BOREHOLE AH01

PROJECT: Proposed Subdivision
CLIENT:2873633 Ontario Inc
LOCATION:819 Burritts Rapids Road
PENETRATION TEST HAMMER:

PROJECT NUMBER:210816
DATE OF BORING: 2023-03-16
SHEET:1 of 1
DATUM:GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE: DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	UNDIST SHEAR STRENGTH x Cu. kPa x / REM SHEAR STRENGTH o Cu. kPa o: 0 20 40 60 80 100	DYNAMIC CONE PENETRATION TEST blows/300 mm: 0 20 40 60 80 100	MOISTURE CONTENT (%)	PIEZOMETER OR STANDPIPE INSTALLATION
	SILTY CLAY	0.00		95.33							
2.0											Groundwater measured in standpipe at about 0.1 metres below the existing ground surface, April 18, 2023.

DEPTH SCALE: 1 to

LOGGED:

BORING METHOD:

AUGER TYPE:

CHECKED:

BOREHOLE AH02

PROJECT: Proposed Subdivision
CLIENT:2873633 Ontario Inc
LOCATION:819 Burritts Rapids Road
PENETRATION TEST HAMMER:

PROJECT NUMBER:210816
DATE OF BORING: 2023-03-28
SHEET:1 of 1
DATUM:GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE: DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	UNDIST SHEAR STRENGTH x Cu. kPa x / REM SHEAR STRENGTH o Cu. kPa o (0 20 40 60 80 100)	DYNAMIC CONE PENETRATION TEST blows/300 mm (0 20 40 60 80 100)	MOISTURE CONTENT (%)	PIEZOMETER OR STANDPIPE INSTALLATION
	SILTY CLAY	0.00		95.89							
2.0											Groundwater measured in standpipe at about 0.1 metres below the existing ground surface, April 18, 2023.

DEPTH SCALE: 1 to

LOGGED:

BORING METHOD:

AUGER TYPE:

CHECKED:

BOREHOLE AH05

PROJECT: Proposed Subdivision
CLIENT: 2873633 Ontario Inc
LOCATION: 819 Burritts Rapids Road
PENETRATION TEST HAMMER:

PROJECT NUMBER: 210816
DATE OF BORING: 2023-03-28
SHEET: 1 of 1
DATUM: GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE: DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	UNDIST SHEAR STRENGTH (x Cu. kPa x) / REM SHEAR STRENGTH (o Cu. kPa o) 0 20 40 60 80 100	DYNAMIC CONE PENETRATION TEST blows/300 mm 0 20 40 60 80 100	MOISTURE CONTENT (%)	PIEZOMETER OR STANDPIPE INSTALLATION
2.0	SILTY CLAY	0.00		91.41							Groundwater measured in standpipe at about 0.6 metres below the existing ground surface, April 18, 2023.

DEPTH SCALE: 1 to

LOGGED:

BORING METHOD:

AUGER TYPE:

CHECKED:

BOREHOLE AH10

PROJECT: Proposed Subdivision
CLIENT:2873633 Ontario Inc
LOCATION:819 Burritts Rapids Road
PENETRATION TEST HAMMER:

PROJECT NUMBER:210816
DATE OF BORING: 2023-03-29
SHEET:1 of 1
DATUM:GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE: DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	UNDIST SHEAR STRENGTH x Cu. kPa x / REM SHEAR STRENGTH o Cu. kPa o (0 20 40 60 80 100)	DYNAMIC CONE PENETRATION TEST blows/300 mm (0 20 40 60 80 100)	MOISTURE CONTENT (%)	PIEZOMETER OR STANDPIPE INSTALLATION
	SILTY CLAY	0.00		98.08							
2.0											Groundwater measured in standpipe at about 3.8 metres below the existing ground surface, April 18, 2023.

DEPTH SCALE: 1 to
LOGGED:

BORING METHOD:
AUGER TYPE:
CHECKED:

RECORD OF TEST PIT TP01

Kollaard Associates Engineers

PROJECT: Proposed Subdivision
CLIENT: 2873633 Ontario Inc
LOCATION: 819 Burritts Rapids Road

PROJECT NUMBER: 210816
DATE OF EXCAVATING: 23-3-2
SHEET 1 of 1
DATUM: GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES SHEAR STRENGTH (kPa)	UNDIST SHEAR STRENGTH / REM SHEAR STRENGTH (x Cu. kPa, o Cu. kPa) 0 20 40 60 80 100	WATER CONTENT (%) 0 20 40 60 80 100	ADDITIONAL LAB RESULTS	PIEZOMETER OR STANDPIPE INSTALLATION
	TOPSOIL	0.00		95.3							Some groundwater observed at about 3.6 metres below the existing ground surface, March 2, 2023.
0.5	Red brown SILTY CLAY	0.40		94.9							
	Grey brown SILTY CLAY	0.70		94.6		VA	>120				
1.0						VA	>110				
1.5						VA	>100				
						VA	>120				
2.0											
						VA	>120				
2.5											
3.0											
3.5											
	End of test pit in SILTY CLAY	3.60		91.7							

DEPTH SCALE: 1 to 25
LOGGED: CI

EXCAVATOR TYPE: Track-Mounted Excavator
CHECKED: SD

GEOTECH TP KOLLAARD 210816 - TP LOGS.GPJ GINT STD CANADA.GDT 25-1-9

RECORD OF TEST PIT TP02

Kollaard Associates Engineers

PROJECT: Proposed Subdivision
CLIENT: 2873633 Ontario Inc
LOCATION: 819 Burritts Rapids Road

PROJECT NUMBER: 210816
DATE OF EXCAVATING: 23-3-2
SHEET 1 of 1
DATUM: GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE: DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES: NUMBER	TYPE	SHEAR STRENGTH (kPa)	UNDIST SHEAR STRENGTH x Cu. kPa x / REM SHEAR STRENGTH o Cu. kPa o: 0 20 40 60 80 100	WATER CONTENT (%): 0 20 40 60 80 100	ADDITIONAL LAB RESULTS	PIEZOMETER OR STANDPIPE INSTALLATION
	TOPSOIL	0.00		95.99							
	Red brown SILTY CLAY	0.30		95.69							Test pit dry, March 2, 2023.
0.5											
1.0											
	Grey brown SILTY CLAY	1.20		94.79		VA	>120				
1.5											
2.0						VA	>120				
2.5											
3.0											
	End of test pit in SILTY CLAY	3.30		92.69							

DEPTH SCALE: 1 to 25
LOGGED: CI

EXCAVATOR TYPE: Track-Mounted Excavator
CHECKED: SD

Kollaard Associates Engineers

RECORD OF TEST PIT TP03

PROJECT: Proposed Subdivision
CLIENT: 2873633 Ontario Inc
LOCATION: 819 Burritts Rapids Road

PROJECT NUMBER: 210816
DATE OF EXCAVATING: 23-3-2
SHEET 1 of 1
DATUM: GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE: DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: SHEAR STRENGTH (kPa)	UNDIST SHEAR STRENGTH x Cu. kPa x / REM SHEAR STRENGTH o Cu. kPa o: 0 20 40 60 80 100	WATER CONTENT (%): 0 20 40 60 80 100	ADDITIONAL LAB RESULTS	PIEZOMETER OR STANDPIPE INSTALLATION
	TOPSOIL	0.00		95.11							
	Red brown SILTY CLAY	0.30		94.81							Test pit dry, March 2, 2023.
0.5											
1.0	Grey brown SILTY CLAY	0.90		94.21		VA	>120				
1.5											
						VA	>120				
2.0											
2.5											
3.0											
	End of test pit in SILTY CLAY	3.30		91.81							

DEPTH SCALE: 1 to 25
LOGGED: CI

EXCAVATOR TYPE: Track-Mounted Excavator
CHECKED: SD

RECORD OF TEST PIT TP04

Kollaard Associates Engineers

PROJECT: Proposed Subdivision
CLIENT: 2873633 Ontario Inc
LOCATION: 819 Burritts Rapids Road

PROJECT NUMBER: 210816
DATE OF EXCAVATING: 23-3-2
SHEET 1 of 1
DATUM: GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE: DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: SHEAR STRENGTH (kPa)	UNDIST SHEAR STRENGTH x Cu. kPa x / REM SHEAR STRENGTH o Cu. kPa o: 0 20 40 60 80 100	WATER CONTENT (%): 0 20 40 60 80 100	ADDITIONAL LAB RESULTS	PIEZOMETER OR STANDPIPE INSTALLATION
	TOPSOIL	0.00		94.28							
	Red brown SILTY CLAY	0.30		93.98							Test pit dry, March 2, 2023.
0.5											
1.0	Grey brown SILTY CLAY	1.00		93.28		VA	>120				
1.5											
						VA	>120				
2.0											
2.5											
3.0											
	End of test pit in SILTY CLAY	3.30		90.98							

DEPTH SCALE: 1 to 25
LOGGED: CI

EXCAVATOR TYPE: Track-Mounted Excavator
CHECKED: SD

RECORD OF TEST PIT TP05

Kollaard Associates Engineers

PROJECT: Proposed Subdivision
CLIENT: 2873633 Ontario Inc
LOCATION: 819 Burritts Rapids Road

PROJECT NUMBER: 210816
DATE OF EXCAVATING: 23-3-2
SHEET 1 of 1
DATUM: GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE: DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES: NUMBER	TYPE	SHEAR STRENGTH (kPa)	UNDIST SHEAR STRENGTH x Cu. kPa x / REM SHEAR STRENGTH o Cu. kPa o (0 20 40 60 80 100)	WATER CONTENT (%) (0 20 40 60 80 100)	ADDITIONAL LAB RESULTS	PIEZOMETER OR STANDPIPE INSTALLATION
	TOPSOIL	0.00		91.63							
0.5	Red brown SILTY CLAY	0.30		91.33							
	Grey brown SILTY CLAY	0.80		90.83							
1.0											
1.5						VA	>120				
2.0						VA	>120				
2.5											
3.0											
	End of test pit in SILTY CLAY	3.30		88.33							

Some groundwater observed at about 3.3 metres below the existing ground surface, March 2, 2023.

▽

DEPTH SCALE: 1 to 25
LOGGED: CI

EXCAVATOR TYPE: Track-Mounted Excavator
CHECKED: SD

GEOTECH TP KOLLAARD 210816 - TP LOGS.GPJ GINT STD CANADA.GDT 25-1-9

RECORD OF TEST PIT TP06

Kollaard Associates Engineers

PROJECT: Proposed Subdivision
CLIENT: 2873633 Ontario Inc
LOCATION: 819 Burritts Rapids Road

PROJECT NUMBER: 210816
DATE OF EXCAVATING: 23-3-2
SHEET 1 of 1
DATUM: GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES SHEAR STRENGTH (kPa)	UNDIST SHEAR STRENGTH x Cu. kPa x / REM SHEAR STRENGTH o Cu. kPa o (0 20 40 60 80 100)	WATER CONTENT (%) (0 20 40 60 80 100)	ADDITIONAL LAB RESULTS	PIEZOMETER OR STANDPIPE INSTALLATION
	TOPSOIL	0.00		93.41							
	Red brown SILTY CLAY	0.30		93.11							Test pit dry, March 2, 2023.
0.5											
	Grey brown SILTY CLAY	0.70		92.71							
1.0						VA	>120				
1.5											
						VA	>120				
2.0											
2.5											
3.0											
	End of test pit in SILTY CLAY	3.30		90.11							

DEPTH SCALE: 1 to 25
LOGGED: CI

EXCAVATOR TYPE: Track-Mounted Excavator
CHECKED: SD

RECORD OF TEST PIT TP07

Kollaard Associates Engineers

PROJECT: Proposed Subdivision
CLIENT: 2873633 Ontario Inc
LOCATION: 819 Burritts Rapids Road

PROJECT NUMBER: 210816
DATE OF EXCAVATING: 23-3-2
SHEET 1 of 1
DATUM: GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE: DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: SHEAR STRENGTH (kPa)	UNDIST SHEAR STRENGTH x Cu. kPa x / REM SHEAR STRENGTH o Cu. kPa o (0 20 40 60 80 100)	WATER CONTENT (%) (0 20 40 60 80 100)	ADDITIONAL LAB RESULTS	PIEZOMETER OR STANDPIPE INSTALLATION
	TOPSOIL	0.00		94.34							
	Red brown SILTY CLAY	0.30		94.04							
0.5											
	Grey brown SILTY CLAY	0.60		93.74							
1.0						VA	>120				
1.5											
						VA	>120				
2.0											
2.5											
3.0											
	End of test pit in SILTY CLAY	3.30		91.04							

Some groundwater observed at about 3.3 metres below the existing ground surface, March 2, 2023.

▽

DEPTH SCALE: 1 to 25
LOGGED: CI

EXCAVATOR TYPE: Track-Mounted Excavator
CHECKED: SD

GEOTECH TP KOLLAARD 210816 - TP LOGS.GPJ GINT STD CANADA.GDT 25-1-9

RECORD OF TEST PIT TP08

Kollaard Associates Engineers

PROJECT: Proposed Subdivision
CLIENT: 2873633 Ontario Inc
LOCATION: 819 Burritts Rapids Road

PROJECT NUMBER: 210816
DATE OF EXCAVATING: 23-3-2
SHEET 1 of 1
DATUM: GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES SHEAR STRENGTH (kPa)	UNDIST SHEAR STRENGTH x Cu. kPa x / REM SHEAR STRENGTH o Cu. kPa o (0 20 40 60 80 100)	WATER CONTENT (%) (0 20 40 60 80 100)	ADDITIONAL LAB RESULTS	PIEZOMETER OR STANDPIPE INSTALLATION
	TOPSOIL	0.00		96.02							
	Red brown SILTY CLAY	0.30		95.72							Test pit dry, March 2, 2023.
0.5											
1.0											
	Grey brown SILTY CLAY	1.20		94.82		VA	>120				
1.5											
						VA	>120				
2.0											
2.5											
3.0											
	End of test pit in SILTY CLAY	3.10		92.92							

DEPTH SCALE: 1 to 25
LOGGED: CI

EXCAVATOR TYPE: Track-Mounted Excavator
CHECKED: SD

RECORD OF TEST PIT TP09

Kollaard Associates Engineers

PROJECT: Proposed Subdivision
CLIENT: 2873633 Ontario Inc
LOCATION: 819 Burritts Rapids Road

PROJECT NUMBER: 210816
DATE OF EXCAVATING: 23-3-2
SHEET 1 of 1
DATUM: GEODETIC

DEPTH SCALE (meters)	SOIL PROFILE: DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: SHEAR STRENGTH (kPa)	UNDIST SHEAR STRENGTH x Cu. kPa x / REM SHEAR STRENGTH o Cu. kPa o (0 20 40 60 80 100)	WATER CONTENT (%) (0 20 40 60 80 100)	ADDITIONAL LAB RESULTS	PIEZOMETER OR STANDPIPE INSTALLATION
	TOPSOIL	0.00		95.2							Some groundwater observed at about 0.8 metres below the existing ground surface, March 2, 2023. ▽
0.5	Red brown SILTY CLAY	0.30		94.9							
1.0	Red brown silty sand, some gravel, cobbles, boulders, trace clay (GLACIAL TILL)	0.80		94.4							
1.5	Grey brown silty sand, some gravel, cobbles, boulders, trace clay (GLACIAL TILL)	1.20		94							
2.0											
2.5	Grey silty sand, some gravel, cobbles, boulders, trace clay (GLACIAL TILL)	2.30		92.9							
3.0											
	End of test pit in GLACIAL TILL	3.10		92.1							

DEPTH SCALE: 1 to 25
LOGGED: CI

EXCAVATOR TYPE: Track-Mounted Excavator
CHECKED: SD

RECORD OF TEST PIT TP10

Kollaard Associates Engineers

PROJECT: Proposed Subdivision
CLIENT: 2873633 Ontario Inc
LOCATION: 819 Burritts Rapids Road

PROJECT NUMBER: 210816
DATE OF EXCAVATING: 23-3-2
SHEET 1 of 1
DATUM: GEODETIC

DEPTH SCALE (meters)	DESCRIPTION	DEPTH (m)	STRATA PLOT	ELEV. (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES SHEAR STRENGTH (kPa)	UNDIST SHEAR STRENGTH x Cu. kPa x / REM SHEAR STRENGTH o Cu. kPa o (0 20 40 60 80 100)	WATER CONTENT (%) (0 20 40 60 80 100)	ADDITIONAL LAB RESULTS	PIEZOMETER OR STANDPIPE INSTALLATION
	TOPSOIL	0.00		98.02							Some groundwater observed at about 3.4 metres below the existing ground surface, March 2, 2023.
0.5	Red brown SILTY CLAY	0.40		97.62							
	Grey brown SILTY CLAY	0.80		97.22							
1.0											
1.5											
2.0						VA	>120				
2.5											
3.0											
	End of test pit in SILTY CLAY	3.40		94.62							

DEPTH SCALE: 1 to 25
LOGGED: CI

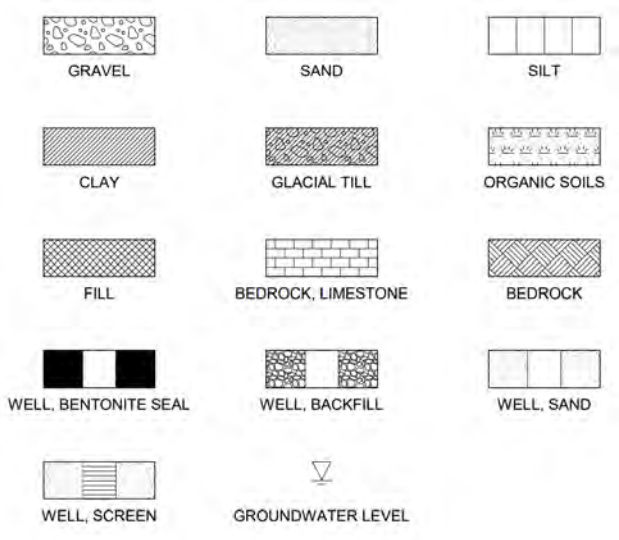
EXCAVATOR TYPE: Track-Mounted Excavator
CHECKED: SD

GEOTECH TP KOLLAARD 210816 - TP LOGS.GPJ GINT STD CANADA.GDT 25-1-9

LIST OF ABBREVIATIONS AND TERMINOLOGY

SAMPLE TYPES	
AS	Auger Sample
CS	Chunk Sample
DO	Drive Open
MS	Manual Sample
RC	Rock Core
SS	Split Spoon Sample
TO	Thin-Walled Open Shelby Tube
WS	Wash Sample

PENETRATION RESISTANCE	
Standard Penetration Resistance (N) The number of blows by a 63.5 kg hammer dropped 760 millimeters required to drive a 50 mm drive open sampler for a distance of 300 mm.	
Dynamic Penetration Resistance The number of blows by a 63.5 kg hammer dropped 760 mm to drive a 50 mm diameter, 60° cone attached to 'A' size drill rods for a distance of 300 mm.	
WH	Sampler advanced by static weight of hammer and drill rods.
WR	Sampler advanced by static weight of drill rods.
PH	Sampler advanced by hydraulic pressure from drill rig.
PM	Sampler advanced by manual pressure.



SOIL DESCRIPTIONS

Relative Density	'N' Value
Very Loose	0 – 4
Loose	4 – 10
Compact	10 – 30
Dense	30 – 50
Very Dense	>50

Consistency	Cu, kPa
Very Soft	0 – 12
Soft	12 – 25
Firm	25 – 50
Stiff	50 – 100
Very Stiff	>100

LIST OF COMMON SYMBOLS	
Cu	Undrained Shear Strength
e	Void Ratio
Cc	Compression Index
Cv	Coefficient of Consolidation
k	Coefficient of Permeability
PI	Plasticity Index
n	Porosity
u	Pore Pressure
W	Moisture Content
LL	Liquid Limit
PL	Plastic Limit
r	Unit Weight of Soil
y	Unit Weight of Submerged Soil
cr	Normal Stress

SOIL TESTS	
C	Consolidation Test
H	Hydrometer Analysis
M	Sieve Analysis
MH	Sieve and Hydrometer Analysis
U	Unconfined Compression Test
Q	Undrained Triaxial Test
VA	Field Vane, Undisturbed and Remolded Shear Strength

TABLE I

SUMMARY OF FIELD WATER QUALITY MEASUREMENTS

Test Well 1 – June 17, 2022

Time Since Pumping Test Started (min)	**Temperature** (^{0}C)	**pH**	**Turbidity** (NTU)	**Total Dissolved Solids** (ppm)	**Conductivity** (µS)	**Free Chlorine** (ppm)
60	-	-	-	-	-	-
120	10.7	7.74	0.39	291	584	-
180	10.0	7.62	1.07	285	571	0.00
240	10.1	7.65	0.22	292	583	-
300	10.1	7.66	0.26	292	581	-
360	10.3	7.66	0.21	290	580	0.00

Test Well 2 – June 27, 2022

Time Since Pumping Test Started (min)	**Temperature** (^{0}C)	**pH**	**Turbidity** (NTU)	**Total Dissolved Solids** (ppm)	**Conductivity** (µS)	**Free Chlorine** (ppm)
60	10.3	7.49	6.22	330	658	0.00
120	10.1	7.75	6.66	336	669	-
180	10.0	7.86	2.54	336	673	0.00
240	10.0	7.86	2.80	340	679	-
300	10.1	7.81	2.27	341	682	-
360	10.0	7.85	2.55	343	684	0.00

Test Well 3 – June 16, 2022

Time Since Pumping Test Started (min)	**Temperature** (^{0}C)	**pH**	**Turbidity** (NTU)	**Total Dissolved Solids** (ppm)	**Conductivity** (µS)	**Free Chlorine** (ppm)
60	10.9	7.65	2.60	407	811	0.00
120	11.3	7.52	2.15	396	789	-
180	11.2	7.47	1.75	401	802	0.00
240	11.4	7.43	1.90	396	790	-
300	11.3	7.47	1.01	400	800	-
360	11.3	7.49	1.80	400	801	0.00

Test Well 4 – June 28, 2022

Time Since Pumping Test Started (min)	**Temperature** (^{0}C)	**pH**	**Turbidity** (NTU)	**Total Dissolved Solids** (ppm)	**Conductivity** (µS)	**Free Chlorine** (ppm)
60	11.0	7.80	2.01	325	650	0.00
120	11.1	7.67	0.99	318	634	-
180	10.8	7.71	0.39	317	633	0.00
240	11.1	7.76	0.62	308	616	-
300	11.2	7.88	0.65	314	628	-
360	11.2	7.85	0.68	312	624	0.00

TABLE II

SUMMARY OF SUBDIVISION WATER CHEMISTRY FOR TEST AND SAMPLED WELLS

Parameter	Guideline	TW1		TW2		TW3		TW4	
		3hr	6hr	3hr	6hr	3hr	6hr	3hr	6hr
Alkalinity [mg/l]	OG 500	261	258	240	246	316	315	262	239
Chloride [mg/l]	AO/MCCRT 250	18	18	55	57	48	49	32	30
Colour [TCU]	AO 5 MCCRT 7	<2	<2	<2	<2	<2	<2	<2	<2
Conductivity [uS/cm]		541	541	625	639	739	746	596	549
DOC [mg/l]	AO 5	1.9	2.0	1.6	1.7	2.7	2.7	1.3	1.6
Fluoride [mg/l]	MAC 1.5	0.62	0.64	0.62	0.59	0.25	0.25	0.57	0.53
Hydrogen Sulphide [mg/l]	AO 0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia [mg/l]		0.108	0.122	0.217	0.208	0.198	0.208	0.046	0.046
Nitrite [mg/l]	MAC 1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate [mg/l]	MAC 10.0	<0.10	<0.10	0.13	0.11	<0.10	<0.10	0.18	0.20
pH		7.78	7.86	7.80	7.85	7.80	7.85	8.18	8.12
Phenols [mg/l]		<0.001	<0.001	<0.001	<0.001	<0.001	0.004	<0.001	<0.001
Sulphate [mg/l]	AO 500	24	24	28	28	47	47	24	24
Tannin & Lignin [mg/l]		<1.0	<1.0	<1.0	1	<1.0	<1.0	<1.0	<1.0
TDS [mg/l]	AO 500	352	352	406	415	480	485	387	357
TKN [mg/l]		0.286	0.278	0.377	0.237	0.403	0.475	<0.100	0.111
Organic Nitrogen [mg/l]	AO 0.15	**0.178**	**0.156**	**0.160**	0.029	**0.205**	**0.267**	<0.054	0.065
Turbidity [NTU]	AO 5.0	1.4	1.5	**5.8**	**11.4**	**6.5**	**5.2**	0.5	0.6
Hardness [mg/l]	OG 100	**268**	**268**	**265**	**265**	**400**	**400**	**273**	**277**
Ion Balance		0.99	1.00	0.99	0.97	0.99	0.99	0.96	1.06
Calcium [mg/l]		61	61	60	60	86	86	63	63
Magnesium [mg/l]		28	28	28	28	45	45	28	29
Potassium [mg/l]		3	3	5	5	3	3	3	3
Sodium [mg/l]	AO 200	17	17	33	34	11	11	20	21
Iron [mg/l]	A0 0.3	0.20	0.20	**0.42**	**0.52**	**0.57**	**0.53**	<0.03	<0.03
Manganese [mg/l]	AO 0.05	0.03	0.03	0.02	0.02	0.02	0.02	0.01	0.02

TABLE III

SUMMARY OF HEAVY METALS TESTING IN SUBDIVISION TEST WELLS

Parameter	Guideline	TW1		TW2		TW3		TW4	
		3hr	6hr	3hr	6hr	3hr	6hr	3hr	6hr
Aluminum [mg/l]	OG 0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic [mg/l]	IMAC 0.01	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron [mg/l]	IMAC 5.0	0.15	0.15	0.18	0.18	0.04	0.04	0.14	0.14
Barium [mg/l]	MAC 1.0	0.17	0.17	0.16	0.16	0.28	0.28	0.17	0.17
Cadmium [mg/l]	MAC 0.005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cobalt [mg/l]	*0.0038	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Chromium [mg/l]	MAC 0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper [mg/l]	AO 1.0	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001
Mercury [mg/l]	MAC 0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Lead [mg/l]	MAC 0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Antimony [mg/l]	IMAC 0.006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Selenium [mg/l]	MAC 0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Strontium [mg/l]	** 7.0	1.24	1.24	1.18	1.18	0.418	0.413	0.940	0.936
Uranium [mg/l]	MAC 0.02	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium [mg/l]	*0.0062	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc [mg/l]	AO 5.0	0.02	0.01	0.02	<0.01	0.03	0.01	<0.01	<0.01

Guideline refers to Ontario Drinking Water Standards, Objectives and Guidelines except where noted
* O. Reg 153/04 standard Table 2 for potable groundwater
** Health Canada health related maximum

TABLE IV

SUMMARY OF PUMPING TEST RESULTS AND WELL PARAMETERS

Well	Tp (m^2/day)	Tr (m^2/day)	Tav (m^2/day)	Q (m^3/day)	SC (m^3/day/m)	ho m	hf m	Td m	TD m	CS m	AD m
TW1	43	19	31	103.7	296.2	4.22	4.57	0.35	33.55	0.60	24.5
TW2	41	62	52	67.6	9.7	1.70	8.66	6.96	42.70	0.60	30.0
TW3-Test 1	36	44	40	97.2	118.5	6.52	7.34	0.82	25.01	0.60	19.1
TW3-Test 2	55	16	36	47.8	157.8	7.50	7.81	0.30	25.01	0.60	18.1
TW4	8	3	5	45.7	5.0	6.36	15.58	9.22	24.60	0.60	18.8

Average Transmissivity: 33 m^2/day

Well	% Available Drawdown Used
TW1	1.4%
TW2	23.2%
TW3-1	4.3%
TW3-2	1.7%
TW4	48.9%

Note:
- Tp: Transmissivity as calculated from pumping data (m^2/day)
- Tr: Transmissivity as calculated from recovery data (m^2/day)
- Tav: Average transmissivity (average of pumping and recovery) (m^2/day)
- Q: Test pumping rate (m^3/day)
- SC: Specific Capacity (m^3/day/m)
- ho: Static water level (below top of casing) at beginning of pumping test (metres)
- hf: Water level (below top of casing) at end of 6 hour pumping test (metres)
- Td: Total drawdown (metres)
- TD: Total depth of well (below ground surface) (metres)
- CS: Casing stickup above ground surface (metres)
- AD: Approximate available drawdown (metres)

TABLE V
MUTUAL WELL INTERFERENCE AT CENTRAL LOT

Storativity	7.0.E-05		based on storativity estimate using drawdown in observation wells (cooper-jacob straight-line)
Transmissivity	33	m^2/day	average calculated value using cooper-jacob
T	4.E-04	m^2/s	
Q	1100	L/day	
Q	1.27E-05	m^3/s	
Duration	30	years	
Duration	946080000	s	
2.3Q/(4piT)	0.0061		

Lot	Distance [m]	30 Year Drawdown [m]
1	534	0.028
2	460	0.029
3	440	0.029
4	331	0.031
5	200	0.033
6	153	0.035
7	123	0.036
8	180	0.034
9	203	0.033
11	79	0.038
12	248	0.032
13	177	0.034
14	110	0.037
15	112	0.036
16	91	0.037
17	92	0.037
18	95	0.037
19	112	0.036
20	110	0.036
21	131	0.036
22	172	0.034
23	370	0.030
24	408	0.030
25	286	0.031
26	313	0.031
27	301	0.031
28	294	0.031
29	248	0.032
Cumulative aquifer drawdown at centre well [metres]		0.937

TABLE VI
WELL INTERFERENCE AT PROPERTY BOUNDARY

Storativity	7.0.E-05		based on storativity estimate using drawdown in observation wells (cooper-jacob straight-line)
Transmissivity	33	m^2/day	average calculated value using cooper-jacob
T	4.E-04	m^2/s	
Q	1100	L/day	
Q	1.27E-05	m^3/s	
Duration	30	years	
Duration	946080000	s	
2.3Q/(4piT)	0.0061		

Lot	Distance [m]	30 Year Drawdown [m]
1	595	0.028
2	505	0.028
3	454	0.029
4	375	0.030
5	243	0.032
6	172	0.034
7	195	0.033
8	237	0.032
9	262	0.032
10	28	0.044
11	109	0.037
12	274	0.032
13	195	0.033
14	119	0.036
15	140	0.035
16	117	0.036
17	115	0.036
18	119	0.036
19	135	0.035
20	135	0.035
21	165	0.034
22	155	0.035
23	406	0.030
24	435	0.029
25	274	0.032
26	313	0.031
27	347	0.030
28	313	0.031
29	274	0.032
Cumulative aquifer drawdown at centre well [metres]		0.959

TABLE VII
ESTIMATE OF STORATIVITY BY COOPER-JACOB METHOD

A curve of drawdown versus time was generated for observation wells as an adjacent well was pumped (see Table 7 and Attachment L)

Based on the Cooper-Jacob formula, the following values of storativity were calculated.

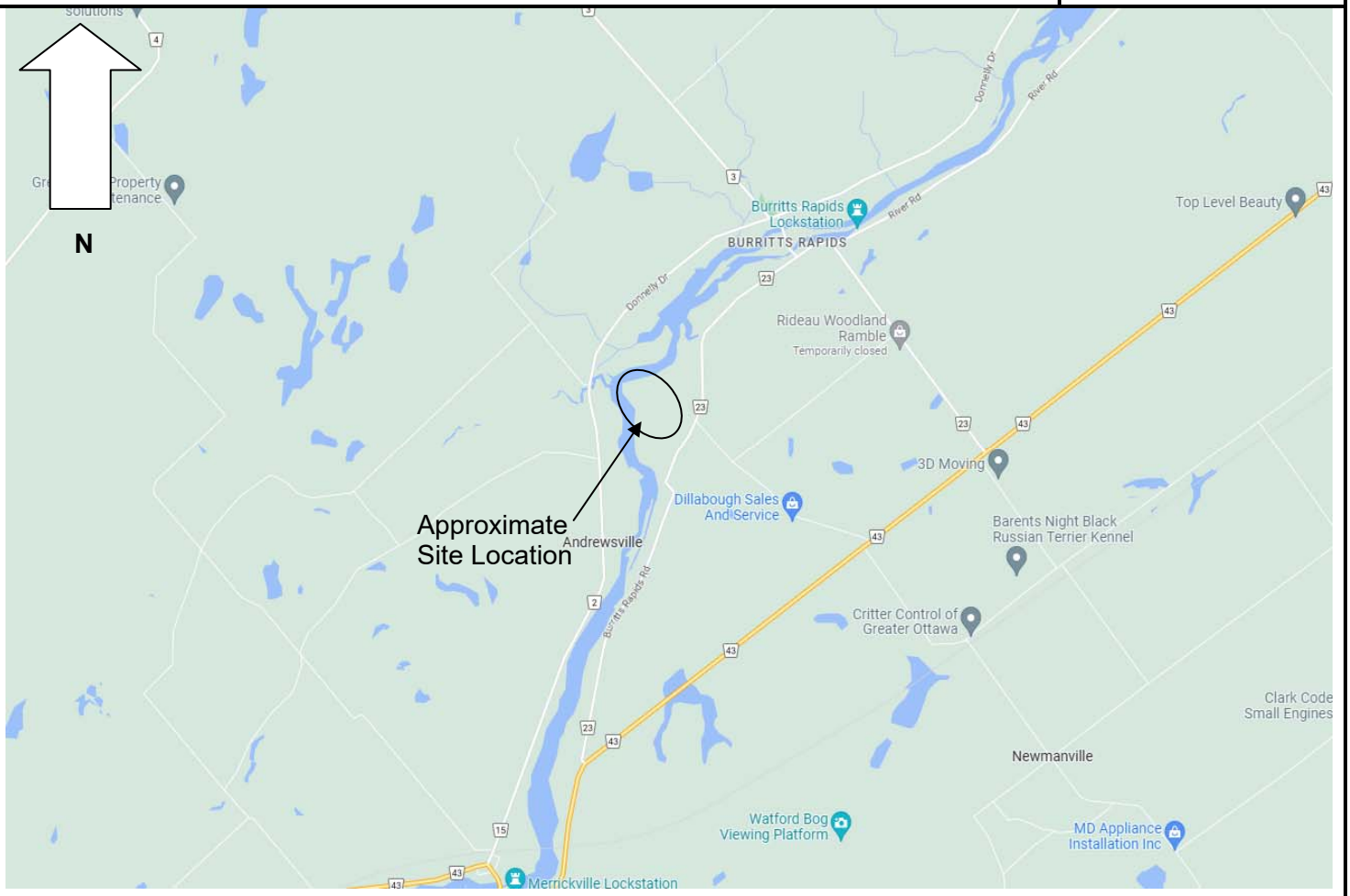
$$T = \frac{2.303Q}{4\pi\Delta s} \qquad S = \frac{2.25Tt_0}{r^2}$$

Δs is the slope of the fitted line (change in drawdown per log cycle)
t_o is the intercept of the line on the x axis

Pump well	Observation Well	r (m)	Q (m^3/day)	ds (m)	to (min)	T (m^2/day)	S
TW1	TW2	254.8	103.7	0.4	70	47.47	8.0E-05
TW2	TW1	254.8	67.6	0.24	54	51.58	6.7E-05
TW4	OW1	18.63	45.7	2.75	5	3.04	6.8E-05
							7.2E-05

KEY PLAN

FIGURE 1



NOT TO SCALE

Kollaard Associates
Engineers

Project No. 210816

Date October 2024

DRAWING NUMBER:

FIGURE 2 – SITE PLAN

LEGEND:

SUBJECT SITE

NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING REPORT.

REFERENCE: PLAN SUPPLIED BY CITY OF OTTAWA EMAPS

REV.	NAME	DATE	DESCRIPTION

Kollaard Associates
Engineers

PO, BOX 189, 210 PRESCOTT ST
KEMPTVILLE ONTARIO
K0G 1J0 FAX (613) 258-0475
http://www.kollaard.ca

(613) 860-0923
info@kollaard.ca

CLIENT:
2873633 ONTARIO INC.

PROJECT:
HYDROGEOLOGICAL ASSESSMENT

TITLE:
SITE PLAN

LOCATION:
819 COUNTY ROAD 23
MERRICKVILLE, ONTARIO

DESIGNED BY:	*DATE:*
--	FEBRUARY 2025
DRAWN BY:	*SCALE:*
CI	NTS

KOLLAARD FILE NUMBER:
210816

KEY PLAN

NOT TO SCALE

LEGEND

- EXISTING ELEVATION
- PROPOSED WELL LOCATION
- EXISTING WELL LOCATION
- FENCELINE
- PROPERTY LINES
- ZONING SETBACKS
- LOT LINES
- EDGE OF ASPHALT
- PROPOSED DWELLING LOCATION
- PROPOSED SEPTIC BED LOCATION
- DIRECTION OF FLOW
- TOP OF SLOPE

0 25 50

1:750 METRES

LOT	TOTAL AREA (m²)
1	5402.00
2	4747.57
3	7067.82
4	8533.23
5	7276.70
6	7584.39
7	7010.36
8	6110.60
9	6038.57
10	4584.99
11	4144.89
12	4493.20
13	5035.82
14	4941.13
15	4061.54
16	4115.62
17	6473.57
18	5601.98
19	4147.32
20	4495.84
21	5354.87
22	7515.27
23	5712.18
24	8294.58
25	5827.77
26	8446.00
27	17678.37
28	8653.80
29	8475.72
ROAD BLOCK	28617.93
STORMWATER BLOCK	4464.70
STORMWATER BLOCK	1320.80
WETLAND AREA	12355.86
ROAD EXTENSION BLOCK	769.34
WALKING PATH BLOCK	354.59
PARK BLOCK	1704.72
PARK BLOCK	2834.00
TOTAL LAND PARCEL	240247.62

NOTES:
1. ALL DIMENSIONS ARE IN METRES, UNLESS OTHERWISE SPECIFIED; ALL ELEVATIONS ARE IN METRES.
2. THIS IS NOT A LEGAL SURVEY.
3. EXISTING SERVICES INFORMATION SHOWN ARE BASED ON BEST CURRENT INFORMATION. CONTRACTOR TO VERIFY EXACT LOCATION AND REPORT ANY DISCREPANCIES TO KOLLAARD ASSOCIATES INC.
4. CLIENT IS RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS.
5. CONTRACTOR TO VERIFY THAT APPROPRIATE PERMITS HAVE BEEN ACQUIRED PRIOR TO ANY CONSTRUCTION.
6. CONTRACTOR IS RESPONSIBLE FOR LOCATION AND PROTECTION OF UTILITIES.
7. ALL DIMENSIONS TO BE VERIFIED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION.
8. THIS DRAWING IS NOT FOR CONSTRUCTION UNTIL ALL APPROVALS HAVE BEEN GRANTED.
9. INSPECTION OF ROUGH GRADE BY KOLLAARD ASSOCIATES INC. AND MUNICIPALITY MUST BE CONDUCTED PRIOR TO PLACEMENT OF TOPSOIL OR SOD.
10. HYDRO SERVICE TO BE INSTALLED ACCORDING TO THE SPECIFICATIONS OF SERVICE PROVIDER AND THE MECHANICAL ENGINEER.
11. ALL MATERIALS AND CONSTRUCTION TO BE IN ACCORDANCE WITH MUNICIPAL STANDARDS AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS
12. ANY CHANGES MADE TO THIS PLAN MUST BE VERIFIED AND APPROVED BY KOLLAARD ASSOCIATES, INC.
13. THIS DRAWING IS PART OF KOLLAARD ASSOCIATES DESIGN REPORT #210816.

No.	REVISION	DATE	BY
1	ISSUED FOR DRAFT PLAN APPROVAL	05.FEB.2025	CV

CONSULTANTS

Kollaard Associates Engineers
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210 PRESCOTT STREET
KEMPTVILLE, ONTARIO
K0G 1J0
FACSIMILE (613) 258-0475
(613) 860-0923

DESIGN	--
DRAWN	ABD
CHECKED	CV
APPROVED	CV
STAMP	
CLIENT NAME	2873633 Ontario Inc.
PROJECT NAME	PROPOSED RESIDENTIAL SUBDIVISION
PROJECT LOCATION	819 COUNTY ROAD 23, MERRICKVILLE, ON, K0G 1N0
DRAWING	LOT DEVELOPMENT PLAN 1
PROJECT No.	210816
DATE	2025.JAN.14
SCALE	AS_NOTED
DRAWING No.	210816-LDP(1)

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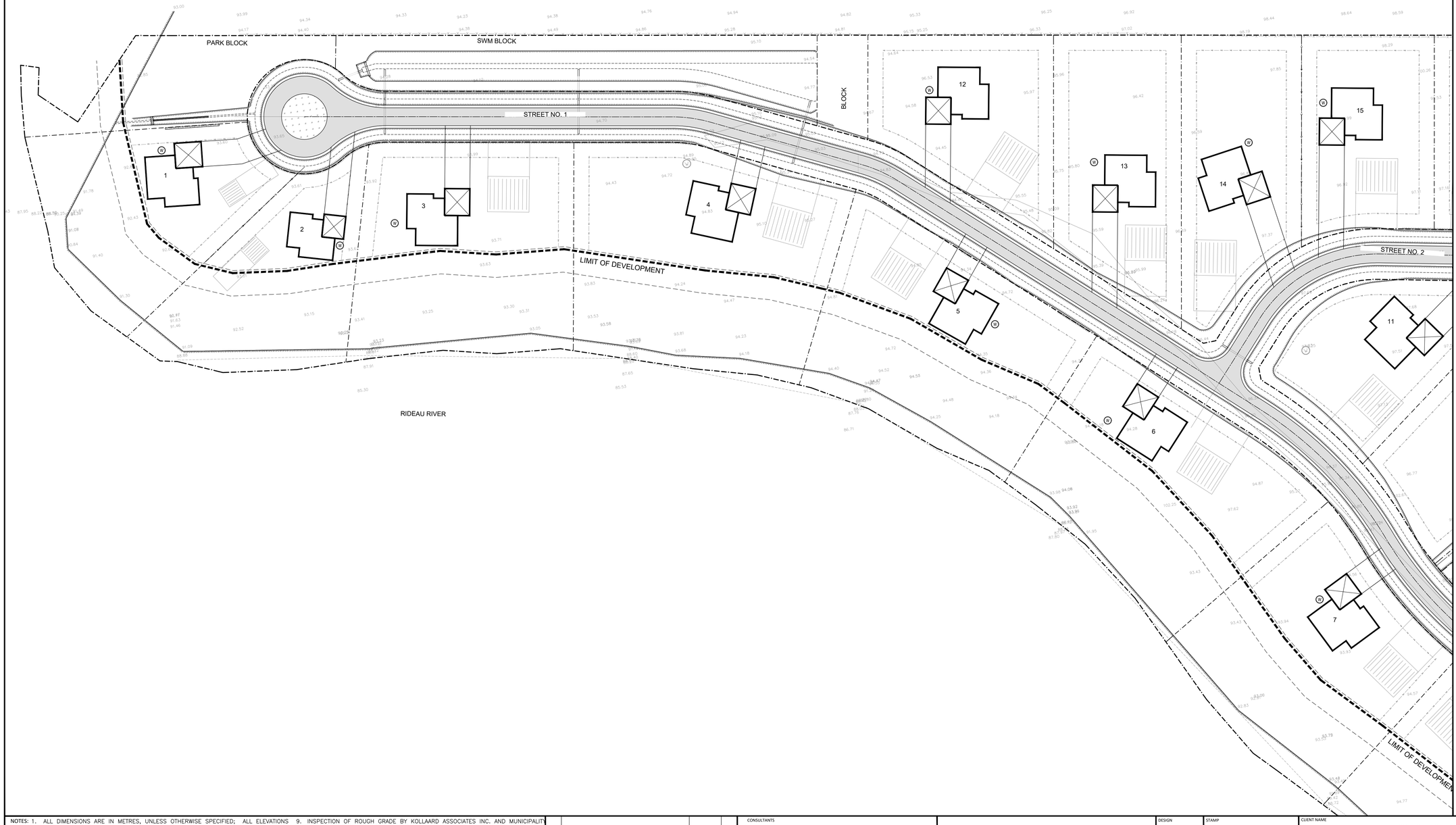

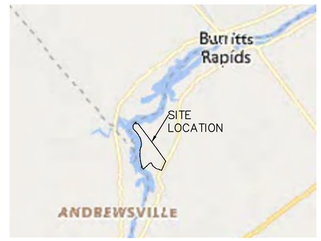

KEY PLAN

NOT TO SCALE

LEGEND

- EXISTING ELEVATION
- PROPOSED WELL LOCATION
- EXISTING WELL LOCATION
- FENCELINE
- PROPERTY LINES
- ZONING SETBACKS
- LOT LINES
- EDGE OF ASPHALT
- PROPOSED DWELLING LOCATION
- PROPOSED SEPTIC BED LOCATION
- DIRECTION OF FLOW
- TOP OF SLOPE

0 25 50

1:750 METRES

LOT	TOTAL AREA (m^2)
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18	5601.98
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22	7515.27
23	5712.18
24	8294.58
25	5827.77
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27	17678.37
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STORMWATER BLOCK	1320.80
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WALKING PATH BLOCK	354.59
PARK BLOCK	1704.72
PARK BLOCK	2834.00
TOTAL LAND PARCEL	240247.62

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13. THIS DRAWING IS PART OF KOLLAARD ASSOCIATES DESIGN REPORT #210816.

No.	REVISION	DATE	BY
1	ISSUED FOR DRAFT PLAN APPROVAL	05.FEB.2025	CV

CONSULTANTS

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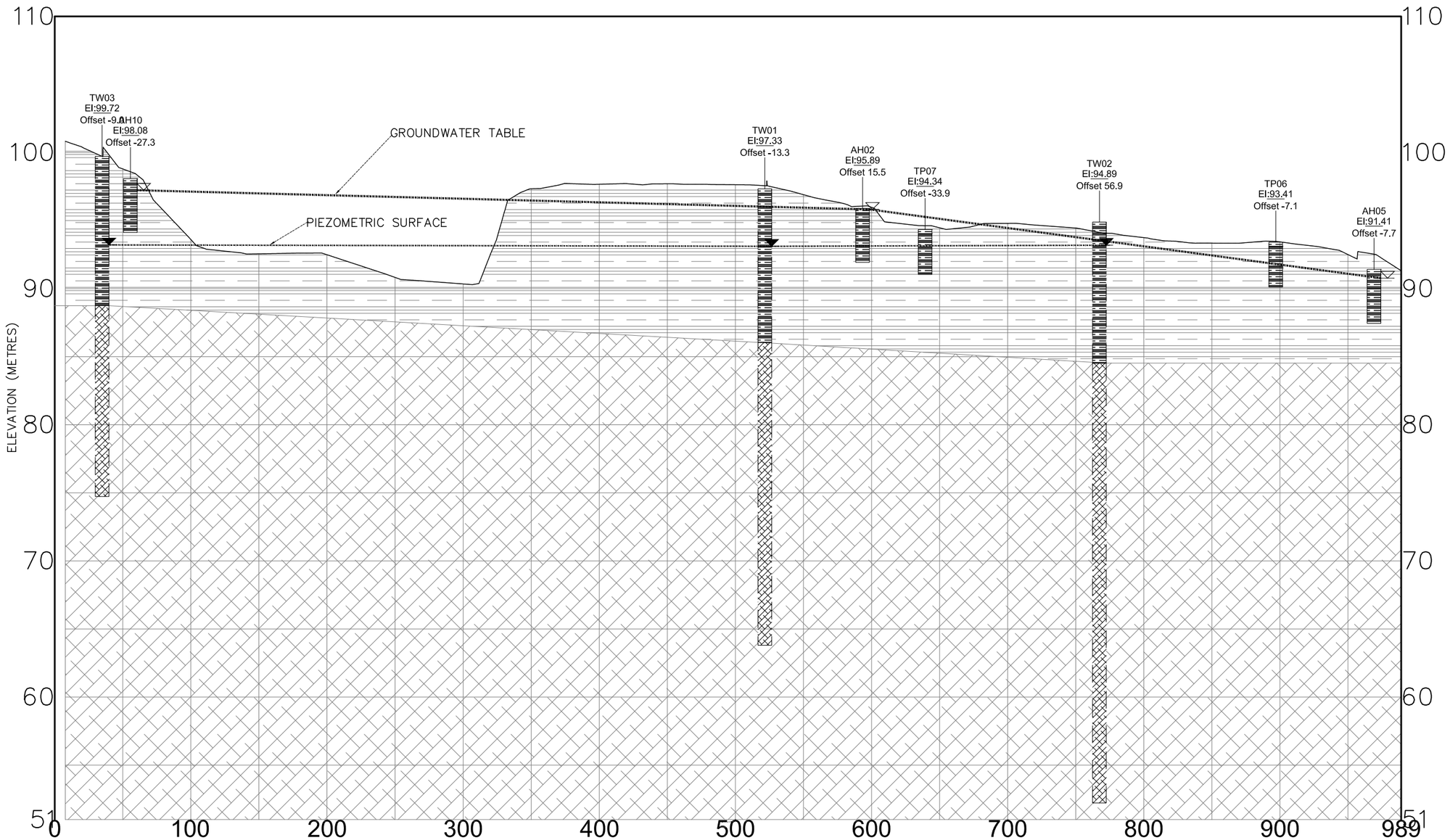
DESIGN	--
DRAWN	ABD
CHECKED	CV
APPROVED	CV

STAMP

CLIENT NAME	2873633 Ontario Inc.
PROJECT NAME	PROPOSED RESIDENTIAL SUBDIVISION
PROJECT LOCATION	819 COUNTY ROAD 23, MERRICKVILLE, ON, K0G 1N0
DRAWING	LOT DEVELOPMENT PLAN 2
PROJECT No.	210816
DATE	2025.JAN.14
SCALE	AS_NOTED
DRAWING No.	210816-LDP(2)

ARCH D



DRAWING NUMBER:
FIGURE 4

LEGEND:

AHI — WATER LEVEL MEASURED IN STANDPIPE IN AUGER HOLE

TWI — WATER LEVEL MEASURED IN DRILLED BEDROCK WELL

SILTY CLAY

LIMESTONE

NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING REPORT.

REV.	NAME	DATE	DESCRIPTION

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(613) 860-0923
info@kollaard.ca

CLIENT:
2873633 ONTARIO INC.

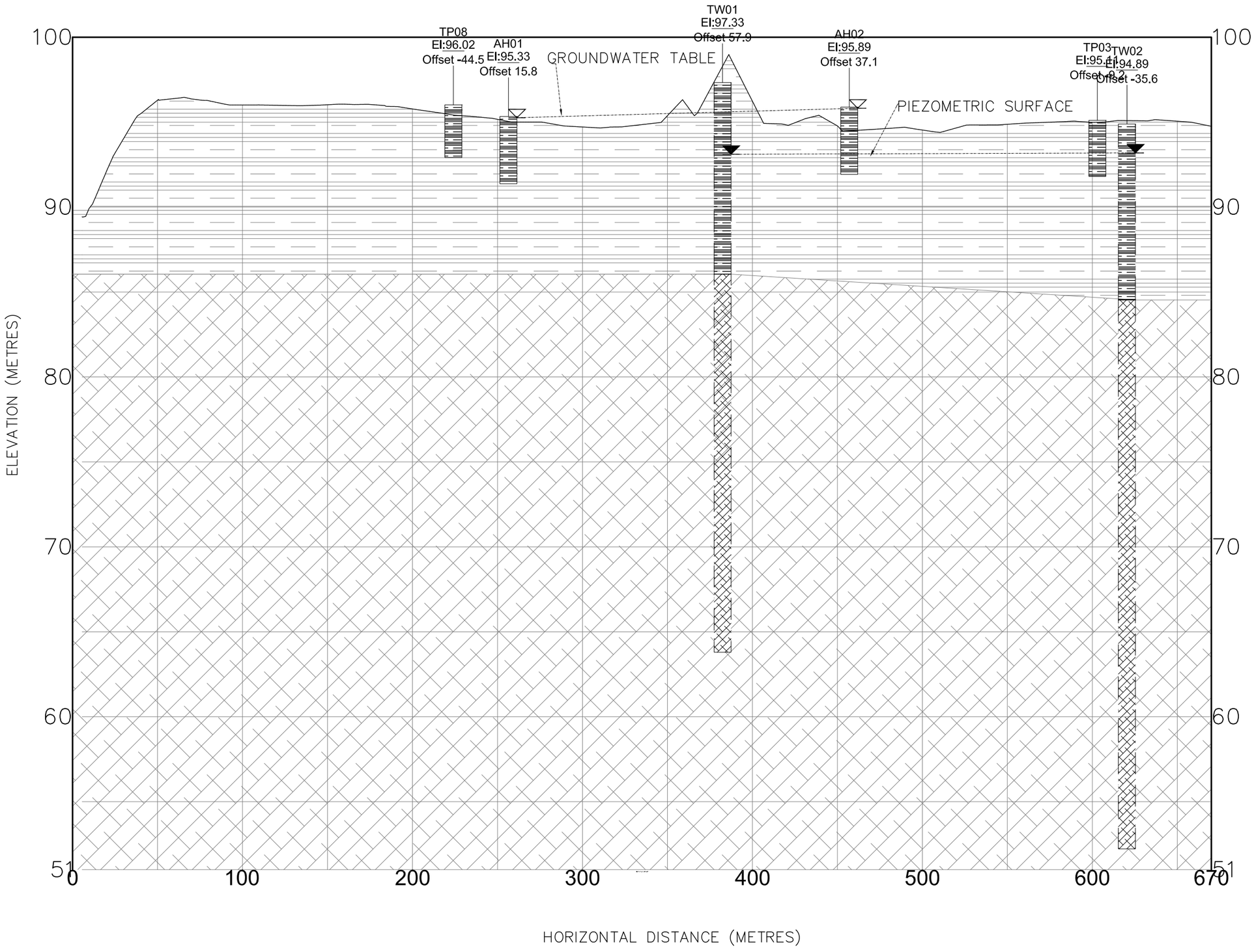
PROJECT:
HYDROGEOLOGICAL ASSESSMENT

TITLE:
NORTH-SOUTH CROSS SECTION A-A'

LOCATION:
819 COUNTY ROAD 23
MERRICKVILLE, ONTARIO

DESIGNED BY:	*DATE:*
--	SEPTEMBER 2023
DRAWN BY:	*SCALE:*
CV	AS SHOWN

KOLLAARD FILE NUMBER:
210816



DRAWING NUMBER:
FIGURE 5

LEGEND:

AHI — WATER LEVEL MEASURED IN STANDPIPE IN AUGER HOLE

TWI — WATER LEVEL MEASURED IN DRILLED BEDROCK WELL

SILTY CLAY

LIMESTONE

NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING REPORT.

REV.	NAME	DATE	DESCRIPTION

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CLIENT:
2873633 ONTARIO INC.

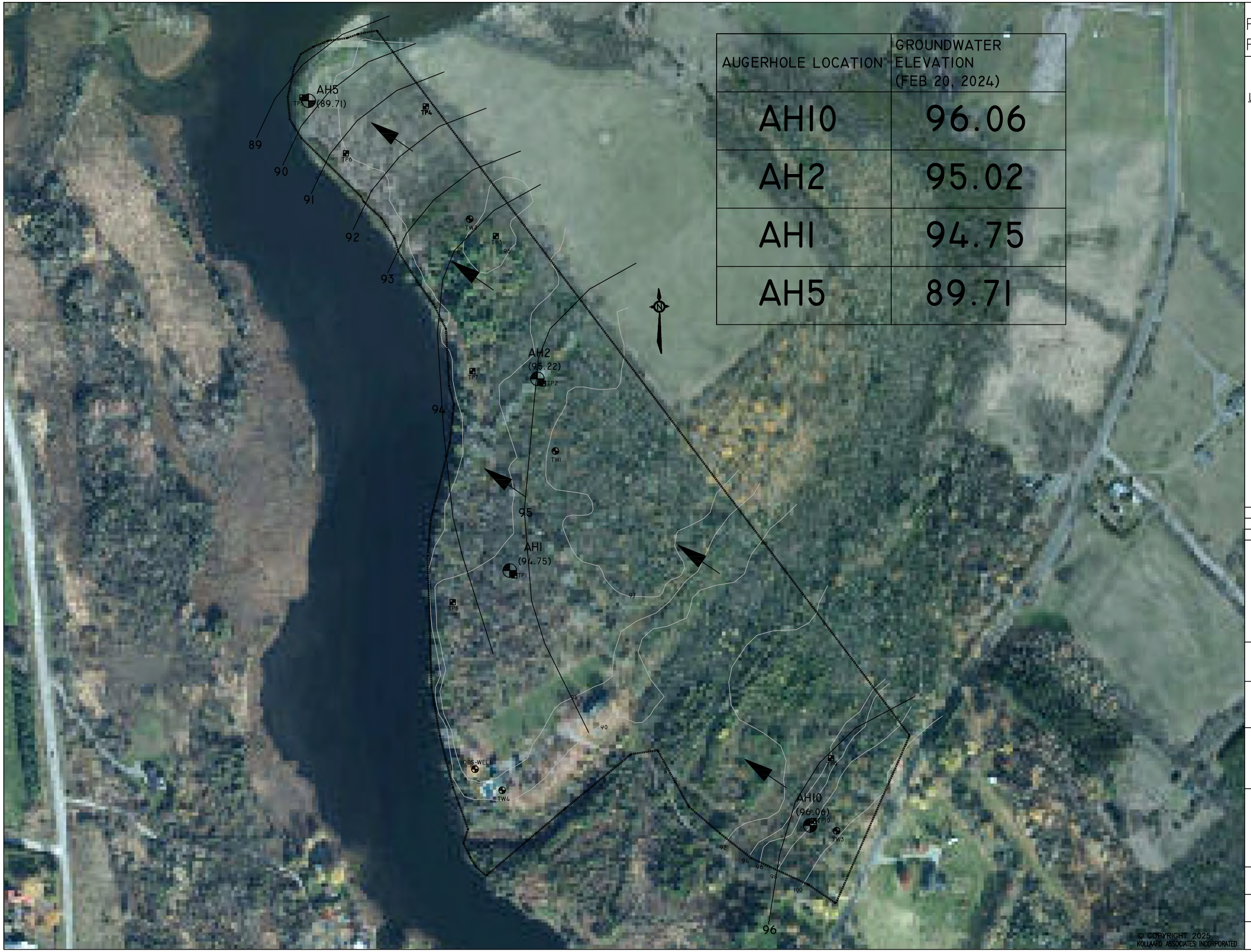
PROJECT:
HYDROGEOLOGICAL ASSESSMENT

TITLE:
EAST WEST CROSS-SECTION B-B'

LOCATION:
819 COUNTY ROAD 23
MERRICKVILLE, ONTARIO

DESIGNED BY:	*DATE:*
--	SEPTEMBER 2023
DRAWN BY: CV	*SCALE:* AS SHOWN

KOLLAARD FILE NUMBER:
210816



AUGERHOLE LOCATION	GROUNDWATER ELEVATION (FEB 20, 2024)
AH10	96.06
AH2	95.02
AH1	94.75
AH5	89.71

DRAWING NUMBER:

FIGURE 6 – GROUNDWATER FLOW (SHALLOW)

LEGEND:

- SUBJECT SITE
- APPROXIMATE TEST PIT LOCATION
- APPROXIMATE AUGERHOLE LOCATION
  (98.08) GW ELEV – FEB 20, 2024
- GROUND SURFACE CONTOURS
- GROUND WATER CONTOURS

NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING REPORT.

REFERENCE: PLAN SUPPLIED BY CITY OF OTTAWA EMAPS

REV.	NAME	DATE	DESCRIPTION

Kollaard Associates
Engineers

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K0G 1J0 FAX (613) 258-0475
http://www.kollaard.ca

(613) 860-0923
info@kollaard.ca

CLIENT:
2873633 ONTARIO INC.

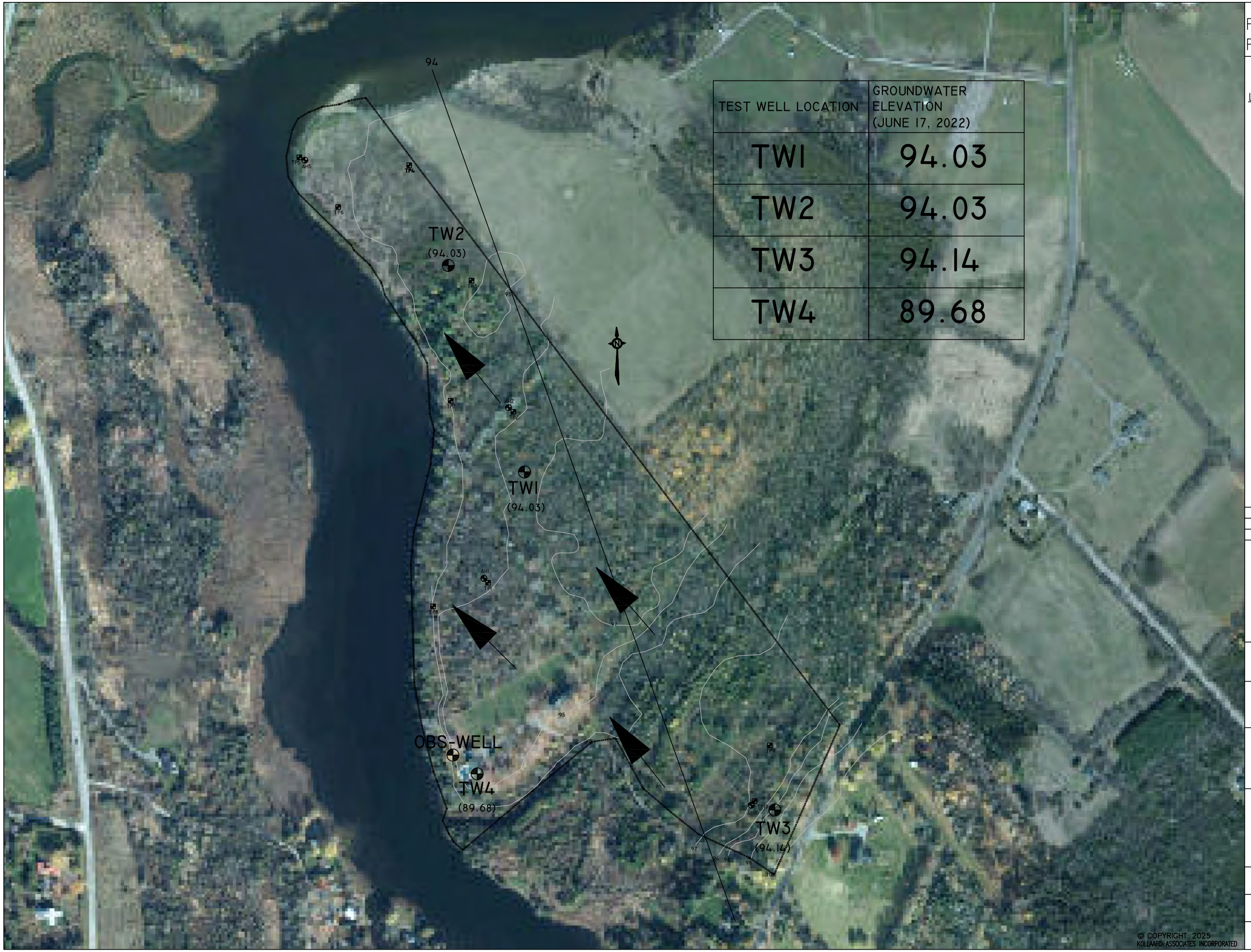
PROJECT:
HYDROGEOLOGICAL ASSESSMENT

TITLE:
GROUNDWATER FLOW DIRECTION (SHALLOW)

LOCATION:
819 COUNTY ROAD 23
MERRICKVILLE, ONTARIO

DESIGNED BY:	*DATE:*
––	JAN 2025
DRAWN BY:	*SCALE:*
IB	NTS

KOLLAARD FILE NUMBER:
210816



TEST WELL LOCATION	GROUNDWATER ELEVATION (JUNE 17, 2022)
TW1	94.03
TW2	94.03
TW3	94.14
TW4	89.68

DRAWING NUMBER:

FIGURE 7 – GROUNDWATER FLOW (DEEP)

LEGEND:

- SUBJECT SITE
- APPROXIMATE TEST PIT LOCATION
- (98.08) APPROXIMATE TEST WELL LOCATION GW ELEV – JUN 18, 2022
- GROUND SURFACE CONTOURS
- GROUND WATER CONTOURS

NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING REPORT.

REFERENCE: PLAN SUPPLIED BY CITY OF OTTAWA EMAPS

REV.	NAME	DATE	DESCRIPTION

Kollaard Associates
Engineers

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K0G 1J0 FAX (613) 258-0475
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(613) 860-0923
info@kollaard.ca

CLIENT:
2873633 ONTARIO INC.

PROJECT:
HYDROGEOLOGICAL ASSESSMENT

TITLE:
GROUNDWATER FLOW DIRECTION (DEEP)

LOCATION:
819 COUNTY ROAD 23
MERRICKVILLE, ONTARIO

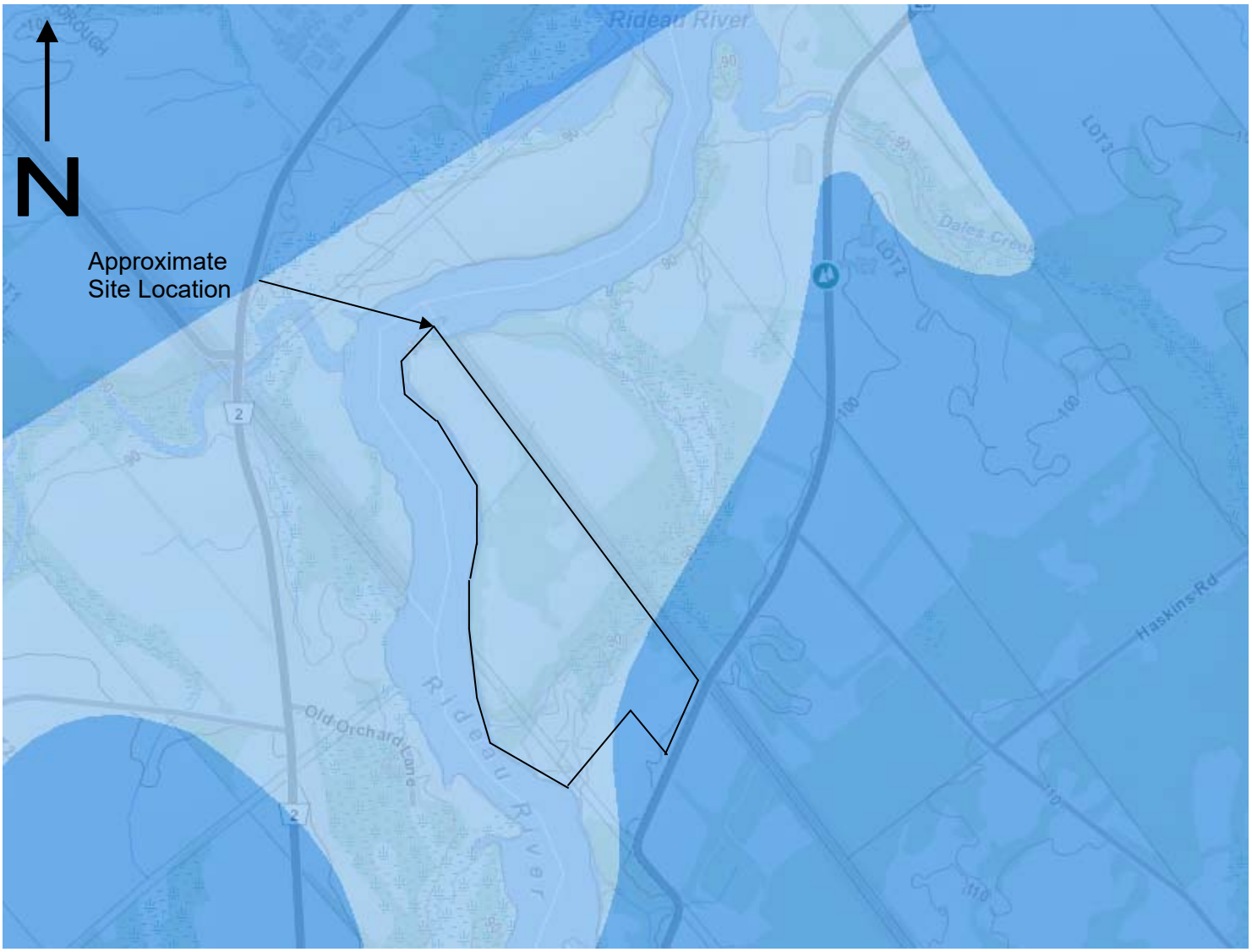
DESIGNED BY:	*DATE:*
––	FEB 2025
DRAWN BY:	*SCALE:*
IB	NTS

KOLLAARD FILE NUMBER:
210816

ATTACHMENT A

SURFICIAL AND BEDROCK GEOLOGY MAPS

BEDROCK GEOLOGY MAP



Ontario Geological Survey of Ontario, Bedrock Geology Map MRD 126-REV1, issued 2011

Oxford Formation (Beekmantown Group):
Primary Lithology: dolostone
brown-grey to green-grey, thin- to thick-bedded, very fine- to medium-grained dolostone; with local thin glauconitic shale beds, and interbeds of quartz sandstone and shaly dolostone

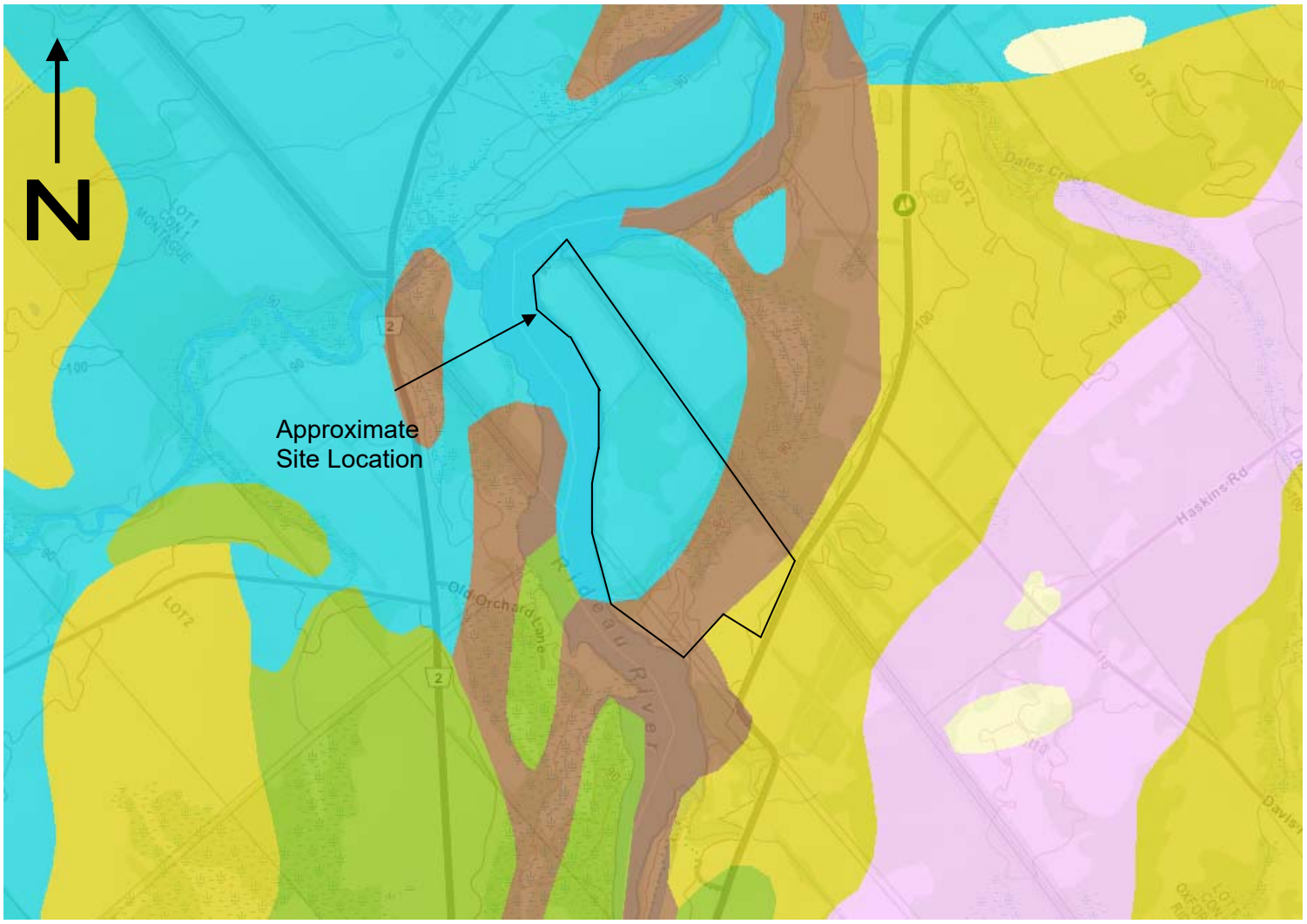
March Formation (Beekmantown Group):
Primary Lithology: sandstone, dolostone
Quartz sandstone, dolomitic sandstone and sandstone

Kollaard Associates
Engineers

Project No. 210816

Date May 2024

SURFICIAL GEOLOGY MAP



Coarse-textured glaciomarine deposits: sand, gravel, minor silt and clay

Till: Silty sand to sand-textured till on Precambrian terrain

Paleozoic bedrock-drift complex: Bedrock-drift complex in Paleozoic terrain

Eolian deposits: Fine to very fine sand and silt

Fine-Textured Glaciomarine Deposits: Fine textured glaciomarine deposits, silt and clay, minor sand and gravel

Modern Alluvial Deposits: Clay, silt, sand, gravel, may contain organic remains

Ontario Geological Survey of Ontario, Bedrock Geology Map MRD 128-REV, issued 2010

Kollaard Associates Engineers

Project No. 210816

Date May 2024

ATTACHMENT B

CERTIFICATE OF WELL COMPLIANCES AND MOE WATER WELL RECORDS FOR TEST WELLS AND AREA WELL RECORDS

TW1

Ontario — Ministry of the Environment, Conservation and Parks

Tag#:A342163

A342163

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Measurements recorded in: ☐ Metric ☒ Imperial

Well Owner's Information

First Name	Last Name/Organization	E-mail Address	☐ Well Constructed by Well Owner
	2873633 Ontario Inc		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
Unit 1-210 Prescott Street, Box 189	Kemptville	ON	K0G 1J0	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
819 County Road 23	Wolford	P/L 1A	B

County/District/Municipality	City/Town/Village	Province	Postal Code
Leeds Grenville	Merrickville	Ontario	

UTM Coordinates NAD 8 3	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
	18	435583	4979206	15R-6660 Part 1-7 / 15R-9295 Part 1	

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	Depth (m/ft) To
	Clay	& Boulders		0'	37'
Black	Limestone			37'	98'
Black	Limestone			98'	102'
Black	Limestone			102'	104'
Black	Limestone			104'	110'

* Test well # 1 of 3

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/cm)
~~43~~	~~33~~	~~Neat cement~~	~~12.48~~
~~33~~	~~0~~	~~Bentonite slurry~~	~~12.8~~
43	33	Neat Cement Slurry	12.48
33	0	Bentonite Slurry	12.6

Method of Construction

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☒ Air percussion ☐ Other, specify

☐ Diamond ☐ Jetting ☐ Driving ☐ Digging

Well Use

☐ Public ☒ Domestic ☐ Livestock ☐ Irrigation ☐ Industrial ☐ Other, specify

☐ Commercial ☐ Municipal ☐ Test Hole ☐ Cooling & Air Conditioning

☐ Not used ☐ Dewatering ☐ Monitoring

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6 1/4"	Steel	.188"	+2'	43'
6 1/8"	Open Hole		43'	110'

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

☒ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Water Details

Water found at Depth	Kind of Water	Hole Diameter Depth From	Depth To	Diameter (cm/in)
~~98~~ (m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify	0'	43'	9 3/4"
~~102~~ 103 (m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify	43'	110'	6 1/8"
~~104~~ 104 (m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify			

Results of Well Yield Testing

After test of well yield, water was: ☐ Clear and sand free ☐ Other, specify — Not tested

If pumping discontinued, give reason: X

Pump intake set at (m/ft): 100

Pumping rate (l/min / GPM): 20

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): ~~14'8"~~

If flowing give rate (l/min/GPM): X

Recommended pump depth (m/ft): 80'

Recommended pump rate (l/min/GPM): 10

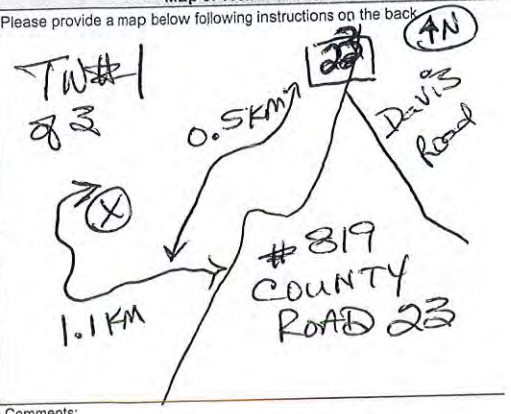
Well production (l/min/GPM): 20

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	14'2"		14.8'
1	14.5	1	14.2
2	14.5	2	14.2
3	14.5	3	14.2
4	14.5	4	14.2
5	14.6	5	14.2
10	14.6	10	14.2
15	14.6	15	14.2
20	14.7	20	14.2
25	14.7	25	14.2
30	14.7	30	14.2
40	14.8	40	14.2
50	14.8'	50	14.2'
60		60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments: 1/2HR 10GPM Sost @ 80 Ft

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Air Rock Drilling Co. Ltd.	7001

Business Address (Street Number/Name)	Municipality
6659 Franktown Road	Richmond

Province	Postal Code	Business E-mail Address
ON	K0A 2Z0	air.rock@sympatico.ca

Business Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
6139382170	Hanna, Jeremy

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
T3632		2022 03 31

Well owner's information package delivered: ☒ Yes ☐ No

Date Package Delivered: 2022 03 03

Date Work Completed: 2022 02 28

Ministry Use Only

Audit No. Z379214

Received

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Ministry's Copy

CERTIFICATE OF WELL COMPLIANCE

I (Jeremy Hanna) AIR ROCK DRILLING CO. LTD. - DO HEREBY CERTIFY that I am licensed to drill water wells in the Province of Ontario, and that I have supervised the drilling of the water well on the property of :

OWNER: 2873633 ONTARIO INC.

Location: # 819 COUNTY ROAD 23, Merrickville

LOT: Part 1A **CON:** B. **PLAN #** 15R-6660 Part 1-7 15R-9295 **S/L #** Part 7

COUNTY: Leeds Grenville

Geographical Township of Wolford

I CERTIFY FURTHER that, I am aware of the well drilling requirements, the guidelines, recommendations and regulations of the Ministry of the Environment governing well installations in the Province of Ontario, and the standards specified in any subdivision agreement and hydrogeological report applicable to this site and City Standards.

AND DO HEREBY CERTIFY THAT the said well has been drilled, cased, grouted (cement or bentonite) as applicable and constructed in strict conformity with the standards required.

Signed this 28TH Day of February, 2022

Jeremy Hanna (T3632) Air Rock Drilling Co. Ltd. (C-7681)

The Engineer on behalf of the Landowner set out above, Certifies that he/she has inspected the well and it was constructed in accordance with the specifications in O.Reg 903, this report ~~and the Hydrogeological Report~~ with regards to casing length and grouting requirements.

Signed this 3rd day of May, 2022

(Engineer)

air-rock@sympatico.ca

Kollaard Associates
Engineers
P.O. Box 189
210 Prescott Street, Unit 1
Kemptville, Ontario K0G 1J0

TW# 1 8 3
2022 1 12
A 342163

TW2

Ontario — Ministry of the Environment, Conservation and Parks

Well Tag#:A342162 (nt Below)

A342162

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Measurements recorded in: ☐ Metric ☒ Imperial

Well Owner's Information

First Name	Last Name/Organization	E-mail Address	☐ Well Constructed by Well Owner
	2873633 Ontario Inc		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
Unit 1 210 Prescott Street Box 189	Kemptville	ON	K0G 1J0	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
819 County Road 23	Wolford	P/L 1A	B

County/District/Municipality	City/Town/Village	Province	Postal Code
Leeds Grenville	Merrickville	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	435514	4979446	15R-6660 Part 1-7 / 15R-9295 Part 1	

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	Depth (m/ft) To
	(Hard) Clay	& Boulders		0	34
Grey & Black	Limestone			34	134
Grey & Black	Limestone			134	140

* Test well #2 of 2

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
40	30	Neat cement	12.48
30	0	Bentonite slurry	8.4

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, specify SURGED

Well Use

☐ Public ☐ Commercial ☐ Not used
☒ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ 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) From	Depth (m/ft) To
6 1/4"	Steel	.188"	+2	40
6 1/8"	Open Hole		40	140

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

☒ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Water Details

Water found at Depth (m/ft)	Kind of Water	Hole Diameter Depth (m/ft) From	To	Diameter (cm/in)
134 ☐ Gas	☐ Fresh ☒ Untested ☐ Other, specify	0	40	9 3/4"
(m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify	40	140	6 1/8"
(m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify			

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, specify **Not tested**

If pumping discontinued, give reason: X

Pump intake set at (m/ft): 120

Pumping rate (l/min/GPM): 15

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 36.3

If flowing give rate (l/min/GPM): X

Recommended pump depth (m/ft): 100

Recommended pump rate (l/min/GPM): 10

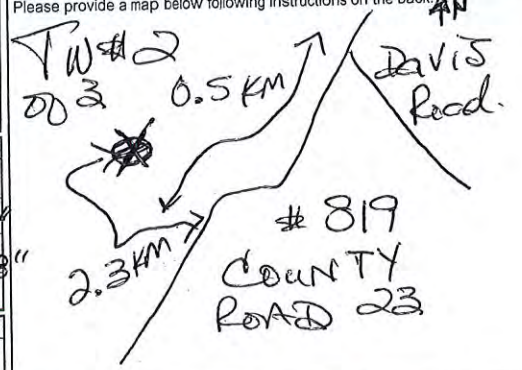
Well production (l/min/GPM): 15

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	63"		36.3
1	15	1	24.8
2	20.7	2	18.5
3	24.7	3	15.1
4	27.6	4	12.5
5	29.6	5	10.9
10	34.1	10	7.2
15	35.5	15	6.3
20	35.9	20	6.3
25	36.1	25	6.3
30	36.1	30	6.3
40	36.2	40	6.3
50	36.2	50	6.3
60	36.3	60	6.3

Map of Well Location

Please provide a map below following instructions on the back.



Comments: 1/2HP. 10GPM Set @ 100 FT

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Air Rock Drilling Co. Ltd.	7681

Business Address (Street Number/Name)	Municipality
6859 Franktown Road	Richmond

Province	Postal Code	Business E-mail Address
ON	K0A 2Z0	air-rock@sympatico.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
6138382170	Hanna, Jeremy

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted (Y Y Y Y M M D D)
13632		2022 03 31

Well owner's information package delivered	Date Package Delivered (Y Y Y Y M M D D)
☒ Yes ☐ No	2022 03 01

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Audit No. Z379215

Received

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CERTIFICATE OF WELL COMPLIANCE

I (Jeremy Hanna) AIR ROCK DRILLING CO. LTD. - DO HEREBY CERTIFY that I am licensed to drill water wells in the Province of Ontario, and that I have supervised the drilling of the water well on the property of :

OWNER: 2873633 ONTARIO INC.

Location: # 819 COUNTY ROAD 23, Merrickville

LOT: Part 1A **CON:** B. **PLAN #** 15R-6660 Part 1-7 15R-9295 **S/L #** Part 7

COUNTY: Leeds Grenville

Geographical Township of Wolford

I CERTIFY FURTHER that, I am aware of the well drilling requirements, the guidelines, recommendations and regulations of the Ministry of the Environment governing well installations in the Province of Ontario, and the standards specified in any subdivision agreement and hydrogeological report applicable to this site and City Standards.

AND DO HEREBY CERTIFY THAT the said well has been drilled, cased, grouted (cement or bentonite) as applicable and constructed in strict conformity with the standards required.

Signed this 1st Day of March, 2022

Jeremy Hanna (T3632) Air Rock Drilling Co. Ltd. (C-7681)

The Engineer on behalf of the Landowner set out above, Certifies that he/she has inspected the well and it was constructed in accordance with the specifications in O.Reg 903, this report ~~and the Hydrogeological Report~~ with regards to casing length and grouting requirements.

Signed this 3rd day of May, 2022

(Engineer)

Kollaard Associates
Engineers
P.O. Box 189
210 Prescott Street, Unit 1
Kemptville, Ontario K0G 1J0

air-rock@sympatico.ca

TW# 2803
20220113
A342162

TW3

Ontario — Ministry of the Environment, Conservation and Parks

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Measurements recorded in: ☐ Metric ☒ Imperial

We Tag#: A342161 (Print Below)

A342161

Well Owner's Information

First Name	Last Name/Organization	E-mail Address	☐ Well Constructed by Well Owner
	2873633 Ontario Inc		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
Unit 1 210 Prescott Street, Box 189	Kemptville	ON	K0G 1J0	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
819 County Road 23	Wolford	P/L 1A	B

County/District/Municipality	City/Town/Village	Province	Postal Code
Leeds Grenville	Merrickville	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	435868	4978811	15R-6660 Part 1-7 / 15R-9295 Part 1	

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	Depth (m/ft) To
	Clay	& Boulders		0	36
Grey & Black	Limestone			36	75
Grey & Black	Limestone			75	82

#1 Test well 3 of 3

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
42	32	Neat cement	10.92
32	0	Bentonite slurry	8.4

Method of Construction

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☒ Air percussion ☐ Other, specify

☐ Diamond ☐ Jetting ☐ Driving ☐ Digging

Well Use

☐ Public ☒ Domestic ☐ Livestock ☐ Irrigation ☐ Industrial ☐ Other, specify

☐ Commercial ☐ Municipal ☐ Test Hole ☐ Cooling & Air Conditioning

☐ Not used ☐ Dewatering ☐ Monitoring

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6¼"	Steel	.188"	+2	42
6⅛"	Open Hole		42	82

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

☒ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
75	☐	☐ Fresh ☒ Untested	
	☐	☐ Fresh ☐ Untested	
	☐	☐ Fresh ☐ Untested	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	42	9¾"
42	82	6⅛"

Results of Well Yield Testing

After test of well yield, water was: ☐ Clear and sand free ☐ Other, specify **Not tested**

If pumping discontinued, give reason: X

Pump intake set at (m/ft): 70

Pumping rate (l/min / GPM): 10

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 24.3

If flowing give rate (l/min/GPM): X

Recommended pump depth (m/ft): 70

Recommended pump rate (l/min/GPM): 10

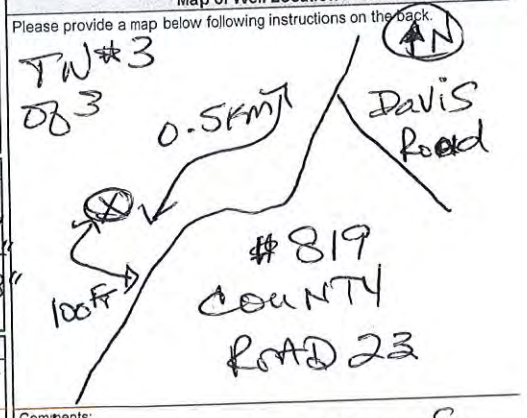
Well production (l/min/GPM): 10

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	22		24.3
1	23.8	1	23.5
2	23.8	2	23
3	23.9	3	22.8
4	23.9	4	22.6
5	24	5	22.5
10	24.1	10	22.1
15	24.1	15	22
20	24.2	20	22
25	24.2	25	22
30	24.2	30	22
40	24.2	40	22
50	24.3	50	22
60	24.3	60	22

Map of Well Location

Please provide a map below following instructions on the back.



Comments: 1½HP 10GPM SET@70 ft

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Air Rock Drilling Co. Ltd.	7681

Business Address (Street Number/Name)	Municipality
6869 Frankford Road	Richmond

Province	Postal Code	Business E-mail Address
ON	K0A 2Z0	air-rock@sympatico.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
6138382170	Hanna, Jeremy

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted (Y Y Y Y M M D D)
13652		2022 03 31

Well owner's information package delivered	Date Package Delivered (Y Y Y Y M M D D)
☒ Yes ☐ No	2022 03 03

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Audit No. Z 379216

Received

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CERTIFICATE OF WELL COMPLIANCE

I (Jeremy Hanna) AIR ROCK DRILLING CO. LTD. - DO HEREBY CERTIFY that I am licensed to drill water wells in the Province of Ontario, and that I have supervised the drilling of the water well on the property of :

OWNER: 2873633 ONTARIO INC.

Location: # 819 COUNTY ROAD 23, Merrickville

LOT: Part 1A **CON:** B. **PLAN #** 15R-6660 Part 1-7 15R-9295 **S/L #** Part 7

COUNTY: Leeds Grenville

Geographical Township of Wolford

I CERTIFY FURTHER that, I am aware of the well drilling requirements, the guidelines, recommendations and regulations of the Ministry of the Environment governing well installations in the Province of Ontario, and the standards specified in any subdivision agreement and hydrogeological report applicable to this site and City Standards.

AND DO HEREBY CERTIFY THAT the said well has been drilled, cased, grouted (cement or bentonite) as applicable and constructed in strict conformity with the standards required.

Signed this 2ND Day of March, 2022

Jeremy Hanna (T3632) Air Rock Drilling Co. Ltd. (C-7681)

The Engineer on behalf of the Landowner set out above, Certifies that he/she has inspected the well and it was constructed in accordance with the specifications in O.Reg 903, this report ~~and the Hydrogeological Report~~ with regards to casing length and grouting requirements.

Signed this 3rd day of May, 2022

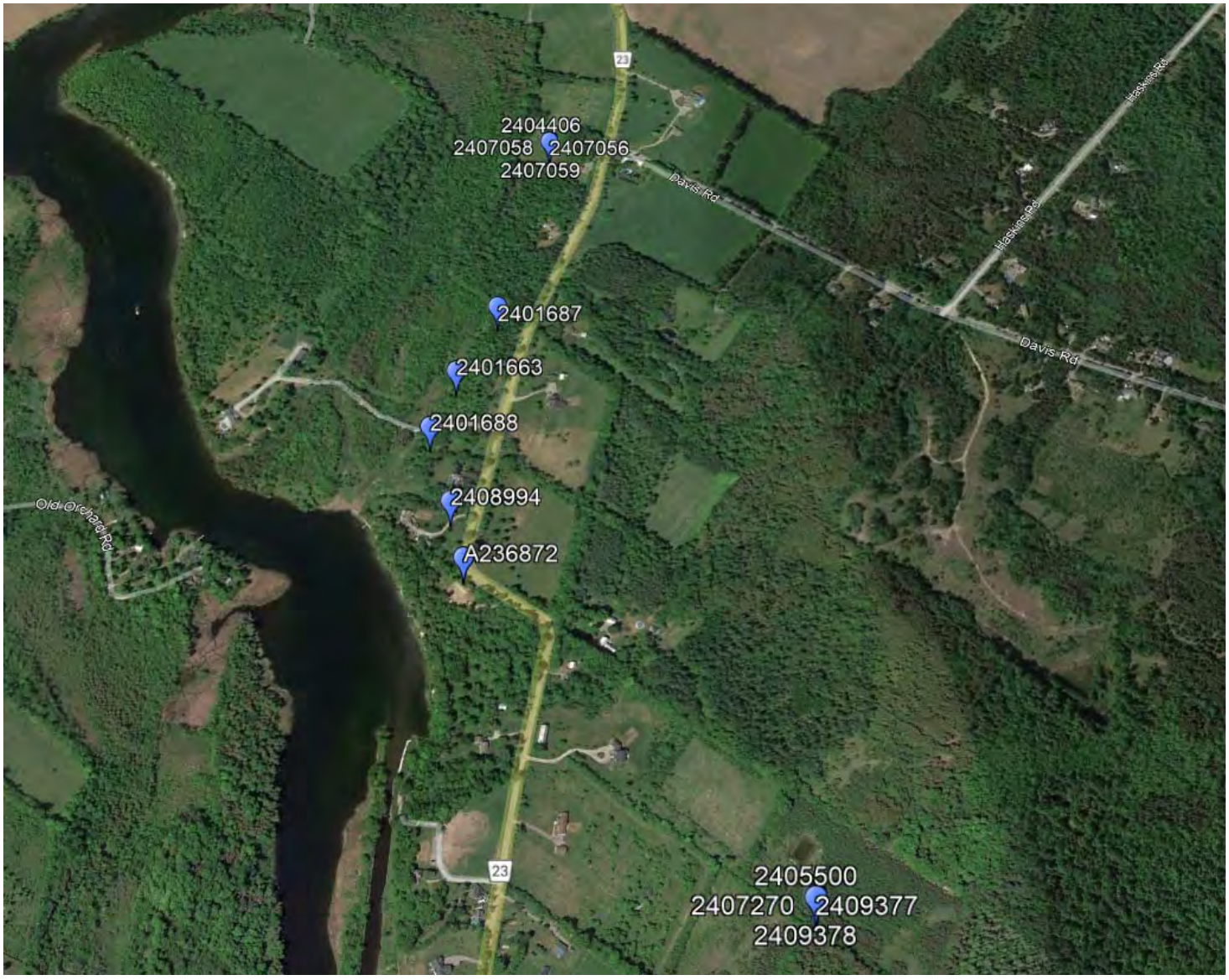
(Engineer)

air-rock@sympatico.ca

Kollaard Associates
Engineers
P.O. Box 189
210 Prescott Street, Unit 1
Kemptville, Ontario K0G 1J0

TW# 3803
2022114
A342161

REGIONAL WELLS MAP



NOT TO SCALE

Kollaard Associates
Engineers

Project No. 210816

Date January 2025