

Part 2 — Technical Requirements

Application under the *Agricultural Operation Practices Act* for a confined feeding operation, manure collection area, and/or manure storage facility(ies)



NRCB | Natural Resources
Conservation Board

NRCB USE ONLY

Application number

Legal land description

- ☒ Approval ☐ Registration ☐ Authorization
☐ Amendment

LA25017

NW 30-11-19 W4M

APPLICATION DISCLOSURE

This information is collected under the authority of the *Agricultural Operation Practices Act* (AOPA), and is subject to the provisions of the *Freedom of Information and Protection of Privacy Act*. This information is public unless the NRCB grants a written request that certain sections remain private.

Any construction prior to obtaining an NRCB permit is an offence and is subject to enforcement action, including prosecution.

I, the applicant, or applicant's agent, have read and understand the statements above, and I acknowledge that the information provided in this application is true to the best of my knowledge.

Date of signing

Signature

April 15, 2025
Dogwood Poultry Farms Ltd.

Corporate name (if applicable)

[Redacted Signature]
Derek Hoschka

Print name

GENERAL INFORMATION REQUIREMENTS

Proposed facilities: list all proposed confined feeding operation facilities and their dimensions. Indicate whether any of the proposed facilities are additions to existing facilities. (attach additional pages if needed)

| Proposed facilities | Dimensions (m) (length, width, and depth) |
|----------------------------|--|
| Build new poultry barn #10 | 500' (L) x 50' (W) |
| Build new poultry barn #11 | 500' (L) x 50' (W) |
| | |
| | |
| | |

Existing facilities: list **ALL** existing confined feeding operation facilities and their dimensions

| Existing facilities | Dimensions (m) (length, width, and depth) | NRCB USE ONLY |
|---------------------|--|---------------|
| Barn #1 | 300' x 50' | |
| Barn #2 | 300' x 50' | |
| Barn #3 | 300' x 50' | |

NRCB USE ONLY

Part 2 – Technical Requirements



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[illegible]

Part 2 – Technical Requirements



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If a new facility is replacing an old facility, please explain what will happen to the old facility and when. ☒ N/A

Construction completion date for proposed facilities July 2025

Additional information

Livestock numbers: Complete only if livestock numbers are different from what was identified in the Part 1 application. Note: if livestock numbers increase in your Part 2 application, a new Part 1 application must be submitted which may result in a loss of priority for minimum distance separation (MDS).

| Livestock category and type (Available in the Schedule 2 of the Part 2 Matters Regulation) | Permitted number | Proposed increase or decrease in number (if applicable) | Total |
|---|------------------|---|---------------------------|
| Broilers | 380000 | 120000 90,000 | 500000 470,000 |
| Beef finishers | 600 | | 600 |
| | | | |
| | | | |
| | | | |
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| | | | |
| | | | |

Scope:

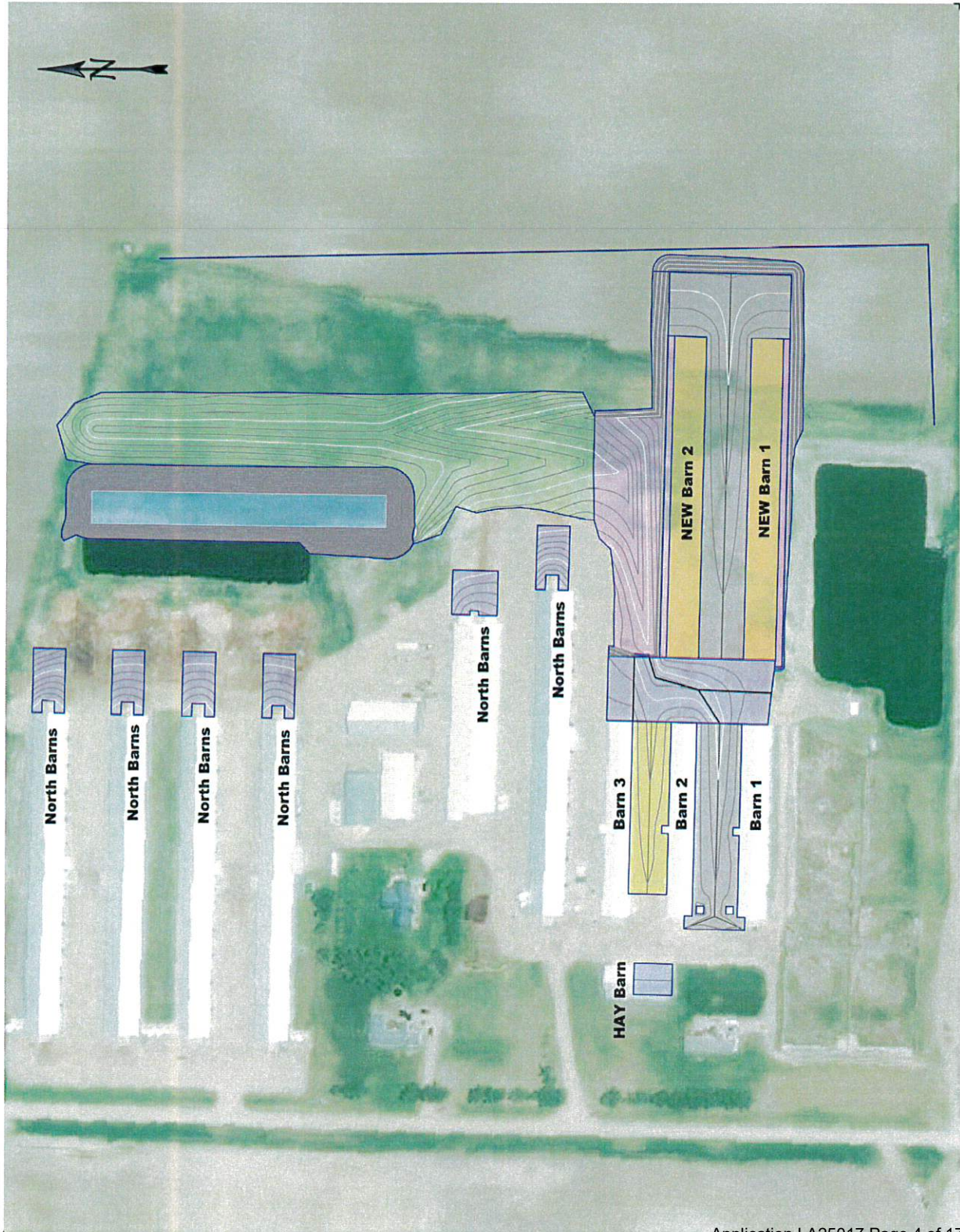
1. Strip topsoil (est 8") in areas project overlaps unstripped ground. Include existing topsoil piles in this volume and borrow site. North of existing North pond may be used as topsoil laydown during construction.
2. Subcut for 7" RCC pads to the East of 6 existing barns to North and inside Hay shed and install RCC compacted. Note RCC ties into existing concrete pads 1" low to compensate for frost heaving. Use subcut from North barns to create fill between barns 2 and 3 as it contain gravel/clay mix. Infill area to be used as "green space" and is not for truck traffic.
 - North pads 5000 square feet (each)
 - Hay Barn 3000 square feet
3. Subcut remainder of project and borrow to fill to rough grade clay. New borrow not to extend any further East than 100' from existing pond. Use existing pile of clay just North of Pond if suitable to mix with new borrow material. Area just North of new barns infilled with clay to create drainage from South RCC pad to borrow/pond. Site is now ready for future 3rd new barn with no unsuitable materials in footprint.
4. Infill new barn pads with full gravel base volume 6", but pull to center to leave room for cutting and backfilling footings.
- Base gravel 50,020 square feet
5. Cut footings to 98' 4.5"
6. Leave site while builder installs footings, utilities, etc.
7. Return to site. Pack and regrade all rough grade.
8. Place topsoil in South and East back slopes from new barns 4:1 slope. Remainder placed beside borrow to East and extends drainage from site clay to pond as well as protecting pond from field runoff.
9. Backfill footings inner and outer.
10. Spread base gravel inside building and roller pack to subgrade concrete elevation 997.5"
11. Install 7" RCC between existing barns and new.
 - S Pad 25000 square feet
12. Install fabric underlay and yard gravel 12". Grading to be similar to existing yard.
 - Gravel Area 76,424 square feet
13. Tie in to existing pivot line near S Pond. Tie back in to Pivot line in North. At time of bid, pipe size is unknown so estimate based on 1575" at 10" diameter.
14. Total for Project:
 - \$549,670.00 + GST

Use of this drawing automatically accepts Dennis Dirtworx, LTD. as the contractor. Available upon request.

Dennis Dirtworx LTD

Dogwood Scope

| | | | |
|-------|----------|-------|----------|
| Date | APR 2025 | Drawn | Dan Dyck |
| Scale | NTS | Job # | 25-142 |



SE 1/4 SEC. 361-11-20-W4M

SW 1/4 SEC. 31-11-19-W4M

SE 1/4



PLAN

SHOWING

PROPOSED

LOCATION OF TWO NEW BARN
WITHIN

N.W. 1/4 SEC. 30, TWP. 11, RGE. 19, W4M

Lethbridge County

LEGEND

- STATUTORY IRON POSTS FOUND ARE SHOWN THUS ● Fd. I.
- DISTANCES ARE IN METRES AND DECIMALS THEREOF
- DATE OF FIELD SURVEY: MARCH 7, 2025
- SEE ATTACHED DETAIL PLAN

E. EAST
Fd. FOUND
ha HECTARE
I STATUTORY IRON POST
m METRES
M MERIDIAN
N NORTH
No. NUMBER
Pl. PLACED
R/W RIGHT OF WAY
Reg. REGISTRATION
RGE. RANGE
S SOUTH
SEC. SECTION
TM. TRANSVERSE MERCATOR
TWP. TOWNSHIP
W. WEST

PROPOSED BARN

EXISTING BUILDINGS

REVISIONS BY DATE

3 ADD NOTE FOR MANURE PAD SP 03/04/2025
2 AMENDED PER CLIENT INSTRUCTION SP 01/04/2025
1 ISSUED FOR REVIEW JW 03/23/2025

STAMP:



Consulting Engineers, Planners, and Land Surveyors
255-31st Street North Lethbridge, Alberta T1H 3Z4
Ph: (403) 329-0050 E-mail: geomatic@mgc.ca Fax: (403) 329-8884

SCALE:
1:4000
(METRES)

DRAWN: SRP APPROVED: BB
DESIGN: DATE: MAR 20, 2025

OWNER DOGWOOD POULTRY 2 LTD.

PROJECT PROPOSED BARN DEVELOPMENT

TITLE SITE PLAN

PROJECT NUMBER 251281LS

DRAWING NUMBER DWG 1

Saved Date: April 3, 2025 11:17:49 PM

\\wyndlog-mcr\mgsd-csda\data\active projects\251281 dogwood poultry 2 lid\cases\251281.mxd

Part 2 — Technical Requirements

Application under the *Agricultural Operation Practices Act* for a confined feeding operation, manure collection area, and/or manure storage facility(ies)

DECLARATION AND ACKNOWLEDGMENT OF APPLICANT CONCERNING WATER ACT LICENCE

issued by Alberta Environment and Protected Areas (EPA) for a confined feeding operation (CFO)

Date and sign one of the following four options

OPTION 1: Applying through the NRCB for both the AOPA permit and the Water Act licence

I **DO** want my water licence application coupled to my AOPA permit application.

Signed this ____ day of _____, 20____.

Signature of Applicant or Agent

OPTION 2: Processing the AOPA permit and Water Act licence separately

1. I (we) acknowledge that the CFO will need a new water licence from EPA under the *Water Act* for the development or activity proposed in this AOPA application.
2. I (we) request that the NRCB process the AOPA application **independently of** EPA's processing of the CFO's application for a water licence.
3. In making this request, I (we) recognize that, if this AOPA application is granted by the NRCB, the NRCB's decision will not be considered by EPA as improving or enhancing the CFO's eligibility for a water licence under the *Water Act*.
4. I (we) acknowledge that any construction or actions to populate the CFO with livestock pursuant to an AOPA permit in the absence of a *Water Act* licence will **not** be relevant to EPA's consideration of whether to grant the *Water Act* licence application.
5. I (we) acknowledge that any such construction or livestock populating will be at the CFO's sole risk if the *Water Act* licence application is denied or if the operation of the CFO is otherwise deemed to be in violation of the *Water Act*. This risk includes being required to depopulate the CFO and/or to cease further construction, or to remove "works" or "undertakings" (as defined in the *Water Act*).
6. **AS RELEVANT:** I (we) acknowledge that the CFO is located in the South Saskatchewan River Basin and that, pursuant to the *Bow, Oldman and South Saskatchewan River Basin Water Allocation Order* [Alta. Reg. 171/2007], this basin is currently closed to new surface water allocations.
7. **Provide:** Water licence application number(s) WL-C3-19-11-30-61-NW

Signed this 15 day of April, 2025.

Signature of Applicant or Agent

OPTION 3: Additional water licence not required

1. I (we) declare that the CFO will not need a new licence from EPA under the *Water Act* for the development or activity proposed in this AOPA application.
2. **Provide:** Water license number(s) or water conveyance agreement details _____

Signed this ____ day of _____, 20____.

Signature of Applicant or Agent

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GENERAL ENVIRONMENTAL INFORMATION

(complete this section for the worst case of the existing facility which is the closest to water bodies or water wells and for each of the proposed facilities)

Facility description / name (as indicated on site plan)

Existing: Dogwood Poultry Farms Ltd

Proposed 1: _____

Proposed 2: _____

Proposed 3: _____

| Facility and environmental risk information | | Facilities | | | | NRCB USE ONLY | |
|---|--|--|--|---|--|---|----------|
| | | Existing | Proposed 1 | Proposed 2 | Proposed 3 | Meets requirements | Comments |
| Flood plain information | What is the elevation of the floor of the lowest manure storage or collection facility above the 1:25 year flood plain or the highest known flood level? | <input checked="" type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m | <input checked="" type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m | <input type="checkbox"/> >1 m <input type="checkbox"/> ≤ 1 m | <input type="checkbox"/> > 1 m <input type="checkbox"/> ≤ 1 m | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption | |
| Surface water information | How many springs are within 100 m of the manure storage facility or manure collection area? | 0 | | | | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption | |
| | How many water wells are within 100 m of the manure storage facility or manure collection area? | 0 | | | | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption | |
| | What is the shortest distance from the manure collection or storage facility to a surface water body? (e.g., lake, creek, slough, seasonal) | 700m Canal | | | | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption | |
| Groundwater information | What is the depth to the water table? | 20m | | | | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption | |
| | What is the depth to the groundwater resource/aquifer you draw water from? | 23m | | | | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption | |

Additional information (attach supporting information, e.g. borehole logs, records, etc. you consider relevant to your application)

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NRCB Natural Resources Conservation Board

DISTANCE OF ANY MANURE STORAGE FACILITY (EXISTING OR PROPOSED) TO NEIGHBOURING RESIDENCES

| Neighbour name(s) | Legal land description | Distance (m) | NRCB USE ONLY | | | | |
|---------------------|------------------------|--------------|-----------------------|--------------------|--------------|-------------------------------|-------------------|
| | | | Zoning (LUB) category | MDS category (1-4) | Distance (m) | Waiver attached (if required) | Meets regulations |
| Thompson | SW31-11-19-4 | 1000m | | | | | |
| Neibor Farms | SW30-11-19-4 | 1200m | | | | | |
| Huntsville Farms | NE30-11-19-4 | 1400m | | | | | |
| 1509417 Alberta Ltd | NW25-11-20-4 | 1800m | | | | | |
| Jok Farms | SW36-11-2-4 | 1800m | | | | | |

LAND BASE FOR MANURE AND COMPOST APPLICATION (complete only if an increase in livestock or manure production will occur)

| Name of land owner(s)* | Legal land description | Usable area** (ha) | Soil zone *** | NRCB USE ONLY | |
|---------------------------|------------------------|--------------------|---------------|------------------|----------------------------------|
| | | | | Usable area (ha) | Agreement attached (if required) |
| Dogwood Poultry Farms Ltd | NW30-11-19-4 | 60 | irrigated | | |
| *Kolk Farms Conrich Ltd. | see attached agreement | 1600 ac | irrigated | | |
| * D&L Niebor Farms | SW & SE 30-11-19 W4 | 300 ac | irrigated | | |
| | | | | | |
| | | | | | |
| Total | | | | | |

*AO added additional lands once provided by applicant

* If you are **not** the registered landowner, you must attach copies of land use agreements signed by all landowners.

** Available manure spreading area (excluding setback areas from residences, common bodies of water, water wells, etc. as identified in Agdex 096-5 Manure Spreading Regulations)

*** Brown, dark brown, black, grey wooded, or irrigated

Additional information (attach any additional information as required)

Manure Spreading Agreement

This agreement is between Dogwood Poultry Farms Ltd., manure producer, and
D&L Nieboer Farms manure receiver.

Length of agreement: This agreement is valid for a time period of 5
(minimum of one year)

| Legal land location | Soil type ¹ | Acres suitable for manure spreading ² |
|--------------------------------|------------------------|--|
| Sw & SE 30-11-19 W4 | Irrigated | 300 |
| | | |
| | | |
| | | |
| | | |
| | | |

¹ Soil type choices: Dark brown and brown, Grey wooded, Black, Irrigated.

² Land within required setbacks from water bodies, water wells, residences, etc. is not to be included.

Other comments:

Manure producer (Confined Feeding Operation) Legal Land Location NW30-11-19-4

May 6, 2025

Date of signing



Signature

Derek Hoschka

Print name

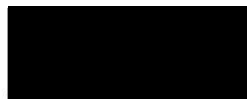
Dogwood Poultry Fa

Corporate name(if appl)

Manure Receiver – Landowner(s)³

May 6 2025

Date of signing



Signature

Rod Nieboer

Print name

D&L Nieboer Farm

Corporate name(if appl)

Date of signing

Signature

Print name

Corporate name(if appl)

³ All registered owners of land, or authorized signing authorities must sign.

Manure Agreement

Dogwood Poultry #2 and Kolk Farms Conrich Ltd.

Overview: This document outlines the general parameters of the manure agreement between Dogwood Poultry #2 and Kolk Farms Conrich Ltd. For the purposes of this agreement, Kolk Farms Conrich Ltd. will mean/include Kolk Farms Conrich Ltd. or a designate of Kolk Farms Conrich Ltd. consist with their manure management process.

Length of Agreement: 10 years beginning July 1/2016.

Notice of Termination of Agreement: 120 days' notice of any substantial changes or termination of this agreement.

Kolk Farms Conrich Ltd. will:

1. Receive all manure from the poultry operations of Dogwood Poultry #2 — near Iron Springs Alberta.
2. Pick up the Dogwood Poultry #2 at least two times a year.
3. Take samples of the manure prior to pick up of manure, and will send to a lab at their own expense.
4. Provide all equipment/personnel, etc. to load and transport all manure from Dogwood #2.
5. Provide an agreed upon amount of straw to Dogwood #2 on an annual basis, first load to be provided on Oct. 1/2016 and will follow a mutually agreed upon schedule after first delivery.
6. Drop off the straw at an agreed upon spot at Dogwood #2; Kolk Farms Conrich Ltd. is not responsible for manual stacking, hand-bombing, etc. the hay into any building, shed, cover, etc.
7. Complete all necessary paperwork to ensure that manure received by any Kolk Farms Ltd. designate is completed as required for any NRCB or Dogwood #2 customer audits.

Dogwood Poultry #2 will:

1. Make best efforts to keep manure clear of foreign substances.
2. Notify Kolk Farms Conrich Ltd. in advance if there are any materials not originating from the manure or any potential issues.

Signed:

Kolk Farms Conrich Ltd.
#2

Dogwood Poultry

Date

AUG 26/2016

Date

Sept 8/2016

Manure Spreading Agreement

This agreement is between Dogwood Poultry Farms, Manure Producer, and, Kolk Farms
Conrich Ltd. Manure Receiver.

Length of agreement: This agreement is valid for a time period of 10 years
(minimum of 3 years)

| Land Location | Soil Type | Acres suitable for manure spreading |
|----------------|------------------|--|
| S1 NW-33-13-19 | Irrigated, Brown | 160 Acres |
| S2 SE-32-13-19 | Irrigated, Brown | 160 Acres |
| S3 SW-33-13-19 | Irrigated, Brown | 160 Acres |
| S4 NE-29-13-19 | Irrigated, Brown | 160 Acres |
| S5 NW-28-13-19 | Irrigated, Brown | 160 Acres |
| S6 SE-29-13-19 | Irrigated, Brown | 160 Acres |
| M1 NE-32-13-19 | Irrigated, Brown | 160 Acres |
| M2 NW-29-13-19 | Irrigated, Brown | 160 Acres |
| M3 SW-30-13-19 | Irrigated, Brown | 160 Acres |
| M4 SE-30-13-19 | Irrigated, Brown | 160 Acres |

Other comments:

Lethbridge County

Manure Producer: (Commercial Feeding Operation) Legal Land Location: NW 30-11-19-W4

Sept 8/2016
Date of signing

Kent Heschke
Print name

Dogwood Poultry
Corporate name

Manure Receiver - Landowner(s):

AUG 26 2016

Date of signing

John Kolk
Print name

Kolk Farms Conrich Ltd.
Corporate name

*All registered owners of land, or authorized signing authorities must sign.

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SOLID MANURE, COMPOST, & COMPOSTING MATERIALS: Barns, feedlots, & storage facilities - Naturally occurring protective layer

(complete a copy of this section for **EACH** barn, feedlot, and storage facility for solid manure, composting materials, or compost with a naturally occurring protective layer for the liner)

Facility description / name (as indicated on site plan)

1. Poultry Barn 10
2. Poultry Barn 11

Manure storage capacity

| | Length (m) | Width (m) | Depth below ground level (m) | NRCB USE ONLY Estimated storage capacity (m ³) |
|----------------|------------|-----------|------------------------------|---|
| 1. | 500' | 50' | 0 | |
| 2. | 500' | 50' | 0 | |
| TOTAL CAPACITY | | | | |

☒ I plan to use a short-term solid manure storage (STMS) as part of my manure storage and handling plan for this CFO. (The AOPA requirements for STMS are set out in the NRCB [Short-Term Solid Manure Storage Requirements Fact Sheet](#).)

Surface water control systems

Describe the run-on and runoff control system everything indoors

Naturally occurring protective layer details

| | | | | |
|---|---|---|---|--|
| Thickness of naturally occurring protective layer | 3 (m) | Provide details (as required) | | |
| Soil texture | % sand | % silt | % clay | |
| Hydraulic conductivity - naturally occurring protective layer | Depth and type of soil tested 4.5m clay loam | Hydraulic conductivity (cm/s) 1.1 x 10(-7) | Describe test standard used modified falling head test | |

Additional information (attach copies of soil test reports)

See attached report.

NRCB USE ONLY

Requirements met: ☐ YES ☐ NO
Condition required: ☐ YES ☐ NO
Report attached: ☐ YES ☐ NO



November 21, 2019
Wood File: BX30618

469 – 40 Street S
Lethbridge, Alberta T1J 4M1
T: +1 403 327-7474
F: +1 403 327-7682
www.woodplc.com

Derek Hoschka
Dogwood Poultry Farms Ltd.
13538 73 Ave
Surrey, BC V3W 2R6

Attention: Mr. Derek Hoschka:

**Re: Geotechnical Review and Evaluation
 Proposed Solid Manure Storage Pad
 NW30-11-19-W4M, near Iron Springs, AB**

As requested, Wood Environment & Infrastructure Solutions (Wood) has carried out a geotechnical review and evaluation of the above captioned site relative to the required protection of the groundwater resource, as required by the Agricultural Operation Practices Act, AB Reg. 267/2001 (hereinafter referred to as "AOPA"). This letter encompasses the soil conditions associated with proposed solid manure storage (see Figure 1).

In order to demonstrate the suitability of the natural soils for consideration as a naturally occurring protective layer, four boreholes were advanced at the site in June 2019. The boreholes were advanced at the approximate locations illustrated on Figure 1.

The boreholes were advanced by a truck-mounted drill rig owned and operated by Chilako Drilling Services and extended to depths of 3.0 m to 4.5 m below existing grades. The boreholes were logged by Larry Delong of Chilako Drilling Services Ltd. (see attachments).

In general, the natural mineral soils encountered within the boreholes were lacustrine silty clay becoming clay till at depth. Clay fill was noted in all boreholes to depths between 0.8 m and 1.2 m below grade. No groundwater resource (as defined by the AOPA) was identified within the 4.5 m drilling depth at the site.

In order to demonstrate the permeability of the subsurface soils, a 50 mm diameter PVC monitoring well was constructed in borehole SS4-19. Test well SS4-19 was screened from 2.7 m to 4.3 m depth. Well saturation of the 50 mm diameter monitoring well was carried out by filling the monitoring well to the top for several consecutive days. After several days, the average 24-hour water drop was measured to be about 0.97 m in SS4-19.

In order to calculate the permeability of the screened portion of the clay and clay till strata at the test well locations, a modified falling head test (as outlined in the USBR Engineering Geology Field Manual Volume 2 [2001]) was used. The input variables and output data are outlined on the In Situ Permeability Test reports, attached. As outlined on the report, the results of the *in situ* permeability testing indicate a hydraulic conductivity, k_s , of 1.1×10^{-7} cm/s at SS4-19.

Using the measured permeability of the clay stratum, the 1.6 metres of clay screened at SS4-19 have been estimated to represent about 14 m of naturally occurring materials having a hydraulic conductivity of

1×10^{-6} cm/s. This represents natural material protection in excess of the minimum requirements outlined by the AOPA for solid manure storage (minimum 2 m, Section 9.5-c).

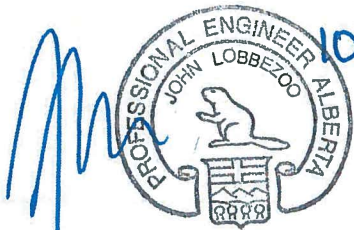
Conclusion

Based on the results of the current investigation and permeability testing, and our understanding of the site and proposed development at the site, it is Wood's opinion that the naturally occurring materials at the site satisfy the AOPA requirements for a naturally occurring 'protective layer' for the proposed solid manure storage.

We trust that this report satisfies your present requirements. Should you have any questions, please contact the undersigned at your convenience.

Yours truly,

**Wood Environment and Infrastructure Solutions,
A Division of Wood Canada Limited**



John Lobbezoo, P.Eng.
Associate Engineer, Geotechnical
Branch Manager, Lethbridge & Medicine Hat

Co-authored by:
Bogdan Masala, EIT
Geotechnical Services

Permit to Practice No. P-4546

Attachments

- Figure 1 Borehole Locations
- In Situ Permeability Test Calculations (SS4-19)
- Soil Profile and Parent Material Description, Chilako Drilling Services



Figure 1
Borehole Locations
Proposed Manure Storage Pad
Dogwood Poultry Farms Ltd.
Wood File: BX30618
September, 2019

SS4-19

wood.

In Situ Permeability Test

Modified Falling Head Permeability Equation

$$K_s = \frac{r^2}{2\ell\Delta t} \left[\frac{\sinh^{-1} \frac{\ell}{r_e}}{2} \ln \left[\frac{2H_1 - \ell}{2H_2 - \ell} \right] - \ln \left[\frac{2H_1H_2 - \ell H_2}{2H_1H_2 - \ell H_1} \right] \right]$$

taken from USBR Engineering Geology Field Manual Volume 2 (2001)

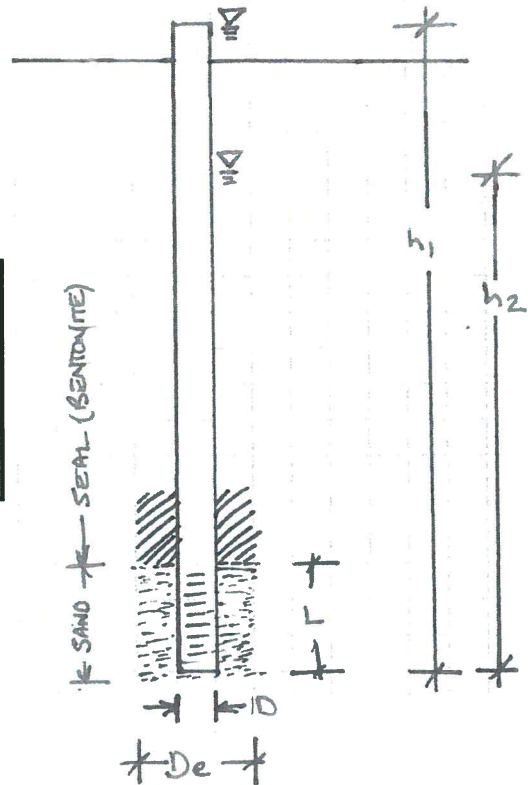
SS4-19 - Dogwood Poultry Farms Ltd. - NW-30-11-19-W4

Wood File: BX30618

INPUT VARIABLES

| Terms | Value | Definition |
|-------|--------|--|
| D | 0.0520 | diameter of standpipe (m) |
| De | 0.1500 | diameter of borehole (m) |
| L | 1.60 | length of sand section (m) |
| h1 | 4.90 | initial height of water above base of hole (m) |
| h2 | 3.93 | final height of water above base of hole (m) |
| t | 24.0 | time of test (h) |

Ks = 1.1E-07 cm/sec



CHILAKO DRILLING SERVICES LTD

Box 942 Coaldale, Alberta, T1M 1M8
(403) 345-3710

SOIL PROFILE AND PARENT MATERIAL DESCRIPTION

Site Location: NW30-11-19W4, Dogwood Poultry Farms Ltd.

Date: 24-Jun-19

| Hole # | Location | Depth | Texture | Moisture | Geological | Sample | Remarks |
|--------|----------|---------|---------|----------|------------|--------|---|
| SS1-19 | 0385579 | 0-0.8 | CL | SM | Fill | | |
| | 5533476 | 0.8-1.5 | CL | SM | Lac | | Stiff, med plastic, brown |
| | | 1.5-2.5 | C | M | Till | | Stiff, med-high plastic, dark brown |
| | | 2.5-3.0 | CL-C | M | Till | | Stiff, med plastic, brown |
| SS2-19 | 0385575 | 0-1.2 | CL | D | Fill | | Stiff, organics |
| | 5533440 | 1.2-2.1 | CL-SiCL | M | Lac | | Stiff, med plastic, brown |
| | | 2.1-3.0 | | M | Till | | Stiff, med plastic, dark brown |
| SS3-19 | 0385577 | 0-1.2 | CL | SM | Fill | | Organics |
| | 5533406 | 1.2-2.2 | CL-SiCL | M | Lac | | V. firm, med plastic, brown |
| | | 2.2-3.0 | CL | M | Till | | V. firm-stiff, med plastic, dark brown |
| SS4-19 | 0385564 | 0-1.2 | CL | SM | Fill | | |
| | 5533435 | 1.2-1.5 | CL | SM | Lac | | Topsoil |
| | | 1.5-1.9 | CL | SM | Lac | | |
| | | 1.9-2.6 | FSCL | VM | Lac | | Soft, low plastic, brown |
| | | 2.6-4.3 | CL | M | Till | | V. firm, med plastic, brown |
| | | 4.3-4.5 | CL | M | Till | | Stiff, med plastic, brown, sat sand lenses |
| | | | | | | | 50mm H.C. well installed to 4.3m Bentonite: 4.5-4.3m Screen: 4.3-2.8m Sand: 4.3-2.7m Bentonite: 2.7-0.0m Stickup: 0.6m Hole Diameter: 0.15m |

Legend: L Loam
C Clay
S Sand
Gr. Gravel
Si Silt
F Fine (sand)
VF Very Fine (sand)

Eg. VFSCl = Very Fine Sandy Clay Loam