# Manitoba Harvest Hemp Foods Environment Act Proposal for Processing Facility

FINAL REPORT

Prepared for:
Fresh Hemp Foods Ltd.

Prepared by:
Stantec Consulting Ltd.
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Winnipeg, MB R3B 2B9

115415049

December 16, 2015

# Sign-off Sheet

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Prepared by 

(signature)

**Bill Krawchuk, M.N.R.M., MCIP**

Reviewed by 

(signature)

**Stephen Biswanger, P.Eng.**

Approval to transmit: 

(signature)

**David Whetter, M.Sc., P.Ag.**

Stantec

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# Environment Act Proposal Form

Manitoba
Conservation and Water Stewardship

Name of the development:
Manitoba Harvest Hemp Foods

Type of development per Classes of Development Regulation (Manitoba Regulation 164/88):
Food Processing Plant - Class 1

Legal name of the applicant:
Fresh Hemp Foods Ltd.

Mailing address of the applicant: 69 Eagle Drive

Contact Person: Kevin Kaluzny

City: Winnipeg | Province: Manitoba | Postal Code: R2R 1V4

Phone Number: 204-953-0282 | Fax: 204-956-5984 | email: kkaluzny@manitoba

Location of the development: Winnipeg, Manitoba

Contact Person: Kevin Kaluzny

Street Address: 69 Eagle Drive, Unit 201-79 Eagle Drive, Unit 210-79 Eagle Drive

Legal Description: Lot 8, Plan 9475 (WLTO), 23-11-2E

City/Town: Winnipeg | Province: Manitoba | Postal Code: R2R 1V4

Phone Number: 204-953-0282 | Fax: 204-956-5984 | email: kkaluzny@manitoba

Name of proponent contact person for purposes of the environmental assessment:
Kevin Kaluzny, Engineering & Process Improvement Manager

Phone: 204-953-0282
Fax: 204-956-5984

Mailing address: 69 Eagle Drive, Winnipeg, MB. R2R 1V4

Email address: kkaluzny@manitobaharvest.com

Webpage address: www.manitobaharvest.com

Date: December 16, 2015

Signature of proponent, or corporate principal of corporate proponent:

Printed name: Marcel Joaquin

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 Conservation and Water Stewardship
Suite 160, 123 Main Street
Winnipeg, Manitoba R3C 1A5

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

December 16, 2015

# Executive Summary

Fresh Hemp Foods Ltd. operates a food processing plant as Manitoba Harvest Hemp Foods in the Oak Point Highway Industrial area within the City of Winnipeg, Manitoba. Manitoba Conservation and Water Stewardship (MCWS) advised Manitoba Harvest Hemp Foods that the existing plant requires a licence under *The Environment Act* as a processor of food products (i.e., hemp). The existing food processing facility does not currently have an *Environment Act* Licence.

The overall facility is located within several units, being 69, Unit 201-79 and Unit 210-79 Eagle Drive (Project Site) in the City of Winnipeg on property that is currently owned by Keter Holdings Inc. Manitoba Harvest Hemp Foods leases portions of the property for its facilities and has been in operation at this location since 2008. The plant and warehouse are located on a site zoned "M1 – Manufacturing Light" under the City of Winnipeg Zoning By-law No. 200/06.

This Environment Act Proposal (EAP) has been prepared by Stantec Consulting Ltd. (Stantec) on behalf of Manitoba Harvest Hemp Foods in accordance with MCWS's Information Bulletin, "*Environment Act Proposal Report Guidelines*" and subsequent guidance provided in MCWS correspondence dated July 16, 2015, and September 16, 2015. This report documents the existing facility operations, potential environmental effects, and mitigation measures in place associated with the plant. No changes to the operations at the existing plant are proposed at this time.

The following is a summary of the existing environmental attributes of the Project area which are pertinent to the environmental assessment conducted:

- The Project Site is located within the City of Winnipeg in an existing industrial area currently developed and zoned for that purpose.
- A desktop assessment conducted by Stantec did not identify any ecological issues with the present Project Site.
- Designated truck routes surround the Project Site (PS).

Positive socio-economic effects associated with the Project are as follows:

- Direct and indirect economic benefits include wages paid to employees, the purchase of goods and services for research and operational activities and contribution to municipal, provincial and federal tax revenue.

Potential adverse effects of Project operation are primarily related to the following:

- Fugitive dust generation is expected to remain small in quantity but is managed by good housekeeping efforts to maintain a clean site.
- Manitoba Harvest Hemp Foods' facility greenhouse gas emissions are considered to be negligible in comparison to total provincial greenhouse gas emissions. The facility is expected to have a negligible contribution to GHG emissions in the Regional Assessment Area (RAA) as defined in Section 4.1.
- Existing traffic flow volumes are accommodated within the design capacity of the existing transportation network in the vicinity of the PDS. The traffic load associated with plant operations is less than 1% of area traffic and the effect is considered to be negligible in relation.

The Proponent has committed to and initiated the following mitigation and prevention measures to protect the environment during Project operation:

- Manitoba Harvest Hemp Foods is minimizing hemp oil and sediment-laden wastewater generation from plant operations through off-site residual oil recovery from Intermediate Bulk Containers (IBC totes) by a third party.
- Hemp by-product, including residual hemp heart shells, fine hemp material and seed cake, hemp protein and dust particulate, is not treated as waste, but rather it is collected and provided to third parties for other uses such as animal feed.
- Dust emissions from plant operation are contained and controlled within the plant building through a system of cartridge dust collectors.
- The Project Site is regularly inspected by operation personnel for loose debris and waste to maintain a clean site.
- Mixed recyclables and cardboard materials are collected by third party service providers for proper recycling or disposal.
- Solid waste generated on-site is stored in secure bins and is removed on a regular basis by third party service providers.
- Waste containers inside the plant are regularly cleaned to prevent contamination of the work environment. Waste is not stored near ingredients, products or packaging.
- Vehicles and equipment operating on-site are property maintained and vehicle idling is kept to a minimum.

- Used compressor oil is collected for disposal off-site at Miller Environmental's licensed hazardous waste transfer station.
- Used batteries from the electric forklifts and pallet jacks are collected by the forklift service provider from the Project Site for proper recycling and disposal.
- Laboratory chemicals are prepared near the exhaust fume hood; containers used for storing chemicals are labelled, including product name, hazard information and MSDS reference.
- Laboratory chemical/reagent disposal follows the MSDS disposal methods for the chemical being disposed. Used chemical containers are rinsed out with water to flush out any remaining chemical residues from the container. The empty containers are then landfilled.
- Potentially hazardous materials are stored at dedicated areas and handled, labelled and transported in accordance with applicable regulatory requirements. Products are used in accordance with product instructions and MSDS requirements.
- Appropriate fire extinguishers are available on-site for plant operations and are maintained according to manufacturer's standards. Equipment is checked on a routine basis to ensure there proper working order in accordance with municipal fire safety regulations.
- Refueling of equipment will adhere to proper procedures with refueling of vehicles conducted off-site.
- Absorbent material spill kits are available for immediate clean-up of spills and leaks by trained personnel.
- Vehicles and equipment are regularly maintained to minimize leaks. Regular inspections of hydraulic and fuel systems on equipment and machinery are undertaken routinely. Leaks detected are identified for repair by trained personnel.
- Manitoba Harvest Hemp Foods maintains a Safety and Health Management System which includes policies related to emergency preparedness, workplace hazardous materials information system (WHMIS) and spill response procedures.

On the basis of the desktop studies undertaken, site observations and information available to date as presented in this report, the Project is not expected to create significant adverse effects to the biophysical and socio-economic environment and is expected to yield continued economic benefits. The likelihood of fire/explosion, spills and transportation accidents occurring at the Project Site is limited given the implementation of prevention measures and safe work practices.

# 1.0 INTRODUCTION

## 1.1 PROJECT OVERVIEW

Manitoba Harvest Hemp Foods operates a food processing plant in the Oak Point Highway Industrial area within the City of Winnipeg, Manitoba (Figure 1-1 – Appendix A; Photos – Appendix B). Manitoba Conservation and Water Stewardship (MCWS) advised Manitoba Harvest Hemp Foods that the existing plant requires a licence under *The Environment Act* as a processor of food products (i.e., hemp). The existing food processing facility does not currently hold an *Environment Act* Licence.

This Environment Act Proposal (EAP) has been prepared by Stantec Consulting Ltd. (Stantec) on behalf of Manitoba Harvest Hemp Foods in accordance with MCWS's Information Bulletin, "*Environment Act Proposal Report Guidelines*" and the guidance provided in a letter dated July 16, 2015 and subsequent correspondence (dated September 16, 2015) from MCWS included in Appendix C. This report documents the existing facility operations, potential environmental effects and implemented mitigation measures associated with the plant operations. The existing facility is considered a Class 1 Development under the Classes of Development Regulation (MR 164/88). The EAP report is submitted along with the Environment Act Proposal Form as supporting information (Insert A) for licensing consideration by MCWS for continued facility operation.

## 1.2 THE PROPONENT

For the purposes of development licensing, the proponent is Fresh Hemp Foods Ltd. (hereafter "Manitoba Harvest Hemp Foods").

For further information regarding Manitoba Harvest Hemp Foods, please contact the following:

Mr. Kevin Kaluzny, C.E.T., C.I.M.
Engineering and Process Improvement Manager
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This Environment Act Proposal was prepared by Stantec Consulting Ltd. The local contact is:

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## 1.3 LAND OWNERSHIP AND PROPERTY RIGHTS

The existing processing facility and warehouse/office is located at 69, Unit 201-79 and Unit 210-79 Eagle Drive in the City of Winnipeg on property that is currently owned by Keter Holdings Inc. (City of Winnipeg 2015a). The legal plan for the subject property is described as Lot 8, Plan 9475 (WLTO) in 23-11-2E encompassing 1.8 hectares (ha) (Figure 1-2). The current Certificate of Title (CT# 2343169) for the subject property is included in Appendix D. Manitoba Harvest Hemp Foods has been a tenant on part of the property since 2008 (Kevin Kaluzny 2015 pers. comm.) and has a lease agreement with the current property owner. The project site, including the plant facility and general office, customer service and marketing & sales offices, warehouse (storage and receiving area), seed bin area, parking area and drive through is approximately 0.6 ha in size (see Figure 1-3; Photos 1-1 to 1-4). The site consists of a processing plant and general office (1,484 square metres [$m^2$]), a seed bin area (850 $m^2$) and customer and marketing offices and warehouse (1,062 $m^2$). According to the Mineral Resources Branch (2015), there are no mineral dispositions for the subject property. Ownership of the mineral rights beneath the land is expected to rest with the Crown (Province of Manitoba).

## 1.4 PREVIOUS ACTIVITIES/STUDIES

Manitoba Harvest Hemp Foods was advised by the City of Winnipeg, Industrial Waste Services Branch that a city sewer adjacent to the plant facility was found to be plugged in early April 2015. The cause of the blockage was identified as a build-up of hemp oil and sediment from plant operations. An Order to Correct violation was issued to Manitoba Harvest Hemp Foods by the city in May 2015 to address the sewer issue. A follow-up site visit was undertaken by the City of Winnipeg on May 26, 2015 to collect waste water samples from the facility waste line. Test sample results were provided to Manitoba Harvest Hemp Foods on June 12, 2015 and included a request to complete and submit a Pollution Prevention Plan by December 8, 2015. Sample results taken from the plant facility wastewater revealed that seven parameters were found to be above the applicable sewer by-law limits.

A site inspection was conducted by MCWS of plant operations on July 15, 2015. The inspection was in response to a notification provided by the City of Winnipeg regarding the sewer backup at the facility that occurred in the spring of 2015.

Following the site visit MCWS acknowledged that Manitoba Harvest Hemp Foods has proactively undertaken steps to prevent future sewer backups from occurring, including:

- Retaining the services of an off-site third party to clean totes from the production area to reduce the amount of hemp oil and sediment discharged to the municipal sewer.
- Retaining the services of a consultant to develop and implement a wastewater monitoring plan to ensure compliance with the municipal sewer by-law.

In addition, Manitoba Harvest Hemp Foods submitted an application to the City of Winnipeg for an Overstrength Discharge Licence to address the parameter discharges in excess of the concentrations, set out in the Schedule B of the City of Winnipeg sewer by-law. Section 2.3.1 provides further details related to the licence.

## 1.5 FUNDING

Manitoba Harvest Hemp Foods will provide funding for necessary undertakings related to the Project.

# 2.0 REGULATORY AND POLICY SETTING

The following is an overview of the regulatory and policy setting pertinent to the operation of the Manitoba Harvest Hemp Foods processing plant and the statutes and regulations considered in this assessment.

## 2.1 FEDERAL APPROVALS

The existing food processing plant is not considered a designated project pursuant to the *Regulations Designating Physical Activities SOR/2012-147* under the *Canadian Environmental Assessment Act*, 2012, and as such, no federal environmental assessment is required.

Health Canada regulates the use of hemp seed (i.e., processing of industrial hemp) under the *Industrial Hemp Regulations SOR/98-156*. Manitoba Harvest Hemp Foods holds an Industrial Hemp Licence for its operations as it possesses grain for processing, exportation, sale and distribution, and produces a derivative (oil) that is also for sale and distribution. The Canadian Food Inspection Agency (CFIA) regulates seed certification and grading in Canada, registers seed importers and issues phytosanitary certificates[1] for seed exporters under the *Seeds Act* and Regulations. CFIA also undertakes an inspection role of licensed cultivation sites on Health Canada's behalf under the *Industrial Hemp Regulations* (see Section 3.2.1.10.1).

No other federal approvals or permits are required for the facility.

## 2.2 PROVINCIAL APPROVALS

*The Environment Act, C.C.S.M. c. E125* provides for the environmental assessment of projects, or "developments" which are likely to have significant effects on the environment. Food processing plant operations are defined under the *Classes of Development Regulation (MR 164/88)* as a "Class 1 Development" and as described in Section 10 of *The Environment Act* (Manitoba). The facility therefore requires the submission of an Environment Act Proposal (EAP) for a valid and subsisting Environment Act License from MCWS for continued operation.

## 2.3 MUNICIPAL APPROVALS AND PERMITS

### 2.3.1 City Sewer By-law

Manitoba Harvest Hemp Foods must comply with all clauses of The City of Winnipeg *Sewer By-Law No. 92/2010*. Part 7 Discharges of Wastewater in the by-law restricts discharges of

[1] An official document that certifies that plants or plant products covered by the certificate have been inspected according to appropriate procedures and are considered to be free from quarantine pests and practically free from other injurious pests (CFIA 2015).

"*substances with concentrations that exceed the limits set out in Schedule B*" of the by-law to the wastewater sewer system. The by-law allows for the generator's discharges to exceed concentrations for substances outlined in Schedule B with receipt of an Overstrength Discharge Licence from the City of Winnipeg. The Overstrength Discharge Licence may provide limits or conditions for specific substances associated with the generator's facility.

Manitoba Harvest Hemp Foods applied for and received a City of Winnipeg Overstrength Discharge Licence for the 2011-2015 operating years with an expiry date of December 31, 2015. The licence, which must be renewed annually, allows Manitoba Harvest Hemp Foods to discharge overstrength wastewater from the plant into the city sewer. Manitoba Harvest Hemp Foods subsequently applied in October 2015 for a new Overstrength Discharge Licence covering the period 2016 to 2020.

In addition, Section 74 of the City of Winnipeg Sewer By-law requires that Manitoba Harvest Hemp Foods prepare and submit a Pollution Prevention Plan for approval by the City of Winnipeg and follow that plan if there are exceedances of substances not covered by the Licence being discharged to the wastewater. Such a plan was submitted to the City of Winnipeg on December 8, 2015.

## 2.4 PUBLIC ENGAGEMENT

The existing facility is located on one privately-owned parcel of land within an existing industrial area, operating since 2008. There have been no known complaints registered with MCWS about these operations. In addition, no proposed expansion of the existing operation at their site is being proposed.

The Proponent recognizes and understands that this environmental assessment may be posted on the MCWS public registry for government and public review and comment as part of the licensing process. No additional formal public engagement has been undertaken at this time.

# 3.0 PROJECT DESCRIPTION

## 3.1 OVERVIEW

Manitoba Harvest Hemp Foods has been in operation at the City of Winnipeg location since 2008 and is located on a site zoned "M1 – Manufacturing Light" under the City of Winnipeg Zoning By-law No. 200/06. The site for the processing facility and general office, seed bin area and customer service and marketing offices and warehouse (including parking area and drive through) is approximately 0.6 ha in size. The site includes a plant and general office area (1,484 $m^2$), a seed bin area (850 $m^2$) and a customer and marketing offices/warehouse area (1,062 $m^2$). The plant facility processes hemp seed for the manufacture of hemp food products both on and off-site for internal and external clients. The product line includes: hemp hearts (raw shelled hemp seed), hemp heart bites, hemp heart bars, hemp protein powder, hemp oil, and hemp beverage. A complete list of products produced by Manitoba Harvest Hemp Foods is available on the company website at: http://manitobaharvest.com/view_category.html.

The following section provides a detailed description of the existing operations at the facility.

### 3.1.1 Existing Development

Manitoba Harvest Hemp Foods' existing development consists of three main areas as follows:

- marketing and sales office and customer service office, warehouse (storage and a receiving/holding area)
- drive through, parking and outdoor seed bin storage area
- general office and processing plant area

Manitoba Harvest Hemp Foods also utilizes third party warehouses for storage of materials (i.e., flavouring mix supplies), processed goods (i.e., hemp oil) and finished products.

A site plan of the facility is illustrated in Figure 1-3 which shows the building layouts and on-site seed storage within the property. Photos illustrating the existing plant site and operations are included in Appendix B. The three main activity areas in the existing development are described below.

**Office, Warehouse and Receiving/Holding Area (Unit 201-79 and Unit 210-79 Eagle Drive)**

- The customer service office area (Unit 201-79 Eagle Drive) and the marketing/sales office area (Unit 210-79 Eagle Drive) consists of open work area, meeting room, washrooms, office storage, training rooms, a customer kitchen demonstration area, and a new product display area.

- The warehouse (79 Eagle Drive) consists of a receiving area, metal storage racks for totes of hemp seed (approx. 770 kilograms [kg]/1,700 pounds [lbs] each), storage of cardboard boxes, wooden pallets, rolls of shrink wrap, flavouring mix supplies and four warehouse loading/receiving doors (Photos 3-1 to 3-3).

- Gravel lot and drive through provides access to four loading bays along the north side of the warehouse, includes a storm water manhole, and two garbage bins for general garbage/trash disposal (Photos 3-4 to 3-7).

**Seed Bin Area**

- A seed bin storage area, on the west side of the processing plant, consists of 11 seed silos in total, nine for raw hemp seed and two for hemp by-product material (Photo 3-8).

- The paved seed receiving area includes two mobile augers (one diesel hydraulic operated and one gas belt-driven) and a fuel storage cabinet that holds three 22 litre (5 imperial gallon) cans, one for gas and two for diesel (Photos 3-9 and 3-10).

- B-train semi-trailers back in and unload raw seed to the silos using an auger system. Hemp seed arrives five times a week and hemp by-product bins are filled within approximately 1 ½ days. Dehulled hemp by-product material includes shells and residual seed cake.

- Bulk hemp by-product is transferred to two outdoor storage bins, where it is temporarily stored and then sold to third parties for uses such as animal feed. Bulk hemp by-product collected in the plant in tote bags is given away free of charge to third parties.

- Bulk hemp by-product is sometimes also stored temporarily in totes when there is a requirement for it to be directly loaded into a semi-trailer. This is normally carried out at a loading bay located on the west side of the plant.

**Processing Plant (69 Eagle Drive)**

Facility activities on a floor by-floor basis are described below.

*First Floor*

- Sanitation room/wash bay is used for cleaning/sanitizing equipment and pre-rinsed totes with discharge to a floor drain.

- Clean and dirty equipment storage room.

- Fine hemp material and dust are filtered through cartridge dust collectors in the seed dehulling section and in the oil press section; dust does not exhaust to the exterior of the plant; fine hemp material and dust particulate collected from the dehulling and milling processes is sent to the hemp by-product totes for third party pickup.

- Receiving of materials/goods/equipment occurs at the south side of the plant in the product shipping area (with three loading doors).

- A ground-mount air exchange unit is located on the outside of building (west side). Five additional roof-top HVAC units (RTU) dedicated for the building are located on the roof.

- General maintenance room contains hand tools, some spare parts and serves as the office for maintenance personnel. Primary use of the area is disassembly and assembly of processing equipment, as well as some drilling and grinding on occasion. Some repair welding, although very little, is done outside of the room. Both the maintenance room and the area outside are ventilated.

- Utility room contains the main water supply connection, electric and natural gas water heaters, and the main electrical box/panels.

- Water usage within the plant is limited to sanitation via sinks in various areas, equipment cleaning in the wash bay/sanitation room, washrooms in the customer office/warehouse, demonstration kitchen in the customer office, and in the processing area; usage inside the plant is not independently metered although the overall inflow to the plant is metered using one meter located in the utility room.

- Operations utilize three electric forklifts (two at the plant and one at the warehouse), four electric pallet jacks (three at the plant and one at the warehouse), and one yard truck which is used for shuttling goods and materials between the warehouse and processing plant (daily).

- Two recycling bins (i.e., one each for mixed recyclables and cardboard, respectively) are located on a gravel lot at the south side of processing plant (see Photo 3-3).

*Second Floor*

- Main plant office consisting of typical office space for staff.

- Laboratory – most of the quality tests are performed at the plant, although there is some off-site testing as well; a list of approved chemicals used in the lab and maximum volumes on-site is maintained on-site, with MSDS's for all controlled products (available upon request); laboratory chemicals are stored in a metal storage cabinet.

### 3.1.2 Production Process

The facility's hemp seed processing area is divided into five major components: raw seed dehulling; pressing and milling; sifting, mix processing (i.e., seed cake, protein powder); product packaging (i.e., hemp hearts, hemp oil, protein powder); storage and shipping. Raw materials and packaging used in the production process includes: hemp seed, cardboard, wooden pallets, plastic bottles, plastic pouches and flavouring mix supplies.

Processed hemp seed from the dehulling process is stored at the on-site warehouse and some is sent to various third party packers at locations off-site. Hemp oil produced from the pressing process is sent out for processing and packaging. The finished products (i.e., hemp hearts and hemp oil) sent to third party warehouse locations are then distributed for retail sale. Various processed products from the sifting and mixing processes are sent to the on-site warehouse (79 Eagle Drive) for storage and subsequent retail distribution. Sifted mill cake and protein powder are also sent to the on-site warehouse – sifted mill cake is picked-up for removal by third parties and protein powder is packaged for retail distribution. Totes of protein powder produced on-site undergo additional flavor mixing. The flavor mixed protein powder is then returned to the on-site warehouse for storage prior to packaging and retail distribution.

The plant production process includes a system of Quality Control (QC) checks. Supplier goods such as packaging material received at the plant undergo a QC check before materials are even used. Materials are placed on hold and checked in the laboratory. Materials that fail are sent back to the supplier; whereas those that pass are used in subsequent production stages. Every tote filled through the production process, including dehulled hemp seeds, is subject to a QC check (at the start, mid-point, end-points of the process). The processed goods are placed on hold and samples are checked in the laboratory. The goods that pass move on to packaging, whereas goods that fail end up going to the by-product line. A final QC check occurs at the packaging stage, where product can be reworked and then sent to the laboratory, and then either shipped once passed or sent to the by-product waste line if the product and packaging fails.

Finished goods pick-up is on average two semi-truck loads per day, five days a week. Two semi-truck loads of milled cake and sifted meal are sent out from the site warehouse per month. Two semi-truck deliveries of milled cake and sifted meal come back to the site warehouse per month from third parties.

All truck movements and shipments of shipped and received product are carried out by contracted freight companies (i.e., TransX, Teams, RS Express, Win-Mar Freight Group) and various couriers. Manitoba Harvest Hemp Foods also leases a yard truck to move product between the plant and warehouse within the site.

### 3.1.2.1 Wastewater and Waste Management

All IBC containers with residual hemp oil are taken off-site by a third party that recovers the residual oil and rinses the totes out. The totes are then returned to the plant for further sanitation and reuse.

Rinsed out IBC totes, metal racks and other processing equipment are cleaned and sanitized in the wash bay using a pressure washer and cleaning sanitizers (see Table 3-1 for a list of the sanitizers used). This wash water enters a floor drain in the wash bay and flows through a sediment trap prior to joining sanitary wastewater from the rest of the plant (at 69 Eagle Drive) to be conveyed to the city sewer.

Manitoba Harvest Hemp Foods has established and implemented a waste management system for the site. Company waste is categorized and stored separately in dedicated colour coded containers (Manitoba Harvest Hemp Foods 2015a). Solid waste management within the plant consists of waste bins, receptacle containers, blue pail (industrial oil), garbage bags and waste tote bags situated throughout the plant. The general waste bins and receptacle containers are regularly emptied into two outdoor garbage/trash bins located on the south side of the plant. Two additional general garbage bins are located outside of the customer and marketing offices/ warehouse for general waste (79 Eagle Drive). Two recycling bins for mixed recyclables and cardboard are also located outside of the plant on the south side (69 Eagle Drive). Approximately two bins of garbage/trash and one bin of recyclables are generated per day at the facility (Kaluzny 2015 pers. comm.). Solid waste removal from the garbage bins (i.e., packaging materials) is contracted to Johnson Waste Management with pick-up five days a week. The mixed recyclables are picked up 3 times per week and the card board is picked up 4 times per week, also by Johnson Waste Management.

Compressor oil changes are conducted on-site. This equates to approximately 30 litres per year of used compressor oil. Manitoba Harvest Hemp Foods disposes of the used oil at Miller Environmental in Winnipeg.

### 3.1.2.2 Dust and Noise Emissions

Hemp dust emissions (particulate matter generation) from processing of hemp seed is collected in an interior fine dust filtration system consisting of three cartridge dust collectors which clean the air. The plant dust collector located in the seed production area is fitted with a self-contained REMBE Q-Box indoor explosive vents (REMBE 2015). The other two dust collectors are equipped with external dust explosion vents. The hemp fine material and dust particulates collected by the dust filtration system is recovered and added to the hemp by-product totes which are given away and picked-up by third parties for removal. There is no external exhaust from the dust collectors from plant operations. The only air discharge comes from the air exchange through the HVAC units. The dust collectors utilize cartridge type units that have a life-span of approximately one year. The used cartridges are collected for disposal at a landfill.

Outdoor noise emissions are limited to the seed blowers on the augers and auger motors used in the seed bin storage area outside of the plant and semi-trailer truck traffic in the drive through area. Manitoba Harvest Hemp Foods is not aware of any noise complaints associated with their operations.

#### 3.1.2.3 Chemical Use On-site

Manitoba Harvest Hemp Foods maintains an approved list of chemicals on-site for its operations. MSDS data sheets are kept for controlled chemical products used on-site for maintenance, sanitation and laboratory testing purposes. Six chemical storage cabinets are situated throughout the plant.

Cleaning chemicals are used for sanitation purposes. These chemicals include: Zep Filmpurge: Solution I; Zep Filmpurge: Solution II; Zep FS Formula 10184; Zep FS Formula 4089; and Zep Alcosan. Volumes of washing and sanitizing chemicals stored on-site are provided in the table below.

**Table 3-1 Washing and Sanitizing Chemical Used On-site**

| Chemical | Quantity | Storage Location |
|---|---|---|
| FS Formula 10184 - Cleaner | 210 L drums | Sanitation Room (1 drum)<br>Warehouse (1 drum) |
| FS Formula 4089 - Food Industry chlorinated detergent | 210 L drums | Sanitation Room (1 drum)<br>Warehouse (1 drum) |
| Alcosan – Sanitizer | 4 L and 1 L jugs | Plant Site (normally 16 L on-site) |
| Filmpurge: Solution I – Specialty chemical cleaner | 20 L pail | Plant Site |
| Filmpurge: Solution II - Activator | 20 L pail | Plant Site |
| Source: Kaluzny 2015 | | |

Chemicals/reagents are disposed of according to disposal methods outlined in the MSDS for that chemical. Chemical containers that are essentially empty after the chemical has been used are rinsed out with water to flush out any remaining chemical residues. The empty containers are then disposed of at a landfill (Manitoba Harvest Hemp Foods 2015c).

Approximately 40 litres of gasoline is stored on-site for the seed receiving conveyor. Consumption is approximately 40 litres per week. In addition, approximately 80 litres of diesel fuel is stored on-site for the other seed receiving conveyor. Consumption is 80 litres per week (approx.). The fuel is stored in a metal cabinet outside of the plant in 22 litre containers only. There is no underground fuel storage at the site. Used compressor oil that is stored on-site as a result of equipment oil changes equates to approximately 30 litres per year. The used oil is taken to Miller Environmental for disposal. The yard truck has a 189 litre tank that uses diesel fuel. Consumption of diesel fuel for the yard truck is approximately 100 litres per month.

Dangerous goods or hazardous waste on site is limited to fuel (diesel and gasoline for the augers and yard truck), mineral/ synthetic compressor oil, gear oil and grease or lubricants for on-site machinery. The machinery on-site typically contains approximately 100 litres of mineral/ synthetic oil in equipment gear boxes (Kaluzny 2015 pers. comm.). Compressed gas cylinders for welding (i.e., acetylene, argon, helium, oxygen) are stored at the warehouse at 79 Eagle Drive and in the maintenance room in the plant at 69 Eagle Drive. Air Liquide provides the gas cylinders for plant operations, comprising three cylinder groups, including large (2), small (12) and specialized gas (7) cylinders (Fresh Hemp Foods Limited 2015).

### 3.1.2.4 Water, Electric and Gas Utilities

Potable water supply for Manitoba Harvest Hemp Foods (i.e., at 69, 79 and Unit 210-79 Eagle Drive) is provided from the City of Winnipeg's potable water system. Separate meters exist for each of the three unit locations noted above. Individual process areas within the plant are not separately metered. The main electrical room includes one electric and one natural gas water heater. Water is not used in the production process, thereby not requiring water pretreatment. In the process areas, water is primarily used for washing food process equipment, hemp oil containers and for other incidental needs typical of those required for normal plant and employee purposes. Employee washrooms and shower facility are located at the customer office and plant areas. A potable water pipeline supplies water to four eyewash stations located throughout the plant as well as a cleaning solution station.

The 90-day water consumption record for 69 Eagle Drive is approximately 468 $m^3$ and is reported to be fairly constant throughout the year (Kaluzny pers. comm. 2015). On an annual basis this water consumption rate would equate to approximately 1,872 $m^3$.

The sanitation room and wash bay area includes two sink areas and a floor drain. The floor drain is connected to two backflow drains and a floor-grit interceptor. This drain connects to the main underground drain system which extends from the sanitation room and wash bay to the clean equipment storage room, as well as a connection from the plant washrooms. The drain pipeline ultimately flows to the city sewer line outside the plant. There is no hauling of wastewater, as all wastewater is forwarded to and treated by the City of Winnipeg's North End Water Pollution Control Centre (NEWPCC).

Electricity is provided to the site via overhead power lines along the west and south sides of Eagle Drive. The main natural gas line is located along the north side of the east-west portion of Eagle Drive with gas services at the back of the office complex at 79 Eagle Drive and Unit 210-79 Eagle Drive. Trenching of natural gas service was extended from this building into the compound in 2011. Natural gas usage over a 12-month period (September to September) at 69 Eagle Drive was approximately 28,908.5 $m^3$. Over the same 12-month period natural gas usage at Units 201 and 210, 79 Eagle Drive was 11,492.3 $m^3$. The amount of electricity consumed by the plant at 69 Eagle Drive over 12 months was approximately 1,240,200 kW.h. Electrical usage at Units 201 and 210, 79 Eagle Drive was approximately 41,220 kW.h (Kaluzny pers. comm. 2015).

### 3.1.2.5 Storage Containers/Equipment

Raw hemp seed is stored in a series of large metal silo storage bins located on-site on the west side of the plant. Other large storage containers on site include a metal storage cabinet for diesel/gasoline fuel located in the seed bin storage area (i.e., for three 5 gallon/22 litre cans [1 for gasoline and 2 for diesel]) (Photo 3-9).

Two augers, one diesel and one gas powered, are utilized on-site to transfer raw hemp seed to the storage bins and hemp by-product to outbound trucks. A yard truck/van is used to transfer goods and supplies back and forth between the warehouse and processing plant. Electric forklifts and electric pallet jacks are utilized within the plant and warehouse.

In-door chemical storage within the plant is located next to the laboratory and in the wash bay/ sanitation area. One nitrogen storage tank (i.e., 660 gallon pressure vessel at 80 psi) is located outside of utility room in the plant. The nitrogen is generated on-site in a gaseous form by filtering it out of compressed air using a generator which runs constantly on a 24/5 basis. The nitrogen generator is stored next to an air compressor in the utility room.

The electric forklifts and electric pallet jacks used on-site are powered by batteries. Used or spare batteries are not stored on-site. Used batteries are removed by the plant's forklift service provider (Toromont or Johnson).

Dry-chemical type ABC fire extinguishers are situated for use throughout the processing plant.

### 3.1.2.6 Health and Safety

Manitoba Harvest Hemp Foods is committed to a safety and health management system that provides a work environment that supports its employees. There are several key policies under the program including:

- corporate policy statement
- contractor control
- general company safety rules
- hazard assessment
- safety inspections (office and facility)
- incident investigation and near-miss procedures (forms and documentation)
- safe work practices and procedures
- safety training and orientation
- personal protection equipment
- preventative maintenance

- injury management
- emergency preparedness
- workplace hazardous materials information system (WHMIS) and spill procedures
- safety statistics and records and legislation

In addition, there are policies under a Manitoba Supplement related to harassment and violence prevention, working alone procedures, and a hearing conservation program (Manitoba Harvest Hemp Foods 2014).

Manitoba Harvest Hemp Foods safety and health system is established by the policy framework and clearly explains the commitments, roles and responsibilities of management, supervisors and its workers.

A Workplace Safety Committee plays an important role in supporting the system through collaboration between management and workers. The Committee is made up of Manitoba Harvest Hemp Foods staff with representation from management and production workers. This committee meets every six weeks to review safety related incidents (particulars, description, evidence gathered), incident causation, and corrective actions taken.

#### 3.1.2.6.1 Food Safety and Seed Inspection Policies

Manitoba Harvest Hemp Foods is certified under the British Retail Consortium (BRC) Global Food Safety Standard and follows that standard in its operations. The Food Safety Standard is used by any processing operation where open food is handled, processed or packed (BRC Trading Ltd. 2014). Manitoba Harvest Hemp Foods also has a Food Safety Plan program in place for its operations under the Standard. The basis of the food safety system is a Hazard Analysis and Critical Control Point (HACCP) program which covers food handling and safety production procedures (BRC Trading Ltd. 2014).

The Canadian Food Inspection Agency (CFIA) regulates the cultivation of hemp in Canada under the *Seeds Act* and *Regulations*. The Act and Regulations govern the certification and grading of seeds for commercial crops, registers seed importers and issues phytosanitary certificates among other things. The CFIA also has a role to play in the administration of Health Canada's *Industrial Hemp Regulations*. The Agency's responsibility is limited to an advisory role in determining the List of Approved Cultivars and conducting inspections of licensed cultivation sites on Health Canada's behalf (CFIA 2012).

# 4.0 SCOPE OF THE ASSESSMENT

## 4.1 SPATIAL AND TEMPORAL BOUNDARIES

The existing facility (the Project) is located in the City of Winnipeg, Manitoba in the Oak Point Highway Industrial area. For the purposes of this environmental assessment, the Project Site, Local Assessment Area and Regional Assessment Area are defined as:

- Project Site (PS) – the physical footprint of the existing facility comprises the customer office, marketing and sales office and warehouse building, processing plant and the seed bin storage area, and gravel drive through/truck loading bay area (0.6 ha) within the subject property, defined as Lot 8, Plan 9475 (WLTO) in 23-11-2E (see Figure 1-3).

- Local Assessment Area (LAA) – area within a one km radius from the development site within the subject property described as Lot 8, Plan 9475 (WLTO) in 23-11-2E. For the purposes of the assessment, the LAA is the area over which direct effects of the Project are expected to potentially occur.

- Regional Assessment Area (RAA) – adjacent and surrounding lands in the Oak Point Highway industrial area in the northwest portion of the City of Winnipeg, Brookside industrial area west in the RM of Rosser and associated airport lands up to 2 km beyond the PS. For the purposes of the assessment, the RAA represents the area over which direct effects of the PS are compared to determine residual effects.

For the purposes of this assessment, the following temporal boundaries are defined:

- Operation phase – the period over which the facility will be in operation at its' present location, which is anticipated to be at least two to ten years.

- Decommissioning phase – the period in which the facility is anticipated to be decommissioned (at least not for two to ten years). Decommissioning would be anticipated to consist of the removal of all Manitoba Harvest Hemp Foods-specific equipment and materials from the site. Decommissioning would be conducted according to Licence conditions and regulatory requirements at the time.

# 5.0 EXISTING ENVIRONMENT IN PROJECT AREA

## 5.1 BIOPHYSICAL SETTING

### 5.1.1 Physiography

The RAA is located in south eastern Manitoba within the Winnipeg Ecodistrict of the Lake Manitoba Plain Ecoregion, which is within Manitoba's Prairie Ecozone (Smith et al. 1998).

The local relief in the Winnipeg Ecodistrict is fairly level, with the landscape described as a smooth to very gently sloping, clayey glaciolacustrine plain with a mean elevation of about 236 m above sea level (Smith et al. 1998).

The surficial geology within the RAA consists of glacial till and silts and clays (Matile 2004), deposited by glacial Lake Agassiz. The underlying bedrock consists of Paleozoic limestone bedrock (Smith et al. 1998).

### 5.1.2 Climate and Air Quality

The climate of the Winnipeg Ecodistrict is characterized by short, warm summers and long, cold winters. The mean annual temperature is about 3.0°C. The mean annual precipitation is approximately 521 mm, but varies greatly from year to year and is highest in spring and summer. Snow accounts for less than one quarter of the precipitation.

The nearest meteorological station to the Project is located at the Winnipeg International Airport, in the City of Winnipeg, Manitoba approximately 2.0 km southwest of the Project site (Environment Canada 2015a). Monthly climate normals are provided below in Table 5-1.

**Table 5-1 Climate Normals for Winnipeg International Airport, Manitoba (1981-2010)**

| Parameter | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Yr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Temperature** (°C) | | | | | | | | | | | | | |
| Daily Avg. | -16.4 | -13.2 | -5.8 | 4.4 | 11.6 | 17.0 | 19.7 | 18.8 | 12.7 | 5.0 | -4.9 | -13.2 | 3.0 |
| Daily Max. | -11.3 | -8.1 | -0.8 | 10.9 | 18.6 | 23.2 | 25.9 | 25.4 | 19.0 | 10.5 | -0.5 | -8.5 | 8.7 |
| Daily Min. | -21.4 | -18.3 | -10.7 | -2.0 | 4.5 | 10.7 | 13.5 | 12.1 | 6.4 | -0.5 | -9.2 | -17.8 | -2.7 |
| **Precipitation** | | | | | | | | | | | | | |
| Rainfall (mm) | 0.2 | 2.7 | 9.7 | 19.2 | 54.1 | 90.0 | 79.5 | 77.0 | 45.5 | 32.7 | 6.9 | 1.5 | 418.9 |
| Snowfall (cm) | 23.7 | 12.5 | 16.5 | 10.6 | 2.6 | 0 | 0 | 0 | 0.3 | 4.8 | 19.9 | 23.0 | 113.7 |
| Total (mm) | 19.9 | 13.8 | 24.5 | 30.0 | 56.7 | 90.0 | 79.5 | 77.0 | 45.8 | 37.5 | 25.0 | 21.5 | 521.1 |
| Source: http://www.weatheroffice.ec.gc.ca | | | | | | | | | | | | | |

The City of Winnipeg generally has excellent air quality. Air quality concerns from pollutants tend to localized in nature. The sources of airborne pollutants typically include industrial operations, vehicle emissions, man-made substances and other specific activities (MCWS 2015a). Ambient air quality in the city is measured at two continuous monitoring stations – located on Elm Street in downtown Winnipeg (approx. 7.0 km southeast from the Project site) and on Scotia Street and Jefferson Avenue in a residential area (approx. 8.0 km east from the Project site). Data from these stations are collected by MCWS with 2013 being the latest year available (MCWS 2013).

Maximum short-term and annual mean concentrations of air pollutants for the Winnipeg stations in 2013 are summarized in Table 5-2. Manitoba's air quality objectives for carbon monoxide (CO) or nitrogen dioxide ($NO_2$) were not exceeded at either station in 2013. There were two 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 primarily associated with vehicle emissions.

## Table 5-2 Summary of Air Pollution Concentrations at Winnipeg Monitoring Sites (2013)

| Pollutant | Period | Winnipeg Downtown (Elm Street) | Winnipeg Residential (Scotia and Jefferson) | Manitoba Air Quality Objective – MTL (2005) | Manitoba Air Quality Objective – MAL (2005) | Manitoba Air Quality Objective – MDL (2005) |
|---|---|---|---|---|---|---|
| Carbon Monoxide (CO) ppm | 1 hour | 1.6 | 3.3 | n/a | 31 | 13 |
| | 24 hour* | 0.59* | 0.66* | 17 | 13 | 5 |
| | Annual | 0.24 | 0.16 | n/a | n/a | n/a |
| Nitrogen Dioxide ($NO_2$) ppb | 1 hour | 62.7 | 52.0 | 530 | 213 | n/a |
| | 24 hour | 34.17^ | 33.98^ | n/a | 106 | n/a |
| | Annual | 7.79 | 7.32 | n/a | 53 | 32 |
| Ozone ($O_3$) ppb | 1 hour | **61.0** | **64.5** | 200 | 82 | 50 |
| | 24 hour | 47.93 | 57.04 | n/a | n/a | n/a |
| | Annual | **23.7** | **28.9** | n/a | 15 | n/a |
| Particulate Matter 2.5 ($PM_{2.5}$) µg/m$^3$ | 1 hour | 52.4 | 124.8 | n/a | n/a | n/a |
| | 24 hour | **34.7** | **35.1** | n/a | 30 | n/a |
| | Annual | 6.6 | 5.6 | n/a | n/a | n/a |

Notes: Numbers in **bold** indicate exceedance; * averaged over 8 hours; ^used 24-hour moving average; n/a – no guideline or objective; __ indicates objective level that is exceeded

**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

Source**:** MCWS 2013; MCWS 2005

#### 5.1.2.1 Greenhouse Gas Emissions

The Province of Manitoba's greenhouse gas (GHG) emissions from various sectors for the years 1990 to 2013 were reviewed. According to Canada's National Inventory Report 1990-2013, Manitoba emitted a total of 21,400,000 tonnes of carbon dioxide equivalent ($CO_2$ e) in 2013, up 3.4% from 20,700,000 tonnes in 2012 (Environment Canada 2015b). Manitoba's 2013 GHG emissions were composed of the following sources: fossil fuel burning (60%) – involving the transportation of goods and people, stationary combustion (e.g., commercial heating) and fugitive sources (e.g., flaring); agriculture (31%); waste disposal (5%); and industrial processes (3%). Manitoba's fossil fuel burning category was much lower proportionally than that of Canada as a whole, largely due to Manitoba's use of hydro power to produce electricity. The overall trend in Manitoba's GHG emissions was higher in 2013, 14.4% above the 1990 level (Manitoba Eco-Network 2015).

### 5.1.3 Hydrogeology and Groundwater

The RAA is underlain by the Stony Mountain Formation (Ordivician age) calcareous shale and limestone beds. The underlying bedrock is overlain by overburden, which is about 9 to 12 m thick and includes the Upper Carbonate aquifer. The Upper Carbonate Aquifer is a partially confined aquifer above the glacial drift and below slightly impervious underlying carbonate rock. The aquifer rests on the upper shale of the underlying Winnipeg Formation (Kjartanson *et al*. 1983). The Upper Carbonate aquifer contains variable potable water and regional groundwater flow direction in the aquifer is to the southeast.

### 5.1.4 Surface Water

The RAA falls within the Assiniboine River drainage division of the Assiniboine River watershed, which is part of the Nelson River system draining into Hudson Bay (Smith et al. 1998). The principal sources of water are the major rivers and streams/creeks that occur within the area. The nearest surface water body to the Project is Omand's Creek which is nearly 600 m to the west of the site. Drainage from the Project site is to a storm water catchment on the property and likely then to a retention pond (i.e., Whitfield Pond) located approximately 500 m to the southeast. This retention pond ultimately drains via land drainage sewer to the Assiniboine River, approximately 6 km to the south (City of Winnipeg 2008).

### 5.1.5 Vegetation and Wildlife

Historically, natural vegetative cover in the RAA within the Winnipeg Ecodistrict consisted of a mixture of tall-grass prairie and meadow grass prairie communities (Smith et al. 1998).

The LAA currently is all disturbed land within an existing industrial area. No natural vegetation remains on the Project site. Small, isolated clumps of trees are located to the northwest of the site on the property and landscaped grassed areas along the eastern and southern boundaries of the property.

The industrial area does not contain any wildlife habitat. Common domestic urban bird species (i.e., sparrows) were observed on the plant property during a site visit conducted in September 2015. None of these species are expected to be affected by the Project.

### 5.1.6 Aquatic Environment

As indicated in Section 5.1.4, the nearest water body to the plant site is Omand's Creek, located approximately 500 m to the west. According to City of Winnipeg fish sampling reports, fish species known to occur within reaches of Omand's Creek consist of: northern pike, white sucker, common carp, fathead minnow and brook stickleback (City of Winnipeg 2006).

Omand's Creek is classified as a Type 'A' Habitat (Milani 2003). This classification indicates that flows are intermittent or perennial with indicator fish species present. A Type 'A' habitat is classified as having complex habitat. Omand's Creek discharges into the Assiniboine River, located approximately 6 km south of the property. There is no direct discharge to Omand's Creek from the Project site. Site wastewater from plant operation is directed to the City of Winnipeg sewer system and for treatment at the North End Water Pollution Control Centre.

### 5.1.7 Protected Species

The Manitoba Conservation Data Centre, Occurrence of Species by Ecoregion (Lake Manitoba Plain) was examined to determine the potential for species at risk in the RAA (MCDC 2013). The species listed on the MCDC were cross-referenced with the *Manitoba Endangered Species Act* (MESA) to determine provincially listed rare or sensitive species that may occur in the RAA and with Schedule 1 of the Federal *Species at Risk Act* (SARA). Species distribution maps were also consulted where possible to determine listed species that may occur in the RAA. The search results found that there is potential for 10 listed species to occur in the Lake Manitoba Plain Ecoregion, including several bird species: Sprague's pipit, short-eared owl, whip-poor-will, chimney swift, common nighthawk, peregrine falcon, least bittern, loggerhead shrike, and golden-winged warbler (MCDC Ecoregions Database 2013; MCWS Species at Risk 2015b; Species at Risk Registry (Schedule 1) 2015).

As the site is fully developed and does not support natural habitat, none of the protected species are expected to be directly affected by the Project.

## 5.2 SOCIO-ECONOMIC SETTING

### 5.2.1 Land Use and Property Ownership

The parcel of land for the Project, Lot 8, Plan 9475 (WLTO) is privately owned and has been partially occupied by Manitoba Harvest Hemp Foods for industrial food processing production and warehousing since 2008. Site visits were conducted by Stantec on September 24 and October 9, 2015. Site photographs are included in Appendix B. The subject property also includes other tenants in addition to Manitoba Harvest Hemp Foods, including Graham (general

contractors), R&N Trucking Ltd., Glen D. Ross Agencies Ltd. (manufacturing agent) and Star Drug Testing Service. The land surrounding the plant site is primarily a mix of commercial and industrial land use (see Photos 5-1 to 5-4) with manufacturers, trucking, processing, and warehousing operations, including:

- Goulet Aircraft Supply Ltd. and Mark Brandt Trucking Ltd. (to the north)
- Gardewine (to the east)
- Aerotech Herman Nelson International Inc. (to the south)
- Custom Radiator Service, Best Storage Trailers (2006) and Federated Cooperatives (to the west)

The lands within the Oak Point Highway Industrial area and Brookside Industrial area are all privately owned. Crown owned and Crown-leased lands are associated with the Winnipeg James Armstrong Richardson International Airport west of the Project site in the RM of Rosser. The closest residential development to the LAA in the city is in Tyndall Park, located approximately 445 m to the north.

#### 5.2.1.1 Land Development Controls

Municipal jurisdictions may adopt development plans[2] and zoning by-laws[3] to guide land use decisions within their respective boundaries. The following municipal development controls are applicable in the RAA:

- City of Winnipeg - Our Winnipeg Plan By-law No. 67/2010; City of Winnipeg Zoning By-law No. 200/06.
- South Interlake Planning District – South Interlake Planning District Development Plan By-law No. 3/10; RM of Rosser Zoning By-law No. 4-85; RM of Rosser CentrePort Zoning By-law 10-14.

**City of Winnipeg**

Land use in the City of Winnipeg is subject to the development planning document *Our Winnipeg By-Law No. 67/2010* and the *Complete Communities Direction Strategy Secondary Plan No. 68/2010*. The Project RAA is designated "General Manufacturing" land use (City of Winnipeg 2011a).

Land use in the City of Winnipeg is also subject to the City of Winnipeg Zoning By-Law No. 200-2006. The Project RAA is zoned "M1 – Manufacturing Light" (City of Winnipeg 2007). The existing

[2] A development plan is a by-law outlining the long term vision and goals of a community. It is used to guide development within a municipality or planning district.
[3] A zoning by-law is used to implement development plan policies and must conform to the development plan. Zoning works by regulating the use of land and location of buildings and structures (Manitoba Municipal Government 2015).

development and activities are compatible with permitted land use and zoning restrictions for the property.

A third party warehouse located in the Inkster Industrial Park (operated by RS Distribution) and utilized by Manitoba Harvest Hemp Foods for storage is zoned "M2 – Manufacturing General" under the City of Winnipeg Zoning By-law. This existing development and activities therein are anticipated to be consistent with permitted land uses and zoning restrictions.

**South Interlake Planning District and RM of Rosser**

Land use in the adjacent RM of Rosser is subject to The South Interlake Planning District Development Plan By-Law No. 3/10. A land use designation for "CentrePort Canada Area" is provided for the lands west of the Project site in the south east corner of the RM of Rosser bounded by Brookside Boulevard/Route 90 (South Interlake Planning District 2010).

Land use zoning in the RM of Rosser is subject to The Rural Municipality of Rosser Zoning By-Law No. 4-85. The lands in the rural municipal portion of the RAA are zoned as "Highway Commercial" and "Airport Industrial Zone" (The Rural Municipality of Rosser 1985).

Land use zoning in the south east portion of the RM will also be subject to the Rural Municipality of Rosser CentrePort Zoning By-Law No. 10-14 upon final passing. This By-Law[4] provides zoning for lands within PTH 101 designated for the CentrePort Canada Area. Land use in the CentrePort Canada Area within the RAA is zoned as "Industrial General Zone" (RM of Rosser CentrePort 2014). There are no incompatible land uses within the municipal portion of the RAA in comparison to the PDS.

### 5.2.2 Population and Economy

The population within the Project RAA is represented by an adjacent residential neighbourhood in the City of Winnipeg. The neighbourhood of Tyndall Park had a population of 13,095 in 2011 (Table 5-3), a 2.5% increase from the 2006 population of 12,775, and a population density of 4,341.5 persons per km$^2$ (Statistics Canada 2012a). The closest neighbourhood dissemination area[5] that encompasses the LAA has a population of 608 according to 2011 Census data (Statistics Canada 2012b).

[4] Upon final passing of the RM of Rosser CentrePort Zoning By-law No. 10-14, the RM of Rosser Zoning By-law No. 4-85 will be repealed for the Rosser CentrePort Canada Area.
[5] Small area composed of one or more neighbourhood dissemination blocks (equivalent to a city block), with a population of 400 to 700 persons.

**Table 5-3 Population in the Project RAA, 2011**

| | Tyndall Park | City of Winnipeg |
|---|---|---|
| Population 2011 | 13,095 | 663,617 |
| Population 2006 | 12,775 | 633,451 |
| % change in population between 2006 and 2011 | 2.5 | 4.8 |
| Land area ($km^2$) | 3.0 | 475.2 |
| Population Density per $km^2$ | 4,341.5 | 1,167.7 |
| Source: Statistics Canada 2012; The City of Winnipeg 2015b | | |

The Oak Point Highway Industrial area and the adjacent Brookside Industrial area, in the RM of Rosser, have no permanent residential population.

Economic activity within the RAA is principally manufacturing, transportation and warehousing, processing, service, storage, wholesale trade and distribution related. The Oak Point Highway and Brookside West Industrial Park areas comprise the RAA in the vicinity of the Winnipeg International Airport in northwest Winnipeg and adjacent RM of Rosser (Province of Manitoba 2015).

### 5.2.3 Infrastructure and Services

The Project site can be accessed by City of Winnipeg Route 90 (Oak Point Highway) and Brookside Boulevard, and Inkster Boulevard Route 25, all paved-surface regional streets. All of these roads are full-time truck routes (City of Winnipeg 2013a, 2013b). A local street (Eagle Drive) is used to access the Project site and is also paved. Provincial Road (PR 221), a four-lane divided highway in the RM of Rosser that is classified as a Primary Arterial under the Provincial Road Functional Classification System (MB Highways and Transportation 1997) and a RTAC[6] route, connects to Inkster Boulevard in the city at Route 90 north of the site.

Two rail lines are located in proximity to the Project site. The CPR Carberry Line and the CNR Oak Point Line are both located to the south, approximately 183 m from the site. There is no direct rail service at the Project site.

The Winnipeg James Armstrong Richardson International Airport and associated airport lands are located approximately 330 m to the west of the site.

Overhead utility electrical lines are located adjacent to the east and south boundaries of the Project site. Other utilities, including gas, sewer and water, are also present at the Project site.

[6] RTAC – Road Transportation Association of Canada

Traffic volumes for main regional thoroughfares surrounding the LAA were obtained from the City of Winnipeg's 2012 Traffic Flow Map (City of Winnipeg 2012). In 2012, the 24-hour Average Weekday Daily Traffic (AWDT) for Inkster Boulevard east of Brookside Boulevard (Route 90) was 22,700 vehicles. On Oak Point Highway south of Inkster Boulevard, there were 30,500 vehicles recorded. Brookside Boulevard (Route 90) north of Inkster Boulevard had 22,400 vehicles (City of Winnipeg 2012). All of these roads are considered Major Arterials under the city's primary road network classification and are designed for efficient flow of traffic, higher speeds (60-90 km/h), with limited access and parking and accommodate larger traffic volumes (15,000-40,000 veh/day) (City of Winnipeg 2011b). In 2010, the Average Annual Daily Traffic (AADT) on PR 221 west of Provincial Trunk Highway 7 (Route 90/Brookside Boulevard) was 14,820 vehicles (Manitoba Infrastructure and Transportation and University of Manitoba 2015). Traffic generated by Manitoba Harvest Hemp Foods employees and operations is approximately 60 personal vehicles accessing the site per day. In addition, approximately four trucks per day on average are involved in shipping product into and/or out of the plant.

### 5.2.4 Parks and Protected Areas

There are no provincial parks or protected areas located within the RAA. The nearest natural area/greenspaces are along two segments of Omand's Creek – one site within the City of Winnipeg to the south (approx. 680 m) of the Project site (City of Winnipeg 2015c) and one within the RM of Rosser to the west (approx. 740 m) of the Project site (Sherlock Publishing Ltd. 2013). Other municipal parks and greenspaces within the RAA include: Egesz Park, Fairford Park, King Edward Park, and Woodsworth Park.

### 5.2.5 First Nation Communities

There are no First Nation Communities or lands located in the RAA. The closest First Nation community is an urban reserve held by Long Plain First Nation on land near Century Street in the City of Winnipeg. The urban reserve (1.2 ha parcel) is located approximately 5 km southeast of the Project site in the Polo Park retail district. Yellowquill College and a Petro Canada gas station are currently located on the site (LPFN Tribal Government 2014).

### 5.2.6 Recreation and Resource Use

Recreational attractions in the RAA include stretches of natural park area /greenspace along Omand's Creek and several local city neighbourhood playgrounds, sports fields and community clubs, including Woodsworth Park, the closest being Egesz Park located approximately 755 m northeast of the site. Players Golf Course is located approximately 1.7 km to the northwest of the LAA in the RM of Rosser.

### 5.2.7 Aesthetics and Noise

The principal viewshed for the RAA is urban industrial and warehouse-oriented in nature, which is commensurate with the existing uses of land.

Existing ambient noise levels are expected to be typical of an urban industrial area. Ambient noise levels may be intermittently high, particularly near industrial and commercial operations and main arterial traffic routes. Existing sources of noise in the Project RAA are primarily man-made noise such as road traffic, air traffic, rail movements, related large vehicle movements, and light manufacturing facilities. The maximum desirable sound level for industrial areas in the province is 70 dBA according to the Province of Manitoba Guidelines for Sound Pollution. Noise sources from plant operation are not anticipated to exceed the maximum desirable sound level for industrial areas at the property site boundary. Noise sources external to the plant are principally the seed delivery conveyors (gas and diesel powered), the seed blowers, and truck traffic on-site. These noises are intermittent in nature and are considered by Manitoba Harvest Hemp Foods to be less than the noise generated by traffic-on the surrounding streets.

### 5.2.8 Heritage Resources

There are no nationally, provincially or municipally designated heritage sites within the RAA (Historic Resources Branch 2015; City of Winnipeg 2014). No archaeological sites within the RAA are affected by the existing Project.

The closest cemetery to the site is Brookside Cemetery in the City of Winnipeg, located approximately 933 m south of the site (Manitoba Historical Society 2015a). There is one Centennial Farm in the RAA, adjacent to Players Golf Course, north of PR 221, 1.6 km northwest of the site in the RM of Rosser (Manitoba Historical Society 2015b).

# 6.0 ASSESSMENT APPROACH

This assessment was completed to meet the requirements of an Environment Act Proposal, and includes assessing project-specific environmental effects.

For the purposes of this assessment, the term *environment* refers broadly to biophysical and socio-economic elements of the environmental setting.

The assessment focuses on valued components (VCs), which are environmental elements of particular value or interest to regulators and other parties and are identified based on the biophysical and socio-economic elements.

Project-related effects on these VCs are assessed sequentially in the assessment. Residual effects are characterized using specific predetermined criteria (e.g., direction, magnitude, geographical extent, duration, frequency).

## 6.1 SELECTION OF PROJECT INTERACTIONS AND VALUED COMPONENTS

To focus the assessment on matters of greatest 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
- existing information regarding biophysical and socio-economic components found in the project area (e.g., vegetation, existing land uses, etc.) and results of desktop studies
- professional judgment of the assessment practitioners, 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 through interactions of the environment with the Project are identified to scope the assessment. The VCs that were selected:

- represent a broad biophysical or socio-economic component that might be affected by the Project; or
- are a part of the heritage of Aboriginal peoples[7] or a part of their current use of lands for traditional purposes; or
- are of scientific, historical or archaeological importance.

[7] As defined by the *Constitution Act, 1982*

The rationale for selecting each VC is explained in Table 6-1.

### Table 6-1 Designation of Valued Components

| Component Name | Potential Project Interaction | Included/ Excluded | Valued Component | Rationale for Exclusion or Inclusion and Project Potential Effect |
|---|---|---|---|---|
| Physical environment | x | Excl | No | Site is occupied by pre-existing building footprints and mixture of fairly level gravel and paved surfaces; landscaped areas are limited to periphery of property; no changes to the physical landscape; landscape is already disturbed within an existing industrial area |
| Topography | x | Excl | No | Site is already developed within industrial area; no changes to site topography |
| Vegetation | x | Excl | No | No vegetation present on-site |
| Surface water quality | x | Excl | No | Sanitary wastewater and process wastewater generation and loadings are directed to city sewer according to city by-law and goes to NEWPCC for treatment; potential for on-site storm water generation to affect water quality off-site after residence in retention pond and a 6-km drain to the Assiniboine River is unlikely |
| Fish and fish habitat | x | Excl | No | No fish habitat present on-site |
| Wildlife and wildlife habitat | x | Excl | No | No wildlife or wildlife habitat present on-site |
| **Air quality** | **√** | **Incl** | **Yes** | **Existing operation activities contribute to airshed loading from on-site truck and small engine usage** |
| **Greenhouse gas emissions** | **√** | **Incl** | **Yes** | **Existing operation activities contribute to GHG from on-site truck usage, small engine usage, and building heat combustion** |
| Acoustic environment | x | Excl | No | Noise level generation acceptable for an industrial area; no residences in proximity; no noise complaints have been received |
| Land and resource use | x | Excl | No | Site activities occur within an existing industrial area; site already zoned for existing land use |
| Heritage resources | x | Excl | No | Site within an existing industrial area that is already disturbed |
| Human health and aesthetics | x | Excl | No | Site within an existing industrial area; not in immediate proximity to residences |
| **Infrastructure and services** | **√** | **Incl** | **Yes** | **Existing operation activities generate traffic and use city services (power, water, sewer)** |

**Table 6-1 Designation of Valued Components**

| Component Name | Potential Project Interaction | Included/ Excluded | Valued Component | Rationale for Exclusion or Inclusion and Project Potential Effect |
|---|---|---|---|---|
| **Employment and economy** | **√** | **Incl** | **Yes** | **Positive benefits related to employment, tax generation** |

VCs included in this assessment are:

- Air emissions
- Greenhouse gas emissions
- Infrastructure and services
- Employment and economy

Once interactions that are likely to have effects are identified and the valued components determined, an analytical framework is used to evaluate and characterize the potential project effects according to a set of standardized criteria to facilitate quantitative (where possible) and qualitative assessment of residual environmental effects (see Section 6.2).

## 6.2 RESIDUAL EFFECTS DESCRIPTION CRITERIA

Terms used to characterize the residual environmental effects are summarized in Table 6-2.

**Table 6-2 Characterization of Residual Environmental Effects**

| 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<br>**Adverse**— a decline in the valued component compared with existing conditions and trends<br>**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<br>**Low**— a change that falls within the level of natural variability<br>**Moderate**— a measurable change which is unlikely to affect the valued component<br>**High**— a measurable change which is likely to affect the valued component |

## Table 6-2 Characterization of Residual Environmental Effects

| Characterization | Description | Quantitative Measure or Definition of Qualitative Categories |
|---|---|---|
| Geographic Extent | The geographic area in which an environmental effect occurs | **PS**—residual effects are restricted to the PS (project site)<br>**LAA**—residual effects extend into the LAA (1km radius of project site)<br>**RAA**—residual effects extend to other adjacent areas to the property for a 2 km radius |
| 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<br>**Multiple irregular event**— residual effect occurs sporadically and intermittently (no set schedule) throughout<br>**Multiple regular event**— residual effect occurs repeatedly and regularly throughout<br>**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 one year<br>**Medium-term**— residual effect extends to two to ten years<br>**Long-term**— residual effect extends for longer than ten 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<br>**Irreversible**—the effect is unlikely to be reversed even after decommissioning |
| 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<br>**Disturbed**—area has been substantially previously disturbed by human development or human development is still present |

# 7.0 ENVIRONMENTAL EFFECTS AND MITIGATION

## 7.1 ASSESSMENT OF ENVIRONMENTAL EFFECTS

### 7.1.1 Biophysical Environment

#### 7.1.1.1 Air Quality

The plant processing operations generate minimal loadings into the airshed. No air emissions exhaust externally from the dust collectors in the plant during the dehulling and milling processes. The only air discharge from the buildings comes from the air exchange through the HVAC units. The only other dust generation affecting air quality comes from the drive through truck traffic from the gravel lot on the plant site and the transfer of raw seed or hemp by-product into and out of the storage bins. The fugitive dust generation is anticipated to be small and is managed by good housekeeping efforts to maintain a clean site.

***Summary***

With the implementation of existing mitigation and prevention measures identified above the potential effects on air quality are expected to be negligible to low, limited to the Project Site and immediate LAA, short-term in duration, multiple regular in frequency, and reversible upon Project decommissioning.

#### 7.1.1.2 Greenhouse Gas Emissions

Manitoba Conservation and Water Stewardship's Environment Act Proposal Guidelines requires a consideration of climate change implications. Specifically, the guidelines indicate that a greenhouse gas inventory should be conducted in the assessment of environmental effects of a development. Technical guidance for conducting such an inventory is provided by Environment Canada (2014) and the United Nations Framework Convention on Climate Change (IPCC 2006). The inventory is to include direct emissions associated with facility operations.

To determine the potential greenhouse gas emissions related to the existing food processing facility, a facility level estimate of direct greenhouse gas emissions was completed for the Manitoba Harvest Hemp Foods site. Fuel consumption estimates for on-site vehicle and small engine usage was derived from Manitoba Harvest Hemp Foods data over a 12-month period (i.e., for the yard truck and diesel and gasoline augers). Similarly, natural gas usage for commercial building heat was determined from Manitoba Harvest Hemp Foods billing data over 12 months (Fresh Hemp Foods Ltd. 2015; Kaluzny 2015).

The existing facility generates direct greenhouse gas emissions under the Mobile Combustion and Stationary Fuel Combustion source categories. Direct greenhouse gas emission sources identified at the Manitoba Harvest Hemp Foods facility includes the following source categories:

- Diesel fuel used on-site in the yard truck (Mobile Combustion)
- Diesel and gasoline fuel used on-site to power the hydraulic augers (Mobile Combustion)
- Natural gas combusted for building heat on-site (Stationary Fuel Combustion)

#### 7.1.1.2.1 Mobile Combustion

A diesel-fueled site truck is used at the facility to move materials between the warehouse and plant and both gasoline and diesel-fueled augers are used to transfer seed from delivery trucks to the seed storage bins. Diesel and gasoline fuel usage at the site from plant operations was estimated to be 7,440 litres over a 12-month period (Kaluzny 2015). The combustion of gasoline and diesel fuels generates carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), nitrogen oxides ($NO_X$), and carbon monoxide (CO) – all of which are considered greenhouse gases. GHG emissions resulting from the use of a light duty diesel truck and off-road diesel and gasoline engines and equipment (i.e., augers) at the facility are summarized in Table 7-1 (Environment Canada 2014).

#### 7.1.1.2.2 Stationary Fuel Combustion

The use of natural gas to heat the buildings and water on-site produces $CO_2$, $CH_4$, $N_2O$, $NO_X$, CO emissions, volatile organic compounds (VOCs), trace sulphur dioxide ($SO_2$) and particulate matter (PM). Natural gas usage at the plant (i.e., 69 Eagle Drive) was 28,908.5 $m^3$ over a given 12 month period (Fresh Hemp Foods Ltd. 2015). Over the same 12-month period natural gas usage at Units 201 and 210, 79 Eagle Drive was 11,492.3 $m^3$. GHG emissions associated with the plant's use of Manitoba marketable natural gas is presented in Table 7-1 (Environment Canada 2014).

#### 7.1.1.2.3 Current Facility Emissions

The current GHG emissions at the existing facility as shown in Table 7-1 is approximately 96.9 tonnes (0.1 kilotonnes) per year carbon dioxide equivalent ($CO_2$ e). Environment Canada's mandatory reporting threshold for greenhouse gas emissions on an annual basis is 50,000 tonnes (or 50 kt) of $CO_2$ e. The current facility generates less than 1 % of the reporting threshold. As such, the plant is not considered a major contributor of greenhouse gas emissions.

The greenhouse gas emissions reported in 2013 by the Province of Manitoba in Canada's National Inventory Report 1990-2013 totaled 21,400,000 tonnes of $CO_2$ e (Environment Canada 2015b). Manitoba Harvest Hemp Foods' facility greenhouse gas emissions are considered to be negligible in comparison to total provincial greenhouse gas emissions.

## Table 7-1 Greenhouse Gas Emissions Summary

| **Manitoba Harvest Hemp Foods Plant Existing Conditions** | | | | | |
|---|---|---|---|---|---|
| **GHG Source** | **Consumption[1]** | **Emission Factors** | **Units** | **Emissions** | **Reference** |
| **GHG Emissions = Fuel Consumption x Emission Factor** | | | | | |
| **Mobile Combustion (On-site Transportation)**<br>- Light duty diesel truck | 1,200* L/year | g/L fuel<br>$CO_2$ – 2,690<br>$CH_4$ – 0.068<br>$N_2O$ – 0.22 | g/year | $CO_2$ – 3,228,000<br>$CH_4$ – 81.6<br>$N_2O$ – 264 | Environment Canada NRI Report 1990-2013 Table A6-11 Emission Factors for Energy Mobile Combustion Sources, Light Duty Diesel Truck, Advanced Control Tier 2 emission factor |
| **Mobile Combustion**<br>- Off-road gasoline[2] (auger)<br><br><br><br>- Off-road diesel[2] (auger) | 2,080 L/year<br><br><br><br>4,160 L/year | g/L fuel<br>$CO_2$ – 2,316<br>$CH_4$ – 2.7<br>$N_2O$ – 0.050<br><br>$CO_2$ – 2,690<br>$CH_4$ – 0.15<br>$N_2O$ – 1.1 | g/year | $CO_2$ – 4,817,280<br>$CH_4$ – 5,616<br>$N_2O$ – 104<br><br>$CO_2$ – 11,190,400<br>$CH_4$ – 624<br>$N_2O$ – 4,576 | Environment Canada NRI Report 1990-2013 Table A6-11 Emission Factors for Energy Mobile Combustion Sources, Off-road Gasoline and Diesel emission factors |
| **Stationary Fuel Combustion**<br>- Natural gas (69, Units 201 and 210, 79 Eagle Drive) | 40,400.8 $m^3$/year | g/$m^3$<br>$CO_2$ – 1,866<br><br><br>$CH_4$ – 0.037<br>$N_2O$ – 0.035 | g/year | $CO_2$ – 75,387,893<br><br><br>$CH_4$ – 1,495<br>$N_2O$ – 1,414 | Environment Canada NRI Report 1990-2013 Table A6-1 $CO_2$ Emission Factors for Natural Gas, Manitoba Marketable emission factor<br><br>Environment Canada NRI Report 1990-2013 Table A6-2 $CH_4$ and $N_2O$ Emission Factors for Natural Gas, Commercial/Institutional emission factor |
| **Total Usage** | 7,440 L/year<br>40,400.8 $m^3$/year | **Total Emissions** | g/year | $CO_2$ – 94,623,573<br>$CH_4$ – 7,816.6<br>$N_2O$ – 6,358 | Fresh Hemp Foods Ltd. 2015; Natural Resources Canada 2011 |
| **GHG Emissions** | | Total $CO_2$<br>Total $CH_4$<br>Total $N_2O$ | kg/day | $CO_2$ – 259.24<br>$CH_4$ – 0.02<br>$N_2O$ – 0.02 | IPCC 2006 |
| **Global Warming Potentials[3]** | | GWP | 100-year | $CO_2$ – 1<br>$CH_4$ – 25<br>$N_2O$ – 298 | IPCC values (updated 2012) |
| **Total $CO_2$ Equivalent = Total GHG Emissions x GWP** | | Total $CO_2$ e | kg/day<br><br>tonnes/year<br>kt/year | $CO_2$ e 265.7<br><br>$CO_2$ e 96.9<br>$CO_2$ e 0.1 | IPCC 2006 |
| Notes: [1] Usage numbers provided by Fresh Hemp Foods Ltd.; [2] Off-road gasoline and diesel includes a wide range of engine and equipment types (e.g., lawn and garden); [3] the 100-year GWP for methane ($CH_4$) is 25 – an emission of 100 kilotonnes (kt) of methane is equivalent to 2,500 kt $CO_2$ equivalent (25 x 100 kt); *Yard truck is 2014 International Diesel Truck Model 4300M7 SBA 4x2<br>Source: Environment Canada 2014; IPCC Fourth Assessment Report 2012; IPCC Guidelines for National Greenhouse Gas Inventories 2006; Fresh Hemp Foods Ltd. 2015 | | | | | |

***Summary***

The facility is expected to have a negligible contribution to GHG emissions in the RAA. However, emissions are long-term in duration, of continuous frequency, and irreversible upon Project decommissioning.

### 7.1.1.3 Surface Water Quality

The storm water collection system on the property consists of a catch basin on the north side of the warehouse. The catch basin discharges directly into the City of Winnipeg's storm water collection system which likely connects to a retention pond (i.e., Whitfield Pond) located approximately 500 m to the southeast of the Project site. The retention pond discharges via land drainage sewer and pumping station into the Assiniboine River, located approximately 6 km south of the site. Any sediment material washing off the site would have time to settle out in the retention pond and would be diluted further by the time the storm water drain discharges into the Assiniboine River. The site is kept clean through good housekeeping practices; therefore the risk of contaminants entering storm water is further reduced.

Within the plant, wash water from sanitizing equipment and IBC totes is directed to a floor drain in the wash bay/sanitation room. The drain flows through a sediment trap and then into the city sewer system. The practice of washing hemp oil and sediment from the IBC totes down the sanitation drain is no longer in effect at the plant. Excess sediment-laden oil is now collected in containers for recovery and reuse by third parties who rinse the containers out at off-site locations. The rinsed out IBC totes are returned to the plant for further sanitization in the wash bay before reuse. By having the excess oil and sediment removed prior to sanitization, Manitoba Harvest Hemp Foods has reduced the oil and sediment in their wastewater to a fraction of the former amounts entering the city sewer system. Manitoba Harvest Hemp Foods has an Overstrength Discharge Licence to address potential exceedances in their wastewater. They have also submitted a Pollution Prevention Plan to the City of Winnipeg to address the animal/vegetable oil, sulpfides, and food grade mineral oil content in their wastewater as per the City of Winnipeg Sewer By-law No. 92/2010.

The remaining clean-up wastewater and sanitary wastewater from the plant flowing into the city sewer would combine with wastewater from other sources in the area. The combined discharge enters the NEWPCC for treatment prior to its eventual release into the Red River.

Given the above, and the implementation of existing mitigation measures identified above to address wastewater generation, there are no potential effects anticipated on surface water quality from daily operations at the plant site or from on-site storm water generation to the storm water collection system.

## 7.1.2 Socio-economic Environment

### 7.1.2.1 Land and Resource Use

The Project Site is used and will continue to be used for industrial purposes. The site is located in an area that is zoned for light manufacturing purposes. No changes to the existing land use will occur. As such, no effects on land and resource use are expected from continued plant operation.

### 7.1.2.2 Infrastructure and Services

Traffic Flow Rates for the City of Winnipeg (2012) and information provided by Manitoba Harvest Hemp Foods on traffic movements from vehicles and trucks traveling to and from the plant site (i.e., number of employee vehicles and truck deliveries) was reviewed. Traffic flow volumes of the designated truck routes surrounding the Project Development Site are not in excess of the design volume capacity for these routes. The traffic generated at the plant site per day is approximately 64 personal vehicles and trucks. The AADT and AWDT on area roads in the vicinity of the Project Site ranges from 14,820 veh/day to a maximum of 40,000 veh/day (City of Winnipeg 2011b; MIT and University of Manitoba 2015). The existing traffic flow volumes can be accommodated within the design capacity of the existing transportation network. The traffic loads associated with facility operations is less than 1% of area traffic and is considered to be negligible.

Use of municipal services (i.e., water, power, natural gas, garbage disposal and recycling) is expected to continue as is with no change for continued plant operation.

***Summary***

The potential adverse residual effects on infrastructure and services are expected to be negligible in the RAA, short-term in duration, continuous in frequency, and reversible upon Project decommissioning.

### 7.1.2.3 Employment and Economy

The continued operation of the Project will have positive effects related to employment of the workforce at the plant and its ongoing contribution to the local and regional economy (i.e., through the purchase of goods and services and tax generation).

### 7.1.3 Summary of Mitigation Measures

Mitigation measures to be employed to prevent or mitigate adverse effects identified in the sections above include the following:

- Manitoba Harvest Hemp Foods is minimizing hemp oil and sediment-laden wastewater generation from plant operations through off-site residual oil recovery from IBC totes by a third party.
- Hemp by-product, including residual hemp heart shells, fine hemp material and seed cake, hemp protein and dust particulate, is not treated as waste, but rather it is collected and provided to third parties for use in animal feed.
- Hemp dust emissions from plant operation are contained and controlled within the plant building through the use of a dust collection system. Collected dust material is added to the hemp by-product line for third party removal and disposal.
- The Project Site is regularly inspected by plant personnel for loose debris and waste to maintain a clean site.
- Mixed recyclables and cardboard materials are collected by third party service providers for proper recycling or disposal.
- Solid waste generated on-site is stored in secure bins and is removed by third party service providers on a regular basis.
- Waste containers inside the plant are regularly cleaned and disinfected to prevent contamination of the work environment. Waste is not stored near ingredients, products or packaging.
- Vehicles and equipment operating on-site are property maintained and vehicle idling is kept to a minimum.
- Used compressor oil is collected and disposed of off-site at Miller Environmental's licensed hazardous waste transfer station.
- Used batteries from the electric forklifts and pallet jacks are collected by third party service providers for proper removal and disposal.
- Laboratory chemicals are prepared near the exhaust fume hood; containers used for storing chemicals are labelled, including product name, hazard information and MSDS reference.
- Laboratory chemical/reagent disposal follows the MSDS disposal methods for the chemical being disposed. Used chemical containers are rinsed out with water to flush out any remaining chemical residues from the container. The empty containers are then landfilled.

## 7.2 SUMMARY OF RESIDUAL EFFECTS CHARACTERIZATION

A summary of residual environmental effects characterization is found in Table 7-2. Positive effects are not addressed, only adverse effects are characterized.

## Table 7-2 Summary of Residual Environmental Effects

| Project Effects | Residual Environmental Effects Characterization | | | | | | |
|---|---|---|---|---|---|---|---|
| | Direction | Magnitude | Geographical Extent | Duration | Frequency | Reversibility | Ecological and Socio-economic Context |
| **Air Emissions** | | | | | | | |
| Fugitive dust generation | A | N | PS/LAA | S | MR | R | D |
| **Greenhouse Gas Emissions** | | | | | | | |
| Facility emissions | A | N | RAA | L | C | IR | D |
| **Infrastructure and Services** | | | | | | | |
| Traffic level impacts | A | N | RAA | S | C | R | D |

**KEY**
See Table 4-3 for detailed definitions

**KEY**

***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 event
MR Multiple regular event
C Continuous

***Reversibility***
R Reversible
IR Irreversible

***Ecological/Socio-Economic Context:***
U Undisturbed
D Disturbed

N/A Not applicable

# 7.3 ACCIDENTS AND MALFUNCTIONS

The effects of accidents and malfunctions for the Project are primarily related to the potential for mechanical equipment failure, fuel or other chemical spills, and transportation accidents. Manitoba Harvest Hemp Foods has an on-site safety plan and all employees are trained in the daily operations of the facility. The presence of prevention measures and procedures for managing adverse effects associated with accidents and malfunctions should minimize the effects in the event of an emergency situation. With the implementation of safe work practices, the likelihood of such events occurring is reduced.

The following sections provide additional details on the potential effects from accidents and malfunctions and the measures in place to prevent accidents and malfunctions.

## 7.3.1 Fire/Explosion

During operation, there exists potential for fires at the Project Site involving mechanical equipment (e.g., dust collectors) and fuels. All three dust collectors are equipped with explosion vent systems to address the potential risk of dust explosion. Effects related to fires include: harm to on-site personnel, equipment, and the potential release of contaminants and hazardous materials. Necessary precautions are taken to prevent fire hazards at the Project Site including practicing good housekeeping and maintenance, and limiting the quantity of combustible materials.

## 7.3.2 Spills

During operation, there is potential for environmental effects due to fuel spills and/or leaks from equipment. Accidents could result in the release of hazardous fluids or fuels from equipment or vehicles. As a result of spills, effects on air quality, soil degradation and human health and safety are possible. Any spills if they were to occur would be contained within the Project Site.

## 7.3.3 Transportation Accidents

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

Traffic at the plant site (i.e., deliveries and pick-ups) operates at slow speeds to minimize the potential for on-site transportation accidents. Manitoba Harvest Hemp Foods also utilizes qualified transportation companies to transport materials and final products to and from the site to further minimize the potential for transportation risks.

### 7.3.4 Prevention Measures

Measures to prevent adverse effects associated with fire/explosion, spills and transportation accidents are as follows:

- Potentially hazardous materials are stored at dedicated areas and handled and labelled in accordance with applicable regulatory requirements.
- Hazardous materials are transported in accordance with the *Dangerous Goods Handling and Transportation Act*. Product use is carried out according to product instructions and MSDS requirements.
- Appropriate fire extinguishers are available on-site and are maintained to manufacturer's standards. Equipment is checked on a routine basis to ensure there proper working order in accordance with municipal fire safety regulations.
- Refueling of equipment will adhere to proper procedures with vehicle refueling conducted off-site.
- Absorbent material spill kits are available for immediate clean-up of spills and leaks by trained personnel.
- Vehicles and equipment are regularly maintained to minimize leaks. Regular inspections of hydraulic and fuel systems on equipment and machinery are undertaken on a routine basis. Leaks detected are identified for repair by trained personnel.
- Manitoba Harvest Hemp Foods maintains a Safety and Health Management System which includes policies related to emergency preparedness, inspections, workplace hazardous materials information system (WHMIS) and spill response procedures.

# 8.0 SUMMARY CONCLUSIONS

Stantec has prepared this environmental assessment report of Manitoba Harvest Hemp Foods' existing food processing facility, on behalf of Fresh Hemp Foods Ltd., to support the Environment Act Proposal and license application for continued operations of the same.

Manitoba Harvest Hemp Foods is employing mitigation and preventative measures to minimize potential adverse effects associated with their operations to the environment.

The site is presently zoned for industrial uses, including food processing, which complies with the activities being conducted by Manitoba Harvest Hemp Foods at this location. The land use is consistent with activities that have been present in the area over the past eight years.

There have been no prior complaints received (prior to spring 2015) from the discharge of plant wastewater to the city sewer system. Manitoba Harvest Hemp Foods has since taken actions to address overstrength wastewater as per the provisions of City of Winnipeg Sewer By-law No. 92/2010.

No noise complaints have reportedly been registered against the plant operations since operations began in 2008.

The number of vehicles travelling to and from the site by employees and inbound and outbound truck traffic using designated truck routes surrounding the Project Development Site are not in excess of the design capacity for these routes.

There are no substantial environmental emissions associated with the current operations at the Project Site.

The potential for accidents and malfunctions at the Project site is related to fire/explosion, spills and transportation accidents. The current prevention and mitigation measures and safe work practices reduce the likelihood of these events.

On the basis of the desktop studies undertaken, site observations and information available to date as presented in this report, the Project is not expected to create significant adverse effects to the biophysical and socio-economic environment and is expected to yield continued economic benefits.

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## 9.2 PERSONAL COMMUNICATIONS

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Kaluzny, Kevin. Engineering and Process Improvement Manager, Manitoba Harvest Hemp Foods. Email correspondence with Stephen Biswanger and Bill Krawchuk, Stantec Consulting Ltd., October 22, 2015.

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December 16, 2015

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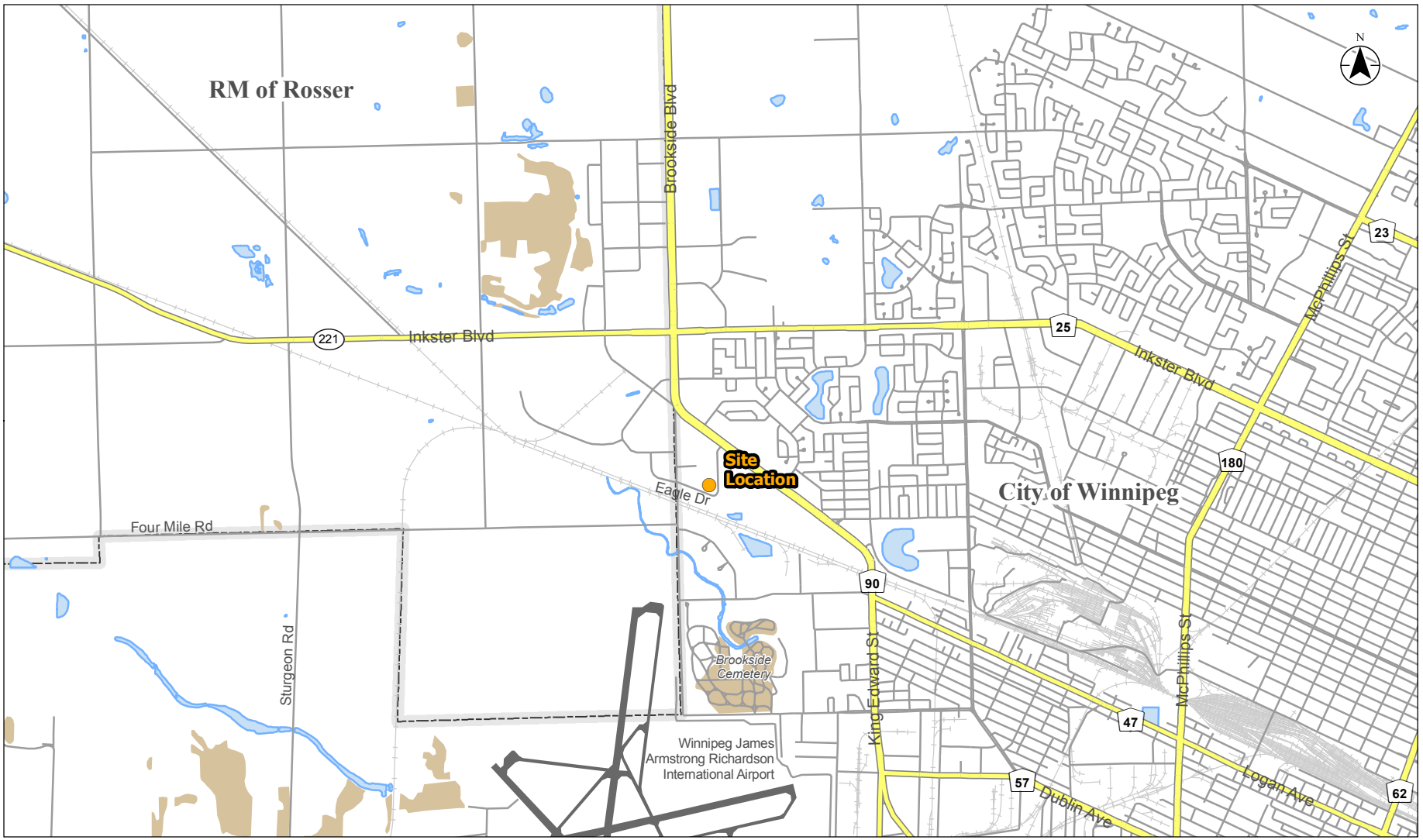
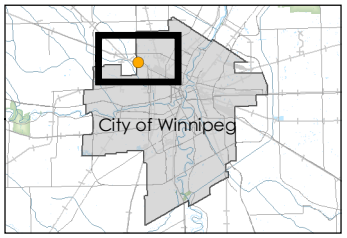
# Appendix A Figures




**Legend**

- Site Location
- Highway
- Major Road
- Railway
- Airport Runway
- Water
- Vegetation
- Municipality

0 0.5 1 Kilometers

1:50,000 (At original document size of 8.5x11)

**Notes**

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features produced by the City of Winnipeg and the Province of Manitoba

Stantec

| | |
|---|---|
| Project Location | 115415049 |
| Eagle Drive<br>City of Winnipeg | Prepared by Evan Rodgers on 2015-11-23<br>Technical Review by George Kroupa on 2015-11-23<br>Independent Review by Bill Krawchuk on 2015-11-23 |

Client/Project

Client: Manitoba Harvest Hemp Foods
Project: Plant Environment Act Proposal

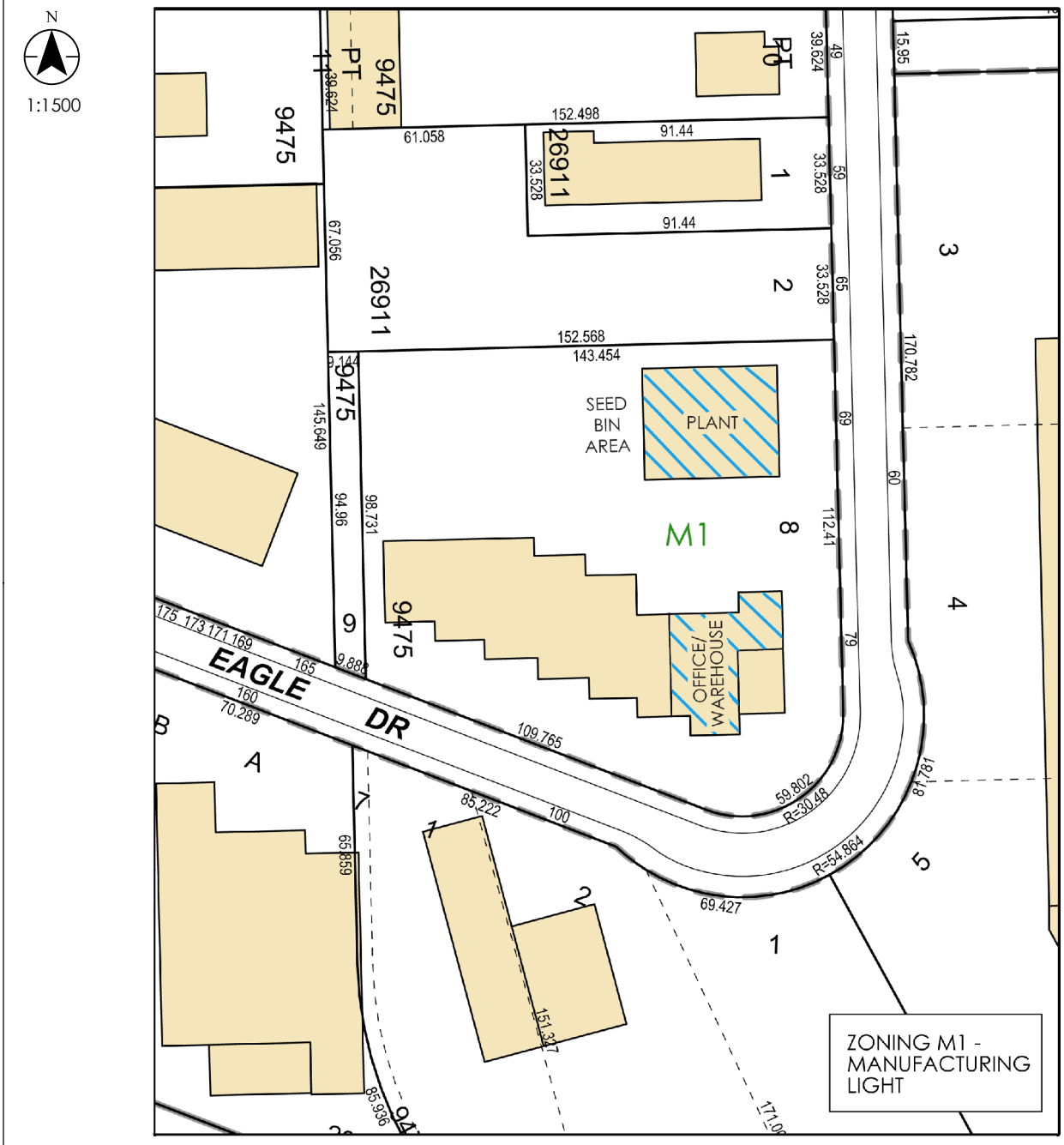
Figure No.

**1-1**

Title

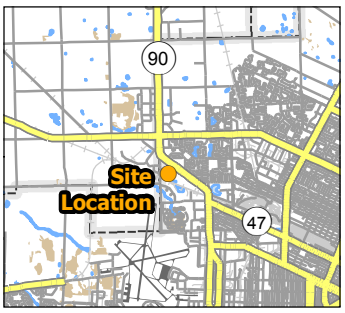
**Location Plan**
**City of Winnipeg**

G:_GIS_Project_Folder\115415049_ManitobaHarvest\Maps\01-02_LegalPlan.mxd Revised: 2015-11-23 By: erodgers




**ORIGINATED FROM: CITY OF WINNIPEG PLANNING, PROPERTY & DEVELOPMENT DEPARTMENT - LAND INFORMATION SERVICES**

Note: Information displayed hereon has been compiled or computed from a variety of sources and should be used as a general guide only. No warranty is expressed or implied regarding the accuracy of such information.




Stantec

Project Location
Eagle Drive
City of Winnipeg

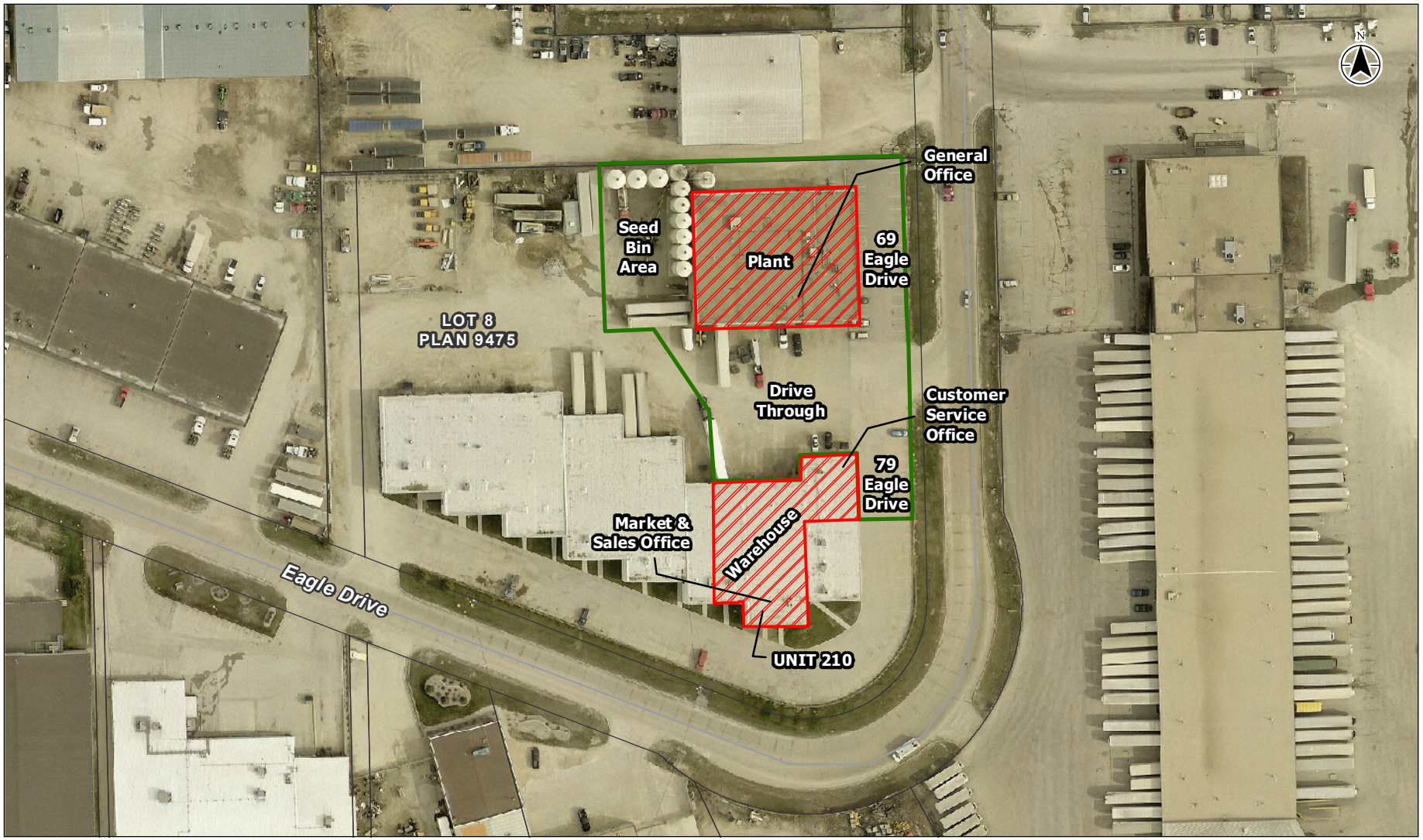
115415049
Prepared by Evan Rodgers on 2015-11-23
Technical Review by George Kroupa on 2015-11-23
Independent Review by Bill Krawchuk on 2015-11-23

Client/Project

Client: Manitoba Harvest Hemp Foods
Project: Plant Environment Act Proposal

Figure No.
**1-2**

Title
**Legal Plan**





**Legend**

- Plant / Warehouse / Office
- Drive Through / Seed Bin Area
- Survey Parcel

0 10 20 Meters

1:1,500 (At original document size of 8.5x11)

**Notes**

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features produced by the City of Winnipeg and the Province of Manitoba

Stantec

| | |
|---|---|
| Project Location | 115415049 |
| Eagle Drive<br>City of Winnipeg | Prepared by Evan Rodgers on 2015-11-23<br>Technical Review by George Kroupa on 2015-11-23<br>Independent Review by Bill Krawchuk on 2015-11-23 |

Client/Project

Client: Manitoba Harvest Hemp Foods
Project: Plant Environment Act Proposal

Figure No.

**1-3**

Title

**Site Plan**
**City of Winnipeg**

G:\...GIS_Project_Folder\115415049_Manitobaharvest\Maps\01-03_SitePlan.mxd Revised: 2015-11-23 By: ekrodgers

# Appendix B Photos

**Photo 1-1:** Looking to warehouse at 79 Eagle Drive.

**Photo 1-2:** Looking at common drive-through off of Eagle Drive between 69 and 79 Eagle Drive.

**Photo 1-3:** Looking at processing plant and general office at 69 Eagle Drive.

**Photo 1-4:** Customer Office at 79 Eagle Drive.

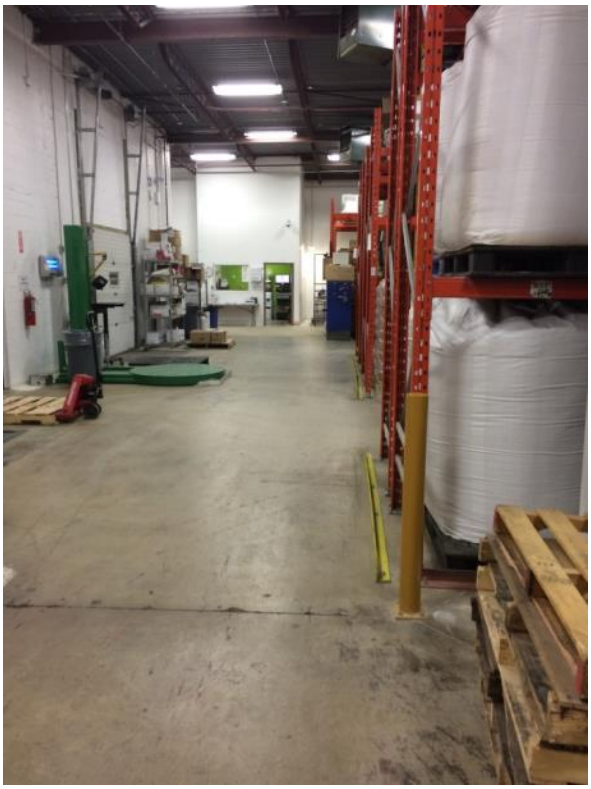


**Photo 3-1:** Inside the warehouse at 79 Eagle Drive.

**Photo 3-2:** Warehouse storage racks at 79 Eagle Drive.

**Photo 3-3:** Materials storage, general refuse and recycling bins in the warehouse (79 Eagle Drive).


**Photo 3-4:** Garbage and recycling bins and receiving doors outside of processing plant (south side).


**Photo 3-5:** Looking south to warehouse across common drive through.


**Photo 3-6:** Semi-trailers at warehouse receiving doors.

**Photo 3-7:** Truck van used to shuttle between processing plant and warehouse.


**Photo 3-8:** Seed bin storage area on west side of processing plant.


**Photo 3-9:** Hydraulic augers used to transfer raw seed to the seed storage bins.

**Photo 3-10:** Seed transfer tubing to seed hopper.

**Photo 5-1:** Looking north along Eagle Drive from development site.

**Photo 5-2:** Looking south along Eagle Drive from southeast property corner.

**Photo 5-3:** Looking west along Eagle Drive and subject property (Unit 210-79 Eagle Drive at right).


**Photo 5-4:** Looking north along Eagle Drive to processing plant (left side).

# Appendix C Correspondence

Manitoba

**Conservation and Water Stewardship**

Environmental Stewardship Division
Environmental Approvals Branch
123 Main Street, Suite 160, Winnipeg, Manitoba R3C 1A5
T 204 945-8321 F 204 945-5229
www.gov.mb.ca/conservation/eal

**File: 5793.00**

September 16, 2015

Kevin Kaluzny, C.E.T., C.I.M.
Engineering and Process Improvement Manager
Manitoba Harvest and Fresh Hemp Foods Ltd
69 Eagle Drive
Winnipeg, MB R2R 1V4

Dear: Kevin Kaluzny

**Re: Manitoba Harvest and Fresh Hemp Foods Ltd Environment Act Proposal**

Thank you for the letter dated August 31, 2015 in which you indicated you are retaining the services of Stantec Consulting Ltd to prepare a complete Environment Act Proposal (proposal) and in which you also requested an extension to the proposal submission deadline of October 16, 2015. Your request has been accepted and the new deadline to submit a complete proposal is December 16, 2015.

If you have any questions regarding this matter, please contact Eshetu Beshada of this office at (204) 945-7023 or Eshetu.Beshada@gov.mb.ca.

Yours sincerely,

Tracey Braun

Tracey Braun, M.Sc.
Director

c: Don Labossiere, Director, Environmental Compliance and Enforcement
Donna Smiley, Provincial Manager, Environmental Compliance and Enforcement

Manitoba
**Conservation and Water Stewardship**
Environmental Stewardship Division
Environmental Compliance and Enforcement Branch
1007 Century Street
Winnipeg, Manitoba R3H 0W4
T 945-7100 F 948-2338
www.gov.mb.ca/conservation/ece

July 16, 2015

Kevin Kaluzny
Manitoba Harvest
69 Eagle Drive
Winnipeg MB R2R 1V4

Dear Mr. Kaluzny:

**Re: Requirement for Manitoba Harvest to Apply for a Licence Pursuant to *The Environment Act***

On July 15, 2015, Manitoba Conservation and Water Stewardship conducted a site inspection of Manitoba Harvest in response to a notification from the City of Winnipeg regarding a sewer backup at the facility that occurred in May 2015.

It is acknowledged that Manitoba Harvest has taken the following steps to prevent future sewer backups from occurring:

- Retained the services of a third party to clean totes from the production area to minimize the amount of wastewater discharged into the municipal sewer.
- Retained the services of a consultant to develop and implement a wastewater monitoring plan to ensure compliance with the municipal sewer bylaw.

Based on the inspection of the facility, Manitoba Conservation would like to inform you that food processing plants are a Class 1 Development under the *Classes of Development Regulation M.R. 164/88* and require licensing under *The Environment Act*.

Please submit an Environment Act Proposal for your facility to the following address **by October 16, 2015**:

Tracey Braun, Director
Manitoba Conservation and Water Stewardship
Environmental Approvals
2nd floor 123 Main Street (Box 80)
Winnipeg MB R3C 1A5

A copy of *The Environment Act* proposal form and guideline can be found at the following link:
http://www.gov.mb.ca/conservation/eal/publs/index.html

If you have any questions regarding the above, please contact the undersigned at 204-918-4271.

Sincerely,

Sonja Bridges, Environment Officer
Environmental Compliance and Enforcement

c: Tracey Braun, Environmental Approvals Branch
Yvonne Hawryliuk, Environmental Compliance and Enforcement

# Appendix D Certificate of Title

# STATUS OF TITLE

Title Number **2343169/1**
Title Status **Accepted**
Client File MFletcher

**The Property Registry**
A Service Provider for the Province of Manitoba

## 1. REGISTERED OWNERS, TENANCY AND LAND DESCRIPTION

KETER HOLDINGS INC.

IS REGISTERED OWNER SUBJECT TO SUCH ENTRIES RECORDED HEREON IN THE FOLLOWING DESCRIBED LAND:

LOT 8 PLAN 9475 WLTO
IN SE 1/4 23-11-2 EPM

The land in this title is, unless the contrary is expressly declared, deemed to be subject to the reservations and restrictions set out in section 58 of *The Real Property Act*.

## 2. ACTIVE INSTRUMENTS

| | |
|---|---|
| Instrument Type: | **Caveat** |
| Registration Number: | **246085/1** |
| Instrument Status: | **Accepted** |
| Registration Date: | 1977-06-27 |
| From/By: | MANITOBA HYDRO ELECTRIC BOARD/MANITOBA TELEPHONE SYSTEM |
| To: | |
| Amount: | |
| Notes: | No notes |
| Description: | No description |

| | |
|---|---|
| Instrument Type: | **Caveat** |
| Registration Number: | **3640941/1** |
| Instrument Status: | **Accepted** |
| Registration Date: | 2008-07-09 |
| From/By: | FRESH HEMP FOODS INC. |
| To: | BY AGENT: WESLEY J. BURROWS |
| Amount: | |
| Notes: | No notes |
| Description: | LEASE AGREEMENT |

| | |
|---|---|
| Instrument Type: | **Builders Lien** |
| Registration Number: | **3774889/1** |
| Instrument Status: | **Accepted** |
| Registration Date: | 2009-05-20 |
| From/By: | 2381720 MANITOBA LTD. |
| Against: | AGAINST: KETER HOLDINGS INC. |
| Amount: | $14,000.00 |
| Notes: | No notes |
| Description: | No description |

**INSTRUMENTS THAT AFFECT THIS INSTRUMENT**

| Registration Number | Instrument Type | Status |
|---|---|---|
| 4079027/1 | Request To Issue Notice | Accepted |

| | |
|---|---|
| Instrument Type: | **Request To Issue Notice** |
| Registration Number: | **4079027/1** |
| Instrument Status: | **Accepted** |
| Registration Date: | 2011-06-01 |
| From/By: | FIRST LINE PROPERTIES LTD. |
| To: | |
| Amount: | |
| Notes: | No notes |
| Description: | No description |

**3. ADDRESSES FOR SERVICE**

KETER HOLDINGS INC.
550 BRAND ROAD
SASKATOON SK
S7J 2H4

**4. TITLE NOTES**

No title notes

**5. LAND TITLES DISTRICT**

Winnipeg

**6. DUPLICATE TITLE INFORMATION**

Duplicate not produced

**7. FROM TITLE NUMBERS**

2306790/1 All

**8. REAL PROPERTY APPLICATION / CROWN GRANT NUMBERS**

No real property application or grant information

**9. ORIGINATING INSTRUMENTS**

| | |
|---|---|
| Instrument Type: | **Request To Issue Title - Internal** |
| Registration Number: | **3720861/1** |
| Registration Date: | 2008-12-31 |
| From/By: | KETER HOLDINGS INC. |
| To: | |
| Amount: | |

**10. LAND INDEX**

Lot 8 Plan 9475
SW 1/4 23-11-2E

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE SYSTEM OF TITLE NUMBER 2343169/1