APPENDIX B

Tier Three Project Borehole Logs

PROJECT: 08-1112-0021

LOCATION: N 4824026.4 ;E 555101.1

RECORD OF DRILLHOLE: MW08-T3-01

DRILLING DATE: 08/07/2008

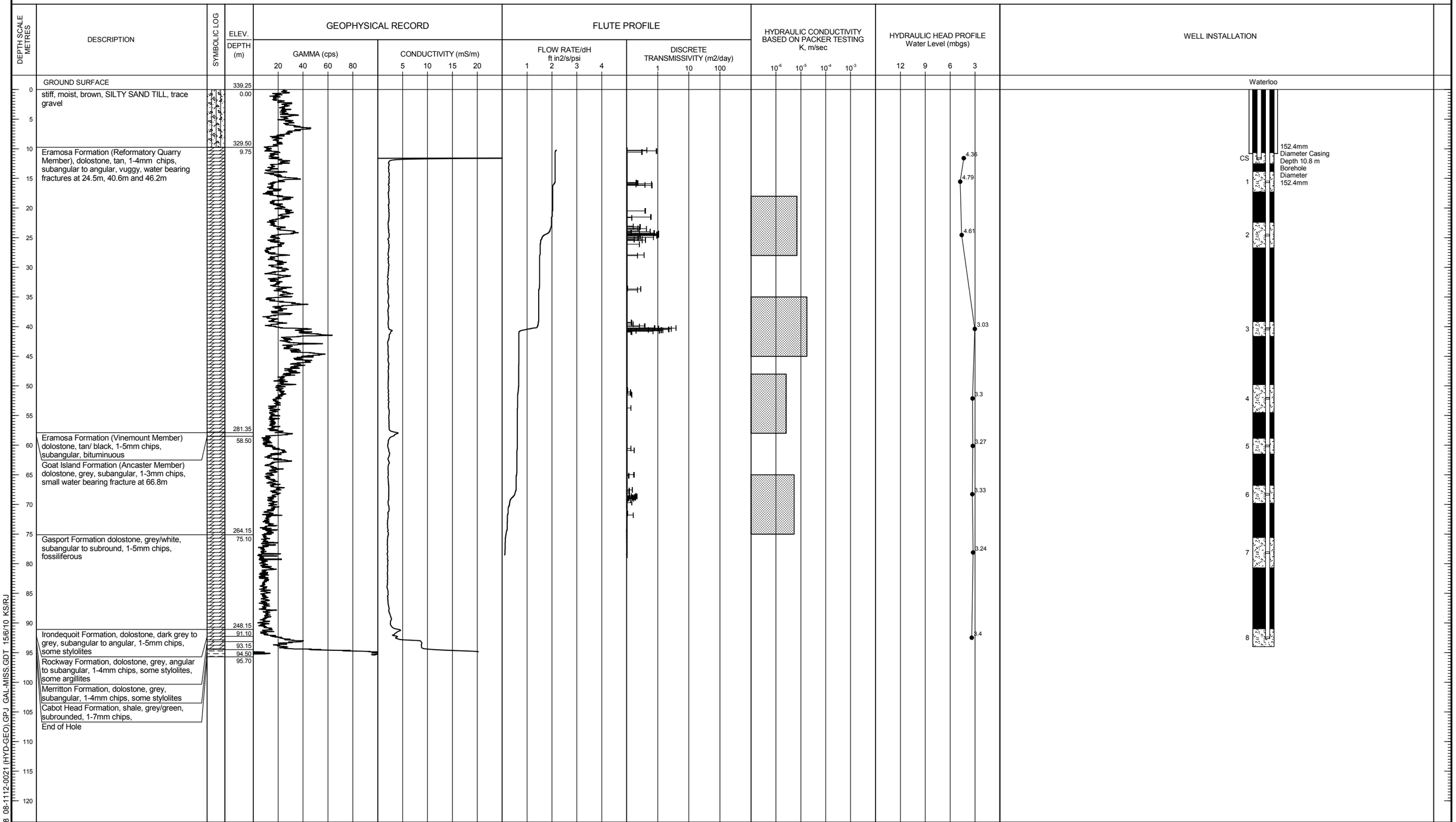
DRILL RIG: Air Rotary

DRILLING CONTRACTOR: Gerrits Well Drilling

SHEET 1 OF 1

DATUM: Local

DESCRIPTION	ELEV. / DEPTH (m)
GROUND SURFACE	339.25 / 0.00
stiff, moist, brown, SILTY SAND TILL, trace gravel	329.50 / 9.75
Eramosa Formation (Reformatory Quarry Member), dolostone, tan, 1-4mm chips, subangular to angular, vuggy, water bearing fractures at 24.5m, 40.6m and 46.2m	281.35 / 58.50
Eramosa Formation (Vinemount Member) dolostone, tan/ black, 1-5mm chips, subangular, bituminuous	
Goat Island Formation (Ancaster Member) dolostone, grey, subangular, 1-3mm chips, small water bearing fracture at 66.8m	264.15 / 75.10
Gasport Formation dolostone, grey/white, subangular to subround, 1-5mm chips, fossiliferous	248.15 / 91.10
Irondequoit Formation, dolostone, dark grey to grey, subangular to angular, 1-5mm chips, some stylolites	93.15 / 94.50
Rockway Formation, dolostone, grey, angular to subangular, 1-4mm chips, some stylolites, some argillites	95.70
Merritton Formation, dolostone, grey, subangular, 1-4mm chips, some stylolites	
Cabot Head Formation, shale, grey/green, subrounded, 1-7mm chips,	
End of Hole	



DEPTH SCALE

1 : 600

LOGGED: KS

CHECKED: JP

MIS-HYD 008 08-1112-0021 (HYD-GEO).GPJ GAL-MISS.GDT 15/6/10 KS/RJ

PROJECT: 08-1112-0021

LOCATION: N 4830632.5 ;E 559361.5

RECORD OF DRILLHOLE: MW08-T3-02

DRILLING DATE: 09/09/2008

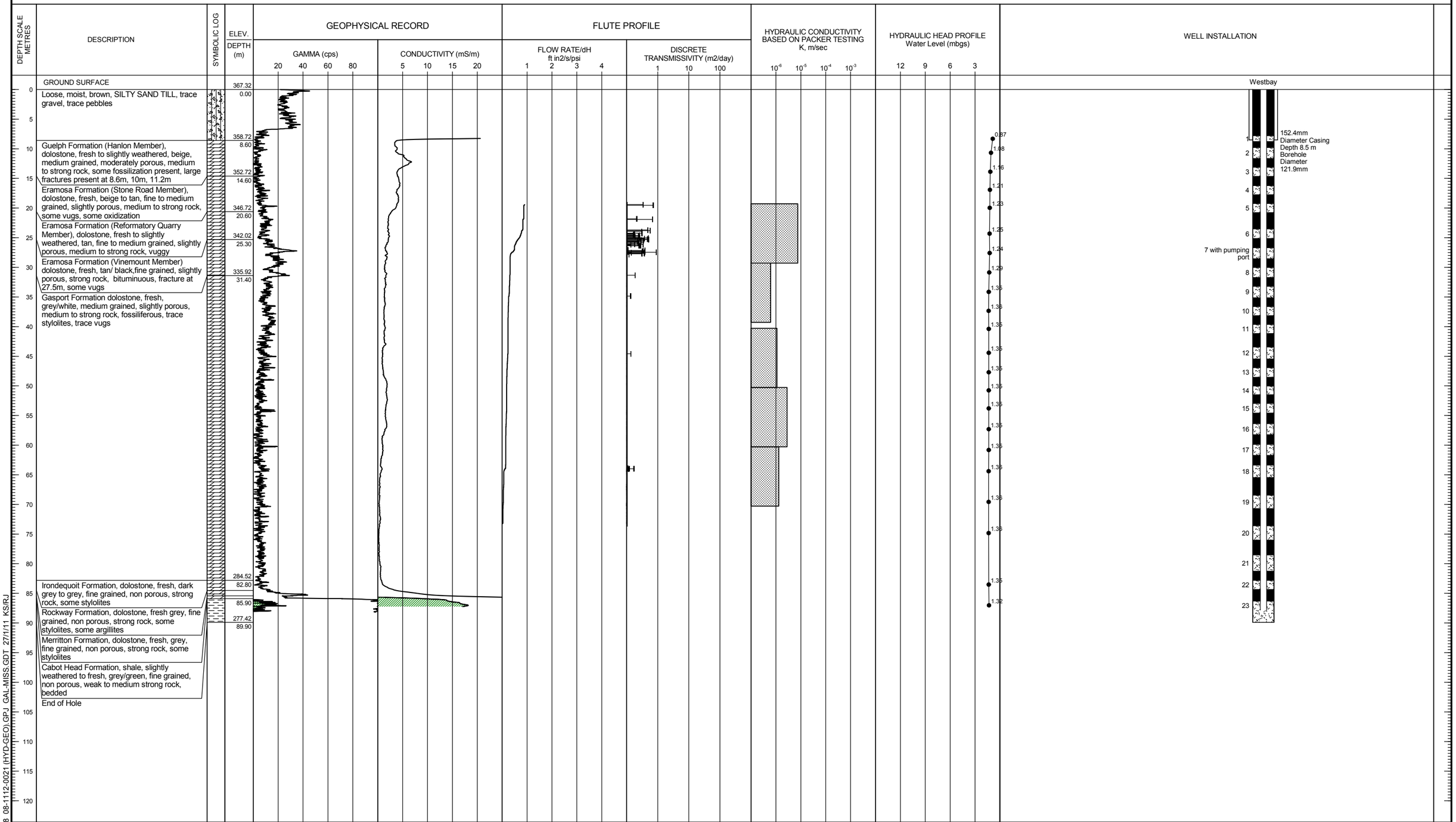
DRILL RIG: CME 75

DRILLING CONTRACTOR: Aardvark Drilling

SHEET 1 OF 1

DATUM: Local

DESCRIPTION	ELEV. / DEPTH (m)
GROUND SURFACE	367.32 / 0.00
Loose, moist, brown, SILTY SAND TILL, trace gravel, trace pebbles	358.72 / 8.60
Guelph Formation (Hanlon Member), dolostone, fresh to slightly weathered, beige, medium grained, moderately porous, medium to strong rock, some fossilization present, large fractures present at 8.6m, 10m, 11.2m	352.72 / 14.60
Eramosa Formation (Stone Road Member), dolostone, fresh, beige to tan, fine to medium grained, slightly porous, medium to strong rock, some vugs, some oxidization	346.72 / 20.60
Eramosa Formation (Reformatory Quarry Member), dolostone, fresh to slightly weathered, tan, fine to medium grained, slightly porous, medium to strong rock, vuggy	342.02 / 25.30
Eramosa Formation (Vinemount Member) dolostone, fresh, tan/ black,fine grained, slightly porous, strong rock, bituminous, fracture at 27.5m, some vugs	335.92 / 31.40
Gasport Formation dolostone, fresh, grey/white, medium grained, slightly porous, medium to strong rock, fossiliferous, trace stylolites, trace vugs	
Irondequoit Formation, dolostone, fresh, dark grey to grey, fine grained, non porous, strong rock, some stylolites	284.52 / 82.80
Rockway Formation, dolostone, fresh grey, fine grained, non porous, strong rock, some stylolites, some argillites	277.42 / 89.90
Merritton Formation, dolostone, fresh, grey, fine grained, non porous, strong rock, some stylolites	
Cabot Head Formation, shale, slightly weathered to fresh, grey/green, fine grained, non porous, weak to medium strong rock, bedded	
End of Hole	



DEPTH SCALE

1 : 600

Golder Associates

LOGGED: KS

CHECKED: JP

MIS-HYD 008 08-1112-0021 (HYD-GEO).GPJ GAL-MISS.GDT 27/1/11 KS/RJ

PROJECT: 08-1112-0021

LOCATION: N 4835572.2 ;E 563028.6

RECORD OF DRILLHOLE: MW08-T3-03

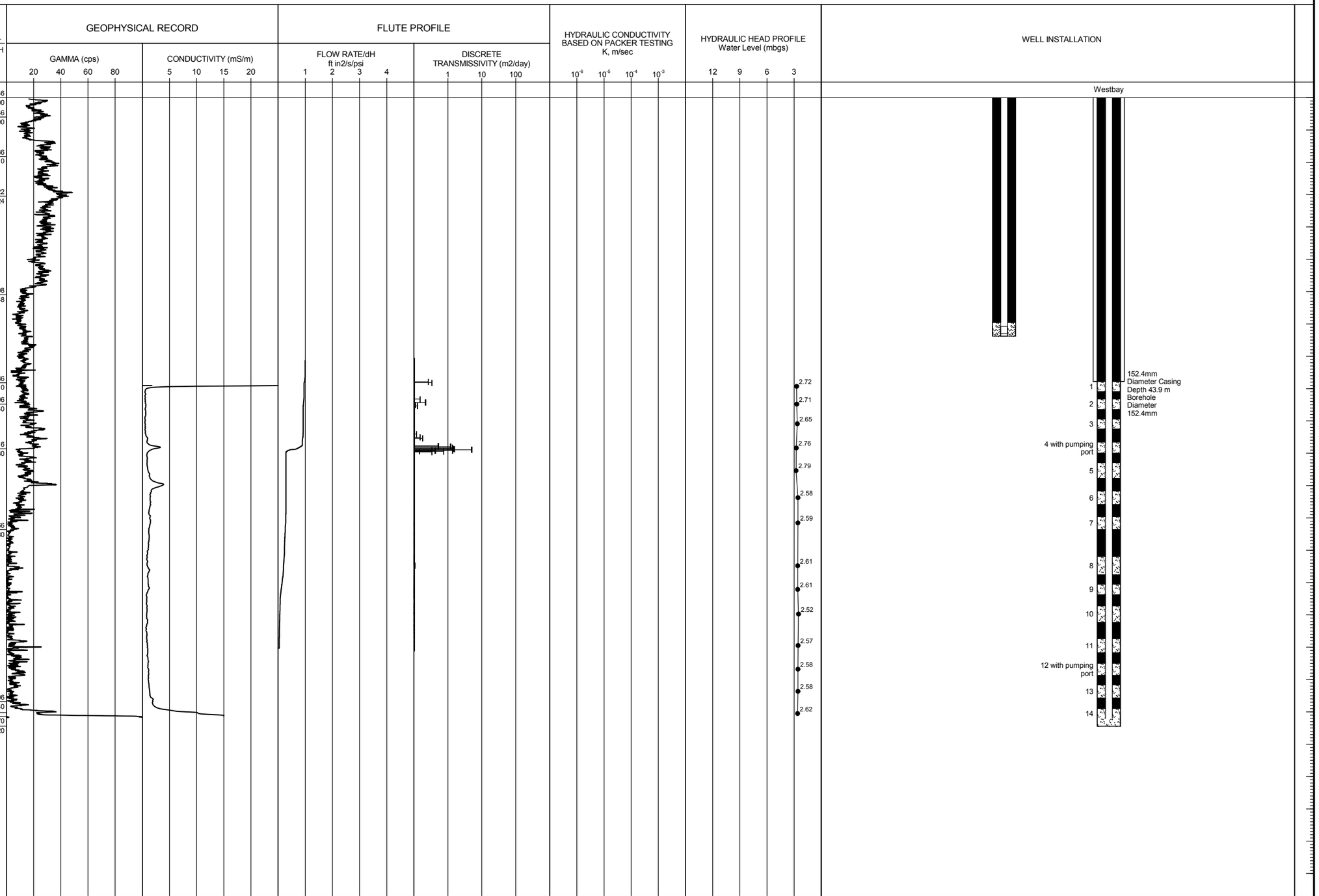
DRILLING DATE: 28/07/2008

DRILL RIG: Air Rotary

DRILLING CONTRACTOR: Gerrits Well Drilling

DATUM: Local

DESCRIPTION	ELEV. DEPTH (m)
GROUND SURFACE	399.46
loose, moist, brown, SILTY SAND, trace gravel, trace rootlets	0.00 / 396.46
loose, moist to saturated, brown, Medium to fine SILTY SAND AND GRAVEL	3.00 / 390.36
stiff, wet, brown, SILTY SAND	9.10 / 384.22
stiff, moist to wet, brown to grey, CLAYEY SILT TILL, some gravel, some pebbles	15.24 / 368.98
Eramosa Formation (Stone Road Member), dolostone, fresh, beige to tan,1-4mm chips, some oxidization	30.48 / 355.36
Eramosa Formation (Reformatory Quarry Member), dolostone, tan, 1-6mm chips, subangular to angular, some chert nodules, some argillite bands	44.10 / 352.06
Eramosa Formation (Vinemount Member) dolostone, brown/black, 1-5mm chips, subangular, bituminuous, vuggy at 54.2m	47.40 / 345.16
Goat Island Formation (Niagara Falls Member) dolostone, brown to grey, subangular, 1-5mm chips, vuggy from 64.9m to 65.4m, some argillite bands, some stylolites, some chert nodules present	54.30 / 332.66
Gasport Formation dolostone, grey/white, subangular to subround, 1-5mm chips, fossiliferous, trace vugs, some stylolites, trace gypsum nodes	66.80 / 306.06
Irondequoit Formation, dolostone, dark grey to grey, subangular to angular, 1-5mm chips, some stylolites, some gypsum nodes	93.40 / 95.70
Rockway Formation, dolostone, grey, angular to subangular, 1-5mm chips	97.20
Cabot Head Formation, shale, grey/green, subrounded, 1-6mm chips	
End of Hole	



DEPTH SCALE

1 : 600

Golder Associates

LOGGED: KS

CHECKED: JP

MIS-HYD 008 08-1112-0021 (HYD-GEO).GPJ GAL-MISS.GDT 27/1/11 KS/RJ

PROJECT: 08-1112-0021

LOCATION: N 4836466.6 ;E 552653.9

RECORD OF DRILLHOLE: MW08-T3-04

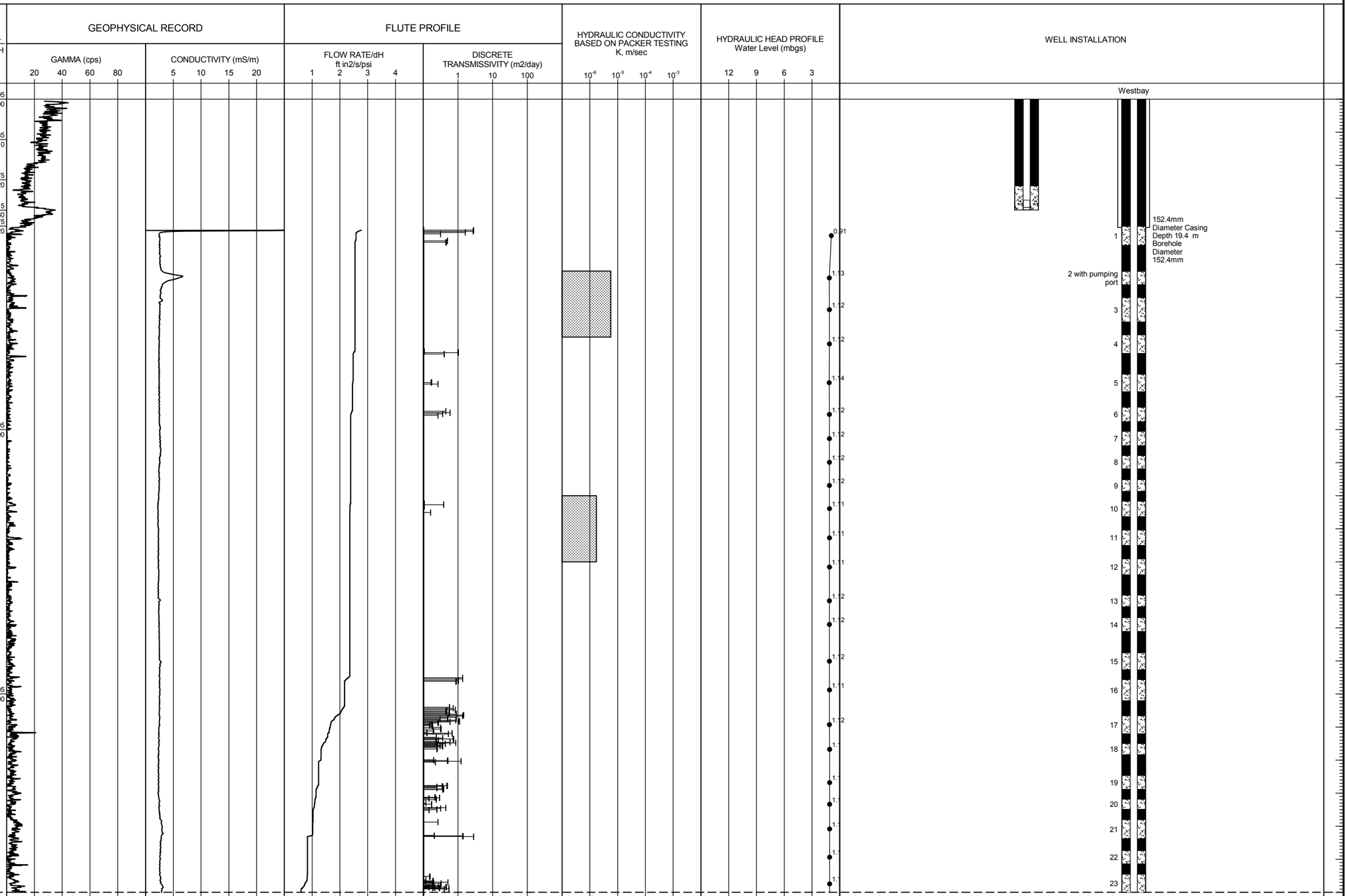
DRILLING DATE: 06/08/2008

DRILL RIG: Air Rotary

DRILLING CONTRACTOR: Gerrits Well Drilling

DATUM: Local

DESCRIPTION	ELEV. / DEPTH (m)
GROUND SURFACE	413.95
loose, moist, brown, SILTY SAND, trace gravel, trace rootlets	0.00
stiff, wet, brown, SILTY SAND,some gravel, trace clay	407.85 / 6.10
loose, saturated, brown, very course SILTY SAND AND GRAVEL, some pebbles, (becoming silty at 15.2m)	401.75 / 12.20
stiff, moist to wet, brown to grey, SANDY SILT, some gravel, some clay	397.15 / 16.80
Guelph Formation (Hanlon Member), dolostone, beige, subround to subangular, 1-7mm chips, some fossilization present, vuggy, large fractures and voids present at 19.8m, 26.4m (water bearing), 30.6m, 32.9m, 42m	394.75 / 19.20
Goat Island Formation (Niagara Falls Member) dolostone, brown to grey, subangular, 1-5mm chips, fractures and voids at 75.8m, 85.2m , large vugs present at 68m	363.95 / 50.00
Gasport Formation dolostone, grey/white, subangular to subround, 1-5mm chips, fossiliferous, large vugs at 90.2m, 95.4m, 106.2m, 109.4m, 119m, 122m, 124m	323.95 / 90.00



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DEPTH SCALE

1 : 600

Golder Associates

LOGGED: KS

CHECKED: JP

PROJECT: 08-1112-0021

LOCATION: N 4836466.6 ;E 552653.9

RECORD OF DRILLHOLE: MW08-T3-04

DRILLING DATE: 06/08/2008

DRILL RIG: Air Rotary

DRILLING CONTRACTOR: Gerrits Well Drilling

DATUM: Local

DEPTH SCALE METRES	DESCRIPTION	SYMBOLIC LOG	ELEV. / DEPTH (m)
	--- CONTINUED FROM PREVIOUS PAGE ---		
120–135	Gasport Formation dolostone, grey/white, subangular to subround, 1-5mm chips, fossiliferous, large vugs at 90.2m, 95.4m, 106.2m, 109.4m, 119m, 122m, 124m		274.95
140	Irondequoit Formation, dolostone, dark grey to grey, subangular to angular, 1-5mm chips, trace stylolites		141.40
145	Rockway Formation, dolostone, grey, angular to subangular, 1-4mm chips, trace stylolites, trace argillites		270.05
150	Merritton Formation, dolostone, grey, subangular, 1-4mm chips, trace stylolites		143.90
155	Cabot Head Formation, shale, grey/green, subrounded, 1-7mm chips		
	End of Hole		

GEOPHYSICAL RECORD: GAMMA (cps) 20 40 60 80; CONDUCTIVITY (mS/m) 5 10 15 20

FLUTE PROFILE: FLOW RATE/dH ft in2/s/psi 1 2 3 4; DISCRETE TRANSMISSIVITY (m2/day) 1 10 100

HYDRAULIC CONDUCTIVITY BASED ON PACKER TESTING K, m/sec: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

HYDRAULIC HEAD PROFILE Water Level (mbgs): 12 9 6 3

WELL INSTALLATION: Westbay

24 with pumping port

25

26

27

28

DEPTH SCALE

1 : 600

Golder Associates

LOGGED: KS

CHECKED: JP

PROJECT: 08-1112-0021

LOCATION: N 4845823.6 ;E 562220.3

RECORD OF DRILLHOLE: MW08-T3-05

DRILLING DATE: 15/09/2008

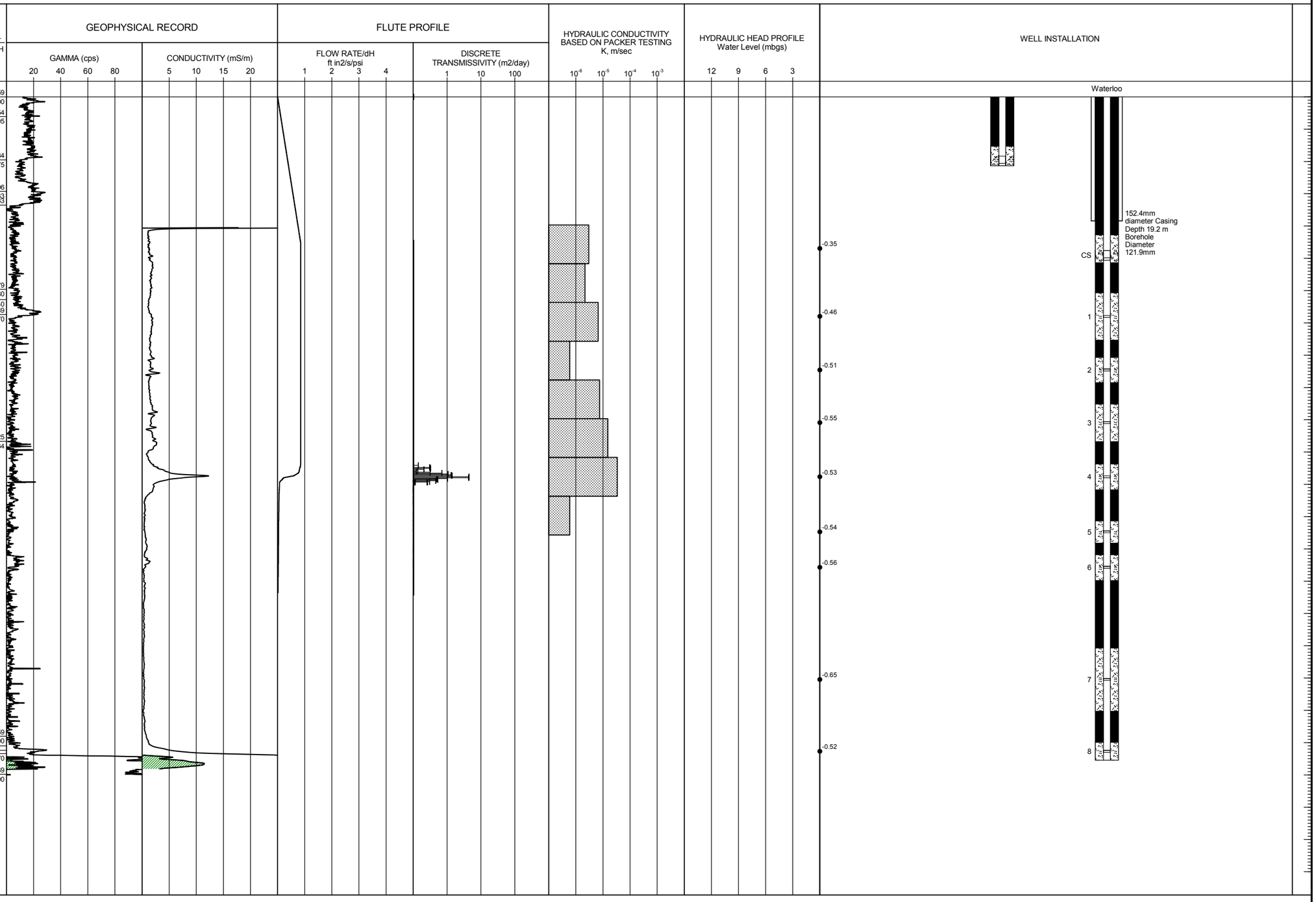
DRILL RIG: CME 75

DRILLING CONTRACTOR: Aardvark Drilling

SHEET 1 OF 1

DATUM: Local

DEPTH (m)	DESCRIPTION	ELEV.
	GROUND SURFACE	427.59
0	loose, moist, brown, SAND, trace pebbles, trace rootlets	0.00 / 424.54
	stiff, wet, brown, SILTY SAND	3.05 / 417.84
10	loose, saturated, brown, very course SAND AND GRAVEL, some pebbles	9.75 / 412.96
15	stiff, moist to wet, brown to grey, CLAYEY SILT TILL, some gravel, some pebbles	14.63 / 410.83
20	Eramosa Formation (Stone Road Member), dolostone, fresh, beige to tan, fine to medium grianed, slightly porous, medium to strong rock, trace vugs, trace oxidization, fractures and voids present at 21.8m (water bearing), 24.8m	
30	Eramosa Formation (Reformatory Quarry Member), dolostone, fresh, tan, fine to medium grained, slightly porous, medium to strong rock, some vugs	29.80 / 397.79 / 31.40 / 393.89 / 33.70
40	Eramosa Formation (Vinemount Member) dolostone, fresh, brown/black, fine to medium grained, slightly porous, medium strong, bituminuous, trace vugs, trace argillite bands	
50	Goat Island Formation (Niagara Falls Member) dolostone, slightly weathered, brown to grey, fine to medium grained, moderately porous, medium strong rock, vuggy, trace stylolites, fractures and voids present at 42.8m, 48.8m and 51.2m	374.25
55	Gasport Formation dolostone, fresh to slightly weathered, grey/white, medium grained, slightly porous, medium strong rock, fossiliferous, trace vugs, some stylolites, large void present at 58.6m	53.34
100	Irondequoit Formation, dolostone, fresh, dark grey to grey, fine grained, non porous, medium to strong rock, some stylolites	328.59 / 99.00
105	Rockway Formation, dolostone, fresh, grey, fine grained, non porous, strong rock	101.70 / 322.69 / 104.90
110	Merritton Formation, dolostone, fresh, grey, fine grained, non porous, strong rock, trace stylolites	
115	Cabot Head Formation, shale, fresh, grey/green, fine grained, non porous, weak to medium strong rock, bedded	
	End of Hole	



DEPTH SCALE

1 : 600

LOGGED: KS

CHECKED: JP

MIS-HYD 008 08-1112-0021 (HYD-GEO).GPJ GAL-MISS.GDT 15/6/10 KS/RJ

PROJECT: 08-1112-0021

LOCATION: N 4834617.4 ;E 568274.1

RECORD OF DRILLHOLE: MW08-T3-06

DRILLING DATE: 19/09/2008

DRILL RIG: CME 75

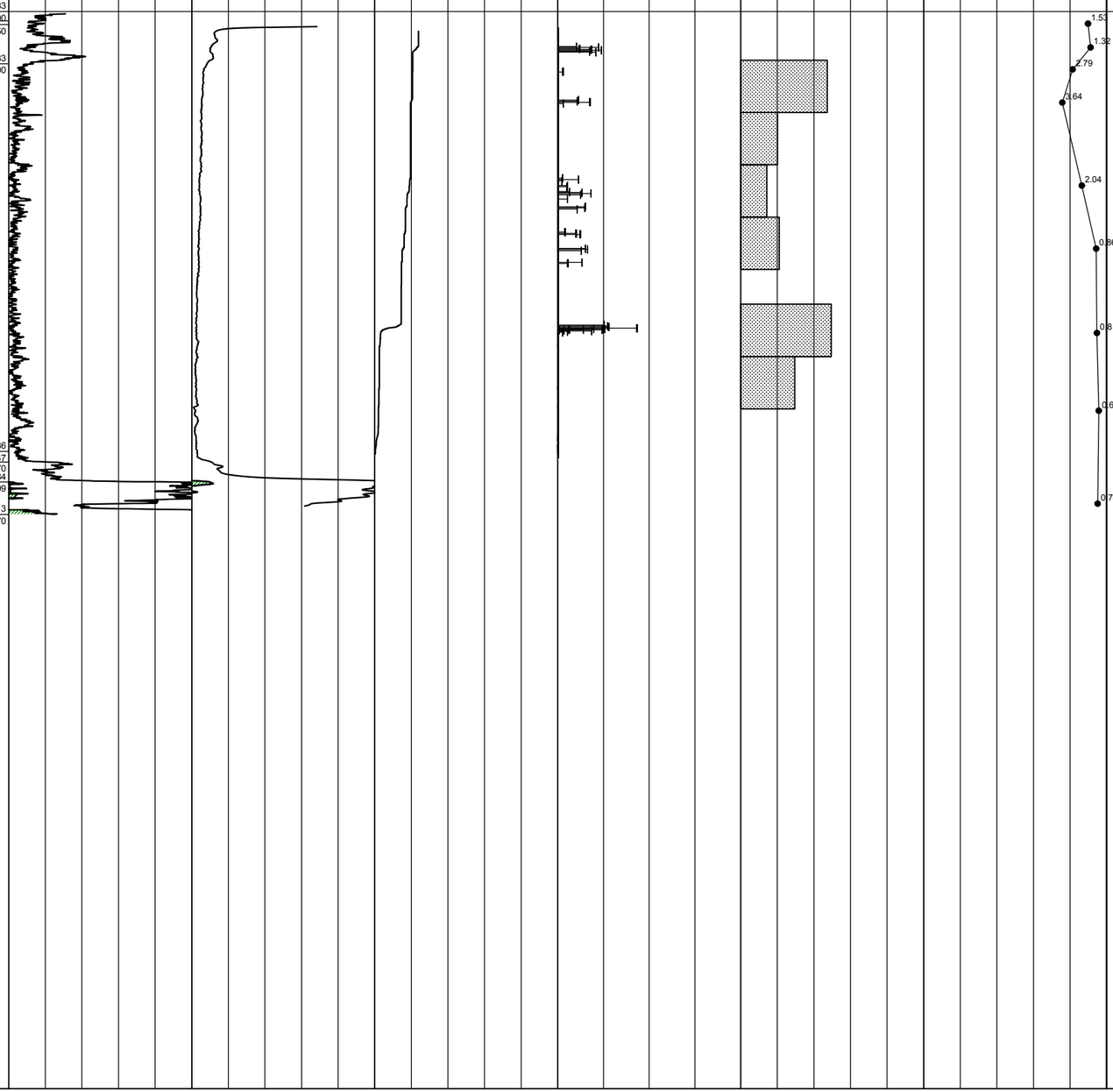
DRILLING CONTRACTOR: Aardvark Drilling

SHEET 1 OF 1

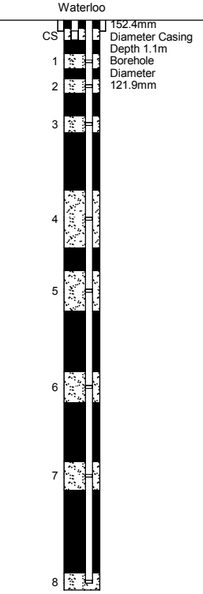
DATUM: Local

DESCRIPTION	ELEV. / DEPTH (m)
GROUND SURFACE	365.83
loose, moist, brown, SILTY SAND, trace gravel, trace rootlets	0.00 – 1.50
Goat Island Formation (Ancaster Member) dolostone, fresh to slightly weathered, grey, fine to medium grained, slightly to moderately porous, medium strong rock, small water bearing fracture at 1.4m, some chert nodules present	1.50 – 6.00
Goat Island Formation (Niagara Falls Member) dolostone, fresh, brown to grey, fine to medium grained, slightly porous, medium strong rock, trace stylolites, some chert nodules present	6.00 – 50.47
Gasport Formation dolostone, fresh, grey/white, medium grained, slightly porous, medium strong rock, fossiliferous, trace vugs, some stylolites, vuggy at 17.9m	6.00 – 50.47
Irondequoit Formation, dolostone, fresh, dark grey to grey, fine grained, non porous, medium to strong rock, some stylolites, trace gypsum infills	50.47 – 53.99
Rockway Formation, dolostone, fresh, grey, fine grained, non porous, strong rock	53.99 – 57.70
Cabot Head Formation, shale, fresh, grey/green, fine grained, non porous, weak to medium strong rock, bedded	57.70 – End of Hole
End of Hole	57.70

SYMBOLIC LOG



WELL INSTALLATION



DEPTH SCALE

1 : 600

LOGGED: KS

CHECKED: JP

MIS-HYD 008 08-1112-0021 (HYD-GEO).GPJ GAL-MISS.GDT 15/6/10 KS/RJ

PROJECT: 08-1112-0021

LOCATION: N 4828348.6 ;E 564581.3

RECORD OF DRILLHOLE: MW08-T3-07

DRILLING DATE: 30/09/2008

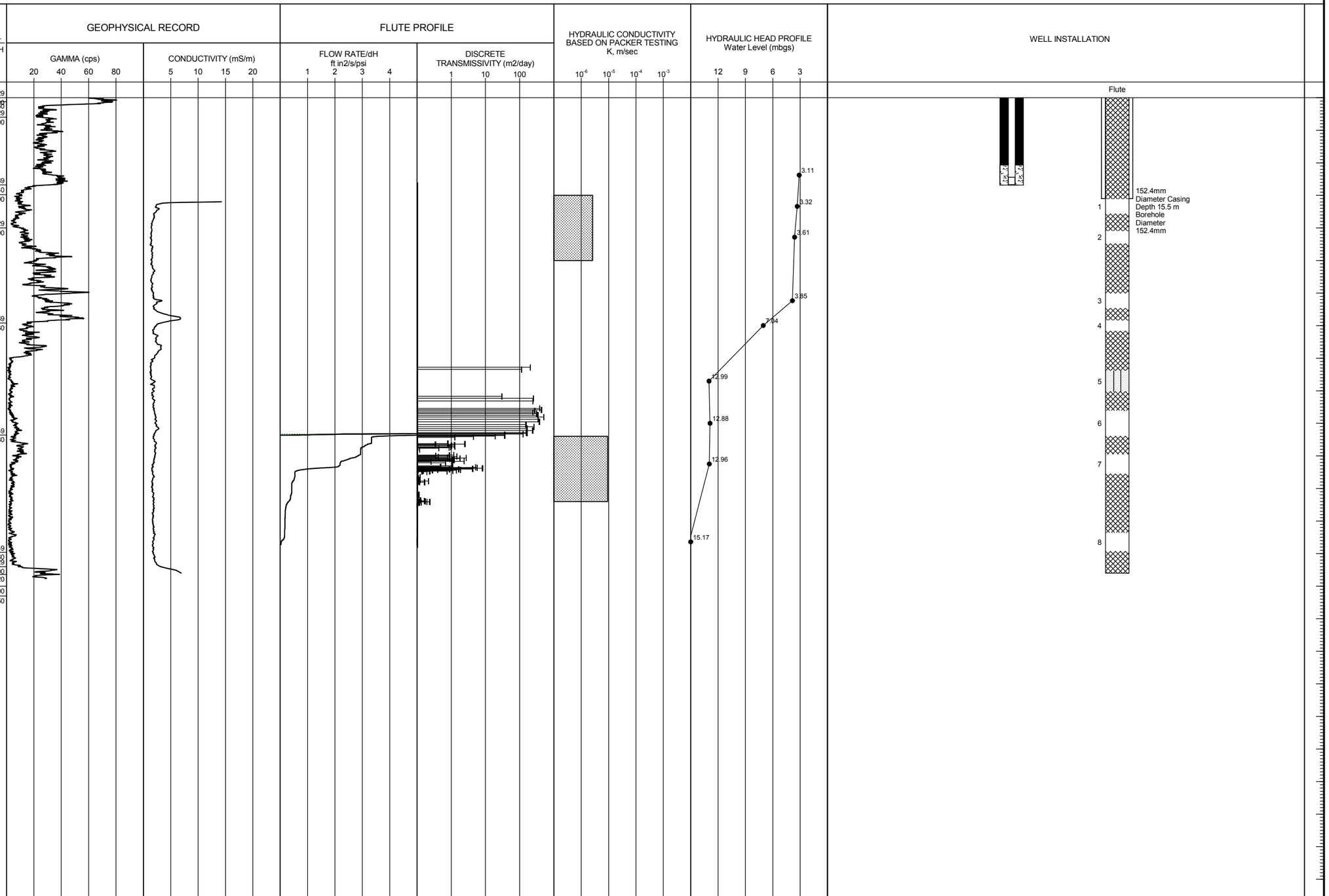
DRILL RIG: Air Rotary

DRILLING CONTRACTOR: Gerrits Well Drilling

SHEET 1 OF 1

DATUM: Local

DESCRIPTION	ELEV. / DEPTH (m)
GROUND SURFACE	354.29
loose, brown, moist, TOPSOIL, trace gravel	0.00
stiff, brown, moist, SILTY SAND, trace gravel	0.20 / 351.29
loose, brown, moist to saturated, Fine SILTY SAND and GRAVEL	3.00
stiff, grey, wet, GRAVELLY CLAYEY SILT, some pebbles	340.89 / 13.40
Eramosa Formation (Reformatory Quarry Member), dolostone, tan, 1-4mm chips, subangular to angular, fractures and voids at 15.6m, 16.2m and 17.2m (water bearing)	14.90 / 334.29
Eramosa Formation (Vinemount Member) dolostone, tan/ black, 1-7mm chips, subangular, bituminous, frequent argillites bands, some chert nodules, fractures at 28.7m and 31.3m	20.00 / 319.69
Goat Island Formation (Ancaster Member) dolostone, brown to grey, subangular, 1-6mm chips, some stylolites, some argillites, trace chert nodules, water bearing fractures at 43.6m and 49.4m	34.60 / 302.49
Gasport Formation dolostone, grey/white, subangular to subround, 1-5mm chips, fossiliferous, trace sylolites	51.80 / 284.49
Irondequoit Formation, dolostone, dark grey to grey, subangular to angular, 1-4mm chips, some stylolites, some vugs	69.80 / 282.29
Rockway Formation, dolostone, grey, angular to subangular, 1-4mm chips, some stylolites, some argillites	72.00 / 73.20
Merritton Formation, dolostone, grey, subangular, 1-5mm chips, some stylolites	75.00 / 76.50
Cabot Head Formation, shale, grey/green, subrounded, 1-5mm chips	
End of Hole	



DEPTH SCALE

1 : 600

LOGGED: KS

CHECKED: JP

MIS-HYD 008 08-1112-0021 (HYD-GEO).GPJ GAL-MISS.GDT 15/6/10 KS/RJ

PROJECT: 08-1112-0021

LOCATION: N 4826604.5 ;E 560948.8

RECORD OF DRILLHOLE: MW08-T3-08

DRILLING DATE: 10/07/2008

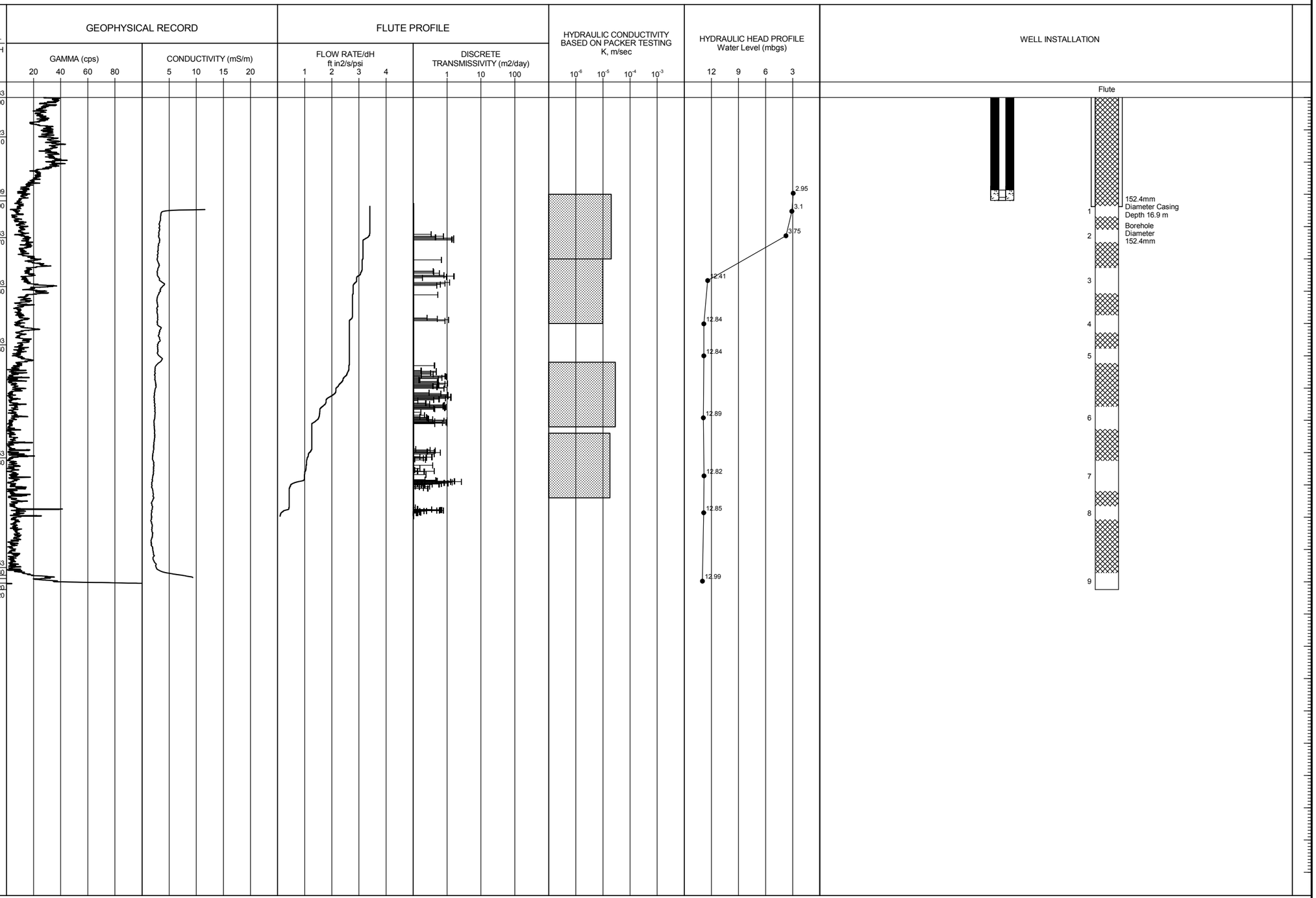
DRILL RIG: Air Rotary

DRILLING CONTRACTOR: Gerrits Well Drilling

SHEET 1 OF 1

DATUM: Local

DEPTH SCALE METRES	DESCRIPTION	ELEV. DEPTH (m)
	GROUND SURFACE	345.33
	stiff, brown, moist, SANDY SILT TILL, trace gravel	0.00
	stiff, brown to grey, moist to wet, CLAYEY SILT TILL, some gravel, some pebbles	339.23 / 6.10
	loose, brown, wet, Medium SAND and GRAVEL	330.09 / 16.00
	Eramosa Formation (Reformatory Quarry Member), dolostone, tan, 1-4mm chips, subangular to angular, fracture at 18.3m, some stylolites, frequent argillites, vuggy	323.63 / 21.70
	Eramosa Formation (Vinemount Member) dolostone, tan/ black, 1-5mm chips, subangular, bituminous, frequent argillites bands, trace gypsum nodules, trace vugs	316.03 / 29.30
	Goat Island Formation (Ancaster Member) dolostone, brown to grey, subangular, 1-6mm chips, some stylolites, some argillites, trace chert nodules, voids at 30.4m, 34.8m and 35.9m	307.03 / 38.30
	Goat Island Formation (Niagara Falls Member) dolostone, grey, subangular, 1-5mm chips, fractures and voids at 41.1m, 49.8m, some stylolites, some argillites	
	Gasport Formation dolostone, grey/white, subangular to subround, 1-5mm chips, fossiliferous, numerous vugs at 55.8m, some stylolites, some argillites	289.53 / 55.80
	Irondequoit Formation, dolostone, dark grey to grey, subangular to angular, 1-5mm chips, trace stylolites	272.53 / 72.80
	Rockway Formation, dolostone, grey, angular to subangular, 1-4mm chips, trace stylolites, trace argillites	75.20 / 76.20
	Merritton Formation, dolostone, grey, subangular, 1-4mm chips	
	Cabot Head Formation, shale, grey/green, subrounded, 1-5mm chips	
	End of Hole	



DEPTH SCALE

1 : 600

LOGGED: KS

CHECKED: JP

MIS-HYD 008 08-1112-0021 (HYD-GEO).GPJ GAL-MISS.GDT 15/6/10 KS/RJ

PROJECT: 08-1112-0021

LOCATION: N 4820064.6 ;E 570645.1

RECORD OF DRILLHOLE: MW08-T3-09

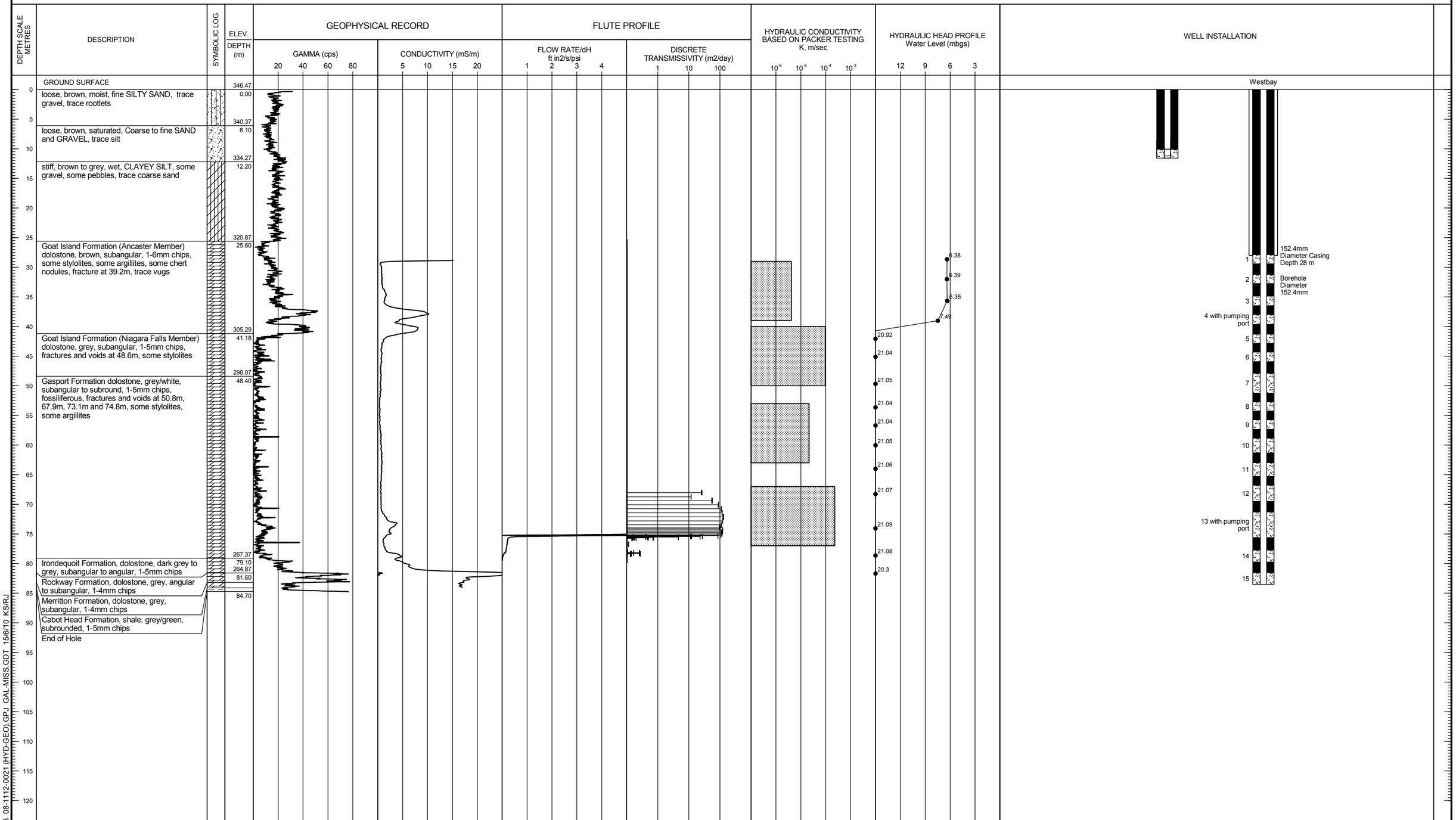
DRILLING DATE: 12/08/2008

DRILL RIG: Air Rotary

DRILLING CONTRACTOR: Gerrits Well Drilling

DATUM: Local

DESCRIPTION	ELEV. DEPTH (m)
GROUND SURFACE	346.47
loose, brown, moist, fine SILTY SAND, trace gravel, trace rootlets	0.00
	340.37
loose, brown, saturated, Coarse to fine SAND and GRAVEL, trace silt	6.10
	334.27
stiff, brown to grey, wet, CLAYEY SILT, some gravel, some pebbles, trace coarse sand	12.20
	320.87
Goat Island Formation (Ancaster Member) dolostone, brown, subangular, 1-6mm chips, some stylolites, some argillites, some chert nodules, fracture at 39.2m, trace vugs	25.60
	305.29
Goat Island Formation (Niagara Falls Member) dolostone, grey, subangular, 1-5mm chips, fractures and voids at 48.6m, some stylolites	41.18
	298.07
Gasport Formation dolostone, grey/white, subangular to subround, 1-5mm chips, fossiliferous, fractures and voids at 50.8m, 67.9m, 73.1m and 74.8m, some stylolites, some argillites	48.40
	267.37
Irondequoit Formation, dolostone, dark grey to grey, subangular to angular, 1-5mm chips	79.10
Rockway Formation, dolostone, grey, angular to subangular, 1-4mm chips	264.87
	81.60
Merritton Formation, dolostone, grey, subangular, 1-4mm chips	84.70
Cabot Head Formation, shale, grey/green, subrounded, 1-5mm chips	
End of Hole	



DEPTH SCALE

1 : 600

LOGGED: KS

CHECKED: JP

MIS-HYD 008 08-1112-0021 (HYD-GEO).GPJ GAL-MISS.GDT 15/6/10 KS/RJ

PROJECT: 08-1112-0021

LOCATION: N 4812508.9 ;E 563160.9

RECORD OF DRILLHOLE: MW08-T3-10

DRILLING DATE: 17/07/2008

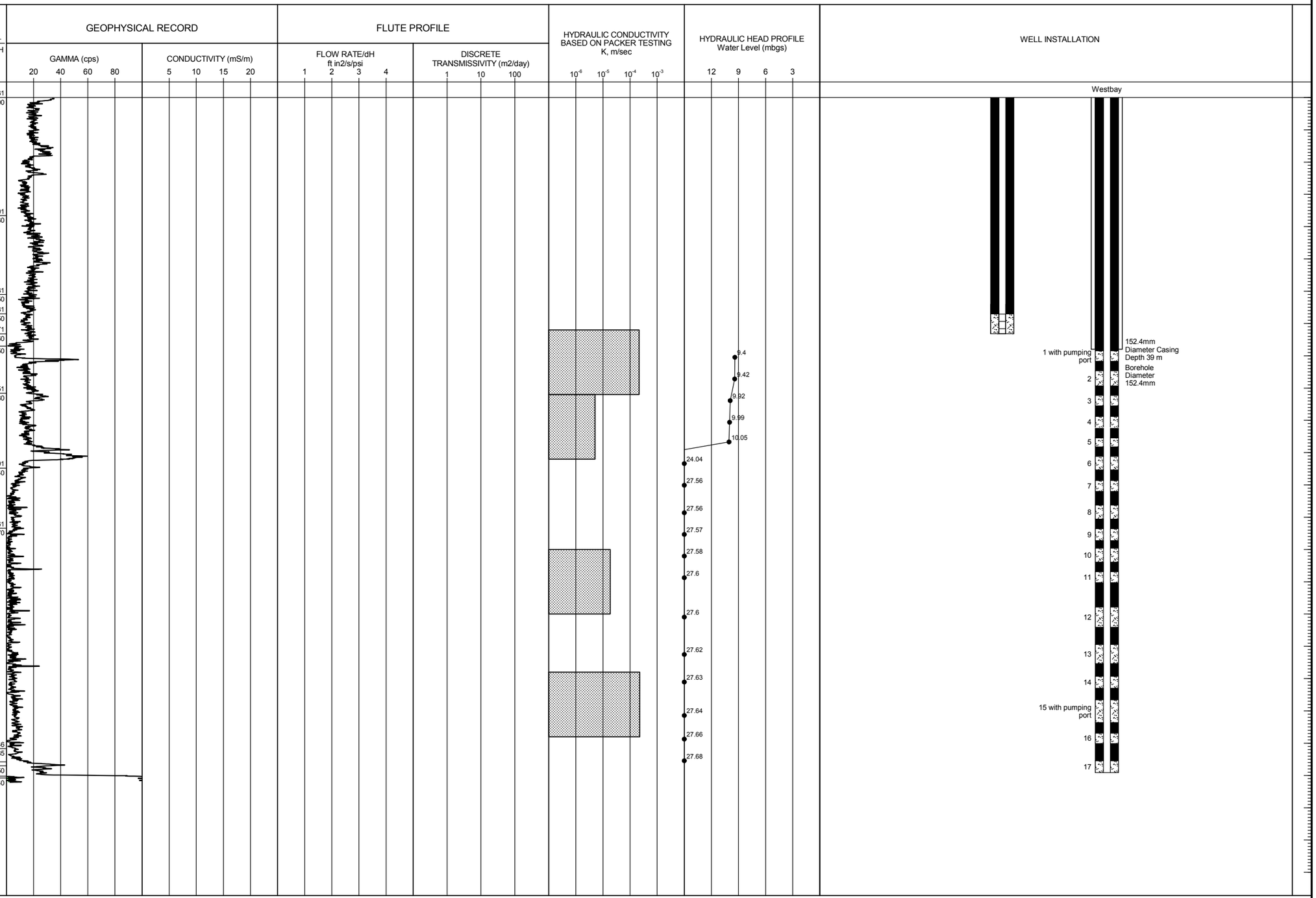
DRILL RIG: Air Rotary

DRILLING CONTRACTOR: Gerrits Well Drilling

SHEET 1 OF 1

DATUM: Local

DESCRIPTION	ELEV. DEPTH (m)
GROUND SURFACE	330.31
loose to compact, brown, moist to saturated, SAND and GRAVEL, trace silt, some pebbles	0.00
compact, brown to grey, saturated, Fine SILTY SAND, some gravel, some pebbles	312.01 / 18.30
loose, brown, saturated, medium SAND	299.81 / 30.50
loose, brown, saturated, medium to course SAND and GRAVEL	296.81 / 33.50
loose, brown, saturated, Fine SILTY SAND and GRAVEL, some pebbles	293.71 / 36.60
Eramosa Formation (Reformatory Quarry Member), dolostone, tan, 1-4mm chips, subangular to angular, fracture at 40.4m, vuggy	38.50
Goat Island Formation (Ancaster Member) dolostone, brown, subangular, 1-6mm chips, some stylolites, some argillite bands, some chert nodules, large vug at 50.5m, numerous vugs	284.51 / 45.80
Goat Island Formation (Niagara Falls Member) dolostone, grey, subangular, 1-5mm chips, some vugs, trace stylolites	272.91 / 57.40
Gasport Formation dolostone, grey/white, subangular to subround, 1-5mm chips, fossiliferous, fractures and voids at 81.4m, 94.8m, 95.6m and 96m, trace stylolites, some vugs	263.61 / 66.70
Irondequoit Formation, dolostone, dark grey to grey, subangular to angular, 1-5mm chips, trace stylolites	229.46 / 100.85
Rockway Formation, dolostone, grey, angular to subangular, 1-4mm chips, trace argillites	103.50
Merritton Formation, dolostone, grey, subangular, 1-5mm chips	105.40
Cabot Head Formation, shale, grey/green, subrounded, 1-5mm chips	
End of Hole	



DEPTH SCALE

1 : 600

LOGGED: KS

CHECKED: JP

MIS-HYD 008 08-1112-0021 (HYD-GEO).GPJ GAL-MISS.GDT 15/6/10 KS/RJ

PROJECT: 08-1112-0021

LOCATION: N 4810649.0 ;E 560864.2

RECORD OF DRILLHOLE: MW09-T3-01

DRILLING DATE: 05/06/2009

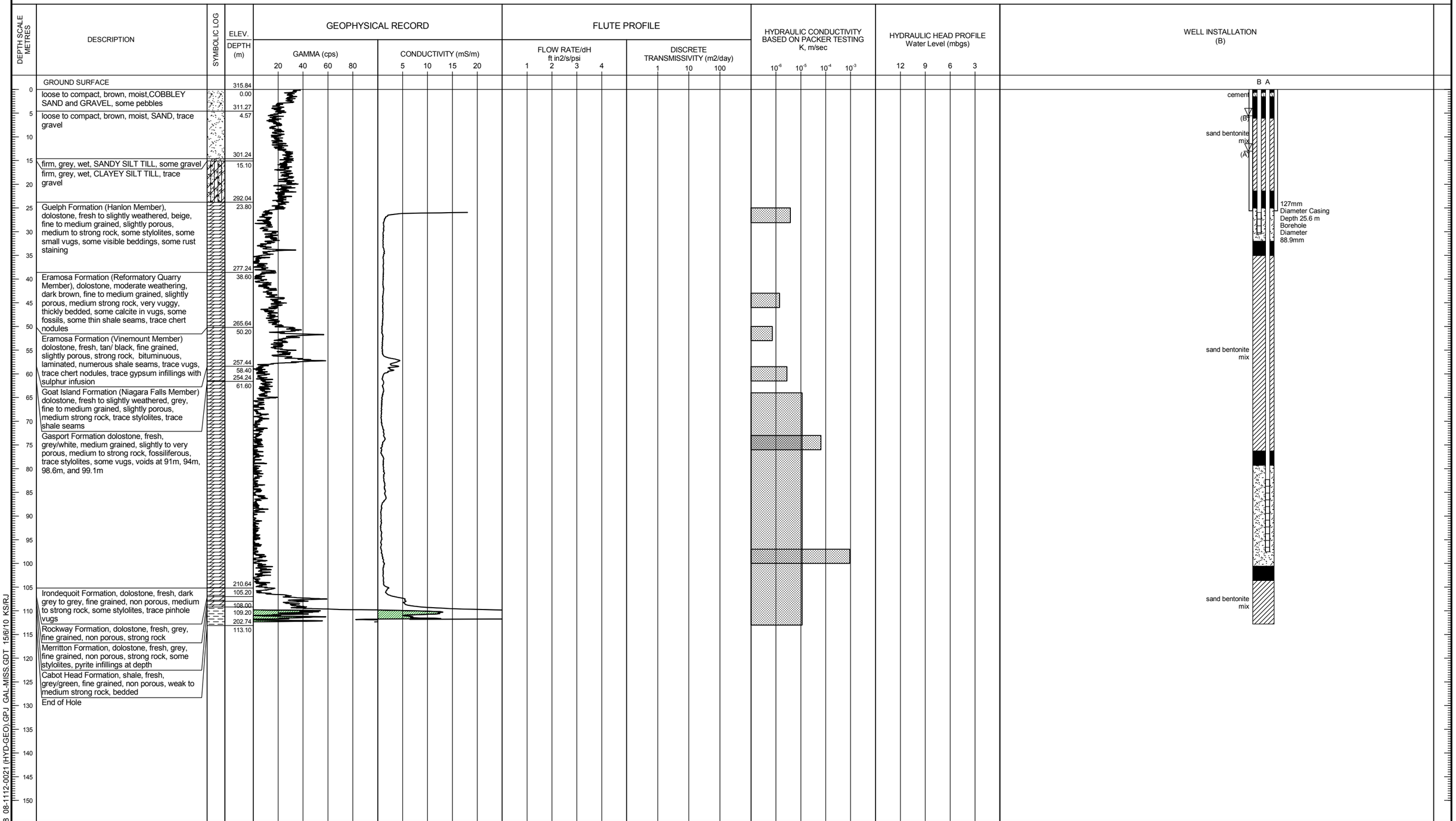
DRILL RIG: CME 75

DRILLING CONTRACTOR: Aardvark Drilling

SHEET 1 OF 1

DATUM: Local

DESCRIPTION	ELEV. DEPTH (m)
GROUND SURFACE	315.84
loose to compact, brown, moist,COBBLEY SAND and GRAVEL, some pebbles	0.00
loose to compact, brown, moist, SAND, trace gravel	311.27 / 4.57
firm, grey, wet, SANDY SILT TILL, some gravel	301.24
firm, grey, wet, CLAYEY SILT TILL, trace gravel	15.10
Guelph Formation (Hanlon Member), dolostone, fresh to slightly weathered, beige, fine to medium grained, slightly porous, medium to strong rock, some stylolites, some small vugs, some visible beddings, some rust staining	292.04 / 23.80
Eramosa Formation (Reformatory Quarry Member), dolostone, moderate weathering, dark brown, fine to medium grained, slightly porous, medium strong rock, very vuggy, thickly bedded, some calcite in vugs, some fossils, some thin shale seams, trace chert nodules	277.24 / 38.60
Eramosa Formation (Vinemount Member) dolostone, fresh, tan/ black, fine grained, slightly porous, strong rock, bituminuous, laminated, numerous shale seams, trace vugs, trace chert nodules, trace gypsum infillings with sulphur infusion	265.64 / 50.20
Goat Island Formation (Niagara Falls Member) dolostone, fresh to slightly weathered, grey, fine to medium grained, slightly porous, medium strong rock, trace stylolites, trace shale seams	257.44 / 58.40
Gasport Formation dolostone, fresh, grey/white, medium grained, slightly to very porous, medium to strong rock, fossiliferous, trace stylolites, some vugs, voids at 91m, 94m, 98.6m, and 99.1m	254.24 / 61.60
Irondequoit Formation, dolostone, fresh, dark grey to grey, fine grained, non porous, medium to strong rock, some stylolites, trace pinhole vugs	210.64 / 105.20
Rockway Formation, dolostone, fresh, grey, fine grained, non porous, strong rock	108.00
Merritton Formation, dolostone, fresh, grey, fine grained, non porous, strong rock, some stylolites, pyrite infillings at depth	109.20
Cabot Head Formation, shale, fresh, grey/green, fine grained, non porous, weak to medium strong rock, bedded	202.74
End of Hole	113.10



DEPTH SCALE

1 : 750

LOGGED: KS

CHECKED: JP

MIS-HYD 008 08-1112-0021 (HYD-GEO).GPJ GAL-MISS.GDT 15/6/10 KS/RJ

APPENDIX C

Field Program Data

C1: Water Well Records

Ontario Ministry of the Environment

Area 1 deep

Well Tag No. *(Place Sticker and/or Print Below)*
A051718B
A051718

MW08-T3-01

Well Record

Regulation 903 Ontario Water Resources Act

Well Owner's Information

First Name	Last Name	E-mail Address	☐ Well Constructed by Well Owner
~~City of Guelph~~ GRCA			

Mailing Address (Street Number/Name, RR)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
~~59 Carden Street~~ 400 Clyde Rd	~~Guelph~~ Cambridge	Ontario	~~N1H 3A1~~ N1R 3W6	

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR)	Township	Lot	Concession
	Guelph	13 Div.D	4

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington	Guelph	Ontario	

UTM Coordinates	Zone	Easting	Northing	GPS Unit Make	Model	Mode of Operation:
NAD 83	17	565 102	4624 032	Magellan		☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Overburden and Bedrock Materials *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	To
Brown	Stones	Sand	Fill	0	1.52
Brown	Sand			1.52	3.04
Grey	Clay	Silt & Stones	Till	3.04	9.14
Brown	Clay	Limestone	Broken/fragmented	9.14	10.66
Brown	Grey	Limestone/Dolostone	Layers	10.66	95.09
Green	Shale			95.09	95.70

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed *(Cubic Metres)*

Method of Construction

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

Water Use

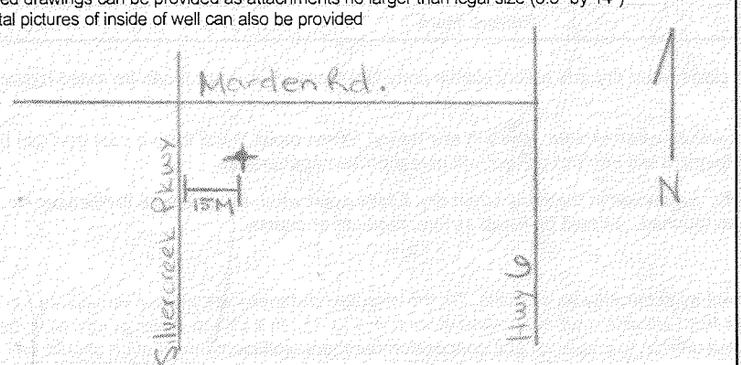
☐ Public ☐ Commercial ☒ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify* _____

Status of Well

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

Location of Well

Please provide a map below showing:
- all property boundaries, and measurements sufficient to locate the well in relation to fixed points,
- an arrow indicating the North direction
- detailed drawings can be provided as attachments no larger than legal size (8.5" by 14")
- vidigital pictures of inside of well can also be provided



Date Well Completed *(yyyy/mm/dd)*	Was the well owner's information package delivered?	Date the Well Record and Package Delivered to Well Owner *(yyyy/mm/dd)*
2008/07/09	☒ Yes ☐ No	2008/07/09

Results of Well Yield Testing

Check box if after test of well yield, water was:
☒ Clear and sand free
☐ Cannot develop to sand-free state

If pumping discontinued, give reason:

Pumping test method

Pump intake set at *(Metres)*

Pumping rate *(Litres/min)*

Duration of pumping ____ hrs + ____ min

Final water level end of pumping *(Metres)*

Recommended pump type ☐ Shallow ☐ Deep

Recommended pump depth _____ Metres

Recommended pump rate *(Litres/min)*

If flowing give rate *(Litres/min)*

Draw Down Time *(Min)*	Water Level *(Metres)*	Recovery Time *(Min)*	Water Level *(Metres)*
Static Level		Static Level	
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Water Details

Water found at Depth	Kind of Water
45 Metres ☐ Gas	☐ Fresh ☒ Salty ☐ Sulphur ☐ Minerals
61 Metres ☐ Gas	☐ Fresh ☒ Salty ☐ Sulphur ☐ Minerals
69 Metres ☐ Gas	☐ Fresh ☒ Salty ☐ Sulphur ☐ Minerals

Casing Used	Screen Used
☐ Galvanized	☐ Galvanized
☒ Steel	☐ Steel
☐ Fibreglass	☐ Fibreglass
☐ Plastic	☐ Plastic
☐ Concrete	☐ Concrete

No Casing and Screen Used

☒ Open Hole

Disinfected? ☒ Yes ☐ No

Casing and Well Details

Diameter of the Hole *(Centimetres)*	15.24
Depth of the Hole *(Metres)*	95.70
Wall Thickness *(Metres)*	0.477cm
Inside Diameter of the Casing *(Metres)*	15.24
Depth of the Casing *(Metres)*	10.82

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling & Eng. Ltd.	3406

Business Address (Street No./Name, number, RR)	Municipality
RR#1 Grand Valley	

Province	Postal Code	Business E-mail Address
Ontario	L0N1G0	

Bus.Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
	Gerrits, Steve

Well Technician's Licence No.	Signature of Technician	Date Submitted *(yyyy/mm/dd)*
2964	Gerrits Drilling & Eng. Ltd.	2008/07/09

Ministry Use Only

Audit No.	Well Contractor No.
Z75949	
Date Received *(yyyy/mm/dd)*	**Date of Inspection** *(yyyy/mm/dd)*
Remarks	

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2D

MW08-T3-02

Ontario — Ministry of the Environment

Well T A051725 (Print Below)

A051725

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☒ Metric ☐ Imperial

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde Rd	Cambridge	ON	N1R 5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	Eramosa	25	3

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	559364	4835072		

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
Brown	Sand	Silt/Fine Gravel		0	8.20
Grey	Limestone			8.20	55.90
Grey/Green	Shale			55.90	99.90

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	8.1	Bentonite Slurry	0.20

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping ____ hrs + ____ min

Final water level end of pumping *(m/ft)*

If flowing give rate *(l/min / GPM)*

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

Well production *(l/min / GPM)*

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Method of Construction

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

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	To
15.0	Steel	0.219	10.40	8.50
~~15.0~~				
12.2	Open Hole		8.50	99.90

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*

Construction Record - Screen

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

Water Details

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

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	~~8.50~~ 6.0	25.4
6	8.50	15.71
8.50	99.90	12.2

Map of Well Location

Please provide a map below following instructions on the back.

see attached

Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor: Gerrits Drilling & Engineering Ltd.

Well Contractor's Licence No.: 7106

Business Address (Street Number/Name): 215154 10th Line, R.R. #1, Grand Valley, Ontario L0N 1G0

Municipality:

Province: | Postal Code: | Business E-mail Address:

Bus. Telephone No. (inc. area code): | Name of Well Technician (Last Name, First Name): Steve Gerrits

Well Technician's Licence No.: 2196 | Signature of Technician and/or Contractor: Gerrits Drilling Ltd | Date Submitted: YYYY MM DD

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

Date Package Delivered: YYYY MM DD

Date Work Completed: YYYY MM DD

Ministry Use Only

Audit No. Z110399

Received

MW08-T3-03

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☒ Imperial

Well A051701 (Print Below) A051701

Well Record

Regulation 903 Ontario Water Resources Act

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 clyde Road PO Box 729	Cambridge	ON	N1R 5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	Eramosa	24	4

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	568 024	4831 5566		

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
Brown	Sand	Gravel		0	6.4
Brown	Clay		n	6.40	7.01
Brown	Sand	Clay		7.01	21.33
Brown	Clay	Limestone	Layered	21.33	28.95
Brown	Gravel	Limestone	Layered	28.95	33.22
Brown	Clay	Limestone/Gravel	Layrd	33.22	43.59
Brown/Grey	Limestone/Dolostone	Layeres		43.59	96.62
~~Greenxxxx~~					
Green	Shale			96.62	97.23

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	6.1	Bentonite Slurry	0.05

Method of Construction

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

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	To

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
15.56		0.477	0.50	43.89
	open hole		43.89	97.23

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	
53	☐ Fresh ☒ Untested	☐ Gas ☐ Other, *specify*
80	☐ Fresh ☒ Untested	☐ Gas ☐ Other, *specify*
	☐ Fresh ☐ Untested	☐ Gas ☐ Other, *specify*

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	97.23	15.56

Results of Well Yield Testing

After test of well yield, water was: ☒ Clear and sand free ☐ Other, *specify*

If pumping discontinued, give reason:

Pump intake set at (m/ft): 49.38

Pumping rate (l/min / GPM): 51.1

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 45.42

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

Recommended pump depth (m/ft): 49.38

Recommended pump rate (l/min / GPM): 51.1

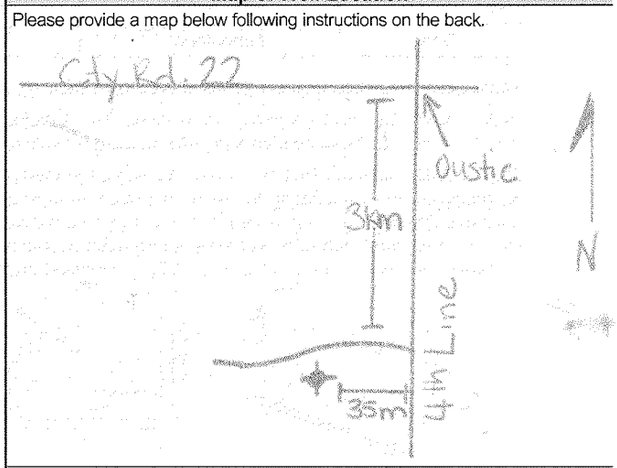
Well production (l/min / GPM):

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	~~[illegible]~~	24	45
1	31.13	1	42.68
2	35.35	2	40.55
3	38.10	3	37.38
4	40.69	4	34.53
5	41.81	5	32.95
10	44.47	10	28.50
15	45.16	15	25.87
20	45.39	20	25.18
25	45.53	25	
30	45.47	30	
40	45.58	40	
50	45.44	50	
60	45.42	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Area 3 deep

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits drilling & Eng. Ltd.	3 4 0 6

Business Address (Street Number/Name)	Municipality
RR#1 Grand Valley	

Province	Postal Code	Business E-mail Address
ON	L0N 1G0	

Bus.Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
	Gerrits, Steve

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2 9 6 4	[signature]	2008 08 22 (Y Y Y Y M M D D)

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☑ Yes ☐ No	2008 08 16 (Y Y Y Y M M D D)	2008 08 15 (Y Y Y Y M M D D)

Ministry Use Only

Audit No. Z 84483

Received

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MW08-T3-03-0B

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. (Affix and/or Print Below): A051690 A051690

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde Road PO Box 729	Cambridge	ON	N1R 5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	Eramosa	24	4

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	563022	4835576		

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
Brown	Sand	Gravel		0	6.40
Brown	Clay			6.40	7.01
Brown	Sand	Clay		7.01	21.33
Brown	Clay	Limestone	Layered	21.33	28.95
Brown	Gravel	Limestone	Layered/fragmented	28.95	36.88

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
		See attached diagram	

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min-/ GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

Well production (l/min / GPM)

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Method of Construction

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

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	To
3.17	sch.40		0.55	35.36

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
3.59	Plastic	10	35.36	15.56

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

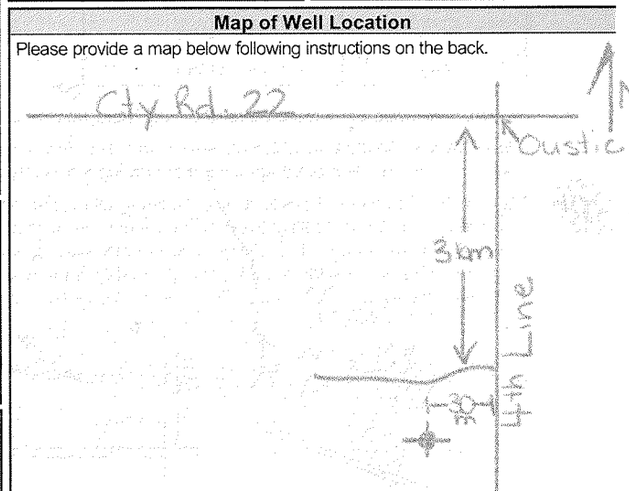
Water found at Depth	Kind of Water	
35 (m/ft) ☐ Gas	☐ Fresh ☒ Untested ☐ Other, specify	
(m/ft) ☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, specify	
(m/ft) ☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, specify	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	35.36	15.56

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Area 3 Shallow

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling & Eng. Ltd.	3406

Business Address (Street Number/Name)	Municipality
RR#1 Grand Valley	

Province	Postal Code	Business E-mail Address
ON	L0N 1G0	

Bus.Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
	Gerrits, Steve

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2964		2008 Y 08 M 22 D

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No	2008 Y 08 M 05 D	2008 Y 08 M 05 D

Ministry Use Only

Audit No. Z 84482

Received

0506E (12/2007)

Well Owner's Copy

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MW08-T3-04

Ontario — Ministry of the Environment

Measurements recorded in: ☑ Metric ☒ Imperial

Well Tag No. (Place Sticker Below): A051737 / A051737

Well Record

Regulation 903 Ontario Water Resources Act

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde Road Box 729	Cambridge	ON	N1R 5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	Nichol	12	2

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	556262	4836448		

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
Brown	Sand			0	6.4
Brown	Gravel	Sand	Coarse	6.4	15.54
Brown	Clay			15.54	18.28
Brown	Gravel	Sand		18.28	19.20
Grey/Brown	limestone/dolostone layers			19.20	140.81
Green	SHale			140.81	143.87

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	6.1	Bentonite Slurry	0.05

Method of Construction

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

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	To
15.56		0.477	0.43	19.35
	open hole		19.35	143.87

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	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	
27	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	
85	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	
109	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	140.87	15.56

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft): 30.48

Pumping rate (l/min / GPM): 189.6

Duration of pumping: 4 hrs + 0 min

Final water level end of pumping (m/ft): 19.35

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

Recommended pump depth (m/ft): 30.48

Recommended pump rate (l/min / GPM): 189.6

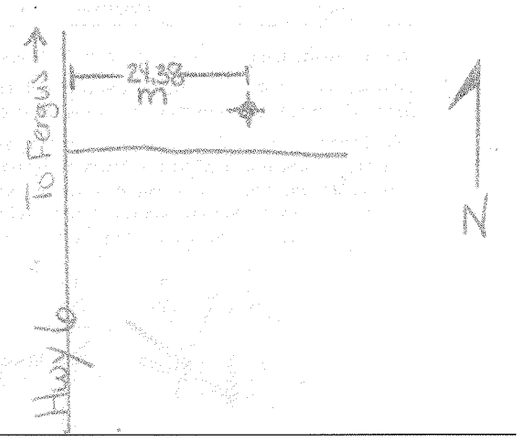
Well production (l/min / GPM):

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	10.19		19.35
1	13.92	1	15.80
2	14.72	2	15.00
3	15.16	3	14.63
4	15.43	4	14.37
5	15.67	5	14.16
10	15.88 16.31	10	13.63
15	16.70	15	
20	17.01	20	13.09
25	17.26	25	
30	17.43	30	12.77
40	17.71	40	12.54
50	17.91	50	12.36
60	18.06	60	12.20

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Area 4 Jeep

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling & Eng. Ltd.	3 4 0 6

Business Address (Street Number/Name)	Municipality
RR#1 Grand Valley	

Province	Postal Code	Business E-mail Address
ON	L0N1G0	

Bus.Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
	Gerrits, Steve

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2 9 6 4		2008 Y 08 M 22 D

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No	Y Y Y Y M M D D	2008 Y 08 M 08 D

Ministry Use Only

Audit No. Z 84526

Received

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MW08-T3-04-OB

Ontario — Ministry of the Environment

Measurements recorded in: ☑ Metric ☐ Imperial

Well T. A051692 (Print Below) A051692

Well Record

Regulation 903 Ontario Water Resources Act

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde Road PO Box 729	Cambridge	ON	n1R 5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	Nichol	12	2

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	552656	4836469		

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
Brown	Sand			0	3.96
Brown	Clay	Sand		3.96	7.92
Brown	Gravel	Sand	Coarse	7.92	16.76
Grey	Clay			16.76	17.06

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
		See attached diagram	

Method of Construction

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

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	To
3.17	sch 40		0.50	15.24

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
3.59	Plastic	10	15.24	16.76

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*

Results of Well Yield Testing

After test of well yield, water was:
☒ Clear and sand free
☐ Other, *specify*

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ___ hrs + ___ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

Well production (l/min / GPM)

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Water Details

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

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	17.06	15.56

Map of Well Location

Please provide a map below following instructions on the back.

See attached

Comments: Area 4 Shallow

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling & Eng. Ltd.	3406

Business Address (Street Number/Name)	Municipality
RR#1 Grand Valley	

Province	Postal Code	Business E-mail Address
ON	L0N 1G0	

Bus.Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
	Gerrits, Steve

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2964		2008 08 20

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No	2008 08 01	2008 08 01

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Audit No. Z 84525

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MW08-T3-05

Ontario — Ministry of the Environment

Well (Print Below): 5D A051724 A051724

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☒ Metric ☐ Imperial

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde Rd	Cambridge	ON	N1R5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	Eramosa	30	3

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	561217	4815521		

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
Brown	Sand			0	3.05
Brown	Sand	Silt		3.05	9.75
Brown	Sand / Gravel			9.75	14.63
Brown / Grey	Silt	Clay		14.63	16.76
Brown / Grey	Limestone			16.76	101.70
Grey / Brown	Shale			101.70	104.90

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
		See Attached	

Method of Construction

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

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	To
15	Steel	0.219	16.41	19.20
12.2	Open Hole		19.20	104.90
	See attached			

Construction Record - Screen

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

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

Well production (l/min / GPM)

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Water Details

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

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	19.20	15.7
19.20	104.90	12.2

Map of Well Location

Please provide a map below following instructions on the back.

See Attached

Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor: Gerrits Drilling & Engineering Ltd.

Well Contractor's Licence No.: 4016

Business Address (Street Number/Name): 215154 10th Line, R.R. #1

Municipality:

Grand Valley, Ontario L0N 1G0

Province: Postal Code: Business E-mail Address:

Bus. Telephone No. (inc. area code): Name of Well Technician (Last Name, First Name): Steve Gerrits

Well Technician's Licence No.: 2416 Signature of Technician and/or Contractor: Date Submitted: YYYY MM DD

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

Date Package Delivered: YYYY MM DD

Date Work Completed: YYYY MM DD

Ministry Use Only

Audit No. Z110398

Received

MW08-T3-05-OB

Ontario — Ministry of the Environment

Measurements recorded in: ☒ Metric ☐ Imperial

Well Tag (Print Below): A051722 A051722

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde RD PO Box 729	Cambridge	ON	N1R 5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession

County/District/Municipality	City/Town/Village	Province	Postal Code
		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83		560656	4843464		

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
Brown	sand			0	3.05
Grey	silt	sand		3.05	9.75
Brown	sand	gravel		9.75	10.67

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
		See Attached DIagram	

Results of Well Yield Testing

After test of well yield, water was: ☐ Clear and sand free ☐ Other, *specify* ____

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping ____ hrs + ____ min

Final water level end of pumping *(m/ft)*

If flowing give rate *(l/min / GPM)*

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

Well production *(l/min / GPM)*

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Method of Construction

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

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
3.17	Plastic	sch 40	+.45	9.14

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
3.34	Plastic	10	9.14	10.67

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

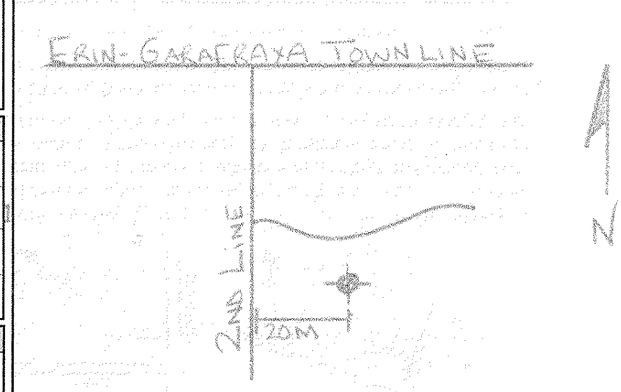
Water found at Depth (m/ft)	Kind of Water	
8.5	☐ Fresh ☒ Untested	☐ Gas ☐ Other, *specify* ____
	☐ Fresh ☐ Untested	☐ Gas ☐ Other, *specify* ____
	☐ Fresh ☐ Untested	☐ Gas ☐ Other, *specify* ____

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	10.67	15.71

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Area 5 shallow

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling & Eng. Ltd.	3406

Business Address (Street Number/Name)	Municipality
RR #1 Grand Valley	

Province	Postal Code	Business E-mail Address
ON	L0N 1G0	

Bus.Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
	Gerrits, Steve

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2964	[signature]	YYYYMMDD

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☑ Yes ☐ No	YYYYMMDD	YYYYMMDD

Ministry Use Only

Audit No. Z 84488

Received

0506E (12/2007)

Well Owner's Copy

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6D

MW08-T3-06

Ontario — Ministry of the Environment

Well (Print Below): A051723 / A051723

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☒ Metric ☐ Imperial

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde Rd	Cambridge	ON	N1R5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	Eramosa	11	7

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	562755	4834621		

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
Brown	Sand	Silt		0	1.06
Grey	Limestone			1.06	53.49
Grey/Green	Slate			53.49	57.70

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
		See attached	

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☒ Other, *specify* Pa Cue

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	To
12.7	Steel	0.219	0.00	1.20
12.2			1.20	57.70

Construction Record - Screen

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

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

Final water level end of pumping *(m/ft)*

If flowing give rate *(l/min / GPM)*

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

Well production *(l/min / GPM)*

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Map of Well Location

Please provide a map below following instructions on the back.

See attached

Comments:

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*

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	1.20	12.7
1.20	57.70	12.2

Well Contractor and Well Technician Information

Business Name of Well Contractor: Gerrits Drilling & Engineering Ltd.

Well Contractor's Licence No.: 3146

Business Address (Street Number/Name): 215154 10th Line, R.R. #1

Municipality: Grand Valley

Province: Ontario

Postal Code:

Business E-mail Address:

Bus.Telephone No. *(inc. area code)*:

Name of Well Technician (Last Name, First Name):

Well Technician's Licence No.: 2461

Signature of Technician and/or Contractor:

Date Submitted: YYYY MM DD

Well owner's information package delivered ☐ Yes ☐ No

Date Package Delivered: YYYY MM DD

Date Work Completed: YYYY MM DD

Ministry Use Only

Audit No. Z110397

Received

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Well Owner's Copy

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A051696

MW08-T3-07

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
400 CLyde RD PO Box 729	Cambridge	ON	N1R 5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	Eramosa	9	4

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	564582	4828346		

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
Black	Loam			0	0.61
Brown	Sand	Gravel	Fine	0.61	7.92
Brown	Sand	Gravel, Silt	Fine	7.92	13.40
Brown	SAnd	Gravel, CLay	FIne	13.4	14.94
	Limestone			14.94	74.98
Blue	SHale			74.98	76.50

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed (m^3/ft^3)

Method of Construction

[ ] Cable Tool [ ] Diamond
[X] Rotary (Conventional) [ ] Jetting
[ ] Rotary (Reverse) [ ] Driving
[ ] Boring [ ] Digging
[ ] Air percussion
[ ] Other, *specify* _____

Well Use

[ ] Public [ ] Commercial [ ] Not used
[ ] Domestic [ ] Municipal [ ] Dewatering
[ ] Livestock [X] 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
15.24	steel	0.477	+0.43	15.5
	open hole		15.5	76.5

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
[X] Observation and/or Monitoring Hole
[ ] Alteration (Construction)
[ ] Abandoned, Insufficient Supply
[ ] Abandoned, Poor Water Quality
[ ] Abandoned, other, *specify* _____
[ ] Other, *specify* _____

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*: 30.48

Pumping rate *(l/min / GPM)*: 209.57

Duration of pumping: 4 hrs + 0 min

Final water level end of pumping *(m/ft)*: 12.13

If flowing give rate *(l/min-/ GPM)*:

Recommended pump depth *(m/ft)*: 30.48

Recommended pump rate *(l/min / GPM)*: 209.57

Well production *(l/min / GPM)*:

Disinfected? [X] Yes [ ] No

Draw Down Time *(min)*	Draw Down Water Level *(m/ft)*	Recovery Time *(min)*	Recovery Water Level *(m/ft)*
Static Level	11.12		
1	11.34	1	12.03
2	11.37	2	12.00
3	11.40	3	11.99
4	11.41	4	11.96
5	11.43	5	11.95
10	11.50	10	11.86
15	11.56	15	11.83
20	11.61	20	11.77
25	11.65	25	11.74
30	11.69	30	11.71
40	11.75	40	11.66
50	11.80	50	11.62
60	11.84	60	11.58

Water Details

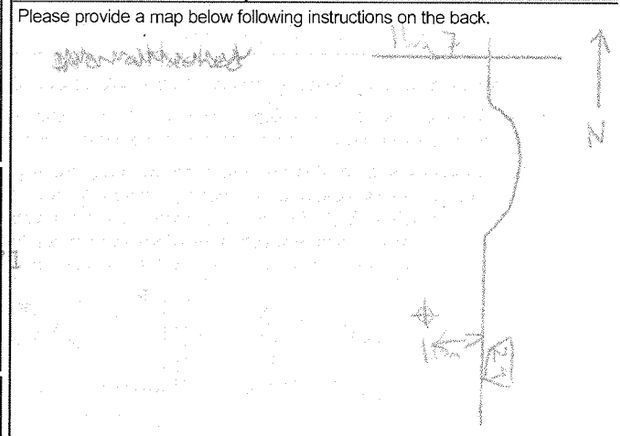
Water found at Depth	Kind of Water	
12.2 *(m/ft)* [ ] Gas	[ ] Fresh [X] Untested	[ ] Other, *specify* _____
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested	[ ] Other, *specify* _____
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested	[ ] Other, *specify* _____

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter *(cm/in)*
0	76.50	15.71

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Area 7 deep

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling & Eng. Ltd.	3406

Business Address (Street Number/Name)	Municipality
RR #1 Grand Valley	

Province	Postal Code	Business E-mail Address
ON	L0N 1G0	

Bus.Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
	Gerrits, Chris

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2738	[signature]	2008 09 29

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	2008 09 29	2008 09 29

Ministry Use Only

Audit No. Z 84487

Received

0506E (12/2007)

Well Owner's Copy

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MW08-T3-07-OB

Ontario — Ministry of the Environment

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☒ Metric ☐ Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A051674

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
400 Clyde Rd. PO Box 729	Cambridge	ON	N1R 5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	Eramosa	9	1

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	564581	4828350		

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
Black	Loam			0	0.61
Brown	Sand		Fine	0.61	7.92
Brown	Sand	Gravel, Silt	Fine	7.92	13.41

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed *(m³/ft³)*
		See Attached	

Method of Construction

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

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	To

Construction Record - Screen

Outside Diameter *(cm/in)*	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
12x2x				

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* _____

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

Final water level end of pumping *(m/ft)*

If flowing give rate *(l/min / GPM)*

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

Well production *(l/min / GPM)*

Disinfected? ☒ Yes ☐ No

Draw Down Time *(min)*	Water Level *(m/ft)*	Recovery Time *(min)*	Water Level *(m/ft)*
Static Level			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Water Details

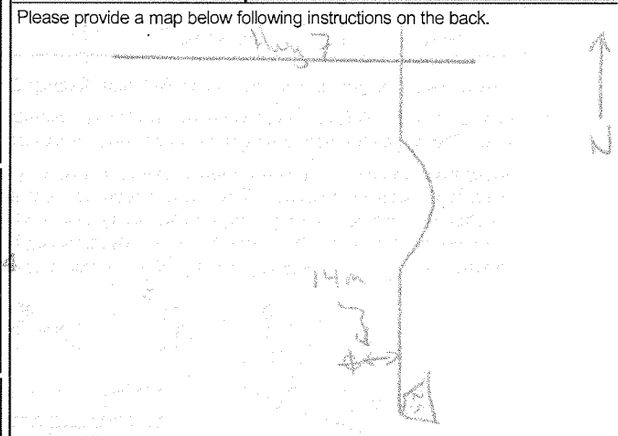
Water found at Depth	Kind of Water	
12.2 *(m/ft)* ☐ Gas	☐ Fresh ☒ Untested	☐ Other, *specify*
(m/ft) ☐ Gas	☐ Fresh ☐ Untested	☐ Other, *specify*
(m/ft) ☐ Gas	☐ Fresh ☐ Untested	☐ Other, *specify*

Hole Diameter

Depth (m/ft) From	To	Diameter *(cm/in)*
0	13.41	15.24

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Area 7 shallow

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling 7 Eng. Ltd.	3406

Business Address (Street Number/Name)	Municipality
RR #1 Grand Valley	

Province	Postal Code	Business E-mail Address
ON	L0N 1G0	

Bus.Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
	Gerrits, Chris

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2738		2008 10 01

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No	2008 10 01	2008 10 01

Ministry Use Only

Audit No. Z 84517

Received

0506E (12/2007)

Well Owner's Copy

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Ontario Ministry of the Environment

Well Tag No. (Please Print Clearly Below) A051679 A051679

MW08-T3-08

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Well Owner's Information

First Name	Last Name	E-mail Address	Well Constructed by Well Owner
~~GCVA of Guelph~~	GRCA		☐

Mailing Address (Street Number/Name, RR)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde Road ~~400 Gordon St~~ PO Box 729	CAMBRIDGE ~~Guelph~~	Ontario	N1R 5W6 ~~N1H 3A1~~	

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR)	Township	Lot	Concession
Kaine hill Drive	Guelph	5	7

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington	Guelph	Ontario	

UTM Coordinates	Zone	Easting	Northing	GPS Unit Make	Model	Mode of Operation
NAD 83	17	560944	4826609	Magellan		☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Overburden and Bedrock Materials *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	To
Brown	Sand			0	1.52
Grey	Clay			1.52	4.57
Grey	Silt	Clay and Stones	Till	4.57	14.63
Brown	Sand	Gravel		14.63	15.97
Brown/Grey	Limestone	Dolostone	Layers	15.97	75.59
Green	Shale			75.59	76.20

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
0	6.1	Bentonite Slurry	0.05

Method of Construction

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

Water Use

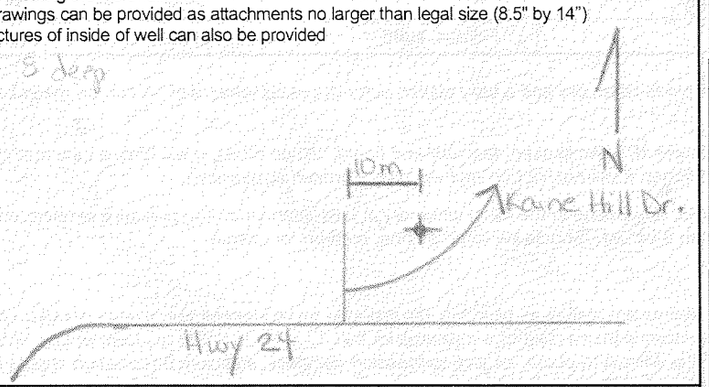
☐ Public ☐ Commercial ☒ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☒ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify* _____

Status of Well

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

Location of Well

Please provide a map below showing:
- all property boundaries, and measurements sufficient to locate the well in relation to fixed points,
- an arrow indicating the North direction
- detailed drawings can be provided as attachments no larger than legal size (8.5" by 14")
- vidigital pictures of inside of well can also be provided



Date Well Completed (yyyy/mm/dd)	Was the well owner's information package delivered?	Date the Well Record and Package Delivered to Well Owner (yyyy/mm/dd)
2008/07/11	☒ Yes ☐ No	2008/07/12 mail

Results of Well Yield Testing

Check box if after test of well yield, water was:
☒ Clear and sand free
☐ Cannot develop to sand-free state

If pumping discontinued, give reason:

Pumping test method: pump

Pump intake set at (Metres): 51.816

Pumping rate (Litres/min): 170.34

Duration of pumping: 4 hrs + 0 min

Final water level end of pumping (Metres): 21.12

Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump depth: 51.816 Metres

Recommended pump rate (Litres/min): 170.34

If flowing give rate (Litres/min):

Draw Down Time (Min)	Water Level (Metres)	Recovery Time (Min)	Water Level (Metres)
Static Level	11.81	Static Level	21.12
1	14.84	1	17.91
2	15.23	2	17.84
3	15.41	3	17.72
4	15.52	4	17.59
5	15.61	5	17.54
10	15.935	10	17.26
15	16.23	15	17.03
20	16.43	20	16.825
25	16.615	25	14.03
30	16.76	30	13.92
40	17.02	40	13.69
50	17.255	50	13.52
60	17.44	60	13.34

Water Details

Water found at Depth	Kind of Water
23 Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
36 Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
45 Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

NOT TESTED

Casing Used

☐ Galvanized
☒ Steel
☐ Fibreglass
☐ Plastic
☐ Concrete

Screen Used

☐ Galvanized
☐ Steel
☐ Fibreglass
☐ Plastic
☐ Concrete

No Casing and Screen Used

☒ Open Hole

Disinfected? ☒ Yes ☐ No

Casing and Well Details

Diameter of the Hole (Centimetres): 15.24

Depth of the Hole (Metres): 76.20

Wall Thickness (Metres): 0.477cm

Inside Diameter of the Casing (Metres): 15.24cm

Depth of the Casing (Metres): 16.76

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling & Eng. Ltd.	3406

Business Address (Street No./Name, number, RR)	Municipality
RR#1 Grand Valley	

Province	Postal Code	Business E-mail Address
Ontario	L0N 1G0	

Bus.Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
	Gerrits, Steve

Well Technician's Licence No.	Signature of Technician	Date Submitted (yyyy/mm/dd)
2964	[signature]	2008/07/12

Ministry Use Only

Audit No.	Well Contractor No.
Z75948	
Date Received (yyyy/mm/dd)	**Date of Inspection (yyyy/mm/dd)**

Remarks

Well Owner's Copy

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Ontario Ministry of the Environment

Well Tag No. (Place Sticker and/or Print Below)
A051721
A051721

MW08-T3-08-0B

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name, RR)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde Road PO Box 729	Cambridge	ON	N1R5W6	

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR)	Township	Lot	Concession
Kaine Hill Drive	Guelph	5	7

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	GPS Unit Make	Model	Mode of Operation:
NAD 83	17	516099	4812165919	Magellan		☐ Undifferentiated ☑ Averaged ☐ Differentiated, specify

Overburden and Bedrock Materials *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	To
Brown	Sand			0	1.52
Grey	Clay			1.52	4.57
Grey	Silt	Clay and stones		4.57	14.63
Brown	Sand	Gravel	Course	14.63	15.97

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
		See Attached	

Method of Construction

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

Water Use

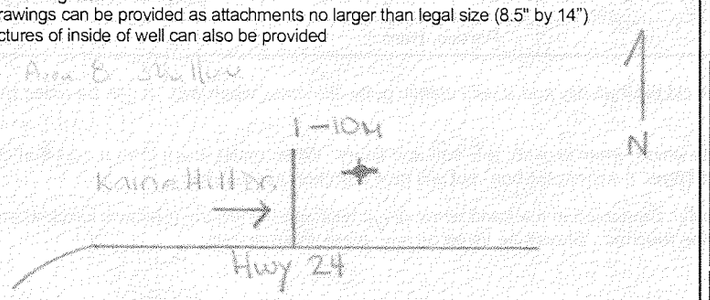
☐ Public ☐ Commercial ☒ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify* ____

Status of Well

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

Location of Well

Please provide a map below showing:
- all property boundaries, and measurements sufficient to locate the well in relation to fixed points,
- an arrow indicating the North direction
- detailed drawings can be provided as attachments no larger than legal size (8.5" by 14")
- vidigital pictures of inside of well can also be provided



Date Well Completed (yyyy/mm/dd)	Was the well owner's information package delivered?	Date the Well Record and Package Delivered to Well Owner (yyyy/mm/dd)
2008/07/11	☒ Yes ☐ No	2008/07/11

Results of Well Yield Testing

Check box if after test of well yield, water was:
☒ Clear and sand free
☐ Cannot develop to sand-free state

If pumping discontinued, give reason:

Pumping test method

Pump intake set at *(Metres)*

Pumping rate *(Litres/min)*

Duration of pumping ____ hrs + ____ min

Final water level end of pumping *(Metres)*

Recommended pump type ☐ Shallow ☐ Deep

Recommended pump depth ____ Metres

Recommended pump rate *(Litres/min)*

If flowing give rate *(Litres/min)*

	Draw Down Time (Min)	Draw Down Water Level (Metres)	Recovery Time (Min)	Recovery Water Level (Metres)
Static Level				
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Water Details

Water found at Depth 15 Metres ☐ Gas	Kind of Water ☐ Fresh ☒ Salty ☐ Sulphur ☐ Minerals	NOT TESTED
Water found at Depth ____ Metres ☐ Gas	Kind of Water ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals	
Water found at Depth ____ Metres ☐ Gas	Kind of Water ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals	

Casing Used	Screen Used
☐ Galvanized	☐ Galvanized
☐ Steel	☐ Steel
☐ Fibreglass	☐ Fibreglass
☒ Plastic	☒ Plastic
☐ Concrete	☐ Concrete

No Casing and Screen Used: ☐ Open Hole

Disinfected? ☒ Yes ☐ No

Casing and Well Details

Diameter of the Hole *(Centimetres)*	15.24
Depth of the Hole *(Metres)*	15.97
Wall Thickness *(Metres)*	schedule 40
Inside Diameter of the Casing *(Metres)*	3.17cm
Depth of the Casing *(Metres)*	14.32

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling & Eng. Ltd.	3406

Business Address (Street No./Name, number, RR)	Municipality
RR#1 Grand Valley	

Province	Postal Code	Business E-mail Address
Ontario	L0N 1G0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
	Gerrits, Steve

Well Technician's Licence No.	Signature of Technician	Date Submitted (yyyy/mm/dd)
2984		2008/07/11

Ministry Use Only

Audit No.	Well Contractor No.
Z75950	
Date Received (yyyy/mm/dd)	**Date of Inspection (yyyy/mm/dd)**

Remarks

(11/2006) Well Owner's Copy

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MW08-T3-09

Ontario — Ministry of the Environment

Measurements recorded in: ☑ Metric ☐ Imperial

Well Tag No. (Place Sticker and/or Print Below): AO56851

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde Rd	Cambridge	ON	N1R 5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	Puslinch	14	11

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	5170164	4912664		

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
Brown	Sand	Silt		0	6.10
Brown	Sand	Gravel		6.10	12.20
	Silt	Clay		12.20	25.60
Grey	Limestone			25.60	54.10
Grey Brown	Shale			54.10	49.70

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
		See Attached	

Method of Construction

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

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	To
	See Attached			

Construction Record - Screen

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

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* _____

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping _____ hrs + _____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

Well production (l/min / GPM)

Disinfected? ☑ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Map of Well Location

Please provide a map below following instructions on the back.

See Attached

Comments:

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* _____

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling & Engineering Ltd.	3716

Business Address (Street Number/Name)	Municipality
204-154 10th Line, R.R. #1 Grand Valley, Ontario L9W 6C6	

Province	Postal Code	Business E-mail Address

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
	Steve Gerrits

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
7416		Y Y Y Y M M D D

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☐ No	Y Y Y Y M M D D	Y Y Y Y M M D D

Ministry Use Only

Audit No. Z110396

Received

95

MW08-T3-09-OB

Ontario — Ministry of the Environment

Well: AO56849 (Print Below)

A056849

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☒ Metric ☐ Imperial

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde Rd	Cambridge	ON	N1R5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
	Puslinch	14	11

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	570164	4820164		

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
Brown	See Sand	Silt			
Brown	Sand	Gravel		0	6.10
				6.10	11.00

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
		See Attached	

Method of Construction

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

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	To
	See Attached			

Construction Record - Screen

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

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* _____

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping
____ hrs + ____ min

Final water level end of pumping *(m/ft)*

If flowing give rate *(l/min / GPM)*

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

Well production *(l/min / GPM)*

Disinfected?
☒ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level				
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

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* _____

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	11.00	15.7

Map of Well Location

Please provide a map below following instructions on the back.

See Attached

Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor: Gerrits Drilling & Engineering Ltd.
Well Contractor's Licence No.: 7416

Business Address (Street Number/Name): 215154 10th Line, R.R. #1
Municipality:
Grand Valley, Ontario L0N 1G0

Province: Postal Code: Business E-mail Address:

Bus. Telephone No. *(inc. area code)*: Name of Well Technician (Last Name, First Name): Steve Gerrits

Well Technician's Licence No.: 2964 Signature of Technician and/or Contractor: [signature] Date Submitted: YYYY MM DD

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

Date Package Delivered: YYYY MM DD

Date Work Completed: YYYY MM DD

Ministry Use Only

Audit No. Z110395

Received

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Well Owner's Copy

MW08-T3-10-OB

Ontario — Ministry of the Environment

Measurements recorded in: ☒ Metric ☐ Imperial

Well Tag No. (Place Sticker and/or Print Below): A051720 A051720

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde Road PO Box 729	Cambridge	ON	N1R5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Vance Tract	Puslinch	16	3

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	561369	4812507		

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
Brown	Sand	Boulders		0	3.05
Brown	sand		wet	3.05	15.24
Grey	clay	silt		15.24	24.99
Brown	sand	silt		24.99	33.52
Brown	gravel	sand	coarse	33.52	33.96

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
		See attached diagram	

Results of Well Yield Testing

After test of well yield, water was: ☒ Clear and sand free ☐ Other, *specify*

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping ____ hrs + ____ min

Final water level end of pumping *(m/ft)*

If flowing give rate *(l/min / GPM)*

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

Well production *(l/min / GPM)*

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Method of Construction

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

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	To
3.17		Sch 40	0.60	33.83

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
4.21	Plastic		33.83	35.30

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

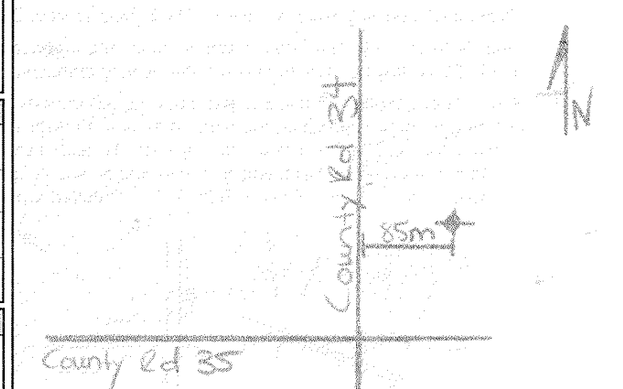
Water found at Depth (m/ft)	Kind of Water	
33	☐ Gas	☐ Fresh ☒ Untested ☐ Other, *specify*
	☐ Gas	☐ Fresh ☐ Untested ☐ Other, *specify*
	☐ Gas	☐ Fresh ☐ Untested ☐ Other, *specify*

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	33.96	15.71

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Area 10 shallow

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling & Eng. Ltd.	3406

Business Address (Street Number/Name)	Municipality
RR#1 Grand Valley	

Province	Postal Code	Business E-mail Address
ON	L0N 1G0	

Bus.Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
	Steve Gerrits

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2964	[signature]	2008/07/23

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No	2008/07/23	2008/07/25

Ministry Use Only

Audit No. Z 84498

Received

0506E (12/2007)

Well Owner's Copy

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MW08-T3-10

Ontario — Ministry of the Environment

Measurements recorded in: ☒ Metric ☐ Imperial

Well Tag (Print Below): A051700 / A051700

Well Record

Regulation 903 Ontario Water Resources Act

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
GRCA			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
400 Clyde Road PO Box 729	Cambridge	ON	N1R5W6	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Vance Tract	Puslinch	16	3

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington		Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	563190	4812531		

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
Brown	sand	boulders		0	1.52
Brown	sand	gravel		1.52	15.24
Brown	sand	gravel & silt		15.244	17.37
Grey	silt	clay		17.37	19.81
Brown	sand	silt		19.81	35.66
Grey	silt	clay & gravel		35.66	38.10
Brown/grey	Limestone & dolostone layers			38.10	105.16
Green	shale			105.16	105.46

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	6.1	Bentonite Slurry	0.05

Method of Construction

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

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	To
15.24		0.477	0.50	39.10
	open hole		39.10	105.46

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	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	
40	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	
51	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	
82	☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	39.1	15.71

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft): 30.48

Pumping rate (l/min / GPM): 170.34

Duration of pumping: 4 hrs + 0 min

Final water level end of pumping (m/ft): 13.305

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

Recommended pump depth (m/ft): 30.48

Recommended pump rate (l/min / GPM): 170.34

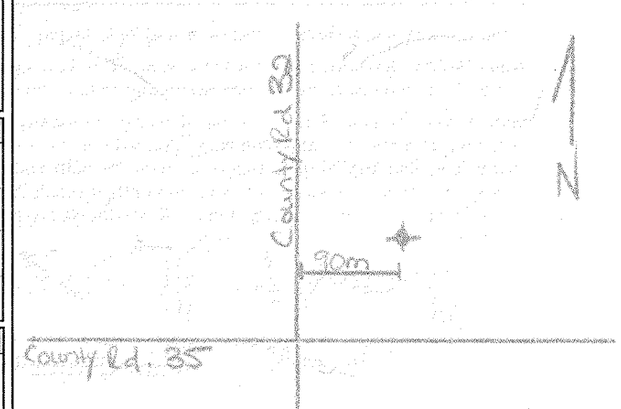
Well production (l/min / GPM):

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	12.91		13.31
1	12.12	1	13.075
2	13.14	2	13.06
3	13.15	3	13.075
4	13.15	4	13.065
5	13.15	5	13.06
10	13.18	10	13.035
15	13.19	15	13.025
20	13.195	20	13.005
25	13.20	25	13.0
30	13.22	30	13.0
40	13.25	40	12.97
50	13.255	50	12.975
60	13.26	60	12.975

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Arm to deep

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Gerrits Drilling & Eng. Ltd.	3406

Business Address (Street Number/Name)	Municipality
RR#1 Grand Valley	

Province	Postal Code	Business E-mail Address
ON	L0N 1G0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
	Gerrits, Steve

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2964		2008 07 22

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

Date Package Delivered: 2008 07 22

Date Work Completed: YYYY MM DD

Ministry Use Only

Audit No. Z 84497

Received

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MW09-T3-01 09-0078-00

Ontario Ministry of the Environment

Measurements recorded in: ☐ Metric ☑ Imperial

Well Tag No. (Place Sticker Below) **A 083366**

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
Wellington County			

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
74 Woolwich St	Guelph	ON	N1H3T9	866 899 0045

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Little Tract Trail 6714 County Rd 34		9	3

County/District/Municipality	City/Town/Village	Province	Postal Code
	Puslinch	Ontario	N1H3T9

UTM Coordinates NAD 83	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
	17	580286	4811445		

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
Brown	Gravel			0	15
	Sand			15	26
	Gravel			26	48
Grey	Silt	Sand		48	53
	Clay			53	74
	Gravel			74	76
	Clay			76	78
	Bedrock			78	370

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	82	Bentonite, Grout	
82	110	sand	
110	260	Bentonite	
260	329	sand	

Method of Construction

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

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	To
1	Plastic	sch40	0	270
1	Plastic	sch40	0	85

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
1	Plastic	10	270	320
1	Plastic	10	85	100

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: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, *specify*
30	
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*

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	80	6
80	370	3.75

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

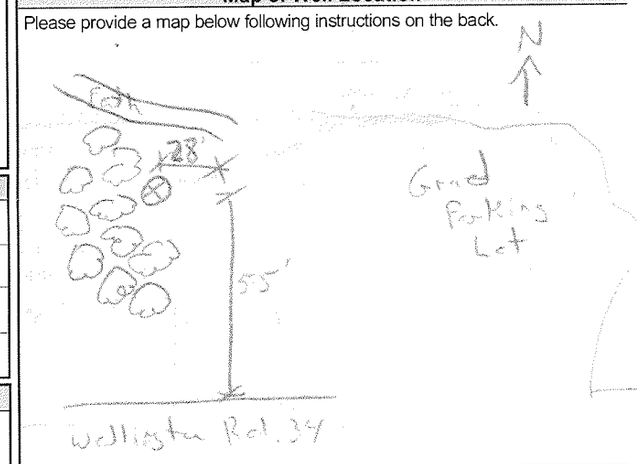
Well production (l/min / GPM)

Disinfected? ☐ Yes ☐ No

Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Aardvark Drilling Inc	7121318

Business Address (Street Number/Name)	Municipality
25 Lewis Road, Unit C	Guelph

Province	Postal Code	Business E-mail Address
ON	N1H1E9	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
519 836 9340	Gain, Tim

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3143		2009 07 13

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☐ No	Y Y Y Y M M D D	2009 06 05

Ministry Use Only

Audit No. Z098724

Received

0506E (12/2007)

Well Owner's Copy

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C2: Core and Chip Photographs

TOP

10.7 – 12.2 m

12.2 –15.2 m

15.2 – 18.3 m

18.3 – 21.3 m

21.3 – 24.4 m

24.4 – 27.4 m

27.4 – 30.5 m

30.5 – 33.5 m

33.5 – 36.6 m

36.6 – 39.6 m

39.6 – 42.7 m

42.7 – 45.7 m

45.7 – 48.8 m

48.8 – 51.8 m

51.8 – 54.9 m

54.9 – 57.9 m

57.9 – 61.0 m

61.0 – 64.0 m

64.0 – 67.1 m

67.1 – 70.1 m

BOTTOM

TOP

70.1– 73.2 m

73.2– 76.2 m

76.2 – 79.2 m

79.2 – 82.3 m

82.3 – 85.3 m

85.3 – 88.4 m

88.4 – 91.4 m

91.4 – 94.5 m

94.5 – 95.7 m

BOTTOM

EOH

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

TITLE

MW08-T3-01 Bedrock Chip Photos

Golder Associates

PROJECT No.	08-1112-0021		FILE No. MW08-T3-01	
DESIGN	KS	APR 2010	SCALE NTS	REV. 2
CADD	KS	APR 2010	Plate C1	
CHECK	--			
REVIEW	JAP	NOV 2010		

BOTTOM **TOP**

TOP 8.6 m

8.6 – 9.1 m

9.1 – 10.7 m

10.7 – 12.2 m

12.2 – 13.7 m

13.7 – 15.2 m

15.2 – 16.8 m

16.8 – 18.3 m

18.3 -19.8 m

19.8 – 21.3 m

21.3 – 22.9 m

22.9 – 24.4 m

24.4 – 25.9 m

25.9 – 27.4 m

27.4 – 29.0 m

29.0 – 30.5 m

30.5 – 32.0 m

30.5 – 33.5 m

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

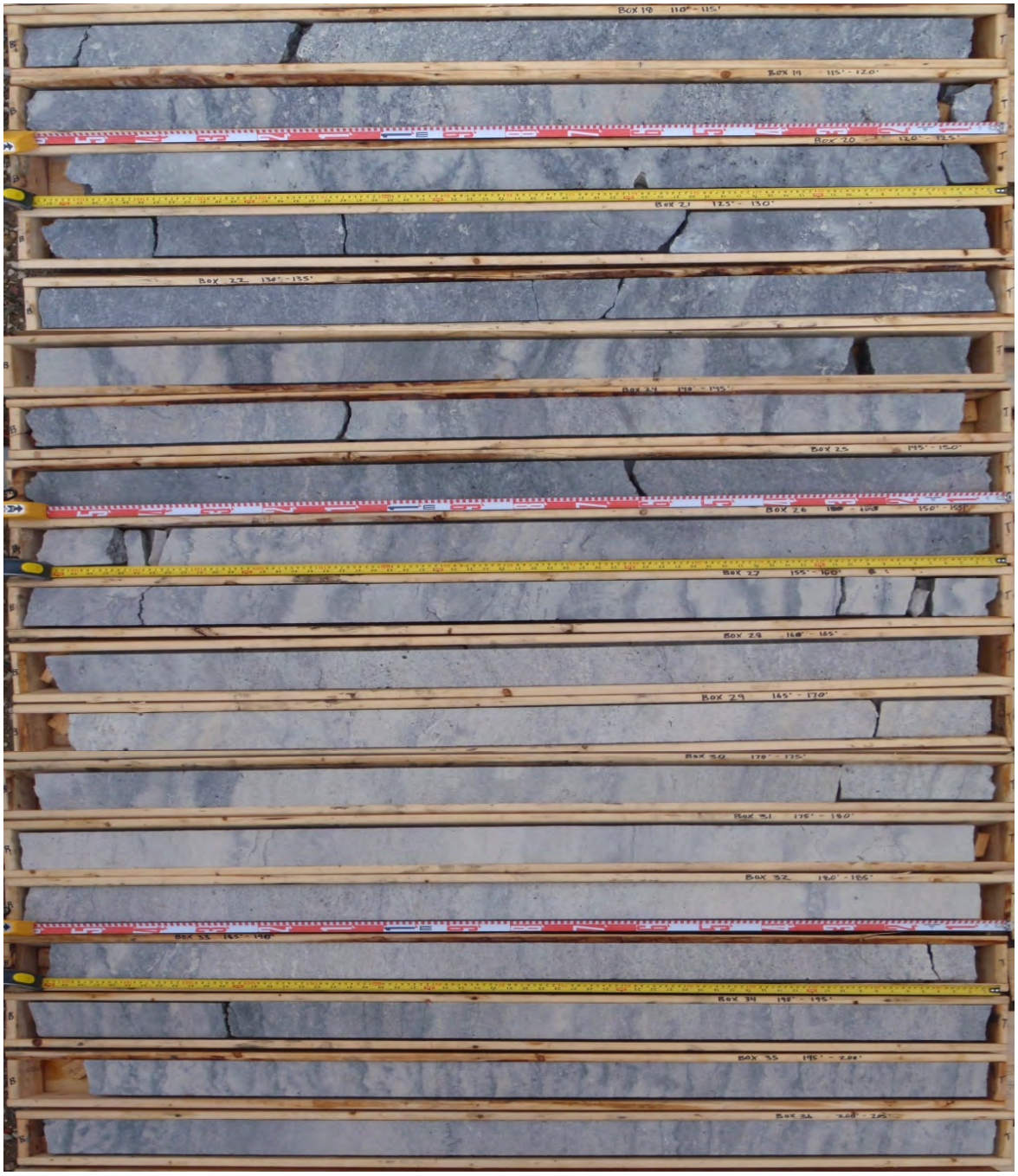
TITLE

MW08-T3-02 Core Photos

Golder Associates

PROJECT No.	08-1112-0021		FILE No. MW08-T3-02	
DESIGN	KS	FEB 2010	SCALE NTS	REV. 2
CADD	KS	APR 2010	Plate C2	
CHECK	--			
REVIEW	JAP	NOV 2010		

BOTTOM **TOP**



33.5 – 35.1 m

35.1 – 36.6 m

36.6 – 38.1 m

38.1 – 39.6 m

39.6 – 41.1 m

41.1 – 42.7 m

42.7 – 44.2 m

44.2 – 45.7 m

45.7 – 47.2 m

47.2 – 48.8 m

48.8 – 50.3 m

50.3 – 51.8 m

51.8 – 53.3 m

53.3 – 54.9 m

54.9 – 56.4 m

56.4 – 57.9 m

57.9 – 59.4 m

59.4 – 61.0 m

61.0 – 62.5 m

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

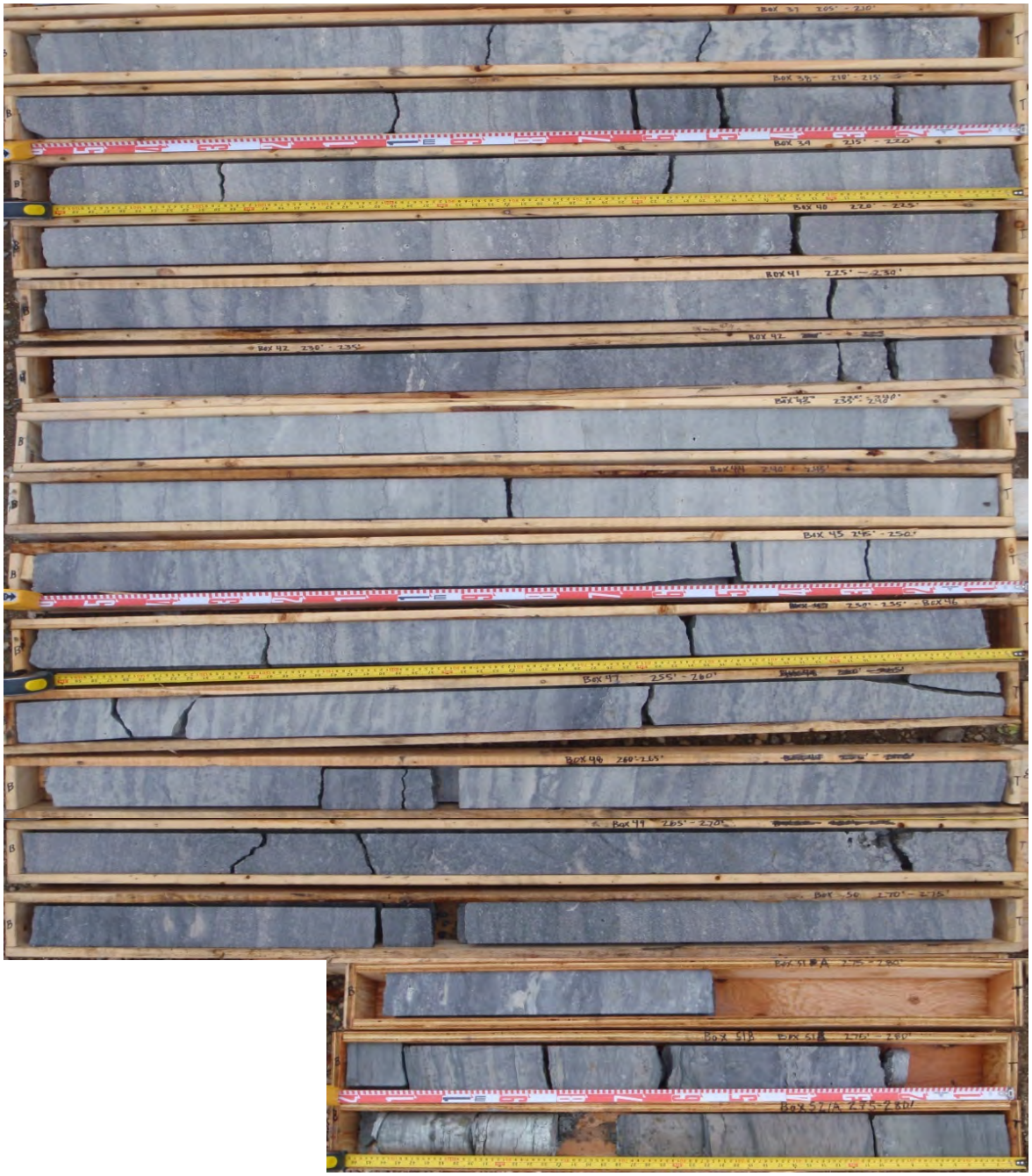
TITLE

MW08-T3-02 Core Photos

Golder Associates

PROJECT No.	08-1112-0021		FILE No. MW08-T3-02	
DESIGN	KS	FEB 2010	SCALE NTS	REV. 2
CADD	KS	APR 2010	Plate C3	
CHECK	--			
REVIEW	JAP	NOV 2010		

BOTTOM **TOP**



62.5 – 64.0 m

64.0 – 65.5 m

65.5 – 67.1 m

67.1 – 68.6 m

68.6 – 70.1 m

70.1 – 71.6 m

71.6 – 73.2 m

73.2 – 74.7 m

74.7 – 76.2 m

76.2 – 77.7 m

77.7 – 79.2 m

79.2 – 80.8 m

80.8 – 82.3 m

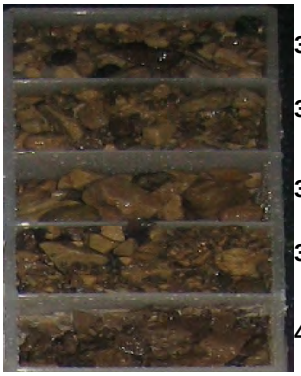
82.3 – 83.8 m

83.8 – 85.3 m

BOTTOM 85.3 m

PROJECT	City of Guelph Tier Three Local Area Risk Assessment			
TITLE	MW08-T3-02 Core Photos			
Golder Associates	PROJECT No. 08-1112-0021		FILE No. MW08-T3-02	
	DESIGN KS	FEB 2010	SCALE NTS	REV. 2
	CADD KS	APR 2010	Plate C4	
	CHECK --			
	REVIEW JAP	NOV 2010		

TOP



30.5 -33.5 m

33.5– 36.6 m

36.6 – 39.6 m

39.6 – 42.7 m

42.7 – 45.7 m

BOTTOM

TOP

45.7 – 48.8 m

48.8 – 51.8 m

51.8 – 54.9 m

54.9 – 57.9 m

57.9 – 61.0 m

61.0 – 64.0 m

64.0 – 70.1 m

70.1– 73.2 m

73.2– 76.2 m

76.2 – 79.2 m

79.2 – 82.3 m

82.3 – 85.3 m

85.3 – 88.4 m

88.4 – 91.4 m

91.4 – 94.5 m

94.5 – 97.2 m

EOH

BOTTOM

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

TITLE

MW08-T3-03 Bedrock Chip Photos

Golder Associates

PROJECT No.	08-1112-0021		FILE No. MW08-T3-03	
DESIGN	KS	APR 2010	SCALE NTS	REV. 2
CADD	KS	APR 2010	Plate C5	
CHECK	--			
REVIEW	JAP	NOV 2010		

TOP

19.8 – 22.9 m
22.9– 25.9 m
25.9– 28.9 m
28.9 – 32.0 m
32.0 -35.0 m
35.0– 38.1 m
38.1 – 41.1 m
41.1 – 44.2 m
44.2– 47.2 m
47.2 – 50.3 m
50.3 – 53.3 m
53.3 – 56.4 m
56.4 – 59.4 m
59.4 – 62.5 m
62.5 – 65.5 m
65.5 – 68.6 m
68.6 – 71.6 m
71.6– 74.7 m
74.7– 77.7 m
77.7– 80.8 m

BOTTOM

TOP

80.8– 83.8 m
83.8– 86.9 m
86.9 – 89.9 m
89.9 – 93.0 m
93.0 – 96.0 m
96.0 – 99.1 m
99.1 – 102.1 m
102.1–105.2 m
105.2–108.2 m
108.2–111.3 m
111.3–114.3 m
114.3–115.8 m
115.8 –118.9 m
118.9 –121.9 m
121.9 –125.0 m
125.0 –128.0 m
128.0 –131.1 m
131.1 –134.1 m
134.1 –137.2 m
137.2 –140.2 m

BOTTOM

TOP

140.2 –143.3 m
143.3 –146.3 m
EOH

BOTTOM

PROJECT	City of Guelph Tier Three Local Area Risk Assessment			
TITLE	MW08-T3-04 Bedrock Chip Photos			
Golder Associates	PROJECT No. 08-1112-0021		FILE No. MW08-T3-04	
	DESIGN KS	Apr 2010	SCALE NTS	REV. 2
	CADD KS	APR 2010	Plate C6	
	CHECK --			
	REVIEW JAP	NOV 2010		

BOTTOM **TOP**

TOP 19.2 m

19.2 – 20.0 m

20.0 – 21.0 m

21.0 – 22.3 m

22.3 – 23.2 m

23.2 – 24.1 m

24.1 – 25.3 m

25.3 – 25.9 m

25.9 – 27.1 m

27.1 – 28.2 m

28.2 – 29.3 m

29.3 – 30.5 m

30.5 – 31.5 m

31.5 – 32.6 m

32.6 – 33.8 m

32.6 – 34.7 m

34.7 – 35.7 m

35.7 – 36.9 m

36.9 – 37.8 m

37.8 – 39.2 m

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

TITLE

MW08-T3-05 Core Photos

Golder Associates

PROJECT No.	08-1112-0021		FILE No. MW08-T3-05	
DESIGN	KS	FEB 2010	SCALE NTS	REV. 2
CADD	KS	APR 2010	Plate C7	
CHECK	--			
REVIEW	JAP	NOV 2010		

BOTTOM **TOP**

39.2 – 39.9 m

39.9 – 41.1 m

41.1 – 42.4 m

42.4 – 43.6 m

43.6 – 44.8 m

44.8 – 45.7 m

45.7 – 46.8 m

46.8 – 47.9 m

47.9 – 49.1 m

49.1 – 50.0 m

50.0 – 51.2 m

51.2 – 52.4 m

52.4 – 53.0 m

53.0 – 54.3 m

54.3 – 55.5 m

55.5 – 56.1 m

56.1 – 57.3 m

57.3 – 58.2 m

Scale is Approximate

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

TITLE

MW08-T3-05 Core Photos

Golder Associates

PROJECT No.	08-1112-0021		FILE No. MW08-T3-05	
DESIGN	KS	FEB 2010	SCALE NTS	REV. 2
CADD	KS	APR 2010	Plate C8	
CHECK	--			
REVIEW	JAP	NOV 2010		

BOTTOM **TOP**

58.2 – 59.1 m

59.1 – 60.4 m

60.4 – 61.4 m

61.4 – 62.3 m

62.3 – 63.1 m

63.1 – 64.3 m

64.3 – 65.2 m

65.2 – 66.2 m

66.2 – 67.1 m

67.1 – 68.2 m

68.2 – 69.2 m

69.2 – 70.3 m

70.3 – 71.3 m

71.3 – 72.4 m

72.4 – 73.4 m

73.4 – 74.5 m

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

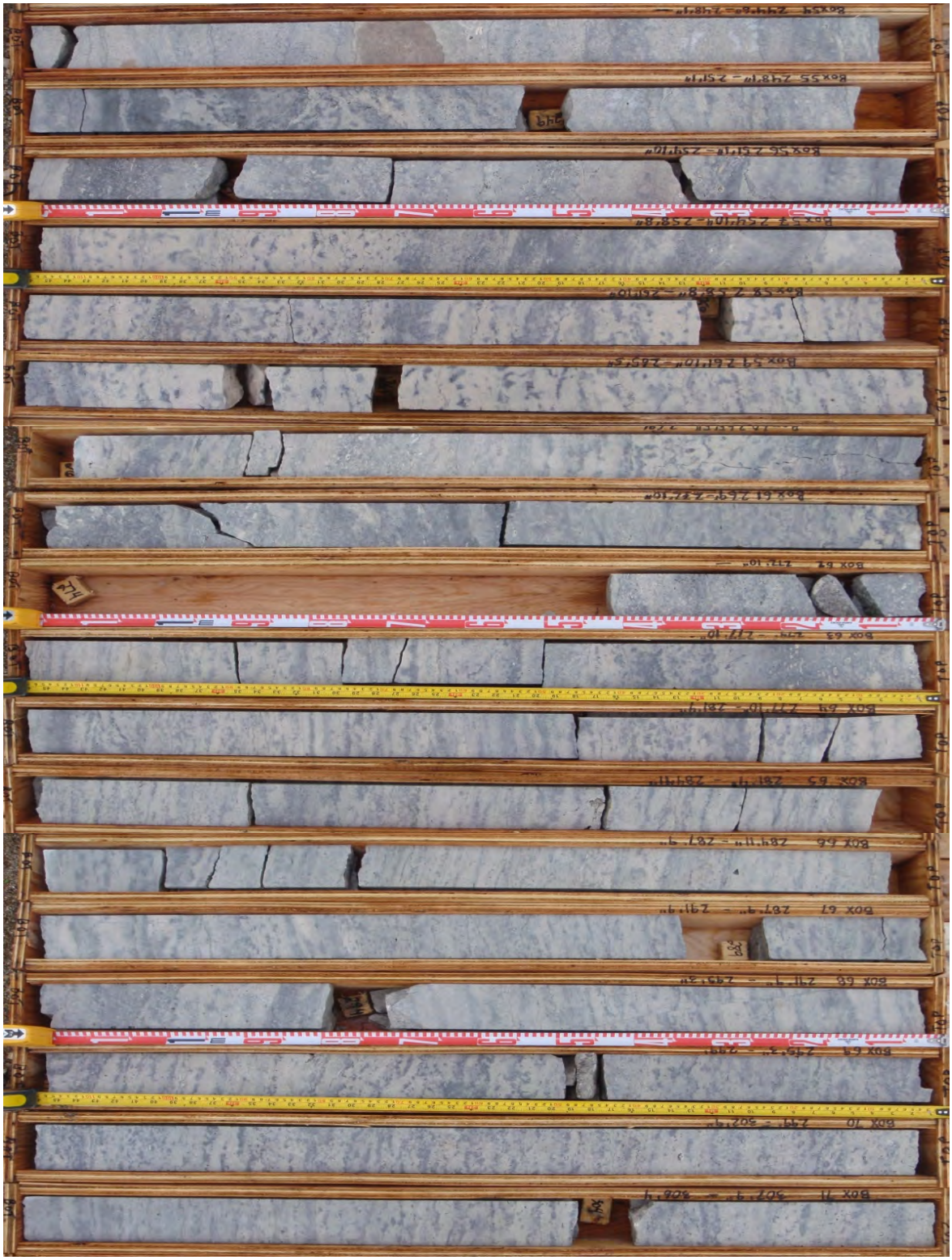
TITLE

MW08-T3-05 Core Photos

Golder Associates

PROJECT No. 08-1112-0021			FILE No. MW08-T3-05
DESIGN	KS	FEB 2010	SCALE NTS / REV. 2
CADD	KS	APR 2010	Plate C9
CHECK	--		
REVIEW	JAP	NOV 2010	

BOTTOM **TOP**



74.5 – 75.6 m

75.6 – 76.5 m

76.5 – 77.7 m

77.7 – 78.8 m

78.8 – 79.8 m

79.8 – 80.9 m

80.9 – 82.0 m

82.0 – 83.1 m

83.1 – 83.5 m

83.5 – 84.7 m

84.7 – 85.9 m

85.9 – 86.8 m

86.8 – 87.7 m

87.7 – 88.9 m

88.9 - 90.0 m

90.0 – 91.1 m

91.1 – 92.3 m

92.3 – 93.4 m

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

TITLE

MW08-T3-05 Core Photos

Golder Associates

PROJECT No.	08-1112-0021		FILE No. MW08-T3-05	
DESIGN	KS	FEB 2010	SCALE NTS	REV. 2
CADD	KS	APR 2010	Plate C10	
CHECK	--			
REVIEW	JAP	NOV 2010		

BOTTOM **TOP**

93.4 – 94.4 m

94.4 – 95.5 m

95.5 – 96.6 m

96.6 – 97.6 m

97.6 – 98.8 m

98.8 – 99.9 m

99.9 – 101.0 m

101.0 – 102.1 m

102.1 – 103.3 m

103.3 – 104.3 m

104.3 – 104.9 m

BOTTOM 104.9 m

PROJECT	City of Guelph Tier Three Local Area Risk Assessment			
TITLE	MW08-T3-05 Core Photos			
Golder Associates	PROJECT No. 08-1112-0021		FILE No. MW08-T3-05	
	DESIGN KS	FEB 2010	SCALE NTS	REV. 2
	CADD KS	APR 2010	Plate C11	
	CHECK --			
	REVIEW JAP	NOV 2010		

BOTTOM **TOP**

TOP 1.1 m

1.1 – 2.1 m

2.1 – 3.1 m

3.1 – 4.3 m

4.3 – 5.3 m

5.3 – 6.4 m

6.4 – 7.5 m

7.5 – 8.6 m

8.6 – 9.5 m

9.5 – 10.5 m

10.5 – 11.4 m

11.4 – 12.0 m

12.0 – 13.1 m

13.1 – 14.0 m

14.0 – 15.1 m

15.1 – 16.0 m

16.0 – 16.6 m

16.6 – 17.7 m

17.7 – 18.8 m

18.8 – 19.7 m

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

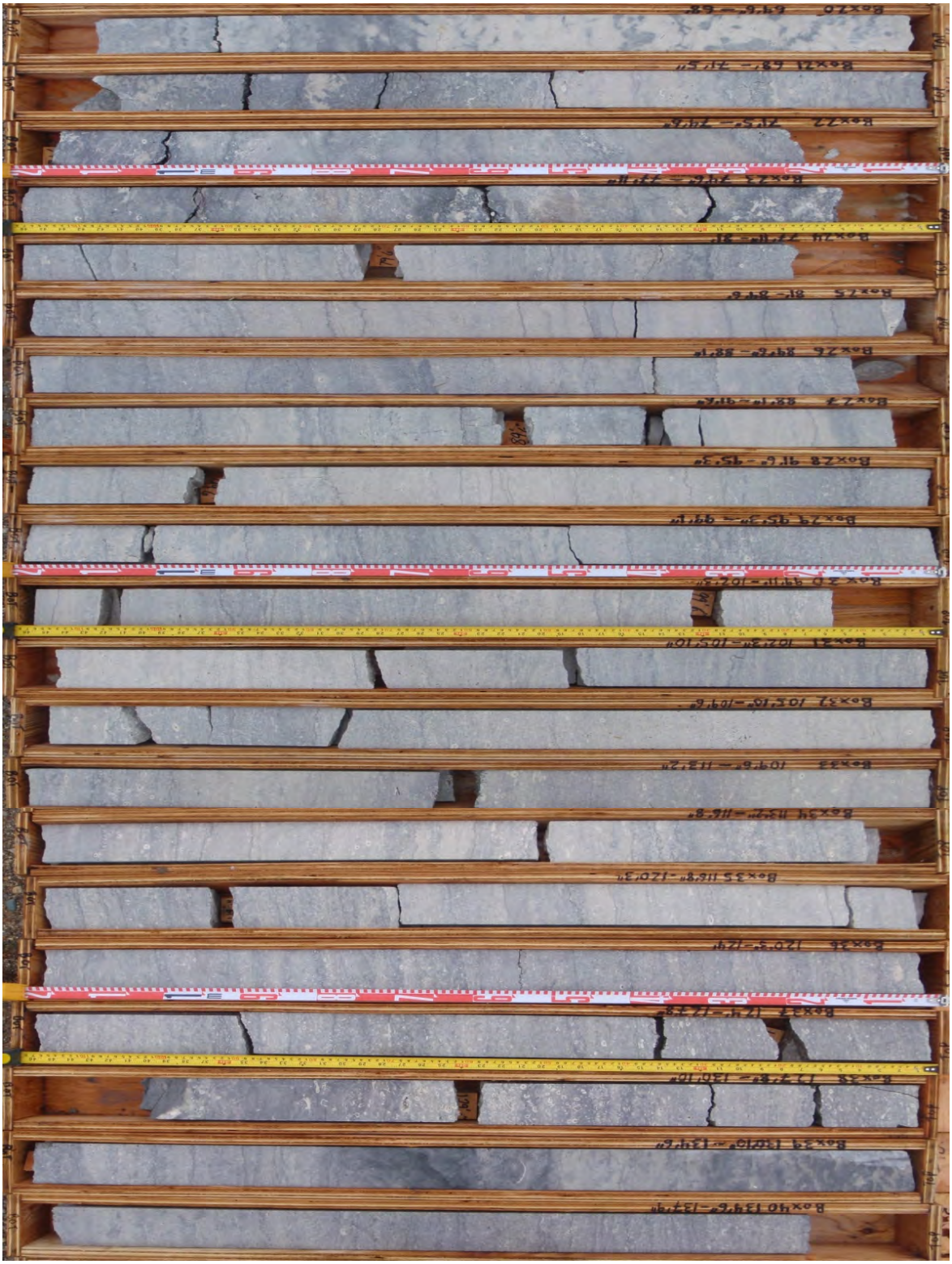
TITLE

MW08-T3-06 Core Photos

Golder Associates

PROJECT No.	08-1112-0021		FILE No. MW08-T3-06	
DESIGN	KS	FEB 2010	SCALE NTS	REV. 2
CADD	KS	APR 2010	Plate C12	
CHECK	--			
REVIEW	JAP	NOV 2010		

BOTTOM **TOP**



18.8 – 20.7 m

20.7 – 21.8 m

21.8 – 22.7 m

22.7 – 23.8 m

23.8 – 24.7 m

24.7 – 25.8 m

25.8 – 26.8 m

26.8 – 27.9 m

27.9 – 29.1 m

29.1 – 30.4 m

30.4 – 31.2 m

31.2 – 32.2 m

32.2 – 33.4 m

33.4 – 34.4 m

34.4 – 35.6 m

35.6 – 36.7 m

36.7 – 37.8 m

37.8 – 38.9 m

38.9 – 39.9 m

39.9 – 41.0 m

41.0 – 42.0 m

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

TITLE

MW08-T3-06 Core Photos

Golder Associates

PROJECT No. 08-1112-0021			FILE No. MW08-T3-06
DESIGN	KS	FEB 2010	SCALE NTS REV. 2
CADD	KS	APR 2010	Plate C13
CHECK	--		
REVIEW	JAP	NOV 2010	

BOTTOM **TOP**

42.0 – 43.1 m

43.1 – 44.0 m

44.0 – 45.2 m

45.2 – 46.3 m

46.3 – 47.1 m

47.1 – 48.2 m

48.2 – 49.2 m

49.2 – 50.3 m

50.3 – 51.5 m

51.5 – 52.4 m

52.4 – 53.2 m

53.2 – 54.1 m

54.1 - 54.8 m

Note: Borehole advanced to 57.7mbgs.
Photos not taken.

BOTTOM 57.7 m

PROJECT	City of Guelph Tier Three Local Area Risk Assessment			
TITLE	MW08-T3-06 Core Photos			
Golder Associates	PROJECT No. 08-1112-0021		FILE No. MW08-T3-06	
	DESIGN KS	FEB 2010	SCALE NTS	REV. 2
	CADD KS	APR 2010	Plate C14	
	CHECK --			
	REVIEW JAP	NOV 2010		

TOP

15.2 – 18.3 m

18.3 – 21.3 m

21.3 – 24.4 m

24.4– 27.4 m

27.4 – 30.5 m

30.5 -33.5 m

33.5– 36.6 m

36.6 – 39.6 m

39.6 – 42.7 m

42.7 – 45.7 m

45.7 – 48.8 m

48.8 – 51.8 m

51.8 – 54.9 m

54.9 – 57.9 m

57.9 – 61.0 m

61.0 – 64.0 m

64.0 – 67.1 m

67.1 – 70.1 m

70.1– 73.2 m

73.2– 76.5 m EOH

BOTTOM

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

TITLE

MW08-T3-07 Bedrock Chip Photos

Golder Associates

PROJECT No.	08-1112-0021		FILE No. MW08-T3-07	
DESIGN	KS	APR 2010	SCALE NTS	REV. 2
CADD	KS	APR 2010	Plate C15	
CHECK	--			
REVIEW	JAP	NOV 2010		

TOP

18.3 – 21.3 m

21.3 – 24.4 m

24.4– 27.4 m

27.4 – 30.5 m

30.5 -33.5 m

33.5– 36.6 m

36.6 – 39.6 m

39.6 – 42.7 m

42.7 – 45.7 m

45.7 – 48.8 m

48.8 – 51.8 m

51.8 – 54.9 m

54.9 – 57.9 m

57.9 – 61.0 m

61.0 – 64.0 m

64.0 – 67.1 m

67.1 – 70.1 m

70.1– 73.2 m

73.2– 75.6 m

75.6– 76.2 m EOH

BOTTOM

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

TITLE

MW08-T3-08 Bedrock Chip Photos

Golder Associates

PROJECT No. 08-1112-0021			FILE No. MW08-T3-08
DESIGN	KS	APR 2010	SCALE NTS REV. 2
CADD	KS	APR 2010	Plate C16
CHECK	--		
REVIEW	JAP	NOV 2010	

TOP

27.4 – 30.5 m

30.5 -33.5 m

33.5– 36.6 m

36.6 – 39.6 m

39.6 – 42.7 m

42.7 – 45.7 m

45.7 – 48.8 m

48.8 – 51.8 m

51.8 – 54.9 m

54.9 – 57.9 m

57.9 – 61.0 m

61.0 – 64.0 m

64.0 – 67.1 m

67.1 – 70.1 m

70.1– 73.2 m

73.2– 76.2 m

76.2 – 79.2 m

79.2 – 82.3 m

82.3 – 85.3 m

EOH

BOTTOM

PROJECT	City of Guelph Tier Three Local Area Risk Assessment			
TITLE	MW08-T3-09 Bedrock Chip Photos			
Golder Associates	PROJECT No. 08-1112-0021		FILE No. MW08-T3-09	
	DESIGN KS	APR 2010	SCALE NTS	REV. 2
	CADD KS	APR 2010	Plate C17	
	CHECK --			
	REVIEW JAP	NOV 2010		

TOP

39.6 – 42.7 m

42.7 – 45.7 m

45.7 – 48.8 m

48.8 – 51.8 m

51.8 – 54.9 m

54.9 – 57.9 m

57.9 – 61.0 m

61.0 – 64.0 m

64.0 – 67.1 m

67.1 – 70.1 m

70.1– 73.2 m

73.2– 76.2 m

76.2 – 79.2 m

79.2 – 82.3 m

82.3 – 85.3 m

85.3 – 88.4 m

88.4 – 91.4 m

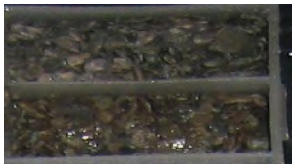
91.4 – 94.5 m

94.5 – 97.5 m

97.5 – 100.6 m

BOTTOM

TOP



100.6 – 103.6 m

103.6 –106.7 m

EOH

BOTTOM

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

TITLE

MW08-T3-10 Bedrock Chip Photos

Golder Associates

PROJECT No.	08-1112-0021		FILE No. MW08-T3-10
DESIGN	KS	APR 2010	SCALE NTS REV. 2
CADD	KS	APR 2010	Plate C18
CHECK	--		
REVIEW	JAP	NOV 2010	

Core photo

Optical televiewer image

PROJECT

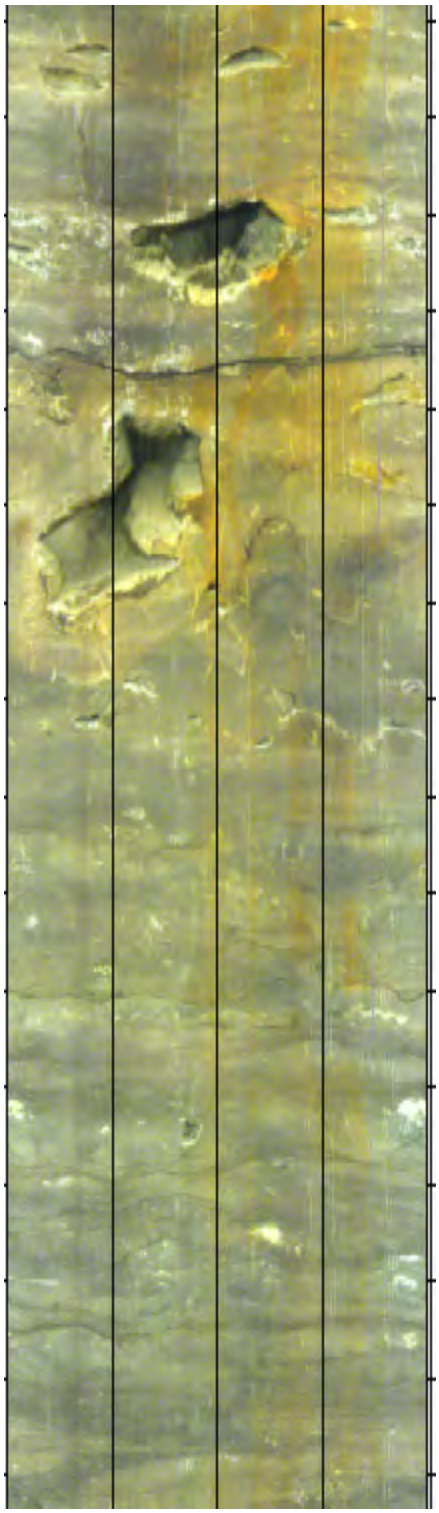
City of Guelph
Tier Three Local Area Risk Assessment

TITLE

Guelph Formation Example

Golder Associates	PROJECT No. 08-1112-0021		FILE No.	
	DESIGN	KS	APR 2010	SCALE NTS	REV. 2
	CADD	KS	APR 2010	Plate C19
	CHECK	--		
	REVIEW	JAP	NOV 2010	

Core photo



Optical televiewer image

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

TITLE

Eramosa Formation Example

Golder Associates	PROJECT No. 08-1112-0021		FILE No.
	DESIGN KS	APR 2010	SCALE NTS / REV. 2
	CADD KS	APR 2010	Plate C20
	CHECK --		
	REVIEW JAP	NOV 2010	

Core photo

Optical televiewer image

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

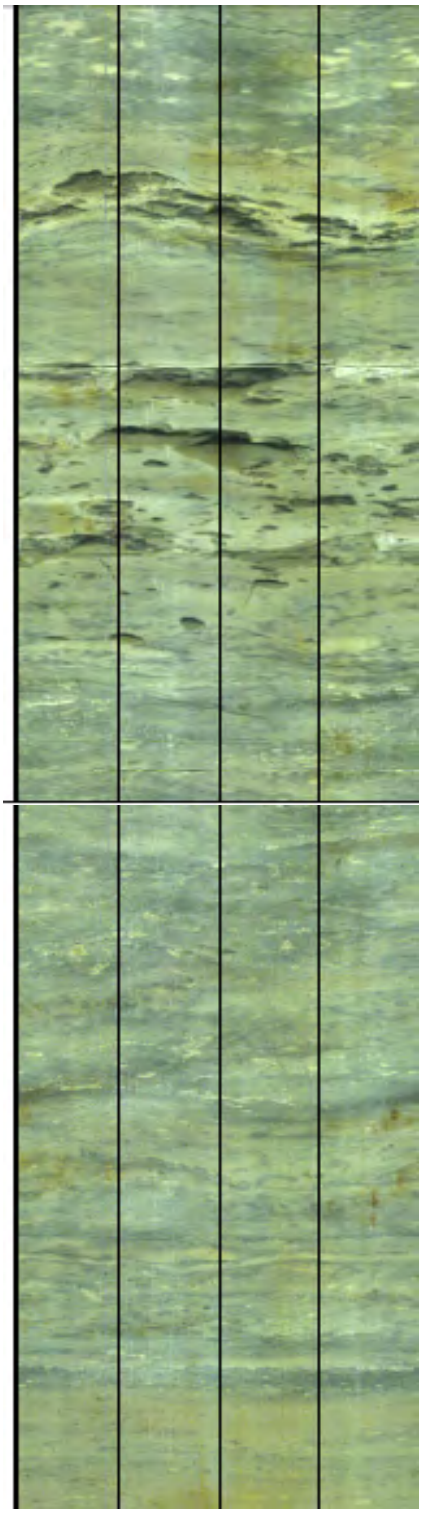
TITLE

Goat Island Formation Example

Golder Associates

PROJECT No.	08-1112-0021		FILE No.	
DESIGN	KS	APR 2010	SCALE NTS	REV. 2
CADD	KS	APR 2010	Plate C21	
CHECK	--			
REVIEW	JAP	NOV 2010		

Core photo



Optical televiewer image

PROJECT

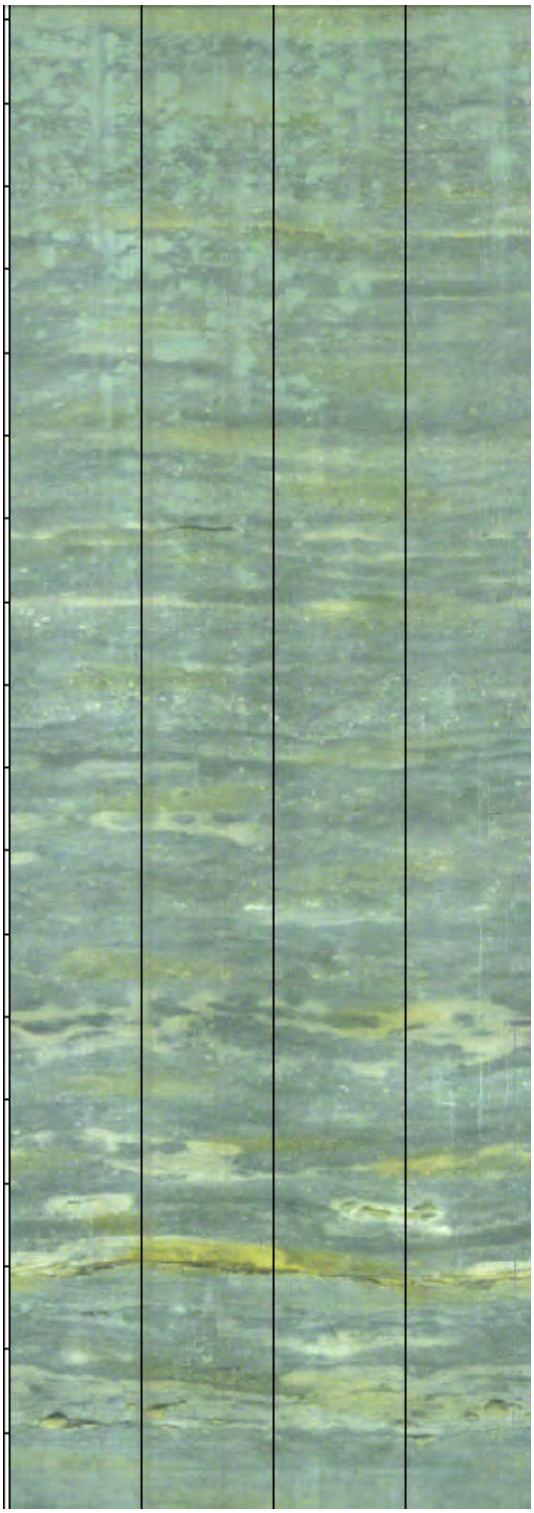
City of Guelph
Tier Three Local Area Risk Assessment

TITLE

Gasport Formation Example

Golder Associates	PROJECT No. 08-1112-0021		FILE No.
	DESIGN KS	APR 2010	SCALE NTS / REV. 2
	CADD KS	APR 2010	Plate C22
	CHECK --		
	REVIEW JAP	NOV 2010	

Core photo



Optical televiewer image

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

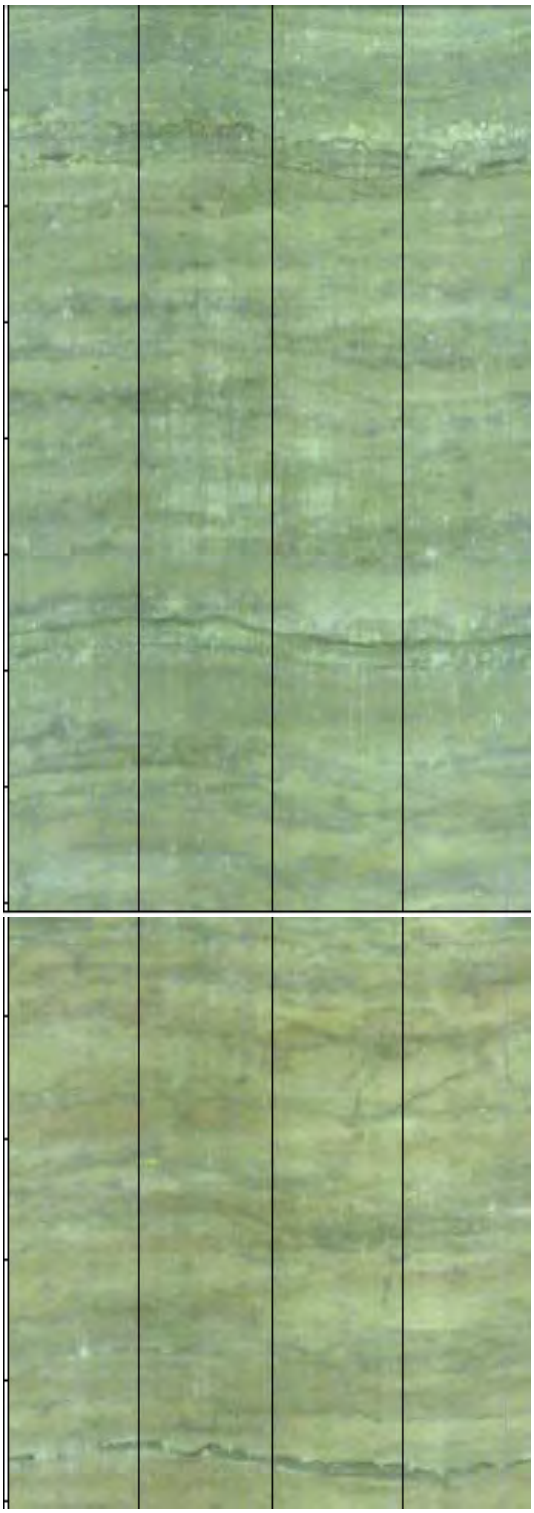
TITLE

Irondequoit Formation Example

Golder Associates

PROJECT No.	08-1112-0021		FILE No.	
DESIGN	KS	APR 2010	SCALE NTS	REV. 2
CADD	KS	APR 2010	Plate C23	
CHECK	--			
REVIEW	JAP	NOV 2010		

Core photo



Optical televiewer image

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

TITLE

Rockway Formation Example

Golder Associates	PROJECT No. 08-1112-0021		FILE No.	
	DESIGN	KS	APR 2010	SCALE NTS	REV. 2
	CADD	KS	APR 2010	Plate C24
	CHECK	--		
	REVIEW	JAP	NOV 2010	

Core photo

Optical televiewer image

PROJECT

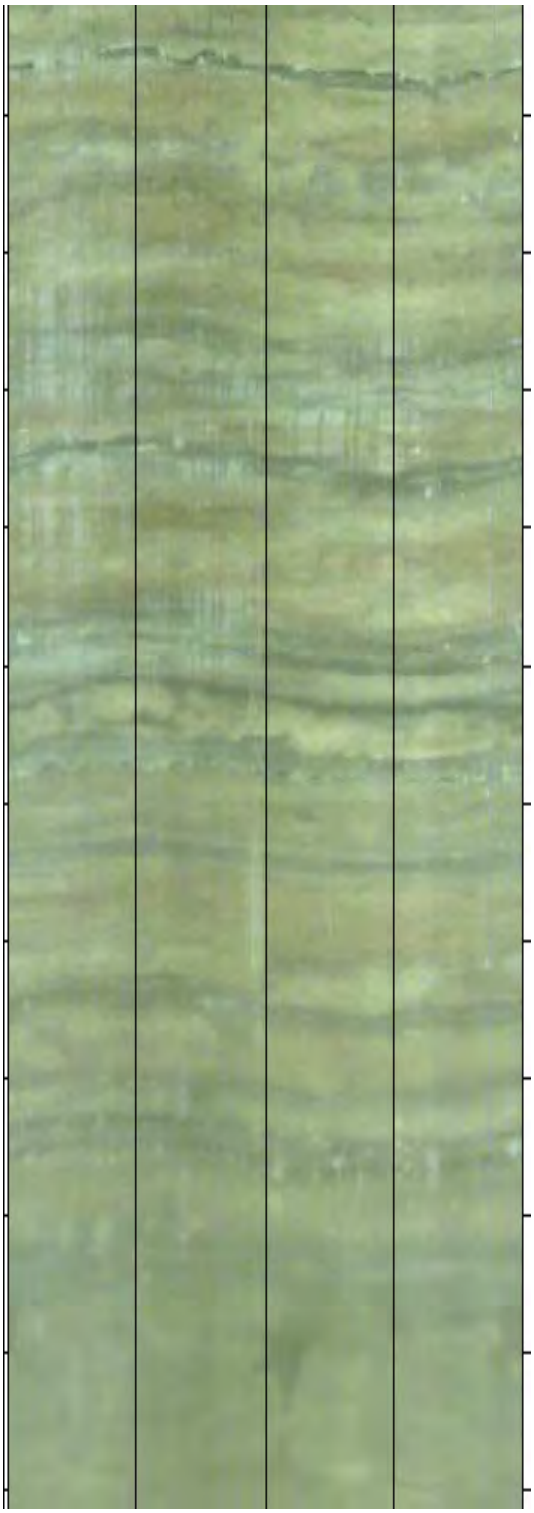
City of Guelph
Tier Three Local Area Risk Assessment

TITLE

Merriton Formation Example

Golder Associates	PROJECT No. 08-1112-0021		FILE No.	
	DESIGN	KS	APR 2010	SCALE NTS	REV. 2
	CADD	KS	APR 2010	Plate C25
	CHECK	--		
	REVIEW	JAP	NOV 2010	

Core photo



Optical televiewer image

PROJECT

City of Guelph
Tier Three Local Area Risk Assessment

TITLE

Cabothead Formation Example

Golder Associates

PROJECT No.	08-1112-0021		FILE No.
DESIGN	KS	APR 2010	SCALE NTS / REV. 2
CADD	KS	APR 2010	Plate C26
CHECK	--		
REVIEW	JAP	NOV 2010	

C3: Survey Data

Van Harten
SURVEYING INC.

LAND SURVEYORS and ENGINEERS

October 19, 2009
19055-09
jbuisman@vanharten.com

Golder Associates Inc
210 Sheldon Drive
Cambridge, Ontario
N1T 1A8

Attention: Kurt Stamm

Dear Sir:

Re: **Survey of Wells in the Guelph Area**
Part Lot 5, Concession 3, Part 1, 61R-8414
PIN 71211-0147 & PIN 71211-0012
Township of Puslinch

Please find enclosed a print out of the spreadsheet presenting the surveyed results of the wells in the Guelph area. The field work was completed Oct. 16 and the spreadsheet was emailed to you on Oct. 19.

Also find enclosed an invoice for our services to complete this work.

Please contact me if you have any questions or comments. Thanks for this opportunity to be of service.

Very truly yours,
Van Harten Surveying Inc.

Jeffrey E. Buisman B.E.S, B.Sc.
Ontario Land Surveyor

JEB:lb
encl.

423 Woolwich Street, Guelph ON N1H 3X3
Phone: (519) 821-2763 • Fax: (519) 821-2770

www.vanharten.com

660 Riddell Road, Unit 1, Orangeville ON L9W 5G5
Phone: (519) 940-4110 • Fax: (519) 940-4113

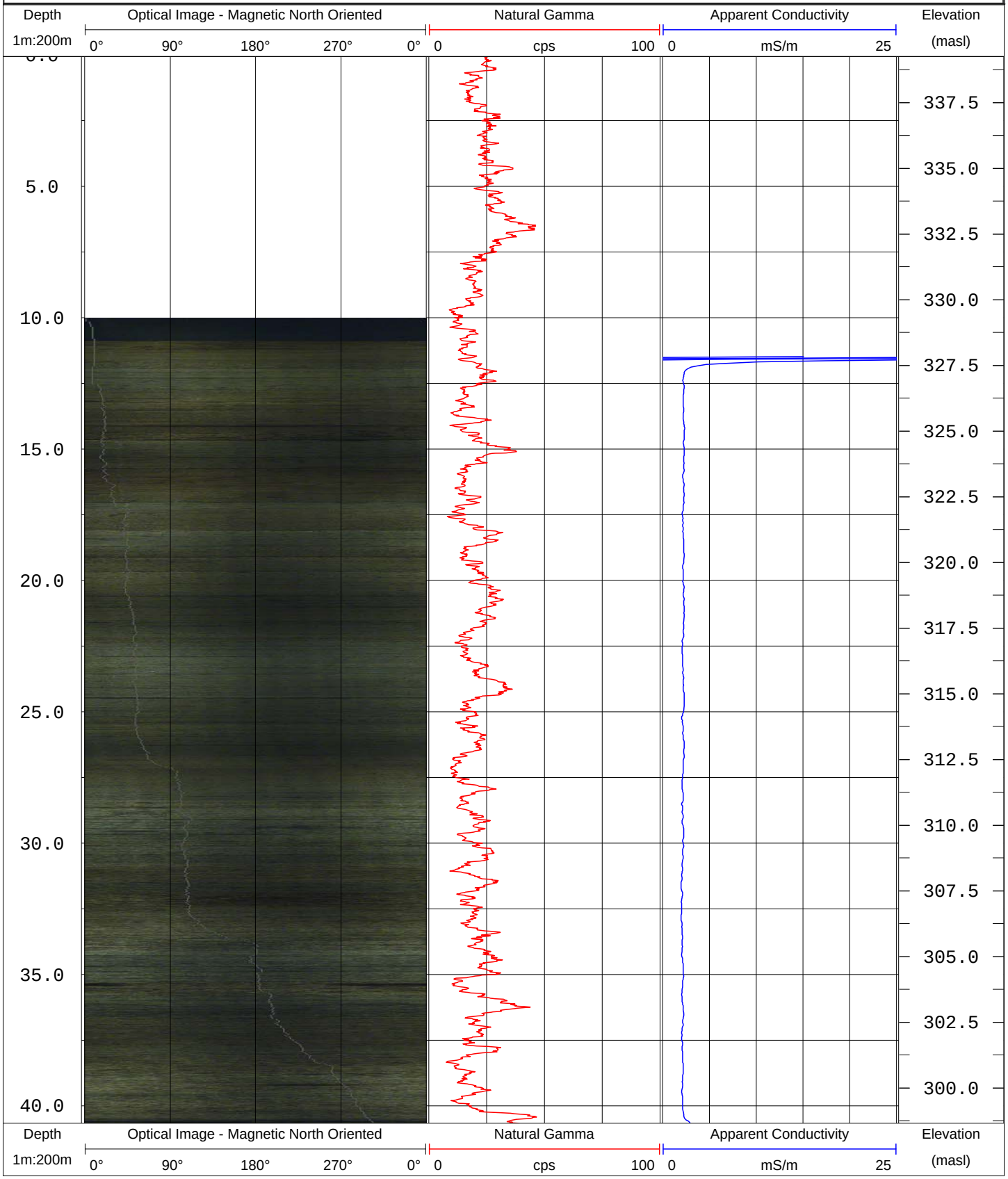
R.P. Magahay, B.A. J.E. Buisman, B.E.S., B.Sc., O.L.S. R.M. Mak, B.Sc., O.L.S. J. M. Laws, O.L.S. J.M. Duffy, P.Eng.

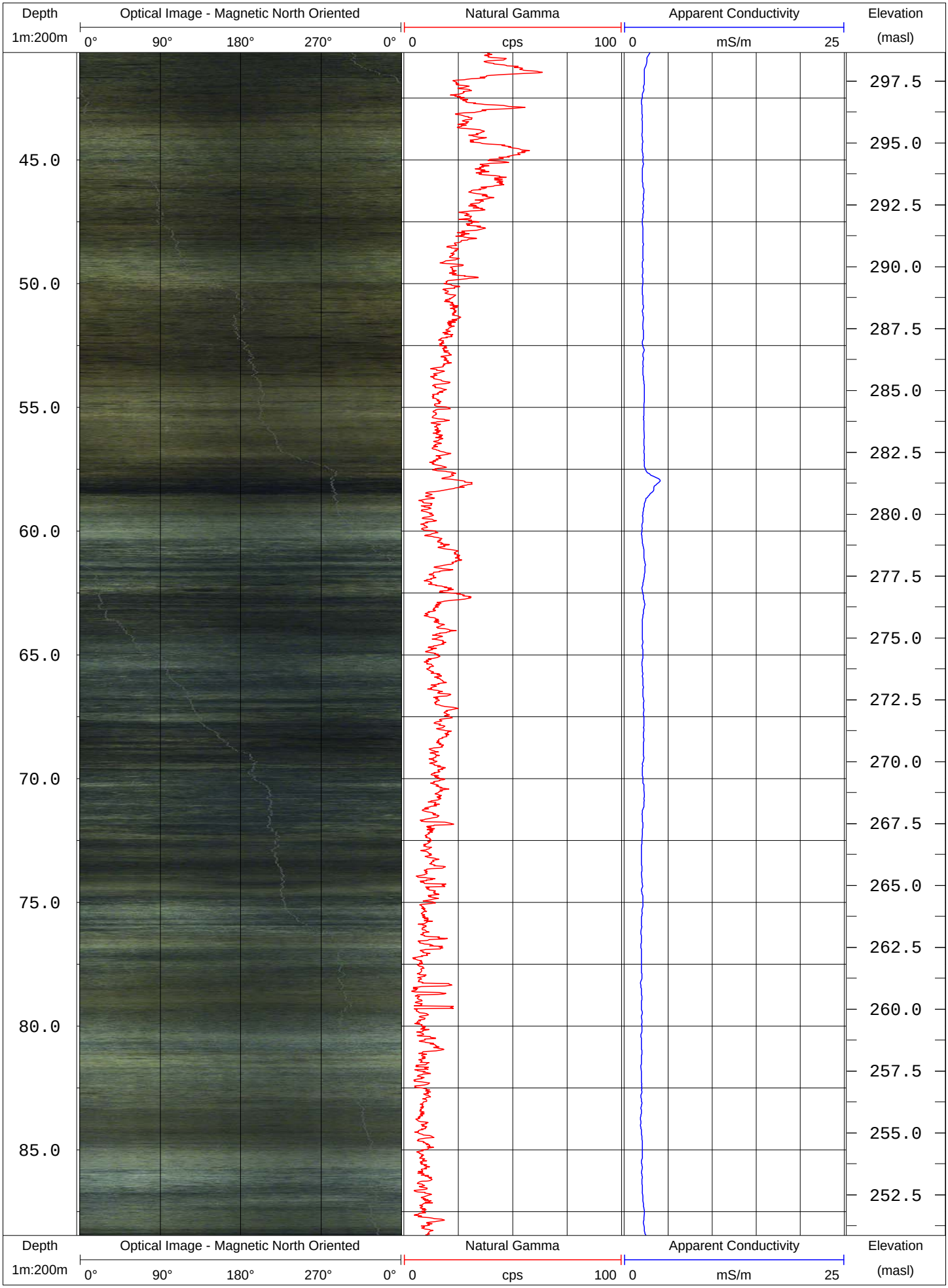
100	4826603.263	560950.213	35.834	EL
101	4826604.365	560948.66	345.33	EL
102	4826603.332	560950.249	345.083	MW08 T3 08 OB
103	4826604.451	560948.755	346.173	MW08-T3-08
105	4845822.629	562218.53	428.364	MW08 T3 05 OB
106	4845823.573	562220.256	428.443	MW08-T3-05
107	4845823.633	562220.191	428.627	MW08-T3-05 CS
108	4845822.811	562218.862	427.537	EL
109	4845823.471	562219.931	427.585	EL
110	4834617.455	568274.137	366.579	MW08 T3 06 CS
111	4834617.385	568274.077	366.486	MW08-T3-06
112	4834617.298	568274.416	365.83	EL
113	4828350.267	564582.613	355.129	MW08 T3 07 OB
114	4828348.616	564581.254	354.898	MW08-T3-07
115	4828348.567	564581.571	354.286	EL
116	4828350.538	564582.823	354.204	EL
117	4820063.833	570645.73	346.965	MW08 T3 09 OB
118	4820064.572	570645.118	347.002	MW08-T3-09
119	4820064.831	570644.929	346.468	EL
120	4820064.08	570645.644	346.374	EL
121	4812507.57	563159.396	330.922	MW08 T3 10 OB
122	4812508.87	563160.895	331.046	MW08-T3-10
123	4812507.284	563159.696	330.312	EL
124	4812508.69	563160.918	330.256	EL
125	4810648.969	560864.121	317.037	MW09 T3 01 D
126	4810648.968	560864.183	317.01	MW09-T3-01
127	4810649.151	560864.277	315.837	EL
128	4824026.405	555101.114	339.954	MW08 T3 01
129	4824026.292	555101.126	339.801	MW08-T3-01 CS
130	4824026.147	555101.119	339.25	EL

C4: Optical Televiewer Logs

GEOPHYSICAL RECORD OF BOREHOLE MW08-T3-01

PROJECT NO.	*08-1112-0021*	**LOG REFERENCE**	*Ground Surface*
LOCATION	*Marden Tract*	**ELEVATION (masl)**	*339.25*
LOG DATE	*August 7, 2008*	**WATER LEVEL (mbgs)**	*2.52*
LOGGED BY	*BB*	**BORING METHOD**	*Diamond Coring*
		REVIEWED BY	*JAP*




Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
45.0
50.0
55.0
60.0
65.0
70.0
75.0
80.0
85.0
297.5
295.0
292.5
290.0
287.5
285.0
282.5
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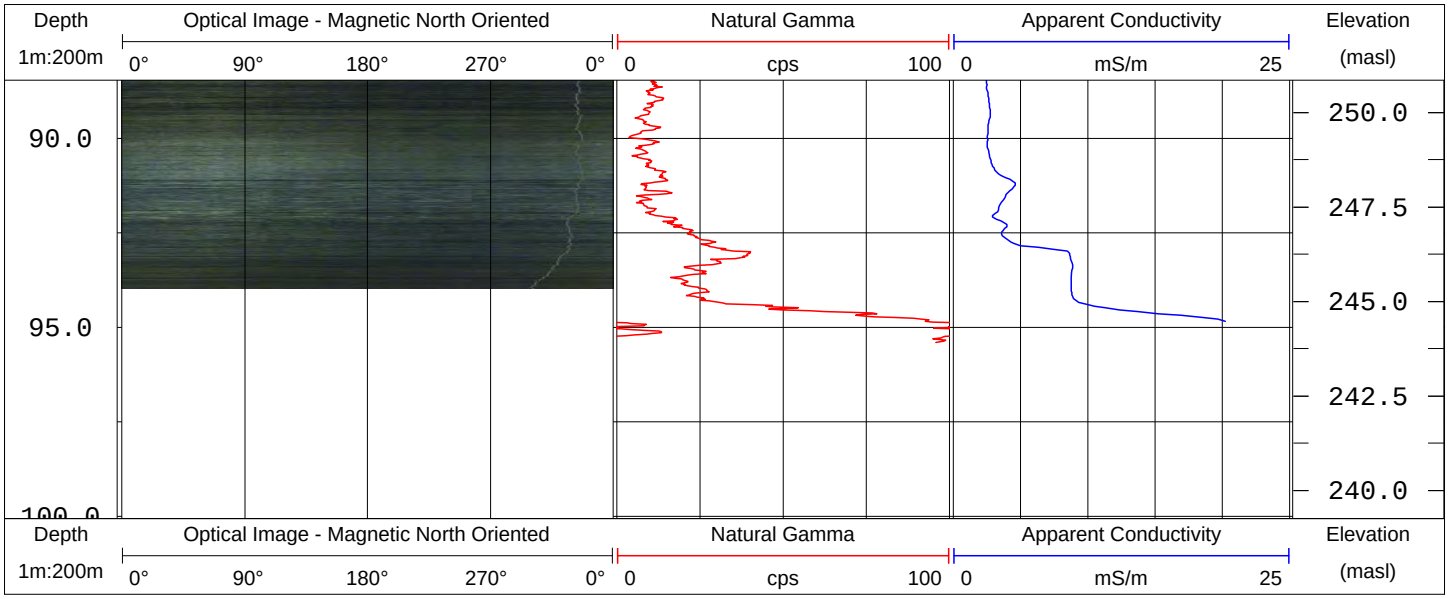
272.5
270.0
267.5
265.0
262.5
260.0
257.5
255.0
252.5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Optical Image - Magnetic North Oriented
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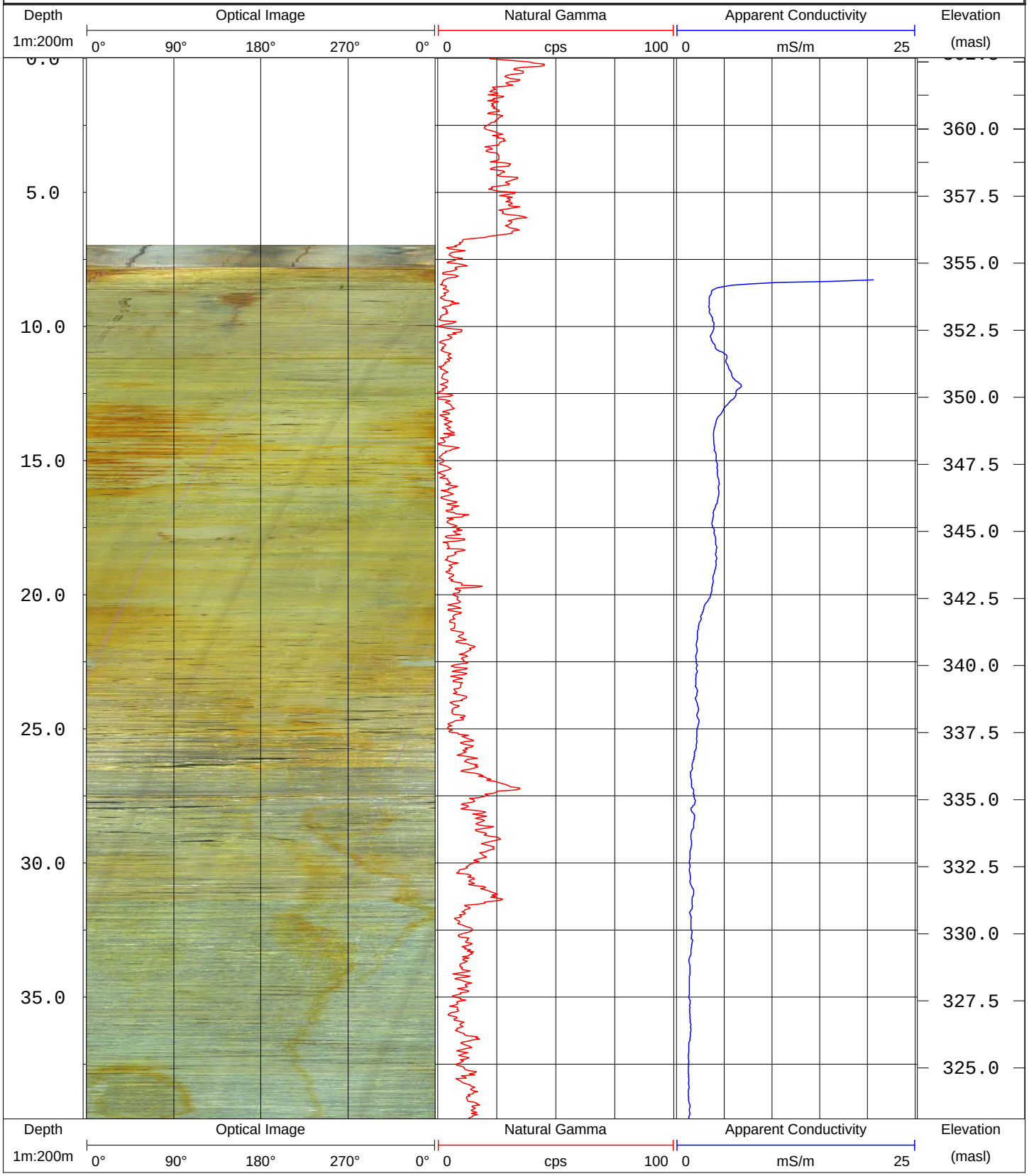
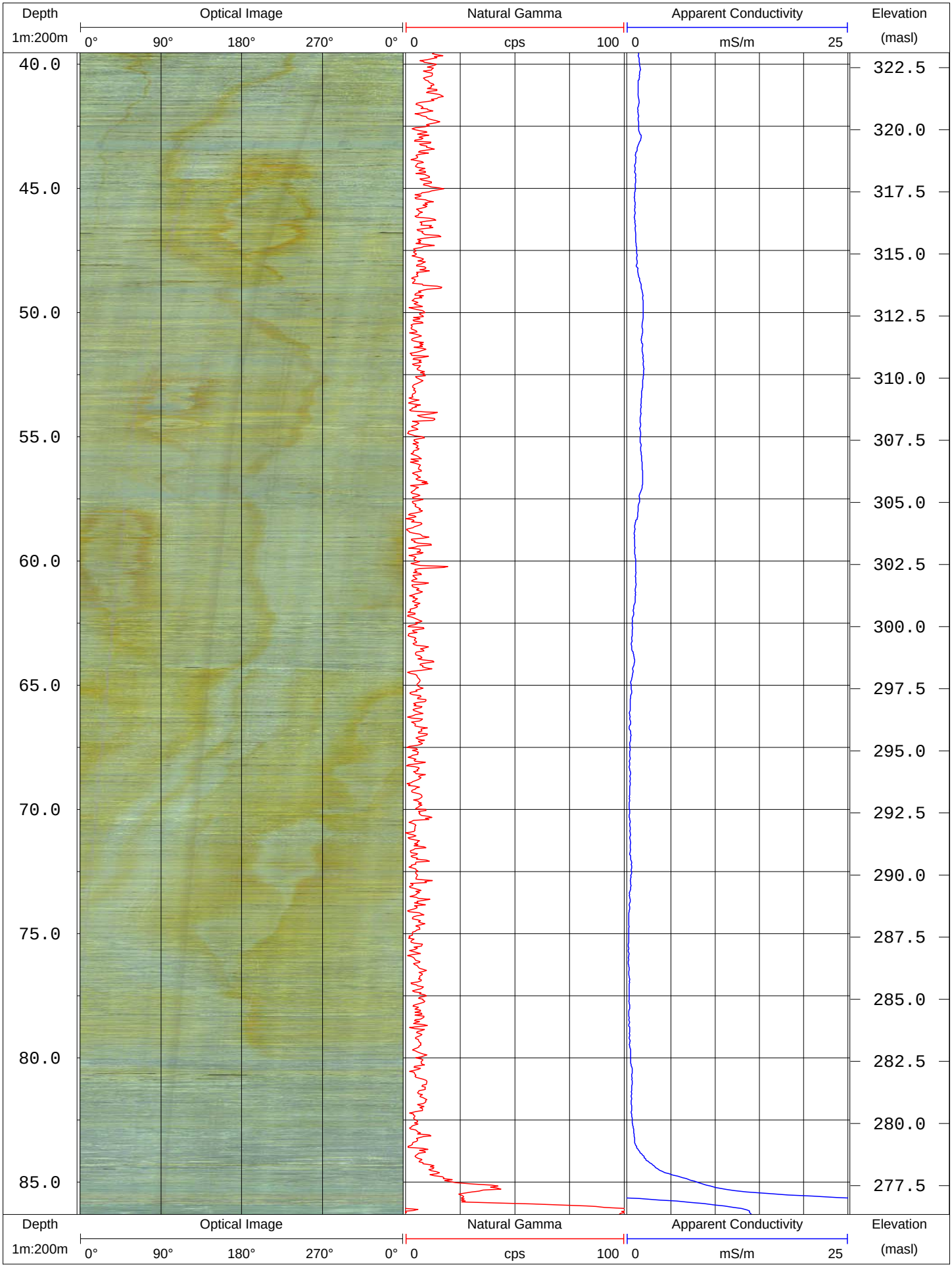
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
90.0
95.0
100.0
250.0
247.5
245.0
242.5
240.0

Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)

GEOPHYSICAL RECORD OF BOREHOLE MW08-T3-02

PROJECT NO.	*08-1112-0021*	**LOG REFERENCE**	*Ground Surface*
LOCATION	*Mill Road*	**ELEVATION (masl)**	*362.64*
LOG DATE	*September 24, 2008*	**WATER LEVEL (mbgs)**	*12.52*
LOGGED BY	*BB*	**BORING METHOD**	*PQ Coring*
		REVIEWED BY	*JAP*




Depth
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Optical Image
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
40.0
45.0
50.0
55.0
60.0
65.0
70.0
75.0
80.0
85.0
322.5
320.0
317.5
315.0
312.5
310.0
307.5
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287.5
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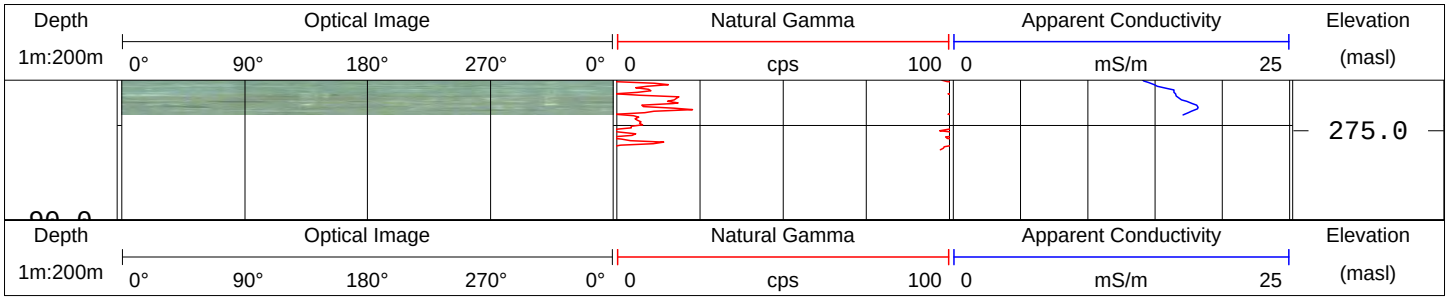
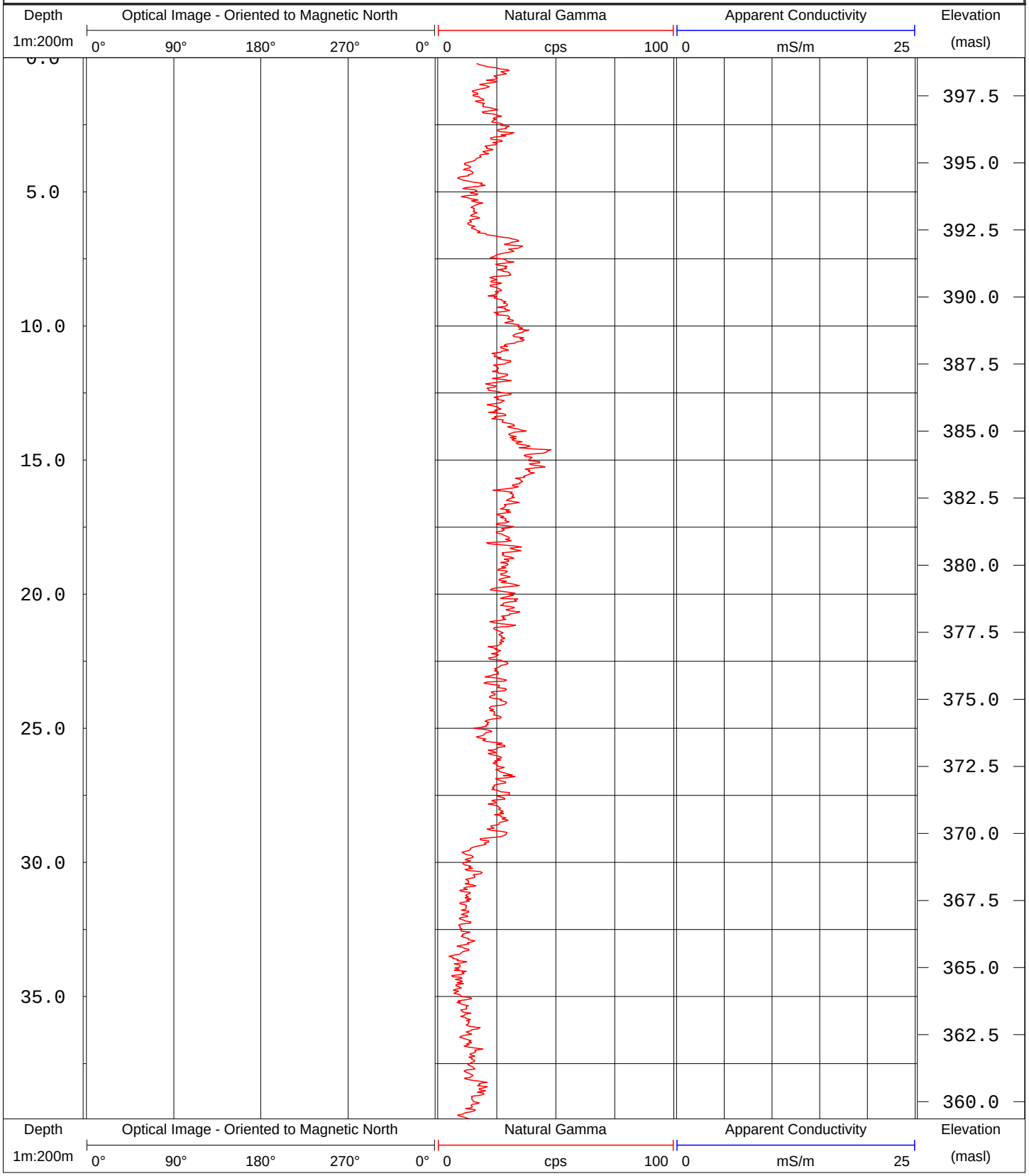
277.5

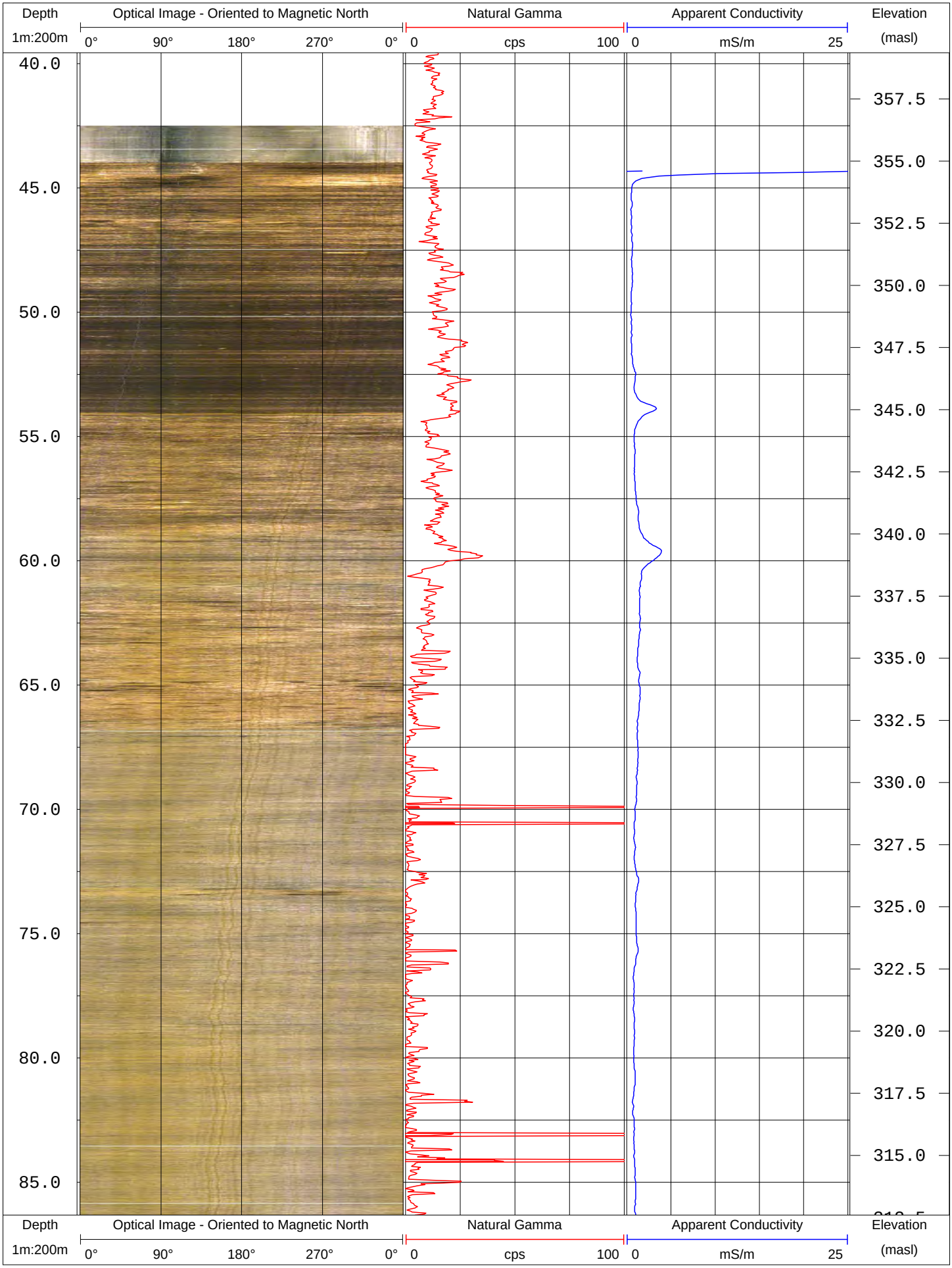

Depth
1m:200m
Optical Image
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
275.0

Depth
1m:200m
Optical Image
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)

GEOPHYSICAL RECORD OF BOREHOLE MW08-T3-03

PROJECT NO.	*08-1112-021*	**LOG REFERENCE**	*Ground Surface*
LOCATION	*Hurkman Tract*	**ELEVATION (masl)**	*398.93*
LOG DATE	*August 5, 2008*	**WATER LEVEL (mbgs)**	*24.56*
LOGGED BY	*BB*	**BORING METHOD**	*Air Rotary (Tri-cone)*
		REVIEWED BY	*JAP*




Depth
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Optical Image - Oriented to Magnetic North
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
40.0
45.0
50.0
55.0
60.0
65.0
70.0
75.0
80.0
85.0
357.5
355.0
352.5
350.0
347.5
345.0
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330.0
327.5
325.0
322.5
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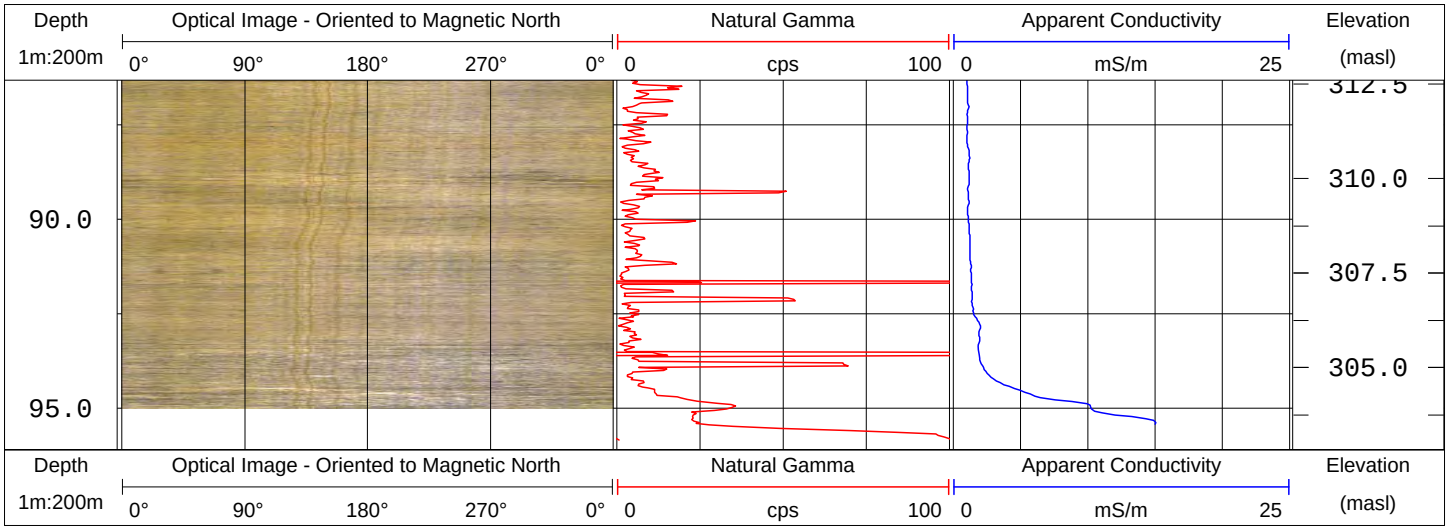
317.5
315.0


Depth
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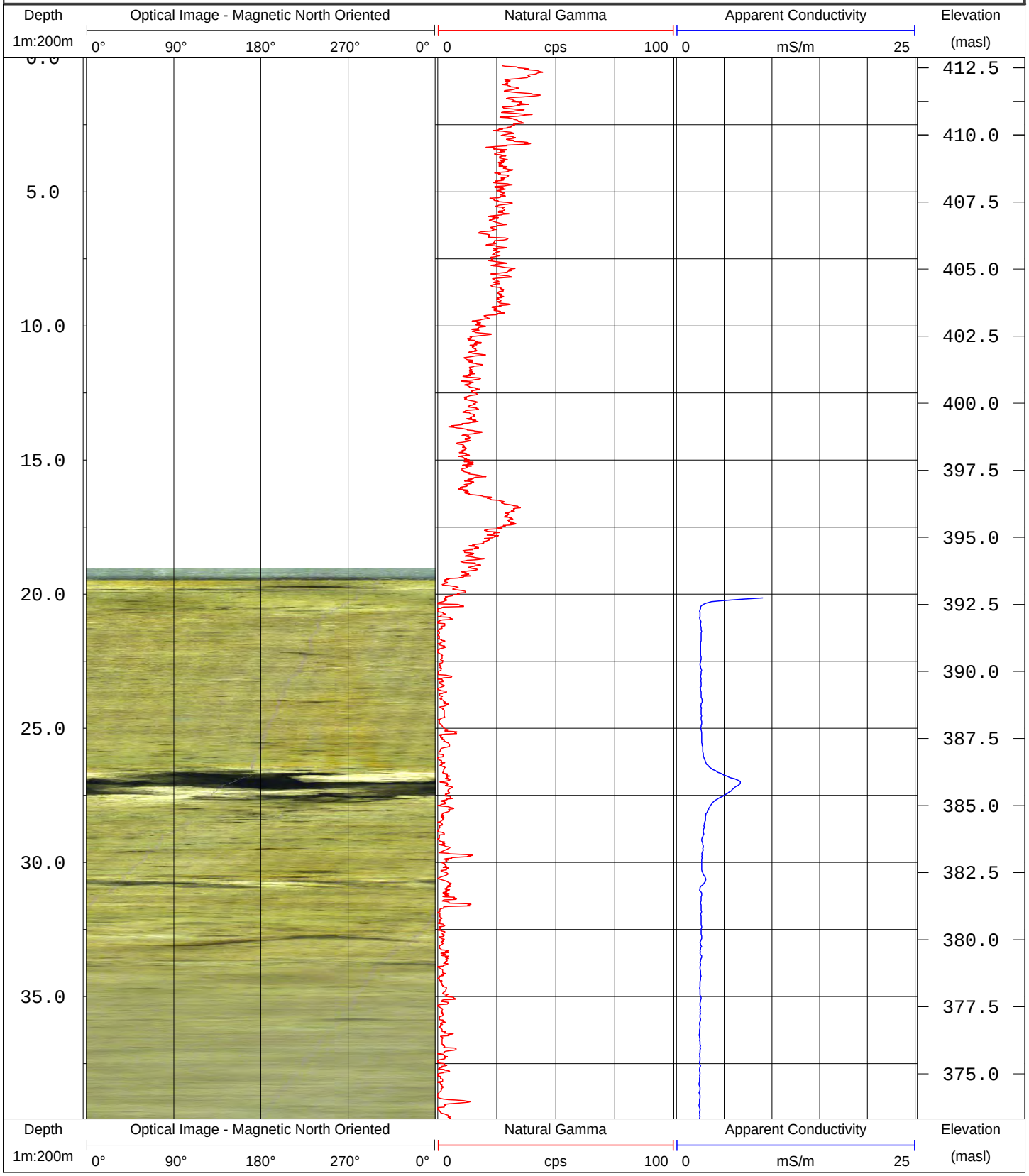
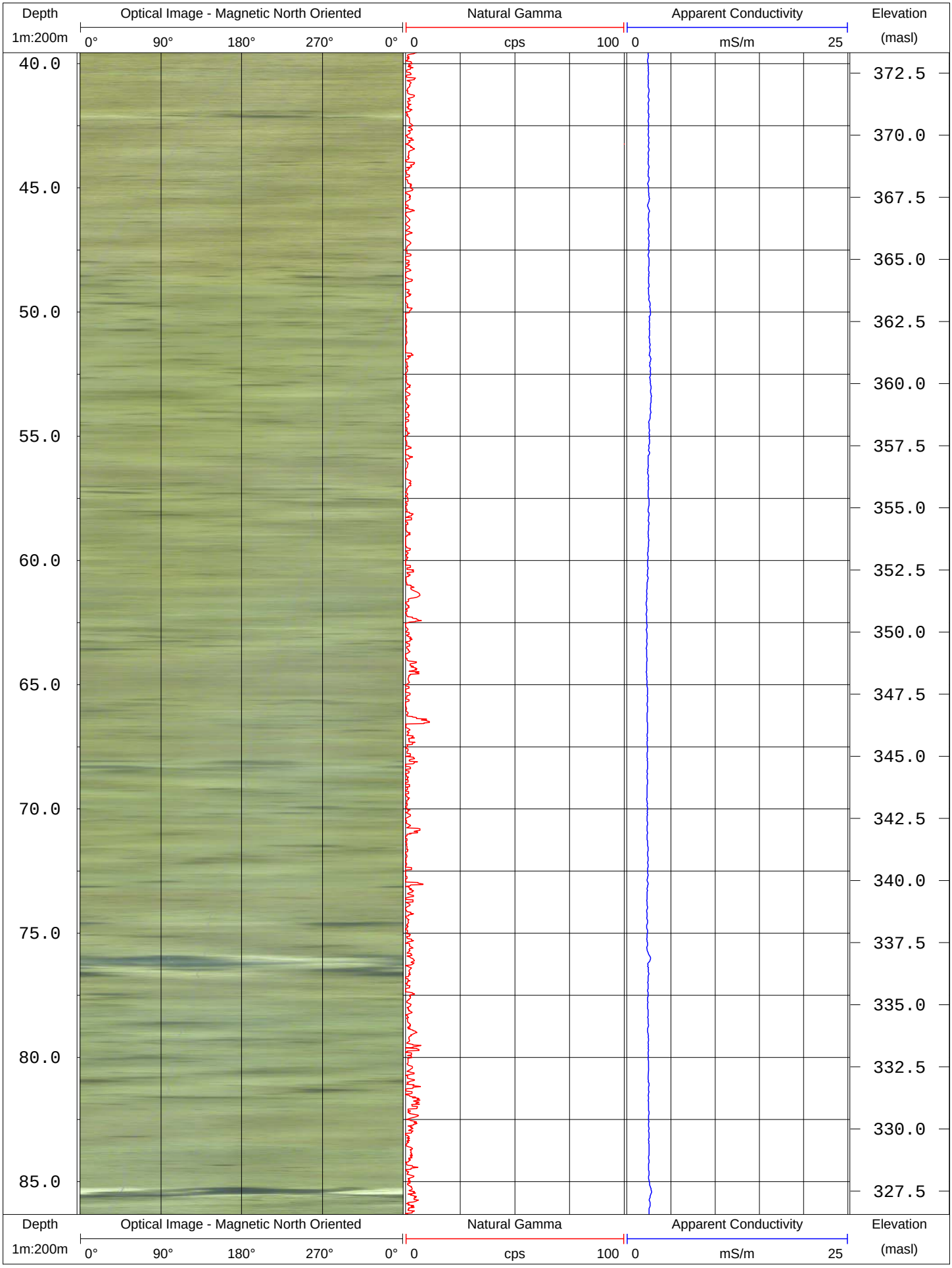
Optical Image - Oriented to Magnetic North
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
90.0
95.0
312.5
310.0
307.5
305.0
Depth
1m:200m
Optical Image - Oriented to Magnetic North
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)

GEOPHYSICAL RECORD OF BOREHOLE MW08-T3-04

PROJECT NO.	*08-1112-0021*	**LOG REFERENCE**	*Ground Surface*
LOCATION	*Highway 6, Fergus, ON*	**ELEVATION (masl)**	*412.88*
LOG DATE	*Aug.12 & Oct. 28, 2008*	**WATER LEVEL (mbgs)**	*10.17*
LOGGED BY	*AR, BB*	**BORING METHOD**	*Air Rotary (Tri-cone)*
		REVIEWED BY	*JAP*




Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
40.0
45.0
50.0
55.0
60.0
65.0
70.0
75.0
80.0
85.0
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370.0
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362.5
360.0
357.5
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347.5
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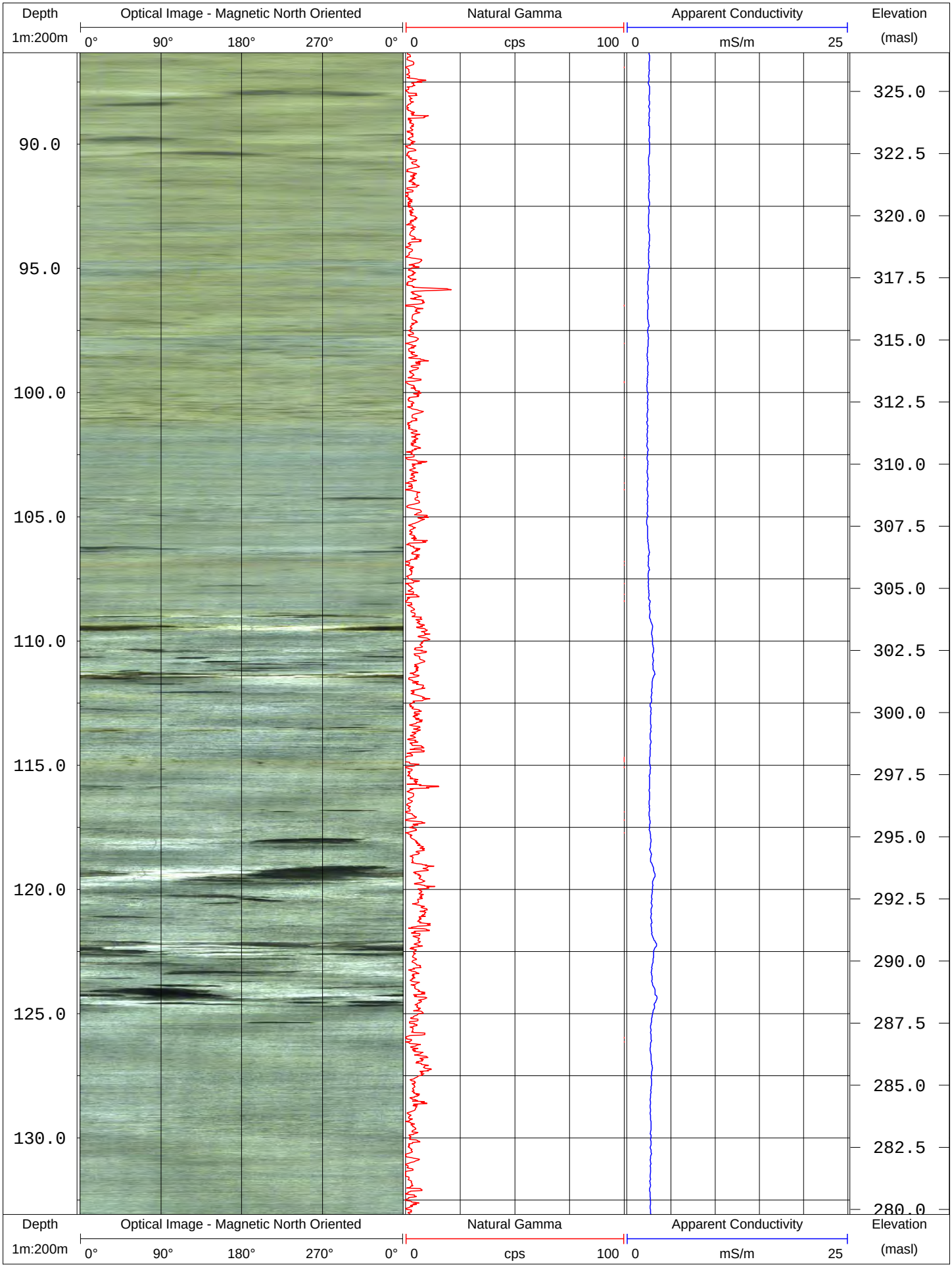
337.5
335.0
332.5
330.0
327.5


Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
90.0
95.0
100.0
105.0
110.0
115.0
120.0
125.0
130.0
325.0
322.5
320.0
317.5
315.0
312.5
310.0
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300.0
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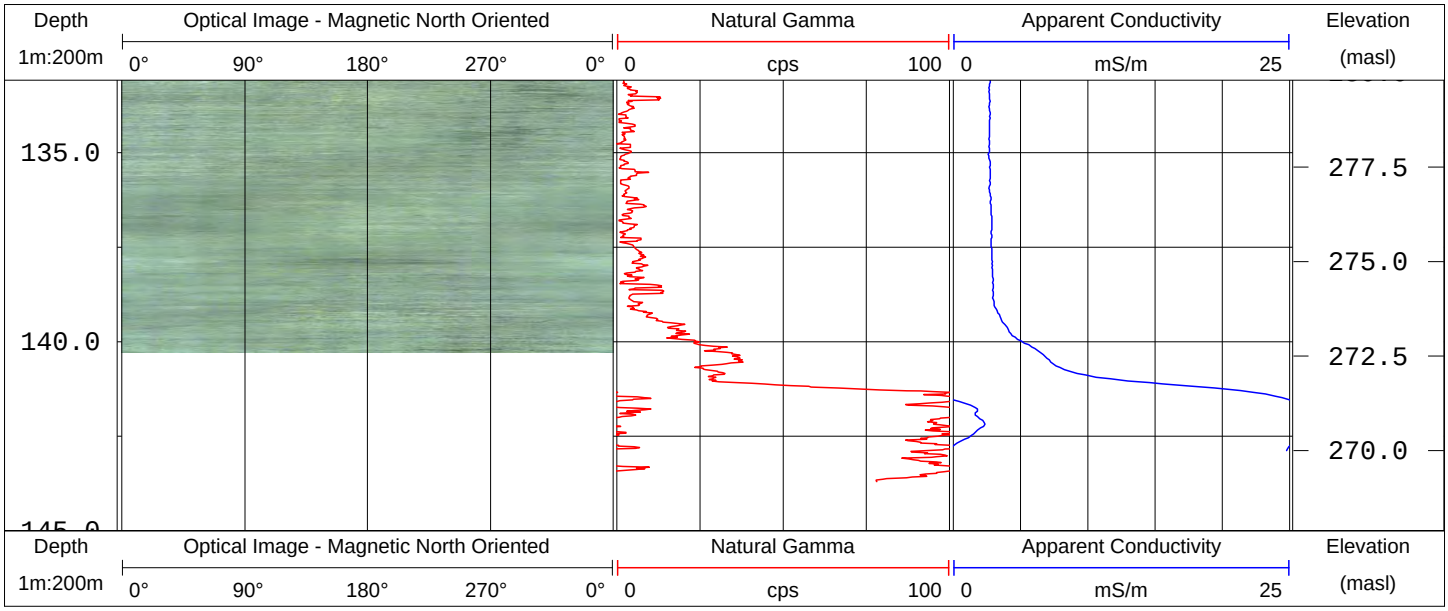
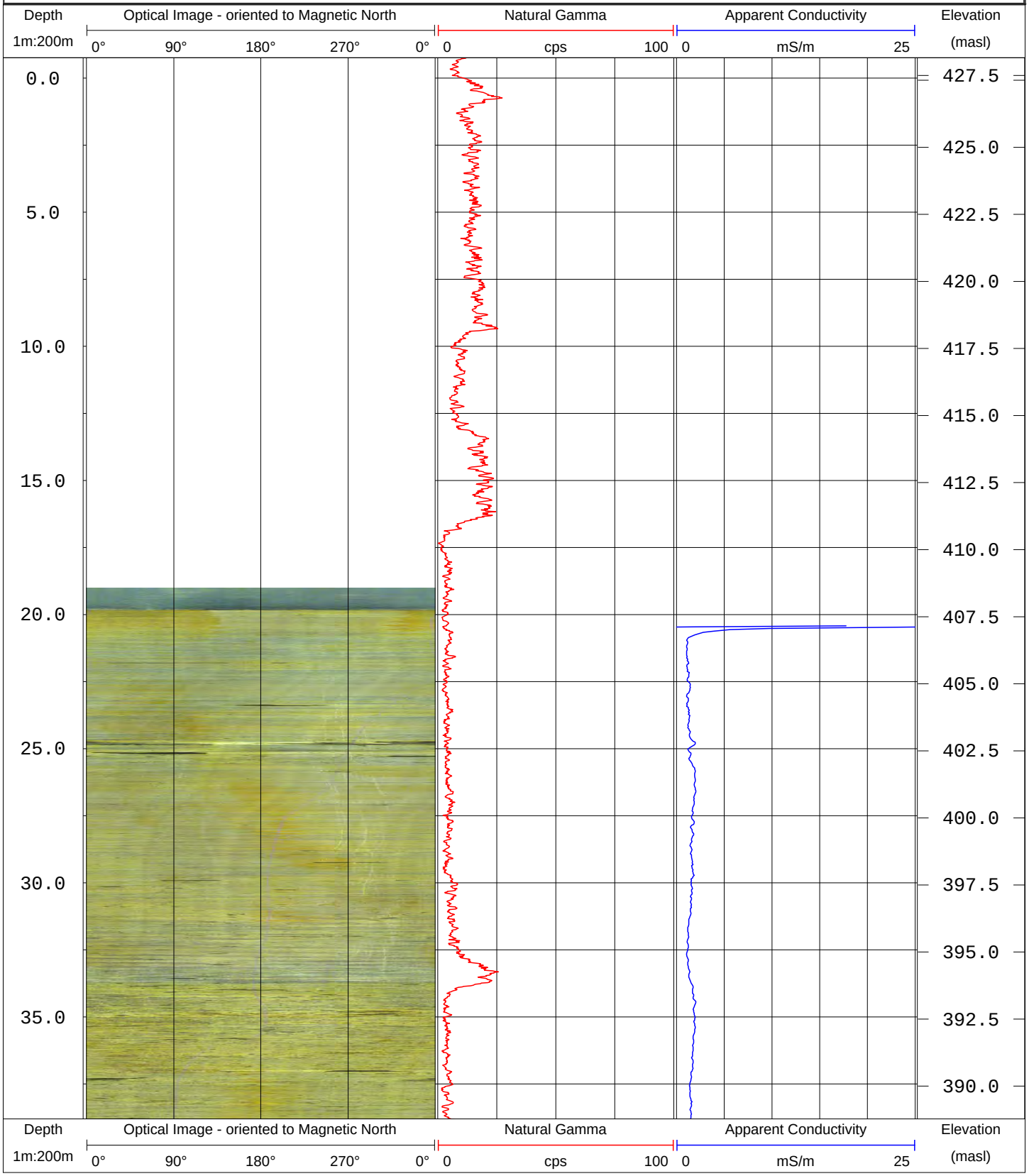
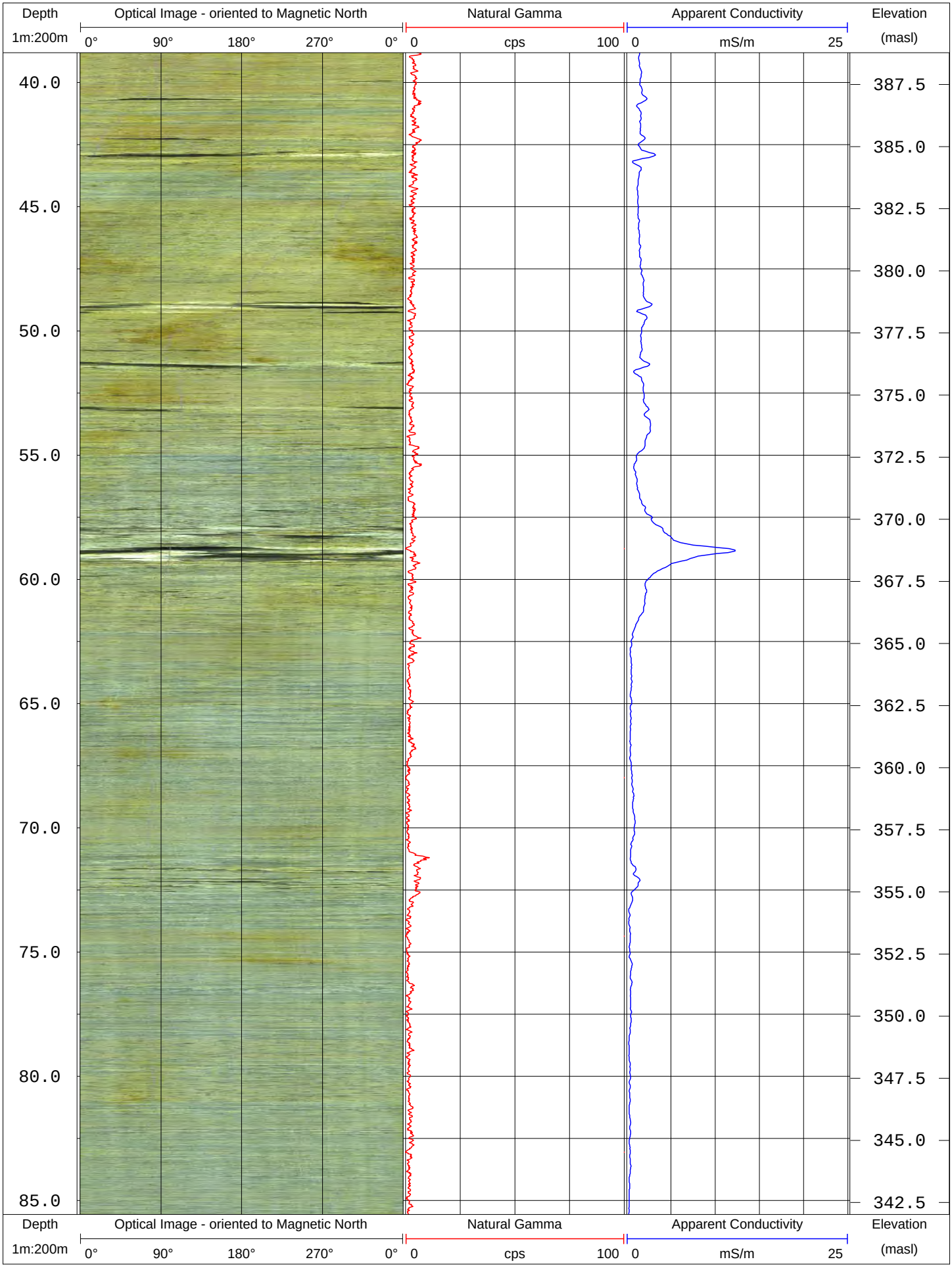
295.0
292.5
290.0
287.5
285.0
282.5
280.0


Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
135.0
140.0
277.5
275.0
272.5
270.0

GEOPHYSICAL RECORD OF BOREHOLE MW08-T3-05

PROJECT NO.	*08-1112-0021*	**LOG REFERENCE**	*Ground Surface*
LOCATION	*Johnson Tract*	**ELEVATION (masl)**	*427.59*
LOG DATE	*September 23, 2008*	**WATER LEVEL (mbgs)**	*-0.085*
LOGGED BY	*BB*	**BORING METHOD**	*PQ Coring*
		REVIEWED BY	*JAP*




Depth
1m:200m
Optical Image - oriented to Magnetic North
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
40.0
45.0
50.0
55.0
60.0
65.0
70.0
75.0
80.0
85.0
387.5
385.0
382.5
380.0
377.5
375.0
372.5
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362.5
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357.5
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352.5
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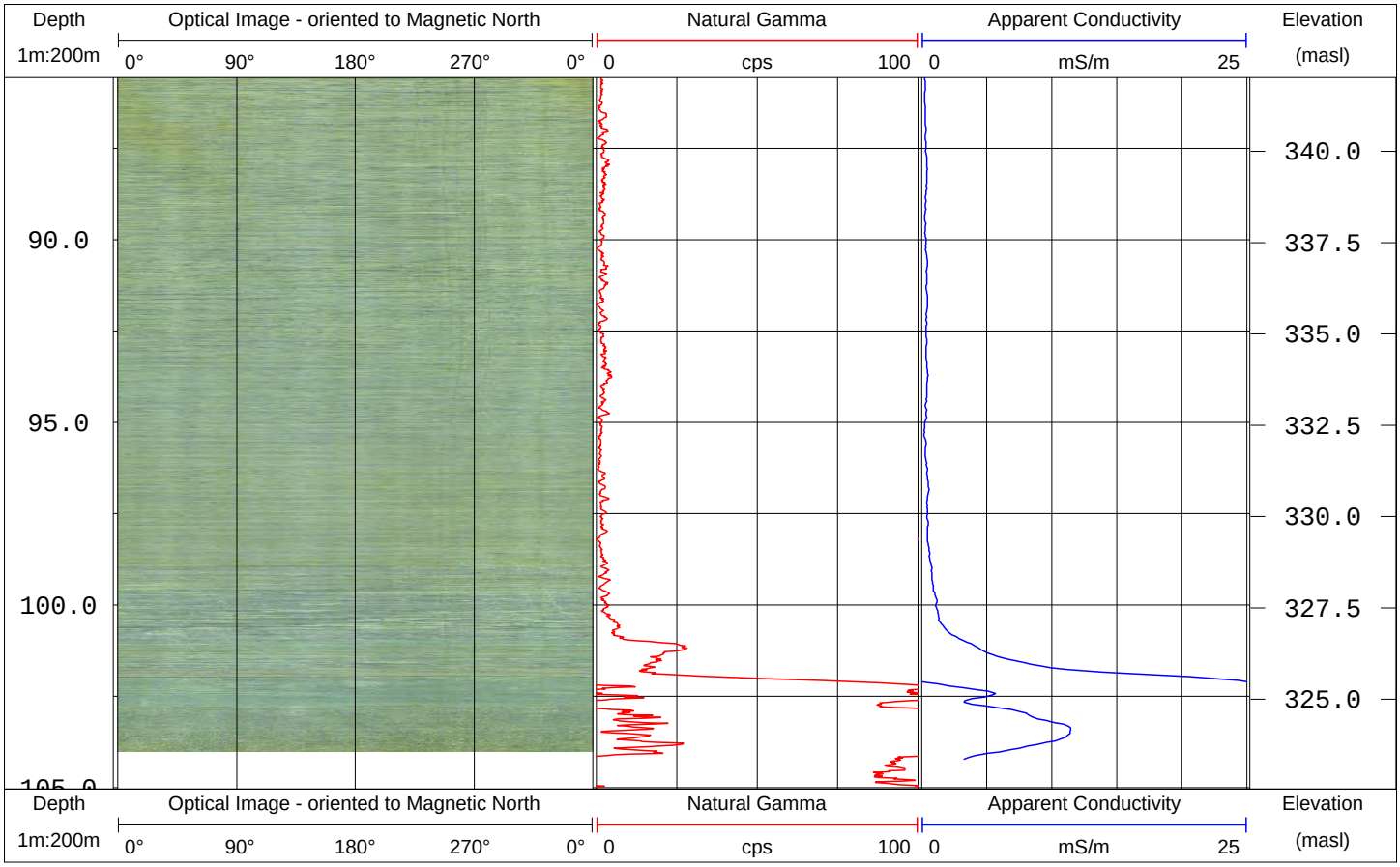
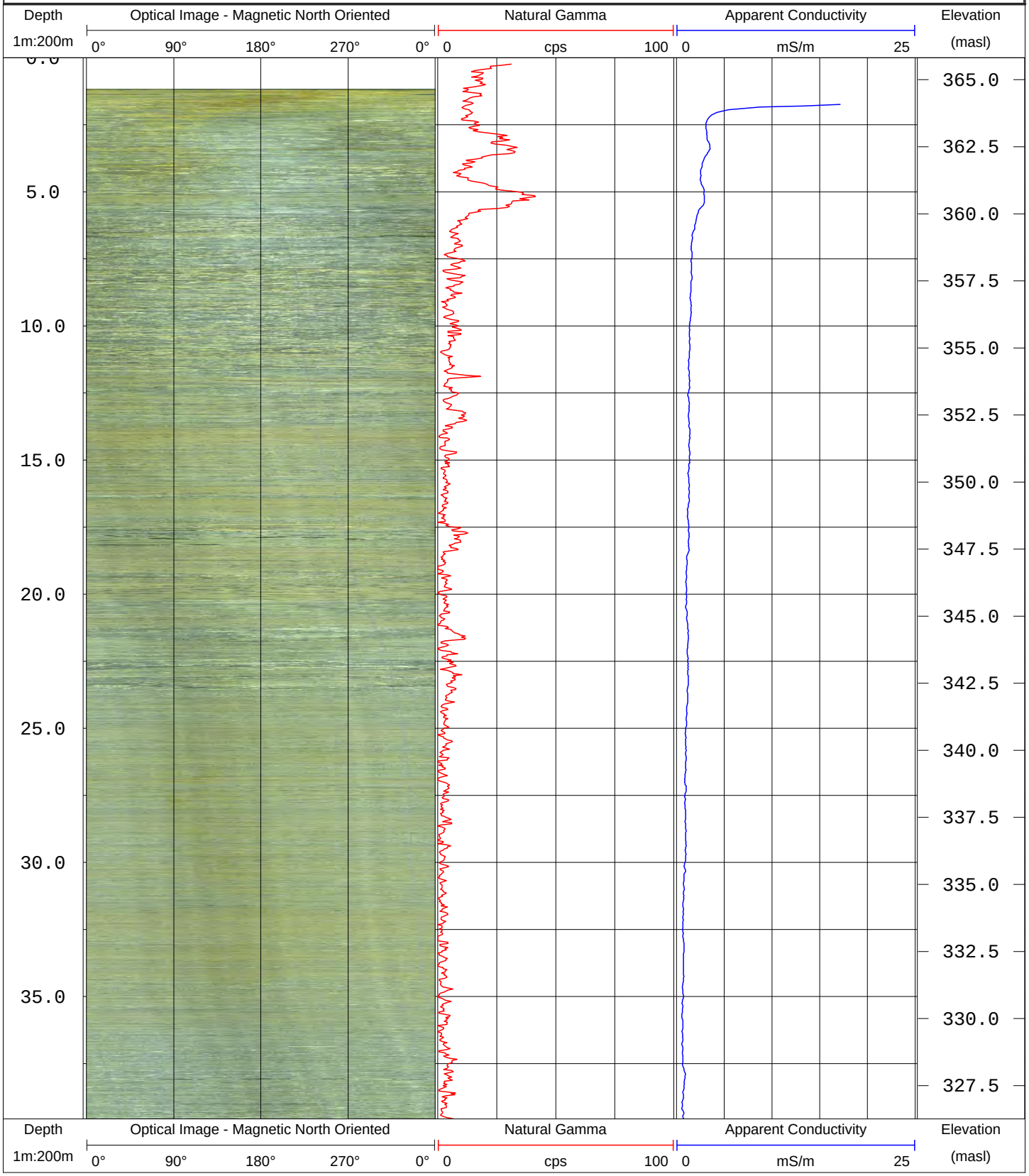
347.5
345.0
342.5

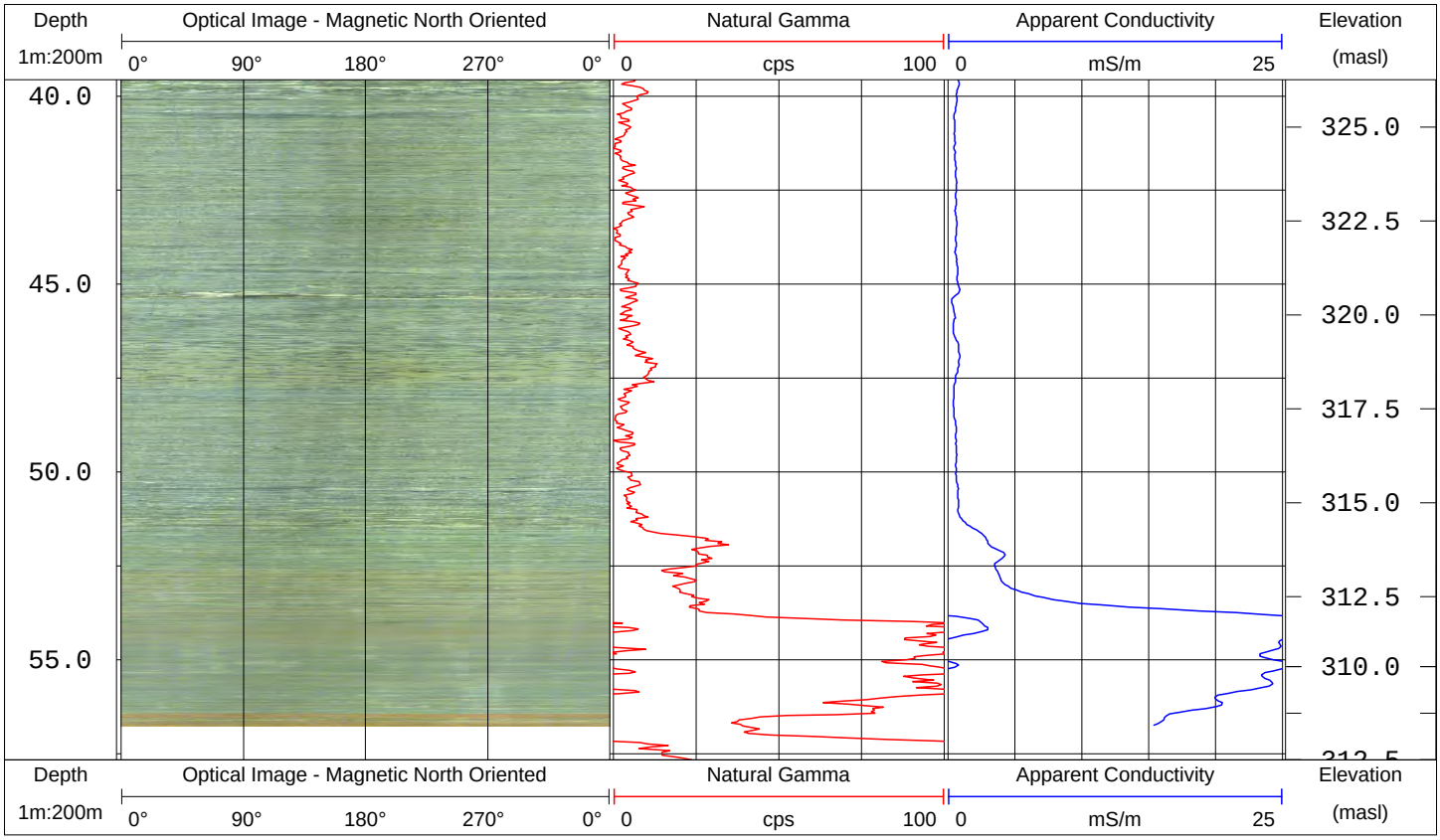


Depth
1m:200m
Optical Image - oriented to Magnetic North
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)

GEOPHYSICAL RECORD OF BOREHOLE MW08-T3-06

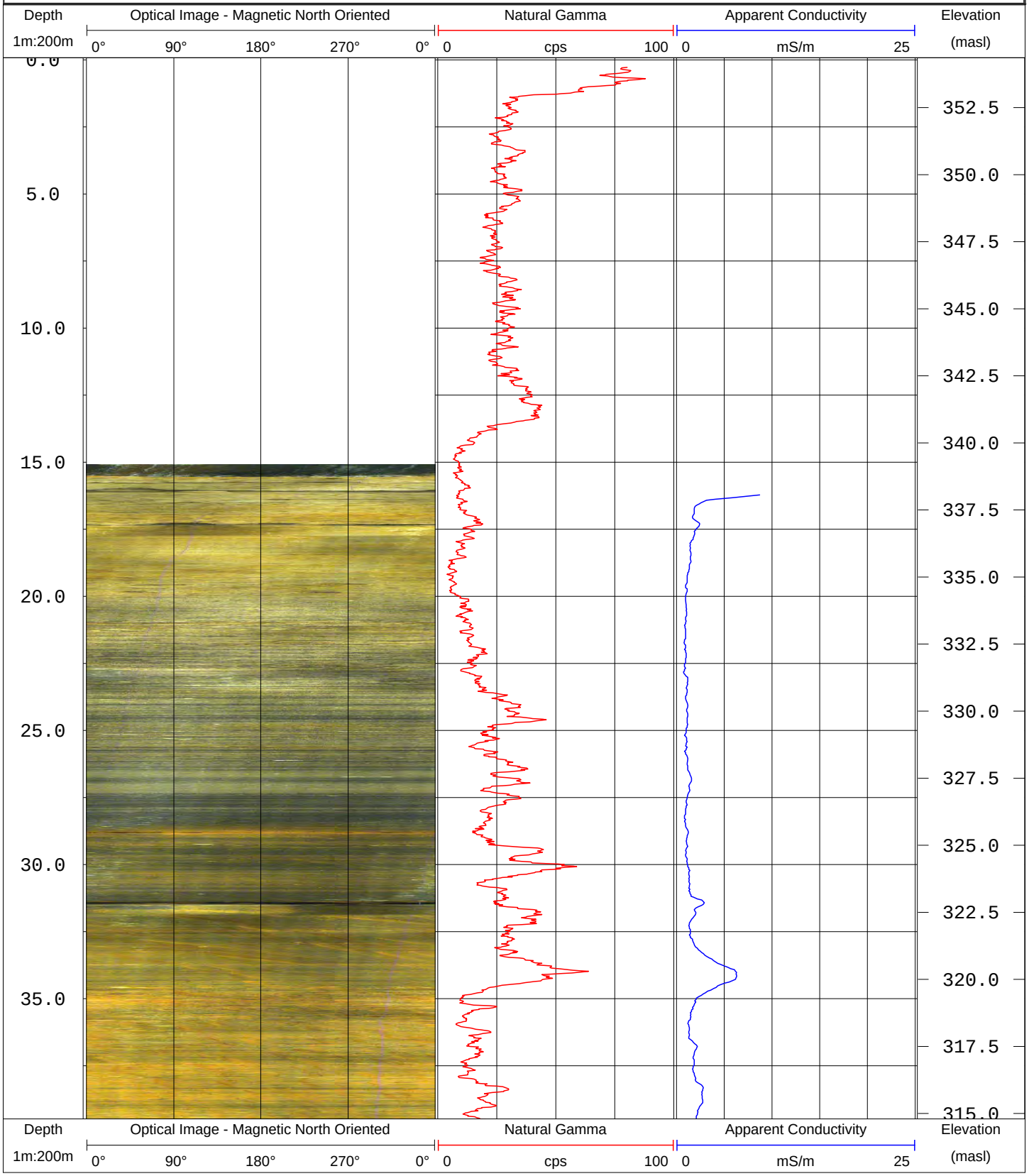
PROJECT NO.	*08-1112-0021*	**LOG REFERENCE**	*Ground Surface*
LOCATION	*GUELPH (EVERTON)*	**ELEVATION (masl)**	*365.83*
LOG DATE	*October 28, 2008*	**WATER LEVEL (mbgs)**	*1.25*
LOGGED BY	*BB*	**BORING METHOD**	*PQ Rotary*
		REVIEWED BY	*JAP*

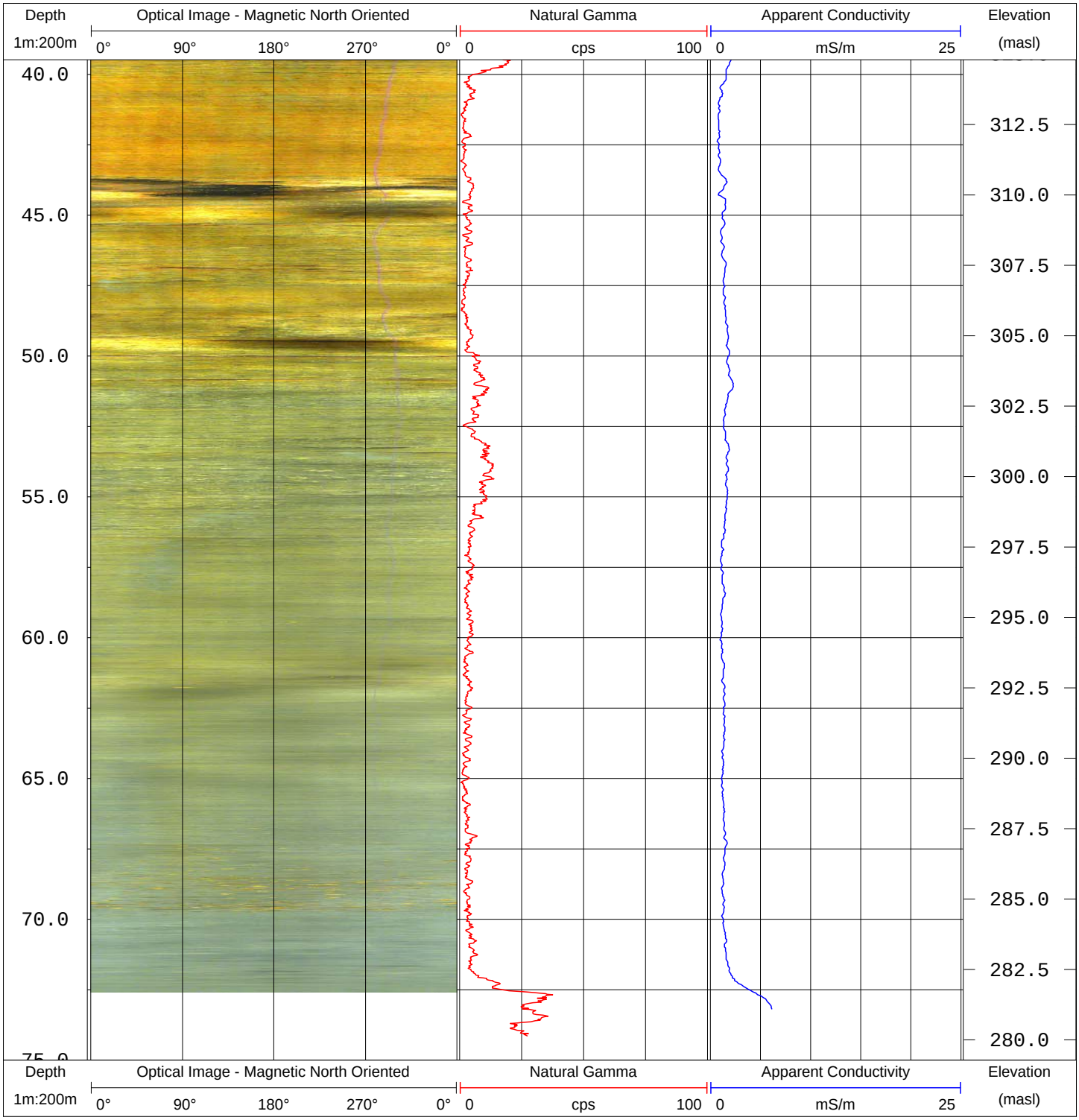



Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
40.0
45.0
50.0
55.0
325.0
322.5
320.0
317.5
315.0
312.5
310.0

GEOPHYSICAL RECORD OF BOREHOLE MW08-T3-07

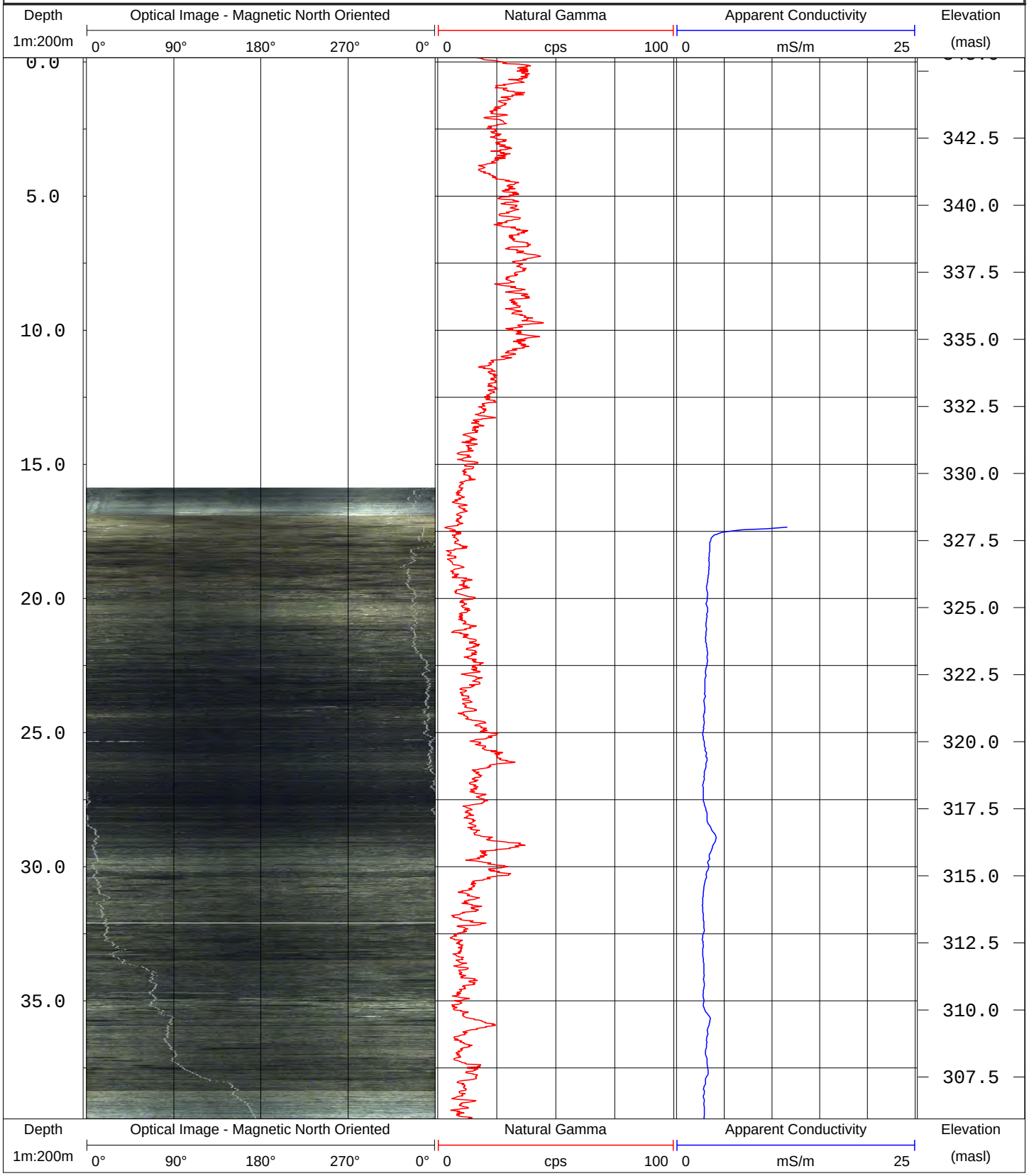
PROJECT NO.	*08-1112-0021*	**LOG REFERENCE**	*Ground Surface*
LOCATION	*Wellington Rd 29, Eramosa, ON*	**ELEVATION (masl)**	*354.29*
LOG DATE	*October 21, 2008*	**WATER LEVEL (mbgs)**	*11.19*
LOGGED BY	*AR, BB*	**BORING METHOD**	*Air Rotary (Tri-cone)*
		REVIEWED BY	*JAP*

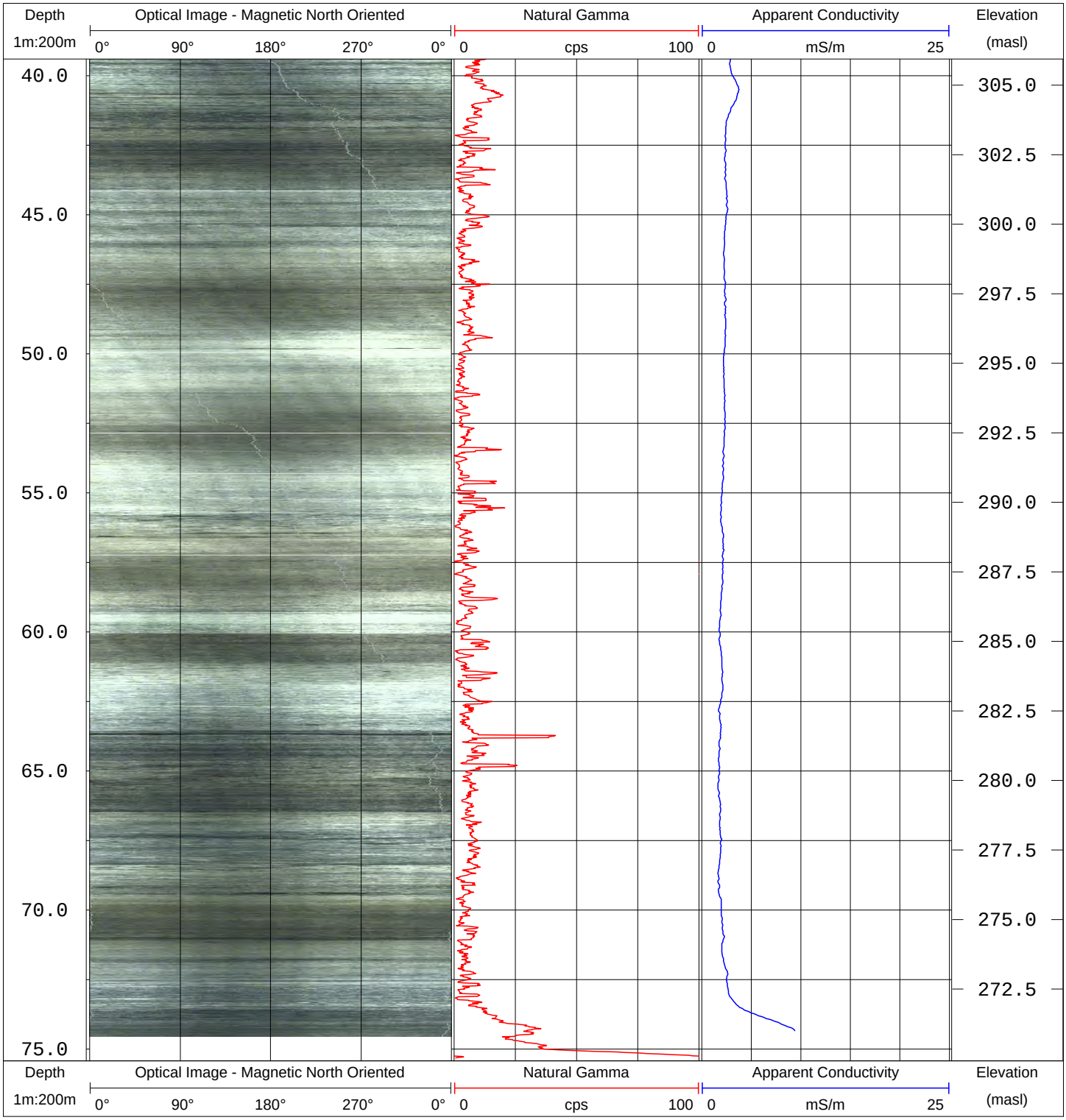



Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
40.0
45.0
50.0
55.0
60.0
65.0
70.0
75.0
312.5
310.0
307.5
305.0
302.5
300.0
297.5
295.0
292.5
290.0
287.5
285.0
282.5
280.0

GEOPHYSICAL RECORD OF BOREHOLE MW08-T3-08

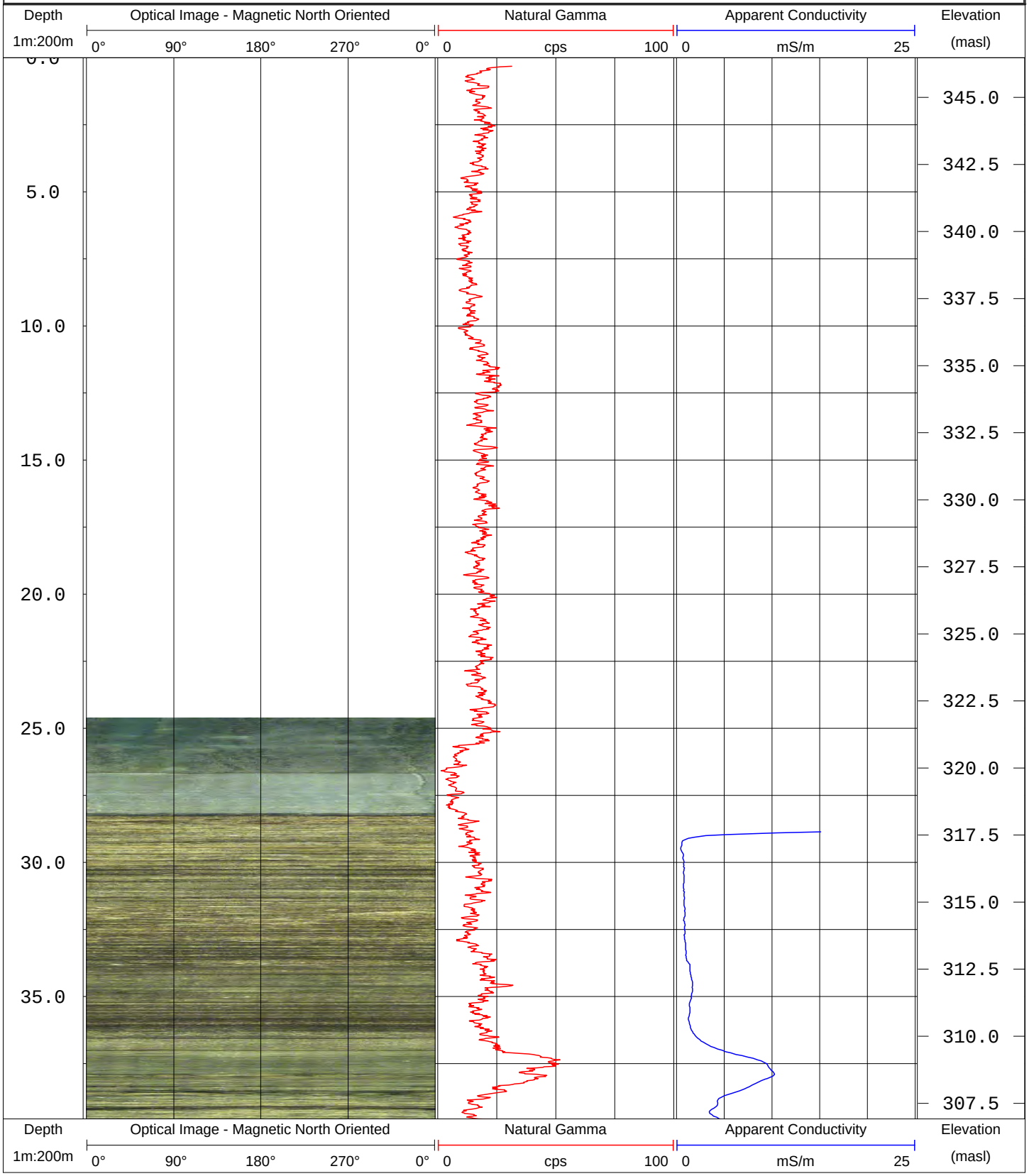
PROJECT NO.	*08-1112-0021*	**LOG REFERENCE**	*Grouns Surface*
LOCATION	*Kaine Hill Drive*	**ELEVATION (masl)**	*345.33*
LOG DATE	*August 8, 2008*	**WATER LEVEL (mbgs)**	*11.44*
LOGGED BY	*BB*	**BORING METHOD**	*Air Rotary (Tri-cone)*
		REVIEWED BY	*JAP*

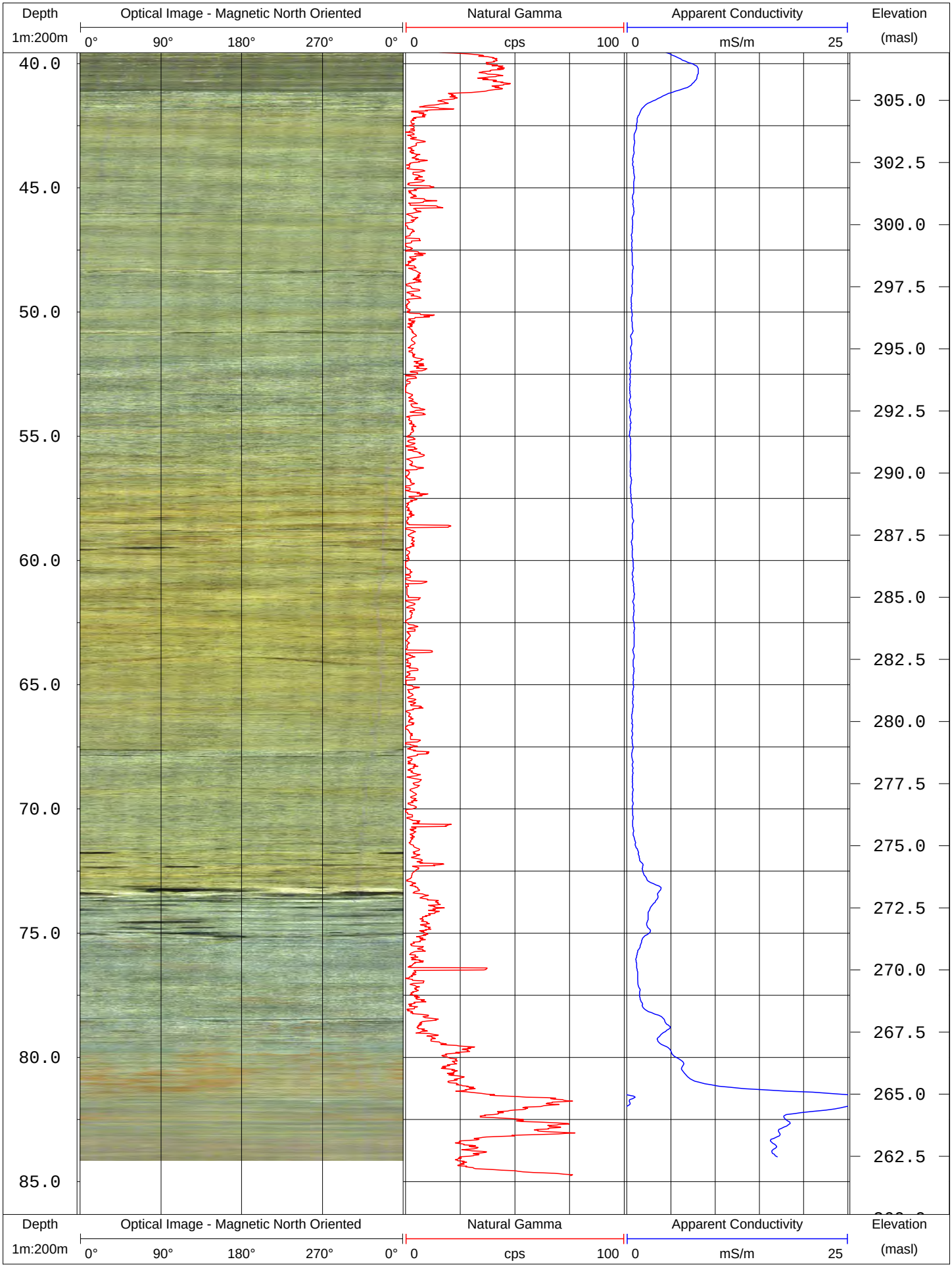



Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
40.0
45.0
50.0
55.0
60.0
65.0
70.0
75.0
305.0
302.5
300.0
297.5
295.0
292.5
290.0
287.5
285.0
282.5
280.0
277.5
275.0
272.5

GEOPHYSICAL RECORD OF BOREHOLE MW08-T3-09

PROJECT NO.	*08-1112-0021*	**LOG REFERENCE**	*Ground Surface*
LOCATION	*Crawford Tract (Conc. 11)*	**ELEVATION (masl)**	*346.47*
LOG DATE	*September 5, 2008*	**WATER LEVEL (mbgs)**	*18.19*
LOGGED BY	*BB*	**BORING METHOD**	*Air Rotary (Tri-cone)*
		REVIEWED BY	*JAP*




Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
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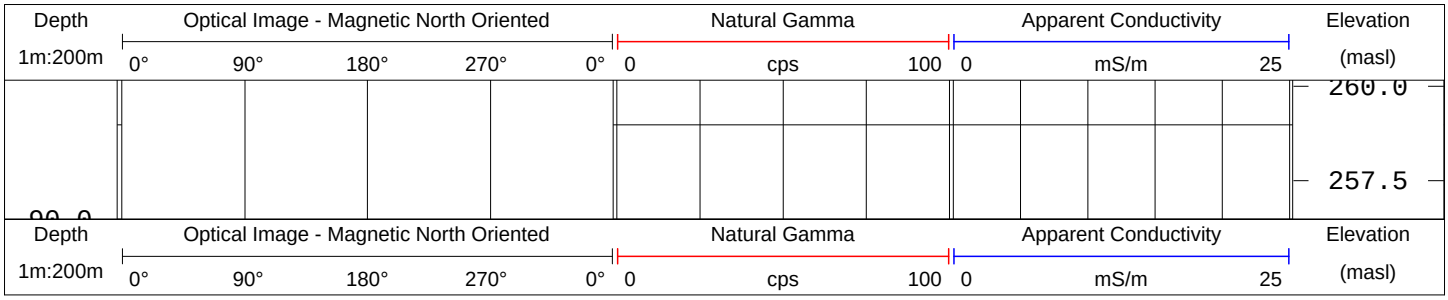
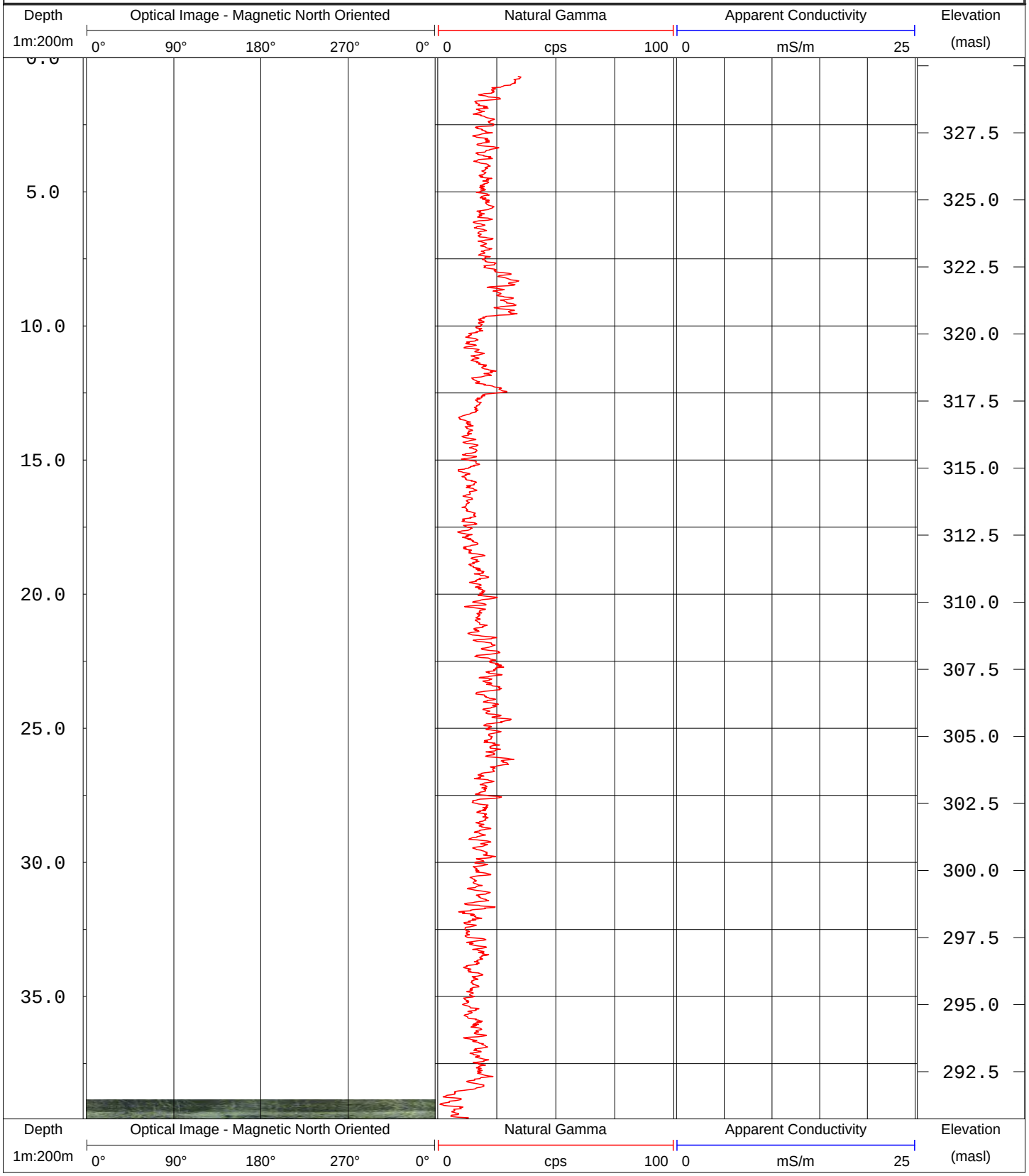
45.0
50.0
55.0
60.0
65.0
70.0
75.0
80.0
85.0
305.0
302.5
300.0
297.5
295.0
292.5
290.0
287.5
285.0
282.5
280.0
277.5
275.0
272.5
270.0
267.5
265.0
262.5

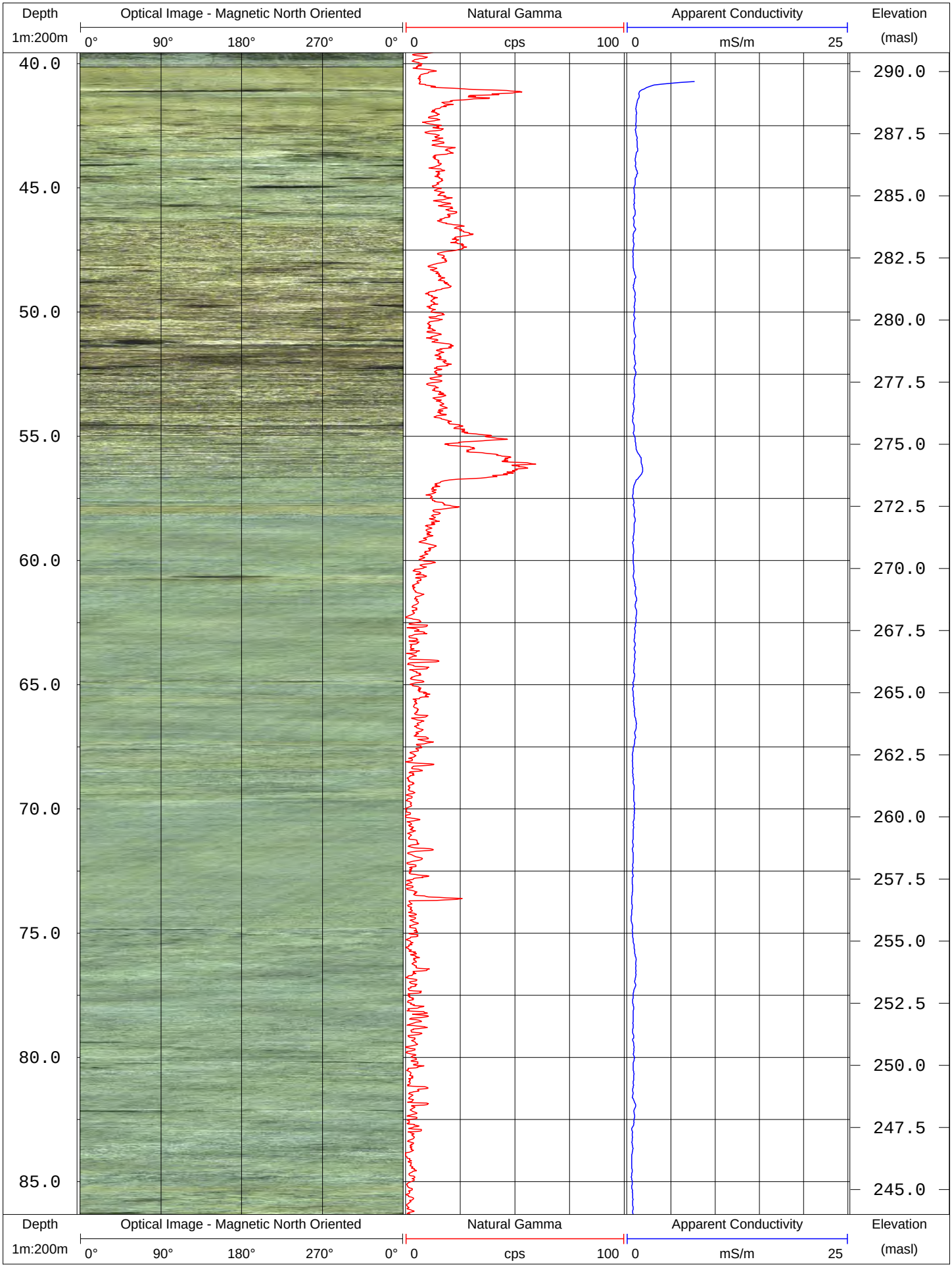

Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
260.0
257.5
90.0

Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)

GEOPHYSICAL RECORD OF BOREHOLE MW08-T3-10

PROJECT NO.	*08-1112-0021*	**LOG REFERENCE**	*Ground Surface*
LOCATION	*Vance Tract*	**ELEVATION (masl)**	*330.31*
LOG DATE	*August 11, 2008*	**WATER LEVEL (mbgs)**	*12.95*
LOGGED BY	*BB*	**BORING METHOD**	*Air Rotary (Tri-cone)*
		REVIEWED BY	*JAP*




Depth
1m:200m
Optical Image - Magnetic North Oriented
0° 90° 180° 270° 0°
Natural Gamma
0 cps 100
Apparent Conductivity
0 mS/m 25
Elevation
(masl)
40.0
45.0
50.0
55.0
60.0
65.0
70.0
75.0
80.0
85.0
290.0
287.5
285.0
282.5
280.0
277.5
275.0
272.5
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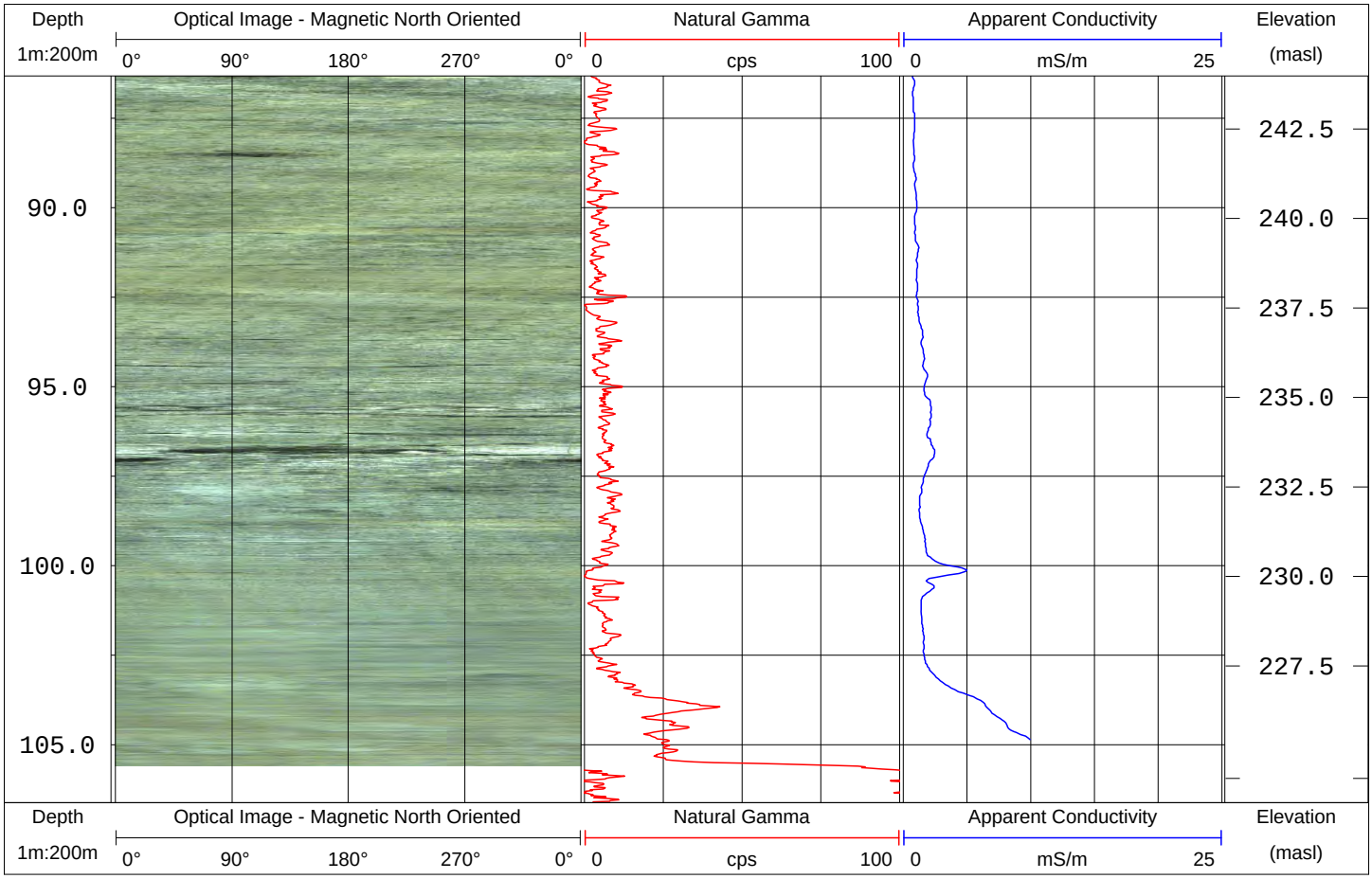
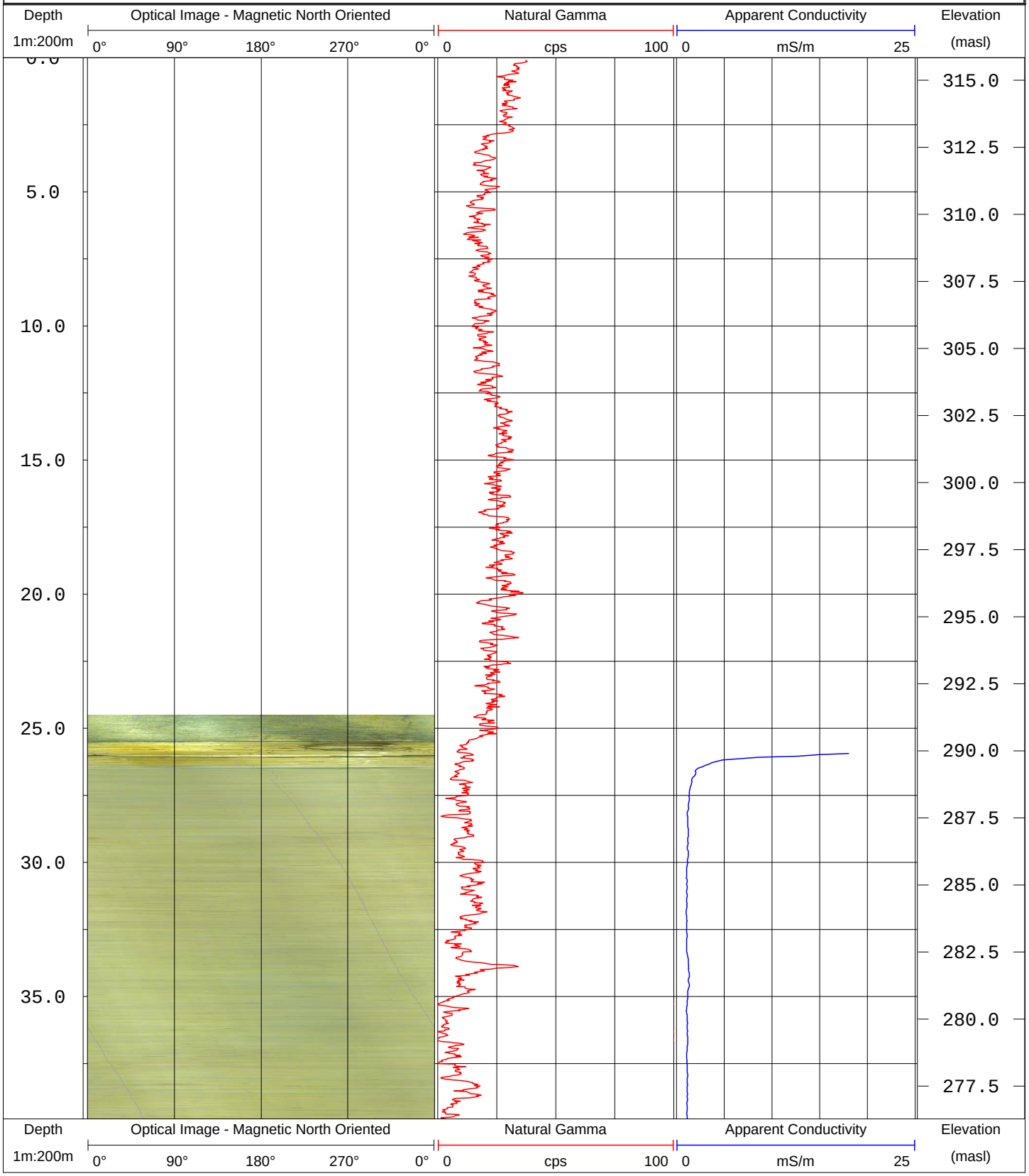
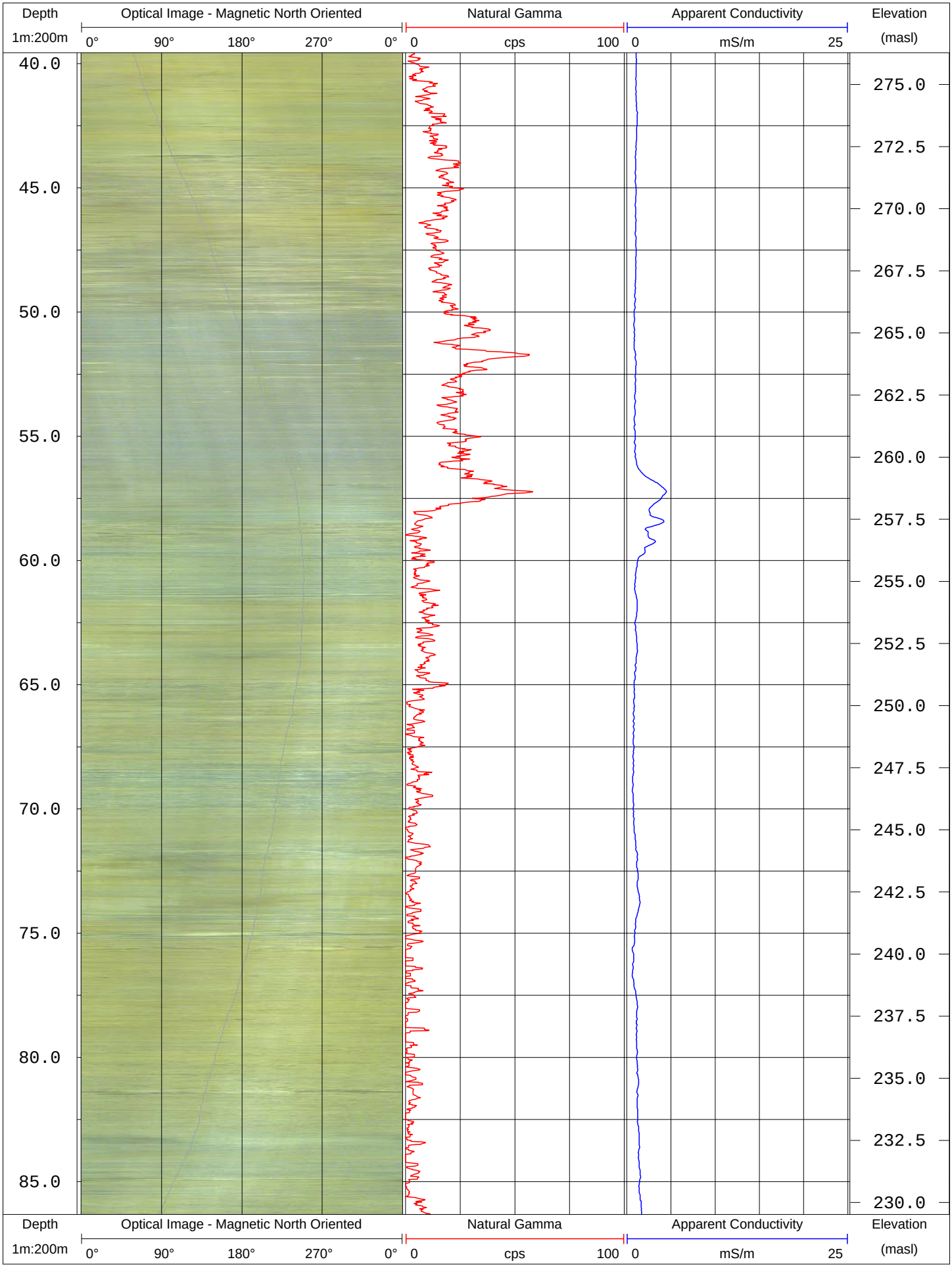
247.5
245.0


Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
90.0
95.0
100.0
105.0
242.5
240.0
237.5
235.0
232.5
230.0
227.5

GEOPHYSICAL RECORD OF BOREHOLE MW09-T3-01

PROJECT NO.	*08-1112-0021*	**LOG REFERENCE**	*Ground Surface*
LOCATION	*Little Tract Trail*	**ELEVATION (masl)**	*315.84*
LOG DATE	*May 15, 2009*	**WATER LEVEL (mbgs)**	*11.16*
LOGGED BY	*BB*	**BORING METHOD**	*HQ Coring*
		REVIEWED BY	*JAP*




Depth
1m:200m
Optical Image - Magnetic North Oriented
0° 90° 180° 270° 0°
Natural Gamma
0 cps 100
Apparent Conductivity
0 mS/m 25
Elevation
(masl)
40.0
45.0
50.0
55.0
60.0
65.0
70.0
75.0
80.0
85.0
275.0
272.5
270.0
267.5
265.0
262.5
260.0
257.5
255.0
252.5
250.0
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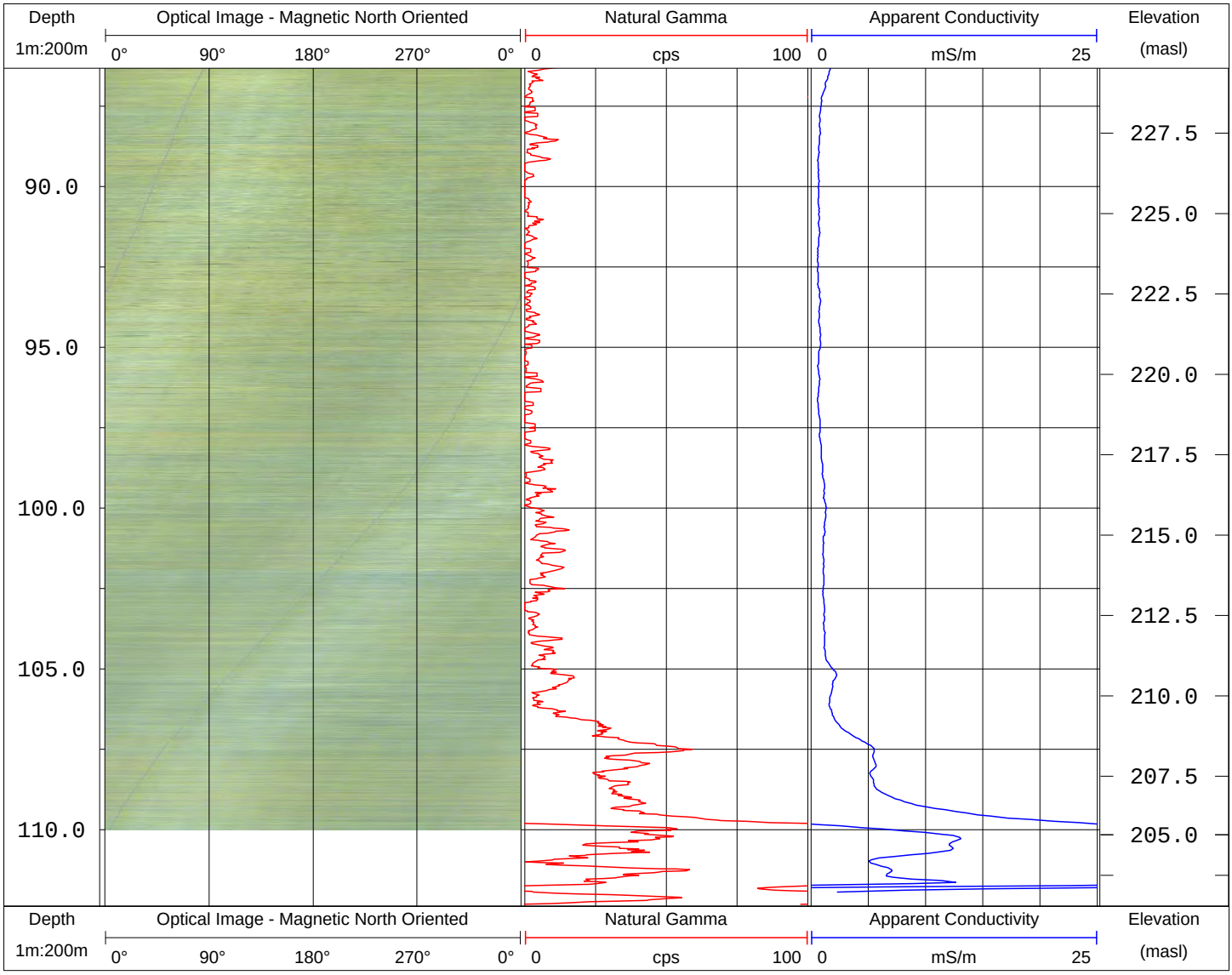
235.0
232.5
230.0


Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)
90.0
95.0
100.0
105.0
110.0
227.5
225.0
222.5
220.0
217.5
215.0
212.5
210.0
207.5
205.0
Depth
1m:200m
Optical Image - Magnetic North Oriented
0°
90°
180°
270°
0°
Natural Gamma
0
cps
100
Apparent Conductivity
0
mS/m
25
Elevation
(masl)

UNIVERSITY OF GUELPH TEMPERATURE PROFILING

Three Tier Three Boreholes (MW08-T3-02, MW08-T3-04 and MW08-T3-05) were subjected to temperature profiling inside of a FLUTe liner. Temperature profiling detects the ambient groundwater flow conditions whereas most hydraulic tests such as packer testing and FLUTe profiling evaluate the system under stressed conditions.

MW08-T3-02

Temperature profiling found five main groundwater flow zones based on the rates of cooling after heating. Horizontal temperature gradients can also be an indicator of groundwater flow horizon changes. The following depths show ambient flow from the temperature logging: 15-16, 26-28, 33-35, 39, 44-47, 55-57, 59, and 62 mbgs. There is little ambient flow below the depth of 65 mbgs.

MW08-T3-04

The following depths show ambient flow from the temperature logging: 27, 27-32, 42, 48, 49, 50, 51, 109, 110, 111, and 118 mbgs. In the Niagara Falls Member of the Goat Island Formation (from 60-80 mbgs) there is very little flow activity.

MW08-T3-05

MW08-T3-05 appears to have a fewer number of flow features present. The following depths show ambient flow from the temperature logging: 28, 30, 41, 43 mbgs. From 41 to 64 mbgs there are a number of scattered peaks of flow activity which is followed by a low flow zone from 63 to 71 mbgs. At 97 mbgs there appears to be change in flow direction.

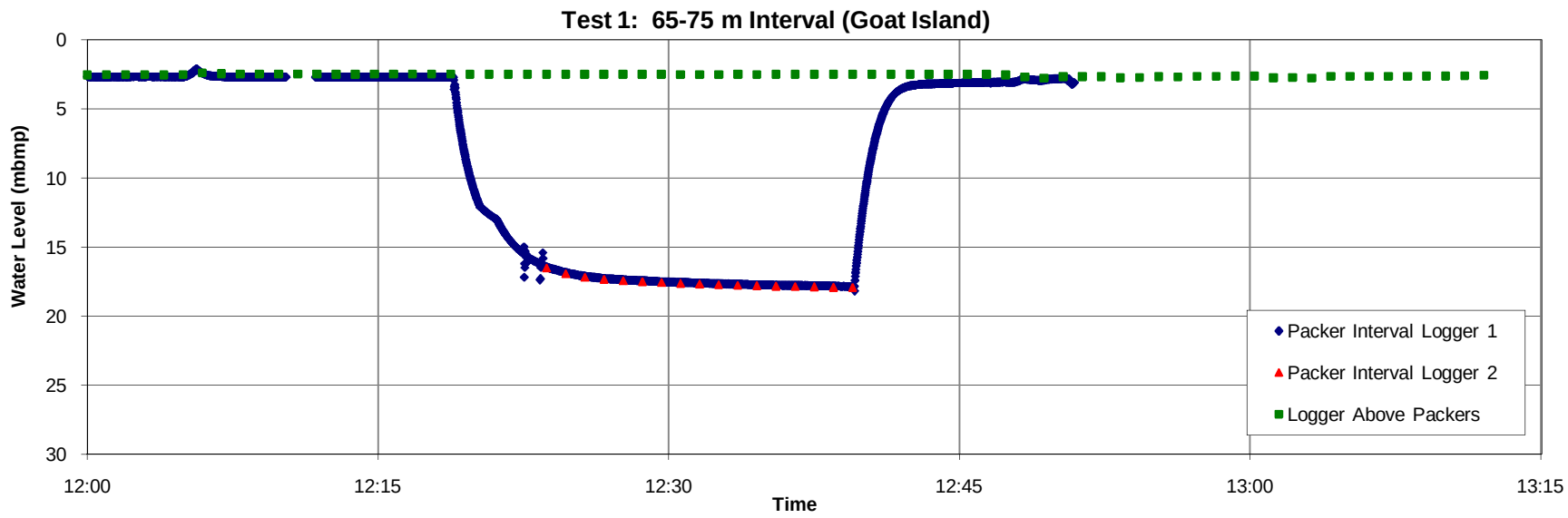
Source:
The above summary of temperature logging was provided by the University of Guelph.

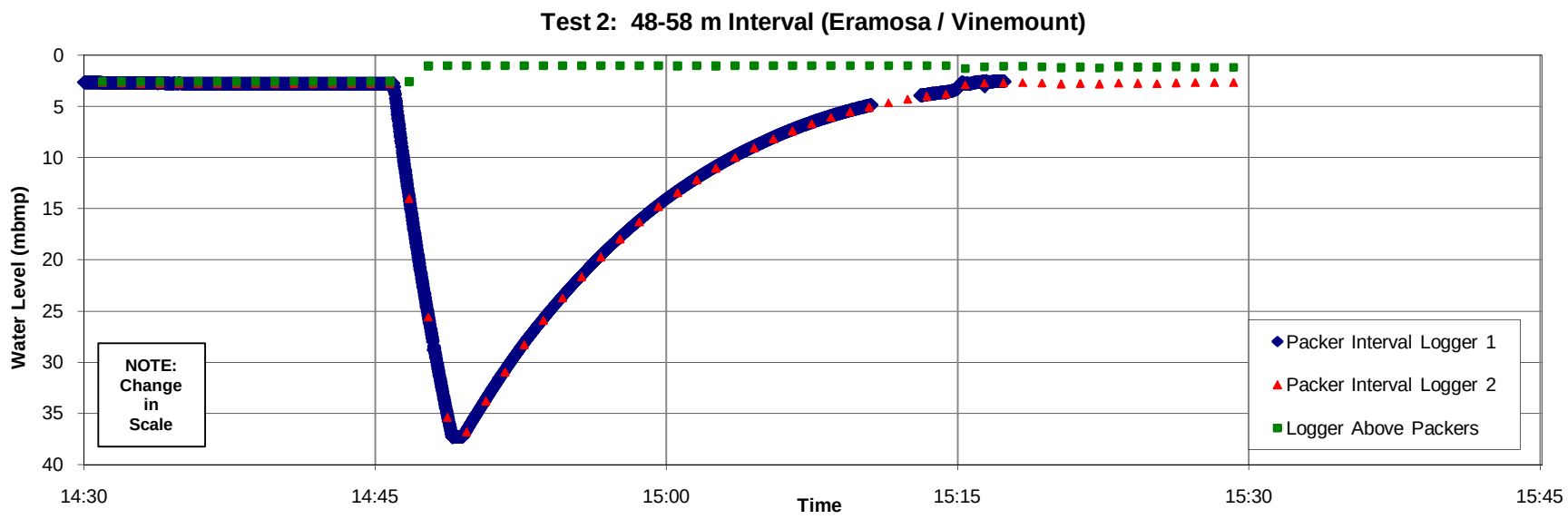
C5: Packer Test Data

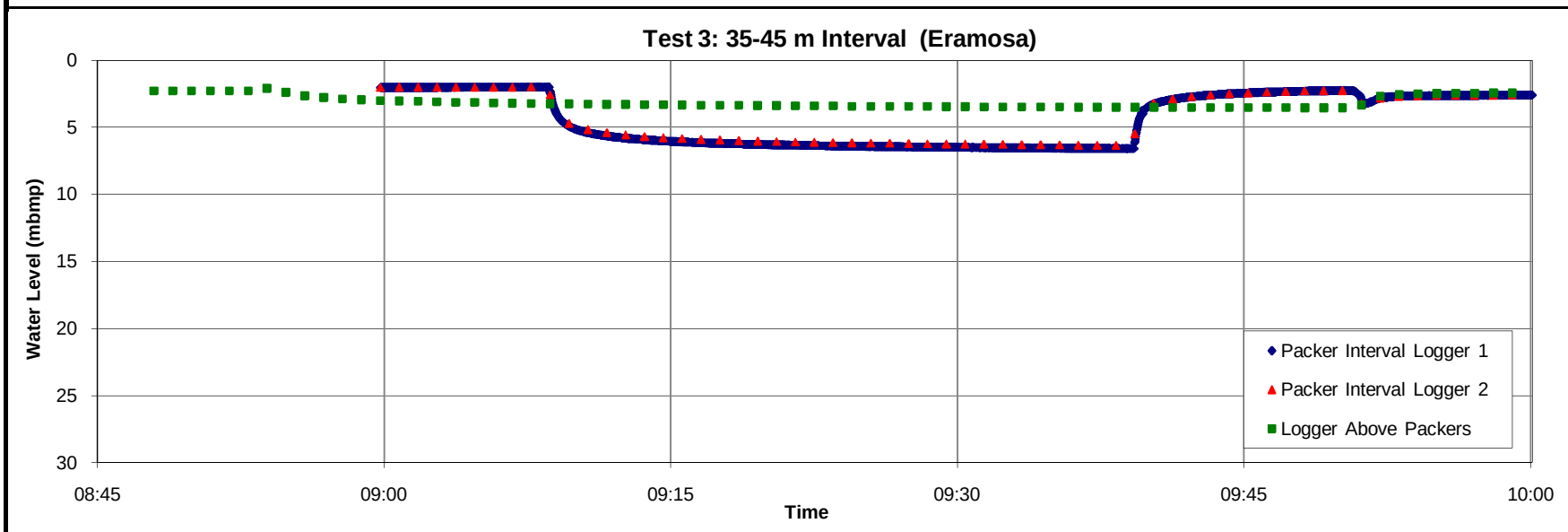
Packer Testing Results at MW08-T3-01

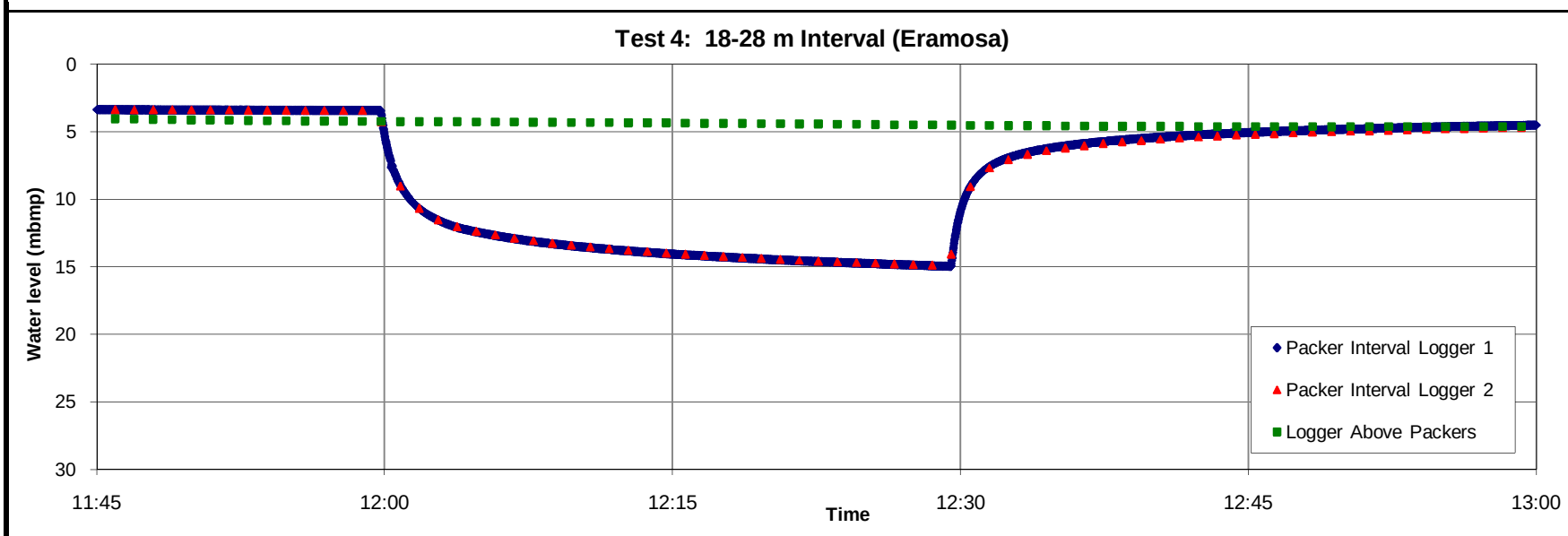
City of Guelph Tier Three Local Area Risk Assessment

FIGURE C1









Notes: 1) Test Dates: November 14, 2008 and November 17, 2008

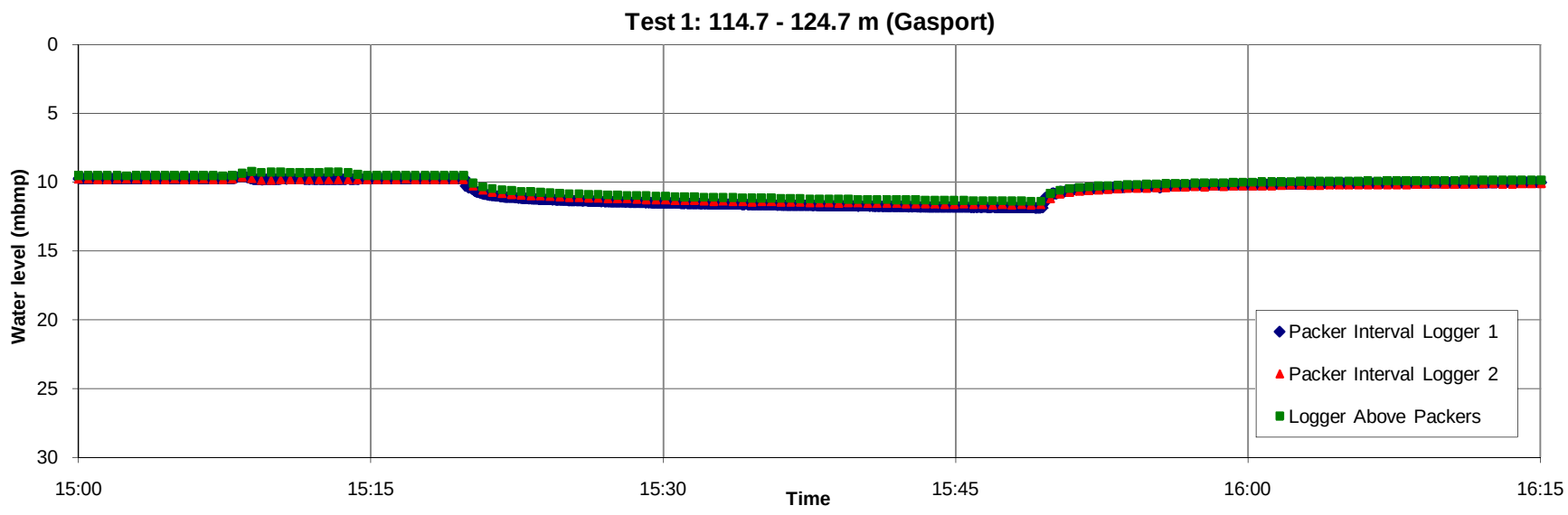
Golder Associates

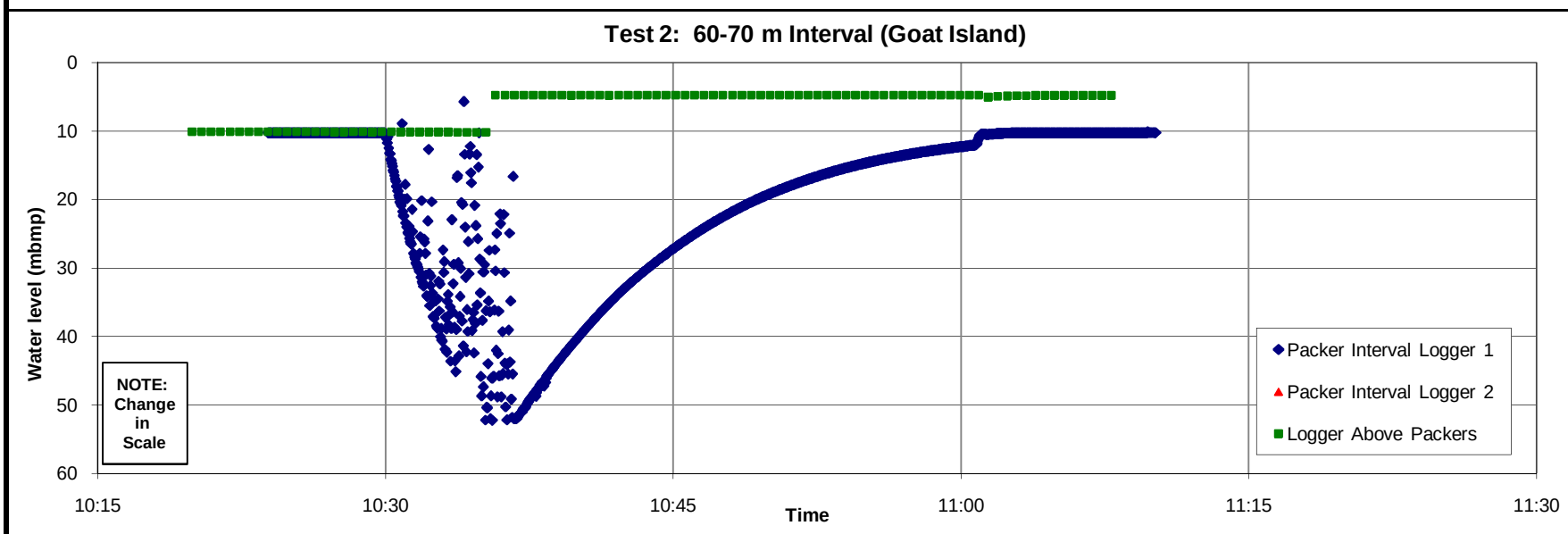
DATE: May 2010
Project No: 08-1112-0021
Drawn By: KS
Reviewed By: JAP

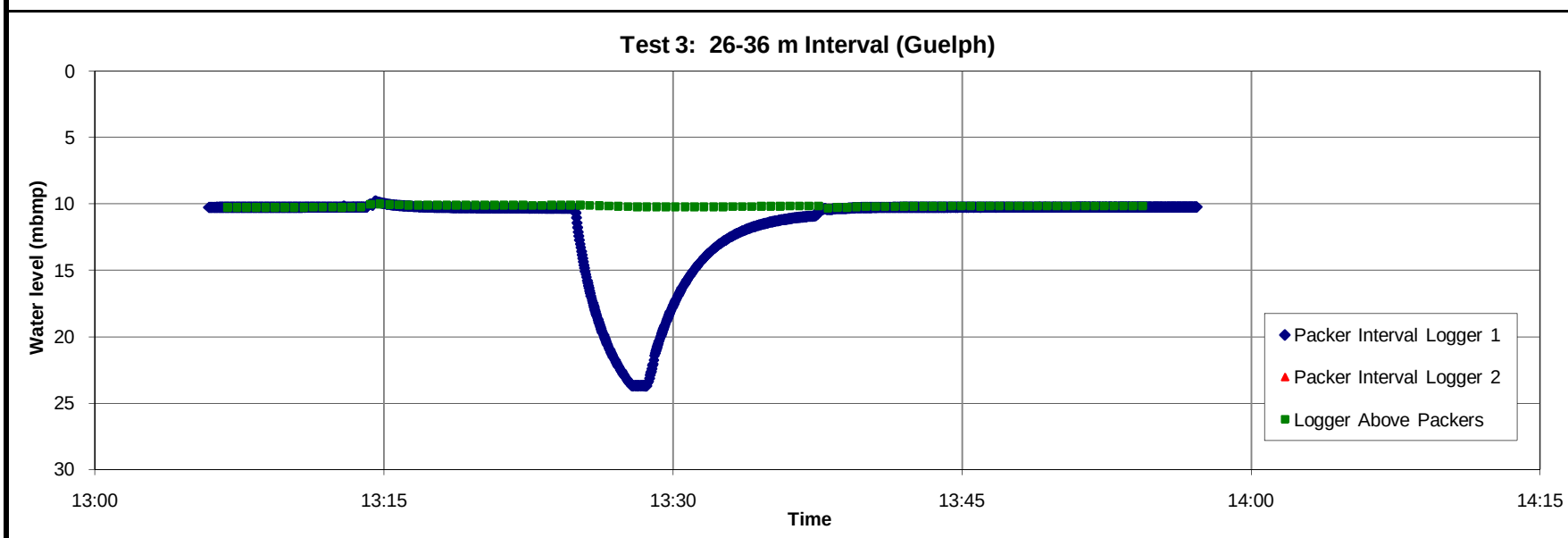
Packer Testing Results at MW08-T3-04

City of Guelph Tier Three Local Area Risk Assessment

FIGURE C2







Notes: 1) Test Dates: January 21, 2009 and January 23, 2009

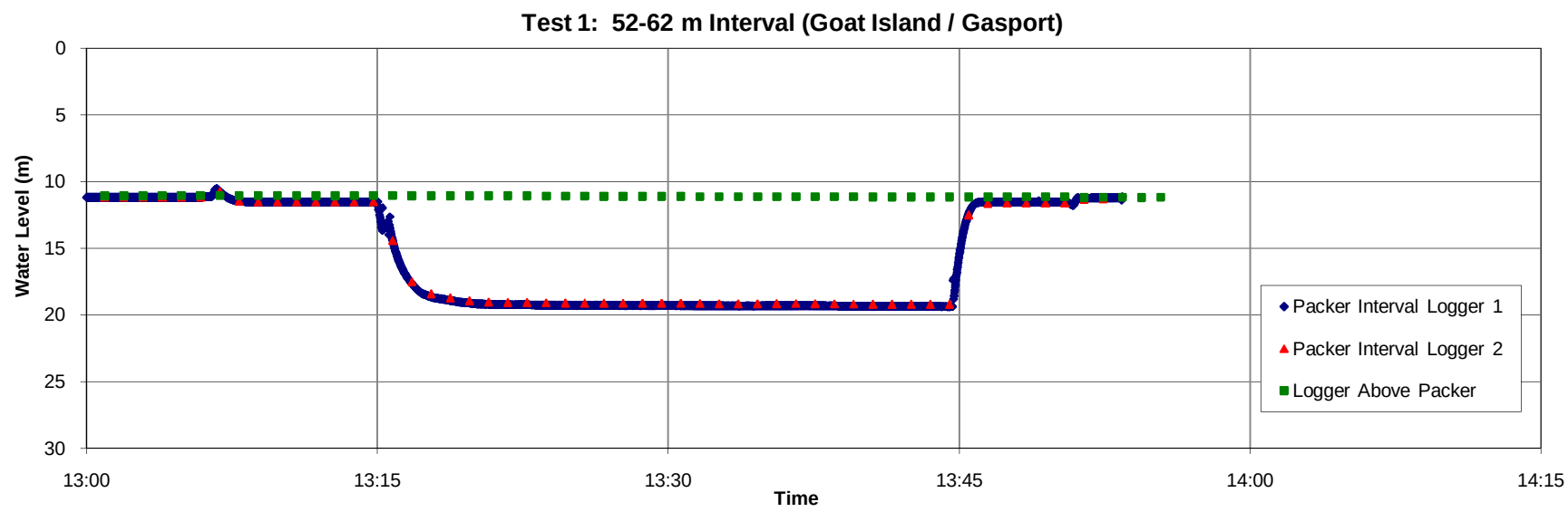
Golder Associates

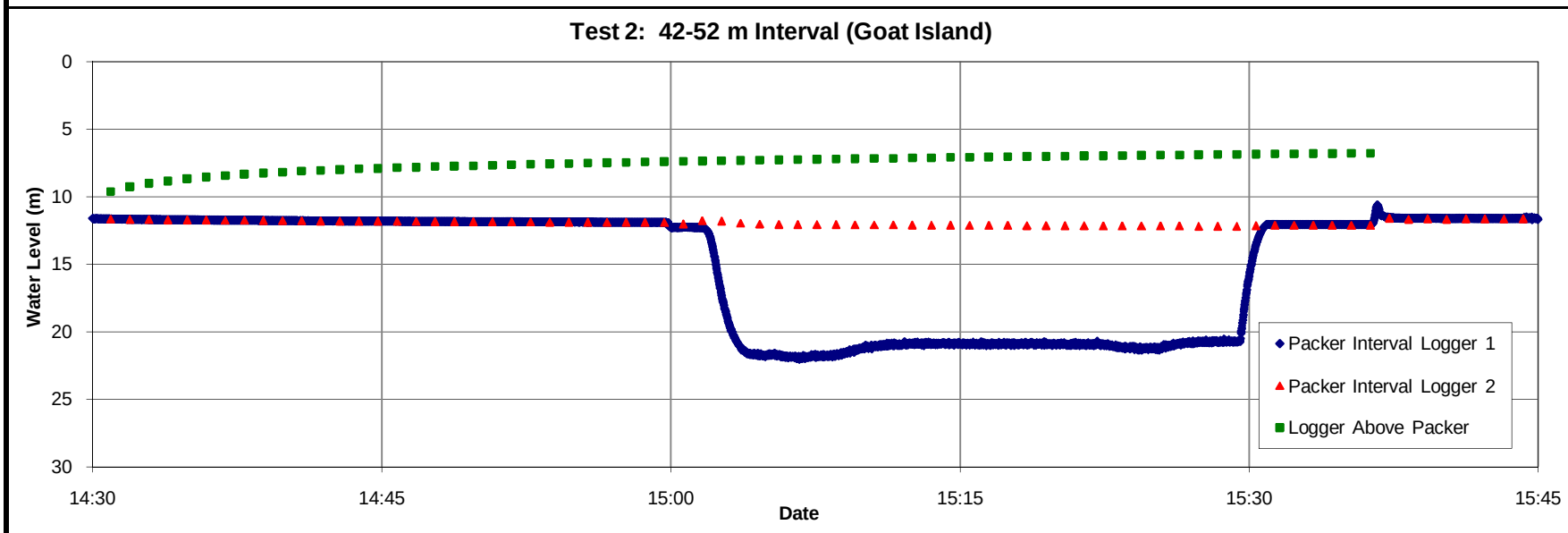
DATE: May 2010
Project No: 08-1112-0021
Drawn By: KS
Reviewed By: JAP

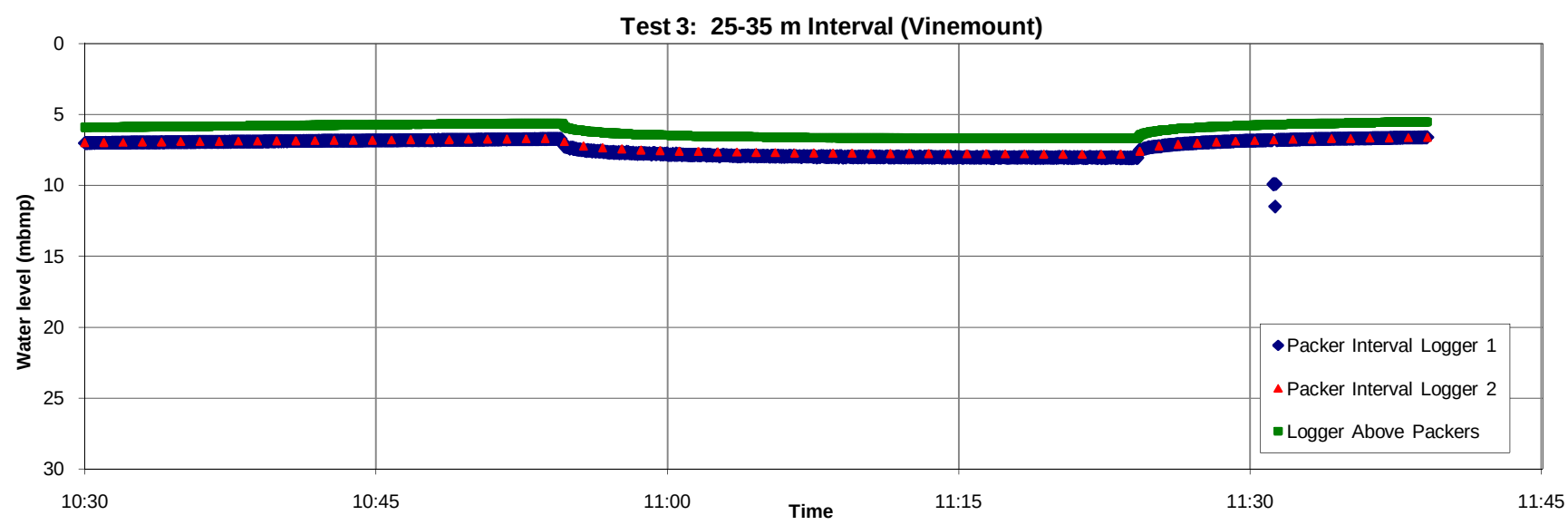
Packer Testing Results at MW08-T3-07

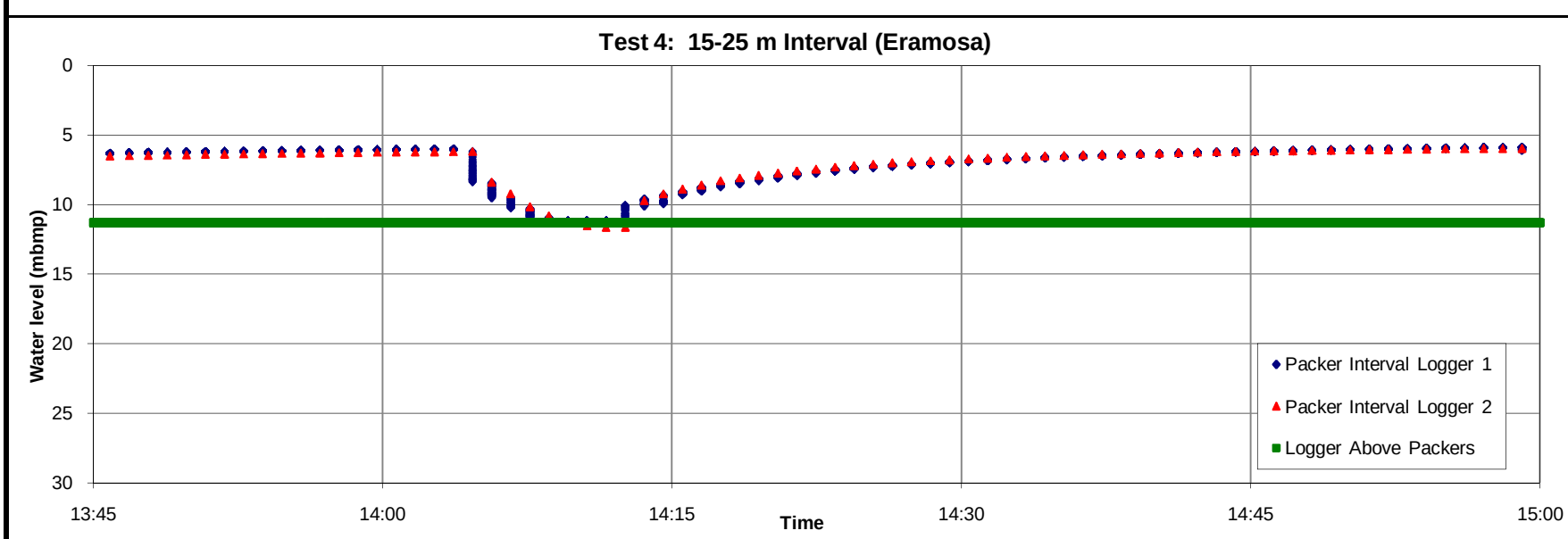
City of Guelph Tier Three Local Area Risk Assessment

FIGURE C3









Notes: 1) Test Dates: November 19, 2008 and November 20, 2008

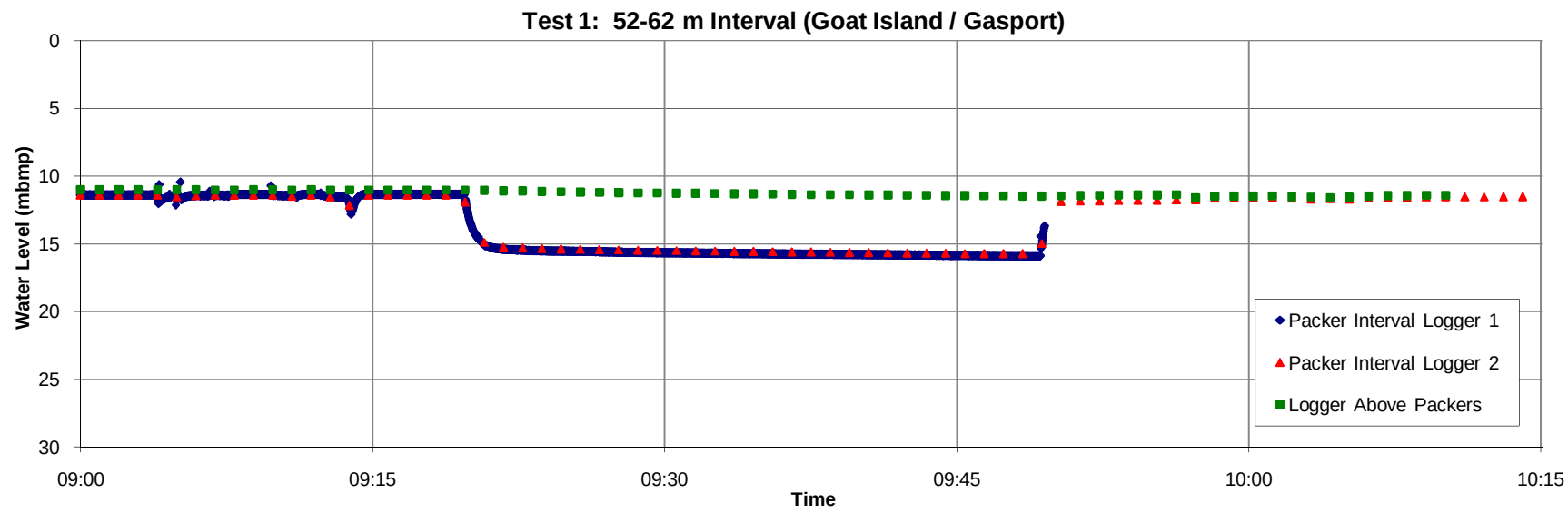
Golder Associates

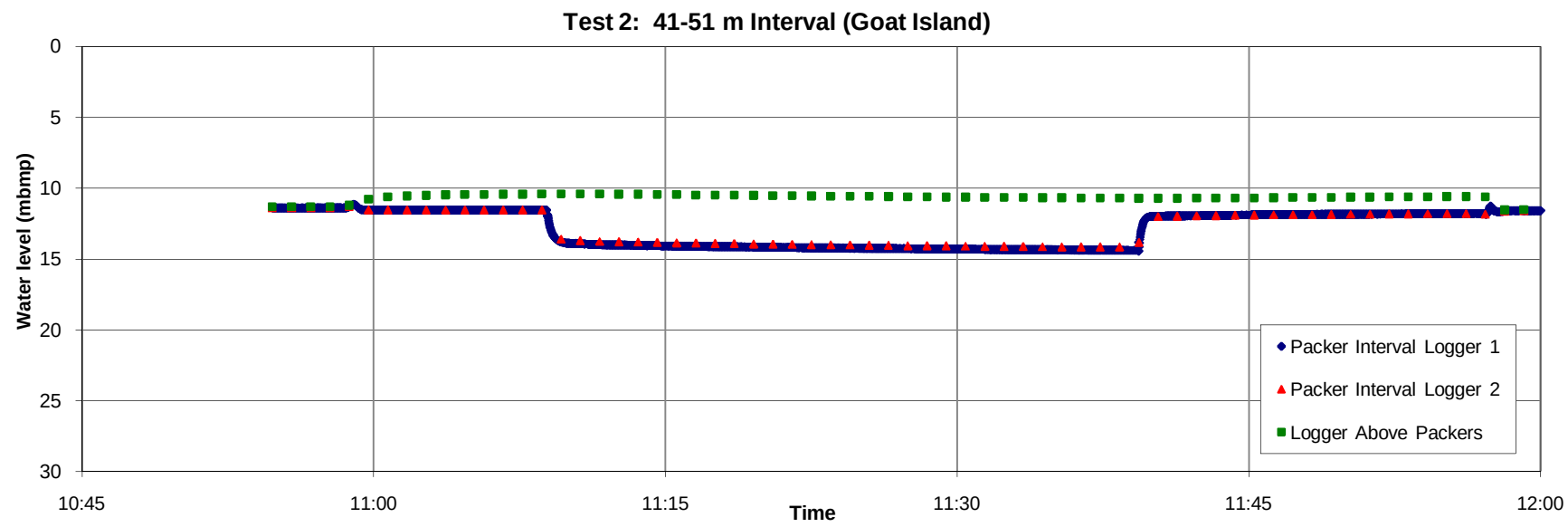
DATE: May 2010
Project No: 08-1112-0021
Drawn By: KS
Reviewed By: JAP

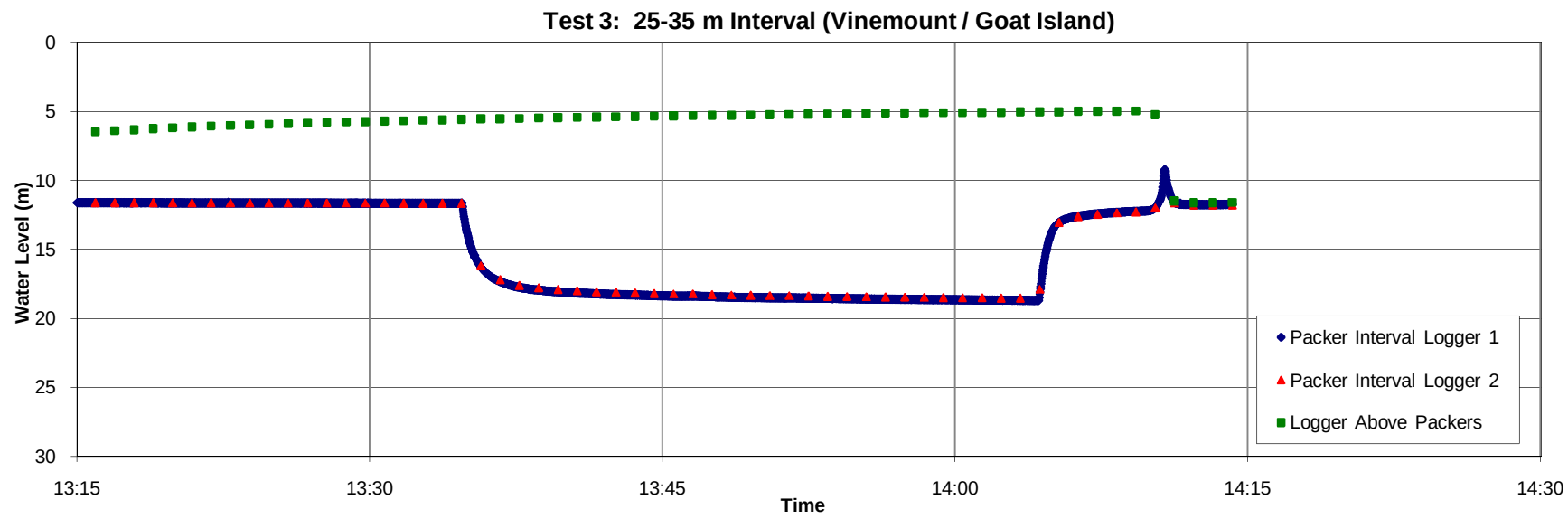
Packer Testing Results at MW08-T3-08

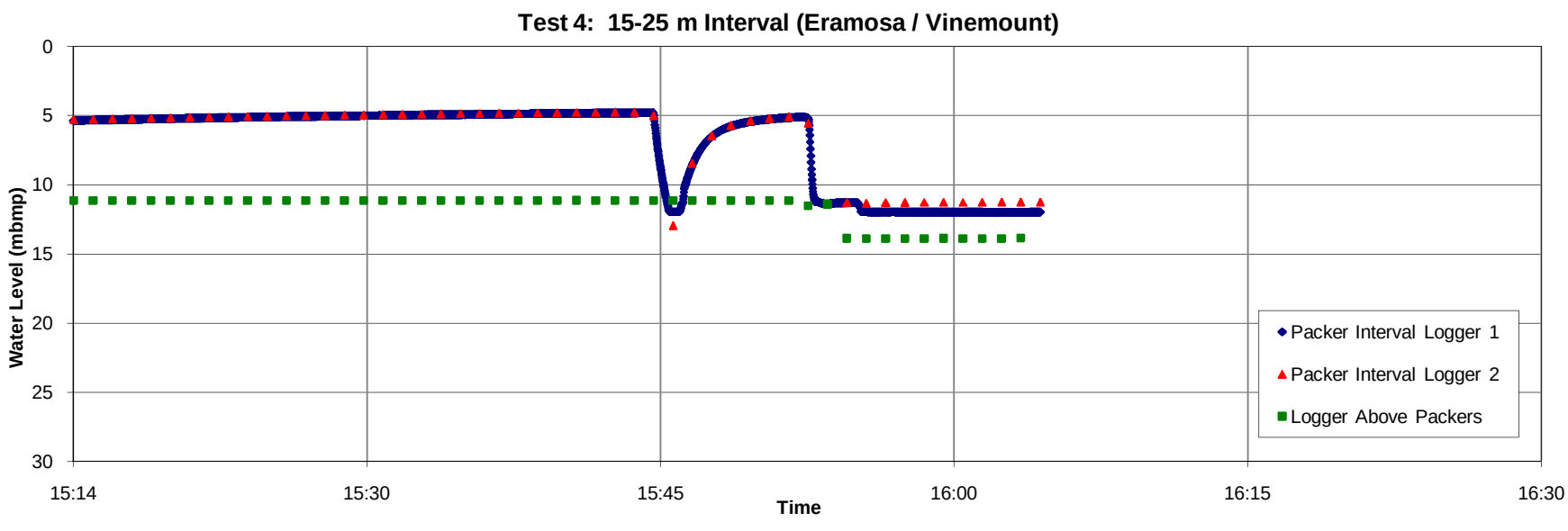
City of Guelph Tier Three Local Area Risk Assessment

FIGURE C4









Notes: 1) Test Date: November 18, 2008

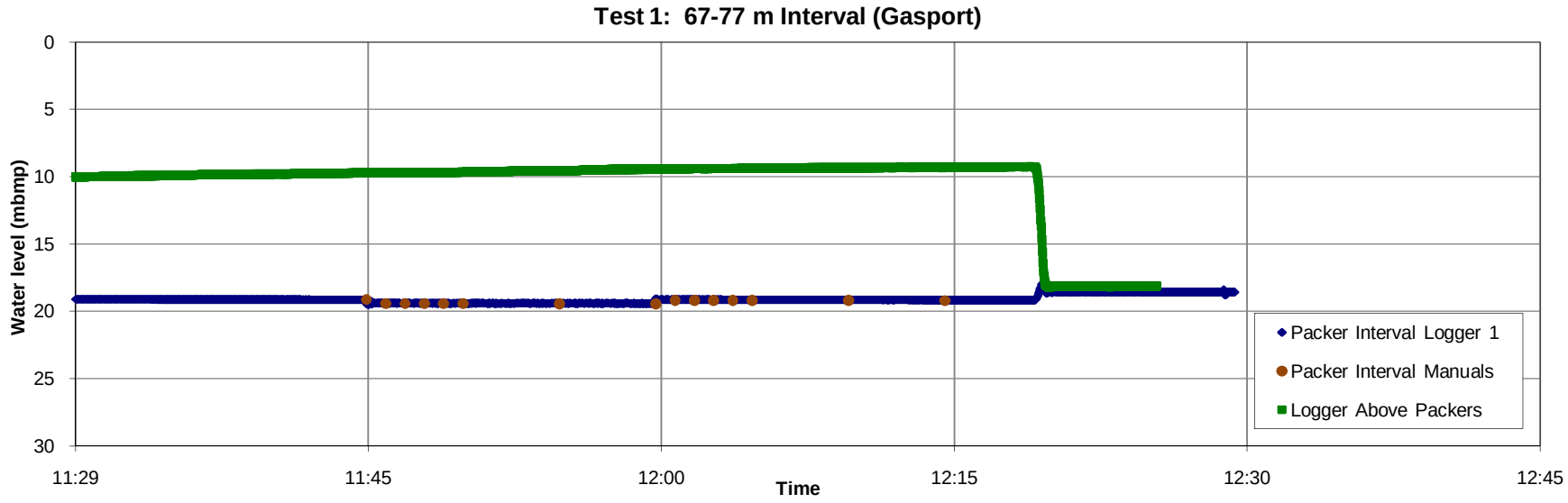
Golder Associates

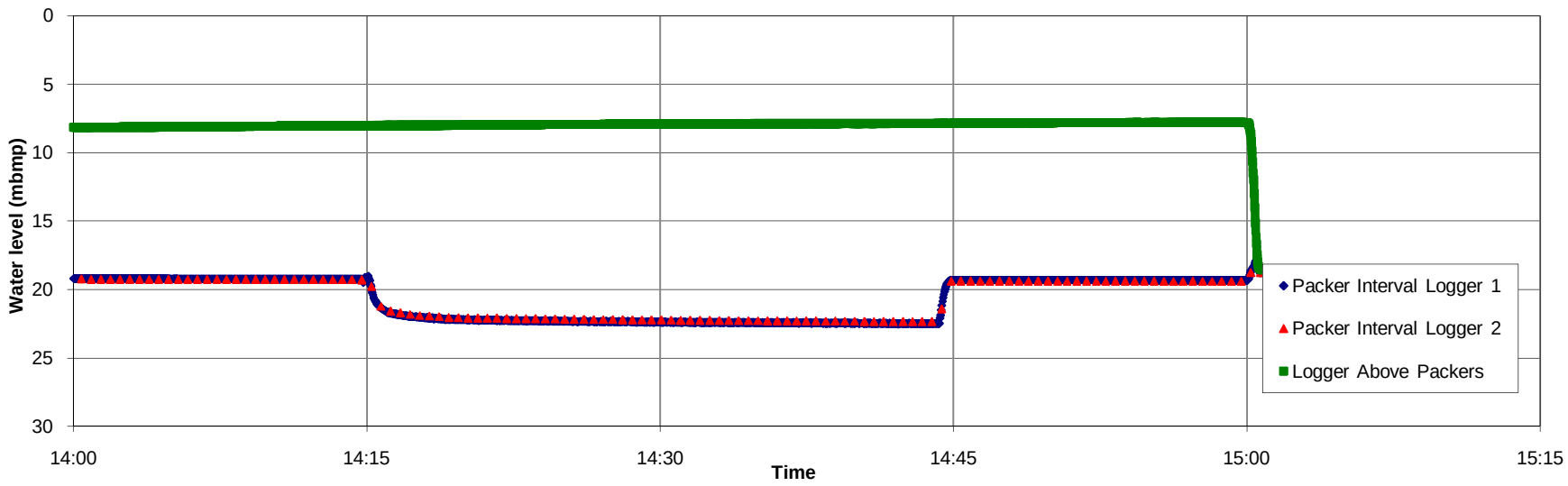
DATE: May 2010
Project No: 08-1112-0021
Drawn By: KS
Reviewed By: JAP

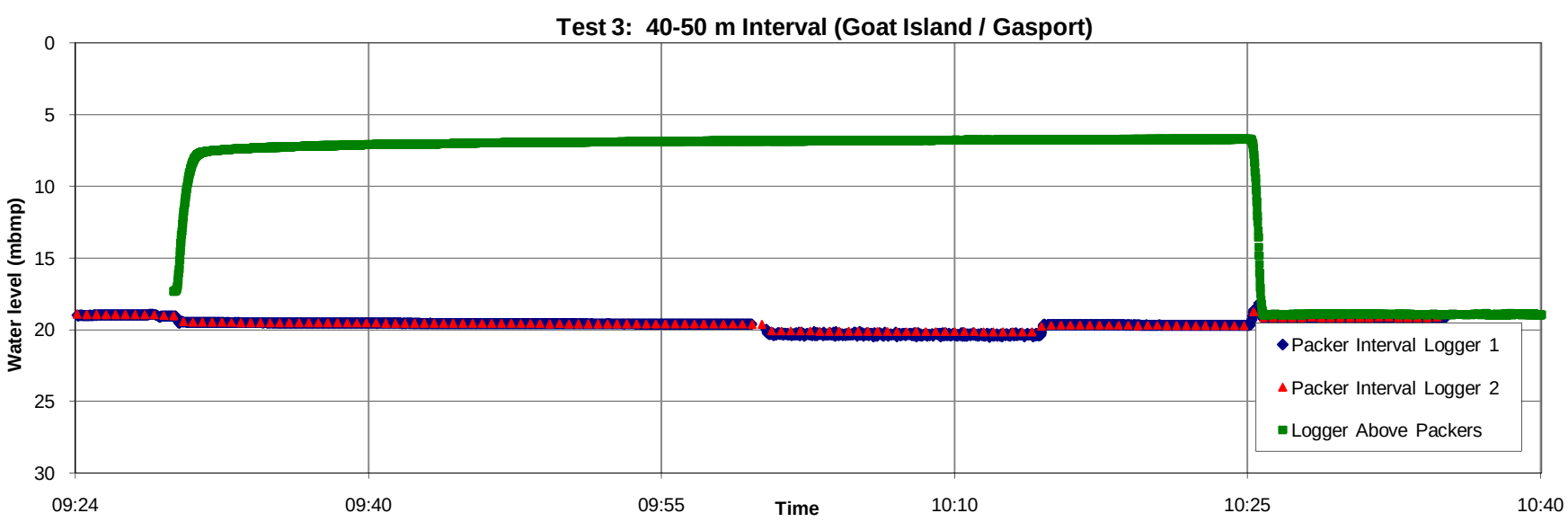
Packer Testing Results at MW08-T3-09

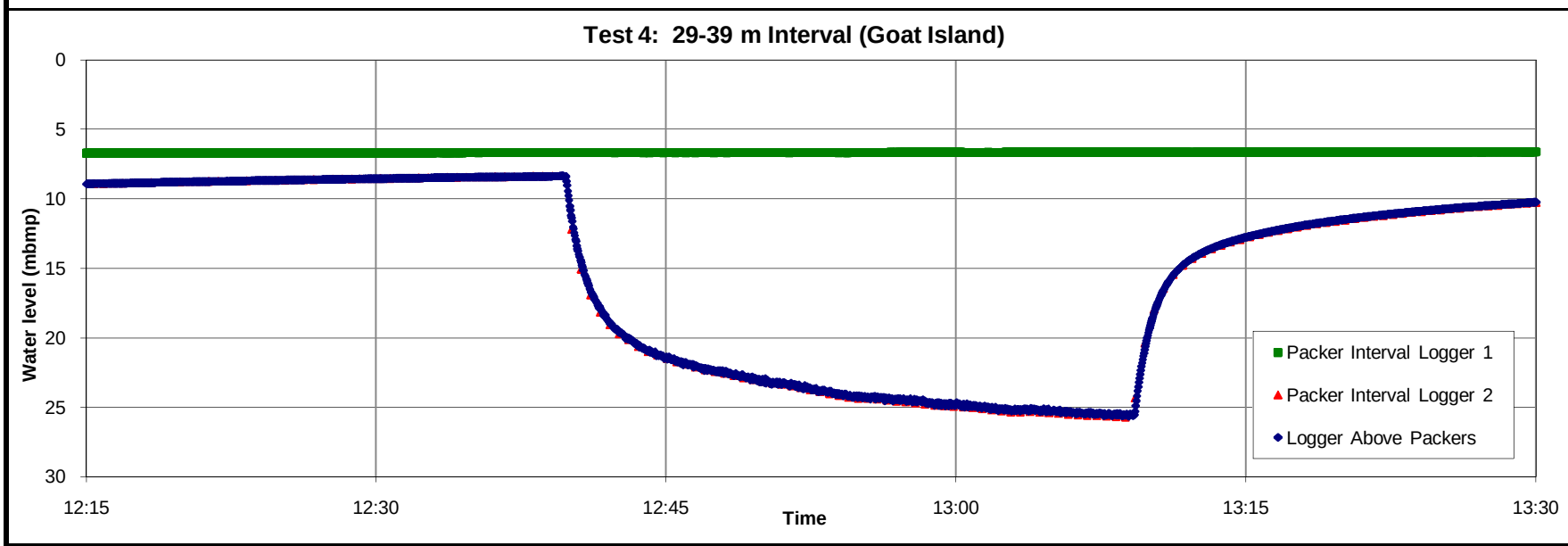
City of Guelph Tier Three Local Area Risk Assessment

FIGURE C5









Notes: 1) Test Dates: November 21, 2008 and November 24, 2008.
2) During Test 1, Packer Interval Logger 2 was at maximum number of readings.

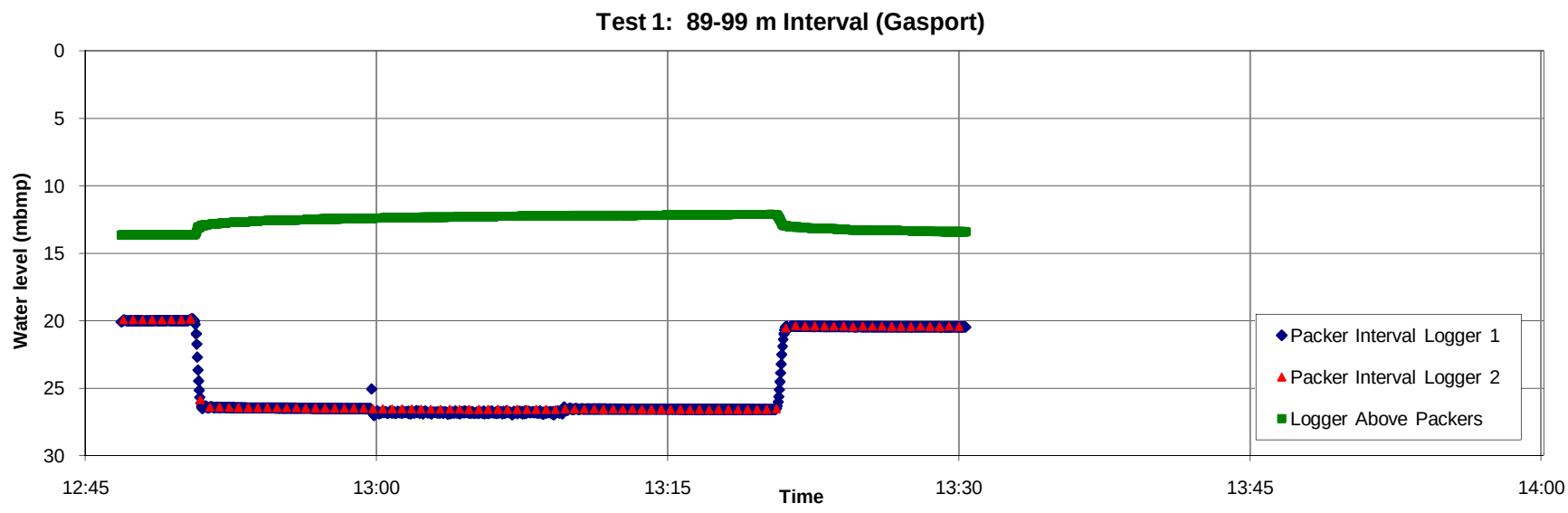
Golder Associates

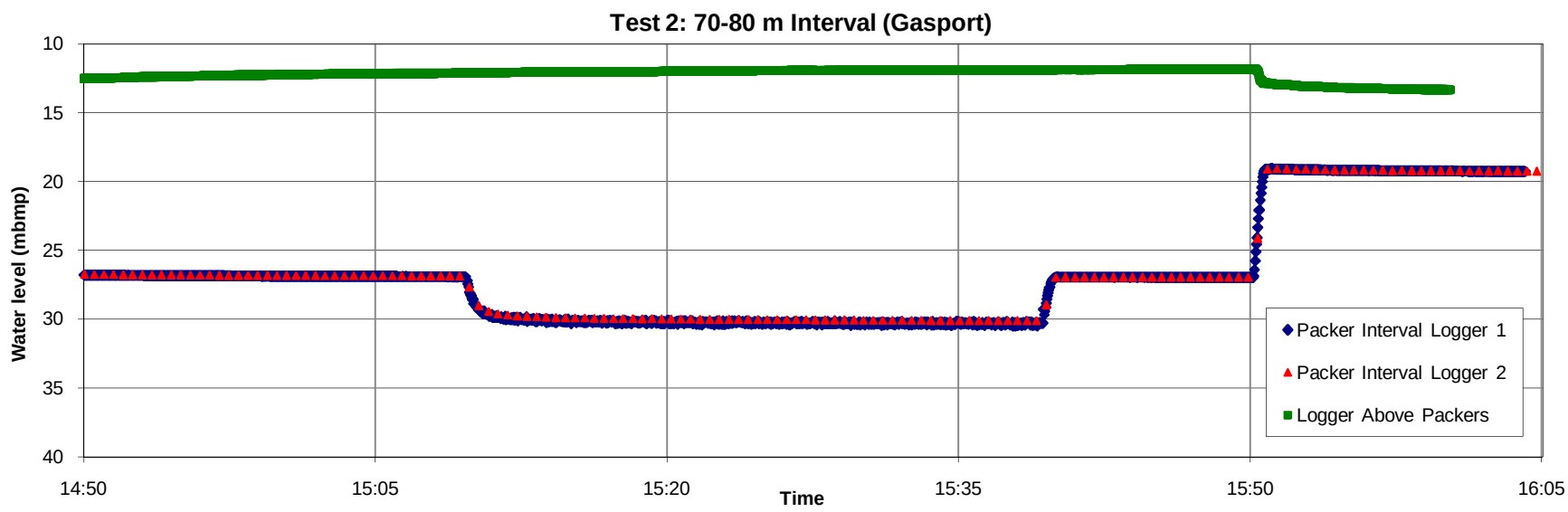
DATE: May 2010
Project No: 08-1112-0021
Drawn By: KS
Reviewed By: JAP

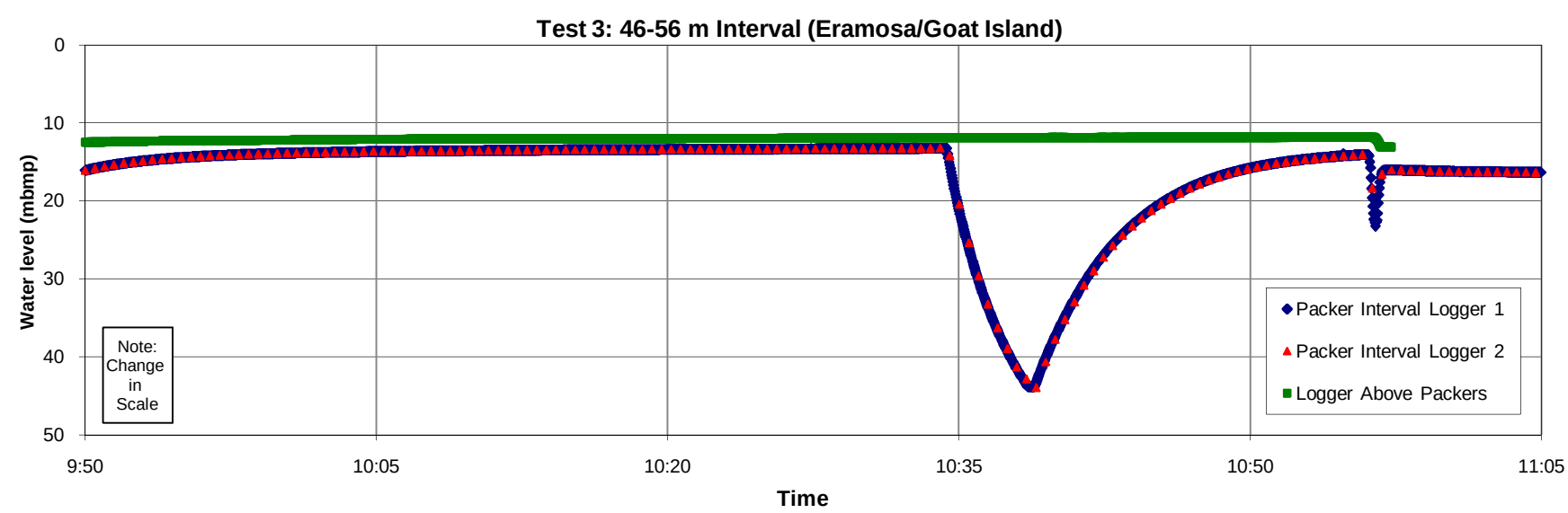
Packer Testing Results at MW08-T3-10

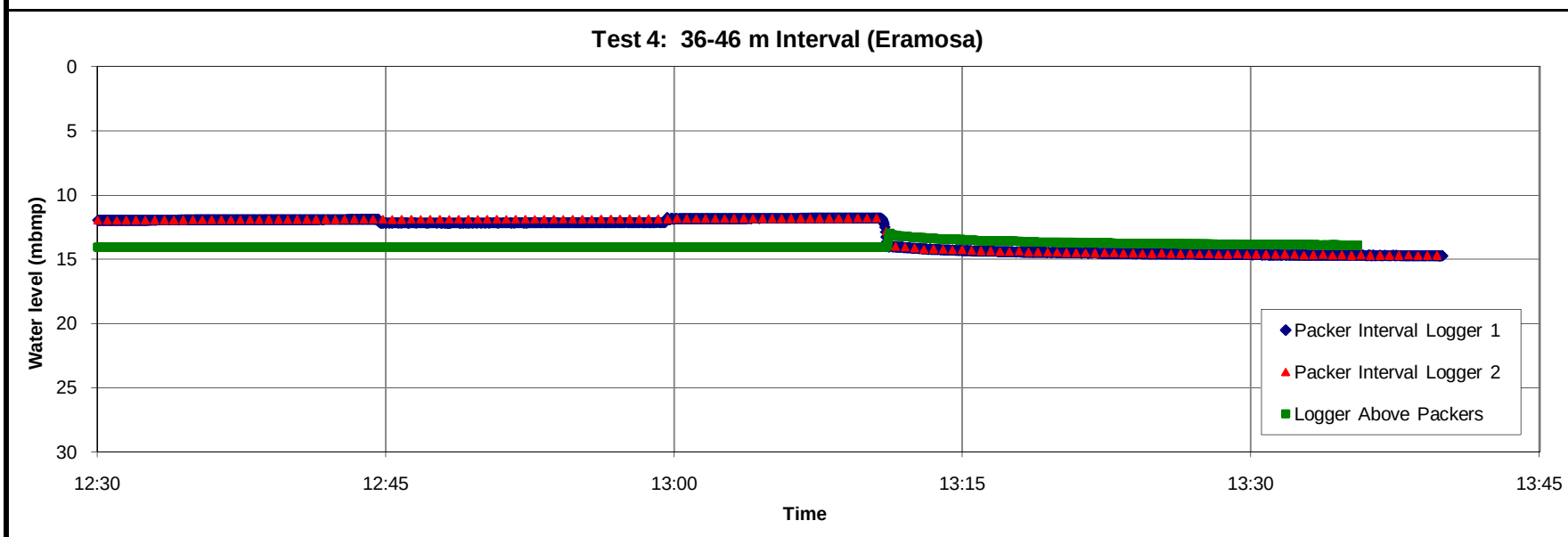
City of Guelph Tier Three Local Area Risk Assessment

FIGURE C6









Note: 1) Test Dates: November 27, 2008 and November 28, 2008.

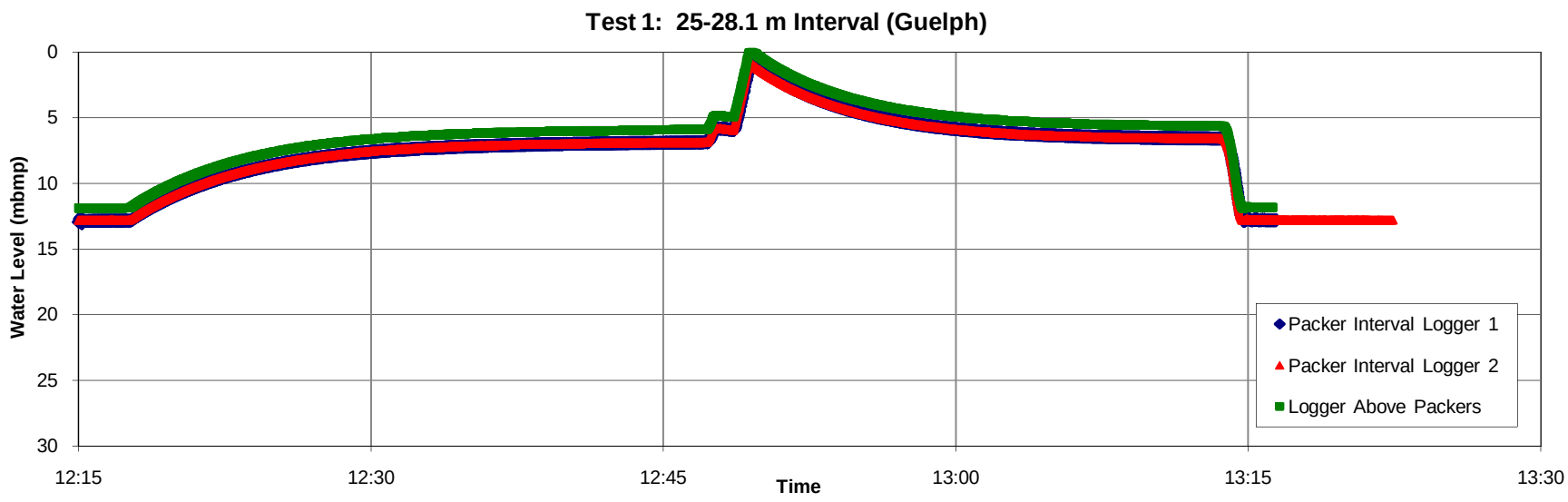
Golder Associates

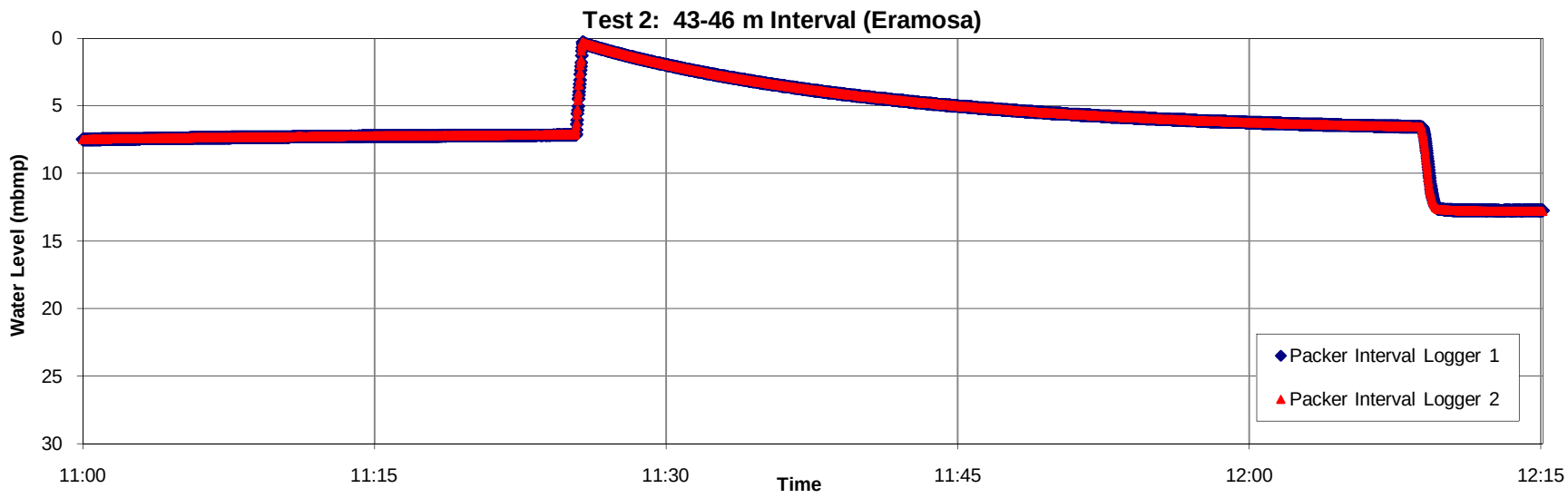
DATE: May 2010
Project No: 08-1112-0021
Drawn By: KS
Reviewed By: JAP

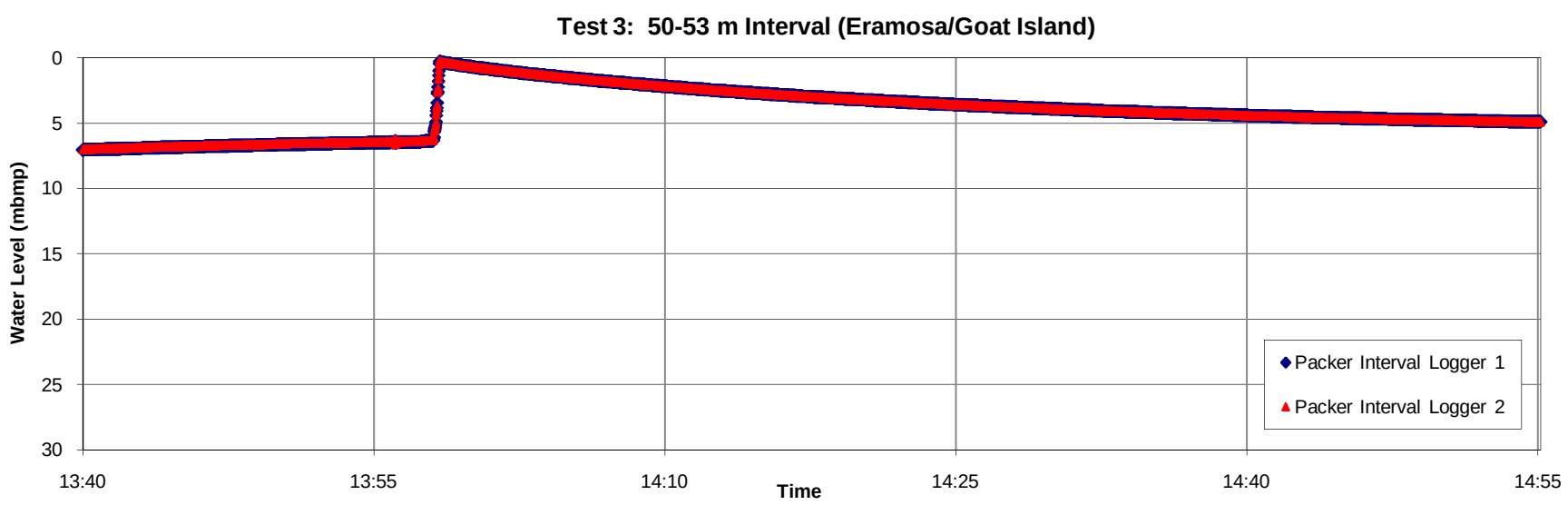
Packer Testing Results at MW09-T3-01

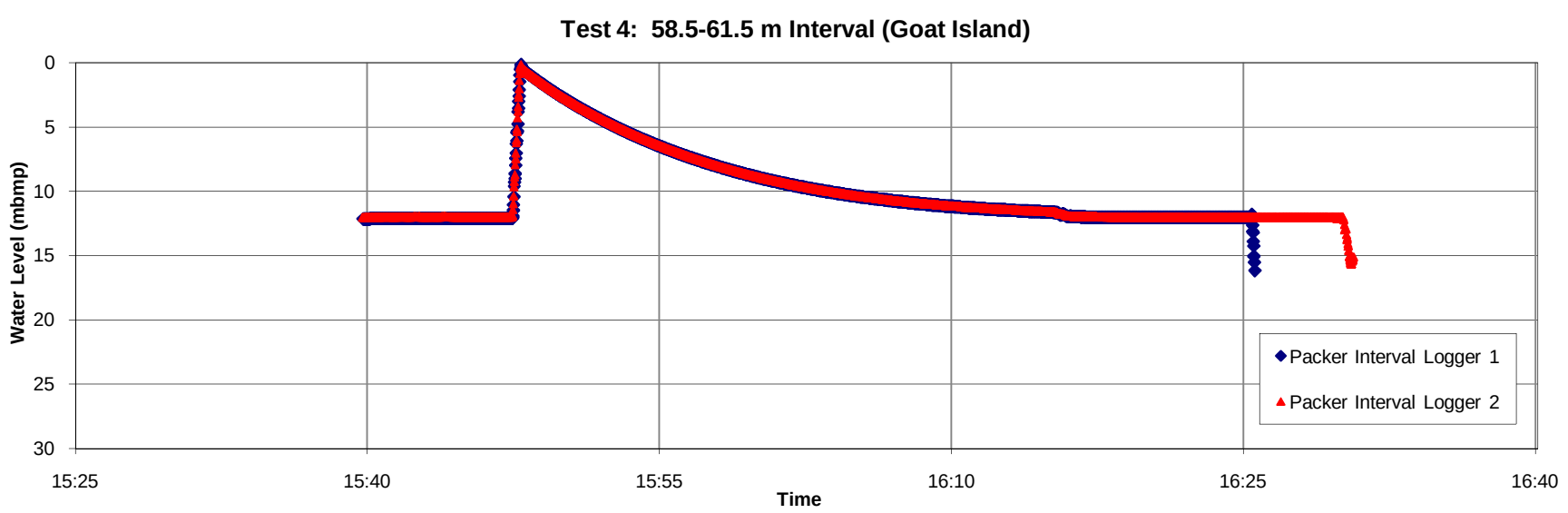
City of Guelph Tier Three Local Area Risk Assessment

FIGURE C7









Notes: 1) Test Dates: May 21, 2009 and May 22, 2009.

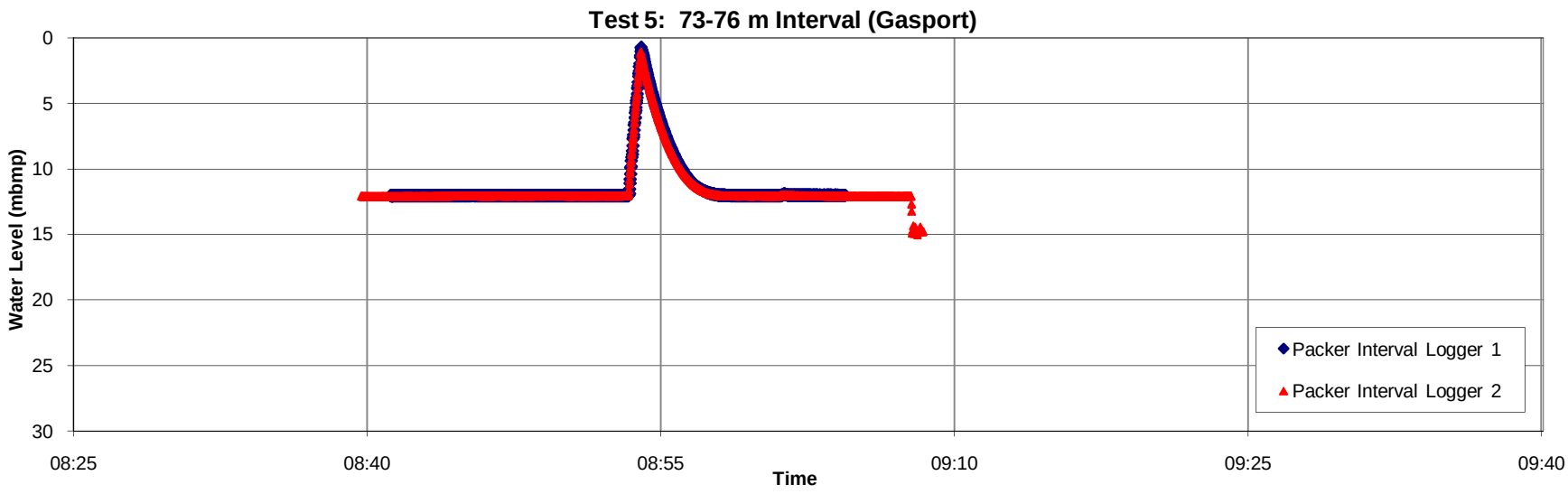
Golder Associates

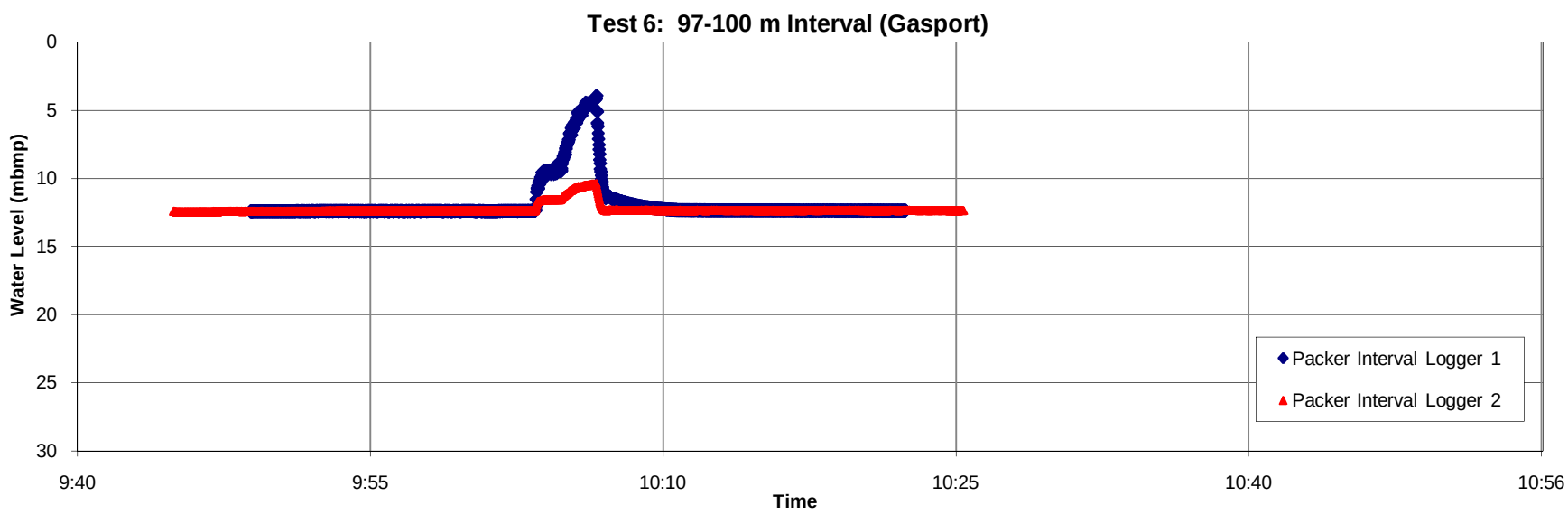
DATE: May 2010
Project No: 08-1112-0021
Drawn By: KS
Reviewed By: JAP

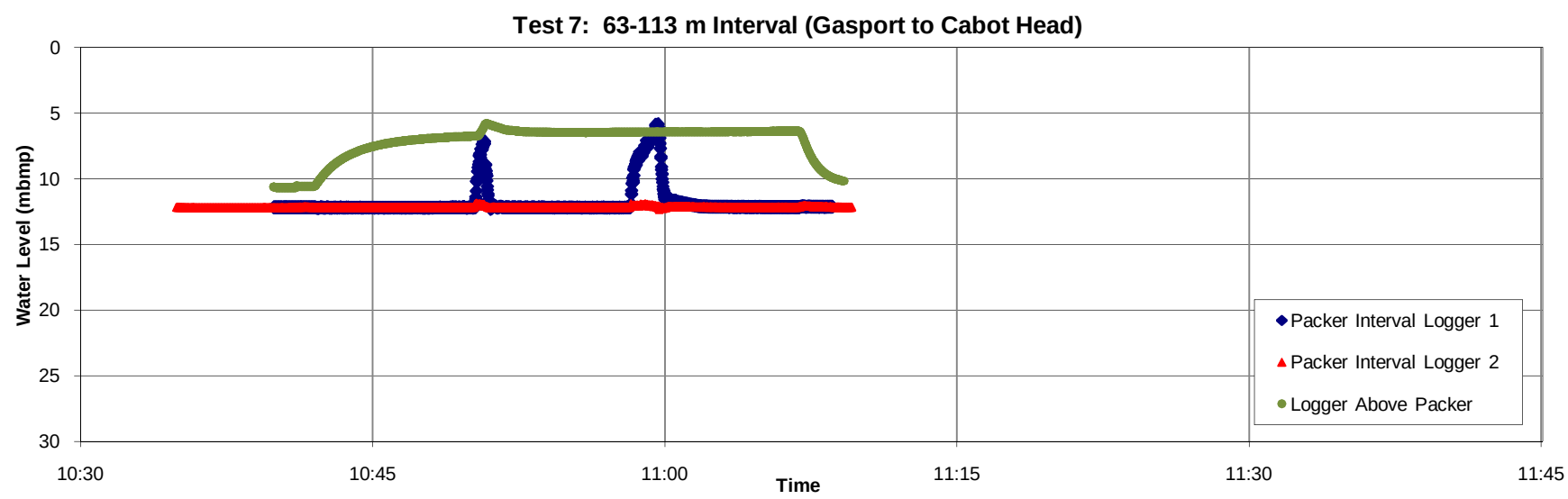
Packer Testing Results at MW09-T3-01

City of Guelph Tier Three Local Area Risk Assessment

FIGURE C8







Notes: 1) Test Dates: May 22, 2009 and May 25, 2009.

Golder Associates

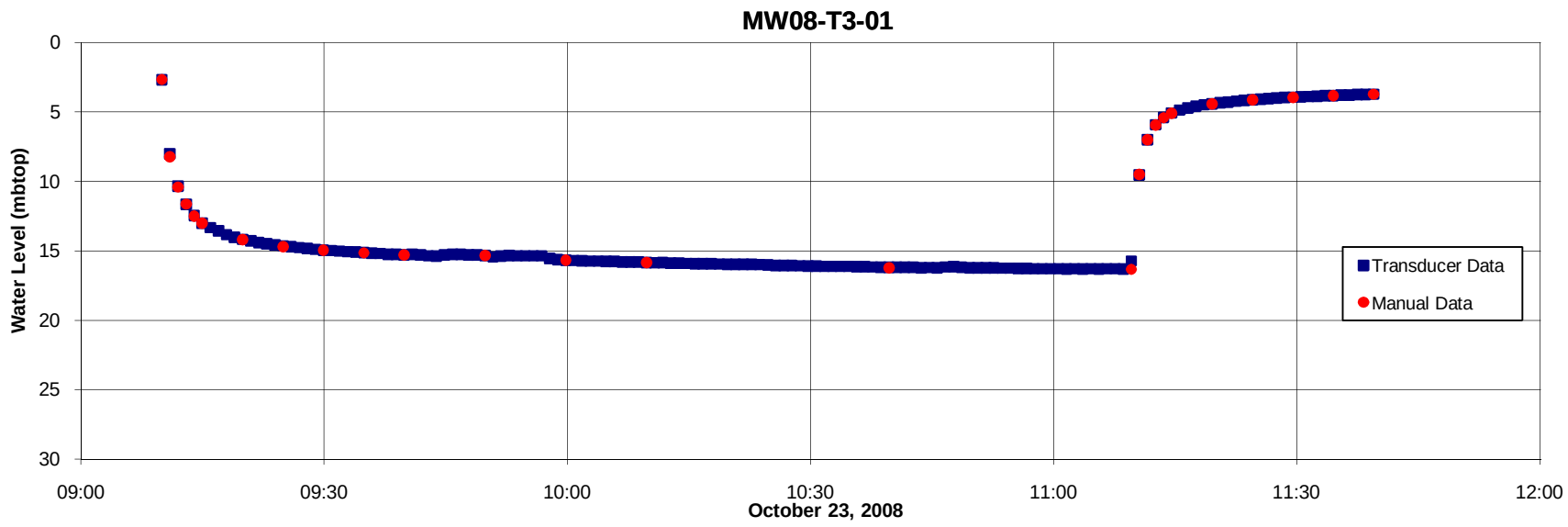
DATE: May 2010
Project No: 08-1112-0021
Drawn By: KS
Reviewed By: JAP

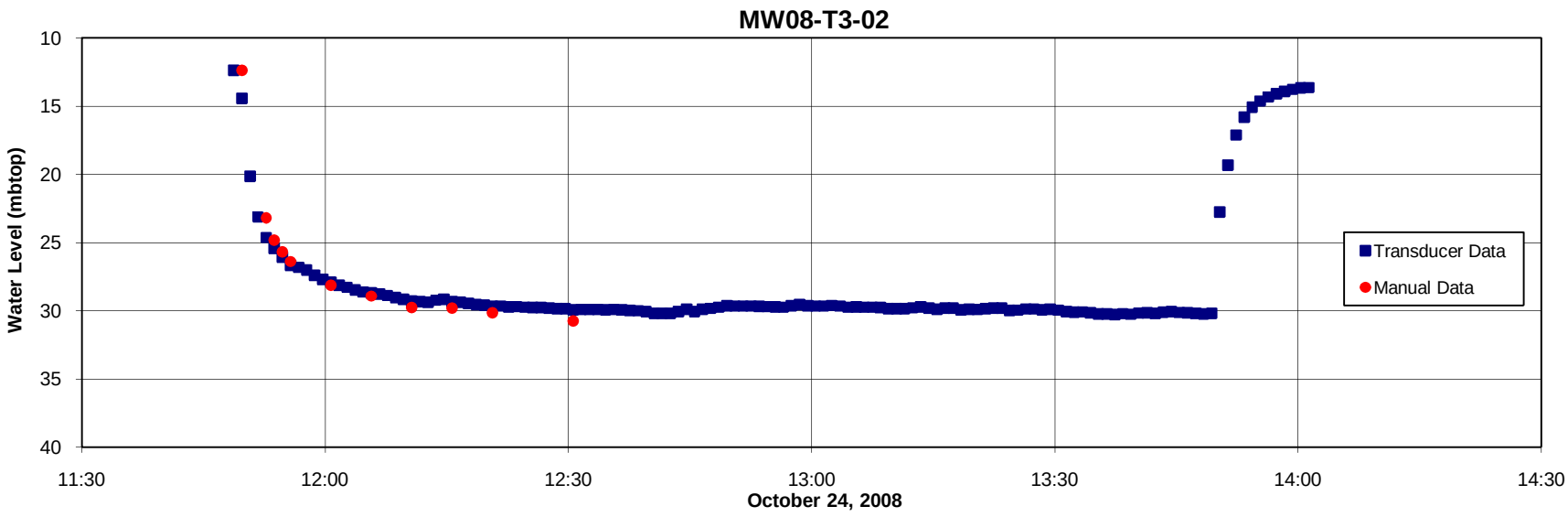
C6: Specific Capacity Data

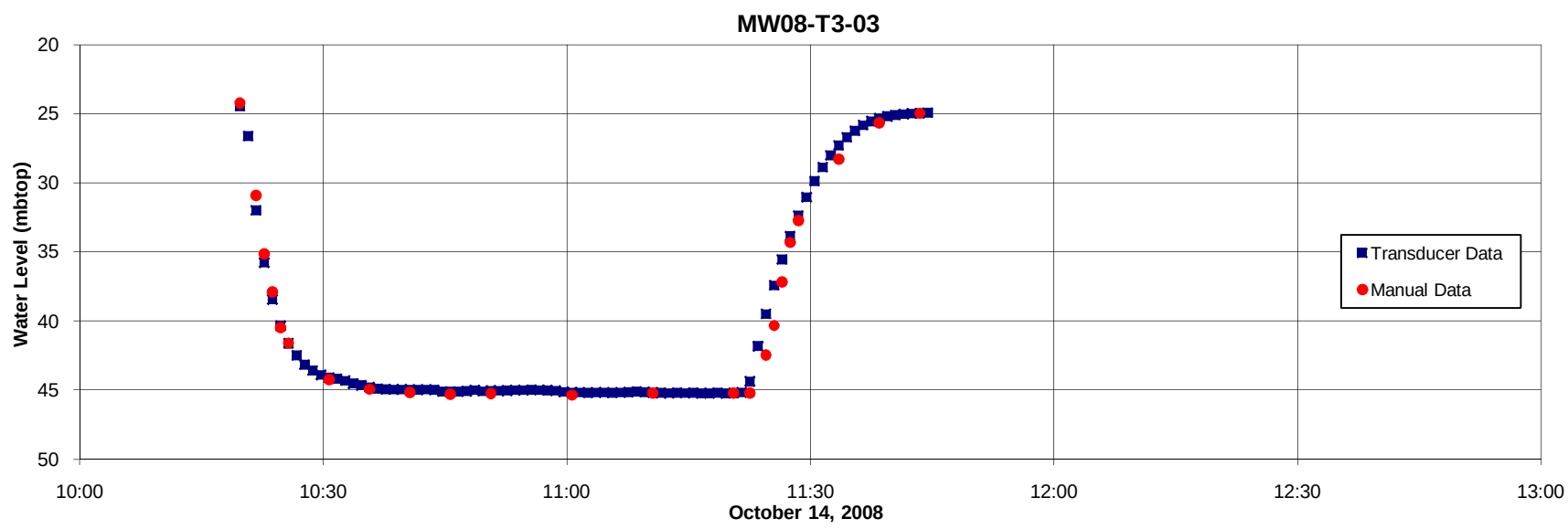
Specific Capacity Testing Hydrographs

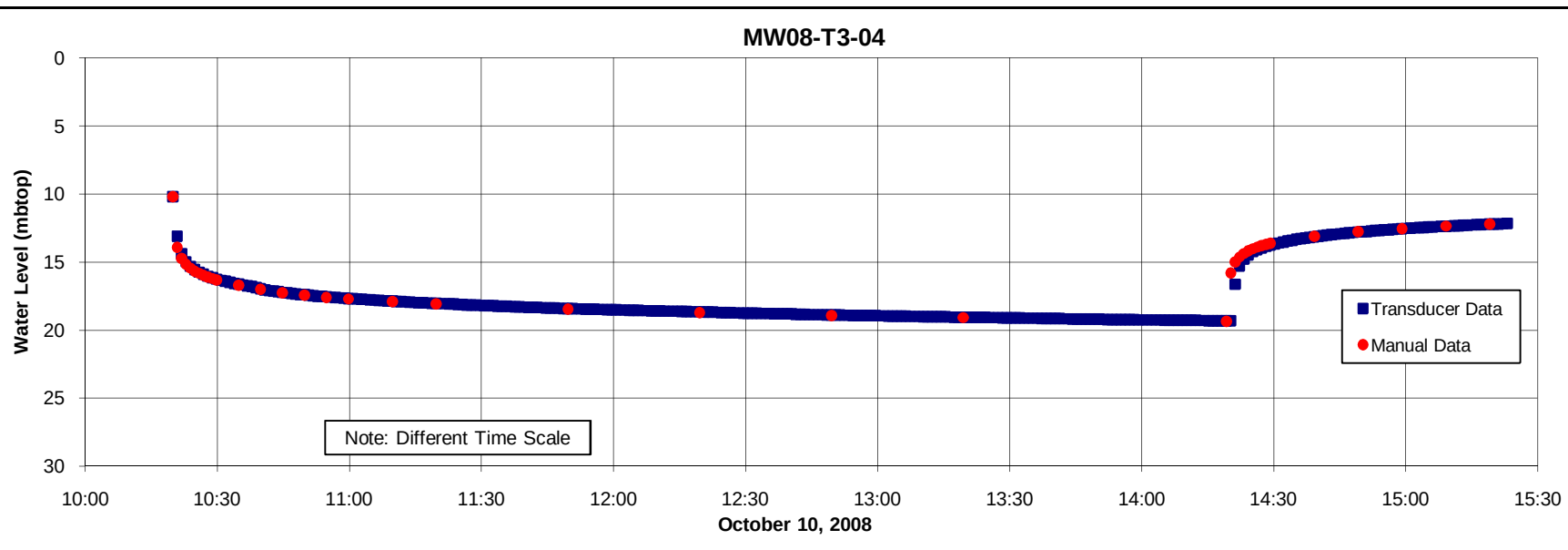
City of Guelph Tier Three Local Area Risk Assessment

FIGURE C9









Notes:

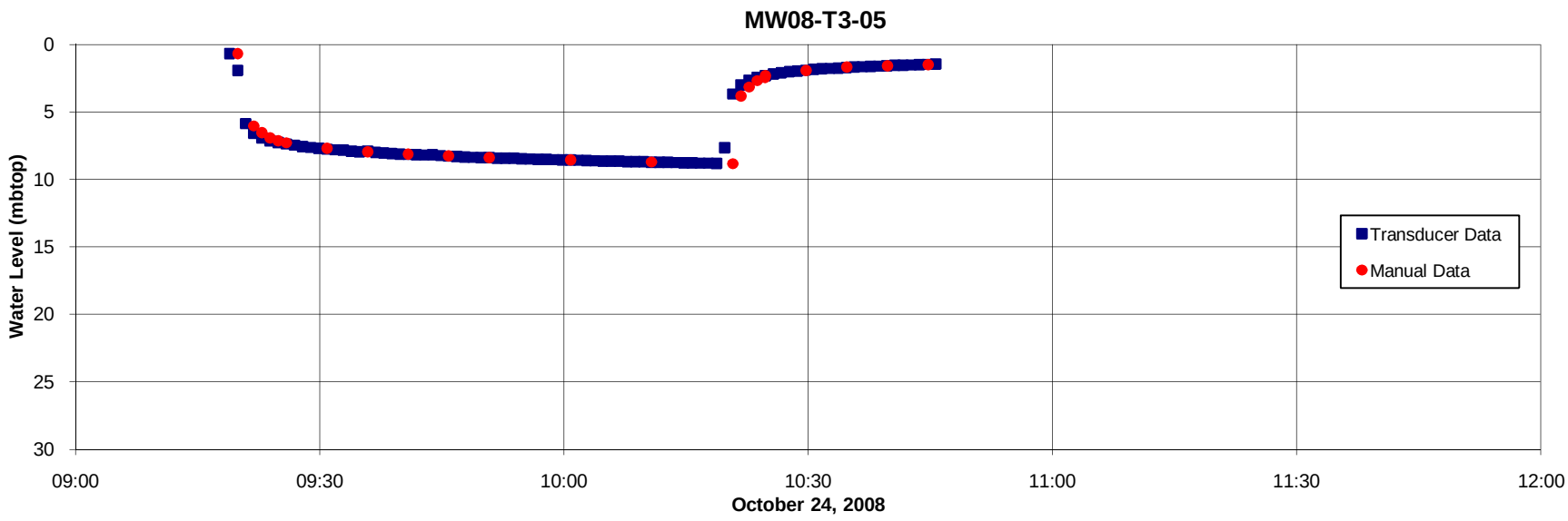
Golder Associates

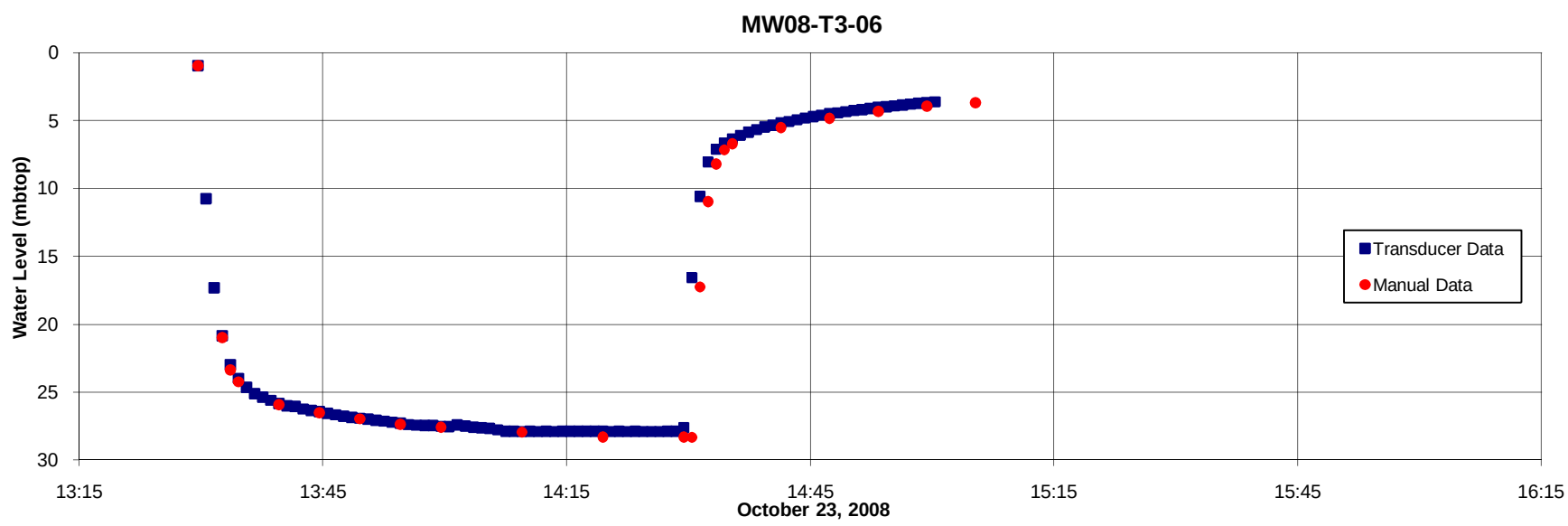
DATE: May 2010
Project No: 08-1112-0021
Drawn By: KS
Reviewed By: JAP

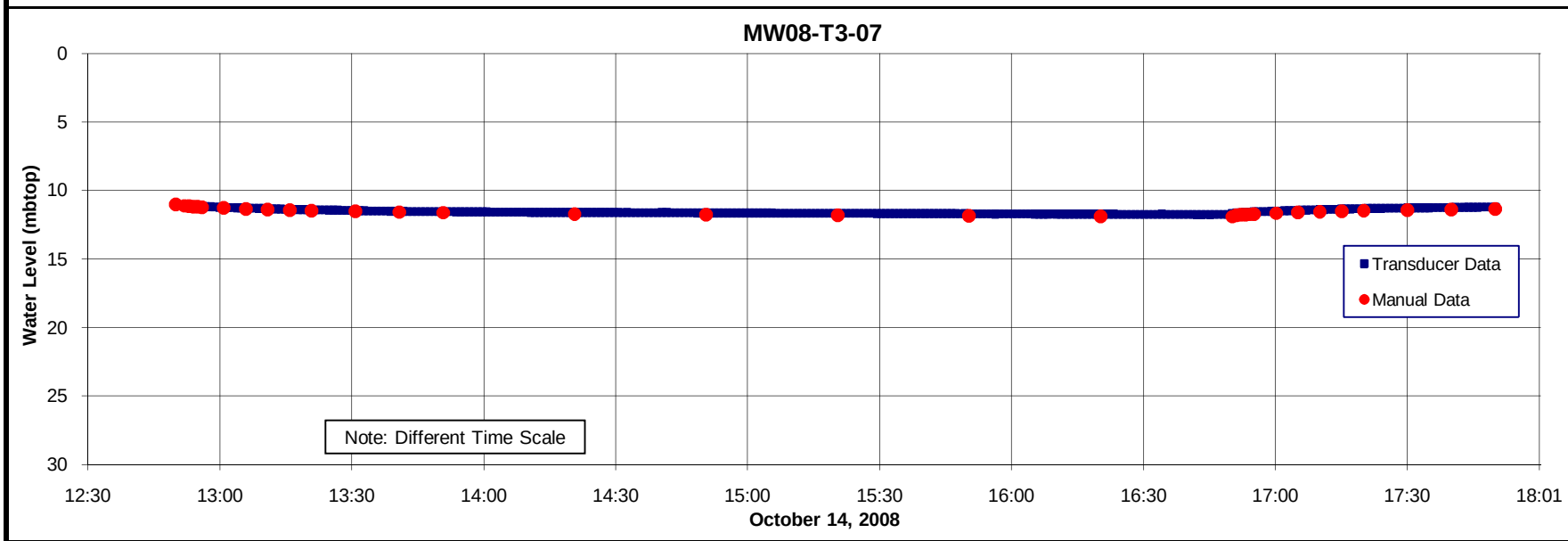
Specific Capacity Testing Hydrographs

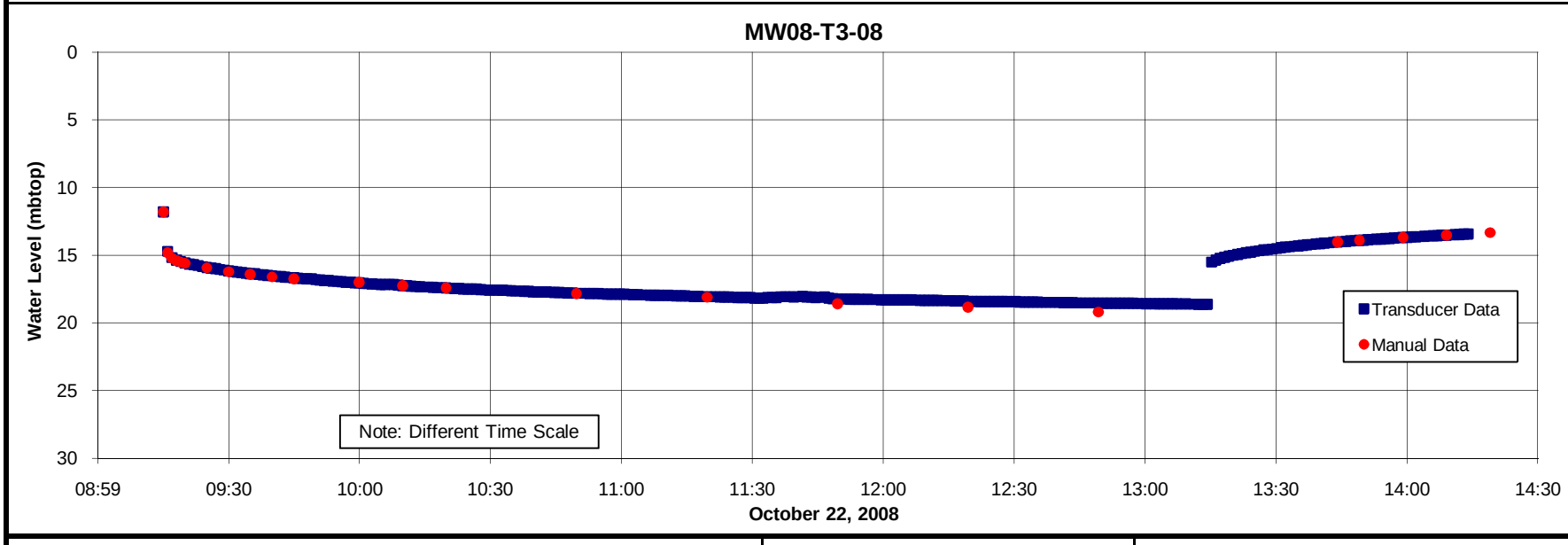
City of Guelph Tier Three Local Area Risk Assessment

FIGURE C10









Notes:

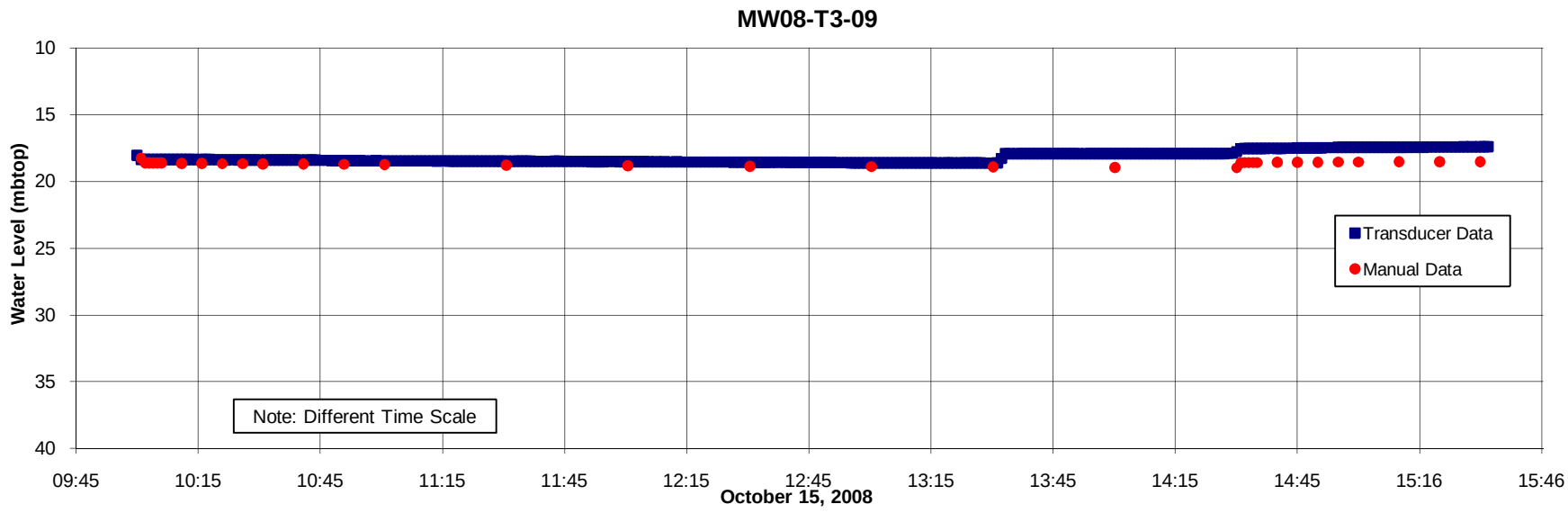
Golder Associates

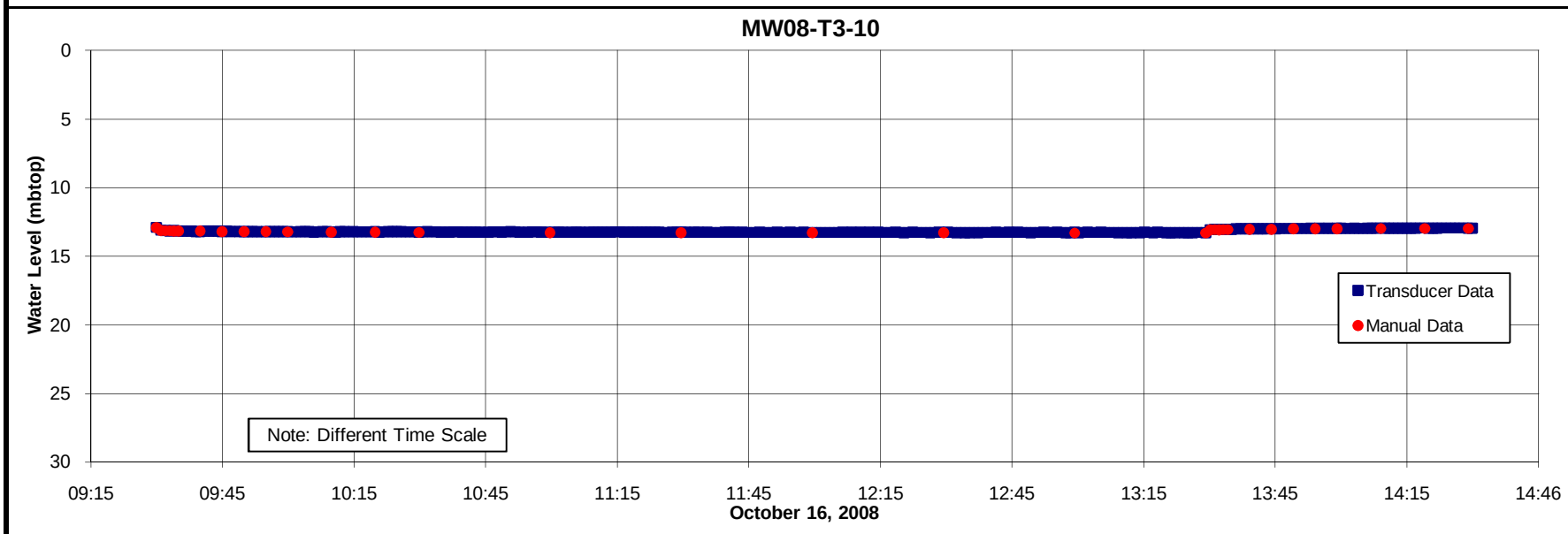
DATE: May 2010
Project No: 08-1112-0021
Drawn By: KS
Reviewed By: JAP

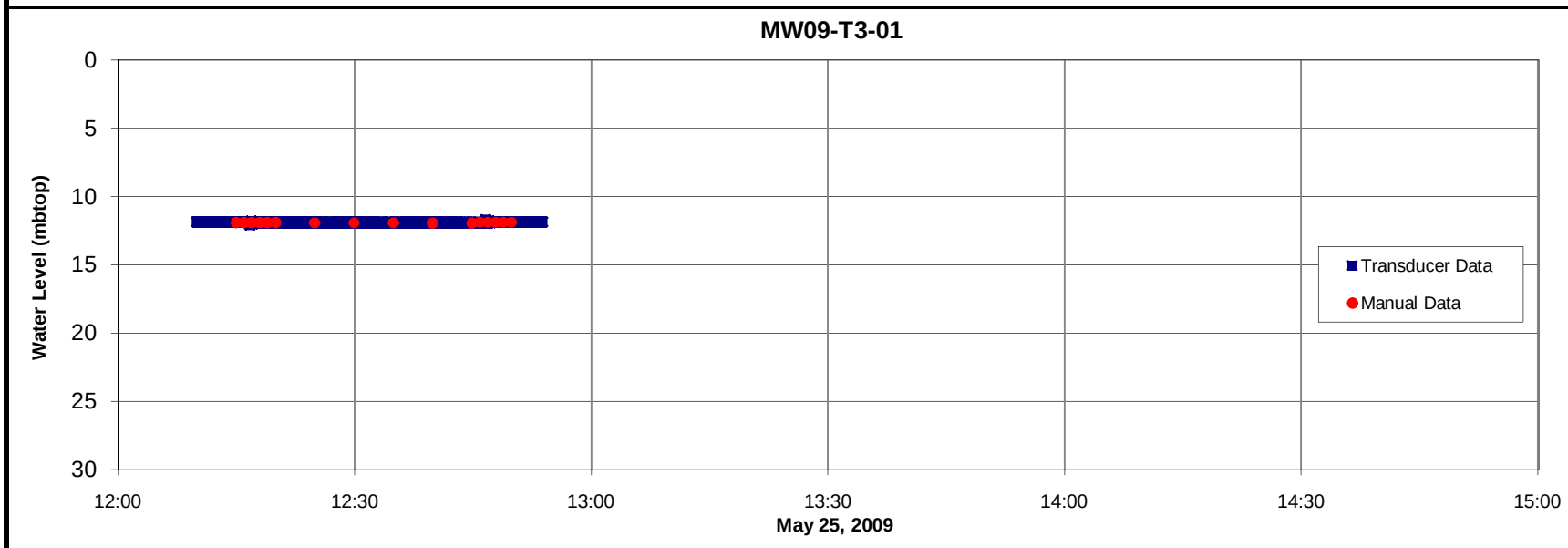
Specific Capacity Testing Hydrographs

City of Guelph Tier Three Local Area Risk Assessment

FIGURE C11





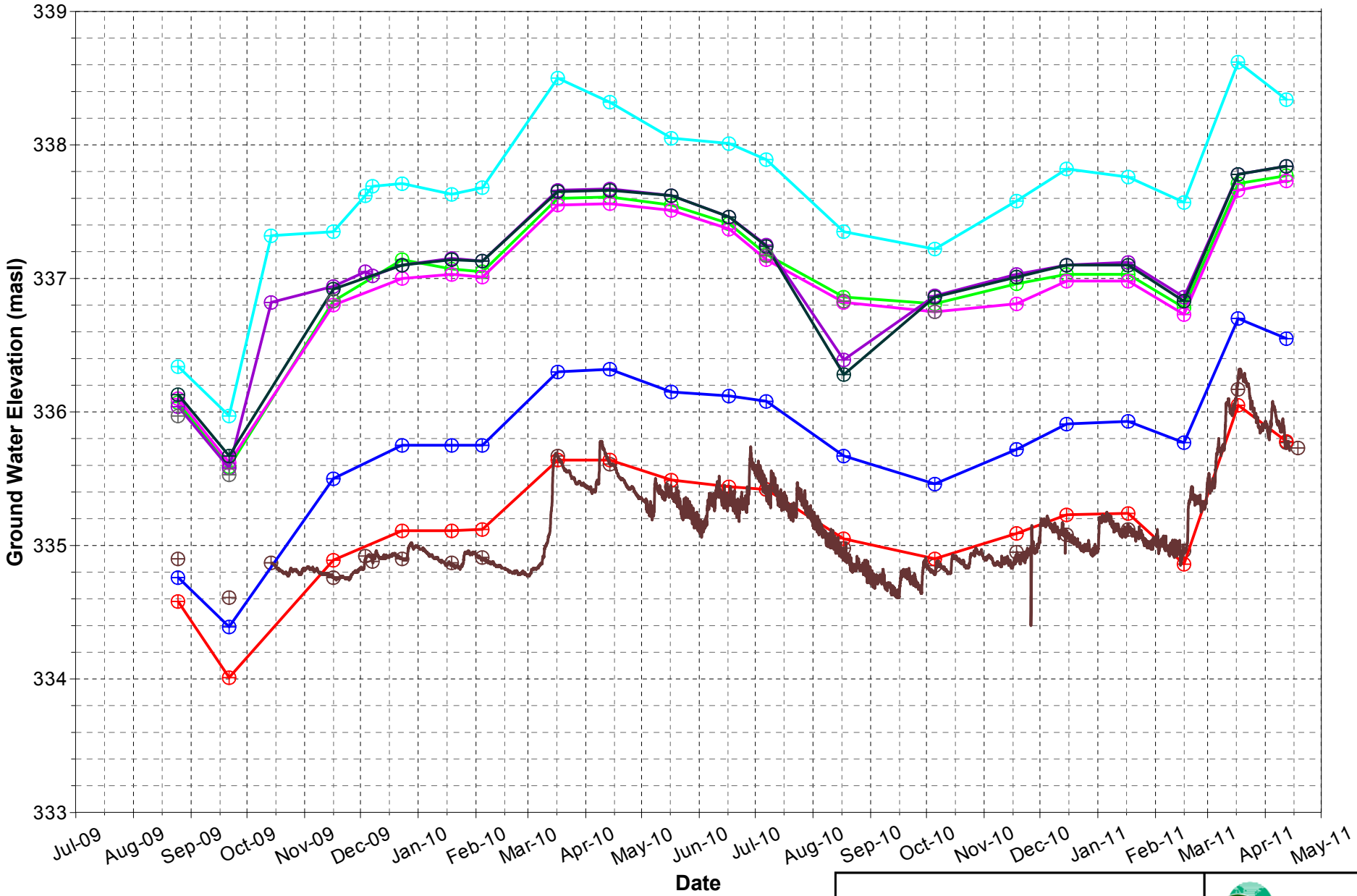


Notes:

Golder Associates

DATE: May 2010
Project No: 08-1112-0021
Drawn By: KS
Reviewed By: JAP

C7: Water Level Monitoring Data



LEGEND

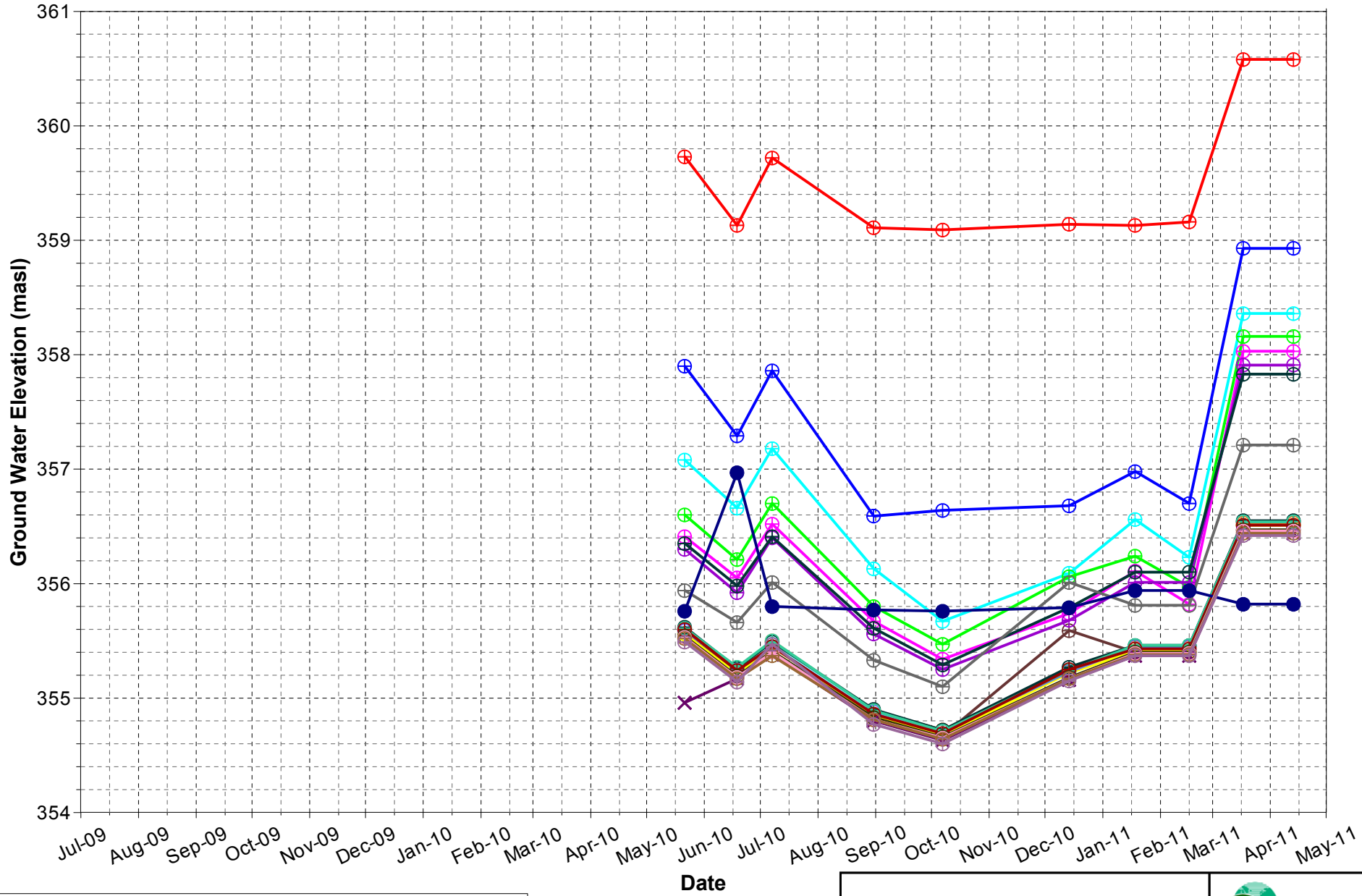
- MW08-T3-01-CS
- MW08-T3-01-1
- MW08-T3-01-2
- MW08-T3-01-3
- MW08-T3-01-4
- MW08-T3-01-5
- MW08-T3-01-6
- MW08-T3-01-7
- MW08-T3-01-8

City of Guelph
Tier Three Assessment
Water Level Monitoring

MW08-T3-01 (Marden Tract)
Hydrographs

Golder Associates

DRAWN: JLH	APPROVED: JAP	DATE: April 2011
PROJECT NUMBER: 08-1112-021		FIGURE: C12



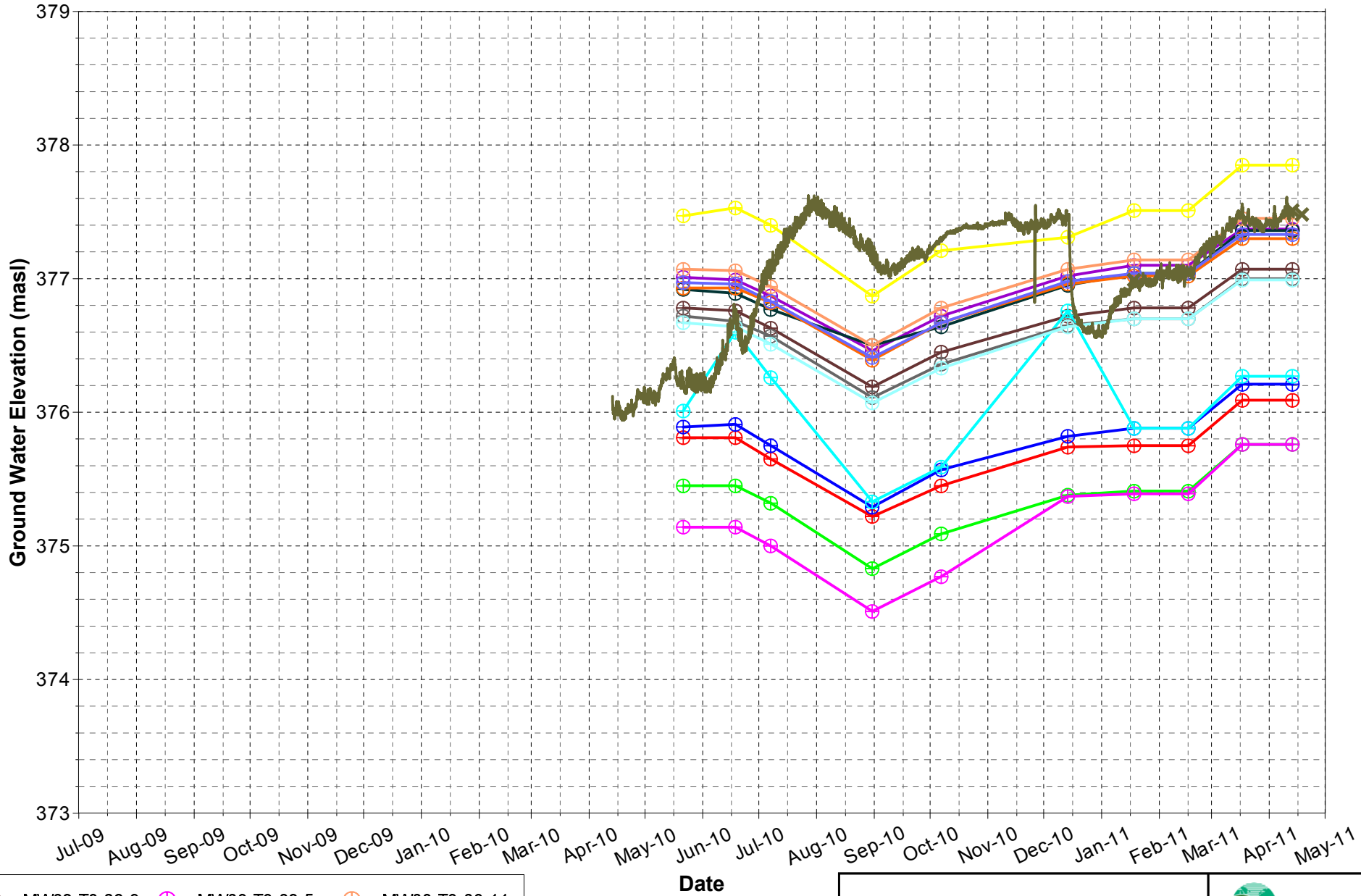
MW08-T3-02-1
MW08-T3-02-2
MW08-T3-02-3
MW08-T3-02-4
MW08-T3-02-5
MW08-T3-02-6
MW08-T3-02-7
MW08-T3-02-8
MW08-T3-02-9
MW08-T3-02-10
MW08-T3-02-11
MW08-T3-02-12
MW08-T3-02-13
MW08-T3-02-14
MW08-T3-02-15
MW08-T3-02-16
MW08-T3-02-17
MW08-T3-02-18
MW08-T3-02-19
MW08-T3-02-20
MW08-T3-02-21
MW08-T3-02-22
MW08-T3-02-23

City of Guelph
Tier Three Assessment
Water Level Monitoring

MW08-T3-02 (Mill Road)
Hydrographs

Golder Associates

DRAWN: JLH	APPROVED: JAP	DATE: April 2011
PROJECT NUMBER: 08-1112-021		FIGURE: C13

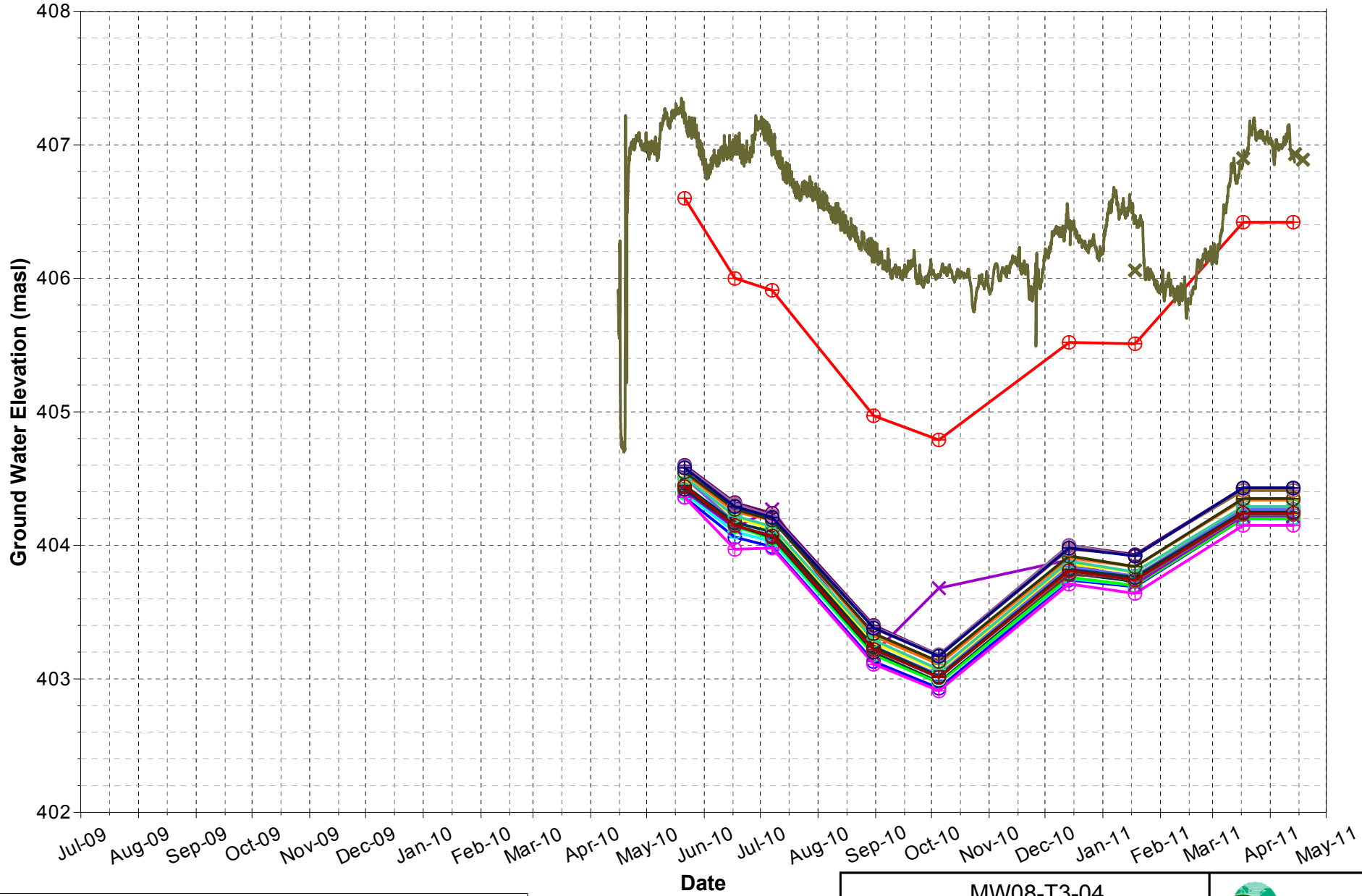


City of Guelph
Tier Three Assessment
Water Level Monitoring

MW08-T3-03 (Hurkman Tract)
Hydrographs

Golder Associates

DRAWN: JLH	APPROVED: JAP	DATE: April 2011
PROJECT NUMBER: 08-1112-021		FIGURE: C14

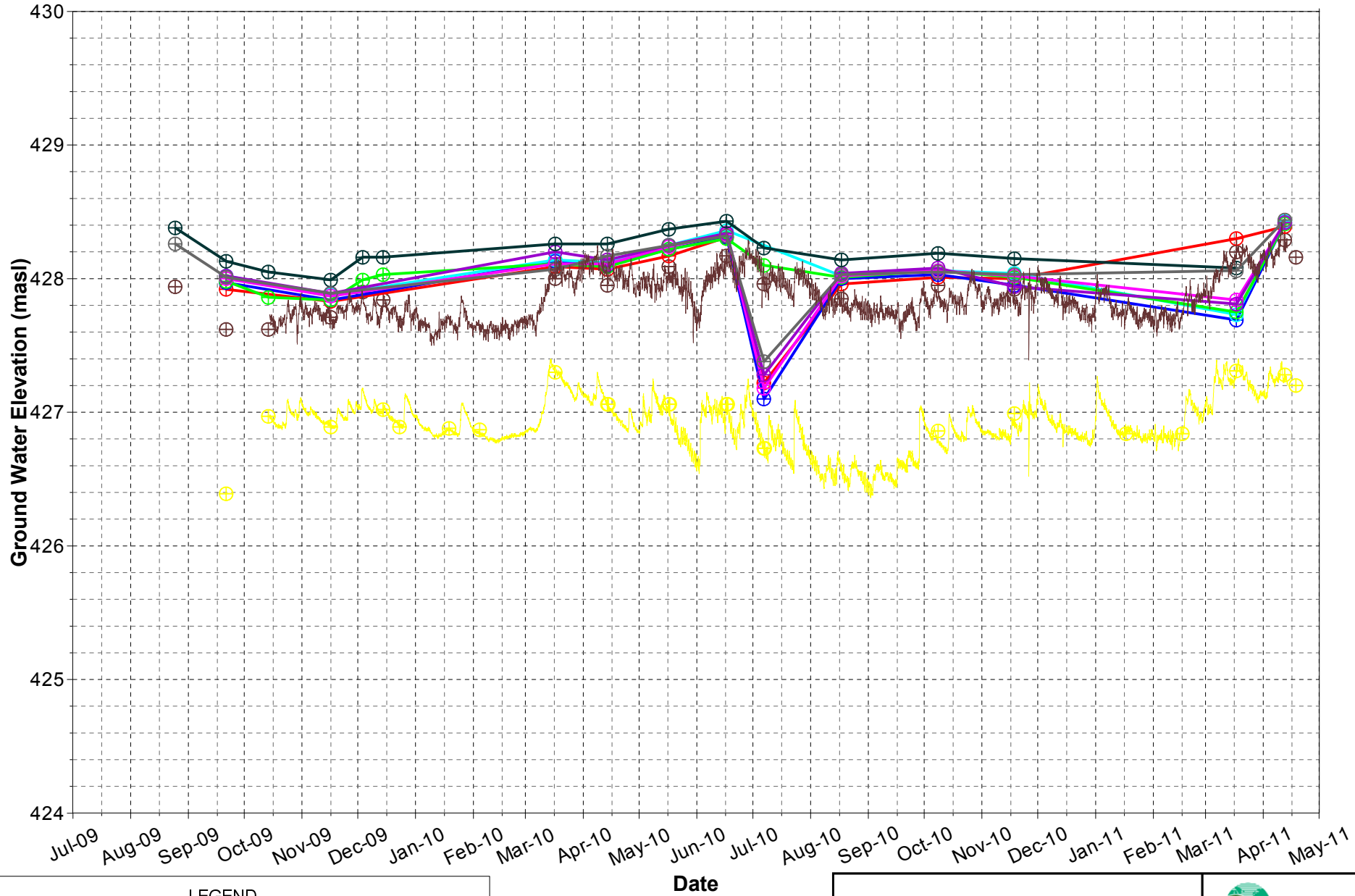


City of Guelph
Tier Three Assessment
Water Level Monitoring

MW08-T3-04
(Hwy 6-South of Fergus)
Hydrographs

Golder Associates

DRAWN: JLH	APPROVED: JAP	DATE: April 2011
PROJECT NUMBER: 08-1112-021		FIGURE: C15



LEGEND

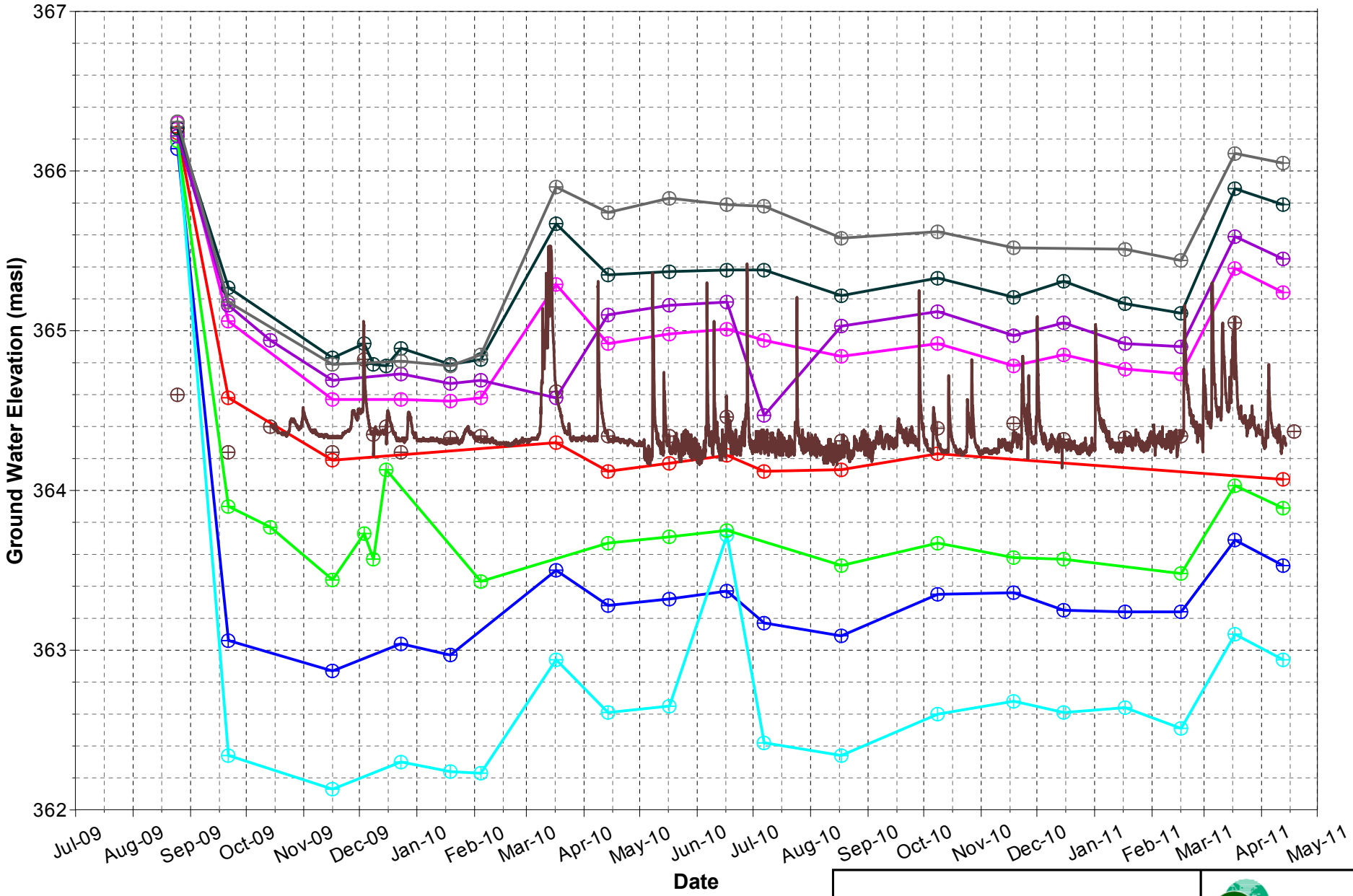
- MW08-T3-05-1
- MW08-T3-05-2
- MW08-T3-05-3
- MW08-T3-05-4
- MW08-T3-05-5
- MW08-T3-05-6
- MW08-T3-05-7
- MW08-T3-05-8
- MW08-T3-05-CS
- MW08-T3-05-OB

City of Guelph
Tier Three Assessment
Water Level Monitoring

MW08-T3-05 (Johnson Tract)
Hydrographs

Golder Associates

DRAWN: JLH	APPROVED: JAP	DATE: April 2011
PROJECT NUMBER: 08-1112-021		FIGURE: C16



LEGEND

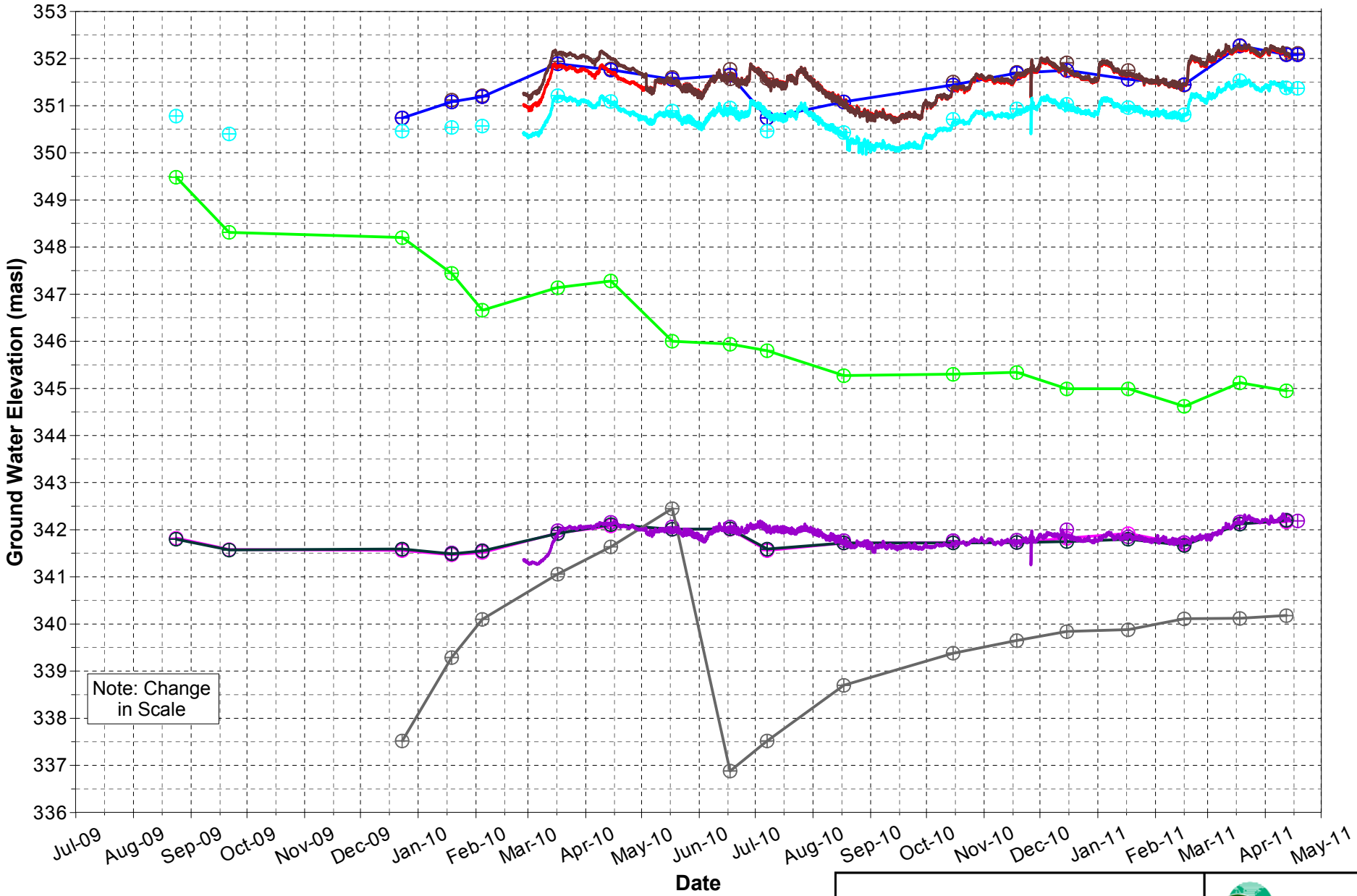
- MW08-T3-06-CS
- MW08-T3-06-1
- MW08-T3-06-2
- MW08-T3-06-3
- MW08-T3-06-4
- MW08-T3-06-5
- MW08-T3-06-6
- MW08-T3-06-7
- MW08-T3-06-8

City of Guelph
Tier Three Assessment
Water Level Monitoring

MW08-T3-06 (Everton)
Hydrographs

Golder Associates

DRAWN: JLH	APPROVED: JAP	DATE: April 2011
PROJECT NUMBER: 08-1112-021		FIGURE: C17



LEGEND

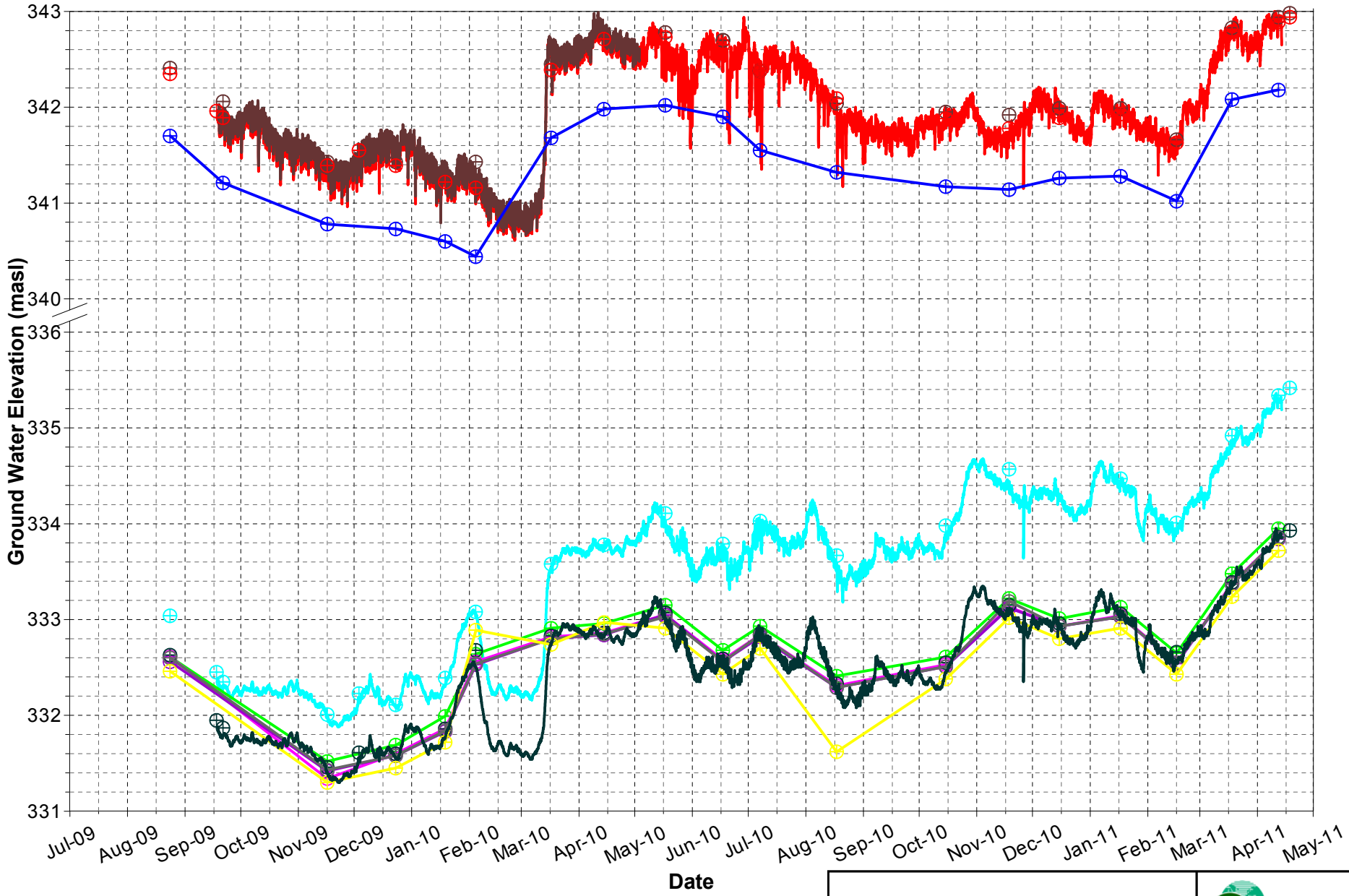
- MW08-T3-07-OB
- MW08-T3-07-1
- MW08-T3-07-2
- MW08-T3-07-3
- MW08-T3-07-4
- MW08-T3-07-5
- MW08-T3-07-6
- MW08-T3-07-7
- MW08-T3-07-8

City of Guelph
Tier Three Assessment
Water Level Monitoring

MW08-T3-07 (County Rd 29)
Hydrographs

Golder Associates

DRAWN: JLH	APPROVED: JAP	DATE: April 2011
PROJECT NUMBER: 08-1112-021		FIGURE: C18



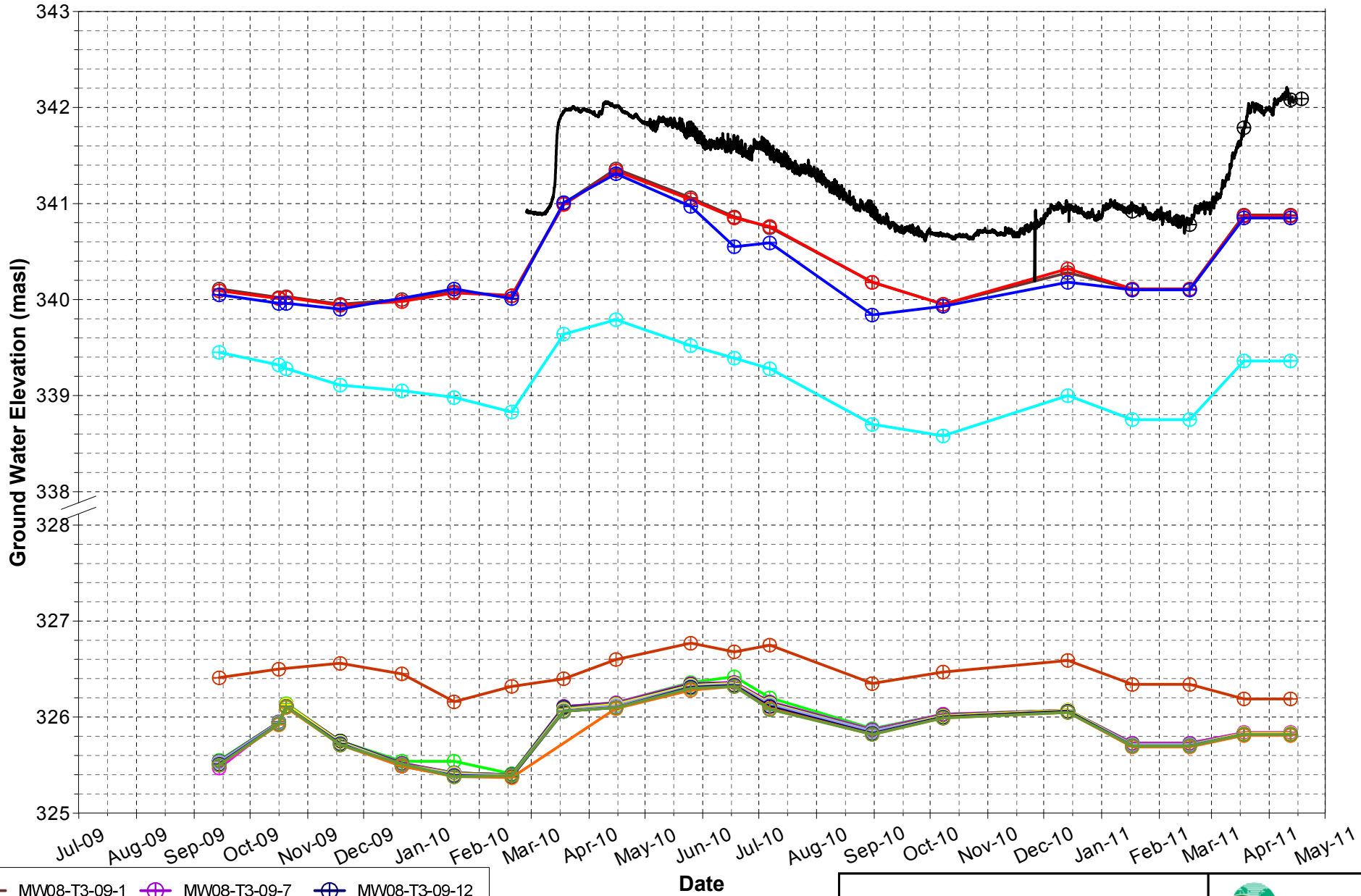
MW08-T3-08-1
MW08-T3-08-2
MW08-T3-08-3
MW08-T3-08-4
MW08-T3-08-5
MW08-T3-08-6
MW08-T3-08-7
MW08-T3-08-8
MW08-T3-08-9
MW08-T3-08-OB

City of Guelph
Tier Three Assessment
Water Level Monitoring

MW08-T3-08 (Kaine Hill Dr)
Hydrographs

Golder Associates

DRAWN: JLH	APPROVED: JAP	DATE: April 2011
PROJECT NUMBER: 08-1112-021		FIGURE: C19

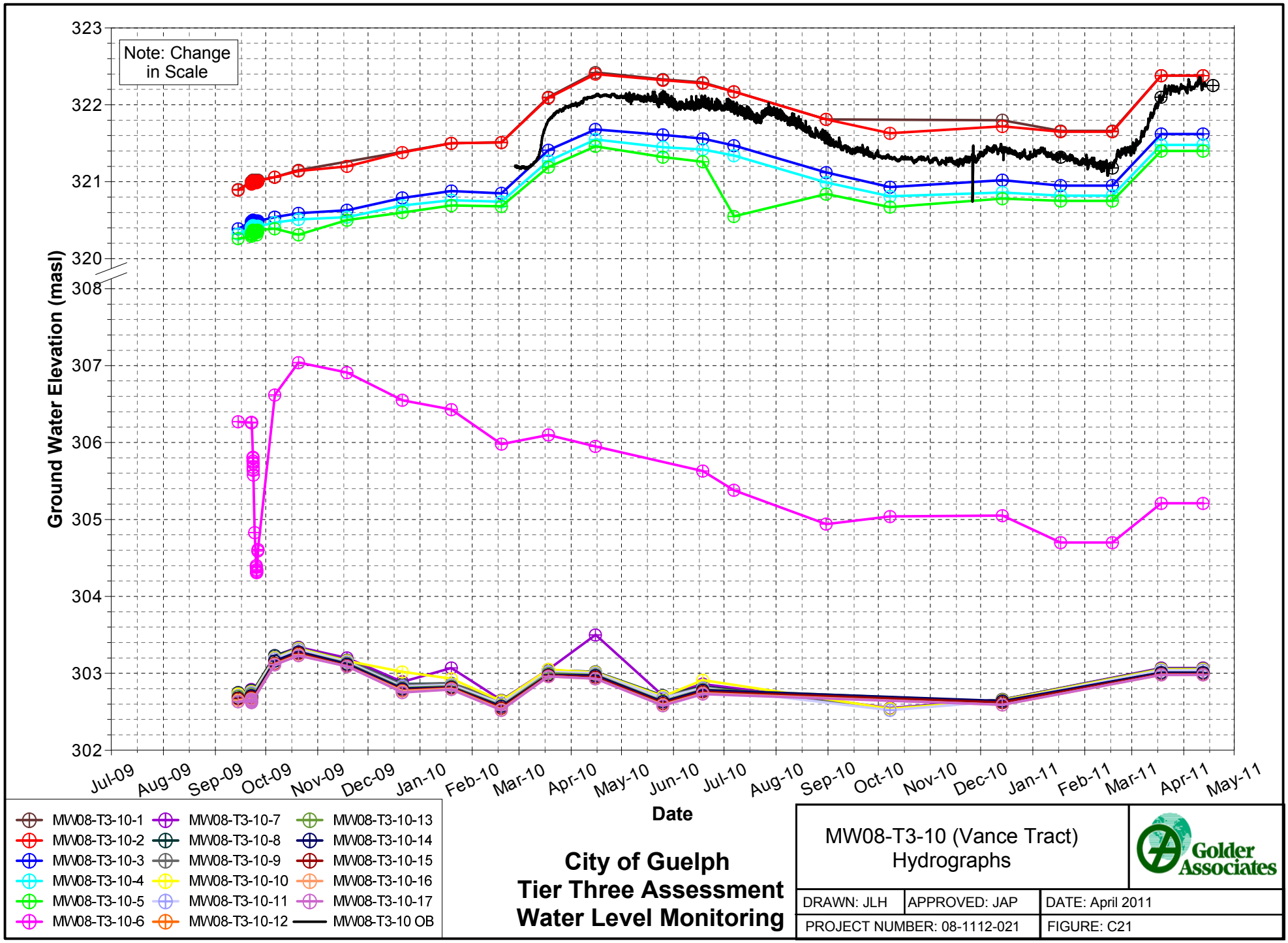


City of Guelph
Tier Three Assessment
Water Level Monitoring

MW08-T3-09 (Crawford Tract)
Hydrographs

Golder Associates

DRAWN: JLH	APPROVED: JAP	DATE: April 2011
PROJECT NUMBER: 08-1112-021		FIGURE: C20



City of Guelph
Tier Three Assessment
Water Level Monitoring

MW08-T3-10 (Vance Tract)
Hydrographs

Golder Associates

DRAWN: JLH	APPROVED: JAP	DATE: April 2011
PROJECT NUMBER: 08-1112-021		FIGURE: C21

C8: Water Quality Data

Your Project #: 08-1112-0021
Site: CITY OF GUELPH
Your C.O.C. #: 17330701, 173307-0

Attention: Kurt Stamm
Golder Associates Ltd
Mississauga - Standing Offer
2390 Argentia Rd
Mississauga, ON
L5N 5Z7

Report Date: 2009/12/29

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A9H1279
Received: 2009/12/18, 12:15

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Alkalinity	9	N/A	2009/12/23	CAM SOP-00448	SM 2320B
Carbonate, Bicarbonate and Hydroxide	9	N/A	2009/12/23		
Chloride by Automated Colourimetry	9	N/A	2009/12/23	CAM SOP-00463	SM 4500 Cl E
Conductivity	9	N/A	2009/12/23	CAM SOP-00448	SM 2510
Dissolved Organic Carbon (DOC)	1	N/A	2009/12/23	CAM SOP-00446	SM 5310 B
Dissolved Organic Carbon (DOC)	8	N/A	2009/12/24	CAM SOP-00446	SM 5310 B
Hardness (calculated as CaCO3)	9	N/A	2009/12/23	CAM SOP 00102	SM 2340 B
Dissolved Metals by ICPMS	9	N/A	2009/12/23	CAM SOP-00447	EPA 6020
Ion Balance (% Difference)	9	N/A	2009/12/23		
Anion and Cation Sum	9	N/A	2009/12/23		
Ammonia-N	9	N/A	2009/12/23	CAM SOP-00441	US GS I-2522-90
Nitrate (NO3) and Nitrite (NO2) in Water (1)	9	N/A	2009/12/23	CAM SOP-00440	SM 4500 NO3I/NO2B
pH	9	N/A	2009/12/23	CAM SOP-00448	SM 4500H
Orthophosphate	8	N/A	2009/12/23	CAM SOP-00461	SM 4500 P-F
Orthophosphate	1	N/A	2009/12/29	CAM SOP-00461	SM 4500 P-F
Sat. pH and Langelier Index (@ 20C)	9	N/A	2009/12/23		
Sat. pH and Langelier Index (@ 4C)	9	N/A	2009/12/23		
Sulphate by Automated Colourimetry	9	N/A	2009/12/23	CAM SOP-00464	EPA 375.4
Total Dissolved Solids (TDS calc)	9	N/A	2009/12/23		

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

CHRISTINE MCLEAN, Project Manager
Email: christine.mclean@maxxamanalytics.com
Phone# (905) 817-5700

==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section

Maxxam Job #: A9H1279
Report Date: 2009/12/29

Golder Associates Ltd
Client Project #: 08-1112-0021
Project name: CITY OF GUELPH
Sampler Initials: JH

5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 2

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: A9H1279
Report Date: 2009/12/29

Golder Associates Ltd
Client Project #: 08-1112-0021
Project name: CITY OF GUELPH
Sampler Initials: JH

RCAP - COMPREHENSIVE (WATER)

Maxxam ID		ER6596	ER6596		ER6597		ER6598		
Sampling Date		2009/12/07 14:42	2009/12/07 14:42		2009/12/07 14:05		2009/12/07 13:20		
	Units	**MW08-T3-01 CS**	**MW08-T3-01 CS Lab-Dup**	**QC Batch**	**MW08-T3-01 (3)**	**QC Batch**	**MW08-T3-01 (6)**	**RDL**	**QC Batch**
Calculated Parameters									
Anion Sum	me/L	10.2		2040245	8.71	2040245	9.87	N/A	2040245
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	269		2040243	331	2040243	259	1	2040243
Calculated TDS	mg/L	543		2040248	464	2040248	537	1	2040248
Carb. Alkalinity (calc. as CaCO3)	mg/L	2		2040243	2	2040243	2	1	2040243
Cation Sum	me/L	10.7		2040245	9.42	2040245	10.1	N/A	2040245
Hardness (CaCO3)	mg/L	470		2039966	410	2040680	450	1	2040680
Ion Balance (% Difference)	%	2.61		2040244	3.92	2040244	1.20	N/A	2040244
Langelier Index (@ 20C)	N/A	0.908		2040246	0.923	2040246	0.924		2040246
Langelier Index (@ 4C)	N/A	0.660		2040247	0.675	2040247	0.677		2040247
Saturation pH (@ 20C)	N/A	7.00		2040246	6.92	2040246	7.04		2040246
Saturation pH (@ 4C)	N/A	7.25		2040247	7.17	2040247	7.29		2040247
Inorganics									
Total Ammonia-N	mg/L	0.29		2043582	0.79	2043582	0.35	0.05	2043582
Conductivity	umho/cm	996	1000	2043343	804	2043119	951	1	2043355
Dissolved Organic Carbon	mg/L	1.1		2044408	1.0	2044408	1.3	0.2	2044408
Orthophosphate (P)	mg/L	<0.01		2043042	<0.01	2043059	<0.01	0.01	2043042
pH	pH	7.9	8.0	2043337	7.8	2043110	8.0		2043354
Dissolved Sulphate (SO4)	mg/L	37		2043043	32	2043061	96	1	2043043
Alkalinity (Total as CaCO3)	mg/L	271	270	2043344	333	2043120	261	1	2043356
Dissolved Chloride (Cl)	mg/L	140		2043030	49	2043047	94	1	2043030
Nitrite (N)	mg/L	<0.01		2043001	<0.01	2043001	<0.01	0.01	2042991
Nitrate (N)	mg/L	<0.1		2043001	0.3	2043001	<0.1	0.1	2042991
Nitrate + Nitrite	mg/L	<0.1		2043001	0.3	2043001	<0.1	0.1	2042991

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9H1279
Report Date: 2009/12/29

Golder Associates Ltd
Client Project #: 08-1112-0021
Project name: CITY OF GUELPH
Sampler Initials: JH

RCAP - COMPREHENSIVE (WATER)

Maxxam ID		ER6596	ER6596		ER6597		ER6598		
Sampling Date		2009/12/07 14:42	2009/12/07 14:42		2009/12/07 14:05		2009/12/07 13:20		
	Units	**MW08-T3-01 CS**	**MW08-T3-01 CS Lab-Dup**	**QC Batch**	**MW08-T3-01 (3)**	**QC Batch**	**MW08-T3-01 (6)**	**RDL**	**QC Batch**
Metals									
Dissolved Aluminum (Al)	ug/L	<5	<5	2043686	<5	2043686	7	5	2043686
Dissolved Antimony (Sb)	ug/L	0.7	<0.5	2043686	1.0	2043686	0.6	0.5	2043686
Dissolved Arsenic (As)	ug/L	1	1	2043686	<1	2043686	<1	1	2043686
Dissolved Barium (Ba)	ug/L	20	20	2043686	30	2043686	68	5	2043686
Dissolved Beryllium (Be)	ug/L	<0.5	<0.5	2043686	<0.5	2043686	<0.5	0.5	2043686
Dissolved Bismuth (Bi)	ug/L	<1	<1	2043686	<1	2043686	<1	1	2043686
Dissolved Boron (B)	ug/L	35	33	2043686	17	2043686	50	10	2043686
Dissolved Cadmium (Cd)	ug/L	<0.1	<0.1	2043686	<0.1	2043686	<0.1	0.1	2043686
Dissolved Calcium (Ca)	ug/L	110000	110000	2043686	110000	2043686	110000	200	2043686
Dissolved Chromium (Cr)	ug/L	<5	<5	2043686	<5	2043686	<5	5	2043686
Dissolved Cobalt (Co)	ug/L	2.0	2.0	2043686	4.3	2043686	3.7	0.5	2043686
Dissolved Copper (Cu)	ug/L	<1	<1	2043686	<1	2043686	<1	1	2043686
Dissolved Iron (Fe)	ug/L	940	930	2043686	7900	2043686	350	100	2043686
Dissolved Lead (Pb)	ug/L	<0.5	<0.5	2043686	<0.5	2043686	<0.5	0.5	2043686
Dissolved Magnesium (Mg)	ug/L	46000	47000	2043686	36000	2043686	45000	50	2043686
Dissolved Manganese (Mn)	ug/L	22	23	2043686	170	2043686	25	2	2043686
Dissolved Molybdenum (Mo)	ug/L	1	1	2043686	1	2043686	<1	1	2043686
Dissolved Nickel (Ni)	ug/L	<1	<1	2043686	2	2043686	<1	1	2043686
Dissolved Phosphorus (P)	ug/L	<100	<100	2043686	<100	2043686	<100	100	2043686
Dissolved Potassium (K)	ug/L	2100	2100	2043686	1100	2043686	2200	200	2043686
Dissolved Selenium (Se)	ug/L	<2	<2	2043686	<2	2043686	<2	2	2043686
Dissolved Silicon (Si)	ug/L	6100	6100	2043686	5600	2043686	6000	50	2043686
Dissolved Silver (Ag)	ug/L	<0.1	<0.1	2043686	<0.1	2043686	<0.1	0.1	2043686
Dissolved Sodium (Na)	ug/L	30000	30000	2043686	19000	2043686	25000	100	2043686
Dissolved Strontium (Sr)	ug/L	2800	2800	2043686	970	2043686	25000	1	2043686
Dissolved Thallium (Tl)	ug/L	<0.05	<0.05	2043686	<0.05	2043686	<0.05	0.05	2043686
Dissolved Titanium (Ti)	ug/L	<5	<5	2043686	<5	2043686	<5	5	2043686
Dissolved Uranium (U)	ug/L	1.1	1.1	2043686	0.7	2043686	0.4	0.1	2043686
Dissolved Vanadium (V)	ug/L	<1	<1	2043686	<1	2043686	<1	1	2043686
Dissolved Zinc (Zn)	ug/L	<5	<5	2043686	<5	2043686	<5	5	2043686

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9H1279
Report Date: 2009/12/29

Golder Associates Ltd
Client Project #: 08-1112-0021
Project name: CITY OF GUELPH
Sampler Initials: JH

RCAP - COMPREHENSIVE (WATER)

Maxxam ID		ER6599			ER6600		ER6601		
Sampling Date		2009/12/15 15:25			2009/12/15 14:40		2009/12/15 13:40		
	Units	**MW08-T3-05 CS**	**RDL**	**QC Batch**	**MW08-T3-05 (4)**	**QC Batch**	**MW08-T3-05 (7)**	**RDL**	**QC Batch**
Calculated Parameters									
Anion Sum	me/L	19.7	N/A	2040245	28.1	2040245	31.0	N/A	2040245
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	165	1	2040243	173	2040243	155	1	2040243
Calculated TDS	mg/L	1290	1	2040248	1840	2040248	2030	1	2040248
Carb. Alkalinity (calc. as CaCO3)	mg/L	1	1	2040243	1	2040243	<1	1	2040243
Cation Sum	me/L	21.6	N/A	2040245	30.2	2040245	31.7	N/A	2040245
Hardness (CaCO3)	mg/L	1000	1	2040680	1400	2040680	1500	1	2040680
Ion Balance (% Difference)	%	4.60	N/A	2040244	3.64	2040244	1.19	N/A	2040244
Langelier Index (@ 20C)	N/A	0.975		2040246	1.01	2040246	0.840		2040246
Langelier Index (@ 4C)	N/A	0.730		2040247	0.764	2040247	0.597		2040247
Saturation pH (@ 20C)	N/A	6.89		2040246	6.79	2040246	6.78		2040246
Saturation pH (@ 4C)	N/A	7.14		2040247	7.03	2040247	7.02		2040247
Inorganics									
Total Ammonia-N	mg/L	0.20	0.05	2043582	0.23	2043582	0.26	0.05	2043582
Conductivity	umho/cm	1670	1	2043355	2180	2043343	2340	1	2043119
Dissolved Organic Carbon	mg/L	1.2	0.2	2044408	1.9	2044408	1.2	0.2	2044408
Orthophosphate (P)	mg/L	<0.01	0.01	2043042	<0.01	2043042	<0.01	0.01	2043042
pH	pH	7.9		2043354	7.8	2043337	7.6		2043110
Dissolved Sulphate (SO4)	mg/L	780	10	2043043	1200	2043043	1300	10	2043043
Alkalinity (Total as CaCO3)	mg/L	166	1	2043356	174	2043344	156	1	2043120
Dissolved Chloride (Cl)	mg/L	9	1	2043030	15	2043030	16	1	2043030
Nitrite (N)	mg/L	<0.01	0.01	2043001	<0.01	2043001	<0.01	0.01	2042991
Nitrate (N)	mg/L	<0.1	0.1	2043001	<0.1	2043001	<0.1	0.1	2042991
Nitrate + Nitrite	mg/L	<0.1	0.1	2043001	<0.1	2043001	<0.1	0.1	2042991

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RCAP - COMPREHENSIVE (WATER)

Maxxam ID		ER6599			ER6600		ER6601		
Sampling Date		2009/12/15 15:25			2009/12/15 14:40		2009/12/15 13:40		
	Units	**MW08-T3-05 CS**	**RDL**	**QC Batch**	**MW08-T3-05 (4)**	**QC Batch**	**MW08-T3-05 (7)**	**RDL**	**QC Batch**
Metals									
Dissolved Aluminum (Al)	ug/L	<5	5	2043686	<5	2043686	<5	5	2043686
Dissolved Antimony (Sb)	ug/L	<0.5	0.5	2043686	<0.5	2043686	<0.5	0.5	2043686
Dissolved Arsenic (As)	ug/L	5	1	2043686	2	2043686	1	1	2043686
Dissolved Barium (Ba)	ug/L	8	5	2043686	8	2043686	7	5	2043686
Dissolved Beryllium (Be)	ug/L	<0.5	0.5	2043686	<0.5	2043686	<0.5	0.5	2043686
Dissolved Bismuth (Bi)	ug/L	<1	1	2043686	<1	2043686	<1	1	2043686
Dissolved Boron (B)	ug/L	85	10	2043686	110	2043686	110	10	2043686
Dissolved Cadmium (Cd)	ug/L	<0.1	0.1	2043686	<0.1	2043686	<0.1	0.1	2043686
Dissolved Calcium (Ca)	ug/L	300000	200	2043686	400000	2043686	470000	200	2043686
Dissolved Chromium (Cr)	ug/L	<5	5	2043686	<5	2043686	<5	5	2043686
Dissolved Cobalt (Co)	ug/L	0.7	0.5	2043686	<3(1)	2043686	<3(1)	3	2043686
Dissolved Copper (Cu)	ug/L	<1	1	2043686	<1	2043686	<1	1	2043686
Dissolved Iron (Fe)	ug/L	1500	100	2043686	1800	2043686	1100	100	2043686
Dissolved Lead (Pb)	ug/L	<0.5	0.5	2043686	<0.5	2043686	<0.5	0.5	2043686
Dissolved Magnesium (Mg)	ug/L	65000	50	2043686	100000	2043686	81000	50	2043686
Dissolved Manganese (Mn)	ug/L	29	2	2043686	17	2043686	31	2	2043686
Dissolved Molybdenum (Mo)	ug/L	3	1	2043686	5	2043686	4	1	2043686
Dissolved Nickel (Ni)	ug/L	<1	1	2043686	<5(1)	2043686	<5(1)	5	2043686
Dissolved Phosphorus (P)	ug/L	<100	100	2043686	<100	2043686	<100	100	2043686
Dissolved Potassium (K)	ug/L	2200	200	2043686	3000	2043686	3100	200	2043686
Dissolved Selenium (Se)	ug/L	<2	2	2043686	<2	2043686	<2	2	2043686
Dissolved Silicon (Si)	ug/L	5800	50	2043686	5600	2043686	5100	50	2043686
Dissolved Silver (Ag)	ug/L	<0.1	0.1	2043686	<0.1	2043686	<0.1	0.1	2043686
Dissolved Sodium (Na)	ug/L	30000	100	2043686	35000	2043686	28000	100	2043686
Dissolved Strontium (Sr)	ug/L	4600	1	2043686	7600	2043686	8700	1	2043686
Dissolved Thallium (Tl)	ug/L	<0.05	0.05	2043686	<0.05	2043686	<0.05	0.05	2043686
Dissolved Titanium (Ti)	ug/L	<5	5	2043686	<5	2043686	<5	5	2043686
Dissolved Uranium (U)	ug/L	1.9	0.1	2043686	0.9	2043686	0.5	0.1	2043686
Dissolved Vanadium (V)	ug/L	<1	1	2043686	<1	2043686	<1	1	2043686
Dissolved Zinc (Zn)	ug/L	<30(1)	30	2043686	<30(1)	2043686	<30(1)	30	2043686

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) - Detection Limit was raised due to matrix interferences.

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Maxxam Job #: A9H1279
Report Date: 2009/12/29

Golder Associates Ltd
Client Project #: 08-1112-0021
Project name: CITY OF GUELPH
Sampler Initials: JH

RCAP - COMPREHENSIVE (WATER)

Maxxam ID		ER6602		ER6603	ER6603			ER6604		
Sampling Date		2009/12/08 12:20		2009/12/08 12:45	2009/12/08 12:45			2009/12/08 12:15		
	Units	**MW08-T3-06 CS**	**QC Batch**	**MW08-T3-06 (4)**	**MW08-T3-06 (4) Lab-Dup**	**RDL**	**QC Batch**	**MW08-T3-06 (6)**	**RDL**	**QC Batch**
Calculated Parameters										
Anion Sum	me/L	15.2	2040245	8.34		N/A	2040245	22.9	N/A	2040245
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	291	2040243	257		1	2040243	176	1	2040243
Calculated TDS	mg/L	916	2040248	466		1	2040248	1510	1	2040248
Carb. Alkalinity (calc. as CaCO3)	mg/L	3	2040243	2		1	2040243	1	1	2040243
Cation Sum	me/L	15.6	2040245	8.92		N/A	2040245	25.1	N/A	2040245
Hardness (CaCO3)	mg/L	570	2040680	430		1	2040680	1200	1	2040680
Ion Balance (% Difference)	%	1.15	2040244	3.36		N/A	2040244	4.63	N/A	2040244
Langelier Index (@ 20C)	N/A	1.22	2040246	0.904			2040246	1.02		2040246
Langelier Index (@ 4C)	N/A	0.973	2040247	0.656			2040247	0.779		2040247
Saturation pH (@ 20C)	N/A	6.85	2040246	7.02			2040246	6.79		2040246
Saturation pH (@ 4C)	N/A	7.10	2040247	7.27			2040247	7.03		2040247
Inorganics										
Total Ammonia-N	mg/L	0.05	2043582	0.09	0.14	0.05	2043582	0.28	0.05	2043582
Conductivity	umho/cm	1340	2043343	747		1	2043312	1890	1	2043355
Dissolved Organic Carbon	mg/L	4.5	2044408	1.1		0.2	2044319	0.7	0.2	2044408
Orthophosphate (P)	mg/L	<0.01	2043022	<0.01		0.01	2044554	<0.01	0.01	2043042
pH	pH	8.1	2043337	7.9			2043311	7.8		2043354
Dissolved Sulphate (SO4)	mg/L	350	2043023	140		1	2043131	900	10	2043043
Alkalinity (Total as CaCO3)	mg/L	295	2043344	259		1	2043313	177	1	2043356
Dissolved Chloride (Cl)	mg/L	67	2043020	5		1	2043129	22	1	2043030
Nitrite (N)	mg/L	0.01	2043001	<0.01	<0.01	0.01	2042991	<0.01	0.01	2043001
Nitrate (N)	mg/L	1.4	2043001	<0.1	<0.1	0.1	2042991	<0.1	0.1	2043001
Nitrate + Nitrite	mg/L	1.4	2043001	<0.1	<0.1	0.1	2042991	<0.1	0.1	2043001

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Report Date: 2009/12/29

Golder Associates Ltd
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Project name: CITY OF GUELPH
Sampler Initials: JH

RCAP - COMPREHENSIVE (WATER)

Maxxam ID		ER6602		ER6603	ER6603			ER6604		
Sampling Date		2009/12/08 12:20		2009/12/08 12:45	2009/12/08 12:45			2009/12/08 12:15		
	Units	**MW08-T3-06 CS**	**QC Batch**	**MW08-T3-06 (4)**	**MW08-T3-06 (4) Lab-Dup**	**RDL**	**QC Batch**	**MW08-T3-06 (6)**	**RDL**	**QC Batch**
Metals										
Dissolved Aluminum (Al)	ug/L	<5	2043686	<5		5	2043686	<5	5	2043686
Dissolved Antimony (Sb)	ug/L	0.6	2043686	<0.5		0.5	2043686	<0.5	0.5	2043686
Dissolved Arsenic (As)	ug/L	<1	2043686	<1		1	2043686	1	1	2043686
Dissolved Barium (Ba)	ug/L	29	2043686	36		5	2043686	21	5	2043686
Dissolved Beryllium (Be)	ug/L	<0.5	2043686	<0.5		0.5	2043686	<0.5	0.5	2043686
Dissolved Bismuth (Bi)	ug/L	<1	2043686	<1		1	2043686	<1	1	2043686
Dissolved Boron (B)	ug/L	130	2043686	33		10	2043686	110	10	2043686
Dissolved Cadmium (Cd)	ug/L	<0.1	2043686	<0.1		0.1	2043686	<0.1	0.1	2043686
Dissolved Calcium (Ca)	ug/L	170000	2043686	110000		200	2043686	370000	200	2043686
Dissolved Chromium (Cr)	ug/L	<5	2043686	<5		5	2043686	<5	5	2043686
Dissolved Cobalt (Co)	ug/L	4.3	2043686	2.2		0.5	2043686	<3(1)	3	2043686
Dissolved Copper (Cu)	ug/L	3	2043686	<1		1	2043686	<1	1	2043686
Dissolved Iron (Fe)	ug/L	<100	2043686	310		100	2043686	2000	100	2043686
Dissolved Lead (Pb)	ug/L	<0.5	2043686	<0.5		0.5	2043686	<0.5	0.5	2043686
Dissolved Magnesium (Mg)	ug/L	39000	2043686	39000		50	2043686	61000	50	2043686
Dissolved Manganese (Mn)	ug/L	200	2043686	11		2	2043686	25	2	2043686
Dissolved Molybdenum (Mo)	ug/L	8	2043686	3		1	2043686	5	1	2043686
Dissolved Nickel (Ni)	ug/L	4	2043686	<1		1	2043686	<5(1)	5	2043686
Dissolved Phosphorus (P)	ug/L	<100	2043686	<100		100	2043686	<100	100	2043686
Dissolved Potassium (K)	ug/L	8200	2043686	1400		200	2043686	3500	200	2043686
Dissolved Selenium (Se)	ug/L	<2	2043686	<2		2	2043686	<2	2	2043686
Dissolved Silicon (Si)	ug/L	5100	2043686	2800		50	2043686	5600	50	2043686
Dissolved Silver (Ag)	ug/L	<0.1	2043686	<0.1		0.1	2043686	<0.1	0.1	2043686
Dissolved Sodium (Na)	ug/L	91000	2043686	7300		100	2043686	29000	100	2043686
Dissolved Strontium (Sr)	ug/L	2200	2043686	1000		1	2043686	7400	1	2043686
Dissolved Thallium (Tl)	ug/L	<0.05	2043686	<0.05		0.05	2043686	<0.05	0.05	2043686
Dissolved Titanium (Ti)	ug/L	<5	2043686	<5		5	2043686	<5	5	2043686
Dissolved Uranium (U)	ug/L	0.9	2043686	0.2		0.1	2043686	0.2	0.1	2043686
Dissolved Vanadium (V)	ug/L	<1	2043686	<1		1	2043686	<1	1	2043686
Dissolved Zinc (Zn)	ug/L	8	2043686	<5		5	2043686	<30(1)	30	2043686

RDL = Reportable Detection Limit
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Golder Associates Ltd
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Project name: CITY OF GUELPH
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Package 1	0.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
2042991	Nitrite (N)	2009/12/23	102	75 - 125	103	80 - 120	<0.01	mg/L	NC	25		
2042991	Nitrate (N)	2009/12/23	102	75 - 125	103	80 - 120	<0.1	mg/L	NC	25		
2042991	Nitrate + Nitrite	2009/12/23					<0.1	mg/L	NC	25		
2043001	Nitrite (N)	2009/12/23	102	75 - 125	104	80 - 120	<0.01	mg/L				
2043001	Nitrate (N)	2009/12/23	99	75 - 125	103	80 - 120	<0.1	mg/L	NC	25		
2043001	Nitrate + Nitrite	2009/12/23					<0.1	mg/L				
2043020	Dissolved Chloride (Cl)	2009/12/23	95	75 - 125	101	80 - 120	<1	mg/L	NC	20		
2043022	Orthophosphate (P)	2009/12/23	105	75 - 125	101	80 - 120	<0.01	mg/L	NC	25		
2043023	Dissolved Sulphate (SO4)	2009/12/23	NC	75 - 125	104	80 - 120	<1	mg/L	1.0	25		
2043030	Dissolved Chloride (Cl)	2009/12/23	96	75 - 125	100	80 - 120	<1	mg/L	NC	20		
2043042	Orthophosphate (P)	2009/12/23	104	75 - 125	101	80 - 120	<0.01	mg/L	NC	25		
2043043	Dissolved Sulphate (SO4)	2009/12/23	118	75 - 125	101	80 - 120	<1	mg/L	1.6	25		
2043047	Dissolved Chloride (Cl)	2009/12/23	NC	75 - 125	101	80 - 120	<1	mg/L	1.4	20		
2043059	Orthophosphate (P)	2009/12/23	105	75 - 125	101	80 - 120	<0.01	mg/L	NC	25		
2043061	Dissolved Sulphate (SO4)	2009/12/23	NC	75 - 125	102	80 - 120	<1	mg/L	0.4	25		
2043119	Conductivity	2009/12/23					<1	umho/cm	0.2	25	101	85 - 115
2043120	Alkalinity (Total as CaCO3)	2009/12/23					<1	mg/L	0.2	25	96	85 - 115
2043129	Dissolved Chloride (Cl)	2009/12/23	NC	75 - 125	103	80 - 120	<1	mg/L	0.5	20		
2043131	Dissolved Sulphate (SO4)	2009/12/23	NC	75 - 125	101	80 - 120	<1	mg/L	1	25		
2043312	Conductivity	2009/12/23					<1	umho/cm	0.2	25	101	85 - 115
2043313	Alkalinity (Total as CaCO3)	2009/12/23					<1	mg/L	0.6	25	95	85 - 115
2043343	Conductivity	2009/12/23					<1	umho/cm	0.5	25	101	85 - 115
2043344	Alkalinity (Total as CaCO3)	2009/12/23					<1	mg/L	0.4	25	94	85 - 115
2043355	Conductivity	2009/12/23					<1	umho/cm	0.3	25	101	85 - 115
2043356	Alkalinity (Total as CaCO3)	2009/12/23					<1	mg/L	0.4	25	98	85 - 115
2043582	Total Ammonia-N	2009/12/23	98	80 - 120	102	80 - 120	<0.05	mg/L	NC	25		
2043686	Dissolved Aluminum (Al)	2009/12/23	103	80 - 120	103	90 - 110	<5	ug/L	NC	25		
2043686	Dissolved Antimony (Sb)	2009/12/23	105	80 - 120	103	90 - 110	<0.5	ug/L	NC	25		
2043686	Dissolved Arsenic (As)	2009/12/23	102	80 - 120	101	90 - 110	<1	ug/L	NC	25		
2043686	Dissolved Barium (Ba)	2009/12/23	99	80 - 120	97	90 - 110	<5	ug/L	NC	25		
2043686	Dissolved Beryllium (Be)	2009/12/23	103	80 - 120	103	90 - 110	<0.5	ug/L	NC	25		
2043686	Dissolved Bismuth (Bi)	2009/12/23	99	80 - 120	98	90 - 110	<1	ug/L	NC	25		
2043686	Dissolved Boron (B)	2009/12/23	109	80 - 120	106	90 - 110	<10	ug/L	NC	25		
2043686	Dissolved Cadmium (Cd)	2009/12/23	102	80 - 120	104	90 - 110	<0.1	ug/L	NC	25		
2043686	Dissolved Calcium (Ca)	2009/12/23	NC	80 - 120	105	90 - 110	<200	ug/L	0.8	25		
2043686	Dissolved Chromium (Cr)	2009/12/23	102	80 - 120	101	90 - 110	<5	ug/L	NC	25		
2043686	Dissolved Cobalt (Co)	2009/12/23	100	80 - 120	100	90 - 110	<0.5	ug/L	NC	25		
2043686	Dissolved Copper (Cu)	2009/12/23	98	80 - 120	96	90 - 110	<1	ug/L	NC	25		
2043686	Dissolved Iron (Fe)	2009/12/23	101	80 - 120	101	90 - 110	<100	ug/L	0.5	25		
2043686	Dissolved Lead (Pb)	2009/12/23	101	80 - 120	101	90 - 110	<0.5	ug/L	NC	25		

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Maxxam Job #: A9H1279
Report Date: 2009/12/29

Golder Associates Ltd
Client Project #: 08-1112-0021
Project name: CITY OF GUELPH
Sampler Initials: JH

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
2043686	Dissolved Magnesium (Mg)	2009/12/23	NC	80 - 120	109	90 - 110	<50	ug/L	1.1	25		
2043686	Dissolved Manganese (Mn)	2009/12/23	101	80 - 120	101	90 - 110	<2	ug/L	2.0	25		
2043686	Dissolved Molybdenum (Mo)	2009/12/23	109	80 - 120	104	90 - 110	<1	ug/L	NC	25		
2043686	Dissolved Nickel (Ni)	2009/12/23	96	80 - 120	97	90 - 110	<1	ug/L	NC	25		
2043686	Dissolved Phosphorus (P)	2009/12/23	104	80 - 120	105	90 - 110	<100	ug/L	NC	25		
2043686	Dissolved Potassium (K)	2009/12/23	110	80 - 120	104	90 - 110	<200	ug/L	0.5	25		
2043686	Dissolved Selenium (Se)	2009/12/23	100	80 - 120	103	90 - 110	<2	ug/L	NC	25		
2043686	Dissolved Silicon (Si)	2009/12/23	111	80 - 120	109	90 - 110	<50	ug/L	0.3	25		
2043686	Dissolved Silver (Ag)	2009/12/23	92	80 - 120	102	90 - 110	<0.1	ug/L	NC	25		
2043686	Dissolved Sodium (Na)	2009/12/23	NC	80 - 120	107	90 - 110	<100	ug/L	0.05	25		
2043686	Dissolved Strontium (Sr)	2009/12/23	NC	80 - 120	97	90 - 110	<1	ug/L	0.8	25		
2043686	Dissolved Thallium (Tl)	2009/12/23	101	80 - 120	101	90 - 110	<0.05	ug/L	NC	25		
2043686	Dissolved Titanium (Ti)	2009/12/23	105	80 - 120	101	90 - 110	<5	ug/L	NC	25		
2043686	Dissolved Uranium (U)	2009/12/23	102	80 - 120	101	90 - 110	<0.1	ug/L	0.7	25		
2043686	Dissolved Vanadium (V)	2009/12/23	102	80 - 120	101	90 - 110	<1	ug/L	NC	25		
2043686	Dissolved Zinc (Zn)	2009/12/23	101	80 - 120	102	90 - 110	<5	ug/L	NC	25		
2044319	Dissolved Organic Carbon	2009/12/23	NC	75 - 125	104	75 - 125	<0.2	mg/L	0.3	20		
2044408	Dissolved Organic Carbon	2009/12/24	102	75 - 125	112	75 - 125	<0.2	mg/L	NC	20		
2044554	Orthophosphate (P)	2009/12/29	104	75 - 125	104	80 - 120	<0.01	mg/L	NC	25		

N/A = Not Applicable
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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Validation Signature Page

Maxxam Job #: A9H1279

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

CRISTINA CARRIERE, Scientific Services

==========

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Your Project #: 08-1112-0021
Site: CITY OF GUELPH
Your C.O.C. #: 17330702, 173307-0

Attention: Kurt Stamm
Golder Associates Ltd
Mississauga - Standing Offer
2390 Argentia Rd
Mississauga, ON
L5N 5Z7

Report Date: 2009/12/31

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A9H2842
Received: 2009/12/22, 13:00

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Alkalinity	3	N/A	2009/12/29	CAM SOP-00448	SM 2320B
Carbonate, Bicarbonate and Hydroxide	3	N/A	2009/12/30		
Chloride by Automated Colourimetry	3	N/A	2009/12/30	CAM SOP-00463	SM 4500 Cl E
Conductivity	3	N/A	2009/12/29	CAM SOP-00448	SM 2510
Dissolved Organic Carbon (DOC)	3	N/A	2009/12/30	CAM SOP-00446	SM 5310 B
Hardness (calculated as CaCO3)	3	N/A	2009/12/30	CAM SOP 00102	SM 2340 B
Dissolved Metals by ICPMS	3	N/A	2009/12/30	CAM SOP-00447	EPA 6020
Ion Balance (% Difference)	3	N/A	2009/12/30		
Anion and Cation Sum	3	N/A	2009/12/30		
Ammonia-N	3	N/A	2009/12/30	CAM SOP-00441	US GS I-2522-90
Nitrate (NO3) and Nitrite (NO2) in Water (1)	3	N/A	2009/12/30	CAM SOP-00440	SM 4500 NO3I/NO2B
pH	3	N/A	2009/12/29	CAM SOP-00448	SM 4500H
Orthophosphate	3	N/A	2009/12/30	CAM SOP-00461	SM 4500 P-F
Sat. pH and Langelier Index (@ 20C)	3	N/A	2009/12/30		
Sat. pH and Langelier Index (@ 4C)	3	N/A	2009/12/30		
Sulphate by Automated Colourimetry	3	N/A	2009/12/30	CAM SOP-00464	EPA 375.4
Total Dissolved Solids (TDS calc)	3	N/A	2009/12/30		

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

CHRISTINE MCLEAN, Project Manager
Email: christine.mclean@maxxamanalytics.com
Phone# (905) 817-5700

==========
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Maxxam Job #: A9H2842
Report Date: 2009/12/31

Golder Associates Ltd
Client Project #: 08-1112-0021
Project name: CITY OF GUELPH
Sampler Initials: JH

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For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 2

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Maxxam Job #: A9H2842
Report Date: 2009/12/31

Golder Associates Ltd
Client Project #: 08-1112-0021
Project name: CITY OF GUELPH
Sampler Initials: JH

RCAP - COMPREHENSIVE (WATER)

Maxxam ID		ES5264	ES5265	ES5266		
Sampling Date		2009/12/14 10:30	2009/12/14 11:15	2009/12/14 08:50		
	Units	**MW08-T3-08 (3)**	**MW08-T3-08 (7)**	**MW08-T3-08 (1)**	**RDL**	**QC Batch**
Calculated Parameters						
Anion Sum	me/L	5.94	7.16	6.58	N/A	2043716
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	267	264	294	1	2043714
Calculated TDS	mg/L	307	374	350	1	2043719
Carb. Alkalinity (calc. as CaCO3)	mg/L	2	2	2	1	2043714
Cation Sum	me/L	6.01	7.02	7.09	N/A	2043716
Hardness (CaCO3)	mg/L	260	320	300	1	2044331
Ion Balance (% Difference)	%	0.550	0.990	3.78	N/A	2043715
Langelier Index (@ 20C)	N/A	0.613	0.692	0.661		2043717
Langelier Index (@ 4C)	N/A	0.364	0.443	0.412		2043718
Saturation pH (@ 20C)	N/A	7.22	7.11	7.11		2043717
Saturation pH (@ 4C)	N/A	7.47	7.36	7.36		2043718
Inorganics						
Total Ammonia-N	mg/L	3.1	0.39	4.9	0.05	2046220
Conductivity	umho/cm	555	658	614	1	2046017
Dissolved Organic Carbon	mg/L	8.3	1.2	9.0	0.2	2046476
Orthophosphate (P)	mg/L	<0.01	<0.01	<0.01	0.01	2046181
pH	pH	7.8	7.8	7.8		2046015
Dissolved Sulphate (SO4)	mg/L	<1	58	<1	1	2046180
Alkalinity (Total as CaCO3)	mg/L	268	266	296	1	2046001
Dissolved Chloride (Cl)	mg/L	20	22	24	1	2046178
Nitrite (N)	mg/L	<0.01	<0.01	<0.01	0.01	2046188
Nitrate (N)	mg/L	<0.1	<0.1	<0.1	0.1	2046188
Nitrate + Nitrite	mg/L	<0.1	<0.1	<0.1	0.1	2046188

N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A9H2842
Report Date: 2009/12/31

Golder Associates Ltd
Client Project #: 08-1112-0021
Project name: CITY OF GUELPH
Sampler Initials: JH

RCAP - COMPREHENSIVE (WATER)

Maxxam ID		ES5264	ES5265	ES5266		
Sampling Date		2009/12/14 10:30	2009/12/14 11:15	2009/12/14 08:50		
	Units	**MW08-T3-08 (3)**	**MW08-T3-08 (7)**	**MW08-T3-08 (1)**	**RDL**	**QC Batch**
Metals						
Dissolved Aluminum (Al)	ug/L	<5	<5	<5	5	2046343
Dissolved Antimony (Sb)	ug/L	<0.5	<0.5	<0.5	0.5	2046343
Dissolved Arsenic (As)	ug/L	40	3	70	1	2046343
Dissolved Barium (Ba)	ug/L	83	110	100	5	2046343
Dissolved Beryllium (Be)	ug/L	<0.5	<0.5	<0.5	0.5	2046343
Dissolved Bismuth (Bi)	ug/L	<1	<1	<1	1	2046343
Dissolved Boron (B)	ug/L	26	35	16	10	2046343
Dissolved Cadmium (Cd)	ug/L	<0.1	<0.1	<0.1	0.1	2046343
Dissolved Calcium (Ca)	ug/L	59000	80000	70000	200	2046343
Dissolved Chromium (Cr)	ug/L	<5	<5	<5	5	2046343
Dissolved Cobalt (Co)	ug/L	<0.5	<0.5	0.5	0.5	2046343
Dissolved Copper (Cu)	ug/L	1	<1	4	1	2046343
Dissolved Iron (Fe)	ug/L	3900	790	7700	100	2046343
Dissolved Lead (Pb)	ug/L	0.6	<0.5	0.6	0.5	2046343
Dissolved Magnesium (Mg)	ug/L	28000	30000	30000	50	2046343
Dissolved Manganese (Mn)	ug/L	21	6	42	2	2046343
Dissolved Molybdenum (Mo)	ug/L	9	<1	10	1	2046343
Dissolved Nickel (Ni)	ug/L	2	<1	3	1	2046343
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	100	2046343
Dissolved Potassium (K)	ug/L	2100	1500	2500	200	2046343
Dissolved Selenium (Se)	ug/L	<2	<2	<2	2	2046343
Dissolved Silicon (Si)	ug/L	9800	4800	11000	50	2046343
Dissolved Silver (Ag)	ug/L	<0.1	<0.1	<0.1	0.1	2046343
Dissolved Sodium (Na)	ug/L	8400	11000	10000	100	2046343
Dissolved Strontium (Sr)	ug/L	160	9000	230	1	2046343
Dissolved Thallium (Tl)	ug/L	<0.05	<0.05	<0.05	0.05	2046343
Dissolved Titanium (Ti)	ug/L	<5	<5	<5	5	2046343
Dissolved Uranium (U)	ug/L	0.1	<0.1	<0.1	0.1	2046343
Dissolved Vanadium (V)	ug/L	<1	<1	<1	1	2046343
Dissolved Zinc (Zn)	ug/L	26	<5	40	5	2046343

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Package 1	5.3°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

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Project name: CITY OF GUELPH
Sampler Initials: JH

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
2046001	Alkalinity (Total as CaCO3)	2009/12/29					<1	mg/L	0.3	25	96	85 - 115
2046017	Conductivity	2009/12/29					<1	umho/cm	0.2	25	101	85 - 115
2046178	Dissolved Chloride (Cl)	2009/12/30	NC	75 - 125	105	80 - 120	<1	mg/L	5.3	20		
2046180	Dissolved Sulphate (SO4)	2009/12/30	NC	75 - 125	105	80 - 120	<1	mg/L	2.1	25		
2046181	Orthophosphate (P)	2009/12/30	109	75 - 125	102	80 - 120	<0.01	mg/L	NC	25		
2046188	Nitrite (N)	2009/12/30	96	75 - 125	106	80 - 120	<0.01	mg/L				
2046188	Nitrate (N)	2009/12/30	102	75 - 125	106	80 - 120	<0.1	mg/L	NC	25		
2046188	Nitrate + Nitrite	2009/12/30					<0.1	mg/L				
2046220	Total Ammonia-N	2009/12/30	91	80 - 120	99	80 - 120	<0.05	mg/L	7.4	25		
2046343	Dissolved Aluminum (Al)	2009/12/30	100	80 - 120	106	90 - 110	<5	ug/L				
2046343	Dissolved Antimony (Sb)	2009/12/30	106	80 - 120	103	90 - 110	<0.5	ug/L				
2046343	Dissolved Arsenic (As)	2009/12/30	104	80 - 120	98	90 - 110	<1	ug/L				
2046343	Dissolved Barium (Ba)	2009/12/30	103	80 - 120	101	90 - 110	<5	ug/L				
2046343	Dissolved Beryllium (Be)	2009/12/30	103	80 - 120	102	90 - 110	<0.5	ug/L				
2046343	Dissolved Bismuth (Bi)	2009/12/30	98	80 - 120	98	90 - 110	<1	ug/L				
2046343	Dissolved Boron (B)	2009/12/30	101	80 - 120	106	90 - 110	<10	ug/L				
2046343	Dissolved Cadmium (Cd)	2009/12/30	105	80 - 120	101	90 - 110	<0.1	ug/L				
2046343	Dissolved Calcium (Ca)	2009/12/30	NC	80 - 120	103	90 - 110	<200	ug/L				
2046343	Dissolved Chromium (Cr)	2009/12/30	99	80 - 120	100	90 - 110	<5	ug/L				
2046343	Dissolved Cobalt (Co)	2009/12/30	99	80 - 120	99	90 - 110	<0.5	ug/L				
2046343	Dissolved Copper (Cu)	2009/12/30	97	80 - 120	99	90 - 110	<1	ug/L				
2046343	Dissolved Iron (Fe)	2009/12/30	101	80 - 120	101	90 - 110	<100	ug/L				
2046343	Dissolved Lead (Pb)	2009/12/30	98	80 - 120	98	90 - 110	<0.5	ug/L	NC	25		
2046343	Dissolved Magnesium (Mg)	2009/12/30	NC	80 - 120	102	90 - 110	<50	ug/L				
2046343	Dissolved Manganese (Mn)	2009/12/30	NC	80 - 120	102	90 - 110	<2	ug/L				
2046343	Dissolved Molybdenum (Mo)	2009/12/30	106	80 - 120	101	90 - 110	<1	ug/L				
2046343	Dissolved Nickel (Ni)	2009/12/30	99	80 - 120	99	90 - 110	<1	ug/L				
2046343	Dissolved Phosphorus (P)	2009/12/30	109	80 - 120	110	90 - 110	<100	ug/L				
2046343	Dissolved Potassium (K)	2009/12/30	99	80 - 120	102	90 - 110	<200	ug/L				
2046343	Dissolved Selenium (Se)	2009/12/30	109	80 - 120	101	90 - 110	<2	ug/L				
2046343	Dissolved Silicon (Si)	2009/12/30	97	80 - 120	102	90 - 110	<50	ug/L				
2046343	Dissolved Silver (Ag)	2009/12/30	75(1)	80 - 120	99	90 - 110	<0.1	ug/L				
2046343	Dissolved Sodium (Na)	2009/12/30	NC	80 - 120	101	90 - 110	<100	ug/L				
2046343	Dissolved Strontium (Sr)	2009/12/30	NC	80 - 120	100	90 - 110	<1	ug/L				
2046343	Dissolved Thallium (Tl)	2009/12/30	97	80 - 120	97	90 - 110	<0.05	ug/L				
2046343	Dissolved Titanium (Ti)	2009/12/30	103	80 - 120	102	90 - 110	<5	ug/L				
2046343	Dissolved Uranium (U)	2009/12/30	103	80 - 120	98	90 - 110	<0.1	ug/L				
2046343	Dissolved Vanadium (V)	2009/12/30	100	80 - 120	101	90 - 110	<1	ug/L				

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Maxxam Job #: A9H2842
Report Date: 2009/12/31

Golder Associates Ltd
Client Project #: 08-1112-0021
Project name: CITY OF GUELPH
Sampler Initials: JH

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
2046343	Dissolved Zinc (Zn)	2009/12/30	101	80 - 120	102	90 - 110	<5	ug/L				
2046476	Dissolved Organic Carbon	2009/12/30	109	75 - 125	107	75 - 125	<0.2	mg/L	NC	20		

N/A = Not Applicable
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Validation Signature Page

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C9: Baseflow Monitoring Data

2008 Stream Baseflow Field Chemistry Results

Watercourse	Location ID	pH			Conductivity (mS/cm)			Temperature (°C)		
		07-Jul-08	26-Aug-08	22-Oct-08	07-Jul-08	26-Aug-08	22-Oct-08	07-Jul-08	26-Aug-08	22-Oct-08
Blue Springs Creek	BSC_10	8.00	8.19	8.50	0.73	0.65	0.66	17.1	14.4	8.0
	BSC_20	7.93	7.85	8.07	0.60	0.57	0.58	22.2	17.7	6.6
	BSC_30a	7.73	8.10	8.32	0.74	0.68	0.67	15.2	13.7	6.2
	BSC_30b	N/A	8.15	8.34	N/A	0.66	0.66	N/A	14.0	6.8
Cox Creek	CC_10	7.45	7.51	7.76	0.15	0.72	0.79	19.5	14.5	6.1
	CC_30	7.52	7.60	7.75	0.80	0.84	0.90	18.7	13.9	5.9
Cox Creek South Tributary	CCT_20	7.51	7.53	8.16	0.64	0.68	0.78	19.6	14.2	5.6
Ellis Creek	EC_10	7.56	7.94	7.33	1.10	0.98	1.16	15.6	15.1	5.0
	EC_20	8.29	8.06	7.61	0.70	0.70	0.82	18.2	14.0	6.8
Eramosa River	ER_10	7.41	8.36	8.48	0.63	0.57	0.52	20.2	16.6	7.0
	ER_20	7.87	8.41	8.50	0.70	0.59	0.52	21.8	17.4	6.9
	ER_30	8.53	8.58	8.60	0.63	0.57	0.52	21.8	17.9	6.9
	ER_40	7.73	7.97	8.24	18.30	0.66	0.65	0.7	17.3	6.7
Guelph Lake Tributary	GLT_10	8.45	8.36	8.09	0.67	0.68	0.72	22.0	15.4	5.8
	GLT_20	8.21	8.26	8.52	0.57	0.62	0.63	21.9	17.7	4.5
Hanlon Creek	HC_10	8.60	8.64	N/A	1.00	0.91	1.02	18.5	14.6	7.8
Hanlon Creek South Tributary	HCT_20	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Hopewell Creek	HWC_10	8.52	8.46	7.46	0.72	0.77	0.89	25.0	19.0	5.5
	HWC_20	8.86	7.99	7.61	0.64	0.75	0.91	27.0	18.9	6.2
Irish Creek	IC_10	7.55	7.86	6.53	0.66	0.60	0.65	20.0	14.8	7.0
	IC_20	8.27	8.38	7.68	0.69	0.67	0.75	21.0	16.3	6.8
Lutteral Creek	LC_10	8.06	8.40	7.96	0.60	0.60	0.65	23.5	18.0	8.4
Lutteral Creek Tributary	LCT_20	7.48	8.00	7.86	0.57	0.58	0.68	20.4	21.4	7.5
Lutteral Creek	LC_30	8.15	8.23	8.07	0.60	0.57	0.62	23.8	17.7	7.1
Marden Creek	MDC_10	8.60	8.76	7.82	0.62	0.63	0.82	20.2	14.0	5.5
Mill Creek	MC_10	8.22	8.39	n/a [2]	0.50	0.46	0.57	21.0	16.7	8.6
	MC_20	8.15	8.56	7.61	0.65	0.65	0.75	22.5	13.7	7.3
Swan Creek	SC_10	7.83	7.82	7.86	0.68	0.67	0.79	18.3	14.4	5.5
Speed River	SR_10	8.18	8.27	8.13	0.50	0.48	0.52	22.7	17.0	6.1
	SR_20	8.12	8.24	8.00	0.50	0.49	0.55	23.6	18.0	7.7
	SR_30	8.22	8.37	8.14	0.50	0.50	0.57	23.3	18.0	6.5
	SR_40	8.03	8.10	8.04	0.51	0.50	0.59	23.5	17.4	5.8
Torrance Creek	TC_10	7.61	8.03	8.23	0.85	---	0.78	16.4	14.0	4.4