



TECHNICAL REVIEW COMMITTEE

**A TECHNICAL REVIEW REPORT
PREPARED FOR THE**

RM of MACDONALD

BOEKHORST POULTRY LTD.

SE 24-7-2 WPM

TRC 12-096

March 30, 2023

A. INTRODUCTION – THE TEAM

The Technical Review Committee (TRC) is supported by the following department personnel:

Agriculture (AGR)

- Agricultural Engineer
- Business Development Specialist
- Veterinarians
- Livestock Environment Specialist
- Nutrient Management Specialist

Natural Resources and Northern Development (NRND)

- Crown Lands Manager
- Fish Habitat Specialist
- Habitat Mitigation Biologist

Environment and Climate (EC)

- Environmental Engineer
- Environment Officer
- Water Rights Licensing Technologist
- Land-Water Specialist
- Groundwater Specialist

Manitoba Transportation and Infrastructure (MTI)

- Senior Development Review Technologist
- Senior Flood Protection Planning Officer

Municipal Relations (MR)

- Community Planners

And any other specialist or department that may have an interest, which may be consulted during the process.

THE TECHNICAL REVIEW COMMITTEE (TRC) REPORT

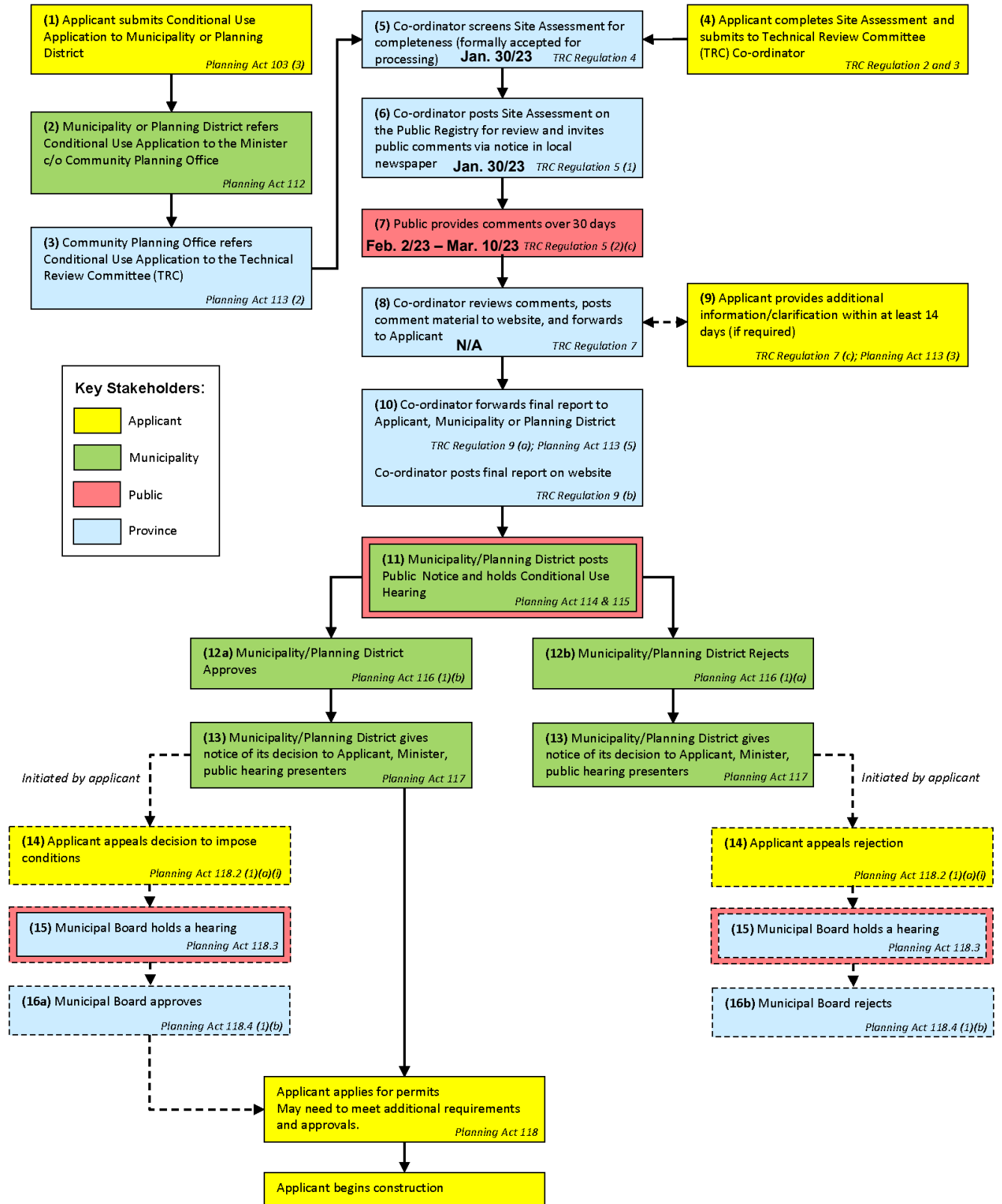
Purpose of TRC Reports

To provide objective, credible, technically-based assessments that:

- a) Enable municipal councils or planning districts to make informed Conditional Use Permit decisions;
- b) Create a common stakeholder understanding of a livestock proposal, potential impacts and related regulatory requirements and safeguards;
- c) Provide a vehicle/forum that enables the sharing of public concerns and proponent responses;
- d) Offer recommendations to both municipal councils, planning districts and proponents; and
- e) Represents the fulfillment of the TRC's role as per 116(1)(b)(i) of *The Planning Act* – to determine, based on available information, that the proposed operation will not create a risk to health, safety or the environment, or that any risk can be minimized through the use of appropriate practices, measure and safeguards.

Should the municipal council provide conditional approval of the proposal, the project proponent may be required to obtain various permits and licenses from the province to address in greater detail environmental aspects of the proposal. As of November 1, 2019, a proponent may appeal a municipal council's rejection of their application or appeal a condition imposed related to municipal council's approval. Appeals are made to the Municipal Board.

Livestock Technical Review Process (November 1, 2019)



B. DESCRIPTION OF PROPOSED LIVESTOCK OPERATION

Further information can be found at https://www.gov.mb.ca/mr/livestock/public_registries.html

Applicant: Boekhorst Poultry Ltd.

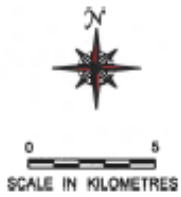
Site Location: SE 24-7-2 W Refer to map below.

Proposal: To expand the existing poultry operation from 38,000 layers (315 AU) to 69,000 layers 573(AU).

This will involve the following:

- Demolition and build of one building and the continued use of an existing building
- Non-earthen manure storage facility
- Estimated daily water use of 4,175 imperial gallons from a public pipeline and surface water from an onsite dugout
- Composting mortalities
- Truck haul routes as shown in map below

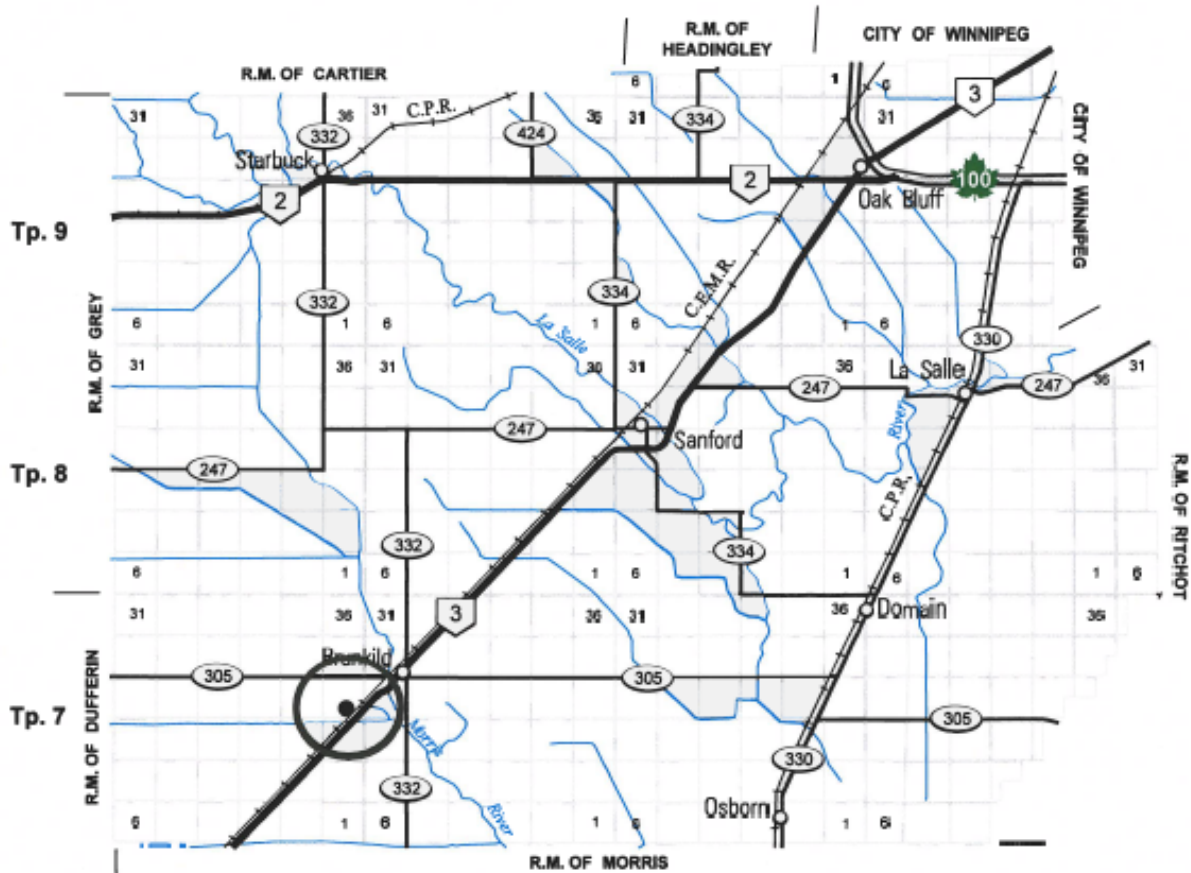
R.M. OF MACDONALD



PROVINCE OF MANITOBA
INFRASTRUCTURE
HIGHWAY PLANNING AND DESIGN BRANCH
GEOGRAPHIC & RECORDS MANAGEMENT SECTION
WINNIPEG
JANUARY 2016

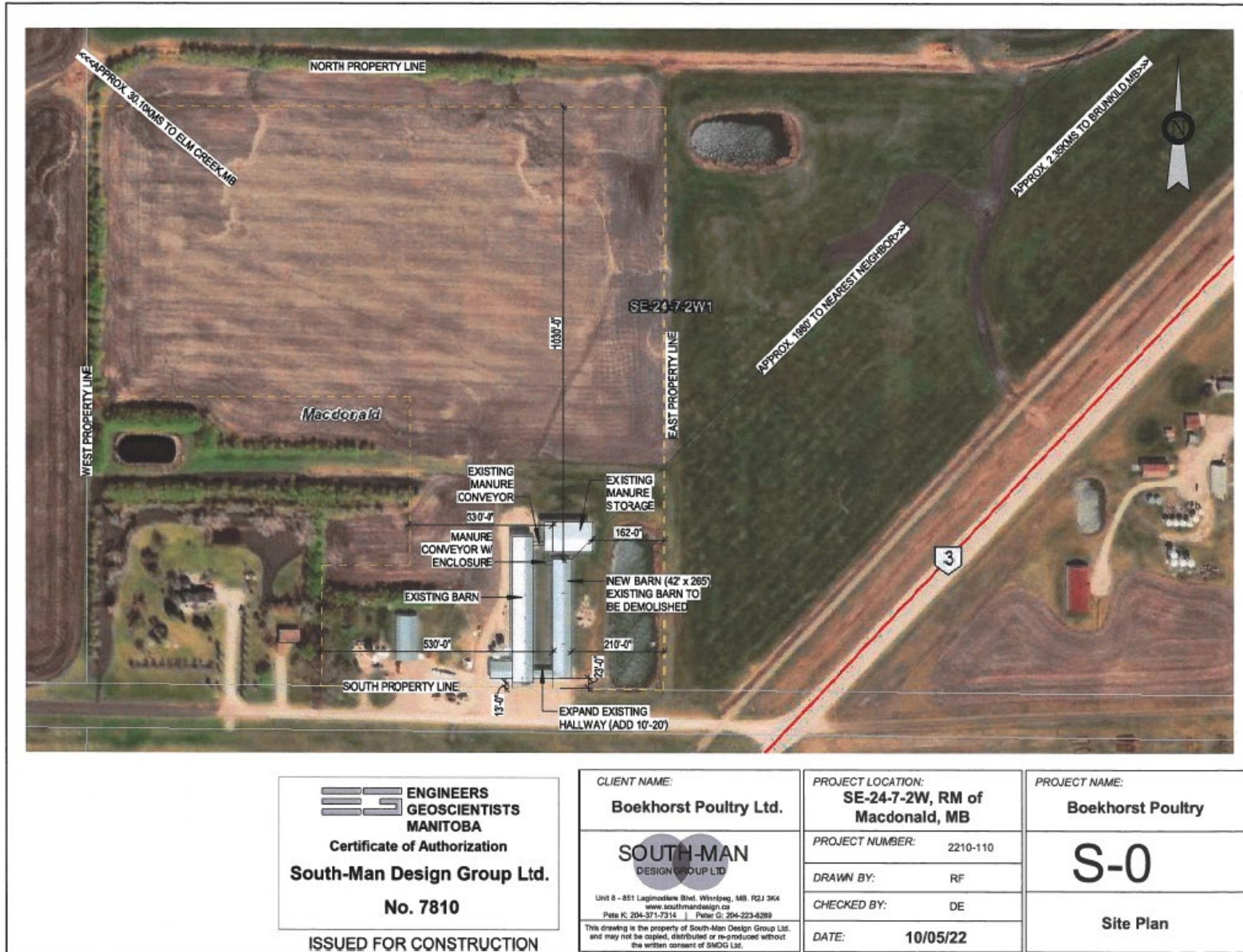
LEGEND

TRANS-CANADA HIGHWAY		ACCESS ROADS	
PROVINCIAL TRUNK HIGHWAYS		RAILWAYS	
PROVINCIAL ROADS			



**Boekhorst Poultry
SE 24-7-2W
RM of Macdonald**

SHEET 1 of 1



**ENGINEERS
GEOSCIENTISTS
MANITOBA**

Certificate of Authorization
South-Man Design Group Ltd.
No. 7810

ISSUED FOR CONSTRUCTION

CLIENT NAME:
Boekhorst Poultry Ltd.

**SOUTH-MAN
DESIGN GROUP LTD.**

Unit 8 - 851 Lagimodiere Blvd. Winnipeg, MB. R2J 3K4
www.southmandesign.ca
Peter K. 204-371-7314 | Peter G. 204-223-8289

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PROJECT LOCATION:
**SE-24-7-2W, RM of
Macdonald, MB**

PROJECT NUMBER: 2210-110

DRAWN BY: RF

CHECKED BY: DE

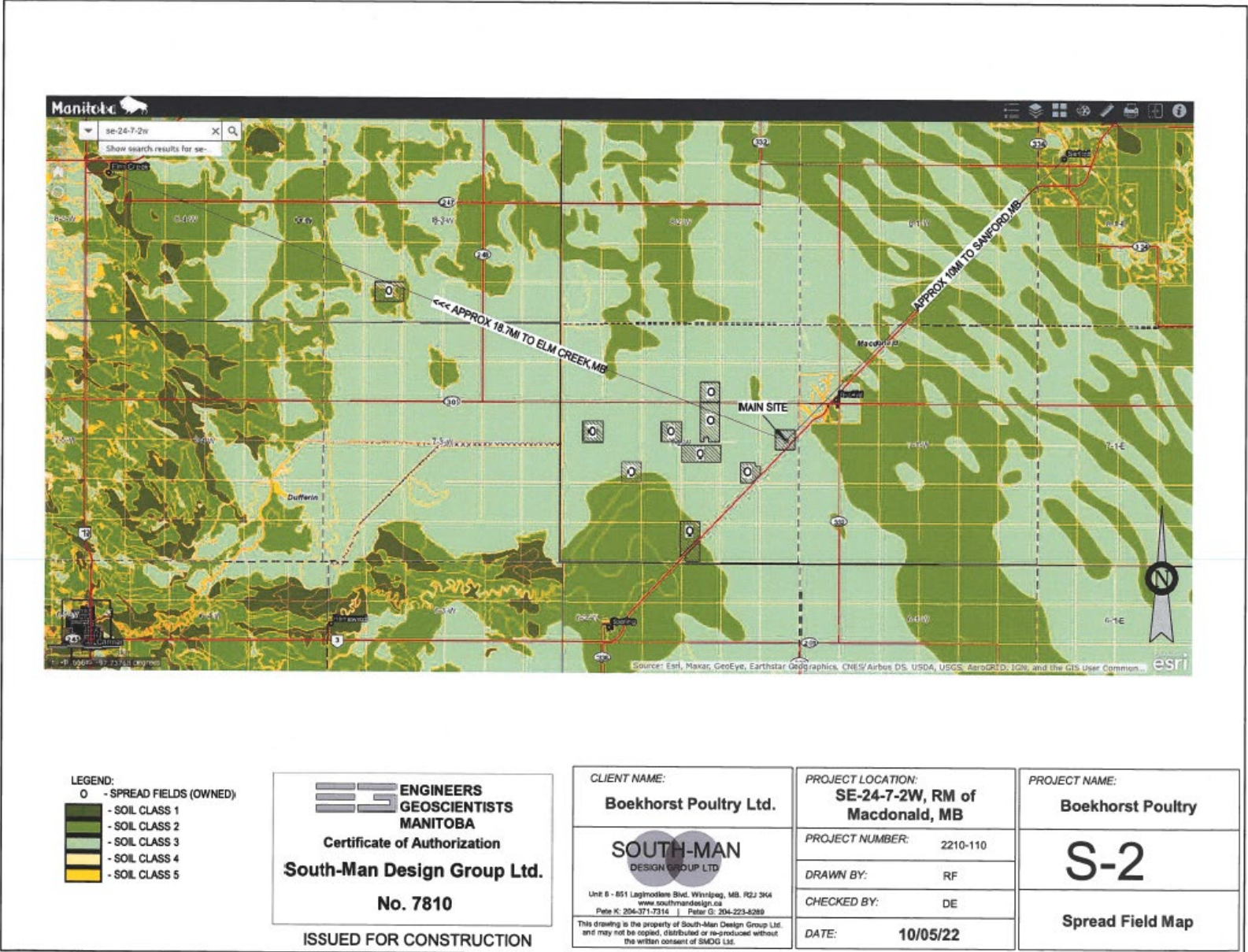
DATE: **10/05/22**

PROJECT NAME:
Boekhorst Poultry

S-0

Site Plan

Drawing is the property of South-Man Design Group Limited



- LEGEND:**
- - SPREAD FIELDS (OWNED)
 - - SOIL CLASS 1
 - - SOIL CLASS 2
 - - SOIL CLASS 3
 - - SOIL CLASS 4
 - - SOIL CLASS 5


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PROJECT LOCATION: SE-24-7-2W, RM of Macdonald, MB	
PROJECT NUMBER:	2210-110
DRAWN BY:	RF
CHECKED BY:	DE
DATE:	10/05/22


PROJECT NAME: Boekhorst Poultry
S-2
Spread Field Map

Drawing is the property of South-Man Design Group Limited




**ENGINEERS
GEOLOGISTS
MANITOBA**
 Certificate of Authorization
South-Man Design Group Ltd.
No. 7810

ISSUED FOR CONSTRUCTION

CLIENT NAME: Boekhorst Poultry Ltd.	PROJECT LOCATION: SE-24-7-2W, RM of Macdonald, MB	PROJECT NAME: Boekhorst Poultry
 <small>Unit 8 - 851 Lagimodiere Blvd, Winnipeg, MB, R2J 3K4 www.southmandesign.ca Peter K: 204-271-7314 Peter G: 204-223-4289</small> <small>This drawing is the property of South-Man Design Group Ltd. and may not be copied, distributed or re-produced without the written consent of SMDG Ltd.</small>	PROJECT NUMBER: 2210-110	S-3 Truck Haul Route
	DRAWN BY: RF	
	CHECKED BY: DE	
	DATE: 10/05/22	

Drawing is the property of South-Man Design Group Limited

C. SITE ASSESSMENT OVERVIEW

Provincial Technical Overview of TRC 12-096 – Boekhorst Poultry Ltd.				
Item No.	Provincial Requirements	Confirmed	Related Provincial Safeguards	Dept.
1	Submitted complete site assessment	X	Technical Review Committee Regulation 119/2011 requires an applicant to submit a completed site assessment.	MR
2	Clearly identified the current and proposed type and number of animals and animal units	X	Boekhorst Poultry Ltd is currently seeking Conditional Use approval to expand their layer operation from 38,000 layers (315 Animal Units) to 69,000 layers (573 AU).	AGR
3	Project clearly defined as: 573 AU animal confinement facility	X	The proposed animal confinement facility is not regulated under the Livestock Manure and Mortalities Management Regulation.	EC
		X	The site assessment indicates that the operator intends to replace the current east layer barn with a new 42 feet X 265 feet (11,130 square feet) barn. As the proposed barn is in excess of 6,458 square feet (600 square metres), it will require a building permit from the Office of the Fire Commissioner under <i>The Building and Mobile Home Act</i> and the Manitoba Building Code.	MR
4	Identified all existing and proposed buildings and structures and related separation distances	X	The following variances are required to bring the proposal in compliance with the RM of Macdonald Zoning by-law: A Variance Order to vary the site area, site width, and front yard of the property. A Variance Order to vary the separation distance from the animal confinement facility to the residence on the west of the livestock operation.	MR
5	Demonstrated project site is not located within Nutrient Management Zone N4 or any Nutrient Buffer Zone	X	Project site is not located within Nutrient Management Zone N4 or any Nutrient Buffer Zone	EC

Provincial Technical Overview of TRC 12-096 – Boekhorst Poultry Ltd.

Item No.	Provincial Requirements	Confirmed	Related Provincial Safeguards	Dept.
6	Identified suitable water source: Surface Water and Public Pipeline / Water Cooperative and a water consumption rate of 4,175 imperial gallons per day	X	A Water Rights Licence is not required as the applicants water use requirements are under the domestic exemption of 25,000 L/day.	EC
7	Proposed project site meets development plan, zoning by-law	X	<p><i>The Planning Act</i> requires that development plans must include a livestock operation policy that guides zoning by-laws dealing with livestock operations.</p> <p><i>The Planning Act</i> requires municipalities to issue development permits for any development on a site. All development must comply with the Zoning By-law and Development Plan. Any proposed development that does not meet the separation distances or setbacks requires Council approval and a public process to vary those requirements.</p> <p>Designation The livestock operation, located in the SE ¼ 24-7-2 WPM in the RM of Macdonald, is designated Green/Agricultural Policy Area and lies entirely within the Limited Livestock Management Area (Macdonald-Ritchot Planning District Development Plan By-law No. 2-10). The proposal complies with Development Plan Policies 4.4.1 and 4.4.3.</p> <p>Zoning The livestock operation site is zoned “AG” Agriculture General Zone (RM of Macdonald Zoning By-law No.5/2018) and has a minimum site area requirement of 80 acres, minimum site width requirement of 660 feet, and minimum front yard requirement of 100 feet.</p> <p>The proposed expansion does not comply with the RM of Macdonald Zoning By-law and will require Variance Orders to vary the minimum site area from 80 acres to 30.40 acres, the minimum site width from 660 feet to ± 598 feet, and the minimum front yard from 100 feet to ± 31 feet.</p> <p>A Variation Order is also required to vary the separation distance between the animal confinement facility and the residence on the west of the livestock operation from 820 feet to ± 675 feet.</p>	MR

Provincial Technical Overview of TRC 12-096 – Boekhorst Poultry Ltd.

Item No.	Provincial Requirements	Confirmed	Related Provincial Safeguards	Dept.
8	Identified any unsealed abandoned wells on the project site or spread fields	X	<p>The proposal identifies that the water use for the proposed livestock operation is from the surface water source. The proposal indicates no abandoned wells present on the site or spread fields, however if during the operation the proponent identifies abandon or unused well(s), it should be properly sealed and a sealed well report must be filed with the Groundwater Management Section of MB Environment and Climate.</p> <p>Information on well sealing and well sealing reports are available from MB Environment and Climate (204-945-6959) or: https://www.gov.mb.ca/water/groundwater/wells_groundwater/index.html</p> <p>A well drilling professional should seal all but the most basic wells. A list of currently licensed well drilling professionals can also be accessed from the above web page.</p> <p>During manure spreading, the set back distances to all groundwater features as prescribed under the Environment Act Livestock Manure and Mortalities Management Regulation should be considered as a minimum distance.</p>	EC
9	Identified suitable manure storage methods	X	<p>The applicant will use an existing manure storage that is registered or was constructed under permit. Under the Livestock Manure and Mortalities Management Regulation, the applicant must:</p> <ul style="list-style-type: none"> • Ensure there is sufficient capacity to store all manure through the winter. • Maintain the structural integrity of the storage. • Operate the storage so that it does not pollute surface water, ground water or soil. <p>The applicant will also store solid manure as field storage. Under the Livestock Manure and Mortalities Management Regulation, the applicant must:</p> <ul style="list-style-type: none"> • Locate the manure at least 100 m from any surface watercourse, sinkhole, spring, or well. • Ensure the manure does not pollute surface water, groundwater, or soil. • Land-apply the stored manure the following year. 	EC

Provincial Technical Overview of TRC 12-096 – Boekhorst Poultry Ltd.

Item No.	Provincial Requirements	Confirmed	Related Provincial Safeguards	Dept.
10	Identified acceptable manure application methods	X	<p>Under the Livestock Manure and Mortalities Management Regulation, the applicant must:</p> <ul style="list-style-type: none"> • Operate with an annual manure management plan which includes: <ul style="list-style-type: none"> • Manure type, volume, and nutrient values • Spread field location and soil class • Soil tests showing nitrogen and phosphorus levels • Crops to be grown • Manure application rate • Ensure manure does not pollute groundwater, soil or escape the operation's boundaries. • Follow requirements for the land application of manure, including nitrogen limits and phosphorus thresholds. 	EC
11	Mortalities disposal methods identified (rendering / composting / incineration)	X	<p>The applicant will compost mortalities. Under the Livestock Manure and Mortalities Management Regulation, the applicant must:</p> <ul style="list-style-type: none"> • Ensure the composting does not pollute surface water, groundwater, or soil. • Locate the composting site at least 100 m from any surface watercourse, well, or the operation's boundaries. • Ensure the composting facilities and process are acceptable to the director. 	EC
12	Proposed suitable setback distances from water and property lines for manure, livestock and mortalities	X	<p>The applicant has noted that a setback variance was obtained when the existing manure storage facility was constructed, and no further construction is proposed for this project.</p> <p>The applicant has noted that the mortalities composting site will not meet the required setback distances from any surface watercourse, sinkhole, spring, well, or the operation's boundaries. The applicant will need to revise their plan or obtain written approval from Environment and Climate. Approval to reduce setbacks may require additional work to reduce the risk of pollution.</p>	EC
13	Indicated if proposed project site is within designated flood area or is otherwise at risk of flooding		<p>The main site is within the Red River Valley Designated Flood Area. The area where the proposed new barn would be located is within a permitted dike, therefore no DFA permit would be required.</p> <p>Note for future developments (for information only): Norquay Creek and Norquay Channel border this property and are Designated Provincial Waterways. No activity can take place in this within the right-of-way of the Provincial Waterway without Provincial Waterway Authorization.</p>	MTI

Provincial Technical Overview of TRC 12-096 – Boekhorst Poultry Ltd.

Item No.	Provincial Requirements	Confirmed	Related Provincial Safeguards	Dept.
14	Proposed acceptable odour control measures	X	The proponent has indicated that the manure will be stored in a building until it is moved to the field for land application. The yard site also has partial shelterbelts. Should odour become a problem for neighbouring residents, there is a complaints process under The Farm Practices Protection Act. A person who is disturbed by any odour, noise, dust, smoke or other disturbance resulting from an agricultural operation may make a complaint, in writing, to the Manitoba Farm Industry Board. The Act is intended to provide for a quicker, less expensive and more effective way than lawsuits to resolve nuisance complaints about farm practices. It may create an understanding of the nature and circumstances of an agricultural operation, as well as bring about changes to the mutual benefit of all concerned, without the confrontation and the expense of the courts.	AGR
		X	The proponent indicates that there are existing shelterbelts (mature trees) within the adjacent yard sites to the west of the livestock operation that provides partial sheltering. There is also a manure storage cover on the existing non-earthen manure storage structure.	MR
15	Proposed sufficient and suitable land for manure spreading with minimum setbacks from water sources	X	The required land base for Boekhorst Poultry Ltd is 750 acres. Boekhorst Poultry Ltd has exceeded the land requirement by demonstrating that they have access to 1877 suitable acres. Additional details can be found in the appendix.	AGR
		X	Under the Livestock Manure and Mortalities Management Regulation, manure spreading must meet setback distances to all surface watercourse and groundwater features.	EC
16	Indicated if spread fields are located in the Red River Valley Special Management Area or any other regularly inundated area	X	The applicant has indicated that some spread fields are located within a regularly inundated area. Under the Livestock Manure and Mortalities Management Regulation, manure applied there between September 10 and November 10 must be injected or incorporated within 48 hours. This does not apply where perennial forages are established, or the soil is not disturbed except for seed planting or commercial fertilizer application and has adequate crop residue to control erosion.	EC
17	Proposed spread fields that meet development plan and zoning by-law requirements	X	The proposed spread fields are designated Green/Agricultural Policy Area in the Macdonald-Ritchot Planning District Development Plan and zoned "AG" Agriculture General Zone in the RM of Macdonald Zoning By-law. The spread fields comply with the Development plan and meets the requirements of the Zoning by-law.	MR
18	Proposed acceptable manure transportation methods Solid Spreader	X	No comment from the department.	EC

Provincial Technical Overview of TRC 12-096 – Boekhorst Poultry Ltd.

Item No.	Provincial Requirements	Confirmed	Related Provincial Safeguards	Dept.
		X	Please be advised that any structures placed within the controlled area of PR 305, PR 335, and PTH 6 or any Provincial Road (PR) or Provincial Trunk Highway (PTH) within this area (125 feet from the edge of the right-of-way). The contact is Komal Shukla at 204-583-2433 or Komal.Shukla@gov.mb.ca . The placements of temporary drag lines or any other temporary machinery/equipment for manure application within the right-of-way of the above noted highways requires permission from our regional office in Steinbach. Please contact the Regional Planning Technologist, Rob Fender at (204) 346-6266 or Rob.Fender@gov.mb.ca . In addition, please notify the Regional Planning Technologist for the placement of temporary draglines or other temporary equipment for manure application within the controlled area of the above noted highways (125 feet from the edge of the right-of-way).	MTI
19	Identified suitable trucking routes and access points	X	The subject property has frontage along a municipal road connecting to PTH 3. There is an existing access onto the municipal road. The proposed truck haul route will utilize an existing GRA connecting onto PTH 3. We have no concerns.	MTI
20	Identified proposed trucking routes – local roads	X	The proposed site is accessed by municipal road 39 NW which connects approximately 514 feet to PTH 3 to the east. As per Section 116(2) of <i>The Planning Act</i> , municipalities as a condition of approval may require proponent to enter into a development agreement regarding the condition and upkeep of local roads used as truck haul routes.	MR
21	Known rare species will not be impacted on new sites/lands	X	The information provided in the assessment suggest that there will not be any conflicts with species protected under the <i>Endangered Species and Ecosystems Act</i> and/or <i>Species at Risk Act</i> , or designated as rare or uncommon by the Manitoba Conservation Data Centre (MBCDC). This review is based on existing data known to the MBCDC of the Wildlife Branch at the time of the review. These data are dependent on the research and observations of our scientists and reflects our current state of knowledge. An absence of data does not confirm the absence of any rare or endangered species. Many areas of the province have never been thoroughly surveyed, however, and the absence of data in any particular geographic area does not necessarily mean that species or ecological communities of concern are not present. The information should, therefore, not be regarded as a final statement on the occurrence of any species of concern. All future observations of rare or endangered species made by the proponent should be reported to the MBCDC for further review.	NRND

Provincial Departments: Agriculture (AGR); Environment and Climate (EC); Transportation and Infrastructure (MTI); Municipal Relations (MR)

D. PUBLIC COMMENTS AND DISPOSITIONS

No public comments for this application.

E. CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The information contained in the Site Assessment submitted by the proponent generally meets provincial requirements. In addition, based on available information it has been determined that the proposed operation will not create a risk to health, safety or the environment, or that any risk can be minimized through the use of appropriate practices, measures and safeguards.

Recommended Actions to Council

1. As per Section 114(2) of *The Planning Act*, at least 14 days before the date of the hearing, Council must:
 - a) send notice of the hearing to
 - i. the applicant,
 - ii. the Minister (c/o the Portage Community Planning Office),
 - iii. all adjacent planning districts and municipalities, and
 - iv. every owner of property located within three kilometres of the site of the proposed livestock operation, even if the property is located outside the boundaries of the planning district or municipality; and
 - b) publish the notice of hearing in one issue of a newspaper with a general circulation in the planning district or municipality or, when there is no newspaper with a general circulation in the area, post the notice in the office of the planning district or municipality and at least two other public places in the district or municipality; and
 - c) post a copy of the notice of hearing on the affected property in accordance with Section 170 of *The Planning Act*.
2. Council should specify the type(s) of operation, legal land location, number of animals in each livestock category, total animal units, and expiration date (as per *Planning Act* section 110(1)) in its Conditional Use Order.
3. As per Section 117 of *The Planning Act*, Council must send a copy of its Conditional Use Order to
 - a) the applicant,
 - b) the Minister (c/o the Portage Community Planning Office), and
 - c) every person who made representation at the hearing.
4. According to the RM of Macdonald Zoning By-law No.5/2018, the required minimum separation distance between the animal confinement facility and the nearest residence is approximately 820 feet. The proposed separation distance is approximately 375 feet. The required minimum site area is 80 acres. The proposed site area is 30.40 acres. The required minimum site width is 660 feet. The proposed site width is \pm 598 feet. The required minimum front yard is 100 feet. The proposed front yard is \pm 31 feet. As a result, Council will require the proponent to apply for a variance.

5. As per Section 169(4)(b) of *The Planning Act*, a copy of the notice of hearing to vary the separation distance involving a livestock operation must be sent to every owner of property located within the separation distance that is proposed to be varied.
6. As per Section 174(1) of *The Planning Act*, Council can hold all required hearings together in a single combined hearing. It is recommended that during the course of this public hearing, Council first deal with the conditional use order followed by the variance order.
7. As per Section 174(2) of *The Planning Act* the notice of hearing for each matter to be considered at a combined hearing may be combined into a single notice of hearing.
8. Councils are requested to include in their resolution and/or Conditional Use Order, notification that the applicant may appeal council's decision to reject the application or appeal a condition imposed by council related to its approval as per Section 118.2 of *The Planning Act*.
 - As per Section 118.2(2)(b), an applicant may appeal the following decisions of a board or council to the Municipal Board:

for an application for approval of a conditional use made in respect of a large-scale livestock operation,

 - (i) a decision to reject the application,
 - (ii) a decision to impose conditions.
9. As per Section 118, no development or expansion of a livestock operation that is the subject of an application under this Division may take place until
 - (a) the application is approved and the applicant complies, or agrees to comply, with any condition imposed on the approval under this Division; and
 - (b) the applicant obtains every approval, including any permit or licence, required under an Act, regulation or by-law in respect of the proposed operation or expansion, and complies with, or agrees to comply with, any condition attached to the approval.
10. Council is welcome to contact Manitoba Environment and Climate, Environmental Approvals Branch or Regional Environmental Compliance and Enforcement staff with respect to the Livestock Manure and Mortalities Management Regulation (M.R. 42/98) including compliance and enforcement issues.

Recommended Actions to Proponent

1. That a variance be applied for prior to the Conditional Use Hearing to vary the separation distance between the animal confinement facility and the nearest residence, the minimum required site area, the minimum side width, and the minimum front yard. This will provide council with the option of holding a combined Conditional Use and Variance Hearing.
2. That the proponent request the municipality hold a combined hearing.
3. That any additional measures identified through subsequent provincial licencing or permitting in order to minimize any identified risks to health, safety and the environment be undertaken.
4. That as per Section 118.2(2)(b), an applicant may appeal the following decisions of a board or council to the Municipal Board:
 - (i) a decision to reject the application,
 - (ii) a decision to impose any condition on the approval.

F. TECHNICAL REVIEW COMMITTEE MEMBERS

Name	Department	Title Branch	Contact
Erin McCleery	Municipal Relations	Manager, Winnipeg Office <i>Community Planning and Development Branch</i>	204-945-1143
Petra Loro	Agriculture	Livestock Environment Specialist <i>Land Use and Ecosystem Resilience Branch</i>	204-918-0325
Colin Murray	Natural Resources and Northern Development	Information Manager- Manitoba Conservation Data Centre <i>Fish and Wildlife Branch, Natural Resources and Northern Development</i>	204-945-7760
Bryce Wood	Environment and Climate	Environmental Officer <i>Environmental Approvals Branch</i>	204-781-7226
Jeff DiNella	Transportation and Infrastructure	Senior Development Review Technologist <i>Highway Planning and Design Branch</i>	204-945-2664

Appendix

Land Use and Ecosystem Resilience Branch – Manitoba Agriculture (AGR)

In areas of lower livestock intensity such as the RM of MacDonald, it is currently the Province of Manitoba's policy to require sufficient suitable land for all of the nitrogen and half of the phosphorus generated by the livestock. This policy assumes that more land is available in the region to balance manure phosphorus with crop phosphorus removal, should it be necessary in the future.

Typical, modern feeding practices for layers were used to estimate nutrient excretion for Boekhorst Poultry Ltd. Realistic, long-term 10-year crop yields from the Manitoba Agricultural Services Corporation (MASC) for the RM of MacDonald were used to estimate crop nitrogen uptake and phosphorus removal rates for the crop rotation specified in the proposal.

Land suitability is determined using soil testing for phosphorus and soil survey to establish the agriculture capability. Soils must be below 60 ppm Olsen P to be considered suitable. Detailed and reconnaissance soil survey are available in the area to determine the agriculture capability of the land. The land is primarily Class 2 and 3 (prime agricultural land). The primary limitation in the area is wetness (W) with areas of salinity (N) and inundation (I).

The required land base for Boekhorst Poultry Ltd is 750 acres. Boekhorst Poultry Ltd has exceeded the land requirement by demonstrating that they have access to 1877 suitable acres.

Water Science and Watershed Management Branch – Environment and Climate (EC)

Proper nutrient management applications that avoid excess loss of nutrients to surface waters are needed on lands receiving manure in southern Manitoba because long-term trend analysis of total phosphorus and total nitrogen has shown significant increases in these nutrients in the Assiniboine and Red rivers (Jones and Armstrong 2001).

The proponent is planning to apply manure in fall, broadcast and incorporated within 48 hours. Broadcast with incorporation will reduce the risk to surface water when compared to broadcast only application methods.

For most crops, manure contains an excess of phosphorus (P) compared to nitrogen (N) and as a result, application at N-based rates causes a buildup of soil P. Practices which reduce N losses from the manure improve the N:P ratio in the manure and help slow P buildup when manure is applied at N-based rates. Incorporation is a practice which reduces N loss when compared to broadcast only application method.

The proponent has acknowledged the setback areas for all water features have been observed and excluded from land base calculations. Setbacks should be clearly communicated to and observed by those involved in manure application to minimize the risk of nutrients entering surface and groundwater.

Manitoba has included phosphorus as a nutrient by which fertilizer application through manure, synthetic fertilizer, and municipal waste sludge to agricultural lands may be limited. Many agricultural soils in Manitoba, especially areas with low livestock intensity, are considered phosphorus deficient and therefore, manure is an ideal fertilizer to support crop production. However, manure application can increase soil phosphorus over time and other spread fields may need to be added to prevent excessive soil phosphorus build up. As excess phosphorus levels build up in soils, greater losses

occur to surface and ground water. It should be noted that Olsen soil-test phosphorus levels of 60 ppm are well above phosphorus needs for most crops (over 20 ppm is usually considered agronomically very high). In areas of lower livestock intensity, such as the RM of MacDonald, it is currently the Province of Manitoba's policy to require sufficient suitable land for all of the nitrogen and half of the phosphorus generated by the livestock. This policy assumes that more land is available in the region to balance manure phosphorus with crop phosphorus removal, should it be necessary in the future for long-term sustainability. To remain environmentally sustainable over a long-term planning horizon of 25 years or more the proponent acknowledges that 1501 acres may be required for the operation. The proponent has identified 1877 acres with suitable soil test results and an additional 2238 acres for manure application at this time. Application to meet crop N requirements is estimated to use 500 acres. Application at 2 times the crop removal of P is estimated to use 750 acres (1501 acres is estimated to achieve P balance [phosphorus removal equal to phosphorus application] with current crop choices and yield potential).

As phosphorus levels build up in soils, the concentration of phosphorus in runoff to surface waters increases. It is important to rotate manure application across all spread fields and whenever possible focus manure applications on fields with low Olsen-P soil test levels so as to prevent excessive P buildup when applying manure at rates above P balance (P removal by harvested crops).

During manure spreading, setback distances to all groundwater features as prescribed under the Livestock Manure and Mortalities Management Regulation should be considered as a minimum distance.