

## 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

☒ Approval ☐ Registration ☐ Authorization  
☐ Amendment

Application number

LA25040

Legal land description

SW 26-11-23 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.

05-16-2025.  
Date of signing

Signature

Jonathan Vandenberg

Print name

Sunnyview Farms Ltd  
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)
1 2 corals	150' x 140' and 100' x 160'
2 3 corals	100' x 140'
3 4 corals	110' x 65'
4 2 shelters	80' x 30'
5 catch basin	35m x 20m x 3.33m <del>as big as necessary</del>

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

Existing facilities	Dimensions (m) (length, width, and depth)	NRCB USE ONLY
<del>None</del>	<del></del>	<del></del>

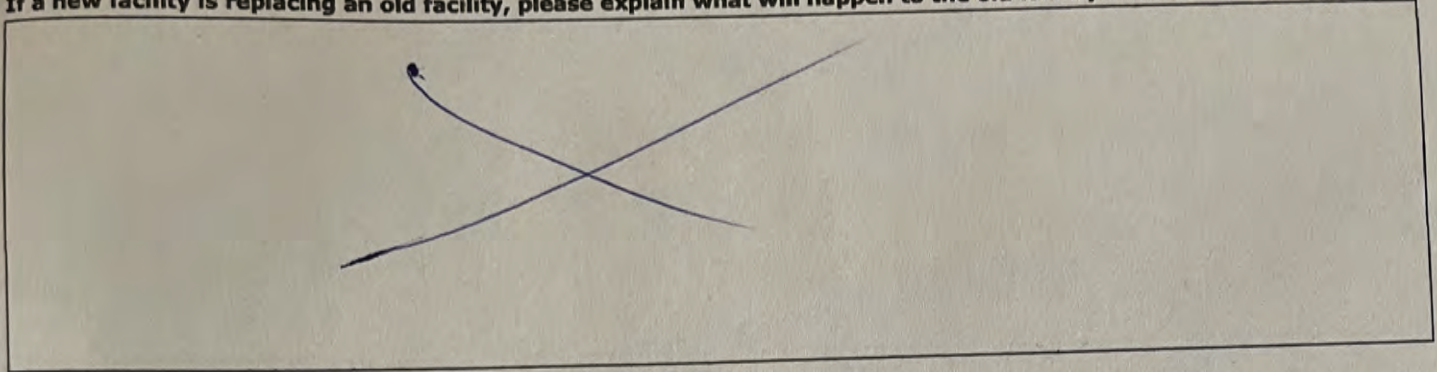
NRCB USE ONLY



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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 2 years

### Additional information

2 years for number 3<sup>and 5</sup> (refer to numbers beside proposed facilities)  
2 more years for the rest

**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



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### DECLARATION AND ACKNOWLEDGMENT OF APPLICANT CONCERNING WATER ACT LICENCE

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

Date and sign one of the following four options

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

☒ I **DO** want my water licence application coupled to my

Signed this 16 day of May, 2025.

\_\_\_\_\_  
Signature of Applicant or Agent

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

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

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 EPA under the *Water Act* for the development or activity proposed in this AOPA application.
2. **Provide:** Water license number(s) or water conveyance agreement details agreement

pond agreement with CNID

Signed this 21 day of May, 2025.

\_\_\_\_\_  
Signature of Applicant or Agent



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**The application must include the figures identified below at a minimum**

### **FIGURE 1: AREA / LARGE SCALE PLAN**

**(e.g. municipality maps, overview images from Google Earth, etc.)**

The application must include an area plan to scale, unless otherwise directed by the approval officer. An area plan should include:

- North arrow
- Legal land description(s) of the proposed development and immediately surrounding properties
- Roadways
- Property lines
- Distances between the confined feeding operation and neighbouring residences
- Water courses, common bodies of water, springs, and water wells within 800 m of the CFO
- Runoff patterns

*See attached*

### **FIGURE 2: DETAILED SITE LAYOUT PLAN**

The application must include a detailed site layout plan unless otherwise directed by the approval officer. At a minimum, the site plan should include the following:

- North arrow
- Legal land description(s)
- Water bodies
- Water wells and springs
- Monitoring wells (if applicable)
- Property lines
- Barns, corrals, and pens
- Manure storage facilities and manure collection areas
- Surface water control systems, if required by an approval officer
- Setbacks to property lines and boundaries
- Right-of-ways (roads, utilities, etc.)
- Any other pertinent information related to the CFO

*See attached.*



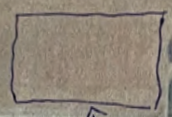
↑ North

Keho lake.

1095 meters away.

1620 meters away.

SW 26-11-23  
W4



Proposed area

my residence

turn 114

Range road 232





quarter boundary.

SW 26-11-23

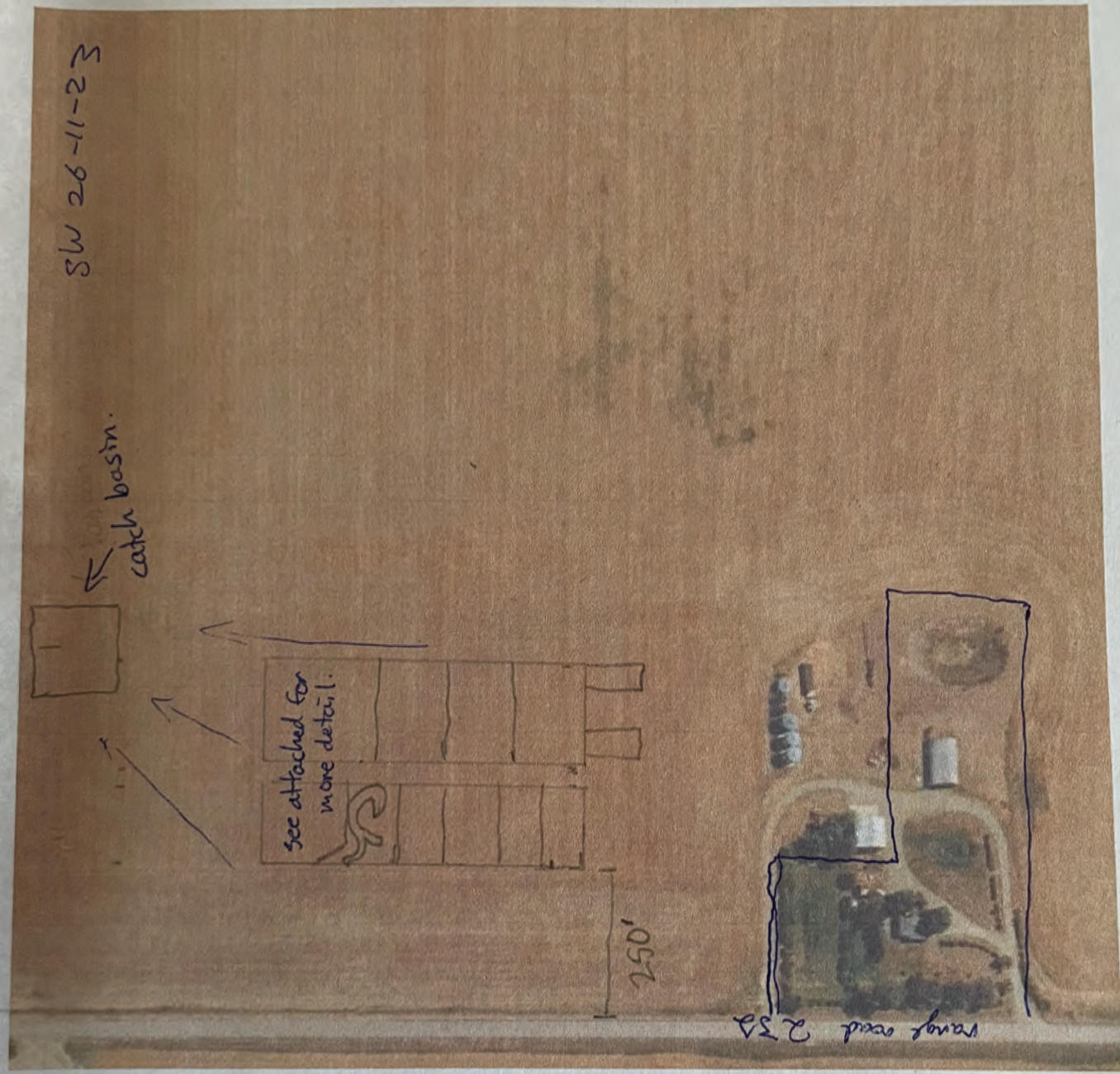
catch basin.

see attached for  
more detail.

250'

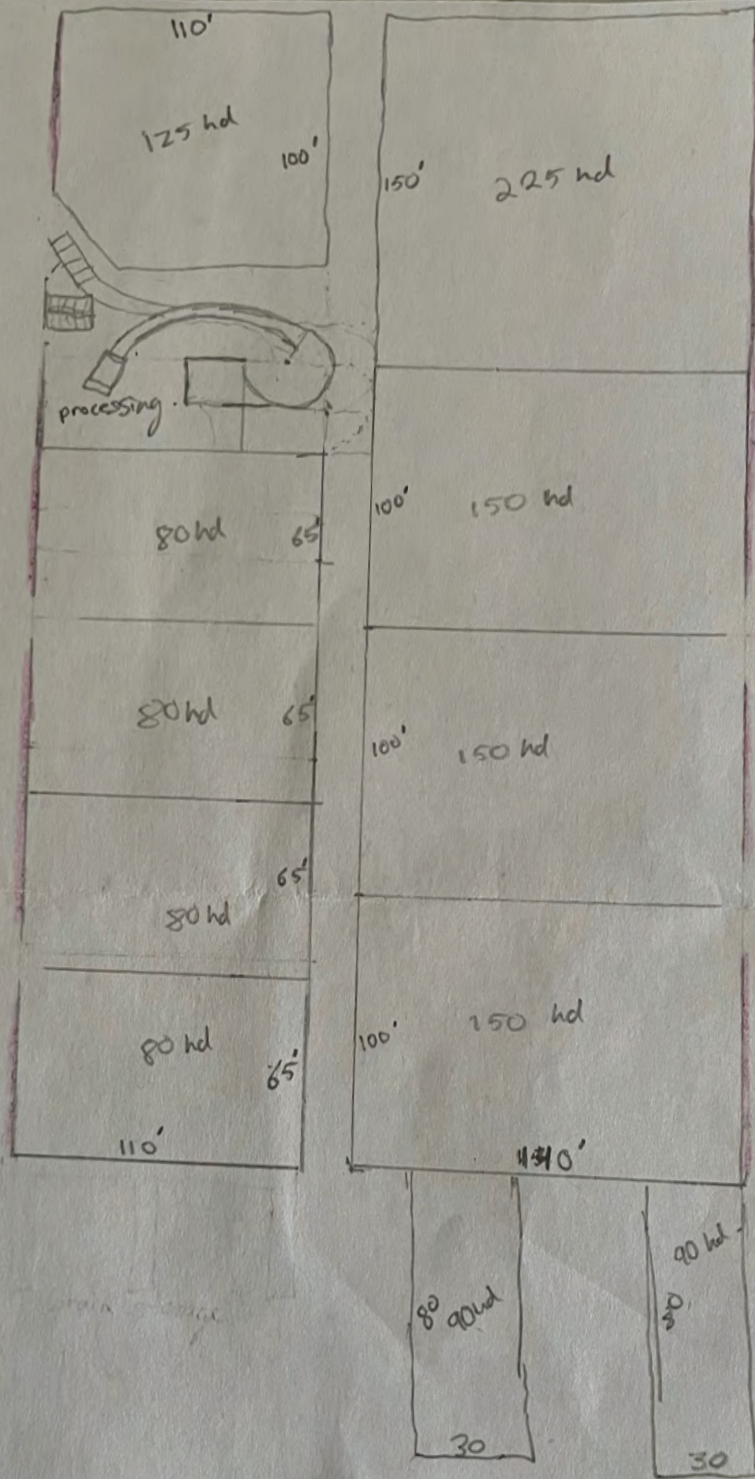
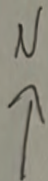
range road 232

North.





Gravel Road



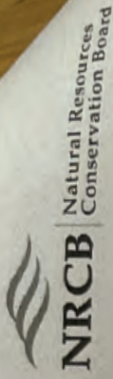
Shelters

Driveway



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## GENERAL ENVIRONMENTAL INFORMATION

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

Existing:

Proposed 2:

Proposed 1: Corralls + shelters + catchbasin

Proposed 3:

Facility and environmental risk information		Facilities				NRCB USE ONLY	
		Existing	Proposed 1	Proposed 2	Proposed 3	Meets requirements	Comments
Surface water information	Flood plain	<input type="checkbox"/> > 1 m <input type="checkbox"/> ≤ 1 m	<input checked="" type="checkbox"/> > 1 m <input type="checkbox"/> ≤ 1 m	<input type="checkbox"/> > 1 m <input type="checkbox"/> ≤ 1 m	<input type="checkbox"/> > 1 m <input type="checkbox"/> ≤ 1 m	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	
	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?		0			<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	
	How many springs are within 100 m of the manure storage facility or manure collection area?		0			<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	
Groundwater information	How many water wells are within 100 m of the manure storage facility or manure collection area?		1464 m			<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	
	What is the shortest distance from the manure collection or storage facility to a surface water body? (e.g., lake, creek, slough, seasonal)		See attached.			<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	
Additional information (attach supporting information, e.g. borehole logs, records, etc. you consider relevant to your application)	What is the depth to the water table?		NA			<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	
	What is the depth to the groundwater resource/aquifer you draw water from?					<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> YES with exemption	



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

Neighbour name(s)	Legal land description	Distance (m)	NRCB USE ONLY				Meets regulations
			Zoning (LUB) category	MDS category (1-4)	Distance (m)	Waiver attached (if required)	
①		1095					
②		1620					

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

Name of land owner(s)*	Legal land description	Usable area** (ha)	Soil zone***	NRCB USE ONLY	
				Usable area (ha)	Agreement attached (if required)
Sunnyview Farms Ltd.	SW 26-11-23 W4M	155 acres	Dark brown		
Variety Farms (see attached agreement)	NW 26-11-23 W4M	135 ac	Brown		
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)**



### Manure Spreading Agreement

This agreement is between Sunnyview Farms Ltd, manure producer, and  
Variety Farms manure receiver.

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

Legal land location	Soil type <sup>1</sup>	Acres suitable for manure spreading <sup>2</sup>
NW 26-11-23 W4	Brown	135

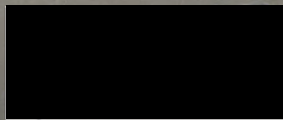
<sup>1</sup> Soil type choices: Dark brown and brown, Grey wooded, Black, Irrigated.

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

Other comments:

Manure producer (Confined Feeding Operation) Legal Land Location SW 26-11-23 W4

05-22/2025  
Date of signing

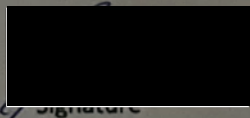


Jonathan Vandenberg  
Print name

Sunnyview Farms.  
Corporate name(if appl)

Manure Receiver – Landowner(s)<sup>3</sup>

May 22/25  
Date of signing



ED NEELS  
Print name

VARIETY FARMS INC  
Corporate name(if appl)

\_\_\_\_\_  
Date of signing

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Print name

\_\_\_\_\_  
Corporate name(if appl)

<sup>3</sup> All registered owners of land, or authorized signing authorities must sign.



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

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

Facility description / name (as indicated on site plan)

1. coralls & shelters
2. \_\_\_\_\_

#### Manure storage capacity

	Length (m) <u>feet</u>	Width (m) <u>feet</u>	Depth below ground level (m)	<b>NRCB USE ONLY</b> Estimated storage capacity (m <sup>3</sup> )
1.	<u>450</u>	<u>265</u>	<u>0.6</u>	
2.				
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

The proposed area will be well sloped towards the catch basin.

#### Naturally occurring protective layer details

<u>see attached report.</u> Thickness of naturally occurring protective layer	_____(m)	Provide details (as required)	
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

Additional information (attach copies of soil test reports)

#### NRCB USE ONLY

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



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### 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. SW 26-11-23 W4.

2. \_\_\_\_\_

3. \_\_\_\_\_

#### Determination of runoff area

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

runoff area is: ~~265' x 450' = 119250 square feet~~  
~~138 m x 83 m = 58415 m<sup>2</sup>~~  
X 85 mm (Picture Buffer closest town) = 584,15 m<sup>3</sup>.

#### Catch basin capacity

	Length (m)	Width (m)	Total depth (m)	Depth below ground level (m)	Slope run:rise			NRCB USE ONLY Calculated storage capacity (excl. 0.5 m freeboard) (m <sup>3</sup> )
					Inside end walls	Inside side walls	Outside walls	
1.	35	20	3.33	3.33	3-1	3-1	3-1	634 m <sup>3</sup>
2.								
3.								
TOTAL CAPACITY								

see attached report.

#### Naturally occurring protective layer details

Thickness of naturally occurring protective layer	_____ (m)	Provide details (as required)		
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





15 May 2025

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

JLECS File: P25046

**Sunnyview Farms Ltd**  
PO Box 151  
Nobleford, AB T0L 1S0

Attention: Mr. Jonathan Vandenberg

**Re:               Geotechnical Review and Evaluation  
                  NRCB Permitting of Pens & Catch Basin  
                  SW-26-011-23-W4M, near Nobleford, 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 the site soil conditions to support a permit application related to a series of proposed pens and a proposed catch basin at the above captioned site (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 resource, six boreholes were advanced at the site on April 15, 2025. The boreholes were advanced at the approximate locations denoted as JV1-25 to JV6-25 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 of 3.4 m to 6.8 m below the existing grade. The boreholes were logged by Larry Delong of Chilako Drilling Services.

In general, the natural mineral soils encountered in the boreholes consisted of minor lacustrine clay and silty clay loam soils overlying stiff, medium plastic clay till, overlying mudstone/claystone below depths of 1.5 m to 4.6 m. In addition to the clay soils and mudstone, it is noted that localized occurrences of sandy clay loam were encountered in several of the boreholes. In just one borehole (JV5-25), groundwater seepage was encountered in the claystone layer at approximately 5.8 m depth. No groundwater resource (as defined by the AOPA) was encountered within the upper 5.8 m at this site.

Samples of soil collected from the screened zones of boreholes JV1-25 and JV4-25, as well as samples from similar depths at the other boreholes were all subjected to grain size analyses, which was carried out by Down to Earth Laboratories in Lethbridge, Alberta. The lab report is attached, for reference. The results indicate a soil texture breakdown of:



**Table 1: Soil Texture Analyses**

<b>Borehole/Depth</b>	<b>% Sand</b>	<b>% Silt</b>	<b>% Clay</b>
JV1-25 / 4.0 – 4.5 m	26	45	29
JV2-25 / 1.0 – 1.5 m	28	16	56
JV3-25 / 2.7 – 3.4m	18	41	41
JV4-25 / 5.6 – 6.5m	16	42	42
JV5-25 / 6.0 – 6.8m	22	40	38
JV6-25 / 5.5 – 6.0m	40	35	25
<i>Average:</i>	25	37	39

To measure the *in situ* permeability of the subsurface soils, 50 mm diameter PVC monitoring wells were constructed in boreholes JV1-25 (pen area) and JV4-25 (catch basin). Test well JV1-25 was screened from 2.7 m to 4.5 m depth while test well JV4-25 was screened from 3.3 m to 6.6 m depth. Well saturation of the 50 mm diameter monitoring wells was carried out by filling the monitoring wells to the top for several consecutive days. After several days of testing, a 24-hour water drop of 0.94 m was determined at JV1-25, and a 24-hour water drop of 0.50 m was determined at JV4-25.

To calculate the permeability of the screened portion of the clay strata at the test well location, 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 indicated an *in situ* hydraulic conductivity ( $k_s$ ) of  $1.0 \times 10^{-7}$  cm/s at JV1-25, and an *in situ* hydraulic conductivity ( $k_s$ ) of  $2.2 \times 10^{-8}$  cm/s at JV4-25.

Using the measured permeability of the clay at this site, the 1.8 m of clay and claystone screened at test hole JV1-25 is estimated to represent the equivalent of about 18 m of naturally occurring materials having a hydraulic conductivity of  $1 \times 10^{-6}$  cm/s (the reference standard in AOPA). At test hole JV-25, the 3.3 m of screened claystone is estimated to represent the equivalent of over 100 m of naturally occurring materials having a hydraulic conductivity of  $1 \times 10^{-6}$  cm/s. This represents natural material protection in excess of the minimum requirements outlined by the AOPA for catch basins (minimum 5 m, Section 9.5-b) and 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 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 and catch basin at this location.

Notwithstanding, it is noted that the localized occurrences of sandy clay loam soils were noted in the area of the proposed catch basin. Any exposed sandy loam soils in the catch basin excavation would require removal from the side slopes and/or base area at the time of construction, and reconstruction of these pockets using low permeable clay soils would be required. The existing clay, clay till, and mudstone/claystone soils encountered are all considered suitable for the side slope or base reconstruction.

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.**



John Lobbezoo, P.Eng.  
Principal Geotechnical Engineer

<b>PERMIT TO PRACTICE</b>	
<b>J LOBBEZOO ENGINEERING &amp; CONSULTING SERVICES LTD.</b>	
RM SIGNATURE: _____	_____
RM APEGA ID #: _____	110450
DATE: _____	15 May 2025
<b>PERMIT NUMBER: P016456</b>	
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)	

### Attachments

- Figure 1 Borehole Locations
- In Situ Permeability Test Calculations
- Down to Earth Soil Texture Results
- Soil Profile and Parent Material Description, Chilako Drilling Services



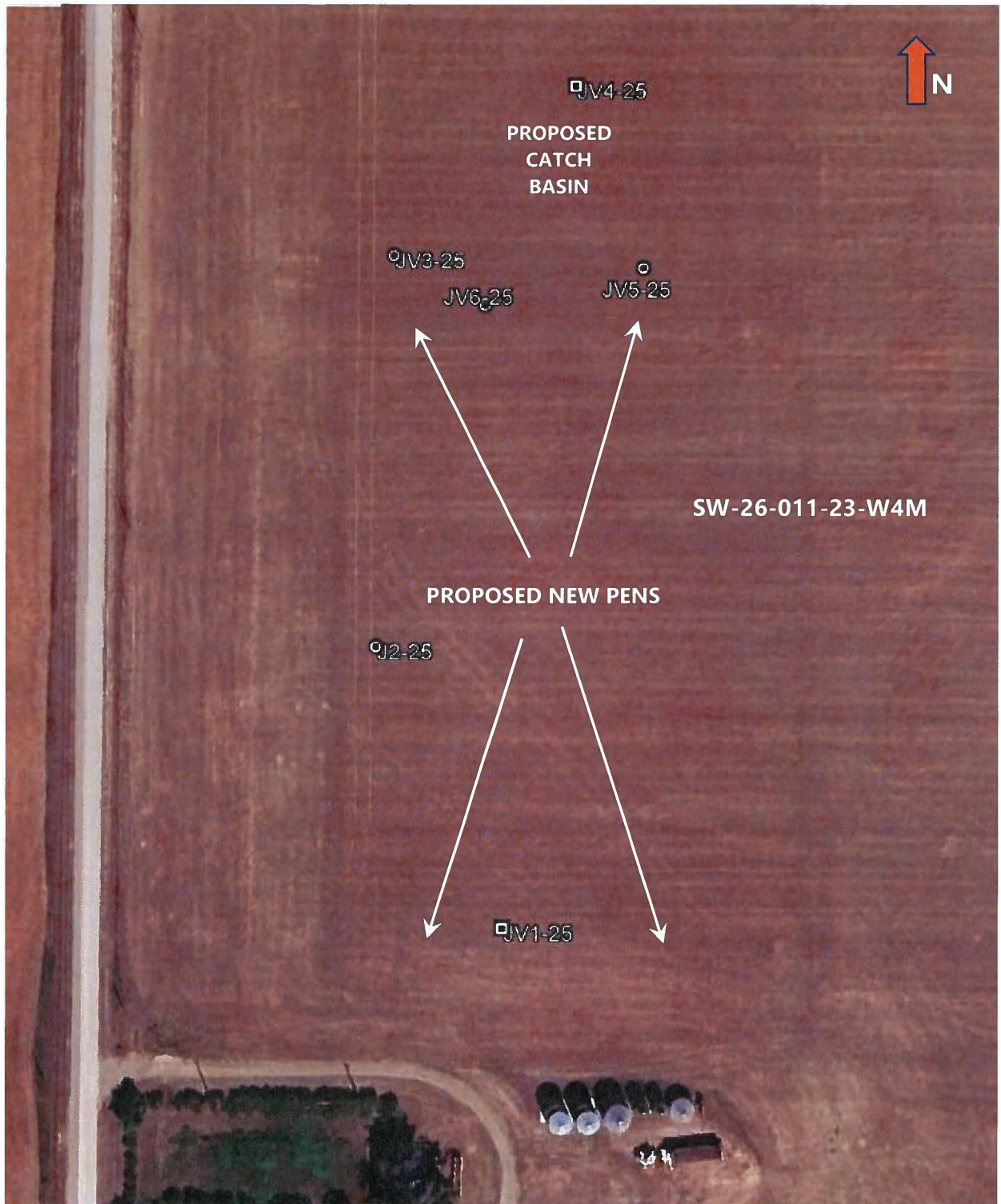


Figure 1: Site Layout & Borehole Locations

Image Credit: Google



JV1-25

## In Situ Permeability Test

Modified Falling Head Permeability Equation

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

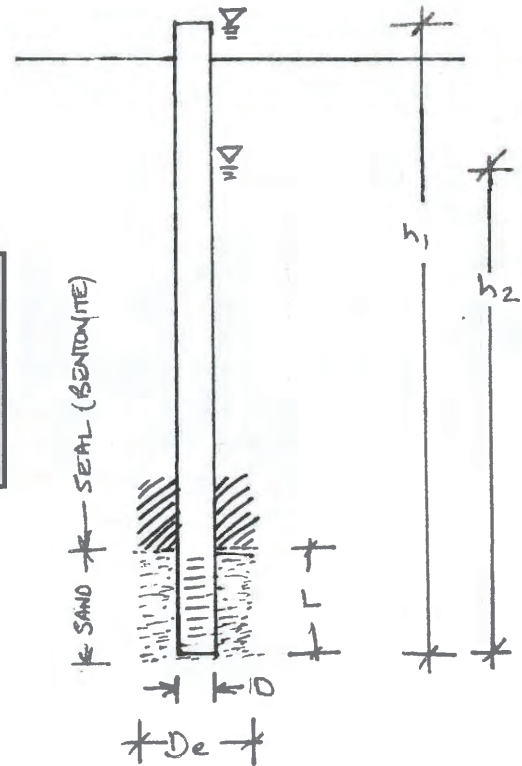
taken from USBR Engineering Geology Field Manual Volume 2 (2001)

JV1-25 - Sunnyview Farms Ltd.

JLECS File: P25046

INPUT VARIABLES	Terms	Value	Definition
	D	0.0520	diameter of standpipe (m)
	De	0.1500	diameter of borehole (m)
	L	1.80	length of sand section (m)
	h1	4.80	initial height of water above base of hole (m)
	h2	3.86	final height of water above base of hole (m)
	t	24.0	time of test (h)

$k_s = 1.0E-07$  cm/sec





JV4-25

## In Situ Permeability Test

Modified Falling Head Permeability Equation

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

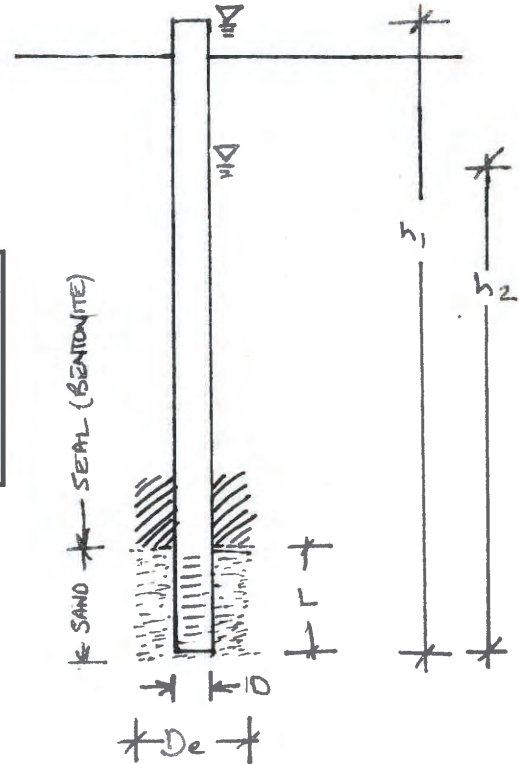
taken from USBR Engineering Geology Field Manual Volume 2 (2001)

JV4-25 - Sunnyview Farms Ltd.

JLECS File: P25046

INPUT VARIABLES	Terms	Value	Definition
	D	0.0520	diameter of standpipe (m)
	De	0.1500	diameter of borehole (m)
	L	3.30	length of sand section (m)
	h1	7.20	initial height of water above base of hole (m)
	h2	6.70	final height of water above base of hole (m)
	t	24.0	time of test (h)

$k_s = 2.2E-08$  cm/sec







# Down To Earth Labs Inc.

The Science of Higher Yields

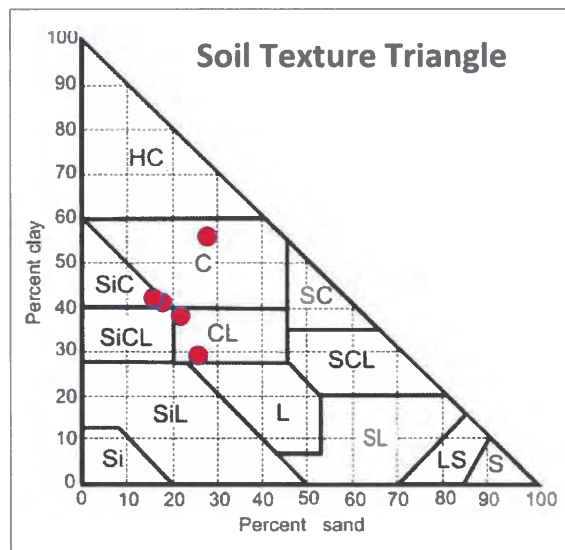
J. Lobbezoo Engineering +  
Consulting Services  
Box 96  
Monarch, Alberta T0L 1M0

**Report #:** 205758  
**Report Date:** 2025-05-08  
**Received:** 2025-05-06  
**Completed:** 2025-05-08  
**Test Done:** ST

**Project :**  
Sunnyview Farms  
**PO:**

3510 6th Ave North  
Lethbridge, AB T1H 5C3  
403-328-1133  
www.downtoearthlabs.com  
info@downtoearthlabs.com

Sample ID:		250506L001	250506L002	250506L003	250506L004	250506L005	
Cust. Sample ID:		JV1-25	JV2-25	JV3-27	JV4-25	JV5-25	
Analyte	Units	4.0-4.5	1.0-1.5	2.7-3.4	5.6-6.5	6.0-6.8	
Sand	%	26.2	28.2	18.2	16.2	22.2	
	Silt	%	44.8	15.8	40.8	41.8	39.8
	Clay	%	29.0	56.0	41.0	42.0	38.0
Soil Texture	-	Clay Loam	Clay	Silty Clay	Silty Clay	Clay Loam	







# Down To Earth Labs Inc.

The Science of Higher Yields

J. Lobbezoo Engineering +  
Consulting Services  
Box 96  
Monarch, Alberta T0L 1M0

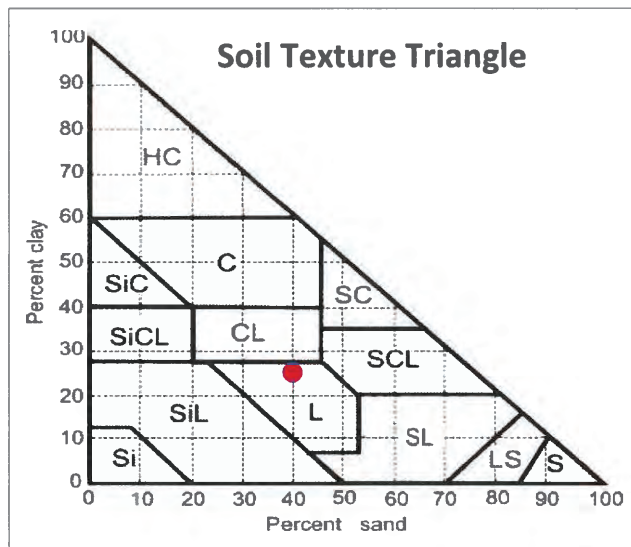
**Report #:** 205758  
**Report Date:** 2025-05-08  
**Received:** 2025-05-06  
**Completed:** 2025-05-08  
**Test Done:** ST

**Project :**  
Sunnyview Farms  
**PO:**

3510 6th Ave North  
Lethbridge, AB T1H 5C3  
403-328-1133  
www.downtoearthlabs.com  
info@downtoearthlabs.com

**Sample ID:** 250506L006  
**Cust. Sample ID:** JV6-25  
**Analyte Units** 5.5-6.0

Sand	%	40.2
Silt	%	34.8
Clay	%	25.0
Soil Texture	-	Loam



Raygan Boyce - Chemist



# CHILAKO DRILLING SERVICES LTD

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

## SOIL PROFILE AND PARENT MATERIAL DESCRIPTION

Site Location: SW26-11-23W4, Sunnyview Farms

Date: 15-Apr-25

Hole #	Location	Depth	Texture	Moisture	Geological	Sample	Remarks
JV1-25	0352768 5533561	0-0.15	CL	M	Lac		
		0.15-0.4	CL-SiCL	D	Lac		
		0.4-1.2	CL	D	Till	0.6-1.0	Stiff, med plastic, brown
		1.2-1.6	SL-FSC	SM	Till		Low plastic, olive brown
		1.6-3.0	CL	SM	Till	2.0-3.0	Stiff, med plastic, brown, sand lensing, mudstone inclusions
		3.0-3.7	Mudstone	SM	Bedrock		Soft, bedrock, olive brown
JV2-25	0352739 5533627	3.7-4.5	Claystone	SM	Bedrock	4.0-4.5	Soft, bedrock, yellow brown
							50mm H.C. Well installed to 4.5m BGS
							Screen: 4.5-3.0m
							Sand: 4.5-2.7m
							Bentonite: 2.7-0.0m
							Stickup: 0.3m
JV3-25	0352746 5533718						Hole Diameter: 0.15m
		0-0.15	CL	M	Lac		
		0.15-0.7	SiCL	M	Lac		
		0.7-1.5	CL	M	Till	0.7-1.5	Stiff, med plastic, brown
		1.5-2.8	FSL	VM	Till		
		2.8-4.0	CL	M	Till		Stiff, med plastic, brown
JV4-25	0352788 5533756 low area	4.0-4.5	Claystone	SM	Bedrock		Soft bedrock
		0-0.15	SiCL	M	Lac		
		0.15-0.3	SiCL	SM	Lac		
		0.3-2.7	CL	SM	Till		Stiff, med plastic, brown, sand streaks
		2.7-3.4	Claystone	SM	Bedrock	2.7-3.4	Soft bedrock, yellow brown
JV5-25	0352803 5533713	0-0.15	CL	M	Topsoil		
		0.15-0.4	SiCL	M-VM	Lac		
		0.4-1.2	CL	M-VM	Till		
		1.2-1.5	FSL	M-VM	Till		
		1.5-5.6	Claystone	D	Bedrock		Soft bedrock, yellow brown
		5.6-6.6	Mudstone	D	Bedrock	5.6-6.5	Soft bedrock, grey
JV6-25	0352767 5533706						Auger refusal @ 6.6m
							50mm H.C. Well installed to 6.6m
							Screen: 6.6-3.6m
							Sand: 6.6-3.3m
							Bentonite: 3.3-0.0m
							Stickup: 0.6m
JV7-25	0352803 5533713						Hole Diameter: 0.15m
		0-0.15	CL	M	Topsoil		
		0.15-0.6	CL	M	Lac		
		0.6-1.8	CL	M	Till		Stiff, med plastic, brown
		1.8-3.0	FSL-FSCL	VM	Till	2.0-3.0	Firm, low plastic, brown
		3.0-4.6	FSCL	M	Till		V. Firm, low plastic, brown
JV8-25	0352803 5533713	4.6-5.8	Claystone	M	Bedrock		Soft bedrock, yellow brown
		5.8-6.8	Claystone	D	Bedrock	6.0-6.6	Some sand, mixed with shale, sat @ 5.8m
							Free water
JV9-25	0352767 5533706	0-0.15	CL	M	Topsoil		
		0.15-1.0	SiCL	M	Lac		
		1.0-1.3	CL	M	Till		Stiff, med plastic, brown
		1.3-3.3	FSL-FSCL	VM	Till	2.0-3.0	
		3.3-6.0	Claystone	M	Bedrock	5.5-6.0	Soft bedrock, yellow brown
							Auger refusal @ 6.0m

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