western water
ASSOCIATES LTD
Consultants in Hydrogeology and Water Resources Management

May 27, 2021 WWAL Project: 21-046-01VR

Haworth Development Consulting Ltd.
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Via email: richard@haworthconsulting.ca

Re: Groundwater Feasibility Assessment for the Galloway Lands, south of Fernie, B.C.

Western Water Associates Ltd. (WWAL) is pleased to provide this hydrogeological assessment related to a rezoning application for several properties located near Fernie, B.C. We understand that the proponent has purchased four adjoining parcels totaling 450 acres, and intends to apply for rezoning for the purpose of a future subdivision. We understand that should the rezoning be successful, a conceptual subdivision will comprise 90 single family lots. Our understanding is that lot sizes would be variable, ranging from 1 acre to 10+ acres, and each lot would have its own well and septic field. Parcel ID numbers for the subject properties are provided below in Table 1.

Table 1. Parcels That Are the Subject of This Assessment

Parcel PID	Area (acres)
011-359-323	58.29
011-359-404	79.01
011-359-447	160.0
011-359-471	160.0

Our assessment evaluates the potential for groundwater supplies to be developed that meet the Regional District of East Kootenay (RDEK) Subdivision Servicing Bylaw 1954 ('the Bylaw') requirements. Bylaw 1954 outlines the requirements for water quantity and quality from private wells. Key components of the Bylaw requirements include:

- New wells must be drilled to a minimum depth of 15 m (50 ft). If shallower, an assessment by a hydrogeologist is required.
- A new well must be located on each lot to be created and serve only that lot (i.e. no shared wells unless considered a community water system).
- Each well must be test pumped and shown to be capable of producing 2,270 L/day, equivalent to 0.42 USgpm continuously.
- With regards to water quality, samples are to be collected and evaluated against the Canadian Guidelines for Canadian Drinking Water Quality (GCDWQ). Where chemical and microbiological water quality parameters meet the current GCDWQ but fail to meet an aesthetic, or where raw groundwater is found to be not potable a covenant must be registered on the proposed lot(s) pursuant to Section 219 of the *Land and Title Act*.
- For subdivisions of more than five lots where the average parcel size is less than 1 hectare, a Professional must supervise the siting, testing and evaluation of all wells.

1. SITE PHYSIOGRAPHY, HYDROLOGY AND GEOLOGY

Figure 1 shows an overview of the proposed subdivision area. The proposed subdivision is located along the west edge of the Elk River Valley. It is bordered by the Lizard Mountains to the west, and the Elk River to the east. The City of Fernie is located 3 km to the north, and the Cedar Valley is located to the northwest. The Fernie Alpine Resort is located immediately to the south. The largest surface water feature near the proposed subdivision is the Elk River, which flows southward and discharges to the Kootenay River approximately 37 km to the southwest. Two small lakes, Isbe and Snow Lake, are located south of the proposed subdivision at the ski resort. Mt. Fernie Provincial Park borders the subject properties to the north.

Figure 1: Site overview of the subject properties, looking north up the Elk River Valley

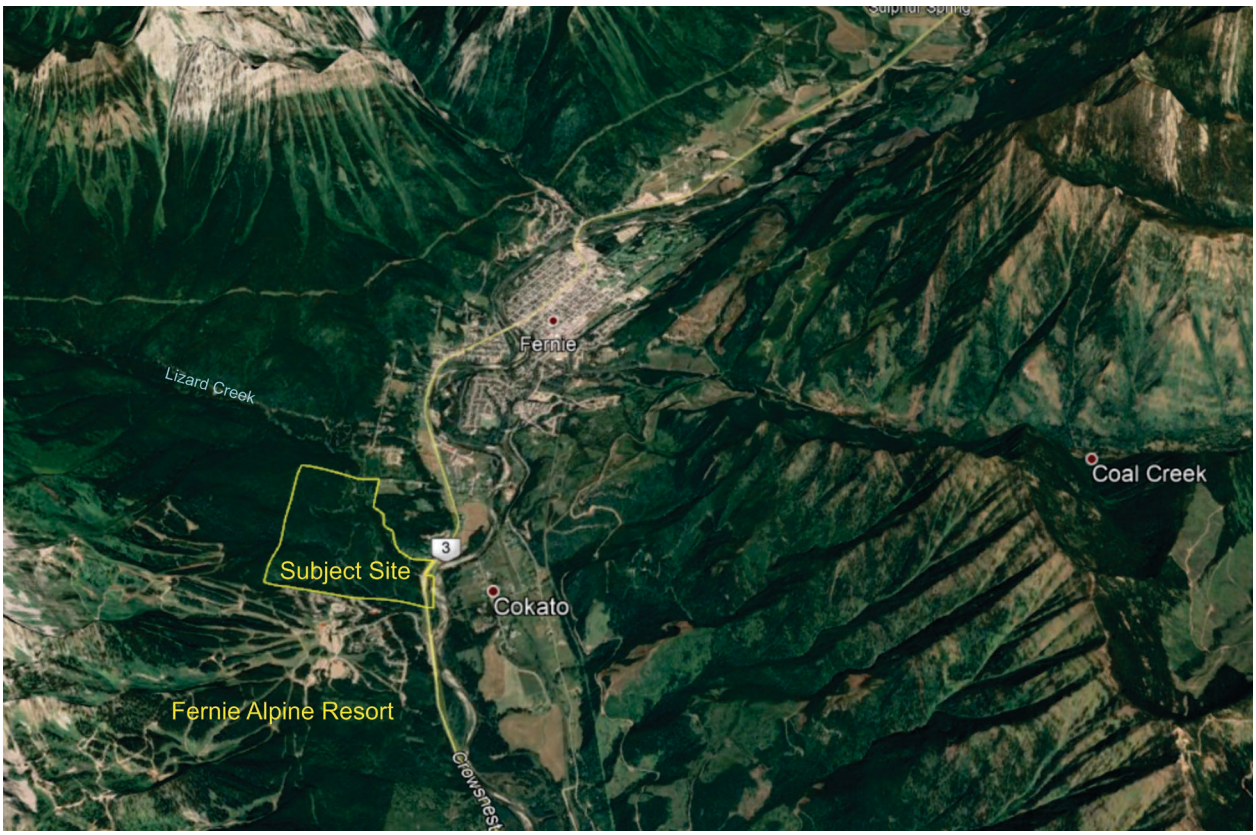

Image source: Google Earth.

Land within the proposed subdivision area slopes mainly to the east with elevations ranging from ~1150 m asl (above sea level) in the west to ~1000 m asl near the Elk River. Historical air photos indicate that the property has been selectively logged in the past. Mapping shows the proposed subdivision appears to be incised by smaller creeks, including Lizard Creek, which originates from the Lizard Mountains and Cedar Valley to the northwest of the proposed subdivision. Lizard Creek flows southeast, draining into the Elk River. Other creeks include tributaries to Lizard Creek, as well as several unnamed drainages located in the southern part of the proposed subdivision.

The Fernie Climate Station (Station ID 1152850) is located approximately 3 km to the north. The recorded average annual temperature and total precipitation from 1981 to 2010 were 5.3°C and 1227.1 mm/year,

respectively (Environment Canada, 2019). July and August are typically the warmest months and December and January the coldest. Mean monthly precipitation ranged from 51.9 mm in August to 179.1 mm in November and is fairly consistent throughout the year. Note that these are published climate normals from past decades. Most climate change models for the interior of B.C. predict shifts in the overall seasonal pattern of temperature and precipitation from past "normals." The main changes expected are warmer, drier summers, and somewhat wetter winters with more precipitation falling as rain (as opposed to snow, resulting in decreased snowpack), particularly in lower elevations. Earlier peak runoff from snowmelt is another outcome of climate change that has already been documented in B.C.

The project area is located on the western portion of the Foreland Belt in the Southern Canadian Rocky Mountains, in a segment of the regional Fold-And-Thrust belt, where older Proterozoic to Paleozoic-aged formations have been thrust over younger, Mesozoic-aged formations by major northwest-southeast striking Thrust Faults (Mossop et al., 1994; Massey et al., 2005).

Bedrock underlying the potential development is mapped as Fernie Group and is comprised of shale, siltstone, and limestone dated to the Jurassic 201 to 145 million years before present (Price, 1979; Leach, 1958). Driller logs from the Provincial GWELLS database have identified the upper-most bedrock unit as shale. The subject property is located between two major thrust faults which trend northwest to southeast following the orientation of the Elk River Valley. The undulating terrain on the west side of the valley is likely related to steeply dipping geologic structures associated with the regional setting, and the glacial history of the area as discussed below.

The unconsolidated deposits overlying bedrock are the result of mechanisms and processes from the last glacial period. A review of available terrain inventory mapping for the area shows that the proposed subdivision is underlain by a blanket of undulating till (ENV, 2011). The unconsolidated deposits on the western and higher elevation part of the site are mapped as thin veneers of colluvium derived from bedrock and frequent bedrock outcrop. Unconsolidated deposits in the Elk River Valley are comprised of recent fluvial deposits deposited by the Elk River and/or by receding glaciers at the end of the last glacial period, overlying thick relatively continuous glaciolacustrine clay deposits.

A review of local well driller's logs shows that bedrock is present at shallower depths in the higher elevation areas to the west of the subject property with the thickness of surficial deposits over bedrock increasing towards the Elk River Valley bottom to the east. Local drill logs indicate that bedrock is generally overlain by sand and gravel with clay or till lenses in some areas. In the Elk River valley, the productive unconsolidated deposits are overlain by a thick deposit of clay.

2. HYDROGEOLOGIC SETTING

WWAL reviewed available aquifer mapping from the Province. Mapping shows two aquifers in the area near the proposed subdivision: Aquifer 534 (ENV, 2014), and Aquifer 532 (ENV, 2015). Aquifer 534 is located to the northwest in the Cedar Valley, and Aquifer 532 is located along the Elk River valley bottom. Aquifer 532 is mapped as present in the lower elevation eastern part of the subject site, while no mapped aquifer is present in the higher elevation western part of the site. Select details for these aquifers are

provided in Table 2, below. Figure 2 illustrates mapped aquifer boundaries and the locations of reported water wells in the area, with nearby wells labelled with their well tag number.

Table 2. Provincially mapped aquifers near the subject property

Aquifer ID	Geologic Formation	Overlying Materials	Aquifer Type	Demand	Productivity	Vulnerability
532	Sand and Gravel	Silty clay, fluvial gravel, till, boulders, morainal, glaciolacustrine and alluvial deposits	Confined sand and gravel	Moderate	Moderate	Low
534	Jurassic, shale, sandstone and limestone of the Fernie Formation	Morainal and lacustrine deposits, gravel and sand	Fractured sedimentary rock aquifer	Moderate	Low	Low

2.1 AQUIFER 532

Aquifer 532 is mapped as underlying the eastern, lower elevation part of the proposed subdivision (Figure 2). The aquifer boundaries were delineated using available well logs and geology mapping in the area. Aquifer 532 is comprised of fine sand to coarse gravel glacial deposits, and is overlain by silty clay, fluvial gravel, till, boulders, morainal , glaciolacustrine and alluvial deposits. The aquifer is mainly confined with possible windows in the overlying confining sediments between modern fluvial sediments and the productive aquifer. Depth to water in wells completed within the aquifer reportedly range from flowing artesian to 42.67 m (140 ft). The aquifer has moderate productivity, with well yields ranging from 0.03 to 159.1 L/s (0.5 to 2045 USgpm), with a geometric mean of 1.5 L/s (23.2 USgpm). The City of Fernie's James White Park municipal supply wells are completed in Aquifer 532 and are very productive. Fernie Alpine Resort's supply wells are located immediately south of the subject site, are also completed in Aquifer 532 and are quite productive. Groundwater recharge occurs from infiltration of precipitation, snowmelt, local surface runoff from upland creeks, and infiltration from the Elk River. Groundwater flow is likely topographically driven, from upland areas towards the Elk River, and then southerly along the Elk River Valley.

2.2 AQUIFER 534

Aquifer 534 is hosted in fractured bedrock and is located to the northwest of the proposed subdivision (Figure 2). The aquifer boundaries were delineated using available well logs and geology mapping in the area. Aquifer 534 is comprised of shale, sandstone and limestone of the Fernie formation. The overlying materials are comprised of till, silt, clay, and gravel and sand. The aquifer is confined. Depth to water ranges from flowing artesian to 30.5 m (100 ft). The aquifer is classified by the Province as having low productivity, with reported yields ranging from 0.1 to 1.7 L/s (2 to 27.5 USgpm), with a geometric mean of 0.3 L/s (4 USgpm). Groundwater recharge occurs from infiltration of precipitation, snowmelt, local

surface water runoff in upland areas, and along local creeks draining to the Elk River. Groundwater flow is likely from upland areas towards the Lizard Creek valley bottom.

3. EXISTING WELL INFORMATION

WWAL completed a search of existing wells reported to the Province's GWELLS Application in the area. There is one reported well located within the boundary of the proposed subdivision, however upon inspection of the well log, we determined that this well is actually located across the Lizard River to the north on a neighbouring property. There are 71 wells (including abandoned wells) west of the Elk River and within ~3 km radius of the property. Until 2016, submission of well driller's logs to the province was voluntary, so more wells may be present in the area than indicated by the database. Table 3 provides a summary of depth and yield info for the wells. Note that the reported yields are driller's estimates and not necessarily indicative of long-term capacity derived from a well pumping test.

Based on the well survey, there are 28 wells completed in fractured bedrock, and 43 wells completed in overburden. From the local drilling information, the depth to bedrock in wells that fully penetrated the overburden deposits ranged from 1.2 to 39.3 m (4 to 129 ft) below the ground surface.

Wells drilled into fractured bedrock had an average depth of 64.4 m (211 ft). Most local bedrock wells were located to the north and northwest of the proposed subdivision, in the Cedar Valley. The driller's estimated yields for bedrock wells ranges from 0 to 4.1 L/s (65 USgpm), with an average yield of 0.6 L/s (9 US gpm). Several nearby wells indicate good groundwater potential in fractured bedrock:

- WTN 86473 is located 2 km to the northwest of the proposed subdivision in the Cedar Valley, and is completed to 59.7 m (196 ft) depth in shale. The well has a driller's yield of 1.6 L/s (25 USgpm) based on an airlift test.
- WTN 59306 was drilled in 1990 and is located 600 m to the southeast at the Fernie Ski Hill, and is completed to 19.8 m (65 ft) depth in shale. The well has a driller reported yield of 4.1 L/s (65 USgpm).

Wells completed in overburden deposits had depths ranging between 27.4 to 132 m (36 to 225 ft), with an average well depth of 26.5 m (87 ft). Wells completed in overburden were generally found at lower elevations within the Elk River valley. The driller's estimated yields for overburden wells ranges from 0.2 L/s (3 USgpm) to 9.7 L/s (154 USgpm), with an average yield of 1.6 L/s (25 USgpm). Several wells located within 200 m of the south boundary of the proposed subdivision provide evidence that there is good groundwater development potential in the unconsolidated deposits:

- WTN 94343 was drilled in 2003 and is screened in gravel, sand and cobbles between 11.6 to 14.3 m (38 to 47 ft) depth. The well was altered in 2008 to include a surface seal. The driller indicated a yield of 6.4 L/s (100 USgpm).
- WTN 59365 was drilled in 1990. The driller reported highly productive fine sand and coarse gravel from 5.5 m to 8.5 m (18 to 28 ft) depth underlying silty clay, and indicated a yield of 3.8 to 5.7 L/s (50 to 75 IGPM) within this zone.

- WTN 117416 was drilled in 2019, and the driller indicated a zone of loose sand and gravel between 26.5 and 29.0 m (87 and 95 ft) depth with a yield of 3.2 L/s (50 USgpm).
- WTN 48316 was drilled in 1981 near the south boundary of the proposed subdivision. It was completed to 18.3 m (60 ft) depth. The driller indicated a yield of >3.2 L/s (50 USgpm) within coarse gravel, boulders and clay between 10.7 and 16.8 m (35 and 55 ft).

Several of the notable wells discussed above are associated with Fernie Alpine Resort located immediately south. There are several fairly shallow bedrock wells reported in the upper developed portion of the resort with high reported well yields in the 25 – 65 US gpm range. A note was included on one of the well logs (WTN48316) that there was insufficient flow from the well in the winter months, but that the well was likely over taxed being one of two wells supplying the lodge. Several other high-capacity wells associated with the ski hill are reported near the Elk River and completed in Aquifer 532. No technical reports regarding these wells were found in our online searches, but WWAL is anecdotally aware that the ski resort operates two high-capacity wells near the Elk River (300+ US gpm) that supply potable water to the resort.

Table 3: Select well construction details for wells completed within 3 km of the proposed subdivision.

WTN[1]	Final Well Depth		Bedrock Depth		Water Depth		Well Yield		Material[2]	Aquifer
	ft	m	ft	m	ft	m	USgpm	L/s		
324	225	68.6	-	-	140	42.7	10	0.63	OB	532
30296	54	16.5	-	-	8	2.4	15	0.95	OB	532
30297	54	16.5	-	-	8	2.4	15	0.95	OB	532
33496	80	24.4	-	-	34	10.4	14	0.88	OB	532
33507	80	24.4	-	-	34	10.4	14	0.88	OB	532
33508	93	28.3	-	-	68	20.7	14	0.88	OB	532
33529	90	27.4	-	-	68	20.7	16.8	1.06	OB	532
34219	70	21.3	-	-	35	10.7	12	0.76	OB	532
37889	190	57.9	-	-	40	12.2	7	0.44	OB	532
39570	102	31.1	-	-	65	19.8	10	0.63	OB	532
41265	68	20.7	-	-	46	14.0	6	0.38	OB	532
42724	93	28.3	-	-	58	17.7	8	0.50	OB	532
45775	130	39.6	-	-	80	24.4	4	0.25	OB	532
48309	70	21.3	65	19.8	0	0.0	4	0.25	OB	532
48316	60	18.3	45	13.7	6	1.8	40	2.52	OB	-
52998	136	41.5	-	-	16	4.9	4	0.25	OB	532
55029	115	35.1	-	-	15	4.6	10	0.63	OB	532
59363	36	11.0	-	-	-	-	50-75	-	OB	532
59365	41	12.5	-	-	15	4.6	39	2.46	OB	532
83706	36	11.0	-	-	-	-	15	0.95	OB	532
88020	53	16.2	-	-	35	10.7	20	1.26	OB	532
90801	82	25.0	-	-	16	4.9	15	0.95	OB	532
90804	80	24.4	-	-	44	13.4	3	0.19	OB	532
94322	50	15.2	-	-	-	-	-	-	OB	532
94323	48	14.6	-	-	10	3.0	-	-	OB	532
94324	48	14.6	51	15.5	-	-	-	-	OB	532
94343	47	14.3	-	-	12	3.7	100	6.31	OB	532
95305	96	29.3	-	-	30	9.1	40	2.52	OB	532
95306	97	29.6	-	-	30	9.1	20	1.26	OB	532
99760	124	37.8	-	-	-	-	15	0.95	OB	532
109587	105	32.0	-	-	15	4.6	150	9.46	OB	532
113160	91	27.7	-	-	60	18.3	154	9.72	OB	-

WTN[1]	Final Well Depth		Bedrock Depth		Water Depth		Well Yield		Material[2]	Aquifer
	ft	m	ft	m	ft	m	USgpm	L/s		
113442	106	32.3	-	-	17	5.2	-	-	OB	532
113443	120	36.6	-	-	16	4.9	-	-	OB	532
115530	83	25.3	-	-	15	4.6	20	1.26	OB	-
115532	56	17.1	-	-	15	4.6	8	0.50	OB	-
115753	85	25.9	85	25.9	12	3.7	5	0.32	OB	-
115758	62	18.9	-	-	14	4.3	20	1.26	OB	-
117416	95	29.0	-	-	5	0.3	50	3.15	OB	-
118341	115	35.1	-	-	-	-	-	-	OB	-
120409	102	31.1	-	-	25	7.6	20	1.26	OB	-
120410	117	35.7	-	-	25	7.6	20	1.26	OB	-
122308	40	12.2	-	-	8	2.4	20	1.26	OB	-
122309	56	17.1	-	-	8	2.4	15	0.95	OB	-
18790	200	61.0	106	32.3	30	9.1	5	0.32	BED	534
46904	180	54.9	27	8.2	32	9.8	3	0.19	BED	534
48282	30	9.1	25	7.6	-	-	Shallow test well, dry		BED	-
48283	360	109.7	4	1.2	-	-	2	0.13	BED	-
49039	250	76.2	110	33.5	-	-	7	0.44	BED	534
53036	160	48.8	129	39.3	-	-	3	0.19	BED	534
59306	65	19.8	51	15.5	5	1.5	65	4.10	BED	-
66274	135	41.1	-	-	46	14.0	2	0.13	BED	534
66365	97	29.6	-	-	6	1.8	3	0.19	BED	534
66472	140	42.7	-	-	28	8.5	4	0.25	BED	534
66476	160	48.8	-	-	38	11.6	4	0.25	BED	534
66572	210	64.0	-	-	-	-	4	0.25	BED	534
66599	310	94.5	-	-	-	-	3	0.19	BED	534
66702	166	50.6	-	-	20	6.1	3	0.19	BED	534
66767	200	61.0	15	4.6	20	6.1	3	0.19	BED	534
86252	255	77.7	45	13.7	-	-	5	0.32	BED	534
86473	196	59.7	56	17.1	-	-	25	1.58	BED	534
86475	296	90.2	70	21.3	10	3.0	1	0.06	BED	534
86477	356	108.5	30	9.1	10	3.0	10	0.63	BED	534
86478	96	29.3	90	27.4	-	-	-	-	BED	534
86480	595	181.4	24	7.3	100	30.5	10	0.63	BED	534
89812	80	24.4	-	-	40	12.2	3	0.19	BED	534
94771	95	29.0	70	21.3	-	-	8	0.50	BED	534
105101	136	41.5	80	24.4	90	27.4	4	0.25	BED	-
107243	335	102.1	55	16.8	60	18.3	4	0.25	BED	534
113770	196	59.7	26	7.9	70	21.3	6.5	0.41	BED	-
115995	375	114.3	105	32.0	100	30.5	2.5	0.16	BED	-
117413	395	120.4	102	31.1	120	36.6	15	0.95	BED	-

Notes:

[1] WTN is Well Tag Number

[2] OB is unconsolidated deposits, BED is fractured bedrock

4. GROUNDWATER QUALITY

We reviewed EcoCat (an online database of environmental and hydrogeological reports) and the well logs for this assessment. There is limited water quality information available from well records in the area, and therefore groundwater quality in the area is unknown. Our expectation would be that groundwater would be considered very hard, which is typical or aquifers in the interior of the province. It is likely that iron and manganese could be found above their respective water quality guidelines, both of which are

very common aesthetic issues in private domestic wells. The aquifer mapping report for bedrock Aquifer 534 does not indicate any reported water quality concerns. The mapping report for Aquifer 532 indicates high hardness is common, and a sulphur smell in water can sometimes be present.

5. WATER LICENSING CONSIDERATIONS

With the implementation of the *Water Sustainability Act* in 2016, groundwater licensing was introduced. The *Act* requires that all non-domestic water users apply for and obtain a water licence. Domestic groundwater use (the use of one well to provide water to one lot for indoor and outdoor domestic uses) does not require a groundwater licence; instead all groundwater users that submit a well log to the Province are deemed a water right of at least 2 m^3/day. So as it relates to the proposed subdivision, no Provincial water licences would be required if wells were only used for domestic purposes.

If groundwater to be used for other purposes at some lots within the proposed subdivision, for example irrigation, a water licence application would need be made for the non-domestic purposes. Further, if community supply wells were to be considered as water supply for some or all of the subdivision, a water licence would also be required.

6. CONCLUSIONS

Based on the results of our assessment, we offer the following conclusions:

C1 There are two mapped aquifers in the vicinity of the proposed subdivision: Aquifer 532 (unconsolidated sediments in the valley bottom) located underlying the eastern part of the proposed subdivision, and Aquifer 534 (fractured bedrock) located to the northwest in the Cedar Valley. The bulk of the subject site is not underlain by a mapped aquifer, but it is very likely Aquifer 534 or a similar fractured bedrock aquifer is present, but has not yet been mapped as such due to a lack of reported wells in the area.

C2 A small area in the eastern part of the site likely overlies sand and gravel Aquifer 532. There is a very good potential for wells intercepting this aquifer to have yields that easily surpass the RDEK Subdivision Bylaw Quantity requirement.

C3 Wells drilled on the majority of the property are expected to be completed in a fractured bedrock aquifer similar to Aquifer 534 to the north. The average driller-reported well yield for wells completed in bedrock near the site is 9 US gpm, which is substantially above the Bylaw sustainable yield requirement of 0.42 US gpm. While many of the wells logs are missing details on well yield, only one dry well was noted (a very shallow test well at the ski hill).

C4 Overall, the groundwater development potential for the contemplated subdivision, utilizing individual onsite domestic wells, is favourable. The Fernie area receives significant annual average precipitation of more than 1.2 m, which is available to recharge aquifers and there are several drainages traversing the property, which can also serve as seasonal recharge sources.

C5 While not specifically being considered, it is likely that high-capacity community supply wells could be constructed on the property, at low elevation near the Elk River, which could be used as a community water source for some or all of the development.

7. DISCUSSION AND RECOMMENDATIONS

While groundwater development potential for the subject site appears good, we note that there are no existing wells on the property. The property owner may wish to drill and test a few wells on the site before proceeding too far with road building and other site servicing to verify our assessment of the site is accurate. This would also help in project budgeting, such that well depths and costs could be better constrained prior to proceeding with the project.

As the proposed development is early in the development process at the rezoning stage, detailed development plans including lot layouts and sizes were not available. Several factors should be considered should the project move into more detailed planning and design:

- Lot sizing. Our understanding is that lot sizes in the development could be variable in size, likely dependent on slopes and access. It is often the case that clusters of smaller lots are created where topography is favourable. In areas where smaller lots and higher density is proposed, there would be a greater potential for well interference effects to occur when multiple wells are operated at the same time. As a general recommendation, dense clusters of small lots should be avoided in development planning if possible. If this is not achievable, special care must be given to the planning and spacing out of well sites.
- Septic systems. Septic systems and wells must be a minimum of 30 m apart. This setback applies to on-lot wells and septic systems as well as those on neighbouring lots. We recommend consideration be given to confirming the feasibility of onsite septic systems early in the project prior to drilling, especially in areas of higher density and smaller lots. This would avoid the scenario of creating lots where appropriate setbacks between wells and septic fields could not be maintained.

8. CLOSURE

We trust that the professional opinions and advice presented in this document are sufficient for your current requirements. Should you have any questions, or if we can be of further assistance in this matter, please contact the undersigned.

WESTERN WATER ASSOCIATES LTD.

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PROVINCE OF BRITISH COLUMBIA
R. M. RHODES
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GEOSCIENTIST
21-May-2021

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Attachments:
Figures 1.1 and 2

9. REFERENCES

ENV. (2019). *Water Resources Atlas*. http://www.env.gov.bc.ca/wsd/data_searches/wrbc/

Environment Canada. (2019). Canadian Climate Normals Fernie. BC, Canada.

Massey, N., MacIntyre, D., Desjardin, P., & Conney, R. (2005). Digital Map of British Columbia: Tile NM11 Southeast B.C.

Ministry of Environment and Climate Change (ENV). (2011). *Terrain Mapping (TER) Polygon Attributes (digital dataset)*. https://catalogue.data.gov.bc.ca/dataset/terrain-mapping-ter-polygon-attributes

Ministry of Environment and Climate Change (ENV). (2014). Retrieved from Aquifer 534: Aquifer Classification Reporting: https://apps.nrs.gov.bc.ca/gwells/aquifers/534

Ministry of Environment and Climate Change (ENV). (2015). Retrieved from Aquifer 532: Aquifer Classification Reporting: https://apps.nrs.gov.bc.ca/gwells/aquifers/532

Mossop, G., & Shetson, I. (1994). Geological Atlas of the Western Canada Sedimentary Basin.

Price, R. (2013). Geology, Fernie. British Columbia - Alberta; Geological Survey of Canada, Map 2200A, scale 1:125,000.

Province of British Columbia. (2021, May 11). *Groundwater Wells and Aquifers*. https://apps.nrs.gov.bc.ca/gwells/

MT FERNIE PROVINCIAL PARK

THE CEDARS

CITY OF FERNIE

LOT B
EPP47128

LOT A
EPP47128

EAST 1/2 DL4129

LOT 2
NEP4130

LOT 3
NEP4130

LOT A
NEP9663

LOT 1
NEP16926

LOT 2
NEP16926

LOT 3
NEP16926

PART OF DL4130

LIZARD CREEK

NORTH 1/2 DL4126

PART OF DL8900

HIGHWAY #3 - CRANBROOK HIGHWAY

ELK RIVER

REM LOT 1
NEP10145

FERNIE ALPINE RESORT

SUNBURST DRIVE

BOOMERANG WAY

FERNIE SKI HILL ROAD

HAWORTH
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REVISIONS

REV#	DY/MN/YR	DESCRIPTION

SPIKE CAMP

SCALE	AS NOTED
DATE	8 MARCH 2021
ISSUED FOR	CLIENT REVIEW ONLY
PROJECT NUMBER	12224
DESIGN BY	RH
DRAWN BY	RH

DRAWING TITLE

EXISTING CONDITIONS

DRAWING NUMBER

1.1

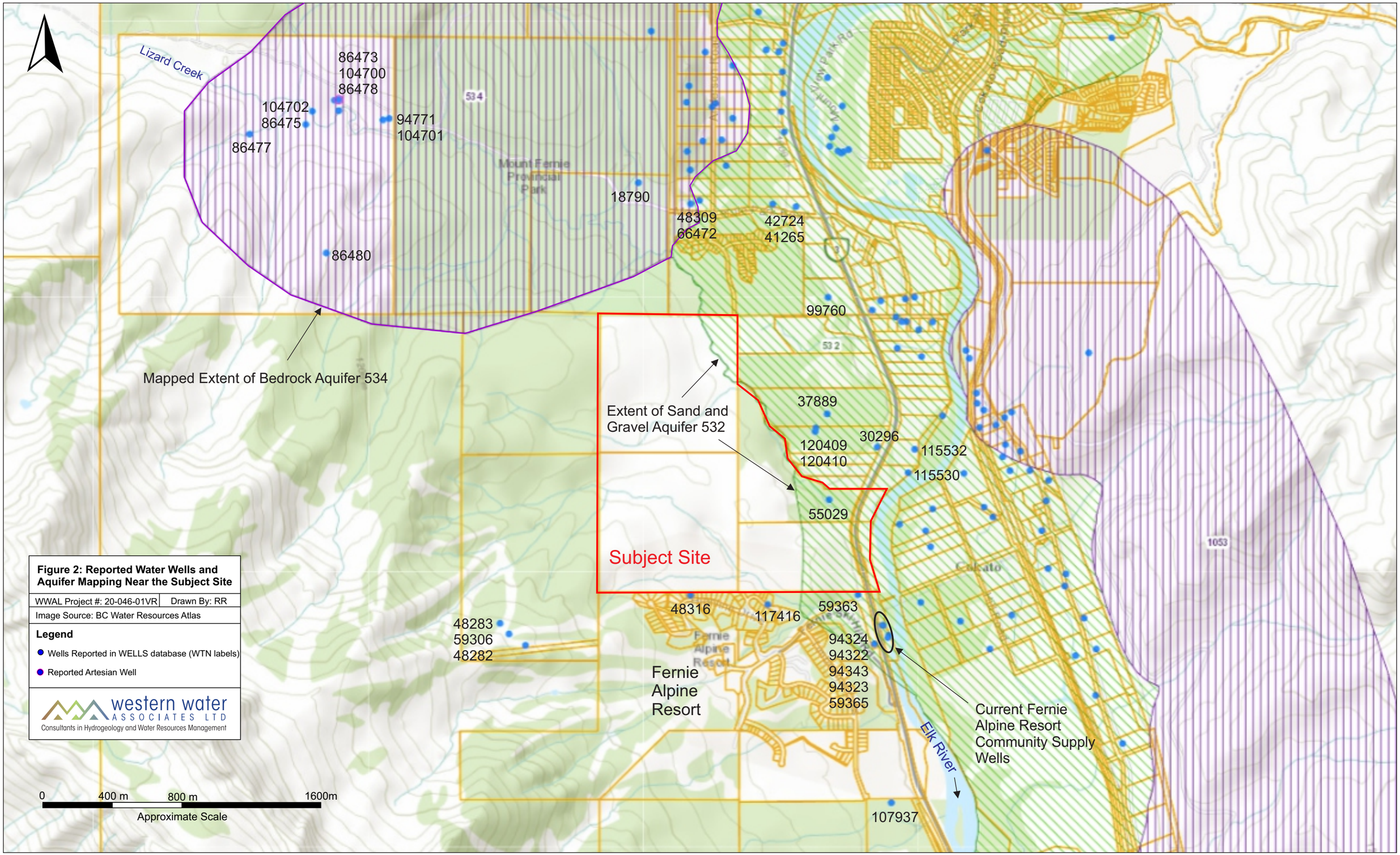

Figure 2: Reported Water Wells and Aquifer Mapping Near the Subject Site

WWAL Project #: 20-046-01VR	Drawn By: RR
Image Source: BC Water Resources Atlas	

Legend

- Wells Reported in WELLS database (WTN labels)
- Reported Artesian Well

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