

Quarry Rehabilitation on Private and Municipal Land Program PROGRAM OVERVIEW

Manitoba Natural Resources and Northern Development is providing a third intake for the application based the Quarry Rehabilitation on Private and Municipal Land Program (Program) to support rehabilitation of depleted quarries/pits on private and municipal land.

Completed applications for rehabilitation will be accepted from legal landowners up to a maximum of \$200,000.00. **The deadline for applications is June 15 2022.**

Only legal landowners can be named as an applicant and are responsible to provide all project details and associated cost estimates. Applicants from individuals/companies that are not on the Status of Title are not eligible.

Only completed applications will be accepted and all applications are required to meet eligibility requirements to be considered for funding. An on-line electronic **Application form** and **Application Instruction Guide** is available at: https://www.gov.mb.ca/iem/mines/quarry_rehab/index.html

A risk assessment will be undertaken on all eligible quarries and pits in the event that requests exceed available funding and projects are prioritized.

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PROGRAM OVERVIEW

Eligibility Requirements

The landowner must submit a completed application by the deadline date. A project must be on a Manitoba property where:

- 1) the applicant (landowner) can demonstrate that they are the registered owner of a property with an aggregate quarry or pit as confirmed by a current Status of Title (issued within last 30 days);
- 2) a Registration Certificate has been issued for the property since 1992;
- 3) a Rehabilitation Levy has been paid in respect to aggregate production from the subject property;
- 4) rehabilitation project funding has not been provided for the subject property for the project proposed within the last five years;
- 5) the proposed project is an eligible activity under the program and funding is only being requested to achieve the Quarry Rehabilitation Standards at the end of this document or link: [QRStandard](#); and
- 6) all completed applications must be received by **June 15 2022**.

Risk Assessment

The Program will also undertake a risk assessment on each of the eligible quarries/pits based upon such factors as:

- distance from communities and/or recreational area or trail;
- average height of embankments;
- average slopes of embankments;
- presence of loose material impacting embankment stability;
- presence of dust emissions;
- presence of noxious weeds; and
- site considered an eyesore.

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The quarry/pit will be assigned risk assessment points based on the risk assessment. A risk assessment score will then be calculated as follows:

$$\text{Risk Assessment Score} = \frac{\text{Funding Request (up to \$200,000)}}{\text{Risk Assessment Points}}$$

The risk assessment score may be used to prioritize projects for funding in the event that:

- total requests exceed available funding; and/or
- landowner applicant submits project(s) that total more than the maximum of \$200,000.

Rehabilitation (Mines and Minerals Act Definition)

Rehabilitation means, in respect of an aggregate quarry/pit, the actions to be taken for the purpose of:

- protecting the environment against adverse effects resulting from operations at the site or quarry;
- minimizing the detrimental impact on adjoining lands of operations at the site or quarry;
- minimizing hazards to public safety resulting from operations at the site or quarry; and
- leaving the site or quarry in a state that is compatible with adjoining land uses and that conforms, where applicable, to a zoning by-law or development plan under The Planning Act and to the specifications, limits, terms and conditions of a licence issued under The Environment Act in respect of the project.

Quarry Rehabilitation on Private and Municipal Land Program

QUESTIONS AND ANSWERS (Q&A)

ELIGIBILITY CONSIDERATIONS

1) Who is eligible to apply?

Eligible landowner applicants are:

- individual(s)
- corporation/company
- Municipality

that own property with an aggregate quarry or pit that has been depleted, is no longer in use or requires progressive rehabilitation.

Only legal landowner(s) can be an applicant under the program and must match at least one name on a current Status of Title that must be submitted as part of the application.

A landowner applicant can appoint a representative to act on their behalf (i.e. be primary contact for providing and receiving documents/communication including for determining eligibility under the program). In addition to the mandatory landowner applicant section, an optional section has been included for the representative contact information.

Note: The landowner must be the applicant; sign the funding agreement and will be the recipient for program funding.

2) What is an aggregate?

An aggregate is defined in The Mines and Mineral Act as a quarry mineral that is used solely for construction purposes or as a constituent of concrete other than in the manufacture of cement. It includes sand, gravel, clay, and crushed stone/rock.

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3) What information is used by the Program to assess eligibility?

Landowner applicants (or their representative) are responsible to complete their application by providing all of the information used by the Program to assess eligibility.

This includes:

- information provided in the on-line application form;
- current Status of Title;
- photos, maps, satellite imagery, etc. on proposed project; and
- responding to any follow-up questions, site visits, or requests for additional information by the Program or its outside service provider.

4) What types of projects are funded under the program?

Eligible project activities include:

- sloping and grading;
- movement of oversize boulders and other materials;
- spreading of overburden and topsoil; [NOTE: purchase of topsoil is not eligible] and
- seeding of graded areas.

The application form requires that individual activities under the project are provided with individual cost estimates.

NEW Equipment rates cannot exceed the MHCA heavy equipment rates

NEW Seeding - Only the cost of seed may be claimed. Costs for pickup, delivery and application of the seed are not eligible under this program. Purchase of seed may be approved this year and placed the following year for late fall projects.

Refer to Quarry Rehabilitation Standards at the end of this document or link:

[QRStandard.](#)

5) Are taxes eligible for funding under the Program?

Yes, associated Goods and Services Tax (GST) and Provincial Sales Tax (PST) are eligible for funding under the Program as part of the application process and must form

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part of the grant funding (up to \$200,000) request. The landowner and contractor are responsible for managing the terms of the contract, including the issuance and payment of taxes.

6) Is rehabilitation work that turns my quarry into a wetland or to stock my lake eligible for funding under the Program?

The objective of the program is to ensure that depleted pits and quarries are rehabilitated to a condition that is "safe and environmentally stable." Achievement of this general standard involves sloping embankments and spreading the available overburden and topsoil stripping stockpiles back over the surface.

If you as the landowner wish to initiate further site development, to establish a housing subdivision, wetlands, or a golf course, you must do so at own expense. Please note that the landowner is also responsible for ensuring that they are in compliance with any federal, provincial or municipal requirements.

7) I previously applied for the Rehabilitation Program. Do I need to re-apply in order to be eligible under the Program?

Yes, only completed applications received after the program announcement and by **June 15 2022** will be considered for eligibility under the Program. No other submissions or requests for funding will be considered.

8) I do not know or cannot locate whether a Rehabilitation Levy has been paid or if a Registration Certificate (PQ) number has been issued on the property. Am I still eligible?

Yes, upon receiving your application, the department will verify this information if the landowner/applicant has been unable to provide it.

9) My property had a rehabilitation project done within the last five years. Is it eligible for this program?

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Yes, if progressive rehabilitation can be demonstrated, that shows continuous or phased rehabilitation, the project may be eligible under this program. Please refer to: [ProgressiveRehabilitation](#) for additional information.

10) I cannot find information about whether past rehabilitation work was done in the last five years. Am I still eligible?

Yes, upon receiving application, the department will verify this information if the landowner/applicant has been unable to provide it.

11) My spouse and I jointly own one property and we separately own other properties. Are we both eligible for \$200,000?

No, you are considered to be a related person, which includes your spouse or common-law partner and any corporation controlled by either of you, whether solely or jointly.

12) I own one parcel in my own name, but am also a shareholder in a corporation that owns a separate parcel. Are both of these eligible for \$200,000 in funding?

If you own more than 50 per cent of the voting shares of a corporation you are deemed to have direct corporate control. In this instance, you would only be eligible for up to \$200,000 on both of these parcels.

If you own less than 50 per cent of the voting shares of a corporation, you are not deemed to have direct corporate control. In this instance you may be eligible for \$200,000 for each of the parcels, depending on the situation of the other shareholders.

13) How will eligible projects be ranked for funding?

Upon receiving applications, a risk assessment will be undertaken on all eligible applications, which can then be ranked based a risk assessment score if prioritization of projects is required. Applicants are not required to calculate this as part of the application form. The lower the risk assessment score, the higher the ranking. The risk assessment score will be calculated as follows:

Risk Assessment Score = Funding Request (up to \$200,000)

Quarry Rehabilitation on Private and Municipal Land Program QUESTIONS AND ANSWERS (Q&A)

Risk Assessment

The Risk Assessment Score may be used to prioritize projects in the event that:

- total requests exceed available funding; and/or
- landowner applicant submits multiple projects that total more than the \$200,000 maximum.

14) I have submitted three applications for separate projects totalling \$600,000.

How will the Program determine which eligible project to fund?

Each project will first be separately assessed for eligibility. Once this has been completed, all eligible applications will be ranked based on the risk assessment score outlined above. Funding will be provided to the eligible project(s), based upon the ranking up to a maximum of \$200,000.

PROGRESSIVE REHABILITATION

15) Are progressive rehabilitation projects eligible under the Program?

Yes, if progressive rehabilitation can be demonstrated that the proposed project is a new activity or for an area or section of the quarry or pit site where no rehabilitation funding and/or work has occurred within the last five years.

The required documentation must clearly demonstrate the section where previous rehabilitation has occurred and funding provided, and the different section where the proposed project is planned.

Quarry Rehabilitation on Private and Municipal Land Program QUESTIONS AND ANSWERS (Q&A)

APPLICATION FORM

16) What is the deadline date for Applications?

Applications will be accepted until midnight, **June 15 2022**.

17) I submitted my application by the deadline date. When will I hear back?

The target notification date is: **July 15 2022**.

18) What is the difference between a “Landowner Applicant” and a “Representative”?

A landowner applicant is on the Status of title. The landowner applicant is required to enter into a funding agreement in the event that the application is approved for funding and any payments under the Program will be issued to the landowner applicant.

A representative is an individual that is authorized by the landowner applicant to submit the application on their behalf and to be the primary contact. A representative may be an employee of a corporation/company or a municipality.

19) How to apply?

An on-line electronic **Application form** and **Application Instruction Guide** is available at https://www.gov.mb.ca/iem/mines/quarry_rehab/index.html

20) I don't have access to a computer, can I submit an application?

If you do not have access to a computer please make an appointment to complete an application by emailing quarryrehab@gov.mb.ca Monday to Friday, 8:30 a.m. to 4:30 p.m. prior to **June 15 2022**.

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21) There are more than one landowner on the same property. Do we each need to apply?

No, applications for properties that have multiple registered owners should be submitted by one landowner applicant that must match at least one name on a current Status of Title. The landowner applicant must have legal authorization to sign the application and other program documents on behalf of the other owners. The program administrator may require proof of authorization.

22) Can I apply to the Program in iMaQs?

No, only completed on-line electronic application forms received by **June 15 2022** will be considered for eligibility under the program. No other submissions or applications of funding will be considered for inclusion under this program.

23) How do I get the information on rehabilitation levy payments or if there is a Registration Certificate number that I can reference?

Information respecting the amount of rehabilitation levy payments made, or about Registration Certificate numbers can be found by accessing iMaQs at:

<https://www.gov.mb.ca/iem/mines/imaqs/>

24) I forgot my password to iMaQs. How do I get my password reset?

Information on resetting your password can be found at:

https://www.gov.mb.ca/iem/mines/imaqs/tutorials/tutorial_forgot_user_name_or_password.pdf

25) How do I know that my application form has been successfully submitted?

Once you have submitted, a “confirmation number” will appear on your screen. Please document this number as it will be the primary number used by the program in all communication.

Quarry Rehabilitation on Private and Municipal Land Program QUESTIONS AND ANSWERS (Q&A)

26) How can I keep a copy of my on-line application form for my own records?

A new feature added to the application form is the ability to print the document **PRIOR TO** submitting the document. Please note: The application form cannot be printed once it has been submitted.

PROJECT CONSIDERATIONS

27) Will the Program fund 100 per cent of my project costs?

The program may fund eligible project activities up to a maximum of \$200,000 per landowner, including applicable taxes. A funding agreement will be entered into with the landowner that details the project activities to be completed and the maximum amount of funding available from the program.

28) Can I do the work myself?

Yes, as the landowner you are able to apply to the program to be funded to complete the work yourself.

29) Can I pick the contractor to complete the work?

Yes, contracts are strictly between the landowner and contractor.

30) Who is responsible for obtaining a contractor to complete the project?

The landowner applicant and/or their representative is responsible for obtaining a contractor. The contract is between the contractor and the landowner and are responsible for meeting the terms of that contract and for ensuring that all applicable taxes are included. The Manitoba Government is not a party to the contract.

31) What if I receive a quote higher than the \$200,000 available under the program?

The maximum funding provided under the program is \$200,000 per landowner. Eligible projects that are partially funded by the landowner may result in a higher ranking for program funding.

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32) What if the contractor increases the quote originally provided before work starts. Am I able to increase the amount of funding?

No, the program will approve project funding up to a specific amount; any amount above the approval is the responsibility of the landowner.

33) Can I start the project before I am approved for funding?

No, the Manitoba Government is only responsible for providing funding as per the terms and conditions of a funding agreement once it has been entered into with the landowner.

Any costs incurred before a funding agreement is signed are the sole responsibility of the landowner in the event that an agreement is not signed, or if the costs are not included in the terms and conditions of the signed funding agreement.

34) Will someone from the department be inspecting or monitoring the rehabilitation work?

The department or its service provider (designate) has the right to conduct a compliance audit. It is the responsibility of the landowner to monitor the work in progress.

In addition, the Program or its service provider may contact you to clarify and/or seek additional information in relation to your application and/or project.

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QUESTIONS AND ANSWERS (Q&A)

DOCUMENTATION REQUIREMENT

35) What documentation is required to support the application?

The following documentation is required in support of a completed application:

Status of Title (required)

A copy of a current (within 30 days of application date) Status of Title that identifies the registered owner(s).

Status of Title must be acquired through Teranet to be eligible.

Photos (required)

Current photos area proposed for rehabilitation under this program. Photos are to be dated, and have location descriptions clearly indicated/marked (For example: NW corner looking 400 metres south east).

NEW Each proposed embankment, stockpile, and water constraint should be indicated and reviewable within the photograph package (For example, a photo could have the following caption - NW corner looking southeast, image includes embankment 4 and stockpiles 5, 6 and 7 as noted in the photo).

NEW Photos need to be in the following format: JPEG, PDF, JPG. Our office is not able to open certain extensions such as .HEIC

Maps (required)

Provide maps to show the current condition of the land, areas already rehabilitated under past programs, and the areas you are requesting for consideration under this program for rehabilitation.

NEW Highlight approximate location of areas already rehabilitated under past programs in addition to each proposed embankment, stockpile, tree removal area and water constraint should be clearly identified and labelled.

Satellite imagery through Google Earth

Provide imagery with dimensions of proposed project, including where previous rehabilitation has occurred in the last five years (if applicable), to more clearly indicate the area to be rehabilitated.

The purpose of the documentation is to provide the Program with an ability to review and assess the proposed project and the reasonableness of the cost estimate, including being able to identify if funding for rehabilitation had previously been provided for the same property. This documentation will also provide a “before” perspective that will be used to compare to the documentation provided upon completion of the project.

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36) What happens if I do not provide the required documentation?

A completed application includes all of the required documentation as it is required to confirm the location and status of the property and is also the basis to compare the property once the project has been completed to support payment.

37) How do I submit required documentation to support the application (i.e. photos, maps and Satellite imagery)?

First, complete and submit your on-line application with the Status of Title attached. Once you have submitted, a “confirmation number” will appear on your screen. Please document this number as it will be the primary number used by the program in all communication.

Once you receive the confirmation number, compile all of the required documentation (i.e. photos, maps, satellite imagery) and send them as an attachment to the Program in an email to quarryrehab@gov.mb.ca with the following subject line:

Subject: QRPMLP - xxxxxxx - name of applicant.



Program Name - unique confirmation number – Name of Applicant

PROCESS FOR COMPLETED PROJECTS

38) What documentation is required to support my completed project?

All of the following documentation is to be submitted at one time:

Project completion form (required)

This form requires the landowner applicant to certify that:

- the work authorized under the application was completed by January 31, 2023
- the work has been completed to the landowner’s satisfaction; and
- all of the documents are attached and accurately represent the work.

Note: A Partial completion form is available in the event that all of the work could not be completed. Funding may be pro-rated based upon work completed. These forms are available at: https://www.gov.mb.ca/iem/mines/quarry_rehab/index.html

Invoices and receipts (required)

Provide all invoices from contractors and/or supplies, as well as any receipts or other documents (e.g. pay slips) that support the costs incurred in completing the project.

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Please note that invoices cannot be in name of Province or Department of Natural Resources and Northern Development

NEW Clients will be required to provide a summary sheet table showing the Funding Agreement amount and the Actual cost spent for each activity.

Photos (required)

Updated Photos of the area rehabilitated under this program. Photos should be consistent (i.e. facing similar directions and in same position) with original photos. Photos are to be dated, and have a location descriptions clearly indicated/marked (For example: NW corner looking 400 metres south east).

NEW Photos need to be in the following format: JPEG, PDF, JPG. Our office is not able to open certain extensions such as .HEIC files. Not required but if available providing KMZ files

NEW Each rehabilitated embankment, stockpile, and water constraint should be reviewable within the photograph package.

NEW Maps (required)

Provide a completion plan to identify the completed areas. The approximate location of each rehabilitated embankment, stockpile, tree removal and water constraint should be clearly labelled as well as any element of the proposed work that has not been completed (can match application site plan if all work completed).

For projects that are not fully completed, the map must clearly show the amount of work completed and what areas were not completed.

39) What if I am not able to complete my project?

The expectation is to follow the work plan proposed. The deadline to complete projects and have all information into the Manitoba Government for consideration of payment is January 31, 2023.

NEW no cost will be paid to complete the work outside of the period of eligibility.

In the event that the project cannot be fully completed, a landowner certification of partial project completion form will be required and it is available at:

https://www.gov.mb.ca/iem/mines/quarry_rehab/index.html

Amount of funding available may be pro-rated based upon amount of work completed.

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40) If I have cost overruns once rehabilitation has commenced and the project exceeds \$200,000. Will I get additional funding to cover these costs?

No, the program will approve project funding up to a specific amount; any amount above the approval is the responsibility of the landowner.

41) If I have cost overruns once rehabilitation has commenced and I scale back the project to remain within the \$200,000. Will I still get the full amount approved?

In the event that a project is scaled back to remain within approved funding levels, the project is considered to be only partially completed. A landowner certification partial completion form will be required and it is available at:

https://www.gov.mb.ca/iem/mines/quarry_rehab/index.html

Amount of funding available may be pro-rated based upon amount of work completed.

42) The project came in under budget. Can I keep the surplus?

No, funding will be provided based upon project completion and actual invoices up to the amount approved. If the cost is lower than estimated, only the actual cost of the invoices will be paid to the landowner.

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QUESTIONS AND ANSWERS (Q&A)

OTHER CONSIDERATIONS

43) Who is responsible for rehabilitation?

The responsibility for rehabilitation of depleted pits and quarries has always resided with the landowner. Under The Mines and Minerals Act, a rehabilitation levy was collected and the minister was given discretion to enter into agreements with persons to rehabilitate lands on which a quarry is located. However, this did not distinguish a landowner's responsibility in the event that funding was not provided from this source.

44) Can I re-open my pit or quarry after rehabilitation?

The Program provides funding for depleted pits/quarries, inactive, and/or progressive rehabilitation therefore the intention is that these project areas will not have aggregate production for at least five to 10 years.

45) Can I apply to the GROW or other government programs to match or increase funding available for the project?

The Program's terms and conditions does not disqualify landowners from applying to other government programs for consideration. Please review the eligibility requirements of other applicable government programs to determine if accessing other government programs to match or increase funding available is allowed under those programs.

GROW is administered by the Manitoba Habitat Heritage Corporation. Please refer to: <https://mhhc.mb.ca/the-conservation-trust/how-to-apply/> for information.

46) Are there environmental remediation requirements. Do I have to complete an Environmental Assessment?

It is the responsibility of the landowner to ensure that the project is completed within federal, provincial and municipal requirements.

47) Why is the maximum value set at \$200,000 per legal landowner?

The value was selected to ensure that one or two projects valued at several million dollars did not utilize all available funds.

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48) The \$200,000 is less than the levies I have paid into the program. Am I entitled to more?

The maximum per landowner is \$200,000.

49) How many hectares can I have rehabilitated under the program? Is there a maximum/minimum size limit?

The maximum value has been set at \$200,000 to per landowner. There are no limits to size, equipment rates, or contractor hours; however the application will be assessed to determine if the costs are reasonable for the size of the project.

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PIT AND QUARRY REHABILITATION STANDARDS IN MANITOBA

Background:

The responsibility of rehabilitation of lands used for project sites and aggregate quarry has always been with the landholder. In 1992 the Mines and Minerals Act proclaimed the ability of the Minister to enter into agreements to rehabilitate areas of disturbance.

In 2020, a revised program introduced a grant funding process for private landowners to rehabilitate the land based on submission of an application of proposed rehabilitation with minimum quarry standards. These updated Quarry Standards provide further potential rehabilitation opportunities for private and municipal lands.

Within the Mines and Minerals Act rehabilitation of aggregate quarries and pits is defined as the actions to be taken for the purpose of

- protecting the environment against adverse effects resulting from operations,
- minimizing the detrimental impact on adjoining lands of operations,
- minimizing hazards to public safety resulting from operations, and
- leaving the site or quarry in a state that is compatible with adjoining land uses and that conforms, where applicable, to a zoning by-law or development plan under The Planning Act and to the specifications, limits, terms and conditions of a licence issued under The Environment Act in respect of the project.

There are several sources that try and define both quarry rehabilitation, as well as progressive rehabilitation, and a couple of examples are provided below:

Quarry Rehabilitation: All planned activities that aim to turn mined/exploited land into a stable, safe state area, compatible with its natural environment and suitable for the proposed future use of the land.

Quarry Rehabilitation: All activities needed to ensure that quarry operations are closed in an environmentally and socially responsible manner with the objective of ensuring a sustainable post-quarrying land use. It is the overall term for restoration, reclamation, re-cultivation and includes progressive rehabilitation.

Progressive rehabilitation: progressive rehabilitation should be undertaken wherever possible. This has the advantage of reducing open areas within the quarry, reducing potential soil erosion.

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While the Mines and Minerals Act does not specifically define progressive rehabilitation for aggregate operations, it should be applied where possible as good practice and with the advantage of reducing open areas within the quarry, reducing potential soil erosion while boosting biodiversity benefits at an early stage.

Ultimately, the goal of site rehabilitation is to create safe and stable area for future land use, manage impacts, and reduce risks with potential to identify opportunities to achieve viable positive change.

Before developing a pit or quarry

Prior to starting development, collect information on the existing site conditions to include surface and subsurface and plan the post development land use – crop production, pasture, industrial, wetland, or forested (agri-forestry). Rehabilitation plans may resemble pre-quarry land use i.e. cultivation, pasture, grassland, brush, or forest, Please note that natural rehabilitation will be preferred under this funding program

The Quarry Mineral Regulation (MR65/92) provides the requirements for clearing a site, stockpiling, setbacks, landscape screens, erosion and weed problems, waste water drainage, blasting, noise, ground water protection and open burning. Section 38(1) prescribes that topsoil must be retained on site for the purpose of rehabilitation.

Considerations for reclamation:

- Adjacent land use and Land use zoning
- Slopes and grading
- Site drainage

Potential Rehabilitated Land Use:

- Agriculture
- Forestry
- Natural Environments
- Wildlife Habitat
- Recreation¹
- Residential and Industrial Use¹

1. If you as the landowner wish to initiate further site development, to establish a housing subdivision, wetlands, or a golf course, you must do so at own expense.

Quarry Rehabilitation on Private and Municipal Land Program

QUESTIONS AND ANSWERS (Q&A)

Pit Rehabilitation

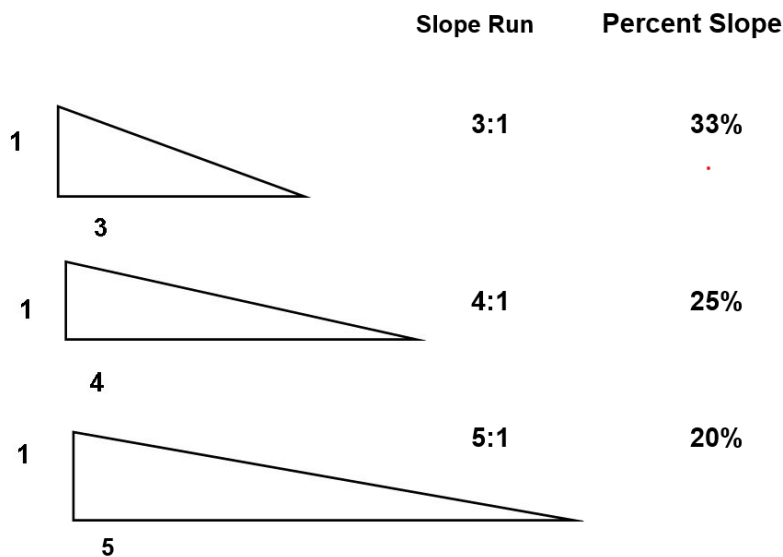
Embankment Sloping (Slope and Safety)

Minimum gradients for embankments of unconsolidated material (loose aggregate) shall be sloped:

Final slopes for **Stability and Safety** should be at least 3 horizontal to 1 vertical or 33%, preferably 4 horizontal to 1 vertical or 25% where achievable.

Final slopes for **Agricultural Cropping** should be at 5 horizontal to 1 vertical or 20% on Canada Land Inventory Class 1 – 5.

Final slopes for **safe exit of water filled quarries** should be at 5 horizontal to 1 vertical or 20% and extending 4 metres from the water edge.



Notes: Previously cultivated land with relatively good capability for agriculture (Canada Land Inventory Soil Capability for Agriculture Classes 1 to 4) should be reclaimed for crop production. Previously cultivated land with poorer soil capability should be reclaimed to pastureland or native vegetation.

Landowners should consider surface drainage requirements and establish slopes to a level that restore natural drainage to the area. Where post-mining land use is cropland, drainage should minimize ponding and designed in a manner to minimize erosion during spring runoff and major rainfall events on both your property and adjoining land holders. Water drainage should not impact neighbouring properties on other landowners.

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Stockpiles:

Stockpiles considered surplus may be re-graded to establish safe slope angles. Alternatively, surplus material may be moved to alternate site locations for future use during operation and maintenance phases or spread evenly over disturbed areas prior to closure. Excess material shall be left in a manner that does not impede drainage.

Oversize Boulders and Other Material:

Boulders (minimum 25 cm or 10 inches in diameter) and stockpiles of waste sand or other materials that may be left at a site can be used as backfill in sloping, or otherwise disposed of in the grading of the landscape. Where boulders are not buried, they shall be piled neatly.

This also provides for the removal and/or remediation due to trees or water constraints on the property.

Rehabilitation and Reclamation for Various Rehabilitated Land Uses

Spreading of Overburden & Topsoil for Seeding and Natural Regeneration

Closure of pit and quarry areas typically consist of redistributing topsoil and other organic materials to encourage both natural vegetation and regeneration, planting or preparing ground for seeding.

Available topsoil and overburden material suitable as a soil material should be graded over the surface of the disturbed lands after sloping is completed. If such material does not exist on site, improvements to the sub-soil will need to be made by the landowner to facilitate establishment of a vegetation cover.

Topsoil will not be purchased and hauled onto a site as a cost of rehabilitation under this program. If topsoil was not retained as required by regulation and is not available on site, the costs of having it brought it will be the responsibility of the landowner.

Stripping piles on the subject site that are comprised predominately of biologically inert overburden (sub-soil) material can be used as backfill, to slope embankments, or otherwise leveled off in accordance with sloping standards. Bringing in additional top soil will be the financial responsibility of the landowner.

Special handling of soil will only be considered in relation to any biologically productive topsoil /overburden located on the site. Experience since the program started has clearly demonstrates the value of such soil in terms of restoring agricultural productivity to the rehabilitated landscape. This is usually a consequence of the soil texture, nutrient

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availability, organic matter composition or dormant seed content. Where even a thin mantle of topsoil can be spread over the disturbed lands, a cover crop can be more easily and quickly established. Special measures are therefore warranted to optimize the use of any residual topsoil for this purpose, provided it is present in sufficient quantity. These measures may include:

- i. stripping topsoil away from the edge of an embankment, so that only subsoil material is used to achieve the prescribed slope
- ii. using scrapers, loaders or rock trucks, as opposed to dozers, to carry topsoil greater distances over the site

Seeding operations should be completed following grading operations. If conditions do not permit re-seeding immediately, then re-seed the next growing season. Seeding operations should not be carried out during high wind events, snow cover, ice conditions or in standing water.

Lands that are not intended for agricultural production due to their location, soil type or slope may also benefit from a topsoil cover and seeding to establish grasses so their root systems will ensure bank stability and the prevention of erosion.

Agriculture - Whether rehabilitated lands are intended be returned to annual crop production, if they were used for that purpose prior to aggregate having been extracted, or the land will be used for grazing, rehabilitated properties benefit from even a thin mantle of topsoil being spread over the disturbed lands.

Top soil used and top soil depth should be similar to what occurred before aggregate extraction or similar to the surrounding area that has not been disturbed. Depth of topsoil and sub-soil should also not restrict plant / crop growth.

Consult the resources listed in **Appendix A** for more information. Depending upon the soil texture, nutrient availability, organic matter composition or dormant seed content, spreading topsoil ensures a cover crop can be more easily and quickly established.

Forestry – Remote sites in forested areas may be reasonably expected to re-vegetate naturally. However, seeding of the graded areas will be carried out where:

- a) embankments would be otherwise subject to surface erosion that would deteriorate
- b) invasion by noxious weeds would detrimentally affect adjoining agricultural lands.

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Wetlands – Restoration activities could include removing barriers to hydrological connectivity, which will allow the boreal wetland to return to its pre-impacted state over time.

Bedrock Quarry Rehabilitation

Embankment safety in bedrock quarry sites is not an environmental concern. However, sloping of the embankment by blasting down the mine face to create a gradient of no less than 3:1 should be carried out where conditions constitute a significant hazard to public safety.

Sloping of quarry embankments is relatively expensive, since it involves blasting as well as grading work. While sloping permanently resolves the safety concern and associated liability, other measures may be considered where:

- a) sites are located in remote areas, where there is little potential for human encounter.
- b) site conditions restrict access to the top of a quarry embankment.

The objective, where the vertical embankment has not been sloped, is to prevent inadvertent access to the top edge. Anyone approaching the top edge, on foot or by vehicle (snowmobile, quad, truck, etc.), should be sufficiently warned of the condition so that they can exercise due caution. The following measures, in order of relative effectiveness, can be implemented:

- a) Construction of a berm, set back a safe distance from the quarry edge and built up to a sufficient height to pose as an obvious barrier during winter or periods of low visibility/darkness.
- b) Construction of a fence, set back suitably from the quarry edge, using chain link or page wire material. (not barbed wire strands, which can represent a hazard.)
- c) Erection of signs at prominent locations warning of the quarry embankment.
- d) Strip vegetation and soil off the upper edge of the quarry embankment for a distance of 8 metres, to ensure that this approach zone is clear and visible, and that vegetation will not grow back to mask the edge condition.

NOTE: The above are the minimum standards that are funded under the program. Landowners are ultimately liable if further measures are necessary.

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APPENDIX A

Resources	Description	Links
Digital elevation models	Are a collection of three dimensional coordinates representing an X and Y horizontal location on the ground along with its associated elevation (one metre resolution).	Manitoba Lands Initiative (MLI): http://mli2.gov.mb.ca/dems/index.html
LiDAR	Laser-derived elevation models with a resolution of 25 cm, limited to southern Manitoba.	Manitoba Lands Initiative (MLI): http://mli2.gov.mb.ca/dems/index_external_lidar.html
Soil Mapping	Municipal maps of soil properties, primarily within Manitoba's agriculture zone.	Manitoba Lands Initiative (MLI): http://mli2.gov.mb.ca/soils/index.html
Manitoba Land Use / Land Cover Classification	Land cover maps available for southern and central Manitoba.	Manitoba Lands Initiative (MLI): http://mli2.gov.mb.ca/landuse/index.html
Canadian Land Cover Classification and Earth Observation Data	Remote sensing products available for government and commercial use.	Canada Centre for Remote Sensing (CCRS): www.nrcan.gc.ca/maps-tools-publications/satellite-imagery-and-air-photos/10782
Provincial database on rare elements, including rare species and species at risk	Conservation status ranks for rare species and communities in GIS database.	Manitoba Conservation Data Centre (MBCDC): https://www.gov.mb.ca/sd/environment_and_biodiversity/cdc/index.html