
**Quarry Rehabilitation
Advisory Committee**
Interim Report

**Submitted to Minister of Agriculture and Resource Development
November 1, 2021**

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Letter from Co-Chairs

Minister Ralph Eichler:

We are pleased to provide you with an interim report from the Quarry Rehabilitation Advisory Committee. The Committee provides a forum for stakeholders vested in the industry to come together and discuss opportunities to modernize the Quarry Rehabilitation program.

The Committee met virtually on six occasions between May 25th and October 8th to discuss operational and rehabilitation standards, requirement for rehabilitation and closure plans, environmental levy and service delivery options. Discussion focused on finding the balance between opportunities to move the industry forward while maintaining a landscape that meets environmental and safety standards. Recommendations submitted are intended to provide a starting point for the management of quarry rehabilitation, on private and Crown land, that also addresses audit findings and the elimination of the Quarry Rehabilitation Reserve Account. The work of the Committee will be beneficial and help inform further assessment of government's role and red tape reduction impacts.

Data collection over the next year will be important to further develop and assess the Committee recommendations to inform program implementation and continuous improvement of the program. Enhanced inspection activities and more accurate production reporting will support program development and enhancements that are appropriate for government and industry. The Committee's main recommendation is that it continue as a working group to provide feedback and industry expertise into this process. The program will continue to evolve over the next three years and there is benefit for strong stakeholder collaboration.

On behalf of the Committee, thank you for the opportunity to provide recommendations on the future direction of the program and quarry rehabilitation. Having government and industry representatives, along with the Association of Manitoba Municipalities and Manitoba Habitat Heritage Corporation, at the table allowed for meaningful discussions and recommendations to set us on the best path forward.

Sincerely,

Stan Toews and Jana Schott, Co-Chairs

Executive Summary of Recommendations

Operational standards for quarries and pits

Recommendation 1:

1. That the User Guide be placed on the department website to provide quarry operators with easy access to up-to-date information and requirements.
- 2.
3. Recommendation 2:
4. That future lease and permits specify key operational standards.

Rehabilitation standards for quarries and pits

Recommendation 6:

5. That the Rehabilitation Standards be placed on the department website so that operators and landowners have an easy one-source of information when making applications for funding.

Requirement for rehabilitation plans and financial sureties

Recommendation 7:

That any requirement for a rehabilitation/closure plan for commercial operators do not require a separate surety or a timeframe upon which rehabilitation must occur.

Recommendation 8:

That a five-year rehabilitation plan be an application requirement for Private Registrations and for Quarry Leases.

Continuation and amount of the environmental levy

Recommendations:

6. That the Province charge one rehabilitation levy for pits and quarries, regardless of location.
7. That the amount of the rehabilitation levy take into consideration the following factors:
 - Cost of rehabilitation of Crown, private and legacy pits
 - Cost of administration
8. That the amount of the rehabilitation levy be distributed/allocated to address the following priority areas:
 - Crown lands liability account
 - Administration
 - Rehabilitation of private pits and quarries
 - Legacy pits on private land

Service delivery options

Recommendation 12:

That the “pooled” concept continue in 2022/23 and that the Department pursue the administration of the program with an outside service provider starting in 2023/24 to ensure timely, efficient and effective administration of the Quarry Rehabilitation Program.

Recommendation 13:

That the Department make the following changes to the current Quarry Rehabilitation on Private and Municipal Land program:

- a) Provide for continuous application process, versus annual deadline;
- b) Develop less complicated application form/process;
- c) Rely less on risk assessment to prioritize projects; and
- d) Provide legacy projects with access to program funding.

Other Committee Recommendations

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Committee Report

Program Background

In 1992, the Mines and Minerals and Consequential Amendments Act was proclaimed with the objective and purpose to provide for, encourage, promote and facilitate exploration, development and production of minerals and minerals product in Manitoba, consistent with the principles of sustainable development.

The Quarry Rehabilitation Program (Program) was also introduced in 1992 under the Mines and Minerals Act (Act) to rehabilitate depleted aggregate pits and quarries throughout the province. Sites are rehabilitated to a condition, which is safe, environmentally stable, and compatible with adjoining lands. Under the legislation, rehabilitation means the action to be taken for the purpose of:

- (a) protecting the environment against adverse effects resulting from operations at the site or quarry,
- (b) minimizing the detrimental impact on adjoining lands of operations at the site or quarry,
- (c) minimizing hazards to public safety resulting from operations at the site or quarry, and
- (d) 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.

The 1992 legislation also established a Quarry Rehabilitation Reserve Account (QRRRA) which was funded through an environmental levy on aggregate mineral produced in the province. Aggregate means a quarry mineral that is used solely for construction purposes or as a constituent of concrete other than in the manufacture of cement and includes sand, gravel, clay, crushed stone and crushed rock.

The rehabilitation levy is remitted by industry based upon tonnage of aggregate production reported. When the program was introduced in 1992, the aggregate pit and quarry rehabilitation levy was set at \$0.10/tonne and was increased to \$0.12 per tonne in 2012 with support from industry.

Unlike for non-aggregate production (strip or underground mines), there is no specific requirement in the Act for aggregate operators to provide closure plans for the protection of the environment during the life of the project and for rehabilitation of the

project site upon closing. Non-aggregate closure plans also requires the provision of security for performance of rehabilitation work. The Act specifically exempts aggregate quarries/pits from this requirement as follows:

Non-aggregate quarry closure plan

128(3) The holder of a quarry permit or a quarry lease in respect of a quarry other than an aggregate quarry shall, in accordance with the regulations, submit a closure plan acceptable to the director.

For rehabilitation of quarry pits and quarries, the legislation authorizes the Minister to enter into agreements for the completion of this work as follows:

200(4) The minister may

- (a) enter into agreements with persons to rehabilitate lands on which a quarry is located; and
- (b) make expenditures from the Quarry Rehabilitation Reserve Account to pay for costs associated with rehabilitating lands on which quarries are located, including salaries and other expenses of the government in administering the quarry rehabilitation program.

Up until 2018, legal landowners could apply to the Program and upon approval, the department scheduled the work, retained and paid for the services of contractors and oversaw the work to ensure that it met the standards of the program. This was to facilitate the rehabilitation of depleted pits and quarries, regardless of when they shut down. There was no requirement for owners/operators to:

- have ever paid an environmental levy;
- have held a registration under the program; or
- to undertake/manage rehabilitation at own cost.

In 2018, a new management team discovered financial irregularities and concerns on administration of the Quarry Rehabilitation Program. The department paused all funding for projects, closed the application process, and elevated the concerns to Internal Audit and Consulting Services (IACS) for an independent review. The matter was then referred to the Office of the Auditor General, which published its findings in May 2020.

On August 13, 2020, a 2020 Quarry Rehabilitation on Private Land was announced with funding of \$6.7 M available out of the QRRA, which was scheduled to be eliminated in 2020/21. Under this program, applicants were eligible if:

- they were the legal landowner;
- had registered the quarry/pit; and
- paid the environmental levy.

Landowners were also responsible for completion of the rehabilitation projects, with the departmental role only to verify that the work was completed.

On April 20, 2021, a Quarry Rehabilitation on Private and Municipal Land program was announced with funding of \$5.8 M available out of the QRRRA, which is now scheduled to be eliminated in 2021/22. The eligibility requirements were the same as the 2020 program and landowners were again responsible for completion of projects.

1. Operational standards for quarries and pits

Background:

Under the Mines and Minerals Act, the Quarry Minerals regulations stipulates the operating standards that all pits and quarries must adhere to, on both private and Crown land. The Operations of Quarries and Pits User Guide [Appendix B].

There are also other Acts and Regulations that also apply to operations, and currently, Casual Quarry Permits and associated Work Permit often repeat associated Acts or Regulations as conditions. The Acts and Regulations include:

- Mines and Minerals Act, Quarry Minerals Regulation
- Workplace Safety and Health Act (WSHA), Operation of Mines Regulation
- Crown Lands Act
- Wildfires Act
- Provincial Parks Act, Permits and Leases Regulation

Committee Discussion:

The committee reviewed an Operations of Quarries and Pits User Guide also recognized that there were other provincial legislation, namely the Operations of Mines Regulation under the Workplace Safety and Health Act that also applies to the safe operations of sites.

In general, the Committee supported the current level of operational standards, but did make the following recommendations:

- A.** The **User Guide** should be more readily available for operators and key requirements should also be identified in any lease or permit agreements.

Recommendation 1:

That the User Guide be placed on the department website to provide quarry operators with easy access to up-to-date information and requirements.

Recommendation 2:

That future lease and permits specify key operational standards.

B. Setbacks – specifically for the blasting of consolidated material as the current requirements the following clause:

- 43(1) Subject to subsections (2), (3) and (4), an operator of a quarry shall not excavate closer than the following distances from any property line, residence or shore of a river, lake or stream:
- (a) where the operator is mining an unconsolidated quarry mineral,
 - (i) 4 metres from any property line, and
 - (ii) 150 metres from any residence located beyond the property line;
 - (b) where the operator is mining a consolidated quarry mineral from a quarry developed after the date of the coming into force of this regulation,
 - (i) 15 metres from any property line, and
 - (ii) 400 metres from any residence;
 - (c) where the operator is mining a consolidated quarry mineral from a quarry existing before the date of the coming into force of this regulation
 - (i) 15 metres from any property line, and
 - (ii) 250 metres from any residence; and
 - (d) in the case of any type of quarry, 50 metres from the shore of any river, lake or stream.
- 43(2) Notwithstanding sub-clause (1)(a)(i), an operator of a quarry mining an unconsolidated quarry mineral shall not mine closer to any property line than the horizontal distance equal to the sum obtained when 4 metres is added to the product of three times the depth of the excavation, where that sum exceeds the distance specified in that sub-clause.
- 43(3) The setback restrictions prescribed in sub-clauses (1)(a)(ii) and (1)(b)(ii) do not apply
- (a) between an existing quarry and any residence constructed on an adjacent parcel after the date of the coming into force of this regulation; or
 - (b) where the quarry will be mined for a period of time not exceeding four months during the course of three calendar years.
- 43(4) Subsections (1) and (2) do not apply to the operator of a quarry who
- (a) has first obtained the written consent of the owner of any adjacent property and of the mineral rights in the adjacent property; and
 - (b) provides a copy of the written consent to the director.
- 44(1) No operator of a quarry shall permit any blasting at the quarry

- (a) between 4:00 p.m. of any day and 9:00 a.m. of the following day; or
- (b) at any time on a Saturday, Sunday or statutory holiday; unless otherwise approved by the director under the Act.

44(2) No operator of a quarry shall permit any blasting at the quarry that emits sound exceeding the following limits when measured on adjacent property:

- (a) within 15 metres of a building maintained as a residence, 130 decibels linear peak sound pressure level;
- (b) within 15 metres of a building maintained for use other than as a residence, 150 decibels linear peak sound pressure level; and
- (c) where any person other than an employee of the operator is exposed to the sound, 140 decibels linear peak sound pressure level.

44(3) No operator of a quarry shall permit any blasting at the quarry that emits soil-borne vibrations exceeding the following limits when measured on adjacent property inside a building below grade or less than one metre above grade,

- (a) for any building maintained as a residence, 12 millimetres per second peak particle velocity; and
- (b) for any building maintained for use other than as a residence, 50 millimetres per second peak particle velocity.

Committee members indicated that 400 metres was too far and that too large of a setback may permanently sterilize the aggregate, which can occur when the development of a resource is precluded by another existing land use.

This distance is no longer required due to modernization of technology. Specifically concerning blasting (the major difference between mining consolidated and unconsolidated material), Section 44 will continue to protect existing residences by limiting the noise and vibration as measured at the residence during each blast. The blast design can be altered for shorter setback distances to remain under the noise and vibration limits.

Committee members indicated that when obtaining permission to mine within setback areas, the regulations require permission from the mineral rights owner to mine within a residence setback. Logically, the setback should apply to the residence owner only (since the setback will cease to exist if the house was removed). Potential issues encountered are: mineral rights holder unfairly demanding compensation, mineral owned by organizations (Royalty Groups / Soldier Settlement of Canada / Crown) – could be held up in red tape.

Committee agreed that 250 metres was appropriate and noted it was the distance prior to the 1992 Mines and Minerals Act as indicated in c) above.

Recommendation 3:

That an amendment to the Quarry Minerals Regulation under the Mines and Minerals Act be advanced to reduce the excavation and blasting setback requirements from 400 to 250 metres from any residence for the mining of consolidated material.

C. Stockpiling soil and overburden

The regulations currently do not distinguish between the stockpiling of topsoil and overburden as follows: Every operator of a quarry shall stockpile on the parcel of land or within the area of the quarry mineral disposition, all topsoil and overburden stripped in the process of excavating the quarry.

These activities start at the beginning of the project when the area is stripped for site preparation, as this is a critical component of the rehabilitation of the site. Overburden may be soil, soft and hard rock.

Some municipalities do require that they be stockpiled separately; however, most appear to follow the provincial legislation and regulations.

Recommendation 4:

That an amendment to the Quarry Minerals regulation under the Mines and Minerals Act be advanced to require the stockpiling of topsoil to be separate from other overburden.

D. Missing Royalty Owner

Committee Members raised an issue regarding an older rail line right of way (ROW) where there can be issues determining the mineral rights ownership.

This is an issue as it can be a lengthy process that could lead to the permanent sterilization of the material and the setback along the property line.

The Oil and Gas Act provides for a process for missing royalty owners whereby an application can be made to the Director and the applicant commits to allocating the royalties for the missing royalty owner to a trust account administered by the Province. Once the application is reviewed and minerals confirmed, a notice is published in local papers and if no respondents come forward after 30 days, a Ministerial Order is sent for approval and registration.

Recommendation 5:

That an amendment to the Mines and Minerals Act and/or Quarry Minerals regulation be advanced that would provide for a missing royalty owner application process similar to the Oil and Gas Act.

2. Rehabilitation standards for quarries and pits

Background:

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.

The Department developed Rehabilitation Standards [Appendix C] to use in the administration of the 2020 and 2021 Rehabilitation Programs. These standards were based upon standards previously used by the program to provide consistency in programming standards.

Committee Discussion:

The Committee reviewed the Rehabilitation Standards and discussed the current standards and did not make any specific recommendations for changes.

Consistent with the operational standards, the Committee supported that these standards should be readily available for operators and landowners to assist them in making an application to a rehabilitation program for funding.

Recommendation 6:

That the Rehabilitation Standards be placed on the department website so that operators and landowners have an easy one-source of information when making applications for funding.

3. Requirement for rehabilitation plans and financial sureties

Background:

Non-aggregate quarries are required to submit closure plans and undertake rehabilitation under the Mines and Minerals Act. Prior to 1992, aggregate quarries had similar requirements.

The Mines and Minerals Act currently stipulates:

Non-aggregate quarry closure plan

128(3) The holder of a quarry permit or a quarry lease in respect of a quarry other than an aggregate quarry shall, in accordance with the regulations, submit a closure plan acceptable to the director.

Private non-aggregate quarry closure plan

188(2) The operator of a quarry, other than an aggregate quarry, mining quarry minerals that are not vested in, or do not belong to, the Crown shall, in accordance with the regulations, submit a closure plan acceptable to the director.

An overview of the Closure plans and financial assurances required by non-aggregate quarries [Appendix D] was developed based upon current legislation and regulations.

Committee Discussion:

The Committee discussed a public expectation that depleted pits and quarries be rehabilitated. The committee indicated that the province's involvement in the quarry rehabilitation program has been beneficial in garnering broad support for new pits and quarries at conditional use meetings.

The Committee concurred that it was important to the Program success to encourage rehabilitation through additional education to industry and especially to municipalities. The Committee identified the lack of municipal participation in the 2020 and 2021 rehabilitation programs as the need for webinars, etc. to encourage participation in available programs. Committee members also indicated that most municipalities rely on a blend of the Program and rehabilitation requirements as part of development plans. An enhanced Program would add to and help enable the desired end outcomes of rehabilitated spent quarries.

Committee members supported the requirement for closure/rehabilitation plans, but did not support amending the Mines and Minerals Act to make the conditions for closure plans and sureties consistent for both aggregate and non-aggregate sites. Committee members did not support the use of sureties. There was a general preference for continuation of a rehabilitation levy (discussed in next section), and sufficient funding

through environmental levies placed in a fund accessible to landowners. Landowners would not incur rehabilitation costs and therefore, would not have reason to resist rehabilitating sites.

Committee members also discussed the Office of the Auditor General's recommendation for a risk assessment in order to prioritize the funding of projects. Committee members wanted a fund sufficient to support all rehabilitation to the standards, even if it took lower risk projects longer to access funds, as there was a concern that progressive rehabilitation efforts could be lower priorities but is an industry practice that should be encouraged, regardless of program.

Committee members discussed the requirement for rehabilitation and closure plans and what the best mechanism would be to ensure implementation and completion of work. It was agreed that, along with education, that this requirement for a 5-year plan be tied to the application and registration processes. The Committee also agreed that an application fee be collected to cover the cost for the Department to review the plans.

Recommendation 7:

That any requirement for a rehabilitation/closure plan for commercial operators do not require a separate surety or a timeframe upon which rehabilitation must occur.

Recommendation 8:

That a five-year rehabilitation plan be an application requirement for Private Registrations and for Quarry Leases.

4. Continuation and amount of the environmental levy

Background:

The 1992 Mines and Minerals Act also established a Quarry Rehabilitation Reserve Account [Appendix E] that was funded through an environmental levy on all aggregate mineral, produced in the province.

The rehabilitation levy is remitted by industry based upon tonnage of aggregate production reported. When the program was introduced in 1992, the aggregate pit and quarry rehabilitation levy was set at \$0.10/tonne but was increased to \$0.12 per tonne in 2012 with support from industry.

Committee Members requested a ten-year analysis that included both revenues collected from the environmental levy and expenditures spent out of the fund for rehabilitation and administration [See Figure 1]. Highlights from figure 1 are:

- The environmental levy revenue budget is currently at \$2.8 Million, which would require annual production levels of 23,333,33 tonnes.

- Revenues have been lower than this budget level since 2018/19, with a five-year average of \$2.5 Million and 20,978,000 tonnes of aggregate reported.
- Since 2011/12, the government is on track to spend \$27.5 Million on the program and would have collected \$25.3 Million over this period.
- Rehabilitation levy revenue has ranged from a high of \$3.0 Million in 2012/13 to a low of \$1.5 Million in 2011/12; however, the levy increased to \$0.12/tonne in 2012, which shows the impact that a \$0.02 increase had on the levy.
- From 2011/12 to 2018//19, an average of \$2.3 M was spent of rehabilitation and administration costs averaged \$500.8 K over this same period.
- The five-year average aggregate production (2016/17 to 2020/21), based upon revenue collected, was 20,978,679, however a three-year average (2018/19 to 2020/21) is lower at 19,125,684.

As part of the 2020 Quarry Rehabilitation on Private Land Program, the department entered into a tendered contract with Dillon Consulting Ltd. (Dillon) to provide engineering support to the program. Also as part of the contract, Dillon provided an analysis on the current costs to rehabilitate to assist Manitoba in the future direction of the program. [Appendix F].

Dillon provided costs based upon type (pit or quarry) and location (north or south) as quarries had a 5% premium and northern sites a 25% premium. A comparison to the \$0.12/tonne currently charged would result in increases as follows:

	Southern	Northern
Pit	\$0.25 /tonne or 108% ↑	\$0.31 /tonne or 158%↑
Quarry	\$0.34 /tonne or 183% ↑	\$0.42 /tonne or 250%↑

Crown Lands

Budget 2021 included a section on the management of Manitoba's pits and quarries on Crown lands as follows:

“A valuation of the quarry rehabilitation liability is underway, with a view to prioritizing and starting to address rehabilitation of quarries under the management of the Crown. A review and framework for the Management of Manitoba's Crown pits and Quarries will use current technology to better manage this asset and an improved system will support the management and reporting of the liabilities. A risk-based assessment and approach for Manitoba to manage the Crown sites inventory and mitigation/rehabilitation program would provide value for money and sequentially reduce the liabilities over time.”

As a result of this change in accounting policy, the Province will be required to adjust the liability on an annual basis to recognize new aggregate production (increase) and rehabilitation that has occurred. This will require rates similar to those recommended by Dillon being used to support the new production adjustments to the liability account.

Committee Discussion:

Committee members supported the continuation of collecting a rehabilitation levy that was “pooled” versus individual sureties being provided. There was discussion as to whether Dillon’s recommendations were adequate to generate a fund sufficient in size to address rehabilitation efforts, especially if the cost of administration for a program and addressing legacy sites were factored in.

Committee members discussed the need to ensure that there was capacity to address legacy pits and quarries on private land, even though they may not have ever been registered or paid an environmental levy. (Note legacy pits and quarries on Crown land are part of the liability account that is being established). Committee members supported providing funding on an annual basis to address higher risk legacy projects on private land.

Committee members supported inclusion of an escalator clause in the levy so that large increases were not necessary in future and that industry would be able to plan accordingly. Without knowing the projected liability or requirements on private land, the Committee was unable to determine the extent of increase needed, other than an increase is warranted. Committee members agreed that projected liability would indicate need for an increased extraction levy. Based upon that information, a new levy and transition plan from existing rate could be determined. The following principles were supported:

- Determine the projected rehabilitation liability for Crown, legacy and private pits and program administration costs based upon levy amount;
- The extraction rate charged should be robust enough to support the level of rehabilitation required;
- Only one rate should be charged with no differentiation between pit or quarry or northern or southern location;
- Once the new rate is established and transition to new administration identified, consider the manner in which the levy is transitioned into reality;
- The increase be phased in with first increase of approximately \$0.10 in January 2023;
- Pending the above, the Program be administered in 2022/23 under its current administrative structure and the new program and supporting administration begin in 2023-24; and
- The rehabilitation levy funds allocated (distribution to be determined) to the following priorities:
 - i. Crown lands liability account – this ensures that, regardless of levy amount, that sufficient funds are deposited into the liability account for the rehabilitation of new production on Crown land;
 - ii. Administration, includes any outside engineering services;
 - iii. Rehabilitation of private pits and quarries that have been registered and paid an environmental levy; and
 - iv. Legacy pits on private land.

Recommendation 9:

That the Province charge one rehabilitation levy for pits and quarries, regardless of location.

Recommendation 10:

That the amount of the rehabilitation levy take into consideration the following factors:

- a) Cost of rehabilitation of Crown, private and legacy pits
- b) Cost of administration

Recommendation 11:

That the amount of the rehabilitation levy be distributed/allocated to address the following priority areas:

- a) Crown lands liability account
- b) Administration
- c) Rehabilitation of private pits and quarries
- d) Legacy pits on private land

5. Service delivery options

Background:

During the development of a future program, there are key requirements that needed to be considered/addressed including:

- Addressing Office of the Auditor General recommendations;
- Elimination of the Quarry Rehabilitation Reserve Account;
- Environmental Levy not consistent with cost of rehabilitation; and
- Red tape reduction.

A discussion document on four (4) examples of service delivery models was provided [Appendix G] to Committee members for discussion. The listing was not intended to be the only models available for discussion, but rather to facilitate discussion amongst committee members. An assessment on the financial implications with the Provincial Comptrollers Office would be required in the event that one of these options was pursued to ensure that the impacts on both government and industry was fully known.

Committee Discussion:

Committee Members discussed the four models provided which had some key differences as follows:

- The Status Quo and outside service provider program options both maintained the following key elements:
 - Funding from the environmental levy is “pooled”; and
 - Participation in program is voluntary.
- The Specific Fund by Contributor and Financial Surety and Rehabilitation plans has the following key elements:
 - Funding for rehabilitation is responsibility of the landowner/operator; and
 - Rehabilitation is a requirement.

Committee members preferred the continuation of the “pooled” programming and that a rehabilitation requirement was not needed as there is no reason that landowners or contractors would not want to access the Program and rehabilitate sites. Possible improvements to the program as follows:

- Provide for continuous application process, versus annual deadline;
- Develop a less complicated application form/process;
- Rely less on risk assessment to prioritize projects to ensure progressive rehabilitation is not discouraged;
- Address Legacy projects.

Committee members preferred the use of an outside service provider in recognition that:

- The rehabilitation levy would need to support the administration costs of the program, regardless of who was administering the program; and
- Potential for the fund to carry-over if administered outside of government.

Committee members were interested in the potential cost for administration; expecting it could be in a range of 5-10% of the overall fund or higher based upon:

- The overall size of the fund – the lower the fund balance, the higher the percentage will need to be in order to provide a standard level of service;
- Whether separate administrators are required, similar to the Fish and Wildlife Enhancement Fund, which is managed by the Winnipeg Foundation with the Manitoba Habitat Heritage Corporation administering the trust;
- Volume of applications; and.
- Level of administration, engineering services and reporting required.

Committee members supported adopting a levy that supported the administration costs recognizing that it would take time to both gain government approval for this approach and to negotiate an agreement and regulate a new environmental levy.

In order to provide time for this approach, the Committee discussed the need to continue the current rehabilitation program for at least another year, in order for this work to proceed. The Committee recognized that funding for the program would need to be managed within the departmental appropriation and that no funding could carry-over

Recommendation 12:

That the “pooled” concept continue in 2022/23 and that the Department pursue the administration of the program with an outside service provider starting in 2023/24 to ensure timely, efficient and effective administration of the Quarry Rehabilitation Program.

Recommendation 13:

That the Department make the following changes to the current Quarry Rehabilitation on Private and Municipal Land program:

- a) Provide for continuous application process, versus annual deadline;
- b) Develop less complicated application form/process;
- c) Rely less on risk assessment to prioritize projects; and
- d) Provide legacy projects with access to program funding.

6. Other Committee Recommendations

Committee Discussion:

Committee members discussed the changes to the industry over the last several years and identified a need to enhance transparency and communication between the Department and industry. In this regard, the Committee modified the Terms of Reference to include the following Guiding Principle:

- stakeholders are integral to the overall success of the program and working towards more open and transparent communication will enhance the responsible use of the resource.

Committee members were appreciative of government in establishing this committee and recognize that there is still considerable work and discussions required on the future direction and continuous delivery of the program that would benefit from the continued involvement of the Committee, even at a working group level.

Some of the program areas that would benefit from the continuation of the Committee, include, but are not limited to, the following:

- Annual review of adequacy of the rehabilitation levy
- Program uptake on rehabilitation programming
- Educational and promotional activities to enhance rehabilitation and participation in rehabilitation program
- Delivery and administration of rehabilitation program, including addressing any shortfalls or deficiencies
- Application process to the rehabilitation program

Recommendation 14:

That the Quarry Rehabilitation Advisory Committee continue as a working group and that a new terms of Reference be developed for the Committee that includes providing advice to the Minister related to program improvements and responding to requests for advice and recommendations from the Minister.

Figure 1 – 10-year Analysis

	2021/22 (B)	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14	2012/13	2011/12 ¹	Total
Environmental Levies Received												
Private Sites	\$ 2,100,000.00	\$ 1,872,302.23	\$ 1,684,817.41	\$ 1,662,519.62	\$ 2,065,433.44	\$ 2,303,296.06	\$ 1,992,282.47	\$ 2,148,785.87	\$ 1,966,328.85	\$ 2,394,240.54	\$ 970,869.88	\$ 19,060,876.37
Crown Sites	\$ 700,000.00	\$ 467,834.01	\$ 606,891.80	\$ 590,881.00	\$ 683,201.92	\$ 650,066.11	\$ 866,697.25	\$ 694,101.28	\$ 562,181.23	\$ 639,654.95	\$ 475,896.32	\$ 6,237,405.87
Total	\$ 2,800,000.00	\$ 2,340,136.24	\$ 2,291,709.21	\$ 2,253,400.62	\$ 2,748,635.36	\$ 2,953,362.17	\$ 2,858,979.72	\$ 2,842,887.15	\$ 2,528,510.08	\$ 3,033,895.49	\$ 1,446,766.20	\$ 25,298,282.24
Quarry Rehabilitation Expenditures												
Quarry Rehabilitation Projects ²	\$ 5,813,000.00	\$ 4,979,040.16		\$ 941,563.11	\$ 2,409,261.95	\$ 2,943,304.87	\$ 3,107,164.01	\$ 2,524,436.61	\$ 2,793,425.48	\$ 2,043,175.64	\$ 1,727,646.09	\$ 23,469,017.92
Administration	\$ -			\$ 492,734.29	\$ 468,340.24	\$ 495,719.80	\$ 490,342.17	\$ 613,341.01	\$ 547,619.72	\$ 459,530.69	\$ 439,014.66	\$ 4,006,642.58
Crown Lands Liability	\$ 980,000.00	\$ -										
External Engineering Support	\$ 150,000.00	\$ 60,998.75		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 60,998.75
Total	\$ 6,943,000.00	\$ 5,040,038.91	\$ -	\$ 1,434,297.40	\$ 2,877,602.19	\$ 3,439,024.67	\$ 3,597,506.18	\$ 3,137,777.62	\$ 3,341,045.20	\$ 2,502,706.33	\$ 2,166,660.75	\$ 27,536,659.25
Tonnage (calculated based upon Levies paid)												
Private Sites	17,500,000	15,602,519	14,040,145	13,854,330	17,211,945	19,194,134	16,602,354	17,906,549	16,386,074	19,952,005	9,708,699	160,458,753
Crown Sites	5,833,333	3,898,617	5,057,432	4,924,008	5,693,349	5,417,218	7,222,477	5,784,177	4,684,844	5,330,458	4,758,963	52,771,543
Total	23,333,333	19,501,135	19,097,577	18,778,339	22,905,295	24,611,351	23,824,831	23,690,726	21,070,917	25,282,462	14,467,662	213,230,296

APPENDICES

APPENDIX A - Terms of Reference

Committee Chairs:

Stan Toews, Reeve RM of Hanover
Jana Schott, ADM Agriculture and Resource Development

Committee Members:

- Scott Aikman, Glacial Aggregates
- Chris Lorenc, MHCA
- Stefanie Vieira, AMM
- Morris Olafson, AMM
- Stephen Carlyle, MHHC
- Levi Wiens, Elite Crushing
- Craig Drimes, Manitoba Infrastructure
- Trevor Sims, Conservation & Climate
- Otilie Murray, Municipal Relations
- Peter Mraz, Agriculture & Resource Development

Purpose:

To engage with major industry stakeholders to provide the Minister of Agriculture and Resource Development with a report by October 30, 2021 with options and recommendations on the future of the Quarry program, specifically on the following:

- 1) Operational standards for quarries and pits;
- 2) Rehabilitation standards for quarries and pits;
- 3) Requirement for rehabilitation plans and financial sureties;
- 4) Continuation and amount of the environmental levy, including the two municipal levies; and
- 5) Service delivery options for rehabilitation on private/municipal land.

Guiding Principles:

- the responsible use of aggregate in the province;
- the protection of the environment and minimizing hazards to public safety during and after the quarry/pit is in production;
- ensures that site is left compatible with adjoining land uses;
- greater consistency for landowner/operator accountability for rehabilitation with non-aggregate mines in the Mines and Minerals Act;
- the environmental levy must be administered in manner where provincial revenues equal expenditures and resulting funding is used for rehabilitation based upon a risk-based assessment;

- the amount of an environmental levy must reflect the cost of rehabilitation and have an ability for an escalator for inflation. The levy must also support the rehabilitation of legacy sites;
- red tape reduction is a high priority and program must be efficient for industry, municipalities and the Province;
- inspection role of department primarily focused on authorizations and monitoring of operations and rehabilitation completion to standards and requirements;
- stakeholders are integral to the overall success of the program and working towards more open and transparent communication will enhance the responsible use of the resource, and
- any additional issues that impact quarry development will be captured for further consideration.

APPENDIX B Operation of Quarries and Pits

Users Guide

Mines And Minerals Act Regulation – Quarry Minerals Regulation

Permit/Lease/Registration of Aggregate quarries/pits

1. Quarry permit or quarry lease

No person shall commence production of a quarry mineral that is the property of the Crown except under the authority of a quarry permit or a quarry lease granted under the Mines and Minerals Act or where a permit is issued by the director under subsection 14(7) of the Mines and Minerals Act in respect of the quarry

2. Registration of private aggregate quarries

No person shall operate an aggregate quarry on privately owned land without a registration certificate under section 197 of the Mines and Minerals Act in respect of the quarry.

a) Interim authorization

May be granted by the director to an applicant who has orally provided the information required in an application to an official of the Mining Recording Office and who will be submitting the written application and fee by mail, is valid for the period of time stated in the authorization, but that period shall not exceed seven days.

b) Exception

This does not apply to a person engaged in farming who establishes or operates an aggregate quarry on the farm solely for purposes incidental to the farming operation, where none of the quarry mineral from the aggregate quarry so operated is exposed or offered for sale, sold, donated or otherwise disposed of.

Clearing Site

Prior to stripping topsoil and overburden in preparation for the excavation of a quarry, an operator shall:

- (a) clear the slash and timber over the proposed excavation;
 - (b) where the slash and timber is not disposed of immediately, pile it at least four metres from the nearest standing timber; and
 - (c) dispose of the slash and timber by burial, burning or removal, or as prescribed in a permit issued under The Forestry Act or The Crown Lands Act.
-

Stockpiling soil and overburden

Every operator of a quarry shall stockpile on the parcel of land or within the area of the quarry mineral disposition, all topsoil and overburden stripped in the process of excavating the quarry.

The operator of a quarry may apply to the director in writing for an exemption where the overburden and topsoil are surplus to the amount required for rehabilitation of the property.

Setback for stockpiles

No operator of a quarry shall stockpile any slash, timber, topsoil or overburden from the excavation of a quarry closer than eight metres to the nearest property line, unless the operator first:

- (a) obtains the written consent of the owner of the adjacent property; and
- (b) provides a copy of the written consent to the director.

Landscape screens adjoining highways and residences

No operator of a quarry shall establish or mine a quarry closer than 150 metres from a Provincial Trunk Highway, Provincial Road or residence, unless the operator has established a vegetated berm or tree screen sufficient to shield the quarry from view from the road or residence.

This requirement does not apply in the event that:

- (a) a quarry has been mined closer than 150 metres from a road or residence prior to the date of the coming into force of this regulation, and there is insufficient space to construct a berm or tree screen without backfilling the excavated area;
- (b) the operator of a quarry rehabilitates the quarry progressively in such a way that the portion of the quarry open to view from the road or residence is completely rehabilitated within a period of eight months;
- (c) the operator of a quarry has first
 - (i) obtained the written consent of the owner of the residence, and
 - (ii) provided a copy of the consent to the director; or
- (d) the director has provided a written exemption after due regard to local environmental circumstances, including relative topographic elevations and problems associated with snow drifting.

Erosion and weed problems

Where during the operation of a quarry unconsolidated material in or from the quarry is subject to:

- (a) erosion, in such a manner as to detrimentally affect the use and enjoyment of adjacent property;
 - (b) the growth of various weeds; or
-

-
- c) both erosion as described in clause (a) and the growth of weeds as described in clause (b);

the operator of the quarry shall establish an interim vegetation cover or undertake such alternative remedial measures as are necessary to eliminate the problem.

Waste water drainage

No operator of a quarry shall permit water pumped from the quarry or used in treating or processing quarry minerals

- (a) to run directly onto adjacent property, unless the operator is the holder of a subsisting licence under The Water Rights Act; or
- (b) to drain directly into an underlying aquifer where it may reasonably be expected to contaminate a potable water supply.

Clause (a) does not apply to an operator who:

- (a) has first obtained the written consent of the owner of the adjacent property and of the mineral rights in the adjacent property; and
- (b) provides a copy of the written consent to the director.

Setbacks

An operator of a quarry shall not excavate closer than the following distances from any property line, residence or shore of a river, lake or stream:

- (a) where the operator is mining an unconsolidated quarry mineral,
- (i) 4 metres from any property line, and
 - (ii) 150 metres from any residence located beyond the property line;
- (b) where the operator is mining a consolidated quarry mineral from a quarry developed after the date of the coming into force of this regulation,
- (i) 15 metres from any property line, and
 - (ii) 400 metres from any residence;
- (c) where the operator is mining a consolidated quarry mineral from a quarry existing before the date of the coming into force of this regulation
- (i) 15 metres from any property line, and
 - (ii) 250 metres from any residence; and
- (d) in the case of any type of quarry, 50 metres from the shore of any river, lake or stream.

Notwithstanding (1)(a)(i) above, an operator of a quarry mining an unconsolidated quarry mineral shall not mine closer to any property line than the horizontal distance equal to the sum obtained when 4 metres is added to the product of three times the

depth of the excavation, where that sum exceeds the distance specified in that sub-clause.

The setback restrictions prescribed in (1)(a)(ii) and (1)(b)(ii) do not apply:

- (a) between an existing quarry and any residence constructed on an adjacent parcel after the date of the coming into force of this regulation; or
- (b) where the quarry will be mined for a period of time not exceeding four months during the course of three calendar years.

Blasting

No operator of a quarry shall permit any blasting at the quarry:

- (a) between 4:00 p.m. of any day and 9:00 a.m. of the following day; or
- (b) at any time on a Saturday, Sunday or statutory holiday; unless otherwise approved by the director under the Mines and Minerals Act.

No operator of a quarry shall permit any blasting at the quarry that emits sound exceeding the following limits when measured on adjacent property:

- (a) within 15 metres of a building maintained as a residence, 130 decibels linear peak sound pressure level;
- (b) within 15 metres of a building maintained for use other than as a residence, 150 decibels linear peak sound pressure level; and
- (c) where any person other than an employee of the operator is exposed to the sound, 140 decibels linear peak sound pressure level.

No operator of a quarry shall permit any blasting at the quarry that emits soil-borne vibrations exceeding the following limits when measured on adjacent property inside a building below grade or less than one metre above grade:

- (a) for any building maintained as a residence, 12 millimetres per second peak particle velocity; and
- (b) for any building maintained for use other than as a residence, 50 millimetres per second peak particle velocity.

Log book of blasting

An operator of a quarry shall ensure that a log book is maintained for the purpose of recording the following information with respect to blasting on the parcel of land on which the quarry is operated:

- (a) a sketch of the blast area showing the location, depth, weight and composition of charges and the type of arrangement and delay timing of each detonator used;
- (b) the time of each firing;

- (c) details of the time of and reason for any malfunction or misfiring; and
- (d) corrective action taken as a result of each malfunction or misfiring.

An operator of a quarry shall keep the log book maintained under subsection (1) on site and shall make it available for inspection at all reasonable times by:

- (a) any person authorized by the municipality or local government district in which the blasting takes place; and
- (b) any employee of the Mines Branch of the Department of Industry, Trade and Mines, the Environmental Stewardship Division of the Department of Conservation or the Mines Inspections Branch of the Department of Labour and Immigration.

Noise Nuisance other than blasting

No operator of a quarry shall permit a quarry to be established or operated that emits sound, other than sound caused by blasting, in excess of the following limits when measured at any adjacent seasonal or permanent residence:

- (a) 45 dba sound pressure level, during the hours between 10:00 p.m. and 7:00 a.m.;
and
- (b) 55 dba sound pressure level during the hours between 7:00 a.m. and 10:00 p.m.

Dust Emissions

Every operator of a quarry shall limit the wind entrainment of the visible particulate matter to the extent that the particulate matter does not exhibit any opacity in excess of 5% at the property line.

Ground water protection

No operator of a quarry shall

- (a) contaminate groundwater, or permit the contamination of groundwater, through the establishment or operation of an aggregate quarry; or
- (b) establish or operate facilities for the permanent storage or handling of gasoline or associated products within the excavated portion of an aggregate quarry or in any place where the gasoline or associated product may leak into the excavated portion of an aggregate quarry.

Open burning

No operator of a quarry shall permit open burning of garbage or debris on a parcel of land or lease during the operation of a quarry.

Alternative operational requirements

Where an operator of a quarry applies to the director for approval of a modification of operational requirements, as an alternative to those set out in sections 39 to 44, and 46, 47, 49, 50 and 51, and the director is satisfied that the modification will meet the intent of the Mines and Minerals Act and the regulations, the director may in writing give the

approval and in that event the operational requirements as they apply to that operator are deemed to be modified accordingly.

Key Definitions

Adjacent property - property adjacent to a parcel of land upon which a pit or quarry is established or operated.

Aggregate - a quarry mineral that is used solely for construction purposes or as a constituent of concrete other than in the manufacture of cement and includes sand, gravel, clay, crushed stone and crushed rock.

Aggregate quarry - a quarry from which aggregate is produced.

Associated product - petroleum or any derivative thereof, except gasoline, that is in a liquid state at ambient temperature and pressure.

Gasoline - means a liquid product of petroleum that has a flash point below 37.8 degrees Celsius and is designed primarily for use in an internal combustion engine.

Inspector -

- (a) the director,
- (b) an officer of the department who is acting as a recorder, claims inspector, mining engineer or geologist, or
- (c) a person who, for purposes of this Act, is designated by the minister as an inspector.

Land - means land as defined in The Real Property Act and includes land covered by water.

Lease - a mineral lease or a quarry lease or both, but does not include a surface lease.

Lease area - an area of land that is the subject of a mineral lease or a quarry lease.

Linear peak sound pressure level – the maximum absolute sound pressure as measured using a sound level monitoring device which equals or surpasses the requirement of International Electrotechnical Commission (I.E.C.) Publications 179 (1973) 'precision sound level meters' and 179A (1973) 'Additional characteristics for the measurement of impulsive sounds', including section 4.5.1, using linear weighting network and peak hold meter responses, or the equivalent;

Mine - an opening or excavation in the ground that is established or maintained for the purpose of mining and includes:

- (a) a quarry,
-

-
- (b) machinery, plant, buildings, premises, stockpiles, storage facilities, waste dumps or tailings, whether below or above ground, that are used for, or in connection with, mining,
 - (c) a crusher, mill, concentrator, furnace, refinery, processing plant or place that is used for, or in connection with, washing, crushing, sifting, drying, oxidizing, reducing, leaching, roasting, smelting, refining, treating or conducting research on mineral bearing substances, and
 - (d) an abandoned mine and abandoned mine tailings.

Operator - a person, including a Crown corporation, who, as the owner or lessee of mineral rights or the holder of a quarry permit or registration certificate, operates a mine, but does not include:

- (a) a person who receives only a royalty or rent from the person who operates the mine,
- (b) an owner of a mine that is subject to a lease, grant or license in favour of the person who operates the mine, where the owner does not participate in the operations of the mine,
- (c) an owner of land on which a mine is operated or an owner of the surface rights pertaining to such land, where the owner has no right or title to minerals situated in the land and does not participate in the operations of the mine.

Parcel of land - the aggregate of all land described in any manner in a certificate of title or deed.

Peak particle velocity - the maximum instantaneous velocity experienced by the particles of a medium when set into transient vibratory motion, and is the greatest velocity of any of the three mutually perpendicular directions which are vertical, radial and transverse to the source.

Production - means the extraction, recovery or removal of a mineral or mineral product, for the purpose of sale, barter or stockpiling, from:

- (a) a mine, a parcel of land or land that is the subject of a mineral disposition or a lease,
or
- (b) land that is authorized under the regulations as a location for the operation of an aggregate quarry.

Property line - the property line of a parcel of land.

Quarry - a mine that is an open excavation from which quarry mineral is removed.

Quarry lease - a lease granted under subsection 14(6) of the Mines and Minerals Act in respect of a Crown quarry mineral or a quarry lease granted under subsection 139(2) but does not include a quarry permit issued under subsection 133(2).

Quarry mineral - a mineral, other than a diamond, ruby, sapphire or emerald, that is obtained from a quarry, and includes:

- (a) sand, gravel, clay, shale, kaolin, bentonite, gypsum, salt, coal and amber,
- (b) rock or stone that is used for a purpose other than as a source of metal, metalloid or asbestos, and
- (c) a mineral that is prescribed as a quarry mineral.

Quarry mineral disposition - a quarry permit or a quarry lease.

Quarry permit - a permit issued under subsection 14(7) or subsection 133(2) of the Mines and Minerals Act in respect of exploration for quarry minerals on Crown mineral land.

Recorder - the mining recorder appointed under subsection 6(3) of the Mines and Minerals Act.

Registration certificate - a certificate issued under section 197 of the Mines and Minerals Act to authorize the operation of an aggregate quarry.

Rehabilitation - in respect of a project site or an aggregate quarry, the actions to be taken for the purpose of:

- (a) protecting the environment against adverse effects resulting from operations at the site or quarry,
- (b) minimizing the detrimental impact on adjoining lands of operations at the site or quarry,
- (c) minimizing hazards to public safety resulting from operations at the site or quarry, and
- (d) 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.

Residence - includes a seasonal residence.

Seasonal residence - a residential dwelling unit that is regularly occupied on a seasonal basis, and includes a lodge.

Shore - the area of land measured five metres horizontally from the high water mark of a permanent or seasonal body of water.

APPENDIX C - Rehabilitation standards for quarries and pits

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.

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.

Pit Rehabilitation

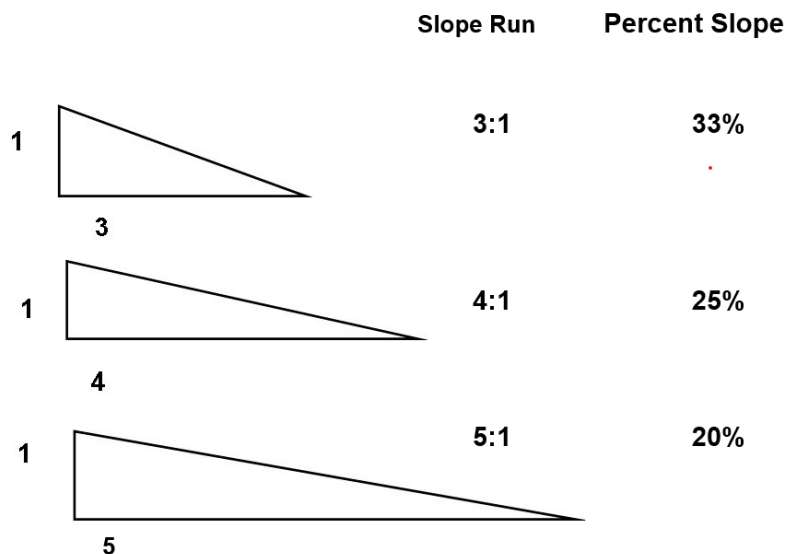
Embankment Sloping (Slope and Safety)

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.

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 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; and
- 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 to 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 **Attachment 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; and
- b) invasion by noxious weeds would detrimentally affect adjoining agricultural lands.

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.

Quarry Rehabilitation

Embankment safety in bedrock quarry sites is not a 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; and
- 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.

ATTACHMENT 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

APPENDIX D - Rehabilitation Plans and Financial Sureties

Non-Aggregate Quarries and Mines

Non-agreement quarries are required to submit closure plans and undertake rehabilitation. Prior to 1992, aggregate quarries had similar requirements. Please refer to Appendix – 1976 Quarrying Mines Regulation.

The Mines and Minerals Act, includes the following for non-**agg**gregate quarries:

Non-aggregate quarry closure plan

128(3) The holder of a quarry permit or a quarry lease in respect of a quarry other than an aggregate quarry shall, in accordance with the regulations, submit a closure plan acceptable to the director.

Private non-aggregate quarry closure plan

188(2) The operator of a quarry, other than an aggregate quarry, mining quarry minerals that are not vested in, or do not belong to, the Crown shall, in accordance with the regulations, submit a closure plan acceptable to the director.

Progressive rehabilitation

189(1) A proponent of a project shall set out, in a closure plan, the practices and procedures by which progressive rehabilitation of the project site will be carried out and a proponent shall, at all times during the life of a project whether or not the operations of the project are discontinued or closed, take all reasonable steps to effect progressive rehabilitation of the project site as circumstances from time to time require.

Discontinuance or closure of project

189(2) Where the operations of a project are discontinued or closed, either permanently or temporarily, the proponent of the project shall immediately in writing notify the director of the discontinuance or closure and shall immediately comply with the requirements of the closure plan.

Annual report on rehabilitation work

190 On or before the 60th day following the anniversary date of commencement or recommencement of a project, the proponent of the project shall each year submit to the director a report on the rehabilitation carried out on the project site in the period of 12 months ending on the anniversary date.

Voluntary revisions to closure plan

191(1) A proponent may submit a revised closure plan to the director at any time.

Non-aggregate quarries are also required to provide security to ensure that rehabilitation occurs and within specific time frames. The Mines and Minerals Act includes the following:

Use of security

193(3) Where the director makes an order under subsection (1), the director may, for purposes of giving effect to the order, use the security provided under the closure plan to meet the costs incurred in the performance of rehabilitation work under the order.

Application for reduction of security

194(1) A proponent may apply to the director for reduction of the amount that is required as security under a closure plan.

Director may reduce security

194(2) The director may, on an application under subsection (1), reduce the amount of security provided under a closure plan where the director is satisfied that

- (a) the applicant has, up to the time of the application, performed rehabilitation work as required under the closure plan; and
- (b) based on the information provided in a report under section 190 or a revised closure plan under section 191, a reduction in the amount of security is justified.

Mine Rehabilitation Fund

195(1) There is hereby established a fund to be known as the "Mine Rehabilitation Fund" and to which monies received as security, or realized under securities or letters of credit given as security, for performance of rehabilitation work under closure plans shall be credited and disbursements authorized under subsection (3) shall be debited.

A new model has recently been adopted for financial assurance as prescribed in the Mines and Minerals Act. This new model is as follows:

Financial Assurance and Security for Pit and Quarries

Security, other programs

Financial Assurance Acceptable to the Director of Mines (from website)

14.1 In connection with a Mine Closure Plan, Financial Assurance is required to ensure that funds will be available for the eventual rehabilitation of Accumulation Areas as defined herein. Financial Assurance shall be in one of the following forms:

1. a cheque made payable to the "Minister of Finance of Manitoba" with the funds to be held in trust for the proponent;
2. bonds issued by the Province of Manitoba ("the Province") or another Canadian province, by Canada or by a Canadian municipality;

3. a guaranteed investment certificate or term deposit certificate, in Canadian dollars, issued to the Province by a bank, savings and credit union or trust company. The certificate must have a 12-month minimum term and be automatically renewable until the closure plan is completed;
4. an irrevocable, unconditional letter of credit issued to the Province by a bank, savings or credit union or trust company;
5. a security or guarantee policy issued to the Province by a company legally authorized to do so;
6. a security provided by a third party to the Province in a form acceptable to the Director;
7. any other form of security or any other guarantee or protection that is acceptable to the Director;
8. any combination of things mentioned in clauses (1) to (8).

Peatlands Requirements

The Peatlands Stewardship Act requires a recovery plan for all licences Crown land as follows:

Terms and conditions

20(1) A peat harvesting licence is subject to:

- (a) the terms and conditions in the approved peatland management plan and approved peatland recovery plan;
- (b) any prescribed terms and conditions; and
- (c) any terms and conditions imposed by the director at the time the licence is issued.

Peatlands must be recovered by licence holder

35 The holder of a peat harvesting licence

(a) must ensure that the activities set out in the holder's approved peatland recovery plan are undertaken and completed at the time or times set out in the plan; and

(b) must comply with the prescribed requirements for recovery of the peatlands.

Director's order re recovery performance

36(1) If the director is of the opinion that the holder of a peat harvesting licence has failed to comply with clause 35(a) or (b), the director may, by order, direct that those activities, and any other recovery activities that the director considers appropriate, be performed by a person or persons named in the order.

Notice of order

36(2) At least 15 days before issuing an order, the director must serve the holder of the peat harvesting licence with written notice of the order.

The *Peatlands Stewardship Regulations* state the holder of a Peat Harvest Licence (PHL) must provide Forestry and Peatlands Branch (FPB) with the prescribed security, in an approved form, before conducting any activities within the PHL. The security must also be amended prior to opening new active areas during the development of the PHL. The security rate is set out in the Regulation's Schedule.

Use of security

36(3)

The director may use the prescribed security provided by the holder of the peat harvesting licence to pay all or part of the costs incurred in carrying out the recovery activities.

Costs not covered by security

36(4)

If the recovery costs exceed the amount of the security provided by the holder of the peat harvesting licence, the excess amount is a debt due and owing to the government by the holder. The holder must pay the amount of the debt within 30 days after being served written notice of it by the director.

Approved Forms of Security

Security must be provided in a form approved by the Director of Forestry and Peatlands Branch (FPB). The following forms of security are acceptable:

- a) Cash into Trust;
- b) Irrevocable Letter of Credit; and,
- c) Conditional Penal Bond.

If the “Cash into Trust” option is chosen, the holder must contact FPB to set up a trust account well in advance of the deadlines to post security. A combination of the above forms of security may be used to cover the full amount of the required security. Other forms of security may be accepted upon the Director’s approval.

Security Calculation

Security is required for any active area within the PHL; active areas are areas where activities related to the peat harvesting process are occurring. These activities include, but are not limited to, timber removal, brush clearing, profiling, ditching, and road construction. Security is *not* required for the following activities within the PHL:

Areas that have or will undergo disturbance as a result of another industry or resource interest unrelated to the peat harvesting development. These include, but are not limited to, areas disturbed as a result of mineral quarries, non-peat harvesting related timber removal, and municipal, provincial, or federal infrastructure development;

- a) Moss and/or vegetation donor sites, provided that donor material collection methods are consistent with established best management practices (i.e., the Peatland Recovery Guide); and,
- b) Peat Surface Lease areas.

Eligible PHL active areas and associated security amounts are tracked and calculated by FPB. PHL holders are responsible for providing maps and digital data files (i.e. ESRI shape files or *.kml files) of proposed active areas in hectares (three (3) decimal places). The PHL holders must reconcile their active areas hectares with FPB’s records prior to posting the required security. The security will be calculated by multiplying the active area (in hectares) by the set security rate (currently set at \$1,500 per hectare). FPB may audit active areas as necessary using acquired satellite or aerial imagery.

Posting and Amending Security

Security must be provided to FPB in an approved form *prior* to the opening of any eligible active area (see previous section) within the PHL, as set out in clause (2) of the licence agreement. It is the responsibility of the PHL holder to contact FPB in advance of PHL development activities to confirm and post security. Failure to post security prior to opening an area may result in suspension of operations until the default is remedied or monetary penalties paid, as per clauses (32) and (49) of the *Peatlands Stewardship Act*.

When opening new areas, amendments must be made to the security amount in accordance with clause (2) of the licence agreement. At the time of an amendment, it is recommended that PHL holders post security to include development plans for multiple years to avoid frequent securities amendments.

NOTE: If a new active area is less than five (5) hectares, the posting of security for this area may – upon approval by FPB – be delayed. Security for this area may be combined with the opening of additional areas and can included in the security amendment at that time.

Non-Compliance with Recovery Standards

PHL holders must ensure that the activities set out in their Peatland Recovery Plan are undertaken and completed at approved timelines. If the holder of the PHL is determined to be in non-compliance with the prescribed peatland recovery requirements, the Director of FPB may use the security provided by the holder of the PHL to pay all or part of the costs to complete the recovery activities on the PHL.

Release of Security

FPB will release all or part of the security if satisfied that the PHL holder has undertaken and completed the activities set out in the approved Peatland Recovery Plan. Security release is subject to the conditions outlined under the Non-Compliance with Recovery Standards section. Security will be released at the same rate per hectare as it was posted. FPB will release the PHL holder of their security obligations in two (2) phases:

- Phase-1: 60% will be released upon the holder's completion of the approved recovery operations, of which is detailed within the approved Peatland Recovery Plan.
- Phase-2: The remaining 40% will be released back to the holder between 5-10 years after the Phase-1 security release upon request from the holder and upon acceptance of the monitoring data (described below) by FPB.

Between 5-10 years following the completion of their recovery operations, the PHL holder may request the release of their remaining security (Phase-2). The holder may wish to strategically wait additional years before making this request to show improved recovery progress. The scheduling of the Phase-2 release request should be based on monitoring data and proof-of-target ecosystem establishment. To be considered for the Phase-2 security release the holder must submit a written request to FPB, which includes the following information:

- A report analyzing the monitoring data, showing the site's progress over time, including an evaluation of the site's current status and projected recovery trajectory. The report should tie its findings back to the original site recovery objectives set out in the Peatland Recovery Plan.
- An assessment of any potential future liabilities or circumstances, which could impede the site's successful recovery.

NOTE: The release of security may not fully release the PHL holder from their recovery obligations. The holder must still comply with all recovery commitments pursuant to the Peatland Stewardship Act and Regulations, their Environment Act Licence, and any third party certifications (e.g., Veriflora Sustainably Grown Standard).

Also refer to

https://www.gov.mb.ca/forest/resource/forms.html?asset=guideline&wg=forestry_and_peatlands_branch&term=peatland for forms, manuals and guidelines for the Peatland program.

APPENDIX E - Quarry Rehabilitation Reserve Account

The Quarry Rehabilitation Reserve Account (Account) was established in 1992 in the Mines and Minerals Act as follows:

Quarry rehabilitation reserve account

200(3) The Minister of Finance shall deposit amounts remitted as quarry rehabilitation levies under subsection (1) in an account, to be known as the "Quarry Rehabilitation Reserve Account", established under the Consolidated Fund and shall credit to the account any earnings from the investment of the amounts deposited.

Quarry rehabilitation agreements and costs

200(4) The minister may

- (a) enter into agreements with persons to rehabilitate lands on which a quarry is located; and
- (b) make expenditures from the Quarry Rehabilitation Reserve Account to pay for costs associated with rehabilitating lands on which quarries are located, including salaries and other expenses of the government in administering the quarry rehabilitation program.

Expenditure commitment not to lapse

200(5) Notwithstanding an Act of the Legislature to the contrary, an expenditure commitment made under subsection (4) does not lapse at the close of the fiscal year in which the commitment is made.

Under the legislation, rehabilitation levies would be paid into the Account and these funds would only be used for the rehabilitation of quarries and pits, or for costs associated with administration.

The program operated from 1992 to 2018 when the Province paused all funding for projects and closed the application process. No further activity has occurred under this program since that time.

At March 31, 2020, the Account had a balance of \$7,124.M consisting of levies from quarries and pits on Crown and private lands.

Impact on Summary Reporting for the Province of Manitoba

The Summary Budget includes an overview of the financial plan for the Manitoba government reporting entity. It includes the services of the government generally associated with the Legislature (i.e. government departments, etc.) government business enterprises (i.e. Manitoba Hydro), and other reporting entities that are indirectly controlled by the Manitoba government (i.e. health authorities, school divisions, reserve accounts, etc.). As the financial plan includes all of these entities, their revenues and expenditures have a direct impact on the Summary financial position of the province.

The Account is considered an “other reporting entity” in Manitoba’s Summary budget and therefore the revenue from environmental levies and associated rehabilitation expenditures have an overall impact on the province’s financial results, especially when revenues and expenditures do not match in a fiscal year. In fiscal years where revenue is higher than expenditures, this would artificially inflate Manitoba’s Summary financial position. Conversely, in fiscal years where expenditures exceed revenues, this would artificially deflate Manitoba’s Summary financial position.

In Budget 2020, the Fiscally Responsible Outcomes and Economic Growth Strategy (Strategy) stated indicated that it was eliminating 17 Special funds (i.e. reserve accounts). It stated that:

“Our government is cleaning up these funds, budgeting the money appropriately and ensuring that it is spent. We will remediate each of the funds to clear the outstanding balances, and “fix” them so that they don’t have outstanding balances in the future. Legislation will be introduced in 2020/21 to dissolve these funds. However, our government will ensure that the revenues generated by the fees and levies paid by Manitobans do not disappear into general revenues, and will continue to be spent for their intended purposes.”

The Account is one of the 17 Special funds to be eliminated; however, it was not eliminated in 2020/21 due to the need for development of a longer-term program. In the recent 2021 Budget, the Account was again identified as one (1) of seven (7) separate reporting entities that would now cease in 2021/22 as they were not eliminated in 2020/21.

As part of the strategy to meet government’s commitment to both eliminate the Account and ensure the funds were used on their intended purpose, the department undertook the following approach:

- Assessed any outstanding requirements on the \$7.124M balance to determine level of funding available for rehabilitation. Determined that \$464.0K for outstanding invoices was required which reduced amount to \$6.660M.
- Developed a program that would focus only on non-Crown land as part of the transition, even though 35% of rehabilitation levies are generated from aggregated production on Crown lands and the Office of the Auditor General highlighted that Crown pit and quarry sites were not previously prioritized. This was done to prioritize private quarries and pits as a mechanism to assist private landowners through this transition.
- Implemented the 2020 Quarry Rehabilitation on Private Land Program with funding available up to \$6.660 M. The department also received authorization to enter into a tendered contract for engineering services in support of the program, funded from the Account. Program results are as follows:

	Requested	Approved	Paid
\$ Funding	\$ 6,008,546.58	\$ 5,166,537.92	\$ 4,979,040.16
# of Applications	56	55	54
Average per Application	\$ 107,295.47	\$ 93,937.05	\$ 92,204.45

- Established the Quarry Rehabilitation Advisory Committee in order to seek stakeholder input into a long-term program that meet the needs of all stakeholders and without the continuation of the Account.
- Implemented a Quarry Rehabilitation on Private and Municipal Land Program with funding available up to \$5.8 M for 2021 recognizing that the Account would continue to grow as rehabilitation levies continued to be collect. Funding availability was based upon the following:

	\$ (000s)
Account Balance – Proj. March 31, 2021	4,143.0
Plus: 2021/22 Budgeted Environmental Levies	2,800.0
Less: Engineering Support for Program	(150.0)
Less: 35% of Budgeted levies for Crown Lands	(980.0)
Total Available for Rehabilitation Program	\$5,813.0

Note: starting in 2021/22, 35% of environmental levies will be allocated for quarries and pits on Crown land. This leaves 65% or \$1,820.0 of the \$2,800.0 budgeted for rehabilitation on non-Crown land.

Crown Land Liabilities

Budget 2021 included a section on the management of Manitoba’s pits and quarries as follows:

“A valuation of the quarry rehabilitation liability is underway, with a view to prioritizing and starting to address rehabilitation of quarries under the management of the Crown. A review and framework for the Management of Manitoba’s Crown pits and Quarries will use current technology to better manage this asset and an improved system will support the management and reporting of the liabilities. A risk-based assessment and approach for Manitoba to manage the Crown sites inventory and mitigation/rehabilitation program would provide value for money and sequentially reduce the liabilities over time.

APPENDIX F - Levy Calculation – Dillon Consulting Ltd. Report

As part of the 2020 Quarry Rehabilitation on Private Land Program, the department entered into a tendered contract with Dillon Consulting Ltd. (Dillon) to provide engineering support to the program. Also as part of the contract, Dillon also provided an analysis on the current costs to rehabilitate to assist Manitoba in the future direction of the program.

As each quarry and pit has its own challenges for rehabilitation, Dillon reviewed the existing programs and the current rehabilitation costs to calculate the expected cost of rehabilitation for a number of scenarios. Based on these scenarios, Dillon developed a typical/average cost of rehabilitation per tonne of material extracted that could form the basis of the levy.

Assumptions

The rehabilitation work would include:

- Slope fill – cost to fill the existing unstable and unsafe face to a stable slope and more safe slope angle;
- Surface Re-contour – leveling the existing surface of the pit or quarry to improve drainage and have a more natural appearance;
- Overburden/Topsoil – hauling and spreading existing overburden and topsoil piles over the re-contoured pit to promote vegetative growth;
- Seeding and Harrowing; and
- Mobilization – cost to haul equipment to the site.

Calculation of Future Rehabilitation Costs

The difference between the calculation of future expansion of existing pits and quarries and the calculation of the rehab that has been done to date is the slope fill required for future expansion will be less. This is because some of the face that has already been included in the current rehab cost will actually be removed by the expansion. Therefore, the calculation for slope fill for future expansion has to be calculated based on additional new face. This can be illustrated below:



Figure 3: Plan View of an Existing Pit

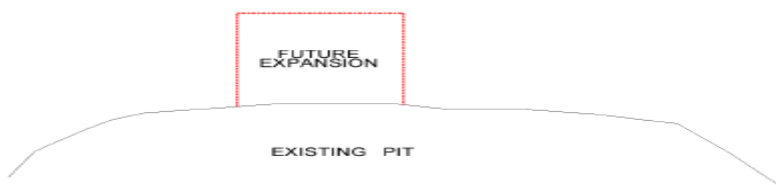


Figure 4: Plan View of Existing Pit Showing Future Expansion

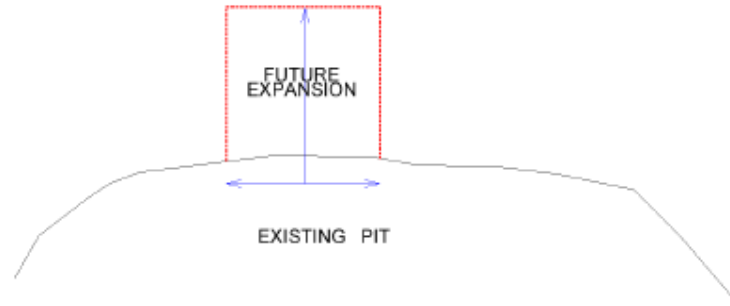


Figure 5: Future Expansion Face Removal Length – No Fill Required

Once the future expansion of the pit is developed, a portion of the existing face is removed and will not require fill. This length of face removal should equal the back of the new expansion, therefore the cost to fill the face at the back of the new expansion is already being accounted for.

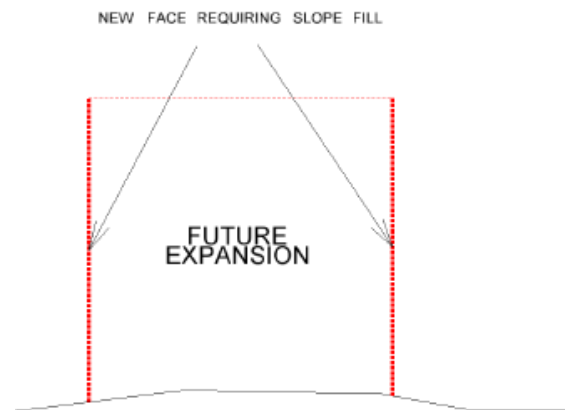


Figure 6: New Face Requiring Slope Fill

The new face of the future expansion that will require slope fill for which the costs need to be recovered are for the sides of the new expansion.

It should be noted, that for new sites, the calculations would be different, but there are very few new sites developed from year to year with the vast majority of aggregate production coming from existing sites.

Along with this, a few other assumptions are required to determine a rate per cubic metre required to cover the future rehab costs:

- Dillon assumed a square shape to future expansion. This is conservative as a rectangular future expansion would reduce the length of “new” face and increase the length of face that is already accounted for;
- Dillon assumed similar depths and slopes for the future expansion as what is currently in a given pit or quarry;
- The area of the future expansion is based on the estimated reserves in the database; and
- 20% has been added to the area of future expansion to allow for the piling of topsoil and overburden.

Example Calculation

Below is a sample calculation of an existing gravel pit based on the costs and assumptions identified in the quarry liability assessment report.

Example Calculation:

Crown Pit #1

- Amount removed – 136,164 m³;
- Reserve – 90,000 m³;
- Existing depth – 2 metres (m); and
- Existing slope – 1:1.

Using the reserve amount of 90,000 m³ and current depth of 2 m, the area of the future expansion will be $90,000/2 = 45,000$ m².

Assuming a square expansion, the sided of the expansion will be $\sqrt{45000} = 212$ m. So the amount of new face would be 2×212 m = 424 m.

The depth of the pit is 3 m, and the existing slope is 2:1, therefore the end area for the slope fill would be $(2 \text{ m} \times (8 \text{ m} - 4 \text{ m}))/2 = 4$ m².

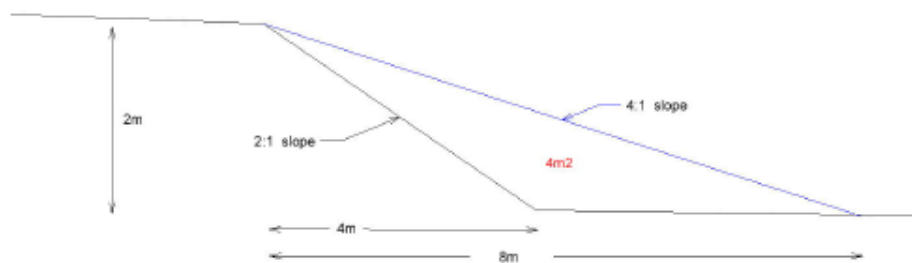


Figure 7: Slope Rehabilitation Cross Section

So the volume of slope fill would be 424 m of new face x 4 m² = 1,696 m³. For the current rehab costs we have assumed a cost of \$3.00/m³ for the placement of slope fill, therefore:

- 1,696 m³ x \$3.00 = \$5,088.00.

The other rehab costs are all based on the area of the new future expansion. In the calculations above we determined the area of the new expansion was 45,000 m² and each side was 212 m. Because we know overburden will be piled up outside the new pit face, we will add 20% m to the area of the pit excavation. The new area will be:

- 212 m x 212 m = 44,944 m² x 120% = 53,932 m² or 5.4 hectares (ha).

From our previous rehab calculations, we determined that the re-contouring costs were \$1,500.00/ha, therefore our re-contouring costs are:

- 5.38 Ha x \$1,500.00 = \$8,070.00.

To cover the base of the site we used an assumed depth of material (available overburden/topsoil) 0.1 m over the area of the pit at a cost of \$3.00/m³, therefore:

- $53,800 \text{ m}^2 \times 0.1 \text{ m} = 5,380 \text{ m}^3 \times \$3.00 = \$16,140.00$.

Seeding and Harrowing costs are based on the area of the pit at \$1,000.00/ha, therefore:

- $5.38 \text{ Ha} \times \$1,000.00 = \$5,380.00$.

There will also be a cost to mobilize equipment to perform this work, we have assumed a mobilization cost of \$2,500.00/pit or quarry. The total costs would be:

- Slope fill – \$5,088.00;
- Re-contouring – \$8,070.00;
- Topsoil – \$16,140.00;
- Seeding and Harrowing – \$5,380.00;
- Mobilization – \$2,500.00; and
- Total – \$36,886.00.

The rate required to cover this cost per cubic metre of material removed would be:

- $\$36,886.00/90,000 = \0.41 per m^3 .

Calculation of Sample Crown Locations

A similar calculation was performed on a total of ten (10) existing pits and 14 additional quarries. As with the existing rehab costs, a premium of 5% has been applied to the future quarry costs.

Table 3: Future Pit Costs Per M³

Pit Number	Amount Removed	Depth	Reserve	End Area (M ²)	Slope Fill (M ³)	Affected Area (Ha)	Total Future Rehab	Premium	Costs Per M ³
p0245	136,164	2	90,000	4	1,697	5.45	\$37,538.67	1.00	\$0.42
P0245	140,000	3	50,000	13.5	3,486	2.02	\$24,048.72	1.00	\$0.48
P0253	41,531	4	25,000	24	3,795	0.76	\$18,043.57	1.00	\$0.72
P0201	168,792	4	200,000	24	10,733	6.05	\$67,974.38	1.00	\$0.34
P0171	378,952	4	150,000	24	9,295	4.54	\$55,341.73	1.00	\$0.37
P0121	140,348	3	67,500	13.5	4,050	2.72	\$29,623.75	1.00	\$0.44
P0025	145,253	1.5	549,212	2.25	2,723	44.30	\$254,335.86	1.00	\$0.46
P0012	341,000	2	75,000	4	1,549	4.54	\$32,103.83	1.00	\$0.43
P0156	194,469	3	50,000	13.5	3,486	2.02	\$24,048.72	1.00	\$0.48
P0201	168,792	4	200,000	24	10,733	6.05	\$67,974.38	1.00	\$0.34
									\$0.45

Based on these calculations, the average costs per cubic metre for future pit rehabilitation is 0.45/m³. The total future reserves for these ten (10) pits is 1,456,713 m³. Assuming we charges a levy of \$0.45/m³, that total recovery would be $1,456,713 \times 0.45 = \$655,520.85$. Based on the calculations above, we estimate the future rehab for these ten (10) pits to be \$611,033.61. So the average of \$0.45/m³ provides for a conservative buffer.

Table 4: Future Reserves and Rehab Costs for 14 Quarries

Quarry Number	Amount Removed	Depth	Reserve	End Area (M ³)	Slope Fill (M ³)	Affected Area (Ha)	Total Future Rehab	Premium	Costs Per M ³
Q0018	92,846	4	125,000	32	11,313.71	3.78	\$57,238.00	1.05	\$0.48
Q0021	43,389	3	40,000	18	4,156.92	1.61	\$23,844.10	1.05	\$0.63
Q0063	101,946	5	75,000	50	12,247.45	1.82	\$49,224.85	1.05	\$0.69
Q0064	244,971	2	150,000	6	3,286.34	9.08	\$62,271.51	1.05	\$0.44
Q0066	1,244,190	4	100,000	32	10,119.29	3.03	\$49,495.37	1.05	\$0.52
Q0079	70,000	4	400,000	32	20,238.58	12.10	\$129,765.73	1.05	\$0.34
Q0089	122,704	5	100,000	50	14,142.14	2.42	\$58,236.41	1.05	\$0.61
Q0097	269,988	5.5	75,000	60.5	14,129.76	1.65	\$53,964.27	1.05	\$0.76
Q0101	40,000	3	50,000	18	4,647.58	2.02	\$27,534.41	1.05	\$0.58
Q0103	132,336	4	75,000	32	8,763.56	2.27	\$41,268.81	1.05	\$0.58
Q0105	305,544	7	133,466	98	27,064.02	2.31	\$96,380.88	1.05	\$0.76
Q0120	142,000	4	250,000	32	16,000.00	7.56	\$92,093.75	1.05	\$0.39
Q0277	94,858	5	38,102	50	8,729.49	0.92	\$33,759.85	1.05	\$0.93
Q0290	97,704	4	50,000	32	7,155.42	1.51	\$32,285.00	1.05	\$0.68
			1,661,568				\$807,362.91		\$0.60

Based on these calculations, the average costs per cubic metre for future pit rehabilitation is \$0.60/m³.

A similar check was done for the 14 quarries.

The future reserves of the 14 quarries is 1,661,568 m³. Using the calculated levy of \$0.60/m³ results in a recover of 1,661,568 x 0.60 = \$996,940.80. Again, this projected recovery amount is more than enough to cover off the project future rehab costs of \$807,362.91 and also provide a conservative buffer.

Levy Calculation Summary

Based on the calculations from the existing pits and quarries, Dillon has calculated a \$0.45/m³ levy on future pits and a \$0.60/m³ levy on future quarries.

In addition, as northern work is more expensive than work in the south, previous reports included a 25% premium for all northern work.

As a result, may want to include a 25% premium to northern pits and quarries. This would then calculate to a proposed levy for northern pits to be \$0.56/m³ and the proposed levy for northern quarries would be \$0.75/m³.

APPENDIX G - Alternative Service Delivery Models

Background:

During the development of a future program, there are some key requirements that must be considered/addressed in the final program. These include:

1. Office of the Auditor General – May 2020 Audit

A May 2020 Office of the Auditor General (OAG) stated that under the previous program (1992 to 2018) there were:

- a) **Insufficient risk management processes** in place and as a result, the rationale for selecting sites was not always clear. The rationale often contained the response “for safety and environmental purposes,” but these purposes were not defined or rated.
- b) **Weak controls over levy collection and royalty revenue** as the OAG found that quarry returns were not assess for reasonability; due dates for quarry returns were not monitored; and weak controls over revenue reporting.
- c) **Tendering practises not followed** as in order to avoid tendering larger projects, the practice was to break these projects into components of less than \$50,000 per title, per year. This was to remain within the delegated authority provided by Treasury Board for smaller projects.
- d) **Inspectors involved in too many aspects of the Program** because inspectors are responsible for the monitoring of contractors’ work, being able to select contractors for rehabilitation work is an incompatible function, as favouritism and other inappropriate relationships, such as hiring friends, could develop.
- e) **Administration cost recovery from fund not supported** as the amount charged to the fund for inspector and administration time related to the Program should be substantiated by a methodology which includes formal tracking of time and administration costs related to inspection duties and quarry rehabilitation, otherwise the fund is subsidizing department operations.
- f) **File documentation standards not followed** as many files lacked key information.
- g) **Inadequate use of technology** Modern heavy duty machinery used in rehabilitation work is outfitted with technology that tracks and provides reports on hourly usage, idle time, and GPS location. Instead, heavy equipment operators are required by departmental policies to have a Servis Recorder installed on their equipment. This type of manual card reader is subject to manipulation.
- h) **Contracts over \$10,000 not disclosed on proactive disclosure site** as these contract payments are coming from a non-expense account (liability) they are not included in the proactive disclosure information.

In response to the audit, the department indicated that “This is to confirm that the program remains in suspension. The department will be embarking on a zero-based review of the program to ensure quarries and pits are rehabilitated in an effective and responsible manner.

As we fundamentally change and redesign the program, we will give serious considerations to the recommendations.”

The department has begun addressing these recommendations as follows:

a) Insufficient risk management processes

- A risk assessment tool is being used in the prioritization of projects under the Quarry Rehabilitation on Private and Municipal Land program to ensure higher risk projects are prioritized for funding under the program.
- Budget 2021 included a section on the management of Manitoba’s pits and quarries as follows: “A valuation of the quarry rehabilitation liability is underway, with a view to prioritizing and starting to address rehabilitation of quarries under the management of the Crown. A review and framework for the Management of Manitoba’s Crown pits and Quarries will use current technology to better manage this asset and an improved system will support the management and reporting of the liabilities. A risk-based assessment and approach for Manitoba to manage the Crown sites inventory and mitigation/rehabilitation program would provide value for money and sequentially reduce the liabilities over time.

b) Weak controls over levy collection and royalty revenue

- New inspector position descriptions are being developed that will include the requirement to monitor returns for reasonableness and due dates.

c) Tendering practises not followed

- The landowner is responsible for contracting under the 2020 and 2021 programs.
- Outside engineering services to support the program were tendered for 2020 and 2021. Dillon Consulting Ltd. was the successful vendor in both years.

d) Inspectors involved in too many aspects of the Program

- New inspector position descriptions are being developed that focuses their role on monitoring and inspection of quarry and pit operations and rehabilitation.

e) Administration cost recovery from fund not supported

- Effective 2020/21, the department discontinued the practise of recovering departmental administration costs from the Fund. The only costs currently recovered are for outside engineering support required 2020 and 2021 programs.

f) File documentation standards not followed

- A file checklist has been used for the 2020 and 2021 program to ensure that consistent information is maintained for both electronic and manual files.

g) Inadequate use of technology

- The requirement for contractors to report using a Servis Recorder has been discontinued. Instead, an outside engineering firm is assessing both project applications and completions for cost reasonableness.

h) Contracts over \$10,000 not disclosed on proactive disclosure site

- Tendered contracts with Dillon Consulting Ltd. has been proactively disclosed.

2. Elimination of the Quarry Rehabilitation Reserve Account

In Budget 2020, the Fiscally Responsible Outcomes and Economic Growth Strategy (Strategy) stated indicated that it was eliminating 17 Special funds (i.e. reserve accounts). It stated that:

“Our government is cleaning up these funds, budgeting the money appropriately and ensuring that it is spent. We will remediate each of the funds to clear the outstanding balances, and “fix” them so that they don’t have outstanding balances in the future. Legislation will be introduced in 2020/21 to dissolve these funds. However, our government will ensure that the revenues generated by the fees and levies paid by Manitobans do not disappear into general revenues, and will continue to be spent for their intended purposes.”

The Account is one of the 17 Special funds to be eliminated; however, it was not eliminated in 2020/21 due to the need for development of a longer-term program. In the recent 2021 Budget, the Account was again identified as one (1) of seven (7) separate reporting entities that would now cease in 2021/22 as they were not eliminated in 2020/21.

Refer to Quarry Rehabilitation Reserve Account document for further information.

3. Environmental Levy not consistent with cost of rehabilitation

As raised by industry and supported by a recent report from Dillon Consulting Ltd. the current level of \$0.12/tonne is significantly less than the cost to rehabilitate. Any program model adopted needs to ensure that sufficient funds are available for rehabilitation and that there is a mechanism in place to ensure that funds required are adjusted regularly to account for inflation, changes in industry standards, etc.

Refer to Environmental Levy document for further information.

4. Red Tape Reduction

Manitoba's approach to regulatory accountability is comprehensive and includes transformed processes for developing statutes, regulations, policies and forms that encourages the monitoring and management of regulatory requirements. These processes incorporate new tools and technology to engage stakeholders and the public in order to promote transparency in the development of regulatory requirements.

Manitoba's Regulatory Accountability Goals include:

- Reduce administrative burden (cost) of complying with regulatory requirements
- Reduce internal costs to government of managing compliance
- Improve service for stakeholders and the public
- Most improved province for regulatory accountability by 2020

The Regulatory Accountability Act established a comprehensive regulatory accountability framework for Manitoba. The Regulatory Accountability Act stipulates that government departments and agencies must follow the principles of regulatory accountability, which include:

- Achieving balance
- Identifying the best option
- Assessing the impact
- Consulting and communicating with stakeholders and the public
- Evaluating effectiveness and efficiency
- Monitoring and minimizing the number of regulatory requirements
- Streamlining design

Potential Models for Discussion

The following are some examples of service delivery models that may be considered for the future of the program. This listing is not intended to be the only models available, or the other considerations, for discussion, rather its intent is to facilitate discussion amongst committee members. An assessment on the financial implications with the Provincial Comptrollers Office would be required in the event that one of these options was pursued to ensure that the impacts on both government and industry was fully known.

A. OPTION: Status Quo

The 2020 Quarry Rehabilitation on Private Land and Quarry Rehabilitation on Private and Municipal Land programs were developed to:

- resume rehabilitation, which had been paused since 2018, in a manner that began process of addressing audit recommendations; and
- fully utilize funds within the Quarry Rehabilitation Reserve Account (QRRA) to facilitate its closure as outlined in Budgets 2020 and 2021.

Funding of \$6.4 M and \$5.8 M were available in 2020 and 2021 respectively and represented projected amounts available at program commencement based upon current QRRA balance and projected levy revenue for fiscal year.

Considerations:

- Starting in fiscal 2022/23, expenditures must balance to revenues, with no opportunity to carry-over funding which was a key benefit to previous program.
- Annual funding level would be based upon projected levy revenue for the fiscal year that it is paid on private registrations, as well as the cost of engineering support for the program. Based upon current volumes and levy rates, this would result in an annual program on private/municipal land of approximately \$1.67 Million as follows:

	\$ (000s)
Plus: 2021/22 Budgeted Environmental Levies	2,800,000.00
Less: Engineering Support for Program	(150,000.00)
Less: 35% of Budgeted levies for Crown Lands	(980,000.00)
Total Available for Rehabilitation Program	1,670,000.00

- As both 2020 and 2021 programs had a QRRA balance (including revenue collected on Crown pits and quarries), available funding was significantly higher than can be expected from the program going forward.
- If actual revenues do not match the level of revenue budgeted, the amount allocated to the Rehabilitation Program may need to be adjusted the following year, either upward or downward, to reflect this trend. A funding level for the program based upon a three-year average may be a consideration in order to “match” expenditures to revenue to the extent possible.
- This program provides funding only to landowners where the quarry/pit site has been registered and a levy paid. As a result, this program does not address the rehabilitation of “legacy” sites that may also still require rehabilitation or require landholders/operators to undertake rehabilitation within a given timeframe.
 - Would need to address the rehabilitation of quarries and sites where aggregate was removed prior to the program and/or where agreements with landowners did not address responsibility for rehabilitation if sufficient funds were not available.
- The department has limited administrative resources to manage this type of program going forward, as existing team has been temporarily assigned to program. Inspectors cannot be assigned this function as they are will more appropriately involved in monitoring/inspecting operations and completed rehabilitation.

B. OPTION: Specific Fund by Contributor

Every holder of a disposition would continue to pay a rehabilitation levy that would be specifically recorded for the holder and/or the specific location.

When rehabilitation is undertaken at a specific site, the holder could request these specific funds to offset costs of the rehabilitation.

Considerations:

- This type of fund management would enable levy payments in one fiscal year to be used in a subsequent fiscal year, without lapsing or impacting on Manitoba’s Summary Budget.
 - This is similar to the previous program (1992 – 2018) except that previously the levies were “pooled” and landowners/operators could receive rehabilitation funding over and above actual levies paid.
 - Recording payments by specific holders in a separate fund would not impact government’s Summary Budget and would meet the objective outlined in the 2020 and 2021 Budgets respecting “Fake Funds”.

- Any rehabilitation costs over the amount of levies actually paid would be responsibility of landowner and/or operator, depending on agreement between the parties (government would not be party to agreement or involved in enforcing terms).
 - Rehabilitation levy could be set at a level sufficient to address rehabilitation in order to mitigate the gap between funding available and cost of rehabilitation.
 - Would need to address the rehabilitation of quarries and sites where aggregate was removed prior to the program and/or where agreements with landowners did not address responsibility for rehabilitation if sufficient funds were not available.
- The Mines and Minerals Act and Quarry Minerals Regulation do not require rehabilitation to be undertaken within specific timeframes or conditions. This could result in minimal levy being collected for sites and no rehabilitation occurring. To ensure that rehabilitation occurred, especially for higher risk sites, this would need to be addressed as part of the program moving forward.
- The department's Inspectors would need to inspect the rehabilitation to ensure funds were used for the intended purpose.
- Segregating the Fund by operators and/or sites would increase the administrative burden on the department and likely operators and landowners.

C. OPTION: Outside Service Provider to Program

An administrator (outside the government entity) could administer a trust that is funded from revenue generated from the collection of environmental levies.

The manner/program on how funds are to be distributed could form part of the trust agreement.

Considerations:

- Funds in the trust account would not need to be segregated based upon individual holders, similar to the Quarry Rehabilitation Reserve Account (QRRR). Funds would also not lapse at year-end.
- The program model would need to be determined, with advice from legal counsel, to ensure appropriate for a trust arrangement and that all legal and financial requirements are understood.
- The program administrator would be required to provide regular reporting to Province to demonstrate that the funds were being administered appropriately; that rehabilitation was occurring to address risk and met government standards, and ensured OAG concerns were addressed.
- Costs for the administration would need to be paid out of the fund, which may reduce the amount of rehabilitation that could be undertaken unless the levy takes these costs into consideration.
- The department could continue to collect the levy and then remit the funds to the administrator, or similar to the model in Ontario, the administrator could collect all revenue for the province and municipalities and pay based on allocation. This could enhance

efficiencies for municipalities, province and operators, however could increase the administrative burden.

- The Mines and Minerals Act and Quarry Minerals Regulation do not require rehabilitation to be undertaken within specific timeframes or conditions. This could result in minimal levy being collected and/or insufficient rehabilitation occurring. To ensure that rehabilitation occurred, especially for higher risk sites, this would need to be addressed as part of the program moving forward.

D. Financial Surety and Rehabilitation Plans

Similar to non-aggregate mines, private quarry and pit operators could be required to submit a production and rehabilitation plan (i.e. five-year) with incremental financial surety being provided based upon level of production planned and cost to rehabilitate.

The financial surety is a “financial guarantee” that can consist of cash deposits, payments, surety bonds, or other agreements to guarantee completion of rehabilitation.

For example:

Year One – financial surety based upon planned production less rehabilitation undertaken.

Year Two – financial surety based upon Year one actual production and Year Two planned production less rehabilitation undertaken.

This would continue for a five-year period with the expectation that progressive rehabilitation would occur during this period of time.

Considerations:

- This option would require to have operators provide rehabilitation plans that would need to meet departmental requirements and these requirements would need to be documented and easily available to operators.
- The term of registration could also be amended to be consistent with term of the plan being submitted (i.e. five years) from the current annual registration. This would provide some efficiencies for operators and the department.
- The amount of the financial surety could be based upon the incremental amount of aggregate planned/produced for the fiscal year as illustrated above.
- There is an additional administrative burden on both government and operators.
- The role of the landowner, in the event that insufficient financial sureties are in place, rehabilitation does not occur and/or to standard required, would need to be determined. There may also need to be an ability for landowners to have access to the financial status of sites located on their property.