

Field Crew: Sue Huttam, Kim Mandry

Site Code: NET-01

Sampling Date: (DD/MM/YYYY) Oct 8/13

☐ Occupational Health & Safety: Site Inspection Sheet completed

### PRIMARY SITE DATA

CABIN Study Name: East Intulake CD Local Basin Name: Netley Creek

River/Stream Name: Netley Creek Stream Order: (map scale 1:50,000) \_\_\_\_\_

Select one: ☒ Test Site ☐ Potential Reference Site

Geographical Description/Notes: off of Hwy 8 upstream of bridge crossing  
- parked on west side of Hwy 8 shoulder

Surrounding Land Use: (check those present)

☐ Forest ☒ Field/Pasture ☒ Agriculture ☒ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

Information Source: field crew

Dominant Surrounding Land Use: (check one)

☐ Forest ☒ Field/Pasture ☐ Agriculture ☐ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

Information Source: field crew

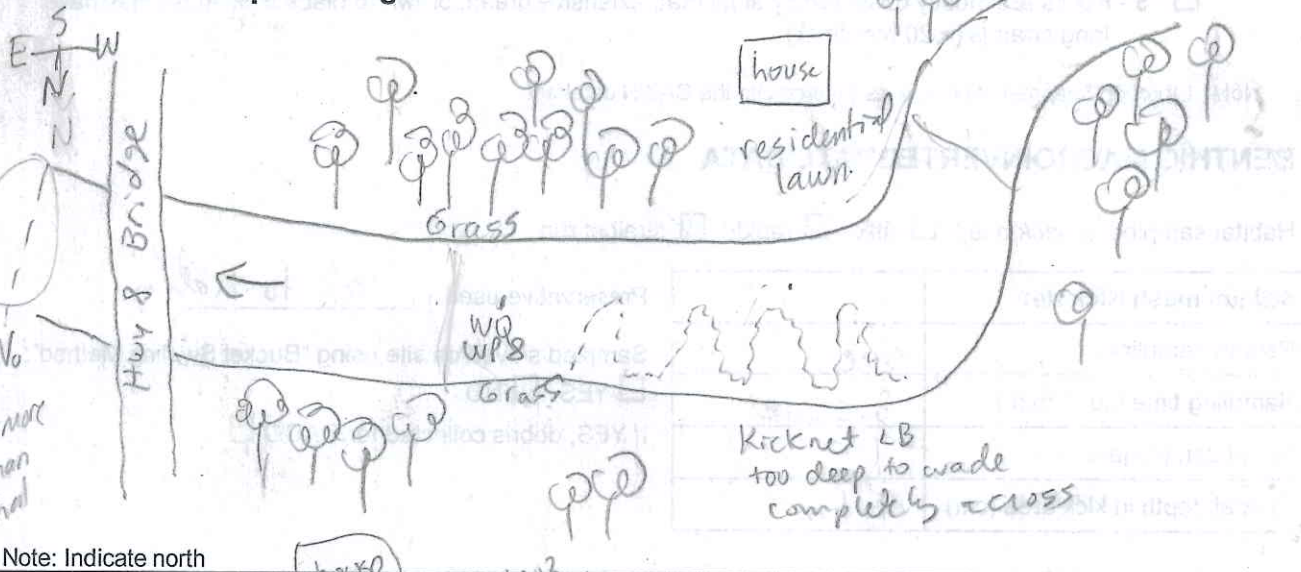
### Location Data

Latitude: \_\_\_\_\_ N Longitude: - \_\_\_\_\_ W (DMS or DD)

Elevation: 228 (fast or masl)

GPS Datum: ☒ GRS80 (NAD83/WGS84) ☐ Other: \_\_\_\_\_

### Site Location Map Drawing



Field Crew: Sue/KimSite Code: NET-01Sampling Date: (DD/MM/YYYY) Oct 8/13**Photos**

- ☒ Field Sheet
 ☒ Upstream
 ☒ Downstream
 ☒ Across Site
 ☐ Aerial View
- ☐ Substrate (exposed)
 ☒ Substrate (aquatic)
 ☐ Other RB + LB

**REACH DATA** (represents 6 times bankfull width)

## 1. Habitat Types: (check those present)

- ☐ Riffle
 ☐ Rapids
 ☒ Straight run
 ☐ Pool/Back Eddy

## 2. Canopy Coverage: (stand in middle of stream and look up, check one)

- ☒ 0 %
 ☐ 1-25 %
 ☐ 26-50 %
 ☐ 51-75 %
 ☐ 76-100 %

## 3. Macrophyte Coverage: (not algae or moss, check one)

- ☒ 0 %
 ☐ 1-25 %
 ☐ 26-50 %
 ☐ 51-75 %
 ☐ 76-100 %

## 4. Streamside Vegetation: (check those present)

- ☒ ferns/grasses
 ☐ shrubs
 ☐ deciduous trees
 ☐ coniferous trees

## 5. Dominant Streamside Vegetation: (check one)

- ☒ ferns/grasses
 ☐ shrubs
 ☐ deciduous trees
 ☐ coniferous trees

## 6. Periphyton Coverage on Substrate: (benthic algae, not moss, check one)

- ☐ 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick)
- ☐ 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick)
- ☒ 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick)
- ☐ 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick)
- ☐ 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick)

Note: 1 through 5 represent categories entered into the CABIN database.

**BENTHIC MACROINVERTEBRATE DATA**Habitat sampled: (check one) ☐ riffle ☐ rapids ☒ straight run

|                                 |                |
|---------------------------------|----------------|
| 400 $\mu$ m mesh Kick Net       |                |
| Person sampling                 | <u>Sue</u>     |
| Sampling time (i.e. 3 min.)     | <u>3.0 min</u> |
| No. of sample jars              | <u>1</u>       |
| Typical depth in kick area (cm) | <u>1.1 m</u>   |

Preservative used: 10% formalin

Sampled sieved on site using "Bucket Swirling Method":

☐ YES ☒ NOIf YES, debris collected for QAQC ☐Note: Indicate if a sampling method other than the recommended 400  $\mu$ m mesh kick net is used.

Field Crew: Sue/Kim Site Code: NET-01

Sampling Date: (DD/MM/YYYY) Oct 8, 2013

**WATER CHEMISTRY DATA** Time: 17:16 (24 hr clock) Time zone: CST

Air Temp: 17 (°C) Water Temp: 11.4 (°C) pH: 8.08

Specific Conductance: 752 (µs/cm) DO: 16.1 (mg/L) Turbidity: 13.9 (NTU)  
147.5% DO

Check if water samples were collected for the following analyses:

- ☐ TSS (Total Suspended Solids)  
☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)  
☐ Phosphorus (Total, Ortho, and/or Dissolved)  
☐ Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate) ☐ Other \_\_\_\_\_

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.

## CHANNEL DATA

**Slope** - Indicate how slope was measured: (check one)

☒ Calculated from map

Scale: \_\_\_\_\_ (Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000).  
 contour interval (vertical distance) \_\_\_\_\_ (m),  
 distance between contour intervals (horizontal distance) \_\_\_\_\_ (m)  
 slope = vertical distance/horizontal distance = \_\_\_\_\_

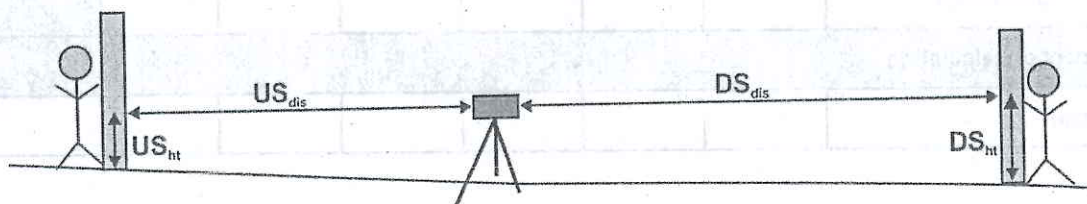
OR

☐ Measured in field

Circle device used and fill out table according to device:

a. Survey Equipment b. Hand Level & Measuring Tape

| Measurements                             | Upstream (U/S)     | Downstream(D/S)    | Calculation             |
|------------------------------------------|--------------------|--------------------|-------------------------|
| <sup>a</sup> Top Hairline (T)            |                    |                    |                         |
| <sup>a</sup> Mid Hairline (ht) OR        |                    |                    |                         |
| <sup>b</sup> Height of rod               |                    |                    |                         |
| <sup>a</sup> Bottom Hairline (B)         |                    |                    |                         |
| <sup>b</sup> Distance (dis) OR           |                    |                    | $US_{dis} + DS_{dis} =$ |
| <sup>a</sup> T-B x 100                   | $US_{dis} = T - B$ | $DS_{dis} = T - B$ |                         |
| Change in height ( $\Delta ht$ )         |                    |                    | $DS_{ht} - US_{ht} =$   |
| Slope ( $\Delta ht / \text{total dis}$ ) |                    |                    |                         |



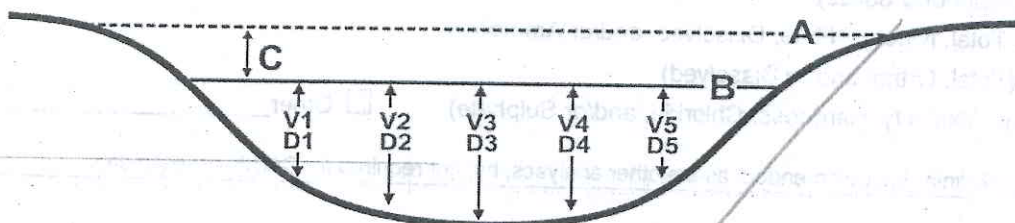
Field Crew: Sue/KimSite Code: NET-01Sampling Date: (DD/MM/YYYY) Oct 8, 2013**Widths and Depth***- COULD NOT COMPLETE DUE TO LANDOWNER REQUEST TO LEAVE THE PROPERTY*

Location at site: \_\_\_\_\_ (Indicate where in sample reach, ex. d/s of kick area)

A - Bankfull Width: \_\_\_\_\_ (m)

B - Wetted Stream Width: \_\_\_\_\_ (m)

C - Bankfull-Wetted Depth (height from water surface to Bankfull): \_\_\_\_\_ (cm)



Note:

Wetted widths &gt; 5 m, measure a minimum of 5-6 equidistant locations;

Wetted widths &lt; 5 m, measure 3-4 equidistant locations.

**Velocity and Depth**

Check appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

☐ **Velocity Head Rod (or ruler):** Velocity Equation (m/s) =  $\sqrt{[2(\Delta D/100) * 9.81]}$ ☐ **Rotary meters:** Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)☐ **Direct velocity measurements:** ☐ Marsh-McBirney ☐ Sontek or ☐ Other \_\_\_\_\_

|                                                 | 1 | 2 | 3 | 4 | 5 | 6 | AVG |
|-------------------------------------------------|---|---|---|---|---|---|-----|
| Distance from Shore (m)                         |   |   |   |   |   |   |     |
| Depth (D) (cm)                                  |   |   |   |   |   |   |     |
| <b>Velocity Head Rod (ruler)</b>                |   |   |   |   |   |   |     |
| Flowing water Depth (D <sub>1</sub> ) (cm)      |   |   |   |   |   |   |     |
| Depth of Stagnation (D <sub>2</sub> ) (cm)      |   |   |   |   |   |   |     |
| Change in depth ( $\Delta D = D_2 - D_1$ ) (cm) |   |   |   |   |   |   |     |
| <b>Rotary meter</b>                             |   |   |   |   |   |   |     |
| Revolutions                                     |   |   |   |   |   |   |     |
| Time (minimum 40 seconds)                       |   |   |   |   |   |   |     |
| <b>Direct Measurement or calculation</b>        |   |   |   |   |   |   |     |
| Velocity (V) (m/s)                              |   |   |   |   |   |   |     |

Field Crew: Sue / KimSite Code: NET-01Sampling Date: (DD/MM/YYYY) Oct 8, 2013**SUBSTRATE DATA****Surrounding/Interstitial Material**

Circle the substrate size category for the surrounding material.

*COULD NOT COMPLETE DUE TO  
LAND OWNER REQUEST TO  
LEAVE THE PROPERTY.*

| Substrate Size Class               | Category |
|------------------------------------|----------|
| Organic Cover                      | 0        |
| < 0.1 cm (fine sand, silt or clay) | 1        |
| 0.1-0.2 cm (coarse sand)           | 2        |
| 0.2-1.6 cm (gravel)                | 3        |
| 1.6-3.2 cm (small pebble)          | 4        |
| 3.2-6.4 cm (large pebble)          | 5        |
| 6.4-12.8 cm (small cobble)         | 6        |
| 12.8-25.6 cm (cobble)              | 7        |
| > 25.6 cm (boulder)                | 8        |
| Bedrock                            | 9        |

**100 Pebble Count & Substrate Embeddedness**

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

| Diameter (cm) | E | Diameter (cm) | E | Diameter (cm) | E | Diameter (cm) | E |
|---------------|---|---------------|---|---------------|---|---------------|---|
| 1             |   | 26            |   | 51            |   | 76            |   |
| 2             |   | 27            |   | 52            |   | 77            |   |
| 3             |   | 28            |   | 53            |   | 78            |   |
| 4             |   | 29            |   | 54            |   | 79            |   |
| 5             |   | 30            |   | 55            |   | 80            |   |
| 6             |   | 31            |   | 56            |   | 81            |   |
| 7             |   | 32            |   | 57            |   | 82            |   |
| 8             |   | 33            |   | 58            |   | 83            |   |
| 9             |   | 34            |   | 59            |   | 84            |   |
| 10            |   | 35            |   | 60            |   | 85            |   |
| 11            |   | 36            |   | 61            |   | 86            |   |
| 12            |   | 37            |   | 62            |   | 87            |   |
| 13            |   | 38            |   | 63            |   | 88            |   |
| 14            |   | 39            |   | 64            |   | 89            |   |
| 15            |   | 40            |   | 65            |   | 90            |   |
| 16            |   | 41            |   | 66            |   | 91            |   |
| 17            |   | 42            |   | 67            |   | 92            |   |
| 18            |   | 43            |   | 68            |   | 93            |   |
| 19            |   | 44            |   | 69            |   | 94            |   |
| 20            |   | 45            |   | 70            |   | 95            |   |
| 21            |   | 46            |   | 71            |   | 96            |   |
| 22            |   | 47            |   | 72            |   | 97            |   |
| 23            |   | 48            |   | 73            |   | 98            |   |
| 24            |   | 49            |   | 74            |   | 99            |   |
| 25            |   | 50            |   | 75            |   | 100           |   |

**Note:** The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.

Field Crew: Sue / Kim

Site Code: NET-01

Sampling Date: (DD/MM/YYYY) \_\_\_\_\_

## SITE INSPECTION

Site Inspected by: Kim / Sue

### Communication Information

☐ Itinerary left with contact person (include contact numbers)

Contact Person: Lisa Capar

Time checked-in: 1800

Form of communication: ☐ radio ☒ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT

Phone number: (204) 794-5137

### Vehicle Safety

☐ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)

☒ Equipment and chemicals safely secured for transport

☒ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary

Notes:

### Shore & Wading Safety

☒ Wading Task Hazard Analysis read by all field staff

☒ Wading Safe Work Procedures read by all field staff

☒ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)

☒ PFD worn

☒ Appropriate footwear, waders, wading belt

☒ Belay used

Notes:

Field Crew: Kim Mandy / Sue Hartman

Site Code: NET-016

Sampling Date: (DD/MM/YYYY) Oct 10, 2013

☒ Occupational Health & Safety: Site Inspection Sheet completed

**PRIMARY SITE DATA**

CABIN Study Name: East Interlake Cons'n District Local Basin Name: Netley Creek

River/Stream Name: Netley Creek Stream Order: (map scale 1:50,000) \_\_\_\_\_

Select one: ☒ Test Site ☐ Potential Reference Site

**Geographical Description/Notes:**

Wpt 26 14U 0639217 5576747  
20 m d/s of the bridge

Surrounding Land Use: (check those present)

☐ Forest ☒ Field/Pasture ☐ Agriculture ☒ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

Information Source: Field Crew

Dominant Surrounding Land Use: (check one)

☐ Forest ☒ Field/Pasture ☐ Agriculture ☐ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

Information Source: \_\_\_\_\_

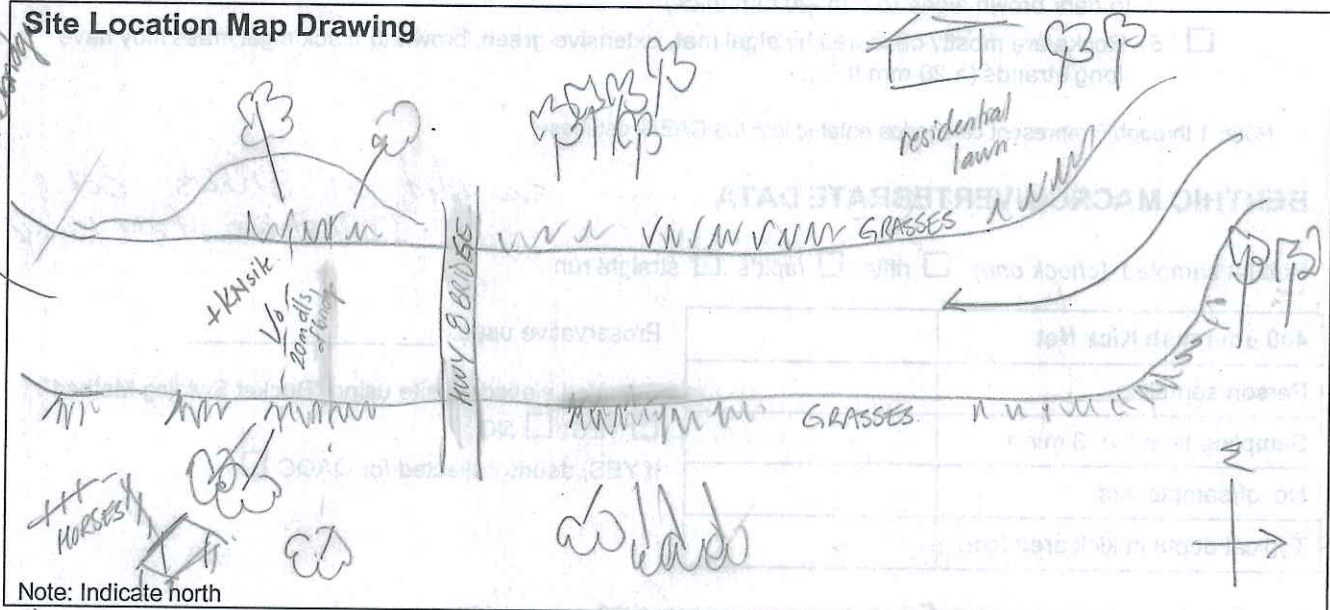
**Location Data**

Latitude: \_\_\_\_\_ N Longitude: \_\_\_\_\_ W (DMS or DD)

Elevation: 749 (fast or masl)

GPS Datum: ☐ GRS80 (NAD83/WGS84) ☐ Other: \_\_\_\_\_

**Site Location Map Drawing**



Note: Indicate north

DC-010

photos 100-0990 looking N @ d/s Wpt 26  
100-0991 looking NE @ d/s of Wpt 26  
0992 from N side of bridge looking d/s @ Wpt 26 & beyond  
0993 - from bridge looking up @ original Net 01 site.

CABIN Field Sheet June 2012

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accidentally deleted.  
CABIN

Field Crew: Kim Mandzy Sue Kertam Site Code: NET-016  
Sampling Date: (DD/MM/YYYY) Oct 10, 2013 see NET-01 Oct 8 sheets

### Photos

NONE

- ☐ Field Sheet ☐ Upstream ☐ Downstream ☐ Across Site ☐ Aerial View  
☐ Substrate (exposed) ☐ Substrate (aquatic) ☐ Other \_\_\_\_\_

### REACH DATA (represents 6 times bankfull width)

#### 1. Habitat Types: (check those present)

- ☐ Riffle ☐ Rapids ☒ Straight run ☐ Pool/Back Eddy

#### 2. Canopy Coverage: (stand in middle of stream and look up, check one)

- ☒ 0 % ☐ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %

#### 3. Macrophyte Coverage: (not algae or moss, check one)

- ☐ 0 % ☒ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %

#### 4. Streamside Vegetation: (check those present)

- ☒ ferns/grasses ☐ shrubs ☒ deciduous trees ☐ coniferous trees

#### 5. Dominant Streamside Vegetation: (check one)

- ☒ ferns/grasses ☐ shrubs ☐ deciduous trees ☐ coniferous trees

#### 6. Periphyton Coverage on Substrate: (benthic algae, not moss, check one)

- ☐ 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick)  
☒ 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick)  
☐ 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick)  
☐ 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick)  
☐ 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick)

Note: 1 through 5 represent categories entered into the CABIN database.

### BENTHIC MACROINVERTEBRATE DATA

see Net-01 sheets Oct 8.  
upstream of the bridge

Habitat sampled: (check one) ☐ riffle ☐ rapids ☐ straight run

|                                 |  |
|---------------------------------|--|
| 400 $\mu$ m mesh Kick Net       |  |
| Person sampling                 |  |
| Sampling time (i.e. 3 min.)     |  |
| No. of sample jars              |  |
| Typical depth in kick area (cm) |  |

Preservative used: \_\_\_\_\_

Sampled sieved on site using "Bucket Swirling Method":

☐ YES ☐ NO

If YES, debris collected for QAQC ☐

Note: Indicate if a sampling method other than the recommended 400  $\mu$ m mesh kick net is used.

Field Crew: Kim Mandry Sue NortonSite Code: Net 016Sampling Date: (DD/MM/YYYY) Oct 10, 2013**WATER CHEMISTRY DATA**

Time: \_\_\_\_\_ (24 hr clock) Time zone: \_\_\_\_\_

Air Temp: \_\_\_\_\_ (°C) Water Temp: \_\_\_\_\_ (°C) pH: \_\_\_\_\_

Specific Conductance: \_\_\_\_\_ (µs/cm) DO: \_\_\_\_\_ (mg/L) Turbidity: \_\_\_\_\_ (NTU)

Check if water samples were collected for the following analyses:

☐ TSS (Total Suspended Solids)☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)☐ Phosphorus (Total, Ortho, and/or Dissolved)☐ Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate)☐ Other \_\_\_\_\_*Taken upstream  
@ NET-01  
original site.*

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.

**CHANNEL DATA****Slope** - Indicate how slope was measured: (check one)☒ **Calculated from map**

Scale: \_\_\_\_\_ (Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000).

contour interval (vertical distance) \_\_\_\_\_ (m),

distance between contour intervals (horizontal distance) \_\_\_\_\_ (m)

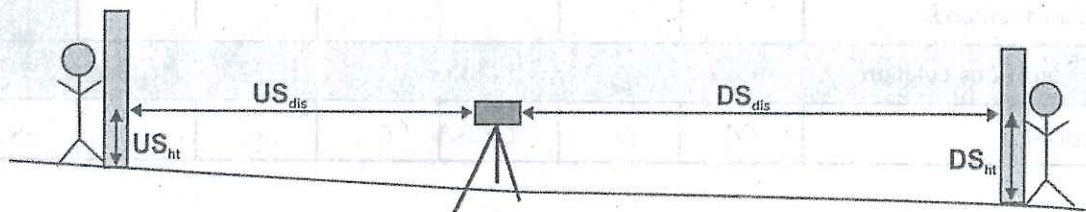
slope = vertical distance/horizontal distance = \_\_\_\_\_

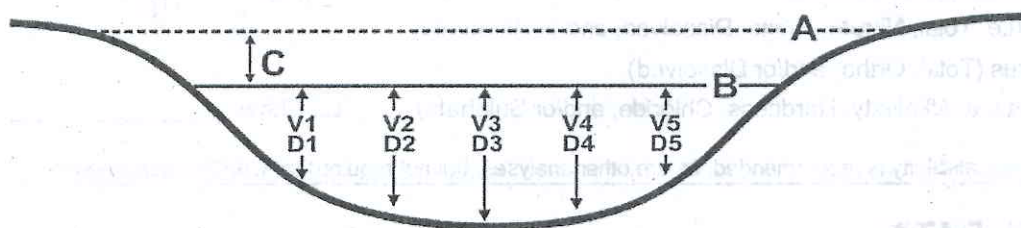
**OR**☐ **Measured in field**

Circle device used and fill out table according to device:

a. Survey Equipment b. Hand Level &amp; Measuring Tape

| Measurements                             | Upstream (U/S)       | Downstream(D/S)      | Calculation             |
|------------------------------------------|----------------------|----------------------|-------------------------|
| <sup>a</sup> Top Hairline (T)            |                      |                      |                         |
| <sup>a</sup> Mid Hairline (ht) OR        |                      |                      |                         |
| <sup>b</sup> Height of rod               |                      |                      |                         |
| <sup>a</sup> Bottom Hairline (B)         |                      |                      |                         |
| <sup>b</sup> Distance (dis) OR           |                      |                      | $US_{dis} + DS_{dis} =$ |
| <sup>a</sup> T-B x 100                   | $^{a}US_{dis} = T-B$ | $^{a}DS_{dis} = T-B$ |                         |
| Change in height ( $\Delta ht$ )         |                      |                      | $DS_{ht} - US_{ht} =$   |
| Slope ( $\Delta ht / \text{total dis}$ ) |                      |                      |                         |



Field Crew: Kim Mandy, Sue KertamSite Code: Net-01h d/s bridgeSampling Date: (DD/MM/YYYY) Oct 10 2013**Widths and Depth**Location at site: Wpt 26 - 20 m d/s bridge (Indicate where in sample reach, ex. d/s of kick area)A - Bankfull Width: 30 (m)B - Wetted Stream Width: 12 (m)C - Bankfull-Wetted Depth (height from water surface to Bankfull): 170 (cm)

Note:

Wetted widths &gt; 5 m, measure a minimum of 5-6 equidistant locations;

Wetted widths &lt; 5 m, measure 3-4 equidistant locations.

**Velocity and Depth**

Check appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

☐ **Velocity Head Rod (or ruler):** Velocity Equation (m/s) =  $\sqrt{[2(\Delta D/100) * 9.81]}$ ☐ **Rotary meters:** Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)☒ **Direct velocity measurements:** ☐ Marsh-McBirney ☐ Sontek or ☐ Other SWOFFER

|                                                 | 1    | 2    | 3    | 4    | 5    | 6     | AVG  |
|-------------------------------------------------|------|------|------|------|------|-------|------|
| Distance from Shore (m)                         | 1.05 | 3.15 | 5.25 | 7.35 | 9.45 | 11.55 |      |
| Depth (D) (cm)                                  | 67   | 84   | 80   | 83   | 110  | 85    | 84.8 |
| <b>Velocity Head Rod (ruler)</b>                |      |      |      |      |      |       |      |
| Flowing water Depth (D <sub>1</sub> ) (cm)      |      |      |      |      |      |       |      |
| Depth of Stagnation (D <sub>2</sub> ) (cm)      |      |      |      |      |      |       |      |
| Change in depth ( $\Delta D = D_2 - D_1$ ) (cm) |      |      |      |      |      |       |      |
| <b>Rotary meter</b>                             |      |      |      |      |      |       |      |
| Revolutions                                     |      |      |      |      |      |       |      |
| Time (minimum 40 seconds)                       |      |      |      |      |      |       |      |
| <b>Direct Measurement or calculation</b>        |      |      |      |      |      |       |      |
| Velocity (V) (m/s)                              | 0    | 0    | 0    | 0    | 0    | 0     | 0    |

Field Crew: Kim Mandry, Sue HartmanSite Code: NFT-01b (d/s of bridge)Sampling Date: (DD/MM/YYYY) Oct 10, 2013**SUBSTRATE DATA****Surrounding/Interstitial Material**

Circle the substrate size category for the surrounding material.

| Substrate Size Class               | Category |
|------------------------------------|----------|
| Organic Cover                      | 0        |
| < 0.1 cm (fine sand, silt or clay) | 1        |
| 0.1-0.2 cm (coarse sand)           | 2        |
| 0.2-1.6 cm (gravel)                | 3        |
| 1.6-3.2 cm (small pebble)          | 4        |
| 3.2-6.4 cm (large pebble)          | 5        |
| 6.4-12.8 cm (small cobble)         | 6        |
| 12.8-25.6 cm (cobble)              | 7        |
| > 25.6 cm (boulder)                | 8        |
| Bedrock                            | 9        |

NPT 26 14U 0639217 5576747  
 ~20m d/s of the bridge.

**100 Pebble Count & Substrate Embeddedness**

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

photo 100-0988

| Diameter (cm) | E   | Diameter (cm) | E     | Diameter (cm) | E     | Diameter (cm) | E     |
|---------------|-----|---------------|-------|---------------|-------|---------------|-------|
| 1 S           | E 1 | 26 7.0        |       | 51 1.6        | E 3/4 | 76 0.6        |       |
| 2 S           |     | 27 2.8        |       | 52 3.0        |       | 77 2.5        |       |
| 3 S           |     | 28 2.3        |       | 53 S          |       | 78 1.5        |       |
| 4 S           |     | 29 2.0        |       | 54 1.0        |       | 79 2.5        |       |
| 5 S           |     | 30 1.9        |       | 55 8.0        |       | 80 0.5        |       |
| 6 S           |     | 31 3.5        | E 1/4 | 56 7.0        |       | 81 2.4        | E 1/4 |
| 7 S           |     | 32 1.8        |       | 57 3.5        |       | 82 0.4        |       |
| 8 0.6         |     | 33 3.0        |       | 58 7.0        |       | 83 1.0        |       |
| 9 1.0         |     | 34 2.2        |       | 59 0.8        |       | 84 2.0        |       |
| 10 1.7        |     | 35 1.4        |       | 60 1.8        |       | 85 2.0        |       |
| 11 7.0        | E 0 | 36 1.0        |       | 61 2.4        | E 1/4 | 86 1.4        |       |
| 12 18.0       |     | 37 1.0        |       | 62 0          |       | 87 1.3        |       |
| 13 1.0        |     | 38 1.8        |       | 63 2.4        |       | 88 2.2        |       |
| 14 1.2        |     | 39 2.3        |       | 64 3.6        |       | 89 0.6        |       |
| 15 5.5        |     | 40 3.2        |       | 65 11.0       |       | 90 1.3        |       |
| 16 15.0       |     | 41 4.5        | E 0   | 66 1.0        |       | 91 1.7        | E 1/4 |
| 17 1.5        |     | 42 5.4        |       | 67 S          |       | 92 2.0        |       |
| 18 1.4        |     | 43 2.4        |       | 68 1.0        |       | 93 1.0        |       |
| 19 0          |     | 44 7.0        |       | 69 1.0        |       | 94 3.3        |       |
| 20 S          |     | 45 2.0        |       | 70 1.5        |       | 95 2.7        |       |
| 21 1.0        | E   | 46 2.4        |       | 71 3.5        | E 0   | 96 5.0        |       |
| 22 7.0        |     | 47 4.4        |       | 72 2.0        |       | 97 5.0        |       |
| 23 3.0        |     | 48 1.0        |       | 73 2.0        |       | 98 1.5        |       |
| 24 7.0        |     | 49 2.2        |       | 74 1.0        |       | 99 2.0        |       |
| 25 13.0       |     | 50 S          |       | 75 1.0        |       | 100 1.4       |       |

**Note:** The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.

Field Crew: Kim Mandy Sue Horton Site Code: Net 01 sphrmb  
Sampling Date: (DD/MM/YYYY) Oct 10, 2013

## SITE INSPECTION

Site Inspected by: Sue Horton

### Communication Information

☒ Itinerary left with contact person (include contact numbers)

Contact Person: Lisa Cooper

Time checked-in: 1800

Form of communication: ☐ radio ☒ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT

Phone number: (204) 794-5137

### Vehicle Safety

☒ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)

☒ Equipment and chemicals safely secured for transport

☒ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary

Notes:

### Shore & Wading Safety

☒ Wading Task Hazard Analysis read by all field staff

☒ Wading Safe Work Procedures read by all field staff

☒ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)

☒ PFD worn

☒ Appropriate footwear, waders, wading belt

☐ Belay used

Notes:

Field Crew: Sve Hertam, Rim mandzy Site Code: GRS-01  
Sampling Date: (DD/MM/YYYY) Oct 8, 2013

☐ Occupational Health & Safety: Site Inspection Sheet completed

**PRIMARY SITE DATA**

CABIN Study Name: East Interlake Local Basin Name: Grassmere CK Drain

River/Stream Name: Grassmere CK Drain Stream Order: (map scale 1:50,000) \_\_\_\_\_

Select one: ☒ Test Site ☐ Potential Reference Site

**Geographical Description/Notes:** Parked at Dalma Pizza parking lot  
off of Hwy 9, site located 50m upstream of bridge.

Surrounding Land Use: (check those present)

☐ Forest ☐ Field/Pasture ☒ Agriculture ☒ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

Information Source: Field crew

Dominant Surrounding Land Use: (check one)

☐ Forest ☐ Field/Pasture ☐ Agriculture ☒ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

Information Source: Field crew

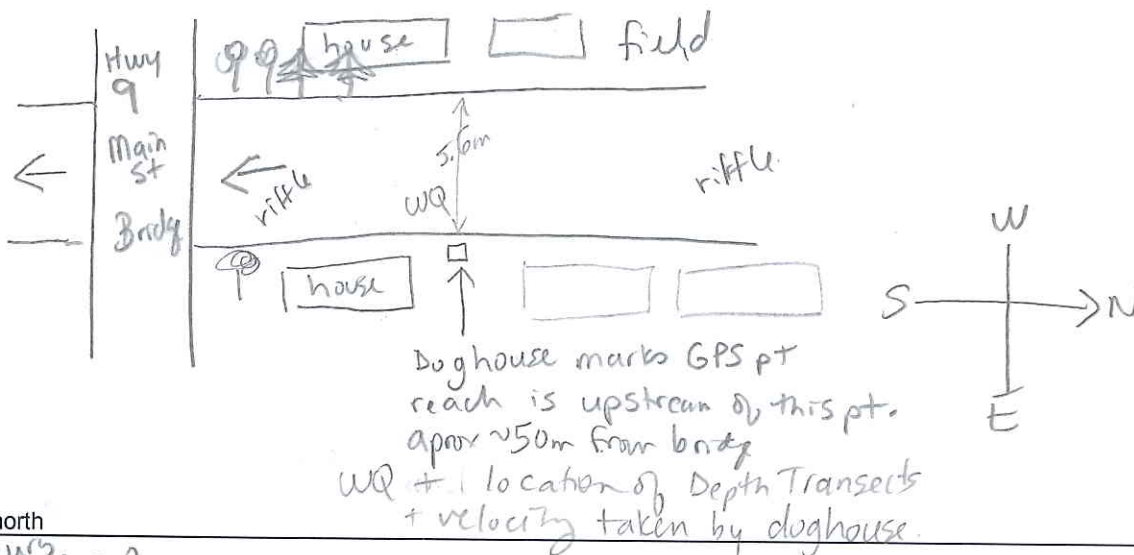
**Location Data**

Latitude: \_\_\_\_\_ N Longitude: - \_\_\_\_\_ W (DMS or DD)

Elevation: 228 meters (fast or masl) GPS Datum: ☒ GRS80 (NAD83/WGS84) ☐ Other: \_\_\_\_\_

WP # 3 starting, kick not clear  
144 0638420 5538079

**Site Location Map Drawing**



Note: Indicate north

751.5 mm mercury  
calibrated DO  
based on weather  
network



Field Crew: sve/kimSite Code: GRS-01Sampling Date: (DD/MM/YYYY) Oct 8, 2013**Photos**

- ☒ Field Sheet
 ☒ Upstream
 ☒ Downstream
 ☒ Across Site
 ☐ Aerial View  
☐ Substrate (exposed)
 ☐ Substrate (aquatic)
 ☐ Other \_\_\_\_\_

**REACH DATA** (*represents 6 times bankfull width*)1. Habitat Types: (*check those present*)

- ☐ Riffle
 ☐ Rapids
 ☒ Straight run
 ☐ Pool/Back Eddy

2. Canopy Coverage: (*stand in middle of stream and look up, check one*)

- ☒ 0 %
 ☐ 1-25 %
 ☐ 26-50 %
 ☐ 51-75 %
 ☐ 76-100 %

3. Macrophyte Coverage: (*not algae or moss, check one*)

- ☐ 0 %
 ☐ 1-25 %
 ☐ 26-50 %
 ☒ 51-75 %
 ☐ 76-100 %

4. Streamside Vegetation: (*check those present*)

- ☒ ferns/grasses
 ☐ shrubs
 ☐ deciduous trees
 ☐ coniferous trees

5. Dominant Streamside Vegetation: (*check one*)

- ☒ ferns/grasses
 ☐ shrubs
 ☐ deciduous trees
 ☐ coniferous trees

6. Periphyton Coverage on Substrate: (*benthic algae, not moss, check one*)

- ☐ 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick)  
☒ 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick)  
☐ 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick)  
☐ 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick)  
☐ 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick)

Note: 1 through 5 represent categories entered into the CABIN database.

**BENTHIC MACROINVERTEBRATE DATA**Habitat sampled: (*check one*) ☐ riffle ☐ rapids ☒ straight run

144 0638420 5538074

|                                 |                |
|---------------------------------|----------------|
| 400 $\mu$ m mesh Kick Net       |                |
| Person sampling                 | <u>sve</u>     |
| Sampling time (i.e. 3 min.)     | <u>3.0 min</u> |
| No. of sample jars              | <u>2 Litre</u> |
| Typical depth in kick area (cm) | <u>50 cm</u>   |

Preservative used: formalin 10%

Sampled sieved on site using "Bucket Swirling Method":

☐ YES ☒ NOIf YES, debris collected for QAQC ☐Note: Indicate if a sampling method other than the recommended 400  $\mu$ m mesh kick net is used.



Field Crew: Sue/KimSite Code: GRS-01Sampling Date: (DD/MM/YYYY) Oct 8, 2013**WATER CHEMISTRY DATA**Time: 9:22 AM (24 hr clock)Time zone: centralAir Temp: 13 (°C) Water Temp: 9.0 (°C) pH: 7.828Specific Conductance: 1458 (µs/cm) DO: 6.88 (mg/L) Turbidity: 4.65 (NTU)

Check if water samples were collected for the following analyses:

☐ TSS (Total Suspended Solids)☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)☐ Phosphorus (Total, Ortho, and/or Dissolved)☐ Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate)☐ Other \_\_\_\_\_

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.

**CHANNEL DATA** - skip**Slope** - Indicate how slope was measured: (check one)☒ **Calculated from map** IN HOUSE

Scale: \_\_\_\_\_ (Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000).

contour interval (vertical distance) \_\_\_\_\_ (m),

distance between contour intervals (horizontal distance) \_\_\_\_\_ (m)

slope = vertical distance/horizontal distance = \_\_\_\_\_

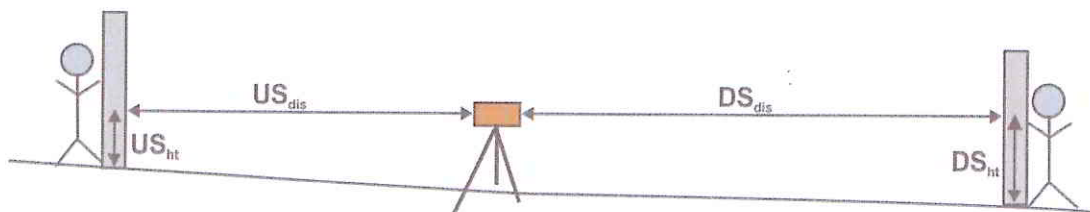
OR

☐ **Measured in field**

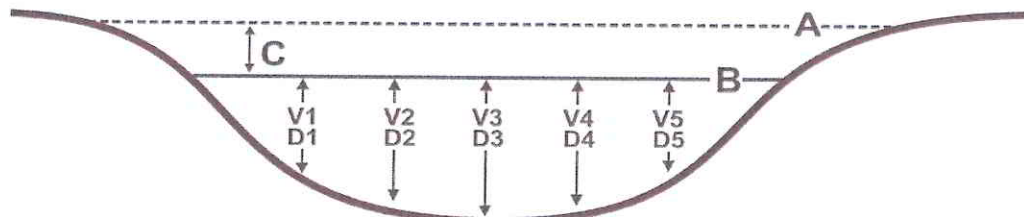
Circle device used and fill out table according to device:

a. Survey Equipment b. Hand Level &amp; Measuring Tape

| Measurements                      | Upstream (U/S)                      | Downstream(D/S)                     | Calculation                            |
|-----------------------------------|-------------------------------------|-------------------------------------|----------------------------------------|
| <sup>a</sup> Top Hairline (T)     |                                     |                                     |                                        |
| <sup>a</sup> Mid Hairline (ht) OR |                                     |                                     |                                        |
| <sup>b</sup> Height of rod        |                                     |                                     |                                        |
| <sup>a</sup> Bottom Hairline (B)  |                                     |                                     |                                        |
| <sup>b</sup> Distance (dis) OR    |                                     |                                     | US <sub>dis</sub> +DS <sub>dis</sub> = |
| <sup>a</sup> T-B x 100            | <sup>a</sup> US <sub>dis</sub> =T-B | <sup>a</sup> DS <sub>dis</sub> =T-B |                                        |
| Change in height (Δht)            |                                     |                                     | DS <sub>ht</sub> -US <sub>ht</sub> =   |
| Slope (Δht/total dis)             |                                     |                                     |                                        |





Field Crew: Kim / SueSite Code: GRS-01Sampling Date: (DD/MM/YYYY) Oct 8/2013**Widths and Depth**d/s of kicknet area at wq siteLocation at site: at WP 2 WQ site (Indicate where in sample reach, ex. d/s of kick area)A - Bankfull Width: 30 (m)B - Wetted Stream Width: 5.6 (m)C - Bankfull-Wetted Depth (height from water surface to Bankfull): 150 (cm)

Note:

Wetted widths &gt; 5 m, measure a minimum of 5-6 equidistant locations;

Wetted widths &lt; 5 m, measure 3-4 equidistant locations.

pic 2646 - of bridge  
2647**Velocity and Depth**

Check appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

☐ **Velocity Head Rod (or ruler):** Velocity Equation (m/s) =  $\sqrt{[2(\Delta D/100) * 9.81]}$ ☐ **Rotary meters:** Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)☐ **Direct velocity measurements:** ☐ Marsh-McBirney ☐ Sontek or ☐ Other SWOFFER

|                                                 | 1           | 2           | 3           | 4           | 5           | 6        | AVG         |
|-------------------------------------------------|-------------|-------------|-------------|-------------|-------------|----------|-------------|
| Distance from Shore (m)                         | <u>0.92</u> | <u>1.84</u> | <u>2.76</u> | <u>3.68</u> | <u>4.60</u> | <u>/</u> |             |
| Depth (D) (cm)                                  | <u>23</u>   | <u>55</u>   | <u>57</u>   | <u>55</u>   | <u>42</u>   | <u>/</u> | <u>46.4</u> |
| <b>Velocity Head Rod (ruler)</b>                |             |             |             |             |             |          |             |
| Flowing water Depth (D <sub>1</sub> ) (cm)      |             |             |             |             |             |          |             |
| Depth of Stagnation (D <sub>2</sub> ) (cm)      |             |             |             |             |             |          |             |
| Change in depth ( $\Delta D = D_2 - D_1$ ) (cm) |             |             |             |             |             |          |             |
| <b>Rotary meter</b>                             |             |             |             |             |             |          |             |
| Revolutions                                     |             |             |             |             |             |          |             |
| Time (minimum 40 seconds)                       |             |             |             |             |             |          |             |
| <b>Direct Measurement or calculation</b>        |             |             |             |             |             |          |             |
| Velocity (V) (m/s)                              | <u>0</u>    | <u>0</u>    | <u>0</u>    | <u>0</u>    | <u>0</u>    | <u>/</u> | <u>0</u>    |

vel at 60% of depth- there is flow at the surface, however.



Field Crew: Kim / SueSite Code: GRS-01Sampling Date: (DD/MM/YYYY) Oct 8 / 2013**SUBSTRATE DATA****Surrounding/Interstitial Material**

Circle the substrate size category for the surrounding material.

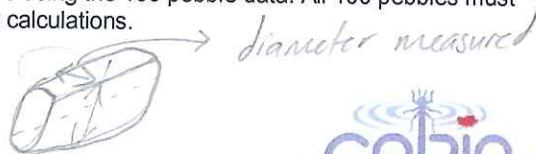
| Substrate Size Class               | Category |
|------------------------------------|----------|
| Organic Cover                      | 0        |
| < 0.1 cm (fine sand, silt or clay) | 1        |
| 0.1-0.2 cm (coarse sand)           | 2        |
| 0.2-1.6 cm (gravel)                | 3        |
| 1.6-3.2 cm (small pebble)          | 4        |
| 3.2-6.4 cm (large pebble)          | 5        |
| 6.4-12.8 cm (small cobble)         | 6        |
| 12.8-25.6 cm (cobble)              | 7        |
| > 25.6 cm (boulder)                | 8        |
| Bedrock                            | 9        |

**100 Pebble Count & Substrate Embeddedness**

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

| Diameter (cm) | E | Diameter (cm) | E | Diameter (cm) | E | Diameter (cm) | E |
|---------------|---|---------------|---|---------------|---|---------------|---|
| 1             |   | 26            |   | 51            |   | 76            |   |
| 2             |   | 27            |   | 52            |   | 77            |   |
| 3             |   | 28            |   | 53            |   | 78            |   |
| 4             |   | 29            |   | 54            |   | 79            |   |
| 5             |   | 30            |   | 55            |   | 80            |   |
| 6             |   | 31            |   | 56            |   | 81            |   |
| 7             |   | 32            |   | 57            |   | 82            |   |
| 8             |   | 33            |   | 58            |   | 83            |   |
| 9             |   | 34            |   | 59            |   | 84            |   |
| 10            |   | 35            |   | 60            |   | 85            |   |
| 11            |   | 36            |   | 61            |   | 86            |   |
| 12            |   | 37            |   | 62            |   | 87            |   |
| 13            |   | 38            |   | 63            |   | 88            |   |
| 14            |   | 39            |   | 64            |   | 89            |   |
| 15            |   | 40            |   | 65            |   | 90            |   |
| 16            |   | 41            |   | 66            |   | 91            |   |
| 17            |   | 42            |   | 67            |   | 92            |   |
| 18            |   | 43            |   | 68            |   | 93            |   |
| 19            |   | 44            |   | 69            |   | 94            |   |
| 20            |   | 45            |   | 70            |   | 95            |   |
| 21            |   | 46            |   | 71            |   | 96            |   |
| 22            |   | 47            |   | 72            |   | 97            |   |
| 23            |   | 48            |   | 73            |   | 98            |   |
| 24            |   | 49            |   | 74            |   | 99            |   |
| 25            |   | 50            |   | 75            |   | 100           |   |

**Note:** The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.





Field Crew: Kim / Sve Site Code: GRS-01  
Sampling Date: (DD/MM/YYYY) Oct 8, 2013

## SITE INSPECTION

Site Inspected by: Kim / Sve

### Communication Information

☒ Itinerary left with contact person (include contact numbers)

Contact Person: Lisa Time checked-in: 6:00 PM

Form of communication: ☐ radio ☒ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT

Phone number: ( ) 794-5137

### Vehicle Safety

☒ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)

☒ Equipment and chemicals safely secured for transport

☒ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary

Notes:

### Shore & Wading Safety

☒ Wading Task Hazard Analysis read by all field staff

☒ Wading Safe Work Procedures read by all field staff

☒ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)

☒ PFD worn

☒ Appropriate footwear, waders, wading belt

☐ Belay used

Notes:



Field Crew: Kim mandry, Sue Kutam

Site Code: PAR-01

Sampling Date: (DD/MM/YYYY) Oct 8, 2013

☐ Occupational Health & Safety: Site Inspection Sheet completed

**PRIMARY SITE DATA**

CABIN Study Name: East Intake CD Local Basin Name: Parks Creek

River/Stream Name: Parks Creek Stream Order: (map scale 1:50,000) \_\_\_\_\_

Select one: ☒ Test Site ☐ Potential Reference Site

**Geographical Description/Notes:**

West side (upstream) of bridge, parked on NW side in open area

Surrounding Land Use: (check those present)

☒ Forest ☐ Field/Pasture ☐ Agriculture ☒ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

Information Source: Field Crew

Dominant Surrounding Land Use: (check one)

☐ Forest ☐ Field/Pasture ☐ Agriculture ☒ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

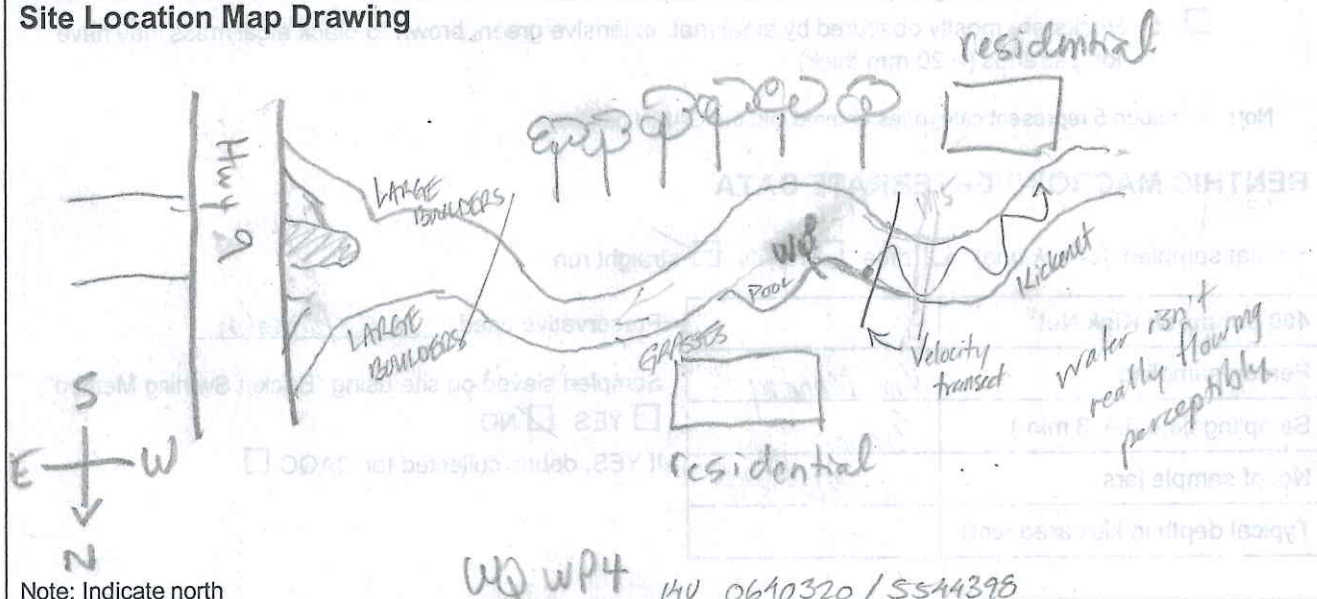
Information Source: Field Crew

**Location Data**

Latitude: 0640311 N Longitude: - 5544401 W (DMS or DD)

Elevation: 227m (fast or masl) GPS Datum: ☐ GRS80 (NAD83/WGS84) ☐ Other: NAD83

**Site Location Map Drawing**



Field Crew: Kim / SveSite Code: PAR-01Sampling Date: (DD/MM/YYYY) Oct 8, 2013**Photos**

100 - 0864.

- ☒ Field Sheet    ☒ Upstream    ☒ Downstream    ☒ Across Site    ☒ Aerial View  
☒ Substrate (exposed)    ☐ Substrate (aquatic)    ☐ Other \_\_\_\_\_

**REACH DATA** (represents 6 times bankfull width)

100 - 0865 → 0870 \* starts dls in clockwise direction @ bridge.

0874, 877 - rock run stream  
\* pools just dls of site.

## 1. Habitat Types: (check those present)

- ☐ Riffle    ☐ Rapids    ☒ Straight run    ☐ Pool/Back Eddy  
 - sinuous

## 2. Canopy Coverage: (stand in middle of stream and look up, check one)

- ☐ 0 %    ☒ 1-25 %    ☐ 26-50 %    ☐ 51-75 %    ☐ 76-100 %

## 3. Macrophyte Coverage: (not algae or moss, check one)

- ☐ 0 %    ☒ 1-25 %    ☐ 26-50 %    ☐ 51-75 %    ☐ 76-100 %

## 4. Streamside Vegetation: (check those present)

- ☒ ferns/grasses    ☐ shrubs    ☒ deciduous trees    ☐ coniferous trees

## 5. Dominant Streamside Vegetation: (check one)

- ☒ ferns/grasses    ☐ shrubs    ☐ deciduous trees    ☐ coniferous trees

## 6. Periphyton Coverage on Substrate: (benthic algae, not moss, check one)

- ☒ 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick)  
☒ 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick)  
☐ 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick)  
☐ 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick)  
☐ 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick)

Note: 1 through 5 represent categories entered into the CABIN database.

**BENTHIC MACROINVERTEBRATE DATA**Habitat sampled: (check one) ☐ riffle ☐ rapids ☒ straight run

|                                 |                   |
|---------------------------------|-------------------|
| 400 µm mesh Kick Net            |                   |
| Person sampling                 | <u>Kim Mandzy</u> |
| Sampling time (i.e. 3 min.)     | <u>3 min.</u>     |
| No. of sample jars              | <u>1 x 4L</u>     |
| Typical depth in kick area (cm) | <u>55</u>         |

Preservative used: 10% formalin

Sampled sieved on site using "Bucket Swirling Method":

☐ YES ☒ NOIf YES, debris collected for QAQC ☐

Note: Indicate if a sampling method other than the recommended 400 µm mesh kick net is used.

Field Crew: Kim / SueSite Code: PAR-01Sampling Date: (DD/MM/YYYY) Oct 8, 2013**WATER CHEMISTRY DATA** Time: 1325 (24 hr clock) Time zone: CSTAir Temp: 19.0 (°C) Water Temp: 9.1 (°C) pH: 8.06Specific Conductance: 1741 (µs/cm) DO: 16.52 (mg/L) Turbidity: 11.53 (NTU)141.92

Check if water samples were collected for the following analyses:

- ☐ TSS (Total Suspended Solids)
- ☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)
- ☐ Phosphorus (Total, Ortho, and/or Dissolved)
- ☐ Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate) ☐ Other \_\_\_\_\_

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.

**CHANNEL DATA****Slope** - Indicate how slope was measured: (check one)☒ **Calculated from map**

Scale: \_\_\_\_\_ (Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000).

contour interval (vertical distance) \_\_\_\_\_ (m),

distance between contour intervals (horizontal distance) \_\_\_\_\_ (m)

slope = vertical distance/horizontal distance = \_\_\_\_\_

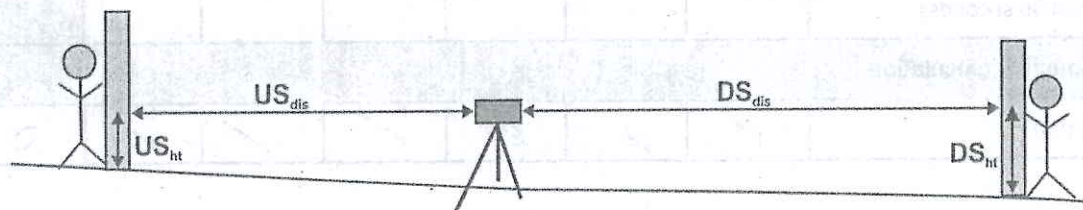
OR

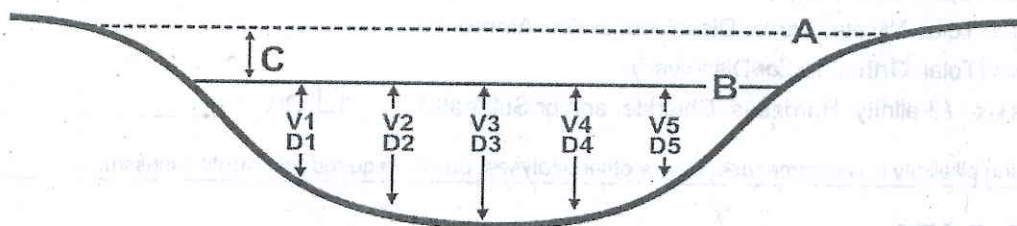
☐ **Measured in field**

Circle device used and fill out table according to device:

a. Survey Equipment    b. Hand Level &amp; Measuring Tape

| Measurements                             | Upstream (U/S)       | Downstream(D/S)      | Calculation             |
|------------------------------------------|----------------------|----------------------|-------------------------|
| <sup>a</sup> Top Hairline (T)            |                      |                      |                         |
| <sup>a</sup> Mid Hairline (ht) OR        |                      |                      |                         |
| <sup>b</sup> Height of rod               |                      |                      |                         |
| <sup>a</sup> Bottom Hairline (B)         |                      |                      |                         |
| <sup>b</sup> Distance (dis) OR           |                      |                      | $US_{dis} + DS_{dis} =$ |
| <sup>a</sup> T-B x 100                   | $^{a}US_{dis} = T-B$ | $^{a}DS_{dis} = T-B$ |                         |
| Change in height ( $\Delta ht$ )         |                      |                      | $DS_{ht} - US_{ht} =$   |
| Slope ( $\Delta ht / \text{total dis}$ ) |                      |                      |                         |



Field Crew: Kim I SueSite Code: PAR 01Sampling Date: (DD/MM/YYYY) 04/8/13**Widths and Depth**Location at site: d/s end of Kicknet area (Indicate where in sample reach, ex. d/s of kick area)A - Bankfull Width: 7 (m)B - Wetted Stream Width: 2.5 (m)C - Bankfull-Wetted Depth (height from water surface to Bankfull): 150 (cm)

Note:

Wetted widths > 5 m, measure a minimum of 5-6 equidistant locations;  
Wetted widths < 5 m, measure 3-4 equidistant locations.**Velocity and Depth**

Check appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

☐ **Velocity Head Rod (or ruler):** Velocity Equation (m/s) =  $\sqrt{[2(\Delta D/100) * 9.81]}$ ☐ **Rotary meters:** Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)☐ **Direct velocity measurements:** ☐ Marsh-McBirney ☐ Sontek or ☐ Other \_\_\_\_\_

|                                                 | 1           | 2           | 3           | 4        | 5        | 6        | AVG         |
|-------------------------------------------------|-------------|-------------|-------------|----------|----------|----------|-------------|
| Distance from Shore (m)                         | <u>0.62</u> | <u>1.25</u> | <u>1.87</u> | <u>/</u> | <u>/</u> | <u>/</u> |             |
| Depth (D) (cm)                                  | <u>42</u>   | <u>37</u>   | <u>44</u>   | <u>/</u> | <u>/</u> | <u>/</u> | <u>41.0</u> |
| <b>Velocity Head Rod (ruler)</b>                |             |             |             |          |          |          |             |
| Flowing water Depth (D <sub>1</sub> ) (cm)      | <u>0</u>    |             |             |          |          |          |             |
| Depth of Stagnation (D <sub>2</sub> ) (cm)      |             |             |             |          |          |          |             |
| Change in depth ( $\Delta D = D_2 - D_1$ ) (cm) |             |             |             |          |          |          |             |
| <b>Rotary meter</b>                             |             |             |             |          |          |          |             |
| Revolutions                                     |             |             |             |          |          |          |             |
| Time (minimum 40 seconds)                       |             |             |             |          |          |          |             |
| <b>Direct Measurement or calculation</b>        |             |             |             |          |          |          |             |
| Velocity (V) (m/s)                              | <u>0</u>    | <u>0</u>    | <u>0</u>    | <u>/</u> | <u>/</u> | <u>/</u> | <u>0</u>    |

Field Crew: Kim SueSite Code: PAR-01Sampling Date: (DD/MM/YYYY) Oct 8/13**SUBSTRATE DATA****Surrounding/Interstitial Material**

Circle the substrate size category for the surrounding material.

| Substrate Size Class               | Category |
|------------------------------------|----------|
| Organic Cover                      | 0        |
| < 0.1 cm (fine sand, silt or clay) | ①        |
| 0.1-0.2 cm (coarse sand)           | 2        |
| 0.2-1.6 cm (gravel)                | 3        |
| 1.6-3.2 cm (small pebble)          | 4        |
| 3.2-6.4 cm (large pebble)          | 5        |
| 6.4-12.8 cm (small cobble)         | 6        |
| 12.8-25.6 cm (cobble)              | 7        |
| > 25.6 cm (boulder)                | 8        |
| Bedrock                            | 9        |

**100 Pebble Count & Substrate Embeddedness**

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

| Diameter (cm) | E   | Diameter (cm) | E   | Diameter (cm) | E    | Diameter (cm) | E   |
|---------------|-----|---------------|-----|---------------|------|---------------|-----|
| 1             | S   | 26            | 0.4 | 51            | S    | 76            | 7.0 |
| 2             | S   | 27            | 6.0 | 52            | S    | 77            | 9.0 |
| 3             | 1.6 | 28            | 1.2 | 53            | 1.5  | 78            | S   |
| 4             | 1.6 | 29            | 6.0 | 54            | 2.0  | 79            | 1.1 |
| 5             | S   | 30            | S   | 55            | 2.0  | 80            | S   |
| 6             | S   | 31            | 1.5 | 56            | 1.2  | 81            | 8.0 |
| 7             | S   | 32            | 3.5 | 57            | 2.2  | 82            | S   |
| 8             | S   | 33            | 2.0 | 58            | S    | 83            | S   |
| 9             | 3.5 | 34            | 3.3 | 59            | S    | 84            | 8.0 |
| 10            | S   | 35            | 4.1 | 60            | 1.5  | 85            | S   |
| 11            | 2.2 | 36            | S   | 61            | 3.3  | 86            | S   |
| 12            | 2.3 | 37            | S   | 62            | 1.0  | 87            | S   |
| 13            | 1.0 | 38            | S   | 63            | S    | 88            | S   |
| 14            | 7.5 | 39            | S   | 64            | S    | 89            | S   |
| 15            | S   | 40            | S   | 65            | S    | 90            | S   |
| 16            | S   | 41            | 7.0 | 66            | 2.3  | 91            | 1.5 |
| 17            | 5.1 | 42            | 2.6 | 67            | 1.5  | 92            | S   |
| 18            | 2.0 | 43            | 2.4 | 68            | S    | 93            | 1.5 |
| 19            | 1.0 | 44            | 3.0 | 69            | S    | 94            | S   |
| 20            | S   | 45            | 2.0 | 70            | S    | 95            | 1.3 |
| 21            | S   | 46            | 1.0 | 71            | 5.5  | 96            | 1.5 |
| 22            | S   | 47            | 1.8 | 72            | 5.8  | 97            | 5.0 |
| 23            | 5.0 | 48            | 1.5 | 73            | 11.0 | 98            | S   |
| 24            | 0.8 | 49            | 6.0 | 74            | 4.0  | 99            | S   |
| 25            | 1.2 | 50            | 8.0 | 75            | 5.5  | 100           | S   |

**Note:** The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.

PHOTO  
100 BTG  
BT7

Field Crew: Kim/Sue

Site Code: PAR-01

Sampling Date: (DD/MM/YYYY) Oct 8/13

## SITE INSPECTION

Site Inspected by: Kim/Sue

### Communication Information

☒ Itinerary left with contact person (include contact numbers)

Contact Person: Lisa

Time checked-in: 6:00 pm

Form of communication: ☐ radio ☒ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT

Phone number: ( ) 794-5137

### Vehicle Safety

☒ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)

☒ Equipment and chemicals safely secured for transport

☒ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary

Notes:

### Shore & Wading Safety

☒ Wading Task Hazard Analysis read by all field staff

☒ Wading Safe Work Procedures read by all field staff

☒ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)

☒ PFD worn

☒ Appropriate footwear, waders, wading belt

☐ Belay used

Notes:

Field Crew: Sue Hartam, Kim Munday Site Code: WAV-01  
Sampling Date: (DD/MM/YYYY) Oct 8, 2013

☐ Occupational Health & Safety: Site Inspection Sheet completed

**PRIMARY SITE DATA**

CABIN Study Name: East Interlake CD Local Basin Name: Wavey ck  
River/Stream Name: Wavey CK Stream Order: (map scale 1:50,000) \_\_\_\_\_

Select one: ☒ Test Site ☐ Potential Reference Site

**Geographical Description/Notes:** 85 N altered, RB = Farm/agriculture  
LB = Forest

Surrounding Land Use: (check those present)

☒ Forest ☒ Field/Pasture ☒ Agriculture ☐ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

Information Source: Field crew

Dominant Surrounding Land Use: (check one)

☐ Forest ☒ Field/Pasture ☐ Agriculture ☐ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

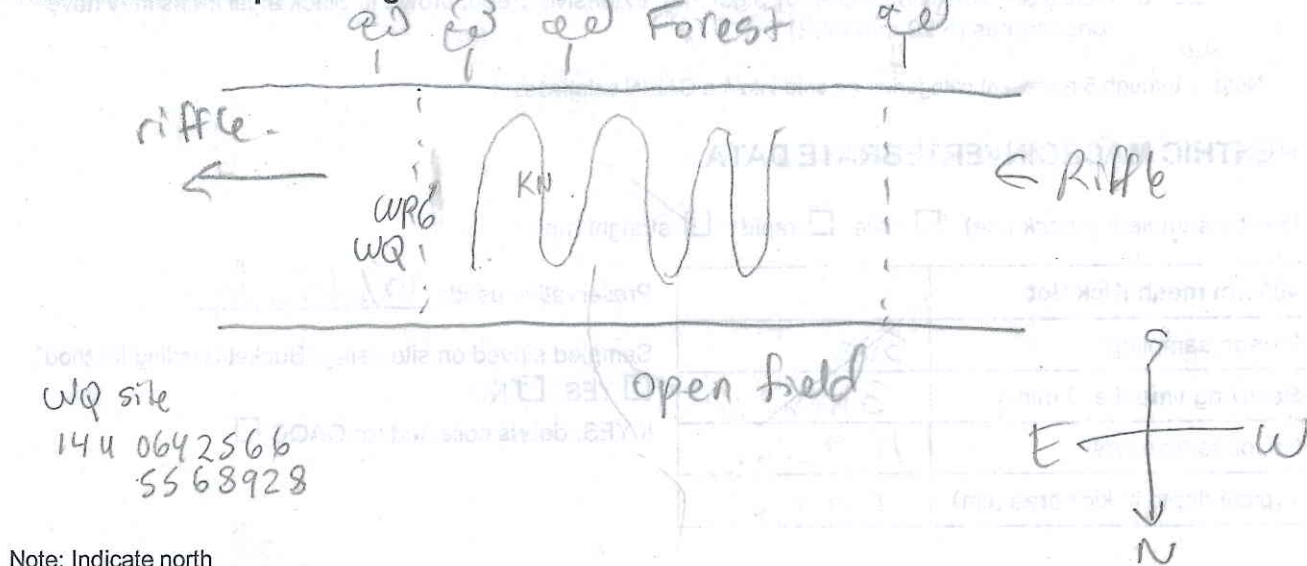
Information Source: Field crew

**Location Data**

Latitude: \_\_\_\_\_ N Longitude: - \_\_\_\_\_ W (DMS or DD)

Elevation: 229 meters (asl or masl) GPS Datum: ☒ GRS80 (NAD83/WGS84) ☐ Other: \_\_\_\_\_

**Site Location Map Drawing**



Note: Indicate north

Field Crew: Sue / KimSite Code: WAV-01Sampling Date: (DD/MM/YYYY) Oct 8, 2013100-0885-LB-lookly US**Photos**

☒ Field Sheet    100-0882    100-0883    100-0884 = RB lookly DS  
☒ Upstream    ☒ Downstream    ☐ Across Site    ☐ Aerial View  
☒ Substrate (exposed)    ☐ Substrate (aquatic)    ☐ Other \_\_\_\_\_

**REACH DATA** (represents 6 times bankfull width)

## 1. Habitat Types: (check those present)

☒ Riffle    ☐ Rapids    ☒ Straight run    ☐ Pool/Back Eddy

## 2. Canopy Coverage: (stand in middle of stream and look up, check one)

☒ 0 %    ☐ 1-25 %    ☐ 26-50 %    ☐ 51-75 %    ☐ 76-100 %

## 3. Macrophyte Coverage: (not algae or moss, check one)

☐ 0 %    ☒ 1-25 %    ☐ 26-50 %    ☐ 51-75 %    ☐ 76-100 %

## 4. Streamside Vegetation: (check those present)

☒ ferns/grasses    ☒ shrubs    ☐ deciduous trees    ☐ coniferous trees

## 5. Dominant Streamside Vegetation: (check one)

☒ ferns/grasses    ☐ shrubs    ☐ deciduous trees    ☐ coniferous trees

## 6. Periphyton Coverage on Substrate: (benthic algae, not moss, check one)

- ☒ 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick)  
☐ 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick)  
☒ 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick) *crunchy/moss like - took photos - more moss than algae*  
☐ 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick)  
☐ 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick)

Note: 1 through 5 represent categories entered into the CABIN database.

**BENTHIC MACROINVERTEBRATE DATA**Habitat sampled: (check one) ☐ riffle ☐ rapids ☒ straight run

|                                 |                     |
|---------------------------------|---------------------|
| 400 µm mesh Kick Net            |                     |
| Person sampling                 | <u>Sue</u>          |
| Sampling time (i.e. 3 min.)     | <u>3 min.</u>       |
| No. of sample jars              | <u>1 x 2 L. jar</u> |
| Typical depth in kick area (cm) | <u>60 cm</u>        |

Preservative used: 10% formalin

Sampled sieved on site using "Bucket Swirling Method":

☐ YES ☒ NOIf YES, debris collected for QAQC ☐

Note: Indicate if a sampling method other than the recommended 400 µm mesh kick net is used.

Field Crew: Sue/KimSite Code: WAV-01Sampling Date: (DD/MM/YYYY) Oct 8, 2013**WATER CHEMISTRY DATA**Time: 15:38 (24 hr clock)Time zone: centralAir Temp: 21.5° (°C) Water Temp: 10.7 (°C) pH: 8.01Specific Conductance: 943 (µs/cm) DO: 15.31 (mg/L) Turbidity: 10.3 (NTU)

Check if water samples were collected for the following analyses:

☐ TSS (Total Suspended Solids)☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)☐ Phosphorus (Total, Ortho, and/or Dissolved)☐ Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate)☐ Other \_\_\_\_\_

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.

**CHANNEL DATA****Slope** - Indicate how slope was measured: (check one)☒ **Calculated from map**

Scale: \_\_\_\_\_ (Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000).

contour interval (vertical distance) \_\_\_\_\_ (m),

distance between contour intervals (horizontal distance) \_\_\_\_\_ (m)

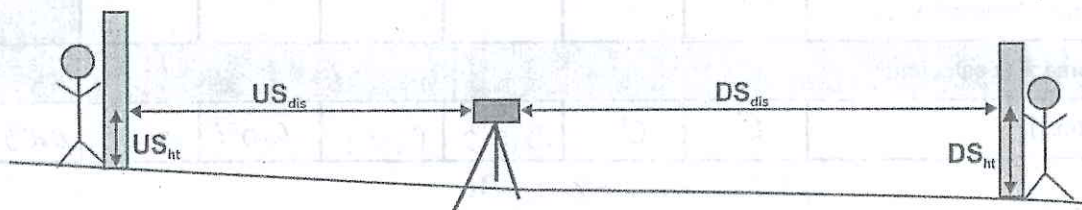
slope = vertical distance/horizontal distance = \_\_\_\_\_

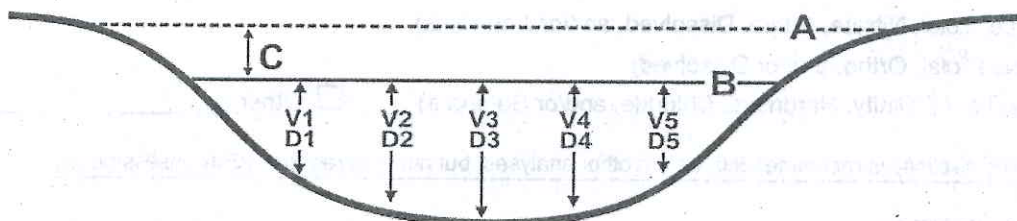
**OR**☐ **Measured in field**

Circle device used and fill out table according to device:

a. Survey Equipment    b. Hand Level &amp; Measuring Tape

| Measurements                             | Upstream (U/S)       | Downstream(D/S)      | Calculation             |
|------------------------------------------|----------------------|----------------------|-------------------------|
| <sup>a</sup> Top Hairline (T)            |                      |                      |                         |
| <sup>a</sup> Mid Hairline (ht) OR        |                      |                      |                         |
| <sup>b</sup> Height of rod               |                      |                      |                         |
| <sup>a</sup> Bottom Hairline (B)         |                      |                      |                         |
| <sup>b</sup> Distance (dis) OR           |                      |                      | $US_{dis} + DS_{dis} =$ |
| <sup>a</sup> T-B x 100                   | $^aUS_{dis} = T - B$ | $^aDS_{dis} = T - B$ |                         |
| Change in height ( $\Delta ht$ )         |                      |                      | $DS_{ht} - US_{ht} =$   |
| Slope ( $\Delta ht / \text{total dis}$ ) |                      |                      |                         |



Field Crew: Sue/KimSite Code: WAV-01Sampling Date: (DD/MM/YYYY) Oct 8, 2013**Widths and Depth**Location at site: d/s of kicknet at WP site (Indicate where in sample reach, ex. d/s of kick area)A - Bankfull Width: 17.5 (m)B - Wetted Stream Width: 9.8 (m)  $\frac{9.8}{6} = 1.63$ C - Bankfull-Wetted Depth (height from water surface to Bankfull): 120 (cm)

Note:

Wetted widths &gt; 5 m, measure a minimum of 5-6 equidistant locations;

Wetted widths &lt; 5 m, measure 3-4 equidistant locations.

**Velocity and Depth**

Check appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

☐ **Velocity Head Rod (or ruler):** Velocity Equation (m/s) =  $\sqrt{2(\Delta D/100) * 9.81}$ ☐ **Rotary meters:** Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)☒ **Direct velocity measurements:** ☐ Marsh-McBirney ☐ Sontek or ☐ Other Swiffer

|                                                 | 1           | 2           | 3           | 4           | 5           | 6           | AVG         |
|-------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Distance from Shore (m)                         | <u>0.82</u> | <u>2.44</u> | <u>4.08</u> | <u>5.71</u> | <u>7.33</u> | <u>8.96</u> |             |
| Depth (D) (cm)                                  | <u>50</u>   | <u>47</u>   | <u>46</u>   | <u>53</u>   | <u>57</u>   | <u>50</u>   | <u>50.5</u> |
| <b>Velocity Head Rod (ruler)</b>                |             |             |             |             |             |             |             |
| Flowing water Depth (D <sub>1</sub> ) (cm)      |             |             |             |             |             |             |             |
| Depth of Stagnation (D <sub>2</sub> ) (cm)      |             |             |             |             |             |             |             |
| Change in depth ( $\Delta D = D_2 - D_1$ ) (cm) |             |             |             |             |             |             |             |
| <b>Rotary meter</b>                             |             |             |             |             |             |             |             |
| Revolutions                                     |             |             |             |             |             |             |             |
| Time (minimum 40 seconds)                       |             |             |             |             |             |             |             |
| <b>Direct Measurement or calculation</b>        |             |             |             |             |             |             |             |
| Velocity (V) (m/s)                              | <u>0</u>    | <u>0</u>    | <u>0.03</u> | <u>0.09</u> | <u>0.07</u> | <u>0.01</u> | <u>0.03</u> |

velocity at 60% depth

Field Crew: Sue/KimSite Code: WAV-01Sampling Date: (DD/MM/YYYY) Oct 8, 2013**SUBSTRATE DATA****Surrounding/Interstitial Material**

Circle the substrate size category for the surrounding material.

| Substrate Size Class               | Category |
|------------------------------------|----------|
| Organic Cover                      | 0        |
| < 0.1 cm (fine sand, silt or clay) | 1        |
| 0.1-0.2 cm (coarse sand)           | 2        |
| 0.2-1.6 cm (gravel)                | 3        |
| 1.6-3.2 cm (small pebble)          | 4        |
| 3.2-6.4 cm (large pebble)          | 5        |
| 6.4-12.8 cm (small cobble)         | 6        |
| 12.8-25.6 cm (cobble)              | 7        |
| > 25.6 cm (boulder)                | 8        |
| Bedrock                            | 9        |

**100 Pebble Count & Substrate Embeddedness**

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

| Diameter (cm) | E     | Diameter (cm)    | E  | Diameter (cm) | E                | Diameter (cm) | E   |
|---------------|-------|------------------|----|---------------|------------------|---------------|-----|
| 1             | 2.5   | E <sub>1/4</sub> | 26 | 1.5           |                  | 51            | 1.0 |
| 2             | 7     |                  | 27 | 2.5           |                  | 52            | 2.5 |
| 3             | 4.5   |                  | 28 | 1.8           |                  | 53            | 1.5 |
| 4             | 4     |                  | 29 | 2.0           |                  | 54            | 7.0 |
| 5             | 5     |                  | 30 | 11.0          | E <sub>1/2</sub> | 55            | 0.4 |
| 6             | 7.5   |                  | 31 | 2.4           |                  | 56            | 6.5 |
| 7             | 5 "s" |                  | 32 | 8.5           |                  | 57            | 4.0 |
| 8             | 12    |                  | 33 | 1.0           |                  | 58            | 4.0 |
| 9             | 1.5   |                  | 34 | 0.6           |                  | 59            | 0.5 |
| 10            | 1.2   | E <sub>0</sub>   | 35 | 1.4           |                  | 60            | 0.5 |
| 11            | 7     |                  | 36 | 1.7           |                  | 61            | 0.3 |
| 12            | 7.5   |                  | 37 | 0.5           |                  | 62            | 1.0 |
| 13            | 8     |                  | 38 | "s"           |                  | 63            | 7.5 |
| 14            | "s"   |                  | 39 | 30.0          |                  | 64            | "s" |
| 15            | "s"   |                  | 40 | 5.0           | E <sub>3/4</sub> | 65            | "s" |
| 16            | 2     |                  | 41 | 1.2           |                  | 66            | "s" |
| 17            | "s"   |                  | 42 | 0.3           |                  | 67            | 4.0 |
| 18            | 2     |                  | 43 | 0.4           |                  | 68            | "s" |
| 19            | 1     |                  | 44 | 0.6           |                  | 69            | 2.0 |
| 20            | 0.5   | E <sub>0</sub>   | 45 | 0.2           |                  | 70            | 1.5 |
| 21            | 0.5   |                  | 46 | 5.5           |                  | 71            | 0.4 |
| 22            | 0.3   |                  | 47 | 3.4           |                  | 72            | 8.5 |
| 23            | 2.5   |                  | 48 | 6.5           |                  | 73            | 0.3 |
| 24            | 5     |                  | 49 | 1.5           |                  | 74            | 7.0 |
| 25            | 2.2   |                  | 50 | 2             | E <sub>1/2</sub> | 75            | 0.8 |
|               |       |                  |    |               |                  | 76            | 3.5 |
|               |       |                  |    |               |                  | 77            | 4.5 |
|               |       |                  |    |               |                  | 78            | 1.2 |
|               |       |                  |    |               |                  | 79            | 1.0 |
|               |       |                  |    |               |                  | 80            | 1.5 |
|               |       |                  |    |               |                  | 81            | "s" |
|               |       |                  |    |               |                  | 82            | 2.7 |
|               |       |                  |    |               |                  | 83            | 2.0 |
|               |       |                  |    |               |                  | 84            | 3.5 |
|               |       |                  |    |               |                  | 85            | 8.5 |
|               |       |                  |    |               |                  | 86            | 0.5 |
|               |       |                  |    |               |                  | 87            | 0.4 |
|               |       |                  |    |               |                  | 88            | 5.5 |
|               |       |                  |    |               |                  | 89            | 4.0 |
|               |       |                  |    |               |                  | 90            | 5.0 |
|               |       |                  |    |               |                  | 91            | 1.5 |
|               |       |                  |    |               |                  | 92            | 1.7 |
|               |       |                  |    |               |                  | 93            | 2.0 |
|               |       |                  |    |               |                  | 94            | 2.3 |
|               |       |                  |    |               |                  | 95            | 1.0 |
|               |       |                  |    |               |                  | 96            | 5.5 |
|               |       |                  |    |               |                  | 97            | 0.8 |
|               |       |                  |    |               |                  | 98            | "s" |
|               |       |                  |    |               |                  | 99            | 7.5 |
|               |       |                  |    |               |                  | 100           | 3.5 |

**Note:** The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.

Field Crew: Sue/Kim

Site Code: WAV-01

Sampling Date: (DD/MM/YYYY) Oct 8, 2013

## SITE INSPECTION

Site Inspected by: Kim/Sue

### Communication Information

☐ Itinerary left with contact person (include contact numbers)

Contact Person: Lisa

Time checked-in: 6 PM

Form of communication: ☐ radio ☒ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT

Phone number: ( ) 794-5137

### Vehicle Safety

☐ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)

☒ Equipment and chemicals safely secured for transport

☒ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary

Notes:

### Shore & Wading Safety

☒ Wading Task Hazard Analysis read by all field staff

☒ Wading Safe Work Procedures read by all field staff

☒ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)

☒ PFD worn

☒ Appropriate footwear, waders, wading belt

☐ Belay used

Notes:

Field Crew: Kim mandzy / Sue NestanSite Code: WIL-01Sampling Date: (DD/MM/YYYY) Oct 9/2013☒ Occupational Health & Safety: Site Inspection Sheet completed

## PRIMARY SITE DATA

CABIN Study Name: East Interlake CD Local Basin Name: Willow CreekRiver/Stream Name: Willow Creek Stream Order: (map scale 1:50,000) \_\_\_\_\_Select one: ☒ Test Site ☐ Potential Reference Site

## Geographical Description/Notes:

Road 107 N + 18 E  
At road junction 1 mi L Rd N of Willow Cr crossing of Hwy 8. Site is to NW ~70m u/s to culverts. Accessed by field adjacent (w)

Surrounding Land Use: (check those present)

☐ Forest ☒ Field/Pasture ☒ Agriculture ☒ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_Information Source: field crew

Dominant Surrounding Land Use: (check one)

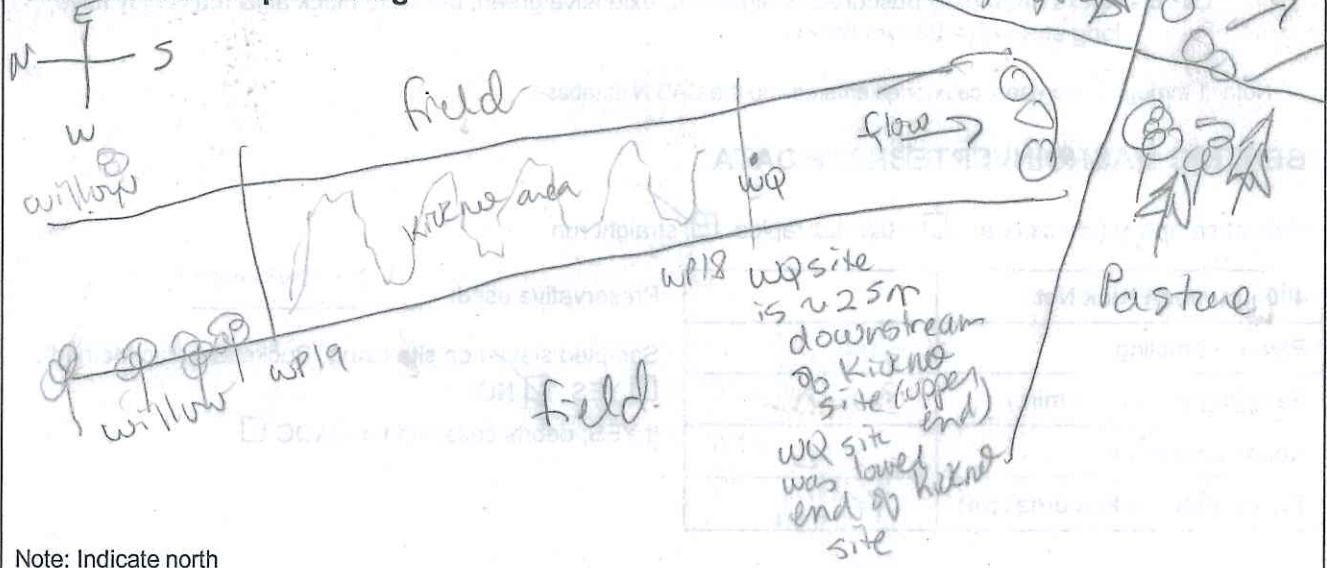
☐ Forest ☒ Field/Pasture ☐ Agriculture ☐ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_Information Source: field crew

## Location Data

Latitude: \_\_\_\_\_ N Longitude: - \_\_\_\_\_ W (DMS or DD)

Elevation: 734 (ft or masl)GPS Datum: ☐ GRS80 (NAD83/WGS84) ☐ Other: \_\_\_\_\_

## Site Location Map Drawing



Note: Indicate north

Field Crew: Sue / KimSite Code: WIL-01Sampling Date: (DD/MM/YYYY) Sept 9 / 13**Photos**

- ☒ Field Sheet ☒ Upstream ☒ Downstream ☒ Across Site ☐ Aerial View  
☒ Substrate (exposed) ☐ Substrate (aquatic) ☐ Other \_\_\_\_\_

**REACH DATA** (represents 6 times bankfull width)

## 1. Habitat Types: (check those present)

- ☐ Riffle ☐ Rapids ☒ Straight run ☐ Pool/Back Eddy

## 2. Canopy Coverage: (stand in middle of stream and look up, check one)

- ☒ 0 % ☐ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %

## 3. Macrophyte Coverage: (not algae or moss, check one)

- ☐ 0 % ☒ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %

## 4. Streamside Vegetation: (check those present)

- ☒ ferns/grasses ☐ shrubs ☐ deciduous trees ☐ coniferous trees

## 5. Dominant Streamside Vegetation: (check one)

- ☒ ferns/grasses ☐ shrubs ☐ deciduous trees ☐ coniferous trees

## 6. Periphyton Coverage on Substrate: (benthic algae, not moss, check one)

- N/A ☐ 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick)  
☐ 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick)  
☐ 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick)  
☐ 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick)  
☐ 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick)

Note: 1 through 5 represent categories entered into the CABIN database.

**BENTHIC MACROINVERTEBRATE DATA**Habitat sampled: (check one) ☐ riffle ☐ rapids ☒ straight run

|                                 |        |
|---------------------------------|--------|
| 400 $\mu$ m mesh Kick Net       |        |
| Person sampling                 | Sue    |
| Sampling time (i.e. 3 min.)     | 3 min  |
| No. of sample jars              | 1 x 1L |
| Typical depth in kick area (cm) | 70 cm  |

Preservative used: 10% formalin

Sampled sieved on site using "Bucket Swirling Method":

☐ YES ☒ NOIf YES, debris collected for QAQC ☐Note: Indicate if a sampling method other than the recommended 400  $\mu$ m mesh kick net is used.

Field Crew: Sue / Kim Site Code: WIL-01Sampling Date: (DD/MM/YYYY) Oct 9/13**WATER CHEMISTRY DATA** Time: 15:19 (24 hr clock) Time zone: centralAir Temp: 18° (°C) Water Temp: 10.6 (°C) pH: 8.18Specific Conductance: 689 (µs/cm) DO: 12.48 (mg/L) Turbidity: 31.7 (NTU)

Check if water samples were collected for the following analyses:

- ☐ TSS (Total Suspended Solids)
- ☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)
- ☐ Phosphorus (Total, Ortho, and/or Dissolved)
- ☐ Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate) ☐ Other \_\_\_\_\_

at WP17 1440638356  
5605094

site ~25m downstream of Rickard

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.

**CHANNEL DATA****Slope** - Indicate how slope was measured: (check one)☒ **Calculated from map**

Scale: \_\_\_\_\_ (Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000).

contour interval (vertical distance) \_\_\_\_\_ (m),

distance between contour intervals (horizontal distance) \_\_\_\_\_ (m)

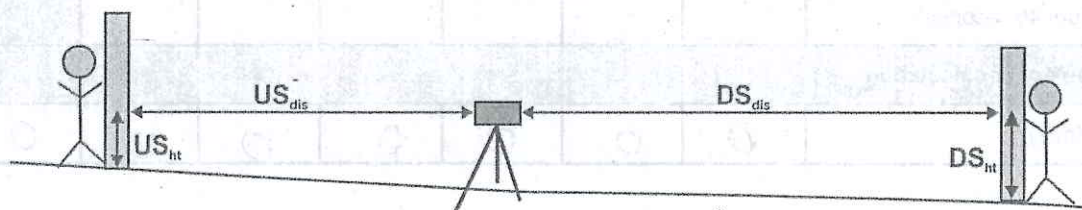
slope = vertical distance/horizontal distance = \_\_\_\_\_

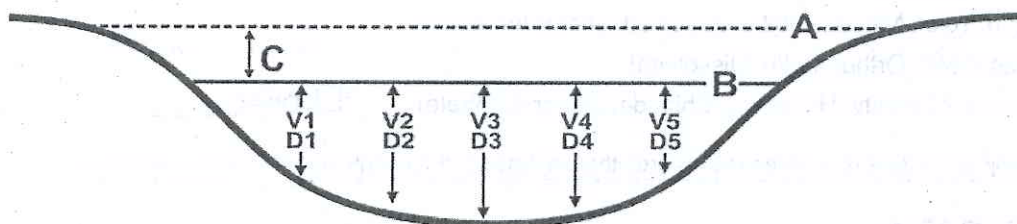
**OR**☐ **Measured in field**

Circle device used and fill out table according to device:

a. Survey Equipment b. Hand Level &amp; Measuring Tape

| Measurements                      | Upstream (U/S)                      | Downstream(D/S)                     | Calculation                            |
|-----------------------------------|-------------------------------------|-------------------------------------|----------------------------------------|
| <sup>a</sup> Top Hairline (T)     |                                     |                                     |                                        |
| <sup>a</sup> Mid Hairline (ht) OR |                                     |                                     |                                        |
| <sup>b</sup> Height of rod        |                                     |                                     |                                        |
| <sup>a</sup> Bottom Hairline (B)  |                                     |                                     |                                        |
| <sup>b</sup> Distance (dis) OR    |                                     |                                     | US <sub>dis</sub> +DS <sub>dis</sub> = |
| <sup>a</sup> T-B x 100            | <sup>a</sup> US <sub>dis</sub> =T-B | <sup>a</sup> DS <sub>dis</sub> =T-B |                                        |
| Change in height (Δht)            |                                     |                                     | DS <sub>ht</sub> -US <sub>ht</sub> =   |
| Slope (Δht/total dis)             |                                     |                                     |                                        |



Field Crew: Steve / KimSite Code: WIL-01Sampling Date: (DD/MM/YYYY) Oct 9 / 13**Widths and Depth**at WP 19 upstream end of Kirkwood strLocation at site: ↓ (Indicate where in sample reach, ex. d/s of kick area)A - Bankfull Width: 10.5 (m) *& Best guess difficult to tell - open field*B - Wetted Stream Width: 7.6 m (m) 16 = 1.27C - Bankfull-Wetted Depth (height from water surface to Bankfull): 85 cm (cm)

Note:

Wetted widths &gt; 5 m, measure a minimum of 5-6 equidistant locations;

Wetted widths &lt; 5 m, measure 3-4 equidistant locations.

**Velocity and Depth**

Check appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

☐ **Velocity Head Rod (or ruler):** Velocity Equation (m/s) =  $\sqrt{[2(\Delta D/100) * 9.81]}$ ☐ **Rotary meters:** Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)☒ **Direct velocity measurements:** ☐ Marsh-McBirney ☐ Sontek or ☐ Other Swallow

|                                                 | 1    | 2    | 3    | 4    | 5    | 6    | AVG  |
|-------------------------------------------------|------|------|------|------|------|------|------|
| Distance from Shore (m)                         | 0.63 | 1.90 | 3.17 | 4.44 | 5.71 | 6.98 |      |
| Depth (D) (cm)                                  | 60   | 91   | 80   | 86   | 97   | 76   | 81.7 |
| <b>Velocity Head Rod (ruler)</b>                |      |      |      |      |      |      |      |
| Flowing water Depth (D <sub>1</sub> ) (cm)      |      |      |      |      |      |      |      |
| Depth of Stagnation (D <sub>2</sub> ) (cm)      |      |      |      |      |      |      |      |
| Change in depth ( $\Delta D = D_2 - D_1$ ) (cm) |      |      |      |      |      |      |      |
| <b>Rotary meter</b>                             |      |      |      |      |      |      |      |
| Revolutions                                     |      |      |      |      |      |      |      |
| Time (minimum 40 seconds)                       |      |      |      |      |      |      |      |
| <b>Direct Measurement or calculation</b>        |      |      |      |      |      |      |      |
| Velocity (V) (m/s)                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    |

Field Crew: Sue/KenSite Code: WIL-01Sampling Date: (DD/MM/YYYY) Oct 9/13**SUBSTRATE DATA****Surrounding/Interstitial Material**

Circle the substrate size category for the surrounding material.

| Substrate Size Class               | Category |
|------------------------------------|----------|
| Organic Cover                      | 0        |
| < 0.1 cm (fine sand, silt or clay) | 1        |
| 0.1-0.2 cm (coarse sand)           | 2        |
| 0.2-1.6 cm (gravel)                | 3        |
| 1.6-3.2 cm (small pebble)          | 4        |
| 3.2-6.4 cm (large pebble)          | 5        |
| 6.4-12.8 cm (small cobble)         | 6        |
| 12.8-25.6 cm (cobble)              | 7        |
| > 25.6 cm (boulder)                | 8        |
| Bedrock                            | 9        |

**100 Pebble Count & Substrate Embeddedness**

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

| Diameter (cm) | E      | Diameter (cm) | E      | Diameter (cm) | E      | Diameter (cm) | E      |
|---------------|--------|---------------|--------|---------------|--------|---------------|--------|
| 1             | S      | 26            | S      | 51            | S      | 76            | S      |
| 2             | S      | 27            | S      | 52            | S      | 77            | S      |
| 3             | S      | 28            | S      | 53            | S      | 78            | S      |
| 4             | S      | 29            | 0.5    | 54            | 0.5    | 79            | S      |
| 5             | S      | 30            | S      | 55            | 0=wood | 80            | S      |
| 6             | S      | 31            | S      | 56            | 0=wood | 81            | S      |
| 7             | S      | 32            | S      | 57            | S      | 82            | S      |
| 8             | S      | 33            | S      | 58            | S      | 83            | S      |
| 9             | S      | 34            | S      | 59            | 0.5    | 84            | 0.5    |
| 10            | S      | 35            | S      | 60            | 0=wood | 85            | S      |
| 11            | S      | 36            | S      | 61            | 3      | 86            | S      |
| 12            | S      | 37            | 0.5    | 62            | 0=wood | 87            | S      |
| 13            | S      | 38            | S      | 63            | S      | 88            | S      |
| 14            | S      | 39            | S      | 64            | 0=wood | 89            | S      |
| 15            | 1      | 40            | 0.3    | 65            | S      | 90            | S      |
| 16            | S      | 41            | S      | 66            | S      | 91            | S      |
| 17            | S      | 42            | S      | 67            | 0=wood | 92            | S      |
| 18            | S      | 43            | 0=wood | 68            | S      | 93            | S      |
| 19            | S      | 44            | S      | 69            | 0=wood | 94            | S      |
| 20            | 0.5    | 45            | S      | 70            | S      | 95            | 0=wood |
| 21            | S      | 46            | S      | 71            | 8      | 96            | 0=wood |
| 22            | S      | 47            | S      | 72            | S      | 97            | S      |
| 23            | 0=wood | 48            | S      | 73            | S      | 98            | 0=wood |
| 24            | 0=wood | 49            | S      | 74            | S      | 99            | S      |
| 25            | 0=wood | 50            | S      | 75            | 0.5    | 100           | S      |

**Note:** The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.

Field Crew: Sue/Kim

Site Code: WIL-01

Sampling Date: (DD/MM/YYYY)

Oct 9/13

## SITE INSPECTION

Site Inspected by: Sue/Kim

### Communication Information

☒ Itinerary left with contact person (include contact numbers)

Contact Person: Lisa

Time checked-in: 6PM

Form of communication: ☐ radio ☒ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT

Phone number: ( ) 794-5137

### Vehicle Safety

☒ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)

☒ Equipment and chemicals safely secured for transport

☒ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary

Notes:

### Shore & Wading Safety

☒ Wading Task Hazard Analysis read by all field staff

☒ Wading Safe Work Procedures read by all field staff

☒ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)

☒ PFD worn

☒ Appropriate footwear, waders, wading belt

☐ Belay used

Notes:

BUILT 20-25 m DOWNSTREAM.  
Field Crew: Kim Mandy / Sue Hutam

Site Code: FLD-01

Sampling Date: (DD/MM/YYYY) Oct 9/13

☐ Occupational Health & Safety: Site Inspection Sheet completed

**PRIMARY SITE DATA**

CABIN Study Name: East Indulake CD Local Basin Name: Fish Lake Drain

River/Stream Name: Fish Lake Drain Stream Order: (map scale 1:50,000) \_\_\_\_\_

Select one: ☒ Test Site ☐ Potential Reference Site

**Geographical Description/Notes:**

Crossing at Hwy 222 just South of Camp Morton  
- parked on W side past bridge next to driveway

Surrounding Land Use: (check those present)

☒ Forest ☐ Field/Pasture ☐ Agriculture ☐ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

Information Source: Field crew

Dominant Surrounding Land Use: (check one)

☐ Forest ☐ Field/Pasture ☐ Agriculture ☒ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

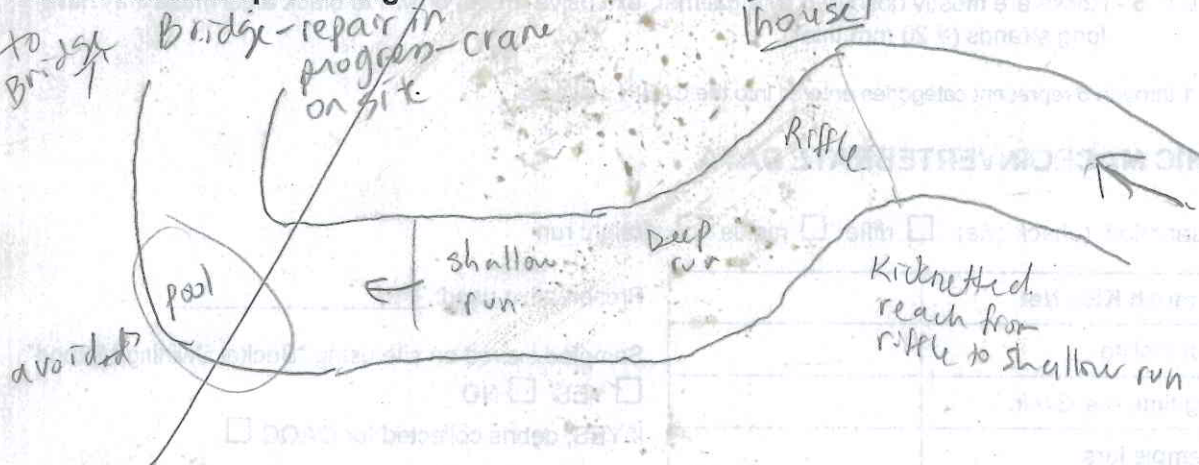
Information Source: Field crew

**Location Data**

Latitude: \_\_\_\_\_ N Longitude: - \_\_\_\_\_ W (DMS or DD)

Elevation: \_\_\_\_\_ (ft or masl) GPS Datum: ☐ GRS80 (NAD83/WGS84) ☐ Other: \_\_\_\_\_

**Site Location Map Drawing**



Note: Indicate north

ABANDONED

Field Crew: Sue Martens / Kim Manday Site Code: FUD-01  
 Sampling Date: (DD/MM/YYYY) Oct 9, 2013

### Photos

☐ Field Sheet ☐ Upstream ☐ Downstream ☐ Across Site ☐ Aerial View  
☐ Substrate (exposed) ☐ Substrate (aquatic) ☐ Other \_\_\_\_\_

### REACH DATA (represents 6 times bankfull width)

#### 1. Habitat Types: (check those present)

☐ Riffle ☐ Rapids ☐ Straight run ☐ Pool/Back Eddy

#### 2. Canopy Coverage: (stand in middle of stream and look up, check one)

☐ 0 % ☐ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %

#### 3. Macrophyte Coverage: (not algae or moss, check one)

☐ 0 % ☐ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %

#### 4. Streamside Vegetation: (check those present)

☐ ferns/grasses ☐ shrubs ☐ deciduous trees ☐ coniferous trees

#### 5. Dominant Streamside Vegetation: (check one)

☐ ferns/grasses ☐ shrubs ☐ deciduous trees ☐ coniferous trees

#### 6. Periphyton Coverage on Substrate: (benthic algae, not moss, check one)

- ☐ 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick)  
☐ 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick)  
☐ 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick)  
☐ 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick)  
☐ 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick)

Note: 1 through 5 represent categories entered into the CABIN database.

### BENTHIC MACROINVERTEBRATE DATA

Habitat sampled: (check one) ☐ riffle ☐ rapids ☐ straight run

|                                 |  |
|---------------------------------|--|
| 400 $\mu$ m mesh Kick Net       |  |
| Person sampling                 |  |
| Sampling time (i.e. 3 min.)     |  |
| No. of sample jars              |  |
| Typical depth in kick area (cm) |  |

Preservative used: \_\_\_\_\_

Sampled sieved on site using "Bucket Swirling Method":

☐ YES ☐ NO

If YES, debris collected for QAQC ☐

Note: Indicate if a sampling method other than the recommended 400  $\mu$ m mesh kick net is used.

Field Crew: Sue Hartman / Kim Mandzy Site Code: FID-01  
 Sampling Date: (DD/MM/YYYY) Oct 9, 2013

**WATER CHEMISTRY DATA** Time: \_\_\_\_\_ (24 hr clock) Time zone: \_\_\_\_\_

Air Temp: \_\_\_\_\_ (°C) Water Temp: \_\_\_\_\_ (°C) pH: \_\_\_\_\_

Specific Conductance: \_\_\_\_\_ (µs/cm) DO: \_\_\_\_\_ (mg/L) Turbidity: \_\_\_\_\_ (NTU)

Check if water samples were collected for the following analyses:

- ☐ TSS (Total Suspended Solids)  
☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)  
☐ Phosphorus (Total, Ortho, and/or Dissolved)  
☐ Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate) ☐ Other \_\_\_\_\_

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.

## CHANNEL DATA

**Slope** - Indicate how slope was measured: (check one)

☐ **Calculated from map**

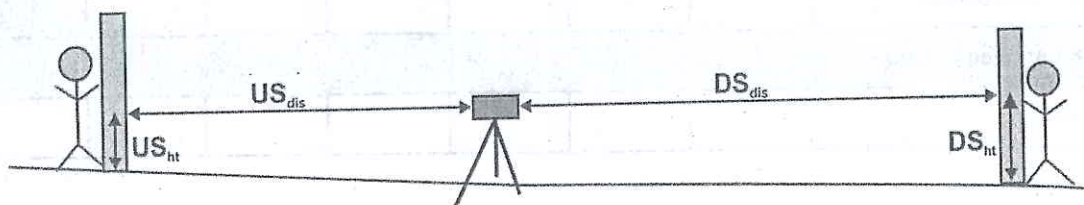
Scale: \_\_\_\_\_ (Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000).  
 contour interval (vertical distance) \_\_\_\_\_ (m),  
 distance between contour intervals (horizontal distance) \_\_\_\_\_ (m)  
 slope = vertical distance/horizontal distance = \_\_\_\_\_

OR

☐ **Measured in field**

Circle device used and fill out table according to device:  
 a. Survey Equipment b. Hand Level & Measuring Tape

| Measurements                             | Upstream (U/S)     | Downstream(D/S)    | Calculation             |
|------------------------------------------|--------------------|--------------------|-------------------------|
| <sup>a</sup> Top Hairline (T)            |                    |                    |                         |
| <sup>a</sup> Mid Hairline (ht) OR        |                    |                    |                         |
| <sup>b</sup> Height of rod               |                    |                    |                         |
| <sup>a</sup> Bottom Hairline (B)         |                    |                    |                         |
| <sup>b</sup> Distance (dis) OR           |                    |                    | $US_{dis} + DS_{dis} =$ |
| <sup>a</sup> T-B x 100                   | $^aUS_{dis} = T-B$ | $^aDS_{dis} = T-B$ |                         |
| Change in height ( $\Delta ht$ )         |                    |                    | $DS_{ht} - US_{ht} =$   |
| Slope ( $\Delta ht / \text{total dis}$ ) |                    |                    |                         |



ABANDONED

Field Crew: Sue Hartman / Kim Manday Site Code: FID-01  
 Sampling Date: (DD/MM/YYYY) Oct 9, 2013

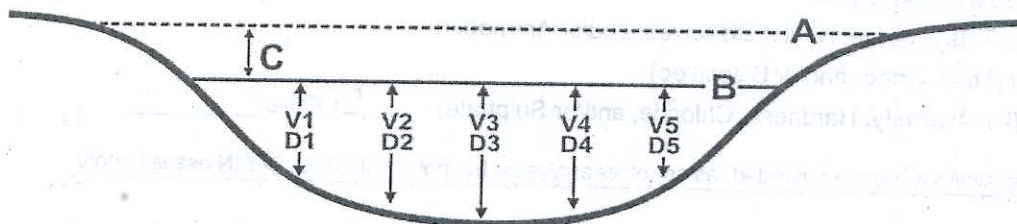
### Widths and Depth

Location at site: \_\_\_\_\_ (Indicate where in sample reach, ex. d/s of kick area)

A - Bankfull Width: \_\_\_\_\_ (m)

B - Wetted Stream Width: \_\_\_\_\_ (m)

C - Bankfull-Wetted Depth (height from water surface to Bankfull): \_\_\_\_\_ (cm)



Note:

Wetted widths > 5 m, measure a minimum of 5-6 equidistant locations;

Wetted widths < 5 m, measure 3-4 equidistant locations.

### Velocity and Depth

Check appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

☐ Velocity Head Rod (or ruler): Velocity Equation (m/s) =  $\sqrt{[2(\Delta D/100) * 9.81]}$

☐ Rotary meters: Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)

☐ Direct velocity measurements: ☐ Marsh-McBirney ☐ Sontek or ☐ Other \_\_\_\_\_

|                                                 | 1 | 2 | 3 | 4 | 5 | 6 | AVG |
|-------------------------------------------------|---|---|---|---|---|---|-----|
| Distance from Shore (m)                         |   |   |   |   |   |   |     |
| Depth (D) (cm)                                  |   |   |   |   |   |   |     |
| Velocity Head Rod (ruler)                       |   |   |   |   |   |   |     |
| Flowing water Depth (D <sub>1</sub> ) (cm)      |   |   |   |   |   |   |     |
| Depth of Stagnation (D <sub>2</sub> ) (cm)      |   |   |   |   |   |   |     |
| Change in depth ( $\Delta D = D_2 - D_1$ ) (cm) |   |   |   |   |   |   |     |
| Rotary meter                                    |   |   |   |   |   |   |     |
| Revolutions                                     |   |   |   |   |   |   |     |
| Time (minimum 40 seconds)                       |   |   |   |   |   |   |     |
| Direct Measurement or calculation               |   |   |   |   |   |   |     |
| Velocity (V) (m/s)                              |   |   |   |   |   |   |     |

Field Crew:

Sue Hartman / Kim Mandry

Site Code:

FD-01

Sampling Date: (DD/MM/YYYY)

Oct 9, 2013

**SUBSTRATE DATA****Surrounding/Interstitial Material**

Circle the substrate size category for the surrounding material.

| Substrate Size Class               | Category |
|------------------------------------|----------|
| Organic Cover                      | 0        |
| < 0.1 cm (fine sand, silt or clay) | 1        |
| 0.1-0.2 cm (coarse sand)           | 2        |
| 0.2-1.6 cm (gravel)                | 3        |
| 1.6-3.2 cm (small pebble)          | 4        |
| 3.2-6.4 cm (large pebble)          | 5        |
| 6.4-12.8 cm (small cobble)         | 6        |
| 12.8-25.6 cm (cobble)              | 7        |
| > 25.6 cm (boulder)                | 8        |
| Bedrock                            | 9        |

**100 Pebble Count & Substrate Embeddedness**

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

| Diameter (cm) | E | Diameter (cm) | E | Diameter (cm) | E | Diameter (cm) | E |
|---------------|---|---------------|---|---------------|---|---------------|---|
| 1             |   | 26            |   | 51            |   | 76            |   |
| 2             |   | 27            |   | 52            |   | 77            |   |
| 3             |   | 28            |   | 53            |   | 78            |   |
| 4             |   | 29            |   | 54            |   | 79            |   |
| 5             |   | 30            |   | 55            |   | 80            |   |
| 6             |   | 31            |   | 56            |   | 81            |   |
| 7             |   | 32            |   | 57            |   | 82            |   |
| 8             |   | 33            |   | 58            |   | 83            |   |
| 9             |   | 34            |   | 59            |   | 84            |   |
| 10            |   | 35            |   | 60            |   | 85            |   |
| 11            |   | 36            |   | 61            |   | 86            |   |
| 12            |   | 37            |   | 62            |   | 87            |   |
| 13            |   | 38            |   | 63            |   | 88            |   |
| 14            |   | 39            |   | 64            |   | 89            |   |
| 15            |   | 40            |   | 65            |   | 90            |   |
| 16            |   | 41            |   | 66            |   | 91            |   |
| 17            |   | 42            |   | 67            |   | 92            |   |
| 18            |   | 43            |   | 68            |   | 93            |   |
| 19            |   | 44            |   | 69            |   | 94            |   |
| 20            |   | 45            |   | 70            |   | 95            |   |
| 21            |   | 46            |   | 71            |   | 96            |   |
| 22            |   | 47            |   | 72            |   | 97            |   |
| 23            |   | 48            |   | 73            |   | 98            |   |
| 24            |   | 49            |   | 74            |   | 99            |   |
| 25            |   | 50            |   | 75            |   | 100           |   |

**Note:** The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.

ABANDONED

Field Crew: Sue Hartman / Kim Mandy

Site Code: FID-01

Sampling Date: (DD/MM/YYYY) Oct 9/13

## SITE INSPECTION

Site Inspected by: Sue / Kim

### Communication Information

☒ Itinerary left with contact person (include contact numbers)

Contact Person: Lisa

Time checked-in: 6 pm

Form of communication: ☐ radio ☒ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT

Phone number: ( ) 794-937

### Vehicle Safety

☒ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)

☒ Equipment and chemicals safely secured for transport

☒ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary

Notes:

### Shore & Wading Safety

☒ Wading Task Hazard Analysis read by all field staff

☒ Wading Safe Work Procedures read by all field staff

☒ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)

☒ PFD worn

☒ Appropriate footwear, waders, wading belt

☐ Belay used

Notes:

Field Crew: Kim Mandry / Sue Hertan Site Code: FUD-016  
Sampling Date: (DD/MM/YYYY) Oct 9, 2013

☐ Occupational Health & Safety: Site Inspection Sheet completed

**PRIMARY SITE DATA**

CABIN Study Name: East Interlake Conservation Local Basin Name: Fish Lake Drain  
River/Stream Name: Fish Lake District Stream Order: (map scale 1:50,000) \_\_\_\_\_

Select one: ☐ Test Site ☐ Potential Reference Site

**Geographical Description/Notes:**

COFFER DAM WAS BUILT ~ 25m d/s of the ORIGINAL SITE... SO WE MOVED U/S ~ 60m TOWARDS THE FOOT BRIDGE JUST AT U/S END OF RESIDENTIAL SITE Crossing Just South of, Camp Morton @ Hwy 22  
Best access via footbridge

Surrounding Land Use: (check those present)

☒ Forest ☐ Field/Pasture ☐ Agriculture ☒ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

Information Source: Observation of Field Crew

Dominant Surrounding Land Use: (check one)

☒ Forest ☐ Field/Pasture ☐ Agriculture ☐ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

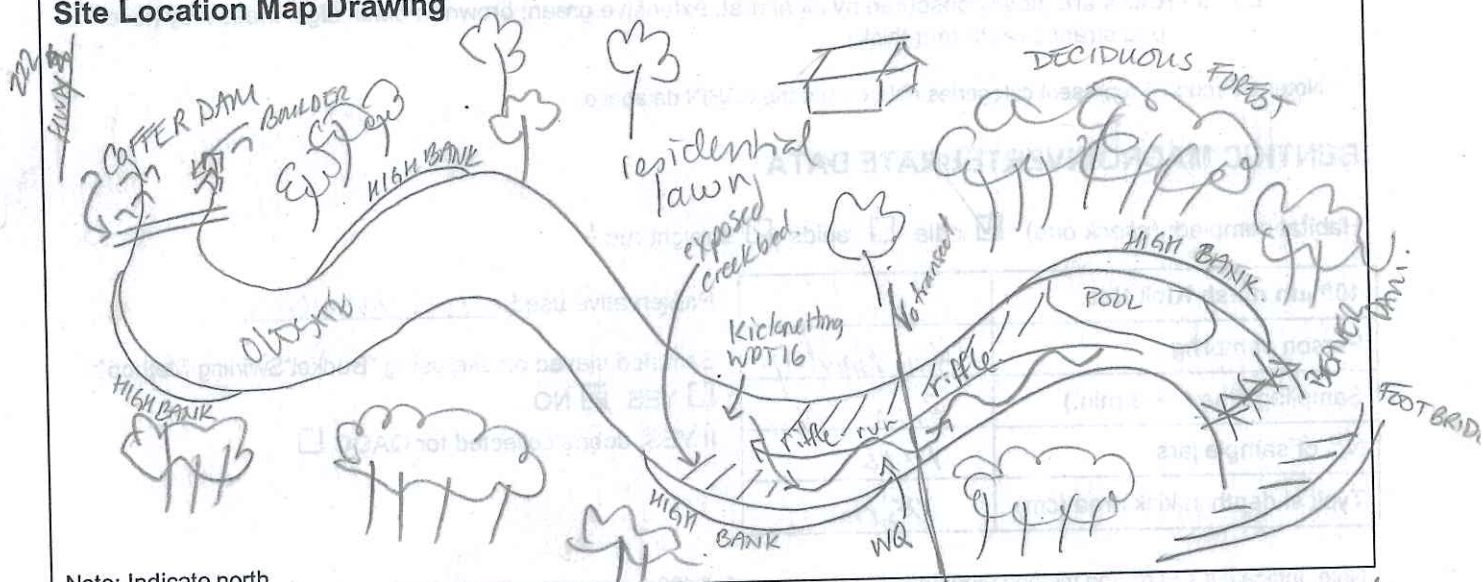
Information Source: Field Crew

**Location Data**

WPT 16 14U  
Latitude: 0641366 N Longitude: - 5618108 W (DMS or DD)

Elevation: 730 (asl or masl) GPS Datum: ☒ GRS80 (NAD83/WGS84) ☐ Other: \_\_\_\_\_

**Site Location Map Drawing**



Note: Indicate north

Kicknetted riffle-run-riffle sequence

Wpt 015  
14U 0641355  
5618110

Walking Bridge  
is btwn 50-100m  
upstream  
of Kicknet  
Site  
Large Beaver Dam unde  
walking bridge

DC-010

Field Crew: Kim Mandry / Sue Hartman Site Code: FID-01 b  
 Sampling Date: (DD/MM/YYYY) Oct 09 2013

**Photos** 0947 0948 LB-0948 0950 LB+RB 0951 100-0955  
☒ Field Sheet ☒ Upstream ☒ Downstream ☒ Across Site ☒ Aerial View  
☒ Substrate (exposed) ☒ Substrate (aquatic) ☐ Other \_\_\_\_\_

**REACH DATA** (represents 6 times bankfull width)

- Habitat Types: (check those present)  
☒ Riffle ☐ Rapids ☒ Straight run ☐ Pool/Back Eddy
- Canopy Coverage: (stand in middle of stream and look up, check one)  
☒ 0 % ☐ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %
- Macrophyte Coverage: (not algae or moss, check one)  
☒ 0 % ☐ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %
- Streamside Vegetation: (check those present)  
☒ ferns/grasses ☐ shrubs ☒ deciduous trees ☐ coniferous trees
- Dominant Streamside Vegetation: (check one)  
☒ ferns/grasses ☐ shrubs ☐ deciduous trees ☐ coniferous trees
- Periphyton Coverage on Substrate: (benthic algae, not moss, check one)  
☐ 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick)  
☒ 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick)  
☐ 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick)  
☐ 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick)  
☐ 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick)

*- water is very low, much of the creek bed is exposed  
 clear evidence that when water was higher macrobs were abundant 26-50%  
 photos 100-0956, 0957*

Note: 1 through 5 represent categories entered into the CABIN database.

**BENTHIC MACROINVERTEBRATE DATA**

Habitat sampled: (check one) ☒ riffle ☐ rapids ☒ straight run

|                                 |                   |
|---------------------------------|-------------------|
| 400 µm mesh Kick Net            |                   |
| Person sampling                 | <u>Kim Mandry</u> |
| Sampling time (i.e. 3 min.)     | <u>3 min.</u>     |
| No. of sample jars              | <u>1x1L</u>       |
| Typical depth in kick area (cm) | <u>25 cm</u>      |

Preservative used: 10% Formalin  
 Sampled sieved on site using "Bucket Swirling Method":  
☐ YES ☒ NO  
 If YES, debris collected for QAQC ☐

Note: Indicate if a sampling method other than the recommended 400 µm mesh kick net is used.



Field Crew: Kim Mondzy, Sue Vertan Site Code: FD-016  
 Sampling Date: (DD/MM/YYYY) Oct 09, 2013

**WATER CHEMISTRY DATA** Time: 12:55 (24 hr clock) Time zone: CST

Air Temp: 17°C (°C) Water Temp: 9.43 (°C) pH: 8.06  
 Specific Conductance: 638 (µs/cm) DO: 11.05 (mg/L) Turbidity: 42.7 (NTU)

Check if water samples were collected for the following analyses:  
☐ TSS (Total Suspended Solids)  
☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)  
☐ Phosphorus (Total, Ortho, and/or Dissolved)  
☐ Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate) ☐ Other \_\_\_\_\_

*96.3% DO → re-measured DO after calibration Oct 10/2013  
 96.8% 10.78 mg/L*

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.

**CHANNEL DATA**

**Slope** - Indicate how slope was measured: (check one)

☒ **Calculated from map**

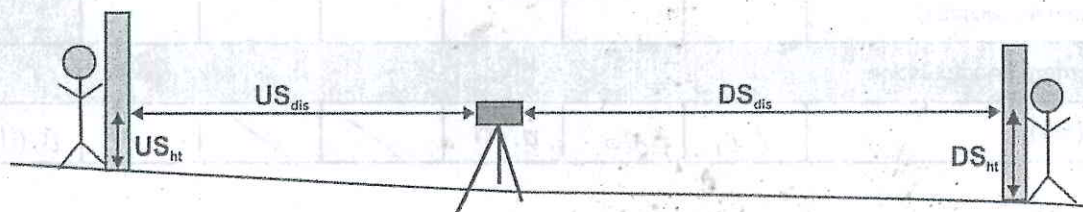
Scale: \_\_\_\_\_ (Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000).  
 contour interval (vertical distance) \_\_\_\_\_ (m),  
 distance between contour intervals (horizontal distance) \_\_\_\_\_ (m)  
 slope = vertical distance/horizontal distance = \_\_\_\_\_

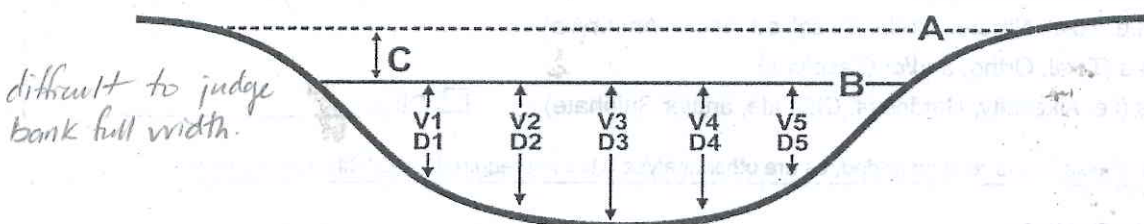
OR

☐ **Measured in field**

Circle device used and fill out table according to device:  
 a. Survey Equipment b. Hand Level & Measuring Tape

| Measurements                      | Upstream (U/S)                      | Downstream(D/S)                     | Calculation                            |
|-----------------------------------|-------------------------------------|-------------------------------------|----------------------------------------|
| <sup>a</sup> Top Hairline (T)     |                                     |                                     |                                        |
| <sup>a</sup> Mid Hairline (ht) OR |                                     |                                     |                                        |
| <sup>b</sup> Height of rod        |                                     |                                     |                                        |
| <sup>a</sup> Bottom Hairline (B)  |                                     |                                     |                                        |
| <sup>b</sup> Distance (dis) OR    |                                     |                                     | US <sub>dis</sub> +DS <sub>dis</sub> = |
| <sup>a</sup> T-B x 100            | <sup>a</sup> US <sub>dis</sub> =T-B | <sup>a</sup> DS <sub>dis</sub> =T-B |                                        |
| Change in height (Δht)            |                                     |                                     | DS <sub>ht</sub> -US <sub>ht</sub> =   |
| Slope (Δht/total dis)             |                                     |                                     |                                        |



Field Crew: Kim Mandry, Sue HartmanSite Code: FED-01 bSampling Date: (DD/MM/YYYY) Oct 9, 2013**Widths and Depth**Location at site: WQ site. WPT 015 (Indicate where in sample reach, ex. d/s of kick area)A - Bankfull Width: ~45 (m)B - Wetted Stream Width: 1.5 (m)C - Bankfull-Wetted Depth (height from water surface to Bankfull): 1.70 (cm)

Note:

Wetted widths &gt; 5 m, measure a minimum of 5-6 equidistant locations;

Wetted widths &lt; 5 m, measure 3-4 equidistant locations.

**Velocity and Depth**

Check appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

☐ **Velocity Head Rod (or ruler):** Velocity Equation (m/s) =  $\sqrt{[2(\Delta D/100) * 9.81]}$ ☐ **Rotary meters:** Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)☒ **Direct velocity measurements:** ☐ Marsh-McBirney ☐ Sontek or ☐ Other SWOFTER

|                                                 | 1    | 2    | 3    | 4 | 5 | 6 | AVG  |
|-------------------------------------------------|------|------|------|---|---|---|------|
| Distance from Shore (m) <sup>LB</sup>           | 0.36 | 0.75 | 1.16 | / | / | / |      |
| Depth (D) (cm)                                  | 3.5  | 13.0 | 7.0  | / | / | / | 7.7  |
| <b>Velocity Head Rod (ruler)</b>                |      |      |      |   |   |   |      |
| Flowing water Depth (D <sub>1</sub> ) (cm)      |      |      |      |   |   |   |      |
| Depth of Stagnation (D <sub>2</sub> ) (cm)      |      |      |      |   |   |   |      |
| Change in depth ( $\Delta D = D_2 - D_1$ ) (cm) |      |      |      |   |   |   |      |
| <b>Rotary meter</b>                             |      |      |      |   |   |   |      |
| Revolutions                                     |      |      |      |   |   |   |      |
| Time (minimum 40 seconds)                       |      |      |      |   |   |   |      |
| <b>Direct Measurement or calculation</b>        |      |      |      |   |   |   |      |
| Velocity (V) (m/s)                              | 0.0  | 0.03 | 0.01 | / | / | / | 0.01 |

Site Code: FCD-01b

Sampling Date: (DD/MM/YYYY) Oct 9, 2013

### SUBSTRATE DATA

### Surrounding/Interstitial Material

Circle the substrate size category for the surrounding material.

| Substrate Size Class               | Category |
|------------------------------------|----------|
| Organic Cover                      | 0        |
| < 0.1 cm (fine sand, silt or clay) | 1        |
| 0.1-0.2 cm (coarse sand)           | 2        |
| 0.2-1.6 cm (gravel)                | 3        |
| 1.6-3.2 cm (small pebble)          | 4        |
| 3.2-6.4 cm (large pebble)          | 5        |
| 6.4-12.8 cm (small cobble)         | 6        |
| 12.8-25.6 cm (cobble)              | 7        |
| > 25.6 cm (boulder)                | 8        |
| Bedrock                            | 9        |

### 100 Pebble Count & Substrate Embeddedness

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

|    | Diameter (cm) | E     | Diameter (cm) | E   | Diameter (cm) | E   | Diameter (cm) | E   |     |     |
|----|---------------|-------|---------------|-----|---------------|-----|---------------|-----|-----|-----|
| 1  | 2.3           |       | 26            | S   | 51            | S   | 76            | S   |     |     |
| 2  | 1.5           |       | 27            | S   | 52            | 2.8 | 77            | S   |     |     |
| 3  | 2.7           | E 0   | 28            | 2.3 | 53            | 2.4 | 78            | 0.5 |     |     |
| 4  | S             |       | 29            | 1.2 | 54            | 2.0 | 79            | 3.5 |     |     |
| 5  | 4.0           |       | 30            | 0.5 | 55            | 2.8 | 80            | S   |     |     |
| 6  | 2.0           |       | 31            | S   | 56            | 3.5 | 81            | S   |     |     |
| 7  | 1.2           |       | 32            | S   | 57            | 4.5 | 82            | S   |     |     |
| 8  | 1.5           |       | 33            | S   | E 1           | 58  | 1.3           | 83  | S   | E 1 |
| 9  | 1.0           |       | 34            | 1.2 | 59            | 0.7 | 84            | S   |     |     |
| 10 | 0.8           |       | 35            | 0.5 | 60            | 0.6 | 85            | 2.2 |     |     |
| 11 | 1.5           |       | 36            | 1.2 | 61            | 4.5 | 86            | 3.5 |     |     |
| 12 | S             |       | 37            | 1.5 | 62            | 2.0 | 87            | 0.8 |     |     |
| 13 | 1.0           | E 1/4 | 38            | 2.0 | 63            | 4.5 | E 3/4         | 88  | 3.5 |     |
| 14 | 1.2           |       | 39            | 1.2 | 64            | 1.2 | 89            | 2.8 |     |     |
| 15 | S             |       | 40            | 1.0 | 65            | 2.2 | 90            | 2.5 |     |     |
| 16 | 0.7           |       | 41            | 3.2 | 66            | 2.8 | 91            | 1.2 |     |     |
| 17 | 1.2           |       | 42            | 3.5 | 67            | 5.0 | 92            | 0.6 |     |     |
| 18 | 1.0           |       | 43            | 2.0 | E 0           | 68  | 1.0           | 93  | 1.0 | E 0 |
| 19 | 1.0           |       | 44            | 3.0 | 69            | 1.9 | 94            | 0.6 |     |     |
| 20 | 2.5           |       | 45            | 4.8 | 70            | 0.3 | 95            | 0.8 |     |     |
| 21 | 0.8           |       | 46            | 2.5 | 71            | 0.3 | 96            | 1.2 |     |     |
| 22 | S             |       | 47            | 2.4 | 72            | 2.3 | 97            | 2.2 |     |     |
| 23 | 0.4           | E 1   | 48            | 4.0 | 73            | 7.2 | E 0           | 98  | 0.6 |     |
| 24 | S             |       | 49            | 2.2 | 74            | 1.5 | 99            | 0.5 |     |     |
| 25 | S             |       | 50            | 2.8 | 75            | 2.2 | 100           | 0.8 |     |     |

**Note:** The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.

Field Crew: Kim Manday, Sue Hertam

Site Code: FED-01

Sampling Date: (DD/MM/YYYY) Oct 9, 2013

## SITE INSPECTION

Site Inspected by: Sue Hertam

### Communication Information

☒ Itinerary left with contact person (include contact numbers)

Contact Person: Lisa Capar

Time checked-in: 1800

Form of communication: ☐ radio ☒ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT

Phone number: (204) 794-5137

### Vehicle Safety

☒ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)

☐ Equipment and chemicals safely secured for transport

☐ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary

Notes:

### Shore & Wading Safety

☒ Wading Task Hazard Analysis read by all field staff

☒ Wading Safe Work Procedures read by all field staff

☒ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)

☒ PFD worn

☒ Appropriate footwear, waders, wading belt

☐ Belay used

Notes:

Site Code: 1CE-01

Sampling Date: (DD/MM/YYYY) Oct 9/13

☐ Occupational Health & Safety: Site Inspection Sheet completed

## PRIMARY SITE DATA

CABIN Study Name: East Interlake Local Basin Name: Calumet River

River/Stream Name: Welandre River Stream Order: (map scale 1:50,000) \_\_\_\_\_

Select one: ☒ Test Site ☐ Potential Reference Site

**Geographical Description/Notes:** PR 133 N east of Hwy 8 parked on bridge, west to river, site is ~130m W of bridge

Surrounding Land Use: (check those present)

Information Source:

☒ Forest☒ Field/Pasture☐ Agriculture☒ Residential/Urban☐ Logging

- Mining

☐ Commercial/Industrial☐ Other

Dominant Surrounding Land Use: (check one)

Information Source:

☐ Forest

☐ Field/Pasture☒ Agriculture☐ Residential/Urban☐ Logging☐ Mining☐ Commercial/Industrial☐ Other

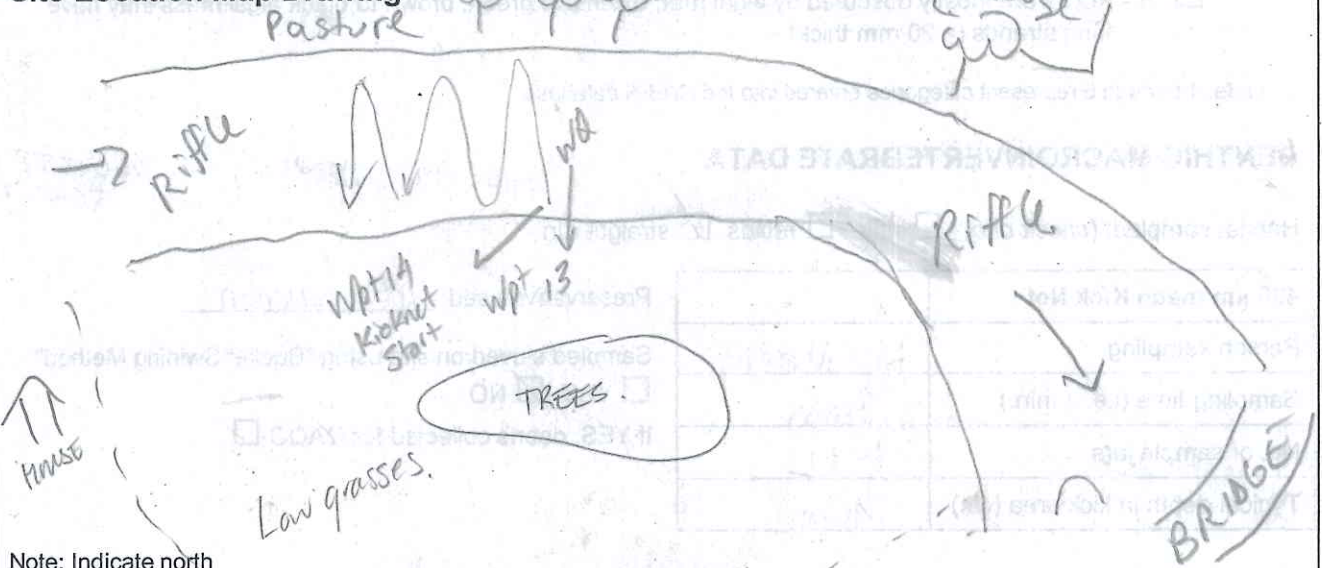
## Location Data

Latitude: 637652 N Longitude: - 5647738 W (DMS or DD)

Elevation: 723 (fast) or masl)

GPS Datum: ☒ GRS80 (NAD83/WGS84) ☐ Other: \_\_\_\_\_

### Site Location Map Drawing



Note: Indicate north

Wpt 13 14V 0637653 5647737

Field Crew: Kim / SUESite Code: ICE-01Sampling Date: (DD/MM/YYYY) Oct 9/13**Photos**

- ☒ Field Sheet ☒ Upstream ☒ Downstream ☒ Across Site ☒ Aerial View  
☒ Substrate (exposed) ☐ Substrate (aquatic) ☐ Other

**REACH DATA** (represents 6 times bankfull width)

## 1. Habitat Types: (check those present)

- ☒ Riffle ☐ Rapids ☒ Straight run ☐ Pool/Back Eddy

## 2. Canopy Coverage: (stand in middle of stream and look up, check one)

- ☐ 0 % ☐ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %

## 3. Macrophyte Coverage: (not algae or moss, check one)

- ☐ 0 % ☒ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %

## 4. Streamside Vegetation: (check those present)

- ☒ ferns/grasses ☒ shrubs ☒ deciduous trees ☐ coniferous trees

## 5. Dominant Streamside Vegetation: (check one)

- ☒ ferns/grasses ☐ shrubs ☐ deciduous trees ☐ coniferous trees

## 6. Periphyton Coverage on Substrate: (benthic algae, not moss, check one)

- ☐ 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick)  
☐ 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick)  
☒ 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick)  
☐ 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick)  
☐ 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick)

Note: 1 through 5 represent categories entered into the CABIN database.

**BENTHIC MACROINVERTEBRATE DATA**Habitat sampled: (check one) ☐ riffle ☐ rapids ☒ straight run

|                                 |                   |
|---------------------------------|-------------------|
| 400 $\mu$ m mesh Kick Net       |                   |
| Person sampling                 | <u>Kim Mandzy</u> |
| Sampling time (i.e. 3 min.)     | <u>3min</u>       |
| No. of sample jars              | <u>1x1L</u>       |
| Typical depth in kick area (cm) | <u>45cm</u>       |

Preservative used: 10% formalin

Sampled sieved on site using "Bucket Swirling Method":

☐ YES ☒ NOIf YES, debris collected for QAQC ☐Note: Indicate if a sampling method other than the recommended 400  $\mu$ m mesh kick net is used.

Field Crew: Sue/KimSite Code: ICE-01

Sampling Date: (DD/MM/YYYY)

Oct 9/13**WATER CHEMISTRY DATA**Time: 10:10 (24 hr clock)Time zone: CSTAir Temp: 9.0 (°C) Water Temp: 10.1 (°C) pH: 8.27Specific Conductance: 640 (µs/cm) DO: 14.04 (mg/L) Turbidity: 11.94 (NTU)

Check if water samples were collected for the following analyses:

☐ TSS (Total Suspended Solids)☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)☐ Phosphorus (Total, Ortho, and/or Dissolved)☐ Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate)☐ Other \_\_\_\_\_

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.

**CHANNEL DATA****Slope** - Indicate how slope was measured: (check one)☒ **Calculated from map**

Scale: \_\_\_\_\_ (Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000).

contour interval (vertical distance) \_\_\_\_\_ (m),

distance between contour intervals (horizontal distance) \_\_\_\_\_ (m)

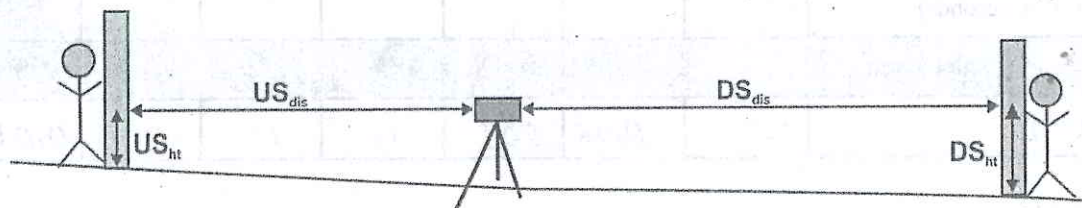
slope = vertical distance/horizontal distance = \_\_\_\_\_

**OR**☐ **Measured in field**

Circle device used and fill out table according to device:

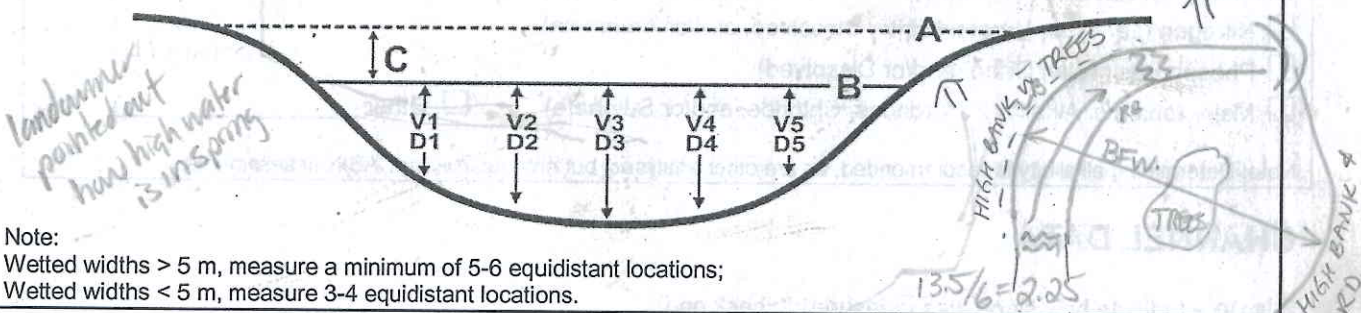
a. Survey Equipment    b. Hand Level &amp; Measuring Tape

| Measurements                             | Upstream (U/S)       | Downstream(D/S)      | Calculation             |
|------------------------------------------|----------------------|----------------------|-------------------------|
| <sup>a</sup> Top Hairline (T)            |                      |                      |                         |
| <sup>a</sup> Mid Hairline (ht) OR        |                      |                      |                         |
| <sup>b</sup> Height of rod               |                      |                      |                         |
| <sup>a</sup> Bottom Hairline (B)         |                      |                      |                         |
| <sup>b</sup> Distance (dis) OR           |                      |                      | $US_{dis} + DS_{dis} =$ |
| <sup>a</sup> T-B x 100                   | $^aUS_{dis} = T - B$ | $^aDS_{dis} = T - B$ |                         |
| Change in height ( $\Delta ht$ )         |                      |                      | $DS_{ht} - US_{ht} =$   |
| Slope ( $\Delta ht / \text{total dis}$ ) |                      |                      |                         |



Field Crew: Sue/RimSite Code: ICE-01Sampling Date: (DD/MM/YYYY) Oct 9/13

photos 100-824-0927 - show BFull area

**Widths and Depth**Location at site: WQ site - Wpt 13 (Indicate where in sample reach, ex. d/s of kick area)A - Bankfull Width: 120 (m)B - Wetted Stream Width: 135 (m)C - Bankfull-Wetted Depth (height from water surface to Bankfull): 237 (cm)**Velocity and Depth**

Check appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

☐ **Velocity Head Rod (or ruler):** Velocity Equation (m/s) =  $\sqrt{[2(\Delta D/100) * 9.81]}$ ☐ **Rotary meters:** Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)☐ **Direct velocity measurements:** ☐ Marsh-McBirney ☐ Sontek or ☐ Other \_\_\_\_\_

|                                                 | 1    | 2    | 3    | 4    | 5     | 6     | AVG  |
|-------------------------------------------------|------|------|------|------|-------|-------|------|
| Distance from Shore (m)                         | 1.12 | 3.37 | 5.62 | 7.87 | 10.12 | 12.37 |      |
| Depth (D) (cm)                                  | 45   | 54   | 51   | 44   | 33    | 44    | 45.2 |
| <b>Velocity Head Rod (ruler)</b>                |      |      |      |      |       |       |      |
| Flowing water Depth (D <sub>1</sub> ) (cm)      |      |      |      |      |       |       |      |
| Depth of Stagnation (D <sub>2</sub> ) (cm)      |      |      |      |      |       |       |      |
| Change in depth ( $\Delta D = D_2 - D_1$ ) (cm) |      |      |      |      |       |       |      |
| <b>Rotary meter</b>                             |      |      |      |      |       |       |      |
| Revolutions                                     |      |      |      |      |       |       |      |
| Time (minimum 40 seconds)                       |      |      |      |      |       |       |      |
| <b>Direct Measurement or calculation</b>        |      |      |      |      |       |       |      |
| Velocity (V) (m/s)                              | 0    | 0.02 | 0.02 | 0    | 0     | 0     | 0.01 |

Field Crew: Sue/Kim Site Code: ICE-01  
 Sampling Date: (DD/MM/YYYY) Oct 9/13

## SUBSTRATE DATA

### Surrounding/Interstitial Material

Circle the substrate size category for the surrounding material.

| Substrate Size Class               | Category |
|------------------------------------|----------|
| Organic Cover                      | 0        |
| < 0.1 cm (fine sand, silt or clay) | 1        |
| 0.1-0.2 cm (coarse sand)           | 2        |
| 0.2-1.6 cm (gravel)                | 3        |
| 1.6-3.2 cm (small pebble)          | 4        |
| 3.2-6.4 cm (large pebble)          | 5        |
| 6.4-12.8 cm (small cobble)         | 6        |
| 12.8-25.6 cm (cobble)              | 7        |
| > 25.6 cm (boulder)                | 8        |
| Bedrock                            | 9        |

### 100 Pebble Count & Substrate Embeddedness

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

| Diameter (cm) | E    | Diameter (cm) | E    | Diameter (cm) | E   | Diameter (cm) | E    |
|---------------|------|---------------|------|---------------|-----|---------------|------|
| 1             | 1    | 26            | 17.0 | 51            | 4.0 | 76            | 1.5  |
| 2             | 1.5  | 27            | 5.3  | 52            | 2.0 | 77            | 1.8  |
| 3             | 1.5  | 28            | 5.0  | 53            | 3.0 | 78            | 0.5  |
| 4             | 1.5  | 29            | 4.0  | 54            | 3.5 | 79            | 2.0  |
| 5             | 4.5  | 30            | 2.2  | 55            | 5.0 | 80            | 1.0  |
| 6             | 6.5  | 31            | 5.5  | 56            | 2.5 | 81            | 0.6  |
| 7             | S    | 32            | 3.0  | 57            | 1.0 | 82            | 1.5  |
| 8             | 3.0  | 33            | 6.0  | 58            | 2.5 | 83            | 2.2  |
| 9             | S    | 34            | 3.5  | 59            | 1.0 | 84            | 4.0  |
| 10            | 0.5  | 35            | 3.7  | 60            | 1.5 | 85            | 2.5  |
| 11            | 1.0  | 36            | 2.5  | 61            | 3.5 | 86            | 3.8  |
| 12            | 0.8  | 37            | 3.2  | 62            | 2.0 | 87            | 15.0 |
| 13            | 0.3  | 38            | 4.0  | 63            | 3.5 | 88            | 3.0  |
| 14            | 4.0  | 39            | 1.0  | 64            | 0.5 | 89            | 1.5  |
| 15            | 3.5  | 40            | 6.0  | 65            | 2.5 | 90            | 1.0  |
| 16            | 11.0 | 41            | 2.0  | 66            | 2.0 | 91            | 4.5  |
| 17            | 2.8  | 42            | 5.0  | 67            | 1.5 | 92            | 5.5  |
| 18            | 4.3  | 43            | 4.5  | 68            | 2.8 | 93            | 3.0  |
| 19            | 1.0  | 44            | 2.0  | 69            | 2.8 | 94            | 4.2  |
| 20            | 7.0  | 45            | 1.0  | 70            | 2.0 | 95            | 2.5  |
| 21            | 2.8  | 46            | 1.0  | 71            | 2.5 | 96            | 6.2  |
| 22            | 3.0  | 47            | 1.0  | 72            | 1.0 | 97            | 6.0  |
| 23            | 7.0  | 48            | 1.5  | 73            | 3.5 | 98            | 1.5  |
| 24            | 2.5  | 49            | 1.5  | 74            | 6.5 | 99            | 3.0  |
| 25            | 2.5  | 50            | 5.0  | 75            | 3.5 | 100           | 5.4  |

**Note:** The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.

Field Crew: Sue/Kim Site Code: ICE-01  
Sampling Date: (DD/MM/YYYY) Oct 9/13

## SITE INSPECTION

Site Inspected by: Sue/Kim

### Communication Information

☒ Itinerary left with contact person (include contact numbers)

Contact Person: Lisa Time checked-in: 6pm

Form of communication: ☐ radio ☒ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT

Phone number: ( ) 794-5137

### Vehicle Safety

☒ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)

☒ Equipment and chemicals safely secured for transport

☒ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary

Notes:

### Shore & Wading Safety

☒ Wading Task Hazard Analysis read by all field staff

☒ Wading Safe Work Procedures read by all field staff

☒ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)

☒ PFD worn

☒ Appropriate footwear, waders, wading belt

☐ Belay used

Notes:

Field Crew: Kim Manday, Sue HutamSite Code: WAS-01Sampling Date: (DD/MM/YYYY) Oct 9/2013☐ Occupational Health & Safety: Site Inspection Sheet completed

## PRIMARY SITE DATA

CABIN Study Name: Washow Bay CK Local Basin Name: Washow Bay CreekRiver/Stream Name: Washow Bay CK Stream Order: (map scale 1:50,000) \_\_\_\_\_Select one: ☐ Test Site ☐ Potential Reference SiteGeographical Description/Notes: ~120m S of RR144 + Bridge west of Highway 234 - parked on dike (E side) next to creek

Surrounding Land Use: (check those present)

☐ Forest ☒ Field/Pasture ☐ Agriculture ☒ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_Information Source: Field crew

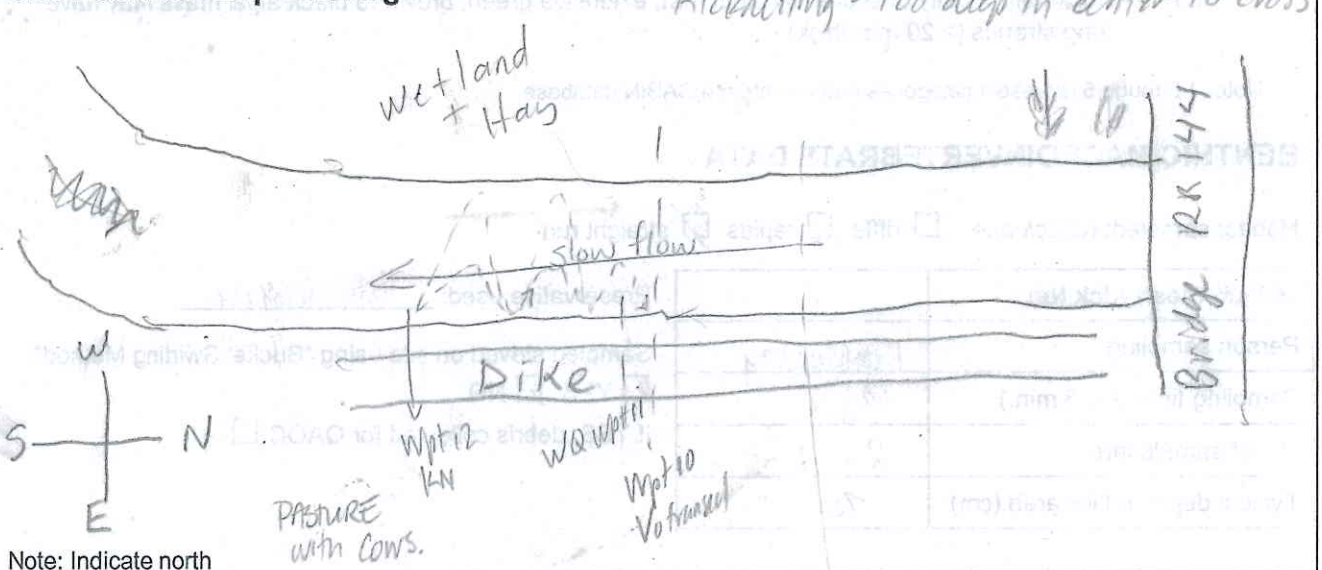
Dominant Surrounding Land Use: (check one)

☐ Forest ☐ Field/Pasture ☒ Agriculture ☐ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_Information Source: Field crew

## Location Data

Latitude: 140 0638919 N Longitude: - 5745232 W (DMS or DD)Elevation: 7117 (asl or masl) GPS Datum: ☒ GRS80 (NAD83/WGS84) ☐ Other: \_\_\_\_\_

## Site Location Map Drawing



DC: 010

Field Crew: Kim / SveSite Code: WAS-01Sampling Date: (DD/MM/YYYY) Oct 9 / 2013**Photos**

- ☒ Field Sheet <sup>0901</sup>
☒ Upstream <sup>0899</sup>
☐ Downstream <sup>0898</sup>
☒ Across Site <sup>0900</sup>
☐ Aerial View
- ☒ Substrate (exposed)
 ☐ Substrate (aquatic)
 ☐ Other 0903 - looking d/s from the bridge

**REACH DATA** (represents 6 times bankfull width)

## 1. Habitat Types: (check those present)

- ☐ Riffle
 ☐ Rapids
 ☒ Straight run
 ☐ Pool/Back Eddy

## 2. Canopy Coverage: (stand in middle of stream and look up, check one)

- ☒ 0 %
 ☐ 1-25 %
 ☐ 26-50 %
 ☐ 51-75 %
 ☐ 76-100 %

## 3. Macrophyte Coverage: (not algae or moss, check one)

- ☐ 0 %
 ☒ 1-25 %
 ☐ 26-50 %
 ☐ 51-75 %
 ☐ 76-100 %

## 4. Streamside Vegetation: (check those present)

- ☒ ferns/grasses
 ☐ shrubs
 ☒ deciduous trees
 ☐ coniferous trees

## 5. Dominant Streamside Vegetation: (check one)

- ☒ ferns/grasses
 ☐ shrubs
 ☐ deciduous trees
 ☐ coniferous trees

## 6. Periphyton Coverage on Substrate: (benthic algae, not moss, check one)

- ☐ 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick)
- ☐ 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick)
- ☐ 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick)
- ☐ 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick)
- ☐ 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick)
- N/A. Soft substrate*

Note: 1 through 5 represent categories entered into the CABIN database.

**BENTHIC MACROINVERTEBRATE DATA**Habitat sampled: (check one) ☐ riffle ☐ rapids ☒ straight run

|                                 |                   |
|---------------------------------|-------------------|
| 400 µm mesh Kick Net            |                   |
| Person sampling                 | <u>Kim Mandry</u> |
| Sampling time (i.e. 3 min.)     | <u>3 min</u>      |
| No. of sample jars              | <u>2 x 1L</u>     |
| Typical depth in kick area (cm) | <u>70</u>         |

Preservative used: 10% Formalin

Sampled sieved on site using "Bucket Swirling Method":

☐ YES ☒ NOIf YES, debris collected for QAQC ☐

Note: Indicate if a sampling method other than the recommended 400 µm mesh kick net is used.

Field Crew: Sve/KimSite Code: WAS-01Sampling Date: (DD/MM/YYYY) Oct 9, 2013**WATER CHEMISTRY DATA**Time: 08:10 (24 hr clock)Time zone: CSTAir Temp: 7.5°C (°C) Water Temp: 9.2 (°C) pH: 7.99Specific Conductance: 552 (µs/cm) DO: 12.81 (mg/L) Turbidity: 40.3 (NTU)

Check if water samples were collected for the following analyses:

☐ TSS (Total Suspended Solids)☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)☐ Phosphorus (Total, Ortho, and/or Dissolved)☐ Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate)☐ Other \_\_\_\_\_

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.

**CHANNEL DATA****Slope** - Indicate how slope was measured: (check one)☒ **Calculated from map**

Scale: \_\_\_\_\_ (Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000).

contour interval (vertical distance) \_\_\_\_\_ (m),

distance between contour intervals (horizontal distance) \_\_\_\_\_ (m)

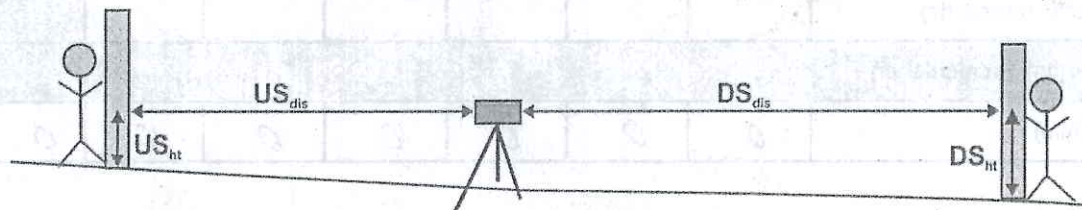
slope = vertical distance/horizontal distance = \_\_\_\_\_

**OR**☐ **Measured in field**

Circle device used and fill out table according to device:

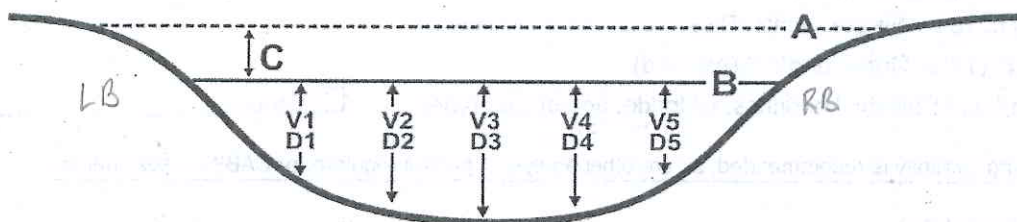
a. Survey Equipment    b. Hand Level &amp; Measuring Tape

| Measurements                      | Upstream (U/S)                      | Downstream(D/S)                     | Calculation                            |
|-----------------------------------|-------------------------------------|-------------------------------------|----------------------------------------|
| <sup>a</sup> Top Hairline (T)     |                                     |                                     |                                        |
| <sup>a</sup> Mid Hairline (ht) OR |                                     |                                     |                                        |
| <sup>b</sup> Height of rod        |                                     |                                     |                                        |
| <sup>a</sup> Bottom Hairline (B)  |                                     |                                     |                                        |
| <sup>b</sup> Distance (dis) OR    |                                     |                                     | US <sub>dis</sub> +DS <sub>dis</sub> = |
| <sup>a</sup> T-B x 100            | <sup>a</sup> US <sub>dis</sub> =T-B | <sup>a</sup> DS <sub>dis</sub> =T-B |                                        |
| Change in height (Δht)            |                                     |                                     | DS <sub>ht</sub> -US <sub>ht</sub> =   |
| Slope (Δht/total dis)             |                                     |                                     |                                        |



Field Crew: Sue/KimSite Code: WAS-01

Sampling Date: (DD/MM/YYYY)

Oct 9/2013**Widths and Depth**Location at site: 14V 0638909/5665652 11/p+10 (Indicate where in sample reach, ex. d/s of kick area)A - Bankfull Width: 30 (m)B - Wetted Stream Width: 19.0 (m)C - Bankfull-Wetted Depth (height from water surface to Bankfull): 1.70 (cm)

Note:

Wetted widths &gt; 5 m, measure a minimum of 5-6 equidistant locations;

Wetted widths &lt; 5 m, measure 3-4 equidistant locations.

19/6 = 3.16**Velocity and Depth**

Check appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

☐ **Velocity Head Rod (or ruler):** Velocity Equation (m/s) =  $\sqrt{[2(\Delta D/100) * 9.81]}$ ☐ **Rotary meters:** Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)☐ **Direct velocity measurements:** ☐ Marsh-McBirney ☐ Sontek or ☐ Other \_\_\_\_\_

|                                                 | 1  | 2    | 3    | 4    | 5     | 6     | AVG   |    |
|-------------------------------------------------|----|------|------|------|-------|-------|-------|----|
| Distance from Shore (m)                         | LB | 1.58 | 4.74 | 7.90 | 11.06 | 14.22 | 17.38 | RB |
| Depth (D) (cm)                                  | 50 | 93   | 100  | 106  | 74    | 26    | 74.8  |    |
| Velocity Head Rod (ruler)                       |    |      |      |      |       |       |       |    |
| Flowing water Depth (D <sub>1</sub> ) (cm)      |    |      |      |      |       |       |       |    |
| Depth of Stagnation (D <sub>2</sub> ) (cm)      |    |      |      |      |       |       |       |    |
| Change in depth ( $\Delta D = D_2 - D_1$ ) (cm) |    |      |      |      |       |       |       |    |
| Rotary meter                                    |    |      |      |      |       |       |       |    |
| Revolutions                                     |    |      |      |      |       |       |       |    |
| Time (minimum 40 seconds)                       |    |      |      |      |       |       |       |    |
| Direct Measurement or calculation               |    |      |      |      |       |       |       |    |
| Velocity (V) (m/s)                              | 0  | 0    | 0    | 0    | 0     | 0     | 0     |    |

Field Crew: Kim / SveSite Code: WAS-01Sampling Date: (DD/MM/YYYY) Oct 9/2013**SUBSTRATE DATA****Surrounding/Interstitial Material**

Circle the substrate size category for the surrounding material.

| Substrate Size Class               | Category |
|------------------------------------|----------|
| Organic Cover                      | 0        |
| < 0.1 cm (fine sand, silt or clay) | (1)      |
| 0.1-0.2 cm (coarse sand)           | 2        |
| 0.2-1.6 cm (gravel)                | 3        |
| 1.6-3.2 cm (small pebble)          | 4        |
| 3.2-6.4 cm (large pebble)          | 5        |
| 6.4-12.8 cm (small cobble)         | 6        |
| 12.8-25.6 cm (cobble)              | 7        |
| > 25.6 cm (boulder)                | 8        |
| Bedrock                            | 9        |

**100 Pebble Count & Substrate Embeddedness**

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

| Diameter (cm) | E | Diameter (cm) | E | Diameter (cm) | E | Diameter (cm) | E   |
|---------------|---|---------------|---|---------------|---|---------------|-----|
| 1             | S | 26            | S | 51            | S | 76            | S   |
| 2             | S | 27            | S | 52            | S | 77            | S   |
| 3             | S | 28            | S | 53            | S | 78            | S   |
| 4             | S | 29            | S | 54            | S | 79            | S   |
| 5             | S | 30            | S | 55            | S | 80            | S   |
| 6             | S | 31            | S | 56            | S | 81            | S   |
| 7             | S | 32            | S | 57            | S | 82            | S   |
| 8             | S | 33            | S | 58            | S | 83            | S   |
| 9             | S | 34            | S | 59            | S | 84            | S   |
| 10            | S | 35            | S | 60            | S | 85            | S   |
| 11            | S | 36            | S | 61            | S | 86            | S   |
| 12            | S | 37            | S | 62            | S | 87            | 5.5 |
| 13            | S | 38            | S | 63            | S | 88            | S   |
| 14            | S | 39            | S | 64            | S | 89            | S   |
| 15            | S | 40            | S | 65            | S | 90            | S   |
| 16            | S | 41            | S | 66            | S | 91            | S   |
| 17            | S | 42            | S | 67            | S | 92            | S   |
| 18            | S | 43            | S | 68            | S | 93            | S   |
| 19            | S | 44            | S | 69            | S | 94            | S   |
| 20            | S | 45            | S | 70            | S | 95            | S   |
| 21            | S | 46            | S | 71            | S | 96            | S   |
| 22            | S | 47            | S | 72            | S | 97            | S   |
| 23            | S | 48            | S | 73            | S | 98            | S   |
| 24            | S | 49            | S | 74            | S | 99            | S   |
| 25            | S | 50            | S | 75            | S | 100           | S   |

**Note:** The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.

Field Crew: Sve/Rim

Site Code: WAS-01

Sampling Date: (DD/MM/YYYY)

Oct 9/13

## SITE INSPECTION

Site Inspected by:

Rim Sve

### Communication Information

☒ Itinerary left with contact person (include contact numbers)

Contact Person:

LISA

Time checked-in:

6 PM

Form of communication: ☐ radio ☒ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT

Phone number: ( )

794-5137

### Vehicle Safety

☒ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)

☒ Equipment and chemicals safely secured for transport

☒ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary

Notes:

### Shore & Wading Safety

☒ Wading Task Hazard Analysis read by all field staff

☒ Wading Safe Work Procedures read by all field staff

☒ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)

☒ PFD worn

☒ Appropriate footwear, waders, wading belt

☐ Belay used

Notes:

Field Crew: Kim Mandzy, Sue Hartam Site Code: FIS-01  
Sampling Date: (DD/MM/YYYY) Oct 10/2013

☐ Occupational Health & Safety: Site Inspection Sheet completed

**PRIMARY SITE DATA**

CABIN Study Name: East Interlake CD Local Basin Name: Fisher River

River/Stream Name: Fisher River Stream Order: (map scale 1:50,000) \_\_\_\_\_

Select one: ☒ Test Site ☐ Potential Reference Site

**Geographical Description/Notes:** ON FISHER RIVER CREE NATION (PEGUIS)  
Hwy 224 50m ups of bridge ("marcyniuk") just outside  
of Dallas. Parked on Hwy (N. side) near site -

Surrounding Land Use: (check those present)

☒ Forest ☐ Field/Pasture ☐ Agriculture  
☐ Logging ☐ Mining ☐ Commercial/Industrial

Information Source: Field crew

☐ Residential/Urban

☒ Other wetland

Dominant Surrounding Land Use: (check one)

☒ Forest ☐ Field/Pasture ☐ Agriculture  
☐ Logging ☐ Mining ☐ Commercial/Industrial

Information Source: Field crew

☐ Residential/Urban

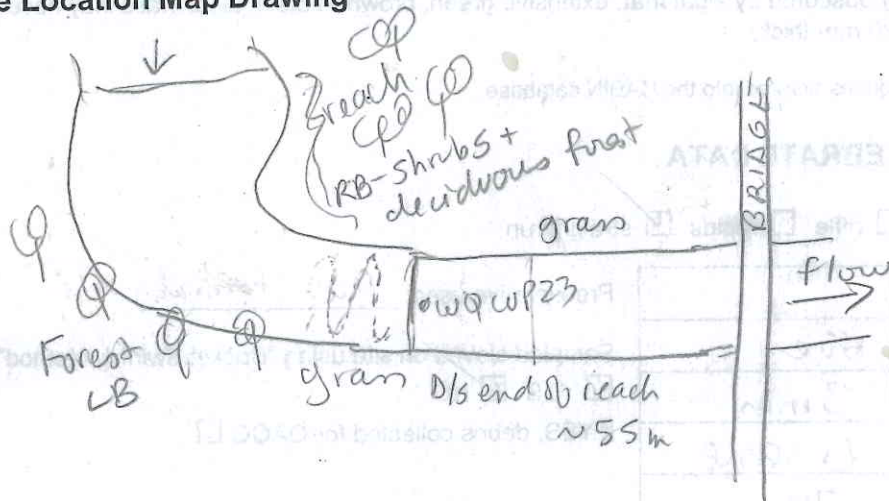
☐ Other \_\_\_\_\_

**Location Data**

Latitude: \_\_\_\_\_ N Longitude: - \_\_\_\_\_ W (DMS or DD)

Elevation: 219 (ft or masl) GPS Datum: ☒ GRS80 (NAD83/WGS84) ☐ Other: \_\_\_\_\_

**Site Location Map Drawing**



Note: Indicate north

Field Crew: Sue/Kim Site Code: FIS-01  
 Sampling Date: (DD/MM/YYYY) Oct 10/2013

### Photos

☒ Field Sheet ☒ Upstream ☒ Downstream ☒ Across Site ☐ Aerial View  
☒ Substrate (exposed) ☐ Substrate (aquatic) ☐ Other LB, RB

### REACH DATA (represents 6 times bankfull width)

#### 1. Habitat Types: (check those present)

☐ Riffle ☐ Rapids ☒ Straight run ☒ Pool/Back Eddy

#### 2. Canopy Coverage: (stand in middle of stream and look up, check one)

☒ 0 % ☐ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %

#### 3. Macrophyte Coverage: (not algae or moss, check one)

☐ 0 % ☐ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %

#### 4. Streamside Vegetation: (check those present)

☒ ferns/grasses ☒ shrubs ☒ deciduous trees ☐ coniferous trees

#### 5. Dominant Streamside Vegetation: (check one)

☐ ferns/grasses ☐ shrubs ☒ deciduous trees ☐ coniferous trees

#### 6. Periphyton Coverage on Substrate: (benthic algae, not moss, check one)

- ☐ 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick)  
☒ 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick)  
☐ 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick)  
☐ 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick)  
☐ 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick)

Note: 1 through 5 represent categories entered into the CABIN database.

### BENTHIC MACROINVERTEBRATE DATA

Habitat sampled: (check one) ☐ riffle ☐ rapids ☒ straight run

|                                 |                  |
|---------------------------------|------------------|
| 400 $\mu$ m mesh Kick Net       |                  |
| Person sampling                 | <u>Sue</u>       |
| Sampling time (i.e. 3 min.)     | <u>3 min</u>     |
| No. of sample jars              | <u>1 x 500ml</u> |
| Typical depth in kick area (cm) | <u>70 cm</u>     |

Preservative used: 10% formalin

Sampled sieved on site using "Bucket Swirling Method":

☐ YES ☒ NO

If YES, debris collected for QAQC ☐

Note: Indicate if a sampling method other than the recommended 400  $\mu$ m mesh kick net is used.

Field Crew: Sue/Kim Site Code: F15-01  
 Sampling Date: (DD/MM/YYYY) Oct 10/2013

# **WATER CHEMISTRY DATA**

Time: 11:20 (24 hr clock)

Time zone: central

Air Temp: 14°C (°C) Water Temp: 10.3 (°C) pH: 8.04  
 Specific Conductance: 676 (µs/cm) DO: 9.54 (mg/L) Turbidity: 15 (NTU)

Check if water samples were collected for the following analyses:

- ☐ TSS (Total Suspended Solids)  
☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)  
☐ Phosphorus (Total, Ortho, and/or Dissolved)  
☐ Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate) ☐ Other \_\_\_\_\_

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.

## **CHANNEL DATA**

**Slope** - Indicate how slope was measured: (check one)

☒ **Calculated from map**

Scale: \_\_\_\_\_ (Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000).  
 contour interval (vertical distance) \_\_\_\_\_ (m),  
 distance between contour intervals (horizontal distance) \_\_\_\_\_ (m)  
 slope = vertical distance/horizontal distance = \_\_\_\_\_

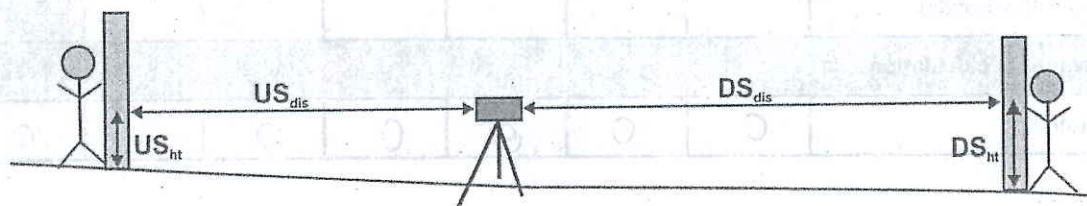
OR

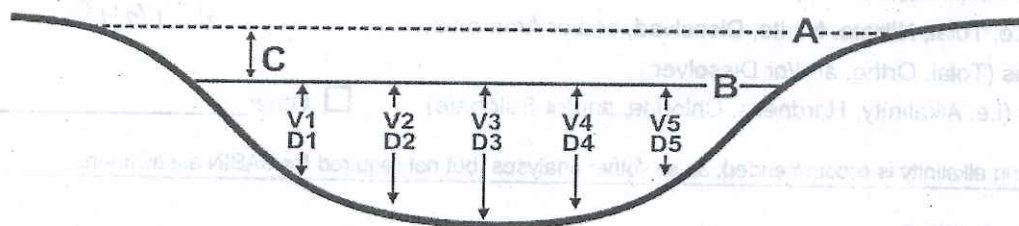
☐ **Measured in field**

Circle device used and fill out table according to device:

a. Survey Equipment b. Hand Level & Measuring Tape

| Measurements                      | Upstream (U/S)   | Downstream(D/S)  | Calculation             |
|-----------------------------------|------------------|------------------|-------------------------|
| <sup>a</sup> Top Hairline (T)     |                  |                  |                         |
| <sup>a</sup> Mid Hairline (ht) OR |                  |                  |                         |
| <sup>b</sup> Height of rod        |                  |                  |                         |
| <sup>a</sup> Bottom Hairline (B)  |                  |                  |                         |
| <sup>b</sup> Distance (dis) OR    |                  |                  | $US_{dis} + DS_{dis} =$ |
| <sup>a</sup> T-B x 100            | $US_{dis} = T-B$ | $DS_{dis} = T-B$ |                         |
| Change in height ( $\Delta ht$ )  |                  |                  | $DS_{ht} - US_{ht} =$   |
| Slope ( $\Delta ht$ /total dis)   |                  |                  |                         |



Field Crew: Sue/KimSite Code: F15-01Sampling Date: (DD/MM/YYYY) Oct 10 / 2013**Widths and Depth**Location at site: 2nd WQ site <sup>D/S of Kick area</sup> (Indicate where in sample reach, ex. d/s of kick area)A - Bankfull Width: 35 (m)B - Wetted Stream Width: 23.7 (m) 16 = 3.95C - Bankfull-Wetted Depth (height from water surface to Bankfull): 1.4-m = 140 cm (cm)

Note:

Wetted widths > 5 m, measure a minimum of 5-6 equidistant locations;  
Wetted widths < 5 m, measure 3-4 equidistant locations.**Velocity and Depth**

Check appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

☐ **Velocity Head Rod (or ruler):** Velocity Equation (m/s) =  $\sqrt{[2(\Delta D/100) * 9.81]}$ ☐ **Rotary meters:** Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)☒ **Direct velocity measurements:** ☐ Marsh-McBirney ☐ Sontek or ☐ Other swoller

|                                                 | 1    | 2    | 3    | 4     | 5     | 6     | AVG  |
|-------------------------------------------------|------|------|------|-------|-------|-------|------|
| Distance from Shore (m)                         | 1.98 | 5.92 | 9.86 | 13.83 | 17.77 | 21.73 |      |
| Depth (D) (cm)                                  | 37   | 94   | 75   | 66    | 51    | 21    | 57.3 |
| <b>Velocity Head Rod (ruler)</b>                |      |      |      |       |       |       |      |
| Flowing water Depth (D <sub>1</sub> ) (cm)      |      |      |      |       |       |       |      |
| Depth of Stagnation (D <sub>2</sub> ) (cm)      |      |      |      |       |       |       |      |
| Change in depth ( $\Delta D = D_2 - D_1$ ) (cm) |      |      |      |       |       |       |      |
| <b>Rotary meter</b>                             |      |      |      |       |       |       |      |
| Revolutions                                     |      |      |      |       |       |       |      |
| Time (minimum 40 seconds)                       |      |      |      |       |       |       |      |
| <b>Direct Measurement or calculation</b>        |      |      |      |       |       |       |      |
| Velocity (V) (m/s)                              | 0    | 0    | 0    | 0     | 0     | 0     | 0    |

Site Code: F15-01

Sampling Date: (DD/MM/YYYY) Oct 10/2013

## SUBSTRATE DATA

### Surrounding/Interstitial Material

Circle the substrate size category for the surrounding material.

| Substrate Size Class               | Category |
|------------------------------------|----------|
| Organic Cover                      | 0        |
| < 0.1 cm (fine sand, silt or clay) | 1        |
| 0.1-0.2 cm (coarse sand)           | 2        |
| 0.2-1.6 cm (gravel)                | 3        |
| 1.6-3.2 cm (small pebble)          | 4        |
| 3.2-6.4 cm (large pebble)          | 5        |
| 6.4-12.8 cm (small cobble)         | 6        |
| 12.8-25.6 cm (cobble)              | 7        |
| > 25.6 cm (boulder)                | 8        |
| Bedrock                            | 9        |

### 100 Pebble Count & Substrate Embeddedness

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

| Diameter (cm) |     |       | E  | Diameter (cm) |       |    | E    | Diameter (cm) |     |      | E | Diameter (cm) |  |       | E |
|---------------|-----|-------|----|---------------|-------|----|------|---------------|-----|------|---|---------------|--|-------|---|
| 1             | 4.5 | 0     | 26 | 0.5           |       | 51 | 6.5  |               | 76  | 5.5  |   |               |  |       |   |
| 2             | 8.5 |       | 27 | 2.5           |       | 52 | 25.0 |               | 77  | 1.4  |   |               |  |       |   |
| 3             | 9.0 |       | 28 | 7.0           |       | 53 | 15   |               | 78  | 0.4  |   |               |  |       |   |
| 4             | 3.2 |       | 29 | 10.0          |       | 54 | 1.3  |               | 79  | 0.3  |   |               |  |       |   |
| 5             | 1.5 |       | 30 | 0.7           | E 0   | 55 | 3.0  |               | 80  | 3.0  |   |               |  | E 0   |   |
| 6             | 1.7 |       | 31 | 4.3           |       | 56 | 0.5  |               | 81  | 3.0  |   |               |  |       |   |
| 7             | 3.5 |       | 32 | 1.8           |       | 57 | 0.4  |               | 82  | 2.3  |   |               |  |       |   |
| 8             | 3.5 |       | 33 | 1.5           |       | 58 | 5.5  |               | 83  | 16.0 |   |               |  |       |   |
| 9             | 8.0 |       | 34 | 0.3           |       | 59 | 4.0  |               | 84  | 2.0  |   |               |  |       |   |
| 10            | 3.0 | E 1/2 | 35 | 3.0           |       | 60 | 16.0 | E 1/2         | 85  | 6.5  |   |               |  |       |   |
| 11            | 12  |       | 36 | 2.0           |       | 61 | 5.0  |               | 86  | 2.0  |   |               |  |       |   |
| 12            | 2.5 |       | 37 | 1.5           |       | 62 | 2.8  |               | 87  | 2.5  |   |               |  |       |   |
| 13            | 1.2 |       | 38 | 0.8           |       | 63 | 2.5  |               | 88  | 2.4  |   |               |  |       |   |
| 14            | 0.6 |       | 39 | 3.5           |       | 64 | 1.3  |               | 89  | 1.6  |   |               |  |       |   |
| 15            | 0.5 |       | 40 | 8.0           | E 1/2 | 65 | 2.2  |               | 90  | 1.1  |   |               |  | E 1/4 |   |
| 16            | 4.7 |       | 41 | 2.2           |       | 66 | 0.5  |               | 91  | 1.6  |   |               |  |       |   |
| 17            | 4.6 |       | 42 | 0 = wood      |       | 67 | 0.3  |               | 92  | 6.5  |   |               |  |       |   |
| 18            | 0.6 |       | 43 | 0.5           |       | 68 | 1.9  |               | 93  | 4.7  |   |               |  |       |   |
| 19            | 8.5 |       | 44 | 10.0          |       | 69 | 2.1  |               | 94  | 3.5  |   |               |  |       |   |
| 20            | 0.4 | E 0   | 45 | 2.5           |       | 70 | 2.4  | E 0           | 95  | 3.5  |   |               |  |       |   |
| 21            | 4.3 |       | 46 | 2.3           |       | 71 | 1.8  |               | 96  | 6.5  |   |               |  |       |   |
| 22            | 6.0 |       | 47 | 20.0          |       | 72 | 12.5 |               | 97  | 3.6  |   |               |  |       |   |
| 23            | 2.5 |       | 48 | 30.0          |       | 73 | 1.2  |               | 98  | 2.7  |   |               |  |       |   |
| 24            | 0.7 |       | 49 | 4.2           |       | 74 | 1.5  |               | 99  | 4.7  |   |               |  |       |   |
| 25            | 2.7 |       | 50 | 3.0           | E 1/2 | 75 | 5.5  |               | 100 | 5.6  |   |               |  |       |   |

**Note:** The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.

Field Crew: Sue/Kim

Site Code: FIS-01

Sampling Date: (DD/MM/YYYY) Oct 10/2013

## SITE INSPECTION

Site Inspected by: Sue/Kim

### Communication Information

☒ Itinerary left with contact person (include contact numbers)

Contact Person: Lisa

Time checked-in: 6 PM

Form of communication: ☐ radio ☒ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT

Phone number: ( ) 794-5137

### Vehicle Safety

☒ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)

☒ Equipment and chemicals safely secured for transport

☐ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary

Notes:

### Shore & Wading Safety

☒ Wading Task Hazard Analysis read by all field staff

☒ Wading Safe Work Procedures read by all field staff

☒ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)

☒ PFD worn

☒ Appropriate footwear, waders, wading belt

☐ Belay used

Notes:

Field Crew: Kim Mandzy / Sue Hutan

Site Code: FIS-02

Sampling Date: (DD/MM/YYYY) Oct 10/2013

☒ Occupational Health & Safety: Site Inspection Sheet completed

**PRIMARY SITE DATA**

CABIN Study Name: East Interlake CD Local Basin Name: Fisher R

River/Stream Name: Fisher River Stream Order: (map scale 1:50,000) \_\_\_\_\_

Select one: ☒ Test Site ☐ Potential Reference Site

**Geographical Description/Notes:** East side of Hwy 17 @ Laval School Rd

Surrounding Land Use: (check those present)

☐ Forest ☐ Field/Pasture ☒ Agriculture ☐ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

Information Source: Field Crew

Dominant Surrounding Land Use: (check one)

☐ Forest ☐ Field/Pasture ☒ Agriculture ☐ Residential/Urban  
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other \_\_\_\_\_

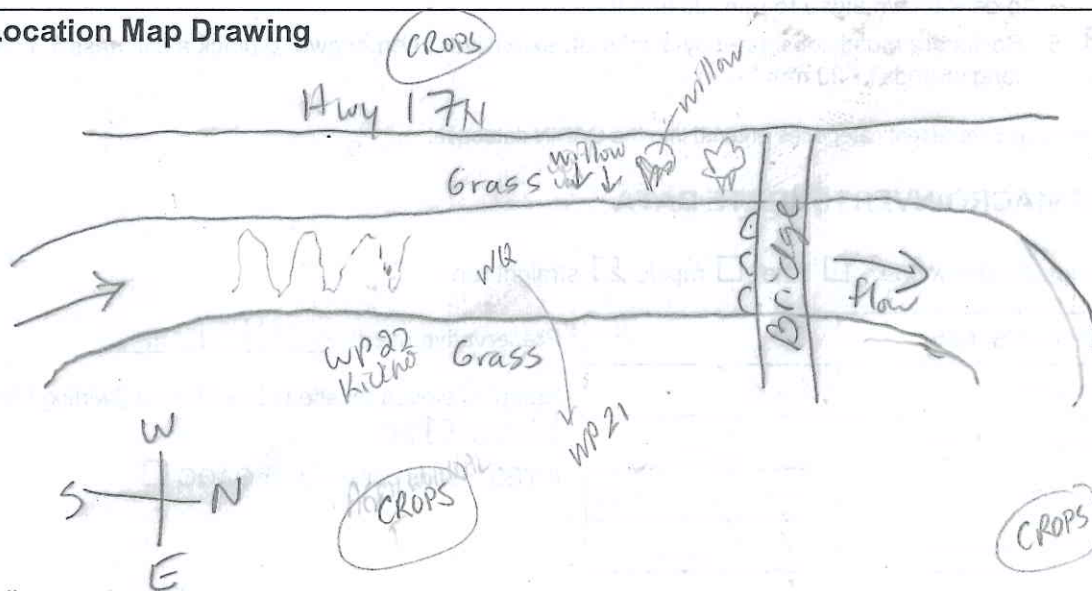
Information Source: Field Crew

**Location Data**

Latitude: \_\_\_\_\_ N Longitude: - \_\_\_\_\_ W (DMS or DD) WP22 144 0597912  
56 83124

Elevation: 799 (ft or masl) GPS Datum: ☒ GRS80 (NAD83/WGS84) ☐ Other: \_\_\_\_\_

**Site Location Map Drawing**



Note: Indicate north

761.3 KPa / 101.5 KPa  
mmHg

Field Crew: Sue/Kim Site Code: FIS-02

Sampling Date: (DD/MM/YYYY) Oct 10/13

### Photos

☒ Field Sheet ☒ Upstream ☒ Downstream ☒ Across Site ☐ Aerial View  
☐ Substrate (exposed) ☐ Substrate (aquatic) ☐ Other 973 aerial - 978

### REACH DATA (represents 6 times bankfull width)

#### 1. Habitat Types: (check those present)

☐ Riffle ☐ Rapids ☒ Straight run ☐ Pool/Back Eddy

#### 2. Canopy Coverage: (stand in middle of stream and look up, check one)

☒ 0 % ☐ 1-25 % ☐ 26-50 % ☐ 51-75 % ☐ 76-100 %

#### 3. Macrophyte Coverage: (not algae or moss, check one)

☐ 0 % ☐ 1-25 % ☒ 26-50 % ☐ 51-75 % ☐ 76-100 %

#### 4. Streamside Vegetation: (check those present)

☒ ferns/grasses ☐ shrubs ☐ deciduous trees ☐ coniferous trees

#### 5. Dominant Streamside Vegetation: (check one)

☒ ferns/grasses ☐ shrubs ☐ deciduous trees ☐ coniferous trees

#### 6. Periphyton Coverage on Substrate: (benthic algae, not moss, check one)

- ☐ 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick)  
☐ 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick)  
☐ 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick)  
☐ 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick)  
☐ 5 - Rocks are mostly obscured by algal mat, extensive green; brown to black algal mass may have long strands (> 20 mm thick)

Note: 1 through 5 represent categories entered into the CABIN database.

### BENTHIC MACROINVERTEBRATE DATA

Habitat sampled: (check one) ☐ riffle ☐ rapids ☒ straight run

|                                 |                      |
|---------------------------------|----------------------|
| 400 µm mesh Kick Net            |                      |
| Person sampling                 | <u>Sue/Kim</u>       |
| Sampling time (i.e. 3 min.)     | <u>3min</u>          |
| No. of sample jars              | <u>1x1L, 1x500ml</u> |
| Typical depth in kick area (cm) | <u>60 cm</u>         |

Preservative used: 10% formalin

Sampled sieved on site using "Bucket Swirling Method":

☐ YES ☒ NO

If YES, debris collected for QAQC ☐

Note: Indicate if a sampling method other than the recommended 400 µm mesh kick net is used.

Field Crew: Sue/Rim Site Code: FIS-02Sampling Date: (DD/MM/YYYY) Oct 10/2013**WATER CHEMISTRY DATA** Time: 9:00 (24 hr clock) Time zone: CSTAir Temp: 15°C (°C) Water Temp: 8.1 (°C) pH: 7.72Specific Conductance: 658 (µs/cm) DO: 9.50 (mg/L) Turbidity: 36.9 (NTU)

Check if water samples were collected for the following analyses:

☐ TSS (Total Suspended Solids)☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)☐ Phosphorus (Total, Ortho, and/or Dissolved)☐ Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate)☐ Other \_\_\_\_\_

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.

**CHANNEL DATA****Slope** - Indicate how slope was measured: (check one)☒ **Calculated from map**

Scale: \_\_\_\_\_ (Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000).

contour interval (vertical distance) \_\_\_\_\_ (m),

distance between contour intervals (horizontal distance) \_\_\_\_\_ (m)

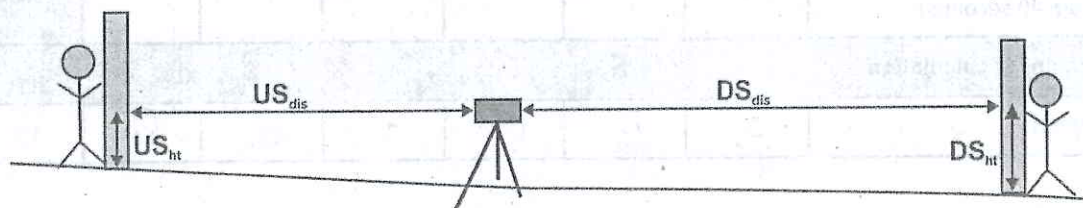
slope = vertical distance/horizontal distance = \_\_\_\_\_

**OR**☐ **Measured in field**

Circle device used and fill out table according to device:

a. Survey Equipment b. Hand Level &amp; Measuring Tape

| Measurements                             | Upstream (U/S)     | Downstream(D/S)    | Calculation             |
|------------------------------------------|--------------------|--------------------|-------------------------|
| <sup>a</sup> Top Hairline (T)            |                    |                    |                         |
| <sup>a</sup> Mid Hairline (ht) OR        |                    |                    |                         |
| <sup>b</sup> Height of rod               |                    |                    |                         |
| <sup>a</sup> Bottom Hairline (B)         |                    |                    |                         |
| <sup>b</sup> Distance (dis) OR           |                    |                    | $US_{dis} + DS_{dis} =$ |
| <sup>a</sup> T-B x 100                   | $^aUS_{dis} = T-B$ | $^aDS_{dis} = T-B$ |                         |
| Change in height ( $\Delta ht$ )         |                    |                    | $DS_{ht} - US_{ht} =$   |
| Slope ( $\Delta ht / \text{total dis}$ ) |                    |                    |                         |



Field Crew: Sve/Kim Site Code: F15-02  
 Sampling Date: (DD/MM/YYYY) Oct 10/13

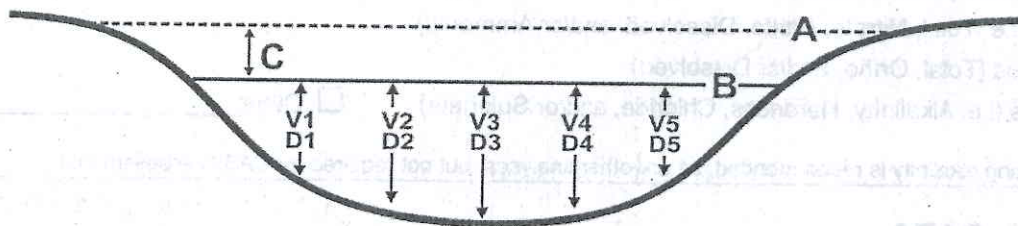
### Widths and Depth

Location at site: W10 Wpt 21 - 14 v 0597912 5663131 (Indicate where in sample reach, ex. d/s of kick area)

A - Bankfull Width: 24 (m)

B - Wetted Stream Width: 120 (m)

C - Bankfull-Wetted Depth (height from water surface to Bankfull): 120 (cm)



Note:

Wetted widths > 5 m, measure a minimum of 5-6 equidistant locations;  
 Wetted widths < 5 m, measure 3-4 equidistant locations.

### Velocity and Depth

Check appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

☐ Velocity Head Rod (or ruler): Velocity Equation (m/s) =  $\sqrt{2(\Delta D/100) * 9.81}$

☐ Rotary meters: Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)

☒ Direct velocity measurements: ☐ Marsh-McBirney ☐ Sontek or ☐ Other Swaffer

|                                                           | 1               | 2               | 3   | 4   | 5   | 6    | AVG  |
|-----------------------------------------------------------|-----------------|-----------------|-----|-----|-----|------|------|
| Distance from Shore (m)                                   | 1.0             | 3.0             | 5.0 | 7.0 | 9.0 | 11.0 |      |
| Depth (D) (cm)                                            | 37              | 60              | 61  | 72  | 67  | 40   | 56.2 |
| <b>Velocity Head Rod (ruler)</b>                          |                 |                 |     |     |     |      |      |
| Flowing water Depth (D <sub>1</sub> ) (cm)                |                 |                 |     |     |     |      |      |
| Depth of Stagnation (D <sub>2</sub> ) (cm)                |                 |                 |     |     |     |      |      |
| Change in depth (ΔD=D <sub>2</sub> -D <sub>1</sub> ) (cm) |                 |                 |     |     |     |      |      |
| <b>Rotary meter</b>                                       |                 |                 |     |     |     |      |      |
| Revolutions                                               |                 |                 |     |     |     |      |      |
| Time (minimum 40 seconds)                                 |                 |                 |     |     |     |      |      |
| <b>Direct Measurement or calculation</b>                  |                 |                 |     |     |     |      |      |
| Velocity (V) (m/s)                                        | 0<br>N/A<br>veg | 0<br>N/A<br>veg | 0   | 0   | 0   | 0    | 0    |

Sampling Date: (DD/MM/YYYY) Oct 10/2013

Field Crew: Sve/Kim

Site Code: F15-02

Sampling Date: (DD/MM/YYYY) Oct 10/2013

## SITE INSPECTION

Site Inspected by: Sve/Kim

### Communication Information

☒ Itinerary left with contact person (include contact numbers)

Contact Person: Lisa

Time checked-in: 6pm

Form of communication: ☐ radio ☒ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT

Phone number: ( ) 794-5137

### Vehicle Safety

☒ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)

☒ Equipment and chemicals safely secured for transport

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☐ Belay used

Notes: