



3853 Muzzy Rd property

Canyon, BC VoB 1C1

October 31, 2023

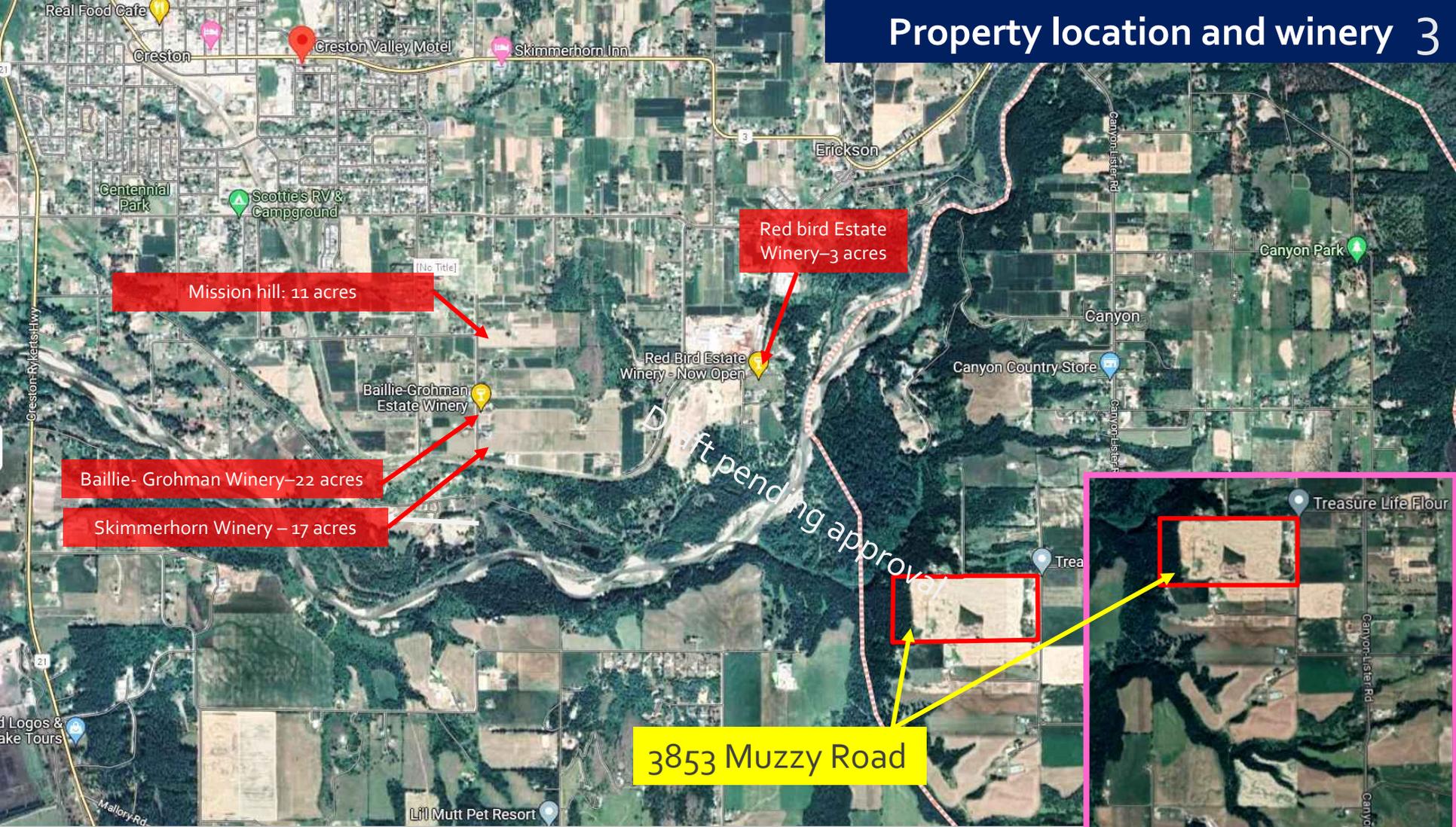
Pascal Madevon | Pascal Madevon Signature Ltd.



Pascal Madevon
SIGNATURE LTD.
Passion for Terrain

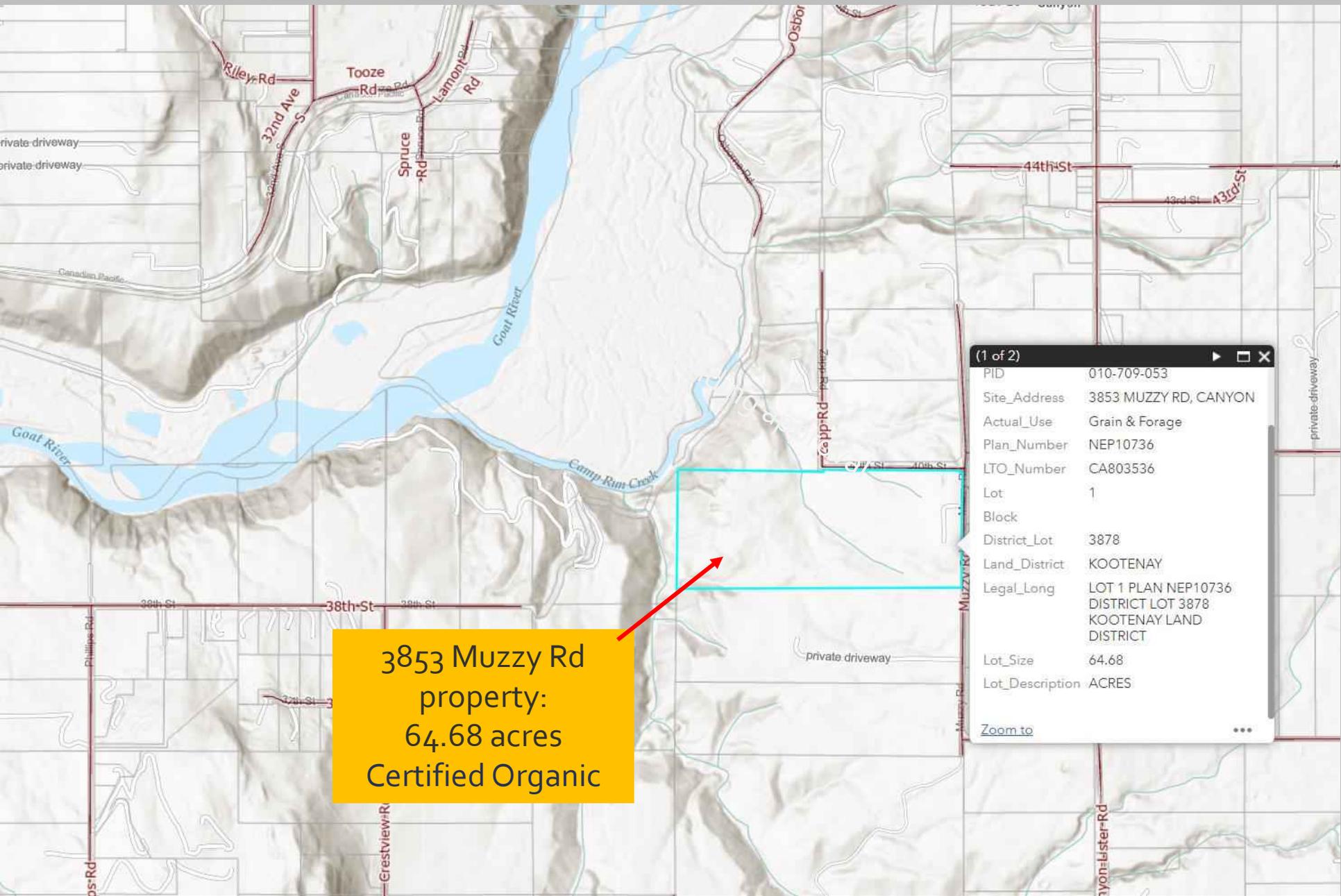
- The 64.68-acre property is suitable for planting a 48.5-acre vineyard, pending the acquisition of water rights. With minor levelling, the plantable area could be expanded to approximately 51 acres, and with more extensive grading, the site offers potential for up to 59–60 acres of vineyard..
- The property includes two drilled wells that could support grape cultivation across 50–60 acres. If needed, an additional well may be considered to enhance water capacity. It is important to note that a provincial water license is required to legally use water from these or any future wells for agricultural purposes..
- The level of degree days at Creston is perfectly compatible with the level of heat required for vine growth. The risk of winter frost is equivalent to that in the Okanagan Valley, but because Creston area is mostly planted with septentrional grape varieties, the risk is lower.
- The Alluvial/Glacio-Lacustrine soil has a high clay and silt content. This gives it a good capacity to retain water. All the soil indicators show that these soils are well adapted to grape growing.
- The slope of the land faces south-west, providing perfect exposure for the vineyard and reducing the risk of frost.
- Elevated natural promontory located on the eastern flank adjacent to Muzzy Rd. situated perfectly as a building site for winery/facility buildings
- Existing Farmhouse/Double Garage/Shop. Suitable living/caretaker residence
- The 64.68-acre property is Certified Organic
- There are currently three wineries located in Creston. In comparison to the Okanagan Valley with over 400 wineries, Creston allows the development of a new winery without having the phenomenon of dilution of potential consumers living in the region or visitors. In summer, the number of visitors to the local winery is very high, as Creston is a central point of communication between British Columbia, Alberta and Washington and Idaho States. The region is also known for its orchards indicating a well-tempered climate.

Property location and winery 3



Currently, there are three wineries in the Creston area.

- **Baillie- Grohman Winery**—22 acres
- **Skimmerhorn Winery** – 17 acres
- **Red bird Estate Winery**—3 acres

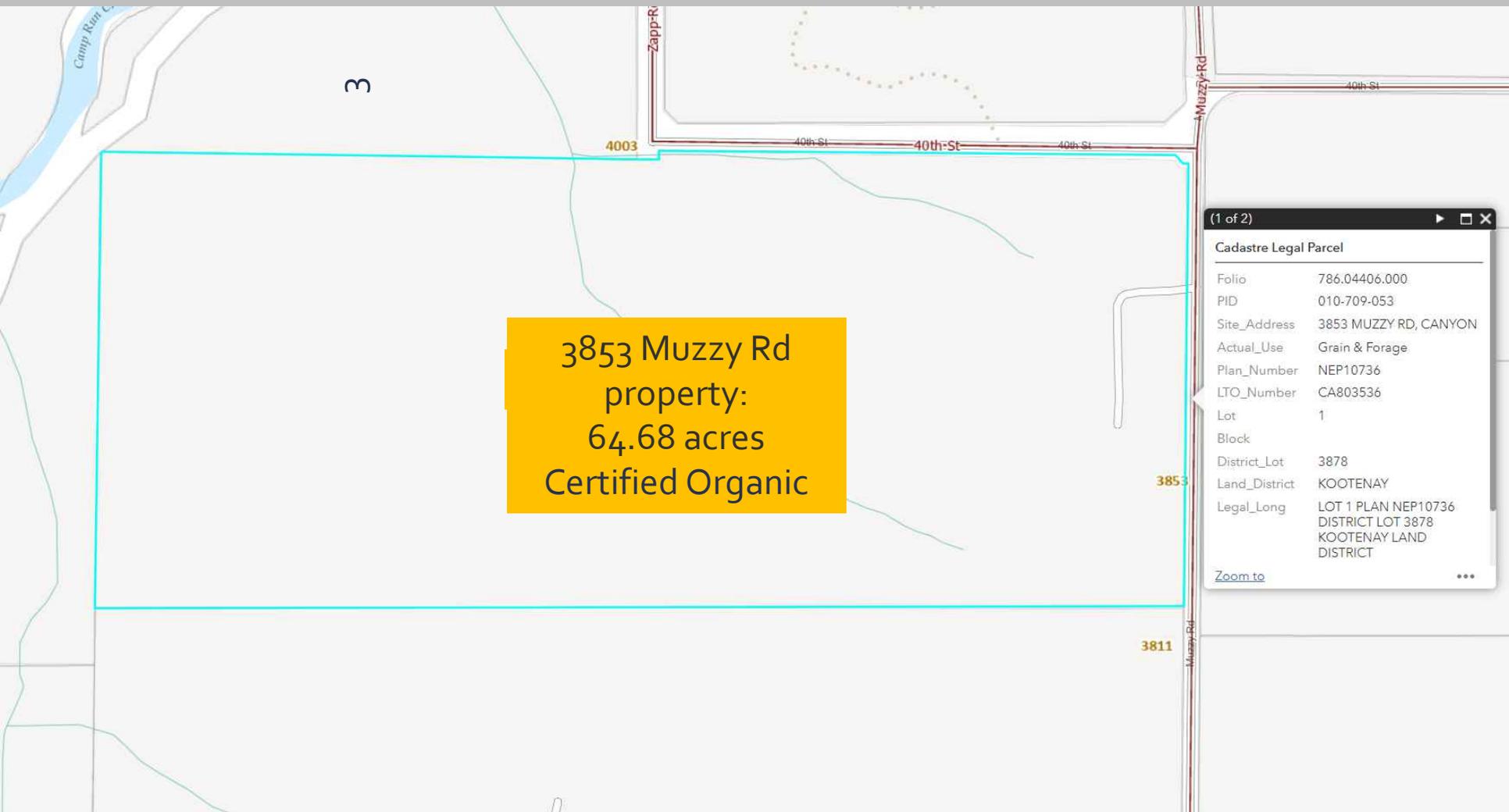


3853 Muzzy Rd
property:
64.68 acres
Certified Organic

(1 of 2)

PID	010-709-053
Site_Address	3853 MUZZY RD, CANYON
Actual_Use	Grain & Forage
Plan_Number	NEP10736
LTO_Number	CA803536
Lot	1
Block	
District_Lot	3878
Land_District	KOOTENAY
Legal_Long	LOT 1 PLAN NEP10736 DISTRICT LOT 3878 KOOTENAY LAND DISTRICT
Lot_Size	64.68
Lot_Description	ACRES

[Zoom to](#) ...



3853 Muzzy Rd
property:
64.68 acres
Certified Organic

(1 of 2)

Cadastre Legal Parcel	
Folio	786.04406.000
PID	010-709-053
Site_Address	3853 MUZZY RD, CANYON
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Zoom to

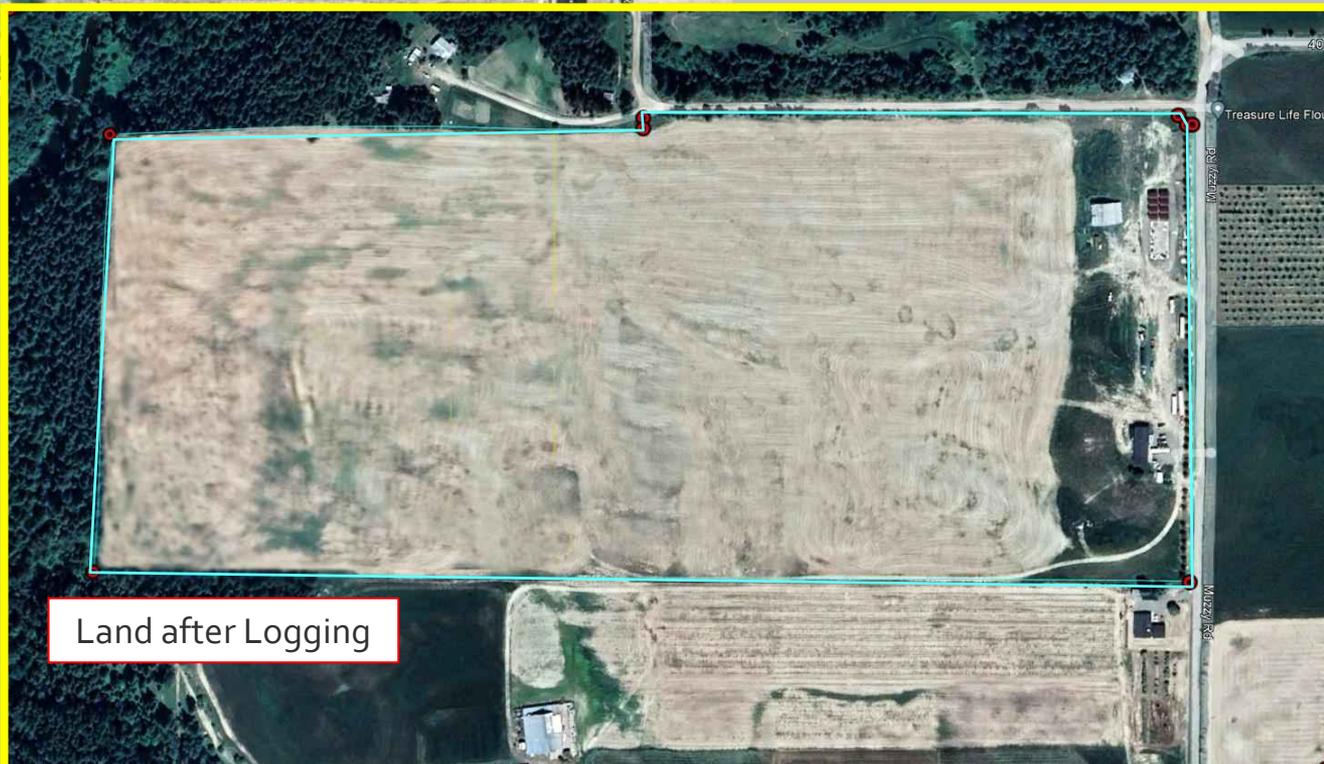
Recent logging area



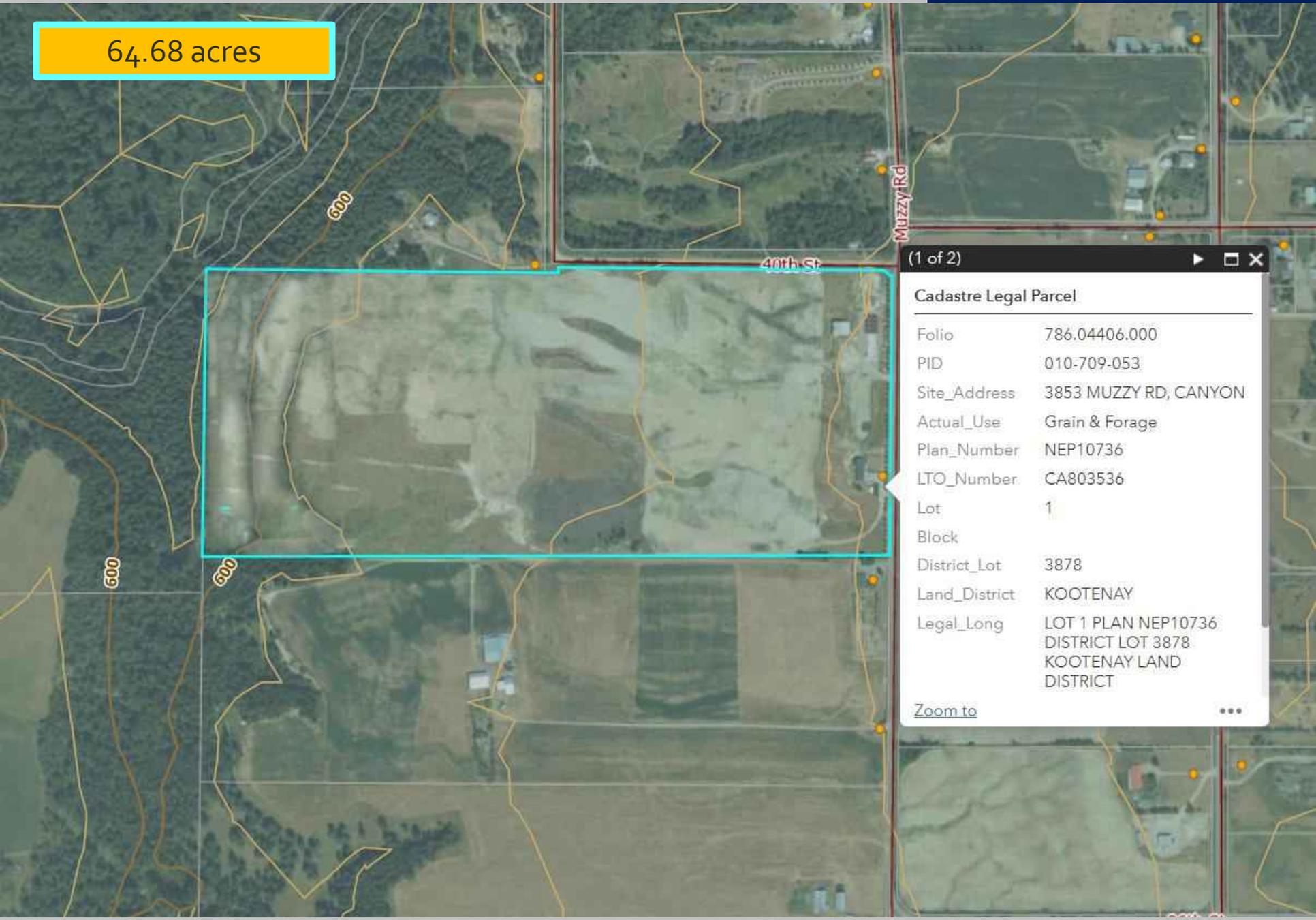
A logging operation was recently completed clearing the west side of the property.



Land after Logging



64.68 acres



(1 of 2) [Close] [Maximize] [Refresh]

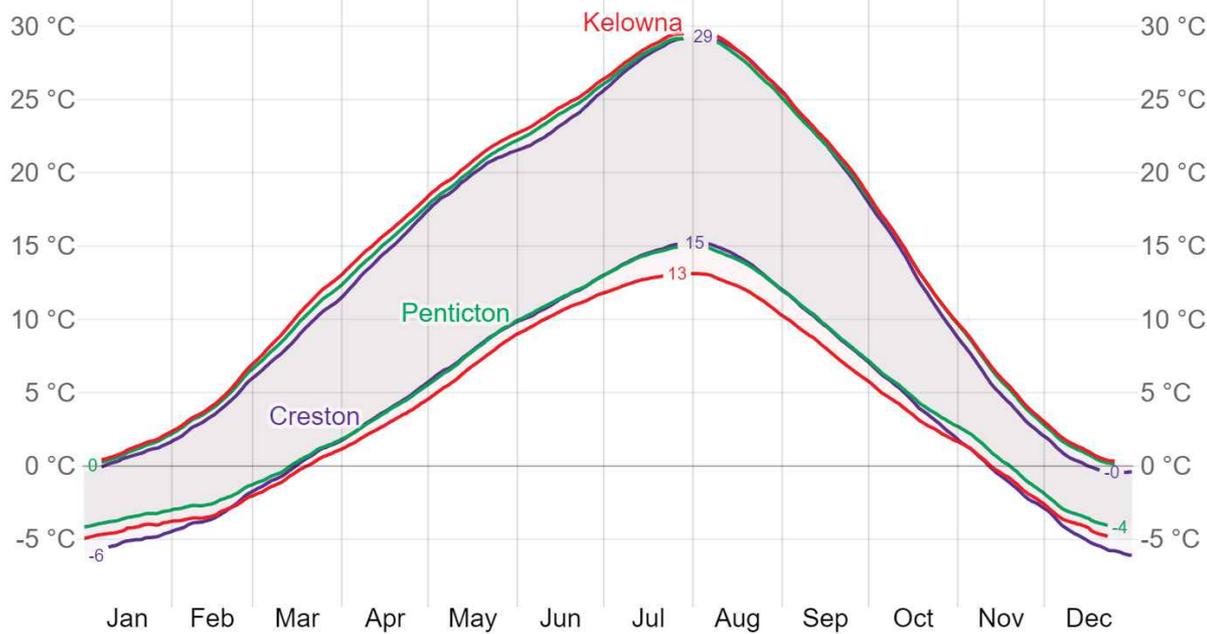
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[Zoom to](#) [More]

Weather data

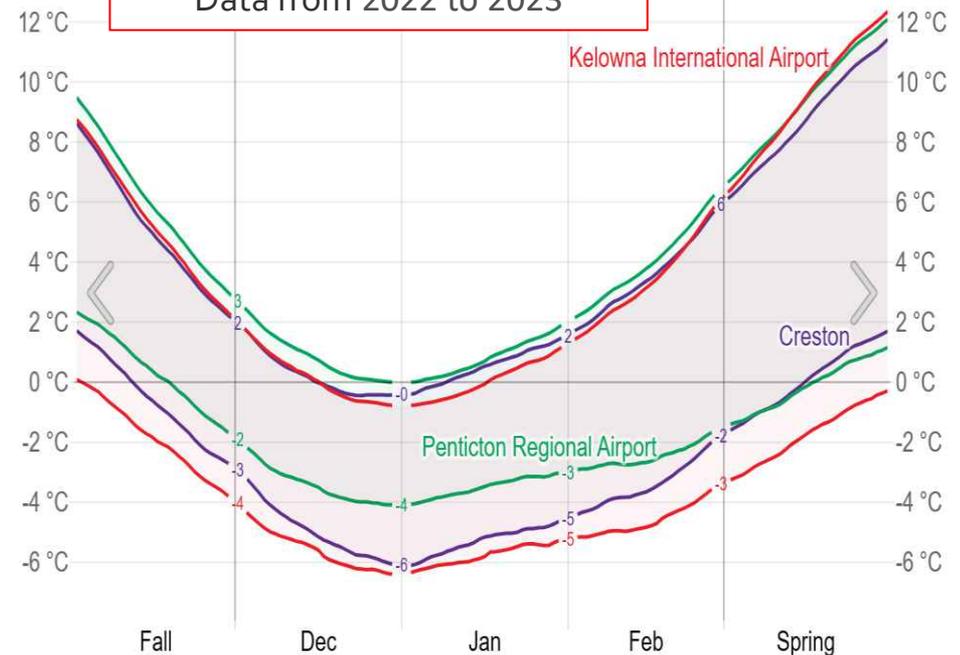
Data from January 1, 1980, to December 31, 2016



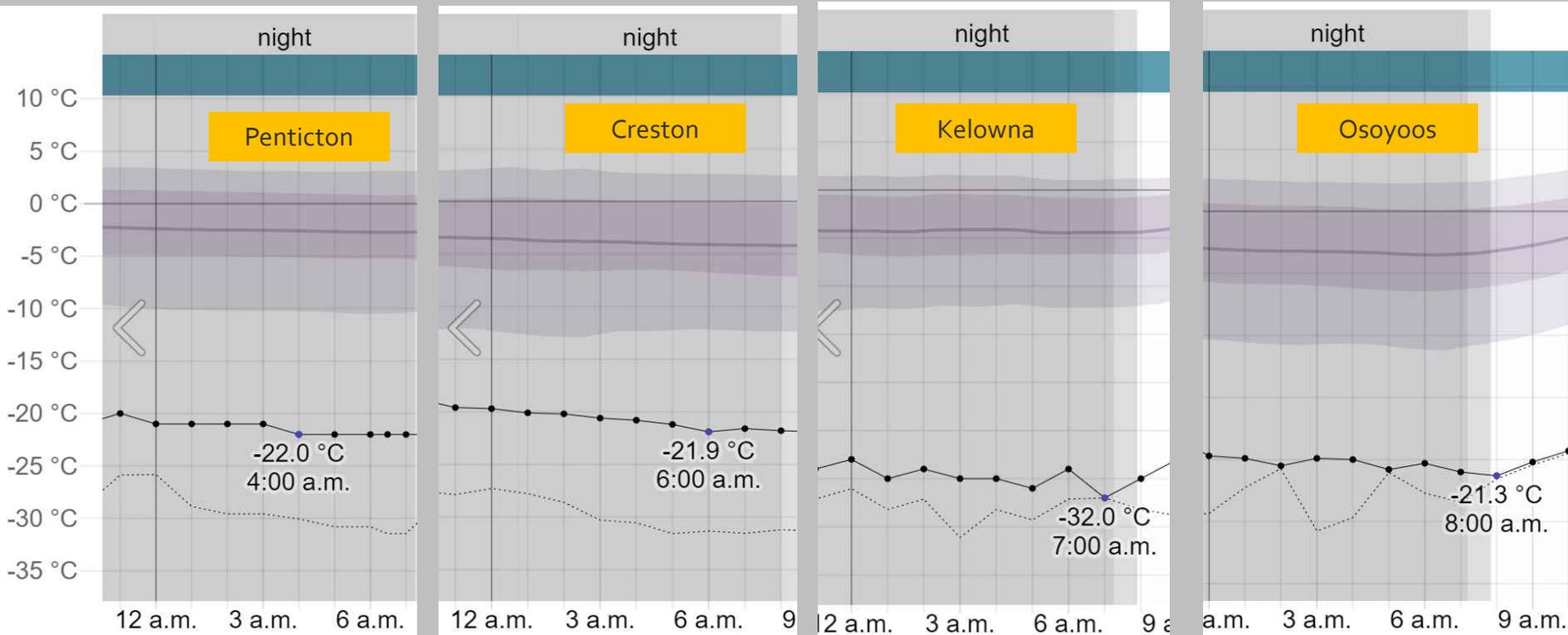
From the historical data, average summer temperatures are very similar to those in Penticton. In winter, average minimum temperatures are cooler than in Penticton, but close to those in Kelowna.

Last winter (2022-2023), average minimum temperatures were higher than in Kelowna.

Data from 2022 to 2023

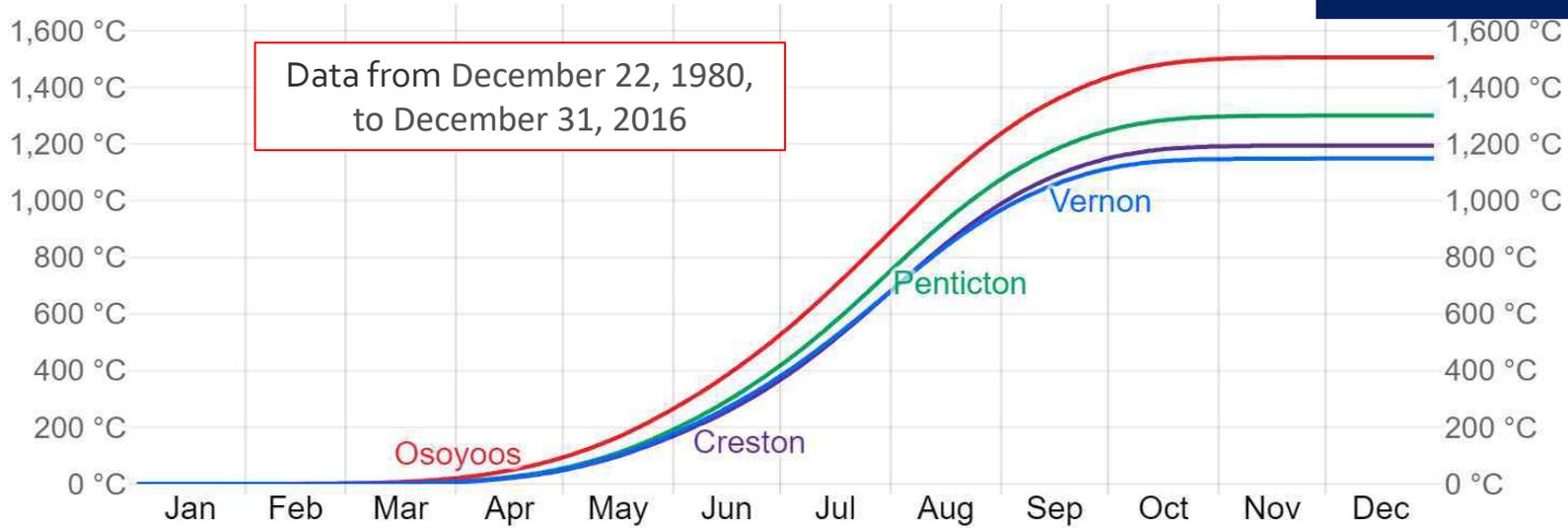


Data from from December 22, 1980, to December 31, 2016



On the night of December 22, 2022, the BC Province was hit by a severe cold snap. This wave caused considerable damage to vineyards, particularly in the South Okanagan and the Kelowna region.

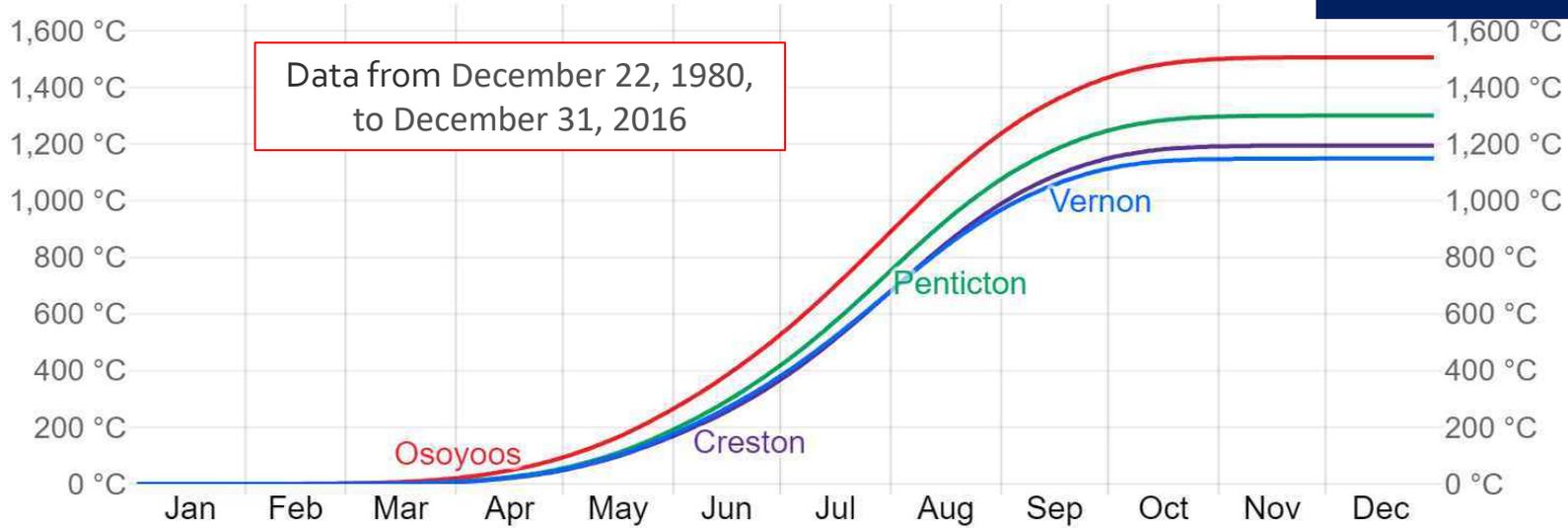
In Creston, there was very little damage, as the temperature only dropped to -22 degrees, and the grape varieties present in the Creston region are much better adapted to the cold (Chardonnay, Pinot Noir, Riesling, Gewurztraminer, etc.) than those found in the Okanagan Valley, with lots of grape varietals adapted to more meridional climates.



Creston	
Year	Degree days
2023	1576
2022	1372
2021	1446
2020	1265
2019	1218
2018	1416
Average	1382

Degrees day 2023	
Location	Degree days
Creston	1576
Kelowna	1578
Penticotn	1542
Osoyoos	1783

The level of degree days at Creston is perfectly compatible with the level of heat required for vine growth. This range of degree days is ideally adapted to the Northern grape varieties (Chardonnay, Pinot Noir, Gamay, Riesling, Gewurztraminer, etc.), aromatic whites (Sauvignon blanc, pinot gris) and the production of grapes for sparkling (Pinot noir, Pinot meunier, Chardonnay).

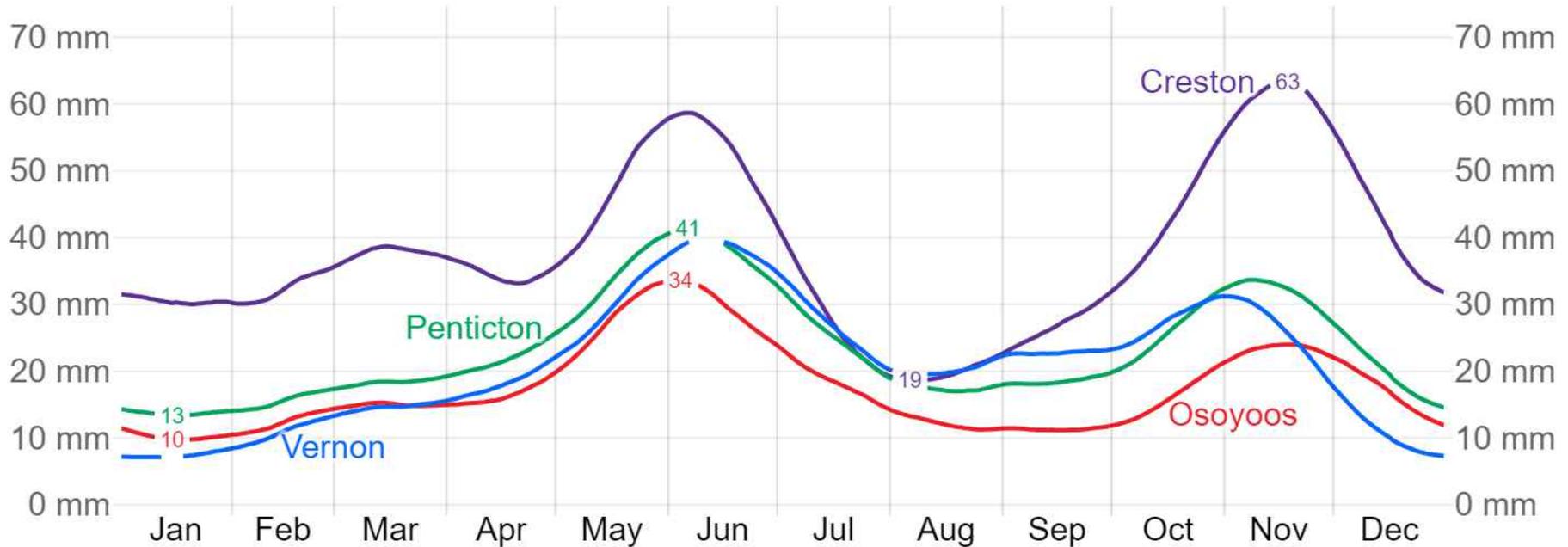


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Data from December 22, 1980,
to December 31, 2016



Annual precipitations are higher in Creston than in the Okanagan Valley. Significant precipitation occurs in early winter and spring. This precipitation is perfectly compatible with vine development.

64 acres are 100% Organic
Certified land



Certificate of Conformity Canada Organic Regime

Treasure Life Flour Mills Ltd.
3853 Muzzy, Canyon, BC V0B 1C1

Reg # PC 1937

Pro-Cert Organic Systems Ltd. (Pro-Cert) hereby certifies that the above operation is compliant with the **Canada Organic Regime (COR)** including Part 13 of the Safe Food for Canadians Regulations (SFCR), the General Principles and Management Standards (CAN/CGSB-32.310) and the Permitted Substances Lists (CAN/CGSB-32.311) and/or the Aquaculture – General Principles Management Standards and Permitted Substances List (CAN/CGSB-32.312). This certification is based on the evaluation of: (i) an application containing the organic production plan, (ii) an inspection of the operation, (iii) production records and (iv) such tests or other information deemed essential by the certifying agent. This certification remains in effect until suspended or cancelled by Pro-Cert Organic Systems Ltd. pursuant to Part 13 of the Safe Food for Canadians Regulations (SFCR).

Category of Organic Certification: Crop Production - Grains & Forages

Certified Products:

See the attached detailed Organic Production Summary

Date of Certification: October 16, 2015

Date by which the operator shall submit application for subsequent annual inspection: March 31, 2023

Date of Issue: July 13, 2022




Byron Hamm, B.Sc., P.Ag., Certification Manager

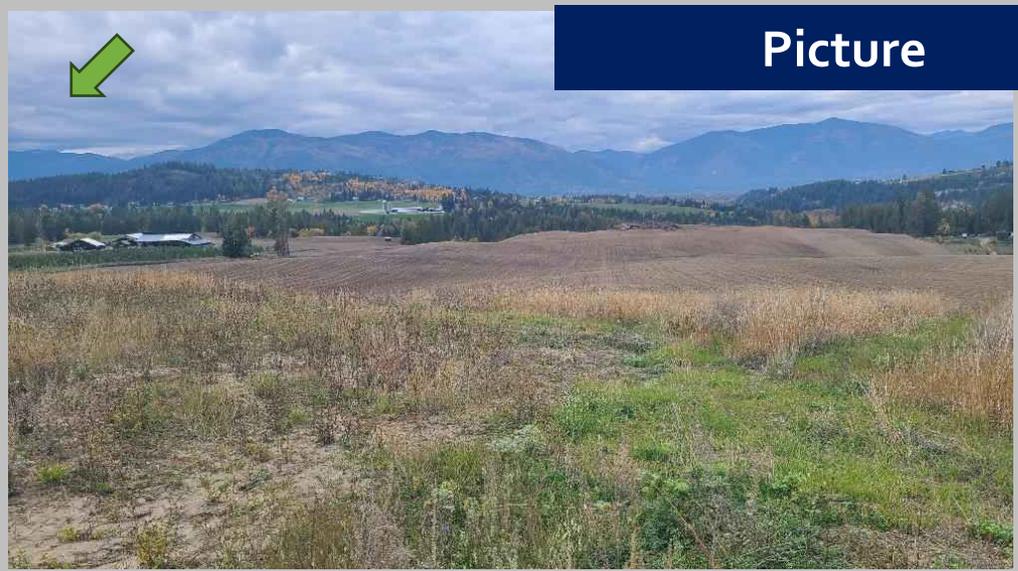
Pro-Cert Organic Systems Ltd.
Box 100A, RR#3 Saskatoon, SK Canada S7K 3J6

Certification Scheme: #6 according to ISO/IEC 17067:2013

CFIA Accreditation # COR00906030

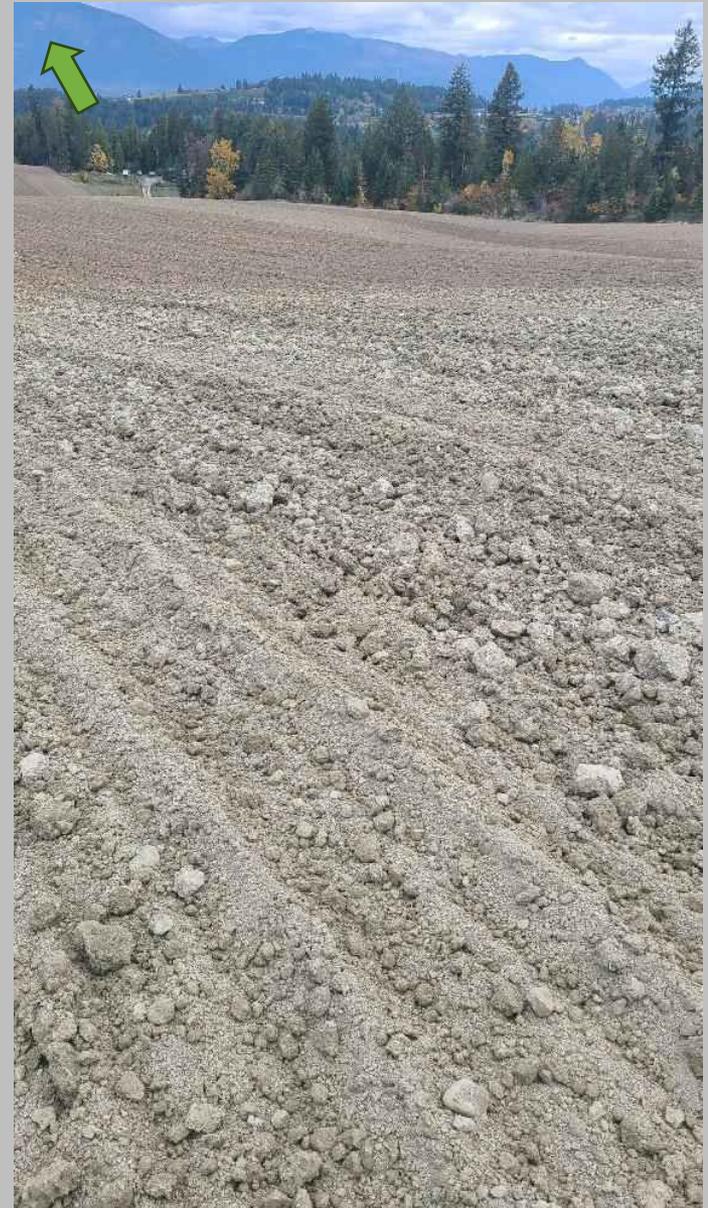
Doc # PC 5.7.1 COR, Version 6, Effective 09/01/19

www.pro-cert.org



The green arrow indicates the location where the picture was taken and the direction of the photo shoot





















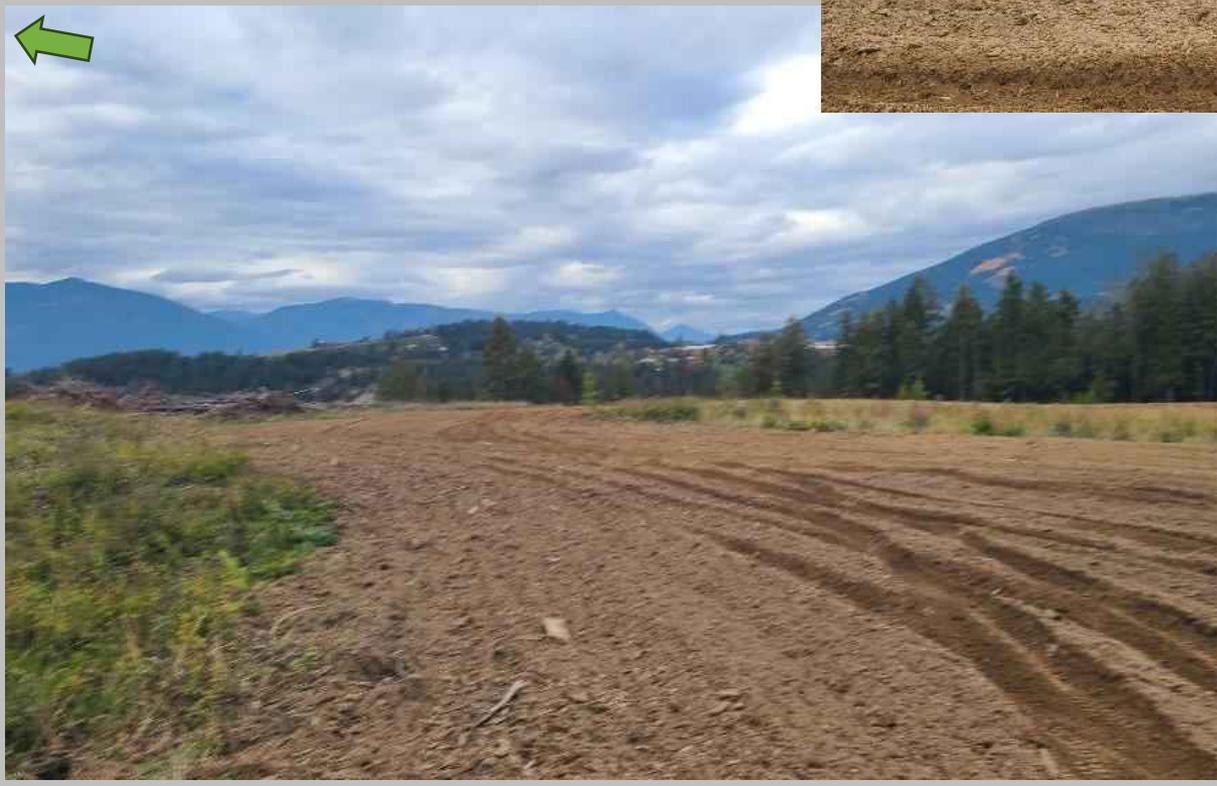
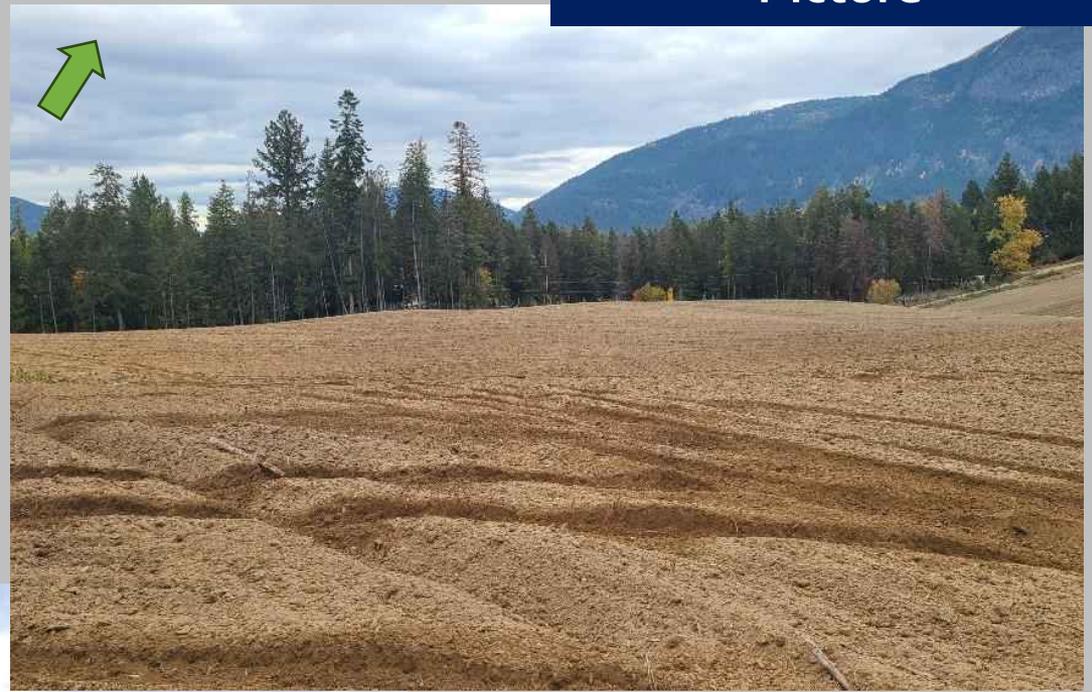












Vineyard option 32

47 acres ready for planting

Possible extension of 11 acres after levelling

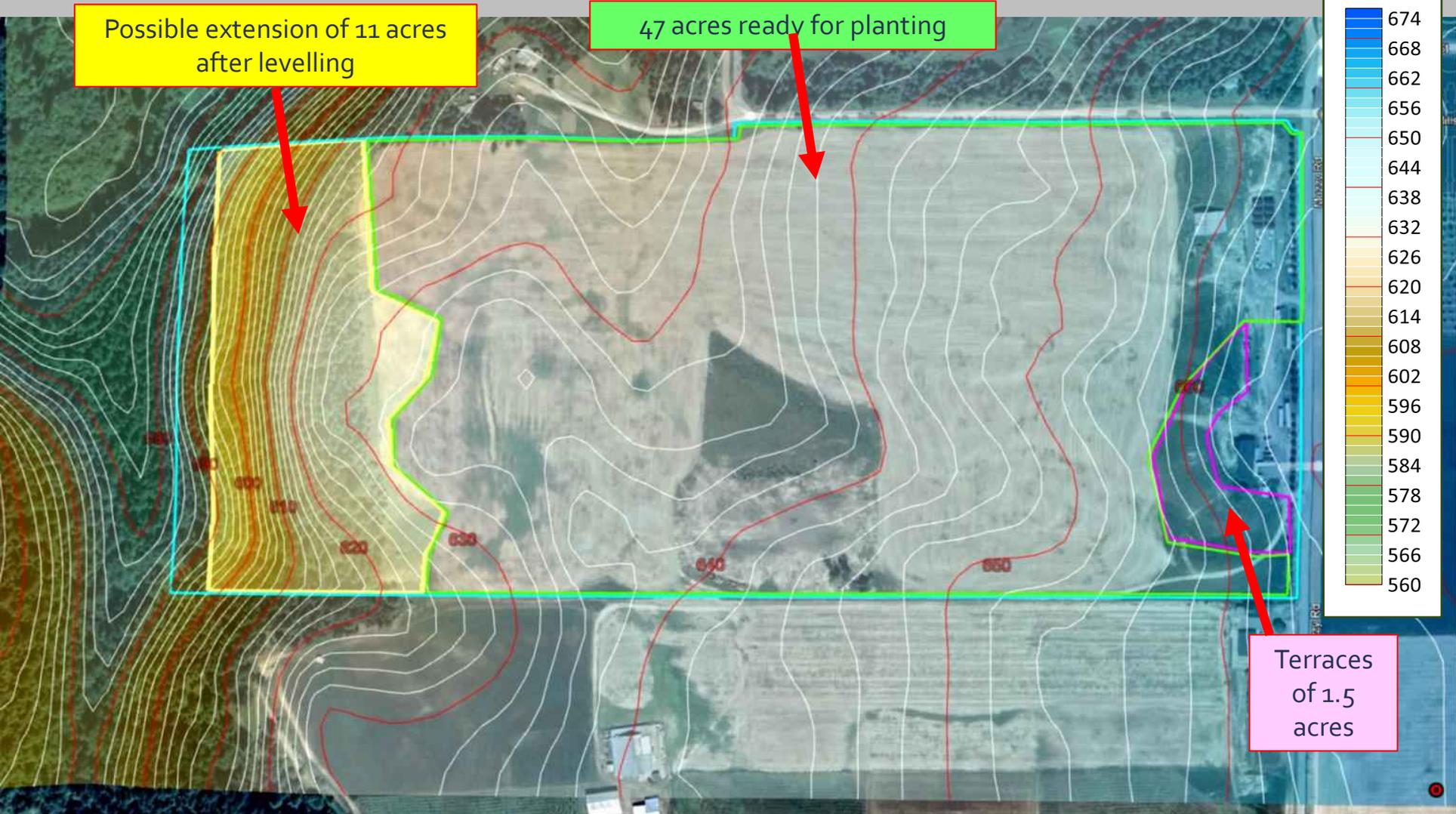


Terraces of 1.5 acres

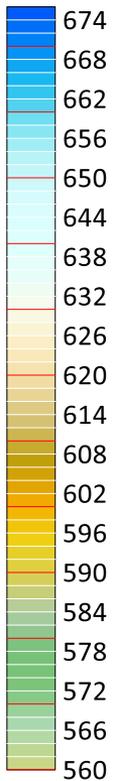


3 Zones

The 64.68-acre property can already be planted with a 48.5-acre vineyard. It is important to note that a provincial water license is required to legally use water from 2 drilled wells onsite or future wells for agricultural purposes



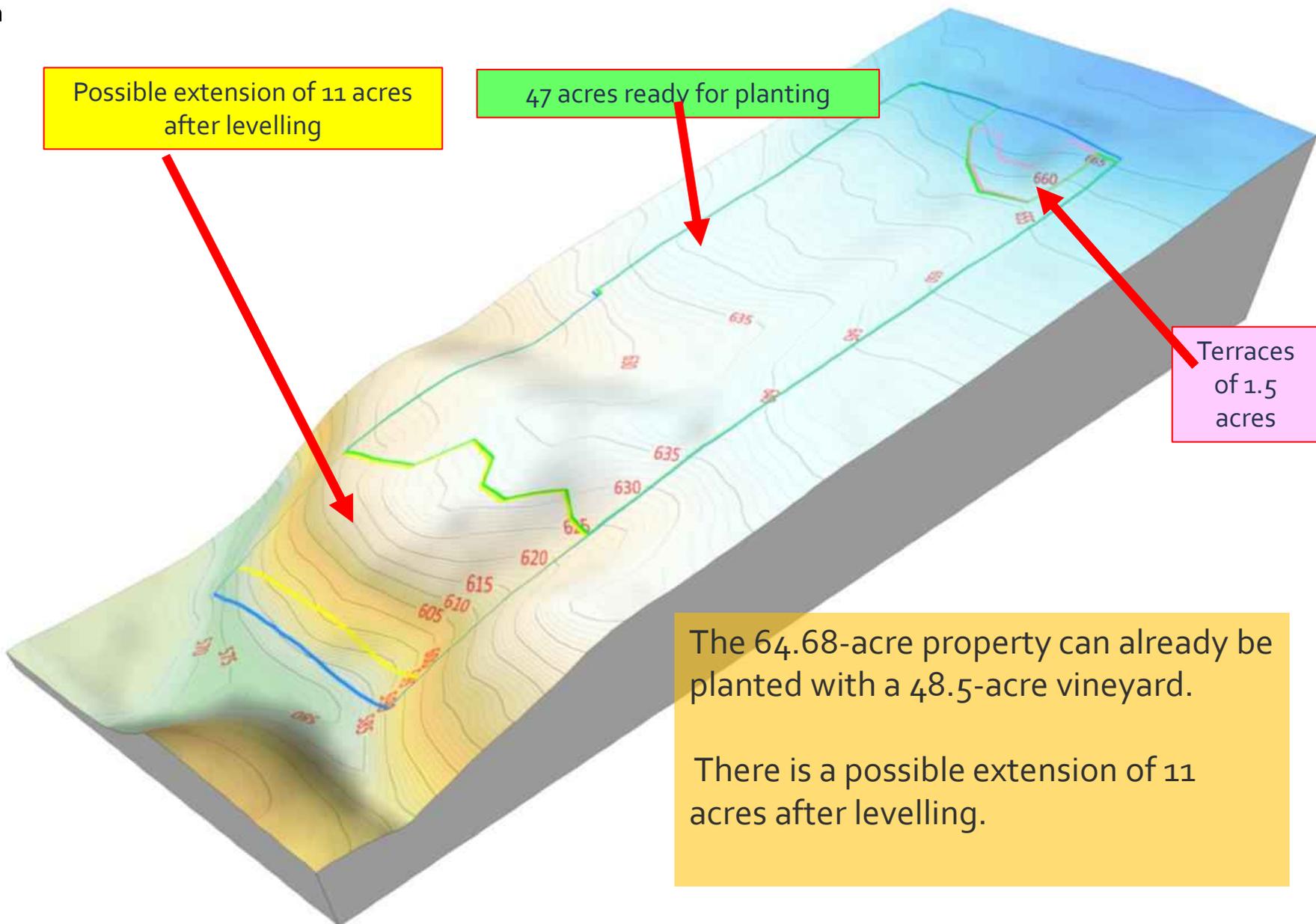
Elevation



Possible extension of 11 acres after levelling

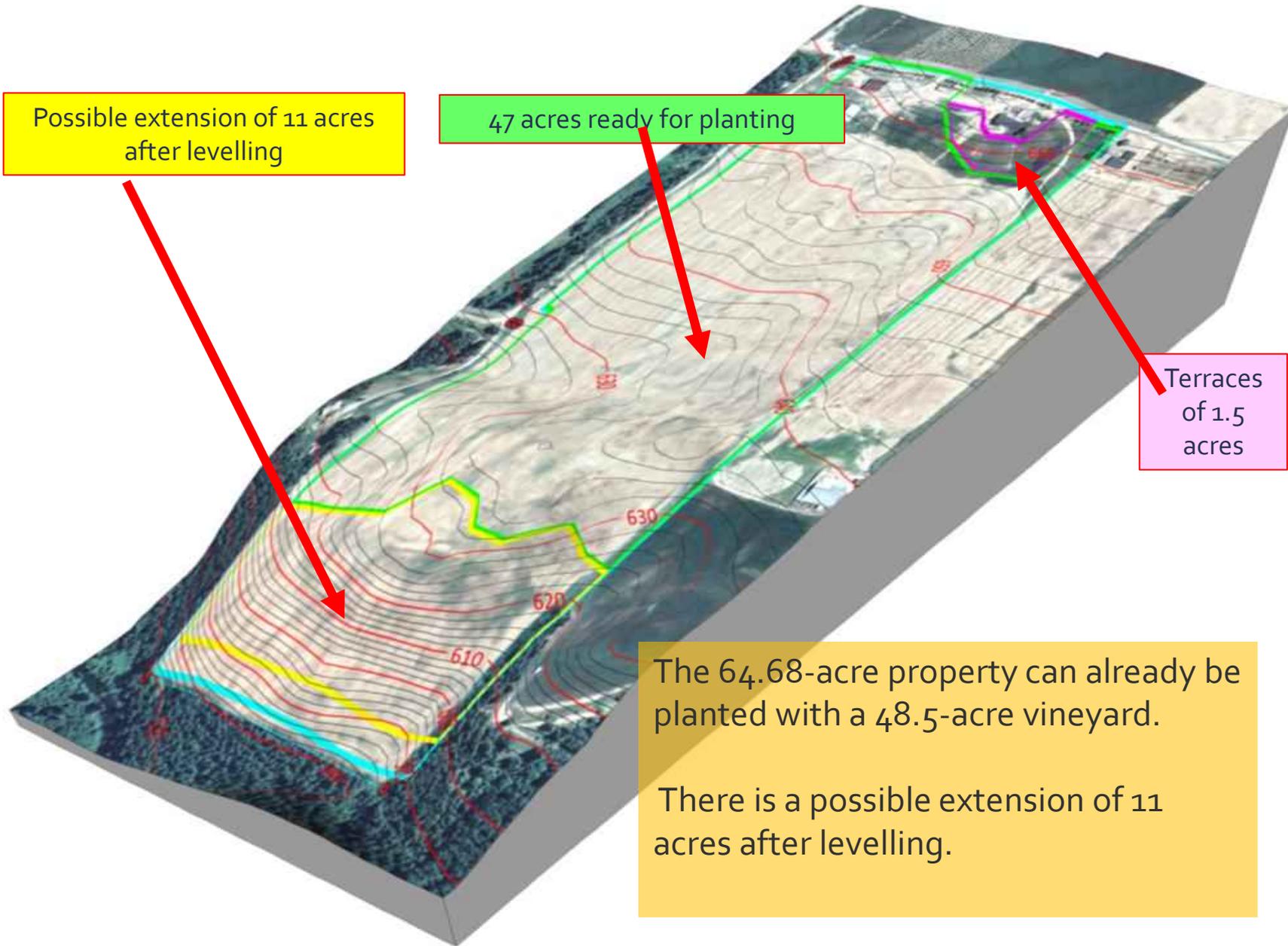
47 acres ready for planting

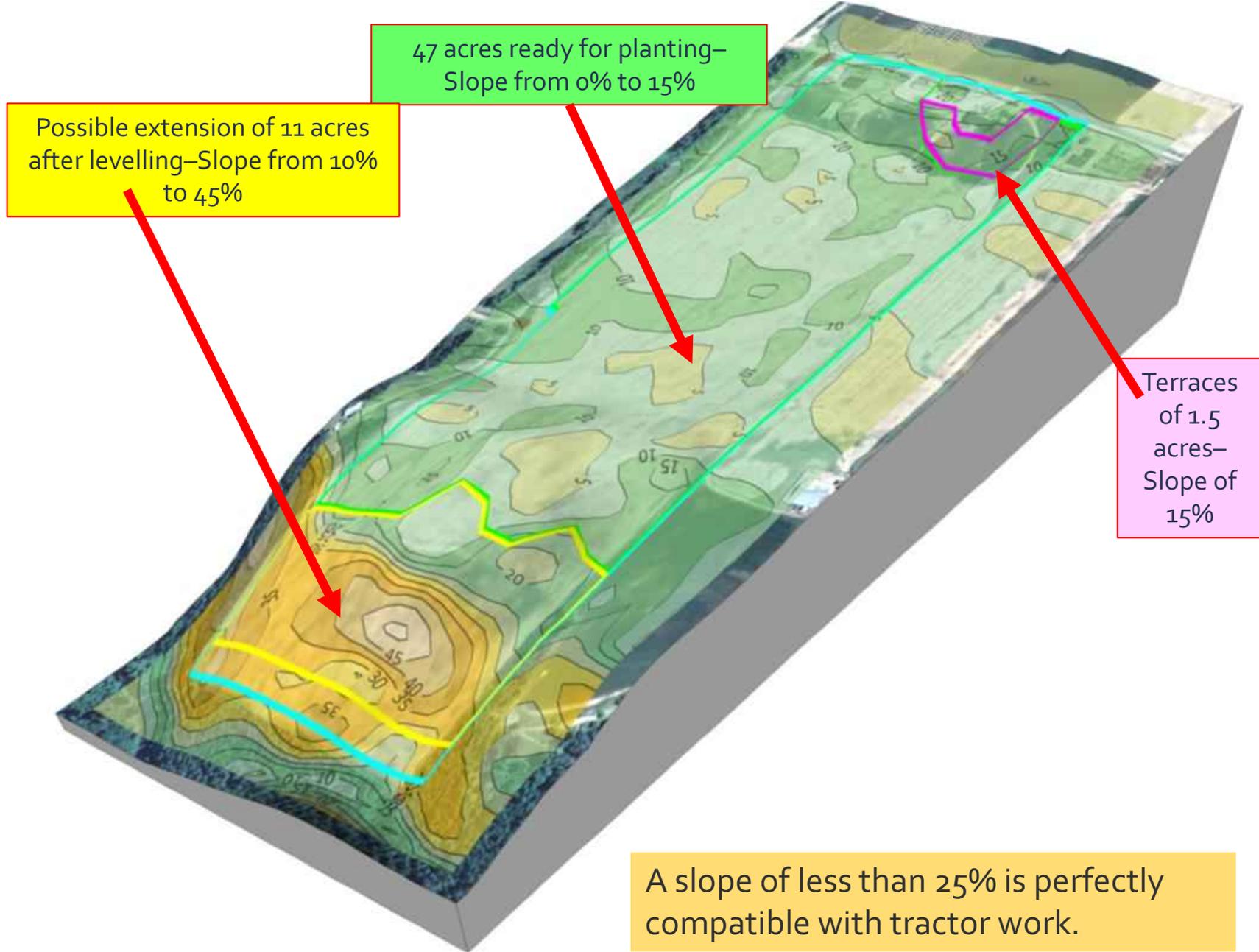
Terraces of 1.5 acres



The 64.68-acre property can already be planted with a 48.5-acre vineyard.

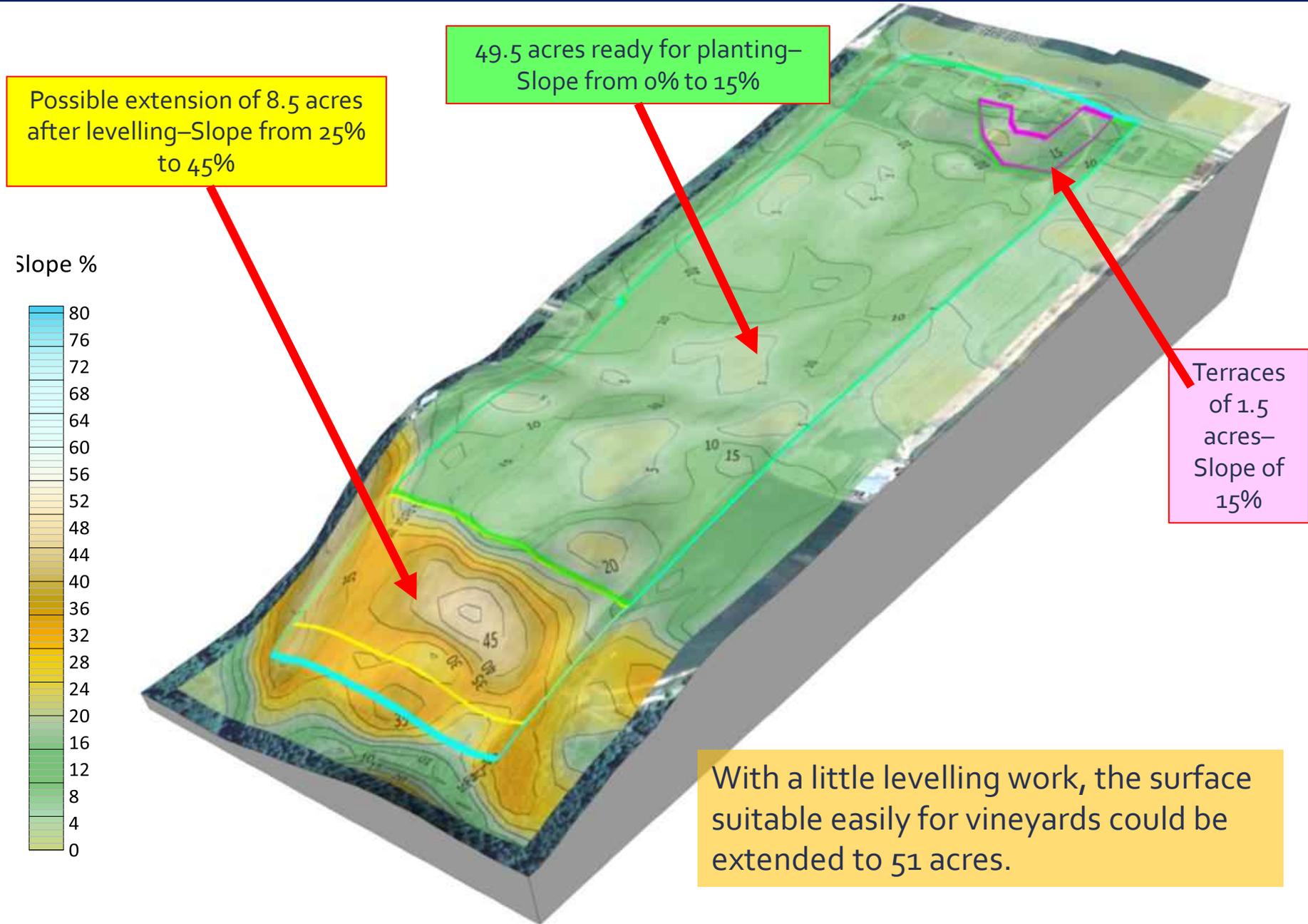
There is a possible extension of 11 acres after levelling.





A slope of less than 25% is perfectly compatible with tractor work.

New land after light levelling



New land after light levelling

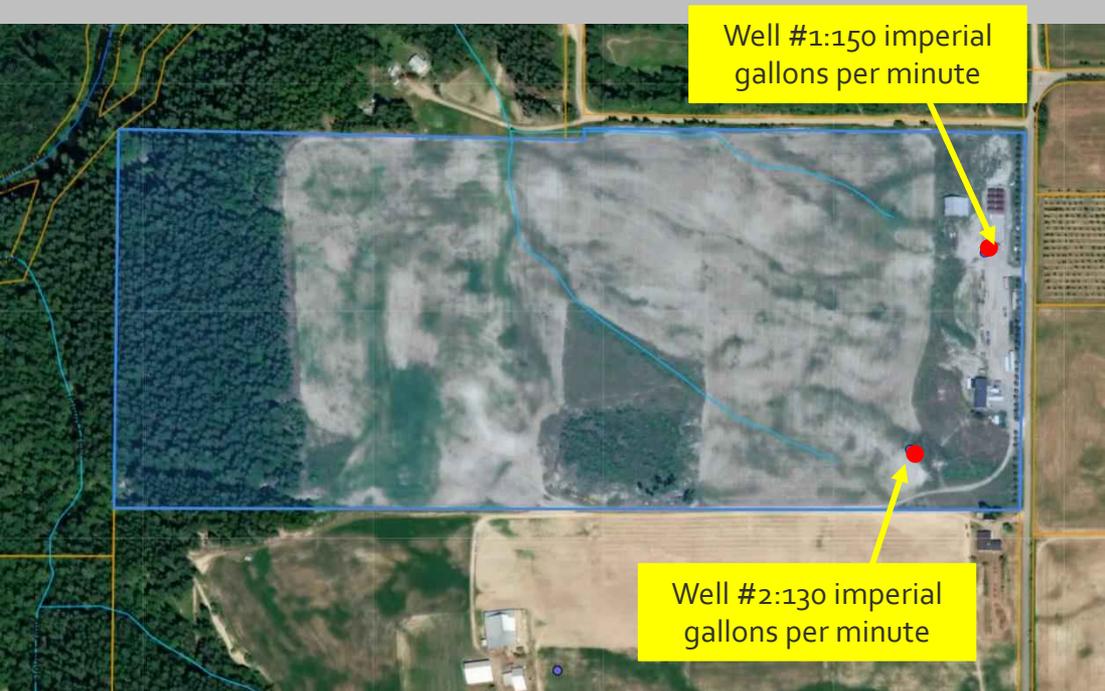
Possible extension of 8.5 acres after levelling—Slope from 25% to 45%

49.5 acres ready for planting—Slope from 0% to 15%

Terraces of 1.5 acres—Slope of 15%

With a little levelling work, the surface suitable easily for vineyards could be extended to 51 acres.





Property ID (PID)	010709053	
Total area	64.7	Acres
Field 1	+	Frost Protection Crop Cooling
Irrigated area	64.7	Acres
Crop	Forage	
Soil	Silty Clay Loam	
Irrigation type	Sprinkler	
Growing season	138	days
Irrigation season	Start: May. 20 End: Oct. 17 151 days Reset	
Climate ID	25032903	
Peak ET *	5.5	mm/day
Peak Flow Rate **	360	US gpm



Groundwater Wells and Aquifers

Well Summary

Well #1

Well Tag Number: 126885
 Well Identification Plate Number: 66132
 Owner Name: Ben Yarschenko
 Intended Water Use: Private Domestic
 Artesian Condition: No

Well Status: New
 Well Class: Water Supply
 Well Subclass: Not Applicable
 Aquifer Number:

Observation Well Number:
 Observation Well Status:
 Environmental Monitoring System (EMS) ID:
 Alternative specs submitted: No

Well Yield

Estimation Method: Air Lifting
 Static Water Level Before Test: 83 ft (btoc)
 Hydrofracturing Performed: No

Estimation Rate: 130 USgpm
 Drawdown:
 Increase in Yield Due to Hydrofracturing:

Estimation Duration: 2 hours

Well Summary

Well #2

Well Tag Number: 120839
 Well Identification Plate Number: 43495
 Owner Name: Treasure Life Flour Mills
 Intended Water Use: Private Domestic
 Artesian Condition: No

Well Status: New
 Well Class: Water Supply
 Well Subclass: Not Applicable
 Aquifer Number:
 Technical Report: N/A

Observation Well Number:
 Observation Well Status:
 Environmental Monitoring System (EMS) ID:
 Alternative specs submitted: No
 Drinking Water Area Indicator: No

Estimation Method: Air Lifting
 Static Water Level Before Test: 40 ft (btoc)
 Hydrofracturing Performed: No

Estimation Rate: 100 USgpm
 Drawdown:
 Increase in Yield Due to Hydrofracturing:

Estimation Duration: 2 hours

The current well capacity allows a flow rate of **230 US gallons/min**. The maximum demand per acre (August) for this land is approximately **5.5 US gallons/min**. The well's capacity can therefore irrigate 40 acres of grapes without any problem. But it's quite likely that the two existing wells can irrigate up to 50 acres - **But at present, this water cannot be used for agricultural production, because there is no license intended for this type of use. - A provincial water license is required.**

Pit and soil
sample
locations



Sample depth

- Sample A: 6 inches
- Sample B: 12 inches
- Sample C: 48 inches

Sample depth

Sample A: 6 inches

Sample B: 12 inches

Sample C: 48 inches

Soil analysis PDF files 41

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm		Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH		CEC meq/100g	Percent Base Saturations				
					Bicarb	Bray-P1				pH	Buffer		% K	% Mg	% Ca	% H	% Na
1-A		6	38996	1.1	20 M	35 M	74 M	93 M	730 M	6.0	6.9	5.9	3.2	13.2	62.1	20.3	1.2
1-B		12	38997	1.4	3 L	3 L	49 L	182 H	1170 M	6.7	6.9	8.7	1.4	17.3	66.9	13.5	0.8
2-A		6	38998	4.5	17 M	27 M	104 M	138 M	1310 M	6.5	6.9	9.2	2.9	12.5	71.4	12.9	0.3
2-B		12	38999	2.3	13 L	20 L	131 M	175 H	1200 M	6.2	6.9	9.0	3.7	16.2	66.5	13.1	0.6

Sample Number	Sulfur S		Nitrate Nitrogen NO3-N		Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm												
	ppm	lbs/ac	ppm	lbs/ac																									
1-A	4	VL	7	2	VL	4	21.1	VH	13	L	78	VH	1.3	H	0.1	VL	0.1	VL	7	L	608	0.9	G	0.24	23			16	H
1-B	3	VL	5	1	VL	2	2.3	L	13	L	57	VH	1.2	H	0.1	VL			1	VL	427	0.1	G	0.08	26			16	M
2-A	4	VL	7	10	M	18	2.7	L	21	M	82	VH	0.8	M	0.1	VL	0.2	VL	7	M	475	0.2	G	0.23	57			6	VL
2-B	4	VL	7	4	VL	7	2.2	L	11	L	79	VH	1.2	H	0.1	VL			5	L	556	0.4	G	0.23	35			12	L

W VL = VERY LOW, L = LOW, M = MEDIUM, H = HIGH, VH = VERY HIGH, G = GOOD, MA = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm		Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH		CEC meq/100g	Percent Base Saturations				
					Bicarb	Bray-P1				pH	Buffer		% K	% Mg	% Ca	% H	% Na
3-A		6	39000	2.7	18 M	35 G	144 M	237 L	3480	VH	7.7		19.8	1.9	10.0	88.0	0.2
3-B		12	39001	1.5	15 G	22 M	155 M	393 M	5050	VH	7.5		29.0	1.4	11.3	87.1	0.3

Sample Number	Sulfur S		Nitrate Nitrogen NO3-N		Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm												
	ppm	lbs/ac	ppm	lbs/ac																									
3-A	6	VL	11	19	M	34	2.7	L	46	H	65	VH	1.9	H	0.4	L	0.3	VL	3	L	176	0.0	G	0.19	39			10	VL
3-B	7	VL	13	12	M	22	2.4	L	30	H	57	VH	2.1	H	0.1	VL			2	L	181	0.0	G	0.12	27			23	VL

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm		Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH		CEC meq/100g	Percent Base Saturations						
					Bicarb	Bray-P1				pH	Buffer		% K	% Mg	% Ca	% H	% Na		
1-C		0	39008	0.8	3 L	2 L	45	VL	382	M	4580	VH	7.8		26.3	0.4	12.1	87.2	0.4
2-C		0	39009	0.7	2 L	3 L	91	L	276	L	5780	VH	8.0		31.5	0.7	7.3	91.8	0.3
3-C		0	39010	3.0	31 G	50 G	222	H	245	L	3740	VH	7.5		21.3	2.7	9.6	87.6	0.3

Sample Number	Sulfur S		Nitrate Nitrogen NO3-N		Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm													
	ppm	lbs/ac	ppm	lbs/ac																										
1-C	3	VL		1	VL	1.5	L	33	H	41	H	0.6	M	0.1	VL					64	0.0	G	0.03	20			24	L		
2-C	4	VL		1	VL	1.8	L	29	M	48	H	1.0	M	0.8	M					74	0.0	G	0.10	19			20	VL		
3-C	14	VL		54	VH	2.6	L	35	H	81	VH	1.8	H	0.4	L					4	M	177	0.0	G	0.28	42			14	VL

General view of the soil analysis

Sample depth
 Sample A: 6 inches
 Sample B: 12 inches
 Sample C: 48 inches

#	Sample depth	Organic Matter %	Cation Exchange meq/100g	Soil pH	Ph Buffer	ENR	Sodium ppm	Sodium %	Soluble Salts mmhos/cm
1-A	12 inches depth	↓ 1.1	↓ 5.9	↓ 6	6.9	↓ 23	✓ 16	✓ 1.2	✓ 0.12
1-B	24 inches depth	↓ 1.4	↓ 8.7	✓ 6.7	6.9	✓ 26	✓ 16	✓ 0.8	✓ 0
2-A	12 inches depth	↑ 4.5	↓ 9.2	✓ 6.5	6.9	↑ 57	✓ 6	✓ 0.3	✓ 0.19
2-B	24 inches depth	✓ 2.3	↓ 9	✓ 6.2	6.9	✓ 35	✓ 12	✓ 0.6	✓ 0
3-A	12 inches depth	✓ 2.7	✓ 19.8	✓ 7.7	0	✓ 39	✓ 10	✓ 0	✓ 0.34
3-B	24 inches depth	✓ 1.5	↑ 29	✓ 7.5	0	↓ 23	✓ 23	✓ 0	✓ 0
1-C	48 inches depth	↓ 0.8	↑ 26.3	↑ 7.8	0	↓ 20	✓ 24	✓ 0.4	
2-C	48 inches depth	↓ 0.7	↑ 31.5	↑ 8	0	↓ 19	✓ 20	✓ 0.3	
3-C	48 inches depth	↓ 0.3	↓ 12.3	✓ 7.5	0	↑ 42	✓ 14	✓ 0.3	
	Optimal range	1.5-3	15-20	6.2-7.8	25-40	25-40	Under 200	0.8-1.8 (under 15)	Under 4

#	Sample depth	Phosphorus Bray	Phosphorus Bicarbonate	Potassium ppm	Magnesium ppm	Calcium ppm	Sodium ppm	Aluminum	Potassium %	Magnesium %	Calcium %	Sodium %	K/MG %	K/MG ppm
1-A	12 inches depth	✓ 35	↑ 20	↓ 74	↓ 93	↓ 730	✓ 16	✓ 608	↓ 3.2	✓ 13.2	✓ 62.1	✓ 1.2	✓ 0.24	✓ 0.7957
1-B	24 inches depth	↓ 3	↓ 3	↓ 49	✓ 182	✓ 1170	✓ 16	✓ 427	↓ 1.4	✓ 17.3	✓ 66.9	✓ 0.8	↓ 0.08	✓ 0.2692
2-A	12 inches depth	↓ 27	✓ 17	✓ 104	✓ 138	✓ 1310	✓ 6	✓ 475	↓ 2.9	✓ 12.5	✓ 71.4	✓ 0.3	✓ 0.23	✓ 0.7536
2-B	24 inches depth	↓ 20	✓ 13	✓ 131	✓ 175	✓ 1200	✓ 12	✓ 556	↓ 3.7	✓ 16.2	✓ 66.5	✓ 0.6	✓ 0.23	✓ 0.7486
3-A	12 inches depth	✓ 35	✓ 18	✓ 144	✓ 237	↑ 3480	✓ 10	✓ 176	↓ 1.9	✓ 10	↑ 88	✓ 0	↓ 0.14	✓ 0.6076
3-B	24 inches depth	↓ 22	✓ 15	↑ 155	↑ 393	↑ 5050	✓ 23	✓ 181	↓ 1.4	✓ 11.3	↑ 87.1	✓ 0	↓ 0.18	✓ 0.3944
1-C	48 inches depth	↓ 3	↓ 2	↓ 45	↑ 392	↑ 4580	✓ 24	✓ 64	↓ 0.4	✓ 12.1	↑ 97.2	✓ 0.4	↓ 0.03	↓ 0.1148
2-C	48 inches depth	↓ 2	↓ 3	✓ 91	↑ 276	↑ 5780	✓ 20	✓ 74	↓ 0.7	↓ 7.3	↑ 91.8	✓ 0.3	↓ 0.1	✓ 0.3297
3-C	48 inches depth	✓ 31	↑ 50	↑ 222	✓ 245	↑ 3740	✓ 14	✓ 177	↓ 2.7	↓ 9.6	↑ 87.6	✓ 0.3	✓ 0.28	✓ 0.9061
	Optimal range	30-50	12-20	75-150	100-250	1000-3000	Under 200	under 700	4-7	10-20	60-80	0.8-1.8 (under 15)	0.20-0.40	less than 1.5

#	Sample depth	Zinc ppm	Manganese ppm	Iron ppm	Copper ppm	Boron ppm
1-A	12 inches depth	↑ 21.1	↓ 13	↑ 78	✓ 1.3	↓ 0.1
1-B	24 inches depth	↓ 2.3	↓ 13	↑ 57	✓ 1.2	↓ 0.1
2-A	12 inches depth	↓ 2.7	✓ 21	↑ 82	↓ 0.8	↓ 0.1
2-B	24 inches depth	↓ 2.2	↓ 11	↑ 79	✓ 1.2	↓ 0.1
3-A	12 inches depth	↓ 2.7	↑ 46	↑ 65	↑ 1.9	↓ 0.4
3-B	24 inches depth	↓ 2.4	↑ 30	↑ 57	↑ 2.1	↓ 0.1
1-C	48 inches depth	↓ 1.5	↑ 33	↑ 41	↓ 0.6	↓ 0.1
2-C	48 inches depth	↓ 1.8	✓ 29	↑ 48	✓ 1	✓ 0.8
3-C	48 inches depth	↓ 2.6	↑ 35	↑ 81	↑ 1.8	↓ 0.4
	Optimal range	3-5	15-30	12-24	0.9-1.5	0.8-1.2



#	Block	Organic Matter %	Cation Exchange meq/100g	Soil pH	Ph Buffer	ENR	Sodium ppm	Sodium %	Soluble Salts mmhos/cm
1-A	SOIL	↓ 1.1	↓ 5.9	↓ 6	6.9	↓ 23	✓ 16	✓ 1.2	✓ 0.12
1-B	SOIL	↓ 1.4	↓ 8.7	✓ 6.7	6.9	✓ 26	✓ 16	✓ 0.8	✓ 0
2-A	SOIL	↑ 4.5	↓ 9.2	✓ 6.5	6.9	↑ 57	✓ 6	✓ 0.3	✓ 0.19
2-B	SOIL	✓ 2.3	↓ 9	✓ 6.2	6.9	✓ 35	✓ 12	✓ 0.6	✓ 0
3-A	SOIL	✓ 2.7	✓ 19.8	✓ 7.7	0	✓ 39	✓ 10	✓ 0	✓ 0.34
3-B	SOIL	✓ 1.5	↑ 29	✓ 7.5	0	↓ 23	✓ 23	✓ 0	✓ 0
1-C	SOIL	↓ 0.8	↑ 26.3	↑ 7.8	0	↓ 20	✓ 24	✓ 0.4	
2-C	SOIL	↓ 0.7	↑ 31.5	↑ 8	0	↓ 19	✓ 20	✓ 0.3	
3-C	SOIL	↓ 0.3	↓ 12.3	✓ 7.5	0	↑ 42	✓ 14	✓ 0.3	
Optimal range		1.5-3	15-20	6.2-7.8	25-40	25-40	Under 200	0.8-1.8 (under 15)	Under 4

The pH is increased from the west to the east of the property. These PHs are highly compatible with vines. The level of organic matter is OK on the 6-12 inches horizons. It is low on the 48 inches horizon. The value of the ENR is in the good range (ENR is a calculated estimation of how much potential nitrogen may be released from soil organic matter in one year).

All the salt indicators show there is no risk of salinity for the vines.



Macro elements, saturation rate and salinity

#	Sample depth	Phosphorus Bray	Phosphorus Bicarbonate	Potassium ppm	Magnesium ppm	Calcium ppm	Sodium ppm	Aluminum	Potassium %	Magnesium %	Calcium %	Sodium %	K/MG %	K/MG ppm
1-A	12 inches depth	35	20	74	93	730	16	608	3.2	13.2	62.1	1.2	0.24	0.7957
1-B	24 inches depth	3	3	49	182	1170	16	427	1.4	17.3	66.9	0.8	0.08	0.2692
2-A	12 inches depth	27	17	104	138	1310	6	475	2.9	12.5	71.4	0.3	0.23	0.7536
2-B	24 inches depth	20	13	131	175	1200	12	556	3.7	16.2	66.5	0.6	0.23	0.7486
3-A	12 inches depth	35	18	144	237	3480	10	176	1.9	10	88	0	0.14	0.6076
3-B	24 inches depth	22	15	155	393	5050	23	181	1.4	11.3	87.1	0	0.18	0.3944
1-C	48 inches depth	3	2	45	392	4580	24	64	0.4	12.1	97.2	0.4	0.03	0.1148
2-C	48 inches depth	2	3	91	276	5780	20	74	0.7	7.3	91.8	0.3	0.1	0.3297
3-C	48 inches depth	31	50	222	245	3740	14	177	2.7	9.6	87.6	0.3	0.28	0.9061
	Optimal range	30-50	12-20	75-150	100-250	1000-3000	Under 200	under 700	4-7	10-20	60-80	0.8-1.8 (under 15)	0.20-0.40	less than 1.5

The property has an acceptable level of Potassium and Magnesium for all areas. Phosphorus is a little low but easy to correct.

The ratio K/MG is optimal: There is no risk of blockage of the magnesium uptake by the potassium

My only concern is the high level of calcium: High rate of calcium in the soil can create a blockage of the iron intake: The leaves will turn yellow. Before choosing the rootstock, we will process analysis of active calcium.



Micro elements

#	Sample depth	Zinc ppm	Manganese ppm	Iron ppm	Copper ppm	Boron ppm
1-A	12 inches depth	21.1	13	78	1.3	0.1
1-B	24 inches depth	2.3	13	57	1.2	0.1
2-A	12 inches depth	2.7	21	82	0.8	0.1
2-B	24 inches depth	2.2	11	79	1.2	0.1
3-A	12 inches depth	2.7	46	65	1.9	0.4
3-B	24 inches depth	2.4	30	57	2.1	0.1
1-C	48 inches depth	1.5	33	41	0.6	0.1
2-C	48 inches depth	1.8	29	48	1	0.8
3-C	48 inches depth	2.6	35	81	1.8	0.4
	Optimal range	3-5	15-30	12-24	0.9-1.5	0.8-1.2

The soil has roughly a good rate in iron and copper. Some deficit in manganese and a lot in zinc. I don't have too much concern about this situation: Zinc deficit is very rare on vines

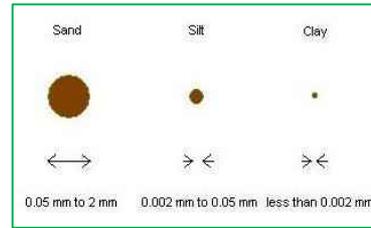
My main concern is the low rate of boron. The boron level needs to be corrected before the planting. This situation is easy to correct with fertilization.

This soil type, rich in silt and clay, certainly originates from river deposits. This soil is perfectly compatible for vineyards. This type of soil has a high water-holding capacity. the choice of the rootstock will be :

- **Withstand humidity**
- **Low vigor**

Soil texture

MultiPointTriangle (v1)



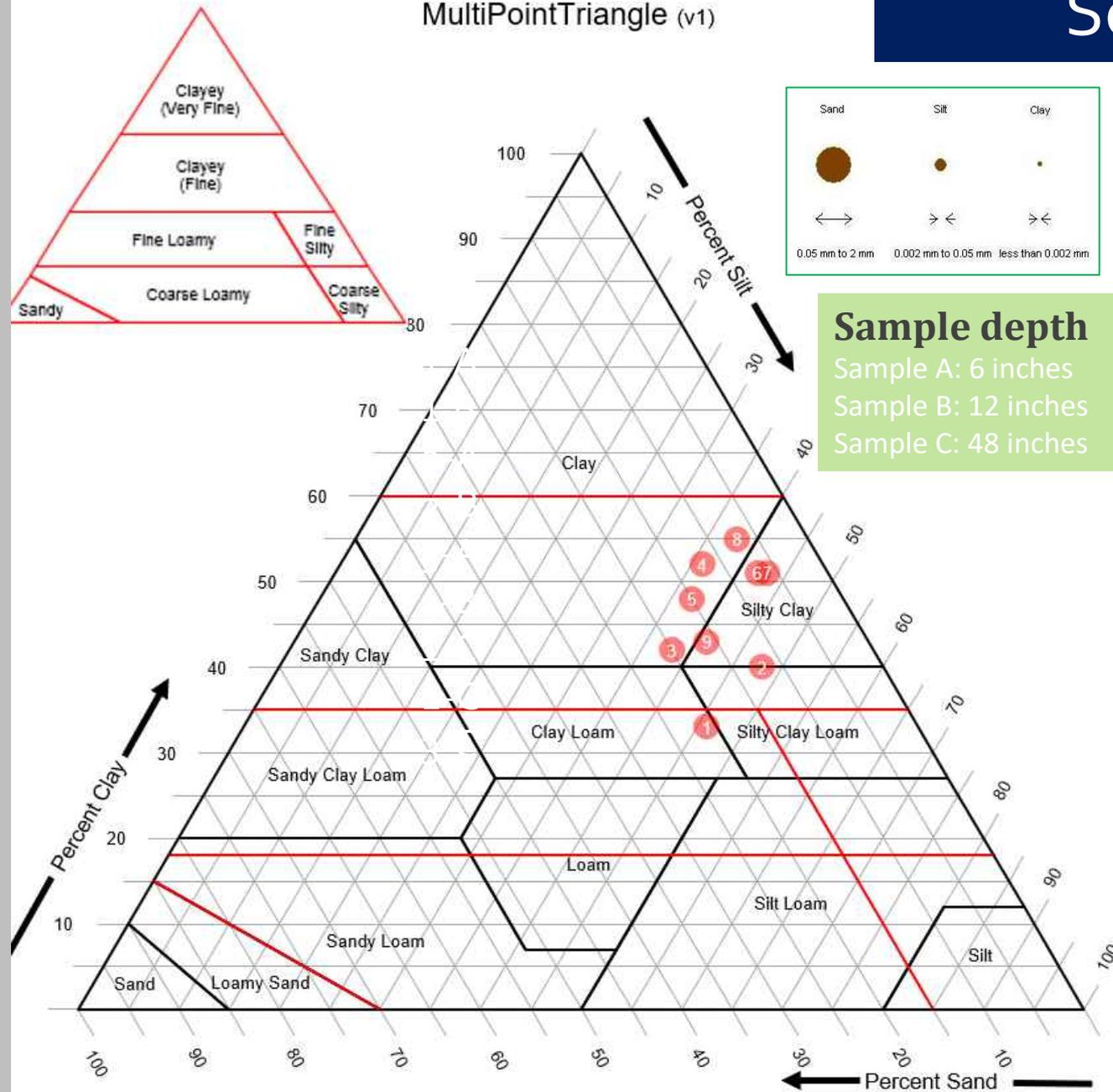
Sample depth

Sample A: 6 inches
 Sample B: 12 inches
 Sample C: 48 inches

Point	Sand	Clay	Silt
1-A	21.00%	33.00%	46.00%
1-B	12.00%	40.00%	48.00%
2-A	20.00%	42.00%	38.00%
2-B	12.00%	52.00%	36.00%
3-A	15.00%	48.00%	37.00%
3-B	7.00%	51.00%	42.00%
1-C	6.00%	51.00%	43.00%
2-C	7.00%	55.00%	38.00%
3-C	16.00%	43.00%	41.00%

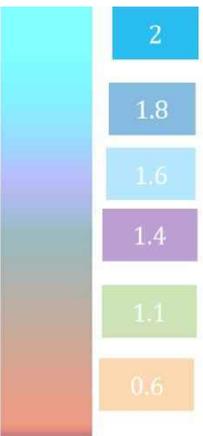
The clay content increases from west to east and also as you go deeper into the soil.

The soil has a high clay and silt content. This gives it a good capacity to retain water, but the risk of compaction is high.



Available Water Capacity

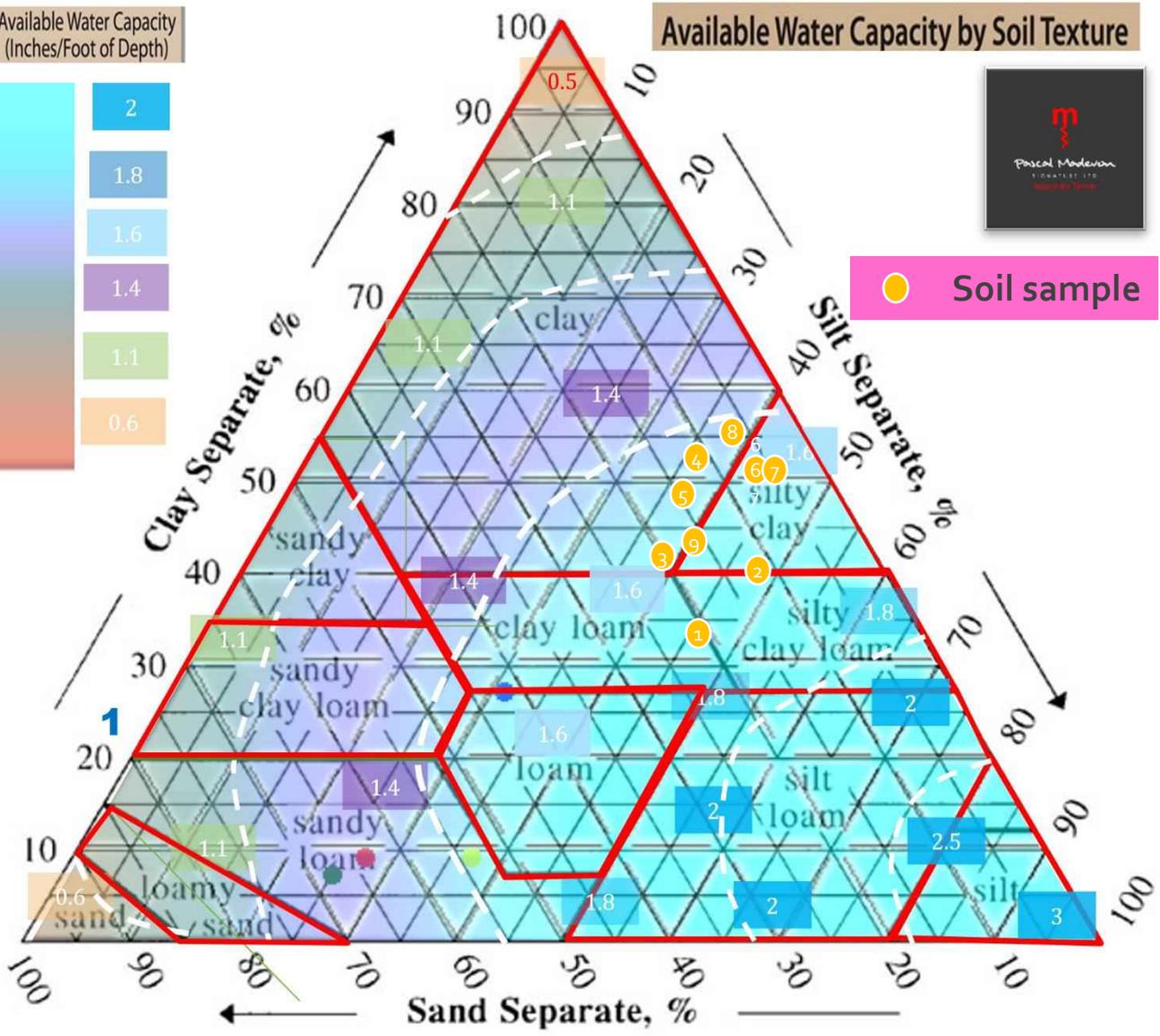
Available Water Capacity
(Inches/Foot of Depth)



Available Water Capacity by Soil Texture



● Soil sample



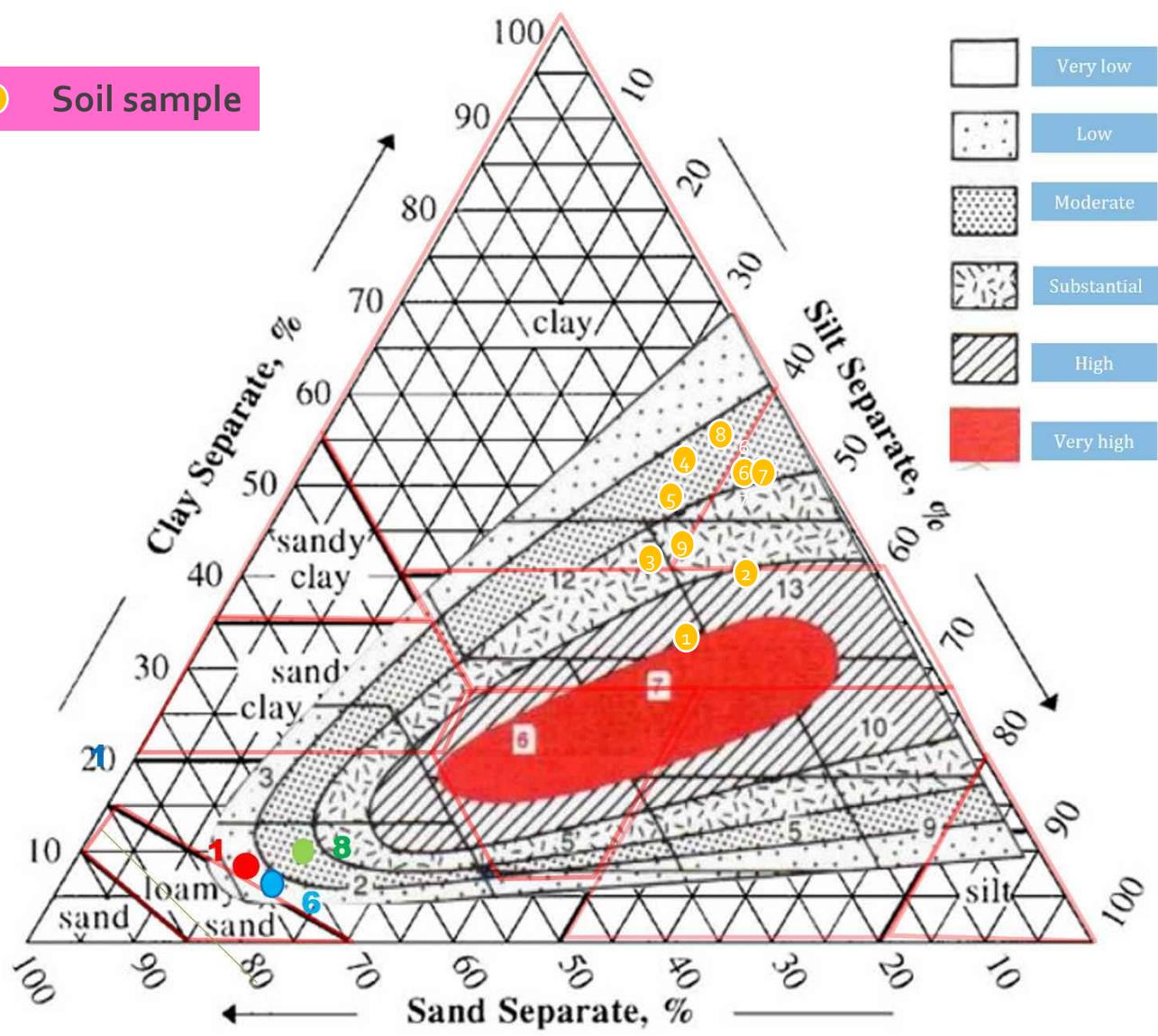
Point	Sand	Clay	Silt	
1-A	1	21.00%	33.00%	46.00%
1-B	2	12.00%	40.00%	48.00%
2-A	3	20.00%	42.00%	38.00%
2-B	4	12.00%	52.00%	36.00%
3-A	5	15.00%	48.00%	37.00%
3-B	6	7.00%	51.00%	42.00%
1-C	7	6.00%	51.00%	43.00%
2-C	8	7.00%	55.00%	38.00%
3-C	9	16.00%	43.00%	41.00%

The water-holding capacity is high because of the high concentration of clay and silt.

Available Water Capacity by Soil Texture

Textural Class	Available Water Capacity (Inches/Foot of Depth)
Coarse sand	0.25–0.75
Fine sand	0.75–1.00
Loamy sand	1.10–1.20
Sandy loam	1.25–1.40
Fine sandy loam	1.50–2.00
Silt loam	2.00–2.50
Silty clay loam	1.80–2.00
Silty clay	1.50–1.70
Clay	1.20–1.50

● Soil sample



	Point	Sand	Clay	Silt
1-A	1	21.00%	33.00%	46.00%
1-B	2	12.00%	40.00%	48.00%
2-A	3	20.00%	42.00%	38.00%
2-B	4	12.00%	52.00%	36.00%
3-A	5	15.00%	48.00%	37.00%
3-B	6	7.00%	51.00%	42.00%
1-C	7	6.00%	51.00%	43.00%
2-C	8	7.00%	55.00%	38.00%
3-C	9	16.00%	43.00%	41.00%

There is a risk of compaction because of the high clay and silt contents.

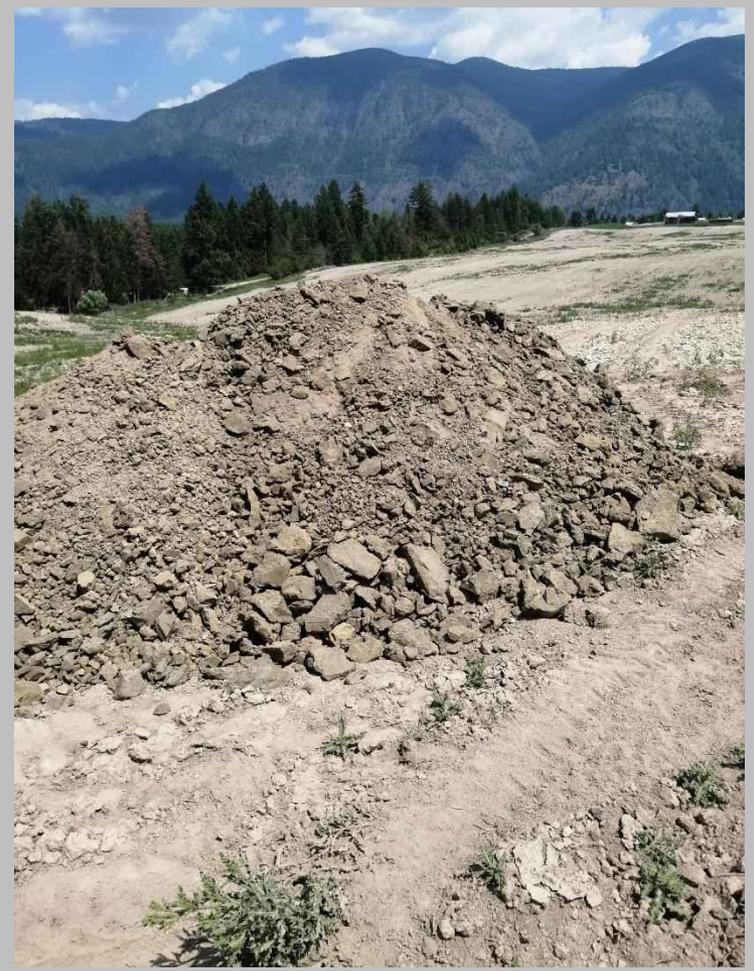




Pit #1 51

	Point	Sand	Clay	Silt
1-A	1	21.00%	33.00%	46.00%
1-B	2	12.00%	40.00%	48.00%
1-C	7	6.00%	51.00%	43.00%

Sample A: 6 inches
Sample B: 12 inches
Sample C: 48 inches



Pit #1 52



	Point	Sand	Clay	Silt
2-A	3	20.00%	42.00%	38.00%
2-B	4	12.00%	52.00%	36.00%
2-C	8	7.00%	55.00%	38.00%

Sample A: 6 inches
Sample B: 12 inches
Sample C: 48 inches



Pit #2 53



Pit #2 54



Pit #3 55

	Point	Sand	Clay	Silt
2-B	4	12.00%	52.00%	36.00%
3-A	5	15.00%	48.00%	37.00%
3-B	6	7.00%	51.00%	42.00%
3-C	9	16.00%	43.00%	41.00%

Sample A: 6 inches
Sample B: 12 inches
Sample C: 48 inches



Pit #3 56



It has been a true pleasure to discover and unveil the untapped possibilities that lie within the terroir of Creston.

The region presents grand opportunities for viticulture. The special climate lends itself well, with temperatures that will provide powerful aromatics—especially for white and sparkling wines but also the perfect development of the elegance for northern red varieties as Pinot noir, Gamay, etc. The terroir of silky clay offers a unique environment with the great advantage of water retention, and the possibility of minimal-intervention or organic winemaking. Sub-zero temperatures, and frost conditions do not vary much in comparison to the Okanagan. In fact, Creston boasts one of the mildest climates in British Columbia.

The haven of Creston is nestled between the provinces of British Columbia and Alberta, and the states of Washington and Idaho. Its location provides great potential for tourism, an economy that is growing year over year. With only a handful of wineries currently opened to visitors, it is an area with an abundant demand for more—a glaring contrast to the Okanagan.

It is of my opinion that the terroir, climate and region align to provide a great opportunity for an expanded vineyard and/or winery. As a reminder, a water license must be obtained in order to legally use the wells onsite for agricultural purposes.”

Pascal Madevon – October 31, 2023

Pascal Madevon Signature Ltd.

