

Birtle Transmission Project

Biosecurity Management Plan

June 2020

Prepared by:

Licensing and Environmental Assessment Department

Manitoba Hydro

This page was left intentionally blank.

Document Owner
Licensing and Environmental Assessment Department
Transmission Planning and Design Division
Transmission Business Unit
Manitoba Hydro

Version – Final 1.0

List of Revisions

NUMBER	NATURE OF REVISION	SECTION(S)	REVISED BY	DATE
FINAL 1.0	APPROVED VERSION PUBLISHED			2020_0610

This page was left intentionally blank.

Preface

This document presents the Biosecurity Management Plan (the Plan) for the construction of the Birtle Transmission Project (the Project) and is based on Manitoba Hydro's Biosecurity Policy and Transmission Standard Operating Procedures. It is intended to provide information and instruction to Manitoba Hydro employees and contractors. The Plan presents a Project-specific implementation plan and actions required to protect biosecurity on agricultural lands on which the Project will be constructed. Inspection and compliance along with monitoring and evaluation programs are described to confirm adherence to required actions including documentation and record-keeping. Environmental Management Practices and field forms are included in the Appendices.

Manitoba Hydro employees and contractors are encouraged to contact the onsite Manitoba Hydro Environmental Inspector/Officer if they require information, clarification or support. Regulators and the Public are to direct any inquiries about this Plan to:

Manitoba Hydro
Licensing and Environmental Assessment Department
360 Portage Avenue
Winnipeg, MB
Canada R3C 0G8
1-877-343-1631
LEAProjects@hydro.mb.ca

This page was left intentionally blank.

Table of contents

1.0	Introduction	1
1.1	Purpose and objectives.....	1
1.2	Roles and responsibilities	2
2.0	Biosecurity implementation	5
2.1	Biosecurity risk identification.....	6
2.1.1	Pre-construction sampling protocol.....	6
2.1.1.1	Benchmark sampling for clubroot.....	6
2.1.1.2	Weed surveys.....	8
2.1.1.3	Livestock operations.....	9
2.2	Agricultural land parcel zoning and access control.....	9
2.3	Biosecurity risk classification.....	11
2.4	Risk mitigation actions.....	15
2.4.1	Project mobilization.....	15
2.4.2	Prescribed actions.....	15
2.4.3	Specific actions.....	18
2.4.4	Equipment cleaning requirements	19
2.4.4.1	Types of cleaning.....	19
2.4.4.2	Cleaning stations	20
2.4.4.3	Disinfectants	21
2.5	Signage	23
2.6	Training.....	24
2.7	Documentation.....	25
3.0	Communication.....	26
4.0	Monitoring and follow-up.....	27
5.0	References	28

This page was left intentionally blank.

Appendices

- Appendix A: Noxious weeds regulation species list
- Appendix B: Field activity and inspection forms
- Appendix C: Environmental management practices guides
- Appendix D: Cleaning standards assessment guide

Tables

Table 1: Roles and responsibilities	3
Table 2: Biosecurity zones and control points.....	9
Table 3: Biosecurity risk levels.....	12
Table 4: Biosecurity risk classification matrix	14
Table 5: Low risk equipment cleaning requirements	16
Table 6: High risk equipment cleaning requirements.....	17
Table 7: Description of cleaning types.....	19

Figures

Figure 1: Manitoba Hydro biosecurity program components relevant to the project.....	1
Figure 2: Environmental protection program components	2
Figure 3: Environmental communication reporting structure.....	4
Figure 4: Implementation steps for biosecurity management plan.....	5
Figure 5: Conceptual diagram of controlled access zones, control access points and transition zones	11
Figure 6: Conceptual diagram of a cleaning station.....	21

This page was left intentionally blank.

Definitions

Accumulation – an amount of something that has been collected such as: soil, plant material or crop debris

Agricultural Land – land zoned for agricultural use by the provincial government, a municipality, planning commission or planning district.¹

Biosecurity – the protection of crops and livestock systems and natural environments against the threats of weeds, disease, pests, including invasive species.¹

Controlled Access Point (CAP) – Visually-defined (i.e. signed) entry point where vehicles, equipment and workers enter into and exit from a Project work area identified as a controlled/restricted access zone.

Controlled Access Zone (CAZ) – Agricultural land parcel requiring prescribed and/or specific actions to protect against a biosecurity risk. Two levels of controlled access zones are defined:

- Controlled access zone – low risk: a controlled access zone where a low level risk is identified.
- Controlled access zone – high risk: a controlled access zone where a high level risk is identified.

Frozen Soil Conditions – environmental conditions which result in the top layers of soil being completely frozen and able to support vehicle, equipment and pedestrian travel without rutting or accumulation of soil.

Frozen and Snow-Covered Soil Conditions – environmental conditions which result in the top layers of soil being completely frozen and able to support vehicle, equipment and pedestrian travel without rutting or accumulation of soil, and snow cover is sufficient such that bare soil is not visible including when traversed by vehicles or equipment (i.e. snow prevents direct tire or track contact with the soil surface).

¹ Modified from Manitoba Hydro Agricultural Biosecurity Policy

Invasive Species – Invasive species are plants, animals or other organisms that are growing outside of their country or region of origin and are out-competing or even replacing native organisms

Noxious Weed – means a plant that is designated as a tier 1, tier 2 or tier 3 noxious weed in Manitoba's The Noxious Weeds Act and includes the seed of a noxious weed, whether it is still attached to the noxious weed or is separate from it.

Non-Frozen, Bare Soil Conditions – ground conditions that are not frozen adequately to support equipment travel without transfer of dirt, debris or mud. Soil moisture content or wetness play an important role in soil accumulating on vehicles, equipment and boots:

- Dry conditions – soil surface is dry and the potential for soil sticking to vehicles, equipment and boots is reduced; a field check to confirm dry soils is if your pants are dry after kneeling on the soil surface for 10 seconds.
- Moist/wet conditions – soil surface is moist to wet and the potential for soil sticking to vehicles, equipment and boots is increased; a field check to confirm moist or wet soils is if your pants show wetness after kneeling on the soil surface for 10 seconds.

Plan, the – the Biosecurity Management Plan

Project, the – the Birtle Transmission Project

Restricted Access Zone (RAZ) – Area where access is restricted. Vehicles, equipment or workers should not enter a restricted zone or area unless under special circumstances and with prior approval of the landowner/producers and a Manitoba Hydro Environmental Officer.

Rough cleaning – Use of brushing, scraping, and/or compressed air to remove most surface soil, plant material, and foreign matter from clothing, vehicles and equipment.

OR

Remove to the extent possible accumulated soil, plant material or crop debris from openings, tracks, tires and wheels using a hand scraper, shovel, broom, brush or compressed air.

Topsoil – the uppermost layer of soil, which typically contains elevated levels of organic matter. Topsoil is the portion of the soil environment that is of the most concern for biosecurity as it contains weed seeds, pathogens and other pests. It is also the most important soil layer for crops as it contain all of the nutrients and moisture required for growth.

Transition Zone – Visually-defined (i.e., signed) designated areas between controlled access zones (e.g., between “low risk” and “high risk” fields within a land section).

Transition Zones are where workers stop prior to entering an adjacent controlled access, and review and implement required actions. The requirement for Transition Zones between controlled access zones can be mitigated by permitting access from opposing sides of CAZ and not crossing the Transition Zone, choosing a direction of travel that moves from low risk area to high risk area, or the use of continuous matting throughout CAZ.

Work Area – the work area on the right-of-way, approach driveways, marshalling yards, temporary work areas and access trails or other areas approved by Manitoba Hydro. The work area includes agricultural field access approaches and undeveloped road allowances. The work area excludes developed municipal and provincial roads (gravel and paved road surfaces) which may be used to travel to the work area.

This page was left intentionally blank.

1.0 Introduction

1.1 Purpose and objectives

This Biosecurity Management Plan (the Plan) has been developed for the Birtle Transmission project (the Project) to provide guidance to Manitoba Hydro staff and contractors in order to prevent the introduction and spread of weeds and other pests, including invasive species, through Project pre-construction and construction activities.

Development of the Plan fulfills the requirements of Manitoba Hydro's Corporate Biosecurity Policy. The purpose of the corporate policy is to ensure that Manitoba Hydro staff and contractors take necessary precautions to protect the health and sustainability of the agricultural sector. The Plan provides required actions specific to the Project and a detailed implementation plan. This includes direction to individuals who may be required to enter agricultural lands, such as the level of cleaning necessary to reduce the likelihood of soil and manure transport of organisms of concern (diseases, weeds, and other pests, including invasive species). An overview of these two layers in Manitoba Hydro's biosecurity program for the Project is provided in Figure 1.

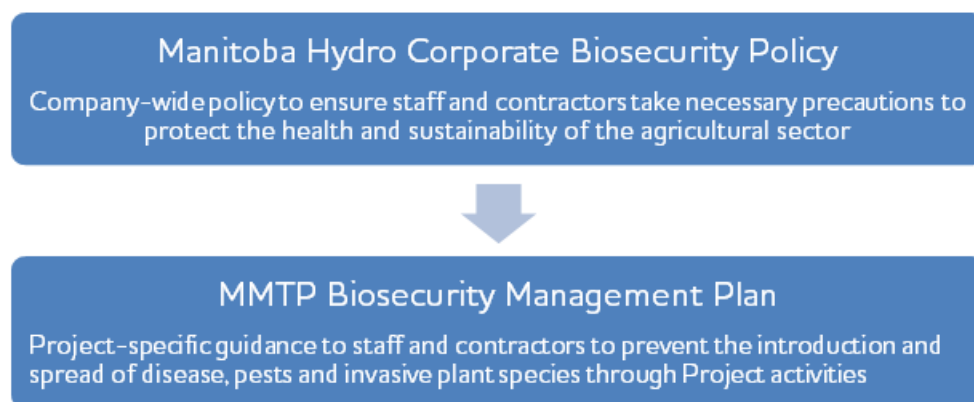


Figure 1: Manitoba Hydro biosecurity program components relevant to the project

1.2 Roles and responsibilities

This section outlines the major roles and responsibilities of those involved in the implementation of the Plan. The Plan forms a component of the Environmental Protection Program (EPP), which provides the framework for the delivery, management and monitoring of environmental and socio-economic protection measures for the Project. A visual reference for how the Plan fits into the overall EPP organization structure is provided in Figure 2.

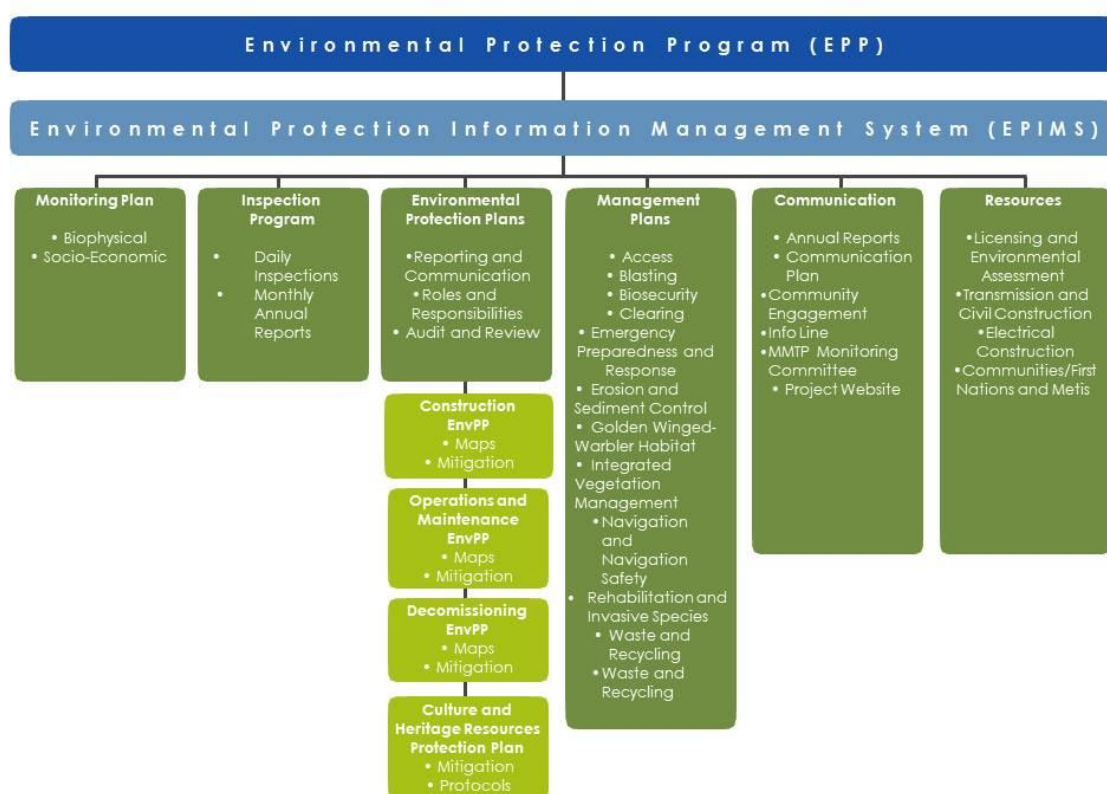


Figure 2: Environmental protection program components

A summary of roles and key responsibilities is found in Table 1. Communication and reporting on environmental issues, monitoring and compliance will be as outlined in Figure 3.

Table 1: Roles and responsibilities

Role	Key Responsibilities
Manitoba Hydro	<ul style="list-style-type: none">• Determine potential biosecurity risk locations through consultation with landowners, Manitoba Agriculture and field assessments/soil testing, if necessary.• Conduct a pre-construction weed survey and document baseline weed occurrences observed on the Project right-of-way.• Conduct pre-construction clubroot sampling on lands under cultivation along the Project right-of-way.• Identify and map biosecurity control zones with identified pests such as clubroot, and noxious and invasive weeds, on or adjacent to agricultural lands along the Project right-of-way.• Select appropriate equipment cleaning station locations and types based on identified risk levels along the Project right-of-way.• Obtain approval of the landowner/producers for access to Restricted Access Zones.• Follow Biosecurity Management Plan including employee training, implement cleaning stations, prescribed actions, signage and submit all required cleaning documentation.• Implement post-construction weed management in areas identified with weed occurrences, as per the Plan.• Conduct post construction monitoring and reporting as per Environmental Monitoring Plan using the pre-construction survey report for baseline comparison.• Continue to implement post-construction weed management in areas with unresolved weed occurrences, as per the Plan.• Continue to monitor and report as per Environmental Monitoring Plan using the pre-construction survey report for baseline comparison.
Contractor	<ul style="list-style-type: none">• Shall adhere to Biosecurity Management Plan including employee training, implement cleaning stations, prescribed actions, signage and submit all required cleaning documentation.• Respond and act promptly to resolve if any activities are identified as not in compliance with the BMP or any regulatory requirements.• Supply and maintain all required, signage, cleaning equipment, approved disinfectants.

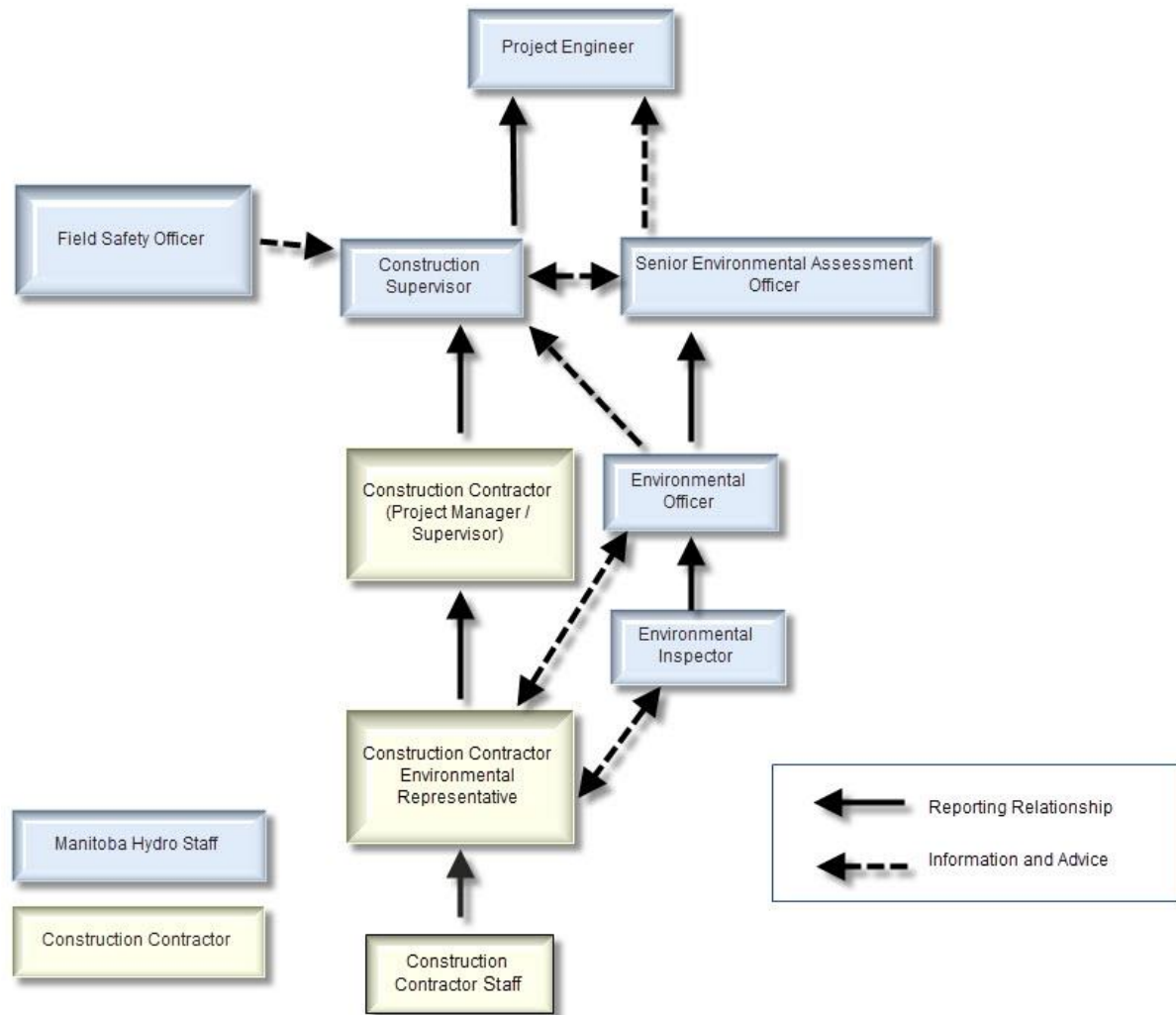


Figure 3: Environmental communication reporting structure

2.0 Biosecurity implementation

The intent of this section is to provide for implementation instructions to Manitoba Hydro and Contractor Project staff. The four key steps to implementing the plan are shown in Figure 4.

Once risks are identified through various means (Section 2.1), control areas are identified (Section 2.2), then risks will be classified into a risk level (Section 2.3), which will in turn be used to determine the nature of actions to be undertaken to manage the risk (Section 2.4). Mitigative actions will be determined and undertaken; the objective of which is to prevent the introduction, establishment, and spread of pests (i.e., weeds and diseases). Prescribed or issue-specific actions will be determined based on assessment of the biosecurity issue.

The implementation of the Plan utilizes a step-wise process; however, these steps will be undertaken at various times throughout the pre-construction and construction phases of the Project. The plan is founded on a principle of adaptive management – if aspects of the plan are found to require modifications for improved effectiveness or if new information becomes available (e.g., more effective control actions, pest outbreaks in the Project area) the Plan and actions will be updated.

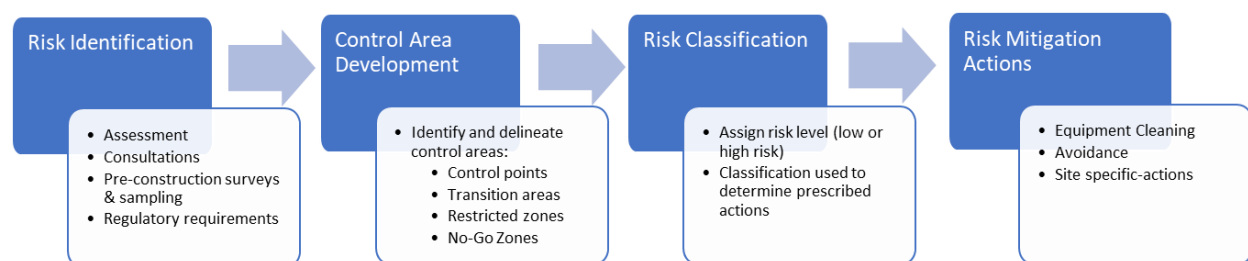


Figure 4: Implementation steps for biosecurity management plan

2.1 Biosecurity risk identification

Manitoba Hydro will conduct assessments appropriate to the area in which there is a biosecurity concern based on the results of consultation with Manitoba Agriculture and Sustainable Development staff and/or individual landowners or producers, identified risks of spreading weeds and invasive species or disease pests of concern, and regulatory requirements. Specific actions to be undertaken, as necessary, may include:

- pre-construction meetings and discussion with landowners, including the identification of reasonable site-specific biosecurity concerns, if any
- pre-construction soil sampling program for the presence of clubroot on the ROW, access routes and any other Project infrastructure such as marshalling yards located on cultivated agricultural lands
- pre-construction weed surveys for determination of location and type (i.e., tier 1, tier 2, or tier 3) of weed concerns
- pre-construction inventory of livestock operations to identify risk areas associated with livestock and manure
- pre-construction inventory of waterbodies with aquatic invasive species present

2.1.1 Pre-construction sampling protocol

2.1.1.1 Benchmark sampling for clubroot

Soil Sample collection methodology

The soil sampling collection methodology as describe below was developed from methods established by Manitoba Agriculture.

1. Soil samples should be a composite of one cup scoops of soil taken at each of five points in one field. As clubroot concentration have been found to be the highest at field approaches in infected fields, the samples should be taken within the vicinity of where vehicles, equipment and pedestrians would usually enter into the field. Samples may also be collected when there is a significant change in cropping practice and/or potential for additional field entry. Travelling in a “W” pattern, stop at the five points of the “W” keeping each of these five points at least 20 metres from each other and at least 20 metres from the field edge.

2. Clear away residue from the soil surface, and scoop approximately one cup of the top zero to 10 cm of soil at each site (approximately one litre from all five points combined).

Document collection location with following information:

- Controlled Access Zone reference number
 - legal description of land parcel
 - sample reference number
 - GPS location of last sampling point
 - name of the person who collected the sample
 - date of sampling
3. Air-dry soil samples in paper boxes and send them to approved laboratory for testing.

Sample testing methodology

Soil samples will be submitted to an independent third-party laboratory, such as Pest Surveillance Initiative or Manitoba Agriculture Labs (each a “Testing Laboratory”). The selection of the Testing Laboratory will be at the discretion of Manitoba Hydro. The selected Testing Laboratory will perform conventional Polymerase Chain Reaction analysis on each composite sample submitted for testing, with a view to identifying the presence of clubroot DNA to a confidence level of 10³ (1000 spores/gram).

Test results

Manitoba Hydro will keep all test results in confidence, but will have the right to disclose test results (i) to the landowner to whose property they pertain; (ii) to those persons authorized by the landowner to whose property the test results pertain; (iii) to Manitoba Hydro and to contractors who will be undertaking work on the property, iv) to the Pest Surveillance Initiative; v) to Manitoba Agriculture or other Regulatory Authorities.

Sampling crew protocol

- If it is (i) reasonably practicable and (ii) safe, sampling crews will avoid parking motorized vehicles in field accesses.
- Sampling crews will travel by foot on lands to be sampled.

- Sampling crews will either (i) spray all footwear using an approved disinfectant solution prior to crossing a change in Controlled Access Zone, or (ii) wear disposable boot covers over footwear, which will be changed between each sampling site.
- Disposable gloves will be worn for soil sampling and will be changed at each sampling site.
- Hand tools used during the sampling process will be Rough Cleaned, and sprayed with a 1% Virkon solution upon leaving each sampling site.

2.1.1.2 Weed surveys

The weed survey methodology as described below was developed from methods established by Adams et al. (2009).

Weed survey data collection methodology

- Species will be recorded in field books, and GPS coordinates and photographs will be captured at each location.
- Environmental monitoring of these sites will involve recording species composition and determining species densities, if movement occurs into the Project right of way from roadside ditches.
- Weed density distribution will follow Adams et al. (2009) and involve a quantitative description of species abundance. Species abundance codes range from none to continuous occurrence of plants with a distinct linear edge.
- All legislated weeds and invasive plant species will be documented and phenology will be recorded (i.e., flowering, fruiting, seeding, vegetative).
- A site sketch will be completed for infestations into the Project right of way and photographs will be taken.

Sampling crew protocol

- If it is (i) reasonably practicable and (ii) safe, sampling crews will avoid parking motorized vehicles in field accesses.
- Sampling crews will travel by foot on lands to be sampled.

- Sampling crews will either (i) spray all footwear using an approved disinfectant solution, or (ii) wear disposable boot covers over footwear, which will be changed between each sampling site on agricultural land.
- At selected sites along the right of way, pre-construction roadside surveys will be conducted (e.g., bordering agricultural lands) to establish a baseline for future monitoring comparison.
- From the roadside, ditches will be traversed on foot to document species presence and record infestations into adjacent lands.

2.1.1.3 Livestock operations

Various types of livestock operations were identified during the environmental assessment process (Manitoba Hydro, 2015). The location and type of these have been inventoried and mapped and will be used by Manitoba Hydro to determine biosecurity risk areas and levels related to livestock operations.

2.2 Agricultural land parcel zoning and access control

Manitoba Hydro has developed a construction environmental protection plan mapbook, including the identification of controlled access points, transition zones and the classification of control and restricted zones for agricultural land parcels.

Different levels of access restriction and required actions, are assigned to controlled access zones and restricted access zones. Controlled access points are visually identifiable (i.e., signed) points used as access points into controlled/restricted access zones in Project work areas, and are used to control entry into and exit from these zones. Transition Zone are designated areas between controlled access zones (e.g., between “low risk” and “high risk” fields within a land section). These zones and controls are further defined in Table 2.

Table 2: Biosecurity zones and control points

Zone or point identification	Definition
Controlled Access Point	Visually-defined (i.e., signed) entry point where vehicles, equipment and workers enter into and exit from a Project work area identified as a controlled/restricted access zone.
Transition Zone	Visually-defined (i.e., signed) designated areas between controlled access zones (e.g., between “low risk” and “high risk” fields within a land section). Transition

Table 2: Biosecurity zones and control points

Zone or point identification	Definition
	zones are where workers stop prior to entering an adjacent controlled access, and review and implement required actions.
Controlled Access Zone	<p>Agricultural land parcel requiring prescribed and/or specific actions to protect against a biosecurity risk. Two levels of controlled access zones are defined:</p> <ul style="list-style-type: none">• Controlled access zone – low risk: a controlled access zone where a low level risk is identified.• Controlled access zone – high risk: a controlled access zone where a high level risk is identified.
Restricted Access Zone	Area where access is restricted. Vehicles, equipment or workers should not enter a restricted zone or area unless under special circumstances and with prior written approval of the landowner/producers and a Manitoba Hydro Environmental Officer.

The requirement for Transition Zones between controlled access zones can be mitigated by permitting access from opposing sides of CAZ and not crossing the Transition Zones, choosing a direction of travel that moves from low risk area to high risk area, or the use of continuous matting throughout CAZ.

A conceptual diagram of controlled access points, transition zones and controlled access zones (low and high risk) is presented in Figure 5.

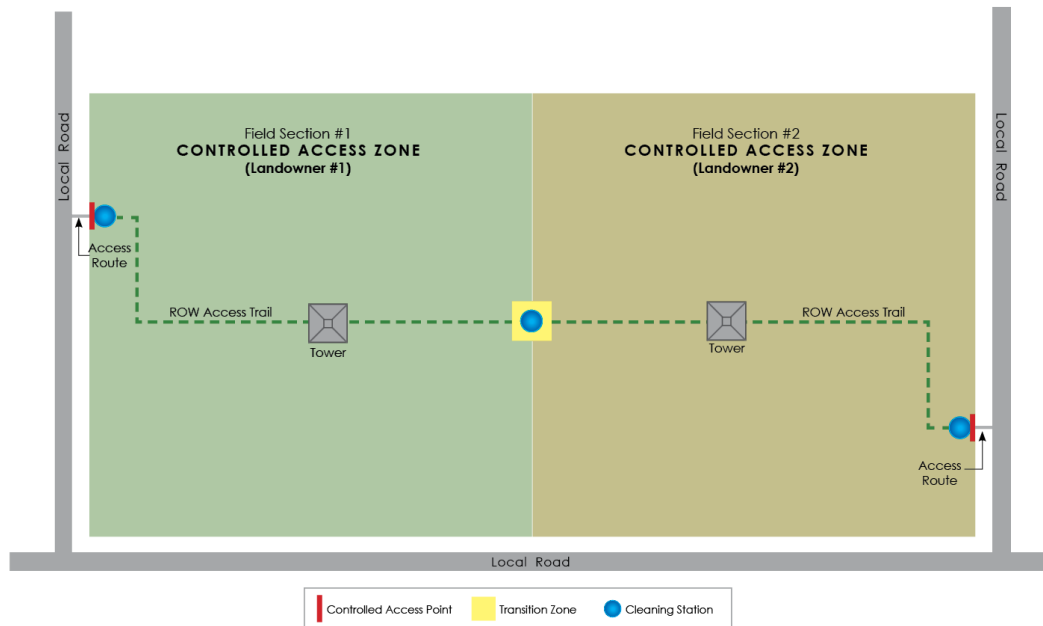


Figure 5: Conceptual diagram of controlled access zones, control access points and transition zones

2.3 Biosecurity risk classification

Manitoba Hydro will conduct a classification of the identified biosecurity risks for the Project based on the level of risk, in terms of the potential consequences associated with not undertaking risk mitigation actions. Risks will be classified as Low or High, according to the definitions provided in Table 3. Generally, the risk of soil borne biosecurity issues (i.e., weed seeds in soil, soil borne pathogens [e.g., clubroot, anthrax]) decreases according to the following soil conditions: non-frozen, bare soil – moist/wet > non-frozen, bare soil – dry > frozen, bare soil > frozen, snow-covered soil.

Known biosecurity risks for the Project are listed in Table 4, including the classified risk level for each identified risk. Any mapping produced will not be labelled with the name of the specific concern (i.e. clubroot, PED, Anthrax) for the controlled access zone to protect confidentiality concerns.

Weeds designated as tier 1, tier 2 and tier 3 noxious weeds under the Noxious Weeds Regulation (42/2017) is found in Appendix A.

Table 3: Biosecurity risk levels

Risk level	Risk definition
Low	A low risk to biosecurity is one in which may result in the introduction of new concerns or increased prevalence where concerns already exist if appropriate mitigative actions are not undertaken. In the case of low risks, the potential introduction or increased prevalence of a biosecurity concern is not anticipated to result in immediate or substantive damage to crops or livestock.
High	A high risk to biosecurity is one in which immediate and/or substantive damage could occur to crops or livestock if appropriate mitigative actions are not applied. These damages may occur from the introduction of new pests or the increase in prevalence of existing pests in a given area.
WC (Risk level modifier)	<p>Winter Conditions (WC) is a risk level modifier that may be applied (when directed by Manitoba Hydro) to low or high risk sites where the activity is less likely to result in the introduction of new concerns or increased prevalence where concerns already exist when the soil is frozen or frozen, snow-covered. This risk level modifier only applies to activities that are not likely to create subsurface disturbance such as pedestrian, vehicle and equipment travel activity, if any soil accumulates on the boots, vehicles or equipment the applicable low or high risk cleaning procedures apply. This risk level modifier does not apply to construction activities that create subsurface disturbance such as grubbing, excavation, drilling, foundation installation, clearing, conductor stringing, etc.</p> <p>Winter Conditions (WC) is a risk level modifier that may be applied (when directed by Manitoba Hydro) to low or high risk sites where the activity is less likely to result in the introduction of new concerns or increased prevalence where concerns already exist when the soil is frozen or frozen, snow-covered. This risk level modifier only applies to activities that are not likely to create subsurface disturbance such as pedestrian, vehicle and equipment travel activity, if any soil accumulates on the boots, vehicles or equipment the applicable low or high risk cleaning procedures apply. This risk level modifier does not apply to construction activities that create subsurface disturbance such as grubbing, excavation, drilling, foundation installation, clearing, conductor stringing, etc.</p>

Table 4: Biosecurity risk classification matrix

Biosecurity issue	Risk level		
	Non-frozen soil	Frozen soil	Frozen, snow-covered soil
Agricultural lands where no weeds, soil borne crop diseases, manure spreading or active livestock settings have been identified that present a substantial risk to biosecurity	Low	WC ¹ Low ²	WC ¹ Low ²
Specific sites identified as Tier 1 Noxious weeds as defined in the Noxious Weeds Regulation.	High	High	Low
Specific sites identified as Tier 2 or 3 Noxious weeds as defined in the Noxious Weeds Regulations and present a substantial biosecurity risk that the project activities will transfer the identified issue from one area to another.	Low	Low	Low
Laboratory testing has indicated clubroot spores are present	High	WC ¹ High ²	WC ¹ High ²
Manitoba Hydro will designate an operation with an existing and established biosecurity management plan as High risk. Manitoba Hydro will strive to meet the existing farm level biosecurity measures in these instances.	High		
Manitoba Hydro will designate active livestock settings (e.g., ILOs, active grazing areas) as High risk.	High		
Agricultural lands on which manure has been spread.	High	High	WC ¹ High ²

Note 1: This risk level modifier only applies to activities that create **no** subsurface

Table 4: Biosecurity risk classification matrix

Biosecurity issue	Risk level		
	Non-frozen soil	Frozen soil	Frozen, snow-covered soil

disturbance such as vehicle travel, inspection, surveying, etc.

Note 2: This risk level applies to activities that create subsurface disturbances such as grubbing, excavation, drilling, foundation installation, clearing, conductor stringing, etc.

2.4 Risk mitigation actions

2.4.1 Project mobilization

The contractor must ensure that all equipment shall arrive at the Project work area clean of soil and plant material to the satisfaction of the Manitoba Hydro Environmental Inspector/Officer. Any equipment that arrives dirty will not be permitted entry into the Project work area or adjacent lands until it has been cleaned. The Vehicle and Equipment Cleaning Field Log (Appendix B - Field Activity and Inspection Forms) will be completed for all equipment entering the work site. See Section 2.3.4 for more information on equipment cleaning requirements.

2.4.2 Prescribed actions

Prescribed actions to prevent or reduce the potential for an increased biosecurity risk as a result of Project activities are listed below according to the assessed risk level.

Winter conditions modifier (WC) No prescribed mitigative actions are required for:

- pedestrians, vehicles and equipment travelling through;
- construction activities such as clearing and non-excavated foundation installation, or other activities as determined by Manitoba Hydro Environmental Officer

that occur within controlled access zones when the WC risk level modifier is applied to low or high risk sites. This means that establishment of cleaning stations, cleaning, documentation of cleaning and/or inspection, and disinfection is not required at the areas where the WC risk level modifier is applied. However, if any soil, manure, plant material and foreign matter accumulates on the boots, vehicles or equipment the applicable low or high risk prescribed actions (as described below) apply.

Prescribed mitigative actions, as prescribed below, are required for:

- construction activities that create subsurface disturbance such as grubbing, excavation, drilling, excavated foundation installation, clearing, conductor stringing anchor installation, etc.

that occur within controlled access zones even when the WC risk level modifier is applied to low or high risk sites. This means the establishment of cleaning stations, cleaning, documentation of cleaning and inspection, and disinfection is required at these areas even if the WC risk level modifier is applied. This is because soil, manure, plant material and foreign matter is expected to accumulate during these construction activities.

Low risk

The following are prescribed mitigative actions for controlled access zones classified as Low Risk :

1. Inspect to ensure clothing, matting, vehicles and equipment is clean of soil, manure, plant material and foreign matter prior to entering agricultural lands.
2. When leaving agricultural lands, visually inspect clothing, matting, vehicles, and equipment for seeds, soil, or manure and if required, rough clean all surfaces prior to leaving the land. Rough cleaning (i.e. brushing, scraping, and/or compressed air) will remove most surface soil, plant material, and foreign matter from clothing, vehicles and equipment.
3. Complete the Biosecurity Cleaning Record anytime cleaning is required prior to entry (as per #1 above) and anytime clothing, matting, vehicles and equipment exits a controlled access zone.

Table 5: Low risk equipment cleaning requirements

Equipment	Cleaning requirements
Footwear	Rough clean
Vehicles	Rough clean
Matting	Rough clean
Equipment	Rough clean

High risk

The following are prescribed actions for controlled access zones classified as High Risks:

1. If possible, avoid the immediate area of the biosecurity risk (e.g., use alternate access to avoid active livestock grazing areas, identified weed infestations, avoid travelling through High Risk controlled access zones).

2. If possible, schedule activities to occur when ground conditions are more favourable (i.e., frozen or frozen and snow-covered or utilize matting and geotextile underlayment,).
3. Inspect to ensure clothing, matting, vehicles and equipment is clean of soil, manure, plant material and foreign matter prior to entering controlled access zones.
4. When leaving the controlled access zone, visually inspect clothing, matting, vehicles and equipment for soil, manure, plant material or foreign matter and if required, rough clean all surfaces prior to leaving the land. Brushing and/or scraping will remove most surface soil, plant material, and foreign matter from clothing, matting, vehicles and equipment.
5. Matting, vehicles and equipment may require fine cleaning to remove remaining soil, manure, plant material and foreign matter (see Table 6). Fine cleaning will be conducted using high pressure water, steam or compressed air to remove remaining soil, manure, plant material and foreign matter.
6. Fine cleaning and disinfecting of matting and equipment only, may be completed off site, if the matting or equipment is transported directly to a Manitoba Hydro approved or commercial wash facility.
7. In cases where there is a risk of spreading soil to agricultural lands (such as vehicle or equipment tires/tracks), pressure washing/steaming/compressed air cleaning must occur before leaving the controlled access zone.
8. After fine cleaning, disinfection of matting, vehicles and equipment through the use of an approved disinfectant spray that is applied to all surfaces that have been in contact with soil, manure, plant material and foreign matter is required.
9. Only disinfectants approved by Manitoba Hydro are to be utilized.
10. To clean footwear, use a brush or scraper to remove soil, manure, plant material and foreign matter. Apply disinfectants approved by Manitoba Hydro. Alternatively, use disposable footwear booties or change dirty footwear for clean footwear when leaving the controlled access zone.
11. Complete the Biosecurity Cleaning Record anytime cleaning is required prior to entry (as per #3 above) and anytime clothing, matting, vehicles and equipment exits a controlled access zone.

Table 6: High risk equipment cleaning requirements

Equipment	Cleaning requirements
Footwear	Rough clean and disinfectant spray

Table 6: High risk equipment cleaning requirements

Equipment	Cleaning requirements
Vehicles	Rough, fine clean and disinfectant spray
Matting	Rough, fine clean and disinfectant spray
Equipment	Rough, fine clean and disinfectant spray

Cleaning requirements for high risk areas must be carried out before moving between controlled access zones (i.e., landowner boundaries with a change in biosecurity risk and/or risk level, or change in land use). If there are continuous controlled access zones classified as high risk and where equipment will travel continuously along the right-of-way, the requirement will be to fine clean and spray with a disinfectant at the established controlled access point of the entire defined high risk area, and to complete the specified type of cleaning in designated transition zones between controlled access zones, if applicable. Controlled access points and transition zones are identified in the Biosecurity Management Plan Mapbook and any subsequent amendments.

Additional details on cleaning and cleaning areas/stations are found in Section 2.4.4.

2.4.3 Specific actions

As part of the adaptive management planning, it is understood that currently unknown and site-specific biosecurity issues and concerns yet to be identified may require assessment and action to manage risk associated with Project activities. For example, if during the construction phase a “new” biosecurity issue or threat is determined to occur in the Project area, the issue or threat will be reviewed by Manitoba Hydro and changes will be made to the Plan in order to appropriately protect against biosecurity risk. It is not possible to consider all potential situations or risks, therefore actions may need to be developed, as required and as appropriate, in these situations. In these cases, Manitoba Hydro Environmental Officer will discuss with Contractor Environmental Representative and an appropriate course of action will be developed. The issue and specific actions required will be documented by Manitoba Hydro, and will need to be followed up by the contractor(s) and their personnel.

If existing agricultural operation biosecurity measures exist, Project staff and contractors will strive to meet the requirements of the agricultural operation when access is required. Again, these specific actions will be documented by Manitoba Hydro and will need to be implemented by contractor(s) and their personnel.

In the event of an emergency situations (e.g., injured personnel, etc.), Project work areas may have to be accessed by emergency response personnel without adherence to mitigation actions.

2.4.4 Equipment cleaning requirements

Equipment cleaning is a critical component of the biosecurity management plan. Vehicles and equipment being used in agricultural fields during all project phases (i.e., pre-construction, clearing, construction, commissioning) must arrive at site clean and free of aquatic invasive species, soil, vegetative matter, and require cleaning during work on the Project, as discussed above, and described in further detail below.

2.4.4.1 Types of cleaning

Different types of cleaning of matting, vehicles and equipment are required as determined by the level of risk and the nature of the concern. The different types of cleaning that are required for the Project are presented in Table 7.

Table 7: Description of cleaning types

Cleaning type	Description
Rough clean	Remove to the extent possible accumulated soil, plant material or crop debris from openings, tracks, tires and wheels using a hand scraper, shovel, broom, brush or compressed air. This level of cleaning must occur on-site before leaving the selected cleaning location or the work area. Personnel cleaning the equipment must complete a visual inspection for accumulated soil and plant material prior to leaving the cleaning station.
Fine clean	Fine clean means high pressure water wash, high pressure air wash or high pressure steam wash to remove accumulated soil, plant material or crop debris. Wash matting, vehicles, and equipment paying extra attention to areas where soil or plant debris is likely to accumulate (i.e., tires or undercarriage). For hydrovac trucks, cleaning includes the inside of the tank and any implement in contact with soil. Prior to fine cleaning, matting, vehicles and equipment should receive a rough clean.
Disinfectant spray	Use disinfectant spraying as the final cleaning phase when working on controlled access zones where there is a confirmed high risk of encountering and spreading viruses, diseases that can be effectively treated with a disinfectant spray. Spray tracks, openings, tires, wheels and implements that may come in contact with soil, plant material or crop debris with an approved disinfectant solution. Disinfectant sprays should be used in accordance with label directions and applied according to the information presented in

Table 7: Description of cleaning types

Cleaning type	Description
	Section 2.3.4. Foot traffic may also utilize disposable boots. Hydrovac truck cleaning includes the inside of the tank and any implement that came into contact with soil or plant material or crop debris.

2.4.4.2 Cleaning stations

Cleaning area/station locations (see Figure 6 below) will be identified prior to construction by Manitoba Hydro and be established by the contractor(s) at applicable controlled access points and transition zones and not within road allowance. Cleaning stations will be established to address the determined risk level and the associated type of cleaning prescribed. There are two types of cleaning stations:

1. Low Risk Cleaning Station – contains equipment for rough cleaning and when required disinfecting spray.
2. High Risk Cleaning Station – contains equipment for rough and fine cleaning along with disinfecting spray.

Cleaning stations will have signs placed appropriately onsite by the contractor(s) to notify Project personnel of the cleaning station location and type of cleaning that should be conducted. Sediment released from the washing process will be fully contained (i.e., sump pit, berm).

When cleaning station sump pits, sump materials (dirt, water and disinfectant solution from washing activities) must be disposed of at an MH approved disposal facility.

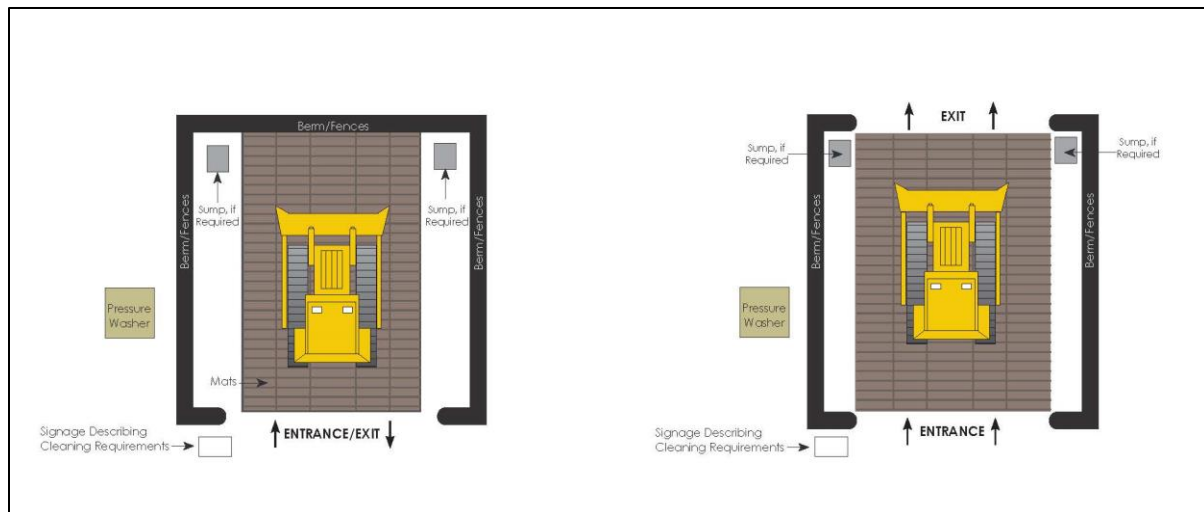


Figure 6: Conceptual diagram of a cleaning station

2.4.4.3 Disinfectants

Manitoba Hydro approves the use of disinfectants on Manitoba Hydro projects. Approved disinfectants for this Project include Virkon, Accel and Synergize. Mixing and use of these disinfectants are discussed below.

Virkon

Virkon is approved by Manitoba Hydro, for use in the prevention of the transport of invasive organisms in soil and manure onto or off of agricultural land. Please refer MSDS sheets prior to use for safe handling procedures. For disinfection, staff and contractors are to use Virkon 5 gram tablets, mixed and applied in accordance with the manufacturer's specifications. Virkon is biodegradable and no further treatment of the waste solution is required. The process for cleaning equipment and disinfecting is as follows:

- Scrape off all heavy soil accumulations and utilize pressure washing, steaming or compressed air to clean all surfaces that have been in contact with the soil.
- Virkon disinfectant is to be mixed as one tablet for every 500 ml of water for above freezing weather conditions.
- Virkon disinfectant is to be mixed as one tablet for every 500 ml of solution (400 ml of water and 100 ml of propylene glycol, pre-mix prior to adding disinfectant) for below freezing weather conditions.
- To ensure maximum effectiveness, mixed solution has a 7-day shelf life or when pink color fades and solution begins to appear milky.

- e) Virkon must be applied by spraying or the use of a mop, sponge or cloth to evenly apply onto the equipment surface that has been in contact with the soil. A minimum wetted contact time of 10 minutes is required for all surfaces that have been in contact with soil.
- f) Any waste solution associated with disinfection is to remain on the field where it was used. It must be disposed of at least ten metres from a drain or drainage ditch.
- g) Do not re-use a solution which has been used to soak contaminated tools or equipment.

Accel

Accel is approved by Manitoba Hydro, for use in the prevention of the transport of invasive organisms in soil and manure onto or off of agricultural land. For disinfection, staff and contractors are to use Accel mixed and applied in accordance with the manufacturer's specifications. Please refer MSDS sheets prior to use for safe handling procedures. Accel is biodegradable and no further treatment of the waste solution is required. The process for cleaning equipment and disinfecting is as follows:

- a) Scrape off all heavy soil accumulations and utilize pressure washing, steaming or compressed air to clean all surfaces that have been in contact with the soil.
- b) Accel disinfectant is to be mixed at 1:40, 100 ml of concentrate per 4 L of water for above freezing weather conditions. A minimum wetted contact time of 5 minutes is required for all surfaces that have been treated.
- c) For below freezing weather conditions, Accel is not recommended due to 40 minute minimum wetted contact time.
- d) To ensure maximum effectiveness, mixed solution has a 30-day shelf life.
- e) Accel must be applied by spraying or the use of a mop, sponge or cloth to evenly apply onto the equipment surface that has been in contact with the soil.
- f) Any waste solution associated with disinfection is to remain on the field where it was used. It must be disposed of at least ten metres from a drain or drainage ditch.
- g) Do not re-use a solution which has been used to soak contaminated tools or equipment.

Synergize

Synergize is approved by Manitoba Hydro, when requested by the landowner for use in the prevention of the transport of invasive organisms in manure.

Synergize has known aquatic environmental impacts on aquatic fish invertebrates. The application of the product will be contained in the field away from any watercourses to mitigate environmental impacts. Disinfecting with this product shall be done on the field away from any watercourse and leftover product will be disposed of at an approved facility. Please refer MSDS sheets prior to use for safe handling procedures. The process for cleaning equipment and disinfecting is as follows:

- a) Scrape off all heavy soil accumulations and utilize pressure washing, steaming or compressed air to clean all surfaces that have been in contact with the soil.
- b) Synergize is to be mixed with a ratio of 4 ml Synergize to 1 L water for above freezing weather conditions.
- c) Synergize is to be mixed with a ratio of 8 ml Synergize to 1 L solution (900 ml of water and 100 ml of propylene glycol, pre-mixed prior to adding disinfectant) for below freezing weather conditions.
- d) To ensure maximum effectiveness, mixed solution has a maximum 7-day shelf life.
- e) Synergize must be applied by spraying or the use of a mop, sponge or cloth to evenly apply onto the equipment surfaces that have been in contact with the soil. A minimum wetted contact time of 10 minutes is required for all surfaces that have been treated.
- f) Do not re-use a solution which has been used to soak contaminated tools or equipment.
- g) Any leftover product will be disposed of at an approved facility.

Propylene glycol

For the use of above-described solutions during freezing weather conditions, pure United States Pharmacopeia (USP) or food-grade propylene glycol must be utilized in the disinfectant solution. Propylene glycol improves spraying by preventing freezing of solution at low temperatures and fragmenting the solution drops into smaller particles, allowing for a better distribution and coverage of the sprayed surface. Propylene glycol is biodegradable, water-soluble, and is safe for humans.

2.5 Signage

Contractors will be required to supply and install signage prior to commencement of pre-construction and construction activities to notify and inform contractor's field personnel and Manitoba Hydro staff of controlled access zones. Signage will be installed at all

controlled access points where personnel are required to enter into and exit from a controlled access zone, Signage will have to differentiate between a Controlled Access Zone and a Restricted Access Zone. At the Controlled Access Point(s), or transition zone(s) will be established with signage installed to inform personnel of cleaning requirements.

Signage is required as follows:

- Controlled Access Point or Transition Zone signage must contain:
 - Indication to Stop
 - Cleaning requirements as applicable to current Controlled Access Zone risk rating.

2.6 Training

Manitoba Hydro and the contractor(s) each have responsibility to ensure that their respective personnel are appropriately trained to carry out their role in the protection of biosecurity, and that proper documentation and communication is being conducted throughout the Project. Manitoba Hydro has prepared Environmental Management Practices Guides (Appendix C) for variety of topics covered in this plan for use by Project field staff

Manitoba Hydro will hold a Contractor Environmental Pre-Construction Orientation meeting to review Project specifics and environmental requirements with all of its Contractors at a supervisory level. A summary of this Biosecurity Management Plan, implementation requirements, roles and responsibilities, and Manitoba Hydro's expectations will be presented at that time.

Manitoba Hydro will also hold a separate pre-construction environmental meeting to provide the opportunity for Manitoba Hydro and Contractor environmental representatives to discuss Project specifics and environmental requirements in more depth.

It is a mandatory requirement that the contractor(s) provide all personnel involved in construction work in the field or involved in supervision of those personnel (i.e., project manager, supervisors) Project-specific Biosecurity Management Plan orientation training prior to starting work. This training will present the objectives of the plan, roles and responsibilities, biosecurity issues and required actions, and documentation requirements. A training attendance record must be maintained by the contractor(s) and submitted to Manitoba Hydro Environmental Protection Information Management System.

2.7 Documentation

Once the matting, vehicles and equipment has been cleaned in accordance with the assigned risk level, the Cleaning Record Form will be filled out and signed off by the contractor personnel managing the cleaning station or the operator completing the cleaning. All Cleaning records will be digitized into an Excel Spreadsheet and submitted by the Contractor on a weekly basis to the Manitoba Hydro Environmental Protection Information Management System by the Contractor. Contractor will maintain all original copies until Project completion and will be transferred to Manitoba Hydro upon request.

This page was left intentionally blank.

3.0 Communication

In addition to the plan, mapbook and accompanying landowner information spreadsheet form critical components of communicating biosecurity requirement to personnel working on the Project. Manitoba Hydro will provide the contractor(s) the construction environmental protection plan mapbook visually identifying biosecurity information:

- Identified controlled access zones, and preliminary risk levels, as appropriate.
- Proposed access locations, controlled access points and transition areas, where cleaning areas/stations will be located.

Locations of controlled access points, transition areas and cleaning station areas/stations will be finalized by Manitoba Hydro in conjunction with the contractor(s). Any contractor-proposed additions, location modifications or plan requirement revisions will be submitted in writing to Manitoba Hydro and include a map containing legal land description and GPS location. Any Manitoba Hydro-required revisions to the plan will be communicated to the contractor's project manager for distribution to project staff.

This page was left intentionally blank.

4.0 Monitoring and follow-up

Manitoba Hydro will monitor the work carried out under the plan. Each contractor's work will be monitored to assess public and worker safety, permitting requirements and approvals, environmental concerns, completion schedules and adherence to, and compliance with, commitments made in the plan.

Manitoba Hydro environmental inspectors / officers and construction inspectors will be responsible for conducting inspections and reviewing the cleaning records and logs to ensure that prescribed actions and measures identified within this plan are being followed.

Inspections will involve assessing all vehicles, equipment and pedestrian access at controlled access points or transition areas using the cleaning standards assessment guide in Appendix D. Inspections will also include reviewing logs, along with assessing cleaning equipment availability and disinfectant at the cleaning stations. If the inspection determines that documentation, adherence to prescribed actions, cleaning station equipment and/or setup or any other activity is not to the satisfaction of Manitoba Hydro or does not meet the minimum expectations of this plan, measures to remedy the deficiencies will be communicated directly to onsite contractor staff. If deficiencies are not remedied in a timely manner according to Manitoba Hydro, measures will be implemented through corrective action report, environmental improvement or stop work orders to ensure compliance and overall project success.

This page was left intentionally blank.

5.0 References

Adams, B.W., G. Ehler, C. Stone, M. Alexander, D. Lawrence, M. Willoughby, D. Moisey, C. Hincz, A. Burkinshaw+, J. Carlson and K France. 2009. Range Health Assessment for Grassland, Forest and Tame Pasture. Pub. No. T/044. Revised April 2009. Alberta Environment and Sustainable Resource Development. Edmonton, AB. 152 pp. Website: <http://esrd.alberta.ca/lands-forests/grazing-range-management/documents/RangelandHealthAssessmentforGrasslandForestTamePasture-Revised-Apr2009.pdf>.

Manitoba Agriculture. No date [a]. Biosecurity Management on Agricultural Land for the Energy and Transportation Industries. Available from <https://www.gov.mb.ca/agriculture/crops/biosecurity-energy-and-transportation.html> (accessed December 2017).

Manitoba Agriculture. No date [b]. Clubroot Distribution in Manitoba. Available from <https://www.gov.mb.ca/agriculture/crops/plant-diseases/clubroot-distribution-in-manitoba.html> (accessed December 2017).

Manitoba Agriculture. No date [c]. Animal health - Anthrax. Available from <http://www.gov.mb.ca/agriculture/animals/animal-health/anthrax.html> (accessed December 2017).

Manitoba Government. 2017. The Noxious Weeds Act. URL: <http://web2.gov.mb.ca/laws/statutes/ccsm/n110e.php>.

Manitoba Hydro 2015. Assessment of Potential Environmental Effects on Agriculture. Chapter 15. Manitoba – Minnesota Transmission Project Environmental Impact Statement. September 2015.

This page was left intentionally blank.

Appendix A

Noxious Weeds Regulation Species List

This page was left intentionally blank.

Appendix A: Noxious weeds regulation species list

Designated Tier 1 Noxious Weeds		
Common name	Scientific name	Area for which Designation applies
Amaranth, Palmer	<i>Amaranthus palmeri</i>	All areas of the province outside the Municipality of Bifrost-Riverton and the Rural Municipalities of Armstrong, Fisher, Gimli, Rockwood, St. Andrews and St. Clements
Bartsia, red	<i>Odontes vernus</i>	Whole province
Crupina, common	<i>Crupina vulgaris</i>	Whole province
Cupgrass, woolly	<i>Eriochloa villosa</i>	Whole province
Goatgrass, jointed	<i>Aegilops cylindrical</i>	Whole province
Hawkweed, orange	<i>Hieracium aurantiacum</i>	Whole province
Hogweed, giant	<i>Heracleum mantegazzianum</i>	Whole province
Hound's-tongue	<i>Cynoglossum officinale</i>	Whole province
Knapweed, diffuse	<i>Centaurea diffusa</i>	Whole province
Knapweed, Russian	<i>Acroptilon repens</i>	Whole province
Knapweed, spotted	<i>Centaurea stoebe</i>	Whole province
Knapweed, squarrose	<i>Centaurea virgata</i>	Whole province
Knotweed, Japanese	<i>Fallopia japonica</i>	Whole province
Mile-a-minute weed	<i>Persicaria perfoliata</i>	Whole province
Mustard, garlic	<i>Allaria petiolata</i>	Whole province
Patterson's curse	<i>Echium plantagineum</i>	Whole province
Pigweed, smooth	<i>Amaranthus hybridus</i>	Whole province
Saltcedar	<i>Tamarix spp.</i>	Whole province
Star-thistle, yellow	<i>Centaurea solstitialis</i>	Whole province
Tussock, serrated	<i>Nassella trichotoma</i>	Whole province
Waterhemp, tall	<i>Amaranthus turbiculatus</i>	Whole province

Designated Tier 2 Noxious Weeds		
Common name	Scientific name	Area for which Designation applies
Alyssum, hoary	<i>Berteroa incana</i>	Whole province
Baby's-breath	<i>Gypsophila paniculata</i>	Whole province
Bartsia, red	<i>Odontes vernus</i>	Municipality of Bifrost-Riverton and the Rural Municipalities of Armstrong, Fisher, Gimli, Rockwood, St. Andrews and St. Clements
Bouncingbet	<i>Saponaria officinalis</i>	Whole province
Brome, downy	<i>Bromus tectorum</i>	Whole province
Brome, Japanese	<i>Bromus japonicas</i>	Whole province
Campion, bladder	<i>Silene vulgaris</i>	Whole province
Chamomile, scentless	<i>Matricaria perforata</i>	Whole province
Common reed, invasive	<i>Phragmites australis australis</i>	Whole province
Daisy, ox-eye	<i>Leucanthemum vulgare</i>	Whole province
Nutsedge, yellow	<i>Cyperus esculentus</i>	Whole province
Scabious, field	<i>Knautia arvensis</i>	Whole province
Spurge, Cypress	<i>Euphorbia cyparissias</i>	Whole province
Spurge, leafy	<i>Euphorbia esula</i>	Whole province
St. John's-wort	<i>Hypericum perforatum</i>	Whole province
Tansy, common	<i>Tanacetum vulgare</i>	Whole province
Thistle, nodding	<i>Carduus nutans</i>	Whole province
Toadflax, Dalmatian	<i>Linaria dalmatica</i>	Whole province

Designated Tier 3 Noxious Weeds		
Common name	Scientific name	Area for which Designation applies
Absinth	<i>Artemisia absinthum</i>	Whole province
Barberry	<i>Berberis vulgaris</i>	Whole province
Barley, foxtail	<i>Hordeum jubatum</i>	Whole province
Bellflower, creeping	<i>Campanula rapunculoides</i>	Whole province
Buckthorn, European	<i>Rhamnus frangula</i>	Whole province
Burdock, common	<i>Arctium minus</i>	Whole province
Burdock, greater	<i>Arctium, lappa</i>	Whole province
Burdock, woolly	<i>Arctium, tomentosum</i>	Whole province
Campion, biennial	<i>Silene dioica</i>	Whole province
Catchfly, night-flowering	<i>Silene noctiflora</i>	Whole province
Cleavers	<i>Galium aparine</i>	Whole province
Cleavers, false	<i>Galium spurium</i>	Whole province
Cockle, white	<i>Silene alba</i>	Whole province
Dandelion	<i>Taraxacum officinale</i>	Whole province
Dodder	genus <i>Cuscuta</i>	Whole province
Fleabane, Canada	<i>Conyza canadensis</i>	Whole province
Flixweed	<i>Descurainia Sophia</i>	Whole province
Hawk's-beard, narrow-leaved	<i>Crepis tectorum</i>	Whole province
Hemlock, poison	<i>Conium maculatum</i>	Whole province
Hemp-nettle	<i>Galeopsis tetrahit</i>	Whole province
Hoary-cress	<i>Cardaria draba</i>	Whole province
Jimsonweed	<i>Datura stromonium</i>	Whole province
Kochia	<i>Kochia scoparia</i>	Whole province
Lamb's quarters	<i>Chenopodium album</i>	Whole province
Lettuce, prickly	<i>Lactuca seriola</i>	Whole province
Milkweed, common	<i>Asclepias syriaca</i>	Whole province
Milkweed, showy	<i>Aslepias speciosa</i>	Whole province
Mustard, wild	<i>Sinapis arvensis</i>	Whole province
Nightshade, American black	<i>Solanum americanum</i>	Whole province
Nightshade, cutleaf	<i>Solanum triflorum</i>	Whole province
Nightshade, hairy	<i>Solanum sarachoides</i>	Whole province
Parsnip, wild	<i>Pastinaca sativa</i>	Whole province
Ragweed, common	<i>Ambrosia artemisifolia</i>	Whole province

Designated Tier 3 Noxious Weeds		
Common name	Scientific name	Area for which Designation applies
Ragweed, false	<i>Iva xanthifolia</i>	Whole province
Ragweed, giant	<i>Ambrosia trifida</i>	Whole province
Sow-thistle, annual	<i>Sonchus oleraceus</i>	Whole province
Sow-thistle, perennial	<i>Sonchus arvensis</i>	Whole province
Sow-thistle, spiny annual	<i>Sonchus asper</i>	Whole province
Stinkweed	<i>Thlaspi arvense</i>	Whole province
Stork's bill	<i>Erodium cicutarium</i>	Whole province
Thistle, bull	<i>Cirsium vulgare</i>	Whole province
Thistle, Canada	<i>Cirsium arvense</i>	Whole province
Thistle, Russian	<i>Salsola pestifer</i>	Whole province
Toadflax, yellow	<i>Linaria vulgaris</i>	Whole province
Water hemlock, bulb-bearing	<i>Cicuta bulbifera</i>	Whole province
Water hemlock, northern	<i>Cicuta virosa</i>	Whole province
Water hemlock, spotted	<i>Cicuta maculate</i>	Whole province
Water hemlock, western	<i>Cicuta douglasii</i>	Whole province
Whitetop, hairy	<i>Cardaria pubescens</i>	Whole province
Whitetop, lenspod	<i>Cardaria chalepensis</i>	Whole province

Appendix B

Field Activity and Inspection Forms

Biosecurity Cleaning Record

Vehicle and Equipment Cleaning Field Log

This page was left intentionally blank.

Bioresecurity Cleaning Record		Version:2019/05/08
--------------------------------------	--	---------------------------

Version:2019/05/08

Completed Cleaning Records must be submitted to **TLC.AgriculturalBiosecurity@hydro.mb.ca** in accordance with project submission requirements. Use abbreviations as described in brackets. No "Quotes" to be used to signify same as above, fill out each cell.

[illegible]

This page left intentionally blank



EQUIPMENT CLEANING RECORD TRANSMISSION LINE CONSTRUCTION

Project *	Section *
-----------	-----------

Complete at cleaning area.

Unit number *			
Equipment type *		DATE OF CLEANING *	yyyy mm dd
Cleaned by *			
Location of cleaning *		Free of oil leaks? *	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Inspected by *	Signed by *	yyyy mm dd	
Remarks			

Complete at destination site.

Destination			
Delivered to site by			
Inspected for cleanliness at site?		Free of oil leaks?	
<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Inspected by	Signed by	yyyy mm dd	
Remarks			

Appendix C

Environmental Management Practices Guides



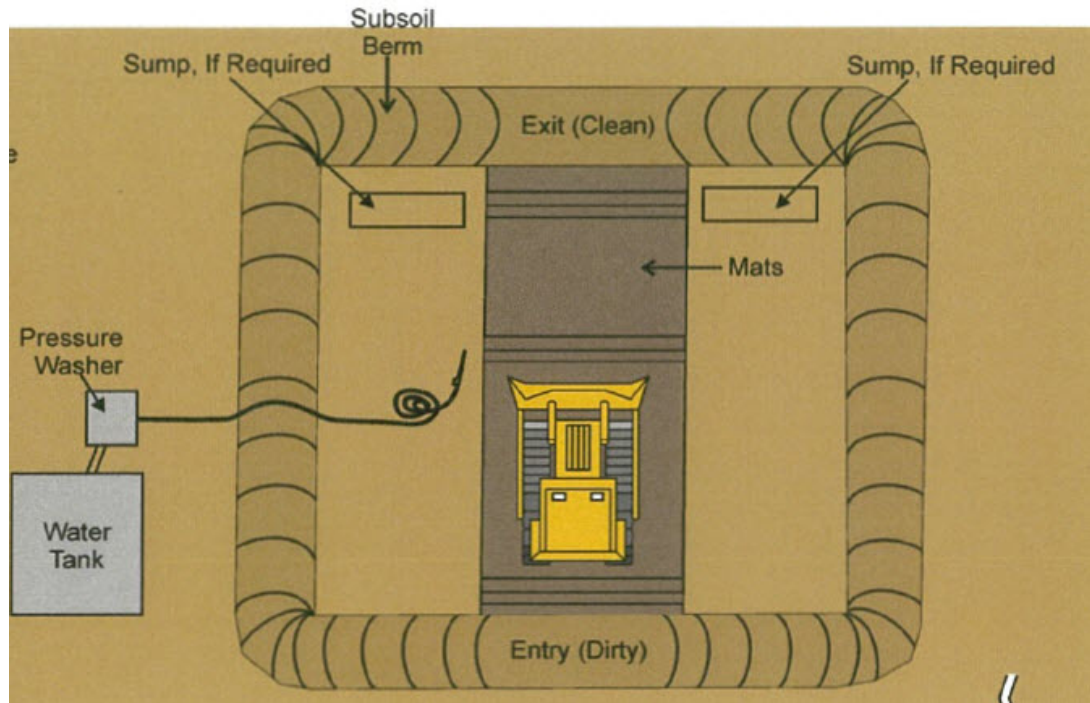
Description **Cleaning Station:** facilities that are located at designated Controlled Access Points or Transition Areas for the purposes of cleaning footwear, matting, vehicles and equipment of soil, manure, plant material and foreign matter

Wash Facility: facilities that are located outside of a controlled access zone and may be of two types: commercial wash facility or a washing facility developed by the contractor at a location and design that has been approved by Manitoba Hydro (MH)

Implementation Activities and Requirements

- To be established at all designated Controlled Access Points and Transition Areas identified in the latest version of the Biosecurity Management Plan Map Book
- Signage must be installed that describes cleaning requirements
- All Project staff must stop and review required cleaning requirements, implement required actions and initiate documentation requirements prior to entering a controlled access zone
- Cleaning Log Book entries must be completed for all pedestrian, matting, vehicles and equipment cleaning and/or inspection activities
- Sediment released from the washing process will be contained by berms or other containment to prevent surface run-off to another field or water course
- Only MH approved disinfectants are permitted to be used (See Disinfectants EMP)
- Sediment materials (dirt, water and disinfectant solution from cleaning activities) must be either buried on-site at a minimum depth of 2 m (requires written landowner permission and approval by MH) or, disposed of at an MH approved disposal facility
- Geotextile must be placed under matting or cleaning area to facilitate clean-up and disposed of at an MH approved disposal facility

Example Cleaning Stations



Cleaning Station Design



Disinfection at Cleaning Station



*Compressed Air Cleaning Station at
Controlled Access point*

See Also

- Controlled Access Points/Transition Areas
- Disinfectants
- Risk Level Determination
- Cleaning Requirements
- Cleaning Standards



Description

Inspection and cleaning requirements are determined by accumulation of soil, manure, plant material or foreign matter on footwear, mats, vehicles and equipment and current risk level assigned to controlled access zone.

Implementation Activities and Requirements

- All Project staff must stop and review required cleaning requirements, implement required actions and fulfill documentation requirements prior to entering or exiting a controlled access zone
- Foot traffic may utilize disposable boot covers that are replaced/cleaned before entering additional controlled access zones
- Personnel cleaning the equipment should complete a visual inspection post cleaning for accumulated soil, manure, plant material or foreign matter prior to leaving the cleaning station
- Only MH approved disinfectants are permitted to be used (See Disinfectants EMP)
- Footwear, matting, vehicles and equipment are considered clean when they meet the cleaning standards (See Cleaning Standards EMP) as required by the current Risk Level assigned to the controlled access zone
- Manitoba Hydro Environmental Officer or designate determines if cleaning standards have been achieved

Steps for Inspection and Cleaning

STEPS	DESCRIPTION
1- Inspection	<ul style="list-style-type: none"> Inspect all footwear, matting, vehicles and equipment prior to exiting or entering a controlled access zone at designated controlled access points and transition areas for soil, manure, plant material or foreign matter
2- Rough Clean	<ul style="list-style-type: none"> Remove clumps of soil, manure, plant material or foreign matter from mats, footwear, vehicle and equipment openings, tracks, tires and wheels using a hand scraper, shovel, broom or wire brush This step in cleaning of mats, vehicles and equipment must occur on-site before leaving the controlled access zone to a Wash Facility (See Cleaning Station EMP)
3- Fine Clean	<ul style="list-style-type: none"> Fine clean means high pressure water wash, high pressure air wash or high pressure steam wash. Wash matting, vehicles, and equipment paying extra attention to areas where soil, manure, plant material or foreign matter can accumulate (i.e., tires or undercarriage) For hydrovac trucks, cleaning includes the inside of the tank and any implement in contact with soil Prior to fine cleaning, matting, vehicles and equipment should receive a rough clean
4- Disinfectant Mist	<ul style="list-style-type: none"> Use disinfectant misting as the final cleaning step when working in controlled access zones where the current risk rating is High Spray footwear, tracks, openings, tires, wheels and implements that may come in contact with soil, manure, plant material or foreign matter with an approved disinfectant solution (See Disinfectants EMP) Hydrovac truck cleaning includes disinfecting inside of the tank and any implement in contact with soil, manure, plant material or foreign matter Prior to disinfecting, matting, vehicles and equipment should receive a fine clean

See Also

- Controlled Access Points/Transition Areas
- Disinfectants
- Risk Level Determination
- Cleaning Stations
- Cleaning Standards



Description

Risks will be classified as Low or High, according to the definitions provided in Risk Classification Matrix. Winter Conditions (WC) is a risk level modifier implemented only when approved by Manitoba Hydro.

Implementation Activities and Requirements

- All Project staff must stop and review required cleaning requirements, implement required actions and fulfill documentation requirements prior to entering or exiting a controlled access zone
- Manitoba Hydro Environmental Officer or designate has final determination of risk level

Risk Classification Matrix

Biosecurity risk classification matrix

Biosecurity issue	Risk level		
	Nonfrozen soil	Frozen soil	Frozen, snow-covered soil
Agricultural lands where no weeds, soil borne crop diseases, manure spreading or active livestock settings have been identified that present a substantial risk to biosecurity	Low	WC ¹ Low ²	WC ¹ Low ²
Specific sites identified as Tier 1 Noxious weeds as defined in the Noxious Weeds Regulation.	High	High	Low
Specific sites identified as Tier 2 or 3 Noxious weeds as defined in the Noxious Weeds Regulations and present a substantial biosecurity risk that the project activities will transfer the identified issue from one area to another.	Low	Low	Low
Laboratory testing has indicated clubroot spores are present	High	WC ¹ High ²	WC ¹ High ²
Manitoba Hydro will designate an operation with an existing and established biosecurity management plan as High risk. Manitoba Hydro will strive to meet the existing farm level biosecurity measures in these instances.	High		
Manitoba Hydro will designate active livestock settings (e.g., ILOs, active grazing areas) as High risk.	High		
Agricultural lands on which manure has been spread.	High	High	WC ¹ High ²

Note 1: This risk level modifier only applies to activities that create **no** subsurface disturbance such as vehicle travel, inspection, surveying, etc.

Note 2: This risk level applies to activities that create subsurface disturbances such as grubbing, excavation, drilling, foundation installation, clearing, conductor stringing, etc.

See Also

- Controlled Access Points/Transition Areas
- Disinfectants
- Risk Level Determination
- Cleaning Stations
- Cleaning Standards

Appendix D

Cleaning Standards Assessment Guide

BIOSECURITY MONITORING CLEAN EQUIPMENT/VEHICLE GUIDELINE

Grade	Pass/Fail	Definition
1	Fail	<p>No effort was made to clean the vehicle/equipment/footwear. Vehicle/equipment/footwear has clumps of mud and/or seeds attached to it. When travelling on public roadways, muddy tracks are left on the road.</p> <p><i>*No vehicles/equipment should be permitted to enter OR leave any site in this condition, regardless of Risk.</i></p>
2	Fail	<p>Vehicle/equipment/footwear was mechanically cleaned but there are still clumps of mud and/or seeds attached. No disinfectant was used.</p> <p><i>*At Low Risk site ONLY, may be permitted to leave site for off-site cleaning, though no vehicles/equipment may enter site in this condition.</i></p>
3	Pass	<p>Vehicle/equipment/footwear was mechanically cleaned, with no sign of clumping wet soil/seeds/debris remaining. Any small pockets of dirt/debris that cannot be removed have been disinfected.</p> <p><i>*High Risk Site: All vehicle/equipment surfaces that have come in contact with soil MUST be disinfected when exiting, to pass inspection.</i></p>
4	Pass	<p>Vehicle/equipment/footwear is clean. No clumps of mud or seeds are present.</p> <p><i>*High Risk Site: All vehicle/equipment surfaces that have come in contact with soil MUST be disinfected when exiting, to pass inspection.</i></p>

When working in agricultural areas, all reasonable effort must be made to ensure that all equipment, vehicles and clothing going from one property to another is not transporting any invasive species or pathogens. Above is the scale that will be used by Manitoba Hydro to grade the cleanliness of vehicles, equipment and footwear entering and leaving work sites in agricultural or invasive species areas on the project.

BIOSECURITY MONITORING CLEAN EQUIPMENT/VEHICLE GUIDELINE

Grade 1 (Fail)

- No effort made to clean vehicle; clumps of wet mud/seeds stuck to surfaces.
- No equipment/vehicles should be permitted to enter OR leave a site in this condition, regardless of Low or High Risk area.



BIOSECURITY MONITORING CLEAN EQUIPMENT/VEHICLE GUIDELINE

Grade 2 (Fail)

- Mechanical cleaning, but still clumps of wet mud/seeds in wheel wells/tracks/boot treads. No disinfectant used.
- *At low risk site, may be permitted to leave site for off-site cleaning, though no vehicles/equipment may enter site in this condition.



BIOSECURITY MONITORING CLEAN EQUIPMENT/VEHICLE GUIDELINE

Grade 3 (Pass)

-Mechanical cleaning, with only minimal sign of dirt with no clumps/seeds/debris remaining. Pressure wash and/or disinfectant applied to any surfaces where dirt clumping remains.

-ALL vehicles/equipment leaving High Risk site MUST be disinfected upon exit.



BIOSECURITY MONITORING CLEAN EQUIPMENT/VEHICLE GUIDELINE

Grade 4 (Pass)

-Equipment/Vehicle/Footwear is clean. No signs of soil/seeds/debris on any surfaces.

-All vehicles/equipment entering a job site should be at this level.

