

APPENDIX O

AQUATICS BASELINE

- O-1 2022/2023 Aquatics Baseline
- O-2 2021 Aquatics Baseline
- O-3 2020 Aquatics Baseline**



2019-2020 Aquatic Resources Assessment

Springpole Gold Project
Red Lake District, Northern Ontario
Project #TC190403

Prepared for:

First Mining Gold Corp.

1800-925 West Georgia Street, Vancouver, BC V6C 3L2

March 2021



March 25, 2021

Wood Reference No. TC190403

Mr. Steve Lines
VP, Environment and Community Relations
First Mining Gold Corp.
1800-925 West Georgia Street
Vancouver, BC V6C 3L2

Wood Environment & Infrastructure Solutions
a Division of Wood Canada Limited
2020 Winston Park Drive, Suite 600
Oakville, Ontario L6H 6X7
Canada
T: 905-568-2929
www.woodplc.com

Dear Mr. Lines,

Please find enclosed the 2019-2020 Aquatic Resources Assessment prepared by Wood Environment & Infrastructure Solutions, a Division of Wood Canada Limited on behalf for the First Mining Gold Corp. for the Springpole Gold Project.

The 2019 scope of work was developed following a gap assessment of previously conducted aquatic biological surveys, and the 2020 scope of work was developed to address further data gaps per changes to the proposed development plans. This report is submitted to support additional biological baseline data anticipated to be needed for the preparation of an Environmental Assessment Report and for Project permitting, pursuant to the Impact Assessment Act and the Ontario Environmental Assessment Act.

Sincerely,

Wood Environment & Infrastructure Solutions
a Division of Wood Canada Limited

Prepared by:

Original signed

Dale Klodnicki, M.E.Sc., C.E.T.
Associate Aquatic Ecologist
Ontario Aquatic Science Team Lead

cc: Richard Schryer, Fiona Christiansen

Attachments

Reviewed by:

Original signed

Mark Ruthven, C.E.T.
Senior Associate Biologist
Group Head, Environmental Assessment





2019-2020 Aquatic Resources Assessment

Springpole Gold Project
Project Location
Project #TC190403

Prepared for:

First Mining Gold Corp.
1800-925 West Georgia Street, Vancouver, BC V6C 3L2

Prepared by:

Wood Environment & Infrastructure Solutions
a Division of Wood Canada Limited
2020 Winston Park Drive, Suite 600
Oakville, Ontario L6H 6X7
Canada
T: 905-568-2929

March 2021

Copyright and non-disclosure notice

The contents and layout of this report are subject to copyright owned by Wood (© Wood Environment & Infrastructure Solutions a Division of Wood Canada Limited) save to the extent that copyright has been legally assigned by us to another party or is used by Wood under license. To the extent that we own the copyright in this report, it may not be copied or used without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to you in confidence and must not be disclosed or copied to third parties without the prior written agreement of Wood. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Any third party who obtains access to this report by any means will, in any event, be subject to the Third Party Disclaimer set out below.

Third-party disclaimer

Any disclosure of this report to a third party is subject to this disclaimer. The report was prepared by Wood at the instruction of, and for use by, our client named on the front of the report. It does not in any way constitute advice to any third party who is able to access it by any means. Wood excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of this report. We do not however exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability.



This page was intentionally left blank.

Table of Contents

	Page
1.0 Introduction	1
2.0 Methodology	3
2.1 Assessment Overview	3
2.2 Fish Habitat Assessments	3
2.2.1 Habitat Type A	4
2.2.2 Habitat Type B	4
2.2.3 Habitat Type C	4
2.2.4 Habitat Type D	5
2.2.5 Habitat Type E	5
2.2.6 Habitat Type F	5
2.2.7 Habitat Type G	5
2.2.8 Habitat Type H	5
2.2.9 Habitat Type I	6
2.3 Fish Community	6
2.4 Sediment and Benthic Invertebrate Surveys	7
2.4.1 Field Sampling	7
2.4.2 Laboratory Sample Processing	7
2.4.3 Sediment Quality Data Analysis	8
2.4.4 Data Analysis	8
2.5 Contaminants in Fish Tissue	9
3.0 Results	14
3.1 Inland Waterbodies	14
3.1.1 S-9	14
3.1.2 S-9-US01	16
3.1.3 S-9-US02	17
3.1.4 L-2-OUT	18
3.1.5 L-5-OUT	19
3.1.6 L-6-OUT	20
3.1.7 L-16-IN	21
3.2 Potential Access Road Crossings	22
3.2.1 UNX01	22
3.2.2 UNX03	22
3.2.3 UNX07	23
3.2.4 BR-KM22 (Birch River)	23
3.2.5 L-2-OUT	24
3.3 Springpole Lake	24
3.3.1 Fish Community	24
3.3.2 Yellow Perch	24
3.3.3 Northern Pike	24
3.4 Springpole Lake Candidate Outfall Location	25
3.4.1 Fish Habitat	25
3.4.2 Fish Community	25
3.4.3 Sediment Quality	26
3.4.4 Benthic Invertebrate Community	26

3.5	Springpole Lake Southeast Basin.....	27
3.5.1	Sediment Quality	27
3.5.2	Benthic Invertebrate Community	27
4.0	Discussion	38
4.1	Inland Waterbodies	38
4.2	Potential Access Road Crossings	38
4.3	Springpole Lake	38
4.4	Springpole Lake Candidate Outfall Location	39
4.5	Springpole Lake Southeast Basin.....	39
5.0	Closing	40
6.0	References	41

List of Figures

Figure 1-1:	Project Location	2
Figure 2-1:	2019-2020 Sample Locations	11
Figure 3-1:	2019 Sediment Quality, Benthic Invertebrate and Water Quality Sample Locations.....	28
Figure 3-2:	2019 Fisheries Sample Locations Springpole Lake and Project Site	29
Figure 3-3:	2019 Fisheries Sample Locations Springpole Lake and S-9	30
Figure 3-4:	2019 Fisheries Sample Locations Birch River and UNX07.....	31
Figure 3-5:	2020 Fisheries Sample Locations	32
Figure 3-6:	2020 Sediment and Benthic Sample Locations.....	33
Figure 3-7a:	Habitat Types (L-1, L-2, L-5, and L-15)	34
Figure 3-7b:	Habitat Types (L-17, L-18, S-18 to S-22).....	35
Figure 3-7c:	Habitat Types (L-3, L-4, L-6, S-16, S-17, L-6-OUT).....	36
Figure 3-7d:	Habitat Types (L-10 to L-15, S-9, S-20, S-27 to S-29).....	37

List of Tables

Table 2-1:	Aquatic Resources Field Study Location 2019-2020	12
Table 2-2:	Fish Community Sampling by Sample Area and Season 2019-2020	12
Table 2-3:	Key Habitat Type Criteria	13

List of Appendices

Appendix A:	Field Data Summary Tables and Assessment Forms
Appendix B:	Fish Tissue Summary Tables, Figures and Laboratory Certificates of Analysis
Appendix C:	Fish Age Data
Appendix D:	Sediment Quality and Benthic Invertebrate Community Data Summary
Appendix E:	Photo Record

1.0 Introduction

Wood Environment & Infrastructure Solutions, a Division of Wood Canada Limited (Wood) was retained by First Mining Gold Corp. (FMG) to conduct baseline aquatic studies addressing data needs identified during the 2019 gap analysis and changes to the development plan for the Springpole Project (Wood 2019). The Springpole Project is in the Kenora District, approximately 125 kilometres (km) northeast of Red Lake, Ontario (Figure 1-1).

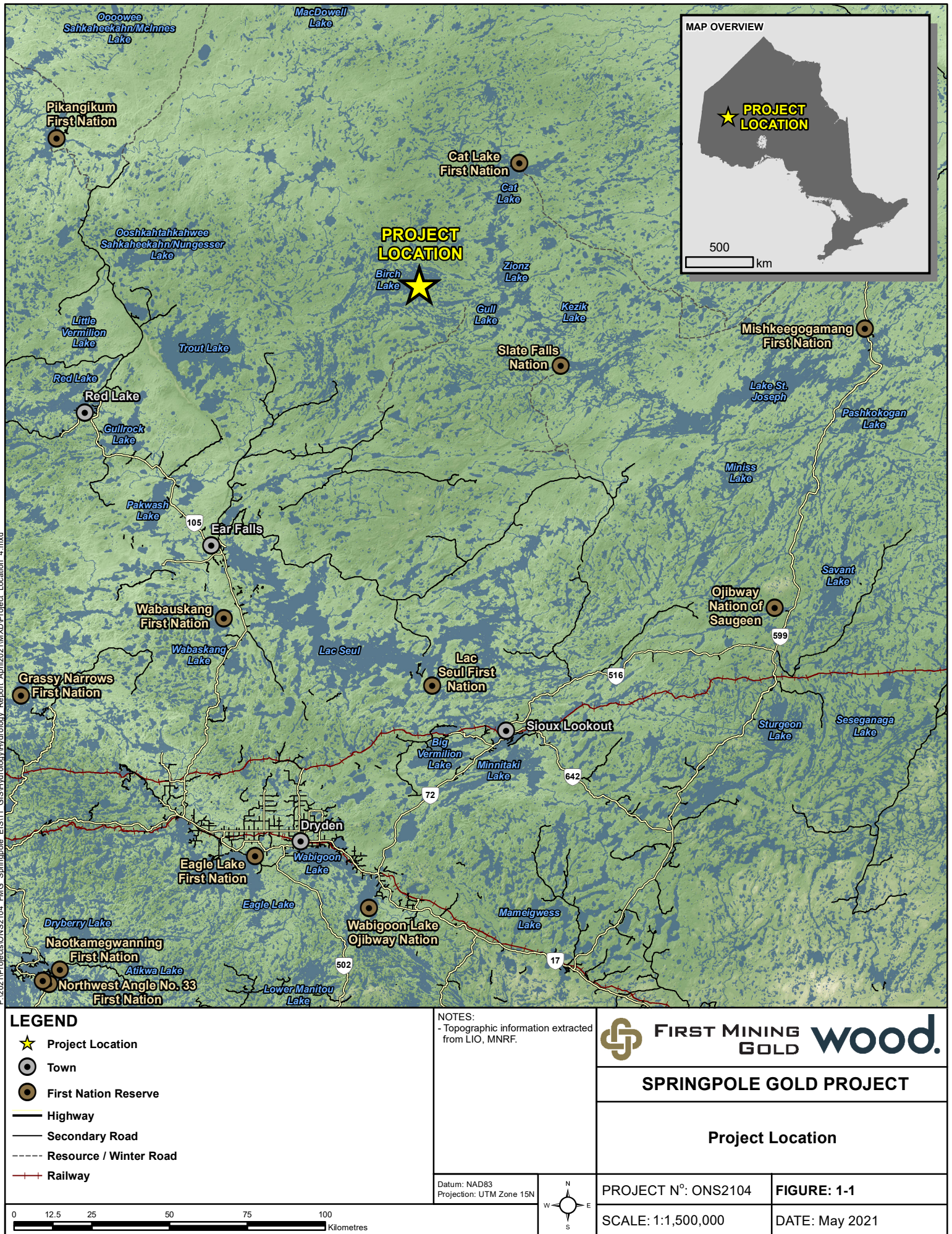
The gap analysis showed in general, the aquatic environment was well investigated, and detailed information was collected to characterize most of the waterbodies affected by the main site footprint, as defined pre-2019. These data include representation of small bodied forage fish (e.g., minnows and shiners) as well as large bodied recreational and sustenance species such as Lake Trout (*Salvelinus namaycush*), Northern Pike (*Esox lucius*) and Walleye (*Sander vitreus*).

Exceptions to this completeness include some discreet locations as summarized in Section 2, and waterbodies associated within the preferred road alignment. It is recognized that gaps associated with the aggregate sources were not known during the 2019 or 2020 aquatic study design, and as such were not included in the 2019-2020 aquatic studies scope of work.

The 2019 baseline assessments included; fish community and fish habitat surveys, contaminants in fish tissue and quantitative fisheries resource data collection needs to support future permitting, compensation and offsetting requirements for the Project. These studies included inland waterbodies southeast of the project site, as well as previously unsampled water courses within the mine site footprint.

Additional field studies were completed in 2020 to assess the aquatic habitat, fish community, as well as sediment quality and benthic invertebrate community surveys within a candidate treated mine effluent outfall location within Springpole Lake. Bathymetry and substrate surveys were conducted by others to select the general outfall location, with Woods' 2020 surveys collecting nearshore and midbasin data to support potential effects assessments should this be selected as the final discharge location.

P:\2021\Projects\ONS2104 - FMG Springpole - EIS\11 GIS\Hydrology\Hydrology_Report_April2021\MXD\Project_Location_4.mxd



2.0 Methodology

2.1 Assessment Overview

The 2019-2020 aquatic resources assessment field programs addressed data gaps identified in the aquatics gap analysis and more recent changes to the Project development plan by completing the following study components:

1.  Multi-season inland waterbody condition assessments during 2019 including catch per unit effort (CPUE) and fish tissue contaminants sampling for unnamed watercourses including the connection between L-6 and L-16, L-5 outlet, L-2 outlet, and the upper reaches of stream S-9;
2.  Autumn 2019 fish tissue contaminants assessment within Springpole Lake (L-15) targeting a forage fish species (juvenile Yellow Perch *Perca flavescens*) and Northern Pike representing another large-bodied species other than Walleye;
3.  Preferred road alignment water crossing assessment (as accessible) during the 2019 summer program;
4.  Fall 2019 sediment quality and benthic invertebrate community surveys within Springpole Lake southeast basin, as completed by Story Environmental Inc. (Story), and data assessment by Wood; and
5.  Summer and Fall 2020 fish habitat, community, sediment quality and benthic invertebrate community surveys within Springpole Lake at a candidate treated mine effluent outfall location.

The study area location for each of the above components are presented on Figure 2-1. A summary of the 2019-2020 aquatic resources assessment sampling effort is provided in Table 2-1, with a summary of the fish community sampling gear-specific efforts by area and season in Table 2-2.

2.2 Fish Habitat Assessments

Fish habitat assessments were conducted during all field programs and included qualitative descriptions of the riparian zone, as well as in-stream observations such as:

-  Presence of coarse woody debris/logs, boulders, bedrock;
-  General stream morphology (run, riffle, pool, flat) and stream flow (stagnant, low, turbulent);
-  Wetted width, bankfull width and total depth; and
-  Presence of beaver dams limiting/impeding? flow.

A modified Ontario Stream Assessment Protocol (OSAP) road crossing assessment was completed at four preferred road crossing locations (BR-KM22, UNX03, UNX07 and L-2-OUT) to provide initial fish habitat assessments. The road crossing location assessments were conducted during the 2019 summer sampling campaign within the area of investigation (50 metres [m] upstream and 200 m downstream of the proposed crossing) as specified in the Ministry of Transportation (MTO) Environmental Guide for Fish and Fish Habitat (2009).

In-field surface water quality measurements were recorded at each sample location using handheld portable water quality meters. These instruments were calibrated daily as needed and measured the following physio-chemical parameters:

- Temperature;
- pH;
- Conductivity;
- Dissolved oxygen (DO); and
- Depth of parameter measurement.

The 2019 modified OSAP field data, aerial image interpretation and baseline documentation (FMG & C. Portt 2018) were used to delineated habitat types to the extent possible. These habitat types are described below and summarized in Table 2-3, which also contains reference to the baseline aquatic studies completed by others.

2.2.1 □ Habitat Type A

Habitat type A represents lentic (lake / pond) habitat characterizing the smaller, shallow inland waterbodies within the project area. Substrate composition in habitat type A includes predominantly soft, fine grained sediments with some localized boulder/bedrock and cobble/sand occurrences, as well as coarse woody debris with detritus. Vegetation in the upland zones are mainly mixed forest dominated by Black Spruce and Tamarack; while vegetation near to the riparian zone included wood shrub specie such as Alder, and herbaceous species such as Sweetgale and grasses. In general, two types of riparian zones vegetation were observed in habitat type A: a grassy floating mat with mosses, Sweetgale and herbaceous species; or a narrow riparian zone with overhanging shrubs and rushes (such as Hardstem Bulrush) that extended into the open water littoral zone covering a portion of the open water surface. Nearshore, shallow areas are also commonly populated by other emergent and submergent or floating aquatic macrophytes.

2.2.2 □ Habitat Type B

Habitat type B represents lentic habitat characterizing the deep (>4 m total depth) inland waterbodies within the project area. The total depth is the primary difference between habitat types A and B, which can also influence fish species community and thermal regime. Substrate composition in habitat type B is similar to habitat type A with predominantly soft, fine grained sediments with greater abundance of localized boulder/bedrock and cobble/sand occurrences, as well as coarse woody debris with detritus. Vegetation in the upland zones are mainly mixed forest dominated by Black Spruce and Tamarack; while vegetation near to the riparian zone included wood shrub specie such as Alder, and herbaceous species such as Sweetgale and grasses. In general, two types of riparian zones vegetation were observed in habitat type B: a grassy floating mat with mosses, Sweetgale and herbaceous species; or a narrow riparian zone with overhanging shrubs and rushes (such as Hardstem Bulrush) that extended into the open water littoral zone covering a portion of the open water surface. Nearshore, shallow areas are also commonly populated by other emergent and submergent or floating aquatic macrophytes.

2.2.3 □ Habitat Type C

Habitat type C represents lentic habitat characterizing the large lake environs such as Springpole and Birch lakes. Substrate composition nearshore is mostly comprised of exposed bedrock and boulder, with localized areas of soft fine grained sediments commonly associated with tributary inflows and sheltered embayments. Coarse wood debris (e.g., driftwood) and some localized areas of aquatic macrophytes within the soft sediment substrate areas is present. Vegetation in the upland zones include mainly mixed

forest dominated by Black Spruce and Tamarack; while vegetation near to the riparian zone included woody shrub species such as Alder and herbaceous species.

2.2.4□ Habitat Type D

Habitat type D represents intermittent stream environments characterized as low-lying areas with diffused pockets of standing water that convey overland flow during periods of precipitation or during spring freshet. Habitat type D was also commonly associated with a complete loss of defined channel, transitioning into areas of muskeg drainage / underground flow. Overall, this habitat characterized the subsurface channels and flow paths connecting waterbodies such as L-6 and L-16. This habitat was dominated by willow, grasses, alder and Sweetgale, with some Black Spruce, Mosses and Tamarack. Where open channels were observed, the substrate composition within this habitat type was almost exclusively fines, with some boulder and bedrock observed.

2.2.5□ Habitat Type E

Habitat type E represents riverine habitat with little to no floodplain, steep banks and shrub riparian vegetation providing nearly complete canopy cover. The substrate is mostly exposed bedrock and boulder with some isolated pockets of fine-grained substrate. Riparian vegetation is dense alder and willow species, with upland by Black Spruce, Poplar and Tamarack. This habitat type commonly occurs within gradient changes between inland streams and habitat type C waterbodies.

2.2.6□ Habitat Type F

Habitat type F represents riverine habitat with moderate beaver activity creating alternating series of pools and impoundments (via beaver dams). These areas are also characterized by side overflow channels created during high flow events. The pool habitat has abundant coarse and fine wood debris, with soft fine-grained sediments that support dense aquatic macrophytes. Riparian vegetation is mostly comprised of grasses and sedges with alder and willow species further upland adjacent to Black Spruce, Poplar and Tamarack forest. Habitat type F typically occurs between inland waterbodies and at the downstream extent of the habitat types G and H reaches, where beavers have utilized the narrowing, natural topography to construct dams.

2.2.7□ Habitat Type G

Habitat type G represents riverine habitat with a broad floodplain and extensive floating mats of herbaceous species typical of muskeg and beaver ponds. This habitat is primarily represented by flat channel morphology with occasional pools in the thalweg of meander bends and back bays of the channel. The substrate is characterized by soft fine-grained sediment with occasional boulders and localized areas of exposed bedrock. Dense aquatic macrophyte growth and coarse wood debris contribute most of the instream cover. Vegetation in the upland zones are mainly mixed forest dominated by Black Spruce, Poplar and Tamarack; while vegetation near to the riparian zone includes alder, willow and herbaceous species.

2.2.8□ Habitat Type H

Habitat type H represents riverine habitat with a moderate to broad floodplain similar to habitat type G; however, wetted width is much wider than habitat type G and was observed at fewer locations within the assessed areas. As with habitat type G, the type H habitat is characterized by flat channel morphology

with occasional pools, and was observed at stream S-27 (the connecting channel between L-10 and L-11), and at the extreme south-eastern extent of Springpole Lake east of the Birch River outflow at UNX07

Habitat type H represents riverine habitat with a moderate to broad floodplain similar to habitat type G; however, wetted width is much wider than habitat type G and was observed at fewer locations within the assessed areas. As with habitat type G, the type H habitat is characterized by flat channel morphology with occasional pools, and was observed at stream S-27 (the connecting channel between L-10 and L-11), and at the extreme south-eastern extent of Springpole Lake east of the Birch River outflow at the proposed road alignment station UNX07. The substrate is characterized by soft fine grained sediment with few boulders. Abundant aquatic macrophytes and coarse wood debris are present. The riparian zone consists mostly of grasses and sedges. Upland areas are mainly mixed forest dominated by Black Spruce, Poplar and Tamarack; while vegetation near to the riparian zone includes alder, willow and herbaceous species.

2.2.9 Habitat Type I

Habitat type I represents the Birch River (BR-KM22 road alignment) habitat characterizing fast flowing river sections with cobble, boulder and bedrock riffle and rapids habitat. This area was characteristic of steeper gradients and generally shallow channel cross-sections. Fish community surveys encountered Walleye that would likely utilize the fast flowing reaches with smaller substrate (e.g., cobble) as suitable spawning habitat. The upland and riparian vegetation communities were mainly mixed forest dominated by Black Spruce and sparse Tamarack and Poplar species; however, recent forest fire damage shows an early succession stage of growth for these species. Macrophyte growth was observed in low abundance within the area, however, algae covering rocks and Pondweed growing in the fast current between rocks were noted in some less turbulent areas.

2.3 Fish Community

Fish community assessments were conducted during summer and fall assessments as per conditions of the Licence to Collect Fish for Scientific Purposes (LCFSP) No. 1093704 (2019), No. 1096131 (Summer 2020) and No. 1096588 (Fall 2020) issued by the Red Lake District Ministry of Natural Resources and Forestry (MNR). The following gear types were utilized as able per site-specific habitat conditions:

-  Baited gee-style minnow traps;
-  Gillnets (various stretched mesh sizes, including Riverine Index Nets);
-  Backpack electrofishing;
-  Seine nets;
-  Small mesh (minnow) fyke and large bodied (standard) fyke nets; and
-  Angling.

A summary of the fish sampling gear utilized at each sampling area by field program is presented in Table 2-2. All fish specimens captured were identified to species by qualified fisheries staff; measured for length (total and fork) and fresh weight; scrutinized for visible malformation, parasites, or evidence of disease; sex was determined when possible; and non-lethal age structures were collected. Additionally, lethal age structures and baseline fish tissue of target fish species were collected during the fall inland waterbody assessments.

2.4 Sediment and Benthic Invertebrate Surveys

2.4.1 Field Sampling

Surficial sediment samples were collected concurrently with benthic invertebrate community (BIC) samples using a Petite Ponar grab sampler during the fall sampling programs. Each ponar grab sampled a surface area of 0.023 square metres (m²). Three grab sub-samples were taken at each transect or lake sample location and pooled (homogenized) into one composite sample to provide account for localized habitat heterogeneity and represent the localized substrates within the sampling location. Homogenizing the benthic samples also increase the likelihood of sampling all available taxa from the BIC by reducing the effects of intra-sample variation inherent to benthic communities.

The substrate physicochemical properties at each benthic sampling location (i.e., metal and nutrient concentrations) were characterized to further support interpretation of the benthic community between and among areas. All surficial sediment sampling followed the protocols as set out by Canadian Association for Laboratory Accreditation (CALA) Guide to Current Sampling Practices (2014).

The following quality assurance and control (QA/QC) measures were implemented during benthic sample collection:

-  Sampling gear utilized was appropriate for substrate present.
-  Laboratory gloves (e.g., nitrile) were worn throughout the sampling process and replaced at each sampling location.
-  Equipment was thoroughly rinsed and cleaned using appropriate cleansers and decontaminant agents prior to use between sampling locations.
-  BIC samples were stored in appropriate containers using appropriate preservatives as directed by the laboratory.
-  Sediment samples were placed in clean, pre-labeled, laboratory prepared glass jars.
-  Blind field duplicate sediment quality samples were collected for 10% of total samples.
-  Sample identification, location, date and other pertinent information was recorded in a field logbook / log sheet, on the sample container and on laboratory Chain of Custody (COC) forms.
-  An experienced taxonomist was used for identification of freshwater macroinvertebrates.
-  Electronic data received from the taxonomist were checked to ensure correctness by qualified staff.

All benthic samples were labeled with unique identification numeration. BIC samples were field sieved and initially preserved with isopropyl alcohol within six hours of sample collection to maintain sample integrity and minimize the likelihood of within sample predation or decomposition which was replaced by 10% buffered formalin solution, before transport to the taxonomist.

2.4.2 Laboratory Sample Processing

Substrate composition was characterized through qualitative visual field assessments and quantitative laboratory grain size analysis. Laboratory chemical analysis was conducted by Bureau Veritas in Mississauga, which is accredited by the CALA in accordance with ISO/IEC 17025:2005 – General Requirements for the Competence of Testing and Calibration Laboratories for the tested parameters. The

occurrence of large particle sizes (cobble and boulder) within representative reaches and sections of the rivers and creeks was recorded by field staff during habitat assessment.

Taxonomist laboratory BIC sample processing procedures included subsampling as required for samples containing large amounts of organic material and/or large sample volumes, to identify a minimum of 100 individuals. Sorting included washing samples through 250 and 500 µm sieves, and organism sorting / identification using a stereomicroscope (10x magnification). All invertebrates were identified to the lowest practical level and generally to the genus level, with the exception of leeches, oligochaetes, stoneflies, mayflies, dragonflies, amphipods, and adult beetles and bugs, which were identified to the species level.

2.4.3 Sediment Quality Data Analysis

The analytical sediment results were compared to the Ontario Provincial Sediment Quality Guidelines (PSQG; MOE 2008) and Canadian Sediment Quality Guidelines (CSQG) for the Protection of Aquatic Life (CCME 2001). The CSQG criteria are established based on the formal federal protocol to evaluate potential adverse biological effects in aquatic environments. They prescribe a level of contamination at which there are probable effects (Probable Effect Level, PEL). The PSQG are guidelines which promote the protection of aquatic life and are based on sound scientific information. The PSQG establish three levels of effects that reflect potential chronic and long-term effects of contaminants on benthic invertebrates as follows:

-  No Effect Level: fish and sediment-dwelling organisms are not affected by chemicals in the sediment; the sediment is considered clean.
-  Lowest Effect Level (LEL): level of sediment contamination that can be tolerated by the majority of sediment-dwelling benthic invertebrates; the sediment is considered to be clean to marginally contaminated.
-  Severe Effect Level (SEL): level of sediment contamination at which pronounced disturbance of the sediment-dwelling community can be expected; the sediment is considered heavily contaminated.

Sediment grain size and chemical analyses were conducted at a lab accredited by the CALA in accordance with ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*.

2.4.4 Data Analysis

The BIC taxonomic data from each sample location were characterized using a series of community descriptor indices and metrics listed below:

-  Total invertebrate density (TID);
-  Taxon richness;
-  Simpson's Diversity Index (1-D);
-  Simpson's Evenness Index (E);
-  The percentage of community represented by EPT taxa;
-  The percentage of community represented by Chironomids (Chironomidae); and
-  The percentage of community represented by each taxon (relative abundance).

These indices were calculated and summarized using the guidelines for Environmental Effects Monitoring as stipulated by Environment Canada (EC 2012).

2.5 □ Contaminants in Fish Tissue

Fish tissue samples for contaminant analysis were comprised of 1) large-bodied sentinel species dorsal epaxial muscle tissue, and 2) whole body composite samples for small bodied sentinel species. Sentinel species retained for analysis were determined based on presence and abundance of the species within each sample area. Age determination of the sampled individuals was conducted on species-appropriate ageing structures.

Small-bodied sentinel fish species that were retained for tissue analysis during the fall 2019 field studies were: Finescale Dace, Northern Redbelly Dace and Northern Pearl Dace. Whole body composite samples each consisted of enough fish for each species to provide greater than 50 grams (g) wet weight (number of fish per sample depended on fish length and species). The smallest fish in each sample was generally greater than or equal to 85% of the total length of the largest fish chosen for the sample. If the smallest fish was not within 85% of the largest fish, the size difference (largest to smallest) was not greater than 75%. Individuals from the sampled populations representing the full range of total lengths (TL) were submitted for age verification using species appropriate ageing structures (e.g., otoliths).

The large-bodied fish species retained for analysis within Springpole Lake consisted of Northern Pike and Yellow Perch. Boneless skinless dorsal epaxial muscle tissues were sampled from the retained individuals, as well as removal of species appropriate ageing structures (e.g., scales and dorsal spines for perch, and cleithra for pike). The left epaxial (dorsal) muscle tissue of the Northern Pike retained for analysis were submitted for laboratory analysis; however, the Yellow Perch were submitted as composite samples due to minimum analytical sample weight requirements. In addition, Yellow Perch individuals were submitted as whole-body samples to be aged.

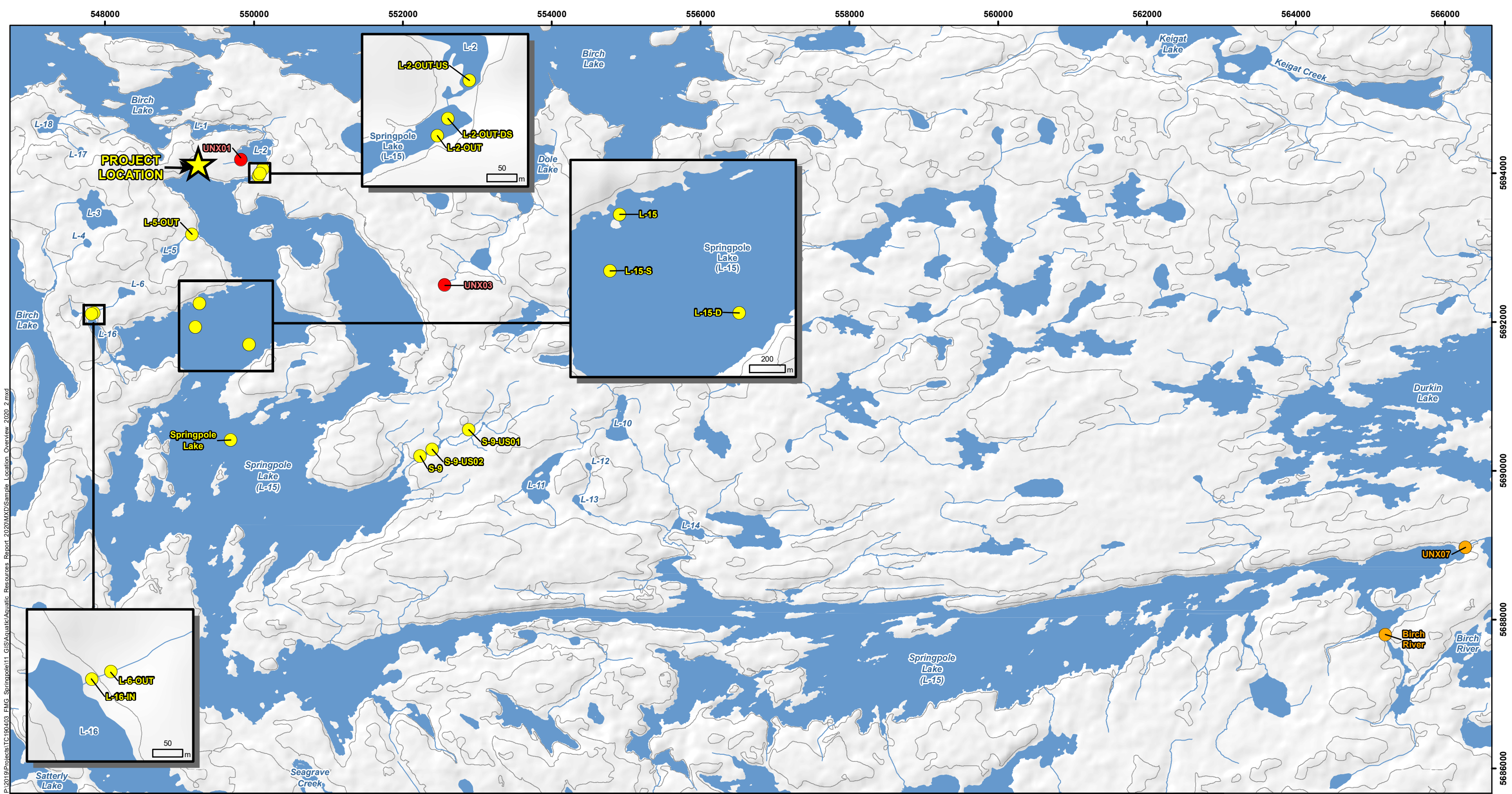
Fish tissue samples collected by Wood during the 2019 field studies were submitted to a laboratory accredited by the CALA for total metals, percent moisture and lipids, with a subset of these samples analyzed for methylmercury. The 2020 studies did not include assessment of contaminants in fish tissue.

Metals of interest analyzed for this study included deleterious substances measured in mining effluent under the MDMER, and metals known to have a negative effect on the health of aquatic life and consumers of aquatic biota: arsenic, copper, lead, mercury, selenium and zinc. Fish tissue metal concentrations were compared among sample areas. Species-specific linear regressions of fish weight at total length and total mercury concentration within dorsal epaxial muscle tissue at total length were conducted. Mercury and selenium are often of particular interest when assessing baseline conditions as these metals are known to have negative effects on the health of aquatic life and consumers of aquatic biota, discussed in more detail as follows.

The total mercury concentrations measured in fish tissue were compared to the Provincial consumption guidelines (MOECC 2015) and Federal food and nutrition standards (Health Canada 2011). Concentrations were also compared against the Canadian Council of Ministers of the Environment (CCME) Canadian Tissue Residue Guideline for the Protection of Wildlife Consumers of Aquatic Biota – methylmercury (CCME 2000). The total mercury concentrations in fish tissue were also used to assess methylmercury criteria. The proportion of methylmercury to total mercury in fish muscle tissue has been reported as ranging from 80 to 100% for freshwater adult fish, with the majority of these indicating a percent greater than 90% (Bishop and Neary 1975; Huckabee et al. 1979, Jackson 1990; Bloom 1992; Lasorsa and Allen-Gil 1995; Kannan et al. 1998; Jewett et al. 2003). This report assumes that 95% of the total mercury concentration in fish is in the form of methylmercury, providing a conservative approach when comparing

to other mercury in fish tissue concentrations collected by others (SEI 2019; FMG and C. Portt 2018) to monitor and assess potential risks to the environment, piscivorous biota and human user groups.

Selenium is often considered a metal of concern because it can have negative effects on aquatic life. It can be released into aquatic environments naturally through weathering or anthropogenic sources (US EPA 2016). Concentrations of selenium were measured in fish tissue during the 2019 studies to determine baseline concentrations and for future reference if needed. Neither Ontario nor Canada currently have regulatory concentration criteria established for selenium in fish tissue. Baseline concentrations of selenium in fish tissue were compared to the US EPA criteria limit for selenium in freshwater fish whole-body samples (US EPA 2016).



LEGEND

- Project Location
- Baseline Fisheries Resource Survey
- Potential Road Fisheries Resource Survey
- Potential Road Fisheries Resource Survey (No Fish Habitat)
- Contour (10 m intervals)

00.512345Kilometres

NOTES:

- Topographic information extracted from LIO, MNRF.
- Proposed access/haul road and powerline provided by First Mining Gold.

Datum: NAD83

Projection: UTM Zone 15N

FIRST MINING GOLD

wood.

SPRINGPOLE GOLD PROJECT

2020 Sample Locations

PROJECT N°: TC190403

SCALE: 1:48,000

FIGURE: 2-1

DATE: March 2021

Table 2-1: Aquatic Resources Field Study Location 2019-2020

Sample Year	Sample Location	UTM Easting (m)	UTM Northing (m)	Habitat Observations	Sediment & Benthos Sampling	Fish Community	Fish Body Burdens
2019	Birch River (BR-KM22)	565,203	5,687,801	Su ^a	-	Su ^a	-
	Springpole Lake (L-15)	549,764	5,690,462	Fa ^a	-	Su ^a , Fa ^a	Fa
	S-9	552,200	5,690,148	Fa ^a	Fa ^a	Su ^a , Fa ^a	Fa
	S-9-US01	553,052	5,690,601	Fa ^a	Fa ^a	Su ^a	-
	S-9-US02	552,507	5,690,348	-	Fa ^a	Su ^a , Fa ^a	Fa
	UNX01	549,827	5,694,183	Su ^a	-	-	-
	UNX03	552,562	5,692,501	Su ^a	-	-	-
	UNX07	566,356	5,689,020	Su ^a	-	Su ^a	-
	L-2-OUT	550,080	5,694,030	Su ^a , Fa ^a	Fa	Su ^a , Fa ^a	Fa
	L-5-OUT	549,114	5,693,156	Fa ^a	Fa ^a	Su ^a , Fa ^a	Fa
	L-6-OUT	548,108	5,692,301	Fa ^a	Fa ^a	-	-
	L-16-IN	547,900	5,692,134	Fa ^a	Fa ^a	Su ^a	-
2020	L-15 (nearshore)	549,011	5,692,057	Su ^b , Fa ^b	Fa ^b	Su ^b , Fa ^b	-
	L-15 (mid-basin)	549,224	5,691,741	Su ^b , Fa ^b	Fa ^b	Su ^b , Fa ^b	-

Notes:

- Coordinates provided represent the approximate midpoint of the study area in Universal Transverse Mercator (UTM) Zone 15U, North American Datum (NAD) 83
- "Su^a" data collected during the 2019 summer field study (July 15 to 25)
- "Fa^a" data collected during the 2019 fall field study (September 8 to 20)
- "Su^b" data collected during the 2020 summer field study (July 24 to 28)
- "Fa^b" data collected during the 2020 fall field study (September 10 to 14)

Table 2-2: Fish Community Sampling by Sample Area and Season 2019-2020

Sample Location	Angling	Electrofishing	Fyke Net	Gillnet	Minnow Trap	Seine Net
Birch River	Su ^a	-	-	Su ^a	Su ^a	-
Springpole Lake	Fa ^a	-	-	-	Fa ^a	Fa ^a
S-9	-	Su ^a	-	-	Fa ^a	-
S-9-US02	-	-	-	-	Su ^a , Fa ^a	-
UNX07	-	-	-	Su ^a	Su ^a	-
L-2-OUT	-	-	Su ^a	Su ^a	Su ^a , Fa ^a	-
L-5-OUT	-	Su ^a	-	-	Su ^a , Fa ^a	-
Springpole Lake (L-15)	Fa ^b	Su ^b	-	Su ^b , Fa ^b	Su ^b , Fa ^b	-

Notes:

- Su^a data collected during the 2019 summer field study (July 15 to 25)
- Fa^a data collected during the 2019 fall field study (September 8 to 20)
- Su^b data collected during the 2020 summer field study (July 24 to 28)
- Fa^b data collected during the 2020 fall field study (September 10 to 14)

Table 2-3: Key Habitat Type Criteria

Habitat Type Classification		Lake / Pond			Riverine					
		Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I
General Habitat Attributes		❑ Shallow inland lake / pond habitat ❑ Shoreline varies between extensive floating mats of herbaceous species and localized sections with boulder, cobble and/or sand	❑ Deep inland lake habitat ❑ Shoreline varies between extensive floating mats of herbaceous species and localized sections with boulder, cobble and/or sand	❑ Large lake habitat ❑ Shoreline mostly bedrock / boulder substrate, with some and shallow nearshore soft sediments commonly at tributary inflows	❑ Low lying area with diffuse pockets of standing water ❑ Sections of complete loss of channel, can transition into muskeg drainage, overland drainage flow path or underground flow ❑ Not fish habitat	❑ No floodplain with dense shrub riparian vegetation ❑ Bedrock, boulder and cobble substrate with coarse wood debris	❑ Moderate beaver activity creating alternating series of pools / impoundments ❑ Side overflow channels created during high flow and stream stage events ❑ Abundant coarse wood debris	❑ Broad floodplain with extensive floating mats of herbaceous species typical of muskeg and beaver ponds / impoundments ❑ Primarily flat morphology with occasional pools in the thalweg of meander bends and back bays of the channel	❑ Moderate to broad floodplain ❑ Primarily flat morphology with occasional pools ❑ Commonly occurring as main connecting channels between inland waterbodies	❑ Birch River habitat ❑ No floodplain ❑ Steep banks with fast flowing riffle and rapids habitat ❑ Coarse grained substrate across channel including boulder and cobble, as well as exposed bedrock
Permanence		Permanent	Permanent	Permanent	Intermittent	Permanent	Permanent	Permanent	Permanent	Permanent
Characteristic Morphology Features	Bankfull Width (m)	N/A	N/A	N/A	N/A	0.50 to 4.0 m	1.0 to 10 m	> 5 m	> 5 m	> 10 m
	Bankfull Depth (m)	Total depth < 4 m	Total depth ≥ 4 m	Total depth ≥ 4 m	N/A	0.60 to 1.5 m	0.40 to 2 m	> 1 m	> 1 m	> 0.50 m
	Channel Morphology	Pool: 100%	N/A	N/A	N/A	Slow Riffle: 5% Glide: 95%	Flat: 96% Pool: 4%	Flat: 98% Pool: 2%	Flat: 98% Pool: 2%	Fast Riffle: 80% Slow Riffle: 15% Glide: 5%
Substrate Composition (approximate %)		Boulder: 2% Cobble: 2% Fines: 96%	Boulder: 5% Cobble: 5% Fines: 90%	Bedrock: 60% Boulder: 20% Fines: 20%	Bedrock: 20% Boulder: 20% Fines: 60%	Bedrock: 20% Boulder: 60% Fines: 10%	Bedrock: 5% Boulder: 15% Fines: 80%	Bedrock: 5% Boulder: 15% Fines: 80%	Bedrock: 5% Boulder: 5% Fines: 90%	Cobble: 15% Bedrock: 45% Boulder: 40%
Instream Cover (approximate %)		Macrophytes: 80% Rock: 5% Wood: 15%	Macrophytes: 80% Rock: 10% Wood: 10%	Macrophytes: 15% Rock: 75% Wood: 10%	Rock: 60% Wood: 40%	Bank: 15% Macrophytes: 5% Rock: 40% Wood: 40%	Bank: 5% Macrophytes: 50% Rock: 10% Wood: 25%	Bank: 5% Macrophytes: 40% Rock: 10% Wood: 45%	Bank: 15% Macrophytes: 40% Rock: 10% Wood: 35%	Rock: 80% Wood: 20%
Dominant Riparian Types (approximate %)		Macrophytes: 10% Grasses and Sedges: 45% Shrubs: 35% Trees: 10%	Macrophytes: 10% Grasses and Sedges: 45% Shrubs: 35% Trees: 10%	Grasses and Sedges: 10% Shrubs: 65% Trees: 25%	Grasses and Sedges: 10% Shrubs: 60% Trees: 30%	Macrophytes: 5% Grasses and Sedges: 10% Shrubs: 40% Trees: 45%	Macrophytes: 15% Grasses and Sedges: 70% Shrubs: 10% Trees: 5%	Macrophytes: 10% Grasses and Sedges: 80% Shrubs: 5% Trees: 5%	Macrophytes: 10% Grasses and Sedges: 80% Shrubs: 5% Trees: 5%	Grasses and Sedges: 30% Shrubs: 60% Trees: 10%
Representative baseline Habitat Sampling Locations (pre-2019)		L-4, L-5, L-6, L-11, L-14, S-9 pond habitat	L-1, L-2, L-3, L-10, L-12, L-13, L-16	Birch Lake, Seagrave Lake, Springpole Lake (L-15)	S-14, S-16 (upstream reach), S-17, S-25	S-9 (upper reaches), stream between L-12 and L-13, S-16 (midstream and downstream reach), S-26 (upstream reach), S-29	S-16 (midstream reach)	S-16 (midstream reach), S-26 (downstream reach), S-28, (downstream reach)	S-27	None
Representative 2019-2020 Habitat Sampling Locations		S-9 pond habitat	None	Springpole Lake (L-15)	UNX01, UNX03, L-4-OUT, L-6-OUT, S-9 (upstream reaches), S-19, S-20 (upstream reaches), S-21, S-22 (upstream reaches)	L-5-OUT (downstream reach), S-9 (upstream reach), S-18, S-21 (downstream reach), S-22 (downstream reach)	Connecting stream between L-1 and L-2, L-5-OUT (upstream reach)	S-20 (downstream reach), S-19 (upstream reach), S-21 (downstream reach)	UNX07	Birch River (BR-KM22)

Notes:

- ❑ Habitat type classification based on baseline existing conditions surveyed by others (FMG and C. Portt 2018), results of the 2019 and 2020 field surveys conducted by Wood, as well as inferred habitat delineations using aerial photo interpretation that are subject to confirmation or change with additional field survey data if collected.
- ❑ N/A – not applicable; calculation or measurement unable to be assessed.

3.0 Results

Results from the 2019-2020 field programs are presented as per the five field program components listed below:

-  Multi-season inland waterbody existing conditions assessment (2019);
-  Preferred road alignment water crossing assessment (2019);
-  Springpole Lake fish tissue contaminants assessment during the fall 2019 field campaign;
-  Springpole Lake southeast basin sediment quality and benthic invertebrate community assessment (2019); and
-  Springpole Lake candidate treated mine effluent outfall location assessment (2020).

Field data summary tables and figures, as well as the field assessment forms including gear-specific catch records and MTO road crossing assessment field forms are provided in Appendix A. The contaminants in fish tissue summary tables, figures and laboratory Certificates of Analysis (COAs) are provided in Appendix B, with fish age determination results in Appendix C. The sediment quality laboratory COAs and BIC taxonomic data with summary table and figures are provided in Appendix D. A photographic record of the sampled locations with representative fish species and typical habitat images are provided in Appendix E.

Where applicable, baseline data from earlier project studies have been included in the results analysis and data presentation, thereby summarizing the larger project-specific data set. Further aquatic studies are planned for 2021, which will contribute the wholistic understanding of existing conditions on and around the project site.

3.1 Inland Waterbodies

The following sections (and associated tables and figures) provide sample area specific assessment results, including as appropriate:

-  In-field physicochemical surface water quality parameters (Table A1.1);
-  Fish community survey results including gear-specific capture results listing fish species occurrence in each waterbody, length-frequency histograms for select abundant species (Tables A1.2 to A1.7; Figures A1.1 to A1.2);
-  Concentrations of select contaminants of concern in fish tissue, including total mercury and methylmercury (Tables B1.1 to B1.8 and Figures B1.2 to B1.4);
-  Sediment quality (Table D1.1); and
-  The BIC results including descriptive community-based metrics for each sample area, as well as the raw data and associate community metrics plots (Tables D2.1 and D2.2, Figures D2.1 to D2.3).

3.1.1 S-9

3.1.1.1 Fish Habitat

The S-9 sample reach is approximately 350 m upstream of Springpole Lake (Figure 3-1). The riparian vegetation consisted of dense grasses and sedges in flooded conditions, surrounded by alders, with

mixed poplar, pine and spruce further upland. The study reach is a flooded remnant channel with numerous impounded cells or ponds divided by beaver dams with a high abundance of large and small woody debris.

Water temperature measured during the summer and fall field programs were 20.7 and 10.4 °C, respectively (Table A1.1). The recorded July temperature, as well as fish species presence suggest the thermal guild classification for S-9 represents cool water fish habitat (Coker et al. 2001 and Hasnain et al. 2010).

The in-field DO measurements were 5.99 and 5.61 milligrams per litre (mg/L), and the in-field pH measurements were 6.19 and 7.12 during the summer and fall field programs, respectively (Table A1.1). The DO measurements met the PWQO (5 to 8 mg/L) concentration for the general protection of cold water biota, however, the concentrations were less than both the CWQG for the protection of cold water biota (6.5 mg/L) and for supporting early cold water life stages (9.5 mg/L). The summer pH measurement did not satisfy the PWQO (6.5 to 8.5) or CWQG (6.5 to 9.0), but the fall measurements did. In-field conductivity measurements at S-9 were generally less than the other surveyed stream sites and greater values were observed in the fall 123 microsiemens per centimeter (µS/cm) compared to the summer 61.5 µS/cm.

3.1.1.2 Fish Community

Six fish species were captured at site S-9 during the July and September field programs, including: Brook Stickleback (*Culaea inconstans*), Northern Pearl Dace (*Margariscus nachriei*), Finescale Dace (*Chrosomus neogaeus*), Northern Redbelly Dace (*Chrosomus eos*), Fathead Minnow (*Pimephales promelas*), and juvenile White Sucker (*Catostomus commersonii*). Backpack electrofishing equipment and baited minnow traps were used to sample the watercourse, and pools that compose the S-9 fish habitat site. Baited minnow traps were the most effective capture gear, collecting the majority of specimens in September. A total of 7 and 155 individuals were captured during the July and September 2019 field programs, respectively. Finescale Dace were the most abundant fish species captured, followed by Northern Redbelly Dace.

3.1.1.3 Fish Tissue

Two Finescale Dace composite samples and one Northern Redbelly Dace composite sample were submitted for contaminants in fish tissue analysis from S-9. The number of individuals per composite of Northern Redbelly Dace was 31, with the Finescale Dace composites including from 16 to 24 individuals (Table B1.1). The composite methylmercury (MeHg) concentrations ranged from 0.112 to 0.221 µg/g, which is greater than the Canadian Tissue Residue Guidelines for the Protection of Wildlife Consumers of Aquatic Biota (0.033 µg/g; CCME 2000).

3.1.1.4 Sediment Quality

Sediment samples collected at S-9 during the fall field investigation mostly consisted of fine grained substrate including fine sand and silt (35.25% and 37.49%, respectively), with some coarse sand (23.45%) and trace clay (Table D1.1). Nutrient and total metal parameters met some PSQG and CSQG concentrations with several values greater than the PSQG LEL, as well as concentrations greater than the PSQG SEL and/or CSQG PEL as noted below:

- Copper, manganese, nickel and phosphorus exceeded the PSQG LEL; and
- Total Kjeldahl nitrogen (TKN) and total organic carbon (TOC) exceeded the PSQG SEL guideline.

The sediment chemistry and particle size laboratory COAs are provided in Appendix D.

3.1.1.5 Benthic Invertebrate Community

The benthic community was sampled during the fall investigation, with samples collected in approximately 0.35 m total water depth. A total of 11 taxa groups were identified in the S-9 sample, with *Pisidium* (Bivalvia) being the most abundant, followed by *Helobdella stagnalis* (Leech). The S-9 sample reach is the closest Stream 9 sample area to Springpole Lake and represented a well-defined channelized section compared to the upstream sample locations. Total invertebrate density, number of individuals collected and taxa richness were higher at S-9 than the other two upstream sample locations (Figure 3; Table D2.1 and Figure D2.1 to D2.3).

3.1.2 S-9-US01

3.1.2.1 Fish Habitat

Site S-9-US01 is approximately 650 m upstream of S-9-US02 and one kilometre (km) upstream of S-9 (Figure 3-3). The riparian vegetation consisted of dense water-saturated grasses and sedges, surrounded by alders, with mixed poplar, pine and spruce. The general area is a densely vegetated beaver pond with numerous impounded cells.

Recorded water temperature during the July and September field programs were 20.1 and 12.4°C (Table A1.1). The summer temperature suggests the thermal guild classification for S-9-US01 represent cool water fish habitat (Coker et al. 2001 and Hasnain et al. 2010).

In-field DO measurements were 0.68 and 2.03 mg/L, and the in-field pH measurements were 6.13 and 6.82 during the July and Summer field programs (Table A1.1). Site S-9-US01 DO measurements did not meet the PWQO or CWQG for the general protection of cold water biota or the CWQG for supporting early cold water life stages. The summer pH measurement were less than the PWQO or CWQG ranges. In-field conductivity at S-9-US01 was greater in July (154 µS/cm) compared to September (85.7 µS/cm).

3.1.2.2 Fish Community

Fish community surveys during July and September 2019 field program at S-9-US01 did not catch any fish. Seine net hauls and backpack electrofishing were used to sample the waterbody. The low DO concentrations at this location does not likely support long-term fish presence and may not represent fish habitat.

3.1.2.3 Sediment Quality

Sediment samples collected at S-9-US01 during the fall field investigation mostly consisted of fine grained substrate including silt and fine sand (51.57% and 28.14%, respectively), with some coarse sand (13.03%) and clay (Table D1.1). Nutrient and total metal parameters met some PSQG and CSQG concentrations with several values greater than the PSQG LEL, as well as concentrations greater than the PSQG SEL as noted below:

-  Copper and phosphorus exceeded the PSQG LEL; and
-  TKN and TOC exceeded the PSQG SEL guidelines.

The sediment chemistry and particle size laboratory COAs are provided in Appendix D.

3.1.2.4 Benthic Invertebrate Community

The benthic community was sampled during the fall investigation, with samples collected in approximately 0.70 m total water depth. One taxa group was identified in the S-9-US01 sample (*Pisidium*; Bivalvia). The S-9-US01 sample reach is the furthest upstream Stream 9 sample area from Springpole Lake, with taxonomic results showing the lowest total invertebrate density, number of individuals collected and taxa richness than the other two Stream 9 sample locations (Figure 3-3; Table D2.1 and Figure D2.1 to D2.3).

3.1.3 S-9-US02

3.1.3.1 Fish Habitat

Site S-9-US02 is approximately 380 m upstream of S-9 (Figure 3-3). The riparian vegetation consisted of a dominant coniferous forest and the watercourse was characterized by a series of wide and deep (non-wadeable) beaver ponds. The watercourse becomes a well-defined channel upstream of S-9-US02, as the floodplain is smaller.

Water temperatures measured during the summer and fall field programs were 19.6 and 12.1°C (Table A1.1). The recorded July temperature, as well as fish species presence, suggest the thermal guild classification for S-9-US02 represents cool water fish habitat (Coker et al. 2001 and Hasnain et al. 2010).

The in-field DO measurements were 3.45 and 8.78 mg/L, and the in-field pH measurements were 5.83 and 7.4 during the summer and fall field programs, respectively (Table A1.1). The DO measurement taken during the summer did not meet the PWQO and CWQG for the general protection of cold water biota or the CWQG for supporting early cold water life stages. However, the DO measurement taken during the fall program in S-9-US02 was within the acceptable range for both the CWQG for the general protection of cold water biota and supporting early cold water life stages. The July pH measurement did not satisfy the PWQO or CWQG. In-field conductivity measurements in S-9-US02 were generally less than all other stream sites and were greater in September (125 µS/cm) than July (16.3 µS/cm).

3.1.3.2 Fish Community

Five fish species were captured within S-9-US02 during the July and September 2019 field program, including: Brook Stickleback, Northern Pearl Dace, Northern Redbelly Dace, Finescale Dace, and Fathead Minnow (Table A1.4). Baited minnow traps were used to sample the waterbody, with a total of 181 individuals captured during the July and September 2019 field programs, respectively. Northern Pearl Dace were the most abundant fish species captured, followed by Northern Redbelly Dace.

3.1.3.3 Fish Tissue

Northern Pearl Dace comprised of four composite samples and Northern Redbelly Dace consisted of one composite at site S-9-US02. The number of individuals per composite of Finescale Dace ranged from 5 to 11 individuals.

Four Northern Pearl Dace composite samples and one Northern Redbelly Dace composite sample were submitted for contaminants in fish tissue analysis from S-9-US02. The number of individuals per composite of Northern Redbelly Dace was 37, with the Finescale Dace composites including from 5 to 11 individuals (Table B1.2). The composite MeHg concentrations ranged from 0.099 to 0.267 µg/g, which is greater than the Canadian Tissue Residue Guidelines for the Protection of Wildlife Consumers of Aquatic Biota (0.033 µg/g; CCME 2000).

1.1.1.1 Sediment Quality

Sediment samples collected at S-9-US02 during the fall field investigation mostly consisted of fine-grained substrate including coarse and fine sand (30.73% and 37.98%, respectively), with some silt (28.76%) and trace of clay (Table D1.1). Nutrient and total metal parameters met some PSQG and CSQG concentrations with TKN and TOC values greater than the PSQG SEL. The sediment chemistry and particle size laboratory COAs are provided in Appendix D.

3.1.3.4 Benthic Invertebrate Community

The benthic community was sampled during the fall investigation, with samples collected in approximately 0.60 m total water depth. Six taxa group were identified in the S-9-US02 sample with *Micropsectra* (Chironominae) as the most abundant, followed by *Chironomus* (Chironominae). The S-9-US02 sample reach is the only non-wadeable sample area within Stream with taxonomic results showing moderate total invertebrate density, number of individuals collected and taxa richness compared to the other two Stream 9 sample locations (Figure 3-3; Table D2.1 and Figure D2.1 to D2.3).

3.1.4 L-2-OUT

3.1.4.1 Fish Habitat

Site L-2-OUT is approximately 1 km east of the Project exploration camp where a culvert has been installed to support the access trail (Figure 3-2). The riparian wetland habitat downstream of the culvert consists of saturated grasses and sedges, with densely submerged and semi-submerged herbaceous plants. The channel is densely vegetated downstream of the culvert until its confluence with Springpole Lake. The watercourse is poorly defined approximately 5 m upstream of the culvert, as it travels through saturated alders and shrubs. Approximately 40 m further upstream from the culvert, Waterbody 2 drains into L-2-OUT where cattails, sedges, and grasses are abundant with riparian vegetation consisting mostly of alders, black spruce, and poplar trees.

Water temperatures measured during the summer and fall field programs were 21.4 and 9.57°C, respectively (Table A1.1). The recorded July temperature, as well as fish species presence, suggest the thermal guild classification for L-2-OUT represents cool water fish habitat (Coker et al. 2001 and Hasnain et al. 2010).

In-field DO measurements were 8.58 and 7.59 mg/L, and in-field pH measurements were 6.53 and 7.16 during the July and September 2019 field programs, respectively (Table A1.1). The DO measurements taken during the July and September field programs at L-2-OUT met the PWQO and CWQG concentrations for the general protection of cold water biota and the CWQG for supporting early cold water life. July and September pH measurements met the PWQO and CWQG. In-field conductivity measurements in L-2-OUT were lower in the summer (64.5 µS/cm) than in the fall (45 to 172 µS/cm; Table A1.1).

3.1.4.2 Fish Community

Eleven fish species were captured at L-2-OUT during the July and September 2019 field programs, including: Yellow Perch (*Perca flavescens*), Pearl Dace, White Sucker, Northern Pike (*Esox lucius*), Walleye (*Sander vitreus*), Shorthead Redhorse (*Moxostoma macrolepidotum*), Spottail Shiner (*Notropis hudsonius*), Blacknose Shiner (*Notropis heterolepis*), Golden Shiner (*Notemigonus crysoleucas*), Emerald Shiner (*Notropis atherinoides*), as well as early life stage sucker species (*Catostomus spp.*) that were likely young-

of-the-year (YOY) White Sucker. Baited minnow traps, fyke nets, gill and RIN nets were used to sample L-2-OUT, with most of the fish caught by baited minnow traps and fyke nets. A total of 124 individuals were captured during the July and September 2019 field programs. Yellow Perch were the most abundant fish species captured, followed by Golden Shiner.

3.1.4.3 ☐ Fish Tissue

Fish tissue samples were collected within other areas of Springpole Lake, as such, a non-lethal fish community sampling program was conducted at L-2-OUT. No fish tissue samples were collected.

3.1.4.4 ☐ Sediment Quality

Sediment samples were collected at L-2-OUT during the fall field investigation mostly consisted of fine grained substrate including silt and fine sand (45.49% and 31.30%, respectively), with some coarse sand and clay (12.85% and 10.36%, respectively; Table D1.1). Nutrient and total metal parameters met some PSQG and CSQG values with values greater than the PSQG LEL, as well as concentrations greater than the PSQG SEL and/or CSQG PEL as noted below:

- ☐ TOC, copper, and phosphorus exceeded the PSQG LEL; and
- ☐ TKN exceeded the PSQG SEL guidelines.

The sediment chemistry and particle size laboratory COAs are provided in Appendix D.

3.1.4.5 ☐ Benthic Invertebrate Community

The benthic community was sampled during the fall investigation, with samples collected in approximately 0.30 m total water depth. The L-2-OUT sample contained 19 taxa groups, the greatest richness of all sampled locations during the fall 2019 study with *Amnicola limosa* (Gastropoda) being the most abundant invertebrate, followed by *Pisidium* (Bivalvia). The taxonomic results showed the second highest total invertebrate density, number of individuals collected and greatest taxa richness (Table D2.1 and Figure D2.1 to D2.3).

3.1.5 ☐ L-5-OUT

3.1.5.1 ☐ Fish Habitat

Site L-5-OUT is approximately 280 m upstream of Springpole Lake, with the first 200 m of habitat consisting of a channelized watercourse and the upstream 80 m of assessed reach consisting of a series of beaver ponds (Figure 3-2). The L-5 outlet stream is less than 0.5 m wide with a dense canopy cover consisting of a mature deciduous/coniferous forest. The watercourse supports a series of riffles and pools with submerged and partially submerged coarse woody debris crossing the stream. The upstream reaches include an active beaver pond, characterized by open water with a shoreline composed of standing dead conifers, and living shrubs including alders and red-osier dogwood.

Water temperatures measured during the summer and fall field programs were 16.9 and 11.1°C (Table A1.1). The recorded July temperature, as well as fish species presence, suggest the thermal guild classification of L-5-OUT represents cold/cool water fish habitat (Coker et al. 2001 and Hasnain et al. 2010).

In-field DO measurements were 8.6 and 7.6 mg/L, and the in-field pH measurements were 6.53 and 7.16 during the summer and fall field programs (Table A1.1). The DO measurements taken during the July and September field programs in L-5-OUT met the PWQO and CWQG concentrations for the general protection of cold water biota. The pH measurements were within the acceptable ranges for the PWQO and CWQG. In-field conductivity measurements in L-5-OUT were reported at concentrations of 53.7 µS/cm.

3.1.5.2 ☐ Fish Community

Six fish species were captured within L-5-OUT during the July and September 2019 field program, including: Brook Stickleback, Fathead Minnow, Pearl Dace, Finescale Dace, Redbelly Dace, and Iowa Darter (*Etheostoma exile*). Baited minnow traps and backpack electrofishing were used to sample the L-05-OUT watercourse, with most of the fish caught by baited minnow traps. A total of 125 individuals were captured during the 2019 field programs. Finescale Dace was the most abundant fish species captured, followed by Brook Stickleback.

3.1.5.3 ☐ Fish Tissue

Three Finescale Dace composite samples were submitted for contaminants in fish tissue analysis from L-5-OUT. The number of individuals per composite ranged from 13 to 20 individuals (Table B1.3). The composite MeHg concentrations ranged from 0.176 to 0.264 µg/g, which is greater than the Canadian Tissue Residue Guidelines for the Protection of Wildlife Consumers of Aquatic Biota (0.033 µg/g; CCME 2000).

3.1.5.4 ☐ Sediment Quality

Sediment samples collected at L-5-OUT during the fall field investigation mostly consisted of fine grained substrate including silt and fine sand (37.65% and 31.00%, respectively), with some coarse sand (22.55%) and presence of clay (8.80%; Table D1.1). Nutrient and total metal parameters met some PSQG and CSQG concentrations with several values greater than the PSQG LEL, as well as concentrations greater than the PSQG SEL and/or CSQG PEL as noted below:

- ☐ Chromium, copper, manganese, and phosphorus, exceeded the PSQG LEL; and
- ☐ TKN and TOC exceeded the PSQG SEL guidelines.

The sediment chemistry and particle size laboratory COAs are provided in Appendix D.

3.1.5.5 ☐ Benthic Invertebrate Community

The benthic community was sampled during the fall investigation, with samples collected in approximately 1 m total water depth. A total of five taxa groups were identified in the L-5-OUT sample, with *Procladius* (Chironomids) and *Chironomus* (Chironomids) *Pisidium* (Bivalvia) being the most abundant. Total invertebrate density, number of individuals collected and taxa richness were generally lower than most other 2019 sample locations (Table D2.1 and Figure D2.1 to D2.3).

3.1.6 ☐ L-6-OUT

3.1.6.1 ☐ Fish Habitat

The L-6-OUT sample reach is approximately 180 m upstream from L-16-IN, and was only visited during the fall 2019 field study (Figure 3-2). The riparian vegetation consisted primarily of grasses, Black Spruce,

and early successional growth of deciduous species. The upstream riparian habitat is a low-lying saturated area, with an undefined flow path that ultimately channelizes where the L-16-IN sampling occurred. These fragmented conditions suggest the flow path between L-6 and L-16 does not provide fish habitat.

Water temperature measured during the September field program was 8.68°C (Table A1.1). The in-field DO measurement was 7.04 mg/L, and the in-field pH measurement was 7.35 (Table A1.1). The DO measurement met the PWQO and CWQG concentrations for the general protection of cold water biota but did not satisfy the CWQG requirements for supporting early cold water life stages 9.5 mg/L. The pH measurement at L-6-OUT met the PWQO and CWQG. In-field conductivity was 143 µS/cm.

3.1.6.2 Fish Community

The L-6-OUT drainage area included dense riparian vegetation that precluded the use of active sampling gear such as seine netting or electrofishing, while the shallow water depth did not allow use of baited minnow traps. Consequently, fishing effort at L-6-OUT was not possible.

3.1.6.3 Sediment Quality

Sediment samples collected at L-06-OUT during the fall 2019 field investigation mostly consisted of fine grained substrate including fine and coarse sand (39.48% and 30.77%, respectively), with some silt (22.93%) and clay (6.82%; Table D1.1). Nutrient and total metal parameters met most PSQG and CSQG concentrations with several values greater than the PSQG LEL as noted below:

- TKN, TOC, iron, manganese, and phosphorus exceeded the PSQG LEL.

The sediment chemistry and particle size laboratory COAs are provided in Appendix D.

3.1.6.4 Benthic Invertebrate Community

The benthic community was sampled during the fall 2019 field investigation, with samples collected in approximately 0.20 m total water depth. A total of 5 taxa groups were identified in the S-9 sample, with *Enchytraeidae* (Oligochaete) being the most abundant followed by *Psidium* (Bivalvia). Moderate total invertebrate density, number of individuals collected and taxa richness were detected compared to other 2019 sample locations (Table D2.1 and Figure D2.1 to D2.3).

3.1.7 L-16-IN

3.1.7.1 Fish Habitat

The L-16-IN sample reach is narrow, less than 0.5 m wide, consisting of a series of shallow riffles and pools with overlaying woody debris (Figure 3-2). The outflow of L-16-IN disperses into a series of shallow pools, characterized by abundant woody debris and semi-submerged grasses.

Water temperatures measured during the July and September field programs were 10.9 and 8.16°C, respectively (Table A1.1). The July temperature suggest the thermal guild classification for L-16-IN represents cold water fish habitat (Coker et al. 2001 and Hasnain et al. 2010).

In-field DO measurements were 3.86 and 6.76 mg/L, and the in-field pH measurement was 5.97 and 7.24 during the July and September 2019 field program, respectively (Table A1.1). DO measurement during the fall 2019 field program met the PWQO and the CWQG concentrations for the general protection of cold water biota. However, both July and September 2019 DO measurements did not satisfy the CWQG

requirements for early cold water life stages. Only the pH measurement from the fall 2019 field program met the PWQO and CWQG. In-field conductivity was 57.7 and 143.0 $\mu\text{S}/\text{cm}$ in July and September, respectively.

3.1.7.2 Fish Community

Baited minnow traps, seine netting and backpack electrofishing equipment were used to sample the watercourse of L-16-IN; however, no fish species were captured.

3.1.7.3 Sediment Quality

Sediment samples collected at L-16-IN during the fall field investigation mostly consisted of fine grained substrate including silt and fine sand (41.65% and 30.97%, respectively), with some coarse sand (17.91%) and clay (9.47%; Table D1.1). Nutrient and total metal parameters met some PSQG and CSQG concentrations with several values greater than the PSQG LEL, as well as concentrations greater than the PSQG SEL as noted below:

-  Arsenic, chromium, iron, nickel, and phosphorus exceeded the PSQG LEL; and.
-  Manganese, TKN, and TOC exceeded the PSQG SEL guidelines.

The sediment chemistry and particle size laboratory COAs are provided in Appendix D.

3.1.7.4 Benthic Invertebrate Community

The benthic community was sampled during the fall investigation, with samples collected in approximately 0.25, 0.30, and 0.40 m total water depths. A total of four taxa groups were identified in the L-16-OUT sample, *Pisidium* (Bivalvia) being the most abundant, followed by *Micropsectra* (Chironomids). Total invertebrate density, number of individuals collected and taxa richness were moderate compared to the other 2019 sample locations (Table D2.1 and Figure D2.1 to D2.3).

3.2 Potential Access Road Crossings

3.2.1 UNX01

3.2.1.1 Fish Habitat

Site UNX01 is approximately 270 m upstream of Springpole Lake (Figure 2-1). Suitable fish habitat and a permanent watercourse/waterbody were not present. This location consists of a new growth forest dominated by deciduous trees with small, isolated pools of standing (stagnant) water, likely subject to dewatering during periods of low precipitation.

3.2.2 UNX03

3.2.2.1 Fish Habitat

Site UNX03 is approximately 837 m upgradient from Springpole Lake (Figure 2-1). This sample location consisted primarily of a wetland with mosses, lichens, woody shrubs and Black Spruce. Isolated pools of standing water were present with dense overstory vegetation. These pools are likely susceptible to dewatering during periods of low precipitation and are not considered fish habitat; however, it is possible this area provides breeding and rearing habitat for amphibians during the spring and early summer.

The unstable ground conditions characterized by mounding grasses and shrubs surrounding the pools precluded the use of backpack electrofishing and shallow total depths did not allow use of baited minnow traps. Consequently, fish collections were not conducted; however, it is unlikely these isolated pools provide fish habitat.

3.2.3 UNX07

3.2.3.1 Fish Habitat

Sample location UNX07 is located approximately 19 km southeast of the Project exploration camp, with the watercourse flowing into an embayment of Springpole Lake approximately 70 m downstream of the proposed crossing. The embayment is relatively shallow with semi-submerged boulders and emergent vegetation (reeds). UNX07 consists of an abandoned beaver pond that has transitioned into a wetland with a channelized stream surrounded by saturated grasses. The watercourse widens into segmented pools due to the construction of several beaver dams approximately 112 m upstream of the proposed crossing. The riparian vegetation surrounding the pools consists primarily of young poplar and other deciduous trees. Measured bankfull width ranged from 0.47 to 0.75 m, and a wetted depth ranging from 0.05 to 0.25 m.

Water temperatures measured during the July field program were measured at the confluence of UNX07 and Springpole Lake, as well as 70 and 112 m upstream of the lake, which were 20.7°C, 11.7°C, and 12.2°C, respectively (Table A1.1). The July temperature suggests the thermal guild classification represents cold/cool fish habitat, and the UNX07 stream-lake confluence represents cool fish habitat (Coker et al. 2001 and Hasnain et al. 2010).

In-field DO measurements were reported from the confluence of UNX07 and Springpole Lake, as well as approximately 70 and 112 meters upstream were 8.44, 8.75, and 8.1 mg/L, respectively (Table A1.1). In-field pH measurement were measured at 6.81, 4.56, and 4.81 at the above locations (Table A1.1). The DO July measurements met the PWQO and the CWQG for the general protection of cold water biota. Measured pH from July 2019 did not satisfy the PWQO and CWQG (Table A1.1). Conductivity measurements were 52.4, 23.4, and 23.4 µS/cm at the above noted locations. (Table A1.1).

3.2.3.2 Fish Community

Six fish species were captured within UNX07 during the July and September 2019 field programs, including: Brook Stickleback, Mottled Sculpin (*Cottus bairdii*), Yellow Perch, Shorthead Redhorse, and Northern Pike. Baited minnow traps, gill nets, and RIN nets were used, with most of the fish caught by RIN nets. A total of 29 individuals were captured during 2019 field program. Yellow Perch were the most abundant fish species captured, followed by Northern Pike.

3.2.4 BR-KM22 (Birch River)

3.2.4.1 Fish Habitat

Sample reach BR-KM22 is located approximately 17 km southeast of the project exploration camp where Springpole Lake outflows into Birch River (Figure 2-1). The BR-KM22 area experienced recent forest fires, where riparian vegetation primary consists of early succession growth including poplar, pine, and grasses. The landscape is characterized by burned/fallen trees, exposed bedrock, and a lack of canopy surrounding the shoreline. Fast-flowing water with large boulders characterize the rapids where Springpole Lake outflows into the Birch River. The riverine habitat transitions to a series of bays downstream from these rapids, with less evidence of recent forest fires impacting the shoreline. The steep shoreline, high water

velocity and field staff safety concerns at BR-KM22 prevented measurement bankfull width and wetted depth.

Water temperature measured during the July field program was 21°C (Table A1.1). This temperature suggests the thermal guild classification for BR-KM22 represents cool fish habitat (Coker et al. 2001 and Hasnain et al. 2010).

The in-field DO measurement was 8.44 mg/L, and the in-field pH measurement was 6.71 during the July 2019 field program (Table A1.1). The DO measurement met the CWQG for the general protection of cold water biota. However, the measured DO did not meet the CWQG requirements for early cold water life stages. The recorded pH met the PWQO and CWQG. In-field conductivity was 53.7 µS/cm.

3.2.4.2 Fish Community

Six fish species were captured within BR-KM22 during the 2019 June field program, including: Walleye, Northern Pike, Rock Bass (*Ambloplites rupestris*), Yellow Perch, Iowa Darter, and Longnose Dace (*Rhinichthys cataracte*). Baited minnow traps, gill nets, RIN nets and angling were used to sample BR-KM22, with most of the fish caught within baited minnow traps. A total of 47 individuals were captured. Walleye were the most abundant fish species captured, followed by Longnose Dace.

3.2.5 L-2-OUT

The L-2-OUT potential access road crossing was assessed as part of the inland aquatic habitat studies, with results provided in Section 3.2.4.

3.3 Springpole Lake

3.3.1 Fish Community

Springpole Lake was sampled from 10 to 16 September 2019 using baited minnow traps, angling and seine netting. A total of 562 individuals of fish were collected, represented by nine species with Yellow Perch as the most abundant (Appendix B). Other fish species included Northern Pike, White Sucker (*Catostomus commersonii*), Emerald Shiner (*Notropis atherinoides*), Iowa Darter (*Etheostoma exile*), Johnny Darter (*Etheostoma nigrum*), Rock Bass, Spottail Shiner (*Notropis hudsonius*), and YOY cyprinid species that were too small for species identification in the field.

3.3.2 Yellow Perch

Nine composite samples of Yellow Perch YOY were submitted for contaminants in fish tissue analysis from the 2019 Springpole Lake surveys. The number of individuals per composite sample ranged from 42 to 60 (Table B1.4). The composite MeHg concentrations ranged from 0.061 to 0.109 µg/g, which is greater than the Canadian Tissue Residue Guidelines for the Protection of Wildlife Consumers of Aquatic Biota (0.033 µg/g; CCME 2000).

3.3.3 Northern Pike

A total of 20 Northern Pike skinless, boneless, epaxial dorsal muscle tissue samples were submitted for contaminants analysis from the 2019 Springpole Lake surveys. The Northern Pike total lengths ranged from 501 to 682 mm, with total fresh weights ranging from 320 to 1,800 g. Stomach contents from Northern Pike sacrificed during the 2019 field studies contained an array of prey including an Eastern Garter Snake (*Thamnophis sitalis*), crayfish species, Burbot (*Lota lota*), Yellow Perch and Brook Stickleback.

The south west region of Springpole Lake is directly connected to Birch Lake (via the Birch River), meaning surface water flows from Birch Lake to the lower basin of Springpole Lake and the fish populations between these lakes likely travel between basins. Radio telemetry tracking of Walleye documented most of the tagged fish left Springpole Lake, moving upstream toward Birch Lake in spring (FMG and C. Portt 2018). The seasonal timing of these movements align with Walleye spawning periods and aerial imagery suggests suitable spawning habitat (fast flowing riffles and narrows) are present within the Birch River between Birch and Springpole lakes.

The MECP have defined consumption advisories for Northern Pike, Walleye and Lake Trout (MECP 2020) for Birch Lake that can apply to Springpole Lake. The general population consumption advisories for Northern Pike specify a maximum of 12 meals per month for fish 450-500 mm total length and 8 meals per month for fish greater than 500 mm. This advisory generally aligns with the 2019 Northern Pike total mercury in tissue results that ranged from 0.39 to 3.83 µg/g for fish sizes 501 to 682 mm.

Northern Pike total mercury in fish tissue data collected in 2019 by Story Environmental Inc. (SEI 2019) has been incorporated into the comparison of tissue results to consumption guidelines (Figure B1.2). Additionally, total mercury in Walleye data (FMG and C. Portt 2018) were compared to Northern Pike (Figures B1.3 and B1.4). The total mercury in tissue results show greater concentrations in Northern Pike, with variable concentrations in small and large fish, whereas Walleye total mercury concentrations are generally less than the Northern Pike. Figures B1.3 and B1.4 shows this comparison and steeper regression line associated with mercury concentration in Northern Pike compared to Walleye, as well as the variance in Northern Pike mercury concentrations compared to Walleye. In fact, the total mercury at age plot shows a well defined increase in concentration at age for Walleye; however, the limited age range of sampled Northern Pike shows a range of concentrations for the same age fish (Figure B1.4).

The total methylmercury concentrations ranged from 0.33 to 4.47 µg/g, which is greater than the CMME guideline (0.033 µg/g) for the Protection of Wildlife Consumer of Aquatic Biota. Most of these samples were also greater than Ontario's Ministry of Environment, Conservation and Parks total mercury concentration consumption advisory for the general human population (0.5 µg/g; Figure B1.2).

3.4 □ Springpole Lake Candidate Outfall Location

3.4.1 □ Fish Habitat

The Springpole Lake candidate outfall location habitat assessments were completed primarily within the nearshore littoral areas and within total water depths that allowed visual inspection to bottom in greater than 2 m total water depth. The nearshore habitat consisted of windswept shoreline with bedrock outcrops and inlets dominated by boulders, cobble, and coarse-grained substrate. The field staff documented alevin stage and YOY fish species within the nearshore bedrock outcrops and inlets, suggesting these habitats support rearing and forage habitat for various species.

3.4.2 □ Fish Community

Summer Springpole Lake sampling occurred from 24 to 27 July 2020 using baited minnow traps, gill nets, and backpack electrofishing. Nine fish species were captured during the summer field program, including: Yellow Perch, Spottail Shiner, Mimic Shiner (*Notropis volucellus*), Mottled Sculpin, Bluntnose Minnow (*Pimephales notatus*), White Sucker, Walleye, Northern Pike, and Common Shiner (*Luxilus cornutus*). Small mesh gill net equipment caught the highest diversity of fish species during the July 2020 field program. Dip netting equipment yielded the highest catch per unit effort; however, the catch was primarily alevin

and YOY individuals from nearshore habitat among the boulder substrate. Overall, Yellow Perch were the most abundant fish species captured, followed by Spottail Shiner and Bluntnose Minnow.

Fall Springpole Lake sampling occurred from 10 to 14 September using baited minnow traps, angling and gill nets. Nine fish species were captured within the fall Springpole Lake outfall field program, including: Yellow Perch, Northern Pike, Bluntnose Minnow, and Rock Bass. Baited minnow trap equipment was the most effective capture gear, collecting the highest fish diversity in the Fall field program. Small mesh gill net equipment was the most effective capture gear, collecting the highest catch. Yellow Perch were the most abundant fish species captured, followed by Northern Pike.

A total of 413 individuals were collected within the candidate outfall location sample areas during the 2020 sampling periods, represented by ten fish species. Yellow Perch were the most abundant species caught (Appendix B).

3.4.3 Sediment Quality

Sediment samples collected at the nearshore sample sites (L-15-S series) and offshore sample sites (L-15-D series) consisted mostly of fine-grained substrate. Grain size analysis was not performed on the 2019 sediment samples, but the 2020 sediment sample grain size results are included in Appendix D. Nutrient and total metal concentrations met some PSQG and CSQG concentrations. There were several values greater than the PSQG LEL, as well as concentrations greater than the PSQG SEL and/or CSQG PEL as noted below:

-  Arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel, and phosphorus exceeded the PSQG LEL; with some sites exceeding the PSQG SEL guidelines. Arsenic concentrations in sediments within the SPL-series exceeded the CSQG PEL guideline
-  TKN and TOC exceeded the PSQG SEL guidelines.

Noticeable differences between arsenic, iron, manganese, and phosphorus were observed with greater sediment concentrations at the L-15-S series (nearshore) compared to that of L-15-D series (mid-basin). The sediment chemistry and particle size laboratory COAs are provided in Appendix D.

The 2020 L-15-S series (nearshore) laboratory particle size distribution shows these substrates are mostly composed of coarse sand (24% to 49%), as well as fine sand (18% to 38%) and silt (20% to 36%), with a lesser proportion of and clay (3% to 11%). The 2020 L-15-D series (midbasin) laboratory particle size distribution shows these substrates are mostly composed of coarse sand (44% to 51%), as well as silt (19% to 29%), with lesser proportions of fine sand (11% to 19%) and clay (11% to 15%). Gravel and pebble / cobble were not present within any sediment samples from either the nearshore or mid-basin sample areas.

3.4.4 Benthic Invertebrate Community

The benthic community was sampled during the 2020 fall investigation, with nearshore samples (L-15-S series) collected in approximately 16 m total water depth and offshore samples (L-15-D series) collected in approximately 26 m total water depth. A total of seven taxa groups were identified in the Springpole Lake nearshore and offshore samples, including one phylum (*Nemata*), one class (*Ostracoda*) and five families (*Naididae*, *Pontoporeiidae*, *Chaoboridae*, *Chironomidae* and *Sphaeriidae*).

A total of seven groups were identified in the Springpole Lake nearshore samples with *Pontoporeiidae* (water scud) being the most abundant, followed by *Ostracoda* (seed shrimp) and *Sphaeriidae* (bivalve

clams). Mean TID was 133 (93 to 161) and mean taxa richness was six (five to seven). Mean Simpson's Diversity was 0.57 (0.46 to 0.61) and mean evenness was 0.39 (0.37 to 0.43). EPT were not present within the Springpole Lake nearshore samples, and chironomids composed an average of 1.45% (0.00 to 2.70%).

A total of seven taxa groups were identified in the Springpole Lake offshore samples with *Chironomidae* (non-biting midges) being the most abundant, followed by *Naididae* (earthworms) and *Pontoporeiidae* (water scud). Mean TID was 27 (six to 67) and mean richness was four (one to seven). Mean Simpson's Diversity was 0.54 (zero to 0.81) and mean evenness was 0.82 (0.70 to 1.00). EPT were not present within the Springpole Lake offshore samples, and chironomids composed an average of 48.65% (22 to 100%).

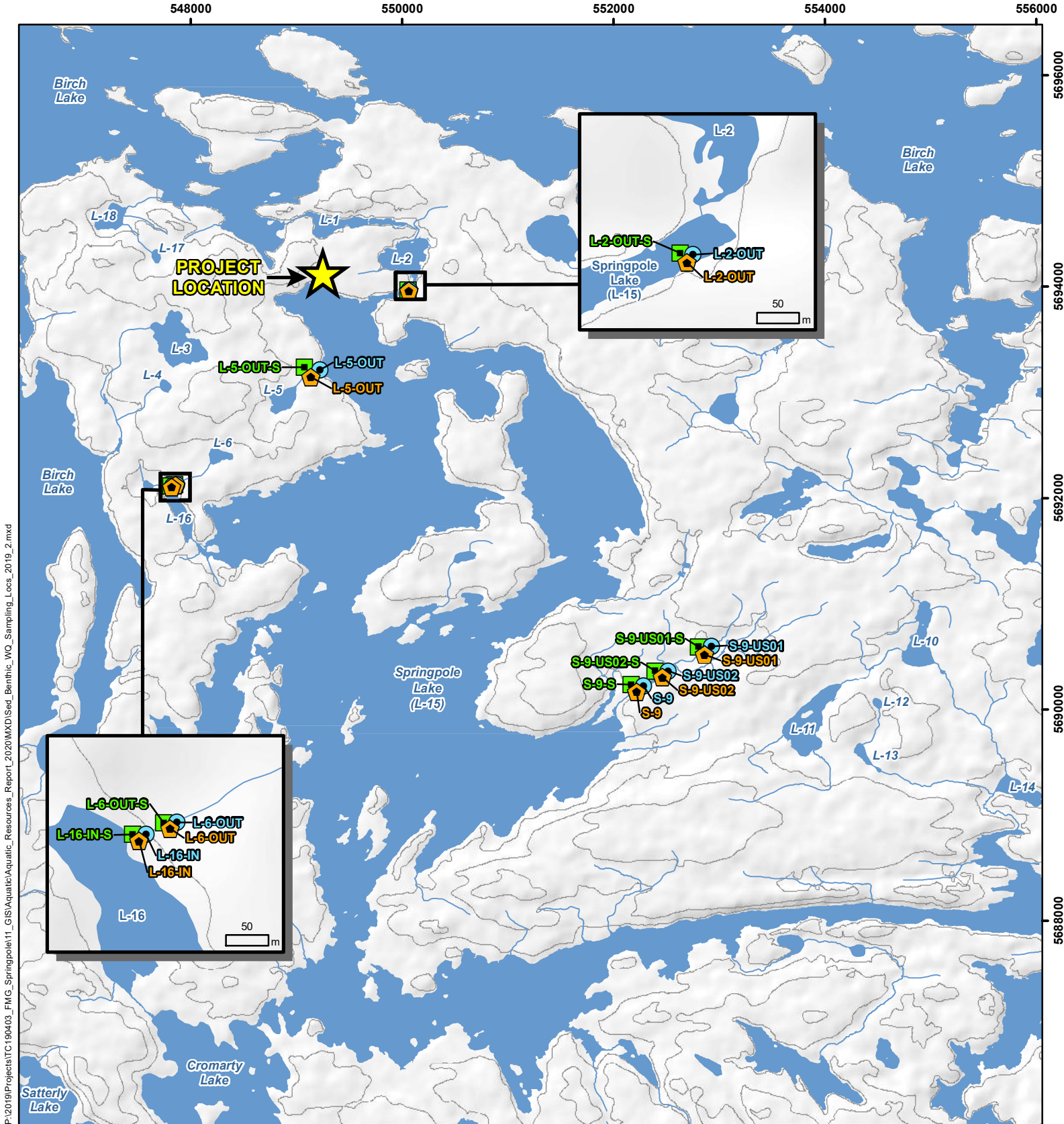
3.5 Springpole Lake Southeast Basin

3.5.1 Sediment Quality

Five sediment samples were collected in the Springpole Lake southeast basin in late August 2019 (SEI). Total organic carbon and total metal concentrations met all PSQG and CSQG concentrations. All total organic carbon and metal concentrations were greatest at SPR-EXP-5, with the exception of phosphorus, which was highest at SPR-EXP-1. The laboratory particle size distribution shows these substrates are mostly composed of fine sand (74% to 80%), as well as fines (6% to 23%), with lesser proportions of medium sand (3% to 14%). Gravel and cobble were not present within any sediment samples from the Springpole Lake Southeast basin. The sediment chemistry and particle size laboratory COAs are provided in Appendix D.

3.5.2 Benthic Invertebrate Community

The benthic community was sampled concurrently with the sediment during the 2019 late August investigation. A total of 32 taxa groups were identified in the Springpole Lake Southeast basin samples with *Chironomidae* (non-biting midges) being the most abundant, followed by *Ephemeraeidae* (Mayfly) and *Planorbidae* (snails). Mean TID was 7,583 (5,638 to 9,609) and mean taxa richness was 21 (18 to 26). The mean Simpson's Diversity was 0.79 (0.75 to 0.84) and mean evenness was 0.20.15 to 0.30), indicating a relatively diverse benthic invertebrate community. The average community proportion of EPT was 22% (13% to 31%) and chironomids composed an average of 38% (28% to 48%).



P:\2019\Projects\TC190403_FMG_Springpole11_GIS\Aquatic\Aquatic_Resources_Report_2020\MMXD\Sed_Benthic_WQ_Sampling_Locs_2019_2.mxd

LEGEND

- ★ Project Location
- Contour (10 m intervals)
- Sampling Locations**
 - 📍 Benthic
 - 🟩 Sediment
 - 🟦 Water (in-situ)

NOTES:

- Topographic information extracted from LIO, MNR.
- Proposed access/haul road and powerline provided by First Mining Gold.



SPRINGPOLE GOLD PROJECT

2019 Sediment Quality, Benthic Invertebrate and Water Quality Sample Locations

Datum: NAD83
Projection: UTM Zone 15N



PROJECT N°: TC190403

FIGURE: 3-1

SCALE: 1:48,000

DATE: March 2021

0 0.25 0.5 1 1.5 2 Kilometres



LEGEND

Fisheries Gear Type

- Angling
- Gillnet
- Fyke Net
- Minnow Fyke Net
- Minnow Trap
- Seine Net

Sampling Season

- Fall
- Summer
- Summer - Electrofishing

MAP OVERVIEW

NOTES:

- Aerial imagery provided by First Mining Gold, August 2020.

Datum: NAD83
Projection: UTM Zone 15N

FIRST MINING GOLD

wood.

SPRINGPOLE GOLD PROJECT

**2019 Fisheries Sample Locations
Springpole Lake and S-9**

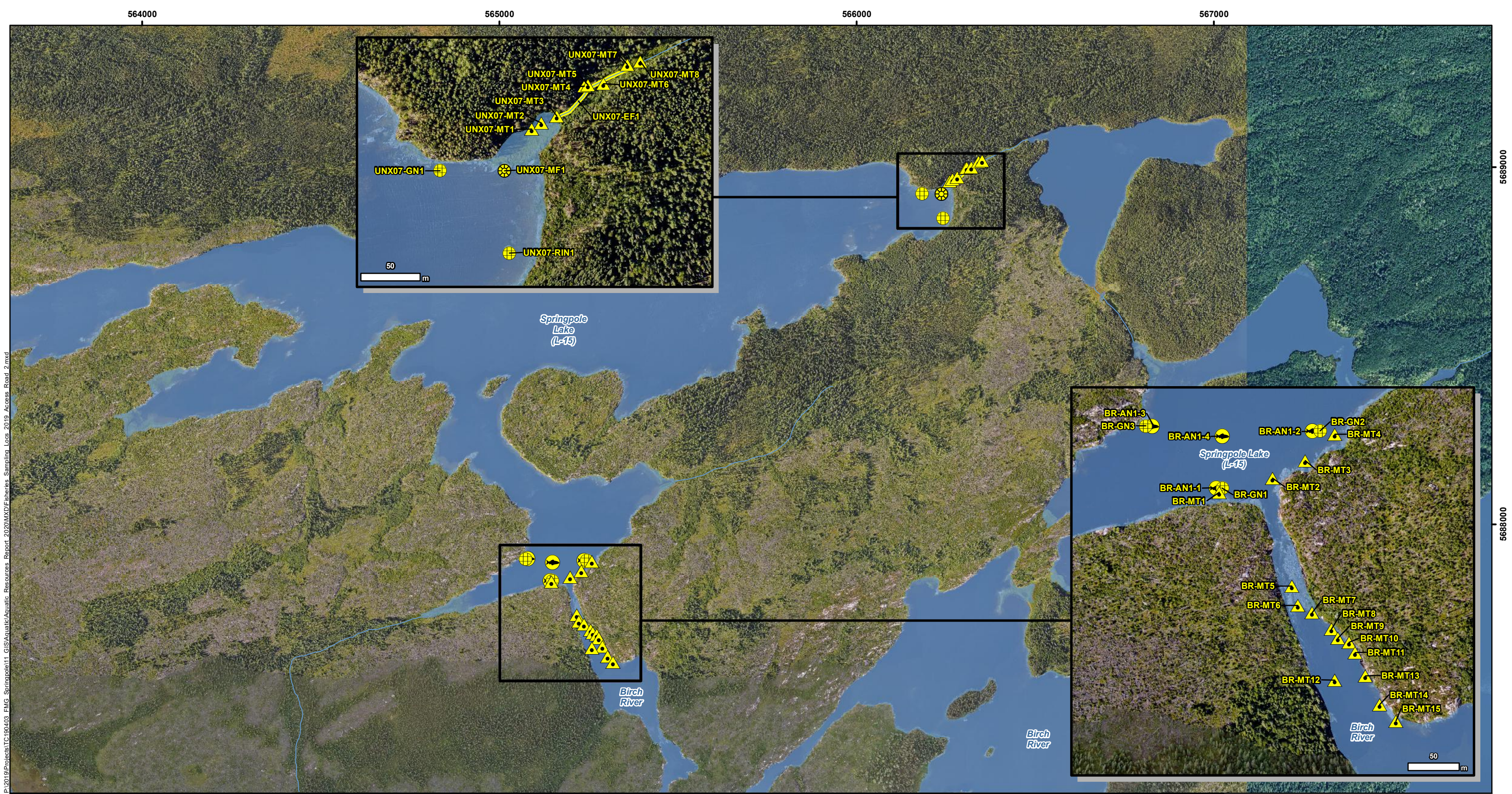
PROJECT N°: TC190403

SCALE: 1:18,000

FIGURE: 3-3

DATE: March 2021

P:\2019\Projects\TC190403_FMG_Springpole11_GIS\Aquatic\Aquatic Resources Report_2020\MXD\Fisheries Sampling Locations_Site_S_2.mxd



LEGEND

Fisheries Gear Type

- Angling
- Gillnet
- Fyke Net
- Minnow Fyke Net
- Minnow Trap
- Seine Net

Sampling Season

- Fall
- Summer
- Summer - Electrofishing

MAP OVERVIEW

NOTES:

- Aerial imagery provided by First Mining Gold, August 2020 and from AgMaps, OMAFRA.

Datum: NAD83
Projection: UTM Zone 15N

SPRINGPOLE GOLD PROJECT

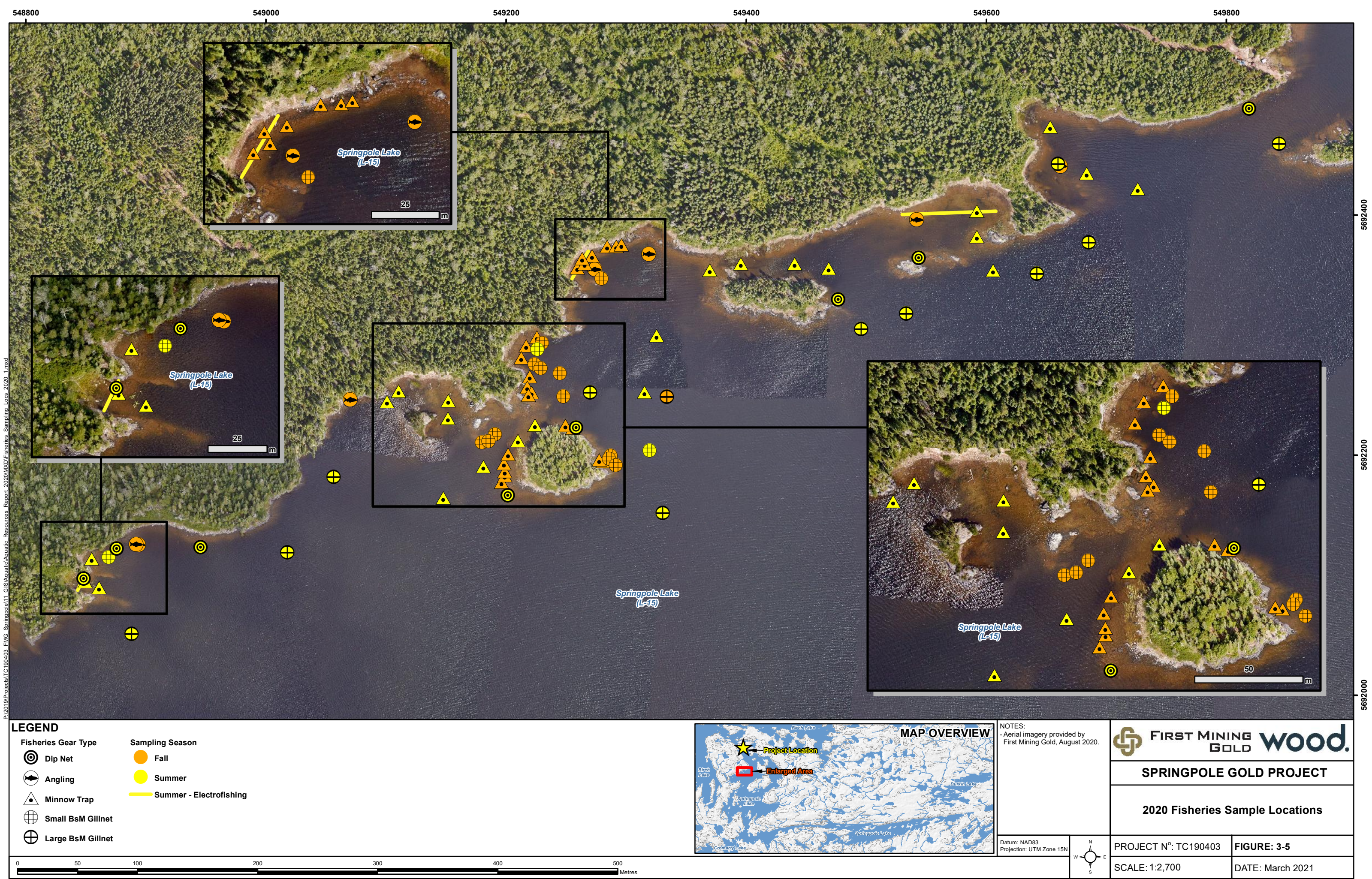
**2019 Fisheries Sample Locations
Birch River and UNX07**

PROJECT N°: TC190403

SCALE: 1:10,000

FIGURE: 3-4

DATE: March 2021





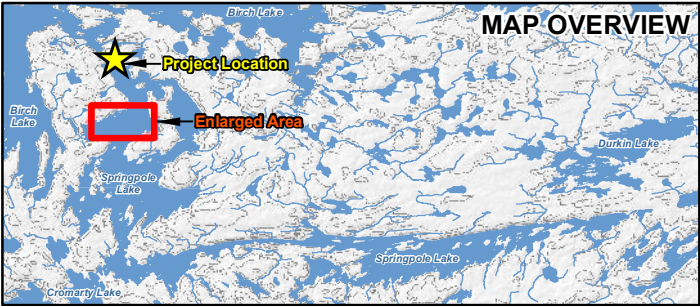
P:\2019\Projects\TC190403_FMG_Springpole\11_GIS\Aquatic\Aquatic Resources Report_2020\MXD\Sediment and Benthic Locs 2020_3.mxd

LEGEND

 Sediment and Benthic Sampling Locations (Fall 2020)



MAP OVERVIEW

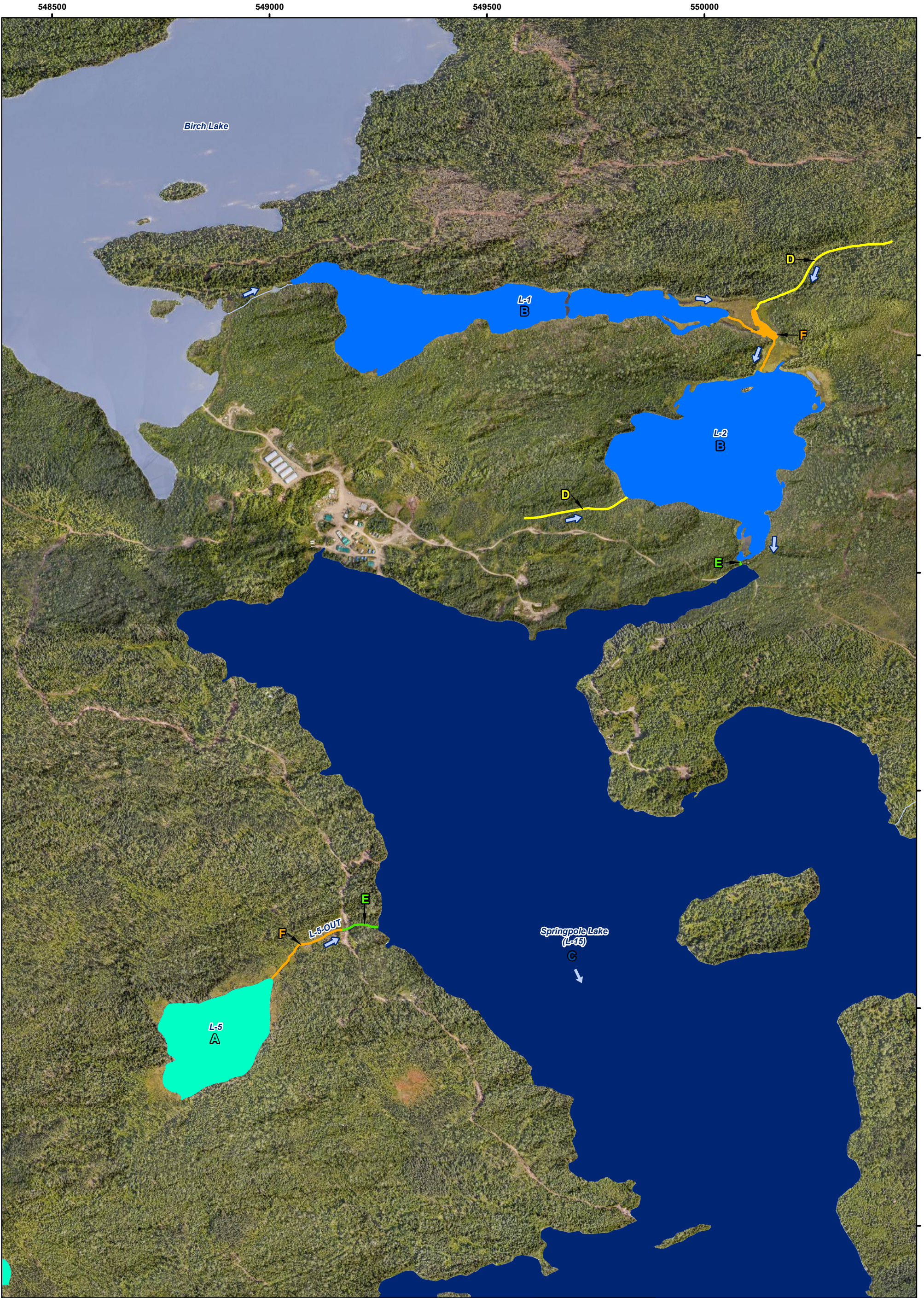


NOTES:
- Aerial imagery provided by First Mining Gold, August 2020.

Datum: NAD83
Projection: UTM Zone 15N



	
SPRINGPOLE GOLD PROJECT	
2020 Sediment and Benthic Sample Locations	
PROJECT N°: TC190403	FIGURE: 3-6
SCALE: 1:5,000	DATE: March 2021



LEGEND

Habitat Types

A

B

C

D

Unclassified Watercourse

Unclassified Waterbody

Flow Direction

E

F

G

H

MAP OVERVIEW

NOTES:
- Aerial imagery provided by First Mining Gold, August 2020.

Datum: NAD83
Projection: UTM Zone 15N

wood.

SPRINGPOLE GOLD PROJECT

Habitat Types

PROJECT N°: TC190403

SCALE: 1:8,000

FIGURE: 3-7a

DATE: March 2021

050100200300400500

Metres



LEGEND

Habitat Types

A

B

C

D

Unclassified Watercourse

Unclassified Waterbody

Flow Direction

E

F

G

H

MAP OVERVIEW

NOTES:
- Aerial imagery provided by First Mining Gold, August 2020.

Datum: NAD83
Projection: UTM Zone 15N

FIRST MINING GOLD

wood.

SPRINGPOLE GOLD PROJECT

Habitat Types

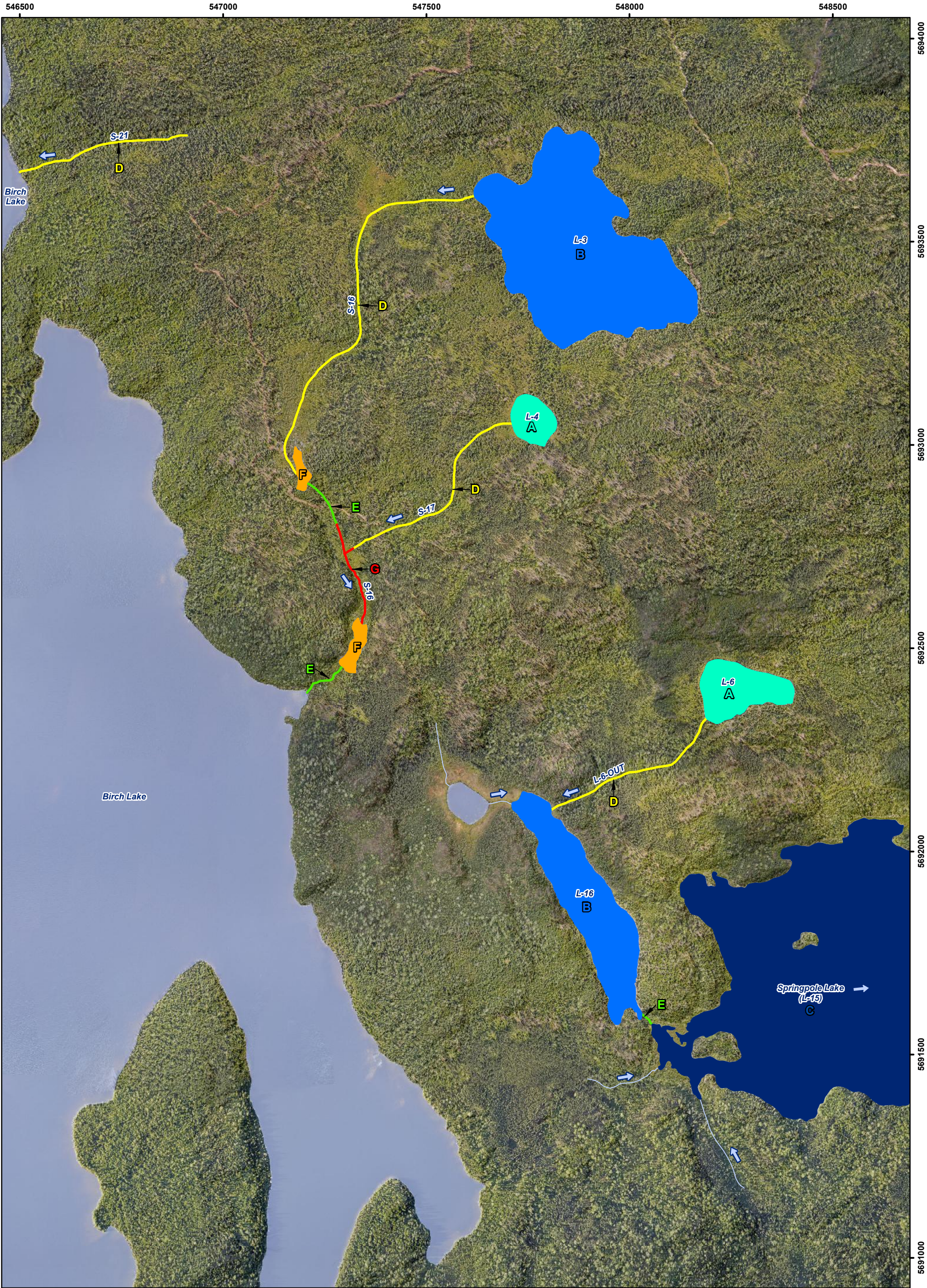
PROJECT N°: TC190403

SCALE: 1:5,000

FIGURE: 3-7b

DATE: March 2021

P:\2019\Projects\TC190403_FMG_Springpole\11_GIS\Aquatic\Aquatic_Resources_Report_2020\MXD\Reach_Types_MapB_2.mxd



LEGEND

Habitat Types

A

B

C

D

E

F

G

H

Unclassified Watercourse

Unclassified Waterbody

Flow Direction

MAP OVERVIEW

NOTES:
- Aerial imagery provided by First Mining Gold, August 2020.

Datum: NAD83
Projection: UTM Zone 15N

FIRST MINING GOLD

wood.

SPRINGPOLE GOLD PROJECT

Habitat Types

PROJECT N°: TC190403

SCALE: 1:8,500

FIGURE: 3-7c

DATE: March 2021

P:\2019\Projects\TC190403_FMG_Springpole\11_GIS\Aquatic\Aquatic_Resources_Report_2020\MXD\Reach_Types_MapC_1.mxd

4.0 □ Discussion

This report documents the existing conditions measured during the 2019 and 2020 summer and fall field investigations within the sampled inland waterbodies, potential access road crossings and Springpole Lake. The following subsections provide the key findings by study area.

4.1 □ Inland Waterbodies

- In-field water quality measurements show the physiochemical parameters were generally within PWQO and CWQG protection of aquatic life criteria.
- The sampled habitat was characterized by low lying muskeg, generally flat and pool stream morphology connecting pond habitats with moderate to broad floodplains. Some isolated reaches were characterized by steeper gradients with riffles and bedrock outcrops.
- Sampled substrates were primarily soft, fine grained sediments with some localized areas of cobble, boulder and exposed bedrock for most habitat types. This substrate supported growth of abundant aquatic macrophytes at many locations, particularly nearshore shallow habitat and within shallow inland lakes/ponds.
- Sediment quality was representative of the baseline condition and parameter concentrations were generally less than PSQG, with the exception of TKN, TOC, copper, phosphorous and occasionally iron, manganese and nickel. The lentic habitats generally contained the highest nutrient and metal concentrations.
- Small bodied fish tissue composite samples from stream S-9 and L-5-OUT (outlet of L-5) contained total mercury and methylmercury concentrations greater than the Federal methylmercury guideline for the protection of wildlife consumers of aquatic biota (0.033 µg/g), which is typical for these species in northern Ontario.

4.2 □ Potential Access Road Crossings

- Two of the locations (UNX01 and UNX03) were low-lying areas without a defined stream channel or pond and did not represent fish habitat.
- The remaining three locations (UNX07, BR-KM22 and L-2-OUT) were fish habitat and sampled for fish community. These locations represented three habitat types, including a connecting channel between an inland waterbody and Springpole Lake, a wide connecting channel within a wetland and a turbulent reach of the Birch River.
- Fish communities varied as per the habitat conditions, with the highest species richness at L-2-OUT (n=11), which is not unexpected as this location provided nearshore protection for small bodied species and possible rearing habitat for juvenile large bodied species. A total of six species were caught at each of the wider, faster flowing sample locations, including fast water species such as Longnose Dace and shorthead redhorse and mottled sculpin.

4.3 □ Springpole Lake

- A variety of collection gear were utilized to sample the fish community, with a total on nine fish species being caught and the most successful gear type being gillnets and angling.

- Northern Pike and YOY Yellow Perch were retained for contaminants in tissue analysis and age assessment, representing an upper trophic level predatory species other than Walleye and a lower trophic prey species, respectively.
- Nearly all analyzed fish tissues showed metal and mercury concentrations that exceeded the human consumption guidelines. Total mercury concentrations in fish tissues were nearly all above the Federal methylmercury guideline for the protection of wildlife consumers of aquatic biota, which is typical for these species in northern Ontario.

4.4 □ Springpole Lake Candidate Outfall Location

- Several sediment quality parameter concentrations were greater than the PSQG including arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel, and phosphorus, as well as TKN and TOC. The nearshore L-15-S series of samples contained greater concentrations of these analytes relative to the mid-basin L-15-D series of samples.
- The nearshore benthic invertebrate community contained few taxa relative to inland waterbody and Springpole Lake Southeast basin samples, likely due to homogeneous habitat and generally less allochthonous inputs that support greater diversity of functional feeding guilds. These communities were dominated by *Pontoporeiidae*, *Ostracoda* and *Sphaeriidae*.
- The mid-basin (offshore) benthic invertebrate community also contained few taxa relative to inland waterbody and Springpole Lake Southeast basin samples, likely due to habitat limitations. The samples were collected in an area with approximately 26 m total water depth, low dissolved oxygen and communities dominated by *Chironomidae*, *Naididae* and *Pontoporeiidae*. These taxa are all commonly found in deep basins of northern Ontario lakes.
- The fish community showed high species richness and the nearshore boulder and exposed fractured bedrock habitat provided rearing and forage habitat for various alevin stage and YOY fish species.

4.5 □ Springpole Lake Southeast Basin

- All sediment quality parameter concentrations were less than the PSQG and CWQG concentrations, and were typically greatest at SPR-EXP-5. Total organic carbon concentrations were much less than those observed within the Springpole Lake Candidate Outfall samples or inland waterbody samples, likely due to the higher water velocities within the southeast basin attributable to the Birch River flow thereby reducing accumulation of organic inputs.
- The benthic community samples contained the greatest richness and invertebrate density of all sampled locations. Diversity was high, also showing the greatest percent contribution of EPT taxa observed in all southeast basin samples. Chironomids typically dominated the samples; however, samples SPR-EXP-3 and SPR-EXP-4 contained nearly equitable proportions of Chironomids and EPT taxa (approx.. 30% each). The high percentage of EPT taxa is likely attributable to the Birch River flow, with increased water velocities and potentially improved dissolved oxygen concentrations and food availability.

5.0 Closing

This Aquatic Resources Assessment Report was prepared by Wood Environment & Infrastructure Solutions, a Division of Wood Canada Limited for the sole benefit of First Mining Gold for specific application to the Springpole Gold Project site. The quality of information, conclusions and estimates contained herein are consistent with the level of effort involved in Wood's services and based on: i) information available at the time of preparation, and ii) the assumptions, conditions and qualifications set forth in this document. This report is intended to be used by First Mining Gold only, and its nominated representatives, subject to the terms and conditions of its contract with Wood Environment & Infrastructure Solutions, a Division of Wood Canada Limited. Any other use of, or reliance on, this report by any third party is at that party's sole risk. This report has been prepared in accordance with generally accepted industry-standard. No other warranty, expressed or implied, is made.

Sincerely,

**Wood Environment & Infrastructure Solutions
a Division of Wood Canada Limited**

Prepared by:

Original signed

Dale Klodnicki, M.E.Sc., C.E.T.
Associate Aquatic Ecologist
Ontario Aquatic Science Team Lead

Reviewed by:

Original signed

Mark Ruthven, C.E.T.
Senior Associate Biologist
Group Head, Environmental Assessment

6.0 References

- Bishop, J.N. and B.P. Neary. 1975. The Distribution of Mercury within the Tissues of Freshwater Fish. Inorganic Trace Contaminants Section, Ontario Ministry of the Environment. August, 1975.
- Bloom, N.S. 1992. On the Chemical Form of Mercury in Edible Fish and Marine Invertebrate Tissue. Can. J. Fish. Aquat. Sci. 49: 1010 – 1017.
- Canadian Association for Laboratory Accreditation Inc. (CALA). 2014. CALA Guide to Current Sampling Practices. April 2014.
- Canadian Council of Ministers of the Environment (CCME). 1999. Canadian water quality guidelines for the protection of aquatic life: Dissolved oxygen (Freshwater). In: Canadian Environmental Quality Guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.
- Canadian Council of Ministers of the Environment (CCME). 1999. Canadian water quality guidelines for the protection of aquatic life: pH (Freshwater). In: Canadian Environmental Quality Guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.
- Canadian Council of Ministers of the Environment (CCME). 2000. Canadian Tissue Residue Guidelines for the Protection of Wildlife Consumers of Aquatic Biota: Methylmercury. In: Canadian Environmental Quality Guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.
- Canadian Council of Ministers of the Environment (CCME). 2001. Canadian sediment quality guidelines for the protection of aquatic life. Updated In: Canadian Environmental Quality Guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg. Summary table accessed at: <http://ceqg-rcqe.ccme.ca/>
- Coker, G.A., C.B. Portt, and Minns C.K. 2001. Morphological and Ecological Characteristics of Canadian Freshwater Fish. Canadian Manuscript Report Fisheries Aquatic Sciences 2554: iv+89p.
- Environment Canada (EC). 2012. Metal Mining Technical Guidance for Environmental Effects Monitoring.
- First Mining Gold Corp., and C. Portt and Associates (FMG and C. Portt). 2018. Existing Conditions report. Fish Community and Habitat. March 2018.
- Health Canada. 2011. Food and Nutrition, Canadian Standards (Maximum Levels for Various Chemical Contaminants in Foods. Summary table accessed at: <https://www.ontario.ca/page/eating-ontario-fish-2017-18> (Last Updated: September 20, 2019)
- Huckabee, J.W., J.W. Elwood, and S.G. Hildebrand. 1979. Accumulation of mercury in freshwater biota. In The biogeochemistry of mercury in the environment. Edited by J.O. Nriagu. Elsevier/North-Holland Biomedical Press, New York. pp. 277–302.
- Jackson, T.A. 1990. Biological and Environmental Control of Mercury Accumulation by Fish in Lakes and Reservoirs of Northern Manitoba, Canada. Can. J. Fish. Aquat. Sci. 48: 2449 – 2470.

- Jewett, S. C., Zhang, X., Naidu, S. A., and L. Duffy. 2003. Comparison of Mercury and Methylmercury in Northern Pike and Arctic Grayling from Western Alaska Rivers. *Chemosphere* 50(3): 383-92. DOI: 10.1016/S0045-6535(02)00421-6
- Kannan, K., Smith, R. G., Lee, R. F., and J. K. Summers. 1998. Distribution of total and methyl Mercury in Water, Sediment, and Fish from South Florida Estuaries. *Archives of Environmental Contamination and Toxicology*. 34(2): 109-18. DOI: 10.1007/s002449900294
- Lasorsa, B. and S. Allen-Gil. 1995 The Methylmercury to Total Mercury Ratio in Selected Marine, Freshwater, and Terrestrial Organisms. *Water, Air and Soil Pollution* 80: 905 – 913.
- Ministry of Environment and Energy (MOEE). 1999. Water Management Policies Guidelines Provincial Water Quality Objectives of the Ministry of Environment and Energy. July 1994, reprinted February 1999. PIBS 3303E.
- Ministry of the Environment (MOE). 2008. Guidelines for Identifying, Assessing and Managing Contaminated Sediments in Ontario: An Integrated Approach. May 2008. PIBS 6658e.
- Ministry of the Environment and Climate Change (MOECC) Guide of Eating Ontario Sport Fish 2015-2016. 2015. Available: <https://dr6j45jk9xcmk.cloudfront.net/documents/4460/fishguide2015-final-aoda-en-final.pdf> [accessed 17 Jan 2017].
- Story Environmental Inc. (SEI). 2019. Data transfer.
- United States Environmental Protection Agency (EPA). 2016. Aquatic Life Ambient Water Quality Criterion for Selenium in Freshwater 2016 – Fact Sheet. June 2016.

Appendix A

**Field Data Summary Tables and
Assessment Forms**

Table A1.1: In-field Surface Water Quality Measurement Summary

Season	Waterbody	ID	Date	Time	Water Temperature (°C)	pH	Conductivity (µS/cm)	DO (%)	DO (mg/L)	ORP
Summer	Lake 2	L-2-OUT-DS-MF1	18-Jul-19	11:20	21.40	6.53	64.5	103.2	8.6	358.1
	Stream 9	S-9	16-Jul-19	11:40	20.70	6.19	61.5	70.7	6.0	342.5
		S-9-US01-EF	17-Jul-19	12:20	20.10	6.13	85.7	8.7	0.7	359.0
		S-9-US02	17-Jul-19	09:30	19.60	5.83	16.3	41.2	3.5	389.2
	Lake 5	L-5-OUT	18-Jul-19	15:00	16.90	6.09	87.0	66.3	6.0	274.5
		L-5-OUT	09-Jul-19	09:00	15.30	6.13	83.6	36.3	6.4	298.9
	Birch River	BR-KM22-GN1	22-Jul-19	13:20	21.00	6.71	53.7	98.7	8.4	315.9
	Springpole Lake	UNX07-MF1	22-Jul-19	11:20	11.70	4.56	23.4	84.2	8.8	269.0
		UNX07-GN1	22-Jul-19	11:35	20.70	6.81	52.4	100.8	8.4	270.0
		UNX07-KM20.1	22-Jul-19	11:00	11.10	4.50	22.7	77.1	8.0	296.8
		UNX07	23-Jul-19	10:00	12.20	4.81	23.4	78.9	8.1	267.3
	Lake 16	L-16-IN	19-Jul-19	13:40	10.90	5.97	57.7	36.1	3.9	148.0
		L-16	19-Jul-19	14:00	22.80	6.86	96.5	96.6	7.9	252.0
Fall	Stream 9	S-9-US01	11-Sep-19	15:30	12.35	6.82	154.0	18.9	2.0	205.5
		S-9-US02	12-Sep-19	11:00	12.09	7.40	125.0	82.0	8.8	157.8
		S-9	10-Sep-19	12:25	10.38	7.12	123.0	50.4	5.6	145.3
	Lake 2	L-2-OUT	17-Jul-19	09:00	12.74	7.38	172.0	48.5	5.1	151.1
		L-2-OUT	17-Jul-19	09:30	9.57	7.16	145.0	65.6	7.6	140.2
	Lake 5	L-5-OUT	13-Sep-19	10:00	11.10	7.48	157.0	50.7	5.6	171.7
	Lake 6	L-6-OUT	14-Sep-19	13:30	8.68	7.35	145.0	60.4	7.0	194.7
	Lake 16	L-16-IN	14-Sep-19	12:00	8.16	7.24	143.0	57.8	6.8	213.2

Note: In-field measurements taken approximately 0.10 m subsurface, as permitted by total depth.

Table A1.2: Backpack Electrofishing Catch and CPUE Summary

Waterbody	Effort ID	Date (mm/dd/yyyy)	Duration (seconds)	Alevin / YOY species	Brook Stickleback	Finescale Dace	Iowa Darter	Mimic Shiner	Northern Redbelly Dace	Spottail Shiner	Yellow Perch	Total Catch
L-5-OUT	L-5-OUT-EF1	7/18/2019	469	0	1	1	2	0	0	0	0	4
L-16-IN	L-16-IN-EF1	7/19/2019	658	0	0	0	0	0	0	0	0	0
S-9	S-9-EF1	7/16/2019	669	0	2	4	0	0	1	0	0	7
S-9-US01	S-9-US01-EF1	7/17/2019	650	0	0	0	0	0	0	0	0	0
UNX07	UNX07-EF1	7/22/2019	987	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-EF-01	9/27/2020	335	7	0	0	0	0	0	1	1	9
Springpole Lake	SPL-EF-02	9/27/2020	265	0	0	0	0	0	0	1	1	2
Springpole Lake	SPL-EF-03	9/27/2020	192	3	0	0	0	3	0	4	8	18
Waterbody	Effort ID	Date (mm/dd/yyyy)	Duration (seconds)	See species listed above								CPUE
L-5-OUT	L-5-OUT-EF1	7/18/2019	469	0	0.13	0.13	0.26	0	0	0	0	0.51
L-16-IN	L-16-IN-EF1	7/19/2019	658	0	0	0	0	0	0	0	0	0.00
S-9	S-9-EF1	7/16/2019	669	0	0.18	0.36	0	0	0.09	0	0	0.63
S-9-US01	S-9-US01-EF1	7/17/2019	650	0	0	0	0	0	0	0	0	0
UNX07	UNX07-EF1	7/22/2019	987	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-EF-01	9/27/2020	335	1.25	0	0	0	0	0	0.18	0.18	1.61
Springpole Lake	SPL-EF-02	9/27/2020	265	0	0	0	0	0	0	0.23	0.23	0.45
Springpole Lake	SPL-EF-03	9/27/2020	192	0.94	0	0	0	0.94	0	1.25	2.50	5.63

Table A1.3a: Gillnet Catch and CPUE Summary (2019)

Waterbody	Effort ID	Lift Date (dd/mm/yy)	Mesh Size (in)	Net Length (m)	Effort (hrs)	Fish Species										Total Catch	CPUE
						Catch					CPUE						
						Northern Pike	Rock Bass	Shorthead Redhorse	Walleye	Yellow Perch	Northern Pike	Rock Bass	Shorthead Redhorse	Walleye	Yellow Perch		
L-2-OUT	L-2-OUT-RIN1	7/17/2019	SML RIN	12.5	24	1	0	0	0	3	0.04	0	0	0	0.13	4	0.17
	L-2-OUT-GN1	7/17/2019	3.5	15.2	24	0	0	1	5	0	0	0	0.04	0.21	0.00	6	0.25
	Subtotal										0.04	0	0.04	0.21	0.13	10	0.42
Birch River	BR-GN1	7/23/2019	3.5	15.2	23	0	0	0	0	0	0	0	0	0	0	0	0.00
	BR-GN2	7/23/2019	2.5	15.2	24.08	2	1	0	5	0	0.08	0.04	0	0.21	0	8	0.33
	BR-GN3	7/23/2019	3.5	15.2	24.25	0	0	0	5	0	0	0	0	0.21	0	5	0.21
	Subtotal										0.08	0.04	0	0.41	0	13	0.54
Springpole Lake	UNX07-GN1	7/23/2019	3.5	15.2	24	0	0	2	0	0	0	0	0.08	0	0	2	0.08
	UNX07-RIN1	7/23/2019	SML RIN	12.5	24	3	0	0	0	15	0.13	0	0	0	0.63	18	0.75
	Subtotal										0.13	0	0.08	0	0.63	20	0.83

Table A1.3b: Gillnet Catch Summary (2020)

Waterbody	Effort ID	Lift Date (dd/mm/yy)	Mesh Size (in)	Net Length (m)	Effort (hrs)	Fish Species									Total Catch
						Bluntnose Shiner	Spottail Shiner	Common Shiner	Northern Pike	White Sucker	Rock Bass	Shorthead Redhorse	Walleye	Yellow Perch	
Springpole Lake	SPL-LG-01	24/07/20	BSM-LRG	24.7	2.13	0	0	0	2	0	0	0	4	0	6
Springpole Lake	SPL-LG-02	24/07/20	BSM-LRG	24.7	3.22	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-LG-03	24/07/20	BSM-LRG	24.7	1.67	0	0	0	0	2	0	0	3	0	5
Springpole Lake	SPL-LG-04	25/07/20	BSM-LRG	24.7	2.25	0	0	0	1	0	0	0	5	0	6
Springpole Lake	SPL-LG-05	25/07/20	BSM-LRG	24.7	2.75	0	0	0	0	0	0	0	4	0	4
Springpole Lake	SPL-LG-08	25/07/20	BSM-LRG	24.7	0.55	0	0	0	0	0	0	0	1	0	1
Springpole Lake	SPL-LG-09	26/07/20	BSM-LRG	24.7	0.58	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-LG-10	26/07/20	BSM-LRG	24.7	0.5	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-LG-11	26/07/20	BSM-LRG	24.7	0.83	0	0	0	0	0	0	0	2	0	2
Springpole Lake	SPL-LG-12	26/07/20	BSM-LRG	24.7	0.52	0	0	0	0	0	0	0	1	0	1
Springpole Lake	SPL-LG-13	26/07/20	BSM-LRG	24.7	0.5	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-LG-14	26/07/20	BSM-LRG	24.7	0.5	0	0	0	1	0	0	0	0	0	1
Springpole Lake	SPL-SM-01	24/07/20	BSM-SML	24.7	2.22	0	1	3	0	0	0	0	1	7	12
Springpole Lake	SPL-SM-02	24/07/20	BSM-SML	24.7	3.62	1	1	10	0	0	0	0	0	13	25
Springpole Lake	SPL-SM-03	24/07/20	BSM-SML	24.7	1.83	0	5	0	0	0	0	0	5	19	29
Springpole Lake	SPL-SM-04	12/09/20	BSM-SML	24.7	0.47	0	0	0	0	0	0	0	0	1	1
Springpole Lake	SPL-SM-05	12/09/20	BSM-SML	24.7	0.77	0	0	0	0	0	0	0	0	8	8
Springpole Lake	SPL-SM-06	12/09/20	BSM-SML	24.7	0.5	0	0	0	1	0	0	0	0	0	1
Springpole Lake	SPL-SM-07	12/09/20	BSM-SML	24.7	0.61	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-SM-08	12/09/20	BSM-SML	24.7	1.25	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-SM-09	12/09/20	BSM-SML	24.7	0.983	0	0	0	0	0	0	0	0	1	1
Springpole Lake	SPL-SM-10	13/09/20	BSM-SML	24.7	1.76	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-SM-11	13/09/20	BSM-SML	24.7	1.683	0	0	0	0	0	0	0	0	4	4
Springpole Lake	SPL-SM-12	13/09/20	BSM-SML	24.7	1.43	0	0	0	0	0	0	0	0	7	7
Springpole Lake	SPL-SM-13	13/09/20	BSM-SML	24.7	1.38	0	0	0	1	0	0	0	0	18	19
Springpole Lake	SPL-SM-14	13/09/20	BSM-SML	49.4	2	0	0	0	1	0	0	0	0	4	5
Springpole Lake	SPL-SM-15	13/09/20	BSM-SML	24.7	1.1	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-LG-09	13/09/20	BSM-LRG	24.7	1.85	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-SM-01	24/07/20	BSM-SML	24.7	2.22	0	1	3	0	0	0	0	1	7	12
Springpole Lake	SPL-SM-02	24/07/20	BSM-SML	24.7	3.62	1	1	10	0	0	0	0	0	13	25
Springpole Lake	SPL-SM-03	24/07/20	BSM-SML	24.7	1.83	0	5	0	0	0	0	0	5	19	29

Table A1.3c: Gillnet CPUE Summary (2020)

Waterbody	Effort ID	Lift Date (dd/mm/yy)	Mesh Size (in)	Net Length (m)	Effort (hrs)	Fish Species									CPUE
						Bluntnose Shiner	Spottail Shiner	Common Shiner	Northern Pike	White Sucker	Rock Bass	Shorthead Redhorse	Walleye	Yellow Perch	
Springpole Lake	SPL-LG-01	24/07/20	BSM	24.7	2.13	0	0	0	0	0.94	0	0	1.88	0	2.82
Springpole Lake	SPL-LG-02	24/07/20	BSM	24.7	3.22	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-LG-03	24/07/20	BSM	24.7	1.67	0	0	0	1.20	0	0	0	1.80	0	2.99
Springpole Lake	SPL-LG-04	25/07/20	BSM	24.7	2.25	0	0	0	0	0.44	0	0	2.22	0	2.67
Springpole Lake	SPL-LG-05	25/07/20	BSM	24.7	2.75	0	0	0	0	0	0	0	1.45	0	1.45
Springpole Lake	SPL-LG-08	25/07/20	BSM	24.7	0.55	0	0	0	0	0	0	0	1.82	0	1.82
Springpole Lake	SPL-LG-09	26/07/20	BSM	24.7	0.58	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-LG-10	26/07/20	BSM	24.7	0.5	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-LG-11	26/07/20	BSM	24.7	0.83	0	0	0	0	0	0	0	2.41	0	2.41
Springpole Lake	SPL-LG-12	26/07/20	BSM	24.7	0.52	0	0	0	0	0	0	0	1.92	0	1.92
Springpole Lake	SPL-LG-13	26/07/20	BSM	24.7	0.5	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-LG-14	26/07/20	BSM	24.7	0.5	0	0	0	0	2.00	0	0	0	0	2.00
Springpole Lake	SPL-SM-01	24/07/20	BSM	24.7	2.22	0	0.45	1.35	0	0	0	0	0.45	3.15	5.41
Springpole Lake	SPL-SM-02	24/07/20	BSM	24.7	3.62	0.27	0.27	2.72	0	0	0	0	0	3.54	6.91
Springpole Lake	SPL-SM-03	24/07/20	BSM	24.7	1.83	0	2.73	0	0	0	0	0	2.73	10.38	15.85
Springpole Lake	SPL-SM-04	12/09/20	BSM	24.7	0.47	0	0	0	0	0	0	0	0	2.13	2.13
Springpole Lake	SPL-SM-05	12/09/20	BSM	24.7	0.77	0	0	0	0	0	0	0	0	10.39	10.39
Springpole Lake	SPL-SM-06	12/09/20	BSM	24.7	0.5	0	0	0	0	2.00	0	0	0	0	2.00
Springpole Lake	SPL-SM-07	12/09/20	BSM	24.7	0.61	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-SM-08	12/09/20	BSM	24.7	1.25	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-SM-09	12/09/20	BSM	24.7	0.983	0	0	0	0	0	0	0	0	1.02	1.02
Springpole Lake	SPL-SM-10	13/09/20	BSM	24.7	1.76	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-SM-11	13/09/20	BSM	24.7	1.683	0	0	0	0	0	0	0	0	2.38	2.38
Springpole Lake	SPL-SM-12	13/09/20	BSM	24.7	1.43	0	0	0	0	0	0	0	0	4.90	4.90
Springpole Lake	SPL-SM-13	13/09/20	BSM	24.7	1.38	0	0	0	0	0.72	0	0	0	13.04	13.77
Springpole Lake	SPL-SM-14	13/09/20	BSM	49.4	2	0	0	0	0	0.50	0	0	0	2.00	2.50
Springpole Lake	SPL-SM-15	13/09/20	BSM	24.7	1.1	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-LG-09	13/09/20	BSM	24.7	1.85	0	0	0	0	0	0	0	0	0	0
Springpole Lake	SPL-SM-01	24/07/20	BSM	24.7	2.22	0	0.45	1.35	0	0	0	0	0.45	3.15	5.41
Springpole Lake	SPL-SM-02	24/07/20	BSM	24.7	3.62	0.27	0.27	2.72	0	0	0	0	0	3.54	6.91
Springpole Lake	SPL-SM-03	24/07/20	BSM	24.7	1.83	0	2.73	0	0	0	0	0	2.73	10.38	15.85

Table A1.4a: Minnow Trap Total Catch Summary (2019)

Waterbody	Season	Effort ID	Set Date (mm/dd/yy)	Lift Date (mm/dd/yy)	No. Traps Set	Effort (hr)	Total Trap Hours	Fish Species											Total Catch
								Brook Stickleback	Fathead Minnow	Finescale Dace	Iowa Darter	Longnose Dace	Mottled Sculpin	Northern Redbelly Dace	Pearl Dace	Rock Bass	White Sucker	Yellow Perch	
Lake 2	Summer	L-2-OUT-DS-MT1	07/16/2019	07/18/2019	8	44.0	352.0	0	0	0	0	0	0	0	0	0	0	29	29
		L-2-OUT-US-MT1	07/16/2019	07/17/2019	8	24.5	196.0	0	0	0	0	0	0	0	0	0	0	0	0
	Fall	L-2-OUT-MT1	09/17/2019	09/18/2019	9	22.0	198.0	0	0	0	0	0	0	0	2	0	3	5	10
Lake 5	Summer	L-5-OUT-MT1	07/18/2019	07/19/2019	6	18.2	109.0	7	0	2	1	0	0	0	0	0	0	0	10
	Fall	L-5-OUT-MT1	09/12/2019	09/13/2019	15	21.7	324.9	99	49	153	0	0	0	0	1	0	0	0	302
	Summer	L-5-OUT-MT2	07/18/2019	07/19/2019	6	19.3	116.0	1	0	8	0	0	0	1	0	0	0	0	10
Lake 16	Summer	L-16-IN-MT1	07/19/2019	07/20/2019	6	20.4	122.4	0	0	0	0	0	0	0	0	0	0	0	0
Stream 9	Summer	S-9-US02-MT1	07/16/2019	07/17/2019	10	23.5	235.0	1	1	18	0	0	0	47	58	0	0	0	125
	Fall	S-9-MT1	09/10/2019	09/12/2019	10	22.4	224.0	3	39	75	0	0	0	132	18	0	4	0	271
		S-9-US02-MT1	09/10/2019	09/12/2019	10	46.0	460.0	0	11	15	0	0	0	101	155	0	0	0	282
Birch River	Summer	BR-MT1	07/22/2019	07/23/2019	15	27.0	405.0	0	0	0	2	18	0	0	0	1	0	1	22
Unnamed Stream	Summer	UNX07-MT1	07/22/2019	07/23/2019	15	25.0	375.0	1	0	0	0	0	1	0	0	0	0	7	9
Springpole Lake	Fall	SPL-MT1	09/11/2019	09/12/2019	20	28.0	560.0	0	0	0	0	0	0	0	0	1	0	7	8

Table A1.4b: Minnow Trap CPUE Summary (2019)

Waterbody	Season	Effort ID	Set Date	Lift Date	No. Traps Set	Effort (hr)	Total Trap Hours	Fish Species											CPUE
								Brook Stickleback	Fathead Minnow	Finescale Dace	Iowa Darter	Longnose Dace	Mottled Sculpin	Northern Redbelly Dace	Pearl Dace	Rock Bass	White Sucker	Yellow Perch	
Lake 2	Summer	L-2-OUT-DS-MT1	7/16/2019	7/18/2019	8	44.0	352.0	-	-	-	-	-	-	-	-	-	-	0.08	0.08
		L-2-OUT-US-MT1	7/16/2019	7/17/2019	8	24.5	196.0	-	-	-	-	-	-	-	-	-	-	-	0.00
	Fall	L-2-OUT-MT1	9/17/2019	9/18/2019	9	22.0	198.0	-	-	-	-	-	-	-	0.01	-	0.02	0.03	0.05
Lake 5	Summer	L-5-OUT-MT1	7/18/2019	7/19/2019	6	18.2	109.0	0.06	-	0.02	0.01	-	-	-	-	-	-	-	0.09
	Fall	L-5-OUT-MT1	9/12/2019	9/13/2019	15	21.7	324.9	0.30	0.15	0.47	-	-	-	-	-	-	-	-	0.93
	Summer	L-5-OUT-MT2	7/18/2019	7/19/2019	6	19.3	116.0	0.01	-	0.07	-	-	-	0.01	-	-	-	-	0.09
Lake 16	Summer	L-16-IN-MT1	7/19/2019	7/20/2019	6	20.4	122.4	-	-	-	-	-	-	-	-	-	-	-	0.00
Stream 9	Summer	S-9-US02-MT1	7/16/2019	7/17/2019	10	23.5	235.0	-	-	0.08	-	-	-	0.20	0.25	-	-	-	0.53
	Fall	S-9-MT1	9/10/2019	9/12/2019	10	22.4	224.0	0.01	0.17	0.33	-	-	-	0.59	0.08	-	0.02	-	1.21
		S-9-US02-MT1	9/10/2019	9/12/2019	10	46.0	460.0	-	0.02	0.03	-	-	-	0.22	0.34	-	-	-	0.61
Birch River	Summer	BR-MT1	7/22/2019	7/23/2019	15	27.0	405.0	-	-	-	-	0.04	-	-	-	-	-	-	0.05
Unnamed Stream X07	Summer	UNX07-MT1	7/22/2019	7/23/2019	15	25.0	375.0	-	-	-	-	-	-	-	-	-	-	0.02	0.02
Springpole Lake	Fall	SPL-MT1	9/11/2019	9/12/2019	20	28.0	560.0	-	-	-	-	-	-	-	-	-	-	0.01	0.01

Table A1.4c: Minnow Trap Total Catch and CPUE Summary (2020)

Waterbody	Effort ID	Set Date (dd/mm/yy)	Lift Date (dd/mm/yy)	No. Traps Set	Effort (hr)	Total Trap Hours	Fish Species										Total Catch	CPUE
							Catch					CPUE						
							Bluntnose Minnow	Mottled Sculpin	Rock Bass	Spottail Shiner	Yellow Perch	Bluntnose Minnow	Mottled Sculpin	Rock Bass	Spottail Shiner	Yellow Perch		
Springpole Lake	SPL-MT-01	7/24/2020	7/25/2020	4	24.9	99.7	0	0	0	0	4	0	0	0	0	0	4	0.04
	SPL-MT-02	7/24/2020	7/25/2020	4	99.73	24.93	0	0	0	3	5	0.13	0	0	0.13	0	8	0.32
	SPL-MT-03	7/24/2020	7/26/2020	4	86.87	21.72	0	0	0	0	9	0	0	0	0	0	9	0.41
	SPL-MT-04	7/25/2020	7/26/2020	4	108.33	21.67	0	0	0	0	2	0	0	0	0	0	2	0.09
	SPL-MT-05	7/25/2020	7/26/2020	5	42.83	21.42	16	1	0	0	23	0	0.04	0	0	0.67	40	1.87
	SPL-MT-06	7/25/2020	7/26/2020	2	94.67	23.67	6	0	0	0	1	0	0	0	0	0.25	7	0.30
	SPL-MT-07	7/25/2020	7/26/2020	4	47.43	23.72	0	0	0	0	0	0	0	0	0	0	0	0
	SPL-MT-08	7/25/2020	7/26/2020	2	94.67	23.67	1	0	0	0	0	0	0	0	0	0.04	1	0.04
	SPL-MT-09	10/9/2020	12/9/2020	4	217.75	43.55	10	0	2	0	4	0	0	0.08	0	0.42	16	0.37
	SPL-MT-10	10/9/2020	12/9/2020	5	219.58	43.92	2	0	0	0	0	0	0	0	0	0.08	2	0.05
	SPL-MT-11	12/9/2020	13/09/2020	5	163.33	23.33	3	0	0	0	0	0	0	0	0	0.13	3	0.13
	SPL-MT-12	12/9/2020	13/09/2020	7	153.07	21.87	5	0	1	0	0	0	0	0.04	0	0.21	6	0.27

Table A1.5: Angling Total Catch and CPUE Summary

Waterbody	Effort ID	Season	Species	Date	No. Rods	Effort (rod hr)	Catch		CPUE		Total Catch	Total CPUE
							Northern Pike	Walleye	Northern Pike	Walleye		
Birch River	BR-KM22-AN1	Summer	Walleye	7/22/2019	3	4.50	1	13	0.22	2.80	14	3.1
Springpole Lake	SPL-AN1	Fall	Northern Pike	9/10/2019	2	2.00	6	0	3.00	0	6	3.0
	SPL-AN2	Fall	Northern Pike	9/11/2019	2	2.33	4	0	1.71	0	4	1.7
	SPL-AN3	Fall	Northern Pike	9/12/2019	2	1.00	3	0	3.00	0	3	3.0
	SPL-AN4	Fall	Northern Pike	9/13/2019	2	1.67	4	0	2.40	0	4	2.4
	SPL-AN5	Fall	Northern Pike	9/14/2019	2	2.00	3	0	1.50	0	3	1.5
	SPL-AN-05	Fall	Northern Pike	9/13/2020	2	1.00	30	60	3.00	0	3	3.0
	SPL-AN-06	Fall	Northern Pike	9/13/2020	2	0.33	10	20	9.00	0	3	9.0
	SPL-AN-08	Fall	Northern Pike	9/13/2020	2	0.70	21	42	1.43	0	1	1.4
	SPL-AN-09	Fall	Northern Pike	9/14/2020	2	0.33	10	20	6.00	0	2	6.0
	SPL-AN-10	Fall	Northern Pike	9/14/2020	2	0.60	18	36	5.00	0	3	5.0
	SPL-AN-11	Fall	Northern Pike	9/14/2020	2	0.43	13	26	2.31	0	1	2.3
	SPL-AN-12	Fall	Northern Pike	9/14/2020	2	0.93	28	56	4.29	0	4	4.3

Table A1.6: Fyke Net Total Catch and CPUE Summary (Summer 2019)

Waterbody	Effort ID	Set Date	Lift Date	Effort (hrs)	Fish Species												Total Catch	Total CPUE
					Catch						CPUE							
					Blacknose Shiner	Catostomus sp.	Golden Shiner	Northern Pike	Spottail Shiner	Yellow Perch	Blacknose Shiner	Catostomus sp.	Golden Shiner	Northern Pike	Spottail Shiner	Yellow Perch		
Lake 2	L-2-OUT-DS-MFN1	7/16/2019	7/18/2019	44.00	0	9	0	0	0	72	0	0.20	0	0	0	1.64	81	1.84
	L-2-OUT-US-MFN1	7/16/2019	7/17/2019	24.75	17	0	93	3	2	4	0.69		3.76	0.12	0.08	0.16	119	4.81
	L-2-OUT-US-LF1	7/16/2019	7/17/2019	24.68	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unnamed Stream	UNX07-MFN1	7/22/2019	7/23/2019	25.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table A1.7: Seine Net Total Catch and CPUE Summary (Fall 2019)

Waterbody	Effort ID	Date	Time	No. Hauls	Fish Species																		Total Catch	Total CPUE
					Catch								CPUE											
					Cyprinid sp. (YOY)	Emerald Shiner	Iowa Darter	Johnny Darter	Northern Pike	Rock Bass	Spottail Shinber	White Sucker	Yellow Perch	Cyprinid sp. (YOY)	Emerald Shiner	Iowa Darter	Johnny Darter	Northern Pike	Rock Bass	Spottail Shinber	White Sucker	Yellow Perch		
Stream 9	S-9-US01-SN1	09/11/2019	15:50	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lake 16	L-16-IN-SN1	09/14/2019	12:55	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Springpole Lake	SPL-SN1	09/15/2019	10:50	3	0	0	0	1	1	1	4	3	112	0	0	0	0.33	0.33	0.33	1.33	1.00	37.33	122	40.7
	SPL-SN2	09/15/2019	12:45	6	0	1	1	6	0	0	7	7	46	0	0.17	0.17	1.00	0	0	1.17	1.17	7.67	68	11.3
	SPL-SN3	09/15/2019	13:50	3	1	0	0	0	0	0	10	0	214	0.33	0	0	0	0	0	3.33	0	71.33	225	75.0
	SPL-SN4	09/16/2019	11:00	2	0	0	0	4	0	0	8	0	269	0	0	0	2.00	0	0	4.00	0	134.50	281	140.5

Table A1.8: Dip Net Total Catch and CPUE Summary (Summer 2020)

Waterbody	Effort ID	Date	Time	Effort (No. of Dips)	Fish Species								Total Catch	Total CPUE
					Catch				CPUE					
					Aelevin / YOY species	Mimic Shiner	Spottail Shiner	Yellow Perch	Aelevin species	Mimic Shiner	Spottail Shiner	Yellow Perch		
Springpole Lake	SPL-DP-01	26-Jul-20	11:17	2	0	0	9	2	11	0	0	4.5	1.0	11
	SPL-DP-02	26-Jul-20	12:38	2	0	0	16	2	18	0	0	8.0	1.0	18
	SPL-DP-03	27-Jul-20	15:21	2	19	0	5	0	24	9.5	0	2.5	0	5
	SPL-DP-04	27-Jul-20	15:35	2	0	0	12	12	24	0	0	6.0	6.0	24
	SPL-DP-05	27-Jul-20	15:40	2	0	4	0	30	34	0	2.0	0	15.0	34
	SPL-DP-06	27-Jul-20	16:01	2	0	6	5	1	12	0	3.0	2.5	0.5	12

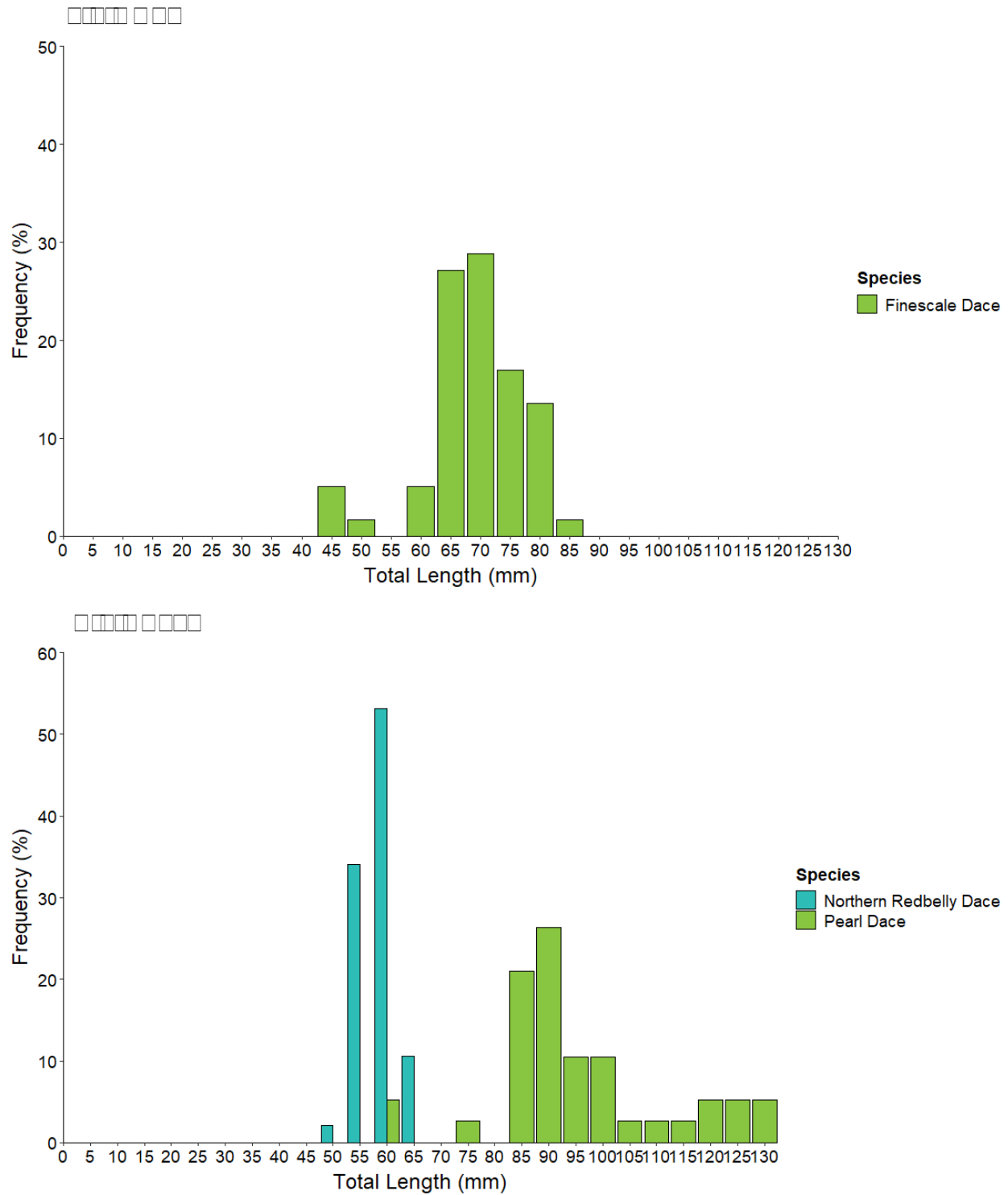


Figure A1.1 Length Frequency of Abundant Fish Species from L-5-OUT and S-9-US02

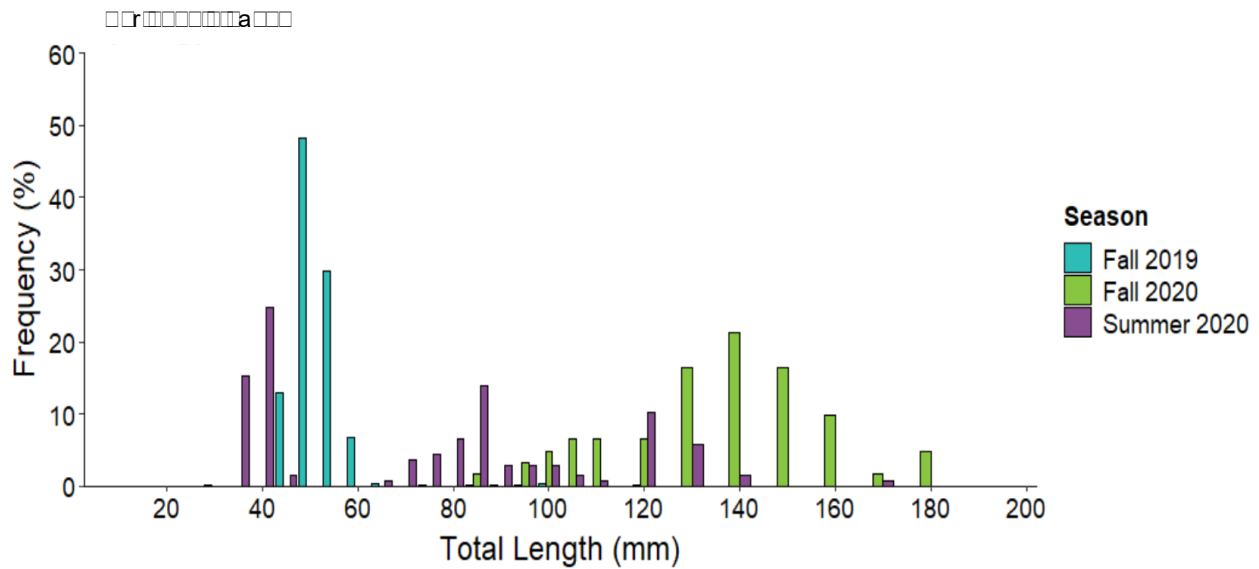
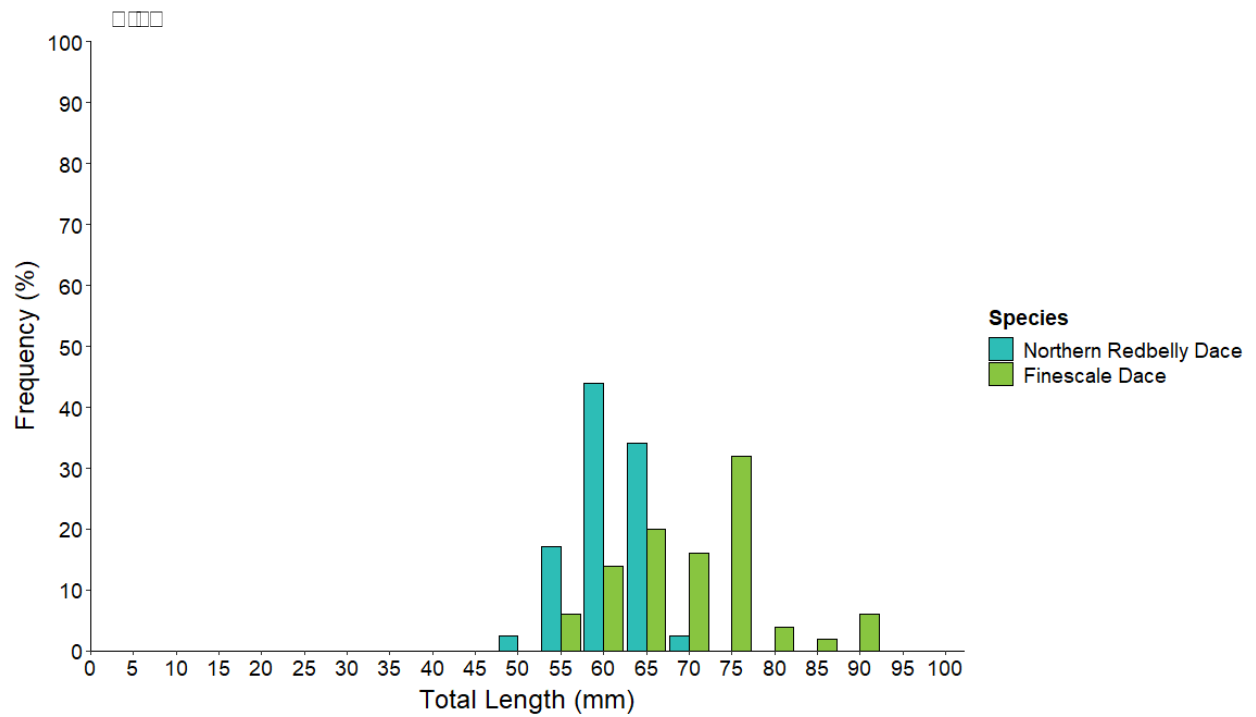


Figure A1.2 Length Frequency of Fish from S-9 and Yellow Perch from Springpole Lake

FISHERIES NET CATCH / EFFORT FORM

wood.

SITE DESCRIPTION

Sample ID [SAMID]		Waterbody Name [WBY NM]			Project Code [PROJCD]	
WB02-OUT - RIN1		SPRING POLE			TC19043	
Gear Type (Gillnet, Trapnet, Fyke Trap, Seine net, Fish Fence)	Mesh Size(s) (mm)	Coordinates (UTM NAD 83)			Site Type [SITP]	
		[UTM Zone]	[LAT] [Easting, 6 No.]	[LONG] [Northing, 7 No.]	(substr)	(cover)
Gillnet	RIN	15U	0549907	5693930	4	1
Trap/Hoop Size (m)	Net/Leader length (m)	Substrate Composition and Cover Types [BOTTOM] (list all substrate types in area of net)				
-	15.24	SA, SI, MU, DE, CL				

Site Type - Substrate Codes:
 1 = gravel/pebble/sand mix (GP + SA > 75%)
 2 = boulder/rubble/cobble mix (BO + RC > 75%)
 3 = sand (SA > 75%)
 4 = soft mix (SI + MU + DE + soft CL > 75%)
 5 = bedrock (BR > 75%)
 6 = other (any other combination)

Substrate Acronyms:
 BR = bedrock
 BO = boulder
 RC = rubble/cobble
 GP = gravel/pebble
 SA = sand SI = silt
 CL = clay MU = muck
 DE = detritus
 MA = marl

Site Type - Cover Codes:
 1 = no cover
 2 = low (1 - 25%)
 3 = moderate (25 - 75%)
 4 = high (> 75%)

Cover Acronyms:
 BO = boulders OT = other
 MA = macrophytes NC = no cover
 LT = log/tree

SET DESCRIPTION (recorded at time of set to ensure compliance with NSCIN standards)

Field Crew	Set Date [EFFD1] (dd/mm/yy)	Set Time [EFFTM1] (24hh:mm)	Net Length [XLEADUSE] (1 - 60 m)	Dist. Off Shore [XDISTOFF] (0 - 40 m)	Angle to Shore [XANGLE] (0° - 90°)	Min Depth [GRDEPMIN]	Mid Depth [XGRDEPMID]	Max Depth [GRDEPMAX]
Daron Law Stephen McBaron	16/July/19	16:27	125.24	1	90	0.4	0.7	1

LIFT DATA (recorded at time of lift)

Note: a knot equals one "nautical mile" per hour or 1.9 km/hr (1.2 mph)

Field Crew	Lift Date [EFFD1] (dd/mm/yy)	Lift Time [EFFTM1] (24hh:mm)	Effort Status [EFFST] (codes 1 - 3)	Air Temp. [AIRTEM1] (°C)	Water Temp. [SITEM1] (°C)	Wave Height [XWAVEHT] (codes 1 - 5)
AL SM	17/July/19	16:27	1	~28		1
Cloud Cover [CLOUD] (%)	Precipitation [PRECIP] (codes 00 - 95)	Direction & Speed of Wind [WIND] (N,S,E,W)	General Weather for Set Duration [XWEATHER] (duration precip)	Duration [EFFDUR] (fishing hours)		
100	00	S	~25	1	1	24

Effort Status Codes:
 1 = no problem
 2 = minor problem, likely OK
 3 = major problem, affected catch

Wave Height Codes:
 1 = < 0.3 m (< 1 ft.)
 2 = 0.3 - 0.6 m (1 - 2 ft.)
 3 = 0.6 - 0.9 m (2 - 3 ft.)
 4 = 0.9 - 1.2 m (3 - 4 ft.)
 5 = > 1.2 m (> 4 ft.)

FISH CATCH SUMMARY

Species	Species Code	Total Catch [CATCNT]	Length-tallied [SUBCNT]	Bio-sampled [BIOCNT]	Struct. Taken [STRUCT]	Comments
Northern Pike	131	1	1	1	0	
Yellow Perch	331	3	3	3	0	
Species	Fish #	Fork Length	Total Length	Weight(g/kg)	Aging Struct.	Comments
N. Pike	1	428	457	N/A	-	
Yellow Perch	2	75	79	5.15	-	
"	3	79	83	3.95	-	Decaying
"	4	80	83	5.07	-	

Precipitation Codes (at lift):
 00 = no precipitation at lift time
 10 = mist
 40 = fog
 51 = light drizzle
 55 = heavy drizzle
 61 = light rain
 65 = heavy rain
 71 = light snow
 75 = heavy snow
 80 = light rain shower
 85 = heavy rain shower
 95 = thunder storm

Duration Precipitation Codes:
 1 = no precipitation during set
 2 = < 4 hours of precipitation
 3 = > 4 hours of precipitation
 4 = constant precipitation

Duration Wave Codes (calm < 0.3m):
 1 = calm for entire set duration
 2 = mostly calm & some rough
 3 = mostly rough & some calm
 4 = rough for entire set duration

WATER QUALITY READING

Date:

Time:

Temperature: (°C)	DO: (%)
Cond.: (µS/cm) or (Ms/cm)	DO: (mg/L)
Turbidity: (NTU)	pH:
TDS: (g/L)	ORP:
Salinity: (ppm)	Depth: (m)

Comments:

See Bio Sheet Data (X) (N)

QA/QC By: A. Law

Age Structures Legend:

Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 YOY - Young Of The Year

FISHERIES NET CATCH / EFFORT FORM

wood.

SITE DESCRIPTION

Sample ID [SAMID]		Waterbody Name [WBY NM]			Project Code [PROJCD]	
WB 02-OUT-GN 1		SPRINGPOLE			TC190403	
Gear Type (Gillnet, Trapnet, Fyke Trap, Seine net, Fish Fence)	Mesh Size(s) (mm)	Coordinates (UTM NAD 83)			Site Type [SITP]	
		[UTM Zone]	[LAT] [Easting, 6 No.]	[LONG] [Northing, 7 No.]	(substr)	(cover)
Gillnet	88.9	15 U	0549864	5693896	4	1
Trap/Hoop Size (m)	Net/Leader length (m)	Substrate Composition and Cover Types [BOTTOM] (list all substrate types in area of net)				
	15.24	SA, SI, MU, DE, CL				

Site Type - Substrate Codes:
 1 = gravel/pebble/sand mix (GP + SA > 75%)
 2 = boulder/rubble/cobble mix (BO + RC > 75%)
 3 = sand (SA > 75%)
 4 = soft mix (SI + MU + DE + soft CL > 75%)
 5 = bedrock (BR > 75%)
 6 = other (any other combination)

Substrate Acronyms:
 BR = bedrock
 BO = boulder
 RC = rubble/cobble
 GP = gravel/pebble
 SA = sand
 SI = silt
 CL = clay
 MU = muck
 DE = detritus
 MA = marl

Site Type - Cover Codes:
 1 = no cover
 2 = low (1 - 25%)
 3 = moderate (25 - 75%)
 4 = high (> 75%)

Cover Acronyms:
 BO = boulders
 MA = macrophytes
 LT = log/tree
 OT = other
 NC = no cover

SET DESCRIPTION (recorded at time of set to ensure compliance with NSCIN standards)

Field Crew	Set Date [EFFDTC] (dd/mm/yy)	Set Time [EFFTMO] (24hh:mm)	Net Length [XLEADUSE] (1 - 60 m)	Dist. Off Shore [XDISTOFF] (0 - 40 m)	Angle to Shore [XANGLE] (0° - 90°)	Min Depth [GRDEPMIN]	Mid Depth [XGRDEPMID]	Max Depth [GRDEPMA]
Asen Cal Stephen McIlwain	16/July/19	16:24	15.24	0.8	90°	0.4	0.8	1.2

LIFT DATA (recorded at time of lift)

Note: a knot equals one "nautical mile" per hour or 1.9 km/hr (1.2 mph)

Field Crew	Lift Date [EFFDT1] (dd/mm/yy)	Lift Time [EFFTM1] (24hh:mm)	Effort Status [EFFST] (codes 1 - 3)	Air Temp. [AIRTEM1] (°C)	Water Temp. [SITEM1] (°C)	Wave Height [XWAVEHT] (codes 1 - 5)
A.L. S.M.	17/07/19	16:24	1	~28		1
Cloud Cover [CLOUD] (%)	Precipitation [PRECIP] (codes 00 - 95)	Direction & Speed of Wind [WIND] (N,S,E,W) (knots : km/hr)		General Weather for Set Duration [XWEATHER] (duration precip) (duration wave)		Duration [EFFDUR] (fishing hours)
100	00	S	~25	1	1	24

Effort Status Codes:

- 1 = no problem
- 2 = minor problem, likely OK
- 3 = major problem, affected catch

Wave Height Codes:

- 1 = < 0.3 m (< 1 ft.)
- 2 = 0.3 - 0.6 m (1 - 2 ft.)
- 3 = 0.6 - 0.9 m (2 - 3 ft.)
- 4 = 0.9 - 1.2 m (3 - 4 ft.)
- 5 = > 1.2 m (> 4 ft.)

Precipitation Codes (at lift):

- 00 = no precipitation at lift time
- 10 = mist
- 40 = fog
- 51 = light drizzle
- 55 = heavy drizzle
- 61 = light rain
- 65 = heavy rain
- 71 = light snow
- 75 = heavy snow
- 80 = light rain shower
- 85 = heavy rain shower
- 95 = thunder storm

Duration Precipitation Codes:

- 1 = no precipitation during set
- 2 = < 4 hours of precipitation
- 3 = > 4 hours of precipitation
- 4 = constant precipitation

Duration Wave Codes (calm < 0.3m):

- 1 = calm for entire set duration
- 2 = mostly calm & some rough
- 3 = mostly rough & some calm
- 4 = rough for entire set duration

Age Structures Legend:

- Sc - Scales
- Pr - Pectoral Ray
- Oto - Otoliths
- Dr - Dorsal Ray
- YOY - Young Of the Year
- 1+ - Older than "yoy"

FISH CATCH SUMMARY

Species	Species Code	Total Catch [CATCNT]	Length-tailed [SUBCNT]	Bio-sampled [BIOCNT]	Struct. Taken [STRUCT]	Comments
Walleye	334	5	5	5	5	
Shorthead Red-horse	171	1	1	1	1	
Species	Fish #	Fork Length	Total Length	Weight (g / kg)	Aging Struct.	Comments
See		Bio form				

WATER QUALITY READING

Date: _____ Time: _____

Temperature: (°C)	DO: (%)
Cond.: (µS/cm) or (Ms/cm)	DO: (mg/L)
Turbidity: (NTU)	pH:
TDS: (g / L)	ORP:
Salinity: (ppm)	Depth: (m)

Comments:

See Bio Sheet Data (Y) (N)

QA/QC By: ALaw

Page: 1 of 2

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)		Project No: TC190403 wood.	
		3.5 inch mesh			
Waterbody Name: Spring pole Lk.		Start Date (DD MMM YYYY) / Time (24HR): 16 Jul 2019 / 16:24		End Date (DD MMM YYYY) / Time (24HR): 17 Jul 2019 / 16:24	
				Area Description: Inlet	
Sample ID: WB02-OUT-GN1		Method #: (Traps / Rods / Dips) 3.5"		UTM Coordinates (mN, mE, Zone, Acc.): 15U 0549864, 5693896	
				Samplers In. AL, SM	
				Page: 2 of 2	
				see Net Form ☒	

Area Description:

Inlet

Page: 2 of 2

see Net Form ☒[illegible]

Aging Structures Legend:
Sc - Scales
Pr - Pectoral Ray
Oto - Otoliths
Dr - Dorsal Ray
yoy - Young Of the Year
1+ - Older than "yoy"

Date: 5 Sept 2019

Total #

FISHERIES NET CATCH / EFFORT FORM

wood.

SITE DESCRIPTION

Sample ID [SAMID]		Waterbody Name [WBY NM]			Project Code [PROJCD]	
WB02-OUT-US-MF1		Unnamed			TC190403	
Gear Type (Gillnet, Trapnet, Fyke Trap, Seine net, Fish Fence)	Mesh Size(s) (mm)	Coordinates (UTM NAD 83)			Site Type [SITP]	
		[UTM Zone]	[LAT] [Easting, 6 No.]	[LONG] [Northing, 7 No.]	(substr)	(cover)
Minnow Fyke	Small	15U	550091	5694065	4	2
Trap/Hoop Size (m)	Net/Leader length (m)	Substrate Composition and Cover Types [BOTTOM] (list all substrate types in area of net)				
0.75	—	Si, Mu, DE				

Site Type - Substrate Codes:

- 1 = gravel/pebble/sand mix (GP + SA > 75%)
2 = boulder/rubble/cobble mix (BO + RC > 75%)
3 = sand (SA > 75%)
4 = soft mix (SI + MU + DE + soft CL > 75%)
5 = bedrock (BR > 75%)
6 = other (any other combination)

Substrate Acronyms:

- BR = bedrock
BO = boulder
RC = rubble/cobble
GP = gravel/pebble
SA = sand SI = silt
CL = clay MU = muck
DE = detritus
MA = marl

Site Type - Cover Codes:

- 1 = no cover
2 = low (1 - 25%)
3 = moderate (25 - 75%)
4 = high (> 75%)

Cover Acronyms:

- BO = boulders OT = other
MA = macrophytes NC = no cover
LT = log/tree

SET DESCRIPTION (recorded at time of set to ensure compliance with NSCIN standards)

Field Crew	Set Date [EFFDTC]	Set Time [EFFTMO]	Net Length [XLEADUSE]	Dist. Off Shore [XDISTOFF]	Angle to Shore [XANGLE]	Min Depth [GRDEPMIN]	Mid Depth [XGRDEPMID]	Max Depth [GRDEPMAX]
A. Law	(dd/mm/yy)	(24hh:mm)	(1 - 60 m)	(0 - 40 m)	(0° - 90°)			
S. McGowan	16/07/19	15:45	—	0	—	0.2	0.6	0.8

LIFT DATA (recorded at time of lift)

Note: a knot equals one "nautical mile" per hour or 1.9 km/hr (1.2 mph)

Field Crew	Lift Date [EFFDTC]	Lift Time [EFFTMO]	Effort Status [EFFST]	Air Temp. [AIRTEM1]	Water Temp. [SITE M1]	Wave Height [XWAVEHT]
A.L.	(dd/mm/yy)	(24hh:mm)	(codes 1 - 3)	(°C)	(°C)	(codes 1 - 5)
S.M.	7/07/19	16:30	1	28		1
Cloud Cover [CLOUD]	Precipitation [PRECIP]	Direction & Speed of Wind [WIND]		General Weather for Set Duration [XWEATHER]		Duration [EFFDUR]
(%)	(codes 00 - 95)	(N,S,E,W)	(knots : km/hr)	(duration precip)	(duration wave)	(fishing hours)
100	10	SW	10	2	1	

Effort Status Codes:

- 1 = no problem
2 = minor problem, likely OK
3 = major problem, affected catch

Wave Height Codes:

- 1 = < 0.3 m (< 1 ft.)
2 = 0.3 - 0.6 m (1 - 2 ft.)
3 = 0.6 - 0.9 m (2 - 3 ft.)
4 = 0.9 - 1.2 m (3 - 4 ft.)
5 = > 1.2 m (> 4 ft.)

Precipitation Codes (at lift):

- 00 = no precipitation at lift time
10 = mist
40 = fog
51 = light drizzle
55 = heavy drizzle
61 = light rain
65 = heavy rain
71 = light snow
75 = heavy snow
80 = light rain shower
85 = heavy rain shower
95 = thunder storm

Duration Precipitation Codes:

- 1 = no precipitation during set
2 = < 4 hours of precipitation
3 = > 4 hours of precipitation
4 = constant precipitation

Duration Wave Codes (calm < 0.3m):

- 1 = calm for entire set duration
2 = mostly calm & some rough
3 = mostly rough & some calm
4 = rough for entire set duration

Age Structures Legend:

- Sc - Scales
Pr - Pectoral Ray
Oto - Otoliths
Dr - Dorsal Ray
YOY - Young Of the Year

FISH CATCH SUMMARY

Species	Species Code	Total Catch [CATCNT]	Length-tallied [SUBCNT]	Bio-sampled [BIOCNT]	Struct. Taken [STRUCT]	Comments
Northern Pike	131	3	3	3	N	Released
Golden Shiner	194	93	20	20	N	
Blacknose Shiner	200	17	17	17	N	
Yellow Perch	331	4	4	4	N	
Spottail Shiner	201	2	2	2	N	
Species	Fish #	Fork Length	Total Length	Weight (g / kg)	Aging Struct.	Comments
See	—	Bio	—	form	—	

WATER QUALITY READING

Date:

Time:

Temperature: (°C)	DO: (%)
Cond.: (µS/cm) or (Ms/cm)	DO: (mg/L)
Turbidity: (NTU)	pH:
TDS: (g / L)	ORP:
Salinity: (ppm)	Depth: (m)

Comments:

See Bio Sheet Data (Y/N)

QA/QC By: A. Law

Page: 1 of 3

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine) <i>Minnow Fyke</i>		Project No: <i>TC190403 wood.</i>	
Waterbody Name: <i>WB 02-Out-US</i>		Start Date (DD MMM YYYY) / Time (24HR): <i>16/July/2019 / 15:45</i>		End Date (DD MMM YYYY) / Time (24HR): <i>17/July/2019 / 16:30</i>	
Area Description:		Sample ID: <i>MF 1</i>		Method #: (Traps / Rods / Dips) <i>1 MF Net</i>	
UTM Coordinates (mN, mE, Zone, Acc.): <i>U15 0550091, 5694065</i>		Samplers In: <i>AL, SM</i>		Page: <i>2</i> of <i>3</i>	
see Net Form ☒					

Sample ID	Fish #	Species	Species Code	Length (mm)		Round Weight (g/kg)	Aging Structures (Sc, Pr, Dr, Oto)	Pres. for Analysis (Y/N)	Presumed age class (YOY / 1+)	Comments (Hg / Released / etc.)
				Fork	Total					
	1	<i>Northern Pike</i>	131	312	331	N/A	NONE	N		
	2	<i>//</i>	131	348	374	N/A				
	3	<i>//</i>	131	87	90	3.67				<i>MORT</i>
<i>Golden Shiner</i>	4	<i>GLSH</i>	194	53	58	1.57				
	5	<i>//</i>		38	42	0.59				
	6	<i>//</i>		52	58	1.47				
	7	<i>//</i>		53	59	1.57				
	8	<i>//</i>		50	57	1.39				
	9	<i>P.</i>		47	52	1.11				
	10	<i>//</i>		44	49	1.00				
	11	<i>//</i>		84	94	5.48				<i>Photo</i>
	12	<i>//</i>		56	63	1.79				
	13	<i>//</i>		44	49	0.90				
	14	<i>//</i>		51	57	1.36				
	15	<i>//</i>		50	56	1.21				
	16	<i>//</i>		83	86	5.08				
	17	<i>//</i>		52	57	1.56				
	18	<i>//</i>		48	53	1.15				
	19	<i>//</i>		46	51	0.93				
	20	<i>//</i>		55	61	1.65				
	21	<i>//</i>		49	54	1.13				
	22	<i>//</i>		60	68	2.19				<i>Gravid</i>
	23	<i>//</i>	✓	92	101	7.04				
<i>Blacknose shiner</i>	24	<i>BLSH</i>	200	46	52	0.94				
	25			45	50	0.96				
	26			47	52	1.08				
	27			45	50	0.89				
	28			45	50	1.03				
	29			45	50	0.89				
	30			44	49	0.81				
	31			44	49	0.80				
	32			45	50	1.06				
	33			45	50	0.85				
	34			45	50	0.99				
	35			45	50	0.98				
	36			46	51	0.94				
	37			47	53	1.10				
	38			46	51	0.95				
	39			49	55	1.13				
	40			45	50	0.76				

Species Box Tally Area / Site Comments:

GLSH Total = 73 Ind.
Total weight = 103.138.34

QA/QC By: *A. Low*
 Date: *5 Sep 2019*

Species	Total Catch	Species	Total Catch
<i>NRPK</i>	<i>3</i>	<i>SPSH</i>	<i>2</i>
<i>GLSH</i>	<i>93</i>		
<i>BLSH</i>	<i>17</i>		
<i>YLPR</i>	<i>4</i>	Total #	<i>(109)</i>

Aging Structures Legend:
 Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 yo - Young Of the Year
 1+ - Older than 'yo'

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)		Project No: wood.	
		Minnow Fryke		TC 190403	
Waterbody Name: WB02-OUT-US		Start Date (DD MMM YYYY) / Time (24HR): 16/July/2019/15:45		End Date (DD MMM YYYY) / Time (24HR): 17/July/2019/16:30	
Area Description:					
Sample ID: MF1	Method #: (Traps / Rods / Dips) 1 Minnow Fryke	UTM Coordinates (mN, mE, Zone, Acc.): U15 0650091, 5694065		Samplers in: AL, SM	Page: 3 of 3
					see Net Form ☒

Project No:

wood.

Waterbody Name:

Start Date (DD MMM YYYY) / Time (24HR):

End Date (DD MMM YYYY) / Time (24HR):

Area Description:

Sample ID:

Method #: (Traps / Rods / Dips)

UTM Coordinates (mN, mE, Zone, Acc.):

Samplers In.

Page: 3 of 3

see Net Form

[illegible]

Species Box Tally Area / Site Comments:

ALL fish Released Alive *

QA/QC By: A Lar

Date: 5 Sept-2019

Species

Total Catch

Species

Total Catch

Aging Structures Legend:

Bc - Scales

Pr - Pectoralis
Oto - Otolith

Dr - Dorsal

yoy - Young

1+ - Older than "yoy"

Total #

SPF-12

FISHERIES NET CATCH / EFFORT FORM

wood.

SITE DESCRIPTION

Sample ID [SAMID]		Waterbody Name [WBY NM]			Project Code [PROJCD]	
WBO2-OUT-US-LF		Unnamed 2			TC190403	
Gear Type (Gillnet, Trapnet, Fyke Trap, Seine net, Fish Fence)	Mesh Size(s) (mm)	Coordinates (UTM NAD 83)			Site Type	
		[UTM Zone]	[LAT]	[LONG]	[SITP]	
			[Easting, 6 No.]	[Northing, 7 No.]	(substr)	(cover)
Large Minnow Fyke	LRG	15 U	0550094	5694067	MU	1
Trap/Hoop Size (m)	Net/Leader length (m)	Substrate Composition and Cover Types [BOTTOM] (list all substrate types in area of net)				
		MU, DE				

Site Type - Substrate Codes:
 1 = gravel/pebble/sand mix (GP + SA > 75%)
 2 = boulder/rubble/cobble mix (BO + RC > 75%)
 3 = sand (SA > 75%)
 4 = soft mix (SI + MU + DE + soft CL > 75%)
 5 = bedrock (BR > 75%)
 6 = other (any other combination)

Substrate Acronyms:
 BR = bedrock
 BO = boulder
 RC = rubble/cobble
 GP = gravel/pebble
 SA = sand SI = silt
 CL = clay MU = muck
 DE = detritus
 MA = marl

Site Type - Cover Codes:
 1 = no cover
 2 = low (1 - 25%)
 3 = moderate (25 - 75%)
 4 = high (> 75%)

Cover Acronyms:
 BO = boulders OT = other
 MA = macrophytes NC = no cover
 LT = log/tree

SET DESCRIPTION (recorded at time of set to ensure compliance with NSCIN standards)

Field Crew	Set Date [EFFDTC]	Set Time [EFFTMO]	Net Length [XLEADUSE]	Dist. Off Shore [XDISTOFF]	Angle to Shore [XANGLE]	Min Depth [GRDEPMIN]	Mid Depth [XGRDEPMID]	Max Depth [GRDEPMAX]
A. Law	(dd/mm/yy)	(24hh:mm)	(1 - 60 m)	(0 - 40 m)	(0° - 90°)			
S. McKeown	16/July/19	15:54	—	0	90	0.5	0.5	0.5

LIFT DATA (recorded at time of lift)

Note: a knot equals one "nautical mile" per hour or 1.9 km/hr (1.2 mph)

Field Crew	Lift Date [EFFDTC]	Lift Time [EFFTMO]	Effort Status [EFFST]	Air Temp. [AIRTEM1]	Water Temp. [SITEM1]	Wave Height [XWAVEHT]
AL	(dd/mm/yy)	(24hh:mm)	(codes 1 - 3)	(°C)	(°C)	(codes 1 - 5)
SM	17/07/19	16:35	1	~28	—	1
Cloud Cover [CLOUD]	Precipitation [PRECIP]	Direction & Speed of Wind [WIND]		General Weather for Set Duration [XWEATHER]		Duration [EFFDUR]
(%)	(codes 00 - 95)	(N,S,E,W)	(knots : km/hr)	(duration precip)	(duration wave)	(fishing hours)
100	10	SW	10	Z	1	

Effort Status Codes:

1 = no problem
 2 = minor problem, likely OK
 3 = major problem, affected catch

Wave Height Codes:

1 = < 0.3 m (< 1 ft.)
 2 = 0.3 - 0.6 m (1 - 2 ft.)
 3 = 0.6 - 0.9 m (2 - 3 ft.)
 4 = 0.9 - 1.2 m (3 - 4 ft.)
 5 = > 1.2 m (> 4 ft.)

Precipitation Codes (at lift):

00 = no precipitation at lift time
 10 = mist

40 = fog
 51 = light drizzle
 55 = heavy drizzle
 61 = light rain
 65 = heavy rain
 71 = light snow
 75 = heavy snow
 80 = light rain shower
 85 = heavy rain shower
 95 = thunder storm

Duration Precipitation Codes:

1 = no precipitation during set
 2 = < 4 hours of precipitation
 3 = > 4 hours of precipitation
 4 = constant precipitation

Duration Wave Codes (calm < 0.3m):

1 = calm for entire set duration
 2 = mostly calm & some rough
 3 = mostly rough & some calm
 4 = rough for entire set duration

FISH CATCH SUMMARY

Species	Species Code	Total Catch [CATCNT]	Length-tallied [SUBCNT]	Bio-sampled [BIOCNT]	Struct. Taken [STRUCT]	Comments
NO CATCH						
Species	Fish #	Fork Length	Total Length	Weight (g / kg)	Aging Struct.	Comments

WATER QUALITY READING

Date:

Time:

Temperature: (°C)	DO: (%)
Cond.: (µS/cm) or (Ms/cm)	DO: (mg/L)
Turbidity: (NTU)	pH:
TDS: (g / L)	ORP:
Salinity: (ppm)	Depth: (m)

Comments:

See Bio Sheet Data (Y/N)

QA/QC By: A. Law

Age Structures Legend:

Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 YOY - Young Of the Year
 1+ - Older than "yoy"

Page: 1 of 1

FISHERIES NET CATCH / EFFORT FORM

wood.

SITE DESCRIPTION

Sample ID [SAMID]		Waterbody Name [WBY NM]			Project Code [PROJCD]	
WBO2-OUT-DS-MF1		Spring Pole Lake			TC190403	
Gear Type (Gillnet, Trapnet, Fyke Trap, Seine net, Fish Fence)	Mesh Size(s) (mm)	Coordinates (UTM NAD 83)			Site Type [SITP]	
		[UTM Zone]	[LAT]	[LONG]	(substr)	(cover)
Fyke (Minnow)	Small	15U	550065	5693978	4	3
Trap/Hoop Size (m)	Net/Leader length (m)	Substrate Composition and Cover Types [BOTTOM] (list all substrate types in area of net)				
0.75	—	MU, SI				

Site Type - Substrate Codes:
 1 = gravel/pebble/sand mix (GP + SA > 75%)
 2 = boulder/rubble/cobble mix (BO + RC > 75%)
 3 = sand (SA > 75%)
 4 = soft mix (SI + MU + DE + soft CL > 75%)
 5 = bedrock (BR > 75%)
 6 = other (any other combination)

Substrate Acronyms:
 BR = bedrock
 BO = boulder
 RC = rubble/cobble
 GP = gravel/pebble
 SA = sand SI = silt
 CL = clay MU = muck
 DE = detritus
 MA = marl

Site Type - Cover Codes:
 1 = no cover
 2 = low (1 - 25%)
 3 = moderate (25 - 75%)
 4 = high (> 75%)

Cover Acronyms:
 BO = boulders OT = other
 MA = macrophytes NC = no cover
 LT = log/tree

SET DESCRIPTION (recorded at time of set to ensure compliance with NSCIN standards)

Field Crew	Set Date [EFFDT0] (dd/mm/yy)	Set Time [EFFTMO] (24hh:mm)	Net Length [XLEADUSE] (1 - 60 m)	Dist. Off Shore [XDISTOFF] (0 - 40 m)	Angle to Shore [XANGLE] (0° - 90°)	Min Depth [GRDEPMIN]	Mid Depth [XGRDEPMID]	Max Depth [GRDEPMAX]
A. Law S. McGowan	16/07/19	14:30	—	~1	—	0.4	0.6	0.8

LIFT DATA (recorded at time of lift)

Note: a knot equals one "nautical mile" per hour or 1.9 km/hr (1.2 mph)

Field Crew	Lift Date [EFFDT1] (dd/mm/yy)	Lift Time [EFFTMO] (24hh:mm)	Effort Status [EFFST] (codes 1 - 3)	Air Temp. [AIRTEM1] (°C)	Water Temp. [SITEM1] (°C)	Wave Height [XWAVEHT] (codes 1 - 5)
AL SM	18/07/19	10:30	1	20	21.4	
Cloud Cover [CLOUD] (%)	Precipitation [PRECIP] (codes 00 - 95)	Direction & Speed of Wind [WIND] (N,S,E,W) (knots : km/hr)		General Weather for Set Duration [XWEATHER] (duration precip) (duration wave)		Duration [EFFDUR] (fishing hours)
100	00	SW ~15		00 1		

Effort Status Codes:

1 = no problem
 2 = minor problem, likely OK
 3 = major problem, affected catch

Wave Height Codes:

1 = < 0.3 m (< 1 ft.)
 2 = 0.3 - 0.6 m (1 - 2 ft.)
 3 = 0.6 - 0.9 m (2 - 3 ft.)
 4 = 0.9 - 1.2 m (3 - 4 ft.)
 5 = > 1.2 m (> 4 ft.)

Precipitation Codes (at lift):

00 = no precipitation at lift time
 10 = mist
 40 = fog
 51 = light drizzle
 55 = heavy drizzle
 61 = light rain
 65 = heavy rain
 71 = light snow
 75 = heavy snow
 80 = light rain shower
 85 = heavy rain shower
 95 = thunder storm

Duration Precipitation Codes:

1 = no precipitation during set
 2 = < 4 hours of precipitation
 3 = > 4 hours of precipitation
 4 = constant precipitation

Duration Wave Codes (calm <0.3m):

1 = calm for entire set duration
 2 = mostly calm & some rough
 3 = mostly rough & some calm
 4 = rough for entire set duration

FISH CATCH SUMMARY

Species	Species Code	Total Catch [CATCNT]	Length-tallied [SUBCNT]	Bio-sampled [BIOCNT]	Struct. Taken [STRUCT]	Comments
Yellow Perch	331	42	42	42	NONE	Released
Castoridae	176	9	9	9	"	Suckers
Emerald Shiner	196	1	1	1	"	Rel.
Species	Fish #	Fork Length	Total Length	Weight (g / kg)	Aging Struct.	Comments
See	Bio			form		

WATER QUALITY READING

Date: July 18 2019 Time: 11:30

Temperature: (°C)	21.4	DO: (%)	103.2
Cond.: (µS/cm) or (Ms/cm)	64.5	DO: (mg/L)	8.58
Turbidity: (NTU)	—	pH:	6.53
TDS: (g / L)	—	ORP:	358.1
Salinity: (ppm)	—	Depth: (m)	

Comments:

See Bio Sheet Data (Y/N)

QA/QC By: AL, SM

Age Structures Legend:

Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 YOY - Young Of The Year
 1+ - Older than "yoy"

Page: 1 of 2

Project No. TC190403 wood.

Minnow Trap

Area Description:

Outlet

see Net Form ☐

AL, SM

Total #	29
---------	----

[illegible]

Ageing Structures Legend:
Sc - Scales
Pr - Pectoral Ray
Oto - Otoliths
Dr - Dorsal Ray
yoy - Young Of the Year
1+ - Older than "yoy"

Total #	10
---------	----

[illegible]

BIOSAMPLING FORM		Method Used: <u>Minnow Trap / Angling / Dip Net / Gillnet / Seine</u> <i>Minnow Trap</i>		Project No: <i>TC190403 wood.</i>	
Waterbody Name: <i>WB16-1N</i>		Start Date (DD MMM YYYY) / Time (24HR): <i>19 JUL 2019 / 13:20</i>		End Date (DD MMM YYYY) / Time (24HR): <i>20 JUL 2019 / 09:20</i>	
				Area Description: <i>Braided channel</i>	
Sample ID: <i>WB16-1N-MTJ</i>		Method #: (Traps / Rods / Dips) <i>6 x MTJ's</i>		UTM Coordinates (mN, mE, Zone, Acc.): <i>15 U 547837, 5692117</i>	
				Samplers In: <i>AL SM</i>	
				Page: <u>1</u> of <u>1</u> see Net Form ☐	

Start Date (DD MMM YYYY) / Time (24HR):

Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)

Project No:

Mikrowa Trap

Project No. TC190403 wood.

WB16-1N

19 JUL 2019 / 13:20

End Date (DD MMM YYYY) / Time (24HR):

20 JUL 2019 / 09:20

Area Description:

Braided channel

Sample ID:

Method #: (Traps / Rods / Dips)

UTM Coordinates (mN, mE, Zone, Acc.):

Samplers In.

Page: 1 of 1

see Net Form ☐

WB16-IN-MT1

6 x MT's

15 0547837, 5692117

AL. SM

see Net Form ☐

Sample ID	Fish #	Species	Species Code	(VARIOUS)		Round Weight (g / kg)	Aging Structures (Sc, Pr, Dr, Oto)	Pres. for Analysis (Y/N)	Presumed age class (YOY / 1+)	Comments (Hg / Released / etc.)
				Fork	Total					
N	O	C	A	T	I	C	H			

Species Box Tally Area / Site Comments:

Species

Total Catch

Species

[illegible]

Aging Structures Legend:

Sc - Scales

Pr - Pectoral Ray
Sta - Stalks

Oto - Otoliths
Dr - Dorsal Ray

yoy - Young Of the Year

1+ - Older than "yoy"

QA/QC By: A. Law

Date: 20 JUL 19

Total #

[illegible]

ELECTROFISHING FORM				Project Name / Number:		wood.			
Waterbody: S-9-US01		Date: (DD/MM/YYYY) 17/06/2019		Water Temp: 20.1		Shocking Method: Backpack			
UTM Start: 552890, 5690556		Start Time / Stop Time (24 hrs): 12:20 / 12:35		Netters: 1 (AL)		Pg: 1 of 1 Run: 1 of 1			
UTM End: 552925, 5690585		Elapsed Time: (hours) 15 min		Effort (seconds): 650		Site Area (Length X Width): 40 m x 2			
Zone / Acc.: S-9-US01		Voltage: 240		Frequency:		Pulse: Standard			
Sample ID	Fish #	Species	Species Code	Length (mm)		Round Weight (g / kg)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Comments (Hg / Released / etc.)
				Fork	Total				
NO CATCH									
Species Box Tally Area / Site Comments: - Extremely low DO (8.7%) (0.68mg/L) YST ambient Temp = 20.1 °C Cond = 85.7 µs/cm pH = 6.13 ORP = 359									
QA/QC By: Alan Date: 24 July 2019 No fish captured or observed*									

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)		Project No: TC190403 wood.	
Waterbody Name: S-9-US02-MT1		Start Date (DD MMM YYYY) / Time (24HR): 16 JUL 2019 / 10:00		End Date (DD MMM YYYY) / Time (24HR): 17 JUL 2019 / 09:30	
Area Description: Beaver Pond		Sample ID: S-9-US02-MT1		Method #: (Traps / Rods / Dips) 10 x MTs	
UTM Coordinates (mN, mE, Zone, Acc.): 15U 552447.5690348		Samplers In: AL, SM		Page: 1 of 2	
see Net Form ☐					

Sample ID	Fish #	Species	Species Code	Length (mm)		Round Weight (g / kg)	Aging Structures (Sc, Pr, Dr, Oto)	Pres. for Analysis (Y/N)	Presumed age class (YOY / 1+)	Comments (Hg / Released / etc.)
				Fork	Total					
	1	Pearl Dace	214	99	97	8.28	N	N		Released
	2	"		115	123	16.04				
	3	"		118	126	19.84				
	4	"		66	71	3.87				
	5	"		69	74	4.23				
	6	"		95	103	10.31				
	7	"		113	122	17.13				
	8	"		108	115	13.58				
	9	"		99	106	10.66				
	10	"		79	84	4.92				
	11	"		69	74	3.35				
	12	"		75	80	4.91				
	13	"		72	78	4.24				
	14	"		70	75	4.11				
	15	"		90	97	8.66				
	16	"		77	83	4.37				
	17	"		72	78	4.90				
	18	"		75	80	4.58				
	19	"		72	77	3.84				
	20	"		76	82	4.85				
	21	NRDC	182	46	49	1.36				
	22	"		50	55	1.79				
	23	"		48	51	1.43				
	24	"		49	52	1.53				
	25	"		48	51	1.51				
	26	"		58	62	2.38				
	27	"		50	54	1.81				
	28	"		47	51	1.31				
	29	"		52	56	1.97				
	30	"		52	56	1.91				
	31	"		47	50	1.36				
	32	"		58	63	2.50				
	33	"		51	55	1.61				
	34	"		46	50	1.17				
	35	"		46	50	1.41				
	36	"		49	53	1.47				
	37	"		46	51	1.38				
	38	"		45	49	1.10				
	39	"		51	55	1.63				
	40	"		61	65	2.47				

Species Box Tally Area / Site Comments:	Species	Total Catch	Species	Total Catch	Anko - Anchoa Morsini Sc - Scales Pr - Pectoral Ray Oto - Otoliths Dr - Dorsal Ray YOY - Young Of the Year 1+ - Older than 'YOY'
	PRDC	38	FTMN		
	NRDC	47			
	FNDC	18			
QA/QC By: AL, SM	BRST	1	Total #		
Date: 10 July 19					

NRDC { Total weight = 52.10
 { Total fish = 27

PRDC { Total weight = 246.66g + 19
 { Total fish = 38

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)		Project No: TC190403 wood.	
Waterbody Name: S-9-US02-		Start Date (DD MMM YYYY) / Time (24HR): 16 JUL 2019 / 10:00		End Date (DD MMM YYYY) / Time (24HR): 17 JUL 2019 / 09:30	
Area Description: Beaver Pond		Sample ID: S-9-US02-MT1		Method #: (Traps / Rods / Dips) 10 x MT's	
UTM Coordinates (mN, mE, Zone, Acc.): 15U 552447, 5690348		Samplers In: AL, SM		Page: 2 of 2	
see Net Form ☐					

Sample ID	Fish #	Species	Species Code	Length (mm)		Round Weight (g / kg)	Aging Structures (Sc, Pr, Dr, Oto)	Pres. for Analysis (Y/N)	Presumed age class (YOY / 1+)	Comments (Hg / Released / etc.)
				Fork	Total					
	41	FNDC	183	45	48	1.22	NONE	N		Released
	42	//		76	81	6.08				
	43	//		49	53	1.77				
	44	//		61	65	2.99				
	45	//		66	71	3.86				
	46	//		59	64	2.97				
	47	//		60	64	2.72				
	48	//		64	67	3.65				
	49	//		64	69	3.78				
	50	//		69	73	2.59				
	51	//		63	67	2.85				
	52	//		59	63	3.05				
	53	//		60	65	2.91				
	54	//		59	63	2.65				
	55	//		51	54	1.63				
	56	//		61	66	2.91				
	57	//		48	51	1.31				
	58	//		48	51	1.40				
	59	FNDC	209	53	56	1.96				
	60	BRST	281	53	56	1.61				
		YSI								
		Temp	19.6°C							
		DO %	41.2							
		DO (mg/L)	3.45							
		Cond us/cm	16.3							
		pH	5.83							
		ORP	389.2							

Species Box Tally Area / Site Comments: FNDC - total weight =				Species	Total Catch	Species	Total Catch	Aging Structures Legend: Sc - Scales Pr - Pectoral Ray Oto - Otoliths Dr - Dorsal Ray YOY - Young of the Year 1+ - Older than "YOY"
				QA/QC By: A. Law Date: 5 Sept 2019				

FL

wood.

Lake / River Outlet

see Net Form

Species Box Tally Area / Site Comments:		Species	Total Catch	Species	Total Catch	<u>Analing Structures Legend:</u> Sc - Scales Pr - Pectoral Ray Oto - Otoliths Dr - Dorsal Ray yoy - Young Of The Year 1+ - Older than "yoy"
QA/QC By: AIAW						
Date: 5 Sept 2019				Total #		

Aging Structures Legend:
Sc - Scales
Pr - Pectoral Ray
Oto - Otoliths
Dr - Dorsal Ray
yoy - Young Of the Year
1+ - Older than "yoy"

FISHERIES NET CATCH / EFFORT FORM

wood.

SITE DESCRIPTION

Sample ID [SAMID]		Waterbody Name [WBY NM]			Project Code [PROJCD]	
BR-KM22-GN1		Springdale Lake			TC190403	
Gear Type (Gillnet, Trapnet, Fyke Trap, Seine net, Fish Fence)	Mesh Size(s) (mm)	Coordinates (UTM NAD 83)			Site Type [SITP]	
		[UTM Zone]	[LAT]	[LONG]	(substr)	(cover)
Gillnet	3.5	150	565146	5687843	3	3
Trap/Hoop Size (m)	Net/Leader length (m)	Substrate Composition and Cover Types [BOTTOM] (list all substrate types in area of net)				
	12.54	BR, Bo, Rc, GP				

Site Type - Substrate Codes:
 1 = gravel/pebble/sand mix (GP + SA > 75%)
 2 = boulder/rubble/cobble mix (BO + RC > 75%)
 3 = sand (SA > 75%)
 4 = soft mix (SI + MU + DE + soft CL > 75%)
 5 = bedrock (BR > 75%)
 6 = other (any other combination)

Substrate Acronyms:
 BR = bedrock
 BO = boulder
 RC = rubble/cobble
 GP = gravel/pebble
 SA = sand SI = silt
 CL = clay MU = muck
 DE = detritus
 MA = marl

Site Type - Cover Codes:
 1 = no cover
 2 = low (1 - 25%)
 3 = moderate (25 - 75%)
 4 = high (> 75%)

Cover Acronyms:
 BO = boulders
 MA = macrophytes
 LT = log/tree
 OT = other
 NC = no cover

SET DESCRIPTION (recorded at time of set to ensure compliance with NSCIN standards)

Field Crew	Set Date [EFFDTC] (dd/mm/yy)	Set Time [EFFTMO] (24hh:mm)	Net Length [XLEADUSE] (1 - 60 m)	Dist. Off Shore [XDISTOFF] (0 - 40 m)	Angle to Shore [XANGLE] (0° - 90°)	Min Depth [GRDEPMIN]	Mid Depth [XGRDEPMID]	Max Depth [GRDEPMAX]
A. Law	22/07/19	12:30	12.54	0	90	1.0	~1.4	~2.0
S. McGowan								

LIFT DATA (recorded at time of lift)

Note: a knot equals one "nautical mile" per hour or 1.9 km/hr (1.2 mph)

LIFT DATA (recorded at time of lift)						
Field Crew	Lift Date [EFFDT1] (dd/mm/yy)	Lift Time [EFFTM1] (24hh:mm)	Effort Status [EFFST] (codes 1 - 3)	Air Temp. [AIRTEM1] (°C)	Water Temp. [SITEM1] (°C)	Wave Height [XWAVEHT] (codes 1 - 5)
A. L.						
S. M						
	23/07/19	11:30	2	~26	~24	1
Cloud Cover [CLOUD] (%)	Precipitation [PRECIP] (codes 00 - 95)	Direction & Speed of Wind [WIND] (N,S,E,W) (knots : km/hr)		General Weather for Set Duration [XWEATHER] (duration precip) (duration wave)		Duration [EFFDUR] (fishing hours)
Ø	00	NN	~10	2	1	

Effort Status Codes:

- 1 = no problem
- 2 = minor problem, likely OK
- 3 = major problem, affected catch

Wave Height Codes:

- 1 = < 0.3 m (< 1 ft.)
- 2 = 0.3 - 0.6 m (1 - 2 ft.)
- 3 = 0.6 - 0.9 m (2 - 3 ft.)
- 4 = 0.9 - 1.2 m (3 - 4 ft.)
- 5 = > 1.2 m (> 4 ft.)

Precipitation Codes (at lift):

- 00 = no precipitation at lift time

- 10 = mist
- 40 = fog
- 51 = light drizzle
- 55 = heavy drizzle
- 61 = light rain
- 65 = heavy rain
- 71 = light snow
- 75 = heavy snow
- 80 = light rain shower
- 85 = heavy rain shower
- 95 = thunder storm

Duration Precipitation Codes:

- 1 = no precipitation during set
- 2 = < 4 hours of precipitation
- 3 = > 4 hours of precipitation
- 4 = constant precipitation

Duration Wave Codes (calm < 0.3m):

- 1 = calm for entire set duration
- 2 = mostly calm & some rough
- 3 = mostly rough & some calm
- 4 = rough for entire set duration

Age Structures Legend:

- Sc - Scales
- Pr - Pectoral Ray
- Oto - Otoliths
- Dr - Dorsal Ray
- YOY - Young Of the Year

FISH CATCH SUMMARY

Species	Species Code	Total Catch [CATCNT]	Length-tallied [SUBCNT]	Bio-sampled [BIOCNT]	Struct. Taken [STRUCT]	Comments
NOCATCH						
Species	Fish #	Fork Length	Total Length	Weight (g / kg)	Aging Struct.	Comments

WATER QUALITY READING

Date: 22 Jul 19 Time: 13:20

Temperature: (°C)	21.0	DO: (%)	98.7
Cond. (µS/cm) or (Ms/cm)	53.7	DO: (mg/L)	8.44
Turbidity: (NTU)	—	pH:	6.71
TDS: (g / L)	—	ORP:	315.9
Salinity: (ppm)	—	Depth: (m)	0.10

Comments:

See Bio Sheet Data (Y/N)

QA/QC By: A. Law

Page: 1 of 1

FISHERIES NET CATCH / EFFORT FORM

wood.

TE DESCRIPTION

Sample ID [SAMID]		Waterbody Name [WBY NM]			Project Code [PROJCD]	
BR-KM22-GN2		Springpole Lake			TC190403	
Gear Type (Gillnet, Trapnet, Fyke Trap, Seine net, Fish Fence)	Mesh Size(s) (mm)	Coordinates (UTM NAD 83)			Site Type [SITP]	
		[UTM Zone]	[LAT]	[LONG]	(substr)	(cover)
Gillnet	2.5"	15V	565241	5687899	2	3
Trap/Hoop Size (m)	Net/Leader length (m)	Substrate Composition and Cover Types [BOTTOM] (list all substrate types in area of net)				
—	15.54	Br.Bo. mu				

Site Type - Substrate Codes:
 1 = gravel/pebble/sand mix (GP + SA > 75%)
 2 = boulder/rubble/cobble mix (BO + RC > 75%)
 3 = sand (SA > 75%)
 4 = soft mix (SI + MU + DE + soft CL > 75%)
 5 = bedrock (BR > 75%)
 6 = other (any other combination)

Substrate Acronyms:
 BR = bedrock
 BO = boulder
 RC = rubble/cobble
 GP = gravel/pebble
 SA = sand SI = silt
 CL = clay MU = muck
 DE = detritus
 MA = marl

Site Type - Cover Codes:
 1 = no cover
 2 = low (1 - 25%)
 3 = moderate (25 - 75%)
 4 = high (> 75%)

Cover Acronyms:
 BO = boulders OT = other
 MA = macrophytes NC = no cover
 LT = log/tree

SET DESCRIPTION (recorded at time of set to ensure compliance with NSCIN standards)

Field Crew	Set Date [EFFDT0] (dd/mm/yy)	Set Time [EFFTMO] (24hh:mm)	Net Length [XLEADUSE] (1 - 60 m)	Dist. Off Shore [XDISTOFF] (0 - 40 m)	Angle to Shore [XANGLE] (0° - 90°)	Min Depth [GRDEPMIN]	Mid Depth [XGRDEPMID]	Max Depth [GRDEPMAX]
A. Law S. McGowan	22/07/19	12:35	15.54	0	90	0.8	1.2	1.6

LIFT DATA (recorded at time of lift)

Note: a knot equals one "nautical mile" per hour or 1.9 km/hr (1.2 mph)

EFFORT DATA (recorded at time of lift)						
Field Crew	Lift Date [EFFDT1] (dd/mm/yy)	Lift Time [EFFTM1] (24hh:mm)	Effort Status [EFFST] (codes 1 - 3)	Air Temp. [AIRTEM1] (°C)	Water Temp. [SITEM1] (°C)	Wave Height [XWAVEHT] (codes 1 - 5)
AL						
SM						
	23/07/19	12:40	1	32	21	1
Cloud Cover [CLOUD] (%)	Precipitation [PRECIP] (codes 00 - 95)	Direction & Speed of Wind [WIND] (N,S,E,W) (knots (km/hr))		General Weather for Set Duration [XWEATHER] (duration precip) (duration wave)		Duration [EFFDUR] (fishing hours)
2	00	W	~0	1	1	

Effort Status Codes:

- 1 = no problem
- 2 = minor problem, likely OK
- 3 = major problem, affected catch

Wave Height Codes:

- 1 = < 0.3 m (< 1 ft.)
- 2 = 0.3 - 0.6 m (1 - 2 ft.)
- 3 = 0.6 - 0.9 m (2 - 3 ft.)
- 4 = 0.9 - 1.2 m (3 - 4 ft.)
- 5 = > 1.2 m (> 4 ft.)

Precipitation Codes (at lift):

- 00 = no precipitation at lift time
- 10 = mist
- 40 = fog
- 51 = light drizzle
- 55 = heavy drizzle
- 61 = light rain
- 65 = heavy rain
- 71 = light snow
- 75 = heavy snow
- 80 = light rain shower
- 85 = heavy rain shower
- 95 = thunder storm

Duration Precipitation Codes:

- 1 = no precipitation during set
- 2 = < 4 hours of precipitation
- 3 = > 4 hours of precipitation
- 4 = constant precipitation

Duration Wave Codes (calm <0.3m):

- 1 = calm for entire set duration
- 2 = mostly calm & some rough
- 3 = mostly rough & some calm
- 4 = rough for entire set duration

Age Structures Legend:

- Sc - Scales
- Pr - Pectoral Ray
- Oto - Otoliths
- Dr - Dorsal Ray
- YOY - Young Of the Year

FISH CATCH SUMMARY

Species	Species Code	Total Catch [CATCNT]	Length-tallied [SUBCNT]	Bio-sampled [BIOCNT]	Struct. Taken [STRUCT]	Comments
Walleye	334	5	5	5	5	
Northern Pike	131	2	2	2	2	
Rock Bass	311	1	1	1	0	
Species	Fish #	Fork Length	Total Length	Weight (g / kg)	Aging Struct.	Comments
See			Bio form			

WATER QUALITY READING

Date: 22 Jul 19 Time: 13:20

Temperature: (°C)	21.0	DO: (%)	98.7
Cond.: (µS/cm) or (Ms/cm)	53.7	DO: (mg/L)	8.44
Turbidity: (NTU)	—	pH:	6.71
TDS: (g / L)	—	ORP:	315.9
Salinity: (ppm)	—	Depth: (m)	0.10

Comments:

See Bio Sheet Data (Y/N)

QA/QC By: A. Law

Page: 1 of 2

Project No: TC190403 wood.

Area Description: *Cultet*
LAKE / RIVER

see Net Form

Aging Structures Legend:
 Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 yoy - Young Of the Year
 1+ - Older than "yoy"

Date: 23/07/19

FISHERIES NET CATCH / EFFORT FORM

wood.

SITE DESCRIPTION

Sample ID [SAMID]		Waterbody Name [WBY NMI]			Project Code [PROJCD]	
BR-GN3		Springpole Lake / Birch R.			TC190403	
Gear Type (Gillnet, Trapnet, Fyke Trap, Seine net, Fish Fence)	Mesh Size(s) [mm]	Coordinates (UTM NAD 83)			Site Type [SITP]	
		[UTM Zone]	[LAT]	[LONG]	[substr] [cover]	
		[Easting, 6 No.]	[Northing, 7 No.]			
Gillnet	3.5"	15U	565077	5687904	4	3
Trap/Hoop Size (m)	Net/Leader length (m)	Substrate Composition and Cover Types [BOTTOM] (list all substrate types in area of net)				
—	18.24	Br, Bo, Si, Mu				

Site Type - Substrate Codes:
 1 = gravel/pebble/sand mix (GP + SA > 75%)
 2 = boulder/rubble/cobble mix (BO + RC > 75%)
 3 = sand (SA > 75%)
 4 = soft mix (SI + MU + DE + soft CL > 75%)
 5 = bedrock (BR > 75%)
 6 = other (any other combination)

Substrate Acronyms:
 BR = bedrock
 BO = boulder
 RC = rubble/cobble
 GP = gravel/pebble
 SA = sand SI = silt
 CL = clay MU = muck
 DE = detritus
 MA = marl

Site Type - Cover Codes:
 1 = no cover
 2 = low (1 - 25%)
 3 = moderate (25 - 75%)
 4 = high (> 75%)

Cover Acronyms:
 BO = boulders OT = other
 MA = macrophytes NC = no cover
 LT = log/tree

SET DESCRIPTION (recorded at time of set to ensure compliance with NSCIN standards)

Field Crew	Set Date [EFFDTC] (dd/mm/yy)	Set Time [EFFTMO] (24hh:mm)	Net Length [XLEADUSE] (1 - 60 m)	Dist. Off Shore [XDISTOFF] (0 - 40 m)	Angle to Shore [XANGLE] (0° - 90°)	Min Depth [GRDEPMIN]	Mid Depth [XGRDEPMID]	Max Depth [GRDEPMAX]
A. Law S. McGowan	22/07/19	12:45	15.24	~1	90°	0.8	1.2	1.6

LIFT DATA (recorded at time of lift)

Note: a knot equals one "nautical mile" per hour or 1.9 km/hr (1.2 mph)

Field Crew	Lift Date [EFFDTC] (dd/mm/yy)	Lift Time [EFFTMO] (24hh:mm)	Effort Status [EFFST] (codes 1 - 3)	Air Temp. [AIRTEM1] (°C)	Water Temp. [SITEM1] (°C)	Wave Height [XWAVEHT] (codes 1 - 5)
A. Law S. McGowan	23/07/19	13:00	1	31	21	1
Cloud Cover [CLOUD] (%)	Precipitation [PRECIP] (codes 00 - 95)	Direction & Speed of Wind [WIND] (N,S,E,W) (knots : km/hr)		General Weather for Set Duration [XWEATHER] (duration precip) (duration wave)		Duration [EFFDUR] (fishing hours)
0	00	—		1		1

Effort Status Codes:
 1 = no problem
 2 = minor problem, likely OK
 3 = major problem, affected catch

Wave Height Codes:
 1 = < 0.3 m (< 1 ft.)
 2 = 0.3 - 0.6 m (1 - 2 ft.)
 3 = 0.6 - 0.9 m (2 - 3 ft.)
 4 = 0.9 - 1.2 m (3 - 4 ft.)
 5 = > 1.2 m (> 4 ft.)

Precipitation Codes (at lift):
 00 = no precipitation at lift time
 10 = mist
 40 = fog
 51 = light drizzle
 55 = heavy drizzle
 61 = light rain
 65 = heavy rain
 71 = light snow
 75 = heavy snow
 80 = light rain shower
 85 = heavy rain shower
 95 = thunder storm

FISH CATCH SUMMARY

Species	Species Code	Total Catch [CATCNT]	Length-tallied [SUBCNT]	Bio-sampled [BIOCNT]	Struct. Taken [STRUCT]	Comments
Walleye	334	5	5	5	5	motes
Species	Fish #	Fork Length	Total Length	Weight (g / kg)	Aging Struct.	Comments
See Bio form						

Duration Precipitation Codes:
 1 = no precipitation during set
 2 = < 4 hours of precipitation
 3 = > 4 hours of precipitation
 4 = constant precipitation

Duration Wave Codes (calm <0.3m):
 1 = calm for entire set duration
 2 = mostly calm & some rough
 3 = mostly rough & some calm
 4 = rough for entire set duration

WATER QUALITY READING

Date: 22 July 19

Time: 13:20

Temperature: (°C)	21.0	DO: (%)	98.7
Cond.: (µS/cm) or (Ms/cm)	53.7	DO: (mg/L)	8.44
Turbidity: (NTU)	—	pH:	6.71
TDS: (g / L)	—	ORP:	315.9
Salinity: (ppm)	—	Depth: (m)	0.10

Comments:

See Bio Sheet Data (Y/N)

QA/QC By: A. Law

Age Structures Legend:

Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 YOY - Young Of the Year

Page: 1 of 2

Project No: TC190403 wood.

Area Description:

Lake / River

see Net Form

AL. sm

Species Box Tally Area / Site Comments:	Species	Total Catch	Species	Total Catch	Ageing Structures Legend: Sc - Scales Pr - Pectoral Ray Oto - Otoliths Dr - Dorsal Ray yoy - Young Of the Year 1+ - Older than "yoy"
	Wigglave	5			
	QA/QC By: A. Lar				
	Date: Sept 5/19		Total #	5	

Aging Structures Legend:
Sc - Scales
Pr - Pectoral Ray
Oto - Otoliths
Dr - Dorsal Ray
yoy - Young Of the Year
1+ - Older than "yoy"

wood.

Springpole / TC190403

VNX07 ~~was~~ Springpole 1

22/JUL/2019

11.1c

Back pack

Pg: 1 of 1 Run: 1 of 1

UTM End: 566741, 5629014

10:28 / 10:55

A Law

Kelly

 $\sim 1m \times$

Zone / Acc.: 150

Sample ID: UNX07-EF1

2.5

987

240

1

Standard

Species Box Tally Area / Site Comments:

Sc - Scales
Pr - Pectoral Ray
Oto - Otoliths
Dr - Dorsal Ray
yoy - Young Of the Year
1+ - Older than "yoy"

QA/QC By: ALaw
Date: 5 SEPT 2019

Mottled

* See Notes *

in bottom comment Box

Species Box Tally Area / Site Comments:	Species	Total Catch	Species	Total Catch	Aging Structures Legend:
No catch in MT's lifted from stream	331	7			Sc - Scales
All fish came from 5 MTs	281	1			Pr - Pectoral Ray
In lake Habitat	382	1			Oto - Otoliths
QA/QC By: A. Law					Dr - Dorsal Ray
Date: 22 JUL 19			Total #	9	yoy - Young Of The Year
					1+ - Older than "yoy"

FISHERIES NET CATCH / EFFORT FORM

wood.

NET DESCRIPTION

Sample ID [SAMID]		Waterbody Name [WBY NM]			Project Code [PROJCD]	
UNX07-MF1		Springpole Lake			TC190403	
Gear Type (Gillnet, Trapnet, Fyke Trap, Seine net, Fish Fence)	Mesh Size(s) (mm)	Coordinates (UTM NAD 83)			Site Type [SITP]	
		[UTM Zone]	[LAT] [Easting, 6 No.]	[LONG] [Northing, 7 No.]	(subtr)	(cover)
Minnaw Fyke	Small	15U	566238	5688926	5	2
Trap/Hoop Size (m)	Net/Leader length (m)	Substrate Composition and Cover Types [BOTTOM] (list all substrate types in area of net)				
—	—	Br. Mu				

Site Type - Substrate Codes:
 1 = gravel/pebble/sand mix (GP + SA > 75%)
 2 = boulder/rubble/cobble mix (BO + RC > 75%)
 3 = sand (SA > 75%)
 4 = soft mix (SI + MU + DE + soft CL > 75%)
 5 = bedrock (BR > 75%)
 6 = other (any other combination)

Substrate Acronyms:
 BR = bedrock
 BO = boulder
 RC = rubble/cobble
 GP = gravel/pebble
 SA = sand SI = silt
 CL = clay MU = muck
 DE = detritus
 MA = marl

Site Type - Cover Codes:
 1 = no cover
 2 = low (1 - 25%)
 3 = moderate (25 - 75%)
 4 = high (> 75%)

Cover Acronyms:
 BO = boulders OT = other
 MA = macrophytes NC = no cover
 LT = log/tree

SET DESCRIPTION (recorded at time of set to ensure compliance with NSCIN standards)

Field Crew	Set Date [EFFDT0] (dd/mm/yy)	Set Time [EFFTMO] (24hh:mm)	Net Length [XLEADUSE] (1 - 60 m)	Dist. Off Shore [XDISTOFF] (0 - 40 m)	Angle to Shore [XANGLE] (0° - 90°)	Min Depth [GRDEPMIN]	Mid Depth [XGRDEPMID]	Max Depth [GRDEPMAX]
A. Law S. McGovern	22/07/19	10:20	—	~2	0	0.5	0.6	0.7

LIFT DATA (recorded at time of lift)

Note: a knot equals one "nautical mile" per hour or 1.9 km/hr (1.2 mph)

Field Crew	Lift Date [EFFDT1] (dd/mm/yy)	Lift Time [EFFTMO] (24hh:mm)	Effort Status [EFFST] (codes 1 - 3)	Air Temp. [AIRTEM1] (°C)	Water Temp. [SITEM1] (°C)	Wave Height [XWAVEHT] (codes 1 - 5)
A.L. S.M.	23/07/19	11:30	1	~26	12.5°C	1
Cloud Cover [CLOUD] (%)	Precipitation [PRECIP] (codes 00 - 95)	Direction & Speed of Wind [WIND] (N,S,E,W) (knots <km/hr)		General Weather for Set Duration [XWEATHER] (duration precip) (duration wave)		Duration [EFFDUR] (fishing hours)
0	00	NW	~10	2	1	

Effort Status Codes:

1 = no problem
 2 = minor problem, likely OK
 3 = major problem, affected catch

Wave Height Codes:

1 = < 0.3 m (< 1 ft.)
 2 = 0.3 - 0.6 m (1 - 2 ft.)
 3 = 0.6 - 0.9 m (2 - 3 ft.)
 4 = 0.9 - 1.2 m (3 - 4 ft.)
 5 = > 1.2 m (> 4 ft.)

Precipitation Codes (at lift):

00 = no precipitation at lift time
 10 = mist
 40 = fog
 51 = light drizzle
 55 = heavy drizzle
 61 = light rain
 65 = heavy rain
 71 = light snow
 75 = heavy snow
 80 = light rain shower
 85 = heavy rain shower
 95 = thunder storm

Duration Precipitation Codes:

1 = no precipitation during set
 2 = < 4 hours of precipitation
 3 = > 4 hours of precipitation
 4 = constant precipitation

Duration Wave Codes (calm <0.3m):

1 = calm for entire set duration
 2 = mostly calm & some rough
 3 = mostly rough & some calm
 4 = rough for entire set duration

Age Structures Legend:

Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 YOY - Young of the Year

FISH CATCH SUMMARY

Species	Species Code	Total Catch [CATCNT]	Length-tallied [SUBCNT]	Bio-sampled [BIOCNT]	Struct. Taken [STRUCT]	Comments
NO CATCH						
Species	Fish #	Fork Length	Total Length	Weight (g / kg)	Aging Struct.	Comments

WATER QUALITY READING

Date: 22 Jul 19 Time: 11:20

Temperature: (°C)	11.7°C	DO: (%)	84.2
Cond.: (µS/cm) or (Ms/cm)	23.4	DO: (mg/L)	8.75
Turbidity: (NTU)	—	pH:	4.56
TDS: (g / L)	—	ORP:	269
Salinity: (ppm)	—	Depth: (m)	0.10

Comments: Dragonfly larvae and gastropods ~2

See Bio Sheet Data (Y/N)

QA/QC By: A. Law 23/07/19

Page: 1 of 1

FISHERIES NET CATCH / EFFORT FORM

wood.

TE DESCRIPTION

Sample ID [SAMID]		Waterbody Name [WBY NM]			Project Code [PROJCD]	
UNX07- GN1		Spring Pole Lake			TC190403	
Gear Type (Gillnet, Trapnet, Fyke Trap, Seine net, Fish Fence)	Mesh Size(s) (mm)	Coordinates (UTM NAD 83)			Site Type [SITP]	
		[UTM Zone]	[LAT]	[LONG]	(subtr)	(cover)
Gillnet	3.5"	15U	506184	568896	2	2
Trap/Hoop Size (m)	Net/Leader length (m)	Substrate Composition and Cover Types [BOTTOM] (list all substrate types in area of net)				
—	15-24	Mu, Bo, S, SA				

Site Type - Substrate Codes:
 1 = gravel/pebble/sand mix (GP + SA > 75%)
 2 = boulder/rubble/cobble mix (BO + RC > 75%)
 3 = sand (SA > 75%)
 4 = soft mix (SI + MU + DE + soft CL > 75%)
 5 = bedrock (BR > 75%)
 6 = other (any other combination)

Substrate Acronyms:
 BR = bedrock
 BO = boulder
 RC = rubble/cobble
 GP = gravel/pebble
 SA = sand SI = silt
 CL = clay MU = muck
 DE = detritus
 MA = marl

Site Type - Cover Codes:
 1 = no cover
 2 = low (1 - 25%)
 3 = moderate (25 - 75%)
 4 = high (> 75%)

Cover Acronyms:
 BO = boulders
 MA = macrophytes
 LT = log/tree
 OT = other
 NC = no cover

SET DESCRIPTION (recorded at time of set to ensure compliance with NSCIN standards)

Field Crew	Set Date [EFFD0] (dd/mm/yy)	Set Time [EFFTMO] (24hh:mm)	Net Length [XLEADUSE] (1 - 60 m)	Dist. Off Shore [XDISTOFF] (0 - 40 m)	Angle to Shore [XANGLE] (0° - 90°)	Min Depth [GRDEPMIN]	Mid Depth [XGRDEPMID]	Max Depth [GRDEPMAX]
A. Law	22/07/19	11:35	15-24	4	90	0.5	0.8	1.0
S. McGowan								

LIFT DATA (recorded at time of lift)

Note: a knot equals one "nautical mile" per hour or 1.9 km/hr (1.2 mph)

LIFT DATA (recorded at time of lift)						
Field Crew	Lift Date [EFFDT1] (dd/mm/yy)	Lift Time [EFFTM1] (24hh:mm)	Effort Status [EFFST] (codes 1 - 3)	Air Temp. [AIRTEM1] (°C)	Water Temp. [SITEM1] (°C)	Wave Height [XWAVEHT] (codes 1 - 5)
AL						
SM						
	23/07/19	11:35	1	~26	~20	1
Cloud Cover [CLOUD] (%)	Precipitation [PRECIP] (codes 00 - 95)	Direction & Speed of Wind [WIND] (N,S,E,W) (knots : km/hr)		General Weather for Set Duration [XWEATHER] (duration precip) (duration wave)		Duration [EFFDUR] (fishing hours)
0	00	NW	~10	2	1	

Effort Status Codes:
 1 = no problem
 2 = minor problem, likely OK
 3 = major problem, affected catch

Wave Height Codes:
 1 = < 0.3 m (< 1 ft.)
 2 = 0.3 - 0.6 m (1 - 2 ft.)
 3 = 0.6 - 0.9 m (2 - 3 ft.)
 4 = 0.9 - 1.2 m (3 - 4 ft.)
 5 = > 1.2 m (> 4 ft.)

Precipitation Codes (at lift):
 00 = no precipitation at lift time
 10 = mist
 40 = fog
 51 = light drizzle
 55 = heavy drizzle
 61 = light rain
 65 = heavy rain
 71 = light snow
 75 = heavy snow
 80 = light rain shower
 85 = heavy rain shower
 95 = thunder storm

Duration Precipitation Codes:
 1 = no precipitation during set
 2 = < 4 hours of precipitation
 3 = > 4 hours of precipitation
 4 = constant precipitation

Duration Wave Codes (calm < 0.3m):
 1 = calm for entire set duration
 2 = mostly calm & some rough
 3 = mostly rough & some calm
 4 = rough for entire set duration

FISH CATCH SUMMARY

Species	Species Code	Total Catch [CATCNT]	Length-tallied [SUBCNT]	Bio-sampled [BIOCNT]	Struct. Taken [STRUCT]	Comments
Shorthead Redhorse	171	2	2	2	2	
Species	Fish #	Fork Length	Total Length	Weight (g / kg)	Aging Struct.	Comments
Shorthead Redhorse	1	414	463	NA	Scales / Pex	
11	2	400	450	NA	Scales / Pex	

WATER QUALITY READING

Date: 22 JUL 19

Time: 11:35

Temperature: (°C)	20.7	DO: (%)	100.8
Cond: (µS/cm) or (Ms/cm)	52.4	DO: (mg/L)	8.44
Turbidity: (NTU)	—	pH:	6.81
TDS: (g / L)	—	ORP:	270
Salinity: (ppm)	—	Depth: (m)	0.10

Comments:

See Bio Sheet Data (Y/N)

QA/QC By: A. Law

Page: 1 of 1

Age Structures Legend:
 Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 YOY - Young Of the Year

FISHERIES NET CATCH / EFFORT FORM

wood.

TE DESCRIPTION

Sample ID [SAMID] UNX07		Waterbody Name [WBY NM] Springpole Lake			Project Code [PROJCD] TC190403	
Gear Type (Gillnet, Trapnet, Fyke Trap, Seine net, Fish Fence) RIN		Mesh Size(s) (mm) Various		Coordinates (UTM NAD 83) [UTM Zone] [LAT] [LONG] 15U 566242 5688857		Site Type [SITP] (subtr) (cover) 4 3
Trap/Hoop Size (m) —		Net/Leader length (m) 15.24		Substrate Composition and Cover Types [BOTTOM] (list all substrate types in area of net) Br 200, Mu, Si, SA		

Site Type - Substrate Codes:

- 1 = gravel/pebble/sand mix (GP + SA > 75%)
2 = boulder/rubble/cobble mix (BO + RC > 75%)
3 = sand (SA > 75%)
4 = soft mix (SI + MU + DE + soft CL > 75%)
5 = bedrock (BR > 75%)
6 = other (any other combination)

Substrate Acronyms:

- BR = bedrock
BO = boulder
RC = rubble/cobble
GP = gravel/pebble
SA = sand SI = silt
CL = clay MU = muck
DE = detritus
MA = marl

Site Type - Cover Codes:

- 1 = no cover
2 = low (1 - 25%)
3 = moderate (25 - 75%)
4 = high (> 75%)

Cover Acronyms:

- BO = boulders OT = other
MA = macrophytes NC = no cover
LT = log/tree

SET DESCRIPTION (recorded at time of set to ensure compliance with NSCIN standards)

Field Crew	Set Date [EFFD TO] (dd/mm/yy)	Set Time [EFFTMO] (24hh:mm)	Net Length [XLEADUSE] (1 - 60 m)	Dist. Off Shore [XDISTOFF] (0 - 40 m)	Angle to Shore [XANGLE] (0° - 90°)	Min Depth [GRDEPMIN]	Mid Depth [XGRDEPMID]	Max Depth [GRDEPMAX]
A. Low S. McGowan	22/07/19	11:45	15.24	~15	90	0.4	0.6	0.8

LIFT DATA (recorded at time of lift)

Note: a knot equals one "nautical mile" per hour or 1.9 km/hr (1.2 mph)

Field Crew	Lift Date [EFFDT1] (dd/mm/yy)	Lift Time [EFFTM1] (24hh:mm)	Effort Status [EFFST] (codes 1 - 3)	Air Temp. [AIRTEM1] (°C)	Water Temp. [SITEM1] (°C)	Wave Height [XWAVEHT] (codes 1 - 5)
AL SM	23/07/19	11:45	1	~26	20	1
Cloud Cover [CLOUD] (%)	Precipitation [PRECIP] (codes 00 - 95)	Direction & Speed of Wind [WIND] (N,S,E,W) (knots x km/hr)		General Weather for Set Duration [XWEATHER] (duration precip) (duration wave)		Duration [EFFDUR] (fishing hours)
0	00	NW	~10	2	1	

Effort Status Codes:

- 1 = no problem
2 = minor problem, likely OK
3 = major problem, affected catch

Wave Height Codes:

- 1 = < 0.3 m (< 1 ft.)
2 = 0.3 - 0.6 m (1 - 2 ft.)
3 = 0.6 - 0.9 m (2 - 3 ft.)
4 = 0.9 - 1.2 m (3 - 4 ft.)
5 = > 1.2 m (> 4 ft.)

Precipitation Codes (at lift):

- 00 = no precipitation at lift time
10 = mist
40 = fog
51 = light drizzle
55 = heavy drizzle
61 = light rain
65 = heavy rain
71 = light snow
75 = heavy snow
80 = light rain shower
85 = heavy rain shower
95 = thunder storm

Duration Precipitation Codes:

- 1 = no precipitation during set
2 = < 4 hours of precipitation
3 = > 4 hours of precipitation
4 = constant precipitation

Duration Wave Codes (calm < 0.3m):

- 1 = calm for entire set duration
2 = mostly calm & some rough
3 = mostly rough & some calm
4 = rough for entire set duration

Age Structures Legend:

- Sc - Scales
Pr - Pectoral Ray
Oto - Otoliths
Dr - Dorsal Ray
YOY - Young Of the Year

FISH CATCH SUMMARY

Species	Species Code	Total Catch [CATCNT]	Length-tallied [SUBCNT]	Bio-sampled [BIOCNT]	Struct. Taken [STRUCT]	Comments
Yellow Perch	331	15	15	15	0	Morts
N. Pike	131	3	3	3	3	Morts
Species	Fish #	Fork Length	Total Length	Weight (g / kg)	Aging Struct.	Comments
See		Bio	form			

WATER QUALITY READING

Date: 22 JUL 2019 Time: 11:35

Temperature: (°C)	20.7	DO: (%)	100.8
Cond.: (µS/cm) or (Ms/cm)	52.4	DO: (mg/L)	8.44
Turbidity: (NTU)	—	pH:	6.81
TDS: (g / L)	—	ORP:	270
Salinity: (ppm)	—	Depth: (m)	0.10

Comments:

See Bio Sheet Data (Y) (N)

QA/QC By: A. Low

Page: 1 of 2

GENERAL INFORMATION									
PROJECT #: TC190403		PROJECT DESCRIPTION: Springpole		DAY: 23	MONTH: July	YEAR: 2019			
Is STREAM REALIGNMENT required for this section:									
☐ Yes ☐ No ☒ Unknown									
COLLECTORS: A. Law, S. McGowan		WEATHER CONDITIONS: Humid, hot, clear		TIME STARTED: 13:00		TIME FINISHED: 14:00			
AIR TEMP: ~30 °C		WATER TEMP: ~21.0		CONDUCTIVITY (µS/cm): 53.7					
PHOTO NUMBERS AND DESCRIPTIONS:									
LOCATION									
NAME OF WATERBODY: Springpole/Birch River		DRAINAGE SYSTEM:		CROSSING #: —		STATION #: BR-KM22			
LOCATION OF CROSSING:									
GPS COORDINATES: 15U 565206.5687795				MTO CHAINAGE:					
TOWNSHIP:				MNR DISTRICT: Red Lake					
LAND USE AND POLLUTION									
SURROUNDING LAND USE: Crown land, forest, natural area				SOURCES OF POLLUTION: None/minimal					
EXISTING STRUCTURE TYPE									
Bridge ☐		Box Culvert ☐		Open Foot Culvert ☐		CSP ☐		N/A ☒	
Other ☐ Describe: Natural Rapids						Size (w x h) m ² f			
SECTION TYPE AND MORPHOLOGY									
SECTION IDENTIFIER:			SECTION LOCATION: (include on habitat map)						
TYPE:	Stream /river ☒	Channelized ☐	Permanent ☐	Intermittent ☐	Ephemeral ☐	ASSOCIATED WETLAND:			
TOTAL SECTION LENGTH (m): ~400				CURRENT VELOCITY (m/s): N/A					
SUB-SECTION(S)	Run ☐	Pool ☐	Riffle ☐	Flats ☐	Inside culvert ☐	Other			
Percentage of area		20	80						
Mean depth wetted (m)									
Mean width wetted (m)		~12m	~9m						
Mean bankfull width (m)									
Mean bankfull depth (m)									
Substrate		BO = 80% BS = 20%	BO = 90% BS = 10%						
Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D	

BANK STABILITY							
	Stable	Slightly Unstable	Moderately Unstable	Unstable			
Left Upstream Bank	☒	☐	☐	☐			
Right Upstream Bank	☒	☐	☐	☐			
HABITAT							
IN-STREAM COVER (% surface area):	Undercut banks	Boulders 90	Cobble 5	Woody Debris 5 Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None
SHORE COVER (% stream shaded):	100 - 90 % ☐	90 - 60% ☐	60- 30% ☐	30 - 1% ☐	None ☒		
VEGETATION TYPE (%):	Submergent		Floating		Emergent		None
Predominant Species							
MIGRATORY OBSTRUCTIONS:	None 		Seasonal 		Permanent 		
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning Walleye		Evidence of Groundwater None		Other 		
POTENTIAL ENHANCEMENT OPPORTUNITIES:							
COMMENTS:							
Bed Rock Shore, Steep bank, Flow, Wood debris, Beaver lodge, Pool, Rapids, Young veg. on both sides of shore (forest fire est. 2013)							
Additional Notes Appended? ☒ No ☐ Yes number of pages 2 of 2							

* Flow too fast/deep to record depths/widths

GENERAL INFORMATION									
PROJECT #:		PROJECT DESCRIPTION:		DAY:	MONTH:	YEAR:			
TC190403		Spring pole		23	July	2019			
Is STREAM REALIGNMENT required for this section:									
☐ Yes ☐ No ☒ Unknown									
COLLECTORS:		WEATHER CONDITIONS:		TIME STARTED:		TIME FINISHED:			
A. Law, S. McGowan		Sunny, Humid		10:30					
AIR TEMP:		WATER TEMP:		CONDUCTIVITY ($\mu\text{S/cm}$):					
~ 25		12.2°C		23.4					
PHOTO NUMBERS AND DESCRIPTIONS:									
Connecting channel / Stream occasionally impounded by beaver dams									
LOCATION									
NAME OF WATERBODY:		DRAINAGE SYSTEM:		CROSSING #:		STATION #:			
UNX07				UNX07					
LOCATION OF CROSSING:									
GPS COORDINATES:				MTO CHAINAGE:					
TOWNSHIP:				MNR DISTRICT: Red Lake					
LAND USE AND POLLUTION									
SURROUNDING LAND USE:				SOURCES OF POLLUTION:					
Crown land				Minimal / none					
EXISTING STRUCTURE TYPE									
Bridge ☐		Box Culvert ☐		Open Foot Culvert ☐		CSP ☐		N/A ☒	
Other ☐ Describe: NONE						Size (w x h) m ² N/A			
SECTION TYPE AND MORPHOLOGY									
SECTION IDENTIFIER:				SECTION LOCATION: (include on habitat map)					
TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:			
	☒	☐	☐	☐	☐				
TOTAL SECTION LENGTH (m):				CURRENT VELOCITY (m/s):					
SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other			
	☐	☐	☐	☐	☐				
Percentage of area									
Mean depth wetted (m)									
Mean width wetted (m)									
Mean bankfull width (m)									
Mean bankfull depth (m)									
Substrate		Sl 50/50 D							
Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D	

BANK STABILITY							
	Stable	Slightly Unstable	Moderately Unstable	Unstable			
Left Upstream Bank	☒	☐	☐	☐			
Right Upstream Bank	☒	☐	☐	☐			
HABITAT							
IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None
SHORE COVER (% stream shaded):	100 – 90 % ☐	90 – 60% ☐	60- 30% ☐	30 – 1% ☐	None ☐		
VEGETATION TYPE (%):	Submergent		Floating		Emergent		None
Predominant Species							
MIGRATORY OBSTRUCTIONS:	None			Seasonal		Permanent	
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning			Evidence of Groundwater		Other	
POTENTIAL ENHANCEMENT OPPORTUNITIES:							
COMMENTS:							
Additional Notes Appended? ☐ No ☐ Yes number of pages <u>2</u>							

GENERAL INFORMATION									
PROJECT #: TC190403		PROJECT DESCRIPTION: Road crossing		DAY: 20	MONTH: July	YEAR: 2019			
Is STREAM REALIGNMENT required for this section:									
☐ Yes ☐ No ☒ Unknown									
COLLECTORS: A-Law, S. McGowan		WEATHER CONDITIONS: Humid		TIME STARTED: 14:00		TIME FINISHED:			
AIR TEMP: 23.5°C		WATER TEMP: 8.2°C		CONDUCTIVITY (µS/cm): 46.4					
PHOTO NUMBERS AND DESCRIPTIONS:									
LOCATION									
NAME OF WATERBODY: WB02-OUT		DRAINAGE SYSTEM:		CROSSING #:		STATION #:			
LOCATION OF CROSSING:									
GPS COORDINATES:				MTO CHAINAGE:					
TOWNSHIP:				MNR DISTRICT: Red Lake					
LAND USE AND POLLUTION									
SURROUNDING LAND USE:				SOURCES OF POLLUTION: None/minimal					
EXISTING STRUCTURE TYPE									
Bridge ☐		Box Culvert ☐		Open Foot Culvert ☐		CSP ☒		N/A ☐	
Other ☐ Describe:						Size (w x h) m ² 78 cm			
SECTION TYPE AND MORPHOLOGY									
SECTION IDENTIFIER:				SECTION LOCATION: (include on habitat map)					
TYPE:	Stream / river ☐	Channelized ☐	Permanent ☐	Intermittent ☒	Ephemeral ☐	ASSOCIATED WETLAND:			
TOTAL SECTION LENGTH (m):				CURRENT VELOCITY (m/s):					
SUB-SECTION(S)	Run ☐	Pool ☐	Riffle ☐	Flats ☐	Inside culvert ☐	Other			
Percentage of area									
Mean depth wetted (m)									
Mean width wetted (m)									
Mean bankfull width (m)									
Mean bankfull depth (m)									
Substrate	Gr, Mu	Gr, Mu	Gr, Mu	Mu 100%		Grasses			
Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D	

← YSI on back (+map)

BANK STABILITY							
	Stable	Slightly Unstable	Moderately Unstable	Unstable			
Left Upstream Bank	☒	☐	☐	☐			
Right Upstream Bank	☒	☐	☐	☐			
HABITAT							
IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None
						90%	
SHORE COVER (% stream shaded):	100 - 90 % ☐	90 - 60% ☒	60- 30% ☐	30 - 1% ☐	None ☐		
VEGETATION TYPE (%):	Submergent		Floating		Emergent		None
Predominant Species							
MIGRATORY OBSTRUCTIONS:	None		Seasonal		Permanent Beaver dam vls		
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning		Evidence of Groundwater		Other		
POTENTIAL ENHANCEMENT OPPORTUNITIES:							
COMMENTS:							
Additional Notes Appended? ☐ No ☐ Yes number of pages _____							

← See back

GENERAL INFORMATION									
PROJECT #: TC190403		PROJECT DESCRIPTION:		DAY: 16	MONTH: July	YEAR: 2019			
Is STREAM REALIGNMENT required for this section:									
☐ Yes ☐ No ☒ Unknown									
COLLECTORS: A. Law, S. McGowan		WEATHER CONDITIONS: Sunny, warm		TIME STARTED: 13:45		TIME FINISHED:			
AIR TEMP: ~24		WATER TEMP: 20.8		CONDUCTIVITY (µS/cm): 112.5					
PHOTO NUMBERS AND DESCRIPTIONS:									
LOCATION									
NAME OF WATERBODY: Springpole Lake		DRAINAGE SYSTEM:		CROSSING #:		STATION #: WB02-OUT			
LOCATION OF CROSSING: North end of Springpole Lake (U/S of beaver dam)									
GPS COORDINATES:				MTO CHAINAGE:					
TOWNSHIP:				MNR DISTRICT: Red Lake					
LAND USE AND POLLUTION									
SURROUNDING LAND USE: Forest/crownland (mining exploration)				SOURCES OF POLLUTION: Minimal/none (dirt road)					
EXISTING STRUCTURE TYPE									
Bridge ☐		Box Culvert ☐		Open Foot Culvert ☐		CSP ☒		N/A ☐	
Other ☐ Describe:						Size (w x h) m ²			
SECTION TYPE AND MORPHOLOGY									
SECTION IDENTIFIER:				SECTION LOCATION: (include on habitat map)					
TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:			
	☐	☐	☐	☐	☐				
TOTAL SECTION LENGTH (m):				CURRENT VELOCITY (m/s):					
SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other			
	☐	☐	☐	☐	☐				
Percentage of area				100%					
Mean depth wetted (m)									
Mean width wetted (m)									
Mean bankfull width (m)									
Mean bankfull depth (m)									
Substrate				Mu 100%					
Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D	

DO 34.4% 2.84 mg/L 6.06 pH 397.0 ORP

Ministry of Transportation
Environmental Guide for Fish and Fish Habitat

Section 4: Field Investigations
Appendix 4.A: Watercourse Field Record Form

BANK STABILITY							
	Stable	Slightly Unstable	Moderately Unstable	Unstable			
Left Upstream Bank	✓	0	0	0			
Right Upstream Bank	✓	0	0	0			
HABITAT							
IN-STREAM COVER (% surface area): 25%	Undercut banks 10	Boulders 5	Cobble 0	Woody Debris 5 Instream Overhanging	Organic debris	Vascular Macrophytes 10 Instream Overhanging	None
SHORE COVER (% stream shaded):	100 - 90 % 0	90 - 60% 0	60- 30% 0	30 - 1% 0	None 0		
VEGETATION TYPE (%): 30%	Submergent 15		Floating 5 water Lily		Emergent 10 cattails		None
Predominant Species							
MIGRATORY OBSTRUCTIONS:	None		Seasonal Possibly		Permanent		
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning obvious None		Evidence of Groundwater None		Other		
POTENTIAL ENHANCEMENT OPPORTUNITIES:							
COMMENTS:							
Additional Notes Appended? 0 No 0 Yes number of pages _____							

WATER / SEDIMENT / BENTHIC SAMPLING FORM

wood.

SITE INFORMATION

Site ID	Waterbody	Date (DD/MMM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
S-9-US02	S-9 (Unnamed)	10 SEP 2019	15U 552452, 5690331
Project Number	Photo Number's	Weather Description (wind, precipitation/duration, cloud cover):	
TC190403.C02		Cool, windy, overcast (100% cc)	

WATER QUALITY

Sampler Initials AL SM

Sample ID	Time (24hrs)	Bottles (# / approx. total vol.)	Date (DD/MMM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
S-9-US02 NG	11:00		12/SEP/2019	(☒ Same As Above)
Comments (bottles field filtered, sample odour):				
Air Temperature	°C	DO	%	OTHER:
H2O Temperature	12.09 °C	DO	8.78 mg/L	
pH	7.40 pH	TDS	g/L	
Conductivity	125 µS/cm or mS/cm	ORP	157.8 mV	
Turbidity	NTU	Depth	m	
Comments (water colour, sheen, plankton/algal bloom):				

SEDIMENT

Sampler Initials AL SM

Sample ID	Time (24hrs)	Bags/Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
S-9-US02-S	14:00	1 JAR, 2 BAGS	Petite Ponar	(☒ Same As Above)
Pull (#)	Location (In stream/river)	Depth (m)	Sampler Qty. (%)	Sediment Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In stream	0.5	Discarded	30% mv, 50% De, 20 macrophytes ↑ ↑ "
2	"	0.6	75	
3	"	0.6	Discarded	
4	"	0.6	60	
5	"	0.6	Discarded	
6	"	0.6		
Comments (colour, streaking/mottling, odour, macrophytes):				
Discarded samples contained predominantly macrophytes/roots/wood debris				

BENTHIC

Sampler Initials AL SM

Sample ID	Time (24hrs)	Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
S-9-US02	14:30	3X	Petite Ponar	(☒ Same As Above)
Pull (#)	Location (Left / Centre / Right)	Depth (m)	Ponar Quantity (%)	Benthic Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In stream	0.6	Discarded	30% mv, 50% DE, 20 mac. " " " " "
2	"	0.6	50	
3	"	0.6	50	
4	"	0.6	70	
5	"	0.6	Discarded	
6	ju			
Comments (colour, coarse organics/detritus, visible animals):				

WATER / SEDIMENT / BENTHIC SAMPLING FORM

wood.

SITE INFORMATION

Site ID	Waterbody	Date (DD/MMM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
S-9-US01	Un named	11/SEP/2019	15 552881, 5690537
Project Number	Photo Number's	Weather Description (wind, precipitation/duration, cloud cover):	
TC 190403		50% Cloud, 10% wind	

WATER QUALITY

Sampler Initials SM/AL

Sample ID	Time (24hrs)	Bottles (# / approx. total vol.)	Date (DD/MMM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
S-9-US01	15:30	—	11/SEP/2019	(☒ Same As Above)
Comments (bottles field filtered, sample odour):				
YS1				
Air Temperature	12.2°C	DO	18.9 %	OTHER:
H2O Temperature	12.35°C	DO	2.03 mg/L	
pH	6.82 pH	TDS	— g/L	
Conductivity	154 µS/cm or mS/cm	ORP	205.5 mV	
Turbidity	— NTU	Depth	0.10 m	
Comments (water colour, sheen, plankton/algal bloom):				
Dark tea stained water				

SEDIMENT

Sampler Initials SM/AL

Sample ID	Time (24hrs)	Bags/Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
S-9-US01-S	15:30	1 JAR / 2 Bags	PONAR	(☒ Same As Above)
Pull (#)	Location (In stream/river)	Depth (m)	Sampler Qty. (%)	Sediment Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In stream	0.7	80	50% detritus 30% muck 10% wood debris
2	"	0.7	Discarded	
3	"	0.7	60	
4	"	0.7	Discarded	
5	"	0.7	Discarded	
6	"	0.7	75	
Comments (colour, streaking/mottling, odour, macrophytes):				

BENTHIC

Sampler Initials SM/AL

Sample ID	Time (24hrs)	Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
S-9-US01	15:30	3x	PONAR	(☒ Same As Above)
Pull (#)	Location (Left / Centre / Right)	Depth (m)	Ponar Quantity (%)	Benthic Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In stream	0.6	Discarded	40% detritus 40% muck 20% wood debris
2	"	0.7	80	
3	"	0.7	Discarded	
4	"	0.7	Discarded	
5	"	0.7	90	
6	"	0.7	50	
Comments (colour, coarse organics/detritus, visible animals):				

WATER / SEDIMENT / BENTHIC SAMPLING FORM

wood.

SITE INFORMATION

Site ID	Waterbody	Date (DD/MMM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
S-9	S-P	10/SEP/2019	15U 552233, 5690200
Project Number	Photo Number's	Weather Description (wind, precipitation/duration, cloud cover):	
TC190403.02		100% CC. cool. windy NW ~ 20 km/h	

WATER QUALITY

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Bottles (# / approx. total vol.)	Date (DD/MMM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
S-9	12:25		10/SEP/2019	(☒ Same As Above)

Comments (bottles field filtered, sample odour):

Air Temperature	15 °C	DO	50.4 %	OTHER:
H2O Temperature	10.38 °C	DO	5.61 mg/L	
pH	7.12 pH	TDS	g/L	
Conductivity	123 <u>µS/cm</u> or mS/cm	ORP	145.3 mV	
Turbidity	NTU	Depth	m	

Comments (water colour, sheen, plankton/algal bloom):

SEDIMENT

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Bags/Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
S-9 - Sed	12:30	1 Jar (250ml) 2 Bags	Petite Ponar	(☒ Same As Above)

Pull (#)	Location (In stream/river)	Depth (m)	Sampler Qty. (%)	Sediment Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In stream	0.25	100	55% Mu, 30% De, 15% Wood chips 55% Mu, 30% De, 15% WC 50% Mu, 30% De, 10% WC, 10% water (Drained)
2	"	0.30	100	
3	"	0.40	60	
4				
5				
6				

Comments (colour, streaking/mottling, odour, macrophytes):

Dark brown sediment

BENTHIC

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
S-9	12:50	3 Jars	Petite Ponar	(☒ Same As Above)

Pull (#)	Location (Left / Centre / Right)	Depth (m)	Ponar Quantity (%)	Benthic Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In-stream Left	0.30	70	50% Mu, 30% De, 20% Wood chips " " 40% Mu, 30% De, 30% wood chips
2	Centre	0.35	50	
3	Right	0.35	90	
4				
5				
6				

Comments (colour, coarse organics/detritus, visible animals):

Dark brown

Observed: Hemiptera, Dragonfly Larvae x2

WATER / SEDIMENT / BENTHIC SAMPLING FORM

wood.

SITE INFORMATION

Site ID	Waterbody	Date (DD/MM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
WBO2-OUT	Unnamed / Springpole L.	17/SEP/2019	15U 550065, 5693966
Project Number	Photo Number's	Weather Description (wind, precipitation/duration, cloud cover):	
TC190403.002	367 - 415 (A.Law's)	Overcast, warm, breezy	

WATER QUALITY

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Bottles (# / approx. total vol.)	Date (DD/MM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
	09:30	N/A	17 SEP 2019	(☒ Same As Above)
Comments (bottles field filtered, sample odour): <u>NONE</u>				
Air Temperature	20	°C	DO	65.6 %
H2O Temperature	9.57	°C	DO	7.59 mg/L
pH	7.16	pH	TDS	— g/L
Conductivity	145	μS/cm or mS/cm	ORP	140.2 mV
Turbidity	—	NTU	Depth	0.10 m
Comments (water colour, sheen, plankton/algal bloom): <u>Water clear / no stain</u>				

SEDIMENT

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Bags/Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
WBO2-OUT-S	09:45	1 JAR / 2 BAGS	Petite Ponar	(☒ Same As Above)
Pull (#)	Location (in stream/river)	Depth (m)	Sampler Qty. (%)	Sediment Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In-stream	0.30	Discarded	SAND 0%. SILT 15% MUCK 60%. vegetation/roots 25%.
2	"	"	"	
3	"	"	40%	
4	"	"	80%	
5	"	"	Discarded	
6	"	"	40%	
Comments (colour, streaking/mottling, odour, macrophytes): <u>Medium brown, vegetation on surface, detritus</u> <u>Heavy choked with vegetation.</u>				

BENTHIC

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
WBO2-OUT	10:00	2x	Petite Ponar	(☒ Same As Above)
Pull (#)	Location (Left / Centre / Right)	Depth (m)	Ponar Quantity (%)	Benthic Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In-stream	0.30	50	Same as sed.
2		"	85	
3		"	50	
4			—	
5			—	
6			—	
Comments (colour, coarse organics/detritus, visible animals): <u>Pearl Clams observed in grab #1</u> - Dragonfly L. (1) <u>—</u> - Diving Beetle (2)				

WATER / SEDIMENT / BENTHIC SAMPLING FORM

wood.

SITE INFORMATION

Site ID	Waterbody	Date (DD/MMM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
WB05-OUT	Unnamed	13 SEP 2019	15U 549,55, 5693173
Project Number	Photo Number's	Weather Description (wind, precipitation/duration, cloud cover):	
TC190403		Cloudy 100%cc	

WATER QUALITY

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Bottles (# / approx. total vol.)	Date (DD/MMM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
—	10:00	NONE	13 SEP 2019	(☒ Same As Above)

Comments (bottles field filtered, sample odour):

Air Temperature	12	°C	DO	50.7	%	OTHER:
H2O Temperature	11.10	°C	DO	5.55	mg/L	
pH	7.48	pH	TDS	—	g/L	
Conductivity	157	μS/cm or mS/cm	ORP	171.7	mV	
Turbidity	—	NTU	Depth	0.10	m	

Comments (water colour, sheen, plankton/algal bloom):

SEDIMENT

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Bags/Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
WB05-OUT-B	10:30	1 JAR / 2 Bags	Petite Ponar	(☒ Same As Above)

Pull (#)	Location (in stream/river)	Depth (m)	Sampler Qty. (%)	Sediment Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In-Stream	1.0	80	60% Muck 30% DE/ORG. 10% wood chips
2	"	1.0	80	
3	"	1.0	90	
4				
5				
6				

Comments (colour, streaking/mottling, odour, macrophytes):

Sed. Dark brown

BENTHIC

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
WB05-OUT	10:30	2 JARS	Petite Ponar	(☒ Same As Above)

Pull (#)	Location (Left / Centre / Right)	Depth (m)	Ponar Quantity (%)	Benthic Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In-Stream	1.0	80	Same as Sed.
2	"	1.0	90	
3	"	1.0	85	
4				
5				
6				

Comments (colour, coarse organics/detritus, visible animals):

WATER / SEDIMENT / BENTHIC SAMPLING FORM

wood.

SITE INFORMATION

Site ID	Waterbody	Date (DD/MM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
WB06-OUT	Unnamed	14 SEP 2019	15U 547853, 5692119
Project Number	Photo Number's	Weather Description (wind, precipitation/duration, cloud cover):	
TC190403.002		Calm, Sunny	

WATER QUALITY

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Bottles (# / approx. total vol.)	Date (DD/MM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
WB06-OUT	13:30	—	13:30	(☒ Same As Above)

Comments (bottles field filtered, sample odour):

Air Temperature <u>15</u> °C	DO <u>60.4</u> %	OTHER:
H2O Temperature <u>8.68</u> °C	DO <u>7.04</u> mg/L	
pH <u>7.35</u> pH	TDS <u>—</u> g/L	
Conductivity <u>145 / 0.210</u> µS/cm or mS/cm	ORP <u>194.7</u> mV	
Turbidity <u>—</u> NTU	Depth <u>0.10</u> m	

Comments (water colour, sheen, plankton/algal bloom):

Water clear, no stain

SEDIMENT

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Bags/Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
WB06-OUT-S	13:35	1 JAR / 2 BAGS	Petite Ponar	(☒ Same As Above)

Pull (#)	Location (in stream/river)	Depth (m)	Sampler Qty. (%)	Sediment Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In-Stream	0.20	Discarded	} 40% De/wood 25% SAND 45% MUCK
2	"	0.30	40	
3	"	0.20	50	
4	"	0.20	Discarded	
5	"	0.20	Discarded	
6	"	0.20	40	

Comments (colour, streaking/mottling, odour, macrophytes):

Medium brown colour (sand)

BENTHIC

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
WB06-OUT	13:50	5x	Petite Ponar	(☒ Same As Above)

Pull (#)	Location (Left / Centre / Right)	Depth (m)	Ponar Quantity (%)	Benthic Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In-Stream	0.20	60	Description same as sed. ↑
2	"	0.20	70	
3	"	0.20	60	
4	"			
5				
6				

Comments (colour, coarse organics/detritus, visible animals):

WATER / SEDIMENT / BENTHIC SAMPLING FORM

wood.

SITE INFORMATION

Site ID	Waterbody	Date (DD/MMM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
WB16-1N-T	WB16-1N (unnamed)	14 SEP 2019	150 547823, 5692110
Project Number	Photo Number's	Weather Description (wind, precipitation/duration, cloud cover):	
TC190403.CO2		Calm, sunny 0% CC	

WATER QUALITY

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Bottles (# / approx. total vol.)	Date (DD/MMM/YYYY)	Location Coordinates (UTM mE, mN, Zone, Acc.)
✓	12:00	0	14 SEP 2019	(☒ Same As Above)

Comments (bottles field filtered, sample odour):

Air Temperature	15	°C	DO	57.8	%	OTHER:
H2O Temperature	8.16	°C	DO	6.76	mg/L	
pH	7.24	pH	TDS	—	g/L	
Conductivity	143	µS/cm or mS/cm	ORP	213.2	mV	
Turbidity	—	NTU	Depth	0.10	m	

Comments (water colour, sheen, plankton/algal bloom):

Water clear, lots of rain in last 24 hours.

SEDIMENT

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Bags/Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
WB16-1N-S	12:00	1 JAR / 2 BAGS	Petite Ponar	(☒ Same As Above)

Pull (#)	Location (in stream/river)	Depth (m)	Sampler Qty. (%)	Sediment Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	In-stream	0.3	50	50% Mu, 25% org/det., 25% wood chips ↓ Dark coloured sediment.
2	"	0.3	30	
3	"	0.3	40	
4	"	0.3	60	
5	"	0.3	80	
6				

Comments (colour, streaking/mottling, odour, macrophytes):

*DUP-1 Collected

BENTHIC

Sampler Initials AL, SM

Sample ID	Time (24hrs)	Jars (# / vol.)	Sample Gear	Location Coordinates (UTM mE, mN, Zone, Acc.)
WB16-1N	12:20	2 X	Petite Ponar	(☒ Same As Above)

Pull (#)	Location (Left / Centre / Right)	Depth (m)	Ponar Quantity (%)	Benthic Composition (Describe % cobble / coarse-fine sand / silt / clay)
1	Left	0.3	80	50% MU } 25% ORG/DE 25% wood chips
2	Centre	0.3	65	
3	Right	0.3	55	
4				
5				
6				

Comments (colour, coarse organics/detritus, visible animals):

wood.

Area Description (Habitat Type):
OUTLET/STREAM

see Net Form ☐[illegible]

QA/QC By: A. Law
Date: 18 Sept 19

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)		Project No: TC190403-CO2wood.
Waterbody Name: S-9	Start Date (DD MMM YYYY) / Time (24HR): 10 SEP 2019 / 13:10	End Date (DD MMM YYYY) / Time (24HR): 12 SEP 2019 / 11:30		Area Description (Habitat Type): BAND Pond / stream
Sample ID: S-9-MT1	Method #: (Traps / Rods) MTSx10	UTM Coordinates (mN, mE, Zone, Acc.): 15U Various (See Aaron's GPX)		Samplers AL.SM
Page: 1 of 4				see Net Form ☐

Species	Fish #	Species Code	Length (mm)		Round Weight (g / kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY / 1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Finescale Dair	1	183	84	90	7.09	✓		✓		Hghz
	2		83	87	6.89					
	3		77	82	5.29					
	4		70	74	3.77					
	5		68	72	2.55					
	6		67	72	3.28					
	7		70	75	3.45					
	8		53	57	2.01					
	9		52	55	1.37					
	10		50	53	1.46					✓
	11		68	72	2.97					Comp #1
	12		56	59	2.08					
	13		58	61	2.23					
	14		60	64	2.52					
	15		51	55	1.87					
	16		56	60	1.99					
	17		55	58	1.66					
	18		56	61	2.15					
	19		61	65	2.75					
	20		56	60	2.23					
	21		60	63	2.26					
	22		54	57	1.95					
	23		61	64	2.35					
	24		57	61	2.46					
	25		59	63	2.23					
	26		60	64	2.63					
	27		54	57	1.63					
	28		67	71	3.03					
	29		65	71	3.22					
	30		66	71	3.13					
	31		55	59	1.80					
	32		56	61	2.29					
	33	✓	65	69	2.91					✓
	34		65	70	2.98					59.14 (g)
N. Redbelly	35	182	62	66	2.48					Hghz
	36		60	64	2.34					
	37		57	61	1.98					
	38		58	61	2.28					
	39		57	60	1.97					
	40		52	55	1.58					
	41		49	53	1.20					
	42		50	53	1.32					
	43		47	51	1.07					
	44		46	49	0.93			✓		✓
	45	✓	56	60	1.59					Comp #2

Species Box Tally Area / Site Comments:

QA/QC By:
Date:

Aging Structures Legend:
 Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 yoy - Young Of the Year
 1+ - Older than 'yoy'

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)		Project No: TC190403 wood.
Waterbody Name: S-9	Start Date (DD MMM YYYY) / Time (24HR): 10 Sep 2019 / 13:10	End Date (DD MMM YYYY) / Time (24HR): 12 Sep 2019 / 11:30	Area Description (Habitat Type):	
Sample ID: S-9-MT1	Method #: (Traps / Rods) MT X10	UTM Coordinates (mN, mE, Zone, Acc.): 1544	Samplers: AL, SN	Page: 2 of 4 ☐ see Net Form

Species	Fish #	Species Code	Length (mm)		Round Weight (g / kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY / 1+)	Comments (disease, malformation, etc.)
			Fork	Total						
N. Rainbow	46	182	54	59	1.62	U		Y		
	47		56	60	1.91					
	48		56	60	1.77					
	49		58	62	2.03					
	50		54	58	1.72					
	51		58	62	1.90					
	52		57	61	1.96					
	53		54	58	1.81					
	54		52	55	1.42					
	55		54	57	1.75					
	56		56	59	1.06					
	57		53	57	1.52					
	58		55	59	2.14					
	59		54	58	1.60					
	60		53	57	1.58					
	61		58	63	2.25					
	62		55	59	1.75					
	63		55	59	1.61					
	64		59	63	2.35					
	65		57	61	2.09					
	66		59	62	1.97					
	67		54	58	1.68					
	68		59	63	2.15					
	69		58	62	2.12					
	70		55	58	1.76					
	71		57	62	2.21					
	72		52	55	1.48					
	73		48	52	1.15					
	74		54	58	1.62					
	75		58	62	1.92					Comp 55.06 g
Finescale Dac	76	183	82	86	6.84					Comp #3
	77		65	70	2.79					
	78		72	77	4.35					
	79		69	73	3.47					
	80		65	71	3.08					
	81		70	75	3.75					
	82		65	70	3.12					
	83		67	71	3.04					
	84		65	70	3.36					
	85		67	71	2.98					
	86		69	74	3.41					
	87		70	76	3.71					
	88		65	70	3.07					
	89		65	70	3.05					
	90		63	68	2.76	U		Y		See page 3
Species Box Tally Area / Site Comments:					Species	Total Catch	Species	Total Catch	Aging Structures Legend: Sc - Scales Pr - Pectoral Ray Oto - Otoliths Dr - Dorsal Ray yoy - Young Of the Year 1+ - Older than 'yoy'	
QA/QC By:										
Date:										
					Total #					

BIOSAMPLING FORM		Method Used: (Minnow) <u>Trap</u> / Angling / Dip Net / Gillnet / Seine		Project No: <u>TC 190403 wood.</u>	
Waterbody Name: <u>S-9</u>		Start Date (DD MMM YYYY) / Time (24HR): <u>10 Sep 2019 / 13:10</u>		End Date (DD MMM YYYY) / Time (24HR): <u>12 Sep 2019 / 11:30</u>	
Sample ID: <u>S-9-MT1</u>		Method #: (Traps/Rods) <u>MT x 10</u>		UTM Coordinates (mN, mE, Zone, Acc.):	
				Samplers: <u>A.S.M.</u>	
				Page: <u>3</u> of <u>4</u> see Net Form ☐	

Species	Fish #	Species Code	Length (mm)		Round Weight (g/kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY / 1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Fin. Scale	91	183	62	66	2.68			Y		SS-62 (g)
White Sucker	92	163	75	80	4.49					
	93		64	69	2.71					
	94		60	64	2.10					
	95		57	61	1.61					
Brook stickle	96	281	-	52	0.95					
Fathead	97	209	62	67	3.32					
	98		55	57	1.65					
	99		63	69	2.74					
	100		65	71	3.78					
	101		62	67	2.92					
	102		50	53	1.55					
	103		62	67	3.25					
	104		63	67	3.28					
	105		65	70	3.86					
	106		57	60	2.29					
	107		65	70	3.68					
	108		60	64	2.71					
	109		60	64	2.38					
	110		57	61	2.24					
	111		50	53	1.35					
	112		52	56	1.68					
	113		59	62	2.42					
	114		60	64	2.64					
	115		66	71	4.11					
	116		62	67	3.12					
	117		59	62	2.38					
	118		63	69	2.86					
	119		61	65	2.71					
	120		66	71	4.21					
	121		62	69	3.80					
	122		62	66	3.19					
	123		66	71	2.06					
	124		60	64	2.85					
	125		68	72	2.43					
	126		62	66	3.08					
	127		62	66	3.12					
	128		57	62	2.26					
	129		57	62	2.38					
	130		55	58	1.92					
	131		54	58	1.74					
	132		65	69	3.60					
	133		60	65	2.46					
	134		52	56	1.48					
	135		54	58	1.88					

Species Box Tally Area / Site Comments:		QA/QC By: Date:	Aging Structures Legend: Sc - Scales Pr - Pectoral Ray Oto - Otoliths Dr - Dorsal Ray yoy - Young Of the Year 1+ - Older than 'yoy'
---	--	--------------------	--

BIOSAMPLING FORM

Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)

Project No:

TC 190403

wood.

Waterbody Name:

S-9

Start Date (DD MMM YYYY) / Time (24HR):

10 Sep 2019 / 13:10

End Date (DD MMM YYYY) / Time (24HR):

12 Sep 2019 / 11:30

Area Description (Habitat Type):

Sample ID:

S9-101

Method #: (Traps / Rods)

40x10

UTM Coordinates (mN, mE, Zone, Acc.):

Samplers

AL, S

Page: 4 of 4

see Net Form



Species	Fish #	Species Code	Length (mm)		Round Weight (g / kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY / 1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Yellow Perch	136	214	85	91	7.17					
	137		88	93	6.90					
	138		88	95	7.61					
	139		89	95	7.61					
	140		88	93	7.18					
	141		78	83	5.45					
	142		80	86	5.29					
	143		86	93	7.60					
	144		95	101	8.84					
	145		80	87	5.65					
	146		85	92	6.58					
	147		80	87	5.24					
	148		70	76	3.78					
	149		75	82	5.03					
	150		85	91	6.08					
	151		55	60	1.72					
	152		50	54	1.31					
	153		48	53	1.15					
Brook Silverside	154	281	81	89	1.54					
	155	281	~	54	1.20					

Species Box Tally Area / Site Comments:

25 Fine Scale, 66.93(g)

91 Northern Redbelly dace = 162.06(g)

QA/QC By:

Date:

Aging Structures Legend:

Sc - Scales
Pr - Pectoral Ray
Oto - Otoliths
Dr - Dorsal Ray
yoy - Young Of the Year
1+ - Older than "yoy"

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)		Project No: TC190403. Cozwood.
Waterbody Name: S-9-US02	Start Date (DD MMM YYYY) / Time (24HR): 10 SEP 2019 / 13:10	End Date (DD MMM YYYY) / Time (24HR): 12 SEP 2019 / 11:00		Area Description (Habitat Type): XXXXXX Pond (Beaver)
Sample ID: S-9-US02-MT1	Method #: (Trap / Rod) MT1x10	UTM Coordinates (mN, mE, Zone, Acc.): 15U Various		Samplers ALSM
Page: 1 of 3				see Net Form ☐

Species	Fish #	Species Code	Length (mm)		Round Weight (g / kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY / 1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Pearl Dace	1	214	80	86	5.49	U		Y		Comp # 1
	2		76	83	4.98					
	3		89	95	7.57					
	4		85	92	6.56					
	5		85	91	6.28					
	6		85	92	6.66					
	7		85	92	6.39					
	8		81	87	6.04					
	9		86	92	5.93					
	10		80	87	5.46					61.46 (g) Total
	11		86	93	6.11					Comp # 2
	12		89	96	6.98					
	13		90	96	7.26					
	14		79	86	4.91					
	15		82	88	5.89					
	16		80	86	5.65					
	17		81	88	5.87					
	18		80	87	5.52					
	19		88	94	7.07					
	20		82	89	5.59					60.65 (g) Total
	21		104	116	13.49					Comp # 3
	22		112	121	15.21					
	23		102	110	11.63					
	24		108	115	13.13					
	25		107	117	10.83					64.26 (g) Total
M. Redbelly Dace	26	182	49	53	1.26					Comp # 4
	27		51	55	1.37					
	28		51	55	1.41					
	29		52	55	1.29					
	30		54	57	1.55					
	31		52	57	1.42					
	32		51	55	1.43					
	33		54	58	1.80					
	34		53	57	1.54					
	35		51	55	1.34					
	36		53	57	1.56					
	37		54	58	1.59					
	38		53	57	1.60					
	39		52	57	1.36					
	40		50	53	1.41					
	41		53	57	1.48					
	42		52	55	1.33					
	43		56	60	1.74					
	44		56	61	1.83					
	45		53	57	1.64					
Species Box Tally Area / Site Comments: 46			53	56	1.69					

Aging Structures Legend:
 Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 YOY - Young Of the Year
 1+ - Older than 'YOY'

QA/QC By:
Date:

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine) <i>Minnow Trap</i>		Project No: <i>TC190403 wood.</i>	
Waterbody Name: <i>S-9-US02</i>	Start Date (DD MMM YYYY) / Time (24HR): <i>10 Sep 2019 / 13:10</i>	End Date (DD MMM YYYY) / Time (24HR): <i>12 Sep 2019 / 11:00</i>		Area Description (Habitat Type): <i>Pond (Beaver)</i>	
Sample ID: <i>S-9-US02-MT1</i>	Method #: (Traps / Rods) <i>MT X10</i>	UTM Coordinates (mN, mE, Zone, Acc.):		Samplers <i>AL/sn</i>	Page: <i>2</i> of <i>3</i> ☐ see Net Form

Species	Fish #	Species Code	Length (mm)		Round Weight (g / kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY / 1+)	Comments (disease, malformation, etc.)
			Fork	Total						
<i>N. Redbelly Dace</i>	<i>47</i>	<i>182</i>	<i>54</i>	<i>57</i>	<i>1.59</i>	<i>U</i>		<i>Y</i>		<i>Comp #4 cont</i>
	<i>48</i>		<i>51</i>	<i>55</i>	<i>1.26</i>					
	<i>49</i>		<i>55</i>	<i>58</i>	<i>1.68</i>					
	<i>50</i>		<i>52</i>	<i>56</i>	<i>1.56</i>					
	<i>51</i>		<i>49</i>	<i>54</i>	<i>1.30</i>					
	<i>52</i>		<i>53</i>	<i>56</i>	<i>1.55</i>					
	<i>53</i>		<i>52</i>	<i>56</i>	<i>1.56</i>					
	<i>54</i>		<i>53</i>	<i>58</i>	<i>1.55</i>					
	<i>55</i>		<i>53</i>	<i>56</i>	<i>1.53</i>					
	<i>56</i>		<i>51</i>	<i>54</i>	<i>1.34</i>					
	<i>57</i>		<i>55</i>	<i>59</i>	<i>1.54</i>					
	<i>58</i>		<i>47</i>	<i>50</i>	<i>0.86</i>					
	<i>59</i>		<i>52</i>	<i>56</i>	<i>1.41</i>					
	<i>60</i>		<i>49</i>	<i>52</i>	<i>1.10</i>					
	<i>61</i>		<i>52</i>	<i>56</i>	<i>1.42</i>					
	<i>62</i>	<i>V</i>	<i>55</i>	<i>59</i>	<i>1.79</i>					<i>54.53 (g)</i>
<i>Pearl Dace</i>	<i>63</i>	<i>214</i>	<i>84</i>	<i>91</i>	<i>6.24</i>					<i>Comp #5</i>
<i>Pearl Dace</i>	<i>64</i>		<i>78</i>	<i>84</i>	<i>4.45</i>					
	<i>65</i>		<i>79</i>	<i>85</i>	<i>5.13</i>					
	<i>66</i>		<i>82</i>	<i>88</i>	<i>5.72</i>					
	<i>67</i>		<i>79</i>	<i>85</i>	<i>4.81</i>					
	<i>68</i>		<i>78</i>	<i>84</i>	<i>5.06</i>					
	<i>69</i>		<i>81</i>	<i>86</i>	<i>4.95</i>					
	<i>70</i>		<i>85</i>	<i>91</i>	<i>6.81</i>					
	<i>71</i>		<i>83</i>	<i>89</i>	<i>5.91</i>					
	<i>72</i>		<i>81</i>	<i>88</i>	<i>5.65</i>					
	<i>73</i>		<i>78</i>	<i>84</i>	<i>4.43</i>					
	<i>74</i>		<i>121</i>	<i>129</i>	<i>20.11</i>					<i>59.03 (g)</i>
	<i>75</i>		<i>212</i>	<i>129</i>	<i>19.20</i>					<i>Aging</i>
	<i>76</i>		<i>114</i>	<i>123</i>	<i>15.90</i>					
	<i>77</i>		<i>94</i>	<i>101</i>	<i>10.05</i>					
	<i>78</i>		<i>92</i>	<i>98</i>	<i>7.62</i>					
	<i>79</i>		<i>89</i>	<i>96</i>	<i>7.06</i>					
	<i>80</i>		<i>76</i>	<i>82</i>	<i>4.45</i>					
	<i>81</i>		<i>79</i>	<i>85</i>	<i>4.68</i>					
	<i>82</i>		<i>76</i>	<i>83</i>	<i>4.36</i>					
	<i>83</i>		<i>68</i>	<i>72</i>	<i>2.86</i>					
	<i>84</i>		<i>43</i>	<i>46</i>	<i>0.84</i>					
	<i>85</i>	<i>V</i>	<i>45</i>	<i>48</i>	<i>0.73</i>					<i>Aging</i>
<i>Fine Scale Dace</i>	<i>86</i>	<i>183</i>	<i>67</i>	<i>72</i>	<i>3.56</i>					
	<i>87</i>		<i>62</i>	<i>66</i>	<i>2.56</i>					
	<i>88</i>		<i>63</i>	<i>69</i>	<i>2.72</i>					
	<i>89</i>		<i>59</i>	<i>64</i>	<i>2.31</i>					
	<i>90</i>	<i>V</i>	<i>56</i>	<i>60</i>	<i>2.15</i>					
	<i>See Page 3</i>		<i>3</i>							

Species Box Tally Area / Site Comments:

PRDC # 40 (251.96 g)

PRDC # 40 (256.86 g)

NRDC # 54 (91.84 g)

PRDC # 27 (144.88 g)

QA/QC By:

Date:

Species

Total Catch

Species

Total Catch

Total #

Aging Structures Legend:

Sc - Scales

Pr - Pectoral Ray

Oto - Otoliths

Dr - Dorsal Ray

yo - Young Of the Year

1+ - Older than 'yo'

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / <u>Seine</u>)		Project No: TC190403.C02 wood.	
Waterbody Name: S-9-US01		Start Date (DD MMM YYYY) / Time (24HR): 11 SEP 2019 / 15:50		End Date (DD MMM YYYY) / Time (24HR): 11 SEP 2019 / 16:00	
Sample ID: S-9-US01-SN1		Method #: (Traps / Rode) 3 x hauls		Area Description (Habitat Type): Beaver Pond/channel	
		UTM Coordinates (mN, mE, Zone, Acc.): 15U 552881 . 5690537		Samplers AL:SM Page: <u>1</u> of <u>1</u> see Net Form ☐	

[illegible]

Project No: TC190403.CO2wood.

Area Description (Habitat Type):

Lake

Page: 1 of 1

see Net Form 

Sc - Scales
Pr - Pectoral Ray
Oto - Otoliths
Dr - Dorsal Ray
yoy - Young Of the Year
1+ - Older than "yoy"

wood.

Lake

Page: 1 of 1
see N

Sc - Scales
Cl - Cleithrum
Pr - Pectoral Ray
Oto - Otoliths
Ds - Dorsal Spine
YOY - Young Of the Year

QA/QC By: A. Law
Date: 10 Sept 19

Total #	16
---------	----

DETAILED BIOSAMPLING FORM			Method Used: (Minnow Trap / <u>Angling</u> / Dip Net / Gillnet / Seine)		wood.	
Waterbody Name: <u>Springpole Lake</u>		Start Date (DD MMM YYYY) / Time (24HR): <u>11 SEP 2019 / 12:35</u>		End Date (DD MMM YYYY) / Time (24HR): <u>11 SEP 2019 / 13:25</u>		Area Description (Habitat Type): <u>Lake</u>
Sample ID: <u>SPL-AN2</u>	Method #: (Traps/Rods/Dips) <u>2 x Rods</u>	Project Number: <u>TC19403.002</u>	UTM Coordinates (mN, mE, Zone, Acc.): <u>15U Various</u>		Samplers In. <u>ALSM</u>	Page: <u>1</u> of <u>1</u> see Net Form ☐

wood.

Waterbody Name: Springpole Lake

11 SEP 2019 / 12:35

11 SEP 2019/13:25

Lake

SPL-AN2

2 x Rods

TC190403.002

15v Vari:ous

AL. SM

Page: 1 of 1
see Net Form ☐

Species Box Tally Area / Site Comments:	
---	--

Species	Catch	Species	Catch	Aging Structures Legend: Sc - Scales Cl - Cleithrum Pr - Pectoral Ray Oto - Otoliths Ds - Dorsal Spine YOY - Young Of The Year
NF	4			
		Total #	4	

QA/QC By: A. Law
Date: 12 Sept 19

[illegible]

Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)

wood.

Waterbody Name:

Start Date (DD MMM YYYY) / Time (24HR):

End Date (DD MMM YYYY) / Time (24HR):

Area Description (Habitat Type):

Sample ID:

Method #: (Traps/ Rode/ Dips)

Project Number:

UTM Coordinates (mN, mE, Zone, Acc.):

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

Page: 1 of 1
see Net Form ☐[illegible]

[illegible]

wood.

Area Description (Habitat Type):

Page: 1 of 1
see No.[illegible]

Species Box Tally Area / Site Comments:

Species

Catch

Species	
---------	--

Aping Structures Legend

Sc - Scales
Cl - Cleithrum
Pr - Pectoral Ray
Oto - Otoliths
Ds - Dorsal Spine
YOY - Young Of the Year

QA/QC By:

Date:

	Total #
--	---------

3

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)		Project No: TC190403.002 wood.
Waterbody Name: WB05-OUT	Start Date (DD MMM YYYY) / Time (24HR): 12 SEPT 2019 / 13:10	End Date (DD MMM YYYY) / Time (24HR): 13/SEP/2019 / 09:30		Area Description (Habitat Type): Impounded ponds (cells)
Sample ID: WB05-OUT-MTH	Method #: (Traps / Rods) 15xMTs	UTM Coordinates (mN, mE, Zone, Acc.): 15U Varrans (See Aaron's GPX)	Samplers: AL, SM	Page: 1 of 3 ☐ see Net Form

Species	Fish #	Species Code	Length (mm)		Round Weight (g / kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY / 1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Finescale	1	183	65	69	3.23	U		Y		Comp # 1
	2		69	73	4.05					
	3		62	67	3.28					
	4		65	69	3.52					
	5		65	70	3.40					
	6		65	70	3.50					
	7		68	73	3.80					
	8		61	65	2.88					
	9		63	67	2.92					
	10		58	62	2.72					
	11		67	71	3.75					
	12		67	72	3.38					
	13		70	75	4.56					
	14		60	64	2.80					
	15		63	68	3.12					
	16	V	61	65	2.85					52.29 (5)
Fine scale	17		69	73	4.16					Comp # 2
	18		73	77	4.42					
	19		74	79	4.56					
	20		72	77	4.60					
	21		76	80	4.524					
	22		68	73	3.98					
	23		67	72	4.23					
	24		65	70	4.74					
	25		70	75	4.15					
	26		73	78	4.68					
	27		70	74	4.19					
	28		63	68	3.30					
	29	V	72	76	4.38					V 56.97 (9)
FineScale	30		59	62	2.58					Comp # 3
	31		61	65	2.81					
	32		65	69	2.23					
	33		61	65	2.73					
	34		56	60	2.29					
	35		60	63	2.89					
	36		60	64	2.66					
	37		61	64	2.95					
	38		62	66	2.99					
	39		59	62	2.64					
	40		59	63	2.38					
	41		59	63	2.64					
	42		58	62	2.52					
	43		62	66	2.81					
	44	V	60	64	2.94					
	45		62	66	2.90					
Species Box Tally Area / Site Comments:					Species		Total Catch	Species	Total Catch	Aging Structures Legend: Sc - Scales Pr - Pectoral Ray Oto - Otoliths Dr - Dorsal Ray yoy - Young Of the Year 1+ - Older than "yoy"
					QA/QC By:					
					Date:			Total #		

Species Box Tally Area / Site Comments:	Species	Total Catch	Species	Total Catch	<u>Ageing Structures Legend:</u> Sc - Scales Pr - Pectoral Ray Oto - Otoliths Dr - Dorsal Ray yoy - Young Of The Year 1+ - Older than "yoy"
ENDX 151 / N = 94, 124.51 (6)	QA/QC By:				
	Date:				
				Total #	

wood.

Area Description (Habitat Type):

Impounded ponds

Samplers

Al, Sr

Page: 3 of 3

see Net Form ☐

Aging Structures Legend:
Sc - Scales
Pr - Pectoral Ray
Oto - Otoliths
Dr - Dorsal Ray
yoy - Young Of the Year
1+ - Older than "yoy"

DETAILED BIOSAMPLING FORM					Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine) Seine					wood.																													
Waterbody Name: Unnamed			Start Date (DD MMM YYYY) / Time (24HR): 14 SEP 2019 / 12:53			End Date (DD MMM YYYY) / Time (24HR): 14 SEP 2019 / 12:55			Area Description (Habitat Type): Stream / pool																														
Sample ID: WB16-1N-SM		Method #: (Trap/ Rodal/ Dip) 3 x Hauls		Project Number: TC190403		UTM Coordinates (mN, mE, Zone, Acc.): 15U 547829.5692112			Samplers In: AL, SM		Page: <u>1</u> of <u>1</u> see Net Form ☐																												
Species	Fish #	Species Code	Length (mm)		Round Weight					Sex (M/F)	Maturity (M/IM/I)	Aging Structures (Sc, Pr, Dr, Oto)	Retained for Analysis (Y/N)	Age Class (YOY / 1+)	Comments (Hg / Condition / etc.)																								
			Fork	Total	Body (g/kg)	L. Tissue (g)	R. Tissue (g)	Liver (g)	Goned (g)																														
N G C A T C H																																							
																	Species Box Tally Area / Site Comments:												Species		Catch		Species		Catch		Aging Structures Legend:		
																																			Sc - Scales Cl - Clathrum Pr - Pectoral Ray Oto - Otoliths Ds - Dorsal Spine YOY - Young Of the Year				
QA/QC By:												Date:		Total #																									

Project No:

Project No. TC190403 wood.

Area Description (Habitat Type):

lake/beach

Samplers

AL, SM

see Net Form

Species Box Tally Area / Site Comments:**Total Catch**

Date:

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

Project No: TC190403.CO2 **wood.**

Area Description (Habitat Type):	
----------------------------------	--

Beach / Lake

Page: 2 of 3

see Net Form

Species	Fish #	Species Code	Length (mm)		Round Weight (g/kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY / 1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Yellow Perch	46	331	46	48	0.78	U	N/A	Y	YOY	Comp. 1 Continued
	47	331	43	46	0.66					
	48	331	44	46	0.67					
	49	331	44	46	0.86					
	50	331	42	45	0.79					
	51	331	47	51	1.13					
	52	331	44	47	0.96					
	53	331	43	46	0.87					
	54	331	41	44	0.69					
	55	331	43	46	0.86					
	56	331	43	46	0.82					
	57	331	44	47	0.81					
	58	331	43	46	0.81					
	59	331	47	50	1.08					
	60	331	51	54	1.35					
	61	331	46	49	1.10					
	62	331	47	50	1.05					
	63	331	49	52	1.12					
	64	331	49	52	1.31					
	65	331	46	49	1.09					
	66	331	48	51	1.20					
	67	331	47	50	1.13					
	68	331	44	47	0.89					
	69	331	39	42	0.68					
	70	331	50	54	1.36					53.55g TOTAL
	71	331	41	45	0.72					Comp #2
	72	331	49	53	0.32					
	73	331	51	55	1.35					
	74	331	43	46	0.81					
	75	331	49	53	1.20					
	76	331	46	49	1.20					
	77	331	50	55	1.31					
	78	331	43	46	0.88					
	79	331	39	42	0.67					
	80	331	45	46	0.89					
	81	331	46	49	1.03					
	82	331	47	50	1.09					
	83	331	47	50	1.09					
	84	331	48	52	1.13					
	85	331	43	46	0.91					
	86	331	42	45	0.79					
	87	331	46	48	0.93					
	88	331	43	46	0.81					
	89	331	43	45	0.73					
	90	331	45	48	0.97					
Species Box Tally Area / Site Comments:					Species	Total Catch	Species	Total Catch	Aging Structures Legend:	
									Sc - Scales	
									Pr - Pectoral Ray	
									Oto - Otoliths	
									Dr - Dorsal Ray	
									yoy - Young Of the Year	
									1+ - Older than 'yoy'	
QA/QC By:									Total #	
Date:										

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / GillNet / Seine)		Project No: TC190403-C02	wood.
Waterbody Name: Springpole Lake	Start Date (DD MMM YYYY) / Time (24HR): 15 SEP 2019 / 10:30	End Date (DD MMM YYYY) / Time (24HR): 15 SEP 2019 / 10:50	Area Description (Habitat Type): Lake/Beach		
Sample ID: SPL-SN1	Method #: (Traps / Rods) 3 x hauls	UTM Coordinates (mN, mE, Zone, Acc.): 15U 550966, 5691993	Samplers ALISM	Page: 3 of 3	see Net Form ☐

Project No: TC190403-C02

wood.

Waterbody Name: Springpole Lake

Start Date (DD MMM YYYY) / Time (24HR):

15 SEP 2019 / 10:30

End Date (DD MMM YYYY) / Time (24HR):

15 SEP 2019 / 10:50

Area Description (Habitat Type):

Lake/Beach

Sample ID:
SPL-SN1

Method #: (Traps / Rods)

3 x haul's

UTM Coordinates (mN, mE, Zone, Acc.):

150 550966, 5691993

Samplers

ALISM

Page: 3 of 3

see Net Form

Species	Fish #	Species Code	Length (mm)		Round Weight (g/kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Otc)	Retained (Y/N)	Presumed age class (YOY / 1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Yellow Perch	91	331	50	53	1.22	U	N/A	Y	YOY	Comp. # 2
	92		47	50	1.08					
	93		44	46	0.85					
	94		44	47	0.91					
	95		42	45	0.85					
	96		44	46	0.88					
	97		42	44	0.76					
	98		43	46	0.79					
	99		47	50	0.89					
	100		42	45	0.77					
	101		43	46	0.74					
	102		42	45	0.68					
	103		48	51	1.08					
	104		50	54	1.27					
	105		47	49	1.07					
	106		46	50	1.04					
	107		52	55	1.38					
	108		53	55	1.39					
	109		52	55	1.41					
	110		50	53	1.31					
	111		50	52	1.22					
	112		47	51	1.13					
	113		47	50	1.25					
	114		53	56	1.44					
	115		44	47	0.86					
	116		44	47	0.95					
	117		49	51	1.16					
	118		52	56	1.45					
	119		46	49	1.06					
	120		46	49	1.20					
	121		42	45	0.84					
	122		44	47	0.88					
	123									
	124									
	125									
	126									
	127									
	128									
	129									
	130									
	131									
	132									
	133									
	134									
	135									
Species Box Tally Area / Site Comments:					Species	Total Catch	Species	Total Catch	Aging Structures Legend: Sc - Scales Pr - Pectoral Ray Otc - Otoliths Dr - Dorsal Ray yoy - Young Of the Year 1+ - Older than 'yoy'	
QA/QC By:										
Date:							Total #			

BIOSAMPLING FORM				Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)				Project No: TC190403 wood.		
Waterbody Name: Springpole Lake		Start Date (DD MMM YYYY) / Time (24HR): 15/Sep/2019/11:45		End Date (DD MMM YYYY) / Time (24HR): 15/Sep/2019/12:45		Area Description (Habitat Type): Lake/Sand beach.				
Sample ID: SPL-SN2		Method #: (Traps / Rods) 6 x hwy		UTM Coordinates (mN, mE, Zone, Acc.): 15U 549 620, 5690895		Samplers ALSM		Page: 1 of 2 see Net Form ☐		
Species	Fish #	Species Code	Length (mm)		Round Weight (g/kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY/1+)	Comments (disease, malformation, etc.)
			Fork	Total						
White Sucker	1	163	55	59	1.48	U	N/A	N		
	2	163	56	59	1.58					
	3	163	50	54	1.37					
	4	163	52	56	1.48					
	5	163	56	60	1.80					
	6	163	52	55	1.68					
Spotail Shiner	7	163	59	62	2.02					
	8	201	58	66	1.80					
	9	201	35	39	0.39					
	10	201	35	38	0.38					
	11	201	31	34	0.24					
	12	201	24	26	0.08					
Emerald Darter	13	201	22	23	0.06					
	14	201	27	30	0.22					
	15	196	49	54	0.87					
	16	341	65	65	2.03					
	17	341	-	33	0.25					
	18	341	-	47	0.85					
Yellow Perch	19	341	-	31	0.25					
	20	341	-	26	0.20					
	21	341	-	58	1.30					
	22	338	-	47	0.65			✓		
	23	331	46	49	1.03			Y	YOY	COMP #1
	24		50	52	1.24					
	25		44	47	0.83					
	26		46	49	0.97					
	27		50	53	1.24					
	28		43	45	0.80					
	29		47	50	0.99					
	30		49	51	1.21					
	31		50	53	1.49					
	32		50	53	1.17					
	33		56	59	1.16					
	34		42	45	0.88					
	35		48	52	1.18					
	36		55	59	1.62					
	37		51	55	1.31					
	38		47	57	1.20					
	39		50	54	1.30					
	40		45	48	0.98					
	41		49	52	1.20					
	42		47	50	1.07					
	43		58	60	1.98					
	44		55	59	1.61					
	45		49	53	1.26					

Species Box Tally Area / Site Comments:

Species	Total Catch	Species	Total Catch
WHSC	7	WDR	1
STSH	7	YLR	
EMSH	1		
JHDR	6	Total #	

QA/QC By:
Date:

Aging Structures Legend:
 Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 YOY - Young Of the Year
 1+ - Older than 'YOY'

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine) <u>Seine</u>		Project No: <u>TC190403.C02</u> wood.
Waterbody Name: <u>Springdale Lk.</u>	Start Date (DD MMM YYYY) / Time (24HR): <u>15 SEP 2019 / 11:45</u>	End Date (DD MMM YYYY) / Time (24HR): <u>15 SEP 2019 / 12:45</u>	Area Description (Habitat Type): <u>Lake</u>	
Sample ID: <u>SPL-SN2</u>	Method #: (Traps / Rods) <u>6x hauls</u>	UTM Coordinates (mN, mE, Zone, Acc.): <u>15U 549620, 5890895</u>	Samplers: <u>ALSM</u>	Page: <u>2</u> of <u>2</u> ☐ see Net Form

Project No:

Seine

TC190403.C02 wood.

Waterbody Name:

Start Date (DD MMM YYYY) / Time (24HR):

End Date (DD MMM YYYY) / Time (24HR):

Area Description (Habitat Type):

Springdale Lk.

15 SEP 2019/11:45

15 SEP 2019 / 12:45

Lake

Sample ID:

Method #: (Traps / Rods)

UTM Coordinates (mN, mE, Zone, Acc.):

Samplers	
-----------------	--

Page: 2 of 2

SPL - SN2

Box hauls

150 549620, 5890895

AL.SM

see Net Form

Species Box Tally Area / Site Comments:	Species	Total Catch	Species	Total Catch	<u>Aging Structures Legend:</u> Sc - Scales Pr - Pectoral Ray Oto - Otoliths Dr - Dorsal Ray yoy - Young Of the Year 1+ - Older than "yoy"
	QA/QC By:				
	Date:		Total #		

Aging Structures Legend:

Sc - Scales

Pr - Pectoral Ray

Oto - Otoliths

Dr - Dorsal Flap

yoy - Young Of the Year

1+ - Older than "yoy"

BIOSAMPLING FORM			Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine) <u>Seine</u>		Project No: TC190403	wood.
Waterbody Name: <u>Springpole Lake</u>	Start Date (DD MMM YYYY) / Time (24HR): <u>15/sep/2019/13:10</u>	End Date (DD MMM YYYY) / Time (24HR): <u>15/sep/2019/13:50</u>	Area Description (Habitat Type): <u>Lake / sand beach</u>			
Sample ID: <u>SPL-SN3</u>	Method #: (Traps / Rods) <u>3 Xhaul</u>	UTM Coordinates (mN, mE, Zone, Acc.): <u>15U 552035, 5689543</u>	Samplers: <u>AL/SN</u>	Page: <u>1</u> of <u>4</u> see Net Form ☐		

Species	Fish #	Species Code	Length (mm)		Round Weight (g/kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY/1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Spot tail	1	201	42	46	0.71	U	N/A	N	N	By catch released
	2		49	41	0.42			N		
	3		34	37	0.38					
	4		26	28	0.12					
	5		36	39	0.34					
	6		34	36	0.33					
	7		37	40	0.43					
	8		41	44	0.60					
	9		34	36	0.40					
✓	10	✓	30	33	0.24					
Acipenserid sp.	11		29	31	0.17			✓	✓	✓
Yellow Perch	12	331	50	52	1.23			Y	YOY	Comp 1
	13		50	53	1.29					
	14		47	50	0.99					
	15		42	46	0.75					
	16		45	48	0.98					
	17		50	55	1.29					
	18		55	57	1.74					
	19		55	58	1.68					
	20		50	54	1.26					
	21		45	49	1.02					
	22		50	53	1.19					
	23		45	49	0.97					
	24		44	47	0.91					
	25		44	46	0.87					
	26		49	52	1.14					
	27		53	56	1.37					
	28		55	58	1.82					
	29		50	53	1.23					
	30		53	55	1.39					
	31		53	56	1.42					
	32		50	54	1.31					
	33		48	53	1.14					
	34		53	55	1.66					
	35		56	60	1.79					
	36		50	55	1.30					
	37		52	55	1.37					
	38		53	56	1.42					
	39		51	55	1.28					
	40		51	55	1.48					
	41		47	50	1.07					
	42		46	50	1.03					
	43		46	50	1.06					
✓	44	✓	49	53	1.27	✓	✓	✓	✓	
	45		45	49	1.01					

Species Box Tally Area / Site Comments:

Species	Total Catch	Species	Total Catch
SPSH	10		
YLPR			
QA/QC By:		Total #	
Date:			

Aging Structures Legend:
 Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 yoy - Young Of the Year
 1+ - Older than 'yoy'

17, 56)

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / <u>Seine</u>)		Project No: TC1904	wood.
Waterbody Name: Springpole Lake	Start Date (DD MMM YYYY) / Time (24HR): 15 SEP 2019 / 13:10	End Date (DD MMM YYYY) / Time (24HR): 15 SEP 2019 / 13:50	Area Description (Habitat Type): Lake / Beach		
Sample ID: SPL-SN3	Method #: (Traps / Rods) 3 x hauls	UTM Coordinates (mN, mE, Zone, Acc.): 15u 552035, 5689543	Samplers ALSM	Page: <u>2</u> of <u>4</u> see Net Form ☐	

TC1904

wood.

Start Date (DD MMM YYYY) / Time (24HR):	
---	--

End Date (DD MMM YYYY) / Time (24HR):

Area Description (Habitat Type):

Waterbody Name: Springpole Lake

15 SEP 2019 / 13:10

15 SEP 2019 / 13:50

Lake / Beach

Sample ID:

Method #: (Traps / Rods)

UTM Coordinates (mN, mE, Zone, Acc.):

Samplers

Page: 2 of 4

see Net Form

Species	Fish #	Species Code	Length (mm)		Round Weight (g / kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Otc)	Retained (Y/N)	Presumed age class (YOY / 1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Yellow Perch	46	331	45	48	0.88	U	N/A	Y	YOY	Comp 1 cont...
	47		49	54	0.99					
	48		53	57	1.50					
	49		52	55	1.47					
	50		47	51	1.06					
	61		49	52	1.24					
	52		49	52	1.11					
	53		50	54	1.24					
	54		54	58	1.65					53.64g Total
	55		49	51	1.23					Comp 2
	56		40	43	0.65					
	57		45	47	0.82					
	58		47	49	1.02					
	59		48	51	1.06					
	60		44	47	0.80					
	61		46	49	1.00					
	62		45	48	0.90					
	63		45	48	0.95					
	64		46	50	0.93					
	65		46	49	0.81					
	66		47	50	1.03					
	67		46	49	0.88					
	68		48	51	1.09					
	69		42	45	0.78					
	70		47	50	1.05					
	71		45	48	0.90					
	72		44	47	0.68					
	73		47	50	1.02					
	74		50	53	1.08					
	75		46	50	0.93					
	76		47	50	1.08					
	77		45	48	0.97					
	78		41	44	0.71					
	79		45	48	0.82					
	80		45	48	0.87					
	81		43	46	0.72					
	82		50	52	1.20					
	83		45	48	0.92					
	84		48	51	1.07					
	85		45	48	0.91					
	86		48	50	1.14					
	87		46	48	0.92					
	88		44	47	0.87					
	89		44	47	0.79					
	90		51	55	1.25					

Species Box Tally Area / Site Comments:

Species

Total Catch

Species

Total Catch

Aging Structures Legend:
Sc - Scales
Pr - Pectoral Ray
Oto - Otoliths
Dr - Dorsal Ray
yoy - Young Of the Year
1+ - Older than "yoy"

QA/QC By:

Date:

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

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / <u>Seine</u>)		Project No: TC19C403		wood.	
Waterbody Name: Springpole L.		Start Date (DD MMM YYYY) / Time (24HR): 15 SEP 2019 / 13:00		End Date (DD MMM YYYY) / Time (24HR): 15 SEP 2019 / 13:50		Area Description (Habitat Type): Lake/Beach	
Sample ID: SPL-SN3		Method #: (Traps / Rods) 3x hauls		UTM Coordinates (mN, mE, Zone, Acc.): 15v 552035, 5689543		Samplers AL, SM	
				Page: 3 of 4		see Net Form ☐	

Project No:

TC190403

wood.

Waterbody Name:

Start Date (DD MMM YYYY) / Time (24HR):

End Date (DD MMM YYYY) / Time (24HR):

Area Description (Habitat Type):

Spring pole L

15 SEP 2019 / 13:10

15 SEP 2019 / 13:50

Lake / Beach

Sample ID:

Method #: (Traps / Rods)

UTM Coordinates (mN, mE, Zone, Acc.):

Samplers

Page: 3 of 4

see Net Form

Species	Fish #	Species Code	Length (mm)		Round Weight (g/kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Ots)	Retained (Y/N)	Presumed age class (YOY/1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Yellow Perch	91	331	40	44	0.69	U	N/A	Y	YOY	Comp #2 CONT.
	92		43	46	0.83					
	93		48	51	1.10					
	94		44	47	0.89					
	95		44	46	0.81					
	96		43	47	0.79					
	97		47	49	1.07					
	98		46	49	1.01					
	99		48	51	1.00					
	100		47	51	0.88					
	101		42	46	0.83					
	102		45	48	0.96					
	103		54	57	1.35					
	104		48	50	0.99					
	105		47	48	0.98					
	106		40	43	0.74					
	107		45	48	0.92					
	108		45	48	0.92					
	109		42	44	0.56					
	110		47	49	1.05					
	111		43	46	0.79					
	112		50	54	1.28					54.13g Total wt.
	113		48	51	1.10					COMP #3
	114		50	54	1.36					
	115		53	56	1.41					
	116		49	52	1.11					
	117		55	58	1.65					
	118		50	53	1.31					
	119		49	52	1.16					
	120		50	53	1.19					
	121		48	51	1.01					
	122		50	53	1.24					
	123		52	55	1.38					
	124		47	50	1.03					
	125		50	52	1.14					
	126		51	54	1.28					
	127		48	51	1.19					
	128		54	57	1.53					
	129		49	52	1.06					
	130		48	51	1.13					
	131		49	52	1.19					
	132		50	53	1.36					
	133		48	51	1.19					
	134		47	51	1.01					
	135		49	51	1.17					

Species Box Tally Area / Site Comments:

Total Catch

Species

Species

Aging Structures Legend:

Sc - Scales

Pr - Pectoral Ray
Ote - Otoliths

Dr - Dorsal Re

yoy - Young Of the Year

1+ - Older than "yoy"

QA/QC By:

Date:

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

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet/ Seine)		Project No: TC190403.CO2 wood.	
Waterbody Name: Springpole L.		Start Date (DD MMM YYYY) / Time (24HR): 15 SEP 2019 / 13:10		End Date (DD MMM YYYY) / Time (24HR): 15 SEP 2019 / 13:50	
Sample ID: SPL-SN3		Method #: (Traps / Rods) 3xhauls		UTM Coordinates (mN, mE, Zone, Acc.): 15U 552035, 5689643	
		Samplers ALSM		Area Description (Habitat Type): Lake	
		Page: 4 of 4		see Net Form ☐	

Project No: TC190403.CO2 wood.

Area Description (Habitat Type):	Lake
----------------------------------	------

Page: 4 of 4 ☐ see Net Form[illegible]

BIOSAMPLING FORM

Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)

Project No:

TC190403.002 wood.

Waterbody Name:

Springdale Lake

Start Date (DD MMM YYYY) / Time (24HR):

16 SEP 2019/10:30

End Date (DD MMM YYYY) / Time (24HR):

16 SEPT 2019/11:00

Area Description (Habitat Type):

Lake/Beach

Sample ID:

SPL-SN4

Method #: (Trap / Rod)

2x hauls

UTM Coordinates (mN, mE, Zone, Acc.):

150 549789, 5693464

Samplers

AL, SM

Page: 1 of 4

see Net Form ☐

Species	Fish #	Species Code	Length (mm)		Round Weight (g/kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY/1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Johnny Darters	1	341	-	36	0.21	U	N/A	N	U	Released Alive
	2		-	32	0.11					
	3		-	37	0.25					
	4		-	31	0.12					
Spottail Sh.	5	201	38	41	0.30					
	6		38	41	0.36					
	7		40	44	0.48				✓	
	8		24	27	0.09				YOY	
	9		27	29	0.11				YOY	
	10		27	30	0.12				YOY	
	11		27	31	0.10				YOY	
	12		29	31	0.11			✓	YOY	
Yellow Perch	13	331	48	50	1.06			Y		Comp #1
	14		44	46	0.99					
	15		40	42	0.72					
	16		44	47	0.90					
	17		42	46	0.95					
	18		45	48	1.10					
	19		46	49	1.02					
	20		46	49	1.09					
	21		46	48	0.95					
	22		47	50	1.08					
	23		50	53	1.13					
	24		48	52	1.06					
	25		48	52	1.14					
	26		47	50	1.13					
	27		43	46	0.99					
	28		48	50	1.11					
	29		45	48	0.95					
	30		45	49	1.13					
	31		51	54	1.27					
	32		49	52	1.21					
	33		50	53	1.21					
	34		54	57	1.52					
	35		52	55	1.33					
	36		53	55	1.44					
	37		47	49	0.97					
	38		52	55	1.27					
	39		47	49	1.02					
	40		45	48	0.91					
	41		44	47	0.86					
	42		49	51	1.07					
	43		46	48	0.87					
	44		45	47	0.88					
	45		49	51	1.10					

Species Box Tally Area / Site Comments:

QA/QC By:

Date:

Aging Structures Legend:

Sc - Scales
Pr - Pectoral Ray
Oto - Otoliths
Dr - Dorsal Ray
yoy - Young Of the Year
1+ - Older than 'yoy'

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine)		Project No: TC190403.COA wood.	
Waterbody Name: <u>Springpole Lake</u>	Start Date (DD MMM YYYY) / Time (24HR): <u>16 SEP 2019 / 10:30</u>	End Date (DD MMM YYYY) / Time (24HR): <u>16 SEP 2019 / 11:00</u>		Area Description (Habitat Type): <u>Lake / Beach</u>	
Sample ID: <u>SPL-SN4</u>	Method #: (Traps / Rods) <u>2x hauls</u>	UTM Coordinates (mN, mE, Zone, Acc.): <u>15U 549789, 5693464</u>		Samplers <u>ALSM</u>	Page: <u>2</u> of <u>4</u> ☐ see Net Form

Species	Fish #	Species Code	Length (mm)		Round Weight (g) kg	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY / 1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Yellow Perch	46	331	46	48	0.94	U	N/A	Y	YOY	COMP #1 cont...
	47		43	46	0.82					
	48		45	47	1.01					
	49		48	50	1.02					
	50		45	49	0.92					
	51		43	46	0.81					
	52		43	45	0.86					
	53		45	47	0.84					
	54		46	49	1.03					
	55		45	48	0.84					
	56		43	45	0.73					
	57		41	43	0.69					
	58		40	44	0.59					
	59		42	44	0.75					
	60		40	42	0.65					
	61		45	48	0.88					
	62		47	50	1.03					
	63		51	54	1.24					
	64		47	49	1.08					
	65		58	61	1.08					Total W=52.00g COMP #2
	66		46	49	1.01					
	67		46	49	1.10					
	68		44	47	0.96					
	69		45	48	1.93					
	70		45	47	0.82					
	71		46	49	0.99					
	72		48	51	1.17					
	73		45	47	0.82					
	74		53	56	1.37					
	75		50	54	1.39					
	76		48	52	1.24					
	77		48	50	1.01					
	78		47	50	1.03					
	79		47	50	1.17					
	80		47	50	1.05					
	81		45	47	0.97					
	82		44	46	0.96					
	83		50	54	1.44					
	84		45	48	1.05					
	85		46	49	1.12					
	86		46	49	1.08					
	87		44	47	0.98					
	88		50	53	1.17					
	89		45	47	0.99					
	90		46	48	0.99					

Species Box Tally Area / Site Comments:

QA/QC By:
Date:

Aging Structures Legend:
 Sc - Scales
 Pr - Pectoral Ray
 Oto - Otoliths
 Dr - Dorsal Ray
 YOY - Young Of the Year
 1+ - Older than 'YOY'

BIOSAMPLING FORM		Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine) <u>Seine</u>		Project No: TC190403.C02 wood.	
Waterbody Name: <u>Springpole Lake</u>	Start Date (DD MMM YYYY) / Time (24HR): <u>16 Sep 2019 / 10:30</u>	End Date (DD MMM YYYY) / Time (24HR): <u>16 Sep 2019 / 11:00</u>		Area Description (Habitat Type): <u>Lake / Beach</u>	
Sample ID: <u>SPL-SNH</u>	Method #: (Traps / Rods) <u>2 x hauls</u>	UTM Coordinates (mN, mE, Zone, Acc.): <u>15U 549789 5693464</u>		Samplers <u>AL, SM</u>	Page: <u>3</u> of <u>4</u> ☐ see Net Form

Species	Fish #	Species Code	Length (mm)		Round Weight (g/kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Olo)	Retained (Y/N)	Presumed age class (YOY / 1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Yellow Perch	91	331	49	52	1.15	U	N/A	Y	YOY	COMP #2 cont...
	92		46	48	1.04					
	93		43	46	0.77					
	94		47	50	1.07					
	95		48	51	1.15					
	96		45	47	1.00					
	97		48	51	1.17					
	98		53	55	0.83					
	99		39	42	0.67					
	100		49	52	1.19					
	101		43	45	0.82					
	102		42	45	0.77					
	103		43	45	0.80					
	104		43	46	0.87					
	105		49	51	1.14					
	106		44	47	0.97					
	107		44	46	0.91					
	108		41	43	0.79					
	109		43	46	0.75					
	110		44	46	0.84					
	111		44	47	0.86					
	112		40	43	0.71					
	113		42	45	0.80					
	114		46	48	0.90					
	115		50	53	1.26					
	116		47	49	1.07					
	117		48	50	1.07					
	118		47	51	1.18					Tot. W = 52.70
	119		45	49	1.17					COMP #3
	120		44	47	0.95					
	121		43	46	0.76					
	122		40	43	0.73					
	123		42	44	0.77					
	124		45	48	1.10					
	125		48	50	1.08					
	126		44	46	0.88					
	127		40	42	0.75					
	128		43	45	0.81					
	129		45	48	0.98					
	130		42	45	0.83					
	131		47	50	1.18					
	132		48	50	1.08					
	133		46	48	1.08					
	134		43	45	0.82					
	135		45	47	0.90					

Species Box Tally Area / Site Comments:

Aging Structures Legend:
 Sc - Scales
 Pr - Pectoral Ray
 Olo - Otoliths
 Dr - Dorsal Ray
 yoy - Young Of the Year
 1+ - Older than "yoy"

QA/QC By:
 Date:

BIOSAMPLING FORM			Method Used: (Minnow Trap / Angling / Dip Net / Gillnet / Seine) <u>Seine</u>		Project No: <u>TC190403.C02 wood.</u>	
Waterbody Name: <u>Springpole Lake</u>		Start Date (DD MMM YYYY) / Time (24HR): <u>16 Sep 2019/10:30</u>		End Date (DD MMM YYYY) / Time (24HR): <u>16 Sep 2019/11:00</u>		Area Description (Habitat Type): <u>Lake/Beach</u>
Sample ID: <u>SPL-SN4</u>		Method #: (Traps / Rods) <u>2x hauls</u>		UTM Coordinates (mN, mE, Zone, Acc.): <u>15U 549789, 5893464</u>		Samplers: <u>ALSM</u> Page: <u>4</u> of <u>4</u> ☐ see Net Form

Species	Fish #	Species Code	Length (mm)		Round Weight (g/kg)	Sex (F, M, U)	Aging Structures (Sc, Pr, Dr, Oto)	Retained (Y/N)	Presumed age class (YOY/1+)	Comments (disease, malformation, etc.)
			Fork	Total						
Yellow Perch	136	331	50	53	1.43	U	N/A	Y	YOY	COMP #3 cont...
	137		48	50	1.24					
	138		48	51	1.25					
	139		45	48	1.07					
	140		47	45	1.84					
	141		46	49	1.08					
	142		45	47	0.94					
	143		43	45	0.87					
	144		48	51	1.26					
	145		46	49	1.02					
	146		41	44	0.84					
	147		46	49	1.13					
	148		43	45	0.95					
	149		40	42	0.67					
	150		46	48	1.02					
	151		46	49	1.10					
	152		43	45	0.90					
	153		42	45	0.92					
	154		46	49	1.14					
	155		45	48	1.03					
	156		48	51	1.20					
	157		41	44	0.83					
	158		48	51	1.10					
	159		45	48	1.02					
	160		42	44	0.88					
	161		45	47	1.02					
	162		45	48	0.99					
	163		44	47	1.05					
	164		41	44	0.59					
	165		47	50	1.14					
	166		43	45	0.82					
	167		50	52	1.37					
	168		49	52	1.30					
	169		43	51	1.23					
✓	170	✓	50	52	1.38	✓	✓	✓	✓	Total Wt. = 53.30g
Remaining	Y. Perch	numerated	3	Bulkweighed						
	#IND'S = 111	Weight (grams)	123.24							

Appendix B

Fish Tissue Summary Table, Figures and Laboratory Certificates of Analysis

Table B1.1: Station S-9 Fish Composite Fish Sample Summary

Composite ID	Species	No. Individuals per Sample	Total Length Range (mm)	Mean Total Length (mm)	Individual Weight Range (g)	Mean Individual Weight (g)	Hg (ug/g wwt)	MeHg (ug/g wwt)	Moisture (%)
S-9-MT1-COMP1	Finescale Dace	24	55-72	63.71	1.63-3.22	2.39	0.155	0.152	74.3
S-9-MT1-COMP2	Northern Redbelly Dace	31	52-63	59.32	1.06-2.35	1.79	0.087	0.112	75.2
S-9-MT1-COMP3	Finescale Dace	16	66-86	72.43	2.68-6.84	3.47	0.166	0.221	76.6

Notes:

1. Total mercury (Hg) and methylmercury (MeHg) values expressed as µg/g wet weight (wwt).
2. Composite samples were composed of fish with a size difference (largest to smallest) not greater than 75%.

Table B1.2: S-9-US02 Composite Fish Sample Summary

Composite ID	Species	No. Individuals per Sample	Total Length Range (mm)	Mean Total Length (mm)	Individual Weight Range (g)	Mean Individual Weight (g)	Hg (ug/g wwt)	MeHg (ug/g wwt)	Moisture (%)
S-9-US02-MT1-COMP1	Northern Pearl Dace	10	83-95	89.70	4.98-7.57	6.14	0.127	0.189	75.3
S-9-US02-MT1-COMP2	Northern Pearl Dace	10	86-96	90.30	4.71-7.26	6.07	0.116	0.109	73.9
S-9-US02-MT1-COMP3	Northern Pearl Dace	5	110-121	115.80	10.83-15.21	12.86	0.197	0.267	73.7
S-9-US02-MT1-COMP4	Northern Redbelly Dace	37	50-61	56.14	0.86-1.83	1.48	0.081	0.099	76.7
S-9-US02-MT1-COMP5	Northern Pearl Dace	11	84-91	86.82	4.43-6.81	5.38	0.112	0.157	79.2

Notes:

1. Total mercury (Hg) and methylmercury (MeHg) values expressed as µg/g wet weight (wwt).
2. Composite samples were composed of fish with a size difference (largest to smallest) not greater than 75%.

Table B1.3: L-5-OUT Composite Fish Sample Summary

Composite ID	Species	No. Individuals per Sample	Total Length Range (mm)	Mean Total Length (mm)	Individual Weight Range (g)	Mean Individual Weight (g)	Hg (ug/g wwt)	MeHg (ug/g wwt)	Moisture (%)
L-5-OUT-MT1-COMP1	Finescale Dace	16	62-75	68.75	2.72-4.56	3.35	0.203	0.264	79
L-5-OUT-MT1-COMP2	Finescale Dace	13	68-80	74.77	3.30-5.24	4.37	0.184	0.229	77.2
L-5-OUT-MT1-COMP3	Finescale Dace	20	60-69	64.15	2.19-2.99	2.68	0.143	0.176	76.6

Notes:

1. Total mercury (Hg) and methylmercury (MeHg) values expressed as µg/g wet weight (wwt).
2. Composite samples were composed of fish with a size difference (largest to smallest) not greater than 75%.
3. Laboratory certificates of analysis indicate sample ID of WB05-OUT-MT1-COMP1 to -COMP3 for the above samples.

Table B1.4: Springpole Lake (L-15) YOY Yellow Perch Composite Sample Summary

Composite ID	No. Individuals per Sample	Total Length Range (mm)	Mean Total Length (mm)	Individual Weight Range (g)	Mean Individual Weight (g)	Hg (µg/g wwt)	MeHg (µg/g wwt)	Moisture (%)
SPL-SN1-COMP1	60	41-54	47.20	0.58-1.36	0.90	0.085	0.102	81.8
SPL-SN1-COMP2	52	42-56	49.12	0.67-1.45	0.02	0.086	0.072	83.4
SPL-SN2-COMP1	46	45-60	52.28	0.80-1.98	1.21	0.092	0.090	78.7
SPL-SN3-COMP1	43	46-60	52.81	0.75-1.82	1.27	0.095	0.085	79.6
SPL-SN3-COMP2	58	43-57	48.88	0.56-1.35	0.94	0.095	0.109	80.4
SPL-SN3-COMP3	42	49-62	53.02	0.99-2.09	1.26	0.087	0.061	79.2
SPL-SN4-COMP1	52	42-57	48.96	0.59-1.56	1.00	0.086	0.103	83.3
SPL-SN4-COMP2	53	42-61	48.81	0.67-1.93	1.02	0.084	0.109	83.2
SPL-SN4-COMP3	53	42-53	47.58	0.59-1.84	1.03	0.091	0.085	83.9

Notes:

1. ☐ YOY – young-of-the-year fish were sampled that represent a small bodied forage (prey) species for upper trophic level predators.
2. ☐ Total mercury (Hg) and methylmercury (MeHg) values expressed as µg/g wet weight (wwt).
3. ☐ Composite samples were composed of fish with a size difference (largest to smallest) not greater than 75%.

Table B1.5: Springpole Lake Northern Pike Epaxial Muscle Tissue Sample Summary

Sample ID	Total Length (mm)	Total Weight (g)	Age (Years)	Hg (µg/g wwt)	MeHg (µg/g wwt)	Moisture (%)
SPL-AN1-F1	530	490	4	2.02	2.19	79.2
SPL-AN1-F2	590	980	4	1.67	1.10	78.5
SPL-AN1-F3	601	1,000	3	1.02	0.610	78.3
SPL-AN1-F4	501	520	2	0.530	0.504	77.9
SPL-AN1-F5	501	510	2	0.865	0.391	77.0
SPL-AN1-F6	556	750	4	1.49	1.41	78.5
SPL-AN2-F1	534	530	3	0.981	0.970	77.9
SPL-AN2-F2	514	480	2	3.49	3.88	81.6
SPL-AN2-F3	599	850	6	2.04	2.11	79.8
SPL-AN2-F4	682	1,800	6	1.88	1.13	78.4
SPL-AN3-F1	625	1,000	4	2.15	2.10	79.4
SPL-AN3-F2	525	600	3	1.65	1.34	79.5
SPL-AN3-F3	542	700	3	0.645	0.344	79.4
SPL-AN4-F1	445	320	2	0.389	0.333	78.6
SPL-AN4-F2	491	500	4	0.625	0.653	79.3
SPL-AN4-F3	596	740	5	1.97	1.64	79.4
SPL-AN4-F4	610	750	3	3.83	4.47	80.9
SPL-AN5-F1	491	520	2	0.646	0.611	77.5
SPL-AN5-F2	525	500	2	1.52	1.29	80.1
SPL-AN5-F3	670	1,200	5	3.60	3.91	80.4

Notes:

1. ☐ Total mercury (Hg) and methylmercury (MeHg) values expressed as µg/g wet weight (wwt).
2. ☐ All results represent the Wood 2019 data and do not include other sources.

Table B1.7a: Contaminants of Concern in Inland Waterbody Fish Tissue (2019)

Fish Species	Sample Area	Descriptive Statistics	Total Length (mm)	Fresh Weight (g)	Arsenic	Cadmium	Chromium	Copper	Lead	Manganese	Mercury	Nickel	Selenium (mg/kg dwt)	Zinc
Finescale Dace	S-9	Sample Size (n)	40	40	2	2	1	2	2	2	2	1	2	2
		No. MDL (n)	-	-	0	0	1	0	0	0	0	1	0	0
		Minimum	55	1.63	0.018	0.0028	-	0.874	6.733	6.733	0.0388	-	0.60	43.29
		Maximum	86	6.84	0.020	0.0044	-	1.088	7.067	7.067	0.0398	-	0.69	49.09
		Mean	67.20	2.82	0.019	0.0036	-	0.981	6.900	6.900	0.0393	-	0.64	46.19
		Median	69.5	2.78	0.019	0.0036	-	0.981	6.900	6.900	0.0393	-	0.64	46.19
		Standard deviation	6.60	0.89	0.001	0.0011	-	0.152	0.236	0.236	0.0007	-	0.07	4.10
		Standard error	1.04	0.14	0.001	0.0008	-	0.107	0.167	0.167	0.0005	-	0.05	2.90
Finescale Dace	L-5-OUT	Sample Size (n)	49	49	3	3	3	3	3	3	3	3	3	3
		No. MDL (n)	-	-	0	0	2	0	0	0	0	3	0	0
		Minimum	60	2.19	0.036	0.0030	0.0158	1.409	0.006	5.381	0.0335	-	0.12	36.25
		Maximum	80	5.24	0.045	0.0053	1.4868	1.487	0.010	6.552	0.0426	-	0.17	44.52
		Mean	68.47	3.35	0.039	0.0040	-	1.441	0.008	6.107	0.0393	-	0.14	41.51
		Median	67	2.99	0.036	0.0036	-	1.427	0.009	6.388	0.0420	-	0.14	43.76
		Standard deviation	5.28	0.79	0.005	0.0012	-	0.041	0.002	0.634	0.0051	-	0.03	4.57
		Standard error	0.75	0.11	0.003	0.0007	-	0.023	0.001	0.366	0.0029	-	0.02	2.64
Northern Redbelly Dace	S-9	Sample Size (n)	31	31	1	1	1	1	1	1	1	1	1	1
		No. MDL (n)	-	-	0	0	1	0	0	0	0	1	0	0
		Minimum	52	1.06	0.024	0.0027	-	0.702	0.0154	5.3	0.0217	-	5.848	41.2
		Maximum	63	2.35	-	-	-	-	-	-	-	-	-	-
		Mean	59.32	1.79	-	-	-	-	-	-	-	-	-	-
		Median	59	1.76	-	-	-	-	-	-	-	-	-	-
		Standard deviation	2.64	0.31	-	-	-	-	-	-	-	-	-	-
		Standard error	0.47	0.05	-	-	-	-	-	-	-	-	-	-

Notes:

1. □ Concentrations less than the reportable detection limit were given the lowest reportable value for calculation of summary statistics (e.g., a concentration of <0.0010 was considered 0.0010)
2. □ No. MDL indicates the number of sample results reported less than the detection limit.
3. □ All results represent wet weight results, unless otherwise noted; "dwt" represents concentration for dry weight
4. □ All results represent the Wood 2019 data and do not include other sources.

Table B1.7b: Contaminants of Concern in Inland Waterbody Fish Tissue (2019)

Fish Species	Sample Area	Descriptive Statistics	Total Length (mm)	Fresh Weight (g)	Arsenic	Cadmium	Chromium	Copper	Lead	Manganese	Mercury	Nickel	Selenium (mg/kg dwt)	Zinc
Northern Redbelly Dace	S-9-US02	Sample Size (n)	37	37	1	1	1	1	1	1	1	1	1	1
		No. MDL (n)	-	-	0	0	0	0	0	0	0	1	0	0
		Minimum	50	0.86	0.031	0.0034	0.0158	0.790	0.0224	12.9	0.0187	-	0.515	52.4
		Maximum	61	1.83	0.031	0.0034	0.0158	0.790	0.0224	12.9	0.0187	-	0.515	52.4
		Mean	56.14	1.48	-	-	-	-	-	-	-	-	-	-
		Median	56	1.53	-	-	-	-	-	-	-	-	-	-
		Standard deviation	2.16	0.20	-	-	-	-	-	-	-	-	-	-
		Standard error	0.36	0.03	-	-	-	-	-	-	-	-	-	-
Pearl Dace	S-9-US02	Sample Size (n)	36	36	4	4	4	4	4	4	4	4	4	4
		No. MDL (n)	-	-	0	0	4	0	0	0	0	4	0	0
		Minimum	83	4.43	0.017	0.0018	0.0500	1.670	0.009	3.367	0.0273	0.2	0.15	31.30
		Maximum	121	15.21	0.032	0.0042	0.0500	2.401	0.056	5.148	0.0518	0.2	0.18	42.94
		Mean	92.61	6.82	0.025	0.0027	-	1.954	0.024	4.005	0.0352	-	0.16	36.88
		Median	89	5.92	0.025	0.0024	-	1.872	0.015	3.753	0.0308	-	0.15	36.64
		Standard deviation	10.15	2.64	0.006	0.0011	-	0.328	0.022	0.809	0.0112	-	0.02	4.90
		Standard error	1.69	0.44	0.003	0.0006	-	0.164	0.011	0.404	0.0056	-	0.01	2.45

Notes:

1. Concentrations less than the reportable detection limit were given the lowest reportable value for calculation of summary statistics (e.g., a concentration of <0.0010 was considered 0.0010)
2. No. MDL indicates the number of sample results reported less than the detection limit.
3. All results represent wet weight results, unless otherwise noted; "dwt" represents concentration for dry weight
4. All results represent the Wood 2019 data and do not include other sources.

Table B1.8: Contaminants of Concern in Springpole Lake Fish Tissue (2019)

Species	Descriptive Statistics	Total Length (mm)	Fresh Weight (g)	Arsenic	Cadmium	Chromium	Copper	Lead	Manganese	Mercury	Nickel	Selenium (mg/kg dwt)	Zinc
Northern Pike	Sample Size (n)	20	20	20	20	20	20	20	20	20	20	20	20
	No. MDL (n)	-	-	0	14	10	0	18	0	0	20	11	0
	Minimum	445	320.00	0.013	0.0012	0.012	0.099	0.004	0.158	0.0832	0.2	0.02	4.71
	Maximum	682	1800.00	0.152	0.0050	0.050	0.211	0.020	0.580	0.7315	0.2	0.08	8.69
	Mean	556.4	737.00	0.054	0.0041	0.033	0.152	0.018	0.331	0.3366	-	0.04	6.38
	Median	538	650.00	0.041	0.0050	0.037	0.151	0.020	0.299	0.3293	-	0.02	6.13
	Standard deviation	62.8	338.48	0.038	0.0015	0.018	0.025	0.005	0.132	0.1921	-	0.03	1.35
	Standard error	14.1	75.69	0.008	0.0003	0.004	0.006	0.001	0.030	0.0430	-	0.01	0.30
Yellow Perch	Sample Size (n)	459	459	9	9	6	9	9	9	9	9	9	9
	No. MDL (n)	-	-	0	0	3	0	1	0	0	9	9	0
	Minimum	41	0.56	0.038	0.0149	0.014	0.374	0.004	2.789	0.0142	0.2	0.200	23.38
	Maximum	62	2.09	0.075	0.0327	0.044	0.697	0.020	6.204	0.0241	0.2	0.200	46.53
	Mean	49.63	1.06	0.052	0.0201	0.023	0.449	0.007	3.712	0.0175	-	-	27.06
	Median	49	1.03	0.050	0.0181	0.020	0.430	0.007	3.569	0.0182	-	-	24.89
	Standard deviation	3.88	0.25	0.012	0.0054	0.011	0.100	0.005	1.031	0.0034	-	-	7.34
	Standard error	0.18	0.01	0.004	0.0018	0.005	0.033	0.002	0.344	0.0011	-	-	2.45

Notes:

- 1.□ Concentrations less than the reportable detection limit were given the lowest reportable value for calculation of summary statistics (e.g., a concentration of <0.0010 was considered 0.0010)
- 2.□ No. MDL indicates the number of sample results reported less than the detection limit.
- 3.□ All results represent wet weight results, unless otherwise noted; "dwt" represents concentration for dry weight
- 4.□ All results represent the Wood 2019 data and do not include other sources.

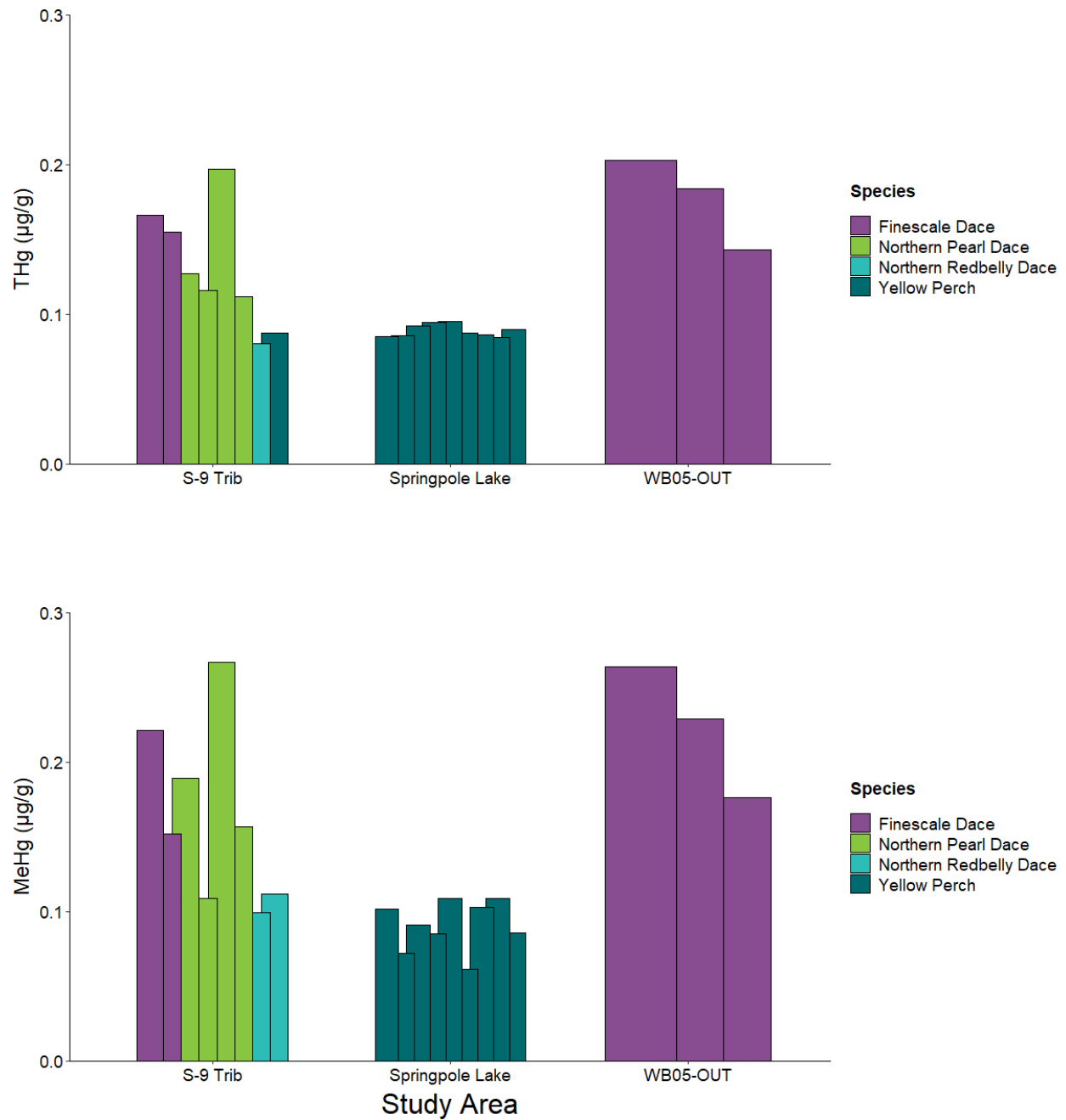


Figure B1.1 Total Mercury and Methylmercury in Forage Fish Species Composites

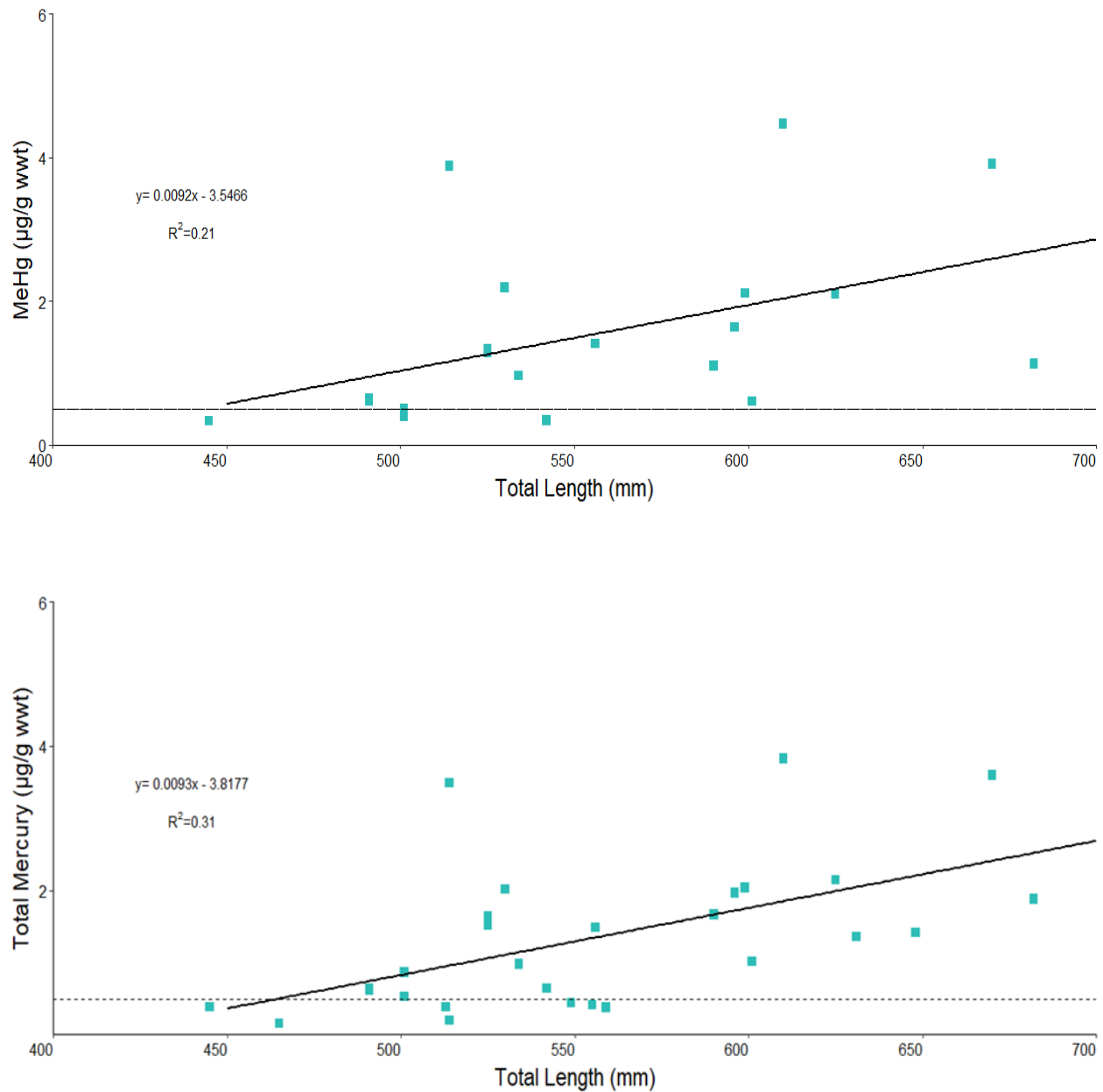


Figure B1.2 Methymercury and Total Mercury in Northern Pike at Length from Springpole Lake

Note: Dashed line represents the consumption guideline for general population ($0.5\mu\text{g/g ww}$). Methylmercury plot shows Wood 2019 values only, whereas the total mercury plot shows Wood and Story Environmental Inc. concentrations measured in 2019.

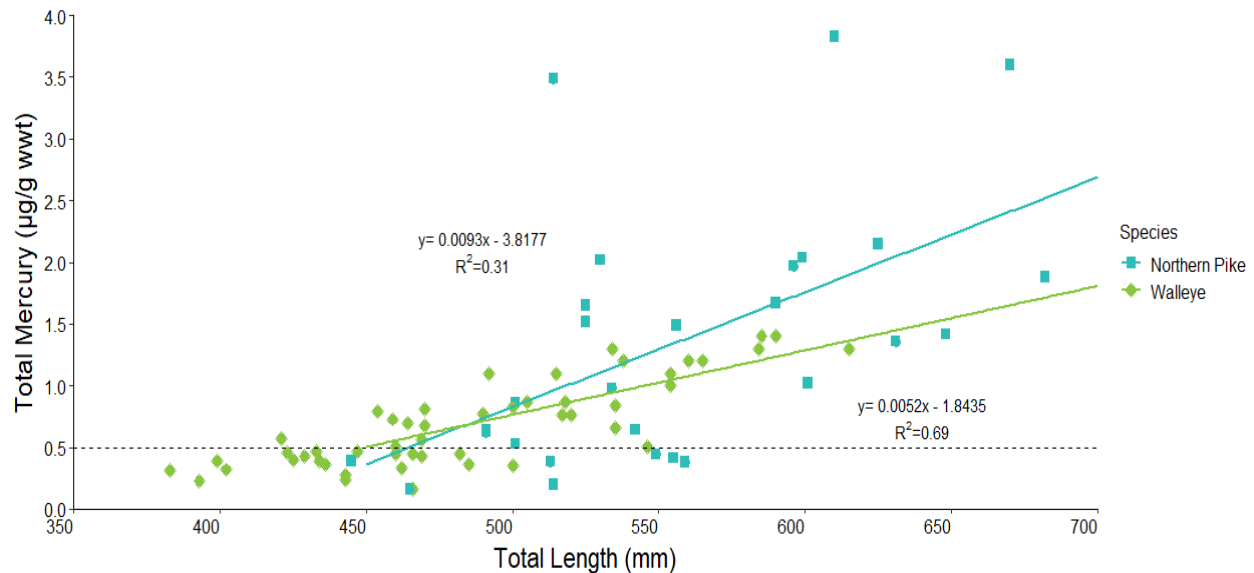


Figure B1.3 Total Mercury in Northern Pike and Walleye at Length from Springpole Lake

Note: Dashed line represents the consumption guideline for general population (0.5µg/g wwt). This plot shows all total mercury concentrations from the 2019 Wood and Story Environmental Inc. investigations, as well as historic sampling (FMG and C. Portt 2018).

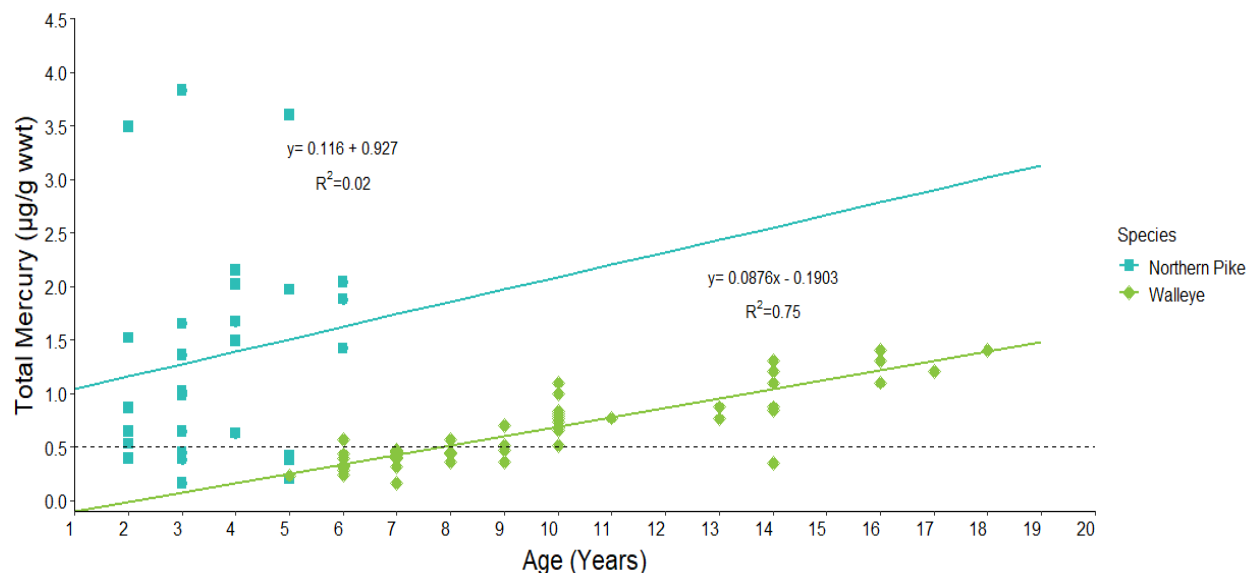


Figure B1.4 Total Mercury in Northern Pike and Walleye at Age from Springpole Lake

Note: Dashed line represents the consumption guideline for general population (0.5µg/g wwt). This plot shows data from the 2019 Wood and Story Environmental Inc. investigations, as well as historic sampling (FMG and C. Portt 2018).



Wood Environment & Infrastructure
Solutions - Mississauga
ATTN: Dale Klodnicki/Mark Ruthven
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7

Date Received: 31-OCT-19
Report Date: 19-DEC-19 07:08 (MT)
Version: FINAL

Client Phone: 905-568-2929

Certificate of Analysis

Lab Work Order #: L2375518
Project P.O. #: NOT SUBMITTED
Job Reference: TC190403.CO2 FMG
C of C Numbers:
Legal Site Desc:

Aaron Payne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-1 S-9-MT1-COMP1 Sampled By: A.LAW on 12-SEP-19 @ 11:30 Matrix: TISSUE								
Physical Tests								
% Moisture		74.3		0.50	%		05-DEC-19	R4936557
Metals								
Aluminum (Al)-Total		4.1		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total		0.070		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total		14.1		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total		<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total		0.0109		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total		34300		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total		0.0463		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total		<0.050		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total		0.094		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total		3.40		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total		155		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total		0.057		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total		<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total		1540		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total		26.2		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total		0.155		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total		0.145		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total		28000		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total		12000		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total		22.3		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total		0.596		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total		3520		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total		26.9		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total		<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total		0.0106		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total		0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total		<0.0020		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total		<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total		191		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals								
Methylmercury (as MeHg)		0.152		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics								
Lipid Content		4.5		0.5	% wwt		06-DEC-19	R4938907
L2375518-2 S-9-MT1-COMP2 Sampled By: A.LAW on 12-SEP-19 @ 11:30								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-2 S-9-MT1-COMP2 Sampled By: A.LAW on 12-SEP-19 @ 11:30 Matrix: TISSUE								
Physical Tests								
% Moisture		75.2		0.50	%		05-DEC-19	R4936557
Metals								
Aluminum (Al)-Total		8.9		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total		0.098		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total		30.1		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total		<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total		0.0108		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total		30600		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total		0.0390		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total		<0.050		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total		0.187		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total		2.83		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total		142		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total		0.062		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total		<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total		1480		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total		21.5		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total		0.0873		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total		0.134		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total		25400		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total		12600		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total		24.1		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total		0.432		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total		3660		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total		41.5		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total		<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total		0.0080		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total		0.14		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total		<0.0020		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total		<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total		166		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals								
Methylmercury (as MeHg)		0.112		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics								
Lipid Content		5.1		0.5	% wwt		06-DEC-19	R4938907
L2375518-3 S-9-MT1-COMP3 Sampled By: A.LAW on 12-SEP-19 @ 11:30								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-3 S-9-MT1-COMP3 Sampled By: A.LAW on 12-SEP-19 @ 11:30 Matrix: TISSUE								
Physical Tests								
% Moisture		76.6		0.50	%		05-DEC-19	R4936557
Metals								
Aluminum (Al)-Total		3.8		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total		0.085		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total		19.2		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total		<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total		0.0186		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total		38600		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total		0.0433		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total		<0.050		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total		0.118		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total		4.65		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total		195		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total		0.061		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total		<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total		1700		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total		30.2		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total		0.166		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total		0.173		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total		30900		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total		14200		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total		23.1		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total		0.688		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total		4060		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total		30.5		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total		<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total		0.0138		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total		0.19		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total		0.0021		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total		<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total		185		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals								
Methylmercury (as MeHg)		0.221		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics								
Lipid Content		3.5		0.5	% wwt		06-DEC-19	R4938907
L2375518-4 S-9-US02-MT1-COMP 1 Sampled By: A.LAW on 12-SEP-19 @ 11:00								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-4 S-9-US02-MT1-COMP 1 Sampled By: A.LAW on 12-SEP-19 @ 11:00 Matrix: TISSUE								
Physical Tests								
% Moisture		75.3		0.50	%		05-DEC-19	R4936557
Metals								
Aluminum (Al)-Total		2.5		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total		0.128		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total		4.70		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total		<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total		0.0121		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total		38700		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total		0.0391		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total		<0.050		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total		0.052		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total		8.07		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total		94.1		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total		0.227		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total		<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total		1630		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total		14.2		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total		0.127		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total		0.141		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total		30500		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total		12900		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total		22.7		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total		0.676		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total		3710		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total		18.6		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total		<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total		0.0196		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total		0.19		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total		<0.0020		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total		<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total		154		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals								
Methylmercury (as MeHg)		0.189		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics								
Lipid Content		4.7		0.5	% wwt		06-DEC-19	R4938907
L2375518-5 S-9-US02-MT1-COMP 2 Sampled By: A.LAW on 12-SEP-19 @ 11:00								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-5 S-9-US02-MT1-COMP 2 Sampled By: A.LAW on 12-SEP-19 @ 11:00 Matrix: TISSUE								
Physical Tests								
% Moisture		73.9		0.50	%		05-DEC-19	R4936557
Metals								
Aluminum (Al)-Total		<2.0		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total		0.087		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total		3.68		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total		<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total		0.0070		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total		29600		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total		0.0419		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total		<0.050		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total		0.048		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total		6.40		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total		84.4		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total		0.036		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total		<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total		1440		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total		12.9		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total		0.116		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total		0.115		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total		25900		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total		12800		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total		23.0		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total		0.655		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total		3370		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total		14.3		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total		<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total		0.0201		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total		0.23		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total		<0.0020		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total		<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total		135		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals								
Methylmercury (as MeHg)		0.109		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics								
Lipid Content		4.6		0.5	% wwt		06-DEC-19	R4938907
L2375518-6 S-9-US02-MT1-COMP 3 Sampled By: A.LAW on 12-SEP-19 @ 11:00								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-6 S-9-US02-MT1-COMP 3 Sampled By: A.LAW on 12-SEP-19 @ 11:00 Matrix: TISSUE								
Physical Tests								
% Moisture		73.7		0.50	%		05-DEC-19	R4936557
Metals								
Aluminum (Al)-Total		<2.0		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total		0.063		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total		6.55		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total		<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total		0.0160		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total		47400		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total		0.0351		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total		<0.050		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total		0.049		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total		6.66		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total		79.0		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total		0.042		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total		<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total		1720		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total		15.2		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total		0.197		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total		0.109		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total		34800		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total		12700		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total		21.8		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total		0.690		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total		3720		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total		22.8		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total		<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total		0.0131		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total		<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total		<0.0020		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total		<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total		119		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals								
Methylmercury (as MeHg)		0.267		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics								
Lipid Content		5.1		0.5	% wwt		06-DEC-19	R4938907
L2375518-7 S-9-US02-MT1-COMP 4 Sampled By: A.LAW on 12-SEP-19 @ 11:00								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-7 S-9-US02-MT1-COMP 4 Sampled By: A.LAW on 12-SEP-19 @ 11:00 Matrix: TISSUE								
Physical Tests								
% Moisture		76.7		0.50	%		05-DEC-19	R4936557
Metals								
Aluminum (Al)-Total		21.5		2.0	mg/kg	12-DEC-19	13-DEC-19	R4943324
Antimony (Sb)-Total		<0.010		0.010	mg/kg	12-DEC-19	13-DEC-19	R4943324
Arsenic (As)-Total		0.135		0.020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Barium (Ba)-Total		51.9		0.050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Beryllium (Be)-Total		<0.010		0.010	mg/kg	12-DEC-19	13-DEC-19	R4943324
Bismuth (Bi)-Total		<0.010		0.010	mg/kg	12-DEC-19	13-DEC-19	R4943324
Boron (B)-Total		<1.0		1.0	mg/kg	12-DEC-19	13-DEC-19	R4943324
Cadmium (Cd)-Total		0.0148		0.0050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Calcium (Ca)-Total		41800		20	mg/kg	12-DEC-19	13-DEC-19	R4943324
Cesium (Cs)-Total		0.0554		0.0050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Chromium (Cr)-Total		0.068		0.050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Cobalt (Co)-Total		0.276		0.020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Copper (Cu)-Total		3.39		0.10	mg/kg	12-DEC-19	13-DEC-19	R4943324
Iron (Fe)-Total		231		3.0	mg/kg	12-DEC-19	13-DEC-19	R4943324
Lead (Pb)-Total		0.096		0.020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Lithium (Li)-Total		<0.50		0.50	mg/kg	12-DEC-19	13-DEC-19	R4943324
Magnesium (Mg)-Total		1760		2.0	mg/kg	12-DEC-19	13-DEC-19	R4943324
Manganese (Mn)-Total		55.5		0.050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Mercury (Hg)-Total		0.0802		0.0050	mg/kg	09-DEC-19	11-DEC-19	R4940411
Molybdenum (Mo)-Total		0.213		0.020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Nickel (Ni)-Total		<0.20		0.20	mg/kg	12-DEC-19	13-DEC-19	R4943324
Phosphorus (P)-Total		30100		10	mg/kg	12-DEC-19	13-DEC-19	R4943324
Potassium (K)-Total		13800		20	mg/kg	12-DEC-19	13-DEC-19	R4943324
Rubidium (Rb)-Total		25.1		0.050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Selenium (Se)-Total		0.515		0.050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Sodium (Na)-Total		4040		20	mg/kg	12-DEC-19	13-DEC-19	R4943324
Strontium (Sr)-Total		62.9		0.050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Tellurium (Te)-Total		<0.020		0.020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Thallium (Tl)-Total		0.0114		0.0020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Tin (Sn)-Total		0.39		0.10	mg/kg	12-DEC-19	13-DEC-19	R4943324
Uranium (U)-Total		0.0036		0.0020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Vanadium (V)-Total		<0.10		0.10	mg/kg	12-DEC-19	13-DEC-19	R4943324
Zinc (Zn)-Total		225		0.50	mg/kg	12-DEC-19	13-DEC-19	R4943324
Zirconium (Zr)-Total		<0.20		0.20	mg/kg	12-DEC-19	13-DEC-19	R4943324
Speciated Metals								
Methylmercury (as MeHg)		0.0992		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics								
Lipid Content		5.1		0.5	% wwt		06-DEC-19	R4938907
L2375518-8 S-9-US02-MT1-COMP 5 Sampled By: A.LAW on 12-SEP-19 @ 11:00								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-8 S-9-US02-MT1-COMP 5 Sampled By: A.LAW on 12-SEP-19 @ 11:00 Matrix: TISSUE								
Physical Tests								
% Moisture		75.6		0.50	%		05-DEC-19	R4936557
Metals								
Aluminum (Al)-Total		<2.0		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total		0.112		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total		5.90		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total		<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total		0.0074		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total		47700		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total		0.0510		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total		<0.050		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total		0.053		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total		9.84		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total		92.3		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total		0.077		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total		<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total		1840		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total		21.1		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total		0.112		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total		0.162		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total		37500		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total		13800		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total		28.0		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total		0.721		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total		3790		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total		24.5		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total		<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total		0.0229		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total		0.14		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total		0.0022		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total		<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total		176		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals								
Methylmercury (as MeHg)		0.157		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics								
Lipid Content		5.0		0.5	% wwt		06-DEC-19	R4938907
L2375518-9 WB05-OUT-MT1-COMP 1 Sampled By: A.LAW on 13-SEP-19 @ 09:30								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-9 WB05-OUT-MT1-COMP 1 Sampled By: A.LAW on 13-SEP-19 @ 09:30 Matrix: TISSUE								
Physical Tests								
% Moisture		79.0		0.50	%		05-DEC-19	R4936557
Metals								
Aluminum (Al)-Total		9.7		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total		0.214		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total		6.78		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total		<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total		0.0252		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total		42200		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total		0.123		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total		0.075		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total		0.058		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total		7.08		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total		174		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total		0.046		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total		<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total		1760		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total		31.2		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total		0.203		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total		0.179		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total		32200		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total		13600		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total		30.1		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total		0.704		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total		4070		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total		21.8		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total		<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total		0.0172		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total		0.23		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total		0.0038		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total		<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total		212		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals								
Methylmercury (as MeHg)		0.264		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics								
Lipid Content		3.5		0.5	% wwt		06-DEC-19	R4938907
L2375518-10 WB05-OUT-MT1-COMP 2 Sampled By: A.LAW on 13-SEP-19 @ 09:30								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-10 WB05-OUT-MT1-COMP 2 Sampled By: A.LAW on 13-SEP-19 @ 09:30 Matrix: TISSUE								
Physical Tests								
% Moisture		77.2		0.50	%		05-DEC-19	R4936557
Metals								
Aluminum (Al)-Total		4.2		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total		0.160		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total		4.70		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total		<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total		0.0157		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total		28100		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total		0.137		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total		<0.050		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total		0.057		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total		6.18		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total		159		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total		0.025		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total		<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total		1440		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total		23.6		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total		0.184		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total		0.145		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total		23400		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total		13000		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total		27.9		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total		0.785		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total		3590		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total		14.5		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total		<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total		0.0155		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total		0.20		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total		<0.0020		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total		<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total		159		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals								
Methylmercury (as MeHg)		0.229		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics								
Lipid Content		4.0		0.5	% wwt		06-DEC-19	R4938907
L2375518-11 WB05-OUT-MT1-COMP 3 Sampled By: A.LAW on 13-SEP-19 @ 09:30								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters		Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-11 WB05-OUT-MT1-COMP 3 Sampled By: A.LAW on 13-SEP-19 @ 09:30 Matrix: TISSUE								
Physical Tests								
% Moisture		76.6		0.50	%		05-DEC-19	R4936557
Metals								
Aluminum (Al)-Total		5.9		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total		0.152		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total		4.98		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total		<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total		<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total		0.0128		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total		34300		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total		0.112		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total		<0.050		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total		0.046		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total		6.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total		140		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total		0.039		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total		<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total		1490		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total		27.3		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total		0.143		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total		0.147		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total		26100		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total		12100		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total		27.6		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total		0.658		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total		3390		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total		16.8		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total		<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total		0.0144		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total		0.19		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total		0.0026		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total		<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total		187		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total		<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals								
Methylmercury (as MeHg)		0.176		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics								
Lipid Content		3.2		0.5	% wwt		06-DEC-19	R4938907
L2375518-12 SPL-SN1-COMP 1 Sampled By: A.LAW on 15-SEP-19 @ 10:50								

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-12 SPL-SN1-COMP 1 Sampled By: A.LAW on 15-SEP-19 @ 10:50 Matrix: TISSUE							
Physical Tests							
% Moisture	81.8		0.50	%		05-DEC-19	R4936557
Metals							
Aluminum (Al)-Total	12.0		2.0	mg/kg	12-DEC-19	13-DEC-19	R4943324
Antimony (Sb)-Total	<0.010		0.010	mg/kg	12-DEC-19	13-DEC-19	R4943324
Arsenic (As)-Total	0.265		0.020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Barium (Ba)-Total	5.67		0.050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Beryllium (Be)-Total	<0.010		0.010	mg/kg	12-DEC-19	13-DEC-19	R4943324
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	12-DEC-19	13-DEC-19	R4943324
Boron (B)-Total	<1.0		1.0	mg/kg	12-DEC-19	13-DEC-19	R4943324
Cadmium (Cd)-Total	0.116		0.0050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Calcium (Ca)-Total	58200		20	mg/kg	12-DEC-19	13-DEC-19	R4943324
Cesium (Cs)-Total	0.119		0.0050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Chromium (Cr)-Total	0.063		0.050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Cobalt (Co)-Total	0.052		0.020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Copper (Cu)-Total	2.47		0.10	mg/kg	12-DEC-19	13-DEC-19	R4943324
Iron (Fe)-Total	72.1		3.0	mg/kg	12-DEC-19	13-DEC-19	R4943324
Lead (Pb)-Total	0.030		0.020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Lithium (Li)-Total	<0.50		0.50	mg/kg	12-DEC-19	13-DEC-19	R4943324
Magnesium (Mg)-Total	2350		2.0	mg/kg	12-DEC-19	13-DEC-19	R4943324
Manganese (Mn)-Total	22.0		0.050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Mercury (Hg)-Total	0.0854		0.0050	mg/kg	09-DEC-19	11-DEC-19	R4940411
Molybdenum (Mo)-Total	0.072		0.020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Nickel (Ni)-Total	<0.20		0.20	mg/kg	12-DEC-19	13-DEC-19	R4943324
Phosphorus (P)-Total	40600		10	mg/kg	12-DEC-19	13-DEC-19	R4943324
Potassium (K)-Total	15500		20	mg/kg	12-DEC-19	13-DEC-19	R4943324
Rubidium (Rb)-Total	48.9		0.050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Selenium (Se)-Total	2.02		0.050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Sodium (Na)-Total	4070		20	mg/kg	12-DEC-19	13-DEC-19	R4943324
Strontium (Sr)-Total	27.8		0.050	mg/kg	12-DEC-19	13-DEC-19	R4943324
Tellurium (Te)-Total	<0.020		0.020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Thallium (Tl)-Total	0.0225		0.0020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Tin (Sn)-Total	0.60		0.10	mg/kg	12-DEC-19	13-DEC-19	R4943324
Uranium (U)-Total	0.0081		0.0020	mg/kg	12-DEC-19	13-DEC-19	R4943324
Vanadium (V)-Total	<0.10		0.10	mg/kg	12-DEC-19	13-DEC-19	R4943324
Zinc (Zn)-Total	165		0.50	mg/kg	12-DEC-19	13-DEC-19	R4943324
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	12-DEC-19	13-DEC-19	R4943324
Speciated Metals							
Methylmercury (as MeHg)	0.102		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	1.3		0.5	% wwt		06-DEC-19	R4938907
L2375518-13 SPL-SN1-COMP 2 Sampled By: A.LAW on 15-SEP-19 @ 10:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-13 SPL-SN1-COMP 2 Sampled By: A.LAW on 15-SEP-19 @ 10:50 Matrix: TISSUE							
Physical Tests							
% Moisture	83.4		0.50	%		05-DEC-19	R4936557
Metals							
Aluminum (Al)-Total	25.3		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total	0.227		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total	5.63		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total	<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total	0.109		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total	55300		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total	0.124		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total	0.083		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total	0.065		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total	2.42		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total	97.3		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total	0.027		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total	<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total	2130		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total	21.5		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total	0.0856		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total	0.075		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total	39400		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total	15600		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total	53.3		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total	1.91		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total	4050		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total	26.3		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total	<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total	0.0225		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total	0.24		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total	0.0073		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total	0.11		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total	151		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals							
Methylmercury (as MeHg)	0.0722		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	1.1		0.5	% wwt		06-DEC-19	R4938907
L2375518-14 SPL-SN2-COMP 1 Sampled By: A.LAW on 15-SEP-19 @ 12:45							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-14 SPL-SN2-COMP 1 Sampled By: A.LAW on 15-SEP-19 @ 12:45 Matrix: TISSUE							
Physical Tests							
% Moisture	78.7		0.50	%		05-DEC-19	R4936557
Metals							
Aluminum (Al)-Total	87.8		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total	0.234		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total	2.98		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total	<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total	0.0787		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total	40000		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total	0.127		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total	0.120		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total	0.088		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total	2.02		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total	227		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total	0.032		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total	<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total	1860		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total	16.2		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total	0.0924		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total	0.060		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total	32000		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total	16300		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total	52.6		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total	1.80		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total	4610		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total	21.0		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total	<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total	0.0203		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total	0.24		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total	0.0056		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total	0.28		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total	111		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals							
Methylmercury (as MeHg)	0.0908		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	1.6		0.5	% wwt		06-DEC-19	R4938907
L2375518-15 SPL-SN3-COMP 1 Sampled By: A.LAW on 15-SEP-19 @ 13:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-15 SPL-SN3-COMP 1 Sampled By: A.LAW on 15-SEP-19 @ 13:50 Matrix: TISSUE							
Physical Tests							
% Moisture	79.6		0.50	%		05-DEC-19	R4936557
Metals							
Aluminum (Al)-Total	27.7		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total	0.265		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total	3.70		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total	<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total	0.100		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total	44200		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total	0.110		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total	0.215		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total	0.074		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total	2.27		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total	103		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total	0.032		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total	<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total	1820		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total	18.5		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total	0.0947		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total	0.077		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total	34900		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total	16400		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total	48.6		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total	1.76		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total	4880		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total	22.1		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total	<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total	0.0194		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total	0.22		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total	0.0045		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total	0.12		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total	125		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals							
Methylmercury (as MeHg)	0.0852		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	1.6		0.5	% wwt		06-DEC-19	R4938907
L2375518-16 SPL-SN3-COMP 2 Sampled By: A.LAW on 15-SEP-19 @ 13:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-16 SPL-SN3-COMP 2 Sampled By: A.LAW on 15-SEP-19 @ 13:50 Matrix: TISSUE							
Physical Tests							
% Moisture	80.4		0.50	%		05-DEC-19	R4936557
Metals							
Aluminum (Al)-Total	19.9		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total	0.299		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total	4.02		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total	<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total	0.121		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total	43400		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total	0.121		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total	0.071		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total	0.059		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total	2.24		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total	83.5		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total	0.035		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total	<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total	1840		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total	20.6		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total	0.0952		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total	0.079		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total	33100		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total	16200		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total	50.4		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total	1.72		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total	5180		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total	20.6		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total	<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total	0.0175		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total	0.25		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total	0.0052		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total	0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total	127		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals							
Methylmercury (as MeHg)	0.109		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	1.2		0.5	% wwt		06-DEC-19	R4938907
L2375518-17 SPL-SN3-COMP 3 Sampled By: A.LAW on 15-SEP-19 @ 13:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-17 SPL-SN3-COMP 3 Sampled By: A.LAW on 15-SEP-19 @ 13:50 Matrix: TISSUE							
Physical Tests							
% Moisture	79.2		0.50	%		05-DEC-19	R4936557
Metals							
Aluminum (Al)-Total	22.8		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total	0.307		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total	3.27		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total	<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total	0.100		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total	37600		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total	0.115		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total	0.106		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total	0.060		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total	2.28		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total	90.1		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total	0.032		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total	<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total	1760		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total	17.9		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total	0.0874		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total	0.073		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total	31000		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total	16800		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total	50.2		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total	1.81		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total	4840		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total	17.9		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total	<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total	0.0198		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total	0.21		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total	0.0041		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total	0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total	118		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals							
Methylmercury (as MeHg)	0.0615		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	1.4		0.5	% wwt		06-DEC-19	R4938907
L2375518-18 SPL-SN4-COMP 1 Sampled By: A.LAW on 16-SEP-19 @ 13:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-18 SPL-SN4-COMP 1 Sampled By: A.LAW on 16-SEP-19 @ 13:50 Matrix: TISSUE							
Physical Tests							
% Moisture	83.3		0.50	%		05-DEC-19	R4936557
Metals							
Aluminum (Al)-Total	3.4		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total	0.252		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total	3.67		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total	<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total	0.0980		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total	47600		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total	0.138		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total	<0.050		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total	0.052		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total	2.24		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total	54.6		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total	<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total	<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total	1950		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total	16.7		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total	0.0864		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total	0.063		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total	35900		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total	16600		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total	57.2		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total	2.01		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total	4060		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total	22.4		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total	<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total	0.0231		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total	0.44		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total	0.0049		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total	<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total	140		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals							
Methylmercury (as MeHg)	0.103		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	1.2		0.5	% wwt		06-DEC-19	R4938907
L2375518-19 SPL-SN4-COMP 2 Sampled By: A.LAW on 16-SEP-19 @ 13:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-19 SPL-SN4-COMP 2 Sampled By: A.LAW on 16-SEP-19 @ 13:50 Matrix: TISSUE							
Physical Tests							
% Moisture	83.2		0.50	%		05-DEC-19	R4936557
Metals							
Aluminum (Al)-Total	3.1		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total	0.273		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total	3.86		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total	<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total	0.103		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total	50200		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total	0.127		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total	<0.050		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total	0.049		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total	2.25		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total	56.7		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total	0.021		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total	<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total	1870		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total	17.9		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total	0.0843		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total	0.069		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total	35800		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total	15400		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total	52.8		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total	1.90		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total	3900		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total	23.9		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total	<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total	0.0221		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total	0.21		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total	0.0050		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total	<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total	151		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals							
Methylmercury (as MeHg)	0.109		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	1.2		0.5	% wwt		06-DEC-19	R4938907
L2375518-20 SPL-SN4-COMP 3 Sampled By: A.LAW on 16-SEP-19 @ 13:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-20 SPL-SN4-COMP 3 Sampled By: A.LAW on 16-SEP-19 @ 13:50 Matrix: TISSUE							
Physical Tests							
% Moisture	83.9		0.50	%		05-DEC-19	R4936557
Metals							
Aluminum (Al)-Total	3.8		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Antimony (Sb)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Arsenic (As)-Total	0.257		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Barium (Ba)-Total	3.94		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Beryllium (Be)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	05-DEC-19	06-DEC-19	R4937105
Boron (B)-Total	<1.0		1.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cadmium (Cd)-Total	0.0925		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Calcium (Ca)-Total	52900		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cesium (Cs)-Total	0.128		0.0050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Chromium (Cr)-Total	<0.050		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Cobalt (Co)-Total	0.048		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Copper (Cu)-Total	2.36		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Iron (Fe)-Total	54.7		3.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lead (Pb)-Total	0.024		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Lithium (Li)-Total	<0.50		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Magnesium (Mg)-Total	1980		2.0	mg/kg	05-DEC-19	06-DEC-19	R4937105
Manganese (Mn)-Total	17.7		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Mercury (Hg)-Total	0.0896		0.0050	mg/kg	05-DEC-19	07-DEC-19	R4937125
Molybdenum (Mo)-Total	0.074		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Nickel (Ni)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Phosphorus (P)-Total	36500		10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Potassium (K)-Total	15300		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Rubidium (Rb)-Total	52.2		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Selenium (Se)-Total	1.94		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Sodium (Na)-Total	3940		20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Strontium (Sr)-Total	25.5		0.050	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tellurium (Te)-Total	<0.020		0.020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Thallium (Tl)-Total	0.0211		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Tin (Sn)-Total	0.37		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Uranium (U)-Total	0.0050		0.0020	mg/kg	05-DEC-19	06-DEC-19	R4937105
Vanadium (V)-Total	<0.10		0.10	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zinc (Zn)-Total	153		0.50	mg/kg	05-DEC-19	06-DEC-19	R4937105
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	05-DEC-19	06-DEC-19	R4937105
Speciated Metals							
Methylmercury (as MeHg)	0.0857		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	1.1		0.5	% wwt		06-DEC-19	R4938907
L2375518-21 SPL-AN1-F1 Sampled By: A.LAW on 10-SEP-19 @ 16:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-21 SPL-AN1-F1 Sampled By: A.LAW on 10-SEP-19 @ 16:50 Matrix: TISSUE							
Physical Tests							
% Moisture	79.2		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	2.1		2.0	mg/kg	04-DEC-19	18-DEC-19	R4945877
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	18-DEC-19	R4945877
Arsenic (As)-Total	0.200		0.020	mg/kg	04-DEC-19	18-DEC-19	R4945877
Barium (Ba)-Total	0.133		0.050	mg/kg	04-DEC-19	18-DEC-19	R4945877
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	18-DEC-19	R4945877
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	18-DEC-19	R4945877
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	18-DEC-19	R4945877
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	18-DEC-19	R4945877
Calcium (Ca)-Total	1660		20	mg/kg	04-DEC-19	18-DEC-19	R4945877
Cesium (Cs)-Total	0.364		0.0050	mg/kg	04-DEC-19	18-DEC-19	R4945877
Chromium (Cr)-Total	0.060		0.050	mg/kg	04-DEC-19	18-DEC-19	R4945877
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	18-DEC-19	R4945877
Copper (Cu)-Total	0.80		0.10	mg/kg	04-DEC-19	18-DEC-19	R4945877
Iron (Fe)-Total	39.2		3.0	mg/kg	04-DEC-19	18-DEC-19	R4945877
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	18-DEC-19	R4945877
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	18-DEC-19	R4945877
Magnesium (Mg)-Total	1590		2.0	mg/kg	04-DEC-19	18-DEC-19	R4945877
Manganese (Mn)-Total	0.914		0.050	mg/kg	04-DEC-19	18-DEC-19	R4945877
Mercury (Hg)-Total	2.02		0.030	mg/kg	04-DEC-19	06-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	18-DEC-19	R4945877
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	18-DEC-19	R4945877
Phosphorus (P)-Total	12400		10	mg/kg	04-DEC-19	18-DEC-19	R4945877
Potassium (K)-Total	22900		20	mg/kg	04-DEC-19	18-DEC-19	R4945877
Rubidium (Rb)-Total	69.6		0.050	mg/kg	04-DEC-19	18-DEC-19	R4945877
Selenium (Se)-Total	1.21		0.050	mg/kg	04-DEC-19	18-DEC-19	R4945877
Sodium (Na)-Total	1320		20	mg/kg	04-DEC-19	18-DEC-19	R4945877
Strontium (Sr)-Total	0.500		0.050	mg/kg	04-DEC-19	18-DEC-19	R4945877
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	18-DEC-19	R4945877
Thallium (Tl)-Total	0.0190		0.0020	mg/kg	04-DEC-19	18-DEC-19	R4945877
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	18-DEC-19	R4945877
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	18-DEC-19	R4945877
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	18-DEC-19	R4945877
Zinc (Zn)-Total	37.2		0.50	mg/kg	04-DEC-19	18-DEC-19	R4945877
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	18-DEC-19	R4945877
Speciated Metals							
Methylmercury (as MeHg)	2.19		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	<0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-22 SPL-AN1-F2 Sampled By: A.LAW on 10-SEP-19 @ 16:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-22 SPL-AN1-F2 Sampled By: A.LAW on 10-SEP-19 @ 16:50 Matrix: TISSUE							
Physical Tests							
% Moisture	78.5		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	3.0		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.317		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.162		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	1680		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.363		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	<0.050		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.98		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	21.9		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1410		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	0.735		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	1.67		0.030	mg/kg	04-DEC-19	06-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	11900		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	19900		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	61.5		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.32		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1470		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	0.635		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0176		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	29.8		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	1.10		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	<0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-23 SPL-AN1-F3 Sampled By: A.LAW on 10-SEP-19 @ 16:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-23 SPL-AN1-F3 Sampled By: A.LAW on 10-SEP-19 @ 16:50 Matrix: TISSUE							
Physical Tests							
% Moisture	78.3		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	<2.0		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.211		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.092		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	1670		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.333		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	<0.050		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.75		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	9.5		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1660		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	0.832		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	1.02		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	13500		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	23100		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	69.7		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.51		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1420		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	0.465		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0240		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	25.0		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	0.610		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	<0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-24 SPL-AN1-F4 Sampled By: A.LAW on 10-SEP-19 @ 16:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-24 SPL-AN1-F4 Sampled By: A.LAW on 10-SEP-19 @ 16:50 Matrix: TISSUE							
Physical Tests							
% Moisture	77.9		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	<2.0		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.123		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.272		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	0.0055		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	6290		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.296		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	<0.050		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.76		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	8.8		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1740		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	1.85		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	0.530		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	16300		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	23300		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	78.5		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.48		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1780		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	2.24		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0194		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	29.5		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	0.504		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	0.6		0.5	% wwt		05-DEC-19	R4938451
L2375518-25 SPL-AN1-F5 Sampled By: A.LAW on 10-SEP-19 @ 16:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-25 SPL-AN1-F5 Sampled By: A.LAW on 10-SEP-19 @ 16:50 Matrix: TISSUE							
Physical Tests							
% Moisture	77.0		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	<2.0		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.305		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.163		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	2790		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.305		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	0.053		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.72		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	8.3		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1630		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	0.974		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	0.865		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	13200		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	21300		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	71.1		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.31		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1270		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	0.778		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0210		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	36.5		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	0.391		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	<0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-26 SPL-AN1-F6 Sampled By: A.LAW on 10-SEP-19 @ 16:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-26 SPL-AN1-F6 Sampled By: A.LAW on 10-SEP-19 @ 16:50 Matrix: TISSUE							
Physical Tests							
% Moisture	78.5		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	<2.0		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.192		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.212		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	3550		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.337		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	<0.050		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.75		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	11.5		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1720		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	1.26		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	1.49		0.030	mg/kg	04-DEC-19	06-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	14100		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	22400		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	75.8		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.23		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1480		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	1.13		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0203		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	34.0		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	1.41		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	<0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-27 SPL-AN2-F1 Sampled By: A.LAW on 11-SEP-19 @ 13:25							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-27 SPL-AN2-F1 Sampled By: A.LAW on 11-SEP-19 @ 13:25 Matrix: TISSUE							
Physical Tests							
% Moisture	77.9		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	4.0		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.133		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.194		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	2990		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.360		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	0.091		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.60		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	15.0		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1630		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	2.55		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	0.981		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	13300		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	21400		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	74.1		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.10		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1470		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	0.856		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0195		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	22.9		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	0.970		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	<0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-28 SPL-AN2-F2 Sampled By: A.LAW on 11-SEP-19 @ 13:25							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-28 SPL-AN2-F2 Sampled By: A.LAW on 11-SEP-19 @ 13:25 Matrix: TISSUE							
Physical Tests							
% Moisture	81.6		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	8.8		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.609		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.557		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	0.0189		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	4450		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.462		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	0.081		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.78		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	29.8		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1530		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	2.25		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	3.49		0.035	mg/kg	04-DEC-19	06-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	13600		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	20200		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	68.6		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.39		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1820		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	1.81		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0154		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	31.8		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	3.88		0.10	mg/kg	09-DEC-19	10-DEC-19	R4940264
Aggregate Organics							
Lipid Content	<0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-29 SPL-AN2-F3 Sampled By: A.LAW on 11-SEP-19 @ 13:25							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-29 SPL-AN2-F3 Sampled By: A.LAW on 11-SEP-19 @ 13:25 Matrix: TISSUE							
Physical Tests							
% Moisture	79.8		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	2.7		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.399		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.311		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	0.0069		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	4380		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.361		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	0.057		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.76		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	14.8		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1670		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	1.85		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	2.04		0.030	mg/kg	04-DEC-19	06-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	14400		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	21500		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	65.8		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.19		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1700		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	1.82		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0286		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	37.1		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	2.11		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	0.7		0.5	% wwt		05-DEC-19	R4938451
L2375518-30 SPL-AN2-F4 Sampled By: A.LAW on 11-SEP-19 @ 13:25							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-30 SPL-AN2-F4 Sampled By: A.LAW on 11-SEP-19 @ 13:25 Matrix: TISSUE							
Physical Tests							
% Moisture	78.4		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	2.3		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.356		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.179		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	1990		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.342		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	0.056		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.66		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	13.3		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1500		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	1.35		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	1.88		0.030	mg/kg	04-DEC-19	06-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	12200		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	19700		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	70.8		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.16		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1660		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	0.748		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0268		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	21.8		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	1.13		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	<0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-31 SPL-AN3-F1 Sampled By: A.LAW on 12-SEP-19 @ 14:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-31 SPL-AN3-F1 Sampled By: A.LAW on 12-SEP-19 @ 14:50 Matrix: TISSUE							
Physical Tests							
% Moisture	79.4		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	2.6		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.542		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.366		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	0.0077		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	3110		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.432		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	<0.050		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.86		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	15.3		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1690		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	1.49		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	2.15		0.030	mg/kg	04-DEC-19	06-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	14500		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	23200		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	78.8		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.24		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1760		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	1.13		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0255		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	37.0		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	2.10		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	<0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-32 SPL-AN3-F2 Sampled By: A.LAW on 12-SEP-19 @ 14:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-32 SPL-AN3-F2 Sampled By: A.LAW on 12-SEP-19 @ 14:50 Matrix: TISSUE							
Physical Tests							
% Moisture	79.5		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	5.6		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.336		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.175		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	1800		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.386		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	<0.050		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.85		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	17.4		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1560		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	1.24		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	1.65		0.030	mg/kg	04-DEC-19	06-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	12500		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	21500		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	74.0		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.07		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1500		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	0.561		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0172		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	34.2		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	1.34		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	<0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-33 SPL-AN3-F3 Sampled By: A.LAW on 12-SEP-19 @ 14:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-33 SPL-AN3-F3 Sampled By: A.LAW on 12-SEP-19 @ 14:50 Matrix: TISSUE							
Physical Tests							
% Moisture	79.4		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	7.5		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.123		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.470		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	2580		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.315		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	0.073		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.88		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	24.1		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	0.023		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1650		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	1.24		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	0.645		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	13600		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	23200		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	72.4		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.22		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1550		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	0.766		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0170		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	27.7		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	0.344		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	<0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-34 SPL-AN4-F1 Sampled By: A.LAW on 13-SEP-19 @ 11:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-34 SPL-AN4-F1 Sampled By: A.LAW on 13-SEP-19 @ 11:50 Matrix: TISSUE							
Physical Tests							
% Moisture	78.6		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	<2.0		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.059		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.177		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	5910		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.269		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	0.106		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.69		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	6.0		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1650		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	1.79		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	0.389		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	14900		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	22100		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	74.3		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.09		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1420		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	1.52		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0141		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	24.1		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	0.333		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-35 SPL-AN4-F2 Sampled By: A.LAW on 13-SEP-19 @ 11:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-35 SPL-AN4-F2 Sampled By: A.LAW on 13-SEP-19 @ 11:50 Matrix: TISSUE							
Physical Tests							
% Moisture	79.3		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	24.2		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.089		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.407		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	5450		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.378		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	0.116		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.62		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	45.5		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1660		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	2.10		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	0.625		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	14400		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	21200		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	67.7		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.30		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1680		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	1.88		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0195		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	24.8		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	0.653		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	<0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-36 SPL-AN4-F3 Sampled By: A.LAW on 13-SEP-19 @ 11:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-36 SPL-AN4-F3 Sampled By: A.LAW on 13-SEP-19 @ 11:50 Matrix: TISSUE							
Physical Tests							
% Moisture	79.4		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	<2.0		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.740		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.111		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	0.0076		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	1470		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.414		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	<0.050		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.61		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	13.7		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1500		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	0.794		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	1.97		0.030	mg/kg	04-DEC-19	06-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	12100		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	20400		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	69.3		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.37		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1510		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	0.420		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0174		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	24.4		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	1.64		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	0.6		0.5	% wwt		05-DEC-19	R4938451
L2375518-37 SPL-AN4-F4 Sampled By: A.LAW on 13-SEP-19 @ 11:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-37 SPL-AN4-F4 Sampled By: A.LAW on 13-SEP-19 @ 11:50 Matrix: TISSUE							
Physical Tests							
% Moisture	80.9		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	<2.0		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.157		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.403		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	6930		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.483		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	<0.050		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.52		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	6.5		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1500		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	1.91		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	3.83		0.015	mg/kg	04-DEC-19	06-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	14700		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	18700		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	59.7		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.13		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1100		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	2.47		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0143		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	25.7		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	4.47		0.10	mg/kg	09-DEC-19	10-DEC-19	R4940264
Aggregate Organics							
Lipid Content	0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-38 SPL-AN5-F1 Sampled By: A.LAW on 14-SEP-19 @ 17:00							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-38 SPL-AN5-F1 Sampled By: A.LAW on 14-SEP-19 @ 17:00 Matrix: TISSUE							
Physical Tests							
% Moisture	77.5		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	4.7		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.069		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.282		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	7110		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.239		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	<0.050		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.61		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	11.3		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1650		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	2.45		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	0.646		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	15300		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	20600		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	57.7		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	0.932		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1580		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	2.74		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0147		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	38.6		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	0.611		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	0.7		0.5	% wwt		05-DEC-19	R4938451
L2375518-39 SPL-AN5-F2 Sampled By: A.LAW on 13-SEP-19 @ 11:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-39 SPL-AN5-F2 Sampled By: A.LAW on 13-SEP-19 @ 11:50 Matrix: TISSUE							
Physical Tests							
% Moisture	80.1		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	<2.0		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.151		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.189		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	<0.0050		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	3680		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.398		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	<0.050		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.61		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	11.3		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1580		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	1.21		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	1.52		0.030	mg/kg	04-DEC-19	06-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	14200		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	23100		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	79.3		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.19		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1550		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	1.17		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0203		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	25.2		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	1.29		0.0050	mg/kg	09-DEC-19	09-DEC-19	R4940264
Aggregate Organics							
Lipid Content	0.5		0.5	% wwt		05-DEC-19	R4938451
L2375518-40 SPL-AN5-F3 Sampled By: A.LAW on 13-SEP-19 @ 11:50							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2375518-40 SPL-AN5-F3 Sampled By: A.LAW on 13-SEP-19 @ 11:50 Matrix: TISSUE							
Physical Tests							
% Moisture	80.4		0.50	%		04-DEC-19	R4935808
Metals							
Aluminum (Al)-Total	<2.0		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Antimony (Sb)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Arsenic (As)-Total	0.150		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Barium (Ba)-Total	0.604		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Beryllium (Be)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Bismuth (Bi)-Total	<0.010		0.010	mg/kg	04-DEC-19	05-DEC-19	R4936665
Boron (B)-Total	<1.0		1.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cadmium (Cd)-Total	0.0109		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Calcium (Ca)-Total	5810		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cesium (Cs)-Total	0.410		0.0050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Chromium (Cr)-Total	0.069		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Cobalt (Co)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Copper (Cu)-Total	0.70		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Iron (Fe)-Total	13.9		3.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lead (Pb)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Lithium (Li)-Total	<0.50		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Magnesium (Mg)-Total	1770		2.0	mg/kg	04-DEC-19	05-DEC-19	R4936665
Manganese (Mn)-Total	2.96		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Mercury (Hg)-Total	3.60		0.035	mg/kg	04-DEC-19	06-DEC-19	R4936210
Molybdenum (Mo)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Nickel (Ni)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Phosphorus (P)-Total	15400		10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Potassium (K)-Total	21900		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Rubidium (Rb)-Total	66.8		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Selenium (Se)-Total	1.21		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Sodium (Na)-Total	1940		20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Strontium (Sr)-Total	2.54		0.050	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tellurium (Te)-Total	<0.020		0.020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Thallium (Tl)-Total	0.0168		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Tin (Sn)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Uranium (U)-Total	<0.0020		0.0020	mg/kg	04-DEC-19	05-DEC-19	R4936665
Vanadium (V)-Total	<0.10		0.10	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zinc (Zn)-Total	42.9		0.50	mg/kg	04-DEC-19	05-DEC-19	R4936665
Zirconium (Zr)-Total	<0.20		0.20	mg/kg	04-DEC-19	05-DEC-19	R4936665
Speciated Metals							
Methylmercury (as MeHg)	3.91		0.10	mg/kg	09-DEC-19	10-DEC-19	R4940264
Aggregate Organics							
Lipid Content	0.6		0.5	% wwt		05-DEC-19	R4938451

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Manganese (Mn)-Total	B	L2375518-12, -7
Duplicate	Calcium (Ca)-Total	DUP-H	L2375518-21, -22, -23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40
Duplicate	Manganese (Mn)-Total	DUP-H	L2375518-21, -22, -23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40
Duplicate	Strontium (Sr)-Total	DUP-H	L2375518-21, -22, -23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40
Certified Reference Material	Lead (Pb)-Total	MES	L2375518-21, -22, -23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40
Certified Reference Material	Lead (Pb)-Total	MES	L2375518-12, -7
Certified Reference Material	Bismuth (Bi)-Total	RM-H	L2375518-21, -22, -23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40

Sample Parameter Qualifier key listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
RM-H	Reference Material recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-DRY-CVAFS-N-VA	Tissue	Mercury in Tissue by CVAAS (DRY)	EPA 200.3, EPA 245.7
This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.			
LIPIDS-GRAV-VA	Tissue	Lipids in Tissue by Gravimetric	EPA 3570, 8290A
A portion of homogenized sample is extracted with dichloromethane. The extract is evaporated to dryness and the lipid content determined gravimetrically.			
MEHG-DRY-GCAF-VA	Tissue	Methylmercury in Tissue by GCAFS (Dry)	Liang et al. (1994)
This method follows the procedures published by Liang, Bloom and Horvat in Clinical Chemistry (Vol 40, No 4, 1994). Samples are homogenized and then digested in a methanolic potassium hydroxide solution. An aliquot of the digestate is analyzed by aqueous phase ethylation, purge and trap, desorption and GC separation. The separated species are then pyrolyzed to elemental Hg and quantified by cold vapour atomic fluorescence spectroscopy. Results are reported "as MeHg".			
MET-DRY-CCMS-N-VA	Tissue	Metals in Tissue by CRC ICPMS (DRY)	EPA 200.3/6020A
This method is conducted following British Columbia Lab Manual method "Metals in Animal Tissue and Vegetation (Biota) - Prescriptive". Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with addition of hydrogen peroxide. Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modified from EPA Method 6020A).			
Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.			
MOISTURE-TISS-VA	Tissue	% Moisture in Tissues	Puget Sound WQ Authority, Apr 1997
This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg ww - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid weight of sample

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Environmental

Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Page 2 of 14

Client: Wood Environment & Infrastructure Solutions - Mississauga
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7

Contact: Dale Klodnicki/Mark Ruthven

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
LIPIDS-GRAV-VA Tissue								
Batch	R4938907							
WG3237235-1 MB								
Lipid Content			<0.5		% wwt		0.5	06-DEC-19
MEHG-DRY-GCAF-VA Tissue								
Batch	R4940264							
WG3238406-2 CRM		VA-NRC-DORM4						
Methylmercury (as MeHg)			99.7		%		70-130	09-DEC-19
WG3238563-2 CRM		VA-NRC-DORM4						
Methylmercury (as MeHg)			98.6		%		70-130	09-DEC-19
WG3238406-4 DUP		L2375518-19						
Methylmercury (as MeHg)		0.109	0.0964		mg/kg	12	30	09-DEC-19
WG3238563-4 DUP		L2375518-29						
Methylmercury (as MeHg)		2.11	2.06		mg/kg	2.3	30	09-DEC-19
WG3238406-3 LCS								
Methylmercury (as MeHg)			90.2		%		70-130	09-DEC-19
WG3238563-3 LCS								
Methylmercury (as MeHg)			96.9		%		70-130	09-DEC-19
WG3238406-1 MB								
Methylmercury (as MeHg)			<0.0050		mg/kg wwt		0.005	09-DEC-19
WG3238563-1 MB								
Methylmercury (as MeHg)			<0.0050		mg/kg wwt		0.005	09-DEC-19
MET-DRY-CCMS-N-VA Tissue								
Batch	R4936665							
WG3234743-3 CRM		VA-NRC-DORM4						
Aluminum (Al)-Total			110.3		%		70-130	05-DEC-19
Arsenic (As)-Total			95.9		%		70-130	05-DEC-19
Barium (Ba)-Total			107.7		%		70-130	05-DEC-19
Beryllium (Be)-Total			0.016		mg/kg		0.005-0.025	05-DEC-19
Bismuth (Bi)-Total			0.052	RM-H	mg/kg		0.002-0.022	05-DEC-19
Boron (B)-Total			95.8		%		70-130	05-DEC-19
Cadmium (Cd)-Total			93.7		%		70-130	05-DEC-19
Calcium (Ca)-Total			106.2		%		70-130	05-DEC-19
Cesium (Cs)-Total			98.5		%		70-130	05-DEC-19
Chromium (Cr)-Total			109.1		%		70-130	05-DEC-19
Cobalt (Co)-Total			95.9		%		70-130	05-DEC-19
Copper (Cu)-Total			96.7		%		70-130	05-DEC-19

Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Page 3 of 14

Client: Wood Environment & Infrastructure Solutions - Mississauga
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7

Contact: Dale Klodnicki/Mark Ruthven

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DRY-CCMS-N-VA		Tissue						
Batch	R4936665							
WG3234743-3	CRM	VA-NRC-DORM4						
Iron (Fe)-Total			105.5		%		70-130	05-DEC-19
Lead (Pb)-Total			132.9	MES	%		70-130	05-DEC-19
Lithium (Li)-Total			1.07		mg/kg		0.71-1.71	05-DEC-19
Magnesium (Mg)-Total			97.8		%		70-130	05-DEC-19
Manganese (Mn)-Total			120.2		%		70-130	05-DEC-19
Molybdenum (Mo)-Total			97.6		%		70-130	05-DEC-19
Nickel (Ni)-Total			95.9		%		70-130	05-DEC-19
Phosphorus (P)-Total			97.9		%		70-130	05-DEC-19
Potassium (K)-Total			98.7		%		70-130	05-DEC-19
Rubidium (Rb)-Total			101.6		%		70-130	05-DEC-19
Selenium (Se)-Total			103.8		%		70-130	05-DEC-19
Sodium (Na)-Total			98.8		%		70-130	05-DEC-19
Strontium (Sr)-Total			96.0		%		70-130	05-DEC-19
Thallium (Tl)-Total			97.9		%		70-130	05-DEC-19
Uranium (U)-Total			111.1		%		70-130	05-DEC-19
Vanadium (V)-Total			107.0		%		70-130	05-DEC-19
Zinc (Zn)-Total			107.3		%		70-130	05-DEC-19
Zirconium (Zr)-Total			0.29		mg/kg		0.05-0.45	05-DEC-19
WG3234743-2	DUP	L2375518-25						
Aluminum (Al)-Total		<2.0	<2.0	RPD-NA	mg/kg	N/A	40	05-DEC-19
Antimony (Sb)-Total		<0.010	<0.010	RPD-NA	mg/kg	N/A	40	05-DEC-19
Arsenic (As)-Total		0.305	0.304		mg/kg	0.1	40	05-DEC-19
Barium (Ba)-Total		0.163	0.089	J	mg/kg	0.074	0.1	05-DEC-19
Beryllium (Be)-Total		<0.010	<0.010	RPD-NA	mg/kg	N/A	40	05-DEC-19
Bismuth (Bi)-Total		<0.010	<0.010	RPD-NA	mg/kg	N/A	40	05-DEC-19
Boron (B)-Total		<1.0	<1.0	RPD-NA	mg/kg	N/A	40	05-DEC-19
Cadmium (Cd)-Total		<0.0050	<0.0050	RPD-NA	mg/kg	N/A	40	05-DEC-19
Calcium (Ca)-Total		2790	1170	DUP-H	mg/kg	82	60	05-DEC-19
Cesium (Cs)-Total		0.305	0.293		mg/kg	4.1	40	05-DEC-19
Chromium (Cr)-Total		0.053	<0.050	RPD-NA	mg/kg	N/A	40	05-DEC-19
Cobalt (Co)-Total		<0.020	<0.020	RPD-NA	mg/kg	N/A	40	05-DEC-19
Copper (Cu)-Total		0.72	0.65		mg/kg	12	40	05-DEC-19
Iron (Fe)-Total		8.3	6.9		mg/kg	18	40	05-DEC-19



Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Page 4 of 14

Client: Wood Environment & Infrastructure Solutions - Mississauga
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7

Contact: Dale Klodnicki/Mark Ruthven

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DRY-CCMS-N-VA		Tissue						
Batch	R4936665							
WG3234743-2	DUP	L2375518-25						
Lead (Pb)-Total		<0.020	<0.020	RPD-NA	mg/kg	N/A	40	05-DEC-19
Lithium (Li)-Total		<0.50	<0.50	RPD-NA	mg/kg	N/A	40	05-DEC-19
Magnesium (Mg)-Total		1630	1500		mg/kg	8.7	40	05-DEC-19
Manganese (Mn)-Total		0.974	0.635	DUP-H	mg/kg	42	40	05-DEC-19
Molybdenum (Mo)-Total		<0.020	<0.020	RPD-NA	mg/kg	N/A	40	05-DEC-19
Nickel (Ni)-Total		<0.20	<0.20	RPD-NA	mg/kg	N/A	40	05-DEC-19
Phosphorus (P)-Total		13200	11700		mg/kg	12	40	05-DEC-19
Potassium (K)-Total		21300	20600		mg/kg	3.8	40	05-DEC-19
Rubidium (Rb)-Total		71.1	68.1		mg/kg	4.3	40	05-DEC-19
Selenium (Se)-Total		1.31	1.25		mg/kg	4.0	40	05-DEC-19
Sodium (Na)-Total		1270	1180		mg/kg	7.1	40	05-DEC-19
Strontium (Sr)-Total		0.778	0.292	DUP-H	mg/kg	91	60	05-DEC-19
Tellurium (Te)-Total		<0.020	<0.020	RPD-NA	mg/kg	N/A	40	05-DEC-19
Thallium (Tl)-Total		0.0210	0.0190		mg/kg	10	40	05-DEC-19
Tin (Sn)-Total		<0.10	<0.10	RPD-NA	mg/kg	N/A	40	05-DEC-19
Uranium (U)-Total		<0.0020	<0.0020	RPD-NA	mg/kg	N/A	40	05-DEC-19
Vanadium (V)-Total		<0.10	<0.10	RPD-NA	mg/kg	N/A	40	05-DEC-19
Zinc (Zn)-Total		36.5	31.9		mg/kg	13	40	05-DEC-19
Zirconium (Zr)-Total		<0.20	<0.20	RPD-NA	mg/kg	N/A	40	05-DEC-19
WG3234743-4	LCS							
Aluminum (Al)-Total			114.0		%		80-120	05-DEC-19
Antimony (Sb)-Total			112.5		%		80-120	05-DEC-19
Arsenic (As)-Total			110.3		%		80-120	05-DEC-19
Barium (Ba)-Total			110.9		%		80-120	05-DEC-19
Beryllium (Be)-Total			107.2		%		80-120	05-DEC-19
Bismuth (Bi)-Total			108.5		%		80-120	05-DEC-19
Boron (B)-Total			104.1		%		80-120	05-DEC-19
Cadmium (Cd)-Total			107.4		%		80-120	05-DEC-19
Calcium (Ca)-Total			108.4		%		80-120	05-DEC-19
Cesium (Cs)-Total			114.4		%		80-120	05-DEC-19
Chromium (Cr)-Total			110.9		%		80-120	05-DEC-19
Cobalt (Co)-Total			109.9		%		80-120	05-DEC-19
Copper (Cu)-Total			109.7		%		80-120	05-DEC-19

Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Page 5 of 14

Client: Wood Environment & Infrastructure Solutions - Mississauga
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7

Contact: Dale Klodnicki/Mark Ruthven

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DRY-CCMS-N-VA		Tissue						
Batch	R4936665							
WG3234743-4	LCS							
Iron (Fe)-Total			119.8		%		80-120	05-DEC-19
Lead (Pb)-Total			110.8		%		80-120	05-DEC-19
Lithium (Li)-Total			101.2		%		80-120	05-DEC-19
Magnesium (Mg)-Total			108.7		%		80-120	05-DEC-19
Manganese (Mn)-Total			110.6		%		80-120	05-DEC-19
Molybdenum (Mo)-Total			109.2		%		80-120	05-DEC-19
Nickel (Ni)-Total			109.6		%		80-120	05-DEC-19
Phosphorus (P)-Total			116.4		%		80-120	05-DEC-19
Potassium (K)-Total			109.5		%		80-120	05-DEC-19
Rubidium (Rb)-Total			110.9		%		80-120	05-DEC-19
Selenium (Se)-Total			109.1		%		80-120	05-DEC-19
Sodium (Na)-Total			111.1		%		80-120	05-DEC-19
Strontium (Sr)-Total			109.9		%		80-120	05-DEC-19
Tellurium (Te)-Total			109.6		%		80-120	05-DEC-19
Thallium (Tl)-Total			106.1		%		80-120	05-DEC-19
Tin (Sn)-Total			105.6		%		80-120	05-DEC-19
Uranium (U)-Total			119.9		%		80-120	05-DEC-19
Vanadium (V)-Total			112.2		%		80-120	05-DEC-19
Zinc (Zn)-Total			105.8		%		80-120	05-DEC-19
Zirconium (Zr)-Total			109.2		%		80-120	05-DEC-19
WG3234743-1	MB							
Aluminum (Al)-Total			<2.0		mg/kg		2	05-DEC-19
Antimony (Sb)-Total			<0.010		mg/kg		0.01	05-DEC-19
Arsenic (As)-Total			<0.020		mg/kg		0.02	05-DEC-19
Barium (Ba)-Total			<0.050		mg/kg		0.05	05-DEC-19
Beryllium (Be)-Total			<0.010		mg/kg		0.01	05-DEC-19
Bismuth (Bi)-Total			<0.010		mg/kg		0.01	05-DEC-19
Boron (B)-Total			<1.0		mg/kg		1	05-DEC-19
Cadmium (Cd)-Total			<0.0050		mg/kg		0.005	05-DEC-19
Calcium (Ca)-Total			<20		mg/kg		20	05-DEC-19
Cesium (Cs)-Total			<0.0050		mg/kg		0.005	05-DEC-19
Chromium (Cr)-Total			<0.050		mg/kg		0.05	05-DEC-19
Cobalt (Co)-Total			<0.020		mg/kg		0.02	05-DEC-19
Copper (Cu)-Total			<0.10		mg/kg		0.1	05-DEC-19

Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Page 6 of 14

Client: Wood Environment & Infrastructure Solutions - Mississauga
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7

Contact: Dale Klodnicki/Mark Ruthven

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DRY-CCMS-N-VA		Tissue						
Batch	R4936665							
WG3234743-1 MB								
Iron (Fe)-Total			<3.0		mg/kg		3	05-DEC-19
Lead (Pb)-Total			<0.020		mg/kg		0.02	05-DEC-19
Lithium (Li)-Total			<0.50		mg/kg		0.5	05-DEC-19
Magnesium (Mg)-Total			<2.0		mg/kg		2	05-DEC-19
Manganese (Mn)-Total			<0.050		mg/kg		0.05	05-DEC-19
Molybdenum (Mo)-Total			<0.020		mg/kg		0.02	05-DEC-19
Nickel (Ni)-Total			<0.20		mg/kg		0.2	05-DEC-19
Phosphorus (P)-Total			<10		mg/kg		10	05-DEC-19
Potassium (K)-Total			<20		mg/kg		20	05-DEC-19
Rubidium (Rb)-Total			<0.050		mg/kg		0.05	05-DEC-19
Selenium (Se)-Total			<0.050		mg/kg		0.05	05-DEC-19
Sodium (Na)-Total			<20		mg/kg		20	05-DEC-19
Strontium (Sr)-Total			<0.050		mg/kg		0.05	05-DEC-19
Tellurium (Te)-Total			<0.020		mg/kg		0.02	05-DEC-19
Thallium (Tl)-Total			<0.0020		mg/kg		0.002	05-DEC-19
Tin (Sn)-Total			<0.10		mg/kg		0.1	05-DEC-19
Uranium (U)-Total			<0.0020		mg/kg		0.002	05-DEC-19
Vanadium (V)-Total			<0.10		mg/kg		0.1	05-DEC-19
Zinc (Zn)-Total			<0.50		mg/kg		0.5	05-DEC-19
Zirconium (Zr)-Total			<0.20		mg/kg		0.2	05-DEC-19
Batch	R4937105							
WG3235852-3 CRM		VA-NRC-DORM4						
Aluminum (Al)-Total			110.2		%		70-130	06-DEC-19
Arsenic (As)-Total			99.3		%		70-130	06-DEC-19
Barium (Ba)-Total			108.3		%		70-130	06-DEC-19
Beryllium (Be)-Total			0.015		mg/kg		0.005-0.025	06-DEC-19
Bismuth (Bi)-Total			0.011		mg/kg		0.002-0.022	06-DEC-19
Boron (B)-Total			97.7		%		70-130	06-DEC-19
Cadmium (Cd)-Total			105.1		%		70-130	06-DEC-19
Calcium (Ca)-Total			101.4		%		70-130	06-DEC-19
Cesium (Cs)-Total			94.1		%		70-130	06-DEC-19
Chromium (Cr)-Total			116.2		%		70-130	06-DEC-19
Cobalt (Co)-Total			103.1		%		70-130	06-DEC-19
Copper (Cu)-Total			99.9		%		70-130	06-DEC-19

Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Page 7 of 14

Client: Wood Environment & Infrastructure Solutions - Mississauga
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7

Contact: Dale Klodnicki/Mark Ruthven

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DRY-CCMS-N-VA Tissue								
Batch	R4937105							
WG3235852-3 CRM		VA-NRC-DORM4						
Iron (Fe)-Total			114.3		%		70-130	06-DEC-19
Lead (Pb)-Total			106.7		%		70-130	06-DEC-19
Lithium (Li)-Total			1.16		mg/kg		0.71-1.71	06-DEC-19
Magnesium (Mg)-Total			99.5		%		70-130	06-DEC-19
Manganese (Mn)-Total			98.9		%		70-130	06-DEC-19
Molybdenum (Mo)-Total			97.5		%		70-130	06-DEC-19
Nickel (Ni)-Total			107.7		%		70-130	06-DEC-19
Phosphorus (P)-Total			104.9		%		70-130	06-DEC-19
Potassium (K)-Total			105.5		%		70-130	06-DEC-19
Rubidium (Rb)-Total			108.6		%		70-130	06-DEC-19
Selenium (Se)-Total			105.5		%		70-130	06-DEC-19
Sodium (Na)-Total			107.1		%		70-130	06-DEC-19
Strontium (Sr)-Total			97.3		%		70-130	06-DEC-19
Thallium (Tl)-Total			88.5		%		70-130	06-DEC-19
Uranium (U)-Total			100.1		%		70-130	06-DEC-19
Vanadium (V)-Total			106.4		%		70-130	06-DEC-19
Zinc (Zn)-Total			112.4		%		70-130	06-DEC-19
Zirconium (Zr)-Total			0.24		mg/kg		0.05-0.45	06-DEC-19
WG3235852-2 DUP		L2375518-10						
Aluminum (Al)-Total		4.2	4.6		mg/kg	8.8	40	06-DEC-19
Antimony (Sb)-Total		<0.010	<0.010	RPD-NA	mg/kg	N/A	40	06-DEC-19
Arsenic (As)-Total		0.160	0.196		mg/kg	20	40	06-DEC-19
Barium (Ba)-Total		4.70	6.50		mg/kg	32	40	06-DEC-19
Beryllium (Be)-Total		<0.010	<0.010	RPD-NA	mg/kg	N/A	40	06-DEC-19
Bismuth (Bi)-Total		<0.010	<0.010	RPD-NA	mg/kg	N/A	40	06-DEC-19
Boron (B)-Total		<1.0	<1.0	RPD-NA	mg/kg	N/A	40	06-DEC-19
Cadmium (Cd)-Total		0.0157	0.0153		mg/kg	2.8	40	06-DEC-19
Calcium (Ca)-Total		28100	42500		mg/kg	41	60	06-DEC-19
Cesium (Cs)-Total		0.137	0.133		mg/kg	3.2	40	06-DEC-19
Chromium (Cr)-Total		<0.050	<0.050	RPD-NA	mg/kg	N/A	40	06-DEC-19
Cobalt (Co)-Total		0.057	0.056		mg/kg	0.5	40	06-DEC-19
Copper (Cu)-Total		6.18	6.22		mg/kg	0.5	40	06-DEC-19
Iron (Fe)-Total		159	163		mg/kg	2.4	40	06-DEC-19



Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Page 8 of 14

Client: Wood Environment & Infrastructure Solutions - Mississauga
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7

Contact: Dale Klodnicki/Mark Ruthven

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DRY-CCMS-N-VA		Tissue						
Batch	R4937105							
WG3235852-2	DUP	L2375518-10						
Lead (Pb)-Total		0.025	0.027		mg/kg	9.0	40	06-DEC-19
Lithium (Li)-Total		<0.50	<0.50	RPD-NA	mg/kg	N/A	40	06-DEC-19
Magnesium (Mg)-Total		1440	1670		mg/kg	15	40	06-DEC-19
Manganese (Mn)-Total		23.6	29.3		mg/kg	21	40	06-DEC-19
Molybdenum (Mo)-Total		0.145	0.155		mg/kg	6.9	40	06-DEC-19
Nickel (Ni)-Total		<0.20	<0.20	RPD-NA	mg/kg	N/A	40	06-DEC-19
Phosphorus (P)-Total		23400	31500		mg/kg	29	40	06-DEC-19
Potassium (K)-Total		13000	13200		mg/kg	1.9	40	06-DEC-19
Rubidium (Rb)-Total		27.9	28.0		mg/kg	0.6	40	06-DEC-19
Selenium (Se)-Total		0.785	0.794		mg/kg	1.1	40	06-DEC-19
Sodium (Na)-Total		3590	3680		mg/kg	2.5	40	06-DEC-19
Strontium (Sr)-Total		14.5	21.7		mg/kg	39	60	06-DEC-19
Tellurium (Te)-Total		<0.020	<0.020	RPD-NA	mg/kg	N/A	40	06-DEC-19
Thallium (Tl)-Total		0.0155	0.0171		mg/kg	10	40	06-DEC-19
Tin (Sn)-Total		0.20	0.19		mg/kg	8.9	40	06-DEC-19
Uranium (U)-Total		<0.0020	0.0022	RPD-NA	mg/kg	N/A	40	06-DEC-19
Vanadium (V)-Total		<0.10	<0.10	RPD-NA	mg/kg	N/A	40	06-DEC-19
Zinc (Zn)-Total		159	200		mg/kg	23	40	06-DEC-19
Zirconium (Zr)-Total		<0.20	<0.20	RPD-NA	mg/kg	N/A	40	06-DEC-19
WG3235852-4	LCS							
Aluminum (Al)-Total			107.2		%		80-120	06-DEC-19
Antimony (Sb)-Total			105.8		%		80-120	06-DEC-19
Arsenic (As)-Total			104.3		%		80-120	06-DEC-19
Barium (Ba)-Total			107.5		%		80-120	06-DEC-19
Beryllium (Be)-Total			101.5		%		80-120	06-DEC-19
Bismuth (Bi)-Total			102.7		%		80-120	06-DEC-19
Boron (B)-Total			111.0		%		80-120	06-DEC-19
Cadmium (Cd)-Total			104.8		%		80-120	06-DEC-19
Calcium (Ca)-Total			108.0		%		80-120	06-DEC-19
Cesium (Cs)-Total			104.8		%		80-120	06-DEC-19
Chromium (Cr)-Total			107.0		%		80-120	06-DEC-19
Cobalt (Co)-Total			104.8		%		80-120	06-DEC-19
Copper (Cu)-Total			104.4		%		80-120	06-DEC-19



Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Page 9 of 14

Client: Wood Environment & Infrastructure Solutions - Mississauga

160 Traders Blvd. East, Suite 110

Mississauga ON L4Z 3K7

Contact: Dale Klodnicki/Mark Ruthven

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DRY-CCMS-N-VA		Tissue						
Batch	R4937105							
WG3235852-4	LCS							
Iron (Fe)-Total			108.5		%		80-120	06-DEC-19
Lead (Pb)-Total			104.9		%		80-120	06-DEC-19
Lithium (Li)-Total			116.7		%		80-120	06-DEC-19
Magnesium (Mg)-Total			108.2		%		80-120	06-DEC-19
Manganese (Mn)-Total			105.9		%		80-120	06-DEC-19
Molybdenum (Mo)-Total			106.8		%		80-120	06-DEC-19
Nickel (Ni)-Total			105.4		%		80-120	06-DEC-19
Phosphorus (P)-Total			117.6		%		80-120	06-DEC-19
Potassium (K)-Total			107.3		%		80-120	06-DEC-19
Rubidium (Rb)-Total			109.0		%		80-120	06-DEC-19
Selenium (Se)-Total			107.3		%		80-120	06-DEC-19
Sodium (Na)-Total			107.3		%		80-120	06-DEC-19
Strontium (Sr)-Total			111.2		%		80-120	06-DEC-19
Tellurium (Te)-Total			106.3		%		80-120	06-DEC-19
Thallium (Tl)-Total			102.4		%		80-120	06-DEC-19
Tin (Sn)-Total			104.5		%		80-120	06-DEC-19
Uranium (U)-Total			101.2		%		80-120	06-DEC-19
Vanadium (V)-Total			108.0		%		80-120	06-DEC-19
Zinc (Zn)-Total			105.2		%		80-120	06-DEC-19
Zirconium (Zr)-Total			102.1		%		80-120	06-DEC-19
WG3235852-1	MB							
Aluminum (Al)-Total			<2.0		mg/kg		2	06-DEC-19
Antimony (Sb)-Total			<0.010		mg/kg		0.01	06-DEC-19
Arsenic (As)-Total			<0.020		mg/kg		0.02	06-DEC-19
Barium (Ba)-Total			<0.050		mg/kg		0.05	06-DEC-19
Beryllium (Be)-Total			<0.010		mg/kg		0.01	06-DEC-19
Bismuth (Bi)-Total			<0.010		mg/kg		0.01	06-DEC-19
Boron (B)-Total			<1.0		mg/kg		1	06-DEC-19
Cadmium (Cd)-Total			<0.0050		mg/kg		0.005	06-DEC-19
Calcium (Ca)-Total			<20		mg/kg		20	06-DEC-19
Cesium (Cs)-Total			<0.0050		mg/kg		0.005	06-DEC-19
Chromium (Cr)-Total			<0.050		mg/kg		0.05	06-DEC-19
Cobalt (Co)-Total			<0.020		mg/kg		0.02	06-DEC-19
Copper (Cu)-Total			<0.10		mg/kg		0.1	06-DEC-19

Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Page 10 of 14

Client: Wood Environment & Infrastructure Solutions - Mississauga
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7

Contact: Dale Klodnicki/Mark Ruthven

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DRY-CCMS-N-VA Tissue								
Batch R4937105								
WG3235852-1 MB								
Iron (Fe)-Total			<3.0		mg/kg		3	06-DEC-19
Lead (Pb)-Total			<0.020		mg/kg		0.02	06-DEC-19
Lithium (Li)-Total			<0.50		mg/kg		0.5	06-DEC-19
Magnesium (Mg)-Total			<2.0		mg/kg		2	06-DEC-19
Manganese (Mn)-Total			<0.050		mg/kg		0.05	06-DEC-19
Molybdenum (Mo)-Total			<0.020		mg/kg		0.02	06-DEC-19
Nickel (Ni)-Total			<0.20		mg/kg		0.2	06-DEC-19
Phosphorus (P)-Total			<10		mg/kg		10	06-DEC-19
Potassium (K)-Total			<20		mg/kg		20	06-DEC-19
Rubidium (Rb)-Total			<0.050		mg/kg		0.05	06-DEC-19
Selenium (Se)-Total			<0.050		mg/kg		0.05	06-DEC-19
Sodium (Na)-Total			<20		mg/kg		20	06-DEC-19
Strontium (Sr)-Total			<0.050		mg/kg		0.05	06-DEC-19
Tellurium (Te)-Total			<0.020		mg/kg		0.02	06-DEC-19
Thallium (Tl)-Total			<0.0020		mg/kg		0.002	06-DEC-19
Tin (Sn)-Total			<0.10		mg/kg		0.1	06-DEC-19
Uranium (U)-Total			<0.0020		mg/kg		0.002	06-DEC-19
Vanadium (V)-Total			<0.10		mg/kg		0.1	06-DEC-19
Zinc (Zn)-Total			<0.50		mg/kg		0.5	06-DEC-19
Zirconium (Zr)-Total			<0.20		mg/kg		0.2	06-DEC-19
Batch R4943324								
WG3240760-3 CRM VA-NRC-DORM4								
Aluminum (Al)-Total			114.3		%		70-130	13-DEC-19
Arsenic (As)-Total			97.0		%		70-130	13-DEC-19
Barium (Ba)-Total			107.9		%		70-130	13-DEC-19
Beryllium (Be)-Total			0.017		mg/kg		0.005-0.025	13-DEC-19
Bismuth (Bi)-Total			0.015		mg/kg		0.002-0.022	13-DEC-19
Boron (B)-Total			97.3		%		70-130	13-DEC-19
Cadmium (Cd)-Total			104.9		%		70-130	13-DEC-19
Calcium (Ca)-Total			103.3		%		70-130	13-DEC-19
Cesium (Cs)-Total			99.7		%		70-130	13-DEC-19
Chromium (Cr)-Total			122.4		%		70-130	13-DEC-19
Cobalt (Co)-Total			104.8		%		70-130	13-DEC-19
Copper (Cu)-Total			99.1		%		70-130	13-DEC-19

Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Page 11 of 14

Client: Wood Environment & Infrastructure Solutions - Mississauga
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7

Contact: Dale Klodnicki/Mark Ruthven

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DRY-CCMS-N-VA		Tissue						
Batch	R4943324							
WG3240760-3	CRM	VA-NRC-DORM4						
Iron (Fe)-Total			105.7		%		70-130	13-DEC-19
Lead (Pb)-Total			135.6	MES	%		70-130	13-DEC-19
Lithium (Li)-Total			1.16		mg/kg		0.71-1.71	13-DEC-19
Magnesium (Mg)-Total			97.7		%		70-130	13-DEC-19
Manganese (Mn)-Total			101.0		%		70-130	13-DEC-19
Molybdenum (Mo)-Total			101.7		%		70-130	13-DEC-19
Nickel (Ni)-Total			102.2		%		70-130	13-DEC-19
Phosphorus (P)-Total			96.8		%		70-130	13-DEC-19
Potassium (K)-Total			101.3		%		70-130	13-DEC-19
Rubidium (Rb)-Total			102.1		%		70-130	13-DEC-19
Selenium (Se)-Total			105.1		%		70-130	13-DEC-19
Sodium (Na)-Total			104.7		%		70-130	13-DEC-19
Strontium (Sr)-Total			99.8		%		70-130	13-DEC-19
Thallium (Tl)-Total			95.8		%		70-130	13-DEC-19
Uranium (U)-Total			119.1		%		70-130	13-DEC-19
Vanadium (V)-Total			108.4		%		70-130	13-DEC-19
Zinc (Zn)-Total			112.3		%		70-130	13-DEC-19
Zirconium (Zr)-Total			0.31		mg/kg		0.05-0.45	13-DEC-19
WG3240760-4	LCS							
Aluminum (Al)-Total			113.1		%		80-120	13-DEC-19
Antimony (Sb)-Total			107.3		%		80-120	13-DEC-19
Arsenic (As)-Total			105.5		%		80-120	13-DEC-19
Barium (Ba)-Total			106.8		%		80-120	13-DEC-19
Beryllium (Be)-Total			111.3		%		80-120	13-DEC-19
Bismuth (Bi)-Total			104.8		%		80-120	13-DEC-19
Boron (B)-Total			108.9		%		80-120	13-DEC-19
Cadmium (Cd)-Total			105.2		%		80-120	13-DEC-19
Calcium (Ca)-Total			108.1		%		80-120	13-DEC-19
Cesium (Cs)-Total			107.9		%		80-120	13-DEC-19
Chromium (Cr)-Total			108.1		%		80-120	13-DEC-19
Cobalt (Co)-Total			107.1		%		80-120	13-DEC-19
Copper (Cu)-Total			107.0		%		80-120	13-DEC-19
Iron (Fe)-Total			105.3		%		80-120	13-DEC-19
Lead (Pb)-Total			107.6		%		80-120	13-DEC-19



Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Page 12 of 14

Client: Wood Environment & Infrastructure Solutions - Mississauga
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7

Contact: Dale Klodnicki/Mark Ruthven

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DRY-CCMS-N-VA		Tissue						
Batch	R4943324							
WG3240760-4	LCS							
Lithium (Li)-Total			113.5		%		80-120	13-DEC-19
Magnesium (Mg)-Total			112.4		%		80-120	13-DEC-19
Manganese (Mn)-Total			108.4		%		80-120	13-DEC-19
Molybdenum (Mo)-Total			107.7		%		80-120	13-DEC-19
Nickel (Ni)-Total			104.2		%		80-120	13-DEC-19
Phosphorus (P)-Total			110.2		%		80-120	13-DEC-19
Potassium (K)-Total			110.8		%		80-120	13-DEC-19
Rubidium (Rb)-Total			106.7		%		80-120	13-DEC-19
Selenium (Se)-Total			109.5		%		80-120	13-DEC-19
Sodium (Na)-Total			109.6		%		80-120	13-DEC-19
Strontium (Sr)-Total			113.3		%		80-120	13-DEC-19
Tellurium (Te)-Total			110.3		%		80-120	13-DEC-19
Thallium (Tl)-Total			104.3		%		80-120	13-DEC-19
Tin (Sn)-Total			102.2		%		80-120	13-DEC-19
Uranium (U)-Total			109.4		%		80-120	13-DEC-19
Vanadium (V)-Total			108.1		%		80-120	13-DEC-19
Zinc (Zn)-Total			106.3		%		80-120	13-DEC-19
Zirconium (Zr)-Total			103.5		%		80-120	13-DEC-19
WG3240760-1	MB							
Aluminum (Al)-Total			<2.0		mg/kg		2	13-DEC-19
Antimony (Sb)-Total			<0.010		mg/kg		0.01	13-DEC-19
Arsenic (As)-Total			<0.020		mg/kg		0.02	13-DEC-19
Barium (Ba)-Total			<0.050		mg/kg		0.05	13-DEC-19
Beryllium (Be)-Total			<0.010		mg/kg		0.01	13-DEC-19
Bismuth (Bi)-Total			<0.010		mg/kg		0.01	13-DEC-19
Boron (B)-Total			<1.0		mg/kg		1	13-DEC-19
Cadmium (Cd)-Total			<0.0050		mg/kg		0.005	13-DEC-19
Calcium (Ca)-Total			<20		mg/kg		20	13-DEC-19
Cesium (Cs)-Total			<0.0050		mg/kg		0.005	13-DEC-19
Chromium (Cr)-Total			<0.050		mg/kg		0.05	13-DEC-19
Cobalt (Co)-Total			<0.020		mg/kg		0.02	13-DEC-19
Copper (Cu)-Total			<0.10		mg/kg		0.1	13-DEC-19
Iron (Fe)-Total			<3.0		mg/kg		3	13-DEC-19
Lead (Pb)-Total			<0.020		mg/kg		0.02	13-DEC-19

Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Page 13 of 14

Client: Wood Environment & Infrastructure Solutions - Mississauga
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7

Contact: Dale Klodnicki/Mark Ruthven

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DRY-CCMS-N-VA Tissue								
Batch	R4943324							
WG3240760-1 MB								
Lithium (Li)-Total			<0.50		mg/kg		0.5	13-DEC-19
Magnesium (Mg)-Total			<2.0		mg/kg		2	13-DEC-19
Manganese (Mn)-Total			0.062	B	mg/kg		0.05	13-DEC-19
Molybdenum (Mo)-Total			<0.020		mg/kg		0.02	13-DEC-19
Nickel (Ni)-Total			<0.20		mg/kg		0.2	13-DEC-19
Phosphorus (P)-Total			<10		mg/kg		10	13-DEC-19
Potassium (K)-Total			<20		mg/kg		20	13-DEC-19
Rubidium (Rb)-Total			<0.050		mg/kg		0.05	13-DEC-19
Selenium (Se)-Total			<0.050		mg/kg		0.05	13-DEC-19
Sodium (Na)-Total			<20		mg/kg		20	13-DEC-19
Strontium (Sr)-Total			<0.050		mg/kg		0.05	13-DEC-19
Tellurium (Te)-Total			<0.020		mg/kg		0.02	13-DEC-19
Thallium (Tl)-Total			<0.0020		mg/kg		0.002	13-DEC-19
Tin (Sn)-Total			<0.10		mg/kg		0.1	13-DEC-19
Uranium (U)-Total			<0.0020		mg/kg		0.002	13-DEC-19
Vanadium (V)-Total			<0.10		mg/kg		0.1	13-DEC-19
Zinc (Zn)-Total			<0.50		mg/kg		0.5	13-DEC-19
Zirconium (Zr)-Total			<0.20		mg/kg		0.2	13-DEC-19
MOISTURE-TISS-VA Tissue								
Batch	R4935808							
WG3234747-3 DUP		L2375518-25						
% Moisture		77.0	76.9		%	0.2	20	04-DEC-19
WG3234747-2 LCS								
% Moisture			100.5		%		90-110	04-DEC-19
WG3234747-1 MB								
% Moisture			<0.50		%		0.5	04-DEC-19
Batch	R4936557							
WG3235859-3 DUP		L2375518-2						
% Moisture		75.2	74.5		%	0.9	20	05-DEC-19
WG3235859-2 LCS								
% Moisture			100.0		%		90-110	05-DEC-19
WG3235859-1 MB								
% Moisture			<0.50		%		0.5	05-DEC-19

Quality Control Report

Workorder: L2375518

Report Date: 19-DEC-19

Client: Wood Environment & Infrastructure Solutions - Mississauga
160 Traders Blvd. East, Suite 110
Mississauga ON L4Z 3K7
Contact: Dale Klodnicki/Mark Ruthven

Page 14 of 14

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
J	Duplicate results and limits are expressed in terms of absolute difference.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
RM-H	Reference Material recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

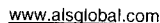
Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

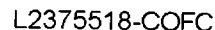
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



Canada Toll Free: 1 800 668 9878



COC Number: LON -

Page 1 of

1

Report To		Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)																			
Company:		Wood Environment & Infrastructure Solutions		Select Report Format: ☐ PDF ☒ EXCEL ☒ EDD (DIGITAL)		Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply																			
Contact:		Dale Klodnicki Mark Ruthven		Quality Control (QC) Report with Report ☒ YES ☐ NO		4 day [P4-20%] ☐																			
Phone:		Dale (M) 647-993-4243 (O) 905-568-2929		☐ Compare Results to Criteria on Report - provide details below if box checked		3 day [P3-25%] ☐																			
		Company address below will appear on the final report		Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX		2 day [P2-50%] ☐																			
Street:		110-160 Traders Blvd. E.		Email 1 or Fax dale.klodnicki@woodplc.com		1 Business day [E - 100%] ☐																			
City/Province:		Mississauga, ON		Email 2 amanda.wittmann@woodplc.com		Same Day, Weekend or Statutory holiday [E2 -200%] ☐																			
Postal Code:		L4Z 3K7		Email 3		(Laboratory opening fees may apply)																			
Invoice To		Same as Report To ☒ YES ☐ NO		Invoice Distribution		Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm																			
		Copy of Invoice with Report ☐ YES ☒ NO		Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX		For tests that can not be performed according to the service level selected, you will be contacted.																			
Company:		Wood Environment & Infrastructure Solutions		Email 1 or Fax dale.klodnicki@woodplc.com		Analysis Request																			
Contact:		Dale Klodnicki Mark Ruthven		Email 2 APMississauga@woodplc.com		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																			
		Project Information		Oil and Gas Required Fields (client use)		NUMBER OF CONTAINERS																			
ALS Account # / Quote #:		77177		AFE/Cost Center:		PO#																			
Job #:		TC190403.CO2 FMG		Major/Minor Code:		Routing Code:																			
PO / AFE:				Requisitioner:																					
LSD:				Location:																					
ALS Lab Work Order # (lab use only):		L2375518		ALS Contact:		M-L Pires		Sampler:		A.Law															
ALS Sample # (lab use only)		Sample Identification and/or Coordinates (This description will appear on the report)		Date (dd-mmm-yy)		Time (hh:mm)		Sample Type																	
		S-9-MT1-Comp 1		12-Sep-19		11:30		Tissue																	
		S-9-MT1-Comp 2		12-Sep-19		11:30		Tissue																	
		S-9-MT1-Comp 3		12-Sep-19		11:30		Tissue																	
		S-9-US02-MT1-Comp 1		12-Sep-19		11:00		Tissue																	
		S-9-US02-MT1-Comp 2		12-Sep-19		11:00		Tissue																	
		S-9-US02-MT1-Comp 3		12-Sep-19		11:00		Tissue																	
		S-9-US02-MT1-Comp 4		12-Sep-19		11:00		Tissue																	
		S-9-US02-MT1-Comp 5		12-Sep-19		11:00		Tissue																	
		WB05-OUT-MT1-Comp 1		13-Sep-19		9:30		Tissue																	
		WB05-OUT-MT1-Comp 2		13-Sep-19		9:30		Tissue																	
		WB05-OUT-MT1-Comp 3		13-Sep-19		9:30		Tissue																	
		SPL-SN1-Comp 1		15-Sep-19		10:50		Tissue																	
Drinking Water (DW) Samples¹ (client use)				Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)										SAMPLE CONDITION AS RECEIVED (lab use only)											
Are samples taken from a Regulated DW System? ☐ YES ☒ NO				Conduct analysis as per Q77177.										Frozen ☒ SIF Observations Yes ☐ No ☐											
Are samples for human consumption/ use? ☐ YES ☒ NO														Ice Packs ☒ Ice Cubes ☒ Custody seal intact Yes ☐ No ☐											
														Cooling Initiated ☐											
														INITIAL COOLER TEMPERATURES °C											
														FINAL COOLER TEMPERATURES °C											
														-7.4											
														0.5											
SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (lab use only)										FINAL SHIPMENT RECEPTION (lab use only)											
Released by:		Date:		Time:		Received by:		Date:		Time:		Received by:		Date:		Time:									
Amanda Wittmann		October 31, 2019		15:10		[Signature]		Oct 31/19		3:17		[Signature]		Oct 31/19		18:45									

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

NOV 2018 FRONT



www.alsglobal.com

Chain of Custody (COC) / Analytical
Request Form

Canada Toll Free: 1 800 668 9878



L2375518-COFC

COC Number: LON -

Page 2 of

4

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Company:	Wood Environment & Infrastructure Solutions	Select Report Format:	☒ PDF ☒ EXCEL ☒ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply			
Contact:	Dale Klodnicki Mark Ruthven	Quality Control (QC) Report with Report	☒ YES ☐ NO	4 day [P4-20%] ☐			
Phone:	Dale (M) 647-993-4243 (O) 905-568-2929	☐ Compare Results to Criteria on Report - provide details below if box checked		3 day [P3-25%] ☐			
Company address below will appear on the final report		Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX	2 day [P2-50%] ☐			
Street:	110-160 Traders Blvd. E.	Email 1 or Fax	dale.klodnicki@woodplc.com	1 Business day [E - 100%] ☐			
City/Province:	Mississauga, ON	Email 2	amanda.wittmann@woodplc.com	Same Day, Weekend or Statutory holiday [E2 -200%] ☐			
Postal Code:	L4Z 3K7	Email 3		(Laboratory opening fees may apply)]			
Invoice To		Invoice Distribution		Date and Time Required for all E&P TATs:			
Same as Report To ☒ YES ☐ NO		Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX		dd-mmm-yy hh:mm			
Copy of Invoice with Report ☐ YES ☒ NO		Email 1 or Fax dale.klodnicki@woodplc.com		For tests that can not be performed according to the service level selected, you will be contacted.			
Company: Wood Environment & Infrastructure Solutions		Email 2 APMississauga@woodplc.com		Analysis Request			
Contact: Dale Klodnicki Mark Ruthven				Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below			
Project Information		Oil and Gas Required Fields (client use)		NUMBER OF CONTAINERS			
ALS Account # / Quote #: 77177		AFE/Cost Center: PO#					
Job #: TC190403.CO2 FMG		Major/Minor Code: Routing Code:					
PO / AFE:		Requisitioner:					
LSD:		Location:		SAMPLES ON HOLD			
ALS Lab Work Order # (lab use only): L2375518		ALS Contact: M-L Pires				SUSPECTED HAZARD (see Special Instructions)	
		Sampler: A.Law					
ALS Sample # (lab use only)		Sample Identification and/or Coordinates (This description will appear on the report)				Date (dd-mmm-yy)	
						Time (hh:mm)	
						Sample Type	
SPL-SN1-Comp 2		15-Sep-19				10:50	
SPL-SN2-Comp 1		15-Sep-19				12:45	
SPL-SN3-Comp 1		15-Sep-19				13:50	
SPL-SN3-Comp 2		15-Sep-19				13:50	
SPL-SN3-Comp 3		15-Sep-19		13:50			
SPL-SN4-Comp 1		16-Sep-19		13:50			
SPL-SN4-Comp 2		16-Sep-19		13:50			
SPL-SN4-Comp 3		16-Sep-19		13:50			
SPL-AN1-F1		10-Sep-19		16:50			
SPL-AN1-F2		10-Sep-19		16:50			
SPL-AN1-F3		10-Sep-19		16:50			
SPL-AN1-F4		10-Sep-19		16:50			
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)			
Are samples taken from a Regulated DW System? ☐ YES ☒ NO		Conduct analysis as per Q77177.		Frozen ☒ SIF Observations Yes ☐ No ☐			
Are samples for human consumption/ use? ☐ YES ☒ NO				Ice Packs ☒ Ice Cubes ☒ Custody seal intact Yes ☐ No ☐			
				Cooling Initiated ☐			
				INITIAL COOLER TEMPERATURES °C			
				FINAL COOLER TEMPERATURES °C			
				-14			
				-05			
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:		
Amanda Wittmann	October 31, 2019	15:10	[Signature]	Oct 31/19	3:17		

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

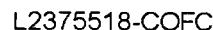
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

NOV 2018 FRONT



Canada Toll Free: 1 800 668 9878



COC Number: LON -

Page 3 of 3

•

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

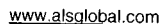
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

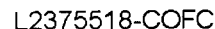
WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

NOV 2018 FRONTIER



Canada Toll Free: 1 800 668 9878



COC Number: LON -

Page 4 of 4

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

NOV 2018 FRONT



Appendix C

Fish Age Data

Sample ID	Sample Date	Species	Plus Growth?	Ageing Structure	Ageing Method	Primary Ager	Age Estimate	CI	QAQC Ager 1	QAQC Age Estimate	CI	Final Age Estimate
SPL-AN1-F1	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	4	FG	TB	4	F	4
SPL-AN1-F2	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	4	F	TB	4	F	4
SPL-AN1-F3	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	3	FG	TB	3	F	3
SPL-AN1-F4	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	2	FG	TB	2	FG	2
SPL-AN1-F5	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	2	F	TB	2	F	2
SPL-AN1-F6	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	4	F	TB	4	F	4
SPL-AN2-F1	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	3	FG	TB	3	FG	3
SPL-AN2-F2	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	2	F	TB	2	FG	2
SPL-AN2-F3	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	6	FG	TB	6	FG	6
SPL-AN2-F4	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	6	F	TB	6	F	6
SPL-AN3-F1	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	4	FP	TB	4	F	4
SPL-AN3-F2	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	3	FG	TB	3	F	3
SPL-AN3-F3	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	3	FG	TB	3	F	3
SPL-AN4-F1	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	2	F	TB	2	FG	2
SPL-AN4-F2	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	4	FG	TB	4	F	4
SPL-AN4-F3	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	5	F	TB	5	F	5
SPL-AN4-F4	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	3	F	TB	3	F	3
SPL-AN5-F1	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	2	F	TB	2	F	2
SPL-AN5-F2	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	2	F	TB	2	F	2
SPL-AN5-F3	Sept 10-16, 2019	Northern Pike	+	Cleithrum	Aged Whole	CC	5	FP	TB	5	F	5
SPL-MT1-F1	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	1	F	TB	1	F	1
SPL-MT1-F2	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	1	F	TB	1	FG	1
SPL-MT1-F3	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	2	F	TB	2	F	2
SPL-MT1-F4	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	1	F	TB	1	F	1
SPL-MT1-F5	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	1	FG	TB	1	F	1
SPL-MT1-F6	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	1	F	TB	1	FP	1
SPL-MT1-F7	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	1	F	TB	1	F	1
SPL-SN3-F155	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	1	F	TB	1	FP	1
SPL-SN3-F156	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	1	F	TB	1	F	1
SPL-SN3-F157	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F158	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F159	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F160	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F161	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F162	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F163	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F164	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F165	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F166	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F167	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F168	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F169	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F170	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F171	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F172	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F173	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
SPL-SN3-F174	Sept 10-16, 2019	Yellow Perch	+	Otolith	Section	CC	0	F	TB	0	F	0
S-9-MT1-F35	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
S-9-MT1-F36	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	F	1
S-9-MT1-F37	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
S-9-MT1-F38	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	FP	2
S-9-MT1-F39	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	F	1
S-9-MT1-F40	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	FP	2
S-9-MT1-F41	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	F	1
S-9-MT1-F42	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	F	1
S-9-MT1-F43	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	FG	1
S-9-MT1-F44	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
S-9-US02-MT1-F112	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	1	FP	TB	1	FP	1
S-9-US02-MT1-F113	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	F	1
S-9-US02-MT1-F114	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
S-9-US02-MT1-F115	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
S-9-US02-MT1-F116	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
S-9-US02-MT1-F117	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
S-9-US02-MT1-F118	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	F	1
S-9-US02-MT1-F119	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
S-9-US02-MT1-F120	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	F	1
S-9-US02-MT1-F121	Sept 10-16, 2019	Northern Redbelly Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	FP	1
S-9-MT1-F1	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	4	F	TB	4	F	4
S-9-MT1-F2	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	3	FG	TB	3	FG	3
S-9-MT1-F3	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	2	FG	TB	2	F	2
S-9-MT1-F4	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	3	F	TB	3	F	3
S-9-MT1-F5	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
S-9-MT1-F6	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	2	FP	TB	2	F	2
S-9-MT1-F7	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	2	FP	TB	2	F	2
S-9-MT1-F8	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	3	F	TB	3	F	3
S-9-MT1-F9	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	2	FG	TB	3	F	2
S-9-MT1-F10	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	FG	2
WB05-OUT-MT1-F50	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	4	F	TB	4	F	4
WB05-OUT-MT1-F51	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	3	FG	TB	2	F	3
WB05-OUT-MT1-F52	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2

Sample ID	Sample Date	Species	Plus Growth?	Ageing Structure	Ageing Method	Primary Ager	Age Estimate	CI	QAQC Ager 1	QAQC Age Estimate	CI	Final Age Estimate
WB05-OUT-MT1-F53	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
WB05-OUT-MT1-F54	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
WB05-OUT-MT1-F55	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
WB05-OUT-MT1-F56	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	F	1
WB05-OUT-MT1-F57	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	0	F	TB	0	F	0
WB05-OUT-MT1-F58	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	1	FG	TB	1	F	1
WB05-OUT-MT1-F59	Sept 10-16, 2019	Finescale Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
S-9-US02-MT1-F74	Sept 10-16, 2019	Pearl Dace	+	Otolith	Aged Whole	CC	3	FP	TB	3	F	3
S-9-US02-MT1-F75	Sept 10-16, 2019	Pearl Dace	+	Otolith	Aged Whole	CC	3	F	TB	3	F	3
S-9-US02-MT1-F76	Sept 10-16, 2019	Pearl Dace	+	Otolith	Aged Whole	CC	3	F	TB	3	FP	3
S-9-US02-MT1-F77	Sept 10-16, 2019	Pearl Dace	+	Otolith	Aged Whole	CC	3	FP	TB	3	F	3
S-9-US02-MT1-F78	Sept 10-16, 2019	Pearl Dace	+	Otolith	Aged Whole	CC	3	F	TB	3	F	3
S-9-US02-MT1-F79	Sept 10-16, 2019	Pearl Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
S-9-US02-MT1-F80	Sept 10-16, 2019	Pearl Dace	+	Otolith	Aged Whole	CC	2	FG	TB	2	F	2
S-9-US02-MT1-F81	Sept 10-16, 2019	Pearl Dace	+	Otolith	Aged Whole	CC	2	FG	TB	2	F	2
S-9-US02-MT1-F82	Sept 10-16, 2019	Pearl Dace	+	Otolith	Aged Whole	CC	2	F	TB	2	F	2
S-9-US02-MT1-F83	Sept 10-16, 2019	Pearl Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	F	1
S-9-US02-MT1-F84	Sept 10-16, 2019	Pearl Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	F	1
S-9-US02-MT1-F85	Sept 10-16, 2019	Pearl Dace	+	Otolith	Aged Whole	CC	1	F	TB	1	F	1

Appendix D

Sediment Quality and Benthic Invertebrate Community Data Summary

Table D1.1a: Inland Waterbodies Sediment Quality Results Summary (Wood 2019)

Sample Area						L-2-OUT-S	L-5-OUT-S	L-6-OUT-S	S-9-S	S-9-US01-S	S-9-US02-S	L-16-IN-S
Sample Date (yyyy-mm-dd)						2019-09-17	2019-09-13	2019-09-14	2019-09-10	2019-09-11	2019-09-10	2019-09-14
Parameter	Units	RDL	PSQG		CSQG							
			LEL	SEL	PEL							
Physical Properties												
pH	pH units	N/A				5.25	5.48	6.23	5.45	5.23	5.6	5.99
Moisture	%	N/A				75	83	72	81	79	88	80
Leachable Anions & Nutrients												
Nitrite (N)	ug/g					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Kjeldahl Nitrogen	ug/g	0	550	4800		6,210	8,950	3,640	12,200	13,700	12,700	12,000
Organic / Inorganic Carbon												
Total Organic Carbon	%	500	10000	100000		75,000	160,000	75,000	200,000	230,000	460,000	130,000
Metals												
Aluminum (Al)	ug/g	5				8,300	9,700	7,400	9,600	8,200	4,400	9,500
Antimony (Sb)	ug/g	0.2				0.25	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic (As)	ug/g	1.0	6.0	33.0	17.0	4.5	3.0	5.0	1.5	1.1	1.3	7.5
Barium (Ba)	ug/g	0.5				59	81	37	120	120	120	87
Bismuth (Bi)	ug/g	1.0				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Beryllium (Be)	ug/g	0.2				0.25	0.26	<0.20	<0.20	<0.20	<0.20	0.23
Boron (B)	ug/g	5.0				<5.0	<5.0	<5.0	<5.0	<5.0	10	<5.0
Calcium (Ca)	ug/g	50				6,300	17,000	9,300	17,000	19,000	31,000	15,000
Cadmium (Cd)	ug/g	0.10	0.60	10.00	3.50	0.19	0.22	<0.10	0.25	0.22	0.27	0.19
Chromium (Cr)	ug/g	1	26	110	90	20	28	23	26	22	8.1	27
Cobalt (Co)	ug/g	0.1				6.7	7.8	7.9	12	6.5	3.9	12
Iron (Fe)	ug/g	50	20000	40000		15,000	16,000	21,000	17,000	10,000	7,000	26,000
Copper (Cu)	ug/g	0.5	16.0	110.0	197.0	17	35	11	22	17	16	16
Lead (Pb)	ug/g	0.5	31.0	250.0	91.3	7.3	7.7	4.5	5.2	5.3	5.9	6.6

Sample Area						L-2-OUT-S	L-5-OUT-S	L-6-OUT-S	S-9-S	S-9-US01-S	S-9-US02-S	L-16-IN-S
Sample Date (yyyy-mm-dd)						2019-09-17	2019-09-13	2019-09-14	2019-09-10	2019-09-11	2019-09-10	2019-09-14
Parameter	Units	RDL	PSQG		CSQG							
			LEL	SEL	PEL							
Magnesium (Mg)	ug/g	50.0				3,100	3,600	4,200	4,100	2,700	1500	4,500
Manganese (Mn)	ug/g	1	460	1100		430	660	680	950	450	210	1,500
Molybdenum (Mo)	ug/g	0.5				<0.50	<0.50	<0.50	<0.50	<0.50	0.76	0.65
Mercury (Hg)	ug/g	0.050	0.200	2.000	0.486	0.064	0.15	<0.050	0.11	0.092	0.11	0.083
Nickel (Ni)	ug/g	0.50	16	75		16	15	14	17	12	6.8	18
Phosphorus (P)	ug/g	50	600	2,000		690	820	750	870	770	600	930
Potassium (K)	ug/g	200.00				740	560	670	510	430	200	1000
Selenium (Se)	ug/g	0.50				<0.50	0.89	<0.50	0.91	0.72	0.9	0.55
Silver (Ag)	ug/g	0.20				<0.20	0.2	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium (Na)	ug/g	50.00				110	70	94	91	66	60	91
Strontium (Sr)	ug/g	1.00				29	29	15	34	35	120	24
Thallium (Tl)	ug/g	0.050				0.16	0.14	0.096	0.11	0.086	0.066	0.14
Tin (Sn)	ug/g	1.000				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Uranium (U)	ug/g	0.05				0.63	1.1	0.52	1.9	0.79	1.9	0.79
Vanadium (V)	ug/g	5.0				22	26	26	28	20	12	32
Zinc (Zn)	ug/g	5.0	120	820	315	80	46	35	42	30	19	45

Notes:

1. □ PSQG; Provincial Sediment Quality Guidelines for the protection and management of aquatic sediment quality in Ontario
2. □ CSQG; Canadian Council of Ministers of the Environment Canadian Sediment Quality Guidelines for the protection of aquatic life
3. □ MDL; Method Detection Limit provided by Bureau Veritas, Mississauga, ON
4. □ '<' indicates that the reported concentration was less than the MDL
5. □ Green shaded values indicate concentrations that exceed the PSQG LEL
6. □ Blue shaded values indicate concentrations that exceed both the PSQG SEL and PSQG LEL
7. □ Purple shaded values indicate concentrations that exceed both the CSQG PEL and PSQG LEL

Table D1.1b: Springpole Lake Southeast Basin Sediment Quality Results Summary (2019)

Sample Area						SPR-EXP-1	SPR-EXP-2	SPR-EXP-3	SPR-EXP-4	SPR-EXP-5
Sample Date (dd-mmm-yy)						29-Aug-19	29-Aug-19	29-Aug-19	29-Aug-19	30-Aug-19
Parameter	Unit	MDL	PSQG		CSQG					
			LEL	SEL	PEL					
Leachable Anions & Nutrients										
Total Kjeldahl Nitrogen	ug/g	100	0.055	0.48		-	-	-	-	-
Organic / Inorganic Carbon										
Fraction Organic Carbon	g/g	0.001				0.007	0.007	0.005	0.007	0.009
Total Organic Carbon	%	0.05	1	10		0.70	0.74	0.49	0.70	0.92
Metals										
Aluminum	ug/g	50				2090	1870	1940	1830	3050
Antimony	ug/g	0.20 or 0.10				<	<	<	<	<
Arsenic	ug/g	1.0 or 0.1	6	33	17	1.09	1.07	1.21	1.14	1.28
Barium	ug/g	0.50				10.6	10.4	9.8	9.4	15.6
Beryllium	ug/g	0.20 or 0.10				<	<	<	<	<
Bismuth	ug/g	1.0 or 0.2				<	<	<	<	<
Boron	ug/g	5.0				<	<	<	<	<
Cadmium	ug/g	0.10 or 0.02	0.6	10	3.5	0.04	0.04	0.04	0.04	0.07
Calcium	ug/g	50				2480	2020	1890	2120	3090
Chromium	ug/g	1.0 or 0.5	26	110	90	5.81	5.30	5.33	5.18	8.26
Cobalt	ug/g	0.10				1.62	1.38	1.32	1.42	2.17
Copper	ug/g	0.50	16	110	197	2.15	2.09	1.68	1.83	3.38
Iron	ug/g	50	20000	40000		3260	3060	3510	3230	4450
Lead	ug/g	1.0 or 0.5	31	250	91.3	3.24	2.91	2.80	2.51	3.77
Lithium	ug/g	2				2.6	2.5	2.5	2.3	3.8
Magnesium	ug/g	50 or 20				927	807	823	787	1330
Manganese	ug/g	1.0	460	1100		71.0	81.6	84.1	81.0	99.2
Mercury	ug/g	0.05	0.2	2	0.486	-	-	-	-	-
Molybdenum	ug/g	0.50 or 0.1				0.12	<	<	<	0.15
Nickel	ug/g	0.50	16	75		4.0	3.6	3.5	3.3	5.5
Phosphorus	ug/g	50	600	2000		586	462	411	467	560

Sample Area						SPR-EXP-1	SPR-EXP-2	SPR-EXP-3	SPR-EXP-4	SPR-EXP-5
Sample Date (dd-mmm-yy)						29-Aug-19	29-Aug-19	29-Aug-19	29-Aug-19	30-Aug-19
Parameter	Unit	MDL	PSQG		CSQG					
			LEL	SEL	PEL					
Potassium	ug/g	200 or 100				150	150	130	150	260
Selenium	ug/g	0.50 or 0.2				<	<	<	<	<
Silver	ug/g	0.20 or 0.10				<	<	<	<	<
Sodium	ug/g	50				72	68	57	57	89
Strontium	ug/g	1.0 or 0.5				8.6	6.9	7.7	7.7	10.6
Sulfur	ug/g	1000				<	<	<	<	<
Thallium	ug/g	0.050				<	<	<	<	<
Tin	ug/g	1.0 or 2.0				<	<	<	<	<
Titanium	ug/g	5.0 or 1.0				389	291	327	306	463
Tungsten	ug/g	0.5				<	<	<	<	<
Uranium	ug/g	0.05				0.29	0.28	0.28	0.23	0.34
Vanadium	ug/g	5.0 or 0.2				7.52	6.47	6.83	6.46	9.98
Zinc	ug/g	5.0 or 2.0	120	820	315	9.1	8.6	8.2	7.9	12.4
Zirconium	ug/g	1				<	<	<	<	<

Notes:

1. □ PSQG; Provincial Sediment Quality Guidelines for the protection and management of aquatic sediment quality in Ontario
2. □ CSQG; Canadian Council of Ministers of the Environment Canadian Sediment Quality Guidelines for the protection of aquatic life
3. □ MDL; Method Detection Limit provided by Bureau Veritas, Mississauga, ON
4. □ '<' indicates that the reported concentration was less than the MDL
5. □ '-' indicates that the parameter was not analyzed
6. □ Samples collected by and results provided by Story Environmental Inc.

Table D1.1c: Springpole Lake Sediment Quality Results Summary (2020)

Sample Area						L-15-S-01	L-15-S-02	L-15-S-03	L-15-S -04	L-15-S 05	L-15-D-01	L-15-D-02	L-15-D-03	L-15-D-04	L-15-D-05	L-15--DUP	Relative Percent Difference
Sample Date (yy-mm-dd)						20-09-10	20-09-10	20-09-10	20-09-11	20-09-11	20-09-11	20-09-11	20-09-11	20-09-11	20-09-12	20-09-11	
Parameter	Units	RDL	PSQG		CSQG												
			LEL	SEL	PEL												
Physical Properties																	1.4
pH	pH Units	N/A				5.40	5.04	5.21	5.24	5.22	5.08	4.94	5.02	5.01	4.86	4.97	0
Moisture	%	1.0				89	89	89	89	89	90	90	90	90	89	89	
Leachable Anions & Nutrients																	3.2
Total Kjeldahl Nitrogen	ug/g	100	550	4800		12,500	12,700	12,300	12,200	12,700	13,400	13,700	13,300	13,500	12,000	12,300	0
Nitrite (N)	ug/g	0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0
Nitrate (N)	ug/g	2				<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0
Nitrate + Nitrite (N)	ug/g	3				<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	0
Total Organic Carbon	mg/kg	500	10,000	100,000		110,000	120,000	120,000	12,0000	12,0000	130,000	130,000	130,000	130,000	110,000	120,000	
Metals																	11.1
Aluminum (Al)	ug/g	50				17,000	17,000	18,000	18,000	17,000	18,000	18,000	18,000	17,000	17,000	19,000	1.9
Antimony (Sb)	ug/g	0.20				0.53	0.51	0.55	0.41	0.52	0.41	0.49	0.48	0.40	0.61	0.52	0
Arsenic (As)	ug/g	1.0	6	33	17	27	12	20	23	21	8.0	8.2	8.3	8.4	11	12	7.4
Barium (Ba)	ug/g	0.50				210	130	170	200	180	110	120	110	120	140	140	0
Beryllium (Be)	ug/g	0.20				0.61	0.52	0.57	0.60	0.55	0.49	0.51	0.50	0.50	0.56	0.52	0
Bismuth (Bi)	ug/g	1.0				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1
Boron (B)	ug/g	5.0				9.7	9.2	11	10	9.3	9.3	9.4	9.1	9.3	9.0	9.3	4.3
Cadmium (Cd)	ug/g	0.10	0.6	10	3.5	0.91	0.72	0.94	0.91	0.79	1.1	1.0	1.0	1.0	0.82	0.69	1.4
Calcium (Ca)	ug/g	50				7,500	7,200	7,500	7,400	7,200	7,400	7,400	7,200	7,300	6,900	7,100	4.5
Chromium (Cr)	ug/g	1.0	26	110	90	42	43	43	44	41	42	40	41	41	42	45	7.4
Cobalt (Co)	ug/g	0.10				16	13	15	17	15	11	11	11	11	16	14	2.1
Copper (Cu)	ug/g	0.50	16	110	197	47	47	46	49	46	53	51	51	51	47	48	2.7
Iron (Fe)	ug/g	50	20,000	40,000		52,000	37,000	46,000	51,000	48,000	29,000	29,000	28,000	30,000	36,000	38,000	0
Lead (Pb)	ug/g	1.0	31	250	91.3	33	29	32	33	31	35	35	34	35	36	29	3.9
Magnesium (Mg)	ug/g	50				7,700	7,600	7,900	7,900	7,500	7,500	7,200	7,200	7,200	7,400	7,900	1.0
Manganese (Mn)	ug/g	1.0	460	1100		3,000	1,000	1,900	2,700	2,300	470	490	470	520	960	990	0
Molybdenum (Mo)	ug/g	0.50				1.8	1.4	1.4	1.8	1.5	1.2	1.2	1.2	1.2	1.6	1.4	3.0
Nickel (Ni)	ug/g	0.50	16	75		36	33	35	37	33	32	31	31	31	34	34	0
Phosphorus (P)	ug/g	50	600	2,000		2,600	1,700	2,300	2,600	2,500	1,400	1,500	1,400	1,800	1,500	1,700	5.1
Potassium (K)	ug/g	200				1,900	1,900	1,900	1,900	1,900	2,000	1,900	1,900	2,000	1,900	2,000	5.4
Selenium (Se)	ug/g	0.50				2.2	1.8	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	1.9	0
Silver (Ag)	ug/g	0.20				0.22	0.22	0.20	0.21	0.22	0.29	0.29	0.25	0.25	<0.20	<0.20	6.1
Sodium (Na)	ug/g	50				190	160	170	170	160	200	180	180	180	170	170	0.0

Sample Area						L-15-S-01	L-15-S-02	L-15-S-03	L-15-S -04	L-15-S 05	L-15-D-01	L-15-D-02	L-15-D-03	L-15-D-04	L-15-D-05	L-15--DUP	Relative Percent Difference
Sample Date (yy-mm-dd)						20-09-10	20-09-10	20-09-10	20-09-11	20-09-11	20-09-11	20-09-11	20-09-11	20-09-11	20-09-12	20-09-11	
Parameter	Units	RDL	PSQG		CSQG												
			LEL	SEL	PEL												
Strontium (Sr)	ug/g	1.0				26	24	25	26	25	25	25	23	24	24	24	8.7
Thallium (Tl)	ug/g	0.050				0.41	0.36	0.40	0.42	0.35	0.32	0.35	0.33	0.31	0.38	0.33	0
Tin (Sn)	ug/g	1.0				1.0	1.0	<1.0	<1.0	<1.0	1.0	1.0	1.1	<1.0	<1.0	<1.0	12.5
Titanium (Ti)	ug/g	5.0				450	450	520	510	430	510	500	500	490	530	510	0
Uranium (U)	ug/g	0.050				2.4	2.1	2.2	2.2	2.2	2.0	2.0	1.9	1.9	2.1	2.1	3.4
Vanadium (V)	ug/g	5.0				63	57	63	65	59	53	51	51	51	64	59	0
Zinc (Zn)	ug/g	5.0	120	820	315	120	110	120	120	110	110	100	100	110	120	110	8.0
Mercury (Hg)	ug/g	0.050	0.2	2	0.486	0.14	0.13	0.15	0.14	0.15	0.18	0.16	0.18	0.19	0.14	0.12	1.4

Notes:

- 1.□ PSQG; Provincial Sediment Quality Guidelines for the protection and management of aquatic sediment quality in Ontario
- 2.□ CSQG; Canadian Council of Ministers of the Environment Canadian Sediment Quality Guidelines for the protection of aquatic life
- 3.□ MDL; Method Detection Limit provided by Bureau Veritas, Mississauga, ON
- 4.□ '<' indicates that the reported concentration was less than the MDL
- 5.□ '-' indicates that the parameter was not analyzed
- 6.□ Green shaded values indicate concentrations that exceed the PSQG LEL
- 7.□ Blue shaded values indicate concentrations that exceed the PSQG SEL and LEL



Table D1.2a: Inland Waterbodies Sediment Particle Size Distribution (2019)

Sample Area	Replicate Station	Particle Size					
		Clay (< 0.0039 mm)	Silt (0.0039 - 0.062 mm)	Fine Sand (0.062 - 0.2 mm)	Coarse Sand (0.2 - 2.0 mm)	Gravel (2.0 - 16.0 mm)	Pebble / Cobble (> 16.0 mm)
		%	%	%	%	%	%
Lake 2	L-2-OUT	10.4	45.5	31.3	12.9	0.0	0.0
Lake 5	L-5-OUT-S	8.8	37.7	31.0	22.6	0.0	0.0
Lake 6	L-6-OUT-S	6.8	22.9	39.5	30.8	0.0	0.0
Stream 9	S-9-S	3.8	37.5	35.3	23.5	0.0	0.0
	S-9-US02-S	2.5	28.8	38.0	30.7	0.0	0.0
	S-9-US01-S	7.3	51.6	28.1	13.0	0.0	0.0
Lake 16	L16-IN-S	9.5	41.7	31.0	17.9	0.0	0.0

Note:

1. ☐ Samples collected by Wood.

Table D1.2b: Springpole Lake Southeast Basin Sediment Particle Size Distribution (2019)

Sample Area	Replicate Station	Particle Size					
		Fines (< 0.075 mm)	Fine Sand (0.075 - 0.425 mm)	Medium Sand (0.425 - 2.0 mm)	Coarse Sand (2.0 - 4.75 mm)	Gravel (4.75 mm - 3 in.)	Cobbles (> 3 in.)
		%	%	%	%	%	%
Springpole Lake Arm	SPL-EXP-1	20.5	74.6	4.9	<1.0	<1.0	<1.0
	SPL-EXP-2	17.7	79.9	2.5	<1.0	<1.0	<1.0
	SPL-EXP-3	5.8	79.4	14.4	<1.0	<1.0	<1.0
	SPL-EXP-4	11.3	79.6	9.0	<1.0	<1.0	<1.0
	SPL-EXP-5	22.5	73.7	3.8	<1.0	<1.0	<1.0
Mean		15.56	77.44	6.92	<1	<1	<1
Median		17.70	79.40	4.90	<1	<1	<1
Minimum		5.80	73.70	2.50	<1	<1	<1
Maximum		22.50	79.90	14.40	<1	<1	<1
Standard Deviation		6.90	3.03	4.84	N/A	N/A	N/A
Standard Error		3.09	1.35	2.16	N/A	N/A	N/A

Note:

1. ☐ Samples collected and data provided by Story Environmental Inc.

Table D1.2c: Springpole Lake Sediment Particle Size Distribution (2020)

Sample Area	Replicate Station	Particle Size					
		Clay (<0.0039 mm)	Silt (0.0039 - 0.062 mm)	Fine Sand (0.062 - 0.2 mm)	Coarse Sand (0.2 - 2.0 mm)	Gravel (2.0 - 16.0 mm)	Pebble / Cobble (> 16.0 mm)
		%	%	%	%	%	%
Springpole Lake (nearshore)	L-15-S-01	8.62	24.12	37.90	29.36	0.00	0.00
	L-15-S-02	8.30	24.33	18.40	48.97	0.00	0.00
	L-15-S-03	10.56	19.80	22.38	47.26	0.00	0.00
	L-15-S-04	3.00	35.65	37.48	23.87	0.00	0.00
	L-15-S-05	5.71	32.72	24.86	36.71	0.00	0.00
Mean		7.24	27.32	28.20	37.23	0.00	0.00
Median		8.30	24.33	24.86	36.71	0.00	0.00
Minimum		3.00	19.80	18.40	23.87	0.00	0.00
Maximum		10.56	35.65	37.90	48.97	0.00	0.00
Standard Deviation		2.93	6.60	8.96	10.94	0.00	0.00
Standard Error		1.31	2.95	4.01	4.89	0.00	0.00
Springpole Lake Area D (offshore)	L-15-D-01	15.31	28.92	11.33	44.44	0.00	0.00
	L-15-D-02	10.58	19.01	19.36	51.05	0.00	0.00
	L-15-D-03	12.24	26.72	16.17	44.87	0.00	0.00
	L-15-D-04	11.74	29.17	13.63	45.46	0.00	0.00
	L-15-D-05	11.49	24.17	16.84	47.50	0.00	0.00
Mean		12.27	25.60	15.47	46.66	0.00	0.00
Median		11.74	26.72	16.17	45.46	0.00	0.00
Minimum		10.58	19.01	11.33	44.44	0.00	0.00
Maximum		15.31	29.17	19.36	51.05	0.00	0.00
Standard Deviation		1.80	4.20	3.08	2.72	0.00	0.00
Standard Error		0.81	1.88	1.38	1.22	0.00	0.00

Note:

- 1.
- ☐
- Samples collected by Wood.

Table D2.1a: Inland Waterbodies Benthic Invertebrate Community Metrics (2019)

Waterbody	Station	Count	TID (#/m ²)	Richness	Simpson's Diversity	Evenness	% EPT	% Chironomids
Stream 9	S-9	240	3,478	9	0.49	0.22	2.50	11.25
	S-9-US-01	12	174	1	0.00	1.00	0.00	0.00
	S-9-US-02	93	1,348	4	0.38	0.40	0.00	77.42
Lake 2	L-2-OUT	264	3,826	17	0.87	0.46	4.55	22.73
Lake 5	L-5-OUT	24	348	4	0.42	0.43	0.00	75.00
Lake 6	L-6-OUT	42	609	6	0.65	0.48	0.00	4.76
Lake 16	L-16-IN	60	870	3	0.29	0.47	3.33	13.33

Note:

- 1.
- ☐
- Samples collected by Wood.

Table D2.1b: Springpole Lake Southeast Basin Benthic Invertebrate Community Metrics (2019)

Waterbody	Station	Count	TID (#/m ²)	Richness	Simpson's Diversity	Evenness	% EPT	% Chironomids
Springpole Lake	SPR-EXP-1	568	8,232	19	0.81	0.27	21.13	39.79
	SPR-EXP-2	571	8,275	26	0.75	0.15	13.31	47.64
	SPR-EXP-3	389	5,638	18	0.81	0.29	29.82	30.59
	SPR-EXP-4	425	6,159	21	0.84	0.30	30.82	27.53
	SPR-EXP-5	663	9,609	20	0.75	0.20	14.33	45.85
Mean		523.20	7583	21	0.79	0.24	21.88	38.28
Median		568.00	8232	20	0.81	0.27	21.13	39.79
Minimum		389.00	5638	18	0.75	0.15	13.31	27.53
Maximum		663.00	9609	26	0.84	0.30	30.82	47.64
Standard Error		50.74	735.35	1.39	0.02	0.03	3.70	4.01
Standard Deviation		113.46	1644.29	3.11	0.04	0.06	8.28	8.97

Note:

- 1.
- ☐
- Samples collected and data provided by Story Environmental Inc.

Table D2.1c: Springpole Lake Benthic Invertebrate Community Metrics (2020)

Waterbody	Station	Count	TID (#/m ²)	Richness	Simpson's Diversity	Evenness	% EPT	% Chironomids
Springpole Lake (nearshore)	L-15-S-01	110	159.42	5	0.46	0.37	0	1.82
	L-15-S-02	86	124.64	6	0.57	0.39	0	0
	L-15-S-03	64	92.75	6	0.61	0.43	0	1.56
	L-15-S-04	87	126.09	6	0.59	0.4	0	1.15
	L-15-S-05	111	160.87	7	0.61	0.37	0	2.7
Mean		91.6	132.75	6	0.57	0.39	0	1.45
Median		87	126.09	6	0.59	0.39	0	1.56
Minimum		64	92.75	5	0.46	0.37	0	0
Maximum		111	160.87	7	0.61	0.43	0	2.7
Standard Error		8.74	12.67	0.32	0.03	0.01	0	0.44
Standard Deviation		19.55	28.34	0.71	0.06	0.02	0	0.99
Springpole Lake Area D (offshore)	L-15-D-01	46	66.67	7	0.81	0.76	0	23.91
	L-15-D-02	9	13.04	5	0.72	0.7	0	22.22
	L-15-D-03	4	5.8	1	0	1	0	100
	L-15-D-04	12	17.39	2	0.44	0.9	0	66.67
	L-15-D-05	23	33.33	5	0.72	0.72	0	30.43
Mean		18.8	27.25	4	0.54	0.82	0	48.65
Median		12	17.39	5	0.72	0.76	0	30.43
Minimum		4	5.8	1	0	0.7	0	22.22
Maximum		46	66.67	7	0.81	1	0	100
Standard Error		7.48	10.84	1.1	0.15	0.06	0	15.17
Standard Deviation		16.72	24.24	2.45	0.33	0.13	0	33.92

Table D2.2a: Inland Waterbodies Benthic Invertebrate Taxa Proportions by Area (2019)

Taxa	S9	S-9-US-01	S-9-US-02	L-2-OUT	L-5-OUT	L-6-OUT	L-16-IN
Erpobdellidae	0.00	0.00	0.00	3.03	0.00	0.00	0.00
Glossiphoniidae	3.23	0.00	0.00	1.52	10.00	0.00	0.00
Enchytraeidae	0.00	0.00	0.00	0.00	0.00	52.38	0.00
Lumbriculidae	0.00	0.00	0.00	1.52	0.00	0.00	0.00
Tubificidae	0.00	0.00	0.00	9.09	0.00	0.00	0.00
Hyalellidae	0.00	0.00	0.00	4.55	0.00	0.00	0.00
Chrysomelidae	0.00	0.00	0.00	1.52	0.00	0.00	0.00
Dytiscidae	0.00	0.00	0.00	1.52	0.00	0.00	0.00
Ceratopogonidae	0.00	0.00	0.00	0.00	2.50	0.00	8.33
Chironomidae:	77.42	13.33	0.00	22.73	11.25	4.76	75.00
Dolichopodidae	0.00	0.00	0.00	0.00	0.00	9.52	0.00
Ephydriidae	0.00	0.00	0.00	0.00	0.00	4.76	0.00
Tabanidae	0.00	0.00	0.00	6.06	0.00	0.00	0.00
Tipulidae	0.00	0.00	0.00	0.00	0.00	4.76	0.00
Baetidae	0.00	0.00	0.00	1.52	0.00	0.00	0.00
Leptophlebiidae	0.00	0.00	0.00	0.00	1.25	0.00	0.00
Corixidae	0.00	0.00	0.00	0.00	1.25	0.00	0.00
Crambidae	0.00	0.00	0.00	3.03	0.00	0.00	0.00
Aeshnidae	0.00	0.00	0.00	0.00	1.25	0.00	0.00
Corduliidae	0.00	0.00	0.00	0.00	1.25	0.00	8.33
Limnephilidae	0.00	3.33	0.00	1.52	0.00	0.00	0.00
Phryganeidae	0.00	0.00	0.00	1.52	1.25	0.00	0.00
Sphaeriidae	9.68	83.33	100.00	15.15	70.00	23.81	8.33
Hydrobiidae	0.00	0.00	0.00	18.18	0.00	0.00	0.00
Planorbidae	9.68	0.00	0.00	4.55	0.00	0.00	0.00
Valvatidae	0.00	0.00	0.00	3.03	0.00	0.00	0.00

Notes:

1. □ Benthic invertebrate proportions were calculated at the family level

Table D2.2b: Springpole Southeast Basin Benthic Invertebrate Taxa Proportions by Area (2019)

Taxa	SPR-EXP-1	SPR-EXP-2	SPR-EXP-3	SPR-EXP-4	SPR-EXP-5
Nemata	2.46	2.80	6.94	4.00	1.51
Dugesidae	0.35	1.05	0.26	0.00	0.30
Enchytraeidae	0.00	0.35	0.26	0.00	0.00
Naididae	2.11	7.36	5.14	4.24	1.21
Hygrobatidae	0.00	0.35	0.00	0.24	0.00
Lebertiidae	0.00	0.35	0.26	0.00	0.00
Limnesiidae	0.00	0.35	0.00	0.00	0.00
Mideopsidae	0.00	0.70	0.26	0.47	0.00
Oxidae	0.00	0.35	0.00	0.00	0.00
Pionidae	0.00	0.00	0.00	0.00	0.00
Unionicolidae	0.35	0.00	0.00	0.24	0.00
Hyaletellidae	0.00	1.05	0.00	0.00	0.00
Elmidae	1.06	0.35	0.00	0.71	0.90
Caenidae	8.10	2.10	1.03	2.59	5.73
Ephemeraeidae	8.10	5.60	25.19	22.35	4.37
Sialidae	2.82	0.00	0.00	0.24	2.71
Coenagrionidae	0.00	0.00	0.00	0.24	0.00
Corduliidae	0.00	0.00	0.00	0.24	0.00
Gomphidae	0.00	0.35	0.00	0.00	0.15
Dipseudopsidae	0.00	1.05	0.00	0.24	0.30
Hydroptilidae	0.35	0.70	0.00	0.00	0.30
Leptoceridae	3.87	2.80	3.08	4.00	3.32
Molannidae	0.70	1.05	0.51	1.65	0.30
Ceratopogonidae	4.58	7.71	7.71	5.41	4.52
Chaoboridae	1.76	0.00	0.51	0.00	0.30
Chironomidae	39.79	47.64	30.59	27.53	45.85
Hydrobiidae	3.52	0.70	1.54	0.24	0.60
Lymnaeidae	2.82	0.70	0.51	4.94	2.41
Planorbidae	10.56	8.06	13.11	12.24	12.22
Valvatidae	1.41	1.75	1.54	0.24	1.51
Sphaeriidae	5.28	4.55	1.54	8.00	11.46
Unionidae	0.00	0.18	0.00	0.00	0.00

Notes:

1. ☐ Benthic invertebrate proportions were calculated at the family level, with the exception of the genus *Nemata*
2. ☐ Samples collected and data provided by Story Environmental Inc.

Table D2.2c: Springpole Lake Benthic Invertebrate Taxa Proportions(2020)

Taxa	L-15-S-1	L-15-S-2	L-15-S-3	L-15-S-4	L-15-S-5	L-15-D-1	L-15-D-2	L-15-D-3	L-15-D-4	L-15-D-5
Nemata	0.00	2.33	0.00	0.00	2.70	2.17	0.00	0.00	0.00	0.00
Naididae	0.00	2.33	3.13	4.60	1.80	23.91	44.44	0.00	33.33	8.70
Ostracoda	11.82	9.30	17.19	22.99	18.02	10.87	11.11	0.00	0.00	13.04
Pontoporeiidae	70.91	61.63	57.81	58.62	57.66	21.74	11.11	0.00	0.00	39.13
Chaoboridae	0.91	4.65	4.69	1.15	3.60	8.70	11.11	0.00	0.00	0.00
Chironomidae	1.82	0.00	1.56	1.15	2.70	23.91	22.22	100.00	66.67	30.43
Sphaeriidae	14.55	19.77	15.63	11.49	13.51	8.70	0.00	0.00	0.00	8.70

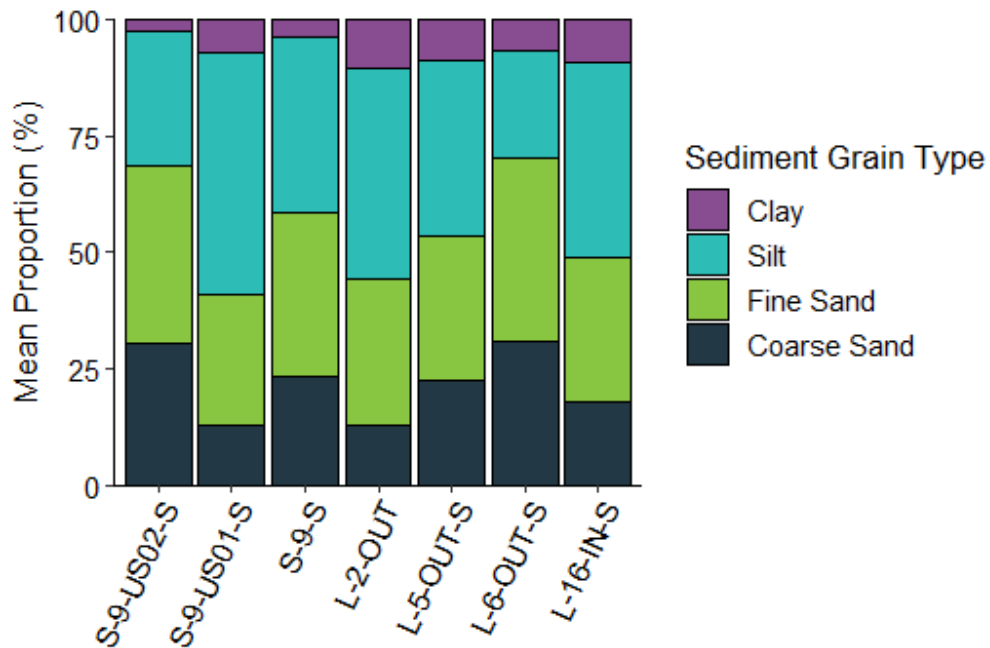


Figure D1.1: Inland Waterbodies Sediment Particle Size Distribution (2019)

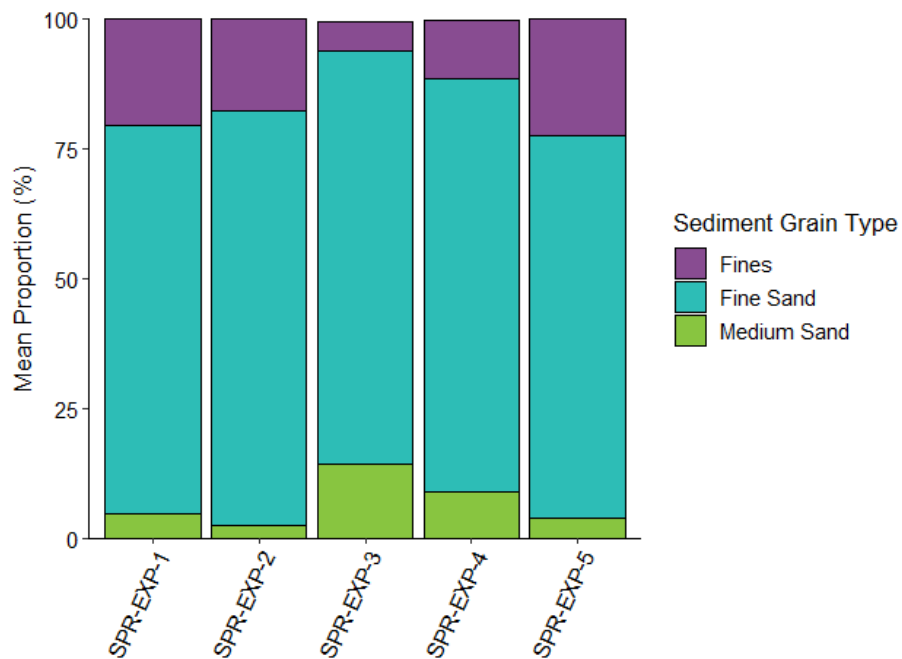


Figure D1.2: Springpole Lake Southeast Basin Sediment Particle Size Distribution (2019)

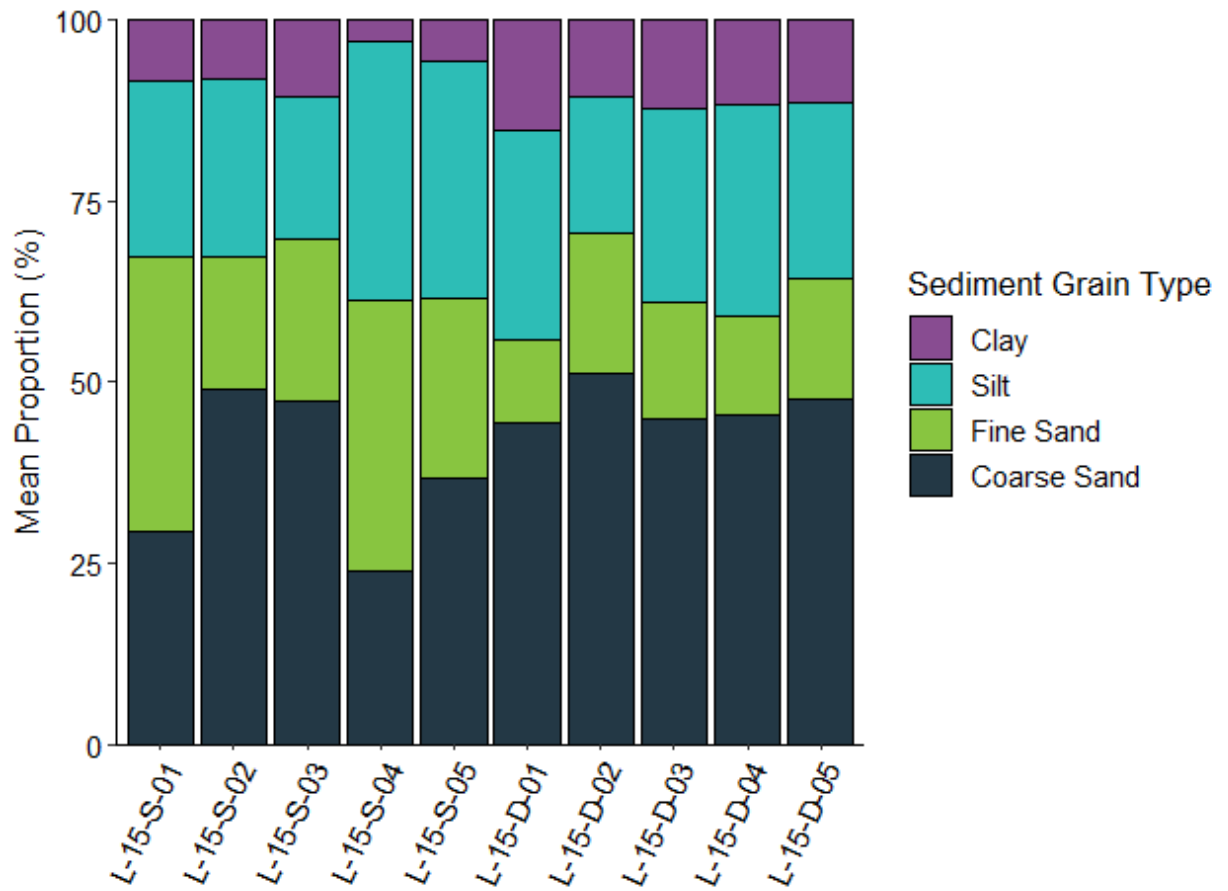


Figure D1.3: Springpole Lake Sediment Particle Size Distribution (2020)

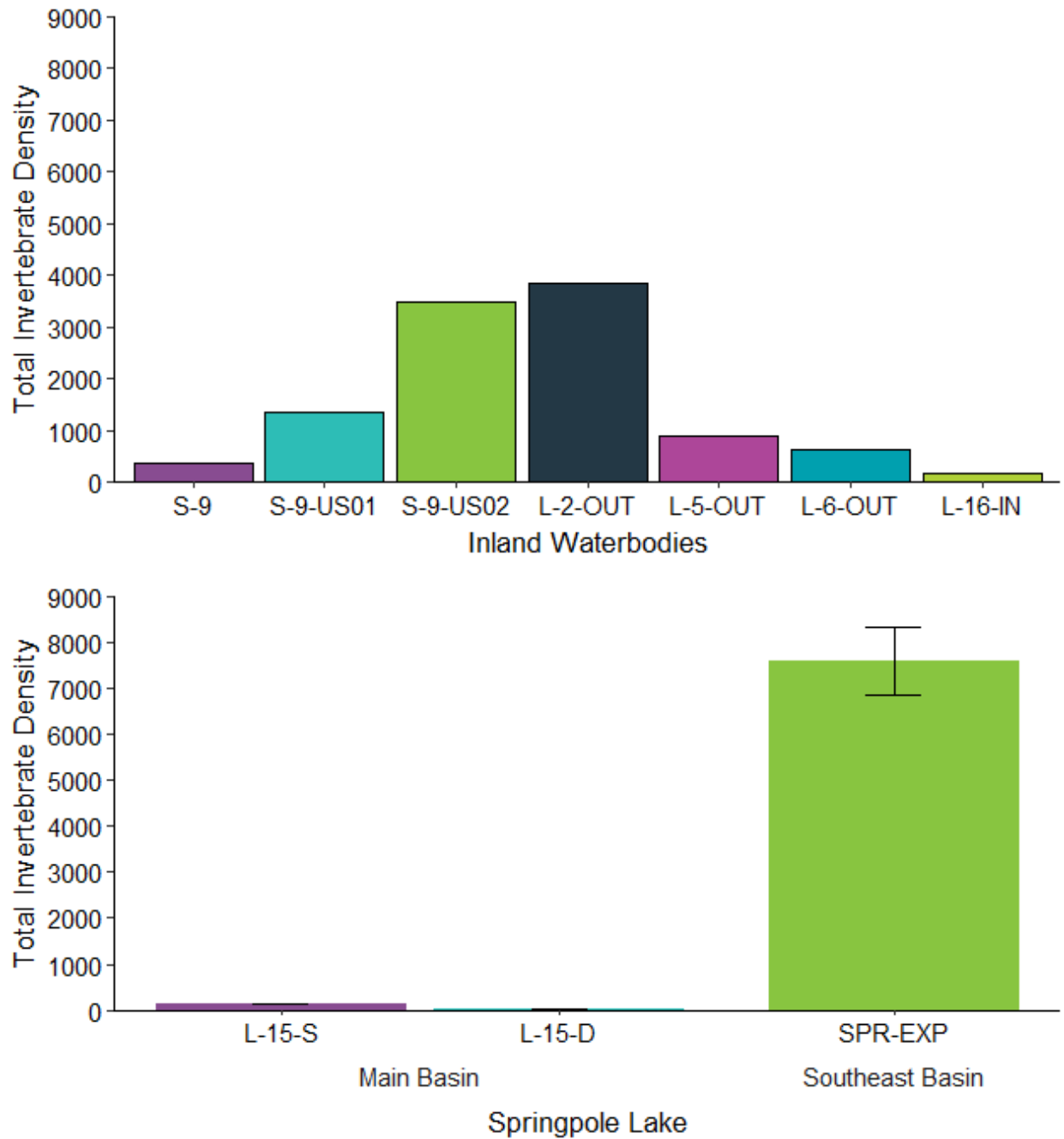


Figure D2.1: Benthic Invertebrate Community Total Invertebrate Density

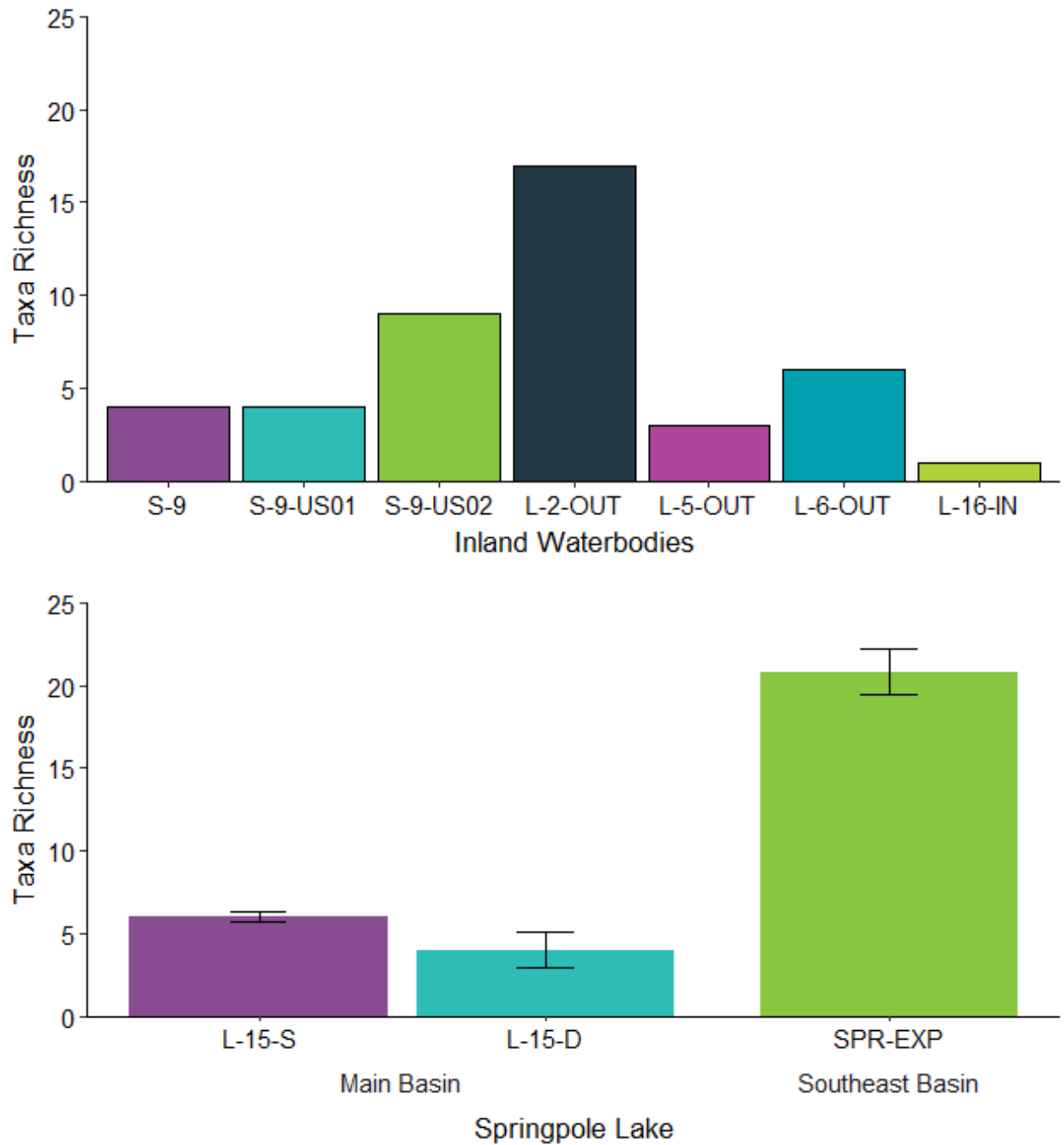


Figure D2.2: Benthic Invertebrate Community Taxa Richness

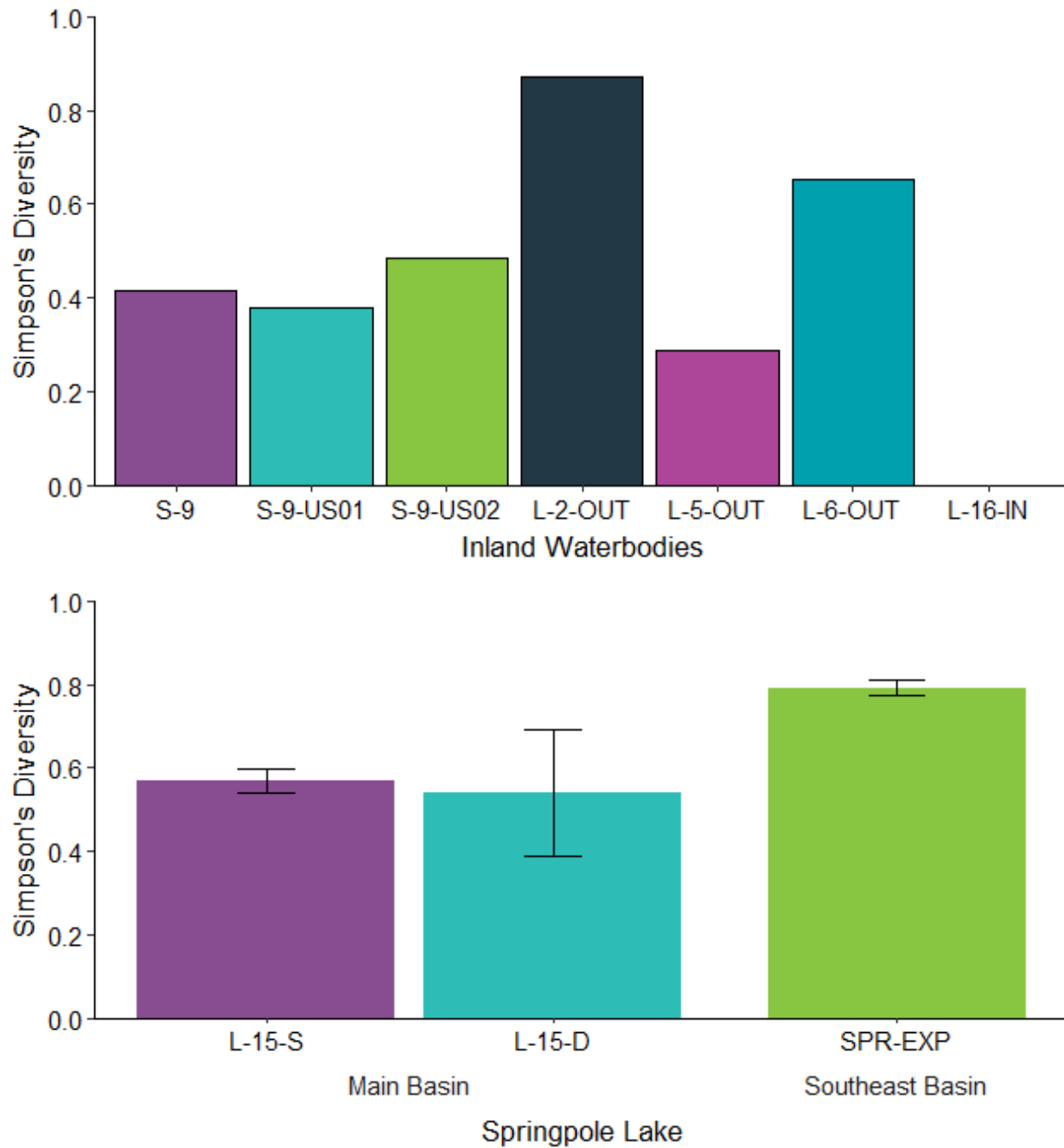


Figure D2.3: Benthic Invertebrate Community Simpson's Diversity

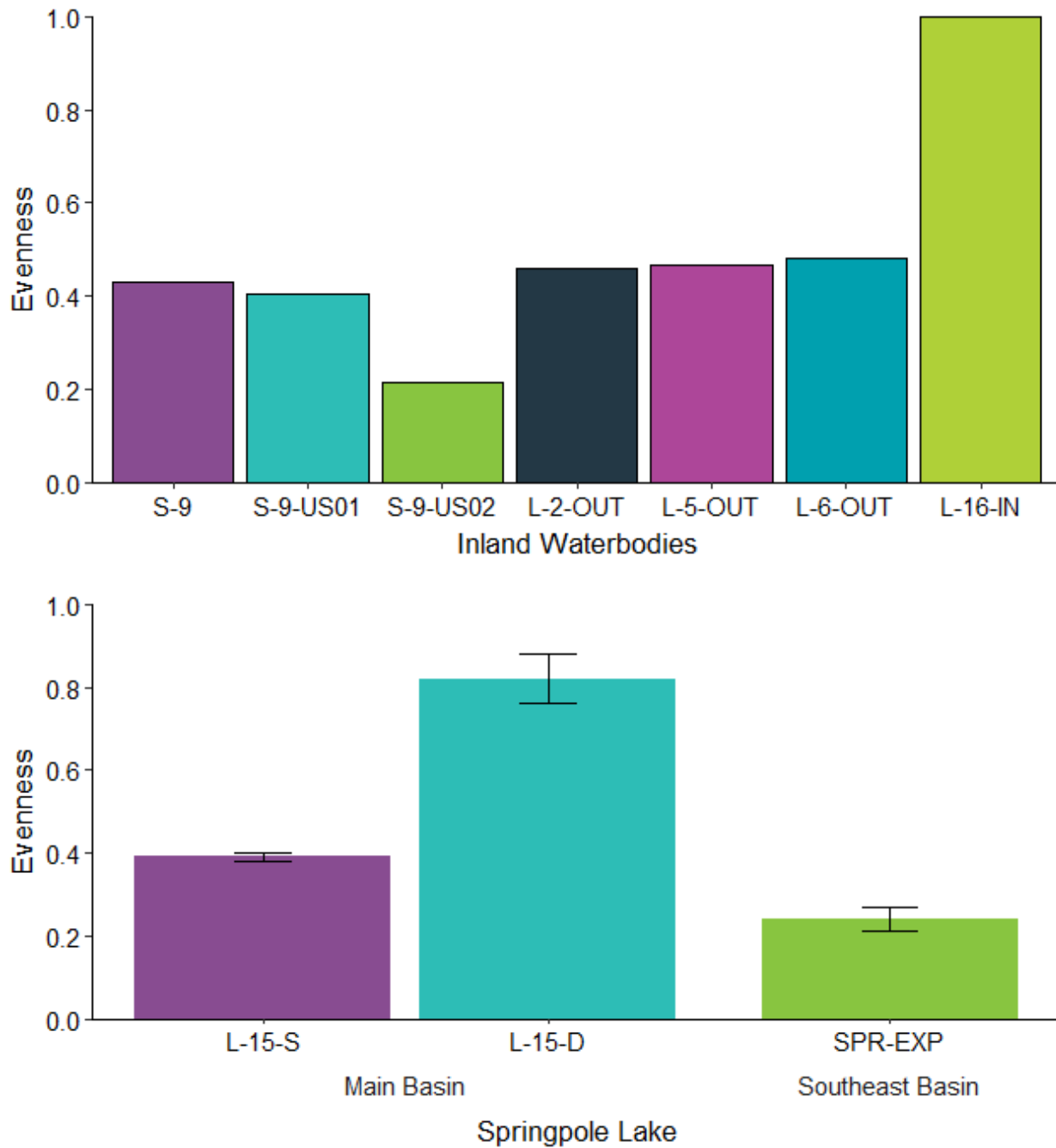


Figure D2.4: Benthic Invertebrate Community Evenness

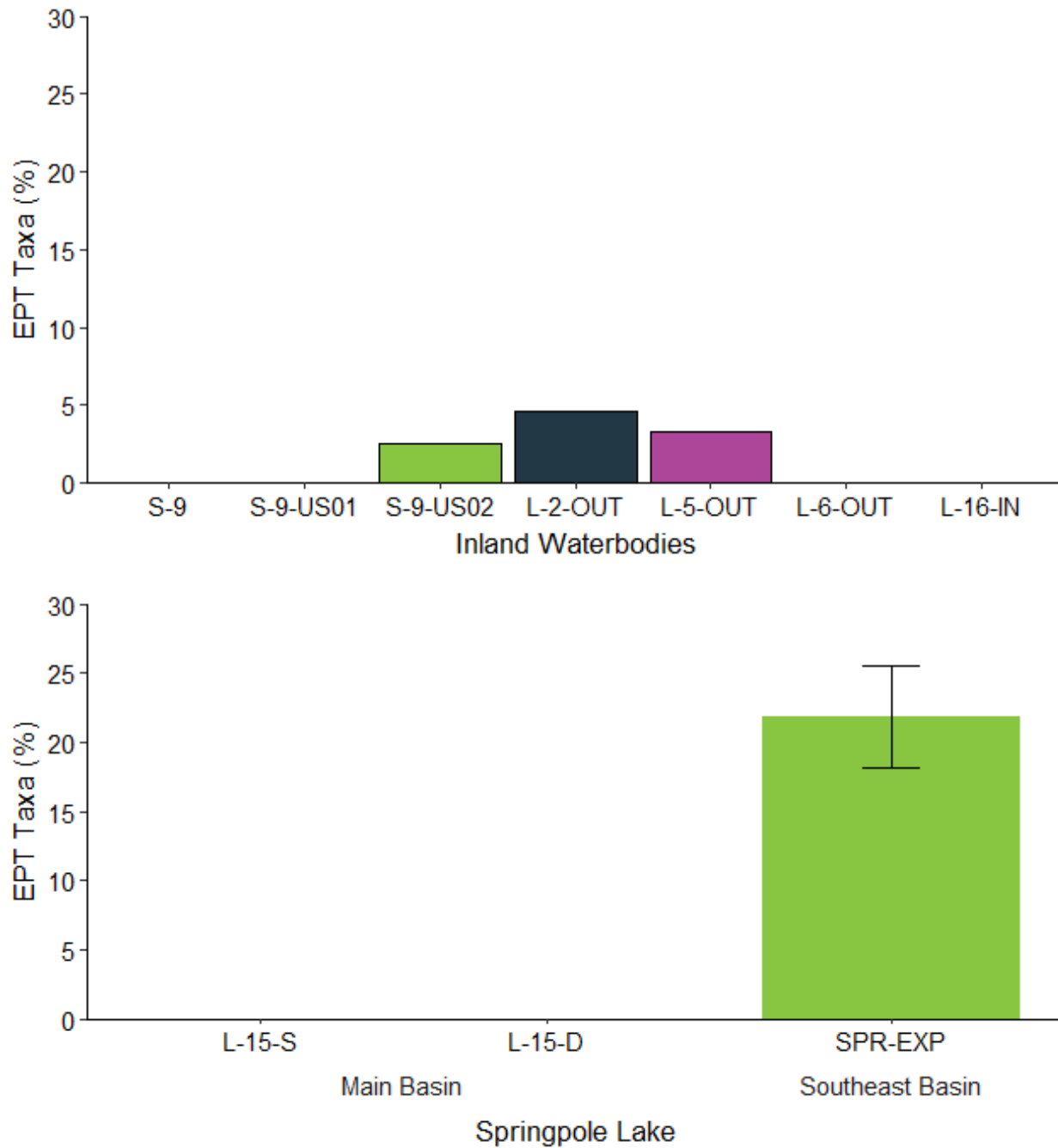


Figure D2.5: Benthic Invertebrate Community Percent EPT

Note: The L-15-S and L-15-D series of samples did not contain EPT taxa.

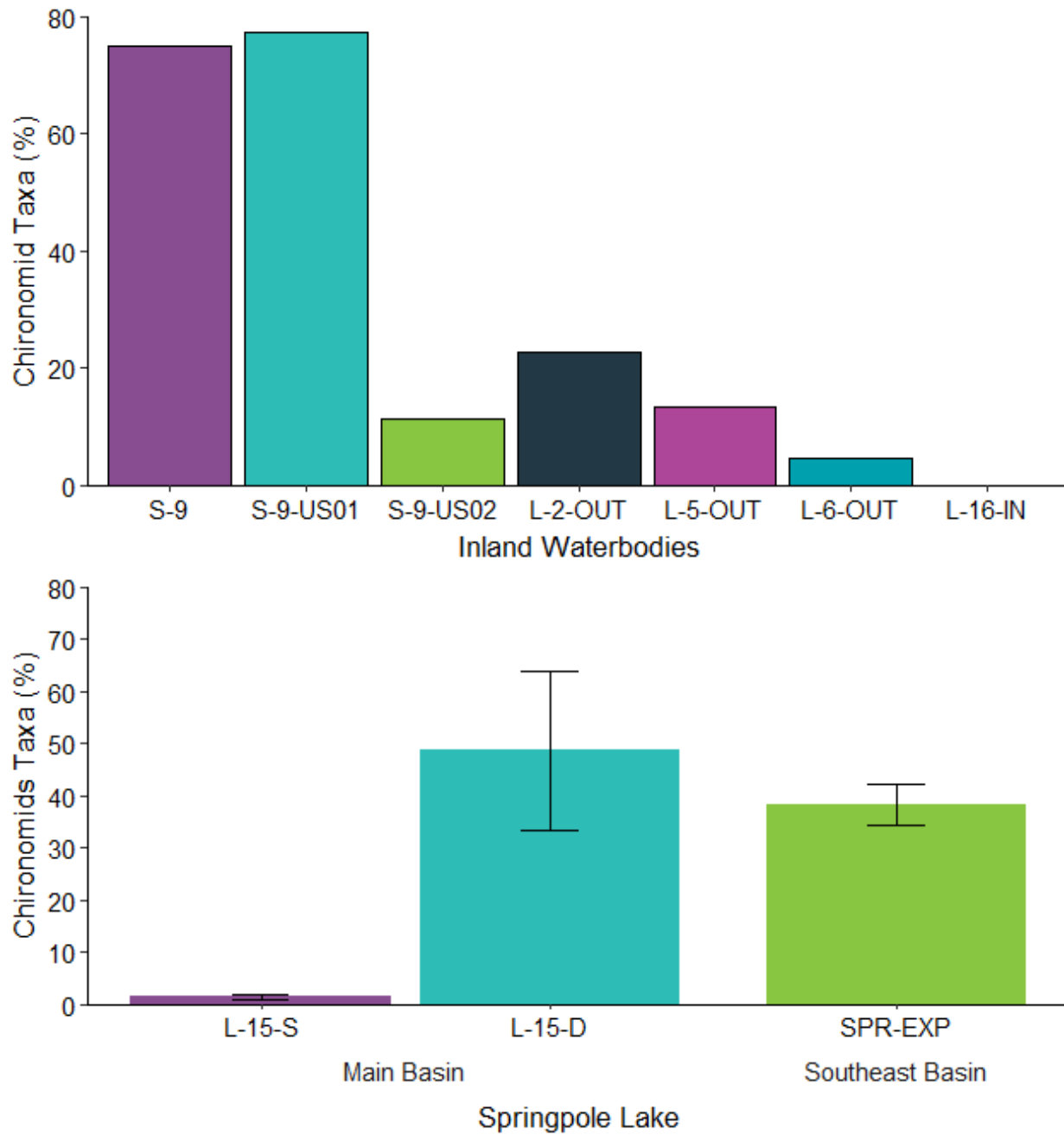


Figure D2.6: Benthic Invertebrate Community Percent Chironomids



Your Project #: TC190403
Site#: FMG Springpole
Your C.O.C. #: 735665-01-01

Attention: Dale Klodnicki

Wood Environment & Infrastructure Solutions, a division of Wood
Canada
160 Traders Blvd
Mississauga, ON
CANADA L4Z3K7

Report Date: 2019/09/28
Report #: R5899654
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9Q6959

Received: 2019/09/24, 11:05

Sample Matrix: Sediment
Samples Received: 8

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Strong Acid Leachable Metals by ICPMS	8	2019/09/26	2019/09/27	CAM SOP-00447	EPA 6020B m
Moisture	8	N/A	2019/09/26	CAM SOP-00445	Carter 2nd ed 51.2 m
Nitrate (NO3) and Nitrite (NO2) in Soil	8	2019/09/27	2019/09/27	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH CaCl2 EXTRACT	8	2019/09/26	2019/09/26	CAM SOP-00413	EPA 9045 D m
Calculated Total Kjeldahl Nitrogen	8	N/A	2019/09/27	CAM SOP-00460	EPA 351.2 m
Total Organic Carbon in Soil	8	N/A	2019/09/27	CAM SOP-00468	BCMOE TOC Aug 2014

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: TC190403
Site#: FMG Springpole
Your C.O.C. #: 735665-01-01

Attention: Dale Klodnicki

Wood Environment & Infrastructure Solutions, a division of Wood
Canada
160 Traders Blvd
Mississauga, ON
CANADA L4Z3K7

Report Date: 2019/09/28
Report #: R5899654
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9Q6959
Received: 2019/09/24, 11:05

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Gina Baybayan, Project Manager
Email: Gina.Baybayan@bvlabs.com
Phone# (905)817-5766

=====

This report has been generated and distributed using a secure automated process.

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



BUREAU
VERITAS

BV Labs Job #: B9Q6959
Report Date: 2019/09/28

Wood Environment & Infrastructure Solutions, a division of
Wood Canada
Client Project #: TC190403
Sampler Initials: AL

TKN (CALCULATED IN SOIL)

BV Labs ID		KVZ766	KVZ767	KVZ768	KVZ769	KVZ770	KVZ771		
Sampling Date		2019/09/10 14:00	2019/09/11 15:30	2019/09/10 12:30	2019/09/17 09:45	2019/09/13 10:30	2019/09/14 13:35		
COC Number		735665-01-01	735665-01-01	735665-01-01	735665-01-01	735665-01-01	735665-01-01		
	UNITS	S-9-US02-S	S-9-US01-S	S-9-S	WB02-OUT-S	WB05-OUT-S	WB06-OUT-S	RDL	QC Batch

Inorganics									
Moisture	%	88	79	81	75	83	72	1.0	6355029
Calculated Total Kjeldahl Nitrogen	ug/g	12700	13700	12200	6210	8950	3640	100	6349895
Nitrite (N)	ug/g	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	6356342

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

BV Labs ID		KVZ772		KVZ773		
Sampling Date		2019/09/14 12:00		2019/09/14		
COC Number		735665-01-01		735665-01-01		
	UNITS	WB16-IN-S	QC Batch	DUP 1-S	RDL	QC Batch

Inorganics						
Moisture	%	80	6355029	73	1.0	6355156
Calculated Total Kjeldahl Nitrogen	ug/g	12000	6349895	9810	100	6349895
Nitrite (N)	ug/g	<0.5	6356342	<0.5	0.5	6356342

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		KVZ766	KVZ767	KVZ768	KVZ769	KVZ769	KVZ770		
Sampling Date		2019/09/10 14:00	2019/09/11 15:30	2019/09/10 12:30	2019/09/17 09:45	2019/09/17 09:45	2019/09/13 10:30		
COC Number		735665-01-01	735665-01-01	735665-01-01	735665-01-01	735665-01-01	735665-01-01		
	UNITS	S-9-US02-S	S-9-US01-S	S-9-S	WB02-OUT-S	WB02-OUT-S Lab-Dup	WB05-OUT-S	RDL	QC Batch

Inorganics									
Total Organic Carbon	mg/kg	460000	230000	200000	75000	77000	160000	500	6355025
Available (CaCl ₂) pH	pH	5.60	5.23	5.45	5.25	N/A	5.48	N/A	6353836
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Lab-Dup = Laboratory Initiated Duplicate									
N/A = Not Applicable									

BV Labs ID		KVZ771	KVZ772	KVZ773		
Sampling Date		2019/09/14 13:35	2019/09/14 12:00	2019/09/14		
COC Number		735665-01-01	735665-01-01	735665-01-01		
	UNITS	WB06-OUT-S	WB16-IN-S	DUP 1-S	RDL	QC Batch

Inorganics						
Total Organic Carbon	mg/kg	75000	130000	170000	500	6355025
Available (CaCl ₂) pH	pH	6.23	5.99	5.95	N/A	6353836
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
N/A = Not Applicable						

**ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)**

BV Labs ID		KVZ766	KVZ767	KVZ768	KVZ769	KVZ770		
Sampling Date		2019/09/10 14:00	2019/09/11 15:30	2019/09/10 12:30	2019/09/17 09:45	2019/09/13 10:30		
COC Number		735665-01-01	735665-01-01	735665-01-01	735665-01-01	735665-01-01		
	UNITS	S-9-US02-S	S-9-US01-S	S-9-S	WB02-OUT-S	WB05-OUT-S	RDL	QC Batch

Metals								
Acid Extractable Aluminum (Al)	ug/g	4400	8200	9600	8300	9700	50	6354947
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	<0.20	0.25	<0.20	0.20	6354947
Acid Extractable Arsenic (As)	ug/g	1.3	1.1	1.5	4.5	3.0	1.0	6354947
Acid Extractable Barium (Ba)	ug/g	120	120	120	59	81	0.50	6354947
Acid Extractable Beryllium (Be)	ug/g	<0.20	<0.20	<0.20	0.25	0.26	0.20	6354947
Acid Extractable Bismuth (Bi)	ug/g	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6354947
Acid Extractable Boron (B)	ug/g	10	<5.0	<5.0	<5.0	<5.0	5.0	6354947
Acid Extractable Cadmium (Cd)	ug/g	0.27	0.22	0.25	0.19	0.22	0.10	6354947
Acid Extractable Calcium (Ca)	ug/g	31000	19000	17000	6300	17000	50	6354947
Acid Extractable Chromium (Cr)	ug/g	8.1	22	26	20	28	1.0	6354947
Acid Extractable Cobalt (Co)	ug/g	3.9	6.5	12	6.7	7.8	0.10	6354947
Acid Extractable Copper (Cu)	ug/g	16	17	22	17	35	0.50	6354947
Acid Extractable Iron (Fe)	ug/g	7000	10000	17000	15000	16000	50	6354947
Acid Extractable Lead (Pb)	ug/g	5.9	5.3	5.2	7.3	7.7	1.0	6354947
Acid Extractable Magnesium (Mg)	ug/g	1500	2700	4100	3100	3600	50	6354947
Acid Extractable Manganese (Mn)	ug/g	210	450	950	430	660	1.0	6354947
Acid Extractable Molybdenum (Mo)	ug/g	0.76	<0.50	<0.50	<0.50	<0.50	0.50	6354947
Acid Extractable Nickel (Ni)	ug/g	6.8	12	17	16	15	0.50	6354947
Acid Extractable Phosphorus (P)	ug/g	600	770	870	690	820	50	6354947
Acid Extractable Potassium (K)	ug/g	200	430	510	740	560	200	6354947
Acid Extractable Selenium (Se)	ug/g	0.90	0.72	0.91	<0.50	0.89	0.50	6354947
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	<0.20	0.20	0.20	6354947
Acid Extractable Sodium (Na)	ug/g	60	66	91	110	70	50	6354947
Acid Extractable Strontium (Sr)	ug/g	120	35	34	29	29	1.0	6354947
Acid Extractable Thallium (Tl)	ug/g	0.066	0.086	0.11	0.16	0.14	0.050	6354947
Acid Extractable Tin (Sn)	ug/g	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6354947
Acid Extractable Uranium (U)	ug/g	1.9	0.79	1.9	0.63	1.1	0.050	6354947
Acid Extractable Vanadium (V)	ug/g	12	20	28	22	26	5.0	6354947
Acid Extractable Zinc (Zn)	ug/g	19	30	42	80	46	5.0	6354947
Acid Extractable Mercury (Hg)	ug/g	0.11	0.092	0.11	0.064	0.15	0.050	6354947

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

**ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)**

BV Labs ID		KVZ771	KVZ772	KVZ773		
Sampling Date		2019/09/14 13:35	2019/09/14 12:00	2019/09/14		
COC Number		735665-01-01	735665-01-01	735665-01-01		
	UNITS	WB06-OUT-S	WB16-IN-S	DUP 1-S	RDL	QC Batch
Metals						
Acid Extractable Aluminum (Al)	ug/g	7400	9500	9800	50	6354947
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	<0.20	0.20	6354947
Acid Extractable Arsenic (As)	ug/g	5.0	7.5	8.4	1.0	6354947
Acid Extractable Barium (Ba)	ug/g	37	87	94	0.50	6354947
Acid Extractable Beryllium (Be)	ug/g	<0.20	0.23	0.21	0.20	6354947
Acid Extractable Bismuth (Bi)	ug/g	<1.0	<1.0	<1.0	1.0	6354947
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	<5.0	5.0	6354947
Acid Extractable Cadmium (Cd)	ug/g	<0.10	0.19	0.25	0.10	6354947
Acid Extractable Calcium (Ca)	ug/g	9300	15000	16000	50	6354947
Acid Extractable Chromium (Cr)	ug/g	23	27	28	1.0	6354947
Acid Extractable Cobalt (Co)	ug/g	7.9	12	13	0.10	6354947
Acid Extractable Copper (Cu)	ug/g	11	16	16	0.50	6354947
Acid Extractable Iron (Fe)	ug/g	21000	26000	28000	50	6354947
Acid Extractable Lead (Pb)	ug/g	4.5	6.6	7.2	1.0	6354947
Acid Extractable Magnesium (Mg)	ug/g	4200	4500	4600	50	6354947
Acid Extractable Manganese (Mn)	ug/g	680	1500	1700	1.0	6354947
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	0.65	0.64	0.50	6354947
Acid Extractable Nickel (Ni)	ug/g	14	18	18	0.50	6354947
Acid Extractable Phosphorus (P)	ug/g	750	930	980	50	6354947
Acid Extractable Potassium (K)	ug/g	670	1000	1000	200	6354947
Acid Extractable Selenium (Se)	ug/g	<0.50	0.55	0.66	0.50	6354947
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	0.20	6354947
Acid Extractable Sodium (Na)	ug/g	94	91	91	50	6354947
Acid Extractable Strontium (Sr)	ug/g	15	24	26	1.0	6354947
Acid Extractable Thallium (Tl)	ug/g	0.096	0.14	0.16	0.050	6354947
Acid Extractable Tin (Sn)	ug/g	<1.0	<1.0	<1.0	1.0	6354947
Acid Extractable Uranium (U)	ug/g	0.52	0.79	0.88	0.050	6354947
Acid Extractable Vanadium (V)	ug/g	26	32	33	5.0	6354947
Acid Extractable Zinc (Zn)	ug/g	35	45	46	5.0	6354947
Acid Extractable Mercury (Hg)	ug/g	<0.050	0.083	0.097	0.050	6354947
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						



BUREAU
VERITAS

BV Labs Job #: B9Q6959

Report Date: 2019/09/28

Wood Environment & Infrastructure Solutions, a division of

Wood Canada

Client Project #: TC190403

Sampler Initials: AL

TEST SUMMARY

BV Labs ID: KVZ766
Sample ID: S-9-US02-S
Matrix: Sediment

Collected: 2019/09/10
Shipped:
Received: 2019/09/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6354947	2019/09/26	2019/09/27	Daniel Teclu
Moisture	BAL	6355029	N/A	2019/09/26	Prgya Panchal
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	6356342	2019/09/27	2019/09/27	Chandra Nandlal
pH CaCl2 EXTRACT	AT	6353836	2019/09/26	2019/09/26	Neil Dassanayake
Calculated Total Kjeldahl Nitrogen		6349895	N/A	2019/09/27	Automated Statchk
Total Organic Carbon in Soil	COMB	6355025	N/A	2019/09/27	Dhruvik Modh

BV Labs ID: KVZ767
Sample ID: S-9-US01-S
Matrix: Sediment

Collected: 2019/09/11
Shipped:
Received: 2019/09/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6354947	2019/09/26	2019/09/27	Daniel Teclu
Moisture	BAL	6355029	N/A	2019/09/26	Prgya Panchal
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	6356342	2019/09/27	2019/09/27	Chandra Nandlal
pH CaCl2 EXTRACT	AT	6353836	2019/09/26	2019/09/26	Neil Dassanayake
Calculated Total Kjeldahl Nitrogen		6349895	N/A	2019/09/27	Automated Statchk
Total Organic Carbon in Soil	COMB	6355025	N/A	2019/09/27	Dhruvik Modh

BV Labs ID: KVZ768
Sample ID: S-9-S
Matrix: Sediment

Collected: 2019/09/10
Shipped:
Received: 2019/09/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6354947	2019/09/26	2019/09/27	Daniel Teclu
Moisture	BAL	6355029	N/A	2019/09/26	Prgya Panchal
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	6356342	2019/09/27	2019/09/27	Chandra Nandlal
pH CaCl2 EXTRACT	AT	6353836	2019/09/26	2019/09/26	Neil Dassanayake
Calculated Total Kjeldahl Nitrogen		6349895	N/A	2019/09/27	Automated Statchk
Total Organic Carbon in Soil	COMB	6355025	N/A	2019/09/27	Dhruvik Modh

BV Labs ID: KVZ769
Sample ID: WB02-OUT-S
Matrix: Sediment

Collected: 2019/09/17
Shipped:
Received: 2019/09/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6354947	2019/09/26	2019/09/27	Daniel Teclu
Moisture	BAL	6355029	N/A	2019/09/26	Prgya Panchal
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	6356342	2019/09/27	2019/09/27	Chandra Nandlal
pH CaCl2 EXTRACT	AT	6353836	2019/09/26	2019/09/26	Neil Dassanayake
Calculated Total Kjeldahl Nitrogen		6349895	N/A	2019/09/27	Automated Statchk
Total Organic Carbon in Soil	COMB	6355025	N/A	2019/09/27	Dhruvik Modh

BUREAU
VERITAS

BV Labs Job #: B9Q6959

Report Date: 2019/09/28

Wood Environment & Infrastructure Solutions, a division of
Wood Canada
Client Project #: TC190403
Sampler Initials: AL

TEST SUMMARY

BV Labs ID: KVZ769 Dup
Sample ID: WB02-OUT-S
Matrix: Sediment

Collected: 2019/09/17
Shipped:
Received: 2019/09/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Organic Carbon in Soil	COMB	6355025	N/A	2019/09/27	Dhruvik Modh

BV Labs ID: KVZ770
Sample ID: WB05-OUT-S
Matrix: Sediment

Collected: 2019/09/13
Shipped:
Received: 2019/09/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6354947	2019/09/26	2019/09/27	Daniel Teclu
Moisture	BAL	6355029	N/A	2019/09/26	Prgya Panchal
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	6356342	2019/09/27	2019/09/27	Chandra Nandlal
pH CaCl2 EXTRACT	AT	6353836	2019/09/26	2019/09/26	Neil Dassanayake
Calculated Total Kjeldahl Nitrogen		6349895	N/A	2019/09/27	Automated Statchk
Total Organic Carbon in Soil	COMB	6355025	N/A	2019/09/27	Dhruvik Modh

BV Labs ID: KVZ771
Sample ID: WB06-OUT-S
Matrix: Sediment

Collected: 2019/09/14
Shipped:
Received: 2019/09/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6354947	2019/09/26	2019/09/27	Daniel Teclu
Moisture	BAL	6355029	N/A	2019/09/26	Prgya Panchal
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	6356342	2019/09/27	2019/09/27	Chandra Nandlal
pH CaCl2 EXTRACT	AT	6353836	2019/09/26	2019/09/26	Neil Dassanayake
Calculated Total Kjeldahl Nitrogen		6349895	N/A	2019/09/27	Automated Statchk
Total Organic Carbon in Soil	COMB	6355025	N/A	2019/09/27	Dhruvik Modh

BV Labs ID: KVZ772
Sample ID: WB16-IN-S
Matrix: Sediment

Collected: 2019/09/14
Shipped:
Received: 2019/09/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6354947	2019/09/26	2019/09/27	Daniel Teclu
Moisture	BAL	6355029	N/A	2019/09/26	Prgya Panchal
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	6356342	2019/09/27	2019/09/27	Chandra Nandlal
pH CaCl2 EXTRACT	AT	6353836	2019/09/26	2019/09/26	Neil Dassanayake
Calculated Total Kjeldahl Nitrogen		6349895	N/A	2019/09/27	Automated Statchk
Total Organic Carbon in Soil	COMB	6355025	N/A	2019/09/27	Dhruvik Modh

BV Labs ID: KVZ773
Sample ID: DUP 1-S
Matrix: Sediment

Collected: 2019/09/14
Shipped:
Received: 2019/09/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6354947	2019/09/26	2019/09/27	Daniel Teclu
Moisture	BAL	6355156	N/A	2019/09/26	Prgya Panchal



BUREAU
VERITAS

BV Labs Job #: B9Q6959

Report Date: 2019/09/28

Wood Environment & Infrastructure Solutions, a division of

Wood Canada

Client Project #: TC190403

Sampler Initials: AL

TEST SUMMARY

BV Labs ID: KVZ773
Sample ID: DUP 1-S
Matrix: Sediment

Collected: 2019/09/14
Shipped:
Received: 2019/09/24

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate (NO3) and Nitrite (NO2) in Soil	LACH	6356342	2019/09/27	2019/09/27	Chandra Nandlal
pH CaCl2 EXTRACT	AT	6353836	2019/09/26	2019/09/26	Neil Dassanayake
Calculated Total Kjeldahl Nitrogen		6349895	N/A	2019/09/27	Automated Statchk
Total Organic Carbon in Soil	COMB	6355025	N/A	2019/09/27	Dhruvik Modh



GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.0°C
-----------	-------

Results relate only to the items tested.



BUREAU
VERITAS

BV Labs Job #: B9Q6959

Report Date: 2019/09/28

QUALITY ASSURANCE REPORT

Wood Environment & Infrastructure Solutions, a division of
Wood Canada
Client Project #: TC190403
Sampler Initials: AL

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6353836	Available (CaCl ₂) pH	2019/09/26			100	97 - 103			0.61 (1)	N/A		
6354947	Acid Extractable Aluminum (Al)	2019/09/27	NC	75 - 125	105	80 - 120	<50	ug/g				
6354947	Acid Extractable Antimony (Sb)	2019/09/27	105	75 - 125	104	80 - 120	<0.20	ug/g	NC (1)	30		
6354947	Acid Extractable Arsenic (As)	2019/09/27	104	75 - 125	103	80 - 120	<1.0	ug/g	NC (1)	30		
6354947	Acid Extractable Barium (Ba)	2019/09/27	98	75 - 125	102	80 - 120	<0.50	ug/g	22 (1)	30		
6354947	Acid Extractable Beryllium (Be)	2019/09/27	105	75 - 125	103	80 - 120	<0.20	ug/g	NC (1)	30		
6354947	Acid Extractable Bismuth (Bi)	2019/09/27	102	75 - 125	102	80 - 120	<1.0	ug/g				
6354947	Acid Extractable Boron (B)	2019/09/27	103	75 - 125	106	80 - 120	<5.0	ug/g	NC (1)	30		
6354947	Acid Extractable Cadmium (Cd)	2019/09/27	105	75 - 125	103	80 - 120	<0.10	ug/g	NC (1)	30		
6354947	Acid Extractable Calcium (Ca)	2019/09/27	NC	75 - 125	109	80 - 120	<50	ug/g				
6354947	Acid Extractable Chromium (Cr)	2019/09/27	105	75 - 125	107	80 - 120	<1.0	ug/g	11 (1)	30		
6354947	Acid Extractable Cobalt (Co)	2019/09/27	103	75 - 125	106	80 - 120	<0.10	ug/g	11 (1)	30		
6354947	Acid Extractable Copper (Cu)	2019/09/27	102	75 - 125	106	80 - 120	<0.50	ug/g	13 (1)	30		
6354947	Acid Extractable Iron (Fe)	2019/09/27	NC	75 - 125	106	80 - 120	<50	ug/g				
6354947	Acid Extractable Lead (Pb)	2019/09/27	102	75 - 125	104	80 - 120	<1.0	ug/g	6.1 (1)	30		
6354947	Acid Extractable Magnesium (Mg)	2019/09/27	NC	75 - 125	102	80 - 120	<50	ug/g				
6354947	Acid Extractable Manganese (Mn)	2019/09/27	NC	75 - 125	106	80 - 120	<1.0	ug/g				
6354947	Acid Extractable Mercury (Hg)	2019/09/27	91	75 - 125	97	80 - 120	<0.050	ug/g	NC (1)	30		
6354947	Acid Extractable Molybdenum (Mo)	2019/09/27	108	75 - 125	104	80 - 120	<0.50	ug/g	NC (1)	30		
6354947	Acid Extractable Nickel (Ni)	2019/09/27	106	75 - 125	105	80 - 120	<0.50	ug/g	15 (1)	30		
6354947	Acid Extractable Phosphorus (P)	2019/09/27	NC	75 - 125	108	80 - 120	<50	ug/g				
6354947	Acid Extractable Potassium (K)	2019/09/27	NC	75 - 125	104	80 - 120	<200	ug/g				
6354947	Acid Extractable Selenium (Se)	2019/09/27	108	75 - 125	105	80 - 120	<0.50	ug/g	NC (1)	30		
6354947	Acid Extractable Silver (Ag)	2019/09/27	105	75 - 125	106	80 - 120	<0.20	ug/g	NC (1)	30		
6354947	Acid Extractable Sodium (Na)	2019/09/27	110	75 - 125	106	80 - 120	<50	ug/g				
6354947	Acid Extractable Strontium (Sr)	2019/09/27	NC	75 - 125	107	80 - 120	<1.0	ug/g				
6354947	Acid Extractable Thallium (Tl)	2019/09/27	103	75 - 125	103	80 - 120	<0.050	ug/g	NC (1)	30		
6354947	Acid Extractable Tin (Sn)	2019/09/27	108	75 - 125	107	80 - 120	<1.0	ug/g				
6354947	Acid Extractable Uranium (U)	2019/09/27	103	75 - 125	102	80 - 120	<0.050	ug/g	3.7 (1)	30		
6354947	Acid Extractable Vanadium (V)	2019/09/27	107	75 - 125	107	80 - 120	<5.0	ug/g	16 (1)	30		



BUREAU
VERITAS

BV Labs Job #: B9Q6959

Report Date: 2019/09/28

QUALITY ASSURANCE REPORT(CONT'D)

Wood Environment & Infrastructure Solutions, a division of
Wood Canada
Client Project #: TC190403
Sampler Initials: AL

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6354947	Acid Extractable Zinc (Zn)	2019/09/27	100	75 - 125	106	80 - 120	<5.0	ug/g	20 (1)	30		
6355025	Total Organic Carbon	2019/09/27					<500	mg/kg	2.9 (2)	35	105	75 - 125
6355029	Moisture	2019/09/26							0.62 (1)	20		
6355156	Moisture	2019/09/26							1.4 (1)	20		
6356342	Nitrite (N)	2019/09/27	101	75 - 125			<0.5	ug/g	NC (1)	25		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Duplicate Parent ID [KVZ769-01]



BUREAU
VERITAS

BV Labs Job #: B9Q6959

Report Date: 2019/09/28

Wood Environment & Infrastructure Solutions, a division of

Wood Canada

Client Project #: TC190403

Sampler Initials: AL

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Anastassia Hamanov, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-free 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

24-Sep-19 11:05

Page of

Gina Baybayan

B9Q6959

only:

Bottle Order #:



735665

Project Manager:

Gina Baybayan

INVOICE TO:			REPORT TO:			PROJECT INFORMATION:				
Company Name: #25844 Wood Environment & Infrastructure Solutions,	Company Name: #12841 Wood Environment & Infrastructure Solutions,	Quotation #: TC190403	SWE ENV-1217			COC #: CH735665-01-01				
Attention: Accounts Payable	Attention: Dale Klodnicki	P.O. #:								
Address: 160 Traders Blvd E Suite 110	Address: 160 Traders Blvd	Project:								
Mississauga ON L4Z 3K7	Mississauga ON L4Z3K7	Project Name:								
Tel: (905) 568-2929	Tel: (905) 568-2929	Site #:								
Fax: (905) 568-1686	Fax:	Sampled By: A. Law / S. McGovern								
Email: APMississauga@woodplc.com	Email: dale.klodnicki@woodplc.com									
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS DRINKING WATER CHAIN OF CUSTODY										
Regulation 153 (2011)			Other Regulations			Special Instructions				
☐ Table 1 ☐ Res/Park ☐ Medium/Fine			☐ CCME ☐ Sanitary Sewer Bylaw							
☐ Table 2 ☐ Ind/Comm ☐ Coarse			☐ Reg 558 ☐ Storm Sewer Bylaw							
☐ Table 3 ☐ Agri/Other ☐ For RSC			☐ MISA Municipality							
☐ Table			☐ PWQO							
☐ Other										
Include Criteria on Certificate of Analysis (Y/N)?										
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr-VI	Strong Acid Leachable Metals by (ICPMS)	Total Organic Carbon in Soil	pH CaCl ₂ EXTRACT	TKN (Calculated in Soil) Nitrite	Turnaround Time (TAT) Required: Please provide advance notice for rush projects
1	S-9-US02-S	10 SEPT 19	14:00	SED	X	X	X	X	X	Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: Time Required: Rush Confirmation Number: (call lab for #)
2	S-9-US01-S	11 SEPT 19	15:30	SED	X	X	X	X	X	
3	S-9-S	10 SEPT 19	12:30	SED	X	X	X	X	X	
4	WB02-OUT-S	17 SEPT 19	09:45	SED	X	X	X	X	X	
5	WB05-OUT-S	13 SEPT 19	10:30	SED	X	X	X	X	X	
6	WB06-OUT-S	14 SEPT 19	13:35	SED	X	X	X	X	X	
7	WB16-IN-S	14 SEPT 19	12:00	SED	X	X	X	X	X	
8	DUP 1-S	14 SEPT 19	—	SED	X	X	X	X	X	
9				SED						
10				SED						
* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# jars used and not submitted		Laboratory Use Only
A. Law / Aaron Law		19/09/23	14:30	A. Law / Aaron Law		20/09/24	11:05			Time Sensitive Temperature (°C) on Reel 4/4/4
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVLABS.COM/TERMS-AND-CONDITIONS.										Custody Seal Present Intact
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.										White: BV Labs Yellow: Client
** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVLABS.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.										

Bureau Veritas Canada (2019) Inc.



wood.

Appendix E
Photo Record



Facing downstream at culvert (Jul. 16, 2019)



Facing downstream at culvert (Sep. 17, 2019)

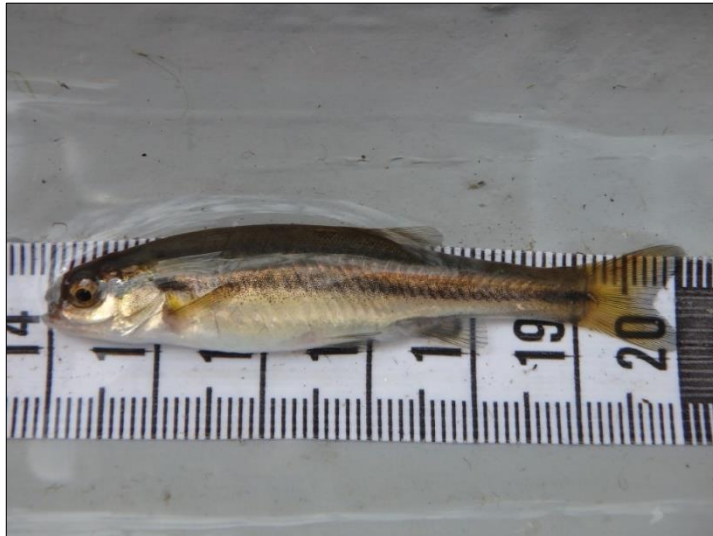


Culvert inflow (Jul. 20, 2019)



Culvert inflow (Sep. 17, 2019)

Plate E.1-1: Sample Area L-2-OUT



Finescale Dace (Jul. 17, 2019)



Flooded conditions of channel at L-2-OUT (Sep. 17, 2019)



Yellow Perch, adult with YOY inset photo (Jul. 17, 2019)



Downstream of L-2-OUT facing Springpole Lake (Sep. 17, 2019)

Plate E.1-2: Sample Area L-2-OUT



View facing upstream (Jul. 26, 2019)



View facing upstream (Sep. 17, 2019)



View facing upstream (Jul. 26, 2019)



Substrate and macrophytes at outflow of WB02-OUT-US (Jul. 26, 2019)

Plate E.1-3: Sample Area L-2-OUT-US



View facing downstream (Jul. 18, 2019)



View facing downstream (Sep. 13, 2019)



View facing beaver pond upstream at L-5-OUT (Jul. 18, 2019)



View facing beaver pond upstream at L-5-OUT (Sep. 13, 2019)

Plate E.1-4: Sample Area L-5-OUT



Male Iowa Darter near outflow (Jul. 19, 2019)



Outflow of L-5-OUT into Springpole Lake (Sep. 13, 2019)



Brook Stickleback near outflow (Jul. 19, 2019)



Pool near outflow of L-5-OUT (Sep. 13, 2019)

Plate E.1-5: Sample Area L-5-OUT



View facing upstream (Jul. 16, 2019)



View facing upstream (Sep. 12, 2019)



View facing downstream (Jul. 16, 2018)



View facing downstream (Sep. 12, 2019)

Plate E1-6: Sample Area S-9-US02



View facing beaver dam at S-9-US01 (Sep. 11, 2019)



View facing downstream at beaver dam S-9-US01 (Sep. 11, 2019)



Ponar grab near beaver dam at S-9-US01 (Sep. 11, 2019)



Outflow from beaver dam S-9-US01 (Sep. 11, 2019)

Plate E.1-7: Sample Area S-9-US02



Outflow of L-16-IN (Jul. 20, 2019)



Outflow of L-16-IN (Sep. 14, 2019)



Inflow of L-16-IN (Sep. 14, 2019)



Petite ponar grab sample from L-16-IN (Sep. 14, 2019)

Plate E.1-8: Sample Area L-16-IN



Golden Shiner at outflow of L-2-OUT-US (Jul. 17, 2019)



Blacknose Shiner at outflow of L-2-OUT-US (Sep. 17, 2019)



Spottail Shiner at outflow of L-2-OUT-US (Jul. 17, 2019)



Northern Pike from L-16-IN (Sep. 23, 2019)

Plate E.1-9: Fish Specimens from L-2-OUT-US and L-16



Walleye from L-15 (Effort ID SPL-LG-05; Jul. 25, 2020)



Late alevin stage fish (Effort ID SPL-MT-01 (Jul. 26, 2020)



Late alevin stage fish (Effort ID SPL-MT-01; Jul. 26, 2020)



Bluntnose Minnow from L-15 (Effort ID SPL-MT-04; Jul. 26, 2020)

Plate E.1-10: Fish Specimens from Springpole Lake (L-15)



Mottled Sculpin from L-15 (Effort ID SPL-MT-05; Jul. 26, 2020)



Young of the Year Spottail Shiner from L-15 (Effort ID SPL-EF-01; Jul. 27, 2020)



Young of the year Yellow Perch (Jul. 26, 2020)



Adult Walleye from L-15 (Effort ID SPL-LG-05; Jul. 25, 2020)

Plate E.1-11: Fish Specimens from Springpole Lake (L-15)



Sediment in Petite ponar (100% full) from L-15-S-01 (Sep. 10, 2020)



Amphipods from sieved benthic sample at L-15-S-01 (Sep. 10, 2020)



Sediment in Petite ponar (100% full) from L-15-D-01 (Sep. 11, 2020)

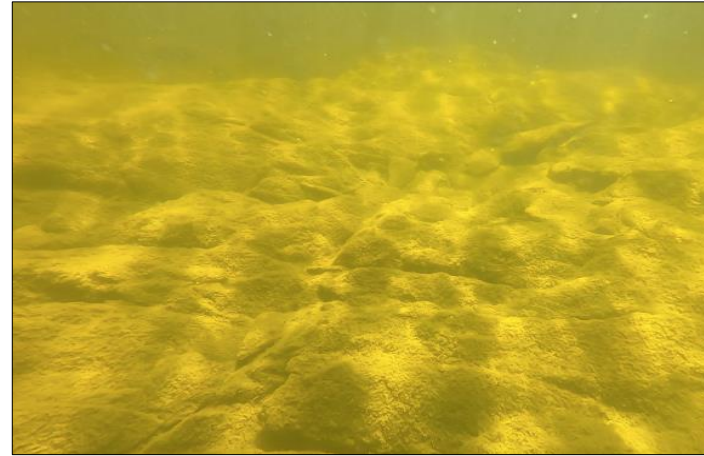


Chironomids and Amphipods from L-15-D-01 (Sep. 11, 2020)

Plate E.1-12: Sediment and Benthic Samples from Springpole Lake (L-15)



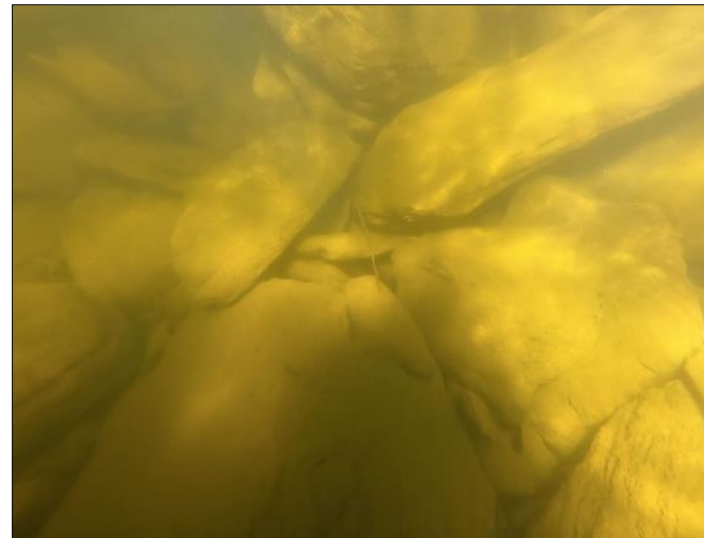
Effort ID SPL-LG-12 gillnet sample area (Jul. 26, 2020)



Effort ID SPL-LG-12 gillnet sample area substrate (Jul. 26, 2020)



Effort ID SPL-LG-11 gillnet sample area (Jul. 26, 2020)



Effort ID SPL-LG-11 gillnet sample area substrate (Jul. 26, 2020)

Plate E.1-13: Fish Habitat in Springpole Lake (L-15)



Effort ID SPL-MT-05 sample area (Jul. 25, 2020)



Effort ID SPL-MT-05 sample area substrate (Jul. 25, 2020)



Effort ID SPL-LG-5 GN sample area (Jul. 25, 2020)



Effort ID SPL-LG-5 GN sample area substrate (Jul. 25, 2020)

Plate E.1-14: Fish Habitat in Springpole Lake (L-15)



wood.

Limitations



Limitations

1. ☐ The work performed in the preparation of this report and the conclusions presented are subject to the following:
 - a. ☐ The Standard Terms and Conditions which form a part of our Professional Services Contract;
 - b. ☐ The Scope of Services;
 - c. ☐ Time and Budgetary limitations as described in our Contract; and
 - d. ☐ The Limitations stated herein.
2. ☐ No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.
3. ☐ The conclusions presented in this report were based, in part, on visual observations of the Site and attendant structures. Our conclusions cannot and are not extended to include those portions of the Site or structures, which are not reasonably available, in Wood's opinion, for direct observation.
4. ☐ The environmental conditions at the Site were assessed, within the limitations set out above, having due regard for applicable environmental regulations as of the date of the inspection. A review of compliance by past owners or occupants of the Site with any applicable local, provincial or federal bylaws, orders-in-council, legislative enactments and regulations was not performed.
5. ☐ The Site history research included obtaining information from third parties and employees or agents of the owner. No attempt has been made to verify the accuracy of any information provided, unless specifically noted in our report.
6. ☐ Where testing was performed, it was carried out in accordance with the terms of our contract providing for testing. Other substances, or different quantities of substances testing for, may be present on-site and may be revealed by different or other testing not provided for in our contract.
7. ☐ Because of the limitations referred to above, different environmental conditions from those stated in our report may exist. Should such different conditions be encountered, Wood must be notified in order that it may determine if modifications to the conclusions in the report are necessary.
8. ☐ The utilization of Wood's services during the implementation of any remedial measures will allow Wood to observe compliance with the conclusions and recommendations contained in the report. Wood's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.
9. ☐ This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or the part, or any reliance thereon or decisions made based on any information or conclusions in the report is the sole responsibility of such third party. Wood accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set out therein.
10. ☐ This report is not to be given over to any third party for any purpose whatsoever without the written permission of Wood.
11. ☐ Provided that the report is still reliable, and less than 12 months old, Wood will issue a third-party reliance letter to parties that the client identifies in writing, upon payment of the then current fee for such letters. All third parties relying on Wood's report, by such reliance agree to be bound by our proposal and Wood's standard reliance letter. Wood's standard reliance letter indicates that in no event shall Wood be liable for any damages, howsoever arising, relating to third-party reliance on Wood's report. No reliance by any party is permitted without such agreement.