



CVRD Soil Deposit Permit Application

Coast Mountain Resources
Trowsse Rd Fill Site Expansion Area
Trowsse Road, Bamberton, B.C.

Type "C" Soil Deposit Permit Application

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Prepared for:

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COAST MOUNTAIN RESOURCES
BAMBERTON
AGGREGATE QUARRY & FILL SITES



Entrance area to Trowsse Rd. Fill Site off Trans-Canada Highway

TABLE of CONTENTS

A. Introduction and Type “C” Soil Deposit Permit Application Form	Page 5
1 Introduction	Page 5
2 Site Location	Page 5
3 Land Use and Site Features	Page 5
4 Type “C” Soil Deposit Permit Application Form	Page 6
B. Title Search	Page 6
1 Date of Title Search	Page 6
2 Covenants, Statutory Rights of Way, and Easements	Page 6
C. Site Survey and Access Plan	Page 7
1 Legal Survey	Page 7
2 Structures and Private Infrastructure	Page 7
3 Public Infrastructure	Page 7
4 Existing Water Infrastructure and Conditions	Page 8
5 Pre-deposit Topography	Page 8
6 Existing and Proposed Accesses	Page 8
D. Soil Assessment and Deposit Plan	Page 9
1 Proposed Location and Final Contours	Page 9
2 Proposed Volume Calculations	Page 9
3 Schedule and Phasing of Soil Deposit	Page 9
4 Controlling Access to Site	Page 8
5 Documenting Soil Origin and Composition	Page 9
6 Monitoring Soil Placement	Page 10
7 Safeguards Against Dangers from Flooding, Erosion, or Landslide	Page 10

TABLE of CONTENTS Con't

E. Environmental Protection Plan	Page 12
1 Erosion and Sedimentation Control	Page 12
2 Protecting Riparian Assessment Areas	Page 12
3 Measures to Minimize and Cleaning Tracked Soil	Page 12
4 Measures to Minimize Dust	Page 13
5 Measures for On-site Drainage and Storm Water Control	Page 13
6 Measures for Controlling Weeds and Invasive Species	Page 13
F. Site Remediation Plan	Page 14
1 Site Final Grading	Page 14
2 Final Drainage and Storm Water Management	Page 15
3 Final Noxious Weeds and Invasive Species Control	Page 15

LIST of FIGURES

Figure 1:	Site Location Map
Figure 2:	Existing Fill Site Features Map
Figure 3:	Pre-Deposition Contour Map
Figure 4:	Post-Deposition Contour Plan
Figure 5:	Final Site Remediation Plan

ATTACHMENTS

Attachment 1:	Type "C" Soil Deposit Permit Application Form
Attachment 2:	Title Search Documents
Attachment 3:	Legal Survey Maps
Attachment 4:	CMR's Soil Declaration Form - Blank
Attachment 5:	CMR's Fill Receiving Environmental Policy

A. INTRODUCTION AND TYPE "C" SOIL DEPOSIT APPLICATION FORM

1. Introduction

This document has been prepared for a soil deposit permit application being submitted by Coast Mountain Resources Limited (CMR) on behalf of the Malahat Investment Corporation. As per Cowichan Valley Regional District (CVRD) Bylaw 4236, this application represents an intention by CMR to obtain a permit to deposit soil in volumes greater than 1000 m³ on lands located within the CVRD.

2. Site Location

The Trowsse Rd. soil deposit site (the fill site) is located on the south end of Vancouver Island in Area "A" (Malahat/Mill Bay) of the CVRD (see Figure 1). The soil deposit site requiring a CVRD permit is a new area that is to place fill beyond the limits of a backfilled mine site. The CMR filling activities within this mine site area have been operating since 2014 and are nearing completion.

The fill site is within the old Bamberton cement plant lands on privately owned District Lot 127. The fill site is in a section of DL 127 that is immediately east of and adjacent to Trowsse Road and immediately south of DL 102. The parcel ID number is PID 001-170-406.

The remaining portion of the parcel has the same owner and is located east, west, and south of the fill site. The parcel extends as far as the Saanich Inlet to the east. Another private land owner owns DL102 to the north and has a fill site on her property as well. The Trans-Canada Highway is located 300m to the west of the site.

3. Land Use and Site Features

Covering a total area of 6.2 hectares, the fill site is situated within the CVRD on lands designated as Bamberton Light Industrial (I-1A) zoning. The surface has been logged and naturally reforested and is now covered in a combination of mid size cedar, fir and arbutus. The topography is characterized as an east facing moderate slope. Elevations range from 85 metres to a maximum of 143 metres.

Downslope and central to the fill site is a monitoring well and settlement pond installed as part of operating the fill site. An incised gulley lies below the fill site to the east and represents the head of an intermittent drainage that provides runoff containment from the fill site during periods of high rainfall. The incised gulley area is zoned Rural Resource 1 (RUR 1).

4. Type “C” Soil Deposit Permit Application Form

A Type “C” Soil Deposit Permit Application form with the land owner’s signature is included with this submission. Payment for this application of \$2000.00 has been deposited in advance. See Attachment 1 for a copy of the completed application form and payment.

B. TITLE SEARCH

1. Date of Title Search

A title search was conducted on March 16, 2020 and is provided as Attachment 2 for title documents related to this search. The parcel ID number is PID 001-170-406. The full legal description of the parcel is District Lot 127, Malahat District, Except Parts In Plans 591 RW, 1062 RW and 1065 RW. (Note the “Parts In Plans” are property changes pertaining to the realignment of the Trans Canada Hwy back in 1959)

2. Covenants, Statutory Rights of Way, and Easements

Only one right of way exists going through the Trowsse Rd. Fill Site area. This private right of way is for a high voltage power-line corridor which brings power to neighbouring properties. The properties and ROW are under the same ownership group. See Figure 2 showing this right of way – Plan 2110 R/W.

No other easements or covenants have been identified as directly applicable to the Fill Site area. Explanations of all covenants and easements attached to the DL127 land title are given in attachment 2. Covenants concerning SPEA (Streamside Protection & Enhancement Areas) and SE (Sensitive Ecosystems) are applicable to DL 127. Assessments for SPEA and SE for all of DL127 are currently being conducted.

C. Site Survey and Access Plan

1. Legal Survey

A legal survey of the property, DL 127, was completed on February 20th, 1912. A more recent legal survey of the northern boundary, which has close proximity to the fill site, was completed on April 16th, 1984 as part of the survey for DL 102. The fill site is located entirely within the northern portion of the DL 127 property area east of Trowsse Road and 13m south of DL 102. Attachment 3 provides a copy of the legal survey of DL102 with the Fill Site Boundary drawn in adjacent. The boundary between DL 102 and DL 127 is clearly identified and this surveyed line is still present in the field.

2. Structures and Private Infrastructure

The fill site is private vacant land that has been naturally reforested over the last 50 years. This new fill site area and its activities will be an extension of current filling activities taking place as a reclamation project of an old permitted gravel pit. Monitoring wells, settling ponds, gates and access roads have been constructed and are in utilization for the current filling activities. A high voltage powerline runs through the site that is owned by the fill site landowner. There are no other structures or private infrastructure located on the site.

3. Public Infrastructure

There are no public lands or facilities within 20m of the fill site. Access to the site is off of a privately owned section of Trowsse Road. DL 102 is a privately owned neighbouring property that is located 13m north of the fill site boundary. The Trans-Canada Highway is 300m to the west. The fill site land owner, Malahat Investment Corporation, owns the vacant adjacent land to the west, east and south of the fill site.

See Figure 2 for an existing fill site features map. This map includes both private and public infrastructure, water features and existing access points to the fill site.

4. Existing Water Infrastructure and Conditions

Near and below the south east corner of the fill site exists a large incised ravine hosting a watercourse that channels water directly down to Saanich Inlet. Generally the ravine is dry during most of the year with detectable surface flows limited to the rainy season (November to March). The fill sites native material is primarily porous granular materials which allow surface water to infiltrate the sub surface. No other drainage courses have been identified within or near the fill site area.

Monitoring wells have been constructed to monitor the water quality in and around the fill site. There are no other wells or septic systems within 30 metres of the fill site.

5. Pre-deposit Topography

Terra Remote Sensing Inc. provided high definition LIDAR data from a survey completed in July 2015. The data was used to produce digital contour maps at 1.0 metre elevation intervals of the fill site. Fill has been placed into the adjoining reclamation site since 2014 by CMR and others before this time. The contour mapping has been recently updated to the existing conditions before this application was made.

Refer to Figure 3 for a CMR Pre-deposition Contour Map. This map includes the fill site boundary and the surrounding property boundaries.

6. Existing and Proposed Accesses

The existing gated entrances to the site are shown on Figure 2. These three main access points will be maintained and utilized during the life of the fill site. A fourth entrance will be reconstructed at the south-east end of the fill site, through MICO's land, which will be used for utility services only.

D. SOIL ASSESSMENT AND DEPOSIT PLAN

1. Proposed Location and Final Contours

Soil will be deposited to target bench elevations of 142 and 125 metres and will cover a total area of 5.7 hectares within the fill site boundaries. Final slopes will be constructed to a stable 2:1 ratio. An access road will be maintained along the northern boundary to separate the fill site from the neighbouring property. Some natural stable slopes that currently exist in the fill site area will be retained. Going forward, agreements and permit amendments may be completed to extend the fill site beyond its current boundaries.

Refer to Figure 4 for a Post-Deposition Contour Plan.

2. Proposed Volume of Soil to be Deposited

Proposed soil deposit volume calculations are approximately 500,000 m³. This amount was calculated by comparing current elevations derived from the LIDAR dataset with a proposed final elevation model designed by CMR. Fill volume calculations were determined using Global Mapper Version 19.1.

3. Schedule and Phasing of Soil Deposition

To date approximately 20,000 m³ of fill material has been placed on site by CMR. Soil deposition will likely continue over the next 7 years at a projected rate of 80,000 m³ per year. When an area is completed, final grading and reclamation activities will take place.

4. Controlling Access to Site

Access to the site will be controlled through the use of gates at the main points of access, concrete barricades, signage, a forested buffer zone where possible, and temporary berms.

5. Documenting Origins and Composition of Soil

CMR maintains strict requirements for soil assessment before soil is permitted to be deposited at the fill site. Any potential source of fill will be reviewed by both the soil generator (or their environmental consultant) and CMR.

The soil must meet the following fill criteria:

- Fill material substance concentrations must meet BC Environmental Management Act (EMA) Contaminated Sites Regulation (CSR) B.C. Reg. 375/96, [includes amendments up to B.C. Reg 253/2016, November 1, 2017] regulations, including: Schedule 3.1 – Numerical Soil Standards for Residential Low Density (Column 6) and Schedule 3.3 – Generic Numerical Vapour Standards for Agricultural, Urban Park, Residential (Column 3).
- Fill material must not contain odour, staining, sheen or prohibited wastes (asbestos, PCBs, creosote timbers, etc.).
- The soil generator must fill out a clean fill declaration and an application to deposit fill from a particular site including the details of interest concerning that site.

A copy of the Clean Fill Declaration and Application form is shown in Attachment 4.

In addition, CMR has a Fill Receiving Site Environmental Policy that all parties must review and follow prior to fill being deposited at CMR managed sites. This policy can be found in Attachment 5.

6. Monitoring Soil Placement

Soil is monitored for placement by a full time CMR employee. Each truck is directed to a particular area of the fill site. Large soil generating projects have their own large areas reserved for the deposit of their specific fill material. The fill-site advancement plan places the material in a single lift to ensure material from one source is not placed on top of another source. Surveys of the site are systematically (minimum semi-annually) conducted to measure the placement and advancement of the fill site. All trucks are ticketed either immediately before or after they dump their loads.

An annual report is produced to summarize the placement of the fill and its monitoring. Included in this report is a summary of the environmental monitoring of the fill and the condition of surface water flows surrounding the fill site.

7. Safeguards Against Dangers from Flooding, Erosion, or Landslide

The location of the fill site has been carefully selected for fill placement in a topographical setting that will minimize the risk of flooding, erosion or landslide of the fill site. These dangers are also mitigated utilizing operating procedures that adhere to best practices that include:

- Within the fill site, existing down slope catchment berms, both natural and man-made will be utilized. The existence of un-compacted, active fill slopes will be minimized. Active slopes will be protected against erosion with proper grading and internal ditching.
- Surrounding the fill site, surface water will be controlled through maintaining perimeter ditches.
- Fill placement will be scheduled to take place only during times of the year when the fill site is structurally sound enough to handle the weather conditions for that particular time of the year.
- The quality of in-bound fill material will be controlled to prevent erosion or landslides from occurring within the fill site.
- An additional safeguard against erosion will be to remediate areas as soon as practical, once an area of the fill site is completely filled.

E. ENVIRONMENTAL PROTECTION PLAN

1. Erosion and Sedimentation Control

Similar to the safeguards for preventing erosion in section D.7 above, all surface water from upstream sources will be diverted away from the active fill site. The top flat surface of the fill site will be graded to control flows developing from heavy rainfall events. The deposited soil will be graded as it is placed so that positive gravity drainage is assured. Surface water will be controlled so no additional runoff will be directed onto adjacent lands.

The minimal amounts of surface water that is collected from the fill site will be directed to settling ponds. From the settling ponds, much of this collected surface water will seep into native granular materials in the base of the settling pond.

The settling pond and outflow control structures will be monitored for performance, and adjustments and maintenance will be made where necessary.

2. Protecting Riparian Assessment Areas

The fill site was selected to avoid sensitive environmental features. No watercourses flow through the fill site area and no riparian assessment areas are present. Flows will not be changed to the watercourse that exists below and to the east of the site. All existing and new surface water flows will be protected from sedimentation and other fill site activities. This protection will be achieved through engineering best practices; some of these practices are described in sections D.7 and E.1 above.

3. Measures to Minimize and Cleaning Tracked Soil

Several measures will be utilized to minimize the tracking of wet sticky fill outside of the designated disposal area. They are:

- Timing of fill placement to primarily the dry season when the fill and fill site is dry.
- Utilizing rock from CMR's quarry activities to rock-in the fill site surface.

- If necessary, constructing a wheel wash to rinse truck wheels upon exiting the site.
- Utilize private roads where possible in situation when soil is tracked.
- Employ street sweepers and/or water trucks to clean up tracked soil onto public roads.

4. Measures to Minimize Dust

Measures will be utilized if necessary to control dust but generally the production of dust is limited and will not be a serious issue at this fill site. The main haulage routes outside the fill site are paved. Main haulage routes inside the fill site will be rocked in to control trucks kicking up dust while transiting the site. The fill itself has enough moisture and cohesiveness to control dust from generating in high winds. Final reclamation activities will ensure minimal dust generation, after fill activities are completed.

5. Measures for On-site Drainage and Storm Water Control

Several measures will be utilized to control on-site drainage and storm water. Scheduling of fill placement and the timely grading of the fill site will be the primary tools to control the on-site drainage. Grading and control structures must be in place for when the storm season arrives. Water control structures include simple ditching, steep angle ditches with rip rap protection, culverts, and seepage/settling ponds.

6. Measures for Controlling Weeds and Invasive Species

Two principal measures will be utilized for controlling weeds and invasive species. The first measure will be to restrict soils that contain clearing debris which often contains noxious weeds. CMR will work with the fill providers to ensure compliance. If there is any suspicion that the soil contains noxious weeds, the soil must be placed so it is encapsulated within the core of the fill site to prevent growth and the spread of noxious weeds.

The second measure will be to complete filled areas to their final remediation grades as soon as possible and then have the area hydro seeded to prevent unwanted growth from invasive species. A visual example of this preventative hydro seeding work completed by CMR is included at the end of section "F" of this document.

Note: In addition to the above measures for creating an Environmental Protection Plan, CMR's Emergency Response Plan includes a Fuel Management and Spill Contingency component. Within this component is the Hydrocarbon Spill Emergency Plan to protect the deposited fill material from unwanted spills.

F. SITE REMEDIATION PLAN

1. Site Final Grading

Final site grading will be completed to the end land-use site remediation plan. The final grading will be completed primarily with the use of dozers. The weight of the dozers compacts and stabilizes the fill as well as leaves horizontal imprints in the soil to enhance the growth of desirable vegetation. The dozers will finish the slopes to 2 to 1 and the flat areas to 1% grade. Excavators will be used for ditching and other final grading purposes.

Rocked in areas (for fill placement purposes) will be constructed to final grade in their initial development as much as practical so these areas can remain to provide a well compacted, solid area for roadways and other future uses.

Depending on the land owner's end land-use plan, additional flat areas may be rocked in to provide multi-purpose use once the filling activities are completed.

2. Final Drainage and Storm Water Management

A final drainage scheme has been created to handle surface flows, including any water from heavy storm events, once the fill site development is completed. This final drainage scheme will be constructed in progressive stages as the fill site is developed. In section E.5, measures for controlling the storm water are described.

See Figure 5, for a “Final Site Remediation Plan” which includes a final plan for surface water management. This plan shows the anticipated surface water flows at the end of the project.

3. Final Noxious Weeds and Invasive Species Control

The final site remediation plan contains measures to control noxious weeds and invasive plant species. As mentioned above, rocked-in areas will be left undisturbed; this will discourage growth of any vegetation. Most of the rocked-in areas will be final roadways and pads for future use. Non rocked-in areas will be planted with some form of desired vegetation to prevent the infiltration of invasive plant species and the growth of other noxious weeds. This may include some reforestation work depending on the end land use.

Hydro-seeding (as shown below) will be the likely method to remediate (cover) a majority of the Trowsse Rd Fill Site slopes, once the site is finished to grade. A blend of Fall Rye and Vancouver Highways Blend will be the seed recipe for the hydro seeding remediation efforts.

In the end, the site’s remediation plan objective is to close the Trowsse Rd Fill Site in a state that is appropriate for future light industrial use.



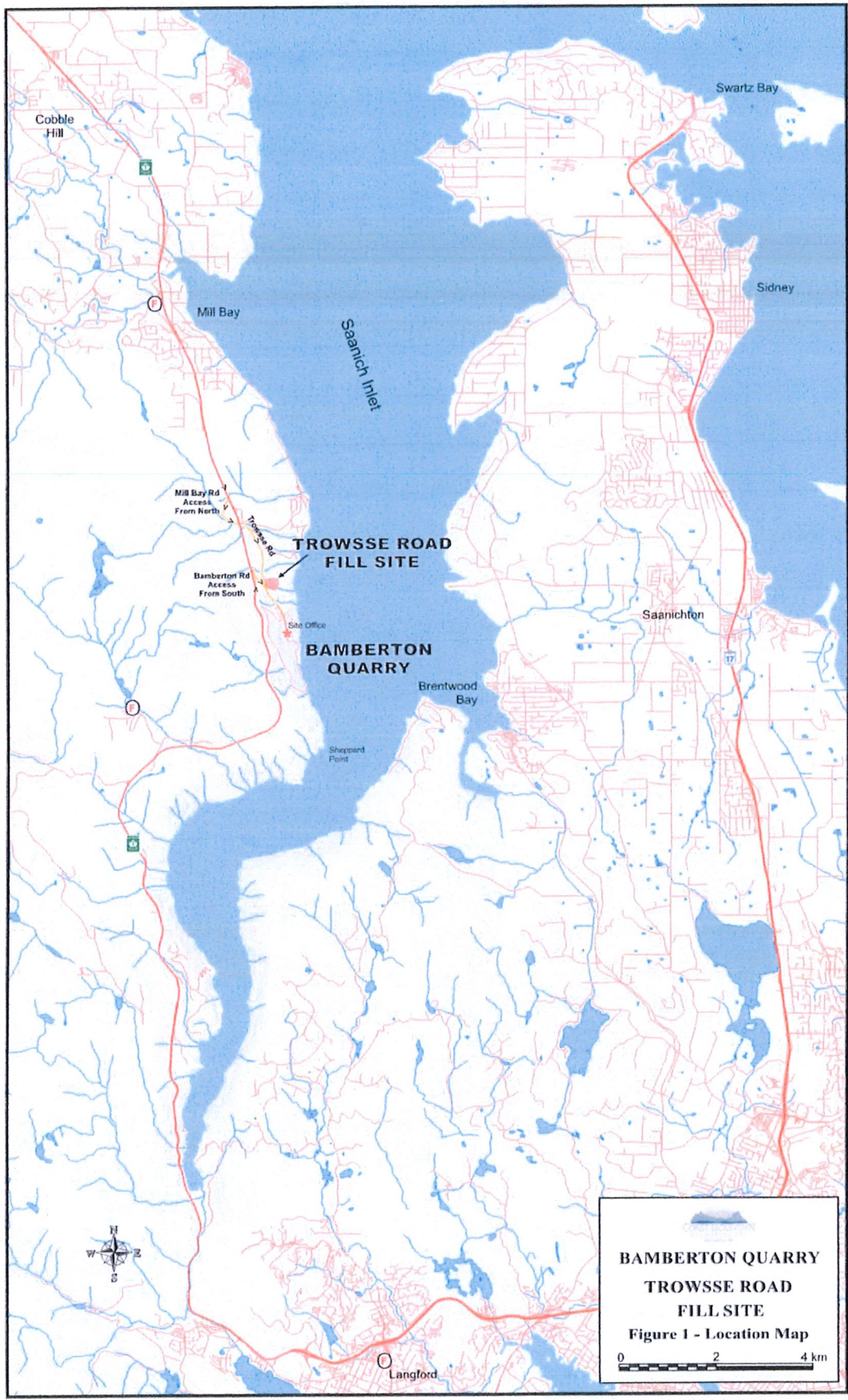
Example of CMR Remediated 2 to 1 Fill Slope with Hydro-Seeding in the CVRD

This application is made by the agent (Coast Mountain Resources) on behalf of the owner (Malahat Investment Corporation). To the best of CMR's knowledge, the supporting information of this application is true and correct in all respects. All data contained herein has been reviewed and interpreted by, or under the direct supervision of Richard M. Grainger, P.Eng.

Dated: April 14, 2020

By: R.M. Grainger, P.Eng.





**BAMBERTON QUARRY
TROWSE ROAD
FILL SITE**
Figure 1 - Location Map
0 2 4 km

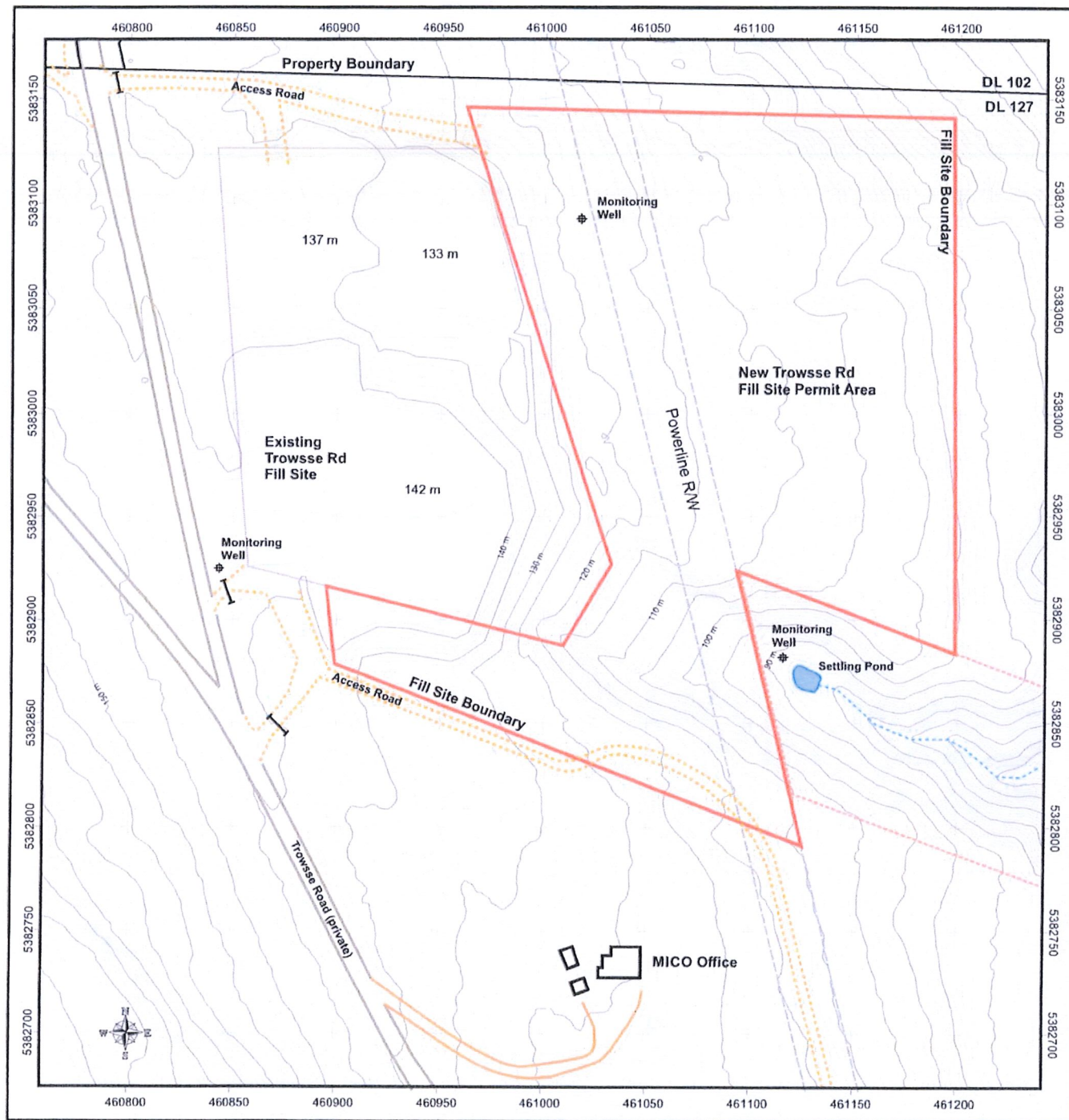


FIGURE 2
Existing Fill Site Features Map

0 50 100 m
 UTM Zone 10
 Contour Interval 1.0 m

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 Trowsse Fill Site CVRD Application
 Dated: 2020-03-16



FIGURE 3
Pre-Deposition Contour Map

0 50 100 m
 UTM Zone 10
 Contour Interval 1.0 m

Coast Mountain Resources
 Trowse Fill Site CVRD Application
 Dated: 2020-03-16



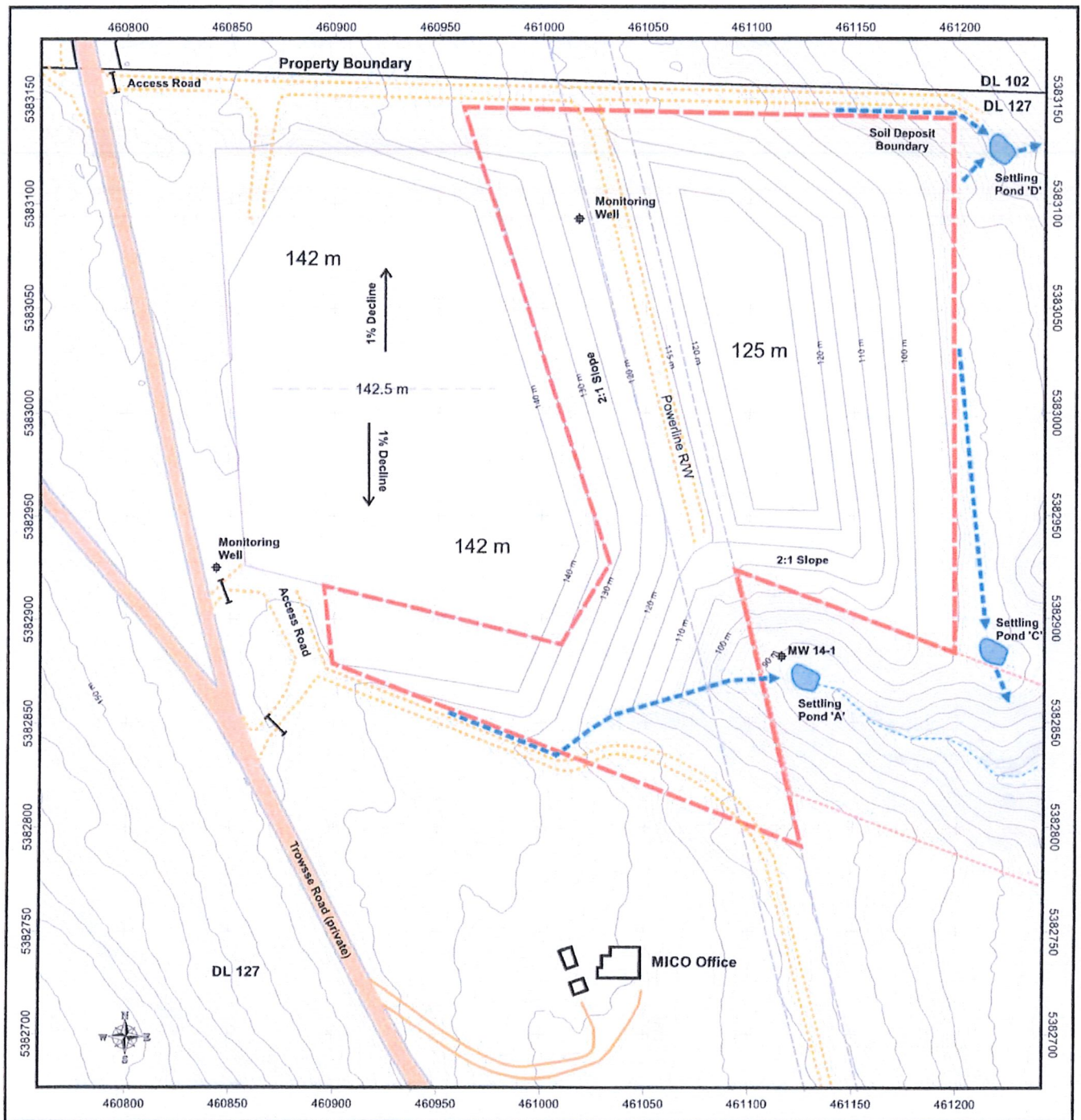


FIGURE 5
Final Site Remediation Plan

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Surface Water Flows 

0 50 100 m
 UTM Zone 10
 Contour Interval 1.0 m