

FISHER ENGINEERING LTD.

40 Fairfield Road Lower Coverdale, New Brunswick E1J 0A2

Phone: 506. 863. 1991 Fax: 506. 862. 1180

Oct. 30, 2015 File: CP001

Mr. Pierre Doucet
Project Manager
Project Assessment Branch
Department of Environment
20 McGloin Street
PO Box 6000
Fredericton, NB E3B 5H1

Attention: Mr. Doucet:

EIA Project Registration: Parkside Estates Production Well Replacement (#4561-3-1424)

Enclosed is the registration document for the above noted undertaking. A cheque for the registration fee is currently in the process of being submitted by the proponent.

If you have any questions or require further details, please do not hesitate to contact the undersigned.

Michael Fisher, P. Eng.

MJF

Enclosures

cc: Ms. Lisa Devan, Capreit Apartments Inc.

Michael Fisher

EIA Registration Parkside Estates Production Well Replacement

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EIA Registration Parkside Estates Production Well Replacement

Pursuant to Section 5(2) of The Environmental Impact Assessment Regulation 87-83 Clean Environment Act

1 The Proponent

Name: Capreit Apartments Inc.

Address: 401-11 Church St., Toronto, ON M5S 1M2

Senior Operations Manager: Lisa Devan

Principal Contact Person for Purposes of EIA:

Lisa Devan

Senior Operations Manager, Capreit Apartments Inc. 1 Wheelhouse Drive, #1, Newcastle ON L1B 1B9 (905) 441-2682 (p) 905 697 0722 (f) and

Michael Fisher, Fisher Engineering Ltd. (506) 863-1991.

Property Ownership: Same as Proponent

The Undertaking

Name: Parkside Estates Production Well Replacement

Project Overview: Parkside Estates community is located in Lincoln New Brunswick. The community is home to 87 homes that are privately owned. The community is serviced with a private water system consisting of three groundwater source wells and a distribution network of infrastructure. The three wells are located on private property and the distribution network of infrastructure is located within the right of way of the public streets within the community that are owned by the New Brunswick Department of Transportation and Infrastructure. The proponent is currently operating the water works within the community under the Certificate of Approval to Operate a Waterworks W-1120. The COA to operate was issued May 1, 2014. Recently, production from one of the wells (well#2) was lost resulting in an emergency situation where residents within the community were without water. An assessment of the well was completed by the community's water operator Paul Robichaud and it was revealed that the well bore had experienced significant collapse. Based on the loss of this production well an additional source of potable water is required for the community.

Purpose/Rationale/Need: The flow out of well #2 has been reduced significantly to a point where the yield (estimated at >1igpm) is not adequate for the community. The well is currently off line. Steeves Well Drilling was retained by the proponent to drill a new well on the same property as the existing well#2 is located. Permission from the property owner was received and a copy of that correspondence is attached.

Project Location: The community is located approximately 700 m east of Fredericton's City limits and is on the south side of highway 102 in Lincoln, NB (Figure 1, Figure 2 – Appendix A). The lots within the community are subdivided with individual parcels. The proponent currently does not own any land within the community as previously mentioned. The three existing production wells are located on three separate parcels listed in Table 1 below. The location of the new well is on PID 60128014. The subject parcel covers an approximate area of 4055m². The entire community serviced by the communal water system covers approximately 120 acres.

Table 1 Existing Production Well Locations

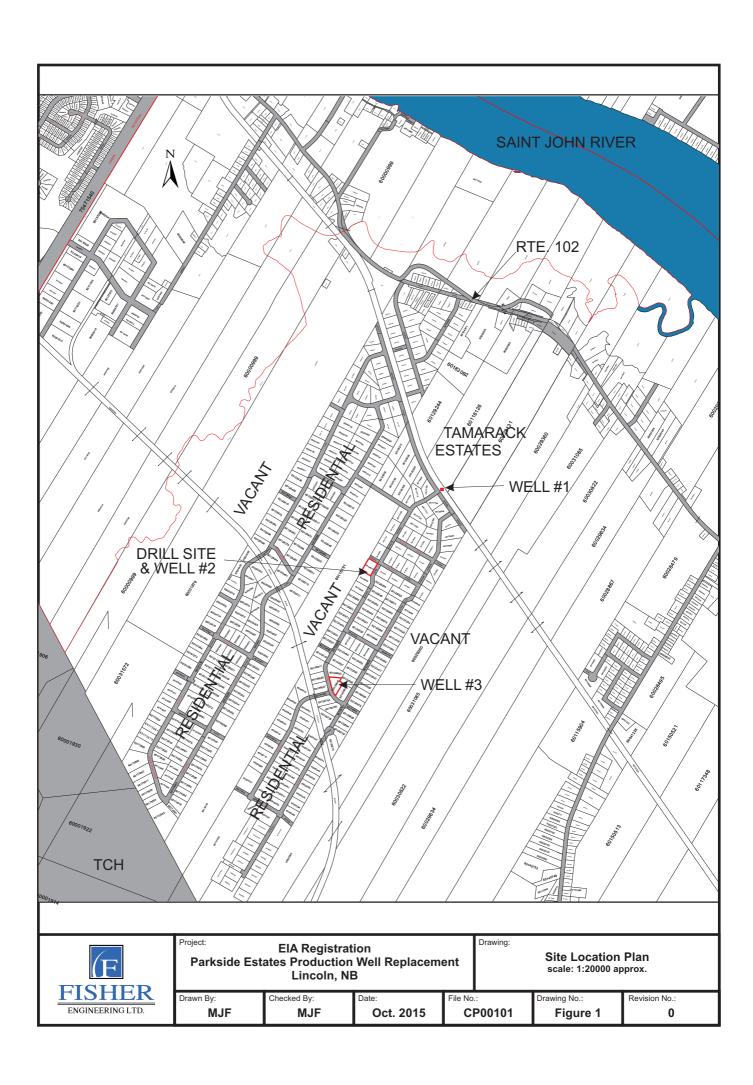
Well Id	PID
Well #1	60032059
Well #2	60128014*
Well #3	60136645

^{*} Proposed new well to be located on this PID

Siting Considerations: The project location was chosen because of the proximity to the existing well house. The site is easily accessible off Maple Leaf Drive with no clearing or construction activities required to enable the drill rig to access the site.

The project site is not located within 30 metres of a wetland nor is the project located within Zone A or Zone B of a protected coastal area. The GeoNB mapping is shown in Appendix A.

Physical Components and Dimensions of the Project: A site location plan is presented in Figure 2. The first step will be to drill a new well. The location was selected by a colleague of Paul Robichaud who has experience locating water using divining rods. Following the completion of the drilling a preliminary flow test will be completed to determine if the yield is sufficient to warrant a long term pumping test. If the drillers estimated yield is greater than 15igpm a long term pumping test will be completed as per the WSSA guidelines.



Construction Details:

There will be no clearing or road construction required to gain access to the proposed well site. The well driller will be able to drive directly to the site and begin drilling. The drilling activities should take one to two days.

Operation and Maintenance Details: The goal is to have a new production well that will produce a safe yield of greater than 15igpm. Because the anticipated yield will be greater than 50m³/ day the New Brunswick Department of Environment (NBDOE) require that a groundwater exploration program be completed, which will show that the surrounding aquifer can support the proposed pumping rate. The exploration program will follow the NBDOE Water Supply Assessment Guideline. The exploration program will consist of drilling one test well at the proposed location and performing a minimum of a 24 hr pump test. The pumping test data will be analyzed to determine the long-term sustainability of the aquifer. The pumping test will be conducted as outlined in the guideline and will be performed as soon as possible due to the current situation in the community. Additional information to support the previously submitted WSSA application to complete the hydrogeological assessment for this development is attached is Appendix C.

Once the new well has been identified, the well will be connected to the existing well house located on the same parcel and the approval to operate will be updated. In addition, the existing production well # 2 will be decommissioned as per the NBDOE recommended guidelines once the new well is brought on-line.

Project Related Documents: There is the Approval to Operate W-1120, issued May 1, 2014 and a Multi-Barrier Preliminary Performance Survey completed in 2014.

3 Description of the Existing Environment

Physical and Natural Features:

- Based on 1:50,000 scale mapping the surface elevation across the site is approximately 25m metres above mean sea level.
- The subject property is located within the drainage area of the St. John River which is located within 3km of the site. Surface water drainage across the majority of the Community is northward within road side ditches.
- Shallow groundwater flow across the property is expected to follow the local topography, which slopes toward the Saint John River. Deeper groundwater likely flows in the same northerly direction toward the River. The area to the southwest that could potentially contribute groundwater to the study area is residentially developed and vacant.
- Regional bedrock mapping indicates that the subject property falls within the Pictou Formation, which consists mainly of grey and brownish read sandstone, pebbly sandstone and conglomerate.
- Surficial geological mapping indicates that the area is underlain by late
 Wisconsinan age morainal sediments consisting of a veneer of loamy
 lodgement till, minor ablation till, silt, sand, gravel, and rubble generally less
 than 0.5m thick (Rampton, 1984).
- There are no municipal wells, municipal wellfields, or protected watersheds within 500 metres of the subject site. The City of Fredericton's Municipal well field is located greater than 8km from the subject property. The existing residential lots west of Community and south of the former railway line rely on private individual wells to supply potable water. As noted, the 87 lots within this community rely on three private wells to supply potable water. The neighbouring Tamarack Mini-home community, which is owned by the proponent, is connected to its own private water system for Tamarack Estates. That system consists of four production wells providing potable water to the 419 mini-homes.
- Within 500m of the proposed well location, there are less than 30 single family residential properties that rely on private wells to supply potable water.
- There were no potential wetlands identified on the NB Department of Natural Resources (DNR) and GEONB mapping in the immediate vicinity of the new well location.

The following are some of the references and personnel that were contacted and used in order to gather information regarding the physical and natural features of the subject and surrounding properties.

- 1. Environment Canada Species at Risk website http://www.sararegistry.gc.ca
- 2. COSEWIC. 2005. Canadian Species at Risk. Committee on the Status of Endangered Wildlife in Canada. Web site: http://www.cosewic.gc.ca

- 3. Canadian Wildlife Service website http://www.naturecanada.ca
- 4. Department of Environment Government website designated wellfields http://www.gnb.ca/0009/0371/0001/0003.html, and protected watersheds http://www.gnb.ca/0009/0371/0004/0003.html.

Cultural Features: There are no reported or observed cultural features on the subject site or adjacent properties.

Existing and Historic Land Uses: Historical information was obtained through a review of historical aerial photos (1945 through 2011). The community was started in the late 1980's by Northrup Homes, which at the time had already started the adjacent Mini home community (Tamarack Estates). It is our understanding that this community was developed to allow owners to own their own land (lots subdivided) and put mini or modular homes on the lots. The subdivided lots were created large enough so that they would accommodate on-site sewage system. However, the developer at the time decided to install a communal water system. Over the next 8-10 years the subdivision continued to grow and the water system expanded to the present day size that service 87 lots. Prior to the current modular-home community, the area was vacant.

In 2006 Northrup Homes sold the adjacent Tamarack Estates mini-home community to Killam Investments and as part of that transaction, they took over responsibility of this separate water system for these 87 lots. In 2013, the proponent purchased Tamarack Estates from Killam Investments and as such inherited this private water system, which they have been operating ever since. The current water operator was a former employee of Killam who was there operator when they operated the system.

The proponent has expressed interest in relinquishing operation responsibility of this system as they do not own any of the land on which the production wells are located, nor do they own any of the lots within this community. Following the completion of this new production well, the proponent would like to coordinate with the province as what the process would be to divest this responsibility from their portfolio.

4 Summary of Environmental Impacts

The proposed drilling exploration work involved with a new production well for Parkside Estates will not require any clearing or construction activities to occur prior to drilling. As stated previously. The proposed drilling site is located within the community on the same parcel (PID 60128014) as the existing well house. The new well location is approximately 44m from the existing well house. Surrounding properties are residentially developed to the north and south with single family homes. The land to the west is forested and vacant for approximately 250m before another single family residential home is encountered

During the drilling activities there is a potential for an accidental release of hazardous materials such as fuels or lubricants from the drilling machine.

5 Summary of Proposed Mitigation

The potential environmental impacts listed in Section 4 are discussed further below along with any proposed mitigation.

- 1. Accidental release of hazardous materials: In order to minimize the risk of a release of hazardous materials the following best management practices will be employed during any onsite work.
 - No refuelling of equipment will take place on site.
 - Except for fuel tanks, petroleum products will not be stored onsite.
 - Any required maintenance work would be performed offsite.

Any spills or leaks from machinery will be promptly contained and cleaned up. Actions may involve ditching, blocking drainage pathways, and using absorbent materials. In addition, any spills or leaks will be reported to the 24-hour environmental emergencies reporting system (1-800-565-1633) and to the NBDOE Regional Office in Fredericton (506-444-5149).

6 Public Involvement

The following stakeholders will be contacted directly via a letter in order to obtain input on the project:

 Elected officials, the local service district, Regional Service Commission 11, and residents bordering the community.

The letter will outline the scope of the project and will include a schematic of the development. Contact information for any comments will also be provided. The public will be given thirty days to provide comments. Once the comments have been received, a report will be prepared regarding the public's input. The report will be submitted within sixty days of project registration.

7 Approval of the Undertaking

Approval will be required from the New Brunswick Department of Environment.

8 Funding

No applications for a grant or loan of capital funds from a government agency have or will be submitted. Capreit Apartments Inc. will be funding the project.

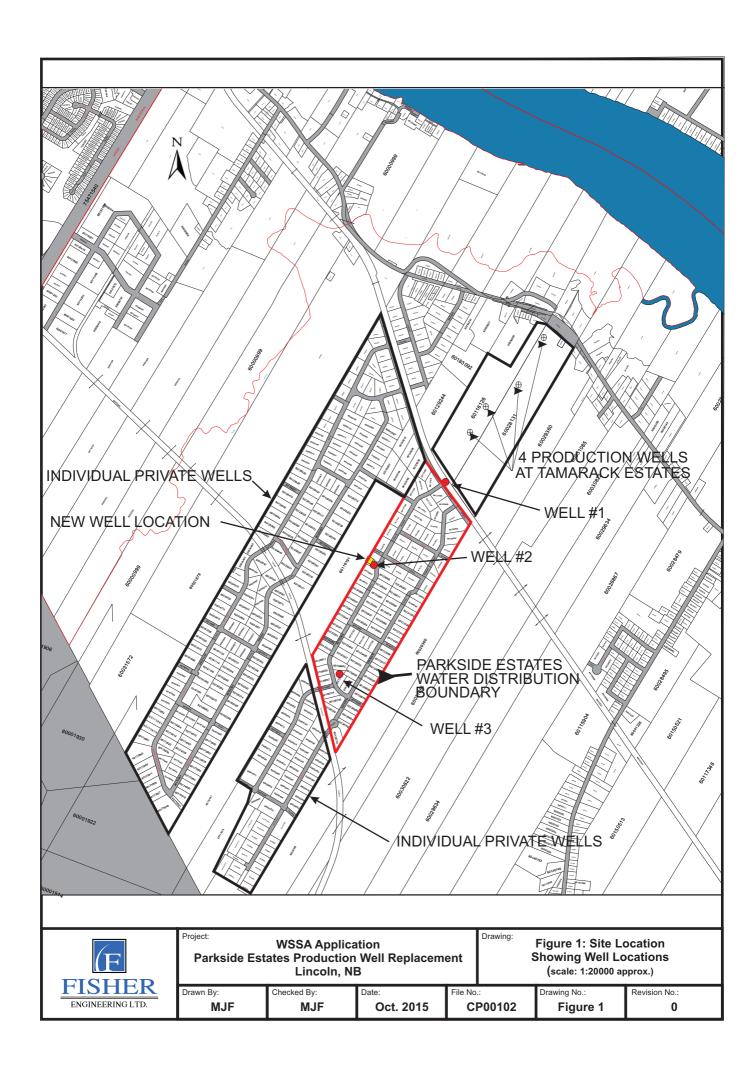
9 Signature

Lisa Devan (Sr. Operations Manager)

CP001/EIA registration.doc

APPENDIX A

FIGURES



http://www.snb.ca/geonb



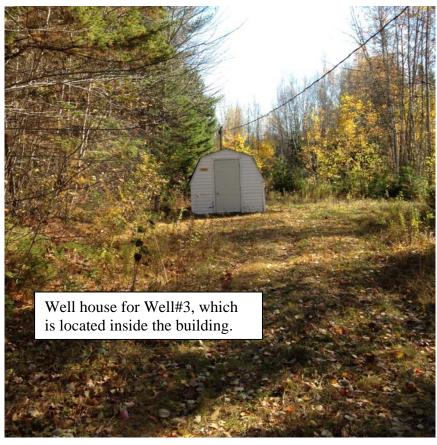
Scale/Échelle:1:8000 Date:10/29/15 Printed by/Imprimé par:

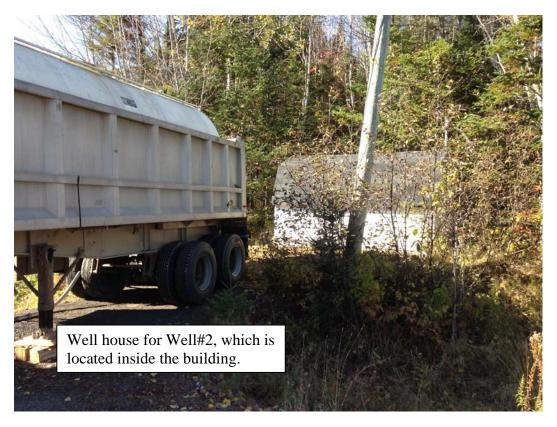
While this map may not be free from error or omission, care has been taken to ensure the best possible quality. This map is graphical representation of natural and man made features which appproximates the size, configuration and location of the features. this map is not intended to be used for legal descriptions or to calculate exact dimensions or area. SNB makes no representations or warranties, either expressed or implied, as to the accuracy of the information presented and the client assumes the entire risk as to the use of any or all information.

Même si cette carte n'est peut-être pas libre de toute erreur ou omission, toutes les précautions ont été prises pour en assurer la meilleure qualité possible. Cette carte est une représentation graphique d'éléments naturels ou artificiels et donne seulement une approximation de la taille, de la configuration et de l'endroit de ces éléments. Elle n'a pas pour but d'être utilisée pour les descriptions juridiques ou le calcul des dimensions ou de la superficie exacte. SNB n'offre aucune garantie explicite ou implicite quant à l'exactitude de l'information présentée; les clients acceptent pleinement les risques liés à l'utilisation d'une partie ou de l'ensemble de cette information.

APPENDIX B SITE PHOTOS AND SUPPORTING INFORMATION











October 27, 2015

13 Maple Leaf Drive Lincoln, New Brunswick E3B 7G9

Re:

Installation of Drinking Water Well at 13 Maple Leaf Drive, Lincoln, New Brunswick

CAPREIT Limited Partnership ("CAPREIT") is required to install a new drinking water well at Lincoln Parkside Estates (the community) to provide drinking water to the community. Your property, located at 13 Maple Leaf Drive in Lincoln, New Brunswick (the "Property") is the preferred location for the well. The well will be installed in accordance with New Brunswick Department of the Environment and Local Government Water Well Regulation (90-7). By signing below, you acknowledge that you have granted CAPREIT, its agents, contractors, and assigns, permission to enter onto your Property in order to install the well and that the well and equipment related thereto which may be installed in or on your Property will remain the property of CAPREIT. CAPREIT agrees that CAPREIT will repair at its cost and damage made to the Property by it or its agents as a result of the installation of the well.

In due course we will forward a draft agreement for your review which we may register on title to your Property confirming the foregoing.

We appreciate your cooperation in this matter.

CAPREIT Limited Partnership

By: Jule Kolomson

I/we (name all owners of the Property)] hereby authorize CAPREIT, its agents, contractors and assigns to access my property located at 13 Maple Leaf Drive in Lincoln, New Brunswick for the purpose of installing a drinking water well and to allow access as necessary to maintain the well. As part of this agreement I understand that:

- A septic tank cannot be placed within 15 m of the well;
- A seepage (leaching) pit, filter bed, soil absorption field, earth pit privy or similar disposal unit cannot be placed within 25 m of the well;



11 CHURCH STREET, SUITE 401 TORONTO ON, CANADA M5E 1W1 TEL.: 416 861 9404 FAX: 416 861 9209

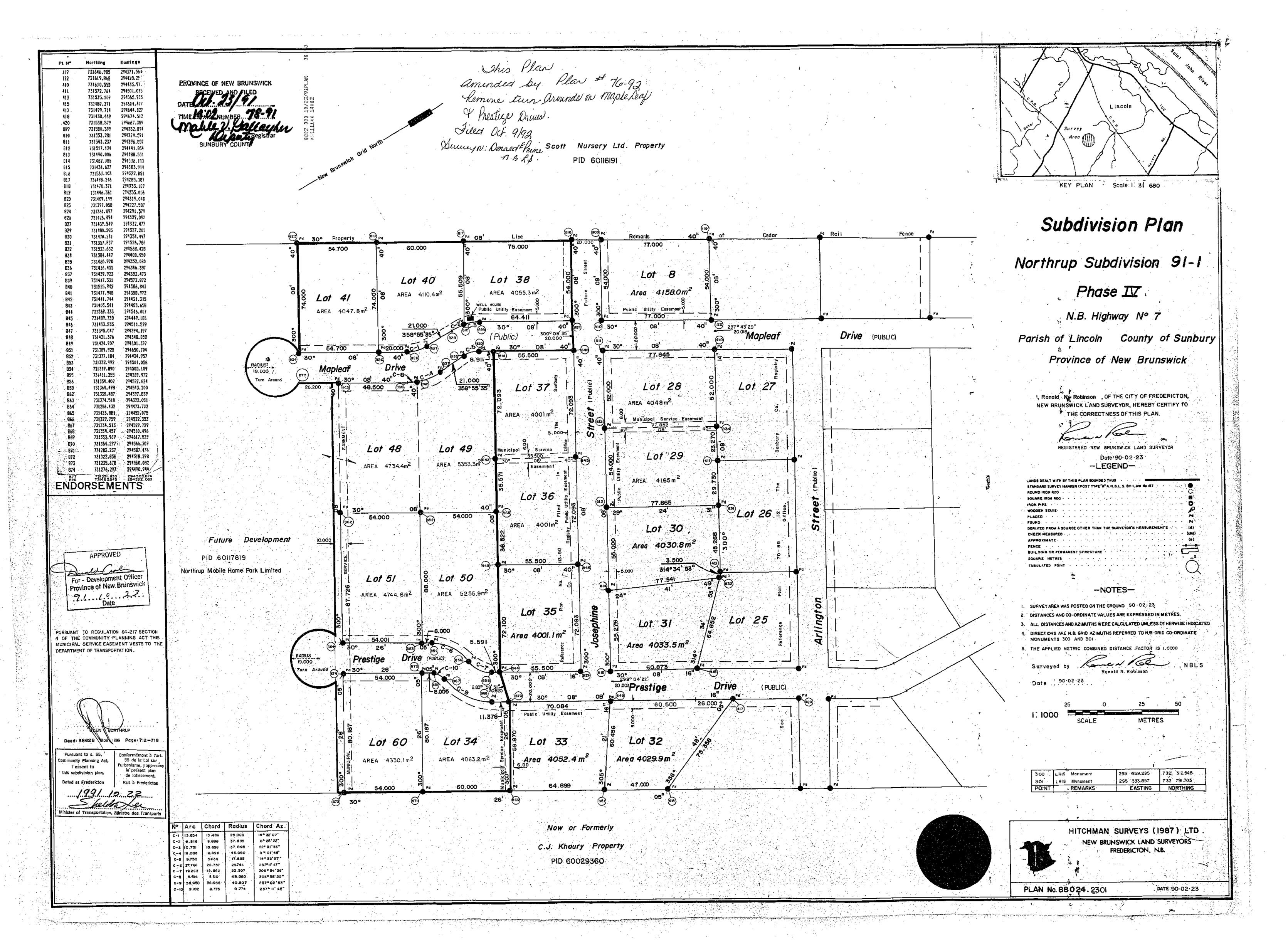
- The well and its casing is not to be opened and/or damaged;
- Limit the use of fertilizers, pesticides and other substance near the well which might impair the quality of the water in the well;
- The well and all equipment related to the well will remain the property of CAPREIT; and
- CAPREIT and I/we will enter into an easement agreement which CAPREIT may register against title to my Property reflecting the terms of this agreement.

This agreement shall be in place until the well is no longer used by CAPREIT to supply the community with drinking water.

Dated this **29** day of October 2015

Witness

Withess



33377616

DEC - 4 2013 15:45:53

Parcel Identifiers: 60128014 and 60136603

THIS ASSIGNMENT OF WELL RIGHTS made as of the 29th day of November, 2013.

BY AND BETWEEN:

KILLAM INVESTMENTS INC., having an address at 3700 Kempt Road, Suite 100, Halifax, Nova Scotia B3K 4X8 (hereinafter called the "**Assignor**")

Of the First Part

- and -

CAPREIT APARTMENTS INC., having an address of 11 Church Street, Suite 401, Toronto, Ontario M5E 1W1 (hereinafter called the "**Assignee**")

Of the Second Part

WHEREAS Tamarack Mobile Home Parks Ltd. ("Tamarack") was the developer of a subdivision known as Northrup Subdivision or Parkside Estates, located in Lincoln, Parish of Lincoln, County of Sunbury,

AND WHEREAS the said subdivision is serviced by three (3) private wells (the "Wells") which supply all the lots in the subdivision (the "Lots") with water;

AND WHEREAS two (2) of the Wells are located on lands owned by and more particularly described as PID Number 60128014 and on lands owned by PID Number 60136603;

AND WHEREAS the third Well is located on lands owned by Her Majesty the Queen in Right of the Province of New Brunswick as represented by the Minister of Natural Resources and having apparent PID Number 60032059;

AND WHEREAS Tamarack reserved to itself certain easements (the "Easements") over the Lots for the purpose of constructing and maintaining the water system supplied by the Wells;

AND WHEREAS Tamarack has entered into service agreements (the "Service Agreements") with each of the owners of the Lots, which Service Agreements contain provisions, *inter alia*, for the levying of an annual fee on each lot owner for the supply of water;

AND WHEREAS Tamarack conveyed the Wells to the Assignor and assigned the Easements and Service Agreements to the Assignor by instrument dated as of June 13, 2006 and registered in the Land Titles District for New Brunswick on June 30, 2006 as Number 22355581 and in the Registry Office for the County of Sunbury on June 30, 2006 as Number 22355672;

AND WHEREAS the Assignor has agreed to convey the Wells to the Assignee and to assign the Easements and Service Agreements to the Assignee upon and subject to the covenants, terms and conditions hereinafter set forth;

NOW THEREFORE THIS INDENTURE WITNESSETH that, in consideration of the premises and of the sum of One Dollar (\$1.00) of lawful money of Canada now paid by the Assignee to the Assignor, the receipt whereof is hereby acknowledged, and other good and valuable consideration:

- 1. The Assignor does hereby grant, bargain, sell and assign unto the Assignee all its right, title and interest in and to the Wells, the Easements and the Service Agreements and all benefit and advantage to be derived therefrom, to have and to hold unto the Assignee, its successors and assigns, forever.
- 2. The Assignor covenants with the Assignee that it has good and marketable title to the Wells, free from any encumbrances whatsoever, and that it has good right,

full power and absolute authority to enter upon the Lots by virtue of the Easements in order to maintain and repair the water lines and facilities associated with the Wells.

- 3. The Assignor covenants with the Assignee that the Service Agreements are good, valid and subsisting contracts and the agreements, conditions and obligations therein have been duly observed and performed by the Assignor up to the date hereof.
- 4. The Assignor further covenants that it has good right, full power and absolute authority to convey the Wells and to assign the Easements and the Service Agreements in the manner aforesaid according to the true intent and meaning of this indenture and that the Assignee may assume the interest of the Assignor in the Wells, the Easements and under the Service Agreements for its own use and benefit without any interruption of the Assignor or any person whomsoever claiming or to claim by, through or under it.
- 5. The Assignor covenants that it shall and will from time to time and at all times hereafter, at the request and cost of the Assignee, execute such further assurances in respect of the Wells, the Easements and the Service Agreements as the Assignee shall reasonably require
- 6. The Assignor covenants and agrees that it shall indemnify and save harmless the Assignee, its officers, employees, agents and shareholders from and against all costs, expenses, losses, claims or liabilities, including reasonable legal fees and disbursements, suffered or incurred by the Assignee or any of such persons arising out of any liabilities, debts and obligations of the Assignor existing or accruing at the date hereof and relating to the Wells, the Easements or the Service Agreements.
- 7. The Assignee covenants and agrees that it shall indemnify and save harmless the Assignor, its officers, employees, agents and shareholders from and against all costs, expenses, losses, claims or liabilities, including reasonable legal fees and disbursements, suffered or incurred by the Assignor or any of such persons arising out of any liabilities, debts and obligations of the Assignee arising after the date hereof and relating to the Wells, the Easements or the Service Agreements.

IN WITNESS WHEREOF the Assignor and Assignee have executed this assignment as of the day and year first above written.

Signed, sealed and delivered In the presence of:

KILLAM INVESTMENTS INC.

Per:

OI.

Philip D. Fraser President and Chief Executive Office IN WITNESS WHEREOF the Assignor and Assignee have executed this assignment as of the day and year first above written.

CAPREIT APARTMENT

Per:

Name: Cori ne Pruzanski Title: Secretary

Form 45

AFFIDAVIT OF CORPORATE EXECUTION

Land Titles Act, S.N.B. 1981, c.L-1.1, s.55

Standard Forms of Conveyances Act, S.N.B. 1980, c.S-12.2, s.2

Deponent:

Corinne Pruzanski

11 Church Street, Suite 401 Toronto, ON M5E 1W1

Office Held by Deponent:

Secretary

Corporation:

CAPREIT Apartments Inc.

Place of Execution:

Toronto, Ontario

Date of Execution:

November 25, 2013

I, the deponent, make oath and say:

- 1. That I hold the office specified above in the corporation specified above, and am authorized to make this affidavit and have personal knowledge of the matters hereinafter deposed to;
- 2. That the attached instrument was executed by me as the officer duly authorized to execute the instrument on behalf of the corporation;
- 3. That the seal of the corporation was affixed to the instrument by order of the Board of Directors of the corporation;
- 4. That the instrument was executed at the place and on the date specified above;
- 5. That the ownership of a share of the corporation does not entitle the owner thereof to occupy the parcel described in the attached instrument as a marital home.

SWORN TO at Toronto, Ontario, on the S day of November, 2013, before me:

Commissioner of Oaths Being a Solicitor

Corinne Pruzanski

Form 45

AFFIDAVIT OF CORPORATE EXECUTION

Land Titles Act, S.N.B. 1981, c.L-1.1, s.55

Standard Forms of Conveyances Act, S.N.B. 1980, c.S-12.2, s.2

Deponent:

Philip D. Fraser

3700 Kempt Road, Suite 100

Halifax, NS B3K 4X8

Office Held by Deponent:

President and Chief Executive Officer

Corporation:

Killam Investments Inc.

Place of Execution:

Halifax, Nova Scotia

Date of Execution:

November 27, 2013

I, Philip D. Fraser, the deponent, make oath and say:

- 1. That I hold the office specified above in the corporation specified above, and am authorized to make this affidavit and have personal knowledge of the matters hereinafter deposed to;
- 2. That the attached instrument was executed by me as the officer duly authorized to execute the instrument on behalf of the corporation;
- 3. That the seal of the corporation was affixed to the instrument by order of the Board of Directors of the corporation;
- 4. That the instrument was executed at the place and on the date specified above;
- 5. That the ownership of a share of the corporation does not entitle the owner thereof to occupy the parcel described in the attached instrument as a marital home.

SWORN TO at Halifax, Nova Scotia, on the 11th day of November, 2013, before me:

Compalesioner of Oaths Being a Solicitor

ERIC F. G. THOMSON
A Notary Public in and for the Province of Nova Scotia

Philip D. Fraser

CERTIFICATE OF EFFECT

Parcel Identifiers:

60128014 and 60136603

Registered Owner:

CAPREIT APARTMENTS INC.

11 Church Street, Suite 401

Toronto, Ontario

M5E 1W1

THIS IS TO CERTIFY THAT the effect of the registration of the attached Assignment of Well Rights is as follows:

Addition:

To add an encumbrance

Assignment of Well Rights in favour of

CAPREIT APARTMENTS INC.

DATE:

December 4, 2013

Subscriber:

Michael A. Gillis

COX & PALMER

1 Germain Street, Suite 1500

P.O. Box 1324

Saint John, NB E2L 4H8

Our File 113/3288

	Well	RIER (GROUNDWATER) Well Well Well		
Well Name/Number	Well# 1	Well# 2	Well#3	
Location	Across from PID#'s 60117702 and 60117769 (Adjacent to Railing Road)	PID# 60128014	PID# 60136645	
Age	1987	1991	1994	
Well Depth	91.1 m (299 ft)	85.2 m (279 ft)	86.9 m (285 ft)	
Casing Depth	12.1 m (40 ft) 25.4 cm casing	18.3 m (60 ft) 25.4 cm casing	21.3 m (70 ft) 25.4 cm casing	
Casing Height above ground/floor	0.18 m (0.58 ft)	0.20 m (0.67 ft)	0.18 m (0.58 ft)	
Safe Yield	Unknown	Unknown	Unknown	
Production	Unknown	Unknown	Unknown	
Typical frequency and duration of pumping	On Demand	On Demand	On Demand	
Raw Water Quantity Issues	Good Water Quality	Good Water Quality	Good Water Quality	
Sanitary Conditions of Well	Good	Good	Good	
Are all entry points to the casing sealed?	Yes Well cover for the well, which is outside, is locked.	Yes Door to well house is locked.	Yes Door to well house is locked.	
Is the site protected against flooding	According to GeoNB the Lincoln Estates MHC is not subject to flooding as the MHC is not in a flood plain. (see attached Flooding Information map)	According to GeoNB the Lincoln Estates MHC is not subject to flooding as the MHC is not in a flood plain. (see attached Flooding Information map)	According to GeoNB the Lincoln Estates MHC is not subject to flooding as the MHC is not in a flood plain. (see attached Flooding Information map)	
Surrounding land uses / Possible contaminants	Residential Some of the homes may have oil tanks.	Residential Some of the homes may have oil tanks.	Residential Some of the homes may have oil tanks.	
Physical/geological conditions to protect well	Well is outside. Well cover is locked.	Well is in a pump house building.	Well is in a pump house building.	

What is the local geology?	As per geology maps* Bedrock geology - The localized geology is classified as a Pictou formation of late carboniferous sedimentary sandstone overlain by a blanket of glacial till 0.5 to 3 metres thick.	As per geology maps* Bedrock geology - The localized geology is classified as a Pictou formation of late carboniferous sedimentary sandstone overlain by a blanket of glacial till 0.5 to 3 metres thick.	As per geology maps* Bedrock geology - The localized geology is classified as a Pictou formation of late carboniferous sedimentary sandstone overlain by a blanket of glacial till 0.5 to 3 metres thick.
	Surficial geology - sand, silt, minor clay and gravel, and patchy thin veneer of organic settlement that is generally 1 to 10m.	Surficial geology - sand, silt, minor clay and gravel, and patchy thin veneer of organic settlement that is generally 1 to 10m.	Surficial geology - sand, silt, minor clay and gravel, and patchy thin veneer of organic settlement that is generally 1 to 10m.
Confined or unconfined aquifer?	Due to the sedimentary rock in the area the aquifer is likely unconfined.	Due to the sedimentary rock in the area the aquifer is likely unconfined.	Due to the sedimentary rock in the area the aquifer is likely unconfined.
Direct influence of surface water possible? (GWUDI) Provide indicators.	No There is an intermittent stream which is located within 10 meters of the well. Through interpretation of the sample results there are no influence of this surface water onto the well.	No .	No
Is the wellfield designated by DENV?	No The MHC is approximately 8 kms away from the City of Fredericton protected wellfield.	No The MHC is approximately 8 kms away from the City of Fredericton protected wellfield.	No The MHC is approximately 8 kms away from the City of Fredericton protected wellfield.

*References:

Ferguson, Laing and Fyffe, L.R., 1985. "Geological Highway Map of New Brunswick and Prince Edward Island" Atlantic Geoscience Society, Special Publication Number 2. and Rampton N.V., 1984 Generalized Surficial Geology Map of New Brunswick" Department of Natural Resources, Policy and Planning Division, NR-8, Scale 1:500,000

Service New Brunswick. "L'Explorateur GeoNB Maps Viewer". http://geonb.snb.ca/geonb/.

SOURCE WATER BARRIER (SURFACE WATER)
Source Identification
Name: N/A
Location: N/A
General Information
Surrounding land uses: N/A
Intake location, condition, and depth: N/A
Is the intake marked? N/A
Is the Watershed Designated by the Department? N/A
Are there any watershed restrictions (if not Designated?) N/A

Treatment Barrier						
General Information						
Type of Treatment & Applicability:						
The water system does not contain any treatme	The water system does not contain any treatment systems.					
Unit Process Capacity:						
N/A						
Flow Rates:						
N/A						
Filter Backwash Information						
Start-stop criteria: N/A	Frequency and Duration: N/A					
Wastewater disposal: Individual Septic Tanks	Sludge Disposal: Removed by Septic Waste Disposal Companies.					
Filter to waste capacity: N/A						
Water Quality Data Available for: ☐ Turbidity	□ Total Coliform □ E. Coli □ Crypto					
☐ Giardia ☐ HPC ☐ Temperature ☐ pH ☐	☐ Inorganics ☐ Organics ☐ Other:					
N/A						
Attach plots and trends for data related to the treatment process. Seek explanation for observed data variations (ex. Turbidity spike).						
N/A						
Treatment Goals:						
N/A						
Disinfection Performance						
N/A						
N/A						

Operations and Maintenance

Staffing Information

Staff Turnover: Minimal

Staff Member	Training & Certification				
	Treatment	Distribution System			
Bryan McCaw	None	Trained but has not written the water distribution exam.			
Ryan McCaw	None	In the process of writing the water distribution exam.			
Paul Robichaud (Moncton Capreit Employee)	None	Has his water distribution license.			

General Information

Communications (Ex. Meeting frequency):

Phone, e-mail or fax

Management Structure:

Owner Representative (Julie Robinson) → Maintenance Manager (Bryan McCaw) → Maintenance Personal (Ryan McCaw)

Is knowledge applied to make process adjustments?

Yes

Is maintenance scheduled and logged?

Maintenance is scheduled as needed. Maintenance is logged within each pump house.

Major process breakdowns in the past 5 years:

Well pump changed in Well #1 in April 2013.

Who sets specific targets, process control strategies, and makes decisions? Are they posted? Set by the owner and maintenance manager

Are appropriate staff members involved in process control and optimization activities? Yes

Are there any operational problems impacting public health protection?

Do the operators have responsibilities other than drinking water? If so, provide specifics. Yes: General park maintenance for other Mobile Home Communities as well.

Monitoring and Alarms

Written Sampling Plan:

Bacterial Bi-Weekly with the exception of the months of April, May, September and October which is weekly to ensure water quality changes due to seasonally high water tables. Once a year for inorganic and organic as specified in the Approval to Operate.

Alarms and Shutdown Information:

No it only shuts down when power is out.

In-house lab testing:

No

Parameters monitored online:

There are no water meters located on the systems.

Calibration of online meters (who, how, frequency)

None

Record keeping

-Analytical results

-Logs books

Are there regular quality control checks?

Yes bacterial samples are collected Bi-Weekly with the exception of the months of April, May, September and October and inorganic and organic samples are collected once a year.

How is the data collected and stored (forms, log books, SCADA)?

Laboratory analytical result forms from RPC Laboratory (attached).

Data analysis (ex. reports, trends)

Laboratory analytical result forms from RPC Laboratory (attached).

Consumer complaints: How are they logged and investigated

Consumer complaints are not logged. If a problem arises it is investigated and then fixed.

Are there any studies or problem solving or optimization activities in place?

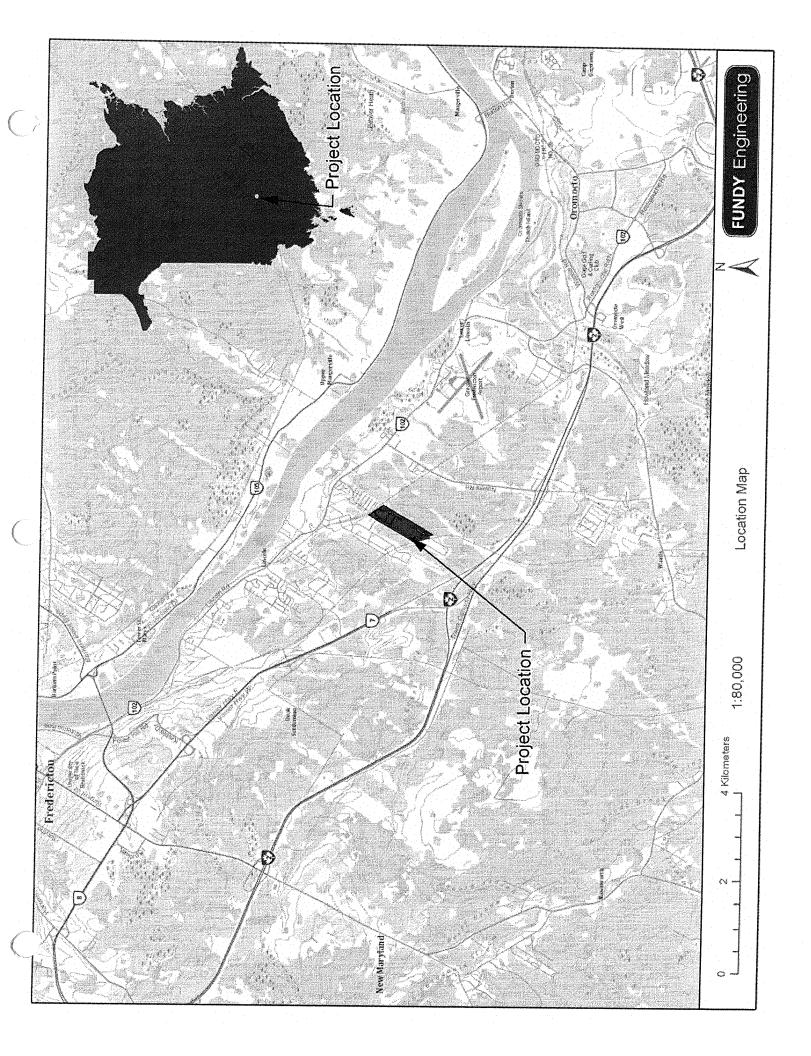
No

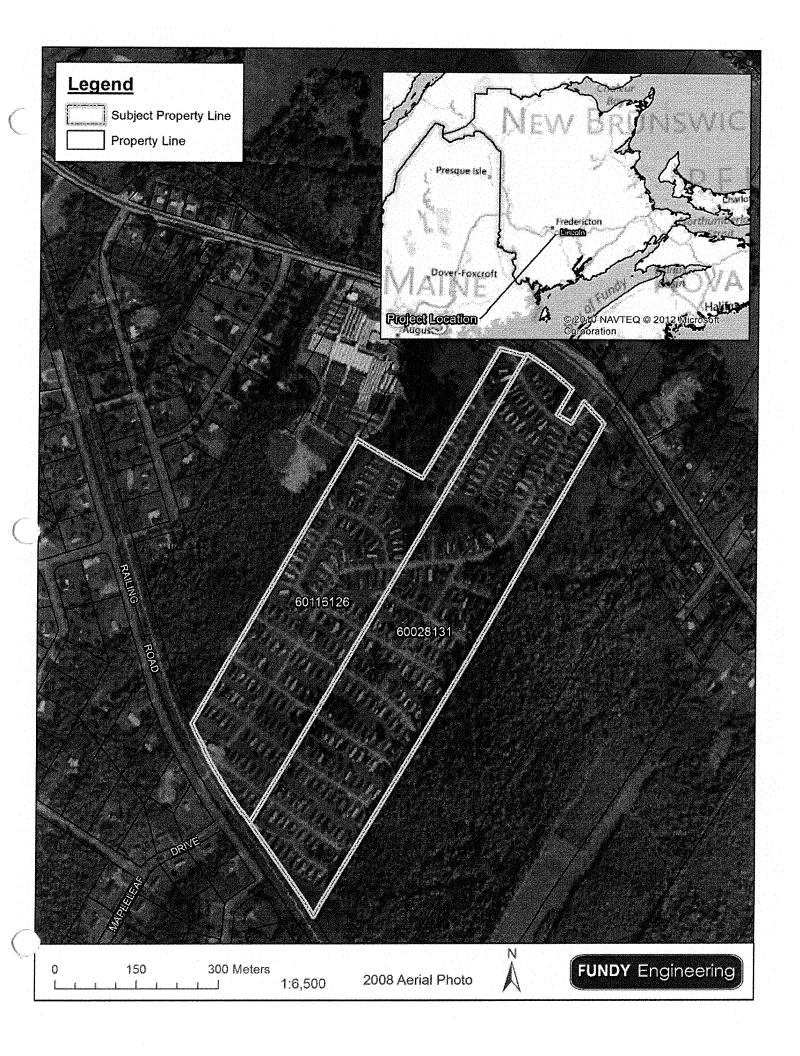
Distribution System Barrier
Water Quality Data Available: √ Total Coliforms √ E.Coli □ THM √ Organics
√ Inorganics □ Turbidity □ Cl Residual
Samples are collected regularly from individual homes to ensure the water quality is acceptable.
See attached analytical results from RPC Laboratory. One property which houses a Daycare is
sampled Bi-Weekly.
Attach plots and trends of distribution water quality data
General Information
Distribution System Plans (Yes / No)? If Yes, please submit along with details including age and
accuracy. If No, please provide a Process Flow Diagram (PFD) or Piping & Instrumentation
Diagram (P&ID) of the system. An electronic or hard copy submission is acceptable. See attached water distribution plan.
See attached water distribution plan.
Infrastructure: Age, Pipe type
The potable water distribution system consists of three 15.24 cm diameter drilled groundwater
wells and 3,385 m of water line. There are no fire hydrants as part of the water distribution
system, no shut off valves on the main water lines, and the system has no chemical treatment.
There are isolation valves to the individual homes from the main water lines. See attached water distribution plan.
Multiple pressure zones?
No
System Pressure: adequate flows throughout system? Sufficient for fire fighting?
Yes there is adequate flow. If system is closed down to the homes there is enough flow for fire fighting. There is a fire station nearby.
Is the system properly looped? How many dead ends?
The system is properly looped.
See attached water distribution plan
Reservoir Details
No reservoir.
Flushing Program (Uni-directional?):
As opportunities arise flushing is completed.
Backflow/Cross Connection (bylaw, device testing and reporting, operator training):
N/A
Valve Activation : Unknown
OTIKTIOWIT
Hydrant Maintenance:
N/A
Repair/renewal procedures: Disinfection/microbiology testing?
Breakdown → Maintenance manager investigates the problem → Plumber is called if necessary → Tenants are informed → Boil order sent out if necessary → Repairs completed →
Disinfection Report → Tested if required → Boil order is lifted once everything is good.
Water Meters: Installed, billed accordingly?
There are no water meters on the well house or the homes.
Public awareness information provided to users?
Tenants are notified through a letter which is hand delivered to each home.

Emergency Response Barrier				
Written Plan for:				
Boil Order? The park has a boil order plan developed.				
Natural Disaster? N/A				
Acts of Terrorism? N/A				
Safety Training (PPE, WHMIS, Confined Space, etc): Bryan McCaw (Maintenance Manager) PPE, WHMIS, Confined Space, Trenching and First Aid/CPR				
Public notification of water quality/quantity emergencies:				
Tenants are notified through a letter which is hand delivered to each home.				
Back-up power:				
No				
Back-up equipment:				
Spare pumps are available				

APPENDIX I

Drawings and Figures







1:6,000

Water Line and Well Location Plan



FUNDY Engineering

APPENDIX C WSSA APPLICATION

Water Supply Source Assessment Initial Application Parkside Estates New Production Well Lincoln, NB

Pursuant to Section 3(5) of The Water Quality Regulation 82-126 Clean Environment Act

Please answer the following questions:

1) Name of proponent: Capreit Apartments Inc.

2) The proposed water supply is to be used for what purpose?

A new production well is required to replace the existing production Well #2 for the residential community.

3) Required water quantity (in m³/day):

There are no historical flow measurements from the previous well #2 or from any of the exiting three wells. There are 87 homes within the community that have historically been serviced via three production wells, #1, #2, . Assuming 3 people/home @ 340L/person/day and that the peak daily flow occurs over a 6hrs period, the estimated peak flow for the community is 54igpm. The existing distribution system is interconnected with each well operating on pressure demand. There are between four and six pressure tanks in the three well houses, which assist during peak flow demand; however, without flow data it is difficult to identify what demand was being obtained from each well.

4) List alternate water supply sources in area (including municipal systems):

The surrounding areas rely on wells to provide groundwater for their potable water supply. There are currently three production wells providing potable water to 87 residential homes in Parkside Estates. The end of the nearest municipal system (City of Fredericton) is unknown, however the City Limits are approximately 1.5km from the site and it is unlikely that an extension is plausible in the near future.

5) Outline proposed work schedule:

The first step will be to drill a new well. The proponent has already identified a proposed drilling location in close proximity to the current well house. The location was selected by a colleague of Paul Robichaud who has experience locating water using divining rods. Following the completion of the drilling a preliminary flow test will be completed to determine if the yield is sufficient to warrant a long term pumping test. If the drillers estimated yield is greater than 10igpm a long term pumping test will be completed as per the WSSA guidelines.

Due to the current situation within the community, performing the pumping test in the summer or winter months when minimal recharge conditions exist is not plausible therefore

every attempt will be made to ensure that a significant rainfall event has not occurred within 5 days of performing a 24 hr pump test. The intent is to pump the new test well and monitor the response in the existing production well (Well #2) and a neighbouring residential well in the adjacent subdivision to the west. A step-test (three 0.5 hour steps) will be completed at the beginning of the long-term test to determine the optimum pumping rate. Reporting will be completed once the long-term pumping test is performed.

6) Discuss area hydrogeology as it relates to the project requirements:

Regional bedrock mapping indicates that the subject property falls within the Pictou Formation, which consists mainly of grey and brownish read sandstone, pebbly sandstone and conglomerate. (Johnson and Peter, 1997).

Available domestic well logs from within a 500m radius of the site are summarized in the attached Table 1. Well yields range from 1 to 35 igpm with a median yield of 6 igpm. Well depths range from 305ft to 104ft with a median depth of 220ft.

7) Identify any existing pollution or contamination hazards within a (minimum) 500 m radius of the proposed drill targets. If groundwater use problems (quantity or quality) have occurred in the past, then these should be identified. Historical land use that might pose a contamination hazard (i.e. tannery, industrial, disposal, etc.) should also be flagged:

Within 500metres of the proposed drill target there are less than 30 residential properties that are not connected to the private water system at Parkside Estates. These properties have there own private wells. The nearest production well (Well #1) is over 750m from the drill target. There do not appear to be any potential sources of contamination on adjacent properties that would be considered up gradient from the site. The surrounding homes have electric heat with no petroleum storage tanks observed.

Water quality in the area overall is generally very good. All analyzed parameters from the water sample result provided by the proponent for well #2 meet the Canadian Drinking water quality guideline.

Groundwater samples will be collected during the pumping test and analyzed for the potable water package as recommended in the WSSA guideline.

8) Identify any watercourse(s) (stream, brook, river, wetland, etc.) within 30 m of the proposed drill targets.

There are no watercourses or potential wetlands within 30 m of the proposed drill site.

9) Identify site supervisory personnel involved in the source development (municipal officials, consultants and drillers):

The source development consultant is FISHER ENGINEERING LTD. The proponent has retained Steeves Well Drilling to complete the drilling of the new well.

- 10) Attach a 1:10000 map and/or recent air photo clearly identifying the following:
 - proposed drill targets
 - domestic or production wells within a 500 m radius from the drill target
 - any potential hazards identified in question 7

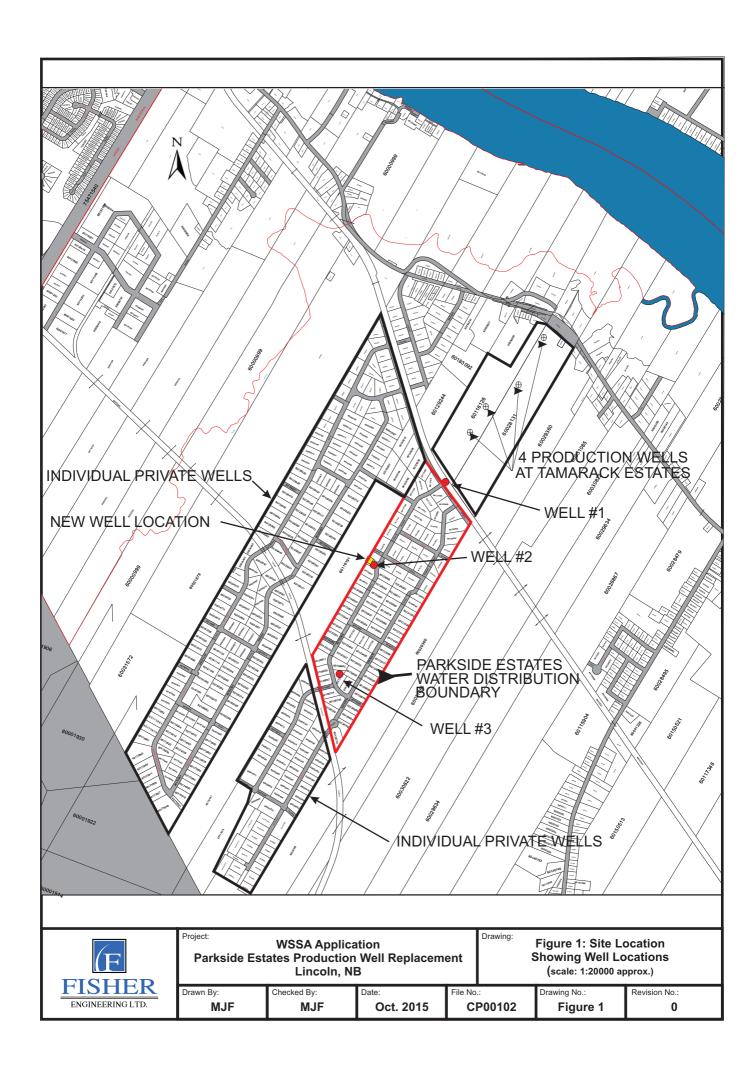
Refer to the attached Figure 1.

11) Attach a land use / zoning map of the area (if any). Superimpose drill targets on this map.

The proposed development falls within the Regional Service District 11. The subject property where the new well is proposed is zoned Residential 2 "R2", which permits single family, two family and mini-home dwellings.

Enclosures

CP001/Water Supply Source Assessment Application.doc



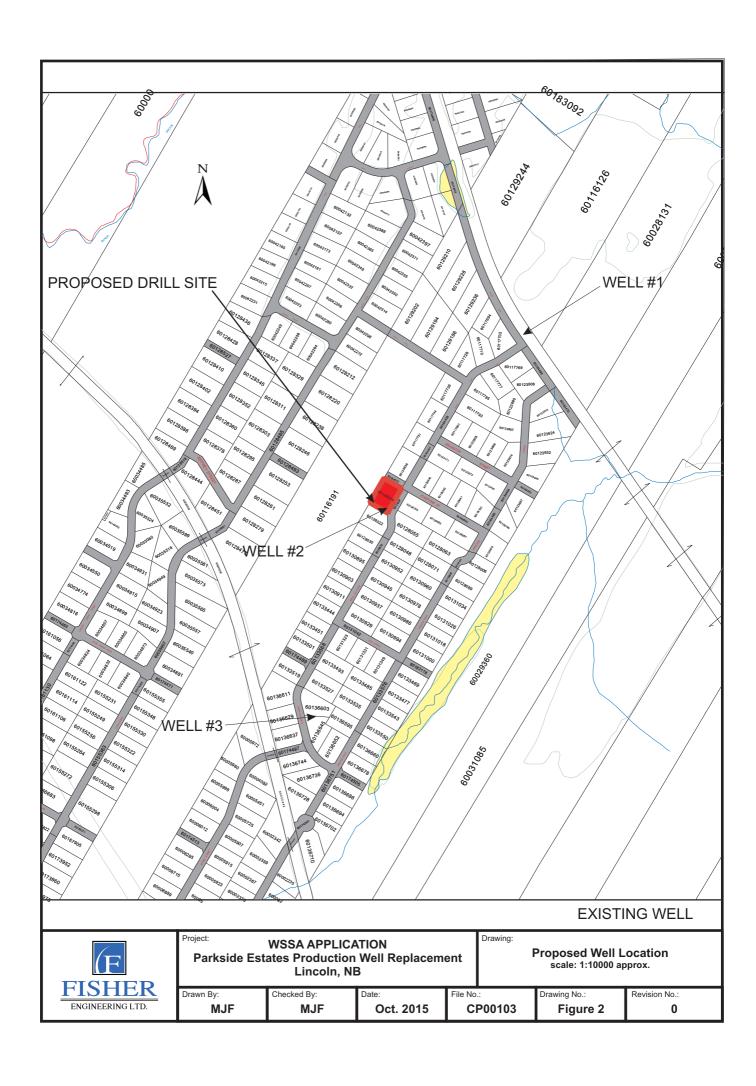


Table 1 Well Log Summary 500m Radius for PID 60128014

Well Report	Well	Casing	Rock	Yield	Rock Type
	Depths (ft)		igpm		
8196	290	102	90	2.5	Sandstone
8219	300	91	75	1.5	Sandstone
10026	283	108	90	3	Shale
10856	220	100	80	6	Sandstone
11356	300	50	50	4	Sandstone
11773	250	72	65	9	Sandstone
25942	190	164	163	5	Sandstone
26746	280	156	150	3	Shale
27161	150	109	60	4	Sandstone
90011910	265	170	170	3	Shale
90017381	200	160	160	15	Shale
90036900	163	163	160	8	
90115600	220			35	Sandstone
90303800	160	130	114	15	Sandstone
90304100	224	102	95	10	Sandstone
90348700	155	155		12	
91273300	185	148	140	1	Sandstone
91275400	305	111	105	11	Sandstone
91520400	104	100	98	15	Sand & gravel
92139600	265	178	175	3	Shale
92198700	220	110	15	12	Sandstone

Max	305	178	175	35
Min	104	50	15	1
Average	225	124	108	8
Median	220	111	98	6

