

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 | 13, 15, 17, 19, & 21 John Street and 36, 38, & 40 South Station Street, Toronto, Ontario | Cover Page | |
| Postal Code | M9N 1J2 | Cover Page | |
| Property Owner (on request for comments memo) | 21 John Dev Inc. | Cover Page | |
| Proposed description of the project (if applicable) (point towers, number of podiums) | demolish the existing structures and construct a forty (40) storey mixed-use building with two (2) levels of underground parking (P2) | Pg. 3, Sec.1.1 | |
| Land Use (ex. commercial, residential, mixed, institutional, industrial) | Mixed (residential and Commercial) | Pg. 3, Sec.1.1 | |
| Number of below grade levels for the proposed structure | 2 Levels | Pg. 3, Sec.1.1 | |
| HYDROLOGICAL REVIEW INFORMATION | | | |
| Date Hydrological Review was prepared: | October 7, 2022 | Cover Page | |
| Who Performed the Hydrological Review (Consulting Firm) | EXP Services Inc. | Pg. Error! Bookmark not defined. , Sec.1.1 | |
| Name of Author of Hydrological Review | Peyman Sayyah, M.Sc., P.Geo., Senior Hydrogeologist | Pg. 21, Sec. 7 | |

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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 | Yes | Pg. 4, Sec.1.3 | |
| | | Page # & Section # of every occurrence in the Review | Review Includes this Information City Staff (Check) |

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| SITE INFORMATION | Page # & Section # of Review | Review Includes this Information City Staff (Check) |
|--|--|---|
| <p>Total Volume (L/day) Short Term Discharge of groundwater (construction dewatering) with safety factor included</p> | <p>185,000 L/day including rain fall amount</p> <p>What safety factor was used? 2</p> | <p>Pg. 14, Sec. 4.4.1 Appendix F –Construction and Post-Construction Flow Rate Calculations</p> |
| <p>Total Volume (L/day) Short Term Discharge of groundwater (construction dewatering) without safety factor included</p> | <p>118,000 L/day including rain fall amount</p> | <p>Pg. 14 Error! Bookmark not defined., Sec. 4.4.1 Appendix F –Construction and Post-Construction Flow Rate Calculations</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>35,000 L/day</p> <p>What safety factor was used? 1.5</p> | <p>Pg 15, Sec. 4.4.2 Appendix F –Construction and Post-Construction Flow Rate Calculations</p> |
| <p>List the nearest surface water (river, creek, lake)</p> | <p>The nearest surface water feature is Humber River, approximately located 350 meters southwest of the Site boundary. Lake Ontario is approximately 8.5 km from the Site boundary to the southeast.</p> | <p>Pg. 6 Sec. 2.2.2</p> |

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| SITE INFORMATION | | Page # & Section# of Review | Review Includes this Information City Staff (Check) |
|--|------------|--|---|
| Lowest basement elevation | 121.4 masl | Pg 12, Sec.4 | |
| Foundation elevation | 119.7 masl | Pg.12, Sec.4 | |
| Ground elevation | 127.4 masl | Pg12, Sec.4 Appendix F –Construction and Post-Construction Flow Rate Calculations | |
| STUDY AREA MAP | | Page # & Section# of every occurrence in the Review | Review Includes this Information City Staff (Check) |
| List the nearest surface water (river, creek, Study area map(s)) have been included in the report. | ✓ Yes | Figures | N/A |
| Study area map(s) been prepared according to the Hydrological Review Terms of Reference. | ✓ Yes | | N/A |
| WATER LEVEL AND WELLS | | Page # & Section# of every occurrence | Review Includes this Information (City Staff Initial) |

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| SITE INFORMATION | | Page # & Section# of Review | Review Includes this Information City Staff (Check) |
|---|--|--|---|
| The groundwater level has been monitored using all wells located on site (within property boundary). | Yes | Pg. Error! Bookmark not defined. , Sec. 3.2 Appendix C – Groundwater Elevation Summary | |
| 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. | Three month of monitoring program is in progress | Pg. Error! Bookmark not defined. , Sec. 3.2 Appendix C – Groundwater Elevation Summary | |
| All water levels in the wells have been measured with respect to masl. | Yes | Pg. Error! Bookmark not defined. , Sec. 3.2 Appendix C – Groundwater Elevation Summary | |
| A table of geology/soil stratigraphy for the property has been included. | Yes | Pg. 6 - 8, Sec.2.2.3 Appendix B- Borehole Logs | |
| 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 | Pg. 6 - 8, Sec.2.2.3 Appendix B- Borehole Logs | |
| Key aquifers and the site's proximity to nearby surface water has been identified. | ✓Yes | Pg. Error! Bookmark not defined. , Sec.2.1.2 | N/A |

HYDROLOGICAL REVIEW SUMMARY

| PUMP TEST/SLUG TEST/DRAWDOWN ANALYSIS | | Page # & Section# of every occurrence in the Review | Review Includes this Information City Staff (Check) |
|---|--|---|---|
| SITE INFORMATION | | Page # & Section# of Review | Review Includes this Information City Staff (Check) |
| A summary of the pumping test data and analysis is included in the review. | No pumping test conducted, slug test data and analysis included in report. | Appendix D– SWRT Procedures and Results | |
| The pump test been carried out for at least 24 hours if possible. If not, has a slug test been conducted? | Single Well Response Tests (SWRT) have been conducted. | Pg. 9- Error! Bookmark not defined. , Sec. 3.3 | |
| Have the monitoring well(s) have been monitored using digital devices? If yes how frequently? | Monitoring wells monitored using data loggers set to 1 second intervals | Pg. 9- Error! Bookmark not defined. , Sec. 3.3 | |
| 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)? | <p>✓Yes</p> <p>Prior to and following completion of slug tests</p> | Pg.9-11, Sec. 3.2 | N/A |
| The above noted slug or pump tests have been included in the report. | <p>✓Yes</p> <p>Slug test data has been included in report</p> | Appendix C – SWRT Procedures and Results | |

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| WATER QUALITY | | Page # & Section# of every occurrence in the Review | Review Includes this Information City Staff (Check) |
|--|---|---|---|
| SITE INFORMATION | | Page # & Section# of Review | Review Includes this Information City Staff (Check) |
| 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. | Water quality has been 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 have been taken unfiltered within 9 months of the date of submission. | Appendix – Laboratory Certificates of Analysis | |
| The water quality data templates in Appendix A have been completed for each sample taken for both sanitary/combined and storm sewer limits. | <p>For sanitary discharge- See the sanitary/combined sewer parameter limit template</p> <p>Water quality data templates have been completed.</p> <p>For storm discharge- See the storm sewer parameter limit template</p> | Appendix A of Hydrology Summary Review Form | |
| <p>Qualified professional to list all sample parameters that have violated the Bylaw limits for each sample taken for the sanitary/combined Bylaw limits</p> <p>If there are any sample parameters exceedances the groundwater can't be discharged as is.</p> | When comparing the chemistry of the collected groundwater samples to the City of Toronto Sanitary and Combined Sewer Discharge Criteria (Table 1), there were no parameter exceedances to be reported. | Pg. Error! Bookmark not defined. , Sec.3.4 | |

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| <p>Qualified professional to list all sample parameters that have violated the Bylaw limits for each sample taken for the storm Bylaw limits.</p> <p>If there are any sample parameter exceedances the groundwater can't be discharged as is.</p> | <p>When comparing the chemistry of the collected groundwater samples to the City of Toronto Storm Sewer Discharge Criteria (Table 2) the following parameters reported an exceedance:</p> <ol style="list-style-type: none"> 1. Total Suspended Solids (TSS): 29 mg/L 2. Total Manganese (Mn): 52 µg/L | <p>Pg. Error! Bookmark not defined., Sec. 3.4</p> | |
|---|--|--|---|
| <p>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.</p> | <p>✓Yes</p> | <p>Pg. Error! Bookmark not defined., Sec. 3.4</p> | <p>N/A</p> |
| <p>SITE INFORMATION</p> | | <p>Page # & Section# of Review</p> | <p>Review Includes this Information City Staff (Check)</p> |
| <p>List of Canadian accredited laboratories: Standards Council of Canada</p> | <p>BV Labs</p> | <p>Pg. Error! Bookmark not defined., Sec. 3.4</p> | |
| <p>A chain of custody record for the samples is included with the report.</p> | <p>Yes</p> | <p>Appendix E – Laboratory Certificates of Analysis</p> | |
| <p>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.</p> | <p>No</p> | <p>Appendix E – Laboratory Certificates of Analysis</p> | |
| <p>List any of the sample parameters that exceed the Bylaw limits with the reporting detection limit (RDL) included.</p> | <p>For groundwater samples collected as part of the current investigation there were no exceedances of the Sewer Use By-Law parameters of Tables 1 and 2 due to the reporting detection limit (RDL)</p> | <p>Pg. Error! Bookmark not defined., Sec. 3.4</p> | |
| <p>A true copy of the Certificate of Analysis report is included with the report.</p> | <p>Yes</p> | <p>Appendix E – Laboratory Certificates of Analysis</p> | |

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| 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)? | ✓ No | | |
| Does the associated Geotechnical report recommend a back-up system or relief safety valve(s)? | ✓ No | | |
| The taking and discharging of groundwater on site has been analyzed to ensure that no negative Impacts will occur to: the City sewage works in terms of quality and quantity (including existing infrastructure), the natural environment, and settlement issues. | ✓ Yes | Pg. Error! Bookmark not defined. , Sec.5 | N/A |
| 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 or all the infrastructure, City sewage works, and natural environment within the effected zone and the proposed remediation and monitoring plan? | If yes, identify impact: ✓ No | | N/A |

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

HYDROLOGICAL REVIEW SUMMARY

Appendix A:

SANITARY/COMBINED

Sample Location:

BH 203

| Inorganics | | Sample Result | Sample Result with upper RDL included | |
|--------------------------------------|------------|---------------|---------------------------------------|------------|
| Parameter | mg/L | | | ug/L |
| Total BOD | 300 | ND | 2 | 300,000 |
| Fluoride (F-) | 10 | 1.3 | 0.10 | 10,000 |
| Total Kjeldahl Nitrogen (TKN) | 100 | 3.8 | 0.10 | 100,000 |
| pH | 6.0 - 11.5 | 8.23 | - | 6.0 - 11.5 |
| Phenols-4AAP | 1 | ND | 0.0010 | 1,000 |
| Total Suspended Solids | 350 | 29 | 10 | 350,000 |
| Total Cyanide (CN) | 2 | ND | 0.0050 | 2,000 |
| Metals | | | | |
| Chromium (VI) | 2 | ND | 0.50 | 2,000 |
| Mercury (Hg) | 0.01 | ND | 0.00010 | 10 |
| Total Aluminum (Al) | 50 | 1400 | 4.9 | 50,000 |
| Total Antimony (Sb) | 5 | 2.4 | 0.50 | 5,000 |
| Total Arsenic (As) | 1 | 5.4 | 1.0 | 1,000 |
| Total Cadmium (Cd) | 0.7 | ND | 0.090 | 700 |
| Total Chromium (Cr) | 4 | ND | 5.0 | 4,000 |
| Total Cobalt (Co) | 5 | 0.81 | 0.50 | 5,000 |
| Total Copper (Cu) | 2 | 1.8 | 0.90 | 2,000 |
| Total Lead (Pb) | 1 | ND | 0.50 | 1,000 |
| Total Manganese (Mn) | 5 | 52 | 2.0 | 5,000 |
| Total Molybdenum (Mo) | 5 | 16 | 0.50 | 5,000 |
| Total Nickel (Ni) | 2 | 1.8 | 1.0 | 2,000 |
| Total Phosphorus (P) | 10 | ND | 100 | 10,000 |
| Total Selenium (Se) | 1 | ND | 2.0 | 1,000 |
| Total Silver (Ag) | 5 | ND | 0.090 | 5,000 |
| Total Tin (Sn) | 5 | ND | 1.0 | 5,000 |
| Total Titanium (Ti) | 5 | 33 | 5.0 | 5,000 |
| Total Zinc (Zn) | 2 | ND | 5.0 | 2,000 |
| Petroleum Hydrocarbons | | | | |
| Total Oil & Grease | 150 | ND | 0.50 | 150,000 |
| Total Oil & Grease Mineral/Synthetic | 15 | ND | 0.50 | 15,000 |

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| Volatile Organics | | Sample Result | Sample Result with upper RDL included | |
|-------------------------------------|-------|---------------|---------------------------------------|-------|
| Parameter | mg/L | | | ug/L |
| 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-Dichloropropene | 0.14 | ND | 0.80 | 140 |
| Ethylbenzene | 0.16 | ND | 0.40 | 160 |
| Methylene Chloride(Dichloromethane) | 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 | 0.72 | 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 | 2 | 80 |
| Bis(2-ethylhexyl)phthalate | 0.012 | ND | 2 | 12 |
| 3,3'-Dichlorobenzidine | 0.002 | ND | 0.8 | 2 |
| Pentachlorophenol | 0.005 | ND | 1 | 5 |
| Total PAHs (18 PAHs) | 0.005 | ND | 1 | 5 |
| Misc Parameters | | | | |
| Nonylphenol Ethoxylate (Total) | 0.02 | ND | 0.005 | 20 |
| Nonylphenol (Total) | 0.2 | ND | 0.001 | 200 |

Sample Collected: 8/4/22 13:00 August 4, 2022

Temperature: 25.7°C

HYDROLOGICAL REVIEW SUMMARY

STORM

Sample Location: BH 203

| Inorganics | | Sample Result | Sample Result with upper RDL included | |
|-------------------------------------|-----------|---------------|---------------------------------------|---------|
| Parameter | mg/L | | | ug/L |
| pH | 6.0 - 9.5 | 8.23 | 0 | |
| Total BOD | 15 | ND | 2 | 15,000 |
| Phenols-4AAP | 0.008 | ND | 0.0010 | 8 |
| Total Suspended Solids | 15 | 29 | 10 | 15,000 |
| Total Cyanide (CN) | 0.02 | ND | 0.0050 | 20 |
| Metals | | | | |
| Total Arsenic (As) | 0.02 | 5.4 | 1.0 | 20 |
| Total Cadmium (Cd) | 0.008 | ND | 0.090 | 8 |
| Total Chromium (Cr) | 0.08 | ND | 5.0 | 80 |
| Chromium (VI) | 0.04 | ND | 0.50 | 40 |
| Total Copper (Cu) | 0.04 | 1.8 | 0.90 | 40 |
| Total Lead (Pb) | 0.12 | ND | 0.50 | 120 |
| Total Manganese (Mn) | 0.05 | 52 | 2.0 | 50 |
| Mercury (Hg) | 0.0004 | ND | 0.00010 | 0.4 |
| Total Nickel (Ni) | 0.08 | 1.8 | 1.0 | 80 |
| Total Phosphorus (P) | 0.4 | ND | 100 | 400 |
| Total Selenium (Se) | 0.02 | ND | 2.0 | 20 |
| Total Silver (Ag) | 0.12 | ND | 0.090 | 120 |
| Total Zinc (Zn) | 0.04 | ND | 5.0 | 40 |
| Microbiology | | | | |
| Escherichia coli | 200 | <10 | 10 | 200,000 |
| Volatile Organics | | | | |
| Parameter | mg/L | | | ug/L |
| 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-Dichloropropene | 0.0056 | ND | 0.80 | 6 |
| Ethylbenzene | 0.002 | ND | 0.40 | 2 |
| Methylene Chloride(Dichloromethane) | 0.0052 | ND | 4.0 | 5 |
| 1,1,2,2-Tetrachloroethane | 0.017 | ND | 0.80 | 17 |
| Tetrachloroethylene | 0.0044 | ND | 0.40 | 4 |
| Toluene | 0.002 | 0.72 | 0.40 | 2 |
| Trichloroethylene | 0.0076 | ND | 0.40 | 8 |
| Total Xylenes | 0.0044 | ND | 0.40 | 4 |

HYDROLOGICAL REVIEW SUMMARY

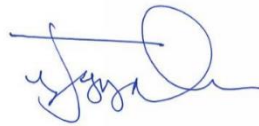
| Semi-Volatile Organics | | Sample Result | Sample Result with upper RDL included | |
|--------------------------------|--------|---------------|---------------------------------------|-----|
| Di-N-butyl phthalate | 0.015 | ND | 2 | 5 |
| Bis(2-ethylhexyl)phthalate | 0.0088 | ND | 2 | 8.8 |
| 3,3'-Dichlorobenzidine | 0.0008 | ND | 0.8 | 0.8 |
| Pentachlorophenol | 0.002 | ND | 1 | 2 |
| Total PAHs (18 PAHs) | 0.002 | ND | 1 | 2 |
| Total PCB | 0.0004 | ND | 0.05 | 0.4 |
| Misc Parameters | | | | |
| Nonylphenol (Total) | 0.001 | ND | 0.001 | 1 |
| Nonylphenol Ethoxylate (Total) | 0.01 | ND | 0.005 | 10 |

Sample Collected: 8/4/2022 13:00

Temperature: 25.7°C

Consulting Firm that prepared Hydrological Report: EXP Services Inc.

Qualified Professional who completed the report summary Peyman Sayyah, M.Sc., P.Geo., Senior Hydrogeologist
 Print Name



Qualified Professional who completed the report summary: October 7, 2022

Signature

Date & Stamp

