

To: CAO for the Electoral Area Services Committee

Date: 2019-06-11

From: Julie Mundy, Planning Technician

File No: 3090-20 - 2019-13

Subject: Application for Development Variance Permit 2019-13 to reduce the setback from a well for an aquaculture building at 12443 Stave Lake Road, Electoral Area "F"

RECOMMENDATION

THAT the Fraser Valley Regional District issue Development Variance Permit 2019-13 to vary the minimum setback requirement of aquaculture structures to existing wells at 12443 Stave Lake Road from 30.0m metres to 0.0 metres subject to consideration of any comments or concerns raised by the public.

AND THAT the Fraser Valley Regional District Board authorize its signatories to execute all legal instruments associated with this application, including a Section 219 restrictive covenant advising future property owners that the agricultural and domestic water supply intake is within 30.0 metres of aquaculture structures and that the management of the water supply must be consistent with the Standard Operating Procedure prepared by the applicant as well as with the recommendations of the Hydrogeological Report, and to include regular tests of the water to provide warning of possible contamination.

STRATEGIC AREA(S) OF FOCUS

Support Environmental Stewardship
Provide Responsive & Effective Public Services

PRIORITIES

Priority #2 Air & Water Quality

BACKGROUND

Miracle Springs Inc. has made an application for a variance to *Dewdney-Alouette Regional District Land Use and Subdivision Regulation Bylaw No. 559-1992* in order to reduce the required setback from proposed aquaculture structures to already existing wells on the property at 12443 Stave Lake Road.

The applicant was previously issued a Development Variance Permit to reduce the setback requirements aquaculture buildings to a well, which has subsequently expired. The applicant wishes to proceed with the original aquaculture construction plans, and has re-applied for the same variance. The applicant is currently operating an existing fish farm that has been in operation for a number of years on the subject property.

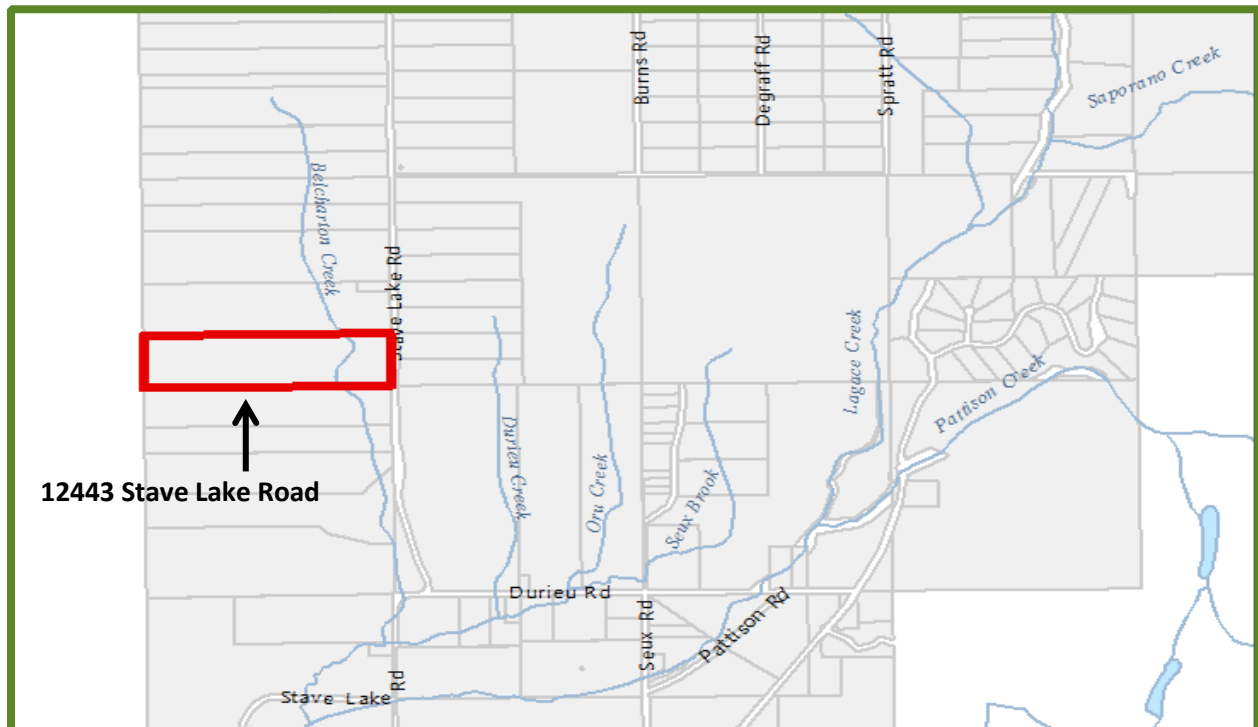
PROPERTY DETAILS

Electoral Area	F
Address	12443 Stave Lake Road
PID	013-394-291
Folio	775.02288.000
Lot Size	40 acres (16.18 ha)
Owner	Miracle Springs Inc. (D. Sampson / M. Cuning)
Current Zoning	Rural 3 (R-3). Aquaculture Use = Permitted
Current OCP	Limited Use (LU)
Current Use	Residential
Development Permit Areas	DPA 1-F and DPA 2-F
Hazards	High Hazard (HH) and Potential Hazard (PH) for Dff (Mb). Known Debris Hazard Occurrences.
Agricultural Land Reserve	N

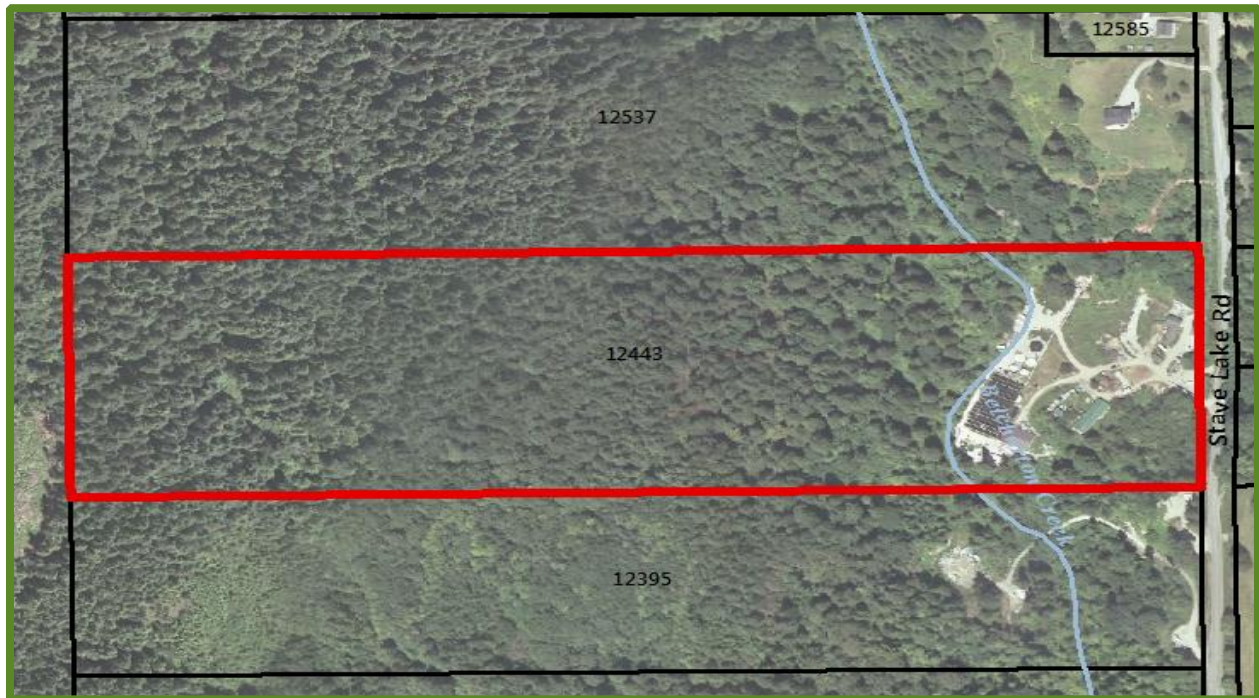
ADJACENT ZONING & LAND USES

North	^	Rural 3 (R-3), Single-Family Homes
East	>	Upland Agriculture (A-1) / ALR, Single-Family Homes
West	<	Rural 3 (R-3), Crown Land
South	v	Rural 3 (R-3), Single-Family Home

NEIGHBOURHOOD MAP



PROPERTY MAP



DISCUSSION

Development Variance Permit 2016-04

Miracle Springs Inc. was issued a Development Variance Permit (DVP 2016-04) in November 2016 to reduce the setback from an aquaculture building to an existing well from 30.0 metres to 0.0 metres. The variance expired in 2018 due to inactivity, and the applicants have re-applied for the same variance in order to proceed with their original plans to construct several aquaculture buildings.

Construction Proposal

The applicant identified two separate phases of construction which will see the construction of three separate structures on the property as part of the fish farm expansion.

Phase 1

Mechanical Building:

- Footprint area of approximately 55m²
- Enclosure over Well #2

Juvenile System:

- Footprint area of approximately 725m²
- Containing fish tanks

Phase 2

Grow Out System (Addition)

- Footprint area of approximately 1,780m²
- Enclosure of Well #1
- Containing Fish Tanks

There are two existing wells on the property that will be enclosed within the proposed structures (refer to site plan, Appendix A).

Zoning Requirements

Section 412 (8) of the *Dewdney-Alouette Regional District Land Use and Subdivision Regulation Bylaw No. 559-1992* states that any building or structure to be used for the keeping of cattle, other livestock, and manure pits must be sited at least 30.0 metres from any lot line, well, sandpoint, watercourse, or dwelling unit. The proposal involves the construction of an aquaculture building and mechanical building which will enclose the existing wells located on the property, thereby reducing the setback to 0.0 metres. A variance of the zoning bylaw is required to authorize the proposed construction.

The applicant has provided a Standard Operating Procedure (SOP) outlining biosecurity measures and required maintenance for the on-site wells to ensure that the water sources are not contaminated and to ensure the safety and health of the water for domestic and agricultural purposes.

Provincial Regulations Pertaining to Wells and Domestic Water Supply Intakes

The *Health Hazards Regulation* of the *Public Health Act* requires that a person who controls a well installed after July 20, 1917 must ensure that the well is located at least 30 metres from any probable source of contamination. While the *Regulation* does not define “probable source of contamination”, Fraser Health staff have confirmed that typically, a “probable source of contamination” refers to septic system effluent, manure piles or anything else that could contaminate drinking water if exposed to the drinking water source”.

The Dewdney-Alouette Regional District Land Use and Subdivision Regulation Bylaw No. 559-1992 is consistent with the *Health Hazards Regulation*.

Comments from Provincial Agencies

Marc Zubel, Regional Manager of the Drinking Water Program, Fraser Health, provided the following comments:

- The SOP covers the main concern of preventing contamination of the water supply.
- In this particular case, it appears that the wells are secured and properly sealed, and the SOP for well management is reasonable - water quality in the well should be adequately protected
- Bacteriological water quality testing on a regular basis (at least once per month) is advisable to ensure that water quality conditions remain good and water is potable for domestic use.

In light of these comments, staff determined that further confirmation was required by a certified professional in order to conclusively determine that the SOP is adequate to ensure the proposal is compliant with the *Health Hazards Regulation* and that the reduced setback does not create a probable source of contamination to the water source.

Certified Professional Review and Analysis

The applicant engaged Hemerra Envirochem Inc. to perform an assessment of the SOP and to provide an opinion on the potential risks to the groundwater resource aquifer based on proximity to the

proposed agricultural structures and uses. FVRD received a Hydrogeological Report dated September 28, 2016 from Gerry Papini, P. Geo and Senior Hydrogeologist, of Hemmera Envirochem Inc. (attached in full, Appendix "B"). A summary of the comments provided in the report are below:

- The well's construction, the depth of the screened aquifer, and the presence of substantial clay layer overlying the screened aquifer indicate that the contamination of the screened aquifer from potential contamination sources at ground surface is improbable.
- The 30 metre setback of a well from an agricultural activity (per the Zoning Bylaw) is not considered to provide any incremental protection to the groundwater resource respecting the construction and proposed use of well #1 and Well #2.
- [The applicant] has developed a Standard Operating Procedure (SOP) for well management incorporating access control, water sampling and routine monitoring to facilitate protection of the groundwater resource.
- It is Hemmera's opinion that the 30 metre setback be waived for the proposed use of Well #1 and Well #2, and that the enclosure and use of the wells according to the proposed design does not present a hazard to the groundwater resource at this property.

Considering the comments provided from Fraser Health in addition to the professional review of the proposal and SOP prepared by the applicant, staff recommend the operator take the following steps to protect the groundwater resource at the property:

- Ensure biosecurity measures are taken and maintained around all wells on the subject property, in accordance with the Standard Operating Procedure (SOP).
- Ensure the supply wells are operated and maintained in accordance with the *Groundwater Protection Regulation*.
- Conduct regular (quarterly) bacteriological testing of the well water to provide a warning of possible contamination, in accordance with the SOP.

Restrictive Covenant

A restrictive covenant was offered by the property owner at the time of the previously issued DVP to advise future property owners that the agricultural and domestic water supply intake is within 30.0 metres of aquaculture structures and that the management of the water supply must be consistent with the Standard Operating Procedure prepared by the applicant as well as with the recommendations of the Hydrogeological Report, and to include regular tests of the water to provide warning of possible contamination. The primary benefit of the covenant is to situate responsibility for protecting the well with the property owners and the registered professional. If the current variance request is approved, the covenant will require minor amendments.

Neighbourhood Notification and Input

All property owners within 30 metres of the property will be notified by FVRD of the Development Variance Permit application and will be given the opportunity to provide written comments or attend the Regional Board meeting to state their comments. FVRD staff encourage the applicant to advise neighbouring property owners and residents of the requested variance in advance of the mail-out notification. To date no comments have been received.

COST

The application fee of \$350 has been paid by the applicant.

CONCLUSION

Siting agricultural/aquaculture buildings a specified distance from a well is meant to reduce the risk of potential contamination to a water source. The setback distance is generalized to be applicable in wide range of scenarios, and does not consider the specific type of activity taking place, nor the potential risk of contamination from a specific activity. The applicant engaged an environmental consultant (Hemmera) to assess potential risks to the groundwater aquifer based on the proximity of the proposed aquaculture activities. Hemmera provided the professional opinion that contamination to the ground water is improbable based on existing site conditions, and that the 30 metre setback will not provide incremental protection to the groundwater resource. A third-party regulatory body (Fraser Health Authority) has reviewed and accepted the Hemmera report which includes a Standard Operating Procedure for on-site well management and maintenance.

Staff are satisfied with the outcome of the environmental review for the proposed works and recommend that Development Variance Permit 2019-13 be issued by the Fraser Valley Regional District Board, subject to any comments or concerns from the public.

Option 1 – Issue (Staff Recommendation)

Staff recommend that the Fraser Valley Regional District Board issue Development Variance Permit 2019-13 to reduce the setback from an aquaculture structure to an existing well from 30.0 metres to 0.0 metres at 12443 Stave Lake Road, Electoral Area "F", subject to the consideration of any comments or concerns raised by the public.

Option 2 – Refuse

If the Board wishes to refuse the application, the following motion would be appropriate:

MOTION: THAT the Fraser Valley Regional District Board refuse Development Variance Permit 2019-13 for the property at 12443 Stave Lake Road, Electoral Area F.

Option 3 – Refer to Staff

If the Board wishes to refer the application back to staff to address outstanding issues, the following motion would be appropriate:

MOTION: THAT the Fraser Valley Regional District Board refer the application for Development Variance Permit 2019-13 for the property at 12443, Electoral Area F to FVRD Staff.

COMMENTS BY:

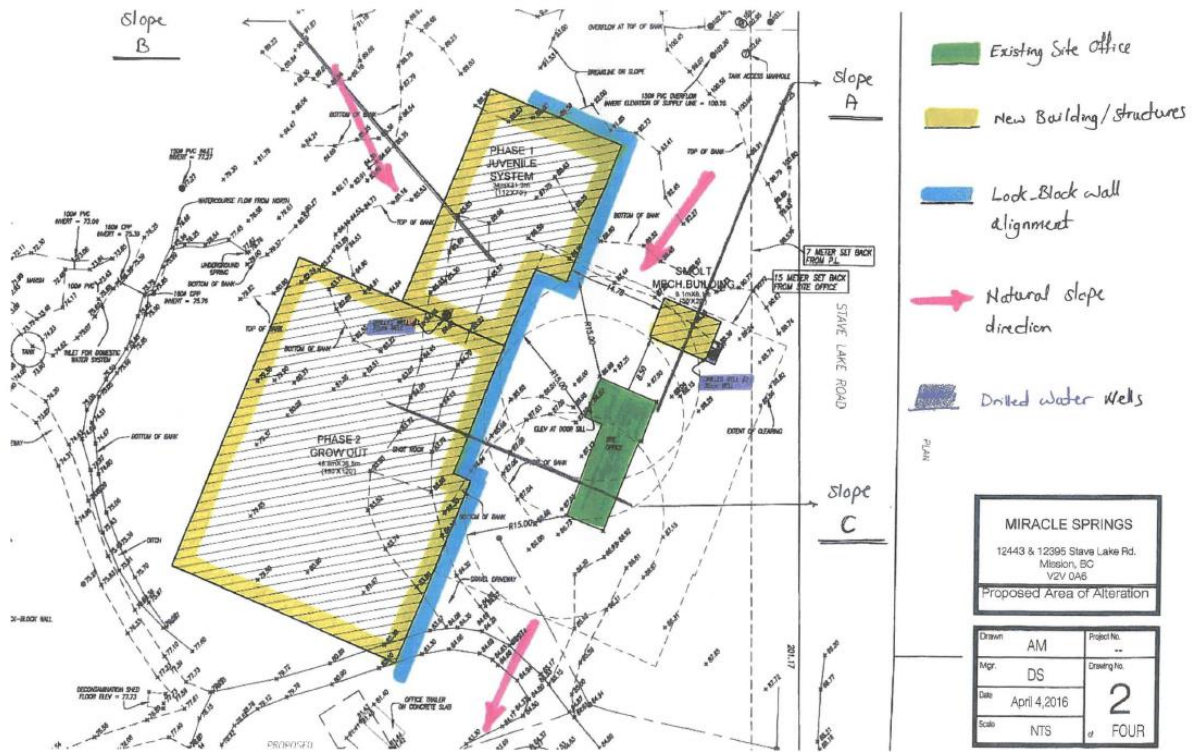
Graham Daneluz, Deputy Director of Planning & Development: reviewed and supported

Margaret Thornton, Director of Planning & Development: reviewed and supported

Mike Veenbaas, Director of Financial Services: No further financial comment.

Jennifer Kinneman, Acting Chief Administrative Officer: Reviewed and supported.

Appendix A Site Plan



Appendix B
Hydrogeological Report
Prepared by: Gerry Papini, Hemmera Envirochem Inc, September 26, 2016

FVRD
CCT 04 2016
PERMITS DEPT.



Hemmera Envirochem Inc.
18th Floor, 4730 Kingsway
Burnaby, BC V5H 0C6
T: 604.669.0424
F: 604.669.0430
hemmera.com

September 28, 2016
File: 2030-001.01

Fraser Valley Regional District
45950 Cheam Avenue
Chilliwack, BC V2P 1N6

Attn: Katelyn Hipwell

Dear Katelyn,

Re: Groundwater Protection: Miracle Springs, Mission, BC

Further to our conversation regarding use of groundwater supply wells to supply the expansion of the fish farm facilities at the Miracle Springs property (12443 & 12395 Stave Lake Road), Hemmera Envirochem Inc. (Hemmera) is pleased to provide an opinion on potential risks to the groundwater resource aquifer based on proximity to the proposed farming activities. The purpose of this letter is to provide assurance to the Fraser Valley Regional District (FVRD) and Fraser Health Authority that the use of two production wells for the proposed expansion at the Miracle Springs will not present a contamination risk for the groundwater resource.

Use of the groundwater resource must comply with the Groundwater Protection Regulation (B.C. Reg. 152/2016, June 10, 2016), the Health Hazards Regulation (B.C. Reg. 41/2016, February 29, 2016), (HHR) and the FVRD Bylaw No. 559, Area "G" Part 400: 8b. Fish farming is considered agricultural land use. Section 8(1)a of the HHR requires that a groundwater well be located "30 m from any probable source of contamination". For the purposes of this letter, we assume that agricultural activities are a potential source of contamination. The Groundwater Protection Regulation (GPR) provides requirements for well construction, operation, maintenance and deactivation / decommissioning.

1.0 EXISTING INFORMATION

Hemmera was provided with background information regarding the proposed fish farm expansion, the production well construction, and use of supply wells. We summarize the background information from the proponent and drilling contractor as follows:

- Two buildings are planned northeast of the existing fish pens and west of the Stave Lake Road. Phase 1 is a 34 m x 21.3 m slab-on-grade construction (Attachment 1 Drawing No. 2 Proposed Area of Alteration) with nearby 9.1 m x 6.1 m slab-on-grade mechanical building (Smolt Mech. Building – see Drawing No. 2).

- Water from two existing groundwater supply wells: Well #1 – Well ID 41521 and Well #2 – Well ID 41522 (see Drawing No. 2) will be used to provide the additional facilities with water (and Well #2 will continue to provide potable water to two dwellings).
- Well # 1 is 12-inch (30 cm) diameter, 156-foot (48 m) deep with casing installed to 136 feet (42 m) and a 20 foot (6 m), (100 slot) screen installed to the bottom of the hole. The well screen is set in sand and gravel (the screened aquifer). Thin surficial sand is underlain by approximately 30 feet (9 m) of clay. The static water level is 7 feet (2 m) from surface. The drilling contractor rated the well production at >500 GPM (>32 L/s), but this rate has not been verified by pump testing (Attachment 2);
- Well #2 is an 8-inch diameter, 198-foot (60 m) deep well with casing installed to 171 feet (52 m) and 80-slot screen to the bottom of the borehole. The well screen is set in sand and gravel (the screened aquifer). Surficial sand, clay and gravel is underlain by approximately 60-foot (18 m) thick of clay. The water level was reportedly artesian at the time of drilling. The drilling contractor rated the well production at >200 GPM (> 13 L/s) but this rate has not been verified by pump testing (Attachment 2).
- Both wells will be enclosed within the building limits (see Drawing No. 2). Access to Well # 1 will be restricted by provision of a chain-link cage (2.5 m x 2.5 m x 6 m) and encapsulating concrete wall (see Attachment 3 – Standard Operating Procedure, Rev 1).
- We understand that the well casings are currently above ground and that there are no plans to construct a well pit in the future.

2.0 GROUNDWATER PROTECTION

The intent of the HHR is to protect the groundwater resource from potential contamination. At Miracle Springs, the groundwater resource is protected from potential contamination by the following barriers or conditions:

1. The buildings are slab-on-grade design such that any spillage of chemicals or other hazardous material would be contained within the facility and unlikely to infiltrate the ground;
2. The wells will be enclosed within a dedicated building or locked enclosure safe-guarding them from accidental damage or tampering;
3. The wells are constructed according to the GPR with grouted-in steel casing extending above ground surface and to a depth below a clay layer (aquitard);
4. The screened aquifer is confined at depth with artesian (flowing) conditions reported, implying that groundwater is discharging to surface in the area. Contamination of the screened aquifer is implausible in this setting.

3.0 CONCLUSIONS

The well's construction, the depth of the screened aquifer, and the presence of a substantial clay layer overlying the screened aquifer indicate that contamination of the screened aquifer from potential contamination sources at ground surface is improbable. The 30 m setback of a well from an agricultural

activity (Fraser Valley Regional District Bylaw No. 559, Area "G" Part 400: 8b) is not considered to provide any incremental protection to the groundwater resource respecting the construction and proposed use of Well #1 and Well #2.

Miracle Springs has developed a Standard Operating Procedure (SOP) for well management incorporating access control, water sampling and routine monitoring to facilitate protection of the groundwater resource. In addition to the SOP, the supply wells will need to be operated and maintained in accordance with the GPR.

It is Hemmera's opinion that the 30 m setback be waived for the proposed use of Well #1 and Well #2, and that enclosure and use of the wells according to the proposed design does not present a hazard to the groundwater resource at this property.

Prepared by:
Hemmera Envirochem Inc.

Reviewed by:
Hemmera Envirochem Inc.



A handwritten signature in black ink, appearing to read "G. Papini".

Gerry Papini, P.Geo.
Senior Hydrogeologist
604.669.0424 (176)
gpapini@hemmera.com

A handwritten signature in black ink, appearing to read "Gabriel Viehweger".

Gabriel Viehweger, P.Geo.
Senior Hydrogeologist
604.669.0424 (232)
gviehweger@hemmera.com

Cc: Dan Sampson
Upcountry Properties Group
380 – 233 W 1st Street, North Vancouver, BC V7M 1B3

ATTACHMENT 1
Drawing No. 2 Proposed Area of Alteration



Drawn	AM	Project No.	---
Mgr.	DS	Drawing No.	2
Date	April 4, 2016		
Scale	NTS	of	

ATTACHMENT 2
Water Well Records

Phone: (604)857-2266
Toll free: 1-866-857-2266
Fax: (604)857-2267

WATER WELL RECORD

OWNER: MIRACLE SPRINGS	DATE: OCTOBER 15, 2015
ADDRESS: BOX 500 – 233 WEST 1ST	SITE ADDRESS: STAVE LAKE ROAD
NORTH VANCOUVER, BC V7M 1B3	MISSION, BC
PHONE: 604-209-2373	

Date Begun:	SEPTEMBER 22, 2015	
Date Completed:	OCTOBER 5, 2015	
Hole Diameter:	12	Inch
Surface casing:		
Dia: 20"	39	Feet
Drive shoe:	YES	
MEASUREMENTS	FROM	
GROUND LEVEL:		
Stick-Up:	4	Feet
Bottom of Casing:	136'6"	Feet
Hole Depth:	156	Feet
Open Hole: From:		Feet
To:		Feet
SCREENS:		
Number of Screens:	1	
Slot Size:		
Slot 100	Slot	
Slot	Slot	
Screen Length:	20	Feet
	11	Inch
Top at: 135 Feet	1	Inch
Bottom At: 156 Feet		Inch
K. Packer: YES	Riser:	NO
B. Bottom: YES		
WELL		
COMPLETION:		
Rate:	500+	GPM
Pump Setting:	130	Feet
Static Water Level:	7	Feet
Develop:	11 ½	Hours

[illegible]

SITE LEGAL DESCRIPTION:

WELL I.D.
41521

Rig No: 11	Rotary: YES
	Cable:
Driller:	GEORGE PATERSON
Helper:	CHAD ROBERTSON
	MATT DAVIS

NAME: MIRACLE SPRINGS
NUMBER: 5269-11
SHOULD BE PUMP TESTED FOR EXACT GPM

Phone: (604)857-2266
Toll free: 1-866-857-2266
Fax: (604)857-2267

WATER WELL RECORD

OWNER: UPCOUNTRY LEASEHOLDS LTD	DATE: NOVEMBER 4, 2015
ADDRESS: BOX 500 – 233 WEST 1ST	SITE ADDRESS: 12395 STAVE LAKE ROAD
NORTH VANCOUVER, BC	MISSION, BC
PHONE: 604-987-1230 EXT 222	

[illegible]**SITE LEGAL DESCRIPTION:**

NAME: MIRACLE SPRINGS
NUMBER: 5300-11
IP TESTED FOR EXACT GPM

SHOULD BE PUMP TESTED FOR EXACT GPM

ATTACHMENT 3

Standard Operating Procedure – Well Management

	MIRACLE SPRINGS INC. <i>Standard Operating Procedure</i>	Page: 1 of 3 Revision: 1
TITLE: Well Management		
ISSUE DATE: May 12, 2016		
APPROVED BY: Miracle Springs Management		

WELL MANAGEMENT

1. Rationale

Biosecurity procedures must be maintained around all wells to ensure that the water sources are not contaminated. This is to ensure the safety and health of the water for domestic and agricultural purposes. This Standard Operating Procedure ensures that Miracle Springs Inc. adheres to guidelines specified by the Canadian Food Inspection Agency Animal Health Compartmentalization Program for the introduction and release of water of a known health status.

2. Scope

This procedure applies to all employees, visitors, suppliers and contractors accessing the Miracle Springs Inc. site. It is intended for all well water sources on site.

3. Definitions

4. Responsibilities

Miracle Springs Inc. General Manager is responsible for:

- Review and approval of Miracle Springs Standard Operating Procedures (Wendy Vandersteen, Mike Cuning, Dan Sampson);
- Ensuring that personnel are aware of and understand the procedure;
- Taking action if procedures are not followed.

Miracle Springs Inc. Operations Manager is responsible for:

- Ensuring that the procedure is being followed on a daily basis.

All Miracle Springs Inc. Personnel that work with fish are responsible for:

- Familiarizing themselves with this procedure;
- Obtaining training for this procedure prior to conducting it unsupervised.

5. Equipment and Supplies

- Water sampling bottles

6. Safety Concerns

No safety concerns.

	MIRACLE SPRINGS INC. <i>Standard Operating Procedure</i>	Page: 2 of 3 Revision: 1
TITLE: Well Management		
ISSUE DATE: May 12, 2016		
APPROVED BY: Miracle Springs Management		

7. Approved Procedure

- There are three wells on site (Well #1 - 41880, Well #2 - 41521, and Well #3 - 41522), all drilled by the same contractor (Field Drilling Contractors Ltd.), a driller licensed by the British Columbia Ground Water Association (the well reports are kept on file).
- Well #1 will be located within the new aquaculture system building, Well #2 is between the staff house and road, and Well #3 is on the adjacent property.

7.1 Routine water sampling

- Water is sampled from each well at least quarterly, and sent to Exova for analysis (complete drinking water analysis). Refer to Water Quality Monitoring SOP in Miracle Springs Inc. Biosecurity Manual.

7.2 Restricted Access

- Each well is securely sealed to prevent any access.
- There will be a cage built around Well #1 within the building. This cage will be 2.5m x 2.5m x 6m high and constructed from chain link.
- A 0.6m concrete wall will surround the well to restrict ingress of any water around the well casing from the surrounding aquaculture system.
- The cage will remain locked at all times. Only the Operations Manager and the General Manager will have key access to this enclosure.
- Any service contractors will be supervised by the Operations Manager or the General Manager will working on or near the wells.

7.3 Routine Monitoring

- Each well will be inspected weekly to check the integrity of the seals around the well head. Inspections will check for signs of cracks, water leaks, or other indications of compromised biosecurity. Visual inspections will be recorded on the Well Inspection Record Sheet.
- Well #1 in the enclosed cage will be visually inspected two times per day to ensure that the enclosure remains securely locked. This will be noted on the relevant Daily Husbandry Sheet for the recirculating aquaculture system.

	MIRACLE SPRINGS INC. <i>Standard Operating Procedure</i>	Page: 3 of 3 Revision: 1
TITLE: Well Management		
ISSUE DATE: May 12, 2016		
APPROVED BY: Miracle Springs Management		

8. Contingency Plan

If compromised biosecurity is detected, a water sample will be collected immediately and sent for complete drinking water analysis.

9. Non-conformances

Any staff determined to be improperly following this procedure will be reported to the General Manager. Staff will first receive a warning and subsequently may require retraining or dismissal.

10. Forms and Record Keeping

Records to be completed or filed include:

- Well Inspection Records
- Well Maintenance Records
- Daily Husbandry Records

When records have been updated, please file them appropriately. At the end of each day, the records are stored in the Staff Room at the Record Station in the Daily Record Collection file. The manager will collect the records on a weekly basis and they will be digitally entered into a spreadsheet for further analysis. The original records will be stored for a minimum of two years.

11. References

REVISION LOG

Revision Date	Authority	Reviser	Revision Details