Submission Received July 4, 2016
(Indigenous and Municipal Relations)

SITE ASSESSMENT

For Large Livestock Operation Proposals (300 Animal Units or more)

1.0 Purpose

The set up, or expansion, of a livestock operation that has 300 Animal Units or more is subject to **Part 7 of *The Planning Act***. This includes consideration as a conditional use by the municipal council or planning district board. It also includes a review by the Technical Review Committee (TRC) appointed by the Minister of Local Government. The **Technical Review Committee Regulation** requires a site assessment to help the committee do its review and allow people who will be affected by the livestock operation to comment on the proposal.

2.0 Assistance

For assistance in completing the Site Assessment Form please refer to the following.

For links to resources, click on the **highlighted underlined items.**

For additional information on a particular item, please click on the (?) **"Learn More"** icon.

For definitions, click on the **Glossary of Terms**.

For help with mapping, contact your **Community and Regional Planning Regional Office**.

For additional help, contact the **Technical Review Coordination Unit**.

3.0 Description of Livestock Operation

Operation legal name, if other than the owner's name:

Verbruggen Prairie Farms Ltd.

Operation location (project site): SW 13-14-21 W

Rural Municipality (RM) of Oakview

Legal description: section, township, range or river lot(s)

SW 13-14-21 W

Manitoba Premises Identification Number: _____

Municipal tax roll number(s): 0053200.00

Show the location of the operation (project site) on a location map. (See **Location Map** for example).

☒ Location Map attached

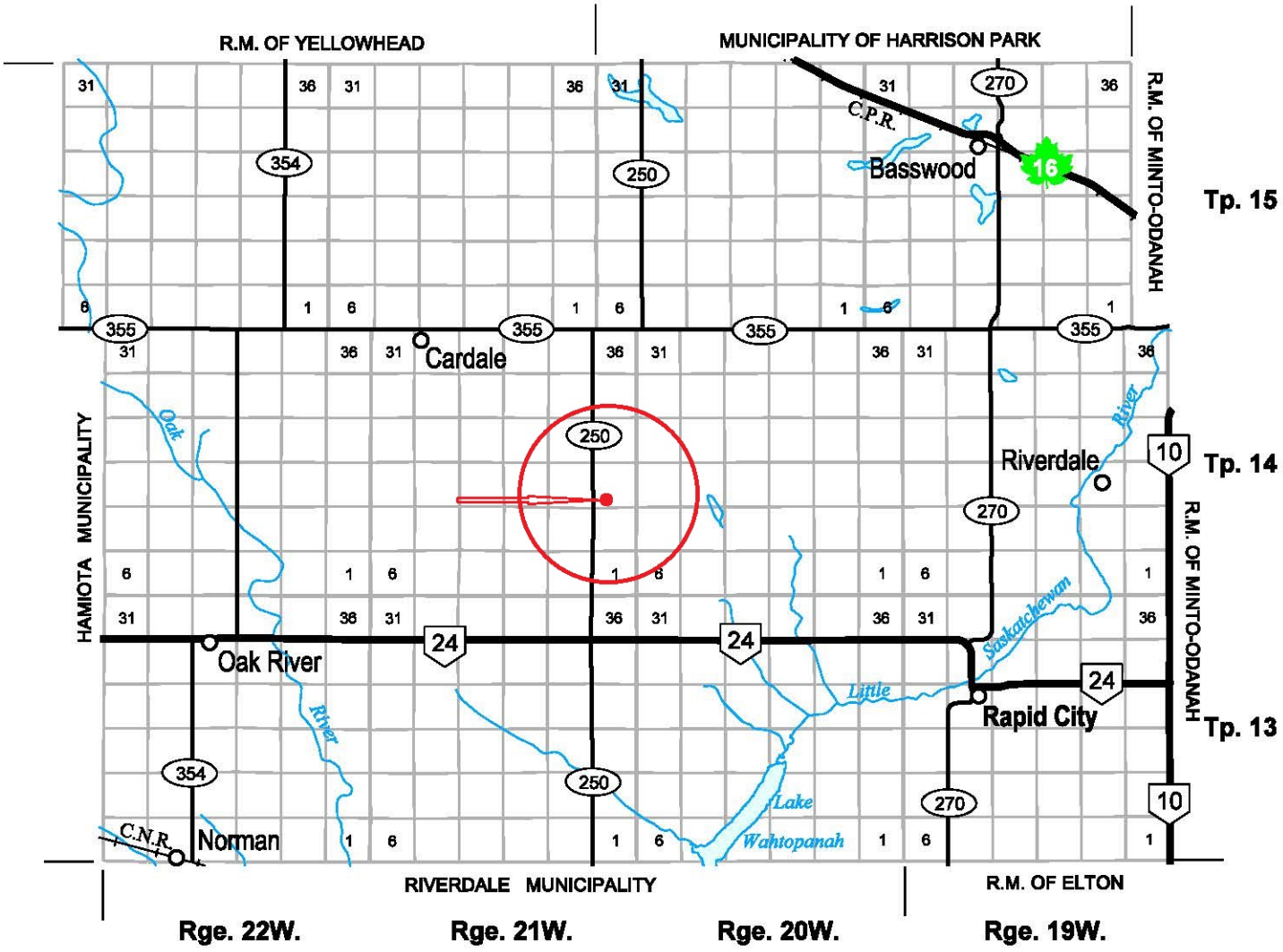
R.M. OF OAKVIEW

0 5
SCALE IN KILOMETRES

PROVINCE OF MANITOBA
INFRASTRUCTURE AND TRANSPORTATION
HIGHWAY PLANNING AND DESIGN BRANCH
GEOGRAPHIC & RECORDS MANAGEMENT SECTION
WINNIPEG
JANUARY 1, 2015

LEGEND

TRANS-CANADA HIGHWAY 16
PROVINCIAL TRUNK HIGHWAYS 24
PROVINCIAL ROADS 270
ACCESS ROADS .....
RAILWAYS .....



Location Map
Verbruggen Prairie Farms
SW 13-14-21 W
R.M. OF OAKVIEW

Formerly RMs of BLANSHARD and SASKATCHEWAN

SHEET 1 OF 1

4.0 Nature of Project

☒ **New operation**

☐ **Expansion of existing operation**

State if any existing buildings will be replaced or demolished. If existing buildings will be reused or expanded, state how they will be reused or expanded.

_____

_____

_____

5.0 Proposed Type and Size of Operation

State the proposed type and size of the operation. (See **Animal Units Calculation Table**.)

Type of operation (Column B from Animal Units Calculation Table)	**Existing number of animals** (Column C from Animal Units Calculation Table)	**Total Animal Units** (Column F from Animal Units Calculation Table)
hog grower/finisher		858

☒ Animal Units Calculation Table attached

6.0 Animal Confinement Facilities

Outdoor Confined Livestock Area

To ensure that it can be built in a way that the environment is protected, a permit is required for construction and expansion of **confined livestock areas** for operations with 300 Animal Units or more. Permits are required by the **Livestock Manure and Mortalities Management Regulation** (MR 42/98), under *The Environment Act*.

Confined Livestock Area: ☐ outdoor seasonal feeding area ☐ feedlot ☒ not applicable

Indoor Barn/Animal Housing

Indoor Animal Housing: ☒ barn ☐ other (describe) _____ ☐ not applicable

Animal Units Calculation Table

A	B	C	D	E	F	G
Animal Type	**Type of Operation**	**Existing Number of Animals**	**Proposed Additional Number of Animals**	**Animal Units per Head**	**Total Animal Units**	**Annual Confinement Period (Days)**
Dairy [1]	Mature cows (lactating and dry) including associated livestock			2	-	
	Mature cows (lactating and dry)			1.35	-	
	Heifers (0 to 3 months)			0.16	-	
	Heifers (4 to 13 months)			0.41	-	
	Heifers (> 13 months)			0.87	-	
	Bulls			1.35	-	
	Veal calves			0.13	-	
Beef	Beef cows including associated livestock			1.25	-	
	Backgrounder			0.5	-	
	Summer pasture / replacement heifers			0.625	-	
	Feeder cattle			0.769	-	
Pigs	Sows - farrow to finish (234-254 lbs)			1.25	-	
	Sows - farrow to weanling (up to 11 lbs)			0.25	-	
	Sows - farrow to nursery (51 lbs)			0.313	-	
	Boars (artificial insemination units)			0.2	-	
	Weanlings, Nursery (11-51 lbs)			0.033		
	Growers / Finishers (51-249 lbs)		6,000	0.143	858.00	
Chickens	Broilers			0.005	-	
	Roasters			0.01	-	
	Layers			0.0083	-	
	Pullets			0.0033	-	
	Broiler breeder pullets			0.0033	-	
	Broiler breeder hens			0.01	-	
Turkeys	Broilers			0.01	-	
	Heavy Toms			0.02	-	
	Heavy Hens			0.01	-	
Horses	Mares			1.333	-	
Sheep	Ewes			0.2	-	
	Feeder lambs			0.063	-	
Other Livestock	Type:				-	
	Type:				-	
				Total AUs	**858.00**	

Footnotes:

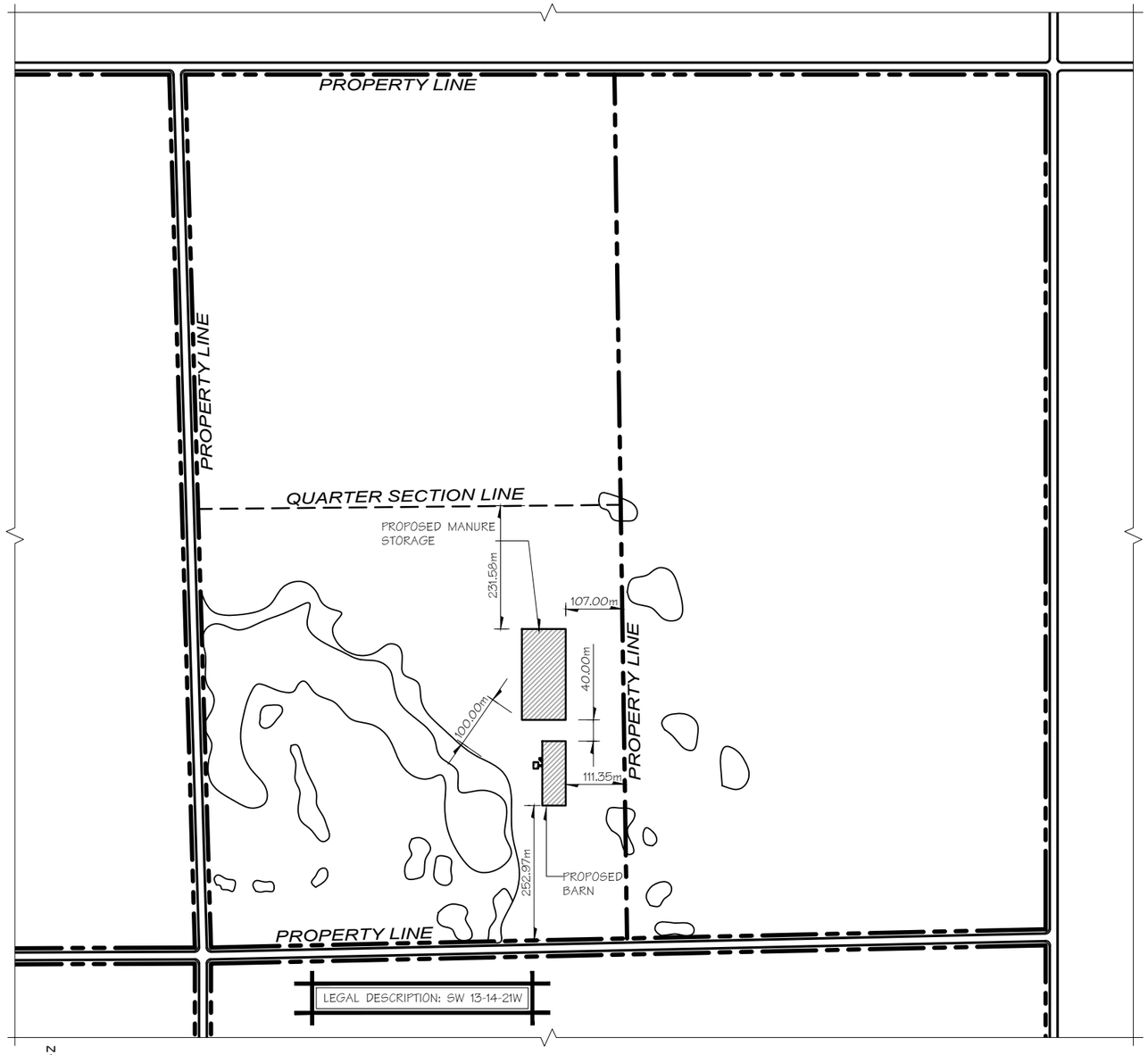
[1] There are 2 methods for calculating animal units for dairy (Farm Practices Guidelines for Dairy Producers in Manitoba, 1995). You can enter the total number of mature cows in the milking herd under the "Mature cows (lactating and dry) including associated livestock" category and the animal units will be calculated by multiplying this number by 2. This calculation assumes 85 lactating, 15 dry, 12 heifers (0 to 3 months), 36 heifers (4 to 13 months) and 50 heifers (> 13 months) for an operation with 100 mature cows. "Associated livestock" includes all of the heifer calves and replacement heifers. Alternatively, you can enter animal numbers in the individual categories (mature cows, heifers (0 to 3 months), heifers (4 to 13 months) and heifers (> 13 months)) and they will be summed at the bottom of the table. Bulls and veal calves are always calculated separately.

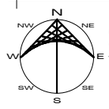
For all other livestock or operation types please inquire with your
Manitoba Agriculture, Food and Rural Initiatives GO office to determine the animal units per head.
www.gov.mb.ca/agriculture/contact/agoffices.html

A permit under the Livestock Manure and Mortalities Management Regulation is not required for an indoor housing area or barn unless there is a manure storage facility within the building (an under barn storage capable of storing manure for 30 days or more).

Show all existing, proposed buildings and additions to existing buildings on the project site plan. See **Project Site Plan example** and the Project ***Site Plan Guide*** for help creating your site plan.

☒ Project Site Plan attached





SITE PLAN LAYOUT

SCALE: 1:10000

REVISION			
ISSUE			
01	16/06/06	ISSUED FOR CU PERMIT	AG
NO.	DATE	DESCRIPTION	INITIAL

PRINTED DATE: 6/6/2016 10:19:44 AM

ENGINEER'S SEAL

AB PERMIT TO PRACTICE NUMBER: P 6498

ISSUED FOR CU PERMIT

DGH ENGINEERING LTD.
PROFESSIONAL SERVICE - PRACTICAL SOLUTIONS
19 AVIATION BLVD, ST. ANDREWS, MB R1A 3N8
PHONE: (204) 334-9348 FAX: (204) 334-9355

CLIENT
VERBRUGGEN FARMS
.
BOX 910
RIVERS, MB.
R0K 1X0

DESIGNED	DRAWN	COORDINATOR
CL	AG	CL
DATE	SCALE	XREF PATH(S)
MAY/2016	AS NOTED	FIGURE1, PROJECTIONS

PROJECT TITLE
6000 HEAD HOG FEEDER BARN
PROJECT LOCATION
SW 13-14-21W
PROJECT NUMBER: 16-1-3345-003-23

SITE PLAN LAYOUT
.

C1
REV. R00

0 10 20 30 40 50 60 70 80 90 100mm

7.0 Environmental Farm Planning

Environmental farm planning is a voluntary, confidential self-assessment process designed to help farm managers identify the environmental strengths and weaknesses of their operations.

Do you have an **Environmental Farm Plan** ☐ yes ☒ no

If so, is it current (completed within past 5 years) ☐ yes ☐ no

8.0 Water

Project Sites Unsuitable for Development

To protect water quality, the **Nutrient Management Regulation** (MR 62/2008), under *The Water Protection Act*, prohibits the set up or expansion of nutrient generating facilities in Nutrient Management Zone 4 (Agriculture Capability Class 6, 7 and unimproved organic soils) and Nutrient Buffer Zones. Nutrient generating facilities include barns, confined livestock areas and manure storage facilities.

Nutrient Buffer Zone as defined in section 3(3) of the regulation includes areas of land along water bodies such as rivers, lakes, streams and drains.

The proposed indoor housing area, barn, confined livestock area and/or manure storage facility:

will ☐
will not ☒

be located within Nutrient Management Zone 4 (Class 6, 7 and unimproved organic soils) or any Nutrient Buffer Zone.

Determine the agriculture capability class(es) of the project site, and its limitations. This information is available from Manitoba Agriculture, Food and Rural Development (MAFRD) at 204-945-3869 in Winnipeg. Alternatively, use the following link: Land Based Calculator.

Water Source

To be sustainable, a livestock operation must have access to a sufficient quantity and quality of water for livestock.

Water source for operation**:**

☐ pipeline (public) ☐ water co-operative

☒ proposed well ☐ existing well

☐ river ☐ lake

☐ dugout (dimensions : ____ x ___ x ____)

If using an existing well, provide a copy of the water well log and logs for other wells on the property. Logs can be obtained from Manitoba Conservation and Water Stewardship by calling (204) 945-7418 in Winnipeg; 1-800-214-6497 toll free.

Source Water Analysis Reports

Annual livestock source water monitoring analysis reports must be submitted to Manitoba Conservation and Water Stewardship for any operations of 300 Animal Units or more.

If an existing livestock operation of 300 Animal Units or more, have you submitted an annual source water monitoring report for the current calendar year? ☐ yes ☐ no

Will livestock have direct access to surface water (not including dugouts)? ☐ yes ☒ no

If **yes**, identify:
Name of the surface water feature: _____

List any steps that will be taken to prevent direct access of livestock to the water body.

_____

_____

Water Requirements

Protecting the interests of domestic users and the environment, in addition to existing licensees, is the intended purpose of the water rights licensing scheme.

In order to protect the sustainability of water sources, all operations using more than 25,000 litres (5,499 imperial gallons) per day must possess a Water Rights Licence required by the Water Rights Regulation (MR 126/87) under *The Water Rights Act.*

For more information on the Water Rights Licensing process, contact the Water Use Licensing Section at (204) 945-3983 in Winnipeg; 1-800-214-6497 toll free.

Water Use
To calculate the total water use, go to the **Water Requirement Calculation Table**.

Maximum daily use: 19,800 ☒ imperial gallons or ☐ litres
Maximum annual use: 7,227,000 ☐ acre-feet or ☐ cubic decameters

☒ Water Requirement Calculation Table attached

Groundwater (Contamination Risk Protection)

Improper storage and handling of manure or mortalities increases the risk of contaminating groundwater. Beneficial management practices (BMP), mitigation measures and requirements for the permit process reduce this risk. Soil testing, manure management planning and proper engineering, along with construction and management of manure storage structures reduce the risk of contaminating groundwater.

Water Requirement Calculation Table

Livestock	Number	IG/day per animal in winter	IG/day per animal in summer	IG/day (Imperial gallons per day)
Beef/Dairy/Bison *				
Feeder/heifer/steer (600 lb.)		5	9	-
Feeder (900 lb.)		7	12	-
Feeder (1250 lb.)		10	15	-
Cow/calf pair		12	15	-
Dry milking cow **		10	12	-
Lactating cow **		25	30	-
Bison		8	10	-
Horses				
Horses		8	11	-
Hogs				
Sow (Farrow/wean)		6.5		-
Dry Sow/Boar		4		-
Feeder	6,000	3		18,000
Nursery (33 lb.)		2		-
Chickens				
Broilers		0.035		-
Roasters/Pullets		0.04		-
Layers		0.055		-
Breeders		0.07		-
Turkeys				
Turkey Growers		0.13		-
Turkey Heavies		0.16		-
Sheep/Goats				
Sheep/Goats		2		-
Ewes/Does		3		-
Lambs/Kids (90 lb.)		1.6		-
		TOTAL (IG/day)		**18,000**
	***	**TOTAL with 10% wash water**		**19,800**

* For beef, dairy, bison and horse enterprises:
Use summer numbers if appropriate for the operation.
Otherwise base projections on winter values.
Always use the greater of the two values.

** For intensive Dairy operations, please use the Dairy Barn Water Requirement Estimator found on separate sheet.

Enter this number on page 7 of Application Form.

***** 10% of the total is added to allow for wash water**

Other consumption:

Normal household consumption:
60-75 IG/day per person or
(272-340 l/day/person)

Unit Conversions		
Total per day	**Total per year**	**Unit**
19,800	**7,227,000**	**IG**
81,828	**29,867,220**	**litres**
0.082	**30**	**cubic decametres (dam^3)**

Enter this number on page 7 of Application Form.

Conversion Factor: 1 IGPM = 4.546 l/m

Check off the mitigation measures used for the existing components of the operation that may pose a risk of contamination. Also check off any measures that may be used with the proposed components for this expansion, if applicable:

	Existing	Proposed
Manure is stored in a storage facility built by permit or registered by Manitoba Conservation and Water Stewardship	☐	Y
Storage includes leachate collection	☐	Y
Earthen storage has between 400 and 500 days storage	☐	Y
Steel/concrete tank has between 250 and 500 days storage	☐	N/A
Manure storage facility meets required setbacks	☐	Y
Field storage (solid manure) locations are changed annually	☐	N/A
Field storage meets required setbacks	☐	N/A
All application fields are soil tested annually for nitrate-N and Olsen phosphorus	☐	Y
All manure is applied according to a manure management plan	☐	Y
Licensed commercial manure applicator is used to apply manure	☐	Y
Abandoned wells have been properly sealed	☐	N/A

Other:

Building in Flood Areas

The **Livestock Manure and Mortalities Management Regulation** prohibits an operator from putting a manure storage facility within the boundaries of the 100-year flood plain elevation**.** **Manure storage facilities** that are constructed with protection for a flood-water level at least 0.6 meters higher than the 100-year flood water level are exempt.

The **Designated Flood Area Regulation** under *The Water Resources Administration Act* requires a Designated Flood Area Permit before a proposed structure (such as a barn) can be built within a Designated Flood Area.

The flood protection level for structures located within a Designated Flood Area is the site specific design flood level plus freeboard, as provided by the Hydraulic Forecasting Branch of Manitoba Infrastructure and Transportation. Contact the Hydrologic Forecasting Branch at (204) 945-2121 in Winnipeg; 1-800-214-6497 toll free.

The proposed site:

is ☐ is not ☒

located in a Designated Flood Area: **Red River Valley Designated Flood Area** **or** **Lower Red River Designated Flood Area**

Note: At the time a permit is issued, verification is needed to ensure any proposed structure(s) are located within the 100-year flood plain elevation; or at an elevation set by Manitoba Infrastructure and Transportation.

Watershed Management Planning
Integrated watershed management planning is a co-operative effort by local residents, stakeholders and governments to create a long term plan to manage water and land-based activities for watersheds.

What are the names of the **watershed** and **sub-watershed** where the livestock operation and the fields identified for manure application are located?

Name of watershed(s): Lower Little Saskatchewan River and Adjacent Area

Name of sub-watershed(s): _____

Name of **Integrated Watershed Management Plan** for the proposed project site, if applicable: Little Saskatchewan

For more on Integrated Watershed Management Planning, call Watershed Planning and Programs at (204) 945-7408 in Winnipeg; 1-800-214-6497 toll free.

9.0 Manure

The **Livestock Manure and Mortalities Management Regulation** sets requirements for the use, management and storage of livestock manure in agricultural operations, to ensure it is handled in an environmentally sound manner. For more information on this, call Manitoba Conservation and Water Stewardship at (204) 619-2230 in Winnipeg.

Improper storage, handling and/or land application of manure can contaminate water and/or cause unacceptable odours for neighbours. The following is used to assess the manure management system.

Manure Type
The type of manure generated and used by the operation influences storage, handling and land application options available.

What type(s) of manure will be generated?

☐ solid ☐ semi-solid ☒ liquid

Manure Volume or Weight
Manure production can be estimated using the Manure Production Calculator Table. The sizing of the manure storage is the responsibility of the operator and must be constructed in accordance with the **Livestock Manure and Mortalities Management Regulation**. Design and construction of a manure storage facility is dependent on the type of structure; earthen manure storage facilities must have between 400 and 500 days capacity, a steel or concrete storage tank must have between 250 and 500 days capacity. This ensures the facility has sufficient capacity eliminating the need for winter application.

What will be the total volume or weight of manure generated annually by the livestock operation? (See **Manure Production Calculator Table**.)

liquid volume: 600,000 cubic feet solid weight: ___

☒ Manure Production Calculator Table attached

Manure Storage Type and Capacity

The type of storage system used will affect the capacity requirements for the manure storage facility or field storage area.

What type of **manure storage facility** will be used by the operation?

☐ under-barn concrete ☒ **earthen manure storage** ☐ concrete tank(s)
☐ steel tank(s) ☐ **field storage** ☐ **molehill**

Provide the dimensions of the existing and/or proposed manure storage facilities, if applicable. (See **Existing and Proposed Manure Storage Facility Dimensions Table**.)

☒ Existing and Proposed Manure Storage Facility Dimensions Table attached

Odour Control Measures (project site)

Barns and manure storage facilities can be significant sources of livestock odours. The use of manure storage covers and shelterbelts can reduce this, particularly for neighbours in the vicinity of the operation.

What odour control measures are you planning to use?

Manure storage cover: ☐ yes ☒ no

Type of cover: _____

Shelterbelt planting: ☒ yes ☐ no ☐ existing shelterbelt

Other measures (specify): _____

Manure Treatment

Under *The Environment Act,* the director must not issue a permit for the modification, expansion, or construction of a manure storage facility accommodating an increase in the number of animal units for pigs, unless the manure is treated using anaerobic digestion or another environmentally sound treatment that is similar to or better than anaerobic digestion, according to Manitoba Conservation and Water Stewardship.

Does your proposal include anaerobic digestion or another environmentally sound treatment for manure?

☒ yes ☐ no ☐ not applicable

Animal Type (A)	Animal Sub-type (B)	Daily Manure Production				Production Period [2] (Days) (G)	Number of Animals [3] (Capacity) (H)	Total Manure Volume (ft^3) (FxGxH)	Total Manure Volume for Semi-Solid and Liquid Manure (Imp Gal)
		References (C)	Manure Type (D)	Default Manure Production (ft^3/animal/day) (E)	Operation Manure Production [1] (ft^3/animal/day) (F)				
Dairy (milking cows[4] and associated livestock)	Free Stall	Table 6, pg 59, FPGs for Dairy 1995	Semi-Solid [5]	3.5				-	0.0
			Solid	3.4				-	
			Liquid [5]	3.5				-	0.0
	Tie Stall		Semi-Solid [5]	3.6				-	0.0
			Solid	3.5				-	
			Liquid [5]	3.6				-	0.0
	Loose Housing		Solid	3.0				-	
	Milking Parlour Manure and Washwater		Liquid	0.5					
Beef	Beef cows including associated livestock	pg 117, FPGs for Hogs 1998	Solid	1.2				-	
	Backgrounder (200 day)		Solid	0.73				-	
	Summer pasture / replacement heifers		Solid	0.85				-	
	Feeder cattle		Solid	1.1				-	
Pigs	Sows - farrow to finish (234 - 254 lbs)	MAFRI website, FPGs for Pigs 2007	Liquid	2.3				-	0.0
	Sows - farrow to wean (up to 11 lbs)		Liquid	0.8				-	0.0
	Sows - farrow to nursery (51 lbs)		Liquid	1				-	0.0
	Weanlings, Nursery (11 - 51 lbs)		Liquid	0.1				-	0.0
	Grower / Finisher (51 - 249 lbs)		Liquid	0.25	0.25	400.00	6,000	600,000.00	3,738,000.0

Animal Type	Type of Operation		Yearly Manure Production		Production Period [2] (Days)	Number of Birds [3] (Capacity)	Total Manure Volume (ft^3) (F/365xGxH)	Total Manure Volume for Semi-Solid and Liquid Manure (Imp Gal)
			Default Manure Production (ft^3/year/bird space)	Operation Manure Production [1] (ft^3/year/bird space)				
Chickens	Broilers – floor [6]	Table 3, pg 85, FPGs for Poultry 2000	1.23				-	
	Broiler breeder hens [7]		2.3				-	
	Broiler breeder pullets [6]		0.99				-	
	Roasters – floor [6]		1.16				-	
	Layers – cage [8]		2.33				-	0.0
	Layers – floor [7]		1.68				-	
	Layers – solid pack [9]						-	
	Pullets – cage [8]		0.71				-	0.0
	Pullets – floor [6]		0.75				-	
	Pullets – solid pack [9]						-	
Turkeys	Broilers [6]	Table 3, pg 85, FPGs for Poultry 2000	2.83				-	
	Heavy toms [6]		5.58				-	
	Heavy hens [6]		3.32				-	

Sizing of a manure storage facility in accordance with all requirements of the *Livestock Manure and Mortalities Management Regulation* (M.R. 42/98) is the responsibility of the operator.

Instructions and footnotes:

[1] ENTER the manure production estimate for your operation. If no estimate is available, use the default value provided in colum E. References for default daily and yearly manure production are provided in column C.

[2] ENTER the number of days worth of manure that will be produced. For earthen manure storage facilities the minimum storage requirement is 400 days. For steel and concrete manure storage facilities the minimum storage requirement is 250

[3] ENTER the total number of animals or birds that the operation can hold (e.g. barn or feedlot capacity).

[4] Milking cows includes all lactating and dry cows.

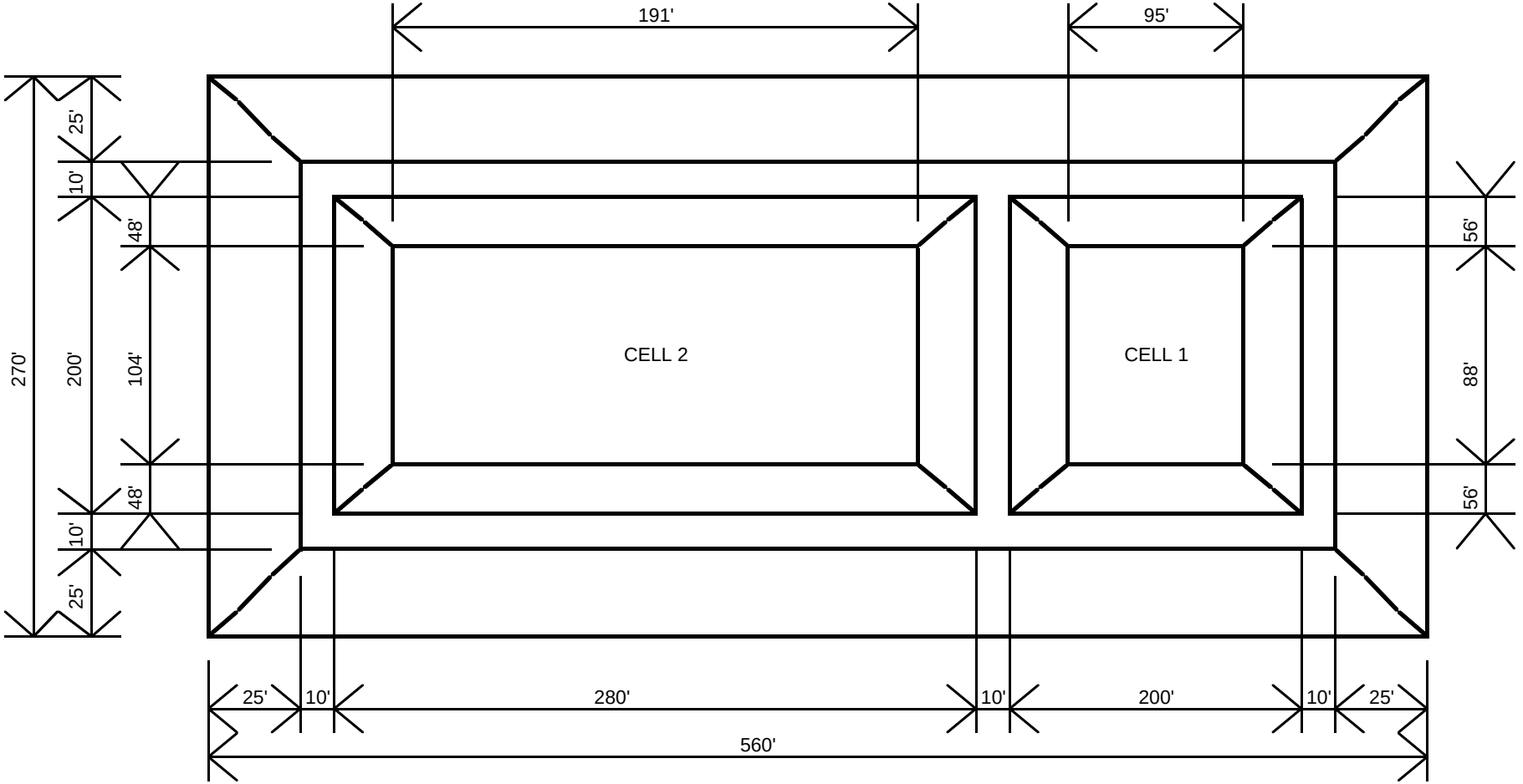
[5] Default manure production estimates for semi-solid and liquid dairy manure include manure and washwater from the milking parlour.

[6] 2 inches of wood shavings or 4 inches of straw placed on floor. Manure and litter removed from barn at 25% moisture content, with a density of 20 lb/ft^3

[7] One-third litter floor, two-thirds slatted floor. Manure and litter removed from barn at 40% moisture content, with a density of 25 lb/ft^3

[8] Manure removed from barn at 90% moisture content with a density of 59 lb/ft^3

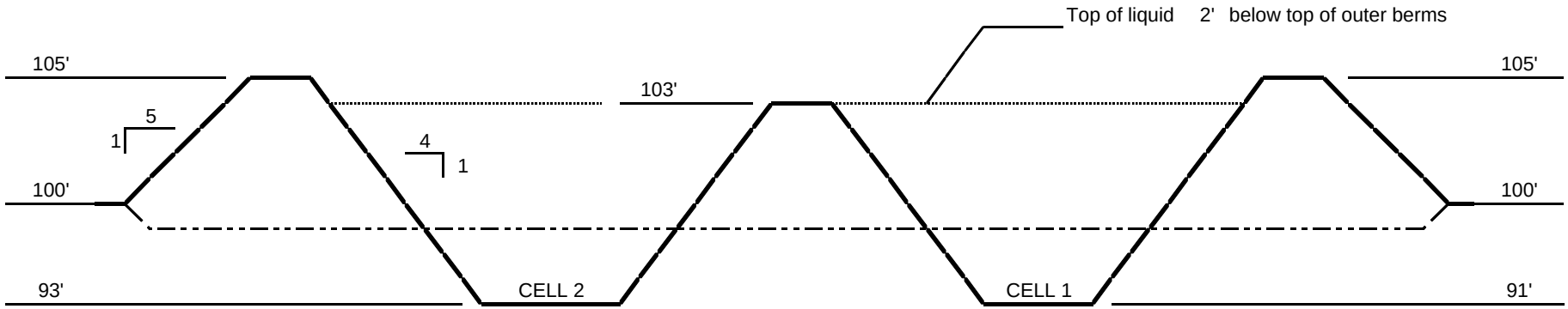
[9] Poultry operations using litter (solid pack) must provide an estimate of yearly manure production



DGH ENGINEERING LTD.

Verbruggen Farms
6000 hog finishers 405 days
SW 13-14-21 W

N.T.S.



DGH ENGINEERING LTD.

N.T.S.

Verbruggen Farms
6000 hog finishers 405 days
SW 13-14-21 W

If yes, please describe In compliance with Pig Production Special Pilot Project requirement

Manure Application Method

The **Livestock Manure and Mortalities Management Regulation** requires the registration of annual manure management plans for new or expanding operations with 300 Animal Units or more.

Does the operation currently file an annual **Manure Management Plan** with Manitoba Conservation and Water Stewardship? (For operations with 300 Animal Units or more, only)

☐ yes ☐ no

Manure application methods and the season in which manure is applied affect odour, nutrient availability, crop response, land base requirements and the risk of water contamination.

Proposed application method:

☐ broadcast ☐ broadcast and incorporation within 48 hours ☒ injection

The **Livestock Manure and Mortalities Management Regulation** prohibits the application of manure from November 10 of one year to April 10 of the following year (winter application).

Time of year for application: ☒ spring ☒ summer ☒ fall

The **Livestock Manure and Mortalities Management Regulation** puts restrictions on fall application of manure in the Red River Valley Special Management Area**.**

The proposed spread fields:

are ☐

are not ☒

in the **Red River Valley Special Management Area**.

Land Available for Manure Application

The land available for manure application includes all suitable land (owned, leased or under agreement) that is available to the operation for manure application.

Under the **Livestock Manure and Mortalities Management Regulation** and the **Nutrient Management Regulation,** application of nutrients is not permitted on Agriculture Capability Class 6, 7 and unimproved organic soils (Nutrient Management Zone 4) and within Nutrient Buffer Zones.

Areas of a field that are Class 6, 7, unimproved organic soils (Nutrient Management Zone 4) or areas within the nutrient buffer zones are considered unsuitable for manure application. In addition, fields with 60 parts per million (ppm) Olsen phosphorus (P) in the top six inches (15 centimetres) of soil cannot be included in the land base calculation.

Nutrients cannot be applied within the Nutrient Buffer Zones as outlined in the Nutrient Management Regulation (62/2008) and illustrated in the **Setback Requirements From Water Features Table**.

Has the setback area for all water features been observed and excluded from land base calculations for this operation?

☒ yes ☐ no

Use the **Manure Application Field Characteristics Table** to determine the following:

Total suitable area available for manure application	2454.9

☒ Manure Application Field Characteristics Table attached

Copies of **soil test reports** that are no more than 12 months old must also be included with this submission.

☒ Soil test reports for the required area for manure application attached.

Land Required for Manure Application

Long term, land base requirements for manure application are calculated based on estimates of the quantity of nutrients (nitrogen and phosphorus) excreted by livestock and the removal of nutrients by the proposed crops.

Phosphorus

The quantity of phosphorus excreted by the livestock depends on the type, number and size of livestock, the quantity and availablility of phosphorus fed to the livestock and the amount retained by the livestock.

The removal of phosphorus by crops depends on the crops grown and the historical crop yield averages. (See the **Crop Rotation Table**).

The **Livestock Manure and Mortalities Management Regulation** requires that "sufficient land is available to the operator to implement an appropriate manure management plan" before Manitoba Conservation and Water Stewardship will issue a permit for a manure storage facility.

"*Certain Areas*" are defined by the **Livestock Manure and Mortalities Management Regulation** (M.R. 42/98) as areas where the amount of phosphorus in the manure produced annually by livestock in an area of not less than 93.24 km^2 is greater than two times the annual crop removal rate of P_2O_5 in that area. Currently the rural municipalities of Hanover and La Broquerie are considered to be "*certain area*s".

A livestock operation is considered to be located within a "*certain area*" if any part of the operation is located within the "*certain area*". This may include, but not limited to, barn(s), confined livestock area(s), field storage location(s), manure storage facility(ies), and/or spread filed(s).

MANURE APPLICATION FIELD CHARACTERISTICS TABLE

	A	B	C	D	E	F	G	H	I	J	K
Field	Legal Description	Rural Municipality	O/L/A	Total Acreage	Setbacks, including features	Net Acreage for Manure Application	Agriculture Capability Class and Subclass	Soil Nitrate (lb/acre) 0-24 inches	Soil Phosphorus (ppm Olsen P) 0-6 inches	Development Plan Designation	Zoning
1	SW12-14-21w	Oakview	O	131.7	Surface water	128.5	2t	24	9	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
2	SW1-14-21w	Oakview	O	132	Surface water, Order 2 Drain	128.9	3t	42	17	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
3	NW1-14-21w	Oakview	O	139.4	Surface water	135	2t	12	6	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
4	NE1-14-21w	Oakview	O	127.6	Surface water	124.2	2t, 5w	19	12	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
5	NW13-14-21w	Oakview	O	159	Surface water	156.4	2t, 5w	38	26	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
6	SW13-14-21w	Oakview	O	69.1	Surface water	65.6	5w,2t	38	26	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
7	SW19-14-20w	Oakview	O	132.3	Surface water	127.5	3t	28	6	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 1195
8	NW19-14-20w	Oakview	O	132	Surface water	126	3t	26	9	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 1195
9	SW30-14-20w	Oakview	O	117.8	Surface water	111.3	3t	26	6	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 1195
10	SW1-15-21w	Oakview	O	107.4	Surface water	101.1	3t, 2t	34	7	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
11	SW23-14-21w	Oakview	O	109.6	Surface water	103.6	5w,2t,4t	45	23	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
12	NW23-14-21w	Oakview	O	134	Surface water	128.9	2t,5w,4t	40	15	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
13	SW27-14-21w	Oakview	O	127.3	Surface water	119.7	3t,4t,	33	32	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
14	SE27-14-21w	Oakview	O	103.9	Surface water	97.6	4t,3t	29	21	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
15	NE22-14-21w	Oakview	O	114	Surface water	108.8	4t,5w,3t, 5	43	25	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
16	NW22-14-21w	Oakview	O	111.3	Surface water	105.3	3t,4t	54	13	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
17	SE22-14-21w	Oakview	O	75.4	Surface water	71.4	4t,5	114	26	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4

MANURE APPLICATION FIELD CHARACTERISTICS TABLE

	A	B	C	D	E	F	G	H	I	J	K
Field	**Legal Description**	**Rural Municipality**	**O/L/A**	**Total Acreage**	**Setbacks, including features**	**Net Acreage for Manure Application**	**Agriculture Capability Class and Subclass**	**Soil Nitrate (lb/acre) 0-24 inches**	**Soil Phosphorus (ppm Olsen P) 0-6 inches**	**Development Plan Designation**	**Zoning**
18	SW24-14-21w	Oakview	A	111.9	Surface water	106	2t	47	11	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
19	SE24-14-21w	Oakview	A	127	Surface water, Order 3 Drain	121.4	3t, 2t	32	7	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
20	SE23-14-21w	Oakview	A	106.6	Surface water	101.3	4t, 2t	29	12	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
21	NE23-14-21w	Oakview	A	102.3	Surface water	96.7	4t, 2t	38	18	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2012-4
22	SE1-15-21w	Oakview	O	95	Surface water	89.7	3t	34	7	"Rural Policy Area" 3-2009	"AG" Agriculture General Zone 2102-4
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
					Total Net Acreage for Manure Application:	2454.9					

A. Enter the legal description for each parcel of land that will receive manure: Sec, Twp, Rge or River Lot (including parish).
B. Identify the Rural Municipality in which the parcel is located.
C. Indicate how the land has been secured for manure application: O ï Own / L ï Lease / A ï Agreement
D. Enter the total acreage for the parcel.
E. Enter setbacks from surface water or groundwater features that reduce the land available for manure application; include identification of type of feature (e.g. 8m, Order 3 drain).
F. Enter the net long-term acreage available for manure application for the parcel after taking into account setbacks and excluding Class 6, 7 and unimproved organic soils.
G. Enter the agriculture capability class and subclass ratings for the acreage available for manure application.
H. Provide soil test results for nitrate-N in lb/ac at the 0-24 inch depth. Soil test results must be no more than 12 months old and must be completed by an accredited soil-testing laboratory.
I. Provide soil test results for phosphorus ppm Olsen P at 0-6 inch depth. Soil test results must be no more than 12 months old and must be completed by an accredited soil-testing laboratory.
J. Please indicate the Development Plan and its by-law number in addition to the map designation for each field
K. Please indicate the Zoning By-law and its by-law number in addition to the zoning for each field

Report Number: C15272-10311
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15272-10311

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: BARN 1/2

Reported Date: **Printed Date:**2015-10-02

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
9318-1	SE 22-14-21	6	59980	4.7	26 M	45 M	409 VH	520 H	2810 M	7.2		20.5	5.1	21.1	68.6	4.5	0.7
9318-2	SE 22-14-21	24	59981	1.9			122 M	995 H	7200 H	8.3		44.7	0.7	18.5	80.5		0.5

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
9318-1	14 VL	25	21 H	38							17 H	337	0.0 G	0.24	60		32 M
9318-2	14 VL	76	14 M	76										0.04	31		53 L

W VL = VERY LOW, L = LOW, M = MEDIUM, H = HIGH, VH = VERY HIGH, G = GOOD, MA = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
* If this report contains soil in excess of 7500 ppm Ca it may or may not effect the calculated Cation Exchange Capacity. Excessive seed placed fertilizer can cause injury.

The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15287-10208
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15287-10208

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: CORRECTION LINE

Reported Date: **Printed Date:**2015-10-16

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
10110-1	S 1-15-21	6	13929	5.5	7 VL	10 VL	145 M	605 H	2990 M	7.2		21.4	1.7	23.5	69.8	4.5	0.4
10110-2	S 1-15-21	22	13930	1.8			76 L	970 VH	4170 M	8.2		29.2	0.7	27.7	71.5		0.5

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
10110-1	16 VL	29	11 M	20							4 M	354	0.0 G	0.07	68		22 L
10110-2	15 VL	72	3 VL	14										0.03	30		33 L

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
* If this report contains soil in excess of 7500 ppm Ca it may or may not effect the calculated Cation Exchange Capacity. Excessive seed placed fertilizer can cause injury.

The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15266-10011
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15266-10011

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.

Field: DB 22 NE

Reported Date: **Printed Date:**2015-09-25

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
1	NE 22-14-21	6	52245	6.9	25 M	49 M	379 VH	550 H	2700 M	6.7	6.9	20.3	4.8	22.5	66.4	5.6	0.7
2	NE 22-14-21	24	52246	1.9			137 M	1470 VH	7030 M	7.6		48.1	0.7	25.5	73.1		1.1

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
1	15 VL	27	15 M	27							21 H	306	0.0 G	0.21	82		31 M
2	96 M	518	3 VL	16										0.03	31		121 H

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
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The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15266-10009
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15266-10009

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.

Field: DB 22 NW

Reported Date: **Printed Date:**2015-09-25

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
1	NW 22-14-21	6	52241	4.7	13 M	26 M	350 VH	880 H	4050 M	7.0		32.8	2.7	22.3	61.7	12.7	0.5
2	NW 22-14-21	24	52242	2.1			156 M	1255 VH	5260 M	8.0		37.4	1.1	28.0	70.4		0.9

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
1	34 VL	61	15 M	27							11 H	309	0.0 G	0.12	60		35 L
2	27 VL	146	5 L	27										0.04	33		79 M

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
* If this report contains soil in excess of 7500 ppm Ca it may or may not effect the calculated Cation Exchange Capacity. Excessive seed placed fertilizer can cause injury.

The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15280-10106
Account Number: 98019

A & L Canada Laboratories Inc.

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C15280-10106

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: ENGLISH CENTER

Reported Date: **Printed Date:**2015-10-09

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
9575-1	NW 19-14-20	6	02485	5.7	9 VL	15 VL	169 M	445 H	2710 M	7.0		20.3	2.1	18.2	66.6	12.8	0.3
9575-2	NW 19-14-20	20	02486	2.5			82 L	585 M	5620 H	8.1		33.3	0.6	14.7	84.5		0.4

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
9575-1	12 VL	22	10 M	18							6 G	327	0.0 G	0.12	70		12 VL
9575-2	12 VL	50	2 VL	8										0.04	37		34 L

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
* If this report contains soil in excess of 7500 ppm Ca it may or may not effect the calculated Cation Exchange Capacity. Excessive seed placed fertilizer can cause injury.

The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15280-10095
Account Number: 98019

A & L Canada Laboratories Inc.

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Telephone: (519) 457-2575 Fax: (519) 457-2664

C15280-10095

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: ENGLISH NORTH

Reported Date: **Printed Date:**2015-10-09

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
9576-1	SW 30-14-20	6	02463	4.7	6 VL	9 VL	200 H	660 H	3950 M	7.2		27.0	1.9	20.3	73.1	4.5	0.2
9576-2	SW 30-14-20	20	02464	2.2			69 L	940 H	5680 H	8.3		36.4	0.5	21.5	78.1		0.2

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
9576-1	8 VL	14	10 M	18							1 VL	193	0.0 G	0.09	60		13 VL
9576-2	7 VL	29	2 VL	8										0.02	34		15 VL

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
* If this report contains soil in excess of 7500 ppm Ca it may or may not effect the calculated Cation Exchange Capacity. Excessive seed placed fertilizer can cause injury.

The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15280-10094
Account Number: 98019

A & L Canada Laboratories Inc.

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C15280-10094

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: ENGLISH SOUTH

Reported Date: **Printed Date:**2015-10-09

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
9574-1	SW 19-14-20	6	02461	4.5	6 VL	9 VL	146 M	610 H	4170 H	7.3		26.3	1.4	19.3	79.2		0.3
9574-2	SW 19-14-20	20	02462	2.0			53 VL	765 M	7200 H	8.4		42.5	0.3	15.0	84.7		0.2

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
9574-1	16 VL	29	11 M	20							1 VL	217	0.0 G	0.07	57		18 VL
9574-2	11 VL	46	2 VL	8										0.02	32		15 VL

W VL = VERY LOW, L = LOW, M = MEDIUM, H = HIGH, VH = VERY HIGH, G = GOOD, MA = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
* If this report contains soil in excess of 7500 ppm Ca it may or may not effect the calculated Cation Exchange Capacity. Excessive seed placed fertilizer can cause injury.

The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15280-10093
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15280-10093

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: HOME

Reported Date: **Printed Date:**2015-10-09

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
9569-1	W 13-14-21	6	02459	4.8	26 M	38 M	350 VH	635 H	3760 H	7.5		25.0	3.6	21.1	75.1		0.4
9569-2	W 13-14-21	20	02460	2.0			76 L	1505 VH	7200 M	8.6		48.9	0.4	25.7	73.7		0.6

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
9569-1	17 VL	31	14 M	25							21 H	238	0.0 G	0.17	61		25 L
9569-2	50 VL	210	3 VL	13										0.02	32		65 L

W VL = VERY LOW, L = LOW, M = MEDIUM, H = HIGH, VH = VERY HIGH, G = GOOD, MA = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

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The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15280-10105
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15280-10105

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: NE 1-14-21

Reported Date: **Printed Date:**2015-10-09

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
9573-1	NE 1-14-21	6	02483	6.4	12 L	19 L	239 H	610 VH	2630 M	6.7	6.9	20.1	3.1	25.3	65.5	5.6	0.5
9573-2	NE 1-14-21	22	02484	2.5			94 M	960 VH	2880 M	7.5		22.7	1.1	35.3	63.6		0.5

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
9573-1	21 VL	38	5 L	9							8 H	300	0.0 G	0.12	77		21 L
9573-2	26 VL	125	2 VL	10										0.03	37		28 L

W VL = VERY LOW, L = LOW, M = MEDIUM, H = HIGH, VH = VERY HIGH, G = GOOD, MA = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
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The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15280-10104
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15280-10104

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: NW 1-14-21

Reported Date: **Printed Date:**2015-10-09

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
9572-1	NW 1-14-21	6	02481	4.3	6 VL	9 VL	166 M	475 H	3310 H	7.2		22.0	1.9	18.0	75.3	4.5	0.3
9572-2	NW 1-14-21	22	02482	2.0			67 L	700 H	5660 H	8.2		34.3	0.5	17.0	82.5		0.2

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
9572-1	13 VL	23	4 VL	7							6 G	204	0.0 G	0.11	55		13 VL
9572-2	12 VL	58	1 VL	5										0.03	32		16 VL

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
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The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15280-10096
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15280-10096

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: WEST

Reported Date: **Printed Date:**2015-10-09

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
9577-1	S 27-14-21	6	02465	5.1	21 M	26 L	331 VH	550 H	3460 H	7.3		22.8	3.7	20.1	76.0		0.5
9577-2	S 27-14-21	20	02466	2.2			53 VL	865 H	7200 H	8.5		43.4	0.3	16.6	82.9		0.4

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
9577-1	15 VL	27	9 L	16							2 L	187	0.0 G	0.18	64		24 L
9577-2	26 VL	109	3 VL	13										0.02	34		40 L

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

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The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15280-10097
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15280-10097

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: WEST

Reported Date: **Printed Date:**2015-10-09

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
9578-1	S 27-14-21	6	02467	7.1	32 M	57 G	414 VH	495 H	3790 H	7.7		24.2	4.4	17.0	78.3		0.5
9578-2	S 27-14-21	20	02468	2.9			119 M	655 M	7200 VH	8.4		41.9	0.7	13.0	86.0		0.4

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
9578-1	16 VL	29	9 L	16							5 M	138	0.0 G	0.26	84		27 L
9578-2	12 VL	50	4 VL	17										0.05	41		40 L

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

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The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15294-10262
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15294-10262

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: SW 1-14-21

Reported Date: **Printed Date:**2015-10-23

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
10612-1	SW 1-14-21	6	30376	10.3	17 M	24 M	290 H	1070 H	7010 H	7.9		44.8	1.7	19.9	78.2		0.6
10612-2	SW 1-14-21	18	30377	2.5			87 L	1540 VH	7200 M	8.1		49.5	0.5	25.9	72.7		1.2

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
10612-1	140 VH	252	17 M	31							2 L	37	0.0 G	0.09	112		57 L
10612-2	993 VH	3575	3 VL	11										0.02	37		140 H

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

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The results of this report relate to the sample submitted and analyzed.

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Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15280-10103
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15280-10103

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: SW12-14-21

Reported Date: **Printed Date:**2015-10-09

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
9571-1	SW12-14-21	6	02479	4.1	9 L	11 L	399 VH	405 L	5940 VH	8.3		34.1	3.0	9.9	87.0		0.2
9571-2	SW12-14-21	22	02480	2.0			246 H	985 H	7200 H	8.5		44.8	1.4	18.3	80.4		0.1

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
9571-1	33 VL	59	8 L	14							1 VL	47	0.0 G	0.30	53		15 VL
9571-2	11 VL	53	2 VL	10										0.08	32		15 VL

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

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The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15272-10312
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15272-10312

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.
PO BOX 910

Field: ESPEY'S

Reported Date:2015-10-02 **Printed Date:**2015-10-02

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
9320-1	NW 23-14-21	6	59982	5.2	15 M	24 M	251 H	585 H	4910 H	8.0		30.1	2.1	16.2	81.5		0.4
9320-2	NW 23-14-21	24	59983	3.0			108 L	985 H	7200 H	8.0		44.6	0.6	18.4	80.7		0.5

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
9320-1	27 VL	49	10 M	18							2 L	142	0.0 G	0.13	65		30 L
9320-2	453 VH	2446	4 VL	22										0.03	42		49 L

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
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The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C15266-10008
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C15266-10008

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: VERBRUGGEN FARMS LTD.

Field: WV 23 SW

Reported Date: **Printed Date:**2015-09-25

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
1	SW 23-14-21	6	52239	6.1	20 M	31 M	517 VH	825 H	4270 M	7.5		29.6	4.5	23.2	72.1		0.5
2	SW 23-14-21	24	52240	2.4			297 H	1205 VH	5040 M	8.1		36.1	2.1	27.8	69.9		0.5

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
1	127 VH	229	13 M	23							16 H	257	0.0 G	0.19	74		35 L
2	56 VL	302	4 VL	22										0.08	36		43 L

W VL = VERY LOW, L = LOW, M = MEDIUM, H = HIGH, VH = VERY HIGH, G = GOOD, MA = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
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The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

Results Authorized By: **Ian McLachlin, Vice President**

No guarantee or warranty concerning crop performance is made by A & L.

Report Number: C16125-10072
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C16125-10072

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: WIM VERBRUGGEN

Field: NE 23-14-21

Reported Date: **Printed Date:** May 6, 2016

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
RL23NE-A		6	15758	5.6	18 L	24 L	284 VH	540 H	3500 M	7.1		25.0	2.9	18.0	70.0	8.9	0.2
RL23NE-B		24	15759	2.5			147 M	745 H	3850 M	7.6		25.8	1.5	24.0	74.5		0.3

Sample Number	Sulfur S ppm		Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm		Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
RL23NE-A	13	VL	23	9	L	16							13 H	223	0.0 G	0.16	69		14 VL
RL23NE-B	12	VL	65	4	VL	22										0.06	37		18 VL

W VL = VERY LOW, L = LOW, M = MEDIUM, H = HIGH, VH = VERY HIGH, G = GOOD, MA = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
* If this report contains soil in excess of 7500 ppm Ca it may or may not effect the calculated Cation Exchange Capacity. Excessive seed placed fertilizer can cause injury.

The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

No guarantee or warranty concerning crop performance is made by A & L.

Results Authorized By: **Ian McLachlin, Vice President**

Report Number: C16125-10071
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C16125-10071

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: WIM VERBRUGGEN

Field: SE 23-14-21

Reported Date: **Printed Date:** May 6, 2016

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
RL23SE-A		6	15756	4.5	12 L	18 VL	132 M	325 M	3430 H	7.8		20.2	1.7	13.4	84.8		0.4
RL23SE-B		24	15757	2.3			79 L	700 M	6910 VH	8.2		40.6	0.5	14.4	85.1		0.2

Sample Number	Sulfur S ppm		Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm		Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
RL23SE-A	8	VL	14	7	L	13							1 VL	377	0.0 G	0.13	57		17 L
RL23SE-B	14	VL	76	3	VL	16										0.03	35		18 VL

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
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The results of this report relate to the sample submitted and analyzed.

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No guarantee or warranty concerning crop performance is made by A & L.

Results Authorized By: **Ian McLachlin, Vice President**

Report Number: C16125-10074
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C16125-10074

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: WIM VERBRUGGEN

Field: SE 24-14-21

Reported Date: **Printed Date:** May 6, 2016

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
RL24SE-A		6	15762	4.4	7 VL	10 VL	136 M	700 H	3920 H	7.6		25.8	1.4	22.6	76.1		0.2
RL24SE-B		24	15763	2.1			62 L	965 H	6670 H	8.3		41.5	0.4	19.4	80.3		0.2

Sample Number	Sulfur S ppm	Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm	Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
RL24SE-A	11 VL	20	9 L	16							1 VL	171	0.0 G	0.06	56		14 VL
RL24SE-B	17 VL	92	3 VL	16										0.02	33		21 VL

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
* If this report contains soil in excess of 7500 ppm Ca it may or may not effect the calculated Cation Exchange Capacity. Excessive seed placed fertilizer can cause injury.

The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

No guarantee or warranty concerning crop performance is made by A & L.

Results Authorized By: **Ian McLachlin, Vice President**

Report Number: C16125-10073
Account Number: 98019

A & L Canada Laboratories Inc.

2136 Jetstream Road, London, Ontario, N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C16125-10073

To: REDFERN FARM SERVICES
PO BOX 489
101 SECOND AVE
RIVERS, MB R0K 1X0
Attn: CRAIG ALLISON
204-328-7408

For: WIM VERBRUGGEN

Field: SW 24-14-21

Reported Date: **Printed Date:** May 6, 2016

SOIL TEST REPORT

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
RL24SW-A		6	15760	5.0	11 L	16 VL	210 H	660 H	3310 M	7.2		23.7	2.3	23.2	69.8	4.5	0.2
RL24SW-B		24	15761	2.1			100 L	965 H	5020 H	8.0		33.4	0.8	24.1	75.2		0.2

Sample Number	Sulfur S ppm		lbs/ac	Nitrate Nitrogen NO3-N ppm		lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
RL24SW-A	11	VL	20	11	M	20							5 M	433	0.0 G	0.10	63		12 VL
RL24SW-B	12	VL	65	5	L	27										0.03	33		17 VL

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SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
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The results of this report relate to the sample submitted and analyzed.

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No guarantee or warranty concerning crop performance is made by A & L.

Results Authorized By: **Ian McLachlin, Vice President**

In "*certain areas"* it is Manitoba Conservation and Water Stewardship policy to consider a manure storage facility permit if the operation shows it has access to sufficient suitable land to apply manure at a rate equivalent to one times the crop removal rate of phosphorus.

Is the livestock operation located in "*certain areas"*?
☐ yes ☒ no

In areas which are not considered to be "*certain areas*", Manitoba Conservation and Water Stewardship may issue a manure storage facility permit, if the operation shows it has access to sufficient suitable land to apply manure at a rate equivalent to two times the crop removal rate of phosphorus.

For more information on obtaining a manure storage facility permit, please contact Manitoba Conservation and Water Stewardship, Environmental Approvals branch at (204) 945-5081.

Use the **Land Base Calculator** to calculate the minimum area required for manure application.

Total minimum area required for manure application at two times crop removal, for operations outside of Hanover and La Broquerie	1,302
Total minimum area required for manure application at one times crop removal, for operations within Hanover and La Broquerie AND For the long-term sustainability of operations outside of Hanover and La Broquerie	2,232

For more information on completing land base calculations, call Manitoba Agriculture, Food and Rural Initiatives (MAFRI) at (204) 945-3869 in Winnipeg.

☒ Land Base Calculator attached

Land Base Requirement Summary

By comparing the land **available** for manure application with the land **required** for manure application, state whether sufficient suitable land for manure application:

☐ has not been identified

☐ has been identified for two times the crop removal rate of phosphorus (for operations outside of the RMs of Hanover or La Broquerie)

☒ has been identified for one time the crop removal rate of phosphorus (for Pig Production Special Pilot Project)

Pig/Operation Type	Storage Type	Volatilization	Animal Numbers (Places)	Weight In (lb)	Weight Out (lb)	Average Animal Wt (lb)	Days on Feed per Cycle (days)	Number of Cycles for the Place per Year (days)	Feed Consumed Per Pig Per Day (kg/day)	Protein %	N Excreted Per Herd Adjusted for Storage N (lb/yr/herd)	Phosphorus Content of Feed (DM) %	P2O5 Excreted Per Herd Per Year (lb/yr/herd)
Gestating Sow	Liquid Uncovered Earthen	30%		447	630	539	121	3	2.3	14%	0	0.53%	0
Nursing Sow	Liquid Uncovered Earthen	30%		539	539	539	21	15.2	6.5	20%	0	0.63%	0
Nursing Litter	Liquid Uncovered Earthen	30%		3.1	13.6	8	21	15.2	0	n/a	0	n/a	0
Live Cull Sow	Liquid Uncovered Earthen	30%		630	630	630	14	26.1	2.3	14%	0	0.46%	0
Bred Gilt	Liquid Uncovered Earthen	30%		340	447	394	121	3	2.3	14%	0	0.53%	0
Gilts (Purchased)	Liquid Uncovered Earthen	30%		290	340	315	28	13.0	3.2	16%	0	0.46%	0
Boars (Purchased)	Liquid Uncovered Earthen	30%		270	660	465	365	1	2.5	14%	0	0.46%	0
Weanlings	Liquid Uncovered Earthen	30%		13.6	61.6	38	52	6.9	0.7	20%	0	0.64%	0
Growers/Finishers	Liquid Uncovered Earthen	30%	6000	61.6	280	171	112	3	2.8	16%	155456	0.46%	76806
Sows, farrow to 6.2 kg	Liquid Uncovered Earthen	30%		n/a	n/a	n/a	365	1	n/a	n/a	0	n/a	0
Sows, farrow to 28 kg	Liquid Uncovered Earthen	30%		n/a	n/a	n/a	365	1	n/a	n/a	0	n/a	0
Sows, farrow to finish	Liquid Uncovered Earthen	30%		n/a	n/a	n/a	365	1	n/a	n/a	0	n/a	0

Last Revised April 13, 2016

Crop	Removal P2O5	Removal N	Uptake N	Units	Yield	Units	Acreage	Removal P2O5 (lb)	Removal N (lb)	Uptake N (lb)
Alfalfa	13.8	58	58	lb/ton		ton/ac		-	-	-
Barley Grain	0.42	0.97	1.39	lb/bu	67.6	bu/ac	264	7495	17311	24806
Barley Silage	11.8	34.4	34.4	lb/ton		ton/ac		-	-	-
Canola	1.04	1.93	3.19	lb/bu	37.42	bu/ac	1010	39306	72943	120563
Corn Grain	0.44	0.97	1.53	lb/bu		bu/ac		-	-	-
Corn Silage	12.7	31.2	31.2	lb/ton		tons/ac		-	-	-
Dry Edible Beans	1.39	4.17		lb/cwt		cwt/ac		-	-	-
Fababeans	1.79	5.02	8.4	lb/cwt		cwt/ac		-	-	-
Flax	0.65	2.13	2.88	lb/bu		bu/ac		-	-	-
Grass Hay	10	34.2	34.2	lb/ton		tons/ac		-	-	-
Lentils	1.03	3.39	5.08	lb/cwt		cwt/ac		-	-	-
Oats	0.26	0.62	1.07	lb/bu		bu/ac		-	-	-
Pasture (grazed)	10	34.2	34.2	lb/ton	0.5	ton/ac		-	-	-
Peas	0.69	2.34	3.06	lb/bu		bu/ac		-	-	-
Potatoes	0.09	0.32	0.57	lb/cwt		cwt/ac		-	-	-
Rye	0.45	1.06	1.67	lb/bu		bu/ac		-	-	-
Soybeans	0.84	3.87	5.2	lb/bu	34.6	bu/ac	170.9	4967	22884	30748
Sunflower	1.1	2.8		lb/cwt		cwt/ac		-	-	-
Wheat - Spring	0.59	1.5	2.11	lb/bu	54.86	bu/ac	1010	32691	83113	116912
Wheat - Winter	0.51	1.04	1.35	lb/bu		bu/ac		-	-	-
						Sub Total	2454.9	84460	196251	293030
						Estimated Average Removal/Uptake (lb/ac)		34.4	79.9	119.4
						Additional Acres				
						Crop Planned on Additional Acres				
						Total Acreage	2454.9			

Note: Additional acres include acres for which crop removal or soil data is limited or unavailable.

Last revised August 20, 2014

Species	Animal Category/Operation type	N (lb/year)	P2O5 (lb/year)
Pigs	Gestating Sow	0	0
	Nursing Sow	0	0
	Nursing Litter	0	0
	Live Cull Sows	0	0
	Bred Gilts	0	0
	Gilts	0	0
	Boars	0	0
	Weanlings	0	0
	Growers/finishers	155456	76806
	Sows, farrow to 5 kg	0	0
	Sows, farrow to 23 kg	0	0
	Sows, farrow to finish	0	0
Beef	Mature Cows (>2 years old)	0	0
	Bred Heifer (14 mo - 2 years)	0	0
	Replacement Heifers (7 mo-14 mo)	0	0
	Unweaned Calves (0-7 mo)	0	0
	Bulls	0	0
	Mature Cows and Bred Heifers, plus associated livestock	0	0
	Feedlot Cattle - long keep	0	0
	Feedlot Cattle - short keep	0	0
	Backgrounders - pasture	0	0
	Backgrounders - confined	0	0
Dairy	Lactating cow	0	0
	Dry cow	0	0
	Calf, 0-3 months	0	0
	Calf, 4-13 months	0	0
	Replacements, >13 months	0	0
	Mature Cows, plus assoc livestock	0	0
Sheep	Ewes	0	0
	Replacement Ewes	0	0
	Rams	0	0
	Lambs	0	0
	Ewes, plus assoc livestock	0	0
	Feeder	0	0
Chickens	Broilers	0	0
	Broiler Breeder Pullets	0	0
	Broiler Breeder Hens	0	0
Layers	Layer Pullets	0	0
	Layer Hens	0	0
	Breeder Pullets	0	0
	Breeder Hens	0	0
Turkeys	Broiler Hens (0-9 wks)	0	0
	Hens (0-11 wks)	0	0
	Heavy Hens (0-14 wks)	0	0
	Light Toms (0-12 wks)	0	0
	Toms (0-13 wks)	0	0
	Heavy Toms (0-15 wks)	0	0
	Breeding Hen Growers (0-30 wks)	0	0
	Breeding Hens (30-60 wks)	0	0
	Breeding Tom Grower (0-18 wks)	0	0
	Breeding Tom Grower (0-30 wks)	0	0
	Breeding Tom (30-60 wks)	0	0
	Total	**155456**	**76806**

Note: Be sure all livestock species on your farm are represented in this table, not just the livestock in the proposed expansion.

Nutrients Excreted	lbs
Nitrogen	155456
P2O5	76806
Crop Nutrient Use	**lb/ac**
Nitrogen Uptake	119.4
P2O5 Removal	34.4
Land Base Requirements	**acres**
Acres for Nitrogen Uptake	**1302**
Acres for 2 x P2O5 Removal	**1116**
Acres for 1 x P2O5 Removal	**2232**

Wim Verbruggen Crop Insurance Records

Canola

Year	Acres	Yield	not seeded	Bushels
2015	130	45		5850
2013	130	48		6240
2011	120	28	10	3360
2015	140	45		6300
2013	140	48		6720
2011	140	28		3920
2015	50	45		2250
2013	150	48		7200
2011	140	28	10	3920
2015	140	45		6300
2013	140	48		6720
2011	130	28	10	3640
2014	145	39	5	5655
2012	150	37		5550
2014	95	39	5	3705
2012	100	37		3700
2014	130	34		4420
2012	130	41		5330
2014	130	34	5	4420
2013	135	41		5535
2014	65	34		2210
2012	65	41		2665
2011	65	30		1950
2014	130	36	20	4680
2014	120	36	10	4320
2015	65	44		2860
2015	80	44		3520
2013	145	37		5365
2011	100	30	30	3000
2015	150	44		6600
2013	150	37		5550
2011	120	30	30	3600
2015	110	45		4950
2013	110	36		3960
2015	110	45		4950
2013	110	36		3960
	4260		135	164875

Total Acres	4395
Weighted Yield	37.51

RSW

Year	Acres	Yield	not seeded	Bushels
2015	100	66	0	6600
2015	145	66		9570
2014	125	55	5	6875
2014	125	55	5	6875
2014	145	55	5	7975
2013	150	67		10050
2013	100	67		6700
2015	130	66		8580
2011	130	38		4940
2015	85	66		5610
2011	125	38	10	4750
2015	65	66		4290
2013	65	54		3510
2015	150	66		9900
2015	130	66		8580
2014	135	57	10	7695
2012	140	55		7700
2014	140	57	10	7980
2012	150	55		8250
	2335		45	136430.0

Total Acres	2380
Weighted Yield	57.32

Barley

Year	Acres	Yield	not seeded	Bushels
2015	30	64	0	1920.0
2015	125	64		8000.0
2011	140	76	10	10640.0
2015	100	51		5100.0
2011	90	76	5	6840.0
2014	105	77	5	8085.0
2014	105	77	5	8085.0
	695		25	48670.0

Total Acres	720
Weighted Yield	67.60

Feed Wheat

Year	Acres	Yield	not seeded	Bushels
2012	130	49		6370.0
2014	130	64	10	8320.0
2012	70	49		3430.0
2012	50	49		2450.0
2012	100	49		4900.0
2014	135	64	5	8640.0
2015	150	51		7650.0
2013	130	72		9360.0
2013	135	72		9720.0
	1030		15	60840.0

Total Acres	1045
Weighted Yield	58.22

Soybeans

Year	Acres	Yield	not seeded	Weighted Yld
2015	100	34		34
				34

WW

Year	Acres	Yield	not seeded	Bushels
2012	70	44	0	3080
2012	140	44	0	6160
	210		0	9240

Total Acres	210
Weighted Yield	44.00

	Crop Ins. Soil Zone B, Risk Area 6	Crop Ins. Wim's Records	Weighted Yield for wheat and canola considering agreement land
Canola	37.1	37.51	37.42
Wheat	45.6	57.32	54.86
Barley	64.3	67.6	
Soybean	34.6	34	

Based on the fact the Wim only has one year of crop insurance data soybeans the Crop Insuance area data has been used for the area.

Portion using Crop Ins. Data	425.4
Portion using Wim Data	2029.6
	21.0%

mmpp.com Benchmarks for Better Farm Management

Web address: http://www.mmpp.com/mmpp.nsf/mmpp_browser_fertilizer.html

MMPP Fertilizer Data Browser - (Query Help)

Save Raw Data | New Search

Search Summary

Your selected search:

Region(s) Selected: RISK AREA 06

Crop(s) Selected: SOYBEANS

Soil Zone(s) Selected: SOIL TYPE B

Period Selected: 2006 to 2015

This search returned 2 records from the MASC database, summarized below:

Total Acres:	**4,729 acres**	
Yield per Acre:	**34.6 Bushels / acre**	(0.942 tonnes / acre)

Fertilizer Applied per Acre (actual product):

Nitrogen:	**4.7 lbs / acre**	(0.002 tonnes / acre)
Phosphorus:	**29.1 lbs / acre**	(0.013 tonnes / acre)
Potassium:	**2.8 lbs / acre**	(0.001 tonnes / acre)
Sulfur:	**6.3 lbs / acre**	(0.003 tonnes / acre)

View Raw Data

Save Raw Data | New Search

Canada MASC Manitoba

Ag. Contract Name

13 603027 VERBRUGGEN FARMS LTD JANUARY 22, 2016

CROP	VARIETY	DATE SEEDED	ACRES	YLD./ACRE FLD.	YLD./ACRE AREA AVG.	FERTILIZER N	FERTILIZER P	FERTILIZER K	FERTILIZER S
NW 19-14-20 W B06									
2015 RED SPRING WHEAT	CARDALE	05/MAY	100	66	48	90	40		10
BARLEY	CHAMPION	27/MAY	30	64	73	80	30		10
SW 19-14-20 W B06									
2015 RED SPRING WHEAT	CARDALE	04/MAY	145	66	48	90	40		10
SW 30-14-20 W B06									
2015 BARLEY	CHAMPION	27/MAY	125	64	73	80	30		10
NE 01-14-21 W B06									
2015 ARGENTINE CANOLA	1012 RR <NEXERA>	03/JUN	130	45	44	100	40		25
2014 RED SPRING WHEAT	CARDALE	25/MAY	125	55	45	75	30		10
TOO WET TO SEED			5						
2013 ARGENTINE CANOLA	VT 500 G <PROVEN> |9	23/MAY	130	48	46	160	30		25
2012 FEED WHEAT	WFT 409	30/APR	130	49	55	70	25		10
2011 ARGENTINE CANOLA	5440 <INVIGOR> |PHS0	26/MAY	120	28	27	110	30		20
TOO WET TO SEED			10						
NW 01-14-21 W B06									
2015 ARGENTINE CANOLA	1012 RR <NEXERA>	02/JUN	140	45	44	100	40		25
2014 FEED WHEAT	PASTEUR	18/MAY	130	64	53				
TOO WET TO SEED			10						
2013 ARGENTINE CANOLA	VT 500 G <PROVEN> |9	22/MAY	140	48	46	160	30		25
2012 FEED WHEAT	WFT 409	28/APR	70	49	55	70	25		10
WINTER WHEAT	NO VAR	12/SEP	70	44	59	70	20		8
2011 ARGENTINE CANOLA	5440 <INVIGOR> |PHS0	25/MAY	140	28	27	110	30		20
SW 01-14-21 W B06									
2015 ARGENTINE CANOLA	1012 RR <NEXERA>	02/JUN	50	45	44	100	40		25
SOYBEANS	PEKKO R2 <BRETT YOUN	25/MAY	100	34	38	5	15		5
2014 RED SPRING WHEAT	CARDALE	24/MAY	145	55	45	75	30		10
TOO WET TO SEED			5						
2013 ARGENTINE CANOLA	VT 500 G <PROVEN> |9	22/MAY	150	48	46	160	30		25
2012 FEED WHEAT	WFT 409	27/APR	50	49	55	70	25		10
FEED WHEAT	PASTEUR	26/APR	100	49	55	70	25		10
2011 ARGENTINE CANOLA	5440 <INVIGOR> |PHS0	25/MAY	140	28	27	110	30		20
TOO WET TO SEED			10						
SW 12-14-21 W B06									
2015 ARGENTINE CANOLA	1012 RR <NEXERA>	02/JUN	140	45	44	100	40		25
2014 FEED WHEAT	PASTEUR	17/MAY	135	64	53				
TOO WET TO SEED			5						
2013 ARGENTINE CANOLA	VT 500 G <PROVEN> |9	21/MAY	140	48	46	160	30		25
2012 WINTER WHEAT	NO VAR	11/SEP	140	44	59	70	20		8
2011 ARGENTINE CANOLA	5440 <INVIGOR> |PHS0	24/MAY	130	28	27	110	30		20
TOO WET TO SEED			10						
NW 13-14-21 W C06									
2015 FEED WHEAT	PASTEUR	29/APR	150	51	59				
2014 ARGENTINE CANOLA	VT 500 G <PROVEN> |9	29/MAY	145	39	37	85	30		25
TOO WET TO SEED			5						
2013 RED SPRING WHEAT	5602HR	17/MAY	150	67	66	90	15		10
2012 ARGENTINE CANOLA	1012 RR <NEXERA>	19/MAY	150	37	33	130	30		15
2011 BARLEY	CONLON	17/MAY	140	76	32	50	15		10
TOO WET TO SEED			10						
SW 13-14-21 W C06									
2015 FEED WHEAT	PASTEUR	30/APR	100	51	59				
2014 ARGENTINE CANOLA	VT 500 G <PROVEN> |9	29/MAY	95	39	37	85	30		25
TOO WET TO SEED			5						
2013 RED SPRING WHEAT	5602HR	18/MAY	100	67	66	90	15		10
2012 ARGENTINE CANOLA	1012 RR <NEXERA>	20/MAY	100	37	33	130	30		15
2011 BARLEY	CONLON	18/MAY	90	76	32	50	15		10
TOO WET TO SEED			5						
NE 22-14-21 W B06									
2015 RED SPRING WHEAT	CARDALE	01/MAY	130	66	48	80	30		10
2014 ARGENTINE CANOLA	L154 <INVIGOR>	03/JUN	130	34	36	80	20		25

Yields are in imperial units (bushels, pounds, cwt or tons).

The yields shown are based on information received to date and are subject to change.

Ag. Contract Name

13 603027 VERBRUGGEN FARMS LTD

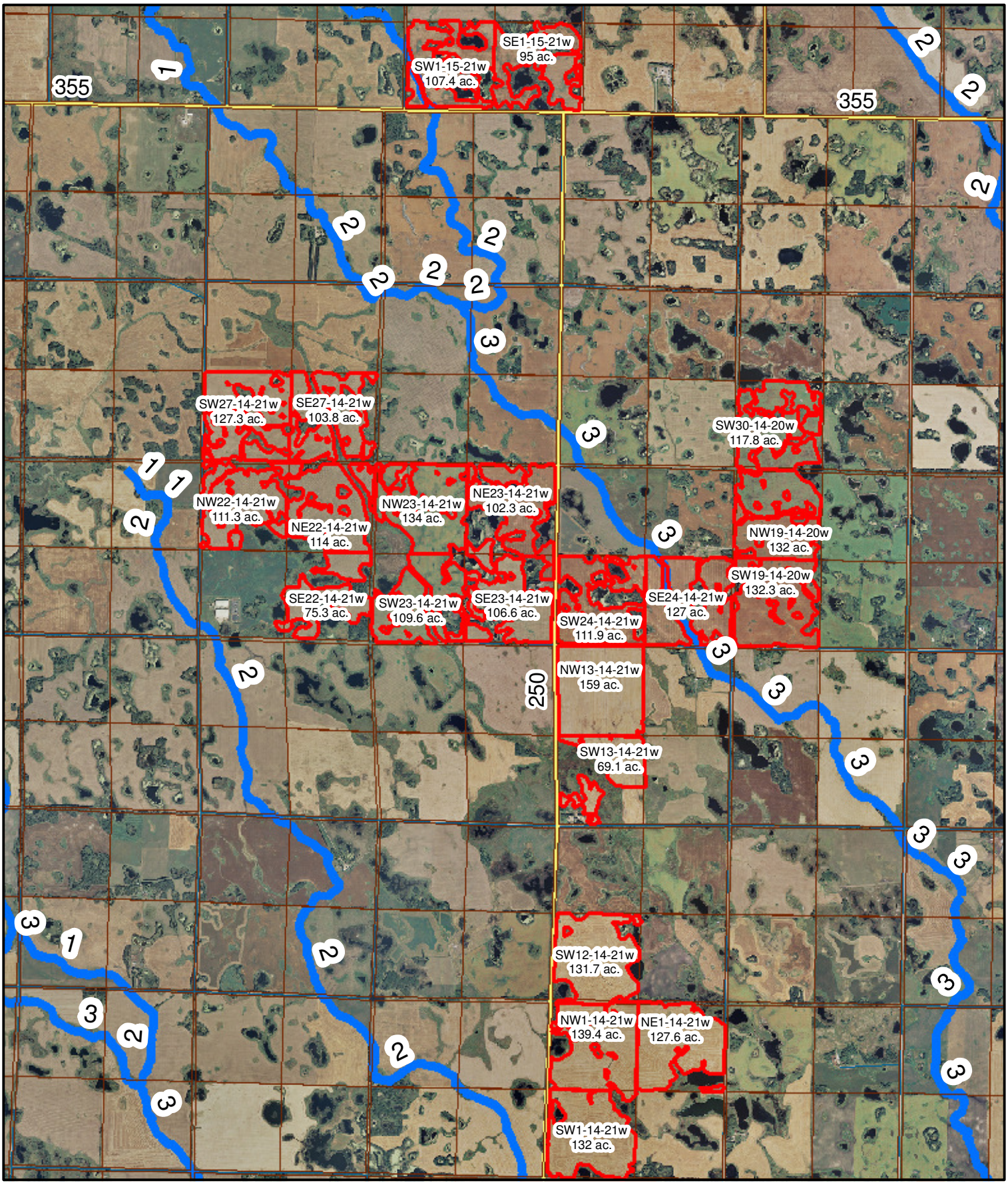
JANUARY 22, 2016

CROP	VARIETY	DATE SEEDED	ACRES	YLD./ACRE FLD.	YLD./ACRE AREA AVG.	FERTILIZER N	FERTILIZER P	FERTILIZER K	FERTILIZER S
NE 22-14-21 W B06									
2013 FEED WHEAT	PASTEUR	15/MAY	130	72	79	100	15		10
2012 ARGENTINE CANOLA	VT 500 G <PROVEN> |9	22/MAY	130	41	33	130	40		15
2011 RED SPRING WHEAT	5602HR	19/MAY	130	38	40	60	15		10
NW 22-14-21 W B06									
2015 RED SPRING WHEAT	CARDALE	01/MAY	85	66	48	80	30		10
2014 ARGENTINE CANOLA	L154 <INVIGOR>	07/JUN	130	34	36	80	20		25
TOO WET TO SEED			5						
2013 FEED WHEAT	PASTEUR	16/MAY	135	72	79	100	15		10
2012 ARGENTINE CANOLA	VT 500 G <PROVEN> |9	25/MAY	135	41	33	130	40		15
2011 RED SPRING WHEAT	5602HR	20/MAY	125	38	40	60	15		10
TOO WET TO SEED			10						
SE 22-14-21 W B06									
2015 RED SPRING WHEAT	CARDALE	02/MAY	65	66	48	80	30		10
2014 ARGENTINE CANOLA	L154 <INVIGOR>	02/JUN	65	34	36	80	20		25
2013 RED SPRING WHEAT	CARBERRY	15/MAY	65	54	67	100	15		10
2012 ARGENTINE CANOLA	VT 500 G <PROVEN> |9	24/MAY	65	41	33	130	40		15
2011 ARGENTINE CANOLA	1012 RR <NEXERA>	09/JUN	65	30	27	150	40	10	25
NW 23-14-21 W B06									
2015 RED SPRING WHEAT	CARDALE	06/MAY	150	66	48	90	40		10
2014 ARGENTINE CANOLA	D3153 <DUPONT>	04/JUN	130	36	36	90	40		25
TOO WET TO SEED			20						
SW 23-14-21 W B06									
2015 RED SPRING WHEAT	CARDALE	03/MAY	130	66	48	90	40		10
2014 ARGENTINE CANOLA	D3153 <DUPONT>	04/JUN	120	36	36	90	40		25
TOO WET TO SEED			10						
SE 27-14-21 W B06									
2015 ARGENTINE CANOLA	1990 <CANTERRA>	24/MAY	65	44	44	80	30		20
ARGENTINE CANOLA	VT 500 G <PROVEN> |9	26/MAY	80	44	44	80	30		20
2014 RED SPRING WHEAT	CARDALE	28/MAY	135	57	45	70	15		10
TOO WET TO SEED			10						
2013 ARGENTINE CANOLA	1012 RR <NEXERA>	27/MAY	145	37	46	100	15		25
2012 RED SPRING WHEAT	5603 HR	17/MAY	140	55	51	70	15		10
2011 ARGENTINE CANOLA	8440 <INVIGOR> |PHS0	08/JUN	100	30	27	150	40	10	25
TOO WET TO SEED			30						
SW 27-14-21 W B06									
2015 ARGENTINE CANOLA	1990 <CANTERRA>	23/MAY	150	44	44	80	30		20
2014 RED SPRING WHEAT	CARDALE	28/MAY	140	57	45	70	15		10
TOO WET TO SEED			10						
2013 ARGENTINE CANOLA	1012 RR <NEXERA>	27/MAY	150	37	46	100	15		25
2012 RED SPRING WHEAT	5603 HR	16/MAY	150	55	51	70	15		10
2011 ARGENTINE CANOLA	8440 <INVIGOR> |PHS0	08/JUN	120	30	27	150	40	10	25
TOO WET TO SEED			30						
SE 01-15-21 W B06									
2015 ARGENTINE CANOLA	1012 RR <NEXERA>	22/MAY	110	45	44	100	40		25
2014 BARLEY	NEWDALE	01/JUN	105	77	57	70	25		10
TOO WET TO SEED			5						
2013 ARGENTINE CANOLA	73-75 RR <DEKALB>	24/MAY	110	36	46	120	30		25
SW 01-15-21 W B06									
2015 ARGENTINE CANOLA	1012 RR <NEXERA>	21/MAY	110	45	44	100	40		25
2014 BARLEY	NEWDALE	01/JUN	105	77	57	70	25		10
TOO WET TO SEED			5						
2013 ARGENTINE CANOLA	73-75 RR <DEKALB>	24/MAY	110	36	46	120	30		25

Yields are in imperial units (bushels, pounds, cwt or tons).

The yields shown are based on information received to date and are subject to change.

Verbruggen Drains Map



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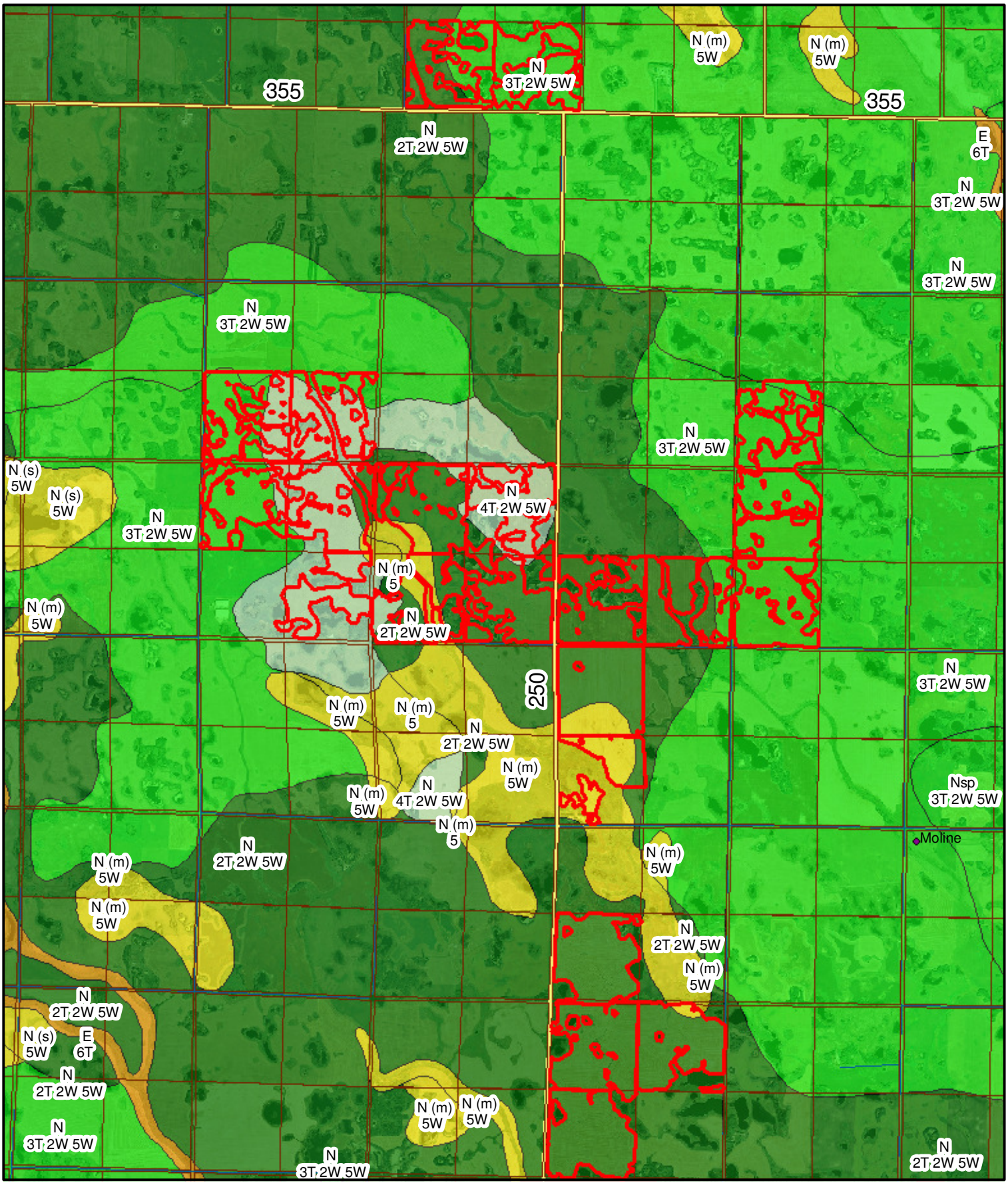
AGRA - GOLD Consulting Ltd.

Wim Verbruggen Ag. Capability Map



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0 0.375 0.75 1.5 2.25 3 Miles

AGRA - GOLD Consulting Ltd.

Wim Verruggen Crop Rotation and Acre Calculation

FieldName	Size	Outside Perimeter	Perimeter Setback	GPS Ac	Rotation				Crop Insurance Zone	Ag Capability		
					Canola	wheat	Barley	Soybeans		Best Soil	Limiting Soil	Acres
SW12-14-21w	131.7	14211.0	3.2	128.5	42.8	42.8	42.8		b	2t		
SW1-14-21w	132.0	13489.6	3.0	128.9	43.0	43.0	43.0		b	2t		
NW1-14-21w	139.4	19264.6	4.4	135.0	45.0	45.0		45.0	b	2t		
NE1-14-21w	127.6	15443.1	3.5	124.2	41.4	41.4		41.4	b	2t	5w	6.5
NW13-14-21w	159.0	11441.0	2.6	156.4	78.2	78.2			b	2t	5w	35
SW13-14-21w	69.1	15521.2	3.5	65.6	32.8	32.8			b	3t	5w	54
SW19-14-20w	132.3	21256.9	4.8	127.5	42.5	42.5		42.5	b	3t		
NW19-14-20w	132.0	26574.1	6.0	126.0	42.0	42.0		42.0	b	3t		
SW30-14-20w	117.8	28883.5	6.5	111.3	37.1	37.1	37.1		b	3t		
SW1-15-21w	107.4	28191.2	6.4	101.1	33.7	33.7	33.7		b	3t		
SW23-14-21w	109.6	26361.0	6.0	103.6	34.5	34.5	34.5		b	4t	5w	46
NW23-14-21w	134.0	22408.8	5.1	128.9	43.0	43.0	43.0		b	2t	5w	23
SW27-14-21w	127.3	33715.1	7.6	119.7	59.9	59.9			b	4t		
SE27-14-21w	103.9	27801.5	6.3	97.6	48.8	48.8			b	4t		
NE22-14-21w	114.0	22897.8	5.2	108.8	54.4	54.4			b	4t	5w	3
NW22-14-21w	111.3	26261.7	5.9	105.3	52.7	52.7			b	3t	4t	
SE22-14-21w	75.4	17389.6	3.9	71.4	35.7	35.7			b	4t	5	1
SE1-15-21w	95.0	23314.1	5.3	89.7	29.9	29.9	29.9		b	3t		
SE23-14-21w	106.6	23536.2	5.3	101.3	50.6	50.6			b	4t		
NE23-14-21w	102.3	25066.6	5.7	96.7	48.3	48.3			b	4t		
SW24-14-21w	111.9	26240.4	5.9	106.0	53.0	53.0			b	2t		
SE24-14-21w	127.0	24467.4	5.5	121.4	60.7	60.7			b	3t		
	2566.5		111.6	2454.9	1010.0	1010.0	264.0	170.9	2454.9			168.5

* Note: In calculating the available acres for spreading, the total perimeter of each spread field was measured and then a 3 meter setback from this perimeter was calculated.

Long-Term Environmental Sustainability

The Government of Manitoba has included phosphorus as a nutrient by which applications of manure, synthetic fertilizer and municipal waste sludge to agricultural lands may be limited.

Over the short-term for fields with low phosphorus, regulations allow manure to be applied to meet the nitrogen requirements of the crop. This often results in over-application of phosphorus and a build-up of phosphorus in soils. When soil test phosphorus levels reach 60 ppm Olsen P, manure application rates must consider how much phosphorus will be removed in the harvested portion of the crop. At 60 to 119 ppm Olsen P, the amount of phosphorus that can be applied cannot exceed twice (two times) what the crop can remove in order to slow the build-up of soil phosphorus. Once soil test phosphorus levels reach 120 ppm Olsen P, applications of phosphorus are restricted to no more than what the crop can remove (one times) in order to stop further soil test phosphorus build-up. At 180 ppm Olsen P, no additional phosphorus may be applied.

It should be noted that soil-test phosphorus levels of 60 ppm Olsen P or greater are agronomically very high and at these levels most crops will not benefit from additional phosphorus beyond starter phosphorus. As phosphorus levels build up in soils, the concentration of phosphorus in runoff increases.

Therefore, to remain environmentally sustainable over a long-term planning horizon of 25 years or more, phosphorus applications from applied manure and other nutrient sources such as commercial fertilizers must be balanced with crop removal to avoid further build-up in soils. Consequently, sufficient land must be available in relatively close proximity to the operation to balance phosphorus applications with crop phosphorus removals (one times) so that manure treatment and export of phosphorus from the region is not required.

☒ I acknowledge that up to 2232 acres/hectares (one times crop removal from table above) may be required for the long term environmental sustainability of the operation.

10.0 Mortalities (Dead Animal) Disposal

The **Livestock Manure and Mortalities Management Regulation** sets requirements for the use, management and storage of livestock mortalities in agricultural operations. It helps ensure livestock mortalities are handled in an environmentally sound manner. Winter application of composted mortalities is prohibited.

Type of disposal:
- [X] rendering
- [ ] composting
- [ ] incineration (in approved incinerator only)

Mass Mortalities

- [ ] A plan for **mass mortalities** is in place.

What steps will be taken in the case of mass mortalities?

MB Sustainable Development will be contacted to provide direction with respect to clean up activities and appropriate disposal land fill site. Incineration is a consideration subject to an approval from MB Sustainable Development.

11.0 Project Site Description: Land Use Planning Considerations

For assistance contact your **Community and Regional Planning Regional Office**.

Development Plan and Zoning Bylaw

The Planning District or Municipal Development Plan and Zoning By-law adopted under ***The Planning Act,*** set policy and regulations for the use and development of land. A proposed livestock operation must comply with the requirements of this bylaw. In the absence of a By-law, the **Provincial Planning Regulation** under ***The Planning Act*** applies.

Development Plan

Every Development Plan must contain a livestock operation policy (LOP) that identifies areas where new or expanded livestock operations may be allowed. It must also set general standards for the location and setback of livestock operations. Identifying the Development Plan's land use designation and policies (for the planning district or municipality that affect the site) will help confirm the project site's compliance. The Development Plan designations for the spread fields (if something other than agricultural) will indicate the potential loss of the fields in the future due to possible development.

Name of Planning District	Mid-West
Development Plan by-law number	No. 3-2009
Land use designation of project site	Rural Policy Area
Livestock operation policies – quote supportive policy numbers	Section 3.3.3
Other Development Plan policies – quote supportive policy numbers	
Non-supportive Development Plan policies	N/A

☒ The Development Plan livestock operation policies support the size and location of the proposed operation.

☒ The Development Plan designations support the long term use of the proposed spread fields.

Zoning By-law

Identifying the zoning for the project site, the proposed spread fields and the related zoning provisions, helps determine the project's compliance and the minimum separation distances needed between the operation and property boundaries and other natural features and land uses. The zoning bylaw contains specific regulations that govern location and setback of livestock operations.

What are the minimum project site requirements stated in the Zoning By-law?

	Project site dimensions	Minimum zoning bylaw site requirements
Minimum site area	320 acres	80 acres
Minimum site width	2,716 feet	1,000 feet
Minimum front yard	830 feet	125 feet
Minimum side and rear yard	side 350 feet; rear 3,415 feet	25 feet

If any project (front, side or rear) yard site dimensions are less than the Zoning By-law minimum, a Variation Order from the Municipality will be required.

Separation Distances (Zoning Bylaw or Provincial Planning Regulation)

Using the proposed size of the operation (see **Animal Units Calculation Table**) and the type of animal housing and manure storage facility, complete the following table.

Indicate the distance from:

a. earthen manure storage facility or b. feedlot and
c. animal confinement facility or d. non-earthen manure storage facility…

…to the following land use features (if applicable)	**Indicate minimum separation distance required in the zoning bylaw or Provincial Planning Regulation (Check appropriate box(es)**		**If land use feature is less than the minimum separation distance**	
	☒ a. ☐ b.	☐ c. ☐ d.	Provide actual distance	Provide location or name of feature (e.g. Red River)
Residence/ dwelling	750 m		938 m	NE 13-14-21 W
Designated area (non-agricultural)	2,400 m		8,300 m	Cardale to northwest
Surface water	100 m		115 m	pond to northeast
Surface watercourse	100 m		100 m	drain to west
Crown land			more than 1 mile	
Wildlife Management Area			more than 1 mile	
Livestock operation			more than 1 mile	SW 24-14-21 W NE 24-14-21 W
Other significant features/land uses				

If Crown Lands are located within one mile, provide coding. Information can be obtained from the Interdepartmental Operations Crown Lands Plans through the **Manitoba Legislative Library** or contact Manitoba Conservation and Water Stewardship at (204) 619-2230.

If undesignated Crown Lands will be used for manure spreading purposes, including the laying of pipe or clearing activity, and use will require a Crown Lands General Permit disposition for the use and access of the subject Crown Lands Parcel(s).

In cases where minimum separation distances are not stated in the Zoning By-law or Development Plan, the minimum separation distances in the **Provincial Planning Regulation** apply.

Note: If any separation distance is less than the zoning by-law minimum, a Variation Order will be required from the Municipality.

Setback Distances (Livestock Manure and Mortalities Management Regulation)
Using the following table to indicate the distance from:

Feature	Structure	Minimum setback distance required	Provide actual distance (m)	Provide location or name of feature (e.g. Red River)
Surface watercourse, sinkhole, spring, or well	Manure storage facility	100 m	100 m	drain to west
	Field storage	100 m	N/A	
	Composing site	100 m	N/A	
	Confined livestock area	100 m	N/A	
Property Line	Manure storage facility	100 m	107 m	to east
	Composing site	100 m	N/A	
	Confined livestock area	100 m	N/A	

If any setback distances have not been met, please provide explanation below:

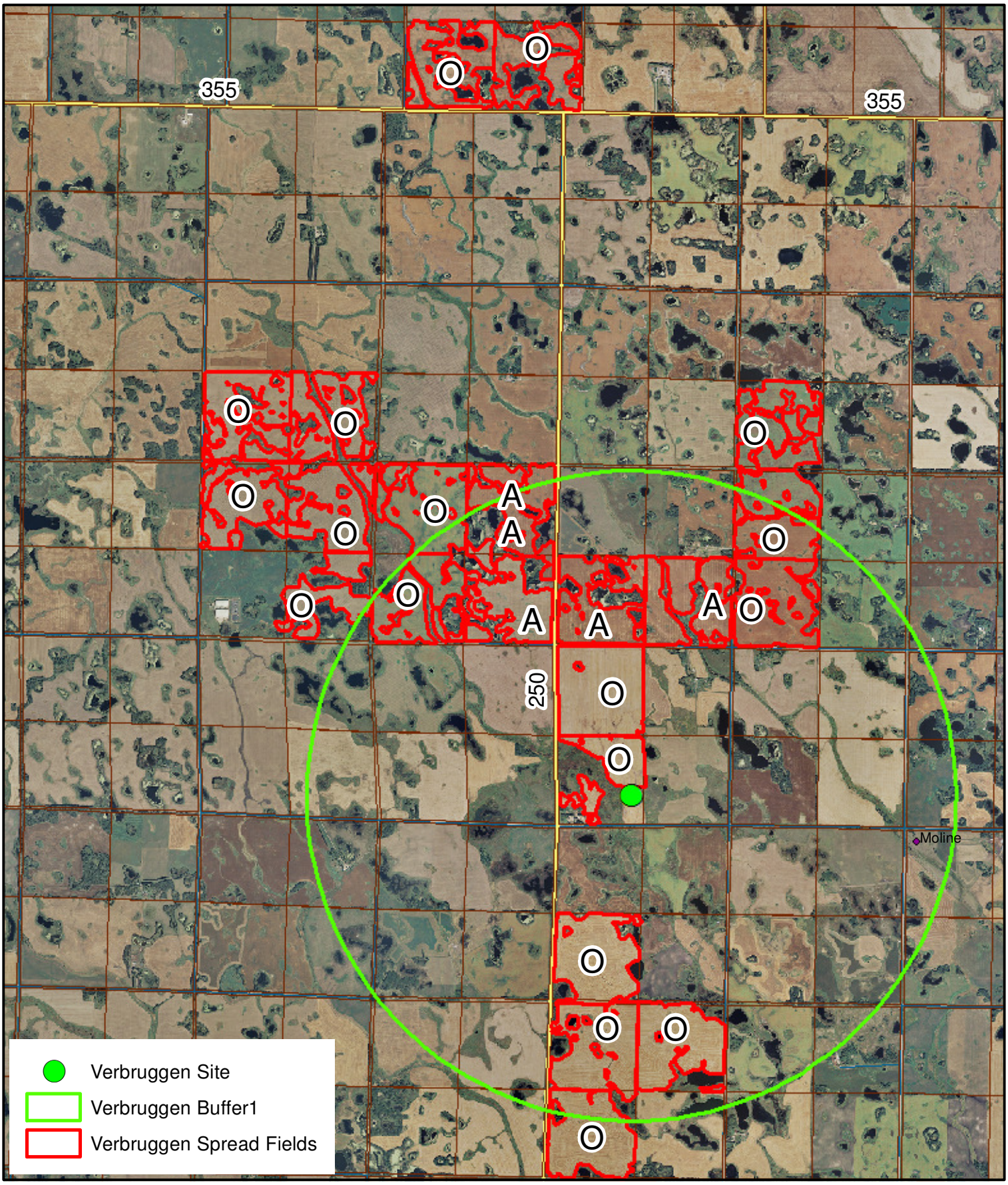
_____

_____

_____

Show: a) location of the project site, location and ownership of spread fields and b) land uses and significant features including dwellings (i) within a 1 mile radius of the project site and (ii) within and adjacent to each spread field on a Land Use & Spread Field Map. (See **Land Use & Spread Field Map Example**). ?

Verbruggen Land Use & Spread Field Map



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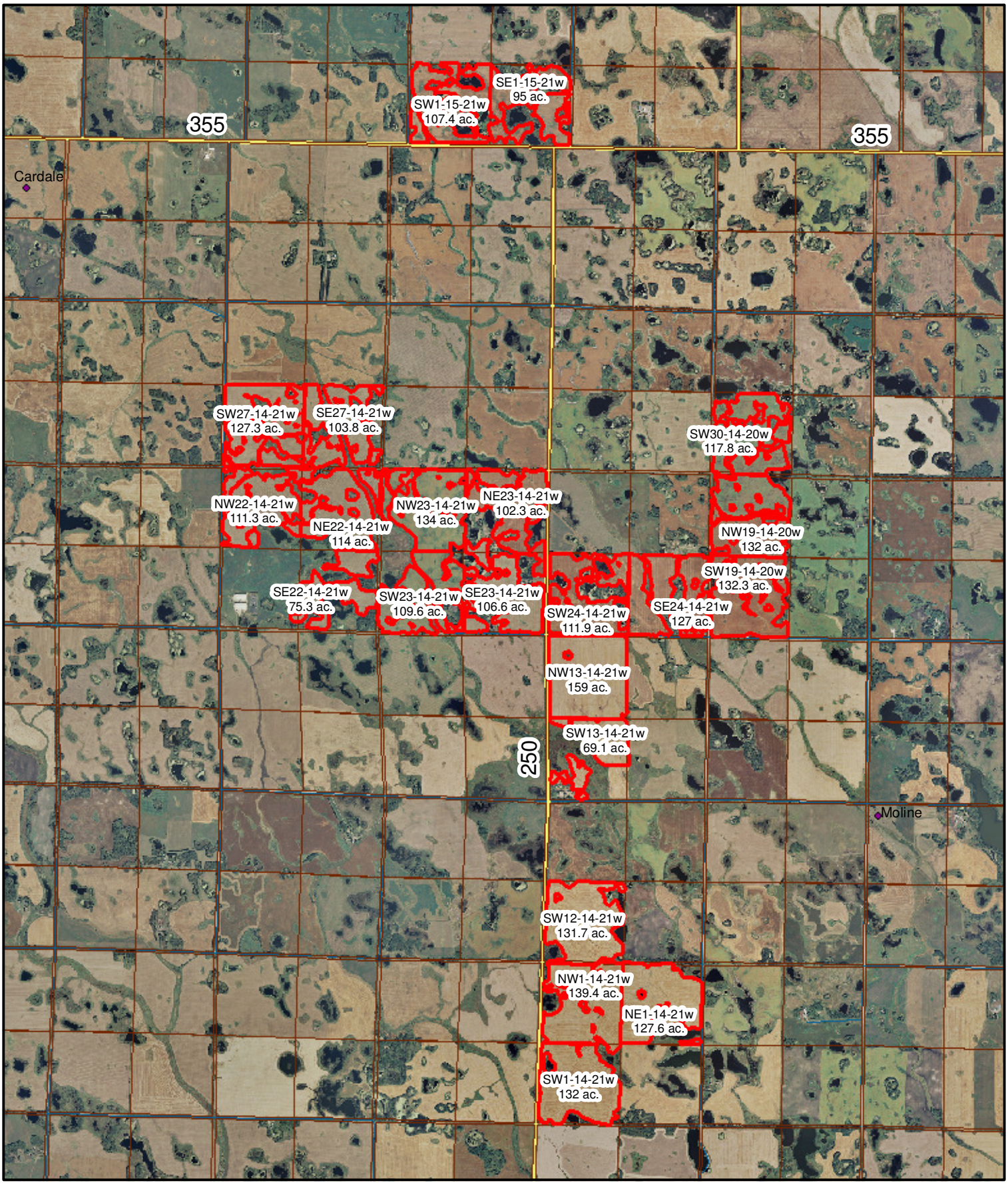
Wim Verbruggen Spread Acres



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AGRA - GOLD
Consulting Ltd.

12.0 Truck Haul Routes and Access Points

One consideration with new or expanding livestock operations is the potential impact on existing public roads (municipal and provincial), access and the need for improvements or mitigation. Complete the following table.

Vehicle Type	Estimated Average Number of times per day accessing		Access from PTH/PR onto site will mainly require a Left or Right Hand Turn Please check one				Access onto PTH/PR from site will mainly require a Left or Right Hand Turn Please check one			
	Provincial Trunk Highway (PTH)	Provincial Road (PR)	Provincial Trunk Highway (PTH)		Provincial Road (PR)		Provincial Trunk Highway (PTH)		Provincial Road (PR)	
			LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT
Truck				X		X	X		X	
Tractor Trailer										
Other – Specify										

Identify what roads and access points will be used for the proposed operation? (See **Truck Haul Routes and Access Points Map** for an example).

For help with mapping, contact your **Community and Regional Planning Regional Office**.

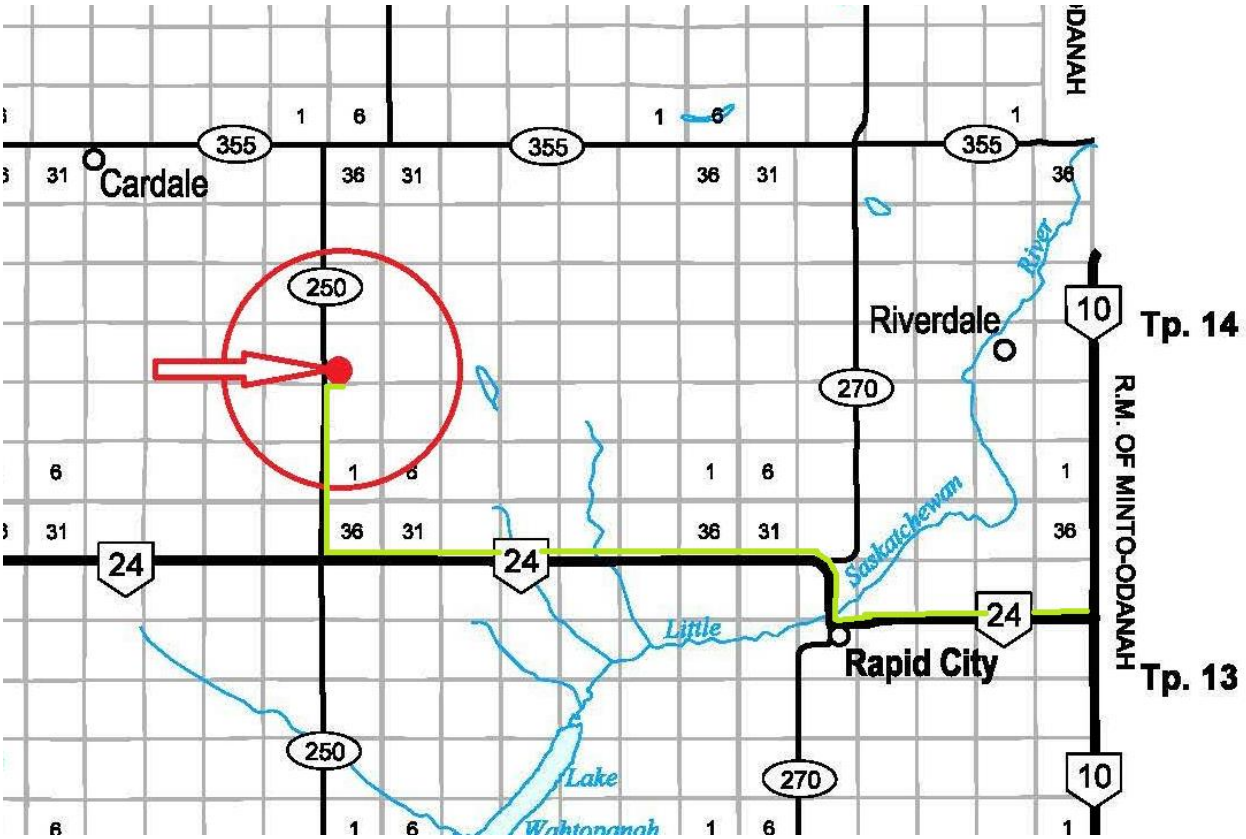
☒ Truck Haul Routes and Access Points Map attached

13.0 Conservation Data Centre Report

A Conservation Data Centre Report must be requested and the response attached to this site assessment. The request may be submitted electronically at:
www.gov.mb.ca/conservation/cdc

Were rare species identified in the Conservation Data Centre Report?

☐ Yes
☒ No



Truck Haul Routes and Access Map

SW 13-14-21 W
R.M. of Oakview

LEGEND:

Truck haul route

Chunhe Liu

From: Friesen, Chris (CWS) <Chris.Friesen@gov.mb.ca>
Sent: March-24-16 2:29 PM
To: Chunhe Liu
Subject: Verbruggen Prairie Farms 6000 feeder barn

Charles

Thank you for your information request. I completed a search of the Manitoba Conservation Data Centre's rare species database and found no occurrences at this time for your area of interest.

The information provided in this letter is based on existing data known to the Manitoba Conservation Data Centre at the time of the request. These data are dependent on the research and observations of CDC staff and others who have shared their data, and reflect our current state of knowledge. An absence of data in any particular geographic area does not necessarily mean that species or ecological communities of concern are not present; in many areas, comprehensive surveys have never been completed. Therefore, this information should be regarded neither as a final statement on the occurrence of any species of concern, nor as a substitute for on-site surveys for species as part of environmental assessments.

Because the Manitoba CDC's Biotics database is continually updated and because information requests are evaluated by type of action, any given response is only appropriate for its respective request. Please contact the Manitoba CDC for an update on this natural heritage information if more than six months pass before it is utilized.

Third party requests for products wholly or partially derived from Biotics must be approved by the Manitoba CDC before information is released. Once approved, the primary user will identify the Manitoba CDC as data contributors on any map or publication using Biotics data, as follows as: Data developed by the Manitoba Conservation Data Centre; Wildlife Branch, Manitoba Conservation and Water Stewardship.

This letter is for information purposes only - it does not constitute consent or approval of the proposed project or activity, nor does it negate the need for any permits or approvals required by the Province of Manitoba.

We would be interested in receiving a copy of the results of any field surveys that you may undertake, to update our database with the most current knowledge of the area.

If you have any questions or require further information please contact me directly at (204) 945-7747.

Chris Friesen
Coordinator
Manitoba Conservation Data Centre
204-945-7747
chris.friesen@gov.mb.ca
http://www.gov.mb.ca/conservation/cdc/

-----Original Message-----
From:
Sent: March-17-16 12:07 PM
To: Friesen, Chris (CWS)
Subject: WWW Form Submission

Below is the result of your feedback form. It was submitted by WWW Information Request () on Thursday, March 17, 2016 at 12:07:08

DocumentID: Manitoba_Conservation

Project Title: Verbruggen Prairie Farms 6000 feeder barn

Date Needed: 2016/04/01

Name: Charles Liu

Company/Organization: DGH Engineering Ltd.

Address: 12 Aviation Blvd.

City: St. Andrews

Province/State: Manitoba

Phone: 204-334-8846 ext. 214

Fax: 204-334-6965

Email: cliu@dghengineering.com

Project Description: a new proposed hog operation. the information is require by Livestock Technical Review Committee

Information Requested: A Conservation Data Centre Report

Format Requested: e-mail

Location: SW 13-14-21 W

action: Submit

14.0 Supporting Documents

Check off the supporting documents included in this submission:

- [X] Contact Information and Privacy and Publication Notice
- [X] Location Map (shows proposed project within rural municipality)
- [X] Animal Units Calculation Table
- [X] Water Requirement Calculation Table
- [X] Manure Production Calculator Table
- [X] Existing and Proposed Manure Storage Facility Dimensions Tables (if applicable)
- [X] Manure Application Field Characteristics Table
- [X] Crop Rotation Table
- [X] Recent manure application field soil sample results (Nitrate- N lb/ac at 0-6 and 6-24 inch depths, Phosphorus – ppm at 0-6 inch depth)
- [X] Land Base Calculator
- [X] Project Site Plan (proposed operation showing current and proposed structures)
- [X] Land Use and Spread Field Map (location and ownership of operation, spread fields, location and distance to non-agricultural uses, development plan designation, zoning for project site and spread fields)
- [X] Truck Haul Routes and Access Points Map (with routes and access points on municipal/provincial roads and/or provincial trunk highways)
- [X] Response from the Conservation Data Centre
- [ ] Other, please specify:

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15.0 Declaration

I do hereby verify that the information contained in the Site Assessment and all required Supporting Documents is accurate and complete to my knowledge

Date: June 1, 2016

Signature: _____