AGNICO-EAGLE MINES: MEADOWBANK DIVISION

NO-NET-LOSS PLAN

OCTOBER 15, 2012

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EXECUTIVE SUMMARY

An updated no-net-loss plan (NNLP) has been developed for the Agnico-Eagle Mines Ltd.: Meadowbank site, near Baker Lake, Nunavut. This plan quantifies the losses to fish habitat that will occur through mine operations, and the gains that will be achieved through compensation measures. With approval from Fisheries and Oceans Canada (DFO), this new NNLP will replace the original NNLP that was created in 2006 (Cumberland, 2006).

The habitat evaluation procedure (HEP) followed in this plan was developed by Golder Associates and AEM, in consultation with DFO, and with adjustments as recommended in review by Dr. Ken Minns. These adjustments were approved by DFO in the draft Meadowbank NNLP (June 2012). As in the original NNLP, this HEP involves the multiplication of affected areas (in ha) by a habitat suitability index (HSI) in order to derive a value in habitat units (HUs) that describes both the quality and quantity of habitat.

Baseline HU calculations (losses) for the Meadowbank site were conducted for three separate areas to facilitate the use of historically accepted loss:gain ratios. These are: the Main Minesite Area, the Tailings Storage Facility (TSF) and the Vault Lake Area. Habitat compensation is provided through a number of features which increase the area and value of habitat for the fish species present at Meadowbank, using the habitat suitability index (HSI) developed as part of the HEP. The majority of habitat compensation consists of re-flooding of pits and basins after implementation of habitat improvement features (pit backfilling, boulder gardens and constructed reef habitat). Supplementary habitat enhancements proposed onsite include the construction of a connecting channel, finger dikes and improvement of access for native fish species to certain areas.

To align with historical documentation, and to meet the required compensation ratios for each area, portions of habitat gains from certain areas were “allotted” to other areas where deficits occurred. After allotment, the calculated habitat units and ratios for each area are:

Area	Habitat Losses (HUs)	Habitat Gains Allotted (HUs)	Loss:Gain Ratio
Main Minesite	66.12	111.08	1:1.68
TSF	37.85	75.70	1:2
Vault Lake	33.09	65.32	1:1.97

Thus, based on the compensation measures proposed in this NNLP, targeted historic ratios for gains in habitat units would be met for the Main Minesite Area and the TSF, and NNL would be achieved for the Vault Lake Area.

A suite of contingency options is proposed in the event that any of the primary options are not constructible or fail to meet the criteria for success outlined in the monitoring plan and the original authorization.

ACKNOWLEDGEMENTS

This NNLP was coordinated and written by Leilan Baxter (consultant to AEM), with major contributions, technical review and project management by Ryan Vanengen (AEM Biologist). GIS work and mapping was conducted by Dougan and Associates. AEM would like to thank Bobby Bedingfield, Derrick Moggy and Elizabeth Patreau (DFO) for review of the methods and document drafts; and the Kivalliq Inuit Association and Hunters and Trappers Organization for providing feedback.

DOCUMENT CONTROL

Version	Date (YMD)	Section	Page	Revision
1	2005-10	All	All	Cumberland Resources- Meadowbank Gold Project No Net Loss of Habitat (NNL)Report
2	2006- 11	All	All	Cumberland Resources- Meadowbank Gold Project No Net Loss Plan
3	2012-10-15	All	All	AEM- Meadowbank Division No Net Loss Plan

Version 3:
Managed and Prepared By:

Ryan VanEngen
Environmental Biologist- Meadowbank

Coordinated and written by Leilan Baxter

Approved By:

Kevin Buck
Environmental Superintendent

SECTION 1 • INTRODUCTION

The following report describes the new no-net-loss plan (NNLP) that has been developed for the Meadowbank Gold site, near Baker Lake, Nunavut. With approval from Fisheries and Oceans Canada (DFO), this updated NNLP replaces the original that was created in 2006 (Cumberland, 2006), prior to acquisition of the site by Agnico-Eagle Mines Ltd: Meadowbank Division (AEM). This plan quantifies the losses to fish habitat that will occur throughout the mine development and operational phase, and the gains that will be achieved through compensation measures.

1.1 SITE DESCRIPTION

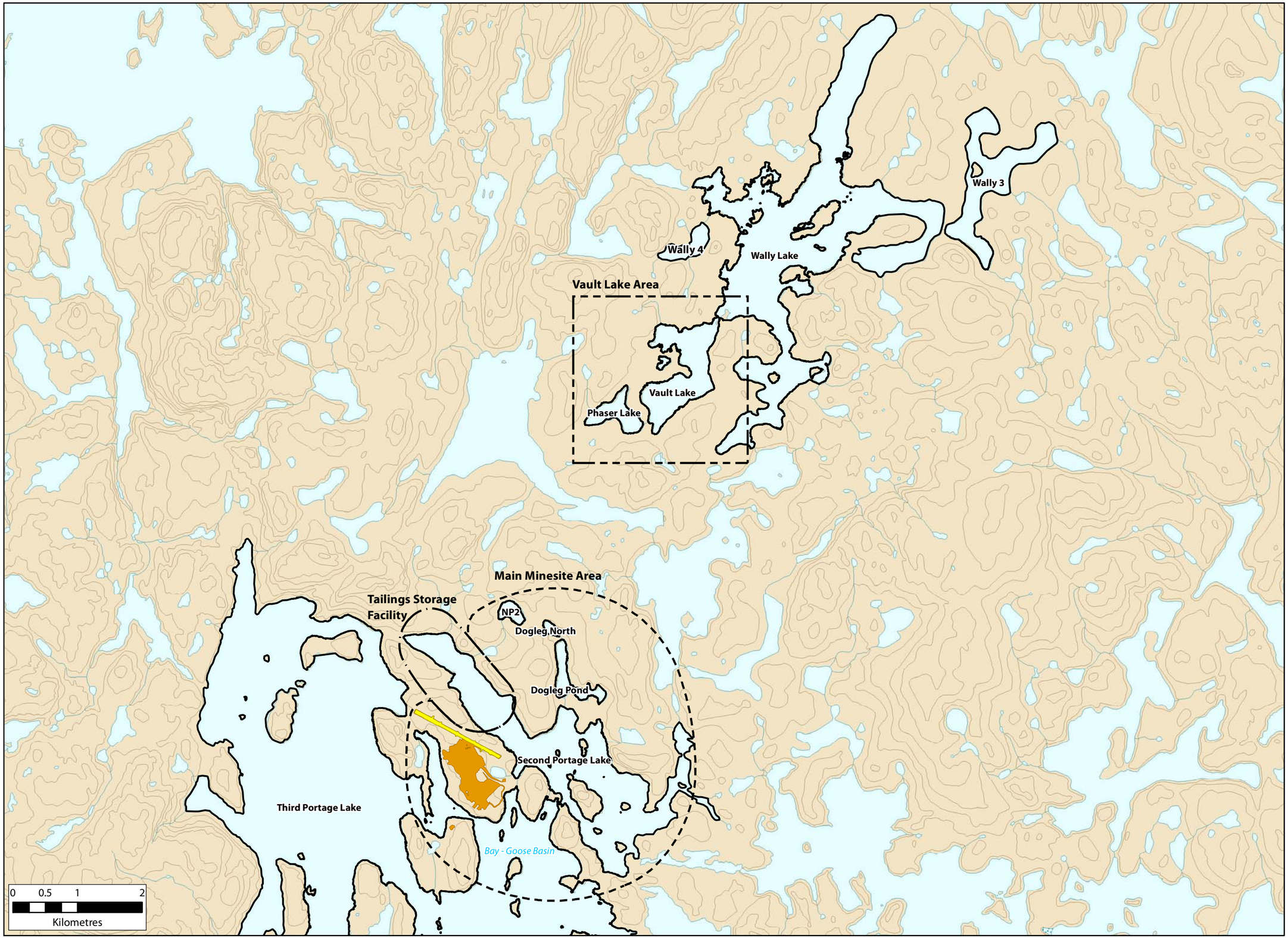
1.1.1 Mine Site

Since 2009, AEM has operated the Meadowbank Gold Mine, which is located 75 km north of the Hamlet of Baker Lake, Nunavut (Figure 1-1). This hamlet is the furthest inland settlement in Nunavut, located 320 km west of Hudson Bay. The minesite is connected to the hamlet by a 110 km all-weather road, and an airstrip onsite allows direct access for personnel and freight.

The Meadowbank mine consists of several gold-bearing deposits that are currently planned to be extracted using three open pits (Goose Pit, Portage Pit, Vault Pit), two of which are currently operational (Portage Pit and Goose Pit). The current mining schedule for each pit is shown in Table 1-1. Much of the pit development is located in close proximity to the mill, office and lodging infrastructure, with the exception of the Vault Pit which is approximately 10 km northeast of the main minesite (Figure 1-2).

Under the current design plans, a portion of each of the pits occurs in lacustrine environment. As a result, construction has commenced on a series of dikes to separate the pit areas from the remainder of the adjacent lakes. Four lakes (Second Portage Lake, Third Portage Lake, Vault Lake and Phaser Lake) are to undergo partial or complete dewatering following dike construction, to provide access to the pit areas. To date, dewatering has been completed in the northwest arm of Second Portage Lake, and the Bay-Goose Basin of Third Portage Lake. Dike construction is proposed for 2013 at Vault Lake. Phaser Lake is isolated and will be dewatered without dike construction. The sequence for dike construction is shown in Table 1-1.

Figure 1.1. Meadowbank Gold Project location. From Cumberland (2006).



Legend

- Study Lakes
- Facility
- Airstrip

Meadowbank Minesite
Project Lakes and Location

DOUGAN & ASSOCIATES
ECOLOGICAL CONSULTING & DESIGN
77 Wyndham Street South • Guelph ON N1E 5R3
T 519.822.1609 • F 519.822.5389 • www.dougan.ca

PROJECT: DA11-062-02

CLIENT: Agnico-Eagle Mines Ltd., Meadowbank Div.

N W E S
UTM Zone 14 NAD83

DATE: OCTOBER 2012
SCALE: 1:55,000
DRAWN BY: LC
CHECKED BY:

FIGURE:
1-2

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations, features, or roads, nor as a guide to navigation. MNR data provided by Queen's Printer of Ontario. Use of the data in any derivative product does not constitute an endorsement by the MNR or the Ontario Government of such products.

Table 1-1. Dike construction and mining schedule at the Meadowbank mine, as of September, 2012. Note that while the majority of the in-lake portion of Portage Pit falls in Second Portage Lake, a small portion is in Third Portage Lake.

Lake	Dike Construction				Mining		
	Area to be Dewatered	Dike Name	Year Built	Dewatering	Pit	Start	End
Second Portage	Northwest Arm	East Dike	2008	2009-2011	Portage	2010	2016
Third Portage	Bay-Goose Basin	Bay-Goose Dike	2009/10	2010-2011	Goose	2012	2015
Vault Lake	Whole lake	Vault Dike	2013	2013	Vault	2014	2017
Phaser Lake	Whole lake	N/A	N/A	TBD	Vault	2014	2015

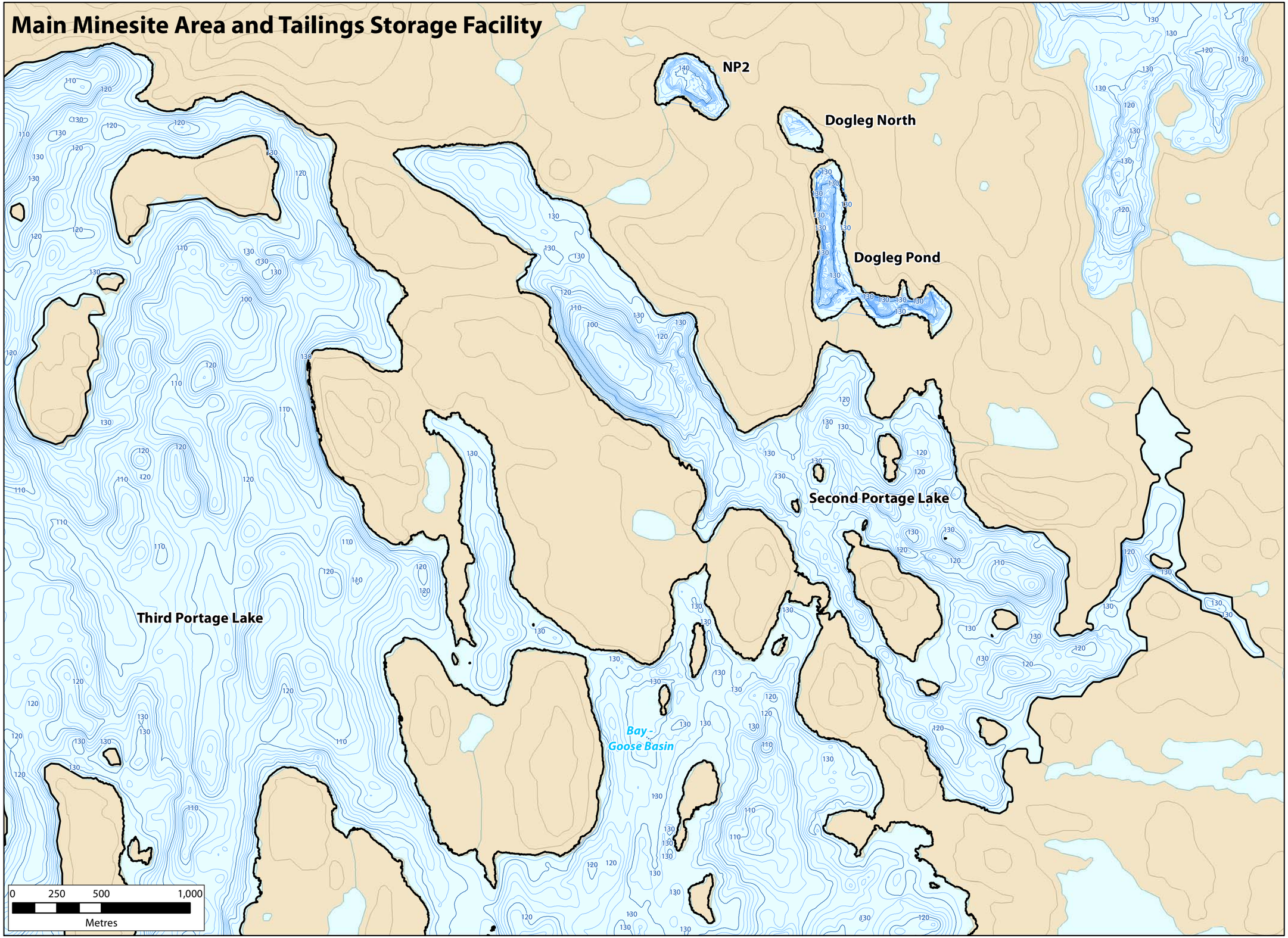
1.1.2 Ecological Setting

Situated near the border of the Northern and Southern Arctic ecozones, the terrain in the Meadowbank area is typical barren-ground subarctic, with low-growing vegetation in poorly developed soil with continuous permafrost. The landscape is dominated by many interconnected lakes and isolated ponds with indistinct drainage patterns, lying between low hills, boulder fields and bedrock outcrops. The mine site is located at the headwaters of the Quioch River system, which flows southeast through Chesterfield Inlet into Hudson Bay. The adjacent Back River and Meadowbank River systems flow north to the Arctic Ocean. Lakes in this region have small watersheds relative to their size, and are ultra-oligotrophic, with low productivity and short food chains. Studies have indicated that fish movement between lakes in the minesite area is limited due to small ephemeral connecting channels, or is random and not due to life history requirements of the species present (Cumberland, 2006). The project area lakes, with bathymetry, are shown in Figures 1-3 and 1-4.

1.1.3 Fish Species

According to baseline studies (BAEAR, 2005) and fishout programs that occurred in 2008 and 2010 in Second and Third Portage Lakes, three fish species are most prevalent in the Meadowbank region lakes. Lake trout (*Salvelinus namaycush*) are the dominant species and form between 60 and 100% of the population in studied lakes. Round whitefish (*Prosopium cylindraceum*) make up 15-25% of the populations, and landlocked arctic char (*S. alpinus*) comprise 10-15%. Minor species found in small numbers in certain lakes include burbot (*Lota lota*), ninespine stickleback (*Pungitius pungitius*) and slimy sculpin (*Cottus cognatus*). Two other species are known to occur in the region – arctic grayling and lake cisco. While arctic grayling (*Thymallus arcticus*) are not present in the project lakes, they have been found to use streams and tributaries in the adjacent Prince River system for spawning,

Main Minesite Area and Tailings Storage Facility



Legend

Study Lakes

Bathymetry Contour

Major Contour (10 m)

Minor Contour (2 m)

Bathymetry
Main Minesite Area and Tailings Storage Facility

DOUGAN & ASSOCIATES
ECOLOGICAL CONSULTING & DESIGN
77 Wyndham Street South • Guelph ON N1E 5R3
T 519.822.1609 • F 519.822.5389 • www.dougan.ca

PROJECT: DA11-062-02

CLIENT: Agnico-Eagle Mines Ltd., Meadowbank Div.

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FIGURE:

1-3

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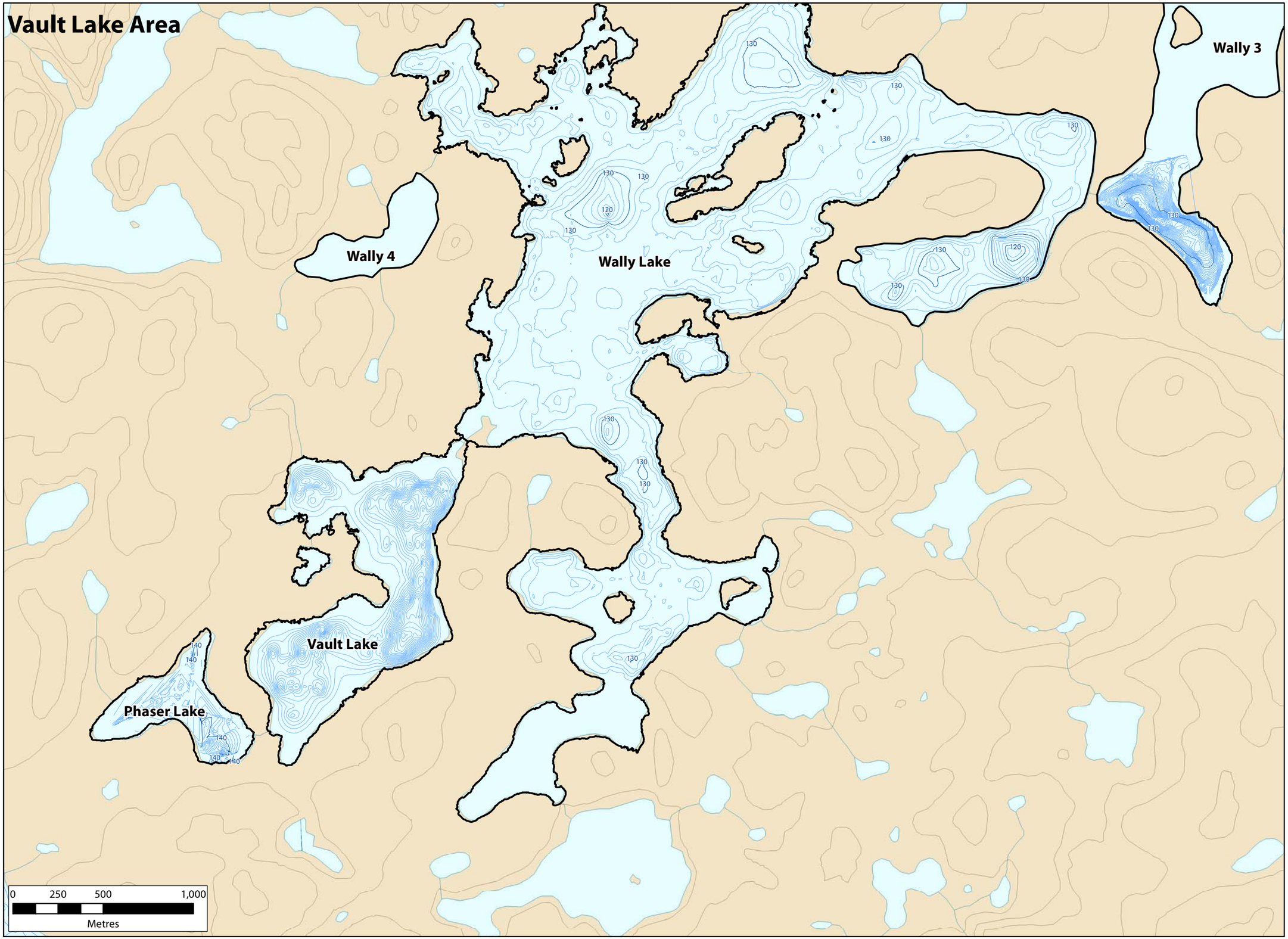

Legend

Study Lakes

Bathymetry Contour

Major Contour (10 m)

Minor Contour (2 m)

Bathymetry
Vault Lake Area

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ECOLOGICAL CONSULTING & DESIGN
77 Wyndham Street South • Guelph ON N1E 5R1
T 519.822.1609 • F 519.822.5389 • www.dougan.ca

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CLIENT: Agnico-Eagle Mines Ltd., Meadowbank Div.

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FIGURE:

1-4

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rearing and migration. Lake cisco (*Coregonus artedii*) have not been found in the project lakes, but have been found in small numbers in nearby streams, and are common in lakes closer to Hudson Bay.

1.1.4 Habitat Preferences of the Meadowbank Fish Species

The following description of general habitat preferences is summarized from Cumberland (2006), and is largely based on Scott and Crossman (1979), McPhail and Lindsey (1970) and Richardson et al. (2001).

Lake trout, the dominant species in the project lakes, generally spawn over large, course gravel-cobble substrates on sloped structures (i.e. shorelines or shoals) with interstitial spaces that allow oxygenation of eggs. In the project lakes this type of habitat occurs between 2 – 6 m. Arctic char and round whitefish also use this type of habitat for spawning, although possibly prefer smaller grain sizes. Near-shore boulder-cobble areas (0-3 m) are generally used as refugia and considered rearing areas for young of the year of all three species that are dependent on the availability of zooplankton, their primary food source. The transition zones between angular substrate and fine sediment (occurring at 3 - 8 m) are important for foraging for juvenile lake trout and arctic char, and juvenile and adult round whitefish which feed primarily on benthos. Adult lake trout are omnivorous and feed at depths up to 35m, in both the near-shore and pelagic zones. Adult arctic char occupy a wide range of depths and were found to largely feed opportunistically in the project lakes on zooplankton. Burbot spawn in shallow water under ice cover, and juveniles follow nocturnal patterns in boulder/cobble littoral zones, while adults typically inhabit deeper areas regardless of substrate. Ninespine stickleback were most commonly found in small ephemeral streams in the region, but were occasionally observed in the project lakes in near-shore rocky shelves. Similarly, slimy sculpin were rarely caught, but are thought to prefer shallow boulder/cobble substrate as juveniles with a shift to moving waters at the outflow or inlets of lakes or streams and deeper water as adults. Overwintering habitat for all lake-dwelling species occurs at depths greater than 3-4 m, because of ice formation.

Arctic grayling and lake cisco utilize the region's streams for migration, spawning, and summery foraging. Preferred spawning areas for Arctic grayling are over pebbles or cobble in small tributaries and lake cisco over large boulders with very little cobble, or rocky segments of main rivers. Foraging occurs in shallow lacustrine zones. These fish do not reach the project lakes because of a lack of larger connecting channels and small tributaries. Although they are not present on the minesite, Arctic grayling and lake cisco are included in the development of species weights in this NNLP (see Section 2.2.4) because a regional approach has been suggested for this HEP component (Minns' review of Meliadine Conceptual NNLP, Feb. 4, 2012). These are important regional species and are known to inhabit areas along the Prince River near Baker Lake, which are included in contingency compensation plans (specifically, Airplane Lake).

1.1.5 Habitat as a Surrogate for Productive Capacity

Since it is necessary in NNL planning to compare relative fish production under current and modified aquatic environments, metrics such as habitat area and suitability are commonly used as surrogates for productive capacity of aquatic systems. The concept of a metric combining both habitat quantity and quality, termed "habitat units" (HUs), was first developed for this purpose by the US Fish and Wildlife Service in the 1980s and has since been adopted by habitat managers throughout Canada.

However, in order to establish quantifiable links between fish production and habitat, fish production must first be measured directly (Minns, 1995) and a habitat-productivity model established. To date, few field studies have specifically examined and validated habitat preferences of North American arctic fish species. A system to provide managers with repeatable habitat suitability indices based on measurable physical properties, such as the scientifically defensible Habitat Suitability Matrix model for fishes of the Great Lakes region (Minns et al. 2001), is not currently available for arctic development projects. With the exception of arctic grayling (Hubert et al. 1985; Jones and Tonn 2004), no habitat models have been validated for Arctic species. Furthermore, while general life history characteristics have been published for Arctic fishes, it is recognized that major gaps even exist in current understanding of northern fish preferences (Richardson et al. 2001), let alone productivity relationships. In order for habitat suitability indices to be developed and used effectively, data on habitat preferences must first be collected and the appropriate models generated (De Kerckhove et al. 2008).

It is therefore important to note that since there is little information on habitat suitability in the north, and few types of habitat enhancements have been evaluated for success, *a priori* estimates of gains in productive capacity are currently highly speculative in many cases. Although studies using fishout data from northern mines have begun to correlate fish production in the north with chemical or physical variables, field validated HSIs may not be available for some time. Until such linkages have been researched and published, NNL planners must rely on related literature and professional judgement in the development of HSIs. While the modified HEP has been the only method of no-net-loss planning used for mining projects in the NWT and Nunavut, it should be recognized that this system is still in the development stages in the Canadian Arctic. Therefore, despite the use of peer-reviewed literature to determine habitat suitability values, it should be noted that significant uncertainty remains when linking specific habitat types to productivity of fish populations.

1.2 HISTORY OF THE NNLP AT MEADOWBANK

Prior to the acquisition of the mining rights for Meadowbank by AEM in 2007, Cumberland Resources Ltd. (Cumberland) had begun baseline studies and permit applications for the site. As a development project that would cause the alteration, disruption or destruction of fish habitat, Cumberland obtained a Nunavut Impact Review Board (NIRB) Project Certificate (No 004 – dated December 30, 2006), which required Fisheries and Oceans

Canada (DFO) approval as part of the Final Environmental Impact Statement. Subsequently, a Fisheries Authorization from DFO (NU-03-0191; Appendix B) for the main portion of the minesite (Second and Third Portage Lakes) was provided to AEM in 2008 following DFO approval of the original NNLP with amendments (Cumberland, 2006; Azimuth, 2007). This plan described the impacts to fish habitat that were expected to occur, and the habitat compensation measures that would be implemented to re-gain the lost habitat. The approved plan was based on the guiding principle of the Policy for the Management of Fish Habitat (DFO, 1986), which stipulates that there will be no net loss of the productive capacity of fish habitat as a result of development activities. Although the Fisheries Authorization was obtained for the Main Minesite Area only (Second Portage and Third Portage Lakes), the original NNLP encompassed all areas of the Meadowbank site. Authorization for the Vault Lake Area was to be sought at a later date. The portion of Second Portage Lake that is used for tailings storage (the Tailings Storage Facility, or TSF) was authorized separately by the DFO and administered by Environment Canada under Section 36 of the Fisheries Act. Because of this historical regulatory separation of the three areas (Main Minesite Area, TSF, and Vault Lake Area), habitat loss and gain calculations are separately addressed and specifically provided for in this assessment.

Following the example of similar mining projects in the north, the original NNLP used a modified Habitat Evaluation Procedure (HEP) to calculate losses and account for them with gains in habitat units. The ratio of losses to gains described in that plan was 1:1 for the Main Minesite, and 1:2 for the TSF. Subsequent revisions and additions were presented (Azimuth, 2007), and the 2008 Fisheries Authorization provided by DFO for the Main Minesite had a loss:gain ratio of 1:1.68. Since the area to be used for tailings storage will be permanently infilled, a ratio of 1:2 was proposed and authorized for the TSF.

In 2010 and 2011, AEM revisited the original NNLP and addendums, and found discrepancies between the number of habitat units described in the plan and those in the Authorization granted by DFO. Specifically, gains for the Second Portage Northwest Basin and Third Portage Basin were estimated at 213 and 565.6 HUs, respectively in the NNLP, but were authorized at 401 and 701.6 HUs in the Fisheries Authorization (it should be noted that HUs were calculated differently in the original plan, and are not comparable to HUs calculated in this assessment). If the numbers reported in the NNLP were used in the Authorization, the total gains (after addition of the East Dike extension habitat and Second Portage habitat mounts presented in the 2007 NNLP Addendum) would have been 928 HUs, for a losses:gains ratio of 1:1.25. Since these discrepancies could not be accounted for by AEM, Cumberland consultants and DFO, the development of a new NNLP for the Meadowbank site was proposed by AEM and approved by DFO.

Furthermore, based on the experiences of AEM onsite, some of the compensation measures described in the original NNL plan do not appear to be feasible as conceptualized due to technically challenging construction. Based on AEM's experience with in-lake dike construction, the compensation features as proposed in the original NNLP have the potential to impact the receiving environment. Specifically, these compensation featured included dike extensions (approximately 19 ha), and six smaller sea mounts, to be

constructed in the open-water area of Third Portage Lake. AEM therefore proposes a number of alterations to compensation measures, as described herein, which avoid increasing the footprint of the mine.

Despite the differences in ratios, AEM has committed to the originally authorized ratio of 1:1.68 for the Main Minesite, and 1:2 for the TSF. The compensation ratio for the Vault Lake Area is proposed in this plan. Since an improved HEP has recently been developed by Golder Associates and AEM for AEM's Meliadine site, with input from DFO in consultation with Dr. Ken Minns, the use of this newer HEP was proposed and approved for the Meadowbank site's updated NNLP as well.

1.3 GOAL AND OBJECTIVES

The main goal of this NNLP is to quantify the losses to productive capacity of fish habitat that will occur as a result of mining activities at the Meadowbank mine, and to propose options to compensate for these losses. For the Main Minesite Area (Second and Third Portage Lakes, not including the TSF), gains should replace losses at a ratio of 1.68:1. For the TSF, gains should be achieved at a ratio of 2:1. The ratio of gains to losses for Vault and Phaser Lakes as a result of Vault Pit development is proposed herein. Following approval, Vault Pit mining activities will require a new, separate authorization.

This goal was addressed by examining the compensation options presented in the original plan, researching techniques and projects implemented at other northern mines, holding workshops and site visits with the local Hunter's and Trapper's Organization, Kivalliq Inuit Association and the DFO Habitat and Science & Research Departments, and reviewing the literature for information on effectiveness of compensation techniques in the north (see Appendix C).

This NNLP is a revision of the document prepared by Cumberland Resources Ltd. in 2006 and forms the basis for a revised Fisheries Authorization for the mine site. It includes all areas covered by the original NNLP, with the exception of the all-weather access road, for which authorization was separate and compensation has already been implemented. HADD areas are described as anticipated under current design plans, which have undergone numerous revisions since 2006. Although the general format of the report is the same, a substantially different HEP is described and used here. This NNLP uses the same supporting studies as referenced in the development of the 2006 document, including species lists, maps of bathymetry and substrate composition. As discussed with DFO, it also proposes similar compensation concepts that include end pit lakes, basin enhancements and dike face habitat. Two new compensation projects are proposed (improved access to the Dogleg and Wally Lake systems), but these are within the scope of similar developments in the north. Where the information in the original plan applies to the current situation (e.g. environmental setting, fish assemblage assessment), it is referenced and summarized here.

Compensation measures for this NNLP take into account the DFO's hierarchy of preferences for compensation types throughout Canada. These are:

- Create or enhance like-for-like habitat onsite or near site

- Create or enhance unlike habitat onsite or near site
- Create or enhance habitat away from site
- As a last resort:
    - artificial production techniques to maintain a stock of fish
    - deferred compensation
    - restoration of chemically contaminated sites

Based on these preferences and akin to the original NNLP (Cumberland, 2006), onsite habitat compensation was considered optimal, and form the majority of the compensation plan and contingency options.

SECTION 2 • HABITAT EVALUATION PROCEDURE

The guiding principle of the Fisheries Act's "Policy for the management of fish habitat" (1986) is that there will be no net loss of the productive capacity of fish habitat as a result of development activities. Productive capacity is defined as "the natural maximum capability of habitats to produce healthy fish, safe for human consumption, or to support or produce aquatic organisms upon which fish depend." Although any proponent who may cause harmful alterations, disruptions or destructions (HADDs) to fish habitat must quantify losses and propose compensation measures if they are to obtain authorization from DFO, the Act does not provide any stipulations as to how productive capacity of fish habitat is to be calculated.

Most commonly, a Habitat Evaluation Procedure (HEP) is used which involves the multiplication of each HADD area (in ha) by a habitat suitability index (HSI) and series of fish species weights in order to derive a value in habitat units (HUs) that describes both the quality and quantity of habitat. A version of this basic model was used in the original NNLP, and an updated model developed by Golder Associates and AEM is used here.

2.1 OVERVIEW

In 2011/2012, a Habitat Evaluation Procedure method was developed by Golder Associates and AEM for use at AEM's Meliadine site (as first presented to DFO at the Meliadine NNLP workshop, Nov. 17, 2011). This model was reviewed by DFO in consultation with Dr. Ken Minns (Meliadine NNLP review document; February 4, 2012), and the same approach was approved for use in the updated Meadowbank NNLP (emails from DFO; March 30, 2012 and July 19, 2012). See Appendix C for documentation of consultation.

In the first stage, of the habitat evaluation, pre-construction (natural, or baseline) habitat units are calculated for all areas of the mine site where a HADD will occur. These are referred to as "losses". Changes to habitat units occurring for each area post-closure are then calculated in the second stage based on mine construction designs, and incorporating any habitat compensation features, to determine the total number of habitat units present after mining ("gains"). To meet the conditions of the DFO Fisheries Authorization (NU-03-0191, July 30, 2008) granted for the Main Minesite Area, it was agreed that the loss:gain ratio for this revised NNLP would remain at 1:1.68. For the TSF, this ratio will remain at 1:2. The ratio for the Vault Lake Area is presented in this NNLP.

The net HUs will depend on the habitat type (11 groups, by substrate and depth) that is lost and gained in each area, and the suitability of that habitat type for each fish species. Suitability of each habitat type is ranked between 0-1 for each life stage of each fish species (spawning, nursery, foraging, overwintering).

For each minesite feature (e.g. pits, dikes, roads) where losses or gains are expected to occur, HUs are calculated by multiplying the area of each habitat type in that feature by the HSI allotted to each life function of each fish species, multiplied by the species weight

and life function weight, and summed. This subtotal is then multiplied by an access factor, which represents the accessibility of the area to each species, and a habitat co-factor which describes changes in hydrological, thermal or chemical water quality. The HEP model is described in further detail below, and an example calculation is provided in Appendix A.

2.2 HEP MODEL

The HEP model used here can be described, for each fish species (spp 1-n) as:

$$\mathbf{HU}_{\text{spp 1-n}} = \sum_{\text{HT 1-11}} \left(\sum_{\text{sp,nu,fo,ow}} (\mathbf{HT}_{\text{1-11}} \times \mathbf{HSI}_{\text{sp,nu,fo,ow}} \times \textbf{life function weight} \times \textbf{species weight})]\right) \times \textbf{habitat co-factor} \times \textbf{access factor}$$

Where $HT_{1\text{-}11}$ = area (ha) of habitat types 1 through 11

$HSI_{sp,nu,fo,ow}$ = habitat suitability index for each life function:

sp = spawning use
nu = nursery use
fo = foraging use
ow = overwintering use

The original model developed by Golder Associates and AEM (2011) did not include HT 11, and did not include the habitat co-factor and access factor terms. These last two factors were suggested in the review by Dr. Ken Minns and presented in a memo to DFO, dated June 7, 2012 and in the draft NNL Plan submitted to DFO for review on June 15, 2012. These are practical additions to the model, which improve the transferability between projects, providing fisheries managers improved ability to evaluate habitat gains and losses for a variety of development projects in the north. The habitat types proposed for use in the Meadowbank model, and the two new factor terms are discussed below.

2.2.1 Habitat Type Area ($HT_{1\text{-}11}$)

The foundation of the HEP is the delineation of “habitat types” – the method by which habitat areas are grouped, and thereby mapped. The Meadowbank HEP model proposes 11 habitat types, which are based on various combinations of substrate and depth. Habitat types 1-9 are applied to natural habitat for various combinations of substrate type and depth zone. Habitat type 10 is included in the HEP in recognition of reduced habitat quality in end pit lakes as a result of pit water stratification and monimolimnion development. Habitat type 11 is applied in end pit lakes where permanent stratification is not predicted, and water quality is expected to be more suitable for aquatic biota. The development of HSIs for this habitat type is discussed in Section 2.2.2. Substrate and depth zones associated with each habitat type are shown in Table 2-1.

Table 2-1. Physical characteristics of the habitat types proposed for the Meadowbank HEP.

Habitat Type	Depth Zone	Substrate	Use
1	0-2m	Fine	Loss/Gain
2	0-2m	Mixed	Loss/Gain
3	0-2m	Coarse	Loss/Gain
4	2-4m	Fine	Loss/Gain
5	2-4m	Mixed	Loss/Gain
6	2-4m	Coarse	Loss/Gain
7	>4m	Fine	Loss/Gain
8	>4m	Mixed	Loss/Gain
9	>4m	Coarse	Loss/Gain
10	>10m	None	End pit lake with monimolimnion
11	>10m	None	End pit lake, without monimolimnion and with WQ suitable for aquatic biota

In order to calculate the extents of each habitat type, depth zones and substrate were mapped for the entire Meadowbank site, for pre- and post-closure scenarios. All habitat type area calculations and mapping were completed by Dougan and Associates, as described in further detail below.

2.2.1.1 Substrate Mapping

The pre-construction maps of substrate for this updated NNLP were based on GIS files used in the original 2006 NNLP. As described in that document, aerial photography and underwater imagery were used to delineate areas dominated by the following substrate classes: boulder, boulder/cobble, sediment with boulder/cobble and sediment fines. GIS files containing only this sediment information were not available, so the substrate zones mapped for this updated assessment were based on the “habitat type” maps from 2006. Table 2-2 shows these “habitat types” from 2006, and the corresponding Golder/AEM model substrate type. Further descriptions of these “habitat types” can be found in Cumberland, 2006.

Table 2-2. Substrate category conversion for 2012 mapping from Cumberland (2006) "habitat types".

Golder/AEM HEP (2012) Categories	Cumberland (2006) Categories
Fines	Sediment Basin AND Sediment Apron
Mixed	Mixed Sediment Apron
Coarse	Boulder Apron AND Boulder Shoal AND Boulder Platform

2.2.1.2 Depth Zone Mapping

The mapping of depth zones for the minesite and TSF was based on GIS files used in the original 2006 NNLP (Cumberland, 2006). As described in that document, bathymetric maps were developed from aerial photography, underwater imagery and field measurements. For the Vault and Dogleg areas, depth zones were based on bathymetric surveys completed by AEM in August of 2010 and 2011 and mapped by Dougan and Associates.

2.2.1.3 Habitat Type Mapping

Habitat type areas were determined by overlaying depth and substrate layers. This was done for each minesite feature, in both the pre- and post-closure scenario in order to calculate losses and gains of each habitat type.

2.2.1.4 End Pit Lakes as Habitat Compensation in the North

The inclusion of habitat types specific to pits in this HEP implies that end pit lakes can provide suitable habitat for fish populations in the Arctic. While the creation of end pit lakes from mining operations is common in temperate regions of Canada, this practice is relatively new to the north. To date, the only no-net-loss plans found proposing re-flooding of excavated pits for use as fish habitat in the Northwest Territories or Nunavut were for Diavik Diamond Mine. As a result, few observational studies have been published to date examining fish populations or habitat suitability in Arctic pit lakes. Nevertheless, the use of end pit lakes for fish habitat in the north has historically been promoted (e.g. DFO, 2003; 2007), and since these lakes may present a viable option for habitat compensation, this avenue should continue to be explored.

Until further information is available from northern pit lakes, much can be interpolated from principles of limnology that apply in the south. Where end pit lakes studies have been conducted, reports of the re-establishment of successful fish populations are available. For example, the ability of re-habilitated end pit lakes at former coal mine pits

in Alberta to support fish populations has been observed and discussed (e.g. Hatfield Consultants, 2011). In 2009, Gammons et al. published a comprehensive review of considerations for the development of lakes from pits in the north. While the lack of information regarding the aquatic biology of these systems is recognized, a number of major factors that should be considered for fish survival are presented. These are discussed in the context of the Meadowbank pits, below, to indicate rationale for inclusion of this as a unique habitat type.

Stratification

The lakes of the Meadowbank area where pit development is occurring are naturally holomictic like many northern lakes. The development of meromictic conditions in pit lakes is a consideration in predicting fish productivity. This condition is more likely in pits, as the depth to width ratio increases (Gammons et al. 2009). While full mixing has the benefit of evenly distributing chemical elements, this may be undesirable if it occurs suddenly and unfavourable concentrations of contaminants or dissolved gases that have accumulated in the stratified layer at depth are moved to surface layers (Boehrer and Schultze, 2006).

The development and dispersal of stratified conditions can be determined through modeling, as completed for the Meadowbank site in Golder (2005). At the end of the 5-year re-flooding period, a density-based chemocline is predicted to be present in Portage Pit, due to inflow of high-TDS groundwater, creating meromictic conditions. However, the monimolimnion would only comprise 2% of the lake volume, and would be temporary. Over four years, the monimolimnion is predicted to dissipate slowly, and holomictic conditions would be restored. While modeling was only completed for the Portage Pit, conditions in the Bay-Goose and Vault Pits are expected to be similar (Golder, 2005).

Water quality

The ability of pit lakes to support viable fish populations depends on the maintenance of adequate water quality, including factors such as pH, DO, salinity, turbidity and concentrations of nutrients and potentially toxic elements. Depending on the local mineralogy, pit lakes formed from gold mines may contain heavy metals, which may cause toxicity in fish if concentrations are high enough (Gammons et al. 2009). Availability of metals is predominantly controlled by pH. As a result, it has been generalized that pit lakes with low to moderate acidity have a good chance of being restored to a beneficial ecological end use (Nixdorf et al. 2005 in Gammons et al. 2009). The rapid re-filling of pit lakes after mining is recommended to reduce the time available for oxidation of the rock face, thereby decreasing potential for acidic conditions (Castro and Moore, 2000). Further impacts on aquatic life may result from differences in salinity, turbidity, DO and nutrient concentrations. Many processes act together to control these components of water chemistry, and each has implications for fish populations in northern pit lakes. For example, pit lakes often have a higher chemical oxygen demand (COD) than natural lakes, due to dissociation of iron ions in the deep, anoxic monimolimnion, and oxidation in the hypolimnion (Gammons et al. 2009). As a result, fish in these lakes may be more susceptible

to winterkill, when ice cover prevents oxygen exchange at the surface. Since each pit's morphology and mineral deposit is different, predictions of water quality parameters need to be made individually, as performed for the Meadowbank pits in 2005 (Golder, 2005).

Based on results of modeling, end pit water quality at the Meadowbank site will be similar to un-impacted areas, and suitable for fish in the long-term (i.e., >25 years; Golder, 2005). Golder (2005) predicted that post-closure, re-flooded pit lake water quality will meet MMER concentrations and nearly all CCME criteria (with the exception of cadmium and zinc at a steady state). The predicted concentrations of these metals are similar to background levels of water quality (see Azimuth, 2012) and therefore water quality following re-flooding is not expected to affect aquatic biota. Furthermore, prior to breaching, flooded pits and basins will be monitored and managed until the water quality is considered suitable for mixing with adjacent lakes.

Temperature and Sunlight

Cold temperatures in northern climates result in some specific considerations for pit lakes in that region. The temperature of the bottom layer of stratified lakes (hypolimnion or monimolimnion) is theoretically 4°C, the temperature at which water reaches its maximum density. This should occur in both temperate and northern climates (Gammons, 2009). Ice cover, however, persists much longer in arctic lakes. This can increase chances of oxygen depletion, leading to fish winterkill, particularly if COD is elevated as a result of anoxic conditions in the monimolimnion. Further, ice formation can cause increased salinity in the deep pits through the process of thermohaline convection. Ice melting then intensifies the layer of lower-density water at the surface, resulting in density-stratification, and increasing the chances of meromictic conditions (Gammons, 2009). As descried above, water quality (DO) is predicted to be high in the Meadowbank pit lakes, and stratification is expected to dissipate after 4 years. Furthermore, the Meadowbank regions consists predominantly of large, oligotrophic water bodies, such that the pits formed here by deepening existing lakes are relatively consistent with the regional limnology.

Ice cover also reduces the amount of solar radiation that reaches the water column. This along with extreme seasonal variability in the north, results in photosynthetic processes that are slowed, and primary production, which supports the aquatic food web, declines. However, this phenomenon may actually be beneficial to end pit lake use in the north. While rates of primary production may initially be considered slow in temperate-climate pit lakes, northern lakes are commonly highly oligotrophic in their natural state (Gammons, 2009). Since local biota are adapted to nutrient- and light-depleted conditions, production in pit lakes in this region would be expected to mimic surrounding lakes more rapidly.

Habitat Diversity

Since fish require different types of habitat for different life functions, the availability of diverse substrates and depth zones is important for maximum population productivity. In many pit lakes studied to date, the low habitat diversity relative to nearby natural lakes is

the biggest differentiating factor. Assuming adequate water quality, it is generally recommended that the successful restoration of pits for use as fish habitat needs to include provisions for habitat diversity. Suggested methods include such additions as logs, rock piles, macrophyte beds or artificial islands (Gammons et al. 2009). While the applicability of each of these methods is clear in temperate climates, many have limitations in Arctic regions. In areas above the tree-line, the addition of log piles would not be in keeping with natural systems. Similarly, lakes in this region contain few macrophytes. Of the reclamation strategies mentioned, rock fill presents the greatest utility and most common application in northern no-net-loss plans for mines (e.g. Diavik, Jericho, Doris North, Meadowbank). This typically occurs in the form of artificial reefs or shoals constructed in deep water, soft sediment basins, in an effort to improve habitat quality.

Along with these additions, various methods for re-contouring pit dimensions have been suggested to produce more natural systems. These may include sloping pit walls, excavation of littoral bays, or pit backfilling (Gammons et al. 2009). While re-sloping pit walls and the construction of shallow littoral zones has been implemented in north-temperate regions (e.g. Brinker et al. 2011), and are feasible options further north, no records of the use of these methods to date were found in the north. As well, re-flooded pit areas will be well connected to shallow basins and enhanced littoral areas to provide habitat diversity. Similarly, backfilling deep pits to more natural depths with waste rock is a theoretically viable technique. This option is proposed at Meadowbank, and with approximately 30% of the final pit areas to be filled to a depth of at least 4-10 m, will significantly reduce the proportion of ultra-deepwater areas, and will provide improved habitat suitability. Further details of habitat improvements to end pit lakes at Meadowbank are discussed in Section 4.

2.2.2 Habitat Suitability Index ($HSI_{sp,nu,fo,ow}$)

The habitat suitability term represents the relative quality of each habitat type for each life function of each fish species present in the region. In the case of this HEP, the life functions spawning, nursery, foraging and overwintering were considered. In this HEP, habitat suitability is indicated through a ranking of 0, 0.25, 0.5, 0.75 or 1.

HSIs for 10 habitat types were developed by Golder/AEM for the Meliadine site, and were approved by DFO. HSIs are generally developed based on literature reviews, and should apply regionally. Since no additional fish species are present at the Meadowbank site, no supplements or changes were made to the HSIs prepared by Golder/AEM for these 10 habitat types. However, with the addition of HT11 here, HSIs needed to be developed for this habitat type. HSIs for HT11 were generally based on HT9 (> 4 m, coarse substrate), with amendments as necessary based on literature review. Although the affected lakes at Meadowbank are naturally deep, and therefore HT9 incorporates depths up to 40 m, it is recognized that the much deeper pit areas (portions of the pit that may be up to 200 m deep) cannot be considered in the same habitat classification. HSIs for HT11 were determined based on predicted water quality and habitat diversity in the end-pit lakes, as

discussed above, along with a review of the literature with respect to habitat preferences for the Meadowbank fish species. A summary of this review, along with the HT9, 10 (for reference) and 11 HSIs are presented in Table 2-3. Since no new information was found for overwintering habitat preferences, the preferences described in the 2006 NNLP (Cumberland, 2006) are shown, although these were generally unreferenced. HSIs for all fish species and habitat types used in this HEP are shown in Table 2-4.

Table 2-3. Summary of habitat preferences for Meadowbank region species, mainly from Richardson, 2001. Habitat type 9 (HT 9; > 4m, coarse substrate) and 10 (HT 10; pit habitat for application in monimolimnic conditions) and 11 (HT11; pit habitat for application in holomictic conditions) HSIs developed by Golder Associates and AEM. YoY = young of the year.

Fish	Overwintering	Foraging (adults)	Spawning	Nursery (larvae or young)
Lake trout	Juvenile - coarse, <8m Adult - basin, >8m (Cumberland, 2006)	>10m, pelagic (Richardson, 2001)	Over gravel, cobble etc. (free of fines), 0.12-55m up to 100m (Richardson, 2001)	YoY – benthic sandy; Juvenile – benthic cobble/boulder; <0.3m above bottom (Richardson, 2001)
HT 9 HSI	*1*	*1*	*1*	*0.5*
HT 10 HSI	*0.75*	*0.5*	*0*	*0*
HT 11 HSI	*1*	*1*	*0.5*	*0*
Arctic char	Shift from pelagic to benthic in fall (Cumberland, 2006)	Pelagic (Richardson, 2001)	Gravel, cobble, 2-10 m (Richardson, 2001)	Boulder/cobble; Littoral or pelagic; often deeper benthic (>5 m) (Richardson, 2001)
HT 9 HSI	*1*	*1*	*1*	*0.5*
HT 10 HSI	*0.75*	*0.25*	*0*	*0*
HT 11 HSI	*1*	*1*	*0*	*0*
Round whitefish	Estimated to be the same as lake trout (Cumberland, 2006)	Rocky/boulder, 7-22m, benthic (Richardson, 2001)	Gravel/rubble; typically <1m, sometimes 5-10m (Richardson, 2001)	Rock, sand, gravel, 1.5-4.5m (Richardson, 2001)
HT 9 HSI	*1*	*0.5*	*0.75*	*0.5*
HT 10 HSI	*0.75*	*0*	*0*	*0*
HT 11 HSI	*1*	*0.25*	*0*	*0*

Fish	Overwintering	Foraging (adults)	Spawning	Nursery (larvae or young)
Burbot	Adults - deeper, juveniles like coarse substrate; more active in winter (Cumberland, 2006)	Benthic (Bennett, 2006) Boulder, rubble, cobble, sand (Richardson, 2001) Adults observed up to 213 m in lakes (Ford, 1995)	Sand, gravel, rubble, 0.5-3 m; sometimes much deeper (Richardson, 2001)	Larvae – pelagic; YoY - benthic littoral, rock/gravel (Richardson, 2001)
HT 9 HSI	*1*	*1*	*0*	*0*
HT 10 HSI	*0.25*	*0.25*	*0*	*0*
HT 11 HSI	*1*	*1*	*0*	*0*
Slimy sculpin		Benthic (Bennett, 2006) 0.5-210 m, gravel, rock (Richardson, 2001)	Sand, gravel, rock, <1.5 m (Richardson, 2001)	Young – 0.5-1.5 m, sand/gravel; moving slightly deeper with age (Richardson, 2001)
HT 9 HSI	*1*	*0.5*	*0.5*	*0.5*
HT 10 HSI	*0.25*	*0*	*0*	*0*
HT 11 HSI	*1*	*0.5*	*0*	*0*
Ninespine stickleback	Deeper (Richardson, 2001)	Benthic (Bennett, 2006) Generally shallow, but seen at depths to 70m in Lake Superior (Richardson, 2001)	Shallow, but seen up to 40m (Richardson, 2001)	Shallow (Richardson, 2001)
HT 9 HSI	*1*	*0*	*0*	*0*
HT 10 HSI	*0.75*	*0*	*0*	*0*
HT 11 HSI	*1*	*0*	*0*	*0*

Fish	Overwintering	Foraging (adults)	Spawning	Nursery (larvae or young)
Arctic grayling	Deep pools of rivers, deeper portion of lakes (Richardson, 2001)	Sand, silt, gravel; <3 m (Richardson, 2001)	Streams; gravel, rock; 0.7 m (Richardson, 2001)	Lotic or littoral, 0.2-0.4 m; boulder (Richardson, 2001)
HT 9 HSI	*1*	*1*	*0*	*0*
HT 10 HSI	*0.5*	*0*	*0*	*0*
HT 11 HSI	*1*	*0*	*0*	*0*
Lake cisco	N/A	Pelagic, 10-60 m (Richardson, 2001)	Commonly sand, gravel, but wide range; 1- 5 m, up to 140 m (Richardson, 2001)	Larvae – shallow rocky Young – pelagic (Richardson, 2001)
HT 9 HSI	*1*	*0.75*	*1*	*0.25*
HT 10 HSI	*0.75*	*0.75*	*0*	*0*
HT 11 HSI	*1*	*0.75*	*0.25*	*0*

Note- HT9-11 were developed and refined in response to DFO review (DFO, July 2012)

Table 2-4. Proposed HSI values for the Meadowbank region fish species (sp=spawning, nu=nursery, fo=foraging, ow=overwintering). HSI values for habitat types 1-10 are identical to those proposed previously for the Meliadine HEP. Habitat type 11 is added for use in pits where mixing will occur, and water quality is expected to remain similar to baseline conditions.

Habitat Type	Depth	Substrate	Arctic Char				Lake Trout				Round Whitefish			
			SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	<2 m	Fines	0	0.25	0.25	0	0	0.25	0.25	0	0	0.25	0.75	0
2	<2 m	Mixed	0	0.25	0.25	0	0	0.5	0.5	0	0	0.75	0.5	0
3	<2 m	Coarse	0	0.5	0.5	0	0	1	0.75	0	0	0.75	0.5	0
4	2-4 m	Fines	0	0.5	0.5	0.75	0	0.5	0.5	0.75	0	0.25	1	0.75
5	2-4 m	Mixed	0.5	0.75	0.75	0.75	0.5	0.75	0.75	0.75	0.5	0.75	0.75	0.75
6	2-4 m	Coarse	1	1	1	0.75	1	1	1	0.75	1	1	0.75	0.75
7	>4 m	Fines	0	0.25	0.5	1	0	0.25	0.5	1	0	0.25	1	1
8	>4 m	Mixed	0.5	0.5	0.75	1	0.5	0.5	0.75	1	0.25	0.25	0.5	1
9	>4 m	Coarse	1	0.5	1	1	1	0.5	1	1	0.75	0.5	0.5	1
10	>10 m	None	0	0	0.25	0.75	0	0	0.5	0.75	0	0	0	0.75
11	>10 m	None	0	0	1	1	0.5	0	1	1	0	0	0.25	1

Habitat Type	Depth	Substrate	Burbot				Slimy Sculpin				Ninespine Stickleback			
			SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	<2 m	Fines	0	0.25	0.25	0	0	0	0.25	0	1	1	1	0
2	<2 m	Mixed	0	0.75	0.5	0	0.25	0.25	0.5	0	0.5	0.5	0.75	0
3	<2 m	Coarse	0	1	0.5	0	1	1	1	0	0	0.25	0.75	0
4	2-4 m	Fines	0	0.25	0.25	0.75	0	0	0.25	0.75	0	0	0.5	0.75
5	2-4 m	Mixed	1	0.5	0.75	0.75	0.25	0.25	0.5	0.75	0	0	0.25	0.75
6	2-4 m	Coarse	0.75	0.5	1	0.75	0.75	0.75	1	0.75	0	0	0.25	0.75
7	>4 m	Fines	0	0	0.25	1	0	0	0	1	0	0	0	1
8	>4 m	Mixed	1	0	0.75	1	0	0	0.25	1	0	0	0	1
9	>4 m	Coarse	0.75	0.25	1	1	0.5	0.5	0.5	1	0	0	0	1
10	>10 m	None	0	0	0.25	0.25	0	0	0	0.25	0	0	0	0.75
11	>10 m	None	0	0	1	1	0	0	0.5	1	0	0	0	1

Habitat Type	Depth	Substrate	Lake Cisco				Arctic Grayling			
			SP	NU	FO	OW	SP	NU	FO	OW
1	<2 m	Fines	0	0.25	0.5	0	0	0.25	0	0
2	<2 m	Mixed	0	1	1	0	0	0.25	0.25	0
3	<2 m	Coarse	0	1	1	0	0	0.5	0.25	0
4	2-4 m	Fines	0	0.25	0.75	0.75	0	0	0.5	0.75
5	2-4 m	Mixed	0.25	0.5	1	0.75	0	0	1	0.75
6	2-4 m	Coarse	0.75	0.75	0.75	0.75	0	0	1	0.75
7	>4 m	Fines	0	0	0.75	1	0	0	0.5	1
8	>4 m	Mixed	0.5	0.25	1	1	0	0	1	1
9	>4 m	Coarse	1	0.25	0.75	1	0	0	1	1
10	>10 m	None	0	0	0.75	0.75	0	0	0	0.5
11	>10 m	None	0.25	0	0.75	1	0	0	0	1

Note- HT9-11 were developed and refined in response to DFO review (DFO, July 2012)

2.2.3 Life Function Weight

Consistent with the Meliadine NNLP method, in this HEP, life function weights were equal, at 0.25 each for spawning, nursery, foraging and overwintering.

2.2.4 Species Weight

The overall species weights used in this method sum to 1 across species, and are comprised of a biomass weighting and a fisheries value weighting:

Species weight = (biomass weight/2) x (fisheries weight/2)

These two components are described below.

2.2.4.1 Biomass Weight

In the case of the Meadowbank assessment, biomass weights for all areas onsite are based on the average proportional biomass observed in the Second Portage Lake and Third Portage Lake fishouts. These biomass proportions are site-specific and known with certainty, while fish surveys are relatively limited in other area lakes. Furthermore, for all mine-affected lakes other than Second Portage and Third Portage, fish assemblages are expected to change following the implementation of compensation measures that improve access between lakes. Specifically, these access improvements are proposed to facilitate the movement of arctic char from W3 into Wally, Vault and Phaser Lakes (see Section 5). All of these lakes would then have the potential to contain the same diverse species assemblages as found in Second and Third Portage Lakes (and many other regional lakes). It should be noted that few small-bodied fish have been caught in fish surveys to date; however they are conservatively assumed to be present in all lakes as they were common in stomach contents. For reference, studies conducted in each lake and the baseline biomass proportions observed in each study are shown in Table 2-5. Studies were not necessarily of equal fishing effort. Details of specific efforts in the 2012 supplementary surveys for which the reference report has not yet been developed, are described in the relevant sections throughout this document.

Table 2-5. Most detailed information available regarding fish populations (biomass, abundance or presence), reference study, biomass summary and method of determination for HEP biomass weighting for each lake at the Meadowank site examined in this NNLP. Biomass is presented as total weight for fished out areas, or by proportion of biomass in the most recent study (%) for other areas. LKTR = lake trout; RNWH = round whitefish; ARCH = arctic char; BURB = burbot; NNST = ninespine stickleback.

Lake/Pond	Biomass, abundance or presence-absence	Study	Biomass Summary	Biomass weight in HEP based on:
Second Portage Lake	Biomass	2008 Fishout Report	715 kg LKTR 74 kg RNWH 295 kg ARCH 30 kg BURB	Actual value
Third Portage Lake	Biomass	2010 Fishout Report	119 kg LKTR 87 kg RNWH 52 kg ARCH 25 kg BURB 0.03 kg NNST	Actual value
Vault Lake	Biomass	Appendix E; BAEAR, 2005	93% LKTR 7% RNWH	Fish composition will change after connection to Wally. 2PL+3PL average used in calculations.
Phaser Lake	Biomass	Appendix E; BAEAR, 2005	67% LKTR 32% RNWH 1% BURB	Fish composition will change after connection to Wally. 2PL+3PL average used in calculations.
Dogleg Pond	Biomass	Appendix E; AEM, 2010; BAEAR, 2005	40% LKTR 60% RNWH	Fish composition will change after connection to Second Portage Lake. 2PL+3PL average used in calculations.
Dogleg North Pond	Abundance	AEM, 2010; BAEAR, 2005	No fish	Fish composition will change after connection to Second Portage Lake. 2PL+3PL average used in calculations.
NP-2	Presence/absence	BAEAR, 2005	LKTR only	Fish composition will change after connection to Second Portage Lake. 2PL+3PL average used in calculations.

Lake/Pond	Biomass, abundance or presence-absence	Study	Biomass Summary	Biomass weight in HEP based on:
Wally Lake	Biomass	Appendix E	95% LKTR 5% RNWH	Fish composition will change after connection to W3. 2PL+3PL average used in calculations.
W3	Biomass	Appendix E	87% LKTR 10.6% RNWH 2.4% ARCH	N/A (no losses/gains in this area)

2.2.4.2 Fisheries Weight

Fisheries weights reflect the relative value of each species for subsistence fishing. There are no commercial fisheries in the project lakes area. Fisheries weights sum to 1 across species. The values used here were developed by Golder Associates (Table 2-6).

Table 2-6. Fisheries weightings for AEM's Meliadine site, as developed by Golder Associates and AEM, and applied to Meadowbank.

Species	Weight
Arctic char	0.50
Lake trout	0.25
Round whitefish	0.05
Burbot	0.05
Slimy sculpin	0
Ninespine stickleback	0
Lake cisco	0.05
Arctic grayling	0.10

2.2.5 Habitat Co-factor

The habitat co-factor represents any changes to non-mapped habitat quality (thermal, hydrological, biological or chemical regimes) that will occur in the fish habitat in question post-closure. The use of this factor is suggested by Dr. Ken Minns, and his suggested values as presented in a workshop for DFO in February, 2012 (Minns, 2012), are shown in Table 2-7.

Table 2-7. Habitat co-factor for various pre- and post-compensation scenarios, according to Minns, 2012.

Change in regime	Description	Pre-compensation factor	Post-compensation factor
Degradation (expected)	Thermal, hydrologic, chemical and/or biological regime shifts away from preferred state for fish habitat	1	> 0 and < 1
No change	-	1	1
Enhancement (anticipated or proposed)	Thermal, hydrologic, chemical and/or biological regime expected to shift towards preferred state for fish habitat	> 0 and < 1	1

While the habitat co-factor has not been used to date in practice in the arctic, it is an appropriate weighting when remediation of non-pristine lakes is proposed as compensation. When there is no change in habitat quality pre- and post-mining, the weighting is 1 for both loss and gain calculations. This factor is therefore not an integral part of any compensation calculation that does not affect water quality. In this assessment, the habitat co-factor is only included in calculations for one option in the contingency plan (see Section 7). The derivation of the co-factor values is on a site-specific basis, and is discussed in more detail in that section.

2.2.6 Access Factor

Minns (2012) suggests the use of an access factor when fish assemblages are expected to change between the pre- and post-compensation scenarios. According to Minns (2012), the access factor is 1 for any species present in the habitat area, and 0 for any species not present. Each species receives an access factor in both the pre- and post- calculations (Table 2-8). Therefore, the opening of access to a habitat area for a species post-closure (that did not have access pre-construction), results in a gain of habitat units. Similarly, the loss of access results in a loss of habitat units. These gains or losses may be complete (affect all species, e.g. conversion to a tailings storage facility), or partial (only some species are affected).

Note that presence or absence of a species pre-construction is based on monitoring studies in the affected habitat area, whereas presence or absence in the post-closure scenario is anticipated (to be confirmed after access is altered as part of compensation monitoring).

Table 2-8. Access factor applied to each species, pre- and post-compensation, based on presence/absence (or anticipated presence/absence, for post-compensation).

Scenario	Pre-compensation	Post-Compensation
Species Present	1	1
Species Not Present	0	0

2.2.6.1 Potential for impacts to resident fish populations

To date the access factor has not been used in NNLPs in the Arctic, but it may be a particularly valuable component in this setting. It is well known that increased species diversity can increase system productivity as a result of optimal resource use (Cleland, 2011). Many isolated lakes or ponds are found in the region of the Meadowbank minesite, and a number contain only one or two species of fish. Since different species utilize different habitat niches, the introduction of a species through access enhancements could result in an increase in the total fish population, provided an under-utilized habitat niche is available and is suitable for the new species.

In the context of the Meadowbank site, access enhancements are suggested to allow native fish species to populate areas that have historically become isolated (mainly, W3 to Wally, Vault and Phaser Lakes). In both of these cases, current large-bodied fish populations in the isolated lakes consist of round whitefish and lake trout. Planned enhancements to connecting channels and access to end-pit-overwintering habitat in Vault Lake will allow arctic char to populate these areas as well. This species assemblage occurs frequently in the region (e.g. Second Portage Lake, Third Portage Lake, Turn Lake, Tehek Lake, Inuggugayulik Lake, Amarulik Lake (BAEAR, 2005)).

Although sympatric populations of arctic char, lake trout and round whitefish commonly occur in this area, potential negative impacts on resident fish populations that may occur with the addition of char are examined and discussed here. While it is recognized that small-bodied fish species are likely present as well, the following discussion focuses on these three large-bodied fish, since they comprise >99% of fish biomass in Meadowbank area lake surveys and fish-out programs.

Not surprisingly, no information could be found in the published literature regarding species dynamics when arctic char are introduced into lake trout/round whitefish systems. In the absence of observational evidence, an examination of the potential for niche use overlap between these species may provide insight into possible effects at the population level.

Firstly, niche segregation and resource partitioning in arctic fish species have been documented through both observational and experimental studies in northern European lakes. For example, Amundsen et al. (2010) found that where they co-occur, arctic char, European whitefish and arctic grayling have distinctly separate patterns of macrohabitat and microhabitat use, as well as different diets. Haugen and Rygg (1996) discuss similar patterns in sympatric brown trout and arctic grayling populations.

Through 7+ years of surveys of fish populations in the Meadowbank area, including analysis of stomach content and stable isotopes, the trophic structure of fish populations has been well established. Lake trout occupy the apex predator position, and feed cannibalistically on juvenile lake trout as well as other small fishes. Round whitefish occupy littoral zones, feeding primarily on benthos at all life stages. Arctic char have been found to exhibit a pelagic lifestyle, and feed opportunistically on zooplankton, which has no other adult predator in these lakes. In general, the literature indicates that char are inferior competitors in populations with other large-bodied fishes (e.g. Forseth et al. 2003; Amundsen et al. 2010), suggesting that the provision of access for this species would not significantly impact the productivity of resident fish.

While it would have been optimal to compare trophic position of lake trout and round whitefish in the absence of char as well as in their presence, so as to examine habitat niche changes *a priori*, site specific studies regarding this effect have not been conducted at Meadowbank. However, Cott et al. (2011) studied trophic position of fish species in the Yellowknife, NWT area, and found that these lakes contained burbot and lake trout in the top trophic piscivores, northern pike as an intermediate piscivore, and lake whitefish as lower-trophic benthic feeders. Inferring from this information that lake trout and round whitefish occupy the same habitat niches in the absence of arctic char as in their presence, it may be assumed that introduction of char would not substantially impact production of other large-bodied fish.

Furthermore, a recent study indicated that benthic production does not appear to be coupled to pelagic production in Arctic lakes (Hershey et al. 2006). In this report, near-shore benthic invertebrates relied primarily on allochthonous production, and nutrient additions that increased phytoplankton density did not affect their growth. Along with the knowledge that char do not compete directly with other large-bodied fish for specific food resources, this information further indicates that supplies of nutrients for benthic littoral resources (food for round whitefish) and pelagic resources (food for arctic char) are different. Thus, the increased consumption of zooplankton by char is unlikely to even indirectly affect the availability of food resources for (e.g.) round whitefish.

Although the above discussion provides indication that char would not negatively impact lake trout and round whitefish, it is possible that arctic char may not themselves be productive in the newly accessible lakes. While this may not be an inherent factor in NNL planning using the common HEP method (because HEPs evaluate the productive capacity of a system based on habitat availability, not species interactions), the ability for a species to be productive in its new environment remains uncertain. To address this issue, reasons for the current lack of arctic char in these systems are discussed below.

While arctic char are present in a number of lakes near the Meadowbank site, specific reasons for their presence or absence are unknown. Hershey et al. (1999) suggest that lake trout may be outcompeting char in the Toolik Lake region of Alaska. This was confirmed through an analysis of landscape factors affecting fish species distribution in lakes. It was found that altitude (not a factor in the Meadowbank region) and lake depth predicted arctic char presence 92% of the time. Specifically, lakes > 6.2 m were predicted to

contain char. Deep pelagic zones as a habitat preference for char is supported elsewhere in the literature as well (Richardson et al. 2001). If this concept is extrapolated to the Meadowbank area, it may be that where lake depth is sufficient, char are able to fill the pelagic niche and most effectively compete with lake trout for food resources. This would explain their relative absence from lake areas with little deepwater habitat (Dogleg, Vault, Phaser and Wally Lakes). Following construction of the Portage and Vault Pits, deepwater habitat would be accessible for char in all areas where access enhancements are proposed, removing that potential restriction to their population productivity. Interestingly, in an experimental study, Forseth et al. (2003) identified niche segregation between arctic char and brown trout in sympatric enclosures, but no expansion of the arctic char niche in allopatric enclosures. It is indicated that this niche segregation may therefore be a learned behaviour, suggesting that char entering lake trout/round whitefish systems from lake trout/round whitefish/arctic char systems would be adept at functioning in the available pelagic niche. At the Meadowbank site, it has been noted that due to the relatively low abundance of char in project lakes, and lack of another zooplankton predator, char have little inter- or intraspecific competition for food resources (Cumberland, 2006), further supporting the idea of their successful expansion into adjacent isolated lakes.

It is recognized that little can be predicted with certainty regarding fish population dynamics following the introduction of this native species. However, follow-up monitoring studies will accompany access enhancements at the Meadowbank site. Data collected during implementation and post-flooding in these areas will provide valuable insight into populations structure changes following access enhancements. Not only is there potential for significant gains in productive capacity through this compensation option, but it would provide a unique opportunity to collect fundamental information which is lacking from the literature, and which would be beneficial to subsequent development projects in the region.

2.3 HEP EXAMPLE CALCULATION

An example calculation of habitat units for a theoretical lake using the above approach is presented in a memo to DFO dated June 7, 2012, and is provided in Appendix A.

SECTION 3 • HABITAT LOSSES

As discussed in Cumberland (2006), the project site encompasses a number of headwater lakes with limited connectivity and small drainage areas. Lakes in this region are ultra-oligotrophic and productivity and diversity are low in comparison to lakes further south. Limited information is available on habitat preferences of fish in this region, which increases the uncertainty in developing HEPs and HSI values. However, the quantification of fish populations and physical features of the project lakes undertaken for this assessment were rigorous. Aerial photography, underwater video imagery, field studies, application of available literature and professional experience were used to estimate the extents of the habitat types described in the Golder/AEM HEP (Section 2). The majority of these studies were completed for the original NNLP (Cumberland, 2006), and are further described in that document. Studies for the Dogleg Pond system were completed to support the Airstrip Extension (AEM, 2010a) (this project has since been revised to reduce the impacts into Third Portage Lake, and therefore does not require a NNLP), and fish surveys in the Vault Lake area (including Wally Lake and W3) were updated in 2011 and 2012 (Appendix E).

A number of modifications to minesite construction and operational plans have been introduced since the 2006 NNLP was developed. These have impacted the design of pits, dikes, roads and other in-water features, so that current and projected HADD areas differ slightly from those used in the 2006 assessment, and subsequent 2007 and 2009 amendments. Furthermore, the projected life-of-mine timescale has also been reduced, with the current closure date set for 2017, rather than the date of 2019. While this does not directly affect calculations of HADD, timing of losses and gains is a general consideration in NNL planning.

In 2012- 2013, AEM will be reconfiguring the waste rock pile that will result in a revision to the existing mine plan and closure plan. A revision of the plan will be submitted to the Water Board as soon as final engineered designs and planning are completed. As well, AEM is currently conducting an evaluation of water use, which is regulated under the NWB License A. AEM is revising its water management plan to reflect the new life of mine, anticipated improvement of mill recovery and to incorporate East Dike seepage. These modifications are not anticipated to impact fish or fish habitat and therefore are not addressed in the NNL Plan.

The following section presents the calculation of habitat units for the pre-construction scenario (losses) at the Meadowbank site. Habitat areas affected by major project activities are addressed in this NNLP. Several minor project activities were described in the 2006 NNLP, but because of neutral or positive impact on habitats, these were not included in the loss/gain calculations at that time.

Habitat unit calculations for losses to fish habitat at the Meadowbank site were conducted for three separate areas, to facilitate the use of historically accepted loss:gain ratios. These are: the Main Minesite Area, the Tailings Storage Facility (TSF) and the Vault Lake Area (see Figure 1-2).

3.1 MAIN MINESITE AREA

3.1.1 Description

The Main Minesite area is located in the immediate vicinity of mine infrastructure (see Figure 1-2). Construction of the Portage Pit and Goose Island Pit will impact portions of two lakes (Second Portage and Third Portage Lake). Features of the Main Minesite Area, including locations of pits, roads and dikes, are shown in Figure 3-1. To provide context, features are shown on an aerial photo of the Bay-Goose area (Figure 3-2).

The areas where HADD will occur in the Main Minesite Area encompass:

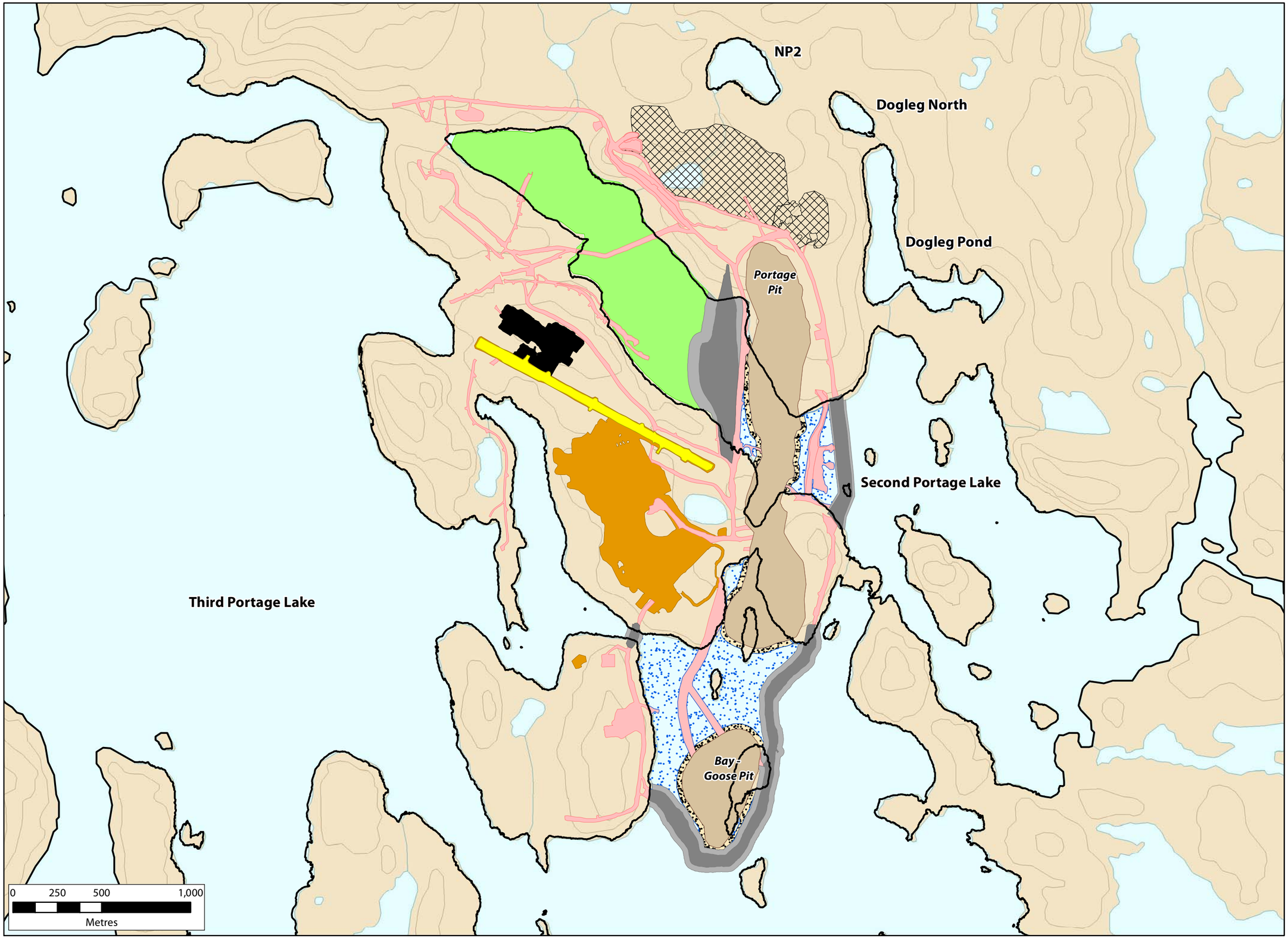
- The portion of Second Portage Lake between the East Dike and the Central Dike, including the dike footprints
- The Bay-Goose basin of Third Portage Lake, surrounded by the Bay-Goose Dike and the South Camp Dike, including the dike footprints

While the Tailings Storage Facility (TSF) is physically located in this area, TSF HADD is calculated and accounted for separately in this authorization to facilitate comparisons with historical documentation (Section 3.2). Aquatic habitat and baseline fish populations where HADD will occur in the Main Minesite Area are described below, and pre-construction habitat unit calculations (losses) are provided in Section 3.1.2.

3.1.1.1 Second Portage Lake

The area of Second Portage Lake impacted by mining activities is referred to as the “northwest arm”. At 144 ha, it is approximately 35% of the area of the lake. The northwest arm is separated from the remainder of Second Portage Lake by the East Dike, and contains the Tailing Storage Facility and a portion of the Portage Pit. These are separated from each other by the Central Dike. The TSF is the only portion of a Meadowbank lake to be completely infilled due to mining activities. With the exception of dike bases, all other habitat losses at Meadowbank are temporary, and will be re-gained post-closure through re-flooding of the dewatered basins. Losses from the TSF are calculated separately (see Section 3.2.2 below), but the area between the East Dike and the Central Dike (including their footprints) is included in loss/gain calculations as part of the Main Minesite Area.

A fish-out occurred in the northwest arm of Second Portage Lake in 2008, during the construction of the East Dike (a cut-off net was installed to isolate this basin during dike construction). At that time the area was found to contain 3073 fish, including 66% lake trout, 10% round whitefish, 16% Arctic char and 9% burbot (Azimuth, 2009). This area was dewatered between 2009 and 2011, and thus would be lost habitat if compensation plans were not implemented.



Legend

- Study Lakes
- Quarry
- Tailings Storage Facility
- Dike
- Dike Base
- Roads
- Pit
- Pit Cap
- Lake Basin
- Facility
- Airstrip
- Rock Facility

Features
Main Minesite Area

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ECOLOGICAL CONSULTING & DESIGN
77 Wyndham Street South • Guelph ON N1E 5R3
T 519.822.1609 • F 519.822.5389 • www.dougan.ca

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FIGURE:

3-1

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Bay Goose Basin
Conceptual Drawings

EXISTING CONDITIONS

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3-2

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3.1.1.2 Third Portage Lake

The area of Third Portage Lake where HADD will occur includes 102 ha, or approximately 2.8% of the area of the lake (3600 ha). This area is impounded by the Bay-Goose Dike, and the smaller South Camp Dike, to allow construction of the Portage and Goose Island Pits. Dewatering was completed in this area in 2012, and thus this area would be lost as fish habitat if compensation plans were not implemented.

This area was fished out in 2010, and contained 2139 fish, including 36% arctic char, 29% lake trout, 24% round whitefish, 11% burbot and a few ninespine stickleback (North-South Consultants Inc., 2011).

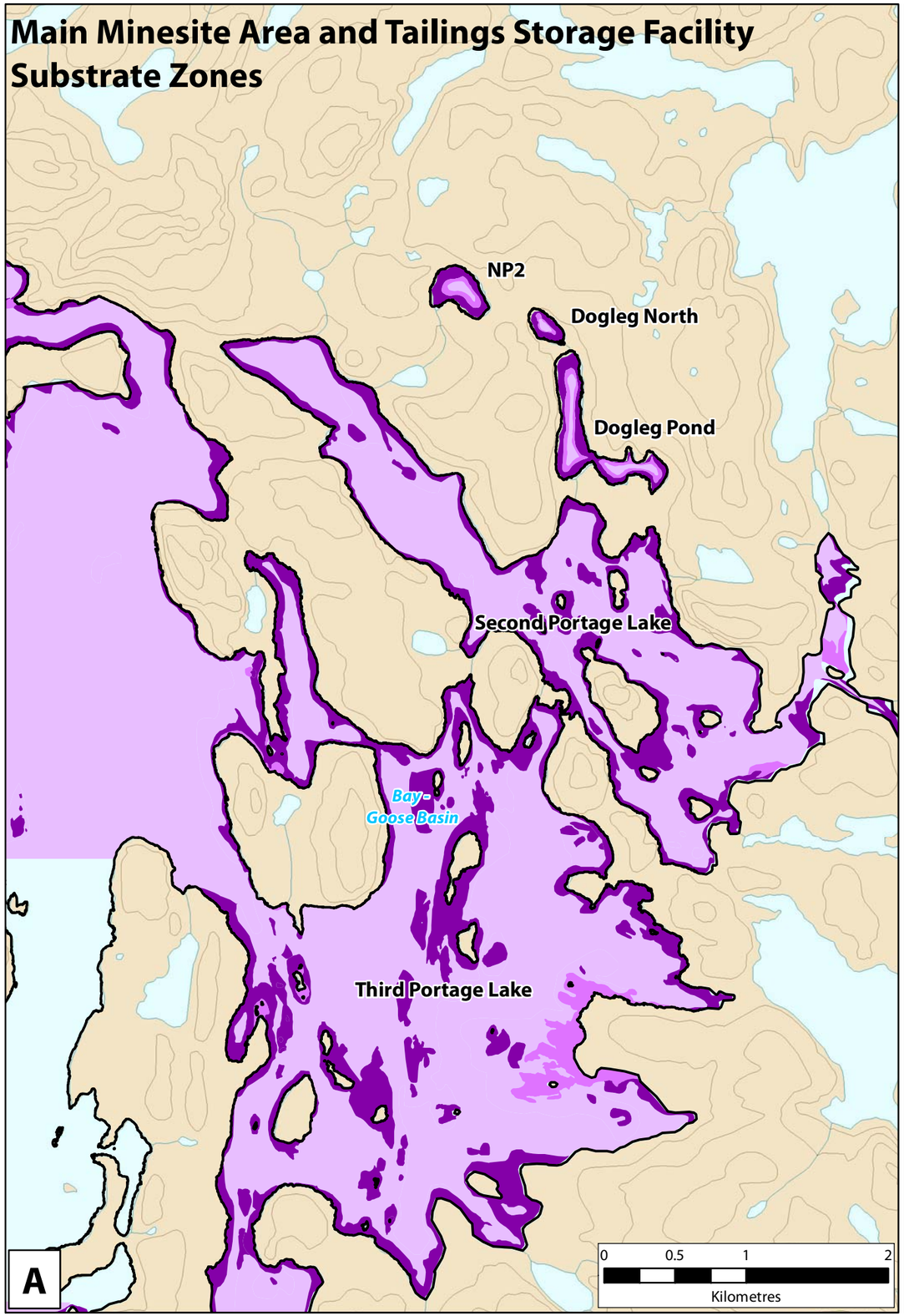
3.1.2 HU Calculation - Losses

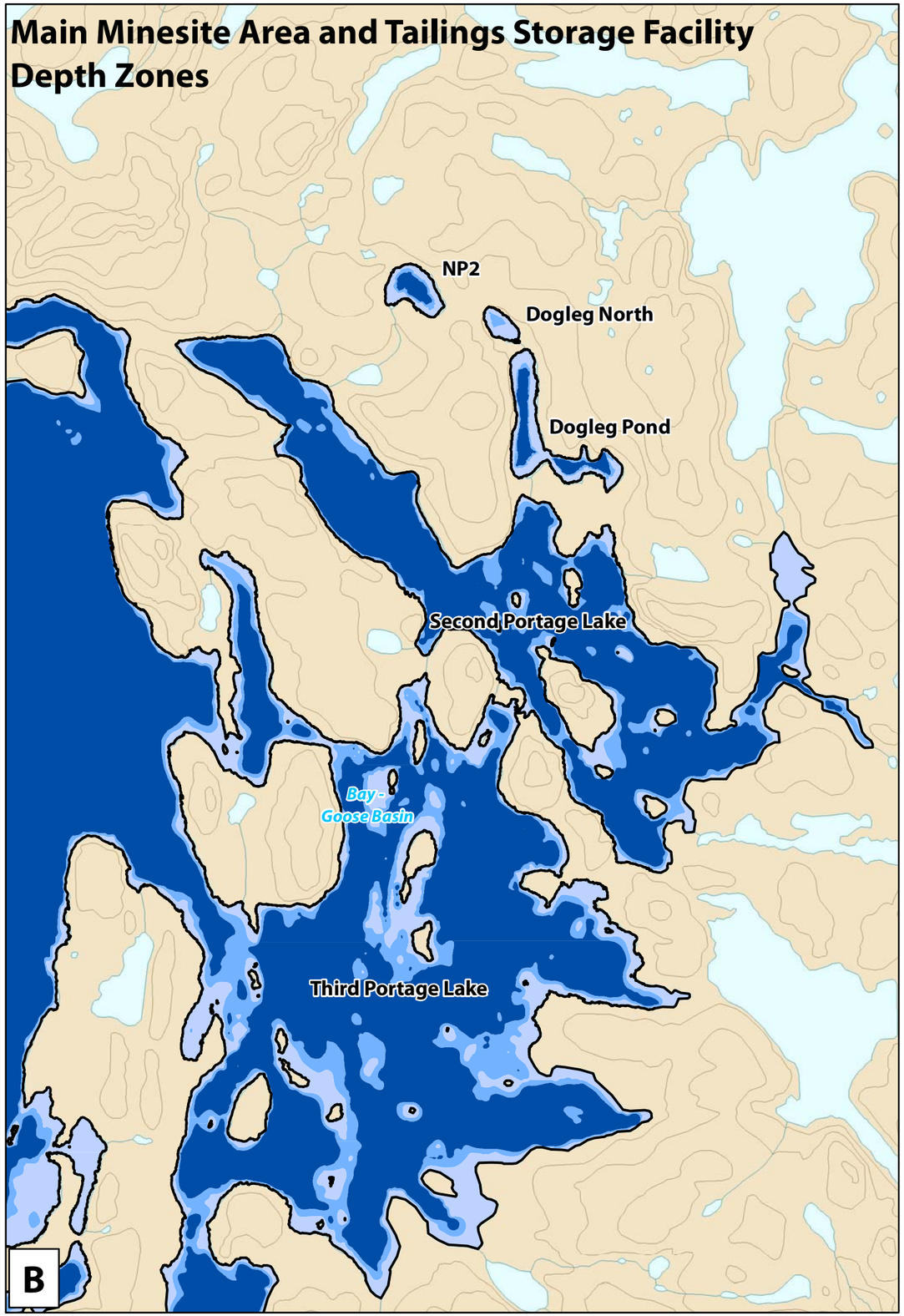
Substrate zones (fines, mixed, coarse) for the Main Minesite lakes, as determined by the method described in Section 2.2.1, are shown in Figure 3-3a. The majority of substrate in these deep lakes is fine grained, with coarse and mixed-grain substrate typically occurring around the shoreline. Note that although substrate and depth zones are shown for all areas surrounding the minesite to provide context, only those areas impacted by minesite features are included in loss/gain calculations.

The extents of the depth zones considered in this habitat assessment for the pre-construction scenario, calculated as described in Section 2.2.1, are shown in Figure 3-3b. Second Portage Lake reaches a depth of over 40 m (see Figure 1-2) in the area affected by mining. The Bay-Goose Basin of Third Portage Lake is somewhat shallower, with a maximum depth of about 20 m.

The extents of habitat types 1-11, as described in Section 3.2.1, were calculated by overlaying substrate and depth maps. Extents of each habitat type for the Main Minesite Area are shown in Figure 3-4. The majority of habitat in the Main Minesite Area is type 7 (>4 m, fine substrate).

A summary of the total habitat type areas and habitat units, calculated as described in Section 3.2, are shown in Table 3-1. The HU subtotal and total by species and minesite feature are provided in Appendix F.





Legend

- Study Lakes

Substrate Zone

- Fines
- Mixed
- Coarse

Depth Zone

- <2m
- 2-4m
- >4m

Substrate and Depth Zones
Pre-Construction

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FIGURE:

3-3

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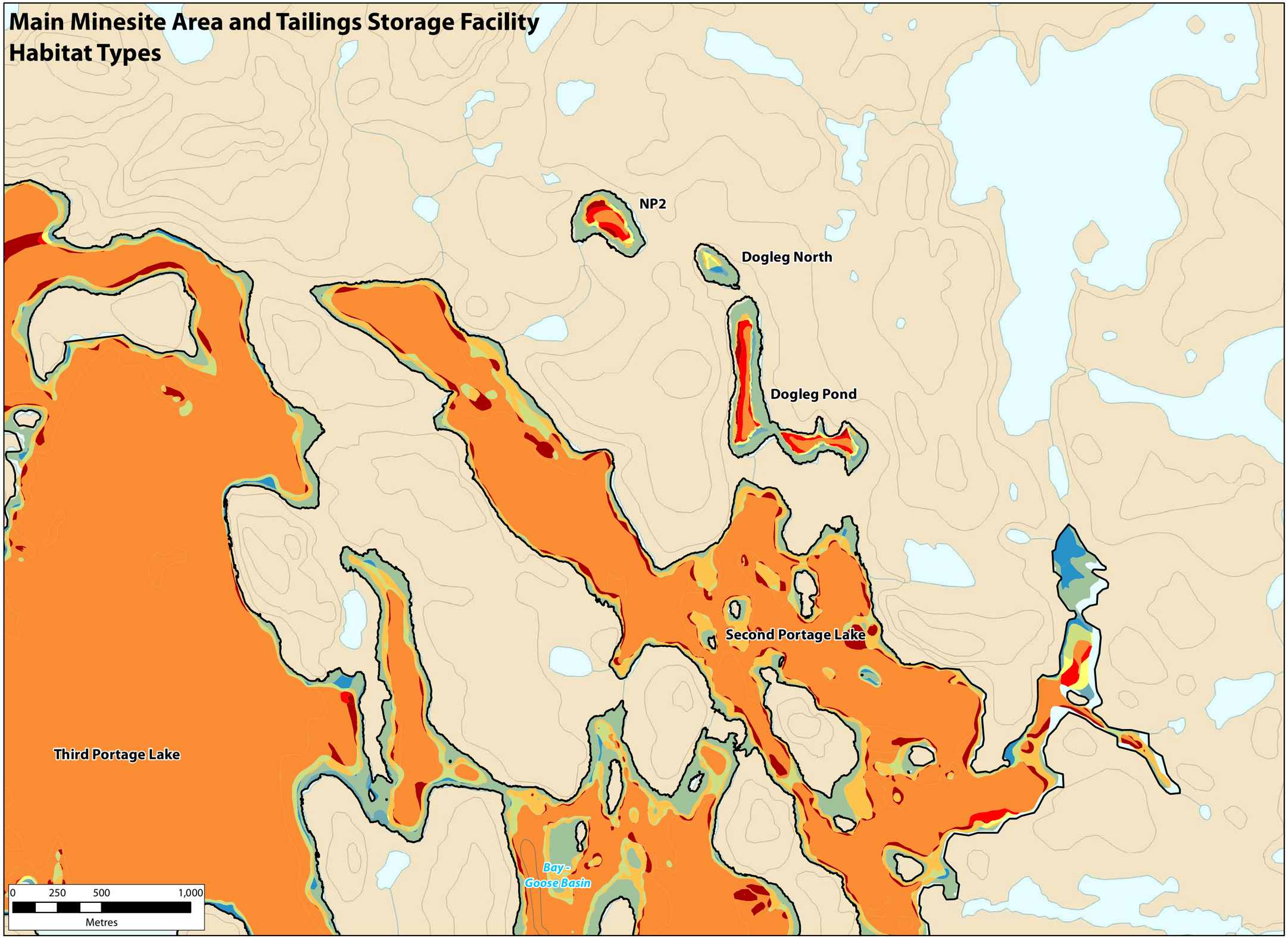
Main Minesite Area and Tailings Storage Facility
Habitat Types



Legend

Study Lakes

Habitat Type

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Habitat Type	Criteria	
	Depth Zone	Substrate
1	<2 m	Fines
2	<2 m	Mixed
3	<2 m	Coarse
4	2-4 m	Fines
5	2-4 m	Mixed
6	2-4 m	Coarse
7	>4 m	Fines
8	>4 m	Mixed
9	>4 m	Coarse

Habitat Types
Pre-Construction

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3-4

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Table 3-1. Pre-construction, or lost habitat type areas (ha) and habitat units (HUs) for the Main Minesite Area.

Habitat Type	Area (ha)	HUs
1	0.36	0.05
2	0.00	0.00
3	29.57	9.42
4	9.20	3.73
5	0.00	0.00
6	20.02	17.01
7	84.34	34.81
8	0.00	0.00
9	1.41	1.10
10	N/A	N/A
11	N/A	N/A
Total	**144.90**	**66.12**

3.2 TAILINGS STORAGE FACILITY

3.2.1 Description

The Tailings Storage Facility (TSF) encompasses the majority of the northwest arm of Second Portage Lake, west of the Central Dike (see Figure 3-1). It includes the areas commonly referred to as the Portage Attenuation Pond, the Stormwater Dike, and the North Cell Tailings Impoundment Area. Eventually the whole area west of Central Dike will form the Tailings Impoundment Area.

This area of Second Portage Lake was fished out in 2008, prior to dewatering. See Section 3.1.1 for a description of the resident fish population.

3.2.1 HU Calculation - Losses

Substrate zones (fines, mixed, coarse) for the TSF area, pre-construction, as determined by the method described in Section 2.2.1, are shown in Figure 3-3a. The majority of substrate in this area of 2PL is fine grained, with coarse and mixed-grain substrate typically occurring around the shoreline.

The extents of the depth zones considered in the TSF for the pre-construction scenario, calculated as described in Section 3.2.1, are shown in Figure 3-3b.
The extents of habitat types 1-11, as described in Section 3.2.1, were calculated by overlaying substrate and depth maps. Habitat types for the TSF area are shown in Figure 3-4. This area consists of a relatively mixed proportion of habitat types.

A summary of the total habitat type areas and habitat units, calculated as described in Section 3.2, are shown in Table 3-2. The HU subtotal and total by species and minesite feature are provided in Appendix F.

Table 3-2. Pre-construction, or lost habitat type areas (ha) and habitat units (HUs) for the Tailings Storage Facility (TSF).

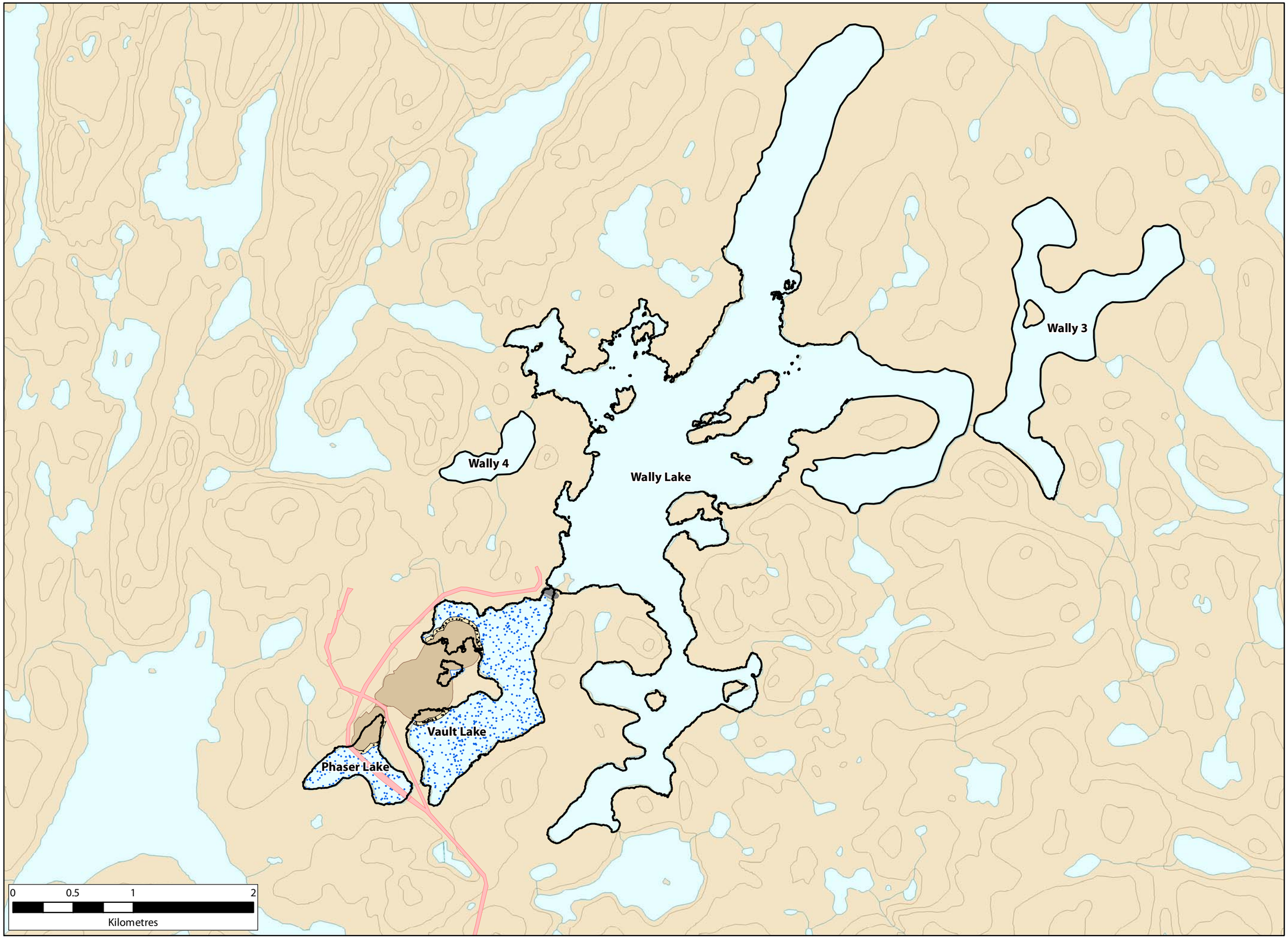
Habitat Type	Area (ha)	HUs
1	0.02	0.00
2	0.00	0.00
3	4.66	1.48
4	4.08	1.66
5	0.00	0.00
6	8.73	7.42
7	54.99	23.94
8	0.00	0.00
9	4.30	3.36
10	N/A	N/A
11	N/A	N/A
Total	**79.79**	**37.85**

3.3 VAULT LAKE AREA

3.3.1 Description

The footprint of mining activities in the Vault Lake Area is shown in Figure 3-5, including the location of pits, roads and dikes. HADD in the Vault Lake Area will occur in two lakes - Vault Lake and Phaser Lake. Both of these lakes are planned to be dewatered, the timing of which is currently being planned prior to development of the Vault Pit. The shallow passage between Vault Lake and the adjacent Wally Lake will be diked to provide hydraulic separation for these otherwise isolated lakes. A fish salvage program will be conducted prior to dewatering in Vault and Phaser Lakes. With DFO approval, all fish from Vault and Phaser Lakes will be transferred to Wally Lake or nearby waterbodies, helping to alleviate temporary losses in productive capacity in the area. A site specific fishout protocol will be developed in consultation with DFO representatives and implemented upon approval by DFO.

Both lakes are small in size, compared to the Portage lakes, at 94 ha and 25 ha, respectively. Vault Lake is connected via a semi-passable channel to the larger Wally Lake. One fish was observed crossing this passage in baseline studies (Azimuth, 2005). Adjacent to Vault Lake, Phaser Lake is small and isolated, with a maximum depth of 4-5 m. This lake was not included in the 2006 NNLP. However, based on current pit designs, this lake will now require dewatering, so it is included here in all HADD calculations.



Legend

- Study Lakes
- Dike
- Dike Base
- Roads
- Pit
- Pit Cap
- Lake Basin

Features
Vault Lake Area

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FIGURE:

3-5

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The fish populations of Vault and Phaser Lakes were examined briefly in a 2004 study for the BAEAR (Azimuth, 2005), and again in 2012 (Appendix E). Both lakes were found to contain populations of lake trout and round whitefish. A single burbot was found in Vault Lake in each study.

3.3.2 HU Calculation - Losses

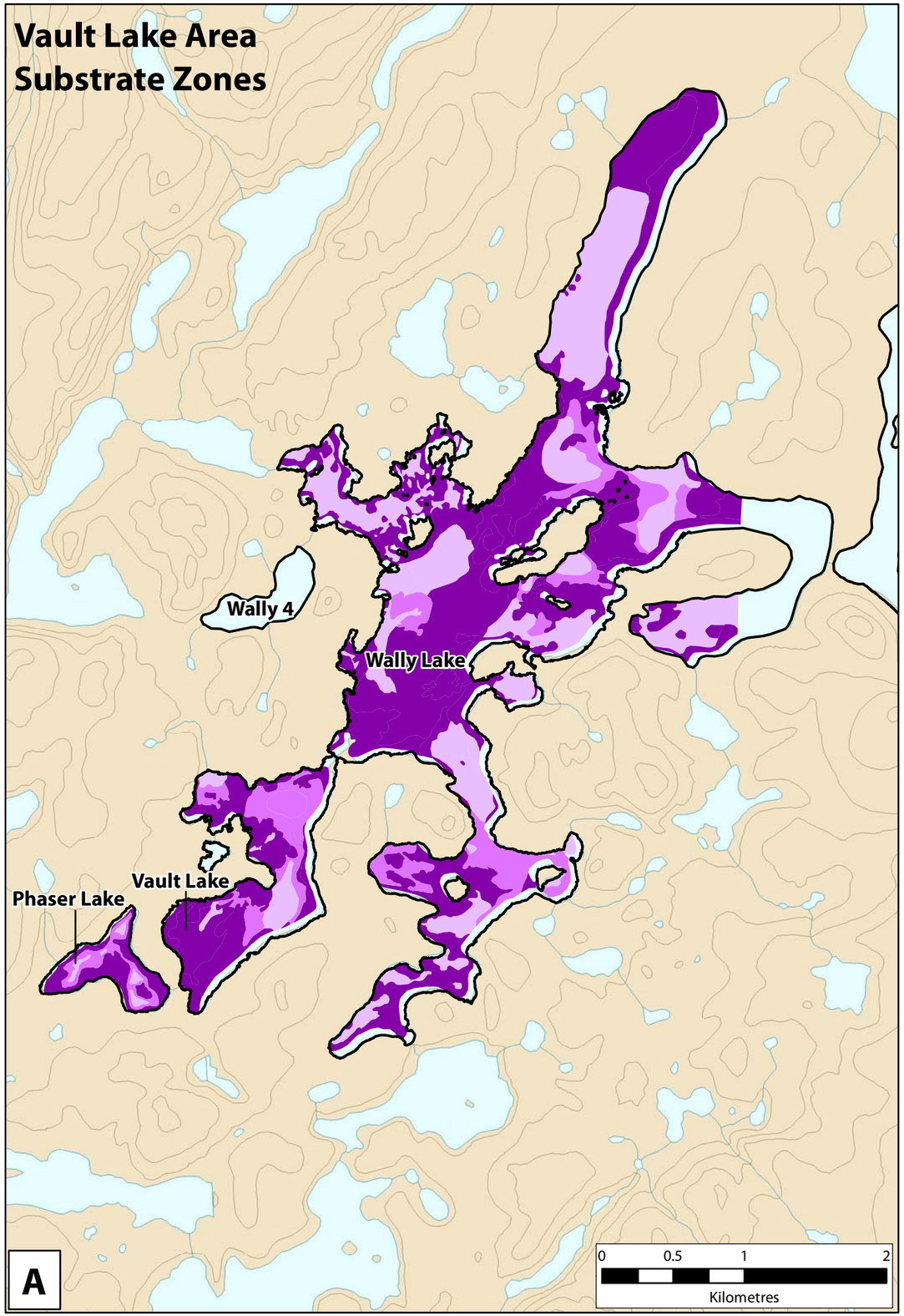
Substrate zones (fines, mixed, coarse) for Vault and Phaser Lakes, pre-construction, as determined by the method described in Section 2.2.1, are shown in Figure 3-6a. The majority of substrate in Vault Lake is fine grained, with coarse and mixed-grain substrate typically occurring around the shoreline. Substrate in Phaser Lake is primarily mixed.

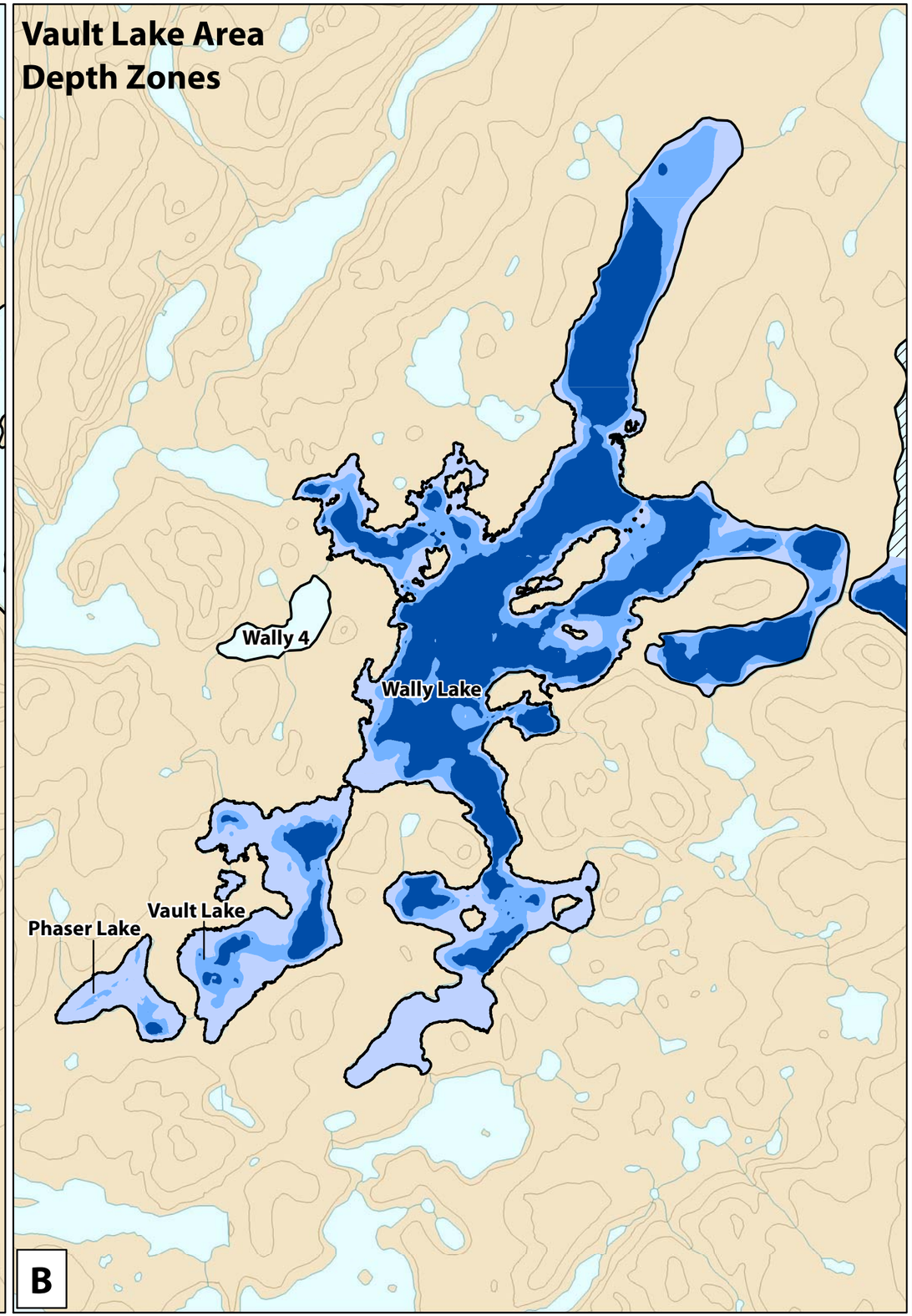
It should be noted that resolution differences between substrate maps and base maps for Vault Lake were found to produce an un-mapped zone around the south-eastern perimeter of the lake, for which HUs could not be calculated. Other than the habitat temporarily lost through de-watering, this area is unimpacted by mining activities, and would count equally in loss and gain calculations (re-flooding re-establishes this area as fish habitat identical to that available pre-construction).

The extents of the depth zones considered in the Vault Lake Area for the pre-construction scenario, calculated as described in Section 3.2.1, are shown in Figure 3-6b. Baseline depths in Vault and Phaser Lakes are moderate to shallow, compared to the Main Minesite Area lakes. A small area of Phaser Lake reaches a depth of 4-5 m, and the maximum depth in Vault Lake is approximately 9 m.

The extents of habitat types 1-11, as described in Section 3.2.1, were calculated by overlaying substrate and depth maps. Habitat types for the Vault Lake Area are shown in Figure 3-7. This area consists of a relatively mixed proportion of habitat types.

A summary of the total habitat type areas and habitat units, calculated as described in Section 3.2, are shown in Table 3-3. The HU subtotal and total by species and minesite feature are provided in Appendix F.





Legend

- Study Lakes

Substrate Zone

- Fines
- Mixed
- Coarse

Depth Zone

- <2m
- 2-4m
- >4m
- N/A

Substrate and Depth Zones
Pre-Construction

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FIGURE:

3-6

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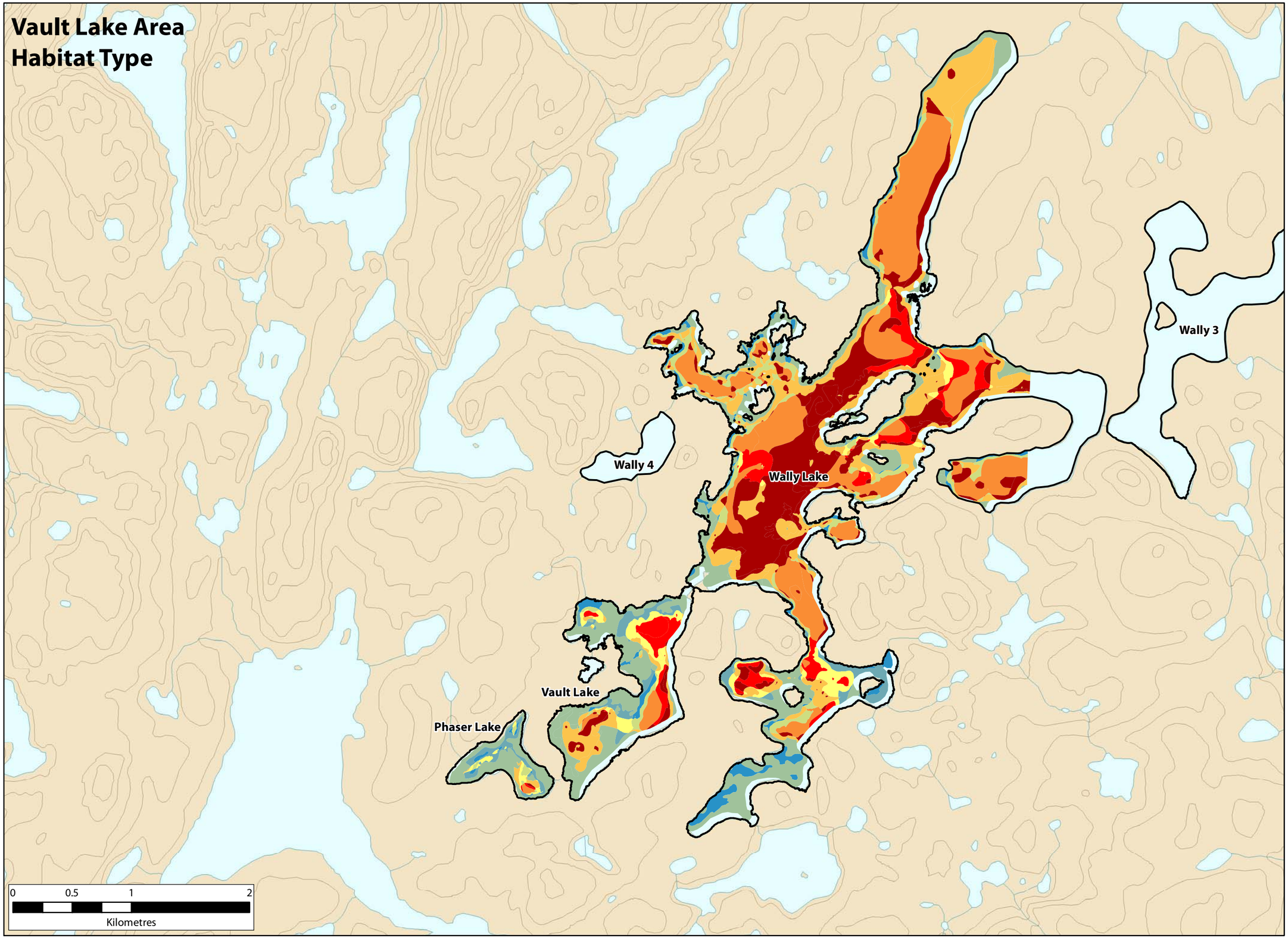
Vault Lake Area
Habitat Type



Legend

Study Lakes

Habitat Type

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Habitat Type	Criteria	
	Depth Zone	Substrate
1	<2 m	Fines
2	<2 m	Mixed
3	<2 m	Coarse
4	2-4 m	Fines
5	2-4 m	Mixed
6	2-4 m	Coarse
7	>4 m	Fines
8	>4 m	Mixed
9	>4 m	Coarse

Habitat Types
Pre-Construction

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FIGURE:

3-7

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Table 3-3. Pre-construction, or lost habitat type areas (ha) and habitat units (HUs) for the Vault Lake Area.

Habitat Type	Area (ha)	HUs
1	4.26	0.36
2	13.10	1.89
3	52.81	11.77
4	4.19	1.02
5	9.72	3.73
6	13.03	6.60
7	8.09	2.05
8	9.40	3.42
9	4.87	2.26
10	N/A	N/A
11	N/A	N/A
Total	**119.47**	**33.09**

3.4 SUMMARY

Total lost aquatic habitat at the Meadowbank site without compensation measures totals 344.16 hectares, or 137.07 HUs.

This includes 144.90 hectares, or 66.12 HUs in the Main Minesite Area, 79.79 hectares, or 37.85 HUs in the TSF, and 119.47 hectares, or 33.09 HUs in the Vault Lake Area.

SECTION 4 • HABITAT GAINS

In the 2006 NNLP and subsequent amendments, habitat gains for the Meadowbank site were largely to be obtained from re-flooding of dewatered basins and newly excavated pits. The construction of boulder gardens, reef and shoal features within the dewatered basins was proposed to increase habitat value. In addition, large (19 ha) finger dikes and habitat mounts were planned for in-water construction in Second and Third Portage Lakes to provide supplementary habitat gains pre-closure.

Re-flooding of the dewatered areas remains the primary compensation measure to be implemented at Meadowbank. However, based on the experience of AEM with in-water dike construction (see Azimuth, 2009), the supplementary compensation projects proposed previously (19+ ha finger dikes, sea mounts and shoals) were found to be technically challenging to construct in a manner without possible short-term impacts on the aquatic system. This updated habitat compensation plan therefore includes similar features, with modifications for improved constructability and reduced potential for impact to the receiving environment. Several additional compensation projects are proposed, and all are similar to compensation seen elsewhere in the north. Supplementary compensation projects include increased area of the Dogleg System; improved access between W3 and Wally Lake, and Wally and Vault Lakes; and the construction of finger dikes off the Bay-Goose Dike, as per the original NNLP.

The net gains from these supplementary onsite projects are added to the net gains from re-flooding to calculate the total number of habitat units to be gained through all compensation measures. All habitat gains are accomplished in the creation of like for like habitat compensation onsite. The details of each compensation feature and the calculation of gained habitat units are described below.

4.1 RE-FLOODING OF DEWATERED BASINS AND PITS

4.1.1 Context

As previously stated the major compensation measure is proposed for the Meadowbank site is the re-flooding of dewatered basins and associated pits following mining activities (see discussion of end pit lakes as fish habitat, Section 2.2.1). In order to provide the greatest loss:gain ratio possible, considerations for improving fish habitat have been incorporated into the basin and pit designs (e.g. boulder gardens, backfilling of deep pits). The following sections provide further details on these features and the calculation of habitat units gained through this process in each of the dewatered areas.

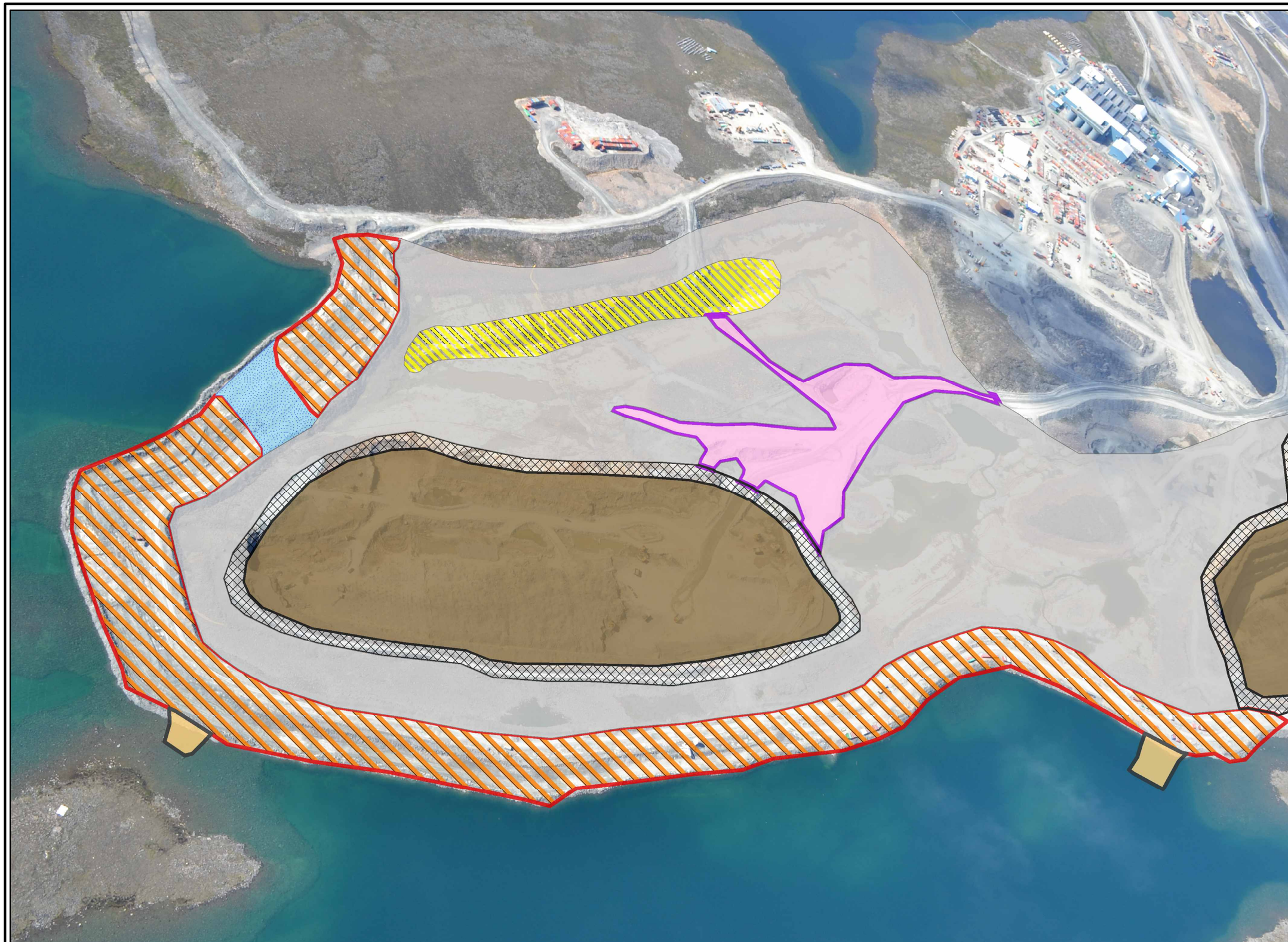
4.1.2 Main Minesite Area

4.1.2.1 Description

Post-closure, the Bay-Goose dike will be breached and the impounded area will be gradually re-flooded to re-gain the temporarily lost habitat. The portion of Second Portage Lake between the East Dike and the Central Dike will become part of Third Portage Lake, due to the land-to-lake conversion resulting from the Portage Pit construction. The East Dike will not be breached in order to maintain the current 1 m difference in elevation between Second Portage and Third Portage Lakes.

Prior to re-flooding, a number of habitat improvement measures will be implemented to increase the productive capacity of this area (Figure 4-1 A and B). Construction of a boulder garden feature along the west side of the soft-sediment Bay-Goose Basin will increase habitat suitability in this area. This feature will consist of approximately 2.97 ha of heterogeneous, coarse substrate habitat in the <4 m depth zone, just west of the Goose Island Pit. Further, construction of mine-related features (pit caps, roads and dikes) from coarse rock material throughout the basin will create new shoals and reefs after re-flooding. In addition, approximately 30% of the area of Portage Pit will be backfilled to a depth of 4-10 m during the construction phase, reducing the amount of ultra-deep water areas, and increasing habitat suitability in this area. A conceptual figure of the Bay-Goose basin area after re-flooding is shown in Figure 4-2.

As a result of changes from construction and compensation projects, habitat units post-closure in this area are different from those pre-construction. A description of each of the Main Minesite features, and the changes occurring to habitat types in each feature footprint, post-closure, is provided in Table 4-1, to indicate how post-closure habitat type areas were calculated.



Legend

Post-Closure Features

- Capped roadways
- Dike to remain
- Finger dike
- Breach in dike
- Free dump boulder garden
- Mixed substrate basin
- Pit
- Pit capping

Bay Goose Basin
Conceptual Drawings

POST-CLOSURE FEATURES

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FIGURE:

4-1a

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Bay Goose Basin
Conceptual Drawings

POST CLOSURE
FEATURES
PRE-FLOODING

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FIGURE:
4-1b

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Legend

- Dikes
- Island
- Re-flooded area

Bay Goose Basin
Conceptual Drawings

POST CLOSURE FEATURES POST-FLOODING

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FIGURE:

4-2

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Table 4-1. Features of the Main Minesite (as shown on Figure 3-1) and details of the assumptions used to calculate habitat type areas associated with each feature, post-closure. In addition, for all areas of Second and Third Portage Lakes, post-closure water levels were assumed to equal current water levels in Third Portage Lake (134 masl).

Lake	Feature Name	Description of Feature	Description of Habitat Post-Closure
Second Portage Lake (2PL)	Basin	Area of the current lake bed between East and Central Dikes that is not covered by any other feature	Placement of coarse material for temporary dewatering roads throughout this area will create mixed sediment substrate at depths based on pre-construction contours
	Portage Pit in 2PL	Portion of Portage Pit that overlays 2PL	Backfilled with coarse substrate to 4 - 10 m to provide increased habitat suitability
	Portage Pit in 2PL Cap	Safety set-back of coarse material around outside of Portage Pit in in-water portion of 2PL, used to protect pit edge from sediment; *design pending -assumed width similar to dike sides*	Cap area provides coarse substrate shoal habitat; no change in depth
	Roads	Road and adjacent parking pad between pit and East Dike; *assume bottom width = top width and no change in depth zones*	Simulated reef habitat (coarse substrate)
	Central Dike	Dike on west side of Portage Pit, divides TSF from 2PL basin; gains occur on east side only (west side is permanent loss); *assume base width is 2x top width and area calculated based on 2:1 slope*	Face provides simulated reef habitat (coarse substrate)

Lake	Feature Name	Description of Feature	Description of Habitat Post-Closure
Second Portage Lake (2PL)	East Dike	Dike on east side of Portage Pit, divides dewatered area from rest of 2PL; *assume base width is 2x top width and area calculated based on 2:1 slope*	Face provides simulated reef habitat (coarse substrate)
Third Portage Lake (3PL)	Basin	Area of the current lake bed between the mainland and Bay-Goose Dike that is not covered by any other feature	Placement of coarse material for temporary dewatering roads throughout this area will create mixed sediment substrate at depths based on pre-construction contours
	Portage Pit in 3PL	Portion of Portage Pit that overlays 3PL	All habitat types change based on pit excavation depths; all substrate is coarse; > 10m is HT 11
	Portage Pit in 3PL Cap	Safety set-back of coarse material around outside of Portage Pit in in-water portion of 3PL; *design pending - assumed width similar to dike sides*	Cap area provides coarse substrate shoal habitat; no change in depth
	Portage Pit Land-to-Lake	Portion of Portage Pit that overlays land, including areas south and north of 2PL	Middle portion (23.52 ha) backfilled to 4 - 10 m to provide increased habitat suitability. For all other areas, habitat types change based on pit excavation depths; all substrate is coarse; > 10 m is HT 11
	Goose Pit	Portion of Goose Pit that overlays 3PL	All habitat types change based on pit excavation depths; all substrate is coarse; > 10 m is HT 11
	Goose Pit Cap	Safety set-back of coarse material around outside of Goose Pit in in-water portion of 3PL; *design pending - assumed width similar to dike sides*	Cap area provides coarse substrate shoal habitat; no change in depth
	Goose Pit Land-to-Lake	Portion of Goose Pit that overlays land (Goose Island)	All habitat types change based on pit excavation depths; all substrate is coarse; > 10 m is HT 11

Lake	Feature Name	Description of Feature	Description of Habitat Post-Closure
Third Portage Lake (3PL)	Road	As-built road between minesite and Goose Pit; *assume > 4 m below water surface and bottom width = top width*	Simulated reef habitat (coarse substrate)
	Bay Goose Dike	Largest dike in 3PL; *assume base width is 2x top width and area calculated based on 2:1 slope*	Face provides simulated reef habitat (coarse substrate)
	South Camp Dike	Small dike between Third Portage Lake and Bay-Goose Basin; *assume base width is 2x top width and area calculated based on 2:1 slope*	Face provides simulated reef habitat (coarse substrate)
	Dike Breach	Sections of the Bay-Goose and East Dikes will be removed to re-flood the pits; *assuming 100 m wide breach to a depth of 2-4 m*	Dike top becomes submerged to a depth of 2-4 m, providing simulated reef habitat (coarse substrate)
	Free-dump boulder garden	2.97 ha between Goose Island Pit and South Island	Placement of coarse substrate waste rock in this area during construction creates boulder garden features; no change in depth zones

4.1.2.2 HU Calculation - Gains

Substrate zones (fines, mixed, coarse) for the Main Minesite Area were determined by the method described in Section 2.2.1, with the modifications described in Table 4-1. Substrate zones post-closure are shown in Figure 4-3a. A higher proportion of coarse and mixed substrate is present as a result of pit development and construction of roads and boulder gardens in formerly fine-substrate basins.

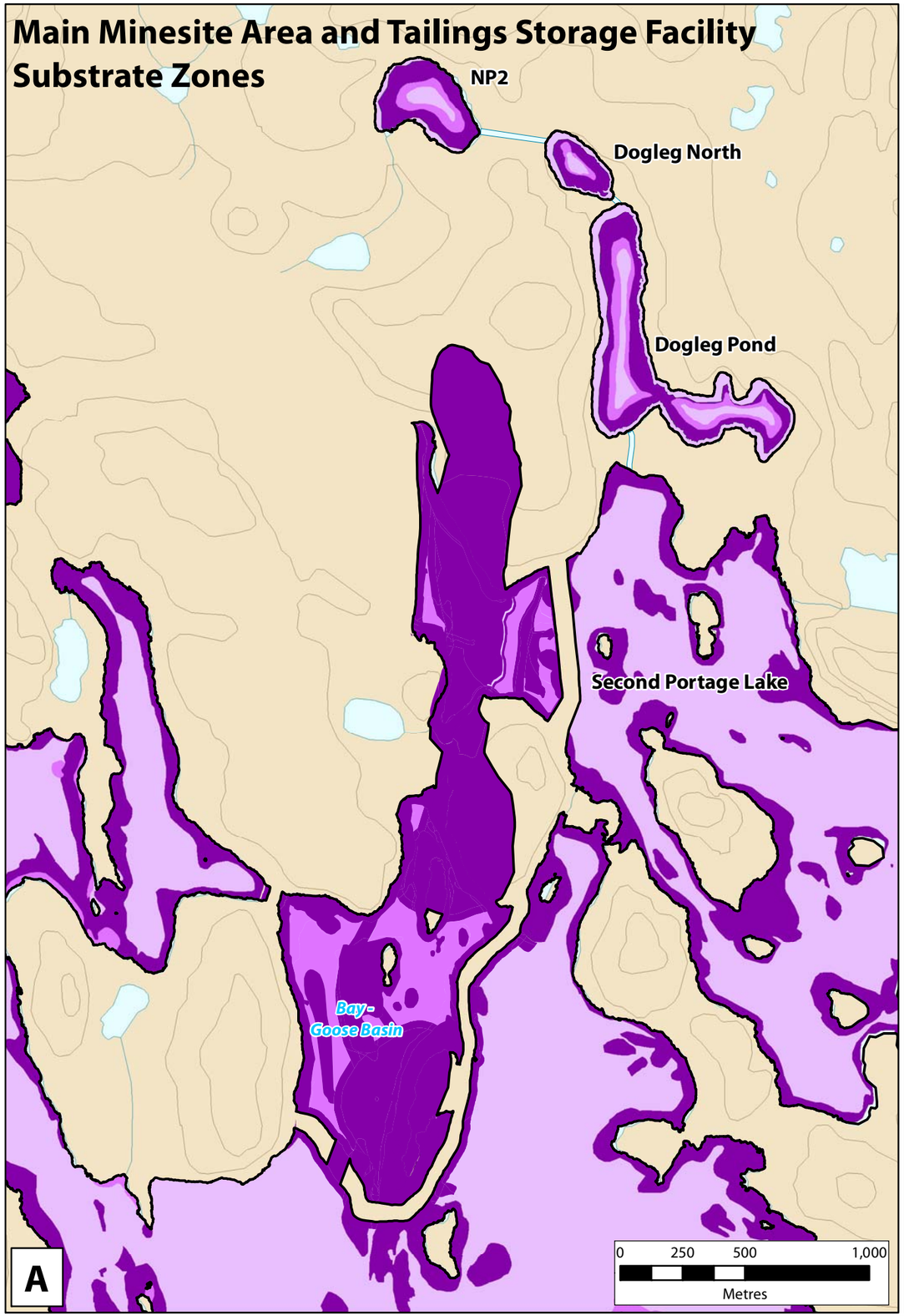
The extents of the depth zones considered in this habitat assessment for the post-closure scenario were calculated as described in Section 2.2.1, with the modifications shown in Table 4-1. Post-closure depth zones are shown in Figure 4-3b. As a result of pit development, maximum depths in this area increase to 229 m. Areas >10 m deep in pits have reduced HSIs in this assessment (see Section 2.2.2) to reflect the lack of benthic habitat.

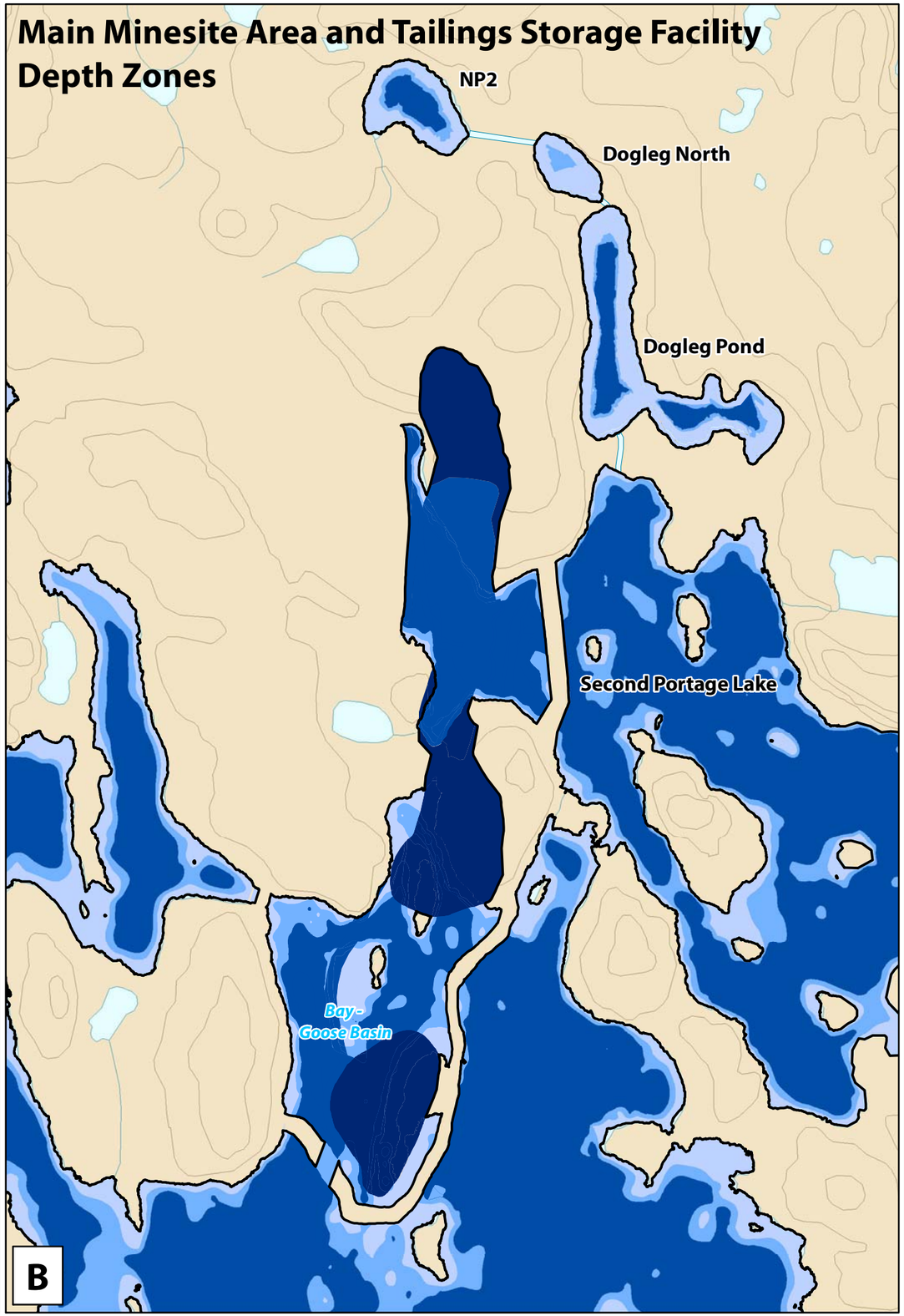
The extents of habitat types 1-11, as described in Section 2.2.2, were calculated by overlaying post-compensation substrate and depth zones. Post-compensation habitat types for the Main Minesite Area are shown in Figure 4-4. The majority of habitat in the Main Minesite Area post-closure is type 9.

Habitat units were calculated as described in Section 2. A summary of the total gained habitat units are shown in Table 4-2. The HU subtotal and total by species and minesite feature are provided in detail in Appendix F, and are summarized in Section 6.

Table 4-2. Net habitat units (HUs) gained through re-flooding in the Main Minesite Area. Pre-compensation HUs are 0 since there would be no fish habitat in this area without re-flooding.

Habitat Type	Pre-compensation HUs	Post-compensation HUs	Net Gain HUs
1	0	0.00	0.00
2	0	0.01	0.01
3	0	5.33	5.33
4	0	0.00	0.00
5	0	2.06	2.06
6	0	11.11	11.11
7	0	0.00	0.00
8	0	13.67	13.67
9	0	33.39	33.39
10	0	0.00	0.00
11	0	28.60	28.60
Total	**0**	**94.18**	**94.18**





Legend

- Study Lakes (Post-Closure)

Substrate Zone

- Fines
- Mixed
- Coarse

Depth Zone

- <2m
- 2-4m
- 4-10m
- >10m

Substrate and Depth Zones
Post-Closure

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FIGURE:

4-3

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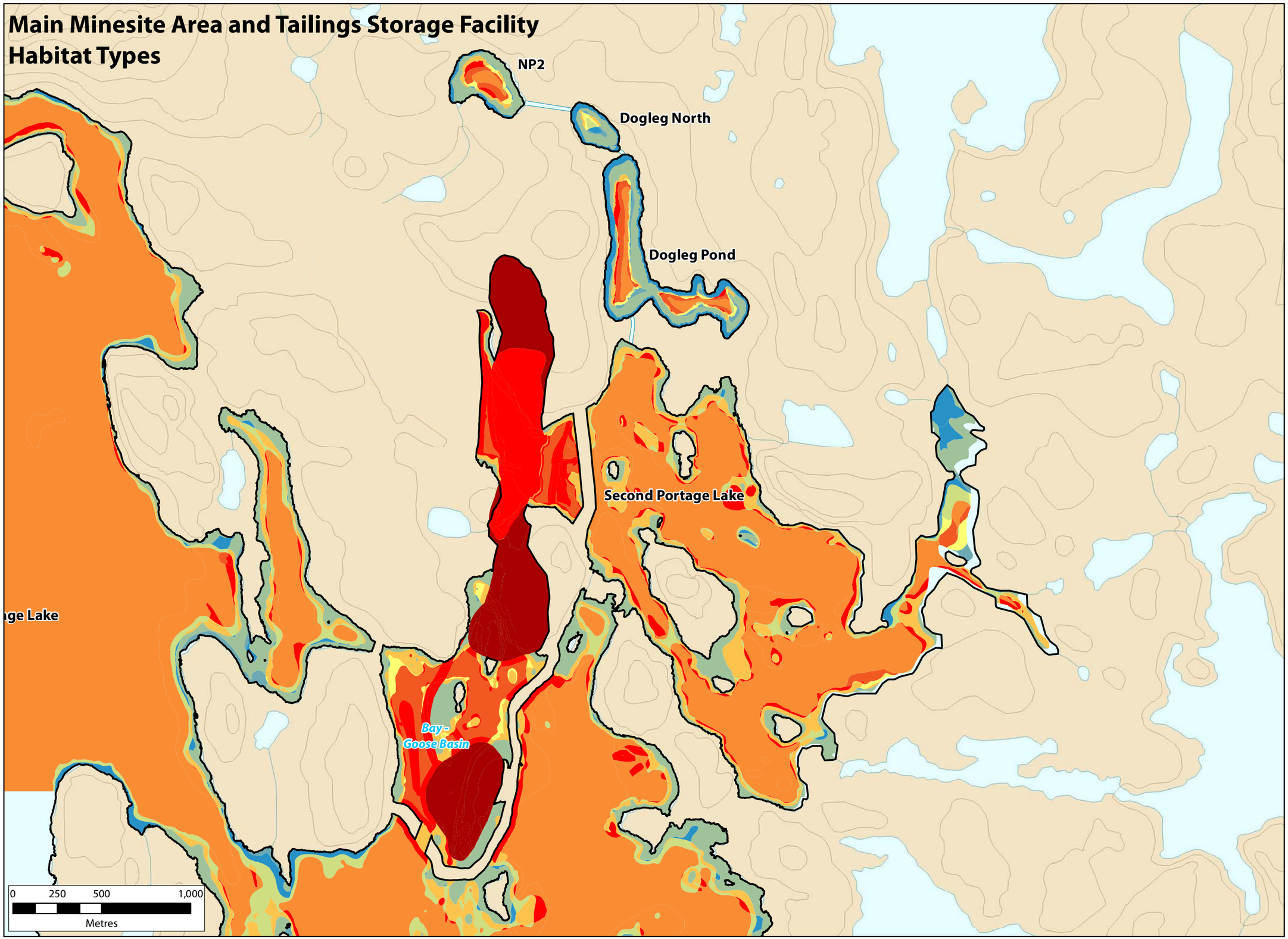
Main Minesite Area and Tailings Storage Facility
Habitat Types



Legend

Study Lakes (Post-Closure)

Habitat Type

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 11

Habitat Type	Criteria	
	Depth Zone	Substrate
1	<2 m	Fines
2	<2 m	Mixed
3	<2 m	Coarse
4	2-4 m	Fines
5	2-4 m	Mixed
6	2-4 m	Coarse
7	>4 m	Fines
8	>4 m	Mixed
9	>4 m	Coarse
11	>10 m	Coarse

Habitat Types
Post-Closure

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FIGURE:

4-4

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4.1.3 Vault Lake Area

4.1.3.1 Description

After mining, Vault Pit will connect Vault and Phaser Lakes, and the Vault Dike will be breached to allow both lakes to gradually re-fill. Once these lakes are hydraulically and chemically stable (see Golder, 2005) and meet water quality requirements, the Vault Dike will be removed, allowing fish from Wally Lake access to Vault and Phaser Lakes.

Post-closure alterations to Vault and Phaser Lakes will result from construction of pits, pit caps, roads and dikes (as seen in Figure 3-5). Both lakes will be expanded as a result of land-to-lake conversion in the Vault Pit. Backfilling of a portion of the pit (3.94 ha) in Phaser Lake to 2-4 m depth will reduce the amount of ultra-deep areas. However, the un-filled portion of the pit will actually provide improved overwintering habitat, which is limited in these relatively shallow lakes. Further habitat improvements in these lakes will be made through development of shoals due to permanent roadway construction, areas of mixed substrate from temporary haul roads, and the improvement of the connecting channels between Vault and Wally Lakes, and Vault and Phaser Lakes, to allow fish movement. In particular, the connection to Wally Lake will provide access for arctic char (after connection to W3), which currently are not present in Vault and Phaser Lakes. This specific compensation project was discussed in Section 2.2.6 and is discussed further in Section 4.2.4. Improvement of the connection to Wally Lake will involve deepening the channel inside the Vault Dike to a depth of at least 3 m, while the lake is dewatered, to allow fish passage year-round after removal of the dike. The features of Vault and Phaser Lakes post-closure are described in Table 4-3.

Table 4-3. Features of the Vault Lake Area and details of the changes and assumptions used to calculate habitat type areas for each feature, post-closure.

Lake	Feature Name	Description of Feature	Description of Habitat
Vault Lake	Basin	Area in Vault Lake that is not covered by other features	Placement of coarse material for temporary roads will result in mixed substrate throughout basin area at depths based on pre-construction contours
	Vault Pit-Vault portion	Portion of Vault Pit that overlays Vault Lake	All habitat types changed based on pit excavation depths; all substrate is coarse; > 10m is habitat type 11
	Vault Pit Cap – Vault portion	Safety set-back of coarse material around outside of Vault Pit in in-water portion of Vault Lake; *design pending - assume width similar to dike sides*	Cap area provides coarse substrate shoal habitat; no change in depth
	Vault Pit Land-to-Lake – Vault portion	Portion of Vault Pit – Vault portion, that overlays land	All habitat types change based on pit excavation depths; all substrate is coarse; > 10 m is habitat type 11
	Vault Dike	Dike between Vault and Wally Lakes	Face provides simulated reef habitat on the Wally Lake side during construction. To be completely removed post-closure.
Phaser Lake	Basin	Area in Vault Lake that is not covered by other features	Placement of coarse material for temporary roads will result in mixed substrate throughout basin area at depths based on pre-construction contours
	Vault Pit – Phaser portion	Portion of Vault Pit that overlays Phaser Lake	Backfilled to 2-4 m to provide increased habitat suitability; all substrate is coarse

Lake	Feature Name	Description of Feature	Description of Habitat
Phaser Lake	Vault Pit Cap – Phaser portion	Cap around outside of Vault Pit in in-water portion of Phaser Lake; *design pending - assumed width similar to dike sides*	Cap area provides coarse substrate shoal habitat; no change in depth
	Vault Pit Land-to-Lake – Phaser portion	Portion of Vault Pit – Phaser portion, that overlays land	Habitat types change based on pit excavation depths; all substrate is coarse; > 10 m is habitat type 11
	Roads	Haul road to run north-south across Phaser Lake	Simulated coarse substrate reef habitat at pre-construction depth

4.1.3.2 HU Calculation - Gains

Substrate zones (fines, mixed, coarse) for the Vault Lake area, post-closure, as determined by the method described in Section 2.2.1, and incorporating the changes detailed in Table 4-3, above, are shown in Figure 4-5a. Post-closure, changes to substrate occur through pit and road development, creating areas of coarse and mixed sediment in previously fine-grained basins.

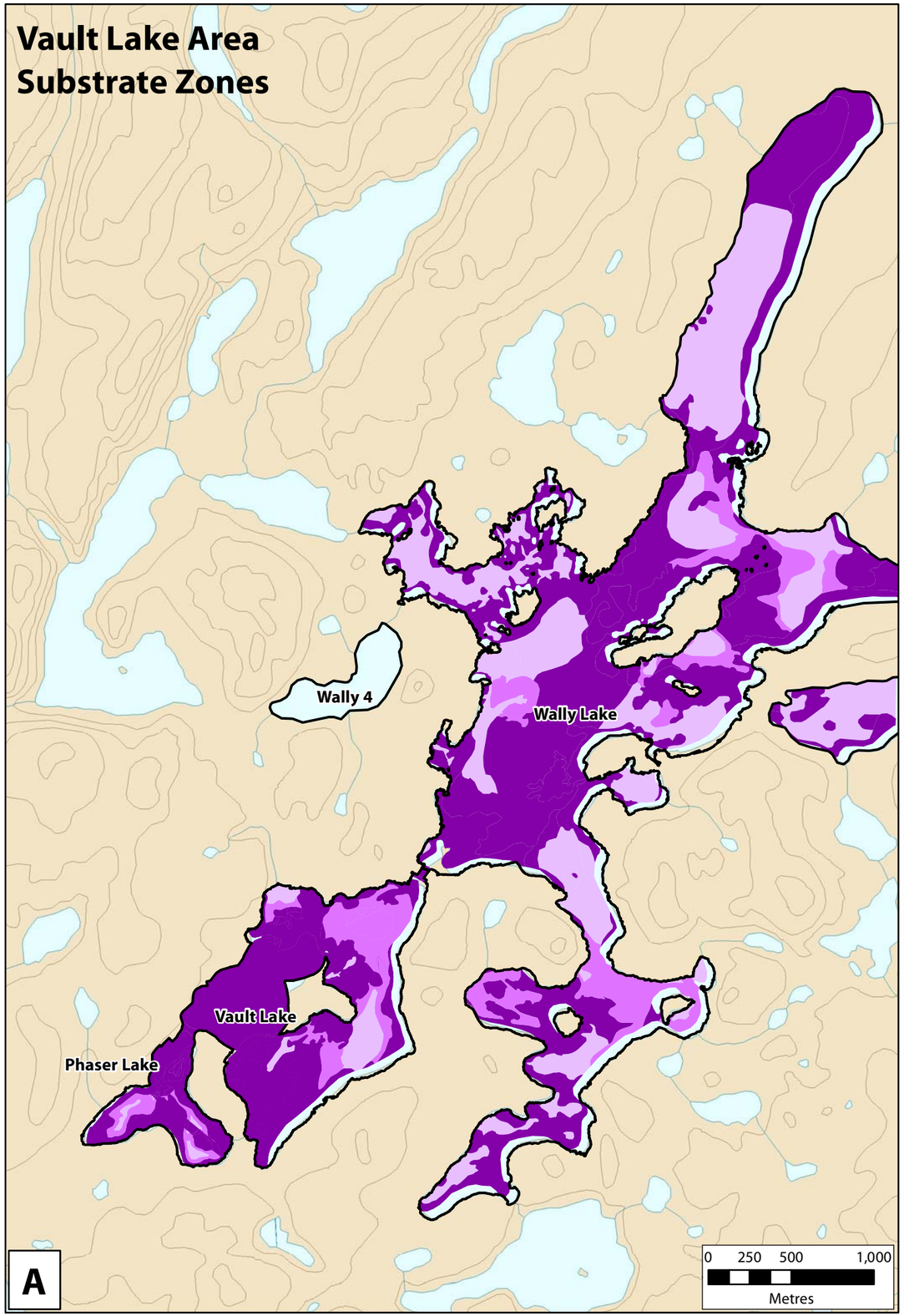
The extents of the depth zones considered in the Vault Lake Area for the post-closure scenario, calculated as described in Section 2.2.1, are shown in Figure 4-5b. Pit development will provide enhanced overwintering habitat, which is not abundant in this area.

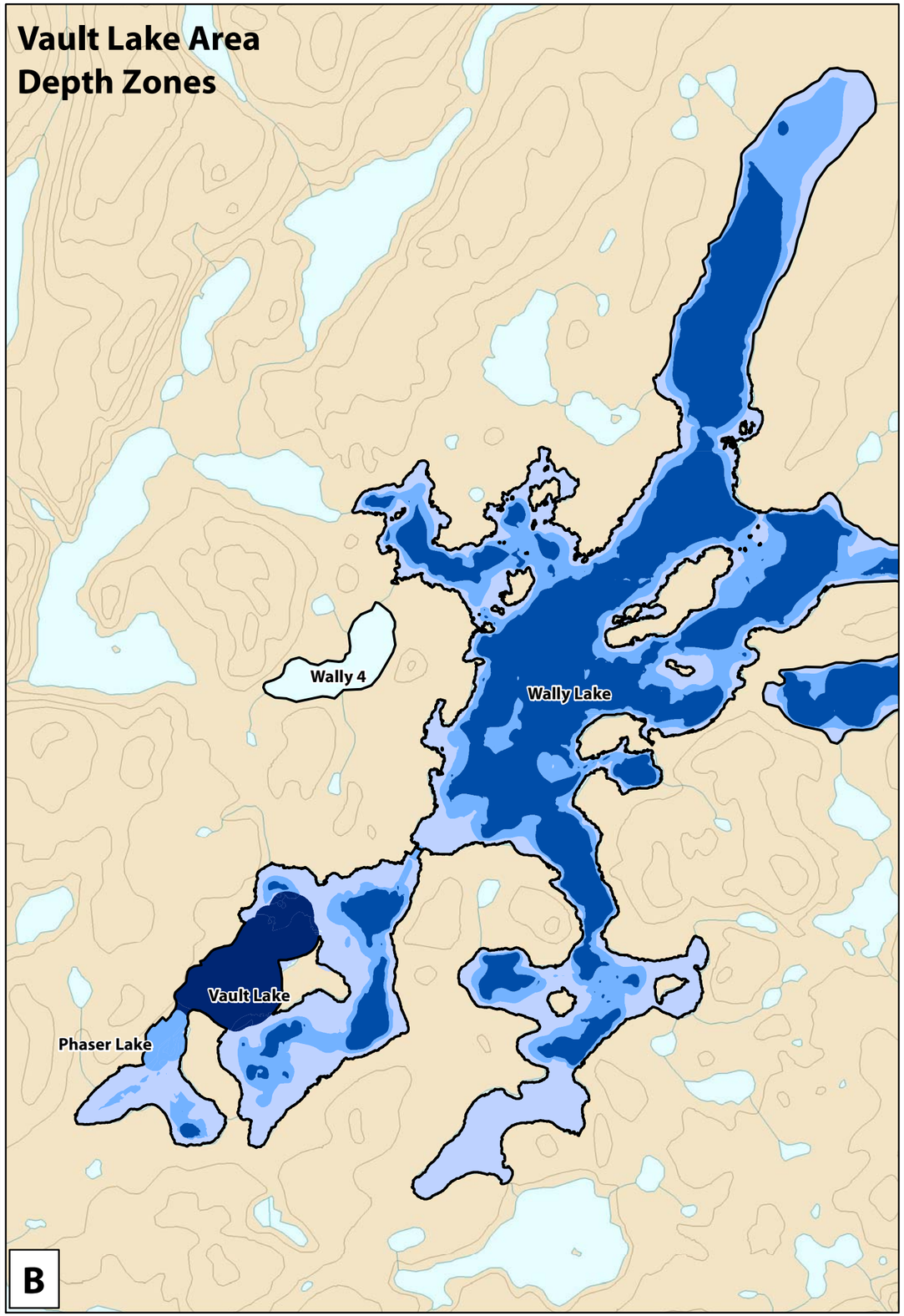
The extents of habitat types 1-11, as described in Section 2.2.1, were calculated by overlaying substrate and depth maps. Habitat types for the Vault Lake Area are shown in Figure 4-6. Post-closure, this area will consist of coarse- and mixed-grain habitat, without changes in depth zones other than non-backfilled pit areas.

A summary of the total habitat type areas and habitat units, calculated as described in Section 2.2, are shown in Table 4-4. The HU subtotal and total by species and minesite feature are provided in Appendix F.

Table 4-4. Net habitat units (HUs) gained through re-flooding in the Vault Lake Area. Pre-compensation HUs are 0 since there would be no fish habitat in this area without re-flooding.

Habitat Type	Pre-compensation HUs	Post-compensation HUs	Net Gain HUs
1	0	0.00	0.00
2	0	2.19	2.19
3	0	10.89	10.89
4	0	0.00	0.00
5	0	4.89	4.89
6	0	10.44	10.44
7	0	0.00	0.00
8	0	6.34	6.34
9	0	2.31	2.31
10	0	0.00	0.00
11	0	11.79	11.79
Total	**0**	**48.84**	**48.84**





Legend

Study Lakes (Post-Closure)

Substrate Zone

- Fines
- Mixed
- Coarse

Depth Zone

- <2m
- 2-4m
- 4-10m
- >10m

Substrate and Depth Zones
Post-Closure

DOUGAN & ASSOCIATES
ECOLOGICAL CONSULTING & DESIGN
77 Wyndham Street South • Guelph ON N1E 5R3
T 519.822.1609 • F 519.822.5389 • www.dougan.ca

PROJECT: DA11-062-02

CLIENT: Agnico-Eagle Mines Ltd., Meadowbank Div.

N W E S
UTM Zone 14 NAD83

DATE: OCTOBER 2012

SCALE: 1:30,000

DRAWN BY: LC

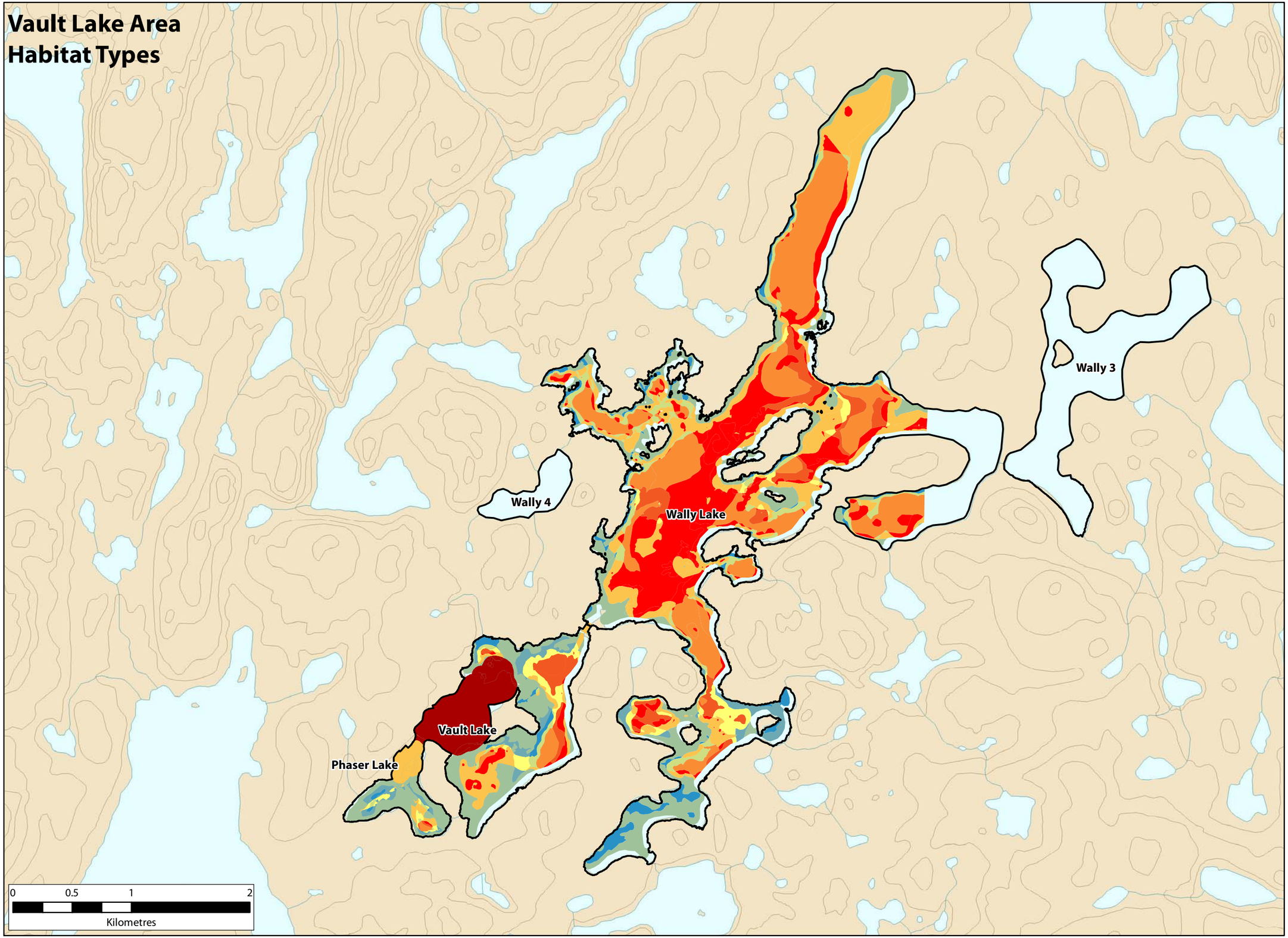
CHECKED BY:

FIGURE:

4-5

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations, features, or roads, nor as a guide to navigation. MNR data provided by Queen's Printer of Ontario. Use of the data in any derivative product does not constitute an endorsement by the MNR or the Ontario Government of such products.

Vault Lake Area
Habitat Types



Legend

Study Lakes (Post-Closure)

Habitat Type

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 11

Habitat Type	Criteria	
	Depth Zone	Substrate
1	<2 m	Fines
2	<2 m	Mixed
3	<2 m	Coarse
4	2-4 m	Fines
5	2-4 m	Mixed
6	2-4 m	Coarse
7	>4 m	Fines
8	>4 m	Mixed
9	>4 m	Coarse
11	>10 m	Coarse

Habitat Types
Post-Closure

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PROJECT: DA11-062-02

CLIENT: Agnico-Eagle Mines Ltd., Meadowbank Div.

N
W E
S
UTM Zone 14 NAD83

DATE: OCTOBER 2012

SCALE: 1:30,000

DRAWN BY: LC

CHECKED BY:

FIGURE:

4-6

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations, features, or roads, nor as a guide to navigation. MNR data provided by Queen's Printer of Ontario. Use of the data in any derivative product does not constitute an endorsement by the MNR or the Ontario Government of such products.

4.1.4 Summary of Gains from Re-flooding

The implementation of these compensation measures (re-flooding of the dewatered areas after construction of the described habitat features) will achieve a net gain of 143.02 HUs of aquatic habitat.

This includes 94.18 HUs in the Main Minesite Area and 48.84 HUs in the Vault Lake Area.

4.2 DOGLEG SYSTEM CONNECTING CHANNEL

4.2.1 Description

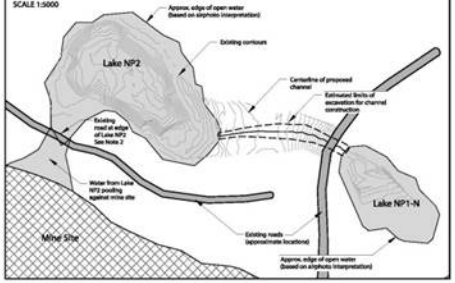
Dogleg Pond and the "North Portage" ponds, Dogleg North Pond and NP-2, are isolated ponds located near the waste rock area, just north of Second Portage Lake. They are the only shallow ponds considered in this area, with a maximum depth of 11 m in Dogleg Pond. Dogleg North Pond reaches about 3.8 m in depth, and NP-2 has a small area of about 5 m depth. The project described below was not specifically developed as compensation, but has integrated habitat compensation with water management to result in a small net gain of fish habitat.

NP-2 formerly drained into the TSF area of Second Portage Lake, while Dogleg and Dogleg North drain towards the main body of Second Portage Lake. Since drainage of NP-2 became blocked by the waste rock pile on the northern edge of the TSF, a connecting channel will be excavated to direct flow from NP-2 to Dogleg North (Figure 4-7, effectively increasing the drainage area of Dogleg and Dogleg North Pond. The accompanying increase in wetted area is 5% for Dogleg Pond, 15% for Dogleg North Pond, and 5% for NP-2.

Physical and ecological features of Dogleg Pond, Dogleg North Pond and NP-2 were examined as part of the Baseline Aquatic Ecosystem Report in 2005 (Azimuth, 2005). Currently all three are isolated with respect to fish movement. A gillnet survey in 2003 found populations of lake trout in Dogleg Pond (then called NP-1) and NP-2. The pond now called Dogleg North Pond (then unnamed) was observed to be fishless. Follow-up surveys of fish populations (with gillnets), habitat types (with underwater video) and bathymetry (with field measurements) were completed for Dogleg Pond and Dogleg North Pond in 2010 as part of the original Airstrip Extension proposal that has since been altered to reduce impacts into Third Portage Lake (AEM, 2010). Further fish surveys were completed in Dogleg Pond and NP-2 in 2011 and 2012 (Appendix E). Identical to the methods in Vault, Phaser and Wally, fine mesh index gill nets were used to quantitatively determine the species composition, size and catch-per-unit-effort (CPUE; # fish/100 m/hr) in Dogleg Pond. Panels of 25, 38, 51, 76, 102 and 126 mm stretch mesh gill nets were attached to one another in this order to create gangs of nets. Gangs were set with varying set times and durations. Nets were left for less than one day to provide daytime and overnight capture, after which time they were removed. A total of 17 hours of fishing effort was conducted to determine the presence of lake trout and round whitefish in Dogleg Pond. Lake trout only were caught in NP-2 during 2011 fish surveys.

KEY PLAN

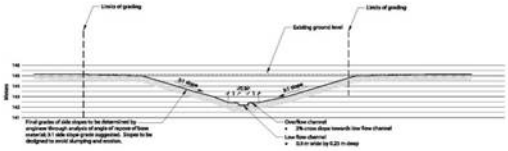
SCALE 1:5000



SECTION AA': PROPOSED CHANNEL CROSS SECTIONAL PROFILE

SCALE 1:200

NO VERTICAL EXAGGERATION



NOTE: Measurements are given in meters; actual elevations to be determined by an engineer to meet hydrological targets set by fisheries biologist to achieve fish habitat objectives.

NOTE 1: GENERAL

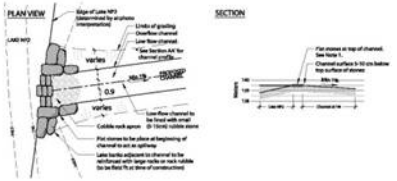
1. Channel design shown on this drawing is conceptual. Specifications and details for construction to be provided by an engineer, including special provisions and any operational constraints for construction in cold climate (i.e. permafrost)
2. Elevation of high point of channel at Lake NP2 has been approximated. Actual high point of channel to be determined by an engineer to ensure drainage, flow, and depth targets set by fisheries biologist are achieved.
3. Elevation of channel outlet at Lake NP1-N has been approximated. Actual outlet to be determined by an engineer to ensure drainage, flow, and depth targets set by fisheries biologist are achieved. Outlet to be field fit at time of construction to ensure smooth transition from sloped channel to lake level.
4. All debris, garbage and surplus material to be removed from the site. Keep the site clean and usable at all times.
5. Location for surplus rock produced through channel excavation shall be determined by engineers. Rock piles shall be sited to not disrupt water flow or fish habitat.

NOTE 2: EXISTING ROADS

1. Location of road running between Lakes NP2 & NP1-N is approximate. Culvert location to be field fit at time of construction. Cross slope of channel to be 5% maximum.
2. Culvert size to be determined by project engineers to accommodate anticipated flows.
3. Water from Lake NP2 is percolating through existing road at edge of Lake NP2 and pooling against mine site. Edges of existing road at Lake NP2 should be made impermeable to prevent water from pooling against mine site and promote water flow towards constructed channel. Method used to create impermeable barrier to be determined by engineers.

DETAILS

SCALE 1:200

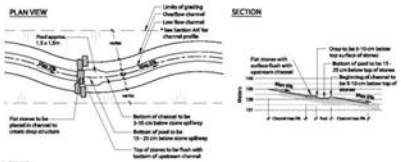


NOTES

1. Beginning of channel to be lined with flat stone. Actual elevations to be determined by an engineer to meet hydrological targets set by fisheries biologist to achieve fish habitat objectives.
2. Beginning of channel to be lined with cobble rock apron.
3. Average water level of lake to be confirmed on site and channel elevation to be field fit as appropriate.

1 TOP OF CHANNEL AT LAKE NP2

N.T.S.

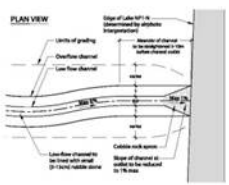


NOTES

1. Stone drop structures to be created using flat stone placed flush with the upstream channel bed.
2. Pools to be approx. 1.5 x 1.5 m in size, low-flow channel to return to 0.9 m width after pool.
3. Bottom of pools to be 15 - 25 cm below top of stones.
4. Where channel resumes, bottom of channel to be 5 - 10 cm below top of stones.
5. 5-10 drops & pools to be installed along channel section 2.
6. Drops & pools to be min. 10m apart.
7. No meanders or drops & pools 5m upstream or downstream of culvert (to be installed under existing roadway).

2 STONE DROPS & POOLS

N.T.S.



NOTES

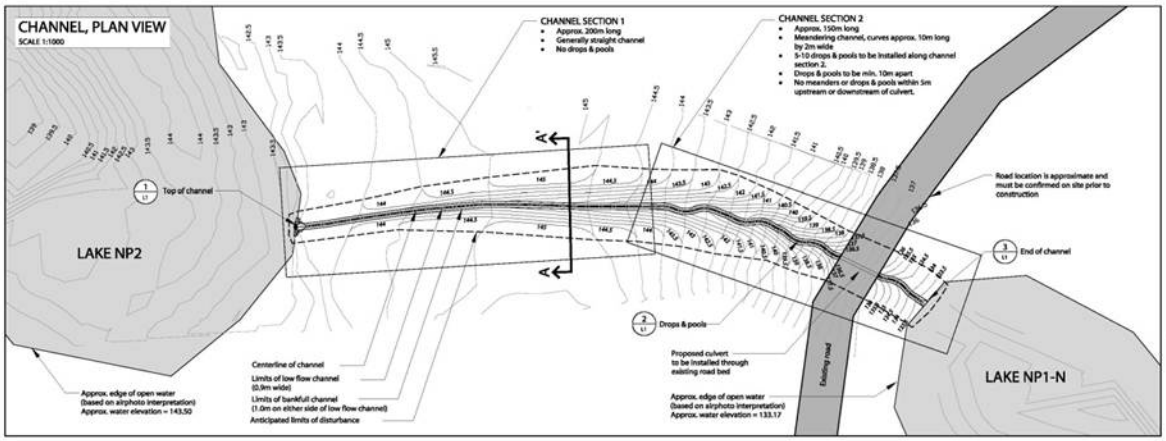
1. End of channel to be lined cobble rock apron.
2. Average water level of lake to be confirmed on site and elevation at end of channel to be field fit as appropriate.

3 END OF CHANNEL AT LAKE NP1-N

N.T.S.

CHANNEL, PLAN VIEW

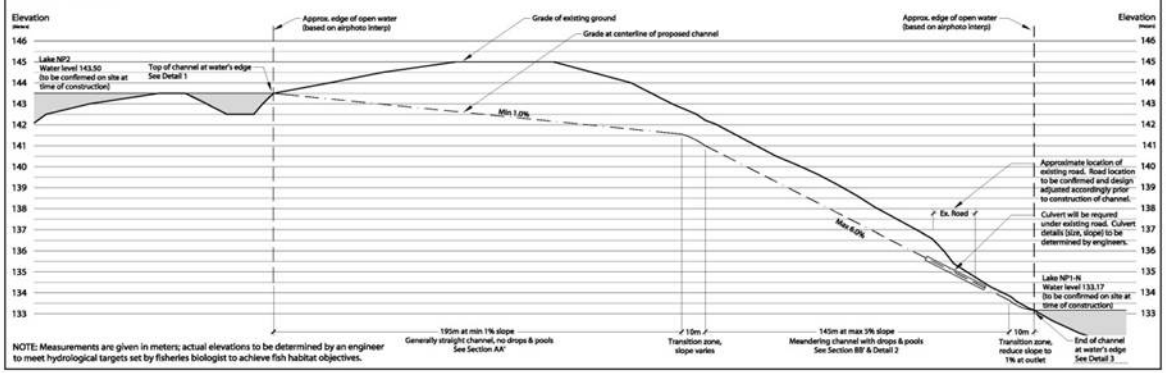
SCALE 1:1000



CHANNEL, SECTION VIEW

HORIZONTAL SCALE 1:1000

10x VERTICAL EXAGGERATION



NOTE: Measurements are given in meters; actual elevations to be determined by an engineer to meet hydrological targets set by fisheries biologist to achieve fish habitat objectives.

CONCEPTUAL CHANNEL DESIGN

Project: No Net Loss Mapping Nunavut DA11-062-01

Client: Agnico-Eagle Mines Ltd. Meadowbank Division

DOUGAN & ASSOCIATES
ECOLOGICAL CONSULTING & DESIGN
77 Wyndham Street South • Guelph ON N1E 5R3
T 519.822.1600 • F 519.822.5280 • www.dougan.ca

North

Date: 2012-01-06

Scale: VARIES, AS SHOWN

Drawn By: MAY

Checked By: TF

Figure Number:

4-7

Through construction of the diversion channel, connectivity between the ponds would be improved, and previously inaccessible habitat in Dogleg North Pond[1] would be available for use by lake trout and round whitefish currently inhabiting Dogleg Pond and NP-2. Eventually these ponds may be seasonally accessible from Second Portage Lake. This connection would theoretically provide access for arctic char to the Dogleg system, but because it is deemed unlikely due to the shallow, ephemeral nature of the connections, access for char is conservatively excluded from habitat gain calculations.

The changes to habitat in the Dogleg ponds following channel construction are summarized in Table 4-5, below.

Table 4-5. Features of the Dogleg System and details of the changes and assumptions used to calculate net gain in habitat type areas.

Area	Feature	Description of Feature	Description of Habitat Change
Dogleg System	Dogleg Pond	Large pond, just to the north of East Dike in 2PL	Increased area (5%)
	Dogleg North Pond	Small pond just to the north of Dogleg Pond	Increased area (15%) and access for all 2PL species except char (currently fishless)
	NP-2	First pond to the northwest of Dogleg North Pond	Increased area (5%)

4.2.2 HU Calculation - Gains

Substrate and depth zones for the Dogleg system were mapped using bathymetric and substrate profiles collected in 2010 and re-mapped in 2011. Habitat type areas were calculated as described in Section 2.2, incorporating the above assumptions for the post-compensation values. Habitat units for pre- and post- scenarios are shown in Table 4-6. A net 1.85 HUs will be gained through the implementation of this compensation option.

[1] With DFO approval,lake trout and round whitefish from the Vault and Phaser Lake fishouts are proposed to be transferred into Dogleg North Pond

Table 4-6. Net habitat units (HUs) gained from the construction of a diversion channel between NP-2 and Dogleg North Pond.

Area	Feature Name	Pre-compensation HUs	Post-compensation HUs	Net Gain HUs
Dogleg System	Dogleg Pond	6.10	6.41	0.31
	Dogleg North Pond	0	0.91	0.91
	NP-2	2.19	2.82	0.63
TOTAL		**8.29**	**10.14**	**1.85**

4.3 CONSTRUCTION OF FINGER DIKES

4.3.1 Description

In keeping with the original NNLP, two finger dikes are proposed to be built, extending from the Bay-Goose Dike into Third Portage Lake. While the original NNLP proposed 19 ha of finger dikes, AEM has found that the method described for construction to be technically challenging and furthermore pose safety concerns, as well as potential concerns with elevated TSS during settling of material. Therefore, while AEM is committed to maintaining this compensation feature, the new finger dikes are proposed to be 0.5 ha each (base area). As previously, they will be constructed over fine substrate in depths greater than 4m (low-value habitat - HT 7). Finger Dike 1 will be constructed in an area of just over 4 m depth with fine substrate, and will extend upwards to approximately 3 m deep, changing the area to HT 6. Finger Dike 2 will be constructed in an area of > 4 m depth, with fine substrate, and will extend upwards approximately 1 m, staying within the same depth zone but changing the area to HT 9. Potential locations for each finger dike are shown in Figure 4-1 A and B. Specific locations will be chosen prior to construction, in the open-water season of 2013. Table 4-7 describes the assumptions used to calculate habitat units for this compensation feature.

Table 4-7. Details of the finger dike compensation feature, and assumptions used to calculate net gain in habitat type areas.

Lake	Feature	Description of Feature	Description of Habitat Change
Third Portage Lake	Finger Dike 1	0.5 ha underwater dike extending from Bay-Goose Dike	Simulated reef habitat - *conversion from HT 7 to HT 6*
	Finger Dike 2	0.5 ha underwater dike extending from Bay-Goose Dike	Simulated reef habitat - *conversion from HT 7 to HT 9*

4.3.2 HU Calculation - Gains

Based on these assumptions, habitat units for pre- and post-compensation scenarios are shown in Table 4-8. A net 0.40 HUs will be gained through the implementation of this compensation option.

Table 4-8. Net habitat units (HUs) gained from the construction of two 0.5 ha finger dikes in Third Portage Lake, off the Bay-Goose Dike.

Area	Feature Name	Pre-compensation HUs	Post-compensation HUs	Net Gain HUs
Third Portage Lake	Finger Dikes	0.21	0.42	0.22
	Finger Dike 2	0.21	0.39	0.18
TOTAL		**0.41**	**0.82**	**0.40**

4.4 VAULT LAKE AREA ACCESS ENHANCEMENTS

4.4.1 Description

Wally Lake is a 532 ha lake connected to Vault Lake (see Figure 3-5) via a seasonally passable channel. Fish movement between these lakes is currently almost nil (1 fish was observed using the channel in baseline studies – Azimuth, 2005), and this channel will be diked prior to de-watering of Vault Lake. Information in baseline (Azimuth, 2005) indicates that the only large bodied fish in Wally, Vault and Phaser Lakes are lake trout and round whitefish. In 2012, follow-up studies were completed to confirm these results. Fine mesh index gill nets that were used to quantitatively determine the species composition, size and catch-per-unit-effort (CPUE; # fish/100 m/hr) in Vault Lake, Phaser Lake and Wally Lake. Panels of 25, 38, 51, 76, 102 and 126 mm stretch mesh gill nets were attached to one another in this order to create gangs of nets. Gangs were set with varying set times and durations. Due to uncertainties in baseline data collection at Wally, fishing efforts there targeted deep zones to confirm presence and absence of arctic char. Nets were left for less than one day to provide daytime and overnight capture, after which time they were removed and re-set. Most of the locations had a total of two sets within the two days of monitoring. Nets were set for a total of 102 hours in Wally Lake, 78 hours in Vault Lake and 82 hours in Phaser Lake. Consistent with baseline data, no arctic char were found in any of these lakes. For the purposes of this assessment, it is conservatively assumed that burbot, ninespine stickleback and slimy sculpin are also found in all of the lakes, because these fish are known to be difficult to catch in gill nets.

Wally 3 (W3) is a smaller lake (approximately 100 ha) seasonally connected hydraulically to Wally Lake via an impassable channel (see photos, Appendix D). No fish were found to use this corridor in baseline studies (Azimuth, 2005). Follow-up studies conducted in 2011 used fine mesh index gill nets to quantitatively determine the species

composition, size and catch-per-unit-effort (CPUE; # fish/100 m/hr) as described above, in the southern basin. Nets were left for less than one day to provide daytime and overnight capture, after which time they were removed and re-set. Most of the locations had a total of two sets within the two days of monitoring and found that lake trout, round whitefish and arctic char, inhabit this small but deep lake.

Topographical surveys conducted in this area indicated that water levels in Wally Lake and W3 are similar (within cm), and therefore slight deepening of the connecting channel through selective substrate removal and excavation during winter would provide access to Wally Lake for the isolated arctic char population in W3.

In addition, improvement of the channel between Wally Lake and Vault Lake, post-closure, would further allow movement of char into Vault and Phaser Lakes (as Phaser Lake will be connected to Vault Lake through the Vault Pit). In order to make this channel passable year-round and provide access to newly created deep habitat in the Vault Pit, a passage will be excavated while Vault Lake is dewatered.

As discussed in Section 2.2.6, it is suspected that the lack of char in Wally, Vault and Phaser Lakes is due to historical isolation and the lack of deep-water habitat, which is preferred by this species. Pit development in the Vault Lake area will provide a significant quantity (approximately 45 ha) of this deep-water habitat, which is limited in the Vault Lake Area, but is prevalent in all nearby char-bearing lakes. While monitoring studies will be conducted to ensure compensation is implemented as designed (as in Azimuth, 2008), the opportunity for focussed research on niche use partitioning following fish community changes in the north could be available as part of this compensation feature.

4.4.2 HU Calculation - Gains

Substrate and depth zones do not change post-compensation in Wally, Vault and Phaser Lakes as a result of char access, but the access factor for char increases from 0. Since productivity of the introduced char is uncertain, the post-compensation access factor was conservatively set at 0.75, rather than 1. It is necessary to calculate existing habitat type areas based on substrate and depth zones, as in other compensation options. Baseline (pre-compensation) bathymetry and substrate surveys were conducted for the majority of Wally Lake for the original 2006 NNLP. However, it should be noted that substrate data was not available for the easternmost portion of Wally Lake (see Figures 4-5). Therefore, this area was not included in calculations, and net gains are underestimated. The HEP method described in Section 2.2 was used to calculate the net gain in HUs for Wally Lake, assuming the introduction of char from W3. Similarly, the net gain in HUs from the addition of char to Vault and Phaser Lakes were calculated using their post-closure habitat type areas as baseline values. Although small-bodied fish were not caught in surveys to date, they are conservatively assumed to be present in both the pre- and post-compensation calculations.

Substrate zones (fines, mixed, coarse) for Wally Lake are shown in Figure 4-5a. The majority of substrate in Wally Lake is fine grained, with coarse and mixed-grain substrate typically occurring around the shoreline.

The extents of the depth zones considered in Wally Lake for the pre- and post-compensation scenarios are shown in Figure 4-5b. Although Wally Lake is large in surface area, it is relatively shallow compared to the Main Minesite lakes.

The extents of habitat types 1-11, as described in Section 2.2.1, were calculated by overlaying substrate and depth maps. Habitat type areas for Wally Lake are shown in Figure 4-6. This area consists of a relatively mixed proportion of habitat types.

See Section 4.4 for post-closure substrate, depth zones and habitat type areas in Vault and Phaser Lakes. As noted above, post-closure habitat type areas were used to determine the net gains achieved from access improvements for arctic char.

Using the HEP described in Section 2.2, net gain in habitat units based on the addition of arctic char to Wally, Vault and Phaser Lakes was calculated, and is shown in Table 4-9. A net 107.37 HUs would be gained through the implementation of this compensation option.

Table 4-9. Pre- and post-compensation habitat units involved in the creation of access for arctic char between Wally Lake and W3, and Wally Lake and Vault Lake.

Area	Feature Name	Pre-compensation HUs	Post-compensation HUs	Net Gain HUs
Wally Lake	Access to W3	183.25	269.74	86.49
Vault Lake	Access to Wally Lake	39.71	56.85	17.14
Phaser Lake	Access to Wally Lake	9.13	12.87	3.74
TOTAL		**232.09**	**339.46**	**107.37**

4.5 DESIGN AND CONSTRUCTION OF THE COMPENSATION FEATURES

4.5.1 Re-flooding of Dewatered Basins and Pits

Construction of in-basin mine-related features including roads, pit caps, and pit backfilling is based on mine construction requirements. Dikes have already been constructed according to designs to maximize fish habitat suitability, which are discussed in detail in Cumberland (2006). Construction of the Vault Dike will be completed in the winter in the same manner as the South Camp Dike. Due to the narrow width of the Vault dike and the shallow water (<2m) it will be removed post-closure to allow adequate fish passage from Wally Lake into Vault and Phaser Lake.

The boulder garden in the Bay-Goose Basin is to be constructed by free-dumping coarse-grained waste rock to create a heterogeneous, coarse substrate habitat in the <4 m depth zone. This area extends approximately 2.97 ha, and is located just west of the Goose Island Pit (see Figure 4-1). Contours of the final boulder garden will be approved by a qualified environmental technician or biologist to ensure maximum utility as fish habitat.

While in-basin features will continue to be constructed in the Main Minesite and Vault Lake Areas throughout the life-of-mine, gains in fish habitat will not be realized until

the basins are re-flooded and the dikes are breached to allow fish passage. Re-flooding of the Portage Pit is proposed to begin in 2016 and continue during closure (after 2017). Bay-Goose Basin is currently estimated to begin during closure, with breaching of the dike to allow fish passage occurring during closure, assuming water quality monitoring within the basin indicates acceptable conditions (as in Golder, 2005). The Bay-Goose Dike will be breached by excavating a section approximately 100 m-long along the southern stretch of the dike to a depth of 2-4 m. Note that after re-flooding, the dewatered portion of Second Portage Lake will be connected to the dewatered portion of Third Portage Lake, as a result of the Portage Pit. This area will connect to Third Portage Lake at the southern edge of the Bay-Goose basin through breaching of the Bay-Goose Dike.

Following the same conditions for acceptable water quality, Vault and Phaser Lakes are currently expected to be re-flooded during closure, with removal of the Vault Dike. Table 4-10 summarizes the estimated timing of the re-establishment of fish habitat in the Main Minesite and Vault Lake Areas from re-flooding.

4.5.2 Supplementary Compensation Projects

Construction of the diversion channel connecting NP-2 to Dogleg North began in summer 2012, and will be completed in 2013 to assist in water management during 2013 freshet. Design of this short channel was mainly to improve water management north of the TSF, and thus any incidental habitat gained in channel area itself is not included in this assessment. The channel was excavated to an average width of approximately 1.5 m (see Figure 4-7), and lined with boulder and cobble material to restrict flow and control erosion and the introduction of sediment downstream. Since the water redirected by this channel into Dogleg North Pond is non-contact flow, water quality in the Dogleg System is not expected to be impacted. Spring flows are expected to provide seasonal connection between ponds however the viability of fish passage between ponds and natural connection between lakes will be limited in the spring during freshet and during rain events. As a result of this uncertainty, fish passage is assumed limited and therefore conceptual channel areas are not included in the calculations.

Construction of the finger dikes will occur as previously described (Cumberland, 2006), by placement of the appropriate volume of NPAG waste rock material on ice. The process may need to be repeated to achieve the desired depth of dike top. However, with the smaller area (1 ha) compared to that originally proposed (19 ha), successful construction of this compensation feature within a shorter time frame is more feasible. Construction of one of the finger dikes is planned to begin in 2015 and both finger dikes will be completed by closure.

Creation of access for arctic char between Wally Lake and W3 will occur through selective substrate removal and excavation, during the winter in 2016. At this point, heavy equipment will be nearby at Vault Lake, and moving it across the tundra to W3 after the ground is frozen will be least disruptive to the terrestrial environment. Removal of substrate

will be overseen by a qualified environmental technician or biologist to ensure removal of appropriate sizes and quantity of substrate to allow fish passage.

As discussed in Section 4.5.1, re-flooding of Vault and Phaser Lakes will occur during closure, with breaching of the Vault Dike to provide fish access post closure, assuming water quality monitoring within the basin indicates acceptable conditions (as in Golder, 2005).

Table 4-10 provides the estimated timing of construction for each of the compensation features described above.

Table 4-10. Estimated timing for gains of fish habitat through compensation options.

Lake	Feature Name	Date of Completion
Second and Third Portage Lakes	In-basin habitat improvements	Ongoing until re-flooding
	Re-flooded basins and pits	2014- closure
	Finger dikes	2015- closure
Vault and Phaser Lakes	In-basin habitat improvements	2014 until re-flooding
	Re-flooded basins and pits	Closure and reclamation
	Access for arctic char	Closure and reclamation
Dogleg System	NP-2 channel	2013
	NP-2 (increase in area)	2013- closure
	Dogleg North Pond (increase in area and access)	2013- closure
	Dogleg Pond (increase in area)	2015- closure
Wally Lake	Access for arctic char	2016- closure

SECTION 5 • LOSS/GAIN COMPARISON

Losses to fish habitat incurred through mining activities are compared here with net gains achieved through habitat compensation measures. In order to provide direct comparisons with historical documentation and authorized loss/gain ratios, losses and net gains are "allotted" to the Main Minesite, TSF and Vault Lake Areas.

5.1 SUMMARY OF LOSSES

A summary of the habitat unit losses associated with the footprint of each feature located in the Main Minesite, TSF, and Vault Lake Areas, should no compensation measure be implemented (e.g. no re-flooding), is shown in Table 5-1. Refer to Section 4 for a detailed description of each of these features.

Table 5-1. Summary of pre-construction, or lost habitat units (HUs) associated with each lake and minesite feature for the Main Minesite, TSF and Vault Lake Areas.

Area	Lake	Feature Name	Lost HUs
Main Minesite	Second Portage Lake (2PL)	Basin	3.46
		Portage Pit in 2PL	7.45
		Portage Pit in 2PL Cap	1.36
		Roads	3.87
		Central Dike	7.79
		East Dike	2.53
	Third Portage Lake (3PL)	Basin	17.67
		Portage Pit in 3PL	3.41
		Portage Pit in 3PL Cap	0.87
		Goose Island Pit	6.43
		Goose Island Pit Cap	1.74
		Roads	2.40
		Bay Goose Dike	7.04
		South Camp Dike	0.12
	Subtotal		*66.12*
TSF	Second Portage Lake	Tailings Storage Facility	*37.85*
Vault Lake Area	Vault Lake	Basin	25.46
		Vault Pit	1.40
		Vault Pit Cap	0.78
		Vault Dike	0.09
	Phaser Lake	Basin	4.11
		Vault Pit – Phaser portion	0.48
		Vault Pit Cap – Phaser portion	0.16
		Roads	0.6
	Subtotal		*33.09*
TOTAL LOSSES			**137.07**

5.2 SUMMARY OF GAINS

Overall, habitat units will be gained post-closure as a result of various compensation measures, as described in Section 4. Significant habitat gains are made through re-flooding of the dewatered basins after construction of habitat improvements such as pit backfilling and a boulder garden. Additional onsite gains are derived by constructing finger dikes, improving access and increasing size in the Dogleg system, and creating access for arctic char in Vault, Phaser and Wally Lakes. A summary of the habitat unit gains associated with each compensation measure are shown in Table 5-2. Refer to Section 4 for a detailed description of how gains were calculated for each compensation measure and feature.

Table 5-2. Summary of gained habitat units (HUs) associated with each minesite feature following implementation of the specified compensation measure.

Location	Compensation Measure	Feature Name	Gained HUs
Second Portage Lake (2PL)	Re-flooding after pit backfill	Basin	4.47
		Portage Pit in 2PL	12.32
		Portage Pit in 2PL Cap	2.37
		Roads	5.98
		Central Dike	0.80
		East Dike	0.25
Subtotal			*26.20*
Third Portage Lake (3PL)	Re-flooding after pit backfill	Basin, including boulder garden	22.99
		Portage Pit in 3PL	3.83
		Portage Pit in 3PL Cap	1.28
		Portage Pit Land-to-Lake	21.51
		Goose Island Pit	7.29
		Goose Island Pit Cap	2.49
		Goose Island Pit Land-to-Lake	2.01
		Roads	3.19
		Bay Goose Dike, including breach	3.35
		South Camp Dike	0.04
	Finger Dikes	Finger Dike 1	0.22
		Finger Dike 2	0.18
Subtotal			*68.38*
Vault Lake	Re-flooding	Basin	26.98
		Vault Pit	1.83
		Vault Pit Cap	0.85
		Vault Pit Land-to-Lake	9.96
		Vault Dike removal	0.09
	Access to Wally Lake	Access for arctic char to Vault Lake	17.14
Subtotal			*56.85*
Phaser Lake	Re-flooding after pit backfill	Basin	4.70
		Vault Pit – Phaser portion	1.42
		Vault Pit Cap – Phaser portion	0.20
		Vault Pit Land-to-Lake – Phaser portion	2.01
		Roads	0.80
	Access to Wally Lake	Access for arctic char to Phaser Lake	3.74
Subtotal			*12.87*
Wally Lake	Access to W3	Access for arctic char to Wally Lake	*86.49*

Location	Compensation Measure	Feature Name	Gained HUs
Dogleg System	Connecting channel	Dogleg Pond (increase in area)	0.31
		Dogleg North Pond (access and area)	0.91
		NP-2 (increase in area)	0.63
Subtotal			*1.85*
TOTAL GAINS			**252.65**

Overall, losses to fish habitat would total 137.06 HUs, should no compensation measures be implemented. The implementation of the above-described compensation measures would total 252.65 gained HUs. The ratio of gains to losses for the entire minesite, based on this compensation plan, is therefore 1.84:1.

5.3 ALLOTMENT OF GAINS

Since the three areas of the minesite (Main Minesite, TSF and Vault Lake Area) must be considered separately for various historical and regulatory purposes (see Section 1.3), the total losses associated with each area must be offset by specifically identified gains, at the ratios authorized previously. This allotment of gains is described below.

5.3.1 Main Minesite Area

The natural pre-construction habitat units associated with the Main Minesite Area total 66.12 HUs. The habitat units gained in this area post-closure from re-flooding of the dewatered areas after implementation of habitat improvements, total 94.18 HUs, for a natural total gains:losses ratio of 1.42:1. The approved gains:losses ratio for this area in the Fisheries Authorization was 1.68:1. Therefore, consistent with Cumberland (2006), gains from the Vault Lake Area are used to supplement gains in the Main Minesite Area.

Additionally, in the original NNLP (Cumberland, 2006), a number of gains from features in the Main Minesite were allotted to the TSF. In keeping with the Authorization granted for the TSF, gains from these Main Minesite features have been allotted to the TSF in this NNLP. Therefore in Table 5-3 below, no gains are associated with these items (indicated with a "-"). These gains appear in the TSF allotment table, Table 5-4.

With a loss of 66.12 HUs in the Main Minesite Area, the allotted gains for this area must total 111.08 HUs to meet the approved compensation ratio of 1.68:1. The allotted gains are shown in Table 5-3, below.

Table 5-3. Gained habitat units (HUs) allotted to the Main Minesite Area, in keeping with historical documentation and to meet the approved compensation ratio of 1.68:1 (total losses = 66.12 HUs). "-" indicates gains from features in the Main Minesite Area that have been allotted to the TSF (see Table 5-4) in accordance with the existing Fisheries Authorization for that area. *partial gains from W3 access are allotted in each area.

Lake	Compensation Measure	Feature	Gains (HUs)
Second Portage Lake (2PL)	Re-flooding after pit backfill	Basin	4.47
		Portage Pit in 2PL	-
		Portage Pit in 2PL Cap	2.37
		Roads	5.98
		Central Dike	-
		East Dike	-
Subtotal			*12.82*
Third Portage Lake (3PL)	Re-flooding after pit backfill	Basin, including boulder garden	22.99
		Portage Pit in 3PL	-
		Portage Pit in 3PL Cap	1.28
		Portage Pit Land-to-Lake	-
		Goose Island Pit	-
		Goose Island Pit Cap	2.49
		Goose Island Pit Land-to-Lake	-
		Roads	3.19
		Bay Goose Dike, including breach	-
		South Camp Dike	-
	Finger Dikes	Finger Dike 1	-
		Finger Dike 2	-
Subtotal			*29.95*
ADDITIONAL ALLOTTED GAINS			
Vault Lake	Re-flooding	Basin	26.98
		Vault Dike removal	0.09
Wally Lake	Access to W3	Access for arctic char to Wally Lake	41.24*
Subtotal			*68.31*
TOTAL ALLOTED GAINS			**111.08**

Based on this allotment of gains, the compensation ratio for the Main Minesite Area is 1.68:1.

5.3.2 TSF

The pre-construction habitat units associated with the TSF total 37.85 HUs. This area will be infilled post-closure, so all habitat is permanently lost. Specific gains from the Main Minesite

Area and the Vault Lake Area are allotted to the TSF in accordance with the existing Fisheries Authorization for this area. These allotted gains are specified in Table 5-4.

Table 5-4. Gained habitat units (HUs) allotted to the Tailings Storage Facility, in keeping with historical documentation and to meet the approved compensation ratio of 2:1 (total losses = 37.85 HUs). *partial gains from W3 access are allotted in each area.

Area	Compensation Measure	Feature	Gains (HUs)
Tailings Storage Facility	N/A		0.00
ADDITIONAL ALLOTTED GAINS			
Second Portage Lake	Re-flooding after pit backfill	Portage Pit in 2PL	12.32
		Central Dike	0.80
		East Dike	0.25
Third Portage Lake	Re-flooding after pit backfill	Portage Pit in 3PL	3.83
		Portage Pit Land-to-Lake	21.51
		Goose Pit	7.29
		Goose Pit Land-to-Lake	2.01
		Bay Goose Dike	2.62
		South Camp Dike	0.04
	Finger Dikes	Finger Dike 1	0.22
		Finger Dike 2	0.18
Vault Lake	Re-flooding	Vault Pit	1.83
		Vault Pit Land-to-Lake	9.96
Wally Lake	Access to W3	Access for arctic char to Wally Lake	12.64*
Subtotal			*75.70*
TOTAL ALLOTTED GAINS			**75.70**

Based on this allotment of gains, the compensation ratio for the TSF is 2:1.

5.3.3 Vault Lake Area

Habitat units lost in the Vault Lake Area total 33.09 HUs. The habitat units gained in this area after implementation of habitat compensation and re-flooding total 48.84 HUs, for a total gains:losses ratio of 1.48:1, before allotment of gains to other areas. Since nearly all gains have been allotted to other areas, in keeping with past documentation, net gains from the W3 access improvement are used to supplement gains for this area. The allotment of habitat unit gains for the Vault Lake Area is shown in Table 5-5

Table 5-5. Gained habitat units (HUs) allotted to the Vault Lake area (total losses = 33.09 HUs). Gains allotted to other areas as necessary or in keeping with historical documentation are indicated as "-".*partial gains from W3 access are allotted in each area.

Lake	Compensation Measure	Feature Name	Gains (HUs)
Vault Lake	Re-flooding	Basin	-
		Vault Pit	-
		Vault Pit Cap	0.85
		Vault Pit Land-to-Lake	-
		Vault Dike removal	-
	Access to Wally Lake	Access for arctic char to Vault Lake	17.14
Subtotal			*17.99*
Phaser Lake	Re-flooding after pit backfill	Basin	4.70
		Vault Pit – Phaser portion	1.42
		Vault Pit Cap – Phaser portion	0.20
		Vault Pit Land-to-Lake – Phaser portion	2.01
		Roads	0.80
	Access to Wally Lake	Access for arctic char to Phaser Lake	3.74
Subtotal			*12.87*
ADDITIONAL ALLOTTED GAINS			
Dogleg System	Connecting channel	Dogleg Pond	0.31
		Dogleg North Pond	0.91
		NP-2	0.63
Wally Lake	Access to W3	Access for arctic char to Wally Lake	32.61*
Subtotal			*35.76*
TOTAL ALLOTTED GAINS			**65.32**

Based on this allotment of gains, the compensation ratio for the Vault Lake Area would be 1.97:1.

Furthermore, although there will be a temporary loss of habitat in these lakes, with DFO approval, live fish will be transferred to adjacent lakes prior to dewatering, in an effort to maintain the population in the area during operation.

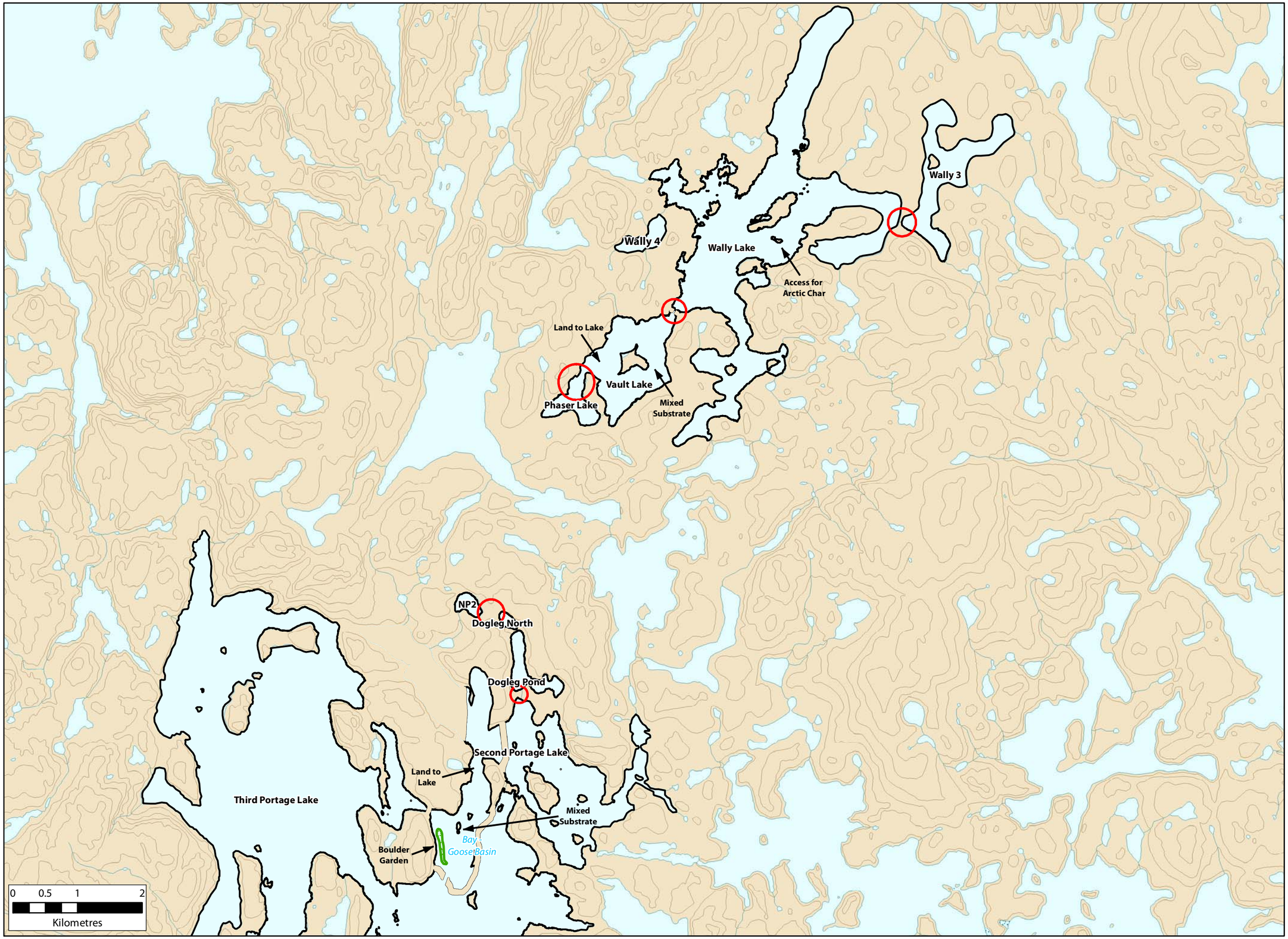
5.4 OVERALL SUMMARY

In summary, based on the compensation plan described above, the gains:losses ratio for the Main Minesite Area will be 1.68:1, as authorized previously. Gains for this area are mainly achieved through re-flooding of basins after construction of habitat improvement features such as boulder gardens.

With the allotment of gains from the Main Minesite and Vault Lake Areas to the TSF, the ratio of gains:losses for the TSF is 2:1, as authorized previously. With the addition of the Phaser Pit cap, the same compensation gains are allotted to this area as in Meadowbank's historical permit. This compensation includes the creation of habitat from re-flooded pits, and the creation of finger dikes.

Nearly all gains for the Vault Lake Area are allotted to the Main Minesite Area and the TSF, consistent with the original NNLP (Cumberland, 2006). The W3 access improvement compensation project is used to supplement gains in the Vault Lake Area, and the resulting proposed gains:losses ratio for this area is 1.97:1.

Extents of the minesite lakes, post-closure, are shown in Figure 5-1.



Legend

Study Lakes (Post-Closure)

Improved Access

Meadowbank Minesite
Post-Closure

DOUGAN & ASSOCIATES
ECOLOGICAL CONSULTING & DESIGN
77 Wyndham Street South • Guelph ON N1E 5R3
T 519.822.1609 • F 519.822.5389 • www.dougan.ca

PROJECT: DA11-062-02

CLIENT: Agnico-Eagle Mines Ltd., Meadowbank Div.

N W E S
UTM Zone 14 NAD83

DATE: OCTOBER 2012

SCALE: 1:55,000

DRAWN BY: LC

CHECKED BY:

FIGURE:

5-1

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations, features, or roads, nor as a guide to navigation. MNR data provided by Queen's Printer of Ontario. Use of the data in any derivative product does not constitute an endorsement by the MNR or the Ontario Government of such products.

SECTION 6 • NNL CONTINGENCY OPTIONS

All available compensation options at Meadowbank were evaluated based on efficiency in achieving NNL, cost, environmental effects and acceptability under DFO criteria and community values. Following discussions with DFO, the most favourable options were included in the NNLP, above. The success of each will be assessed post-closure based on physical and biological monitoring programs, as in Azimuth (2008). As described in the 2008 Fisheries Authorization, contingency options were established, which may be implemented in the case that the primary plan fails, either due to inability to construct, or failure to meet the criteria for success established in the Habitat Compensation Monitoring Plan. These subsequent compensation projects will be implemented as required, and only in the event that they are necessary. All options will be discussed and accepted by DFO prior to implementation and are presented below conceptually.

The compensation contingency options currently under consideration for the Meadowbank site are (in order of desirability):

1. Improvement of Airplane Lake culverts
2. Improvement of access between Wally Lake and Wally 4
3. Construction of arctic grayling spawning pads
4. Remediation of Airplane Lake water quality
5. Provision of funding for research opportunities aimed at validating HSIs
6. Creation of larger finger dikes and sea mounts

6.1 OPTION 1: IMPROVEMENT OF AIRPLANE LAKE CULVERTS

6.1.1 Description

Water flow from upstream areas into Airplane Lake is restricted on the western edge (under the road to Baker Lake) and northern edge (under the Prince River Road) by culverts that are too small to handle flow during certain times of the year (see photos, Appendix D). AEM has observed that water regularly flows over the road in these areas, likely impeding fish passage at this location during peak freshet, contributing excess TSS to Airplane Lake and requiring continual road repair. These culverts are owned and maintained by the Hamlet of Baker Lake, and therefore are not part of AEM's All Weather Access Road DFO Authorization (NU-03-0190). As a compensation contingency option, AEM proposes to replace the small culverts with larger ones, facilitating water flow and fish movement, and reducing roadway erosion.

Similar access improvements have been presented historically in NNLPs in the north. For example, stream barrier removal was proposed as compensation for the Snap Lake

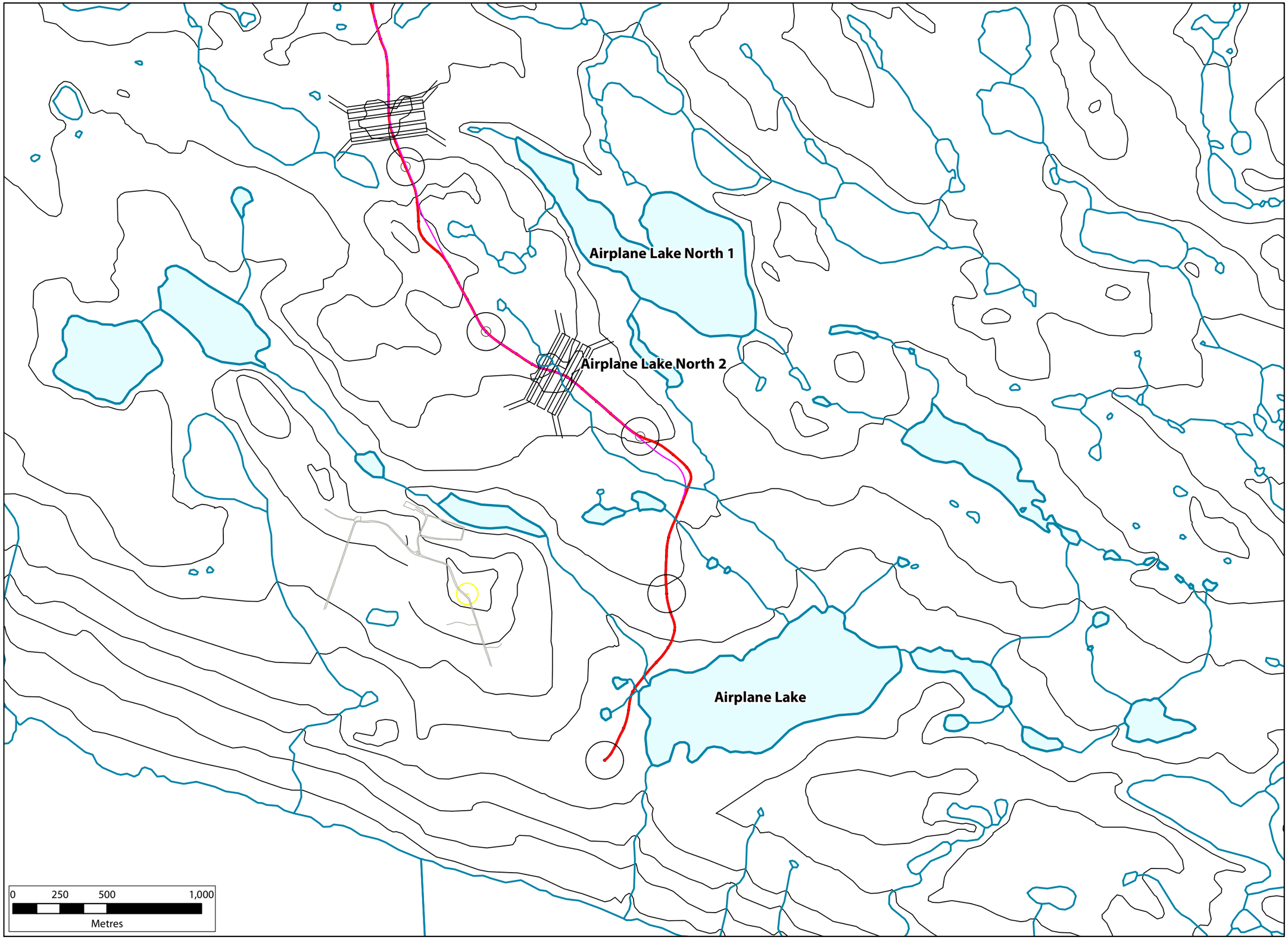
project (Golder, 2004), the Jericho project (Mainstream Aquatics Ltd., 2004), and the Doris North project (Golder, 2007).

Fish surveys in 2012 indicated populations of lake trout, round whitefish, arctic grayling and burbot in Airplane Lake. In 2012 fine mesh index gill nets were used to quantitatively determine the species composition, size and catch-per-unit-effort (CPUE; # fish/100 m/hr) in Airplane Lake. Panels of 25, 38, 51, 76, 102 and 126 mm stretch mesh gill nets were attached to one another in this order to create gangs of nets. Gangs were set with varying set times and durations. Nets were left for approximately one day to provide daytime and overnight capture, after which time they were pulled. A total of four nets for a total 47 hours of fishing effort was conducted and determined the percent biomass of arctic grayling in Airplane lake to be 20% 12% lake trout, 67% round whitefish, 1% burbot). This indicates a significant difference from biomass and species assemblages present within the Meadowbank Project Lakes. For the purposes of this contingency plan, it is assumed that the widening of the Prince River Road culvert will improve access for arctic grayling to two northern tributaries of Airplane Lake (Airplane North 1 and 2 – see Figure 6-1), where spawning occurs. Since some grayling can pass under current conditions, access is assumed to be improved relatively from 50% to 100%. While water quality improvements from reductions in TSS are likely to be associated with the repair of each culvert, gains are not calculated quantitatively here.

6.1.2 Estimation of Habitat Gains

Based on brief field surveys, the Airplane North lakes are estimated to be relatively shallow, with bathymetry and substrate zones similar to the Bay-Goose Basin of Third Portage Lake. For the purposes of this draft assessment, areas of habitat types in these lakes were assumed to have the same proportional distribution as those found in the Bay-Goose Basin, in both pre- and post-compensation assessments. For the pre-compensation assessment, access for arctic grayling was 0.5. This value was increased to 1 in the post-compensation assessment.

A summary of the total habitat type areas and habitat units, using the above assumptions and calculated as described in Section 2.2, are shown in Table 6-1. The HU subtotal and total by species and minesite feature are provided in Appendix F.



Legend

Airplane Lake Subwatershed

Airplane Lake Area

DOUGAN & ASSOCIATES
ECOLOGICAL CONSULTING & DESIGN
77 Wyndham Street South • Guelph ON N1E 5R3
T 519.822.1609 • F 519.822.5389 • www.dougan.ca

PROJECT: DA11-062-02

CLIENT: Agnico-eagle Mines Ltd., Meadowbank Div.

N
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UTM Zone 17 NAD83

DATE: OCTOBER 2012

SCALE: 1:18,859

DRAWN BY: LC

CHECKED BY:

Figure:

6-1

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations, features, or roads, nor as a guide to navigation. MNR data provided by Queen's Printer of Ontario. Use of the data in any derivative product does not constitute an endorsement by the MNR or the Ontario Government of such products.

Table 6-1. Net gain of habitat units (HUs) for contingency option 1 - replacing culverts in the Airplane Lake area (improving access for arctic grayling to spawning tributaries and the Airplane North lakes).

Habitat Type	Pre-compensation HUs	Post-compensation HUs	Net Gain HUs
1	0.02	0.03	0.00
2	0.00	0.00	0.00
3	3.64	3.87	0.23
4	1.36	1.47	0.11
5	0.00	0.00	0.00
6	4.29	4.55	0.26
7	7.46	8.12	0.65
8	0.00	0.00	0.00
9	0.51	0.55	0.04
10	N/A	N/A	N/A
11	N/A	N/A	N/A
Total	**17.28**	**18.57**	**1.30**

6.2 OPTION 2: IMPROVEMENT OF ACCESS BETWEEN WALLY LAKE AND W4

6.2.1 Description

Wally 4 (W4) is a small (~25 ha), isolated lake just west of Wally Lake (see Figure 1-2). Based on similar lakes in the area (Phaser, Dogleg), this lake is expected to contain an isolated population of lake trout and round whitefish. By improving the impassable connection between W4 and Wally Lake with deepening and selective substrate removal, access would be created for arctic char into W4.

6.2.2 Estimation of Habitat Gains

Since the habitat type areas of W4 have not yet been determined, it is assumed to be the same size and have the same habitat type distribution as nearby Phaser Lake. Substrate and depth zones will not change post-closure, but the access factor for arctic char will increase from 0 to 1.

Based on these assumptions, habitat units for pre- and post- scenarios are shown in Table 6-2

Table 6-2. Net gain of habitat units (HUs) for contingency option 2 – creation of access between Wally Lake and W4.

Habitat Type	Pre-compensation HUs	Post-compensation HUs	Net Gain HUs
1	0.07	0.12	0.05
2	0.77	1.13	0.36
3	3.01	4.60	1.60
4	0.24	0.42	0.18
5	0.61	1.12	0.51
6	0.57	1.03	0.46
7	0.12	0.21	0.09
8	0.07	0.12	0.06
9	0.05	0.09	0.04
10	N/A	N/A	N/A
11	N/A	N/A	N/A
Total	**5.51**	**8.84**	**3.34**

6.3 OPTION 3: CONSTRUCTION OF ARCTIC GRAYLING SPAWNING PADS

6.3.1 Description

In 2009, a habitat compensation project was constructed at a stream crossing along the all-weather access road to provide compensation for HADDs occurring through the construction of this road. The compensation project consists of four gravel berms, approximately 4 m wide by 20 m long, extending from the shoreline. These were built according to design specifications that met biological criteria aimed at enhancing arctic grayling productivity at R02. The construction focused on creating high value spawning and nursery habitat to compensate for the loss of the low and medium value habitat affected by bridge abutment construction at the four crossings (AEM, 2010).

After construction of this feature, monitoring data has indicated significant increases larval drift in this area, and an increase in the number of immature fish.

6.3.2 Estimation of Habitat Gains

Pre- and post- habitat units were calculated for a spawning pad project according to the stream-based HSIs provided in the Golder/AEM HEP. Considering an area of 0.1 ha, which is approximately the size of the current spawning pad, and a transition from fine-grained to coarse-grained sediment, there is a net gain of 0.02 HUs. However, it is difficult to quantify the number of lake-based habitat units that would be offset by in-stream spawning pad construction. Considering the 4x increase in larval drift, and 6x increase in immature fish

caught per unit effort in 2011 compared to the year before spawning pad construction, it is clear that significant relative gains in productive capacity may be obtained through this option. The observations detailed in the 2012 AWAR report (AEM, 2012) suggest that the constructed spawning pads provide substantial increases in productive capacity in the Prince River system, and are a suitable contingency plan option. For the purposes of this contingency plan, gains from spawning pad construction are estimated at 29 HUs (based on preliminary calculations, NNL Productivity presentation to DFO, Sept. 2, 2011).

In addition, the data collected at R02 since 2005 may provide an opportunity for an in-depth *a posteriori* analysis of the actual gains in productive capacity (and relationship to habitat types) that have been achieved as a result of construction. Since little information is available on the success of compensation structures, particularly in the north, this analysis may provide valuable insight that could be used to inform future in-stream projects, and for HSI validation. Should contingency compensation be required, quantitative contributions of this project to net gains in habitat units would be agreed upon through discussion with DFO before implementation.

6.4 OPTION 4: REMEDIATION OF AIRPLANE LAKE

6.4.1 Description

Airplane Lake (Figure 6-1) currently receives sewage waste from the hamlet of Baker Lake, which has undergone primary treatment in a settling basin, and further purification through a natural tundra wetland. Despite these processes, preliminary water quality measurements in Airplane Lake have shown that turbidity, dissolved carbon, and concentrations of nutrients and some metals far exceed background values. Through this contingency plan option, opportunities would be sought to improve nutrient and metal absorption through implementation of natural treatment systems, such as a series of constructed wetland cells, or augmentation of the existing natural tundra wetland. Recently, an investigation into the use of constructed wetlands for sewage waste treatment in the Arctic was conducted at Baker Lake by researchers at the University of Waterloo (Yates, 2012). While the specific system tested did not perform as desired, it is suggested that augmenting tundra wetlands or constructing improved retention and filtering may provide a viable system for remote communities, because they provide low-cost and low-maintenance wastewater treatment.

6.4.2 Estimation of Habitat Gains

Estimated gains that would be achieved through this option are based on an assumed habitat type distribution in Airplane Lake that is proportional to the Bay-Goose Basin. While habitat type areas would not change post-compensation, the habitat co-factor (see Section 2.2.5) for all fish species would increase. Upon implementation of this compensation option, the pre-compensation habitat co-factor value would be determined from further

studies of water quality and biological populations. The post-compensation value would be based on estimated improvements to water quality in Airplane Lake after implementation of the compensation measure, and expected impacts of productive capacity for fish. For the purposes of contingency plan, productive capacity is estimated to increase by 50%, based on estimated reductions in anoxic conditions resulting from nutrient enrichment. However it should be noted that this value is essentially a place-holder until further examination is required.

Based on these assumptions, habitat units for pre- and post- scenarios are shown in Table 6-3. A net 24.70 HUs will be gained through the implementation of this contingency option.

Table 6-3. Net gain of habitat units (HUs) for contingency option 4 – water quality improvements at Airplane Lake.

Habitat Type	Pre-compensation HUs	Post-compensation HUs	Net Gain HUs
1	0.03	0.07	0.03
2	0.00	0.00	0.00
3	5.15	10.29	5.15
4	1.95	3.90	1.95
5	0.00	0.00	0.00
6	6.05	12.10	6.05
7	10.80	21.60	10.80
8	0.00	0.00	0.00
9	0.73	1.45	0.73
10	N/A	N/A	N/A
11	N/A	N/A	N/A
Total	**24.70**	**49.41**	**24.70**

6.5 OPTION 5: FUNDING FOR VALIDATION OF HABITAT SUITABILITY INDICES

6.5.1 Description

Generally, Packman et al. (2006) and Birtwell et al. (2005) indicate that HSI models have not been validated for northern species. The validation of HSI models will theoretically provide better habitat compensation for all future northern projects. This may be achieved initially through correlational evidence using fish-out databases, as currently underway at the University of Toronto by Dr. Brian Schuter, and previously at the University of Calgary, by Dr. Bill Tonn. Experimental validation should follow, and may include the use of

compensation projects at Meadowbank to study effects of manipulating habitat variables on population productivity (e.g. in-stream spawning pad, dikes and boulder gardens).

We therefore propose, as a contingency option, to provide funding for specific academic research, in the form of graduate student projects aimed at furthering HSI models. This option may include both direct funding through grants, and/or the provision of sampling and analysis services, depending on research requirements and the status of mine operation at the time of study. Exact details of research projects would be determined in consultation with interested institutions, but will be aimed at HSI development for one or more species occurring in the Meadowbank region.

6.5.2 Estimation of Habitat Gains

Although net gains cannot be calculated in habitat units for this option, it is generally recognized that the further development of habitat suitability indices will improve accuracy of predictions in all future NNLPs. Currently, as a result of the lack of information for habitat preferences of northern fishes, habitat suitabilities are extrapolated from southern-developed models, with an unknown degree of certainty. It has been suggested that the accuracy of predictions made using HSIs may not transfer well between watersheds (De Kerckhove et al. 2008), let alone ecozones. Furthermore, it is known that the way fish adapt to habitat change is dependent on many factors, including location, temperature, season, maturity, population diversity and the availability of habitat (Smokorowski and Pratt 2006). While uncertainty factors (associated with habitat suitability determinations) can be included in compensation ratio calculations (Minns, 2006) by increasing required compensation amounts, it may be difficult for northern developers to find feasible opportunities for compensation that have historically been demonstrated as successful. Thus plans which optimize the required ratio will likely have a greater chance at achieving NNL. Providing the most effective compensation possible would help minimize the development footprint, and validated HSI models are needed to achieve this.

Additionally, since no reference models are available for most northern species, and no standardized no-net-loss plan (NNLP) approach is published, each proponent develops slightly different HEP methods and new HSIs for their projects. Usually, HSI values are determined by professional judgement, and/or modifications from previously developed NNLPs at other northern mines. Aside from the loss of efficiency and the extreme variability of results inherent in this exercise, this approach means that compensation units are not directly comparable between sites, impeding the creation of area habitat management plans which may become increasingly important as development in the north progresses.

Currently, proponents are only responsible for ensuring the physical presence and condition of any habitat compensation feature that is proposed. As a result, there is little information readily available on how many projects actually achieve no net loss of productive capacity of fish habitat (Quigley and Harper, 2006). In a 2006 study, Quigley and Harper found that in 16 projects evaluated across Canada (none in north), 63% did not achieve no net loss (average ratio of 0.7:1). In the north, the paucity of information

regarding how well compensation projects achieve no net loss is even scarcer, with only two published examinations of specific projects (see Gammons et al. 2009).

Lastly, even if standardized habitat suitability models were to be developed from observational data, it has been argued that correlative studies of habitat selectivity are not necessarily representative of actual habitat requirements, and these models are rarely validated with experimental evidence (Rosenfeld, 2003). According to Rosenfeld (2003), the removal or conversion of an apparently “preferred” habitat may not actually affect productivity of the population, if alternate habitats provide adequate life-functions. Therefore, if robust models are to be developed, field-validation is an important component in the process.

6.6 OPTION 6: CREATION OF SEA MOUNTS AND DIKE EXTENSIONS

6.6.1 Description

This contingency option involves the creation of sea mounts and dike extensions, as previously proposed for primary compensation in the original NNLP. These features would create areas of moderately deep (2-4 m), coarse-grained habitat, which is of the highest suitability. As described in Cumberland (2006), this would involve:

Second Portage Mounts - Six habitat mounts would be constructed just to the east of the East Dike by placing waste rock on ice during the winter, likely over two or more seasons. They would be situated in areas where habitat is of low value (HT 7), but relatively shallow such that construction to a depth of 2-4 m below the water surface is feasible. Base diameter would be approximately 50 m, for a total area of 1.25 ha.

East Dike Extension - A finger dike is proposed for the northern end of the East Dike, extending to the east over low value, deep sediment habitat (HT 7). This feature would be constructed in a similar manner (i.e., end dumping and return side casting) to the smaller proposed finger dikes in Third Portage Lake. The final dike surface would be 2 - 4 m below water level to maximize the value of this habitat. This dike would be approximately 5 ha in area.

Third Portage Finger Dike Extension – A large finger dike would be extended into low value, deep sediment habitat (HT 7) in an "S" curve manner. Construction would be similar to the other finger dikes. Total area would be approximately 11 ha.

6.6.2 Estimation of Habitat Gains

Based on these assumptions, habitat units for pre- and post- scenarios are shown in Table 6-4. A net 7.47 HUs will be gained through the implementation of this contingency option.

Table 6-4. Net gain of habitat units (HUs) for contingency option 6 - construction of sea mounts and dike extensions.

Lake	Feature Name	Pre-compensation HUs	Post-compensation HUs	Net Gain HUs
Second Portage Lake	Sea Mounts (6)	0.52	1.06	0.54
	East Dike Extension	2.06	4.25	2.19
Third Portage Lake	Finger Dike Extension	4.54	9.35	4.81
TOTAL		**7.12**	**14.66**	**7.54**

6.7 SUMMARY

The estimated net gained HUs associated with the contingency options for which HUs can be calculated total an estimated 65.88 HUs. Additional benefits would be obtained from funding for HSI research.

The contingency options presented here provide a variety of features for compensation, should one or more portions of the primary plan not be constructible or fail to meet the criteria for success established in the monitoring plan (Azimuth, 2008). The implementation of any contingency option would proceed in consultation with DFO. Specific design plans are to be determined in the case of implementation.

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APPENDIX A – Technical Memorandum: Revised Meadowbank No Net Loss Plan Model – June 7, 2012

Technical Memorandum

Date: June 7, 2012

To: Bobby Beddingfield and Derrick Moggy (DFO)
From: Ryan Vanengen (AEM) and Leilan Baxter (Baxter Consulting)

Re: DRAFT- *2012 Revised Meadowbank No Net Loss Plan Model*

Recently, a habitat evaluation procedure (HEP) was developed by Golder Associates and AEM for use at AEM's Meliadine site (Meliadine No Net Loss Plan workshop, November 17, 2011). This method was reviewed by DFO in consultation with Dr. Ken Minns (February 4, 2012), and it was approved as a foundation for the Meadowbank site HEP (March 30, 2012). With DFO approval, we propose, three adjustments to the Meliadine model for use in the Revised Meadowbank Mine No Net Loss Plan (Draft due June 15 and final plan due October 1st, 2012), which we believe improves the transferability of this model between projects and will provide fisheries managers improved ability to evaluate habitat gains and losses for a variety of No Net Loss Plans in the north. These adjustments are:

- Addition of the habitat co-factor
- Addition of the access factor
- Addition of habitat type (HT) 11 (>10 m, in-end pit lakes with good water quality predictions)

Two of these adjustments – the access factor and the habitat co-factor – were suggestions from the Minns review. The addition of HT 11 is suggested to account for the favourable water quality predictions for Meadowbank end pit lakes (Golder, 2005) which is consistent with the original Meadowbank Gold Project No Net Loss Plan Cumberland (2005). These factors are discussed in the following memo and a theoretical example of their application is presented in the final section. We look forward to your feedback and follow-up discussion. If you have any questions contact Ryan VanEngen at 519.400.7979 or rvanengen@agnico-eagle.com. .

1 Overview

As in the original Meadowbank NNLP, the basic HEP model involves the multiplication of an area (in ha) by a habitat suitability index (HSI) and fish species weights in order to derive a value in habitat units (HUs) that describes both the quality and quantity of habitat.

Pre-construction (natural, or baseline) habitat units are calculated for all areas of the mine site where a HADD will occur. These are referred to as "losses". Changes to habitat units occurring for each area post-closure are then calculated based on mine construction designs, and incorporating any habitat compensation features, to determine the total number of habitat units present after mining ("gains").

The net HUs will depend on the amount of each habitat type (determined by substrate and depth) that is lost and gained in each area, and the suitability of that habitat type for each fish species. Suitability of each habitat type is ranked between 0-1 for each life stage of each fish species (spawning, nursery, foraging, overwintering).

For each minesite feature occurring in-water (e.g. pits, dikes, roads) where losses or gains are expected to occur, HUs are calculated by multiplying the area of each habitat type in that feature by the HSI allotted to each life function of each fish species, then multiplied by the species weight and life function weight, and summed across life functions. This subtotal is then multiplied by an access factor, which represents the accessibility of the area to each species, and a habitat co-factor which describes changes in hydrological, thermal or chemical water quality. The HEP model is shown in further detail below.

2 Habitat Evaluation Procedure (HEP) Model

The Golder/AEM HEP model used here can be described, for each fish species (spp 1-n) as:

$$HU_{spp\ 1\text{-}n} = \sum_{HT\ 1\text{-}10} \{\sum_{sp,nu,fo,ow}(\mathbf{HT_{1\text{-}11}} \times HSI_{sp,nu,fo,ow} \times \text{life function weight} \times \text{species weight})] \} \times \textbf{habitat co-factor} \times \textbf{access factor}$$

Where $HT_{1\text{-}11}$ = area (ha) of habitat types 1 through 11

$HSI_{sp,nu,fo,ow}$ = habitat suitability index for each life function:

sp = spawning use
nu = nursery use
fo = foraging use
ow = overwintering use

The original model developed by Golder Associates and AEM (2011) did not include HT11, and did not include the habitat co-factor and access factor terms. These last two factors were suggested in the review by Dr. Ken Minns. We feel these are practical additions to the model, which make it more adaptable for use in a wider variety of No Net Loss plans and habitat compensation options in the north. The habitat types proposed for use in the Meadowbank model, and the two factor terms are discussed below.

2.1 Habitat Types

The Meadowbank HEP model proposes 11 habitat types, which are delineated based on various combinations of substrate and depth. The first 10 are identical to Habitat Type (HT) 1-10 in the Meliadine model. Habitat Type 11 is proposed in recognition of favourable water quality predictions for Meadowbank end-pit lakes that will not cause adverse effects on biota (Golder, 2005). The substrate and depths associated with each habitat type are shown in Table 2-1, and the rationale for this addition is described below.

Table 2-1. Physical characteristics of the habitat types proposed for the Meadowbank HEP.

Habitat Type	Depth Zone	Substrate	Use
1	0-2m	Fine	Pre-/Post-
2	0-2m	Mixed	Pre-/Post-
3	0-2m	Coarse	Pre-/Post-
4	2-4m	Fine	Pre-/Post-
5	2-4m	Mixed	Pre-/Post-
6	2-4m	Coarse	Pre-/Post-
7	>4m	Fine	Pre-/Post-
8	>4m	Mixed	Pre-/Post-
9	>4m	Coarse	Pre-/Post-
10	>10m	None	In-pit, stratified
11	>10m	None	In-pit, good WQ throughout

The HSIs associated with HT 10, developed for the Meliadine end-pit lakes, reflect conditions where pelagic life functions (foraging and overwintering) are impeded by pit development below 10 m depth. The Habitat Type 10 was adopted to conservatively estimate that very deep pits may be permanently stratified, resulting in diminished water quality below a theoretical boundary layer of 10m below the surface. End pit water quality at the Meadowbank site has been predicted to be similar to un-impacted areas, and suitable for fish in the long-term (i.e., >25 years; Golder, 2005). Golder (2005) predicted that post-closure, re-flooded pit lake water quality will meet MMER concentrations and nearly all CCME criteria (with the exception of cadmium and zinc at a steady state). The predicted concentrations of these metals are similar to background levels of water quality (see Azimuth, 2012) and therefore water quality following re-flooding is not expected to cause adverse effects on biota. Furthermore, prior to breaching, flooded pits and basins will be monitored and managed until the water quality is considered suitable for mixing with adjacent lakes (Golder 2005). Therefore, we believe an additional HT is needed for use in end-pit lakes such as Portage Pit, Bay-Goose Pit and Vault Pit, that have lower

impacts on habitat suitability than the conservative assumptions of the Meliadine Model (November 2011).

As described in Cumberland (2005), flooding the Meadowbank pits after mine closure will re-establish these areas as fish habitat. Although fish may or may not use the deepest areas of the pits, the photic zone will remain suitable habitat for pelagic functions, similar to deep-water areas pre-construction. Foraging and overwintering functions, particularly for pelagic zone feeders, should not be impeded in these areas. Unless littoral areas are created, it is recognized that end-pit lakes will not provide spawning or nursery habitat. We therefore propose the following HSIs for HT 11 (Table 2-2). Spawning and nursery HSI values are zero for all species. Foraging and overwintering values are taken from HT 9 (> 4 m, coarse substrate) for each species.

Table 2-2. Proposed HSI values for the Meadowbank region fish species (sp=spawning, nu=nursery, fo=foraging, ow=overwintering). HSI values for habitat types 1-10 are identical to those proposed previously for the Meliadine HEP. Habitat type 11 is added for use in pits where mixing will occur, and water quality is expected to remain similar to baseline conditions.

Habitat Type	Depth	Substrate	Arctic Char				Lake Trout				Round Whitefish			
			SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	<2 m	Fines	0	0.25	0.25	0	0	0.25	0.25	0	0	0.25	0.75	0
2	<2 m	Mixed	0	0.25	0.25	0	0	0.5	0.5	0	0	0.75	0.5	0
3	<2 m	Coarse	0	0.5	0.5	0	0	1	0.75	0	0	0.75	0.5	0
4	2-4 m	Fines	0	0.5	0.5	0.75	0	0.5	0.5	0.75	0	0.25	1	0.75
5	2-4 m	Mixed	0.5	0.75	0.75	0.75	0.5	0.75	0.75	0.75	0.5	0.75	0.75	0.75
6	2-4 m	Coarse	1	1	1	0.75	1	1	1	0.75	1	1	0.75	0.75
7	>4 m	Fines	0	0.25	0.5	1	0	0.25	0.5	1	0	0.25	1	1
8	>4 m	Mixed	0.5	0.5	0.75	1	0.5	0.5	0.75	1	0.25	0.25	0.5	1
9	>4 m	Coarse	1	0.5	1	1	1	0.5	1	1	0.75	0.5	0.5	1
10	>10 m	None	0	0	0.25	0.75	0	0	0.5	0.75	0	0	0	0.75
11	>10 m	None	0	0	1	1	0	0	1	1	0	0	0.5	1

Habitat Type	Depth	Substrate	Burbot				Slimy Sculpin				Ninespine Stickleback			
			SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	<2 m	Fines	0	0.25	0.25	0	0	0	0.25	0	1	1	1	0
2	<2 m	Mixed	0	0.75	0.5	0	0.25	0.25	0.5	0	0.5	0.5	0.75	0
3	<2 m	Coarse	0	1	0.5	0	1	1	1	0	0	0.25	0.75	0
4	2-4 m	Fines	0	0.25	0.25	0.75	0	0	0.25	0.75	0	0	0.5	0.75
5	2-4 m	Mixed	1	0.5	0.75	0.75	0.25	0.25	0.5	0.75	0	0	0.25	0.75
6	2-4 m	Coarse	0.75	0.5	1	0.75	0.75	0.75	1	0.75	0	0	0.25	0.75
7	>4 m	Fines	0	0	0.25	1	0	0	0	1	0	0	0	1
8	>4 m	Mixed	1	0	0.75	1	0	0	0.25	1	0	0	0	1
9	>4 m	Coarse	0.75	0.25	1	1	0.5	0.5	0.5	1	0	0	0	1
10	>10 m	None	0	0	0.25	0.25	0	0	0	0.25	0	0	0	0.75
11	>10 m	None	0	0	1	1	0	0	0.5	1	0	0	0	1

Habitat Type	Depth	Substrate	Lake Cisco				Arctic Grayling			
			SP	NU	FO	OW	SP	NU	FO	OW
1	<2 m	Fines	0	0.25	0.5	0	0	0.25	0	0
2	<2 m	Mixed	0	1	1	0	0	0.25	0.25	0
3	<2 m	Coarse	0	1	1	0	0	0.5	0.25	0
4	2-4 m	Fines	0	0.25	0.75	0.75	0	0	0.5	0.75
5	2-4 m	Mixed	0.25	0.5	1	0.75	0	0	1	0.75
6	2-4 m	Coarse	0.75	0.75	0.75	0.75	0	0	1	0.75
7	>4 m	Fines	0	0	0.75	1	0	0	0.5	1
8	>4 m	Mixed	0.5	0.25	1	1	0	0	1	1
9	>4 m	Coarse	1	0.25	0.75	1	0	0	1	1
10	>10 m	None	0	0	0.75	0.75	0	0	0	0.5
11	>10 m	None	0	0	0.75	1	0	0	1	1

2.2 Habitat Co-factor

The habitat co-factor represents any changes to non-mapped habitat quality (thermal, hydrological, biological or chemical regimes) that will occur post-closure. The habitat co-factor values as presented by Dr. Minns in a workshop for DFO in February, 2012 (Minns, 2012), are shown in Table 2-3.

Table 2-3. Habitat co-factor for various pre- and post-closure scenarios, according to Minns, 2012.

Change in regime	**Description**	**Pre-construction factor** (losses calculation)	**Post-closure factor** (gains calculation)
Degradation (expected)	Thermal, hydrologic, chemical and/or biological regime shifts away from preferred state for fish habitat	1	> 0 and < 1
No change	-	1	1
Enhancement (anticipated or proposed)	Thermal, hydrologic, chemical and/or biological regime expected to shift towards preferred state for fish habitat	> 0 and < 1	1

The habitat co-factor has not been used to date in practice in the arctic. When there is no change in water quality post-closure, the weighting is 1 for both loss and gain calculations. This factor is therefore not an integral part of any compensation calculation that does not affect water quality[1]. However, in situations where degradation or remediation may occur, such as with the remediation of the Baker Lake landfill and sewage discharge upstream of Airplane Lake (which is considered a contingency in the revised Meadowbank No Net Loss Plan), it is important to recognize that physical habitat characteristics are not the only determinant of productive capacity. Although physical habitat features remain a surrogate for measuring productive capacity in this model, the co-factor provides managers the ability to adjust the model to account for remediation within a physical habitat compensation framework.

[1] Meadowbank Mine site post closure compensation is an example of this scenario where water quality will be monitored and managed until the water quality is considered suitable for mixing with adjacent lakes

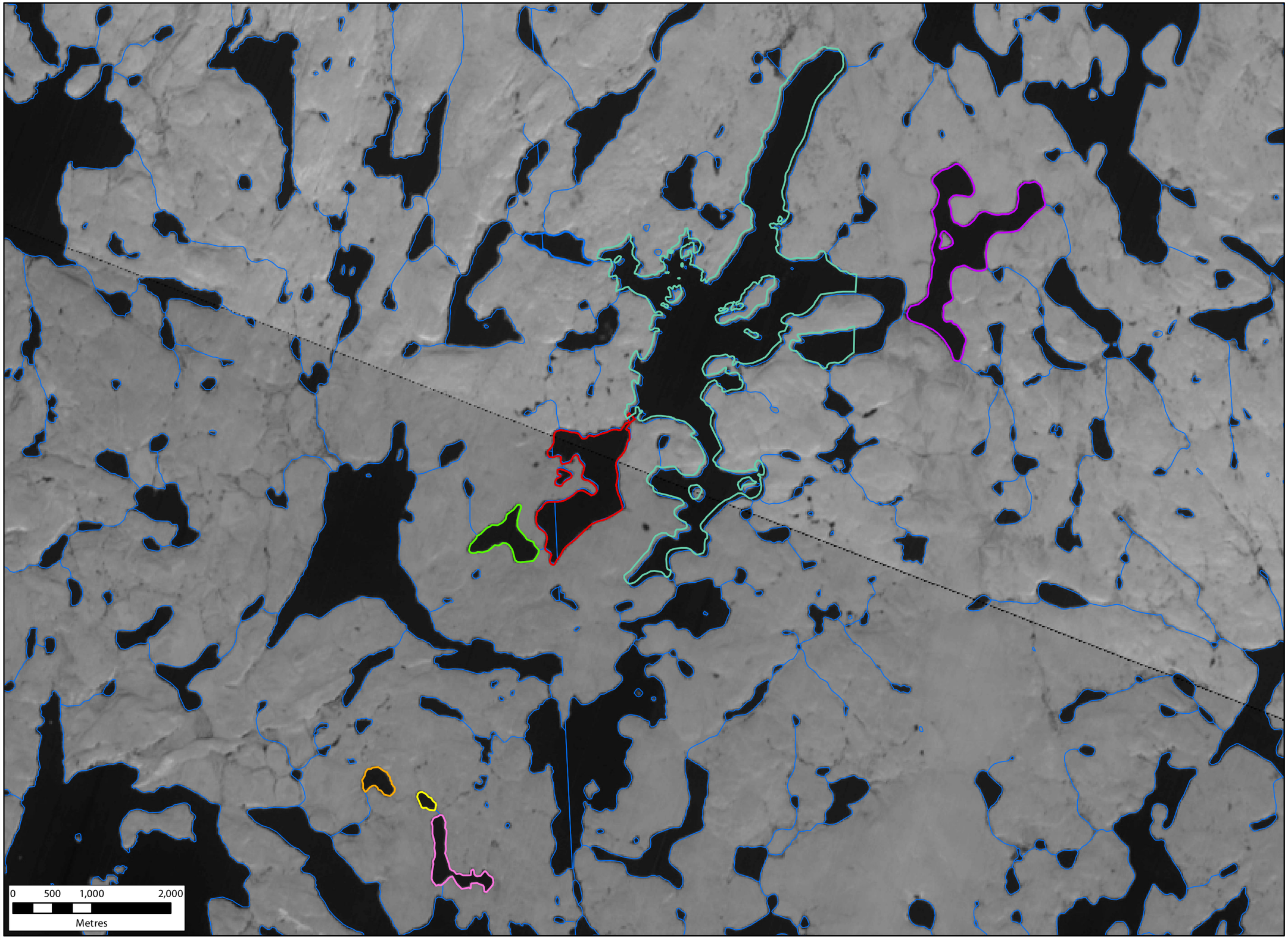
The review by Minns did not indicate specifically how to determine a value between 0-1. Although this method has not been thoroughly developed, as it will not be applied in the main revised Meadowbank No Net Loss Plan (rather as part of the contingency plan as previously discussed with DFO representatives), we believe a clear transparent method is achievable based on professional judgement on a case-by-case basis. In concept, the co-factor value could be calculated by using an abbreviated risk assessment process that incorporates a theoretical effect on population size estimates by examining published concentration-response models. Alternatively this evaluation may adopt a variation on the CCME water quality index method that evaluates various water quality parameters to determine fair, marginal or poor water quality that can be related to population estimates either based on productive capacity models or field measurements compared to reference lakes. The nature of this co-factor does not lend itself to a blanket method of calculation, since relative effects on productive capacity are completely dependent on which water quality factor changes. Regardless, the rationale for the choice of habitat co-factor should be detailed and approved by DFO.

2.3 Access Factor

Minns (2012) further suggests the use of an access factor to account for known or expected presence/absence of each fish species in a particular water body. To date this factor has not been used in NNLPs in the arctic, but it may be a particularly valuable component in this setting. Many isolated lakes or ponds are found in the region of the Meadowbank minesite, and a number contain only one or two species of fish. Since different fish species utilize different habitat niches, the introduction of a species will likely result in an increase in the total fish population and improved bio-diversity, provided the available habitat is suitable for that species (accounted for through the HSI). Various studies have observed niche use and resource partitioning in artic lakes (Amundsen et al., 2010; Hershey et al. 2006), and stable isotope studies in the Experimental Lakes in NT and at the Meadowbank site provide site-specific evidence of low food source overlap (Cott et al., 2011 and R. Vanengen, unpublished thesis).

According to Minns (2012), the access factor is 1 for any species present in the habitat area, and 0 for any species not present. Each species receives an access factor in both the pre-construction and post-closure calculations (Table 2-4). Therefore, the opening of access to a habitat area for a species post-closure (that did not have access pre-construction), results in a gain of habitat units. As discussed with DFO, the revised Meadowbank No Net Loss Plan will include improved access of fish species (i.e.lake trout) through a channel that connects pond NP2 to Dogleg North pond (see Figure 2-1). Dogleg North Pond presently does not have any fish and therefore access gained by fish species will be calculated accordingly. As well, Vault, Phaser and Wally currently do not have arctic char, (BAER, 2005)[2] and yet char are confirmed in an adjacent lake W3 (see Figure 2-1). By creating overwintering habitat and improving

[2] To be confirmed during August 2012 fisheries studies at Meadowbank



Legend

- NP1 (Dogleg)
- NP1N (Dogleg North)
- NP2
- Phaser Lake
- Wally 1
- Wally 3
- Vault Lake
- Wally Lake

Agnico-Eagle Mines Ltd.,
Meadowbank Division
Study Lakes

DOUGAN & ASSOCIATES
ECOLOGICAL CONSULTING & DESIGN
77 Wyndham Street South • Guelph ON N1E 5R3
T 519.822.1609 • F 519.822.5389 • www.dougan.ca

PROJECT: DA11-062-01

CLIENT: Agnico-Eagle Mines Ltd., Meadowbank Div.

N
W E
S
UTM Zone 14 NAD83

DATE: NOVEMBER 2011

SCALE: 1:45,000

DRAWN BY: LW

CHECKED BY:

FIGURE:

2-1

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations, features, or roads, nor as a guide to navigation. MNR data provided by Queen's Printer of Ontario. Use of the data in any derivative product does not constitute an endorsement by the MNR or the Ontario Government of such products.

connection in perpetuity, post-closure compensation results in a gain of habitat units for the specific species that have been provided access. Similarly, the loss of access results in a loss of habitat units. These gains or losses may be complete (affect all species), or partial (only some species are affected).

Note that presence or absence of a species pre-construction is based on monitoring studies in the affected habitat area, whereas presence or absence in the post-closure scenario is anticipated and monitored as evidence for success or failure.

Table 2-4. Access factor applied to each species, pre- and post-closure, based on presence/absence (or anticipated presence/absence, for post-closure) (adapted from Minns 2012).

Scenario	Pre-Construction	Post-closure
Species Present	1	1
Species Not Present	0	0

3 Example Calculation

The following is an abbreviated theoretical example of a habitat assessment and habitat unit calculation which uses the approved Meliadine Method (HSI and species weighting) and applies the changes discussed in the previous sections. Although not all components of this example apply to the Meadowbank Mine, we have tried to provide tangible references where they may apply. It is important to note that the areas and simple habitat types presented in this example are theoretical and that further detail and referencing would be provided in the real scenario.

Consider Lake A, with an area of 10 ha, containing an isolated population of lake trout. Similar to Vault Lake at the Meadowbank Mine, this lake will be dewatered for mining, and re-flooded post-closure. The pit development will expand this lake, and after mining, a channel will be excavated to improve connection for fish between Lake A and nearby Lake B, thereby providing access for the arctic char and lake trout population currently only present in Lake B. For the purposes of this example, assume there is a historic landfill adjacent to Lake B that is affecting the water quality of Lake B. and therefore affect Lake A once the connection is made. . Based on water quality assessments in both lakes, the landfill is expected to increase chromium concentrations to a level which has been found to have chronic impacts on 10% of the fish compared to a reference lake. Pre-construction, Lake A contains 7.0 ha of habitat type 3 (<2 m, coarse substrate), and 3.0 ha of habitat type 4 (2-4 m, fine substrate). Figure 3-1 and Figure 3-2 depict the project lakes, pre-construction and during operation.

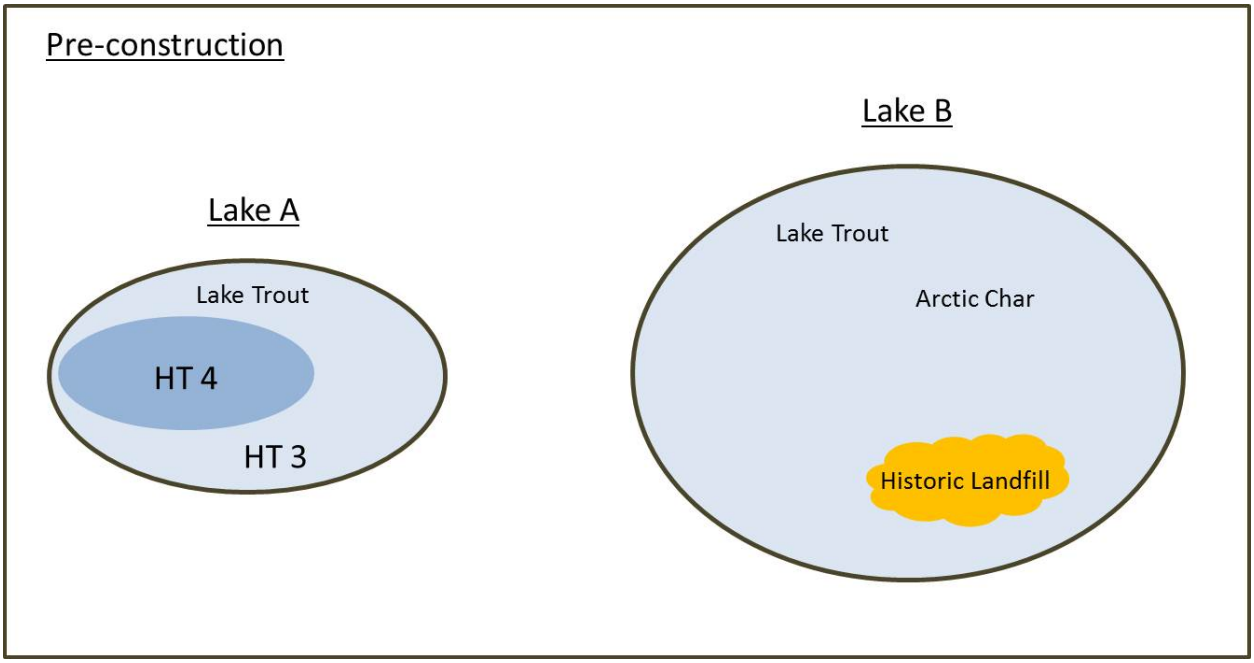


Figure 3-1. Schematic of the example project lakes, showing pre-construction habitat types (HT) in Lake A.

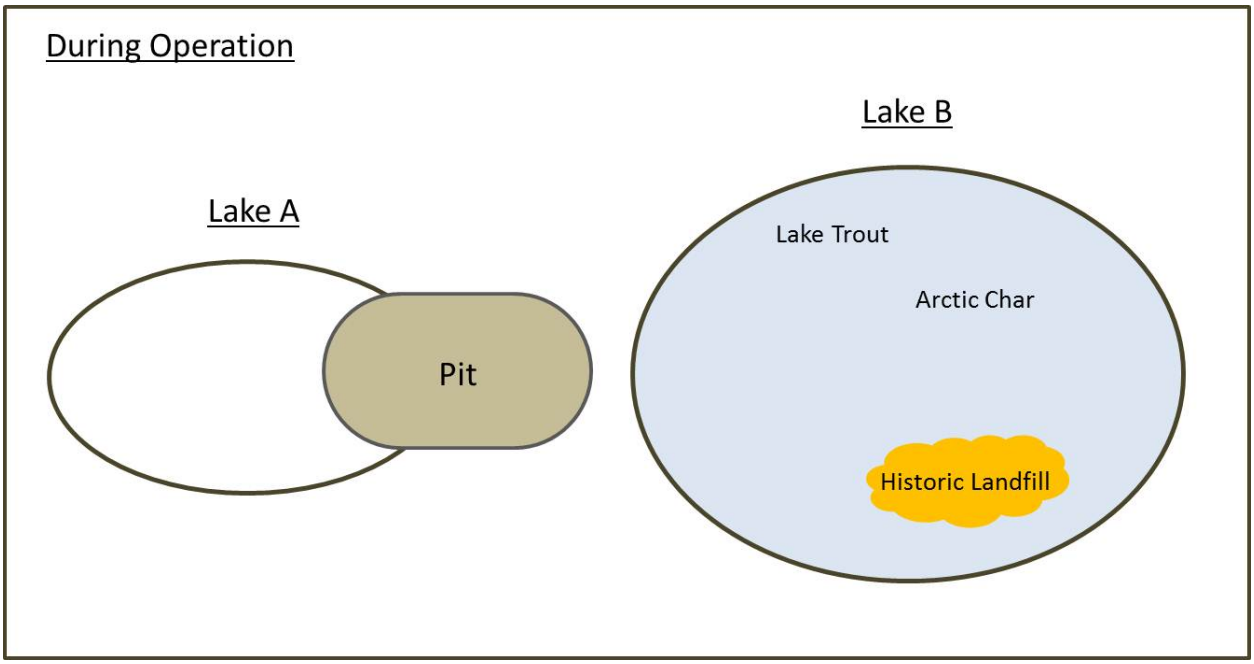


Figure 3-2. Schematic of the example project lakes during operation. Lake A is dewatered, and pit construction is partially in-lake.

HSIs, life stage weights, species weights and access factors for this example project are shown in Table 3-1.

Table 3-1. Habitat Suitability Index (HSI), life stage weight (sp=spawning, nu=nursery, fo=foraging, ow=overwintering), species weight and access factors for lake trout and Arctic char in example Lake A. Habitat types shaded in grey are found in the example lake.

	Habitat Type	Description	Lake Trout				Arctic Char			
			SP	*NU*	*FO*	*OW*	*SP*	*NU*	*FO*	*OW*
HSI	1	<2 m, fine	0	0.25	0.25	0	0	0.25	0.25	0
	2	<2 m, mixed	0	0.5	0.5	0	0	0.25	0.25	0
	3	<2 m, coarse	0	1	0.75	0	0	0.5	0.5	0
	4	2-4m, fine	0	0.5	0.5	0.75	0	0.5	0.5	0.75
	5	2-4m, mixed	0.5	0.75	0.75	0.75	0.5	0.75	0.75	0.75
	6	2-4m, coarse	1	1	1	0.75	1	1	1	0.75
	7	>4m, fine	0	0.25	0.5	1	0	0.25	0.5	1
	8	>4m, mixed	0.5	0.5	0.75	1	0.5	0.5	0.75	1
	9	>4m, coarse	1	0.5	1	1	1	0.5	1	1
	10	>10 m, stratifed	0	0	0.5	0.75	0	0	0.25	0.75
	11	>10 m, non-stratified	0	0	1	1	0	0	1	1
Life Stage Weight			0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Species Weight			0.5				0.38			
Access Factor		*Pre-*	1				0			
		Post-	1				1			
Habitat Co-Factor		*Pre-*	1				1			
		Post-	0.9				0.9			

Pre-construction HU calculations for Lake A are shown in Table 3-2. Lake A consists of a total of 2.19 HUs pre-construction.

Table 3-2. Pre-construction habitat unit (HU) calculation for Lake A.

Habitat Type	Area (ha)	***HU Subtotal*** (= area x HSI x Life Stage Weight x Species Weight)				***HU Total*** (=∑subtotals x access x habitat co-factor)
		SP	*NU*	*FO*	*OW*	
Lake Trout						
3	7.0	0	0.87	0.66	0	1.53
4	3.0	0	0.19	0.19	0.28	0.66
11	0.0	0	0	0	0	0.00
Arctic Char						
3	7.0	0	0.33	0.33	0	0.00
4	3.0	0	0.14	0.14	0.21	0.00
11	0.0	0	0	0	0	0.00
Grand Total - *Losses*						**2.19**

Pit development alters the depth and substrate zones, and converts 5 ha of land to lake, so that post-closure, Lake A consists of 5.0 ha of habitat type 3, 3.0 ha of habitat type 4, and 7.0 ha of habitat type 11 (> 4 m, in-pit, non-stratifed). The small improved connection provides an additional 1.0 ha of habitat type 3, which is included in the Lake A calculation. A schematic of the project lakes post-closure is shown in Figure 3-3.

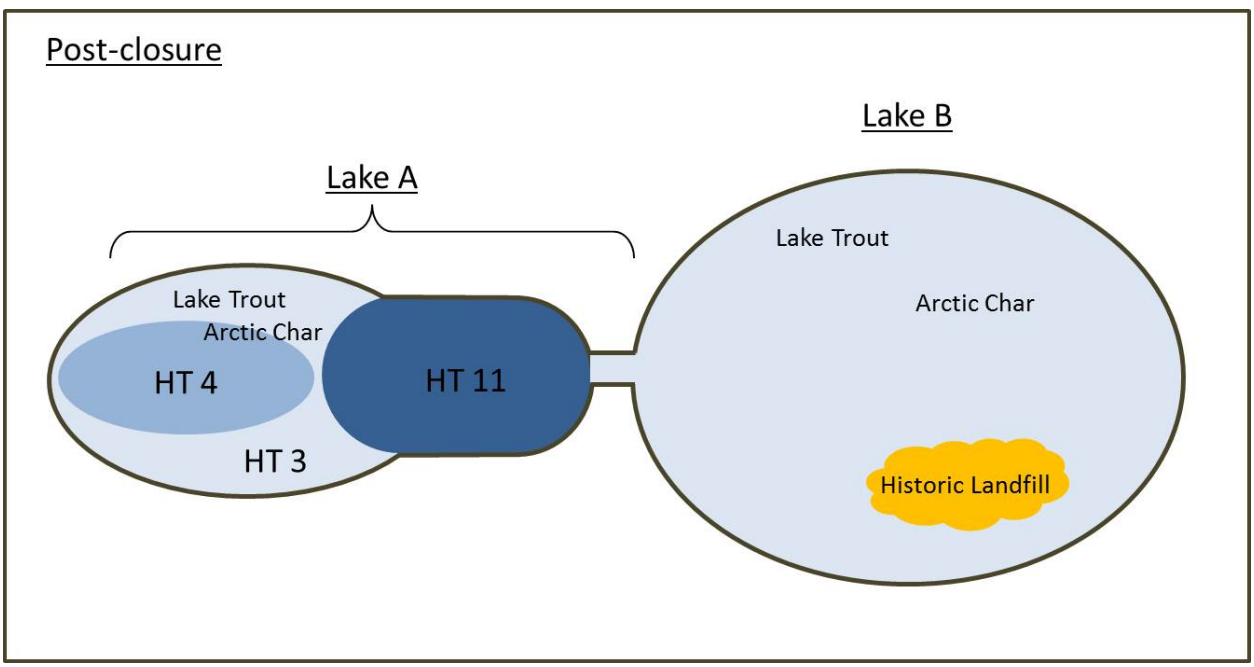


Figure 3-3. Schematic of the example project lakes, showing post-closure habitat types (HT) in Lake A.

Table 3-3 describes the post-closure habitat units calculation for Lake A. A total of 5.52 HUs are present in Lake A post-closure. The total gains:losses ratio in this example situation would therefore be 2.52:1.

Table 3-3. Post-closure habitat unit (HU) calculation for Lake A.

Habitat Type	**Area (ha)**	***HU Subtotal*** (= area x HSI x Life Stage Weight x Species Weight)				***HU Total*** (=∑subtotals x access x habitat co-factor)
		SP	*NU*	*FO*	*OW*	
Lake Trout						
3	6.0	0	0.75	0.56	0	1.18
4	3.0	0	0.19	0.19	0.28	0.60
11	7.0	0	0	0.88	0.88	1.58
Arctic Char						
3	6.0	0	0.29	0.29	0	0.52
4	3.0	0	0.14	0.14	0.21	0.44
11	7.0	0	0	0.67	0.67	1.20
Grand Total - *Gains*						**5.52**

References

Azimuth Consulting (2012). Aquatic Effects Monitoring Program- Core Receiving Environment Monitoring Program 2011- Meadowbank Mine. Prepared for Agnico-Eagle Mines Ltd- March 2012.

Cott PA, Johnston TA, Gunn JM. 2011. Food web position of burbot relative to lake trout, northern pike, and lake whitefish in four sub-Arctic boreal lakes. Journal of Applied Ichthyology 27:49-56

Cumberland (2005). Meadowbank Gold Project No-Net-Loss Plan (NNLP). November, 2006.

Golder Associates Ltd. 2005. Final Report on Water Quality Predictions, Meadowbank Gold Project, Nunavut. In: Cumberland Resources, 2005. Meadowbank Gold Project- Physical Environment Impact Assessment Report. October 2005 pp5-42 to 5-44.

Minns, K. (2012). No Net Loss Accounting Workshop. Presented to Fisheries and Oceans Canada. February, 2012.

APPENDIX B – DFO Mine Site Authorization (NU 03-0191)

Fisheries and Oceans Canada | Pêches et Océans Canada

DFO File No.: NU-03-0191
Referral File No.: 03-HCAA-CA7-00191
Authorization No.: 1

AUTHORIZATION FOR WORKS OR UNDERTAKINGS AFFECTING FISH HABITAT

Authorization issued to:

Agnico-Eagle Mines Ltd.
Meadowbank Division
#375 - 555 Burrard Street
Two Bentall Centre
Vancouver, British Columbia
V7X 1M8

Location of Project

The Meadowbank Gold Project is located 70 kilometres north of Baker Lake in the Kivalliq Region of Nunavut, Canada.
Latitude 65˚0'0" North, Longitude 96˚0'0"

Valid Authorization Period

The valid authorization period for the harmful alteration, disruption or destruction of fish habitat associated with the works or undertakings described in Table 1and within this authorization is:

From:	To:
Date of Issuance	December 31, 2015

The valid periods for other conditions of the authorization are as set out below.

Description of Works or Undertakings (Type of work, schedule, etc.)

The harmful alteration, disruption or destruction hereby authorized is the infilling and dewatering of fish habitat as a result of the following works or undertakings listed in Table 1.

Table 1: Works or Undertakings resulting in a harmful alteration, disruption or destruction of fish habitat.

Location	Work or Undertaking	Habitat Units Lost
Second Portage Lake	Construction of the east dike footprint (830 metres long)	39.28
	Construction of the west (central) dike footprint	22.27
	Dewatering of Second Portage basin	111.30
	Quarrying the Portage Pit	49.75
Third Portage Lake	Construction of the Goose Island dike footprint (1720 metres long)	73.46
	Construction of South Camp dike footprint (Bay Zone dike with length of 1480 metres)	1.00
	Dewatering of Third Portage basin	301.04
	Quarrying Goose Island Pit	61.07
	Quarrying the Portage Pit	35.16

Canada

	Finger Dike Habitat Footprint	46.95
Total		**741.28**

Conditions of Authorization

1. The conditions of this Authorization notwithstanding, should the above works or undertakings, due to weather conditions, different soil or other natural conditions, or for any other reason, appear, in the opinion of the Department of Fisheries and Oceans ("DFO") likely to cause greater impacts than the parties previously contemplated, then DFO may direct Agnico-Eagle Mines Ltd. (hereafter referred to as the "Proponent"), and its agents, and contractors, to suspend or alter works and activities associated with the project, to avoid or mitigate adverse impacts to fisheries resources. DFO may also direct the Proponent and its agents, and contractors, to carry out at the Proponent's expense any works or activities deemed necessary by DFO to avoid or mitigate further adverse impacts to fisheries resources. In circumstances where DFO is of the view that greater impacts may occur than were contemplated by the parties DFO may also modify or rescind this authorization. If the authorization is to be changed the Proponent will be given an opportunity to discuss any proposed modifications or rescission.

2. Conditions that relate to the Proponent plan:

2.1. The Proponent confirms that all plans and specifications relating to this Authorization have been duly prepared and reviewed by appropriate professionals working on behalf of the Agnico-Eagle Mines Ltd. The Proponent acknowledges that they are solely responsible for all design, safety and workmanship aspects of all the works associated with this Authorization.

2.2. The works or undertakings described in Table 1 shall comply with those criteria as identified within this Authorization. Harmful alteration, disruption or destruction of fish habitat other than that specifically identified within this Authorization is prohibited.

2.3. Works and undertakings shall be conducted in accordance with the practices outlined in the following reports, and as approved by DFO:

2.3.1. Application for Authorization for Works or Undertakings Affecting Fish Habitat, signed by Rachel Gould (Agnico-Eagle Mines Ltd.), dated May 28, 2008.

2.3.2. Meadowbank Gold Project No-Net-Loss-Plan (NNLP), prepared by Azimuth Consulting Group Inc., dated November 2006.

2.3.3. Technical Memorandum, RE: Cumberland Meadowbank NNLP – Habitat Compensation Addendum, prepared by Gary Mann and Randy Baker (Azimuth Consulting Group Inc.), dated February 7, 2007.

2.3.4. Aquatic Effects Management Program, prepared by Cumberland Resources Ltd., dated October 2005.

2.3.5. Report Addendum Detailed Design of Dewatering Dikes Meadowbank Gold Project, Golder Associates Ltd., dated July 12, 2007.

2.3.6. Meadowbank Gold Project – Type A Water License Application, prepared by Meadowbank Mining Corporation, dated August 2007.

2.3.7. Technical Memorandum Fish Habitat Compensation Structures – Meadowbank Gold Project, Nunavut, Document Number 585 ver.0, signed by Paolo Chiaramello, Dan Walker and Nathan Schmidt (Golder Associates), dated February 13, 2008.

2.3.8. Final Report Detailed Design of Dewatering Dikes Meadowbank Gold Project, 3 Volumes, Document No. 342, Ver. 0, prepared by Golder Associates, dated March 13, 2007.

2.3.9. Report Addendum Detailed Design of Dewatering Dikes Meadowbank Gold Project, 3 Volumes, Document No. 492, Ver. 0, prepared by Golder Associates, dated July 12, 2007.

2.3.10. Technical Memorandum – Fish-Out Program for the Meadowbank Gold Project, prepared by Ryan Hill and Gary Mann (Azimuth Consulting Group Inc.), dated May 30, 2008.

2.3.11. Meadowbank Gold Project, Aquatic Effects Management Program Targeted Monitoring – Habitat Compensation Monitoring Plan, version 4, Project No. AEM-07-01, prepared by Azimuth Consulting Group Inc., dated May 2008.

2.3.12. Proposed Water Quality Monitoring and Management Plan for Dike Construction and Dewatering at the Meadowbank Mine , Version 6, prepared Agnico-Eagle Mines Ltd., dated April 2008.

2.3.13. No Net Loss Plan Implementation Cost Estimate & Construction Schedule – Meadowbank Gold Mine Project, Revision 1,

prepared by Agnico-Eagle Mines Ltd. – Meadowbank Division, dated July 08, 2008.

2.3.14. Meadowbank Type A Water License – Response to Pre-Hearing Commitments, signed by Rachel Gould (Agnico-Eagle Mines Ltd.), dated March 7, 2008.

2.3.15. The above document(s) and/or drawing(s) are hereafter referred to as the "proponent plan".

3. Conditions that relate to the mitigation of potential harmful alteration, disruption or destruction ("HADD") of fish habitat. The following measures shall be implemented to avoid unauthorized HADD of fish habitat:

3.1. A qualified biologist or environmental inspector shall be on site during all in-water construction, compensation and restoration works to ensure implementation of the designs as intended in the proponent plan and conditions of this Authorization.

3.2. Fish salvage methods shall be implemented as per the approved Fish-Out program at the Meadowbank Property for removing fish in the diked-off portions of Second Portage Lake and Third Portage Lake.

3.3. All materials and equipment used for the purpose of site preparation and project completion shall be operated and stored in a manner that prevents any deleterious substance (e.g. petroleum products, debris, etc.) from entering the water.

3.3.1. Any stockpiled materials shall be stored and stabilized above the ordinary high water mark of any water body.

3.3.2. Vehicle and equipment re-fuelling and maintenance shall be conducted above the ordinary high water mark of any water body.

3.3.3. Any part of equipment entering the water shall be free of fluid leaks and externally cleaned/degreased to prevent any deleterious substance from entering the water.

3.4. Only clean material free of fine particulate matter shall be placed in the water.

3.5. Sediment and erosion control measures shall be implemented prior to work, and maintained during the work phases, including decommissioning and restoration phases, to mitigate impacts to fish habitat.

3.5.1. All disturbed areas shall be stabilized upon completion of work and restored to a pre-disturbed state or better.

3.5.2. Sediment and erosion control measures shall be left in place and maintained until all disturbed areas have been stabilized

3.6. The Proponent shall develop and enforce a policy that prohibits fishing on Second Portage Lake and Third Portage Lake and surrounding lakes and streams by individuals on the mine site in a capacity as mine employee, contractor or visitor during all phases of mining activities, unless otherwise agreed to by DFO.

3.6.1. This Policy shall be made available and understood by individuals on the mine site in a capacity as mine employee, contractor or visitor during all phases of mining activities.

4. Conditions that relate to the compensation for the loss of **741.28** Habitat Units (HU) of fish habitat as defined in the proponent plan.

4.1. The Proponent shall ensure that fish habitat compensation efforts in Second Portage Lake and Third Portage Lake will achieve a total gained HUs:lost HUs ratio of 1.68 or better for the harmful alteration, disruption, or destruction of fish habitat. This shall be achieved as described in Table 2:

Table 2: Fish Habitat Compensation Features

Location	Fish Habitat Feature	Habitat Units Gained	Construction Schedule - Year(s)
Second Portage Lake	Re-flooded basin of Second Portage Lake (includes creation of shoals, reefs, and boulder gardens within the basin)	401.0	2015-2022
	Creation of six habitat shoals (Habitat Mounts)	8.2	2009-2011
	Creation of a reef (East Dike Finger Extension)	33.0	2009
Third Portage Lake	Breaching of Goose Island Dike	26.6	2025

	Re-flooded basin of Third Portage Lake (includes creation of shoals, reefs, and boulder gardens within the basin)	701.6	2015-2022
	Creation of a reef (Goose Island Dike Finger Extension – excludes the five finger dike extensions off Goose Island Dike)	81.6	2013
Total		**1252.0**	

4.2. Final detailed design plans and drawings for the inside dike shoals, reefs and boulder gardens in Second Portage and Third Portage Lakes shall be submitted to the Iqaluit, Nunavut office of Fisheries and Oceans Canada– Fish Habitat Management, Eastern Arctic Area by December 31, 2014, for review and subject to DFO approval.

4.3. If at any time the Proponent becomes aware that the compensatory habitat is not completed and/or functioning as described in the habitat compensation plan listed in condition 2.3 , it shall carry out any works which are necessary to ensure the compensatory habitat is completed and/or functioning as described in the approved No Net Loss plan.

4.4. The Proponent shall confirm that they shall leave the compensatory habitat undisturbed. After the compensatory habitat has been created the Proponent shall not carry on any work or undertaking that will adversely disturb or impact the compensatory habitat.

4.5. A **Contingency Plan** addressing alternative habitat compensation measures to be implemented to meet the required ratio of gainedHUs:lostHUs in the event the primary compensation plans fail either due to inability to construct as per the proponent plan, or failure of the habitat compensation measures to meet the criteria for success established in the Habitat Compensation Monitoring Plan, version 4, dated May 2008, shall be developed by the Proponent through consultation with impacted communities and/or the local Hunters and Trappers Organizations. These plans shall be submitted within **one (1) year** of the issuance of this Authorization to the Iqaluit, Nunavut office of Fisheries and Oceans Canada– Fish Habitat Management, Eastern Arctic Area for review and subject to DFO approval.

5. Conditions that relate to the **monitoring** of the proponent plan, the mitigation and the compensation is referred to as the "Monitoring Program".

5.1. The Proponent shall undertake the Monitoring Program according to the approved proponent plan. The Monitoring Program shall determine whether the works were conducted within the schedule of the approved proponent plan, whether the design intent was met, whether the habitat features are functioning as intended and whether the mitigation measures outlined in the approved proponent plan and this Authorization were followed**.**

5.2. The stability and successful utilization of all fish habitat compensation features shall be assessed according to the methodology and schedule detailed in the Habitat Compensation Monitoring Plan, version 4, dated May 2008 and the No Net Loss Plan Implementation Cost Estimate & Construction Schedule – Meadowbank Gold Mine Project, Revision 1, dated July 08, 2008.

5.3. Detailed monitoring plans for Tier 2 and Tier 3 criteria as per condition 5.3.1. and 5.3.2, shall be submitted to the Iqaluit, Nunavut office of Fisheries and Ocean Canada– Fish Habitat Management, Eastern Arctic Area by **March 31, 2009** for review and subject to DFO approval.

5.3.1. Tier 2 – Toxicity Testing
5.3.2. Tier 3 – In-situ Biological Studies such as "Trout Egg Development" and "Periphyton on Modified Natural Substrate"

5.4. A photographic record of before, during and after construction, during decommissioning and post-restoration, shall indicate that all works and undertakings have been completed according to the approved proponent plan and conditions of this Authorization.

5.4.1. The photographic record shall include, but not be limited to, a record of the sediment and erosion control measures and the fish habitat compensation measures.

5.4.2. The photographs for each pre-construction, during construction, post-construction, decommissioning and post-restoration time periods shall be taken from the same vantage point(s) and general direction.

5.4.3. All photographs shall be clearly labeled as to date and vantage point(s). The photographic vantage point(s) and viewing directions shall be indicated, and clearly indexed to the photographs, on a plan view drawing of the construction site(s).

6. Conditions that relate to Reporting

6.1. A written report and photographic record summarizing the results of the Monitoring Program undertaken as per condition 5. shall be submitted to the Iqaluit, Nunavut office of Fisheries and Oceans Canada– Fish Habitat Management, Eastern Arctic Area by **March 31** of each year following the monitoring year detailed in the No Net Loss Plan Implementation Cost Estimate & Construction Schedule – Meadowbank Gold Mine Project, Revision 1, dated July 08, 2008.

6.2. **As-Built Reports including engineer drawings** shall be submitted to the Iqaluit, Nunavut office of Fisheries and Oceans Canada– Fish

Habitat Management, Eastern Arctic Area within **six (6) months** of the respective completion of each fish habitat compensation effort identified in Table 2, with the exception of the six habitat shoals in Second Portage Lake, that demonstrates the application of the **approved No Net Loss Plan** referred to in condition 2.3.

6.3. **As-Built Reports including engineer drawings** shall be submitted to the Iqaluit, Nunavut office of Fisheries and Oceans Canada– Fish Habitat Management, Eastern Arctic Area within **eight (8) months** of the respective completion of each of the six habitat shoals in Second Portage Lake that demonstrates the application of the **approved No Net Loss Plan** referred to in condition 2.3.

7. Conditions that relate to the Security Deposit

7.1. The Proponent shall provide DFO with an irrevocable Letter of Credit as security for the completion and performance by the Proponent with regard to all of its obligations under this Authorization, including the required fish habitat compensation and monitoring, reporting, and additional work determined by DFO if required, according to the following schedule:

a) two (2) weeks after the issuance date of this Authorization an amount of six million seven hundred and fifty thousand ($6,750,000.00) dollars.

b) prior to commencement of Bay Zone dike construction an additional eight million eight hundred thousand ($8,800,000.00) dollars.

7.2. The Proponent shall provide DFO with the following items at the time of the Contingency Plan submission according to condition 4.5:

7.2.1. A cost estimate report of the amount to cover the Contingency Plan's implementation costs.

7.2.2. If the cost estimate for the implementation of the Contingency Plan exceeds the amount in the irrevocable Letter of Credit according to condition 7.1, the original irrevocable Letter of Credit shall be amended to reflect the greater amount and shall be submitted to the Iqaluit, Nunavut office of Fisheries and Oceans Canada– Fish Habitat Management, Eastern Arctic Area within two (2) weeks of DFO approval of the Contingency Plan.

7.3. The security deposit provided by the Proponent must be in a form agreed to by DFO.

7.4. The Proponent shall maintain the deposited amounts until all of the Proponent's obligations under this Authorization are satisfied.

7.5. At the discretion of DFO, the amount of the security deposit may be adjusted annually to account for fish habitat compensation completed or to accomplish additional work that DFO may require to satisfy the objectives of fish habitat compensation.

7.6. DFO shall be able to call on the security deposit unconditionally if the Proponent does not meet any of the requirements outlined within this Authorization, as determined solely by DFO.

7.7. To the extent not prohibited by law, the Proponent shall have the right to audit, from time to time with reasonable notice to DFO and at the Proponent's expense, any expenditure of funds withdrawn by DFO.

7.8. Once the Proponent has completed to the satisfaction of DFO all studies, reports and works required by DFO, DFO shall return to the Proponent any unused portion of the security deposit.

8. Any deviation from the approved proponent plans, the construction schedule, mitigation, compensation and/or monitoring measures stated above must be discussed with, and approved in writing by the Iqaluit, NU office of the Fisheries and Oceans Canada, Fish Habitat Management, Eastern Arctic Area.

9. All mitigation, compensation and monitoring measures shall be implemented, maintained and modified, as approved by DFO, to the satisfaction of the Iqaluit, NU office of the Department of Fisheries and Oceans, Habitat Management, Eastern Arctic Area.

10. Written notification of the commencement of works or undertakings shall be provided to the Iqaluit, NU office of the Department of Fisheries and Oceans, Habitat Management, Eastern Arctic Area, by e-mail to Amy.Liu@dfo-mpo.gc.ca or fax at (867) 979-8039 prior to the initiation of said works or undertakings.

The holder of this authorization is hereby authorized under the authority of section 35(2) of the *Fisheries Act*. R.S.C., 1985, c.F. 14, to carry out the work or undertaking described herein. This authorization is valid only with respect to fish habitat and for no other purposes. It does not purport to release the applicant from any obligation to obtain permission from or to comply with the requirements of any other regulatory agencies.

Failure to comply with any condition of this authorization may result in charges being laid under the *Fisheries Act*.

This authorization form shall be held on site and work crews shall be made familiar with the conditions therein.

Date of Issuance: 30 July 2008

Approved by: _____

Robert Lambe
Title: Regional Director General, Central and Arctic Region

Robert Lombardo

APPENDIX C – Documentation of Consultation

No Net Loss Planning Consultation Summary

Date	Description	Attendees	Document Attached?
7-Mar-11	AEM No Net Loss Contingency Plan Terms of Reference	Sent to DFO by AEM	X
28-Apr-11	DFO Approves Terms of Reference	Accepted by DFO	
30-May-11	Invitation to attend July 13th Workshop	sent to: KIA, NWB, NIRB, HTO, DFO	X
13-Jun-11	Meadowbank Site visit with HTO- inpart discussed NNL Planning	HTO and AEM	
13-Jul-11	No Net Loss Planning Workshop	HTO, KIA, DFO, AEM, Consultants	X
8-Aug-11	Email to DFO outlining DFO Authorization discrepancies	Sent to DFO by AEM	X
12-Aug-11	Helicopter Tour with Workshop Attendees	HTO, KIA and AEM	
15-Aug-11	DFO Site Visit to Meadowbank and Meliadine	AEM and DFO	
11-Nov-11	Agenda sent for November 17th meeting in Ottawa	AEM and DFO	X
17-Nov-11	November 17th and 18th meetings in Ottawa	AEM and DFO	X
13-Dec-11	Follow-up teleconference	AEM, DFO and Consultants	
31-Jan-12	Technical Memorandum detailing a HEP method comparison	AEM, DFO and Consultants	X
12-Feb-12	Exploratory Meeting with DFO Science to discuss research opportunities	AEM, U of G researchers, DFO Habitat and DFO Science	X
23-Feb-12	Site visit and presentation on NNL Planning, Wildlife and Fisheries monitoring	AEM and HTO board members	
30-Mar-12	Email from DFO detailing expectations for a new Meadowbank NNLP	Sent by DFO to AEM	X
7-Jun-12	Technical Memorandum detailing a adjusted HEP with example	Sent to DFO by AEM	
15-Jun-12	Submission of Draft NNL Plan	Sent to DFO by AEM	
16-Jul-12	Telephone conversation to discuss NNL Plan- Ryan V and Bobby Bedingfield	DFO and AEM	
19-Jul-12	Email- Comments and feedback from DFO on Draft NNL Plan; Email Entitled- Meadowbank Authorization Amendment and NNLP Contingency Plan	DFO response to AEM	X
13-15 Aug-2012	Meadowbank site visit- discussions included the review of DFO comments and feedback on NNL Plan and monitoring programs	DFO and AEM	
28-Aug-12	DFO and AEM Meeting- Summary and Action Items	DFO and AEM	
12-Sep-12	AEM reponse to DFO July 19 email	AEM response to DFO	X
26-Sep-12	DFO Response to AEM Email dated Sept 12	DFO response to AEM	X

TECHNICAL MEMORANDUM

DATE: March 7, 2010

TO: Derrick Moggy, Team Leader Arctic Region, Department of Fisheries and Oceans Canada

FROM: Ryan VanEngen- Environment Biologist
Stéphane Robert – Environment Superintendent

RE: Agnico-Eagle Mines Ltd: Meadowbank Division – Terms of Reference for the No Net Loss Contingency Plan

Background

On July 30, 2008, Agnico-Eagle Mines Ltd. (AEM) was granted Fisheries Authorization NU-03-0191 for the Meadowbank gold project. The development and construction of habitat compensation for the loss of fisheries habitat (either due to harmful alteration, disruption or destruction) is a requirement of the project.

In addition to the development of habitat compensation, Condition 4.5 of this Fisheries Authorization states:

> *A Contingency Plan addressing alternative habitat compensation measures to be implemented to meet the required ratio of gained HUs : lost HUs in the event the primary compensation plans fail either due to inability to construct as per the proponent plan, or failure of the habitat compensation measures to meet the criteria for success established in the Habitat Compensation Monitoring Plan, version 4, dated May 2008, shall be developed by the Proponent through consultation with impacted communities and/or the local Hunters and Trappers Organizations. These plans shall be submitted within one (1) year of the issuance of this Authorization to the Iqaluit, Nunavut office of Fisheries and Oceans Canada– Fish Habitat Management, Eastern Arctic Area for review and subject to DFO approval.*

On January 15, 2009 AEM sent a letter to the Department of Fisheries and Oceans Canada (DFO) raising concerns with the development of an appropriate contingency plan in the specified period of time. These concerns regarded the current limited scientific research on the effectiveness and legacy of engineered structures in Arctic waters and the lack of potential locations for suitable habitat creation in the vicinity of the mine site and the Hamlet of Baker Lake. On May 19, 2009 DFO acknowledged these concerns and that for the benefit of all parties involved agreed to defer the development of a habitat compensation contingency plan. In follow-up meetings the DFO and AEM met to review the options for a contingency plan and the DFO recommended that the Terms of Reference for a contingency plan be developed.

Objectives

The Terms of Reference (ToR), outlined in this memorandum will guide the process for AEM to develop a no-net loss (NNL) habitat contingency plan that will meet the goals of the DFO. To ensure the goals of the contingency plan are met in a conciliatory manner, various workshops will be held to inform, involve and consult with stakeholders in the development of the contingency plan. The final product of the workshops, research and discussions is to submit an agreeable no-net loss contingency plan that is acceptable to the Department of Fisheries and Oceans.

The scope of the ToR includes:

- Identifying the stakeholders and their involvement;
- Outlining applicable deliverables;
- Areas of potential research; and
- Proposing a timeline that outlines the development of the Meadowbank no-net loss contingency plan.

Identification of Stakeholders and Their Responsibilities

As stated above, AEM will invite stakeholder participation by hosting workshops. The goal of these workshops will be to engage and provide consultation for identifying and developing alternative habitat compensation strategies for the Meadowbank Mine. The workshop invitees will be comprised and not limited to:

- The proponent (Agnico-Eagle Mines Ltd. [AEM]);
- Department of Fisheries and Oceans Canada (DFO);
- Baker Lake Hunters and Trappers Organization (HTO);
- Kivalliq Inuit Association (KIA); and
- Consultants or Researchers hired by any of the groups listed above.

In general, the following roles and responsibilities are assigned as part of the development of the No-Net-Loss Contingency Plan.

The proponent (AEM): Responsible for coordinating the workshops and organizing meetings with DFO representatives and researchers to meet the timelines proposed in the ToR. Responsible for researching and proposing alternative habitat compensation options, developing and assessing the feasibility, costs and schedules for any proposed habitat compensation features and lastly for preparing the NNL contingency plan.

DFO: When possible, the DFO is responsible to provide feedback and participate in the workshops and meetings hosted by AEM. Although the DFO is not directly responsible to develop an alternative plan, they are requested to participate in researching and providing advice on suitable alternative habitat contingency options for the project. The DFO is responsible for approving the final no-net loss habitat contingency plan under the Fisheries Authorization.

Inuit Associations: As representative land owners, the KIA is invited to participate and provide consultation by attending the workshops. As representative resource users, the Baker Lake HTO will be invited to participate in the workshop and provide consultation.

Consultants and Researchers: Responsible for participating and assisting group members in the development of alternative habitat compensation options for the project.

As outlined, consultation through meetings with DFO representatives and stakeholder workshops will provide accountability and guidance during the process of developing the No-Net-Loss contingency plan. Ultimately, the proponent is responsible for designing and providing the DFO with a compliant no net loss contingency plan.

Areas of Potential Research and Discussion for Alternative Habitat Compensation Options

Items that will be researched, pursued and discussed through the process of developing a no net loss contingency include (but are not limited to):

A review of the originally proposed habitat compensation

- A review of the originally proposed habitat compensation features (i.e. shoals, finger dikes, mounts), construction designs and costs.
- A review of the number of habitat units that are to be compensated for and the methods used to quantify habitat units.
- A review of the success criteria established in the Habitat Compensation Monitoring Plans.
- A review of in-water construction methods and the experiences learned during Meadowbank in-water dike construction in 2008 to 2010.
- The limitations of the originally proposed habitat compensation options.

Identification of contingency plan habitat compensation options

- Available methods to improve upon the currently proposed habitat compensation features (consideration for alternate accounting systems).
- A review of the scientific literature for any new developments on habitat compensation features in the Arctic.
- Consideration of developing an alternative accounting system (i.e. replacing habitat units with alternative units such as fish population or biomass replacement).
- A review of other constructed habitat compensation features in the Arctic, and if possible, the effectiveness of those features (i.e. end pit lakes, mounts, shoals).
- The identification of compensation options within the watershed of the mine site, near to the Hamlet of Baker Lake, within the Kivalliq region and/or outside the region.
- Creative alternative strategies for habitat compensation in the north
- The identification of compensation options that provide a tangible benefit to the local community. This might include: non like-for-like or off-site (e.g. improving the fisheries industry and researching related fisheries management in Nunavut).
- The identification of a suite of contingency options that collectively provides a suitable no net loss contingency plan.

Options Analysis

- The feasibility of any of the proposed compensation features.
- The environmental, social and economical benefits and risks from any of the proposed compensation options.
- Defining the measures and limitations in quantifying success (field data collection may be needed to assist with the formulation of a potential habitat compensation options).

Deliverables

Deliverables for the proponent include the following:

- Completing and distributing meeting agendas to DFO representatives and documenting minutes from each of the meetings and stakeholder workshops.
- A Meadowbank- No Net Loss Contingency Plan, as developed in consultation with the stakeholders and DFO representatives, shall be provided to the DFO for approval.

Timeline

- April 2011 – The proponent will contact all stakeholders and request their participation in a workshop.

- May- July 2011 – AEM will host a workshop with stakeholders to review the approved habitat compensation features at Meadowbank, review the requirements of the No-Net-Loss contingency and identify alternative options for habitat compensation.
- September- December 2011- AEM and DFO will meet to review the identified options and discuss the preferred options based on their feasibility.
- January- March 2012- AEM will host a workshop with stakeholders to review the feasibility of the options and the direction of the contingency plan.
- April 2012 - The proponent will formally submit the No-Net-Loss contingency plan to the DFO for approval.

AGNICO-EAGLE
MEADOWBANK DIVISION

May 30, 2011 (see translated version below)

Dear Workshop Invitee,

On July 30, 2008, Agnico-Eagle Mines Ltd. (AEM) was granted Fisheries Authorization NU-03-0191 for the Meadowbank Mine. The development and construction of habitat compensation for the loss of fisheries habitat (either due to harmful alteration, disruption or destruction) is a requirement of the project.

In addition to the development of habitat compensation, Condition 4.5 of this Fisheries Authorization states:

> *A Contingency Plan addressing alternative habitat compensation measures to be implemented to meet the required ratio of gained HUs : lost HUs in the event the primary compensation plans fail either due to inability to construct as per the proponent plan, or failure of the habitat compensation measures to meet the criteria for success established in the Habitat Compensation Monitoring Plan, version 4, dated May 2008, shall be developed by the Proponent through consultation with impacted communities and/or the local Hunters and Trappers Organizations. These plans shall be submitted within one (1) year of the issuance of this Authorization to the Iqaluit, Nunavut office of Fisheries and Oceans Canada– Fish Habitat Management, Eastern Arctic Area for review and subject to DFO approval.*

In response to discussions with the Department of Fisheries and Oceans Canada (DFO), on March 7th, 2011, AEM submitted a Terms of Reference to the DFO to guide the completion of a No Net Loss Contingency Plan for the Meadowbank Mine. On April 28, 2011 the DFO provided comments and approval for the Terms of Reference memorandum.

As stated in the Terms of Reference, AEM is encouraging the participation of relevant stakeholders during the No Net Loss Contingency plan development; it is for this reason that AEM would like to invite you and relevant members of your organization to participate in a workshop that will be held on July 13th, 2011 in Baker Lake. A follow-up workshop will also be completed at the beginning of 2012 prior to the final submission of the plan.

The goal of these workshops will be to engage and consult with relevant stakeholders for identifying and developing alternative habitat compensation strategies for the Meadowbank Mine. The workshop invitees will be comprised and not limited to:

- The proponent (Agnico-Eagle Mines Ltd. [AEM]);
- Department of Fisheries and Oceans Canada (DFO);
- Baker Lake Hunters and Trappers Organization (HTO);
- Nunavut Water Board (NWB);

Regional Office:
20, Route 395
Cadillac, Quebec
J0Y 1C0
Tel: 819-759-3700 Fax: 819-759-3663

Baker Lake Office:
P.O. Box 540
Baker Lake, Nunavut
X0C 0A0
Tel: 867-793-4610 Fax: 867-793-4611

- Kivalliq Inuit Association (KIA); and
- Consultants or Researchers hired by any of the groups listed above.

During the July 13th workshop, we invite at least one representative of your organization to participate in an introduction to the project, a review of the approved no-net loss plan & habitat compensation for the Meadowbank Mine and a discussion on the development of alternative habitat contingencies for the *Meadowbank Mine No Net Loss Contingency Plan*.

We are requesting your response ASAP or at the latest by June 15th, 2011. Please reply to Ryan VanEngen: rvanengen@agnico-eagle.com or call Stephane or Ryan at the below email address.

Feel free to contact the undersigned any time if you have any questions or comments, otherwise we look forward to meeting with you on July 13th, 2011.

Regards,

Ryan Vanengen
rvanengen@agnico-eagle.com
519-400-7979
Environment Biologist

Stéphane Robert
Stephane.robert@agnico-eagle.com
819-763-0229
Environment Superintendent

AGNICO-EAGLE
MEADOWBANK DIVISION

ᒪᐃ 30, 2011

ᑎᑎᕋᕕᐅᔪᑦ, ᑲᑎᒪᔭᖅᑐᕈᓇᖅᑐᑦ

ᐅᑉᓗᑎᓗᒍ ᔪᓚᐃ 30, 2008ᒥ, ᐊᒡᓂᑯ ᐃᑯ ᐅᔭᕋᒃᑕᕆᐊᑦ, ᐊᖏᒐᐅᓚᐅᖅᑐᑦ ᑕᓯᐅᑉ ᐃᓚᖓ ᐊᐳᖅᑎᓐᓇᖅᑐᒥ ᐱᓕᕆᐊᕆᔭᐅᕐᑯᑉᓗᒍ, ᐃᖃᓗᐃᑦ ᐃᓱᒪᒋᑉᓗᒋᑦ. ᑕᒪᓇ ᐊᖏᕈᑦ ᑲᕝᒪᑐᖃᑯᓂᑦ ᑕᕆᐅᓕᕆᔨᑯᖏᓂᑦ ᐱᔪᖅ ᓇᓗᓇᐃᑯᑕᓕᒃ, NU-03-0191. ᐊᐳᖅᑎᓐᓇᖅᑐᒥ ᒥᕕᒃ ᑕᑭᓕᕆᐊᒐᐅᓂᐊᕐᑎᓗᒍ, ᐃᖃᓗᖃᕐᕕᒃ ᐃᓚᖓ ᑕᓯᕐᒥ ᑕᒪᕐᓂᐊᕐᒪᑦ. ᑕᓯᕐᒥ ᐃᓚᓂ ᐊᖏᓕᒐᐅᓂᐊᕐᒪᑦ,
ᐃᖃᓗᐃᑦ ᐃᓱᒪᒋᑉᓗᒋᑦ, ᑕᒪᓇ ᐱᓕᕆᔪᑕᐅᓂᐊᕐᑐᖅ, ᐊᐳᖅᑎᓐᓇᖅᑐᒥ.

ᐊᐳᖅᑎᓐᓇᖅᑐᒥ ᒥᕕᐅᑉ ᑕᕈᓕᕆᐊᕐᓂᖓᓄᑦ, ᑕᓯᐅᑉ ᐃᓚᖓᓄᑦ, ᐃᖃᓗᖃᕐᕕᐅᔪᒃᓇᕐᑐᖅ ᑕᓯᐅᑉ ᐃᓚᖓᓂ ᐱᓕᕆᐊᕆᔭᐅᓂᐊᕐᒪᑦ, ᐊᖏᕈᒥ ᓇᓴᐅᑎᓕᒃ 4.5 ᑎᑎᕋᒃᓯᒪᔪᖅ ;

ᒥᕕᒃ ᓴᓇᔭᐅᑎᓗᒍ ᑕᓯᐅᑉ ᐃᓚᖓᓄᑦ ᓴᓇᔭᐅᓂᐊᕐᒪᑦ, ᐃᖃᓗᖃᕈᓇᕐᑐᖅ ᑕᒪᐃᔭᐅᓂᐊᕐᒪᑦ.
ᑕᒪᐃᔭᐅᓂᑯ ᓴᓇᔭᐅᔭᕆᐊᖃᖅᑐᖅ ᑕᓯᐅᑉ ᐃᓚᖓᓂ, ᐃᖃᓗᖃᕈᓇᒃᑯᑉᓗᒍ. ᑕᒪᓇ ᐸᕐᓇᒍᑕᐅᓂᐊᕐᑐᖅ, ᐊᖑᓇᓱᒃᑎᑦ ᐃᓚᐅᖃᑕᐅᓗᑎᒃ. ᑕᒪᓇ ᐱᓕᕆᐊᕆᔭᐅᔭᕆᐊᖃᖅᑐᖅ ᑎᑎᕋᒃᓯᒪᒪᑦ, ᓂᔪᑎᑦ ᐃᓂᖏᑦ ᐊᑐᒐᐅᐸᑕ, ᑎᑎᖃᒥ ᐸᕐᓇᒍᒥ Version 4, May 2008ᒥ. ᑕᒪᓇ ᐱᓕᕆᐊᕆᔭᐅᓂᐊᕐᑐᖅ ᓄᓇᓕᑦ ᐱᓕᕆᕕᒋᔭᐅᔪᑦ, ᐊᒪᓗ ᐊᖑᓇᓱᒃᑎᑦ ᑲᑎᒪᔨᖏᑦ ᐃᓚᐅᖃᑕᐅᓗᑎᒃ. ᑎᑎᖃᖅ ᐱᓕᕆᐊᕆᔭᐅᔭᕆᐊᖃᖅᑐᒥᒃ ᑐᓂᔭᐅᒪᑦ, ᐱᓕᕆᐊᕆᔭᐅᔭᕆᐊᖃᖅᑐᖅ
ᐅᑭᐅᖅ 1 ᐱᐊᓂᖃᑎᓇᒍ. ᑕᒪᓇ ᑎᑎᖃᖅ ᐱᓚᐅᕐᒪᑦ ᐃᖃᓗᒃᓂ, ᑲᕝᒪᑐᖃᑯᑦ ᑕᕆᐊᓕᕆᔨᑯᖏᓂᑦ. ᐱᓕᕆᐊᕆᔭᐅᓂᐊᕐᑐᕐᓗ ᐸᕐᓇᒃᓯᒪᓕᖅᐸᑦ ᖃᐅᔨᓴᒐᐅᔭᕆᐊᖃᖅᑐᖅ ᑕᑯᓇᖓᑦ ᐊᖏᒐᐅᒥᓗᓂ.

ᐊᒡᓂᑯ ᐃᑯ ᐅᔭᕋᒃᑕᕆᐊᑦ ᐊᒪᓗ ᑲᕝᒪᑐᖃᑯᑦ ᑕᕆᐊᓕᕆᔨᖓᑕ ᑎᑎᕋᕕᖓᑦ, ᐸᕐᓇᖃᑎᒋᓚᐅᕐᒪᓂᒃ,
ᒪᔨ 7, 2011ᒥ. ᑲᑎᒪᓂᑲᒥᒃ ᐱᓕᕆᐊᕆᔭᐅᓂᐊᕐᑐᑦ ᑎᑎᕋᒃᓯᒪᓕᖅᓗᑎᒃ ᒪᓕᒐᐅᓂᐊᕐᒪᑦ. ᐊᒪᓗ ᐊᐃᕆᓕ 28, 2011ᒥ, ᑕᕆᐊᓕᕆᔨᑦ ᓇᒪᒃᓴᕐᓗᑎᒃ ᐊᖏᓚᐅᕐᑐᑦ ᐱᓕᕆᐊᕆᔭᐅᓂᐊᕐᑐᒥᒃ. ᑕᒪᓇᓗ ᐱᓕᕆᐊᕆᔭᐅᓂᐊᕐᑐᖅ.

ᑎᑎᕋᒃᓯᒪᔪᓂ ᐱᓕᕆᐊᕆᔭᐅᓂᐊᖅᑐᓂ, ᐅᖃᖅᓯᒪᔪᖅ, ᐊᒡᓂᑯ ᐃᑯ ᐅᔭᕋᒃᑕᕆᐊᑦ ᐃᓚᐅᖃᑕᐅᕐᑯᔨᔪᑦ
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ᐃᓚᐅᖃᑕᐅᔪᒃᓇᕈᐸᓯ, ᑕᒪᓇ ᐸᕐᓇᒐᑕᐅᓂᐊᕐᒪᑦ, ᑲᑎᒪᓗᑎᒃ ᔪᓚᐃ 13, 2011ᒥ. ᐊᒪᓗ ᑕᒪᓇ ᑲᑎᒪᔪᑕᐅᒐᓂᒃᐸᑦ, ᐅᑭᐅᒥ 2012ᒥ ᑲᑎᑲᓂᕆᐊᕐᓂᐊᖅᑐᑦ, ᑕᒪᓇᓗ ᐱᐊᓂᒃᐸᑦ ᑐᓂᔭᐅᓂᐊᕐᒪᑦ ᑕᕆᐅᓕᕆᔨᑯᓄᑦ, ᑲᕝᒪᑐᖃᑯᓂᓄᑦ.

ᑲᑎᒪᑎᓗᒋᑦ ᐸᕐᓇᓂᐊᖅᑐᑦ ᑕᒪᓇ ᓂᕐᔪᓯᕆᓂᕐᓗ ᐊᒪᓗ ᓄᓇᐃᑦ ᓂᕐᔪᑎᓄᑦ ᐊᑐᒐᐅᔪᓂᕐᑐᑦ ᖃᓄᖅ
ᐊᓚᑯᑦ ᐊᑐᒐᐅᕕᖃᕈᓇᕐᒪᖓᑕ, ᐊᐳᖅᑎᓐᓇᕐᑐᒥ. ᐅᑯᐊ ᐊᓯᖏᑦᓗ ᑲᑎᒪᔭᖅᑐᕐᑯᔭᐅᓂᐊᕐᑐᑦ:

- ᐊᒡᓂᑯ ᐃᑯ ᐅᔭᕋᒃᑕᕆᐊᑦ

Regional Office:
20, Route 395
Cadillac, Quebec
J0Y 1C0
Tel: 819-759-3700 Fax: 819-759-3663

Baker Lake Office:
P.O. Box 540
Baker Lake, Nunavut
X0C 0A0
Tel: 867-793-4610 Fax: 867-793-4611

- ᑲᕝᒪᑐᖅᑯᓂ ᑕᕆᐅᓕᕆᔨᑦ
- ᖃᒪᓂᑐᐊᕐᒥ ᐊᖕᒍᓇᓱᒃᑎᑦ ᑲᑎᒪᔨᖕᒋᑦ
- ᑭᕝᕕᕐᒥ ᐃᓄᐃᑦ ᑲᑐᔨᖃᑎᒋᑦ ᐊᒪᓗ

- ᑲᑎᒪᔭᖅᑐᖅᑐᑦ ᑎᒥᐅᔪᑦ ᐱᓕᕆᑎᑲᖕᒋᑦ, ᖃᐅᔨᓴᖅᑎᑦᓗ.

ᑲᑎᒪᓂᐊᕐᑎᓗᒋᑦ ᔪᓚᐃᒥ ᑎᑯᐊᖅᑕᐅᓯᒪᔪᑦ ᑲᑎᒪᔭᖅᑐᕐᑯᔭᐅᔪᑦ ᐃᓚᐅᔪᒃᓇᕐᑐᑦ. ᐃᓱᒪᒋᔭᐸᓯᓂᒃ ᑲᑎᒪᔭᖅᑐᕈᓇᖅᑐᓂᒃ ᑎᑯᐊᖅᓯᓂᐊᖅᐳᓯ. ᕿᑎᒪᔭᖅᑐᖅᑐᑦ ᑐᑭᓯᑎᑕᐅᓂᐊᖅᑐᑦ ᓱᓇ ᐱᓕᕆᐊᕆᔭᐅᓂᐊᕐᒪᖔᑦ. ᑕᒪᓇ ᐸᕐᓇᒍᑕᐅᓂᐊᕐᒪᑦ ᐊᐳᖅᑎᓐᓇᖅᑐᒥ ᐅᔭᕋᒃᑕᕐᕕᒃᒥ ᐱᓕᕆᕕᐅᔪᖅ.
ᐊᒪᓗ ᑎᑎᕋᒃᓯᒪᔪᑦ ᐱᓕᕆᐊᕆᕐᑯᔭᐅᓯᒪᔪᑦ ᐅᖃᐅᓯᐅᒪᓂᕐᑐᑦ.

ᑕᐃᒪ ᑕᒪᓇ ᐸᕐᓇᖕᒍᑕᐅᕝᕕᓕᐊᓕᕐᒪᑦ, ᖃᐅᔨᔪᒪᔪᒍᑦ ᑭᑐᑦ ᐃᓚᐅᓂᐊᕐᒪᖔᑕ, ᐊᒪᓗ ᐊᔪᕐᓇᖕᒋᐸᑦ ᔪᓂ 15ᖕᒍᖃᕐᑎᓇᒍ ᖃᐅᔨᑎᑕᐅᓂᐊᖅᐳᒍᑦ. ᖃᓇᑕᐅᔭᑯᑦ ᑎᑎᕈᕕᐅᔪᒃᓇᕐᒥᔪᖕᒐ ᐅᕗᖕᒐ; rvanengan@agnico-eagle.com. ᐅᖃᓗᕕᐅᔪᒃᓇᕐᒥᔪᑦ ᕋᐃᔭᓐ ᐊᒪᓗ ᓯᑎᕝᕕᓐ, ᑐᕋᕈᑎᕗᑦ ᑕᒡᕝᕕᓂ ᑎᑎᖃᒥ ᑎᑎᕋᒃᓯᒪᔪᖅ. ᑕᑯᔪᒪᖅᐸᐸᓯ ᔪᓚᐃ 13, 2011ᒥ.

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ᕋᐃᔭᓐ ᕝᓂᑲᓐ
rvanengan@agnico-eagle.com
519-400-7979
ᐅᒪᔪᓕᕆᔨ

ᓯᑎᕝ ᕈᐱᐅᑦ
stephane.robert@agnico-eagle.com
819-763-0229
ᐊᕝᕕᑎᓕᕆᔨᑦ ᑲᒪᔨᖕᒐᑦ

AGNICO-EAGLE
MEADOWBANK DIVISION

Meeting summary for:
Meadowbank Gold Project No Net Loss Contingency Plan Workshop
July 13, 2011 Nunamuit Lodge, Baker Lake, NU

In attendance:
Ryan VanEngen, AEM ; Stephane Robert, AEM ; Leilan Baxter, consultant to AEM-Meadowbank Mine; John Witteman, consultant to AEM- Meliadine Project; Michael Haqpi, AEM (Translator); Simeon Mikkungwak, KIA; James Tiriganiaq, HTO; Bobby Bedingfield, DFO

Minutes
Start - 9am.

Morning Session Summary

Ryan VanEngen presented an update on activities occurring at the mine site, including details on water management, construction of the in-lake dikes and the environmental monitoring programs. He continued to present a summary of the current fisheries no net loss plan (NNLP), including where habitat losses and gains will occur at the Meadowbank site. Leilan Baxter presented a summary of NNLP compensation options from other northern mines. Ryan VanEngen re-iterated the purpose of today's workshop and explained why AEM needs to develop a NNL contingency plan. See presentation file for details.

Morning Session Questions and Answers (paraphrased)
JK: When I was young in 1959 we fished in the mine site area and the fish were fat and healthy. Are they still?
RV: Yes they are. We monitor the condition factor of fish in the mine site area and they are healthy. We will continue to monitor the health of fish.
JK: On the E, W and S sides of the mine site there were a lot of fish.
RV: These areas are still very productive and that is where the best habitat is. We caught over 2000 fish in the Bay-Goose area (portion of east basin of Third Portage Lake) in 2009.
SM: Where did you put the fish that you caught in that area?

RV: 58% of the fish caught were released in Third Portage Lake outside the Bay-Goose dike. Those that died during collection were used for meristics (DFO required biological data), frozen and later delivered to the community for animal food.
JT: All around the mine site (E, W,S) is traditional fishing areas
RV: We have monitoring stations near the mine, as well as at far field sites that have been monitored prior to mine construction and will be monitored throughout production, in order to detect any effects on fish as a result of the mine.
SM: Before the mine was there, fish travelled from the north down into Tehek Lake.
RV: They can still do that – the channels draining to Tehek are unchanged. Are there any streams that you are aware of near the mine site that could be improved for fish passage?
JT: Most channels around that area have minnows and fish eggs in spring.
RV: Since most of the fish around here spawn in the fall usually the eggs that you see in the spring are likely unfertilized eggs from the fall and wash in the channels.
JT: How does the diversion channel used at Ekati improve fish habitat?
JW: For example, at Ekati they supplemented the channel construction with boulders and cobbles to make it good fish habitat, rather than leaving as a barren ditch. It provides some habitat for arctic grayling and studies are on-going to determine their effectiveness.

LUNCH BREAK

Afternoon session summary

Ryan VanEngen further explained the requirements of a contingency plan and what factors need to be considered in assessing the options. Several ideas were presented and discussed by the workshop participants. See presentation file for details.

Afternoon Session Discussion (paraphrased)

Re. stream habitat enhancements

SR to JK: Do you have any ideas for locations to improve fish habitat?
JT: At the mine site there are lots of shallow streams.
RV: Is there anywhere close to Baker Lake?
JT: Quich River stream between the mine and Baker Lake would be possible.

SM: The stream south of the mine flowing south.
JW to JK: Are there any waterfalls?
JT: There are some on the Quich.
RV: Where are they?
Looked at maps.
JK and SM: There are some places in the streams that flow through White Hills to Prince.
JT: People in the community would know more places to improve. There are a few people that used to live in that area. The small rivers flowing to White Hills would be the best place to help people fishing. There are lots of small streams along the Prince River that dry up. The other places maybe too far.
SM: There is a small falls (rapids with a pool below) south of the Prince River bridge and it's a traditional fishing spot (spearing).
RV/SR: Can the fish go up the falls or is it too high?
SM: You can see them jumping up the falls, but not all get through.
RV/SR: Do they swim up the rapids?
SM and JK: The small fish stay above the rapids, the big ones go back and forth.
SR: Would this be a good area to change?
JT and SM: No, people like this area how it is. But another good area to improve is further up from km 18 – a shallow area that maybe fish can't pass. Also by km 15/16 (all connections to White Hills Lake).

Re. Airplane Lake/sewage treatment enhancements
J: Before the sewage flowed to Airplane Lake it had lots of good fish (trout and grayling) and people used to fish there.

<u>Final Comments</u>
JT: There might be some areas to improve streams between Amarulik Lake and White Hills Lake too.
SM: Hardly anyone fishes north of the mine because it's too rocky. Any projects there wouldn't help local hunters.
BB: Good options presented.
JW: Some possibilities here could work for Meliadine NNLP as well.
AEM: Thank you for coming and contributing ideas.

Next Steps

AEM to go for a helicopter with HTO representatives in August to look at areas that could be candidates for improved stream habitat.

There will be additional meetings with the DFO in late 2011 and with the stakeholders (HTO, KIA and AANDC) in early 2012.

The community will be consulted before any options are finalized and implemented.

End - 2:30pm.

Table 1A. Total Habitat Units (HU) altered, disturbed or destroyed by the Meadowbank Gold Project (2006/2007 NNLP).

	Mine Component	High			Medium			Low			Total HUs			
		HS I	*ha*	*HU*	*HS I*	*ha*	*HU*	*HS I*	*ha*	*HU*	*Mine Site*	*DFO Authorization*	*TIA*	*Difference of Mine vs DFO Auth*
Second Portage Lake	***Tailings Impoundment Area***	8.90	12.70	**112.99**	6.06	20.95	**126.92**	2.34	55.75	**130.59**			**370.50**	
Second Portage Lake	***East Dike Footprint***	8.90	0.00	0.00	6.06	5.99	36.26	2.34	1.29	3.02	39.28	39.28		
	West (Central) Dike Footprint	8.90	0.03	0.24	6.06	0.64	3.88	2.34	7.75	18.15	22.27	22.27		
	Second Portage - Basin*	8.90	1.13	10.05	6.06	12.87	77.94	2.34	9.95	23.31	111.30	111.30		
	Portage Pit - Second Portage Lake*	8.90	0.004	0.04	6.06	3.55	21.52	2.34	12.03	28.18	49.75	49.75		
	Second Portage Habitat Mounts Footprint*,1	8.90	0.000	0.00	6.06	0.00	0.00	2.34	1.25	2.93	2.93			2.93
	East Dike Extension Habitat Footprint*,1	8.90	0.000	0.00	6.06	0.00	0.00	2.34	5.03	11.78	11.78			11.78
	Total			**10.3**			**139.6**			**87.4**	**237.3**	**222.6**	**0.0**	14.7
Third Portage Lake	***Goose Island (Bay Goose) Dike Footprint***	8.90	1.34	11.88	6.06	4.24	25.69	2.34	15.32	35.89	73.46	73.46		
	South Camp Dike Footprint	8.90	0.00	0.00	6.06	0.17	1.00	2.34	0.00	0.00	1.00	1.00		
	Third Portage - Basin*	8.90	10.37	92.20	6.06	20.75	125.70	2.34	35.49	83.14	301.04	301.04		
	Goose Pit - Third Portage Lake*	8.90	2.00	17.77	6.06	3.70	22.43	2.34	8.91	20.87	61.07	61.07		
	Portage Pit - Third Portage Lake*	8.90	0.01	0.07	6.06	4.87	29.50	2.34	2.39	5.59	35.16	35.16		
	Finger Dike Extension Habitat Footprint*,1	8.90	0.00	0.00	6.06	0.00	0.00	2.34	11.07	25.93	25.93			25.93
	Finger Dike Habitat Footprint*	8.90	0.10	0.85	6.06	0.10	0.58	2.34	19.44	45.53	46.95	46.95		
	Total			**122.8**			**204.9**			**217.0**	**544.6**	**518.7**	**0.0**	25.9
										Subtotal Not Including Vault	**781.93**	**741.28**	**370.50**	40.6
Vault Lake	***Vault Dike Footprint****	8.90	0.00	0.00	6.06	0.00	0.00	2.34	0.04	0.09	0.09			
	Vault Pit - Vault Lake	8.90	0.65	5.79	6.06	7.79	47.18	2.34	0.00	0.00	52.97			
	Vault - Basin	8.90	34.89	310.38	6.06	42.90	259.87	2.34	11.02	25.82	596.07			
	Total			**316.2**			**307.1**			**25.9**	**649.1**		**0.0**	
Total HADD (HUs)											**1431.1**	**741.28**	**370.5**	

Note: * Component habitat loss temporary; future habitat quality may be vary (changed or enhanced) from baseline conditions.
1. Features were from the 2007 NNLP Addendum.

Table 1B. Total Habitat Units (HU) gained after closure implementation at the Meadowbank Gold Project (2006/2007 NNLP).

	Mine Component	High			Medium			Low			Total HUs				
		HS I	*ha*	*HU*	*HS I*	*ha*	*HU*	*HS I*	*ha*	*HU*	*Mine Site*	*DFO Authorization*	*TIA*	*Difference of Mine vs DFO Auth*	*Portion of TIA gains included in DFO Auth?*
Second Portage Lake	***East Dike - Exterior***	8.90	0.24	2.13	6.06	0.35	2.12	2.34	0.00	0.00			4.3		
	East Dike - Interior*	8.90	0.04	0.36	6.06	0.34	2.06	2.34	0.00	0.00			2.4		
	West (Central) Dike - Exterior*	8.90	1.04	9.25	6.06	0.83	5.03	2.34	0.00	0.00			14.3		
	Second Portage - Basin*	8.90	23.95	213.01	6.06	0.00	0.00	2.34	0.00	0.00	213.0	401.0			
	Portage Pit - Second Portage Lake*	8.90	2.27	20.15	6.06	0.19	1.14	2.34	20.475	47.96			69.2		69.2
	Portage Pit - 2P Land to Lake*	8.90	3.81	33.87	6.06	0.32	1.91	2.34	34.42	80.63			116.4		116.4
	Second Portage Habitat Mounts*,1	8.90	1.25	11.12	6.06	0.00	0.00	2.34	0.00	0.00	11.1	8.2			
	East Dike Extension Habitat*,1	8.90	5.03	44.74	6.06	0.00	0.00	2.34	0.00	0.00	44.7	33.0			
	Total			**334.6**			**12.3**			**128.6**	**268.9**	**442.2**	**206.6**	173.32	185.6
Third Portage Lake	***Goose Island (Bay Goose) Dike - Exterior***	8.90	1.90	16.87	6.06	1.76	10.69	2.34	0.00	0.00			27.6		
	Goose Island (Bay Goose) Dike - Interior	8.90	0.89	7.92	6.06	0.59	3.57	2.34	0.00	0.00			11.5		
	Goose Island (Bay Goose) Dike - Restored	8.90	2.99	26.58	6.06	0.00	0.00	2.34	0.00	0.00	26.6	26.6			
	Finger Dike Habitat	8.90	19.63	174.59	6.06	0.00	0.00	2.34	0.00	0.00			174.6		
	Finger Dike Extension Habitat*,1	8.90	11.07	98.47	6.06	0.00	0.00	2.34	0.00	0.00	98.5	81.6			
	Third Portage - Basin	8.90	56.84	505.65	6.06	9.89	59.94	2.34	0.00	0.00	565.6	701.6			
	Goose Pit - Third Portage Lake	8.90	1.49	13.30	6.06	0.69	4.18	2.34	17.67	41.39			58.9		58.9
	Portage Pit - Third Portage Lake	8.90	1.97	17.57	6.06	0.16	0.99	2.34	17.85	41.81			60.4		60.4
	Goose Pit - 3P Land to Lake	8.90	0.98	8.68	6.06	0.45	2.73	2.34	11.53	27.01			38.4		
	Total			**869.6**			**82.1**			**110.2**	**690.6**	**809.8**	**371.3**	119.15	119.3
										Subtotal Not Including Vault	959.53	1252.00	577.90	292.47	304.90
Vault Lake	***Vault - Basin***	8.90	34.89	310.38	6.06	42.90	259.87	2.34	11.02	25.82	596.1				
	Vault Dike - Restored	8.90	0.04	0.36	6.06	0.00	0.00	2.34	0.00	0.00	0.4				
	Vault Pit - Vault Lake	8.90	1.13	10.01	6.06	0.15	0.92	2.34	11.423	26.76			37.7		
	Vault Pit - Vault Land to Lake	8.90	3.99	35.53	6.06	0.54	3.26	2.34	40.537	94.96			133.8		
	Total			**356.3**			**264.0**			**147.5**	**596.4**		**171.4**		
Habitat Gain (HUs)											**1556.0**		**749.3**		

Note: * Habitat components will be in the Third Portage Lake drainage after mine closure, but are shown here for "accounting" purposes.
1. Features were from the 2007 NNLP Addendum.

Table 2A. Total Habitat Units (HU) altered, disturbed or destroyed by the Meadowbank Gold Project (revised November 2009).

	Mine Component	High			Medium			Low			Total HUs			
		HS I	*ha*	*HU*	*HS I*	*ha*	*HU*	*HS I*	*ha*	*HU*	*Mine Site*	*DFO Authorization*	*TIA*	*Difference of Mine vs DFO Auth*
Second Portage Lake	***Tailings Impoundment Area***	8.90	12.55	**111.61**	6.06	19.96	**120.90**	2.34	51.56	**120.77**			**353.28**	
Second Portage Lake	***East Dike Footprint***	8.90	0.00	0.00	6.06	4.97	30.09	2.34	0.02	0.04	30.13	39.28		
	Central Dike Footprint	8.90	0.16	1.38	6.06	1.22	7.38	2.34	11.08	25.96	34.73	22.27		
	Second Portage - Basin*	8.90	1.12	9.97	6.06	7.50	45.41	2.34	11.50	26.94	82.33	111.30		
	Portage Pit - Second Portage Lake*	8.90	0.039	0.35	6.06	3.49	21.15	2.34	11.32	26.52	48.02	49.75		
	East Dike Extension Habitat Footprint	8.90	0.000	0.00	6.06	0.00	0.00	2.34	5.03	11.78	11.78			
	Second Portage Habitat Mounts Footprint	8.90	0.000	0.00	6.06	0.00	0.00	2.34	1.25	2.93	2.93			
	Total			**11.7**			**104.0**			**94.2**	**209.9**	**222.6**		**12.7**
Third Portage Lake	***Bay Goose Dike Footprint***	8.90	3.14	27.91	6.06	4.58	27.74	2.34	8.33	19.51	75.16	73.46		
	South Camp Dike Footprint	8.90	0.00	0.00	6.06	0.17	1.00	2.34	0.00	0.00	1.00	1.00		
	Third Portage - Basin*	8.90	7.58	67.45	6.06	15.60	94.51	2.34	28.06	65.74	227.69	301.04		
	Goose Pit - Third Portage Lake*	8.90	1.86	16.53	6.06	3.02	18.31	2.34	7.04	16.50	51.33	61.07		
	Portage Pit - Third Portage Lake*	8.90	0.00	0.00	6.06	6.74	40.84	2.34	5.01	11.74	52.58	35.16		
	Finger Dike Habitat Footprint*	8.90	0.01	0.10	6.06	0.02	0.13	2.34	14.04	32.89	33.12	46.95		
	Finger Dike Habitat Extension Footprint	8.90	0.00	0.00	6.06	0.00	0.00	2.34	10.53	24.66	24.66			
	Total			**112.0**			**182.5**			**171.0**	**465.5**	**518.7**	**0.0**	**53.1**
							Subtotal Not Including Vault				**675.47**	**741.28**	**353.28**	**65.81**
Vault Lake	***Vault Dike Footprint****	8.90	0.00	0.00	6.06	0.04	0.24	2.34	0.00	0.00	0.24			
	Vault Pit - Vault Lake	8.90	1.37	12.21	6.06	8.03	48.65	2.34	0.00	0.00	60.86			
	Vault - Basin	8.90	38.05	338.46	6.06	42.65	258.38	2.34	6.83	15.99	612.83			
	Total			**350.7**			**307.3**			**16.0**	**673.9**		**0.0**	
Total HADD (HUs)											**1349.4**		**353.3**	

Note: * Component habitat loss temporary; future habitat quality may vary (changed or enhanced) from baseline conditions.

Table 2B. Total Habitat Units (HU) gained after closure implementation at the Meadowbank Gold Project (revised November 2009).

	Mine Component	High			Medium			Low			Total HUs				
		HS I	*ha*	*HU*	*HS I*	*ha*	*HU*	*HS I*	*ha*	*HU*	*Mine Site*	*DFO Authorization*	*TIA*	*Difference of Mine vs DFO Auth*	*Portion of TIA gains included in DFO Auth?*
Second Portage Lake	***East Dike - Exterior***	8.90	0.63	5.60	6.06	0.47	2.85	2.34	0.00	0.00			8.5		8.5
	East Dike - Interior [1]	8.90	0.91	8.10	6.06	0.41	2.48	2.34	0.00	0.00			10.6		10.6
	Central Dike - Exterior [1]	8.90	1.37	12.19	6.06	0.30	1.82	2.34	0.64	1.50			15.5		15.5
	Second Portage - Basin [1]	8.90	20.12	178.98	6.06	0.00	0.00	2.34	0.00	0.00	179.0	401.0			
	Portage Pit - Second Portage Lake [1]	8.90	0.88	7.82	6.06	0.01	0.04	2.34	23.340	54.67			62.5		
	Portage Pit - 2P Land to Lake [1]	8.90	4.11	36.56	6.06	0.67	4.06	2.34	51.61	120.90			161.5		161.5
	Second Portage Habitat Mounts [2]	8.90	1.25	11.12	6.06	0.00	0.00	2.34	0.00	0.00	11.1	8.2			
	East Dike Extension Habitat [2]	8.90	5.03	44.74	6.06	0.00	0.00	2.34	0.00	0.00	44.7	33.0			
	Total			**305.1**			**11.2**			**177.1**	**234.8**	**442.2**	**258.6**	**207.4**	**196.1**
Third Portage Lake	***Bay Goose Dike - Exterior***	8.90	0.39	3.47	6.06	0.74	4.48	2.34	0.00	0.00			8.0		8.0
	Bay Goose Dike - Interior	8.90	0.53	4.71	6.06	0.63	3.82	2.34	0.00	0.00			8.5		8.5
	Bay Goose Dike - Restored	8.90	1.96	17.42	6.06	0.00	0.00	2.34	0.00	0.00	17.4	26.6			
	Finger Dike Habitat	8.90	13.18	117.24	6.06	0.00	0.00	2.34	3.27	7.66			124.9		124.9
	Finger Dike Extension Habitat	8.90	11.07	98.47	6.06	0.00	0.00	2.34	0.00	0.00	98.5	81.6			
	Third Portage - Basin	8.90	51.24	455.81	6.06	0.00	0.00	2.34	0.00	0.00	455.8	701.6			
	Goose Pit - Third Portage Lake	8.90	1.72	15.30	6.06	0.06	0.36	2.34	19.61	45.94			61.6		61.6
	Portage Pit - Third Portage Lake	8.90	0.69	6.17	6.06	0.00	0.02	2.34	18.48	43.29			49.5		49.5
	Goose Pit - 3P Land to Lake	8.90	0.00	0.00	6.06	0.00	0.00	2.34	5.43	12.72			12.7		
	Total			**718.6**			**8.7**			**109.6**	**571.7**	**809.8**	**265.2**	**238.1**	**252.5**
							Subtotal Not Including Vault				806.55	1252.00	523.78	445.45	448.60
Vault Lake	***Vault - Basin***	8.90	38.05	338.46	6.06	42.65	258.40	2.34	6.83	15.99	612.9				
	Vault Dike - Restored [2]	8.90	0.04	0.36	6.06	0.00	0.00	2.34	0.00	0.00	0.4				
	Vault Pit - Vault Lake	8.90	2.11	18.77	6.06	0.73	4.42	2.34	16.260	38.09			61.3		
	Vault Pit - Vault Land to Lake	8.90	3.01	26.78	6.06	0.95	5.76	2.34	42.870	100.42			133.0		
	Total			**384.4**			**268.6**			**154.5**	**613.2**		**194.2**		
Habitat Gain (HUs)											**1419.8**		**718.0**		

Note: 1. Habitat components will be in the Third Portage Lake drainage after mine closure, but are shown here for "accounting" purposes.
2. Areas for these features were not revised in 2009 (i.e., either the 2006 NNLP or 2007 NNLP Addendum figures were used).

MEETING AGENDA

Agnico Eagle Mines Ltd: Meadowbank Division
Environmental Department
Meadowbank, Nunavut, X0X 0A0
867.793.4610

November 17th and 18th, 2011

Department of Fisheries and Oceans and AEM - Meadowbank and Meliadine No Net Loss Planning Meeting

LOCATION: Sheraton Ottawa Hotel, Ottawa ON.

November 17th 9:30 to 18:00

Meeting Room: Sheraton Hotel- Salon C

9:15- Continental Breakfast Provided by AEM

9:30- Introduction (Larry Connell)

9:45 to 10:15- Meadowbank Mine Update (Ryan VanEngen)

- Second Portage Lake and Bay-Goose Dewatering,
- Water Management and
- Revised Waste Rock Storage to include pit backfilling

10:15 to 10:45- Revised Airstrip Extension and Vault Pit Extension

10:45 to 11:00- Overview of 2011 Fisheries Monitoring

11:00 to 11:15- Break

11:15 to 14:00- No Net Loss Contingency Plan

- No Net Loss Contingency Compensation Ideas
- Review of DFO Authorization
- Path Forward

14:00 –15:00- Lunch Break – Provided by AEM

15:00 to 16:00- Meliadine Project Update (Larry Connell)

16:00- 18:00- Meliadine Draft No Net Loss Plan

- Environmental Setting and Baseline Fisheries Review (Jack Patalas)
- No Net Loss Plan Methods (Jack Patalas)
- No Net Loss Compensation (Ryan VanEngen)
  - Schedule 2 Options and Mine Site Options

18:00- Closing

November 18th- 8:30 to 12:00

Meeting Room- Sheraton Hotel- Penthouse B

8:15- Continental Breakfast Provided by AEM

8:30 to 9:30- Review and Discussion of Meadowbank No Net Loss Planning

9:30 to 10:30- Review and Discussion of Meliadine Draft No Net Loss Plan

10:30 to 11:30- Round Table Discussion

11:30 to 12:00- Closing Remarks

If you have any questions please contact Larry Connell (lconnell@agnico-eagle.com) or Ryan VanEngen. 519.400.7979. (rvanengen@agnico-eagle.com)

MEMORANDUM

Agnico Eagle Mines Ltd: Meadowbank Division
Environmental Department
Meadowbank, Nunavut, X0X 0A0
867.793.4610

Follow-up Action Items for the Department of Fisheries and Oceans and AEM Meadowbank and Meliadine
RE: No Net Loss Planning Meeting on November 17th and 18th, 2011 at the Sheraton Ottawa Hotel, Ottawa ON.

Meadowbank Action Items and Deadlines:

DFO Deadline- December 23rd (mid December)

- DFO is to provide a rationale or reason for the habitat unit discrepancies in the Meadowbank DFO authorization- dated July 30, 2008. Specifically, AEM is requesting how the second portage and third portage basin habitat units were calculated or the basis for the difference in HU valuation for these compensation features compared to the mine site calculation. The DFO authorization provides a 1.68 to 1 ratio of gains to losses that cannot be accounted for in the mine site HU calculations mainly because of the discrepancy in the basin HUs (see Table 2B provided to DFO Sept 8 and Nov 8, 2011).
- AEM proposes to revise the mine site NNL Plan and incorporate a contingency plan within it. This will meet the conditions of the contingency plan terms of reference and provide clarity and transparency for no net loss planning at Meadowbank. AEM requests confirmation from DFO to move forward with a revised Mine Site NNL Plan.
- DFO is to provide feedback on the process to amend the TIA compensation. The TIA compensation presently is comprised of end-pit lake reflooding, dike face habitat and finger dikes which provides a 2:1 ratio of habitat unit gains to losses. AEM accepts the 2:1 ratio of the original TIA compensation plan but is requesting from DFO the replacement of finger dikes (which are technically complex and challenging to construct) with the creation of high and moderate value backfilled 40% and reflooded fish habitat in portage pit.
- DFO is to provide a confirmation that Vault will require a separate NNL Plan and subsequent authorization; DFO is to provide feedback on compensation concepts for Vault (pit backfilling and enhancement, improving connection between Vault and Wally, introducing arctic char given the creation of deep overwintering habitat)
- DFO is to provide an answer whether Vault pit should be calculated using the Cumberland (2005) HEP model or using the new Meliadine (2011) HEP model. AEM supports using the Meliadine model which will allow for comparison between projects, assist in research/ data collection and reduce uncertainties moving forward for backfilled pit lakes.

AEM Deadline- January 17th

- AEM to confirm with Environment Canada that PAG material is acceptable for backfilling portage pit.
- Provide DFO with maps (depth) for Wally and Vault lake

DFO Deadline- January 17th

- DFO to give feedback and guidance on the HU calculation for the spawning pads- specifically feedback on the comparison of immature fish/ HU at R02 vs immature fish/HU in Second Portage Lake fishout.
- Provide AEM with fish-out data from Diavik, Ekati, Snap Lake and other northern fishouts (specifically all of the "DFO fish-out protocol" data for these projects including: water quality, primary productivity, benthos data, fish meristics and CPUE data).
- DFO to inquire/ request DFO science's participation in research (productive capacity models)- DFO will speak/ present some of this information to DFO science

DFO Deadline – after 2011 annual report submission- March 31, 2012

- Frequency of testing at R02 (as per the authorization 2007 to 2010 and every other year after; AEM has completed monitoring from 2005-2011 and is requesting that we begin monitoring every other year).
- Is it possible to open discussions of sewage treatment in the north at a higher bureaucratic level? If so, using the Baker Lake sewage and landfill example, to whom should we address our request. AEM believes this to be a true benefit to the communities, the fishery and the environment in the north.

Meliadine Action Items and Deadlines:

AEM Deadline- November 29th- see attached spreadsheet

- AEM to provide Habitat Unit calculation spreadsheet to DFO for review of the Meliadine method of HU calculations

DFO Deadline- December 12th

- AEM is requesting DFO to review and provide feedback on the Meliadine method of calculating HUs: specifically- HSIs, sensitivity weighting, biomass and fishery valuation.
- If the method is not acceptable, will the DFO support a Delphi-type workshop to develop HSI for northern projects. AEM or Golder would host a workshop with experts from DFO, consultants and academics to determine HSI for each northern species and determine suitable weighting systems for use in the Meliadine method.
- DFO to confirm the inclusion of arctic char, lake trout and arctic grayling (?) as Valued Ecosystem Components in the EIS.

DFO Deadline- January 17th

- DFO to determine if AEM will require section 36 for pond H17 that *may* have TSS runoff and will be surrounded by multi-purpose pads.
- DFO to provide feedback on the fishout requirements for stickleback.

AEM will provide a Draft Meliadine No Net Loss Plan to DFO prior to EIS submission.

Next meeting is proposed for Jan 17th in Winnipeg; otherwise that week in Calgary or Edmonton.

If you have any questions please contact Ryan VanEngen. 519.400.7979. (rvanengen@agnico-eagle.com)

AGNICO-EAGLE
MEADOWBANK DIVISION

Date: January 30, 2011

To: Bobby Bedingfield and Derrick Moggy
Department of Fisheries and Oceans
Eastern Arctic Area

CC: Stephane Robert (Meadowbank Environment Superintendant) and Leilan Baxter (Environmental Scientist)

In follow-up to our recent discussions and workshops regarding an approved methodology of calculating habitat units in eastern arctic lakes, the following document briefly provides an introductory literature review, compares the Cumberland (2005) Meadowbank Gold Project No Net Loss Plan methodology with a recently developed AEM and Golder (2011) Meliadine Gold Project methodology for habitat units, and provides results and discussion using the Dogleg Pond Connection compensation project. The text, figures and data presented in this document are in *draft form* and therefore have not been finalized nor thoroughly peer reviewed. The calculations in this document are made for the comparison of habitat unit calculations methods and are not final habitat values for the Dogleg Pond Connection Compensation Project. The data presented in this document are for the purposes of assisting DFO in their upcoming workshop and subsequent discussions with AEM.

Should you require any further information or questions please contact the below via email or by telephone.

Regards,

Ryan Vanengen
rvanengen@agnico-eagle.com
519-400-7979
Environment Biologist- Meadowbank Division

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DRAFT- Comparison of Cumberland (2005) and AEM/Golder (2012) HEP- A Case Study using the Meadowbank Gold Mine Dogleg Pond Connection

By: Ryan VanEngen (AEM) and Leilan Baxter (Independent Research Assistant)

Introduction

As a condition of an authorization from DFO to permit habitat alteration, disruption or destruction (HADD), the proponent must ensure there is no net loss of *productive capacity* of fish habitat. Since it is normally not possible to directly measure production of fish populations (i.e. kg/yr) because of time and expense, alternative metrics such as habitat area and suitability are commonly measured instead (Randall and Minns 2002). The concept of HUs as a surrogate measure for productive capacity of fish communities was first developed by the US Fish and Wildlife Service in the 1980s and has since been adopted by habitat managers in northern Canada. However, in order to establish quantifiable links between fish production and habitat, fish production must first be measured directly (Minns 1995) and a habitat-productivity model established. A system to provide managers with repeatable habitat suitability indices based on measurable physical properties, such as the scientifically defensible Habitat Suitability Matrix model for fishes of the Great Lakes region (Minns, Moore et al. 2001), is not currently available for arctic development projects. With the exception of arctic grayling (Hubert, Helzner et al. 1985; Jones and Tonn 2004), no habitat models are available for arctic species, to our knowledge. Furthermore, while general life history characteristics have been published for arctic fishes, it is recognized that major gaps even exist in current understanding of northern fish preferences (Richardson, Reist et al. 2001), let alone productivity relationships. In order for habitat suitability indices to be developed and used effectively, data on habitat preferences must first be collected and the appropriate models generated (De Kerckhove, Smokorowski et al. 2008).

A further consideration is that even if standardized habitat suitability models were to be developed from observational data, it has been argued that correlative studies of habitat selectivity are not necessarily representative of actual habitat requirements, and these models are rarely validated with experimental evidence (Rosenfeld 2003). According to Rosenfeld (2003), the removal or conversion of an apparently “preferred” habitat may not actually affect productivity of the population, if alternate habitats provide adequate life-functions.

As a result of this lack of information, habitat suitabilities for northern fish species are extrapolated from southern-developed models, with an unknown degree of certainty. It has been suggested that the accuracy of predictions made using HSIs may not transfer well between watersheds (De Kerckhove, Smokorowski et al. 2008), let alone ecozones. Furthermore, it is known that the way fish adapt to habitat change is dependent on many factors, including location, temperature, season, maturity, population diversity and the availability of habitat (Smokorowski and Pratt 2006). While uncertainty factors

(associated with habitat suitability determinations) can be included in compensation ratio calculations (Minns 2006) by increasing required compensation amounts, it may be difficult for northern project proponents to find feasible opportunities for compensation that have historically been demonstrated as cost-effective and successful. Thus plans which optimize the required ratio will likely have a greater chance at achieving NNL. An even greater consideration in this situation may be that compensation options in the north typically involve further alterations of pristine habitat, which arguably are not desirable.

Since no reference models are available for most northern species, and no standardized NNLP approach is available, proponents have developed slightly different HEP methods and new Habitat Suitability Indices for their projects. Usually, HSI values are determined by professional judgement, and/or modifications from previously developed NNLPs at other northern mines. Aside from the loss of efficiency and the extreme variability of results inherent in this exercise, this approach means that compensation units are not directly comparable between sites, impeding the creation of area habitat management plans which may become increasingly important as development in the north progresses.

In the interest of advancing general understanding of HEP methodology and the advantages and disadvantages of different approaches, AEM has conducted a comparison of HU results based on two methods. One was used historically at AEM's Meadowbank site while under the ownership of Cumberland Resources, while the other is proposed for use at AEM's Meliadine site in the near future.

In this document, we use the Meadowbank Mine Dogleg Pond Connection project to compare these two HEP methodologies: the Cumberland (2005) Meadowbank Gold Project No Net Loss Plan methodology ("Cumberland method") and the recently developed AEM/Golder (2012) Meliadine Gold Project methodology ("AEM/Golder method"). The text, figures and data presented in this document are in draft form and therefore have not been finalized nor thoroughly peer reviewed. The calculations in this document are made simply for the comparison of habitat unit calculations methods and are not final habitat values for this compensation project, and are presented for the purposes of assisting DFO in their upcoming workshop only.

Dogleg Pond Connection Concept (See Figure 1 and 2)

North of Second Portage Lake is a series of isolated ponds termed the "North Portage Ponds". The proposed project examines three of these ponds, named Dogleg Pond (or NP1, the largest), Dogleg North Pond, and NP2 (See Figure 1 and 2). In 2003, detailed water chemistry, fish population, benthic and zooplankton surveys were conducted to evaluate the North Portage ponds (NP) . NP1 (Dogleg Pond) and NP2 were found to have similar water chemistry, sediment chemistry and limnology as the project lakes. Zooplankton community abundance differed considerably among the ponds and differed

from the project lakes with no apparent patterns. Benthic species composition was similar among ponds and the project lakes. Only lake trout were found in NP1 and NP2, evidence of a relic population limited by overwintering and the ponds' historical isolation from Second Portage Lake. It was suspected that Dogleg North Pond did not contain fish, as it was too shallow.

In 2009, AEM biologist and technicians completed a follow-up bathymetric survey and habitat classification (including underwater video) in NP2, Dogleg Pond (NP1) and Dogleg North Pond (NP1-N). Additionally, 12.5, 25 and 38 mm gill nets were set for over 24 hrs in NP2 and Dogleg North Pond to collect both small bodied fish and large bodied fish. Lake trout were collected in NP2 and no fish were collected in Dogleg North Pond confirming the findings of 2003.

On January 19th 2012, DFO approved AEMs efforts to complete an updated Mine Site No Net Loss plan which will reflect changes of the mine site infrastructure (including pit dimensions and basin habitat features) and include updated habitat compensation concepts such as the Dogleg Pond connection. In concept, NP2, a pond located north of the waste rock pile, will be connected via a diversion ditch to Dogleg North pond to assist with non-contact water management at the mine site. Presently, Dogleg North Pond is isolated and freezes to the bottom and therefore is not inhabited by fish. As a result of connection to NP2, the water level in Dogleg North Pond is expected to increase by approximately 0.5 to 1 m and ultimately provide additional shoreline habitat and overwintering habitat similar to the reference pond (which has a small isolated lake trout and arctic char population; see Figure 2 for location). NP1-N would then drain into Dogleg Pond, eventually increasing water levels and creating additional shoreline habitat. Ultimately, NP2, NP1-N and NP1 will be connected and fish will have access to habitats in all ponds throughout the open water season. AEM proposes to transfer a small number of fish to this system during the Vault Pit fish transfer and closely monitor the success and habitat preferences of the introduced population. Monitoring data will assist in the validation of productive capacity models and HEP modelling at Meadowbank and Meliadine Projects.

Methods used for Calculating Habitat Units of Dogleg Pond Connection Comparison

Summary of Cumberland (2005) Method

The Cumberland (2005) HEP method involved the classification of the entire project lakes area by six attributes containing up to four classes as follows:

- Morphology (classes = apron, shoal, platform, sediment basin)
- Substrate (classes = boulder, boulder /cobble, boulder/cobble/fines, >90% fines).
- Depth (classes = 0-2m, 2-4m, 4-6m, >6m)
- Complexity (classes = uniform, moderate, complex)
- Ice-scour (classes = ice scoured (<2m) or not)

- Slope (classes = flat slope, steep slope)

The spatial extent of each attribute class was delineated and mapped. This resulted in a total of 627 spatially distinct polygons with different combinations of attribute classes.

A rank of the habitat structure or feature was calculated based on the cumulative contribution of morphology, substrate, depth, complexity, ice scour and slope for each polygon (See Cumberland 2005, Section 3.4). The structures were ranked and summed to derive a score that is a reflection of a generic habitat value in order to relate the physical attributes to fisheries resources. The polygons were grouped into 3 categories based on their score (high =18-22 points, medium/moderate=13-17 points and low value = <12 points). These groups were described as follows:

- High Value: High Value habitat polygons are characterized as complex, heterogeneous boulder or boulder/cobble substrate with few fines situated in moderate depth (2 to 5m) below the ice scour zone, but above the transition zone. These are typically situated near shoals or platforms or near sloped shorelines.

- Medium Value- Medium or Moderate value habitat polygons are typically found within two depth ranges: 0 to 2m and 4 to 6 or 8 meters. Moderate value polygons in shallow waters are characterized by large boulders and low complexity. Although they are not available throughout the open water season, these areas provide excellent rearing and foraging habitat. Moderate value polygons in deeper areas (>4m) are transition zones that provide good protection for all fish species, especially juveniles and is important for rearing and feeding.

- Low Value- Low value habitat polygons consist primarily of uniform fine substrate of low complexity in deep water (> 8m). The value of this habitat varies depending on species and has been ranked accordingly.

It should be noted that because of the scoring system used, it is theoretically possible for a polygon to possess an attribute that is different from the general group description, but to still fall into that category (e.g. a shallow, uniform boulder platform receives a score of 11, but is not well described by the “low value” group).

As is typical with all HEP methods, an HSI for project lake species for four life function stages (spawning, foraging, nursery and overwintering) was multiplied by the area of the habitat value and the HSI was weighted by species according to the species assemblages during baseline data collection; ultimately total habitat units lost and conceptual gains were determined by:

HUTotal = ∑[HSIx species assemblage from baseline data] x area of habitat value)

Refer to Cumberland (2005) for complete description of the methodology.

In 2009, the substrate and bathymetry of Dogleg Ponds were mapped using the Cumberland (2005) habitat groups. Boulder aprons of depth below 2 meters are likely candidate spawning areas for lake trout and are thus considered high value habitat (See Figure 3). The remainder of the shoreline is classified as boulder platforms (moderate value) and sediment basins (low value). Dogleg Pond North and NP2 area were also mapped according to the Cumberland (2005) habitat groups (see Figure 4).

Applying AEM and Golder (2012) Meliadine Method to Dogleg Pond

The methodology for calculating habitat units for the Meliadine Gold Project, located in Rankin Inlet, Nunavut was developed by AEM and Golder in 2011, and later presented to DFO at a workshop on November 17 and 18, 2011. The DFO has recently accepted the method presented and AEM will use this to finalize the No Net Loss plan for the Meliadine Gold Project (AEM/Golder, 2011).

In brief, the physical classification of habitat is separated into 3 depth intervals with 3 substrate categories for a total of 9 unique habitat classification identifiers. See Table 1 for identification of the substrate categories.

Table 1: AEM/Golder (2011) habitat classifications

Classification ID	Depth (m)	Substrate Type
1	<2	Fines
2	<2	Mixed
3	<2	Boulder/ Cobble
4	2-4	Fines
5	2-4	Mixed
6	2-4	Boulder/ Cobble
7	>4	Fines
8	>4	Mixed
9	>4	Boulder/ Cobble

As is typical with all HEP methods, an HSI was developed for project lake species for 4 life functional stages (spawning, foraging, nursery and overwintering) and the HSI was weighted by species according to the species abundance during baseline data collection. Furthermore, as recommended by Minns (2010), a fisheries value was used to weight species according to importance for traditional, sport and commercial fisheries. Overall the equation to calculate the habitat units lost and conceptual gains is:

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HUTotal = ∑[(HSI x species specific biomass from baseline data x fish value) x habitat area of 9 classification identifiers]

HEP Method Comparison

The Cumberland (2005) and AEM/Golder (2011) method comparison, investigates the physical classification of habitat and does not include the specific species biomass/assemblage or fishery value weightings. For consistency, high, medium and low habitat values were assigned to the AEM/Golder (2011) substrate classification based on professional judgement to compare HU totals to those derived from the Cumberland (2005) method (see Table 2). To briefly introduce the application of the AEM/Golder (2011) physical classification to the Dogleg Pond connection, lake trout HIS are multiplied and presented in Figures 5-9, but these data are not quantitatively compared. In the future, other quantitative comparisons may be used that could include weightings for multispecies HSIs, however given the time constraints and need for GIS mapping, the generalized valuation approach provides a simple means of comparison between the two methods.

Table 2: Habitat Type Classification and Generalized Valuation

Classification ID	Depth (m)	Substrate Type Cumberland (2005)	AEM/Golder (2011) ID	Generalized Valuation for comparison to MBK (Low, Med. or High)
1	<2	Fines	Fines	Low
2	<2	Mixed	Mixed	Med
3	<2	Boulder/ Cobble	Course	Med
4	2-4	Fines	Fines	Low
5	2-4	Mixed	Mixed	Med
6	2-4	Boulder/ Cobble	Course	High
7	>4	Fines	Fines	Low
8	>4	Mixed	Mixed	High
9	>4	Boulder/ Cobble	Course	High

Results and Discussion

Table 3 presents the results of the habitat valuation for the Dogleg Ponds using the AEM/Golder 2011 method with a generalized valuation. Table 4 compares the final values in hectares by habitat type (high, medium and low value habitat). Figures 3 to 11 present the maps for comparison of the methods. More specifically, Figures 3 and 4 illustrate the habitat mapping results using Cumberland (2005) method and Figures 10

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and 11 summarizes the AEM/Golder (2011) classifications, adapted with the generalized valuation.

Despite the methodological faults and over-simplification for comparison (by using the generalized valuation), the data presented in this case study indicates that medium value habitat is similarly estimated between the two methods, but that high and low value habitats differ between methods. The AEM/Golder 2011 method resulted in up to 3x ~~less~~ more high value habitat compared to the Cumberland 2005 method, and up to 2x ~~more~~ less low value habitat.

Although the HSIs have not been validated for either method, the Cumberland (2005) HU estimate for the northwest arm of Second Portage Lake was field-verified after de-watering of that basin. Field crews re-mapped the basin according to the habitat attributes originally established, and re-calculated the baseline HU estimate. Results of that study conducted by Azimuth Consulting Group in 2009 on behalf of AEM indicated an over-estimate of HUs by approximately 15%, largely due to over-estimates of high value habitat area.

Table 3: Dogleg Ponds Area by Classification ID (substrate, depth and generalized valuation)

				Area (ha)		
Classification ID	**Depth (m)**	**Substrate Type**	**Generalized Valuation**	**Dogleg Pond (NP1)**	**Dogleg Pond North (NP1N)**	**NP2**
1	<2	Fines	Low	0.07	0.19	0.01
2	<2	Mixed	Moderate	1.56	0.23	0.46
3	<2	Boulder/ Cobble	Moderate	11.32	2.31	5.28
4	2-6	Fines	Low	2.06	0.22	1.06
5	2-6	Mixed	High	2.30	0.24	1.38
6	2-6	Boulder/ Cobble	High	1.83	0.21	1.04
7	>6	Fines	Low	1.59		0.01
8	>6	Mixed	High	1.90		0.19
9	>6	Boulder/ Cobble	Moderate	0.22		0.00

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Table 4: Cumberland (2005) and AEM/Golder (2011) comparison of the High, Medium and Low Habitat Type Area (in ha) quantification

Pond ID	Area (ha)	Cumberland (2005) Habitat Type (Area in ha)			AEM/ Golder (2011) Habitat Type (Area in ha)		
		High	Med	Low	High	Med	Low
Dog leg Pond - NP1	22.85	2.75	13.54	6.56	6.03	13.10	3.72
Dog leg North Pond- NP1N	3.40	0.31	2.17	0.92	0.45	2.54	0.41
NP2	9.42	0.78	6.31	2.33	2.61	5.74	1.07

Although these maps were not quantified or thoroughly evaluated in this report, Figures 5 to 9 were produced as discussed during a conference call with DFO on December 13th, 2011. These figures use the lake trout HSIs from AEM/Golder (2011) to identify areas associated with specific habitat values (as estimated by professional judgement used to create the HSI model) for different life history/functional stages (Figure 5 to 8). Ultimately a map with the overall weighted life history habitat values for lake trout is provided with a colour coded scale (Figure 9). If this method is applied in the future, this type of mapping and scaling could be used to produce habitat value type areas in hectares using site specific ranges (for depth and substrate) with field-verified habitat suitability weightings. Although it has not been validated in the field for species use or productive capacity, this method is a transparent and robust method of quantifying habitat using modern GIS tools in non-complex northern aquatic systems.

Although the Cumberland (2005) methods provided detailed description of habitat from numerous polygons, the method is subjective and requires interpretation due to descriptive classifications such as morphology, ice scour and complexity which is later distilled into 3 habitat classifications. In our opinion, despite very good habitat description initially, the eventual grouping into only three categories, and the problems with scoring as previous discussed make this method inconsistent and non-transparent.

Further problems arise when re-weighting for site-specific limitations is required. Given that the Dogleg Ponds are small, overwintering habitat is undoubtedly the limiting factor for fish survival. In the 2005 method, overwintering areas are considered low value, which is representative of the larger project lakes such as Second Portage and Third Portage Lake (where overwintering habitat is nearly unlimited). In contrast the AEM/Golder (2011) model is adaptable to all lake sizes, and re-weighting for site-specific limitations is intuitive (whereas in the Cumberland 2005 method, “high value” habitat is not in fact good for overwintering). See Figure 9 - pockets >8 m are scored 0.25-0.75. These differences are primarily based on the fact that AEM/Golder (2011) method is less subjective and does not arbitrarily group habitat types, rather uses transparent and reproducible quantification of habitat features and multiplies the information directly from the physical data to the habitat suitability indices. Furthemore, it

is our opinion that the AEM/Golder (2011) method is superior because it incorporates species weightings based on both abundance and fisheries valuation.

AEM has requested the use of a common method for calculating habitat units at its projects in the north. With DFO acceptance and additional research funding (which AEM is interested to contribute to), it is our goal to pursue the development of a database of fisheries monitoring studies that will facilitate the eventual validation of HSI values through better understanding of fish habitat preferences in the north. Consistency in HEP methods will not only assist in expediting the NNL planning process, but will increase the utility of cross-site comparisons. A requirement of all DFO authorizations is that the proponent is to demonstrate the success of compensation projects. Currently only the physical construction must be shown successful, because presently habitat units are physical features. Measures of productivity are, however, necessary to determine whether NNL has actually occurred. A larger database of data from northern lakes would allow us to compare our success and failures consistently between projects and will ultimately assist in decision criteria for determining success of compensation projects *a priori*.

AEM feels the AEM/Golder (2011) HEP method is transferable between projects and could be used throughout the eastern arctic and possibly throughout the north with more field validation. Given that eastern arctic lakes rarely stratify and substrates types are simple and homogenous (i.e. there are few or no vegetation with little or no gravel at Meadowbank and Meliadine project lakes), substrate types across the north can be very easily subdivided into three categories: fines, mixed, and boulder/cobble. Subdivision by depth could be site specific (not limited to 0-2, 2-4, >4m); however in all cases, a depth range in the north requires a partitioning of ice cover along the shores which is between water level and maximum ice depth (approximately 2m).

Although the data presented has not been field validated, the Dogleg Pond connection case study comparison demonstrates that the methods of AEM/Golder (2011) are robust, transferable, ecologically relevant and less subjective than Cumberland (2005). In using a similar method across projects in the north, AEM can design monitoring studies and fish removal studies to validate our HEP methods and possibly relate it to productive capacity modelling through monitoring of introduced populations at the Dogleg Pond connection project.

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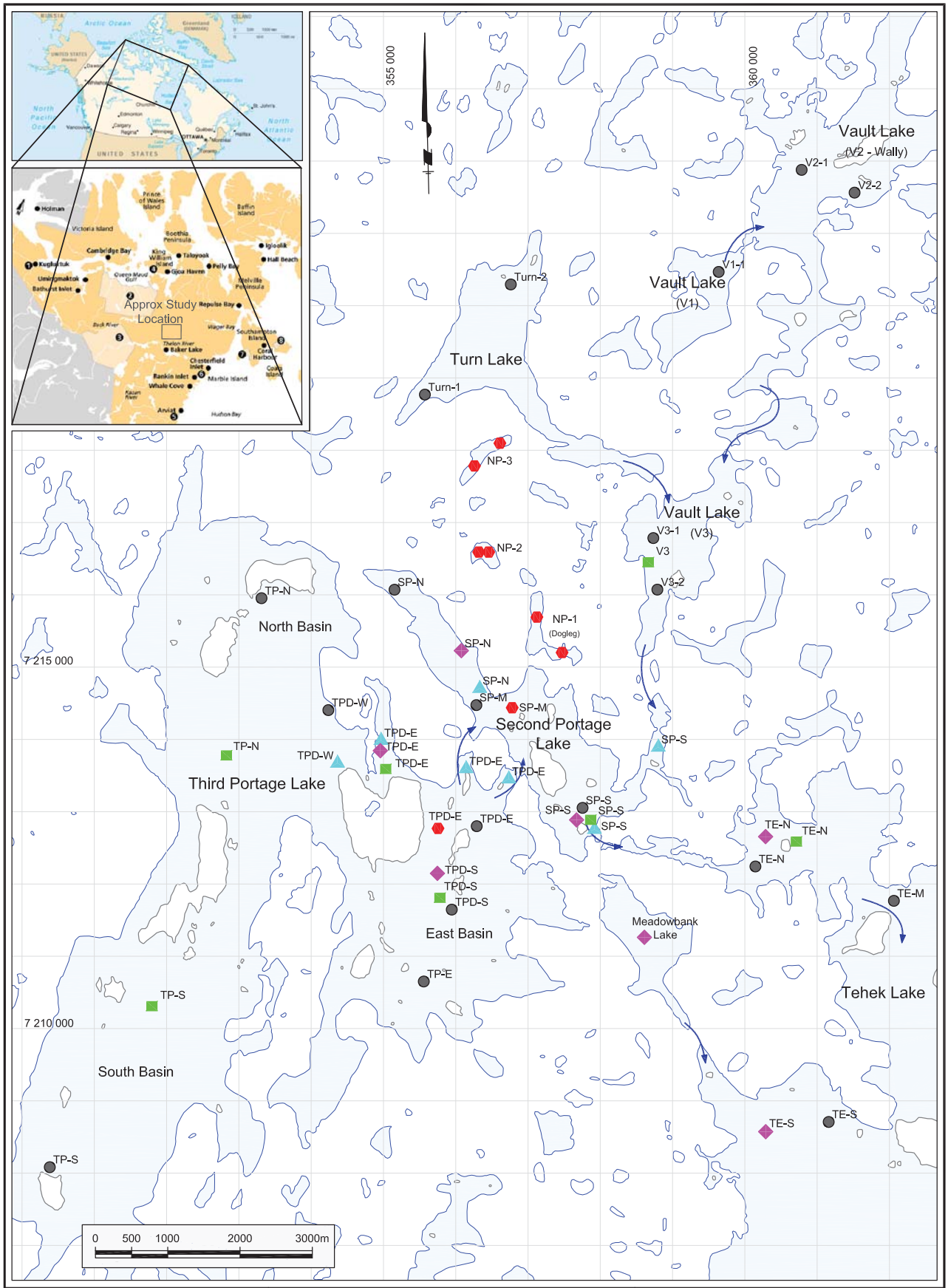

Legend

- Flow Direction
- 2003 Sampling Station
- 2002 Sampling Station
- 1998 Sampling Station
- 1997 Sampling Station
- 1996 Sampling Station

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PROJECT: Meadowbank Baseline Study

TITLE: **Historic (1996 - 2003) Sampling Stations**

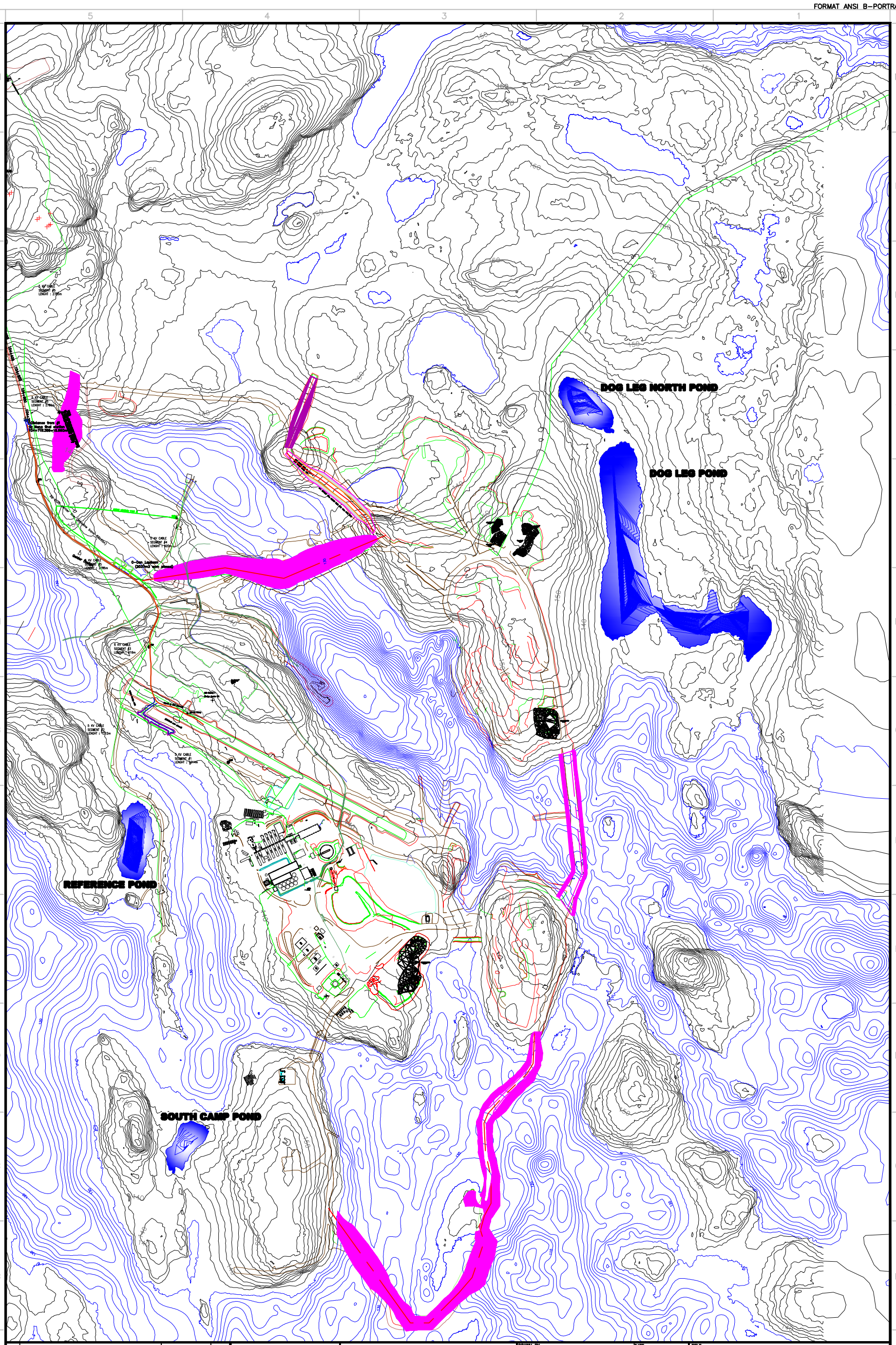
Meadowbank Project Area Lakes

(Water and Sediment Chemistry; Lower Trophic Level Biota)

CLIENT: Cumberland Resources

Figure 1

FORMAT ANSI B–PORTRAIT



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TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION
AIRSTRIP HABITAT COMPENSATION
OPTION 1 - DOG LEG NORTH POND
FIGURE 1

SCALE	FILE
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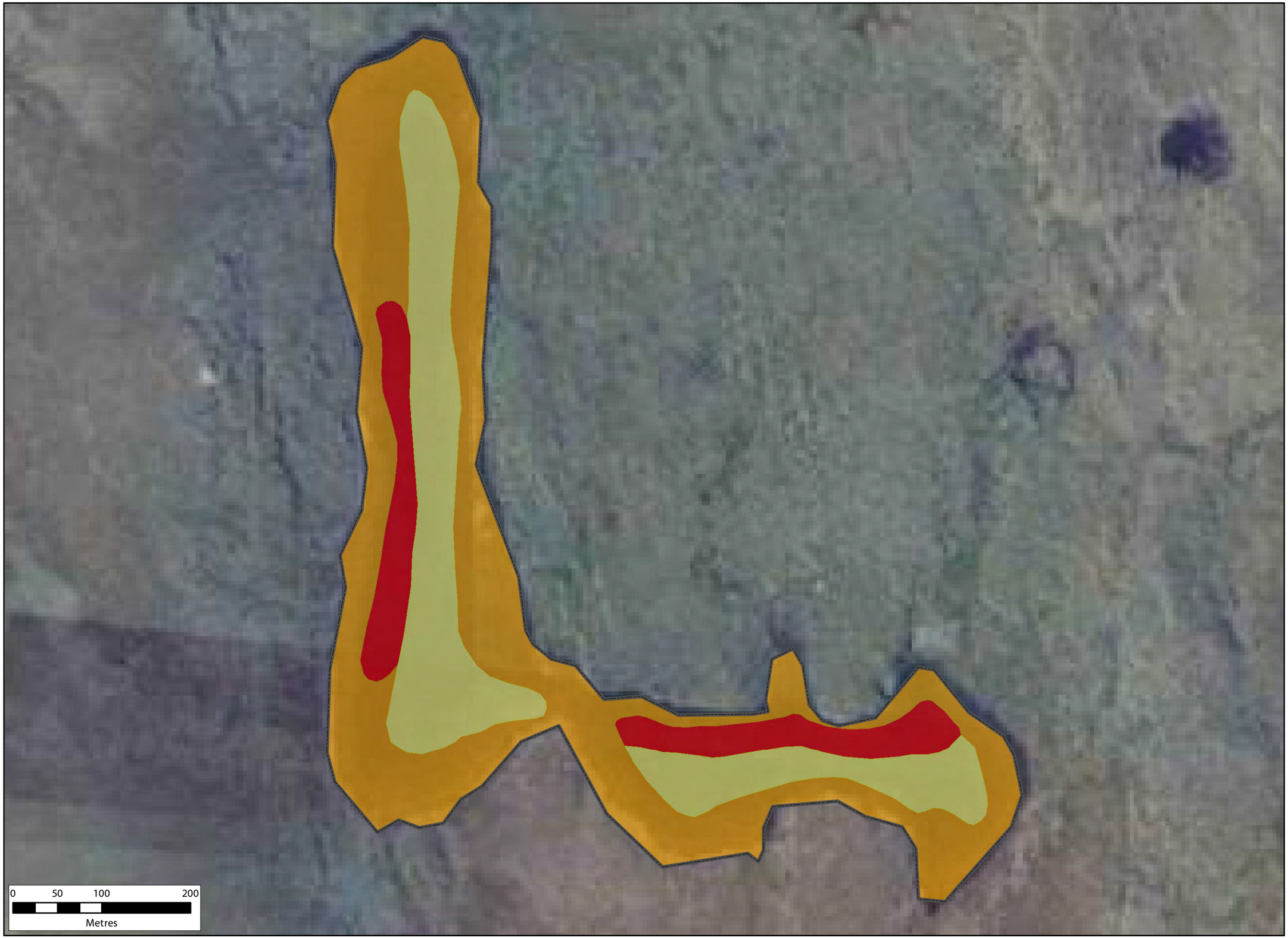

Legend

Lake Boundary

Habitat Evaluation

Low

Medium

High

2005 Habitat Evaluation
Dogleg Lake

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FIGURE:

3

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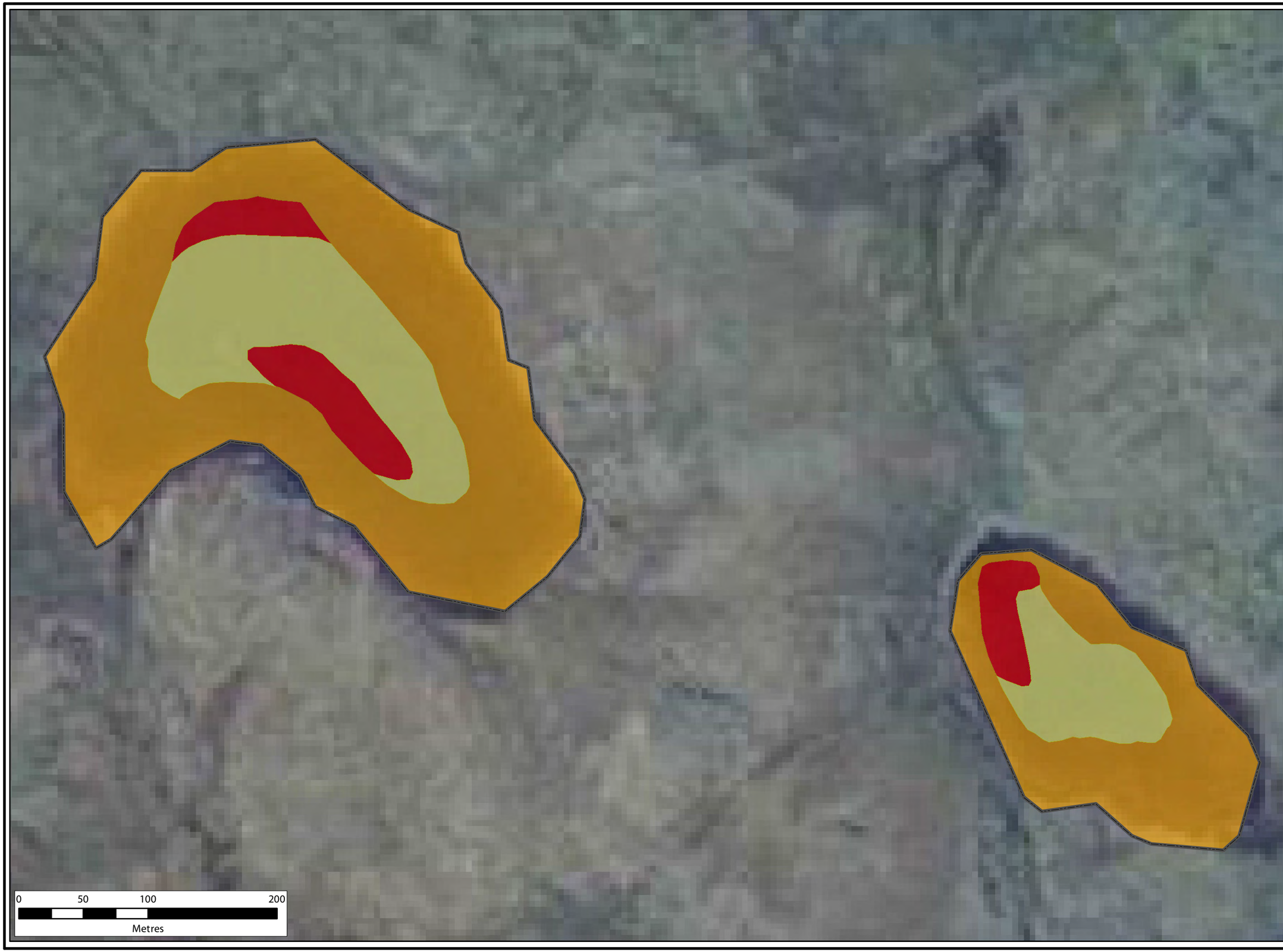

Legend

Lake Boundary

Habitat Evaluation

Low

Medium

High

2005 Habitat Evaluation
Dogleg North Lake

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4

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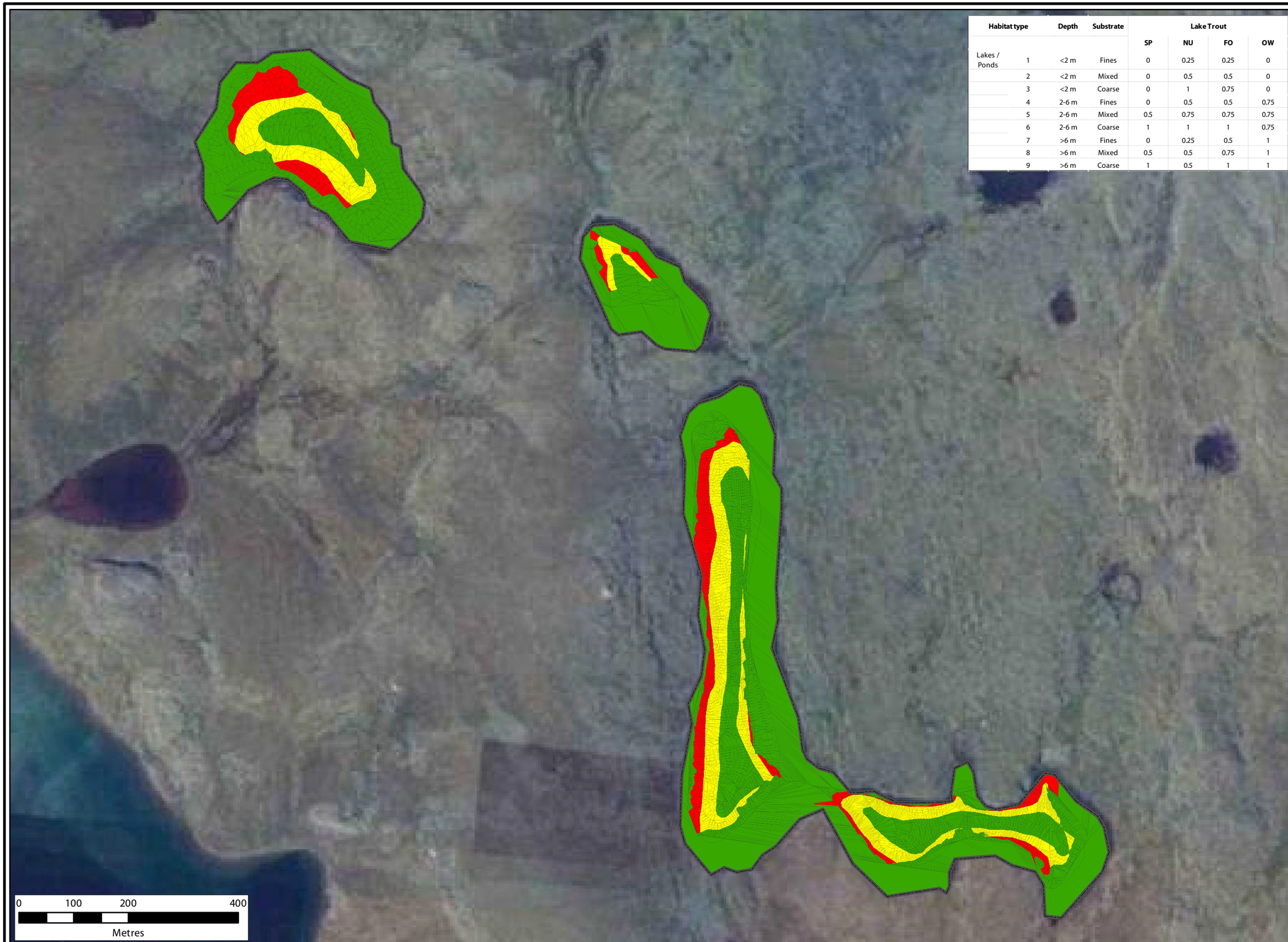

Habitat type		Depth	Substrate	Lake Trout			
				SP	NU	FO	OW
Lakes / Ponds	1	<2 m	Fines	0	0.25	0.25	0
	2	<2 m	Mixed	0	0.5	0.5	0
	3	<2 m	Coarse	0	1	0.75	0
	4	2-6 m	Fines	0	0.5	0.5	0.75
	5	2-6 m	Mixed	0.5	0.75	0.75	0.75
	6	2-6 m	Coarse	1	1	1	0.75
	7	>6 m	Fines	0	0.25	0.5	1
	8	>6 m	Mixed	0.5	0.5	0.75	1
	9	>6 m	Coarse	1	0.5	1	1

Legend

Lake Boundary

Lake Trout Life History

- 0
- 0.25
- 0.5
- 0.75
- 1

Lake Trout Life History
- Spawning -

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FIGURE:

5

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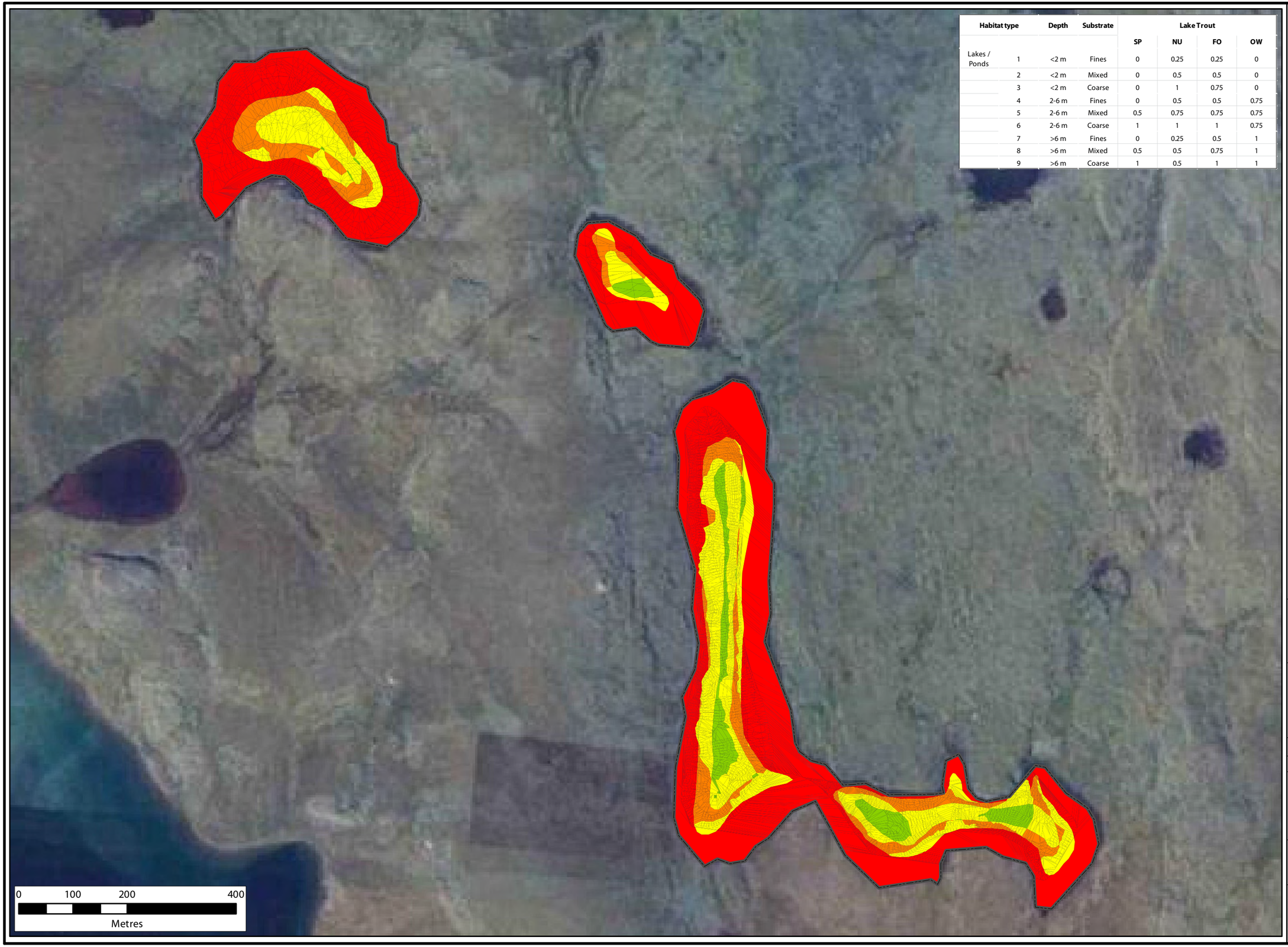

Habitat type		Depth	Substrate	Lake Trout			
				SP	NU	FO	OW
Lakes / Ponds	1	<2 m	Fines	0	0.25	0.25	0
	2	<2 m	Mixed	0	0.5	0.5	0
	3	<2 m	Coarse	0	1	0.75	0
	4	2-6 m	Fines	0	0.5	0.5	0.75
	5	2-6 m	Mixed	0.5	0.75	0.75	0.75
	6	2-6 m	Coarse	1	1	1	0.75
	7	>6 m	Fines	0	0.25	0.5	1
	8	>6 m	Mixed	0.5	0.5	0.75	1
	9	>6 m	Coarse	1	0.5	1	1

Legend

Lake Boundary

Lake Trout Life History

- 0
- 0.25
- 0.5
- 0.75
- 1

Lake Trout Life History
- Nursing -

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FIGURE:

6

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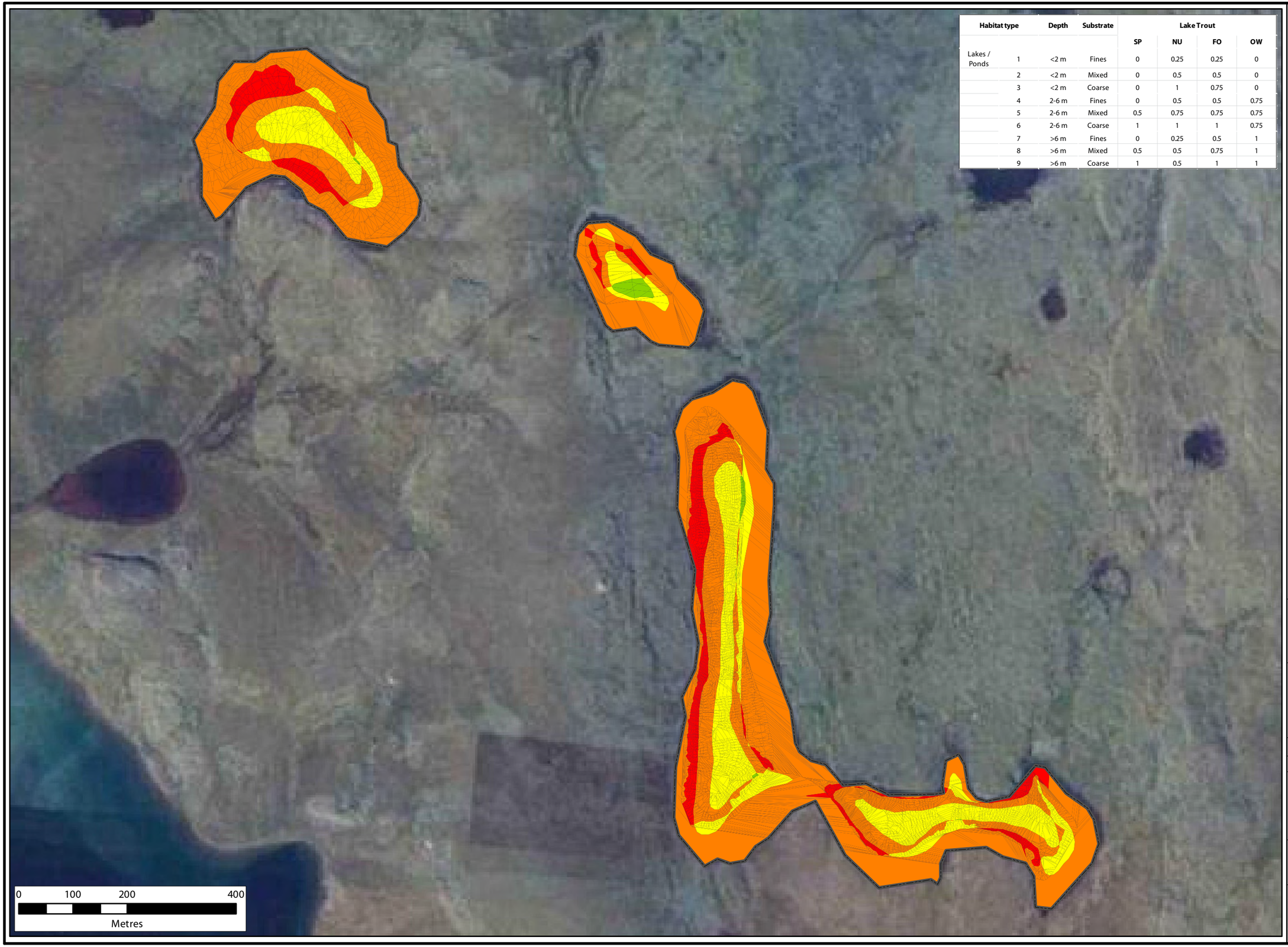

Habitat type		Depth	Substrate	Lake Trout			
				SP	NU	FO	OW
Lakes / Ponds	1	<2 m	Fines	0	0.25	0.25	0
	2	<2 m	Mixed	0	0.5	0.5	0
	3	<2 m	Coarse	0	1	0.75	0
	4	2-6 m	Fines	0	0.5	0.5	0.75
	5	2-6 m	Mixed	0.5	0.75	0.75	0.75
	6	2-6 m	Coarse	1	1	1	0.75
	7	>6 m	Fines	0	0.25	0.5	1
	8	>6 m	Mixed	0.5	0.5	0.75	1
	9	>6 m	Coarse	1	0.5	1	1

Legend

Lake Boundary

Lake Trout Life History

- 0
- 0.25
- 0.5
- 0.75
- 1

Lake Trout Life History
- Foraging -

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FIGURE:

7

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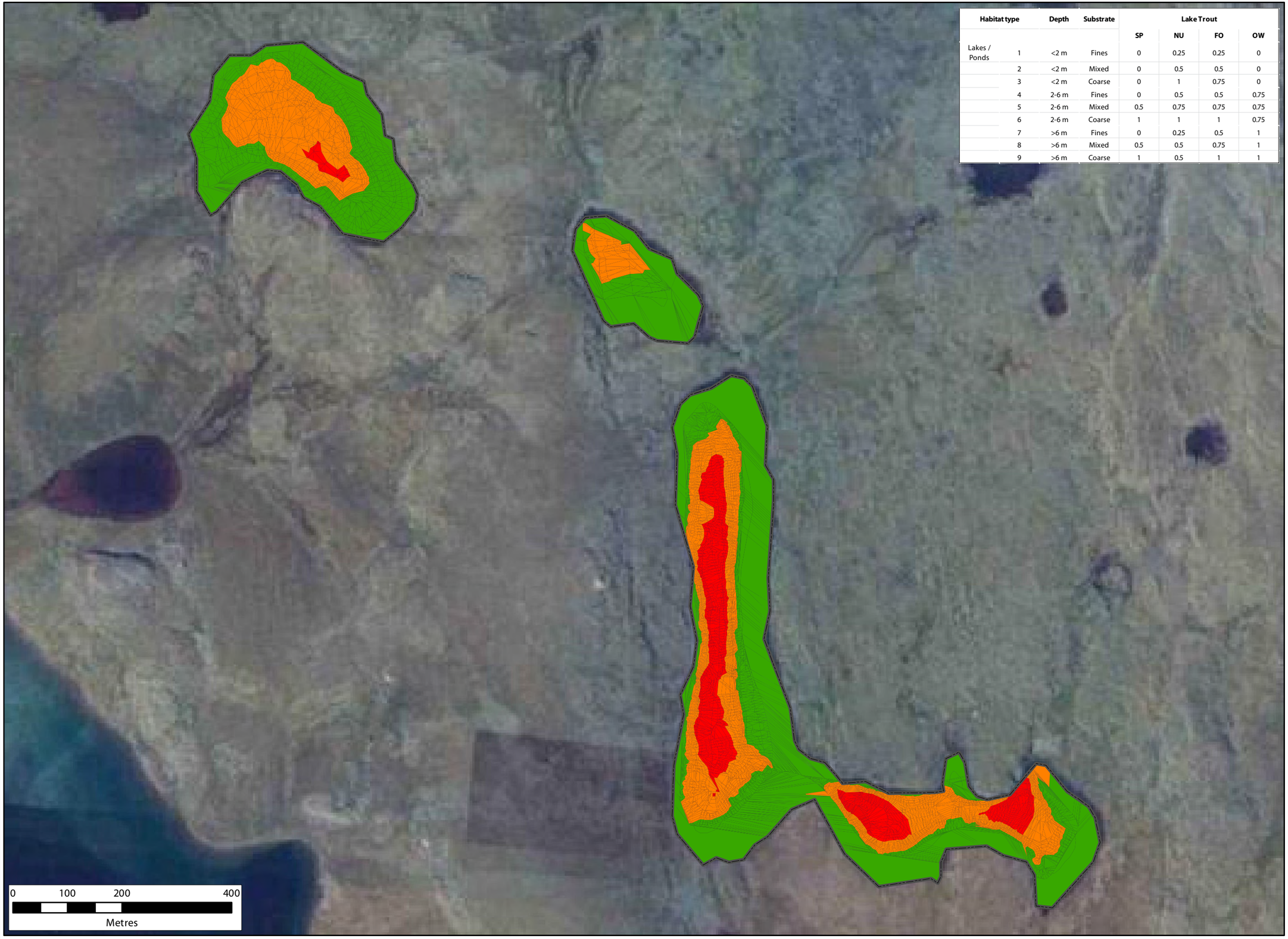

Habitat type		Depth	Substrate	Lake Trout			
				SP	NU	FO	OW
Lakes / Ponds	1	<2 m	Fines	0	0.25	0.25	0
	2	<2 m	Mixed	0	0.5	0.5	0
	3	<2 m	Coarse	0	1	0.75	0
	4	2-6 m	Fines	0	0.5	0.5	0.75
	5	2-6 m	Mixed	0.5	0.75	0.75	0.75
	6	2-6 m	Coarse	1	1	1	0.75
	7	>6 m	Fines	0	0.25	0.5	1
	8	>6 m	Mixed	0.5	0.5	0.75	1
	9	>6 m	Coarse	1	0.5	1	1

Legend

Lake Boundary

Lake Trout Life History

- 0
- 0.25
- 0.5
- 0.75
- 1

Lake Trout Life History
- Overwintering -

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FIGURE:

8

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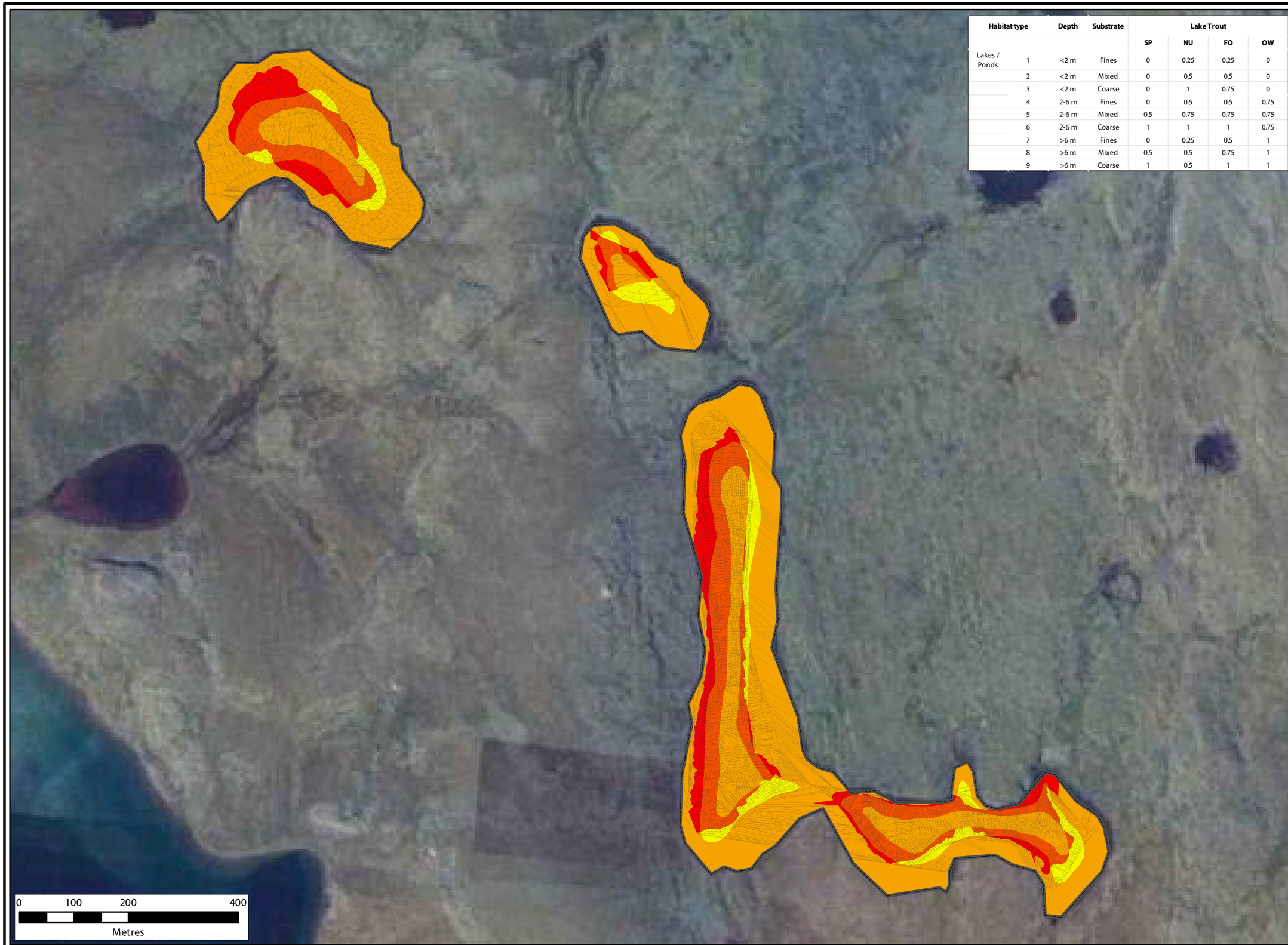

Habitat type		Depth	Substrate	Lake Trout			
				SP	NU	FO	OW
Lakes / Ponds	1	<2 m	Fines	0	0.25	0.25	0
	2	<2 m	Mixed	0	0.5	0.5	0
	3	<2 m	Coarse	0	1	0.75	0
	4	2-6 m	Fines	0	0.5	0.5	0.75
	5	2-6 m	Mixed	0.5	0.75	0.75	0.75
	6	2-6 m	Coarse	1	1	1	0.75
	7	>6 m	Fines	0	0.25	0.5	1
	8	>6 m	Mixed	0.5	0.5	0.75	1
	9	>6 m	Coarse	1	0.5	1	1

Legend

Lake Boundary

Lake Trout Life History

- 0.00 - 0.25
- 0.25 - 0.50
- 0.50 - 0.75
- 0.75 - 1.00

Note: This is the product of mapping the the multiplication of the overall lake trout weightings; a quantitive method that can be applied using the AEM/ Golder (2012) method. It is a more robust version of mapping low (0) to high (1) value habitat. It provides a better indication of what habitat is of greatest value for lake trout in this example but could be done for multiple species as well.

- Total Overview -

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FIGURE:

9

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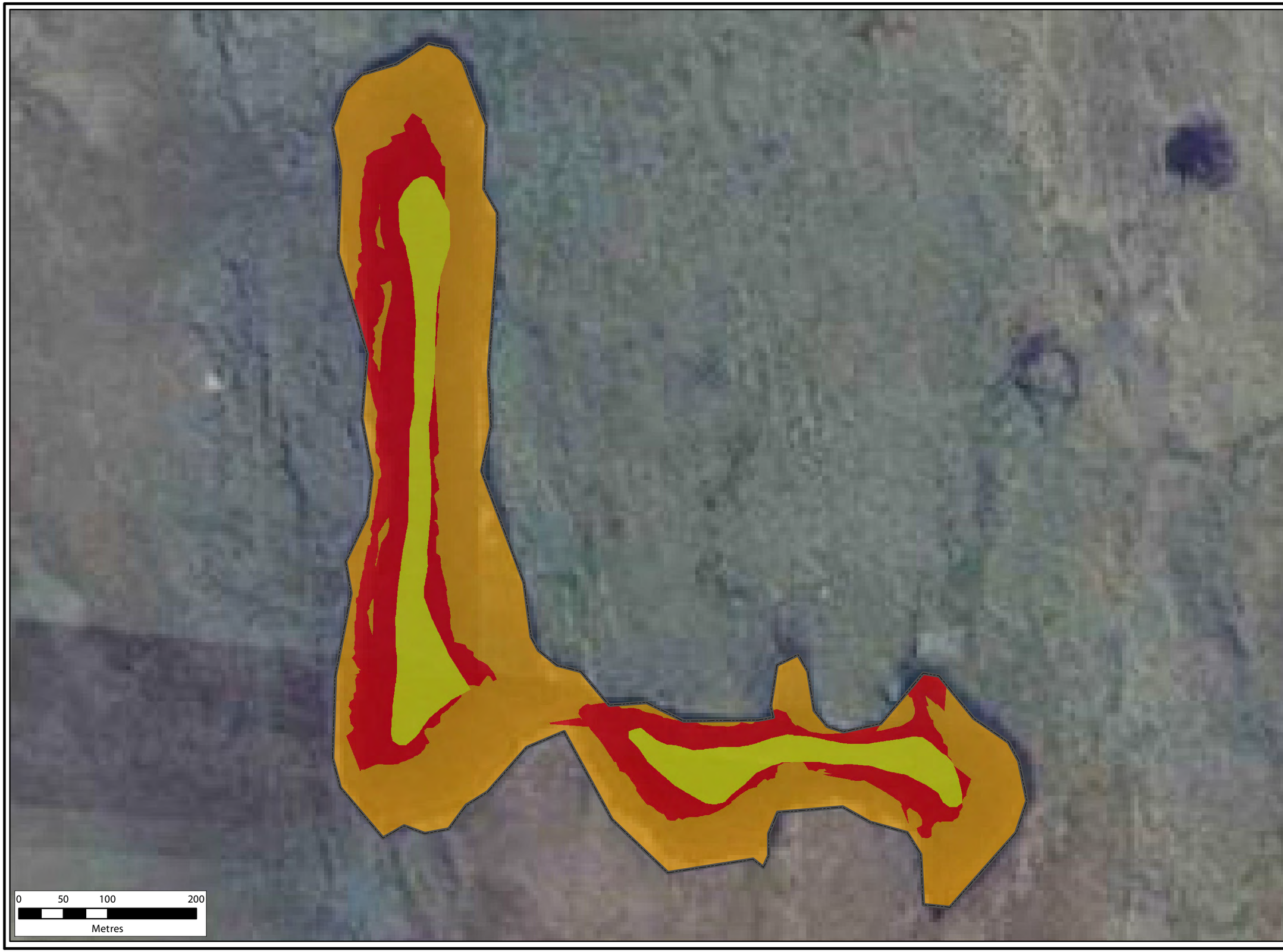

Legend

Lake Boundary

Habitat Evaluation

Low

Medium

High

2011 Habitat Evaluation
Dogleg Lake

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FIGURE:

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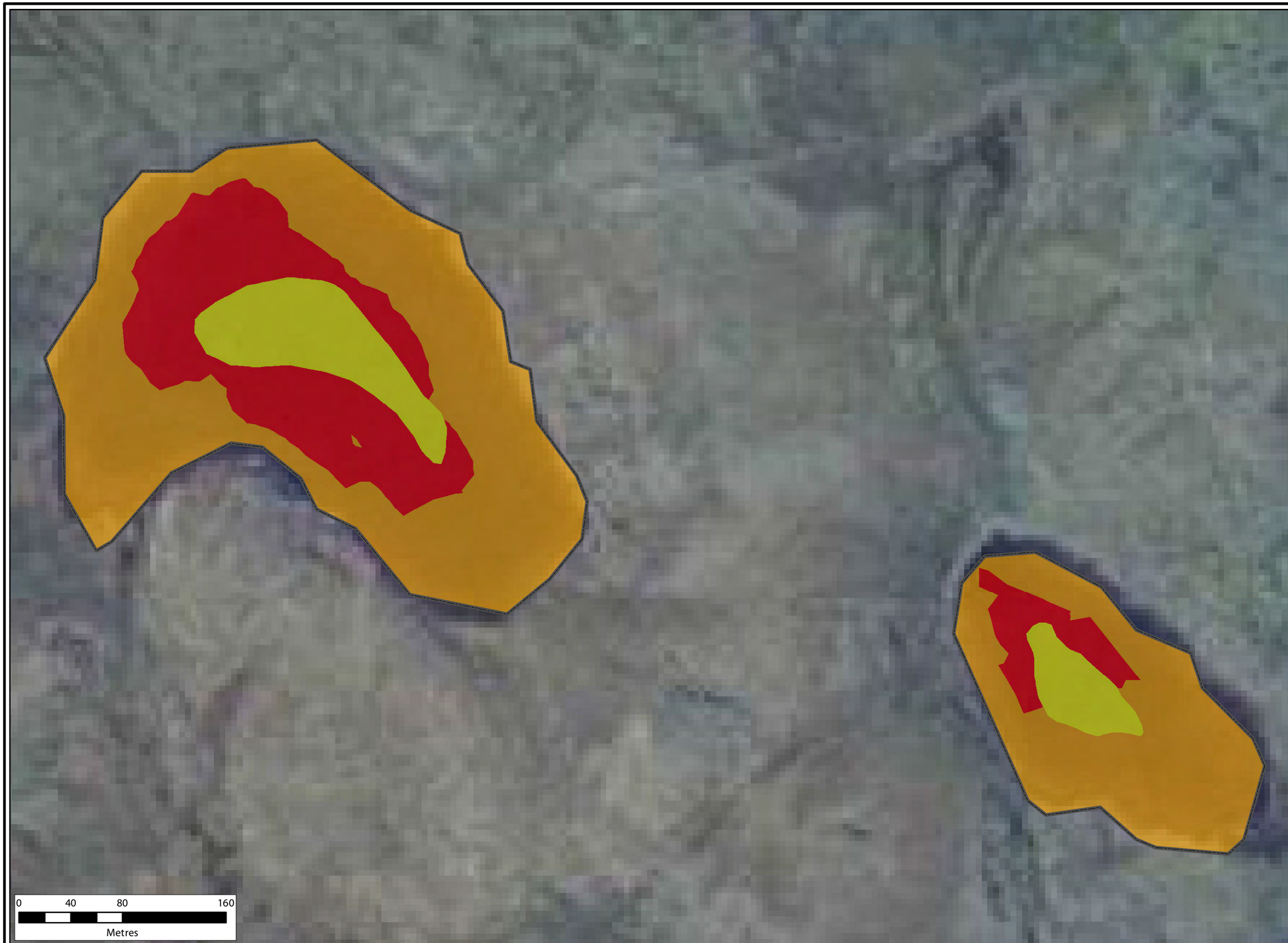

Legend

Lake Boundary

Habitat Evaluation

Low

Medium

High

2011 Habitat Evaluation
Dogleg North Lake

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FIGURE:

11

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Date: February 15, 2012

To: Derrick Moggy
Department of Fisheries and Oceans
Eastern Arctic Area

CC: Bobby Beddingfield (DFO), Bev Ross (DFO), Julie Dahl (DFO), Stephane Robert (Meadowbank Environment- Superintendant), Leilan Baxter (Research Assistant) and Dr. Paul Sibley (Professor, U of G)

Throughout the development of the Meliadine Gold Project No Net Loss Plan and Meadowbank Mine Site Updated No Net Loss Plan, AEM has endeavoured to improve habitat evaluation procedures in the North. In preparation for the exploratory meeting with DFO Science on February 17th, the following letter outlines the preliminary steps taken by AEM towards establishing validated HSIs and a consistent, transparent HEP methodology. This letter presents potential research ideas that we feel will assist with this effort and could be pursued in collaboration with AEM, DFO Science and the University of Guelph researchers.

Habitat Evaluation Procedure and Habitat Suitability Index development

In 2011, AEM began working with Golder to refine an HEP method at the Meliadine Gold Project, using 9 combinations of simple habitat characteristics (depth and substrate). AEM and Golder have completed or will complete the following steps towards method development of a No Net Loss Plan at Meliadine Gold Project.

- A brief Meadowbank Dogleg Pond case study comparing 2005 Cumberland HEP methods versus 2011 AEM/Golder HEP method. These analyses found a similarity in evaluating *moderate* value habitat (i.e. year-round foraging) but differences in *high value* (i.e. nursery and spawning habitat) and *low value* habitat. These comparisons confirmed the transferability and precision of the 2011 AEM/Golder model to identify habitat types that the 2005 model does not allow. Furthermore, these models identified the need for field validation of HEP methods.
- Use of the HEP model and Habitat Suitability Indices for the submission of the Meliadine Project No Net Loss Plan by applying it to conceptual end pit lakes.
- Development of a risk characterization approach at Meliadine that uses a *GIS-based regional scale of negative effects* analysis to assist in the evaluate of impacts to ponds that freeze or nearly freeze to depth for 8 months of the year.

Gains in stream productivity vs. gains in lake productivity

Currently, we have no means to account for differences in stream and lake productivity in No Net Loss planning. This means that one HU gained in a stream is equal to one HU gained in a

lake. However, from personal experience we believe that actual gains in productivity from compensation efforts are higher in artic streams than in lakes. AEM has begun a comparison of productivity gains per HU in streams and lakes, using field data from the Meadowbank site (instream monitoring program and lake fishout data). To date we have:

- Conducted a preliminary comparison of Second Portage Lake (2008 fishout data), which examined immature fish per HU in the lake and changes in number of recruits after construction of the R02 Habitat Compensation feature (constructed spawning habitat). In this comparison, one stream HU was found to be associated with approximately 40x more immature fish than one lake HU.

Alternative Compensation Ideas and Fish Production Models

Although DFO advocates like-for-like compensation, opportunities may arise where tangible benefits to local communities could be achieved through offsite compensation options. In the experience of AEM, these benefits may not be well accounted for with HEP methods, and alternate models may need to be considered.

For example, in the past, Airplane Lake near the hamlet of Baker Lake was frequently accessed for recreational fishing but is now considered by many locals as unable *to produce healthy fish, safe for human consumption*, due to outflow from the hamlet's sewage lagoon. Based on preliminary water quality analysis, total phosphorus levels are elevated in this system. AEM believes an investigation into methods for improved sewage treatment, and the ultimate restoration of water quality in Airplane Lake (which flows directly into Baker Lake) could be a valuable compensation option. However, gains in fish habitat through improved water quality do not factor into any known HEP methods.

To address this issue, we have attempted to model fish production in Airplane lake using 2008 and 2010 Meadowbank Fishout data by applying fish production models from Downing et al. (1990). They found that fish production (FP; kg/ha·yr) in lakes worldwide is significantly correlated with average annual primary production (PP; gC/m2·yr), average annual total phosphorus concentration (TP; mg/L) and standing fish biomass (FB; kg/ha) using the following models:

logFP = 0.600 + 0.575logPP (n=19; r2 = 0.79)
logFP = -0.42 + 1.084logFB (n=23; r2 = 0.67)
logFP = 0.332 + 0.532logTP (n=14; r2 = 0.67):

- AEM has requested fishout data from other northern mines to validate these models together with the Meadowbank fishout data.
- These models were also applied to Airplane Lake to estimate fish production in a nutrient enriched arctic system.

- Future compensation monitoring will incorporate data collection that will aim to validate these models (i.e. Dogleg Pond compensation area).

These models may support the use of *alternative* habitat compensation such as restoration that diverges from commonly accepted DFO approach of constructing fish habitat structures.

Specific Research Ideas: AEM, U of G and DFO Science Collaboration

Dr. Paul Sibley at the University of Guelph, and graduated MSc student, Leilan Baxter, are interested in working with AEM and DFO to develop a research program based on the issues described above. The research directions discussed to date have been aimed at developing and testing habitat suitability indices for northern fish species. Further, many HSI models are not validated with experimental manipulations. Compensation programs at Meadowbank could provide the opportunity to research fish habitat requirements (as opposed to preferences) in the north. This program would assist in determining what types of compensation may truly be effective in achieving no-net-loss of productive capacity. Research questions may specifically include the following stages.

Stage 1: Development of HSI models (observational phase)

- determination of potentially suitable indices
    - (e.g. max depth, lake volume, temperature, TP, substrate, invertebrate and fish community composition) from literature review, professional interview
- observation of fish habitat preferences
    - measurement of chosen indices along with total fish biomass and/or health index
    - could include Meadowbank and/or Meliadine; lacustrine and/or riverine
    - much information already available from fishout data, but smaller systems need to be incorporated
        - could include refining CPUE model based on fishout datasets in order to obtain better estimates of population size (or apply another method e.g. capture-recapture)
        - could be for stream (use AWAR data), lake (use historical site data plus Vault, Phaser, data from other mines' fishouts etc.) or both
        - could be for all major species (lake trout, arctic char, lake whitefish, arctic grayling) or one initially
- calculation of HSI equations from observational data

Stage 2: Testing of compensation features (experimental phase)

- observe fish biomass/health/production in response to changes in various identified habitat indices (e.g. increase/reduce substrate complexity)
- could be conducted for streams (R02) or lakes/ponds (Dogleg) or both

We look forward to our exploratory meeting to discuss the work to date and future research ideas. Should you require any further information or questions please contact me via email or by telephone.

Regards,

Ryan Vanengen
rvanengen@agnico-eagle.com
519-400-7979
Environment Biologist- Meadowbank Division

Leilan Baxter
leilan@uoguelph.ca
519-829-5322
Research Assistant

Ryan Vanengen

From: Bedingfield, Robert <Robert.Bedingfield@dfo-mpo.gc.ca>
Sent: March-30-12 3:09 PM
To: Ryan Vanengen; Stephane Robert
Cc: Moggy, Derrick
Subject: Meadowbank Authorization Amendment and NNLP Contingency Plan
Attachments: Regulations Amending the Metal Mining Effluent Regulations - Meadowbank Gold Mine gazette 2.pdf; AEM 2009 TIA and NNLP 2007 vs DFO Authorization.pdf

Hi Gentlemen,
This email is to summarize the agreed upon process to amend authorization NU-03-0191 and to fulfill Agnico-Eagle Mines Ltd (AEM) obligations of developing a NNLP contingency plan for the Meadowbank Mine. The purpose of this email is to ensure that both DFO and AEM are agreeable and clear on the process that will occur.

Amendment of Authorization
The authorization for the Meadowbank mine will be amended to correct the discrepancies that are associated with each habitat compensation feature described in Authorization NU-03-0191. The reason for these discrepancies is unclear but the Habitat units (HU) that are associated with each compensation measure in the Meadowbank 2006/2007 NNLP and the November 2009 Meadowbank revised NNLP do not match the quantity of HU's listed in the authorization (see attachment, *AEM 2009 TIA and NNLP 2007 vs DFO Authorization*). The discrepancies that appear in the current authorization for the mine will be adjusted however the expectation is that that ratio of Compensation HU's to HADD HU's that appears in the authorization will still be honored by Agnico-Eagle. The compensation to HADD ratio for the TIA is 718.0 HU's to 318.3 HU (**2.03 : 1 ratio**) . The compensation ratio for the Mine Site is 1252.00 to 741.8 (**1.68 : 1 ratio**) The authorization will be amended to reflect the type and quantity of compensation that will be presented in the 2012 revised NNLP for the Meadowbank Mine that is currently being prepared by AEM.

The new NNLP that will be developed by AEM will also contain a new HEP model that will be developed based on principles that are presented in the HEP model for the Meliadine Mine. The timelines associated with the development of the revised NNLP for the Meadowbank mine are as follows:

Submission of a draft NNLP by June 15, 2012
Submission of a final NNLP by October 1, 2012

The revised NNLP for the Meadowbank Mine will include a NNLP for the Vault Pit. The NNLP for the Meadowbank mine should be one all-encompassing document but should contain clearly labelled sections discussing compensation associated with the TIA, Meadowank Mine and the Vault Pit. The revised NNLP document should clearly outline which compensation measure is associated with which location (TIA, Mine or Vault).

Contingency NNLP
Condition 4.5 in authorization NU-03-0191 states that a contingency no net loss plan should be developed by AEM by July 30, 2009. For a variety of reasons this contingency plan has not been finalized to date. The understanding that has been agreed upon by AEM and DFO is that a new NNLP will be developed by AEM to address issues such as a reduced mine life and the discrepancies with the amount of HU's that are associated with each compensation measure listed in the current authorization.

TIA compensation modifications
Slight modifications to the compensation that is associated with the TIA may be allowable. The description of the compensation associated with TIA is outlined in the MMER listing regulations. Any changes that occur to TIA related compensation must still satisfy the description of the compensation in the MMER regulations (attached).

If I have left out any important details or there needs to be further clarification or discussion on any of these points please contact myself of Derrick Moggy to discuss in greater detail.

Bobby Bedingfield
Telephone/Téléphone *403* 292-8675
Facsimile/Télécopieur *403* 292-5173
E-mail/Courriel Robert.Bedingfield@dfo-mpo.gc.ca

Fish Habitat Biologist
Eastern Arctic Area
Central and Arctic Region
Fisheries and Oceans Canada
7646 8th Street NE
Calgary, Alberta T2E 8X4

Biologiste, Habitat du poisson
Region Arctique de L'est
Région du Centre et de l'Arctique
Pêches et Océans Canada
7646, 8e Rue N.-E.
Calgary (Alberta) T2E 8X4

Ryan Vanengen

From: Patreau, Elizabeth <Elizabeth.Patreau@dfo-mpo.gc.ca>
Sent: Wednesday, September 26, 2012 1:19 PM
To: Ryan Vanengen
Cc: leilan@uoguelph.ca; Johnson, Nicola; Moggy, Derrick
Subject: RE: Meadowbank Authorization Amendment and NNLP Contingency Plan

Hi Ryan,

No particular preference. If it is easiest for you to submit all together, that will work for me.

Regards,

Elizabeth Patreau
Senior Fish Habitat Biologist | Biologiste principal, Habitat du poisson
Telephone - Téléphone: *867 979-8019*
Email - Courriel: Elizabeth.Patreau@dfo-mpo.gc.ca

From: Ryan Vanengen [mailto:RVanengen@agnico-eagle.com]
Sent: September 26, 2012 12:21 PM
To: Patreau, Elizabeth
Cc: 'leilan@uoguelph.ca'; Johnson, Nicola; Moggy, Derrick
Subject: Re: Meadowbank Authorization Amendment and NNLP Contingency Plan

Hello elizabeth,
Thank you for your response. We planned to submit the literature reviews when we submit the final. Would you prefer to receive the literature review and tables in advance of the submission?
Ryan

From: Patreau, Elizabeth [mailto:Elizabeth.Patreau@dfo-mpo.gc.ca]
Sent: Wednesday, September 26, 2012 09:11 AM
To: Ryan Vanengen
Cc: Stephane Robert; Kevin Buck; leilan@uoguelph.ca <leilan@uoguelph.ca>; Johnson, Nicola <Nicola.Johnson@dfo-mpo.gc.ca>; Moggy, Derrick <Derrick.Moggy@dfo-mpo.gc.ca>
Subject: RE: Meadowbank Authorization Amendment and NNLP Contingency Plan

Ryan, In preparation for AEM's final NNLP submission to DFO, please see below response to each of AEM's bullets (your email below):

1. DFO will await the literature review information. Please provide to DFO asap in order for DFO to compile finalized comments.

2. DFO will await literature review. A conference call may be useful to discuss once all have opportunity to review literature comments.

3. DFO nothing further to add here.

4. DFO nothing further to add here at this time.

5. DFO will await summary table from AEM.

6. DFO has no issues with this extension and provides the following additional comment :

At our meeting in August, AEM informed DFO that an Amendment/Revised Authorization may be sought for the East Dyke, to expand existing water usage allotment and to extend the area of the waste rock pile - the current NNLP does not reflect these additions. Please ensure this is referenced should any impacts to fish and fish habitat be anticipated.

Should you have any questions or concerns please feel free to contact me.

Regards,

Elizabeth Patreau
Senior Fish Habitat Biologist | Biologiste principal, Habitat du poisson
Telephone - Téléphone: *867 979-8019*
Email - Courriel: Elizabeth.Patreau@dfo-mpo.gc.ca

From: Ryan Vanengen [mailto:RVanengen@agnico-eagle.com]
Sent: September 12, 2012 5:58 PM
To: Patreau, Elizabeth; Moggy, Derrick
Cc: Stephane Robert; Kevin Buck; leilan@uoguelph.ca; Johnson, Nicola
Subject: RE: Meadowbank Authorization Amendment and NNLP Contingency Plan

Hello Elizabeth and Derrick,

As discussed during the site visit, below each bullet are responses to DFOs Draft Meadowbank NNL plan comments. If you have any questions, contact me by email or cell.

As an update, we are on-track and have begun integrating additional GIS information and 2012 field data to submit the final Meadowbank NNL Plan on October 15th, 2012.

Thanks,

Ryan VanEngen, MSc.
Agnico-Eagle Mines Ltd. -Meadowbank Division
Environment Department
rvanengen@agnico-eagle.com
519.400.7979

Please consider the environment before printing this email

From: Bedingfield, Robert [mailto:Robert.Bedingfield@dfo-mpo.gc.ca]
Sent: Thursday, July 19, 2012 4:29 PM
To: Ryan Vanengen

Cc: Stephane Robert; Kevin Buck; leilan@uoguelph.ca; Moggy, Derrick; Patreau, Elizabeth
Subject: RE: Meadowbank Authorization Amendment and NNLP Contingency Plan

Hi Ryan,
I am sending out this email to follow up with our telephone conversation regarding DFO's review of the DRAFT Amended NNLP for the Meadowbank Mine. DFO's comments are summarized in point form below.

- The structure and layout of the Draft NNLP is appropriate and addressed the issue of the required contingency options as well as identified habitat losses and gains for each section of the mine.
- Pg 11 - The addition of the Habitat type 11 (HT11)raised some issues for the fish species such as burbot, slimy sculpin, ninespine stickleback and arctic grayling that are typically associated with the lake bottom substrate and structure for foraging (FO) and overwintering(OW). The HSI values for HT-11 were taken from HT-09 (>4m, course substrate) however HT-11 has no substrate associated with it. For this reason DFO would suggest that the HSI values for the above mentioned species be re-evaluated and decreased because no substrate is available for fish use in HT-11.

  Based on suggestions from DFO regarding Meadowbank's draft NNLP, AEM agrees that the proposed HT 11 HSIs for benthic-foraging species should be revised. While overwintering and foraging HT 11 HSIs for all species were proposed to be the same as HT 9 HSIs, it is recognized that deeper pit habitat may be less valuable than natural- mixed- deep-water habitat for benthic fish species. However, based on a review of the literature (mainly Richardson, 2001), several benthic species are found at significant depths, suggesting that pit habitat may provide some utility. AEM will complete a literature review, present the information in the final NNL plan, and revise the HT11 to reflect the findings discussed during the site visit.

- Pg 14 –DFO is agreeable to the use of the Access Factor in the HEP model however further work needs to be done to understand potential inter-species interactions and dynamics should new fish species be introduced into a lake.

  AEM agrees and will complete a literature review on this topic and present the findings in the final NNL plan. AEM will continue to discuss with the DFO the ecological implications of introducing new fish species into lakes prior to implementation.

- Pg 45- Again, DFO is agreeable to the incorporation of the habitat co-factor to incorporate water quality into the HEP calculation however further discussion between DFO and AEM is required to determine how this co-factor would be determined based on present and predicted water quality characteristics.

  AEM agrees and will continue to discuss the use of a habitat co-factor with DFO prior to implementation. Currently, the co-factor is not applied in the main NNL Plan, rather it's application is suggested in the contingency plan (i.e. remediation of airplane lake option). If the contingency plan is implemented, AEM will develop a detailed methodology and model in consultation with DFO prior to implementation.

- Pg46 – The construction of more arctic grayling spawning pads is a viable option in DFO's opinion based on the past success of the spawning pads associated with R02 bridge crossing. Further discussion between AEM and DFO is required to finalize details of how this compensation would be quantified should this contingency option be chosen to be implemented.

  AEM agrees and will discuss the valuation of additional spawning pads with DFO prior to implementation.

- DFO would request a summary Table to show all the losses and gains of HU's and show which compensation options would be associated with specific HADDs (losses). The summary table should summarize all the losses and gains associated with the main mine site, vault pit as well as tailings storage facility location.

AEM agrees and will complete a summary table as requested and discussed during the site visit.

The final draft of the amended NNLP is scheduled to be submitted to DFO for final review on or before October 1, 2012.

During the site visit DFO agreed with AEM's request for an extension to October 15th to allow AEM to integrate 2012 field data and additional GIS information into the final NNL Plan.

During the DFO site visit that is scheduled to occur August 13-15, the amended NNLP can be discussed in further detail or a conference call can be arranged at an earlier date should it be required.

I hope everyone is having a good summer.

Bobby Bedingfield
Fisheries and Oceans Canada
Telephone/ Téléphone 403-292-8675
Email/Courriel Robert.Bedingfield@dfo-mpo.gc.ca

From: Ryan Vanengen [mailto:RVanengen@agnico-eagle.com]
Sent: June 18, 2012 4:32 PM
To: Bedingfield, Robert; Moggy, Derrick
Cc: Stephane Robert; Kevin Buck; Leilan Baxter (leilan@uoguelph.ca)
Subject: RE: Meadowbank Authorization Amendment and NNLP Contingency Plan

Hello Bobby and Derrick,

Attached you will find a DRAFT Meadowbank No Net Loss Plan- AEM, June 15,2012 for your review. We look forward to your feedback and discussions leading up to our site visit on August 13-15 where we can thoroughly discuss the attached plan. We are currently conducting studies near Airplane lake and will be conducting additional studies throughout the summer to confirm baseline data and some of the assumptions in the attached report.

Please feel free to contact me by email or phone if you have any questions.

Ryan VanEngen, MSc.
Agnico-Eagle Mines Ltd. -Meadowbank Division
Environment Department
rvanengen@agnico-eagle.com
519.400.7979

Please consider the environment before printing this email

From: Bedingfield, Robert [mailto:Robert.Bedingfield@dfo-mpo.gc.ca]
Sent: May-25-12 10:02 AM
To: Ryan Vanengen; Stephane Robert
Cc: Moggy, Derrick
Subject: RE: Meadowbank Authorization Amendment and NNLP Contingency Plan

Hi Ryan and Stephane

The Red font that has been inserted into my previous email below will clarify some of DFO's expectations regarding the NNL contingency plan for Meadowbank.

Thank you,

Bobby Bedingfield
Fisheries and Oceans Canada
Telephone/ Téléphone 403-292-8675
Email/Courriel Robert.Bedingfield@dfo-mpo.gc.ca

From: Bedingfield, Robert
Sent: March 30, 2012 2:09 PM
To: Ryan Vanengen (RVanengen@agnico-eagle.com); Stephane Robert (stephane.robert@agnico-eagle.com)
Cc: Moggy, Derrick
Subject: Meadowbank Authorization Amendment and NNLP Contingency Plan

Hi Gentlemen,
This email is to summarize the agreed upon process to amend authorization NU-03-0191 and to fulfill Agnico-Eagle Mines Ltd (AEM) obligations of developing a NNLP contingency plan for the Meadowbank Mine. The purpose of this email is to ensure that both DFO and AEM are agreeable and clear on the process that will occur.

Amendment of Authorization
The authorization for the Meadowbank mine will be amended to correct the discrepancies that are associated with each habitat compensation feature described in Authorization NU-03-0191. The reason for these discrepancies is unclear but the Habitat units (HU) that are associated with each compensation measure in the Meadowbank 2006/2007 NNLP and the November 2009 Meadowbank revised NNLP do not match the quantity of HU's listed in the authorization (see attachment, *AEM 2009 TIA and NNLP 2007 vs DFO Authorization*). The discrepancies that appear in the current authorization for the mine will be adjusted however the expectation is that that ratio of Compensation HU's to HADD HU's that appears in the authorization will still be honored by Agnico-Eagle. The compensation to HADD ratio for the TIA is 718.0 HU's to 318.3 HU (**2.03 : 1 ratio**) . The compensation ratio for the Mine Site is 1252.00 to 741.8 (**1.68 : 1 ratio**) The authorization will be amended to reflect the type and quantity of compensation that will be presented in the 2012 revised NNLP for the Meadowbank Mine that is currently being prepared by AEM.

The new NNLP that will be developed by AEM will also contain a new HEP model that will be developed based on principles that are presented in the HEP model for the Meliadine Mine. The timelines associated with the development of the revised NNLP for the Meadowbank mine are as follows:

Submission of a draft NNLP by June 15, 2012
Submission of a final NNLP by October 1, 2012

The revised NNLP for the Meadowbank Mine will include a NNLP for the Vault Pit. The NNLP for the Meadowbank mine should be one all-encompassing document but should contain clearly labelled sections discussing compensation associated with the TIA, Meadowank Mine and the Vault Pit. The revised NNLP document should clearly outline which compensation measure is associated with which location (TIA, Mine or Vault).

Contingency NNLP

Condition 4.5 in authorization NU-03-0191 states that a contingency no net loss plan should be developed by AEM by July 30, 2009. DFO still requires this contingency plan to fulfill AEM's obligations stated in the authorization. The contingency plan should be incorporated into the revised NNLP document that is to be completed by October 1, 2012 for the Meadowbank Mine. Enough design detail should be included in the contingency NNLP to show that each proposed contingency measure is feasible and has been given sufficient thought to implement if necessary. Final construction design detail is not required. For a variety of reasons this contingency plan has not been finalized to date. The understanding that has been agreed upon by AEM and DFO is that a new NNLP will be developed by AEM to address issues such as a reduced mine life and the discrepancies with the amount of HU's that are associated with each compensation measure listed in the current authorization.

TIA compensation modifications

Slight modifications to the compensation that is associated with the TIA may be allowable. The description of the compensation associated with TIA is outlined in the MMER listing regulations. Any changes that occur to TIA related compensation must still satisfy the description of the compensation in the MMER regulations (attached).

If I have left out any important details or there needs to be further clarification or discussion on any of these points please contact myself of Derrick Moggy to discuss in greater detail.

Bobby Bedingfield

Telephone/Téléphone *403* 292-8675
Facsimile/Télécopieur *403* 292-5173
E-mail/Courriel Robert.Bedingfield@dfo-mpo.gc.ca

Fish Habitat Biologist
Eastern Arctic Area
Central and Arctic Region
Fisheries and Oceans Canada
7646 8th Street NE
Calgary, Alberta T2E 8X4

Biologiste, Habitat du poisson
Region Arctique de L'est
Région du Centre et de l'Arctique
Pêches et Océans Canada
7646, 8e Rue N.-E.
Calgary (Alberta) T2E 8X4

APPENDIX D – Photos

Photo 1-1 : Meadowbank Mine Site aerial photograph- taken summer 2012.

Photo 1-2 Second Portage Lake Northwest Basin- taken during East Dike construction, July 2008 .

Photo 1-3: Aerial photo of Bay-Goose Basin prior to de-watering - taken summer 2010.

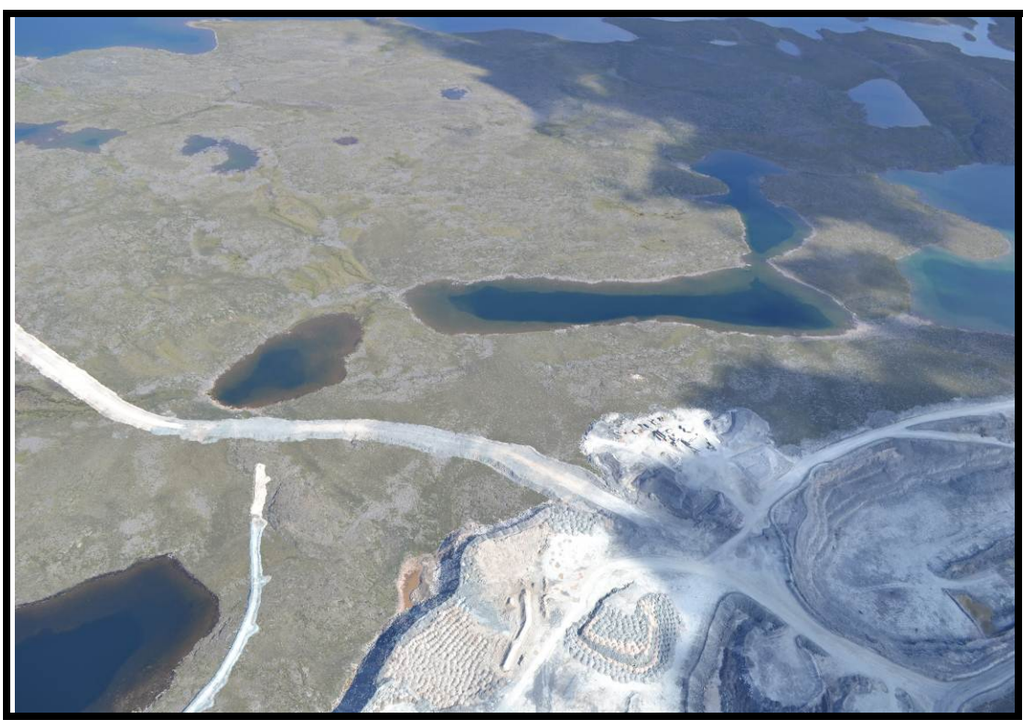

Photo 1-4 Dogleg Pond series (NP-2 in foreground, Dogleg North across road) - taken Aug 8 2011.

Photo 1-5 :Airplane Lake with small culvert at far edge of lake, along road to Meadowbank Mine (going left-right). Road to landfill and sewage lagoon is beyond - taken August 8, 2011.

Photo 1-6 : Hamlet-maintained small culverts (undersized during freshet) that drain into Airplane Lake- taken mid-July 2011.

Photo 1-7 :Spawning pads and berms constructed in Winter of 2009 upstream of Bridge 1 (R02)- photo was taken in the fall during low flow. Structures were constructed to target arctic grayling spring spawning and have effectively increased young of the year and larval drift compared to before construction.

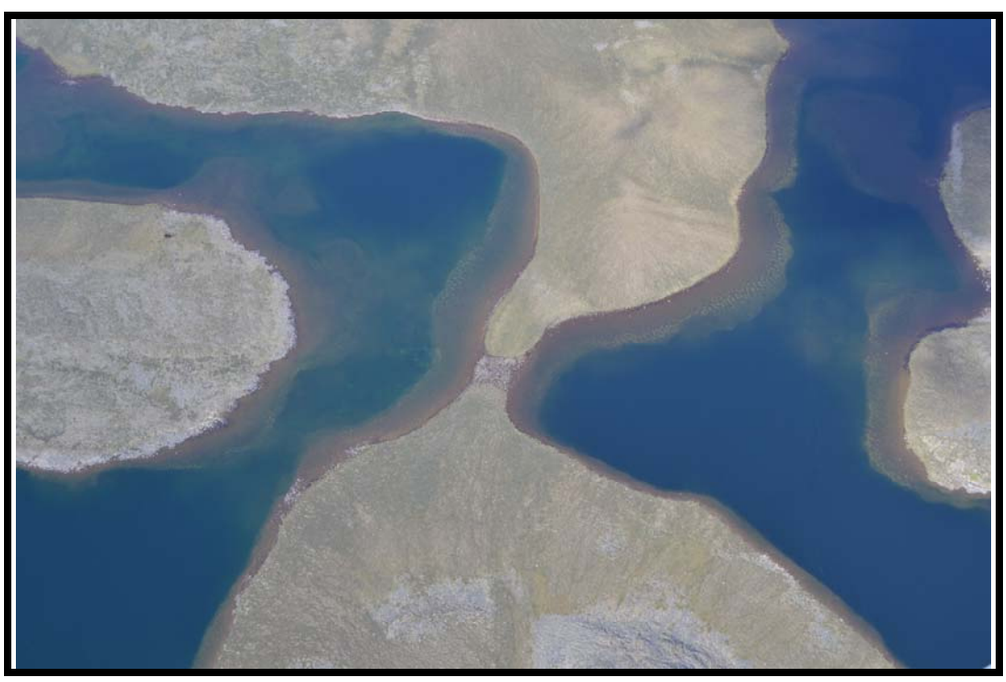

Photo 1-8 :Current condition of channel connecting Wally Lake (left) and W3 (right).

APPENDIX E – Technical Memorandum:
Summary of 2012 field data collection in support of NNL planning

TECHNICAL MEMORANDUM

Agnico Eagle Mines Ltd: Meadowbank Division
Baker Lake, Nunavut, X0C 0A0

Date: October 1st, 2012
Subject: Summary of Fisheries Data Collection in Support of the Meadowbank Mine Revised No Net Loss Plan
By: Ryan VanEngen (Environment Biologist) and Tom Thomson (Environment Technician

---

1 Introduction

In 2011, AEM revisited the original NNLP, and found discrepancies between the number of habitat units described in the plan and those in the Authorization granted by DFO. Specifically, gains for the Second Portage northwest Basin and Third Portage Basin were overestimated and unaccounted for. In addition to these discrepancies, the original DFO Authorization required AEM to develop a contingency plan which required additional research, monitoring data collection and public consultation. Furthermore, Vault Pit operations were not permitted under the original DFO Authorization and therefore required AEM to develop a No Net Loss Plan for the HADD related to the Vault Operations that will result in a HADD.

The following document summarizes the data collected in 2012 to support No Net Loss planning for the Meadowbank Project. The data collected in 2012 included: fish surveys completed in Airplane lake, Vault Pit Area (Wally, Vault and Phaser Lake), and Dogleg Pond and stream habitat assessments completed near Airplane Lake.

2 Methodology

Based on the recommendations in Azimuth (2009) and AEM (2012), only fine mesh index gill nets were used to evaluate fish presence in 2012. Fine mesh gill nets were used to quantitatively determine the species composition, size and catch-per-unit-effort (CPUE; # fish/100 m/hr) in Airplane Lake, Vault Lake, Wally Lake, Phaser Lake and Dogleg Lake. Panels of 25, 38, 51, 76, 102 and 126 mm stretch mesh gill nets were attached to one another in this order to create gangs of nets. Gangs were set with varying set times and durations. Procedures were nearly identical on all dates and locations.

Nets were set in different habitat types to target all fish species. The sets included perpendicular shoreline sets that spanned from littoral areas into deep water sets areas and deep water sets to target pelagic fish. Due to uncertainties in baseline data collection at Wally, fishing efforts mostly targeted deep zones to confirm presence and absence of arctic char. Nets were left for less than one day to provide daytime and overnight capture, after which time they were pulled and re-set. Most of the locations had a total of two sets within the two days of monitoring. Fish captured were identified by

species, measured for fork length (mm), weighed, and if they were in good condition following capture were floy- tagged in Vault and Phaser. All fish were returned to the lake of their capture. The DFO Animal Use Protocols and License to Fish for Scientific Purposes authorizations for these studies are presented in Appendix C. GPS locations of the net sets are presented in Appendix A.

3 Results and Discussion

3.1 Summary of Fish Collected

In 2012, index gill nets were set in various locations throughout Wally, Vault, Phaser, Dogleg Pond and Airplane lake. In total 377 fish were collected. Two hundred and forty eight (248) were collected in the project lakes, 174 of these were lake trout and most of the remainder were round whitefish. The percent biomass by species for project lakes are presented in Figure 3.1 Airplane lake, immediately west of the hamlet of Baker Lake, within the Baker Lake watershed, had a significantly different species assemblage than the project lakes with 67% biomass represented by round whitefish and only 12% by lake trout. A summary of the fish data collection is presented in Table 3.1. All field data sheets are presented in Appendix A.

The data collected in 2012 supported baseline findings in Wally, Vault and Phaser Lake. As previously documented, no arctic char were collected despite efforts and net placements to target arctic char. The 2012 data collection in Dogleg Pond determined both round whitefish and lake trout are present which updates the historical findings that determined only lake trout were present. These findings will be reflected in the NNL plan.

Figure 3.1- Percent fish biomass by species by waterbody

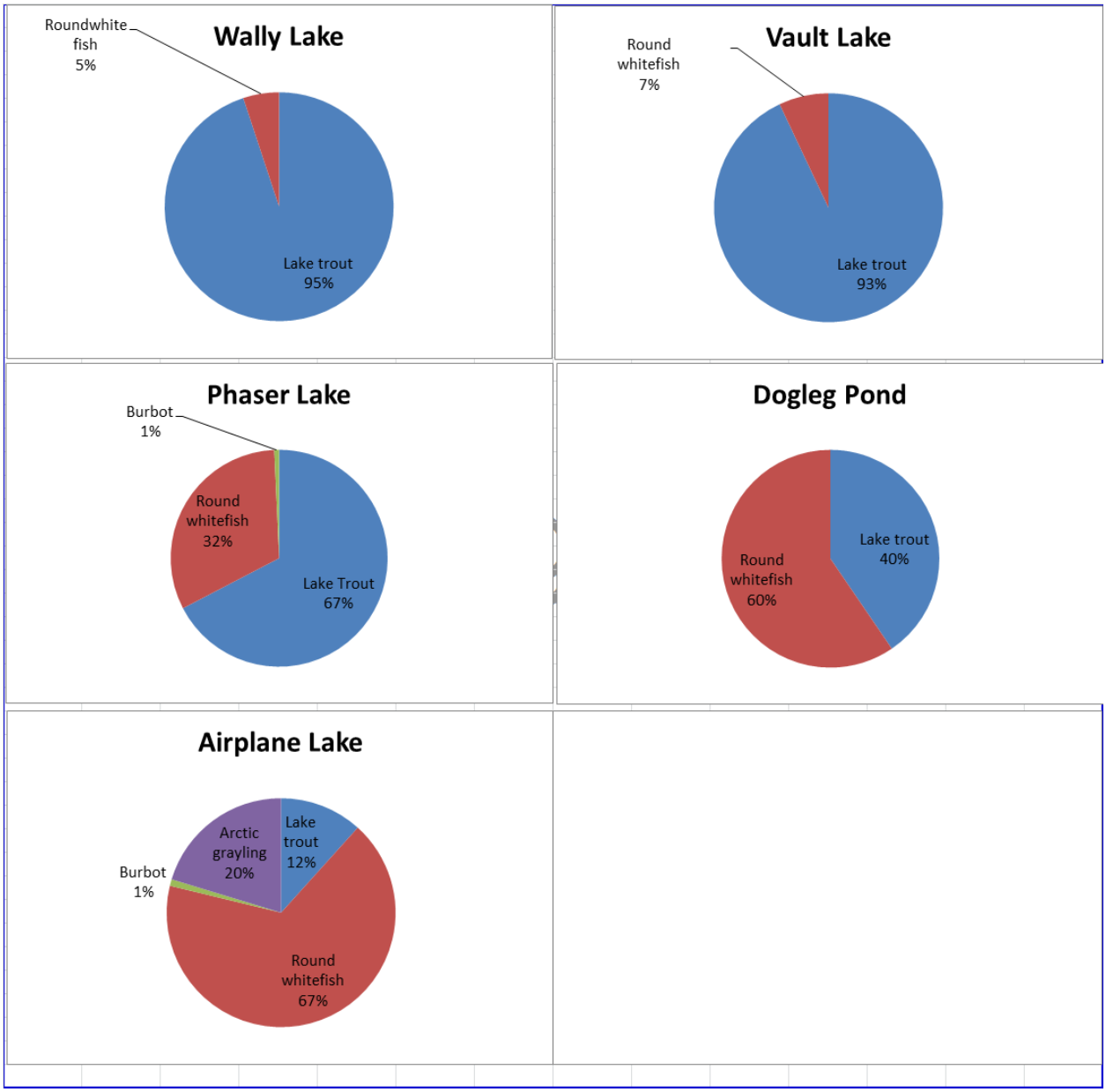

Table 3.1- Summary of the number of fish collected by waterbody

Waterbody	Lake Trout	Arctic char	Round Whitefish	Arctic grayling	Burbot	Totals
Wally	55	0	8	-	0	**63**
Vault	67	0	12	-	0	**79**
Phaser	41	0	36	-	1	**78**
Dogleg Pond	11	0	17	-	0	**28**
Subtotal						**248**
Airplane Lake*	6	0	124	36	7	**173**
Total	180	0	197	36	8	**377**
* Located near Baker Lake; ~ 100km from the Project Lakes						
- not found in Project Lakes						

3.2 CPUE

Catch per unit effort (CPUE) for index gill net sets by waterbody are presented in Table 3.2. Mean CPUE for Wally was 11.03 (n=9), Vault was 15.54 (n=6), Phaser was 23.74 (n=4) and Dogleg was 40.73 (n=1). There was not a statistically significant difference between Wally, Vault and Phaser (ANOVA $p=0.21$). Airplane Lake had a statistically significant difference in CPUE compared to Wally, Vault and Phaser (ANOVA followed by a Tukey's pairwise comparison; $p<0.05$).

These results suggest a greater number of fish are present in Dogleg Pond compared to Wally, Vault and Phaser and a significantly greater number of fish are present in Airplane Lake. This difference in Airplane Lake compared to the project lakes may simply be due to location and characteristics of the waterbody (with smaller tributaries that connect to upstream waterbodies), but is most likely due to its' proximity to sewage discharge outflow from the Baker Lake sewage lagoon and has resulted in nutrient enrichment of the waterbody. Although these CPUE findings are not explored in greater detail in the NNL plan, they will serve as useful baseline data for fishout protocol development and if required, contingency planning.

Table 3.2- Catch per unit effort by waterbody

Lake	Station ID	Start	Finish	Hours	# of Fish Caught	CPUE # of fish/index net/day	CPUE # of fish/ 150m net/day	
Wally	W1	8-Aug		6	2	8.00	4.00	
	W2	8-Aug		6	3	12.00	6.00	
	W2	8-Aug	9-Aug	22	11	12.28	6.14	
	W3	8-Aug		6	1	4.00	2.00	
	W3	8-Aug	9-Aug	19	20	25.26	12.63	
	W4	8-Aug	9-Aug	22	22	24.00	12.00	
	W5	17-Aug		7	0	0.00	0.00	
	W6	17-Aug		7	0	0.00	0.00	
	W7	17-Aug		7	4	13.71	6.86	
Total				**102**	**63**			
Avg				**11**	**7**	**11.03**	**5.51**	
Vault	V1	18-Aug		5	0	0.00	0.00	
	V2	18-Aug		5	0	0.00	0.00	
	V2	18-Aug	19-Aug	19	20	25.07	12.53	
	V3	18-Aug		4	1	6.00	3.00	
	V3	18-Aug	19-Aug	25	25	24.49	12.24	
	V4	18-Aug	19-Aug	21	33	37.71	18.86	
Total				**78**	**79**			
Avg				**13**	**13**	**15.54**	**7.77**	
Phaser	P1	20-Aug	21-Aug	17	18	25.41	12.71	
	P2	20-Aug	21-Aug	18	21	28.00	14.00	
	P3	20-Aug	21-Aug	23	13	13.57	6.78	
	P4	20-Aug	21-Aug	24	28	28.00	14.00	
Total				**82**	**80**			
Avg				**21**	**20**	**23.74**	**11.87**	
Dogleg Pond	DL1	26-Aug	27-Aug	**17**	**28**	**40.73**	**20.36**	
Airplane Lake	APL1 (3)	23-Aug	24-Aug	14	46	77.47	38.74	
	APL1 (3)	24-Aug		9	50	133.33	66.67	
	APL2 (4)	23-Aug	24-Aug	15	37	59.20	29.60	
	APL2 (4)	24-Aug		9	43	114.67	57.33	
Total				**47**	**176**			
Avg				**12**	**44**	**96.17**	**48.08**	*

* statistically significant difference in Airplane Lake CPUE compared to all other lakes (ANOVA followed by Tukey's pairwise comparison $p<0.05$)

3.3 Stream habitat assessments near Airplane Lake

Habitat evaluations of all streams connected to Airplane Lake were conducted in 2012 to provide data on the watershed area of Airplane Lake and it's connectivity to upstream lakes. These habitat assessments are presented in Appendix B and may be referred to upon implementation of contingency options around Airplane Lake.

4 References

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Appendix A- Fish Collection Field Data Sheets

NNL Fisheries Field Sheets - 2012- Wally Lake

Date	Time	Net Set ID	GPS Co-ordinates - Start	Species	Fish #	Tag #	Fork Length (mm)	Weight (g)	Depth of C	Mesh Type	LR/D	Notes
8-Aug-12	10:00	W1	15W 0360486 7221955	-	-	-	-	-	-	-	-	NETS SET DEPTH 3M - 6.5M
8-Aug-12	14:00	W1	15W 0360486 7221955	LKTR	1	-	372	580	4	76	LR	-
8-Aug-12	14:00	W1	15W 0360486 7221955	LKTR	2	-	380	648	4	76	LR	-
8-Aug-12	10:20	W2	15W 0362330 7224083	-	-	-	-	-	-	-	-	NETS SET DEPTH 5M - 12M
8-Aug-12	14:40	W2	15W 0362330 7224083	LKTR	3	-	358	540	8	51	D	-
8-Aug-12	14:40	W2	15W 0362330 7224083	LKTR	4	-	360	510	7	51	D	-
8-Aug-12	14:40	W2	15W 0362330 7224083	LKTR	5	-	350	480	7.5	51	LR	-
8-Aug-12	11:30	W3	15W 0361017 7220547	-	-	-	-	-	-	-	-	NETS SET DEPTH 7M - 15M
8-Aug-12	15:36	W3	15W 0361017 7220547	LKTR	6	87956	595	2250	7	51	LR	
9-Aug-12	10:30	W3	15W 0361017 7220547	LKTR	1	-	321	395	10	25	D	OVERNIGHT SET RETRIEVAL FROM 11:30 AUG 8, 2012
9-Aug-12	10:30	W3	15W 0361017 7220547	LKTR	2	-	188	80	10	25	D	-
9-Aug-12	10:30	W3	15W 0361017 7220547	RNWH	3	-	354	445	10	25	D	-
9-Aug-12	10:30	W3	15W 0361017 7220547	RNWH	4	-	340	475	10	25	D	-
9-Aug-12	10:30	W3	15W 0361017 7220547	RNWH	5	-	209	115	10	25	D	-
9-Aug-12	10:30	W3	15W 0361017 7220547	LKTR	6	-	196	95	10	25	LR	-
9-Aug-12	10:30	W3	15W 0361017 7220547	LKTR	7	-	512	1035	8	25	LR	-
9-Aug-12	10:30	W3	15W 0361017 7220547	RNWH	8	-	350	505	8	25	LR	-
9-Aug-12	10:30	W3	15W 0361017 7220547	RNWH	9	-	330	375	8	38	D	-
9-Aug-12	10:30	W3	15W 0361017 7220547	RNWH	10	-	325	390	7	38	D	-
9-Aug-12	10:30	W3	15W 0361017 7220547	RNWH	11	-	295	315	7	38	D	-
9-Aug-12	10:30	W3	15W 0361017 7220547	LKTR	12	-	345	450	7	38	D	-
9-Aug-12	10:30	W3	15W 0361017 7220547	LKTR	13	-	304	345	5	38	LR	-
9-Aug-12	10:30	W3	15W 0361017 7220547	LKTR	14	-	610	2200	6	38	LR	-
9-Aug-12	10:30	W3	15W 0361017 7220547	LKTR	15	-	214	130	7	38	LR	-
9-Aug-12	10:30	W3	15W 0361017 7220547	LKTR	16	-	583	210	3	75	D	-
9-Aug-12	10:30	W3	15W 0361017 7220547	LKTR	17	-	400	725	4	76	D	-
9-Aug-12	10:30	W3	15W 0361017 7220547	LKTR	18	-	345	540	3	76	LR	-
9-Aug-12	10:30	W3	15W 0361017 7220547	RNWH	19	-	348	500	3	76	LR	-
9-Aug-12	10:30	W3	15W 0361017 7220547	LKTR	20	-	389	710	3	76	LR	-
9-Aug-12	12:00	W4	15W 0360486 7221955	-	-	-	-	-	-	-	-	:RNIGHT SET RETRIEVAL FROM 14:15 AUG 8, 2012 DEPTH 5M - 1
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	21	-	234	190	-	38	D	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	22	-	191	110	-	38	D	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	23	-	226	145	-	38	D	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	24	-	213	135	-	38	LR	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	25	-	192	85	-	38	LR	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	26	-	247	195	-	38	LR	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	27	-	269	275	-	38	LR	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	28	-	870	6800	-	51	-	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	29	-	323	455	-	76	D	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	30	-	262	255	-	76	D	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	31	-	302	360	-	76	D	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	32	-	276	305	-	76	D	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	33	-	275	350	-	76	D	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	34	-	236	190	-	76	D	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	35	-	370	580	-	76	LR	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	36	-	248	215	-	76	LR	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	37	-	825	6700	-	102	D	RIPE MALE
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	38	-	372	700	-	102	D	F1
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	39	-	335	465	-	102	D	M7, STOMACH PARASITES
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	40	-	346	430	-	102	LR	-
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	41	-	341	495	-	102	LR	-

NNL Fisheries Field Sheets - 2012- Wally Lake

Date	Time	Net Set ID	GPS Co-ordinates - Start	Species	Fish #	Tag #	Fork Length (mm)	Weight (g)	Depth of C	Mesh Type	LR/D	Notes
9-Aug-12	12:00	W4	15W 0360486 7221955	LKTR	42	-	705	3700	-	102	LR	-
9-Aug-12	12:15	W2	15W 0362330 7224083	LKTR	43	-	718	4050	-	76	LR	-
9-Aug-12	12:15	W2	15W 0362330 7224083	LKTR	44	-	321	400	-	76	LR	-
9-Aug-12	12:15	W2	15W 0362330 7224083	LKTR	45	-	248	165	-	76	LR	-
9-Aug-12	12:15	W2	15W 0362330 7224083	LKTR	46	-	232	155	-	76	LR	-
9-Aug-12	12:15	W2	15W 0362330 7224083	LKTR	47	-	665	3150	-	76	LR	-
9-Aug-12	12:15	W2	15W 0362330 7224083	LKTR	48	-	220	95	-	76	D	-
9-Aug-12	12:15	W2	15W 0362330 7224083	LKTR	49	-	562	1900	-	76	D	M8
9-Aug-12	12:15	W2	15W 0362330 7224083	LKTR	50	-	380	610	-	76	D	M6, FULL STOMACH
9-Aug-12	12:15	W2	15W 0362330 7224083	LKTR	51	-	367	615	-	76	D	M6, FULL STOMACH
9-Aug-12	12:15	W2	15W 0362330 7224083	LKTR	52	-	254	165	-	76	D	F1, FULL STOMACH
9-Aug-12	12:15	W2	15W 0362330 7224083	LKTR	53	-	635	3550	-	76	D	M7, FULL STOMACH
17-Aug-12	9:30	W5	15W 0362498 7221547	-	-	-	-	-	-	-	-	NETS SET, DEPTH 2.3M - 10.3M
17-Aug-12	14:30	W5	15W 0362498 7221547	-	-	-	-	-	-	-	-	NO FISH
17-Aug-12	10:00	W6	15W 0363477 7221805	-	-	-	-	-	-	-	-	NETS SET, DEPTH 3.3M - 4.1M - 2.8M
17-Aug-12	15:00	W6	15W 0363477 7221805	-	-	-	-	-	-	-	-	NO FISH
17-Aug-12	10:30	W7	15W 0362414 7222293	-	-	-	-	-	-	-	-	NETS SET, DEPTH 4.8M - 10.5M - 8.0M
17-Aug-12	15:30	W7	15W 0362568 7222286	LKTR	1	-	745	4250	10.3	51	LR	-
17-Aug-12	15:30	W7	15W 0362414 7222293	LKTR	2	-	340	450	9.7	51	LR	-
17-Aug-12	15:30	W7	15W 0362414 7222293	LKTR	3	-	670	3250	9	51	LR	-
17-Aug-12	15:30	W7	15W 0362414 7222293	LKTR	4	-	376	500	9	51	LR	-

NNL Fisheries Field Sheets - 2012- Vault Lake

Date	Time	Net Set ID	GPS Co-ordinates - Start	GPS Co-ordinates - End	Species	Fish #	Tag #	Fork Length (mm)	Weight (g)	Depth of C	Mesh Type	LR/D	Notes
18-Aug-12	9:00	V1	15W 0359721 7219738	15W 0359597 7219848	-	-	-	-	-	-	-	-	NET SET, DEPTH 3.6M - 11.1M - 9.7M
18-Aug-12	1:30	V1	15W 0359721 7219738	15W 0359597 7219848	-	-	-	-	-	-	-	-	NO FISH, NET RE-SET @ 15:00 AUG 18, 2012
18-Aug-12	9:30	V2	15W 0359077 7219593	15W 0358977 7219721	-	-	-	-	-	-	-	-	NET SET, DEPTH 4.2M - 8.1M - 2.3M
18-Aug-12	14:00	V2	15W 0359077 7219593	15W 0358977 7219721	-	-	-	-	-	-	-	-	NO FISH, NET RE-SET @ 15:30 AUG 18, 2012
18-Aug-12	10:30	V3	14W 0641042 7219309	15W 0358974 7219282	-	-	-	-	-	-	-	-	NET SET, DEPTH 2.0M - 5.0M - 3.0M
18-Aug-12	14:30	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	1	87958	370	500	3.1	38	LR	-
18-Aug-12	16:00	V4	15W 0359642 7220254	15W 0359741 7220177	-	-	-	-	-	-	-	-	NET SET, DEPTH 4.4M - 6.1M - 3.8M
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	1	87959	498	1400	-	76	LR	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	2	87960	490	1250	-	76	LR	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	3	87961	390	600	-	76	LR	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	4	87962	334	400	-	76	LR	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	5	87963	350	550	-	76	LR	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	6	-	361	550	-	76	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	7	-	290	270	-	51	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	8	-	234	140	-	51	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	9	-	252	180	-	38	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	10	-	236	130	-	38	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	11	-	268	200	-	38	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	12	-	220	110	-	38	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	13	-	207	90	-	38	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	14	-	329	430	-	38	LR	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	15	-	225	110	-	25	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	16	-	195	75	-	25	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	LKTR	17	-	125	20	-	25	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	RNWH	18	-	190	100	-	25	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	RNWH	19	-	281	250	-	25	D	-
19-Aug-12	9:15	V2	15W 0359077 7219593	15W 0358977 7219721	RNWH	20	-	400	900	-	25	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	21	-	255	300	-	102	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	RNWH	22	-	295	350	-	76	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	23	-	255	250	-	76	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	24	-	225	150	-	76	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	25	-	350	500	-	76	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	26	-	320	350	-	76	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	27	-	370	600	-	76	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	RNWH	28	-	275	250	-	76	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	29	87958	370	500	-	76	LR	CYRC
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	30	-	235	175	-	51	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	31	-	650	2000	-	51	LR	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	32	-	310	300	-	51	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	RNWH	33	-	315	350	-	51	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	34	-	255	200	-	51	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	35	-	335	400	-	51	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	36	-	200	100	-	51	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	37	-	200	150	-	51	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	RNWH	38	-	350	550	-	51	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	39	-	255	300	-	51	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	40	-	270	350	-	51	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	RNWH	41	-	370	600	-	51	LR	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	42	-	195	100	-	51	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	43	-	210	125	-	51	LR	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	RNWH	44	-	372	550	-	38	LR	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	45	-	232	200	-	38	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	46	-	200	100	-	38	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	47	-	430	900	-	38	LR	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	48	-	370	550	-	38	LR	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	49	-	275	200	-	38	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	RNWH	50	-	285	325	-	38	D	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	51	-	343	525	-	38	LR	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	52	-	295	300	-	25	LR	-
19-Aug-12	13:00	V4	15W 0359642 7220254	15W 0359741 7220177	LKTR	53	-	125	100	-	25	D	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	54	-	560	2400	-	102	D	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	55	-	666	2900	-	102	D	-

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Date	Time	Net Set ID	GPS Co-ordinates - Start	GPS Co-ordinates - End	Species	Fish #	Tag #	Fork Length (mm)	Weight (g)	Depth of C	Mesh Type	LR/D	Notes
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	56	-	475	1000	-	102	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	57	-	475	900	-	102	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	58	-	415	900	-	102	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	59	-	463	1000	-	102	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	60	-	799	6300	-	102	D	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	61	-	603	2500	-	102	D	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	62	87964	443	950	-	102	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	63	-	414	1000	-	102	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	64	-	416	900	-	102	D	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	65	-	465	1700	-	102	D	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	66	87965	458	950	-	102	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	67	-	276	300	-	102	D	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	68	87966	455	950	-	102	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	69	-	387	700	-	76	D	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	70	87967	325	650	-	76	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	71	87968	395	950	-	76	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	72	87970	723	4300	-	76	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	73	87969	820	5450	-	76	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	RNWH	74	-	210	150	-	76	D	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	75	87971	777	4800	-	76	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	76	87972	425	900	-	51	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	LKTR	77	-	105	100	-	38	LR	-
19-Aug-12	15:00	V3	14W 0641042 7219309	15W 0358974 7219282	RNWH	78	-	125	100	-	38	D	-

NNL Fisheries Field Sheets - 2012- Phaser Lake

Date	Time	Net Set ID	GPS Co-ordinates - Start	GPS Co-ordinates - End	Species	Fish #	Tag #	Fork Length (mm)	Weight (g)	Depth of C	Mesh Type	LR/D	Notes
20-Aug-12	15:30	P1	14W 0640111 7219364	14W 0640224 7219421	-	-	-	-	-	-	-	-	NET SET, DEPTHS 3.2M - 4.3M - 2.9M
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	1	102799	365	500	3	76	LR	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	2	102796	347	450	3	76	LR	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	3	102795	385	525	3	76	LR	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	4	-	395	600	3.2	76	D	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	5	102794	385	550	3.2	76	LR	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	RNWH	6	-	355	400	3.5	51	D	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	RNWH	7	-	328	350	3.5	51	D	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	8	102793	370	525	3.5	51	LR	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	9	-	370	525	3.5	51	D	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	10	-	-	-	-	-	-	LOST IN TRANSFER
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	11	-	420	750	4	51	D	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	12	-	230	200	4	51	D	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	13	-	230	150	3.8	51	D	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	RNWH	14	-	255	250	3.7	51	LR	WEAK
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	15	-	167	100	3.5	38	D	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	16	-	179	125	3.5	38	D	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	RNWH	17	-	143	100	3	25	LR	-
21-Aug-12	8:30	P1	14W 0640111 7219364	14W 0640224 7219421	LKTR	18	-	160	100	3	25	LR	-
21-Aug-12	10:00	P1	14W 0640094 7219313	14W 0640216 7219387	-	-	-	-	-	-	-	-	NET RE-SET @ 10:00AM ON AUG 20 AS NET ID P3
20-Aug-12	16:00	P2	14W 0640472 7219446	14W 0640382 7219546	-	-	-	-	-	-	-	-	NET SET, DEPTH 2.6M - 3.1M - 1.8M
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	19	102792	385	650	-	76	LR	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	RNWH	20	-	356	600	-	76	LR	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	21	102790	353	550	-	76	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	22	102789	370	650	-	76	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	23	-	395	825	-	76	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	24	102788	350	525	-	76	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	25	-	420	750	-	76	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	26	102787	360	600	-	51	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	27	102791	370	625	-	51	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	28	-	380	800	-	51	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	RNWH	29	-	275	250	-	51	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	30	102786	375	750	-	51	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	31	-	350	650	-	51	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	32	-	370	700	-	51	LR	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	33	-	500	775	-	51	LR	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	RNWH	34	-	340	600	-	38	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	RNWH	35	-	230	200	-	38	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	36	-	235	200	-	38	LR	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	RNWH	37	-	360	700	-	38	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	38	-	138	100	-	38	D	-
21-Aug-12	10:00	P2	14W 0640472 7219446	14W 0640382 7219546	LKTR	39	-	175	200	-	25	D	-
21-Aug-12	11:15	P2	14W 0640544 7219752	14W 0640498 7219607	-	-	-	-	-	-	-	-	NET RE-SET @11:15AM ON AUG 21 AS NET ID P4
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	RNWH	1	-	364	500	-	76	LR	-
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	LKTR	2	102785	342	450	-	51	LR	-
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	LKTR	3	-	351	500	-	51	D	-
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	RNWH	4	-	220	150	-	51	LR	-
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	RNWH	5	-	320	400	-	51	D	-
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	RNWH	6	102784	263	250	-	51	LR	-
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	RNWH	7	-	188	100	-	51	LR	-
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	LKTR	8	-	250	150	-	38	D	-
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	LKTR	9	-	161	100	-	38	LR	-
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	LKTR	10	-	182	125	-	38	LR	-
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	RNWH	11	-	346	400	-	38	LR	-
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	RNWH	12	-	265	250	-	38	D	-
22-Aug-12	9:00	P3	14W 0640094 7219313	14W 0640216 7219387	RNWH	13	-	145	100	-	25	LR	-
22-Aug-12	9:20	P3	14W 0640094 7219313	14W 0640216 7219387	-	-	-	-	-	-	-	-	NET PULLED
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	LKTR	14	-	357	550	-	76	LR	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	LKTR	15	-	365	600	-	76	LR	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	LKTR	16	-	345	500	-	76	LR	-

NNL Fisheries Field Sheets - 2012- Phaser Lake

Date	Time	Net Set ID	GPS Co-ordinates - Start	GPS Co-ordinates - End	Species	Fish #	Tag #	Fork Length (mm)	Weight (g)	Depth of C	Mesh Type	LR/D	Notes
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	LKTR	17	-	340	450	-	51	LR	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	18	-	272	250	-	51	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	19	-	238	150	-	51	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	20	-	419	700	-	51	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	LKTR	21	-	645	5000	-	51	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	LKTR	22	-	275	300	-	51	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	23	-	341	400	-	38	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	24	-	314	325	-	38	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	25	-	310	350	-	38	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	26	-	270	250	-	38	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	27	-	334	400	-	38	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	28	-	312	325	-	38	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	BRBT	29	-	340	250	-	38	LR	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	30	-	274	250	-	38	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	31	-	257	225	-	38	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	32	-	304	325	-	38	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	33	-	257	200	-	38	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	34	-	320	350	-	38	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	35	-	290	300	-	38	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	36	-	239	175	-	25	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	37	-	247	200	-	25	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	38	-	221	150	-	25	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	RNWH	39	-	190	100	-	25	D	-
22-Aug-12	9:30	P4	14W 0640544 7219752	14W 0640498 7219607	LKTR	40	-	179	100	-	25	D	-
22-Aug-12	10:30	P4	14W 0640544 7219752	14W 0640498 7219607	-	-	-	-	-	-	-	-	NET PULLED

NNL Fisheries Field Sheets - 2012- Airplane Lake

Date	Time	Net Set ID	GPS Co-ordinates - Start	GPS Co-ordinates - End	Species	Fish #	Tag #	Fork Length (mm)	Weight (g)	Depth of C	Mesh Type	LR/D	Notes
23-Aug-12	17:37	APL-1	15W 0357138 7136206	15W 0357193 7136082	-	-	-	-	-	-	-	-	NET SET, DEPTHS 2M - 3.3M - 3.1M
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	1	-	355	500	3.2	102	LR	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	ARGR	2	102783	395	700	3.1	102	LR	MALE
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	3	-	340	500	3.2	76	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	4	-	350	500	3.1	76	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	5	-	340	500	3.1	76	LR	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	ARGR	6	102782	350	500	3.2	76	LR	FEMALE
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	7	-	345	500	3.2	76	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	8	-	370	650	3.2	76	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	9	-	330	450	3.1	76	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	LKTR	10	102781	475	1200	3	76	LR	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	11	-	335	500	3	76	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	12	-	360	600	3	76	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	13	-	370	550	3	76	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	14	102780	360	550	2.9	76	LR	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	ARGR	15	-	385	650	3	76	D	MALE
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	ARGR	16	-	345	600	3	76	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	17	-	365	600	2.9	76	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	18	-	350	550	2.8	76	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	19	-	330	450	2.8	51	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	20	-	320	400	2.7	51	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	ARGR	21	-	285	350	2.7	51	D	FEMALE
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	22	102779	350	500	2.7	51	LR	SMALL SCAR ON BODY
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	23	102778	310	350	2.7	51	LR	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	ARGR	24	-	290	400	2.7	51	D	FEMALE, PARASITES ON STOMACH
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	25	-	340	500	2.6	51	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	BRBT	26	-	250	100	2.6	51	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	27	101251	345	450	2.6	51	LR	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	BRBT	28	-	290	150	2.6	51	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	29	-	365	600	2.7	51	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	30	-	345	550	2.7	51	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	31	-	300	350	2.7	51	D	MALE, BENTHIC (CLAMS, CHIRONOMIDS) IN STOMACH
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	32	-	280	300	2.7	51	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	33	-	330	500	2.7	51	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	34	-	340	450	2.7	51	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	35	-	310	450	2.7	51	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	36	-	350	600	2.7	38	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	37	-	290	350	2.7	38	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	38	-	350	600	2.7	38	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	39	-	300	350	2.7	38	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	ARGR	40	-	280	300	2.7	38	LR	FEMALE
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	RNWH	41	-	290	300	2.6	38	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	ARGR	42	-	120	50	2.4	25	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	ARGR	43	-	120	50	2.4	25	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	BRBT	44	-	120	50	1.9	25	D	-
24-Aug-12	7:45	APL-1	15W 0357138 7136206	15W 0357193 7136082	BRBT	45	-	120	50	1.9	25	D	-
24-Aug-12	9:40	APL-1	15W 0356815 7135753	15W 0356805 7135892	-	-	-	-	-	-	-	-	NET RESET AS APL-3, DEPTHS 2M - 4M
23-Aug-12	17:48	APL-2	15W 0356889 7136046	15W 0357037 7135892	-	-	-	-	-	-	-	-	NET SET, DEPTHS 5M - 7.1M - 5.2M
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	1	-	345	550	7	102	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	2	-	360	650	6.5	76	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	3	-	365	600	6.2	76	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	4	-	365	600	6.2	76	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	ARGR	5	-	370	600	6.7	76	LR	MALE
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	6	-	345	500	6.5	76	LR	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	7	-	360	600	6.2	76	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	8	-	355	500	6.2	51	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	9	-	-	-	-	-	LR	LOST IN TRANSFER
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	10	-	-	-	-	-	LR	LOST IN TRANSFER
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	BRBT	11	-	290	150	6.1	51	D	-

NNL Fisheries Field Sheets - 2012- Airplane Lake

Date	Time	Net Set ID	GPS Co-ordinates - Start	GPS Co-ordinates - End	Species	Fish #	Tag #	Fork Length (mm)	Weight (g)	Depth of C	Mesh Type	LR/D	Notes
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	12	-	-	-	-	-	LR	LOST IN TRANSFER
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	13	-	340	450	6.1	51	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	14	-	325	450	6.1	51	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	15	-	355	550	6.1	51	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	16	-	290	300	6.1	51	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	17	-	355	500	6.1	51	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	18	-	360	600	6	51	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	BRBT	19	-	335	200	6	51	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	BRBT	20	-	-	150	6	51	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	21	-	355	550	6	51	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	22	-	285	300	6.2	51	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	23	-	-	-	-	-	LR	LOST IN TRANSFER
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	24	-	250	200	6.2	51	LR	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	25	-	340	550	6.3	51	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	26	-	330	450	6.3	38	LR	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	27	-	-	-	-	-	LR	LOST IN TRANSFER
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	28	101253	370	600	6.4	38	LR	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	29	101254	365	600	6.5	38	LR	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	30	-	345	550	6.4	38	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	31	-	345	550	6.5	38	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	ARGR	32	-	135	50	6.3	25	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	33	-	135	50	6.2	25	D	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	ARGR	34	-	125	50	6.2	25	LR	-
24-Aug-12	9:00	APL-2	15W 0356889 7136046	15W 0357037 7135892	RNWH	35	-	125	50	6.6	25	D	-
24-Aug-12	9:50	APL-2	15W 0356371 7135881	15W 0356433 7136007	-	-	-	-	-	-	-	-	NET RESET AS APL-4, DEPTHS 2.1M - 3.2M - 2.5M
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	ARGR	1	101255	385	800	3.7	102	LR	MALE
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	ARGR	2	101257	340	500	3.7	76	LR	FEMALE
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	ARGR	3	101256	365	600	3.7	76	LR	MALE
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	ARGR	4	-	360	600	3.7	76	D	FEMALE
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	ARGR	5	-	380	700	3.6	76	D	MALE
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	6	-	370	650	3.7	76	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	ARGR	7	101258	365	650	3.6	76	LR	MALE
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	8	-	350	700	3.5	76	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	ARGR	9	101259	350	650	3.6	76	LR	MALE
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	10	-	340	550	3.6	76	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	11	-	345	600	3.6	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	12	-	355	600	3.6	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	13	-	340	600	3.6	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	14	101260	285	400	3.6	51	LR	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	15	-	355	650	3.6	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	16	-	340	600	3.6	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	ARGR	17	101261	375	800	3.5	51	LR	FEMALE
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	18	101262	320	500	3.5	51	LR	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	19	-	290	400	3.6	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	20	-	375	700	3.6	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	21	-	295	400	3.6	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	22	-	320	500	3.4	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	23	101263	350	500	3.5	51	LR	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	ARGR	24	101264	390	750	3.6	51	LR	MALE
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	25	101265	355	650	3.5	51	LR	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	26	-	340	500	3.6	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	27	-	355	600	3.6	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	28	-	340	550	3.6	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	29	-	345	600	3.6	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	ARGR	30	101266	310	450	3.5	51	LR	FEMALE
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	31	-	350	550	3.5	51	LR	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	32	-	330	500	3.5	51	LR	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	33	-	345	600	3.5	51	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	34	-	290	400	3.5	51	LR	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	ARGR	35	101267	370	650	3.5	38	LR	FEMALE

NNL Fisheries Field Sheets - 2012- Airplane Lake

Date	Time	Net Set ID	GPS Co-ordinates - Start	GPS Co-ordinates - End	Species	Fish #	Tag #	Fork Length (mm)	Weight (g)	Depth of C	Mesh Type	LR/D	Notes
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	36	-	355	700	3.5	38	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	37	101268	300	400	3.5	38	LR	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	38	101270	335	500	3.4	38	LR	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	39	-	340	500	3.3	38	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	40	-	340	500	3.4	38	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	41	-	345	500	3.3	38	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	42	-	370	600	3.2	38	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	43	-	375	700	3.2	38	LR	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	44	-	350	500	2.2	25	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	45	-	340	550	2.2	25	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	46	-	120	50	2.1	25	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	47	-	370	600	2.1	25	D	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	ARGR	48	101271	340	550	2.1	25	LR	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	49	-	360	600	1.9	25	LR	-
24-Aug-12	18:15	APL-3	15W 0356815 7135753	15W 0356805 7135892	RNWH	50	-	345	600	1.9	25	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	ARGR	1	101272	370	650	3.3	102	LR	MALE
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	ARGR	2	101272	395	800	3.5	102	LR	MALE
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	LKTR	3	-	415	850	3.6	76	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	LKTR	4	-	535	2100	3.5	76	D	FULL STOMACH, NO PARASITES, MALE
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	5	-	355	550	3.6	76	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	ARGR	6	-	355	600	3.6	76	D	MALE
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	LKTR	7	-	510	1700	3.6	76	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	ARGR	8	101274	370	650	3.5	76	LR	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	9	-	370	650	3.5	76	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	10	-	370	600	3.5	76	LR	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	ARGR	11	-	390	750	3.6	76	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	12	-	345	500	3.6	76	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	13	-	375	650	3.6	76	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	14	-	310	400	3.5	51	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	ARGR	15	-	285	350	3.5	51	D	FEMALE
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	16	-	360	650	3.5	51	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	17	-	360	650	3.5	51	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	ARGR	18	101275	385	650	3.5	51	LR	MALE
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	19	-	360	650	3.4	51	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	LKTR	20	101300	620	3000	3.4	51	LR	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	LKTR	21	101299	520	1800	3.3	51	LR	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	22	101298	355	700	3.3	51	LR	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	ARGR	23	101297	325	500	3.2	51	LR	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	24	-	350	600	3.2	51	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	25	-	340	550	3.1	51	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	26	-	370	650	3.1	51	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	27	-	285	350	3.1	51	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	28	-	350	600	3.1	38	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	29	-	330	550	3	38	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	30	-	325	550	3.1	38	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	ARGR	31	-	205	200	3	38	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	32	-	280	300	2.9	38	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	33	101296	355	600	2.9	38	LR	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	34	-	370	800	2.9	38	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	35	-	365	700	2.9	38	LR	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	36	-	285	350	2.9	38	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	ARGR	37	101293	360	700	2.8	38	LR	FEMALE
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	38	-	250	250	2.9	38	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	39	-	340	550	2.9	38	LR	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	ARGR	40	-	345	600	2.8	38	LR	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	41	101292	350	600	2.6	25	LR	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	ARGR	42	-	120	50	2.2	25	D	-
24-Aug-12	19:00	APL-4	15W 0356371 7135881	15W 0356433 7136007	RNWH	43	-	270	300	2	25	D	-

NNL Fisheries Field Sheets - 2012- Dogleg pond

Date	Time	Net Set ID	GPS Co-ordinates - Start	Species	Fish #	Tag #	Fork Length (mm)	Weight (g)	Depth of C	Mesh Type	LR/D	Notes
26-Aug-12	16:30	DL1	14W 0639596 7215454	-	-	-	-	-	-	-	-	NET SET, DEPTHS 2.3M - 5.1M - 3.1M
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	1	-	355	400	2.6	38	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	2	-	328	350	2.7	38	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	LKTR	3	-	370	525	2.7	38	LR	NO TAG, WEAK
27-Aug-12	9:00	DL1	14W 0639596 7215454	LKTR	4	-	370	525	2.8	38	LR	NO TAG, WEAK
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	5	-	255	250	2.8	38	LR	NO TAG, WEAK
27-Aug-12	9:00	DL1	14W 0639596 7215454	LKTR	6	-	167	100	2.9	38	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	LKTR	7	-	179	125	3	38	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	8	-	143	100	3	38	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	LKTR	9	-	160	100	3	38	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	LKTR	10	-	385	650	3.2	51	D	EMPTY STOMACH, NO PARASITES, MALE
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	11	-	356	600	3.4	51	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	12	-	275	250	3.6	51	LR	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	13	-	364	500	3.7	51	LR	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	LKTR	14	-	342	450	3.7	51	LR	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	LKTR	15	-	351	500	3.9	51	D	SMALL MINNOW IN STOMACH, FEMALE
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	16	-	220	300	3.9	51	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	17	-	320	400	4	51	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	18	-	263	250	4.2	51	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	LKTR	19	-	265	350	4.2	51	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	LKTR	20	-	282	425	4.2	51	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	21	-	346	400	4.4	51	LR	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	22	-	265	250	4.4	51	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	LKTR	23	-	357	550	4.6	76	LR	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	24	-	365	600	4.3	76	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	25	-	272	250	4.2	76	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	26	-	238	300	4	76	D	-
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	27	-	419	700	3.9	102	D	SMALL CHIRONOMIDS IN STOMACH
27-Aug-12	9:00	DL1	14W 0639596 7215454	RNWH	28	-	300	425	3.7	102	D	-

Appendix B- Stream Habitat Assessment Sheets

Habitat Assessment Form

Location ID: APL2BL
UTM: 15W 0356170 7135665
Date: June 20, 2012
Personnel: TT; RV

Initial Characteristics:

	Wetland
x	Stream
	Channel
	Ephermal Channel
	Braided Channel

Setting Remarks: Stream discharges Airplane Lake into Baker Lake.
3 barriers along stream include: 2 sets of culverts and one set of falls approx 5m in height.

Discharge and Velocity:

Bankful (m)			
Wetted Width (m)	4.5	5	3
Depth (m)	0.3	0.3	0.4
Velocity (m/sec)	-	-	-

Total Estimated Discharge (m3/sec): n/a

Stream Flow Comments: Consistent flow with few pools (or none): winding and cascading closer to Baker Lake opening.

Stream Substrate and Geometry:

% Substrate	
Boulders	50
Cobble Rocks	40
Gravel	10
Sediment	
Grass	
Other	

Channel Feature Comments: Well defined stream with boulder/cobble substrate and consistent depth. Stream is approximately 1km long with a large elevational change from US lake to DS lake. One set of falls approximately 5m in height is present at the midway point between the US lake and the DS lake.
Discussion: Connectivity - Very Good/Excellent
Fish Habitat - Good/Very Good. Arctic Grayling were captured DS of the culverts S of Airplane Lake, however - it is beileved they may have come through the culverts from Airplane Lake. The falls presents a very challenging barrier for fish passage. If fish are able to pass the falls, this stream would be upgraded to excellent for fish habitat and connectivity between Airplane Lake and Baker Lake.

Habitat Assessment Form

Location ID: E1
UTM: 15W 0357563 7136161
Date: June 14, 2012 (14:49)
Personnel: TT; EU

Initial Characteristics:

x	Wetland
	Stream
x	Channel
	Ephermal Channel
	Braided Channel

Setting Remarks: US pond surrounded by grassy wetlands and network of small ponds that are connected through ephermal channels. Discharge from US Pond goes into DS Lake (Airplane Lake).

Discharge and Velocity:

Bankful (m)	-	-	-
Wetted Width (m)	0.8	0.9	0.8
Depth (m)	0.3	0.2	0.25
Velocity (m/sec)	0.4	0.68	0.98

Total Estimated Discharge (m3/sec):

Stream Flow Comments: A small narrow channel less than 50m in length, with good flow during freshet.

Stream Substrate and Geometry:

% Substrate	
Boulders	30
Cobble Rocks	20
Gravel	
Sediment	
Grass	50
Other	

Channel Feature Comments: Small channel with grassy vegatated banks. Side channels/overflow will be absorbed by vegetation and tundra.

Discussion: Connectivity: Good/Fair Fish Habitat: Poor/Nil
Channel is deep enough for fish passage from US Pond to DS Lake (Airplane Lake) and vice versa however, US Pond is likely fishless as it is likely not suitable for over-wintering.

Habitat Assessment Form

Location ID: E2
UTM: 15W 0358048 7135980
Date: June 20, 2012
Personnel: TT; RV

Initial Characteristics:

x	Wetland
	Stream
	Channel
x	Ephermal Channel
	Braided Channel

Setting Remarks: US pond connects to this small wetland ephermal channel. Area dominated by saturated sedge and grassy hummocks.

Discharge and Velocity:

Bankful (m)	
Wetted Width (m)	
Depth (m)	
Velocity (m/sec)	
Total Estimated Discharge (m3/sec):	n/a

Stream Flow Comments: Slow moving current through grassland, approx 6 inches depth.

Stream Substrate and Geometry:

% Substrate	
Boulders	
Cobble Rocks	
Gravel	
Sediment	5%
Grass	95%
Other	

Channel Feature Comments: Grassy wetland area with no defined channel. Standing pools of water likely from snow melt/freshet.

Discussion: Connectivity - Nil Fish Habitat - Poor. Possible habitat for NSST.

Habitat Assessment Form

Location ID: E4
UTM: 15W 0357885 7137390
Date: June 20, 2012
Personnel: TT; RV

Initial Characteristics:

x	Wetland
	Stream
	Channel
x	Ephermal Channel
x	Braided Channel

Setting Remarks: Small US Pond drains through culvert along Prince River road through wetland area to DS lake NE of Airplane Lake.

Discharge and Velocity:

Bankful (m)	
Wetted Width (m)	
Depth (m)	
Velocity (m/sec)	
Total Estimated Discharge (m3/sec):	n/a

Stream Flow Comments: Braided channel through sedge and grass - very little flow.

Stream Substrate and Geometry:

% Substrate	
Boulders	
Cobble Rocks	
Gravel	
Sediment	10%
Grass	90%
Other	

Channel Feature Comments: Grass and sediment make up this braided channel. Standing pools and flow may only occur during freshet.

Discussion: Connectivity - Nil Fish Habitat - Nil

Habitat Assessment Form

Location ID: N1
UTM: 15W 0356254 7136076
Date: June 17, 2012 (16:30)
Personnel: TT; EU

Initial Characteristics:

x	Wetland
	Stream
	Channel
x	Ephemeral Channel
	Braided Channel

Setting Remarks: A small ephemeral channel connecting a small US fishless pond, through a grassy wetland to a DS Lake (Airplane Lake).

Discharge and Velocity:

Bankful (m)	n/a
Wetted Width (m)	n/a
Depth (m)	n/a
Velocity (m/sec)	n/a

Total Estimated Discharge (m3/sec): n/a

Stream Flow Comments: Very little flow along ephemeral channel from US Ponds to DS Lake. A few standing pools of water were present, however no defined channel was evident along this watercourse.

Stream Substrate and Geometry:

% Substrate	
Boulders	
Cobble Rocks	
Gravel	
Sediment	
Grass	100%
Other	

Channel Feature Comments: Grassy wetland area with no defined channel. Standing pools of water likely from snow melt/freshet.

Discussion: Connectivity - Nil, Fish Habitat - Nil

Additional Observations: At no time during the year will this watercourse support fish migration or provide fish habitat.

Habitat Assessment Form

Location ID: N2
UTM: 15W 0357201 7136444
Date: June 17, 2012 (15:30)
Personnel: TT; EU

Initial Characteristics:

	Wetland
x	Stream
	Channel
	Ephemeral Channel
x	Braided Channel

Setting Remarks: Small stream connecting US Lake to Airplane Lake. US lake is similar in size to Airplane Lake.

Discharge and Velocity:

	A	B	C	Avg.
Bankful (m)	-	-	-	
Wetted Width (m)	2.5	3	3	
Depth (m)	0.325	0.35	0.6	
Velocity (m/sec)	0.71	0.65	0.27	

Total Estimated Discharge (m3/sec):

Stream Flow Comments: Good flow throughout entire US and DS sections of the stream. The stream also has numerous slow moving deep pools along the banks as well as US and DS of the riffle and rapid areas.

Stream Substrate and Geometry:

% Substrate	Run	Riffle	Rapid	Pools
Boulders	20	30	60	70
Cobble Rocks	60	50	35	25
Gravel	15	15	5	5
Sediment				
Grass	5	5		
Other				

Channel Feature Comments: Main channel ranges in width from 1m - 4m. Approximately 350m US of Airplane Lake - the main channel breaks into numerous smaller channels and then returns to one main channel. These channels are often less than 1m in width, with similar substrate to that of the main channel. This break also occurs at approximately 600m and 800m US of Airplane Lake. A small chute and rapid occur approximately 500m US of Airplane Lake. In one small US section of the stream - substrate is mostly sediment and grass with the occasional rock/boulder, but eventually returns to 1m - 3m in width with similar substrate to lower sections of the stream.

Discussion: Connectivity - Very Good, Fish Habitat - Excellent. Numerous grayling were observed at various locations during the habitat assessment. Very good substrate along US and DS sections of stream which should provide excellent spawning habitat.

Habitat Assessment Form

Location ID: N2 (North)
UTM: 15W 0356699 7137111
Date: June 22, 2012
Personnel: TT; EU

Initial Characteristics:

	Wetland
x	Stream
	Channel
	Ephermal Channel
x	Braided Channel

Setting Remarks: Large US lake discharges into small pond that empties into stream which passes through culverts and connects with N2 stream which feeds into Airplane Lake.

Discharge and Velocity:

Bankful (m)	1	3	3	4
Wetted Width (m)				
Depth (m)	0.4	0.2	0.4	0.25
Velocity (m/sec)				
Total Estimated Discharge (m3/sec):			n/a	

Stream Flow Comments: Going north at culverts, stream splits in two and then splits again into numerous channels approximately 250m north of culverts. Good flow throughout enitre lenth of stream and consistent in each channel.

Stream Substrate and Geometry:

% Substrate	
Boulders	50
Cobble Rocks	25
Gravel	10
Sediment	10
Grass	5
Other	

Channel Feature Comments: Channels are approximately 1m in width on average with an average depth of 0.2m in riffle/run and an average depth of 1m in pools. Substrate consists of more boulders and cobble rocks than lower section (N2) of stream.

Discussion: Connectivity - Very Good, Fish Habitat - Excellent. Numerous grayling were observed at various locations during the habitat assessment. Very good substrate along US and DS sections of stream which should provide excellent spawning habitat.

Habitat Assessment Form

Location ID: N3
UTM: 15W 0357285 7136367
Date: June 17, 2012 (14:00)
Personnel: TT; EU

Initial Characteristics:

x Wetland
Stream
Channel
Ephermal Channel
Braided Channel

Setting Remarks: Very small US fishless pond, spills into grassy wetland which discharges into DS Lake (Airplane Lake).

Discharge and Velocity:

Bankful (m)	n/a
Wetted Width (m)	n/a
Depth (m)	n/a
Velocity (m/sec)	n/a

Total Estimated Discharge (m3/sec): n/a

Stream Flow Comments: None

Stream Substrate and Geometry:

% Substrate	
Boulders	
Cobble Rocks	
Gravel	
Sediment	
Grass	95%
Other (Exposed Soil)	5%

Channel Feature Comments: No distinguished channel. Area is a grassy area with moderate saturation and a few standing pools of water.

Discussion: Connectivity - Nil, Fish Habitat - Nil

Appendix C- DFO Authorizations

Licence #: S-12/13-1023-NU

Ryan VanEngen
Agnico-Eagle Mines Ltd. P.O. Box 540
Baker Lake, NU, CA X0C 0A0

Dear Ryan VanEngen,

Enclosed is your Licence to Fish for Scientific Purposes issued pursuant to Section 52 of the Fishery (General) Regulations.

Please be advised that this licence only permits those activities stated on your licence. Any other activity may require approval under the Fisheries Act or other legislation. It is the Project Authority's responsibility to obtain any other approvals.

Failure to comply with any of the conditions specified on the attached licence may result in a contravention of the Fishery (General) Regulations.

Please ensure that you include the licence number and project title in any future correspondence and that you complete the Summary Harvest Report upon completion of activities under this licence.

Yours truly,

Rory MacDonald for Chris Lewis
Fisheries Management Technician
Eastern Arctic Area
Central and Arctic Region
Fisheries and Oceans Canada

June 14, 2012
Date

Enclosure

LICENCE TO FISH FOR SCIENTIFIC PURPOSES

S-12/13-1023-NU

Pursuant to Section 52 of the Fishery (General) Regulations, the Minister of Fisheries and Oceans hereby authorizes the individual(s) listed below to fish for scientific purposes, subject to the conditions specified.

Project Authority: Ryan VanEngen
Agnico-Eagle Mines Ltd. P.O. Box 540
Baker Lake, NU, CA X0C 0A0

Other Personnel: Tom Thomson
Maggie McConnell
Morgan Finley

Objectives: Agnico-Eagle Mines Ltd. has received a NIRB Project Certificate for its Meadowbank gold project, located
70km north of Baker Lake, Nunavut. Environmental monitoring has been ongoing at this site since 1999.
The purpose of the monitoring program is to avoid or mitigate negative impacts from mine activities, and
to meet the conditions and commitments of the NIRB Project Certificate and DFO Authorization (NU-03-
0109) for the all-weather road and project lake area. Specific objectives of the aquatic sampling program
are to:
- conduct annual water, sediment, plankton, periphyton and benthic sampling of lakes immediately
surrounding the mine site to provide baseline and operational data to inform the mine environmental management program,
- monitor fish utilization of habitat structures (within project lakes)
- evaluate spawning productivity in recently constructed habitat compensation area.
- evaluate impacts to fish and fish habitat due to mine site development thru habitat monitoring as part of the no net loss of fish habitat.

CONDITIONS

Waters: Specific locations and names for the waterbodies listed (sampling methods and sample size are listed under the "Waterbodies Listed" heading):
Vault Lake - 65d04'25"N; 95d59'14"W
Phaser Lake - 65d04'06"N; 96d00'49"W
Dogleg North Pond - 65d02'28"N; 96d03'07"W
NP2 Pond - 65d02'28"N; 96d03'07"W
Dogleg Pond - 65d01'51"N; 96d02'08"W
Airplane Lake - 64d05'25"N; 95d58'07"W

Water Body: Unnamed Lake (Inuggugayualik Lake)
Point A: 65° 1' N, 96° 23' W

Species: Benthos Gear: Ponar dredge

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
						5		

Water Body: Unnamed Lake (Inuggugayualik Lake)
Point A: 65° 1' N, 96° 23' W

Species: Zooplankton Gear: Plankton Net

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
		2.00						

Water Body: Unnamed Lake & System (Portage Lake system)
Point A: 65° 0' N, 96° 5' W

Species: Zooplankton Gear: Plankton Net

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
		2.00						

Water Body: Unnamed Lake & System (Portage Lake system)
Point A: 65° 0' N, 96° 5' W

Species: Benthos Gear: Ponar dredge

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
						20		

Water Body: Unnamed Lake & System (Portage Lake system)
Point A: 65° 0' N, 96° 5' W

Species: Arctic Charr (SR OR LL)
Burbot
Sculpin, Slimy
Trout, Lake
Whitefish, Round

Gear: 10 MM Mesh Gillnets and Larger

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
			100					

Water Body: Unnamed Lake (Pipedream Lake)
Point A: 65° 1' N, 96° 23' W

Species: Zooplankton Gear: Plankton Net

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
		2.00						

Water Body: Unnamed Lake (Pipedream Lake)
Point A: 65° 1' N, 96° 23' W

Species: Benthos Gear: Ponar dredge

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
						5		

Water Body: Baker Lake
Point A: 64° 19' N, 96° 3' W

Species: Zooplankton Gear: Plankton Net

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
		2.00						

Water Body: Baker Lake
Point A: 64° 19' N, 96° 3' W

Species: Benthos Gear: Ponar dredge

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
						15		

Water Body: Tehek Lake
Point A: 64° 55' N, 95° 38' W

Species: Benthos Gear: Ponar dredge

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
						5		

Water Body: Tehek Lake
Point A: 64° 55' N, 95° 38' W

Species: Zooplankton Gear: Plankton Net

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
		2.00						

Water Body: Unnamed Lake (Wally Lake)
Point A: 65° 6' N, 95° 57' W

Species: Zooplankton Gear: Plankton Net

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
		2.00						

Water Body: Waterbodies Listed - See Conditions
Point A: 0° 0' N, 0° 0' W

Species: Zooplankton Gear: Plankton Net

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
		2.00						

Water Body: Unnamed Lake (Wally Lake)
Point A: 65° 6' N, 95° 57' W

Species: Benthos Gear: Ponar dredge

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
						5		

Water Body: Waterbodies Listed - See Conditions
Point A: 0° 0' N, 0° 0' W

Species: Benthos Gear: Ponar dredge

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
						5		

Water Body: Waterbodies Listed - See Conditions
Point A: 0° 0' N, 0° 0' W

Species: Arctic Charr (SR OR LL)
Burbot
Sculpin, Slimy
Trout, Lake
Whitefish, Round

Gear: 10 MM Mesh Gillnets and Larger

Total Weight	Weight Live	Weight Dead	Number Alive	Number Dead	Number Tows	Number Sets	Hours	Minutes
			200	50		4		

Fishing Period: June 15, 2012 to September 30, 2012

A copy of this licence must be available at the study site and produced at the request of a fishery officer.

Live fish may not be retained unless specified in the conditions of this licence.

The licence holder shall immediately cease fishing when the total fish killed or live sampled reaches any of the maximums set for any of the species listed.

Transportation:

Other approvals/permits may be necessary to collect or transport certain species, such as Marine Mammal Transportation Permits. For marine mammal parts, products and derivatives a Marine Mammal Transportation Licence is required for domestic transport and, for international transport a Canadian CITES Export Permit is also required.

Retention & Disposal of Fish Caught:

Fish not required for the purpose of dead sampling and/or retention MUST be returned to the water at the site of capture. Retained fish may be made available to the nearest settlement for domestic consumption or sold commercially within the Territory. Any dead fish for commercial sale beyond the Territory in which it was caught requires authorization under the Fish Inspection Regulations. Disposal of any fish remains must be in accordance with local land use regulations.

Report on Activities:

The Project Authority will submit to the Area Licensing Coordinator, Department of Fisheries and Oceans, within one month of the expiry date, a report stating:

i) whether or not the field work was conducted; and if conducted

ii) waterbody location, fishing coordinates, gear types used at each coordinate, numbers or amount of fish (by species) collected and/or marked and the date or period of collection.

A Summary Harvest Report template is provided by the Licensing Coordinator at time of issuance of this licence.

The Project Authority also will provide a copy of any published or public access documents which result from the project. Information supplied will be used for population management purposes by the Department of Fisheries and Oceans and becomes part of the public record.

All documents should be sent to:

Area Licensing Administrator
Fisheries and Oceans Canada
P.O. Box 358
Iqaluit, NU X0A 0H0
Email: XCA-NUpermit@dfo-mpo.gc.ca

Notification of Commencement:

Prior to the commencement of fishing the Project Authority will contact:

Area Licencing Administrator
Fisheries and Oceans Canada
Box 358
Iqaluit, NU X0A 0H0
email: XCA-NUpermit@dfo-mpo.gc.ca

14-Jun-2012

Date

Keith Pelley
A/Area Director, Eastern Arctic Area
Central and Arctic Region
Fisheries and Oceans Canada

For the Minister of Fisheries and Oceans.

Pursuant to Section 52 of the Fishery (General) Regulations.

Canada

Date: June 13, 2012

To: Ryan VanEngen
Agnico-Eagle Mines Ltd.
Baker Lake, Nunavut, X0C 0A0

Subject: Animal Use Protocol - Letter of Approval

Dear Ryan,

Your 2012 Animal Use Protocol (AUP), number FWI-ACC-2012-038 entitled "Meadowbank Mine: Aquatic Ecosystem Monitoring Plan (AEMP)", has been reviewed and approved by the Freshwater Institute Animal Care Committee. This AUP will expire on October 01, 2012.

Keep this signed letter of approval as well as the signed AUP approval form for your records. Please be advised that should there be a need to revise the protocol you are requested to contact the Freshwater Institute Animal Care Committee and obtain approval prior to proceeding.

In addition, you are required to submit a brief report within 30 days of completion of the project outlining the unexpected changes to the protocol, the number of animals used and any unanticipated results or mortalities. The report form is attached in your approval email.

Feel free to contact me if you have any questions or concerns.

Sincerely,

Kerri Pleskach *FWISL-ACC Acting Chairperson*

Freshwater Institute Science Laboratories Animal Care Committee
Arctic Aquatic Research
Central & Arctic / Région du Centre et de l'Arctique
Fisheries and Oceans Canada / Pêches et Océans Canada
501 University Crescent
Winnipeg, Manitoba R3T 2N6
Phone:204 984-2532
Fax:204 984-2403

Enclosure

Canada

APPROVAL BY ANIMAL CARE COMMITTEE MEMBERS

AUP#: ACC-2012-038 Date: June 13, 2012

Signatures of ACC Members

Kerri Pleskach, Chair

Theresa Carmichael

Dr. Ericka Anseeuw D.V.M.

Bob Artes

Cortney Watt

Kerry Wautier

Megan Desai

Bernard LeBlanc

Interim Approval ☐ **Final Approval** ☒

APPROVAL BY THE FWI ANIMAL CARE COMMITTEE IS FOR THE PERIOD STATED ON YOUR ANIMAL USE PROTOCOL.

Pêches et Océans Canada Fisheries and Oceans Canada

APPENDIX F – HU Subtotals and Totals by Species

Second Portage Lake
Losses from Mine Activities and Gains from Re-flooding

TOTAL BY FEATURE - Summary

Second Portage Lake				
Portage Pit in 2PL	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	1.21		0.39	0.00
4	0.13		0.05	0.00
5			0.00	0.00
6	1.58		1.34	0.00
7	11.88		4.91	0.00
8			0.00	0.00
9	0.98	15.79	0.76	12.32
11			0.00	0.00
Total	**15.79**	**15.79**	**7.45**	**12.32**

Second Portage Lake				
Portage Pit Cap in 2PL	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	0.14	0.14	0.05	0.05
4	0.03		0.01	0.00
5			0.00	0.00
6	0.12	0.15	0.10	0.13
7	2.73		1.13	0.00
8			0.00	0.00
9	0.09	2.82	0.07	2.20
11			0.00	0.00
Total	**3.11**	**3.11**	**1.36**	**2.37**

Second Portage Lake				
Roads	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	1.10	1.10	0.35	0.35
4	0.08		0.03	0.00
5			0.00	0.00
6	0.99	1.07	0.84	0.91
7	5.65		2.33	0.00
8			0.00	0.00
9	0.40	6.05	0.31	4.72
11			0.00	0.00
Total	**8.22**	**8.22**	**3.87**	**5.98**

Second Portage Lake				
Basin	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2		0.00	0.00	0.00
3	0.27	0.27	0.09	0.09
4	0.04		0.02	0.00
5		0.04	0.00	0.03
6	1.01	1.01	0.86	0.86
7	4.96		2.05	0.00
8		4.96	0.00	3.04
9	0.58	0.58	0.45	0.45
11			0.00	0.00
Total	**6.86**	**6.86**	**3.46**	**4.47**

Second Portage Lake				
East Dike	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	0.37	0.36	0.12	0.11
4	0.22		0.09	0.00
5			0.00	0.00
6	2.14	0.08	1.82	0.07
7	1.56		0.65	0.00
8			0.00	0.00
9	-0.17	0.09	-0.14	0.07
11			0.00	0.00
Total	**4.12**	**0.53**	**2.53**	**0.25**

HU LOSSES - Species Totals

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.11	0.21	0.04	0.02	0.00	0.00	0.00	0.00
4	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.54	0.58	0.16	0.06	0.00	0.00	0.00	0.00
7	1.88	2.03	0.79	0.20	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.31	0.34	0.08	0.04	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.86	3.18	1.09	0.33	0.00	0.00	0.00	0.00

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00
4	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.04	0.04	0.01	0.00	0.00	0.00	0.00	0.00
7	0.43	0.47	0.18	0.05	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.52	0.57	0.21	0.06	0.00	0.00	0.00	0.00

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.10	0.19	0.04	0.02	0.00	0.00	0.00	0.00
4	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.34	0.36	0.10	0.04	0.00	0.00	0.00	0.00
7	0.89	0.97	0.38	0.10	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.13	0.14	0.03	0.02	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.47	1.67	0.56	0.17	0.00	0.00	0.00	0.00

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.02	0.05	0.01	0.01	0.00	0.00	0.00	0.00
4	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.34	0.37	0.11	0.04	0.00	0.00	0.00	0.00
7	0.78	0.85	0.33	0.08	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.18	0.20	0.05	0.02	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.34	1.47	0.49	0.15	0.00	0.00	0.00	0.00

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.03	0.06	0.01	0.01	0.00	0.00	0.00	0.00
4	0.03	0.04	0.01	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.73	0.78	0.22	0.09	0.00	0.00	0.00	0.00
7	0.25	0.27	0.10	0.03	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	-0.05	-0.06	-0.01	-0.01	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.99	1.09	0.34	0.12	0.00	0.00	0.00	0.00

HU LOSSES -Species Sub-Totals

Habitat type area x HSI x species weight x life function weight																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.05	0.05	0.00	0.00	0.12	0.09	0.00	0.00	0.03	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00
4	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.14	0.14	0.14	0.11	0.15	0.15	0.15	0.12	0.05	0.05	0.04	0.04	0.02	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.01
7	0.00	0.27	0.54	1.08	0.00	0.29	0.58	1.16	0.00	0.09	0.35	0.35	0.00	0.00	0.04	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.07	0.00	0.00	0.07	0.15
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.09	0.04	0.09	0.09	0.10	0.05	0.10	0.10	0.02	0.01	0.01	0.03	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.23**	**0.52**	**0.83**	**1.28**	**0.25**	**0.62**	**0.93**	**1.38**	**0.07**	**0.18**	**0.42**	**0.42**	**0.03**	**0.03**	**0.08**	**0.19**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.02**	**0.08**	**0.09**	**0.00**	**0.01**	**0.11**	**0.18**

Habitat type area x HSI x species weight x life function weight																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.06	0.12	0.25	0.00	0.07	0.13	0.27	0.00	0.02	0.08	0.08	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.02	0.03
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.02**	**0.08**	**0.15**	**0.27**	**0.02**	**0.10**	**0.17**	**0.29**	**0.01**	**0.03**	**0.09**	**0.09**	**0.00**	**0.00**	**0.01**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.02**	**0.04**

Habitat type area x HSI x species weight x life function weight																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.02	0.02	0.00	0.00	0.04	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.19	0.19	0.19	0.15	0.21	0.21	0.21	0.16	0.06	0.06	0.05	0.05	0.02	0.01	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.03	0.02
7	0.00	0.04	0.07	0.14	0.00	0.04	0.08	0.15	0.00	0.01	0.05	0.05	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.02
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	-0.02	-0.01	-0.02	-0.02	-0.02	-0.01	-0.02	-0.02	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.18**	**0.25**	**0.28**	**0.29**	**0.19**	**0.29**	**0.31**	**0.31**	**0.06**	**0.08**	**0.10**	**0.09**	**0.02**	**0.02**	**0.03**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.02**	**0.02**	**0.00**	**0.00**	**0.04**	**0.04**

Second Portage Lake
Losses from Mine Activities and Gains from Re-flooding

TOTAL BY FEATURE - Summary

Second Portage Lake				
Central Dike	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	0.49	0.02	0.16	0.01
4	0.09		0.04	0.00
5			0.00	0.00
6	0.66	0.10	0.56	0.08
7	15.64		6.46	0.00
8			0.00	0.00
9	0.74	0.91	0.58	0.71
11			0.00	0.00
Total	**17.62**	**1.03**	**7.79**	**0.80**

HU LOSSES - Species Totals

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.04	0.08	0.02	0.01	0.00	0.00	0.00	0.00
4	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.22	0.24	0.07	0.03	0.00	0.00	0.00	0.00
7	2.48	2.67	1.04	0.26	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.23	0.25	0.06	0.03	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.99	3.27	1.19	0.33	0.00	0.00	0.00	0.00

HU LOSSES -Species Sub-Totals

Habitat type area x HSI x species weight x life function weight																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.02	0.02	0.00	0.00	0.05	0.04	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.06	0.06	0.06	0.04	0.06	0.06	0.06	0.05	0.02	0.02	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
7	0.00	0.35	0.71	1.41	0.00	0.38	0.76	1.53	0.00	0.12	0.46	0.46	0.00	0.00	0.05	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.10	0.00	0.00	0.10	0.20
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.07	0.03	0.07	0.07	0.07	0.04	0.07	0.07	0.02	0.01	0.01	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.13**	**0.47**	**0.86**	**1.53**	**0.14**	**0.54**	**0.94**	**1.66**	**0.04**	**0.16**	**0.50**	**0.50**	**0.01**	**0.01**	**0.08**	**0.23**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.08**	**0.11**	**0.00**	**0.00**	**0.12**	**0.21**

Second Portage Lake				
Tailings Storage Facility	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.02		0.00	0.00
2			0.00	0.00
3	4.66		1.48	0.00
4	4.08		1.66	0.00
5			0.00	0.00
6	8.73		7.42	0.00
7	57.99		23.94	0.00
8			0.00	0.00
9	4.30		3.36	0.00
11			0.00	0.00
Total	**79.79**	**0.00**	**37.85**	**0.00**

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.42	0.80	0.17	0.09	0.00	0.00	0.00	0.00
4	0.65	0.70	0.24	0.07	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	2.96	3.20	0.90	0.35	0.00	0.00	0.00	0.00
7	9.18	9.92	3.86	0.98	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	1.36	1.47	0.35	0.17	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	14.57	16.08	5.53	1.67	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.21	0.21	0.00	0.00	0.46	0.34	0.00	0.00	0.10	0.07	0.00	0.00	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.01	0.00
4	0.00	0.18	0.18	0.28	0.00	0.20	0.20	0.30	0.00	0.03	0.12	0.09	0.00	0.01	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.00	0.00	0.03	0.04
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.79	0.79	0.79	0.59	0.85	0.85	0.85	0.64	0.26	0.26	0.19	0.19	0.09	0.06	0.12	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.00	0.00	0.11	0.08
7	0.00	1.31	2.62	5.25	0.00	1.42	2.83	5.67	0.00	0.43	1.72	1.72	0.00	0.00	0.20	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.36	0.00	0.00	0.36	0.72
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.39	0.19	0.39	0.39	0.42	0.21	0.42	0.42	0.10	0.06	0.06	0.13	0.04	0.01	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.02	0.03	0.00	0.00	0.05	0.05
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**1.18**	**2.69**	**4.20**	**6.50**	**1.27**	**3.14**	**4.65**	**7.03**	**0.35**	**0.89**	**2.16**	**2.13**	**0.13**	**0.15**	**0.42**	**0.97**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.08**	**0.38**	**0.45**	**0.00**	**0.03**	**0.57**	**0.90**

Second Portage Lake
Losses from Mine Activities and Gains from Re-flooding

TOTAL BY FEATURE - Summary

Second Portage Lake				
Portage Pit in 2PL	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	1.21		0.39	0.00
4	0.13		0.05	0.00
5			0.00	0.00
6	1.58		1.34	0.00
7	11.88		4.91	0.00
8			0.00	0.00
9	0.98	15.79	0.76	12.32
11			0.00	0.00
Total	**15.79**	**15.79**	**7.45**	**12.32**

Second Portage Lake				
Portage Pit Cap in 2PL	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	0.14	0.14	0.05	0.05
4	0.03		0.01	0.00
5			0.00	0.00
6	0.12	0.15	0.10	0.13
7	2.73		1.13	0.00
8			0.00	0.00
9	0.09	2.82	0.07	2.20
11			0.00	0.00
Total	**3.11**	**3.11**	**1.36**	**2.37**

Second Portage Lake				
Roads	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	1.10	1.10	0.35	0.35
4	0.08		0.03	0.00
5			0.00	0.00
6	0.99	1.07	0.84	0.91
7	5.65		2.33	0.00
8			0.00	0.00
9	0.40	6.05	0.31	4.72
11			0.00	0.00
Total	**8.22**	**8.22**	**3.87**	**5.98**

Second Portage Lake				
Basin	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2		0.00	0.00	0.00
3	0.27	0.27	0.09	0.09
4	0.04		0.02	0.00
5		0.04	0.00	0.03
6	1.01	1.01	0.86	0.86
7	4.96		2.05	0.00
8		4.96	0.00	3.04
9	0.58	0.58	0.45	0.45
11			0.00	0.00
Total	**6.86**	**6.86**	**3.46**	**4.47**

Second Portage Lake				
East Dike	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	0.37	0.36	0.12	0.11
4	0.22		0.09	0.00
5			0.00	0.00
6	2.14	0.08	1.82	0.07
7	1.56		0.65	0.00
8			0.00	0.00
9	-0.17	0.09	-0.14	0.07
11			0.00	0.00
Total	**4.12**	**0.53**	**2.53**	**0.25**

HU GAINS - Species Totals

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	5.00	5.40	1.29	0.64	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	5.00	5.40	1.29	0.64	0.00	0.00	0.00	0.00

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.05	0.06	0.02	0.01	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.89	0.96	0.23	0.11	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.96	1.04	0.25	0.12	0.00	0.00	0.00	0.00

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.10	0.19	0.04	0.02	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.36	0.39	0.11	0.04	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	1.92	2.07	0.49	0.24	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.38	2.65	0.64	0.31	0.00	0.00	0.00	0.00

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.02	0.05	0.01	0.01	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
6	0.34	0.37	0.11	0.04	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	1.23	1.33	0.29	0.18	0.00	0.00	0.00	0.00
9	0.18	0.20	0.05	0.02	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.79	1.96	0.46	0.25	0.00	0.00	0.00	0.00

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.03	0.06	0.01	0.01	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.09	0.12	0.03	0.01	0.00	0.00	0.00	0.00

HU GAINS -Species Sub-Totals

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	1.43	0.71	1.43	1.43	1.54	0.77	1.54	1.54	0.35	0.23	0.23	0.47	0.16	0.05	0.21	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.02	0.07	0.10	0.00	0.00	0.20	0.20
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**1.43**	**0.71**	**1.43**	**1.43**	**1.54**	**0.77**	**1.54**	**1.54**	**0.35**	**0.23**	**0.23**	**0.47**	**0.16**	**0.05**	**0.21**	**0.21**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.10**	**0.02**	**0.07**	**0.10**	**0.00**	**0.00**	**0.20**	**0.20**

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.25	0.13	0.25	0.25	0.28	0.14	0.28	0.28	0.06	0.04	0.04	0.08	0.03	0.01	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.02	0.00	0.00	0.04	0.04
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.27**	**0.15**	**0.28**	**0.27**	**0.29**	**0.17**	**0.30**	**0.29**	**0.07**	**0.05**	**0.05**	**0.09**	**0.03**	**0.01**	**0.04**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.01**	**0.01**	**0.02**	**0.00**	**0.00**	**0.04**	**0.04**

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.05	0.05	0.00	0.00	0.11	0.08	0.00	0.00	0.02	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.10	0.10	0.10	0.07	0.10	0.10	0.10	0.08	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.55	0.27	0.55	0.55	0.59	0.30	0.59	0.59	0.13	0.09	0.09	0.18	0.06	0.02	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.03	0.04	0.00	0.00	0.08	0.08
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.64**	**0.42**	**0.69**	**0.62**	**0.70**	**0.51**	**0.78**	**0.67**	**0.17**	**0.15**	**0.13**	**0.20**	**0.07**	**0.04**	**0.10**	**0.09**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.04**	**0.02**	**0.04**	**0.04**	**0.00**	**0.01**	**0.09**	**0.09**

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.02	0.02	0.00	0.00	0.04	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.02**	**0.03**	**0.03**	**0.01**	**0.02**	**0.05**	**0.04**	**0.01**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Second Portage Lake
Losses from Mine Activities and Gains from Re-flooding

TOTAL BY FEATURE - Summary

Second Portage Lake				
Central Dike	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	0.49	0.02	0.16	0.01
4	0.09		0.04	0.00
5			0.00	0.00
6	0.66	0.10	0.56	0.08
7	15.64		6.46	0.00
8			0.00	0.00
9	0.74	0.91	0.58	0.71
11			0.00	0.00
Total	**17.62**	**1.03**	**7.79**	**0.80**

Second Portage Lake				
Tailings Storage Facility	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.02		0.00	0.00
2			0.00	0.00
3	4.66		1.48	0.00
4	4.08		1.66	0.00
5			0.00	0.00
6	8.73		7.42	0.00
7	57.99		23.94	0.00
8			0.00	0.00
9	4.30		3.36	0.00
11			0.00	0.00
Total	**79.79**	**0.00**	**37.85**	**0.00**

HU GAINS - Species Totals

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.03	0.04	0.01	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.29	0.31	0.07	0.04	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.32	0.35	0.09	0.04	0.00	0.00	0.00	0.00

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HU GAINS -Species Sub-Totals

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.08	0.04	0.08	0.08	0.09	0.04	0.09	0.09	0.02	0.01	0.01	0.03	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.09**	**0.05**	**0.09**	**0.09**	**0.10**	**0.06**	**0.10**	**0.10**	**0.02**	**0.02**	**0.02**	**0.03**	**0.01**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.01**	**0.01**

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Third Portage Lake

Losses from Mining Activities and Gains from Re-flooding

TOTAL BY FEATURE - Summary

HU LOSSES - Species Totals

HU LOSSES -Species Sub-Totals

Third Portage Lake

Portage Pit in 3PL	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.15		0.02	0.00
2			0.00	0.00
3	4.10		1.31	0.00
4	0.90		0.37	0.00
5			0.00	0.00
6	1.31		1.12	0.00
7	1.24		0.51	0.00
8			0.00	0.00
9	0.11		0.08	0.00
11		7.82	0.00	3.83
Total	7.82	7.82	3.41	3.83

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.37	0.70	0.15	0.08	0.00	0.00	0.00	0.00
4	0.14	0.15	0.05	0.02	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.45	0.48	0.14	0.05	0.00	0.00	0.00	0.00
7	0.20	0.21	0.08	0.02	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.03	0.04	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.20	1.59	0.44	0.18	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.19	0.19	0.00	0.00	0.40	0.30	0.00	0.00	0.09	0.06	0.00	0.00	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.01	0.00
4	0.00	0.04	0.04	0.06	0.00	0.04	0.04	0.07	0.00	0.01	0.03	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.12	0.12	0.12	0.09	0.13	0.13	0.13	0.10	0.04	0.04	0.03	0.03	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.01
7	0.00	0.03	0.06	0.11	0.00	0.03	0.06	0.12	0.00	0.01	0.04	0.04	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.02
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.13	0.38	0.41	0.27	0.14	0.61	0.55	0.29	0.04	0.15	0.16	0.09	0.01	0.07	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.02	0.00	0.03	0.04	0.04

Third Portage Lake

Portage Pit Cap in 3PL	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.08		0.01	0.00
2			0.00	0.00
3	0.73	0.81	0.23	0.26
4	0.40		0.16	0.00
5			0.00	0.00
6	0.23	0.63	0.20	0.54
7	0.61		0.25	0.00
8			0.00	0.00
9	0.02	0.63	0.01	0.49
11			0.00	0.00
Total	2.07	2.07	0.87	1.28

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.07	0.12	0.03	0.01	0.00	0.00	0.00	0.00
4	0.06	0.07	0.02	0.01	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.08	0.09	0.02	0.01	0.00	0.00	0.00	0.00
7	0.10	0.10	0.04	0.01	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.31	0.39	0.12	0.04	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.03	0.03	0.00	0.00	0.07	0.05	0.00	0.00	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.02	0.02	0.03	0.00	0.02	0.02	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.01	0.03	0.06	0.00	0.01	0.03	0.06	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.02	0.09	0.10	0.10	0.02	0.13	0.13	0.11	0.01	0.03	0.05	0.03	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.01

Third Portage Lake

Portage Pit Land-to-Lake	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3			0.00	0.00
4			0.00	0.00
5			0.00	0.00
6			0.00	0.00
7			0.00	0.00
8			0.00	0.00
9		7.73	0.00	6.04
11		31.64	0.00	15.48
Total	0.00	39.37	0.00	21.51

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Third Portage Lake

Goose Pit	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.02		0.00	0.00
2			0.00	0.00
3	4.02		1.28	0.00
4	1.65		0.67	0.00
5			0.00	0.00
6	1.33		1.13	0.00
7	7.66		3.16	0.00
8			0.00	0.00
9	0.23		0.18	0.00
11		14.91	0.00	7.29
Total	14.91	14.91	6.43	7.29

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.36	0.69	0.15	0.08	0.00	0.00	0.00	0.00
4	0.26	0.28	0.10	0.03	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.45	0.49	0.14	0.05	0.00	0.00	0.00	0.00
7	1.21	1.31	0.51	0.13	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.07	0.08	0.02	0.01	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.36	2.85	0.91	0.30	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.18	0.18	0.00	0.00	0.39	0.29	0.00	0.00	0.09	0.06	0.00	0.00	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.01	0.00
4	0.00	0.07	0.07	0.11	0.00	0.08	0.08	0.12	0.00	0.01	0.05	0.04	0.00	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.02
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.12	0.12	0.12	0.09	0.13	0.13	0.13	0.10	0.04	0.04	0.03	0.03	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.01
7	0.00	0.17	0.35	0.69	0.00	0.19	0.37	0.75	0.00	0.06	0.23	0.23	0.00	0.00	0.03	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.00	0.00	0.05	0.10
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.02	0.01	0.02	0.02	0.02	0.01	0.02	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.14	0.56	0.74	0.92	0.15	0.80	0.90	0.99	0.04	0.20	0.37	0.30	0.02	0.07	0.08	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.08	0.06	0.00	0.03	0.09	0.13

Third Portage Lake

Goose Pit Cap	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	1.32	1.32	0.42	0.42
4	0.22		0.09	0.00
5			0.00	0.00
6	0.49	0.71	0.42	0.61
7	1.79		0.74	0.00
8			0.00	0.00
9	0.09	1.88	0.07	1.47
11			0.00	0.00
Total	3.91	3.91	1.74	2.49

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.12	0.23	0.05	0.03	0.00	0.00	0.00	0.00
4	0.03	0.04	0.01	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.17	0.18	0.05	0.02	0.00	0.00	0.00	0.00
7	0.28	0.31	0.12	0.03	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.63	0.78	0.24	0.08	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.06	0.06	0.00	0.00	0.13	0.10	0.00	0.00	0.03	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00
4	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.04	0.04	0.04	0.03	0.05	0.05	0.05	0.04	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
7	0.00	0.04	0.08	0.16	0.00	0.04	0.09	0.17	0.00	0.01	0.05	0.05	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.02
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.05	0.16	0.20	0.22	0.06	0.24	0.25	0.24	0.02	0.06	0.09	0.07	0.01	0.02	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.00	0.01	0.02	0.03

Third Portage Lake

Losses from Mining Activities and Gains from Re-flooding

TOTAL BY FEATURE - Summary

Third Portage Lake				
Goose Pit Land-to-Lake	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3			0.00	0.00
4			0.00	0.00
5			0.00	0.00
6			0.00	0.00
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11		4.10	0.00	2.01
Total	0.00	4.10	0.00	2.01

HU LOSSES - Species Totals

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HU LOSSES -Species Sub-Totals

Habitat type area x HSI x species weight x life function weight																																
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Third Portage Lake				
Basin, inc boulder garden	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.07		0.01	0.00
2		0.07	0.00	0.01
3	7.77	7.77	2.47	2.47
4	3.19		1.29	0.00
5		3.19	0.00	2.04
6	5.52	5.52	4.69	4.69
7	20.28		8.37	0.00
8		17.31	0.00	10.62
9	1.06	4.03	0.83	3.14
11			0.00	0.00
Total	37.89	37.89	17.67	22.99

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.70	1.33	0.29	0.16	0.00	0.00	0.00	0.00
4	0.50	0.55	0.19	0.05	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1.87	2.02	0.57	0.22	0.00	0.00	0.00	0.00
7	3.21	3.47	1.35	0.34	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.34	0.36	0.09	0.04	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.63	7.73	2.49	0.82	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight																																
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.35	0.35	0.00	0.00	0.76	0.57	0.00	0.00	0.17	0.11	0.00	0.00	0.10	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.05	0.02	0.00
4	0.00	0.14	0.14	0.22	0.00	0.16	0.16	0.23	0.00	0.02	0.09	0.07	0.00	0.01	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.02	0.03
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.50	0.50	0.50	0.37	0.54	0.54	0.54	0.40	0.16	0.16	0.12	0.12	0.06	0.04	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.00	0.00	0.07	0.05
7	0.00	0.46	0.92	1.83	0.00	0.50	0.99	1.98	0.00	0.15	0.60	0.60	0.00	0.00	0.07	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.13	0.00	0.00	0.13	0.25
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.10	0.05	0.10	0.10	0.10	0.05	0.10	0.10	0.02	0.02	0.02	0.03	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.60	1.50	2.01	2.52	0.64	2.00	2.36	2.72	0.19	0.53	0.95	0.83	0.07	0.16	0.22	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.08	0.19	0.17	0.00	0.05	0.25	0.35

Third Portage Lake				
Bay-Goose Dike	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.04		0.01	0.00
2	0.00		0.00	0.00
3	5.98	3.12	1.90	0.99
4	1.64		0.67	0.00
5	0.00		0.00	0.00
6	3.51	1.22	2.98	1.04
7	8.92		3.68	0.00
8	0.00		0.00	0.00
9	-2.83	0.75	-2.20	0.59
11			0.00	0.00
Total	17.27	5.09	7.04	2.62

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.54	1.02	0.22	0.12	0.00	0.00	0.00	0.00
4	0.26	0.28	0.10	0.03	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1.19	1.29	0.36	0.14	0.00	0.00	0.00	0.00
7	1.41	1.53	0.59	0.15	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	-0.89	-0.97	-0.23	-0.11	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.51	3.15	1.05	0.33	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight																																
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.27	0.27	0.00	0.00	0.58	0.44	0.00	0.00	0.13	0.09	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.04	0.02	0.00
4	0.00	0.07	0.07	0.11	0.00	0.08	0.08	0.12	0.00	0.01	0.05	0.04	0.00	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.02
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.32	0.32	0.32	0.24	0.34	0.34	0.34	0.26	0.10	0.10	0.08	0.08	0.04	0.02	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.00	0.00	0.04	0.03
7	0.00	0.20	0.40	0.81	0.00	0.22	0.44	0.87	0.00	0.07	0.26	0.26	0.00	0.00	0.03	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.06	0.00	0.00	0.06	0.11
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	-0.26	-0.13	-0.26	-0.26	-0.28	-0.14	-0.28	-0.28	-0.06	-0.04	-0.04	-0.08	-0.03	-0.01	-0.04	-0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	0.00	-0.01	-0.02	0.00	0.00	-0.04	-0.04
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.06	0.74	0.81	0.90	0.07	1.09	1.02	0.97	0.04	0.27	0.44	0.29	0.01	0.10	0.09	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.06	0.00	0.04	0.09	0.12

Third Portage Lake				
South Camp Dike	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	0.39	0.13	0.12	0.04
4			0.00	0.00
5			0.00	0.00
6		0.00	0.00	0.00
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11			0.00	0.00
Total	0.39	0.13	0.12	0.04

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.04	0.07	0.01	0.01	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.04	0.07	0.01	0.01	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight																																
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.02	0.02	0.00	0.00	0.04	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.02	0.02	0.00	0.00	0.04	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Third Portage Lake

Losses from Mining Activities and Gains from Re-flooding

TOTAL BY FEATURE - Summary

Third Portage Lake				
Roads	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	1.68	1.68	0.54	0.54
4	0.60		0.24	0.00
5			0.00	0.00
6	1.11	1.71	0.95	1.46
7	1.41		0.58	0.00
8			0.00	0.00
9	0.12	1.53	0.09	1.20
11			0.00	0.00
Total	4.93	4.93	2.40	3.19

Third Portage Lake				
Dike Breach	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3			0.00	0.00
4			0.00	0.00
5			0.00	0.00
6		0.86	0.00	0.73
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11			0.00	0.00
Total	0.00	0.86	0.00	0.73

HU LOSSES - Species Totals

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.15	0.29	0.06	0.03	0.00	0.00	0.00	0.00
4	0.10	0.10	0.04	0.01	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.38	0.41	0.12	0.05	0.00	0.00	0.00	0.00
7	0.22	0.24	0.09	0.02	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.04	0.04	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.89	1.08	0.32	0.12	0.00	0.00	0.00	0.00

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HU LOSSES -Species Sub-Totals

Habitat type area x HSI x species weight x life function weight																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.08	0.08	0.00	0.00	0.16	0.12	0.00	0.00	0.04	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00
4	0.00	0.03	0.03	0.04	0.00	0.03	0.03	0.04	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.10	0.10	0.10	0.08	0.11	0.11	0.11	0.08	0.03	0.03	0.02	0.02	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01
7	0.00	0.03	0.06	0.13	0.00	0.03	0.07	0.14	0.00	0.01	0.04	0.04	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.02
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.11	0.24	0.28	0.26	0.12	0.34	0.34	0.28	0.04	0.09	0.11	0.08	0.01	0.03	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.02	0.00	0.01	0.03	0.04

Habitat type area x HSI x species weight x life function weight																																
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Third Portage Lake

Losses from Mining Activities and Gains from Re-flooding

TOTAL BY FEATURE - Summary | **HU GAINS - Species Totals** | **HU GAINS -Species Sub-Totals**

Third Portage Lake

Portage Pit in 3PL	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.15		0.02	0.00
2			0.00	0.00
3	4.10		1.31	0.00
4	0.90		0.37	0.00
5			0.00	0.00
6	1.31		1.12	0.00
7	1.24		0.51	0.00
8			0.00	0.00
9	0.11		0.08	0.00
11		7.82	0.00	3.83
Total	**7.82**	**7.82**	**3.41**	**3.83**

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	1.41	1.91	0.29	0.21	0.00	0.00	0.00	0.00
Total	1.41	1.91	0.29	0.21	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.71	0.71	0.38	0.00	0.76	0.76	0.00	0.00	0.06	0.23	0.00	0.00	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.05	0.00	0.00	0.00	0.10
Total	**0.00**	**0.00**	**0.71**	**0.71**	**0.38**	**0.00**	**0.76**	**0.76**	**0.00**	**0.00**	**0.06**	**0.23**	**0.00**	**0.00**	**0.11**	**0.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.04**	**0.05**	**0.00**	**0.00**	**0.00**	**0.10**

Third Portage Lake

Portage Pit Cap in 3PL	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.08		0.01	0.00
2			0.00	0.00
3	0.73	0.81	0.23	0.26
4	0.40		0.16	0.00
5			0.00	0.00
6	0.23	0.63	0.20	0.54
7	0.61		0.25	0.00
8			0.00	0.00
9	0.02	0.63	0.01	0.49
11			0.00	0.00
Total	**2.07**	**2.07**	**0.87**	**1.28**

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.07	0.14	0.03	0.02	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.21	0.23	0.07	0.03	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.20	0.21	0.05	0.03	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.49	0.58	0.15	0.07	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.04	0.04	0.00	0.00	0.08	0.06	0.00	0.00	0.02	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.06	0.06	0.06	0.04	0.06	0.06	0.06	0.05	0.02	0.02	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.06	0.03	0.06	0.06	0.06	0.03	0.06	0.06	0.01	0.01	0.01	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.11**	**0.12**	**0.15**	**0.10**	**0.12**	**0.17**	**0.18**	**0.11**	**0.03**	**0.05**	**0.04**	**0.03**	**0.01**	**0.02**	**0.02**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.01**	**0.02**	**0.01**

Third Portage Lake

Portage Pit Land-to-Lake	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3			0.00	0.00
4			0.00	0.00
5			0.00	0.00
6			0.00	0.00
7			0.00	0.00
8			0.00	0.00
9		7.73	0.00	6.04
11		31.64	0.00	15.48
Total	**0.00**	**39.37**	**0.00**	**21.51**

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	2.45	2.65	0.63	0.31	0.00	0.00	0.00	0.00
11	5.72	7.73	1.17	0.85	0.00	0.00	0.00	0.00
Total	8.17	10.37	1.80	1.16	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.70	0.35	0.70	0.70	0.76	0.38	0.76	0.76	0.17	0.11	0.11	0.23	0.08	0.03	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.04	0.05	0.00	0.00	0.10	0.10
11	0.00	0.00	2.86	2.86	1.55	0.00	3.09	3.09	0.00	0.00	0.23	0.94	0.00	0.00	0.43	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.15	0.20	0.00	0.00	0.00	0.40
Total	**0.70**	**0.35**	**3.56**	**3.56**	**2.30**	**0.38**	**3.85**	**3.85**	**0.17**	**0.11**	**0.35**	**1.17**	**0.08**	**0.03**	**0.53**	**0.53**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.10**	**0.01**	**0.18**	**0.25**	**0.00**	**0.00**	**0.10**	**0.49**

Third Portage Lake

Goose Pit	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.02		0.00	0.00
2			0.00	0.00
3	4.02		1.28	0.00
4	1.65		0.67	0.00
5			0.00	0.00
6	1.33		1.13	0.00
7	7.66		3.16	0.00
8			0.00	0.00
9	0.23		0.18	0.00
11		14.91	0.00	7.29
Total	**14.91**	**14.91**	**6.43**	**7.29**

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	2.70	3.64	0.55	0.40	0.00	0.00	0.00	0.00
Total	2.70	3.64	0.55	0.40	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	1.35	1.35	0.73	0.00	1.46	1.46	0.00	0.00	0.11	0.44	0.00	0.00	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.07	0.09	0.00	0.00	0.00	0.19
Total	**0.00**	**0.00**	**1.35**	**1.35**	**0.73**	**0.00**	**1.46**	**1.46**	**0.00**	**0.00**	**0.11**	**0.44**	**0.00**	**0.00**	**0.20**	**0.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.00**	**0.07**	**0.09**	**0.00**	**0.00**	**0.00**	**0.19**

Third Portage Lake

Goose Pit Cap	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	1.32	1.32	0.42	0.42
4	0.22		0.09	0.00
5			0.00	0.00
6	0.49	0.71	0.42	0.61
7	1.79		0.74	0.00
8			0.00	0.00
9	0.09	1.88	0.07	1.47
11			0.00	0.00
Total	**3.91**	**3.91**	**1.74**	**2.49**

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.12	0.23	0.05	0.03	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.24	0.26	0.07	0.03	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.59	0.64	0.15	0.08	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.96	1.13	0.28	0.13	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.06	0.06	0.00	0.00	0.13	0.10	0.00	0.00	0.03	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.06	0.06	0.06	0.05	0.07	0.07	0.07	0.05	0.02	0.02	0.02	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.17	0.08	0.17	0.17	0.18	0.09	0.18	0.18	0.04	0.03	0.03	0.06	0.02	0.01	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.02	0.02
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.23**	**0.21**	**0.29**	**0.22**	**0.25**	**0.29**	**0.35**	**0.24**	**0.06**	**0.08**	**0.06**	**0.07**	**0.03**	**0.03**	**0.04**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.01**	**0.02**	**0.02**	**0.00**	**0.01**	**0.04**	**0.03**

Third Portage Lake

Losses from Mining Activities and Gains from Re-flooding

TOTAL BY FEATURE - Summary

Third Portage Lake				
Goose Pit Land-to-Lake	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3			0.00	0.00
4			0.00	0.00
5			0.00	0.00
6			0.00	0.00
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11		4.10	0.00	2.01
Total	**0.00**	**4.10**	**0.00**	**2.01**

HU GAINS - Species Totals

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.74	1.00	0.15	0.11	0.00	0.00	0.00	0.00
Total	0.74	1.00	0.15	0.11	0.00	0.00	0.00	0.00

HU GAINS -Species Sub-Totals

Habitat type area x HSI x species weight x life function weight																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.37	0.37	0.20	0.00	0.40	0.40	0.00	0.00	0.03	0.12	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.03	0.00	0.00	0.00	0.05
Total	**0.00**	**0.00**	**0.37**	**0.37**	**0.20**	**0.00**	**0.40**	**0.40**	**0.00**	**0.00**	**0.03**	**0.12**	**0.00**	**0.00**	**0.06**	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.02**	**0.03**	**0.00**	**0.00**	**0.00**	**0.05**

Third Portage Lake				
Basin, inc boulder garden	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.07		0.01	0.00
2		0.07	0.00	0.01
3	7.77	7.77	2.47	2.47
4	3.19		1.29	0.00
5		3.19	0.00	2.04
6	5.52	5.52	4.69	4.69
7	20.28		8.37	0.00
8		17.31	0.00	10.62
9	1.06	4.03	0.83	3.14
11			0.00	0.00
Total	**37.89**	**37.89**	**17.67**	**22.99**

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
3	0.70	1.33	0.29	0.16	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.79	0.86	0.26	0.13	0.00	0.00	0.00	0.00
6	1.87	2.02	0.57	0.22	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	4.31	4.65	1.02	0.64	0.00	0.00	0.00	0.00
9	1.28	1.38	0.33	0.16	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	8.95	10.24	2.47	1.31	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight																																
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.35	0.35	0.00	0.00	0.76	0.57	0.00	0.00	0.17	0.11	0.00	0.00	0.10	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.05	0.02	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.14	0.22	0.22	0.22	0.16	0.23	0.23	0.23	0.05	0.07	0.07	0.07	0.04	0.02	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.00	0.04	0.03
6	0.50	0.50	0.50	0.37	0.54	0.54	0.54	0.40	0.16	0.16	0.12	0.12	0.06	0.04	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.00	0.00	0.07	0.05
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.78	0.78	1.17	1.57	0.85	0.85	1.27	1.69	0.13	0.13	0.26	0.51	0.23	0.00	0.17	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.11	0.11	0.00	0.00	0.22	0.22
9	0.36	0.18	0.36	0.36	0.39	0.20	0.39	0.39	0.09	0.06	0.06	0.12	0.04	0.01	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.02	0.03	0.00	0.00	0.05	0.05
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**1.79**	**2.03**	**2.61**	**2.52**	**1.93**	**2.58**	**3.01**	**2.72**	**0.43**	**0.60**	**0.63**	**0.83**	**0.37**	**0.18**	**0.39**	**0.38**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.11**	**0.12**	**0.22**	**0.17**	**0.00**	**0.05**	**0.40**	**0.35**

Third Portage Lake				
Bay-Goose Dike	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.04		0.01	0.00
2	0.00		0.00	0.00
3	5.98	3.12	1.90	0.99
4	1.64		0.67	0.00
5	0.00		0.00	0.00
6	3.51	1.22	2.98	1.04
7	8.92		3.68	0.00
8	0.00		0.00	0.00
9	-2.83	0.75	-2.20	0.59
11			0.00	0.00
Total	**17.27**	**5.09**	**7.04**	**2.62**

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.28	0.53	0.12	0.06	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.41	0.45	0.13	0.05	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.24	0.26	0.06	0.03	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.93	1.24	0.30	0.14	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight																																
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.14	0.14	0.00	0.00	0.30	0.23	0.00	0.00	0.07	0.05	0.00	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.02	0.01	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.11	0.11	0.11	0.08	0.12	0.12	0.12	0.09	0.04	0.04	0.03	0.03	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.07	0.03	0.07	0.07	0.07	0.04	0.07	0.07	0.02	0.01	0.01	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.18**	**0.29**	**0.32**	**0.15**	**0.19**	**0.46**	**0.42**	**0.16**	**0.05**	**0.12**	**0.08**	**0.05**	**0.02**	**0.05**	**0.05**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.03**	**0.03**	**0.01**	**0.00**	**0.02**	**0.03**	**0.02**

Third Portage Lake				
South Camp Dike	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	0.39	0.13	0.12	0.04
4			0.00	0.00
5			0.00	0.00
6		0.00	0.00	0.00
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11			0.00	0.00
Total	**0.39**	**0.13**	**0.12**	**0.04**

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight																																
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Third Portage Lake

Losses from Mining Activities and Gains from Re-flooding

TOTAL BY FEATURE - Summary

Third Portage Lake				
Roads	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	1.68	1.68	0.54	0.54
4	0.60		0.24	0.00
5			0.00	0.00
6	1.11	1.71	0.95	1.46
7	1.41		0.58	0.00
8			0.00	0.00
9	0.12	1.53	0.09	1.20
11			0.00	0.00
Total	**4.93**	**4.93**	**2.40**	**3.19**

Third Portage Lake				
Dike Breach	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3			0.00	0.00
4			0.00	0.00
5			0.00	0.00
6		0.86	0.00	0.73
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11			0.00	0.00
Total	**0.00**	**0.86**	**0.00**	**0.73**

HU GAINS - Species Totals

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.15	0.29	0.06	0.03	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.58	0.63	0.18	0.07	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.49	0.52	0.12	0.06	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.22	1.44	0.36	0.17	0.00	0.00	0.00	0.00

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.29	0.32	0.09	0.03	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.29	0.32	0.09	0.03	0.00	0.00	0.00	0.00

HU GAINS -Species Sub-Totals

Habitat type area x HSI x species weight x life function weight																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.08	0.08	0.00	0.00	0.16	0.12	0.00	0.00	0.04	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.16	0.16	0.16	0.12	0.17	0.17	0.17	0.13	0.05	0.05	0.04	0.04	0.02	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.02
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.14	0.07	0.14	0.14	0.15	0.07	0.15	0.15	0.03	0.02	0.02	0.05	0.02	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.02	0.02
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.29**	**0.30**	**0.37**	**0.26**	**0.32**	**0.41**	**0.44**	**0.28**	**0.08**	**0.11**	**0.09**	**0.08**	**0.03**	**0.04**	**0.06**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.02**	**0.03**	**0.02**	**0.00**	**0.01**	**0.05**	**0.04**

Habitat type area x HSI x species weight x life function weight																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.08	0.08	0.08	0.06	0.08	0.08	0.08	0.06	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.08**	**0.08**	**0.08**	**0.06**	**0.08**	**0.08**	**0.08**	**0.06**	**0.03**	**0.03**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**

Vault Lake
Losses from Mining Activities and Gains from Re-flooding

TOTAL BY FEATURE - Summary | **HU LOSSES - Species Totals** | **HU LOSSES -Species Sub-Totals**

Vault Lake				
Vault Pit	**Hectares**		**HU**	
Habitat Type	**Losses**	**Gains**	**Losses**	**Gains**
1			0.00	0.00
2	0.35		0.05	0.00
3	5.18		1.18	0.00
4			0.00	0.00
5	0.31		0.12	0.00
6	0.09		0.05	0.00
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11		5.93	0.00	1.83
Total	**5.93**	**5.93**	**1.40**	**1.83**

HU total per species x access weight								
Species >>	**ARCH**	**LKTR**	**RNWH**	**BURB**	**SLSC**	**NNST**	**CISC**	**ARGR**
Access >>	**0**	**1**	**1**	**1**	**1**	**1**	**0**	**0**
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.03	0.01	0.01	0.00	0.00	0.00	0.00
3	0.00	0.89	0.19	0.10	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.08	0.02	0.01	0.00	0.00	0.00	0.00
6	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	1.04	0.24	0.13	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight																																
Species >>	**ARCH**				**LKTR**				**RNWH**				**BURB**				**SLSC**				**NNST**				**CISC**				**ARGR**			
Life Function >>	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.01	0.01	0.00	0.00	0.02	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.23	0.23	0.00	0.00	0.51	0.38	0.00	0.00	0.11	0.08	0.00	0.00	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.02	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.01	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.02**	**0.27**	**0.27**	**0.03**	**0.02**	**0.55**	**0.43**	**0.03**	**0.01**	**0.13**	**0.09**	**0.01**	**0.01**	**0.08**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.04**	**0.04**	**0.00**	**0.00**	**0.03**	**0.02**	**0.00**

Vault Lake				
Vault Pit Cap	**Hectares**		**HU**	
Habitat Type	**Losses**	**Gains**	**Losses**	**Gains**
1			0.00	0.00
2	0.29		0.04	0.00
3	2.12	2.42	0.48	0.55
4			0.00	0.00
5	0.31		0.12	0.00
6	0.19	0.50	0.10	0.26
7			0.00	0.00
8	0.10		0.04	0.00
9		0.10	0.00	0.05
11			0.00	0.00
Total	**3.02**	**3.02**	**0.78**	**0.85**

HU total per species x access weight								
Species >>	**ARCH**	**LKTR**	**RNWH**	**BURB**	**SLSC**	**NNST**	**CISC**	**ARGR**
Access >>	**0**	**1**	**1**	**1**	**1**	**1**	**0**	**0**
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00
3	0.00	0.36	0.08	0.04	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.08	0.02	0.01	0.00	0.00	0.00	0.00
6	0.00	0.07	0.02	0.01	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.57	0.14	0.07	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight																																
Species >>	**ARCH**				**LKTR**				**RNWH**				**BURB**				**SLSC**				**NNST**				**CISC**				**ARGR**			
Life Function >>	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.10	0.10	0.00	0.00	0.21	0.16	0.00	0.00	0.05	0.03	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.01	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.04**	**0.15**	**0.15**	**0.04**	**0.04**	**0.27**	**0.22**	**0.05**	**0.01**	**0.07**	**0.05**	**0.01**	**0.01**	**0.03**	**0.02**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.01**	**0.02**	**0.01**

Vault Lake				
Vault Pit Land-to-Lake	**Hectares**		**HU**	
Habitat Type	**Losses**	**Gains**	**Losses**	**Gains**
1			0.00	0.00
2			0.00	0.00
3			0.00	0.00
4			0.00	0.00
5			0.00	0.00
6			0.00	0.00
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11		32.31	0.00	9.96
Total	**0.00**	**32.31**	**0.00**	**9.96**

HU total per species x access weight								
Species >>	**ARCH**	**LKTR**	**RNWH**	**BURB**	**SLSC**	**NNST**	**CISC**	**ARGR**
Access >>	**0**	**1**	**1**	**1**	**1**	**1**	**0**	**0**
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight																																
Species >>	**ARCH**				**LKTR**				**RNWH**				**BURB**				**SLSC**				**NNST**				**CISC**				**ARGR**			
Life Function >>	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Vault Lake				
Basin	**Hectares**		**HU**	
Habitat Type	**Losses**	**Gains**	**Losses**	**Gains**
1	3.40		0.29	0.00
2	7.01	10.41	1.06	1.58
3	31.14	31.14	7.11	7.11
4	3.16		0.78	0.00
5	7.39	10.55	2.89	4.12
6	11.53	11.53	5.89	5.89
7	7.57		1.93	0.00
8	9.10	16.67	3.32	6.08
9	4.76	4.76	2.21	2.21
11			0.00	0.00
Total	**85.06**	**85.06**	**25.46**	**26.98**

HU total per species x access weight								
Species >>	**ARCH**	**LKTR**	**RNWH**	**BURB**	**SLSC**	**NNST**	**CISC**	**ARGR**
Access >>	**0**	**1**	**1**	**1**	**1**	**1**	**0**	**0**
1	0.00	0.17	0.10	0.02	0.00	0.00	0.00	0.00
2	0.00	0.69	0.26	0.12	0.00	0.00	0.00	0.00
3	0.00	5.32	1.15	0.63	0.00	0.00	0.00	0.00
4	0.00	0.54	0.19	0.05	0.00	0.00	0.00	0.00
5	0.00	1.99	0.60	0.30	0.00	0.00	0.00	0.00
6	0.00	4.23	1.19	0.47	0.00	0.00	0.00	0.00
7	0.00	1.29	0.50	0.13	0.00	0.00	0.00	0.00
8	0.00	2.44	0.54	0.34	0.00	0.00	0.00	0.00
9	0.00	1.63	0.39	0.19	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	18.29	4.93	2.24	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight																																
Species >>	**ARCH**				**LKTR**				**RNWH**				**BURB**				**SLSC**				**NNST**				**CISC**				**ARGR**			
Life Function >>	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**
1	0.00	0.08	0.08	0.00	0.00	0.08	0.08	0.00	0.00	0.03	0.08	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00
2	0.00	0.16	0.16	0.00	0.00	0.34	0.34	0.00	0.00	0.16	0.10	0.00	0.00	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.02	0.02	0.00
3	0.00	1.41	1.41	0.00	0.00	3.04	2.28	0.00	0.00	0.69	0.46	0.00	0.00	0.42	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.00	0.00	0.19	0.10	0.00
4	0.00	0.14	0.14	0.21	0.00	0.15	0.15	0.23	0.00	0.02	0.09	0.07	0.00	0.01	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.02	0.03
5	0.33	0.50	0.50	0.50	0.36	0.54	0.54	0.54	0.11	0.16	0.16	0.16	0.10	0.05	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.05	0.03	0.00	0.00	0.09	0.07
6	1.04	1.04	1.04	0.78	1.13	1.13	1.13	0.85	0.34	0.34	0.26	0.26	0.12	0.08	0.16	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.00	0.00	0.14	0.11
7	0.00	0.17	0.34	0.68	0.00	0.18	0.37	0.74	0.00	0.06	0.22	0.22	0.00	0.00	0.03	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.00	0.00	0.05	0.09
8	0.41	0.41	0.62	0.82	0.44	0.44	0.67	0.89	0.07	0.07	0.13	0.27	0.12	0.00	0.09	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.06	0.06	0.00	0.00	0.11	0.11
9	0.43	0.22	0.43	0.43	0.47	0.23	0.47	0.47	0.11	0.07	0.07	0.14	0.05	0.02	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.02	0.03	0.00	0.00	0.06	0.06
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**2.22**	**4.13**	**4.72**	**3.44**	**2.40**	**6.15**	**6.03**	**3.71**	**0.62**	**1.59**	**1.58**	**1.12**	**0.39**	**0.66**	**0.69**	**0.51**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.12**	**0.35**	**0.48**	**0.24**	**0.00**	**0.23**	**0.60**	**0.47**

Vault Lake				
Dike	**Hectares**		**HU**	
Habitat Type	**Losses**	**Gains**	**Losses**	**Gains**
1			0.00	0.00
2			0.00	0.00
3	0.41	0.41	0.09	0.09
4			0.00	0.00
5			0.00	0.00
6			0.00	0.00
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11			0.00	0.00
Total	**0.41**	**0.41**	**0.09**	**0.09**

HU total per species x access weight								
Species >>	**ARCH**	**LKTR**	**RNWH**	**BURB**	**SLSC**	**NNST**	**CISC**	**ARGR**
Access >>	**0**	**1**	**1**	**1**	**1**	**1**	**0**	**0**
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.07	0.02	0.01	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.07	0.02	0.01	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight																																
Species >>	**ARCH**				**LKTR**				**RNWH**				**BURB**				**SLSC**				**NNST**				**CISC**				**ARGR**			
Life Function >>	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**	**SP**	**NU**	**FO**	**OW**
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.02	0.02	0.00	0.00	0.04	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.04**	**0.03**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Vault Lake
Losses from Mining Activities and Gains from Re-flooding

TOTAL BY FEATURE - Summary

HU GAINS - Species Totals

HU GAINS -Species Sub-Totals

Vault Lake

Vault Pit	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2	0.35		0.05	0.00
3	5.18		1.18	0.00
4			0.00	0.00
5	0.31		0.12	0.00
6	0.09		0.05	0.00
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11		5.93	0.00	1.83
Total	5.93	5.93	1.40	1.83

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	1.45	0.22	0.16	0.00	0.00	0.00	0.00
Total	0.00	1.45	0.22	0.16	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.54	0.54	0.29	0.00	0.58	0.58	0.00	0.00	0.04	0.18	0.00	0.00	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.04	0.00	0.00	0.00	0.07
Total	**0.00**	**0.00**	**0.54**	**0.54**	**0.29**	**0.00**	**0.58**	**0.58**	**0.00**	**0.00**	**0.04**	**0.18**	**0.00**	**0.00**	**0.08**	**0.08**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.03**	**0.04**	**0.00**	**0.00**	**0.00**	**0.07**

Vault Lake

Vault Pit Cap	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2	0.29		0.04	0.00
3	2.12	2.42	0.48	0.55
4			0.00	0.00
5	0.31		0.12	0.00
6	0.19	0.50	0.10	0.26
7			0.00	0.00
8	0.10		0.04	0.00
9		0.10	0.00	0.05
11			0.00	0.00
Total	3.02	3.02	0.78	0.85

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.41	0.09	0.05	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.18	0.05	0.02	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.63	0.15	0.07	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.11	0.11	0.00	0.00	0.24	0.18	0.00	0.00	0.05	0.04	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.02	0.01	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.05	0.05	0.05	0.03	0.05	0.05	0.05	0.04	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.05**	**0.16**	**0.16**	**0.04**	**0.06**	**0.29**	**0.24**	**0.05**	**0.02**	**0.07**	**0.05**	**0.01**	**0.01**	**0.04**	**0.02**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.02**	**0.02**	**0.01**

Vault Lake

Vault Pit Land-to-Lake	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3			0.00	0.00
4			0.00	0.00
5			0.00	0.00
6			0.00	0.00
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11		32.31	0.00	9.96
Total	0.00	32.31	0.00	9.96

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	7.89	1.20	0.87	0.00	0.00	0.00	0.00
Total	0.00	7.89	1.20	0.87	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	2.92	2.92	1.58	0.00	3.16	3.16	0.00	0.00	0.24	0.96	0.00	0.00	0.44	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.15	0.20	0.00	0.00	0.00	0.40
Total	**0.00**	**0.00**	**2.92**	**2.92**	**1.58**	**0.00**	**3.16**	**3.16**	**0.00**	**0.00**	**0.24**	**0.96**	**0.00**	**0.00**	**0.44**	**0.44**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.05**	**0.00**	**0.15**	**0.20**	**0.00**	**0.00**	**0.00**	**0.40**

Vault Lake

Basin	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	3.40		0.29	0.00
2	7.01	10.41	1.06	1.58
3	31.14	31.14	7.11	7.11
4	3.16		0.78	0.00
5	7.39	10.55	2.89	4.12
6	11.53	11.53	5.89	5.89
7	7.57		1.93	0.00
8	9.10	16.67	3.32	6.08
9	4.76	4.76	2.21	2.21
11			0.00	0.00
Total	85.06	85.06	25.46	26.98

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	1.02	0.39	0.18	0.00	0.00	0.00	0.00
3	0.00	5.32	1.15	0.63	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	2.83	0.86	0.43	0.00	0.00	0.00	0.00
6	0.00	4.23	1.19	0.47	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	4.48	0.99	0.62	0.00	0.00	0.00	0.00
9	0.00	1.63	0.39	0.19	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	19.51	4.97	2.51	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.24	0.24	0.00	0.00	0.51	0.51	0.00	0.00	0.23	0.15	0.00	0.00	0.11	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.03	0.03	0.00
3	0.00	1.41	1.41	0.00	0.00	3.04	2.28	0.00	0.00	0.69	0.46	0.00	0.00	0.42	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.00	0.00	0.19	0.10	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.48	0.72	0.72	0.72	0.52	0.77	0.77	0.77	0.16	0.23	0.23	0.23	0.14	0.07	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.07	0.05	0.00	0.00	0.13	0.10
6	1.04	1.04	1.04	0.78	1.13	1.13	1.13	0.85	0.34	0.34	0.26	0.26	0.12	0.08	0.16	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.00	0.00	0.14	0.11
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.75	0.75	1.13	1.51	0.81	0.81	1.22	1.63	0.12	0.12	0.25	0.49	0.22	0.00	0.17	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.10	0.10	0.00	0.00	0.21	0.21
9	0.43	0.22	0.43	0.43	0.47	0.23	0.47	0.47	0.11	0.07	0.07	0.14	0.05	0.02	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.02	0.03	0.00	0.00	0.06	0.06
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**2.70**	**4.37**	**4.96**	**3.44**	**2.92**	**6.50**	**6.38**	**3.71**	**0.73**	**1.69**	**1.42**	**1.12**	**0.53**	**0.69**	**0.77**	**0.51**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.15**	**0.38**	**0.51**	**0.24**	**0.00**	**0.23**	**0.67**	**0.47**

Vault Lake

Dike	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3	0.41	0.41	0.09	0.09
4			0.00	0.00
5			0.00	0.00
6			0.00	0.00
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11			0.00	0.00
Total	0.41	0.41	0.09	0.09

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.07	0.02	0.01	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.07	0.02	0.01	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.02	0.02	0.00	0.00	0.04	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.04**	**0.03**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Phaser Lake
Losses from Mining Activites and Gains from Re-flooding

TOTAL BY FEATURE - Summary

Phaser Lake				
Phaser Pit	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.23		0.02	0.00
2	1.23		0.17	0.00
3	1.04		0.22	0.00
4	0.19		0.04	0.00
5	0.09		0.03	0.00
6	0.01	2.78	0.01	1.42
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11			0.00	0.00
Total	**2.78**	**2.78**	**0.48**	**1.42**

Phaser Lake				
Phaser Pit Cap	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.05		0.00	0.00
2	0.30		0.04	0.00
3	0.49	0.83	0.10	0.19
4			0.00	0.00
5	0.03		0.01	0.00
6		0.03	0.00	0.02
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11			0.00	0.00
Total	**0.86**	**0.86**	**0.16**	**0.20**

Phaser Lake				
Phaser Pit Land-to-Lake	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1			0.00	0.00
2			0.00	0.00
3			0.00	0.00
4			0.00	0.00
5			0.00	0.00
6		3.94	0.00	2.01
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11			0.00	0.00
Total	**0.00**	**3.94**	**0.00**	**2.01**

Phaser Lake				
Basin	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.56		0.04	0.00
2	3.45	4.01	0.46	0.61
3	11.21	11.21	2.33	2.56
4	0.53		0.12	0.00
5	1.44	1.97	0.50	0.77
6	0.88	0.88	0.41	0.45
7	0.52		0.12	0.00
8	0.20	0.71	0.07	0.26
9	0.11	0.11	0.05	0.05
11			0.00	0.00
Total	**18.89**	**18.89**	**4.11**	**4.70**

Phaser Lake				
Roads	Hectares		HU	
Habitat Type	Losses	Gains	Losses	Gains
1	0.02		0.00	0.00
2	0.47		0.06	0.00
3	1.23	1.72	0.26	0.39
4	0.31		0.07	0.00
5	0.16		0.06	0.00
6	0.32	0.80	0.15	0.41
7	0.00		0.00	0.00
8			0.00	0.00
9		0.00	0.00	0.00
11			0.00	0.00
Total	**2.52**	**2.52**	**0.60**	**0.80**

HU LOSSES - Species Totals

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	0	0	0	0	0
1	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
2	0.00	0.12	0.05	0.00	0.00	0.00	0.00	0.00
3	0.00	0.18	0.04	0.00	0.00	0.00	0.00	0.00
4	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00
5	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.37	0.11	0.00	0.00	0.00	0.00	0.00

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	0	0	0	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00
3	0.00	0.08	0.02	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.12	0.03	0.00	0.00	0.00	0.00	0.00

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	0	0	0	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	0	0	0	0	0
1	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00
2	0.00	0.34	0.13	0.00	0.00	0.00	0.00	0.00
3	0.00	1.92	0.41	0.00	0.00	0.00	0.00	0.00
4	0.00	0.09	0.03	0.00	0.00	0.00	0.00	0.00
5	0.00	0.39	0.12	0.00	0.00	0.00	0.00	0.00
6	0.00	0.32	0.09	0.00	0.00	0.00	0.00	0.00
7	0.00	0.09	0.03	0.00	0.00	0.00	0.00	0.00
8	0.00	0.05	0.01	0.00	0.00	0.00	0.00	0.00
9	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	3.26	0.85	0.00	0.00	0.00	0.00	0.00

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	0	0	0	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00
3	0.00	0.21	0.05	0.00	0.00	0.00	0.00	0.00
4	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00
5	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00
6	0.00	0.12	0.03	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.47	0.13	0.00	0.00	0.00	0.00	0.00

HU LOSSES -Species Sub-Totals

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.03	0.03	0.00	0.00	0.06	0.06	0.00	0.00	0.03	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
3	0.00	0.05	0.05	0.00	0.00	0.10	0.08	0.00	0.00	0.02	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00
4	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.01**	**0.10**	**0.10**	**0.02**	**0.01**	**0.18**	**0.16**	**0.02**	**0.00**	**0.06**	**0.05**	**0.01**	**0.00**	**0.03**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.02	0.02	0.00	0.00	0.05	0.04	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.08	0.08	0.00	0.00	0.17	0.17	0.00	0.00	0.08	0.05	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.01	0.01	0.00
3	0.00	0.51	0.51	0.00	0.00	1.10	0.82	0.00	0.00	0.25	0.17	0.00	0.00	0.15	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.07	0.04	0.00
4	0.00	0.02	0.02	0.04	0.00	0.03	0.03	0.04	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.07	0.10	0.10	0.10	0.07	0.11	0.11	0.11	0.02	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.02	0.01
6	0.08	0.08	0.08	0.06	0.09	0.09	0.09	0.06	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
7	0.00	0.01	0.02	0.05	0.00	0.01	0.03	0.05	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
8	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.16**	**0.82**	**0.85**	**0.27**	**0.18**	**1.52**	**1.27**	**0.29**	**0.05**	**0.40**	**0.32**	**0.09**	**0.03**	**0.21**	**0.13**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.10**	**0.11**	**0.02**	**0.00**	**0.08**	**0.09**	**0.04**

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.01	0.01	0.00	0.00	0.02	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.06	0.06	0.00	0.00	0.12	0.09	0.00	0.00	0.03	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00
4	0.00	0.01	0.01	0.02	0.00	0.02	0.02	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.04**	**0.12**	**0.12**	**0.05**	**0.04**	**0.20**	**0.17**	**0.06**	**0.01**	**0.05**	**0.05**	**0.02**	**0.01**	**0.03**	**0.02**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.01**	**0.01**	**0.01**

Phaser Lake

Losses from Mining Activites and Gains from Re-flooding

TOTAL BY FEATURE - Summary | **HU GAINS - Species Totals** | **HU GAINS -Species Sub-Totals**

Phaser Lake – Phaser Pit

Habitat Type	Hectares Losses	Hectares Gains	HU Losses	HU Gains
1	0.23		0.02	0.00
2	1.23		0.17	0.00
3	1.04		0.22	0.00
4	0.19		0.04	0.00
5	0.09		0.03	0.00
6	0.01	2.78	0.01	1.42
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11			0.00	0.00
Total	**2.78**	**2.78**	**0.48**	**1.42**

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	1.02	0.29	0.11	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	1.02	0.29	0.11	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.25	0.25	0.25	0.19	0.27	0.27	0.27	0.20	0.08	0.08	0.06	0.06	0.03	0.02	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.03	0.03
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.25**	**0.25**	**0.25**	**0.19**	**0.27**	**0.27**	**0.27**	**0.20**	**0.08**	**0.08**	**0.06**	**0.06**	**0.03**	**0.02**	**0.04**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.03**	**0.03**

Phaser Lake – Phaser Pit Cap

Habitat Type	Hectares Losses	Hectares Gains	HU Losses	HU Gains
1	0.05		0.00	0.00
2	0.30		0.04	0.00
3	0.49	0.83	0.10	0.19
4			0.00	0.00
5	0.03		0.01	0.00
6		0.03	0.00	0.02
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11			0.00	0.00
Total	**0.86**	**0.86**	**0.16**	**0.20**

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.14	0.03	0.02	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.15	0.03	0.02	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.04	0.04	0.00	0.00	0.08	0.06	0.00	0.00	0.02	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.04**	**0.04**	**0.00**	**0.00**	**0.08**	**0.06**	**0.00**	**0.00**	**0.02**	**0.01**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**

Phaser Lake – Phaser Pit Land-to-Lake

Habitat Type	Hectares Losses	Hectares Gains	HU Losses	HU Gains
1			0.00	0.00
2			0.00	0.00
3			0.00	0.00
4			0.00	0.00
5			0.00	0.00
6		3.94	0.00	2.01
7			0.00	0.00
8			0.00	0.00
9			0.00	0.00
11			0.00	0.00
Total	**0.00**	**3.94**	**0.00**	**2.01**

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	1.44	0.41	0.16	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	1.44	0.41	0.16	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.36	0.36	0.36	0.27	0.38	0.38	0.38	0.29	0.12	0.12	0.09	0.09	0.04	0.03	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.00	0.00	0.05	0.04
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.36**	**0.36**	**0.36**	**0.27**	**0.38**	**0.38**	**0.38**	**0.29**	**0.12**	**0.12**	**0.09**	**0.09**	**0.04**	**0.03**	**0.05**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.02**	**0.02**	**0.02**	**0.00**	**0.00**	**0.05**	**0.04**

Phaser Lake – Basin

Habitat Type	Hectares Losses	Hectares Gains	HU Losses	HU Gains
1	0.56		0.04	0.00
2	3.45	4.01	0.46	0.61
3	11.21	11.21	2.33	2.56
4	0.53		0.12	0.00
5	1.44	1.97	0.50	0.77
6	0.88	0.88	0.41	0.45
7	0.52		0.12	0.00
8	0.20	0.71	0.07	0.26
9	0.11	0.11	0.05	0.05
11			0.00	0.00
Total	**18.89**	**18.89**	**4.11**	**4.70**

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.39	0.15	0.07	0.00	0.00	0.00	0.00
3	0.00	1.92	0.41	0.23	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.53	0.16	0.08	0.00	0.00	0.00	0.00
6	0.00	0.32	0.09	0.04	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.19	0.04	0.03	0.00	0.00	0.00	0.00
9	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	3.39	0.87	0.44	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.09	0.09	0.00	0.00	0.20	0.20	0.00	0.00	0.09	0.06	0.00	0.00	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.01	0.01	0.00
3	0.00	0.51	0.51	0.00	0.00	1.10	0.82	0.00	0.00	0.25	0.17	0.00	0.00	0.15	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.07	0.04	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.09	0.13	0.13	0.13	0.10	0.14	0.14	0.14	0.03	0.04	0.04	0.04	0.03	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.02	0.02
6	0.08	0.08	0.08	0.06	0.09	0.09	0.09	0.06	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.03	0.03	0.05	0.06	0.03	0.03	0.05	0.07	0.01	0.01	0.01	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
9	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.21**	**0.85**	**0.87**	**0.27**	**0.23**	**1.56**	**1.31**	**0.29**	**0.06**	**0.41**	**0.30**	**0.09**	**0.05**	**0.21**	**0.14**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.11**	**0.12**	**0.02**	**0.00**	**0.08**	**0.09**	**0.04**

Phaser Lake – Roads

Habitat Type	Hectares Losses	Hectares Gains	HU Losses	HU Gains
1	0.02		0.00	0.00
2	0.47		0.06	0.00
3	1.23	1.72	0.26	0.39
4	0.31		0.07	0.00
5	0.16		0.06	0.00
6	0.32	0.80	0.15	0.41
7	0.00		0.00	0.00
8			0.00	0.00
9		0.00	0.00	0.00
11			0.00	0.00
Total	**2.52**	**2.52**	**0.60**	**0.80**

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.29	0.06	0.03	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.29	0.08	0.03	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.59	0.15	0.07	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.08	0.08	0.00	0.00	0.17	0.13	0.00	0.00	0.04	0.03	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.07	0.07	0.07	0.05	0.08	0.08	0.08	0.06	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.07**	**0.15**	**0.15**	**0.05**	**0.08**	**0.25**	**0.20**	**0.06**	**0.02**	**0.06**	**0.04**	**0.02**	**0.01**	**0.03**	**0.02**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.01**	**0.02**	**0.01**

Other Onsite Compensation
Net Gains

TOTAL BY FEATURE - Summary | **PRE-COMPENSATION HUs - Species Totals** | **PRE-COMPENSATION HUs -Species Sub-Totals**

Vault Lake

Access to Wally	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.00	0.00	0.00	0.00	0.00	0.00
2	10.41	10.41	0.00	1.58	1.93	0.35
3	33.96	33.96	0.00	7.75	10.06	2.30
4	0.00	0.00	0.00	0.00	0.00	0.00
5	10.55	10.55	0.00	4.12	6.09	1.97
6	12.03	12.03	0.00	6.14	9.20	3.06
7	0.00	0.00	0.00	0.00	0.00	0.00
8	16.67	16.67	0.00	6.08	9.19	3.11
9	4.86	4.86	0.00	2.25	3.41	1.15
11	38.24	38.24	0.00	11.79	16.97	5.19
Total	126.72	126.72	0.00	39.71	56.85	17.14

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	1.02	0.39	0.18	0.00	0.00	0.00	0.00
3	0.00	5.81	1.26	0.69	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	2.83	0.86	0.43	0.00	0.00	0.00	0.00
6	0.00	4.41	1.25	0.49	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	4.48	0.99	0.62	0.00	0.00	0.00	0.00
9	0.00	1.66	0.40	0.20	0.00	0.00	0.00	0.00
11	0.00	9.34	1.42	1.03	0.00	0.00	0.00	0.00
Total	0.00	29.55	6.55	3.62	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.24	0.24	0.00	0.00	0.51	0.51	0.00	0.00	0.23	0.15	0.00	0.00	0.11	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.03	0.03	0.00
3	0.00	1.54	1.54	0.00	0.00	3.32	2.49	0.00	0.00	0.75	0.50	0.00	0.00	0.46	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.21	0.00	0.00	0.21	0.11	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.48	0.72	0.72	0.72	0.52	0.77	0.77	0.77	0.16	0.23	0.23	0.23	0.14	0.07	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.07	0.05	0.00	0.00	0.13	0.10
6	1.09	1.09	1.09	0.82	1.18	1.18	1.18	0.88	0.36	0.36	0.27	0.27	0.12	0.08	0.16	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.06	0.06	0.00	0.00	0.15	0.11
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.75	0.75	1.13	1.51	0.81	0.81	1.22	1.63	0.12	0.12	0.25	0.49	0.22	0.00	0.17	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.10	0.10	0.00	0.00	0.21	0.21
9	0.44	0.22	0.44	0.44	0.47	0.24	0.47	0.47	0.11	0.07	0.07	0.14	0.05	0.02	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.02	0.03	0.00	0.00	0.06	0.06
11	0.00	0.00	3.46	3.46	1.87	0.00	3.74	3.74	0.00	0.00	0.28	1.13	0.00	0.00	0.51	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.18	0.24	0.00	0.00	0.00	0.48
Total	**2.76**	**4.55**	**8.60**	**6.94**	**4.85**	**6.83**	**10.38**	**7.49**	**0.74**	**1.77**	**1.76**	**2.27**	**0.54**	**0.73**	**1.32**	**1.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.22**	**0.40**	**0.71**	**0.48**	**0.00**	**0.24**	**0.69**	**0.96**

Phaser Lake

Access to W3	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.00	0.00	0.00	0.00	0.00	0.00
2	4.01	4.01	0.00	0.61	0.74	0.14
3	13.76	13.76	0.00	3.14	4.07	0.93
4	0.00	0.00	0.00	0.00	0.00	0.00
5	1.97	1.97	0.00	0.77	1.14	0.37
6	8.43	8.43	0.00	4.30	6.44	2.14
7	0.00	0.00	0.00	0.00	0.00	0.00
8	0.71	0.71	0.00	0.26	0.39	0.13
9	0.11	0.11	0.00	0.05	0.08	0.03
11				0.00	0.00	
Total	28.99	28.99	0.00	9.13	12.87	3.74

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.39	0.15	0.07	0.00	0.00	0.00	0.00
3	0.00	2.35	0.51	0.28	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.53	0.16	0.08	0.00	0.00	0.00	0.00
6	0.00	3.09	0.87	0.34	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.19	0.04	0.03	0.00	0.00	0.00	0.00
9	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	6.59	1.74	0.80	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.09	0.09	0.00	0.00	0.20	0.20	0.00	0.00	0.09	0.06	0.00	0.00	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.01	0.01	0.00
3	0.00	0.62	0.62	0.00	0.00	1.34	1.01	0.00	0.00	0.31	0.20	0.00	0.00	0.19	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00	0.00	0.09	0.04	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.09	0.13	0.13	0.13	0.10	0.14	0.14	0.14	0.03	0.04	0.04	0.04	0.03	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.02	0.02
6	0.76	0.76	0.76	0.57	0.82	0.82	0.82	0.62	0.25	0.25	0.19	0.19	0.09	0.06	0.11	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.00	0.00	0.11	0.08
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.03	0.03	0.05	0.06	0.03	0.03	0.05	0.07	0.01	0.01	0.01	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
9	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.89**	**1.65**	**1.67**	**0.78**	**0.97**	**2.55**	**2.24**	**0.84**	**0.29**	**0.69**	**0.51**	**0.26**	**0.12**	**0.30**	**0.26**	**0.12**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.05**	**0.16**	**0.17**	**0.05**	**0.00**	**0.10**	**0.20**	**0.11**

Wally System

Access to W3	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	21.01	21.01	0.00	1.79	2.50	0.71
2	9.67	9.67	0.00	1.46	1.79	0.33
3	82.89	82.89	0.00	18.92	24.54	5.62
4	23.92	23.92	0.00	5.91	8.75	2.84
5	12.01	12.01	0.00	4.69	6.93	2.24
6	100.10	100.10	0.00	51.10	76.56	25.47
7	137.63	137.63	0.00	35.02	51.36	16.34
8	29.16	29.16	0.00	10.64	16.08	5.44
9	115.81	115.81	0.00	53.72	81.22	27.50
11				0.00	0.00	
Total	532.20	532.20	0.00	183.25	269.74	86.49

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	1.03	0.62	0.14	0.00	0.00	0.00	0.00
2	0.00	0.94	0.36	0.16	0.00	0.00	0.00	0.00
3	0.00	14.17	3.07	1.67	0.00	0.00	0.00	0.00
4	0.00	4.09	1.42	0.40	0.00	0.00	0.00	0.00
5	0.00	3.23	0.98	0.48	0.00	0.00	0.00	0.00
6	0.00	36.68	10.37	4.04	0.00	0.00	0.00	0.00
7	0.00	23.53	9.17	2.32	0.00	0.00	0.00	0.00
8	0.00	7.84	1.73	1.08	0.00	0.00	0.00	0.00
9	0.00	39.61	9.43	4.68	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	131.12	37.14	14.98	0.00	0.00	0.00	0.00

Habitat type area : Lost Habitat Units per Species per Life Function

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.48	0.48	0.00	0.00	0.51	0.51	0.00	0.00	0.16	0.47	0.00	0.00	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.00	0.00	0.07	0.00	0.00
2	0.00	0.22	0.22	0.00	0.00	0.47	0.47	0.00	0.00	0.21	0.14	0.00	0.00	0.10	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.03	0.03	0.00
3	0.00	3.75	3.75	0.00	0.00	8.10	6.07	0.00	0.00	1.84	1.23	0.00	0.00	1.12	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.52	0.00	0.00	0.52	0.26	0.00
4	0.00	1.08	1.08	1.62	0.00	1.17	1.17	1.75	0.00	0.18	0.71	0.53	0.00	0.08	0.08	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.11	0.11	0.00	0.00	0.15	0.22
5	0.54	0.81	0.81	0.81	0.59	0.88	0.88	0.88	0.18	0.27	0.27	0.27	0.16	0.08	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.08	0.06	0.00	0.00	0.15	0.11
6	9.05	9.05	9.05	6.79	9.78	9.78	9.78	7.34	2.96	2.96	2.22	2.22	1.01	0.67	1.35	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.47	0.47	0.47	0.00	0.00	1.25	0.94
7	0.00	3.11	6.22	12.45	0.00	3.36	6.72	13.45	0.00	1.02	4.07	4.07	0.00	0.00	0.46	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.86	0.00	0.00	0.86	1.72
8	1.32	1.32	1.98	2.64	1.42	1.42	2.14	2.85	0.22	0.22	0.43	0.86	0.39	0.00	0.29	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.18	0.18	0.00	0.00	0.36	0.36
9	10.48	5.24	10.48	10.48	11.32	5.66	11.32	11.32	2.57	1.71	1.71	3.43	1.17	0.39	1.56	1.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.18	0.54	0.72	0.00	0.00	1.45	1.45
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**21.39**	**25.06**	**34.07**	**34.79**	**23.11**	**31.36**	**39.07**	**37.58**	**5.93**	**8.57**	**11.26**	**11.39**	**2.73**	**2.51**	**4.56**	**5.18**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.30**	**1.38**	**2.67**	**2.40**	**0.00**	**0.61**	**4.51**	**4.81**

Dogleg System

Dogleg Pond	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.03	0.03	0.00	0.00	0.00	0.00
2	1.26	1.32	0.06	0.19	0.20	0.01
3	9.23	9.69	0.46	2.11	2.21	0.11
4	0.37	0.38	0.02	0.09	0.09	0.00
5	1.08	1.13	0.05	0.42	0.44	0.02
6	1.38	1.45	0.07	0.70	0.74	0.04
7	3.32	3.49	0.17	0.85	0.89	0.04
8	3.43	3.60	0.17	1.25	1.31	0.06
9	1.06	1.11	0.05	0.49	0.52	0.02
11						
Total	21.15	22.21	1.06	6.10	6.41	0.31

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.12	0.05	0.02	0.00	0.00	0.00	0.00
3	0.00	1.58	0.34	0.19	0.00	0.00	0.00	0.00
4	0.00	0.06	0.02	0.01	0.00	0.00	0.00	0.00
5	0.00	0.29	0.09	0.04	0.00	0.00	0.00	0.00
6	0.00	0.51	0.14	0.06	0.00	0.00	0.00	0.00
7	0.00	0.57	0.22	0.06	0.00	0.00	0.00	0.00
8	0.00	0.92	0.20	0.13	0.00	0.00	0.00	0.00
9	0.00	0.36	0.09	0.04	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	4.41	1.15	0.54	0.00	0.00	0.00	0.00

Habitat type area : Lost Habitat Units per Species per Life Function

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.03	0.03	0.00	0.00	0.06	0.06	0.00	0.00	0.03	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
3	0.00	0.42	0.42	0.00	0.00	0.90	0.68	0.00	0.00	0.20	0.14	0.00	0.00	0.12	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.06	0.03	0.00
4	0.00	0.02	0.02	0.02	0.00	0.02	0.02	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.05	0.07	0.07	0.07	0.05	0.08	0.08	0.08	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01
6	0.12	0.12	0.12	0.09	0.13	0.13	0.13	0.10	0.04	0.04	0.03	0.03	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.01
7	0.00	0.08	0.15	0.30	0.00	0.08	0.16	0.32	0.00	0.02	0.10	0.10	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.02	0.04
8	0.15	0.15	0.23	0.31	0.17	0.17	0.25	0.33	0.03	0.03	0.05	0.10	0.05	0.00	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.00	0.00	0.04	0.04
9	0.10	0.05	0.10	0.10	0.10	0.05	0.10	0.10	0.02	0.02	0.02	0.03	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.42**	**0.94**	**1.14**	**0.90**	**0.46**	**1.50**	**1.49**	**0.97**	**0.11**	**0.37**	**0.39**	**0.29**	**0.09**	**0.16**	**0.16**	**0.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.03**	**0.08**	**0.12**	**0.06**	**0.00**	**0.06**	**0.14**	**0.12**

Dogleg System

Dogleg North Pond	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.19	0.22	0.03	0.00	0.02	0.02
2	0.23	0.26	0.03	0.00	0.04	0.04
3	2.13	2.45	0.32	0.00	0.56	0.56
4	0.22	0.26	0.03	0.00	0.06	0.06
5	0.24	0.27	0.04	0.00	0.11	0.11
6	0.21	0.24	0.03	0.00	0.12	0.12
7						
8						
9						
11						
Total	3.22	3.70	0.48	0.00	0.91	0.91

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	0	0	0	0	0	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Habitat type area : Lost Habitat Units per Species per Life Function

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.10	0.10	0.00	0.00	0.21	0.16	0.00	0.00	0.05	0.03	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00
4	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.01	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.03**	**0.15**	**0.15**	**0.05**	**0.03**	**0.27**	**0.22**	**0.05**	**0.01**	**0.07**	**0.06**	**0.01**	**0.01**	**0.04**	**0.02**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.01**	**0.01**	**0.01**

Other Onsite Compensation
Net Gains

TOTAL BY FEATURE - Summary

Dogleg System						
NP-2	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.00	0.00	0.00	0.00	0.00	0.00
2	0.16	0.16	0.01	0.02	0.02	0.01
3	3.95	4.15	0.20	0.76	0.95	0.19
4	0.03	0.03	0.00	0.01	0.01	0.00
5	0.59	0.62	0.03	0.18	0.24	0.06
6	0.96	1.01	0.05	0.39	0.52	0.12
7	1.04	1.10	0.05	0.20	0.28	0.08
8	1.28	1.35	0.06	0.39	0.49	0.10
9	0.64	0.67	0.03	0.24	0.31	0.07
11				0.00	0.00	
Total	**8.66**	**9.09**	**0.43**	**2.19**	**2.82**	**0.63**

Third Portage Lake						
Finger Dikes	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1			0.00	0.00	0.00	0.00
2			0.00	0.00	0.00	0.00
3			0.00	0.00	0.00	0.00
4			0.00	0.00	0.00	0.00
5			0.00	0.00	0.00	0.00
6		0.50	0.50	0.00	0.42	0.42
7	1.00		-1.00	0.41	0.00	-0.41
8			0.00	0.00	0.00	0.00
9		0.50	0.50	0.00	0.39	0.39
11			0.00	0.00	0.00	0.00
Total	**1.00**	**1.00**	**0.00**	**0.41**	**0.82**	**0.40**

PRE-COMPENSATION HUs - Species Totals

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	0	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.68	0.00	0.08	0.00	0.00	0.00	0.00
4	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.16	0.00	0.02	0.00	0.00	0.00	0.00
6	0.00	0.35	0.00	0.04	0.00	0.00	0.00	0.00
7	0.00	0.18	0.00	0.02	0.00	0.00	0.00	0.00
8	0.00	0.34	0.00	0.05	0.00	0.00	0.00	0.00
9	0.00	0.22	0.00	0.03	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	1.95	0.00	0.24	0.00	0.00	0.00	0.00

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.16	0.17	0.07	0.02	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.16	0.17	0.07	0.02	0.00	0.00	0.00	0.00

PRE-COMPENSATION HUs -Species Sub-Totals

Habitat type area : Lost Habitat Units per Species per Life Function																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.18	0.18	0.00	0.00	0.39	0.29	0.00	0.00	0.09	0.06	0.00	0.00	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.02	0.01	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.03	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
6	0.09	0.09	0.09	0.07	0.09	0.09	0.09	0.07	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
7	0.00	0.02	0.05	0.09	0.00	0.03	0.05	0.10	0.00	0.01	0.03	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01
8	0.06	0.06	0.09	0.12	0.06	0.06	0.09	0.13	0.01	0.01	0.02	0.04	0.02	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.02	0.02
9	0.06	0.03	0.06	0.06	0.06	0.03	0.06	0.06	0.01	0.01	0.01	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.23**	**0.42**	**0.50**	**0.38**	**0.25**	**0.65**	**0.64**	**0.41**	**0.06**	**0.16**	**0.16**	**0.12**	**0.04**	**0.07**	**0.07**	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.04**	**0.05**	**0.03**	**0.00**	**0.03**	**0.06**	**0.05**

Habitat type area x HSI x species weight x life function weight																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.02	0.05	0.09	0.00	0.02	0.05	0.10	0.00	0.01	0.03	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.02**	**0.05**	**0.09**	**0.00**	**0.02**	**0.05**	**0.10**	**0.00**	**0.01**	**0.03**	**0.03**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.01**	**0.01**

Other Onsite Compensation
Net Gains

TOTAL BY FEATURE - Summary | **POST-COMPENSATION HUs - Species Totals** | **HU GAINS -Species Sub-Totals**

Vault Lake

Access to Wally	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.00	0.00	0.00	0.00	0.00	0.00
2	10.41	10.41	0.00	1.58	1.93	0.35
3	33.96	33.96	0.00	7.75	10.06	2.30
4	0.00	0.00	0.00	0.00	0.00	0.00
5	10.55	10.55	0.00	4.12	6.09	1.97
6	12.03	12.03	0.00	6.14	9.20	3.06
7	0.00	0.00	0.00	0.00	0.00	0.00
8	16.67	16.67	0.00	6.08	9.19	3.11
9	4.86	4.86	0.00	2.25	3.41	1.15
11	38.24	38.24	0.00	11.79	16.97	5.19
Total	126.72	126.72	0.00	39.71	56.85	17.14

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0.75	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.35	1.02	0.39	0.18	0.00	0.00	0.00	0.00
3	2.30	5.81	1.26	0.69	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	1.97	2.83	0.86	0.43	0.00	0.00	0.00	0.00
6	3.06	4.41	1.25	0.49	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	3.11	4.48	0.99	0.62	0.00	0.00	0.00	0.00
9	1.15	1.66	0.40	0.20	0.00	0.00	0.00	0.00
11	5.19	9.34	1.42	1.03	0.00	0.00	0.00	0.00
Total	17.14	29.55	6.55	3.62	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.24	0.24	0.00	0.00	0.51	0.51	0.00	0.00	0.23	0.15	0.00	0.00	0.11	0.07	0.00
3	0.00	1.54	1.54	0.00	0.00	3.32	2.49	0.00	0.00	0.75	0.50	0.00	0.00	0.46	0.23	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.48	0.72	0.72	0.72	0.52	0.77	0.77	0.77	0.16	0.23	0.23	0.23	0.14	0.07	0.11	0.11
6	1.09	1.09	1.09	0.82	1.18	1.18	1.18	0.88	0.36	0.36	0.27	0.27	0.12	0.08	0.16	0.12
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.75	0.75	1.13	1.51	0.81	0.81	1.22	1.63	0.12	0.12	0.25	0.49	0.22	0.00	0.17	0.22
9	0.44	0.22	0.44	0.44	0.47	0.24	0.47	0.47	0.11	0.07	0.07	0.14	0.05	0.02	0.07	0.07
11	0.00	0.00	3.46	3.46	1.87	0.00	3.74	3.74	0.00	0.00	0.28	1.13	0.00	0.00	0.51	0.51
Total	**2.76**	**4.55**	**8.60**	**6.94**	**4.85**	**6.83**	**10.38**	**7.49**	**0.74**	**1.77**	**1.76**	**2.27**	**0.54**	**0.73**	**1.32**	**1.03**

Species >>	SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.03	0.03	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.21	0.00	0.00	0.21	0.11	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.07	0.05	0.00	0.00	0.13	0.10
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.06	0.06	0.00	0.00	0.15	0.11
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.10	0.10	0.00	0.00	0.21	0.21
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.02	0.03	0.00	0.00	0.06	0.06
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.18	0.24	0.00	0.00	0.00	0.48
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.22**	**0.40**	**0.71**	**0.48**	**0.00**	**0.24**	**0.69**	**0.96**

Phaser Lake

Access to W3	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.00	0.00	0.00	0.00	0.00	0.00
2	4.01	4.01	0.00	0.61	0.74	0.14
3	13.76	13.76	0.00	3.14	4.07	0.93
4	0.00	0.00	0.00	0.00	0.00	0.00
5	1.97	1.97	0.00	0.77	1.14	0.37
6	8.43	8.43	0.00	4.30	6.44	2.14
7	0.00	0.00	0.00	0.00	0.00	0.00
8	0.71	0.71	0.00	0.26	0.39	0.13
9	0.11	0.11	0.00	0.05	0.08	0.03
11				0.00	0.00	
Total	28.99	28.99	0.00	9.13	12.87	3.74

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0.75	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.14	0.39	0.15	0.07	0.00	0.00	0.00	0.00
3	0.93	2.35	0.51	0.28	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.37	0.53	0.16	0.08	0.00	0.00	0.00	0.00
6	2.14	3.09	0.87	0.34	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.13	0.19	0.04	0.03	0.00	0.00	0.00	0.00
9	0.03	0.04	0.01	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.74	6.59	1.74	0.80	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.09	0.09	0.00	0.00	0.20	0.20	0.00	0.00	0.09	0.06	0.00	0.00	0.04	0.03	0.00
3	0.00	0.62	0.62	0.00	0.00	1.34	1.01	0.00	0.00	0.31	0.20	0.00	0.00	0.19	0.09	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.09	0.13	0.13	0.13	0.10	0.14	0.14	0.14	0.03	0.04	0.04	0.04	0.03	0.01	0.02	0.02
6	0.76	0.76	0.76	0.57	0.82	0.82	0.82	0.62	0.25	0.25	0.19	0.19	0.09	0.06	0.11	0.09
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.03	0.03	0.05	0.06	0.03	0.03	0.05	0.07	0.01	0.01	0.01	0.02	0.01	0.00	0.01	0.01
9	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.89**	**1.65**	**1.67**	**0.78**	**0.97**	**2.55**	**2.24**	**0.84**	**0.29**	**0.69**	**0.51**	**0.26**	**0.12**	**0.30**	**0.26**	**0.12**

Species >>	SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.01	0.01	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00	0.00	0.09	0.04	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.02	0.02
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.00	0.00	0.11	0.08
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.05**	**0.16**	**0.17**	**0.05**	**0.00**	**0.10**	**0.20**	**0.11**

Wally System

Access to W3	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	21.01	21.01	0.00	1.79	2.50	0.71
2	9.67	9.67	0.00	1.46	1.79	0.33
3	82.89	82.89	0.00	18.92	24.54	5.62
4	23.92	23.92	0.00	5.91	8.75	2.84
5	12.01	12.01	0.00	4.69	6.93	2.24
6	100.10	100.10	0.00	51.10	76.56	25.47
7	137.63	137.63	0.00	35.02	51.36	16.34
8	29.16	29.16	0.00	10.64	16.08	5.44
9	115.81	115.81	0.00	53.72	81.22	27.50
11				0.00	0.00	
Total	532.20	532.20	0.00	183.25	269.74	86.49

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0.75	1	1	1	1	1	0	0
1	0.71	1.03	0.62	0.14	0.00	0.00	0.00	0.00
2	0.33	0.94	0.36	0.16	0.00	0.00	0.00	0.00
3	5.62	14.17	3.07	1.67	0.00	0.00	0.00	0.00
4	2.84	4.09	1.42	0.40	0.00	0.00	0.00	0.00
5	2.24	3.23	0.98	0.48	0.00	0.00	0.00	0.00
6	25.47	36.68	10.37	4.04	0.00	0.00	0.00	0.00
7	16.34	23.53	9.17	2.32	0.00	0.00	0.00	0.00
8	5.44	7.84	1.73	1.08	0.00	0.00	0.00	0.00
9	27.50	39.61	9.43	4.68	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	86.49	131.12	37.14	14.98	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.48	0.48	0.00	0.00	0.51	0.51	0.00	0.00	0.16	0.47	0.00	0.00	0.07	0.07	0.00
2	0.00	0.22	0.22	0.00	0.00	0.47	0.47	0.00	0.00	0.21	0.14	0.00	0.00	0.10	0.07	0.00
3	0.00	3.75	3.75	0.00	0.00	8.10	6.07	0.00	0.00	1.84	1.23	0.00	0.00	1.12	0.56	0.00
4	0.00	1.08	1.08	1.62	0.00	1.17	1.17	1.75	0.00	0.18	0.71	0.53	0.00	0.08	0.08	0.24
5	0.54	0.81	0.81	0.81	0.59	0.88	0.88	0.88	0.18	0.27	0.27	0.27	0.16	0.08	0.12	0.12
6	9.05	9.05	9.05	6.79	9.78	9.78	9.78	7.34	2.96	2.96	2.22	2.22	1.01	0.67	1.35	1.01
7	0.00	3.11	6.22	12.45	0.00	3.36	6.72	13.45	0.00	1.02	4.07	4.07	0.00	0.00	0.46	1.85
8	1.32	1.32	1.98	2.64	1.42	1.42	2.14	2.85	0.22	0.22	0.43	0.86	0.39	0.00	0.29	0.39
9	10.48	5.24	10.48	10.48	11.32	5.66	11.32	11.32	2.57	1.71	1.71	3.43	1.17	0.39	1.56	1.56
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**21.39**	**25.06**	**34.07**	**34.79**	**23.11**	**31.36**	**39.07**	**37.58**	**5.93**	**8.57**	**11.26**	**11.39**	**2.73**	**2.51**	**4.56**	**5.18**

Species >>	SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.00	0.00	0.07	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.03	0.03	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.52	0.00	0.00	0.52	0.26	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.11	0.11	0.00	0.00	0.15	0.22
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.08	0.06	0.00	0.00	0.15	0.11
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.47	0.47	0.47	0.00	0.00	1.25	0.94
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.86	0.00	0.00	0.86	1.72
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.18	0.18	0.00	0.00	0.36	0.36
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.18	0.54	0.72	0.00	0.00	1.45	1.45
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.30**	**1.38**	**2.67**	**2.40**	**0.00**	**0.61**	**4.51**	**4.81**

Dogleg System

Dogleg Pond	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.03	0.03	0.00	0.00	0.00	0.00
2	1.26	1.32	0.06	0.19	0.20	0.01
3	9.23	9.69	0.46	2.11	2.21	0.11
4	0.37	0.38	0.02	0.09	0.09	0.00
5	1.08	1.13	0.05	0.42	0.44	0.02
6	1.38	1.45	0.07	0.70	0.74	0.04
7	3.32	3.49	0.17	0.85	0.89	0.04
8	3.43	3.60	0.17	1.25	1.31	0.06
9	1.06	1.11	0.05	0.49	0.52	0.02
11						
Total	21.15	22.21	1.06	6.10	6.41	0.31

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.13	0.05	0.02	0.00	0.00	0.00	0.00
3	0.00	1.66	0.36	0.20	0.00	0.00	0.00	0.00
4	0.00	0.07	0.02	0.01	0.00	0.00	0.00	0.00
5	0.00	0.30	0.09	0.05	0.00	0.00	0.00	0.00
6	0.00	0.53	0.15	0.06	0.00	0.00	0.00	0.00
7	0.00	0.60	0.23	0.06	0.00	0.00	0.00	0.00
8	0.00	0.97	0.21	0.13	0.00	0.00	0.00	0.00
9	0.00	0.38	0.09	0.04	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	4.63	1.21	0.57	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.03	0.03	0.00	0.00	0.06	0.06	0.00	0.00	0.03	0.02	0.00	0.00	0.01	0.01	0.00
3	0.00	0.44	0.44	0.00	0.00	0.95	0.71	0.00	0.00	0.22	0.14	0.00	0.00	0.13	0.07	0.00
4	0.00	0.02	0.02	0.03	0.00	0.02	0.02	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
5	0.05	0.08	0.08	0.08	0.06	0.08	0.08	0.08	0.02	0.03	0.03	0.03	0.02	0.01	0.01	0.01
6	0.13	0.13	0.13	0.10	0.14	0.14	0.14	0.11	0.04	0.04	0.03	0.03	0.01	0.01	0.02	0.01
7	0.00	0.08	0.16	0.32	0.00	0.09	0.17	0.34	0.00	0.03	0.10	0.10	0.00	0.00	0.01	0.05
8	0.16	0.16	0.24	0.33	0.18	0.18	0.26	0.35	0.03	0.03	0.05	0.11	0.05	0.00	0.04	0.05
9	0.10	0.05	0.10	0.10	0.11	0.05	0.11	0.11	0.02	0.02	0.02	0.03	0.01	0.00	0.01	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.45**	**0.99**	**1.20**	**0.94**	**0.48**	**1.57**	**1.56**	**1.02**	**0.11**	**0.38**	**0.41**	**0.31**	**0.09**	**0.17**	**0.17**	**0.14**

Species >>	SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.06	0.03	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.02	0.04
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.00	0.00	0.04	0.04
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.01	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.03**	**0.09**	**0.13**	**0.07**	**0.00**	**0.06**	**0.15**	**0.13**

Dogleg System

Dogleg North Pond	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.19	0.22	0.03	0.00	0.02	0.02
2	0.23	0.26	0.03	0.00	0.04	0.04
3	2.13	2.45	0.32	0.00	0.56	0.56
4	0.22	0.26	0.03	0.00	0.06	0.06
5	0.24	0.27	0.04	0.00	0.11	0.11
6	0.21	0.24	0.03	0.00	0.12	0.12
7						
8						
9						
11						
Total	3.22	3.70	0.48	0.00	0.91	0.91

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
2	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00
3	0.00	0.42	0.09	0.05	0.00	0.00	0.00	0.00
4	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.00
5	0.00	0.07	0.02	0.01	0.00	0.00	0.00	0.00
6	0.00	0.09	0.03	0.01	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.66	0.17	0.08	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.11	0.11	0.00	0.00	0.24	0.18	0.00	0.00	0.05	0.04	0.00	0.00	0.03	0.02	0.00
4	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
5	0.01	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00
6	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.03**	**0.17**	**0.17**	**0.05**	**0.04**	**0.31**	**0.25**	**0.06**	**0.01**	**0.08**	**0.06**	**0.02**	**0.01**	**0.04**	**0.03**	**0.01**

Species >>	SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.02	0.01	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.02**	**0.02**	**0.01**

Other Onsite Compensation
Net Gains

TOTAL BY FEATURE - Summary

Dogleg System						
NP-2	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.00	0.00	0.00	0.00	0.00	0.00
2	0.16	0.16	0.01	0.02	0.02	0.01
3	3.95	4.15	0.20	0.76	0.95	0.19
4	0.03	0.03	0.00	0.01	0.01	0.00
5	0.59	0.62	0.03	0.18	0.24	0.06
6	0.96	1.01	0.05	0.39	0.52	0.12
7	1.04	1.10	0.05	0.20	0.28	0.08
8	1.28	1.35	0.06	0.39	0.49	0.10
9	0.64	0.67	0.03	0.24	0.31	0.07
11				0.00	0.00	
Total	**8.66**	**9.09**	**0.43**	**2.19**	**2.82**	**0.63**

Third Portage Lake						
Finger Dikes	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1			0.00	0.00	0.00	0.00
2			0.00	0.00	0.00	0.00
3			0.00	0.00	0.00	0.00
4			0.00	0.00	0.00	0.00
5			0.00	0.00	0.00	0.00
6		0.50	0.50	0.00	0.42	0.42
7	1.00		-1.00	0.41	0.00	-0.41
8			0.00	0.00	0.00	0.00
9		0.50	0.50	0.00	0.39	0.39
11			0.00	0.00	0.00	0.00
Total	**1.00**	**1.00**	**0.00**	**0.41**	**0.82**	**0.40**

POST-COMPENSATION HUs - Species Totals

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00
3	0.00	0.71	0.15	0.08	0.00	0.00	0.00	0.00
4	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.17	0.05	0.03	0.00	0.00	0.00	0.00
6	0.00	0.37	0.10	0.04	0.00	0.00	0.00	0.00
7	0.00	0.19	0.07	0.02	0.00	0.00	0.00	0.00
8	0.00	0.36	0.08	0.05	0.00	0.00	0.00	0.00
9	0.00	0.23	0.05	0.03	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	2.05	0.52	0.25	0.00	0.00	0.00	0.00

HU total per species x access weight								
Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.17	0.18	0.05	0.02	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.16	0.17	0.04	0.02	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.33	0.35	0.09	0.04	0.00	0.00	0.00	0.00

HU GAINS -Species Sub-Totals

Habitat type area x HSI x species weight x life function weight																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.19	0.19	0.00	0.00	0.41	0.30	0.00	0.00	0.09	0.06	0.00	0.00	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.03	0.01	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.03	0.04	0.04	0.04	0.03	0.05	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
6	0.09	0.09	0.09	0.07	0.10	0.10	0.10	0.07	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
7	0.00	0.02	0.05	0.10	0.00	0.03	0.05	0.11	0.00	0.01	0.03	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01
8	0.06	0.06	0.09	0.12	0.07	0.07	0.10	0.13	0.01	0.01	0.02	0.04	0.02	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.02	0.02
9	0.06	0.03	0.06	0.06	0.07	0.03	0.07	0.07	0.01	0.01	0.01	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.24**	**0.44**	**0.53**	**0.39**	**0.26**	**0.68**	**0.68**	**0.43**	**0.06**	**0.17**	**0.16**	**0.13**	**0.04**	**0.07**	**0.08**	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.04**	**0.05**	**0.03**	**0.00**	**0.03**	**0.07**	**0.05**

Habitat type area x HSI x species weight x life function weight																																				
Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.05	0.05	0.05	0.03	0.05	0.05	0.05	0.04	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.05	0.02	0.05	0.05	0.05	0.02	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.09**	**0.07**	**0.09**	**0.08**	**0.10**	**0.07**	**0.10**	**0.09**	**0.03**	**0.02**	**0.02**	**0.03**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.01**	**0.01**

Compensation Contingency Options

TOTAL BY FEATURE - Summary | **HU LOSSES - Species Totals** | **HU LOSSES -Species Sub-Totals**

Second Portage Lake

Sea Mounts	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1			0.00	0.00	0.00	0.00
2			0.00	0.00	0.00	0.00
3			0.00	0.00	0.00	0.00
4			0.00	0.00	0.00	0.00
5			0.00	0.00	0.00	0.00
6		1.25	1.25	0.00	1.06	1.06
7	1.25		-1.25	0.52	0.00	-0.52
8			0.00	0.00	0.00	0.00
9			0.00	0.00	0.00	0.00
11			0.00	0.00	0.00	0.00
Total	1.25	1.25	0.00	0.52	1.06	0.55

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.20	0.21	0.08	0.02	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.20	0.21	0.08	0.02	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.03	0.06	0.11	0.00	0.03	0.06	0.12	0.00	0.01	0.04	0.04	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.02
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.03**	**0.06**	**0.11**	**0.00**	**0.03**	**0.06**	**0.12**	**0.00**	**0.01**	**0.04**	**0.04**	**0.00**	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.01**	**0.02**

Second Portage Lake

East Dike Extension	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1			0.00	0.00	0.00	0.00
2			0.00	0.00	0.00	0.00
3			0.00	0.00	0.00	0.00
4			0.00	0.00	0.00	0.00
5			0.00	0.00	0.00	0.00
6		5.00	5.00	0.00	4.25	4.25
7	5.00		-5.00	2.06	0.00	-2.06
8			0.00	0.00	0.00	0.00
9			0.00	0.00	0.00	0.00
11			0.00	0.00	0.00	0.00
Total	5.00	5.00	0.00	2.06	4.25	2.18

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.79	0.86	0.33	0.08	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.79	0.86	0.33	0.08	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.11	0.23	0.45	0.00	0.12	0.24	0.49	0.00	0.04	0.15	0.15	0.00	0.00	0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.03	0.06
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.11**	**0.23**	**0.45**	**0.00**	**0.12**	**0.24**	**0.49**	**0.00**	**0.04**	**0.15**	**0.15**	**0.00**	**0.00**	**0.02**	**0.07**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.03**	**0.00**	**0.00**	**0.03**	**0.06**

Third Portage Lake

Finger Dike Extension	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1			0.00	0.00	0.00	0.00
2			0.00	0.00	0.00	0.00
3			0.00	0.00	0.00	0.00
4			0.00	0.00	0.00	0.00
5			0.00	0.00	0.00	0.00
6		11.00	11.00	0.00	9.35	9.35
7	11.00		-11.00	4.54	0.00	-4.54
8			0.00	0.00	0.00	0.00
9			0.00	0.00	0.00	0.00
11			0.00	0.00	0.00	0.00
Total	11.00	11.00	0.00	4.54	9.35	4.81

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	1.74	1.88	0.73	0.19	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.74	1.88	0.73	0.19	0.00	0.00	0.00	0.00

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.25	0.50	1.00	0.00	0.27	0.54	1.07	0.00	0.08	0.33	0.33	0.00	0.00	0.04	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.07	0.00	0.00	0.07	0.14
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.25**	**0.50**	**1.00**	**0.00**	**0.27**	**0.54**	**1.07**	**0.00**	**0.08**	**0.33**	**0.33**	**0.00**	**0.00**	**0.04**	**0.15**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.05**	**0.07**	**0.00**	**0.00**	**0.07**	**0.14**

Airiplane System

Airplane Access	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.20	0.20	0.00	0.02	0.03	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00
3	16.62	16.62	0.00	3.64	3.87	0.23
4	4.63	4.63	0.00	1.36	1.47	0.11
5	0.00	0.00	0.00	0.00	0.00	0.00
6	7.89	7.89	0.00	4.29	4.55	0.26
7	23.26	23.26	0.00	7.46	8.12	0.65
8	0.00	0.00	0.00	0.00	0.00	0.00
9	1.08	1.08	0.00	0.51	0.55	0.04
11			0.00	0.00	0.00	0.00
Total	53.67	53.67	0.00	17.28	18.57	1.30

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	0.5
1	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	1.35	1.87	0.19	0.00	0.00	0.00	0.23
4	0.00	0.37	0.83	0.04	0.00	0.00	0.00	0.11
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	1.37	2.48	0.18	0.00	0.00	0.00	0.26
7	0.00	1.88	4.71	0.22	0.00	0.00	0.00	0.65
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.17	0.27	0.02	0.00	0.00	0.00	0.04
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	5.15	10.18	0.65	0.00	0.00	0.00	1.30

Habitat type area Lost Habitat Units per Species per Life Function

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.52	0.52	0.00	0.00	0.77	0.58	0.00	0.00	1.12	0.75	0.00	0.00	0.12	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.31	0.16	0.00
4	0.00	0.14	0.14	0.22	0.00	0.11	0.11	0.16	0.00	0.10	0.42	0.31	0.00	0.01	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.00	0.00	0.09	0.13
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.49	0.49	0.49	0.37	0.36	0.36	0.36	0.27	0.71	0.71	0.53	0.53	0.04	0.03	0.06	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.00	0.00	0.30	0.22
7	0.00	0.36	0.73	1.45	0.00	0.27	0.54	1.08	0.00	0.52	2.09	2.09	0.00	0.00	0.04	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.15	0.00	0.00	0.44	0.87
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.07	0.03	0.07	0.07	0.05	0.02	0.05	0.05	0.07	0.05	0.05	0.10	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.04	0.04
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.56**	**1.56**	**1.95**	**2.11**	**0.41**	**1.54**	**1.64**	**1.56**	**0.78**	**2.51**	**3.85**	**3.03**	**0.05**	**0.17**	**0.18**	**0.25**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.04**	**0.15**	**0.28**	**0.21**	**0.00**	**0.31**	**1.01**	**1.26**

Airiplane System

WQ Improvement	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.53	0.53	0.00	0.03	0.07	0.03
2	0.00	0.00	0.00	0.00	0.00	0.00
3	44.21	44.21	0.00	5.15	10.29	5.15
4	12.31	12.31	0.00	1.95	3.90	1.95
5	0.00	0.00	0.00	0.00	0.00	0.00
6	20.98	20.98	0.00	6.05	12.10	6.05
7	61.87	61.87	0.00	10.80	21.60	10.80
8	0.00	0.00	0.00	0.00	0.00	0.00
9	2.86	2.86	0.00	0.73	1.45	0.73
11	0.00	0.00	0.00	0.00	0.00	0.00
Total	142.76	142.76	0.00	24.70	49.41	24.70

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
H co-factor x	0	0.5	0.5	0.5	0.5	0.5	0	0.5
1	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	1.79	2.49	0.25	0.00	0.00	0.00	0.62
4	0.00	0.50	1.11	0.06	0.00	0.00	0.00	0.29
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	1.82	3.30	0.24	0.00	0.00	0.00	0.69
7	0.00	2.50	6.26	0.29	0.00	0.00	0.00	1.74
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.23	0.35	0.03	0.00	0.00	0.00	0.11
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	6.85	13.54	0.87	0.00	0.00	0.00	3.45

Habitat type area Lost Habitat Units per Species per Life Function

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	1.38	1.38	0.00	0.00	2.04	1.53	0.00	0.00	2.98	1.99	0.00	0.00	0.33	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.28	0.00	0.00	0.83	0.41	0.00
4	0.00	0.38	0.38	0.58	0.00	0.28	0.28	0.43	0.00	0.28	1.11	0.83	0.00	0.02	0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.06	0.00	0.00	0.23	0.35
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1.31	1.31	1.31	0.98	0.97	0.97	0.97	0.73	1.89	1.89	1.42	1.42	0.12	0.08	0.16	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.00	0.00	0.79	0.59
7	0.00	0.97	1.93	3.87	0.00	0.72	1.43	2.86	0.00	1.39	5.57	5.57	0.00	0.00	0.12	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.39	0.00	0.00	1.16	2.32
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.18	0.09	0.18	0.18	0.13	0.07	0.13	0.13	0.19	0.13	0.13	0.26	0.02	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.02	0.00	0.00	0.11	0.11
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**1.49**	**4.14**	**5.20**	**5.61**	**1.10**	**4.09**	**4.36**	**4.15**	**2.08**	**6.68**	**10.25**	**8.07**	**0.13**	**0.44**	**0.48**	**0.67**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.12**	**0.40**	**0.74**	**0.56**	**0.00**	**0.83**	**2.70**	**3.36**

Compensation Contingency Options

TOTAL BY FEATURE - Summary

Second Portage Lake

Sea Mounts	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1			0.00	0.00	0.00	0.00
2			0.00	0.00	0.00	0.00
3			0.00	0.00	0.00	0.00
4			0.00	0.00	0.00	0.00
5			0.00	0.00	0.00	0.00
6		1.25	1.25	0.00	1.06	1.06
7	1.25		-1.25	0.52	0.00	-0.52
8			0.00	0.00	0.00	0.00
9			0.00	0.00	0.00	0.00
11			0.00	0.00	0.00	0.00
Total	1.25	1.25	0.00	0.52	1.06	0.55

Second Portage Lake

East Dike Extension	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1			0.00	0.00	0.00	0.00
2			0.00	0.00	0.00	0.00
3			0.00	0.00	0.00	0.00
4			0.00	0.00	0.00	0.00
5			0.00	0.00	0.00	0.00
6		5.00	5.00	0.00	4.25	4.25
7	5.00		-5.00	2.06	0.00	-2.06
8			0.00	0.00	0.00	0.00
9			0.00	0.00	0.00	0.00
11			0.00	0.00	0.00	0.00
Total	5.00	5.00	0.00	2.06	4.25	2.18

Third Portage Lake

Finger Dike Extension	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1			0.00	0.00	0.00	0.00
2			0.00	0.00	0.00	0.00
3			0.00	0.00	0.00	0.00
4			0.00	0.00	0.00	0.00
5			0.00	0.00	0.00	0.00
6		11.00	11.00	0.00	9.35	9.35
7	11.00		-11.00	4.54	0.00	-4.54
8			0.00	0.00	0.00	0.00
9			0.00	0.00	0.00	0.00
11			0.00	0.00	0.00	0.00
Total	11.00	11.00	0.00	4.54	9.35	4.81

Airiplane System

Airplane Access	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.20	0.20	0.00	0.02	0.03	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00
3	16.62	16.62	0.00	3.64	3.87	0.23
4	4.63	4.63	0.00	1.36	1.47	0.11
5	0.00	0.00	0.00	0.00	0.00	0.00
6	7.89	7.89	0.00	4.29	4.55	0.26
7	23.26	23.26	0.00	7.46	8.12	0.65
8	0.00	0.00	0.00	0.00	0.00	0.00
9	1.08	1.08	0.00	0.51	0.55	0.04
11			0.00	0.00	0.00	0.00
Total	53.67	53.67	0.00	17.28	18.57	1.30

Airiplane System

WQ Improvement	Hectares			HU		
Habitat Type	Pre-	Post-	Net	Pre-	Post-	Net
1	0.53	0.53	0.00	0.03	0.07	0.03
2	0.00	0.00	0.00	0.00	0.00	0.00
3	44.21	44.21	0.00	5.15	10.29	5.15
4	12.31	12.31	0.00	1.95	3.90	1.95
5	0.00	0.00	0.00	0.00	0.00	0.00
6	20.98	20.98	0.00	6.05	12.10	6.05
7	61.87	61.87	0.00	10.80	21.60	10.80
8	0.00	0.00	0.00	0.00	0.00	0.00
9	2.86	2.86	0.00	0.73	1.45	0.73
11	0.00	0.00	0.00	0.00	0.00	0.00
Total	142.76	142.76	0.00	24.70	49.41	24.70

HU GAINS - Species Totals

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.42	0.46	0.13	0.05	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.42	0.46	0.13	0.05	0.00	0.00	0.00	0.00

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1.70	1.83	0.52	0.20	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.70	1.83	0.52	0.20	0.00	0.00	0.00	0.00

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	1	1	1	1	1	1	0	0
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	3.73	4.03	1.14	0.44	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.73	4.03	1.14	0.44	0.00	0.00	0.00	0.00

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
Access >>	0	1	1	1	1	1	0	1
1	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	1.35	1.87	0.19	0.00	0.00	0.00	0.47
4	0.00	0.37	0.83	0.04	0.00	0.00	0.00	0.22
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	1.37	2.48	0.18	0.00	0.00	0.00	0.52
7	0.00	1.88	4.71	0.22	0.00	0.00	0.00	1.31
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.17	0.27	0.02	0.00	0.00	0.00	0.08
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	5.15	10.18	0.65	0.00	0.00	0.00	2.59

HU total per species x access weight

Species >>	ARCH	LKTR	RNWH	BURB	SLSC	NNST	CISC	ARGR
H Co-Factor	0	1	1	1	1	1	0	1
1	0.00	0.01	0.05	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	3.58	4.97	0.50	0.00	0.00	0.00	1.24
4	0.00	1.00	2.22	0.12	0.00	0.00	0.00	0.58
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	3.64	6.61	0.47	0.00	0.00	0.00	1.38
7	0.00	5.01	12.53	0.58	0.00	0.00	0.00	3.48
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.46	0.71	0.06	0.00	0.00	0.00	0.21
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	13.70	27.08	1.73	0.00	0.00	0.00	6.90

HU GAINS -Species Sub-Totals

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.11	0.11	0.11	0.08	0.12	0.12	0.12	0.09	0.04	0.04	0.03	0.03	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.11	0.11	0.11	0.08	0.12	0.12	0.12	0.09	0.04	0.04	0.03	0.03	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.01

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	1.00	1.00	1.00	0.75	1.07	1.07	1.07	0.81	0.33	0.33	0.24	0.24	0.11	0.07	0.15	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.00	0.00	0.14	0.10
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.00	1.00	1.00	0.75	1.07	1.07	1.07	0.81	0.33	0.33	0.24	0.24	0.11	0.07	0.15	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.00	0.00	0.14	0.10

Habitat type area x HSI x species weight x life function weight

Species >>	ARCH				LKTR				RNWH				BURB				SLSC				NNST				CISC				ARGR			
Life Function >>	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW	SP	NU	FO	OW
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.38	0.38	0.58	0.00	0.28	0.28	0.43	0.00	0.28	1.11	0.83	0.00	0.02	0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.06	0.00	0.00	0.23	0.35
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	1.31	1.31	1.31	0.98	0.97	0.97	0.97	0.73	1.89	1.89	1.42	1.42	0.12	0.08	0.16	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.00	0.00	0.79	0.59
9	0.00	0.97	1.93	3.87	0.00	0.72	1.43	2.86	0.00	1.39	5.57	5.57	0.00	0.00	0.12	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.39	0.00	0.00	1.16	2.32
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.18	0.09	0.18	0.18	0.13	0.07	0.13	0.13	0.19	0.13	0.13	0.26	0.02	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.02	0.00	0.00	0.11	0.11
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.49	4.14	5.20	5.61	1.10	4.09	4.36	4.15	2.08	6.68	10.25	8.07	0.13	0.44	0.48	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.40	0.74	0.56	0.00	0.83	2.70	3.36