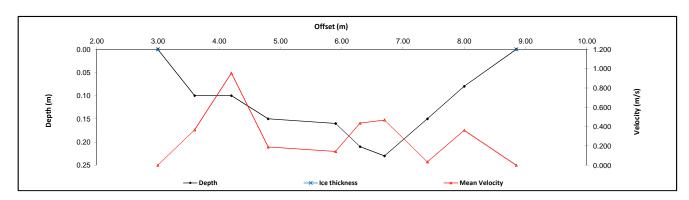
Site Visit Date: September 23, 2014 Site Visit Time (MST): 17:10



| | | | | Measured | l Data | | | | | | | | Calculated Data | | | |
|-------|--------|---------------|--------------|---------------|----------|---------------|----------|---------------|------------|------------|----------|------------------|--------------------------|-------------------|---------------------|-----------------------|
| | | Depth from | | | Velocity | Depth of Obs. | Velocity | Depth of Obs. | | Velocity | Velocity | | | | | |
| | | bottom to | WS to bottom | Depth of Obs. | @ 0.6 | @ 0.8 | @ 0.8 | @ 0.2 | Velocity @ | Correction | Pannel | Effective Pannel | Effective Average Pannel | | | |
| Bank/ | Offset | WS | of ice | @ 0.6 Depth | Depth | Depth | Depth | Depth | 0.2 Depth | Factor | Width | Depth | Velocity | Pannel Area | Pannel Discharge | Percent of total flow |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| LB | 3.00 | 0.00 | 0.00 | | 0.000 | | 0.000 | | 0.000 | 1.00 | 0.30 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 3.60 | 0.10 | | 0.06 | 0.366 | | | | | 1.00 | 0.60 | 0.10 | 0.366 | 0.06 | 0.022 | 9% |
| 2 | 4.20 | 0.10 | | 0.06 | 0.954 | | | | | 1.00 | 0.60 | 0.10 | 0.954 | 0.06 | 0.057 | 24% |
| 3 | 4.80 | 0.15 | | 0.09 | 0.189 | | | | | 1.00 | 0.85 | 0.15 | 0.189 | 0.13 | 0.024 | 10% |
| 4 | 5.90 | 0.16 | | 0.10 | 0.142 | | | | | 1.00 | 0.75 | 0.16 | 0.142 | 0.12 | 0.017 | 7% |
| 5 | 6.30 | 0.21 | | 0.13 | 0.436 | | | | | 1.00 | 0.40 | 0.21 | 0.436 | 0.08 | 0.037 | 15% |
| 6 | 6.70 | 0.23 | | 0.14 | 0.468 | | | | | 1.00 | 0.55 | 0.23 | 0.468 | 0.13 | 0.059 | 25% |
| 7 | 7.40 | 0.15 | | 0.09 | 0.034 | | | | | 1.00 | 0.65 | 0.15 | 0.034 | 0.10 | 0.003 | 1% |
| 8 | 8.00 | 0.08 | | 0.05 | 0.362 | | | | | 1.00 | 0.73 | 0.08 | 0.362 | 0.06 | 0.021 | 9% |
| RB | 8.85 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 1.00 | 0.43 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | | • | | | | | | • | | • | | Total Flov | v | 0.24 | 100% |

| Flow Measurement Details: | | | | | | | | |
|--|--------------------------------|--|--|--|--|--|--|--|
| Metering Section Location (a At stream crossing | describe): | | | | | | | |
| Meas. Start Time (MST): 17:30 | | | | | | | | |
| Meas. End Time (MST): | 17:40 | | | | | | | |
| Equipment: | ADV | | | | | | | |
| Method: | Wading | | | | | | | |
| River Condition: | Low flow | | | | | | | |
| Channel Edges: | Trapezoidal Edge (e.g. stream) | | | | | | | |
| Weather: | Partial cloud, windy, 12 C | | | | | | | |

| Flow characteristics: | | | | | | |
|-----------------------|-------|---------------------|--|--|--|--|
| Total Flow: | 0.240 | (m ³ /s) | | | | |
| Cross Section Area: | 0.73 | (m²) | | | | |
| Wetted Width: | 5.85 | (m) | | | | |
| Hydraulic Depth: | 0.13 | (m) | | | | |
| Mean Velocity: | 0.33 | (m/s) | | | | |
| Froude Number: | 0.30 | | | | | |



| General Notes: | | | |
|----------------|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |

| Field Personnel: | CJ, DH | Trip Date: | 23-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 7-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

Site: KP 125.1 (Grainger River) **UTM Location:** 479156 E, 6799517 N

Site Visit Date: September 23, 2014 Site Visit Time (MST): 18:30

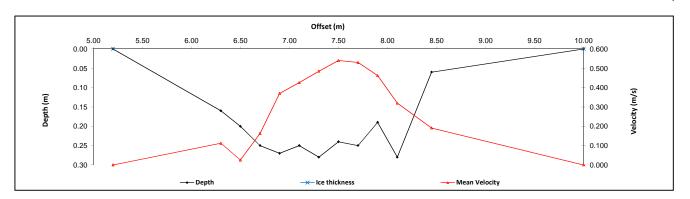


| Flow IV | leasur | ement: | | | | | | | | | | | | | | |
|---------|--------|-----------|--------------|---------------|----------|---------|----------|---------|------------|-----------------|--------|------------------|--------------------------|-------------------|---------------------|-----------------------|
| | | | | Measured | Data | | | | | Calculated Data | | | | | | |
| | | Depth | | | | Depth | | Depth | | | | | | | | |
| | | from | | | Velocity | of Obs. | Velocity | of Obs. | | Velocity | | | | | | |
| | | bottom to | WS to bottom | Depth of Obs. | @ 0.6 | @ 0.8 | @ 0.8 | @ 0.2 | Velocity @ | Correction | Pannel | Effective Pannel | Effective Average Pannel | | | |
| Bank/ | Offset | WS | of ice | @ 0.6 Depth | Depth | Depth | Depth | Depth | 0.2 Depth | Factor | Width | Depth | Velocity | Pannel Area | Pannel Discharge | Percent of total flow |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| LB | 5.20 | 0.00 | 0.00 | _ | 0.000 | | 0.000 | | 0.000 | 1.00 | 0.55 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 6.30 | 0.16 | | 0.10 | 0.112 | | | | | 1.00 | 0.65 | 0.16 | 0.112 | 0.10 | 0.012 | 6% |
| 2 | 6.50 | 0.20 | | 0.12 | 0.025 | | | | | 1.00 | 0.20 | 0.20 | 0.025 | 0.04 | 0.001 | 1% |
| 3 | 6.70 | 0.25 | | 0.15 | 0.163 | | | | | 1.00 | 0.20 | 0.25 | 0.163 | 0.05 | 0.008 | 4% |
| 4 | 6.90 | 0.27 | | 0.16 | 0.370 | | | | | 1.00 | 0.20 | 0.27 | 0.370 | 0.05 | 0.020 | 10% |
| 5 | 7.10 | 0.25 | | 0.15 | 0.426 | | | | | 1.00 | 0.20 | 0.25 | 0.426 | 0.05 | 0.021 | 11% |
| 6 | 7.30 | 0.28 | | 0.17 | 0.485 | | | | | 1.00 | 0.20 | 0.28 | 0.485 | 0.06 | 0.027 | 14% |
| 7 | 7.50 | 0.24 | | 0.14 | 0.540 | | | | | 1.00 | 0.20 | 0.24 | 0.540 | 0.05 | 0.026 | 13% |
| 8 | 7.70 | 0.25 | | 0.15 | 0.530 | | | | | 1.00 | 0.20 | 0.25 | 0.530 | 0.05 | 0.027 | 14% |
| 9 | 7.90 | 0.19 | | 0.11 | 0.462 | | | | | 1.00 | 0.20 | 0.19 | 0.462 | 0.04 | 0.018 | 9% |
| 10 | 8.10 | 0.28 | | 0.17 | 0.320 | | | | | 1.00 | 0.27 | 0.28 | 0.320 | 0.08 | 0.025 | 13% |
| 11 | 8.45 | 0.06 | | 0.04 | 0.191 | | | | | 1.00 | 0.95 | 0.06 | 0.191 | 0.06 | 0.011 | 6% |
| RB | 10.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 1.00 | 0.78 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | | | | | | | | | | | | Total Flov | V | 0.195 | 100% |

| Flow Measurement Details: | | | | | | | | |
|---|---|--|--|--|--|--|--|--|
| Metering Section Location (a -Approx. 20m upstream | describe): of crossing (above gravel bar) | | | | | | | |
| Meas. Start Time (MST): | 18:45 | | | | | | | |
| Meas. End Time (MST): | 18:55 | | | | | | | |
| Equipment: ADV | | | | | | | | |
| Method: Wading | | | | | | | | |
| River Condition: Low flow | | | | | | | | |

| Flow characteristics: | | | | | | | | |
|-----------------------|-------|---------------------|--|--|--|--|--|--|
| Total Flow: | 0.195 | (m ³ /s) | | | | | | |
| Cross Section Area: | 0.62 | (m²) | | | | | | |
| Wetted Width: | 4.80 | (m) | | | | | | |
| Hydraulic Depth: | 0.13 | (m) | | | | | | |
| Mean Velocity: | 0.31 | (m/s) | | | | | | |
| Froude Number: | 0.28 | | | | | | | |

Trapezoidal Edge (e.g. stream) Clear, breezy, 10 C



General Notes:

Channel Edges:

- Several gravel bars and a dry side channel are located downstream of measurement cross section.

| Field Personnel: | CJ, DH | Trip Date: | 23-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 7-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

Site: KP 131.3 (Grainger Tributary)
UTM Location: 481988 E, 6794966 N

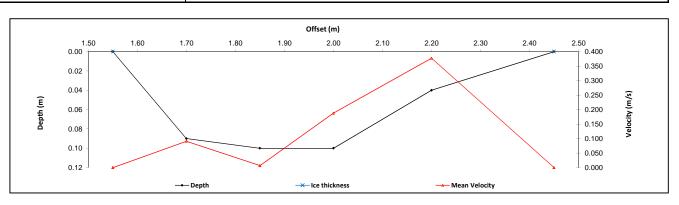
Site Visit Date: September 26, 2014 Site Visit Time (MST): 12:10



| Flow IV | leasur | ement: | | | | | | | | | | | | | | |
|---------|---------------|-----------|--------------|---------------|----------|---------|----------|---------|------------|------------|--------|------------------|--------------------------|-------------------|---------------------|-----------------------|
| | Measured Data | | | | | | | | | | | | Calculated Data | | | |
| | | Depth | | | | Depth | | Depth | | | | | | | | |
| | | from | | | Velocity | of Obs. | Velocity | of Obs. | | Velocity | | | | | | |
| | | bottom to | WS to bottom | Depth of Obs. | @ 0.6 | @ 0.8 | @ 0.8 | @ 0.2 | Velocity @ | Correction | Pannel | Effective Pannel | Effective Average Pannel | | | |
| Bank/ | Offset | WS | of ice | @ 0.6 Depth | Depth | Depth | Depth | Depth | 0.2 Depth | Factor | Width | Depth | Velocity | Pannel Area | Pannel Discharge | Percent of total flow |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| LB | 1.55 | 0.00 | 0.00 | | 0.000 | | 0.000 | | 0.000 | 1.00 | 0.08 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 1.70 | 0.09 | | 0.05 | 0.091 | | | | | 1.00 | 0.15 | 0.09 | 0.091 | 0.01 | 0.001 | 15% |
| 2 | 1.85 | 0.10 | | 0.06 | 0.007 | | | | | 1.00 | 0.15 | 0.10 | 0.007 | 0.02 | 0.000 | 1% |
| 3 | 2.00 | 0.10 | | 0.06 | 0.188 | | | | | 1.00 | 0.18 | 0.10 | 0.188 | 0.02 | 0.003 | 41% |
| 4 | 2.20 | 0.04 | | 0.02 | 0.377 | | | | | 1.00 | 0.23 | 0.04 | 0.377 | 0.01 | 0.003 | 42% |
| RB | 2.45 | 0.00 | 0.00 | _ | 0.00 | | 0.00 | | 0.00 | 1.00 | 0.13 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | | • | | | | • | | • | | | • | Total Flov | v | 0.00802 | 100% |

| Flow Measurement Details: | | | | | | | |
|--|---------------------------|--|--|--|--|--|--|
| Metering Section Location (a At stream crossing | lescribe): | | | | | | |
| Meas. Start Time (MST): | 12:20 | | | | | | |
| Meas. End Time (MST): | 12:30 | | | | | | |
| Equipment: | ADV | | | | | | |
| Method: | Wading | | | | | | |
| River Condition: | Low flow | | | | | | |
| Channel Edges: Trapezoidal Edge (e.g. stream) | | | | | | | |
| Weather: | Cloudy, light breeze, 5 C | | | | | | |

| Flow characteristics: | | | | | | | |
|-----------------------|-------|--------|--|--|--|--|--|
| Total Flow: | 0.008 | (m³/s) | | | | | |
| Cross Section Area: | 0.06 | (m²) | | | | | |
| Wetted Width: | 0.90 | (m) | | | | | |
| Hydraulic Depth: | 0.06 | (m) | | | | | |
| Mean Velocity: | 0.15 | (m/s) | | | | | |
| Froude Number: | 0.19 | | | | | | |



General Notes:

-Lots of embedded cobble and boulders throughout the channel.

| Field Personnel: | CJ, DH | Trip Date: | 26-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 8-Oct-14 |
| Data Check Personnel: | TL | Date: | 30-Oct-14 |
| Entered Digitally in the Fields | No | | |

Site: KP 133.7 (Grainger Tributary)
UTM Location: 482671 E, 6793161 N

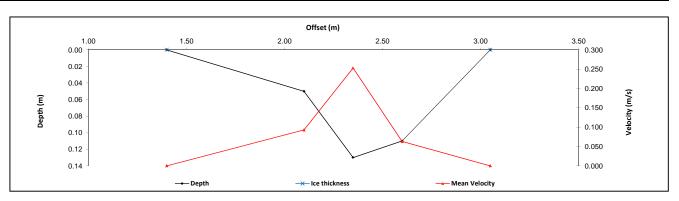
Site Visit Date: September 24, 2014 Site Visit Time (MST): 09:00



| Flow IV | leasur | ement: | | | | | | | | | | | | | | |
|---------|--------|-----------|--------------|---------------|----------|---------|----------|---------|------------|------------|--------|------------------|--------------------------|-------------------|---------------------|-----------------------|
| | | | | Measured | l Data | | | | | | | | Calculated Data | | | |
| | | Depth | | | | Depth | | Depth | | | | | | | | |
| | | from | | | Velocity | of Obs. | Velocity | of Obs. | | Velocity | | | | | | |
| | | bottom to | WS to bottom | Depth of Obs. | @ 0.6 | @ 0.8 | @ 0.8 | @ 0.2 | Velocity @ | Correction | Pannel | Effective Pannel | Effective Average Pannel | | | |
| Bank/ | Offset | WS | of ice | @ 0.6 Depth | Depth | Depth | Depth | Depth | 0.2 Depth | Factor | Width | Depth | Velocity | Pannel Area | Pannel Discharge | Percent of total flow |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| RB | 1.40 | 0.00 | 0.00 | | 0.000 | | 0.000 | | 0.000 | 1.00 | 0.35 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 2.10 | 0.05 | | 0.03 | 0.093 | | | | | 1.00 | 0.48 | 0.05 | 0.093 | 0.02 | 0.002 | 17% |
| 2 | 2.35 | 0.13 | | 0.08 | 0.253 | | | | | 1.00 | 0.25 | 0.13 | 0.253 | 0.03 | 0.008 | 64% |
| 3 | 2.60 | 0.11 | | 0.07 | 0.063 | | | | | 1.00 | 0.35 | 0.11 | 0.063 | 0.04 | 0.002 | 19% |
| LB | 3.05 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 1.00 | 0.23 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | | | • | | • | • | • | • | | | • | Total Flov | v | 0.013 | 100% |

| Flow Measurement Det Metering Section Location (At stream crossing | |
|---|--------------------------------|
| Meas. Start Time (MST): | 9:20 |
| Meas. End Time (MST): | 9:30 |
| Equipment: | ADV |
| Method: | Wading |
| River Condition: | Low flow |
| Channel Edges: | Trapezoidal Edge (e.g. stream) |
| Weather: | Cloudy, calm, 8 C |

| Flow characteristics: | | |
|-----------------------|-------|--------|
| Total Flow: | 0.013 | (m³/s) |
| Cross Section Area: | 0.09 | (m²) |
| Wetted Width: | 1.65 | (m) |
| Hydraulic Depth: | 0.06 | (m) |
| Mean Velocity: | 0.14 | (m/s) |
| Froude Number: | 0.18 | |



General Notes:

-Not able to collect further velocity measurements due to very low water depths and the presence of large boulders and cobble obstructing flow.

| Field Personnel: | CJ, DH | Trip Date: | 24-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 7-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Fields | No | | • |

Site: KP 135.6 (Grainger Tributary)
UTM Location: 482380 E, 6791274 N

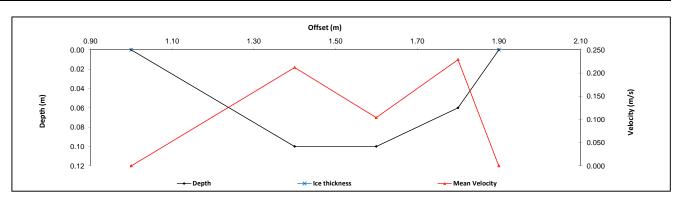
Site Visit Date: September 25, 2014 Site Visit Time (MST): 18:45



| Flow M | leasure | ement: | | | | | | | | | | | | | | |
|--------|---------|-----------|--------------|---------------|----------|---------|----------|---------|------------|------------|--------|------------------|--------------------------|-------------------|---------------------|-----------------------|
| | | | | Measured | Data | | | | | | | | Calculated Data | | | |
| | | Depth | | | | Depth | | Depth | | | | | | | | |
| | | from | | | Velocity | of Obs. | Velocity | of Obs. | | Velocity | | | | | | |
| | | bottom to | WS to bottom | Depth of Obs. | @ 0.6 | @ 0.8 | @ 0.8 | @ 0.2 | Velocity @ | Correction | Pannel | Effective Pannel | Effective Average Pannel | | | |
| Bank/ | Offset | WS | of ice | @ 0.6 Depth | Depth | Depth | Depth | Depth | 0.2 Depth | Factor | Width | Depth | Velocity | Pannel Area | Pannel Discharge | Percent of total flow |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| LB | 1.00 | 0.00 | 0.00 | | 0.000 | | 0.000 | | 0.000 | 1.00 | 0.20 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 1.40 | 0.10 | | 0.06 | 0.212 | | | | | 1.00 | 0.30 | 0.10 | 0.212 | 0.03 | 0.006 | 61% |
| 2 | 1.60 | 0.10 | | 0.06 | 0.104 | | | | | 1.00 | 0.20 | 0.10 | 0.104 | 0.02 | 0.002 | 20% |
| 3 | 1.80 | 0.06 | | 0.04 | 0.229 | | | | | 1.00 | 0.15 | 0.06 | 0.229 | 0.01 | 0.002 | 20% |
| RB | 1.90 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 1.00 | 0.05 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | | | | | | | | | | | | Total Flov | V | 0.0105 | 100% |

| Metering Section Location (describe): At stream crossing | | | | | | |
|--|--------------------------------|--|--|--|--|--|
| Meas. Start Time (MST): | 19:00 | | | | | |
| Meas. End Time (MST): | 19:10 | | | | | |
| Equipment: | ADV | | | | | |
| Method: | Wading | | | | | |
| River Condition: | Low flow | | | | | |
| Channel Edges: | Trapezoidal Edge (e.g. stream) | | | | | |
| Weather: | Cloudy, calm, 5 C | | | | | |

| Flow characteristics: | | |
|-----------------------|-------|--------|
| Total Flow: | 0.011 | (m³/s) |
| Cross Section Area: | 0.06 | (m²) |
| Wetted Width: | 0.90 | (m) |
| Hydraulic Depth: | 0.07 | (m) |
| Mean Velocity: | 0.18 | (m/s) |
| Froude Number: | 0.22 | |



General Notes:

-Not able to collect further velocity measurements due to very low water depths and the presence of large boulders and cobble obstructing flow.

| Field Personnel: | CJ, DH | Trip Date: | 25-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 8-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Fields | No | | |

Site: KP 136.7 (Grainger Tributary)
UTM Location: 483132 E, 6790094 N

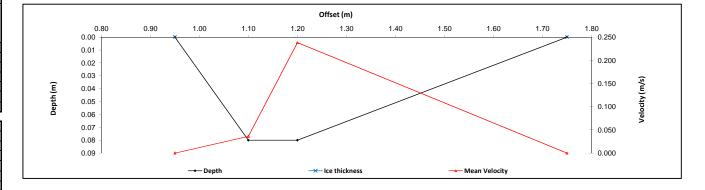
Site Visit Date: September 26, 2014 Site Visit Time (MST): 11:00



| Flow M | leasure | ement: | | | | | | | | | | | | | | |
|--------|---------|-----------|--------------|---------------|----------|---------|----------|---------|------------|------------|--------|------------------|--------------------------|-------------------|---------------------|-----------------------|
| | | | | Measured | Data | | | | | | | | Calculated Data | | | |
| | | Depth | | | | Depth | | Depth | | | | | | | | |
| | | from | | | Velocity | of Obs. | Velocity | of Obs. | | Velocity | | | | | | |
| | | bottom to | WS to bottom | Depth of Obs. | @ 0.6 | @ 0.8 | @ 0.8 | @ 0.2 | Velocity @ | Correction | Pannel | Effective Pannel | Effective Average Pannel | | | |
| Bank/ | Offset | WS | of ice | @ 0.6 Depth | Depth | Depth | Depth | Depth | 0.2 Depth | Factor | Width | Depth | Velocity | Pannel Area | Pannel Discharge | Percent of total flow |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| LB | 0.95 | 0.00 | 0.00 | | 0.000 | | 0.000 | | 0.000 | 1.00 | 0.08 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 1.10 | 0.08 | | 0.05 | 0.036 | | | | | 1.00 | 0.13 | 0.08 | 0.036 | 0.01 | 0.000 | 5% |
| 2 | 1.20 | 0.08 | | 0.05 | 0.238 | | | | | 1.00 | 0.33 | 0.08 | 0.238 | 0.03 | 0.006 | 94% |
| LB | 1.75 | 0.00 | 0.00 | _ | 0.00 | | 0.00 | | 0.00 | 1.00 | 0.28 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | | | • | | | | | | | | | Total Flov | v | 0.007 | 100% |

| Flow Measurement Deta | Flow Measurement Details: | | | | | | |
|---|--------------------------------|--|--|--|--|--|--|
| Metering Section Location (At stream crossing | describe): | | | | | | |
| Meas. Start Time (MST): | 11:15 | | | | | | |
| Meas. End Time (MST): | 11:20 | | | | | | |
| Equipment: | ADV | | | | | | |
| Method: | Wading | | | | | | |
| River Condition: | Low flow | | | | | | |
| Channel Edges: | Trapezoidal Edge (e.g. stream) | | | | | | |
| Weather: | Cloudy, calm, 5 C | | | | | | |

| Flow characteristics: | | | | | | | |
|-----------------------|-------|--------|--|--|--|--|--|
| Total Flow: | 0.007 | (m³/s) | | | | | |
| Cross Section Area: | 0.04 | (m²) | | | | | |
| Wetted Width: | 0.80 | (m) | | | | | |
| Hydraulic Depth: | 0.05 | (m) | | | | | |
| Mean Velocity: | 0.18 | (m/s) | | | | | |
| Froude Number: | 0.27 | | | | | | |



General Notes:

-Not able to collect further velocity measurements due to very low water depths and presence of large cobble and boulders obstructing flow

| Field Personnel: | CJ, DH | Trip Date: | 26-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 8-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

Site: Old Road at Tetcela River (Mainstem)
UTM Location: 461370 E, 6815670 N

Site Visit Date: September 24, 2014
Site Visit Time (MST): 17:15

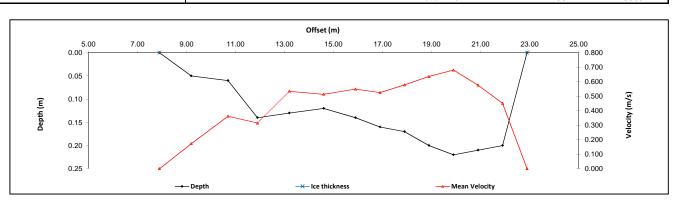


| Flow Measurement: Measured Data | | | | | | | Calculated Data | | | | | | | | | |
|----------------------------------|--------|-----------|--------------|---------------|----------|---------|-----------------|---------|------------|------------|--------|------------------|--------------------------|-------------------|---------------------|----------------------|
| | | Depth | | | | Depth | | Depth | | | | | | | | |
| | | from | | | Velocity | of Obs. | Velocity | of Obs. | | Velocity | | | | | | |
| | | bottom to | WS to bottom | Depth of Obs. | @ 0.6 | @ 0.8 | @ 0.8 | @ 0.2 | Velocity @ | Correction | Pannel | Effective Pannel | Effective Average Pannel | | | |
| Bank/ | Offset | WS | of ice | @ 0.6 Depth | Depth | Depth | Depth | Depth | 0.2 Depth | Factor | Width | Depth | Velocity | Pannel Area | Pannel Discharge | Percent of total flo |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| RB | 7.90 | 0.00 | 0.00 | | 0.000 | | 0.000 | _ | 0.000 | 1.00 | 0.65 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 9.20 | 0.05 | | 0.03 | 0.173 | | | | | 1.00 | 1.40 | 0.05 | 0.173 | 0.07 | 0.012 | 1% |
| 2 | 10.70 | 0.06 | | 0.04 | 0.362 | | | | | 1.00 | 1.35 | 0.06 | 0.362 | 0.08 | 0.029 | 3% |
| 3 | 11.90 | 0.14 | | 0.08 | 0.315 | | | | | 1.00 | 1.25 | 0.14 | 0.315 | 0.18 | 0.055 | 5% |
| 4 | 13.20 | 0.13 | | 0.08 | 0.534 | | | | | 1.00 | 1.35 | 0.13 | 0.534 | 0.18 | 0.094 | 9% |
| 5 | 14.60 | 0.12 | | 0.07 | 0.513 | | | | | 1.00 | 1.35 | 0.12 | 0.513 | 0.16 | 0.083 | 8% |
| 6 | 15.90 | 0.14 | | 0.08 | 0.549 | | | | | 1.00 | 1.15 | 0.14 | 0.549 | 0.16 | 0.088 | 9% |
| 7 | 16.90 | 0.16 | | 0.10 | 0.525 | | | | | 1.00 | 1.00 | 0.16 | 0.525 | 0.16 | 0.084 | 8% |
| 8 | 17.90 | 0.17 | | 0.10 | 0.578 | | | | | 1.00 | 1.00 | 0.17 | 0.578 | 0.17 | 0.098 | 10% |
| 9 | 18.90 | 0.20 | | 0.12 | 0.636 | | | | | 1.00 | 1.00 | 0.20 | 0.636 | 0.20 | 0.127 | 12% |
| 10 | 19.90 | 0.22 | | 0.13 | 0.680 | | | | | 1.00 | 1.00 | 0.22 | 0.680 | 0.22 | 0.150 | 15% |
| 11 | 20.90 | 0.21 | | 0.13 | 0.576 | | | | | 1.00 | 1.00 | 0.21 | 0.576 | 0.21 | 0.121 | 12% |
| 12 | 21.90 | 0.20 | | 0.12 | 0.451 | | | | | 1.00 | 1.00 | 0.20 | 0.451 | 0.20 | 0.090 | 9% |
| LB | 22.90 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 1.00 | 0.50 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | | | | | | | | | | | | Total Flov | v | 1.03 | 100% |

| Flow Measurement Details: | | | | | |
|--|-------------------|--|--|--|--|
| Metering Section Location (a At stream crossing | describe): | | | | |
| Meas. Start Time (MST): | 17:25 | | | | |
| Meas. End Time (MST): | 17:35 | | | | |
| Equipment: | ADV | | | | |
| Method: | Wading | | | | |
| River Condition: Low flow | | | | | |
| Channel Edges: Trapezoidal Edge (e.g. stream) | | | | | |
| Weather: | Cloudy, calm, 8 C | | | | |

| Flow characteristics: | | | | | | | |
|-----------------------|-------|---------------------|--|--|--|--|--|
| Total Flow: | 1.030 | (m ³ /s) | | | | | |
| Cross Section Area: | 1.98 | (m²) | | | | | |
| Wetted Width: | 15.00 | (m) | | | | | |
| Hydraulic Depth: | 0.13 | (m) | | | | | |
| Mean Velocity: | 0.52 | (m/s) | | | | | |
| Froude Number: | 0.46 | | | | | | |

General Notes:



| Field Personnel: | CJ, DH | Trip Date: | 24-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | S | Date: | 8-Oct-14 |
| Data Check Personnel: | TL | Date: | 29-Oct-14 |
| Entered Digitally in the Field: | No | | |

Site: Old Road at Tetcela Tributary
UTM Location: 460369 E, 6813941 N

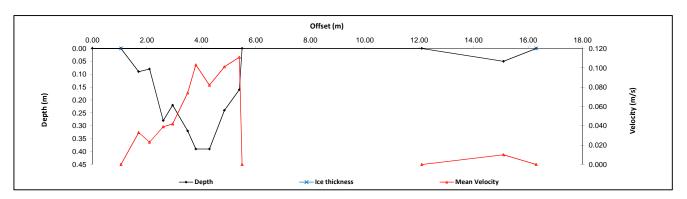
Site Visit Date: September 24, 2014 Site Visit Time (MST): 16:30



| IOW II | <u>leasur</u> | cincin. | | | D-1- | | | | | 1 | | | 0-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 | | | |
|--------|---------------|---------|--------|---------------|----------|---------|----------|---------|------------|------------|-----------------|------------------|--------------------------------------|-------------------|---------------------|----------------------|
| | | | | Measured | Data | | | | | | Calculated Data | | | | | |
| | | Depth | | | | Depth | | Depth | | | | | | | | |
| | | from | | | Velocity | of Obs. | Velocity | of Obs. | | Velocity | | | | | | |
| | | | | Depth of Obs. | @ 0.6 | @ 0.8 | @ 0.8 | @ 0.2 | Velocity @ | Correction | Pannel | Effective Pannel | Effective Average Pannel | | | |
| Bank/ | Offset | WS | of ice | @ 0.6 Depth | Depth | Depth | Depth | Depth | 0.2 Depth | Factor | Width | Depth | Velocity | Pannel Area | Pannel Discharge | Percent of total flo |
| Mmt # | (m) | (m) | (m) | (m) | (m/s) | (m) | (m/s) | (m) | (m/s) | (m) | (m) | (m) | (m/s) | (m ²) | (m ³ /s) | (%) |
| LB | 1.05 | 0.00 | 0.00 | | 0.000 | | 0.000 | | 0.000 | 1.00 | 0.33 | 0.00 | 0.000 | 0.00 | 0.000 | |
| 1 | 1.70 | 0.09 | | 0.05 | 0.033 | | | | | 1.00 | 0.53 | 0.09 | 0.033 | 0.05 | 0.002 | 2% |
| 2 | 2.10 | 0.08 | | 0.05 | 0.023 | | | | | 1.00 | 0.45 | 80.0 | 0.023 | 0.04 | 0.001 | 1% |
| 3 | 2.60 | 0.28 | | 0.17 | 0.039 | | | | | 1.00 | 0.43 | 0.28 | 0.039 | 0.12 | 0.005 | 6% |
| 4 | 2.95 | 0.22 | | 0.13 | 0.042 | | | | | 1.00 | 0.45 | 0.22 | 0.042 | 0.10 | 0.004 | 6% |
| 5 | 3.50 | 0.32 | | 0.19 | 0.074 | | | | | 1.00 | 0.43 | 0.32 | 0.074 | 0.14 | 0.010 | 14% |
| 6 | 3.80 | 0.39 | | 0.23 | 0.103 | | | | | 1.00 | 0.40 | 0.39 | 0.103 | 0.16 | 0.016 | 22% |
| 7 | 4.30 | 0.39 | | 0.23 | 0.082 | | | | | 1.00 | 0.52 | 0.39 | 0.082 | 0.20 | 0.017 | 23% |
| 8 | 4.85 | 0.24 | | 0.14 | 0.101 | | | | | 1.00 | 0.55 | 0.24 | 0.101 | 0.13 | 0.013 | 18% |
| 9 | 5.40 | 0.16 | | 0.10 | 0.111 | | | | | 1.00 | 0.33 | 0.16 | 0.111 | 0.05 | 0.006 | 8% |
| 10 | 5.50 | 0.00 | | 0.00 | | | | | | 1.00 | 5.45 | 0.00 | | 0.00 | | |
| Bar | 0.00 | 0.00 | | 0.00 | | | | | | | | | | | | |
| 11 | 12.10 | 0.00 | | 0.00 | | | | | | 1.00 | 7.55 | 0.00 | | 0.00 | | |
| 12 | 15.10 | 0.05 | | 0.03 | 0.010 | | | | | 1.00 | 2.10 | 0.05 | 0.010 | 0.11 | 0.001 | 1% |
| LB | 16.30 | 0.00 | 0.00 | | 0.00 | | 0.00 | | 0.00 | 1.00 | 0.60 | 0.00 | 0.000 | 0.00 | 0.000 | |
| | | | | · | | | | | · | | | · | Total Flov | v | 0.074 | 100% |

| Flow Measurement Details: | | | | | | |
|---|--------------------------------|--|--|--|--|--|
| Metering Section Location (At stream crossing | (describe): | | | | | |
| Meas. Start Time (MST): | 16:50 | | | | | |
| Meas. End Time (MST): | 17:00 | | | | | |
| Equipment: | ADV | | | | | |
| Method: | Wading | | | | | |
| River Condition: | Low flow | | | | | |
| Channel Edges: | Trapezoidal Edge (e.g. stream) | | | | | |
| Weather: | Cloudy, calm, 8 C | | | | | |

| Flow characteristics: | | | | | | | |
|-----------------------|-------|--------|--|--|--|--|--|
| Total Flow: | 0.074 | (m³/s) | | | | | |
| Cross Section Area: | 1.09 | (m²) | | | | | |
| Wetted Width: | 16.30 | (m) | | | | | |
| Hydraulic Depth: | 0.07 | (m) | | | | | |
| Mean Velocity: | 0.07 | (m/s) | | | | | |
| Froude Number: | 0.08 | | | | | | |



General Notes:

-A gravel bar, with a small side channel, are present on the RB

| Field Personnel: | CJ, DH | Trip Date: | 24-Sep-14 |
|---------------------------------|--------|------------|-----------|
| Data Entry Personnel: | CJ | Date: | 8-Oct-14 |
| Data Check Personnel: | TL | Date: | 30-Oct-14 |
| Entered Digitally in the Field: | No | | _ |