Bulk Agro Centre, Rural Municipality of Kelsey, Manitoba

Environment Act Proposal Report

28 September 2018

Swan Valley Consumers Cooperative Limited
P.O. Box 1420, 811 Main Street East
Swan River MB R0L 1Z0
www.swanvalleycoop.ca

T 204.734.3431
F 204.734.5093

28 September 2018

The Director, Environmental Approvals Branch
Manitoba Sustainable Development
Environmental Approvals
1007 Century Street
Winnipeg, MB R3H 0W4

RE: New Bulk Agro Centre, Rural Municipality of Kelsey, Manitoba Environment Act Proposal

Dear Ms. Braun,

Swan Valley Consumers Co-operative Limited (Swan Valley Co-op) is making an application under *The Environment Act* for the construction and operation of a new bulk fertilizer facility (the Bulk Agro Centre) within the Rural Municipality of Kelsey Industrial Park near PTH 10, south of the Town of The Pas, Manitoba. Within the industrial park, the Bulk Agro Centre would be constructed and operated on land in two properties (roll numbers 130854 and 130857) located in legal land location SE22-55-26W1 (the Project Site). The Project Site is already developed and currently being utilized to support a saw mill operation. The proposed Bulk Agro Centre will consist of six volumetric smooth wall bins with a dry fertilizer loading facility, an Agrichemical Warehousing Standards Association certified agricultural chemical warehouse and an office building. The Bulk Agro Centre is a Class 1 Development per the *Classes of Development Regulation* of *The Environment Act*.

For nearly 80 years, Swan Valley Co-op has served surrounding communities in Western Manitoba with various retail products and services including fertilizers, crop protection products, and food stores. We currently operate 3 bulk agro facilities in Western Manitoba and have extensive experience in the sustainable operation of such facilities.

Please find enclosed with this cover letter, a filled-out Environment Act Proposal Form, 2 hard copies and 1 electronic copy (CD) of the Environment Act Proposal Report, and a cheque of $1,000 (application fee for Class 1 development).

Should you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Colin Peters, General Manager

Swan Valley Consumers Co-operative Limited

Environment Act Proposal Form

Manitoba
Sustainable Development

Name of the development:
Bulk Agro Centre, RM of Kelsey, Manitoba

Type of development per Classes of Development Regulation (Manitoba Regulation 164/88):
Manufacturing, Bulk materials handling facilities

Legal name of the applicant:
Swan Valley Consumers Co-operative Limited

Mailing address of the applicant: P.O. Box 1420, 811 Main Street East

Contact Person: Mr. Colin Peters

City: Swan River Province: Manitoba Postal Code: R9A 1K6

Phone Number: (204) 734-3431 Fax: (204) 734-5093 email: gm@swanvalleycoop.ca

Location of the development: RM of Kelsey Industrial Park, PTH 10, south of The Pas

Contact Person: Mr. Colin Peters

Street Address: N/A

Legal Description: Roll numbers 130854 and 130857 in SE22-55-26W1

City/Town: RM of Kelsey Province: Manitoba Postal Code: R9A 1K6

Phone Number: (204) 734-3431 Fax: (204) 734-5093 email: gm@swanvalleycoop.ca

Name of proponent contact person for purposes of the environmental assessment:
Wood Environment & Infrastructure Solutions, Attn: Wara Chiyoka

Phone: (204) 594-3032
Fax:

Mailing address: 440 Dovercourt Drive
Winnipeg, Manitoba R3Y 1N4

Email address: wara.chiyoka@woodplc.com

Webpage address: www.woodplc.com

Date: 2018-09-27

Signature of proponent, or corporate principal of corporate proponent:

Printed name: Colin Peters

PRINT RESET

A complete **Environment Act Proposal (EAP)** consists of the following components:

- ☑ **Cover letter**
- ☑ **Environment Act Proposal Form**
- ☑ **Reports/plans supporting the EAP** (see "Information Bulletin - Environment Act Proposal Report Guidelines" for required information and number of copies)
- ☑ **Application fee** (Cheque, payable to Minister of Finance, for the appropriate fee)

Per Environment Act Fees Regulation (Manitoba Regulation 168/96):

Class 1 Developments	$1,000
Class 2 Developments	$7,500
Class 3 Developments:	
Transportation and Transmission Lines	$10,000
Water Developments	$60,000
Energy and Mining	$120,000

Submit the complete EAP to:

Director
Environmental Approvals Branch
Manitoba Sustainable Development
1007 Century Street
Winnipeg, Manitoba R3H 0W4

For more information:
Phone: (204) 945-8321
Fax: (204) 945-5229
http://www.gov.mb.ca/sd/eal

Environment & Infrastructure Solutions
440 Dovercourt Drive, Winnipeg Manitoba, Canada R3Y 1N4
Phone: (204) 488-2997
www.woodplc.com

Bulk Agro Centre, Rural Municipality of Kelsey, Manitoba
Environment Act Proposal Report Wood Project Number - WX18484

Prepared for:	Swan Valley Consumers Co-operative Limited P.O. Box 1420, 811 Main Street E, Swan River MB R0L 1Z0		
Contact:	Mr. Colin Peters		
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Swan Valley Consumers Co-operative Limited:	Electronic copy		
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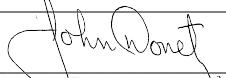
	Name	**Job Title**	**Signature**
Prepared by:	Wara Chiyoka	Environmental Scientist	
Reviewed by:	John Donetz	Associate Environmental Scientist	
Other Technical Contributors	Brad Kennedy	Environmental Scientist	

List of Acronyms and Abbreviations

AWSA	Agrichemical Warehousing Standards Association
BBA	Breeding Bird Atlas
bgl	below grade level
BSC	Bird Studies Canada
CN	Canadian National
CO	carbon monoxide
CO_2 eq	carbon dioxide equivalent
EAP	*Environment Act* Proposal
Ecodistrict	the The Pas Moraine Ecodistrict
ERP	Emergency response plan
GHG	Greenhouse gas emission
HRIA	Heritage resources impact assessment
Km	Kilometer
kWh	Kilowatt-hour
LAA	Local assessment area
L/s	litres per second
m	Metre
MAL	maximum acceptable level
masl	Metres above sea level
MCDC	Manitoba Conservation Data Centre
MDL	maximum desirable level
MHA	Manitoba Herps Atlas
Mm	Millimetre
MTL	maximum tolerable level
MSD	Manitoba Sustainable Development
O_3	Ozone
$PM_{2.5}$	particulate matter 2.5

ppb	parts per billion
ppm	parts per million
PR	Provincial Road
PS	Project Site (i.e., Swan Valley Cooperative Ltd.'s proposed project site for an anticipated new bulk agro centre, near The Pas, Manitoba)
PTH	Provincial Trunk Highway
RAA	Regional assessment area
RCMP	Royal Canadian Mounted Police
RM	Rural municipality
RTAC	Roads and Transportation Association of Canada
SARA	Species at Risk Act
Swan Valley Co-op	Swan Valley Consumers Co-operative Limited
US	United States of America
VC	Valued component
WDG	waste disposal ground
WMA	Wildlife Management Area
Wood	Wood Environment & Infrastructure Solutions

Executive Summary

This *Environment Act* Proposal Report (EAP Report) summarizes the environmental assessment completed for Swan Valley Consumers Co-operative Limited (Swan Valley Co-op)'s proposed construction and operation of a new Bulk Agro Centre on land within two properties (roll numbers 130854 and 130857, legal land location SE22-55-26W1) in the Rural Municipality (RM) of Kelsey, Manitoba (the Project Site). The Project Site is within the RM of Kelsey Industrial Park which is in a Highway Commercial zoned area and is approximately 210 metres (m) east of Provincial Trunk Highway (PTH) 10 and about 6.5 kilometres (km) south of the Town of The Pas (The Pas), Manitoba. The Project Site is already developed and was formerly utilized to support a saw mill operation. The proposed Bulk Agro Centre will consist of six volumetric smooth wall bins with a dry fertilizer loading facility, an Agrichemical Warehousing Standards Association (AWSA) certified agricultural chemical warehouse (the chemical shed) and an office building.

Because the proposed Bulk Agro Centre will be a bulk materials retail facility that will blend, handle, sort, store and transfer or sell fertilizer, it is a Class 1 Development per the *Classes of Development Regulation of the Environment Act* (the Regulation) and requires an *Environment Act* Licence for its construction and operation.

This EAP Report has been prepared by Wood Environment & Infrastructure Solutions, a Division of Wood Canada Ltd. (Wood) on behalf of Swan Valley Co-op in accordance with Manitoba Sustainable Development (MSD)'s *Information Bulletin – Environment Act Proposal Report Guidelines* and *Information Bulletin - Environment Act Proposals for Bulk Material Handling Facilities (Pesticide, Fertilizer and Seed Treatment Handling Facilities)* dated 2017, as part of Swan Valley Co-op's application for an *Environment Act* Licence. Accompanying this EAP Report are a Cover Letter, the completed EAP Form, and application fee of $1,000 in fulfilment of MSD's submission requirements for a Class 1 Development EAP.

Existing Project Site Conditions

The Project Site was first developed in 1995 to support a saw mill and has four single story buildings including a fabric covered Quonset which were built between 2006 and 2008. Following the redevelopment of the Site as a Bulk Agro Centre, Swan Valley Co-op plans to keep the existing site buildings and use them for storage, as needed.

Proposed Bulk agro Centre

The Bulk Agro Centre will consist of six volumetric smooth wall bins for granular fertilizer storage (200 metric tonnes capacity per bin) with a dry fertilizer loading facility, a chemical shed and an office building. Each bin will be erected on a 16-inch concrete slab and fertilizer handling areas will be covered by concrete slabs to reduce the potential for fertilizer losses to the ground and contamination of soil. The types of fertilizers to be stored are nitrogen (urea), phosphate, potash, and sulphur. Fertilizer products will be received in bulk and stored in volumetric bins prior to blending and sale to end users.

The chemical shed will be a self-contained, portable structure with a raised steel floor and containment as required for a AWSA chemical storage building which will provide secondary containment, with dimensions of 28 feet (ft.) x 48 ft. x 16 ft. (i.e., 8.5 m x 14.6 m x 4.9 m) erected on an engineered,

compacted base surface. The chemical shed will be accessed via steel ramps and will have a steel floor and a 6-inch retention curb around the perimeter within the chemical shed to prevent leaking of spilled products into the soil beneath and around the chemical shed. The Bulk Agro Centre will not manufacture or blend any agrichemicals on site but will sell agrichemicals in as-received sealed containers and packaging. The maximum volume of an individual product container is limited to 1,000 L totes with the majority of the products received in stored in smaller individual package volumes. The probability of complete failure of multiple individual containers is deemed extremely low. With the 6-inch curb, the chemical shed will have an internal containment volume of 672 cubic feet (~19,000 litres [L]) which is approximately 1.5 times greater than the anticipated total volume of 12,712 L of agrichemicals and will provide containment of any substantive spills within the chemical shed. In fulfillment of MSD requirements for exterior secondary containment, the chemical shed will be surrounded by a 0.45 m-high compacted clay berm which will further increase capacity for containment. The clay for the clay berm will be procured from a suitable local low permeable clay source. Agrichemicals to be stored in the chemical shed include the following:

- Liberty
- Roundup
- Lance
- Prosaro
- Proline
- Carumba
- Express
- Axial
- Raxil
- Pixxaro
- Decis
- Simplicity
- Stellar
- Prepass
- Ares
- MCPA Amine
- Centurian
- Infinity
- Heat
- Insure Cerial
- Priaxor
- Cotegra

For security and restricted site access, the Bulk Agro Centre will be enclosed with commercial wire mesh fencing, alarms and closed-circuit television or other surveillance.

An independent contractor will be retained by Swan Valley Co-op to supply the needed materials and construct the Bulk Agro Centre during the fall of 2018 (October to November). Typical operational hours will be 8:00 a.m. to 5:00 p.m. on Monday to Friday. During operation, delivery of retail products to the Bulk Agro Centre will be via trucks. A total of 27 vehicle deliveries over a six-week period are anticipated for Bulk Agro Centre components. Once construction is complete, the Bulk Agro Centre will be run by two employees (one full-time and one part-time) for 10 months each year (March 1st to December 31st), and closed for the remainder of the year. A slight increase in the number of vehicles using PTH 10 and accessing the industrial park during the construction and operation of the Bulk Agro Centre is anticipated. However, the vehicles travelling to and from the Project Site (employees, delivery semi-trucks and consumer vehicles) are not expected to exceed current service capacity levels of PTH 10. There will not be need for modification of the access to the industrial park from PTH 10 due to the proposed construction and operation of the Bulk Agro Centre.

Assessment of Projects Effects and Mitigation

The proposed Bulk Agro Centre demonstrates Swan Valley Co-op's continued economic investment in Western Manitoba and has direct and indirect positive socio-economic effects. These benefits include wages paid to employees, an adequate supply of granular fertilizers and agrichemicals for local and surrounding area agricultural producers, and contributions to municipal, provincial and federal tax revenue.

Potential adverse effects of the construction and operation of the proposed Bulk Agro Centre are primarily related to the following:

- Dust generation during construction (i.e., construction vehicles traffic, soil stripping and stockpiling) and operation (on-site traffic, fertilizer delivery and customer vehicles).
- An increase in noise levels at or near the Project Site could occur due to the anticipated slight increase in traffic to and from the site during Bulk Agro Centre construction and operation, and potentially affect people and wildlife in the surrounding area.
- Greenhouse gas (GHG) emissions generated by vehicles and equipment during construction and operation activities (e.g., delivery of construction materials; preparation of the Bulk Agro Centre footprint; construction of the Bulk Agro Centre; delivery of granular fertilizers and agrichemicals, and associated customer traffic).
- Changes to soil quality within the Bulk Agro Centre components' footprints during the construction attributable to soil compaction and rutting, erosion and admixing.
- The additional traffic during construction and operation of the Bulk Agro Centre will increase traffic using PTH 10 and accessing the RM of Kelsey Industrial Park with potential for localized congestion near the Bulk Agro Centre.

Swan Valley Co-op commits to implement the following mitigation and prevention measures to reduce the effects to the environment attributable to the construction and operation of the Bulk Agro Centre:

- Minimizing soil disturbance at the Project Site with soil disturbance limited to the fertilizer bins, chemical shed, and office building footprints.
- Limiting the heights of stockpiled materials on site.
- Using soil stabilizers for soil stockpiles exposed for prolonged periods of time.
- Suppressing dust through use of water or other approved control agents, if needed.
- Limitation of construction hours as required to normal working hours.
- Provision of appropriate hearing protection to workers/employees and encouraging proper use of hearing protection among workers during construction.
- Regular maintenance of vehicles and equipment.
- Minimizing the number of vehicles or equipment in use as far as is practical.
- Disturbed/exposed areas will be kept to a minimum with site restoration occurring as soon as practical where required.
- Construction equipment and vehicle movements will be limited to designated roads/pathways within and around work areas.
- In the event of adverse weather that could result in rutting or compaction (heavy rainfall), the contractor in consultation with Swan Valley Co-op should implement contingency measures

including use of matting for access through wet areas and limiting or suspension of activities until soil conditions are appropriate.

- Colour change should be used to guide stripping between topsoil (A horizon) and subsoil (B or C horizon) within the Bulk Agro Centre components' footprints to prevent admixing.
- Topsoil will be stripped and spread in the non-built portions of the Project Site for future use in site restoration.
- The contractor will be responsible for the appropriate repair of any areas where equipment has compacted soils with the repairs including appropriate grading and site restoration (if required).
- Traffic should be limited as much as possible during smoothing and levelling of soils to prevent further compaction. Smoothing and levelling should also be avoided if soils are near saturation.
- Areas with vehicle ruts should be de-compacted and regraded.
- Soil stockpiles at the Project Site should be stabilized and adequately protected from erosion with good vegetation establishment or other protective measures.
- Appropriate erosion and sediment control measures should be implemented and maintained, as needed, until spreading of topsoil is complete.
- During construction temporary fencing would be used as required to keep wildlife from accessing the Site.

Based on the desktop studies undertaken, site observations and information available to date as presented in this report, the construction and operation of a Bulk Agro Centre at the Project Site is not expected to create significant adverse effects to the biophysical and socio-economic environment and is expected to yield economic benefits. The likelihood of fires, spills and transportation accidents occurring at the Site is limited given Swan Valley Co-op's vast experience in operating bulk agro facilities as well as the planned implementation of prevention measures and safe work practices at the Project Site.

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1.0 Introduction

This Environment Act Proposal (EAP) Report has been prepared by Wood Environment & Infrastructure Solutions, a Division of Wood Canada Ltd. (Wood) on behalf of Swan Valley Consumers Co-operative Limited (Swan Valley Co-op) in accordance with Manitoba Sustainable Development (MSD)'s *Information Bulletin – Environment Act Proposal Report Guidelines* and *Information Bulletin - Environment Act Proposals for Bulk Material Handling Facilities (Pesticide, Fertilizer and Seed Treatment Handling Facilities)* dated 2017. This EAP Report is part of Swan Valley Co-op's EAP filing in pursuit of an *Environment Act* Licence for the construction and operation of a bulk materials facility, which is a Class 1 Development, in the Rural Municipality (RM) of Kelsey, Manitoba.

Accompanying this EAP Report are the Cover Letter, completed EAP Form, and Application Fee of $1,000 in fulfilment of MSD's EAP submission requirements for Class 1 Developments.

1.1 Project Overview

Swan Valley Co-op is planning to construct and operate a new Bulk Agro Centre on land within two properties (roll numbers 130854 and 130857) located in legal land location SE22-55-26W1) in the RM of Kelsey Industrial Park, approximately 210 metres (m) east of Provincial Trunk Highway (PTH) 10 and about 6.5 kilometres (km) south of the Town of The Pas (The Pas), Manitoba (see Figure 1, Appendix A). It is understood that the two properties (the Project Site) are currently developed and were formerly utilized to support a saw mill operation.

The proposed Bulk Agro Centre will consist of six volumetric smooth wall bins with a dry fertilizer loading facility, an Agrichemical Warehousing Standards Association (AWSA) certified agricultural chemical warehouse (the chemical shed) and an office building.

1.2 The Proponent

The proponent information for the proposed Bulk Agro Centre is shown in Table 1-1.

Table 1-1: Project Proponent Information

Name of Project	New Bulk Agro Centre, Rural Municipality of Kelsey, Manitoba
Name of Proponent	Swan Valley Consumers Co-operative Limited
Address of Proponent	P.O. Box 1420, 811 Main Street E, Swan River
Principal Contact Person(s) for the Notice of Alteration	Mr. Colin Peters General Manager P.O. Box 1420, 811 Main Street E Swan River, MB R0L 1Z0 D +1 (204) 734-3431 C +1 (204) 734-8411 gm@swanvalleycoop.ca

1.2.1.1 Company Profile

Swan Valley Co-op is a member owned entity which serves surrounding communities with various products and services through its retail operations focused on petroleum products, fertilizers, crop protection products, as well as food stores and pharmacies.

Swan Valley Co-op was formed in the spring of 1940 with its first store located on Main Street in the Town of Swan River, Manitoba (Swan River), for retail of petroleum products and feed. Swan Valley Co-op experienced growth and expansion between 1940 and 1970, including the opening of new branch operations in Bowsman, Birch River, and Durban, Manitoba. Changes to the Swan Valley Co-op since 1970 include the closures of the Durban, Birch River, and Bowsman operations as well as the lumber operation at the Swan River location; and the construction of a new cardlock facility on the Kelsey Trail (PTH 10) and its subsequent expansion. In 1998, Swan Valley Co-op acquired Johnston Ventures, a local independent crop supply and feed dealer which they combined with their Benito operation on Highway 83 South.

Swan Valley Co-op's agricultural operations are run by nine full-time employees, and up to 18 employees during the busy season (spring and fall).

1.3 Land Ownership and Property Rights

The Project Site is owned by Swan Valley Co-op (see Land Title in Appendix B).

According to a Phase I Environmental Site Assessment completed at the Site (Wood 2018a), the Site is surrounded by the following neighbouring properties within the RM of Kelsey industrial park:

- North - Commercial: trucking company, followed by a small engine repair shop.
- South - Heavy equipment excavation contractor.
- East - Cleared land (previous consisted of dense vegetation and trees), and
- West - Diesel engine repair shop (northwest) and grain re-load area.

1.4 Purpose of the Project

The purpose of the prosed project is to construct and operate a new Bulk Agro Centre that will enable Swan Valley Co-op to store and sell fertilizer and agrichemical products to producers in the RM of Kelsey and surrounding areas.

1.5 Regulatory Framework

As the proposed development will consist of a bulk material handling facility for the storage and distribution of dry fertilizer and other agricultural chemicals with an AWSA-certified agricultural chemical warehouse, it is a Class 1 Development per the *Classes of Development Regulation* of the *Environment Act*. As required by Section 10 of the *Environment Act*, construction and operation of the proposed development should be preceded by the filing of an EAP with MSD and receipt of a valid and subsisting licence from MSD for the development.

The activities proposed as a part of the Project are not listed on the Regulations Designating Physical Activities under the Canadian Environment Assessment Act, 2012, SC 2012, c 19, c 52, and as such, no federal assessment requirements are anticipated.

Following receipt of an *Environment Act* Licence (for which this EAP Report is pursuant), Swan Valley Co-op will apply for a Building Permit from the RM of Kelsey to construct the Bulk Agro Centre. Swan Valley Co-op has already obtained a licence to construct water control works from MSD for the needed local drainage improvements immediately north of the Project Site (see Section 5.2).

1.6 Funding

The construction and operation of the Bulk Agro Centre will be funded by Swan Valley Co-op.

2.0 Proposed Development

2.1 Current Site Conditions

The proposed development consists of the construction and operation of a Bulk Agro Centre within the Project Site which was previously developed. The Project Site (see Figure 2, Appendix A) along with other nearby properties in the RM of Kelsey Industrial Park, including a heavy-duty mechanic repair and small engine repair shop, are on land zoned as Highway Commercial (Rural Municipality of Kelsey 2018). Figure 3, Appendix A shows the features of interest within a 1.5 km radius of the Project Site.

Wood completed a site reconnaissance at the Project Site on 19 and 20 March 2018. The Project Site was found to be developed with four single storey buildings including a fabric covered Quonset (see pictures in Appendix C). According to the landowner, the Project Site was first developed in 1995 to support a saw mill with the existing buildings constructed between 2006 and 2008.

Following the redevelopment of the Site as a Bulk Agro Centre, Swan Valley Co-op plans to keep the existing site buildings and use them for storage, as needed.

2.2 The Proposed Bulk Agro Centre

2.2.1 Bulk Agro Centre Components

Swan Valley Co-op's proposed Bulk Agro Centre will consist of six volumetric smooth wall bins for granular fertilizer storage with a dry fertilizer loading facility, a chemical shed and an office building (see Figure 4, Appendix A).

Each of the six fertilizer bins will be a 1630 Heavy Duty Industrial Meridian bin with an approximate capacity of 200 metric tonnes, and modified gate clearances and leg orientation to suit volumetric blending (see stamped drawings for the fertilizer blending system in Appendix A). Each bin will be erected on a 16-inch concrete slab and fertilizer handling areas will be covered by concrete slabs to reduce the potential for fertilizer losses to the ground and contamination of soil (see drawings in Appendix A for detailed specifications). The drawings shown in Appendix A were drawn to meet the recommendations of the geotechnical investigation conducted at the Project Site (Amec Foster Wheeler 2018).

The chemical shed will be a self-contained, portable, self-supporting steel and ground-level AWSA certified chemical building with dimensions of 28 feet (ft.) x 48 ft. x 16 ft. (i.e., 8.5 m x 14.6 m x 4.9 m) erected on an engineered compacted gravel pad underlain by very stiff to hard, medium plastic clay as recommended in the geotechnical investigation report (Amec Foster Wheeler 2018). The chemical shed will be accessed via steel ramps and will have a steel floor and a 6-inch retention curb around the perimeter within the chemical shed to prevent leaking of spilled products into the soil beneath and around the chemical shed. With the 6-inch curb, the chemical shed will have an internal containment volume of 672 cubic feet (~19,000 litres [L]). The immediate vicinity of the chemical shed will be graded towards a ditch with a controlled-release culvert that will be constructed in the interior of a 0.45-m high compacted clay berm (built using clay from a suitable local low permeable clay source) that will surround the chemical shed (see Figure 6, Appendix A). The clay berm will fulfill MSD's requirement for exterior

containment of chemical shed buildings and provide control of fire water runoff in the event of a catastrophic incident. With this said, the non-combustible nature of the chemical shed construction materials and the review of response procedures with first responders would not involve the application of fire water to control a fire within the chemical shed.

2.2.2 Construction of the Bulk Agro Centre

The Bulk Agro Centre will be constructed by an independent contractor that will be retained by Swan Valley Co-op. The contractor would provide construction materials and complete all need construction and installations on site. Construction is anticipated to be completed from October to November during the fall of 2018.

Construction traffic would be minimal as the geotechnical report for the Site (see Section 4.4.2) indicated the Project Site to be on solid ground. It is estimated that approximately 50 loads of fill and 15 loads of cement will be needed. A total of 27 vehicles over a six-week period are expected for delivery of Bulk Agro Centre components, i.e., 18 vehicles to deliver the fertilizer bins, three to deliver the office materials and six for the chemical shed. On average there will be up to two vehicle deliveries per day during the six-week material delivery period.

2.2.3 Operation of the Bulk Agro Centre

The Bulk Agro Centre will be run by two employees, one full-time and one part-time. The Bulk Agro Centre is expected to be operational for 10 months each year (March 1st to December 31st), and closed for the remainder of the year. Typical operational hours will be 8:00 a.m. to 5:00 p.m. from Monday to Friday except during the spring seeding and the fall fertilizer application periods when the Agro Centre could operate for 10 to 12 hours per day, seven days a week.

Traffic to and from the Bulk Agro Centre will consist of delivery trucks, and customer and staff vehicles. The use of rail transportation for product delivery is not anticipated.

2.2.3.1 Granular Fertilizers

The six granular fertilizer storage bins will each have a capacity of approximately 200 metric tonnes (see Figure 2, Appendix A). The anticipated types of fertilizers to be stored are nitrogen (urea), phosphate, potash, and sulphur.

Granular fertilizer delivery to the Site is anticipated to be done via 100 Super B loads per year.

2.2.3.2 Agrichemical Warehouse

The agrichemical warehouse will be a fully contained portable chemical shed which will be audited to confirm it meets AWSA standards before storage of chemicals is commenced. It is anticipated that the chemical shed will store up to 12,712 L of agrichemicals including the following:

- Liberty
- Roundup
- Lance
- Prosaro
- Proline
- Carumba
- Simplicity
- Stellar
- Prepass
- Ares
- MCPA Amine
- Centurian

- Express
- Axial
- Raxil
- Pixxaro
- Decis
- Infinity
- Heat
- Insure Cerial
- Priaxor
- Cotegra

The Bulk Agro Centre will not manufacture or blend any agrichemical products on site but will sell agrichemicals in as-received sealed containers and packaging which are received in the maximum individual agrichemical product container capacity of 1000 L. Swan Valley Co-op will adhere to applicable legislation as it pertains to the storage of fertilizer and agrichemicals. For security, the Project Site will be enclosed with six-foot high commercial wire mesh fencing and outfitted with alarms and closed-circuit television or other surveillance. With a 6-inch retention curb, the chemical shed will have an internal secondary containment volume of approximately 19,000 L, which equates to 150% of the anticipated total aggregate volume of the chemical shed's inventory (i.e., 12,712 L), and provide adequate containment of agrichemical spills or leaks. As per Section 2.2.1, the 0.45-m high clay berm surrounding the chemical shed will provide exterior secondary containment for the chemical shed. Drainage from the area immediately surrounding the chemical shed will be directed into a ditch with a controlled-release culvert along the interior of the clay berm (see Figure 6, Appendix A). The Bulk Agro Centre staff will operate the controlled-release culvert to release non-contaminated water in the ditch surrounding the chemical shed.

Agrichemicals' delivery to the Site will be done via 24-tonne capacity semi-truck. It is anticipated that 25 semi-truck loads of agrichemicals will be delivered to the Project Site per year. Agrichemicals will be sold in the containers that they would have been received in, with no mixing or decanting of products taking place on site, and by so doing reducing the potential for spills during product handling. Further, the containment inside the chemical shed will reduce the potential for product releases to the environment. In the event of a substantive product spill incident occurring, Swan Valley Co-op will seek authorization from a designated Environment Officer or the Director prior to removal of any accumulated liquid, follow MSDS guidance, and retain a third-party competent in the disposal of the associated product, for disposal.

2.2.4 Water and Energy

It is anticipated that the Bulk Agro Centre will have running water provided by the RM of Kelsey and electricity provided by Manitoba Hydro for its building energy needs.

2.2.5 Waste Generation and Disposal

Office waste generated at the Bulk Agro Centre will be disposed of at the Town of The Pas Landfill which is a Class I Waste Disposal Ground (WDG). The WDG is located at NE 11-56-26 W1, approximately 7.1 kilometres (km) northeast of the Project Site (Manitoba Sustainable Development 2017) and serves both residents and commercial users within the RM of Kelsey.

While an appreciable proportion of agrichemicals that will be sold at the Bulk Agro Centre will be packaged in reusable containers, there will be some agrichemicals that will be packaged in disposable jugs. The Town of The Pas WDG does not currently have an agrichemical-containers receipt facility for recycling such containers and there is no CleanFarms collection site for agrichemical containers waste in the RM of Kelsey. Swan Valley Co-op and the RM of Kelsey will work towards establishing an agrichemical waste collection site in partnership with Cleanfarms to prevent landfill disposal of agrichemical jugs, non-

refillable bulk pesticide containers, and obsolete products. Cleanfarms is an across-Canada non-profit environmental stewardship organization that implements and leads programs to create meaningful change to address agricultural waste management and resources in the community (Cleanfarms 2018). Prior to the establishment of the above-noted agrichemical waste collect site and as part of their environmental stewardship program, Swan Valley Co-op will provide agrichemicals waste collection services to their customers, accepting disposable jugs, non-refillable bulk pesticide containers and obsolete product waste at the Bulk Agro Centre. Swan Valley Co-op would facilitate transfer of the accumulated waste to a Cleanfarms collection site. According to Cleanfarms (2018), the closest Cleanfarms collection site to the Bulk Agro Centre is located near Bellsite, Manitoba, approximately 170 km to the south.

A modern washroom with an on-site septic tank will be constructed as part of the Bulk Agro Centre's office building. The sanitary waste generated at the Site will be disposed of as needed by a contracted septic tank services provider. Air Emissions

The Bulk Agro Centre will not store or distribute anhydrous ammonia. The Bulk Agro Centre's anticipated air emission sources are considered minor and include fugitive dust from on-site roadways, exhaust from transport trucks and staff and customer vehicles on site.

2.2.6 Site Emergency Response Plan

Accidents or malfunctions that could arise at the Site include fire, serious injury or fatality, granular fertilizer spill and burglary. Swan Valley Co-op understands the safety and health hazards associated with bulk agro centres from their experience with the construction and operation of several such facilities in Manitoba. Drawing from their experience and learnings, Swan Valley Co-op has developed an emergency response plan (ERP) outlining response procedures for the various emergencies that could arise at the Project Site (see Appendix H). Swan Valley Co-op will update the ERP as needed to ensure its continued appropriacy for the Bulk Agro Centre's operations and activities. Because the Project Site was found to have stiff to very hard clay till underlying the shallow layers of peat, organic clay, compacted engineered gravel fill, the potential for fertilizer and agrichemical contaminants to migrate through groundwater beneath the Site is deemed low. General site runoff following a site release or application of fire water could be contained to the perimeter ditching and controlled through the application of preplaced sandbags at the identified containment point. Should any fires involve the chemical shed, such fires will not be extinguished using water due to the varied chemical nature of the products, and resultantly, additional fire water storage for the chemical shed is not required. Also as the largest single storage vessel within the agrichemical shed is 1000 L and the fact that the integral containment structure of the shed provides a storage capacity of 19,000 L (which is 150% greater that the aggregate container storage within the shed) the likely hood of a uncontained release from the shed is remote. Also, given that the chemical shed will be a portable and raised steel AWSA approved shed, the potential for flood water interacting with and affecting the stored agrichemicals is deemed negligible.

Staff at the Bulk Agro Centre will be trained on operational, safety and emergency response procedures. Emergency contact information would be made readily available on-site.

2.3 Project Schedule

Construction of the Bulk Agro Centre is anticipated to be completed during the fall of 2018 (i.e., October

to November 2018). Swan Valley Co-op will retain an independent contractor to haul the needed materials to the Project Site and complete the needed on-site installation of bins and chemical shed. Operation of the Bulk Agro Centre would start in the Spring of 2019.

2.4 Decommissioning

The design life of the proposed Bulk Agro Centre components is at least 30 years. It is anticipated that with building and infrastructure maintenance over the life of the Bulk Agro Centre, the development could be in existence for at least 30 years. Regardless of when the Bulk Agro Centre would be decommissioned, a decommissioning plan including the removal of all installed equipment and reclamation of the Project Site, will be completed and approved by the appropriate regulatory authority and in accordance with the applicable legislation at that time.

3.0 Scope of the Assessment

To assess the potential environmental impact of the construction and operation of the Bulk Agro Centre, the following spatial and temporal boundaries were considered appropriate.

3.1 Spatial boundaries

Spatial boundaries used for the assessment are described below.

Project Site

The Project Site refers to the land on which the Bulk Agro Centre would be constructed (i.e., two properties, roll numbers 130854 and 130857, on legal land location SE22-55-26W1 and located in the Municipality's Industrial Park, east of PTH 10.

Local Assessment Area

The Local Assessment Area (LAA) refers to the area within which most direct potential Project residual effects are likely occur. The LAA for the Project is shown on Figures 3 (Appendix A) and is defined as a 1.5-km radius around the Project Site.

Regional Assessment Area

The Regional Assessment Area (RAA) represents the area within which direct residual effects are assessed to provide a context for the Project in terms of significance of potential project residual effects.

- The RAA for biophysical components was defined as a 10 km (6.2 mile) radius beyond the Project Site boundaries, intended to account for the maximum spatial extent of potential impacts of the Bulk Agro Centre (see Figure 5, Appendix A).
- The Municipality was used as the RAA for socioeconomic valued components. Because it is not practical to assess the effects of greenhouse gas emissions over a 10-km radius, the province is considered the RAA for greenhouse gas effects.

3.2 Temporal boundaries

The temporal boundaries of the assessment are:

- Construction Phase – The period over which the Bulk Agro Centre will be constructed or installed is anticipated to span mid-October to end of November during the fall of 2018.

- Operation– The period over which the Bulk Agro Centre will be operational is at least 30 years (i.e., from spring 2019 to 2049).
- Decommissioning Phase – When the Bulk Agro Centre needs to be decommissioned at some point in the future, a site decommissioning plan will be filed, and decommissioning conducted according to Licence conditions and regulatory requirements at the time.

4.0 Existing Biophysical Environment in Project Area

4.1 Physiography, Drainage and Climate

The Project Site occurs in the The Pas Moraine Ecodistrict (the Ecodistrict) of the Mid Boreal Lowland Ecoregion within the Boreal Plains Ecozone (Smith et al. 1998). The Ecodistrict consists largely of the The Pas Moraine, which is the most prominent topographical feature in the Mid-Boreal Lowland Ecoregion in Manitoba.

The Ecodistrict crests along its southern and western edges where the elevation drops from 305 metres above sea level (masl) to about 255 masl. Mean elevation is about 279 masl. With the Ecodistrict, slopes range from 50 to 100 m long in the steeper parts and vary from 5 percent to 15 percent in some locations. The organic terrain has long slopes that range from level to 1 percent. The Ecodistrict slopes gently northeast at approximately 1.0 m per km. Within the vicinity of the Project Site, Manitoba Agriculture's AgriMaps (2018) shows slope to be level to nearly level.

Most of the Ecodistrict is part of the Saskatchewan River watershed, but a portion drains south into the Lake Winnipegosis drainage system, which is part of the Dauphin River watershed.

Based on weather data from the The Pas, the Project Site's regional area has a mean annual temperature of 0.5°C and mean annual precipitation of 450 mm (Table 4-1).

Table 4-1: Climate Normals for the The Pas Airport (1981-2010)

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temperature °C													
Daily Avg.	-19.1	-15.9	-8.6	1.3	8.5	14.9	18.1	16.9	10.6	3.1	-7.4	-16.4	0.5
Daily Max	-14.3	-10.3	-2.6	7.2	14.8	20.8	23.7	22.5	15.7	7.2	-3.8	-12	5.7
Daily Min.	-23.9	-21.3	-14.5	-4.6	2.2	9	12.4	11.3	5.6	-1	-11	-20.8	-4.7
Rainfall (mm)	0.2	0.5	3.1	10.1	36.4	66.3	68.8	66.5	56.5	25.4	3.1	0.2	336.9
Snowfall (cm)	22.8	18.5	18.8	16	3.9	0	0	0	0.8	14.5	23.5	27.3	146.1
Total (mm)	16.8	13.4	17.8	23.9	40.1	66.3	68.8	66.5	57.3	38.5	20.9	19.7	449.9
Source: Canadian Climate Normals 1981 – 2010, available at http://climate.weather.gc.ca/climate_normals													

4.2 Ambient Air Quality

The closest air quality monitoring station to the Project Site is the Flin Flon monitoring station which is located at 143 Main Street in the City of Flin Flon, Manitoba, approximately 118 km northwest of the Project Site. Since the Flin Flon station monitors sulphur dioxide and ozone, other ambient air quality parameters (e.g., carbon monoxide) can be drawn from the City of Winnipeg stations data.

Flin Flon is a northern mining city located on the border of Manitoba with Saskatchewan. Copper and zinc mining by Hudson Bay Mining and Smelting is the major source of industrial air emissions in Flin Flon. However, the copper smelter in Flin Flon shut down in June 2010, appreciably reducing air emissions to the region. Transportation is also an appreciable source of emissions.

The latest data from the Winnipeg stations was collected in 2013 (MCWS 2013). At a provincial scale, air quality concerns due to pollutants tend to be of a localized nature, with sources of pollutants including industrial operations, vehicle emissions, man-made substances and other specific activities (Manitoba Sustainable Development 2015). Given the Project Site's siting near the Pasquia agricultural area and the Town of The Pas, the Project Site's air quality is also affected by agricultural operations as well, with short term increases in particulate due to harvesting at certain times of the year.

Maximum short-term and annual mean concentrations of air pollutants for Winnipeg, Flin Flon and Thompson stations in 2013 are outlined in Table 4-2. Thompson is another northern mining city in Manitoba. Vale's smelting and mining operations is the main source of industrial emissions in Thompson.

Manitoba's air quality objectives for carbon monoxide (CO) or nitrogen dioxide (NO_2) were not exceeded at the two Winnipeg stations in 2013. There were exceedances of the 24-hour average Canada Wide Standard for Particulate Matter 2.5 ($PM_{2.5}$) as well as exceedances of the ground level ozone (O_3) guidelines in 2013 (MCWS 2013). The production of CO, NO_2 and O_3 pollutants are mainly associated with vehicle emissions.

Table 4-2: Summary of the 2013 Annual Air Pollution Concentrations at the Flin Flon, Thompson and Winnipeg Monitoring Stations

Pollutant		Air Quality Monitoring Stations				Manitoba Air Quality Objectives (2005)		
	Period	Ellice Street (Winnipeg Downtown)	Scotia and Jefferson (Winnipeg Residential)	3 Main Street (Flin Flon Commercial)	Westwood School (Thompson Commercial/ Residential)	MTL	MAL	MDL
Carbon Monoxide (CO) parts per million (ppm)	1-hr	1.6	3.3	n/a	n/a	n/a	31	13
	24-hr	0.59*	0.66*	n/a	n/a	17	13	5
	Annual mean	0.24	0.16	n/a	n/a	n/a	n/a	n/a
Nitrogen Dioxide (NO_2) parts	1-hr	62.7	52.0	n/a	n/a	530	213	n/a
	24-hr	34.17^	33.98^	n/a	n/a	n/a	106	n/a

Pollutant		Air Quality Monitoring Stations				Manitoba Air Quality Objectives (2005)		
	Period	Ellice Street (Winnipeg Downtown)	Scotia and Jefferson (Winnipeg Residential)	3 Main Street (Flin Flon Commercial)	Westwood School (Thompson Commercial/ Residential)	MTL	MAL	MDL
per billion (ppb)	Annual mean	7.79	7.32	n/a	n/a	n/a	53	32
Ozone (O_3) ppb	1-hr	**61.0**	**64.5**	**58.6**	**54.1**	200	82	50
	24-hr	47.93	57.04	51.35	52.23	n/a	n/a	n/a
	Annual mean	**23.7**	**28.9**	**26.5**	**28.0**	n/a	15	n/a
Sulphur Dioxide (SO_2) ppb	1-hr	n/a	n/a	12	441	n/a	170	n/a
	24-hr	n/a	n/a	3	54	310	60	n/a
	Annual mean	n/a	n/a	1	3	n/a	34	n/a
Particulate Matter 2.5 ($PM_{2.5}$) microgram per cubic metre ($\mu g/m^3$)	1-hr	52.4	124.8	98.4	186.2	n/a	n/a	n/a
	24-hr	**34.7**	**35.1**	**43.7**	**63.0**	n/a	30	n/a
	Annual mean	6.6	5.6	5.3	4.3	n/a	n/a	n/a

Notes:
MTL - the maximum tolerable level denotes a time-based concentration of an air contaminant beyond which, given a diminishing margin of safety, appropriate action is required to protect the health of the general population.
MAL - the maximum acceptable level deemed essential to provide adequate protection for soil, water, vegetation, materials, animals, visibility, personal comfort and well-being.
MDL - the maximum desirable level defined as the long-term goal for air quality providing a basis for an anti-degradation policy for unpolluted areas of Manitoba and for the continuing development of control technology.
Bold indicates exceedance of Manitoba Air Quality Objectives (2005).
* means averaged over 8 hours.
^ means used 24-hour moving average.
n/a – no guideline or objective.
Underlined objective value indicates Manitoba Air Quality Objective that is exceeded.
Source: MCWS 2013; MCWS 2005

4.3 Greenhouse Gas Emissions

Greenhouse gas (GHG) emission sources in Manitoba, in order of decreasing magnitude, are transportation, agriculture, stationary combustion, waste, industrial process and product use, and fugitive emissions (Environment and Climate Change Canada 2018b). At a national level, Canada's GHG emission sources, in order of decreasing magnitude, are transportation, buildings, electricity, heavy industry, agriculture, and waste and others (Environment and Climate Change Canada 2018b). According to the National Inventory Report for the period spanning 2005 to 2016, during this period, Manitoba's GHG emissions have increased by 3.5% (Environment and Climate Change Canada 2018b). In 2016, Manitoba

contributed 20.9 million tonnes (Mt) of carbon dioxide equivalent (CO_2 eq) GHG emissions to Canada's total GHG emissions of 704 Mt CO_2 eq and ranked 6th among the provinces and territories (Environment and Climate Change Canada 2018b).

The Bulk Agro Centre is anticipated to contribute to GHG emissions through mobile combustion (diesel and gasoline in vehicles and equipment). Because the Bulk Agro Centre will rely on electricity for its energy needs, it will not contribute to GHG emission due to stationary combustion (e.g., natural gas combustion for heating). Relative to the Province of Manitoba's total GHG emissions, the Bulk Agro Centre's GHG emissions are considered to negligible.

4.4 Geology

4.4.1 Bedrock Geology

The bedrock formations underlying The Pas regional area are the Paleozoic limestones and dolostones of the Silurian and Devonian formations with some Lower Cretaceous sandstone and shales of Mesozoic age occurring in the southwest (Hopkins and Smith 1982). According to Betcher et al. (1995), the dolostone underlying the regional area ranges in thickness from 53 m to 115 m.

4.4.2 Surficial Geology

A surface mantle of unconsolidated materials derived from the action of the continental ice sheets which completely covered Manitoba during the Pleistocene Epoch, covers the bedrock formations (Hopkins and Smith 1982). Surficial deposits in the vicinity of the Project Site consist of thick sandy to clayey alluvial deposits with accompanying shallow organics (Hopkins and Smith 1982).

Matile and Keller (2006) reported the surficial geology of the Project Site's regional area as consisting of silt diamicton largely derived from Phanerozoic carbonate rocks from the Hudson Bay Lowland and deposited by an ice stream emanating from Hudson Bay.

4.4.2.1 On-Site Geotechnical Investigation

Wood (previously Amec Foster Wheeler) conducted a geotechnical investigation at the Project Site in March 2018 (see Appendix G). The purpose of the geotechnical investigation was to evaluate the soil and groundwater conditions at the Project Site, and on this basis, to provide geotechnical recommendations for the design and construction of foundations for the building structures, pavement structures for traffic areas and general site development recommendations. The geotechnical investigation involved the drilling of 11 test holes to auger refusal (due to hard till and suspected cobble) at maximum depths that ranged from 0.3 to 4.1 metres below grade level (m bgl). There was no sloughing or seepage observed upon completion of each of the 11 test holes and the holes were dry prior to backfilling. The general stratigraphy at the site consisted mainly of peat, organic clay, gravel fill, sand and silt till (Amec Foster Wheeler 2018). The individual layers are discussed in further detail below.

Peat

A thin layer of peat about 50 mm thick was encountered at the surface of two test holes near the eastern boundary of the Site. The peat was brown and had trace organic and roots and some wood chips.

Organic Clay

Organic clay was encountered at the surface of one test hole near the southern boundary of the Site

outside of the footprint of the proposed Bulk Agro Centre buildings. The organic clay was about 50 mm thick and it was silty, low plastic, moist, black to dark grey and had some roots and gravel.

Gravel Fill

A layer of gravel fill about 50 to 300 mm thick was encountered at the surface of four test holes near the anticipated Bulk Agro Centre building footprints, and below the peat in one test hole near the eastern boundary. The gravel was poorly graded, medium to coarse grained, damp to moist, inferred dense and light greyish to brown. It had variable content of sand and silt and some blast rock at test hole.

Sand

Sand was encountered below the peat and organic clay of two test holes. The sand was about 250 mm thick and it was poorly graded, fine to medium grained and suspected to be of variable density from loose to dense. It was also moist, brown, and was classified as sand and silt with trace clay or trace gravel.

Clay Till

Glacial clay till and silt were encountered at most of the test holes. The till varied in thickness from 0.6 m to 3.8 m and extended to a maximum depth of 4.1 below grade level. The till was generally stiff becoming hard to very hard below 1 to 1.5 m and brown to grey. Based on results of laboratory testing, the clay till had some sand and trace gravel and was of medium plasticity.

4.5 Soils

A description of the native soils found at and in the vicinity of the Project Site is provided in the Soils of The Pas Area soil survey report (Hopkins and Smith 1982). According to Hopkins and Smith 1982, the soils near the Project Site are reported to include:

- Imperfectly drained, coarse sand and gravel Gleyed Eluviated Eutric Brunisols or Gleyed Gray Luvisols of the Horseshoe Island Complex;
- Well drained, coarse sand and gravel Gleyed Eluviated Eutric Brunisols, Orthic Gray Luvisols, or Eutric Brunisols of the Soul Lake Complex; and
- Poorly drained, peaty, carbonated, coarse sand and gravel Rego Gleysols of the Easterville Series.

Agricultural capability for soils in the vicinity of the Project Site falls under Class 4 and Class 6, with crop productivity limited by inadequate moisture, inundation by streams or lakes, excess water, and stoniness (Hopkins and Smith 1982).

4.6 Hydrogeology and Groundwater

The Project Site's regional area is within the Saskatchewan River Basin (Betcher et al. 1995) According to the aquifer maps of southern Manitoba, a bedrock carbonate (limestone and dolomite) aquifer underlies The Pas regional area which includes the Project Site. This aquifer is continuous, formed by thick and extensive carbonate rock beds with minor shale beds, has water quality ranging from good to very salty, and domestic wells generally have a yield of more than 1.0 Litre per second (L/s) (Rutulis, 1986a). Groundwater in the aquifer beneath the Project Site and its immediately surrounding areas is shown as slightly saline (i.e., not potable but may be acceptable for some livestock and other uses) (Rutulis, 1986a).

According to Rutulis (1986b), lenses of sand and gravel aquifers occurring in till and other surficial deposits underlie the area in the immediate vicinity of the Project Site. The depth to these sand and gravel

aquifers ranges from a few to more than 100 m and the size of the aquifers varies over a wide range with yields ranging from less than 0.1 L/s to more than 10 L/s.

Regional groundwater flow is anticipated to be to the north, towards the Saskatchewan River. However, groundwater flow at or near the Project Site, may be influenced by nearby service trenches, dugout ponds, and the Cemetery and Grace lakes located west and north of the Project Site, respectively.

4.6.1 Groundwater Use at and Near the Project Site

There are no groundwater wells at the Project Site.

According to MSD (2016)'s GW Drill database, there is one groundwater well in the same quarter section (i.e., SE 22-55-26-W1) as the Project Site. This well is reported to be a domestic use water well. Given that the Project Site and immediately surrounding properties are within the industrial park, the domestic well would likely be associated with a private residence within the Young Point residential area a portion of which is within the same quarter section as the Project Site across PTH 10 (see Figure 1, Appendix A).

Another nearby well is reported to be located north of the Project Site in NE 22-55-26-W1 and to be a domestic water use well. Given that an appreciable proportion of NE 22-55-26-W1 is under forest (per 2015 Google Earth imagery), the domestic well could be associated with a property in the northern portion of the RM of Kelsey industrial park, north of the Project Site.

Based on well log data for the regional area (see Appendix D), the above-mentioned wells draw their water from the underlying limestone or dolomite aquifer, and not from near surface sand or gravel aquifers.

4.7 Surface Water

The Project Site occurs within the Saskatchewan River Basin (Betcher et al. 1995). While surface drainage in the regional area is largely influenced by the Saskatchewan River which flows west to east and is located about 7 km north of the Facility at its closest point, surface drainage at the Facility is more influenced by nearby dugout ponds and drainage ditches within and around the industrial park, as well as Cemetery Lake which is about 1.2 km northwest of the Project Site and Grace Lake which is about 5.3 km northeast of the Project Site.

A survey of the Project Site was completed in July 2018. A municipal ditch is adjacent to the northern boundary of the Project Site and there are two existing swales within the site (see Figures C-01 to C-03, Appendix E). As part of the anticipated Bulk Agro Centre, one of the two swales (located north of the existing buildings) will have to be regraded while the swale near the southern boundary will remain and serve as external secondary containment for the Project Site (see Figure C-02, Appendix E).

4.8 Vegetation

The Project Site is in The Pas Moraine Ecodistrict (the Ecodistrict) of the Mid Boreal Lowland Ecoregion within the Boreal Plains Ecozone (Smith et al. 1998). The vegetation in the area is predominantly bogs and fens. Stunted black spruce are common in the Ecodistrict, although some areas do support medium growth, closed stands. Swamp birch and alder are dominant in the shrub layer, while sphagnum and feather mosses are common ground cover (Smith et al 1998). Although some provincially rare and uncommon plant species occur within the Ecodistrict, none of these are currently protected by either provincial or federal legislation.

4.9 Wildlife

The Project Site is within a developed industrial park which includes several other operational properties. Provincial Trunk Highway 10 traverses the Municipality in a south-north direction at approximately 210 m west of the Project Site. Beyond the neighbouring properties to the east and west, there are forested lands. Given the developed nature of the Project Site and surrounding properties, wildlife populations and activity are not anticipated to be substantive.

Wildlife species commonly identified in the Ecodistrict include moose, black bear, various members of the weasel family, and woodland caribou (Smith et al 1998).

At the time of the site visit no wildlife species were observed at the Project Site.

4.10 Migratory birds

Waterfowl, including various ducks, geese, white pelicans, and cormorants are common in the ecoregion and are protected under Article I of the Migratory Birds Convention Act, SC 1994, c 22. Other common birds include sandhill crane, various raptors, and ruffed grouse (Smith et al 1998).

According to the Bird Studies Canada (BSC) Breeding Bird Atlas (BBA) online database, 87 bird species were identified as having demonstrated breeding behaviour within the 100 km^2 atlas square (14LE55) which encompasses the Project Region. Of the species identified, the Canada Warbler (Threatened), is the only federally and provincially listed species that has demonstrated breeding behaviour within the 100 km^2 atlas square. Other both provincially and federally listed species including the Whip-poor-will (threatened), Common Nighthawk (threatened), Olive-sided Flycatcher (threatened) were identified within the 100 km^2 atlas square but did not exhibit breeding behaviour. The federally listed Barn Swallow (threatened) and Bank Swallow (threatened), as well as the provincially listed short-eared owl (threatened) and Trumpeter Swan (endangered) were also observed within the atlas square but did not exhibit breeding behaviour.

4.11 Reptiles and Amphibians

According to the Manitoba Herpetological Atlas (MHA) online database, there has not been any observations of federally or provincially protected species within the Project Region. The only record of reptiles or amphibians in the area is a wood frog observed near Grace Lake, approximately 6 km northeast of the Project Site.

4.12 Protected Species

A variety of sources were consulted to identify species at risk that could potentially occur within the Project Region, including the Manitoba Conservation Data Centre (CDC) the BSC, BBA, and the MHA. The occurrence data from these sources were compared to Schedule 1 of the Federal Species at Risk Act (SARA) SC 2002, C29 and The Endangered Species and Ecosystems Act (Manitoba), CCSM c E111 to determine which federally and/or provincially listed rare or sensitive species have the potential to occur in the Project Region. Distribution maps were referenced, and habitat requirements were considered to determine the probability that listed species would occur in the Project Region.

Based on this search, there are 21 listed species that may occur in the Project RAA (see Table 4-3). Amec Foster Wheeler submitted an information request to Manitoba Conservation Data Centre (MCDC) for records of rare species recorded at or near the Site. In their response MCDC indicated that at that time,

there were no occurrences recorded for the Site and its surrounding area (MCDC 2018).

Table 4-3: Federally and Provincially Listed Species that May Occur in the Project Regional Area

Species	SARA Status	MESA Status	Habitat Description	Potential to Occur in the Project Region
Invertebrates				
Sage Grasshopper *Hypochlora alba*	Special Concern	Not Listed	Relatively undisturbed dry mixed grass prairie, feeds on White Sagebrush [1]	**Low:** known populations in the extreme southwest corner of Manitoba [1]
Vertebrates				
Whip-poor will *Antrostomus vociferus*	Threatened	Threatened	Semi-open, or patchy mixed coniferous- deciduous forests with clearings. [1]	**Moderate:** has been identified within the Project Region, although not known to breed in the area. [2]
Short-eared owl *Asio flammeus*	Special Concern	Threatened	Open Habitats – grasslands, marshes, old pastures. [1]	**Moderate:** has been identified within the Project Region, although not known to breed in the area. [2]
Wood Bison *Bison bison athabascae*	Threatened	Not Listed	Open boreal and aspen forests where there are large meadows. [1]	**Low:** the only wild herd in Manitoba is in the Northern Interlake Region.
Canada Warbler *Cardellina canadensis*	Threatened	Threatened	Mixed coniferous- deciduous forests with well-developed shrub layer. [1]	**High:** the Project Region is within the breeding range. [2]
Common Nighthawk *Chordeiles minor*	Threatened	Threatened	Open areas free of vegetation, and mixed coniferous-deciduous forests. [1]	**Moderate:** has been identified within the Project Region, although not known to breed in the area. [2]
Olive-sided Flycatcher *Contopus cooperi*	Threatened	Threatened	Open areas containing tall trees for perching. [1]	**Moderate:** has been identified within the Project Region, although not known to breed in the area. [2]
Eastern Wood-pewee *Contopus virens*	Special Concern	Not Listed	Mid canopy of forest clearings and edges of deciduous and mixed forests. [1]	**Low:** potential breeding evidence within the Project Region. More common in southern Manitoba. [2]
Yellow Rail *Coturnicops noveboracensis*	Special Concern	Not Listed	Marshes and damp meadows with little or no standing water (generally 0-12 cm water depth), although the substrate remains saturated throughout the summer. [1]	**Moderate:** Project Region is within the breeding range. [2]

Species	SARA Status	MESA Status	Habitat Description	Potential to Occur in the Project Region
Trumpeter Swan *Cygnus buccinator*	Not Listed	Endangered	Freshwater wetlands, beaver ponds are ideal nesting Sites. [2]	**Low:** populations are increasing, but it is still rare in Manitoba. [2]
Bobolink *Dolichonyx oryzivorus*	Threatened	Not Listed	Native grasslands and pastures. [1]	**Low:** not know to breed in the Project Region. No noted occurrences in the Project Region. [2]
Peregrine Falcon *Falco peregrinus anatum*	Special Concern	Endangered	Open habitats, such as marshes, grasslands and tundra. Nests in ledges of cliffs, or in urban areas nests can be situated in ledges of tall buildings. (3)	**Moderate:** the nearest possible breeding Site recorded, is situated approximately 15 km to the west of the Site. [2]
Barn Swallow *Hirundo rustica*	Threatened	Not Listed	Nests in caves, holes, crevices in cliffs, barns, buildings, bridges, culverts. Forages in open habitats: clearings, wetlands, rights-of-way, agricultural fields. [1]	**Moderate:** has been identified within the Project Region, although not known to breed in the area. [2] Can nest in buildings and bridges, and forages in open areas.
Northern Leopard Frog *Lithobates pipiens*	Threatened	Not Listed	Overwinter in cold waterbodies that do not freeze solid. Breed in pools ponds, marshes and lakes. Moist upland meadows and prairies are used in the summer. [1]	**Low:** listed as occurring in the ecozone by MB CDC, but no occurrences noted in the Project Region on the MHA. [3] [6]
Red-headed woodpecker *Melanerpes erythrocephalus*	Threatened	Threatened	Found in a variety of habitats including oak forests, grasslands, riparian forests, roadsides and urban parks. [1]	**Low:** listed as occurring in the ecozone by MB CDC, but no occurrences noted in the Project Region [2] [3]
Little Brown Mytosis Little Brown Bat *Myotis lucifugus*	Endangered	Endangered	Overwinter in cold and humid caves. Summer colonies in buildings or large diameter trees. Forage over water and forest edges. They generally avoid large clearings.	**Moderate**: the Project Region is situated within the distribution range.
Northern Mytosis Northern Long-eared Bat *Myotis septentrionalis*	Endangered	Endangered	Overwinter in cold and humid caves. Summer colonies in large diameter trees. Forage over water and forest edges. They generally avoid large	**Moderate**: the Project Region is situated within the distribution range.

Species	SARA Status	MESA Status	Habitat Description	Potential to Occur in the Project Region
			clearings.	
Horned Grebe *Podiceps auritus*	Special Concern	Not Listed	Nests in freshwater ponds, marshes, and shallow bays of lakes. [1]	**High:** confirmed breeding evidence in the Project Region.
Woodland Caribou Rangifer tarandus caribou	Threatened	Threatened	Lichen rich areas of mature old growth coniferous forests, usually associated with bogs, marshes, and rivers, and dominated by black spruce, white spruce and tamarack trees. [1] [5]	**Low:** Project Region falls within the general distribution range of the Woodland Caribou, however, the nearest range "the Bog" is situated to the south of the Project Region.
Bank Swallow *Riparia riparia*	Threatened	Not Listed	Nests in river banks, cliffs or bluffs, aggregate pits and, soil stockpiles. [1]	**Moderate:** possible breeding evidence in the Project Region.
Golden-winged Warbler *Vermivora chrysoptera*	Threatened	Threatened	Regeneration sites with low shrubs, but surrounded by mature forest. [1]	**Low:** Occurs mostly in southern Manitoba. The nearest breeding evidence is in the Swan River area.

Sources:
[1] Species at Risk Public Registry (Government of Canada 2018).
[2] Artuso et al 2010 -2014.
[3] Manitoba Conservation Data Centre (DSD, 2013).
[4] Committee on the Status of Endangered Wildlife in Canada 2013. Assessment and Status Report on the Little Brown Myotis Northern Myotis and Tri-Coloured Bat
[5] Manitoba Sustainable Development 2018a. Species at Risk Boreal Woodland Caribou Fact Sheet
[6] Manitoba Herps Atlas Database 2018

5.0 Existing Socio-Economic Environment in Project Area

5.1 Land Use, Population and Well-Being

The RM of Kelsey is in west-central Manitoba and covers a land area of approximately 868 square kilometres (km^2) (Statistics Canada 2016). The RM of Kelsey's constituent communities include Cranberry Portage, Freshford, Grace Lake, Moostissoostikwan, Ralls Island, Rocky Lake, Umpherville, Wanless and Westray, and its population was reported as 2,424 in 2016 (see Table 5-1). The Town of The Pas which is within the Municipality boundaries but independent of the Municipality had a population of 5,368 in 2016 (Statistics Canada 2016).

Table 5-1: Population Statistics for the Rural Municipality of Kelsey and the Town of The Pas

	RM of Kelsey	Town of The Pas
Population in 2016	2,424	5,368
Population in 2011	2,330	5,364
% change in population between 2016 and 2011	4.0	0.1
Total private dwellings	948	2,305
Population per km^2	2.8	1,022
Source: Statistics Canada (2016)		

Land use in the RM of Kelsey is subject to the RM of Kelsey Development Plan By-Law No. 16-92. Agriculture is the dominant land use type, with smaller sections of Natural Resource Management in the southwest corner of the municipality, and Highway Commercial along PTH 10 near the Town of The Pas limits. The Project Site is located in the Rural Municipality of Kelsey Industrial Park, an area that is zoned Highway Commercial. At the time of the site visits in March 2018, the following neighbouring properties were found adjacent to the Project Site:

- A trucking company to the north.
- A heavy equipment excavation contractor to the south.
- A diesel engine repair shop and a grain re-load facility to the west.

The Project Site's regional area is located within Manitoba Agricultural Services Corporation (MASC) Risk Area 16. Based on crop yields data for the Municipality (MASC 2017), in 2016, about 10,000 acres (40 km^2) were seeded to canola and approximately 16,300 acres (66 km^2) were seeded to wheat. The Pasquia farming settlement (1.8 km west of the Project Site at its closest point) produces grain which is mostly consumed by local dairy operations or handled by the elevator in the The Pas as well as canola which is typically shipped to Saskatchewan via Provincial Road (PR) 283. Livestock ready for market is shipped south by rail or truck.

The Project Site is within the RM of Kelsey's industrial park (commercial highway zone) and is surrounded by other businesses in the industrial park (see Figure 3, Appendix A). The Canadian National (CN) Railway line north connects the RM of Kelsey and other northern communities to Southern Manitoba and is 136 m west of the Project Site and parallels PTH 10 (about 210 m west of the Project Site). The nearest private residence to the Project Site is approximately 450 m southwest of the Project Site, across PTH 10 and within the Young Point residential area. The Valley View Trailer Park is located approximately 610 m southwest of the Project Site. Another residential area lies 770 m southeast of the Project Site. The Town of The Pas is located approximately 6.5 km north of the Project Site. Residents of Young Point rely on municipal water as well as private wells for domestic water while Valley View Trailer Park residents rely on municipal water.

Emergency services in the Project Site's regional area, including 911, are provided by the Town of The Pas fire department and the Royal Canadian Mounted Police (RCMP). Ambulance service is provided by the Town of The Pas.

For healthcare, the Municipality is serviced by The Pas Primary Health Care Centre which is located in the Town of The Pas, approximately 7 km north of the Project Site. The Pas Primary Health Care Centre

provides acute care (e.g., high care needs, in-patient beds, palliative care, surgery), outpatient services including emergency services, and diagnostic services.

5.2 Employment, Economy, Infrastructure and Services

Agriculture, along with related processing and services, forestry, commercial fishing, service industry, tourism and transportation are the main economy drivers and employment providers for the RM of Kelsey. The RM of Kelsey's main employer (300 employees) is a paper mill which is owned and operated by Canadian Kraft Paper (formerly owned by Tolko Industries) and located north of the Town of The Pas. In the service sector, University College of the North has its main campus located in the Town of the Pas.

The RM of Kelsey falls under MASC Risk Area 16 and the primary crops grown are canola and wheat. Grain produced in the RM of Kelsey is mostly consumed by local dairy operations or handled by the elevator in The Pas while canola is generally shipped to Saskatchewan markets. Livestock ready for market is shipped south by rail or truck.

Swan Valley Co-op's proposed construction and operation of a Bulk Agro Centre is as substantial economic investment in the RM of Kelsey with numerous benefits. These benefits include wages paid to employees; supply of fertilizers and agrichemicals to local and surrounding area agricultural producers; work for local contractors; cash back and equity payments through annual patronage allocations; and contributions to municipal, provincial and federal tax revenue.

The Town of The Pas, the nearest service centre to the Project Site is serviced by PTH 10, a major highway that runs from the International Peace Garden along the Canada-United States border near Boissevain, Manitoba, and proceeds northwards through Brandon, Swan River, and The Pas to the Saskatchewan boundary at Flin Flon. A CN Railway line which connects Northern Manitoba to Southern Manitoba traverses the RM of Kelsey in a south-north direction, at approximately 136 m west of the Project Site.

The Project Site can be accessed via PTH 10 from the north and south. PTH 10 is largely a two-lane, non-divided highway, with one of its segments (junction with PTH 1 to its north junction with PTH 16) designated as a Roads and Transportation Association of Canada (RTAC) route in Schedule B of Manitoba Regulation 575/88 of the *Highway Traffic Act*. Within the industrial park, currently the Project Site is accessed via the southern entrance. With the proposed Bulk Agro Centre, the southern access will remain the entrance to the Project Site but vehicles would leave via an exit in the north (see Figure 4, Appendix A)

Like the existing onsite buildings, the Bulk Agro Centre office and volumetric smooth wall bins will be constructed at a higher elevation than the rest of the Site. A contour map of existing site conditions as well as a drainage design for the Site are shown in Appendix E. Given the need to improve local drainage conditions via regrading of the municipal ditch located immediately north of the Project Site (see Drainage Design, Appendix E), Swan Valley Co-op applied for a licence to construct water control works to MSD in August 2018. The application was approved, and MSD issued Licence No. 18-WCW-1092 to Swan Valley Co-op for the needed local drainage improvements (see Appendix F).

During construction, a total of 27 vehicle deliveries is expected for delivery of Bulk Agro Centre components, i.e., 18 vehicles to deliver the fertilizer bins, three to deliver the office materials and six for the chemical shed, over a six-week period. During operation, granular fertilizer delivery to the Site is anticipated to be done via 100, Super B loads per year while agrichemicals' delivery to the Project Site will be done via 25 semi-truck loads of agrichemicals per year. Traffic volumes for main regional

thoroughfares within the project area were obtained from the Manitoba Highway Traffic Information System, 2016 Traffic on Manitoba Highways (Manitoba Infrastructure and Transportation and University of Manitoba 2017). For 2016, the Average Daily Traffic (ADT) recorded on PTH 10, from a permanent counting station located 0.5 km south of Young's Point Road (Station 98), and approximately 0.4 km southwest of the Project Site, was 1,070 for northbound and southbound traffic. The corresponding annual average daily truck traffic for 2016 at Station 98 was 120. Given that construction is anticipated to span the fall of 2018 (assuming 15 October to 30 November = 46 days), with a total of 27 truck deliveries expected at the Project Site for construction of the Bulk Agro Centre, the construction traffic will be less than 1% of total traffic (i.e., 120 * 46 = 5,520 trucks) passing along Station 98. Similarly, during operation of the Bulk Agro Centre, the total of delivery traffic, staff traffic and customer traffic will constitute a small proportion of traffic on PTH 10 near the Project Site. Agrochemical delivery trucks will access the Project Site from the south on PTH 10 and will return in the same direction after delivery at the Project Site. The Project Site is sufficiently removed from PTH 10 and no changes are anticipated for the access to the industrial park on PTH 10.

The RM of Kelsey supplies residents and businesses with treated groundwater well water in the municipality. The source groundwater well is in NW 9-56-27 W1 while the water treatment plant is in the northern half of section 34, township 55 and range 27 west of the prime meridian (i.e., N 34-55-27 W1). Both the groundwater well and water treatment plant are at least 12 km northwest of the Project Site. The Town of The Pas wastewater treatment lagoon located in NW 2-56-26 W1 (approx. 5.1 km northeast of the Project Site) provides wastewater treatment services for the Town of The Pas and surrounding areas.

The Bulk Agro Centre will rely on RM of Kelsey supplied water for its operations. A modern washroom with an on-site septic tank will be constructed as part of the Bulk Agro Centre's office building and the generated sanitary waste will be disposed of as needed by a contracted septic tank services provider. Office waste generated at the Bulk Agro Centre will be disposed of at the Town of The Pas WDG which is located approximately 7.1 km northeast of the Project Site. Granular fertilizer waste (e.g., from spills or damaged packaging) will be spread on agricultural fields for disposal, per standard industry practice. The Town of The Pas WDG does not currently have an agrichemical-containers receipt facility for agrichemical-related waste and there is no Cleanfarms collection site for agrichemical containers waste in the RM of Kelsey. Swan Valley Co-op and the RM of Kelsey will work towards establishing an agrichemical waste collection site in partnership with Cleanfarms to prevent landfill disposal of agrichemical jugs, non-refillable bulk pesticide containers, and obsolete products. Prior to the establishment of the above-noted agrichemical waste collection site and as part of their environmental stewardship program, Swan Valley Co-op will provide agrichemicals waste collection services to their customers, accepting disposable jugs, non-refillable bulk pesticide containers and obsolete products in their original manufacturer sealed product packaging at the Bulk Agro Centre. Swan Valley Co-op would facilitate transfer of the accumulated waste to a Cleanfarms collection site. According to Cleanfarms (2018), the closest Cleanfarms collection site to the Bulk Agro Centre is located near Bellsite, Manitoba, approximately 170 km to the south.

5.3 Parks and Protected Areas

The Clearwater Lake Provincial Park located within the RM of Kelsey, north of The Pas is the closest provincial park to the Project Site. Clearwater Lake Provincial Park covers an area of 593 km^2 (Manitoba Sustainable Development 2018b) and is primarily characterized by Clearwater Lake which comprises

almost half of the park and is located approximately 23 km northeast of the Project Site. Large areas of boreal forest including spruce bog cover the land areas of the park.

According to (Manitoba Sustainable Development 2018c), two Wildlife Management Areas (WMAs) namely the Saskeram and Tom Lamb are in the regional area of the Project Site.

The Saskeram WMA is the nearest WMA to the Project Site and is located northwest of The Pas covering an area of 95,812 hectares (ha). The WMA encompasses a large portion of the Saskatchewan River delta and floodplain, a significant breeding and staging area for waterfowl. Only the river levees and scattered limestone outcrops rise above this system of wetlands. The marshes are managed in cooperation with Ducks Unlimited Canada. The area provides excellent habitat for moose, wolves, black bears and furbearers.

The Tom Lamb WMA encompasses a large portion of the Saskatchewan River Delta (area of approximately 208,383 ha) and is located northeast of The Pas along PR 384. The area is flat with several limestone ridges and river levees providing relief. Aspen, jack pine, and black spruce grow on the ridges, while poplar, willow, Manitoba maple and green ash are associated with the levees. The WMA is a major breeding and staging area for waterfowl and provides habitat for furbearers, moose, wolves and black bears. Bald eagles use the WMA for feeding staging, and occasionally for nesting.

5.4 First Nation Communities

The First Nation Community of Opaskwayak Cree Nation occurs within the RM of Kelsey boundaries and is located on the north side of the Saskatchewan River directly across from the Town of The Pas approximately 7.4 km north of the Project Site.

5.5 Heritage Resources

Wood (then Amec Foster Wheeler) submitted a screening request to the Manitoba Historic Resources Branch (the Branch) on 20 March 2018 for the proposed Bulk Agro Centre, to determine if there are any potential heritage resources that may be affected by the project and if a Heritage Resources Impact Assessment (HRIA) is required.

A response with respect to the above-mentioned screening request had not been received from the Heritage Resources Branch by the time of this submission. However, given the already-developed nature of the Project Site, it is unlikely that heritage resources will be encountered at the Project Site during the construction of the Bulk Agro Centre and the completion of a HRIA is not deemed to be required during construction. During construction, the following measures will be implemented:

- If artifacts or historical features of skeletal remains are encountered during construction activities, work activities will stop immediately around the affected area with the find reported to the site supervisor. A qualified archaeologist would investigate and assess the find prior to continuation of work.
- If skeletal remains are encountered, the find would be immediately reported to the site supervisor and the RCMP.

6.0 Public Engagement

Swan Valley Co-op initially consulted with the Municipality regarding the planned Bulk Agro Centre in April 2018. Based on initial discussions, the RM of Kelsey did not have concerns about the proposed Bulk

Agro Centre and seemed responsive to the idea of Swan Valley Co-op investing in the RM of Kelsey and providing agro retail services to producers in the municipality.

7.0 Assessment Approach

This assessment was completed to meet the requirements of an EAP and considers project-specific environmental effects. For this assessment, the term "environment" refers broadly to both biophysical and socio-economic elements of the environmental setting.

The assessment is focused on valued components (VCs) which are elements identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic importance. The selection of VCs is based on consideration of several factors, namely, input from regulators, the public, as well as professional judgement of the Swan Valley Co-op and environmental assessment team, combined with the assumed implementation of industry standard, environmentally responsible construction techniques and operating procedures during project construction, operation and closure. The MSD *Information Bulletin – Environment Act Proposal Report Guidelines* and *Information Bulletin - Environment Act Proposals for Bulk Material Handling Facilities (Pesticide, Fertilizer and Seed Treatment Handling Facilities)* dated 2018 was used as guidance in the determination of likely interactions between the Project and biophysical and socio-economic elements of the environment.

7.1 Selection of Project Interactions and Valued Components

To concentrate the assessment on matters of the most importance, potential interactions of the Project with the surrounding biophysical and socio-economic environment are identified using a variety of sources, including:

- Applicable provincial regulatory requirements and guidance pertaining to the proposed Bulk Agro Centre from regulators.
- Existing information on biophysical and socio-economic components within the local and regional areas of the Facility (e.g., air quality, surface water quality, and human and ecological health) and results of desktop studies.
- Professional judgment of the environmental assessment and Swan Valley Co-op teams, based on experience with similar projects elsewhere and other projects and activities in the project area

Biophysical and socio-economic VCs that could be affected due to interactions between the Project and environment are identified to scope the assessment. The selected VCs embody one or more of the following:

- represent a broad biophysical or socio-economic component that might be affected by the Project;
- are a part of the heritage of First Nation communities or a part of their current use of lands for traditional purposes; and
- are of scientific, historical or archaeological importance.

For those VCs where a potential interaction is identified, but, which based on past experience and professional judgement, will result in an environmental effect that can be reduced to acceptable levels through use of standard operating or industry best management practices, the VC was excluded from further assessment.

The designation of VCs is shown in Table 7-1. Project-related effects on the VCs and corresponding

mitigation measures are assessed in Section 8. Residual effects are characterized using specific predetermined criteria (e.g., direction, magnitude, geographical extent, duration, frequency) as outlined in Table 7-2.

Table 7-1: Designation of Valued Components

Component Name	Potential Project Interaction	Included/ Excluded	Value Component	Rational for Exclusion of Inclusion and Project Potential Effect
Air Quality and Noise	✓	**Incl**	**Yes**	**The Bulk Agro Centre will have a gravel surface outside of building footprints. On-site traffic including product delivery and customer vehicles will generate fugitive dust emissions. Construction activities for the proposed Bulk Agro Centre will temporarily generate dust emission due to physical disturbance of soil, including topsoil stripping and stockpiling, and movement of construction-related vehicles. Noise level generation is deemed acceptable for a bulk agro retail facility within an industrial park.**
Greenhouse gas emissions	✓	**Incl**	**Yes**	**The Bulk Agro Centre will contribute to GHG largely due to emissions from fertilizer and agrichemical delivery and customer vehicles.**
Soil quality	✓	**Incl**	**Yes**	**Construction activities within the Bulk Agro Centre footprint will have the potential to affect soil quality. There would be potential for compaction and rutting, erosion and admixing which adversely affect soil quality. Such effects would be restricted to the construction phase.**
Vegetation	x	Excl	No	The Project Site is already developed and covered by gravel outside of existing buildings' footprints. As a result, there will not be potential for interaction with natural vegetation.
Surface Water Quality	✓	Incl	No	Surface drainage at the Project Site is influenced by nearby trenches, ditches and nearby off-site dugout ponds. The closest surface water body that could support aquatic life is Cemetery lake which is approximately 1.3 km northwest of the Project Site. The Site does not appear to have a direct link to this and other nearby water channels and thus the potential for

Component Name	Potential Project Interaction	Included/ Excluded	Value Component	Rational for Exclusion of Inclusion and Project Potential Effect
				surface water contamination by fertilizers associated with the Facility is deemed negligible.
Groundwater Quantity and Quality	✓	Incl	No	For its water needs, the Bulk Agro Centre will rely on municipal water provided by the RM of Kelsey. As a result, there will not be consumption of groundwater at the Project Site and groundwater quantities will not be affected by the Bulk Agro Centre. According to the groundwater well data for the offsite nearby well located in the same quarter section as the Project Site (see Appendix D), the well's depth to groundwater before the pumping test was 30 feet below ground (i.e., approximately 9 m). The geotechnical investigation completed at the Project Site (see Appendix G), reported drill auger refusal at depths ranging from 0.3 m to 4.1 m bgl attributable to hard till or encountering cobbles or boulders in the till or shallow bedrock. Groundwater seepage was not observed at any of the test holes suggesting the absence of shallow sand and gravel aquifer beneath the Project Site. Because the Project Site was found to have stiff to very hard clay till underlying the shallow layers of peat, organic clay, gravel fill and sand, the potential for fertilizer and agrichemical contaminants to migrate through groundwater beneath the Site is deemed low.
Fish and Fish Habitat	x	Incl	No	There is no fish habitat present within the Project Site and immediately surrounding areas and there is no direct discharge proposed to surface water bodies.
Wildlife and wildlife habitat	✓	**Incl**	**Yes**	**The Project Site and immediately surrounding properties are already developed with reduced potential for interaction with wildlife. The Bulk Agro Centre will be gated and surrounded by a security fence topped with barbed wire resulting in limited access to the Project Site. Of the breeding birds that are known to nest within the project area, the**

Component Name	Potential Project Interaction	Included/ Excluded	Value Component	Rational for Exclusion of Inclusion and Project Potential Effect
				Canada Warbler, considered threatened by SARA and the Manitoba ESA, is the only federally listed species that is known to breed in the project RAA. The Canada Warbler's breeding season generally ranges from May 16 to July 25. The Project Site is not expected to provide suitable nesting habitat for the Canada Warbler, as it prefers mixed- forest habitat. The potential for effects to the Canada Warbler is deemed low.
Land and Resource Use	x	Incl	No	The Project Site is already within an industrial park and as a result, there will not be need for land use zone change to facilitate the construction and operation of the Bulk Agro Centre.
Heritage Resources	✓	Incl	No	Project activities during construction (e.g., clearing or trenching) can potentially affect heritage resources, particularly in previously non-disturbed areas. A request for screening was submitted to Heritage Resources Branch but no response had been received from the Heritage Resources Branch at the time of this EAP's submission. Given the developed nature of the Project Site, the potential for effects to heritage resources is deemed negligible.
Human Health and Aesthetics	x	Incl	No	The Project Site is in a commercial highway industrial park, and not in immediate proximity to private residences.
Infrastructure and Services	✓	**Incl**	**Yes**	**The additional traffic due to the Bulk Agro Centre product deliveries and customers may increase traffic on PTH 10 and accessing the RM of Kelsey Industrial Park.** Municipal services (energy, water, waste disposal ground) have sufficient capacity to accommodate the proposed Bulk Agro Centre.
Employment and Economy	✓	Incl	No	Positive effects attributable to the proposed Bulk Agro Centre are expected and include benefits related to employment, increased and ready supply of fertilizers and

Component Name	Potential Project Interaction	Included/ Excluded	Value Component	Rational for Exclusion of Inclusion and Project Potential Effect
				agrichemicals to local agricultural producers, and tax generation.

Table 7-2: Residual Effects Description Criteria

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Direction	The long-term trend of the residual effect	**Positive**— an improvement in the valued component compared with existing conditions and trends **Adverse**— a decline in the valued component compared with existing conditions and trends **Neutral**— no change in the valued component from existing conditions and trends
Magnitude	The amount of change in the VC relative to existing conditions	**Negligible**—no measurable change **Low**— a change that falls within the level of natural variability **Moderate**— a measurable change which is unlikely to affect the valued component **High**— a measurable change which is likely to affect the valued component
Geographic Extent	The geographic area in which an environmental effect occurs	**PS**– residual effects are restricted to the (Project Site, PS) **LAA** - residual effects extend into the LAA (i.e., 1.5 km radius of the Site boundary. **RAA** - residual effects extend to a 10-km radius of the Facility; for Socio-Economic VCs the applicable RAA is the RM of Kelsey; for greenhouse gases the applicable RAA is the province of Manitoba
Frequency	Identifies when the residual effect occurs and how often during the Project or in a specific phase	**Single event** - residual effect occurs once throughout the life of the Project **Multiple irregular event** - residual effect occurs sporadically and intermittently (no set schedule) throughout **Multiple regular event** - residual effect occurs repeatedly and regularly throughout **Continuous** - residual effect occurs continuously throughout the life of the Project
Duration	The period of time required until the VC returns to its existing condition, or the effect can no longer be measured or otherwise perceived	**Short-term** - residual effect restricted to the duration of two years **Medium-term** - residual effect extends up to 25 years

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
		Long-term - residual effect extends for longer than 25 years
Reversibility	Pertains to whether the VC can return to its existing condition after the project activity ceases	**Reversible** - the effect is likely to be reversed after activity completion and decommissioning/remediation **Irreversible** - the effect is unlikely to be reversed even after decommissioning/remediation
Ecological and Socio-Economic Context	Existing condition and trends in the area where environmental effects occur	**Undisturbed** - area is relatively undisturbed or not adversely affected by human activity **Disturbed** - area has been previously disturbed by human development or human development is still present

8.0 Environmental Effects Assessment and Mitigation

This section contains the results of the environmental assessment. Applying professional judgement and a thorough understanding of the components of the proposed Bulk Agro Centre (outlined in Section 2 of this report); Wood determined the potential for physical, biological and socio-economic components to interact with project components (presented in Table 7-1).

The assessment includes any effects on social components resulting from residual adverse environmental effects. The assessment also considers mitigation measures that Swan Valley Co-op plans to incorporate as design aspects, as well as environmental protection practices and procedures included in the proponent's standard of operation. Environmental effects that may be caused as a result of accidents and malfunctions are discussed separately in Section 8.7. Definitions of the terms used to guide the effects assessment are provided in Table 7-2.

8.1 Air Quality and Noise

8.1.1 Dust

The Project will involve construction activities that generate dust, namely vehicle movement, clearing, excavation, stockpiling of materials, and grading within the proposed Bulk Agro Centre components' footprints (see Figure 4, Appendix A). Air quality may be affected by dust and particulates with potential for subsequent effects on human health (including respiratory issues) and vegetation (dust deposition).

During operation of the Bulk Agro Centre, fugitive dust generation is anticipated from on-site traffic (delivery and customer vehicles).

To reduce dust emissions during construction of the Project, the following mitigation measures will be implemented:

- Minimizing soil disturbance at the Project Site with soil disturbance limited to the fertilizer bins, chemical shed, and office building footprints.

- Limiting heights of stockpiled materials on site.
- Using soil stabilizers for soil stockpiles exposed for prolonged periods of time.
- Suppressing dust through use of water or other approved control agents, if needed.

8.1.2 Noise Emissions

An increase in noise levels at or near the Project Site could occur due to the anticipated traffic accessing the Project Site and potentially affect people and wildlife in the surrounding area. Sources of noise during construction would be typical of heavy equipment such as graders, excavators, and haulage trucks. However, given the occurrence of the Project Site within an Industrial Park and its proximity to PTH 10 (a busy highway), the effect of the Bulk Agro Centre's construction or operation activities on noise levels in the area is anticipated to be negligible.

The closest private residence is located within the Young Point residential area and about 450 m southwest of the Project Site, on the western side of PTH 10. This receptor residence is deemed too distant to be disturbed by everyday noise at the Project Site due to construction, particularly given its closer proximity to PTH 10. During the operation phase, sources of noise at the Bulk Agro Centre would primarily be movement of trucks delivering fertilizers and customers' vehicles. Given the Site's proximity to PTH 10, the delivery of fertilizers and agrichemicals at the Bulk Agro Centre is anticipated to result in negligible residual noise effects.

The implementation of the following measures will mitigate potential adverse effects.

- Limitation of construction hours as required to normal working hours.
- Provision of appropriate hearing protection to workers/employees and encouraging proper use of hearing protection among workers during construction.
- Regular maintenance of vehicles and equipment.

Summary

With the implementation of the mitigation and prevention measures identified above, the potential adverse effects on air quality during construction and operation are expected to be negligible, limited to the Project Site, short-term in duration, multiple irregular in frequency, and reversible upon decommissioning. The potential adverse effects of noise are expected to be low, limited to the immediate vicinity of the Project Site, short-term in duration, multiple regular in frequency, and reversible upon decommissioning.

8.2 Greenhouse Gas Emissions

During construction, exhaust emissions containing greenhouse gases (GHGs) will be generated by vehicles and equipment during delivery of construction materials; preparing the footprint of the Bulk Agro Centre; construction of the Bulk Agro Centre components and during reclamation or landscaping activities following construction. These emissions could also adversely affect air quality by increasing the local concentrations of carbon monoxide, carbon dioxide, particulate matter, and nitrogen oxides in the air with potential for subsequent effects on human health.

During construction, a maximum of 27 construction vehicles (see Section 2.2) will access public roads near the Project Site. This traffic will be temporary and restricted to the construction phase of the Project.

During operation of the Bulk Agro Centre, fertilizer and agrichemical delivery and customer vehicles will

generate GHG emissions. This traffic would be restricted to the operational period of the Bulk Agro Centre (10 months, March 1st to December 31st), and operational days and hours (typically Monday to Friday, 8:00 to 17:00 hours).

The following mitigation measures will be implemented to mitigate GHG emissions due to exhaust emissions:

- Vehicles and equipment will be properly maintained.
- Minimizing the number of vehicles or equipment in use as far as is practical.

Summary

The construction and operation of the Bulk Agro Centre will result in HG emissions. However, relative to the provincial total emissions, the project-related GHG emissions are expected be negligible and short-term in duration, of multiple irregular frequency, and irreversible upon decommissioning.

8.3 Soil Quality

Changes to soil quality attributable to the Bulk Agro Centre would be largely restricted to the construction phase. Following construction and during operation of the Bulk Agro Centre, the additional footprint will be covered by gravel. If present, topsoil would be stripped from the footprints of the fertilizer bins, office building and chemical shed as part of their construction (see Figure 4, Appendix A), and kept onsite for later use in reclamation.

8.3.1 Compaction and Rutting Risk

Vehicles and heavy equipment traffic in the proposed Bulk Agro Centre could cause compaction and rutting of topsoil and subsoil, adversely affecting soil quality. Soil compaction is largely influenced by soil texture so that finer-textured soils are more susceptible to compaction than coarser-textured soils. Rutting is primarily driven by moisture so that as soil moisture increases, the soil's susceptibility to rutting also increases. Given the reported predominant occurrence of gravel fill at the surface within the Project Site, there is low potential for soil compaction and rutting.

8.3.2 Admixing

Admixing refers to the dilution of topsoil with subsoil resulting in topsoil of reduced quality (Powter 2002). Admixing can cause soil quality deterioration due to changes in topsoil texture, soil aggregation and structure, organic matter content and consistence when topsoil is inadvertently mixed with subsoil. For the Project, while topsoil stripping is anticipated to be limited in extent, the overstripping of topsoil within the Bulk Agro Centre footprints is a potential mechanism for admixing at the Project Site.

8.3.3 Wind and Water Erosion Risk

Physical disturbance of soil during construction activities (e.g., topsoil stripping, excavation, backfilling, grading, and clean-up can reduce soil thickness, due to wind or water erosion. The exposure of soil makes it more vulnerable to the elements and can cause soil loss from exposed soils (e.g., in stockpiles). Such losses could be associated with a one-time weather event, like strong winds or high intensity rainfall and the associated reduction in soil thickness might be permanent.

Due to the predominant gravel fill at the surface within the Project Site, water and wind erosion risk for soils is deemed to be low. However, given the occurrence of sand beneath thin layers of peat and clay within portions of the Project Site, such sandy soils may be susceptible to wind erosion. Erosion of soil and material stockpiles due to wind has the potential to cause subsequent effects on air quality (dust and particulate matter).

To reduce potential effects to soil quality, the following mitigation measures will be implemented:

- Disturbed/exposed areas will be kept to a minimum with site restoration occurring as soon as practical where required.
- Construction equipment and vehicle movements will be limited to designated roads/pathways within and around work areas.
- In the event of adverse weather that could result in rutting or compaction (heavy rainfall), the contractor in consultation with Swan Valley Co-op should implement contingency measures including use of matting for access through wet areas and limiting or suspension of activities until soil conditions are appropriate.
- Colour change should be used to guide stripping between topsoil (A horizon) and subsoil (B or C horizon) within the Bulk Agro Centre components' footprints to prevent admixing.
- Topsoil will be stripped and spread in the non-built portions of the Project Site for future use in site restoration.
- The contractor will be responsible for the appropriate repair of any areas where equipment has compacted soils with the repairs including appropriate grading and site restoration (if required).
- Traffic should be limited as much as possible during smoothing and levelling of soils to prevent further compaction. Smoothing and levelling should also be avoided if soils are near saturation.
- Areas with vehicle ruts should be decompacted and regraded.
- Soil stockpiles at the Project Site should be stabilized and adequately protected from erosion with good vegetation establishment or other protective measures.
- Appropriate erosion and sediment control measures should be implemented and maintained, as needed, until spreading of topsoil is complete.

Summary

The proposed Bulk Agro Centre footprint is in an already developed industrial park within a highway commercial zoned area. The mitigation measures outlined above are considered sufficient to mitigate potential adverse effects due to soil compaction, rutting, admixing, and erosion during construction, operation and decommissioning phases. Residual effects on soils are therefore assessed to be adverse, of low magnitude, limited to the areas where soil will be disturbed within the Project Site, span medium to long-term duration, occur once, and irreversible.

8.4 Wildlife and Wildlife Habitat

The Project Site and immediately surrounding area occur on land zoned as Highway Commercial. The Project Site has historically been operated to support a saw mill, and therefore the interactions with vegetation and wildlife are expected to be minimal.

Of the breeding birds that are known to nest within the project's regional area, the Canada Warbler,

considered threatened by SARA and the Manitoba ESA, is the only federally listed species that is known to breed in the project RAA. The Canada Warbler's breeding season generally ranges from May 16 to July 25. The Project Site is not expected to provide suitable nesting habitat for the Canada Warbler, as it prefers mixed- forest habitat. However, to reduce the potential for harm to nests and other interactions with wildlife during construction at the Site, the following mitigation will be implemented:

- Prior to commencement of construction activities, surveys for potential nests and occurrences of Canada Warbler or other breeding birds will be conducted at the Project Site, and buffers established around nesting sites to protect breeding bird populations, if nests are found.
- During construction temporary fencing would also be used as required to keep wildlife from accessing the Site.

Summary

The proposed Bulk Agro Centre footprint is in an already developed industrial park under highway commercial zoning that has been previously disturbed due to the construction and operation of a site to support saw mill operations. The mitigation measures outlined above are deemed sufficient to mitigate potential adverse effects to wildlife due to construction activities. Residual effects on wildlife and wildlife habitat are assessed to be adverse, of low magnitude, limited to the Project Site, span short to medium-term duration, of single occurrence, and reversible.

8.5 Infrastructure and Services

The Bulk Agro Centre's use of municipal services (i.e., energy, waste disposal and recycling) is not anticipated to result in residual effects as RM of Kelsey and Manitoba Hydro services are in place with sufficient capacity to accommodate the slight potential increase anticipated for the demands of the Bulk Agro Centre.

Considering the forecasted additional traffic attributable to the Bulk Agro Centre's construction and operation as well as the reported traffic volumes near the Project Site along PTH 10 which will be used to access the Bulk Agro Centre (and is presently used to access the other businesses in the industrial park), the Bulk Agro Centre's potential impact on traffic is deemed adverse, low in the LAA/negligible in the RAA, multiple irregular, short-term and reversible.

Summary

The potential adverse residual effects on infrastructure and services are expected to be negligible in the RAA, short-term in duration, multiple irregular in frequency, and reversible upon the Bulk Agro Centre's decommissioning.

8.6 Summary of Residual Effects Characterization

A summary of residual environmental effects characterization is found in Table 8-1. Positive effects are not addressed, only adverse effects are characterized.

Table 8-1: Summary of Residual Environmental Effects

Project Effects	Residual Environmental Effects Characterization						
	Direction	Magnitude	Geographical Extent	Duration	Frequency	Reversibility	Ecological or Socio-Economic context
Construction							
Air Quality and Noise							
Fugitive dust generation	A	L	PS	S	MI	R	D
Outdoor noise generation	A	L	LAA	S	MI	R	D
GHG Emissions							
Emissions during construction of Bulk Agro Centre	A	N	RAA	L	MI	IR	D
Soil Quality							
Soil compaction and rutting, admixing and erosion	A	L	PS	M-L	S	IR	D
Infrastructure and Services							
Construction-related traffic	A	N	RAA	S	MI	R	D
Operation							
Air Quality and Noise							
Fugitive dust generation	A	N	LAA	S	MI	R	D
Outdoor noise generation	A	N	LAA	S	MI	R	D
GHG Emissions							
Increased GHG emissions associated with Bulk Agro Centre operations	A	N	RAA	L	MI	IR	D
Infrastructure and Services							
Fertilizer and agrichemicals delivery and customer traffic	A	N	RAA	S	MI	R	D

KEY (see Table 7-2 for definitions)

Direction
P Positive
A Adverse
N Neutral

Magnitude
N Negligible
L Low
M Moderate
H High

Geographical Extent
PS Project Site
LAA Local Assessment Area
RAA Regional Assessment Area

Duration
S Short-term
M Medium-term
L Long-term

Frequency
S Single event
MI Multiple irregular
MR Multiple regular
C Continuous

Reversibility
R Reversible
IR Irreversible

Ecological/Socio-Economic Context
U Undisturbed
D Disturbed

N/A = Not applicable

8.7 Accidents and Malfunctions

The effects of accidents and malfunctions for the proposed Bulk Agro Centre largely pertain to the potential for mechanical equipment failure and granular fertilizer or agrichemical spills during warehouse handling or customer pick-up. Swan Valley Co-op will have an on-site emergency response plan (see Appendix H) and employees will be trained in the daily operations of the Bulk Agro Centre. The presence of prevention measures and procedures for managing adverse effects associated with accidents and malfunctions will minimize the effects in the event of an emergency. With the implementation of safe work practices, the likelihood of such events occurring is reduced.

8.7.1 Fires/Explosions

During operation of the Bulk Agro Centre, there will be potential for fires involving mechanical equipment and other combustible materials/substances. Effects due to fires include harm or injury to on-site personnel, damage to equipment, and the potential release of contaminants and hazardous materials.

Swan Valley Co-op will take precautions necessary to prevent fire hazards at the Bulk Agro Centre, including:

- Removal of flammable waste from the Project Site on a regular basis and disposal of such waste at an appropriate disposal site.
- Availability of and easy access to appropriate fire extinguisher(s) at the Bulk Agro Centre. Such equipment will comply with and be maintained to, the manufacturers' standards.
- Fire prevention/response equipment will be checked on a regular basis, as required, in accordance with local fire safety regulations, to ensure the equipment is in proper working order.
- The emergency response plan will be provided to and reviewed with the municipal fire department to discuss response and containment in the event of a fire impacting the self-contained chemical shed.

With implementation of the above-mentioned mitigation measures and typical safe work practices, the risk of fires and explosions is deemed to be appropriately mitigated.

8.7.2 Leaks and Spills

Leaks (e.g., vehicle or equipment fuel and oils) and spills of fertilizers or agrichemical could occur during construction and/ or operation. Leak and spill-related effects on air quality, soil quality, birds or other wildlife, and human health and safety are possible.

To reduce the potential for leaks and spills at the Bulk Agro Centre, the following measures will be implemented:

- During construction activities, refueling of heavy equipment will be conducted off-site or will adhere to proper procedures such as using a designated area defined by Swan Valley Co-op with spill kits located at the refueling area.
- Storage (bins and chemical shed) infrastructure will be inspected periodically for continued compliance with requirements.
- Dry fertilizer transfer and handling will be completed over concrete pads to allow for containment and cleanup of minor handling spills.
- Agrichemicals will be sold in as received packaging to reduce the potential for leaks and spills which

is associated with product transfer into separate packaging.

- On-site staff will be trained on how to deal with leaks and spills, including knowledge of how to properly deploy site spill kit materials.
- Appropriate type and size of spill kits will be available at the Bulk Agro Centre.
- Service and minor repairs of equipment performed on-site will be performed by trained personnel.
- Vehicles and equipment will be maintained to reduce the potential for leaks. Regular inspections of hydraulic and fuel systems on machinery will be completed on a routine basis, when detected, leaks will be repaired immediately.

Adherence to standard environmental management practices will minimize the risks of accidental leaks and spills and adverse effects. In the event of an accidental spill, Swan Valley Co-op will proceed as per the emergency response plan for the Project Site and file a regulatory report with MSD within required timelines. Following a spill, an appropriate spill kit or other suitable alternative would be utilized to prevent migration of the spilled material. Recovery measures would be implemented as necessary in consultation with the appropriate provincial authorities. Following initial response, a remediation program will be undertaken if needed with contaminated material appropriately managed (in accordance with federal and provincial regulations).

With the implementation of the above mitigation measures as necessary and assuming the implementation of safe work practices, the risk of spills is considered appropriately mitigated.

8.7.3 Flooding

Overland flooding in the RM of Kelsey due to substantive spring snowmelts as was the case in 2011 (Manitoba Flood Facts, no date) or due to heavy rains in the fall as was the case in 2016 (The Manitoba Co-operator 2016) is a potential emergency scenario for the Project Site and surrounding areas. However, given the occurrence of the Project Site within the RM of Kelsey Industrial Park, and the proposed drainage plan for the Project Site, the risk of flooding is considered appropriately mitigated.

- Water from over-land flooding or surface runoff will drain southwards to the property boundary where the water will flow west through a culvert on the way to the municipal ditch. There will be sandbags stock piled at that culvert to stop water flow in the event of an emergency.
- Given that the chemical shed is self-contained, portable and raised on structural steel supports, such characteristics constitute design-based mitigation for potential effects to the chemical shed due to flooding.

8.7.4 Transportation Accidents

Transportation accidents can result in the release of vehicle fluids (i.e., diesel, gasoline, oils, etc.) and the materials the vehicles were transporting (i.e., fertilizers, agrichemicals) to the environment. Effects related to such releases can include air, surface water, groundwater, and soil quality effects with potential for subsequent effects on the environment and human health.

The potential for transportation accidents at the Bulk Agro Centre during construction and operational activities will be reduced by the following measures:

- Traffic at the Project Site (i.e., deliveries and pickups) will operate at a slow speed that will be posted near the entrance and within the Project Site.

- Swan Valley Co-op will utilize qualified transportation companies and personnel to transport its retail products.

8.8 Effects of the Environment on the Project

Potential effects of the environment that can affect the proposed Bulk Agro Centre include damage from fires originating from adjacent properties and wild fires. Climate change will increase the risk over time of extreme weather events and grass fires.

9.0 Summary and Conclusion

Wood has prepared this EAP Report on behalf of Swan Valley Co-op as supporting documentation for Swan Valley Co-op's EAP for a new development that will be located in the RM of Kelsey's Industrial Park near PTH 10 and south of the Town of The Pas, in Manitoba. The proposed development will consist of the construction and operation of six volumetric smooth wall bins with a dry fertilizer loading facility, an AWSA-certified agrichemical warehouse and an office building, collectively referred to as the Bulk Agro Centre.

The Project Site is located:

- approximately 136 m and 210 m east of a CN Railway line and PTH 10, respectively.
- approximately 450 m northeast of the nearest isolated residence which is in Young Point, a residential area. Two other nearby residential areas are located 610 m southwest (i.e., Valley View Trailer Park) and 770 m southeast of the Project Site; and
- approximately 6.5 km south of the Town or the Pas.

The Bulk Agro Centre will rely on municipal water and an on-site septic tank which will be cleaned out as needed by a contracted septic tank services provider. Office waste generated at the Site will be disposed of at the Town of the Pas' WDG which is located approximately 7.1 km northeast of the Project Site. Granular fertilizer waste (e.g., from spills or damaged packaging) will be spread on agricultural fields for disposal, per standard industry practice. Swan Valley Co-op will provide agrichemicals waste collection services to their customers, accepting disposable jugs, non-refillable bulk pesticide containers and obsolete product waste at the Bulk Agro Centre for transfer to the closest Cleanfarms collection site which is near Bellsite, Manitoba, approximately 170 km to the south. Swan Valley Co-op will consult with MSD to ensure addressing of relevant concerns prior to accepting agrichemical-related waste from their customers.

Because the Bulk Agro Centre will be located within an industrial park and adequately separated from the Young Point and Valley View Trailer Park, noise or dust generation are not anticipated to affect surrounding residential areas.

A slight increase in the number of vehicles using PTH 10 and accessing the industrial park during the construction and operation of the Bulk Agro Centre is anticipated. However, the vehicles travelling to and from the Project Site (employees, delivery semi-trucks and consumer vehicles) are not expected to exceed current service capacity levels of PTH 10. There will not be need for modification of the access to the industrial park from PTH 10 due to the proposed construction and operation of the Bulk Agro Centre.

Swan Valley Co-op will implement appropriate mitigation and preventative measures to minimize potential adverse effects to the environment during the construction and operation of the Bulk Agro

Centre.

The potential for adverse effects from accidents and malfunctions at the Project Site would primarily be related to accidents or malfunctions (e.g., fires, spills and transportation accidents). The Bulk Agro Centre's operational procedures, emergency response plan, mitigation measures, and safe work practices will reduce the potential likelihood/severity of these events.

Based on the desktop studies undertaken, site observations and information available to date as presented in this report, the construction and operation of the proposed Bulk Agro Centre is not expected to create significant adverse effects to the biophysical and socio-economic environment and is expected to provide economic benefits to the region.

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10.1 Personal Communications

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