
**SOIL TESTING FOR
WASTEWATER SERVICING
Proposed Lot Divisions
Concession 6 N Part Lot 8
(Geographic Township of London)
Municipality of Middlesex Centre
County of Middlesex**

Prepared for:

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By:

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January 4, 2021
Updated lot sizing: April 17, 2021

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1. INTRODUCTION

This report presents the results of a soils and sewage system assessment carried out at Municipal Address: 21488 Highbury Ave in the Municipality of Middlesex Centre, County of Middlesex. The property is described as Concession 6 N Part Lot 8 (Geographic Township of London) and is located in Ballymote. The 35 ha (86.4 ac) parcel is currently vacant. Frontage of all lots are to be onto Medway Road and Highbury Avenue North with 5 lots along Medway Road and 14 lots along Highbury Avenue. Proposed lots are will range in width from approximately 23m to 26m. Lot depths will be approximately 76 to 78m with an average lot size of 0.18 ha leaving a retained parcel of approximately 32.4 ha. Appendix A contains a map of the site location.

The lots are currently located on farm land. There are not any defined drainage patterns or roadside ditches along Highbury Avenue. A large road side ditch is present along Medway Rd.

The lots are currently proposed to be serviced with onsite wastewater treatment systems systems and private wells.

2. EXISTING SURFICIAL SOILS

Soil testing was conducted on November 26, 2020. A map of the site and test pit locations is presented in Appendix A together with soil test pits logs at nine (9) locations across the site.

The test pits were formed to depths of 1.4 to 1.5m. In all cases the underlying soils were comprised of clay to silty clay TILL with estimated soil percolation time in excess of 50 min/cm. Topsoil was generally 25 to 30 cm thick. At five (5) of the test pits there was a thin layer (22 to 46cm thick) of sand to sandy silt at varying shallow depths. Some of these layers (at TP 1 & TP 2) appeared to be pockets since they were water-bearing. The sandy layers were sampled and tested. Grain size analyses and classifications are presented in Appendix B. Assessment of the predominantly heavy soils was made in the field. Approximate soil test locations and test pit logs are presented in Appendix A.

Due to the variable depths and inconsistency of the sandy layers, a percolation time (T) of greater than 50 min/cm is recommended at this site for septic system design.

3. PROPOSED WASTEWATER TREATMENT SYSTEMS

In order to size the proposed wastewater treatment system, it is necessary to make assumptions regarding the house characteristics. In this case, a daily load of 3000 L/day was assumed in line with actual homes at a similar recent development in Bryanston. This assumed loading can include a 4-bedroom home with 300m² of living area and up to 40 fixture units as outlined in Appendix E.

Based on the surficial soil as documented in section 2, conventional raised beds were sized requiring a minimum sand footprint of 750 m² or 23m wide x 33m deep. Therefore, a conventional raised bed would consume the entire rear yards of the lots. In Middlesex Centre, during lot creation, it is also required to designate an area for a second “contingency bed” for reconstruction in the event of bed failure. The proposed lot sizes are too small to allow this.

Therefore, enhanced pre-treatment (to CAN/BNQ 3680-600 standard) is required, allowing smaller “Type A” beds (approximately 14m x 28m) as indicated on the sketch in Appendix E. This allows for a contingency bed that will partly overlap the primary bed area.

In order to attain the minimum setbacks from wells to septic systems, the water supply wells will be located in the front yards of the lots with the septic systems in the rear yards. The raised area location and direction of the proposed sand mantle drainage is dependent on both the existing topography and the proposed grading of the lots. There was not a topographical plan available at the time of reporting.

4. SEWAGE IMPACT ASSESSMENT

MOE Procedure D5-4 outlines a multi-step process to gauge the effects of the combined effluent discharges from all of the individual sewage systems in a development based on nitrogen as an indicator of groundwater impact potential.

4.1 Minimum Lot Size

Generally, if the average lot size is smaller than 1.0 ha in size with no lot being smaller than 0.8 ha, then a hydrogeological assessment is not required provided that the area is not hydrogeologically sensitive. This exemption does not apply to the subject lots as they are to be 0.18 ha in size.

4.2 System Isolation Considerations & Well Records

Where smaller lots than 1.0 ha are proposed, it is necessary to consider the status of isolation of the sewage effluent from the existing or potential supply aquifer. As with other lots in this area, the lots are to be serviced with private wells and on-site wastewater treatment systems to current OBC standards. Hence review of water well records for the area were reviewed to verify isolation and/or determine potential impacts of the sewage effluent on area wells.

There were 18 valid well records within approximately 500m of the proposed development site, 3 of which were professionally closed and sealed. Well locations and logs are presented in Appendices C and D, respectively. Following is a summary of the well logs:

Well #	Year Formed	Casing dia(cm)	Water Depth (m)	Pump Rate (lpm)	Soil Profile (m)	Status
4102089	1964	91	7.9	227	0 – 2.4 Sandy Clay 2.4 – 7.9 Hard Blue Clay	On highbary adjacent to proposed lots
4102091	1957	15	25.6	1365	0 – 1.3 Topsoil/Fill 1.3 – 2.4 Sand & Clay 2.4 – 22.6 Blue Clay 22.6 – 25.0 Hard Pan 25.0 – 26.2 Sand & Gravel	
4102092	1962	91	3.1	22.8	0 – 0.30 Topsoil 0.3 – 1.5 Sand 1.5 – 3.05 Blue Clay	185m west of highbary on medway
4102096	1967	91	3.7	13.7	0 – 2.4 Sand 2.4 – 3.7 Hard Blue Clay	110m west of highbary on medway
4102166	1959	12	42.4	26.5	0 – 3.1 Topsoil & Sandy Clay 3.1 – 9.1 Hard Pan 9.1 – 13.7 Sand 13.7 – 22.9 Clayey Sand & Sandy Hard Pan 22.9 – 27.4 Clay 27.4 – 30.2 Sand 30.2 – 42.4 Hard Pan & Clay 42.4 – 42.7 Sand/Gravel	
4105504	1971	91	5.5	9.1	0 – 1.5 Br. Clay 1.5 – 5.5 Blue Clay 5.5 – 5.8 Gravel 5.8 – 8.5 Blue Clay Till	at monitoring wells on petrocan property
4106814	1974	12	18.3	45.5	0 – 4.6 Br. Clay 4.6 – 13.7 Blue Clay 13.7 – 20.4 Gravel	
4107096	1974	12	29.6	9.1	0 – 5.5 Br. Sand 5.5 – 29.6 Blue Clay Till 29.6 – 30.2 Gr. Sand 30.2 – 31.7 Blue Clay	

4107563	1976 1994 Closed	15	63.3	n/a	0 – 2.7 Sand 2.7 – 47.5 Gr. Clay 47.5 – 81.4 Blue Clay 22.6 – 81.4.0 Hard Pan	Closed Sealed (sulphur)
4107571	1976	15	10.1	27.3	0 – 3.1 Red Clay 3.1 – 9.1 Layered Clay & Gravel 9.1 – 10.1 Porous Gravel	
4108667	1978	12	9.4	36.4	0 – 9.4 Br. Clay 9.4 – 9.4 Sand & Clay 9.4 – 11.3 Br. Sand	
4110852	1987	12	23.8	46	0 – 1.5 Br. Clay 1.5 – 23.5 layered Sand & Clay 23.5 – 23.8 Gr. Gravel	
4111987	1989	15	30.2	27.3	0 – 2.7 Br. Sand 2.7 – 16.2 Gr. Clay 16.2 – 24.4 Clay -layered sand & silt 24.4 – 30.2 Gr. Clay 30.2 – 31.7 Gr. Sand 31.7 – 32.9 Gr. Clay	
4112242	1990	12	21.3	54.6	0 – 0.91 Br. Clay 0.91 – 18.3 Gr. Clay 18.3 – 21.3 Bl. Sand	
4112352	1991	15	14.9	45.5	0 – 3.7 Br. Sand & Clay 3.7 – 14.6 Gr. Clay & Sand 14.6 – 14.9 Gr. Sand	
4114496	2000		14.9		unknown	Closed Sealed
7045068	2007	2	4.6	n/a	0 – 0.9 Br. Sand Till 0.9 – 4.6 Gr. Clay & Sand 14.6 – 14.9 Gr. Clay till	Monitoring Well (5 wells)
7304894	2017	107	3.1		unknown	Closed Sealed

The soil profiles on the well logs are generally consistent with the shallow test pit data. Most non-closed deep wells are to an aquifer ranging from 9.4m to 30.2m in depth. There appears to be a clay overburden with some sand or silt lenses over the deeper aquifer with considerable unlayered clay to prevent migration of wastewater effluent. With the confined aquifer, wastewater effluent is expected to migrate to surface drainage swales and ditches where denitrification will occur.

There are four (4) shallow wells in proximity of the site, namely wells 4102092, 4102096, 4102089, and 4105504. The first two wells are approximately 185 m and 110m respectively west of Highbury Avenue and hence are unlikely to be affected by the development. However, well 4105504 on the Gas station property southeast of the intersection of Highbury and Medway Roads is shallow and adjacent the development. The status of this well should be examined since there is an existing deeper drilled well on the same property. Well 4102089 is also shallow and immediately adjacent the south end of the proposed

development and its status should therefore also be examined. Both of these shallow wells should be decommissioned and replaced, if not done already.

One deep well to the bedrock aquifer was decommissioned due to sulphur content.

Current pump rates for existing deeper wells range from 9 to 46 Litres/minute.

5. SUMMARY & RECOMMENDATIONS

To facilitate this development, it is recommended that:

1. Two shallow wells (Well 4105504 and Well 4102089) adjacent the development should be decommissioned (if not done already) and serviced with a replacement water supply, if necessary.
2. A preferred water supply for all of the new lots would be municipal water, if feasible.
3. The proposed development can accommodate sewage design loads up to 3000 L/day on each lot as outlined in Appendix E for the lots on both Highbury Avenue and those on Medway Road.
4. Deep drilled wells should be located in the front yards of the development with septic systems and contingency areas in the rear yards.
5. Enhanced treatment of sewage (to CAN/BNQ 3680-600 standard) is required to facilitate use of smaller "Type A" distribution beds to fit the proposed lot sizes. These pre-treatment units will also reduce risks of shallow aquifer contamination.

6. The Ontario Building Code does apply to the sewage system construction. The proposed sewage systems will be required to meet all regulations and required setbacks from wells outlined in Part 8 of the Ontario Building Code and CAN/BNQ 3680-600 standard.
7. Building permits will require lot grading plans and specific septic system designs for the individual lot developments.

BOS Engineering & Environmental Services Inc.



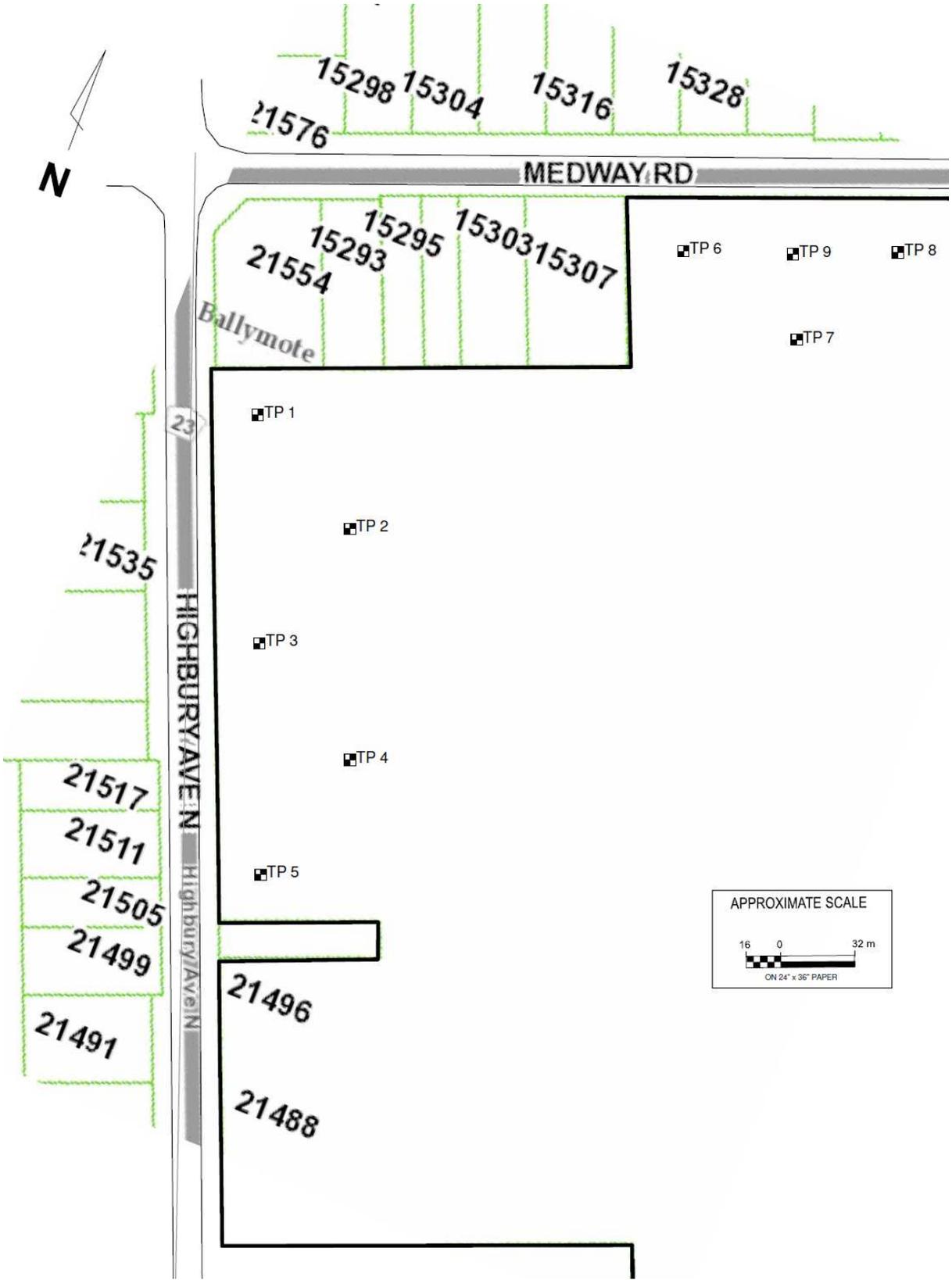
Art W. Bos, P.Eng.

Encl

- Appendix "A" – Map: Soil Test Locations & Logs
- Appendix "B" – Soil Grain Size Analysis of Selected Samples
- Appendix "C" – Map: Existing Water Well Records
- Appendix "D" – Individual Well Records (Provincial Database)
- Appendix "E" – Wastewater Treatment System Assumptions & Sizing

Appendix A

Map: Soil Test Locations & Logs



SITE SOIL INFORMATION

(BOS ENGINEERING – Nov 26, 2020)

<u>TEST</u>	<u>DEPTH (cm)</u>	<u>SOIL TYPE</u>
TP 1	0 - 30	TOPSOIL
	30 - 76	Hard Silty CLAY
	76 - 114	Sand (Tested: T = 8 min/cm)
	114 - 152	Gr. CLAY (T > 50 min/cm)
	Seepage @ 114 cm	
TP 2	0 - 30	TOPSOIL
	30 - 76	Mottled Sandy SILT (Tested: T = 40 min/cm)
	76 - 152	Clay TILL (T >50 min/cm)
	Seepage @ 76cm	
TP 3	0 - 30	TOPSOIL
	30 - 81	Mottled Silty CLAY (sand pockets)
	81 - 137	CLAY TILL (T >50 min/cm)
	No Seepage	
TP 4	0 - 27	TOPSOIL
	27 - 69	Mottled Silty CLAY
	69 - 132	Gravelly CLAY TILL (cobbles) (T >50 min/cm)
	No Seepage	
TP 5	0 - 30	TOPSOIL
	30 - 56	Mottled Silty CLAY
	56 - 127	Stoney Clay TILL (T >50 min/cm)
	(100mm TILE @ 81 cm)	
	No Seepage	
TP 6	0 - 30	TOPSOIL
	30 - 41	Silty CLAY
	41 - 81	Sand (Tested: T = 10 min/cm)
	81 - 107	Gr. SAND
	107 - 140	Clay TILL (T >50 min/cm)
	Seepage @ 81 cm	
TP 7	0 - 30	TOPSOIL
	30 - 46	Gr. CLAY
	46 - 122	Gr. Mottled Silty CLAY (T >50 min/cm)
	No Seepage	
TP 8	0 - 25	TOPSOIL
	25 - 48	Gr. CLAY
	48 - 76	SAND
	76 - 127	CLAY TILL (T >50 min/cm)
	No Seepage	
TP 9	0 - 25	TOPSOIL
	25 - 69	Gr. Mottled CLAY
	69 - 91	Gravelly SAND (T = 10 min/cm)
	91 - 132	CLAY TILL (T >50 min/cm)
	No Seepage	

Appendix B

Soil Grain Size Analysis of Selected Samples

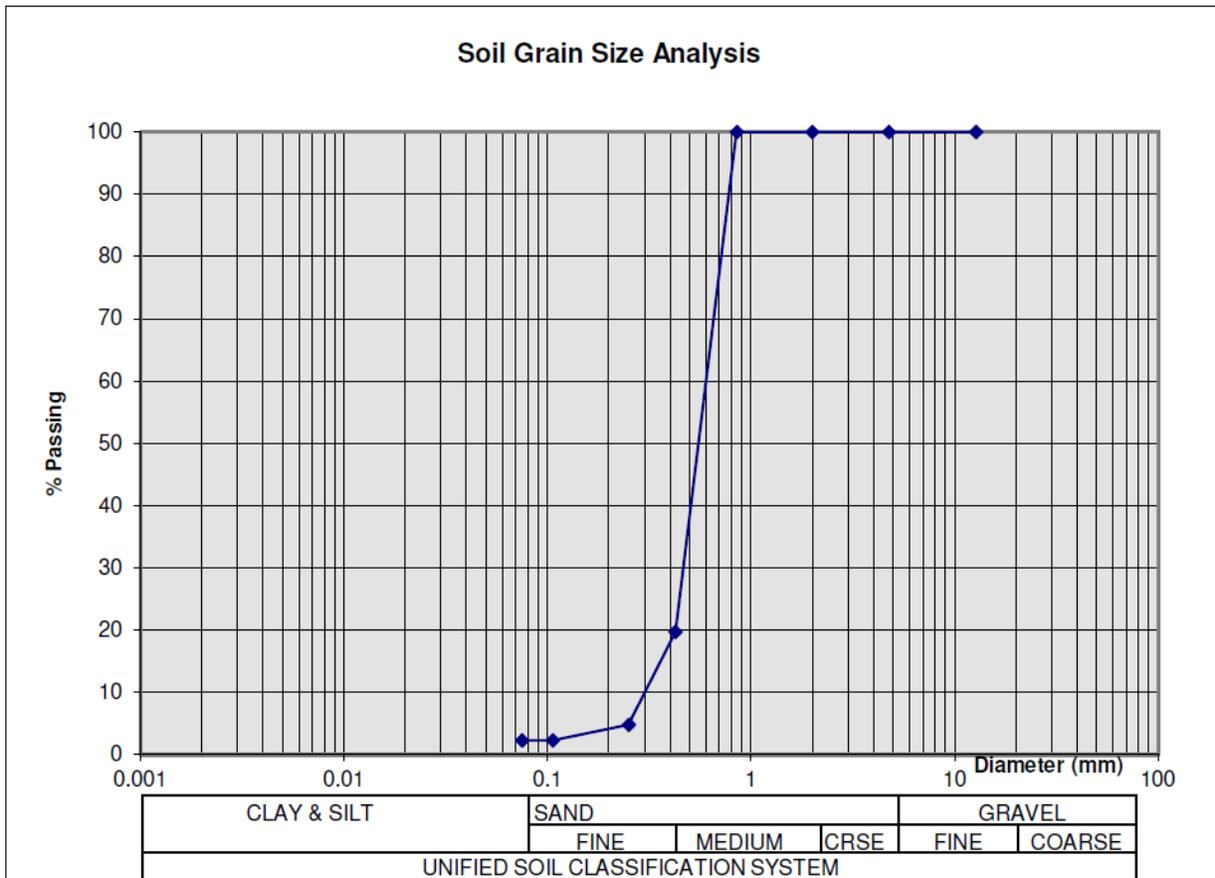
BOS Engineering Environmental Services

Project : Ballymote Lots
Test Pit : TP1
Depth : 76 to 114 cm
Dry Mass: 117.0 g

Client : Brock Development
RE: Waste Treatment System
Proj. No.: 2011-22
Date: Nov 27 20

CHART DATA

Sieve No.	Mass	Cum. Mass	Diam. (d)	% Passing
		0	12.7	100
4	0.0	0	4.75	100
10	0.0	0	2	100
20	0.0	0	0.85	100
40	94.0	94	0.425	20
60	17.4	111.4	0.25	5
140	2.9	114.3	0.106	2
200	0.0	114.3	0.075	2



Unified System Classification:
SP Poorly Graded SAND (2% Finer than No. 200 sieve)

Est. Percolation Time: T = 8 min/cm

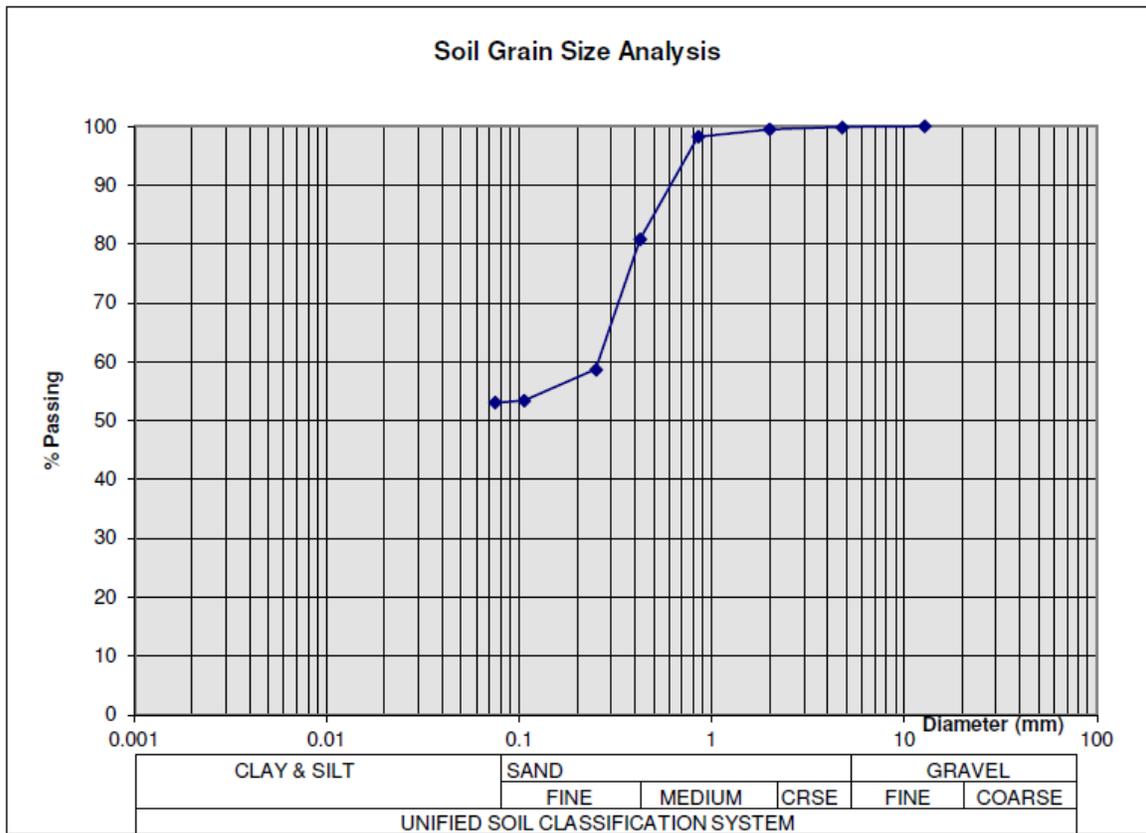
BOS Engineering Environmental Services

Project : Ballymote Lots
Test Pit : TP2
Depth : 30 to 81 cm
Dry Mass: 124.9 g

Client : Brock Development
RE: Waste Treatment System
Proj. No.: 2011-22
Date: Nov 27 20

CHART DATA

Sieve No.	Mass	Cum. Mass	Diam. (d)	% Passing
		0	12.7	100
4	0.2	0.2	4.75	100
10	0.4	0.6	2	100
20	1.6	2.2	0.85	98
40	21.7	23.9	0.425	81
60	27.7	51.6	0.25	59
140	6.6	58.2	0.106	53
200	0.4	58.6	0.075	53



Unified System Classification:
Sandy SILT (53% Finer than No. 200 sieve)
Est. Percolation Time: T = 40 min/cm

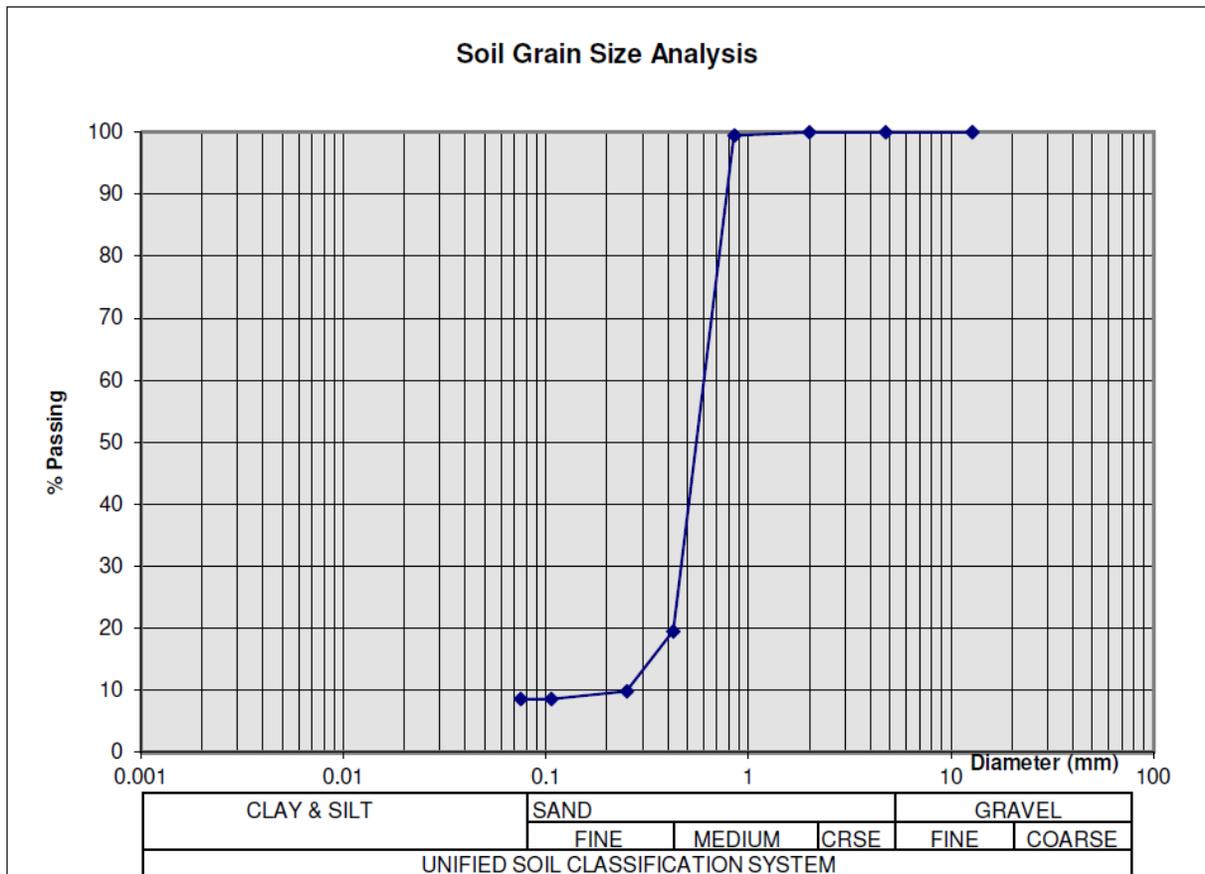
BOS Engineering Environmental Services

Project : Ballymote Lots
Test Pit : TP6
Depth : 41 to 81 cm
Dry Mass: 134.2 g

Client : Brock Development
RE: Waste Treatment System
Proj. No. 2011-22
Date: Nov 27 20

CHART DATA

Sieve No.	Mass	Cum. Mass	Diam. (d)	% Passing
		0	12.7	100
4	0.0	0	4.75	100
10	0.0	0	2	100
20	0.7	0.7	0.85	99
40	107.3	108	0.425	20
60	13.0	121	0.25	10
140	1.7	122.7	0.106	9
200	0.0	122.7	0.075	9

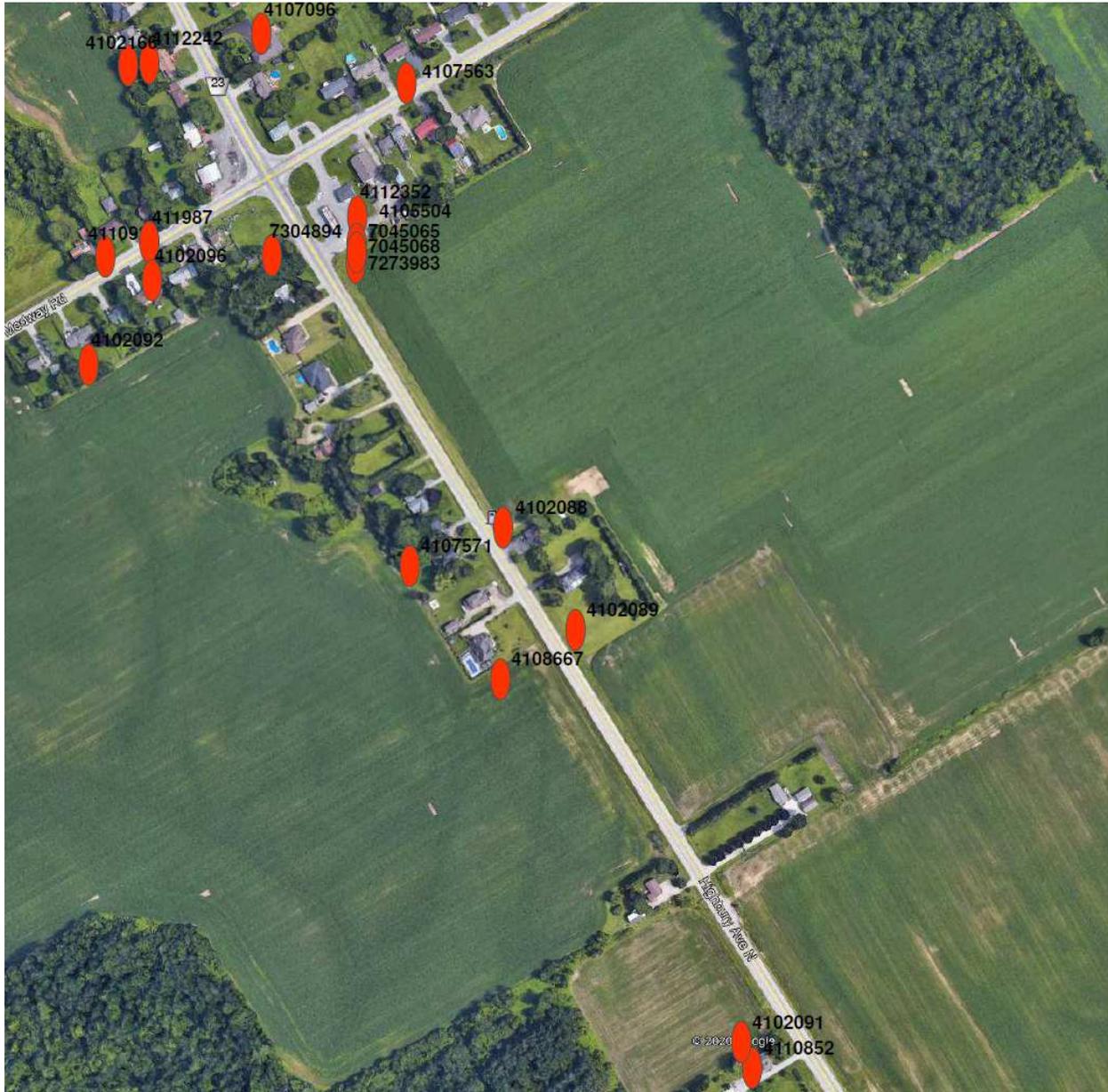


Unified System Classification:
SM Sand Trace Silt (9% Finer than No. 200 sieve)

Est. Percolation Time: T = 10 min/cm

Appendix C

Map: Existing Water Well Records



Appendix D

Individual Well Records



UTM 17 Z 480700 E
 5 R 4767600 N
 Elev. 94 R 6900
 Basin 2
 County or District MADOLESEX
 Lot 8

The Ontario Water Resources Commission Act

WATER WELL RECORD

WATER RESOURCES
 JUN 9 1964
 41 No 2089
 RESOURCES COMMISSION

Township, Village, Town or City LONDON
 Date completed 11 May 1964
 (day month year)
 Address RR #1 Arva

Casing and Screen Record

Inside diameter of casing 5 1/8" 36 in
 Total length of casing 18 to 26 ft 27 in
 Type of screen
 Length of screen
 Depth to top of screen
 Diameter of finished hole

Pumping Test

Static level 16
 Test-pumping rate 50 G.P.M.
 Pumping level 24
 Duration of test pumping 1 hr
 Water clear or cloudy at end of test clear
 Recommended pumping rate 5 G.P.M.
 with pump setting of 24 feet below ground surface

Well Log

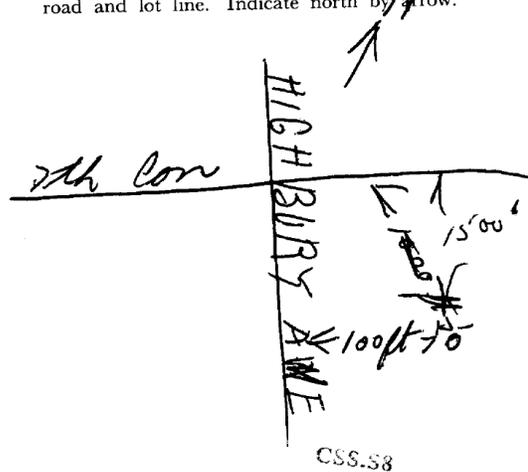
Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
sandy clay	0	8'	26 ft	fresh
hard blue clay	8	26		

Water Record

For what purpose(s) is the water to be used? house
 Is well on upland, in valley, or on hillside? upland
 Drilling or Boring Firm Roy Hudson
 Address Arva
 Licence Number 52
 Name of Driller or Borer same
 Address
 Date May 11 1964
 Roy Hudson
 (Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Form 7 15M-60-4138

OWRC COPY

UTM 17z 480770 E
 9R 4767260 N
 Elev. 9R 10890
 Basin 2



RECEIVED

JAN 30 1957

GEOLOGICAL BRANCH

The Water-well Drillers Act, 1951
 Department of Mines

No. 2091

Water-Well Record

County or Territorial District McDowell Township, Village, Town or City London

Address R.R. 1 Arva
 (day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 6 1/2" Static level 1 1/2 ft
 Length(s) 84 ft Pumping rate 300 G.P.H.
 Type of screen Pumping level 7 1/2 ft
 Length of screen Duration of test 1 1/2 hrs

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
fill	0	1			
top soil	1	3			
clay	3	6			
hard clay	6	8			
fine clay & brackish	8	24			
hardpan	74	82			
sand & gravel	82	86	82	84 1/2	fresh

For what purpose(s) is the water to be used?
house

Is water clear or cloudy? clear

Is well on upland, in valley, or on hillside?
upland

Drilling firm W. B. Hale

Address H. wa

Name of Driller

Address

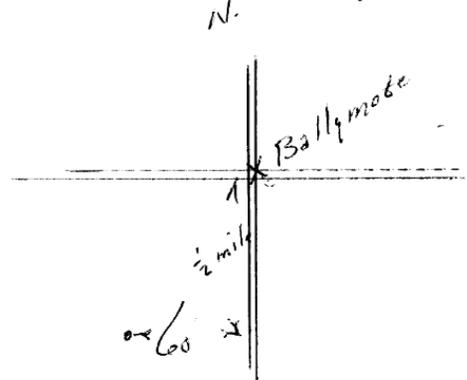
Licence Number 476

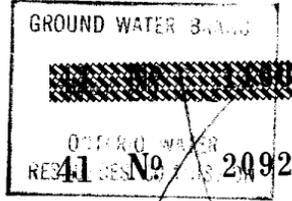
I certify that the foregoing statements of fact are true.

Date Jan 30 1957
 Signature of Licensee Wm Hale

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.





UTM: 17Z 480320E
 5R 4767900N
 Elev. 4R 0895

The Ontario Water Resources Commission Act

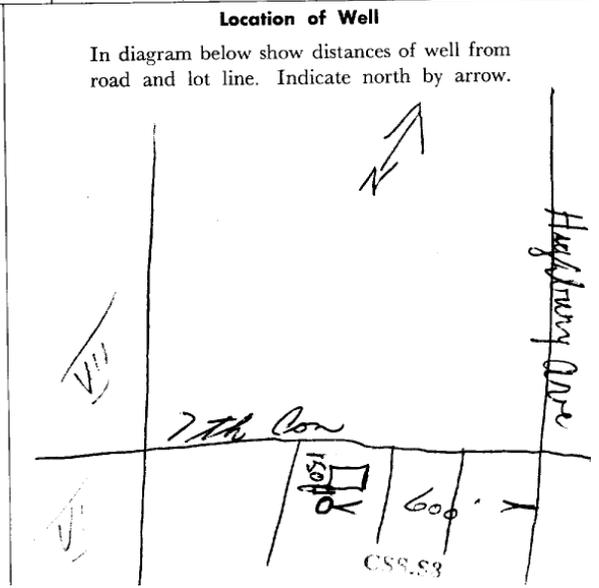
WATER WELL RECORD

Basin 2 County or District WINDSOR Township, Village, Town or City LONDON TWP
 Con. 36 Lot 9 Date completed April 28 1962
 (day month year)
 Owner: [REDACTED] Address RA #1 Ara Ont

Casing and Screen Record		Pumping Test	
Inside diameter of casing	<u>3 6 in</u>	Static level	<u>4 ft</u>
Total length of casing	<u>10 ft</u>	Test-pumping rate	<u>2</u> G.P.M.
Type of screen		Pumping level	<u>3 ft</u>
Length of screen		Duration of test pumping	<u>1 hr</u>
Depth to top of screen		Water clear or cloudy at end of test	<u>Clear</u>
Diameter of finished hole	<u>3 6</u>	Recommended pumping rate	<u>5</u> G.P.M.
		with pump setting of	<u>8</u> feet below ground surface

Well Log	Water Record				
	Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>Top soil</u>	<u>0</u>	<u>1</u>	<u>4</u>		
<u>sand</u>	<u>1</u>	<u>5</u>			
<u>Blue clay rocks</u>	<u>5</u>	<u>10</u>			

For what purpose(s) is the water to be used? house
 Is well on upland, in valley, or on hillside? hillside
 Drilling or Boring Firm Roy Hudson
 Address Ara Ont
 Licence Number 8
 Name of Driller or Borer Roy Hudson
 Address Ara Ont
 Date April 28
Roy Hudson
 (Signature of Licensed Drilling or Boring Contractor)



Form 7 15M Sets 60-5930

OWRC COPY



UTM 17Z 480380E

5R 4767960N

Elev. 4R 0895

The Ontario Water Resources Commission Act

WATER WELL RECORD

41 No 2096

Basin 230 MIDDLESEX
County or District

Township, Village, Town or City LONDON

Con. 6 Lot 9

Date completed 8 May 1967
(day month year)

Owner [Redacted]

Address RRA1 Area

Casing and Screen Record

Pumping Test

Inside diameter of casing 36 in
Total length of casing 12 ft
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 36 in

Static level 4 ft
Test-pumping rate 3 G.P.M.
Pumping level 12 ft
Duration of test pumping 1 hr
Water clear or cloudy at end of test clear
Recommended pumping rate 3 G.P.M.
with pump setting of _____ feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Sandy clay	0	8	4 ft	fresh
hard blue clay	8	12 ft		

For what purpose(s) is the water to be used? D

Is well on upland, in valley, or on hillside? hillside

Drilling or Boring Firm Roy Hudson

Address Area Ont

Licence Number 107

Name of Driller or Borer [Signature]

Address
Date May 8 1967

[Signature]
(Signature of Licensed Drilling or Boring Contractor)

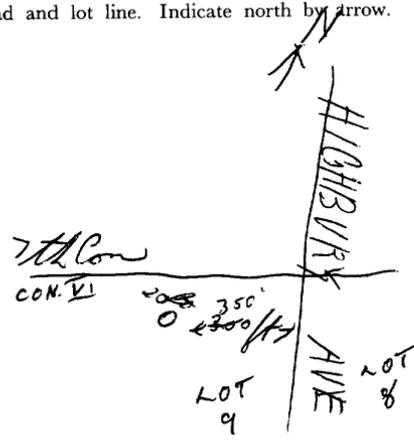
Form 7 15M-60-4138

OWRC COPY

(40)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



UTM 17 Z 480400 E
 5 R 4768140 N
 Elev. 40895
 Basin 270



41 No. 2166
 ONTARIO WATER RESOURCES COMMISSION

The Ontario Water Resources Commission Act, 1957

WATER WELL RECORD

County or District MIDDLESEX Township, Village, Town or City LONDON, ONT.

Date completed 5 NOV 1959
 (day month year)
 Address 318 BOLGER RD. BYRON, ONT.

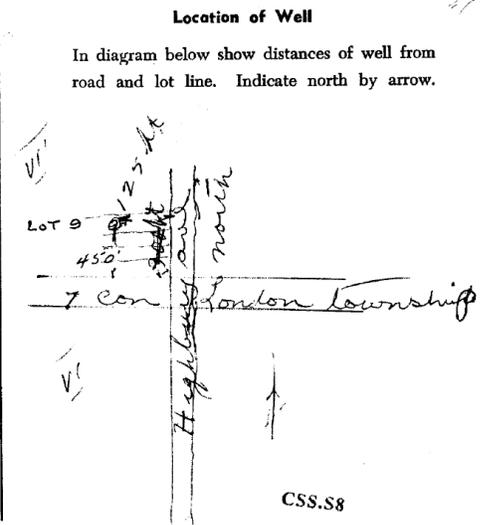
Casing and Screen Record	Pumping Test
Inside diameter of casing 5 in	Static level 10 ft
Total length of casing 139 ft	Test-pumping rate 350 per hr G.P.M.
Type of screen	Pumping level 2.0 ft
Length of screen	Duration of test pumping 4 hrs
Depth to top of screen	Water clear or cloudy at end of test clear
Diameter of finished hole 5 1/2	Recommended pumping rate 350 G.P.M.
	with pumping level of 2.0

Well Log	Water Record				
Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, sulphur)
Top soil	0	1			
sandy clay	1	10			
hard part	10	20			
Hard part, stones	20	30			
sand	30	45			
clay sand	45	65			
sandy hard part	65	75			
clay	75	90			
sand	90	99			
hard part	99	128			
clay	128	139			
sand gravel with water	139	140	139	12.9	fresh
MAY 1960 - this well is used for irrigation since field will not grow crops as well as this					

For what purpose(s) is the water to be used? house

Is well on upland, in valley, or on hillside? upland

Drilling Firm Harold Siegrist
 Address R.R. 5
 London
 Licence Number 367
 Name of Driller Harold Siegrist
 Address R.R. 5 - London
 Date Nov 5 1959
 H. J. Siegrist
 (Signature of Licensed Drilling Contractor)



Form 5
 15M-58-4149

CSS.S8



The Ontario Water Resources Commission Act
WATER WELL RECORD

40 P/38

Water management in Ontario 1. PRINT ONLY IN SPACES PROVIDED 2. CHECK CORRECT BOX WHERE APPLICABLE

11 4105504-1 41008 008
 10 14 15 16 17 18 19 20 21 22 23 24

COUNTY OR DISTRICT MIDDLESEX TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE LONDON CON. BLOCK, TRACT, SURVEY, ETC. 6 LOT 25-29 008
 DATE COMPLETED 07-28-71
 DAY 27 MO 7 YR 71

RR#1 ARVA
 767958 4 0898 4 2.3

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	CLAY		PACKED	0	5
BLUE	CLAY		PACKED	5	18
	GRAVEL		LOOSE	18	19
BLUE	CLAY	BOULDERS	PACKED	19	28

31 0005405 0018305 0019 11 002830573

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIA. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
10-11	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		0-28
36	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	3	0-28
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		20-23
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		27-30

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	(CEMENT GROUT, LEAD PACKER, ETC.)
10-13		
14-17		
18-21		
22-25		
26-29		
30-33		

71 PUMPING TEST

PUMPING TEST METHOD 1 PUMP 2 BAILEY

PUMPING RATE 27 GPM

DURATION OF PUMPING 17-18 HOURS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING	1 <input type="checkbox"/> PUMPING 2 <input checked="" type="checkbox"/> RECHARGE
018 FEET	028 FEET	15 MINUTES 22-24 FEET 30 MINUTES 26-28 FEET 45 MINUTES 29-31 FEET 60 MINUTES 32-34 FEET	

IF FLOWING, GIVE RATE 30-41 GPM

PUMP INTAKE SET AT 27 FEET

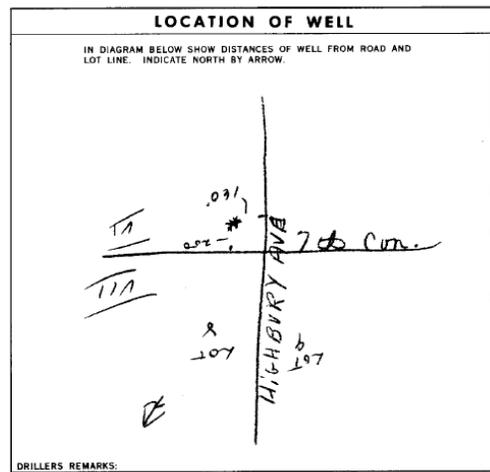
WATER AT END OF TEST 1 CLEAR 2 CLOUDY

RECOMMENDED PUMP TYPE 1 SHALLOW 2 DEEP

RECOMMENDED PUMP SETTING 027' FEET

RECOMMENDED PUMPING RATE 0002 GPM

GPM/FT. SPECIFIC CAPACITY



54 FINAL STATUS OF WELL

1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY
 2 OBSERVATION WELL 6 ABANDONED, POOR QUALITY
 3 TEST HOLE 7 UNFINISHED
 4 RECHARGE WELL

55-56 WATER USE

1 DOMESTIC 5 COMMERCIAL
 2 STOCK 6 MUNICIPAL
 3 IRRIGATION 7 PUBLIC SUPPLY
 4 INDUSTRIAL 8 COOLING OR AIR CONDITIONING
 OTHER 9 NOT USED

57 METHOD OF DRILLING

1 CABLE TOOL 6 BORING
 2 ROTARY (CONVENTIONAL) 7 DIAMOND
 3 ROTARY (REVERSE) 8 JETTING
 4 ROTARY (AIR) 9 DRIVING
 5 AIR PERCUSSION

DRILLER'S REMARKS:

NAME OF WELL CONTRACTOR Roy Hudson LICENCE NUMBER 2607

ADDRESS RR#1 ARVA

DROR OR BORER C. HAYDEN LICENCE NUMBER 2552

CONTRACTOR Hudson per EMM SUBMISSION DATE DAY 2 MO AUG YR 71

OFFICE USE ONLY

DATA SOURCE 1 CONTRACTOR 2607 DATE RECEIVED 230871

DATE OF INSPECTION 19, 6, 72 INSPECTOR

REMARKS P 7 WI



MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

40 P/38

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11 4106814 41008 CON. 06

COUNTY OR DISTRICT: Amherstburg TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: London CON. BLOCK, TRACT, SURVEY, ETC.: com. 01 LOT: 008

DATE COMPLETED: DAY 10 MO 07 YR 74

4767451 4 902 4 23 MAY 05, 1976

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
<u>brown</u>	<u>clay</u>			0	15
<u>blue</u>	<u>clay</u>	<u>stones</u>		15	45
<u>spinel</u>				45	67

OWRC
V.7

OWRC
P.8

31 0015605 004530512 006711

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-12	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR
2	<input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL
15-18	<input type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR
2	<input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL
20-23	<input type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR
2	<input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL
23-26	<input type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR
2	<input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL
30-33	<input type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR
2	<input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

DEPTH - FEET	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
05-10	<input checked="" type="checkbox"/> STEEL		0063
2	<input type="checkbox"/> GALVANIZED		63
3	<input type="checkbox"/> CONCRETE		
4	<input type="checkbox"/> OPEN HOLE		
17-18	<input checked="" type="checkbox"/> STEEL	1.98	63
2	<input type="checkbox"/> GALVANIZED		0064
3	<input type="checkbox"/> CONCRETE		63
4	<input type="checkbox"/> OPEN HOLE		63
24-25	<input type="checkbox"/> STEEL		2750
2	<input type="checkbox"/> GALVANIZED		
3	<input type="checkbox"/> CONCRETE		
4	<input type="checkbox"/> OPEN HOLE		

SCREEN

SIZES OF OPENING (SLOT NO.)	DIAMETER	LENGTH
31-33	INCHES	FEET
	DEPTH TO TOP OF SCREEN	41-44
		FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT GROUT LEAD PACKER ETC.
FROM TO		
10-13		
18-21		
22-25		
26-29		
30-33		

71 PUMPING TEST

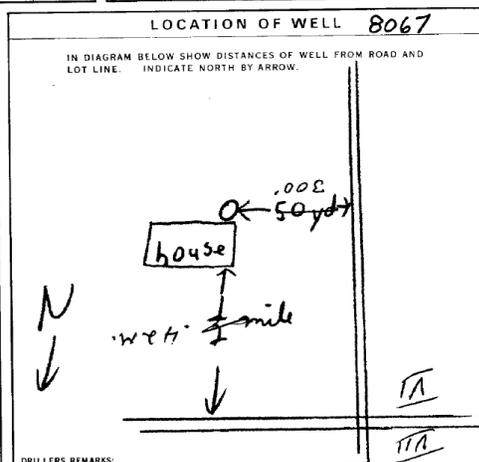
PUMPING DATE: 1 Aug DURATION OF PUMPING: 001 0 GPM 61 15-16 HOURS 30 7-18 MINS

STATIC WATER LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING
19-21	22-24	15 MINUTES 30 MINUTES 45 MINUTES 60 MINUTES
006 FEET	015 FEET	015 FEET 015 FEET 015 FEET 015 FEET

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 015 FEET

RECOMMENDED PUMPING RATE: 0010 GPM



FINAL STATUS OF WELL: 1

WATER USE: 01

METHOD OF DRILLING: 2

CONTRACTOR: Mrc Zardwell Drilling LICENCE NUMBER: 3563

ADDRESS: 249 King Street E. Ingersoll

NAME OF DRILLER OR BORER: Ralph LICENCE NUMBER: 3563

SIGNATURE OF CONTRACTOR: Mrc Zard

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3563 DATE RECEIVED: 180774

DATE OF INSPECTION: 13, 4, 75 INSPECTOR: [Signature]

REMARKS: N.v.

P 2

WI 7

CSS.Sg

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 07-091



MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act
WATER WELL RECORD

40 P / 3 B

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

4107096 MUNICIPAL 41008 CON. C.O.N. LOT 008

COUNTY OF DISTRICT TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE 7 CON. BLOCK, TRACT, SURVEY, ETC. LOT 28-27

DATE COMPLETED 48-53
DAY 25 MO. 11 YR. 74

4107096 468149 4 895 4 23 MAY 05, 1976

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BLACK	LOAM			0	2
BROWN	SAND			2	18
BLUE	CLAY	GRAVEL + STONES		18	97
GRAY	SAND	SILT		97	99
BLUE	CLAY	STONES		99	104

OWRC V.7

OWRC P.8

31 0002802 0002802 00973051112 009922406 010430512

32 141 2 1/2 (Screen)

41 WATER RECORD		51 CASING & OPEN HOLE RECORD		61 PLUGGING & SEALING RECORD	
WATER FOUND AT - FEET	KIND OF WATER	INSIDE DIA. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
0010	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL	05	<input checked="" type="checkbox"/> STEEL	.244	0 0097
0097	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL	17-18	<input type="checkbox"/> GALVANIZED		
	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL	24-25	<input type="checkbox"/> CONCRETE		
	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL		<input type="checkbox"/> OPEN HOLE		

SCREEN SIZE(S) OF OPENING (SLOT NO. 008) 31-33 DIAMETER (INCHES) 05.000 (07)

MATERIAL AND TYPE 55 OPEN TO TOP OF SCREEN 0097

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET MATERIAL AND TYPE CEMENT GROUT, LEAD PACKER, ETC.

71

PUMPING TEST METHOD 30 PUMPING RATE 35-40 DURATION OF PUMPING

PUMP BAILER 0002 04 30

STATIC WATER LEVEL WATER LEVEL END OF PUMPING WATER LEVELS DURING PUMPING RECOVERY

013 104 104 104 104

IF FLOWING, GIVE RATE PUMP INTAKE SET AT WATER AT END OF TEST

RECOMMENDED PUMP TYPE RECOMMENDED PUMP SETTING RECOMMENDED PUMPING RATE

000.0 103 0002

FINAL STATUS OF WELL WATER USE METHOD OF DRILLING

WATER SUPPLY ABANDONED, INSUFFICIENT SUPPLY

STOCK MUNICIPAL

IRRIGATION PUBLIC SUPPLY

INDUSTRIAL COOLING OR AIR CONDITIONING

OTHER NOT USED

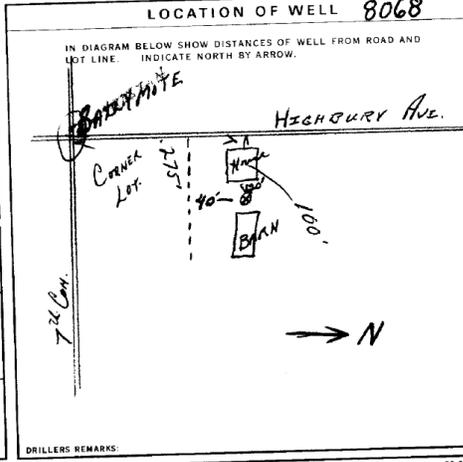
CABLE TOOL BORING

ROTARY (CONVENTIONAL) DIAMOND

ROTARY (REVERSE) JETTING

ROTARY (AIR) DRIVING

AIR PERCUSSION



CONTRACTOR NAME OF WELL CONTRACTOR LICENCE NUMBER 4809

WAYNE STONER

ADDRESS RR # 3 DENFIELD, ONT.

NAME OF DRILLER OR BORER LICENCE NUMBER

Signature of Contractor Submission Date DAY 25 MO. 11 YR. 74

Wayne Stoner

OFFICE USE ONLY DATA SOURCE 1 CONTRACTOR 4809 DATE RECEIVED 240175

DATE OF INSPECTION 13, 6, 75 INSPECTOR 7

REMARKS P 7

CGS.88 WI

MINISTRY OF THE ENVIRONMENT COPY



The Ontario Water Resources Act WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11 4107563 41008 KAN 07

COUNTY OR DISTRICT: Middlesex
 TOWNSHIP/BOROUGH/CITY/TOWN/VILLAGE: London
 CON. BLOCK TRACT SURVEY ETC: 7
 LOT: 8
 R# 1, Arva, Ontario
 DATE COMPLETED: DAY 27, MO 06, YR 94

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
			ABANDONED		
			Well # 41-7563		

31
32

41 WATER RECORD WATER FOUND AT - FEET: 10-18 KIND OF WATER: <input type="checkbox"/> FRESH, <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR, <input type="checkbox"/> MINERALS, <input type="checkbox"/> GAS 15-18 <input type="checkbox"/> FRESH, <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR, <input type="checkbox"/> MINERALS, <input type="checkbox"/> GAS 20-23 <input type="checkbox"/> FRESH, <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR, <input type="checkbox"/> MINERALS, <input type="checkbox"/> GAS 25-28 <input type="checkbox"/> FRESH, <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR, <input type="checkbox"/> MINERALS, <input type="checkbox"/> GAS 30-33 <input type="checkbox"/> FRESH, <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR, <input type="checkbox"/> MINERALS, <input type="checkbox"/> GAS	51 CASING & OPEN HOLE RECORD INSIDE DIAM INCHES: 10-11 MATERIAL: <input type="checkbox"/> STEEL, <input type="checkbox"/> GALVANIZED, <input type="checkbox"/> CONCRETE, <input type="checkbox"/> OPEN HOLE, <input type="checkbox"/> PLASTIC WALL THICKNESS INCHES: 12 DEPTH - FEET: FROM 10-11 TO 13-35 17-14 <input type="checkbox"/> STEEL, <input type="checkbox"/> GALVANIZED, <input type="checkbox"/> CONCRETE, <input type="checkbox"/> OPEN HOLE, <input type="checkbox"/> PLASTIC 24-25 <input type="checkbox"/> STEEL, <input type="checkbox"/> GALVANIZED, <input type="checkbox"/> CONCRETE, <input type="checkbox"/> OPEN HOLE, <input type="checkbox"/> PLASTIC DEPTH - FEET: FROM 17-14 TO 27-30	SCREEN SIZE & NO. OF OPENING (SLIT NO.): 31-32 DIAMETER: 34-38 LENGTH: 39-40 MATERIAL AND TYPE: _____ DEPTH TO TOP OF SCREEN: 41-44 DEPTH TO BOTTOM OF SCREEN: 10	61 PLUGGING & SEALING RECORD DEPTH SET AT - FEET: FROM 10-11 TO 16-17 MATERIAL AND TYPE: gravel/leadplug 170 FROM 170 TO 22-25 MATERIAL AND TYPE: bentonite grout FROM 24-26 TO 30-33 MATERIAL AND TYPE: concrete mix (dry) FROM 7 TO 0
--	---	--	---

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP, 2 BAILER
 STATIC LEVEL: 19-21 FEET
 WATER LEVELS DURING: 15 MINUTES: 22-24 FEET, 30 MINUTES: 28-28 FEET, 45 MINUTES: 29-31 FEET, 60 MINUTES: 32-34 FEET, 75 MINUTES: 35-37 FEET
 IF FLOWING, GIVE RATE: _____ GPM
 PUMP INTAKE SET AT: _____ FEET
 WATER AT END OF TEST: 42 FEET
 CLEAR, CLOUDY
 RECOMMENDED PUMP TYPE: SHALLOW, DEEP
 RECOMMENDED PUMP SETTING: 43-45 FEET
 RECOMMENDED PUMPING RATE: 46-49 GPM

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.

FINAL STATUS OF WELL
 WATER SUPPLY, OBSERVATION WELL, TEST HOLE, RECHARGE WELL, ABANDONED - INSUFFICIENT SUPPLY, ABANDONED - POOR QUALITY, UNFINISHED, DEWATERING

WATER USE
 DOMESTIC, STOCK, IRRIGATION, INDUSTRIAL, OTHER, COMMERCIAL, MUNICIPAL, PUBLIC SUPPLY, COOLING OR AIR CONDITIONING, NOT USED

METHOD OF CONSTRUCTION
 CABLE TOOL, ROTARY (CONVENTIONAL), ROTARY (REVERSE), ROTARY (AIR), AIR PERCUSSION, BORING, DIAMOND, JETTING, DRIVING, DIGGING, OTHER

DRILLER'S REMARKS: 132221

CONTRACTOR
 NAME OF WELL CONTRACTOR: Stanton's Ltd.
 ADDRESS: R.R. #1, Arva, Ontario
 NAME OF WELL TECHNICIAN: Wayne Stoner
 SIGNATURE OF TECHNICIAN/CONTRACTOR: K. J. Hamilton
 WELL CONTRACTOR'S LICENCE NUMBER: 4876
 WELL TECHNICIAN'S LICENCE NUMBER: T-0153
 SUBMISSION DATE: DAY 30, MO 06, YR 94

OFFICE USE ONLY
 DATA SOURCE: 4876
 DATE RECEIVED: AUG 23 1994
 DATE OF INSPECTION: _____
 INSPECTOR: _____
 REMARKS: ORIGINAL WATER WELL RECORD (4107563) ATTACHED, AUG. 23/94: AS.
 CSS:SR

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/88) FORM 9



MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act
WATER WELL RECORD

40P/3B

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11 14107563 41008 CON 107
 COUNTY OR DISTRICT: MIDDLESEX TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: LONDON CON., BLOCK, TRACT, SURVEY, ETC.: 7 LOT: 008
 DATE COMPLETED: DAY 26 NO. 03 YR 76
 ELEVATION: 68.100 # 68.96 # 23

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
	topsoil			0	1
brown	sand		fine	1	8
black	sand		medium	8	9
grey	clay	sand and stones		9	156
black	limestone			156	164
brown	limestone			164	209
grey	limestone			209	267

31 0001/02 0008/008 0009/009 0156/20528/12 0164/15 0209/115
 32 0207/215

41 WATER RECORD

WATER FOUND AT - FEET: 0208, 0265

KIND OF WATER: 1 FRESH, 2 SALTY, 3 SULPHUR, 4 MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES: 07, 06 1/4

MATERIAL: 1 STEEL, 2 GALVANIZED, 3 CONCRETE, 4 OPEN HOLE

WALL THICKNESS INCHES: 240

DEPTH - FEET: 0-157, 157-267

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET: 10-13, 18-21, 28-29

MATERIAL AND TYPE: CEMENT GROUT, LEAD PACKER, ETC.

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP, 2 SAILER

PUMPING RATE: 0005 GPM

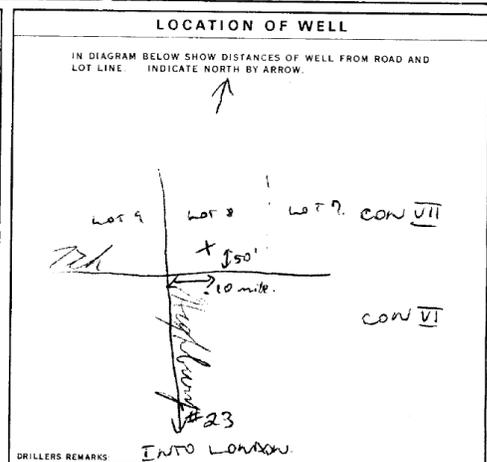
DURATION OF PUMPING: 02:00 HOURS

WATER LEVELS DURING PUMPING: 170 FEET

RECOMMENDED PUMP TYPE: 2 DEEP

RECOMMENDED PUMP SETTING: 200 FEET

RECOMMENDED PUMPING RATE: 0005 GPM



FINAL STATUS OF WELL: 1 WATER SUPPLY, 2 OBSERVATION WELL, 3 TEST HOLE, 4 RECHARGE WELL

WATER USE: 1 DOMESTIC, 2 STOCK, 3 IRRIGATION, 4 INDUSTRIAL, 5 COMMERCIAL, 6 MUNICIPAL, 7 PUBLIC SUPPLY, 8 COOLING OR AIR CONDITIONING, 9 NOT USED

METHOD OF DRILLING: 1 CABLE TOOL, 2 ROTARY (CONVENTIONAL), 3 ROTARY (REVENGE), 4 ROTARY (AIR), 5 AIR PERCUSSION, 6 BORING, 7 DIAMOND, 8 JETTING, 9 DRIVING

CONTRACTOR: Mervin Jones, R. R. #3, Thorndale, Ontario, Murray Jones

LICENCE NUMBER: 3009, 3034

SUBMISSION DATE: DAY 30 MO 3 YR 76

OFFICE USE ONLY

DATA SOURCE: 1

CONTRACTOR: 3009

DATE RECEIVED: 050576

DATE OF INSPECTION: 24/11/77

INSPECTOR: [Signature]

REMARKS: WELL BEHIND PUMP HOUSE

CSS-58

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 (REV. 07-01)



Ontario

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

40P/3B

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK CORRECT BOX WHERE APPLICABLE

11 4107571

MUNICIPALITY 41008

CORPORATION CON

LOT 009

COUNTY OF DISTRICT Middlesex TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE London

CONTRACT, BLOCK, TRACT, SURVEY, ETC. 6

DATE COMPLETED DAY 21 MO 01 YR 76

ELEVATION 767.680 # 990.2 # 23

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Red	Clay		Dense	0	10
Grey	Gravel	Clay	layered	10	30
Grey	Gravel		porous	30	33

31 001070516 003021109377 0033311180

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0033	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

DEPTH - FEET	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
0-10	STEEL		10-18
10-18	2 GALVANIZED 3 CONCRETE 4 OPEN HOLE	231	20-23
20-23	STEEL		27-20
27-20	2 GALVANIZED 3 CONCRETE 4 OPEN HOLE		

SCREEN

SIZE OF OPENING (SLOT NO.)	DIAMETER	LENGTH
	54-38	39-40
MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN
		41-44

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT GROUT (LEAD PACKER, ETC.)
10-13		
14-17		
18-21		
22-25		
26-29		
30-33		

71 PUMPING TEST METHOD

1 PUMP 2 BAILER

PUMPING RATE 0006 GPM

DURATION OF PUMPING 48 HOURS

15-16 HOURS 007-18 MINS

WATER LEVELS DURING PUMPING

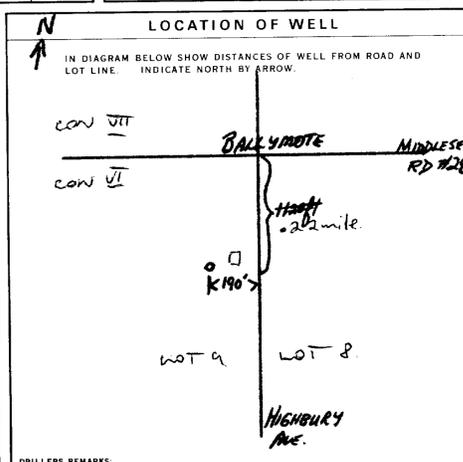
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING
011	011	15 MINUTES 011 20-24 011 25-31 011 32-34 011 35-37 011

IF FLOWING GIVE RATE 25 FEET

RECOMMENDED PUMP TYPE SHALLOW DEEP

RECOMMENDED PUMP SETTING 025 FEET

RECOMMENDED PUMP RATE 0006 GPM



FINAL STATUS OF WELL

1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY
2 OBSERVATION WELL 6 ABANDONED, POOR QUALITY
3 TEST HOLE 7 UNFINISHED
4 RECHARGE WELL 8 OTHER

WATER USE

1 DOMESTIC 5 COMMERCIAL
2 STOCK 6 MUNICIPAL
3 IRRIGATION 7 PUBLIC SUPPLY
4 INDUSTRIAL 8 COOLING OR AIR CONDITIONING
9 OTHER

METHOD OF DRILLING

1 CABLE TOOL 4 BORING
2 ROTARY (CONVENTIONAL) 5 DIAMOND
3 ROTARY (REVERSE) 6 JETTING
4 ROTARY (AIR) 7 DRIVING
5 AIR PERCUSSION

CONTRACTOR

NAME OF WELL CONTRACTOR John Wilson Son Well Drilling 5466

LICENCE NUMBER 5466

ADDRESS RR#1 Springfield, Ont. N0L2J0

NAME OF DRILLER OR BORER Joe Humphrey

LICENCE NUMBER

SIGNATURE OF CONTRACTOR

SUBMISSION DATE DAY 24 MO 3 YR 76

OFFICE USE ONLY

DATA SOURCE 58 CONTRACTOR 59-62 DATE RECEIVED 00578

DATE OF INSPECTION 24/11/76 INSPECTOR

REMARKS: NH - PITLESS MATERIAL - 12" ABOVE GROUND

FORM 7 07-091

MINISTRY OF THE ENVIRONMENT COPY



Ministry of the Environment

The Ontario Water Resources Act

400/36

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

4108667 MUNCIP 672009 CON 1009

COUNTY OR DISTRICT: Madison TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: London CON. BLOCK, TRACT, SURVEY ETC.: Con 6 LOT: 009

DATE COMPLETED: DA 02 MO 10 YR 78

NO. 672009 PC 0901 ELEVATION 313 RC 313 MAG. CODE 11

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
			Top soil	0	1
Brown	clay	small stone		1	10
Brown	clay	large stone		10	31
Brown	sand		coarse from 34-37	31	37

31 0001 02 001 00512 003 160513 0057 2810

WATER FOUND AT - FEET	KIND OF WATER
0-12	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR
13-17	<input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL
18-19	<input type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR
20-23	<input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL
24-28	<input type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR
29-30	<input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL
31-33	<input type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR
34-40	<input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL

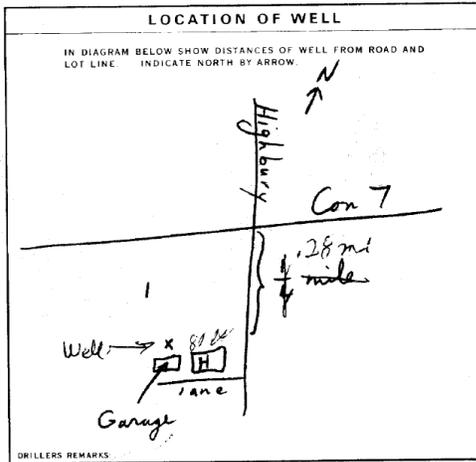
INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
05	<input checked="" type="checkbox"/> STEEL	0.241	0 34
17-18	<input type="checkbox"/> GALVANIZED		0034
19-20	<input type="checkbox"/> CONCRETE		
21-22	<input type="checkbox"/> OPEN HOLE		
23-25	<input type="checkbox"/> STEEL		
26-27	<input type="checkbox"/> GALVANIZED		
28-29	<input type="checkbox"/> CONCRETE		
30-33	<input type="checkbox"/> OPEN HOLE		

SCREEN	DIAMETER	LENGTH
016	0.5000	03

MATERIAL AND TYPE: stainless steel DEPTH TO TOP OF SCREEN: 0034

DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT GROUT LEAD PACKER, ETC.
10-13		
14-17		
18-21		
22-25		
26-29		
30-33		

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
<input checked="" type="checkbox"/> PUMP <input type="checkbox"/> BAILER	0008 GPM	06 15-16 00 17-18
STATIC WATER LEVEL	WATER LEVELS DURING PUMPING	RECOVERY
014	016 016 016 016	016
19-21	22-24	25-27
FEET	FEET	FEET
IF FLOWING GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	36 FEET	<input checked="" type="checkbox"/> CLEAR <input type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
<input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	036 FEET	0008 GPM



FINAL STATUS OF WELL: WATER SUPPLY OBSERVATION WELL TEST HOLE RECHARGE WELL ABANDONED INSUFFICIENT SUPPLY ABANDONED POOR QUALITY UNFINISHED

WATER USE: DOMESTIC STOCK IRRIGATION INDUSTRIAL OTHER COMMERCIAL MUNICIPAL PUBLIC SUPPLY COOLING OR AIR CONDITIONING NOT USED

METHOD OF DRILLING: CABLE TOOL ROTARY (CONVENTIONAL) ROTARY (REVERSE) ROTARY (AIR) AIR PERCUSSION BORING DIAMOND JETTING DRIVING

CONTRACTOR: NAME OF WELL CONTRACTOR Leroy Parsons LICENCE NUMBER 4204
ADDRESS R.R. 2 Elderton

NAME OF DRILLER OR BORER same LICENCE NUMBER 4204
SIGNATURE OF CONTRACTOR Leroy Parsons SUBMISSION DATE DAY 2 MO 10 YR 78

OFFICE USE ONLY: DATA SOURCE 1 CONTRACTOR 4204 DATE RECEIVED 101278
DATE OF INSPECTION 10, 9, 79 INSPECTOR 7
REMARKS: P R M
CSS. 22 W1 B 17

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506-4-77



Ministry of the Environment
Ontario

18

The Ontario Water Resources Act
WATER WELL RECORD

40P/3B

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11 4110852 41008 CON 06

COUNTY OR DISTRICT: LONDON
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: [REDACTED]
CON. BLOCK, TRACT, SURVEY, ETC.: CON-7 VI
LOT: 9
DATE COMPLETED: DAY 24 MO 6 YR 87
R. #1 Arva, Ontario NOM 1C0
767220 8880

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Black	Topsoil			0	1
Brown	Clay	Sand		1	5
Grey	Clay	Sand and Gravel	Layered	5	77
Grey	Gravel		Fine	77	78

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
78	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 14 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 15 6 <input type="checkbox"/> GAS
19-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 14 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 15 6 <input type="checkbox"/> GAS
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 14 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 15 6 <input type="checkbox"/> GAS
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 14 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 15 6 <input type="checkbox"/> GAS
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 14 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 15 6 <input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
5	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	188	0 78
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC		20-23
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC		27-30

SCREEN

SIZE OF OPENING (SLOT NO.): 31-33
DIAMETER: 34-38 INCHES
LENGTH: 39-40 FEET
MATERIAL AND TYPE: [REDACTED]
DEPTH TO TOP OF SCREEN: 41-44 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT GROUT LEAD PACKER ETC.
10-12	14-17	
18-21	22-25	
26-29	30-33	80

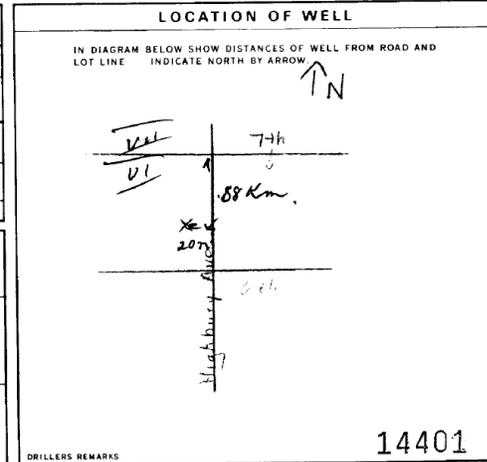
71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 BAILEY
PUMPING RATE: 10 GPM
DURATION OF PUMPING: 15-18 HOURS 0 MIN
PUMPING: RECOVERY:

STATIC WATER LEVEL	WATER LEVEL DURING PUMPING
24 FEET	36 FEET
	36 FEET (15 MINUTES)
	36 FEET (30 MINUTES)
	36 FEET (45 MINUTES)
	36 FEET (60 MINUTES)

PUMP INTAKE SET AT: 60 FEET
WATER AT END OF TEST: CLEAR CLOUDY

RECOMMENDED PUMP TYPE: SHALLOW DEEP
RECOMMENDED PUMP SETTING: 45 FEET
RECOMMENDED PUMPING RATE: 10 GPM



FINAL STATUS OF WELL

1 WATER SUPPLY 8 ABANDONED - INSUFFICIENT SUPPLY
2 OBSERVATION WELL 9 ABANDONED - POOR QUALITY
3 TEST HOLE 10 UNFINISHED
4 RECHARGE WELL 11 DEWATERING

WATER USE

1 DOMESTIC 5 COMMERCIAL
2 STOCK 6 MUNICIPAL
3 IRRIGATION 7 PUBLIC SUPPLY
4 INDUSTRIAL 8 COOLING OR AIR CONDITIONING
 OTHER NOT USED

METHOD OF CONSTRUCTION

1 CABLE TOOL 4 BORING
2 ROTARY (CONVENTIONAL) 5 DIAMOND
3 ROTARY (REVERSE) 6 JETTING
4 ROTARY (AIR) 7 DRIVING
5 AIR PERCUSSION 8 DIGGING OTHER

CONTRACTOR
NAME OF WELL CONTRACTOR: Mervin Jones
WELL CONTRACTOR'S LICENCE NUMBER: 3009
ADDRESS: R. R. #3 Thorndale, Ontario NOM 2P0
NAME OF WELL TECHNICIAN: Murray S. Jones
WELL TECHNICIAN'S LICENCE NUMBER: T-0068
SIGNATURE OF TECHNICIAN/CONTRACTOR: [Signature]
SUBMISSION DATE: DAY 25 MO 6 YR 87

OFFICE USE ONLY
DATE OF INSPECTION: 8 2, 88
INSPECTOR: [Signature]
DATE RECEIVED: JUL 15 1987
C.S.S.8

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

The Ontario Water Resources Act WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11 4111987 MUNICIPAL 41008 CON 106

COUNTY OR DISTRICT: **MIDDLESEX** TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **LONDON** CON. BLOCK, ROAD, DRIVE, ETC.: **6** LOT: **9**

ADDRESS: **RR #1 ARVA. ONT.** DATE COMPLETED: **48 53**

DAY: **20** MO: **4** YR: **89**

ZONE: **U7** ELEVATION: **480.376** NORTHING: **4767989** EASTING: **901** BASIN CODE: **11**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	SAND	CLAY		0	9
GRAY	CLAY	STONES		9	55
GRAY	CLAY	SILT, SAND, STONES		55	80
GRAY	CLAY	STONES		80	99
GRAY	SAND	SILT		99	104
GRAY	CLAY	STONES		104	108

31 _____

32 _____

41 WATER RECORD	
WATER FOUND AT - FEET	KIND OF WATER
99	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERALS <input type="checkbox"/> GAS
15-18	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERALS <input type="checkbox"/> GAS
20-23	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERALS <input type="checkbox"/> GAS
25-28	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERALS <input type="checkbox"/> GAS
30-33	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERALS <input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD			
INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
6 1/4	STEEL	.188	99
5 1/4	STEEL	.188	99 - 108

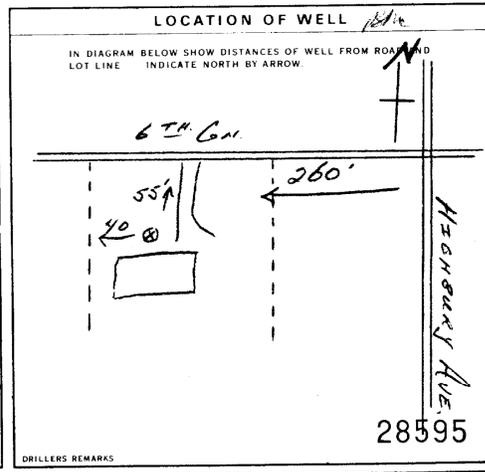
61 PLUGGING & SEALING RECORD		
DEPTH SET AT - FEET	MATERIAL AND TYPE	LEMENT GROUT LEAD PACKER, ETC.
99	5.5"	

71 PUMPING TEST	
PUMPING TEST METHOD	PUMPING RATE
<input checked="" type="checkbox"/> PUMP <input type="checkbox"/> BAILEY	6 GPM
STATIC LEVEL	WATER LEVELS DURING PUMPING
102 FEET	15 MINUTES: 81 FEET 30 MINUTES: 98 FEET 45 MINUTES: 102 FEET 60 MINUTES: 103 FEET
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING
<input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	106 FEET

FINAL STATUS OF WELL	
<input checked="" type="checkbox"/> WATER SUPPLY	<input type="checkbox"/> ABANDONED - INSUFFICIENT SUPPLY
<input type="checkbox"/> OBSERVATION WELL	<input type="checkbox"/> ABANDONED POOR QUALITY
<input type="checkbox"/> TEST HOLE	<input type="checkbox"/> UNFINISHED
<input type="checkbox"/> RECHARGE WELL	<input type="checkbox"/> DEWATERING

WATER USE	
<input checked="" type="checkbox"/> DOMESTIC	<input type="checkbox"/> COMMERCIAL
<input type="checkbox"/> STOCK	<input type="checkbox"/> MUNICIPAL
<input type="checkbox"/> IRRIGATION	<input type="checkbox"/> PUBLIC SUPPLY
<input type="checkbox"/> INDUSTRIAL	<input type="checkbox"/> COOLING OR AIR CONDITIONING
<input type="checkbox"/> OTHER	<input type="checkbox"/> NOT USED

METHOD OF CONSTRUCTION	
<input checked="" type="checkbox"/> CABLE TOOL	<input type="checkbox"/> BORING
<input type="checkbox"/> ROTARY (CONVENTIONAL)	<input type="checkbox"/> DIAMOND
<input type="checkbox"/> ROTARY (REVERSE)	<input type="checkbox"/> JETTING
<input type="checkbox"/> ROTARY (AIR)	<input type="checkbox"/> DRIVING
<input type="checkbox"/> AIR PERCUSSION	<input type="checkbox"/> DIGGING
	<input type="checkbox"/> OTHER



CONTRACTOR	
NAME OF WELL CONTRACTOR: STONER WELL DRILLING LTD.	WELL CONTRACTOR'S LICENSE NUMBER: 7871
ADDRESS: RR #3 DENZELD.	
NAME OF WELL TECHNICIAN: W. STONER	WELL TECHNICIAN'S LICENSE NUMBER: 70153
SIGNATURE OF TECHNICIAN/CONTRACTOR: W. Stoner	SUBMISSION DATE: DAY 20 NO. 4 YR 89

OFFICE USE ONLY	
DATA SOURCE: 4871	DATE RECEIVED: FEB 23 1990
DATE OF INSPECTION:	INSPECTOR:
REMARKS: CS888	

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/88) FORM 9



6

The Ontario Water Resources Act WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

COUNTY OR DISTRICT: MIDDLESEX
TOWNSHIP/BOROUGH/CITY/TOWN/VILLAGE: LONDON
CON. BLOCK/TRACT./SURVEY/ETC: 6
LOT: 8

OWNER (SURNAME FIRST): B.W.H. HOLDINGS INC.
ADDRESS: R. R. #1 Arva, Ontario NOM - 1C0
DATE COMPLETED: DAY 03 MO 04 YR 91

WELL NO: 4112352
MUNICIPALITY: 41008
CONTRACTOR: CON
LOT: 106

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Black	Topsoil			0	1
Brown	Sand	Clay		1	12
Grey	Clay	Sand		12	48
Grey	Sand		Coarse	48	49

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 FRESH 2 SALTY 3 SULPHUR 4 MINERALS 5 GAS
19-18	1 FRESH 2 SALTY 3 SULPHUR 4 MINERALS 5 GAS
20-23	1 FRESH 2 SALTY 3 SULPHUR 4 MINERALS 5 GAS
25-28	1 FRESH 2 SALTY 3 SULPHUR 4 MINERALS 5 GAS
30-33	1 FRESH 2 SALTY 3 SULPHUR 4 MINERALS 5 GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WELL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6	STEEL GALVANIZED CONCRETE OPEN HOLE PLASTIC	188	0	49
6	STEEL GALVANIZED CONCRETE OPEN HOLE PLASTIC			

60 SCREEN RECORD

SIZE/S. OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT/GROUT LEAD PACKER ETC.
10-13		
18-21		
26-29		

71 PUMPING TEST

PUMPING TEST METHOD: PUMP BAILEY

PUMPING RATE: 10 GPM

DURATION OF PUMPING: 48 HOURS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING	1 PUMPING	2 RECOVERY
7 FEET	21 FEET	15 MINUTES: 21 FEET 30 MINUTES: 21 FEET 45 MINUTES: 21 FEET 60 MINUTES: 21 FEET	<input type="checkbox"/>	<input type="checkbox"/>

IF FLOWING GIVE RATE: 33 GPM

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 35 FEET

RECOMMENDED PUMPING RATE: 10 GPM

74 FINAL STATUS OF WELL

WATER SUPPLY
 OBSERVATION WELL
 TEST HOLE
 RECHARGE WELL

ABANDONED - INSUFFICIENT SUPPLY
 ABANDONED - POOR QUALITY
 UNFINISHED
 DEWATERING

75 WATER USE

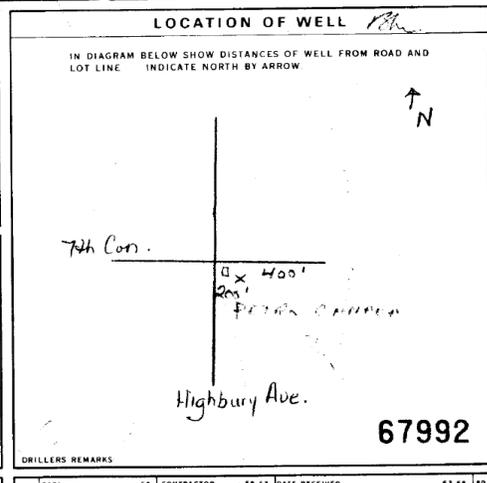
DOMESTIC
 STOCK
 IRRIGATION
 INDUSTRIAL
 OTHER

COMMERCIAL
 MUNICIPAL
 PUBLIC SUPPLY
 COOLING OR AIR CONDITIONING
 NOT USED

77 METHOD OF CONSTRUCTION

CABLE TOOL
 ROTARY (CONVENTIONAL)
 ROTARY (REVERSE)
 ROTARY (AIR)
 AIR PERCUSSION

BORING
 DIAMOND
 JETTING
 DRIVING
 DIGGING
 OTHER



CONTRACTOR

NAME OF WELL CONTRACTOR: MERVIN JONES DRILLING LTD.
WELL CONTRACTOR'S LICENCE NUMBER: 3009

ADDRESS: R. R. #3 Thomdale, Ontario NOM 2P0

NAME OF WELL TECHNICIAN: MURRAY S. JONES
WELL TECHNICIAN'S LICENCE NUMBER: T-0068

SIGNATURE OF TECHNICIAN/CONTRACTOR: *Mervin Jones*
SUBMISSION DATE: DAY 04 MO 04 YR 91

OFFICE USE ONLY

CONTRACTOR: 3009
DATE RECEIVED: MAY 02 1991

DATE OF INSPECTION: _____
INSPECTOR: _____

REMARKS: _____

CSS:SG

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0508 (11/86) EOP

A 044681

Instructions for Completing Form

- For use in the Province of Ontario only. This document is a permanent legal document. Please retain for future reference.
- All Sections must be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- All metre measurements shall be reported to 1/10th of a metre.
- Please print clearly in blue or black ink only.



Address of Well Location (County/District/Municipality): Highway 21554 Township: Highway Rd. N Lot: ballvaute Concession: Garmin Etrex

RR#/Street Number/Name: 21554 City/Town/Village: ballvaute Site/Compartment/Block/Tract etc.: Garmin Etrex

GPS Reading: NAD 83 Zone 17 Easting 1480563 Northing 4768177 Unit Garmin Make/Model Etrex Mode of Operation: Undifferentiated Averaged Differentiated, specify

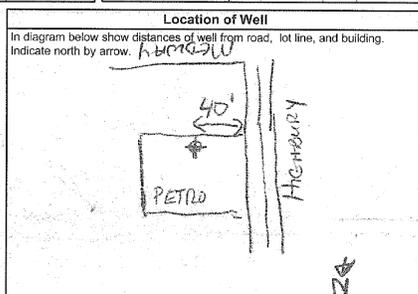
Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Metres To
GREY	CLAY			3'	15'
Brown	SAND	ROCKS	Sandy fill	0'	3'
"cluster of 5 wells"					

Hole Diameter		Construction Record				Test of Well Yield																																																																														
Depth	Metres	Inside diam	Material	Wall thickness	Depth	Draw Down	Water Level	Time	Recovery																																																																											
From	To	centimetres		centimetres	From	Time	From	Time	Water Level																																																																											
metres	centimetres				metres	min	metres	min	metres																																																																											
0'	4'	2'	<input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized		0	3'																																																																														
Water Record		Screen				Pumping test method																																																																														
Water found at: <u>0</u> metres		Outside diam: <u>2'</u>		Slot No.:		<table border="1"> <thead> <tr> <th>Pumping test method</th> <th>Draw Down</th> <th>Water Level</th> <th>Time</th> <th>Recovery</th> </tr> <tr> <th>Static Level</th> <th>Time</th> <th>metres</th> <th>min</th> <th>metres</th> </tr> </thead> <tbody> <tr> <td>Pump intake set at - (metres)</td> <td>1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pumping rate - (litres/min)</td> <td>2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Duration of pumping - hrs + min</td> <td>3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Final water level end of pumping - metres</td> <td>4</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Recommended pump type: <input type="checkbox"/> Shallow <input type="checkbox"/> Deep</td> <td>5</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Recommended pump depth - metres</td> <td>10</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Recommended pump rate - (litres/min)</td> <td>15</td> <td></td> <td></td> <td></td> </tr> <tr> <td>If flowing give rate - (litres/min)</td> <td>20</td> <td></td> <td></td> <td></td> </tr> <tr> <td>If pumping discontinued, give reason.</td> <td>25</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>30</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>40</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>50</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>60</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Pumping test method	Draw Down	Water Level	Time	Recovery	Static Level	Time	metres	min	metres	Pump intake set at - (metres)	1				Pumping rate - (litres/min)	2				Duration of pumping - hrs + min	3				Final water level end of pumping - metres	4				Recommended pump type: <input type="checkbox"/> Shallow <input type="checkbox"/> Deep	5				Recommended pump depth - metres	10				Recommended pump rate - (litres/min)	15				If flowing give rate - (litres/min)	20				If pumping discontinued, give reason.	25					30					40					50					60			
Pumping test method	Draw Down	Water Level	Time	Recovery																																																																																
Static Level	Time	metres	min	metres																																																																																
Pump intake set at - (metres)	1																																																																																			
Pumping rate - (litres/min)	2																																																																																			
Duration of pumping - hrs + min	3																																																																																			
Final water level end of pumping - metres	4																																																																																			
Recommended pump type: <input type="checkbox"/> Shallow <input type="checkbox"/> Deep	5																																																																																			
Recommended pump depth - metres	10																																																																																			
Recommended pump rate - (litres/min)	15																																																																																			
If flowing give rate - (litres/min)	20																																																																																			
If pumping discontinued, give reason.	25																																																																																			
	30																																																																																			
	40																																																																																			
	50																																																																																			
	60																																																																																			

Plugging and Sealing Record Annular space Abandonment

Depth set at - Metres	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0 to 3	Bentonite chips	3
3 to 15	Grice SAND	15



Method of Construction

Cable Tool Rotary (air) Rotary (conventional) Rotary (reverse) Diamond Jetting Digging Other

Water Use

Domestic Stock Irrigation Industrial Commercial Municipal Public Supply Not used Cooling & air conditioning Other

Final Status of Well

Water Supply Observation well Test Hole Recharge well Abandoned, insufficient supply Abandoned, poor quality Unfinished Dewatering Replacement well Abandoned, (Other)

Well Contractor/Technician Information

Name of Well Contractor: LONDON SOIL TEST LTD Well Contractor's Licence No.: 07190

Business Address (street name, number, city etc.): 1170 DUNDAS ST W TORONTO ONT M6H 1B2

Name of Well Technician (last name, first name): MICHAEL DON Well Technician's Licence No.: 73070

Signature of Technician/Contractor: [Signature] Date Submitted: 2007 05 11

Audit No.: Z 49987 Date Well Completed: 2007 05 11 MM DD

Was the well owner's information package delivered? Yes No Date Delivered: 2007 05 11 YYYY MM DD

Ministry Use Only

Data Source: 2190 Contract No.: 2190

Date Received: JUN 14 2007 Date of Inspection: 2007 05 11 YYYY MM DD

Remarks: Well Record Number:



Well Tag No. (Place Sticker and/or Print Below)

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: Metric Imperial

Page 1 of 1

Address of Well Location (Street Number/Name) 21559 Highbury Ave. N. Township Middlesex Centre Lot 9 Concession 6
 County/District/Municipality Middlesex City/Town/Village Arva Province Ontario Postal Code N0M1C0
 UTM Coordinates Zone 18 Easting 17480503 Northing 47681176 Municipal Plan and Sublot Number _____ Other _____

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)
				From To
	NO Previous Report Found.			
	42" Dag Well			
			top soil	0 1
			chips and dust	1 7
			hole plug	7 8.5
			washed Peastone	8.5 10

Annular Space

Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume, Blended (m ³ /ft ³)
From To		

Results of Well Yield Testing

After test of well yield, water was:
 Clear and sand free
 Other, specify _____

Time (min)	Draw Down		Recovery	
	Water Level (m/ft)	Time (min)	Water Level (m/ft)	Time (min)
Static Level	1	1		
Pump intake set at (m/ft)	2	2		
Pumping rate (l/min / GPM)	3	3		
Duration of pumping	4	4		
hrs + min	5	5		
Final water level end of pumping (m/ft)	10	10		
If flowing give rate (l/min / GPM)	15	15		
Recommended pump depth (m/ft)	20	20		
Recommended pump rate (l/min / GPM)	25	25		
Well production (l/min / GPM)	30	30		
Designed?	40	40		
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	50	50		
	60	60		

Method of Construction

<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Josting	<input type="checkbox"/> Domestic	<input type="checkbox"/> Mullock	<input type="checkbox"/> Dewatering
<input type="checkbox"/> Rotary (Reverse)	<input type="checkbox"/> Drilling	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, specify _____		<input type="checkbox"/> Other, specify _____		

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		Status of Well
			From	To	
					<input type="checkbox"/> Water Supply
					<input type="checkbox"/> Replacement Well
					<input type="checkbox"/> Test Hole
					<input type="checkbox"/> Recharge Well
					<input type="checkbox"/> Dewatering Well
					<input type="checkbox"/> Observation and/or Monitoring Hole
					<input type="checkbox"/> Alteration (Construction)
					<input type="checkbox"/> Abandoned, Insufficient Supply
					<input type="checkbox"/> Abandoned, Poor Water Quality
					<input type="checkbox"/> Abandoned, other, specify _____
					<input checked="" type="checkbox"/> Other, specify <u>Decomp</u>

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		Status of Well
			From	To	
					<input type="checkbox"/> Water Supply
					<input type="checkbox"/> Replacement Well
					<input type="checkbox"/> Test Hole
					<input type="checkbox"/> Recharge Well
					<input type="checkbox"/> Dewatering Well
					<input type="checkbox"/> Observation and/or Monitoring Hole
					<input type="checkbox"/> Alteration (Construction)
					<input type="checkbox"/> Abandoned, Insufficient Supply
					<input type="checkbox"/> Abandoned, Poor Water Quality
					<input type="checkbox"/> Abandoned, other, specify _____
					<input checked="" type="checkbox"/> Other, specify <u>Decomp</u>

Water Details

Water found at Depth (m/ft) Kind of Water: Fresh Untested Gas Other, specify _____

Water found at Depth (m/ft) Kind of Water: Fresh Untested Gas Other, specify _____

Water found at Depth (m/ft) Kind of Water: Fresh Untested Gas Other, specify _____

Map of Well Location

Please provide a map below following instructions on the back.

Well Contractor and Well Technician Information

Business Name of Well Contractor Stainton's Ltd Well Contractor's Licence No. 4876
 Business Address (Street Number/Name) 21937 Highbury Ave N Municipality Arva
 Province ON Postal Code N0M1C0 Business E-mail Address staintons@xplornet.com
 Us. Telephone No. (inc. area code) 5196593359 Name of Well Technician (Last Name, First Name) Brent F. Stainton
 Well Technician's Licence No. 114815 Signature of Technician and/or Contractor Brent F. Stainton Date Submitted Y|Y|Y M|D|D

Comments:

Well owner's information package delivered: Yes No

Date Package Delivered: Y|Y|Y M|D|D

Date Work Completed: 20170517

Ministry Use Only

Audit No: 2242464

Received: FEB 02 2018

Appendix E

Wastewater Treatment System Assumptions & Sizing

TYPICAL WASTEWATER TREATMENT SYSTEM ASSUMPTIONS AND SIZING FOR Highbury Avenue Lots

MIDDLESEX CENTRE REQUIRES SUFFICIENT SPACE FOR A CONTINGENCY BED DURING LOT CREATION. HENCE, TERTIARY PRETREATMENT SYSTEMS ARE REQUIRED FOR PROPOSED LOT SIZES.

ASSUMED HOUSE CHARACTERISTICS

FIXTURE UNITS - SUMMARY

ITEM	No.	LOAD	TOTAL
1. FULL BATHROOM	4	6	24
INDIVIDUAL ITEMS :			
2. ANY TYPE OF BATH	2	1.5	3.0
3. FLUSH TANK TOILETS	1	4	4
4a. SHOWER (1 HEAD)	0	1.5	0
4b. SHOWER (3 HEAD)	0	4.5	0
5. FLOOR DRAIN	1	2 - 4	3
6. LAVATORY (DOMESTIC)	1	1.5	1.5
7. BIDET	0	1	0
8. KITCHEN SINK	1	1.5	1.5
9. DISHWASHER (to sink trap)	1	0	0
10. LAUNDRY TUB	1	1.5	1.5
11. CLOTHES WASHER	1	1.5	1.5
12. DRINKING FOUNTAIN	0	0.5	0
13. GARBAGE GRINDER	0	3	0

TOTAL UNITS 40.0
 NO. OF BEDROOMS: 4
 TOTAL LIVING AREA: 300 m²

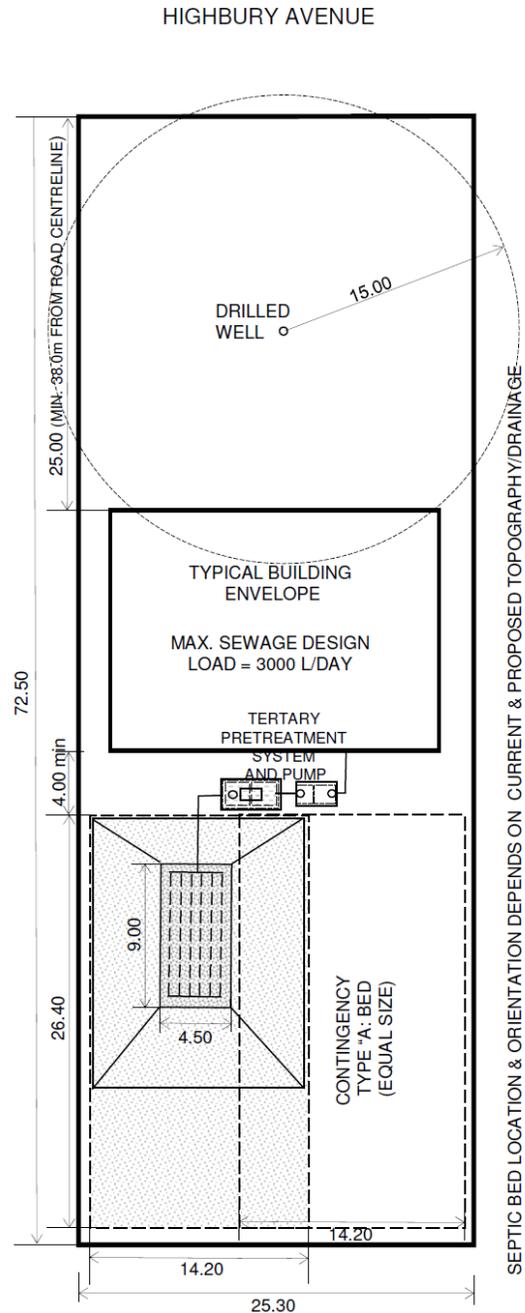
WASTE SYSTEM - DESIGN CAPACITY

BASE LOAD (4 BEDROOM): 2000
 1. F. U. OPTION (40 - 20) X 50 : 1000
 2. L. A. OPTION (300- 200)/10 X 100: 1000
 ADD HIGHER OF ITEM 1 OR 2

DESIGN LOAD = 3000 L/DAY

CAN/BNQ 3680-600 TYPE "A" BED SEPTIC SYSTEM DESIGN CALCULATIONS AND DIMENSIONS

- DESIGN LOAD = 3000 L/DAY (SEE "DESIGN CAPACITY")
- TERTIARY PRETREATMENT UNIT REQUIRED.
- MIN. STONE BED AREA = 3000 / 75 = 40.0 m²
 SPECIFIED: 9.00 X 4.50 = 40.5 m²
- DISTRIBUTION PIPE: 6 RUNS EACH 7.80 m LONG @ 66 cm ON CENTRES; ALL PIPES 60 cm FROM EDGES OF STONE.
- MIN. TOTAL SAND CONTACT AREA = QT/400 = 375 m²
 TOTAL SPECIFIED AREA INCL MANTLE = 26.40 X 14.20 = 375m²
- IMPORTED SAND : T = 6 to 8 min/cm



SEPTIC BED LOCATION & ORIENTATION DEPENDS ON CURRENT & PROPOSED TOPOGRAPHY/DRAINAGE.

