

POTABLE WATER SUPPLY – RURAL SUBDIVISIONS & BUILDING PERMIT APPLICATION

GENERAL

This information is intended as a general guide to aid the developer in providing a potable (drinkable) water supply within each rural parcel created by subdivision or affected by a rezoning requirement or a rural property subject to a building permit.

The Approving Officer will not approve a subdivision until the owner has proven a potable water supply by way of a private well for each lot being created, including any lot which will contain an existing dwelling.

All new lots must be serviced by drilled wells and must be tested and certified in accordance with the **District of Mission Development and Subdivision Control Bylaw 5650-2017 (as amended)**, Section 3.0 – Water Distribution, 3.15 Private Water Systems. A shallow (dug) well, which was in use at the date of application to service an existing residence on the parent property, may be retained provided it is tested and certified in accordance with Section 3.15 of the Bylaw. In addition, each well must be located within the boundaries of its respective newly configured parcel which will contain the respective residence.

BUILDING PERMITS

A completed private well certification form is required at building permit application stage for properties not supplied with municipal water.

DETAILED REPORT ON WATER QUANTITY, WATER QUALITY AND HYDROGEOLOGICAL IMPACT ASSESSMENT AND FORM F-3

Section 3.15 of the Bylaw requires that a detailed report and a completed Form F-3 – Private Well Certification (refer to Schedule H of the Bylaw) be submitted to the District of Mission for each well in the development. The detailed report is to be prepared by a professional engineer or geoscientist registered with the Association of Engineers and Geoscientists of British Columbia in accordance with the attached District of Mission Guidance for Detailed Reports for Private Wells – Domestic Use. The Guidance document and Form F-3 are both attached. The Guidance document, Form F-3, and the Bylaw may change from time to time and it is the applicant's responsibility to ensure they are using the most up to date versions.

FIRMS KNOWN TO HAVE EXPERTISE IN THIS AREA

Firms known to have the expertise in hydrogeology necessary to prepare and submit the required detailed reports and forms include the ones listed below. Other firms with similar expertise in hydrogeology may be used.

Active Earth Engineering Ltd., 604-856-5119 (Langley), activeearth.ca
Arden Consulting Engineers Ltd., 604-807-1712 (Abbotsford)
Golder Associates Ltd., 604-296 4200 (Vancouver), golder.com
Hatfield Consultants Ltd., 604-305-0457 (North Vancouver), hatfieldgroup.com
Kalwij Water Dynamics Inc., 604-615-4932 (Port Coquitlam), waterdynamics.ca
Madrone Environmental Services Ltd., 604-504-1972 (Abbotsford), madrone.ca
Thurber Engineering Ltd., 604-684-4384 (Vancouver), thurber.ca
WSP Canada Inc., 604-278-1411 (Richmond), wsp.com

Form F-3 Private Well Certification

PURSUANT TO The District of Mission *Subdivision/Development* Bylaw 5650-2017, which requires that each lot to be created by *subdivision*, including that on which a dwelling may exist, can be serviced with potable water in accordance with the requirements of the Bylaw;

For the *Subdivision/Development* of the following property/properties:

LEGAL DESCRIPTION:

CIVIC ADDRESS: _____ OWNER(s):

I certify that a quantity of not less than 2,500 litres per day has been proven for each existing or proposed lot in the *subdivision*.

I certify that each well within the *subdivision* has been tested and is capable of continuously providing water at a rate of 9 litres/minute for a period of four consecutive hours.

I certify that the withdrawal of the above daily quantities of water will not adversely affect the long term stability of the aquifer and that each well will be capable of delivering these quantities of water at all times of the year.

I certify that none of the wells within the *subdivision* will have an adverse impact on any other wells within or in the vicinity of the *subdivision*.

I certify that water quality tests have been conducted on water samples I or someone under my direct supervision have drawn from each of the above noted wells and that the resulting concentrations of all health related parameters do not exceed the Maximum Acceptable Concentrations established in the Guidelines For Canadian Drinking Water Quality.

I further certify that, with respect to aesthetic parameters either; (check applicable item)

measured concentrations of aesthetic parameters do not exceed the Maximum Acceptable Concentrations established in the Guidelines For Canadian Drinking Water Quality;

or

I have attached a detailed statement of the potential impact of each aesthetic parameter which exceeds the Maximum Acceptable Concentration established in the Guidelines For Canadian Drinking Water Quality on the health of persons drinking the water.

Certified By (Name of Groundwater Professional)

Address

**PROFESSIONAL ENGINEER/GEOPHYSICIST
SEAL**

Attach copy of water analysis and recommendation

DATE: June 12, 2019
TO: Hydrogeological Engineering and Geoscientist Professionals
FROM: Engineering and Public Works Department
SUBJECT: **Guidance for Detailed Reports for Private Wells – Domestic Use**

This guidance is intended for professional engineers and geoscientists in the preparation of detailed reports for submission to the District of Mission so as to meet the minimum information requirements of a “detailed report” as referenced in Section 3.15 of Schedule C of the District of Mission Development and Subdivision Control Bylaw 5650-2017 (as amended). The detailed report must be for one well only, and each report must be signed and sealed by a registered Professional Engineer or Geoscientist with experience in hydrogeology. To meet the definition of “experience in hydrogeology”, the professional must be registered with Engineers and Geoscientists BC as having a primary or secondary field of expertise in hydrogeology or as a hydrogeologist.

The level of detail of the report will depend on a number of factors including the:

- scale of development or disturbance proposed;
- type and intensity of activity or land use proposed;
- complexity of the topography, including soil types, slopes, environmental sensitivity and hydrogeological sensitivity associated with the site or surrounding sites; and
- hydrological/hydrogeological complexity of surrounding properties, i.e. proximity to vulnerable aquifer areas, surrounding water wells, water use licenses, watercourses, known or potentially contaminated aquifers, etc.

The report must address all the requirements of Section 3.15 of Schedule C and should maintain a professional standard of information, analysis, presentation, and readability. Exceptions are provided at the end of the document for coach houses and replacement wells. As a minimum, where no exceptions apply, the details of the report should include:

1. Site plans:
 - a) A surveyed site plan with property boundaries, proposed lot boundaries, easements, covenants, right-of-ways, outlines of major structures, existing or proposed septic fields, historical/existing wells (in use or not) and new/proposed well locations.
 - b) A property site plan with overlaid aerial photograph so that major structures and vegetation are visible, and showing the property boundary, proposed lot divisions (if available) and existing on-site and off-site wells identified by Ministry of Environment (MOE) well numbers and Well ID Plate or Well Tag No. (to be used consistently throughout report and appendices/attachments).
 - c) A regional site map showing the property and relevant regional aquifers.
 - d) A neighbourhood site plan showing the property, proposed on-site wells and existing wells within an appropriate radius (usually between 250 m and 500 m) as identified by the provincial WELLS database and any other appropriate information sources.

2. Introductory information that:
 - a) Summarizes the development necessitating the use of a new well and makes reference to the relevant section of the PLA that the report is satisfying.
 - b) States that the report is summarizing the pumping test evaluation for the specified well.
 - c) States the location of the well by providing the civic address and legal description (for subdivision plans with multiple lots use the proposed lot numbers/letters as shown on the surveyed site plan).
 - d) Provides a statement that the purpose of the report is to evaluate flow capacity of the well to meet the District of Mission Development and Subdivision Control Bylaw 5650-2017 (latest edition), including assessment of water quality.
 - e) Provides a general site description discussing topographical feature, streams, grades, vegetation, etc.

3. Information on the well design, pump test and well yield, including:
 - a) Date of drilling and method.
 - b) Significant information on drilling observations if available.
 - c) Well details in table format including, as appropriate: well diameter, depth to bottom of well, depth to bottom of well casing, depth to bedrock, static water level on day recorded, depth to pump intake, total available drawdown, pumping rate, volume of water extracted, maximum observed drawdown during pump test.
 - d) References to the provincial guidance document(s) used for well testing and calculation of yield and statement that the testing and calculation is in accordance with the provincial guidelines.
 - e) Statement of daily well yield by stating “the well is capable of providing XXXX L/day and therefore meets the District of Mission requirement of a minimum of 2,500 L/day”.
 - f) Statement of short-term well yield by stating “the well is capable of providing XXXX L/min for four hours and therefore meets the Mission requirement of 9 L/min for four hours”.
 - g) If the well will be servicing a coach house, an additional well capacity should be allowed. The basis and amount of the allowance should be clearly stated, such as use of the Public Health Act, Sewage System Regulation Standard Practice Manual for two bedrooms which provides a design flow rate of 1,000 L/day.
 - h) A table showing well ID, specific capacity, calculated well yield/drawdown, and recommended well yield.
 - i) A graph showing the well test drawdown and a table of analysis of results.
 - j) Completed and signed Private Well Certification Form (Form F-3 from Bylaw).
 - k) Driller’s Water Well Record Log.

4. Hydrogeological impact assessment information which includes:
 - a) A description of aquifers in the area relative to the subject well.
 - b) A table of nearby wells within the appropriate radius and information on each well or key wells within the radius.
 - c) Description of the potential impact on neighbouring wells.
 - d) Description of the potential long-term impact on the source aquifer with consideration given to recommended well yield of subject well, and other wells within aquifer, and aquifer recharge.

5. Information on the water quality testing, results, recommendations and requirements:
 - a) A description of the water sampling procedure, location and date.
 - b) A description of the MAC and AO standards and guidelines that the water analysis is being compared to.

- c) A table or tables that show the analytical results of the sampling for all parameters required by the bylaw, the relevant guideline, a reference to the guideline, a comment on whether the guideline(s) are exceeded. Any values that exceed the MAC guideline should be asterisked and highlighted.
 - d) Reference to the laboratory's certificate (report) of analysis provided in an appendix. The analytical report should include a comment column that clearly shows if the result exceeds the MAC or if it exceeds the AO.
 - e) A description and analysis of the analytical results and exceedances, statement of compliance with guidelines, and recommendations to comply with water quality requirements and water quality guidelines.
6. Information on well-head protection for all wells on site:
- a) A statement for each well on the property and whether there is appropriate well head protection including grading, surface seal, and top of casing stickup, with reference to the Groundwater Protection Regulation.
 - b) Provide recommendations for each well if required.
7. Final conclusions, clearly noting requirements and recommendations:
- a) Requirements that are mandatory for compliance with legislation, including bylaw requirements, and/or necessary for health or environmental reasons **shall be clearly stated as such**. These requirements may be included by the District in a covenant to be placed on Title for each parcel. These requirements may also be included by the District of Mission as mandatory works prior to approval of subdivision.
 - b) Recommendations that are not mandatory/required, and are made in accordance with industry best practices and/or as identified by the latest edition of the Guidelines for Canadian Drinking Water Quality **shall be stated as such**. These recommendations may also be included by the District in a covenant to be placed on Title for each parcel. These recommendations may also be included the District of Mission as mandatory works prior to approval of subdivision.
8. All units shall be in metric. If imperial is used, those units shall be placed in (brackets).
9. If more than one single family residence is connected to a water supply system a Fraser Health Operating Permit is required. See the Fraser Health drinking water permits webpage for more information.

EXCEPTION 1: Addition of a coach house that uses the existing well.

Include a report that addresses 1b, 2a, 2b, 2c, 2d, 3e, 3f, 3g, 3h, 3i, 3j, 3k, 4d, 5a, 5b, 5d, 5e, 6a (for subject well only), 6b (for subject well only), 8 and 9. If the coach house is to use a new well, then this exception does not apply.

EXCEPTION 2: Replacement of existing well on same property.

Include a report that addresses 1b, 2a, 2b, 2c, 2d, 3e, 3f, 3g, 3h, 3i, 3j, 3k, 4d, 5a, 5b, 5d, 5e, 6a (for subject well only), 6b (for subject well only), 8 and 9. If the coach house is to use a new well, then this exception does not apply.