Technical Document LA23003

Part 2 — Technical Requirements

NRCB Natural Resources Conservation Board

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

NRCB USE ONLY	Application number	Legal land description
☒ Approval ☐ Registration ☐ Authorization ☐ Amendment	LA23003	SE 20-11-23 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.

April 12 2023
Date of signing

[redacted]
Signature

Josh Denbok
Print name

Corporate name (If applicable)

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)
Feedlot Cattle Pens (total area)	75 m x 200 m
Calf Hutch/Solid Manure Storage Area	125 m x 200 m
Catch Basin synthetically lined	40 m x 40 m x 2.7m (deep)

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

Existing facilities	Dimensions (m) (length, width, and depth)	NRCB USE ONLY
Livestock Corrals (existing but not yet permitted pens)	65 m x 60 m	
Season Feeding and Bedding Site	150 m x 150 m	
AO Comment: SFBS will not be used as CFO		

NRCB USE ONLY

The above listed existing facilities are currently a part of a seasonal feeding and bedding site / under threshold operation, not a permitted CFO.

Part 2 — Technical Requirements

NRCB Natural Resources Conservation Board

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

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

The new feedlot will include the existing corrals and barn.

The seasonal feeding and bedding area (located east of the feedlot) will continue to be used for the cow/calf herd

existing pens (not yet permitted) will be incorporated into the proposed CFO footprint (pen area), no facilities are being replaced.

Construction completion date for proposed facilities Dec 31, 2026

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**
Beef Finishers	0	1000	1000
Beef Feeder Calves	0	2000	2000
On submitted Part 1 application, the applicant indicated they have a permitted number of 500 beef feeder calves. There is no record of a permit for 500 beef feeder calves with the NRCB, municipality, or deemed. Total livestock numbers (1000 finishers, 2000 beef feeder calves) have not increased from Part 1 application, therefore a new Part 1 application does not need to be submitted.			
AO Comment: This application will be processed as a new CFO			

Part 2 — Technical Requirements

NRCB Natural Resources Conservation Board

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 Parks (AEP) 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 AEP 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** AEP'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 AEP 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 AEP'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.

Signed this 12 day of April, 2023. [redacted]

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 AEP under the *Water Act* for the development or activity proposed in this AOPA application.

Signed this ____ day of _____, 20____. _____

Signature of Applicant or Agent

OPTION 4: Uncertain if *Water Act* licence is needed; acknowledgement of risk (for existing CFOs only)

1. At this time, I (we) do not know whether a new water licence is needed from AEP under the *Water Act* for the development or activity proposed in this AOPA application.
2. If a new *Water Act* licence is needed, I (we) request that the NRCB process the AOPA application **independently of** AEP'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 AEP 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 additional livestock pursuant to an AOPA permit in the absence of a *Water Act* licence will **not** be relevant to AEP's consideration of whether to grant my *Water Act* licence application, if a new water licence is needed.
5. I (we) acknowledge that any such construction or livestock increase 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.

Signed this ____ day of _____, 20____. _____

Signature of Applicant or Agent

No water wells observed on AB Gov Water Well Tool, applicant did not indicate any water wells on site in application or in meeting.

Appendix

Figure 1: Denbok Feedlot Expansion - Site Plan (SW 20-11-23W4M)

Mennonite school (formally a church) approximately 150 m south of cattle pen area.

AO Comment: footers on map pages are completed by applicant. This application is for a new CFO, not an expansion

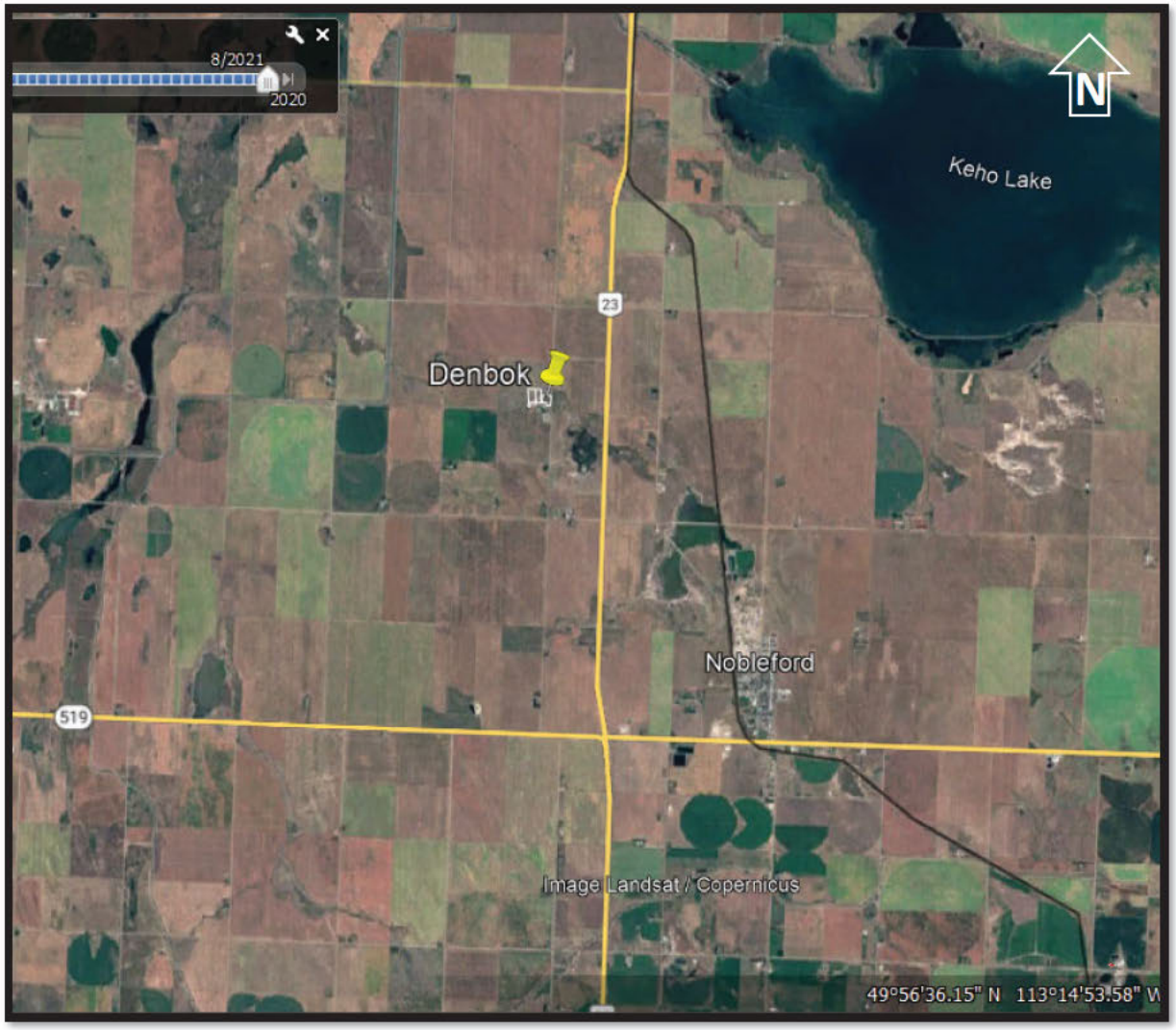

Figure 2 – Denbok Feedlot Expansion – Area Map (SW 20-11-23W4M)


SE20-11-23-4
North Property Line
West Property Line
RGE RD 234
RGE RD 234
Applicant's property (yellow star)
Old Mennonite Church School (green star)
Red lines on document indicate property lines

Part 2 — Technical Requirements

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NRCB Natural Resources Conservation Board

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: Corrals

Proposed 1: Feedlot Pens Cattle Pens

Proposed 2: Calf Hutch/Solid Manure Storage

Proposed 3: Catch Basin

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?	☑ >1 m ☐ ≤ 1 m	☑ >1 m ☐ ≤ 1 m	☑ >1 m ☐ ≤ 1 m	☑ > 1 m ☐ ≤ 1 m	☒ YES ☐ NO ☐ YES with exemption	Confirmed
Surface water information	How many springs are within 100 m of the manure storage facility or manure collection area?	0	0	0	0	☒ YES ☐ NO ☐ YES with exemption	None observed at site visit
	How many water wells are within 100 m of the manure storage facility or manure collection area?	0	0	0	0	☒ YES ☐ NO ☐ YES with exemption	None observed at site visit or by desktop review
	What is the shortest distance from the manure collection or storage facility to a surface water body? (e.g., lake, creek, slough, seasonal)	>2,000m	>2,000m	>2,000m	>2,000m	☒ YES ☐ NO ☐ YES with exemption	wetland complex 170 m east, meets AOPA
Groundwater information	What is the depth to the water table?		> 5m	>5m	>5m	☒ YES ☐ NO ☐ YES with exemption	Confirmed, free water at 5.3 m (JD1-23) and 4.2 , (JD4-23)
	What is the depth to the groundwater resource/aquifer you draw water from?	>5m	> 5m	> 5m	>5m	☒ YES ☐ NO ☐ YES with exemption	UGR identified by WW report 221769 at 5.97 m

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

water well (WW) report used to identify UGR attached. No WW identified on property, closest one was on SE 19-11-23 W4M

Water Well Drilling Report

View in Imperial | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GOWN ID

GIC Well ID 221769
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1983/10/13

Well Identification and Location

Measurement in Metric

Owner Name	Address	Town	Province	Country	Postal Code
GROTEN, TONY	BARONS				

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	SE	19	11	23	4				

Measured from Boundary of
m from
m from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 49.920529 Longitude -113.127160
How Location Obtained
Not Verified

Elevation m
How Elevation Obtained
Not Obtained

Drilling Information

Method of Drilling
Unknown

Proposed Well Use
Domestic & Stock

Type of Work
Chemistry

Formation Log

Measurement in Metric

Depth from ground level (m)	Water Bearing	Lithology Description

Yield Test Summary

Measurement in Metric

Recommended Pump Rate 0.00 L/min

Test Date	Water Removal Rate (L/min)	Static Water Level (m)
1983/10/13		5.97

Well Completion

Measurement in Metric

Total Depth Drilled	Finished Well Depth	Start Date	End Date
21.64 m			

Borehole

Diameter (cm)	From (m)	To (m)
0.00	0.00	21.64

Surface Casing (if applicable)

Size OD : 0.00 cm
Wall Thickness : 0.000 cm
Bottom at : 0.00 m

Well Casing/Liner

Size OD : 0.00 cm
Wall Thickness : 0.000 cm
Top at : 0.00 m
Bottom at : 0.00 m

Perforations

From (m)	To (m)	Diameter or Slot Width (cm)	Slot Length (cm)	Hole or Slot Interval(cm)

Perforated by

Annular Seal

Placed from 0.00 m to 0.00 m
Amount

Other Seals

Type	At (m)

Screen Type

Size OD : 0.00 cm

From (m)	To (m)	Slot Size (cm)

Attachment
Top Fittings
Bottom Fittings

Pack

Type
Grain Size
Amount

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Certification No
1

Company Name
UNKNOWN DRILLER

Copy of Well report provided to owner

Date approval holder signed

Water Well Drilling Report

View in Imperial | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GOWN ID

GIC Well ID 221769
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1983/10/13

Well Identification and Location

Measurement in Metric

Owner Name	Address	Town	Province	Country	Postal Code
GROTEN, TONY	BARONS				

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	SE	19	11	23	4				

Measured from Boundary of
m from
m from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 49.920529 Longitude -113.127160
How Location Obtained
Not Verified

Elevation m
How Elevation Obtained
Not Obtained

Additional Information

Measurement in Metric

Distance From Top of Casing to Ground Level cm
Is Artesian Flow
Rate L/min
Is Flow Control Installed
Describe

Recommended Pump Rate 0.00 L/min
Recommended Pump Intake Depth (From TOC) 0.00 m
Pump Installed
Type
Depth m
Make
H.P.
Model (Output Rating)

Did you Encounter Saline Water (>4000 ppm TDS)
Depth m
Gas
Depth m
Remedial Action Taken
Well Disinfected Upon Completion
Geophysical Log Taken
Submitted to ESRD

Sample Collected for Potability
Submitted to ESRD Yes

Additional Comments on Well

Yield Test

Taken From Ground Level
Measurement in Metric

Test Date	Start Time	Static Water Level
1983/10/13	12:00 AM	5.97 m

Depth to water level

Pumping (m)	Elapsed Time Minutes:Sec	Recovery (m)

Method of Water Removal

Type Not Applicable
Removal Rate L/min
Depth Withdrawn From 0.00 m

If water removal period was < 2 hours, explain why

Water Diverted for Drilling

Water Source	Amount Taken	Diversion Date & Time
	L	

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Certification No
1

Company Name
UNKNOWN DRILLER

Copy of Well report provided to owner

Date approval holder signed

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NRCB USE ONLY

ENVIRONMENTAL RISK SCREENING INFORMATION

Well IDs: No water wells identified on site via site visit or desktop review

Surface water related concerns from directly affected parties or referral agencies: ☐ YES ☒ NO

Groundwater related concerns from directly affected parties or referral agencies: ☒ YES ☐ NO

Water wells ☒ N/A

If applicable, exemption for 100 m distance requirements applied: ☐ YES ☐ NO Condition required: ☐ YES ☐ NO

Surface water ☒ N/A

If applicable, exemption for 30 m distance requirements applied: ☐ YES ☐ NO Condition required: ☐ YES ☐ NO

ERST for **proposed** facilities

Facility	Groundwater score	Surface water score	File number
Pen area	low	low	LA23003
Calf Hutch / manure storage	low	low	LA23003
Catch basin	low	low	LA23003

ERST for **existing** facilities

Facility	Groundwater score	Surface water score	File number
existing (not permitted) pens will be incorporated into proposed pen area			

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

			NRCB USE ONLY				
Neighbour name(s)	**Legal land description**	**Distance (m)**	**Zoning (LUB) category**	**MDS category (1-4)**	**Distance (m)**	**Waiver attached (if required)**	**Meets regulations**
Bandman	South of yard	870 m	RA	1	870 m	n/a	Y
Vander Woude	North of yard	1200 m	RA	1	1200 m	n/a	Y
NW 16-11-23 W4M (BANDMAN)	NE 20-11-23 W4M (VANDER WOUDE)						
			RA = Rural Agriculture				

Although not a residence, a Mennonite School (previously a church) is located ~ 150 m south of cattle pen area (existing pens)

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

				NRCB USE ONLY	
Name of land owner(s)*	**Legal land description**	**Usable area** (ha)**	**Soil zone *****	**Usable area (ha)**	**Agreement attached (if required)**
Phoenix Farms	NW 11-11-24W4M	135 acres	irrigated	135 acres	Y
Phoenix Farms	NW 12-11-24W4M	155 acres	irrigated	155 acres	Y
See manure spreading agreement					
			Total	290 acres	

* 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:

Josh denBak (JD Farms), manure producer, and

Phoenix Farms, manure receiver

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

Legal Land Location	Soil Type[1]	Acres suitable for manure spreading[2]
NW-11-11-24	Irrigated	135
NW-12-11-24	Irrigated	155

[1] Soil type choices: Dark brown and brown, grey wooded, black, and or irrigated

[2] Land within required setback from water bodies, water wells, residences, etc, is not included

Other Comments:

Manure Producer (Confided Feeding Operation) Legal Land Location: SE-20-11-23 W4

Date (dd/mm/yyyy)	Signature	Print Name	Corporate Name (if applicable)
06-02-2023	[redacted]	Josh denBak	

Manure Receiver – Landowner(s)[3]

Date (dd/mm/yyyy)	Signature	Print Name	Corporate Name (if applicable)
06-02-2023	[redacted]	Joel Mak	Phoenix Farms

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

Part 2 — Technical Requirements

NRCB Natural Resources Conservation Board

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NRCB USE ONLY

MINIMUM DISTANCE SEPARATION

Methods used to determine distance (if applicable): Google Earth

Margin of error (if applicable): +/- 2 m

Requirements (m): Category 1: 452 m Category 2: 603 m Category 3: 753 m Category 4: 1,205 m

Technology factor: ☐ YES ☒ NO

Expansion factor: ☐ YES ☒ NO

MDS related concerns from directly affected parties or referral agencies: ☒ YES ☐ NO

Lethbridge County was concerned about the distance between the proposed cfo and school to the south. School not a residence, therefore MDS does not apply

LAND BASE FOR MANURE AND COMPOST APPL ICATION

Land base required: 227 3 acres irrigated

Land base listed: 290 acres irrigated

Area not suitable: 0 acres

Available area 290 acres irrigated Requirement met: ☒ YES ☐ NO

Land spreading agreements required: ☒ YES ☐ NO

Manure management plan: ☐ YES ☒ NO If yes, plan is attached: ☐

PLANS

Submitted and attached construction plans: ☒ YES ☐ NO

Submitted aerial photos: ☒ YES ☐ NO

Submitted photos: ☐ YES ☒ NO

GRANDFATHERING

Already completed: ☐ YES ☐ NO ☒ N/A

If already completed, see _____

Name	Josh denBok (JD Feeders)
Address	
Legal Land Location	SE 20-11-23 W4M

MDS Spreadsheet based on 2006 AOPA Regulations

Category of Livestock	Type of Livestock	Factor A	Technology Factor	MU	LSU Factor	Number of Animals	LSU
Feedlot Animals	Beef Cows/Finishers (900+ lbs)	0.700	0.700	0 910	0.4459	1 000	445 9
	Beef Feeders (450 - 900 lbs)	0.700	0.700	0 500	0 2450		-
	Beef Feeder Calves (<550 lbs)	0.700	0.700	0 275	0.1348	2 000	269 5
	Horses - PMU	0 650	0.700	1 000	0.4550		-
	Horses - Feeders > 750 lbs	0 650	0.700	1 000	0.4550		-
	Horses - Foals < 750 lbs	0 650	0.700	0 300	0.1365		-
	Mules	0 600	0.700	1 000	0.4200		-
	Donkeys	0 600	0.700	0 670	0 2814	-	-
	Bison	0 600	0.700	1 000	0.4200		-
	Other						-
Dairy (*count lactating cows only)	Free Stall – Lactating Cows with all associated dries, heifers, and calves*	0 800	1.100	2 000	1.7600		-
	Free Stall – Lactating Cows with Dry Cows only*	0 800	1.100	1 640	1.4432		-
	Free Stall – Lactating Cows only	0 800	1.100	1.400	1 2320		-
	Tie Stall – Lactating Cows only	0 800	1.000	1.400	1.1200		-
	Loose Housing – Lactating Cows only	0 800	1.000	1.400	1.1200		-
	Dry Cow	0 800	0.700	1 000	0 5600		-
	Replacements – Bred Heifers (Breeding to Calving)	0 800	0.700	0 875	0.4900		-
	Replacements - Growing Heifers (350 lbs to breeding)	0 800	0.700	0 525	0 2940		-
	Calves (< 350 lbs)	0 800	0.700	0 200	0.1120		-
	Other						-
Swine Liquid (*count sows only)	Farrow to finish *	2 000	1.100	1.780	3 9160		-
	Farrow to wean *	2 000	1.100	0 670	1.4740		-
	Farrow only *	2 000	1.100	0 530	1.1660		-
	Feeders/Boars	2 000	1.100	0 200	0.4400		-
	Growers/Roasters	2 000	1.100	0.118	0 2600		-
	Weaners	2 000	1.100	0 055	0.1210		-
	Other						-
Swine Solid (*Count sows only)	Farrow to finish *	2 000	0.800	1.780	2 8480		-
	Farrow to wean *	2 000	0.800	0 670	1 0720		-
	Farrow only *	2 000	0.800	0 530	0 8480		-
	Feeders/Boars	2 000	0.800	0 200	0 3200		-
	Growers/Roasters	2 000	0.800	0.118	0.1888		-
	Weaners	2 000	0.800	0 055	0 0880		-
	Other						-
Poultry	Chicken - Breeders - Solid	1 000	0.700	0 010	0 0070		-
	Chicken - Layers - Liquid (includes associated pullets)	2 000	1.100	0 008	0 0176		-
	Chicken - Layers - (Belt Cage)	2 000	0.700	0 008	0 0112		-
	Chicken - Layers - (Deep Pit)	2 000	0.700	0 008	0 0112		-
	Chicken - Pullets/Broilers	1 000	0.700	0 002	0 0014		-
	Turkey - Toms/Breeders	1 000	0.700	0 020	0 0140		-
	Turkey - Hens (light)	1 000	0.700	0 013	0 0091		-
	Turkey - Broilers	1 000	0.700	0 010	0 0070		-
	Ducks	1 000	0.700	0 010	0 0070		-
	Geese	1 000	0.700	0 020	0 0140		-
	Other						-
Sheep and Goats	Sheep - Ewes/Rams	0 600	0.700	0 200	0 0840		-
	Sheep - Ewes with lambs	0 600	0.700	0 250	0.1050		-
	Sheep - Lambs	0 600	0.700	0 050	0 0210		-
	Sheep - Feeders	0 600	0.700	0.100	0 0420		-
	Goats - Meat/Milk (per Ewe)	0.700	0.700	0.170	0 0833		-
	Goats - Nannies/Billies	0.700	0.700	0.140	0 0686		-
	Goats - Feeders	0.700	0.700	0 077	0.0377		-
	Other						-
Cervid	Elk	0 600	0.700	0 600	0.2520		-
	Deer	0 600	0.700	0 200	0.0840		-
	Other						-
Wild Boar	Feeders	2 000	0.800	0.140	0.2240	-	-
	Sow (farrowing)	2 000	0.800	0 371	0 5936		-
	Other						-
					Total		715.4

For New Operations

Dispersion Factor	1

Category	Odour Objective	Distance	
		Feet	Metres
1	41.04	1 483	452
2	54.72	1 977	603
3	68.4	2 471	753
4	109.44	3,954	1,205

For Expanding Operations

Dispersion Factor	1
Expansion Factor	0.77

Category	Odour Objective	Distance	
		Feet	Metres
1	41.04	1 142	348
2	54.72	1 522	464
3	68.40	1,903	580
4	109.44	3,045	928

Name Josh denBok (JD Feeders)
Address 0
Legal Land
Location SE 20-11-23 W4M

Landbase Requirements (hectares) based on 2006 AOPA requirements

Category of Livestock	Type of Livestock	Number of Animals	Dark Brown & Brown (ha)	Grey Wooded (ha)	Black (ha)	Irrigated (ha)
Feedlot Animals	Cows/Finishers (900+ lbs)	1000 0	125.0	104 0	78.0	62.0
	Feeders (450 - 900 lbs)	0 0	0.0	0 0	0.0	0.0
	Feeder Calves (<550 lbs)	2000 0	62.0	52 0	38.0	30.0
	Horses - PMU	0 0	0.0	0 0	0.0	0.0
	Horses - Feeders > 750 lbs	0 0	0.0	0 0	0.0	0.0
	Horses - Foals < 750 lbs	0 0	0.0	0 0	0.0	0.0
	Mules	0 0	0.0	0 0	0.0	0.0
	Donkeys	0 0	0.0	0 0	0.0	0.0
	Bison	0 0	0.0	0 0	0.0	0.0
	Other	0 0				
Dairy (*count lactating cows only)	Free Stall – Lactating Cows with all associated dries, heifers, and calves*	0 0	0.0	0 0	0.0	0.0
	Free Stall – Lactating Cows with Dry Cows only *	0 0	0.0	0 0	0.0	0.0
	Free Stall – Lactating Cows only*	0 0	0.0	0 0	0.0	0.0
	Tie Stall – Lactating Cows only	0 0	0.0	0 0	0.0	0.0
	Loose Housing – Lactating Cows only	0 0	0.0	0 0	0.0	0.0
	Dry Cow (Solid manure)	0 0	0.0	0 0	0.0	0.0
	Dry Cow (Liquid manure)	0 0	0.0	0 0	0.0	0.0
	Replacements – Bred Heifers (Breeding to Calving)	0 0	0.0	0 0	0.0	0.0
	Replacements - Growing Heifers (350 lbs to breeding)	0 0	0.0	0 0	0.0	0.0
	Calves (< 350 lbs)	0 0	0.0	0 0	0.0	0.0
	Other	0 0				
Swine Liquid (*count sows only)	Farrow to finish *	0 0	0.0	0 0	0.0	0.0
	Farrow to wean *	0 0	0.0	0 0	0.0	0.0
	Farrow only *	0 0	0.0	0 0	0.0	0.0
	Feeders/Boars	0 0	0.0	0 0	0.0	0.0
	Growers/Roasters	0 0	0.0	0 0	0.0	0.0
	Weaners	0 0	0.0	0 0	0.0	0.0
	Other	0 0				
Swine Solid (*Count sows only)	Farrow to finish *	0 0	0.0	0 0	0.0	0.0
	Farrow to wean *	0 0	0.0	0 0	0.0	0.0
	Farrow only *	0 0	0.0	0 0	0.0	0.0
	Feeders/Boars	0 0	0.0	0 0	0.0	0.0
	Growers/Roasters	0 0	0.0	0 0	0.0	0.0
	Weaners	0 0	0.0	0 0	0.0	0.0
		0 0				
Poultry	Chicken - Breeders - Solid	0 0	0.0	0 0	0.0	0.0
	Chicken - Layers - Liquid (includes associated pullets)	0 0	0.0	0 0	0.0	0.0
	Chicken - Layers - (Belt Cage)	0 0	0.0	0 0	0.0	0.0
	Chicken - Layers - (Deep Pit)	0 0	0.0	0 0	0.0	0.0
	Chicken - Pullets/Broilers	0 0	0.0	0 0	0.0	0.0
	Turkey - Toms/Breeders	0 0	0.0	0 0	0.0	0.0
	Turkey - Hens (light)	0 0	0.0	0 0	0.0	0.0
	Turkey - Broilers	0 0	0.0	0 0	0.0	0.0
	Ducks	0 0	0.0	0 0	0.0	0.0
	Geese	0 0	0.0	0 0	0.0	0.0
	Other	0 0				
Goats and Sheep	Sheep - Ewes/Rams	0 0	0.0	0 0	0.0	0.0
	Sheep - Ewes with lambs	0 0	0.0	0 0	0.0	0.0
	Sheep - Lambs	0 0	0.0	0 0	0.0	0.0
	Sheep - Feeders	0 0	0.0	0 0	0.0	0.0
	Goats - Meat/Milk (per Ewe)	0 0	0.0	0 0	0.0	0.0
	Goats - Nannies/Billies	0 0	0.0	0 0	0.0	0.0
	Goats - Feeders	0 0	0.0	0 0	0.0	0.0
	Other	0 0				
Cervid	Elk	0 0	0.0	0 0	0.0	0.0
	Deer	0 0	0.0	0 0	0.0	0.0
	Other	0 0				
Wild Boar	Feeders	0 0	0.0	0 0	0.0	0.0
	Sow (farrowing)	0 0	0.0	0 0	0.0	0.0
	Other	0 0				
	Total Hectares		187	156 0	116.0	92.0
	Total Acres		462	385 5	286.6	227.3

Name Josh denBok (JD Feeders)
Address 0
Legal Land
Location SE 20-11-23 W4M

Animal Units to Determine Affected Party Radius

Category of Livestock	Type of Livestock	Number of Animals	Animal Unit Factor	Animal Units
Beef	Cows/Finishers (900+ lbs)	1 000	1.1	909.1
	Feeders (450 - 900 lbs)	-	2	0.0
	Feeder Calves (<550 lbs)	2 000	3 6	555.6
	Horses - PMU	-	1	0.0
	Horses - Feeders > 750 lbs	-	1	0.0
	Horses - Foals < 750 lbs	-	3 3	0.0
	Mules	-	1	0.0
	Donkeys	-	1 5	0.0
	Bison	-	1	0.0
	Other	-		0.0
Dairy (*count lactating cows only)	Free Stall – Lactating Cows with all associated dries, heifers, and calves*	-	0 5	0.0
	Free Stall – Lactating Cows with Dry Cows only*	-	0 6	0.0
	Free Stall – Lactating Cows only	-	0.7	0.0
	Tie Stall – Lactating Cows only	-	0 5	0.0
	Loose Housing – Lactating Cows only	-	0 5	0.0
	Dry Cow (Solid manure)	-	1	0.0
	Dry Cow (Liquid manure)	-	1	0.0
	Replacements – Bred Heifers (Breeding to Calving)	-	1.15	0.0
	Replacements - Growing Heifers (350 lbs to breeding)	-	1 9	0.0
	Calves (< 350 lbs)	-	5	0.0
	Other	-		0.0
Swine Liquid (*count sows only)	Farrow to finish *	-	0 56	0.0
	Farrow to wean *	-	1 5	0.0
	Farrow only *	-	1 9	0.0
	Feeders/Boars	-	5	0.0
	Growers/Roasters	-	8 5	0.0
	Weaners	-	18.2	0.0
	Other	-		0.0
Swine Solid (*Count sows only)	Farrow to finish *	-	0 56	0.0
	Farrow to wean *	-	1 5	0.0
	Farrow only *	-	1 9	0.0
	Feeders/Boars	-	5	0.0
	Growers/Roasters	-	8 5	0.0
	Weaners	-	18.2	0.0
	Other	-		0.0
Poultry	Chicken - Breeders - Solid	-	100	0.0
	Chicken - Layers - Liquid (includes associated pullets)	-	125	0.0
	Chicken - Layers - (Belt Cage)	-	150	0.0
	Chicken - Layers - (Deep Pit)	-	150	0.0
	Chicken - Pullets/Broilers	-	500	0.0
	Turkey - Toms/Breeders	-	50	0.0
	Turkey - Hens (light)	-	75	0.0
	Turkey - Broilers	-	100	0.0
	Ducks	-	100	0.0
	Geese	-	50	0.0
	Other	-		0.0
Goats and Sheep	Sheep - Ewes/Rams	-	5	0.0
	Sheep - Ewes with lambs	-	4	0.0
	Sheep - Lambs	-	21	0.0
	Sheep - Feeders	-	10	0.0
	Goats - Meat/Milk (per Ewe)	-	6	0.0
	Goats - Nannies/Billies	-	10	0.0
	Goats - Feeders	-	13	0.0
	Other	-		0.0
Cervid	Elk	-	1.7	0.0
	Deer	-	5	0.0
	Other	-		0.0
Wild Boar	Feeders	-	6	0.0
	Sow (farrowing)	-	1 25	0.0
	Other	-		0.0
	Total Animal Units			1464.6
	Affected Party Radius			1 5 miles

Affected Party radius is measured from the boundary of the parcel of land where the cfo is located to land that is within the affected party radius.

Part 2 — Technical Requirements

NRCB Natural Resources Conservation Board

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

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. Feedlot Cattle Pens
2. Calf Hutch/Solid Manure Storage

Manure storage capacity

	Length (m)	Width (m)	Depth below ground level (m)	**NRCB USE ONLY** Estimated storage capacity (m^3)
1.	200	75	0	confirmed 9 month storage
2.	200	125	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

Manure impacted surface water will be directed to the catch basin.

Naturally occurring protective layer details

Thickness of naturally occurring protective layer	1.05 (m)	Provide details (as required) See attached engineering report from WSP	
Soil texture	29 % sand	43 % silt	40 % clay
Hydraulic conductivity - naturally occurring protective layer	Depth and type of soil tested 1.15 - 2.2 m blg Clay Loam	Hydraulic conductivity (cm/s) 5.1 x 10-7 cm/s	Describe test standard used modified falling head test

Additional Information *(attach copies of soil test reports)*

NRCB USE ONLY

Requirements met: ☒ YES ☐ NO

Condition required: ☐ YES ☒ NO

Report attached: ☒ YES ☐ NO

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

NRCB USE ONLY

Nine month manure storage volume requirements met: ☒ YES ☐ YES With STMS ☐ NO

Depth to water table: 4.2m Requirements met: ☒ YES ☐ NO

Depth to uppermost groundwater resource: 5.97m Requirements met: ☒ YES ☐ NO

ERST completed: ☒ see ERST page for details

Surface water control systems

Requirements met: ☒ YES ☐ NO Details/comments:

applicant stated that run off will be directed to catch basin

Borehole JD4-23 hit the water table at 4.2 m and JD1-23 hit the water table at 5.3 m. JD4-23 was drilled north of the constructed, but not yet permitted feedlot pens, and JD1-23 was drilled to the west of the proposed solid manure storage area / calf hutch and catch basin area according to submitted site map.

Naturally occurring protective layer details

Layer specification comments (e.g. sand lenses; layering uniform or irregular; number and location of boreholes):

Sandstone chunks and sand layers hit throughout drilling report (JD3-23, JD4-23)

13 March 2023

WSP File: BX11613.300

3102 – 12 Avenue South
Lethbridge, Alberta T1H 5V1
T: +1 403 327-7474
www.wsp.com

JD Feeders (Josh den Bok)
c/o Linkage Ag Solutions
Box 1120, Coaldale, AB T1M 1M9

Attention: Cody Metheral, P.Eng.

Re: Geotechnical Review and Evaluation
NRCB Permitting of Proposed Pens
SE-20-011-23-W4M, near Nobleford, Alberta

As requested, WSP E&I Canada Limited (WSP) 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 describes site soil conditions to support a permit application related to an area of proposed new cattle pens to be located in SE-20-011-23-W4M in an area generally north of farmyard area (refer to Figure 1, attached).

In order to demonstrate the suitability of the naturally existing soils for consideration as a naturally occurring protective layer to the groundwater, thirteen (13) boreholes were advanced at the site on January 10, 2023. The boreholes were advanced at the approximate locations denoted as JD1-23 to JD13-23 on Figure 1, attached.

The boreholes were advanced by a truck-mounted drill rig owned and operated by Chilako Drilling Services and extended to depths ranging between 2.2 m and 6.2 m below existing grades. The boreholes were logged by Larry Delong of Chilako Drilling Services.

In general, the natural mineral soils encountered within the boreholes comprised of a thin layer of lacustrine clay and silty clay over minor clay till, which was generally underlain by bedrock (siltstone to sandstone). Free groundwater was encountered in two of the boreholes, at a depth of approximately 5.3 m below the existing grade, within the bedrock strata.

Samples of soil collected from the screened zone of boreholes JD8-23, JD10-23 and JD13-23 were subjected to laboratory grain size (i.e., hydrometer) analyses. The results (attached) indicate a textural breakdown of approximately:

Table 1: Soil Textural Analyses

Borehole/Depth	% Sand	% Silt	% Clay
JD8-23 / 1.7-3m	6	68	26
JD10-23 / 1.5-3m	7	53	40
JD13-23 / 1-2m	29	43	28

To measure the *in situ* permeability of the subsurface soils, 50 mm diameter PVC monitoring wells were constructed in boreholes JD8-23 and JD10-23 (proposed new pen area) and borehole JD13-23 (existing pen area). Test well JD8-23 was screened from 1.4 m to 3.0 m depth, test well JD10-23 was screened from 1.45 m to 3.0 m depth, and test well JD13-23 was screened from 1.15 m to 2.2 m depth. Well saturation of the 50 mm diameter monitoring wells was carried out by filling the monitoring well to the top for several consecutive days. After several days, the average 4-hour water drop at JD8-23 was 0.66 m, the average 4-hour water drop at JD10-23 was 0.76 m, and the average 4-hour water drop at JD13-23 was 0.30 m. During the testing, the wells were protected from freezing.

To calculate the permeability of the screened portion of the 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 attached In Situ Permeability Test reports. The results of the permeability testing indicate an *in situ* hydraulic conductivity, k_s, of 6.4×10^{-7} cm/s at JD8-23, a hydraulic conductivity, k_s, of 7.7×10^{-7} cm/s at JD10-23, and a hydraulic conductivity, k_s, of 5.1×10^{-7} cm/s at JD13-23.

Using the measured permeability of the clay stratum, the 1.6 m of clay screened at JD8-23 is estimated to represent the equivalent of 2.5 m of naturally occurring materials having a hydraulic conductivity of 1×10^{-6} cm/s (the reference standard in AOPA). At JD10-23, the 1.55 m of clay that was screened is estimated to represent the equivalent of approximately 2 m of naturally occurring materials having a hydraulic conductivity of 1×10^{-6} cm/s, and at JD13-23, the 1.05 m of clay that was screened is also estimated to represent the equivalent of approximately 2.1 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, permeability testing, and our understanding of the site and proposed development at the site, it is WSP's opinion that the naturally occurring materials at the site satisfy the AOPA requirements for permitting the proposed pens at this location.

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

Yours truly,

WSP E&I Canada Limited

PROFESSIONAL ENGINEER ALBERTA JOHN J. LOBBEZOO 110450

14 March 2023

John Lobbezoo, P.Eng.
Associate Engineer, Geotechnical
Lethbridge & Medicine Hat Area Lead

Reviewed by:
Stephen Van Essen, P.Eng.
Sr. Water Resources Engineer

PERMIT TO PRACTICE
WSP E&I CANADA LIMITED
RM SIGNATURE: _____
RM APEGA ID #: 110450
DATE: 14 March 2023
PERMIT NUMBER: P004546
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

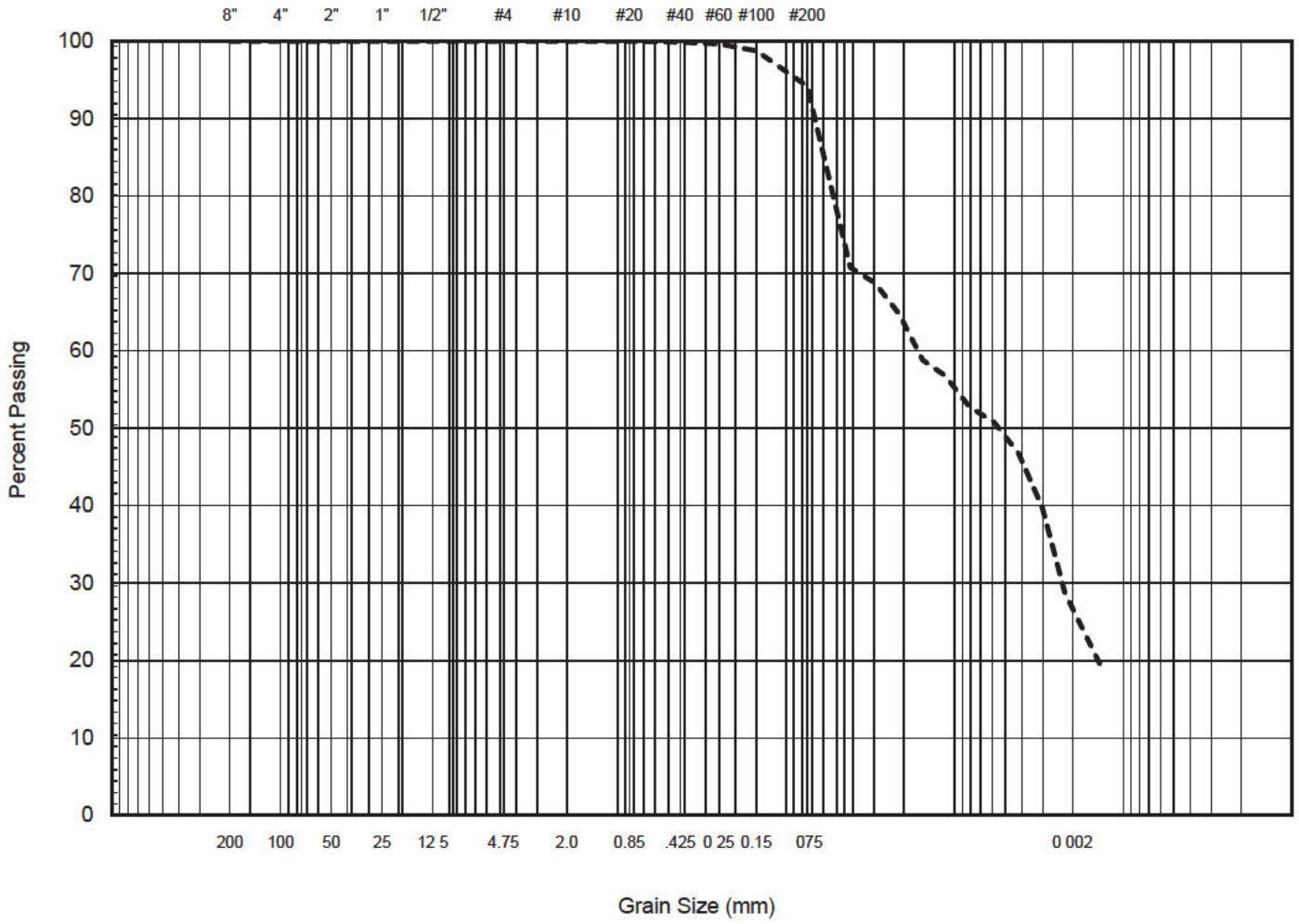
Attachments
- Figure 1 Borehole Locations
- In Situ Permeability Test Calculations
- Hydrometer Test
- Soil Profile and Parent Material Description, Chilako Drilling Services


Figure 1
Borehole Locations
denBok Feeders
WSP File: BX11613.300
March, 2023
Legend
Feature 1
Feature 2
Old Colony Mennonite Church
JD1-19
JD2-19
JD11-23
JD10-23
SE-20-011-23-W4M
JD9-23
JD8-23
JD4-23
PROPOSED PEN AREA
JD7-23
JD6-23
JD3-23
EXISTING PEN AREA
JD3-19
JD13-23
JD12-23
JD1-23
JD2-23
Range Rd 234
Old Colony Mennonite Church
Google Earth
Image © 2023 CNES / Airbus
N
300 m

HYDROMETER TEST

WSP E&I Canada Limited
3102 12 Avenue North
Lethbridge, AB T1H 5V1

COBBLES	GRAVEL		SAND			SILT	CLAY
	Coarse	Fine	C	M	F		



Remarks:

Summary

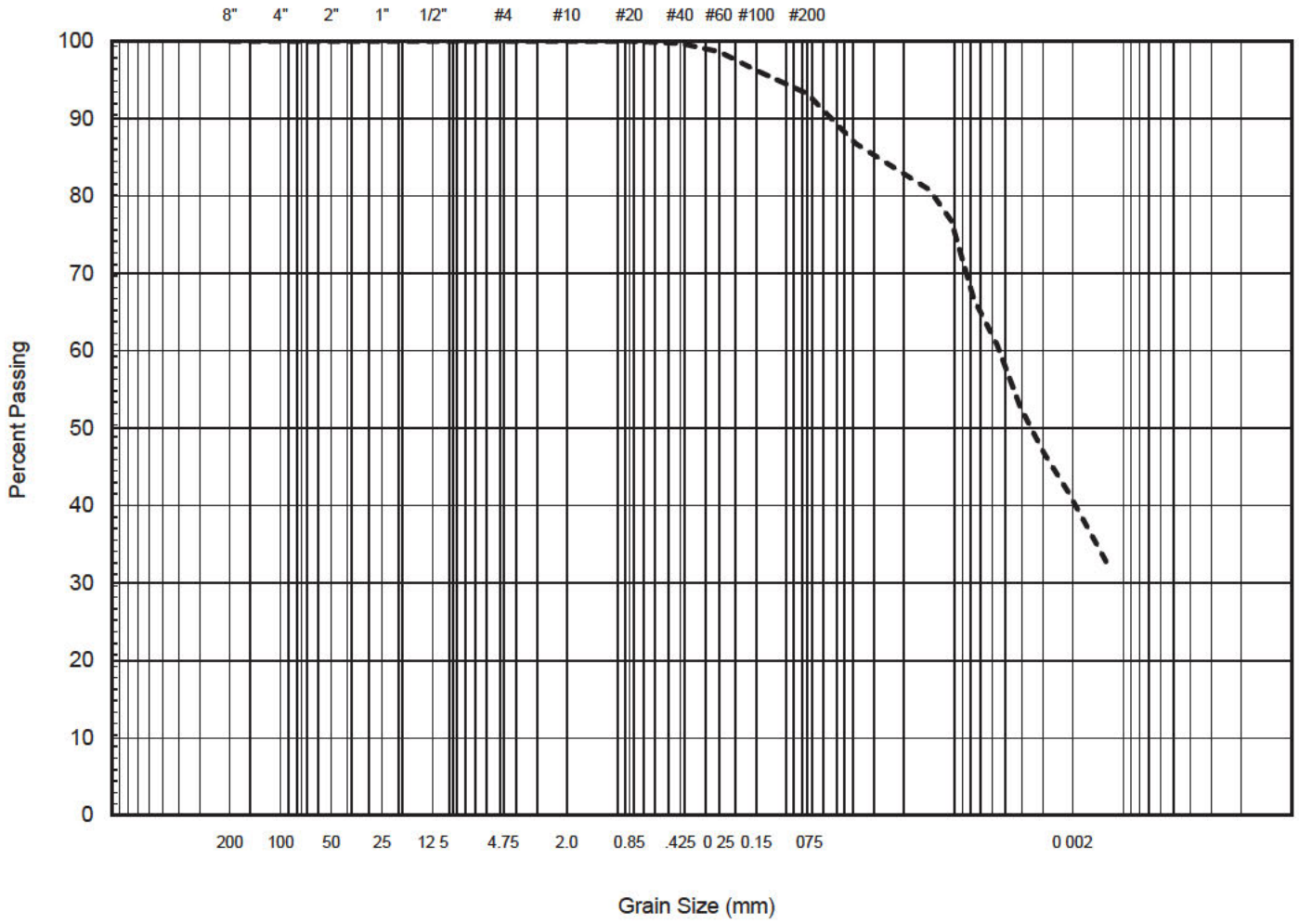
D10 =	#N/A	mm	**Gravel**	0	%
D30 =	0.0023	mm	**Sand**	6	%
D60 =	0.0167	mm	**Silt**	68	%
Cu =	#N/A		**Clay**	26	%
Cc =	#N/A				

Project No:	BX11613	**Client:**	JD Feeders		
Hole No:	JD8-23	**Sample:**	--		
Depth (m):	1.7 - 3.0	**Date:**	March 8, 2023	**Tech:**	TMW

HYDROMETER TEST

WSP E&I Canada Limited
3102 12 Avenue North
Lethbridge, AB T1H 5V1

COBBLES	GRAVEL		SAND			SILT	CLAY
	Coarse	Fine	C	M	F		



Remarks:

Summary

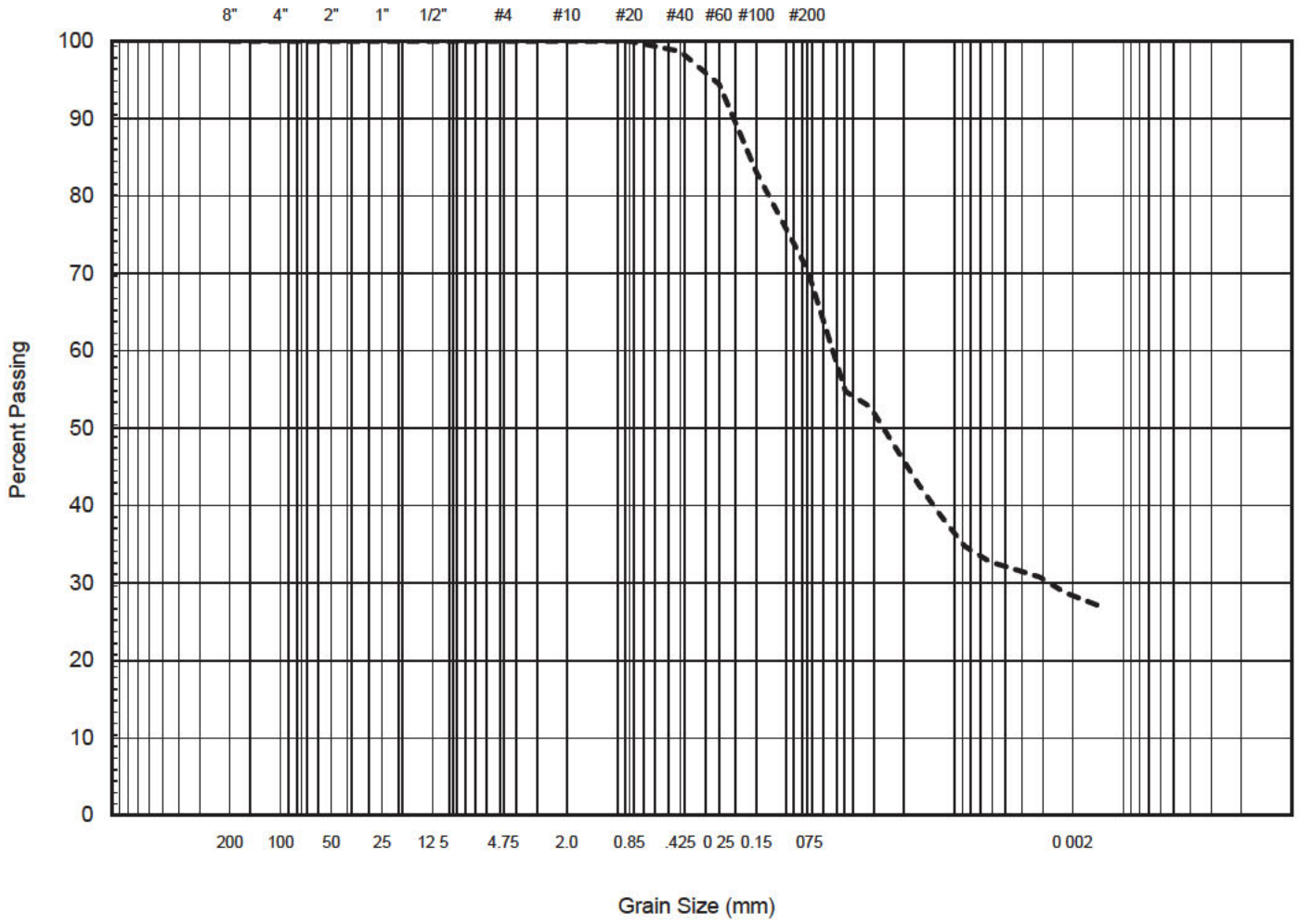
D10 =	#N/A	mm	**Gravel**	0	%
D30 =	#N/A	mm	**Sand**	7	%
D60 =	0.0055	mm	**Silt**	53	%
Cu =	#N/A		**Clay**	40	%
Cc =	#N/A				

Project No:	BX11613.300	**Client:**	JD Feeders		
Hole No:	JD10-23	**Sample:**	--		
Depth (m):	1.5 - 3.0	**Date:**	March 8, 2023	**Tech:**	TMW

HYDROMETER TEST

WSP E&I Canada Limited
3102 12 Avenue North
Lethbridge, AB T1H 5V1

COBBLES	GRAVEL		SAND			SILT	CLAY
	Coarse	Fine	C	M	F		



Remarks:

Summary

D10 =	#N/A	mm	**Gravel**	0	%
D30 =	0.0028	mm	**Sand**	29	%
D60 =	0.0545	mm	**Silt**	43	%
Cu =	#N/A		**Clay**	28	%
Cc =	#N/A				

Project No:	BX11613.300	**Client:**	JD Feeders		
Hole No:	JD13-23	**Sample:**	--		
Depth (m):	1.0 - 2.0	**Date:**	March 8, 2023	**Tech:**	TMW

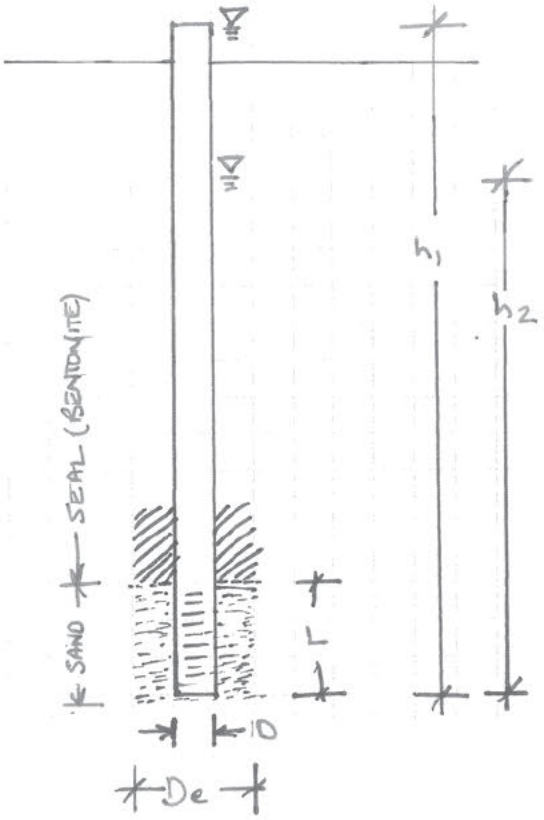
JD8-23

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)



JD8-23 - JD Feeders

Wood File: BX11613.300

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	3.60	initial height of water above base of hole (m)
h2	2.94	final height of water above base of hole (m)
t	4.0	time of test (h)

k_s = 6.4E-07 cm/sec

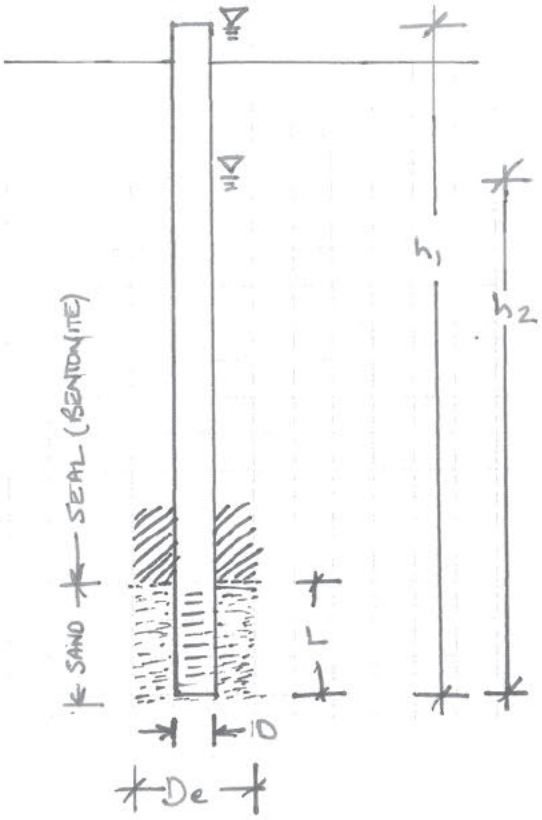
JD10-23

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)



JD10-23 - JD Feeders

Wood File: BX11613.300

INPUT VARIABLES

Terms	Value	Definition
D	0.0520	diameter of standpipe (m)
De	0.1500	diameter of borehole (m)
L	1.55	length of sand section (m)
h1	3.60	initial height of water above base of hole (m)
h2	2.84	final height of water above base of hole (m)
t	4.0	time of test (h)

k_s = 7.7E-07 cm/sec

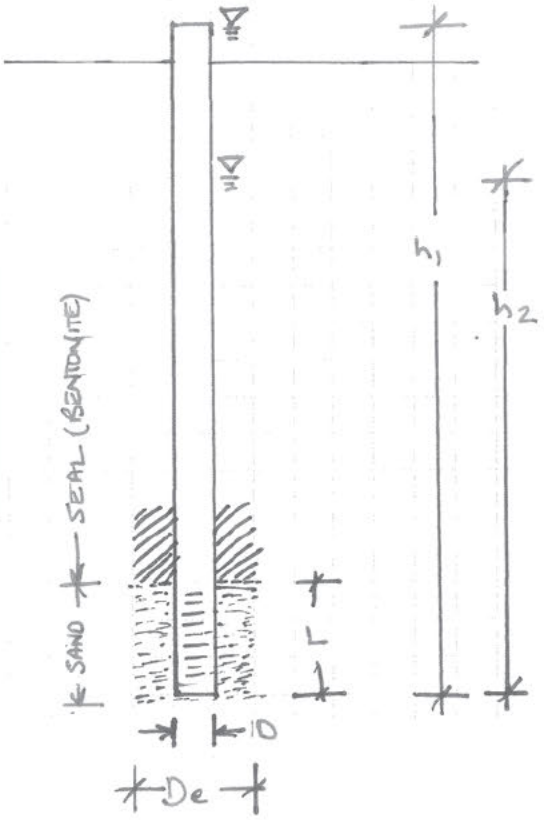
JD13-23

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)



JD13-23 - JD Feeders

Wood File: BX11613.300

INPUT VARIABLES

Terms	Value	Definition
D	0.0520	diameter of standpipe (m)
De	0.1500	diameter of borehole (m)
L	1.05	length of sand section (m)
h1	2.60	initial height of water above base of hole (m)
h2	2.30	final height of water above base of hole (m)
t	4.0	time of test (h)

k_s = 5.1E-07 cm/sec

CHILAKO DRILLING SERVICES LTD

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

SOIL PROFILE AND PARENT MATERIAL DESCRIPTION

Site Location: SE20-11-23W4, JD Feeders Date: 10-Jan-23

Hole #	Location	Depth	Texture	Moisture	Geological	Sample	Remarks
JD1-23	0348943	0-0.5	CL	F	Lac		
	5531630	0.5-2.1	CL	M	Till		
		2.1-3.7	Siltstone	SM	Bedrock		Iron staining along fractures
		3.7-5.6	Sandstone	SM	Bedrock		
		5.6-6.2	Sandstone	Sat	Bedrock		Free water @ 5.3m, hard layers
							25mm WTW installed to 6.2m
JD2-23	0349028	0-0.6	CL	F	Lac		
	5531637	0.6-2.6	CL	SM	Till		Stiff, med plastic, brown, sand lensing, bedrock chips
		2.6-3.4	Siltstone	SM	Bedrock		
		3.4-5.1	Siltstone	D	Bedrock		Hard, light yellow, refusal @ 5.1m
JD3-23	0349124	0-0.6	CL	F	Lac		
	5531770	0.6-1.5	CL	D	Till		Sandstone chunks
		1.5-3.9	Siltstone	SM	Bedrock		Soft bedrock, yellow, oxidized along fractures
		3.9-4.2	Sandstone	D	Bedrock		Hard, refusal @ 4.2m
JD4-23	0349168	0-0.6	CL	F	Lac		Soft, sand layers, pebbles
	5531846	0.6-1.0	CL	D	Lac		Soft bedrock, yellow
		1.0-2.8	SCL	M	Till		Soft bedrock, yellow
		2.8-3.9	Siltstone	SM	Bedrock		Hard, yellow, oxidized along fractures
		3.9-4.3	Sandstone	SM	Bedrock		refusal @ 5.4m, free water @ 4.2m
		4.3-5.4	Siltstone	SM	Bedrock	4.5-5.0	25mm WTW installed to 5.4m
JD5-23	0349157	0-0.6	CL	F	Lac		
	5531773	0.6-2.4	CL-SCL	M	Till		
		2.4-5.2	Sandstone	M	Bedrock		Soft bedrock, grayish yellow
		5.2-6.0	Siltstone	SM	Bedrock		Soft bedrock, yellow, oxidized along fractures
JD6-23	0349065	0-0.5	CL	F	Lac		
	5531757	0.5-1.2	CL	D	Lac		
		1.2-1.5	FSL-FSCL	D	Lac		
		1.5-2.6	CL	SM	Till		Stiff, med plastic, yellow brown, bedrock chunks
		2.6-3.0	Siltstone	D	Bedrock		Soft bedrock, yellow
JD7-23	0348960	0-0.5	CL	F	Lac		
	5531775	0.5-1.6	CL	D	Lac		
		1.6-2.6	CL-SiCL	D	Till		Med plastic, bedrock chunks
		2.6-3.0	Siltstone	D	Bedrock		Soft bedrock

SOIL PROFILE AND PARENT MATERIAL DESCRIPTION (Continued)

Hole #	Location	Depth	Texture	Moisture	Geological	Sample	Remarks
JD8-23	0348954	0-0.5	SiCL	F	Lac		
	5531860	0.5-1.7	SiCL	D	Lac		
		1.7-3.0	CL	D	Tiill	1.7-3.0	Med plastic, yellow, sandstone chunks
							50mm H.C. Well installed to 3.0m
							Screen: 3.0-1.5m
							Sand: 3.0-1.4m
							Bentonite: 1.4-0.0m
							Stickup: 0.6m
							Hole Diameter: 0.15m
JD9-23	0349050	0-0.5	CL	F	Lac		
	5531868	0.5-1.4	CL	D	Lac		
		1.4-2.6	SiCL	D	Lac		Med plastic, yellow
		2.6-3.0	CL-SCL	D	Till		Med plastic, yellow, sandstone chunks
JD10-23	0349100	0-0.5	CL	F	Lac		
	5531962	0.5-1.5	CL	D	Lac	1.0-1.5	Med plastic, yellow brown
		1.5-3.0	SiCL	D	Lac	1.5-3.0	Med plastic, yellow
							50mm H.C. Well installed to 3.0m
							Screen: 3.0-1.5m
							Sand: 3.0-1.45m
							Bentonite: 1.45-0.0m
							Stickup: 0.6m
							Hole Diameter: 0.15m
JD11-23	0348990	0-0.6	CL	F	Lac		
	5531961	0.6-1.0	SL	D	Lac		Sand layers
		1.0-2.4	SiCL	D	Lac		Firm, med plastic
		2.4-3.0	SiCL	M	Lac		V. Firm, med plastic, yellow brown
JD12-23	0349191	0-0.5	CL	F	Lac		
	5531646	0.5-1.2	CL	M	Lac		
		1.2-2.2	SiCL	M	Lac		V. Firm, med plastic, olive brown
		2.2-3.0	Sandstone	D	Bedrock		Hard, cemented
JD13-23	0349041	0-0.5	CL	F	Lac		
	5531663	0.5-2.2	CL	M	Lac	1.0-2.0	V. Firm, med plastic, olive brown
		2.2-	Siltstone	D	Bedrock		Refusal @ 2.2m
							50mm H,C. Well installed to 2.2m
							Screen: 2.2-1.2m
							Sand: 2.2-1.15m
							Bentonite: 1.15-0.0m
							Stickup: 0.4m
							Hole Diameter: 0.15m

Legend:

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

Part 2 — Technical Requirements

NRCB Natural Resources Conservation Board

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

RUNOFF CONTROL CATCH BASIN: Synthetic liner

*(complete a copy of this section for **EACH** proposed manure storage facility with a synthetic liner)*

Facility description / name *(as indicated on site plan)*

1. Catch Basin
2. _____

Determination of minimum required catch basin volume

Provide a plan and show how you calculated the area contributing to runoff for each catch basin

See attached runoff calculation

Catch basin capacity

	Length (m)	Width (m)	Depth (m)	Depth below ground level (m)	Slope run:rise			NRCB USE ONLY
					Inside end walls	Inside side walls	Outside walls	Calculated storage capacity (excl. 0.5 m freeboard) (m^3)
1.	40	40	2.7	2.7 m	3	3	n/a	2,065 m^3
2.								
							TOTAL CAPACITY	2,065 m^3

Synthetic liner details

	Thickness and type of liner material	Provide liner material details (as required)
Synthetic liner	~~Geomembrane Coated Woven Liner – 17 mm~~ Geomembrane LLDPE Smooth Liner 40 mil	See attached liner information

Catch Basin – Design and management requirements can be found in Technical Guideline Agdex 096-101

NRCB USE ONLY

Requirements met: ☒ YES ☐ NO

Condition required: ☒ YES ☐ NO

Liner protection

Describe how the inside walls, bottom and outside walls are protected from erosion

No erosion of the liner is expected. Erosion of the earthen material at the liner inlet will be repaired as needed

In response from Mr. Denbok (08-14-2023), "If constructed as per the manufacturer's requirements, the liner is considered to exceeding the requirement for ground water protection under AOPA. The liner will be protected to ensure liner integrity is maintained." AO Comment: see DS

Describe how the physical integrity of the liner will be maintained from damage

The facility will be protected from livestock and human activity

If the Board decides to overturn my decision, a condition would be required to prevent livestock and people from damaging the liner.

NRCB USE ONLY

Requirements met: ☒ YES ☐ NO

Condition required: ☒ YES ☐ NO

RUNOFF CONTROL CATCH BASIN: Synthetic liner (cont.)

NRCB USE ONLY

Catch basin calculator total volume @ freeboard level: 2,065 m³ Runoff capacity requirements met: ☒ YES ☐ NO

Calculation of the volume attached: ☒ YES ☐ NO

Depth to water table: 5.3 m Requirements met: ☒ YES ☐ NO

Depth to Uppermost Groundwater Resource: 5.97 m Requirements met: ☒ YES ☐ NO

Borehole JD4-23 hit the water table at 4.2 m and JD1-23 hit the water table at 5.3 m. JD4-23 was drilled north of the constructed, but not yet permitted feedlot pens, and JD1-23 was drilled to the west of the proposed solid manure storage area / calf hutch area.

ERST completed: ☒ See details in ERST page

Liner requirements met: ☒ YES ☐ NO Condition required: ☒ YES ☐ NO

Comments:

Condition required to ensure synthetic liner is installed in accordance with the liner manufacturer's requirements

Leakage detection system required: ☐ YES ☒ NO If yes, please explain why.

Construction plans approved by professional engineer: ☒ YES ☐ NO

Will liner be installed by manufacturer approved contractor and qualified third party?: ☒ YES ☐ NO

Condition required: ☒ YES ☐ NO

Preparation of liner bed (comments):

If decision is over turned by the Board, a condition will be required to have a professional engineer supervise the construction of the catch basin. Further details in DS

Catch Basin Dimensions Calculator

AO comment: required catch basin volume 2,040 m^3, total volume of proposed catch basin is 2,065 m^3

Construction Dimensions of Catch Basin

Size of Catch Basin	Metric		English Units Capacity of Catch Basin
Length*4	40.0	m	131.23 Feet
Width*4	40.0	m	131.23 Feet
Total Depth*4	2.7	m	8.86 Feet
Water Depth	2.20	m	7.22 Feet
End Slope*4		run:rise	3 run:rise
Side Slope*4		run:rise	3 run:rise
Length of Bottom	23.8		
Width of Bottom	23.8		
Total Capacity @ top of Bank	2,807	m^3	99,114 ft^3
			617,365 Imp. Gal.

* Only cells in blue can be changed.

Storage Volume of Catch Basin at Design Capacity (without freeboard)			Volume at Freeboard
Length (Top of liquid level)	37.0	m	121.39 Feet
Width (Top of liquid level)	37.0	m	121.39 Feet
Depth	2.7	m	8.86 Feet
Water Depth	2.20	m	7.22 Feet
End Slope	3	run:rise	3 run:rise
Side Slope	3	run:rise	3 run:rise
Total Volume@ freeboard depth	2,065	m^3	72,928 ft^3
			454,257 Imp. Gal.
Surface Area of Liquid Manure	1,369	m^2	14,736 ft^2

Name1: Denbok

Land Location1:

Area2	Length (m)	Width (m)	Area (m^2)
1	200	200	40,000
2			0
3			0
4			0
5			0
Total Area			40,000

Select Town1: Picture Butte 85

Design Rainfall: 85 mm

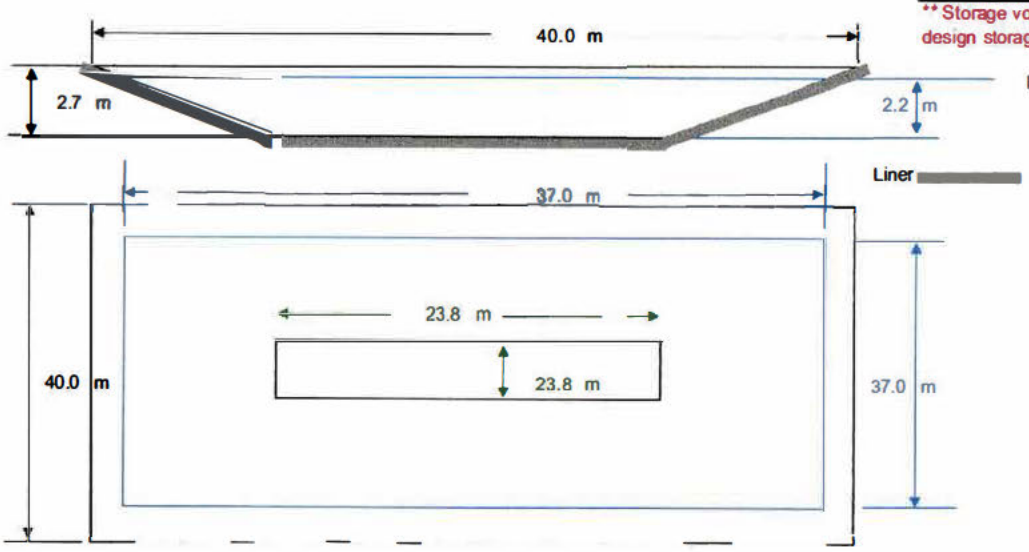
Catch Basin	Length (m)	Width (m)	Area (m^2)
1	40	40	1,600

Catch Basin Design Volume
(Feedlot Area(s) only)
2,040 m^3 72,042 ft^3

Catch Basin Design Volume
(Area(s) plus Catch Basin Footprint)
2,176 m^3 76,845 ft^3
478,653 Imp. Gal.

3,536 m^3 **Roller Compacted Concrete (Runoff Coefficient = 1.0)**

** Storage volume should be same or slightly greater than design storage volume.



Lines in Black - Catch basin dimension
Lines in Blue - full level

NTS - Not Drawn To Scale

TECHNICAL DATA SHEET

Geomembrane LLDPE Smooth

Solmax International Inc., 2801 Boul. Marie-Victorin, Varennes, Qc, Canada, J3X 1P7
Tel.: (450) 929-1234 Fax: (450) 929-2550 www.solmax.com

PROPERTY	TEST METHOD	FREQUENCY (1)	UNIT Imperial	Solmax 840-7000
SPECIFICATIONS				
Thickness (Nominal ±10%) (4)	ASTM D-5199	Every roll	mils	40.0
Resin Density	ASTM D-1505	1/Batch	g/cc	< 0.926
Melt Index - 190/2.16 (max.)	ASTM D-1238	1/Batch	g/10 min	1.0
Sheet Density	ASTM D-1505	Every 2 rolls	g/cc	< 0.939
Carbon Black Content	ASTM D-4218	Every 2 rolls	%	>2.0 / <3.0
Carbon Black Dispersion	ASTM D-5596	Every 6 rolls	Category	Cat. 1 & Cat. 2
Oxidative Induction Time - STD OIT (min. avg.)	ASTM D-3895	1/Batch	min	100
Tensile Properties (min. avg) (2)	ASTM D-6693	Every 2 rolls		
Strength at Break			ppi	131
Elongation at Break			%	800
2% Modulus (max.)	ASTM D-5323	Per formulation	ppi	2,400
Tear Resistance (min. avg.)	ASTM D-1004	Every 6 rolls	lbf	19
Puncture Resistance (min. avg.)	ASTM D-4833	Every 6 rolls	lbf	48
Dimensional Stability	ASTM D-1204	Every 6 rolls	%	± 2
Multi-Axial Tensile (min.)	ASTM D-5617	Per formulation	%	30
Oven Aging - % retained after 90 days	ASTM D-5721	Per formulation		
STD OIT (min. avg.)	ASTM D-3895		%	35
HP OIT (min. avg.)	ASTM D-5885		%	60
UV Resistance - % retained after 1600 hr	GRI-GM-11	Per formulation		
HP-OIT (min. avg.)	ASTM D-5885		%	35
SUPPLY SPECIFICATIONS *(Roll dimensions may vary ±1%)*				
Roll Dimension - Width	-		ft	22.3
Roll Dimension - Length	-		ft	780
Area (Surface/Roll)	-		sf	17,394

NOTES

1. Testing frequency based on standard roll dimensions and one batch is approximately 180,000 lbs (or one railcar).
4. The minimum average thickness is ± 10% of the nominal value.
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.

* All values are nominal test results, except when specified as minimum or maximum.
* The information contained herein is provided for reference purposes only and is not intended as a warranty of guarantee. Final determination of suitability for use contemplated is the sole responsability of the user. SOLMAX assumes no liability in connection with the use of this information.

May 10, 2023

Cailyn Wilson

Natural Resources Conservation Board

Lethbridge Alberta

To Mrs. Wilson;

Please accept this letter on behalf of the Old Colony Mennonite Church members regarding Mr. Denbok's application to expand his feedlot. We have discussed the application with Mr. Denbok and understand he would like to build new pens and a calf hutch area to the North and West of his existing corrals.

I have also discussed this application with the church members and we do not believe we will be negatively impacted by this proposal.

Kind Regards,

[redacted] Heinrich Froese June 5-2023

[redacted] Heinrich Peters June 5-2023

Effects on the Community - Member Declaration

Application Number: LA23003

Operator/operation Name: Joshua Denbok

Address: Monarch, AB Postal Code: TOL 1MO

Legal Land Location of the proposed confined feeding operation: SE 20-11-23

I have requested the Community Members named below to provide their opinion regarding the proposed confined feeding application identified above.

In making this request, I have provided the owner(s) with an opportunity to review my permit application

I have explained that the Approval Officer must consider effects on the community under Section 20(1)(b)(ix) in the Agricultural Operation Practices Act.

I explained this waiver applies only to this application as described.

Name: Joshua Denbok Position: applicant

Signature: [redacted] Contact Number: [redacted]

Natural Resources Conservation Board

Approval Officer: Cailyn Wilson

As Community Member representatives for the below listed group, we have reviewed and discussed the proposed confined feeding operation application. I(we) do not believe it will have a negative impact on our community.

Community Group Name: old colony Mennonite church

Representative June 5 - 2023

Name: Heinrich Froese Position: Church Manage

Signature: [redacted] Contact Number: [redacted]

Representative June 5 - 2023

Name: Heinrich Peters Position: Church Manager

Signature: [redacted] Contact Number: [redacted]

Representative

Name: _____ Position: _____

Signature: _____ Contact Number: _____

Lethbridge County
#100, 905 - 4th Ave S
Lethbridge, AB T1J 4E4
403-328-5525

FORM B

LETHBRIDGE COUNTY
DEVELOPMENT PERMIT
Pursuant to Land Use Bylaw No. 1404

Development Application No: 2015-103	Development Permit No: 2015-103

This development permit is hereby issued to:

NAME: Henry Doerksen

ADDRESS: Box 785, Vauxhall, Alberta, T0K 2K0

In respect of works consisting of: School – Kindergarten to Grade 9 (in an existing structure)

On land located at: Plan 0910251, Block 1, Lot 1 and as described on plans submitted by the applicant.

This permit refers only to works outlined in Development Application No. 2015-103 and is **subject to the conditions contained herein**:

- The school is to be located in the existing structure on the parcel.
- The school will operate Monday to Friday between the months of September to June with regular school hours (approximately 8:30am to 3:30pm).
- A chain link fence will be constructed around the school yard site prior to the school opening in the fall of 2015.
- Any additions to the structure require separate approval from Lethbridge County.
- All construction is to comply with the provisions of the **Safety Codes Act**. This may require Building, Plumbing, Electrical, and Gas permits (see below).
- Any planned work in the County right-of-way (driveway, approaches, etc.) requires separate approval from the County Director of Municipal Services (call 403-328-5525).

This permit becomes effective the **18th day of August, 2015** unless an appeal pursuant to section 686(1) of the Municipal Government Act is lodged within fourteen (14) days.

SIGNED: [redacted]
Development Officer

THIS IS NOT A BUILDING PERMIT

IMPORTANT: (see over)

Lethbridge County
#100, 905 - 4th Ave S
Lethbridge, AB T1J 4E4
403-328-5525

FORM B

LETHBRIDGE COUNTY
DEVELOPMENT PERMIT
Pursuant to Land Use Bylaw No. 1404

IMPORTANT:

The development outlined above is subject to the following conditions:

(a) This permit indicates that only the development to which it relates is authorized in accordance with the provisions of the land use bylaw and in no way relieves or excuses the applicant from complying with the land use bylaw or any other bylaw, laws, orders and/or regulations affecting such development.

(b) This permit, issued in accordance with the notice of decision, is valid for a period of twelve (12) months from the date of issue. If, at the expiry of this period, the development has not been commenced or carried out with reasonable diligence, this permit shall be null and void.

(c) If this development permit is issued for construction of a building, the exterior of the building, including painting, shall be completed within twelve (12) months from the date of issue of this development permit unless otherwise authorized in the conditions of a development permit.

(d) The Development Officer may, in accordance with section 645 of the Municipal Government Act, take such action as is necessary to ensure that the provisions of this bylaw are complied with.

(e) Construction undertaken in accordance with this development may be regulated by the **provincial building requirements and the Alberta Safety Codes**. The applicant/owner/developer assumes all responsibilities pertaining to construction plan submissions, approvals and inspections as may be required by **Alberta Labour**.

NOTE: Information provided in this application or generated by this application may be considered at a public meeting.

AUTHORIZED ACCREDITED AGENCIES TO CONTACT FOR BUILDING PERMIT AND RELATED SERVICES:

Agency Name	Phone/Fax	Building	Electrical	Plumbing	Gas
Davis Electrical Inspection Services Ltd	800-639-0912/ 403-275-9790	Yes	Yes	Yes	Yes
Park Enterprises	403-329-3747/ 403-329-8514	Yes	Yes	Yes	Yes
Superior Safety Codes Inc.	403-320-0734/ 403-320-9969	Yes	Yes	Yes	Yes
The Inspection Group Inc.	866-554-5048/ 866-454-5222	Yes	Yes	Yes	Yes

Part 2 — Technical Requirements

NRCB Natural Resources Conservation Board

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

NRCB USE ONLY

ALL SIGNATURES IN FILE ☒ YES ☐ NO

DATES OF APPROVAL OFFICER SITE VISITS

June 27, 2023	
September 12, 2023	

CORRESPONDENCE WITH MUNICIPALITIES AND REFERRAL AGENCIES

Date deeming letters sent: June 20, 2023

Municipality: Lethbridge County

☒ letter sent ☒ response received ☒ written/email ☐ verbal ☐ no comments received

Alberta Health Services:

☒ letter sent ☒ response received ☒ written/email ☐ verbal ☐ no comments received

Alberta Environment and Parks: ☐ N/A

☒ letter sent ☒ response received ☒ written/email ☐ verbal ☐ no comments received

Alberta Transportation: ☐ N/A

☒ letter sent ☒ response received ☒ written/email ☐ verbal ☐ no comments received

Alberta Regulatory Services: ☒ N/A

☐ letter sent ☐ response received ☐ written/email ☐ verbal ☐ no comments received

Other: Little Bow Gas Co-op Ltd., Lethbridge North County Portable Water Co-op ☐ N/A

☒ letter sent ☐ response received ☐ written/email ☐ verbal ☒ no comments received

Other: _____ ☒ N/A

☐ letter sent ☐ response received ☐ written/email ☐ verbal ☐ no comments received