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	LA24017	NW 4-10-23 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.

Jan. 29 / 2025
Date of signing

[redacted]
Signature

Westview Feeders
Corporate name (if applicable)

Loren Withage
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)
Feedlot Pens	Feedlot pens (6): 136' x 190' (each) Catch basin: 40 x 50 x 3m deep
Catch Basin	

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

Existing facilities	Dimensions (m) (length, width, and depth)	NRCB USE ONLY
Feedlot Pens		AO comment: See next page

NRCB USE ONLY

Existing facilities:

South row of feedlot pens: 345 m x 41 m

Center row: 255 m x 31 m

North row: 215 m x 39 m (irregular shape)

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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 December 2027

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**

AO comment

The application is for an expansion from 2500 beef feeders to 3500 beef feeders


Untitled Map
Write a description for your map.
Legend
12
11
10
Google Earth
Image © 2024 Maxar Technologies
300 m
N

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 ____ day of _____, 20____. _____

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 29 day of January, 2025. [redacted]

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

LETHBRIDGE NORTHERN IRRIGATION DISTRICT

334 - 13TH STREET NORTH, LETHBRIDGE, AB T1H 2R8

PHONE: (403) 327-3302 FAX: (403) 320-2457

July 28, 2011

W. Henry & Pauline Withage
Box 97
MONARCH, AB T0L 1M0

Dear Sir or Madam:

RE: WATER CONVEYANCE AGREEMENT – TYPE 1
PT. N.W. 04-10-23-4 (602)

Further to my letter of September 7, 2010 to cancel your Water Conveyance Agreement – Type 1 for 38.6 acre-feet of water effective January 31, 2011, as a result of a notification received from Alberta Environment (AENV), I wish to advise you that I contacted AENV yesterday and was told that due to extenuating circumstances, your water Licence #00157874-00-00 was approved effective January 14, 2011.

As a result, the Lethbridge Northern Irrigation District (LNID) will reinstate your Water Conveyance Agreement – Type 1 dated December 21, 2001 for 38.6 acre-feet of water. Accordingly, you will be assessed annually for this agreement at the rates set by Board of Directors By-Law.

Yours truly

[redacted]
Alan Harrold
General Manager
AH/jcp
c: Klaas Slomp, Board Member
Jeanne Turner, Finance Manager
Gary Burke, Classification/Network Technician
Bill Smith, Water Master West – Newlands
Josh Richardson, Water District Supervisor - Monarch

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)

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: Feedlot pens **Proposed 1:** New feedlot pens

Proposed 2: Catch basin **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 height 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	
Surface water information	How many springs are within 100 m of the manure storage facility or manure collection area?	None	None	None		☐ YES ☐ NO ☐ YES with exemption	
	How many water wells are within 100 m of the manure storage facility or manure collection area?	none	none	none		☐ YES ☐ NO ☐ 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)	None	none	none		☐ YES ☐ NO ☐ YES with exemption	
Groundwater information	What is the depth to the water table?		2.2 m	2.2 m		☐ YES ☐ NO ☐ YES with exemption	
	What is the depth to the groundwater resource/aquifer you draw water from?	Below 6 m	Below 6m	Below 6m		☐ YES ☐ NO ☐ YES with exemption	

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

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)

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	NRCB USE ONLY: MDS category (1-4)	NRCB USE ONLY: Distance (m)	NRCB USE ONLY: Waiver attached (if required)	NRCB USE ONLY: Meets regulations
John Oskam	NE 4 10 23 W4	396 m					
Wevers	NE 5 10 23	467 m					

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)	NRCB USE ONLY: Agreement attached (if required)
Westview Feeders	NW 10-10-23	160	irrigated		
	NW 4-10-23	100	irrigated		
	NW 5-10-23	160	irrigated		
	SW 8-10-23	58	irrigated		
			Total		

* 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)


Untitled Map
Write a description for your map.
Legend
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Google Earth
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Minimum Distance Separation (MDS) Waiver (declaration)

Applicant information NRCB application number: LA24017

Operator/operation name: Westview Feeders Loren Withage

Address: Box 159 Monarch. Postal Code: TOL 1MO

Legal land location of confined feeding operation: NW 4-10-23-W4

I have requested the residence owner(s) named below to waive the required minimum distance separation (MDS) to their residence for the *Agricultural Operation Practices Act* (AOPA) permit application identified above. In making this request, I have provided the owner(s) with an opportunity to review my permit application and a copy of the Natural Resources Conservation Board (NRCB) Fact Sheet "Minimum Distance Separation (MDS) Waivers" available on the NRCB website at www.nrcb.ca. I have also explained:

- The MDS requirement set out in section 3 of the Standards and Administration Regulation of AOPA. I have advised the owner(s) that section 3(6)(a) of the Standards and Administration Regulation allows this requirement to be waived by the owners of residences, if they agree in writing to grant a waiver;
- That my proposed development does not meet the required MDS to the owner's residence; and,
- That this waiver applies only to this application as described. An increase in livestock capacity, annual manure production, level of odour production, change to the site plan or change to a facility that would increase the MDS would require a new waiver.

Following is a summary of the proposed development:

- The current scope of my confined feeding operation (CFO), including the type, number, and category of livestock, if any, is:
  currently feed 2800hd of backgrounded feeders
- My application for a new AOPA permit proposes the following changes to the existing livestock category, type and/or capacity at my CFO:
  to build a catch basin with ~~3~~ six new pens on the southside of existing pens. increasing capasity to 3500
- The proposed new CFO facility(ies), or changes to the existing CFO facilities, including manure storage, manure storage volume and any other pertinent details, if any, are (attach a site layout plan if available):
  new catch basin on south-west end of corrals.

I the applicant understand that the waiver is not valid unless ALL registered owners of the residence sign this document.

Permit Applicant: [redacted] Date: April 29/2024

Signature

Residence owner(s) to initial: _____

Minimum Distance Separation (MDS) Waiver (declaration)

Residence owner(s) information

ALL Names on land title: John Oskam Joan Oskam

Legal land location of residence(s): NE4 10 23 W4

Telephone number(s)[1]: [redacted] Email address(es)[1]: [redacted]

Address(es)[1] and Postal code(s)[1]: Box 487 Nobleford AB ~~T0L 1H0~~ T0L1S0

[1] ***Please note that personal contact information is for NRCB use ONLY and not publicly released***

I am/we are the legal landowner(s) of a residence(s) located at the above noted legal land location/address:

- I/we have read the NRCB Fact Sheet "Minimum Distance Separation (MDS) Waivers";
- I/we have discussed this application with the applicant and understand its potential impacts to our residence(s);
- I/we understand that the application **does not** meet the MDS requirement to my/our residence(s), under the *Agricultural Operation Practices Act* (AOPA);
- **I/we understand that this waiver is not valid unless signed by ALL parties identified on the land title as owners;**
- **I/we are not obligated to waive the MDS requirement to our residence(s);**
- I/we understand that if I/we choose to waive the MDS requirement, I/we can revoke the waiver, by providing written notice to the NRCB approval officer, as set out in the "Minimum Distance Separation (MDS) Waivers" Fact Sheet; and
- I/we understand that this waiver is a public document.

Having considered my/our rights, I/we hereby waive the MDS requirement to my/our residence, with respect to

Application number LA24017.

[redacted] [redacted]

Signature(s) of all residence owner(s) on title

John Oskam Joan Oskam

Printed names of all residence owner(s) on title

Date: April 30, 2024

Minimum Distance Separation (MDS) Waiver (declaration)

Residence owner(s) information

ALL Names on land title: Jacob, Wayne, Glen Weiler.

Legal land location of residence(s): NE 5-10-23 W4

Telephone number(s)[1]: [redacted] Email address(es)[1]: —

Address(es)[1] and Postal code(s)[1]: Box 233 Monarch, AB T0L 1M0

[1] ***Please note that personal contact information is for NRCB use ONLY and not publicly released***

I am/we are the legal landowner(s) of a residence(s) located at the above noted legal land location/address:

- I/we have read the NRCB Fact Sheet "Minimum Distance Separation (MDS) Waivers";
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- I/we understand that the application **does not** meet the MDS requirement to my/our residence(s), under the *Agricultural Operation Practices Act* (AOPA);
- **I/we understand that this waiver is not valid unless signed by ALL parties identified on the land title as owners;**
- **I/we are not obligated to waive the MDS requirement to our residence(s);**
- I/we understand that if I/we choose to waive the MDS requirement, I/we can revoke the waiver, by providing written notice to the NRCB approval officer, as set out in the "Minimum Distance Separation (MDS) Waivers" Fact Sheet; and
- I/we understand that this waiver is a public document.

Having considered my/our rights, I/we hereby waive the MDS requirement to my/our residence, with respect to

Application number LA24017.

[redacted] [redacted] [redacted]

er(s) on title

Wayne Weiler Glen Weiler Jacob Weiler

Printed names of **all** residence owner(s) on title

Date: Feb. 21 / 2025

Minimum Distance Separation (MDS) Waiver (declaration)

Applicant information NRCB application number: LA24017

Operator/operation name: Westview Feeders Loren Withage

Address: Box 159 Monarch. Postal Code: T0L1M0

Legal land location of confined feeding operation: NW 4-10-23-W4

I have requested the residence owner(s) named below to waive the required minimum distance separation (MDS) to their residence for the *Agricultural Operation Practices Act* (AOPA) permit application identified above. In making this request, I have provided the owner(s) with an opportunity to review my permit application and a copy of the Natural Resources Conservation Board (NRCB) Fact Sheet "Minimum Distance Separation (MDS) Waivers" available on the NRCB website at www.nrcb.ca. I have also explained:

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Following is a summary of the proposed development:

- The current scope of my confined feeding operation (CFO), including the type, number, and category of livestock, if any, is:
  currently feed 2800hd of backgrounded feeders
- My application for a new AOPA permit proposes the following changes to the existing livestock category, type and/or capacity at my CFO:
  to build a catch basin with ~~[illegible]~~ six new pens on the southside of existing pens. increasing capasity to 3500
- The proposed new CFO facility(ies), or changes to the existing CFO facilities, including manure storage, manure storage volume and any other pertinent details, if any, are (attach a site layout plan if available):
  new catch basin on South-west end of corrals.

I the applicant understand that the waiver is not valid unless ALL registered owners of the residence sign this document.

Permit Applicant: [redacted] Date: Feb. 21/2025 ~~April 29/2024~~

Residence owner(s) to initial: _____

Part 2 — Technical Requirements

NRCB Natural Resources Conservation Board

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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. Feedlot Pens
2. _____

Manure storage capacity

	Length (m)	Width (m)	Depth below ground level (m)	**NRCB USE ONLY** Estimated storage capacity (m^3)
1.				
2.				
			TOTAL CAPACITY	

6 pens: 136' x 190' each

☐ I plan to use a short-ter[illegible]art 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

Catch basin

Naturally occurring protective layer details

Thickness of naturally occurring protective layer	_____(m)	Provide details (as required)	
Soil texture	9-47 % sand	25-44 % silt	28-56 % clay
Hydraulic conductivity - naturally occurring protective layer	Depth and type of soil tested: 3.2 m	Hydraulic conductivity (cm/s): 3.0E-08	Describe test standard used: Falling head

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

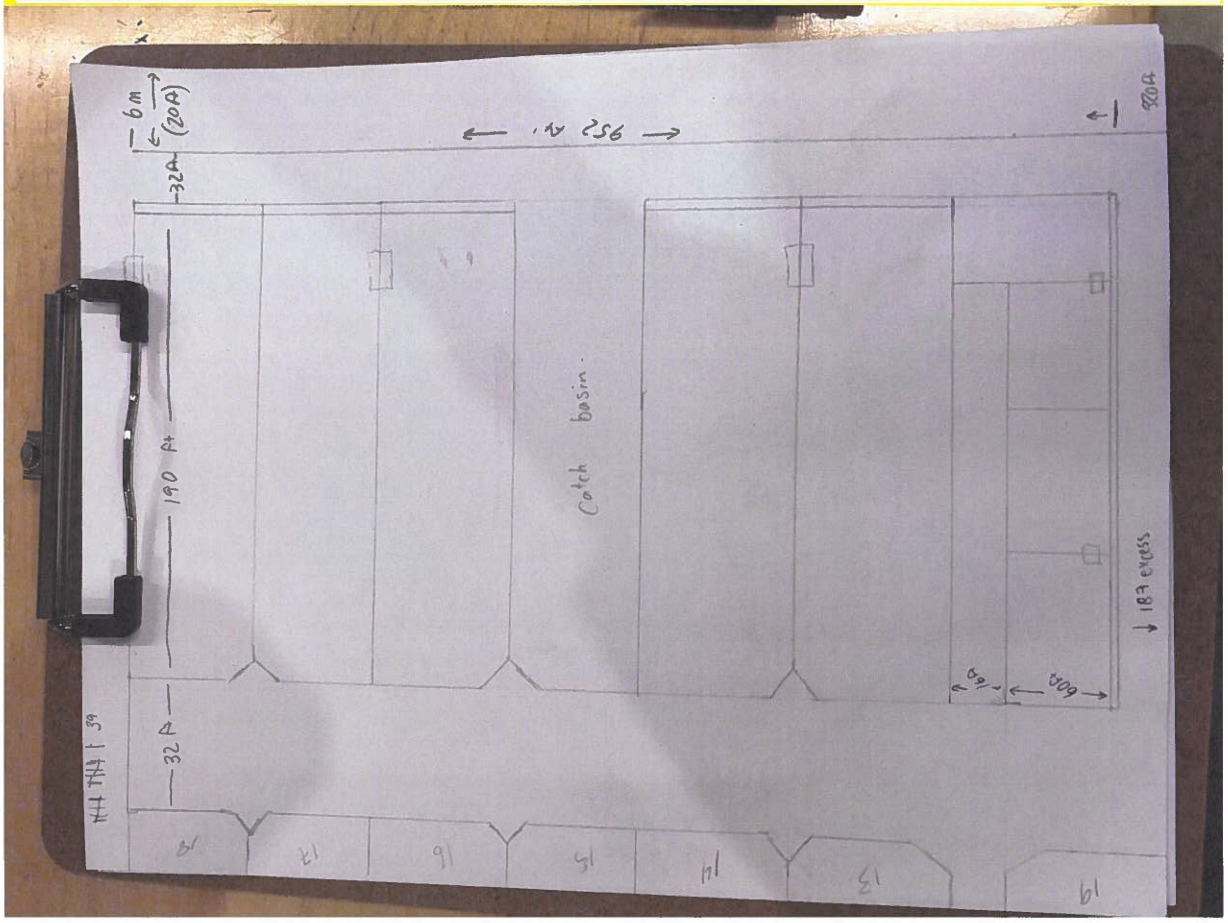
NRCB USE ONLY

Requirements met: ☐ YES ☐ NO

Condition required: ☐ YES ☐ NO

Report attached: ☐ YES ☐ NO

From: Jared Withage
To: Carina Weisbach
Subject: Feedlot addition
Date: February 12, 2025 10:25:19 AM



Part 2 — Technical Requirements

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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: Naturally occurring protective layer

*(complete a copy of this section for **EACH proposed** runoff control catch basin with a naturally occurring protective layer)*

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

1. Catch Basin
2. _____
3. _____

Determination of runoff area

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

See attached

Catch basin capacity

	Length (m)	Width (m)	Total 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.								
2.								
3.								
							TOTAL CAPACITY	

40m x 50m x 3m deep

All slopes: 3:1

Capacity: 2960 m^3

Naturally occurring protective layer details

Thickness of naturally occurring protective layer	_____(m)	Provide details (as required) See engineering report	
Soil texture	_____% sand	_____% silt	_____% clay
Hydraulic conductivity - naturally occurring protective layer	Depth and type of soil tested	Hydraulic conductivity (cm/s)	Describe test standard used

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

If soil info differs per facility include additional soils page.

NRCB USE ONLY

Requirements met: ☐ YES ☐ NO

Condition required: ☐ YES ☐ NO

Report attached: ☐ YES ☐ NO

Catch Basin Storage Volume Calculator

Construction Dimensions of Catch Basin

* Only cells in blue can be changed.

Overall Dimensions of Catch Basin			Catch Basin Dimensions
Total Length*4	50.0	m	164 ft
Total Width*4	40.0	m	131 ft
Total Depth*4	3.0	m	10 ft
Design Capacity Depth	*2.50*	m	8 ft
End Slope*4	3	run:rise	3 run:rise
Side Slope*4	3	run:rise	3 run:rise
Length of Bottom	32.0	m	105 ft
Width of Bottom	22.0	m	72 ft
Capacity @ top of Bank	*3,894*	m^3	*Capacity (@tob) 137,515 ft^3 856,560 Imp. Gal.*

Design Capacity of Catch Basin (freeboard level)			Design Capacity (freeboard level)
Length (design capacity depth)	47.0	m	154 ft
Width (design capacity depth)	37.0	m	121 ft
Total Depth	*3.0*	m	*10 ft*
Design Capacity Depth	2.50	m	8 ft
End Slope	3	run:rise	3 run:rise
Side Slope	3	run:rise	3 run:rise
Design Capacity (freeboard level)	**2,960**	m^3	104,531 ft^3
level)	*1,739*	m^2	651,109 Imp. Gal. 18,718 ft^2

CFO Name 1: (Enter CFO Name Here)

Land Location 1: 1-1-4-W5

Paved Runoff Catchment Area(s)

Area 2	Length (m)	Width (m)	Area (m^2)
1			0.0
2			0.0
3			0.0
4			0.0
5			0.0
		Total Area (m^2)	0

Unpaved Runoff Catchment Area(s)

Area 2	Length (m)	Width (m)	Area (m^2)
6	345		14,145.0
7	255		7,905.0
8	218		8,502.0
9			4,797.0
10			5,371.0
		Total Area (m^2)	40,720

Rainfall (Select Town 3)

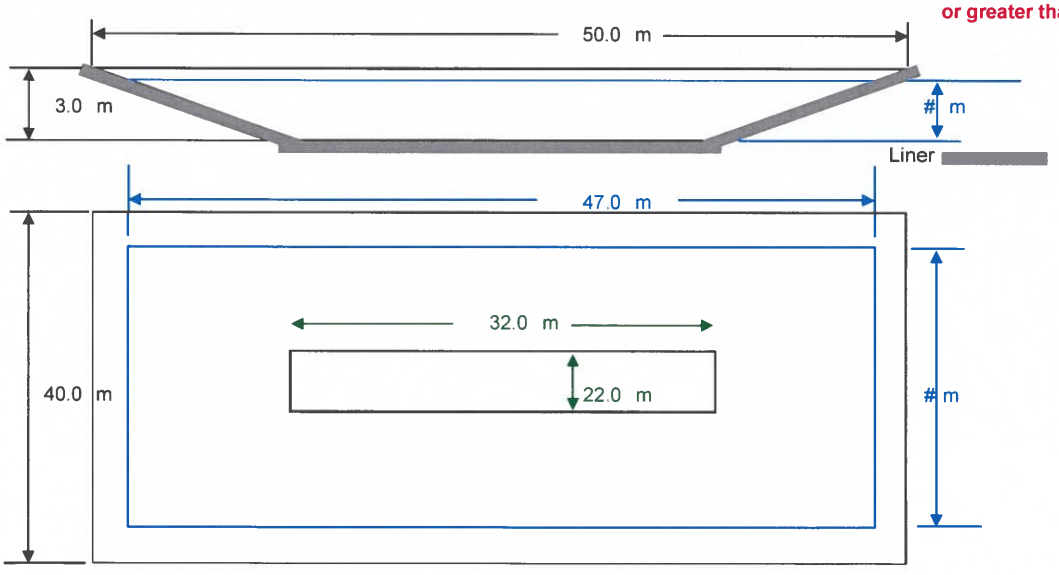
Lethbridge 90

AOPA Design Rainfall: 90 mm

Minimum Catchbasin Storage Volume Required

2,382 m^3 ** | 84123.774 ft^3 | 523992.94 Imp. Gal.

** Design capacity of catch basin should be equal to or greater than, minimum storage volume required.



Lines in Black - Overall catch basin dimensions

Lines in Blue - Design capacity depth dimensions (excludes freeboard)

NTS - Not To Scale

Name
Address
Legal Land Location

MDS Spreadsheet based on 2006 AOPA Regulations

Category of Livestock	Type of Livestock	Factor A	Technology Factor	MU	LSU Factor	Number of Animals	LSU
Beef	Cows/Finishers (900+ lbs)	0.700	0.700	0.910	0.446		-
	Feeders (450 - 900 lbs)	0.700	0.700	0.500	0.245	3,500	857.5
	Feeder Calves (<550 lbs)	0.700	0.700	0.275	0.135		-
	Other						-
Dairy (*count lactating cows only)	*Free Stall – Lactating Cows with all associated dries, heifers, and calves	0.800	1.100	2.000	1.760		-
	*Free Stall – Lactating cows with Dry Cows only	0.800	1.100	1.640	1.443		-
	Free Stall – Lactating Cows only	0.800	1.100	1.400	1.232		-
	Tie Stall – Lactating cows only	0.800	1.000	1.400	1.120		-
	Loose Housing – Lactating cows only	0.800	1.000	1.400	1.120		-
	Dry Cow (Solid manure)	0.800	0.700	1.000	0.560		-
	Dry Cow (Liquid manure)						
	Replacements – Bred Heifers (Breeding to Calving)	0.800	0.700	0.875	0.490		-
	Replacements - Growing Heifers (350 lbs to breeding)	0.800	0.700	0.525	0.294		-
	Calves (< 350 lbs)	0.800	0.700	0.200	0.112		-
	Other						-
Swine Liquid (*count sows only)	Farrow to finish *	2.000	1.100	1.780	3.916		-
	Farrow to wean *	2.000	1.100	0.670	1.474		-
	Farrow only *	2.000	1.100	0.530	1.166		-
	Feeders/Boars	2.000	1.100	0.200	0.440		-
	Growers/Roasters	2.000	1.100	0.118	0.260		-
	Weaners	2.000	1.100	0.055	0.121		-
	Other						-
Swine Solid (*Count sows only)	Farrow to finish *	2.000	0.800	1.780	2.848		-
	Farrow to wean *	2.000	0.800	0.670	1.072		-
	Farrow only *	2.000	0.800	0.530	0.848		-
	Feeders/Boars	2.000	0.800	0.200	0.320		-
	Growers/Roasters	2.000	0.800	0.118	0.189		-
	Weaners	2.000	0.800	0.055	0.088		-
							-
Poultry	Chicken - Breeders - Solid	1.000	0.700	0.010	0.007		-
	Chicken - Layers - Liquid (includes associated pullets)	2.000	1.100	0.008	0.018		-
	Chicken - Layers - (Belt Cage)	2.000	0.700	0.008	0.011		-
	Chicken - Layers - (Deep Pit)	2.000	0.700	0.008	0.011		-
	Chicken - Pullets/Broilers	1.000	0.700	0.002	0.001		-
	Turkey - Toms/Breeders	1.000	0.700	0.020	0.014		-
	Turkey - Hens (light)	1.000	0.700	0.013	0.009		-
	Turkey - Broilers	1.000	0.700	0.010	0.007		-
	Ducks	1.000	0.700	0.010	0.007		-
	Geese	1.000	0.700	0.020	0.014		-
	Other						-
Horses	PMU	0.650	0.700	1.000	0.455		-
	Feeders > 750 lbs	0.650	0.700	1.000	0.455		-
	Foals < 750 lbs	0.650	0.700	0.300	0.137		-
	Mules	0.600	0.700	1.000	0.420		-
	Donkeys	0.600	0.700	0.670	0.281		-
	Other						-
Sheep	Ewes/Rams	0.600	0.700	0.200	0.084		-
	Ewes with lambs	0.600	0.700	0.250	0.105		-
	Lambs	0.600	0.700	0.050	0.021		-
	Feeders	0.600	0.700	0.100	0.042		-
	Other						-
Goats	Meat/Milk (per Ewe)	0.700	0.700	0.170	0.083		-
	Nannies/Billies	0.700	0.700	0.140	0.069		-
	Feeders	0.700	0.700	0.077	0.038		-
	Other						-
Bison	Bison	0.600	0.700	1.000	0.420		-
	Other						-
Cervid	Elk	0.600	0.700	0.600	0.252		-
	Deer	0.600	0.700	0.200	0.084		-
	Other						-
Wild Boar	Feeders	2.000	0.800	0.140	0.224		-
	Sow (farrowing)	2.000	0.800	0.371	0.594		-
	Other						-
					Total		857.5

For New Operations

Dispersion Factor: 1

Category	Odour Objective	Distance Feet	Distance Metres
1	41.04	1,584	483
2	54.72	2,112	644
3	68.4	2,640	805
4	109.44	4,225	1,288

For Expanding Operations

Dispersion Factor: 1
Expansion Factor: 0.77

Category	Odour Objective	Distance Feet	Distance Metres
1	41.04	1,220	372
2	54.72	1,626	496
3	68.40	2,033	620
4	109.44	3,253	992

Name	0
Address	0
Legal Land	
Location	0

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)
Beef	Cows/Finishers (900+ lbs)	0	0	0	0	0
	Feeders (450 - 900 lbs)	3500	280	234.5	175	140
	Feeder Calves (<550 lbs)	0	-	-	-	-
	Other	0				
Dairy (*count lactating cows only)	*Free Stall – Lactating Cows with all associated dries, heifers, and calves	0	0	0	0	0
	*Free Stall – Lactating cows with Dry Cows only	0	-	-	-	-
	Free Stall – Lactating Cows only	0	-	-	-	-
	Tie Stall – Lactating cows only	0	-	-	0	0
	Loose Housing – Lactating cows only	0	-	-	-	-
	Dry Cow (Solid manure)	0	-	-	-	-
	Dry Cow (Liquid manure)	0	-	-	-	-
	Replacements – Bred Heifers (Breeding to Calving)	0	-	-	-	-
	Replacements - Growing Heifers (350 lbs to breeding)	0	-	-	-	-
	Calves (< 350 lbs)	0	-	-	-	-
	Other	0				
Swine Liquid (*count sows only)	Farrow to finish *	0	-	0	-	-
	Farrow to wean *	0	-	-	-	-
	Farrow only *	0	-	-	-	-
	Feeders/Boars	0	-	0	0	0
	Growers/Roasters	0	-	-	-	-
	Weaners	0	-	-	-	-
	Other	0				
Swine Solid (*Count sows only)	Farrow to finish *	0	-	-	-	-
	Farrow to wean *	0	-	-	-	-
	Farrow only *	0	-	-	-	-
	Feeders/Boars	0	-	-	-	-
	Growers/Roasters	0	-	-	-	-
	Weaners	0	-	-	-	-
		0				
Poultry	Chicken - Breeders - Solid	0	-	-	-	-
	Chicken - Layers - Liquid (includes associated pullets)	0	-	0	0	0
	Chicken - Layers - (Belt Cage)	0	-	-	-	-
	Chicken - Layers - (Deep Pit)	0	-	-	-	-
	Chicken - Pullets/Broilers	0	-	0	0	0
	Turkey - Toms/Breeders	0	0	0	0	0
	Turkey - Hens (light)	0	-	-	-	-
	Turkey - Broilers	0	-	-	-	-
	Ducks	0	0	0	0	0
	Geese	0	0	0	0	0
	Other	0				
Horses	PMU	0	0	0	0	0
	Feeders > 750 lbs	0	-	0	-	-
	Foals < 750 lbs	0	-	-	-	-
	Mules	0	-	-	-	-
	Donkeys	0	-	-	-	-
	Other	0				
Sheep	Ewes/Rams	0	-	0	0	0
	Ewes with lambs	0	-	-	-	-
	Lambs	0	-	-	-	-
	Feeders	0	-	-	-	-
	Other	0				
Goats	Meat/Milk (per Ewe)	0	0	0	0	0
	Nannies/Billies	0	-	-	-	-
	Feeders	0	-	-	-	-
	Other	0				
Bison	Bison	0	0	0	0	0
	Other	0				
Cervid	Elk	0	0	0	0	0
	Deer	0	0	0	0	0
	Other	0				
Wild Boar	Feeders	0	-	0	0	0
	Sow (farrowing)	0	-	-	-	-
	Other	0				
	Total Hectares		280.0	234.5	175.0	140.0
	Total Acres		691.9	579.4	432.4	345.9

JLECS

J Lobbezoo Engineering & Consulting Services Ltd.
PO Box 96, Monarch, AB T0L1M0

25 June 2024

JLECS File: P24012

Westview Feeders
PO Box 97
Monarch, Alberta T0L1M0

Attention: Mr. Loren Withage

Re: Geotechnical Review and Evaluation
NRCB Permitting of Proposed Feedlot Pens and Catch Basin
NW-04-010-23-W4M, near Monarch, Alberta

As requested, J Lobbezoo Engineering & Consulting Services Ltd. (JLECS) 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 proposed feedlot pens and a catch basin to be located along the south side of the existing feedlot at NW-04-010-23-W4M (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, six boreholes were advanced at the site on May 6, 2024. The boreholes were advanced at the approximate locations denoted as BH24-01 to BH24-06 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 3.0 m and 6.1 m below existing grades. The boreholes were logged by the JLECS engineer.

In general, the natural mineral soils encountered in the boreholes consisted of a layer of lacustrine medium plastic clay or sand & silt soils which transitioned to stiff medium plastic clay till at boreholes BH24-01, BH24-04 and BH24-06. These boreholes were each open and dry upon completion of the drilling.

At boreholes BH24-02, BH24-03 and BH24-05, advanced in the western portion of the proposed pen area, a near-surface layer of lacustrine clay transitioned to silt and sandy silt below about 0.6 m depth, becoming wet below about 2 m depth.

In the centre to east portion of the site, no evidence of free groundwater or a groundwater resource (as defined by the AOPA) was identified within the 6.1 m investigation depth; however, in the western third of the site, free groundwater (apparent perched groundwater) was contacted in sandy silt stratum below about 2 m depth.

Samples of soil collected from the screened zone of boreholes BH24-01 and BH24-06, along with a representative sample of the lower clay till from borehole BH24-04, and samples of the near surface clay at boreholes BH24-02, BH24-03 and BH24-05 were all subjected to analysis of soil texture, which was carried out by Down to Earth Laboratories in Lethbridge, Alberta. The results indicate a soil texture breakdown as outlined in the following Table 1:

Table 1: Soil Textural Analyses

Borehole/Depth	% Sand	% Silt	% Clay
BH24-01 / 2.3 m *(clay till)*	9	41	50
BH24-02 / 0.3 m *(lacustrine clay)*	47	25	28
BH24-03 / 0.4 m *(lacustrine clay)*	47	23	30
BH24-04 / 5.5 m *(clay till)*	8	44	48
BH24-05 / 0.5 m *(lacustrine clay)*	42	27	31
BH24-06 / 5.5 m *(clay till)*	9	35	56

Catch Basin and East Proposed Pen Area

To measure the *in situ* permeability of the subsurface soils at the proposed catch basin and east end of the proposed expansion area, 50 mm diameter PVC monitoring wells were constructed in boreholes BH24-01 and BH24-06. Test well BH24-01 (proposed east pen area) was screened from 1.6 m to 3.2 m depth while test well BH24-06 (proposed catch basin & centre pen area) was screened from 4.5 m to 6.1 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 of testing, a 24-hour water drop of 0.90 m was determined at BH24-01 and a 24-hour water drop of 0.30 m was determined at BH24-06.

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 report. The results of the permeability testing indicate an *in situ* hydraulic conductivity, k_s, of 1.4×10^{-7} cm/s at BH24-01, and an *in situ* hydraulic conductivity, k_s, of 3.0×10^{-8} cm/s at BH24-06.

Using the measured permeability of the clay stratum, the 1.6 m of clay screened at BH24-01 is estimated to represent the equivalent of approximately 11 m of naturally occurring materials having a hydraulic conductivity of 1×10^{-6} cm/s (the reference standard in AOPA), and the 1.6 m of clay screened at BH24-06 is estimated to represent the equivalent of approximately 53 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, and catch basins (minimum 5 m, Section 9.5-b).

Proposed West Pen Area

As noted previously, the subsurface soils at the proposed west pen area included lacustrine clay to approximately 0.6 m below grade, below which a transition to silt and sandy silt was observed, with wet and very soft conditions identified below approximately 2 m depth.

To assess the permeability of the near surface lacustrine clay soils associated with the clay subgrade for the proposed pens, JLECS returned to the site to carry out permeability testing using a Single Sealed Ring Infiltrometer (SSRI). This testing was carried out at a depth of about 0.3 m below existing grade. The permeability testing apparatus was provided, set up, and monitored by JLECS. One test was carried out, at

the location denoted as P1-24 on Figure 1, attached. Details and results of the testing are summarized on the following Table 2. The associated calculations are appended.

Table 2: Details of *In Situ* SSRI Permeability Testing

Test # / Location	Diameter of Ring (cm)	Depth of Ring (cm)	Depth of Wetting Front (cm)	Standpipe Details *(25mm diameter)*			*In Situ* Permeability, k (cm/s)
				Initial Height of Water, h_1 (cm)	Final Height of Water, h_2 (cm)	Elapsed Time, t *(hrs)*	
P#1, West side proposed pen area	32.0	13	~10	28	25	5	1.38×10^{-7}

As indicated in Table 2, the results of the *in situ* testing indicated a coefficient of permeability, k, of about 1.4×10^{-7} cm/s. Based on the measured *in situ* permeability and a thickness of about 0.6 m of the near surface lacustrine clay (as observed in the boreholes), the existing clay in the proposed western pen area represents an equivalent thickness of approximately 4 m of material having a permeability of 1×10^{-6} cm/s.

Conclusion

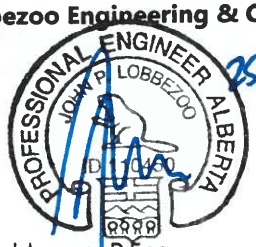
Based on the results of the current investigation, permeability testing, and our understanding of the site and proposed development at the site, it is JLECS's opinion that the naturally occurring materials at the site satisfy the AOPA requirements for permitting the proposed pens (solid manure storage), along with a catch basin at the noted location.

----JLECS----

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

Yours truly,

J Lobbezoo Engineering & Consulting Services Ltd.



25 June 2024

John Lobbezoo, P.Eng.
Principal Geotechnical Engineer

PERMIT TO PRACTICE
J LOBBEZOO ENGINEERING & CONSULTING SERVICES LTD.
RM SIGNATURE:
RM APEGA ID #: 110450
DATE: 25 June 2024
PERMIT NUMBER: P016456
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

Attachments
- Figure 1 Borehole Locations
- In Situ Permeability Test Calculations
- Borehole Summary Table

Credit: Google Image (2024)

Figure 1: Borehole Locations Proposed Feedlot Pens & Catch Basin

JLECS

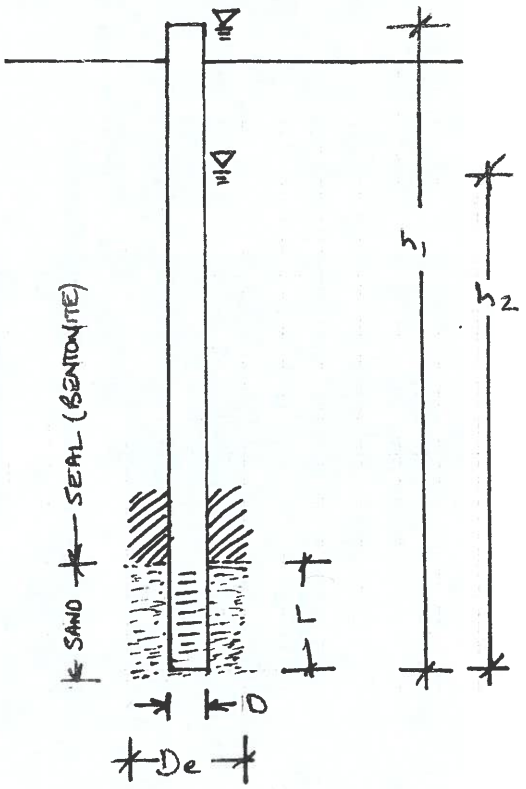
BH24-01

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)



BH24-01 - Westview Feeders

JLECS File: P24012

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	3.80	initial height of water above base of hole (m)
	h2	2.90	final height of water above base of hole (m)
	t	24.0	time of test (h)

k_s = 1.4E-07 cm/sec

JLECS

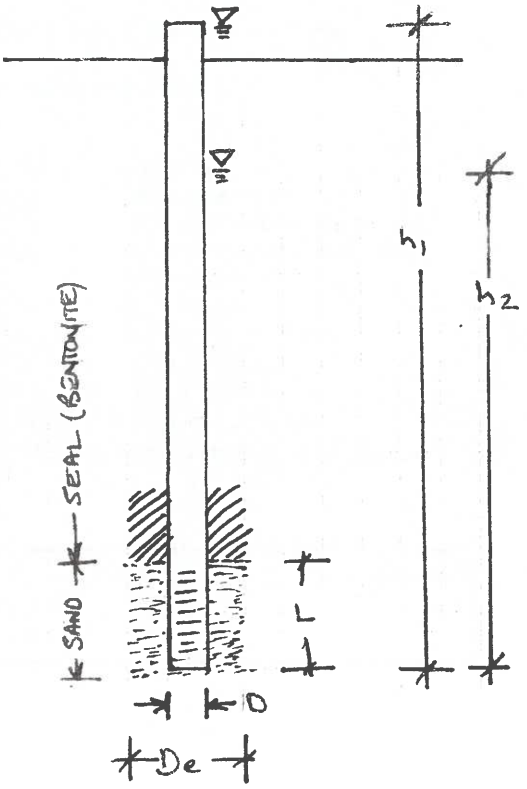
BH24-06

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)



BH24-06 - Westview Feeders

JLECS File: P24012

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	5.10	initial height of water above base of hole (m)
h2	4.80	final height of water above base of hole (m)
t	24.0	time of test (h)

k_s = 3.0E-08 cm/sec

P1-24

In situ Permeability Test (SSRI)

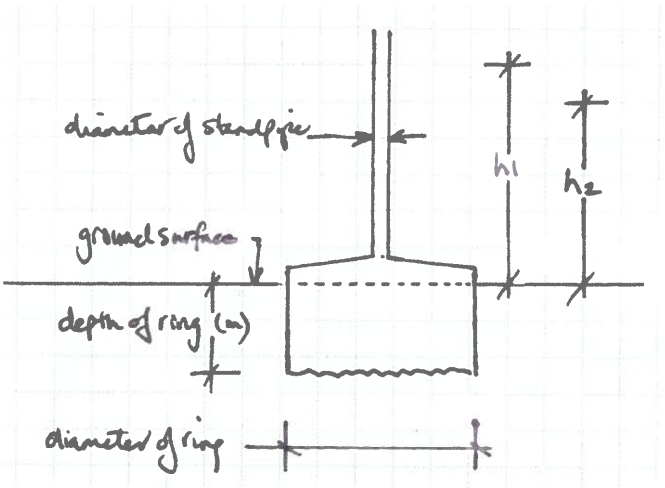
Test P1-24 - between borehole BH24-02 & BH24-03

Single Sealed Ring Infiltrometer

diameter of ring	0.32	m	
diameter of standpipe	0.025	m	
Initial water column height, *h1*	0.279	m	
Final water column height, *h2*	0.254	m	
ellapsed time	5	hrs	
depth of ring	0.13		
depth of wetting front	0.10	m	='l'
area of ring, *A*:	0.080	m^2	
area of standpipe, *a*:	0.00049	m^2	
volume of water displaced:	1.2266E-05	m^3	

Falling head calculation: $k = 2.3\ (a \cdot l/A \cdot t)\ \log\ (h_1/h_2)$

k =	1.38E-09	m/s
	1.38E-07	cm/s



Standard Single Sealed Ring Infiltrometer Setup

JLECS

Borehole Summary Table

JLECS File: P24012
Project: Westview Feeders, Proposed Pens & Catch Basin, NW-04-010-23-W4M
Date of Drilling: May 6, 2024

BH24-01		
Depth (m):		
0.0 – 1.5	**CLAY –** lacustrine, medium plastic, silty, damp, suspected sulphates, stiff	Test Well Details 50mm diameter
1.5 – 3.2	**CLAY TILL** – medium plastic, trace sand, coal & oxide inclusions, stiff to very stiff, moist, brown	*Screen:* 1.7 to 3.2m *Backfill* Sand: 1.6 to 3.2m
3.2	**End of Borehole at 3.2 m depth** *-borehole open and dry upon completion*	Bentonite: 0 to 1.6m *Stickup:* 0.6m

BH24-02		
Depth (m):		
0.0 – 0.4	**CLAY –** lacustrine, low to medium plastic, silty, trace sand, dark brown, moist, stiff	
0.4 – 4.5	**CLAYEY SILT** – low plastic, trace sand, moist, brown -very moist below 1.5m depth -wet below 2.2m depth	
4.5	**End of Borehole at 4.5 m depth** *-seepage and sloughing below 2 m depth during drilling* *-borehole backfilled with drill cuttings upon completion*	

BH24-03		
Depth (m):		
0.0 – 0.6	**CLAY –** lacustrine, low to medium plastic, silty, trace sand, dark brown, moist, stiff	
0.6 – 4.5	**CLAYEY SILT** – low plastic, trace sand, moist, brown -very moist below 1.5m depth -wet below 2.2m depth	
4.5	**End of Borehole at 4.5 m depth** *-seepage and sloughing below 2 m depth during drilling* *-borehole backfilled with drill cuttings upon completion*	

BH24-04		
Depth (m): 0.0 – 1.2	**SANDY SILT -** brown, damp, compact	
1.2 – 4.5	**CLAY TILL** – medium plastic, trace sand, coal & oxide inclusions, stiff to very stiff, moist, brown	
6.1	**End of Borehole at 6.1 m depth** *-borehole open and dry upon completion*	

BH24-05		
Depth (m): 0.0 – 0.6	**CLAY –** lacustrine, low to medium plastic, silty, trace sand, dark brown, moist, stiff	
0.6 – 3.0	**CLAYEY SILT** – low plastic, trace sand, moist, brown -very moist below 1.4m depth -wet below 2.0m depth	
3.0	**End of Borehole at 3.0 m depth** *-seepage and sloughing below 2 m depth during drilling* *-borehole backfilled with drill cuttings upon completion*	

BH24-06		
Depth (m): 1.0 – 1.2	**SANDY SILT -** brown, damp, compact	Test Well Details 50mm diameter
1.2 – 4.5	**CLAY TILL** – medium plastic, trace sand, coal & oxide inclusions, stiff to very stiff, moist, brown	*Screen:* 4.6 to 6.1m *Backfill*
6.1	**End of Borehole at 6.1 m depth** *-borehole open and dry upon completion*	Sand: 4.5 to 6.1m Bentonite: 3.0 to 4.5m Drill Cuttings: 0 to 3.0m *Stickup:* 0.6m

Table Notes:
- borehole information to be read in conjunction with JLECS report P24012.
- boreholes drilled on May 6, 2024, using a truck-mounted drill operated by Chilako Drilling Services Ltd.
- see Figure 1 for borehole locations

Name	0
Address	0
Legal Land Location	0

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)	-	1.1	0.0
	Feeders (450 - 900 lbs)	3,500	2	1750.0
	Feeder Calves (<550 lbs)	-	3.6	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
Horses	PMU	-	1	0.0
	Feeders > 750 lbs	-	1	0.0
	Foals < 750 lbs	-	3.3	0.0
	Mules	-	1	0.0
	Donkeys	-	1.5	0.0
	Other	-		0.0
Sheep	Ewes/Rams	-	5	0.0
	Ewes with lambs	-	4	0.0
	Lambs	-	21	0.0
	Feeders	-	10	0.0
	Other	-		0.0
Goats	Meat/Milk (per Ewe)	-	6	0.0
	Nannies/Billies	-	10	0.0
	Feeders	-	13	0.0
	Other	-		0.0
Bison	Bison	-	1	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			1750.0
	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.