

August 2018

HYDROLOGICAL REVIEW SUMMARY

The form is to be completed by the Professional that prepared the Hydrological Review.
 Use of the form by the City of Toronto is not to be construed as verification of engineering/hydrological content.

Refer to the Terms of Reference, Hydrological Review:

[Link to Terms of Reference Hydrological Review](#)

For City Staff Use Only:	
Name of ECS Case Manager (Please print)	
Date Review Summary provided to to TW, EM&P	

**IF ANY OF THE REQUIREMENTS LISTED BELOW HAVE NOT BEEN INCLUDED IN THE HYDROLOGICAL REVIEW, THE REVIEW WILL BE CONSIDERED INCOMPLETE.
 THE GREY SHADED BOXES WILL REQUIRE A CONSISTANCY CHECK BY THE ECS CASE MANAGER.**

Summary of Key Information:

SITE INFORMATION		Page # & Section # of Review	Review Includes this Information City Staff (Check)
Site Address	2634, 2636, 2640, 2642 Eglinton Ave W and 1856, 1856A Keele St Toronto, Ontario	Sec 1. Pg. 2	
Postal Code	M6M 1T7	Pg. 1	
Property Owner (on request for comments memo)	Fora Developments	Sec 1. Pg. 2	
Proposed description of the project (if applicable) (point towers, number of podiums)	1 tower, 33 levels	Sec 1. Pg. 3	
Land Use (ex. commercial, residential, mixed, institutional, industrial)	The Site is currently zoned as commercial residential (City of Toronto Zoning By-law 569-2013, 2020).	Sec 1. Pg	
Number of below grade levels for the proposed structure	Three levels of underground	Sec 2	
HYDROLOGICAL REVIEW INFORMATION			
Date Hydrological Review was prepared:	December 19, 2022	Pg 1	
Who Performed the Hydrological Review (Consulting Firm)	Groundwater Environmental Management Services (GEMS)	Pg 1	
Name of Author of Hydrological Review	Kenley Bairos and Mike Francis	Sec 9 Pg 19	

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<p>Check the directories on the website for Professional Geoscientists and/or Professional Engineers of Ontario been checked to ensure that the Hydrological Report has been prepared by a qualified person who is a licensed Professional Geoscientist as set out in the Professional Geoscientist Act of Ontario or a Professional Engineer?</p> <p>PEO: Professional Engineers of Ontario APGO: Association of Professional Geoscientists of Ontario</p>		N/A	
<p>Has the Hydrological Review been prepared in accordance with all the following:</p> <ul style="list-style-type: none"> • Ontario Water Resources Act • Ontario Regulation 387/04 • Toronto Municipal Code Chapter 681-Sewers 	Yes		
		Page # & Section # of every occurrence in the Review	Review Includes this Information City Staff (Check)

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<p>Total Volume (L/day) Short Term Discharge of groundwater (construction dewatering) with safety factor included</p>	<p>Total maximum forecasted dewatering rate is 149,760 L/day (104 L/min) for groundwater entering the excavation area.</p> <p>What safety factor was used? 2</p>	<p>Sec 5.4 Pg 13</p>	
<p>Total Volume (L/day) Short Term Discharge of groundwater (construction dewatering) without safety factor included</p>	<p>74,880 L/day (52 L/min).</p>	<p>Sec 5.4 Pg 13</p>	
<p>Total Volume (L/day) Long Term drainage of groundwater (from foundation drainage, weeping tiles, sub slab drainage) with safety factor included</p> <p>If the development is part of a multiple tower complex, include total volume for each separate tower</p>	<p>Foundation will be water tight so long term drainage of groundwater is not anticipated</p> <p>What safety factor was used? N/A</p>	<p>Sec 5.5 pg 14</p>	
<p>List the nearest surface water (river, creek, lake)</p>	<p>Black Creek (500m), The Humber River (3km)</p>	<p>Sec 4.3 Pg 6</p>	

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SITE INFORMATION		Page # & Section # of Review	Review Includes this Information City Staff (Check)
Lowest basement elevation	115.5 masl	Sec 5.1 Pg 10	
Foundation elevation	115.5 masl	Sec 5.1 Pg 10	
Ground elevation	129.5 masl	Sec 5.1 Pg 10	
STUDY AREA MAP		Page # & Section # of every occurrence in the Review	Review Includes this Information City Staff (Check)
Study area map(s) have been included in the report.	X Yes	Fig 1 Pg 22	N/A
Study area map(s) been prepared according to the Hydrological Review Terms of Reference.	X Yes	Fig 1 Pg 22	N/A
WATER LEVEL AND WELLS		Page # & Section # of every occurrence	Review Includes this Information (City Staff Initial)

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		in the Review	
The groundwater level has been monitored using all wells located on site (within property boundary).	Yes	Sec 4.3 Pg. 7	
The static water level measurements have been monitored at all monitoring wells for a minimum of 3 months with samples taken every 2 weeks for a minimum of 6 samples. The intent is for the qualified professional to use professional judgement to estimate the seasonally high groundwater level.	Yes (3 water levels taken in all monitoring wells to date - water level monitoring is ongoing to achieve the required 6 measurements)	Sec 4.3 Pg. 7	
All water levels in the wells have been measured with respect to masl.	Yes	Sec 4.3 Pg. 7	
A table of geology/soil stratigraphy for the property has been included.	Yes	Sec 4.1 Pg. 6	
GEOLOGY AND PHYSICAL HYDROLOGY		Page # & Section # of every occurrence in the Review	Review Includes this Information (City Staff Initial)
The review has made reference to the soil materials including thickness, composition and texture, and bedrock environments.	Yes	Sec 4.2 Pg 6	
Key aquifers and the site's proximity to nearby surface water has been identified.	X Yes	Sec 4.2 Pg 6	N/A

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SITE INFORMATION		Page # & Section # of Review	Review Includes this Information City Staff (Check)
PUMP TEST/SLUG TEST/DRAWDOWN ANALYSIS		Page # & Section # of every occurrence in the Review	Review Includes this Information City Staff (Check)
A summary of the pumping test data and analysis is included in the review.	A pumping test was not completed for this site – Please see the next section	Sec 4.4 Pg 7 Appendix D	
The pump test been carried out for at least 24 hours if possible. If not, has a slug test been conducted?	A pumping test was not conducted – Rising head tests were completed in 3 monitoring wells	Sec 4.4 Pg 7 Appendix D	
Have the monitoring well(s) have been monitored using digital devices? If yes how frequently?	Yes – Three wells, 6 tests,	Sec 4.4 Pg 8 Appendix D	
If a slug or pump test has been conducted has the static groundwater level been monitored at all monitoring well(s) multiple times to measure recovery? -prior to the slug or pumping test(s)? -post slug or pumping test(s)?	(X)Yes Recovery was measured following the removal of a slug in three monitoring wells using digital device.	Sec 4.4 Pg 8 Appendix D	N/A
The above noted slug or pump tests have been included in the report.	X Yes	Sec 4.4 Pg 8 Appendix D	
WATER QUALITY		Page # & Section # of every occurrence in the Review	Review Includes this Information City Staff (Check)

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The report includes baseline water quality samples from a laboratory. The water quality must be analyzed for all parameters listed in Tables 1 and 2 of Chapter 681 Sewers of the Toronto Municipal Code (found in Appendix A) and the samples must have to be taken unfiltered within 9 months of the date of submission.	Baseline water quality data provided in Tables provided by Toronto Water	Section 4.5 Page 9	
The water quality data templates in Appendix A have been completed for each sample taken for both sanitary/combined and storm sewer limits.	For sanitary discharge- See the sanitary/combined sewer parameter limit template For storm discharge- See the storm sewer parameter limit template		
Qualified professional to list all sample parameters that have violated the Bylaw limits for each sample taken for the sanitary/combined Bylaw limits If there are any sample parameter Exceedances the groundwater can't be discharged as is.	Exceedances listed in report	Section 4.5 Page 9	
Qualified professional to list all sample parameters that have violated the Bylaw limits for each sample taken for the storm Bylaw limits. If there are any sample parameter exceedances the groundwater can't be discharged as is.	Exceedances listed in report	Section 4.5 Page 9	
The water quality samples have been analyzed by a Canadian laboratory accredited and licensed by Standards Council of Canada and/or Canadian Association for Laboratory Accreditation.	X Yes	Appendix E	N/A

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List of Canadian accredited laboratories: Standards Council of Canada		
A chain of custody record for the samples is included with the report.	Yes	Appendix E
Has the chain of custody reference any filtered sample? If yes, the report has to be amended and re-submitted to include only non-filtered samples.	No filtered samples	Appendix E
List any of the sample parameters that exceed the Bylaw limits with the reporting detection limit (RDL) included.	Total Suspended Solids (TSS) RDL 10	Appendix E
A true copy of the Certificate of Analysis report, is included with the report.	Yes	Appendix E
EVALUATION OF IMPACT	Page # & Section # of every occurrence in the Review	Review Includes this Information City Staff (Check)
Does the report recommend a back-up system or relief safety valve(s)? Does the associated Geotechnical report recommend a back-up system or relief safety valve(s)?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No	
The taking and discharging of groundwater on site has been analyzed to ensure that no negative	<input checked="" type="radio"/> Yes	N/A

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impacts will occur to: the City sewage works in terms of quality and quantity (including existing infrastructure), the natural environment, and settlement issues.		
Has it been determined that there will be a negative impact to the natural environment, City sewage works, or surrounding properties has the study identified the following: the extent of the negative impact, the detail of the precondition state of all the infrastructure, City sewage works, and natural environment within the effected zone and the proposed remediation and monitoring plan?	<input type="radio"/> Yes If yes, identify impact: <input checked="" type="radio"/> No	N/A

Summary of Additional Information and Key Items (if applicable):

HYDROLOGICAL REVIEW SUMMARY

Appendix A:

SANITARY/COMBINED

Sample Location:

Inorganics		Sample Result	Sample Result with upper RDL included	
<u>Parameter</u>	<u>mg/L</u>	mg/L		<u>ug/L</u>
BOD	300	ND	2	300,000
Fluoride	10	0.12	0.10	10,000
TKN	100	0.30	0.10	100,000
pH	6.0 - 11.5	7.68		6.0 - 11.5
Phenolics 4AAP	1	ND	0.0010	1,000
TSS	350	85	10	350,000
Total Cyanide	2	ND	0.0050	2,000
Metals				
Chromium Hexavalent	2	0.54	0.50	2,000
Mercury	0.01	ND	0.00010	10
Total Aluminum	50	1600	4.9	50,000
Total Antimony	5	ND	0.50	5,000
Total Arsenic	1	ND	1.0	1,000
Total Cadmium	0.7	ND	0.090	700
Total Chromium	4	ND	5.0	4,000
Total Cobalt	5	0.99	0.50	5,000
Total Copper	2	3.9	0.90	2,000
Total Lead	1	1.7	0.50	1,000
Total Manganese	5	46	2.0	5,000
Total Molybdenum	5	0.97	0.50	5,000
Total Nickel	2	3.0	1.0	2,000
Total Phosphorus	10	110	100	10,000
Total Selenium	1	ND	2.0	1,000
Total Silver	5	ND	0.090	5,000
Total Tin	5	2.0	1.0	5,000
Total Titanium	5	45	5.0	5,000
Total Zinc	2	10	5.0	2,000
Petroleum Hydrocarbons				
Animal/Vegetable Oil & Grease	150	1.2	0.50	150,000
Mineral/Synthetic Oil & Grease	15	0.50	0.50	15,000

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Volatile Organics		Sample Result	Sample Result with upper RDL included	
<u>Parameter</u>	<u>mg/L</u>			<u>ug/L</u>
Benzene	0.01	ND	0.40	10
Chloroform	0.04	ND	0.40	40
1,2-Dichlorobenzene	0.05	ND	0.80	50
1,4-Dichlorobenzene	0.08	ND	0.80	80
Cis-1,2-Dichloroethylene	4	ND	1.0	4,000
Trans-1,3-Dichloropropylene	0.14	ND	0.80	140
Ethyl Benzene	0.16	ND	0.40	160
Methylene Chloride	2	ND	4.0	2,000
1,1,2,2-Tetrachloroethane	1.4	ND	0.80	1,400
Tetrachloroethylene	1	ND	0.40	1,000
Toluene	0.016	ND	0.40	16
Trichloroethylene	0.4	ND	0.40	400
Total Xylenes	1.4	ND	0.40	1,400
Semi-Volatile Organics				
Di-n-butyl Phthalate	0.08	ND	8	80
Bis (2-ethylhexyl) Phthalate	0.012	ND	8	12
3,3'-Dichlorobenzidine	0.002	ND	0.8	2
Pentachlorophenol	0.005	ND	2	5
Total PAHs	0.005	ND	5	5
Misc Parameters				
Nonylphenols	0.02	ND	0.005	20
Nonylphenol Ethoxylates	0.2	ND	0.001	200

Sample Collected:
Temperature:

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STORM

Sample Location:

Inorganics		Sample Result	Sample Result with upper RDL included	
<u>Parameter</u>	<u>mg/L</u>			<u>ug/L</u>
pH	6.0 - 9.5	7.68		
BOD	15	ND	2	15,000
Phenolics 4AAP	0.008	ND	0.0010	8
TSS	15	85	10	15,000
Total Cyanide	0.02	ND	0.0050	20
Metals				
Total Arsenic	0.02	ND	1.0	20
Total Cadmium	0.008	ND	0.090	8
Total Chromium	0.08	ND	5.0	80
Chromium Hexavalent	0.04	0.54	0.50	40
Total Copper	0.04	3.9	0.90	40
Total Lead	0.12	1.7	0.50	120
Total Manganese	0.05	46	2.0	50
Total Mercury	0.0004	ND	0.00010	0.4
Total Nickel	0.08	3.0	1.0	80
Total Phosphorus	0.4	110	100	400
Total Selenium	0.02	ND	2.0	20
Total Silver	0.12	ND	0.090	120
Total Zinc	0.04	10	5.0	40
Microbiology				
E.coli	200	<10	10	200,000
Volatile Organics				
<u>Parameter</u>	<u>mg/L</u>			<u>ug/L</u>
Benzene	0.002	ND	0.40	2
Chloroform	0.002	ND	0.40	2
1,2-Dichlorobenzene	0.0056	ND	0.80	6
1,4-Dichlorobenzene	0.0068	ND	0.80	7
Cis-1,2-Dichloroethylene	0.0056	ND	1.0	6
Trans-1,3-Dichloropropylene	0.0056	ND	0.80	6
Ethyl Benzene	0.002	ND	0.40	2
Methylene Chloride	0.0052	ND	4.0	5
1,1,1,2-Tetrachloroethane	0.017	ND	0.80	17
Tetrachloroethylene	0.0044	ND	0.40	4
Toluene	0.002	ND	0.40	2
Trichloroethylene	0.0076	ND	0.40	8
Total Xylenes	0.0044	ND	0.40	4

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Semi-Volatile Organics		Sample Result	Sample Result with upper RDL included	
Di-n-butyl Phthalate	0.015	ND	8	5
Bis (2-ethylhexyl) Phthalate	0.0088	ND	8	8.8
3,3'-Dichlorobenzidine	0.0008	ND	0.8	0.8
Pentachlorophenol	0.002	ND	2	2
Total PAHs	0.002	ND	5	2
PCBs	0.0004	ND	0.05	0.4
Misc Parameters				
Nonylphenols	0.001	ND	0.005	1
Nonylphenol Ethoxylates	0.01	ND	0.001	10

Sample Collected:
Temperature:

Consulting Firm that prepared Hydrological Report: Groundwater Environmental Management Services

Qualified Professional who completed the report summary: Kenley Bairos
Print Name

Qualified Professional who completed the report summary: _____

Signature



Date & Stamp