Technical Document LA24004A

Application for Amendment

NRCB Natural Resources Conservation Board

Application under the *Agricultural Operation Practices Act* to amend a permit for a confined feeding operation, manure collection area and/or manure storage facility(ies). ("Permit" means an NRCB-issued or grandfathered approval, registration, or authorization, including a grandfathered municipal development permit.)

NRCB USE ONLY	NRCB Application number	Date Stamp
☐ Approval ☐ Registration ☒ Authorization	LA24004A	NRCB APPLICATION 21 JUL 25 RECEIVED

CONTACT INFORMATION

Applicant Information

Name:	Corporate Name (if applicable)	
John Liefting		
Address: (Street/P.O. Box) Box 1116		
City/Town: Picture Butte	Province: AB	Postal Code: T0K 1V0

Agent consent *(if applicable)*

I, _____, hereby give consent for _____
(name of applicant) *(name of agent and company)*

to act on my behalf or as my agent for this application.

Signed this ____day of _____, 20____.

_____
Signature of Applicant

LOCATION OF DEVELOPMENT

Which permit do you wish to amend? (List permit number and issuing agency.)	NW-07-11-20-W4
Legal Land Description(s)	LA24004 (Qtr-Sec-Twp-Rg-W Mer)

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 herein and acknowledge that the information provided in this application is true to the best of my knowledge.

July 21 2025
Date of signing

[redacted]
Signature

Corporate name (if applicable)

Print name

Application for Amendment – contd.

NRCB Natural Resources Conservation Board

AMENDMENT INFORMATION REQUIREMENTS

Instructions:
For each part of your permit that you would like amended, please detail what change you would like made and why, and how your proposed change will meet the AOPA requirements. You may attach additional pages to this form to provide this information.

Please note that an approval officer may require a page (or pages) of the Part 2 application forms to be completed as part of this application for amendment, depending on what changes are proposed.

Combine Ems + catch basin to 45m x 45m x 6m deep

move over to 8m from east property line

Rcc feedlot pens.

Authorization LA24004 permitted a catch basin (40 m x 25 m x 5 m deep) and an earthen liquid manure storage (EMS) (45 m x 40 m x 5 m deep). This application for amendment seeks to combine those facilities into one EMS that will also collect run off from the feedlot pens. The proposed dimensions of this facility are 45 m x 45 m x 6 m deep. The proposed location is approximately 20 m east of the originally permitted location. No changes to the naturally occurring layer are proposed with this application.

Placing roller compacted concrete (RCC) in the feedlot pens will be a secondary liner, which does not need to be permitted, but will increase run-off.

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]	45.0	m	148	ft
Total Width*[4]	45.0	m	148	ft
Total Depth*[4]	6.0	m	20	ft
Design Capacity Depth	*5.50*	m	18	ft
End Slope*[4]	3	run:rise	3	run:rise
Side Slope*[4]	3	run:rise	3	run:rise
Length of Bottom	9.0	m	30	ft
Width of Bottom	9.0	m	30	ft
			Capacity (@tob)	
Capacity @ top of Bank	*5,022*	m^3	*177,350*	ft^3
			1,104,685	*Imp. Gal.*

Design Capacity of Catch Basin (freeboard level)			Design Capacity (freeboard level)	
Length (design capacity depth)	42.0	m	138	ft
Width (design capacity depth)	42.0	m	138	ft
Total Depth	*6.0*	m	*20*	ft
Design Capacity Depth	5.50	m	18	ft
End Slope	3	run:rise	3	run:rise
Side Slope	3	run:rise	3	run:rise
Design Capacity (freeboard level)	**4,076**	m^3	143,925	ft^3
			896,484	Imp. Gal.
level)	*1,764*	m^2	*18,988*	ft^2

CFO Name [1]

Land Location [1]

Paved Runoff Catchment Area(s)

Area [2]	Length (m)	Width (m)	Area (m^2)
1	144	120	17,280.0
2			0.0
3			0.0
4			0.0
5			0.0
		Total Area (m^2)	**17,280**

Unpaved Runoff Catchment Area(s)

Area [2]	Length (m)	Width (m)	Area (m^2)
6			0.0
7			0.0
8			0.0
9			0.0
10			0.0
		Total Area (m^2)	**0**

Rainfall (Select Town [3]**)**

Coaldale 85

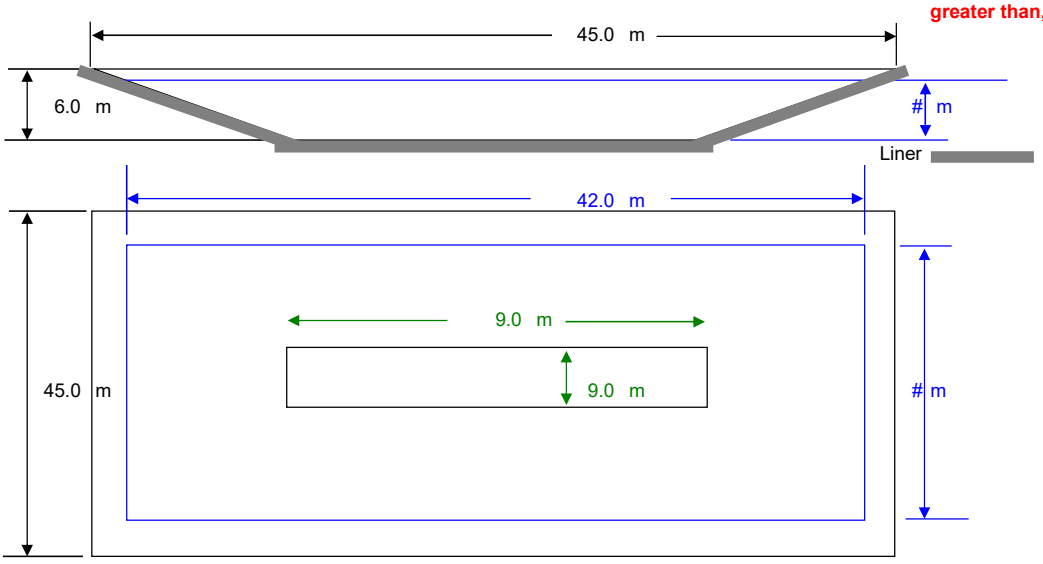
AOPA Design Rainfall **85 mm**

Minimum Catchbasin Storage Volume Required

1,469 m^3 ** **51870.18248 ft^3**

323090.7044 Imp. Gal.

**** Design capacity of catch basin should be equal to, 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

Liquid Manure Storage Volume Calculator

Construction Dimensions of Liquid Manure Storage

*** Only cells in blue can be changed.**

Overall Dimensions of Liquid Manure Storage			Liquid MS Dimensions
Total Length*[4]	45.0	m	148 ft
Total Width*[4]	45.0	m	148 ft
Total Depth*[4]	6.0	m	20 ft
Design Capacity Depth	*5.50*	m	18 ft
End Slope*[4]	3	run:rise	3 run:rise
Side Slope*[4]	3	run:rise	3 run:rise
Length of Bottom	9.0	m	30 ft
Width of Bottom	9.0	m	30 ft
			Total Capacity (@tob)
Total Capacity @ top of Bank	*5,022*	m^3	*177,350* ft^3
			1,104,685 Imp. Gal.

Design Capacity of Liquid Manure Storage (freeboard level)			Design Capacity (freeboard level)
Length (design capacity depth)	42.0	m	138 ft
Width (design capacity depth)	42.0	m	138 ft
Total Depth	*6.0*	m	*20* ft
Design Capacity Depth	5.50	m	18 ft
End Slope	3	run:rise	3 run:rise
Side Slope	3	run:rise	3 run:rise
Design Capacity (freeboard level)	**4,076**	**m^3**	**143,925 ft^3**
			896,484 Imp. Gal.
level)	*1,764*	m^2	*18,988* ft^2

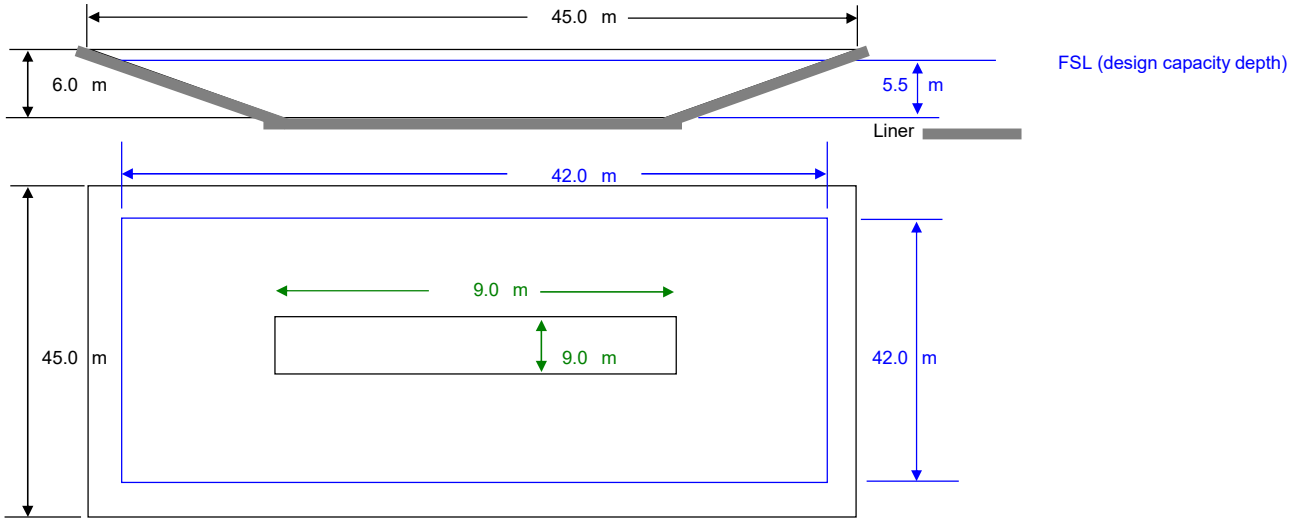
CFO Name [1]

Land Location [1]

Type(s) of Livestock [2]	Number of Livestock	Annual Manure Production (m^3/hd)
Free Stall: Lactating Cow Only	85	36.0
N/A		0.0
N/A	0	0.0
N/A	0	0.0
		Total manure Production (m^3/yr)

Minimum 9 Month Liquid Manure Storage Volume Required			
2,295	**m^3 ****	81,047	ft^3
		504,829	**Imp. Gal.**

** Design capacity of liquid manure storage should be equal to, or greater than, minimum 9 month liquid manure storage volume required.



Lines in Black - Overall liquid manure storage dimensions

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

NTS - Not To Scale

Google Earth
Image © 2025 Airbus
EMS
100 m
N

Site map included with original application LA24004. Included by AO for comparison to amended proposal.

Part 2 — Technical Requirements

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

NRCB USE ONLY

Liquid manure storage volume calculator attached: ☑ YES ☐ NO

Depth to water table: 2.3 mbgs (worst case) Requirements met: ☑ YES ☐ NO with a condition

Depth to uppermost groundwater resource: > 13mbgs Requirements met: ☑ YES ☐ NO

Comments: Groundwater resource not encountered within drilling depth and no wells in area.

ERST completed: ☑ see ERST page for details

Surface water control systems

Requirements met: ☑ YES ☐ NO Details/comments:

Naturally occurring protective layer details

Layer specification comments (e.g. description of the layer texture, layer thickness/depth and the methodology used to collect this information such as sand lenses, number, and location of boreholes):

Authorization LA24004 found that the naturally occuring liner meets AOPA's technical requirements for catch basins and liquid manure storages. The liner still meets the requirements for the proposed EMS.

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

NRCB USE ONLY

LIQUID MANURE STORAGE VOLUME CALCULATOR (if applicable)

Facility 1			
Name / description	Old pit	Capacity	283 m3
Facility 2			
Name / description	EMS	Capacity	4,076 m3
Facility 3			
Name / description		Capacity	
Facility 4			
Name / description		Capacity	

TOTAL CAPACITY	4,359 m3
REQUIRED 9 MONTH STORAGE CAPACITY	2,295 m3 (liquid manure) + 1,469 m3 (runoff) =3,764m3
MEETS THE REQUIREMENTS FOR A MINIMUM OF 9 MONTHS STORAGE	☑ YES ☐ NO

Part 2 — Technical Requirements

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

NRCB USE ONLY

ENVIRONMENTAL RISK SCREENING INFORMATION

ERST for **proposed** facilities

Facility	Groundwater score	Surface water score	File number
EMS	Low	Low	LA24004A

ERST for **existing** facilities

Facility	Groundwater score	Surface water score	File number
See LA24004A Decision Summary			

ERST related comments:

Part 2 — Technical Requirements

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

NRCB USE ONLY

WATER WELL AND SURFACE WATER INFORMATION

Well IDs: No water wells within 1/2 mile of CFO _____ _____ _____

_____ _____ _____

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

Water Well Exemption Screening Tool ☑ N/A

Water Well ID	Preliminary Screening Score	Secondary Screening Score	Facility

Groundwater or surface water related comments:

Part 2 — Technical Requirements

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

NRCB USE ONLY

MINIMUM DISTANCE SEPARATION

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

Margin of error (if applicable): +/- 3 m

Requirements (m): Category 1: 340 Category 2: 453 Category 3: 567 Category 4: 907

Technology factor: ☐ YES ☑ NO

Expansion factor: ☐ YES ☑ NO

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

Under section 3(5)(C) of AOPA, MDS does not apply if the proposed facilties are further than the existing MCAs/MSFs to the nearby residence. In this case, the existing pens are closer to the nearest residence (to the east) than the proposed EMS

LAND BASE FOR MANURE AND COMPOST APPLICATION

Land base required: _____

Land base listed: _____ NA for authorizations

Area not suitable: _____

Available area _____ 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 PL21005

Part 2 — Technical Requirements

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

NRCB USE ONLY

ALL SIGNATURES IN FILE ☑ YES ☐ NO

DATES OF APPROVAL OFFICER SITE VISITS

July 21, 2025	

CORRESPONDENCE WITH MUNICIPALITIES AND REFERRAL AGENCIES

Date deeming letters sent: July 21, 2025

Municipality: Lethbridge County

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

Alberta Health Services: ☑ **N/A**

☐ 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: _____ ☐ 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

3 October 2023

WSP File: BX11613

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

John Liefting Farming
Box 1116
Picture Butte, Alberta T1M 1M9

Attention: Mr. John Liefting:

Re: Geotechnical Review and Evaluation
NRCB Permitting of Proposed Pen and Lagoon
NW-07-011-20-W4M, near Picture Butte, 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 pen and a proposed lagoon within NW-07-011-20-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, seven (7) boreholes were advanced at the site on April 25, 2023. The boreholes were advanced at the approximate locations denoted as JL1-23 to JL7-23 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 3.0 m and 13.5 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 lacustrine deposit of silty clay loam to depths ranging between 0.4 m and 1.3 m below existing grade. The upper lacustrine layer was underlain by medium plastic clay till to the termination depth of all the boreholes. It was noted that saturated sand lenses and perched water was encountered in borehole JL1-23 at 11.0 m depth.

Samples of soil collected from the screened zone of the boreholes JL5-23 and JL7-23 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
JL5-23 / 5.9-9.2m	19	48	33
JL7-23 / 1.4-3.0m	24	49	27

To measure the *in situ* permeability of the subsurface soils, 50 mm diameter PVC monitoring wells were constructed in boreholes JL5-23 and JL7-23. Test well JL5-23 (proposed lagoon) was screened from 5.9 m to 9.2 m depth, and test well JL7-23 (proposed pen area) was screened from 1.4 m and 3.0 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 24-hour water drop at JL5-23 was 1.6 m and the average 24-hour water drop at JL7-23 was 2.3 m.

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 5.3×10^{-8} cm/s at JL5-23 and a hydraulic conductivity, k_s, 6.2×10^{-7} cm/s at JL7-23.

Using the measured permeability of the clay stratum, the 3.3 m of clay screened at JL5-23 is estimated to represent the equivalent of approximately 62 m of naturally occurring materials having a hydraulic conductivity of 1×10^{-6} cm/s (the reference standard in AOPA). At JL7-23, the 1.6 m of clay that was screened is estimated to represent the equivalent of approximately 2.58 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 for liquid manure storage (minimum 10 m, Section 9.5-a).

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 and proposed catch basin 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

17 Oct 2023

John Lobbezoo, P.Eng.
Principal Geotechnical Engineer

Co-authored by:
James Le, EIT
Geotechnical Services

Reviewed by:
Kevin Spencer, P.Eng., M.Eng.
Senior. Associate, Geotechnical Engineer

PERMIT TO PRACTICE
WSP E&I CANADA LIMITED
RM SIGNATURE:
RM APEGA ID #: 110450
DATE: 17 Oct 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

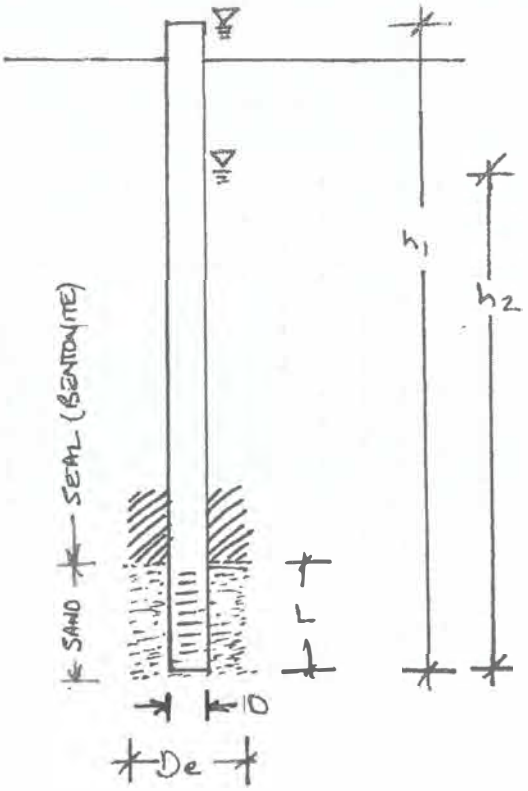
JL5-23

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)



JL5-23 - Liefting Farms

WSP File: BX30761

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	9.80	initial height of water above base of hole (m)
	h2	8.20	final height of water above base of hole (m)
	t	24.0	time of test (h)

k_s =	5.3E-08 cm/sec

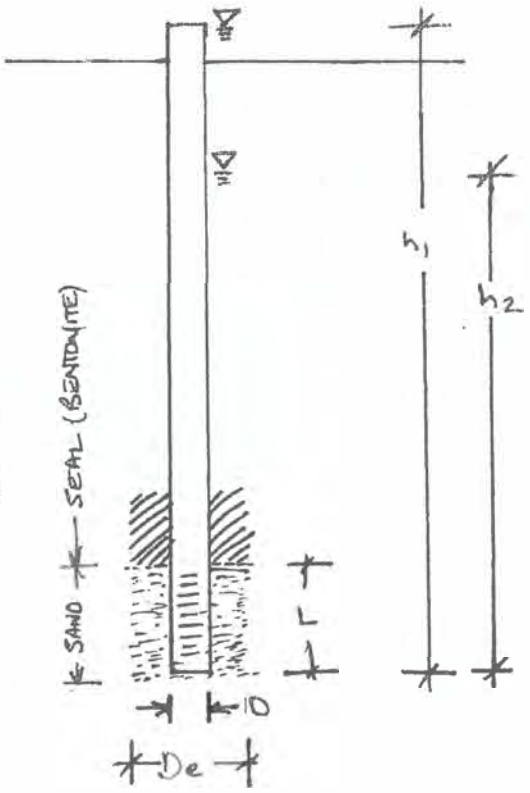
JL7-23

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)



JL7-23 - Liefting Farms

WSP File: BX30761

INPUT VARIABLES

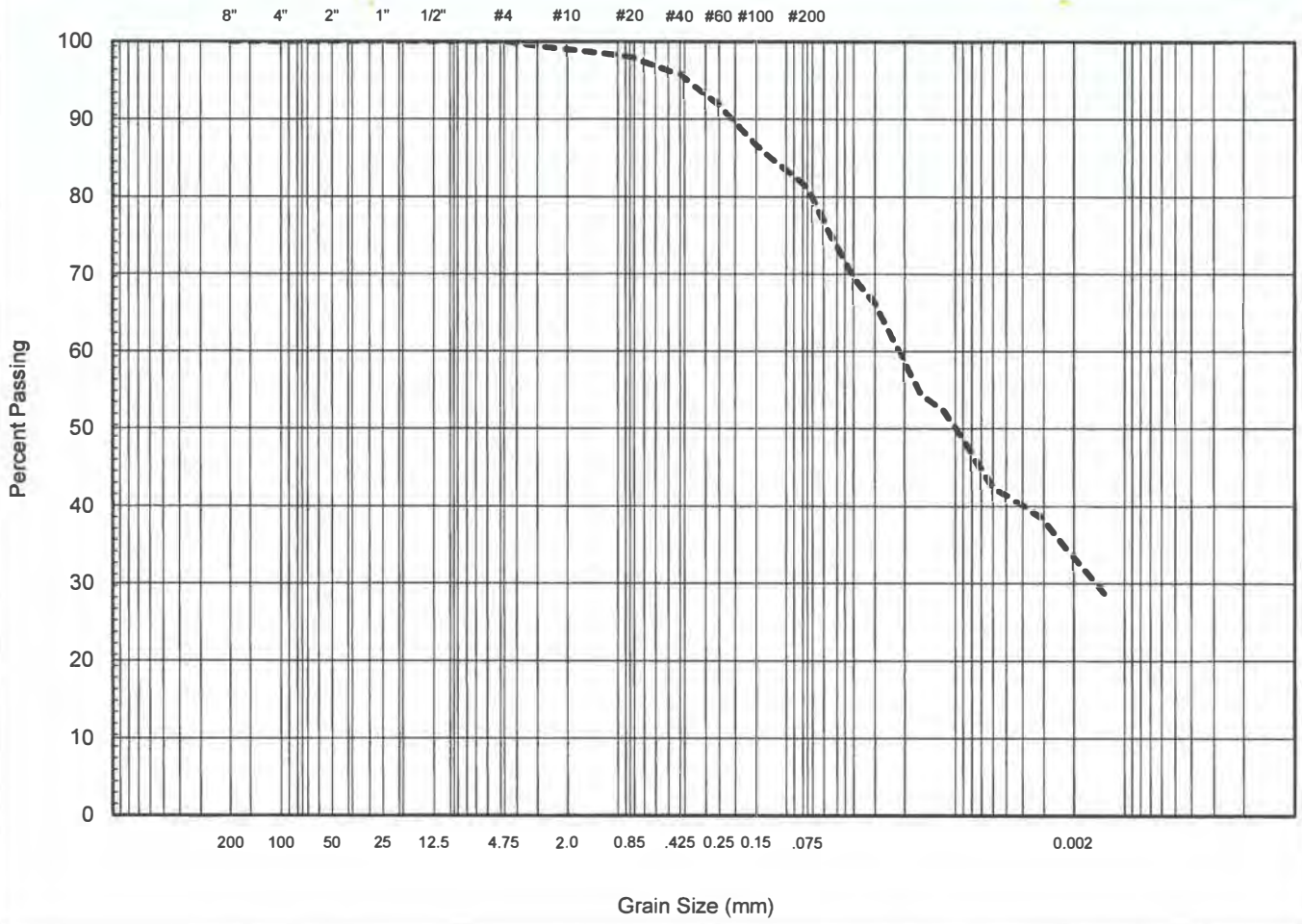
Terms	Value	Definition
D	0.0520	diameter of standpipe (m)
De	0.1500	diameter of borehole (m)
L	1.60	length of sand section (m)
h1	3.60	initial height of water above base of hole (m)
h2	1.29	final height of water above base of hole (m)
t	24.0	time of test (h)

k_s = 6.2E-07 cm/sec

HYDROMETER TEST

WSP E&I Canada Limited

COBBLES	GRAVEL		SAND			SILT	CLAY
	Coarse	Fine	C	M	F		



Remarks:

Summary					
D10 =	#N/A	mm	**Gravel**	0	%
D30 =	0.0015	mm	**Sand**	19	%
D60 =	0.0214	mm	**Silt**	48	%
Cu =	#N/A		**Clay**	33	%
Cc =	#N/A				

Project No: BX30761
Hole No: JL5-23
Depth (m): 7.0-8.5

Client: John Liefting
Sample: --
Date: June 29, 2023

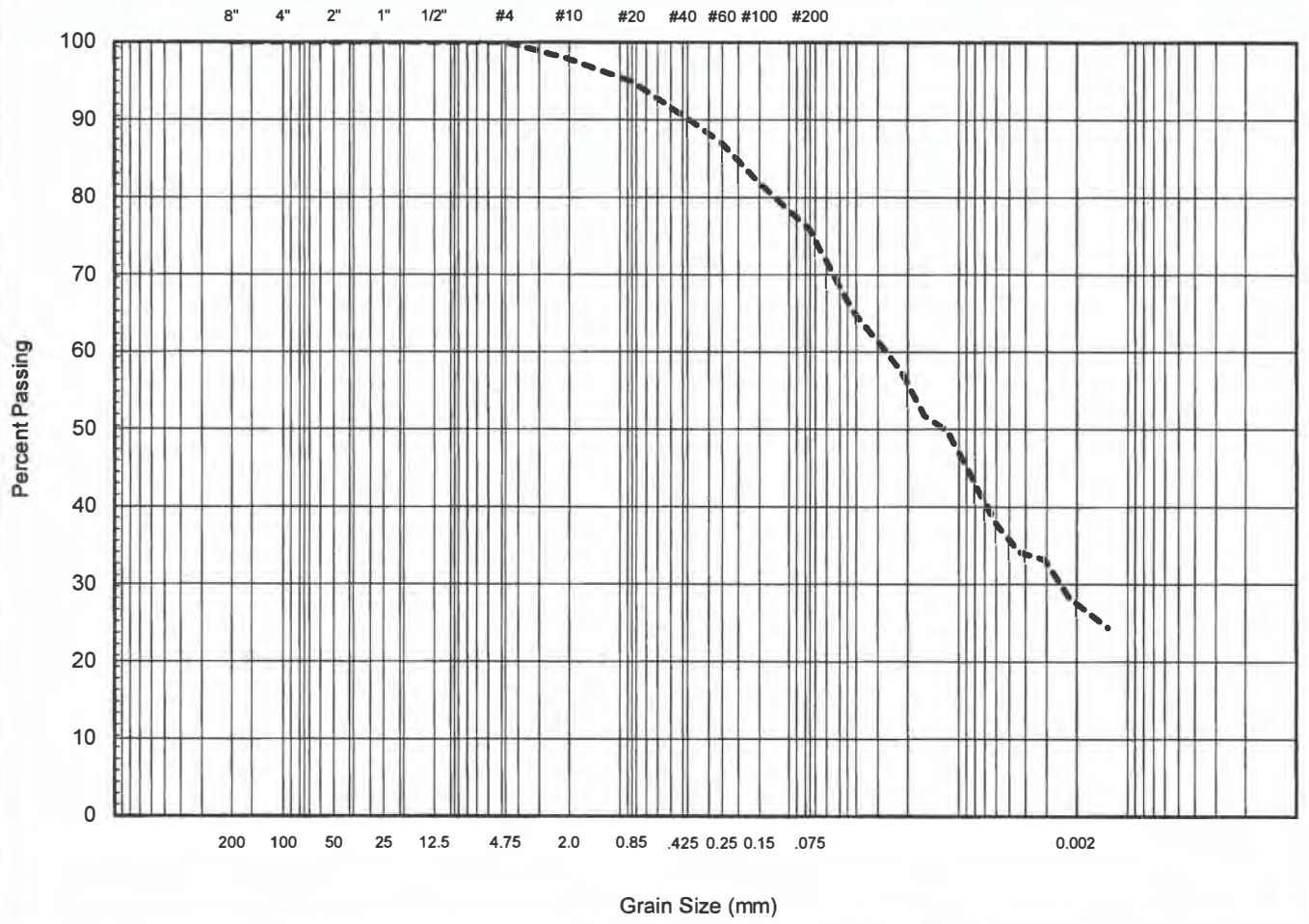
Tech: TMW

JL5-23 hydrometer

HYDROMETER TEST

WSP E&I Canada Limited

COBBLES	GRAVEL		SAND			SILT	CLAY
	Coarse	Fine	C	M	F		



Remarks:

Summary

D10 =	#N/A	mm	**Gravel**	0	%
D30 =	0.0025	mm	**Sand**	24	%
D60 =	0.0270	mm	**Silt**	49	%
Cu =	#N/A		**Clay**	27	%
Cc =	#N/A				

Project No: BX30761
Hole No: JL7-23
Depth (m): 2.0-3.0

Client: John Liefting
Sample: --
Date: June 29, 2023

Tech: TMW

JL7-23 hydrometer

CHILAKO DRILLING SERVICES LTD

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

SOIL PROFILE AND PARENT MATERIAL DESCRIPTION

Site Location: NW7-11-20W4, John Liefting Date: 25-Apr-23

Hole #	Location	Depth	Texture	Moisture	Geological	Sample	Remarks
JL1-23	0375723	0-0.15	CL	M	Topsoil		
	5528983	0.15-1.3	CL	M	Lac		Stiff, med plastic, brown
		1.3-3.1	C	M	Till		Stiff, med-high plastic, dark brown
		3.1-4.5	CL	M	Till		Stiff, med plastic, brown, trace gravel
		4.5-13.5	CL-C	M	Till		Stiff, med plastic, dark brown, a few minor sand lenses (sat). Free water @ 11.0m
JL2-23	0375713	0-0.15	CL	M	Topsoil		
	5528917	0.15-0.6	SiCL	VM	Lac		Soft, med plastic, olive gray
		0.6-1.0	CL	VM	Lac		Soft, med plastic, olive gray
		1.0-4.4	CL-C	M	Till		Stiff, med plastic, brown
		4.4-9.5	CL	M	Till		Stiff, med plastic, brown, oxidized
		9.5-13.5	CL	M	Till		Stiff, med plastic, brown
							No free water
JL3-23	0375662	0-0.15	CL	M	Topsoil		
	5528918	0.15-0.35	SiCL	VM	Lac		Soft, med plastic, olive gray
		0.35-1.0	SiCL	VM	Lac		Soft, med plastic, olive gray
		1.0-2.0	CL	M	Till		Stiff, med plastic, brown
		2.0-3.6	CL	M	Till		Stiff, med plastic, brown, trace gravel
		3.6-6.1	C	M	Till		Stiff, med plastic, brown, trace gravel
		6.1-13.5	CL	M	Till		Stiff, med plastic, brown
							No free water
JL4-23	0375663	0-0.15	CL	M	Topsoil		
	5528985	0.15-0.3	SiCL	M	Lac		V. Firm, med plastic, olive brown
		0.3-1.1	C	M	Lac		Stiff, med plastic, brown
		1.1-3.9	C	M	Till		Stiff, med-high plastic, yellow brown
		3.9-5.6	C	M	Till		Stiff, med-high plastic, brown
		5.6-13.5	CL-C	M	Till		Stiff, med plastic, brown, iron staining
							No free water
JL5-23	0375689	0-0.15	CL	M	Topsoil		
	5528955	0.15-0.3	CL	M	Lac		
		0.3-0.7	SiCL	M	Lac		Stiff, med plastic, olive brown
		0.7-2.3	CL-C	M	Till		Stiff, med plastic, brown
		2.3-2.5	SCL	VM-Sat	Till		Soft, mixed with gravel
		2.5-6.0	CL-C	M	Till		Stiff, med plastic, brown
		6.0-9.2	CL	M	Till	7.0-8.5	Stiff, med plastic, brown
							50mm H.C. Well installed ot 9.2m BGS
							Screen: 9.2-6.2m
							Sand: 9.2-5.9m
							Bentonite: 5.9-0.0m
							Stickup: 0.6m
							Hole Diameter: 0.15m
JL6-23	0375630	0-0.15	CL	M	Topsoil		
	5528910	0.15-0.4	SiCL	M	Lac		
		0.4-3.0	CL	M	Till		Firm, med plastic, brown,
							VM-Sat sand lensing @ 1.4m
JL7-23	0375631	0-0.15	CL	M	Topsoil		
	5528980	0.15-0.75	SiCL	M	Lac		Stiff, med plastic, olive brown
		0.75-3.0	CL	M	Till	2.0-3.0	Stiff, med plastic, brown, sand streaks
							50mm H.C. Well installed to 3.0m BGS
							Screen: 3.0-1.5m
							Sand: 3.0-1.4m
							Bentonite: 1.4-0.0m
							Stickup: 0.6m
							Hole Diameter: 0.15m

Legend:

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

Eg. VFSCL = Very Fine Sandy Clay Loam