

Date: June 28, 2018 **File:** 2017-8174

To: Shawn Boven, CAO

From: Marta Green, P.Geo.

Project: City of Merritt, Licensing Support

Subject: Supporting Memo regarding History of Wells and Anticipated Licences to apply for.

MEMO

1 INTRODUCTION

On February 29th, 2016, the Province of British Columbia passed new legislation under the *Water Sustainability Act*¹ (WSA) that requires all non-domestic groundwater wells to be licensed². Associated has been retained by the City of Merritt to complete the City of Merritt's (the City) licence application. This memo serves as a supporting document for the City's existing groundwater use application, and presents the following sections:

- **History:** outlines the history of the City's water supply system development and the operational capacity of the City's current water supply system.
- **Anticipated Amendments and Licences:** outlines the City's current water licences, proof of beneficial use, and how we expect the Province will licence the wells.
- **Conclusion:** provides a summary of the intended goal of this document.

2 HISTORY

The City continues to hold five conditional surface water licenses for waterworks and irrigation purposes dating back as early as 1931 (summarised in Table 2-1, and licence details provided in Appendix A). Based on this, we assume that the City has used surface water for supply starting in 1931.

Table 2-1

Licence Number	Priority Date	Allowable Volume (m ³ /yr)	Uses	Period of Use
026589	February 21 st , 1931	20,725	Waterworks	April 1 st – September 30 th
030750	March 2 nd , 1939	639,845	Waterworks	April 1 st – September 30 th
025311	July 9 th , 1958	1,381,675	Waterworks	Year-round
030751	June 16 th , 1965	639,845	Waterworks	October 1 st – March 31 st
131934	December 19 th , 1966	165,898	Irrigation	April 1 st – September 30 th
Total Volume Licensed (m³/yr)		2,847,988		
Total Volume Licensed for Waterworks (m³/yr)		2,682,090		

¹ BC *Water Sustainability Act* available at: <http://www.bclaws.ca/civix/document/id/complete/statreg/14015>

² Non-domestic groundwater is any use other than use of water by occupants of one or more private dwellings located on a single parcel

We understand the City no longer uses surface water³. The City's sole source of water supply is from its five groundwater wells, with well development starting in 1977. Table 2-2 presents a summary of how the City's wells have developed over time and what the current groundwater infrastructure is potentially capable of producing based on the maximum capacity of the pumps installed in each well. Water reports are provided in Appendix B. The pumps installed in the wells are, in general, designed based on the sustainable yield of the aquifer determined by a Hydrogeologist. Figure 2-1 shows the location of the wells. Appendix C has the well logs.

Table 2-2 History of City of Merritt's Well Development.

Date	Well Names	Operational Well Capacity (L/s)		Addition or Subtraction of Pumping Capacity (m ³ /year) ²	Cumulative Operational Pumping Capacity (m ³ /year) ¹
		(L/s)	(m ³ /year)		
1977	May St.	29.8	939,773	+939,773	939,773
1977	Fairley Park	72.5	2,286,360	+2,286,360	3,248,208
1977	Voght Park G/E	126.0	3,973,536	+3,973,536	7,221,744
1978	Voght Park VFD	113.5	3,579,336	+3,579,336	10,801,080
1997 ³	Colletville	75.7	6,540	+ 2,387,578	13,188,658
2007 ⁴	May St.	29.8	939,773	- 939,773	12,248,885
2011 ⁵	Kengard	110	3,469,400	+ 3,469,400	15,718,285
Total Operational Capacity					15,718,285

Notes:

¹ The maximum pumping capacity of the pump or aquifer (whichever is the limiting factor) multiplied by 365 days per year. The Province will not allow for applicants to apply for this amount: only what is beneficially used. However, this helps the City understand the difference between what their infrastructure can physically pump, and what they have used historically.

² Occurs when a well is constructed, decommissioned, or there has been a pump test on a pre-existing well that increases the operational yield of the well.

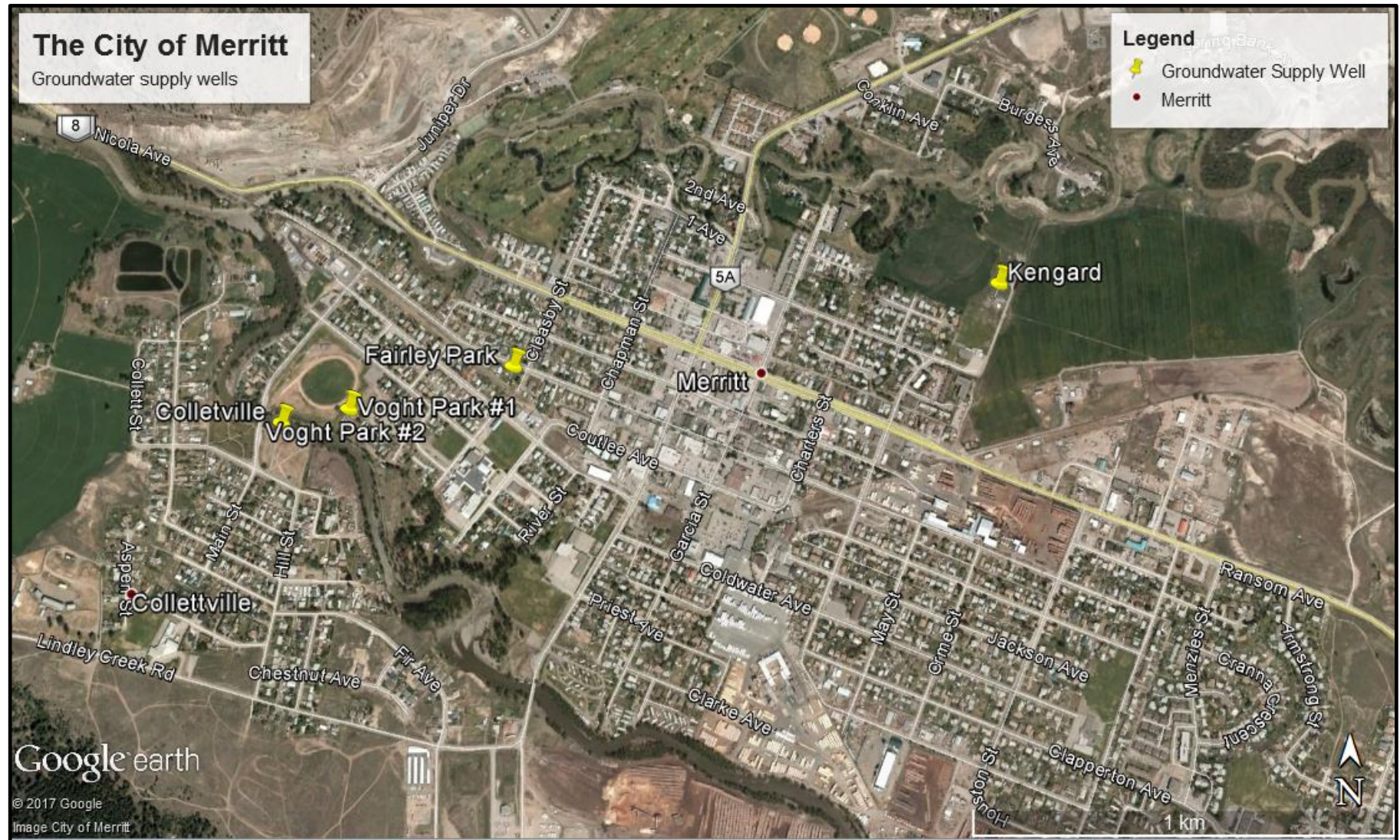
³ The Colletville well became operational in 1997.

⁴ In 2007 the May Street well was no longer in operation.

⁵ The Kengard well became operational in 2011.

³ Bird, Sasha. Director of Engineering and Development Services. October 27, 2017. Personal communication (telephone communication) with M. Green of Associated.

Figure 2-1. Geographic location of the City of Merritt's groundwater supply wells.



3 ANTICIPATED AMENDMENTS AND LICENCES

As a requirement under Section 33 of the WSA, the City must be able to provide documentation proving beneficial use of the water that includes when the water was first used and in what volume. Without proof of beneficial usage of the surface water, the Province may request the City of Merritt to forfeit their surface water licences and/or have the licences amended to reflect changes in works.

The volume of groundwater that the City of Merritt should apply for was calculated based on the City's approved Official Community Plan (OCP)⁴ and 2017 Annual Water Report⁵ (excerpts from the OCP and Annual Water Report are found in Appendix D and E, respectively). As described in the 2017 Annual Water Report, in 2017, a total of 2,632,350 m³/year was used, and the average consumption per person was 1,030 litres (using a current population of 7000). This compares to the maximum annual usage recorded for waterworks purposes which occurred in 2007, when 3,556,736 m³ was used. According to the approved OCP, a population of 15,000 for year 2030 is planned. Using the 2017 per person consumption of 1030 L/person/day, this results in an annual volume of 5,639,250 m³/year for licensing purposes.

The City is currently licensed to use 2,682,090 m³ of surface water for waterworks purposes. We recommend that the City applies for the total volume used for waterworks purposes outlined in their current surface water licences via an amendment with changes to the source of water supply, works, and quantity.

BC follows a "First in Time, First in Right" principle in water licensing under the BC *Water Sustainability Act* (Section 22), where those with senior Priority Dates have more rights than those with junior Priority Dates. The goal of the amendment would be to keep the same priority dates and volumes in the Surface Water Licence, up to the licensed volume (2,682,090 m³), and then any quantity beyond the licensed volume up to the year 2030 volume would be an existing use groundwater licence application. This approach would allow the City to keep their senior water rights that may become relevant in times of water scarcity. Table 3-1 outlines the anticipated amendments that we recommend the City apply for following this approach.

⁴ City of Merritt. 2011. Official Community Plan Bylaw No. 2116, 2011 Text Updated to June 28, 2011.

⁵ City of Merritt. 2017. Community Water System.

Table 3-1 Proof of First Use and Quantity for Groundwater Use Application.

Licence	Licence Type	Priority Date	Source of Water Supply	Works	Quantity Subtracted (m ³ /year)	Quantity Added (m ³ /year)	Cumulative Quantity (m ³ /year)
Amendment to Licence 026589	Change to groundwater from surface water	No Change (February 21 st , 1931)	Change from Coldwater River to MOE Aquifer 0074.	No change to type of works (pumps, wells and pipe). Change location of works to as shown in GIS map for Fairley Park, Voght Park G/E, Voght Park VFD, Colletteville, and Kengard wells (May St. was in commission between 1977 and 2007).	-20,725	20,725	2,682,090
Amendment to Licence 030750	Change to groundwater from surface water	No Change (March 2 nd , 1939)	Change from Coldwater River to MOE Aquifer 0074.	Change. Same as Amendment to Licence 026589	-639,845	639,845	2,682,090
Amendment to Licence 025311	Change to groundwater from surface water	No change (July 9 th , 1958)	Change from Coldwater River to MOE Aquifer 0074.	Change. Same as Amendment to Licence 026589	-1,381,675	1,381,675	2,682,090
Amendment to Licence 030751	Change to groundwater from surface water	No change (June 16 th , 1965)	Change from Coldwater River to MOE Aquifer 0074.	Change. Same as Amendment to Licence 026589	-639,845	639,845	2,682,090
New "Existing Use Groundwater" Licence	Groundwater	January 1, 1979 ¹	Change from Coldwater River to MOE Aquifer 0075.	Change. Same as Amendment to Licence 026589	-	2,957,160 ²	5,639,250
Total Volume (m³/year)							5,639,250²

¹ 1979 was the first year that the City of Merritt has proof of usage greater than the total volume licensed in their surface water licences.

² The volume that the City of Merritt is applying for is the 2017 average per capita use times the year 2030 population based on the approved 2011 OCP.

4 SUMMARY, CONCLUSION, AND RECOMMENDATION

Associated reviewed the history of water supply to the City of Merritt, summarized existing water licences, and provided recommendations for amendments to existing water licences and for the new existing use groundwater licence application. For purposes of annual water quantity for a non-domestic existing groundwater licence, Associated recommends the City submit one licence application to make four amendments to their current surface water licences to have them transferred from conditional surface water licences to conditional groundwater licences while also maintaining their priority dates where applicable.

The application will also include one additional licence that will make up the difference in volume, between the volume currently licensed under the City's current surface water licences, and the City's current water demand, as shown in their 2007 water usage records. Accomplishing these objectives will allow the City of Merritt to correct their current licensing situation, while also applying for an existing use groundwater licence for a volume that meets their current demand. In addition, the amendment will allow for the City of Merritt to keep their senior water rights that may become relevant in times of water scarcity. Details on the amendments are provided in this memo. Furthermore, an assessment of the applicability of Environmental Assessment Act is provided under separate cover.

List of Appendices:

Appendix A: Surface Water Licences

Appendix B: Water Reports

Appendix C: Well Logs

Appendix D: Excerpts from the Official Community Plan

Appendix E: Excerpts from 2017 Annual Water Report

APPENDIX A: SURFACE WATER LICENCES

British Columbia.

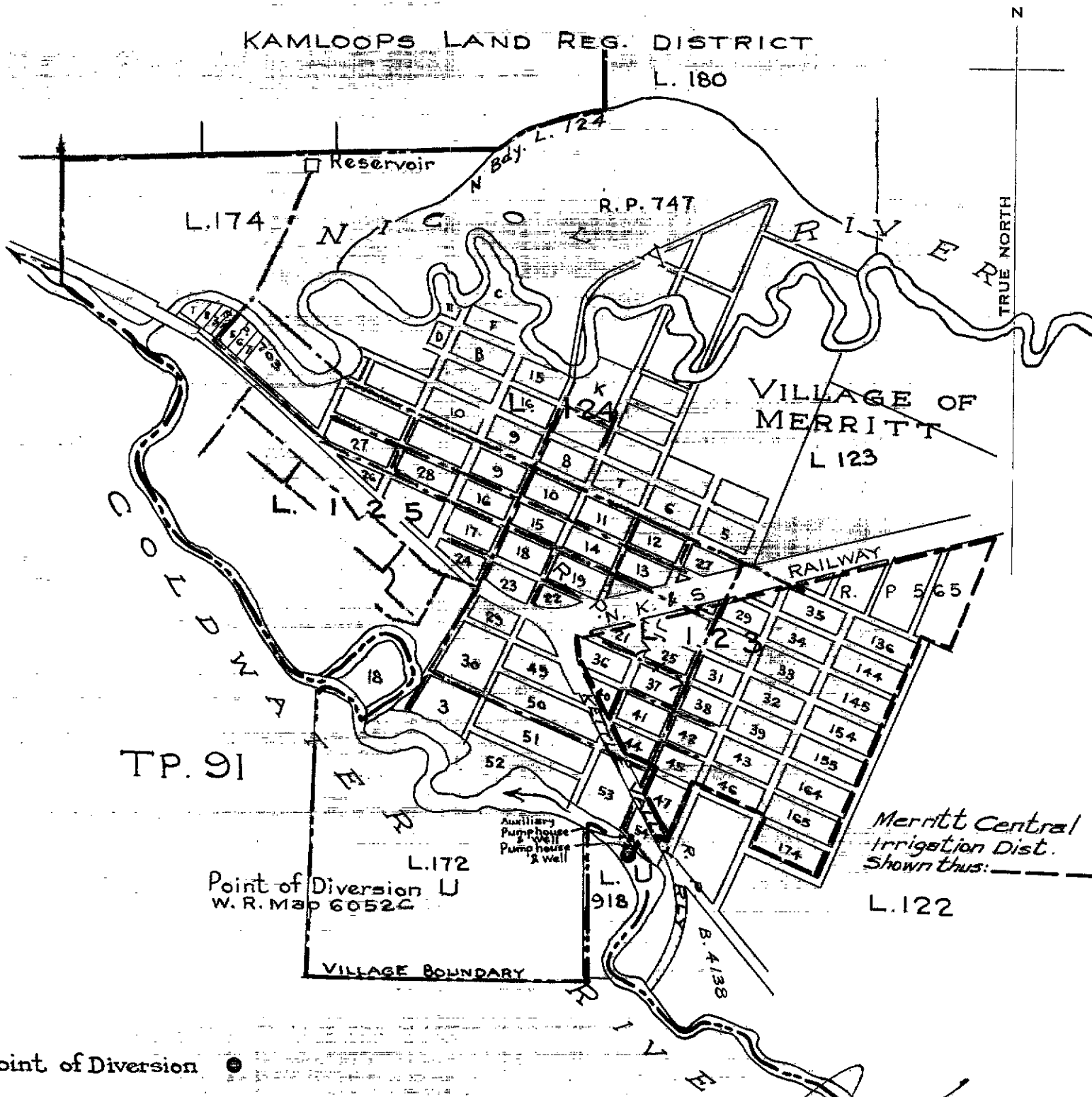


NICOLA WATER DISTRICT.

Scale, 1320 Feet to 1 Inch.

KAMLOOPS LAND REG. DISTRICT

L. 180



Point of Diversion

Pipeline

The boundaries of the Corp. of the Village of Merritt are shown thus: ---

Signature

Date

1st Dec, 1959
C.L. 25311
File 0225282

EXHIBIT "A"

PROVINCE OF
BRITISH COLUMBIA

Water Rights Branch

DEPARTMENT OF
LANDS AND FORESTS

CONDITIONAL WATER LICENCE

The Corporation of the Village of Merritt, of Merritt, B. C.,

is/are hereby authorized to divert and use water as follows:—

- (a) The source (s) of the water-supply is/are Coldwater River.
- (b) The point (s) of diversion is/are located as shown on the attached plan.
- (c) The date from which this licence shall have precedence is 9th July, 1958.
- (d) The purpose for which the water is to be used is waterworks.
- (e) The maximum quantity of water which may be diverted is 1,000,000 gallons a day,
and such additional quantity as the Engineer may from time to time determine should be allowed for losses.
- (f) The period of the year during which the water may be used is the whole year.
- (g) The land upon which the water is to be used and to which this licence is appurtenant is the lands within the boundaries of the Corporation of the Village of Merritt.
- (h) The works authorized to be constructed are pumps, wells and pipe,
and they shall be located approximately as shown on the attached plan.
- (i) The construction of the said works ~~shall be~~ ^{has been} commenced ~~on or before the~~ ^{on or before the} ~~31st~~ ^{31st} day of ~~December~~ ^{December}, 1963.

ENTERED ON
Map No. 6052
By A. F. L.

A. F. Paget
A. F. Paget,
Comptroller of Water Rights.

File No. 0225282

Date issued 1st December, 1959.

Licence No. 25311

PROVINCE OF
BRITISH COLUMBIA

Water Rights Branch

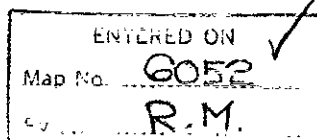
DEPARTMENT OF
LANDS AND FORESTS

CONDITIONAL WATER LICENCE

The Corporation of the Village of Merritt, of Merritt, B. C.

is/are hereby authorized to divert and use water as follows:—

- (a) The source (s) of the water-supply is/are Coldwater River.
- (b) The point (s) of diversion is/are located as shown on the attached plan.
- (c) The date from which this licence shall have precedence is 21st February, 1931.
- (d) The purpose for which the water is to be used is waterworks.
- (e) The maximum quantity of water which may be diverted is 15,000 gallons a day,
and such additional quantity
as the Engineer may from time to time determine should be allowed for losses.
- (f) The period of the year during which the water may be used is 1st April to 30th September.
- (g) The land upon which the water is to be used and to which this licence is appurtenant is
the lands within the boundaries of the Corporation of the Village of
Merritt.
- (h) The works authorized to be constructed are pumps, wells and pipe
and they shall be located approximately as shown on the attached plan.
- (i) The construction of the said works ^{has been} ~~shall be~~ commenced ~~on or before the~~ ^{day} ~~of~~
~~of~~ , 19xx , and shall be completed and the water beneficially
used on or before the 31st day of December , 19 63 .
- (j) This licence does not authorize the construction or maintenance of any works
upon or the use or occupation of any lands being part of the Railway Right-of-
Way belonging to the Kettle Valley Railway Company, unless and until such
construction or maintenance is approved, or such use or occupation authorized by
the Board of Railway Commissioners of Canada.
- (k) This licence is issued in substitution of Final Water Licence No. 9495, under
change of purpose, change of appurtenancy and change of works.



A. F. Paget,
Comptroller of Water Rights.

File No. 0237469

Date issued 1st August, 1961.

Licence No. 26589

Scale, 1/8" = 1' to 1 Inch.

L2809

LIBO

4181

N H C O L R I V E

R. P. 747

~~VILLAGE OF
MERRITT~~

RAILWAY

Merritt Central
Irrigation Dist.
Shown thus: ———

L.122

Point of Diversion U
W.R. Map 6052C

VILLAGE BOUNDARY

Point of Diversion

Pipeline

The boundaries of the Corp. of the Village of Merritt are shown thus:

Signature

Date 1 Aug. 1961

CV 26589 - for FL 9495

FM 0237469

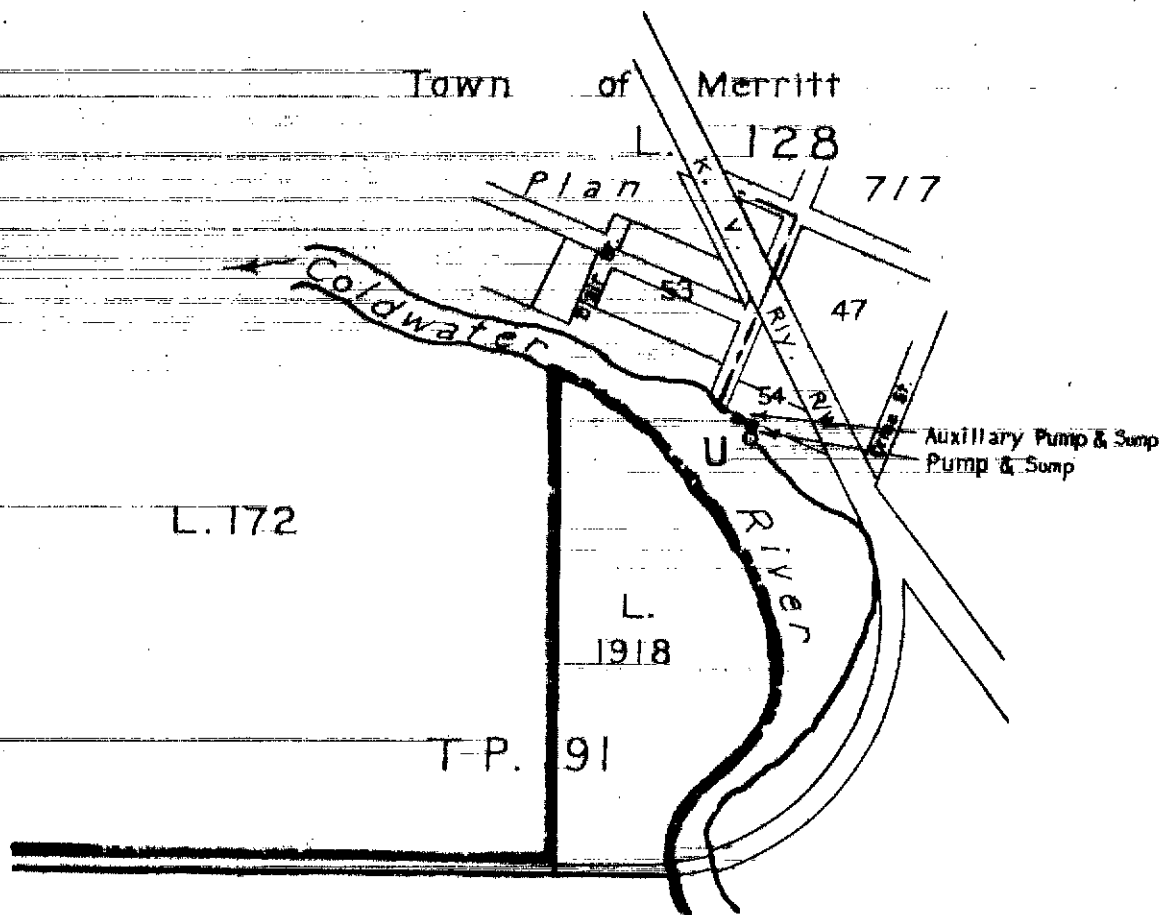
British



Columbia

NICOLA WATER DISTRICT
KAMLOOPS DIVISION OF YALE DISTRICT

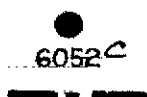
Scale: 600 Feet to 1 Inch



Boundaries of the Corporation of the town of Merritt
shown thus: - - - - -

LEGEND

Point of Diversion
W.R. Map
Pipe



6

Signature

EXHIBIT "A"

Date Mar 16, 1966
CL 30750 for F.L. 10615
File 0127528

THE PROVINCE OF BRITISH COLUMBIA—WATER ACT
CONDITIONAL WATER LICENCE

Town of Merritt of **Box 189, Merritt, B.C.**

is/are hereby authorized to **divert and use** water as follows:—

- (a) The source(s) of the water-supply is/are **Coldwater River.**
- (b) The point(s) of **diversion** is/are located as shown on the attached plan.
- (c) The date from which this licence shall have precedence is **2nd March 1939.**
- (d) The purpose for which the water is to be used is **waterworks.**
- (e) The maximum quantity of water which may be **diverted is 463,100 gallons a day,**
as the Engineer may from time to time determine should be allowed for losses. and such additional quantity
- (f) The period of the year during which the water may be **used is 1st April to 30th September.**
- (g) The land upon which the water is to be used and to which this licence is appurtenant is
the lands within the boundaries of the Town of Merritt.
- (h) The works authorized to be constructed are **pumps, sumps, pipe and distribution system,**
and they shall be located approximately as shown on the attached plan.
- (i) The construction of the said works **has been commenced, and shall be completed and the water beneficially used on or before the 31st day of December, 1970.**
- (j) **This licence is issued in substitution of Final Water Licence No. 10615, under Sections 15 and 16 of the Water Act.**

6052
R.M. BD.


H. D. DeBeck,

Comptroller of Water Rights.

File No. **0127528** Date issued: **16 March 1966**

Conditional Licence No. **30750**

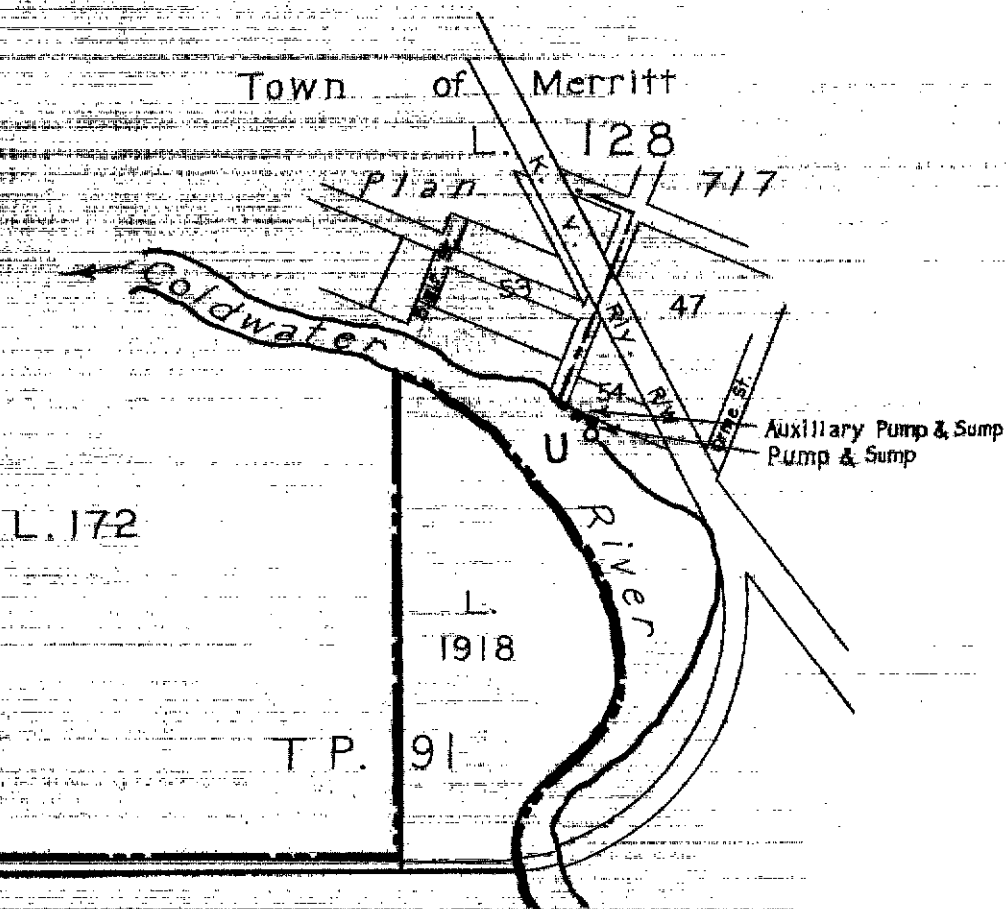
British



Columbia

NICOLA WATER DISTRICT
KAMLOOPS DIVISION OF YALE DISTRICT

Scale: 600 Feet to 1 Inch



Boundaries of the Corporation of the town of Merritt
shown thus: ————

LEGEND

Point of Diversion
W.R. Map 6052
Pipe ————

The boundaries of the land to which this licence
is appurtenant are shown thus: ————

Signature

Date Mar 18, 1966

EXHIBIT "A"

CL 30751

File 0263044

THE PROVINCE OF BRITISH COLUMBIA—WATER ACT
CONDITIONAL WATER LICENCE

Town of Merritt

of Box 189, Merritt, B.C.

is/are hereby authorized to **divert and use** water as follows:—

(a) The source(s) of the water-supply is/are **Coldwater River.**

(b) The point(s) of **diversion** is/are located as shown on the attached plan.

(c) The date from which this licence shall have precedence is **16th June, 1965.**

(d) The purpose for which the water is to be used is **waterworks.**

(e) The maximum quantity of water which may be **diverted is 463,100 gallons a day,**

as the Engineer may from time to time determine should be allowed for losses. and such additional quantity

(f) The period of the year during which the water may be **used is 1st October to 31st March.**

(g) The land upon which the water is to be used and to which this licence is appurtenant is
the lands within the boundaries of the Town of Merritt.

(h) The works authorized to be constructed are **pumps, sumps, pipe and distribution system,**

and they shall be located approximately as shown on the attached plan.

(i) The construction of the said works **has been commenced and shall be completed and the water beneficially used on or before the 31st day of December, 1970.**

ENTERED ON
Map No. G052
By K.M. BD


H. D. DeBeck,
Comptroller of Water Rights.

File No. **0263044** Date issued: **16 March 1966**

Conditional Licence No. **30751**

APPENDIX B: WATER REPORTS

Quantity (m³/day): 3556736 m³
365 days
= 9744.48

VP#
VP#

WATER PUMP RECORD												
(Imp. Gal.)												
Year	May St. X 1000	Fairley Pk. X 1000	V.P.G/E X 1000	V.P. VFD X 1000	Collettsville X 1000	Kengard X 1000	Total Gal.	Daily Imp. Average	M3	Temp mean	Precip total mm	Comments
1977	60,300	321,806	149,537				531,643,000	1,456,556	2,416,559			
1978	32,200	286,649	6,338	208,622			533,809,000	1,374,271	2,426,405			
1979	22,300	253,278	46,002	340,156			661,736,000	1,812,975	3,007,891			
1980	30,800	288,503	10,882	399,873			730,058,000	1,994,693	3,318,445			
1981	27,000	158,563	45,008	450,373			680,944,000	1,865,600	3,095,200			
1982	13,100	47,209	180,369	442,879			683,557,000	1,872,759	3,107,077			
1983	5,000	55,884	173,910	427,845			662,639,000	1,815,449	3,011,995			
1984	4,700	67,883	200,357	453,615			726,555,000	1,990,562	3,302,523			
1985	5,600	71,808	216,816	509,448			803,672,000	2,201,841	3,653,055			May St & V.P. Gas/Elec meters sent out for calibration
1986	6,000	58,250	175,617	448,149			688,016,000	1,884,975	3,127,345			estimated 25% error V.P. Elec. meter
1987	10,500	81,927	207,231	492,735			792,393,000	2,170,934	3,601,786			
1988	7,000	70,156	211,815	449,998			738,969,000	2,019,041	3,358,950			
1989	2,400	103,693	186,707	478,744			771,544,000	1,831,655	3,507,018	7.35	315.1	
1990	9,300	91,893	252,365	405,707			759,265,000	2,080,175	3,451,205	7.73	437.3	both V.P. wells redeveloped by Valley Water Services
1991	6,208	78,351	253,260	402,118			739,937,000	2,027,225	3,363,350	8.23	348.4	est. 35% error V.P. Elec. pump
1992	0	92,741	282,764	317,372			692,877,000	1,893,087	3,149,441	9.35	351.1	motor seized May St. - ordered 50 hp pump - installed 1993
1993	36,026	120,775	301,096	124,552			582,449,000	1,628,269	2,647,495	6.45	358.4	new 250 hp VFD installed in V.P. Elec. p/h - new meter vault
1994	30,726	98,292	42,882	532,778			704,678,000	1,932,178	3,203,082	8.49	266.4	water system on PLC/pc control 29 Nov '93
1995	28,958	91,770	35,806	504,655			661,189,000	1,811,478	3,005,405	8.03	322.9	reservoir level transmitter failed - replaced
1996	8,019	36,283	108,334	469,311			621,947,000	1,699,309	2,827,032	5.92	447.1	Collettsville on City water 29 Aug - new p/h constructed
1997	6,069	178,442	29,048	371,043	93,165		677,767,000	1,854,496	3,080,759	8.22	371.6	Coll. pu on auto - both V.P. pump elec mtr/mcc repairs
1998	222	136,526	51,774	464,978	103,228		756,728,000	2,070,510	3,439,673	9.08	284.6	Fairly pump/mtr o/h "water conservation May to Sept."
1999	11,224	165,735	158,289	343,458	31,857		710,563,000	1,946,748	3,229,832	8.39	237.7	Coll pump/MCC failure 01 Aug. Fairley MCC upgrade
2000	8,025	113,824	144,835	291,550	106,987		665,221,000	1,817,544	3,023,732	7.02	297.4	new 150 hp pump/VFD installed in Coll. P/h
2001	6,017	158,014	163,246	333,125	66,723		727,125,000	1,986,680	3,305,114	7.94	204.1	Coll. Pump failure 22- Aug.
2002	12,155	161,977	160,864	326,563	40,934		702,492,800	1,919,379	3,193,149	7.79	284.9	Coll. Pump removed 24 Apr - new pump 24 Oct. level trans. - Nicola Res.
2003	7,661	112,296	94,377	351,231	151,926		717,491,000	1,960,358	3,261,323	8.49	216.9	installed new capacitor banks in Voght Park VFD Drive
2004	5,456	141,833	177,067	303,163	86,635		714,154,000	1,951,240	3,246,155	8.59	336.1	installed soft starts at Fairley and VPGE pumpstations
2005	4,963	223,268	28,421	376,098	74,557		707,307,000	1,932,533	3,215,032	7.92	275.0	installed new VFD at VPVFD pumpstation
2006	4,900	258,788	33,724	376,803	81,723		755,938,000	2,065,404	3,436,082	8.31	371.3	
2007	Off Line	260,897	60,846	308,759	151,980		782,482,000	2,137,929	3,556,736	8.15	180.6	May St. off line and line from well capped off
2008	Off Line	262,162	73,466	167,895	151,980		655,503,000	1,790,992	2,979,559	6.02	217.4	Installed new flow meters that caused some lost data. Started C12 pumps Nov 3rd
2009	Off Line	151,721	232,961	216,509	75,468		676,659,000	1,848,795	3,075,723	6.76	250.5	Fairley Park Motor and pump rebuilt in December
2010	Off Line	183,566	135,061	238,616	86,475		643,718,000	1,763,617	2,925,991	7.30	311	Voght Park VFD motor and pump rebuilt and installed in April
2011	Off Line	191,218	222,993	165,728	66,452	756	647,147,000	1,773,005	2,941,577	6.70	292	Voght Park GE motor and pump rebuilt and installed in June 15.
2012	Off Line	185,385	168,348	218,704	0	10,369	582,806,000	1,592,366	2,649,118	8.48	326	Coll. Offline due to motor and pump rebuild as well as Well rehab.
2013	Off Line	137,232	203,407	148,428	81,806	23,979	594,852,000	1,629,732	2,703,873	7.30	276	
2014	Off Line	94,391	268,874	113,301	117,875	14,435	608,876,000	1,668,153	2,767,618	7.36	307	
2015	Off Line	14,463	341,280	89,194	158,404	14,463	617,804,000	1,692,614	2,808,200	8.60	338	

463.000

1995 = 3,005,405 m³

City of Merritt Monthly Water Stats													
2010	Voght Park VFD		Voght Park G/E		Fairley Park		Collettville		Total	Total	Daily Avg		
	hours	m3	hours	m3	hours	m3	hours	m3	m3	Imp.gal	Imp.gal.		
Jan	0.1	32.8	5.7	1,136.0	684.7	141,178.9	256.1	38,015.4	180,363	39,679,882	1,279,996		
Feb	0.0	0.0	559.6	147,554.0	11.4	2,356.0	26.9	3,925.0	153,835	33,843,700	1,208,704		
Mar	0.0	0.0	373.9	97,438.0	372.7	76,363.0	10.0	660.0	174,461	38,381,420	1,238,110		
Apr	19.8	9,321.0	247.5	63,535.0	499.3	101,738.0	259.8	39,037.0	213,631	46,998,820	1,566,627		
May	90.4	38,615.0	318.5	81,591.0	419.7	84,096.0	387.9	61,971.0	266,273	58,580,060	1,889,679		
Jun	164.4	75,420.0	554.0	143,443.0	136.1	25,732.0	448.3	71,891.0	316,486	69,626,920	2,320,897		
Jul	719.7	264,546.0	150.1	34,842.0	244.6	45,736.0	463.5	66,988.0	412,112	90,664,640	2,924,666		
Aug	698.0	264,618.0	142.5	33,294.0	234.5	43,890.0	328.0	47,260.0	389,062	85,593,640	2,761,085		
Sept	638.0	256,199.0	45.0	10,317.0	91.0	11,497.0	113.0	16,174.0	294,187	64,721,140	2,157,371		
Oct	420.2	173,866.0	3.0	686.0	144.0	29,369.0	61.1	8,822.0	212,743	46,803,460	1,509,789		
Nov	2.0	574.0	0.3	78.0	661.6	135,410.0	116.1	16,967.0	153,029	33,666,380	1,122,213		
Dec	4.6	1,430.0	0.0	0.0	669.3	137,029.0	146.3	21,361.0	159,820	35,160,400	1,134,206		
Total	2,757.2	1,084,621.8	2,400.1	613,914.0	4,168.9	834,394.9	2,617.0	393,071.4	2,926,002.1	643,720,462			
L/sec	109 L/sec		71 L/sec		56 L/sec		42 L/sec						
Avg									8,016		1,759,445		

City of Merritt Monthly Water Stats													
2011	Voght Park VFD		Voght Park G/E		Fairley Park		Collettville		Total m3	Total imp.gal	Daily Avg imp. gal.		
	hours	m3	hours	m3	hours	m3	hours	m3					
Jan	0.4	105.0	521.7	131,959.0	100.1	20,159.0	76.5	10,895.0	163,118	35,885,960	1,157,612		
Feb	0.0	0.0	201.7	52,781.0	368.8	75,419.0	96.1	13,265.0	141,465	31,118,565	1,073,054		
Mar	7.2	2,400.0	0.6	145.0	588.7	119,928.0	295.4	39,739.0	162,212	35,682,358	1,151,044		
Apr	6.4	2,053.0	0.0	0.0	483.8	97,688.0	662.9	86,828.0	186,569	41,040,255	1,368,009		
May	476.6	208,656.0	0.0	0.0	316.9	63,338.0	287.6	33,938.0	305,932	67,296,964	2,170,870		
Jun	599.8	210,375.0	21.5	8,151.0	376.0	76,254.0	594.2	107,028.0	401,808	88,397,760	2,946,592		
Jul	175.4	70,135.0	624.6	231,418.0	323.7	63,737.0	59.9	8,412.0	373,702	82,214,440	2,652,079		
Aug	121.8	48,083.0	740.0	264,594.0	402.0	78,727.0	16.0	1,719.0	393,123	86,487,060	2,789,905		
Sept	294.4	105,380.0	469.4	208,891.0	229.8	44,541.0	4.6	232.0	359,044	78,989,680	2,632,989		
Oct	312.1	108,298.0	49.2	18,677.0	276.9	57,014.0	0.0	0.0	183,989	40,477,580	1,305,728		
Nov	0.0	0.0	29.6	10,687.0	615.0	128,148.0	0.0	0.0	138,835	30,543,700	1,018,123		
Dec	0.0	0.0	242.4	86,303.0	212.3	44,220.0	0.0	0.0	130,523	28,715,060	926,292		
Total	1,994.1	755,485.0	2,900.7	1,013,606.0	4,294.0	869,173.0	2,093.2	302,056.0	2,940,320.0	646,849,382			
L/Sec	105 L/Sec		97 L/Sec		56 L/Sec		40 L/Sec						
Avg									8,056		1,766,025		

City of Merritt Monthly Water Stats													
2012	Voght Park VFD		Voght Park G/E		Fairley Park		Kengard		Collettville		Total	Total	Daily Avg
	hours	m3	hours	m3	hours	m3	hours	m3	hours	m3	m3	Imp.gal	Imp. gal.
Jan	1.5	448.0	29.7	10,566.0	605.7	125,891.0	0.0	0.0	0.0	0.0	136,905	30,119,100	971,584
Feb	0.0	0.0	237.2	84,448.0	240.1	49,832.0	0.0	0.0	0.0	0.0	134,280	29,541,600	1,018,676
Mar	0.0	0.0	34.5	12,285.0	636.7	132,302.0	0.0	0.0	0.0	0.0	144,587	31,809,140	1,026,101
Apr	0.0	0.0	353.0	125,563.0	139.7	28,975.0	0.0	0.0	0.0	0.0	154,538	33,998,360	1,133,279
May	391.9	139,442.0	141.2	50,199.0	413.4	84,400.0	10.5	1,996.0	0.0	0.0	276,037	60,728,140	1,958,972
Jun	255.1	90,763.0	422.1	150,258.0	145.4	28,276.0	18.6	3,583.0	0.0	0.0	272,880	60,033,600	2,001,120
Jul	699.7	249,059.0	86.8	30,817.0	354.6	70,148.0	85.0	15,964.0	0.0	0.0	365,988	80,517,360	2,597,334
Aug	708.9	252,349.0	109.3	38,838.0	415.9	81,909.0	72.2	13,454.0	0.0	0.0	386,550	85,041,000	2,743,258
Sept	673.4	239,686.0	68.8	24,430.0	214.8	41,902.0	0.0	0.0	0.0	0.0	306,018	67,323,960	2,244,132
Oct	62.7	22,286.0	132.2	47,056.0	581.9	119,320.0	17.5	3,279.0	0.0	0.0	191,941	42,227,020	1,362,162
Nov	0.0	0.0	337.0	120,026.0	51.5	10,659.0	25.5	4,881.0	0.0	0.0	135,566	29,824,520	994,151
Dec	0.2	75.0	198.6	70,733.0	333.4	69,046.0	21.2	3,975.0	0.0	0.0	143,829	31,642,380	1,020,722
Total	2,793.4	994,108.0	2,150.4	765,219.0	4,133.1	842,660.0	250.5	47,132.0	0.0	0.0	2,649,119.0	582,806,180	
L/Sec	99 L/Sec		99 L/Sec		57 L/Sec		52 L/Sec		#DIV/0!	L/Sec			
Avg											7,258		1,589,291

City of Merritt Monthly Water Stats												
2013	Voght Park VFD		Voght Park G/E		Fairley Park		Kengard		Collettville		Total	Daily Avg
	hours	m3	hours	m3	hours	m3	hours	m3	hours	m3	m3	Imp. gal
Jan	0.0	0.0	67.9	24,146.0	589.0	121,736.0	43.1	8,062.0	0.0	0.0	145,882	32,094,040
Feb	4.4	1,542.0	91.0	32,389.0	537.3	110,648.0	27.4	5,183.0	0.0	0.0	149,762	32,947,640
Mar	0.0	0.0	95.4	33,923.0	594.9	122,129.0	50.7	9,428.0	0.0	0.0	165,480	36,405,600
Apr	5.4	1,906.0	355.9	126,719.0	216.1	46,040.0	82.6	15,311.0	0.0	0.0	189,976	41,794,720
May	248.1	88,249.0	518.8	184,627.0	0.0	0.0	102.8	18,888.0	0.0	0.0	291,764	64,188,080
Jun	655.2	233,249.0	193.3	68,699.0	29.0	5,762.0	61.3	11,348.0	32.5	7,280.0	326,338	71,794,360
Jul	694.8	247,422.0	116.7	41,470.0	279.5	54,818.0	74.0	13,579.0	88.0	19,680.0	376,969	82,933,180
Aug	252.7	90,007.0	440.2	156,565.0	163.2	31,712.0	65.6	12,063.0	130.8	28,288.0	318,635	70,099,700
Sept	0.0	0.0	562.0	200,023.0	127.3	25,250.0	31.2	5,799.0	66.2	17,413.0	248,485	54,666,700
Oct	5.7	1,917.0	64.9	23,056.0	248.9	50,894.0	12.5	2,455.0	420.0	97,129.0	175,451	38,599,220
Nov	14.4	5,127.0	49.3	17,531.0	0.0	0.0	13.5	2,567.0	544.8	122,994.0	148,219	32,608,180
Dec	14.6	5,254.0	43.4	15,431.0	267.2	54,793.0	23.1	4,311.0	354.8	79,064.0	158,853	34,947,660
Total	1,895.3	674,673.0	2,598.8	924,579.0	3,052.4	623,782.0	587.8	108,994.0	1,637.1	371,848.0	2,695,814.0	593,079,060
L/sec	99 L/sec		99 L/sec		57 L/sec		52	L/sec	63 L/sec			
Avg											7,386	1,621,787

City of Merritt Monthly Water Stats													
2014	Voght Park VFD	Voght Park G/E	Fairley Park	Kengard	Collettville	Total	Total	Daily Avg					
hours	m3	m3	hours	hours	m3	m3	Imp.gal	Imp.gal.					
Jan	6.7	2,736.0	330.9	67,409.0	21.9	4,097.0	291.2	64,028.0	142,610	31,374,200	1,012,071		
Feb	0.0	0.0	23.3	8,292.0	107.3	21,311.0	22.4	4,165.0	136,162	29,955,640	1,069,844		
Mar	0.0	0.0	28.4	10,100.0	424.1	87,208.0	19.4	3,659.0	148,657	32,704,540	1,054,985		
Apr	0.0	0.0	260.1	92,538.0	0.0	0.0	34.7	6,424.0	179,109	39,403,980	1,313,466		
May	46.4	16,543.0	594.9	211,772.0	0.0	0.0	34.3	6,355.0	256,094	56,340,680	1,817,441		
Jun	575.8	204,516.0	162.0	57,601.0	0.0	0.0	39.9	7,389.0	286,374	63,002,280	2,100,076		
Jul	472.6	167,844.0	486.5	173,140.0	0.0	0.0	104.9	19,018.0	389,946	85,788,120	2,767,359		
Aug	318.5	113,068.0	451.9	160,978.0	114.0	22,836.0	39.4	7,115.0	347,539	76,458,580	2,466,406		
Sept	0.0	0.0	558.0	198,518.0	156.9	31,524.0	19.2	3,494.0	267,080	58,757,600	1,958,587		
Oct	0.0	0.0	180.9	64,359.0	333.0	68,088.0	0.1	18.0	195,211	42,946,420	1,385,368		
Nov	14.4	5,112.0	558.0	198,518.0	156.9	31,524.0	0.0	0.0	268,698	59,113,560	1,970,452		
Dec	14.8	5,259.0	107.0	38,073.0	478.9	99,213.0	54.9	3,892.0	146,437	32,216,140	1,039,230		
Total	1,449.2	515,078.0	3,434.7	1,222,326.0	2,102.0	429,113.0	391.1	65,626.0	2,763,917.0	608,061,740			
L/sec	99 L/sec		57 L/sec				47	L/sec	60 L/sec				
Avg									7,572		1,662,940		

181# 192#

City of Merritt Monthly Water Stats													
2015	Voght Park VFD		Voght Park G/E		Fairley Park		Kengard		Collettville		Total	Total	Daily Avg
	hours	m3	hours	m3	hours	m3	hours	m3	hours	m3	m3	Imp.gal	Imp.gal.
Jan	7.0	2,418.0	140.8	50,112.0	484.1	100,272.0	44.4	8,072.0	0.0	0.0	152,802	33,616,440	1,084,401
Feb	0.9	258.0	61.4	21,855.0	333.2	68,512.0	41.7	7,618.0	306.1	64,600.0	162,843	35,825,460	1,279,481
Mar	0.8	207.0	26.8	9,546.0	256.1	52,008.0	22.5	4,176.0	613.3	129,432.0	195,369	42,981,180	1,386,490
Apr	0.7	156.0	197.4	70,270.0	301.0	61,561.0	72.0	13,000.0	506.9	106,203.0	251,190	55,261,800	1,842,060
May	14.0	4,905.0	508.7	181,285.0	346.8	69,973.0	21.9	3,958.0	213.4	46,738.0	306,859	67,508,980	2,177,709
Jun	121.4	43,047.0	627.3	223,475.0	0.0	0.0	18.3	3,099.0	297.8	62,665.0	332,286	73,102,920	2,436,764
Jul	453.6	161,417.0	314.9	112,114.0	0.0	0.0	50.2	8,929.0	258.8	55,328.0	337,788	74,313,360	2,397,205
Aug	137.7	48,966.0	649.5	231,441.0	0.0	0.0	41.3	7,304.0	470.3	97,262.0	384,973	84,694,060	2,732,066
Sept	356.2	134,479.0	348.3	124,072.0	0.0	0.0	27.2	4,886.0	197.3	40,718.0	304,155	66,914,100	2,230,470
Oct	25.8	9,220.0	684.2	243,852.0	0.0	0.0	18.0	3,219.0	129.8	26,057.0	282,348	62,116,560	2,003,760
Nov	0.4	142.0	618.6	220,457.0	0.0	0.0	0.9	85.0	93.3	19,014.0	239,698	52,733,560	1,757,785
Dec	0.6	213.0	176.3	62,795.0	0.0	0.0	8.1	1,395.0	348.6	72,003.0	136,406	30,009,320	968,043
Total	1,119.1	405,428.0	4,354.2	1,551,274.0	1,721.2	352,326.0	366.5	65,741.0	3,435.6	720,020.0	3,086,717.0	679,077,740	
L/sec	101 L/sec		99 L/sec		57 L/sec		50	L/sec	58 L/sec				
Avg											8.457		1,858,020

City of Merritt Monthly Water Stats														
2016	Voght Park VFD		Voght Park G/E		Fairley Park		Kengard		Collettville		Total m3	Total Imp.gal	Daily Avg Imp.gal	
	hours	m3	hours	m3	hours	m3	hours	m3	hours	m3				
Jan	0.7	178.0	73.2	26,053.0	0.0	0.0	25.7	4,637.0	508.9	104,988.0	135,866	29,890,520	964,210	
Feb	0.2	71.0	304.5	108,512.0	0.0	0.0	6.4	1,006.0	14.3	5,923.0	115,512	25,412,640	876,298	
Mar	0.0	0.0	51.9	18,451.0	0.3	2.0	20.6	3,684.0	659.6	115,426.0	137,563	30,263,860	976,254	
Apr	13.8	4,902.0	239.9	85,445.0	0.2	32.0	93.3	16,644.0	466.6	96,094.0	203,117	44,685,740	1,489,525	
May	29.5	10,473.0	554.3	197,503.0	81.3	16,283.0	55.2	9,914.0	63.7	19,008.0	253,181	55,699,820	1,796,768	
Jun	471.3	167,418.0	179.0	63,708.0	36.2	6,665.0	28.5	5,079.0	28.1	6,978.0	249,848	54,966,560	1,832,219	
Jul	128.3	55,339.0	573.3	204,249.0	8.9	1,597.0	9.7	1,563.0	1.5	291.0	263,009	57,861,980	1,866,515	
Aug	394.4	177,525.0	322.1	114,716.0	32.2	6,274.0	20.7	3,533.0	0.0	0.0	302,048	66,450,560	2,143,566	
Sept	353.0	158,940.0	15.8	5,588.0	132.6	27,323.0	10.7	1,710.0	0.0	0.0	193,561	42,583,420	1,419,447	
Oct	0.0	0.0	0.0	0.0	526.6	110,429.0	9.4	1,500.0	0.0	0.0	111,929	24,624,380	794,335	
Nov											0	0	0	
Dec											0	0	0	
Total	1,391.2	574,846.0	2,314.0	824,225.0	818.3	168,605.0	280.2	49,270.0	1,742.7	348,688.0	1,965,834.0	432,439,480		
L/Sec	115 L/Sec		99 L/Sec		57 L/Sec		49 L/Sec		56 L/Sec		5,385			
Avg													1,179,928	

APPENDIX C: WELL LOGS



Report 1 - Detailed Well Record

Well Tag Number: 108220	Construction Date:
Owner: CITY OF MERRITT	Driller:
Address: 1410 GOVERNMENT AVENUE	Well Identification Plate Number: 12727
Area: MERRITT	Plate Attached By:
WELL LOCATION:	Where Plate Attached:
KAMLOOPS (KDYD) Land District	PRODUCTION DATA AT TIME OF DRILLING:
District Lot: 173 Plan: 14807 Lot: 1	Well Yield: (Driller's Estimate)
Township: Section: Range:	Development Method:
Indian Reserve: Meridian: Block:	Pump Test Info Flag: N
Quarter:	Artesian Flow:
Island:	Artesian Pressure (ft):
BCGS Number (NAD 83): 092I016222 Well:	Static Level:
Class of Well: Water supply	WATER QUALITY:
Subclass of Well: Domestic	Character:
Orientation of Well:	Colour:
Status of Well: New	Odour:
Licence General Status: UNLICENSED	Well Disinfected: N
Well Use: Water Supply System	EMS ID:
Observation Well Number:	Water Chemistry Info Flag:
Observation Well Status:	Field Chemistry Info Flag:
Construction Method:	Site Info (SEAM):
Diameter: 10 inches	Water Utility:
Casing drive shoe:	Water Supply System Name:
Well Depth: 148 feet	Water Supply System Well Name:
Elevation: feet (ASL)	SURFACE SEAL:

Final Casing Stick Up: 24 inches	Flag: N
Well Cap Type: WATER TIGHT	Material:
Bedrock Depth: feet	Method:
Lithology Info Flag: N	Depth (ft):
File Info Flag: N	Thickness (in):
Sieve Info Flag: N	
Screen Info Flag: N	WELL CLOSURE INFORMATION:
	Reason For Closure:
Site Info Details:	Method of Closure:
Other Info Flag:	Closure Sealant Material:
Other Info Details:	Closure Backfill Material:
Screen from to feet Type	Details of Closure:
Casing from to feet Diameter	Material Drive Shoe
GENERAL REMARKS: INFORMATION PROVIDED FROM WELL PUMP INSTALLATION REPORT.	
LITHOLOGY INFORMATION:	

- [Return to Main](#)
- [Return to Search Options](#)
- [Return to Search Criteria](#)

Information Disclaimer

The Province disclaims all responsibility for the accuracy of information provided. Information provided should not be used as a basis for making financial or any other commitments.



Report 1 - Detailed Well Record

Well Tag Number: 38902	Construction Date: 1978-01-01 00:00:00
Owner: CITY OF MERRITT	Driller: Rural Well Drillers
Address: QUILCHENA AVE	Well Identification Plate Number: 12730
Area: MERRITT	Plate Attached By: PUMP INSTALLER
	Where Plate Attached: UNKNOWN
WELL LOCATION:	PRODUCTION DATA AT TIME OF DRILLING:
KAMLOOPS (KDYD) Land District	Well Yield: 0 (Driller's Estimate)
District Lot: Plan: Lot:	Development Method:
Township: Section: Range:	Pump Test Info Flag: Y
Indian Reserve: Meridian: Block:	Artesian Flow:
Quarter:	Artesian Pressure (ft):
Island:	Static Level: 7 feet
BCGS Number (NAD 83): 092I017111 Well: 1	WATER QUALITY:
	Character:
Class of Well: Water supply	Colour:
Subclass of Well: Domestic	Odour:
Orientation of Well:	Well Disinfected: N
Status of Well: New	EMS ID: E250650
Licence General Status: UNLICENSED	Water Chemistry Info Flag: Y
Well Use: Water Supply System	Field Chemistry Info Flag:
Observation Well Number:	Site Info (SEAM):
Observation Well Status:	
Construction Method: Drilled	Water Utility:
Diameter: 12 inches	Water Supply System Name:
Casing drive shoe:	Water Supply System Well Name:
Well Depth: 98 feet	
Elevation: 0 feet (ASL)	SURFACE SEAL:

Final Casing Stick Up: inches	Flag: N
Well Cap Type:	Material:
Bedrock Depth: feet	Method:
Lithology Info Flag: N	Depth (ft):
File Info Flag: N	Thickness (in):
Sieve Info Flag: Y	
Screen Info Flag: N	WELL CLOSURE INFORMATION:
	Reason For Closure:
Site Info Details:	Method of Closure:
Other Info Flag:	Closure Sealant Material:
Other Info Details:	Closure Backfill Material:

Screen from	to feet	Type	Details of Closure:	
Casing from	to feet	Diameter	Material	Drive Shoe
null	null	null	null	null

GENERAL REMARKS:
PUMPHOUSE

LITHOLOGY INFORMATION:
From 0 to .5 Ft. topsoil
From .5 to 6 Ft. brown clay
From 6 to 10 Ft. loose medium gravel
From 10 to 16 Ft. brown silt
From 16 to 66 Ft. loose clean fine to medium gravel
From 66 to 83 Ft. medium sandy gravel
From 83 to 97 Ft. grey silt
From 97 to 98 Ft. sandy gravel

- [Return to Main](#)
- [Return to Search Options](#)
- [Return to Search Criteria](#)

Information Disclaimer

The Province disclaims all responsibility for the accuracy of information provided. Information provided should not be used as a basis for making financial or any other commitments.



Report 1 - Detailed Well Record

Well Tag Number: 97218	Construction Date: 2007-10-26 00:00:00
Owner: CITY OF MERRITT	Driller: J. R. Drilling Central Ltd. Partnership
Address: 2485 MERRITT	Well Identification Plate Number: 29680
Area: MERRITT	Plate Attached By:
WELL LOCATION:	Where Plate Attached:
Land District	PRODUCTION DATA AT TIME OF DRILLING:
District Lot: Plan: Lot:	Well Yield: (Driller's Estimate)
Township: Section: Range:	Development Method: Air lifting
Indian Reserve: Meridian: Block:	Pump Test Info Flag: N
Quarter:	Artesian Flow:
Island:	Artesian Pressure (ft):
BCGS Number (NAD 83): 092I017113 Well:	Static Level:
Class of Well: Water supply	WATER QUALITY:
Subclass of Well: Domestic	Character:
Orientation of Well: Vertical	Colour:
Status of Well: New	Odour:
Licence General Status: UNLICENSED	Well Disinfected: N
Well Use: Water Supply System	EMS ID:
Observation Well Number:	Water Chemistry Info Flag: N
Observation Well Status:	Field Chemistry Info Flag:
Construction Method:	Site Info (SEAM):
Diameter: inches	Water Utility:
Casing drive shoe: Y Y	Water Supply System Name:
Well Depth: 457.7 feet	Water Supply System Well Name:
	SURFACE SEAL:

From	366 to	367 Ft.	Loose GRAVEL SAND SILT	grey
From	367 to	441 Ft.	Loose COBBLES GRAVEL SAND SOME SILT	WATER BEARING FAIRLY CLEAN grey
From	446 to	462 Ft.	Loose SMALL COBBLES GRAVEL SAND SOME SILT	grey
From	472 to	541 Ft.	Loose SMALL COBBLES GRAVEL SAND SILT	WATER BEARING FAIRLY CLEAN grey
From	462 to	472 Ft.	Dense GRAVEL SAND SILT	VERY HARD DRILLING grey
From	541 to	545 Ft.	Dense TALC & BEDROCK	white

- [Return to Main](#)
- [Return to Search Options](#)
- [Return to Search Criteria](#)

Information Disclaimer

The Province disclaims all responsibility for the accuracy of information provided. Information provided should not be used as a basis for making financial or any other commitments.



Report 1 - Detailed Well Record

Well Tag Number: 34180	Construction Date: 1976-01-01 00:00:00
Owner: TOWN OF MERRITT	Driller: A. C. Drillers
Address: 1500 CANFORD AVENUE	Well Identification Plate Number: 12728
Area: MERRITT	Plate Attached By: PUMP INSTALLER
WELL LOCATION:	Where Plate Attached: UNKNOWN
KAMLOOPS (KDYD) Land District	PRODUCTION DATA AT TIME OF DRILLING:
District Lot: Plan: Lot:	Well Yield: 1960 (Driller's Estimate) Gallons per Minute (U.S./Imperial)
Township: Section: Range:	Development Method:
Indian Reserve: Meridian: Block:	Pump Test Info Flag: N
Quarter:	Artesian Flow:
Island:	Artesian Pressure (ft):
BCGS Number (NAD 83): 092I016222 Well: 5	Static Level: 12 feet
Class of Well: Water supply	WATER QUALITY:
Subclass of Well: Domestic	Character:
Orientation of Well:	Colour:
Status of Well: New	Odour:
Licence General Status: UNLICENSED	Well Disinfected: N
Well Use: Water Supply System	EMS ID: E250649
Observation Well Number:	Water Chemistry Info Flag:
Observation Well Status:	Field Chemistry Info Flag:
Construction Method: Unknown Constr	Site Info (SEAM):
Diameter: 16 inches	Water Utility:
Casing drive shoe:	Water Supply System Name:
Well Depth: 114 feet	Water Supply System Well Name:
Elevation: 0 feet (ASL)	SURFACE SEAL:
Final Casing Stick Up: inches	Flag: N
Well Cap Type:	Material:
Bedrock Depth: feet	Method:
Lithology Info Flag: N	Depth (ft):

File Info Flag: N	Thickness (in):			
Sieve Info Flag: N				
Screen Info Flag: N	WELL CLOSURE INFORMATION:			
	Reason For Closure:			
Site Info Details:	Method of Closure:			
Other Info Flag:	Closure Sealant Material:			
Other Info Details:	Closure Backfill Material:			
Details of Closure:				
Screen from	to feet	Type	Slot Size	
Casing from	to feet	Diameter	Material	Drive Shoe
GENERAL REMARKS: WELL PUMP INSTALLATION REPORT AVAILABLE.				
LITHOLOGY INFORMATION:				

- [Return to Main](#)
- [Return to Search Options](#)
- [Return to Search Criteria](#)

Information Disclaimer

The Province disclaims all responsibility for the accuracy of information provided. Information provided should not be used as a basis for making financial or any other commitments.

Table 5. Summary of Construction Details of the City of Merritt Voght Park Wells

Well (Date of Construction)	Well Depth m (ft)	Static Water Level m (ft)	Aquifer Material and Well Completion	Driller's Log	Remarks
Voght Park No. 1 (July/74)	29.9 (98)	2.56 (8.4)	Gravel and sand; 2.4 m (8 ft) of 2.03 mm (0.080") slot 300 mm (12") pipe-size screen over 6.7 m (22 ft) of 3.81 mm (0.150") slot screen set between 20.7 and 29.9 m (68 and 98 ft).	0 - 0.6 m fill 0.6 - 1.8 m loose, silty medium gravel 1.8 - 4.9 m very loose gravel 4.9 - 7.0 m compact, gravelly grey silt 7.0 - 7.3 m gravelly compact sand with water 7.3 - 11.6 m sandy gravel 11.6 - 12.8 m very loose gravelly sand 12.8 - 14.0 m tight sandy gravel 14.0 - 14.6 m loose sandy gravel 14.6 - 20.4 m sandy medium gravel 20.4 - 21.0 m sandy gravel with silt varves 21.0 - 24.7 m loose, medium, silty sandy gravel 24.7 - 29.9 m loose gravel.	400 mm (16") diameter; pumped at a maximum rate of 104.1 L/sec (1650 USgpm) in July 1971, with a total drawdown of 11.9 metres (38.95 ft) for a specific capacity of 8.77 L/sec/m (42.4 USgpm/ft). Rated capacity of 113.5 L/sec (1800 USgpm; 1500 igpm).
Voght Park No. 2 (Sept./76)	34.1 (112)	3.6 (11.9)	Gravel; 9.1 m of 300 mm (12") pipe-size screen with 3.05 mm (0.120") slots with the assembly set between 24.6 and 34.1 m (80.63 and 112 ft).	0 - 0.3 m gravel and clay fill 0.3 - 4.9 m compact silty gravel 4.9 - 11.0 m fine to coarse, loose pebbly gravel, some coarse to fine sand and suspended rusty tan silt 11.0 - 29.9 m medium to coarse, loose pebbly gravel with some fine to coarse sand with silty and sandy zones 29.9 - 31.1 m very coarse pebbly gravel with some medium sand 31.1 - 34.1 m medium coarse pebbly gravel with some fine to coarse sand 34.1 - 34.8 m medium coarse sand with some pebbles.	400 mm (16") diameter; pumped at rates as high as 123.8 L/sec (1962 USgpm) with a total drawdown of 6.93 m (22.73 ft), for a specific capacity of 17.86 L/sec/m (86.3 USgpm/ft); located 23.8 m (78 ft) from Well No. 1. Rated capacity of 140+ L/sec (2200+ USgpm; 1850+ igpm).

Table 2. Summary of Details About the City of Merritt Production Wells and Coldwater Improvement District Wells

Well (Date of Construction)	Well Depth m (ft)	Static Water Level m (ft)	Aquifer Material and Screen Interval		Litholog	Remarks
Fairley Park (Jan./66)	25.3 (83)	1.8 (6.0)	Medium sandy gravel; 6.1 m (20 ft) of 3.05 mm (0.120") slot screen set from 19.2 to 25.3 m (63 to 83 ft).	0 - 0.2 m 0.2 - 0.8 m 1.8 - 3.0 m 3.0 - 4.9 m 4.9 - 20.1 m 20.1 - 25.3 m 25.3 - 29.6 m 29.6 - 29.9 m	topsoil brown clay loose medium gravel brown silt loose, clean, fine to medium gravel medium sandy gravel grey silt sandy gravel.	300 mm (12") diameter; pumped at rates as high as 67.3 L/sec (1067 USgpm) with total drawdown of 3.9 m. Affected by iron oxide incrustation of aquifer sand and gravel. Rated capacity of 72.5 L/sec (1150 USgpm; 960 igpm).
May Street (Oct./70) decomissioned in 2007	30.5 (100)	2.9 (9.5)	loose, coarse, sandy gravel; 3.0 m (10 ft) of 2.54 mm (0.100") slot screen set from 7.6 to 10.7 m (25 to 35 ft).	0 - 0.2 m 0.2 - 0.3 m 0.3 - 9.4 m 9.4 - 10.7 m 10.7 - 18.3 m 18.3 - 18.9 m 18.9 - 22.9 m 22.9 - 30.5 m	compact road gravel compact sandy silt loose, coarse, sandy gravel coarse, tight silty gravel brown silt with tan interbeds coarse gravel soft, dark grey clay sandy till, very silty and compact.	400 mm (16") diameter; tested at 29.8 L/sec (473 USgpm) for 18 hours with 3.4 m (11 ft) of drawdown. Rated capacity of 25.2 L/sec (400 USgpm or 340 igpm).

Table 2. Summary of Details About the City of Merritt Production Wells and Coldwater Improvement District Wells (Page 2)

Well (Date of Construction)	Well Depth m (ft)	Static Water Level m (ft)	Aquifer Material and Screen Interval		Litholog	Remarks
Voght Park No. 1 (July/71)	29.9 (98)	2.56 (8.4)	Gravel and sand; 2.4 m (8 ft) of 2.03 mm (0.080") slot pipe- size screen over 6.7 m (22 ft) of 3.81 mm (0.150") slot screen set between 20.7 and 29.9 m (68 and 98 ft)	0 - 0.6 m 0.6 - 1.8 m 1.8 - 4.9 m 4.9 - 7.0 m 7.0 - 7.3 m 7.3 - 11.6 m 11.6 - 12.8 m 12.8 - 14.0 m 14.0 - 14.6 m 14.6 - 20.4 m 20.4 - 21.0 m 21.0 - 24.7 m 24.7 - 29.9 m	fill loose, silty medium gravel very loose gravel compact, gravelly grey silt gravelly compact sand with water sandy gravel very loose gravelly sand tight sandy gravel loose sandy gravel sandy medium gravel sandy gravel with silt varves loose, medium, silty sandy gravel loose gravel	400 mm (16") diameter; pumped at a maximum rate of 104.1 L/sec (1650 USgpm) in July 1971, with a total drawdown of 11.9 metres (38.95 ft) for a specific capacity of 8.77 L/sec/m (42.4 USgpm/ft). Rated capacity of 113.5 L/sec (1800 USgpm; 1500 igpm).
Voght Park No. 2 (Sept./76)	34.1 (112)	3.6 (11.9)	Gravel; 9.1 m of 300 mm pipe-size screen with 3.05 mm (0.120") slots set between 9.8 and 34.1 m (82 and 112 ft)	0 - 0.3 m 0.3 - 4.9 m 4.9 - 11.0 m 11.0 - 29.9 m 29.9 - 31.1 m 31.1 - 34.1 m 34.1 - 34.8 m	gravel and clay fill compact silty gravel fine to coarse, loose pebbly gravel some coarse to fine sand and suspended rusty tan silt medium to coarse, loose pebbly gravel with some fine to coarse sand with silty and sandy zones very coarse pebbly gravel with some medium sand medium coarse pebbly gravel with some fine to coarse sand medium coarse sand with some pebbles	400 mm (16") diameter; pumped at rates as high as 123.8 L/sec (1962 USgpm) with a total drawdown of 6.93 m (22.73 ft), for a specific capacity of 17.86 L/sec/m (86.3 USgpm/ft); USgpm/ft); located 23.8 m (78 ft) from Well No. 1. Rated capacity of 126+ L/sec (2000+ USgpm; 1670+ igpm).

Table 2. Summary of Details About the City of Merritt Production Wells and Coldwater Improvement District Wells (Page 3)

Well (Date of Construction)	Well Depth m (ft)	Static Water Level m (ft)	Aquifer Material and Screen Interval		Litholog	Remarks
Coldwater I.D. No. 1 (Aug./61)	27.4 (90)	2.9 (9.7)	gravel and sand; two sections of screen - 1.5 m (5 ft) from 22.9 to 22.4 m (75 to 80 ft) and 1.5 m from 25.6 to 27.1 m, separated by 1.2 m (4 ft) of blank pipe	0 - 0.3 m 0.3 - 3.4 m 3.4 - 14.6 m 14.6 - 20.7 m 20.7 - 22.3 m 22.3 - 23.2 m 23.2 - 24.7 m 24.7 - 27.4 m	silty sand medium sandy gravel medium to coarse sand with a high silt fraction coarse sand and gravel fine to medium sand sandy gravel, more silt compact sandy gravel gravelly sand	200 mm (8") diameter; pumped at 13.7 L/sec (217 USgpm) with 1.7 m (5.5 ft) of drawdown. Rated capacity of 22.1? L/sec (350? USgpm; 290? igpm).
Unknown Well						
Coldwater I.D. No. 2 (July/78)	45.1 (148)	3.8 (12.5)	sand and gravel; a 7.5 m (24.70 ft) long assembly of 1.5 m (5 ft) of 3.05 mm (0.120") slot screen over 2.4 m (8 ft) of 178 mm I.D. pipe, over 1.5 m of 5.08 mm (0.200") slot over 1.5 m of 3.05 mm slot, set between 37.6 and 45.1 m (123.3 and 148 ft)	0 - 0.9 m 0.9 - 9.8 m 9.8 - 11.9 m 11.9 - 12.5 m 12.5 - 14.6 m 14.6 - 15.2 m 15.2 - 16.8 m 16.8 - 18.0 m 18.0 - 19.5 m 19.5 - 24.4 m 24.4 - 25.6 m 25.6 - 25.9 m 25.9 - 26.2 m 26.2 - 32.3 m 32.3 - 49.1 m	tan fine sand with clay and silt small to medium coarse gravel with stringers of clay between 8.2 and 9.8 m (27 and 32 ft) grey clay clay with cobbles; a little water small to medium coarse gravel with thin clay interbeds coarse sand and gravel loose coarse sand tight coarse gravel fine sand with clay interbeds coarse gravel and sand; loose below 22.0 m compact, coarse sand and gravel clay loose, coarse sand and gravel fine sand with pebbles fine to coarse, loose sand and gravel with some cobbles; gravel less below 37.8 m	250 mm (10") diameter well; pump tested at a maximum rate of 56.85 L/sec (901 USgpm) with a total drawdown of 1.32 m (4.33 ft) for a specific capacity of 43.1 L/sec/m (208 USgpm/ft). Rated capacity of 75.7+L/sec (1200+ USgpm; 1000+ igpm).
Colletville Well						

APPENDIX D: EXCERPTS FROM THE OFFICIAL COMMUNITY PLAN



City of **MERRITT**

Official Community Plan

Bylaw No. 2116, 2011

Text Updated to June 28, 2011

***Setting
Direction
For Our
Community***

Section 7.0 - Implementing the Official Community Plan

This section outlines how the policies contained in this plan will be implemented including integration with other projects, updating support bylaws and policies, and a framework for continuing to facilitate new development.

1.3 Scope of the Plan

The City of Merritt Official Community Plan is defined by provincial statute under the *Local Government Act*. Further to Section 877 an OCP must include the following:

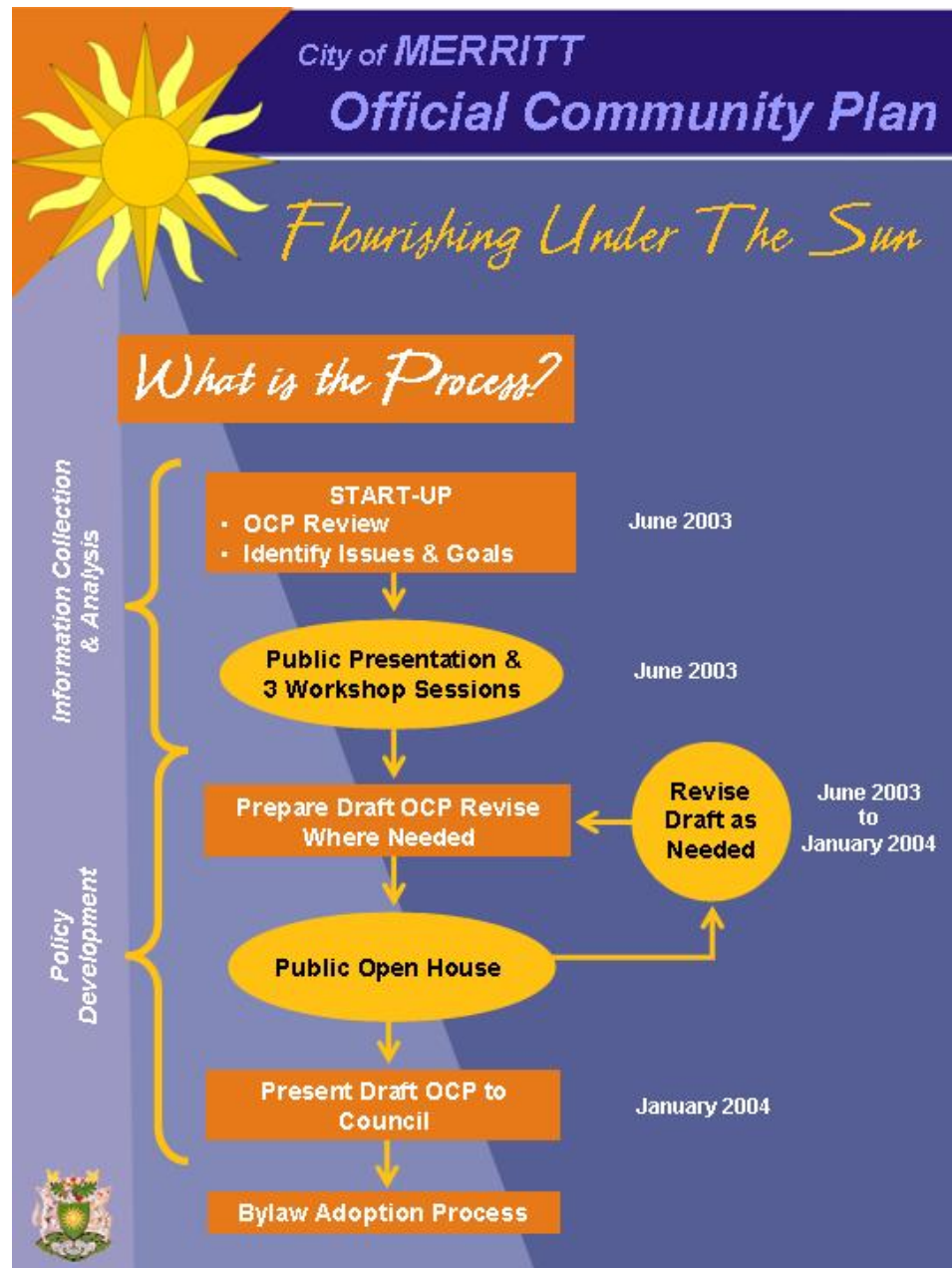
- the approximate location, amount, type and density of residential development required to meet anticipated housing needs over a period of at least 5 years (this OCP uses a 20 year horizon for residential development);
- the approximate location, amount and type of present and proposed commercial, industrial, institutional, agricultural, recreational and public utility land uses (this OCP uses a 20 year horizon for these uses);
- the approximate location and area of sand and gravel deposits that are suitable for future sand and gravel extraction;
- restrictions on the use of land that is subject to hazardous conditions or that is environmentally sensitive to development;
- the approximate location and phasing of any major road, sewer and water systems;
- the approximate location and type of present and proposed public facilities, including schools, parks and waste treatment and disposal sites;
- other matters that may, in respect of any plan, be required or authorized by the Minister responsible for administering the *Local Government Act*;
- housing policies of the local government respecting affordable housing, rental housing and special needs housing; and
- targets for the reduction of greenhouse gas emissions and policies and actions of the local government proposed with respect to achieving those targets.

1.4 Methodology and Preparation of the Plan and the Update

To prepare this plan, originally adopted in 2004, Council and City staff consulted with and sought input from Merritt residents and property owners. The plan took direction from visioning and strategy sessions undertaken by the City including the City of Merritt Strategic Planning Session (February 2003), the Nicola Valley Round Tables (February 2003), the three Official Community Plan Visioning Workshop Sessions with the Public (June 2003) and the Public Open House to

Review Sector Plans (December 2003). The plan also considered input from multiple agencies, and organizations as well as input from staff and consultants. Figure 1.1 below illustrates how the year 2004 plan was prepared.

Figure 1.1



Prior to the 2011 update of this plan the City undertook an Integrated Growth Strategy – 2010. This identifies a community vision to year 2030 and provides a general framework to guide the development of the City; all prepared in consultation with Merritt citizens through workshops and on line surveys. The Integrated Growth Strategy constitutes the visioning process for this OCP Update.

A Select Committee Focus Group was chosen by the Mayor to review and recommend an updated OCP. The Focus Group included both resident citizens and those who live beyond the City. An OCP Update Working Paper was prepared and several workshops were held to produce an updated OCP based on the Working Paper. Council also held open houses and conducted on line 'questions of the week' to help citizens respond to a new and updated OCP. The plan proceeded through the statutory adoption process and was adopted in June 2011.

1.5 Demographic Profile and Population Projections

According to BC Stats, the population of the City of Merritt was estimated at 7,520 in year 2000, 7,338 in 2006, 7,393 in 2007, 7,455 in 2008, 7,460 in 2009 and 7,285 in 2010. They estimate a 2.3% drop in population during this period. The year 2006 Census population for Merritt is 6,998. Data from the 2011 Census will be added as an addendum when it becomes available in 2012.

The age structure of Merritt as reported by Statistics Canada, is illustrated in Table 1.1. It is noteworthy that Collettville, with an estimated population of 600 people, amalgamated with the City of Merritt in 1996.

Table 1.1 – Population Distribution 1991 and 2001 and 2006 - Updated

Age	1991		2001		2006		BC Total - 2006
	Number	% of total	Number	% of Total	Number	% of Total	% of Total
to 14	1,535	24.6%	1,540	21.7%	1,330	19.0%	16.5%
15 to 24	915	14.6%	925	13.0%	830	11.8%	13.1%
25 to 44	1,935	31.0%	1,900	26.8%	1,635	23.4%	27.4%
45 to 64	1,250	20.0%	1,745	24.6%	2,060	29.5%	28.4%
65+	620	9.9%	970	13.7%	1,140	16.3%	14.6%
Total*	6,250	100%	7,090	100%	6,995	100%	100%

**Note: Totals do not add up exactly. This is due to random rounding and to protect confidentiality.
Source: BC Stats /Stats Canada*

From 1991 to 2001, the percentage of the community 45 to 64 years old increased from 20.0% to 24.6% and then to 29.5% in 2006. The 65 years and older cohort increased from 9.9% in 1991 to 13.7% in 2001 and then to 16.3% in 2006. As suggested by the Interior Health Authority, a 13% growth is projected for the seniors' population in the coming years¹. Future planning must consider the different requirements an aging population has with respect to housing, health care, accessibility and community services including street cleaning, enhanced

¹ Interior Health Authority is currently utilizing P.E.O.P.L.E. 28 data.

sidewalks, snow removal and public transit. In addition, as economic development opportunities occur, younger families are expected to locate in the City. Merritt will need to continue to provide a quality lifestyle for both families and retirees.

Table 1.2 projects population growth for the City of Merritt, using three different growth scenarios. The population of Merritt has generally increased at a low, but steady rate between the mid 1980s and 1996. However, since 1996, the population has declined by 8% from 7,924 in 1996 to an estimated 7,285 in 2010. There have been periods of growth within this term. Accordingly, the average growth rate has been approximately 0.64% over the last decade. In spite of this statistic, it is believed that new business and community development initiatives will result in greater population growth especially in the next 5 to 10 years.

The Thompson Nicola Regional District has adopted a growth rate of **1.8%** as part of its Regional Growth Strategy. Using this data and taking into consideration the historical trends in population growth and decline over the past few years, and the desire to reach a population of 15,000 by year 2030, the following table provides projections based on possible growth scenarios of 1.0%, 1.8% and 3.5%.

Table 1.2 – Population Projections Based on Possible Growth Scenarios - Updated

Year	1.0 %	1.8 %	3.5 %
2010*	7,285	7,285	7,285
2015	7,656	7,825	8,653
2020	8,046	8,555	10,277
2025	8,456	9,353	12,206
2030	8,887	10,225	14,497

* Source: *BC Stats Infoline Issue 11/02, January 14, 2011*

Table 1.3 estimates the number of new housing units that will be required over the next 20 years to accommodate the projected populations assuming an average household size of 2.6 persons per household.

APPENDIX E: EXCERPTS FROM THE 2017 ANNUAL WATER REPORT

Introduction

The City of Merritt is the purveyor of drinking water to users connected to the City of Merritt Community Water System. This report is provided to City Council and Interior Health for their information, and in fulfillment of the City's obligations under the Provincial Drinking Water Act and associated regulations, as well as the terms and conditions of the City's Water System Operating Permit. Enforcement of the regulations and issuance of water system permits is the responsibility of the Interior Health Authority's Drinking Water Officer.

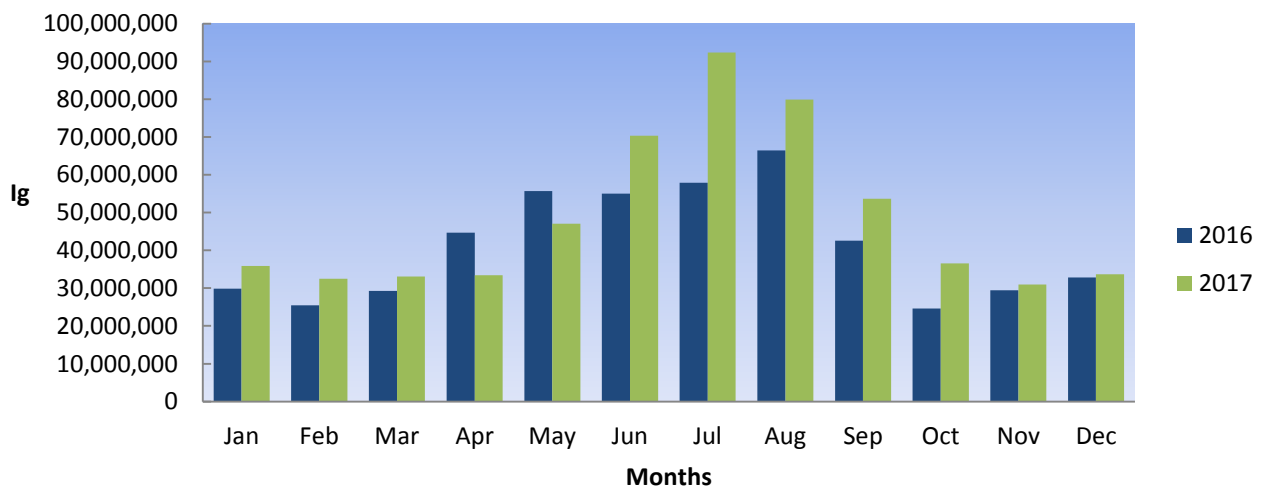
Water Consumption

Raw water for the City of Merritt water system is extracted from an aquifer through five pump stations. The aquifer provided the 579,117,154 Imperial Gallons (IG) (2,632,350,700 litres) of water consumed within the Merritt system in 2017. This represents a 14.7% increase in overall water consumption from 2016. Maximum daily water demand peaked at 3,878,718 IG (17,633,000 litres) on July 4, 2017 while minimum daily demand occurred on Oct 26, 2017 at 864,259 IG (3,929,000 litres).

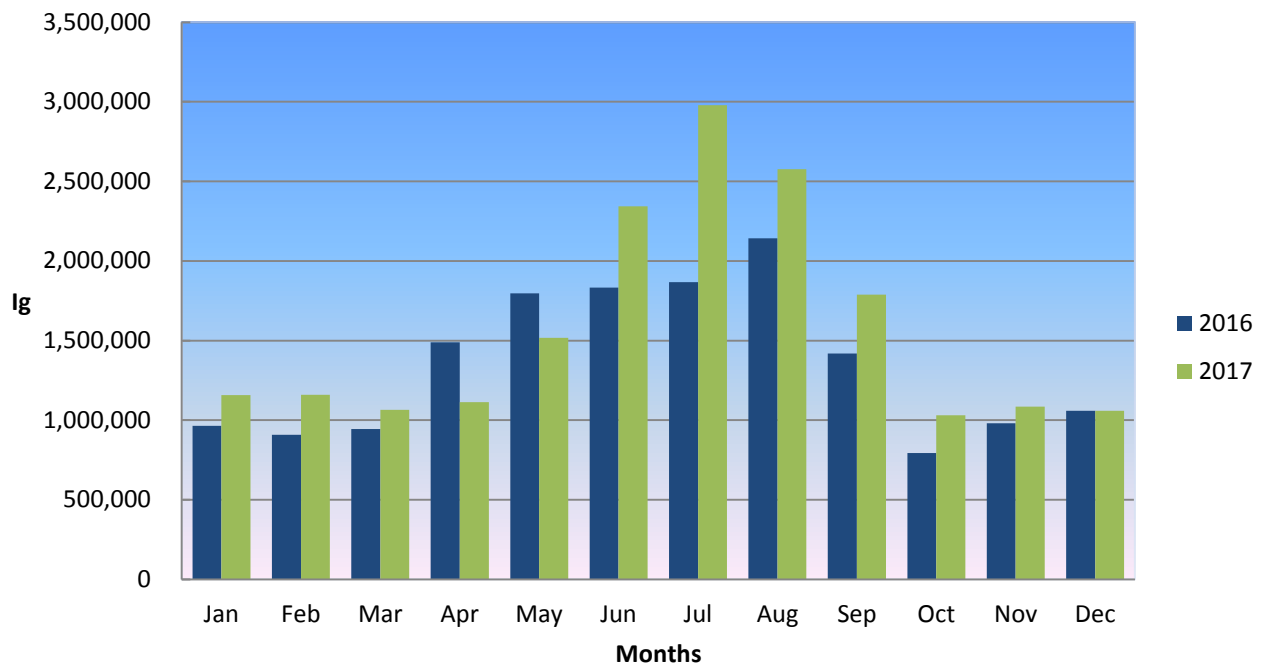
The water consumption for Merritt in 2017 averaged 1,586,418 IG (7,212,000 litres) per day. The maximum day (July 4th) water consumption was 554 IG (2,519 litres) per person, while the minimum day (Oct 26th) consumption was 123 IG (561 litres) per person. The average was 227 IG (1,030 litres) per person in Merritt each and every day of the year (based on a population of 7000); average daily consumption in Canada is only 72.4 IG (329 litres) per person.

To achieve reduction in water usage, the enforcement of sprinkling and excess water usage will be a high priority. This will be increasingly important to enforce in 2018 as the city continues to grow and face droughts in the summer.

Total Water Use 2016-2017



Average Daily Water Use



Water Consumption Per Person Per Day

