

5.0 BUILDING 1137-CARCROSS FIRE HALL

5.1 Description of Existing Water Supply System

Building 1137, the Carcross Fire hall and Ambulance Bay, is currently serviced by a well located within the Fire hall building (see Appendix A5, Figure 1137-A). The coordinates of the wellhead, as measured by a hand held GPS device, were recorded as:

- UTM ZONE 8
- Northing: 6670070
- Easting: 516069

The water supply system consists of a 100 mm diameter submersible pump installed inside a 150 mm diameter steel well casing. The pump feeds water into a pressure tank that is located beside the well inside the fire hall building along with the pump control box. The distribution piping extending from the pressure tank services the Fire hall and Ambulance Bay as indicated in the system schematic provided as Figure 1137-B in Appendix A5. The water from this well is used for domestic purposes only, and the well does not supply water for fire protection. It was not possible to open the well during the assessment due to the heavy steel drop pipe used to suspend the pump.

There is also an abandoned well located behind the water truck garage, adjacent to the Fire hall. The water truck garage is used for bulk water delivery to Carcross, and is filled at the garage. There is an intake from Bennett Lake that supplies water for the truck fill after it has been filtered and chlorinated. The lake water treatment equipment is located within the enclosure between the Carcross Fire hall and the water truck garage as indicated on Figure 1137-A in Appendix A5.

5.2 Description of Existing Wastewater Systems

There are several residential septic tanks located in the vicinity of the Carcross Fire hall. One residential septic tank and the septic tank for the Fire hall are both located within 30 m of the well, as shown on Figure 1137-A. It appears that there are septic holding tanks that are maintained through a regular pump-out program and do not discharge effluent to nearby septic fields.

5.3 Water Quality Results

5.3.1 Water Quality Results from Previous Sampling

There was no previous water quality information available for review during this study. However, previous sampling reportedly indicated elevated total arsenic concentrations.

There have also been positive bacteriological analyses for samples collected from the well as indicated in the questionnaire completed by Mr. Terry Jackson.

5.3.2 Water Quality Results from the Current Assessment

Total arsenic was the only parameter analyzed for the water sampled collected from the domestic water supply in building 1137. The total arsenic concentration in the May 11, 2005 sample was 0.0193 mg/L, which is below the current GCDWQ MAC of 0.025 mg/L but greater than the proposed MAC of 0.005 mg/L.

5.4 Conceptual Hydrogeology

The groundwater flow direction is inferred to range from southwesterly to southeasterly in the vicinity of the Carcross Fire hall, towards Bennett Lake and/or the Nares River. The well log identified as “Carcross Fire hall” reported that the well is 105.8 m (347 feet) deep completed in a confined aquifer underlying sand, clay, and till. The aquifer in which this well is completed is well protected from surface sources of contamination by the deep sequence of fine-grained soils overlying the aquifer.

5.5 Potential Contaminant Sources

Potential contaminant sources from observations during the site investigation are compiled in Table 1137-4 in Appendix A5. Photos of potential contaminant sources are also provided in Appendix A5.

A summary of potential contaminant sources within 30 m of the wells is provided below:

- Above ground fuel storage tanks at 2,10,10 and 20 m respectively.

5.5.1 Spills Records and Contaminated Sites Search Results

Investigation of available spills record information and contaminated sites search results by YTG Environment Branch did not identify any concerns for this site.

5.6 Identified Water System Deficiencies and Associated Risk

5.6.1 Priority 1

The lack of disinfection is considered to be a Priority 1 risk deficiency for this water system.

5.6.2 Priority 2

The poor location of the well with respect to above ground fuel storage tanks and septic tanks is considered to be a Priority 2 risk deficiency.

5.6.3 Priority 3

There was likely no surface seal installed when the well was constructed, and it is not feasible to retrofit the well with an adequate surface seal. However, the concrete floor surrounding the well and the above ground casing stick-up do provide for some protection of the well head, and result in this being classified as a lower risk.

5.7 Mitigative Options for Deficiencies

Mitigative options were developed to address the deficiencies identified in the previous section. Deficiencies are categorized by recommended level of priority (with Priority 1 being most critical).

5.7.1 Priority 1

The water distribution system for the Fire Hall and Ambulance Bay should be connected to the post-treatment water supply from Bennett Lake. A backflow preventer (double check valve) should be installed in the 3" line, and the solenoid moved so that the plumbing for potable water on the ambulance side can be plumbed in upstream of this flow switch. These are conceptual design recommendations based on the information available for the

purpose of planning and budgeting. Engineering input will be required for final system specifications.

This will mitigate the deficiencies related to the lack of disinfection and the poor well location relative to potential sources of contamination.

5.7.2 Priority 2

The Priority 1 mitigative upgrades will also mitigate the Priority 2 deficiencies identified.

5.7.3 Priority 3

The above-recommended upgrades will also mitigate the need for a proper surface seal around the well casing.

5.8 Cost Estimates for Mitigative Options

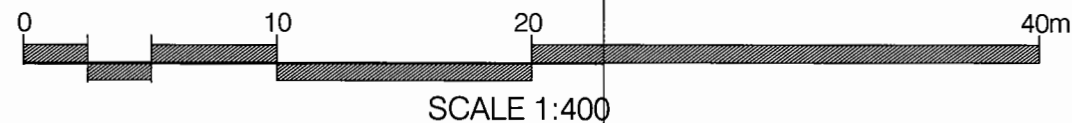
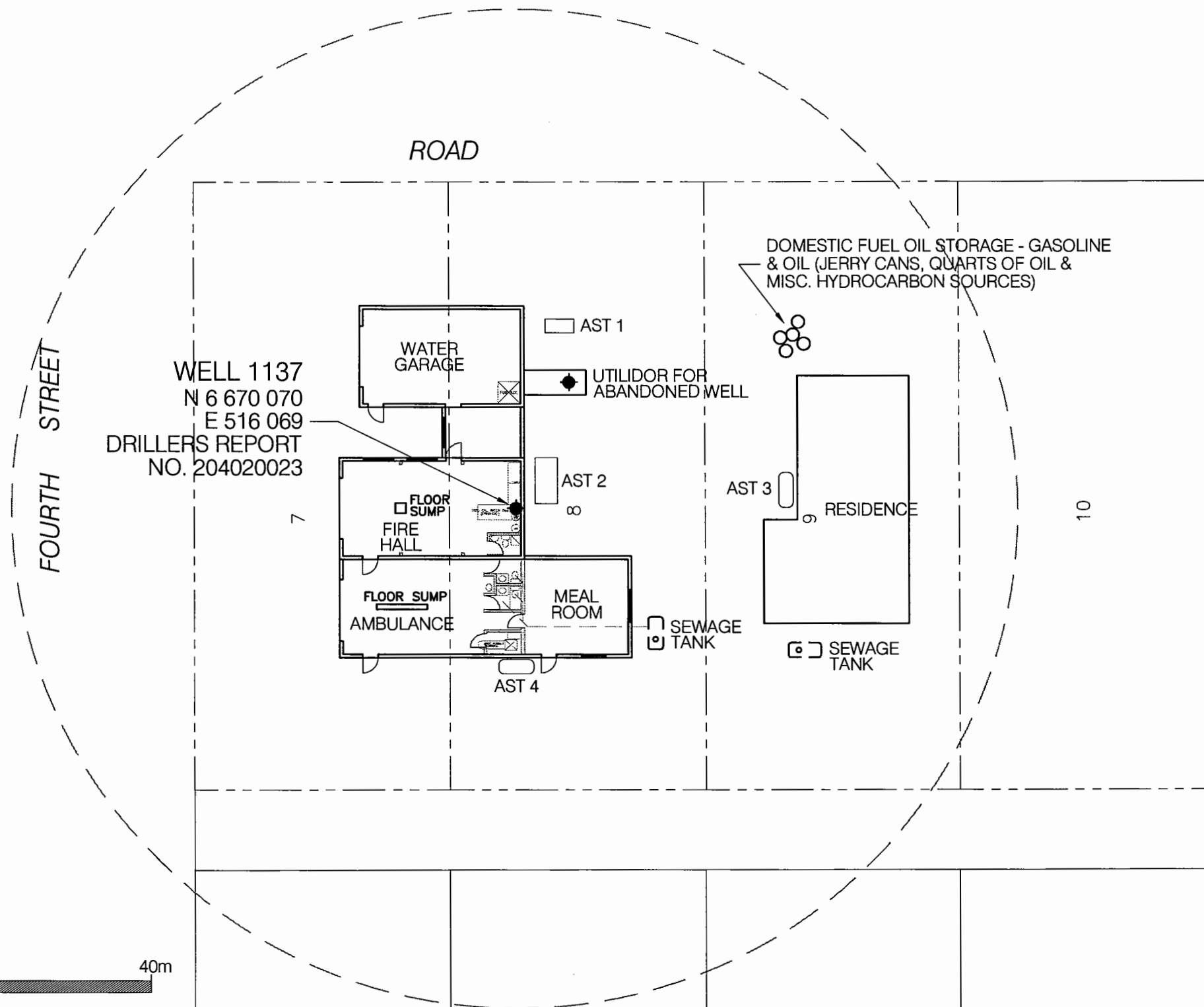
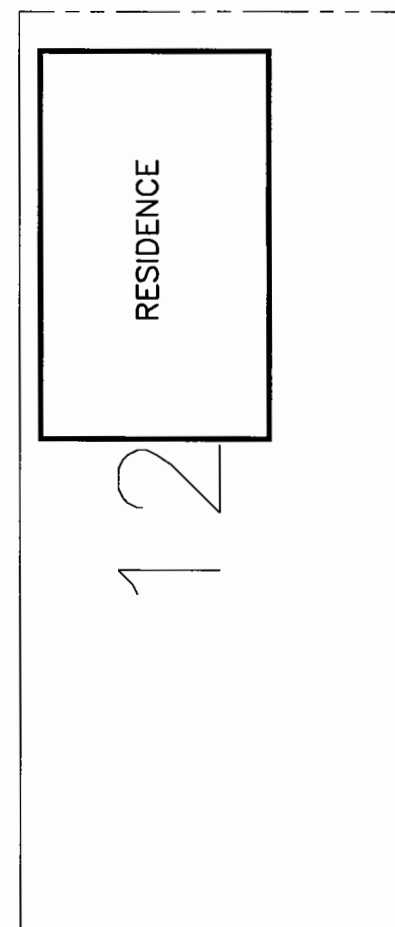
Engineering costs for pre-design and preparation of process diagrams and specifications for project tendering for water treatment systems are estimated to be 25% of construction costs. Engineering costs for other mitigative options are estimated to be 20% of construction costs, and would include inspection and completion reporting. The costs for materials and labour (not including engineering) are provided in the sections below. An additional contingency allowance of 20% is suggested for budgetary purposes.

5.8.1 Priority 1

The cost to tie the existing distribution system for the Fire hall and Ambulance Bay into the treated Bennett Lake supply in the adjacent building is estimated to be approximately **\$2,500** including labour, materials, engineering and contingency.

5.8.2 Priority 3

The cost to decommission wells according to the Guidelines for Water Well Construction is approximately **\$1000/well**.



- NOTES:
1. UTM COORDINATES OBTAINED WITH A HAND HELD GPS USING NAD83 SYSTEM AND ARE CONSIDERED TO BE ACCURATE TO 10.0 m, APPROXIMATELY.
 2. LOCATIONS OF BUILDINGS & STRUCTURES ON THIS PROPERTY ARE APPROXIMATE ONLY.

30 m RADIUS FROM WATER WELL FOR CONSIDERATION OF PROXIMITY TO POTENTIAL CONTAMINANT SOURCES.

No.	REVISION	DESCRIPTION	DATE	APPROVED
0	ISSUED FOR CLIENT REVIEW		DD/MM/YY	XXX

DESIGNED BY:	R. MARTIN
DRAWN BY:	J. BUYCK
DATE:	JUNE 2005
SCALE:	AS SHOWN
PROJECT No.:	1260002.001
ACAD FILENAME:	001-WHITEHORSE REGION

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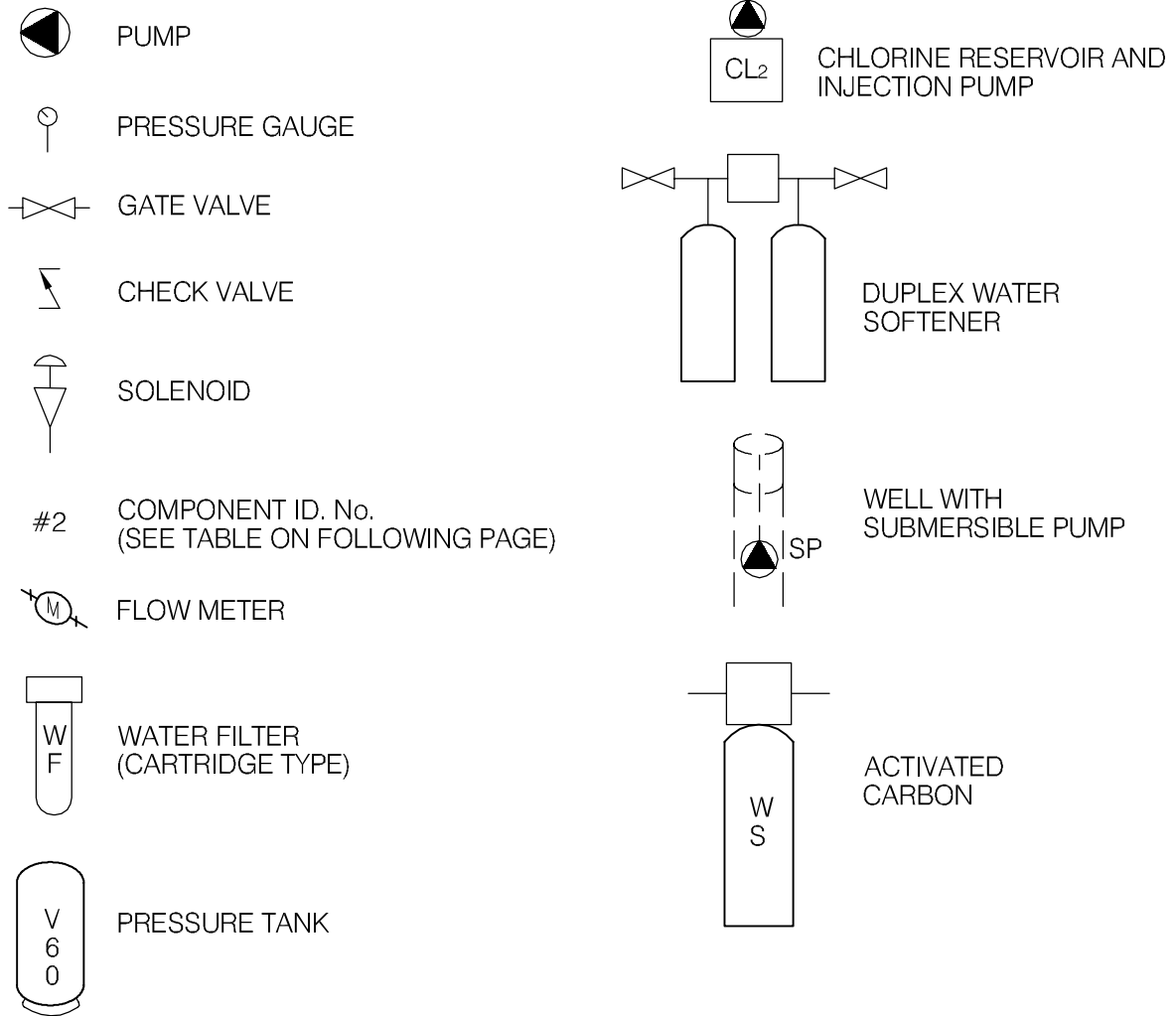
CLIENT:

Yukon

Highways and Public Works
Property Management Branch

SMALL PUBLIC WATER SYSTEMS ASSESSMENT WHITEHORSE REGION
GOVERNMENT OF YUKON HIGHWAYS & PUBLIC WORKS
CARCROSS FIRE HALL BUILDING 1137 SITE LOCATION DIAGRAM WELL ID: 1137
REVISION ISSUE 0
DRAWING No. FIGURE 1137A

LEGEND



EBA Engineering Consultants Ltd.

CLIENT



PROJECT

SMALL PUBLIC WATER SYSTEMS ASSESSMENT
WHITEHORSE REGION

TITLE

SCHEMATIC SYSTEM
LEGEND

DATE APRIL 2006

DWN. JSB

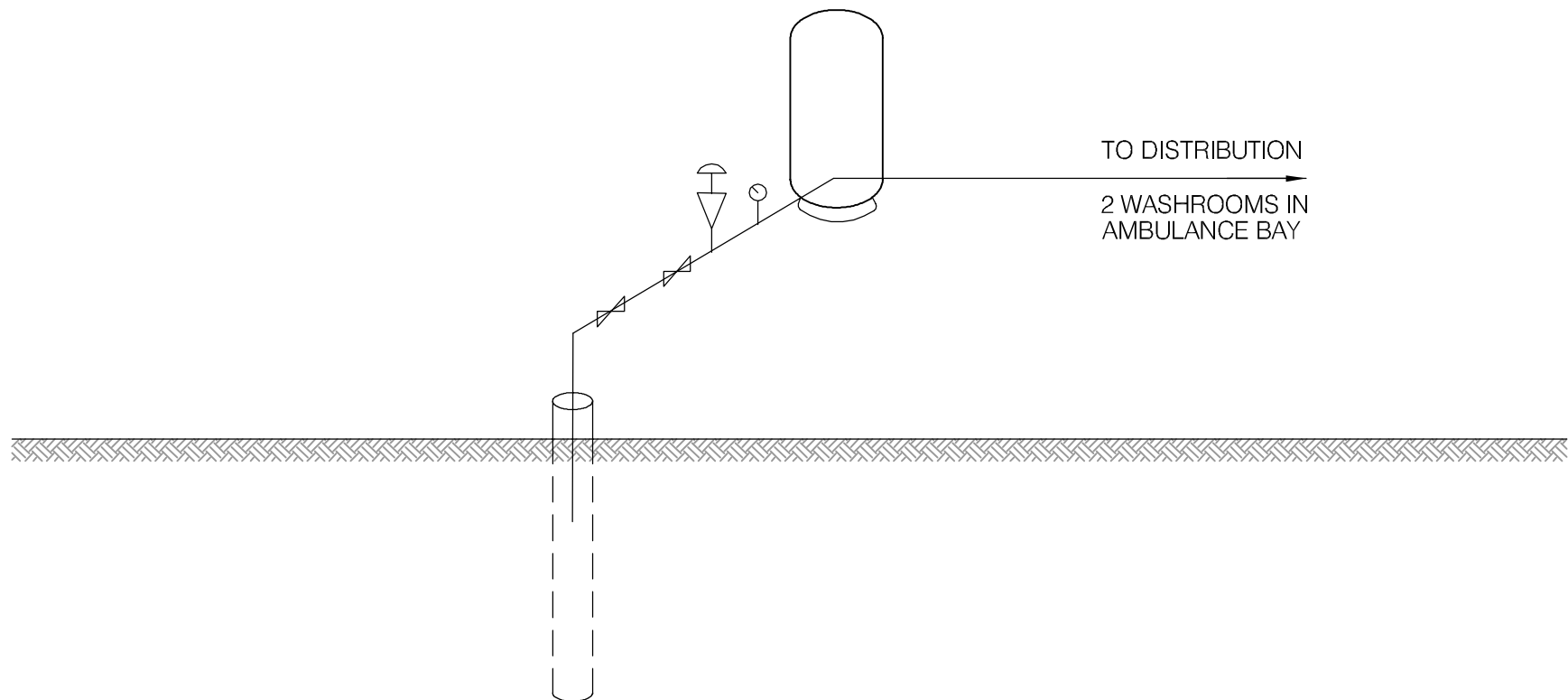
CHKD. RMM

FILE NO.



1260002

DRWG.

LEGEND



SCHEMATIC PRODUCED BY BERT ALBISSER OF AQUA TECH SUPPLIES & SERVICES LTD.

 EBA Engineering Consultants Ltd.		PROJECT SMALL PUBLIC WATER SYSTEMS ASSESSMENT WHITEHORSE REGION	
CLIENT 		TITLE WATER SYSTEM DISTRIBUTION/TREATMENT SCHEMATIC SYSTEM ID.: 1137 CARCROSS FIRE HALL BUILDING	
DATE APRIL 2006	DWN. JSB	CHKD. RMM	FILE NO. 1260002.001 DWG.: FIGURE 1137B

**Whitehorse Region – Carcross School
Building # 1134**

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	Pump #1 Well	GRUNDFOS				1 HP.
2	Pump #2 Well	JACUZZI				2 HP.
3	Pump #1 (Potable)	MONARCH	JKC-S3		1191	3/4 HP
4	Pump #2 (Potable)	MONARCH	MJS-75		5402	3/4 HP
5	Pressure Tank	MONARCH	FG42			42 Gallon
6	Storage Tank	CUSTOM				W x H x L 6' x 3' x 12'
7	Pressure Tank	MONARCH	M-302			
8						
9						
10						

TABLE 1137 - 1: SUMMARY OF BACTERIOLOGICAL RESULTS

Building #	Building Name	Number of Sampling Events	Time Period over which Sampling was Done	Any Positive Total Coliform Results? (yes or no)	Fraction of Positive Total Coliform Results vs. Total Sampling Events	Any positive E.Coli results? (yes or no)	Most Recent Sampling Event Available for EBA Review	Is Most Recent Result Positive?
1137	Carcross Firehall	9	Sept-04 to Mar-05	no	0/9	no	2-Mar-05	no



Table 1137-2: Water Quality Results

SOURCE:		Building 1137 - Carcross Fire Hall		GCDWQ Criteria		
Location/ Resident		Carcross				
Address		Lot 7 Block 3				
Treatment		No				
Source of Water		On-Site Well				
Purpose of Sampling		Baseline	Additional Sampling			
Sample Location			Laundry Sink			
Date Sampled			11-May-05	Lower Limit	Upper Limit	
Total Metals (ALS)				AO	MAC	AO
Arsenic T-As			0.0193		0.025	
Field Chemistry (EBA)						
pH			8.02	6.5		8.5
TDS			195			500
EC (uS/cm)			381			
Temperature			8.6			

Notes:

A. Guidelines indicated for hardness are not CDWQG, rather they are general aesthetic guidelines - exceedences are indicated in yellow highlighting.

Shading indicates exceedence of Proposed MAC guideline (arsenic).

Bold Underline with Yellow shading indicates exceedence of CDWQG MAC

Results are expressed as milligrams per litre except for pH and Colour (CU), Conductivity (umhos/cm), Temperature (°C) and Turbidity (NTU)

< = Less than the detection limit indicated.

AO = Aesthetic Objective

MAC = Maximum Acceptable Concentration (Health Based)



Table 1137-3: Summary of Well Assessment Results
SMALL PUBLIC DRINKING WATER SYSTEMS

Well Identification and Location					
Building #	Building Name	Location	Northing (+/- 10 m)	Easting (+/- 10 m)	Grade Elevation (+/- 10 m)
1137	Carcross Fire Hall	Carcross	6670070	516069	665

Well Details							
Well Casing Diameter (mm)	Year Well Installed	Well Log?	Well Depth (m bg)	Reported Low Permeabilty Protective Layer?	Pump Setting (m bg)	Well Capacity - Tested, or Reported by User	Static Water Level Below Ground (m-btwc)
150	1976	Yes	104.6	Silt and Clay - 8m to 60m Till - 83m to 98m	64	1hp submersible pump Size of pump meets needs	?

Well Construction Details				
Above	Well Cap	Well Screen	Seal	Grading
0.12 above grade	Split Cap Gasket	1.2m of 80 slot 1.5m of 40 slot	Unlikely	Inside building

**Table 1137-4: Potential Contaminant Sources
Building 1137 – Carcross Fire Hall**

Potential Contaminant Source	Potential Contaminants	Distance from Water Source	Northing	Easting
Industrial Refuse	<i>Organic</i> and inorganic chemicals.	50 m		
Septic fields	<i>Biological and Inorganic</i> parameters.	Unknown		
Sewage lines, tanks or lift stations	<i>Biological, inorganic and organic parameters</i>	19 m		
Above ground storage tanks (ASTs)	<i>Organic parameters.</i>	2 m, 10 m, 10 m, 20 m		
Naturally occurring sources of contamination	<i>Arsenic in Groundwater and Radionuclides, Bacteria, Viruses from Surfacewater Sources</i>	Approx. 100 m to surfacewater		

Notes: ***Bold highlighting of distances indicates non-compliance with proposed guidelines***

1- Biological parameters include: bacteria, viruses, protozoa (parasitic organisms), helminthes (intestinal worms), and bio aerosols (inhalable moulds and fungi).

2 – Inorganic contaminants could include arsenic in embalming chemicals (prior to early 1900's), and heavy metals in caskets.

Required Setback Distances Draft Guidelines for Part III – Small Public Drinking Water Systems:

300 m (1,000 ft) from a sewage lagoon or pit and manure heaps

120 m (400 ft) from a solid waste dump or a cemetery

30 m (100 ft) from any other potential source of contamination



SMALL PUBLIC WATER SYSTEM ASSESSMENT**PART A: EBA Site Inspection**Inspector: Ryan Martin
Luke LebelDate May 11, 2005

WELL ID #	Owner	Location Description
1137	YTS	Carcross FireHall

1. Well Location and Potential Contaminant Sources

a. General location of well: (Community, Subdivision, etc.)

Carcross, see Fig 1137-A

b. Specific location: (Road or street, Building number, name of owner and/, legal description,

Carcross FireHallc. GPS location: 516069 Easting 6670070 Northing 665 elevation ± 11 d. Is there electric power? ☒ Yes ☐ No

e. Does the well system have:

☐ 15 or more service connections to a piped distribution system? If so how many _____
services the firehall☐ 5 or more delivery sites on a trucked distribution system? If so how many _____f. Nearest building, specify The well is located within the
garage of the Carcross Firehall

g. Distance from well to building _____

h. If there is an effluent disposal field, is its location known? ☒ Yes ☐ Noi. Distance from well to nearest point of known field: There are multiple septic holding
tanks nearbyj. Well location relative to field: ☐ upslope ☐ downslope ☒ lateral

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- k. Is there any part of a sewage disposal system(s) or other potential sources of pollution that may pose a health and safety risk within 30 m? ☒ Yes ☐ No

There are residential septic tanks within 30m

- l. Is the well located within 300 m from a sewage lagoon or pit? ☐ Yes ☐ No

- m. Is the well located within 120 m from a solid waste site or dump, cemetery? ☒ Yes ☐ No

- the well is ~50m from a junkyard and ~10m from a residential home with various old vehicles, fuel/oil storage tanks
- n. Is the infrastructure protecting the wellhead, pumphouse, storage tank and/or water treatment plant designed and secured to prevent:

Unauthorized access by humans? ☒ Yes ☐ No Entrance by animals? ☒ Yes ☐ No
is located within the local volunteer fire dept w/ locked doors. Although inside, there is evidence (cobwebs, grime, etc.) that area is not cleaned regularly

- o. Is well site subject to flooding? ☐ Yes ☒ No

- p. Is the well site well drained? ☒ Yes ☐ No N/A

- q. Is there a buried fuel tank on the property? ☐ Yes ☐ No There is a Buried Fuel Tank nearby (<120m) at the Carcross School
- If yes, is it ☒ in use ☐ abandoned

Is the location known? ☒ Yes ☐ No

Distance from the well to known buried tank _____

- r. Are there any other known contaminant sources on the property?

☒ Yes ☐ No Describe _____

If yes, specify the source: ☒ dump ☐ sewage lagoon ☐ cemetery ☒ other

Potential Source 1: AST 2; Distance from well to Potential Source 1: ~2m

Potential Source 2: AST 1; Distance from well to Potential Source 2: ~10m

Potential Source 3: AST 3; Distance from well to Potential Source 3: ~20m

Potential Source 4: AST 4; Distance from well to Potential Source 4: ~10m

- s. Are there other wells on this property? ☐ Yes ☒ No
There are 2 wells, however, from the Carcross school within 120m of the well
How many? _____ ☒ in use ☐ abandoned ☐ require proper sealing

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2. Well and Wellhead information:

- * a. When was well installed? Year _____ Month _____
- b. Type: ☒ drilled ☐ dug ☐ sand point ☐ other _____
- * c. Is there a drillers log for the well: ☐ Yes ☐ No
- d. Is there a surface seal to 6 m ☐ Yes ☐ No ☐ unknown ☒ unlikely
- e. Surface casing: ☐ Yes Diameter _____ ☐ No
Located within firehall garage
- f. Well casing: Diameter 15cm Material: ☒ steel ☐ plastic ☐ concrete
- * g. Depth of well: _____ ☐ measured (if possible) ☐ reported ☐ from log
- * h. Static water level below ground: _____
☐ measured (if possible) ☐ reported ☐ from log ☐ flowing
- * i. (If granular) Is the well completed: ☐ open end casing ☐ with a well screen
☐ with slotted pipe ☐ unknown other _____
- * j. (If bedrock) Does the well have a liner? ☐ yes ☐ No ☐ steel ☐ plastic
- * k. If there is a well screen: length _____ slot size(s) _____
Location of screen: from _____ to _____ from log reported
- l. Is there a sump below the screen? ☐ Yes ☐ No unlikely
- m. Is the well head: ☐ in pumphouse ☐ in pit ☐ pitless adaptor ☐ in a building
within a garage of the Carcross Fire Hall
☐ in a wooden enclosure other, describe _____
- n. If the well head is located in a wooden enclosure,

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- i. Is the well head below grade? describe in detail 12cm above grade
- ii. Are there signs of ponding on the enclosure(e.g. water stains, etc.)? ☐ Yes ☐ No
There are mineral deposits from pipe leakage
- iii. Is the wellhead enclosed by fiberglass insulations? ☐ Yes ☒ No
It is, however, within the firehall
- iv. Any evidence of rodents? Specify There is no evidence of rodents
- v. Does the well casing have a proper seal cap? ☒ Yes ☐ No
The condition of it, however, is poor due to water leakage as there are mineral deposits and rust present.
If no, describe condition _____

3. Water Supplying This Well:

- a. By definition is the water from a surface water source or under the direct influence of surface water?

☒ Yes

☐ No

☒ farther investigation required.

If yes is there treatment ☒ Yes ☒ No

Explain (filtration, disinfection etc...) _____

4. Aquifer Supplying This Well:

- * a. The aquifer is: ☐ bedrock ☐ granular sediment ☐ unknown

- b. Does water level and/or well capacity show seasonal fluctuation? ☐ Yes ☒ No

5. Pump Installation:

- a. Is the well equipped with a pump? ☒ yes ☐ No

- b. Type of pump: ☐ hand ☒ electric submersible ☐ jet

☐ shallow well centrifugal ☐ other, _____

- * c. Description: Manufacturer _____ Model _____
horsepower _____ capacity _____ voltage _____

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*d. Date installed: _____ By: _____

*e. For submersible pump, depth of setting below surface _____

f. Drop pipe for submersible pump: ☒ steel ☐ plastic

g. Pump delivers water to: ☒ pressure tank ☒ elevated tank ☐ other

h. Are there automatic pump controls: ☒ Yes ☐ No

i. Is there provision for taking water samples before water reaches storage? ☒ Yes ☐ No

j. Is there a water meter on the system? ☐ Yes ☒ No

k. Is the pump and piping protected from freezing? ☒ Yes ☐ No

If yes, describe: The well is located inside of a heated and insulated building

l. Comments on pump installation: _____

6. Conclusions

a. Comments on overall installation:

The well is located in a garage where oil and other automotive chemicals can potentially leak around the wellhead

b. Recommendations: _____

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PART B: EBA Site Inspection

Inspector: Bert HUBNER

Date May 11/05

WELL ID #	Owner	Location Description
1137	YTG	CARROSS FIRE HALL

6. Water Treatment

— WELL —

a. Is well water treated? ☐ Yes ☒ No; Type of treatment:

☐ chlorination ☐ iron and or manganese removal ☐ other _____

b. Is water entering plumbing or piped distribution system treated with chlorine or another treatment that is as effective as chlorine used to achieve disinfection throughout the system?

☐ Yes ☐ No If so how _____

c. If treated with chlorine, is the free residual chlorine concentration less than 0.2 mg/L

☐ Yes ☐ No _____ reading.

Tested at _____ (location)

d. Is testing for chlorine residual concentration done at the tap (eg. Kitchen faucet) or from representative points in a piped distribution system, including a point from tap at the end line

☐ Yes ☐ No If yes how often? _____

e. If the drinking water is being transported by water delivery truck does it have a minimum chlorine free residual of 0.4 mg/L at the time of fill. ☐ Yes ☐ No

7. Water Quality (observations):

a. Does the water stain plumbing? ☒ yes ☐ No ☒ slight ☐ severe

Type of stain: ☐ brown ☒ red ☐ black

b. Does the water contain sediment? ☐ Yes ☒ No ☐ occasional ☐ constant

c. Is there an unpleasant odour? ☒ Yes ☐ No ☐ H₂S ☐ Other _____

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- d. Is there an unpleasant taste? ☒ Yes ☐ No ☐ brackish ☐ Other _____
- e. Is there a history of bad bacterial analyses? ☐ Yes ☐ No Not Available
- f. Is there a chemical analysis? ☐ Yes ☐ No ☐ adequate ☒ incomplete
- g. Is there analysis of trihalomethanes (THMs) where the water source is a surface water supply or a well under the direct influence of surface water? ☐ Yes ☒ No
- h. Is the drinking water tested daily with an accurate reading chlorine test kit capable of reading in the range 0 to 3.5 mg/L of free chlorine residual in increments of 0.1mg/L? ☐ Yes ☐ No ☒ unknown
- i. If yes is the test performed in accordance with manufactures directions? ☐ Yes ☐ No ☐ unknown
- j. Is a record of the date, time, name of person performing the test and results of the drinking water sample kept? ☐ Yes ☐ No

TANK AND PIPING DETAILS

Tank Room

Is there a water tank? Yes No Details:

Where is it located?

Comments: Pressure Tank

Is the room in which the water tank is located heated to maintain an optimum temperature of 4°C for stored water?

YES NO

Comments: _____

Are there windows in the add-on that may allow direct sunlight onto the water holding tank? YES

NO

Comments: _____

Are there other heat sources near the tank? YES NO

Comments: _____

Is there waterproof flooring with a sealed base to contain spills? YES NO

Comments: _____

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Overall Tank

What are the tank size and dimensions?

What material is the tank constructed of? _____

Is tank and associated piping constructed of safe materials (i.e. CSA approved and material that does not affect the taste of the water)? YES NO

Comments: _____

Tank Inlet, Outlet and Lid

Is there adequate access on the tank for cleaning (i.e. min 15" access lid)? YES NO

Does the lid have a tight seal and is it watertight when closed? YES NO

Does the tank have an overflow or high level whistle? YES NO

Is the water tank drain accessible? YES NO

WATER TANK AND WATER QUALITY CONDITION

Are there signs of staining or biofouling? YES NO

Comments: _____

Is there any sediment or scum in bottom of tank? YES NO

Comments: _____

Is there any odour associated with the water or tank? YES NO

Have there been any bacteriological analyses conducted previously? YES NO

Does the tank appear that it has been cleaned recently? YES NO

Are the tanks easily assessed for the purpose of cleaning and disinfection? YES NO

8. Conclusions

a. Comments on overall installation:

THIS INSTALLATION IS NOT UP TO
STANDARDS.
THE WELL REQUIRES EXTENSIVE TREATMENT.
THIS SYSTEM CAN BE FED FROM THE
ATTACHED COMMUNITY WATER SYSTEM.

b. Recommendations:

ABANDON THE WELL, PUMP WATER
SUPPLY FROM ATTACHED COMMUNITY
WATER SYSTEM WHICH IS FILTERED
AND CHLORINATED.

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PART C Property Manager/ System Operator Questionnaire

Inspector: STARKY JACKSON Date May 10/05
Property manager: Carcass fire hall

1) Water Source:

- a. Is the well water the major source of drinking water? ☐ Yes ☒ No
- b. Is the well water used for other non-drinking purposes? ☒ Yes ☐ No

2) Well information:

- a. When was your well installed? Year _____ Month _____
- b. Type: ☒ drilled ☐ dug ☐ sand point ☐ other _____
- c. Is there a driller's log for the well?: ☐ Yes ☐ No
- d. Do you know the depth of your well? If so, please indicate: _____
- e. Who was the well constructed by?
Indicate contractor's name: _____
- f. Are you, the owner ☐ Yes or other: _____
- g. Who maintains the well? VTG
- h. Are there other wells on this property? ☐ Yes ☒ No
How many? ____; Are they: ☐ in use ☐ abandoned ☐ require proper sealing
- i. Is there a buried fuel tank on the property? ☐ Yes ☐ No
If yes, is it ☐ in use ☐ abandoned
Is the location known? _____
How was it abandoned? _____

3) Pump Installation

- a. Who installed your pump, and when did they install it? _____
- b. What type of pump do you have? 1 hp
- c. Pump delivers water to: ☒ pressure tank ☐ elevated tank ☐ other _____

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4) Water Treatment

a. Is your well water treated? ☐ Yes ☒ No

Type of treatment: ☐ chlorination ☐ iron and or manganese removal
other _____

5) Well Capacity:

a. Well capacity: User's opinion ☒ adequate ☐ inadequate

b. Are there any times of year when your well goes dry, or does not produce enough water?

c. Has well capacity decreased since it was installed? ☐ Yes ☒ No

6) Water Quality:

a. In general, do you like your water?: ☒ yes ☐ no

b. Does the water stain household plumbing? ☐ yes ☐ No ☒ slight ☐ severe

Type of stain: ☒ brown ☐ red ☐ black

c. Does the water contain sediment? ☐ Yes ☐ No ☒ occasional ☐ constant

d. Is there an unpleasant odour? ☐ Yes ☒ No

☐ Sulphur (rotten egg smell) ☐ Other _____

e. Is there an unpleasant taste? ☐ Yes ☐ No ☐ brackish ☐ Other _____

f. Hardness: Is it hard to lather with soap?: ☐ yes, very ☐ moderate ☐ no

g. Is water softener being used? ☐ Yes ☒ No

h. Are samples for bacterial analysis (coliforms) taken regularly? ☐ Yes ☒ No

If so, at what time intervals? _____

Who takes them? _____

i. Is there a history of bad bacterial analyses? ☒ Yes ☐ No

j. Is there a chemical analysis? ☐ Yes ☐ No ☐ adequate ☐ incomplete

7) Do you have any overall comments or complaints about your water well system?

Well is used for non potable water
only should not be used as drinking
water

**Photo 0123:** 1137 Carcross Firehall Front View**Photo 0129:** 1137 Well, Pressure Tank and Pump Controls**Photo 0124:** 1137 Above Ground Storage Tanks Adjacent to Well**Photo 0125:** 1137 Neighbouring Building with Mechanical Equipment, Fuel and Oil Storage (foreground), Commercial Junkyard (background)