SMARTPLANS LTD.
4480 Walker Rd.
Kelowna, BC V1W 1Z6

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FIRWOOD ROAD STRATA PROPOSAL
D.L. 2923, O.D.Y.D.

O.C.P., Zoning & Subdivision Applications for a Residential Strata Single Family Subdivision

SITE LOCATION PLAN

A SMARTPLANS LTD. Report

By Michael Brown, M.C.I.P., Manager

3 MARCH 2010

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EXECUTIVE SUMMARY

This Bareland Strata subdivision proposal is summarized as follows:

1. The site was completely burned in 1998, it is devoid of fuels. An unburned area with trees and gullies is purposely omitted from this proposal.

2. Thirty five (35) new lots are created on a flat gravel plateau, and 2 new lots are created on a rock knoll.

3. The site is adjacent to the Valley of the Sun Neighbourhood.

4. It is an infill development on the existing service corridor (e.g. water, school bus, mail) between Valley of the Sun and Fintry. As such, impact on existing services is minimal.

5. An earlier, higher density submission has been reduced in density to harmonize the development with surrounding neighbourhoods.

6. Architectural controls will further insure a quality of development that makes existing neighbourhoods pleased with its addition to the community. Controls will also require exterior cladding and roofing to be of non-combustible materials.

7. Water supply will be entirely self sufficient. As an option, and if requested by RDOC, the subdivision could financially participate in the current community water improvement program underway for the neighbouring communities.

8. The developer can make its water easement to Okanagan Lake available to RDOC at no cost whether or not RDOC seeks the involvement of this project in the current community water supply program.

9. Sanitary Treatment will meet or exceed provincial standards. Assurance of service continuity is provided by duplication of necessary plant and field components. The Strata must, under MOE regulations, hire a licensed practitioner to maintain all plant equipment and fields.

10. No Roads or lanes will be visible from Okanagan Lake or District of Lake Country.

11. The Subdivision does not require access to Westside Road. Subdivision access and emergency egress is limited to Firwood Road.

APPLICATION DETAILS

Managing Property Owner: Mr. Lonny Kubas

Phone & Email: 1-204-794-9819 (cell), lonnykubas@hotmail.com

Address: Suite 1404, 92 Crystal Shores Rd., Okotoks, AB, T1S 2M8

Agent: Smartplans Ltd., Michael Brown, M.C.I.P.

Phone & Email: (250) 764-5263 (bus), (250) 808-5253 (cell), smartplans@shaw.ca

Address: 4480 Walker Rd., Kelowna, BC, V1W 1Z6

Property Description: D.L. 2923, O.D.Y.D., Except Plans B1736 & 35052

Property Identifier: 011-396-776

Site Area: 18.6 ha, (46 ac.)

OCP: Large Land Holding

Zoning: RU 2

Existing Zoning Provisions: Minimum Lot Area 4.0 ha (9.88 ac.); permitted uses include one residence and other typical agricultural/rural type uses.

Purpose of these Applications: This application is requesting an amendment to the Westside OCP and Zoning Bylaw 871 to permit a low density residential development at the north end of Fintry. It is located at the intersection of Westside Road and Firwood Road, and abuts Valley of the Sun subdivision.

The proposal creates 37 new lots, developed using the RU5 density of 2500m^2 (0.61 ac.) for 34 lots, RU4 density of 0.5 ha (1.24 ac.) for 2 lots, and RU3 density of 1.0 ha (2.47 ac.) for 1 lot. The remaining 4.0 ha parcel is not part of the application; it will remain in the current RU2 zone.

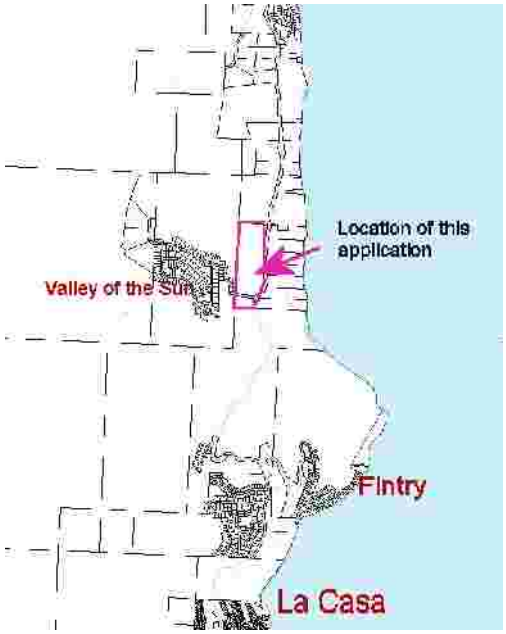
Proposed Servicing: The subdivision will have a privately owned sanitary treatment plant and water treatment facility. All services will be owned by the strata corporation. The Developer would consider inter-connecting to the *"Upper Fintry/Valley of the Sun" water system* if that approach is preferred by the Regional District and local residents.

PROPERTY LOCATION AND DESCRIPTION

Location

The 46 acre property abuts Westside road at the north end of Fintry. It is dissected by Firwood Road. The majority of the property lies north of Firwood Road, and a smaller portion lies to the south of Firwood.

Valley of the Sun abuts the site on the western border.



Description of Property

The property is a high plateau overlooking Okanagan Lake to the east. The main portion of the property lying north of Firwood Road consists of an open, flat plateau area that is bordered by a slope down to Westside Road to the east. The northern edge of the plateau is bordered by two parallel gullies that also slope down to Westside Road to the east.

The northern gullies are vegetated with trees, while the southern plateau portion of the property has low willow shrub vegetation.

<u>The property experienced a wildfire in 1998 which burned existing trees in the south area</u>.

PROPOSED DEVELOPMENT

Single Family Residential Bareland Strata Subdivision

The above concept shows the proposed layout for a single family bareland strata. The subdivision is located on the high plateau to take advantage of lake views. *Access is restricted to Firwood Road.* The proposal calls for 37 new residential lots. The "Remainder" of the ownership is 4.0 ha. It is located in the N.E. corner of the property. It is zoned RU2 and will remain zoned as such. It is NOT part of these planning applications.

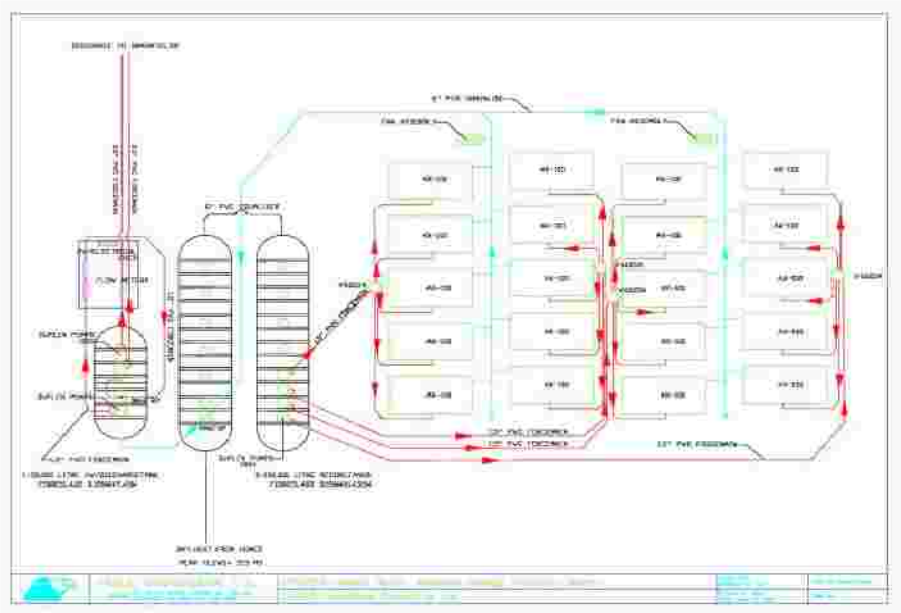
Strata Owned Sanitary Treatment Plant

The strata components of the development include an on-site sanitary treatment facility. This is a precast system built by Eagle Engineering Ltd. in Vancouver. The plant will be operated by EnviroChoice, a licensed practitioner with an "Environmental Operator Certificate" and recognized by the province as a "Registered Onsite Wastewater Practitioner." The system will be owned by the strata, but operated by the Wastewater Practitioner under contract to the strata. <u>The Strata Corporation will be bound by provincial regulations to maintain a management contract with a provincially Licensed Operator</u>.

Effluent from each home is directed to the treatment facility where a two phase treatment occurs. Effluent from the treatment plant will be clear water that meets or exceeds municipal standards. This effluent is pumped to tile fields along the westerly border of the development. Deanstech Consulting Ltd. will do further site testing and system design in cooperation with the Wastewater Practitioner and Eagle Engineering to determine final design.

Sewage System Treatment Plant Design

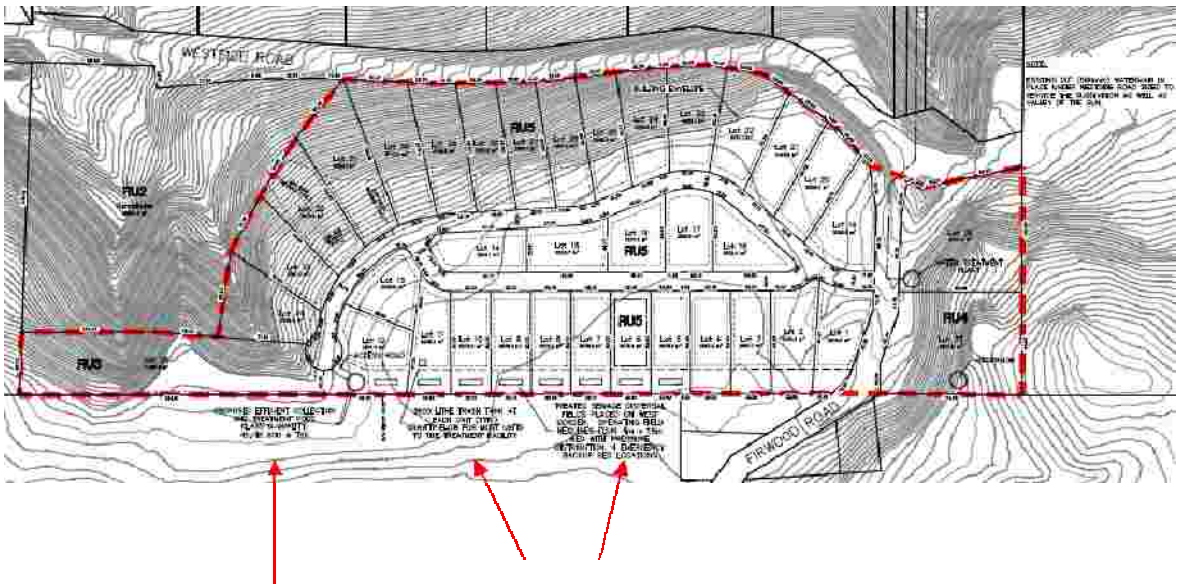
The plant design below represents pre-cast pods that are delivered on-site by truck. They can be assembled in a variety of arrangements. The diagram above is laid out in a square, but the final design for this project might well be designed in a linear fashion.



Key pump components are duplicated to provide for emergency breakdown override service.

Sewage System Effluent Field Design

The following plan shows the layout of the sewage treatment facility along the westerly border. Four beds are required, and a duplicate back-up bed area is provided to allow for maintenance of the beds without closing the system.

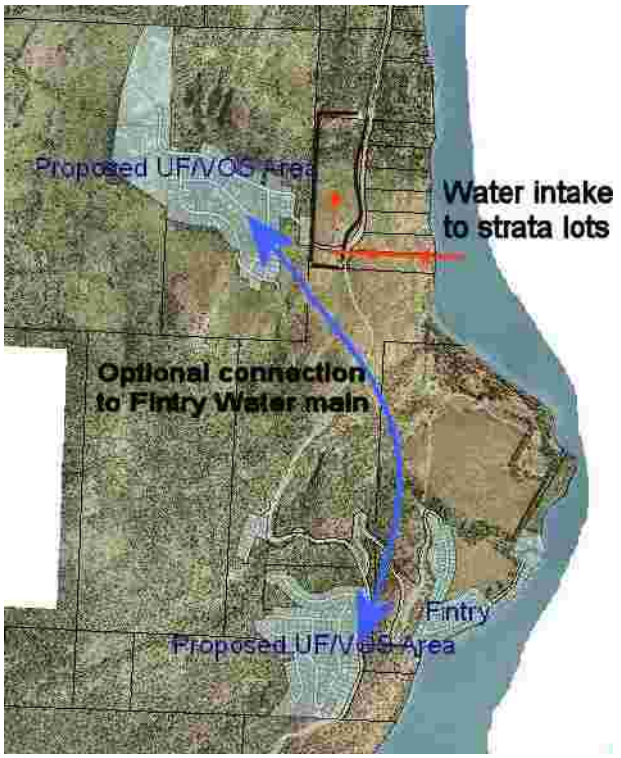


Strata Owned Water Treatment Plant
(or optional RDCO connection)

The site has an existing water license to draw water from Okanagan Lake, and a utility easement from the Province. A 20 inch Water conduit is in place under Westside Rd. within a registered easement to Okanagan Lake. A proposed water intake main will draw water from the lake to an on-site reservoir and water treatment plant.

An option to the above water system is also possible. The Conduit under Westside Rd. was sized to serve the Valley of the Sun as well. The Neighbourhood Association for Valley of the Sun and Upper Fintry have requested a study (currently underway) to engineer a new water system for this area that would be paid for by the users and owned by RDCO.

The Applicant is willing to work cooperatively with the Neighbourhood Association and RDCO in support of the new water system. A significant per capita cost reduction to the Association would be offered by incorporating this project.



PLANNING CONSIDERATIONS

Topography, Slopes and Soils

The subdivision is located on a flat plateau area that has been burned by forest fire. Soils on the plateau consist of gravel till. Test holes have confirmed this. Other than a small area of distinct ridge, the grade is primarily flat plateau that gradually steepens towards the lake. Three distinctive topographic sections occur on the property:

- The southern two lots are on a rocky knoll.
- The 35 lots north of Firwood are located on the flat plateau.
- The "Remainder" contains two ravines (not part of application).

Two lots south of Firwood Rd. are on a rocky knoll. These two lots have been left very large (2 ac.) with wide frontage to permit driveway construction at 12% or less to access the building envelopes on top of the knoll. A strata roadway or laneway is NOT required to access these two lots. This will result in an unblemished appearance of this knoll from the lake.

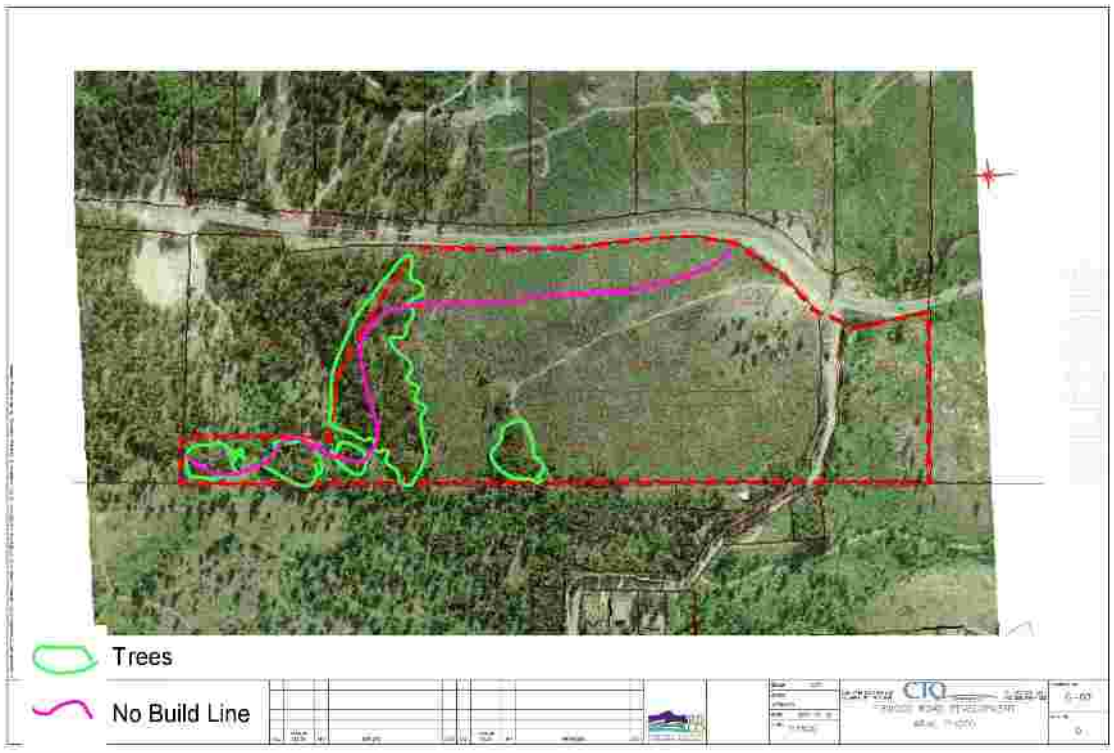
The plateau section of the development has been laid out to respect slopes that would be over 30% gradient, and to keep the development unnoticeable from the lake. *All building envelopes and driveways will be outside the 30% grade.* Lands at 30% gradient or greater will be designated as a NO BUILD area. All strata roads are located well back on the plateau so as to be invisible from the lake. The majority of building envelopes will be contained on the plateau so as to minimize visual appearance from the lake and hillsides on the east side of the lake.

Watercourses

There are no watercourses on the site.

Vegetation

The property is for the most part devoid of vegetation, as it is a burned out forest due to the 1998 fire. There is some remaining vegetation at the north part of the property. *Only 4 of the 37 lots have building envelopes within the treed area.*



Geotechnical

The property is largely gravely till, except the southern knoll is rock. Building envelopes are located on gravel. A small portion of the plateau has a defined ridge. A Geotechnical Engineer will be contracted to define "no disturbance" criteria for this area. Thirty metres (30m) have been left from top of slope for building envelopes, which is approximately the average depth of an urban subdivision lot. Geotechnical setbacks required should be easily accommodated within this area.

Adjacent Land Uses

Valley of the Sun neighbourhood lies immediately to the west. Other adjacent lands are vacant or very sparsely developed. The entrance to this subdivision is only metres away from Valley of the Sun entrance.

Fire Protection

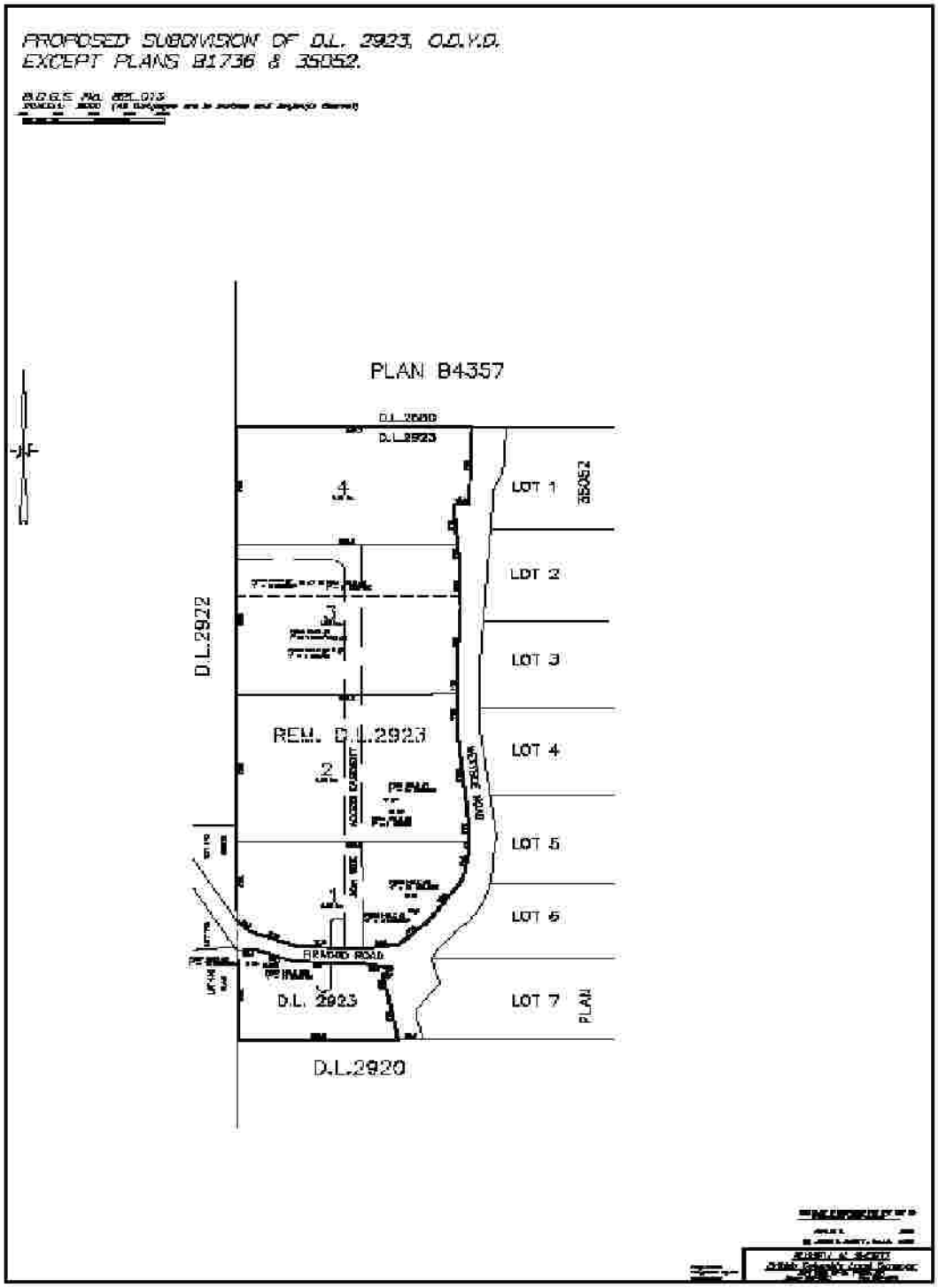
The design locates most homes in the sparsely vegetated plateau area that is free of trees. Fire Mitigation on the entire site would be undertaken by the developer, with emphasis on the gullies and slopes on "Remainder" portion of the property. The site has a reduced risk of wildfire as a result of the 1998 wildfire that burned most of natural fuels on the property.

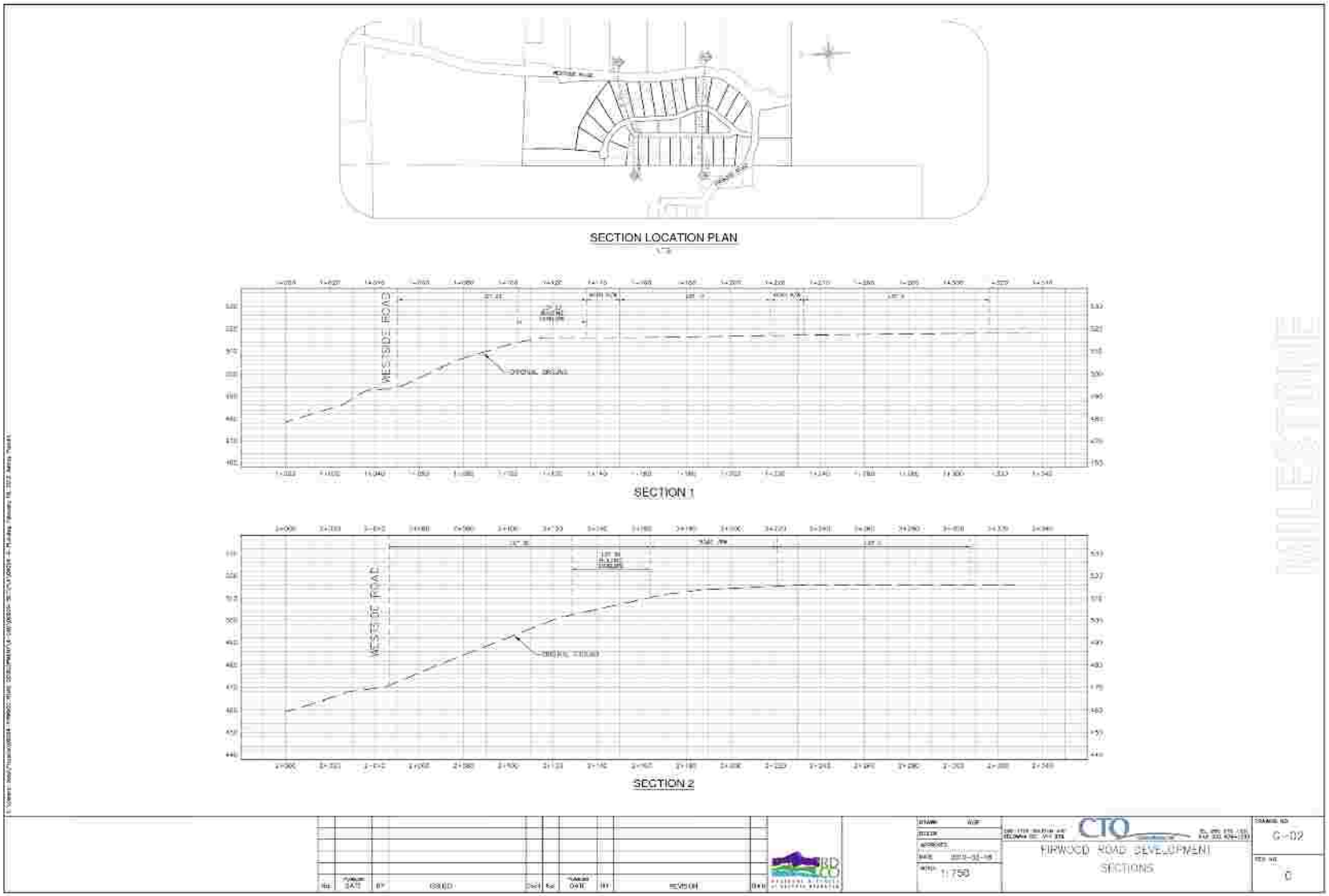
An *emergency egress lane* will be constructed along the west boundary of the property, and the entrance to the interior crescent road will be an in/out double entry design.

Strata Amenities

The only strata amenities will be the strata road and utilities. NO ponds, pools or recreation facilities are to be developed.

APPENDIX 1 - LOT SURVEY and PERCOLATION HOLE LOCATIONS




SECTION LOCATION PLAN
WESTSIDE ROAD
SECTION 1
WESTSIDE ROAD
SECTION 2
MILESTONE
CTQ
FIRWOOD ROAD DEVELOPMENT
SECTIONS
1:750
G-02
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(NOTE: ***This report was for a previous concept with higher densities; its application is scalable down to the current proposal)***

DeansTech Consulting Ltd.

August 4, 2009 DTC File No: J09-00654

Lonny Kubas
3994 Marlglen Drive
East St Paul, MB
R2E 1B3

Attention: Lonny

Dear Sir:

Re: Preliminary Layout Plan Sewage Treatment and Dispersal for A Proposed 115 Unit Development on Firwood Road, Near Fintry, B.C.

DeansTech Consulting Ltd. (DTC) was retained by Mr. Lonny Kubas, property owner, to provide some preliminary opinions and concepts for a sewage system for the proposed development on the above noted property. We understand from information provided by the owner and the project planner (Mike Brown) that he intends on developing a plot of land off Westside Road and along Firwood Road with approximately 115 units.

We also understand the units will range in size with approximately 185 m^2 (2,000 ft^2) being the norm. We have used a 4 bedroom home for example purposes. Based on Table 2.1 of the Standard Practice Manual, effluent flows for a 4 bedroom 235 m^2 (2,530 ft^2) home is 1,700 litres (375 Igpd). With 115 units, the daily effluent flow for this project would be approximately 195,500 litres or 195.5m^3 (43,125 Igpd). DTC attended the site in June of 2009 to carry out a site reconnaissance.

Property Size: 18.6 hectares (46 acres)
Legal Description: DL 2923, ODYD, Except Plans B1736 & 35052

Field Reconnaissance

- The site is 46 acres with approximately 60 % of the property being relatively steep hillside and 40 % flat to gently sloping area along the west side of the property. Exposed cut banks along Firwood Road and Westside Road revealed granular type soils. The soils appeared to be sand and gravel.
- Based on our site visit and knowledge of the area it is our opinion that the unsaturated soil thickness below the site is in the 10's of metres. Further investigation is required to confirm the depth to groundwater or less permeable layers.
- The slope in the proposed sewage effluent dispersal area was not measured at this time but appeared to be in the 2 to 10% range, which is acceptable for ground dispersal of effluent.

DTC –
10553 Okanagan Centre Road West, Lake Country, B.C. V4V 2H8
Phone: (250) 766-0533 þ Fax: (250) 766-0513 þ Cell: (250) 317-6728 þ e-mail: deans1@shaw.ca

- Percolation test results were provided to DTC by the owner. Eight percolation tests were carried out across the west section of the property. The percolation results were reported to be 4, 12, 1, 16, 1, 1, 2 and 2 minutes per 25mm drop in water level. The percolation tests were carried out by others. A plan showing the percolation test locations and results is attached for reference. The percolation rates appear accurate for the soil conditions observed on the site. Further assessment of the soils is required to define specific locations on the property.

Concept Sewage System Design

DTC suggests the installation of a STEG and STEP effluent collection system, which would be directed towards a secondary treatment system located along the west property boundary as presented in Figure 1.

The STEG and STEP system refers to "septic tank effluent gravity or pump" where each unit has a septic tank of particular size with an effluent filter. Once the effluent passes through the tank and the effluent filter is flows by gravity or is pumped to the treatment facility.

The treatment facility would consist of aerated secondary treatment and filtration pods located in a "treatment tank nesting area". The pods could be implemented on an as needed basis as development progresses. Once the effluent has been treated to Class C quality it will be directed to a collection/pump chamber where it will be pumped to the dispersal field areas located throughout the west portion of the property.

EnviroChoice has presented a conceptual treatment facility plan which is attached for reference.

Dispersal Field Design

Based on preliminary effluent flows of 195.5m^3 (43,125 Igpd) and an average percolation rate 5 minutes and Table 4 of the Municipal Sewage Regulation (MSR), Class C effluent requires 75 metres of drainage pipe for every 10m^3 of effluent.

Therefore, 1,462.5 metres of drain pipe is required. Based on a 0.6m wide trench, approximately 892 m2 is needed.

DTC suggests the used of 4m wide pressure beds placed in green spaces throughout the flatter area (west side) of the property as presented on Figure 1. Based on this concept, 8 beds measuring 4m by 30 metres would be required. The beds would be sand lined (modified ASTM C-33 sand) and pressure distribution.

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Phone: (250) 766-0533 þ Fax: (250) 766-0513 þ Cell: (250) 317-6728 þ e-mail: deans1@shaw.ca

Conclusion

Based on preliminary information, it is our opinion based on the percolation results and field reconnaissance that the property can accommodate some form of development with ground dispersal of treated effluent. Further detailed investigation is required to assess the site soil conditions, slope, groundwater, and dispersal options.

Use of this report is subject to the attached General Conditions. The reader's attention is specifically drawn to these conditions, as it is essential that they be followed for the proper use and interpretation of this report.

We trust this report meets with your approval. Should you have any questions or comments, please contact the undersigned.

Yours truly,
DEANSTECH CONSULTING LTD.

Prepared by:

Richard Deans, C. Tech, ROWP # 0340
Groundwater Technologist

Attachments: Percolation Test Locations and Results
Figure 1, Conceptual Dispersal System Layout
Figure 2, EnviroChoice Conceptual Treatment System Layout
General Conditions

DTC –
10553 Okanagan Centre Road West, Lake Country, B.C. V4V 2H8
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This report incorporates and is subject to these "General Conditions".

1. USE OF REPORT AND OWNERSHIP

This environmental report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary environmental assessment. This report and the recommendations contained in it are intended for the sole use of DeansTech's client. DeansTech does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than DeansTech's client unless otherwise authorized in writing by DeansTech. Any unauthorized use of the report is at the sole risk of the user. This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of DeansTech. Additional copies of the report, if required, may be obtained upon request.

2. NATURE AND EXACTNESS OF DATA

The data reviewed during this assessment was produced by others and has been relied upon by DeansTech to form opinions of the site. The accuracy of the data reviewed has not been confirmed. Some data was collected from sources readily available to the public. Other data and information was obtained from the client for use in this report.

3. LOGS OF TEST HOLES AND WATER WELL RECORDS

The test hole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples carried out by others. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance, which requires precise definition of soil or rock zone transition elevations, may require further investigation and review.

4. STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from the information reviewed. Stratigraphy is known only at the location of the drill hole or other drill holes in the area. Actual geology and stratigraphy between drill holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. DeansTech does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

5. SURFACE WATER AND GROUNDWATER CONDITIONS

Surface and groundwater conditions mentioned in this report are those observed at the times recorded in the report. These conditions vary with geological detail between observation sites; annual, seasonal and special meteorologic conditions; and with development activity. Interpretation of water conditions from observations and records is judgmental and constitutes an evaluation of circumstances as influenced by geology, meteorology and development activity. Deviations from these observations may occur during the course of development activities.

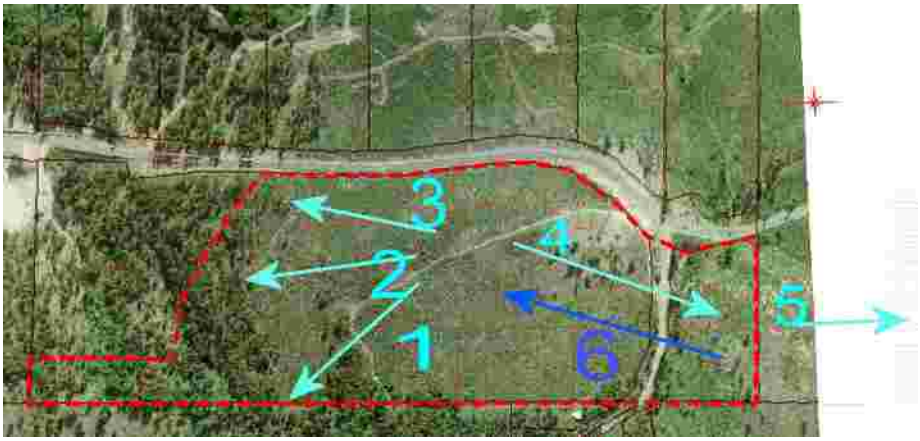
6. WATER QUALITY

Water quality information was based on the results of water samples obtained from the well(s). The chemical analysis results can vary from season to season and at different depths within a well.

7. STANDARD OF CARE

Services performed by DeansTech for this report have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practising under similar conditions in the jurisdiction in which the services are provided. Engineering judgement has been applied in developing the conclusions and/or recommendations provided in this report. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of this report.

APPENDIX 4 – PHOTOS



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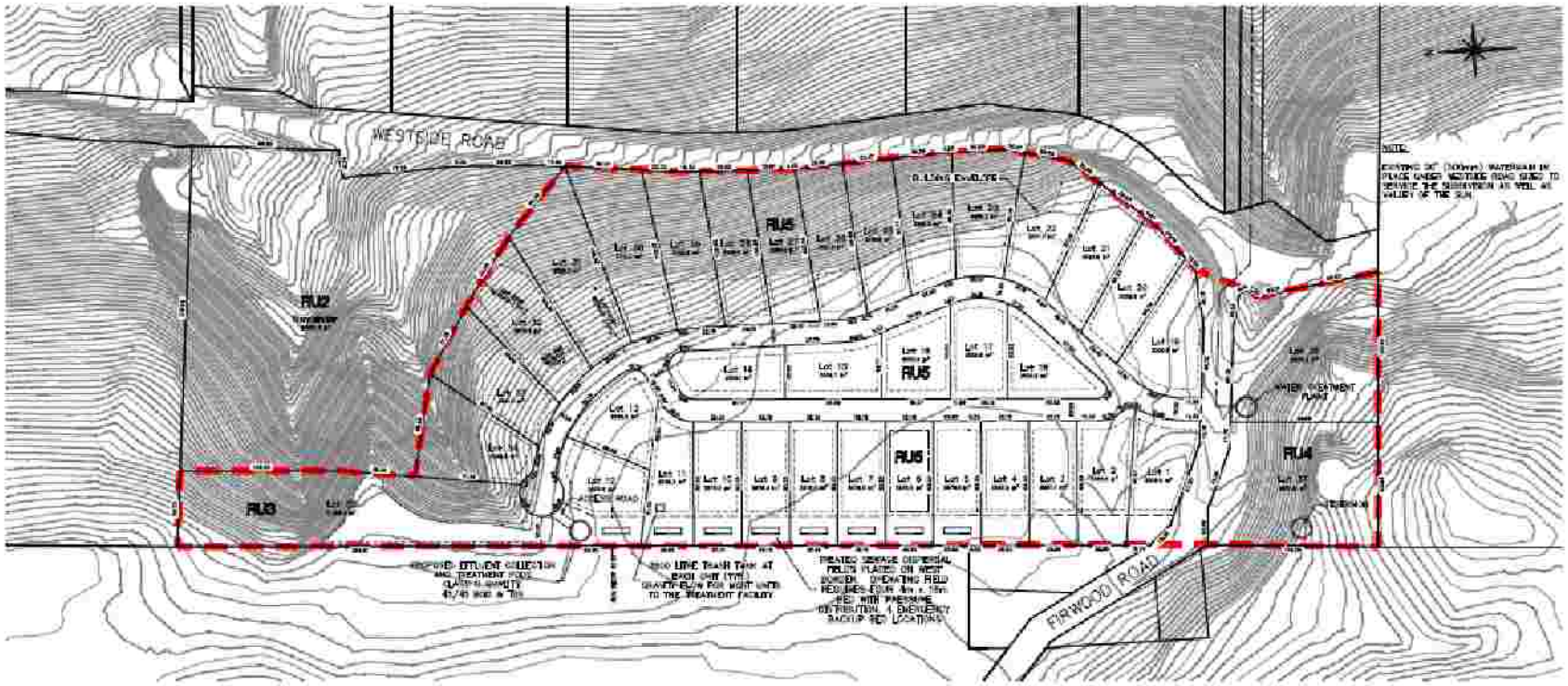
APPENDIX 5 - SUBDIVISION PLAN

SITE LOCATION PLAN



NO.	REVISED DATE	BY	ISSUED	CHK'D	NO.	ISSUED DATE	BY	REVISION	CHK'D	

DRAWN	AGP
DESIGN	
APPROVED	
DATE	2015-02-18
SCALE	1:1500

CTQ

FIRWOOD ROAD DEVELOPMENT

LOT LAYOUT

DRAWING NO. G-01

REV. NO. 0