



SQUAMISH
HARDWIRED for ADVENTURE

DISTRICT OF SQUAMISH

Phase 4 – Environmentally Sensitive Areas, Watercourse and Wetland Inventory 2017



Prepared By:
ECOSCAPE Environmental Consultants Ltd.

Prepared for:
The District of Squamish

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DISTRICT OF SQUAMISH ENVIRONMENTALLY SENSITIVE AREAS, WATERCOURSE AND WETLAND INVENTORY 2017

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1.0 INTRODUCTION

As resource development and human populations increase in British Columbia, pressures for all resources and services have accelerated. Rapid growth has often overwhelmed the ability of local planners to manage land and preserve sensitive habitats (Mason and Knight, 2001). This has resulted in the loss or degradation of aquatic and riparian habitats that are critical for fish and a diverse wildlife assemblage. More specifically, rapid population growth and development around our large interior lakes and rivers is one of many factors that is impacting our fish and wildlife resources. This tremendous growth rate has resulted in commercial and residential developments around these large lakes and rivers. This rapid increase in population and development presents a significant challenge to plan and/or manage future growth around interior watercourses. Accordingly, there is an urgent need to develop stronger tools and better methods to conserve, protect and reclaim these habitats.

SHIM is a recognized standard for fish and aquatic habitat mapping in urban and rural watersheds in British Columbia. These protocols attempt to ensure the collection and mapping of reliable, high quality, current, and spatially accurate information about local freshwater habitats, watercourses, and associated riparian communities.

These protocols are designed as land-planning, computer-generated, interactive GIS tools that identify sensitive aquatic and terrestrial habitats. They are intended to provide community, stewardship groups, individuals, regional districts and municipalities with an effective, low-cost delivery system for information on these local habitats and associated current land uses.

SHIM has numerous applications and can:

- Provide current information not previously available to urban planners, to allow more informed planning decisions and provide inventory information for integration into Official Community Plans. In addition, this information can be used to educate the public as to the natural resource values of these systems and the impacts our activities have on them;
- Assist in the design of stormwater/runoff management plans;
- Monitor for changes in habitat resulting from known disturbance;
- Identify and map potential point sources of pollution;
- Help guide management decisions and priorities with respect to habitat restoration and enhancement projects;
- Assist in determining setbacks and fish/wildlife-sensitive zones;
- Identify sensitive habitats for fish and wildlife along watercourses;



- Provide a means of highlighting areas that may have problems with channel stability or water quality that require more detailed study;
- Provide a baseline inventory of existing shoreline developments/modifications such as docks, retaining walls, groynes, stream mouths, and land use activities;
- Provide baseline mapping data for future monitoring activities and development of a shoreline management plan; and
- Map and identify the extent of riparian vegetation available and used by wildlife and fish.

1.1 Project Background

The overall goal of the Environmentally Sensitive Areas Watercourse and Wetland Inventory project is to improve the ecological baseline knowledge of the District of Squamish (The District), using established provincial methodologies and standards. The District has identified Sensitive Habitat Inventory and Mapping (SHIM) of watercourses and field confirmation of the Streamside Protection and Enhancement Area (SPEA) buffers as a strategic priority for the 2017-2018 timeframe.

The 2015 gap analysis completed by Ecoscape Environmental Consultants Ltd (Ecoscape) determined that an improvement was needed for the existing Terrestrial Ecosystem Mapping (TEM) to make it more robust and accurate, and include detailed mapping and inventory of watercourses, wetlands, and the marine foreshore.

The majority of the wetlands that are present in the District were mapped following the provincial TEM methodology in Phase 2, conducted in 2015. In 2016 The District retained Ecoscape and EcoLogic Consultants to complete Phase 3 of the project, which involved additional wetland inventory and mapping, as well as modelling of watercourses and riparian setbacks. Phase 3 included additional wetland mapping and the development of a high resolution LiDAR Digital Elevation Model (DEM). Flow models were then used to refine watercourse centerlines, top of banks, and wetland boundaries. Fish distributions and extents were reviewed and updated and a 30-m riparian areas assessment area was modeled for the District's watercourses.

In August 2017 Ecoscape was contracted by The District to complete Phase 4 of the Environmentally Sensitive Areas Watercourse and Wetland Inventory project summarized in the proceeding report.



2.0 PROJECT OBJECTIVES

The objectives of Phase 4 of the Environmentally Sensitive Areas Watercourse and Wetland Inventory project were to:

- Complete SHIM for 31 km of priority watercourses outlined in Appendix B of the District Request for Proposals No. 2017-017 (*not 28.5 km as identified in the RFP*). Mapped attributes will include the following at minimum: watercourse centerline, general channel character and dimensions and watercourse characteristics such as: flow (permanent or seasonal), connectivity, and fish presence, barriers to fish passage, streamside vegetation and bank erosion.
- The delineation of all SPEAs in accordance with the Riparian Areas Regulations (RAR) detailed assessment methodology for each segment identified in the SHIM field assessment.
- Confirm and update fish species distributions and extents in each watercourse and confirm fish presence/absence and potential barriers to passage using SHIM methodology.
- Wetland Site Visit Inspections have occurred for wetlands within the District in previous phases. The Site Visit inspections are the mid-level plot type using provincial methodology (Field Manual for Describing Terrestrial Ecosystems, 2nd edition) that uses a combination of site information, soils, hydrology and vegetation to accurately classify an ecosystem type to the site series level (based on Wetlands of BC). Wetland boundaries and classifications are to be confirmed for ecosystems that occur in association with priority watercourses when encountered during the SHIM priority watercourse mapping.
- Compile, organize, and provide all of the GIS information collected during the field inventories into one dataset for use by the District – updating previous databases.

The following technical report outlines the project approach and presents the results of both the inventory and the setback assessment.

2.1 Study Area

The District is located in the Sea-to-Sky corridor midway between Vancouver and Whistler. It is situated at the north end of Howe Sound and the mouth of the Squamish River and at the confluence of four other rivers – the Mamquam, Cheakamus, Stawamus, and Cheekye River. The total land area of the District is 11,730 hectares with a relief ranging from 0 - 900m above sea level (Hawes and Durand, 2016).



The study area is 10,317 hectares (Fig. 1). It encompasses the majority of The District and includes three biogeoclimatic subzones.

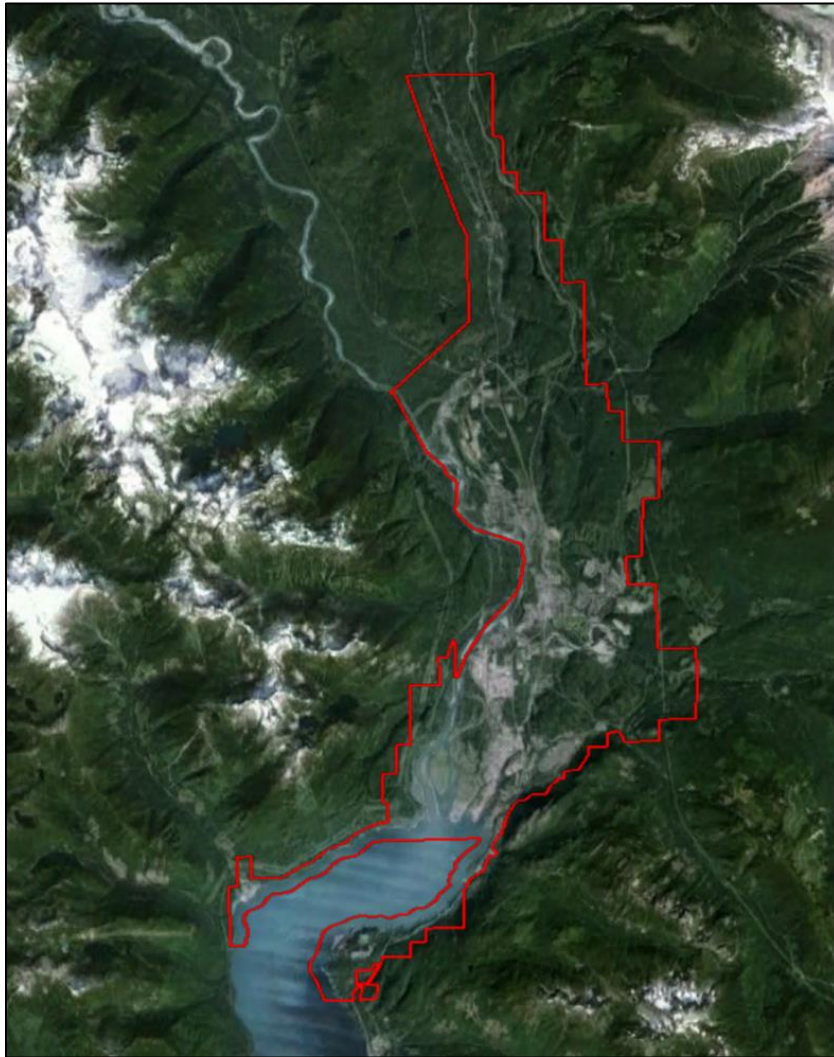


Figure 1. Study Area Boundary (adapted from Google Earth).

3.0 METHODOLOGY

Field inventory, data processing and data deliverables conformed to the Sensitive Habitat Inventory and Mapping (SHIM) standards (Mason and Knight, 2001). Data was recorded using a Trimble Geo7x/Data Logger and entered into a digital data dictionary. Data collection fields for respective biophysical and anthropogenic attributes are listed in the following sub sections. Data collection methods and processing standards can be reviewed in full at:

http://www.shim.bc.ca/methods/SHIM_Methods.html



3.1 Centerline Survey

Renee Lemmond was the principal surveyor and completed all field survey elements with the assistance of Allen Lewis (Squamish First Nation).

The centerline of the river channel was mapped along the center of the bankfull (not floodplain) width. The creek was stratified into a series of successive sections (segments), each possessing and being characterized by different attributes or biophysical characteristics (i.e. hydraulic class, channel characteristics, substrates composition, and riparian class, etc.). The stream segmentation and associated attributes was the fundamental unit of the centerline survey with point features providing a more quantitative measure of relative disturbance/modification and aquatic habitat quality/complexity (i.e. area abundance of deep pools, spawning substrates, large woody debris, bank erosion, etc.).

Table 1 provides a complete list of features and corresponding attributes that were recorded using the SHIM Data Dictionary.

Table 1. Overview of river centerline data fields collected using the Trimble data dictionary.

Reach Length	Linear measure along centerline of channel (m)
Primary Character	Modified; Natural; Other
Channel width	Bankfull level (m)
Gradient	% grade
Salmonid Spawning	Yes/No; Species
Livestock Access	Yes/No; Comment
Hydraulic Character	Cascade; Cascade-Pool; Falls; Pool; Run; Glide; Riffle; Riffle-Pool; Riffle-Run; Slough; Lake; Wetland; Other
Channel Pattern	Straight; Sinuous; Irregular; Irregular meandering; Regular meanders; Tortuous meanders
Bars	Side; Diagonal; Mid-channel; Spanning; Braided
Islands	Occasional; Split; Frequent – Irregular; Frequent – Regular; Anastomosing
Substrate Composition	% Organic; % Fines; % Gravel; % Cobble; % Boulder; % Bedrock
Embeddedness/Compaction	Degree of embeddedness of coarse substrates in fines (sand/silt)
% Instream Cover	Boulder; Deep Pool; Instream Vegetation; Large Woody Debris; Overstream Vegetation
Reach Impact Rating	See Table 2.

A Level of Impact rating was included in the data dictionary and applied to the centerline reach information (Appendix A). This rating system was designed with the intent of providing a more measurable parameter in evaluating stream condition and monitoring and evaluating habitat changes on local watercourses and associated riparian and floodplain communities. Individual reach scores were assigned based on the criteria outlined in Table 2. Weighted scores for respective impact ratings were obtained by dividing the cumulative length of reaches receiving the same impact rating



by the total river length being evaluated to obtain a fractional abundance (% of river length). This value was then multiplied by the respective Score (0-6) equaling the weighted score. The sum of weighted scores was then divided by the maximum attainable score (6)¹ and transformed into a percentage value or river grade. This scoring system precedes the Aquatic Habitat Index and, on its own, is a field measure of river/bank condition.

Table 2. Level of Impact rating criteria for District of Squamish SHIM.

River Bank Impact Criteria ¹	Combined River Reach Score
Nil-Nil (<i>Nil impacts on both banks</i>)	6
Nil-Low	5
Nil-Mod	4
Nil-High	3
Low-Low	4
Low-Mod	3
Low-High	2
Mod-Mod	2
Mod-High	1
High-High (<i>Impact on both banks is high</i>)	0

¹. Numeric Bank Impact Scores: Nil=3; Low=2; Mod=1; High=0

3.1.1 Riparian Setback Assessment

Through Phase 3 of this project, watercourses were buffered by 30-m from both the left and right interpolated banks. Following the RAR guidelines, these 30-m riparian buffers were further refined based on the detailed assessment methodology.

The RAR guidelines outline the detailed assessment procedures used to determine the SPEA width. In a detailed assessment, the “Zone of Sensitivity” is determined by a Qualified Environmental Professional (QEP) using several assessments (BC MoE, 2004). Relevant assessments include:

1. Large Woody Debris for fish habitat;
2. Area for localized bank stability;
3. Area for channel movement;
4. Shade; and
5. Litter fall and insect drop.

The SPEA width is determined by the largest zone of sensitivity from the above list. In order to determine the above, the following measurements are required:

- Watercourse reach breaks (segments);
- Average channel widths;
- Average channel slope;

¹ A combined weighted score of 6 would be attained if all reaches were natural with no discernable human disturbance on either the right or left bank. In other words, the river is pristine.



- Channel type; and
- Site potential vegetation type.

These measurements will all be included in the SHIM inventory. Dimensions of stream segments were collected at eleven or more intervals per segment in order to determine the associated SPEA (as per RAR methodology). Therefore, the majority of individual segments must be a minimum of 100 m in length. In cases where segments measured <100 m in length, as many intervals were collected as possible per segment to determine accurate average stream dimensions. SPEAs for all watercourses and wetlands have been mapped in order to update and refine the District's Environmentally Sensitive Areas and Riparian Assessment Areas GIS data.

The detailed assessment methodology under the Provincial Riparian Areas Regulation (RAR) utilizes a number of factors to determine riparian setbacks based on the site potential vegetation type (SPVT) and channel type, including the Zones of Sensitivity (ZOS) for:

- Large woody debris, bank and channel stability,
- Litterfall and insect drop, and
- Shade.

As an example, the zones of sensitivity for a stream reach (segment) with a SPVT of treed and a riffle-pool channel morphology would be as follows:

- Large woody debris, bank and channel stability = 3 x Channel width (min. 10m / max. 15m)
- Litterfall and insect drop = 3 x Channel width (min. 10m / max. 15m)
- Shade = 3 x Channel width (max. 30m)

Zones of Sensitivity were determined using two approaches for the purposes of this study, the results of which produce the conservative SPEA and the refined SPEA setbacks. SPVT for all watercourses and both methods has been assumed to be 'treed'. The conservative SPEA method for determining the zones of sensitivity assumes all Channel Types are *riffle pool*, while the refined SPEA method evaluates zones of sensitivity based on specific channel types. In determining the refined SPEA, watercourses have been categorized into cascade pool, riffle pool, wetland and ditch channel types based on primary hydraulic character and channel gradients. Table 3 provides a summary of methods used to determine zones of sensitivity for specific channel types.



Table 3. SPEA zones of sensitivity			
Channel Type	Litter and Insect Drop	Bank Stability	Shade
Riffle/Pool	3x Channel Width/minimum 10m maximum 15m	3x Channel Width/minimum 10m maximum 30m	3x Channel Width/ maximum 30m
Cascade/Pool	3x Channel Width/minimum 10m maximum 15m	2x Channel Width/minimum 10m maximum 15m	3x Channel Width/ maximum 30m
Wetlands	15 m	15 m	30 m
Ditches	2 x channel width/ minimum 5m maximum 10m	2 x channel width/ minimum 5m maximum 10m	2 x channel width/ minimum 5m maximum 10m

From this, the Streamside Protection and Enhancement Area (SPEA) is determined by the largest calculated zone of sensitivity within respective reaches.

Ecoscape collected a minimum of 11 channel sections in each field-determined stream reach/segment to determine the average wetted widths and bankfull widths to provide an estimate of what the riparian setback may be along a given segment. This analysis is intended to prescribe SPEAs (minimum setbacks) within each segment of the surveyed watercourses for District Planning documents and associated guidelines. SPEA values would be prescribed to establish a minimum setback distance that would enable the District to expedite the development permit process when a development application demonstrates that there will be no encroachment into the SHIM field SPEA.

Based on experience on other watercourses, the estimated SPEA using SHIM channel information (collected by Ecoscape) has resulted in SPEA estimates being generally within +/- 0.5m of that determined during site specific detailed RAR assessments.



3.1.2 Feature Mapping

Morphological, habitat, and anthropogenic features were marked with both the GPS and described on field maps and later digitized as points and polygons into the data dictionary. These features, summarized in Table 4, provide a more quantitative measure of relative disturbance/modification, and aquatic habitat quality/complexity (e.g., aerial abundance of spawning substrates/coarse woody debris measure etc.).

Table 4. Overview of watercourse and habitat attributes that were collected using the Data Dictionary developed for this project (Adapted from Module 3, Mason and Knight, 2001). The complete data dictionary can be found in Appendix C.

Main Attribute	Detailed Feature Collected
Modifications	Type (retaining wall/water withdrawal/bridge/dock etc.) material; length; photo
Culvert Attributes	Type-Material; Condition; Barrier; Size; Baffles
Obstruction Attributes	Type-Material; Barrier; Size; Photo
Stream Discharge Attributes	Point of Discharge; Type-material; Size
Erosion Feature	Type of Erosion; severity; exposure; material
Fish Habitat Attributes	Type of Habitat (Spawning/rearing/cover); Size; Slope; Photo
Enhancement Areas	Type of Enhancement; Potential or existing enhancement
Wildlife Observations	Type of Observation; Wildlife species; Photo
Wildlife Tree Attributes	Type of Tree; Size; Location
Near Waterbody Attributes	Type of Waterbody (spring/side channel/pond etc.); Size
Wetland Attributes (Polygon feature)	Wetland Type-Class; Photo
Representative Photograph Location	Location; Direction

3.2 Data Processing and Quality Assurance and Control

The Resource Inventory Committee and SHIM Methodology (Mason and Knight, 2001) provide specific requirements for quality assurance and quality control. These standards, such as GPS settings/precision, logging intervals, and data management and deliverables were followed throughout the field inventory stages of the project.

GPS settings and use were in accordance with Resource Inventory Committee Standards to ensure the collection of spatially accurate data. The coordinate system used was UTM Zone 10 North, North American Datum 83.

Field data was differentially corrected using base data provided by the Oroville Airport (RKD1), Washington (ITRF00(1997)-DSTHOMed from IGS08 (NEW)) Position: 48°57'51.66889"N, 119°24'46.89431"W, 313.27 m.

Data dictionary tools designed for ARC View 3.x were employed to process the data and to export the data into ESRI shapefiles. Subsequent processing and mapping was completed using ArcGIS 10.x. Processed GPS data (shapefiles) were then converted into geodatabases.



To ensure Quality Assurance and Control the following tasks were followed during completion of this project:

- Field data collected was backed onto the local server and field computer at the end of each field day.
- All field data collected during the field inventories was post processed by the field inventory biologist, Renee Lemmond, B.Sc.
- We reviewed each attribute collected during the field survey as part of a quality control / assurance process. The final database will be provided to The District at the completion of the project. Corrections and adjustments to the database will be made as necessary.

3.3 Photo Log

SHIM/FIM standards require that a detailed photo log accompany and be incorporated into the database. All photos were entered into a log for location and subject reference. In addition, coordinate locations (UTM Zone 10 North, North American datum 83 Canada) were included in the photo data to enable spatial referencing on the ground.



4.0 SUMMARY OF RESULTS

The District identified 28.5 km of priority watercourses to be mapped in the 2017 fall field inventory period. The actual distance mapped was approximately 33.3 km, which included several new tributaries associated with the priority watercourses. Priority watercourses were divided into 21 individual watercourses and 29 associated tributaries, where connections exist within. A total of 82 segments have resulted from the abovementioned watercourses and tributaries, where the average segment length is approximately 405.7 meters.

The following section summarizes the watercourse location and general character, including morphological and biophysical features surveyed within the watercourses. Summary results and discussions for individual watercourses are commensurate with their overall magnitude and level of impact. Refer to the attached summary pages (Appendix B) and corresponding poster maps for segment attributes and representative photos. The processed data from the centreline survey and feature data has been included in Appendix A. In addition, this data can be found in digital format accompanying the complete inventory catalogue, which includes all point features, attributes, and representative photos (intended for use in an ESRI GIS platform).

4.1 Priority Watercourse Summaries

4.1.1 Logger's Lane Creek System

The Logger's Lane Creek system (Appendix B, Pages 1-4, 18-21 and 46-56) includes 7.6 km of historically channelized watercourses highly influenced by tidal effect. The approximately 0.51 km² area encompassing the system is bordered on all sides by Highway 99 and Logger's Lane and is largely composed of western redcedar – sword fern – skunk cabbage swamp, where surface water is present most of the year. The system enters the Mamquam Blind Channel at Logger's Lane Creek. Many of the channels in this wetland system are narrow and low gradient and are presumably historically dredged channels to accommodate surface runoff and storm discharge. A substantial hydraulic transition occurs from Logger's Lane segment 1 to segment 2, where the system connects to the Britannia Slough system to the west and riffle-pool transitions from slough. The survey of Logger's Lane Creek begins at its intersection with Logger's Lane, however its tributaries source is from stormwater discharge north of Finch Drive from culverts within Brennan Creek Park and properties on Raven Drive. Several short backwater channels occur within the system, most of which are continually wetted.

Logger's Lane Creek Trib 4 connects the discharges north of Finch Drive to the Logger's Lane System and appears to be an enhancement channel, with several deep pools and imported cobble spawning substrate.

Brennan Park Creek (unnamed) is the north-most watercourse in the Logger's Lane Creek system and travels through Brennan Park and adjacent Highway 99, connecting



to Logger's Lane Creek via the Finch Connector. Brennan Park Creek is similarly within a western redcedar – sword fern – skunk cabbage swamp, however Segment 1 is a much more ephemeral, overgrown section, while segment 2 is deeply incised and Segment 3 is a highly modified and enhanced channel through Brennan Park. Several tile drain and storm drain discharges were noted throughout Brennan Park and the surrounding area which contribute to the Logger's Lane system.

Segment 1 of the Logger's Lane Connector and Segment 3 of Brennan Park Creek comprised a large part of the documented 287 m² of deep pools and 638.1 m² of large woody debris, which provide high quality aquatic habitat.

Table 5. Feature Summary for Logger's Lane Creek System					
Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
287		638.1		No	
Anthropogenic Impacts					
Enhancements	Erosion (m ²)	Discharge Points	Culverts	Obstructions	Modifications
6	9	5	20	0	11



Looking upstream at representative slough hydraulic character within Logger's Lane Creek Segment 2 (*left*); looking at woody debris cover within the Logger's Lane Connector Segment 1 (*right*).



Residential tile drain at the upstream end of Logger's Lane Creek Trib 4 (*left*); looking at enhancement riffle-pool feature within Segment 2 of Logger's Lane Creek Trib 4 (*right*).



Looking upstream towards a backwater channel within Logger's Lane Creek Segment 2 (*left*); looking at boulder cover enhancements within Brennan Park Creek Segment 3 (*right*).

4.1.2 Britannia Slough and Tributaries

Britannia Slough and Tributaries (Appendix B, Pages 5-9) includes 3.2 km of mapped priority watercourses. Segment 1 is a wide channelized slough bordering urban residential development on its left bank (facing downstream) within recreational park, while Segment 2 travels south from Pioneer way, where the inventory began. Tributaries include a beaver-influenced pond/slough and associated wetland that connects the Britannia Slough system to the Logger's Lane Creek system beneath HWY 99 (Trib 1), a channelized storm drainage channel originating from a storm discharge culvert, and a storm discharge flood channel south of the Squamish Walmart parking lot.

Table 6. Feature Summary for Britannia Slough and Tributaries

Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
0		1.8		No	
Anthropogenic Impacts					
Enhancements	Erosion Points (m ²)	Discharge Points	Culverts	Obstructions	Modifications
0	0	9	6	1	4



Downstream facing view of Britannia Slough Segment 1 (*left*); View of right bank city storm discharge to Britannia Slough (*right*).



Upstream view of beaver dam obstructing Britannia Slough Trib 1, downstream of its connection to Logger's Lane Creek (*left*); Upstream view of Britannia Slough Segment 2, a straight channelized slough (*right*).

4.1.3 Dryden Creek System

The Dryden Creek system includes Dryden Creek, Hop Ranch Creek, and Cottonwood Creek. Dryden Creek (Appendix B, Pages 16-17) was mapped upstream from its dyked confluence at the Squamish River upstream to its confluence with Cottonwood Creek.

Dryden Creek was inventoried as one segment, characterized as riffle-pool with two beaver dams creating pooled slow moving sections. Dryden Creek is highly modified through dense urban residential areas. Dryden Creek Trib 1 is a neighbourhood storm drainage extending from the creek's left bank to Meadow Avenue and Judd Road.

Cottonwood Creek (Appendix B, Pages 10-15) was surveyed from its confluence with Dryden Creek to approximately 0.2 km downstream of its intersection with Government Road. The watercourse inventory began at a large ponded section of the watercourse located upstream of a bridge connecting Judd and Kingswood Road. The pond has no visible barrier influencing flow and is presumably a result of changing gradients. Segment 2 included a narrow highly modified riffle-pool channel. A second widening ponded area occurred through Segment 3 and the creek transitioned upstream back to narrow riffle-pool. An additional portion of Cottonwood Creek was surveyed approximately 140 m north of Cottonwood Creek Segment 4 and included two segments of disturbed wetland. Segment 1 is downstream of Dryden Road, the upstream end located approximately 50 m east of the intersection of Government Road and Dryden Road. Cottonwood Creek Trib 1 Segment 1 consists of Skunk cabbage – alder swamp in urban residential backyards, and extends to Dryden Road. Segment 2 is a deep ponded area north of Dryden Road.

Hop Ranch Creek (Appendix B, Pages 28-31) enters Dryden Creek behind the residence at the south end of Meadow Avenue. Hop Ranch Creek was mapped from its confluence with Dryden Creek to approximately 0.7 km east from the north end of Tantalus Road. The Creek was divided into four segments. Segment 1 is highly modified and channelized through farmland where livestock grazing is evident. Channelized under highway 99 from Segment 2, the riffle-pool watercourse has thick shrub vegetation providing extensive cover. Segment 3 is a deep narrow channel through a disturbed marsh. Upstream of segment 3, the channel narrows and cascades through a gulley draining Alice Lake, where fish passage is unlikely.

Table 7. Feature Summary for Dryden Creek System

Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
92		4.8		Yes	
Anthropogenic Impacts					
Enhancements	Erosion (m ²)	Discharge Points	Culverts	Obstructions	Modifications
0	0	6	7	6	18





Downstream facing view of Dryden Creek, channelized and modified through urban residential areas (*left*); beaver dam located approximately 0.2 km upstream of the Hop Ranch Creek confluence (*right*).



Downstream view of Dryden Creek just upstream of the confluence with the Squamish River (*left*); Ponded disturbed wetland located approximately 60 m northeast of the intersection of Government Road and Dryden Road (*right*).



Upstream view of Hop Ranch Creek Segment 4, where the creek cascades through a mountain gulley (*left*); view of dense shrubs within Hop Ranch Creek Segment 2 (*right*).

4.1.4 Harris Slough and Tributaries

Harris Slough (Appendix B, Pages 22-27) was inventoried from its confluence with the Mamquam River. Harris Slough is a wide slough, entirely dyked on its left bank (looking downstream) and confined by urban development on its right bank. Two segments were defined within the priority section of Harris Slough, segregated by the pump station directly above the Harris Slough confluence. Segment 1 is downstream of the pump station and is riffle-pool character, providing potential spawning habitat to fish migrating up from the Squamish River, while Segment 2 is a wide, deep sluggish watercourse with wetland riparian features.

Harris Slough Tributary 1 and Tributary 2 are modified drainage channels, consisting mainly of organic substrates. Both tributaries originate from left bank drainage ditches. It is likely that these tributaries exhibit high flow in periods of extended precipitation. The Harris Slough drainage ditch is not connected to Harris Slough Trib 2 and is instead likely connected by drainage ditch to Harris Slough Tributary 1 on the south side of the rail tracks. This connection is unconfirmed as barriers prevented entry to the left bank industrial property. All three tributaries are relatively narrow and composed predominantly of fine substrates.

Table 8. Feature Summary for Harris Slough and Tributaries					
Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
60		27		No	
Anthropogenic Impacts					
Enhancements	Erosion (m ²)	Discharge Points	Culverts	Obstructions	Modifications
0	0	1	5	1	2





Upstream view of Harris Slough (*left*); downstream view of overflow culverts at the downstream end of Harris Slough Segment 2 (*right*).



Upstream facing view of Harris Slough Trib 1 (*left*); View facing upstream towards the Harris Slough outlet to the Mamquam River (*right*).

4.1.5 Little Stawamus Creek System

The Little Stawamus Creek system (Appendix B, Pages 32-44) enters the Stawamus River along right bank of Segment 1. An approximate distance of 5.3 km was surveyed within the Little Stawamus system, including Little Stawamus Creek from its confluence at the Stawamus River, Magnolia Creek, and their respective priority tributaries. The system is highly modified, including 21 culverts, 7 discharge points, and 41 alterations. The south portion of the system is mostly channelized through western redcedar – sword fern – skunk cabbage swamps, and disturbed by recreational trails and historical logging operations. The upper portions of the surveyed system are modified and channelized through urban residential areas.

Little Stawamus Creek was mapped for approximately 3 kilometers from its confluence with the Stawamus River and was divided into 6 segments. The first 402 m segment braids through low flood associations and swamp and has been channelized by the

Stawamus dike on its left bank and a road alignment on its right bank. The first segment of Little Stawamus Creek has one tributary at its upstream end, inventoried from a discharge culvert on the east side of Valley Road. The Little Stawamus Creek Trib 1 is a vegetated drainage ditch which likely has a subsurface connection to the left bank wetland and Little Stawamus Creek Segment 2. Pink Salmon and Coho fry were observed frequently within this segment at the time of the 2017 field inventory.

Little Stawamus Creek Segment 2 is differentiated by its wetland attributes. The downstream end is largely influenced by a beaver dam and pond at its downstream end. The beaver dam and shallow water association creates a flood influence that encompasses the confluence of Magnolia Creek. Coho fry were observed within the segment, however no Pink Salmon were observed upstream of the beaver dam obstruction. Segment 3 begins upstream of the beaver pond and is a low gradient, straight and channelized riffle with evident impacts of high bedload. Segment 4 meanders through dense blackberry thicket and is highly modified with extensive bank erosion. Segment 5 continues as a straight low gradient riffle channel with several weir enhancements.

Three tributaries were surveyed off the right bank of segment 5. Little Stawamus Trib 2 and 3 are high gradient springs inventoried upstream to source bedrock features northwest of their confluences with the Little Stawamus Creek. Tributary 4 is a high gradient drainage gulley originating from Plateau Avenue storm drains and displays erosion impacts characteristic of flash flooding.

Magnolia Creek was surveyed upstream from its confluence with Little Stawamus Creek for 0.8 km. Both Magnolia Creek and its tributary originate from neighborhood storm drainages and consist of low gradient deeply incised sloughs with extensive subsurface influence from adjacent western redcedar – sword fern – skunk cabbage swamps.

Table 9. Feature Summary for Little Stawamus Creek System					
Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
109		230.3		Yes	
Anthropogenic Impacts					
Enhancements	Erosion (m ²)	Discharge Points	Culverts	Obstructions	Modifications
0	145.8	7	21	4	41





Upstream facing view towards the Little Stawamus River beaver dam (*left*); Upstream facing view of Little Stawamus Segment 2 (*right*).



Upstream facing view of the bedrock cascade within Little Stawamus Trib 2 Segment 1 (*left*); Downstream facing view of Plateau Drive culvert (*right*).

4.1.6 Judd Slough

Judd Slough (Appendix B, Page 45) was surveyed from its downstream dike to approximately 200 m upstream of Depot Road. Emergent vegetation was noted throughout the slough's surveyed length. The slough edges were sluggish with fine-textured and organic substrates. A higher velocity channel exists within the center of the slough, where cobble substrates were more prominent. The watercourse is channelized by dike and bordered by mature broadleaf forest on its right bank. An additional overflow channel extends north, diked at the Squamish River. Right bank tributaries are unconfirmed due to autumn low flow levels and lack of access. The Judd Slough streamline was modified at its downstream end, where the Slough is isolated from the Squamish River by a land barrier and meanders 1.4 km east towards its confluence to the Squamish River.

Table 10. Feature Summary for Judd Slough					
Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
0		3.6		No	
Anthropogenic Impacts					
Enhancements	Erosion (m ²)	Discharge Points	Culverts	Obstructions	Modifications
0	0	0	1	1	4



Downstream view of Judd Slough marsh (*left*); upstream facing view of pump station/dike at the south end of Judd Slough (*right*).

4.1.7 Mamquam Blind Channel Tributaries

Approximately 0.76 kilometers of tributaries to the Mamquam Blind Channel (Appendix B, Pages 68-68) were inventoried, all of which discharge to the Mamquam Blind Channel at Scott Crescent through two culverts. These tributaries include the Mamquam Blind Channel Trib 1, the Mamquam Blind Channel Wetland, the Scott Crescent Drainage Ditch, and Valleycliffe Drainage Ditch.

The north drainage culvert sources from a drainage ditch that travels adjacent Scott Crescent uphill. The Valleycliffe Drainage Ditch is a steep gradient armoured drainage flume that connects to the Scott Crescent Drainage Ditch at the intersection of Valleycliffe Trail and Scott Crescent and is sourced from the upper neighbourhood storm drains at Clarke Drive.

The south drainage culvert discharging into the Mamquam Blind Channel begins within a disturbed young red alder – blackberry – horsetail – grass wetland, which accumulates by subsurface drainage at the east hill toe. This wetland shows evidence of historic infill/dumping disturbance and is connected to the south culvert by a drainage ditch east of Scott Crescent.



The confluence of the Mamquam Blind Channel Tributaries shows evidence of tidal influence as extensive erosion. At low water levels, the culverts connecting the tributaries to the Mamquam Blind Channel are barriers to fish passage.

Table 11. Feature Summary for Mamquam Blind Channel Tributaries					
Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
0		0		No	
Anthropogenic Impacts					
Enhancements	Erosion (m ²)	Discharge Points	Culverts	Obstructions	Modifications
0	45	3	6	1	1



View of wetland inventoried within the Mamquam Blind Channel Tributaries system (*left*); downstream view of the Scott Crescent Drainage Ditch (*right*).



Upstream view of culvert connecting the Mamquam Blind Channel Tributaries to the Mamquam Blind Channel (*left*); downstream view of the Valleycliffe armoured drainage flume (*right*).

4.1.8 Mamquam Blind Channel

The Mamquam Blind Channel (Appendix B, Pages 69-71) was inventoried from its intersection with Logger's Lane to a stagnant ponded section 0.2 km west of Buckley Road. The 0.8 km watercourse was divided into 3 segments, the first of which consists of a wide slough between Logger's Lane and HWY 99. Segment 2 is a narrow riffle-pool channel, encroached by development on its right bank. The left bank is bordered by riverine cattail marsh (Wm05). Segment 3 is a highly modified channel confined by urban/residential development originating from a modified shallow water wetland 0.2 km west of Buckley Road.

Table 12. Feature Summary for Mamquam Blind Channel					
Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
18		4		No	
Anthropogenic Impacts					
Enhancements	Erosion (m ²)	Discharge Points	Culverts	Obstructions	Modifications
0	0	2	3	0	1



Downstream view of the Mamquam Blind Channel Segment 1, note left bank cattail (*left*); View of modified shallow water community at Buckley Road culvert where persistent debris has partially plugged the culvert (*right*).

4.1.9 Mamquam Side Channel

The Mamquam Side Channel (Appendix B, Pages 72-74) is a 0.75 km side channel at the Mamquam River's right bank, within the Mamquam floodplain and adjacent to the Squamish Valley Golf and Country Club. The side channel is located within a recreational trail system and includes extensive rearing backwaters and about 67 m² of deep pool habitat. The upstream end of the side channel includes a beaver dam obstruction within the main side channel resulting in a stagnant pool. The watercourse is channelized by the right bank dike and is characterized by a riffle-pool hydraulic

character downstream of the beaver dam obstruction. Pebble substrates are suitable for spawning and the side channel contains about 55.5 m² of large woody debris cover. One tributary was noted from the Mamquam Side Channel's left bank. At the time of the survey the tributary was a disconnected Mamquam River backwater which would contribute flow to the Mamquam Side Channel during higher discharge periods.

Table 13. Feature Summary for Mamquam Side Channel					
Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
67		55.5		No	
Anthropogenic Impacts					
Enhancements	Erosion Points (m ²)	Discharge Points	Culverts	Obstructions	Modifications
0	0	0	1	1	2



Looking upstream toward a bridge along the Mamquam River side channel (*left*); upstream view of the Mamquam Side Channel beaver pond obstruction (*right*).

4.1.10 Mashiter Creek Outlet

The Mashiter Creek Outlet (Appendix B, Page 74) was surveyed from its confluence to the Mamquam River to approximately 20 m upstream of its first tributary. The Mashiter outlet is channelized and diked on both banks and sources from mountain drainages northeast of Squamish (Columnar and Round Mountain). Mashiter Creek is a major tributary of the Mamquam River.

The Mashiter Creek Outlet is a straight cobble channel with a riffle hydraulic character. Historic logging operations are evident along Mashiter Creek. Commercial development predominates the left bank. Two discharge points were noted while few other modifications were inventoried at the Mashiter Creek Outlet. At the time of the 2017 SHIM inventory, Pink Salmon were documented several times within the Mashiter Creek outlet. It is likely that many fish species utilize this channel, although no significant fish habitat was noted within the inventoried segment.

Table 14. Feature Summary for Mashiter Creek Outlet

Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
0		0		No	
Anthropogenic Impacts					
Enhancements	Erosion (m ²)	Discharge Points	Culverts	Obstructions	Modifications
0	0	2	0	0	1



Upstream facing view of the Mashiter Creek Outlet (*left*); view of left bank discharge point to the Mashiter Creek Outlet (*right*).

4.1.11 Mashiter Side Channel and Backwater

The inventoried portion of the Mashiter Side Channel (Appendix B, Pages 75-76) enters the Mamquam River east of Governor Road and meanders within a low gradient, channelized rearing enhancement system confined by dike to the north. The system includes sections of riffle-pool and several large rearing backwater pools. The priority portion of the Mashiter Side Channel was surveyed from just upstream of the HWY 99 culvert, where a backwater channel was inventoried off the Mashiter Side Channel left bank. The Mashiter Side Channel Backwater is segregated from the Mamquam River at its upstream end. No barriers to fish passage were observed within the inventoried length of watercourse.

The Mashiter Side Channel is in relatively good condition and provides important habitat for Mamquam River species. Large woody debris provides about 33 m² of cover, with deep pools providing about 460 m² of cover. In addition, substantial instream vegetation and potential spawning habitat contribute to increased habitat value.

Table 15. Feature Summary for Mashiter Side Channel and Backwater

Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
460		33		No	
Anthropogenic Impacts					
Enhancements	Erosion (m ²)	Discharge Points	Culverts	Obstructions	Modifications
2	0	0	1	0	3



Downstream view of Mashiter Side Channel culvert extending beneath HWY 99 (*left*); Upstream view of non-native marsh at north end of the Mashiter Side Channel (*right*).



View of enhancement rearing pool within the Mashiter Side Channel (*left*); view of large woody debris within the Mashiter Side Channel (*right*).

4.1.12 Stawamus River

The Stawamus River (Appendix B, Pages 77-79) originates at the outlet of Stawamus Lake and flows north approximately 13 km before entering the District and flowing south towards its confluence with Howe Sound.

A total of 5.3 km of the River was surveyed beginning at its intersection with the Mamquam Forestry Service Road and ending at the Sea-to-Sky highway bridge. This section of the river was broken into two segments based on primary river character.

The inventoried portion of the Stawamus River is primarily riffle-pool. The Stawamus dike runs adjacent to the Stawamus River right bank. The average channel gradient throughout the surveyed portion of the Stawamus River was around 1%. Around Magnolia Crescent, the Stawamus Dike buffer increases, providing extended riparian widths on the right bank, where recreational trails are established through red alder forest. The wider bankfull width allows the river channel to braid through cobble bedload. A higher diversity of habitat features and side channels therefore was noted within the downstream segment of the surveyed portion of the river. The left bank is bordered by western redcedar – sword fern – skunk cabbage swamp at the base of the Sky Pilot mountain slope. The Mamquam FSR follows the left bank throughout the surveyed length of the Stawamus River.

Approximately 1066.5 m² of deep pool and 490 m² of large woody debris cover were recorded within the watercourses, predominantly within the downstream braided segment (Segment 1). The Little Stawamus Creek is the only tributary to the surveyed portion of the Stawamus River and provides important spawning habitat. Pink Salmon were observed in high densities throughout Segment 1 of the Stawamus River. Upstream migration of anadromous fish species was potentially restricted at about 1.6 km upstream from the Stawamus outlet at the time of the SHIM survey, due to low flows and bedload aggradation.

Table 16. Feature Summary for the Stawamus River

Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
1066.5		490		No	
Anthropogenic Impacts					
Enhancements	Erosion (m ²)	Discharge Points	Culverts	Obstructions	Modifications
0	1944	0	0	4	5





View of spawning Pink Salmon within Segment 1 of the Stawamus River (*left*); upstream view of the Mamquam FSR bridge where the 2017 inventory ended (*right*).



Upstream facing view of left bank erosion (*left*); view of concrete culvert debris, of which 5 instances were noted over the surveyed length of the Stawamus River (*right*).

4.1.13 Skyline Place Creek

Skyline Place Creek (Appendix B, Pages 80) is located within Coho Park; the surveyed length of which included one 0.6 km segment beginning at Skyline Drive West, at which point a pile drain and a storm drainage culvert divert flow towards Coho Park. The upstream portion of this segment was dry at the time of the survey while the downstream 400 meters were wetted within western redcedar – sword fern – skunk cabbage swamp.

The area was historically disturbed but has been restored to a natural recreational park. Residential yards encroach on the creek at its upstream (southern) end. Skyline Place Creek is described as a medium gradient riffle-pool channel with pockets of suitable spawning substrates for Coho Salmon.

Table 17. Feature Summary for Skyline Place Creek

Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
0		18.6		Yes	
Anthropogenic Impacts					
Enhancements	Erosion (m ²)	Discharge Points	Culverts	Obstructions	Modifications
0	0	2	1	0	3



South facing view of the downstream end of Skyline Place Creek (*left*); Facing upstream towards the ephemeral portion of Skyline Place Creek (*right*).



Upstream tile drain source of Skyline Place Creek (*left*); Upstream Skyline Place Creek storm drainage culvert (*right*).

4.1.14 Thunderbird Creek

Thunderbird Creek (Appendix B, Pages 81-82) was surveyed from the culvert at Cordor Road to approximately 230 m upstream of Perth Drive and was broken into two segments, the first of which ends approximately 50 m upstream of Perth road, where the Creek transitions from riffle-pool, relatively narrow channel, backed by residential

properties to a cascade-pool gully that continues north towards the adjacent mountain drainages. The entire surveyed length of Thunderbird Creek is heavily wooded and minimally modified by trails and bridges. Several storm discharge points were noted within the culvert beneath Perth Drive. It is likely that steep gradients prevent fish passage upstream of Perth Drive. Thunderbird Creek is bounded by recreational bike trails along its length.

Table 18. Feature Summary for Thunderbird Creek					
Fish Habitat Features					
Deep Pools (m ²)		Large Woody Debris (m ²)		Fish Barriers	
21		96.6		Yes	
Anthropogenic Impacts					
Enhancements	Erosion (m ²)	Discharge Points	Culverts	Obstructions	Modifications
0	0	1	3	3	6



View of pedestrian bridge modification over Thunderbird Creek Segment 1 (*left*); upstream view of Thunderbird Creek cascading through large woody debris and preventing fish passage (*right*).



Downstream view of Perth Road culvert (*left*); downstream view of Thunderbird Creek Segment 2 narrow cascading channel (*right*).

5.0 RIPARIAN SETBACKS

The detailed assessment methodology under the Provincial RAR utilizes a number of factors to determine riparian setbacks based on the site potential vegetation type (SPVT) and channel type, including the Zones of Sensitivity (ZOS) for:

- Large woody debris, bank and channel stability,
- Litterfall and insect drop, and
- Shade.

As an example, the zones of sensitivity for a stream reach (segment) with a SPVT of treed and a riffle-pool channel morphology would be as follows:

- Large woody debris, bank and channel stability = 3 x Channel width (min. 10m / max. 15m)
- Litterfall and insect drop = 3 x Channel width (min. 10m / max. 15m)
- Shade = 3 x Channel width (max. 30m)

From this, the Streamside Protection and Enhancement Area (SPEA) is determined by the largest calculated zone of sensitivity within respective reaches.

The conservative SPEA method for determining the zones of sensitivity assumes all Channel Types are '*riffle-pool*' and Site Potential Vegetation Type (SPVT) remains '*treed*', while the refined SPEA method evaluates zones of sensitivity based on specific channel types.

The conservative approach has generally resulted in larger setbacks for watercourses categorized as a ditch. Most watercourses in the systems mapped by Ecoscape are assumed to be fish bearing, therefore Ecoscape recommends utilizing the conservative SPEA approach for landuse planning purposed to avoid encroachment into fisheries sensitive zones. SPEAs are prescribed to establish a minimum setback distance that would enable the District to expedite the Development Permit process when a development application demonstrates that there will be no encroachment into the SHIM field SPEA. However, the refined SPEA setback provides setbacks in exceptional cases, when it has clearly been determined that there will be no evident harm to aquatic species/habitat. Table 19 documents all inventoried watercourses and their resulting refined and conservative setbacks.



Table 19. Preliminary riparian setback analysis of riffle-pool, slough, and run priority watercourses by stream segment using SHIM (2017) bankfull channel measurements.

Stream Name	Segment	Reference Page	Primary/ Hydraulic	Refined SPEA	Conservative SPEA (R/P)
Brennan Park Creek	1	1	Run	10	10
Brennan Park Creek	2	2	Run	13.8	13.8
Brennan Park Creek	3	3	Riffle/Pool	12	12
Brennan Park Creek Trib 1	1	4	Run	22.2	22.2
Britannia Slough	1	5	Slough	18.3	18.3
Britannia Slough	2	6	Slough	16.2	16.2
Britannia Slough Trib 1	1	7	Slough	25.8	25.8
Britannia Slough Trib 2	1	8	Run	10	10
Britannia Slough Trib 3	1	9	Wetland	30	25.5*
Cottonwood Creek	1	10	Wetland	30	30
Cottonwood Creek	2	11	Riffle/Pool	12.9	12.9
Cottonwood Creek	3	12	Slough	30	30
Cottonwood Creek	4	13	Riffle/Pool	21.6	21.6
Cottonwood Creek Trib 1	1	14	Run	15.6	15.6
Cottonwood Creek Trib 1	2	15	Wetland	30	30
Dryden Creek	1	16	Riffle/Pool	30	30
Dryden Creek Trib 1	1	17	Ditch	10	10
Finch Connector (Unnamed)	1	18	Riffle/Pool	22.2	22.2
Finch Connector (Unnamed)	2	19	Slough	30	30
Finch Connector Trib 1	1	20	Run	10	10
Finch Connector Trib 2	1	21	Run	10	10
Harris Slough	1	22	Riffle/Pool	22.5	22.5
Harris Slough	2	23	Slough	30	30
Harris Slough Trib 1	1	24	Run	19.5	19.5
Harris Slough Trib 2	1	25	Run	19.5	19.5
Harris Slough Drainage Ditch	1	26	Run	12.3	12.3
Harris Slough Drainage Trib 1	1	27	Ditch	6.4	10
Hop Ranch Creek	1	28	Riffle/Pool	20.4	20.4
Hop Ranch Creek	2	29	Riffle/Pool	15.3	15.3
Hop Ranch Creek	3	30	Slough	30	30
Hop Ranch Creek	4	31	Cascade/Pool	18.9	18.9
Little Stawamus Creek	1	32	Riffle/Pool	16.8	16.8
Little Stawamus Creek	2	33	Slough	16.8	16.8
Little Stawamus Creek	3	34	Riffle/Pool	18	18
Little Stawamus Creek	4	35	Riffle/Pool	18	18
Little Stawamus Creek	5	36	Riffle/Pool	17.7	17.7
Little Stawamus Creek	6	37	Riffle/Pool	20.1	20.1
Little Stawamus Creek Trib 1	1	38	Ditch	5.2	10
Little Stawamus Creek Trib 2	1	39	Run	10	10
Little Stawamus Creek Trib 2	2	40	Run	10	10
Little Stawamus Creek Trib 3	1	41	Cascade	10	10



Stream Name	Segment	Reference Page	Primary/ Hydraulic	Refined SPEA	Conservative SPEA (R/P)
Little Stawamus Creek Trib 2 Drainage	1	42	Ditch	5	10
Little Stawamus Creek Trib 4	1	43	Run	10	10
Little Stawamus Creek Trib 5	1	44	Cascade/Pool	13.5	13.5
Judd Slough	1	45	Slough	30	30
Logger's Lane Creek	1	46	Riffle/Pool	30	30
Logger's Lane Creek	2	47	Slough	30	30
Logger's Lane Creek Trib 1	1	48	Run	14.4	14.4
Logger's Lane Creek Trib 2	1	49	Run	30	30
Logger's Lane Creek Trib 3	1	50	Run	12.9	12.9
Logger's Lane Creek Trib 4	1	51	Run	14.7	14.7
Logger's Lane Creek Trib 4	2	52	Riffle/Pool	12	12
Logger's Lane Creek Trib 5	1	53	Run	13.5	13.5
Logger's Lane Connector	1	54	Run	19.5	19.5
Logger's Lane Connector	2	55	Riffle/Pool	12.6	12.6
Logger's Lane Connector Trib 1	1	56	Run	10	10
Magnolia Creek	1	57	Wetland	30	30
Magnolia Creek	2	58	Slough	15.3	15.3
Magnolia Creek	3	59	Riffle/Pool	11.4	11.4
Magnolia Creek	4	60	Riffle/Pool	10	10
Magnolia Creek Trib 1	1	61	Wetland	30	30
Magnolia Creek Trib 1	2	62	Run	12	12
Westway Avenue Drainage Ditch	1	63	Ditch	5	10
Mamquam Blind Channel Trib 1	1	64	Ditch	5	10
Mamquam Blind Channel Wetland	1	65	Wetland	30	30
Valleycliffe Drainage Ditch (Unnamed)	1	66	Ditch	5	10
Valleycliffe Drainage Ditch (Unnamed)	2	67	Run	10	10
Scott Crescent Drainage Ditch	1	68	Ditch	5	10
Mamquam Blind Channel	1	69	Slough	30	30
Mamquam Blind Channel	2	70	Riffle/Pool	20.1	20.1
Mamquam Blind Channel	3	71	Slough	26.4	26.4
Mamquam Side Channel	1	72	Riffle/Pool	24.9	24.9
Mamquam Side Channel Trib 1	1	73	Run	30	30
Mashiter Creek Outlet	1	74	Riffle	30	30
Mashiter Side Channel Backwater	1	75	Run	12.9	12.9
Mashiter Side Channel	1	76	Riffle/Pool	20.7	20.7
Stawamus River	1	77	Riffle/Pool	30	30
Stawamus River	2	78	Riffle/Pool	30	30
Stawamus River Trib 1	1	79	Run	10	10
Skyline Place Creek	1	80	Riffle/Pool	15.6	15.6
Thunderbird Creek	1	81	Riffle/Pool	10	10
Thunderbird Creek	2	82	Cascade/Pool	10	10

*Bolted values are setbacks that change depending on whether the refined or conservative method is used.



6.0 DISCUSSION AND LIMITATIONS

Phase 3 of the District of Squamish Wetlands Inventory and Watercourse Mapping project included a desktop assessment and identified 514 622 km of streams/watercourses within The District, of which 33.3 km were mapped during the 2017 SHIM field inventory. Of the 33.3 km of mapped watercourses, tributaries identified in Phase 3 were confirmed while several were flagged as non-watercourse features. Mapping of additional tributaries within urban residential areas will be imperative in the creation of a comprehensive database providing recent and accurate land use planning data. Field data from the 2017 inventory has been incorporated into the expanded database intended to accommodate landuse planning initiatives and provide appropriate development setback from watercourses within The District.

Point source discharge points have been embedded in the mapping of 33.3 km of priority watercourses within The District. Ecoscape conducted a limited review of discharge points alongside The District storm discharge system to determine discrepancies. Approximately 9 discharge points did not have a documented storm ditch/pipe upstream of the discharge point in the provided District storm system data. Ideally, the 2017 SHIM data will be utilized to update the City storm system and determine where documented discharge points may source from undocumented drainages. Undocumented drainages can subsequently be confirmed in the field.

Conservative and refined Streamside Protection and Enhancement Areas have been identified for all 33.3 km of mapped priority watercourses. SPEAs are intended to provide preliminary setbacks to establish minimum setback distances that would enable The District to expedite the development permit process when a development application demonstrates that there will be no encroachment into the SPEA. It is recommended that full surveys be conducted for individual properties to ensure encroachment does not occur on watercourses within The District.



7.0 CLOSURE

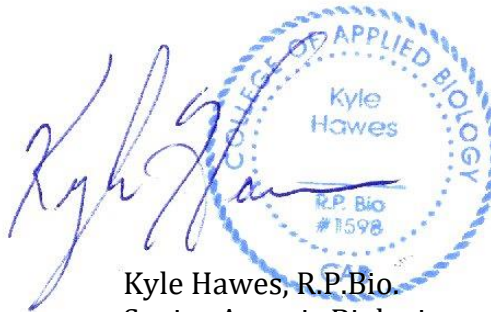
This Document has been prepared for the exclusive use of the 2017 District of Squamish. It has been prepared based upon information collected during the comprehensive field inventory and other related documentation.

Questions or comments in reference to this report, and the data presented should be forwarded to the undersigned.

Respectfully Submitted,
ECOSCAPE Environmental Consultants



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REFERENCES

- Durand, R. and Kyle Hawes. 2016. District of Squamish Wetlands Inventory and Mapping and Watercourse Mapping.
- Mackenzie, W.H., and Jennifer Moran. 2004. Wetlands of British Columbia - A guide to identification. British Columbia Ministry of Forests, Forests Science Program. 287pp.
- British Columbia Ministry of Environment. 2004. Provincial Riparian Areas Regulation Assessment Methods. 73pp.
- Resource Inventory Committee. 2001. Reconnaissance (1:20000) fish and fish habitat inventory: Standards and procedures. Version 2. 170pp.
- Resource Inventory Committee. 2001. Standards for Fish and Fish Habitat Maps. Version 3.0. Province of British Columbia. 66pp.



APPENDIX A

2017 Priority Watercourse Data (Summary Sheets)



Phase 4: Watercourse and Wetland Inventory

District of Squamish

Prepared for:



Prepared by:










	Segment Break		SHIM Creek		Stormwater Culverts
	Discharge Points		Named/Confirmed Creek		Top of Bank
	Culvert		Unconfirmed Creek		Wetland & Floodplain* Ecosystems
	Fish Habitat		SHIM Segments		Aquatic Development Permit Areas
	Wildlife Observation				
	Obstruction				

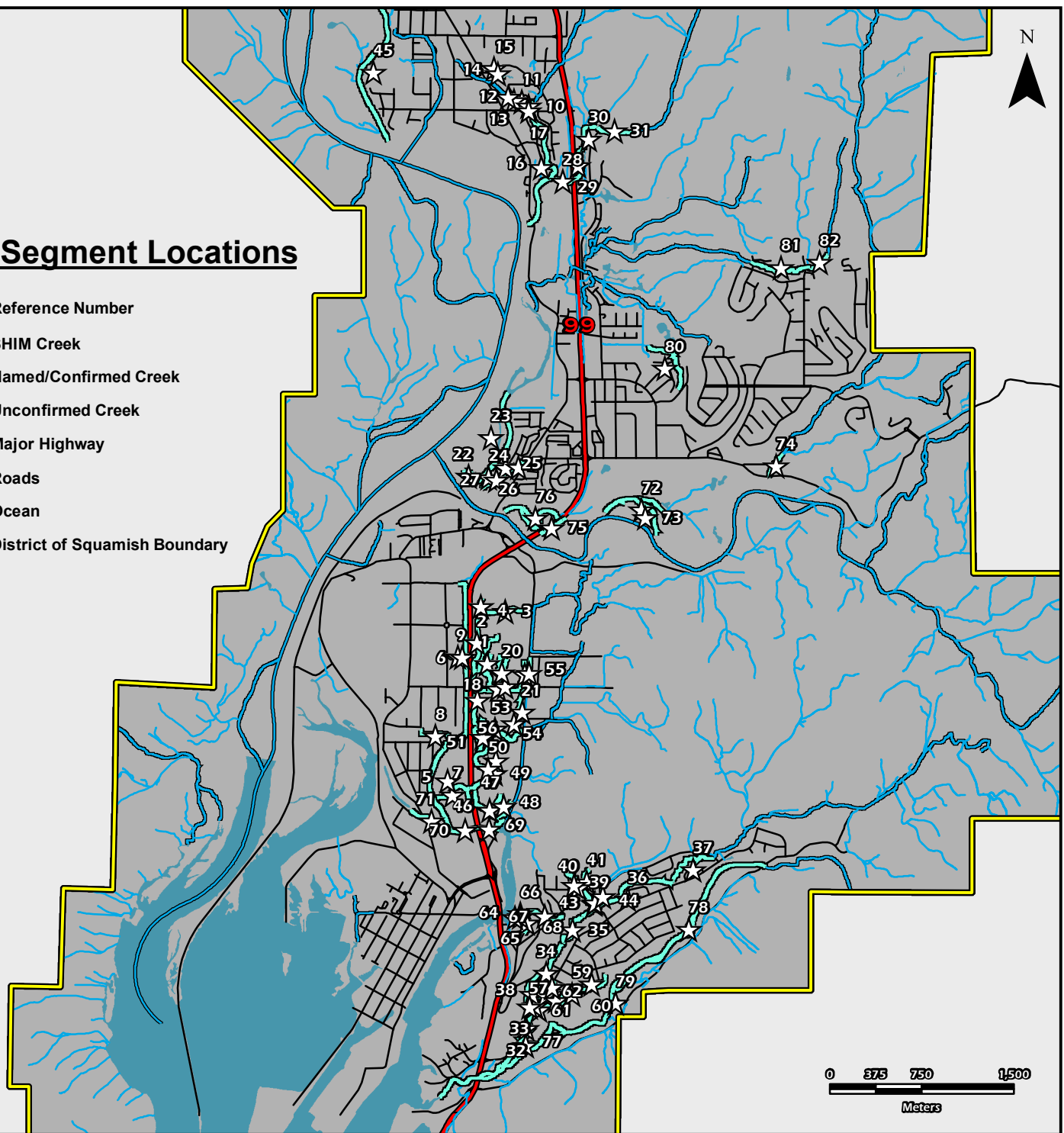
*A floodplain ecosystem is a non-wetland ecosystem that occurs on regularly flooded riparian sites with well-drained soils. They occur on the floodplains of rivers or wave-washed lakeshores, where there is deposition of fluvial or lacustrine materials. They usually abut the channel on sites elevated above the mid-season water table. Floodplain ecosystems are inundated during the spring freshet in the early part of the growing season. Low benches experience longer and more powerful flooding than middle benches. The mapped floodplain ecosystems identified herein do not imply the extents of floodplain areas in the context of hazardous conditions.

December, 2017

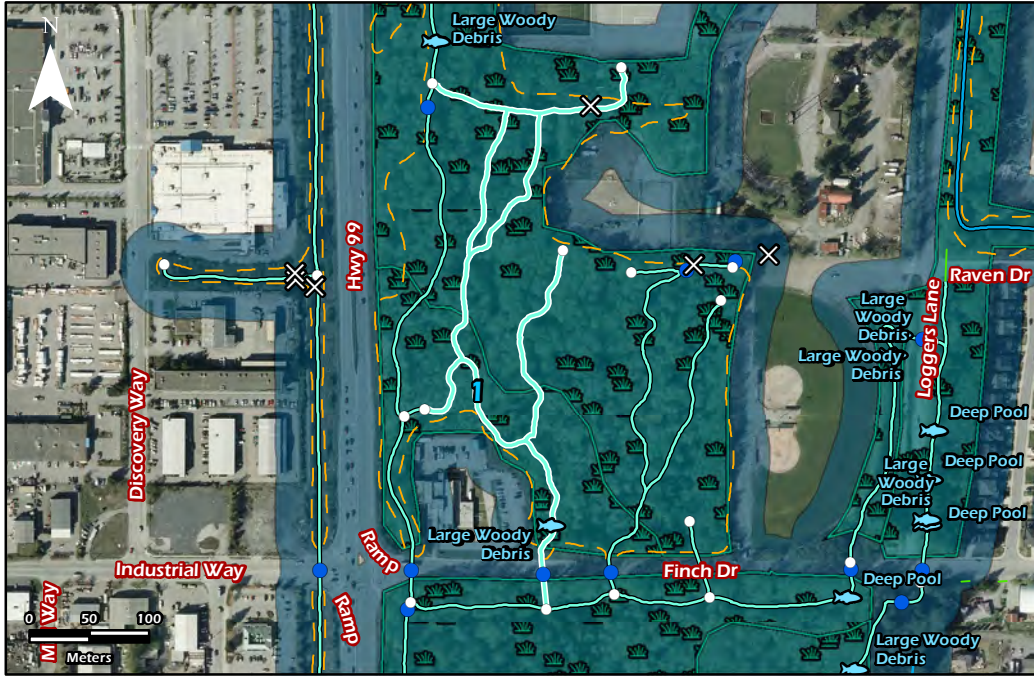
Ref #	Stream Name	Seg #
1	Brennan Park Creek	1
2	Brennan Park Creek	2
3	Brennan Park Creek	3
4	Brennan Park Creek Trib 1	1
5	Britannia Slough	1
6	Britannia Slough	2
7	Britannia Slough Trib 1	1
8	Britannia Slough Trib 2	1
9	Britannia Slough Trib 3	1
10	Cottonwood Creek	1
11	Cottonwood Creek	2
12	Cottonwood Creek	3
13	Cottonwood Creek	4
14	Cottonwood Creek Trib 1	1
15	Cottonwood Creek Trib 1	2
16	Dryden Creek	1
17	Dryden Creek Trib 1	1
18	Finch Connector	1
19	Finch Connector	2
20	Finch Connector Trib 1	1
21	Finch Connector Trib 2	1
22	Harris Slough	1
23	Harris Slough	2
24	Harris Slough Trib 1	1
25	Harris Slough Trib 2	1
26	Harris Slough Drainage Ditch	1
27	Harris Slough Drainage Trib 1	1
28	Hop Ranch Creek	1
29	Hop Ranch Creek	2
30	Hop Ranch Creek	3
31	Hop Ranch Creek	4
32	Little Stawamus Creek	1
33	Little Stawamus Creek	2
34	Little Stawamus Creek	3
35	Little Stawamus Creek	4
36	Little Stawamus Creek	5
37	Little Stawamus Creek	6
38	Little Stawamus Creek Trib 1	1
39	Little Stawamus Creek Trib 2	1
40	Little Stawamus Creek Trib 2	2
41	Little Stawamus Creek Trib 3	1
42	Little Stawamus Creek Trib 2 Drainage	1
43	Little Stawamus Creek Trib 4	1
44	Little Stawamus Creek Trib 5	1
45	Judd Slough	1
46	Logger's Lane Creek	1
47	Logger's Lane Creek	2
48	Logger's Lane Creek Trib 1	1
49	Logger's Lane Creek Trib 2	1
50	Logger's Lane Creek Trib 3	1
51	Logger's Lane Creek Trib 4	1
52	Logger's Lane Creek Trib 4	2
53	Logger's Lane Creek Trib 5	1
54	Logger's Lane Connector	1
55	Logger's Lane Connector	2
56	Logger's Lane Connector Trib 1	1
57	Magnolia Creek	1
58	Magnolia Creek	2
59	Magnolia Creek	3
60	Magnolia Creek	4
61	Magnolia Creek Trib 1	1
62	Magnolia Creek Trib 1	2
63	Westway Avenue Drainage Ditch	1
64	Mamquam Blind Channel Trib 1	1
65	Mamquam Blind Channel Wetland	1
66	Valleycliffe Drainage Ditch	1
67	Valleycliffe Drainage Ditch	2
68	Scott Crescent Drainage Ditch	1
69	Mamquam Blind Channel	1
70	Mamquam Blind Channel	2
71	Mamquam Blind Channel	3
72	Mamquam Side Channel	1
73	Mamquam Side Channel Trib 1	1
74	Mashiter Creek Outlet	1
75	Mashiter Side Channel Backwater	1
76	Mashiter Side Channel	1
77	Stawamus River	1
78	Stawamus River	2
79	Stawamus River Trib 1	1
80	Skyline Place Creek	1
81	Thunderbird Creek	1

Map of Segment Locations

- ☆ Reference Number
-  SHIM Creek
-  Named/Confirmed Creek
-  Unconfirmed Creek
-  Major Highway
-  Roads
-  Ocean
-  District of Squamish Boundary



Segment #1



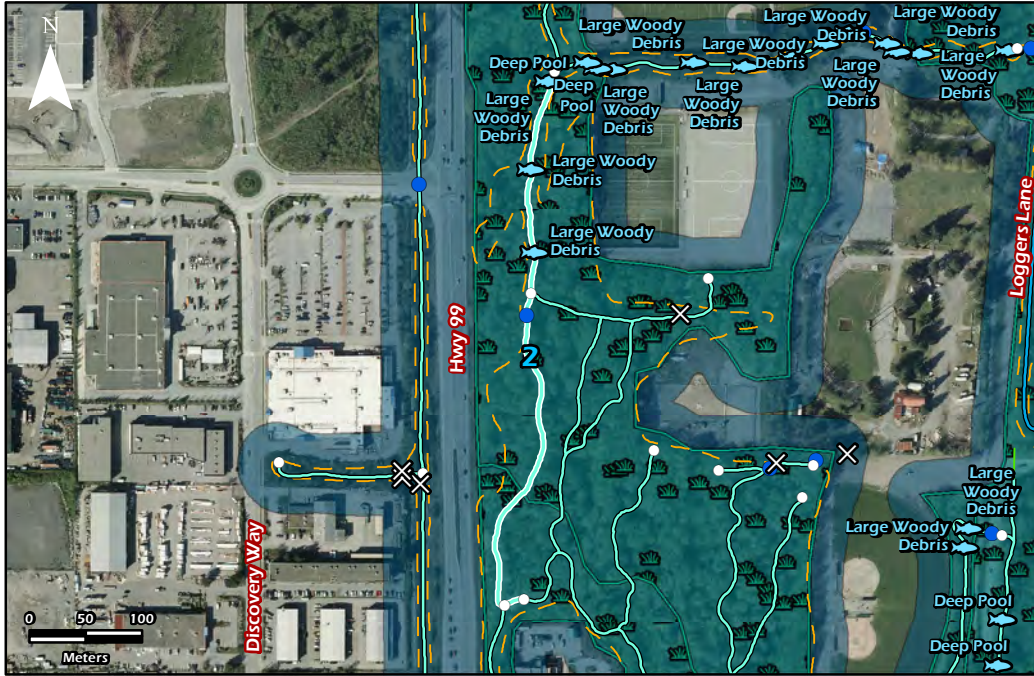
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Run	0.3	41-70%	Unknown	3.1	0	50	50	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	34-66%	Medium	Broadleaf forest	Natural	young forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
1071.7	3.1	10	10	9	10

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



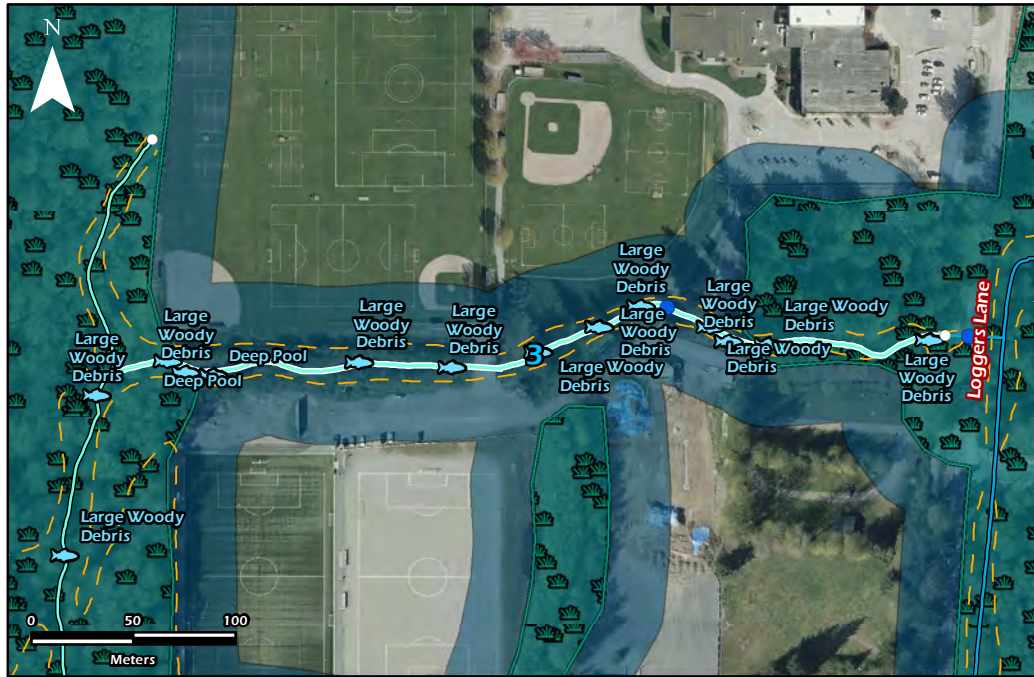
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Run	0.1	41-70%	Unknown	4.6	0	40	60	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	mature forest	34-66%	Medium	Broadleaf forest	Disturbed	mature forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
522.3	4.6	14	14	14	14

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #3



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Riffle/Pool	0.2	41-70%	Potential	4	0	50	30	0	20	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Shrubs	Recreation	young forest	5-33%	High	Shrubs	Recreation	tall shrubs 2-10m	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
429.2	4	12	12	12	12

¹ Zones of Sensitivity for Segment #3 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Run	0	41-70%	Unknown	7.4	0.1	60	40	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Recreation	mature forest	5-33%	High	Mixed forest	Disturbed	mature forest	34-66%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
127.7	7.4	15	22	22	22

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



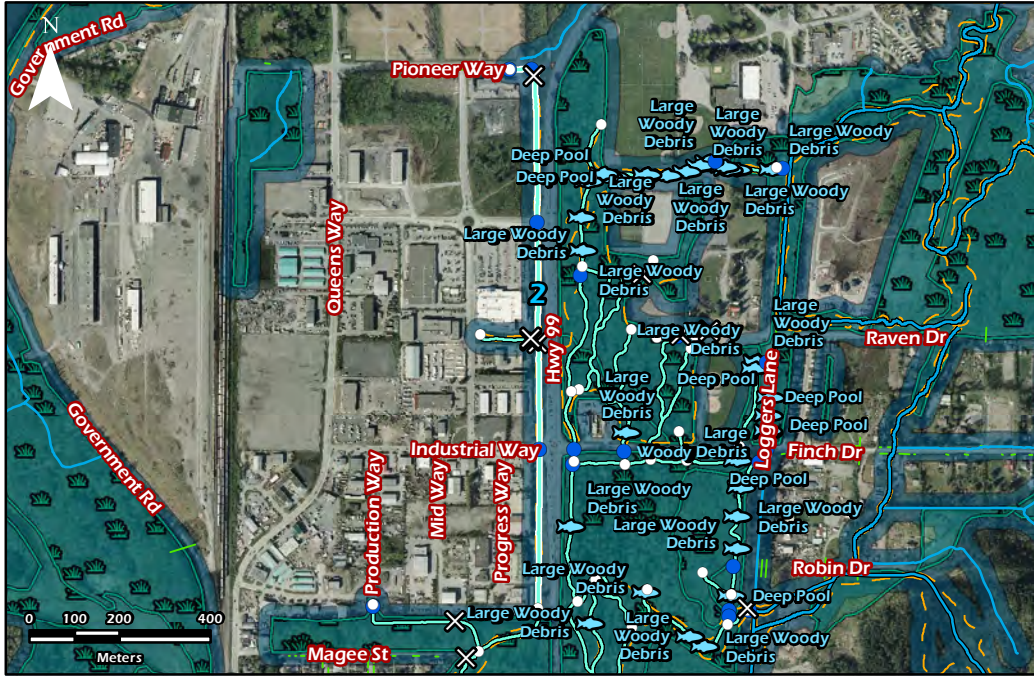
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Slough	0.1	41-70%	Unknown	6.1	0.3	40	55	0	5	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	mature forest	5-33%	Medium	Broadleaf forest	Recreation	mature forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
1014	6.1	15	18	18	18

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



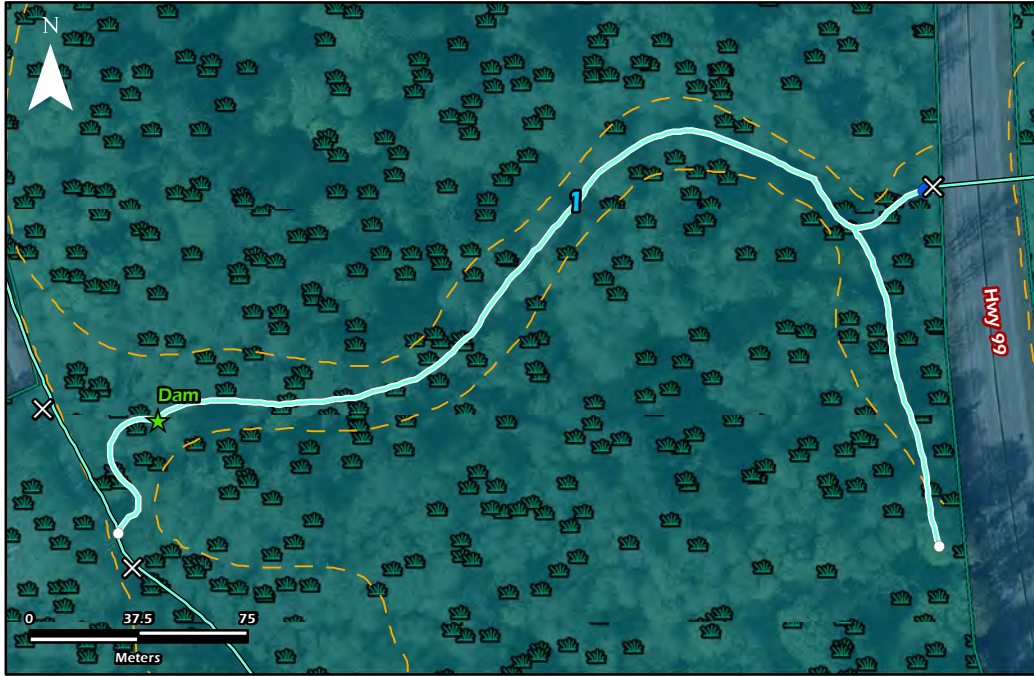
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Slough	0.2	41-70%	Unknown	5.4	0.6	80	20	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Shrubs	Disturbed	tall shrubs 2-10m	67-100%	Medium	Shrubs	Disturbed	tall shrubs 2-10m	67-100%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
1250.5	5.4	15	16	16	16

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Slough	0	71-90%	Unknown	8.6	0.6	80	20	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Disturbed	mature forest	34-66%	High	Mixed forest	Disturbed	mature forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
496.3	8.6	15	26	26	26

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



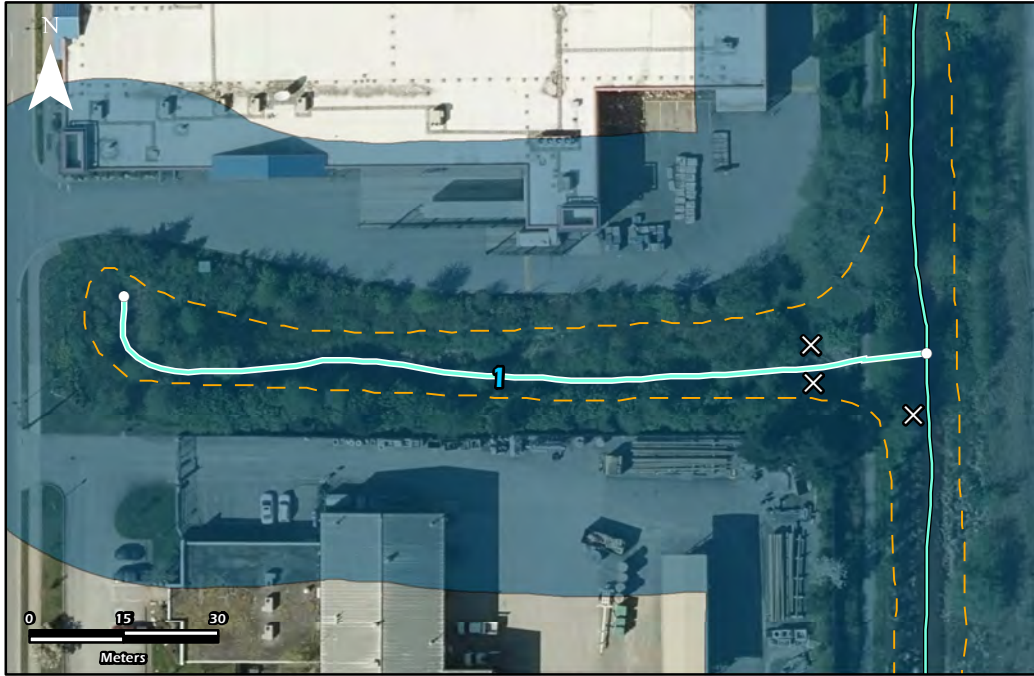
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Run	0.2	41-70%	Unknown	3.2	0	15	85	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	mature forest	34-66%	High	Broadleaf forest	Recreation	mature forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
315.4	3.2	10	10	10	10

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Other	Wetland	0	21-40%	Unknown	8.5	0	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Shrubs	Disturbed	tall shrubs 2-10m	67-100%	High	Shrubs	Disturbed	tall shrubs 2-10m	67-100%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (Default 15m)	Bank Stability (Default 15m)	Shade (Default 30m)	
137.1	8.5	15	15	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Wetland based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



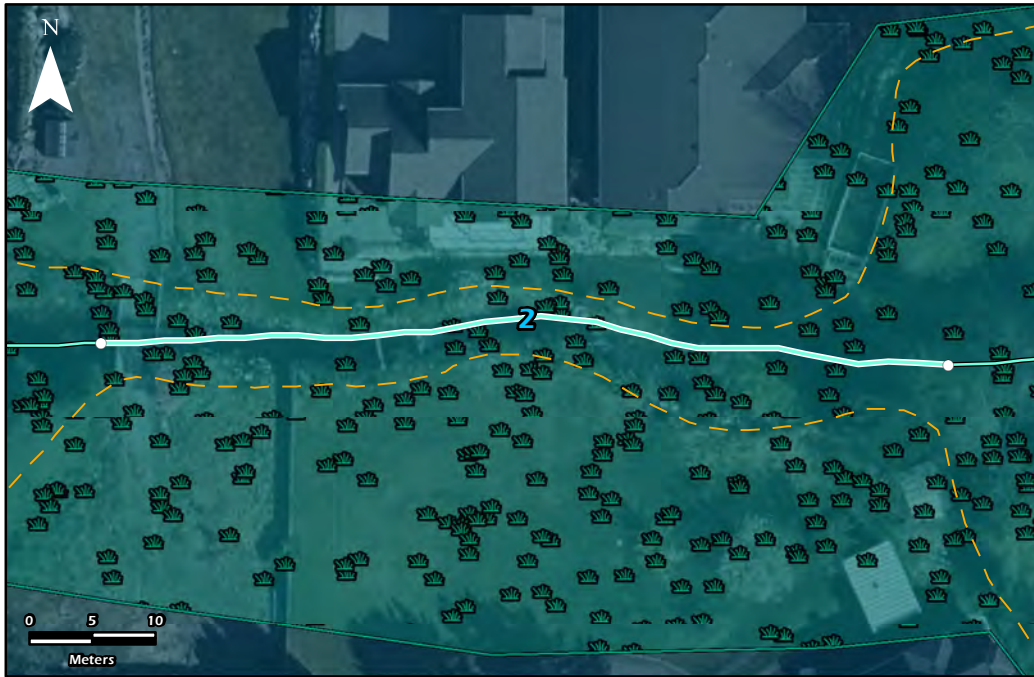
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Wetland	0	41-70%	Unknown	26	1.1	30	50	5	10	5	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Urban Residential	tall shrubs 2-10m	34-66%	Medium	Mixed forest	Urban Residential	tall shrubs 2-10m	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (Default 15m)	Bank Stability (Default 15m)	Shade (Default 30m)	
108.3	26	15	15	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Wetland based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



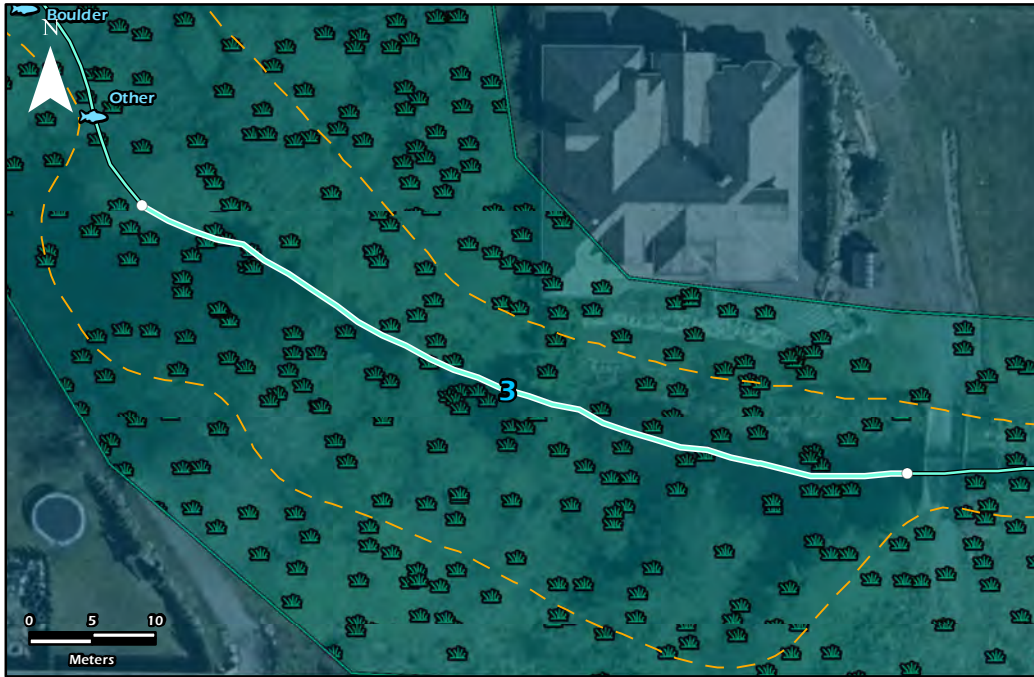
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	0	41-70%	Unknown	4.3	0.25	0	0	10	80	10	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Urban Residential	young forest	34-66%	Medium	Broadleaf forest	Urban Residential	young forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
67.9	4.3	13	13	13	13

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #3



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Slough	0	41-70%	Unknown	11.4	0.7	50	50	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Urban Residential	young forest	34-66%	Medium	Broadleaf forest	Disturbed	young forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
65.6	11.4	15	30	30	30

¹ Zones of Sensitivity for Segment #3 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #4



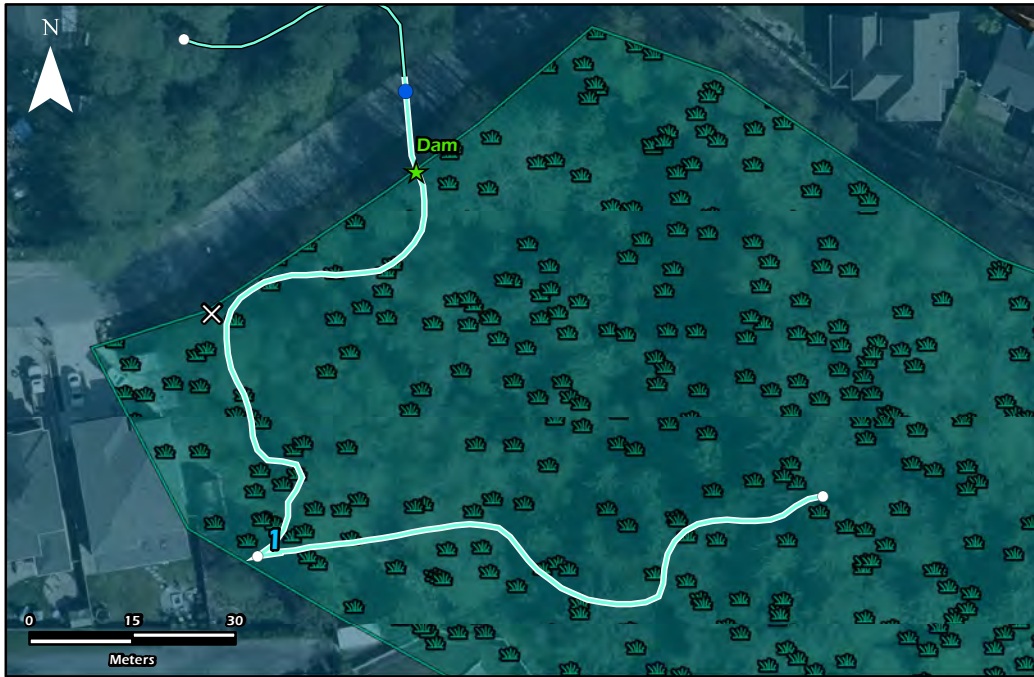
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	1	41-70%	Potential	7.2	0.4	20	50	10	20	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Urban Residential	young forest	34-66%	Medium	Broadleaf forest	Urban Residential	young forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
52.8	7.2	15	22	22	22

¹ Zones of Sensitivity for Segment #4 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



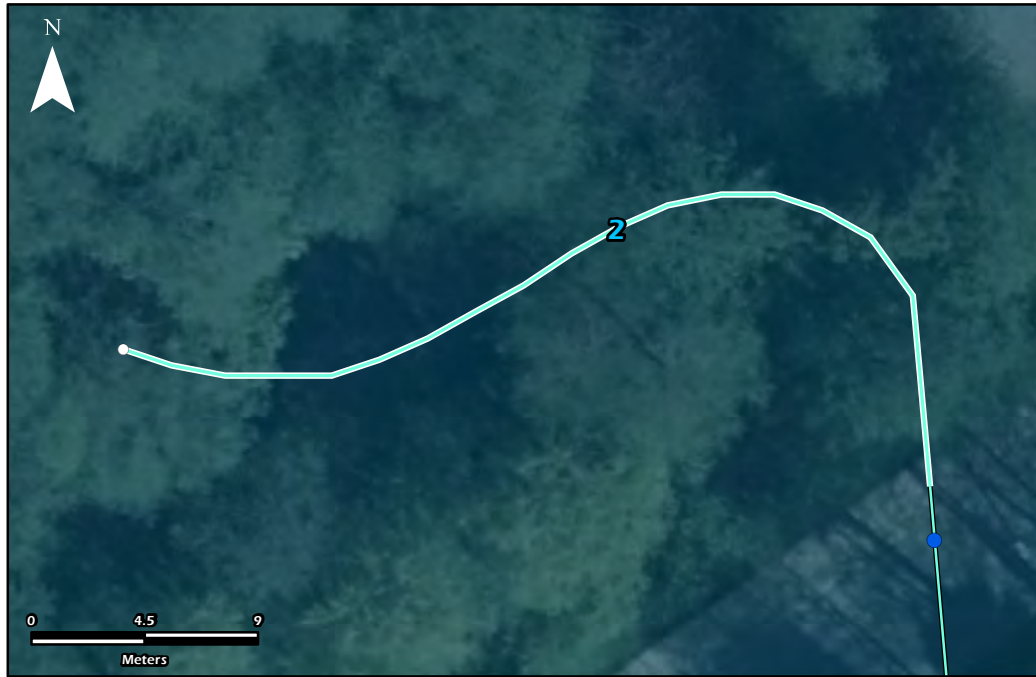
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Run	0	>90%	Unknown	5.2	0.1	90	10	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	34-66%	Low	Broadleaf forest	Disturbed	young forest	34-66%	Low

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
193.2	5.2	15	16	16	16

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



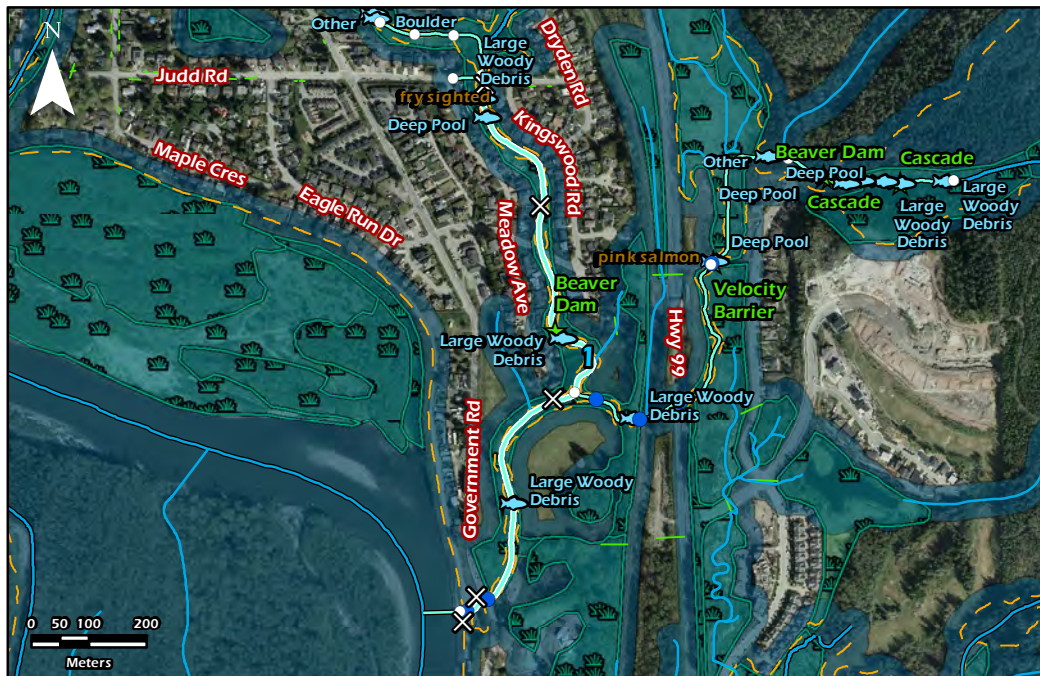
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Wetland	0	>90%	Unknown	30	1.2	90	10	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Urban Residential	young forest	34-66%	Low	Broadleaf forest	Urban Residential	young forest	34-66%	Low

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (Default 15m)	Bank Stability (Default 15m)	Shade (Default 30m)	
42.3	30	15	15	30	30

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Wetland based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	0.4	41-70%	Potential	11.6	0.4	30	50	5	10	5	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Urban Residential	tall shrubs 2-10m	34-66%	Medium	Mixed forest	Urban Residential	tall shrubs 2-10m	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
1153.2	11.6	15	30	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	0.4	41-70%	Potential	11.6	0.4	30	50	5	10	5	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Urban Residential	tall shrubs 2-10m	34-66%	Medium	Mixed forest	Urban Residential	tall shrubs 2-10m	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
49.7	11.6	15	30	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	0	21-40%	Unknown	7.4	0.3	30	40	0	30	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	5-33%	Medium	Broadleaf forest	Recreation	young forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
405.2	7.4	15	22	22	22

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



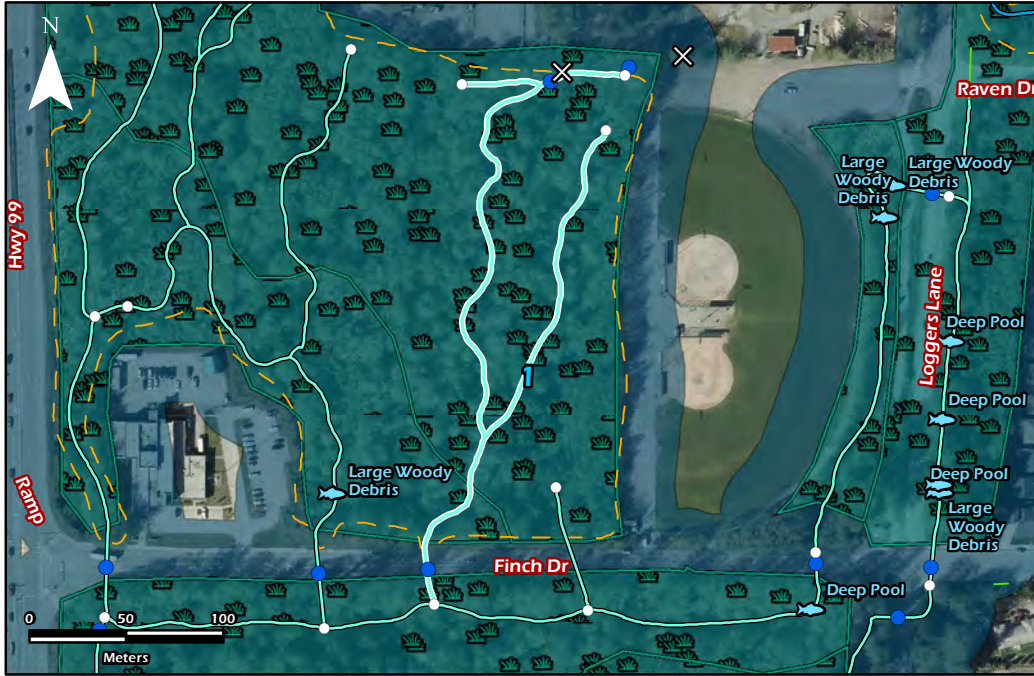
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Slough	0.1	21-40%	Unknown	10.5	0.3	45	45	0	10	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	5-33%	Medium	Broadleaf forest	Disturbed	young forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
252	10.5	15	30	30	30

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Run	0	21-40%	Unknown	3	0	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Disturbed	mature forest	34-66%	High	Mixed forest	Disturbed	mature forest	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
580	3	10	10	9	10

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Run	0	21-40%	Unknown	1.8	0	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	mature forest	5-33%	High	Broadleaf forest	Disturbed	mature forest	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
66.2	1.8	10	10	5	10

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



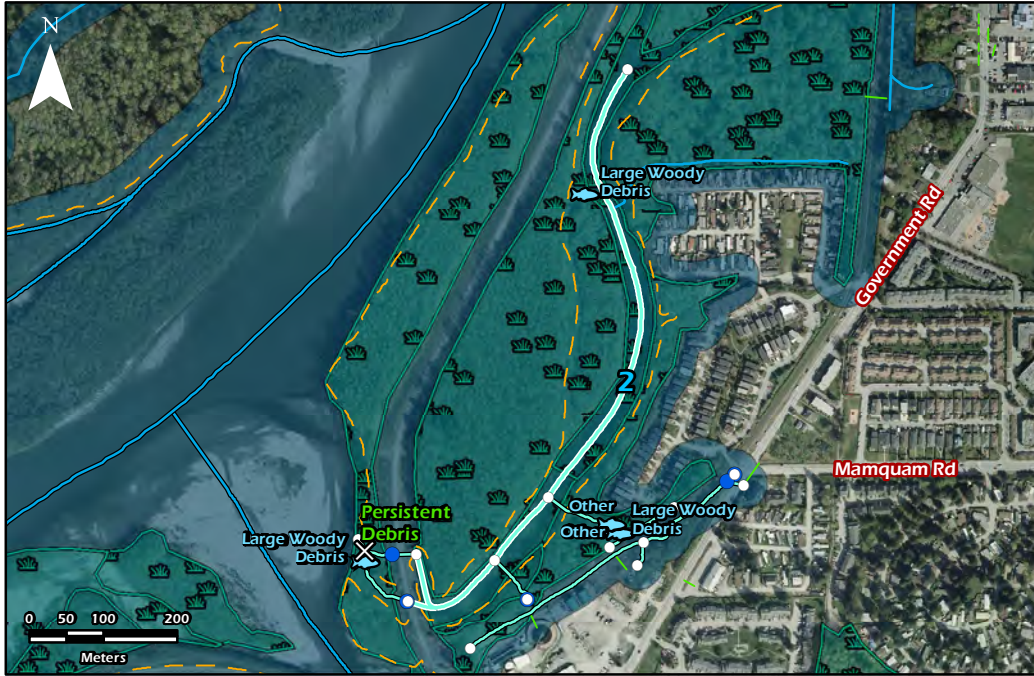
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	0	41-70%	Unknown	7.5	0	25	50	0	25	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Natural	young forest	5-33%	Medium	Broadleaf forest	Disturbed	young forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
197.1	7.5	15	23	23	23

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Slough	0	21-40%	Unknown	52.5	1.5	65	25	0	10	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	34-66%	Medium	Broadleaf forest	Disturbed	young forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
973.1	52.5	15	30	30	30

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Run	0.1	41-70%	Unknown	6.5	0	50	50	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	34-66%	Medium	Broadleaf forest	Disturbed	young forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
71.4	6.5	15	20	20	20

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



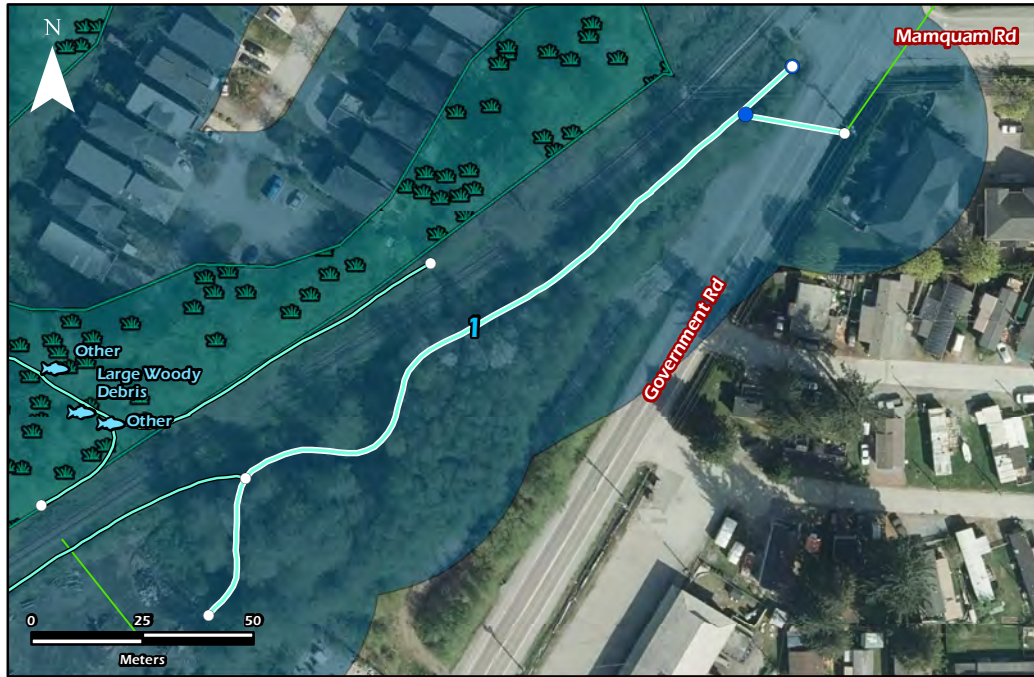
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Run	0.3	71-90%	Unknown	6.5	0	50	50	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	34-66%	Medium	Broadleaf forest	Disturbed	young forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
222.1	6.5	15	20	20	20

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



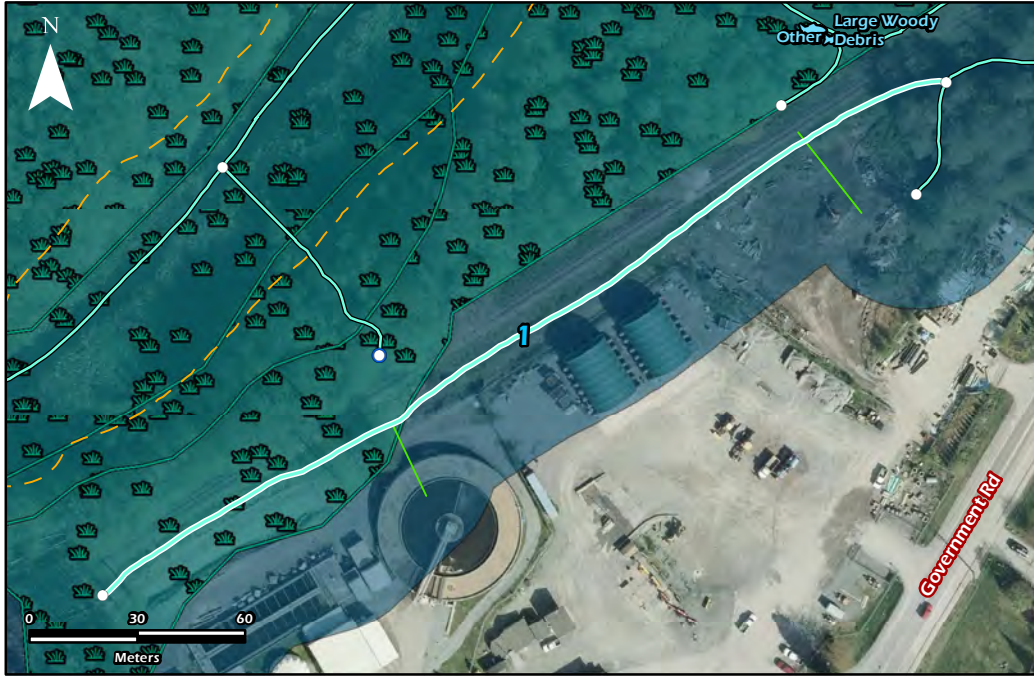
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Run	0	41-70%	Unknown	4.1	0	80	20	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	34-66%	Medium	Broadleaf forest	Disturbed	young forest	67-100%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
219	4.1	12	12	12	12

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Ditch	Run	0	41-70%	Unknown	3.2	0	80	20	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Shrubs	Disturbed	tall shrubs 2-10m	34-66%	Medium	Shrubs	Disturbed	tall shrubs 2-10m	67-100%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (2x Channel Width/minimum 5m maximum 10m)	Bank Stability (2x Channel Width/minimum 5m maximum 10m)	Shade (2x Channel Width/minimum 5m maximum 10m)	
277.1	3.2	6	6	6	6

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	0.2	21-40%	Potential	6.8	0.2	0	100	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	mature forest	5-33%	Medium	Broadleaf forest	Rural Residential	mature forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
215.6	6.8	15	20	20	20

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



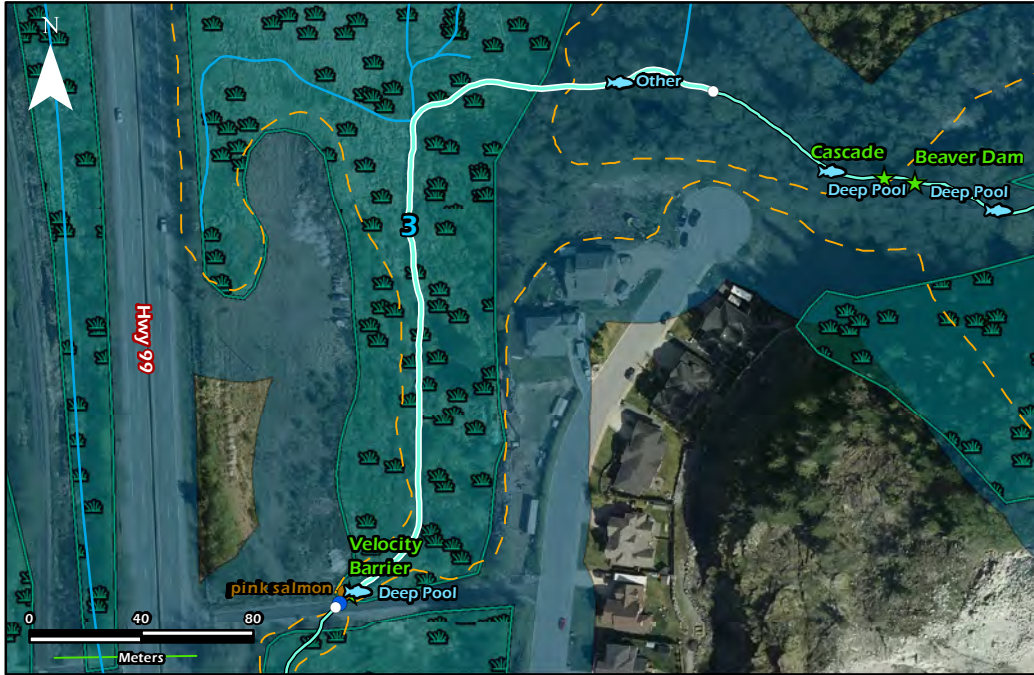
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	0.1	41-70%	Potential	5.1	0.2	0	80	10	10	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Shrubs	Disturbed	tall shrubs 2-10m	67-100%	Medium	Shrubs	Disturbed	tall shrubs 2-10m	67-100%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
287.6	5.1	15	15	15	15

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #3



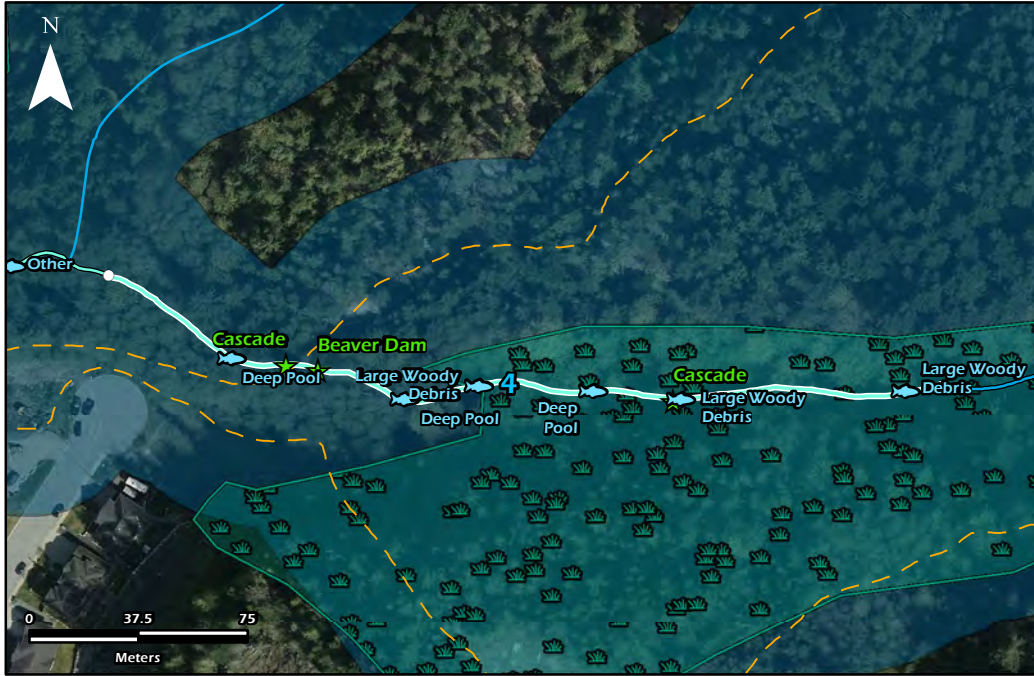
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Slough	0.1	71-90%	Potential	20	1.9	60	20	10	10	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Natural wetland	Urban Residential	tall shrubs 2-10m	34-66%	Medium	Natural wetland	Disturbed	tall shrubs 2-10m	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
302.9	20	15	30	30	30

¹ Zones of Sensitivity for Segment #3 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #4



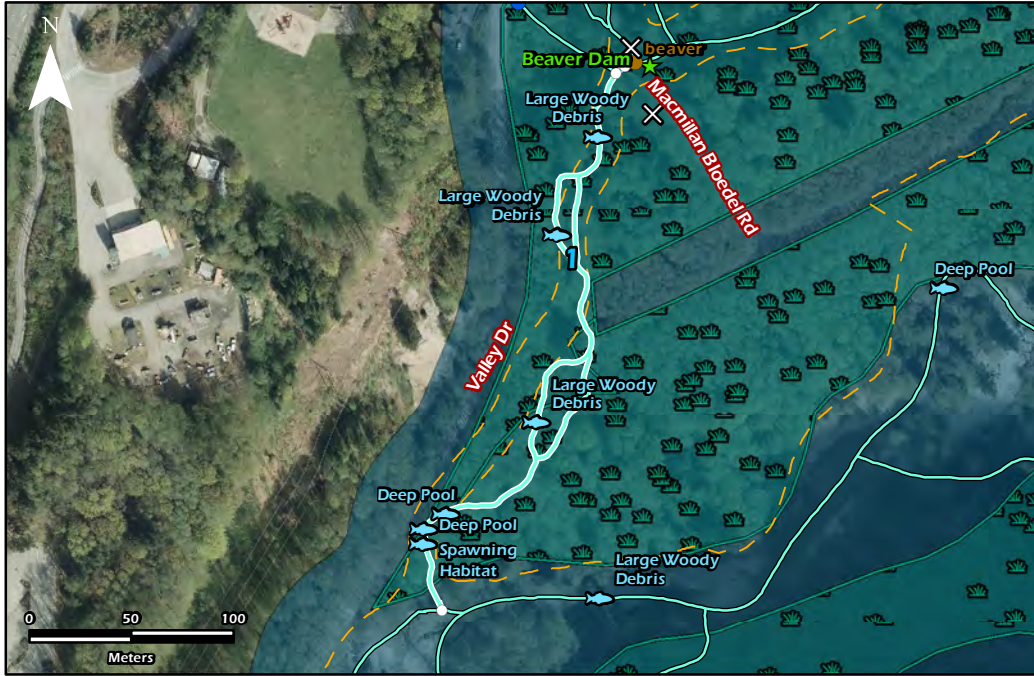
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Natural	Cascade/Pool	15	71-90%	Potential	6.3	0.1	0	20	10	60	10	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Natural	mature forest	34-66%	Medium	Mixed forest	Natural	mature forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (2x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
301.9	6.3	15	13	19	19

¹ Zones of Sensitivity for Segment #4 are based on the Channel Type Cascade/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Riffle/Pool	1.5	21-40%	Anadromous	5.6	0.2	0	40	5	55	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Natural	mature forest	5-33%	High	Mixed forest	Natural	mature forest	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
453.7	5.6	15	17	17	17

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Natural	Slough	0	1-20%	Unknown	5.6	0.1	5	80	10	5	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Natural wetland	Natural	low shrubs <2m	34-66%	High	Natural wetland	Natural	low shrubs <2m	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
174.5	5.6	15	17	17	17

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #3



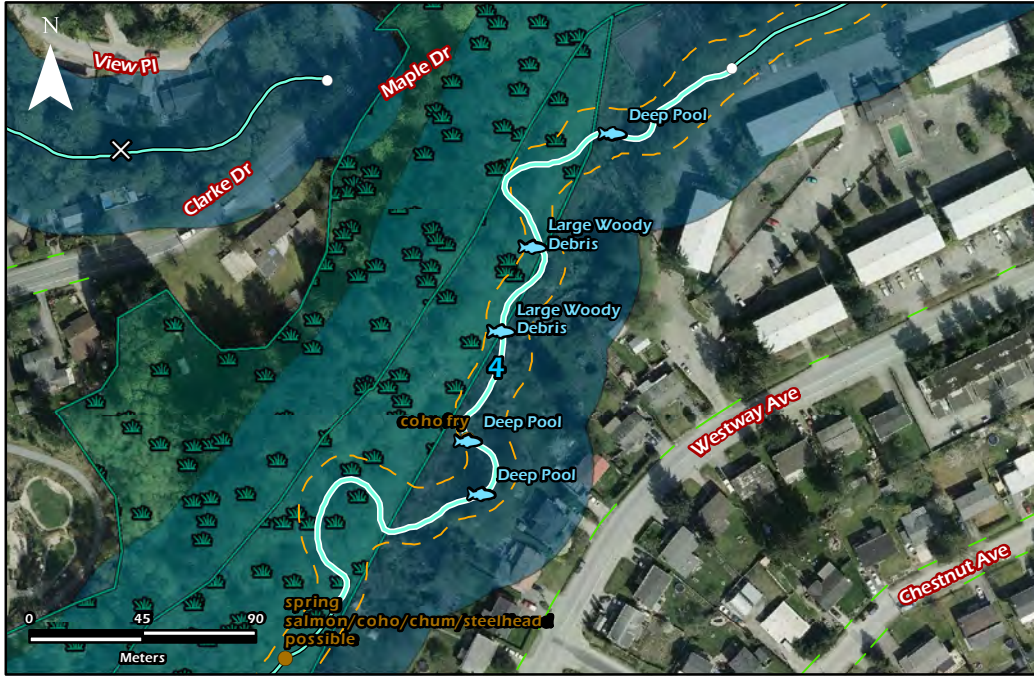
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	1.7	71-90%	Unknown	6	0.35	5	5	10	75	5	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Disturbed	mature forest	5-33%	Medium	Broadleaf forest	Natural	mature forest	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
581.2	6	15	18	18	18

¹ Zones of Sensitivity for Segment #3 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #4



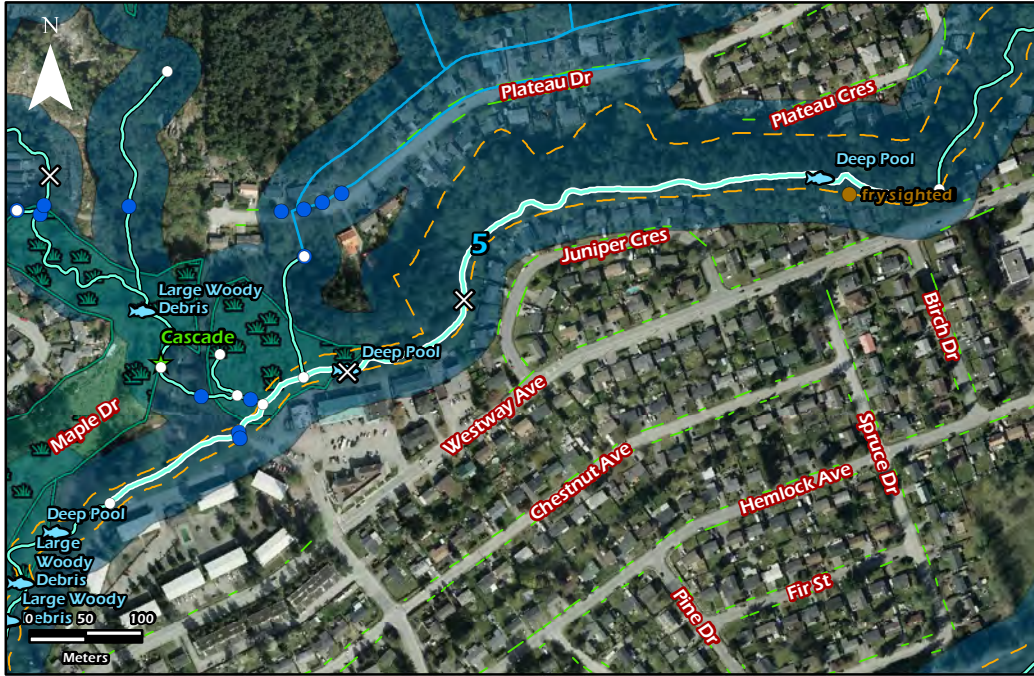
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Riffle/Pool	0.8	41-70%	Unknown	6	0.2	0	0	10	85	5	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Shrubs	Urban Residential	tall shrubs 2-10m	67-100%	Medium	Mixed forest	Recreation	tall shrubs 2-10m	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
388.2	6	15	18	18	18

¹ Zones of Sensitivity for Segment #4 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #5



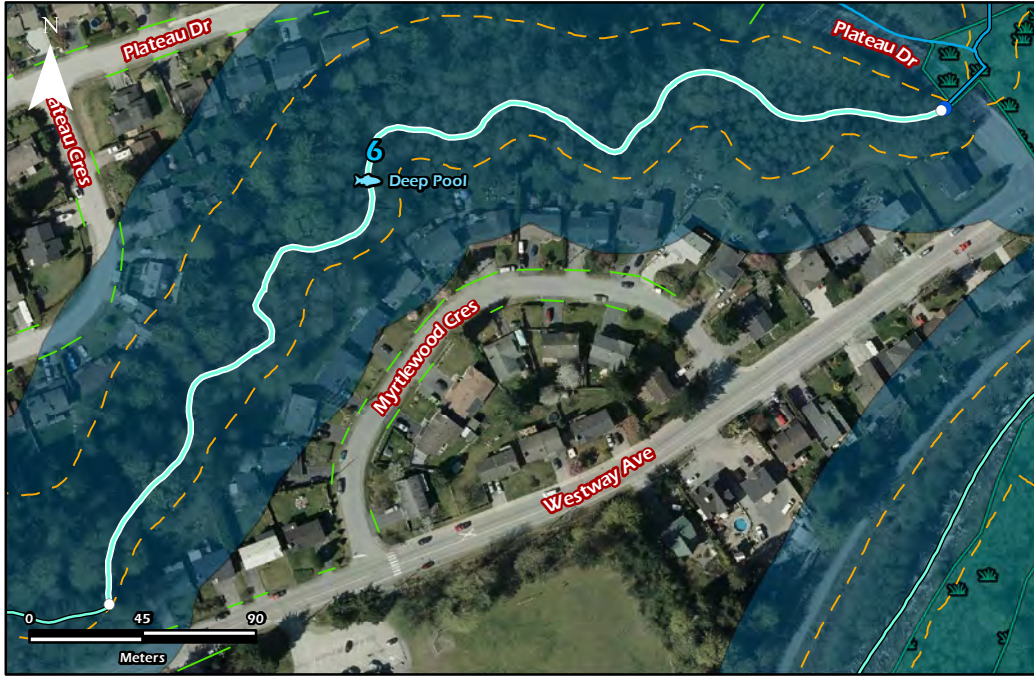
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	2.2	41-70%	Unknown	5.9	0.2	0	5	10	75	10	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Urban Residential	mature forest	5-33%	Medium	Mixed forest	Natural	Mature forest	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
890	5.9	15	18	18	18

¹ Zones of Sensitivity for Segment #5 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #6



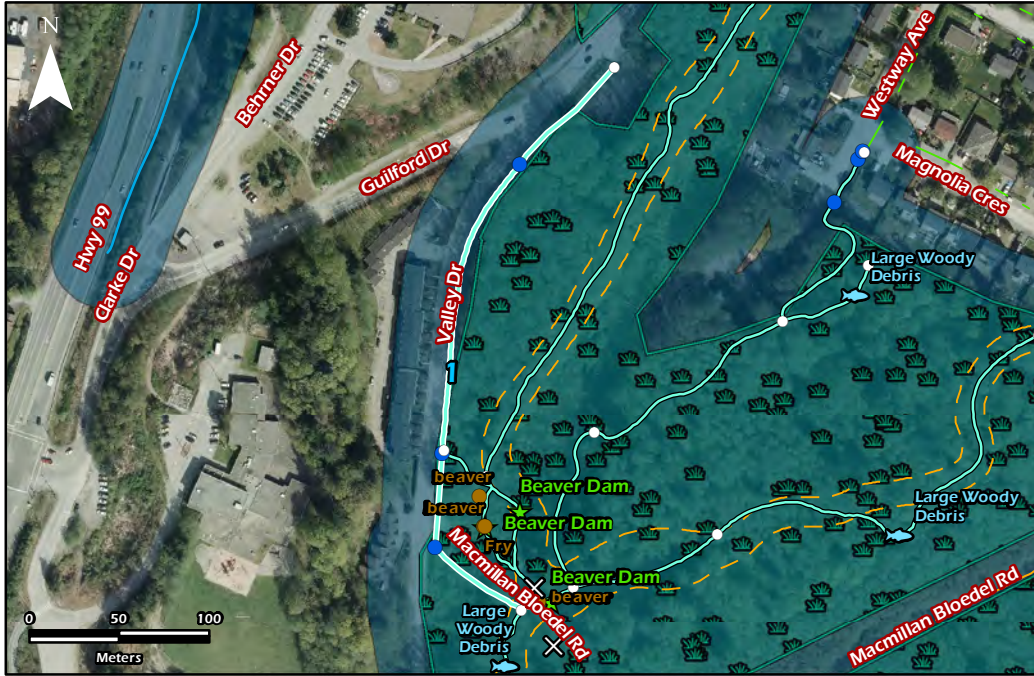
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Riffle/Pool	0.6	21-40%	Unknown	6.7	0.2	0	3	10	85	2	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Urban Residential	mature forest	5-33%	Medium	Mixed forest	Natural	Mature forest	34-66%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
505.3	6.7	15	20	20	20

¹ Zones of Sensitivity for Segment #6 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Ditch	Run	0	41-70%	Unknown	2.6	0.1	5	80	10	5	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Disturbed Wetland	Disturbed	low shrubs <2m	34-66%	High	Shrubs	Disturbed	low shrubs <2m	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (2x Channel Width/minimum 5m maximum 10m)	Bank Stability (2x Channel Width/minimum 5m maximum 10m)	Shade (2x Channel Width/minimum 5m maximum 10m)	
358.9	2.6	5	5	5	5

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Run	5	71-90%	Potential	1.5	0.2	20	10	0	20	10	40

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Shrubs	Natural	mature forest	67-100%	Medium	Shrubs	Natural	mature forest	67-100%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (2x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
105	1.5	10	10	5	10

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Run	12	71-90%	Potential	1.5	0.2	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Recreation	mature forest	67-100%	Medium	Broadleaf forest	Recreation	mature forest	67-100%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (2x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
401.6	1.5	10	10	5	10

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



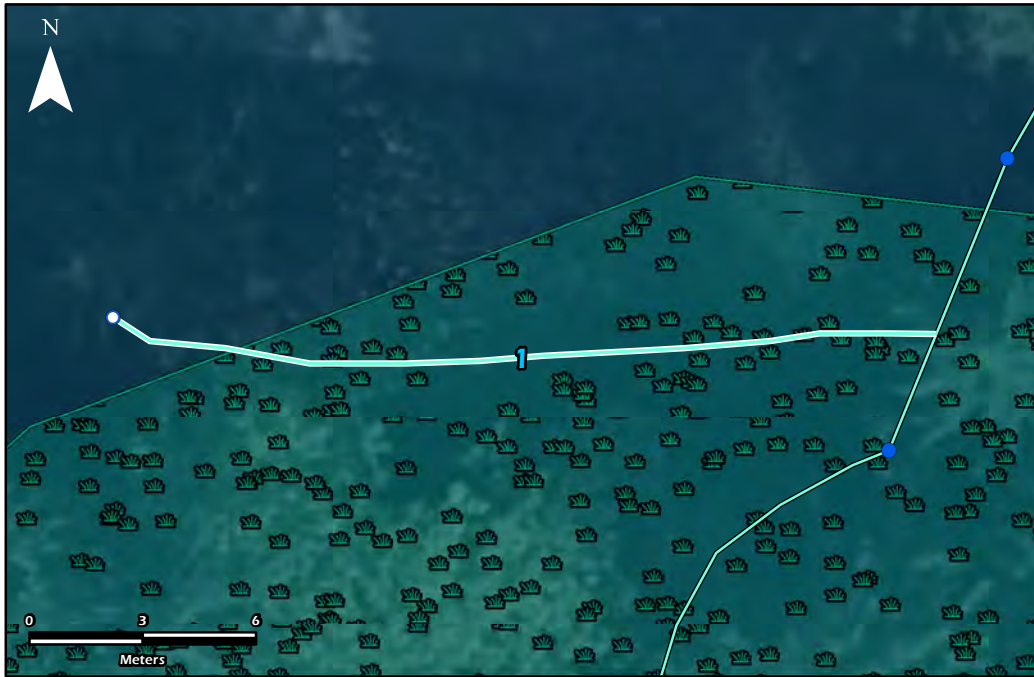
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Natural	Cascade	19	41-70%	Unknown	1	0	80	20	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Natural	mature forest	<5%	High	Broadleaf forest	Natural	mature forest	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (2x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
218.4	1	10	10	3	10

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Cascade based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Ditch	Run	0.1	1-20%	Unknown	1.5	0	90	0	0	10	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Shrubs	Disturbed	low shrubs <2m	34-66%	Meidum	Broadleaf forest	Disturbed	Mature forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (2x Channel Width/minimum 5m maximum 10m)	Bank Stability (2x Channel Width/minimum 5m maximum 10m)	Shade (2x Channel Width/minimum 5m maximum 10m)	
22	1.5	5	5	5	5

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Run	0	41-70%	Unknown	0.8	0.02	50	50	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Recreation	tall shrubs 2-10m	5-33%	Low	Broadleaf forest	Rural Residential	tall shrubs 2-10m	5-33%	Low

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
50.5	0.8	10	10	2	10

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



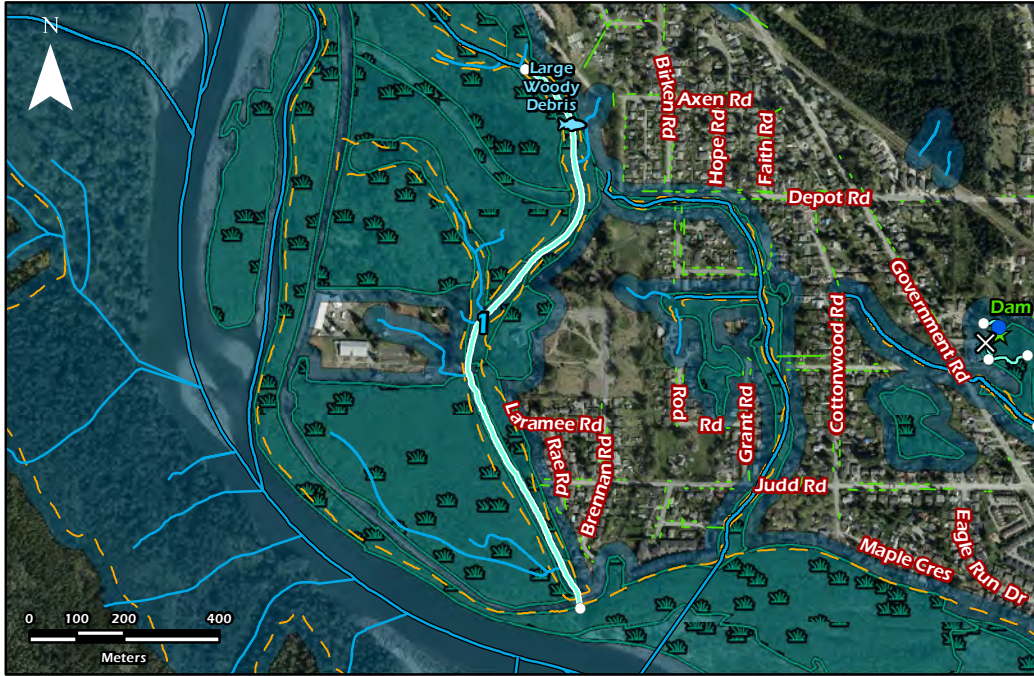
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Cascade/Pool	14	21-40%	Unknown	4.5	0	0	10	10	70	10	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Disturbed	mature forest	5-33%	Low	Mixed forest	Recreation	Mature forest	5-33%	Low

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (2x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
118.1	4.5	14	10	14	14

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Cascade/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



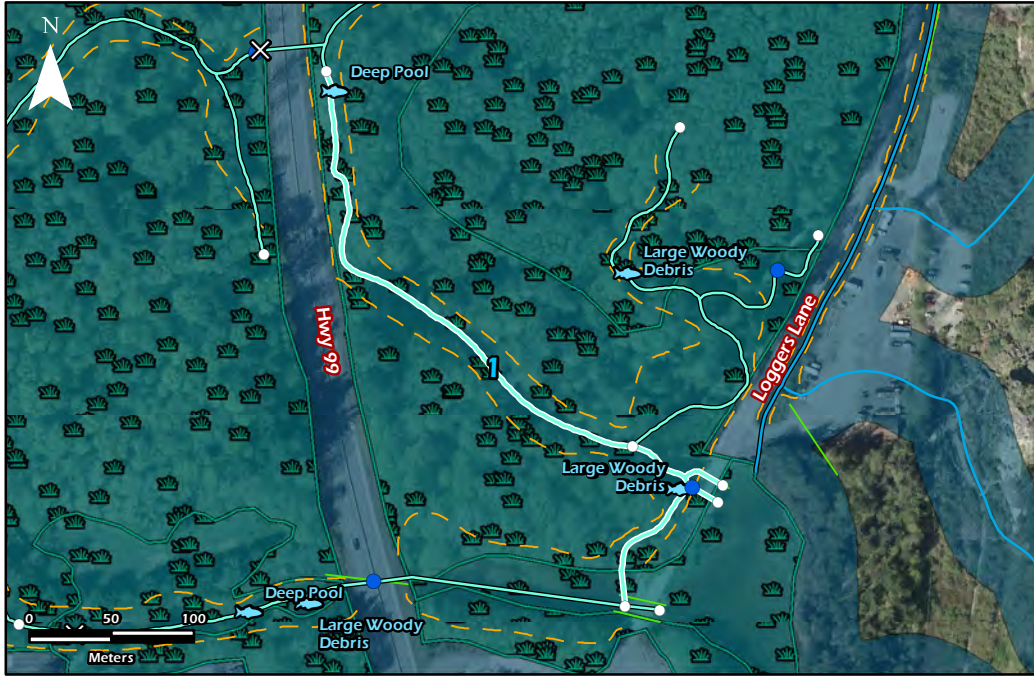
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Slough	0	21-40%	Unknown	35.2	0.8	50	40	0	10	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	mature forest	34-66%	Medium	Broadleaf forest	Disturbed	mature forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
1325.5	35.2	15	30	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	0.1	21-40%	Unknown	11.7	0.1	50	20	0	30	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Disturbed	mature forest	5-33%	Low	Mixed forest	Disturbed	mature forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
518	11.7	15	30	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Slough	0	21-40%	Unknown	12.4	0.2	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	67-100%	Medium	Mixed forest	Disturbed	mature forest	67-100%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
1008.5	12.4	15	30	30	30

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Run	0.5	41-70%	Unknown	4.8	0	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	34-66%	Medium	Broadleaf forest	Disturbed	young forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
419.4	4.8	14	14	14	14

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



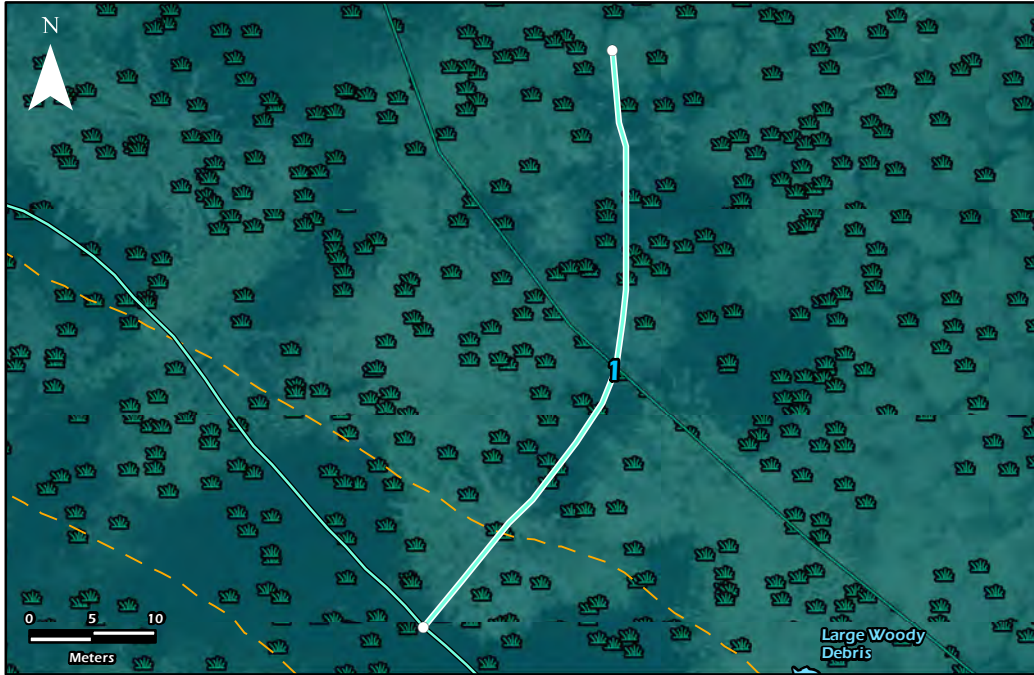
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Natural	Run	0.1	21-40%	Unknown	12.4	0.2	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	5-33%	Medium	Mixed forest	Disturbed	mature forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
85.5	12.4	15	30	30	30

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Run	0.1	21-40%	Unknown	4.3	0	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	5-33%	Medium	Mixed forest	Disturbed	mature forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
51.2	4.3	13	13	13	13

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



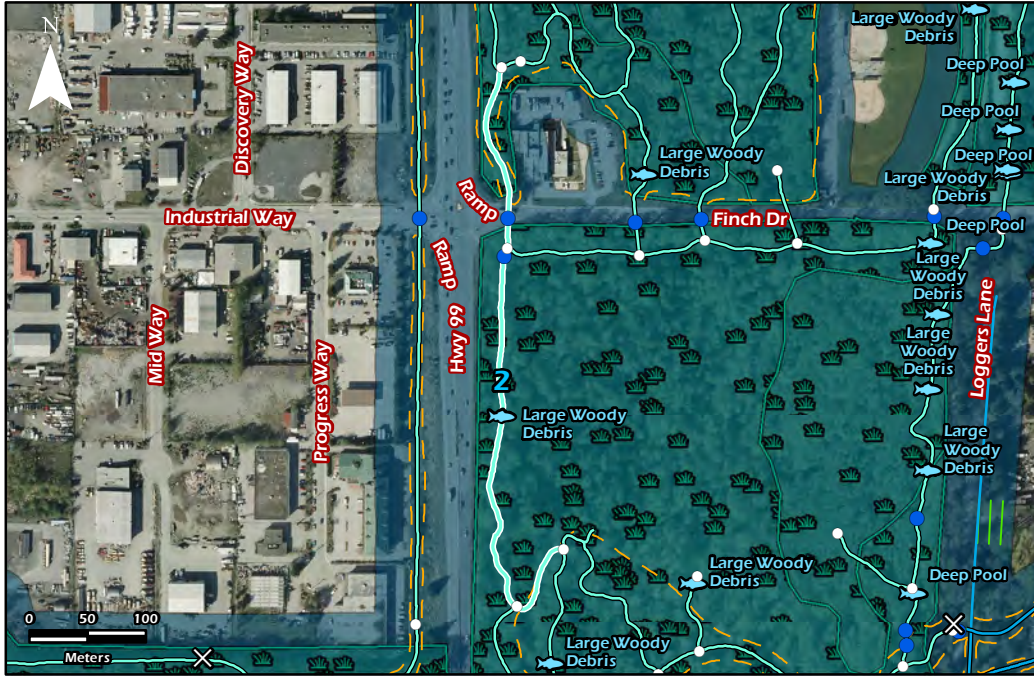
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Natural	Run	0	71-90%	Unknown	4.9	0	80	20	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Disturbed	mature forest	67-100%	Medium	Mixed forest	Disturbed	mature forest	67-100%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
673.5	4.9	15	15	15	15

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Riffle/Pool	0.4	71-90%	Potential	4	0	0	50	0	50	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Disturbed	tall shrubs 2-10m	67-100%	Medium	Mixed forest	Disturbed	young forest	67-100%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
556.8	4	12	12	12	12

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



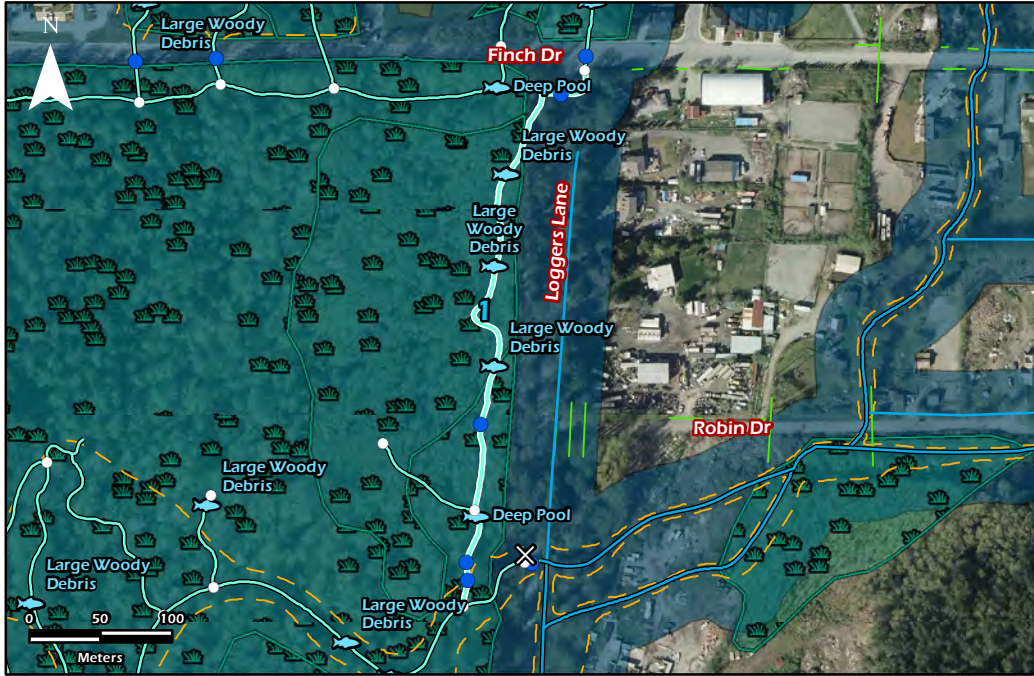
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Natural	Run	0	41-70%	Unknown	4.5	0.1	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	tall shrubs 2-10m	67-100%	High	Broadleaf forest	Disturbed	tall shrubs 2-10m	67-100%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
71.1	4.5	14	14	14	14

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Run	0.7	41-70%	Unknown	6.5	0	45	45	0	10	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Natural	young forest	34-66%	Medium	Natural wetland	Natural	tall shrubs 2-10m	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
431.2	6.5	15	20	20	20

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



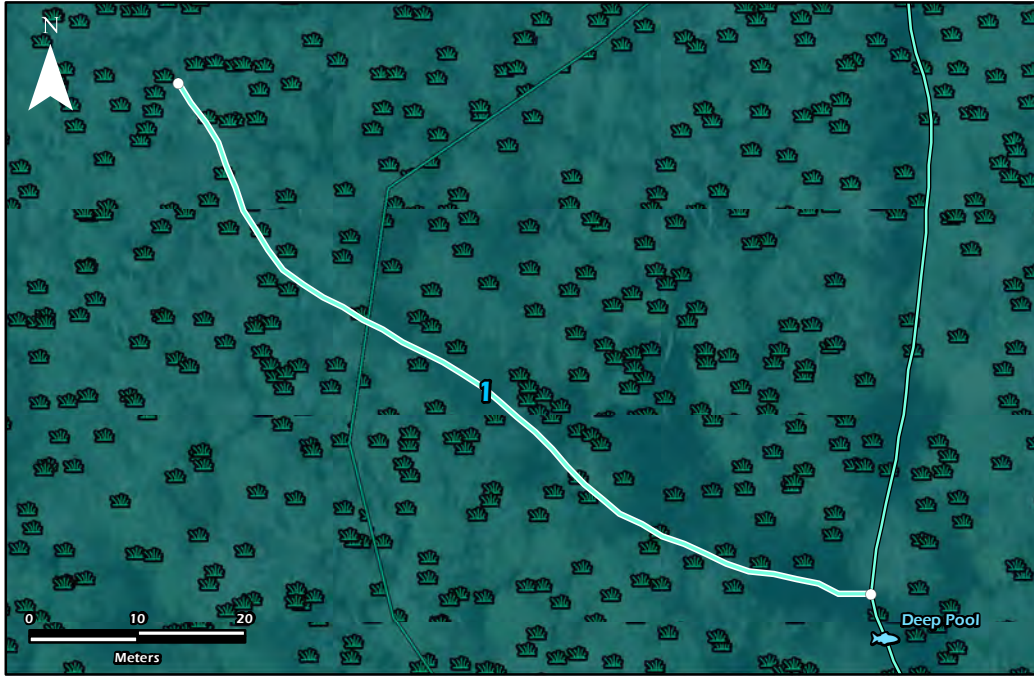
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Riffle/Pool	0.2	>90%	Potential	4.2	0.3	10	60	10	20	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Disturbed	mature forest	5-33%	Medium	Mixed forest	Natural	mature forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
265.4	4.2	13	13	13	13

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



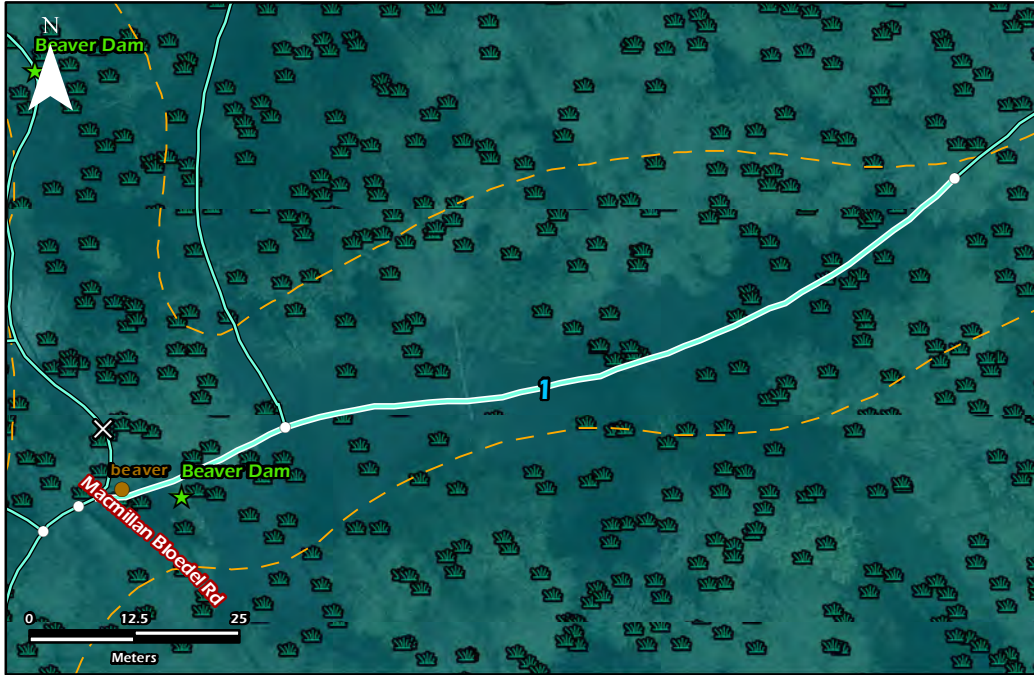
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Natural	Run	0	41-70%	Unknown	2.2	0	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	34-66%	High	Broadleaf forest	Disturbed	tall shrubs 2-10m	34-66%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
83.6	2.2	10	10	7	10

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



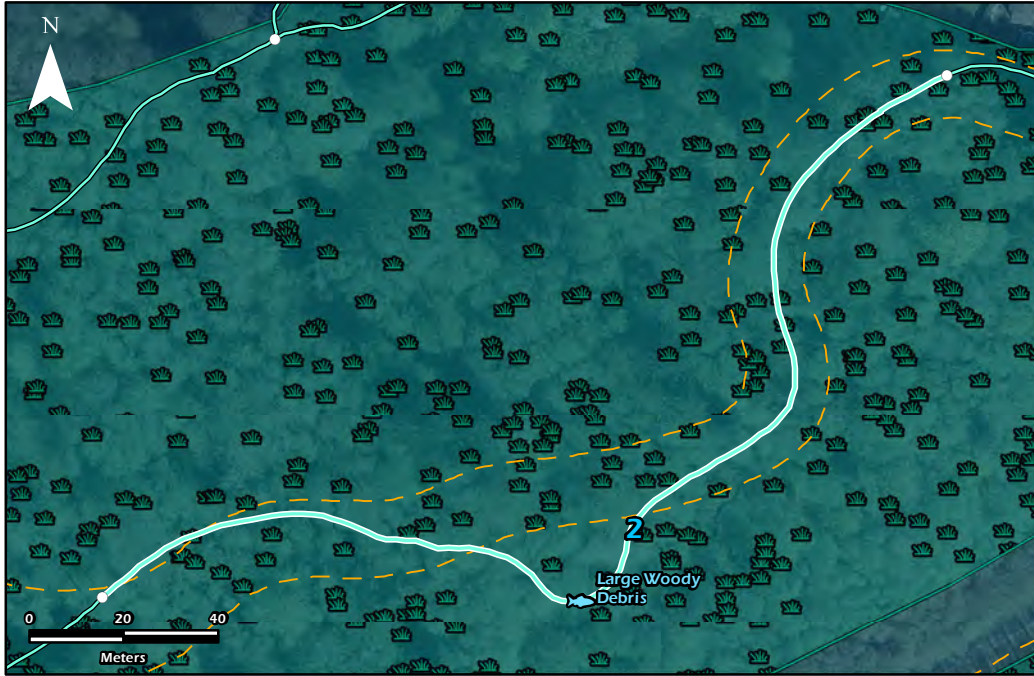
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Wetland	0	71-90%	Unknown	80	1	50	50	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Recreation	mature forest	<5%	High	Mixed forest	Natural	mature forest	<5%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (Default 15m)	Bank Stability (Default 15m)	Shade (Default 30m)	
111.6	80	15	15	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Wetland based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Slough	0.7	71-90%	Potential	5.1	0.15	25	50	0	25	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Recreation	mature forest	<5%	High	Mixed forest	Natural	mature forest	<5%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
262.2	5.1	15	15	15	15

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #3



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Riffle/Pool	1	41-70%	Potential	3.8	0.15	45	10	0	45	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Natural	mature forest	<5%	High	Shrubs	Urban Residential	tall shrubs 2-10m	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
92.8	3.8	11	11	11	11

¹ Zones of Sensitivity for Segment #3 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #4



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Riffle/Pool	1.5	21-40%	Unknown	1.3	0	80	0	0	20	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Natural	mature forest	<5%	High	Mixed forest	Urban Residential	mature forest	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
334.2	1.3	10	10	4	10

¹ Zones of Sensitivity for Segment #4 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Wetland	0	41-70%	Unknown	80	1	50	50	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Natural	mature forest	<5%	Medium	Mixed forest	Disturbed	mature forest	<5%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (Default 15m)	Bank Stability (Default 15m)	Shade (Default 30m)	
98.3	80	15	15	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Wetland based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Run	0.5	41-70%	Unknown	4	0.3	10	70	10	10	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Natural	mature forest	<5%	Medium	Mixed forest	Disturbed	mature forest	<5%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
191.4	4	12	12	12	12

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Ditch	Run	0.1	41-70%	Unknown	1.3	0.02	0	90	10	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Urban Residential	mature forest	<5%	Medium	Mixed forest	Urban Residential	mature forest	<5%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (2x Channel Width/minimum 5m maximum 10m)	Bank Stability (2x Channel Width/minimum 5m maximum 10m)	Shade (2x Channel Width/minimum 5m maximum 10m)	
129.6	1.3	5	5	5	5

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Ditch	Run	2.7	41-70%	Unknown	1.6	0.1	50	50	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	tall shrubs 2-10m	67-100%	Medium	Broadleaf forest	Disturbed	sapling >10m	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (2x Channel Width/minimum 5m maximum 10m)	Bank Stability (2x Channel Width/minimum 5m maximum 10m)	Shade (2x Channel Width/minimum 5m maximum 10m)	
55.3	1.6	5	5	5	5

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Wetland	0.1	41-70%	Unknown	40	0.3	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	tall shrubs 2-10m	67-100%	Medium	Broadleaf forest	Disturbed	sapling >10m	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (Default 15m)	Bank Stability (Default 15m)	Shade (Default 30m)	
89.6	40	15	15	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Wetland based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



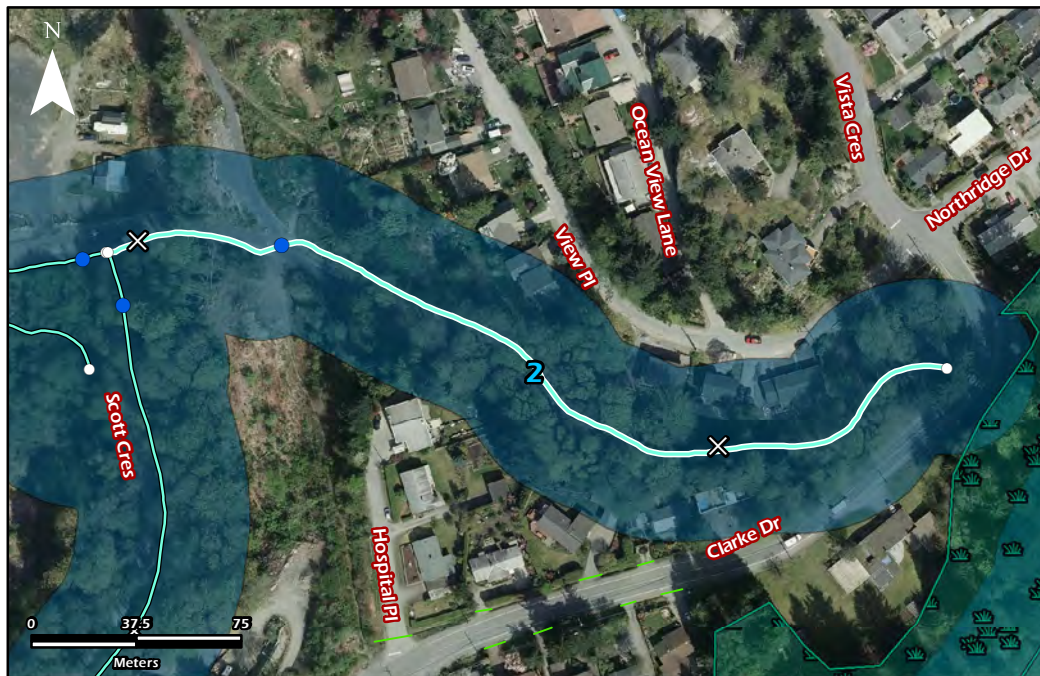
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Ditch	Run	0	41-70%	Unknown	2.1	0.1	10	75	15	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Disturbed	young forest	5-33%	High	Shrubs	Disturbed	tall shrubs 2-10m	34-66%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (2x Channel Width/minimum 5m maximum 10m)	Bank Stability (2x Channel Width/minimum 5m maximum 10m)	Shade (2x Channel Width/minimum 5m maximum 10m)	
96.5	2.1	5	5	5	5

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



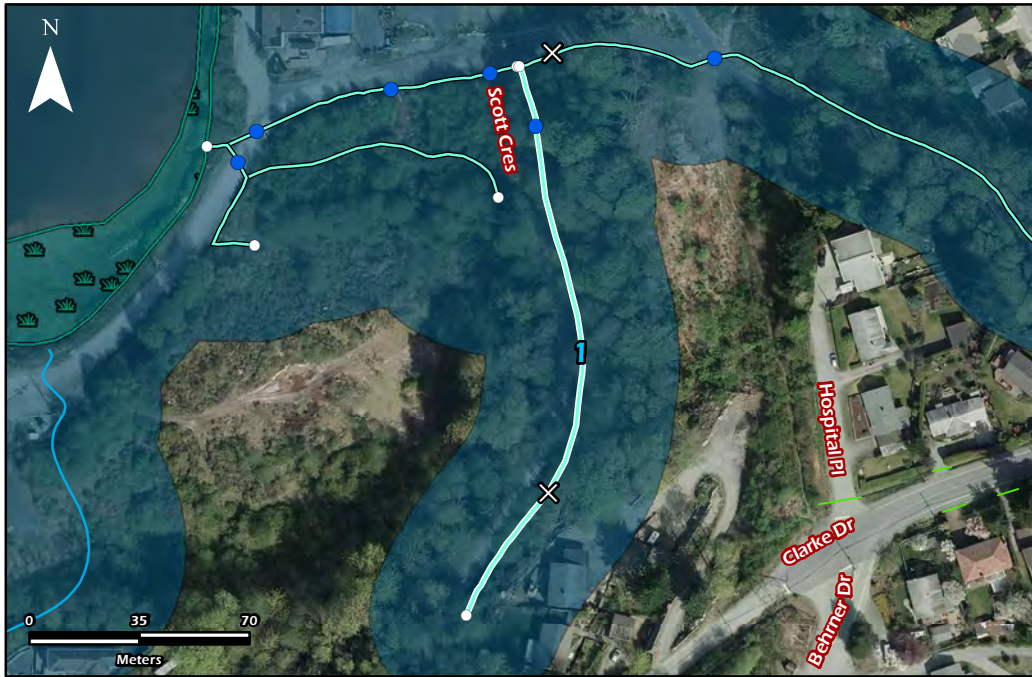
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Run	14	71-90%	Unknown	2.4	0	0	0	0	90	10	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Disturbed	mature forest	5-33%	High	Mixed forest	Urban Residential	tall shrubs 2-10m	34-66%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (2x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
339.1	2.4	10	10	7	10

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Ditch	Run	12	21-40%	Unknown	1.6	0.05	60	40	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	low shrubs <2m	5-33%	High	Broadleaf forest	Urban Residential	mature forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (2x Channel Width/minimum 5m maximum 10m)	Bank Stability (2x Channel Width/minimum 5m maximum 10m)	Shade (2x Channel Width/minimum 5m maximum 10m)	
186.8	1.6	5	5	5	5

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Slough	0	21-40%	Potential	39	0.5	40	30	0	30	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	34-66%	Medium	Broadleaf forest	Disturbed	young forest	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
170	39	15	30	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



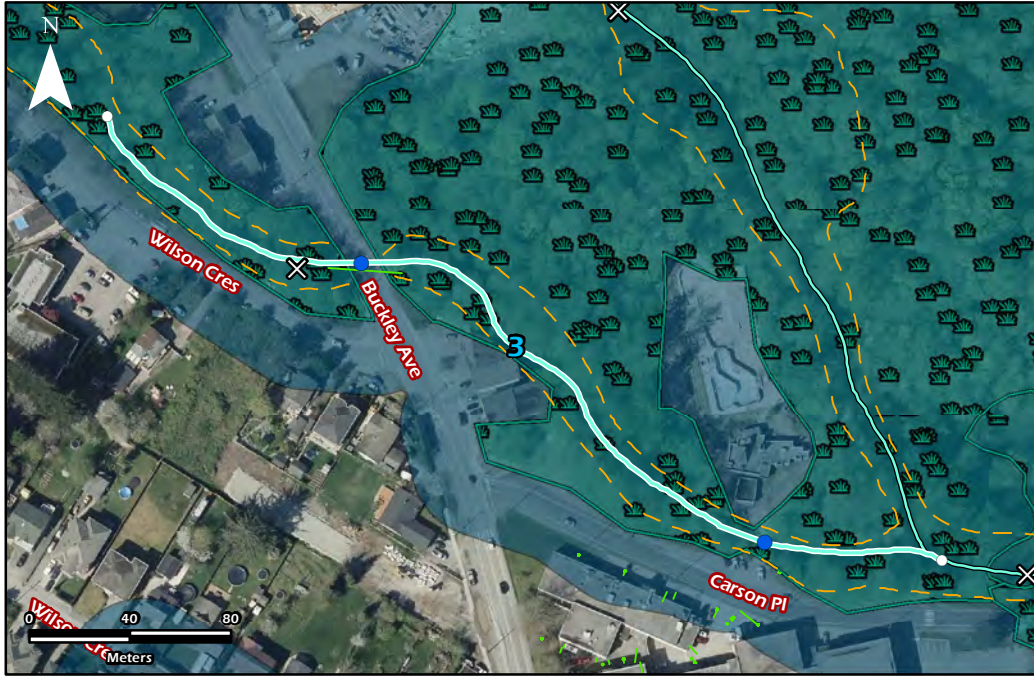
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	0	21-40%	Potential	6.7	0.2	60	30	0	10	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	tall shrubs 2-10m	34-66%	Medium	Natural wetland	Natural	tall shrubs 2-10m	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
226.3	6.7	15	20	20	20

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #3



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Slough	0.1	21-40%	Unknown	8.8	0.4	50	50	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Urban Residential	tall shrubs 2-10m	34-66%	Medium	Broadleaf forest	Disturbed	tall shrubs 2-10m	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
404.1	8.8	15	26	26	26

¹ Zones of Sensitivity for Segment #3 are based on the Channel Type Slough based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	0.9	41-70%	Anadromous	8.3	0.1	20	50	0	30	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Natural	young forest	34-66%	Medium	Broadleaf forest	Disturbed	young forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
757	8.3	15	25	25	25

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Run	0	41-70%	Potential	24.7	0.6	50	25	0	25	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Recreation	mature forest	34-66%	Medium	Broadleaf forest	Natural	mature forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
385.6	24.7	15	30	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



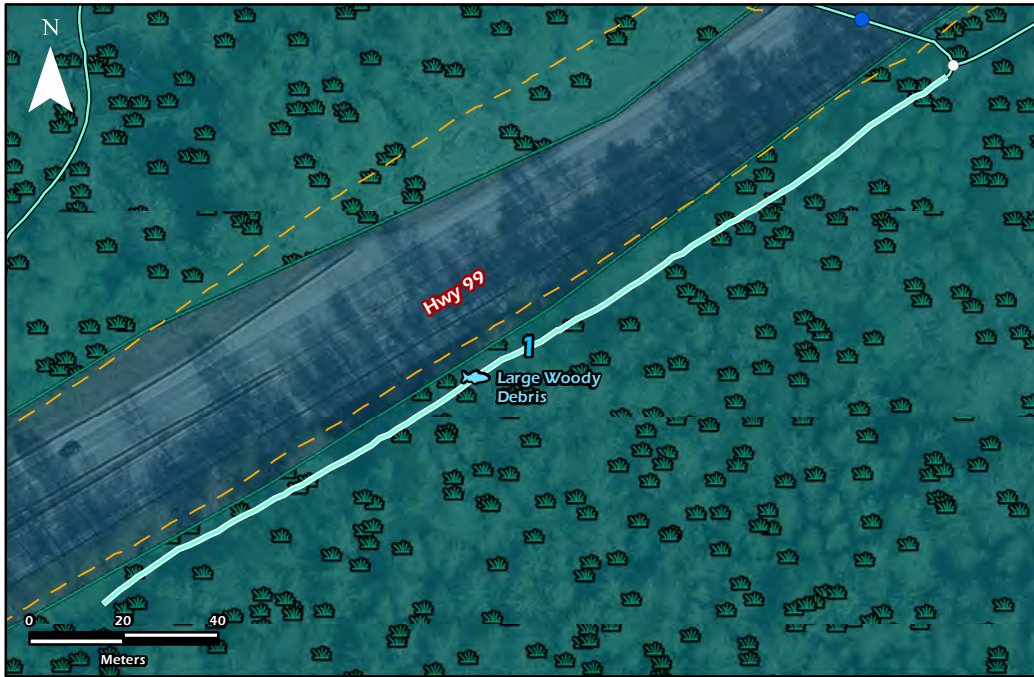
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle	3	21-40%	Unknown	14.2	0.35	0	20	10	60	10	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	young forest	<5%	Medium	Broadleaf forest	Urban Residential	young forest	<5%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
233.1	14.2	15	30	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Run	0	41-70%	Unknown	4.3	0.1	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Disturbed	mature forest	34-66%	High	Shrubs	Disturbed	tall shrubs 2-10m	34-66%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
211.5	4.3	13	13	13	13

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Riffle/Pool	1	71-90%	Anadromous	6.9	0.25	10	30	10	50	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Broadleaf forest	Recreation	mature forest	34-66%	Medium	Broadleaf forest	Recreation	mature forest	34-66%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
1032.5	6.9	15	21	21	21

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



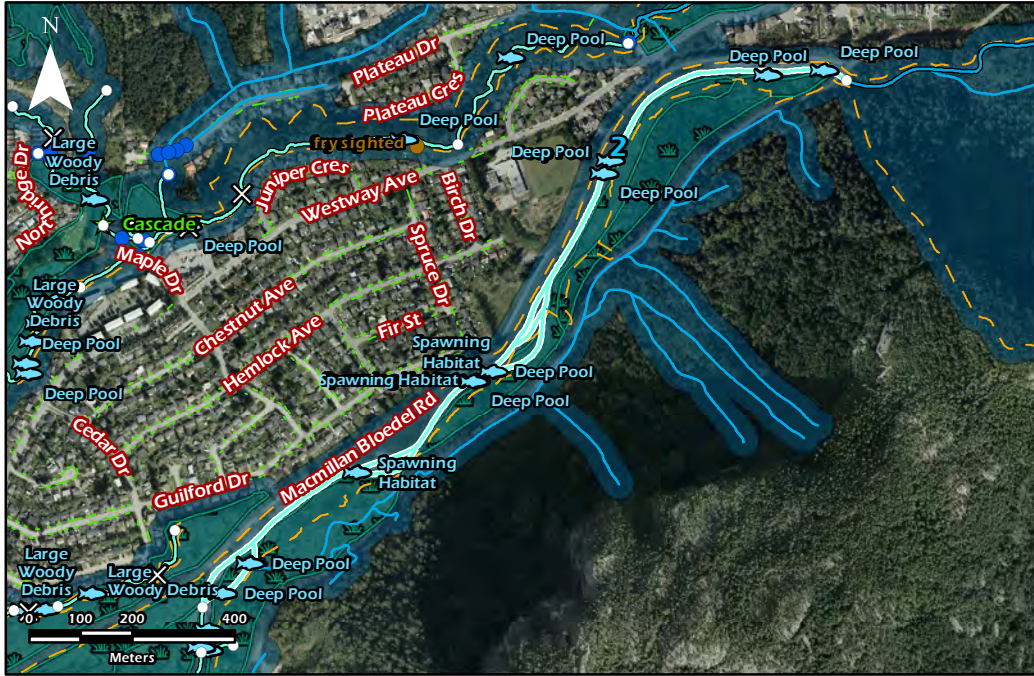
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	1	1-20%	Anadromous	38.8	0.4	0	5	5	80	10	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Natural	mature forest	5-33%	Medium	Mixed forest	Disturbed	mature forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
2836.9	38.8	15	30	30	30

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



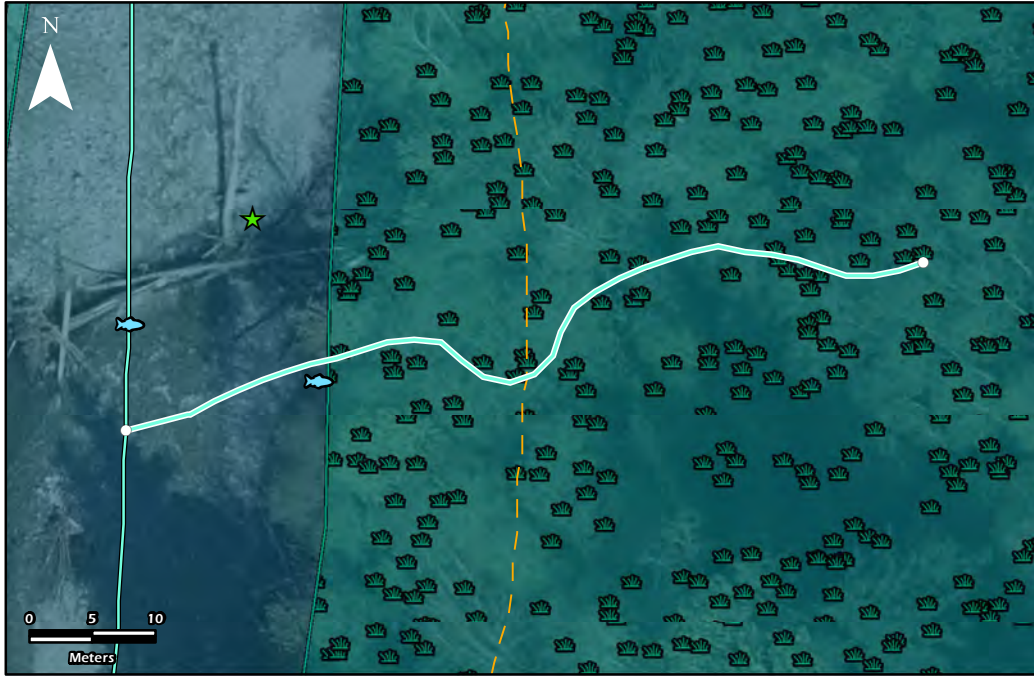
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Channelized	Riffle/Pool	1	1-20%	Anadromous	20.5	0.5	0	5	5	30	60	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Natural	mature forest	5-33%	Medium	Mixed forest	Disturbed	young forest	5-33%	High

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
2431.4	20.5	15	30	30	30

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



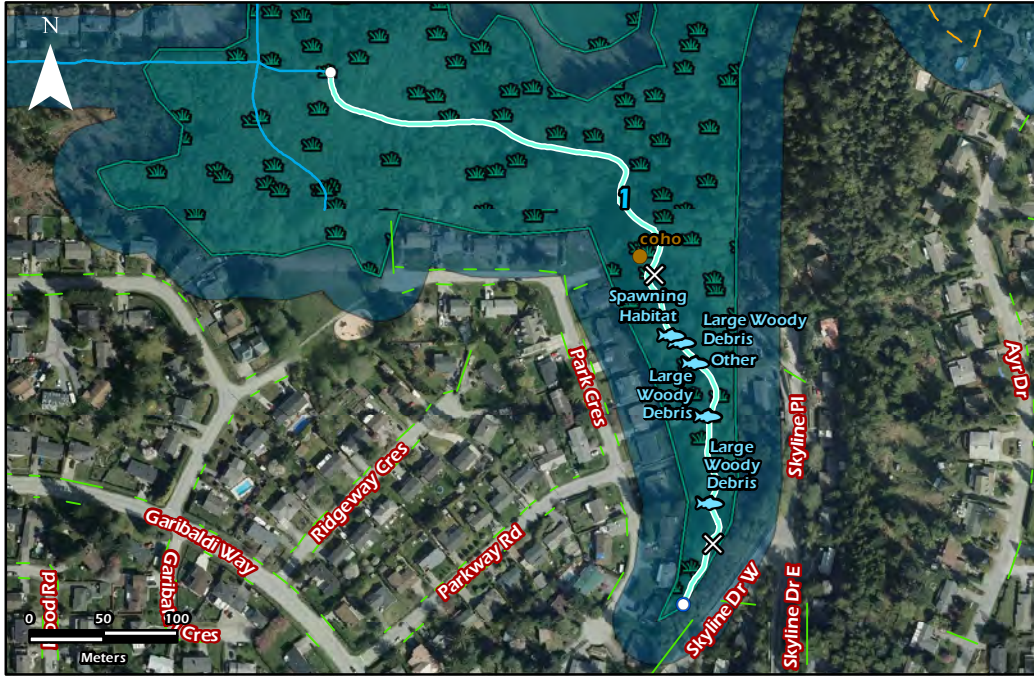
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Natural	Run	0.5	71-90%	Unknown	1	0.1	100	0	0	0	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Natural	mature forest	5-33%	High	Mixed forest	Natural	mature forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
70.4	1	10	10	3	10

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Run based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



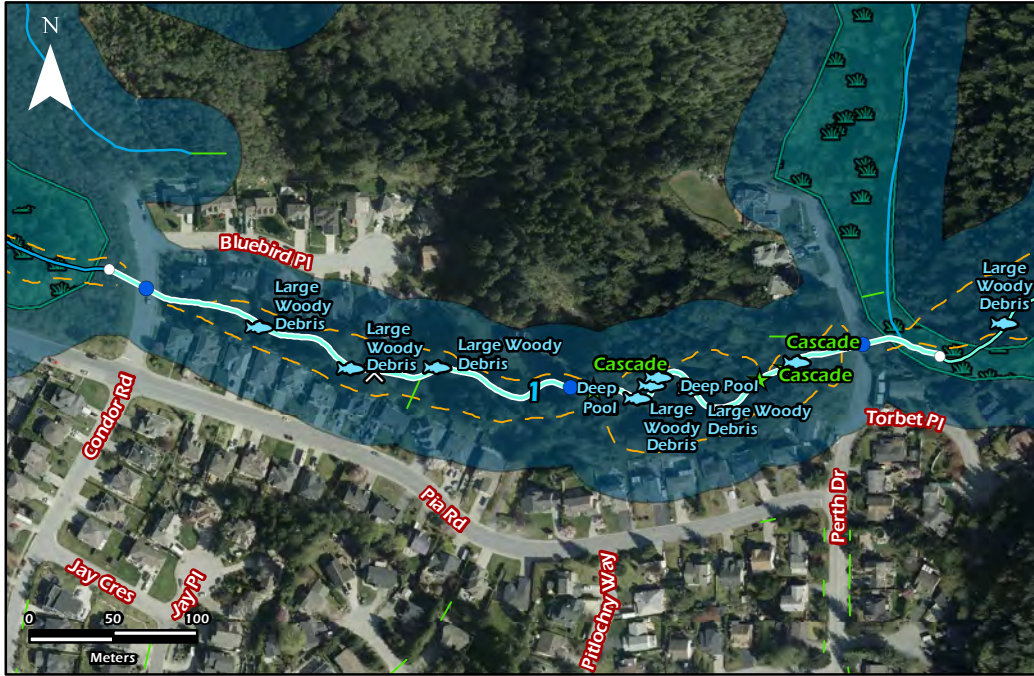
Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Riffle/Pool	1.7	41-70%	Potential	5.2	0.1	20	40	10	25	5	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Disturbed	mature forest	5-33%	Medium	Mixed forest	Urban Residential	mature forest	5-33%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (3x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
558.9	5.2	15	16	16	16

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #1



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Modified	Riffle/Pool	5	71-90%	Unknown	2.8	0.2	10	10	10	70	0	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Urban Residential	mature forest	5-33%	Medium	Mixed forest	Recreation	mature forest	<5%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (2x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
553.4	2.8	10	10	8	10

¹ Zones of Sensitivity for Segment #1 are based on the Channel Type Riffle/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

Segment #2



Stream Character					Channel (m)		Substrates (%)					
Primary	Hydraulic	Gradient (%)	Crown Closure	Spawning Habitat	Bankfull	Wetted Depth	Organics	Fines	Gravel	Cobble	Boulder	Bedrock
Natural	Cascade/Pool	22	71-90%	Unknown	2.6	0.2	10	40	20	25	5	0

Left Bank Riparian					Right Bank Riparian				
Class	Qualifier	Stage	Shrub Cover	Bank Stability	Class	Qualifier	Stage	Shrub Cover	Bank Stability
Mixed forest	Urban Residential	mature forest	5-33%	Medium	Mixed forest	Recreation	mature forest	<5%	Medium

Length (m)	Channel Width (m)	Zones of Sensitivity ¹			Recommended Streamside Protection and Enhancement Area (SPEA) (m)
		Litter and Insect Drop (3x Channel Width/minimum 10m maximum 15m)	Bank Stability (2x Channel Width/minimum 10m maximum 15m)	Shade (3x Channel Width/ maximum 30m)	
182.2	2.6	10	10	8	10

¹ Zones of Sensitivity for Segment #2 are based on the Channel Type Cascade/Pool based on stream gradients. Site Potential Vegetation (SPVT) is treed.

APPENDIX B

Data Dictionary for Sensitive Habitat Inventory and Mapping – 2017



SHIM2017.txt

"SHIM2017", Dictionary, version, 6
"STREAM", line, "STREAM", 1, seconds, 1, Code
 "STREAM_REFERENCE ", caption, normal, "STREAM_REFERENCE ", normal, expanded
 "StreamName", text, 50, required, "StreamName", required, Label1
 "LocalName", text, 50, normal, "LocalName", normal
 "Organization", text, 100, required, "Organization", required, Ecoscape
 Environmental Consultants Ltd.
 "WtrshedCde", numeric, 0, 0, 50, 0, normal, "WtrshedCde", normal
 "TributaryCde", text, 35, normal, "TributaryCde", normal
 "ILP", text, 35, normal, "ILP", normal
 "Date", date, auto, ymd, manual, required, "Date", required
 "Time ", time, auto, 24, manual, normal, "Time ", normal
 "Crew", text, 50, required, "Crew", required, KH;CBAR
 "Weather", menu, normal, "Weather", normal
 "Light Rain",[L]
 "Heavy Rain",[H]
 "Snow/Sleet",[N]
 "Over cast",[OV]
 "Clear",[S]
 "Partly Cloudy",[PC]
 "Other",[O]
 "AirTemp ", numeric, 1, -25.0, 45.0, 0.0, normal, "AirTemp ", normal
 "Water_Temp", numeric, 1, -2.0, 29.0, 0.0, normal, "Water_Temp", normal
 "Stage", menu, normal, "Stage", normal
 "dry"
 "low"
 "moderate"
 "high"
 "flood"
 "other"
 "Line_Type", menu, normal, "Line_Type", normal
 "Trimble", default
 "Garmin"
 "Photointerp"
 "Chain_Compass"
 "Other"
 "Line_Src", menu, normal, "Line_Src", normal, Label2
 "shim2017", default
 "shim2006"
 "shim4"
 "shim3"
 "shim2"
 "shim1"
 "trim"
 "DFO"
 "other"
 "Fish_Bearing", menu, normal, "Fish_Bearing", normal
 "Yes"

"No"
"Unconfirmed"
"Fish_SP1", menu, normal, "Fish_SP1", normal
"General Fish Observn",[FSH]
"Bull trout",[BT]
"Coho",[CO]
"Chinook",[CH]
"Chum",[CM]
"Cutthroat Trout",[CT]
"Westslope Cutthroat ",[WCT]
"Dolly Varden",[DV]
"Anadromous Dolly Var",[ADV]
"Pink",[PK]
"Rainbow",[RB]
"Stickleback",[SB]
"Salmonid",[SA]
"Sculpin",[CC]
"Sockeye",[SK]
"Steelhead",[ST]
"Sucker",[SU]
"Trout",[TR]
"Whitefish",[WF]
"Other",[O]
"Sp1_Src", menu, normal, "Sp1_Src", normal
"FISS"
"FDIS"
"DFO"
"MWALP"
"MOTH"
"Other"
"Fish_SP2", menu, normal, "Fish_SP2", normal
"General Fish Observn",[FSH]
"Bull trout",[BT]
"Coho",[CO]
"Chinook",[CH]
"Chum",[CM]
"Cutthroat Trout",[CT]
"Westslope Cutthroat ",[WCT]
"Dolly Varden",[DV]
"Anadromous Dolly Var",[ADV]
"Pink",[PK]
"Rainbow",[RB]
"Stickleback",[SB]
"Salmonid",[SA]
"Sculpin",[CC]
"Sockeye",[SK]
"Steelhead",[ST]
"Sucker",[SU]

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"Trout",[TR]
"Whitefish",[WF]
"Other",[O]
"Sp2_Src", menu, normal, "Sp2_Src", normal
"FISS"
"FDIS"
"DFO"
"MWALP"
"MOTH"
"Other"
"Fish_SP3", menu, normal, "Fish_SP3", normal
"General Fish Observn",[FSH]
"Bull trout",[BT]
"Coho",[CO]
"Chinook",[CH]
"Chum",[CM]
"Cutthroat Trout",[CT]
"Westslope Cutthroat ",[WCT]
"Dolly Varden",[DV]
"Anadromous Dolly Var",[ADV]
"Pink",[PK]
"Rainbow",[RB]
"Stickleback",[SB]
"Salmonid",[SA]
"Sculpin",[CC]
"Sockeye",[SK]
"Steelhead",[ST]
"Sucker",[SU]
"Trout",[TR]
"Whitefish",[WF]
"Other",[O]
"Sp3_Src", menu, normal, "Sp3_Src", normal
"FISS"
"FDIS"
"DFO"
"MWALP"
"MOTH"
"Other"
"Comments", text, 100, normal, "Comments", normal
"PhotoNum", text, 25, normal, "PhotoNum", normal
"_____", caption, normal, "_____", normal, expanded
"SEGMENT_CLASS", caption, normal, "SEGMENT_CLASS", normal, expanded
"Seg_Number", numeric, 1, 0.0, 99999.0, 0.0, required, "Seg_Number", required
"Primary", menu, required, "Primary", required
"Channelized",[CH]
"Culvert",[CV]
"Ditch",[FRT]
"Modified",[Md]

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"Natural",[N]
"Other",[O]
"Secondary", menu, normal, "Secondary", normal
"Beaver Pond",[BP]
"Ephemeral",[EP]
"Flumed",[F]
"Intermittent",[IN]
"Side channel",[SC]
"Wetland",[HMW]
"Braided",[BC]
"Non-channelized",[NC]
"Other",[O]
"Hydraulic", menu, normal, "Hydraulic", normal
"Beaver Pond",[BP]
"Cascade",[C]
"Cascade/Pool",[CP]
"Falls",[F]
"Pool",[P]
"Run",[RN]
"Riffle",[RF]
"Riffle/Pool",[RP]
"Slough",[S]
"Standing",[S]
"Wetland",[HMW]
"Other",[O]
"Comt_Class", text, 100, normal, "Comt_Class", normal
"_____", caption, normal, "_____", normal, expanded
"SEGMENT_CHARACTER", caption, normal, "SEGMENT_CHARACTER", normal, expanded
"Percent_Gradient", numeric, 1, 0.0, 100.0, 0.0, normal, "Percent_Gradient",
normal
"Crown_Closure", menu, normal, "Crown_Closure", normal
"0",[0]
"1-20%",[1]
"21-40%",[2]
"41-70%",[3]
"71-90%",[4]
">90%",[5]
"Spawning_Habitat", menu, normal, "Spawning_Habitat", normal
"Anadromous"
"Resident"
"Unknown", default
"Potential"
"Livestock_access", menu, normal, "Livestock_access", normal
"Yes"
"Bars", menu, normal, "Bars", normal
"None", default
"Side"
"Diagonal"

"Mid-channel"
 "Spanning"
 "Braided"
 "Islands", menu, normal, "Islands", normal
 "None", default
 "Occasional"
 "Frequent - Irregular"
 "Frequent - Regular"
 "Split"
 "Anastomosing"
 "Comt_SChar", text, 100, normal, "Comt_SChar", normal
 "_____", caption, normal, "_____", normal, expanded
 "SUBSTRATE", caption, normal, "SUBSTRATE", normal, expanded
 "Sub_Organic", numeric, 0, 0, 100, 0, normal, "Sub_Organic", normal
 "Sub_Fines", numeric, 0, 0, 100, 0, normal, "Sub_Fines", normal
 "Sub_Gravel", numeric, 0, 0, 100, 0, normal, "Sub_Gravel", normal
 "Sub_Cobble", numeric, 0, 0, 100, 0, normal, "Sub_Cobble", normal
 "Sub_Blder", numeric, 0, 0, 100, 0, normal, "Sub_Blder", normal
 "Sub_BedRk", numeric, 0, 0, 100, 0, normal, "Sub_BedRk", normal
 "Compaction", menu, normal, "Compaction", normal
 "Low",[L]
 "Medium",[M]
 "High",[H]
 "Comt_Sub", text, 100, normal, "Comt_Sub", normal
 "_____", caption, normal, "_____", normal, expanded
 "CHANNEL ", caption, normal, "CHANNEL ", normal, expanded
 "Width_W", numeric, 2, 0.00, 100.00, 0.00, normal, "Width_W", normal
 "Width_BF", numeric, 2, 0.00, 100.00, 0.00, normal, "Width_BF", normal
 "Width_LFP", numeric, 2, 0.00, 1000.00, 0.00, normal, "Width_LFP", normal
 "Width_RFP", numeric, 2, 0.00, 1000.00, 0.00, normal, "Width_RFP", normal
 "Depth_W", numeric, 2, 0.00, 10.00, 0.00, normal, "Depth_W", normal
 "Depth_BF", numeric, 2, 0.00, 10.00, 0.00, normal, "Depth_BF", normal
 "Depth_FP", numeric, 2, 0.00, 10.00, 0.00, normal, "Depth_FP", normal
 "Comt_Chan", text, 100, normal, "Comt_Chan", normal
 "_____", caption, normal, "_____", normal, expanded
 "INSTREAM_COVER", caption, normal, "INSTREAM_COVER", normal, expanded
 "Total_Cover", numeric, 0, 0, 1000, 0, normal, "Total_Cover", normal
 "B", numeric, 0, 0, 100, 0, normal, "B", normal
 "DP", numeric, 0, 0, 100, 0, normal, "DP", normal
 "IV", numeric, 0, 0, 100, 0, normal, "IV", normal
 "LWD", numeric, 0, 0, 100, 0, normal, "LWD", normal
 "OV", numeric, 0, 0, 100, 0, normal, "OV", normal
 "SWD", numeric, 0, 0, 100, 0, normal, "SWD", normal
 "UC", numeric, 0, 0, 100, 0, normal, "UC", normal
 "LWD_Count", numeric, 0, 0, 999, 0, normal, "LWD_Count", normal
 "Spanlog_Count", numeric, 0, 0, 999, 0, normal, "Spanlog_Count", normal
 "DP_Count", numeric, 0, 0, 999, 0, normal, "DP_Count", normal
 "Comt_Cov", text, 100, normal, "Comt_Cov", normal

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"_____", caption, normal, "_____", normal, expanded
"LEFT_BANK_RIPARIAN ", caption, normal, "LEFT_BANK_RIPARIAN ", normal, expanded
"L_RipClass", menu, normal, "L_RipClass", normal
 "Row Crops",[NAG]
 "Broadleaf forest",[VBF]
 "Bryophytes",[VCR]
 "Coniferous forest",[VNF]
 "Planted Tree Farm",[NTF]
 "Disturbed wetland",[DWN]
 "Dug out pond ",[DOP]
 "Exposed soil",[NEL]
 "Flood plain",[VFP]
 "Herbs/grasses",[VHB]
 "High Impervious ",[NHR]
 "Medium Impervious",[NMR]
 "Low Impervious",[NLR]
 "Mixed forest",[VMF]
 "Natural wetland",[WN]
 "Rock",[NNB]
 "Shrubs",[VSH]
"L_Qualifier", menu, normal, "L_Qualifier", normal
 "Agriculture",[ag]
 "Natural",[n]
 "Urban_Residential",[ur]
 "Rural_Residential",[ru]
 "Recreation",[r]
 "Disturbed",[d]
 "Unknown",[u]
"L_BandWidth", numeric, 2, 0.00, 9999.00, 0.00, normal, "L_BandWidth", normal
"L_BankSlope", numeric, 0, -100, 100, 0, normal, "L_BankSlope", normal
"L_Stage", menu, normal, "L_Stage", normal
 "Sparse Bryoid",[1]
 "Grass / Herb",[2]
 "low shrubs <2m",[3a]
 "tall shrubs 2-10m",[3b]
 "sapling >10m",[4]
 "young forest",[5]
 "mature forest",[6]
 "old forest",[7]
"L_Shrubs", menu, normal, "L_Shrubs", normal
 "<5%",[VL]
 "5-33%",[L]
 "34-66%",[M]
 "67-100%",[H]
"L_Snag", menu, normal, "L_Snag", normal
 "No"
 "<5"
 ">=5"

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"L_Veteran ", menu, normal, "L_Veteran ", normal
"No"
"<5"
">=5"

"L_BkStbility", menu, normal, "L_BkStbility", normal
"High",[H]
"Medium",[M]
"Low",[L]

"L_Bank_Material", menu, normal, "L_Bank_Material", normal
"Concrete",[C]
"Gabions",[GB]
"Pilings",[P]
"Stonework",[S]
"RipRap",[RR]
"Retain Wall/Bank Stb",[EHB]
"Sandbags",[SB]
"Wood",[W]
"Bark_Mulch",[BM]
"Asphalt",[AS]
"Dyke",[DY]
"Till",[T]
"Fines",[F]
"Gravel",[G]
"Cobble",[CB]
"Boulder",[B]
"Bed_Rock",[BR]
"Other",[O]

"L_Top_Bank", menu, normal, "L_Top_Bank", normal
"Yes"
"No"

"L_Comment", text, 100, normal, "L_Comment", normal
"_____", caption, normal, "_____", normal, expanded
"RIGHT_BANK_RIPARIAN ", caption, normal, "RIGHT_BANK_RIPARIAN ", normal, expanded

"R_RipClass", menu, normal, "R_RipClass", normal
"Row Crops",[NAG]
"Broadleaf forest",[VBF]
"Bryophytes",[VCR]
"Coniferous forest",[VNF]
"Planted Tree Farm",[NTF]
"Disturbed wetland",[DWN]
"Dug out pond ",[DOP]
"Exposed soil",[NEL]
"Flood plain",[VFP]
"Herbs/grasses",[VHB]
"High Impervious ",[NHR]
"Medium Impervious",[NMR]
"Low Impervious",[NLR]
"Mixed forest",[VMF]

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"Natural wetland",[WN]
"Rock",[NNB]
"Shrubs",[VSH]
"R_Qualifier", menu, normal, "R_Qualifier", normal
"Agriculture",[ag]
"Natural",[n]
"Urban_Residential",[ur]
"Rural_Residential",[ru]
"Recreation",[r]
"Disturbed",[d]
"Unknown",[u]
"R_BandWidth", numeric, 2, 0.00, 9999.00, 0.00, normal, "R_BandWidth", normal
"R_BankSlope", numeric, 0, -100, 100, 0, normal, "R_BankSlope", normal
"R_Stage", menu, normal, "R_Stage", normal
"Sparse Bryoid",[1]
"Grass / Herb",[2]
"low shrubs <2m",[3a]
"tall shrubs 2-10m",[3b]
"sapling >10m",[4]
"young forest",[5]
"mature forest",[6]
"old forest",[7]
"R_Shrubs", menu, normal, "R_Shrubs", normal
"<5%",[VL]
"5-33%",[L]
"34-66%",[M]
"67-100%",[H]
"R_Snag", menu, normal, "R_Snag", normal
"No"
"<5"
">=5"
"R_Veteran ", menu, normal, "R_Veteran ", normal
"No"
"<5"
">=5"
"R_BkStbility", menu, normal, "R_BkStbility", normal
"High",[H]
"Medium",[M]
"Low",[L]
"R_Bank_Material", menu, normal, "R_Bank_Material", normal
"Concrete",[C]
"Gabions",[GB]
"Pilings",[P]
"Stonework",[S]
"RipRap",[RR]
"Retain Wall/Bank Stb",[EHB]
"Sandbags",[SB]
"Wood",[W]

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"Bark_Mulch",[BM]
"Asphalt",[AS]
"Dyke",[DY]
"Till",[T]
"Fines",[F]
"Gravel",[G]
"Cobble",[CB]
"Boulder",[B]
"Bed_Rock",[BR]
"Other",[O]
"R_Top_Bank", menu, normal, "R_Top_Bank", normal
 "Yes"
 "No"
"R_Comment", text, 100, normal, "R_Comment", normal
"_____", caption, normal, "_____", normal, expanded
"FLORA_FAUNA ", caption, normal, "FLORA_FAUNA ", normal, expanded
"CmmntFlora", text, 100, normal, "CmmntFlora", normal
"CmmntFauna", text, 100, normal, "CmmntFauna", normal
"_____", caption, normal, "_____", normal, expanded
"LEVEL_OF_IMPACT", caption, normal, "LEVEL_OF_IMPACT", normal, expanded
"Impact_rating", menu, normal, "Impact_rating", normal
 "nil_nil",[8]
 "nil_low",[7]
 "nil_mod",[6]
 "nil_high",[5]
 "low_low",[6]
 "low_mod",[5]
 "low_high",[4]
 "mod_mod",[4]
 "mod_high",[3]
 "high_high",[2]
"LOI_Comment", text, 100, normal, "LOI_Comment", normal
"_____", caption, normal, "_____", normal, expanded
"ENHANCE_OPP_RATING", caption, normal, "ENHANCE_OPP_RATING", normal, expanded
"Opportunity_Rating", menu, normal, "Opportunity_Rating", normal
 "Nil",[0]
 "Low",[1]
 "Moderate",[2]
 "High",[3]
 "Very_high",[4]
"Comment", text, 100, normal, "Comment", normal

"CBS_OUTLET", point, "CBS_OUTLET", 1, seconds, 1, Code
"LOCATION/OVERVIEW", caption, normal, "LOCATION/OVERVIEW", normal, expanded
"Date", date, auto, ymd, manual, required, "Date", required
"Cross_ID_No", text, 100, required, "Cross_ID_No", required
"Crew", text, 100, required, "Crew", required
"UTM", text, 100, normal, "UTM", normal

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"Streamname", text, 100, required, "Streamname", required
"Road_Name", text, 100, required, "Road_Name", required
"Road_KM", numeric, 0, 0, 1000, 0, required, "Road_KM", required
"MoF_District", menu, required, "MoF_District", required
 "DMH-100 Mile House"
 "DAB-Arrow Boundary"
 "DSC-Cascades"
 "DCC-Central Caribou"
 "DCH-Chilcotin"
 "DCO-Columbia"
 "DHW-Headwaters"
 "DKA-Kamloops"
 "DKL-Kootenay Lake"
 "DOS-Okanagan Shuswap"
 "DQU-Quesnel"
 "DRM-Rocky Mtn"
"Cross_Type", menu, required, "Cross_Type", required
 "Round Culvert",[RC]
 "Pipe Arch",[PA]
 "Embed Round Culve",[EC]
 "Embed Pipe Arch",[EA]
 "Other",[Ot]
"Type_Culvert", menu, normal, "Type_Culvert", normal, Label1
 "Box Culvert",[BC]
 "Gated Inlet",[GI]
 "Gated Outlet",[GO]
 "Gated Multiple Inlet",[GMI]
 "Gated Multiple Out",[GMO]
 "Inlet",[I]
 "Inlet Stacked",[IS]
 "Multiple Inlet",[MI]
 "Multiple Outlet",[MO]
 "Outlet",[O]
 "Outlet Stacked",[OS]
"LOC_Comments", text, 100, normal, "LOC_Comments", normal
"_____", caption, normal, "_____", normal, expanded
"EMBEDDEDNESS", caption, normal, "EMBEDDEDNESS", normal, expanded
"Min30cmor20%", menu, required, "Min30cmor20%", required
 "Yes",[Y]
 "No ",[N]
"Sub_Rel_Length", menu, normal, "Sub_Rel_Length", normal
 "0%",[0]
 "25%",[25]
 "50%",[50]
 "75%",[75]
 "100%",[100]
"Nat_Chan_Subs", menu, required, "Nat_Chan_Subs", required
 "Yes",[Y]

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"No ",[N]
"Embed_Comments", text, 100, normal, "Embed_Comments", normal
"_____", caption, normal, "_____", normal, expanded
"DIMENS_PrimOutlet", caption, normal, "DIMENS_PrimOutlet", normal, expanded
"Form", menu, required, "Form", required
 "Circular",[C]
 "Rectangular",[R]
 "Arch",[A]
 "Vertical Ellipse",[V]
 "Horizontal Ellipse",[H]
 "Other",[O]
"Material", menu, required, "Material", required
 "Corrugated Steel",[CS]
 "Concrete",[C]
 "Steel",[S]
 "Wood",[W]
 "Iron",[I]
 "Metal_Concrete",[MC]
 "PVC",[P]
 "Asphalt coded",[AD]
 "Other",[O]
"Dia(mm)", numeric, 0, 0, 6000, 0, normal, "Dia(mm)", normal
"Length(m)", numeric, 1, 0.0, 1000.0, 0.0, required, "Length(m)", required
"Width(mm)", numeric, 0, 0, 6000, 0, normal, "Width(mm)", normal
"Height(mm)", numeric, 0, 0, 6000, 0, normal, "Height(mm)", normal
"PercentSlope", numeric, 1, 0.0, 100.0, 0.0, required, "PercentSlope", required
"OutlDrop(cm)", numeric, 0, -250, 250, 0, required, "OutlDrop(cm)", required
"Prim_Comments", text, 100, normal, "Prim_Comments", normal
"_____", caption, normal, "_____", normal, expanded
"DIMENS_SecOutlet", caption, normal, "DIMENS_SecOutlet", normal, expanded
"2ndForm", menu, normal, "2ndForm", normal
 "Circular",[C]
 "Rectangular",[R]
 "Arch",[A]
 "Vertical Ellipse",[V]
 "Horizontal Ellipse",[H]
 "Other",[O]
"2ndMaterial", menu, normal, "2ndMaterial", normal
 "Corrugated Steel",[CS]
 "Concrete",[C]
 "Steel",[S]
 "Wood",[W]
 "Iron",[I]
 "Metal_Concrete",[MC]
 "PVC",[P]
 "Asphalt coded",[AD]
 "Other",[O]
"2ndDia(mm)", numeric, 0, 0, 6000, 0, normal, "2ndDia(mm)", normal

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"2ndLength(m)", numeric, 1, 0.0, 1000.0, 0.0, normal, "2ndLength(m)", normal
 "2ndWid(mm)", numeric, 0, 0, 6000, 0, normal, "2ndWid(mm)", normal
 "2ndHeight(mm)", numeric, 0, 0, 6000, 0, normal, "2ndHeight(mm)", normal
 "2ndPercntSlope", numeric, 1, 0.0, 100.0, 0.0, normal, "2ndPercntSlope", normal
 "2ndOutDrop(cm)", numeric, 0, -250, 250, 0, normal, "2ndOutDrop(cm)", normal
 "SecComments", text, 100, normal, "SecComments", normal
 "_____", caption, normal, "_____", normal, expanded
 "FIELD_MEASUR", caption, normal, "FIELD_MEASUR", normal, expanded
 "ChanWidth(m)", numeric, 1, 0.0, 100.0, 0.0, required, "ChanWidth(m)", required
 "Resid_Dep(cm)", numeric, 1, 0.0, 1000.0, 0.0, required, "Resid_Dep(cm)",
 required
 "DS_Slope", numeric, 0, 0, 150, 0, required, "DS_Slope", required
 "HabValue", menu, required, "HabValue", required
 "High",[H]
 "Moderate",[M]
 "Low",[L]
 "RdFill(cm)", numeric, 0, 0, 1000, 0, required, "RdFill(cm)", required
 "Valley_Fill", menu, required, "Valley_Fill", required
 "Deep Fill",[DF]
 "Shallow Fill",[SF]
 "Bedrock",[BR]
 "Beaver_Activity", menu, required, "Beaver_Activity", required
 "Yes",[Y]
 "No",[N]
 "Inlet_Drop", menu, required, "Inlet_Drop", required
 "Yes",[Y]
 "No",[N]
 "InlDrop(cm)", numeric, 0, 0, 100, 0, normal, "InlDrop(cm)", normal
 "Backwatered", menu, required, "Backwatered", required
 "0%",[0]
 "25%",[25]
 "50%",[50]
 "75%",[75]
 "100%",[100]
 "Fish_Sighted", menu, normal, "Fish_Sighted", normal
 "FPC",[FPC]
 "Yes",[Y]
 "No",[N]
 "Species", menu, normal, "Species", normal
 "General Fish Observn",[FSH]
 "Bull trout",[BT]
 "Coho",[CO]
 "Chinook",[CH]
 "Chum",[CM]
 "Cutthroat Trout",[CT]
 "Westslope Cutthroat ",[WCT]
 "Dolly Varden",[DV]
 "Anadromous Dolly Var",[ADV]

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"Pink",[PK]
"Rainbow",[RB]
"Stickleback",[SB]
"Salmonid",[SA]
"Sculpin",[CC]
"Sockeye",[SK]
"Steelhead",[ST]
"Sucker",[SU]
"Trout",[TR]
"Whitefish",[WF]
"Other",[O]
"Field_Comments", text, 100, normal, "Field_Comments", normal
"_____", caption, normal, "_____", normal, expanded
"CULVERT_FIX", caption, normal, "CULVERT_FIX", normal, expanded
"CBS_Fix", menu, normal, "CBS_Fix", normal
 "RM-Removal",[RM]
 "OBS-Bridge",[OBS]
 "SS-Streambed_Sim",[SS]
 "EM-Sub_Addition",[EM]
 "BW-Backwater",[BW]
 "EM-BW",[EB]
"Bridge_Span(m)", numeric, 0, 0, 100, 0, normal, "Bridge_Span(m)", normal
"SS_Length(m)", numeric, 0, 0, 50, 0, normal, "SS_Length(m)", normal
"Fix_Comments", text, 100, normal, "Fix_Comments", normal
"_____", caption, normal, "_____", normal, expanded
"PHOTOS", caption, normal, "PHOTOS", normal, expanded
"Outlet_Photo", text, 100, normal, "Outlet_Photo", normal
"Barrel_Photo", text, 100, normal, "Barrel_Photo", normal
"DS_Photo", text, 100, normal, "DS_Photo", normal
"Inlet_Photo", text, 100, normal, "Inlet_Photo", normal
"US_Photo", text, 100, normal, "US_Photo", normal

"POINT", point, "POINT", 1, seconds, 1, Code
"Type_Point", menu, required, "Type_Point", required, Label1
 "Location Point",[L]
 "Start Point",[S]
 "End Point",[E]
 "Reference Point",[RP]
 "Bench Mark",[BM]
 "Monument",[MT]
 "Map Tie Point",[MTP]
 "Reach Break",[R]
 "Riparian Band",[RB]
 "Segment Break",[SB]
 "Elevation",[Alt]
 "Left Top of Bank",[LTOB]
 "Right Top of Bank",[RTOB]
"Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",

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required, Label2

"Distance", numeric, 2, 0.00, 1000.00, 0.00, normal, "Distance", normal
"Bearing", numeric, 0, 0, 360, 0, normal, "Bearing", normal
"Gradient", numeric, 0, 0, 90, 0, normal, "Gradient", normal
"Elevation", numeric, 0, 0, 2000, 0, normal, "Elevation", normal
"Comments", text, 100, normal, "Comments", normal
"PhotoNum", text, 10, normal, "PhotoNum", normal

"CROSS-SECTION", point, "CROSS-SECTION", 1, seconds, 1, Code

"CROSS_SECTION_POINT", caption, normal, "CROSS_SECTION_POINT", normal, expanded
"Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",

required, Label1

"Velocity", numeric, 1, 0.0, 100.0, 0.0, normal, "Velocity", normal
"Flow", numeric, 1, 0.0, 10000.0, 0.0, normal, "Flow", normal
"Flow_method", menu, normal, "Flow_method", normal
 "Float",[F]
 "Hydraulic Head",[H]
 "Flow meter",[M]
 "Other",[O]

"Comments", text, 100, normal, "Comments", normal

"PhotoNum", text, 10, normal, "PhotoNum", normal

"_____", caption, normal, "_____", normal, expanded

"SUBSTRATE", caption, normal, "SUBSTRATE", normal, expanded

"Sub_Organic", numeric, 0, 0, 100, 0, normal, "Sub_Organic", normal

"Sub_Fines", numeric, 0, 0, 100, 0, normal, "Sub_Fines", normal

"Sub_Gravel", numeric, 0, 0, 100, 0, normal, "Sub_Gravel", normal

"Sub_Cobble", numeric, 0, 0, 100, 0, normal, "Sub_Cobble", normal

"Sub_Blder", numeric, 0, 0, 100, 0, normal, "Sub_Blder", normal

"Sub_BedRk", numeric, 0, 0, 100, 0, normal, "Sub_BedRk", normal

"Compaction", menu, normal, "Compaction", normal

 "Low",[L]

 "Medium",[M]

 "High",[H]

"CommntSub", text, 100, normal, "CommntSub", normal

"_____", caption, normal, "_____", normal, expanded

"CHANNEL ", caption, normal, "CHANNEL ", normal, expanded

"Width_W", numeric, 2, 0.00, 100.00, 0.00, required, "Width_W", required

"Width_BF", numeric, 2, 0.00, 100.00, 0.00, required, "Width_BF", required

"Width_LFP", numeric, 2, 0.00, 1000.00, 0.00, normal, "Width_LFP", normal

"Width_RFP", numeric, 2, 0.00, 1000.00, 0.00, normal, "Width_RFP", normal

"Depth_W", numeric, 2, 0.00, 10.00, 0.00, required, "Depth_W", required

"Depth_BF", numeric, 2, 0.00, 10.00, 0.00, required, "Depth_BF", required

"Depth_FP", numeric, 2, 0.00, 10.00, 0.00, normal, "Depth_FP", normal

"Comt_Chan", text, 100, normal, "Comt_Chan", normal

"_____", caption, normal, "_____", normal, expanded

"DETAILED_CHANNEL ", caption, normal, "DETAILED_CHANNEL ", normal, expanded

"SCL_Depth", numeric, 2, -10.00, 10.00, 0.00, normal, "SCL_Depth", normal

"CL1_Width", numeric, 2, 0.00, 20.00, 0.00, normal, "CL1_Width", normal

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"CL1_Depth", numeric, 2, -10.00, 10.00, 0.00, normal, "CL1_Depth", normal
 "CL2_Width", numeric, 2, 0.00, 20.00, 0.00, normal, "CL2_Width", normal
 "CL2_Depth", numeric, 2, -10.00, 10.00, 0.00, normal, "CL2_Depth", normal
 "CL3_Width", numeric, 2, 0.00, 20.00, 0.00, normal, "CL3_Width", normal
 "CL3_Depth", numeric, 2, -10.00, 10.00, 0.00, normal, "CL3_Depth", normal
 "WETL_Width", numeric, 2, 0.00, 100.00, 0.00, normal, "WETL_Width", normal
 "CR1_Width", numeric, 2, 0.00, 20.00, 0.00, normal, "CR1_Width", normal
 "CR1_Depth", numeric, 2, -10.00, 10.00, 0.00, normal, "CR1_Depth", normal
 "CR2_Width", numeric, 2, 0.00, 20.00, 0.00, normal, "CR2_Width", normal
 "CR2_Depth", numeric, 2, -10.00, 10.00, 0.00, normal, "CR2_Depth", normal
 "CR3_Width", numeric, 2, 0.00, 20.00, 0.00, normal, "CR3_Width", normal
 "CR3_Depth", numeric, 2, -10.00, 10.00, 0.00, normal, "CR3_Depth", normal
 "WETR_Width", numeric, 2, 0.00, 100.00, 0.00, normal, "WETR_Width", normal
 "BF_Width", numeric, 2, 0.00, 30.00, 0.00, normal, "BF_Width", normal
 "BF_Elevation", numeric, 2, -10.00, 10.00, 0.00, normal, "BF_Elevation", normal
 "LFP_Width", numeric, 2, 0.00, 200.00, 0.00, normal, "LFP_Width", normal
 "RFP_Width", numeric, 2, 0.00, 200.00, 0.00, normal, "RFP_Width", normal
 "FP_Elevation", numeric, 2, 0.00, 25.00, 0.00, normal, "FP_Elevation", normal
 "Comt_EChan", text, 100, normal, "Comt_EChan", normal
 "_____", caption, normal, "_____", normal, expanded
 "EXTRA_LEFT_BAND", caption, normal, "EXTRA_LEFT_BAND", normal, expanded
 "LX_BandWidth", numeric, 2, 0.00, 10.00, 0.00, normal, "LX_BandWidth", normal
 "LX_Slope", numeric, 0, -100, 100, 0, normal, "LX_Slope", normal
 "LX_Top_Bank", menu, normal, "LX_Top_Bank", normal
 "Yes"
 "No"
 "LX1_BandWidth", numeric, 2, 0.00, 10.00, 0.00, normal, "LX1_BandWidth", normal
 "LX1_Slope", numeric, 0, -100, 100, 0, normal, "LX1_Slope", normal
 "LX1_Top_Bank", menu, normal, "LX1_Top_Bank", normal
 "Yes"
 "No"
 "LX_Comment", text, 100, normal, "LX_Comment", normal
 "_____", caption, normal, "_____", normal, expanded
 "LEFT_RIPARIAN_BAND1", caption, normal, "LEFT_RIPARIAN_BAND1", normal, expanded
 "L_Bearing", numeric, 0, 0, 360, 0, normal, "L_Bearing", normal
 "L_RipClass", menu, required, "L_RipClass", required
 "Row Crops",[NAG]
 "Broadleaf forest",[VBF]
 "Bryophytes",[VCR]
 "Coniferous forest",[VNF]
 "Planted Tree Farm",[NTF]
 "Disturbed wetland",[DWN]
 "Dug out pond ",[DOP]
 "Exposed soil",[NEL]
 "Flood plain",[VFP]
 "Herbs/grasses",[VHB]
 "High Impervious ",[NHR]
 "Medium Impervious",[NMR]

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"Low Impervious",[NLR]
"Mixed forest",[VMF]
"Natural wetland",[WN]
"Rock",[NNB]
"Shrubs",[VSH]
"L_Qualifier", menu, normal, "L_Qualifier", normal
"Agriculture",[ag]
"Natural",[n]
"Urban_Residential",[ur]
"Rural Residential",[ru]
"Recreation",[r]
"Disturbed",[d]
"Unknown",[u]
"L_BandWidth", numeric, 2, 0.00, 9999.00, 0.00, normal, "L_BandWidth", normal
"L_BankSlope", numeric, 0, -100, 100, 0, normal, "L_BankSlope", normal
"L_Top_Bank", menu, normal, "L_Top_Bank", normal
"Yes"
"No"
"L_Stage", menu, normal, "L_Stage", normal
"Sparse Bryoid",[1]
"Grass / Herb",[2]
"low shrubs <2m",[3a]
"tall shrubs 2-10m",[3b]
"sapling >10m",[4]
"young forest",[5]
"mature forest",[6]
"old forest",[7]
"L_Shrubs", menu, normal, "L_Shrubs", normal
"<5%",[VL]
"5-33%",[L]
"34-66%",[M]
"67-100%",[H]
"L_Snag", menu, normal, "L_Snag", normal
"No"
"<5"
">=5"
"L_Veteran ", menu, normal, "L_Veteran ", normal
"No"
"<5"
">=5"
"L_BkStbility", menu, normal, "L_BkStbility", normal
"High",[H]
"Medium",[M]
"Low",[L]
"L_Bank_Material", menu, normal, "L_Bank_Material", normal
"Concrete",[C]
"Gabions",[GB]
"Pilings",[P]

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"Stonework",[S]
 "RipRap",[RR]
 "Retain Wall/Bank Stb",[EHB]
 "Sandbags",[SB]
 "Wood",[W]
 "Bark_Mulch",[BM]
 "Asphalt",[AS]
 "Dyke",[DY]
 "Till",[T]
 "Fines",[F]
 "Gravel",[G]
 "Cobble",[CB]
 "Boulder",[B]
 "Bed_Rock",[BR]
 "Other",[O]
 "L_Comment", text, 100, normal, "L_Comment", normal
 "_____", caption, normal, "_____", normal, expanded
 "LEFT_RIPARIAN_BAND2", caption, normal, "LEFT_RIPARIAN_BAND2", normal, expanded
 "L2_RipClass", menu, normal, "L2_RipClass", normal
 "Row Crops",[NAG]
 "Broadleaf forest",[VBF]
 "Bryophytes",[VCR]
 "Coniferous forest",[VNF]
 "Planted Tree Farm",[NTF]
 "Disturbed wetland",[DWN]
 "Dug out pond",[DOP]
 "Exposed soil",[NEL]
 "Flood plain",[VFP]
 "Herbs/grasses",[VHB]
 "High Impervious",[NHR]
 "Medium Impervious",[NMR]
 "Low Impervious",[NLR]
 "Mixed forest",[VMF]
 "Natural wetland",[WN]
 "Rock",[NNB]
 "Shrubs",[VSH]
 "L2_Qualifier", menu, normal, "L2_Qualifier", normal
 "Agriculture",[ag]
 "Natural",[n]
 "Urban_Residential",[ur]
 "Rural Residential",[ru]
 "Recreation",[r]
 "Disturbed",[d]
 "Unknown",[u]
 "L2_BandWidth", numeric, 2, 0.00, 9999.00, 0.00, normal, "L2_BandWidth", normal
 "L2_BankSlope", numeric, 0, -100, 100, 0, normal, "L2_BankSlope", normal
 "L2_Top_Bank", menu, normal, "L2_Top_Bank", normal
 "Yes"

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"No"
"L2_Stage", menu, normal, "L2_Stage", normal
 "Sparse Bryoid",[1]
 "Grass / Herb",[2]
 "low shrubs <2m",[3a]
 "tall shrubs 2-10m",[3b]
 "sapling >10m",[4]
 "young forest",[5]
 "mature forest",[6]
 "old forest",[7]
"L2_Shrubs", menu, normal, "L2_Shrubs", normal
 "<5%",[VL]
 "5-33%",[L]
 "34-66%",[M]
 "67-100%",[H]
"L2_Snag", menu, normal, "L2_Snag", normal
 "No"
 "<5"
 ">=5"
"L2_Veteran ", menu, normal, "L2_Veteran ", normal
 "No"
 "<5"
 ">=5"
"L2_BkStbility", menu, normal, "L2_BkStbility", normal
 "High",[H]
 "Medium",[M]
 "Low",[L]
"L2_Comment", text, 100, normal, "L2_Comment", normal
"_____", caption, normal, "_____", normal, expanded
"LEFT_RIPARIAN_BAND3", caption, normal, "LEFT_RIPARIAN_BAND3", normal, expanded
"L3_RipClass", menu, normal, "L3_RipClass", normal
 "Row Crops",[NAG]
 "Broadleaf forest",[VBF]
 "Bryophytes",[VCR]
 "Coniferous forest",[VNF]
 "Planted Tree Farm",[NTF]
 "Disturbed wetland",[DWN]
 "Dug out pond ",[DOP]
 "Exposed soil",[NEL]
 "Flood plain",[VFP]
 "Herbs/grasses",[VHB]
 "High Impervious ",[NHR]
 "Medium Impervious",[NMR]
 "Low Impervious",[NLR]
 "Mixed forest",[VMF]
 "Natural wetland",[WN]
 "Rock",[NNB]
 "Shrubs",[VSH]

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"L3_Qualifier", menu, normal, "L3_Qualifier", normal
 "Agriculture",[ag]
 "Natural",[n]
 "Urban_Residential",[ur]
 "Rural_Residential",[ru]
 "Recreation",[r]
 "Disturbed",[d]
 "Unknown",[u]
"L3_BandWidth", numeric, 2, 0.00, 9999.00, 0.00, normal, "L3_BandWidth", normal
"L3_BankSlope", numeric, 0, -100, 100, 0, normal, "L3_BankSlope", normal
"L3_Top_Bank", menu, normal, "L3_Top_Bank", normal
 "Yes"
 "No"
"L3_Stage", menu, normal, "L3_Stage", normal
 "Sparse Bryoid",[1]
 "Grass / Herb",[2]
 "low shrubs <2m",[3a]
 "tall shrubs 2-10m",[3b]
 "sapling >10m",[4]
 "young forest",[5]
 "mature forest",[6]
 "old forest",[7]
"L3_Shrubs", menu, normal, "L3_Shrubs", normal
 "<5%",[VL]
 "5-33%",[L]
 "34-66%",[M]
 "67-100%",[H]
"L3_Snag", menu, normal, "L3_Snag", normal
 "No"
 "<5"
 ">=5"
"L3_Veteran ", menu, normal, "L3_Veteran ", normal
 "No"
 "<5"
 ">=5"
"L3_BkStbility", menu, normal, "L3_BkStbility", normal
 "High",[H]
 "Medium",[M]
 "Low",[L]
"L3_Comment", text, 100, normal, "L3_Comment", normal
"_____", caption, normal, "_____", normal, expanded
"LEFT_RIPARIAN_BAND4", caption, normal, "LEFT_RIPARIAN_BAND4", normal, expanded
"L4_RipClass", menu, normal, "L4_RipClass", normal
 "Row Crops",[NAG]
 "Broadleaf forest",[VBF]
 "Bryophytes",[VCR]
 "Coniferous forest",[VNF]
 "Planted Tree Farm",[NTF]

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"Disturbed wetland",[DWN]
"Dug out pond ",[DOP]
"Exposed soil",[NEL]
"Flood plain",[VFP]
"Herbs/grasses",[VHB]
"High Impervious ",[NHR]
"Medium Impervious",[NMR]
"Low Impervious",[NLR]
"Mixed forest",[VMF]
"Natural wetland",[WN]
"Rock",[NNB]
"Shrubs",[VSH]
"L4_Qualifier", menu, normal, "L4_Qualifier", normal
"Agriculture",[ag]
"Natural",[n]
"Urban_Residential",[ur]
"Rural Residential",[ru]
"Recreation",[r]
"Disturbed",[d]
"Unknown",[u]
"L4_BandWidth", numeric, 2, 0.00, 9999.00, 0.00, normal, "L4_BandWidth", normal
"L4_BankSlope", numeric, 0, -100, 100, 0, normal, "L4_BankSlope", normal
"L4_Top_Bank", menu, normal, "L4_Top_Bank", normal
"Yes"
"No"
"L4_Stage", menu, normal, "L4_Stage", normal
"Sparse Bryoid",[1]
"Grass / Herb",[2]
"low shrubs <2m",[3a]
"tall shrubs 2-10m",[3b]
"sapling >10m",[4]
"young forest",[5]
"mature forest",[6]
"old forest",[7]
"L4_Shrubs", menu, normal, "L4_Shrubs", normal
"<5%",[VL]
"5-33%",[L]
"34-66%",[M]
"67-100%",[H]
"L4_Snag", menu, normal, "L4_Snag", normal
"No"
"<5"
">=5"
"L4_Veteran ", menu, normal, "L4_Veteran ", normal
"No"
"<5"
">=5"
"L4_BkStbility", menu, normal, "L4_BkStbility", normal

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"High",[H]
"Medium",[M]
"Low",[L]
"L4_Comment", text, 100, normal, "L4_Comment", normal
"_____", caption, normal, "_____", normal, expanded
"EXTRA_RIGHT_BAND", caption, normal, "EXTRA_RIGHT_BAND", normal, expanded
"RX_BandWidth", numeric, 2, 0.00, 20.00, 0.00, normal, "RX_BandWidth", normal
"RX_Slope", numeric, 0, -100, 100, 0, normal, "RX_Slope", normal
"RX_Top_Bank", menu, normal, "RX_Top_Bank", normal
"Yes"
"No"
"RX1_BandWidth", numeric, 2, 0.00, 20.00, 0.00, normal, "RX1_BandWidth", normal
"RX1_Slope", numeric, 0, -100, 100, 0, normal, "RX1_Slope", normal
"RX1_Top_Bank", menu, normal, "RX1_Top_Bank", normal
"Yes"
"No"
"RX_Comment", text, 100, normal, "RX_Comment", normal
"_____", caption, normal, "_____", normal, expanded
"RIGHT_RIPARIAN_BAND1", caption, normal, "RIGHT_RIPARIAN_BAND1", normal, expanded
"R_Bearing", numeric, 0, 0, 360, 0, normal, "R_Bearing", normal
"R_RipClass", menu, required, "R_RipClass", required
"Row Crops",[NAG]
"Broadleaf forest",[VBF]
"Bryophytes",[VCR]
"Coniferous forest",[VNF]
"Planted Tree Farm",[NTF]
"Disturbed wetland",[DWN]
"Dug out pond ",[DOP]
"Exposed soil",[NEL]
"Flood plain",[VFP]
"Herbs/grasses",[VHB]
"High Impervious ",[NHR]
"Medium Impervious",[NMR]
"Low Impervious",[NLR]
"Mixed forest",[VMF]
"Natural wetland",[WN]
"Rock",[NNB]
"Shrubs",[VSH]
"R_Qualifier", menu, normal, "R_Qualifier", normal
"Agriculture",[ag]
"Natural",[n]
"Urban_Residential",[ur]
"Rural Residential",[ru]
"Recreation",[r]
"Disturbed",[d]
"Unknown",[u]
"R_BandWidth", numeric, 2, 0.00, 9999.00, 0.00, normal, "R_BandWidth", normal
"R_BankSlope", numeric, 0, -100, 100, 0, normal, "R_BankSlope", normal

"R_Top_Bank", menu, normal, "R_Top_Bank", normal
 "Yes"
 "No"

"R_Stage", menu, normal, "R_Stage", normal
 "Sparse Bryoid",[1]
 "Grass / Herb",[2]
 "low shrubs <2m",[3a]
 "tall shrubs 2-10m",[3b]
 "sapling >10m",[4]
 "young forest",[5]
 "mature forest",[6]
 "old forest",[7]

"R_Shrubs", menu, normal, "R_Shrubs", normal
 "<5%",[VL]
 "5-33%",[L]
 "34-66%",[M]
 "67-100%",[H]

"R_Snag", menu, normal, "R_Snag", normal
 "No"
 "<5"
 ">=5"

"R_Veteran ", menu, normal, "R_Veteran ", normal
 "No"
 "<5"
 ">=5"

"R_BkStbility", menu, normal, "R_BkStbility", normal
 "High",[H]
 "Medium",[M]
 "Low",[L]

"R_Bank_Material", menu, normal, "R_Bank_Material", normal
 "Concrete",[C]
 "Gabions",[GB]
 "Pilings",[P]
 "Stonework",[S]
 "RipRap",[RR]
 "Retain Wall/Bank Stb",[EHB]
 "Sandbags",[SB]
 "Wood",[W]
 "Bark_Mulch",[BM]
 "Asphalt",[AS]
 "Dyke",[DY]
 "Till",[T]
 "Fines",[F]
 "Gravel",[G]
 "Cobble",[CB]
 "Boulder",[B]
 "Bed_Rock",[BR]
 "Other",[O]

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"R_Comment", text, 100, normal, "R_Comment", normal
 "_____", caption, normal, "_____", normal, expanded
 "RIGHT_RIPARIAN_BAND2", caption, normal, "RIGHT_RIPARIAN_BAND2", normal, expanded
 "R2_RipClass", menu, normal, "R2_RipClass", normal
 "Row Crops",[NAG]
 "Broadleaf forest",[VBF]
 "Bryophytes",[VCR]
 "Coniferous forest",[VNF]
 "Planted Tree Farm",[NTF]
 "Disturbed wetland",[DWN]
 "Dug out pond",[DOP]
 "Exposed soil",[NEL]
 "Flood plain",[VFP]
 "Herbs/grasses",[VHB]
 "High Impervious",[NHR]
 "Medium Impervious",[NMR]
 "Low Impervious",[NLR]
 "Mixed forest",[VMF]
 "Natural wetland",[WN]
 "Rock",[NNB]
 "Shrubs",[VSH]
 "R2_Qualifier", menu, normal, "R2_Qualifier", normal
 "Agriculture",[ag]
 "Natural",[n]
 "Urban_Residential",[ur]
 "Rural Residential",[ru]
 "Recreation",[r]
 "Disturbed",[d]
 "Unknown",[u]
 "R2_BandWidth", numeric, 2, 0.00, 9999.00, 0.00, normal, "R2_BandWidth", normal
 "R2_BankSlope", numeric, 0, -100, 100, 0, normal, "R2_BankSlope", normal
 "R2_Top_Bank", menu, normal, "R2_Top_Bank", normal
 "Yes"
 "No"
 "R2_Stage", menu, normal, "R2_Stage", normal
 "Sparse Bryoid",[1]
 "Grass / Herb",[2]
 "low shrubs <2m",[3a]
 "tall shrubs 2-10m",[3b]
 "sapling >10m",[4]
 "young forest",[5]
 "mature forest",[6]
 "old forest",[7]
 "R2_Shrubs", menu, normal, "R2_Shrubs", normal
 "<5%",[VL]
 "5-33%",[L]
 "34-66%",[M]
 "67-100%",[H]

"R2_Snag", menu, normal, "R2_Snag", normal
 "No"
 "<5"
 ">=5"

"R2_Veteran ", menu, normal, "R2_Veteran ", normal
 "No"
 "<5"
 ">=5"

"R2_BkStbility", menu, normal, "R2_BkStbility", normal
 "High",[H]
 "Medium",[M]
 "Low",[L]

"R2_Comment", text, 100, normal, "R2_Comment", normal
 " _____", caption, normal, " _____", normal, expanded

"RIGHT_RIPARIAN_BAND3", caption, normal, "RIGHT_RIPARIAN_BAND3", normal, expanded

"R3_RipClass", menu, normal, "R3_RipClass", normal
 "Row Crops",[NAG]
 "Broadleaf forest",[VBF]
 "Bryophytes",[VCR]
 "Coniferous forest",[VNF]
 "Planted Tree Farm",[NTF]
 "Disturbed wetland",[DWN]
 "Dug out pond ",[DOP]
 "Exposed soil",[NEL]
 "Flood plain",[VFP]
 "Herbs/grasses",[VHB]
 "High Impervious ",[NHR]
 "Medium Impervious",[NMR]
 "Low Impervious",[NLR]
 "Mixed forest",[VMF]
 "Natural wetland",[WN]
 "Rock",[NNB]
 "Shrubs",[VSH]

"R3_Qualifier", menu, normal, "R3_Qualifier", normal
 "Agriculture",[ag]
 "Natural",[n]
 "Urban_Residential",[ur]
 "Rural Residential",[ru]
 "Recreation",[r]
 "Disturbed",[d]
 "Unknown",[u]

"R3_BandWidth", numeric, 2, 0.00, 9999.00, 0.00, normal, "R3_BandWidth", normal

"R3_BankSlope", numeric, 0, -100, 100, 0, normal, "R3_BankSlope", normal

"R3_Top_Bank", menu, normal, "R3_Top_Bank", normal
 "Yes"
 "No"

"R3_Stage", menu, normal, "R3_Stage", normal
 "Sparse Bryoid",[1]

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"Grass / Herb",[2]
"low shrubs <2m",[3a]
"tall shrubs 2-10m",[3b]
"sapling >10m",[4]
"young forest",[5]
"mature forest",[6]
"old forest",[7]
"R3_Shrubs", menu, normal, "R3_Shrubs", normal
" <5%",[VL]
"5-33%",[L]
"34-66%",[M]
"67-100%",[H]
"R3_Snag", menu, normal, "R3_Snag", normal
"No"
" <5"
" >=5"
"R3_Veteran ", menu, normal, "R3_Veteran ", normal
"No"
" <5"
" >=5"
"R3_BkStbility", menu, normal, "R3_BkStbility", normal
"High",[H]
"Medium",[M]
"Low",[L]
"R3_Comment", text, 100, normal, "R3_Comment", normal
" _____", caption, normal, " _____", normal, expanded
"RIGHT_RIPARIAN_BAND4", caption, normal, "RIGHT_RIPARIAN_BAND4", normal, expanded
"R4_RipClass", menu, normal, "R4_RipClass", normal
"Row Crops",[NAG]
"Broadleaf forest",[VBF]
"Bryophytes",[VCR]
"Coniferous forest",[VNF]
"Planted Tree Farm",[NTF]
"Disturbed wetland",[DWN]
"Dug out pond ",[DOP]
"Exposed soil",[NEL]
"Flood plain",[VFP]
"Herbs/grasses",[VHB]
"High Impervious ",[NHR]
"Medium Impervious",[NMR]
"Low Impervious",[NLR]
"Mixed forest",[VMF]
"Natural wetland",[WN]
"Rock",[NNB]
"Shrubs",[VSH]
"R4_Qualifier", menu, normal, "R4_Qualifier", normal
"Agriculture",[ag]
"Natural",[n]

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"Urban_Residential",[ur]
 "Rural_Residential",[ru]
 "Recreation",[r]
 "Disturbed",[d]
 "Unknown",[u]
 "R4_BandWidth", numeric, 2, 0.00, 9999.00, 0.00, normal, "R4_BandWidth", normal
 "R4_BankSlope", numeric, 0, -100, 100, 0, normal, "R4_BankSlope", normal
 "R4_Top_Bank", menu, normal, "R4_Top_Bank", normal
 "Yes"
 "No"
 "R4_Stage", menu, normal, "R4_Stage", normal
 "Sparse Bryoid",[1]
 "Grass / Herb",[2]
 "low shrubs <2m",[3a]
 "tall shrubs 2-10m",[3b]
 "sapling >10m",[4]
 "young forest",[5]
 "mature forest",[6]
 "old forest",[7]
 "R4_Shrubs", menu, normal, "R4_Shrubs", normal
 "<5%",[VL]
 "5-33%",[L]
 "34-66%",[M]
 "67-100%",[H]
 "R4_Snag", menu, normal, "R4_Snag", normal
 "No"
 "<5"
 ">=5"
 "R4_Veteran ", menu, normal, "R4_Veteran ", normal
 "No"
 "<5"
 ">=5"
 "R4_BkStbility", menu, normal, "R4_BkStbility", normal
 "High",[H]
 "Medium",[M]
 "Low",[L]
 "R4_Comment", text, 100, normal, "R4_Comment", normal
 "_____", caption, normal, "_____", normal, expanded
 "FLORA_FAUNA ", caption, normal, "FLORA_FAUNA ", normal, expanded
 "CmmntFlora", text, 100, normal, "CmmntFlora", normal
 "CmmntFauna", text, 100, normal, "CmmntFauna", normal

 "Culvert", point, "Culvert", 1, seconds, 1, Code
 "Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",
 required, Label1
 "Type_Culvert", menu, normal, "Type_Culvert", normal, Label2
 "Box Culvert",[BC]
 "Gated Inlet",[GI]

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"Gated Outlet",[GO]
"Gated Multiple Inlet",[GMI]
"Gated Multiple Out",[GMO]
"Inlet",[I]
"Inlet Stacked",[IS]
"Multiple Inlet",[MI]
"Multiple Outlet",[MO]
"Outlet",[O]
"Outlet Stacked",[OS]
"Owner", menu, normal, "Owner", normal
"Municipal",[MU]
"Private",[PR]
"Condition", menu, normal, "Condition", normal
"Good",[G]
"Partially Collapsed",[P]
"Collapsed/Plugged",[C]
"Barrier", menu, required, "Barrier", required
"Yes",[Y]
"No",[N]
"Potential",[P]
"unknown", default
"Material", menu, required, "Material", required
"Concrete",[C]
"Steel",[S]
"Wood",[W]
"Iron",[I]
"Metal_Concrete",[MC]
"PVC",[P]
"Asphalt coded",[AD]
"Corrugated Steel",[CS]
"Other",[O]
"Substrate", menu, normal, "Substrate", normal
"Boulders",[B]
"Cobbles",[C]
"Fines",[F]
"Gravels",[G]
"Mixed",[M]
"Same as Culvert",[S]
"Form", menu, normal, "Form", normal
"Circular",[C]
"Rectangular",[R]
"Arch",[A]
"Vertical Ellipse",[V]
"Horizontal Ellipse",[H]
"Other",[O]
"Length", numeric, 2, 0.00, 1000.00, 0.00, normal, "Length", normal
"Width", numeric, 2, 0.00, 1000.00, 0.00, normal, "Width", normal
"Height", numeric, 2, 0.00, 1000.00, 0.00, normal, "Height", normal

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"Depth", numeric, 2, 0.00, 1000.00, 0.00, normal, "Depth", normal
"Diameter", numeric, 2, 0.00, 1000.00, 0.00, normal, "Diameter", normal
"ScreenSize", numeric, 2, 0.00, 100.00, 0.00, normal, "ScreenSize", normal
"StormOutlets", numeric, 0, 0, 999, 0, normal, "StormOutlets", normal
"Headwall", menu, normal, "Headwall", normal
 "Concrete",[C]
 "Concrete Block",[CB]
 "Gabion",[G]
 "Sand bag",[SB]
 "Wood",[W]
 "Till",[T]
 "Rip_rap",[RR]
 "Stonework",[ST]
"Apron", menu, normal, "Apron", normal
 "Yes",[Y]
 "No",[N], default
"Baffles", menu, normal, "Baffles", normal
 "Yes",[Y]
 "No",[N], default
"Comments", text, 100, normal, "Comments", normal
"PhotoNum", text, 10, normal, "PhotoNum", normal

"Obstruction", point, "Obstruction", 1, seconds, 1, Code
 "Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",
required, Label1
 "Type_Obstruction", menu, normal, "Type_Obstruction", normal, Label2
 "Beaver Dam",[BD]
 "Canyon",[CN]
 "Cascade",[C]
 "Dam",[D]
 "Falls",[F]
 "Fences",[FE]
 "Hydro Dam",[HD]
 "Log Jam",[X]
 "Persistent Debris",[PD]
 "Pump",[PU]
 "Rock",[R]
 "Velocity Barrier",[VB]
 "Other",[OT]
"Bank", menu, normal, "Bank", normal
 "Both",[B]
 "Instream",[I]
 "Left",[L]
 "Right",[R]
"Barrier", menu, required, "Barrier", required
 "Yes",[Y]
 "Potential",[P]
 "unknown", default

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"Length", numeric, 2, 0.00, 1000.00, 0.00, normal, "Length", normal
"Width", numeric, 2, 0.00, 1000.00, 0.00, normal, "Width", normal
"Depth", numeric, 2, 0.00, 1000.00, 0.00, normal, "Depth", normal
"Diameter", numeric, 2, 0.00, 1000.00, 0.00, normal, "Diameter", normal
"Height", numeric, 2, 0.00, 1000.00, 0.00, normal, "Height", normal
"Slope", numeric, 0, 0, 90, 0, normal, "Slope", normal
"ScreenSize", numeric, 2, 0.00, 100.00, 0.00, normal, "ScreenSize", normal
"PhotoNum", text, 10, normal, "PhotoNum", normal
"Comments", text, 100, normal, "Comments", normal

"Modification", point, "Modification", 1, seconds, 1, Code

"Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",
required, Label1

"Type_Modification", menu, normal, "Type_Modification", normal, Label2

"Bridge",[BR]
"Catchbasin",[CB]
"Channelization",[HOC]
"Dam",[HOD]
"Detention Pond",[DP]
"Dock",[DK]
"Dredging",[HBDD]
"Fences",[HOF]
"FloodGate",[FG]
"Garbage/Pollution",[WP]
"Gravel Pit",[GP]
"Livestock Crossing",[LC]
"Livestock Access",[LA]
"Logging",[LG]
"PipeCrossing",[PL]
"Pump Station",[PS]
"Retain Wall/Bank Stb",[EHB]
"Rip_Rap",[RR]
"Road",[R]
"Trail",[TR]
"Water Withdrawal",[FUP]
"Other",[O]

"Bank", menu, normal, "Bank", normal

"Both",[B]
"Instream",[I]
"Left",[L]
"Right",[R]

"Type_Material", menu, normal, "Type_Material", normal

"Concrete",[C]
"Gabions",[GB]
"Pilings",[P]
"Stonework",[S]
"Sandbags",[SB]
"Wood",[W]

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"Gravel",[G]
"Bark_Mulch",[BM]
"Asphalt",[AS]
"Dyke",[DY]
"Other",[O]
"Length", numeric, 2, 0.00, 1000.00, 0.00, normal, "Length", normal
"Width", numeric, 2, 0.00, 1000.00, 0.00, normal, "Width", normal
"Height", numeric, 2, 0.00, 1000.00, 0.00, normal, "Height", normal
"PhotoNum", text, 10, normal, "PhotoNum", normal
"Comments", text, 100, normal, "Comments", normal

"Discharge", point, "Discharge", 1, seconds, 1, Code
"Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",
required, Label1
"Type_Discharge", menu, normal, "Type_Discharge", normal, Label2
"Agricultural Runoff",[WPA]
"HouseEffluent",[WE]
"Landfill Leachates",[WPML]
"Pollutant",[WP]
"Pulp Mill/Effluent",[WPP]
"Storm Drain",[WPD]
"Septic Effluent",[WPMP]
"Tile Drain",[WPI]
"Trench",[WPE]
"Other",[O]
"Bank", menu, normal, "Bank", normal
"Both",[B]
"Instream",[I]
"Left",[L]
"Right",[R]
"Material", menu, required, "Material", required
"Concrete",[C]
"Steel",[S]
"Wood",[W]
"Iron",[I]
"PVC",[P]
"Asphalt coded",[AD]
"Corrugated Steel",[CS]
"Other",[O]
"Headwall", menu, normal, "Headwall", normal
"Concrete",[C]
"Concrete Block",[CB]
"Gabion",[G]
"Sand bag",[SB]
"Wood",[W]
"Till",[T]
"Rip_rap",[RR]
"Stonework",[ST]

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"Length", numeric, 2, 0.00, 1000.00, 0.00, normal, "Length", normal
"Width", numeric, 2, 0.00, 1000.00, 0.00, normal, "Width", normal
"Diameter", numeric, 2, 0.00, 1000.00, 0.00, normal, "Diameter", normal
"Height", numeric, 2, 0.00, 1000.00, 0.00, normal, "Height", normal
"Temperature", numeric, 2, 0.00, 100.00, 0.00, normal, "Temperature", normal
"PhotoNum", text, 10, normal, "PhotoNum", normal
"Comments", text, 100, normal, "Comments", normal

"Erosion", point, "Erosion", 1, seconds, 1, Code
"Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",
required, Label1
"Source_Erosion", menu, normal, "Source_Erosion", normal, Label2
"Bank Erosion",[HCEB]
"Culvert",[CV]
"Headwall",[H]
"Lack of Riparian Veg",[WDL]
"Livestock Access",[WDC]
"Streamside Grazing",[WDG]
"Landslide "
"Debris flow/torrent"
"Sloughing "
"Other",[O]
"Bank", menu, normal, "Bank", normal
"Both",[B]
"Instream",[I]
"Left",[L]
"Right",[R]
"Severity", menu, required, "Severity", required
"<5m sq",[L]
"5-10m sq",[M]
">10m sq",[S]
"Exposure", menu, normal, "Exposure", normal
"Clay",[C]
"Silt",[Si]
"Till",[T]
"Bedrock",[B]
"Roots",[R]
"Soil",[S]
"Other",[O]
"Length", numeric, 2, 0.00, 1000.00, 0.00, normal, "Length", normal
"Width", numeric, 2, 0.00, 1000.00, 0.00, normal, "Width", normal
"Height", numeric, 2, 0.00, 1000.00, 0.00, normal, "Height", normal
"Slope Degrees", numeric, 0, 0, 90, 0, normal, "Slope Degrees", normal
"PhotoNum", text, 10, normal, "PhotoNum", normal
"Comments", text, 100, normal, "Comments", normal

"Fish_Habitat", point, "Fish_Habitat", 1, seconds, 1, Code
"Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",

required, Label1

"Type_Habitat", menu, normal, "Type_Habitat", normal, Label2
 "Boulder",[B]
 "Deep Pool",[DP]
 "Instream Vegetation",[IV]
 "Large Woody Debris",[LWD]
 "Over Stream Vegetn.",[OV]
 "Small Woody Debris",[SWD]
 "Spawning Habitat",[HS]
 "Undercut Bank",[UC]
 "Other",[O]
 "Bank", menu, normal, "Bank", normal
 "Both",[B]
 "Instream",[I]
 "Left",[L]
 "Right",[R]
 "Length", numeric, 2, 0.00, 1000.00, 0.00, normal, "Length", normal
 "Width", numeric, 2, 0.00, 1000.00, 0.00, normal, "Width", normal
 "Depth", numeric, 2, 0.00, 1000.00, 0.00, normal, "Depth", normal
 "PhotoNum", text, 10, normal, "PhotoNum", normal
 "Comments", text, 100, normal, "Comments", normal

"Fish_Sample", point, "Fish_Sample", 1, seconds, 1, Code

"Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",
 required, Label1

"TrapNo", numeric, 0, 0, 100, 1, normal, "TrapNo", normal, Label2
 "DateIn", date, manual, ymd, manual, normal, "DateIn", normal
 "DateOut", date, manual, ymd, manual, normal, "DateOut", normal
 "Method", menu, normal, "Method", normal
 "Visual",[V]
 "Trap",[T]
 "Other",[O]
 "Species", menu, normal, "Species", normal
 "General Fish Observn",[FSH]
 "Bull trout",[BT]
 "Coho",[CO]
 "Chinook",[CH]
 "Chum",[CM]
 "Cutthroat Trout",[CT]
 "Westslope Cutthroat ",[WCT]
 "Dolly Varden",[DV]
 "Anadromous Dolly Var",[ADV]
 "Pink",[PK]
 "Rainbow",[RB]
 "Stickleback",[SB]
 "Salmonid",[SA]
 "Sculpin",[CC]
 "Sockeye",[SK]

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"Steelhead",[ST]
 "Sucker",[SU]
 "Trout",[TR]
 "Whitefish",[WF]
 "Other",[O]
 "Count_total", numeric, 0, 0, 100, 0, normal, "Count_total", normal
 "Redd", menu, normal, "Redd", normal
 "Yes",[Y]
 "No",[N]
 "PhotoNum", text, 10, normal, "PhotoNum", normal
 "Comments", text, 100, normal, "Comments", normal
 "_____", caption, normal, "_____", normal, expanded
 "SPECIES 1", caption, normal, "SPECIES 1", normal, expanded
 "Sp_1", menu, normal, "Sp_1", normal
 "General Fish Observn",[FSH]
 "Bull trout",[BT]
 "Coho",[CO]
 "Chinook",[CH]
 "Chum",[CM]
 "Cutthroat Trout",[CT]
 "Westslope Cutthroat ",[WCT]
 "Dolly Varden",[DV]
 "Anadromous Dolly Var",[ADV]
 "Pink",[PK]
 "Rainbow",[RB]
 "Stickleback",[SB]
 "Salmonid",[SA]
 "Sculpin",[CC]
 "Sockeye",[SK]
 "Steelhead",[ST]
 "Sucker",[SU]
 "Trout",[TR]
 "Whitefish",[WF]
 "Other",[O]
 "Count_1", numeric, 0, 0, 100, 0, normal, "Count_1", normal
 "Age_1", menu, normal, "Age_1", normal
 "Juvenile",[J]
 "Immature",[I]
 "Mature",[M]
 "Spawning",[SPW]
 "Spent",[S]
 "Varied",[V]
 "Mort",[Mt]
 "ForkLth_1", numeric, 1, 0.0, 100.0, 0.0, normal, "ForkLth_1", normal
 "_____", caption, normal, "_____", normal, expanded
 "SPECIES 2", caption, normal, "SPECIES 2", normal, expanded
 "Sp_2", menu, normal, "Sp_2", normal
 "General Fish Observn",[FSH]

"Bull trout",[BT]
 "Coho",[CO]
 "Chinook",[CH]
 "Chum",[CM]
 "Cutthroat Trout",[CT]
 "Westslope Cutthroat ",[WCT]
 "Dolly Varden",[DV]
 "Anadromous Dolly Var",[ADV]
 "Pink",[PK]
 "Rainbow",[RB]
 "Stickleback",[SB]
 "Salmonid",[SA]
 "Sculpin",[CC]
 "Sockeye",[SK]
 "Steelhead",[ST]
 "Sucker",[SU]
 "Trout",[TR]
 "Whitefish",[WF]
 "Other",[O]
 "Count_2", numeric, 0, 0, 100, 0, normal, "Count_2", normal
 "Age_2", menu, normal, "Age_2", normal
 "Juvenile",[J]
 "Immature",[I]
 "Mature",[M]
 "Spawning",[SPW]
 "Spent",[S]
 "Varied",[V]
 "Mort",[Mt]
 "ForkLth_2", numeric, 1, 0.0, 100.0, 0.0, normal, "ForkLth_2", normal
 "_____", caption, normal, "_____", normal, expanded
 "SPECIES 3", caption, normal, "SPECIES 3", normal, expanded
 "Sp_3", menu, normal, "Sp_3", normal
 "General Fish Observn",[FSH]
 "Bull trout",[BT]
 "Coho",[CO]
 "Chinook",[CH]
 "Chum",[CM]
 "Cutthroat Trout",[CT]
 "Westslope Cutthroat ",[WCT]
 "Dolly Varden",[DV]
 "Anadromous Dolly Var",[ADV]
 "Pink",[PK]
 "Rainbow",[RB]
 "Stickleback",[SB]
 "Salmonid",[SA]
 "Sculpin",[CC]
 "Sockeye",[SK]
 "Steelhead",[ST]

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"Sucker",[SU]
"Trout",[TR]
"Whitefish",[WF]
"Other",[O]
"Count_3", numeric, 0, 0, 100, 0, normal, "Count_3", normal
"Age_3", menu, normal, "Age_3", normal
"Juvenile",[J]
"Immature",[I]
"Mature",[M]
"Spawning",[SPW]
"Spent",[S]
"Varied",[V]
"Mort",[Mt]
"ForkLth_3", numeric, 1, 0.0, 100.0, 0.0, normal, "ForkLth_3", normal
"_____", caption, normal, "_____", normal, expanded
"SPECIES 4", caption, normal, "SPECIES 4", normal, expanded
"Sp_4", menu, normal, "Sp_4", normal
"General Fish Observn",[FSH]
"Bull trout",[BT]
"Coho",[CO]
"Chinook",[CH]
"Chum",[CM]
"Cutthroat Trout",[CT]
"Westslope Cutthroat ",[WCT]
"Dolly Varden",[DV]
"Anadromous Dolly Var",[ADV]
"Pink",[PK]
"Rainbow",[RB]
"Stickleback",[SB]
"Salmonid",[SA]
"Sculpin",[CC]
"Sockeye",[SK]
"Steelhead",[ST]
"Sucker",[SU]
"Trout",[TR]
"Whitefish",[WF]
"Other",[O]
"Count_4", numeric, 0, 0, 100, 0, normal, "Count_4", normal
"Age_4", menu, normal, "Age_4", normal
"Juvenile",[J]
"Immature",[I]
"Mature",[M]
"Spawning",[SPW]
"Spent",[S]
"Varied",[V]
"Mort",[Mt]
"ForkLth_4", numeric, 1, 0.0, 100.0, 0.0, normal, "ForkLth_4", normal
"_____", caption, normal, "_____", normal, expanded

"SPECIES 5", caption, normal, "SPECIES 5", normal, expanded
"Sp_5", menu, normal, "Sp_5", normal
 "General Fish Observn",[FSH]
 "Bull trout",[BT]
 "Coho",[CO]
 "Chinook",[CH]
 "Chum",[CM]
 "Cutthroat Trout",[CT]
 "Westslope Cutthroat ",[WCT]
 "Dolly Varden",[DV]
 "Anadromous Dolly Var",[ADV]
 "Pink",[PK]
 "Rainbow",[RB]
 "Stickleback",[SB]
 "Salmonid",[SA]
 "Sculpin",[CC]
 "Sockeye",[SK]
 "Steelhead",[ST]
 "Sucker",[SU]
 "Trout",[TR]
 "Whitefish",[WF]
 "Other",[O]
"Count_5", numeric, 0, 0, 100, 0, normal, "Count_5", normal
"Age_5", menu, normal, "Age_5", normal
 "Juvenile",[J]
 "Immature",[I]
 "Mature",[M]
 "Spawning",[SPW]
 "Spent",[S]
 "Varied",[V]
 "Mort",[Mt]
"ForkLth_5", numeric, 1, 0.0, 100.0, 0.0, normal, "ForkLth_5", normal
"_____ ", caption, normal, "_____ ", normal, expanded
"SPECIES 6", caption, normal, "SPECIES 6", normal, expanded
"Sp_6", menu, normal, "Sp_6", normal
 "General Fish Observn",[FSH]
 "Bull trout",[BT]
 "Coho",[CO]
 "Chinook",[CH]
 "Chum",[CM]
 "Cutthroat Trout",[CT]
 "Westslope Cutthroat ",[WCT]
 "Dolly Varden",[DV]
 "Anadromous Dolly Var",[ADV]
 "Pink",[PK]
 "Rainbow",[RB]
 "Stickleback",[SB]
 "Salmonid",[SA]

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"Sculpin",[CC]
"Sockeye",[SK]
"Steelhead",[ST]
"Sucker",[SU]
"Trout",[TR]
"Whitefish",[WF]
"Other",[O]
"Count_6", numeric, 0, 0, 100, 0, normal, "Count_6", normal
"Age_6", menu, normal, "Age_6", normal
 "Juvenile",[J]
 "Immature",[I]
 "Mature",[M]
 "Spawning",[SPW]
 "Spent",[S]
 "Varied",[V]
 "Mort",[Mt]
"ForkLth_6", numeric, 1, 0.0, 100.0, 0.0, normal, "ForkLth_6", normal

"Enhancement", point, "Enhancement", 1, seconds, 1, Code
 "Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",
required, Label1
 "Type_Enhance", menu, normal, "Type_Enhance", normal, Label2
 "Fishways",[EOF]
 "Hatchery",[ECAH]
 "Incubation Box",[ECNX]
 "LWD Placement",[EHRL]
 "Log/Rock Wiers",[EHRI]
 "Riparian Plantings",[EHBP]
 "Riparian Zone Fence",[EHBF]
 "Rock/Boulder Placeme",[EHRR]
 "Side Channel/Pools",[EHRS]
 "Spawning Gravel",[EHSP]
 "Veg Bank Stabilize",[EHBV]
 "Other",[O]
"Bank", menu, normal, "Bank", normal
 "Both",[B]
 "Instream",[I]
 "Left",[L]
 "Right",[R]
"Status", menu, normal, "Status", normal
 "Existing",[E]
 "Potential",[P]
"Length", numeric, 2, 0.00, 1000.00, 0.00, normal, "Length", normal
"Width", numeric, 2, 0.00, 1000.00, 0.00, normal, "Width", normal
"Height", numeric, 2, 0.00, 1000.00, 0.00, normal, "Height", normal
"Diameter", numeric, 2, 0.00, 1000.00, 0.00, normal, "Diameter", normal
"Comments", text, 100, normal, "Comments", normal
"PhotoNum", text, 10, normal, "PhotoNum", normal

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"Wildlife", point, "Wildlife", 1, seconds, 1, Code
"Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",
required, Label1
"Type_Evidence", menu, normal, "Type_Evidence", normal, Label2
"Calls",[C1]
"Egg masses",[EM]
"Nest",[Nt]
"Sighted",[St]
"Scat/Droppings",[Sd]
"Tracks",[Tk]
"Other",[O]
"Class_Wildlife", menu, normal, "Class_Wildlife", normal
"Amphibian"
"Large Mammal"
"Songbird"
"Raptor"
"Reptile"
"Small Mammal"
"Waterbirds"
"Waterfowl"
"Bank", menu, normal, "Bank", normal
"Both",[B]
"Instream",[I]
"Left",[L]
"Right",[R]
"Species_Wildlife", text, 45, normal, "Species_Wildlife", normal
"CmmntFauna", text, 100, normal, "CmmntFauna", normal
"PhotoNum", text, 10, normal, "PhotoNum", normal

"Tree_Wildlife", point, "Tree_Wildlife", 1, seconds, 1, Code
"Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",
required, Label1
"Type_Tree", menu, normal, "Type_Tree", normal, Label2
"Coniferous"
"Deciduous"
"Unknown"
"Veteran_tree", menu, normal, "Veteran_tree", normal
"Yes"
"DBH", numeric, 2, 0.00, 20.00, 0.00, normal, "DBH", normal
"Mast_tree", menu, normal, "Mast_tree", normal
"Yes"
"Bank", menu, normal, "Bank", normal
"Both",[B]
"Instream",[I]
"Left",[L]
"Right",[R]
"Nesting", menu, normal, "Nesting", normal

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"Potential"
"Large"
"Small"
"State", menu, normal, "State", normal
"Living"
"Dead"
"unknown"
"Woodpkr_use", menu, normal, "Woodpkr_use", normal
"Yes"
"Denning", menu, normal, "Denning", normal
"Yes"
"Perches", menu, normal, "Perches", normal
"Yes"
"Cavities", menu, normal, "Cavities", normal
"1"
"2"
"3"
"4+"
"CmmntFlora", text, 100, normal, "CmmntFlora", normal
"PhotoNum", text, 10, normal, "PhotoNum", normal

"Waterbody", point, "Waterbody", 1, seconds, 1, Code
"Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",
required, Label1
"Type_Waterbody", menu, normal, "Type_Waterbody", normal, Label2
"Discontinued",[HMD]
"Ditch",[FRT]
"Natural Springs",[HMS]
"Side Channel",[SC]
"Tributary",[HMT]
"Wetland",[HMW]
"Beaver Pond",[BP]
"Other ",[HM]
"Bank", menu, normal, "Bank", normal
"Both",[B]
"Instream",[I]
"Left",[L]
"Right",[R]
"Length", numeric, 2, 0.00, 1000.00, 0.00, normal, "Length", normal
"Width", numeric, 2, 0.00, 1000.00, 0.00, normal, "Width", normal
"Depth", numeric, 2, 0.00, 1000.00, 0.00, normal, "Depth", normal
"Temperature", numeric, 2, 0.00, 100.00, 0.00, normal, "Temperature", normal
"PhotoNum", text, 10, normal, "PhotoNum", normal
"Comments", text, 100, normal, "Comments", normal

"Water_Sample", point, "Water_Sample", 1, seconds, 1, Code
"Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",
required, Label1

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"TDS", numeric, 1, 0.0, 250.0, 0.0, normal, "TDS", normal, Label2
"pH", numeric, 1, 0.0, 15.0, 0.0, normal, "pH", normal
"Temp", numeric, 1, 0.0, 100.0, 0.0, normal, "Temp", normal
"DO", numeric, 1, 0.0, 25.0, 9.0, normal, "DO", normal
"Turbidity", menu, normal, "Turbidity", normal
 "Clear",[C], default
 "Lightly Turbid",[L]
 "Moderately Turbid",[M]
 "Turbid",[T]
 "Other"
"Comments", text, 100, normal, "Comments", normal

"Photo_Location", point, "Photo_Location", 1, seconds, 1, Code
 "Point_number", numeric, 1, 0.0, 99999.0, 0.0, required, "Point_number",
required, Label1
 "Photo_Roll_&Frame", text, 75, normal, "Photo_Roll_&Frame", normal, Label2
 "Photo_Direction", menu, normal, "Photo_Direction", normal
 "Upstream",[U]
 "Downstream",[D]
 "Accross_stream",[X]
 "Up",[UP]
 "Down",[BD]
 "Photo_Bearing", numeric, 0, 0, 360, 0, normal, "Photo_Bearing", normal
 "Photo_Comments", text, 100, normal, "Photo_Comments", normal

"Point_generic", point, "Point_generic", 1, seconds, 1, Code
 "Comment", text, 100, normal, "Comment", normal, Label1

"Line_generic", line, "Line_generic", 1, seconds, 1, Code
 "Comment", text, 100, normal, "Comment", normal, Label1

"Wetlnd_Comm", point, "Wetlnd_Comm", 1, seconds, 1, Code
 "WetlndName", text, 100, required, "WetlndName", required
 "Wetland ID", text, 100, normal, "Wetland ID", normal
 "Organization", text, 100, normal, "Organization", normal, Ecoscape
 >Date", date, auto, ymd, manual, required, "Date", required
 "Time ", time, auto, 24, manual, normal, "Time ", normal
 "Crew", text, 100, required, "Crew", required, AC_NS
 "Hydr_Stage", menu, normal, "Hydr_Stage", normal
 "dry"
 "low"
 "moderate"
 "high"
 "flood"
 "other"
 "Wet_Dep_Ave", numeric, 2, 0.00, 100.00, 99.00, normal, "Wet_Dep_Ave", normal
 "Class", menu, normal, "Class", normal
 "Shallow water"

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"Marsh"
"Swamp"
"Fen"
"Bog"
"Flood_High_Bench"
"Flood_Mid_Bench"
"Flood_Low_Bench"
"Shrub Carr"
"Saline Meadow"
"Type", menu, normal, "Type", normal
"Floating_aquatic"
"Submerged_aquatic"
"Forb"
"Grass"
"Low_rush"
"Reed"
"Sedge"
"Tall_rush"
"Lichen"
"Moss"
"Non_vegetated"
"Low_Shrub_<2-m"
"Mixed_shrub"
"Tall_shrub_>2-m"
"Tree_Conifer"
"Tree_Mixed"
"Tree_Broadleaf"
"SiteAssocn", menu, normal, "SiteAssocn", normal
"Wm00"
"Wm01"
"Wm02"
"Wm03"
"Wm04"
"Wm05"
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"Ws01"
"Ws02"
"Ws03"
"Ws04"
"Ws05"
"Ws06"
"Ws07"
"Ws09"
"Ws10"
"Ws50"

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"Ws51"
"Wa"
"F101"
"F102"
"F103"
"F104"
"F105"
"F106"
"F107"
"Fm01"
"Fm02"
"Gs01"
"Gs02"
"Gs03"
"Gs04"
"RCG"
"Gs00"
"Wm00"

"No_Veg_Forms", numeric, 0, 0, 16, 1, normal, "No_Veg_Forms", normal
"Veg_Forms", text, 100, normal, "Veg_Forms", normal
"Dom_Veg", text, 100, normal, "Dom_Veg", normal
"REF_PHOTO", text, 100, normal, "REF_PHOTO", normal
"Comment_Unit", text, 100, normal, "Comment_Unit", normal

"POLY_WETLND", area, "POLY_WETLND", 1, seconds, Code
"WETLAND_REFERENCE ", caption, normal, "WETLAND_REFERENCE ", normal, expanded
"WetlndName", text, 100, required, "WetlndName", required, Label1
"LocalName", text, 100, normal, "LocalName", normal
"NumericCode", text, 50, normal, "NumericCode", normal
"Organization", text, 100, normal, "Organization", normal, Ecoscape
"WtrshdCde", numeric, 0, 0, 100, 0, normal, "WtrshdCde", normal
"TributaryCde", text, 35, normal, "TributaryCde", normal
"ILP", text, 35, normal, "ILP", normal
"Date", date, auto, ymd, manual, required, "Date", required
"Time ", time, auto, 24, manual, normal, "Time ", normal
"Crew", text, 100, required, "Crew", required, KH
"Weather", menu, normal, "Weather", normal
 "Light Rain",[L]
 "Heavy Rain",[H]
 "Snow/Sleet",[N]
 "Over cast",[OV]
 "Clear",[S]
 "Partly Cloudy",[PC]
 "Other",[O]
"AirTemp ", numeric, 1, -25.0, 45.0, 0.0, normal, "AirTemp ", normal
"Hydr_Stage", menu, normal, "Hydr_Stage", normal
 "dry"
 "low"

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"moderate"
 "high"
 "flood"
 "other"
 "Fish_Frequent", menu, normal, "Fish_Frequent", normal
 "Yes"
 "No"
 "Unconfirmed"
 "Poly_Type", menu, normal, "Poly_Type", normal
 "Trimble", default
 "Garmin"
 "Photointerp"
 "Chain_Compass"
 "Other"
 "Poly_Src", menu, normal, "Poly_Src", normal, Label2
 "Air Photo Interp"
 "Field Inventory"
 "Comments", text, 100, normal, "Comments", normal
 "_____", caption, normal, "_____", normal, expanded
 "REF_PHOTO", text, 100, normal, "REF_PHOTO", normal
 "_____", caption, normal, "_____", normal, expanded
 "BIODIVERSITY", caption, normal, "BIODIVERSITY", normal, expanded
 "Primary Character", menu, required, "Primary Character", required
 "Natural",[N]
 "Modified",[Md]
 "Constructed",[CON]
 "Storm_Pond",[SP]
 "Ditch",[FRT]
 "Other",[0]
 "No_Types", numeric, 0, 1, 25, 1, normal, "No_Types", normal
 "No_Comms", numeric, 0, 1, 25, 1, normal, "No_Comms", normal
 "No_Veg_Forms", numeric, 0, 0, 16, 1, normal, "No_Veg_Forms", normal
 "OW_Type", menu, normal, "OW_Type", normal
 "1 (<5%)",[1]
 "2 (5-25%_central)",[2]
 "3 (5-25%_patch)",[3]
 "4 (26-75%_central)",[4]
 "5 (26-75%_embaymnts)",[5]
 "6 (76-95%_central)",[6]
 "7 (76-95%_patch)",[7]
 "8 (>95%OW)",[8]
 "Interspersion", numeric, 0, 0, 1000, 999, normal, "Interspersion", normal
 "Complex", menu, normal, "Complex", normal
 "Yes",[1]
 "No",[0]
 "Comt_Biodiv", text, 100, normal, "Comt_Biodiv", normal
 "_____", caption, normal, "_____", normal, expanded
 "HYDROGEO_GROUP", caption, normal, "HYDROGEO_GROUP", normal, expanded

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"Hydrogeo_Group", menu, normal, "Hydrogeo_Group", normal
 "Estuarine",[ES]
 "Riverine",[Ri]
 "Lacustrine",[LA]
 "Palus_Isolated_Basin",[IsoBas]
 "Palus_Linked_Basin",[LinBas]
 "Palus_Discharge_basi",[Dischr]
 "Palus_Slope_Spring",[Slo]
 "_____", caption, normal, "_____", normal, expanded
 "WETLAND_EDATO_GRID", caption, normal, "WETLAND_EDATO_GRID", normal, expanded
 "Hydrodyna", menu, normal, "Hydrodyna", normal
 "Stagnant",[ST]
 "Sluggish",[SL]
 "Mobile",[MO]
 "Dynamic",[DY]
 "Very Dynamic",[DV]
 "Other",[O]
 "Soil_Moisture", menu, normal, "Soil_Moisture", normal
 "Moist",[MO]
 "Very Moist",[MV]
 "Wet",[W]
 "Very Wet",[WV]
 "Soil_Nutr_Reg", menu, normal, "Soil_Nutr_Reg", normal
 "Very Acid",[VA]
 "Mod Acid",[MA]
 "Slight Acid",[SA]
 "Neutral",[N]
 "Alkaline",[AK]
 "Hydrophyt_Comp", menu, normal, "Hydrophyt_Comp", normal
 "0",[0]
 "1-20%",[1]
 "21-40%",[2]
 "41-70%",[3]
 "71-90%",[4]
 ">90%",[5]
 "_____", caption, normal, "_____", normal, expanded
 "WATER_CHEM", caption, normal, "WATER_CHEM", normal, expanded
 "Water_Temp", numeric, 1, -2.0, 99.0, 99.0, normal, "Water_Temp", normal
 "TDS", numeric, 1, 0.0, 9999.0, 9999.0, normal, "TDS", normal
 "pH", numeric, 1, 0.0, 99.0, 99.0, normal, "pH", normal
 "DO", numeric, 1, 0.0, 99.0, 99.0, normal, "DO", normal
 "EC", numeric, 1, 0.0, 9999.0, 9999.0, normal, "EC", normal
 "Clarity", menu, normal, "Clarity", normal
 "Very Turbid",[TV]
 "Clear",[C]
 "Very Clear",[CV]
 "Turbid",[T]
 "Other",[O]

"Colour", menu, normal, "Colour", normal
 "Yellow_DeepBrown",[YB]
 "Green_Brown",[GB]
 "Blue_Green",[BG]
 "Green_Brown_Turbid",[GBT]
 "Colourless",[CS]
 "Comt_Chem", text, 100, normal, "Comt_Chem", normal
 "_____", caption, normal, "_____", normal, expanded
 "SOILS", caption, normal, "SOILS", normal, expanded
 "Soil_Order", menu, normal, "Soil_Order", normal
 "Gleysol",[Gl]
 "HumicGley",[Hu]
 "Regogley",[Regl]
 "Fibrisol",[Fi]
 "Mesisol",[Me]
 "Humisol",[HuSol]
 "Folisol",[Fo]
 "Regosol",[Re]
 "Brunisol",[Br]
 "Solonetzic",[So]
 "Chernozemic",[Ch]
 "Texture", menu, normal, "Texture", normal
 "Coarse Sand",[CS]
 "Sand",[SA]
 "Fine Sand",[FS]
 "Very Fine Sand",[VFS]
 "Loamy Sand",[LS]
 "Loamy Coarse Sand",[LCS]
 "Loamy Fine Sand",[LFS]
 "Loamy Very Fine Sand",[LVFS]
 "Coarse Sandy Loam",[CSL]
 "Sany Loam",[SL]
 "Fine Sandy Loam",[FSL]
 "Very Fine Sandy Loam",[VFSL]
 "Loam",[Lo]
 "Sandy Clay Loam",[SCL]
 "Clay Loam",[CL]
 "Silt",[Si]
 "Silt Loam",[SiL]
 "Silty Clay Loam",[SiCL]
 "Silty Clay",[SiC]
 "Sandy Clay",[SaC]
 "Clay",[Cl]
 "Dep_to_Gley", numeric, 1, 0.0, 999.0, 999.0, normal, "Dep_to_Gley", normal
 "Dep_to_Mottles", numeric, 1, 0.0, 999.0, 999.0, normal, "Dep_to_Mottles", normal
 "Dep_to_Water", numeric, 2, 0.00, 999.00, 999.00, normal, "Dep_to_Water", normal
 "Orga_Class", menu, normal, "Orga_Class", normal
 "Fibric(VP1-4)",[Fi]

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"Mesic(VP5-6)",[Me]
"Humic(VP7-10)",[H]
"Mineral",[Mi]
"Dep_Organic", menu, normal, "Dep_Organic", normal
 "<60cm"
 "60-160cm"
 ">160cm"
"Comt_Sub", text, 100, normal, "Comt_Sub", normal
"_____", caption, normal, "_____", normal, expanded
"SOIL_PROFILE", caption, normal, "SOIL_PROFILE", normal, expanded
"P_Thicknss", numeric, 1, 0.0, 999.0, 999.0, normal, "P_Thicknss", normal
"Of_Thicknss", numeric, 1, 0.0, 999.0, 999.0, normal, "Of_Thicknss", normal
"Om_Thicknss", numeric, 1, 0.0, 999.0, 999.0, normal, "Om_Thicknss", normal
"Oh_Thicknss", numeric, 1, 0.0, 999.0, 999.0, normal, "Oh_Thicknss", normal
"Oco_Thicknss", numeric, 1, 0.0, 999.0, 999.0, normal, "Oco_Thicknss", normal
"A_Thicknss", numeric, 1, 0.0, 999.0, 999.0, normal, "A_Thicknss", normal
"E_Thicknss", numeric, 1, 0.0, 999.0, 999.0, normal, "E_Thicknss", normal
"B_Thicknss", numeric, 1, 0.0, 999.0, 999.0, normal, "B_Thicknss", normal
"Dep_to_C", numeric, 1, 0.0, 999.0, 999.0, normal, "Dep_to_C", normal
"Dep_to_Bedrock", numeric, 1, 0.0, 999.0, 999.0, normal, "Dep_to_Bedrock", normal
"Photo_Soil_Core", text, 100, normal, "Photo_Soil_Core", normal
"Comt_Profile", text, 100, normal, "Comt_Profile", normal
"_____", caption, normal, "_____", normal, expanded
"WETLND_CLS_1", caption, normal, "WETLND_CLS_1", normal, expanded
"Prcnt_Poly", numeric, 0, 0, 16, 1, required, "Prcnt_Poly", normal
"Class1", menu, normal, "Class1", normal
 "Shallow water"
 "Marsh"
 "Swamp"
 "Fen"
 "Bog"
 "Flood_High_Bench"
 "Flood_Mid_Bench"
 "Flood_Low_Bench"
 "Shrub Carr"
 "Saline Meadow"
"Form1", menu, normal, "Form1", normal
 "Discharge Swamp"
 "Flat Swamp"
 "Mineral-Rise Swamp"
 "Riparian Swamp"
 "Slope Swamp"
 "Basin Marsh"
 "Hummock Marsh"
 "Lacustrine Marsh"
 "Riparian Marsh"
 "Slope Marsh"
 "Spring Marsh"

"Basin Water"
"Lacustrine Water"
"Riparian Water"
"Subfrm1", menu, normal, "Subfrm1", normal
"Floodplain"
"Delta"
"Isolated"
"Linked"
"Bay"
"Lagoon"
"Shore"
"Stream"
"Discharge"
"Spring"
"Seepage"
"Slope "
"Basin Swamp"
"Unconfined Swamp"
"Swale Swamp"
"Floodplain Swamp"
"Channel Swamp"
"Lacustrine Swamp"
"Riverine Swamp"
"Beach Ridge Swamp"
"Island Swamp"
"Levee Swamp"
"Mound Swamp"
"Floodplain Water"
"Shore Water"
"Stream Water"
"Type1", menu, normal, "Type1", normal
"Floating_aquatic"
"Submerged_aquatic"
"Forb"
"Grass"
"Low_rush"
"Reed"
"Sedge"
"Tall_rush"
"Lichen"
"Moss"
"Non_vegetated"
"Low_shrub_<2-m"
"Mixed_shrub"
"Tall_shrub_>2-m"
"Tree_Conifer"
"Tree_Mixed"
"Tree_Broadleaf"

"Assocn1", menu, normal, "Assocn1", normal
 "Wm00"
 "Wm01"
 "Wm02"
 "Wm03"
 "Wm04"
 "Wm05"
 "Wm06"
 "Wm07"
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 "Ws00"
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 "Ws02"
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 "Ws51"
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 "F101"
 "F102"
 "F103"
 "F104"
 "F105"
 "F106"
 "F107"
 "Fm01"
 "Fm02"
 "Gs01"
 "Gs02"
 "Gs03"
 "Gs04"
 "RCG"
 "Gs00"
 "Wm00"
 "No_Frms1", numeric, 0, 0, 16, 1, normal, "No_Frms1", normal
 "Veg_Frms1", text, 100, normal, "Veg_Frms1", normal
 "Dom_Veg1", text, 100, normal, "Dom_Veg1", normal
 "Comt_Unit1", text, 100, normal, "Comt_Unit1", normal
 "_____", caption, normal, "_____", normal, expanded
 "WETLND_CLS_2", caption, normal, "WETLND_CLS_2", normal, expanded
 "Prcnt_Poly", numeric, 0, 0, 16, 1, required, "Prcnt_Poly", normal
 "Class2", menu, normal, "Class2", normal
 "Shallow water"

"Marsh"
"Swamp"
"Fen"
"Bog"
"Flood_High_Bench"
"Flood_Mid_Bench"
"Flood_Low_Bench"
"Shrub Carr"
"Saline Meadow"
"Form2", menu, normal, "Form2", normal
"Discharge Swamp"
"Flat Swamp"
"Mineral-Rise Swamp"
"Riparian Swamp"
"Slope Swamp"
"Basin Marsh"
"Hummock Marsh"
"Lacustrine Marsh"
"Riparian Marsh"
"Slope Marsh"
"Spring Marsh"
"Basin Water"
"Lacustrine Water"
"Riparian Water"
"Subfrm2", menu, normal, "Subfrm2", normal
"Floodplain"
"Delta"
"Isolated"
"Linked"
"Bay"
"Lagoon"
"Shore"
"Stream"
"Discharge"
"Spring"
"Seepage"
"Slope "
"Basin Swamp"
"Unconfined Swamp"
"Swale Swamp"
"Floodplain Swamp"
"Channel Swamp"
"Lacustrine Swamp"
"Riverine Swamp"
"Beach Ridge Swamp"
"Island Swamp"
"Levee Swamp"
"Mound Swamp"

"Floodplain Water"
"Shore Water"
"Stream Water"
"Type2", menu, normal, "Type2", normal
"Floating_aquatic"
"Submerged_aquatic"
"Forb"
"Grass"
"Low_rush"
"Reed"
"Sedge"
"Tall_rush"
"Lichen"
"Moss"
"Non_vegetated"
"Low_Shrub_<2-m"
"Mixed_shrub"
"Tall_shrub_>2-m"
"Tree_Conifer"
"Tree_Mixed"
"Tree_Broadleaf"
"Assocn2", menu, normal, "Assocn2", normal
"Wm00"
"Wm01"
"Wm02"
"Wm03"
"Wm04"
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"F105"
"F106"
"F107"
"Fm01"
"Fm02"
"Gs01"
"Gs02"
"Gs03"
"Gs04"
"RCG"
"Gs00"
"Wm00"
"No_Frms2", numeric, 0, 0, 16, 1, normal, "No_Frms2", normal
"Veg_Frms2", text, 100, normal, "Veg_Frms2", normal
"Dom_Veg2", text, 100, normal, "Dom_Veg2", normal
"Comt_Unit2", text, 100, normal, "Comt_Unit2", normal
"_____", caption, normal, "_____", normal, expanded
"WETLND_CLS_3", caption, normal, "WETLND_CLS_3", normal, expanded
"Prcnt_Poly", numeric, 0, 0, 16, 1, required, "Prcnt_Poly", normal
"Class3", menu, normal, "Class3", normal
 "Shallow water"
 "Marsh"
 "Swamp"
 "Fen"
 "Bog"
 "Flood_High_Bench"
 "Flood_Mid_Bench"
 "Flood_Low_Bench"
 "Shrub Carr"
 "Saline Meadow"
"Form3", menu, normal, "Form3", normal
 "Discharge Swamp"
 "Flat Swamp"
 "Mineral-Rise Swamp"
 "Riparian Swamp"
 "Slope Swamp"
 "Basin Marsh"
 "Hummock Marsh"
 "Lacustrine Marsh"
 "Riparian Marsh"
 "Slope Marsh"
 "Spring Marsh"
 "Basin Water"
 "Lacustrine Water"
 "Riparian Water"
"Subfrm3", menu, normal, "Subfrm3", normal
 "Floodplain"
 "Delta"

"Isolated"
"Linked"
"Bay"
"Lagoon"
"Shore"
"Stream"
"Discharge"
"Spring"
"Seepage"
"Slope "
"Basin Swamp"
"Unconfined Swamp"
"Swale Swamp"
"Floodplain Swamp"
"Channel Swamp"
"Lacustrine Swamp"
"Riverine Swamp"
"Beach Ridge Swamp"
"Island Swamp"
"Levee Swamp"
"Mound Swamp"
"Floodplain Water"
"Shore Water"
"Stream Water"
"Type3", menu, normal, "Type3", normal
"Floating_aquatic"
"Submerged_aquatic"
"Forb"
"Grass"
"Low_rush"
"Reed"
"Sedge"
"Tall_rush"
"Lichen"
"Moss"
"Non_vegetated"
"Low_shrub_<2-m"
"Mixed_shrub"
"Tall_shrub_>2-m"
"Tree_Conifer"
"Tree_Mixed"
"Tree_Broadleaf"
"Assocn3", menu, normal, "Assocn3", normal
"Wm00"
"Wm01"
"Wm02"
"Wm03"
"Wm04"

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"Wm05"
"Wm06"
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"Ws00"
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"Ws04"
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"Wa"
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"F102"
"F103"
"F104"
"F105"
"F106"
"F107"
"Fm01"
"Fm02"
"Gs01"
"Gs02"
"Gs03"
"Gs04"
"RCG"
"Gs00"
"Wm00"
"No_Frms3", numeric, 0, 0, 16, 1, normal, "No_Frms3", normal
"Veg_Frms3", text, 100, normal, "Veg_Frms3", normal
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"Marsh"
"Swamp"
"Fen"
"Bog"
"Flood_High_Bench"
"Flood_Mid_Bench"

"Flood_Low_Bench"
"Shrub Carr"
"Saline Meadow"
"Form4", menu, normal, "Form4", normal
"Discharge Swamp"
"Flat Swamp"
"Mineral-Rise Swamp"
"Riparian Swamp"
"Slope Swamp"
"Basin Marsh"
"Hummock Marsh"
"Lacustrine Marsh"
"Riparian Marsh"
"Slope Marsh"
"Spring Marsh"
"Basin Water"
"Lacustrine Water"
"Riparian Water"
"Subfrm4", menu, normal, "Subfrm4", normal
"Floodplain"
"Delta"
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"Linked"
"Bay"
"Lagoon"
"Shore"
"Stream"
"Discharge"
"Spring"
"Seepage"
"Slope "
"Basin Swamp"
"Unconfined Swamp"
"Swale Swamp"
"Floodplain Swamp"
"Channel Swamp"
"Lacustrine Swamp"
"Riverine Swamp"
"Beach Ridge Swamp"
"Island Swamp"
"Levee Swamp"
"Mound Swamp"
"Floodplain Water"
"Shore Water"
"Stream Water"
"Type4", menu, normal, "Type4", normal
"Floating_aquatic"
"Submerged_aquatic"

"Forb"
"Grass"
"Low_rush"
"Reed"
"Sedge"
"Tall_rush"
"Lichen"
"Moss"
"Non_vegetated"
"Low_Shrub_<2-m"
"Mixed_shrub"
"Tall_shrub_>2-m"
"Tree_Conifer"
"Tree_Mixed"
"Tree_Broadleaf"
"Assocn4", menu, normal, "Assocn4", normal
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"Wm01"
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"Ws01"
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"Ws03"
"Ws04"
"Ws05"
"Ws06"
"Ws07"
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 "Swamp"
 "Fen"
 "Bog"
 "Flood_High_Bench"
 "Flood_Mid_Bench"
 "Flood_Low_Bench"
 "Shrub Carr"
 "Saline Meadow"
"Form5", menu, normal, "Form5", normal
 "Discharge Swamp"
 "Flat Swamp"
 "Mineral-Rise Swamp"
 "Riparian Swamp"
 "Slope Swamp"
 "Basin Marsh"
 "Hummock Marsh"
 "Lacustrine Marsh"
 "Riparian Marsh"
 "Slope Marsh"
 "Spring Marsh"
 "Basin Water"
 "Lacustrine Water"
 "Riparian Water"
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 "Bay"
 "Lagoon"
 "Shore"
 "Stream"

"Discharge"
"Spring"
"Seepage"
"Slope "
"Basin Swamp"
"Unconfined Swamp"
"Swale Swamp"
"Floodplain Swamp"
"Channel Swamp"
"Lacustrine Swamp"
"Riverine Swamp"
"Beach Ridge Swamp"
"Island Swamp"
"Levee Swamp"
"Mound Swamp"
"Floodplain Water"
"Shore Water"
"Stream Water"
"Type5", menu, normal, "Type5", normal
"Floating_aquatic"
"Submerged_aquatic"
"Forb"
"Grass"
"Low_rush"
"Reed"
"Sedge"
"Tall_rush"
"Lichen"
"Moss"
"Non_vegetated"
"Low_Shrub_<2-m"
"Mixed_shrub"
"Tall_shrub_>2-m"
"Tree_Conifer"
"Tree_Mixed"
"Tree_Broadleaf"
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"Ws01"

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"Ws02"
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"SURROUND_HABITAT", caption, normal, "SURROUND_HABITAT", normal, expanded
"RipClass", menu, normal, "RipClass", normal
"Row Crops",[NAG]
"Broadleaf forest",[VBF]
"Bryophytes",[VCR]
"Coniferous forest",[VNF]
"Planted Tree Farm",[NTF]
"Disturbed wetland",[DWN]
"Dug out pond ",[DOP]
"Exposed soil",[NEL]
"Flood plain",[VFP]
"Herbs/grasses",[VHB]
"High Impervious ",[NHR]
"Medium Impervious",[NMR]
"Low Impervious",[NLR]
"Mixed forest",[VMF]

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"Natural wetland",[WN]
"Rock",[NNB]
"Tall Shrubs",[VTSH]
"Low shrub",[VTLS]
"Qualifier", menu, normal, "Qualifier", normal
"Agriculture",[ag]
"Natural",[n]
"Urban_Residential",[ur]
"Recreation",[r]
"Disturbed",[d]
"Unknown",[u]
"BandWidth", numeric, 2, 0.00, 9999.00, 9999.00, normal, "BandWidth", normal
"BankSlope", numeric, 0, -100, 999, 999, normal, "BankSlope", normal
"Stage", menu, normal, "Stage", normal
"grass/herb",[2]
"low shrubs <2m",[3a]
"tall shrubs 2-10m",[3b]
"sapling >10m",[4]
"young forest",[5]
"mature forest",[6]
"old forest",[7]
"Shrubs", menu, normal, "Shrubs", normal
"<5%",[VL]
"5-33%",[L]
"34-66%",[M]
"67-100%",[H]
"Snag", menu, normal, "Snag", normal
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"Veteran ", menu, normal, "Veteran ", normal
"No"
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"BkStbility", menu, normal, "BkStbility", normal
"High",[H]
"Medium",[M]
"Low",[L]
"Bank_Material", menu, normal, "Bank_Material", normal
"Concrete",[C]
"Gabions",[GB]
"Pilings",[P]
"Stonework",[S]
"RipRap",[RR]
"Retain Wall/Bank Stb",[EHB]
"Sandbags",[SB]
"Wood",[W]
"Bark_Mulch",[BM]

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"Asphalt",[AS]
"Dyke",[DY]
"Fines",[F]
"Gravel",[G]
"Cobble",[CB]
"Boulder",[B]
"Bed_Rock",[BR]
"Other",[O]
"Comment", text, 100, normal, "Comment", normal
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"CmmntFlora", text, 100, normal, "CmmntFlora", normal
"CmmntFauna", text, 100, normal, "CmmntFauna", normal
"_____", caption, normal, "_____", normal, expanded
"FUNCTI_COND", caption, normal, "FUNCTI_COND", normal, expanded
"Functional_Rating", menu, normal, "Functional_Rating", normal
 "Proper_Funct_Cond",[0]
 "Funct_At_Risk",[1]
 "Non_Funct_Cond",[2]
"Comt_Func_Rating", text, 100, normal, "Comt_Func_Rating", normal
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"LEVEL_OF_IMPACT", caption, normal, "LEVEL_OF_IMPACT", normal, expanded
"Impact_rating", menu, normal, "Impact_rating", normal
 "Nil",[0]
 "Very_low",[1]
 "Low",[2]
 "Moderate",[3]
 "High",[4]
 "Extreme",[5]
"LOI_Comment", text, 100, normal, "LOI_Comment", normal