

Agrology Report

Agricultural Classification Assessment for:

4980 Trepanier Road, Peachland, BC

Lot 1, DL 911 and 1311 ODYD, KAP 48672

Prepared for:

955759 B.B. Ltd and 955867 B.C. Ltd
Agent: New Town Planning Services Inc.
Kelowna, BC

October 23, 2013

Prepared by:

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Scope

The clients have engaged James Calissi P.Ag of Calissi Farms Inc. to prepare an agrologist's report concerning a proposal to remove land from the Agricultural Land Reserve.

From this, Calissi Farms Inc. proposed to examine the soil characteristics and climate and agricultural capability of the exclusion land. Of particular interest is the condition of any soil that may have been damaged by a forest fire in September of 2012, and the availability of irrigation water to the property, and if irrigation water volumes have been affected by changes in the water shed due to the 2012 forest fire.

Site Description

The property desired for exclusion from the ALR is located in Peachland along the higher elevations of Trepanier road. Adjacent to and north of the property is an irrigated small scale farm. To the west are irrigated agricultural fields. Farms in the general area do not produce high valued horticultural crops; rather produce pasture for equestrian needs or other small livestock. Immediately adjacent to the south are wooded areas and steep hill sides which lead to Trepanier Creek. The elevation of the subject property is 495 meters.

The property appears to be abandoned for about 20 years. The last remnants of agriculture were grape vines that were cut back to the soil surface during the provincial grape vine removal program of the late 1980's. These vines are alive, sparsely growing in the rows as the farmer had planted them. Wild pine trees and brush have begun to take over the landscape.

The Trepanier Creek Investigation Report of 1992 states there were approximately 5 to 6 hectares of vineyard on the site that were removed from the grape removal program. Given the hedgerows of stone on the borders of the properties, previous owners must have invested significant resources in stone removal to make the land suitable for agricultural uses.

The property has water rights under the Trepanier Ditch Water Users Community. This Community of users was incorporated in 1980 under the Water Act, later recalled and incorporated under the Water Act in 1993. Water to the subject property is currently turned-off and the access to the Community main is buried to prevent damage to the Community main. Water for the Community is sourced from Lacoma Lake. Lacoma Lake is approximately 17 kilometers to north-west. Lacoma Lake's elevation is 951 meters.

Soils

The soils are described in three distinct polygons according to maps 82E.072 and 82E.082 of the Soils of the Okanagan and Similkameen Valleys.

1. The first, which occupies roughly 80% of the land base is has three soils contained in it. These soils are described having Gammil (60%), Paradise (30%), and Trepanier (10%) soils that are very stoney to excessively stoney. The land has 3 to 15% slopes, and is considered very gentle to moderately sloping. The polygons are described below:

6GM: 35S35
3PE:35S35
1TR:35S35

2. Approximately 15% of the land is Gammil with 15 to 45% slopes and are considered strong to very strong slopes. Soils also have higher stone content and are considered excessively stoney. These soils form the approach to Trepanier creek and are on the west side of the property.

GM: 76S5

3. Approximately 5% of the land is composed of Tomlin soils, are nearly level and are only slightly stoney. These soils even though they are gravelly, have less stone contained in them and are considered moderately stoney. These soils are in the vicinity of where the burned out house and buildings are.

TM: 23S2

Gammil (GM)

Gammil soils are relatively common in the central Okanagan where they are closely related to Parkhill, Paradise and Trout Creek soils. The parent materials are deep, coarse-textured, stony and gravelly fluvioglacial deposits, capped by 10 to 25 cm of sandy materials. Surface textures are gravelly sandy loam or loamy sand while subsurface and subsoil textures vary from very gravelly loamy sand to gravelly sand. These soils are rapidly drained, rapidly pervious and have low water holding capacity and slow surface runoff. Organic carbon is low to very low between 0 and 50 cm.

Gammil soils are limited for agricultural uses by stoniness, low water holding capacity and in some cases, topography. Areas with gentle slopes are generally cleared and cultivated to either tree fruits, vineyards or are used for pasture and hay production.

Paradise (PE)

Paradise soils occur in the south and central Okanagan valley and are usually associated with Parkhill, Gammil and Dartmouth soils. Paradise soils have developed in sandy

(fluvial and eolian) veneer between 25 to 60 cm thick, overlaying gravelly fluvioglacial deposits. Surface and subsurface textures are sandy loam and loamy sand; subsoils are very gravelly sand or very gravelly loamy sand. These soils are rapidly drained, have low water storage capacity, are pervious and have slow surface runoff. Organic carbon is low to very low between 0 and 50 cm.

Paradise soils are well suited for agriculture although low water holding capacity is a restriction. Cultivated and irrigated sites are planted to tree fruits, vineyards or are used for intensive vegetable production.

Tomlin (TM)

Tomlin soils occur throughout the Okanagan and Similkameen areas, but mostly in the central Okanagan. These soils occupy moderate to strong slopes, usually in association with Paradise, Trout Creek, Peachland and Hayman soils.

Tomlin soils have developed in deep, moderate coarse to coarse-textured, stony and gravelly fluvial fan deposits. Surface and subsurface textures are usually gravelly and sandy loam or gravelly loamy sand. Subsoils are gravelly loamy sand or very gravelly sand. The soils are well to rapidly drained, rapidly pervious, have low water storage capacity and slow surface runoff. Organic carbon is low to very low between 0 and 50 cm.

The soils are moderately suited for agricultural crop production. Limitations include low water holding capacity, stoniness and, in places, adverse topography. A significant portion is either planted to orchards and vineyards or is used for forage and grazing.

Trepanier (TR)

Trepanier soils occur only in a few small areas near Trepanier Creek and Lakeview Heights. They occupy gentle to moderate slopes in association with Paradise and Parkhill soils. Trepanier soils have developed in stone-free, medium to moderately coarse textured, usually stratified fluvioglacial deposits. The surface and subsurface texture is generally loam with variations to fine sandy loam or silt loam. The subsoils contain lenses of fine sand or, occasionally, silty clay loam. Trepanier soils are well drained, are moderately pervious, and have moderate to high water holding capacity. Organic carbon is low to very low between 0 and 50 cm.

The soils are well suited for mostly climatically adapted crops although in some areas adverse topography may be limiting. Cleared and cultivated areas are mostly planted to orchards and vineyards.

Climate Capability for Agriculture

The climate capability for agriculture is Class 5 without irrigation. With irrigation, the land is improved to class 1, with limitations due to insufficient accumulation of heat units above 5 Celsius during the growing season. There is 2060 to 2225 growing degree days

and greater than 150 frost free days. The land has moderate to good air drainage, and the climate can support perennial fruit crops or grapes. The land is 495 meters in elevations. This elevation is considered one of the higher elevations at which tree fruits and grapes are grown in the Okanagan.

Agricultural Capability

The agricultural capability of the land is limited by aridity, stoniness and topography.

In the western side of the property, along the approach to Trepanier creek, the land is considered Class 7, due to topography (steepness of the slope) and aridity. With irrigation the land would still be considered class 6 or 7 due to the topography.

The northern portion of the land is considered Class 4 due to aridity. With irrigation the land can be improved to Class 3 due to aridity (the sandy and gravelly nature of the soil) and the stoniness of the land.

The southern portion of the land is considered Class 5 due to aridity. With irrigation, the land can be improved to a Class 3 with limitations due to aridity and stoniness.

Class 1 lands are level or nearly level. The soils are deep, well to imperfectly drained under natural conditions, or have good artificial water table control, and hold moisture well. They may be managed for a wide range of field crops. Land in this class either has no or only very slight limitations that restrict its use for production of common agricultural crops.

Class 2 lands are considered to have minor limitations that require good, ongoing management. Crop ranges are slightly restricted. Productivity is considered less than Class 1 land but crops can be managed with little difficulty. Land in this class has minor limitations that require good ongoing management practices or slightly restrict the range of crops, or both.

Class 3 lands have limitations that require moderately intensive management practices or moderately restrict the range of crops or both. Land management practices are more difficult to maintain than those on Class 2 land. Land in this class has limitations that require moderately intensive management practices or moderately restrict the range of crops, or both.

Class 4 lands have limitations which make it suitable only for a few crops or the yield for a wide range of crops is low, or the risk of crop failure is high, or the soil conditions are such that special development and management practices are required. Land in this class has limitations that require special management practices or severely restrict the range of crops, or both.

Class 5 lands have limitations that restrict its capability of producing perennial forage or other specially adopted crops. Class 5 lands can be used for cultivated field crops provided unusually intensive management is employed and/or the crop is particularly

adapted to the conditions. Land in this class has limitations that restrict its capability to producing perennial forage crops or other specially adapted crops.

Class 6 lands provide sustained natural grazing for domestic livestock and are not arable in their present condition. Land is placed in this class because of severe climate, or terrain is unsuitable for cultivation or use of farm machinery, or the soils do not respond to intensive improvement practices. Some unimproved Class 6 lands can be improved by draining, dyking and/or irrigation. Land in this class is non-arable but capable of producing native and / or uncultivated perennial forage crops.

Class 7 lands are lands that are not included in classes 1 to 6. Class 7 lands may have limitations equivalent to Class 6 but does not provide natural sustained grazing for domestic livestock due to unsuitable natural vegetation. Also included are rocky land, other nonsoil areas and small bodies of water. Some unimproved Class 7 land can be improved by draining, dyking, irrigation and / or leveling. Land in this class has no capability for arable culture or sustained natural grazing.

The limiting agricultural use of this property is very sandy soil. The genesis of these soils did not allow for much of any organic matter in the soils. Any brown coloration in the soils is due to oxidized minerals contained in the parent materials, rather than the presence of aged organic matter.

Stoniness is overly apparent, especially in the northern section of the property. Stones larger than 30 centimeters in diameter are present throughout. This level of stoniness even limits the ability to allow for cattle grazing as the amount of surface stones could injure livestock as they walk over the stones. Stone removal would need to take place before any agriculture could take place.

Irrigation Water

The land needs to be irrigated to produce agricultural crops. Water is available for irrigation through the Trepanier Ditch Water Users Community. It is only a matter of re-establishing service.

The water for this Community is taken from a lake. Although no one from the Ministry of Environment could confirm water levels, they were able to state that irrigation water sourced from lakes are often more reliable than other surface water sources since they do not rely on high and low water flow amounts.

Fire Damage to Soils

James Calissi inspected the soils on the farm. With the exception of some fire damaged treed areas near Trepanier Creek, areas around the farm buildings and a few other small burned out areas, comprising less than 5% of the total land area, the fires appeared to cause no damage to the soils. Perhaps at the time of the fire, some native grasses were burned, leaving some ash duff on the surface. Some pine trees in the center of the property were fire damaged, but these trees are isolated, and not all trees sustained significant fire damage.

For certain lands that were cultivated in the past, as evident by surviving grape vines, showed no damage to the grape vines or to the soils themselves.

Summary

The land is a parcel of Class 4 to Class 5 land. With irrigation it will be improved to Class 3. The land can be irrigated, as water is sourced from a Community underground pipe. Surrounding properties irrigate their land using water from this irrigation system. Water is sourced from Lacoma Lake, some 17 kilometers from the property. In speaking with the neighbour, he said there was no disruption in service or shortage of water due to the Trepanier fire.

The land is difficult to work due to the large amount of stone content. Previous owners have removed large amounts of stone from the land, but more stone needs to be removed to make the farm more workable. The soils are sandy by nature, with low cation exchange capacity and low soil fertility. This can be improved with the addition of organic matter, either by growing soil improving green manure crops or by the addition of compost.

The stoniness and lack of organic matter in the soil is due to the parent materials and genesis of the land rather than due to any fires that may or may not have occurred on the property in recent times.

Perennial crops can be grown on the land. Perennial forage can be produced as evident in neighbouring farms. Grapes were produced in the past, although; the quality and varieties may not be in demand today. Shorter season white Pinot types may be produced on the site with good management. The same is true for other perennial tree fruit crops. Regardless of the crops produced, production of crops on Class 3 land will require very good management and yields will be lower than on Class 1 land.

References

1. Soils of the Okanagan and Similkameen Valleys, MOE Technical Report 18, Government of British Columbia, Map 82E.082.
2. Land Capability for Agriculture of the Okanagan and Similkameen Valleys, Ministry of Environment, Map 82E.083
3. Climate Capability for Agriculture of the Okanagan and Similkameen Valleys, Ministry of Environment, Map 82E.082
4. Verbal correspondence with Rick Couroux, Ministry of Environment, Penticton, B.C.
5. Trepanier Creek Investigation Report, Ministry of Environment, Lands, and Parks. Water Rights Branch. April 1992.