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May 19, 2022  
IBI Reference No.:137021

Paul Barrette  
Senior Planner, Planning Services  
Town of Oakville

**Attention: Brian Gregatti**  
**Development Services, Development Engineer**

**Re: Response to Town Comments**  
**OPA No.: 1616.56**  
**Your Memorandum Dated: April 11, 2022**  
**Applicant: Melanie Hare, Urban Strategies Inc.**  
**Location: 588, 550, 530 Kerr Street and 131, 171 Speers Road**

Dear Mr. Gregatti:

IBI GROUP (IBI) is in receipt of the Town of Oakville (the "Town")'s engineering submission comments dated April 11, 2022. For ease of reference, the Town comments have been reiterated in *italics*, with IBI's responses in **bold** below.

### **PART 1: PLANNING SERVICES**

#### ***3. Development Services, Development Engineer***

#### ***Functional Servicing & Stormwater Management Report, dated January 31, 2022, prepared by IBI Group;***

1. *The following are comments related to the pre and post development drainage patterns and storm sewer design as discussed within the Functional Servicing and Stormwater Management Report (prepared by IBI dated January 31, 2022):*

- a. *The SWM report appears to lump the subject site into one catchment area and does not specify the proposed outlet(s) under pre and post development conditions. Please confirm whether flows within the subject site under existing drainage conditions split between Kerr and Speers Road. Please provide additional discussion related existing and proposed drainage patterns within the SWM report.*

**Additional discussion of pre-development drainage patterns and catchment areas has been included in Section 4.1 and Figure DAP-1. Additional discussion of post-development drainage has been included in Section 4.4 and Figure DAP-2.**

- b. *The provided SWM report provides limited discussion related to whether quantity controls exist on the existing property. The provided survey plan suggests that the existing parking lot areas provide some storage prior to spilling onto the road. Please confirm whether the existing property contains informal water quantity controls such as parking lot storage. Please provided further discussion within the SWM Report.*

**Given the age of the existing development, it is unlikely that any stormwater controls exist at the site, however this shall be confirmed at a later stage through an on-site investigation. Please refer to Section 4.1.**

- c. *Further to the above, please confirm the limits of the existing on site storm sewer and if any formal storm water management controls have been provided under existing conditions.*

**The limits of the existing storm sewer at 171 Speers have been confirmed through existing building records which can be found in Appendix A for reference. Records for the remaining addresses fronting Kerr Street were not available. An on-site investigation shall be completed at a later stage to verify the location of all on-site utilities. Please refer to Section 4.1.**

- d. *The FSR does not provide pre and post development drainage area plans in support of the SWM strategy for the subject development. Please provide these plans and clearly illustrate minor and major drainage pathways under both pre and post development conditions.*

**Pre- and post-development drainage area plans have been included in Appendix B.**

- e. *Section 4.7 of the report makes note of a possible storm sewer connection to the future Kerr Street road and storm sewer. Please confirm whether the future storm sewer was designed to account for existing flows from the subject property. Please note that overland flows from the development are not to be directed to the future CNR underpass unless the storm sewer and inlets associated with the underpass was designed to account for these flows. The Town requests that a meeting with proponent's consultant and Town staff be completed prior to detailed design to ensure proposed drainage patterns and outlets are feasible and are consistent with previous design work completed along Kerr Street.*

**Duly noted. A meeting with Town staff shall be completed prior to detailed design.**

**As a drainage area plan for the future sewer was not available at the time of this report, an allowable release rate has been calculated based on the area indicated to drain to this sewer in Metrolinx plans.**

**Overland flows shall be directed to Speers Road in the post-development condition via the St. Augustine Drive extension and private road within the site. Please refer to Section 4.2 and grading exhibits SG-01 through SG-04.**

2. *The following are comments related to the impervious coverages assumed within the subject development under proposed conditions:*

- a. *Based on details provided within the Functional Servicing and Stormwater Management Report (prepared by IBI dated January 31, 2022), the subject development is proposing a runoff coefficient of  $C = 0.85$ . This appears to assume all landscaped areas as pervious areas. Based on details provided within the servicing report, the extent of the proposed underground parking lot area appears to encompass the majority of the landscaped and park areas within the subject development. The landscaped areas do not fully reflect a pervious surface given that there is no opportunity for the flows generated within this area to infiltrate. For the purposes of design, a runoff coefficient of  $C=0.90$  is to be used unless additional justification is provided in support of the selected runoff coefficient.*

**The post-development runoff rates have been revised using a runoff coefficient of 0.90 as a conservative measure. Please refer to Section 4.4.**

- b. Please provide additional insight as to how the coefficient of 0.85 was determined and provide calculations confirming this. It is understood that this is still conceptual, however, additional information should be provided to confirm the rational used in the report. If adequate rational can not be provided, please use a C of min 0.9 as noted.*

**The post-development runoff rates have been revised using a runoff coefficient of 0.90 as a conservative measure. Please refer to Section 4.4.**

- 3. The following are comments related to the storm sewer design within the subject development under proposed conditions:*

- a. Further to the above, please confirm that the proposed outlet has capacity to support the internal storm sewer system as there was little discussion in the report. The PCSWMM model has been provided for use and the Town recommends utilizing this tool to confirm the existing sewer has adequate capacity.*

**Section 4.4 has been added to the report to specify proposed storm outlets. Post-development flows shall not exceed pre-development flows. Where required, quantity controls shall be in place to limit post-development flows. Please refer to Sections 4.4 and 4.5.**

- b. Storm sewer design concept appears to be incomplete, with no sizing provided. Please note that as stated in the TOR, a Storm Sewer design sheet was to be provided. While not final design, we ask that this is considered prior to moving forward.*

**Storm sewer design concept has been advanced to provide preliminary sizing, which shall be advanced at ZBA and SPA stages. Please refer to Appendix B for the storm sewer design sheet.**

- 4. The following are comments related to the erosion controls and the 25 mm retention measures discussed within the Functional Servicing and Stormwater Management Report (prepared by IBI dated January 31, 2022):*

- a. The provided hydrogeological study (prepared by IBI dated January 31, 2022) does not appear to provide sufficient details to justify no low impact development (LID) measures within the proposed development. As noted within the Desktop Hydrogeological Investigation (prepared by IBI dated January 31, 2022), though recharge within the site is unlikely, this should be discussed with CH and Town staff during future phases of development. Please acknowledge this and provide additional discussion within the provided SWM report.*

**Duly noted. Please refer to Section 4.7 for additional discussion.**

- b. In the event that infiltration is determined not to be feasible, alternative controls can be incorporated into the overall SWM strategy to demonstrate that best efforts have been made. Please note that low impact development (LID) measures such as green roofs, blue roofs and clean water cisterns can be implements within the overall SWM strategy. Please note that Town staff will not support the use of initial abstraction as a means to provide retention onsite. Please include additional discussion related to alternative LID measures within the report that will be future investigated during the detailed design stage.*

**Duly noted. Additional discussion related to alternative LID measures has been included in Section 4.7.**

- c. OGS sizing has not been provided. While it is understood that the design is still in the conceptual phase, is there any additional info that can be provided for the sizing of this system. Additionally, how will the OGS be maintained? The OGS is located in the middle*

*of the Sheppard Road Extension and may cause issues from a future maintenance perspective.*

**Detailed design of water quality units shall be completed at the ZBA and SPA stages. In order to comply with Conservation Halton requirements, a Contech Stormfilter® shall be used in place of an OGS.**

**On-site quality controls shall be provided for each development block. The Stormfilter® units within the Shepherd Road and St. Augustine Drive extensions are required to provide cleansing for runoff from the municipal rights-of-way. The units have been relocated next to the curb return for maintenance access.**

**Please refer to Section 4.6 and drawings SS-01 through SS-04 for location of water quality units.**

5. *The following are high level comments related to the proposed short-term dewatering (during construction dewatering) and long-term dewatering (post construction dewatering) that was discussed within the Desktop Hydrogeological Investigation (prepared by IBI dated January 31, 2022):*

- a. *Please note that the town does not have a formal application form for the short-term discharges, but we do have a process for considering these types of discharges. Please note that future consultation with Town staff will be required during the detailed design stage; prior to construction.*

**The hydrogeologist shall respond under separate cover.**

- b. *Section 4.1 of the report discussed the option to discharge groundwater into the municipal storm sewer. With respect to a long-term groundwater discharge (post construction dewatering) to the municipal storm sewer, this is not permitted. Town staff requests that a meeting with the proponent's consultant and the Town be completed prior to proceeding to detailed design to discuss long-term dewatering for the subject development.*

**The hydrogeologist shall respond under separate cover.**

- c. *The hydrogeological investigation appears to be limited to a desktop exercise and did not include any formal soil testing and groundwater monitoring. Please confirm whether a more formal investigation is required and whether this will be included during the detailed design stage.*

**The hydrogeologist shall respond under separate cover.**

6. *The following are comments related to the general layout of the development under proposed conditions:*

- a. *Urban square does not fit in proposed area and encroaches into the daylight. Please revise as needed.*

**The planner shall respond under separate cover.**

- b. *Grading plans have not included any details related to the future retaining wall on Kerr. Has there been any discussion relating to the integration of this site as it related to the future Kerr Street Design? Please advise. Additionally, if the future Kerr street design does not move forward, please provide addition information as to how the site moves forward and how the site layout will change.*

**Grading has been revised per new phasing provided by USI which includes site layout with and without the Kerr Street grade separation.**

- c. *Possible LID locations have not been noted in the plans. Are they going to be located on private or public lands? Additionally, please note that LIDs will not likely function as intended if locate above underground structures as infiltration will be limited.*

**Locations of LID structures are to be determined at the detailed design phase. As the Town has indicated that LID structures within the municipal right-of-way are not preferred, proposed LID structures will likely be within private lands only. Infiltration measures have not been proposed given the extent of the underground structures and high water table. Alternatively, LID measures such as green roofs, blue roofs, and clean water cisterns may be used, which will be coordinated with the architect and landscape consultant during the detailed design phase. Please refer to Section 4.7.**

- d. *It appears that there are public sewers proposed on private land. Please note that the Town typically does not support this due to potentially maintenance issue down the road. Please confirm the limits of potential SWM blocks that may be required to be conveyed.*

**Sewer design has been revised. Public sewers are only proposed within the public right-of-way. Please refer to drawings SS-01 and SS-02.**

- e. *There appears to be a low point at the SE corner by Building 1 in Area C. Is this intentional? Please advise.*

**Grading has been adjusted to remove the low point.**

We trust that you will find this submission complete and satisfactory. Should you have any questions, please contact this office.

In closing, we thank you in advance for your assistance in processing this submission and for your continued cooperation.

Yours sincerely,  
**IBI GROUP**

Shirley Beaudoin  
CAD Technologist  
Land Engineering

Final Report

# FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT REPORT

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530, 550, 588 Kerr Street and 131, 171 Speers Road, Oakville,  
Ontario



Prepared for Urban Strategies Inc  
by IBI Group  
IBI GROUP Project #137021  
May 19, 2022

# Document Control Page

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<b>CLIENT:</b>	Urban Strategies Inc.
<b>PROJECT NAME:</b>	530, 550, 588 Kerr Street and 131, 171 Speers Road Town of Oakville, Ontario
<b>REPORT TITLE:</b>	Functional Servicing and Stormwater Management Report
<b>IBI REFERENCE:</b>	Project #137021
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<b>DIGITAL MASTER:</b>	137021 Urban Strategies Inc._Environmental and Ecology_Upper Kerr Village - Internal Documents\6.0 Technical\6.04 Civil\03 Reports\OPA
<b>ORIGINATOR:</b>	S. Beaudoin, CAD Technologist, Land Engineering
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<b>AUTHORIZATION:</b>	J. Jenkins, P.Eng., P.E., Associate Manager, Land Engineering
<b>CIRCULATION LIST:</b>	M. Hare, I. Molendowski, K. Lamizana, & Y. Zhu, Urban Strategies Inc.
<b>HISTORY:</b>	January 31, 2022 – Official Plan Amendment
	May 19, 2022 – Official Plan Amendment

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# 1 Introduction

## 1.1 Background

IBI GROUP PROFESSIONAL SERVICES (CANADA) INC. (IBI GROUP) has been retained by Urban Strategies Inc. to prepare a Functional Servicing and Stormwater Management Report on behalf of April Investments Limited (owner of 588 Kerr Street), 527079 Ontario Limited (owner of 530 Kerr Street), Trans County Development Corporation Limited (owner of 131 Speers Road), and Oakville Developments (2010) Inc. (owner of 550 Kerr Street) (together known as the “landowners”). This document updates the Functional Servicing and Stormwater Management Report for a proposed Official Plan Amendment (OPA) for the subject site, submitted in November 2021 (File No. OPA1616.56) with its February 2022 technical reports and studies to permit the comprehensive redevelopment and intensification of lands municipally addressed 530, 550, 580 Kerr Street, 131 and 171 Speers Road (together known as the “subject site”), in the Town of Oakville (the “Town”), Halton Region (the “Region”). The purpose of this report is to discuss the feasibility of servicing the site from a municipal servicing strategy. More specifically, the report will present the following:

- Calculate allowable stormwater runoff rates for the development;
- Identify suitable methods for attenuation and treatment of stormwater runoff;
- Identify storm servicing opportunities and constraints;
- Identify sanitary servicing opportunities and constraints and evaluate the capacity of the receiving municipal sewer; and,
- Identify water servicing opportunities and constraints, calculate the proposed domestic water and firefighting supply needs; and evaluate the capacity of the municipal infrastructure.

The following documents have been obtained from various sources:

- Town of Oakville plan and profile drawings for Speers Road, dated February 1975;
- Halton Region plan and profile drawings for Speers Road and Kerr Street, dated November 2006 and September 2019;
- Mechanical Plan for 171 Speers Road, dated March 1987;
- Kerr Street Grade Separation New Construction RCD Plan, dated October 2020;
- Conceptual plans and site statistics prepared by Urban Strategies Inc.; and,
- Topographic survey prepared by KRCMR Surveyors Ltd., dated January 26, 2022.

## 1.2 Existing Site Description

The 4.85 ha site is bounded by Speers Road to the south, Kerr Street to the east, a CN rail corridor to the north, and a single storey heritage building to the west. Please see **Figure 1** following the report for an aerial view of the site.

The subject site currently hosts a commercial plaza and retail buildings with asphalt parking surfaces fronting Kerr Street at 131 Speers Road, 530, 550, 588 Kerr Street, and a cinema and education centre with an asphalt parking surface at 171 Speers Road.

It should be noted that Metrolinx is in the planning stages of the Kerr Street grade separation project, which will see changes to the horizontal alignment and profile of Kerr Street to accommodate an underpass beneath the CN rail corridor. At the time of preparation of this report, Metrolinx has indicated that the project has been delayed indefinitely, however the Town has indicated that the Proposal should incorporate a phasing strategy to accommodate the future underpass. Please refer to **Appendix A** for plan and profile drawings of the future underpass.

Under existing conditions, surface elevations at the subject site range from approximately 100.9 m to 104.3 m and generally slope in a southeasterly direction. As previously mentioned, the existing profile of Kerr Street is expected to change as part of the Metrolinx underpass project, however retaining walls shall be used to minimize property impact.

## 1.3 Site Proposal

The Proposal contemplates the construction of mixed-use buildings ranging from eight to 26 storeys with an approximate total residential gross floor area (GFA) of 171,310 m<sup>2</sup> and commercial GFA of 7,920 m<sup>2</sup> and a 1 acre (4,036 m<sup>2</sup>) park central to the site. The four parcels fronting Kerr Street have been revised based on the Metrolinx expropriation related to the aforementioned grade separation project.

The site is proposed to be constructed in four phases as follows:

### Phase 1

Phase 1 will see the construction of mixed-use buildings at 530, 550, 588 Kerr Street and 131 Speers Road. A private street will extend from Speers Road to provide access to the proposed buildings. A public park and POPS space is proposed to the west of the private street.

### Phase 2

Phase 2 will see the construction of mixed-use buildings at 171 Speers Road. It is proposed to extend St. Augustine Drive north of Speers Road into the site and to connect the private street to this extension. The public park shall be expanded to 1 acre (4,036 m<sup>2</sup>).

### Phase 3

It is expected that the Kerr Street grade separation project shall be completed prior to Phase 3. Phase 3 will see additional residential units and retail space at 530 Kerr Street and 131 Speers Road. It is proposed to extend Shepherd Road east of Kerr Street into the site where it will connect to the St. Augustine Drive extension and to the private street. The private street connection to Speers Road is to be removed.

#### Phase 4

Phase 4 will see the construction of additional residential and retail space at 550 & 588 Kerr Street.

Please refer to **Appendix A** for conceptual site plan drawings and statistics for each phase.

### 1.4 Service Connections

Individual sanitary and domestic services shall be provided per Halton Region standards. Individual storm services may be provided for each building or may be shared if the buildings share a common underground level. The servicing strategy shall be advanced at the detailed design stage.

Furthermore, the Ontario Building Code (OBC) requires two fire service connections separated by an isolation valve for any building above 84 m in height. Should the buildings exceed this threshold, a secondary fire service will be required.

Site servicing requirements will be discussed in greater detail in subsequent sections.

## 2 Terms of Reference and Methodology

### 2.1 Terms of Reference

The terms of reference used for the scope of this report have been based on the Town of Oakville's Development Engineering Procedures and Guidelines, the Town of Oakville's Stormwater Management Master Plan, dated November 2019, and the Regional Municipality of Halton's Water and Wastewater Linear Design Manual, dated October 2019.

### 2.2 Methodology: Stormwater Management

This report provides a brief stormwater management (SWM) review of the pre-development conditions, post-development conditions, and comments on opportunities to reduce peak flows.

Per the Town's Development Engineering Procedures and Guidelines and Stormwater Management Master Plan, the following SWM criteria shall apply:

#### **Quantity Control**

Quantity control is required where increased storm runoff, due to development, will cause detrimental impacts via flooding and erosion. The post-development peak runoff rate shall not exceed the pre-development levels for all events up to the 100-year storm. An overland flow route (major system) shall be provided within the developed site to direct runoff in excess of the 100-year storm to an approved overland flow outlet.

#### **Quality Control**

Quality treatment of storm water is required with the level of treatment to be determined by Conservation Halton based on the receiving system, which is Sixteen Mile Creek. Conservation Halton has indicated that long-term average removal of 80% of the total suspended solids (TSS) on an annual loading basis is required.

#### **Erosion Control**

Conservation Halton recommends retention of the 25 mm design storm over 24 hours or demonstration that erosion potential has been reduced to the extent feasible.

#### **Source Control Capture**

The criteria provided in the Town's Stormwater Management Master Plan outline that controls should be in place, such that the runoff resulting from a 25 mm rainfall event must be captured on-site through a combination of initial abstraction, rainwater re-use, infiltration, and storage.

## 2.3 Methodology: Sanitary Discharge

Pre- and post-development peak sewer flows will be calculated based on the following Region design criteria:

**Table 2.1 Sanitary Design Parameters**

DESIGN FLOWS		POPULATION DENSITIES	
Existing Domestic Flow	275 L/c/day	Residential Commercial or Retail	2.7 pp/unit 90 pp/ha
Proposed Residential	275 L/c/day		
Proposed Commercial	24.75 m <sup>3</sup> /ha/day		
Infiltration Allowance	0.286 L/s/ha		
Peaking Factor	Harmon equation		

It should be noted that the residential population density that shall be used is greater than the population densities provided in Table 2-1 of the Region's Design Manual. As the conceptual site plan indicates higher than typical density, 2.7 pp/unit shall be used as a conservative measure.

Based on the calculated peak flows, the adequacy of the existing infrastructure to support the proposed development will be discussed.

## 2.4 Methodology: Water Supply

The domestic water usage will be calculated based on the following Region design criteria:

**Table 2.2 Water Design Parameters**

AVERAGE DAILY DEMAND		PEAKING FACTORS		
		LAND USE	PEAK HOUR	MAX DAY
Residential	275 L/c/day	Residential	4.00	2.25
Commercial	275 L/c/day	Commercial	2.25	2.25

Pressure and flow testing to determine the adequacy of the existing watermain to support the development with fire suppression in accordance with the Fire Underwriters Survey (FUS) Guidelines will be discussed in the subsequent sections.

## 3 Groundwater Discharge

The number of underground levels, soil conditions, and location of the water table will all factor into groundwater discharge rates. IBI GROUP has prepared a Desktop Hydrogeological Investigation that indicates dewatering will likely be required. Typically, groundwater discharge is directed to the storm sewer, however as noted in the Hydrogeological Investigation groundwater contamination was identified at the site, which may require groundwater to be discharged to the sanitary sewer. A discharge agreement with Halton Region will be required should discharge to the sanitary sewer be deemed necessary.

It is recommended that site specific environmental, geotechnical, and hydrogeological assessments be carried out to further understand existing groundwater conditions.

## 4 Stormwater Management

### 4.1 Pre-Development Storm Drainage System

Per the Town's record information, local storm infrastructure consists of:

- A 375 mm storm sewer within Kerr Street that conveys flows in a southerly direction to a 1050 mm storm sewer within Speers Road that conveys flows in an easterly direction;
- A 450 mm storm sewer within Speers Road that increases to 750 mm diameter and then 900 mm diameter in the vicinity of the subject site and conveys flows in an easterly direction to the 1050 mm storm sewer; and,
- A 300 mm storm sewer within Speers Road that conveys flows in a westerly direction to a 500 mm storm sewer within St. Augustine Drive that conveys flows in a southerly direction.

As previously mentioned, it is expected that the Kerr Street grade separation project shall be completed by Metrolinx prior to Phase 3 of the development. Metrolinx drawings indicate that a new 600 mm storm sewer shall be constructed within Kerr Street which shall increase in size to a 1,050 mm storm in the vicinity of the site and ultimately convey flows to an outlet to Sixteen Mile Creek.

Please refer to the Town's and Metrolinx's plan and profile drawings which can be found in **Appendix A**.

Under pre-development conditions, a 1.04 ha portion of the site (A1 Pre) drains overland to Kerr Street where it is conveyed to the existing 375 mm storm sewer. A 1.92 ha portion of the site (A2 Pre) flows to catchbasins in the parking areas, which are assumed to convey flows to the 750 mm storm sewer within Speers Road. This shall be confirmed through an on-site investigation at a later stage. The remaining 1.89 ha portion of the site (A3 Pre) flows to the 750 mm storm sewer within Speers Road as shown in existing mechanical plans. The entirety of the site ultimately flows to the 1050 mm storm sewer within Speers Road.

Given the age of the existing development, it is unlikely that there are any formal quantity controls in place, however this shall be confirmed at a later stage through an on-site investigation.

Please refer to existing mechanical plans for 171 Speers Road which can be found in **Appendix A** and Figure **DAP-1** which can be found in **Appendix B**.

### 4.2 Grading

Under pre-development conditions the site generally slopes in a southeasterly direction with emergency overland flow routed to Speers Road. A high point within Speers Road occurs in the vicinity of the site so that the major drainage pathway for the west portion of the site ultimately flows westerly along Speers Road while the major drainage pathway for the east portion of the site ultimately flows easterly along Speers Road.

The proposed grades will match current drainage patterns wherever feasible. Grades will be maintained along property lines to the extent practical. Emergency overland flow route in excess of a 100-year storm event will continue to be directed southerly to Speers Road, matching pre-development conditions. Please refer to Figures **DAP-1** and **DAP-2** which can be found in **Appendix B** and the Preliminary Site Grading Exhibit (**SG-01** through **SG-04**) which can be found in **Appendix E**.



### 4.3 Allowable Release Rate

As required by the Town, the post-development peak runoff rate shall not exceed the pre-development levels for all events up to the 100-year storm.

As previously mentioned, portions of the site drain to both Kerr Street and Speers Road under pre-development conditions, with the entire site ultimately conveyed to the 1050 mm storm sewer within Speers Road. While the site is mainly comprised of impervious surfaces, there are some landscaped areas resulting in pre-development runoff coefficients ranging from 0.84 to 0.90 for each area.

The allowable release rates for each phase are summarized below.

#### Phase 1

The pre-development drainage area for Phase 1 consists of areas A1 Pre and A2 Pre. Using the AES Toronto (Bloor Street) IDF data as required by the Town, the pre-development release rate is summarized as follows:

**Table 4.1 Pre-Development Peak Flows: Phase 1**

STORM EVENT	PEAK FLOW TO KERR STREET (L/s)	PEAK FLOW TO SPEERS ROAD (L/s)	TOTAL PEAK FLOW (L/s)
2-Year	240	368	608
5-Year	334	511	845
10-Year	394	603	997
25-Year	474	726	1200
50-Year	533	815	1347
100-Year	587	899	1486

The total release rate shall not exceed the total pre-development peak flows for all events up to the 100-year storm as shown above. Please refer to **Appendix B** for the detailed calculations.

Phase 2

The pre-development drainage area for Phase 2 consists of area A3 Pre. Using the AES Toronto (Bloor Street) IDF data as required by the Town, the pre-development release rate is summarized as follows:

**Table 4.2 Pre-Development Peak Flows: Phase 2**

STORM EVENT	PEAK FLOW (L/s)
2-Year	362
5-Year	503
10-Year	593
25-Year	714
50-Year	801
100-Year	884

The release rate shall not exceed pre-development peak flows for all events up to the 100-year storm as shown above. Please refer to **Appendix B** for the detailed calculations.

Phases 3 & 4

As previously mentioned, it is expected that the Kerr Street grade separation project shall be completed prior to Phase 3, which will see the construction of a new storm sewer within Kerr Street. The Metrolinx drawings indicate that flows from a 0.73 ha portion of the subject site are to be conveyed to the proposed storm sewer. It is therefore assumed that the sewer has been designed to accommodate the equivalent peak flows from the subject site. The allowable release rate to this storm sewer is summarized as follows:

**Table 4.3 Allowable Release Rate to Proposed Underpass Storm Sewer**

STORM EVENT	PEAK FLOW (L/s)
2-Year	150
5-Year	208
10-Year	246
25-Year	296
50-Year	332
100-Year	366

The release rate to the proposed underpass sewer shall not exceed the peak flows for all events up to the 100-year storm as shown above. Please refer to **Appendix B** for the detailed calculations.

## 4.4 Post-Development Storm Drainage

As previously mentioned, the post-development release rate for the subject site shall be limited to the pre-development release rate for all storm events up to the 100-year storm. As the detailed landscape design has not been completed at this stage, a post-development runoff coefficient of 0.90 shall be used as a conservative measure.

Post-development drainage patterns shall match pre-development drainage patterns to the extent feasible and are summarized for each phase below.

### Phase 1

Flows from a 1.71 ha portion of the Phase 1 lands shall be conveyed to Kerr Street (A1 Post). The area draining to Kerr Street has been increased from the pre-development condition due to proposed underground levels below the private road which limit the opportunity to convey flows to the 900 mm storm sewer within Speers Road. Flows from the remaining 1.25 ha portion of the Phase 1 lands shall be conveyed to Speers Road (A2 Post). Please refer to figure **DAP-2** in **Appendix B**.

Post-development flows from the Phase 1 area are summarized as follows:

**Table 4.4 Post-Development Peak Flows: Phase 1**

STORM EVENT	PEAK FLOW TO KERR STREET (L/s)	PEAK FLOW TO SPEERS ROAD (L/s)	TOTAL PEAK FLOW (L/s)
2-Year	351	257	608
5-Year	488	357	845
10-Year	576	421	997
25-Year	693	507	1200
50-Year	778	569	1347
100-Year	858	628	1486

As shown above, the total post-development flows do not exceed pre-development flows, however the flows to Kerr Street are increased in the post-development condition. As such, quantity controls such as underground or rooftop storage, or upgrades to the existing 375 mm storm sewer within Kerr Street shall be required, or a combination thereof. This shall be discussed further in the subsequent section.

As flows to Speers Road are decreased, it is expected that the 900 mm storm sewer will have adequate capacity to support the post-development flows.

Phase 2

Flows from the 1.89 ha Phase 2 lands (A3 Post) shall be conveyed to Speers Road, matching pre-development drainage patterns. Please refer to figure **DAP-2** in **Appendix B**. Post-development flows from this area are summarized as follows:

**Table 4.5 Post-Development Peak Flows: Phase 2**

STORM EVENT	PEAK FLOW (L/s)
2-Year	388
5-Year	540
10-Year	637
25-Year	766
50-Year	860
100-Year	949

As shown above, left uncontrolled the post-development release rate will exceed the pre-development release rate from this area for all storm events. It is therefore proposed that quantity controls such as rooftop or underground storage be put in place to limit peak flows. The design of quantity controls shall be further refined at the ZBA and SPA stages.

It should be noted that the post-development runoff coefficient may be reduced should the site plan include green roof and landscaped areas, which may negate the need for quantity controls.

Phases 3 & 4

As previously mentioned, it is expected that a new storm sewer will be constructed within Kerr Street prior to Phase 3 as part of the Kerr Street grade separation project. As the grade separation project includes a significant change in grade along Kerr Street, the upper leg of the existing storm sewer within Kerr Street is to be abandoned. It is therefore proposed that area A1 Post be divided into two drainage areas with flows from the north portion conveyed to the proposed underpass sewer (A4 Post) and flows from the south portion continuing to be conveyed to the existing storm sewer within Kerr Street. Please refer to Figure **DAP-3** in **Appendix B**.

Total post-development flows from the subject site in Phases 3 and 4 are summarized as follows:

**Table 4.6 Post-Development Peak Flows: Phases 3 and 4**

STORM EVENT	PEAK FLOW TO UNDERPASS (L/s)	PEAK FLOW TO KERR STREET (L/s)	PEAK FLOW TO SPEERS ROAD (L/s)	TOTAL PEAK FLOW (L/s)
2-Year	205	146	645	996
5-Year	286	203	897	1385
10-Year	337	239	1058	1634
25-Year	405	288	1273	1966
50-Year	455	323	1429	2207
100-Year	502	356	1576	2435

As shown above, flows to the underpass sewer exceed the allowable release rate to this sewer, therefore controls such as rooftop or underground storage shall be put in place to limit peak flows. The design of quantity controls shall be further refined at the ZBA and SPA stages.

As flows to the existing Kerr Street and Speers Road sewers are either reduced or unchanged from Phase 1 and Phase 2 conditions, no further quantity controls or upgrades to these sewers shall be required during Phases 3 and 4.

Please refer to **Appendix B** for the detailed calculations and drainage area plans for all phases of the development.

## 4.5 Proposed Storm Sewers

It is proposed that new storm sewers be installed during Phases 1, 2, and 3 as summarized below.

### Phase 1

As previously mentioned, the post-development flows to Kerr Street shall be increased in Phase 1, which will require quantity controls or replacement of the existing 375 mm storm sewer within Kerr Street, or a combination thereof. After reviewing the existing invert elevations of the 375 mm storm sewer within Kerr Street it was determined that this sewer is too shallow to service the subject site.

Therefore, it is proposed to replace the existing 375 mm sewer from its upstream end at the intersection of Kerr Street and Shepherd Road to its connection to the 1050 mm storm sewer within Speers Road with a deeper, larger diameter sewer. This shall serve to provide the subject site with a suitable outlet within Kerr Street. Detailed design of this sewer shall be completed at the ZBA and SPA stages. It is expected that further coordination with the Town will be required at these stages.

It is proposed to install a new 450 mm storm sewer within the subject site in the location of the future Shepherd Road extension which shall convey flows to the new municipal storm sewer within Kerr Street. As this sewer shall ultimately be connected to the future underpass sewer during Phase 3 of the development, quantity controls shall be put in place to limit flows from this sewer to the maximum allowable release rate as shown in **Table 4.3**.

Detailed design of quantity controls and proposed sewers shall be completed at the ZBA and SPA stages. Please refer to the preliminary sewer design sheet in **Appendix B** and the preliminary site servicing exhibit (**SS-01**) in **Appendix E**.

### Phase 2

It is proposed to install a new storm sewer within the St. Augustine Drive extension connecting to the existing 900 mm storm sewer within Speers Road. As previously mentioned, quantity controls shall be required to limit flows from the Phase 2 area to pre-development levels. This can be achieved through a combination of on-site controls and/or an oversized pipe within the municipal right-of-way.

Detailed design of quantity controls and proposed sewers shall be completed at the ZBA and SPA stages. Please refer to the preliminary sewer design sheet in **Appendix B** and the preliminary site servicing exhibit (**SS-02**) in **Appendix E**.

### Phase 3

As previously mentioned, the Town of Oakville anticipates that the Kerr Street grade separation project shall be completed prior to Phase 3. The upper leg of the storm sewer within Kerr Street shall be abandoned and the 450 mm storm sewer within the Shepherd Road extension shall be connected to the proposed 600 mm storm sewer within the Kerr Street underpass. Quantity controls shall be in place to limit flows to this sewer to the allowable release rate shown in **Table 4.3**.

It is expected that further coordination with Metrolinx and the Town will be required at the ZBA and SPA stages. Please refer to the preliminary sewer design sheet in **Appendix B** and the preliminary site servicing exhibit (**SS-01**) in **Appendix E**.

It should be noted that there are no new sewers associated with Phase 4.

## 4.6 Quality Control

As outlined in **Section 2.2**, 80% of total suspended solids (TSS) must be removed from site runoff to provide enhanced cleansing. On-site quality controls shall be provided for each development block and for the municipal rights-of-way. This shall be achieved through a combination of low impact development (LID) measures and water quality units.

LID measures shall be prioritized and used where possible, however the majority of the site is not suitable for infiltration measures due to the extent of the underground levels. Water quality units shall be used where LID measures are not feasible. The design of these systems shall be advanced at the ZBA and SPA stages.

While on-site quality controls will be required for each development block, the new municipal road will also require 80% TSS removal. It is proposed that a Contech Stormfilter® unit be installed at the downstream ends of proposed storm sewers within the new municipal rights-of-way. It should be noted that the Stormfilter® system has been accredited by ETV Canada to provide the required 80% TSS removal.<sup>1</sup> Any proposed substitutions will require approval from both the engineer of record and the Town.

Please refer to the site servicing exhibits **SS-01** and **SS-02** which can be found in **Appendix E**.

## 4.7 Erosion Control and Source Control Capture

As required by Conservation Halton and the Town, a rainfall depth of 25 mm must be retained over the entire area of development. It is anticipated that a combination of water re-use, LID measures, and rooftop and underground storage will be incorporated.

As previously mentioned, infiltration measures are likely unfeasible due to the extent of underground parking levels, therefore no significant recharge is expected to be provided. This shall be discussed further with Town and Conservation Authority staff during future phases of development.

LID measures that may be suitable for the subject site include green roofs, blue roofs, and clean water cisterns. These systems shall be investigated further at the detailed design stage. Please refer to the Preliminary Site Servicing Exhibit (**SS-01** and **SS-02**) in **Appendix E** for conceptual LID locations.

## 4.8 Storm Service Connections

It is proposed to connect storm services for each building to the proposed storm sewers within the new municipal roadways and Kerr Street, and to the existing 900 mm storm sewer within Speers Road. The stormwater management approach will be further refined at the ZBA and SPA stages. The location of the existing and conceptual storm infrastructure is shown on the preliminary site servicing exhibits (**SS-01** through **SS-04**) which can be found in **Appendix E**.

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<sup>1</sup> <https://etvcanada.ca/home/verify-your-technology/current-verified-technologies/>

## 5 Sanitary Drainage System

### 5.1 Existing Sanitary Drainage System

The subject site is located within the Oakville Southwest wastewater treatment plant (WWTP) drainage area. Per the Town's and Region's record information, local sanitary infrastructure consists of:

- a 300 mm sanitary sewer within Kerr Street that conveys flows in a southerly direction;
- a 300 mm sanitary sewer within Kerr Street that conveys flows in a southerly direction to a 300 mm sanitary sewer within Shepherd Avenue that conveys flows in an easterly direction; and,
- a 200 mm sanitary sewer within Speers Road that conveys flows in a westerly direction to a 200 mm sanitary sewer within St. Augustine Drive that conveys flows in a southerly direction.

The sanitary sewers indicated above ultimately convey flows to a trunk sewer within Rebecca Street, approximately 1.1 km south of the subject site.

As previously mentioned, the Kerr Street grade separation project will require relocation of the sewers within Kerr Street. Metrolinx drawings indicate that the upstream leg of the existing 300 mm sanitary sewer within Kerr Street is to be abandoned and a new sanitary sewer is proposed to convey flows from the subject site to the existing sewer.

Please refer to the Town's and Region's plan and profile drawings which can be found in **Appendix A** and Region's wastewater system map which can be found in **Appendix C**.

### 5.2 Pre-Development Sanitary Design Flow

As previously mentioned, the site currently hosts a commercial plaza and buildings with a total commercial area of 1.7 ha resulting in a total population of 153. The corresponding pre-development peak sanitary flow is calculated as follows:

$$Q_{\text{Pre-Dev.}} = (Q_{\text{Residential}} + Q_{\text{Commercial}}) \times \text{P.F.} + I/I$$

$$Q_{\text{Pre}} = \left( \frac{24.750 \text{ m}^3/\text{ha} \cdot \text{d} \cdot 1.7 \text{ ha} \cdot 3.55_{\text{P.F.}} \cdot 1000 \text{ L} / \text{m}^3}{86400 \text{ s} / \text{day}} \right) + (0.286 \text{ L/s} \cdot \text{ha} \cdot 4.8 \text{ ha}) = 3.1 \text{ L/s}$$

### 5.3 Post-Development Sanitary Design Flow

Based on the criteria set in **Section 2.3** and the conceptual site plan and statistics provided by the planner, the corresponding post-development sanitary flow is calculated as follows:

$$Q_{\text{Post-Dev.}} = (Q_{\text{Residential}} + Q_{\text{Commercial}}) \times \text{P.F.} + I/I$$

$$Q_{\text{Post}} = \left( \frac{(275 \text{ L/c} \cdot \text{d} \cdot 4973 \text{ pers} + 24.750 \text{ m}^3/\text{ha} \cdot \text{d} \cdot 1000 \text{ L/m}^3 \cdot 0.79 \text{ ha}) \cdot 3.22_{\text{P.F.}}}{86400 \text{ s} / \text{day}} \right) + (0.286 \text{ L/s} \cdot \text{ha} \cdot 4.8 \text{ ha}) = 53.1 \text{ L/s}$$

As shown above, the subject site represents an increase in dry weather flow. Further analysis using the Region's wastewater hydraulic model should be completed at the zoning by-law application (ZBA) stage to determine if there are any negative impacts on the municipal system.



## 5.4 Proposed Sanitary Sewer

It is proposed to install new sanitary sewers in Phase 1 and Phase 2 as summarized below.

### Phase 1

It is proposed that a new 300 mm sanitary sewer be installed within the future Shepherd Road extension and connect to the existing 300 mm sanitary sewer within Kerr Street, as indicated in the Metrolinx drawings for the underpass. This sewer shall serve 550 and 588 Kerr Street and shall be sized to accommodate the ultimate Phase 4 flows for this area as shown:

**Table 5.1 Sanitary Sewer Performance: 550 & 588 Kerr Street**

AREA	FROM	TO	SIZE (MM)	SLOPE	PEAK FLOW (L/S)	CAPACITY (L/S)	PERCENT OF FULL FLOW
550 & 588 Kerr Street	MH1A	EX. SAN	250	0.5%	27.8	43.9	63.4%

As shown above, the proposed sanitary sewer can convey the peak sanitary discharge while operating at 63.4% (or less) of full flow capacity. Please see the detailed design sheet which can be found in **Appendix C** and the Preliminary Site Servicing Exhibit (**SS-01** through **SS-04**) which can be found in **Appendix E**.

### Phase 2

It is proposed that a new 200 mm sanitary sewer be installed within the St. Augustine Drive extension and connect to the existing 200 mm sanitary sewer within Speers Road to service 171 Speers Road. This sewer shall be sized to accommodate the ultimate Phase 4 flows for this area as shown:

**Table 5.2 Sanitary Sewer Performance: 171 Speers Road**

AREA	FROM	TO	SIZE (MM)	SLOPE	PEAK FLOW (L/S)	CAPACITY (L/S)	PERCENT OF FULL FLOW
171 Speers Road	MH6A	EX. SAN	200	0.6%	15.7	26.5	59.2%

As shown above, the proposed sanitary sewers can convey the peak sanitary discharge while operating at 59% (or less) of full flow capacity. Please see the detailed design sheet which can be found in **Appendix C** and the Preliminary Site Servicing Exhibit (**SS-01** through **SS-04**) which can be found in **Appendix E**.

No additional sanitary sewers are proposed during Phases 3 and 4.

## 5.5 Sanitary Service Connections

As previously mentioned, it is proposed that a new sanitary service be installed for each building and a sanitary service be installed for the park. Each service connection will be installed at a 2.0% slope. Services for buildings at 550 and 588 Kerr Street will be connected to the proposed 300 mm sanitary sewer within the Shepherd Road extension. Services for buildings at 530 Kerr Street & 131 Speers Road will be connected to the existing sewers within Kerr Street and Speers Road. Services for buildings at 171 Speers Road will be connected to the proposed 200 mm sanitary sewer within the St. Augustine Drive extension.

Each service will require a control manhole to be installed at the property line. Please refer to the Preliminary Site Servicing Exhibit (**SS-01** through **SS-04**) which can be found in **Appendix E** for the location of proposed sanitary services in each phase.

At the time of preparation of this report, a detailed breakdown of unit counts for each building was not available. Therefore, the unit count for each area was used to estimate the required service size, however as some addresses have more than one proposed building, this is a conservative measure.

The calculated design flows, nominal full flow capacities, and corresponding residual capacities for all proposed sanitary services are summarized as follows:

**Table 5.3 Sanitary Service Performance**

AREA	PIPE SIZE (MM)	PIPE SLOPE	PEAK FLOW (L/S)	CAPACITY (L/S)	PERCENT OF FULL FLOW
588 Kerr Street	150	2.0 %	14.1	22.5	62.8%
550 Kerr Street	150	2.0 %	14.1	22.5	62.8%
530 Kerr Street & 131 Speers Road	150	2.0 %	17.0	22.5	75.7%
171 Speers Road	150	2.0 %	15.7	22.5	69.9%

As shown above, each sanitary service will convey the post-development peak sanitary flow while operating at 76% or less of full flow capacity. Please see the detailed design sheet which can be found in **Appendix B**.

## 6 Water Supply System

### 6.1 Existing Water Infrastructure

The subject site is located within the Region’s Pressure District O2 (PD O2), which is primarily supplied by Davis Road Booster Pumping Station (PS). Static pressure within PD O2 is governed by the water level within the Eighth Line Reservoir which has a Top Water Level (TWL) of 167.64 m.

Per the Town’s and Region’s record information local water infrastructure consists of a 300 mm watermain within Speers Road and a 300 mm watermain within Kerr Street. Furthermore, a 900 mm feedermain is located within Speers Road and Kerr Street along the frontage of the site. As previously mentioned, the Kerr Street grade separation project may affect the municipal services within Kerr Street. The existing 300 mm watermain within Kerr Street is to be relocated to the west side of the realigned Kerr Street and will be accessible to the site. Please refer to Metrolinx underpass drawings in **Appendix A**.

At the time of preparation of this report, hydrant flow testing was not available, however given the TWL of the Eighth Line Reservoir, static pressure within the system is approximated as follows:

$$p = \rho gh = 1000 \text{ kg/m}^3 \times 9.81 \text{ m/s}^2 \times (167.64 \text{ m} - 103.5 \text{ m}) \times \frac{0.000145 \text{ psi}}{1 \text{ Pa}} = \mathbf{91 \text{ psi}}$$

As shown above, static pressure within the system is expected to be approximately 91 psi. A hydrant flow test shall be provided at the ZBA stage to confirm that the domestic and fire supply demands can be met by the existing water supply network.

### 6.2 Domestic Water Supply Demands

Using the criteria set in **Section 2.4** and the site statistics provided by the planner, the Average Day Demand (ADD), Peak Hour Demand (PHD), and Max Day Demand (MDD) have been calculated, and are summarized as follows:

**Table 6.1 Domestic Water Demands**

AREA	POPULATION	ADD (L/S)	PHD (L/S)	MDD (L/S)
588 Kerr Street	1,165	3.7	14.8	8.3
550 Kerr Street	1,173	3.7	14.8	8.4
530 Kerr Street & 131 Speers Road	1,429	4.5	18.0	10.2
171 Speers Road	1,278	4.0	16.2	9.1
<b>TOTAL</b>	<b>5,045</b>	<b>16.0</b>	<b>63.8</b>	<b>36.1</b>

The domestic supply line for each building will be designed based on PHD while maintaining a minimum available pressure of 40 psi (275 kPa) at the face of the building. Please see **Appendix C** for the detailed calculations.

## 6.3 Fire Supply Demands

The recommended fire flow demand for the subject site has been calculated using the design criteria outlined in the Water Supply for Public Fire Protection Manual, 1999 by the Fire Underwriters Survey (FUS). The recommended fire flow demand has been calculated for the proposed building in the southeast corner of the subject site as this results in the worst-case fire demand, based on its size and proximity to the other proposed and existing buildings.

As the building will be constructed using fire resistive materials, the effective floor area is taken as the largest floor area plus 25% of the two adjacent floors. At the time of preparation of this report, detailed floor area statistics for each storey were not available. As a conservative measure, the area for each floor is taken as the measured ground floor area.

- Effective Floor Area = Largest Floor Area + 25% (two adjoining floors)
- Effective Floor Area = 4417 m<sup>2</sup> + 25% (4417 m<sup>2</sup> + 4417 m<sup>2</sup>)
- Effective Floor Area = 6,626 m<sup>2</sup>

The corresponding floor area and FUS factors will be applied as follows:

**Table 6.2 Fire Underwriters Survey Factors**

CONSTRUCTION COEFFICIENT	BUILDING OCCUPANCY	SPRINKLER ADJUSTMENT	PROXIMITY FACTOR
0.6 (resistive)	- 15 % (limited)	- 30 %	+ 35 %

Using the effective floor area for the building and the appropriate FUS factors, the required fire flow is calculated as follows:

**Table 6.3 Fire Demand Calculations**

FIRE FLOW (F) CALCULATION	APPLYING FUS FACTORS	ADJUSTED FIRE FLOW	TOTAL DEMAND (TD)
$F=220 \cdot 0.6 \sqrt{\text{Area}}$	$F_1=F \cdot 0.85 = 9,350 \text{ L/min}$	$\text{Fire Flow}=F_1 - F_2 + F_3$	$\text{TD}=\text{FF} + \text{MDD}$
$F=220 \cdot 0.6 \sqrt{6,626 \text{ m}^2}$	$F_2=F_1 \cdot 0.30 = 2,805 \text{ L/min}$	$\text{FF}=10,000 \text{ L/min (rnd'd)}$	$\text{TD}=166.7 \text{ L/s} + 36.1 \text{ L/s}$
$F=11,000 \text{ L/min (rnd'd)}$	$F_3=F_1 \cdot 0.35 = 3,273 \text{ L/min}$	$\text{FF}=166.7 \text{ L/s}$	$\text{TD}=202.7 \text{ L/s}$

The fire supply line for each building will be designed based on Total Demand (Fire Flow + MDD) while maintaining a minimum available pressure of 20 psi (140 kPa) at the face of the building. Please see **Appendix C** for the detailed calculations.

## 6.4 Proposed Watermain

To improve fire flow response and water quality through increased circulation, watermain networks should be looped where possible. To satisfy this requirement, a new municipal 300 mm watermain is proposed to be installed within the Shepherd Road and St. Augustine Drive extensions and will be connected to both the existing 300 mm watermain within Speers Road, and the existing 300 mm watermain within Kerr Street.

Please see the Preliminary Site Servicing Exhibit (**SS-01** through **SS-04**) which can be found in **Appendix E** for the location of existing and proposed water infrastructure in interim and ultimate conditions.

## 6.5 Water Service Connections

To service the development, a new 200 mm fire service is proposed to connect to the new watermain within the municipal ROW extensions or to the existing watermains within Speers Road and Kerr Street for each building. A separate 150 mm domestic service will tee off from each fire line within the municipal ROW. A hydrant flow test shall be included in a future submission to confirm service sizes.

A new valve and box shall be installed at the property line for each incoming service, and all required water meters, backflow preventers, and double check valves shall be located inside a mechanical room.

As previously mentioned, the OBC requires two fire services separated by an isolation valve to be installed for any building above 85 m. As the proposed towers may exceed this threshold, a secondary fire service may be required for these buildings.

The National Fire Protection Association (NFPA) considers any building over 23 m in height to be classified as a high-rise building and thus requires a remotely located secondary siamese connection for each zone. As all buildings are expected to exceed this threshold, a second siamese connection for each building will be required. All siamese connections shall be placed within 45 m of a hydrant.

Please see the Preliminary Site Servicing Exhibit (**SS-01** through **SS-04**) which can be found in **Appendix E** for the location of existing and proposed water infrastructure.

## 6.6 Hydrant Coverage

Existing fire hydrants in the vicinity of the site include:

- One (1) hydrant on the west side of Kerr Street, approximately 50 m north of Speers Road;
- One (1) hydrant on the west side of Kerr Street, approximately 20 m north of Shepherd Road;
- One (1) hydrant on the north side of Speers Road, approximately 30 m east of Kerr Street;
- One (1) hydrant on the north side of Speers Road, approximately 100 m east of Kerr Street 10 m east of the existing driveway to 520 Kerr Street);
- Two (2) hydrants on the north side of Speers Road, approximately 15 m west of the existing driveway to 171 Speers Road; and,
- One (1) hydrant on the north side of Speers Road, approximately 50 m east of the existing driveway to 171 Speers Road.

As the Kerr Street grade separation project includes a realignment of Kerr Street, the existing hydrants along Kerr Street may be relocated as a result.

Five hydrants are proposed within the subject site along the new municipal road. These will serve to provide the hydrant spacing required by the Region and shall be strategically placed within 45 m of the proposed siamese connections.

Please see the Preliminary Site Servicing Exhibit (**SS-01** through **SS-04**) which can be found in **Appendix E** for the location of existing and proposed water infrastructure.

## 7 Conclusions and Recommendations

### **Storm Sewer and Stormwater Management**

The objectives of the Town's and Conservation Authority's stormwater management criteria can be met by implementing on-site measures in both interim and ultimate conditions. Post-development peak runoff rates shall be less than pre-development peak runoff rates. Conservation Halton's target for quality control can be met through a combination of LID practises and the installation of a water quality unit. The Town's target for source control capture can be achieved through a combination of initial abstraction and graywater re-use. Details pertaining to the SWM strategy will be advanced during the detailed design stage.

### **Sanitary Sewers**

The proposed sanitary sewers within the new roadway can support the peak sanitary discharge from the development in both interim and ultimate conditions. Further analysis of the downstream system is required to determine the available capacity in the existing sanitary network and any upgrades that may be required.

### **Water Supply**

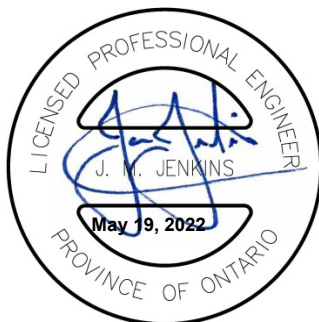
The proposed 300 mm watermain within the new roadway, and the adjacent existing watermain network is expected to have sufficient capacity to support the fire and domestic water demands for the Proposal in interim and ultimate conditions without improvements to the system. Hydrant flow testing shall be provided in a future submission to confirm that domestic and fire demands are met.

In summary, while the site is located in a well-established area within the Town of Oakville, further analysis will be required at the zoning bylaw amendment stage to verify the assumptions made in this report.

Should you have any questions, please do not hesitate to contact the undersigned.

Respectfully Submitted,

**IBI GROUP PROFESSIONAL SERVICES (CANADA) INC.**



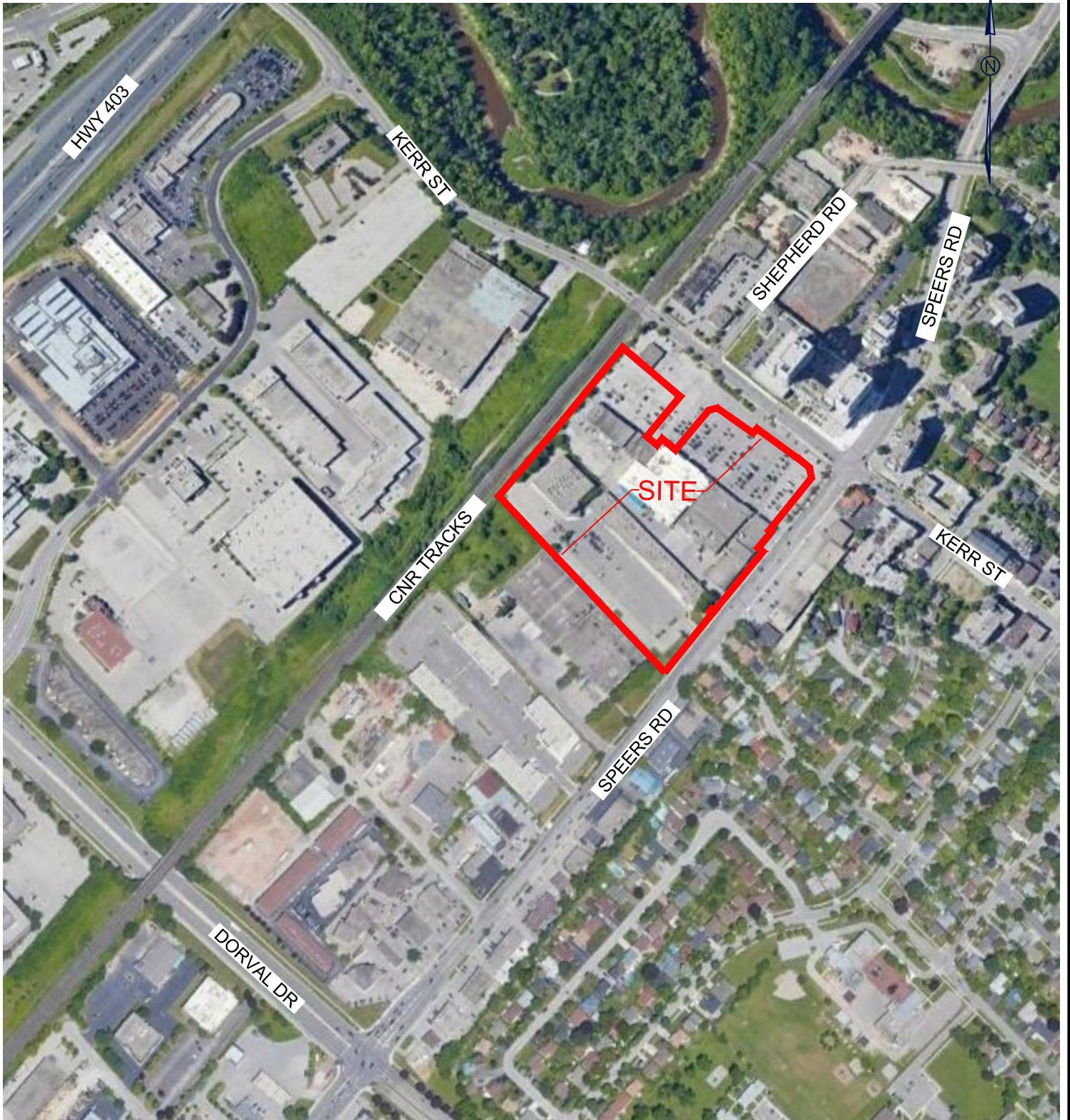
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## Figure 1 – Aerial Plan

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CLIENT  
URBAN STRATEGIES INC.

PROJECT NAME  
530,550,580 KERR STREET  
AND 131,171 SPEERS  
ROAD



**IBI GROUP**  
Unit 300 – 8133 Warden Avenue  
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ibigroup.com

SCALE:  
NTS

DATE:  
2022-01-31

FIGURE NAME  
AERIAL PLAN

FIGURE NO. REVISION

PROJECT ENG:  
JJ

DRAWN BY:  
SB

FIG.1

1

CHECKED BY:  
JJ

APPROVED BY:  
JJ

PROJECT NO:  
137021



# Appendix A

## Background Information

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Conceptual Site Plan and Statistics (Urban Strategies Inc.)

Topographic Survey (KRCMR)

Plan and Profile Drawings (Town of Oakville)

Plan and Profile Drawings (Halton Region)

Plan and Profile Drawings (Metrolinx)

Mechanical Site Plan for 171 Speers Road

## **Revised Proposal Phasing**

# Revised Proposal – Phase 1



	Site Area (sq m)	GFA (sq m)	NFA (sq m)	Retail GFA (sq m)	Residential GFA (sq m)	Units
588 Kerr	9,058	17,800	15,130	400	17,390	187
550 Kerr	8,017	17,060	14,500	400	16,670	183
530 Kerr + 131 Speers	12,398	31,030	26,380	1,540	29,490	317
<b>TOTAL</b>	<b>48,318</b>	<b>65,890</b>	<b>56,010</b>	<b>2,340</b>	<b>63,550</b>	<b>688</b>

550 Kerr Statistics are based on USI Model

# Revised Proposal – Phase 2



	Site Area (sq m)	GFA (sq m)	NFA (sq m)	Retail GFA (sq m)	Residential GFA (sq m)	Units
588 Kerr	9,058	17,800	15,130	400	17,390	187
550 Kerr	8,017	17,060	14,500	400	16,670	183
530 Kerr + 131 Speers	12,398	31,030	26,380	1,540	29,490	317
171 Speers	18,845	48,970	41,620	980	43,710	470
<b>TOTAL</b>	<b>48,318</b>	<b>114,860</b>	<b>97,630</b>	<b>3,320</b>	<b>107,260</b>	<b>1,158</b>

550 Kerr Statistics are based on USI Model

# Revised Proposal – Phase 3



	Site Area (sq m)	GFA (sq m)	NFA (sq m)	Retail GFA (sq m)	Residential GFA (sq m)	Units
588 Kerr	9,058	17,800	15,130	400	17,390	187
550 Kerr	8,017	17,060	14,500	400	16,670	183
530 Kerr + 131 Speers	12,398	52,030	44,230	4,070	47,960	516
171 Speers	18,845	48,970	41,620	980	43,710	470
<b>TOTAL</b>	<b>48,318</b>	<b>135,860</b>	<b>115,480</b>	<b>5,850</b>	<b>125,730</b>	<b>1,356</b>

550 Kerr Statistics are based on USI Model

# Revised Proposal – Phase 4



	Site Area (sq m)	GFA (sq m)	NFA (sq m)	Retail GFA (sq m)	Residential GFA (sq m)	Units	FSI
588 Kerr	9,058	46,290	39,340	920	39,800	428	4.34
550 Kerr	8,017	44,660	34,840	1,940	39,850	428	4.35
530 Kerr + 131 Speers	12,398	52,030	44,230	4,070	47,960	516	3.57
171 Speers	18,845	48,970	41,620	980	43,710	470	2.21
<b>TOTAL</b>	<b>48,318</b>	<b>191,950</b>	<b>163,150</b>	<b>7,920</b>	<b>171,310</b>	<b>1,842</b>	<b>3.38</b>

550 Kerr Statistics are based on Architecture Set Oct 28



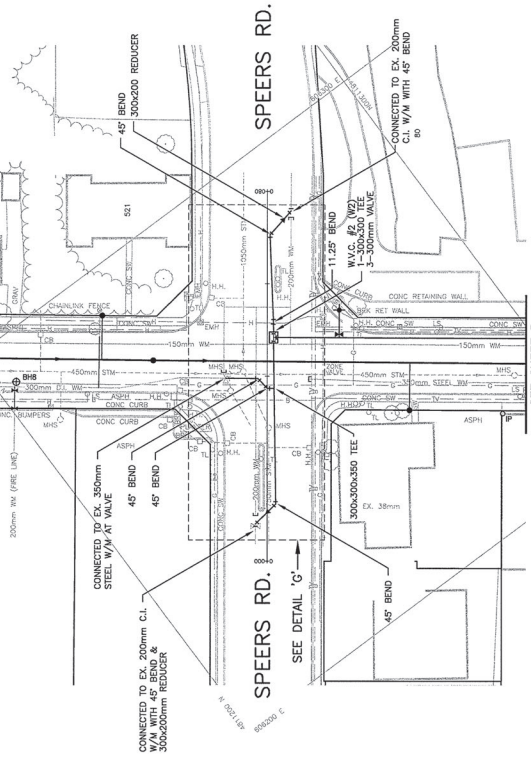








SEE SHEET 4

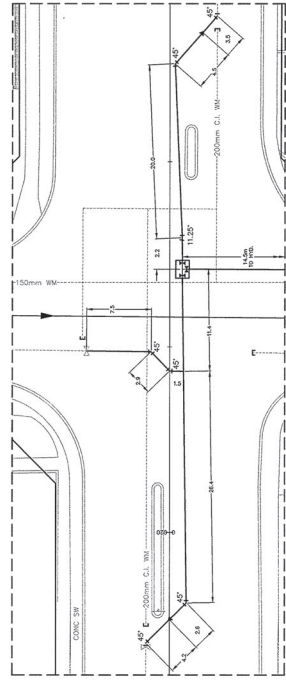


SEE SHEET 5

SPEERS ROAD

- LEGEND**
- ⊕ BODIES TO REMOVAL, INFORMATION RECORD PRODUCT NO. OGDG PREPARED BY LANDTEC LIMITED
  - ⊕ S11
  - |- PLUMS
  - EX. HYDANT REMOVAL
  - EX. S.V. & BOX REMOVAL
  - EX. WC OR EX. MI REMOVAL
  - PROPOSED PROPERTY LINE MANHOLE
  - SAN SEWER

PERSONAL OR PROFESSIONAL INFORMATION IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. ALL INFORMATION SHOULD BE VERIFIED.

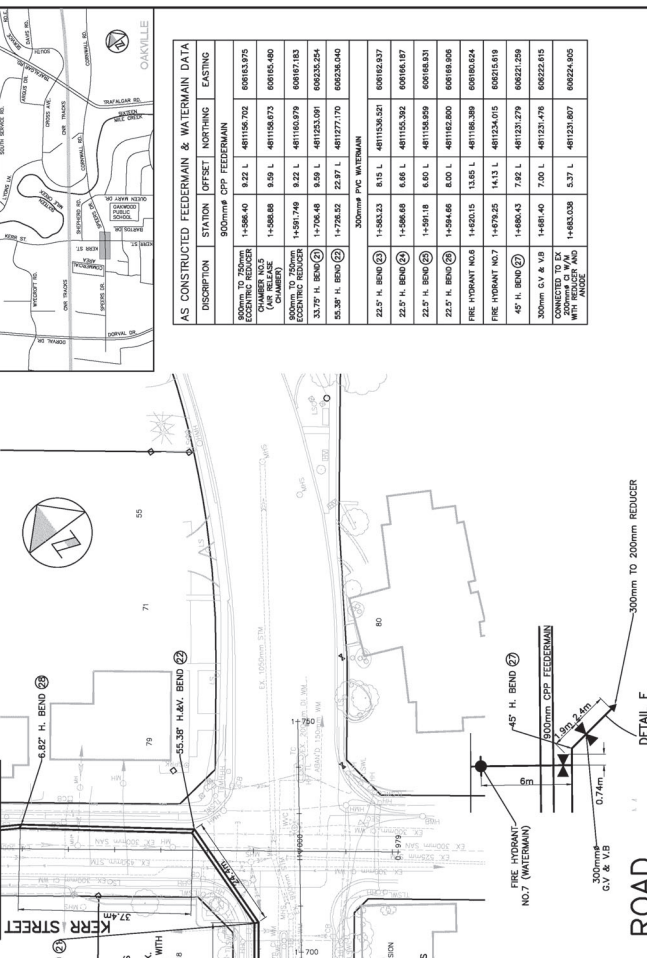


DETAIL 'G'  
CONNECTION DETAIL AT SPEERS RD. & KERR ST.  
N.T.S.

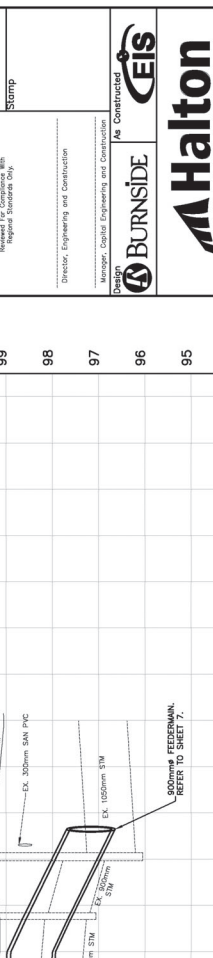
EX. ELEVATIONS	PROPOSED WATERMAIN INVERTS	PROPOSED SANITARY INVERTS	STATIONS
93			0+100
92			0+076.71
91			0+075.35
90			0+046.34
89			0+040.34
88			0+039.20
87			0+025.83
86			0+008.37
85			0+000
EX. ELEVATIONS	8.68m @ 1.50%	1.387m @ 0.00%	99.7
PROPOSED WATERMAIN INVERTS	16.49m @ 3.33%	1.387m @ 0.00%	99.7
PROPOSED SANITARY INVERTS	29.56m @ 0.85%	1.387m @ 0.00%	99.7
STATIONS	101.73	101.87	103.43
			103.44
			104.46
			104.47
			104.48
			104.49
			104.50
			104.51
			104.52
			104.53
			104.54
			104.55
			104.56
			104.57
			104.58
			104.59
			104.60
			104.61
			104.62
			104.63
			104.64
			104.65
			104.66
			104.67
			104.68
			104.69
			104.70
			104.71
			104.72
			104.73
			104.74
			104.75
			104.76
			104.77
			104.78
			104.79
			104.80
			104.81
			104.82
			104.83
			104.84
			104.85
			104.86
			104.87
			104.88
			104.89
			104.90
			104.91
			104.92
			104.93
			104.94
			104.95
			104.96
			104.97
			104.98
			104.99
			105.00

DESIGN: 10/17/2001  
 DATE: MARCH 12, 2001  
 SCALE: 1:500 Horiz. 1:50 Vert.  
 APPROVALS: [Signature]  
 REGIONAL: [Signature]  
 MUNICIPAL: [Signature]  
 STAMP: [Signature]  
 UPPER CANADA CONSULTANTS  
 675 St. John's, Oakville, Ont. L6M 3K1  
 Phone: (905) 231-4449  
 Fax: (905) 231-4838  
**Holton**  
 TILE WATERMAIN AND SANITARY SEWER REPLACEMENT  
 SPEERS ROAD  
 IN THE TOWN OF OAKVILLE  
 FROM 50m WEST OF KERR STREET TO 50m EAST OF KERR STREET  
 Consultant File No: 0021PF6  
 Contract No: WS-1989B-03  
 Drawing No: 0-1315  
 Sheet 7 of 8

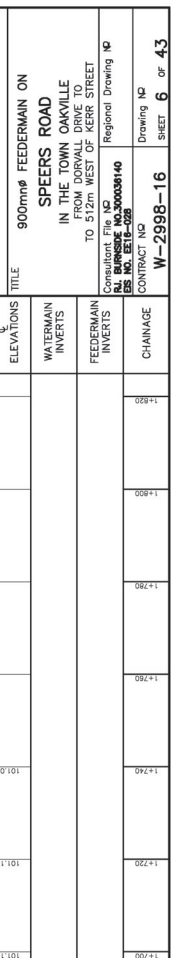
0-23156  
KERR STREET SEE SHEET 7



KERR STREET  
KERR STREET  
KERR STREET



SPEERS ROAD  
SPEERS ROAD  
SPEERS ROAD



NO.	DESCRIPTION	DATE	BY	CHK'D	HI
8	ISSUED FOR AS-BUILT	15-09-01	HZ		
7	ISSUED FOR CONSTRUCTION	15-08-21	AK		
6	ISSUED FOR HYDRAULIC REVIEW	15-08-11	BS		
5	ISSUED FOR 300K REVIEW	15-04-21	BS		
4	ISSUED FOR HYDRAULIC REVIEW	15-03-05	BS		
3	ISSUED FOR 300K REVIEW	15-02-24	BS		
2	ISSUED FOR 300K REVIEW	15-02-11	BS		
1	ISSUED FOR 10K REVIEW	15-02-09	BS		
NC	REVISIONS				

Design	BS	Ch'kd	HI	Date
Drawn	BS	g	g	15/03/15
Checked	BS	g	g	15/03/15
Scale		1:50	Vert.	

References	Field Notes
ACCEPTED FOR CONSTRUCTION OF REGIONAL INFRASTRUCTURE	
Revised For Comparison With Original Approved Only	
Director, Engineering and Construction	

TITLE	900mm $\phi$ FEEDERMAN ON SPEERS ROAD IN THE TOWN OF OAKVILLE
Regional Drawing No.	W-2998-16
Drawing No.	6 OF 43

W-2998-16 6 of 43

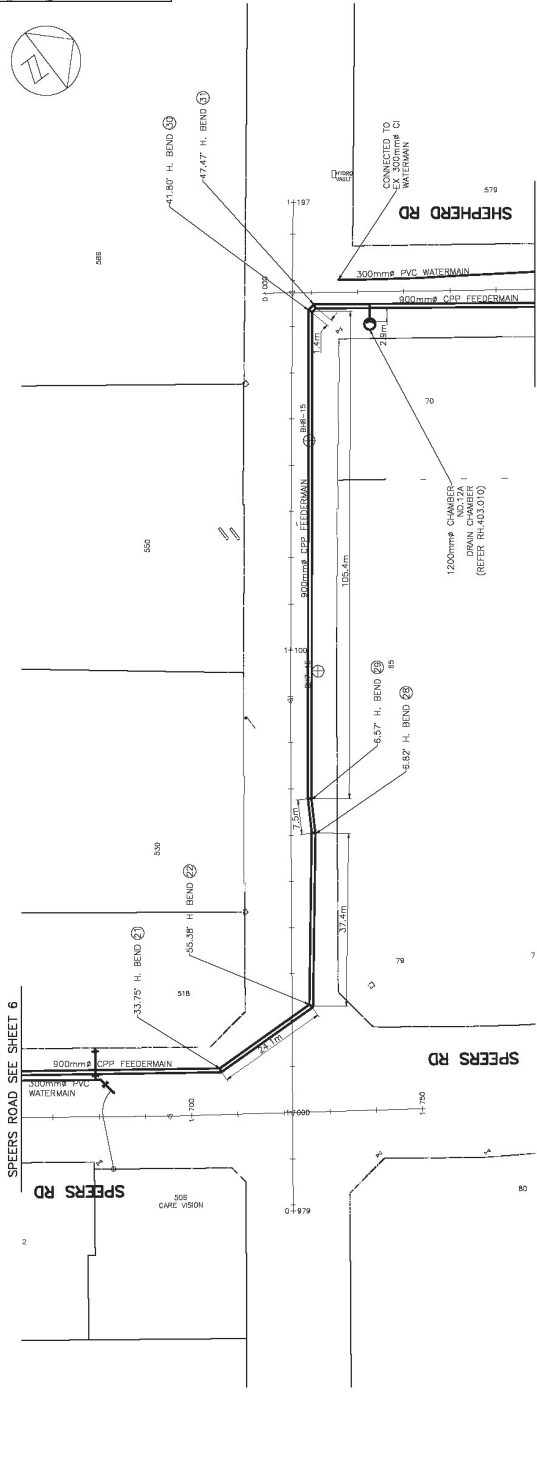
REGIONAL MUNICIPALITY OF HALTON  
ITS EMPLOYEES, OFFICERS AND AGENTS  
ARE NOT RESPONSIBLE FOR ANY ERRORS,  
OMISSIONS OR INACCURACIES, WHETHER  
DUE TO THEIR NEGLIGENCE OR OTHERWISE.  
ALL INFORMATION SHOULD BE VERIFIED

AS-CO-CONSTRUCTED DRAWING  
CONTRACTOR: DONALD INFRASTRUCTURE GROUP  
DATE: AUGUST 27, 2015  
INSPECTOR'S DARY: C. P. O'NEILL  
REGIONAL MUNICIPALITY OF HALTON, ITS EMPLOYEES,  
OFFICERS AND AGENTS ARE NOT RESPONSIBLE FOR ANY  
ERRORS, OMISSIONS OR INACCURACIES, WHETHER  
DUE TO THEIR NEGLIGENCE OR OTHERWISE.

AS CONSTRUCTED FEEDERMAN & WATERMAIN DATA

DISCRPTION	STATION	OFFSET	NORTHING	EASTING
900mm $\phi$ CPVC FEEDERMAN	1+084.40	8.23 L	481158.702	606183.975
900mm TO 750mm ECCENTRIC REDUCER (AIR RELEASE)	1+084.89	8.58 L	481158.673	606185.480
900mm TO 200mm ECCENTRIC REDUCER	1+087.749	8.23 L	481158.679	606187.183
33.7P H. BEND	1+106.44	8.58 L	481124.091	606336.254
45.3P H. BEND	1+176.52	22.97 L	481127.170	606236.040





KERR STREET

SHEPHERD ROAD SEE SHEET 8

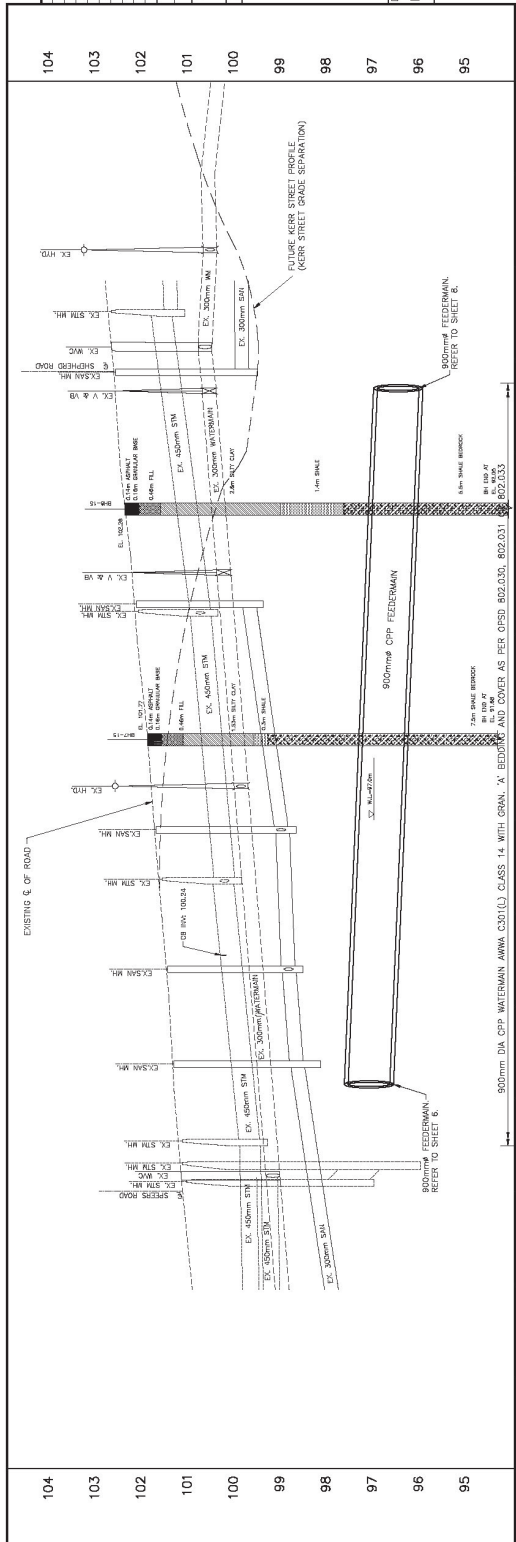
AS CONSTRUCTED FEEDER MAIN & WATERMAIN DATA ON KERR STREET

DISCREPTION	STATION	OFFSET	NORTHINGS	EASTING
900mm CPD FEEDERMAIN				
33.75' H. BEND	1+028.24	15.47' L	4811324.178	606233.895
56.87' H. BEND	1+053.37	4.18' R	4811277.203	606326.077
6.87' H. BEND	1+066.47	4.65' R	4811309.241	606303.875
6.57' H. BEND	1+067.68	4.05' R	4811324.041	606302.189
41.80' H. BEND	1+173.38	3.18' R	4811384.064	606116.397
47.47' H. BEND	1+177.38	4.65' R	4811384.388	606116.134
1200mm CHAMBER (GRAN. CURB)	1+176.60	18.88' R	4811376.588	606238.413

**AS-CONSTRUCTED DRAWING**  
 CONTRACTOR: TORONTO INFRASTRUCTURE GROUP  
 DRAWING NO: 15-09-01-11  
 WORK COMPLETED: AUGUST 22, 2016  
 INSPECTOR'S NAME: [REDACTED]  
 INSPECTOR'S DARY: [REDACTED]

REGIONAL MUNICIPALITY OF HALTON, ITS EMPLOYEES, AGENTS, CONTRACTORS, CONSULTANTS, AND SUPPLIERS, SHALL BE RESPONSIBLE FOR THE ACCURACY OF THIS DRAWING. THE REGIONAL MUNICIPALITY OF HALTON, ITS EMPLOYEES, AGENTS, CONTRACTORS, CONSULTANTS, AND SUPPLIERS, SHALL BE RESPONSIBLE FOR THE ACCURACY OF THIS DRAWING.

REGIONAL MUNICIPALITY OF HALTON  
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 DUE TO THEIR NEGLIGENCE OR OTHERWISE.  
 ALL INFORMATION SHOULD BE VERIFIED



ELEVATIONS	104.00	103.75	102.25	102.02	102.00	101.98	101.85	101.48	101.38	101.28	101.19	101.00	100.00
FEEDERMAIN INVERTS													
CHAMBER	102.1	102.0	101.9	101.8	101.7	101.6	101.5	101.4	101.3	101.2	101.1	101.0	100.9

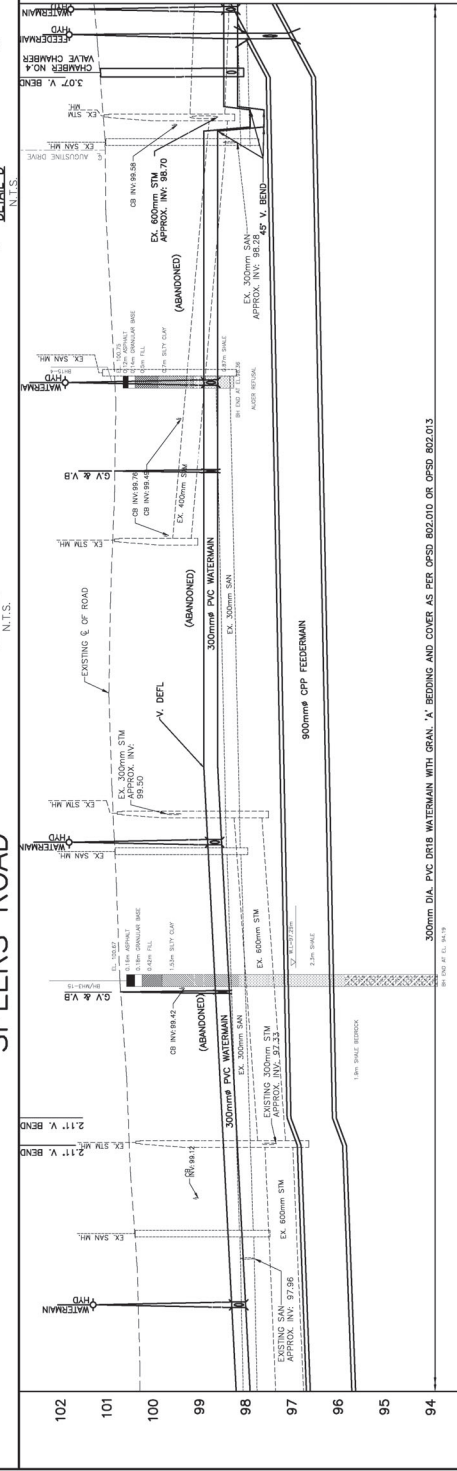
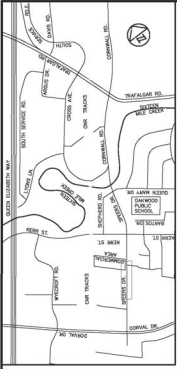
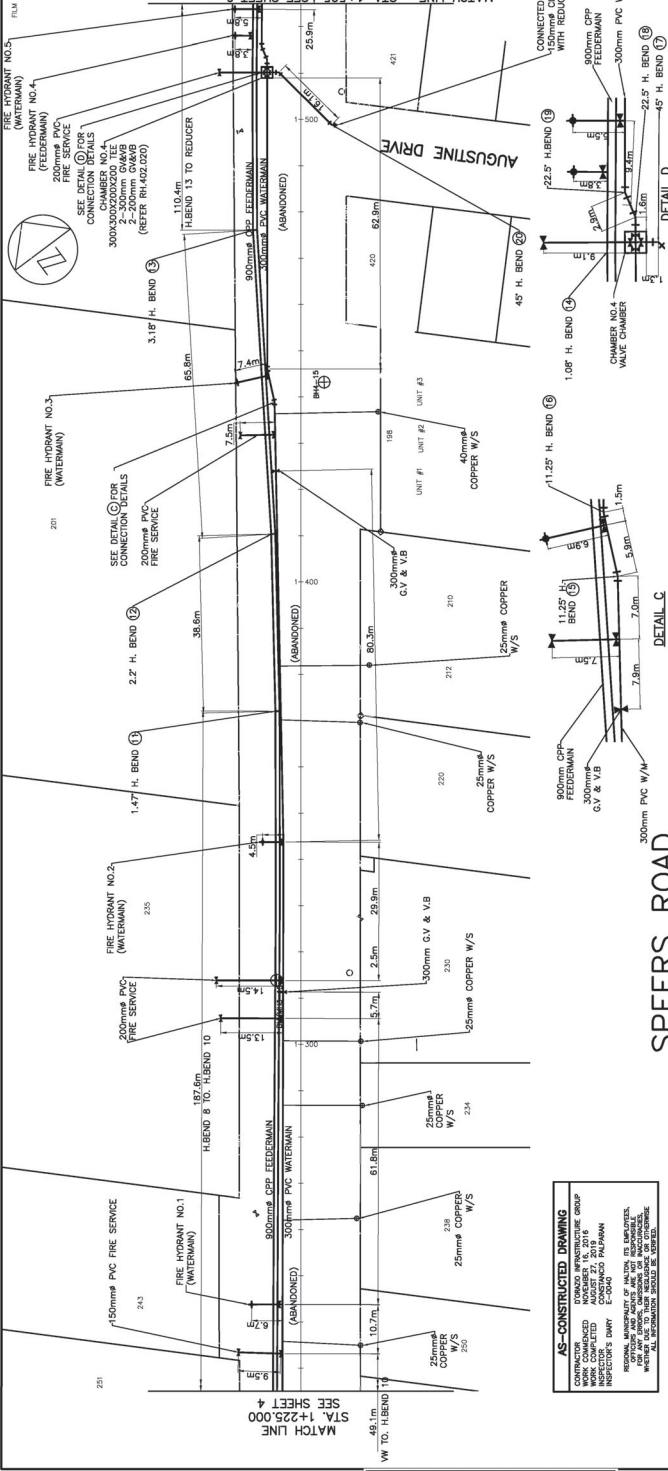
Design	BS	Ch'hd	HI	Date
Drawn	BS	Ch'hd	ALP	
Checked	BS	Ch'hd	ALP	
Scale	80% Horiz. 1:50 Vert.			
References	Field Notes			
Regional	ACCEPTED FOR CONSTRUCTION OF REGIONAL INFRASTRUCTURE			
Revised For Comparison with Original Submittal Only	Director, Engineering and Construction			

900mm $\phi$  FEEDERMAIN ON  
 KERR STREET  
 IN THE TOWN OF KAMILLIE  
 FROM SPERS ROAD 22.50M  
 TO SHEPHERD DRIVE

Consultant File No: **15-09-01-11**  
 Project No: **W-2998-16**  
 Regional Drawing No: **7** of **43**

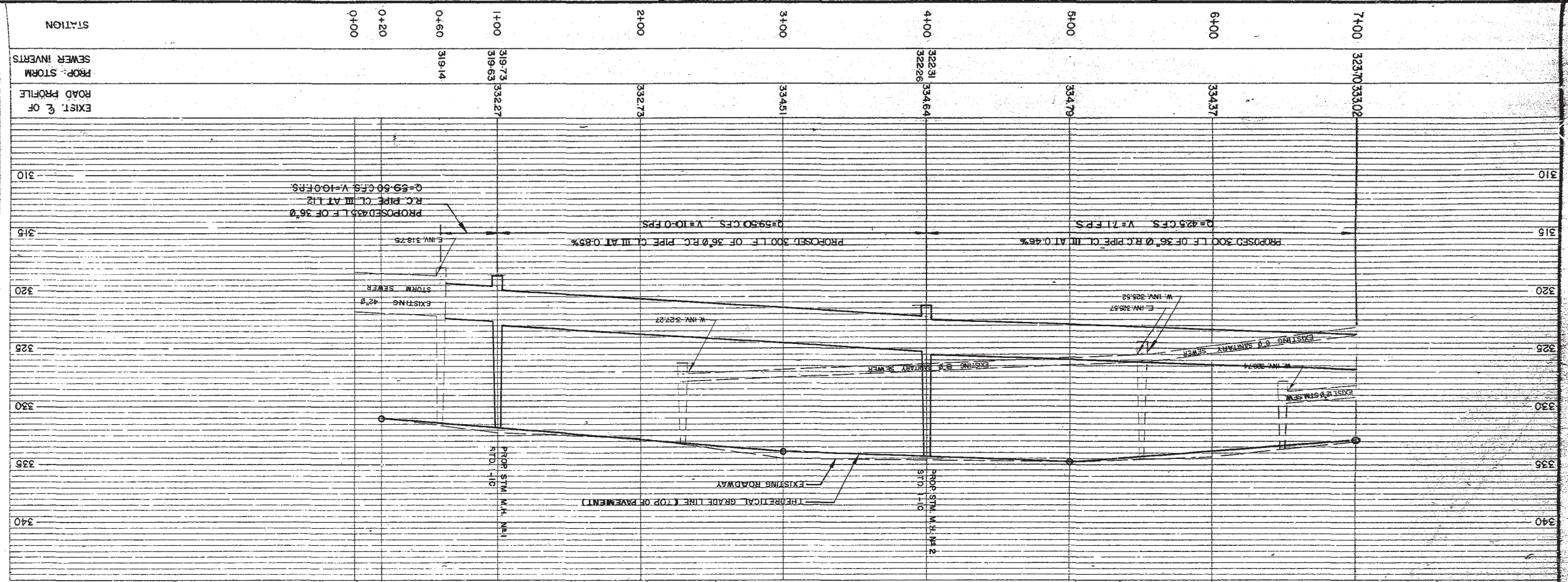
REGIONAL MUNICIPALITY OF HALTON  
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 DUE TO THEIR NEGLIGENCE OR OTHERWISE.  
 ALL INFORMATION SHOULD BE VERIFIED.

**AS-CONSTRUCTED DRAWING**  
 CONTRACTOR  
 DOWNS INFRASTRUCTURE GROUP  
 WORK COMPLETED  
 AUGUST 27, 2018  
 INSPECTOR'S NAME  
 E-0340  
 REGIONAL MUNICIPALITY OF HALTON, ITS EMPLOYEES,  
 OFFICERS AND AGENTS ARE NOT RESPONSIBLE FOR ANY  
 ERRORS OR OMISSIONS SHOULD BE VERIFIED.



ELEVATIONS	WATERMAIN INVERTS	FEEDERMAIN INVERTS	CHAINAGE
102.33			1+500
101.33			1+500
101.31			1+500
101.10			1+500
100.99			1+500
100.98			1+500
100.97			1+500
100.96			1+500
100.95			1+500
100.94			1+500
100.93			1+500
100.92			1+500
100.91			1+500
100.90			1+500
100.89			1+500
100.88			1+500
100.87			1+500
100.86			1+500
100.85			1+500
100.84			1+500
100.83			1+500
100.82			1+500
100.81			1+500
100.80			1+500
100.79			1+500
100.78			1+500
100.77			1+500
100.76			1+500
100.75			1+500
100.74			1+500
100.73			1+500
100.72			1+500
100.71			1+500
100.70			1+500
100.69			1+500
100.68			1+500
100.67			1+500
100.66			1+500
100.65			1+500
100.64			1+500
100.63			1+500
100.62			1+500
100.61			1+500
100.60			1+500
100.59			1+500
100.58			1+500
100.57			1+500
100.56			1+500
100.55			1+500
100.54			1+500
100.53			1+500
100.52			1+500
100.51			1+500
100.50			1+500
100.49			1+500
100.48			1+500
100.47			1+500
100.46			1+500
100.45			1+500
100.44			1+500
100.43			1+500
100.42			1+500
100.41			1+500
100.40			1+500
100.39			1+500
100.38			1+500
100.37			1+500
100.36			1+500
100.35			1+500
100.34			1+500
100.33			1+500
100.32			1+500
100.31			1+500
100.30			1+500
100.29			1+500
100.28			1+500
100.27			1+500
100.26			1+500
100.25			1+500
100.24			1+500
100.23			1+500
100.22			1+500
100.21			1+500
100.20			1+500
100.19			1+500
100.18			1+500
100.17			1+500
100.16			1+500
100.15			1+500
100.14			1+500
100.13			1+500
100.12			1+500
100.11			1+500
100.10			1+500
100.09			1+500
100.08			1+500
100.07			1+500
100.06			1+500
100.05			1+500
100.04			1+500
100.03			1+500
100.02			1+500
100.01			1+500
100.00			1+500





STATION	EXIST. 2 OF ROAD PROFILE	PROP. STORM SEWER INVERTS
0+00		
0+20		
0+60		
1+00	319.73 332.27	319.63
2+00		332.73
3+00		334.51
4+00	332.21 334.64	332.26
5+00		334.79
6+00		334.37
7+00	323.70 333.02	

**PLAN**  
 No. R-100-74-4  
 SHEET 4 OF 28  
 AS CONSTRUCTED  
 OCT. 1976  
 S.J.

**REVISIONS**

**FILE NO.:** R-100-74  
**CONTRACTOR:**  
**INSPECTOR:**  
**CHIEF BY: D.M.A.**  
**DATE:** FEB. 1975  
**DESIGN BY:** R.G.H.  
**SCALE:**  
 HORIZ. 1"=40'  
 VERT. 1"=5'

**LEGEND**

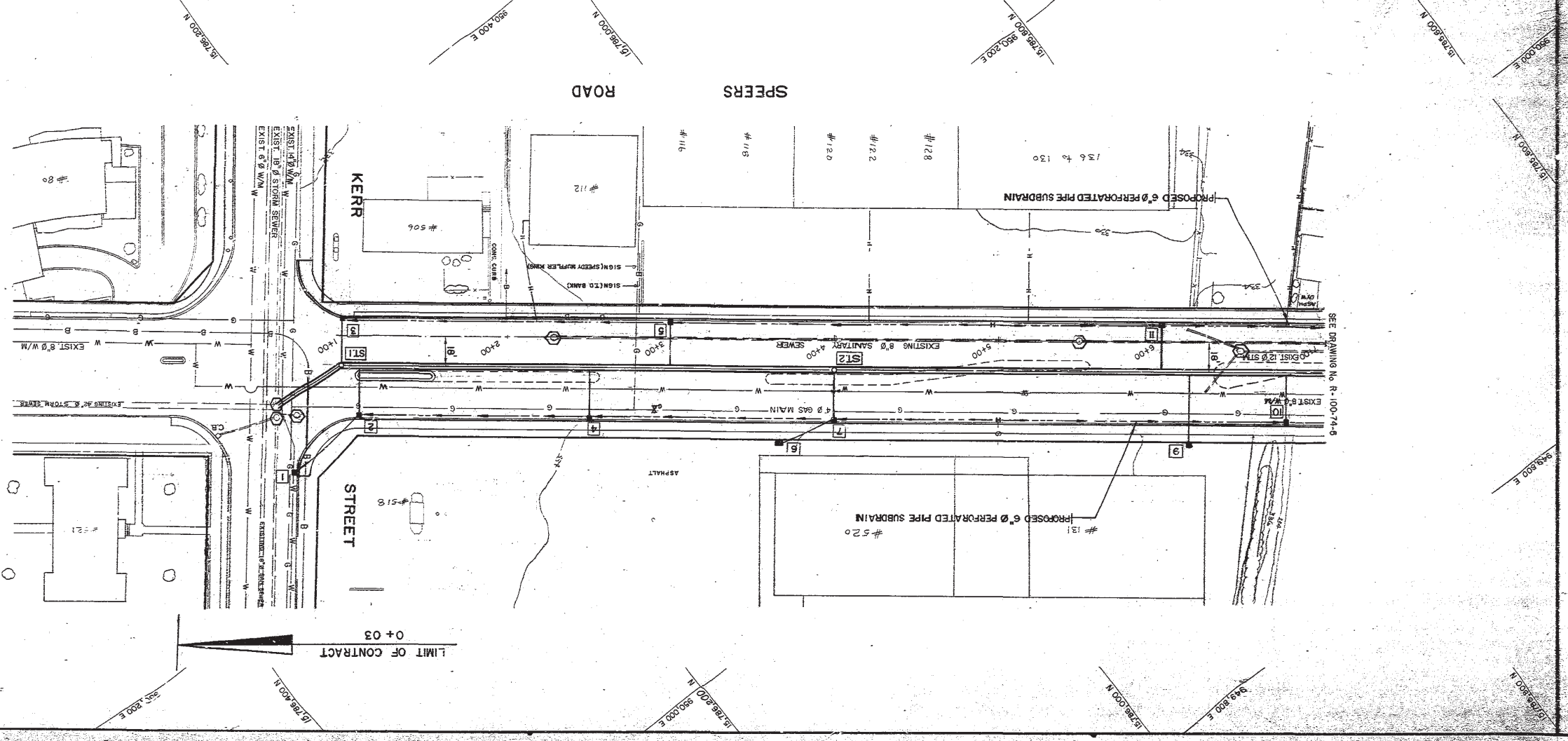
- DEMOTES BENCH MARK ELEVATION
- STORM SEWER & MANHOLE
- SAN. MH.
- SANITARY SEWER & VALVE
- GAS MAIN & VALVE
- BELL TELEPHONE FURIED CABLE
- HYDRO POLE & GUY ANCHOR
- HYDRANT

**GENERAL NOTES**

- ALL DRIVEWAY GRAVEL UNLESS OTHERWISE NOTED.
- ALL SERVICE LOCATIONS ARE APPROXIMATE AND MUST BE LOCATED ACCURATELY IN THE FIELD.
- WATER AS SHOWN
- GAS AS SHOWN
- BELL AS SHOWN
- HYDRO AS SHOWN

**DEPARTMENT OF PUBLIC WORKS**  
**OAKVILLE**  
**ON**  
**SPEERS ROAD**  
**FROM**  
**KERR STREET**  
**TO**  
**ST. AUGUSTINE DR.**

**PROPOSED 36" Ø STORM SEWER**



**NOTES:**

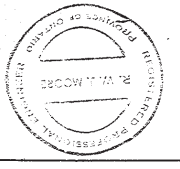
- ALL C.B. LEADS TO BE 12" ES CONCRETE PIPE AT 1% SLOPE UNLESS OTHERWISE SHOWN.
- OB.M. 52-SE CORNER OF CONCRETE PLATFORM OF PLAZA THEATRE, 9'6" W OF SLY LIMIT OF CONCRETE CORNER BLOCK THEN 2' NORTHERLY ELEV. 336.34
- CATCHBASIN OFFSETS ARE TO TOP OF BACK OF GRADE.
- ADJUST EXISTING M.H. FRAME AND COVERS TO SUIT FINISHED GRADE - SYMBOL ○

**STORM SEWER DATA - SYMBOL**

NUMBER	STATION FROM	STRUCTURE COVER	COMMENTS
1	1+00	18" RT. 1-5A	
2	4+00	18" RT. 1-5A	

**CATCHBASIN DATA - SYMBOL**

NUMBER	STATION FROM	STRUCTURE COVER	COMMENTS
1	0+70	2-18"	END OF RADIUS
2	1+10	2-18"	BEG. OF RADIUS
3	1+00	2-18"	IN CURB
4	2+50	2-18"	IN CURB
5	3+00	2-18"	IN CURB
6	3+56	2-18"	IN DRIVEWAY
7	4+00	2-18"	IN CURB
8			DELETED
9	6+16	2-18"	IN DRIVEWAY
10	6+75	2-18"	IN CURB
11	6+00	2-18"	IN CURB



**PLAN**  
 No. R-100-74-5  
 SHEET 5 OF 28  
 REVISIONS  
 DATE: FEB. 1978  
 DESIGN BY: R.G.H.  
 DRAWN BY: J.B./D.A.  
 CHECKED BY: L.M.D.  
 FILE NO.: R-100-74  
 CONTRACTOR:  
 SCALES: HORIZ. 1"=40'  
 VERT. 1"=4'

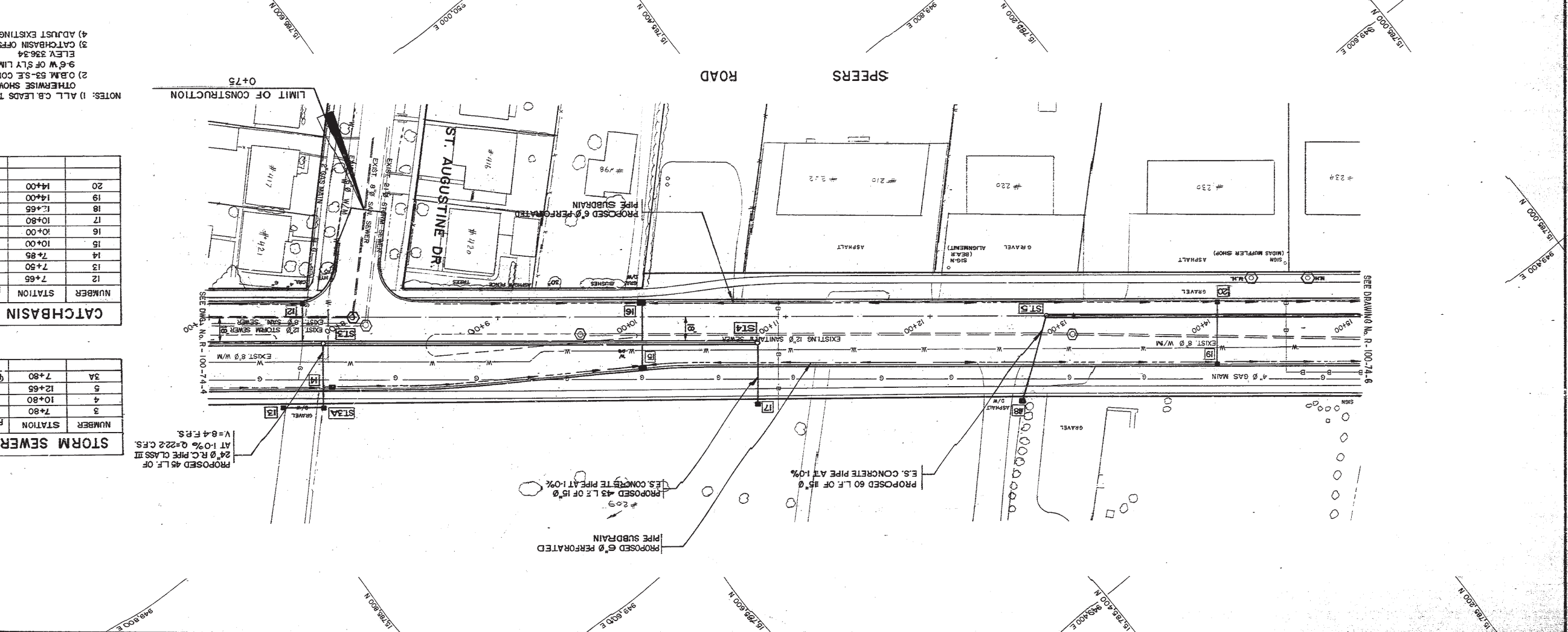
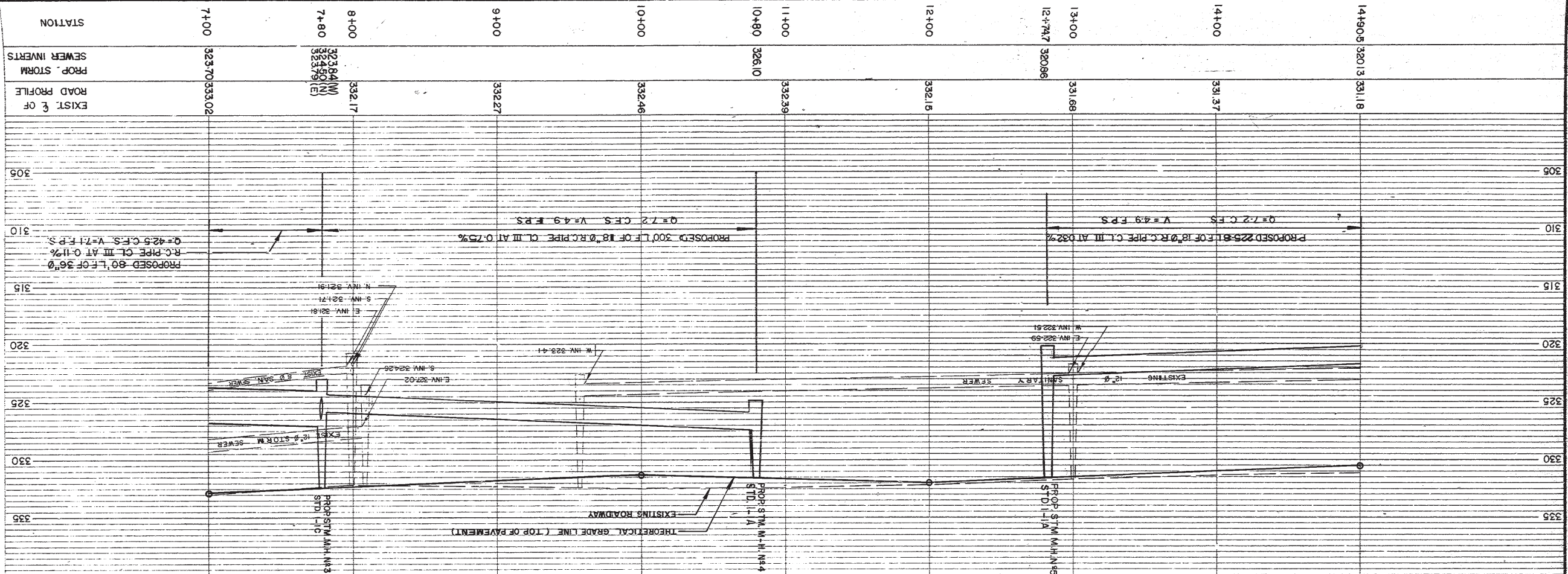
DEPARTMENT OF PUBLIC WORKS  
 TOWN OF OAKVILLE  
 ON SPEERS ROAD  
 FROM ST. AUGUSTINE DR.  
 TO STA 15+00 WESTERLY  
 PROPOSED 18" AND 36" STORM SEWER

**LEGEND**

ST.M.H.	STORM SEWER & MANHOLE
S.M.H.	SANITARY SEWER & MANHOLE
W-V	WATERMAIN & VALVE
G-V	GASMAIN & VALVE
B-B	BELL TELEPHONE BURNED CABLE
H-B	HYDRO POLE & GUY ANCHOR
H-O	HYDRANT

**GENERAL NOTES**  
 - ALL DRIVEWAYS GRAVEL UNLESS OTHERWISE NOTED.  
 - ALL SERVICE LOCATIONS ARE APPROXIMATE AND MUST BE LOCATED ACCURATELY IN THE FIELD.  
 - WATER AS SHOWN.  
 - GAS AS SHOWN.  
 - BELL AS SHOWN.  
 - HYDRANT AS SHOWN.

**NOTES:** (1) ALL C&L LEADS TO BE 12" ES CONCRETE PIPE AT 1% SLOPE UNLESS OTHERWISE SHOWN.  
 (2) D.B.M. 63-S.E. CORNER OF CONCRETE PLATFORM OF PLAZA THEATRE, 9.6' W OF SLY LIMIT OF CONCRETE CORNER BLOCK THEN 2-NORTHERLY, ELEV. 336.34  
 (3) CATCHBASIN OFFSETS ARE TO TOP OF BACK OF GRATE.  
 (4) ADJUST EXISTING M.H. FRAME AND COVERS TO SUIT FINISHED GRADE - SYMBOL

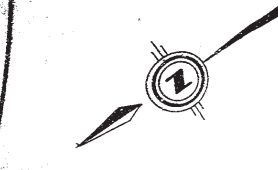


**CATCHBASIN DATA - SYMBOL**

NUMBER	STATION	COVER	COMMENTS
12	7+65	2-18 IN CURB	2-5' BEG. OF RADIUS
13	7+50	2-18 IN CURB	2-5'
14	7+85	2-18 IN CURB	2-5'
15	10+00	2-1A TWIN C.B.	
16	10+00	2-5B TWIN C.B.	
17	10+80	4x4 RT	2-5'
18	12+65	2-18 IN CURB	2-5'
19	14+00	2-18 IN CURB	2-5'
20	14+00	2-18 IN CURB	2-5'

**STORM SEWER DATA - SYMBOL**

NUMBER	STATION	COVER	COMMENTS
3	7+80	1-5A	1-1C
4	10+80	1-5A	1-1A
5	12+65	1-5A	0' FEET
3A	7+80	2-2	2-2

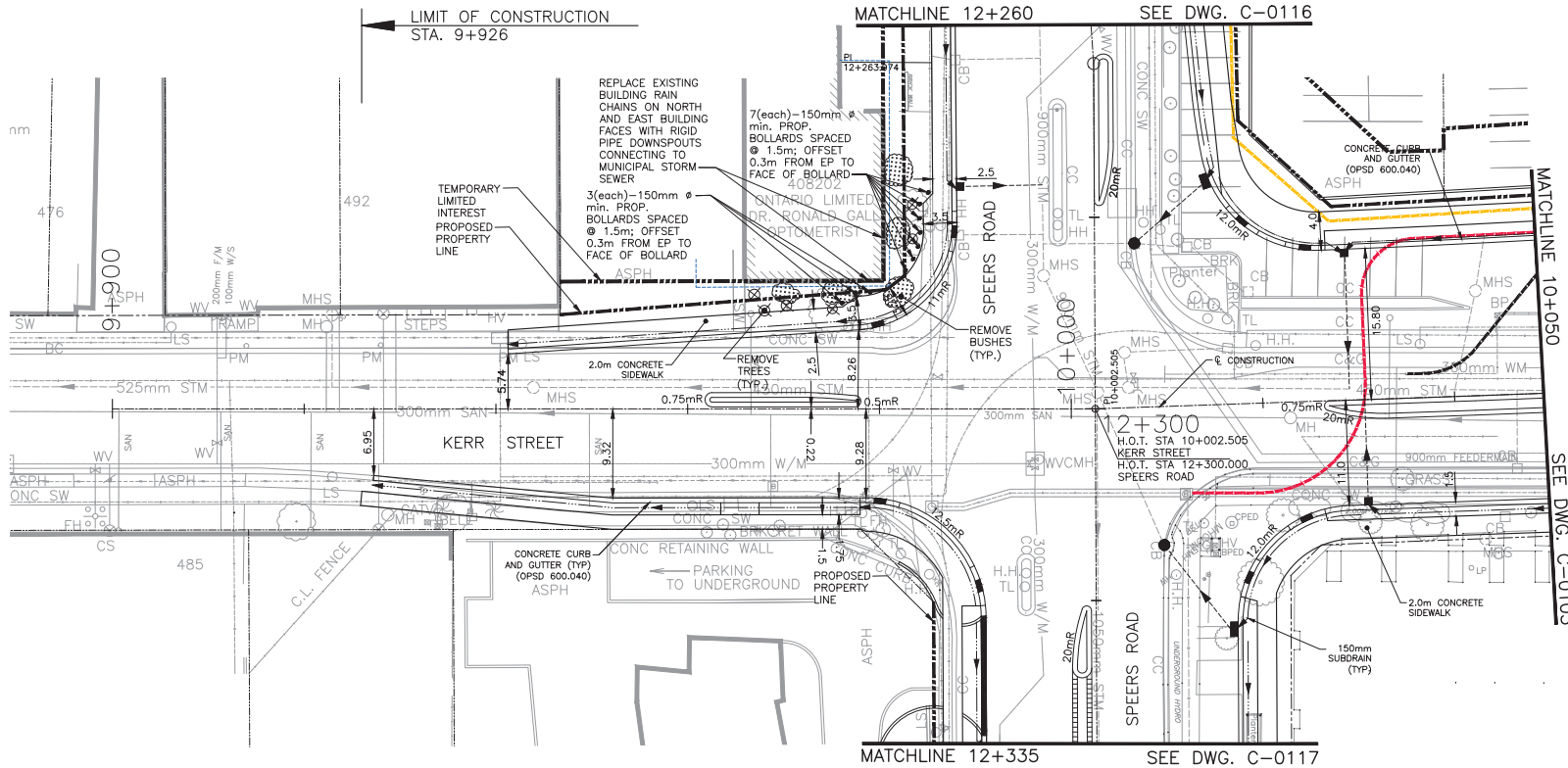


SEE DRAWING No. R-100-74-6

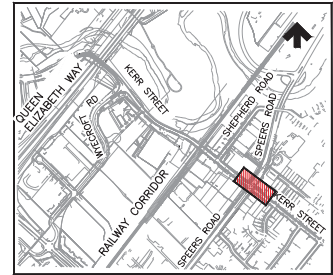


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METRIC  
ALL DIMENSIONS SHOWN ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE NOTED.



KEY PLAN  
NOT TO SCALE



NOTE:  
PROPERTY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. FOR LATEST PROPOSED PROPERTY INFORMATION REFER TO R-PLANS.

METROLINX PROJECT NO. 17-313

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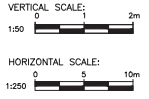
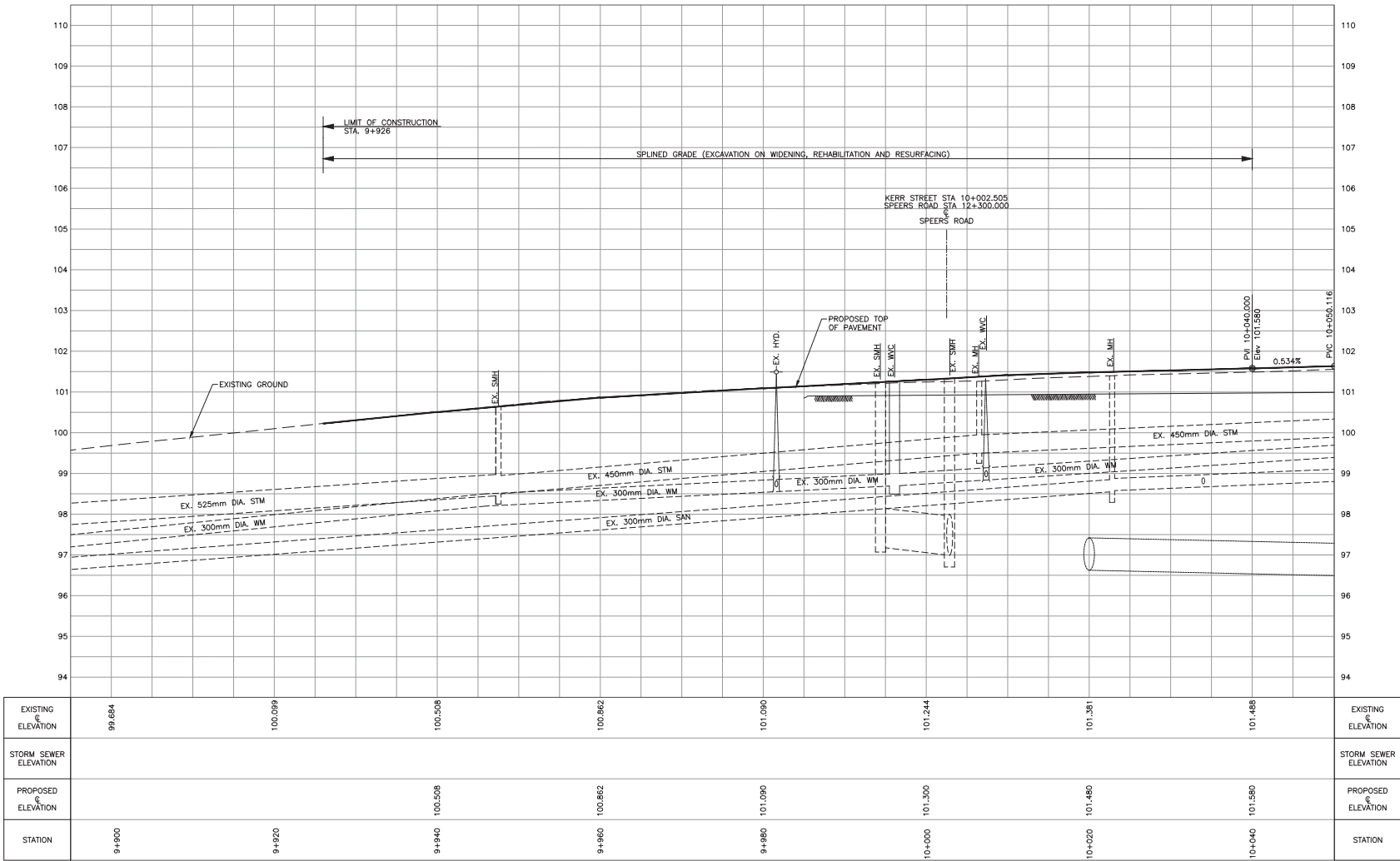
**KERR STREET GRADE SEPARATION  
PROPOSED ROAD IMPROVEMENT  
PLAN**  
STA 9+900.00 TO STA 10+050.00

CONTRACT NO. RFP-2016-CST-024	DWG. NO. LW-CI-RCD-C-0101	REV. 1	SHEET
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D SIZE 27" x 34" (686mm x 863mm)

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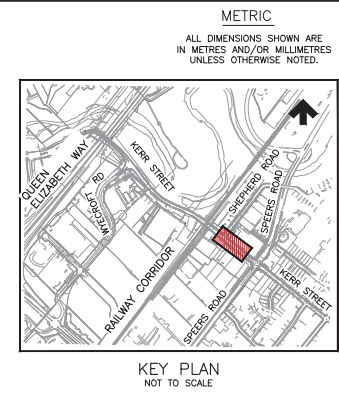
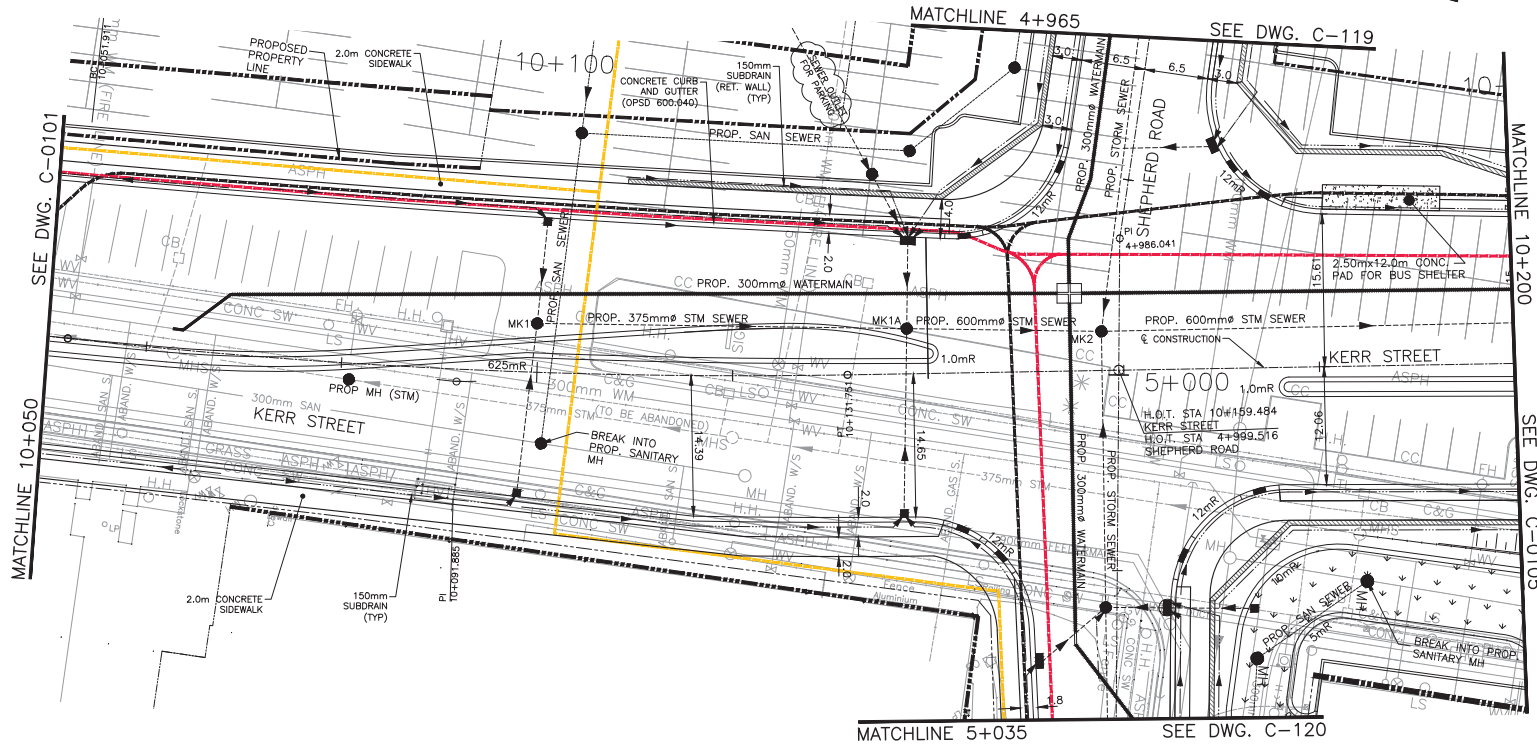
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ALL DIMENSIONS SHOWN ARE  
IN METRES AND/OR MILLIMETRES  
UNLESS OTHERWISE NOTED.



METROLINX PROJECT NO. 17-313

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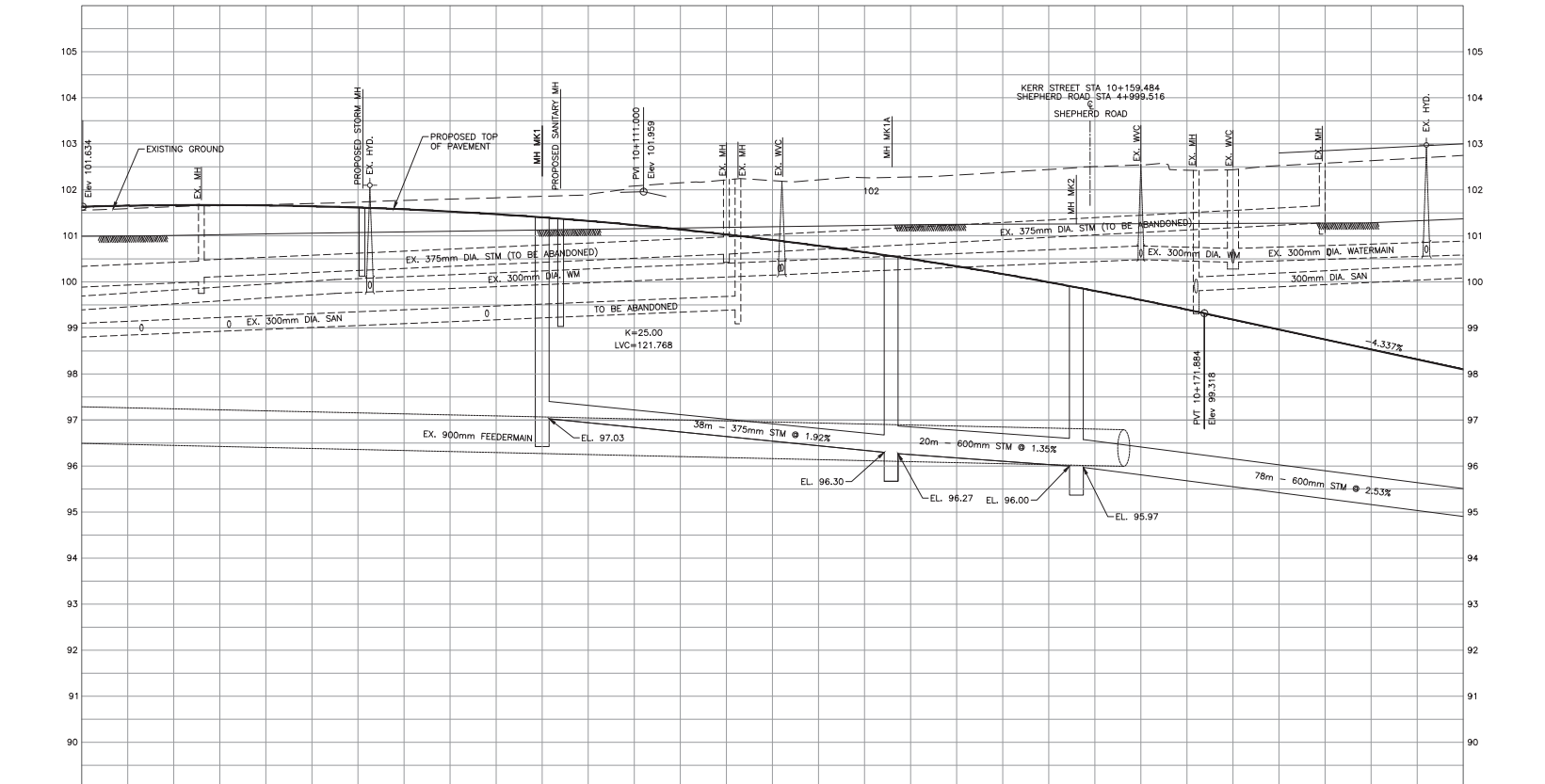
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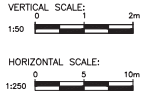
NOTE:  
PROPERTY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. FOR LATEST PROPOSED PROPERTY INFORMATION REFER TO R-PLANS.

METROLINX PROJECT NO. 17-313

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EXISTING ELEVATION	101.633	101.733	101.859	102.217	102.279	102.505	102.526	102.746	EXISTING ELEVATION
STORM SEWER ELEVATION									STORM SEWER ELEVATION
PROPOSED ELEVATION	101.667	101.615	101.403	101.030	100.498	99.806	98.967	98.029	PROPOSED ELEVATION
STATION	10+060	10+080	10+100	10+120	10+140	10+160	10+180	10+200	STATION



METROLINX PROJECT NO. 17-313

REFERENCE DRAWINGS	ISSUE	REVISIONS	DRAWN BY:	DESIGNED BY:		
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			CHECKED BY:	APPROVED BY:		
			N.B. 20/10/23	N.B. 20/10/23		
			SCALE:	FULL SIZE ONLY		
DWG. NO.	TITLE	NO.	DATE	ISSUED FOR	REV.	DATE
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		0	18/05/28	ISSUED FOR RCD		

PARSONS HATCH WSP

**KERR STREET GRADE SEPARATION  
PROPOSED ROAD IMPROVEMENT  
PROFILE**

STA 10+050.00 TO STA 10+200.00

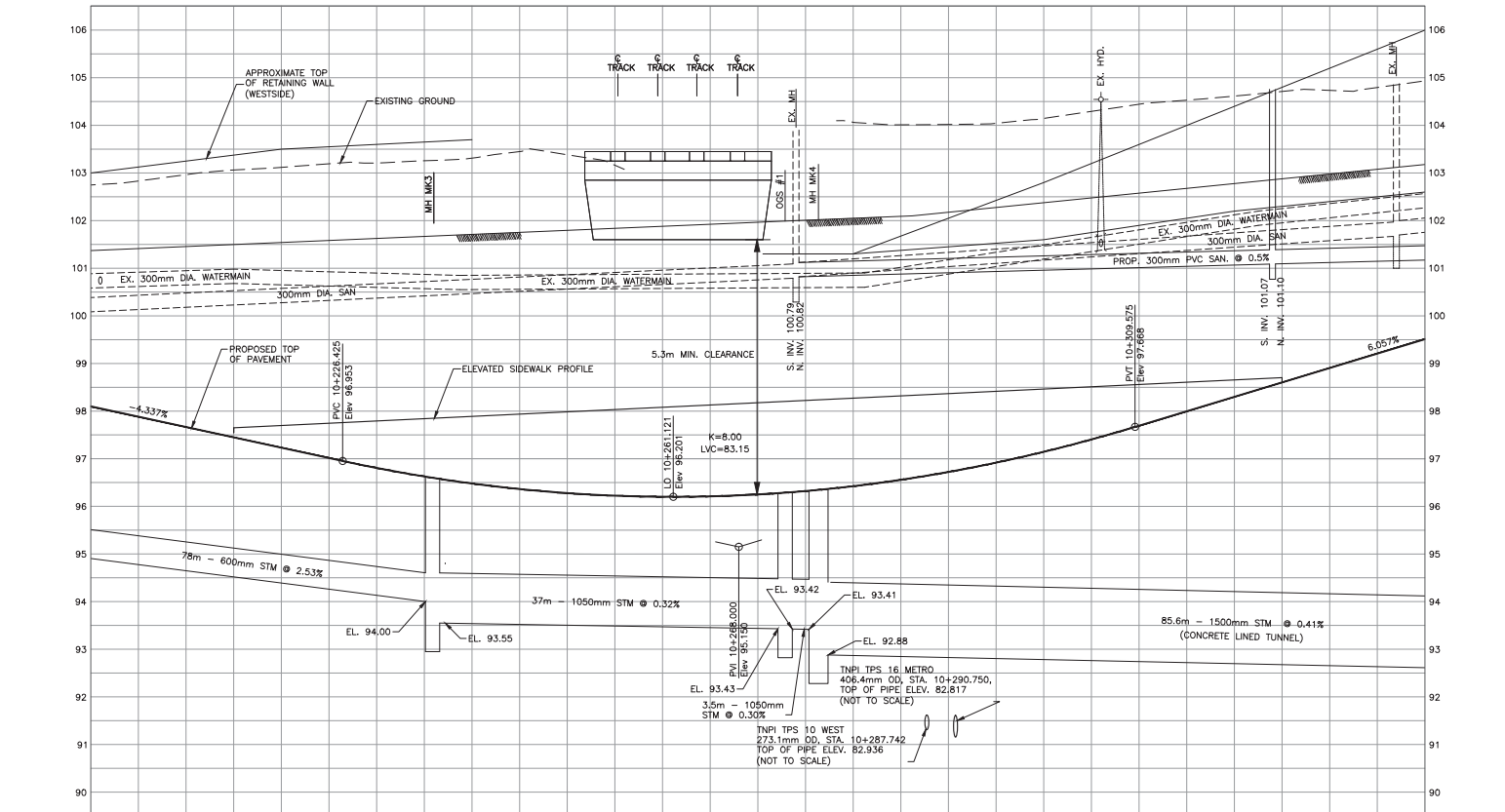
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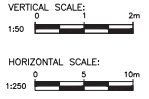
D SIZE 27" x 34" (686mm x 863.6mm)

METRIC

ALL DIMENSIONS SHOWN ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE NOTED.



EXISTING ELEVATION	102.748	103.118	103.312	103.326	104.065	104.146	104.615	104.939	EXISTING ELEVATION
STORM SEWER ELEVATION									STORM SEWER ELEVATION
PROPOSED ELEVATION	98.099	97.232	96.468	96.201	96.423	97.145	98.299	99.511	PROPOSED ELEVATION
STATION	10+200	10+220	10+240	10+260	10+280	10+300	10+320	10+340	STATION



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CHECKED BY: N.B. 20/10/23	APPROVED BY: N.B. 20/10/23
SCALE: FULL SIZE ONLY	

PARSONS BRINCKERHOFF

**KERR STREET GRADE SEPARATION  
PROPOSED ROAD IMPROVEMENT  
PROFILE**

STA 10+200.00 TO STA 10+340.00

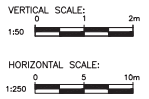
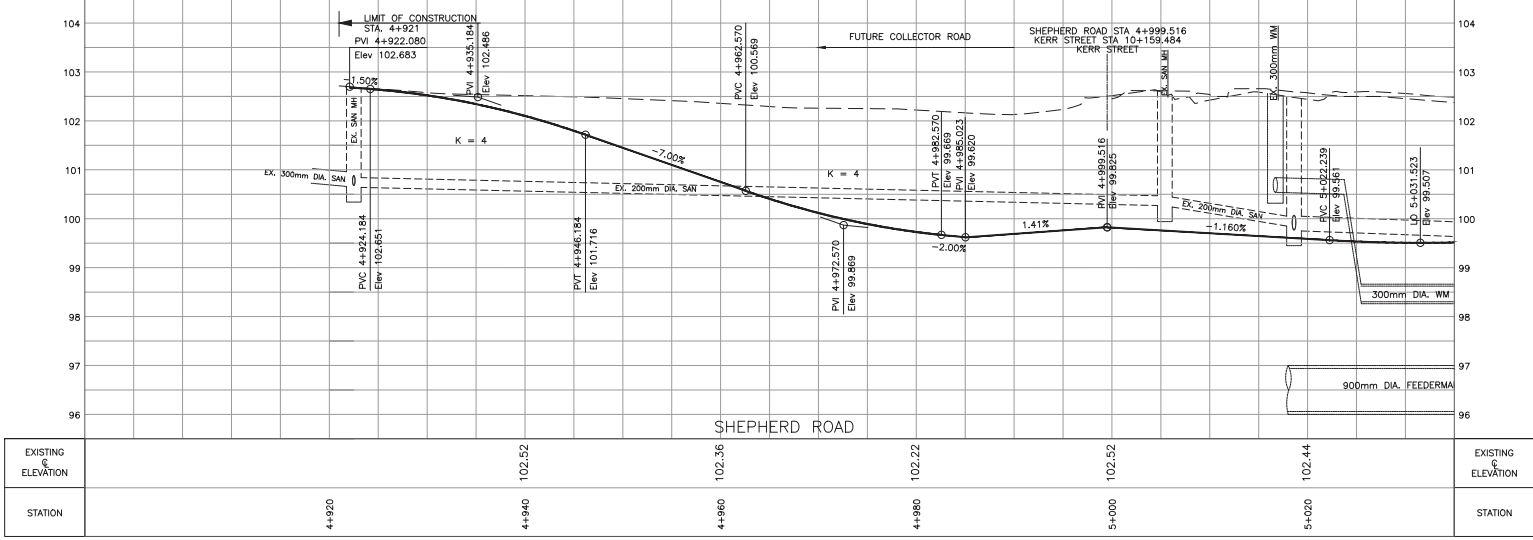
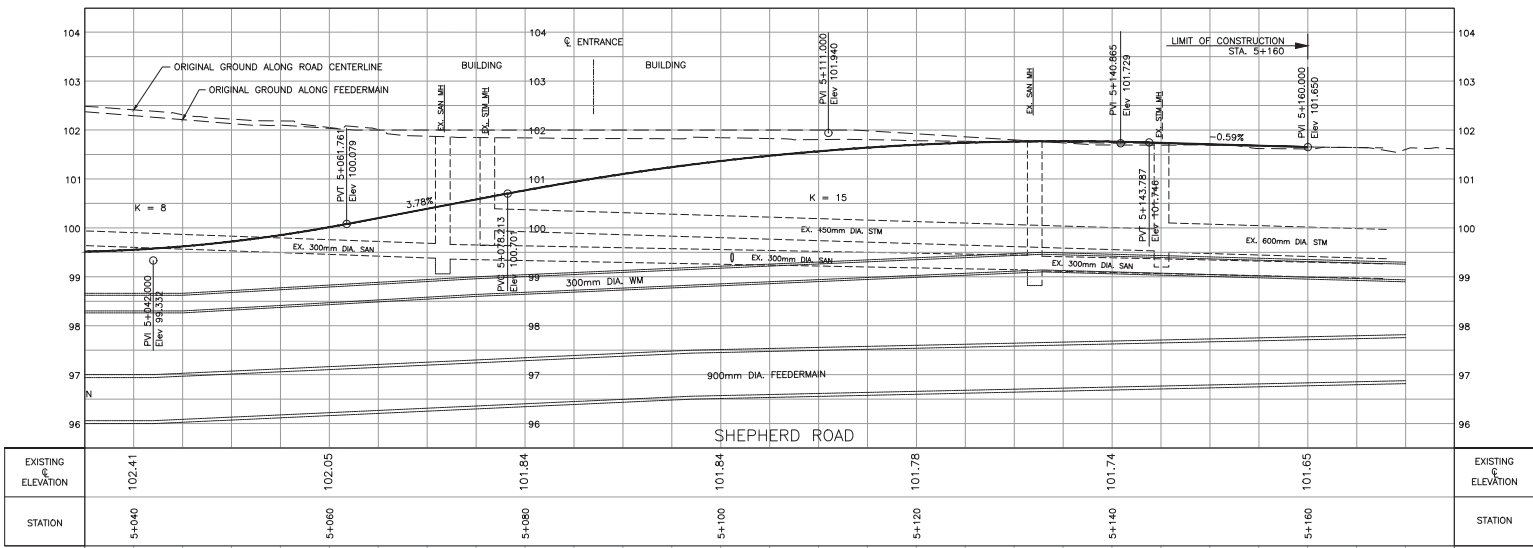
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D SIZE 27" x 34" (683mm x 863mm)

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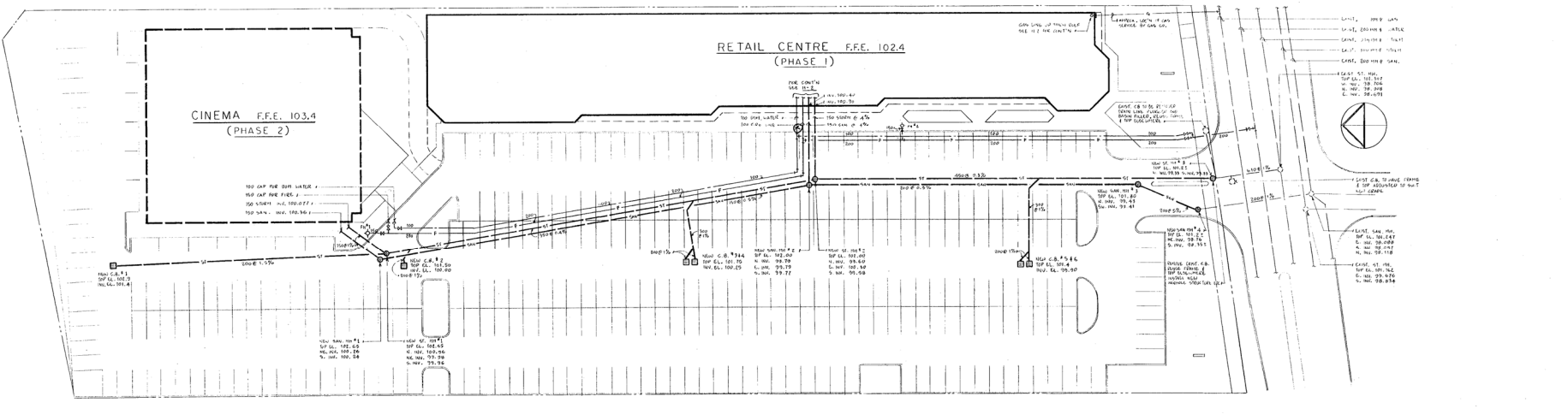
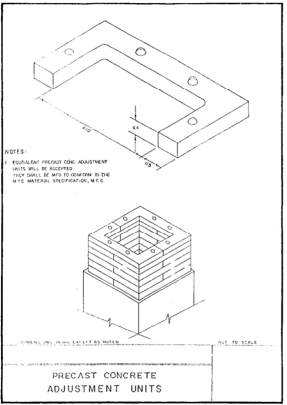
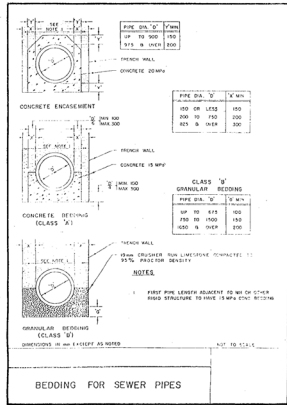
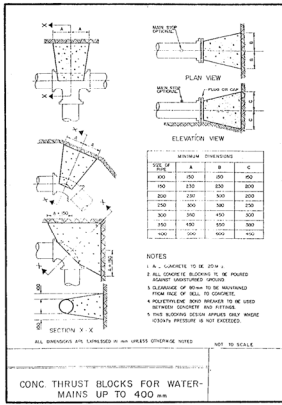
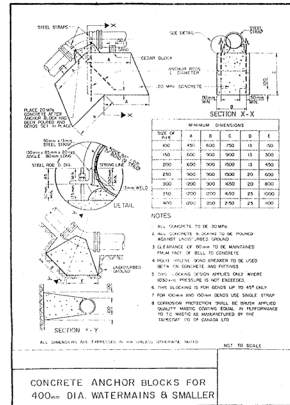
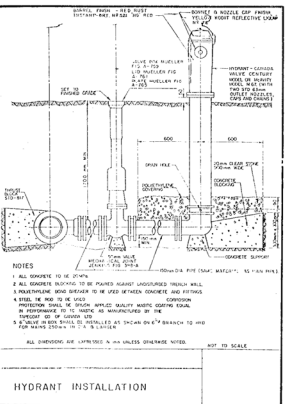
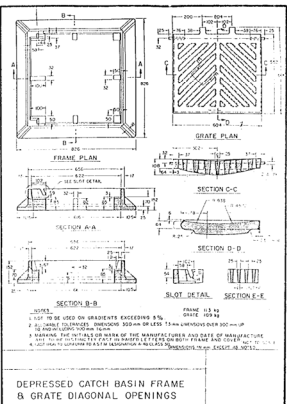
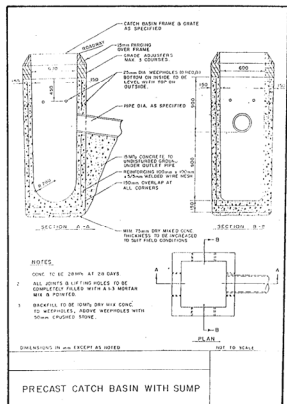
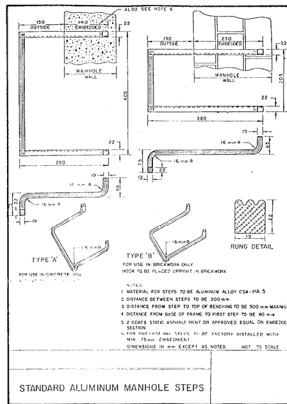
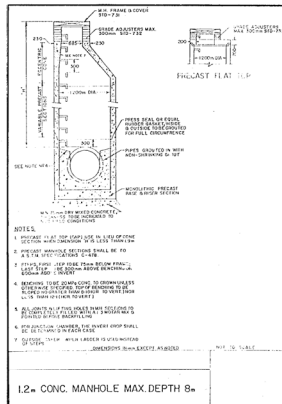
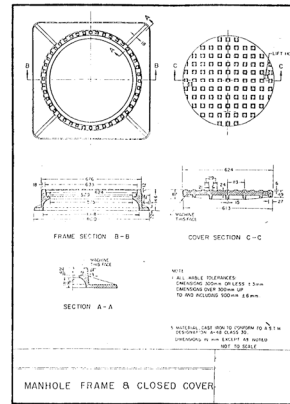
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SCALE: FULL SIZE ONLY	



KERR STREET GRADE SEPARATION PROPOSED ROAD IMPROVEMENT PROFILE STA 4+921.00 TO STA 5+160			
CONTRACT NO. RFP-2016-CST-024	DWG. NO. LW-CI-RCD-C-0121	REV. 1	SHEET 1





**SITE PLAN**  
1:400

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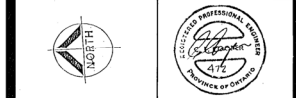
Shop drawings shall be submitted to the Architects before proceeding with fabrication.

Contractors working from drawings not marked "For Construction Purposes" assume the responsibility for cost of correcting any and all errors, omissions, and/or deficiencies in his work or resulting from his work.

**REVISIONS**

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BY: [Signature]  
DESCRIPTION: [Text]

ISSUED FOR BUILDING PERMIT MAC 4/87



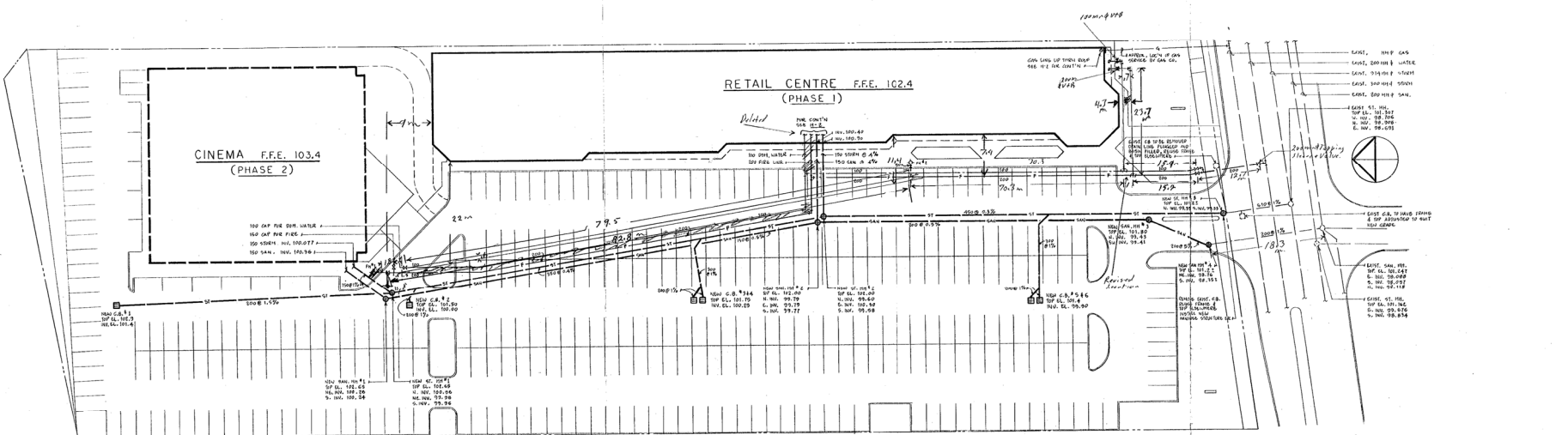
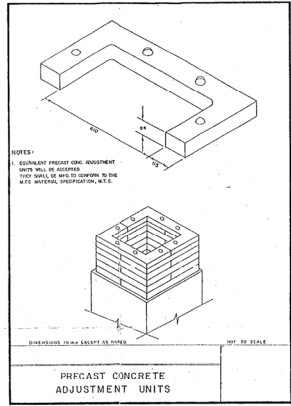
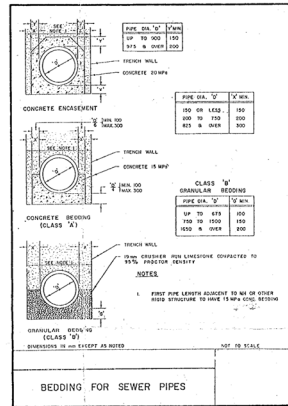
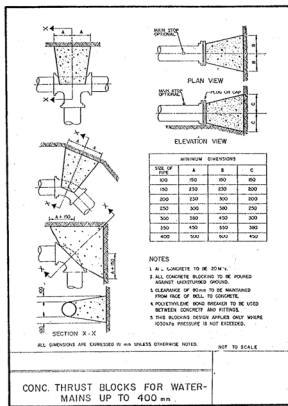
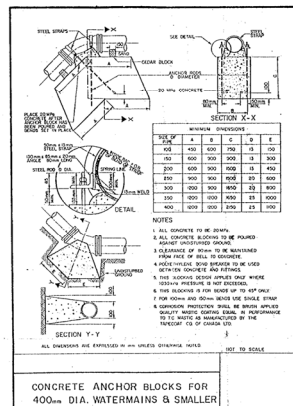
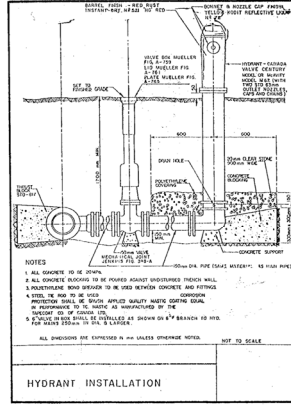
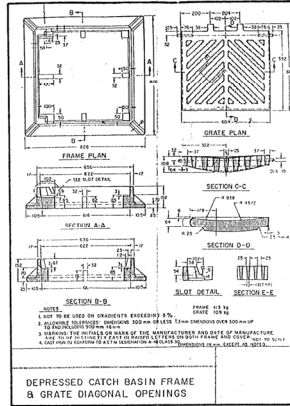
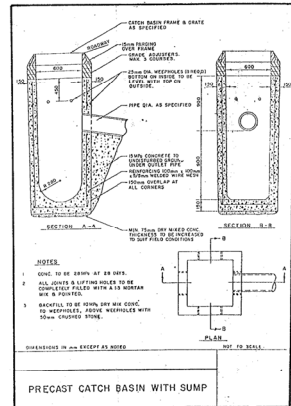
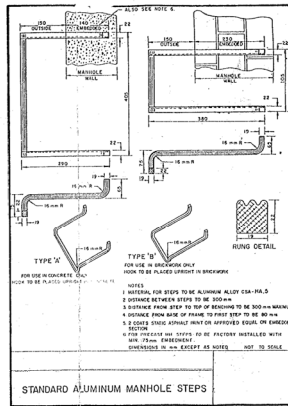
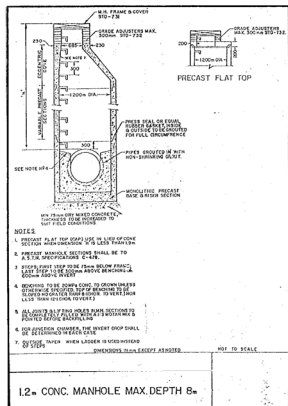
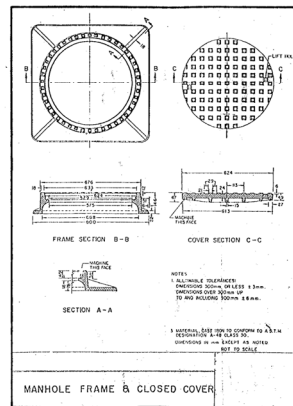
**COOPER & DeCARIA ENGINEERING LTD.**  
1151 DENISON ST. UNIT 17  
MARKHAM, ONTARIO, L3R-3T4  
(416) 477-0866

GOVAN, KAMINKER, AZZALINO  
1049 MCNICOLL AVENUE, SCARBOROUGH, ONTARIO

PROJECT NO.: 8652 DATE: MAR. 87 SCALE: AS NOTED

PROJECT FOR:  
**OAKVILLE MEWS  
RETAIL CENTRE  
Speers Road**

DRAWN BY: WGS. CHECKED BY: CFC. SHEET 1 OF 1  
**MECHANICAL SITE  
PLAN AND DETAILS** M-1



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Contractors working from drawings not marked "For Construction Purpose" assume the responsibility for and cost of correcting any and all errors, omissions, and/or deficiencies in his work or resulting from his work.

REVISIONS

ISSUED FOR BUILDING PERMIT MAR. 4/87

**COOPER & DeCARIA ENGINEERING LTD.**  
111 DENISON ST. UNIT 19  
MARKHAM, ONTARIO, L3R-3Y4  
(416) 477-0860

GOVAN, KAMINKER, AZZALINO ARCHITECTS INC. NORTH  
1049 MCNICOLL AVENUE, SCARBOROUGH, ONTARIO

PROJECT NO.: 8652 DATE: MAR. 87 SCALE: AS SHOWN

PROJECT FOR:  
**OAKVILLE MEWS RETAIL CENTRE**  
Spoers Road

DRAWN BY: WGS. CHECKED BY: CFC. SHEET 1 OF 1

**MECHANICAL SITE PLAN AND DETAILS M-1**

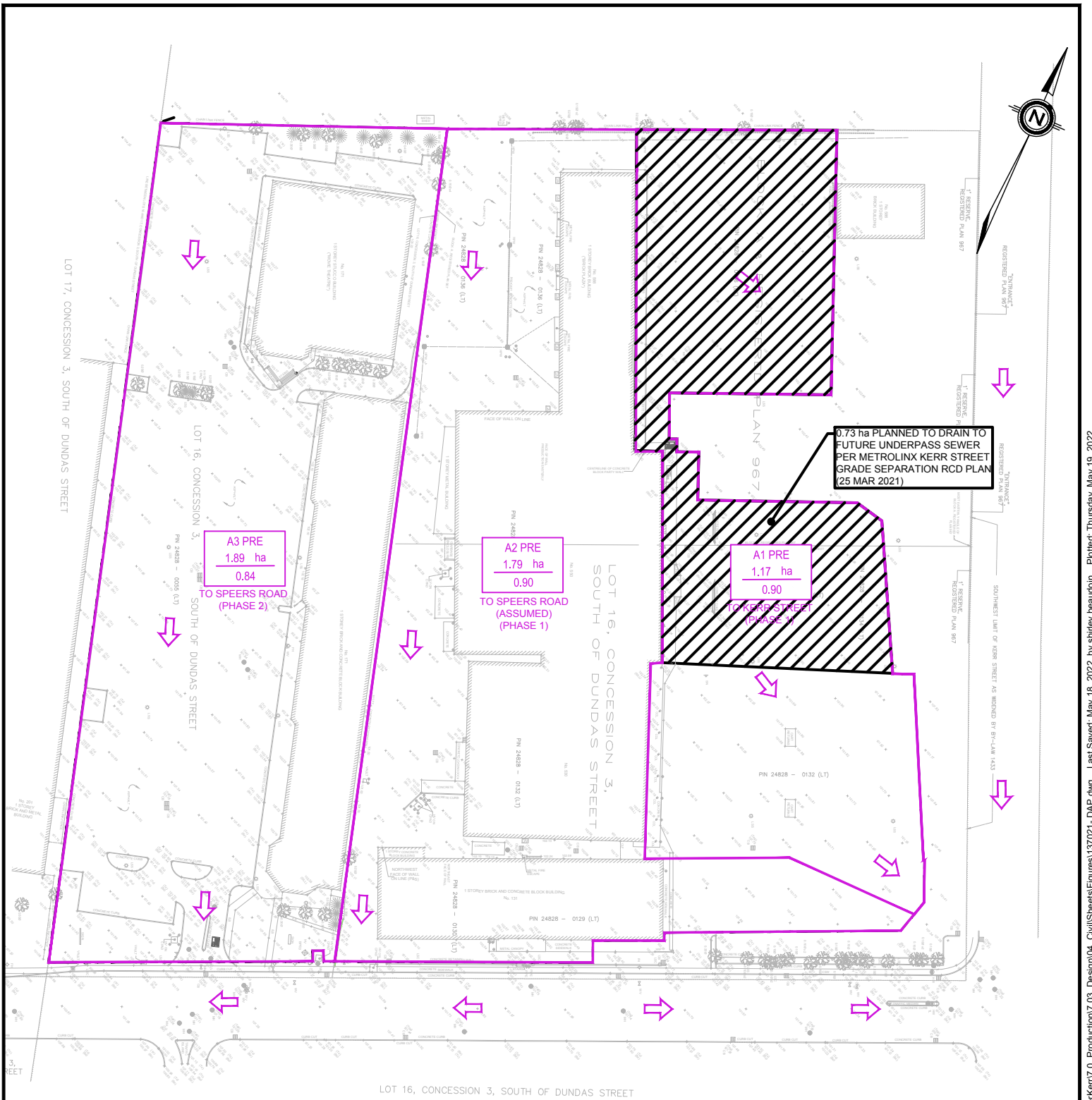
# Appendix B

## Storm Drainage Analysis

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Drainage Area Plans

Storm Design Calculations



0.73 ha PLANNED TO DRAIN TO FUTURE UNDERPASS SEWER PER METROLINX KERR STREET GRADE SEPARATION RCD PLAN (25 MAR 2021)


A3 PRE  
1.89 ha  
0.84  
TO SPEERS ROAD (PHASE 2)

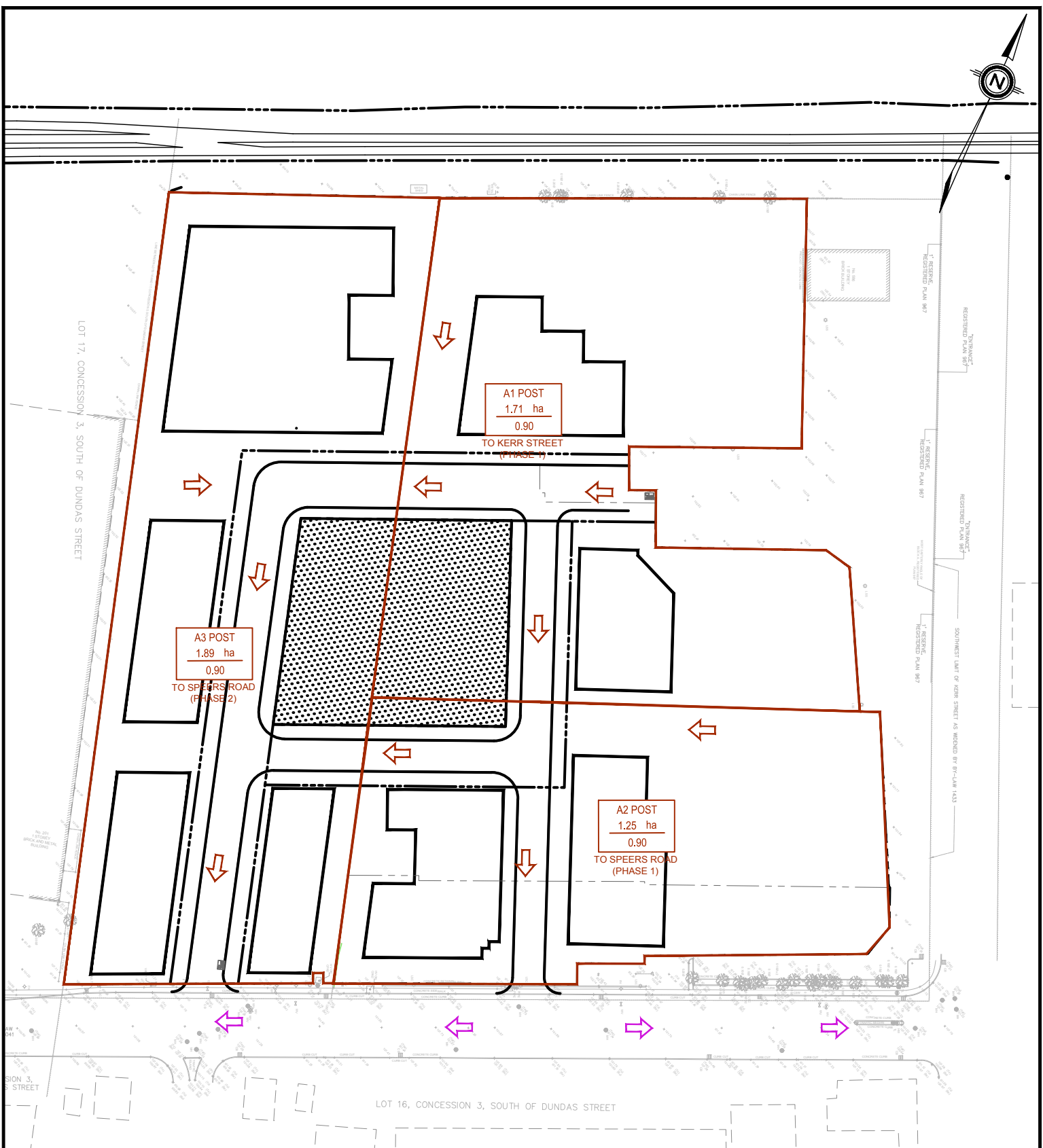
A2 PRE  
1.79 ha  
0.90  
TO SPEERS ROAD (ASSUMED) (PHASE 1)

A1 PRE  
1.17 ha  
0.90  
TO KERR STREET (PHASE 1)

**LEGEND**

-  DRAINAGE BOUNDARY
-  OVERLAND FLOW PATH

CLIENT <b>URBAN STRATEGIES INC.</b>	PROJECT NAME <b>530,550,588 KERR STREET AND 131,171 SPEERS ROAD</b>		 <b>IBI GROUP</b> Unit 300 – 8133 Warden Avenue Markham ON L6G 1B3 Canada tel 905 763 2322 fax 905 763 9983 ibigroup.com	SCALE: <b>NTS</b>	DATE: <b>2022-05-09</b>	FIGURE NAME <b>PRE-DEVELOPMENT STORM DRAINAGE PLAN</b>	FIGURE NO. <b>DAP-1</b>	REVISION <b>1</b>
	PROJECT ENG: <b>JJ</b>	DRAWN BY: <b>SB</b>		CHECKED BY: <b>JJ</b>	APPROVED BY: <b>JJ</b>			
PROJECT NO. <b>137021</b>								

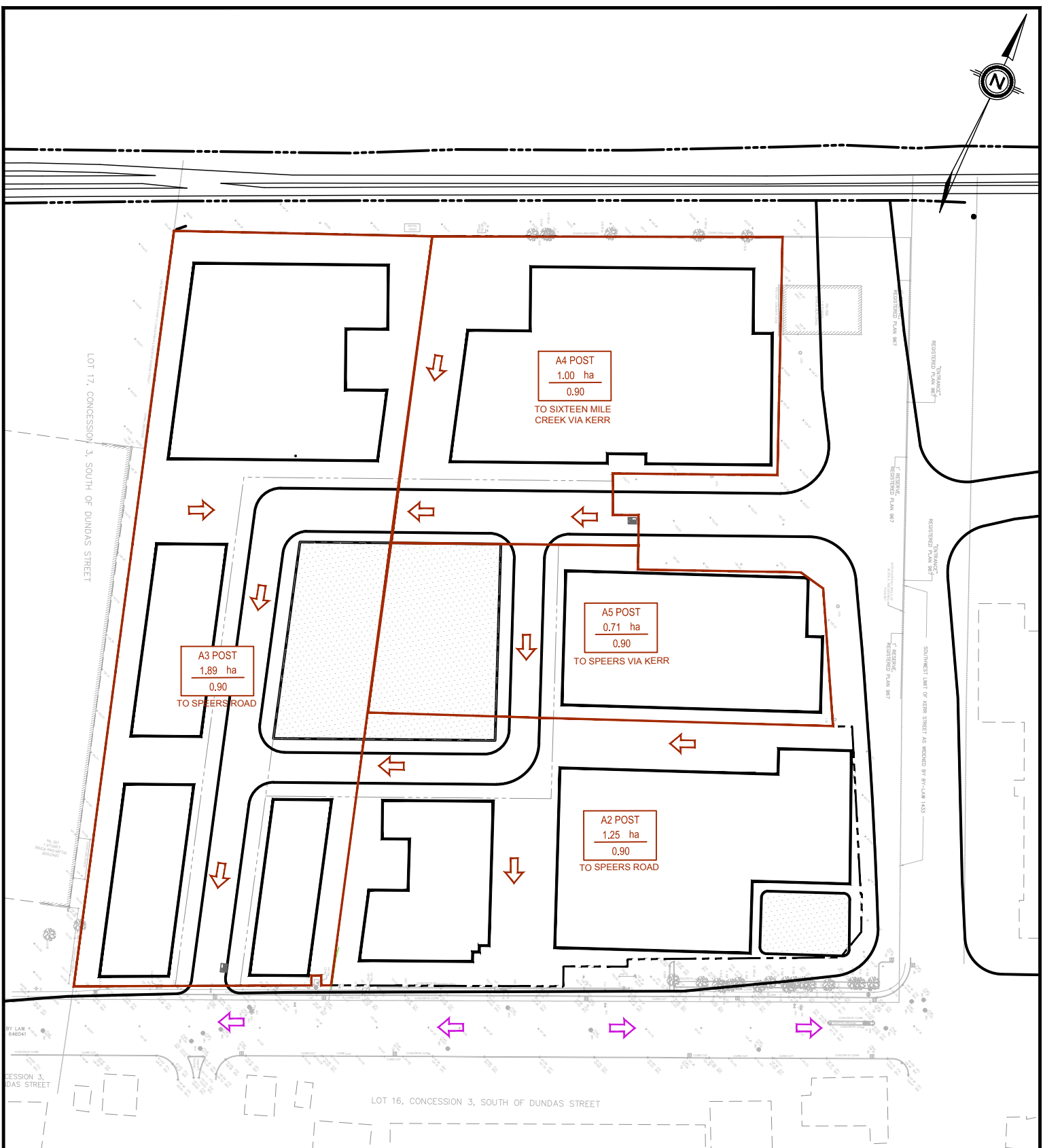


**LEGEND**




- DRAINAGE BOUNDARY
- MAJOR OVERLAND FLOW PATH (PROPOSED)
- MAJOR OVERLAND FLOW PATH (EXISTING)


CLIENT <b>URBAN STRATEGIES INC.</b>		PROJECT NAME <b>530,550,588 KERR STREET AND 131,171 SPEERS ROAD</b>	
SCALE: <b>NTS</b>	DATE: <b>2022-05-09</b>	<b>IBI GROUP</b> Unit 300 - 8133 Warden Avenue Markham ON L6G 1B3 Canada tel 905 763 2322 fax 905 763 9983 ibigroup.com	
PROJECT ENG: <b>JMJ</b>	DRAWN BY: <b>SB</b>		
CHECKED BY: <b>JMJ</b>	APPROVED BY: <b>JMJ</b>		
PROJECT NO: <b>137021</b>			

FIGURE NAME <b>POST-DEVELOPMENT STORM DRAINAGE PLAN - PHASES 1 &amp; 2</b>		FIGURE NO. <b>DAP-2</b>	REVISION <b>1</b>
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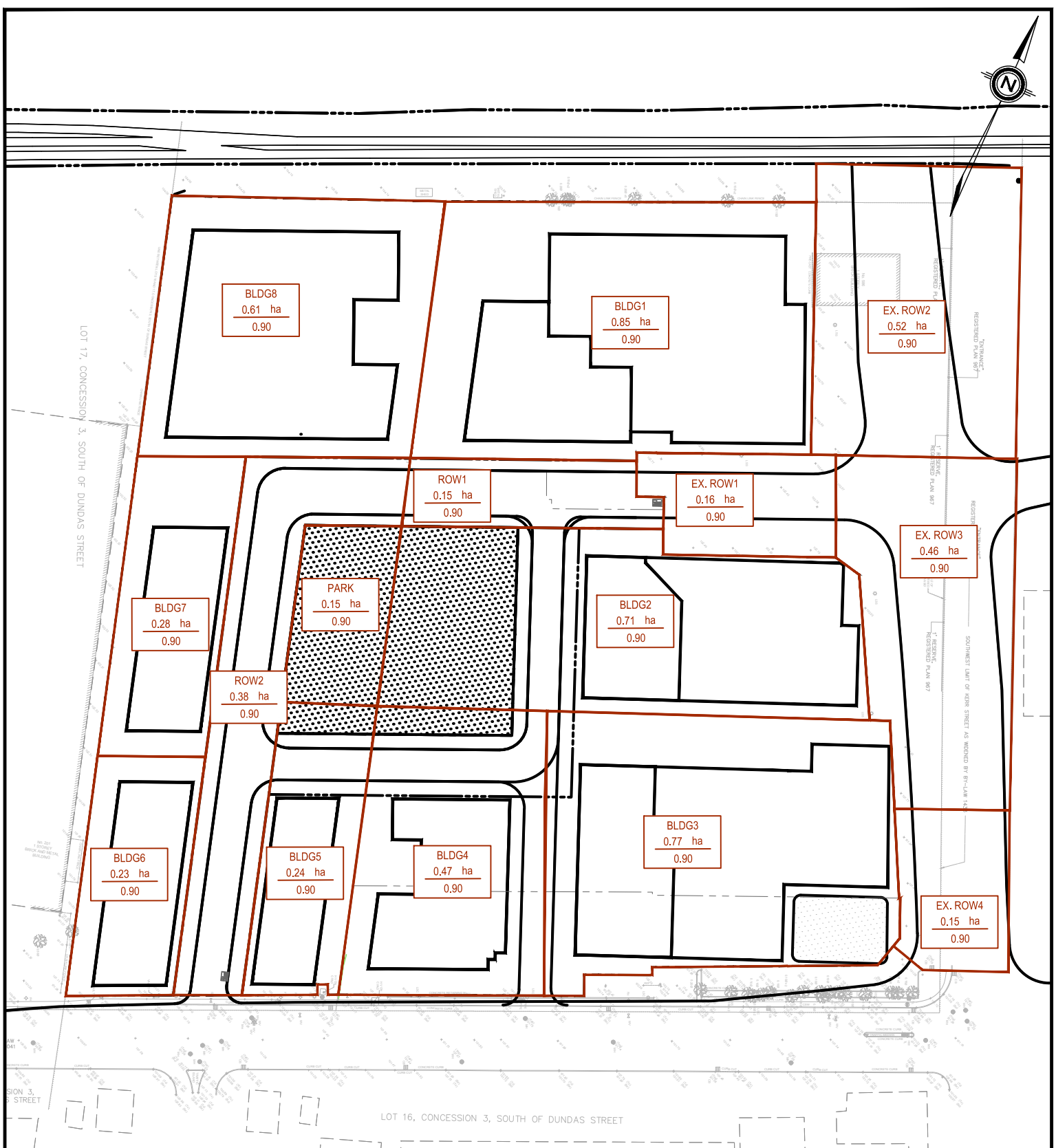


**LEGEND**

-  DRAINAGE BOUNDARY
-  MAJOR OVERLAND FLOW PATH (PROPOSED)
-  MAJOR OVERLAND FLOW PATH (EXISTING)

CLIENT <b>URBAN STRATEGIES INC.</b>		PROJECT NAME <b>530,550,588 KERR STREET AND 131,171 SPEERS ROAD</b>		 <b>IBI GROUP</b> Unit 300 - 8133 Warden Avenue Markham ON L6G 1B3 Canada tel 905 763 2322 fax 905 763 9983 ibigroup.com	
SCALE: NTS	DATE: 2022-05-09	FIGURE NAME <b>POST-DEVELOPMENT STORM DRAINAGE PLAN - PHASES 3 &amp; 4</b>		FIGURE NO.	REVISION
PROJECT ENG: JMJ	DRAWN BY: SB			DAP-3	1
CHECKED BY: JMJ	APPROVED BY: JMJ				
PROJECT NO: 137021					

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 10:25:29 AM by Shirley Beaudoin  
 SCALE CHECK 10mm 11m



**LEGEND**

DRAINAGE BOUNDARY

CLIENT <b>URBAN STRATEGIES INC.</b>		PROJECT NAME <b>530,550,588 KERR STREET AND 131,171 SPEERS ROAD</b>		<b>IBI GROUP</b> Unit 300 – 8133 Warden Avenue Markham ON L6G 1B3 Canada tel 905 763 2322 fax 905 763 9983 ibigroup.com	
SCALE: NTS	DATE: 2022-05-17	FIGURE NAME <b>POST-DEVELOPMENT SUB-DRAINAGE AREAS</b>		FIGURE NO. <b>DAP-4</b>	REVISION <b>1</b>
PROJECT ENG: JMJ	DRAWN BY: SB				
CHECKED BY: JMJ	APPROVED BY: JMJ				
PROJECT NO: 2020-0170					

# Upper Kerr Village

Mixed-Use Development



# Pre-Development Runoff Coefficients

Project Name: Upper Kerr Village

Project Number: 137021

Date: May 19, 2022

Designed By: Jason Jenkins, P.Eng.

A1 Pre - To Kerr Street				
Landscape	0.00	0.0%	0.25	0.00
Impervious	1.17	100.0%	0.90	0.90
Total Area (ha)	1.17	100%		0.90

A2 Pre - To Speers Road (Assumed)				
Landscape	0.00	0.0%	0.25	0.00
Impervious	1.79	100.0%	0.90	0.90
Total Area (ha)	1.79	100%		0.90

A3 Pre - To Speers Road				
Landscape	0.18	9.5%	0.25	0.02
Impervious	1.71	90.5%	0.90	0.81
Total Area (ha)	1.89	100%		0.84

Total Pre-Development				
Landscape	0.18	3.7%	0.25	0.01
Impervious	4.67	96.3%	0.90	0.87
Total Area (ha)	4.85	100%		0.88





$$I_{5\text{-year}} = \frac{1170}{(T+5.8)^{0.843}} = 114.21 \text{ mm/hr}$$

$$I_{100\text{-year}} = \frac{2150.0}{(T+5.7)^{0.861}} = 200.8 \text{ mm/hr}$$

	From MH	To MH	DESIGN FLOW CALCULATIONS							SEWER DESIGN & ANALYSIS										Notes	
			A (ha)	R	A x R	Accum. A x R	T <sub>c</sub> (min)	I (mm/hr)	Q <sub>act</sub> (l/s)	Size of Pipe (mm)	Slope (%)	Nominal Capacity Q <sub>cap</sub> (L/s)	Full Flow Velocity (m/s)	Actual Velocity (m/s)	Length (m)	Time in Sect. (min)	Total Time (min)	Percent of Full Flow (%)			
<b>Pre-Development Release Rate - To Kerr Street (A1 Pre)</b>																					
2-Year Storm			1.17	0.90	1.053	1.053	10.0	82.2	240												
5-Year Storm			1.17	0.90	1.053	1.053	10.0	114.2	334												
10-Year Storm			1.17	0.90	1.053	1.053	10.0	134.8	394												
25-Year Storm			1.17	0.90	1.053	1.053	10.0	162.2	474												
50-Year Storm			1.17	0.90	1.053	1.053	10.0	182.1	533												
100-Year Storm			1.17	0.90	1.053	1.053	10.0	200.8	587												
<b>Pre-Development Release Rate - To Speers Road (A2 Pre)</b>																					
2-Year Storm			1.79	0.90	1.611	1.611	10.0	82.2	368												
5-Year Storm			1.79	0.90	1.611	1.611	10.0	114.2	511												
10-Year Storm			1.79	0.90	1.611	1.611	10.0	134.8	603												
25-Year Storm			1.79	0.90	1.611	1.611	10.0	162.2	726												
50-Year Storm			1.79	0.90	1.611	1.611	10.0	182.1	815												
100-Year Storm			1.79	0.90	1.611	1.611	10.0	200.8	899												
<b>Pre-Development Release Rate - Total to 1050mm storm sewer downstream (A1 Pre + A2 Pre)</b>																					
2-Year Storm			2.96	0.90	2.664	2.664	10.0	82.2	608												
5-Year Storm			2.96	0.90	2.664	2.664	10.0	114.2	845												
10-Year Storm			2.96	0.90	2.664	2.664	10.0	134.8	997												
25-Year Storm			2.96	0.90	2.664	2.664	10.0	162.2	1200												
50-Year Storm			2.96	0.90	2.664	2.664	10.0	182.1	1347												
100-Year Storm			2.96	0.90	2.664	2.664	10.0	200.8	1486												
<b>Post-Development Release Rate - To Kerr Street (A1 Post)</b>																					
2-Year Storm			1.71	0.90	1.539	1.539	10.0	82.2	351												
5-Year Storm			1.71	0.90	1.539	1.539	10.0	114.2	488												
10-Year Storm			1.71	0.90	1.539	1.539	10.0	134.8	576												
25-Year Storm			1.71	0.90	1.539	1.539	10.0	162.2	693												
50-Year Storm			1.71	0.90	1.539	1.539	10.0	182.1	778												
100-Year Storm			1.71	0.90	1.539	1.539	10.0	200.8	858												
<b>Post-Development Release Rate - To Speers Road (A2 Post)</b>																					
2-Year Storm			1.25	0.90	1.125	1.125	10.0	82.2	257												
5-Year Storm			1.25	0.90	1.125	1.125	10.0	114.2	357												
10-Year Storm			1.25	0.90	1.125	1.125	10.0	134.8	421												
25-Year Storm			1.25	0.90	1.125	1.125	10.0	162.2	507												
50-Year Storm			1.25	0.90	1.125	1.125	10.0	182.1	569												
100-Year Storm			1.25	0.90	1.125	1.125	10.0	200.8	628												
<b>Post-Development Release Rate - Total to 1050mm storm sewer downstream (A1 Post + A2 Post)</b>																					
2-Year Storm			2.96	0.90	2.664	2.664	10.0	82.2	608												
5-Year Storm			2.96	0.90	2.664	2.664	10.0	114.2	845												
10-Year Storm			2.96	0.90	2.664	2.664	10.0	134.8	997												
25-Year Storm			2.96	0.90	2.664	2.664	10.0	162.2	1200												
50-Year Storm			2.96	0.90	2.664	2.664	10.0	182.1	1347												
100-Year Storm			2.96	0.90	2.664	2.664	10.0	200.8	1486												
<b>Storm Sewer Design - 5 Year Storm</b>																					
BLDGA1 + ROW1	MH2	MH3	Release rate limited by on-site controls						208	450	1.00%	285.1	1.8	2.0	45.5						73%
BLDGA1 + ROW1 + EX. ROW1	MH3	MH4	0.16	0.90	0.144	0.144	10.0	114.2	254	450	1.25%	318.8	2.0	2.2	55.3	0.5	10.5				80%
BLDGA1 + ROW1 + EX. ROW1 + EX. ROW2 + EX. ROW3	MH4	MH5	0.98	0.90	0.882	1.026	10.5	111.5	526	750	0.50%	787.2	1.8	1.9	35.5	0.3	10.8				67%
BLDGA1 + ROW1 + EX. ROW1 + EX. ROW2 + EX. ROW3	MH5	MH6	0.98	0.90	0.882	1.026	10.8	109.6	520	750	0.50%	787.2	1.8	1.9	24.3	0.2	11.0				66%
BLDGA1 + ROW1 + EX. ROW1 + EX. ROW2 + EX. ROW3 + BLDG B1	MH6	MH7	0.71	0.90	0.639	1.665	11.0	108.4	709	825	0.50%	1015.0	1.9	2.0	34.8	0.3	11.3				70%
BLDGA1 + BLDGB1 + ROW1 + EX. ROW1 + EX. ROW2 + EX. ROW3 + EX. ROW4	MH7	MH8	0.15	0.90	0.135	1.800	11.3	106.7	742	825	0.50%	1015.0	1.9	2.1	55.7	0.5	11.8				73%
BLDGA1 + BLDGB1 + ROW1 + EX. ROW1 + EX. ROW2 + EX. ROW3 + EX. ROW4	MH8	EX. MH5	0.15	0.90	0.135	1.800	11.8	104.2	729	825	0.50%	1015.0	1.9	2.1	3.7	0.0	11.8				72%

**Upper Kerr Village**

Mixed-Use Development



**ALLOWABLE RELEASE RATE AND STORM SERVICE DESIGN**

**PHASE 2**

5 / 100 -YEAR STORM SEWER DESIGN SHEET

Project Name: Upper Kerr Village

Project Number: 137021

Date: May 19, 2022

Designed By: Jason Jenkins, P.Eng.

$$I_{5\text{-year}} = \frac{1170}{(T+5.8)^{0.843}} = 114.21 \text{ mm/hr}$$

$$I_{100\text{-year}} = \frac{2150.0}{(T+5.7)^{0.881}} = 200.8 \text{ mm/hr}$$

	From MH	To MH	DESIGN FLOW CALCULATIONS							SEWER DESIGN & ANALYSIS									Notes
			A (ha)	R	A x R	Accum. A x R	T <sub>c</sub> (min)	I (mm/hr)	Q <sub>act</sub> (l/s)	Size of Pipe (mm)	Slope (%)	Nominal Capacity Q <sub>cap</sub> (L/s)	Full Flow Velocity (m/s)	Actual Velocity (m/s)	Length (m)	Time in Sect. (min)	Total Time (min)	Percent of Full Flow (%)	
<b>Pre-Development Release Rate - To Speers Road (A3 Pre)</b>																			
2-Year Storm			1.89	0.84	1.584	1.584	10.0	82.2	362										
5-Year Storm			1.89	0.84	1.584	1.584	10.0	114.2	503										
10-Year Storm			1.89	0.84	1.584	1.584	10.0	134.8	593										
25-Year Storm			1.89	0.84	1.584	1.584	10.0	162.2	714										
50-Year Storm			1.89	0.84	1.584	1.584	10.0	182.1	801										
100-Year Storm			1.89	0.84	1.584	1.584	10.0	200.8	884										
<b>Post-Development Release Rate - To Speers Road (A3 Post)</b>																			
2-Year Storm			1.89	0.90	1.701	1.701	10.0	82.2	388										
5-Year Storm			1.89	0.90	1.701	1.701	10.0	114.2	540										
10-Year Storm			1.89	0.90	1.701	1.701	10.0	134.8	637										
25-Year Storm			1.89	0.90	1.701	1.701	10.0	162.2	766										
50-Year Storm			1.89	0.90	1.701	1.701	10.0	182.1	860										
100-Year Storm			1.89	0.90	1.701	1.701	10.0	200.8	949										
<b>Storm Sewer Design - 5 Year Storm</b>																			
PARK + BLDG8 + ROW2	MH9	MH10	1.14	0.90	1.026	1.026	10.0	114.2	326	525	1.00%	430.1	2.0	2.2	24.3	0.2	10.2	76%	
PARK + BLDG8 + ROW2	MH10	MH11	1.14	0.90	1.026	1.026	10.2	113.0	322	525	1.00%	430.1	2.0	2.2	24.3	0.2	10.4	75%	
BLDG7 + PARK + BLDG8 + ROW2	MH11	MH12	0.28	0.90	0.252	1.278	10.4	111.8	397	600	1.00%	614.0	2.2	2.3	34.8	0.3	10.7	65%	
BLDG5 + BLDG6 + BLDG7 + PARK + BLDG8 + ROW2	MH12	EX. MH1	0.47	0.90	0.423	1.701	10.7	110.3	521	600	1.20%	672.6	2.4	2.6	55.7	0.4	11.1	77%	
TOTAL A3 POST AREA	MH7	MH8	Release rate limited by on-site controls						503	600	1.20%	672.6	2.4	2.6	4.3	0.0		75%	

**Upper Kerr Village**

Mixed-Use Development



**ALLOWABLE RELEASE RATE AND STORM SERVICE DESIGN**

**PHASES 3 & 4**

5 / 100 -YEAR STORM SEWER DESIGN SHEET

Project Name: Upper Kerr Village

Project Number: 137021

Date: May 19, 2022

Designed By: Jason Jenkins, P.Eng.

$$I_{5\text{-year}} = \frac{1170}{(T+5.8)^{0.843}} = 114.21 \text{ mm/hr}$$

$$I_{100\text{-year}} = \frac{2150.0}{(T+5.7)^{0.861}} = 200.8 \text{ mm/hr}$$

	From MH	To MH	DESIGN FLOW CALCULATIONS							SEWER DESIGN & ANALYSIS										Notes		
			A (ha)	R	A x R	Accum. A x R	T <sub>c</sub> (min)	I (mm/hr)	Q <sub>act</sub> (l/s)	Size of Pipe (mm)	Slope (%)	Nominal Capacity Q <sub>cap</sub> (L/s)	Full Flow Velocity (m/s)	Actual Velocity (m/s)	Length (m)	Time in Sect. (min)	Total Time (min)	Percent of Full Flow (%)				
<b>Allowable Release Rate - To Proposed Underpass Storm Sewer</b>																						
2-Year Storm			0.73	0.90	0.657	0.657	10.0	82.2	150													
5-Year Storm			0.73	0.90	0.657	0.657	10.0	114.2	208													
10-Year Storm			0.73	0.90	0.657	0.657	10.0	134.8	246													
25-Year Storm			0.73	0.90	0.657	0.657	10.0	162.2	296													
50-Year Storm			0.73	0.90	0.657	0.657	10.0	182.1	332													
100-Year Storm			0.73	0.90	0.657	0.657	10.0	200.8	366													
<b>Post-Development Release Rate - To Proposed Underpass Storm Sewer (A4 Post)</b>																						
2-Year Storm			1.00	0.90	0.900	0.900	10.0	82.2	205													
5-Year Storm			1.00	0.90	0.900	0.900	10.0	114.2	286													
10-Year Storm			1.00	0.90	0.900	0.900	10.0	134.8	337													
25-Year Storm			1.00	0.90	0.900	0.900	10.0	162.2	405													
50-Year Storm			1.00	0.90	0.900	0.900	10.0	182.1	455													
100-Year Storm			1.00	0.90	0.900	0.900	10.0	200.8	502													
<b>Post-Development Release Rate - To 1050mm via Kerr Street (A5 Post)</b>																						
2-Year Storm			0.71	0.90	0.639	0.639	10.0	82.2	146													
5-Year Storm			0.71	0.90	0.639	0.639	10.0	114.2	203													
10-Year Storm			0.71	0.90	0.639	0.639	10.0	134.8	239													
25-Year Storm			0.71	0.90	0.639	0.639	10.0	162.2	288													
50-Year Storm			0.71	0.90	0.639	0.639	10.0	182.1	323													
100-Year Storm			0.71	0.90	0.639	0.639	10.0	200.8	356													
<b>Post-Development Release Rate - To 1050mm via Speers Road (A2 Post + A3 Post)</b>																						
2-Year Storm			3.14	0.90	2.826	2.826	10.0	82.2	645													
5-Year Storm			3.14	0.90	2.826	2.826	10.0	114.2	897													
10-Year Storm			3.14	0.90	2.826	2.826	10.0	134.8	1058													
25-Year Storm			3.14	0.90	2.826	2.826	10.0	162.2	1273													
50-Year Storm			3.14	0.90	2.826	2.826	10.0	182.1	1429													
100-Year Storm			3.14	0.90	2.826	2.826	10.0	200.8	1576													
<b>Post-Development Release Rate - Total</b>																						
2-Year Storm			4.85	0.90	4.365	4.365	10.0	82.2	996													
5-Year Storm			4.85	0.90	4.365	4.365	10.0	114.2	1385													
10-Year Storm			4.85	0.90	4.365	4.365	10.0	134.8	1634													
25-Year Storm			4.85	0.90	4.365	4.365	10.0	162.2	1966													
50-Year Storm			4.85	0.90	4.365	4.365	10.0	182.1	2207													
100-Year Storm			4.85	0.90	4.365	4.365	10.0	200.8	2435													
<b>Storm Sewer Design - 5 Year Storm</b>																						
ROW1 + BLDGA1	MH2	MH3			Release rate limited by on-site controls				208	450	1.00%	285.1	1.8	2.0	45.5	0.4					73%	
BLDGA1 + ROW1 + EX. ROW1	MH3	MH4	0.16	0.90	0.144	0.144	10.0	114.2	254	450	1.25%	318.8	2.0	2.2	39.7	0.3	10.3				80%	

# Appendix C

## Sanitary Analysis

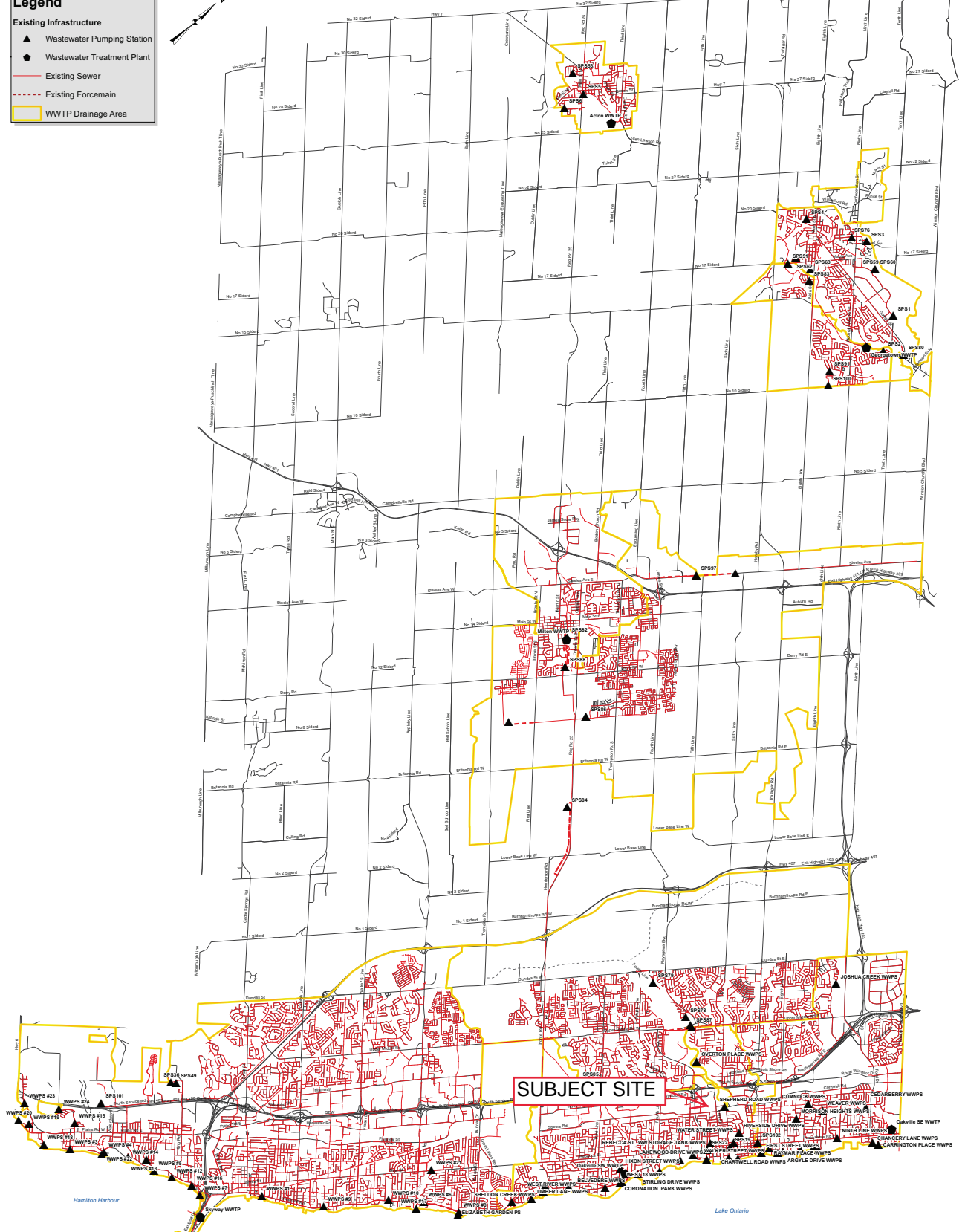
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Halton Region Wastewater Map  
Sanitary Design Calculations

**Legend**

**Existing Infrastructure**

- ▲ Wastewater Pumping Station
- Wastewater Treatment Plant
- Existing Sewer
- - - Existing Forcemain
- ▭ WWTP Drainage Area



**Upper Kerr Village**

Mixed Use Development



**Sanitary Sewer Design Sheet**

**PHASE 1**

**NOTES:** Post-development domestic sewage flow based upon a unit flow of 275 Lpcd.  
 Post-development commercial sewage flow based upon a unit flow of 24.750 m<sup>3</sup>/ha/day

Infiltration= **0.286 L/s/ha**  
 Mannings= **0.013**

Maximum flow velocity for pipe flowing full = 3.0 m/s.  
 Minimum flow velocity for pipe flowing partially full (actual flow) = 0.6 m/s.

Project Name: Upper Kerr Village  
 Project Number: 137021  
 Date: May 17, 2022  
 Designed By: Jason Jenkins, P.Eng.

	From	To	DESIGN FLOW CALCULATIONS										SEWER DESIGN & ANALYSIS						Notes	
			Area (ha)	Commercial Area (ha)	Residential Population	Cumulative Area (ha)	Cumulative Commercial Area (ha)	Cumulative Residential Population	Cumulative Total Population	Peaking Factor	Sewage Flow (L/s) (1)	Infiltration Flow (L/s) (2)	Total Flow, Qd (L/s) (1)+(2)	Nominal Diameter (mm)	Pipe Slope (%)	Pipe Length (m)	Full Flow Capacity, Qf (L/s)	Full Flow Velocity (m/s)		Actual Velocity V (m/s)
<b>Pre-Development</b>			4.8	1.7	0	4.8	1.7	0	153	3.55	1.729	1.373	3.1							
<b>Post-Development Sewer</b>																				
588 Kerr			0.9	0.10	1,156	0.9	0.10	1156	1165	3.74	13.874	0.257	14.1							
550 Kerr			0.8	0.19	1,156	0.8	0.19	1156	1173	3.73	13.920	0.229	14.1							
Prop. PH1 Sanitary Sewer	MH1A	Ex. SAN	1.7	0.29	2,311	1.7	0.29	2311	1429	3.67	27.281	0.486	27.8	250	0.50%	10.0	43.9	0.87	0.92	63.4%
<b>Post-Development Services</b>																				
588 Kerr			0.9	0.10	1,156	0.9	0.10	1156	1165	3.73	13.831	0.257	14.1	150	2.00%	10.0	22.5	1.23	1.30	62.8%
550 Kerr			0.8	0.19	1,156	0.8	0.19	1156	1173	3.73	13.920	0.229	14.1	150	2.00%	10.0	22.5	1.23	1.30	62.8%
530 Kerr + 131 Speers			1.2	0.40	1,393	1.2	0.40	1393	1429	3.65	16.618	0.343	17.0	150	2.00%	10.0	22.5	1.23	1.35	75.7%

Pre-Development				
	Units	GFA	Density	Population
Residential	0.00	0.00	2.7 pp/unit	0
Commercial		1.7 ha	90.0 pp/ha	153
			Pop. =	153
			Kav =	0.80

Post-Development- 588 Kerr				
	Units	GFA	Density	Population
Residential	428	4.0 ha	2.7 pp/unit	1156
Commercial		0.10 ha	90.0 pp/ha	9
			Pop. =	1165
			Kav =	1.00

Post-Development-Total Site				
	Units / Area	GFA	Density	Population
Residential	1372	12.8 ha	2.7 pp/unit	3704
Commercial		0.7 ha	90.0 pp/ha	62
			Pop. =	3767
			Kav =	0.99

Post-Development-550 Kerr				
	Units	GFA	Density	Population
Residential	428	4.0 ha	2.7 pp/unit	1156
Commercial		0.19 ha	90.0 pp/ha	17
			Pop. =	1173
			Kav =	0.99

Post-Development-530 Kerr + 131 Speers				
	Units / Area	GFA	Density	Population
Residential	516	4.8 ha	2.7 pp/unit	1393
Commercial		0.40 ha	90.0 pp/ha	36
			Pop. =	1429
			Kav =	0.98

**Upper Kerr Village**

Mixed Use Development



**Sanitary Sewer Design Sheet**

**PHASE 2**

**NOTES:** Post-development domestic sewage flow based upon a unit flow of 275 Lpcd.  
 Post-development commercial sewage flow based upon a unit flow of 24.750 m<sup>3</sup>/ha/day

Infiltration= **0.286 L/s/ha**  
 Mannings= **0.013**

Maximum flow velocity for pipe flowing full = 3.0 m/s.  
 Minimum flow velocity for pipe flowing partially full (actual flow) = 0.6 m/s.

Project Name: Upper Kerr Village  
 Project Number: 137021  
 Date: May 17, 2022  
 Designed By: Jason Jenkins, P.Eng.

	From	To	DESIGN FLOW CALCULATIONS										SEWER DESIGN & ANALYSIS						Notes	
			Area (ha)	Commercial Area (ha)	Residential Population	Cumulative Area (ha)	Cumulative Commercial Area (ha)	Cumulative Residential Population	Cumulative Total Population	Peaking Factor	Sewage Flow (L/s) (1)	Infiltration Flow (L/s) (2)	Total Flow, Qd (L/s) (1)+(2)	Nominal Diameter (mm)	Pipe Slope (%)	Pipe Length (m)	Full Flow Capacity, Qf (L/s)	Full Flow Velocity (m/s)		Actual Velocity V (m/s)
<b>Pre-Development</b>			4.8	1.7	0	4.8	1.7	0	153	3.55	1.729	1.373	3.1							
<b>Post-Development Sewer</b>																				
171 Speers			1.9	0.10	1,269	1.9	0.10	1,269	1,278	3.72	15,118	0.543	15.7	200	0.60%	146.0	26.5	0.82	0.85	59.2%
<b>Post-Development Services</b>																				
171 Speers			1.9	0.10	1,269	1.9	0.10	1,269	1,278	3.72	15,118	0.543	15.7	150	2.00%	10.0	22.5	1.23	1.33	69.9%

Pre-Development				
	Units	GFA	Density	Population
Residential	0.00	0.00	2.7 pp/unit	0
Commercial		1.7 ha	90.0 pp/ha	153
			Pop. =	153
			Kav =	0.80

Post-Development- 588 Kerr				
	Units	GFA	Density	Population
Residential	428	4.0 ha	2.7 pp/unit	1156
Commercial		0.10 ha	90.0 pp/ha	9
			Pop. =	1165
			Kav =	1.00

Post-Development-Total Site				
	Units / Area	GFA	Density	Population
Residential	1842	17.2 ha	2.7 pp/unit	4973
Commercial		0.8 ha	90.0 pp/ha	71
			Pop. =	5045
			Kav =	0.99

Post-Development-550 Kerr				
	Units	GFA	Density	Population
Residential	428	4.0 ha	2.7 pp/unit	1156
Commercial		0.19 ha	90.0 pp/ha	17
			Pop. =	1173
			Kav =	0.99

Post-Development-530 Kerr + 171 Speers				
	Units / Area	GFA	Density	Population
Residential	516	4.8 ha	2.7 pp/unit	1393
Commercial		0.40 ha	90.0 pp/ha	36
			Pop. =	1429
			Kav =	0.98

Post-Development-171 Speers				
	Units / Area	GFA	Density	Population
Residential	470	4.4 ha	2.7 pp/unit	1269
Commercial		0.10 ha	90.0 pp/ha	9
			Pop. =	1278
			Kav =	1.00

**Upper Kerr Village**

Mixed Use Development



**Sanitary Sewer Design Sheet**

**ULTIMATE CONDITION**

**NOTES:** Post-development domestic sewage flow based upon a unit flow of 275 Lpcd.  
 Post-development commercial sewage flow based upon a unit flow of 24.750 m<sup>3</sup>/ha/day

Infiltration= **0.286 L/s/ha**  
 Mannings= **0.013**

Maximum flow velocity for pipe flowing full = 3.0 m/s.  
 Minimum flow velocity for pipe flowing partially full (actual flow) = 0.6 m/s.

Project Name: Upper Kerr Village  
 Project Number: 137021  
 Date: January 28, 2022  
 Designed By: Jason Jenkins, P.Eng.

	From	To	DESIGN FLOW CALCULATIONS											SEWER DESIGN & ANALYSIS						Notes
			Area (ha)	Commercial Area (ha)	Residential Population	Cumulative Area (ha)	Cumulative Commercial Area (ha)	Cumulative Residential Population	Cumulative Total Population	Peaking Factor	Sewage Flow (L/s) (1)	Infiltration Flow (L/s) (2)	Total Flow, Qd (L/s) (1)+(2)	Nominal Diameter (mm)	Pipe Slope (%)	Pipe Length (m)	Full Flow Capacity, Qf (L/s)	Full Flow Velocity (m/s)	Actual Velocity V (m/s)	
<b>Pre-Development</b>			4.8	1.7	0	4.8	1.7	0	153	3.55	1.729	1.373	3.1							
<b>Post-Development Sewer</b>																				
588 Kerr			0.9	0.10	1,156	0.9	0.10	1156	1165	3.74	13.874	0.257	14.1							
550 Kerr			0.8	0.19	1,156	0.8	0.19	1156	1173	3.73	13.920	0.229	14.1							
530 Kerr + 131 Speers			1.2	0.40	1,393	1.2	0.40	1393	1429	3.65	16.618	0.343	17.0							
171 Speers			1.9	0.10	1,269	1.9	0.10	1269	1278	3.72	15.118	0.543	15.7							
<b>Total</b>			4.8	0.79	4,973	4.8	0.79	4973	5045	3.22	51.728	1.373	53.1							
<b>Post-Development Services</b>																				
588 Kerr	Cntrl MH17A	MH1A	0.9	0.10	1,156	0.9	0.10	1156	1165	3.73	13.831	0.257	14.1	150	2.00%	10.0	22.5	1.23	1.30	62.8%
550 Kerr	Cntrl MH18A	MH2A	0.8	0.19	1,156	0.8	0.19	1156	1173	3.73	13.920	0.229	14.1	150	2.00%	10.0	22.5	1.23	1.30	62.8%
530 Kerr + 131 Speers	Cntrl MH5A	MH6A	1.2	0.40	1,393	1.2	0.40	1393	1429	3.65	16.618	0.343	17.0	150	2.00%	10.0	22.5	1.23	1.35	75.7%
171 Speers	Cntrl MH12A	MH8A	1.9	0.10	1,269	1.9	0.10	1269	1278	3.72	15.118	0.543	15.7	150	2.00%	10.0	22.5	1.23	1.33	69.9%

Pre-Development				
	Units	GFA	Density	Population
Residential	0.00	0.00	2.7 pp/unit	0
Commercial		1.7 ha	90.0 pp/ha	153
			Pop. =	153
			Kav =	0.80

Post-Development- 588 Kerr				
	Units	GFA	Density	Population
Residential	428	4.0 ha	2.7 pp/unit	1156
Commercial		0.10 ha	90.0 pp/ha	9
			Pop. =	1165
			Kav =	1.00

Post-Development-Total Site				
	Units / Area	GFA	Density	Population
Residential	1842	17.2 ha	2.7 pp/unit	4973
Commercial		0.8 ha	90.0 pp/ha	71
			Pop. =	5045
			Kav =	0.99

Post-Development-550 Kerr				
	Units	GFA	Density	Population
Residential	428	4.0 ha	2.7 pp/unit	1156
Commercial		0.19 ha	90.0 pp/ha	17
			Pop. =	1173
			Kav =	0.99

Post-Development-530 Kerr + 171 Speers				
	Units / Area	GFA	Density	Population
Residential	516	4.8 ha	2.7 pp/unit	1393
Commercial		0.40 ha	90.0 pp/ha	36
			Pop. =	1429
			Kav =	0.98

Post-Development-171 Speers				
	Units / Area	GFA	Density	Population
Residential	470	4.4 ha	2.7 pp/unit	1269
Commercial		0.10 ha	90.0 pp/ha	9
			Pop. =	1278
			Kav =	1.00



# Appendix D

## Water Analysis

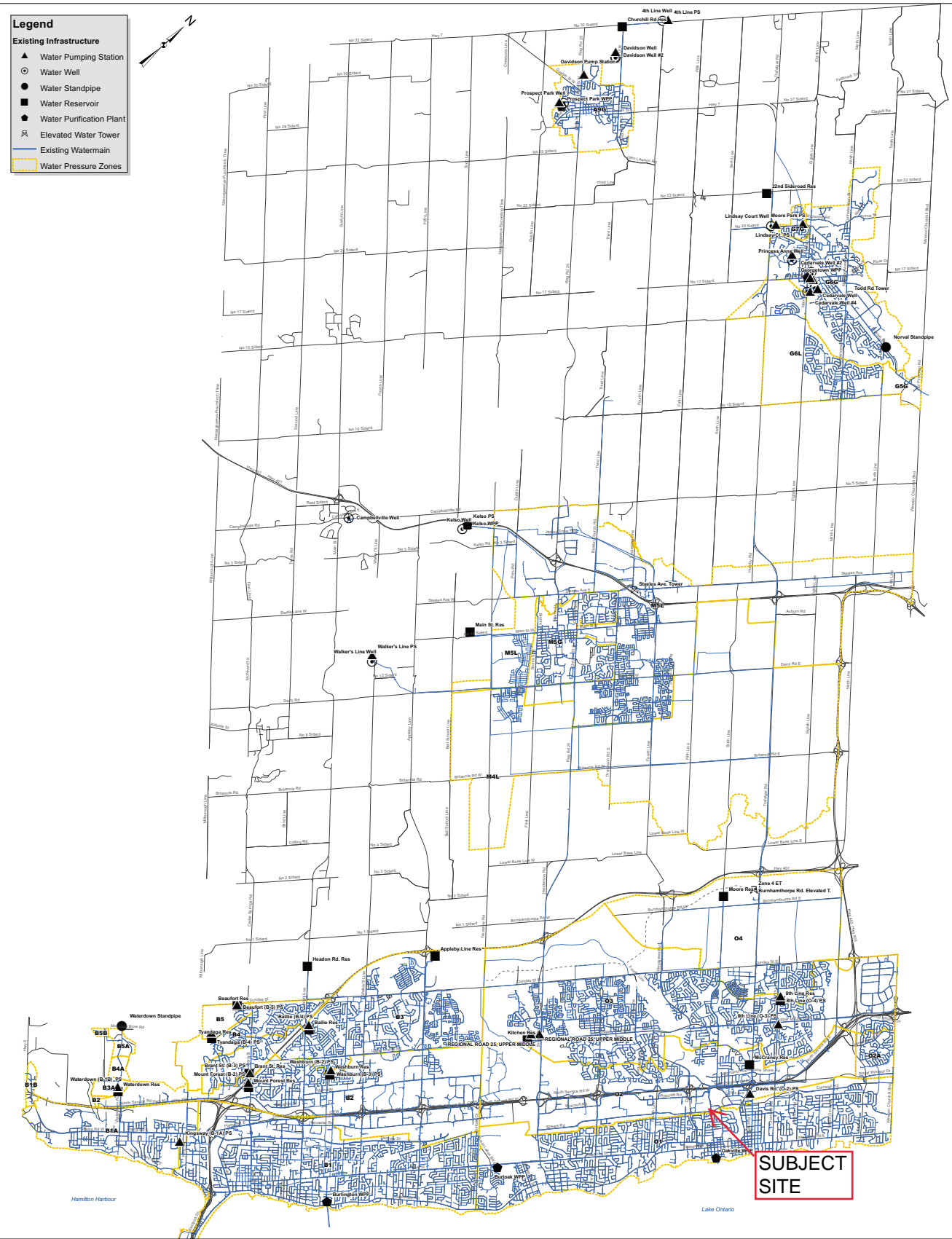
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Pressure District Map (Halton Region)  
Water Demand Calculations

**Legend**

**Existing Infrastructure**

- ▲ Water Pumping Station
- Water Well
- Water Standpipe
- Water Reservoir
- Water Purification Plant
- ⌘ Elevated Water Tower
- Existing Watermain
- Water Pressure Zones



# Upper Kerr Village

Mixed Use Development



# DOMESTIC WATER DEMAND CALCULATIONS

Project Name: Upper Kerr Village

Project Number: 137021

Date: May 17, 2022

Designed By: Jason Jenkins, P.Eng.

1. Based on the October 2019 Halton Region Water and Wastewater LDM and

2. OBC, Part 8 "Sewage Systems", OBC Table 8.2.1.3.A and 8.2.1.3.B

3. ADD = 275 L/cap/day for residential uses

Peaking Factors		
Land Use	Peak Hour	Maximum Day
Residential	4.00	2.25
Commercial	2.25	2.25

<b>588 Kerr</b>					(ADDxP.F.)	(ADDxP.F.)
	Units / Area	Density	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
Apartments	428	2.7 pp/unit	1156	3.7	14.7	8.3
Commercial	0.10 ha	90 pp/ha	9	0.0	0.1	0.1
Totals				<b>3.7</b>	<b>14.8</b>	<b>8.3</b>

<b>550 Kerr</b>					(ADDxP.F.)	(ADDxP.F.)
	Units / Area	Density	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
Apartments	428	2.7 pp/unit	1156	3.7	14.7	8.3
Commercial	0.19 ha	90 pp/ha	17	0.1	0.1	0.1
Totals				<b>3.7</b>	<b>14.8</b>	<b>8.4</b>

<b>530 Kerr + 131 Speers</b>					(ADDxP.F.)	(ADDxP.F.)
	Units / Area	Density	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
Apartments	516	2.7 pp/unit	1393	4.4	17.7	10.0
Commercial	0.40 ha	90 pp/ha	36	0.1	0.3	0.3
Totals				<b>4.5</b>	<b>18.0</b>	<b>10.2</b>

<b>171 Speers</b>					(ADDxP.F.)	(ADDxP.F.)
	Units / Area	Density	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
Apartments	470	2.7 pp/unit	1269	4.0	16.2	9.1
Commercial	0.10 ha	90 pp/ha	9	0.0	0.1	0.1
Totals				<b>4.0</b>	<b>16.2</b>	<b>9.1</b>

<b>Total Site</b>					(ADDxP.F.)	(ADDxP.F.)
	Units / Area	Density	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
Ultimate Condition	-	-	<b>5,045</b>	<b>16.0</b>	<b>63.8</b>	<b>36.1</b>

# Upper Kerr Village

530 Kerr & 131 Speers (Area C)



# FIRE FLOW DEMAND CALCULATIONS

Project Name: Upper Kerr Village  
 Project Number: 137021  
 Date: May 17, 2022  
 Designed By: Jason Jenkins, P.Eng.

Based on the Water Supply for Public Fire Protection Manual, 1999 by the Fire Underwriters Survey

## Step 1: Calculate Fire Flow (based on area)

Construction Coefficient =	0.6	
Largest Floor Area =	4,417	m <sup>2</sup>
Floor Above =	4,417	m <sup>2</sup>
Floor Below =	4,417	m <sup>2</sup>
Area =	6,626	m <sup>2</sup>
Fire Flow (F) =	11,000	L/min

F = required fire flow (L/min)

C = coefficient related to type of construction

0.6 for fire resistive (fully protected, 3-hr ratings)

0.8 for non combustable (i.e. unprotected metal buildings)

1.0 for ordinary construction

1.5 for wood frame construction

A = total floor area excluding basements 50% below grade

$$F = 220C\sqrt{A}$$

\* If vertical openings are inadequately protected, consider two largest two largest adjoining floors plus 50% of each of any floors above up to eight floors.

\* If vertical openings are adequately protected (one hour rating), consider largest floor area + 25% of two immediately floors.

## Step 2: Adjustment for Building Occupancy (shall not be less than 2000 L/s)

Occupancy Adjustment =	-0.15	
F <sub>1</sub> = Fire Flow x Adjustment =	9,350	L/min

Non-Combust.	-25%	Free Burning	15%
Limited Comb.	-15%	Rapid Burning	25%
Combustable	No change		

## Step 3: Adjust F1 for Fire Supression System

Sprinkler Adjustment =	30%	
F <sub>2</sub> = F <sub>1</sub> x Adjustment =	2,805	L/min

Automatic Sprinklers (monitored)	-50%
Adequately Designed System	-30%

## Step 4: Adjust F1 for Exposure / Proximity (shall not exceed 75%)

Proximity Adjustment =	35%	(max 75%)
F <sub>3</sub> = F <sub>1</sub> x Factor =	3,273	L/min

Separation	Adjustment	Separation	Adjustment
0m to 3m	25%	20.1m to 30m	10%
3.1m to 10m	20%	30.1m to 45m	5%
10.1m to 20m	15%		

## Step 5: Calculate Adjusted Fire Flow (shall not be less than 2000 L/min or greater than 45,000 L/min)

F <sub>1</sub> =	9,350	L/min
- F <sub>2</sub> =	2,805	L/min
+ F <sub>3</sub> =	3,273	L/min
Fire Flow =	10,000	L/min
Fire Flow =	166.7	L/s
<b>Total Demand (Fire Flow + MDD) =</b>	<b>202.7</b>	<b>L/s</b>

$$\text{Fire Flow} = F_1 - F_2 + F_3$$

### Checks:

Fire Flow greater than 2000 L/min  
 Fire Flow less than 45,000 L/min

# Appendix E

## Engineering Exhibits

---

Preliminary Site Grading Exhibit – Phase 1  
Preliminary Site Grading Exhibit – Phase 2  
Preliminary Site Grading Exhibit – Phase 3  
Preliminary Site Grading Exhibit – Phase 4  
Preliminary Site Servicing Exhibit – Phase 1  
Preliminary Site Servicing Exhibit – Phase 2  
Preliminary Site Servicing Exhibit – Phase 3  
Preliminary Site Servicing Exhibit – Phase 4



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KEY PLAN

No.	DESCRIPTION	DATE
1	ISSUED FOR OPA	2022-01-31
2	ISSUED FOR OPA	2022-05-19

ISSUES

No.	DESCRIPTION	DATE

LEGEND

SUBJECT SITE BOUNDARY	—
EX. PROPERTY LINE	- - -
EX. ELEVATION	X 165.50EX
PROP. ELEVATION	X 149.50
FINISHED FLOOR ELEVATION	FFE=104.50
PROP. OVERLAND FLOW ROUTE	→
EX. OVERLAND FLOW ROUTE	→
PROP. STORM MAINTENANCE HOLE	○
PROP. AREA DRAIN / DOUBLE AREA DRAIN	○
PROP. SANITARY MAINTENANCE HOLE	○
EX. STORM MANHOLE	○
EX. SANITARY MANHOLE	○
PROP. VALVE AND BOX	M VB
PROP. FIRE HYDRANT AND VALVE	FH
PROP. SIAMESE CONNECTION	○

SEAL

TOWN OF OAKVILLE  
REGIONAL MUNICIPAL OF HALTON

**IBI GROUP**  
Unit 300 - 8133 Warden Avenue  
Markham ON L6G 1B3 Canada  
Tel 905 763 2322 fax 905 763 9983  
ibigroup.com

PROJECT  
**530,550,580 KERR STREET AND  
131,171 SPEERS ROAD**  
OAKVILLE, ONTARIO

PROJECT NO:  
137021

DRAWN BY: SB	CHECKED BY: JJ
PROJECT MGR: JJ	APPROVED BY: JJ

SHEET TITLE  
**PRELIMINARY SITE  
GRADING EXHIBIT -  
PHASE 1**

SHEET NUMBER <b>SG-01</b>	ISSUE <b>01</b>
------------------------------	--------------------

LIST OF DRAWINGS  
SG-01 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 1  
SG-02 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 2  
SG-03 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 3  
SG-04 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 4  
SS-01 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 1  
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SS-03 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 3  
SS-04 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 4

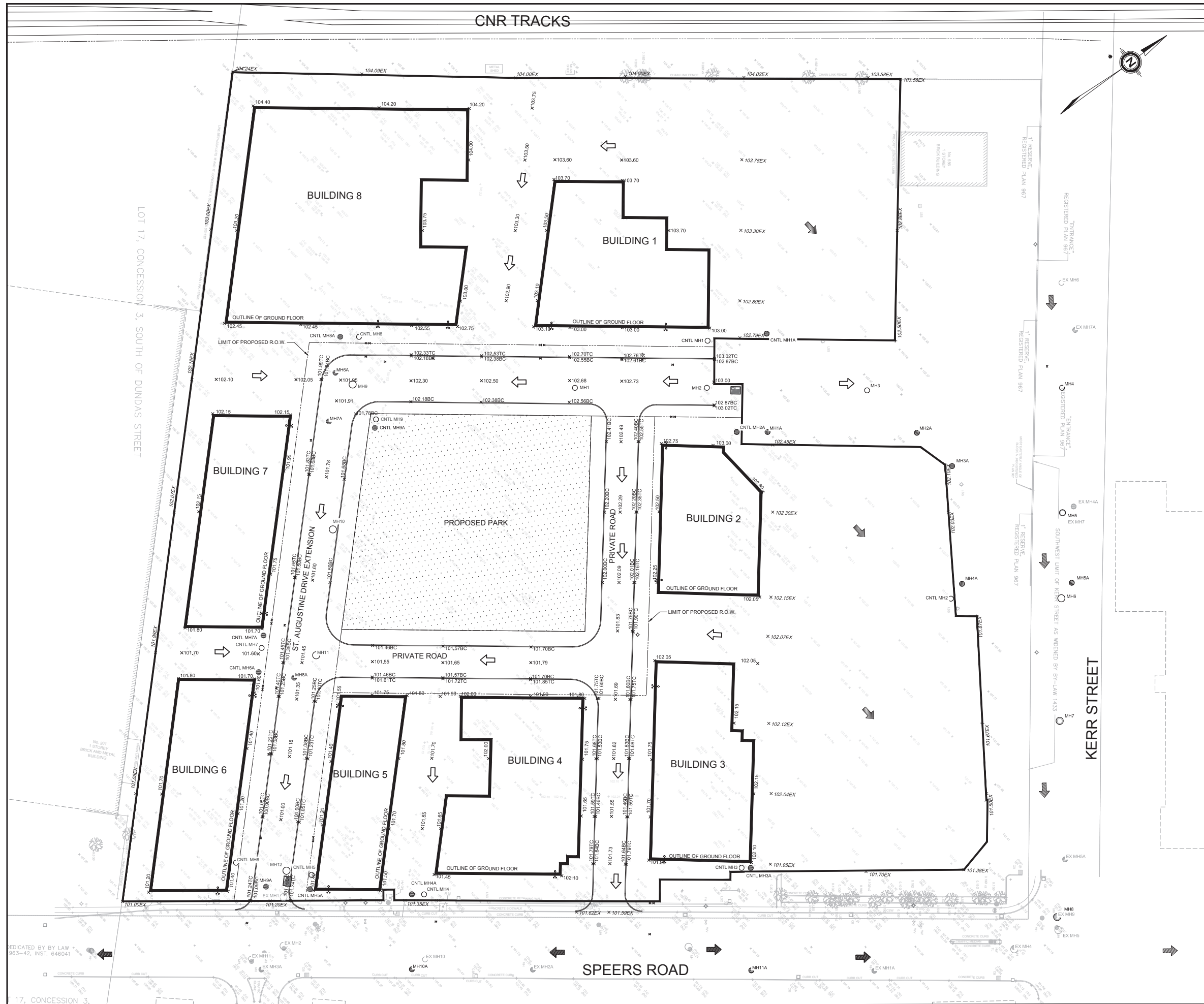
SITE PLAN INFORMATION

SURVEYOR INFORMATION  
KRCMR SURVEYORS LIMITED  
1137 CENTRE STREET  
THORNHILL, ON L4J 3M6  
PHONE: (905) 738-0053

BENCHMARK INFORMATION:  
ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO THE TOWN OF OAKVILLE BENCHMARK No. 112, HAVING AN ELEVATION = 102.477 METRES.

SCALE: N.T.S.

File Location: J:\137021\_UpperKerr7\_03\_Design\04\_Civil\Sheets\137021-SHT-GRAD.dwg Last Saved: May 19, 2022, by shirley.beaudoin Plot Date: Thursday, May 19, 2022 3:47:20 PM by Shirley Beaudoine



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**LEGEND**

- SUBJECT SITE BOUNDARY
- EX. PROPERTY LINE
- EX. ELEVATION
- PROP. ELEVATION
- FINISHED FLOOR ELEVATION
- PROP. OVERLAND FLOW ROUTE
- EX. OVERLAND FLOW ROUTE
- PROP. STORM MAINTENANCE HOLE
- PROP. AREA DRAIN / DOUBLE AREA DRAIN
- PROP. SANITARY MAINTENANCE HOLE
- EX. STORM MANHOLE
- EX. SANITARY MANHOLE
- PROP. VALVE AND BOX
- PROP. FIRE HYDRANT AND VALVE
- PROP. SIAMOSE CONNECTION

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REGIONAL MUNICIPAL OF HALTON**

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Tel: 905 763 2322 fax: 905 763 9983  
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530,550,580 KERR STREET AND  
131,171 SPEERS ROAD  
OAKVILLE, ONTARIO

**PROJECT NO.:**  
137021

**DRAWN BY:** SB      **CHECKED BY:** JJ

**PROJECT MGR:** JJ      **APPROVED BY:** JJ

**LIST OF DRAWINGS**

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- SG-02 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 2
- SG-03 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 3
- SG-04 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 4
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- SS-03 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 3
- SS-04 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 4

**SITE PLAN INFORMATION**

**SURVEYOR INFORMATION**  
KRCMR SURVEYORS LIMITED  
1137 CENTRE STREET  
THORNHILL, ON L4J 3M6  
PHONE: (905) 738-0053

**BENCHMARK INFORMATION:**  
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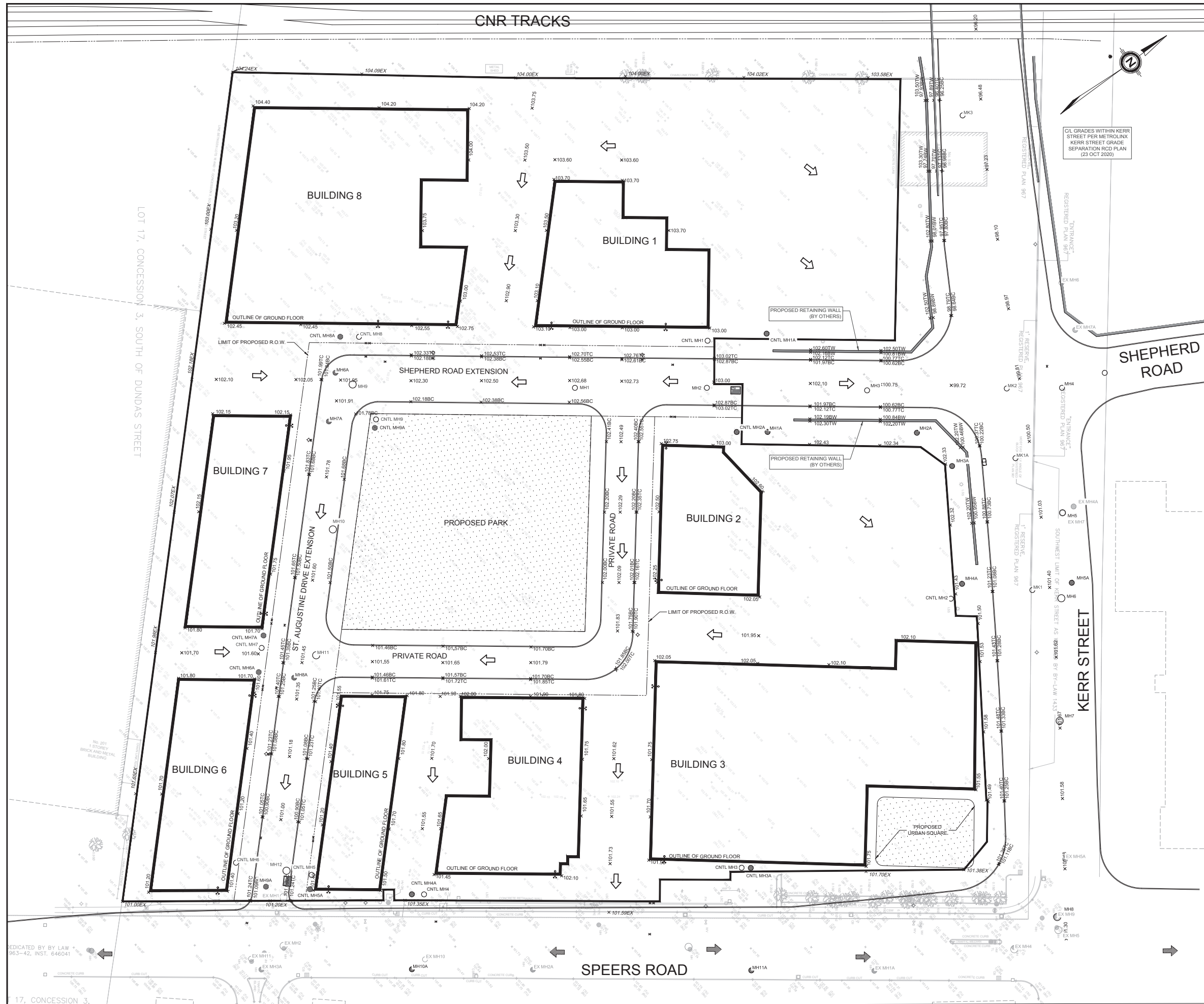
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GRADING EXHIBIT -  
PHASE 2

**SHEET NUMBER**  
SG-02

**ISSUE**  
01

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**ISSUES**

No.	DESCRIPTION	DATE

**LEGEND**

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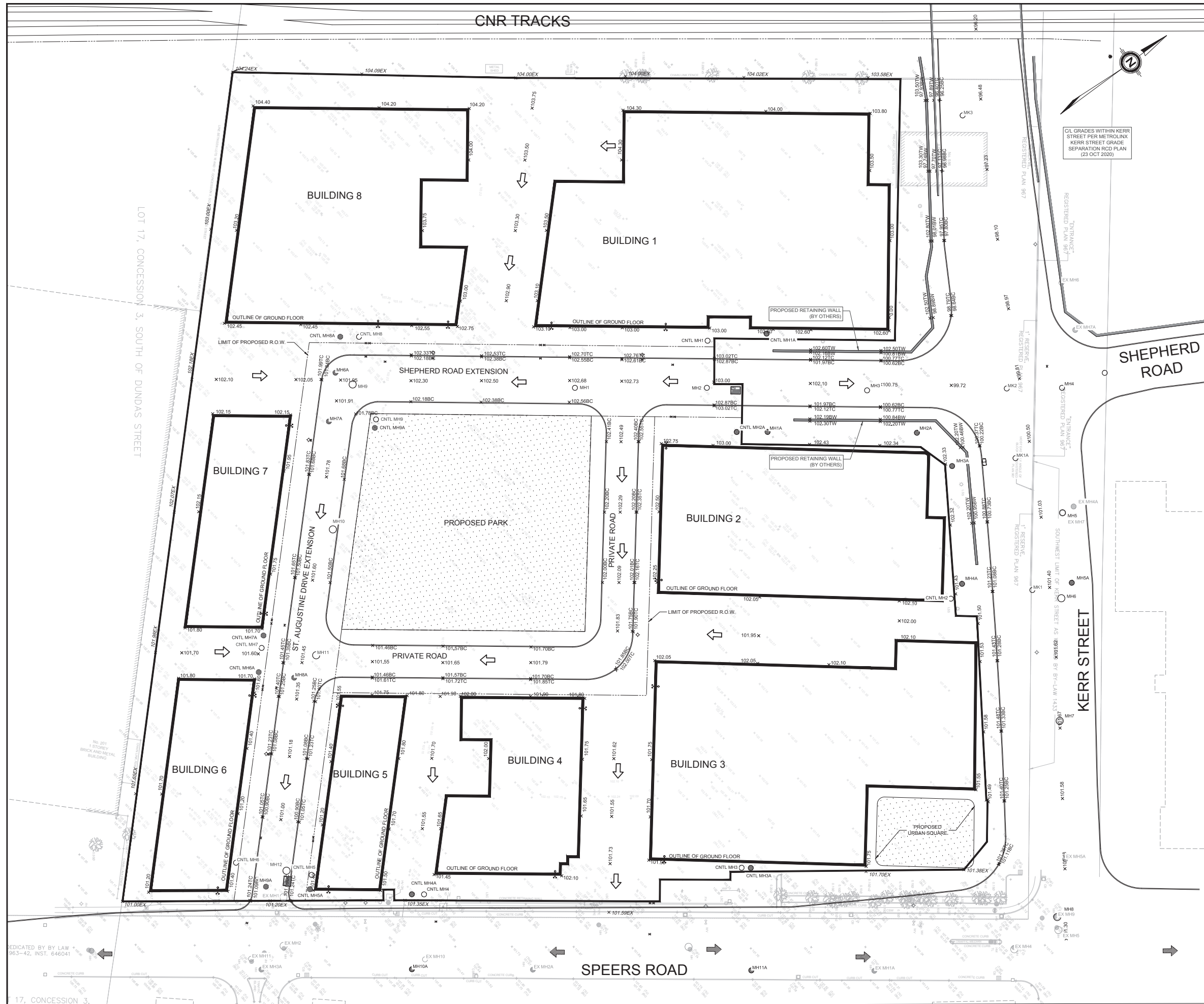
SCALE: N.T.S.

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SG-03

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2	ISSUED FOR OPA	2022-05-19

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No.	DESCRIPTION	DATE

**LEGEND**

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EX. OVERLAND FLOW ROUTE	→
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EX. STORM MANHOLE	○
EX. SANITARY MANHOLE	○
PROP. VALVE AND BOX	○
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PROP. SIAMSE CONNECTION	○

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OAKVILLE, ONTARIO

**PROJECT NO:**  
137021

**DRAWN BY:** SB      **CHECKED BY:** JJ

**PROJECT MGR:** JJ      **APPROVED BY:** JJ

**LIST OF DRAWINGS**

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- SG-03 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 3
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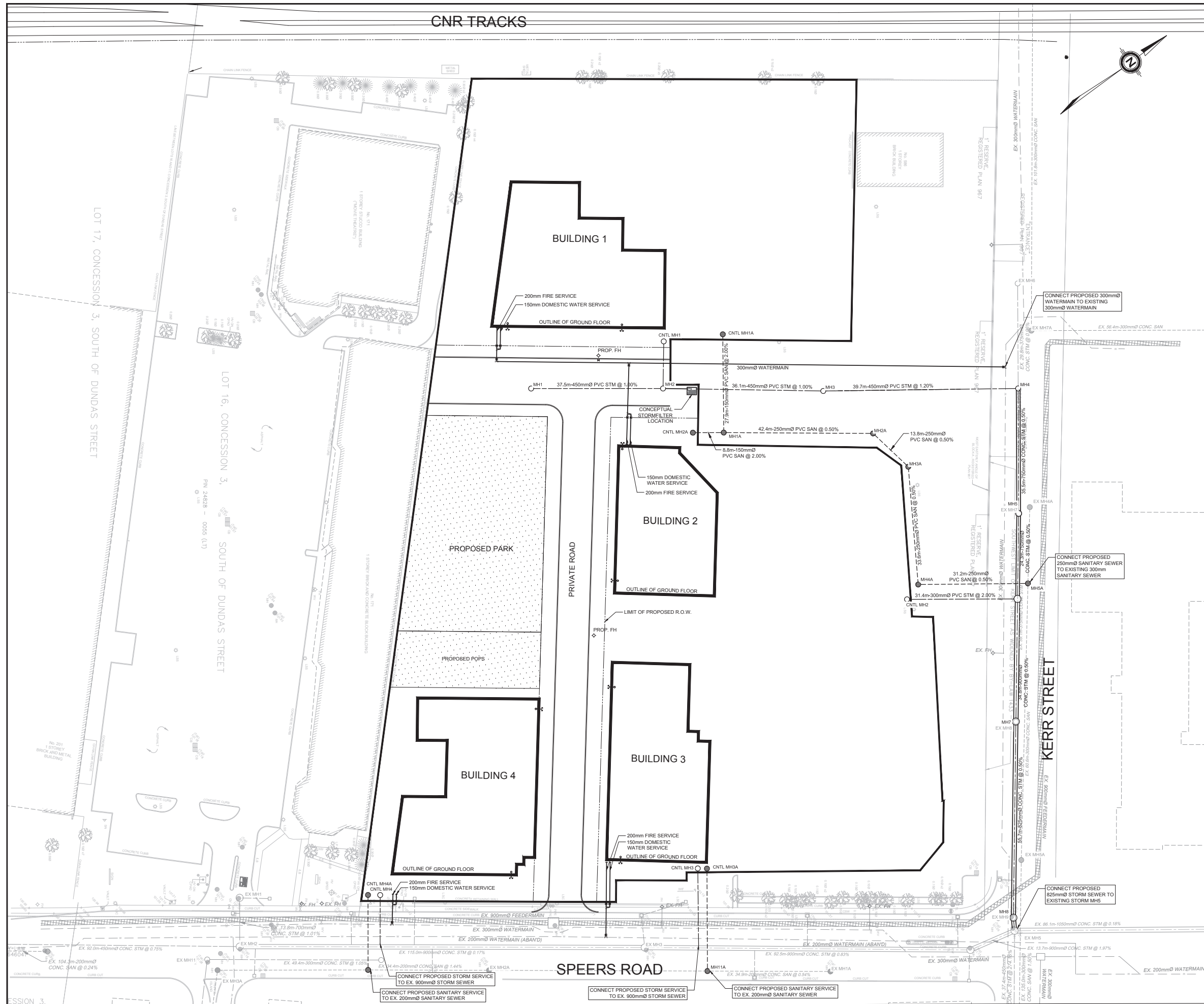
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SCALE: N.T.S.

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PRELIMINARY SITE  
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PHASE 4

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SG-04

**ISSUE**  
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**KEY PLAN**

**ISSUES**

No.	DESCRIPTION	DATE
1	ISSUED FOR OPA	2022-01-31
2	ISSUED FOR OPA	2022-05-19

**LEGEND**

SUBJECT SITE BOUNDARY	---
EXISTING PROPERTY LINE	---
PROPOSED STORM MANHOLE	○
PROPOSED SANITARY MANHOLE	●
PROPOSED SINGLE CATCH BASIN	○
PROPOSED DOUBLE CATCH BASIN	○
EXISTING STORM MANHOLE	○
EXISTING SANITARY MANHOLE	●
EXISTING CATCH BASIN	○
PROPOSED VALVE AND BOX	M V&B
PROPOSED STORM	---
PROPOSED SANITARY	---
PROPOSED WATER	---
EXISTING STORM	---
EXISTING SANITARY	---
EXISTING WATER	---
EXISTING BELL	
EXISTING GAS	---
PROPOSED AREA DRAIN	■
PROPOSED BACKFLOW PREVENTER	⊗
PROPOSED WATER METER	⊙
PROPOSED DOUBLE CHECK DETECTOR	⊕

**SEAL**

**TOWN OF OAKVILLE  
REGIONAL MUNICIPAL OF HALTON**

**IBI GROUP**  
Unit 300 - 8133 Warden Avenue  
Markham ON L6G 1B3 Canada  
Tel 905 763 2322 fax 905 763 9983  
ibigroup.com

**PROJECT**  
530,550,580 KERR STREET AND  
131,171 SPEERS ROAD

OAKVILLE, ONTARIO

**LIST OF DRAWINGS**

SG-01 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 1
SG-02 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 2
SG-03 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 3
SG-04 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 4
SS-01 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 1
SS-02 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 2
SS-03 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 3
SS-04 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 4

**PROJECT NO:**  
137021

<b>DRAWN BY:</b> SB	<b>CHECKED BY:</b> JJ
<b>PROJECT MGR:</b> JJ	<b>APPROVED BY:</b> JJ

**SITE PLAN INFORMATION**

**SURVEYOR INFORMATION**

KRCMR SURVEYORS LIMITED  
1137 CENTRE STREET  
THORNHILL, ON L4J 3M6  
PHONE: (905) 738-0553

**BENCHMARK INFORMATION:**  
ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO THE TOWN OF OAKVILLE BENCHMARK No. 112, HAVING AN ELEVATION = 102.477 METRES.

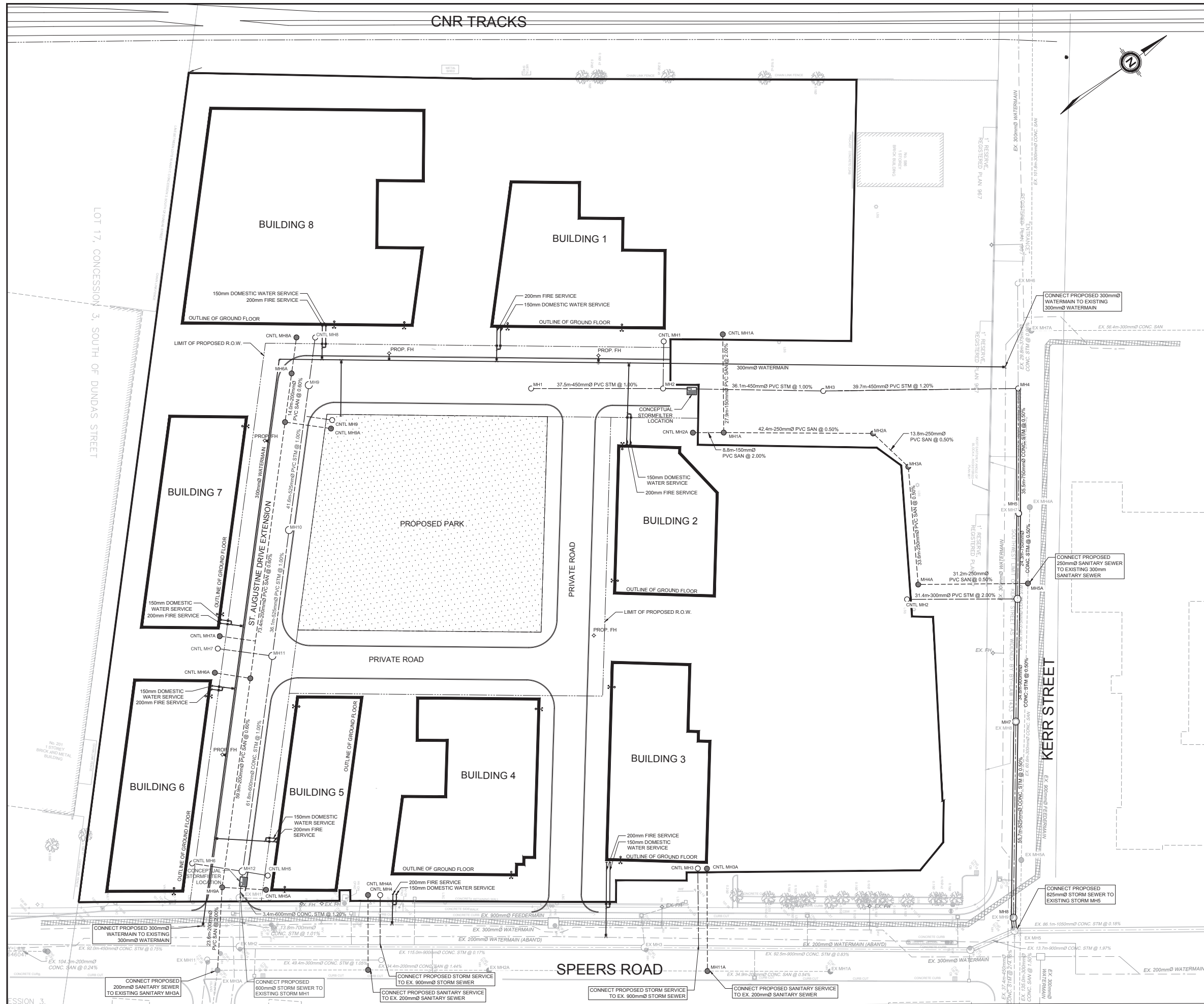
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**SHEET TITLE**  
PRELIMINARY SITE  
SERVICING EXHIBIT -  
PHASE 1

**SHEET NUMBER**  
SS-01

**ISSUE**  
01

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**KEY PLAN**

**ISSUES**

No.	DESCRIPTION	DATE
1	ISSUED FOR OPA	2022-01-31
2	ISSUED FOR OPA	2022-05-19

**LEGEND**

SUBJECT SITE BOUNDARY	---
EXISTING PROPERTY LINE	---
PROPOSED STORM MANHOLE	○
PROPOSED SINGLE CATCH BASIN	●
PROPOSED DOUBLE CATCH BASIN	⊖
EXISTING STORM MANHOLE	○
EXISTING SANITARY MANHOLE	○
EXISTING CATCH BASIN	⊖
PROPOSED VALVE AND BOX	M V&B
PROPOSED STORM	---
PROPOSED SANITARY	---
PROPOSED WATER	---
EXISTING STORM	---
EXISTING SANITARY	---
EXISTING WATER	---
EXISTING BELL	
EXISTING GAS	---
PROPOSED AREA DRAIN	⊞
PROPOSED BACKFLOW PREVENTER	⊞
PROPOSED WATER METER	⊞
PROPOSED DOUBLE CHECK DETECTOR	⊞

**SEAL**

**TOWN OF OAKVILLE  
REGIONAL MUNICIPAL OF HALTON**

**IBI GROUP**  
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Tel: 905 763 2322 fax: 905 763 9983  
ibi@ibi.com

**PROJECT**  
530,550,580 KERR STREET AND  
131,171 SPEERS ROAD  
OAKVILLE, ONTARIO

**PROJECT NO.:** 137021  
**DRAWN BY:** SB  
**CHECKED BY:** JJ  
**PROJECT MGR:** JJ  
**APPROVED BY:** JJ

**LIST OF DRAWINGS**  
SG-01 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 1  
SG-02 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 2  
SG-03 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 3  
SG-04 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 4  
SS-01 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 1  
SS-02 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 2  
SS-03 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 3  
SS-04 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 4

**SITE PLAN INFORMATION**  
BENCHMARK INFORMATION:  
ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO THE TOWN OF OAKVILLE BENCHMARK No. 112, HAVING AN ELEVATION = 102.477 METRES.

**SURVEYOR INFORMATION**  
KRCMR SURVEYORS LIMITED  
1137 CENTRE STREET  
THORNHILL, ON L4J 3M6  
PHONE: (905) 738-0553

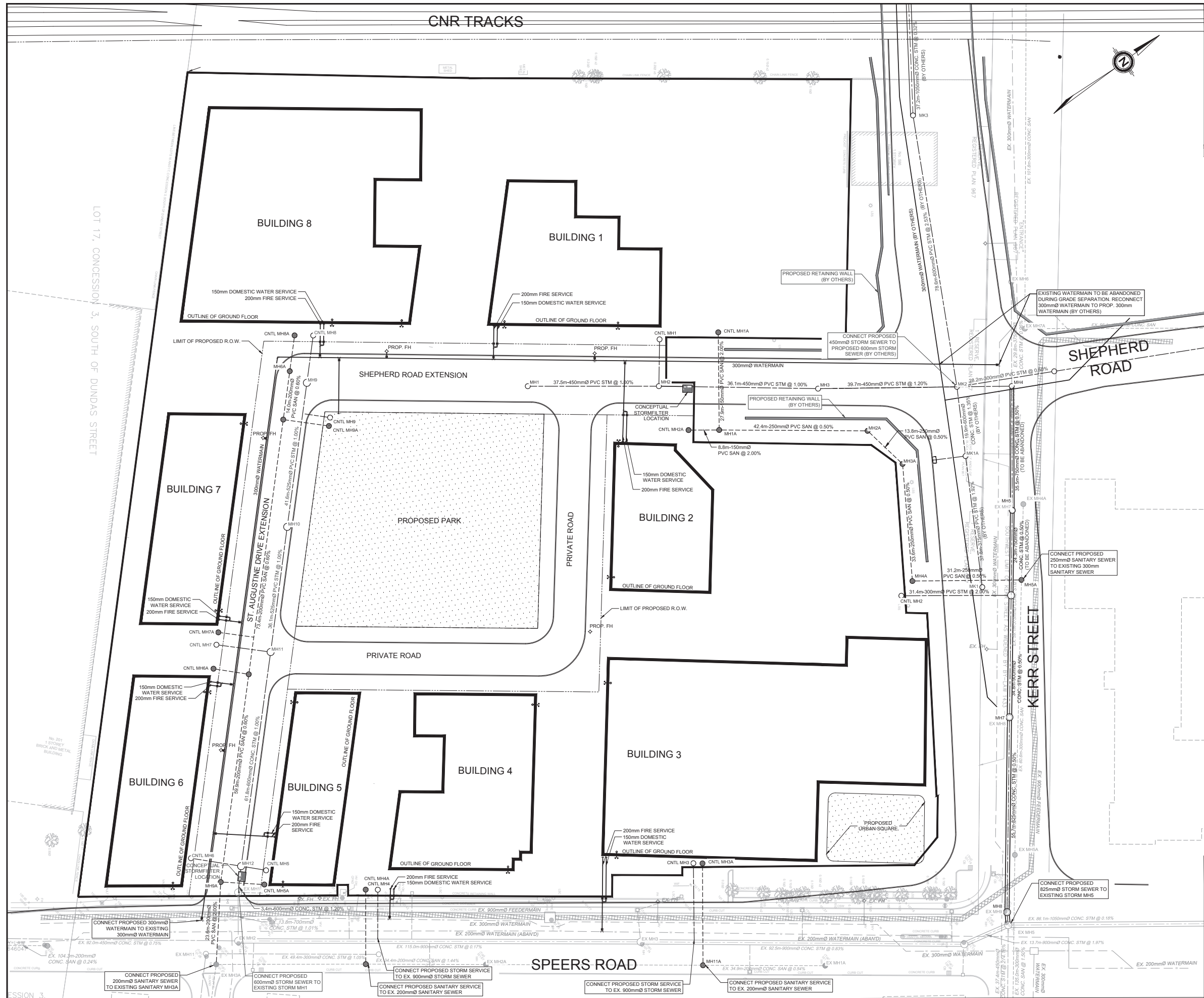
**SHEET TITLE**  
PRELIMINARY SITE  
SERVICING EXHIBIT -  
PHASE 2

**SHEET NUMBER**  
SS-02

**ISSUE**  
01

SCALE: N.T.S.

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**KEY PLAN**

**ISSUES**

No.	DESCRIPTION	DATE
1	ISSUED FOR OPA	2022-01-31
2	ISSUED FOR OPA	2022-05-19

**LEGEND**

SUBJECT SITE BOUNDARY	---
EXISTING PROPERTY LINE	---
PROPOSED STORM MANHOLE	○
PROPOSED SANITARY MANHOLE	●
PROPOSED SINGLE CATCH BASIN	○
PROPOSED DOUBLE CATCH BASIN	○
EXISTING STORM MANHOLE	○
EXISTING SANITARY MANHOLE	●
EXISTING CATCH BASIN	○
PROPOSED VALVE AND BOX	M V&B
PROPOSED STORM	---
PROPOSED SANITARY	---
PROPOSED WATER	---
EXISTING STORM	---
EXISTING SANITARY	---
EXISTING WATER	---
EXISTING BELL	---
EXISTING GAS	---
PROPOSED AREA DRAIN	---
PROPOSED BACKFLOW PREVENTER	⊗
PROPOSED WATER METER	⊙
PROPOSED DOUBLE CHECK DETECTOR	⊕

**SEAL**

**TOWN OF OAKVILLE  
REGIONAL MUNICIPAL OF HALTON**

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ibigroup.com

**PROJECT**  
530,550,580 KERR STREET AND  
131,171 SPEERS ROAD  
OAKVILLE, ONTARIO

**PROJECT NO:**  
137021

**DRAWN BY:** SB  
**CHECKED BY:** JJ

**PROJECT MGR:** JJ  
**APPROVED BY:** JJ

**LIST OF DRAWINGS**

- SG-01 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 1
- SG-02 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 2
- SG-03 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 3
- SG-04 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 4
- SS-01 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 1
- SS-02 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 2
- SS-03 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 3
- SS-04 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 4

**SITE PLAN INFORMATION**

**SURVEYOR INFORMATION**  
KRCMR SURVEYORS LIMITED  
1137 CENTRE STREET  
THORNHILL, ON L4J 3M6  
PHONE: (905) 738-0553

**BENCHMARK INFORMATION:**  
ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO THE TOWN OF OAKVILLE BENCHMARK No. 112, HAVING AN ELEVATION = 102.472 METRES.

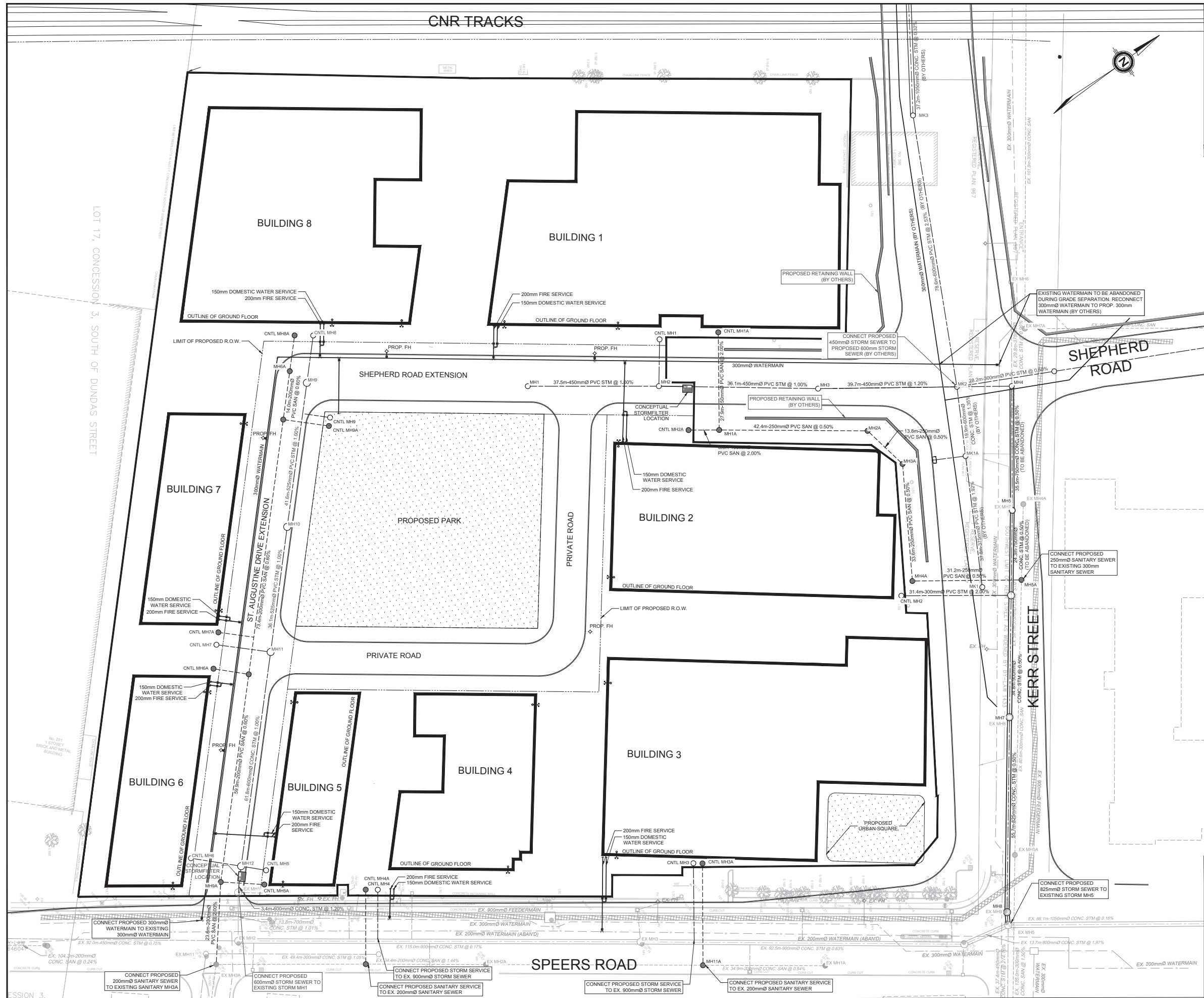
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**SHEET TITLE**  
PRELIMINARY SITE  
SERVICING EXHIBIT -  
PHASE 3

**SHEET NUMBER**  
SS-03

**ISSUE**  
01

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**KEY PLAN**

No.	DESCRIPTION	DATE
1	ISSUED FOR OPA	2022-01-31
2	ISSUED FOR OPA	2022-05-19

**ISSUES**

No.	DESCRIPTION	DATE

**LEGEND**

SUBJECT SITE BOUNDARY	---
EXISTING PROPERTY LINE	---
PROPOSED STORM MANHOLE	○
PROPOSED SANITARY MANHOLE	●
PROPOSED SINGLE CATCH BASIN	◐
PROPOSED DOUBLE CATCH BASIN	◑
EXISTING STORM MANHOLE	○
EXISTING SANITARY MANHOLE	●
EXISTING CATCH BASIN	◐
PROPOSED VALVE AND BOX	M V&B
PROPOSED STORM	---
PROPOSED SANITARY	---
PROPOSED WATER	---
EXISTING STORM	---
EXISTING SANITARY	---
EXISTING WATER	---
EXISTING BELL	
EXISTING GAS	---
PROPOSED AREA DRAIN	⊠
PROPOSED BACKFLOW PREVENTER	⊙
PROPOSED WATER METER	⊙
PROPOSED DOUBLE CHECK DETECTOR	⊙

**SEAL**

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**PROJECT**  
530,550,580 KERR STREET AND  
131,171 SPEERS ROAD

OAKVILLE, ONTARIO

**PROJECT NO:**  
137021

**DRAWN BY:** SB  
**CHECKED BY:** JJ

**PROJECT MGR:** JJ  
**APPROVED BY:** JJ

**LIST OF DRAWINGS**

- SG-01 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 1
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- SG-04 - PRELIMINARY SITE GRADING EXHIBIT - PHASE 4
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- SS-02 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 2
- SS-03 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 3
- SS-04 - PRELIMINARY SITE SERVICING EXHIBIT - PHASE 4

**SITE PLAN INFORMATION**

**SURVEYOR INFORMATION**  
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THORNHILL, ON L4J 3M6  
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SCALE: N.T.S.

**SHEET TITLE**  
PRELIMINARY SITE  
SERVICING EXHIBIT -  
PHASE 4

**SHEET NUMBER**  
SS-04

**ISSUE**  
01

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