



**1280 Dundas Street West  
Town of Oakville**

**Delmanor West Oak Development**

Functional Servicing Study  
FINAL

September 2020



Prepared for: Delmanor West Oak Inc.

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**RVA 195028**

**September 2020**

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## 1.0 INTRODUCTION

Delmanor West Oak Inc. (the Owner) is proposing the development of a seniors' living facility located at 1280 Dundas Street West in the Town of Oakville known as the Delmanor West Oak development.

R.V. Anderson Associates Limited (RVA) has been retained by the Owner to prepare a Functional Servicing Study (FSS) in support of a Zoning By-Law Amendment (ZBA) application for the proposed site development.

The scope of this report specifically includes:

- A summary of the existing property and the proposed development;
- Identification and review of existing Municipal and/or Regional storm, sanitary and water infrastructure available to service the site;
- Identification of the Town of Oakville and/or Halton Region criteria with respect to sanitary, water and storm servicing for the redevelopment of the site;
- Calculate water, sanitary and storm demands that will result from the redevelopment;
- Review of the capacity of the existing municipal water supply system and sewer collection system;
- Provide a summary of proposed servicing of the site with water, sanitary and storm services;
- Identification of any proposed Municipal and/or Regional infrastructure upgrades to support the development; and
- Provide a summary of the stormwater management approach for the proposed development.

## 2.0 BACKGROUND

### 2.1 Existing Conditions

The proposed site is located on a property comprised of the St. Volodymyr Cultural Centre (SVCC) and the St. Volodymyr cemetery, located south of Dundas Street West immediately west of Sixteen Mile Creek, with the municipal address 1280 Dundas Street West in the Town of Oakville. Specifically, the site is located within a vacant/undeveloped portion of the St. Volodymyr property located to the north of the cemetery

and east of the SVCC. The subject site will be formed through a severance of the St. Volodymyr property.

The subject of this report is the proposed severed block of land to be developed as a seniors' living centre. This site (the Site) is approximately 4.623 hectares in size based on the proposed severance line.

As a result, the location of the site can be described as being bound by Fourth Line along its north and east limits, with Sixteen Mile Creek located further to the east of Fourth Line, roughly parallel to the east side of the site. A naturalized environmental area has been identified and is located south of the Site which is under the jurisdiction of Conservation Halton. Finally, an existing private driveway leading from Fourth Line through to the cemetery defines the limit of the west side of the site.

The Site is comprised primarily of open grass field used for miscellaneous storage of equipment associated with SVCC.

Refer to Figure 2-1 below for the Site location.



**Figure 2-1 – Site Location**

## **2.2 Proposed Redevelopment**

The proposed seniors' living facility will be comprised of one main building located along the east limits of the Site with four ancillary buildings (blocks) housing Independent Living Units (ILU's) positioned along the western limit of the Site. The main building's built form will consist of two eight storey towers with a 3-storey high podium with a roof-top amenity terrace between them. Each ILU block will be one storey with multiple units per building.

Vehicular access into the site will be from a driveway located generally at the north/west corner of the Site from Fourth Line. This driveway will continue into the Site as a private roadway generally in a north/south configuration. This roadway will be along the frontage of the four ILU blocks providing vehicular access to these units. A second private roadway will provide vehicular access to the main building's resident and visitor surface

parking lot, as well as lead to the vehicular drop-off at the main building's primary entrance. A second vehicular entrance from Fourth Line will be located east of the main driveway entrance which will provide access for service, maintenance and loading vehicles.

As mentioned in Section 2.1, there is an existing environmental feature that projects into the south side of the site. This environmental feature, regulated by Conservation Halton, effectively establishes the south limit of the site and the limits of disturbance to the existing natural features. The proposed site plan illustrates the setbacks from the top of banks and environmental features (refer to drawings in Appendix A).

### 2.3 Background and Resource Information

In preparation of this report, the following information has been obtained and reviewed:

- Regional Municipality of Halton Design Guidelines & Manuals (April 2019 Version 4.0);
- The Regional Municipality of Halton By-Law No. 71-19;
- The Regional Municipality of Halton By-Law No. 184-95;
- Town of Oakville Development Engineering Procedures and Guidelines (downloaded June 2020);
- Record Drawings:
  - Dundas Street West – Drawing O-19034 (dated September 2012)
  - Dundas Street West – Drawing O-19233-19235 (dated December 2012)
  - Dundas Street West – Drawing O-19056-19057 (dated January 2009)
  - Dundas Street West – Drawing O-19255 & O-19260 (dated December 2012)
  - Wooden Hill Circle – Drawing No. 5, 8 & 9 - Regional File No. DO-517 (dated August 2013)
- Topographic Survey of Part of 1280 Dundas Street West Town of Oakville Regional Municipality of Halton prepared by J.D. Barnes Limited dated June 26<sup>th</sup>, 2020;
- Site plan and project statistics prepared by Icke Brochu Architects Inc. dated July 28<sup>th</sup>, 2020;
- Hydrant flow testing data provided by Lozzi Aqua Check dated June 26<sup>th</sup>, 2020;



- Site visit undertaken in June 2020. The site visit included a general examination of the existing site to observe surface features that are representative of the underground servicing, current surface drainage, and to gather additional relevant information. Photos were taken of the entire site and the perimeter in order to document the pre-development conditions; and
- Sub-surface utility engineering investigation completed by Telecon Design dated January 29<sup>th</sup>, 2020.

### **3.0 WATER SERVICING**

#### **3.1 Water Servicing Criteria**

The Regional Municipality of Halton's Water and Wastewater Linear Design Manual (Version 4.0 – April 2019) was used to estimate the water demand from the proposed development. The Region's criteria are generally summarized as follows:

- Water supply systems should be designed to satisfy the greater of maximum day demand plus fire flow or peak hour demand;
- Average domestic water demands of 0.275 m<sup>3</sup> per capita per day; and
- Maximum day and peak hour factors for residential are 2.25 and 4.00, respectively.

#### **3.2 Existing Water Servicing**

Based on the Region's records, there are no existing local distribution watermains along the Municipal and Regional frontage of the Site. Based on Region record drawings, there is a 1200 mm Ø concrete pressure pipe transmission watermain located along the north boulevard of Dundas Street West.

With respect to the nearby residential subdivision located west of the SVCC site, a 200 mm Ø watermain network services the subdivision which includes the nearby Glenayr Gate and Wooden Hill Circle roadways. A 150 mm diameter watermain services the residential subdivision located south of the natural environmental area south of the Site.

Although there are no local distribution watermains located along Fourth Line and Dundas Street West along the frontage of the Site, records provided by the SVCC property owner indicate that the existing SVCC building is serviced off of the 200 mm diameter distribution watermain located on Glenayr Gate onto which it has frontage.

There are no existing fire hydrants present within the vicinity of the Site.

### 3.3 Proposed Water Servicing

#### 3.3.1 Domestic Water Demand Analysis

The total estimated daily flow rates, maximum day and peak hour demand rates required for the proposed development were calculated in accordance with the Region of Halton Water and Wastewater Design Manual (April 2019, Version 4.0).

As mentioned, the proposed site will be comprised of an apartment building and four ancillary buildings housing Independent Living Units (ILU's). The estimated equivalent population from the proposed development was calculated based on population densities as per Table 2-1 of the Region's Design Manual. A population density of 285 and 135 persons per hectare of ground floor area was used to calculate the population for the apartment building and the ILU blocks, respectively.

The proposed water demands are summarized in Table 3-1 below.

**Table 3-1 – Proposed Water Demand**

	<b>Average Day Demand (L/s)</b>	<b>Maximum Day Demand (L/s)</b>	<b>Peak Hour Demand (L/s)</b>
<b>TOTAL</b>	<b>3.2</b>	<b>7.2</b>	<b>12.7</b>

Refer to Appendix B for water demand calculations.

#### 3.3.2 Fire Flow Analysis

As per the Region's Design Manual, fire flows were calculated based on the *Water Supply for Public Fire Protection Fire Underwriters Survey (FUS)*. Calculations using FUS indicate a maximum governing fire flow of 283.3 L/s (16,998 L/min). Table 3-2 below summarizes the fire demands from the proposed buildings on the Site.

**Table 3-2 – Estimated Fire Demands**

	<b>Estimated Fire Demand (L/s)</b>
<b>Apartment Building*</b>	<b>283.3</b>
<b>ILU – Block 1**</b>	<b>116.7</b>
<b>ILU – Block 2**</b>	<b>150.0</b>
<b>ILU – Block 3**</b>	<b>133.3</b>

	<b>Estimated Fire Demand (L/s)</b>
<b>ILU – Block 4**</b>	<b>116.7</b>
<b>GOVERNING FIRE FLOW</b>	<b>283.3</b>

\*Based on non-combustible construction type and a sprinkler system conforming to NFPA standards

\*\*Based on ordinary construction type

Refer to Appendix B for fire flow analysis calculations.

Fire flows were calculated separately for the Apartment building, and each of the four buildings housing independent living units.

As described in Section 3.1, the water supply system should be designed to satisfy the greater of peak hour demand or maximum day demand plus fire flow. Therefore, the maximum day demand plus fire flow rate (i.e. 7.2 L/s + 283.3 L/s = 290.5 L/s (17,430 L/min)) is the governing requirement.

### 3.3.3 Proposed Watermain Service Connections

As mentioned in Section 3.2, there are no local distribution watermains available to service the Site. As such, initial discussions with the Region and the Town were initiated in November 2019 to discuss potential water servicing options. In summary, three servicing options were discussed with the Region and the Town which included:

Option 1 – Private watermain installed through the SVCC property on easement and connected to the 200 mm Ø watermain located on Glenayr Gate;

Option 2 – Proposed Regional local distribution watermain installed along Fourth Line and directly connected to the 1200 mm Ø transmission main located on Dundas Street West; and

Option 3 – Proposed watermain (or water service) installed south through the Natural Environmental Lands and connecting to the local distribution watermain located within the residential subdivision located on Fourth Line.

Refer to Figure #1 located in Appendix A for an illustration of Servicing Options 1 – 3.

In summary, Options 1 and 3 were rejected by the Region. With respect to Option 2, the Region advised that a new distribution watermain would have to be looped in order to mitigate stagnant water. Consequently the proposed layout for the new watermain would

connect to the existing 1200 mm Ø transmission main, opposite the site, crossing Dundas Street West to Fourth Line where it would then run west along Fourth Line and Dundas Street West, ultimately connecting to the existing 200 mm Ø watermain located on Wooden Hill Circle.

As per Region Standards, a proposed fire line will service the Site from the new Regional watermain located on Fourth Line. A domestic service will tee off the fire line and enter the site separately from the fire line. Both the fire and domestic service will enter into the main apartment building where there will be a mechanical room that will house the water meter and associated fire detector assembly. The fire service will exit the main apartment building where it will service fire hydrants spaced around the Site to provide fire protection in accordance with OBC requirements. Two remotely located fire department connections (siamese connection) will be provided for the main apartment building located within 45 m of a fire hydrant in accordance with NFPA standards. The domestic line will also exit the main apartment building after passing through the water meter where it will then service the ancillary ILU blocks.

The domestic and fire services will be sized and detail designed at the Site Plan Approval stage of the project. Please refer to the *Conceptual Site Servicing Figure* and Plan and Profile drawings (PP1 and PP2) in Appendix D for conceptual/preliminary details of the proposed water servicing.

### 3.3.4 Capacity of Existing Watermain System

Hydrant flow tests were performed by Lozzi Aqua Check on June 26<sup>th</sup>, 2020. The test hydrant locations are as follows:

1. Existing hydrant connected to the existing 200 mm Ø distribution watermain located on Wooden Hill Circle adjacent to property 2457 Wooden Hill Circle; and
2. Existing hydrant connected to the existing 1200 mm Ø transmission watermain located at the northeast corner of the Dundas Street West and Proudfoot Trail intersection.

The results of the hydrant flow tests are summarized in Table 3-3 below:

**Table 3-3 – Hydrant Flow Test Results**

<b>Hydrant Location</b>	<b>Theoretical Flow at 20 PSI (L/s)</b>
<b>Wooden Hill Circle</b>	<b>288.4</b>
<b>Dundas Street West</b>	<b>551.0</b>

The hydrant test on Dundas Street West is greater than the maximum day demand plus fire flow demand from the Site.

Refer to Appendix B for the hydrant flow test results.

A watermain network analysis is being undertaken for the proposed watermain which will be submitted to the Region for review in conjunction with detailed design drawings to support the hydraulic design of the proposed Regional watermain in accordance with Region of Halton Design Standards.

## 4.0 SANITARY SERVICING

### 4.1 Sanitary Servicing Criteria

The Regional Municipality of Halton's Water and Wastewater Linear Design Manual (Version 4.0 – April 2019) was used to analyze the sanitary demand from the proposed development. The Region's criteria are generally summarized as follows:

- Average domestic residential sewage flows of 0.275 m<sup>3</sup>pcd (275 litres per capita per day);
- The peak domestic sewage flow to be calculated by utilizing a calculated Modified Harmon Peaking Factor of  $[M = K_{av} * (1 + 14 / (4 + (P + P_e)^{0.5}))]$ , where minimum permissible value of M is 2.0; and
- For drainage areas that do not include existing developed areas, the inflow/infiltration allowance shall be 0.286 x 10<sup>-3</sup> m<sup>3</sup>/ha/s for all types of land use.

### 4.2 Existing Sanitary Servicing

Based on the Region's records, there are no existing local sanitary sewers located along the municipal and regional frontage of the Site. Based on Region record drawings, there are twin 750 mm Ø sanitary force mains located on Dundas Street West along the frontage of the site. The twin force mains convey sewage in a westward direction where it discharges into a sanitary chamber east of the Dundas Street West and Proudfoot Trail intersection. Sewage is then conveyed via a 1200 mm Ø trunk sewer in a westward direction.

Although there are no local sanitary sewers along Fourth Line and Dundas Street West within the frontage of the Site, records provided by the SVCC property owner indicate that the existing SVCC building is serviced from the 200 mm Ø sanitary sewer located on Glenayr Gate onto which it has frontage.

### 4.3 Proposed Sanitary Servicing

#### 4.3.1 Sanitary Demand Analysis

The total estimated dry weather flows, infiltration allowance, and peak sanitary flows for the proposed development were calculated in accordance with the Region of Halton Water and Wastewater Design Manual (April 2019, Version 4.0).

The estimated equivalent population from the proposed development was calculated based on population densities as per Table 3-1 of the Region’s Design Manual. A population density of 285 and 135 persons per hectare of ground floor area was used to calculate the population for the apartment building and the ILU blocks, respectively.

Based on a per capita demand of 0.275 m<sup>3</sup>/capita/day, the proposed development will result in an estimated total peak sanitary flow rate of 13.42 L/s. This represents an estimated increase of approximately 12.1 L/s over the existing estimated infiltration allowance from the Site in the existing (pre-development) condition.

The estimated breakdown of peak sanitary discharge from the redevelopment is summarized in Table 4-1.

**Table 4-1 – Proposed Sanitary Demand**

	<b>Peak Flow (L/s)</b>
<b>Residential</b>	12.09
<b>Infiltration Allowance</b>	1.32
<b>TOTAL</b>	<b>13.42</b>

Refer to Appendix C for sanitary demand calculations.

#### 4.3.2 Proposed Sanitary Service Connection

##### 4.3.2.1 Review of Alternatives

As mentioned in Section 4.2, there are no local sanitary sewers available to service the Site. Similar to water servicing, discussions with the Region and the Town were initiated in November 2019 to discuss a potential sanitary servicing approach to service the development. In summary, three servicing options were discussed with the Region and the Town which included:

Option 1 – Private force main installed through the SVCC property on easement and connected to the Regional sanitary sewer located on Glenayr Gate;

Option 2 – Proposed gravity sewer installed along both Fourth Line and Dundas Street West right-of-ways (R.O.W.s) to discharge into the existing maintenance hole (MH) chamber (roughly 270 m west of Dundas Street West/Fourth Line intersection); and

Option 3 – Proposed force main installed south through the Natural Environmental Lands and connecting to the Regional sanitary sewer located within the residential subdivision located on Fourth Line.

The Region was not in favour of Options 1 and 3 for similar reasons as mentioned in the Water Servicing section. Consequently, Option 2 was concluded to be the most suitable approach to service the site.

#### 4.3.2.2 External Servicing

The challenge associated with a gravity sewer is the required slope of the pipe to physically achieve a connection to the existing gravity sewer on Dundas Street West. The proposed 200 mm Ø Regional sewer is required to be installed at 0.32%. The upstream terminus of the sewer will be within Dundas Street West opposite of the Site frontage. The sewer will continue to the west within Dundas Street West (south of and parallel to the existing twin 1200 mm Ø force mains) and will ultimately discharge into the existing 1200 mm Ø trunk sewer, which accepts the flows from the twin force mains. This connection location is approximately 150 m east of Proudfoot Trail. The length of the proposed new sanitary sewer within the Municipal R.O.W. is approximately 450 m.

The new sanitary sewer will connect into the existing 1200 mm Ø sewer above the spring line.

A single sanitary service connection will extend from the upstream terminus of the new sanitary sewer to the Fourth Line property line of the Site. As Fourth Line is lower in elevation than Dundas Street West, the cover of the service connection at the property line is limited to a minimum 1.2 m frost cover. This minimum depth of service connection is, in fact, the basis of setting the gradient of the entire new sewer. It is, however noted that the relatively shallow depth of cover is only associated with the service connection itself and not the proposed sewer within Dundas Street West.

The proposed 200 mm Ø sanitary sewer will have sufficient capacity to convey the estimated total sanitary flow from the site of 13.42 L/s at a velocity of 0.64 m/s.

Please refer to Plan and Profile Drawings PP1 and PP2 in Appendix D for details of the proposed municipal sanitary sewer.

#### 4.3.2.3 Internal Servicing

In accordance with The Region of Halton requirements, a new sanitary service is required for each property. Since the proposed development will be comprised of a single ownership, a single sanitary service connection is proposed to service the Site. The sanitary service will be connected to the proposed 1200 mm Ø Municipal MH on Fourth Line. A “control” or inspection MH placed near the property line will be the terminus of the service connection, as per Region of Halton requirements.

As mentioned in the previous section, the proposed service connection will be relatively shallow, only having 1.2 m of frost cover. As a result, it will not be possible to achieve a gravity connection to the buildings within the proposed development. Consequently, a private pumping station will be constructed on the site. Private sanitary building sewers will convey sanitary sewerage from the main building and the four ILU buildings to this pumping station. The pumping station and associated private force main will then lift the sewage to the sanitary control MH and service connection at the property line.

The proposed regional 200 mm Ø sanitary sewer @ 0.32% has an 80% full conveyance capacity of approximately 15 L/s. Hence, the pumping station will be designed to convey the flows to be less than 15 L/s to conform with the Region of Halton requirements.

The pumping station will be detailed designed at the site plan stage of the project.

#### 4.3.3 Capacity of Existing Sanitary System

In relation to the proposed development, there was communication with the Region in May 2020 for the purpose of understanding any capacity-related constraints related to the new proposed sanitary sewer. In consideration that the downstream outlet for the proposed sanitary sewer is a recently designed trunk sewer and the contributing flows from the proposed development are relatively small, it is not anticipated that there should be any capacity concerns. Therefore, at this stage in the design process, it is our understanding that the Region is to advise of any further concerns with downstream capacity.

## 5.0 STORM SERVICING

### 5.1 Storm Servicing Criteria

Storm servicing criteria are to meet the standards set by Town of Oakville Development Engineering Procedures & Guidelines Manual. The criteria are generally summarized as follows:



- Storm runoff shall be controlled to local constraints of receiving systems, established watershed study, MTO guidelines, existing sewer capacity, pre to post where capacity unknown or history of flooding or erosion;
- Where practical, sites shall be designed with a sewer network capable of capturing the 5-year event. If sewers are not possible, surface drainage reaches shall be limited to 50 m;
- Sites shall be self contained unless part of a previous master drainage scheme. Major overland flow relief to a R.O.W. shall be reviewed for impacts;
- Storm water can be detained by the following storage methods; landscape ponds, oversized pipes, underground tanks, roof tops, and some hard surface areas;
- Frequent events up to the 5-year level shall not be stored on paved surfaces; this nuisance ponding interferes with operation of site access;
- Quality treatment of storm water is required. The level of treatment is to be determined per the receiving system. Wet ponds, oil grit separators and landscape filter strips are acceptable methods;
- All storm sewer structures are to comply with OPSD specifications and adhere to the requirements of the Ontario Building Code;
- Quality and Quantity control devices shall be located at the property line for municipal access; if not possible, easements may be required. (these private facilities shall be operated and maintained by the property owner); and
- Existing external drainage shall be accommodated without impacts to upstream lands.

## 5.2 Existing Storm Servicing

### 5.2.1 Existing Storm Sewer Systems

Based on the Region's records, there are existing storm sewers in the vicinity of the site. They are summarized as follows:

- A system of storm sewers along Fourth Line, which collects drainage from St. Volodymyr's Parking Lot and Fourth Line. This Fourth Line storm sewer discharges to a 600 mm sewer on Dundas Street West;
- A 525 mm Storm Sewer on Dundas Street West, which discharges to Sixteen Mile Creek;

- A 675 mm Storm Sewer on Dundas Street West, which discharges to Sixteen Mile Creek; and
- A 450 mm Storm Sewer along Glenayr Gate, which collects drainage from the Wooden Hill Circle subdivision and discharges to Sixteen Mile Creek Tributary.

A SUE completed in November 2019 revealed additional storm sewers located along Fourth Line, east of the proposed site. These were found to convey drainage collected by a ditch inlet catchbasin on the west side of Fourth Line. These storm sewers converge with the storm sewers located on Fourth Line along the north side of the site and ultimately discharge to the 600 mm storm sewer located on Dundas Street West. Records of these additional storm sewers were unable to be obtained from either the Town or the Region.

### **5.2.2 Existing Site Drainage**

The Site generally drains overland towards a drainage draw at the south limit of the Site. This drainage draw protrudes into the site and has been identified as an environmental feature. The drainage draw continues to the south and ultimately outlets into the Sixteen Mile Creek.

An existing pond is located at the north end of the site just to the south of Fourth Line. It appears that at one time, this pond was an on-line pond within a larger drainage feature that extended further north of Dundas Street West. With the urbanization of Dundas Street West and the Fourth Line adjacent to the pond, it no longer serves as a basin that captures runoff from an upstream catchment and, as such, it has not been identified as an environmental feature to remain.

During a site investigation, an outlet pipe was found to connect this pond to the drainage draw further to the south.

## **5.3 Proposed Storm Drainage**

### **5.3.1 Proposed Storm Outlet**

The site plan concept envisions a relatively urbanized site with a large parking lot and private roadway to provide access to the ILU buildings. From a drainage perspective, this type of redevelopment is best suited to a storm drainage system with a minor system consisting of catchbasins and on-site storm sewer pipes to collect drainage, as opposed to conveying all storm drainage at the ground surface. Therefore, a storm sewer outlet would be required for this purpose.

The existing storm sewer systems in the vicinity of the Site currently do not collect any drainage from the site and were not designed to collect drainage from the Site.

Furthermore, the depth of these existing sewers is inadequate to provide a gravity draining outlet for the site.

As indicated previously, the existing drainage from the majority of the site currently drains to the environmentally defined drainage draw at the south end of the site, through overland flow and some flow from the existing pipe outlet into the draw. Consequently, the existing drainage draw represents the reasonable storm outlet for the site. As a result, it is proposed to utilize the existing pipe outlet into this draw or a reconstructed pipe outfall at the same location and depth.

The implementation of a storm sewer outlet into the drainage draw either using the existing pipe or a reconstructed pipe will require measures to mitigate the impact of the urbanization of the site. The following section discusses the types of measures that could be employed as part of a stormwater management plan for the proposed site development.

### **5.3.2 Proposed Stormwater Management Plan**

#### **5.3.2.1 Stormwater Management Criteria**

In addition to the general criteria summarized in Section 5.1 of this report, specific criteria and targets will have to be developed through consultation with Conservation Halton to mitigate the impacts of the Site redevelopment on the receiving waters. These targets and criteria will include the following:

##### Rate Control

Since the Site redevelopment will result in an increase in impervious surface area, storm water detention will have to be employed to facilitate a controlled discharge rate. It is anticipated that the rate control criteria and targets will be based on controlling post development peak discharge rates to predevelopment peak discharge rates for storm events up to the 100-year storm.

##### Erosion Control

Stormwater measures to mitigate erosion will be required. These measures may take the form of extended detention of frequent rainfall events and/or retention of rainfall depths such as the first 5 mm.

##### Water Balance

Stormwater measures to address water balance and the impact of the increase in impervious ground cover will be required.

### Water Quality

Measures to address the quality of the runoff from the redevelopment will be required. Typically, these measures target Total Suspended Solids (TSS) removal on an average annual basis.

#### 5.3.2.2 Conceptual Stormwater Management Plan

A detailed Stormwater Management (SWM) Plan will be developed at the Site Plan Approval Stage of the project. This Plan will be developed with input from the Town, Conservation Halton, and the Environment Consultant for the project, using the SWM criteria and targets established through that consultation.

The following description outlines a general proposed conceptual approach to this plan.

The Site will be comprised of two major types of surfaces. The areas of the site that will be predominantly hard or impervious surfaces include the buildings and the associated private driveways and parking lots. The areas of the site that will be comprised of more landscaped / pervious surfaces, include the areas at the rear and sides of the buildings and the areas adjacent to the defined environmental features towards the south end of the site.

The concept SWM approach is based on developing a more infrastructure-based system for the impervious areas and a more naturalized system for the more pervious-based areas.

### Hard Surface Areas

Runoff from the hard surfaces of the site will be captured by catchbasins and an on-site storm sewer system. Catchbasins would be fitted with goss traps or other devices such as CB Shields™ for the purpose of capturing/trapping larger sediment particles and floatables that can be removed through catchbasin maintenance/cleanout programs. The on-site storm sewer system would be routed through a large array of corrugated thermal plastics arches, which would provide both detention storage volume and retention volume. In that regard, a depth of volume within the bottom portion of this stormwater storage facility would be set below the onsite storm sewer system so that it would not drain out by gravity and instead be allowed to infiltrate into the ground. The remaining upper portion of the stormwater storage facility would provide active storage volume that would drain down through the on-site storm sewer system. This entire on-site storm system would be controlled by a downstream orifice sized to meet the peak discharge rate targets for various storm events and erosion control if applicable. This configuration would result in the required detention storage not just being provided within the corrugated thermal plastic arch pipes, but within all of the storm sewer pipes, MHs and catchbasins (CBs) upstream of the orifice.

It is also proposed to grade the site so that the overall gradient of the parking lot and roadway is relatively flat. Within these areas will be many localized depressed or dished areas draining to a CB. This arrangement would provide a relatively large volume of available surface detention. The maximum depth of these individual dished areas would be limited to 250 mm before stormwater would overtop and spill over to the drainage draw to the south. The underground and surface detention volumes would be designed so that the required detention volume for storm events of 5-year return period or less would be contained within the available underground detention storage and for larger storm events, storm water would continue to back up and surcharge out the catchbasins and occupy the detention volume available within the dished areas of pavement (i.e. surface detention storage).

Downstream of the orifice control for this storm drainage system would be a stormwater treatment unit design to meet the required TSS removal targets. Downstream of the treatment unit, the stormwater would be conveyed to the existing or reconstructed storm pipe outfall.

### Landscaped Areas

It is proposed to take a somewhat different approach to areas of the site that are largely landscaped. For these areas, storm drainage using surface swales and low impact development (LID) measures would be employed with the goal to eliminate the need for a piped outfall. Hard surfaces such a pathways or small patio areas within these areas

would sheet drain to pervious landscaped surfaces and swales. In some cases, culverts may be needed to allow drainage swales to pass under a pathway but, buried on-site sewers would be avoided for these areas. Swales would be directed toward the existing defined drainage draw at the south end of the site. Methods to allow runoff to discharge into the drainage draw area in a more natural overland manner will be investigated during the detailed design Site Plan Approval Stage of the project.

The concept SWM plan presented above can be influenced by a number of factors and constraints including depth of groundwater relative to finished grade and is therefore subject to change during the detailed design. At that time if needed, alternative measures such as the use of permeable pavements and rainwater harvesting for reuse as irrigation may be added to the SWM plan if need.

## 6.0 CONCLUSION

With respect to the proposed seniors' living development at 1280 Dundas Street West, the site can be serviced with respect to water, sanitary and storm as follows:

Water: A new municipal distribution main constructed along a portion of the Fourth Line frontage of the site and continuing westerly along the south side of Dundas Street West can provide the required domestic and fire service for the site. This new main will have terminating interconnections at the existing 1200 mm Ø Regional transmission located on the north side of Dundas Street West opposite of the site and the existing 200 mm Ø distribution watermain located on Wooden Hill Circle west of the site.

Sanitary: A new 200 mm Ø municipal sanitary sewer constructed from the Site westerly within the Dundas Street West R.O.W. and discharging into the existing 1200 mm Ø sanitary trunk sewer at a location approximately 150 m east of Proudfoot Trail intersection, will provide sanitary servicing for the site. The resultant service connection to the site will be relatively shallow (1.2 m frost cover) and, as a result, sanitary drainage from within the Site will drain by gravity to a private pumping station with a force main that discharges to a control MH and service connection located near the Fourth Line property line.

Storm: The existing site generally drains to the south into a defined environmental feature which is also a drainage draw. Adjacent storm sewers on Dundas Street West and Fourth Line do not have capacity to accept drainage from the site nor are they at sufficient depth to provide adequate storm drainage for the site.

It is proposed to reuse or reconstruct an existing outlet pipe into the drainage draw. To mitigate the impacts of the development, a stormwater management (SWM) plan will be developed to provide discharge rate control, erosion control, water balance and quality

control for discharge from the developed site. Prior to detailed design, criteria and target parameters for these measures will be determined through consultation with Conservation Halton. A concept SWM plan approach presented in section 5.3.2 of this report demonstrates how such a SWM plan could be employed for the proposed development.

*Mufaddal Shabbir*

Report prepared by:  
Mufaddal Shabbir



Report reviewed by:  
David Stafford, P.Eng.

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## **APPENDIX A**

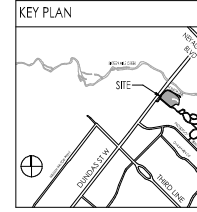
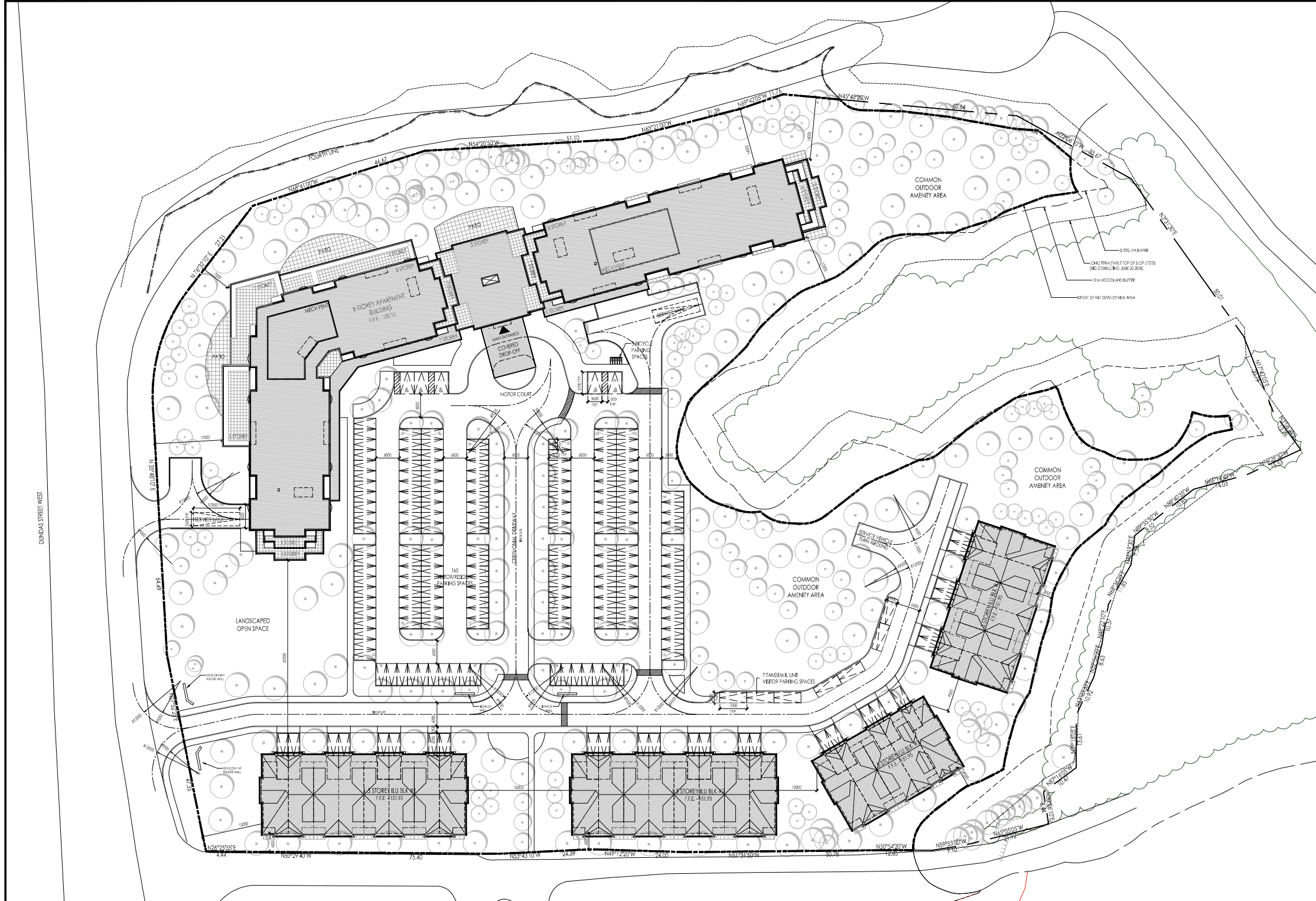
### **Architectural Plans and Background Information**

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**BY-LAW****PROPOSED**

1.	<b>SITE AREA ( overall)</b>	± 4.62 HA/ 11.42 AC 46,233 M2/ 497,685 FT2																																																		
	<b>( net developable)</b>	±3.63 HA/ 8.99 AC 36,397 M2/ 391,778 FT2																																																		
2.	<b>TOTAL FLOOR AREA</b>	<p><b>SENIORS RESIDENCE</b> - ASST'D SUPPORTIVE LIVING (AL) / MEMORY CARE (MC) / IND. SUPPORTIVE LIVING (ISL) &amp; INDEPENDENT LIVING (IL)</p> <table border="0"> <tr> <td>BASEMENT FLOOR -</td> <td>STAFF/ SERV.</td> <td>1,964 M2</td> <td>=</td> <td>1,964 M2</td> </tr> <tr> <td>GROUND FLOOR -</td> <td>IL SUITES</td> <td>1,204 M2</td> <td></td> <td></td> </tr> <tr> <td></td> <td>AMENITY/ SERV.</td> <td>3,618 M2</td> <td>=</td> <td>4,822 M2</td> </tr> <tr> <td>2ND FLOOR -</td> <td>AL/ AMTY./ IL</td> <td>(2,887 + 1,345 M2)</td> <td>=</td> <td>4,232 M2</td> </tr> <tr> <td>3RD FLOOR -</td> <td>MC/ AMTY./ IL</td> <td>(2,800 + 1,345 M2)</td> <td>=</td> <td>4,145 M2</td> </tr> <tr> <td>4TH FLOOR -</td> <td>ISL / IL SUITES</td> <td>(1,847 + 1,468 M2)</td> <td>=</td> <td>3,315 M2</td> </tr> <tr> <td>5TH &amp; 6TH FLOORS -</td> <td>ISL / IL SUITES</td> <td>(1,847 + 1,468 M2) X 2 FLOORS</td> <td>=</td> <td>6,630 M2</td> </tr> <tr> <td>7TH FLOOR -</td> <td>ISL / IL SUITES</td> <td>(1,801 + 1,420 M2)</td> <td>=</td> <td>3,221 M2</td> </tr> <tr> <td>8TH FLOOR -</td> <td>ISL / IL SUITES</td> <td>(1,761 + 1,378 M2)</td> <td>=</td> <td>3,139 M2</td> </tr> <tr> <td>SUB TOTAL</td> <td></td> <td></td> <td>=</td> <td>31,468 M2/ 338,719 FT2</td> </tr> </table> <p>SENIORS FRIENDLY INDEPENDENT LIVING UNITS (120 M2 X 27 UNITS)= 3,240 M2/ 34,875 FT2</p> <p><b>TOTAL</b> <b>34,708 M2/ 373,594 FT2</b></p>	BASEMENT FLOOR -	STAFF/ SERV.	1,964 M2	=	1,964 M2	GROUND FLOOR -	IL SUITES	1,204 M2				AMENITY/ SERV.	3,618 M2	=	4,822 M2	2ND FLOOR -	AL/ AMTY./ IL	(2,887 + 1,345 M2)	=	4,232 M2	3RD FLOOR -	MC/ AMTY./ IL	(2,800 + 1,345 M2)	=	4,145 M2	4TH FLOOR -	ISL / IL SUITES	(1,847 + 1,468 M2)	=	3,315 M2	5TH & 6TH FLOORS -	ISL / IL SUITES	(1,847 + 1,468 M2) X 2 FLOORS	=	6,630 M2	7TH FLOOR -	ISL / IL SUITES	(1,801 + 1,420 M2)	=	3,221 M2	8TH FLOOR -	ISL / IL SUITES	(1,761 + 1,378 M2)	=	3,139 M2	SUB TOTAL			=	31,468 M2/ 338,719 FT2
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6.	<b>BUILDING HEIGHT</b>	SENIORS RESIDENCE <b>- 8 STOREY/ 30.5 M</b> SENIORS FRIENDLY IND. LIVING UNITS <b>- 1.5 STOREY/ 6M</b>																																																		
7.	<b>COVERAGE</b>	<table border="0"> <tr> <td>BUILDINGS (SR &amp; SFIL)</td> <td>8,062 M2 ( 22% )</td> </tr> <tr> <td>ROADS &amp; DRIVEWAYS</td> <td>8,660 M2 ( 24% )</td> </tr> <tr> <td>LANDSCAPED AREA ( HARD &amp; SOFT)</td> <td>19,675 M2 ( 54% )</td> </tr> <tr> <td><b>TOTAL</b></td> <td><b>36,397 M2 ( 100% )</b></td> </tr> </table>	BUILDINGS (SR & SFIL)	8,062 M2 ( 22% )	ROADS & DRIVEWAYS	8,660 M2 ( 24% )	LANDSCAPED AREA ( HARD & SOFT)	19,675 M2 ( 54% )	<b>TOTAL</b>	<b>36,397 M2 ( 100% )</b>																																										
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### 1. ZONING

ZONING PLAN 2014/04  
 ZONING: OPA SPACE ZONE "O2"

### 2. SITE AREA

	SQ. FEET (FT)	SQ. METERS (M)	ACRES (AC)	HECTARES (HA)
OVERALL SITE AREA	47,885 FT <sup>2</sup>	4,428 M <sup>2</sup>	1.12 AC	4.62 HA
NET DEVELOPABLE SITE AREA	36,774 FT <sup>2</sup>	3,407 M <sup>2</sup>	0.84 AC	3.43 HA
NATURAL HERITAGE LAND AREA	10,911 FT <sup>2</sup>	1,021 M <sup>2</sup>	2.45 AC	0.99 HA

### 3. FLOOR AREA (FA)

MEANS THE GROSS AREA OF A BUILDING WITHIN THE EXTERIOR AREA OF A BUILDING CONTAINED WITHIN THE EXTERIOR WALLS, BUT DOES NOT INCLUDE ATTIC OR BASEMENT SPACES UNLESS OTHERWISE SPECIFIED.

	NO. FLS X SQ. METER (M)	SQ. METER (M)	SQ. FEET (FT)
SENIORS RESIDENCE			
GROUND FLOOR		4,879 M <sup>2</sup>	52,452 FT <sup>2</sup>
2ND FLOOR		4,292 M <sup>2</sup>	45,971 FT <sup>2</sup>
3RD FLOOR		4,210 M <sup>2</sup>	45,174 FT <sup>2</sup>
4TH FLOOR		3,375 M <sup>2</sup>	36,274 FT <sup>2</sup>
5TH & 6TH FLOOR	2 FLOORS X 3,375 M <sup>2</sup>	6,750 M <sup>2</sup>	72,588 FT <sup>2</sup>
7TH FLOOR		3,291 M <sup>2</sup>	35,474 FT <sup>2</sup>
8TH FLOOR		3,168 M <sup>2</sup>	34,117 FT <sup>2</sup>
SUB TOTAL		29,955 M <sup>2</sup>	323,844 FT <sup>2</sup>
INDEPENDENT LIVING (INL) B.U.		50 METER (M)	539 FT (FT)
GROUND FLOOR/LOT		4,416 M <sup>2</sup>	47,364 FT <sup>2</sup>
TOTAL		34,371 M <sup>2</sup>	371,208 FT <sup>2</sup>

### 4. NET FLOOR AREA (NFA)

MEANS THE TOTAL AREA OF ALL FLOORS OF A BUILDING MEASURED FROM THE INTERIOR SURFACES OF THE EXTERIOR WALLS OF BUILDING UNITS. IT DOES NOT INCLUDE THE AREA OF SHEDS, TENTS, TOWER CRANES, VEHICLES, TRAILERS, SHEDS, CONCOURSE, MECHANICAL ATTACHED STRUCTURES AND COVERED LOADING DOCKS AND REAR LOADING DOCKS, STORAGE ROOMS, GARAGE STRUCTURES, PORCHES, PATIOS AND BELOW GRADE STRUCTURES, STORAGE ROOMS, ROOMS FOR GARAGE CONTAINMENT, AND MECHANICAL ROOMS.

	NO. FLS X SQ. METER (M)	SQ. METER (M)	SQ. FEET (FT)
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7TH FLOOR		3,291 M <sup>2</sup>	35,474 FT <sup>2</sup>
8TH FLOOR		2,910 M <sup>2</sup>	31,253 FT <sup>2</sup>
SUB TOTAL		27,795 M <sup>2</sup>	298,483 FT <sup>2</sup>
INDEPENDENT LIVING (INL) B.U.		50 METER (M)	539 FT (FT)
GROUND FLOOR/LOT		3,320 M <sup>2</sup>	35,589 FT <sup>2</sup>
TOTAL		31,115 M <sup>2</sup>	334,072 FT <sup>2</sup>

### 5. UNITS

	ASSISTED LIVING (AL)	MEMORY CARE (MC)	INDEPENDENT LIVING (INL) SUBTYPE 1	INDEPENDENT LIVING (INL) SUBTYPE 2	TOTAL
GROUND	-	-	13	13	26
2ND FLOOR	34	-	16	16	50
3RD FLOOR	-	34	16	16	50
4TH FLOOR	-	-	24	18	42
5TH FLOOR	-	-	24	18	42
6TH FLOOR	-	-	24	18	42
7TH FLOOR	-	-	23	16	39
8TH FLOOR	-	-	21	16	37
INDEPENDENT LIVING (INL) B.U.			164	131	295 UNITS
GROUND FLOOR/LOT			27	27 UNITS	
TOTAL					342 UNITS

### 6. DENSITY

UNITS PER HECTARE (ACR)

	SQ. METERS (M)	SQ. FEET (FT)
TOTAL UNITS / DEVELOPABLE SITE AREA (AC)	342 UNITS / 4,028 M <sup>2</sup>	38 UNITS / 9,404 FT <sup>2</sup>
TOTAL UNITS / DEVELOPABLE SITE AREA (HA)	342 UNITS / 1,613 HA	34 UNITS / 4,194 HA

### 7. FLOOR SPACE INDEX (FSI)

MEANS THE NET FLOOR AREA OF ALL BUILDINGS ON A LOT DIVIDED BY THE LOT AREA.

	NO. FLS X SQ. METER (M)	SQ. METER (M)	SQ. FEET (FT)
NET FLOOR AREA/DEVELOPABLE SITE AREA		31,115 M <sup>2</sup> / 3,407 M <sup>2</sup>	334,072 FT <sup>2</sup> / 36,274 FT <sup>2</sup>

### 8. BUILDING HEIGHT

MEANS THE VERTICAL DISTANCE BETWEEN ESTABLISHED GRADE TO THE HIGHEST POINT OF A STRUCTURE, EXCEPT CHIMNEYS, TOWER CRANES, VEHICLES, TRAILERS, SHEDS, CONCOURSE, MECHANICAL ATTACHED STRUCTURES AND COVERED LOADING DOCKS AND REAR LOADING DOCKS, STORAGE ROOMS, GARAGE STRUCTURES, PORCHES, PATIOS AND BELOW GRADE STRUCTURES, STORAGE ROOMS, ROOMS FOR GARAGE CONTAINMENT, AND MECHANICAL ROOMS.

	SENIORS RESIDENCE	INDEPENDENT LIVING (INL) B.U.
MAX PERMITTED	18M	16M
PROPOSED	30.34 M (99 FT 6 IN)	30.34 M (99 FT 6 IN)

### 9. COVERAGE

	SQ. METER (M)	SQ. FEET (FT)	%
BUILDING	31,115 M <sup>2</sup>	334,072 FT <sup>2</sup>	226.21% (MAX PERMITTED)
PAVED AREAS (DRIVEWAYS & PARKING AREAS)	8,630 M <sup>2</sup>	92,397 FT <sup>2</sup>	24%
LANDSCAPED AREAS (LANDSCAPING)	19,827 M <sup>2</sup>	213,247 FT <sup>2</sup>	54%
TOTAL	36,372 M <sup>2</sup>	391,774 FT <sup>2</sup>	100%

### 10. SETBACKS

ZONING PLAN 2014/04 PART 13.3

	FRONT YARD (FOUR LINE)	FRONTAGE YARD	INTERIOR SETBACK	REAR YARD
REQUIRED	1.5M	1.5M	1.5M	1.5M
PROPOSED	2.5M	1.6M	4M	3M

### 11. LOADING AREA

	SENIORS RESIDENCE	INDEPENDENT LIVING (INL) B.U.
LOADING AREAS	2	104

### 12. PARKING

	MINIMUM REQUIRED	PROPOSED
SENIORS RESIDENCE (MINIMUM REQUIRED) (LESS PER ASSIGNED UNIT) (SEE TABLE 13.1)	14	14
INDEPENDENT LIVING (INL) B.U. (MINIMUM REQUIRED) (LESS PER ASSIGNED UNIT) (SEE TABLE 13.1)	104	104
TOTAL	118	118

### 13. BICYCLE SPACES

	MINIMUM REQUIRED	TOTAL PROVIDED
NUMBER OF BICYCLE SPACES PER ASSIGNED UNIT (SEE TABLE 13.1)	5	5
TOTAL PROVIDED	5	5

### GENERAL NOTES

- ALL GROUND LEVEL VENTILATION GRATES SHALL HAVE A PERFORATION OF LESS THAN 2 cm x 2 cm.
- FOR GRADING AND DRAINAGE INFORMATION REFER TO DRAWINGS PREPARED BY: R. V. ANDERSON ASSOCIATES LIMITED - 2001 SHEPPARD AVENUE EAST, SUITE 100, SCARBOROUGH, ONTARIO M1S 1T6.
- FOR LANDSCAPING INFORMATION REFER TO DRAWINGS PREPARED BY: COULSON HARRISON LTD. - 26 COLWELL DR. SUITE 100, MARKHAM, ON L3R 9V9 (905) 443-4443.
- FOR TRANSPORTATION INFRASTRUCTURE REFER TO DRAWINGS PREPARED BY: J.D. BARRIS LIMITED - 40 WHEELBARROW WAY, SUITE 100, MARKHAM, ON L3R 9V9 (905) 443-4443.
- FOR ELECTRICAL INFORMATION REFER TO DRAWINGS PREPARED BY: J.D. BARRIS LIMITED - 40 WHEELBARROW WAY, SUITE 100, MARKHAM, ON L3R 9V9 (905) 443-4443.
- A TRANSPORTATION CHARTER SERVICE SHALL BE AVAILABLE TO HANDICAPPED INDIVIDUALS FOR THE COLLECTION, DELIVERY AND ACT AS A FLAGMAN AT THE TRUCK BAY.
- THE DESIGN CONTRACTOR IS TO PROVIDE A MANAGEMENT PLAN TO ADDRESS PROTOCOLS IN THE EVENT OF AN OIL OR GAS SPILL DURING CONSTRUCTION. THE MANAGEMENT PLAN IS TO BE REVIEWED WITH ALL PARTIES AT THE PRELIMINARY MEETING.

### 14. SURVEY INFORMATION

PLAN OF SURVEY: PART OF LOT 23 CONVEYED TO SOUTH OF DUNDAS STREET (EAST SIDE) OF THE CITY OF MARKHAM, ONTARIO, BY DEED OF CONVEYANCE DATED 2014/04/04.

NOTES: BOUNDARIES AND CORNERS SHOWN ON THIS PLAN ARE BASED ON THE SURVEY CONDUCTED BY J.D. BARRIS LIMITED ON 11/11/2014. DISTANCES ARE GIVEN IN METERS AND CAN BE CONVERTED TO FEET BY MULTIPLYING BY 3.28084. ALL DISTANCES ARE TO BE MEASURED TO THE CENTER OF THE CORNER OR TO THE CENTER OF THE FACE OF THE CORNER.

ADDITIONAL NOTES: DISTANCES AND CORNERS SHOWN ON THIS PLAN ARE BASED ON THE SURVEY CONDUCTED BY J.D. BARRIS LIMITED ON 11/11/2014. DISTANCES ARE GIVEN IN METERS AND CAN BE CONVERTED TO FEET BY MULTIPLYING BY 3.28084. ALL DISTANCES ARE TO BE MEASURED TO THE CENTER OF THE CORNER OR TO THE CENTER OF THE FACE OF THE CORNER.

SURVEYOR: J.D. BARRIS LIMITED  
 40 WHEELBARROW WAY, SUITE 100, MARKHAM, ON L3R 9V9  
 TEL: (905) 443-4443  
 FAX: (905) 443-4444  
 WWW.JDBARRIS.COM

### 15. SITE PLAN LEGEND

- MAIN ENTRANCE
- SECONDARY ENTRANCE
- PARKING SPACE
- IN-FLIGHT ELEVATION
- ESTABLISHED GRADE
- PROPOSED GRADE DATUM
- AIR CONDITIONING UNIT (REFER TO MECH DWG)
- GAS METER (REFER TO MECH DWG)
- HYDRO METER (REFER TO MECH DWG)
- RECEPTACLE (REFER TO ELEC DWG)
- HATCHES

### 16. PARKING/BICYCLE LEGEND

- BICYCLE PARKING SPACE (2000 x 1000 mm)
- PROPOSED BIKEWAY PARKING SPACE (2000 x 1000 mm) SURFACE PARKING
- PROPOSED BIKEWAY PARKING SPACE (2000 x 1000 mm) SURFACE PARKING + 1000mm WALKWAY
- PROPOSED BIKEWAY PARKING SPACE (2000 x 1000 mm) SURFACE PARKING + 1000mm WALKWAY
- PROPOSED BIKEWAY PARKING SPACE (2000 x 1000 mm) SURFACE PARKING
- PROPOSED BIKEWAY PARKING SPACE (2000 x 1000 mm) SURFACE PARKING
- PROPOSED BIKEWAY PARKING SPACE (2000 x 1000 mm) SURFACE PARKING
- PROPOSED BIKEWAY PARKING SPACE (2000 x 1000 mm) SURFACE PARKING

### 17. CONSULTANT SYMBOLS

- BUILDING (REFER TO SURVEY)
- PROPOSED HYDRANT (REFER TO CIVIL DWG)
- IN-FLIGHT CONNECTION (REFER TO MECH DWG)
- SAFETY MARKER (REFER TO CIVIL DWG)
- SEWER SINKER MARKER (REFER TO CIVIL DWG)
- CATCH-BASIN MARKER (REFER TO CIVIL DWG)
- CATCH-BASIN (REFER TO CIVIL DWG)
- BUILDING STREET LIGHT (REFER TO SURVEY/ELC)
- PROPOSED STREET LIGHT (REFER TO ELEC DWG)
- TRANSFORMER (REFER TO ELEC DWG)

### 18. DELMANOR WEST OAK

DELMANOR West Oak  
 Inspired Retirement Living™

1200 DUNDAS STREET W. | MARKHAM, ONTARIO  
 Drawing No. 17.23  
 Project No. A101

### 19. SITE PLAN & STATISTICS

Date: AUG 5, 2020  
 Scale: 1:400  
 Drawing No. 17.23  
 Project No. A101

### 20. DELMANOR WEST OAK

DELMANOR West Oak  
 Inspired Retirement Living™

1200 DUNDAS STREET W. | MARKHAM, ONTARIO  
 Drawing No. 17.23  
 Project No. A101



LIMIT BETWEEN LOTS 22 AND 23, CONCESSION 1, SOUTH OF DUNDAS STREET

SCHEDULE			
PART	LOT	CONCESSION	PIN
1	PART OF LOT 23	CONCESSION 1 SOUTH OF DUNDAS STREET	PIN 24925-8461 (LT)

PLAN OF SURVEY OF  
**PART OF LOT 23**  
**CONCESSION 1**  
**SOUTH OF DUNDAS STREET**  
 (GEOGRAPHIC TOWNSHIP OF TRAFALGAR)  
**TOWN OF OAKVILLE**  
 REGIONAL MUNICIPALITY OF HALTON

SCALE 1 : 500



THE INTENDED PLOT SIZE OF THIS PLAN IS 915mm IN WIDTH BY 609mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1:500

J.D. BARNES LIMITED

**METRIC** DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

**NOTES**

BEARINGS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0).

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999708.

**INTEGRATION DATA**

OBSERVED REFERENCE POINTS (ORPs): UTM ZONE 17, NAD83 (CSRS) (2010.0). COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.

POINT ID	EASTING	NORTHING
ORP (A)	600 992.81	4 812 435.15
ORP (B)	601 160.74	4 812 328.90

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.  
 THE RESULTANT TIE BETWEEN ORP (A) AND ORP (B) IS 198.78 N 57°40'40" E

**LEGEND**

- DENOTES SURVEY MONUMENT SET
- DENOTES ROUND IRON BAR
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
- PB DENOTES PLASTIC BAR
- RIB DENOTES ROUND IRON BAR
- WT DENOTES WITNESS
- MEAS DENOTES MEASURED
- S50 DENOTES F. G. CUNNINGHAM INC., O.L.S.
- 760 DENOTES K. H. MCCONNELL, OLS
- TO DENOTES TOWN OF OAKVILLE SURVEY SECTION
- P1 DENOTES SURVEYOR'S REAL PROPERTY REPORT BY J.D. BARNES LTD., DATED JANUARY 10TH, 2018, (REF. No. 17-30-187-00-SRPR)

ALL SET SSIB AND PB MONUMENTS WERE USED DUE TO LACK OF OVERBURDEN AND/OR PROXIMITY OF UNDERGROUND UTILITIES IN ACCORDANCE WITH SECTION 11 (4) OF O.REG. 525/91.

**SURVEYOR'S CERTIFICATE**

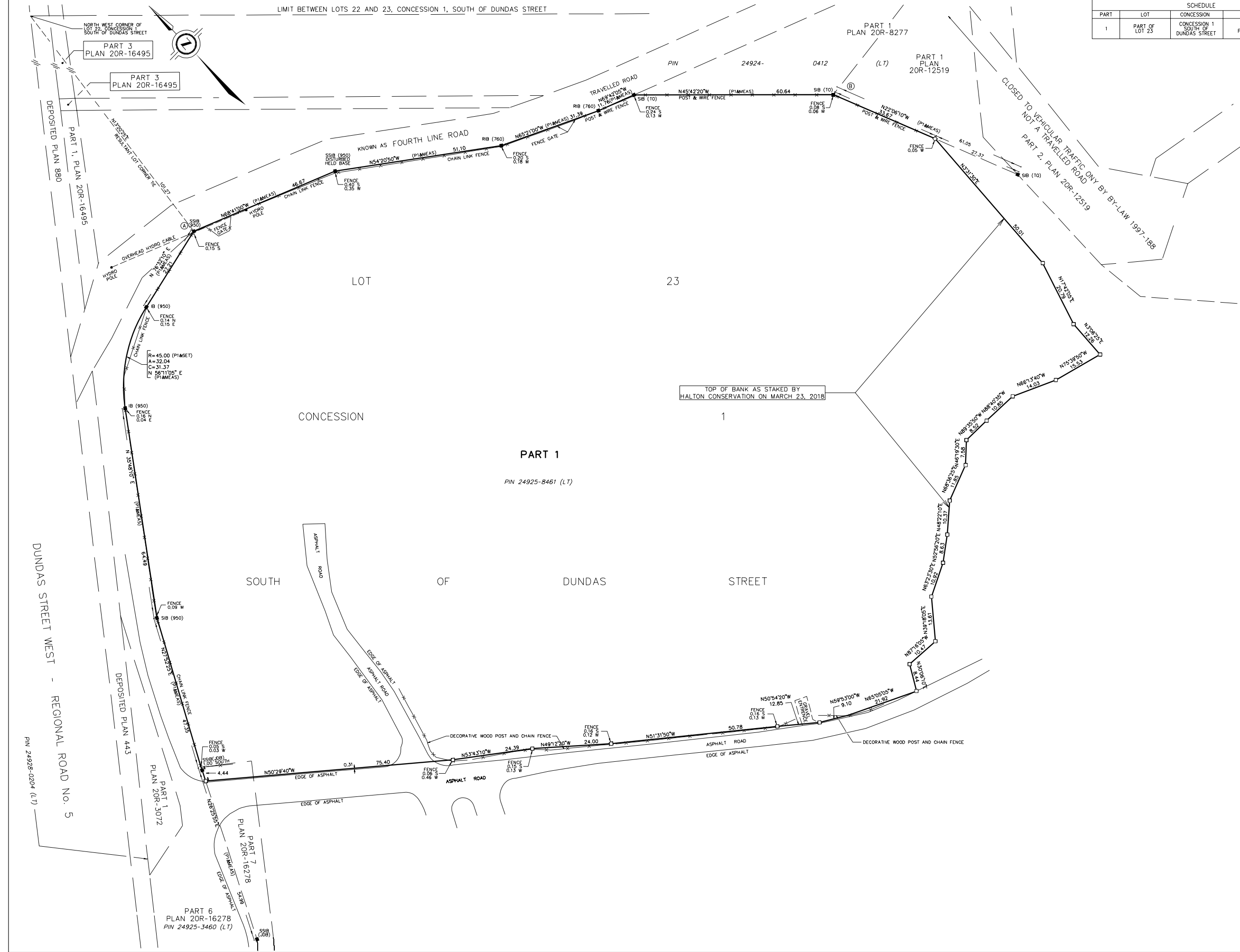
- I CERTIFY THAT:
- THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
  - THE SURVEY WAS COMPLETED ON 2020.

DATE \_\_\_\_\_ R. S. QUERUBIN  
 ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER XXXXXX

**J.D. BARNES LIMITED**  
 SURVEYING MAPPING GIS  
 LAND INFORMATION SPECIALISTS  
 401 WHEELABRATOR WAY, SUITE A, MILTON, ON L9T 3C1  
 T: (905) 875-9955 F: (905) 875-9956 www.jdbarnes.com

DRAWN BY: AA	CHECKED BY: AB/RSO	REFERENCE NO.: 17-30-187-03-A
FILE: G:\17-30-187\03\Drawing\17-30-187-03-A.dwg	DATED: AUGUST 28, 2019	PLOTTED: 6/26/2020



TOP OF BANK AS STAKED BY HALTON CONSERVATION ON MARCH 23, 2018

PART 3  
 PLAN 20R-16495

PART 1  
 PLAN 20R-8277

PART 1  
 PLAN 20R-12519

PART 1  
 PIN 24925-8461 (LT)

PART 6  
 PLAN 20R-16278  
 PIN 24925-3460 (LT)

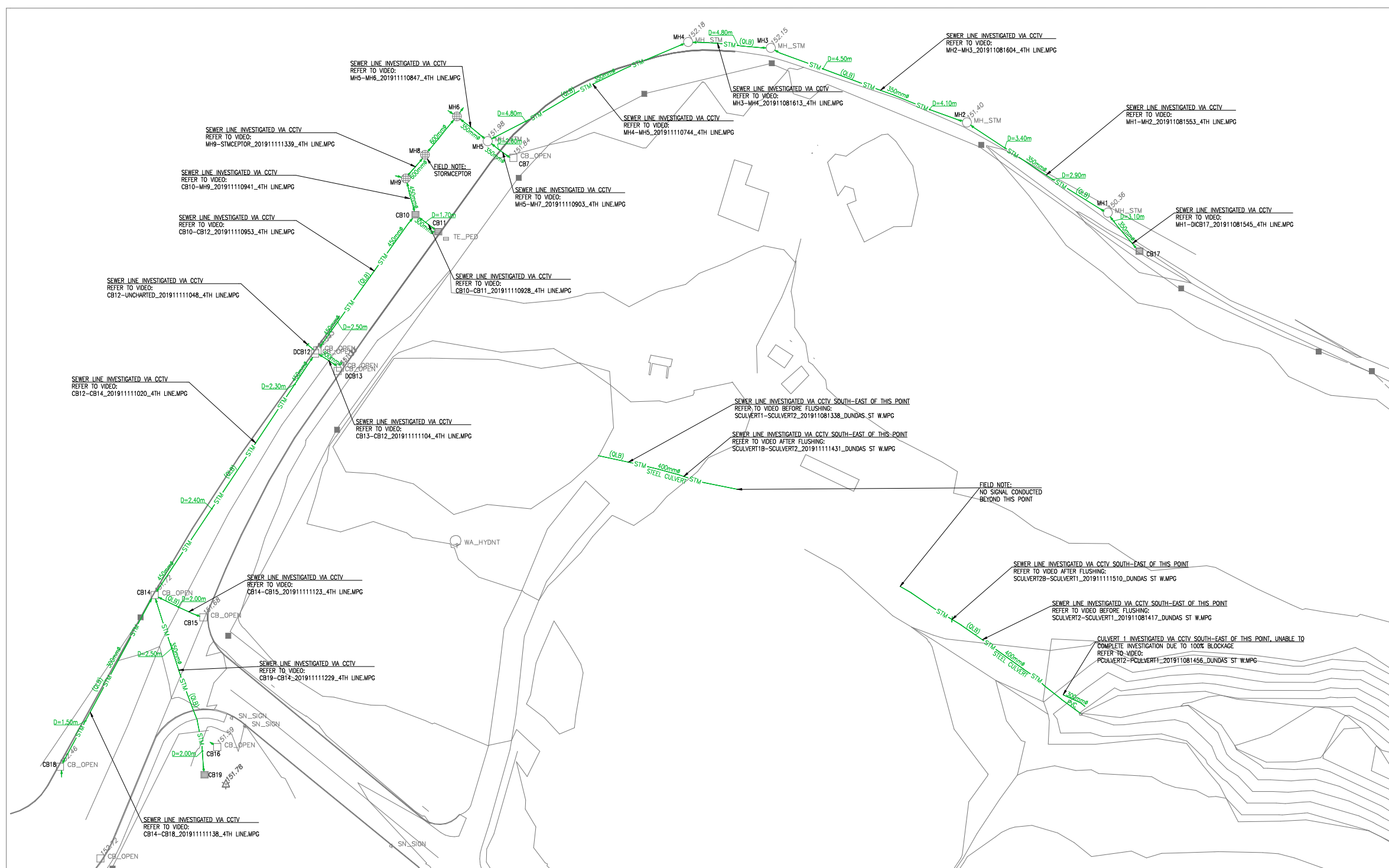
PART 1  
 PLAN 20R-3072

PART 7  
 PLAN 20R-16278

DUNDAS STREET WEST - REGIONAL ROAD NO. 5  
 PIN 24928-0204 (LT)

CLOSED TO VEHICULAR TRAFFIC ONLY BY BY-LAW 1997-188  
 PART 2, PLAN 20R-12519

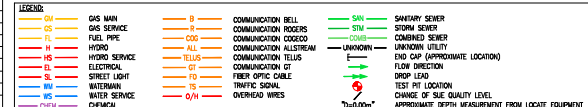




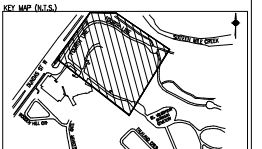
**1200 DUNDAS ST WEST, ONTARIO**

Manhole #	Type of manhole	Chain Station (m)	Direction	Material	Depth (m)	Depth (m)	Size (mm)	Inlets to	Manhole Inlet (m)	Manhole Outlet (m)	Remarks
MH1	Storm	150.36	N	FRP	2.05	2.30	300	N	147.75	148.06	
MH2	Storm	151.40	S	FRP	3.88	3.50	300	N	147.30	147.90	
MH3	Storm	152.75	W	FRP	4.00	4.45	300	N	147.95	147.70	
MH4	Storm	152.15	SE	FRP	4.74	4.39	300	N	147.40	147.26	
MH5	Storm	152.18	SW	FRP	4.87	4.52	300	SW	147.31	147.06	
MH6	Storm	151.88	NE	FRP	4.84	4.49	300	SW	147.24	147.09	
MH7	Storm	151.88	NE	FRP	4.84	4.49	300	SW	147.24	147.09	
MH8	Storm	152.36	NE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Recessed*
MH9	Storm	152.36	NE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Recessed*
CB7	Storm	151.84	SW	FRP	2.12	1.75	300	NW	148.74	150.09	
CB8	Storm	152.47	SW	N/A	N/A	N/A	N/A	N/A	147.87	148.47	Recessed* only one Road side connector
CB9	Storm	152.50	SE	FRP	4.38	3.30	400	NE	148.74	148.24	
CB10	Storm	152.50	SE	FRP	4.38	3.30	400	NE	148.42	148.87	
CB11	Storm	151.59	SW	FRP	1.74	1.69	300	NW	148.85	150.15	
CB12	Storm	151.59	SW	FRP	1.74	1.69	300	NW	148.85	150.15	
CB13	Storm	151.59	SW	FRP	1.74	1.69	300	NW	148.85	150.15	
CB14	Storm	151.59	SW	FRP	1.74	1.69	300	NW	148.85	150.15	
CB15	Storm	151.59	SW	FRP	1.74	1.69	300	NW	148.85	150.15	
CB16	Storm	151.59	SW	FRP	1.74	1.69	300	NW	148.85	150.15	
CB17	Storm	151.59	SW	FRP	1.74	1.69	300	NW	148.85	150.15	
CB18	Storm	151.59	SW	FRP	1.74	1.69	300	NW	148.85	150.15	

\* Manhole or pipe opening contains debris. May require flushing or blowing prior to obtaining measurements.



**SURVEY NOTES:**  
 THE GEODETIC ELEVATION LAYER IS TURNED OFF FOR PRESENTATION PURPOSES ONLY. ALL RELATIVE UTILITY ELEVATIONS ARE SHOWN IN THE AUTOCAD DIGITAL FILE (.DWG).



**GENERAL NOTES:**  
 - THE SITE FIELD INVESTIGATION WAS COMPLETED IN NOVEMBER, 2019 BY TELECON DESIGN INC. (TD-UES).  
 - THE FIELD INVESTIGATION OF UTILITIES WAS COMPLETED USING A COMBINATION OF ELECTROMAGNETIC PIPE AND CABLE LOCATOR EQUIPMENT.  
 - TELECON USED AVAILABLE MEANS IN AN ATTEMPT TO DETERMINE THE LOCATION OF UNDOCUMENTED UTILITIES. TELECON IS NOT RESPONSIBLE FOR INDICATING ALL UNDOCUMENTED UTILITIES UNLESS PROVIDED, SHOWN AND/OR AVAILABLE AND RECEIVED DIGITALLY OR BY HYDROCON.  
 - THE TOPOGRAPHIC BASE PLAN PROVIDED BY CLIENTS, AND IS NOT A PART OF THIS SITE INVESTIGATION COMPLETED BY TD-UES.  
 - UTILITY, MATERIAL, SIZE AND FLOW DIRECTION SHOWN ON THIS DRAWING ARE BASED ON RECORDS, PROFESSIONAL JUDGMENT AND FIELD INVESTIGATIONS, SUBSURFACE UTILITY ENGINEERING QUALITY LEVELS.

**DESIGN LEVELS:**  
 INFORMATION DERIVED FROM EXISTING RECORDS OR VERBAL COLLECTIONS.  
 Line Style (Level 3)

**DESIGN LEVEL C:**  
 INFORMATION ACQUIRED BY SURVEYING AND PLOTTING VISIBLE ABOVE GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO THE QUALITY LEVEL "C".  
 Line Style (Level C)

**DESIGN LEVEL B:**  
 INFORMATION ACQUIRED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOSPATIAL UTILITY LOCATING METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF THE SUBSURFACE UTILITIES WHICH IS THEN GEODETICALLY SURVEYED.  
 Line Style (Level B)

**DESIGN LEVEL A:**  
 PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE AND SUBSEQUENT MEASUREMENT AND/OR SURVEY OF SUBSURFACE UTILITIES.  
 Line Style (Level A)

**REVISIONS**

REV	DATE	DRAWN BY	APPROVED BY

**TELECON DESIGN**  
 MEMBER OF TELECON GROUP  
 1200 DUNDAS STREET WEST, ONTARIO  
 R.J. ANDERSON ASSOCIATES LIMITED

**PROJECT / JOB #** 1200D

**SUBMITTED BY:** DATE: 12/13/2019

**DRAWN BY:** DATE: 12/13/2019

**CHECKED BY:** DATE: 12/17/2019

**APPROVED BY:** DATE: 12/18/2019

**DRAWING SCALE:** 1:500

**DRAWING NUMBER:** UG-1

**THIS DRAWING HAS BEEN PREPARED BY THE AUTHOR (S) AND IS SUBJECT TO THE TERMS AND CONDITIONS OF THE CONTRACT UNDER WHICH IT WAS PREPARED. THE DRAWING IS NOT TO BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF TELECON DESIGN INC. AND THE APPLICABLE UTILITY ENGINEERING QUALITY LEVELS.**



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## **APPENDIX B**

### **Water Demand Calculations**

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TABLE B1 - PROPOSED PEAK DOMESTIC WATER DEMAND CALCULATIONS

		TOTAL
1.1 Total Units*	units	342
1.2 Total Apartment Building Ground Floor Area (GFA)*	ha	3.1
1.3 Total Apartment Building population based on 285 persons/hectare**	persons	884
1.4 Total Seniors Friendly Independent Living Units (SFIL) Ground Floor Area (GFA)*	ha	0.32
1.5 Total Seniors Friendly Independent Living Units (SFIL) population based on 135 persons/hectare**	persons	43
1.6 Total Residential Population	persons	927
1.7 Total Population Used for Calculation Purposes***	persons	1,000.0
1.8 Per Capita Demand @ 275 L/person/day**	L/day	275,000
1.9 Equivalent Population Demand	L/s	3.2
2.0 Peak Hour Peaking Factor**		4.0
<b>2.1 Peak Hour Design Demand Rate</b>	<b>L/s</b>	<b>12.7</b>
2.2 Maximum Day Peaking Factor**		2.25
<b>2.3 Maximum Day Design Demand Rate</b>	<b>L/s</b>	<b>7.2</b>

\*Based on Architectural Stats received from Icke Brochu Architects Inc. dated July 29th, 2020

\*\* as per Halton Region Water and Wastewater Linear Design Manual April 2019 Version 4.0

\*\*\* The population was rounded up to provide a conservative figure for demand calculations



**TABLE B2.1 - FIRE DEMAND CALCULATIONS - APARTMENT BUILDING  
BASED ON F.U.S. GUIDELINES**

			<b>TOTAL</b>
1.1	Coefficient for type of construction		0.80*
1.2	Height in Stories**		8
1.3	Total GFA (excluding basement more than 50% below grade)**	m <sup>2</sup>	29,504
1.4	Fire Flow Required***	L/min	31,000
1.5	25% Reduction for Occupancy Charge - low fire hazard***	L/min	-7,750
1.6	Fire Flow Required	L/min	23,250
1.7	30% Reduction for Automatic Sprinklers	L/min	-6,975
1.8	Charge for Building Separation		
	North: Nearest Building	-	0%
	West: Nearest Building	52m	0%
	South: Nearest Building	350m	0%
	East: Nearest Building	-	0%
1.9	Charge for Building Separation	L/min	0
2.0	Fire Flow Required	L/min	17,000
2.1	Fire Flow Required	L/s	283.3

\*Based on Architect recommendation for proposed construction type

\*\*Based on Architectural Stats received from Icke Brochu Architects Inc. dated July 29th, 2020

\*\*\*Based on FUS Guidelines

**TABLE B2.2 - FIRE DEMAND CALCULATIONS - SFIL BLOCK #1  
BASED ON F.U.S. GUIDELINES**

			<b>TOTAL</b>
1.1	Coefficient for type of construction		1.00*
1.2	Height in Stories**		1.5
1.3	Total GFA (excluding basement more than 50% below grade)**	m <sup>2</sup>	960
1.4	Fire Flow Required***	L/min	7,000
1.5	15% Reduction for Occupancy Charge - low fire hazard; limited combustible***	L/min	-1,050
1.6	Fire Flow Required***	L/min	5,950
1.7	No Reduction for Automatic Sprinklers**	L/min	0
1.8	Charge for Building Separation		
	North: Nearest Building	-	0%
	West: Nearest Building	50m	0%
	South: Nearest Building	26m	10%
	East: Nearest Building	52m	0%
1.9	Charge for Building Separation	L/min	595
2.0	Fire Flow Required	L/min	7,000
2.1	Fire Flow Required	L/s	116.7

\*Based on Architect recommendation for proposed construction type

\*\*Based on Architectural Stats received from Icke Brochu Architects Inc. dated July 29th, 2020

\*\*\*Based on FUS Guidelines

**TABLE B2.2 - FIRE DEMAND CALCULATIONS - SFIL BLOCK #2  
BASED ON F.U.S. GUIDELINES**

			<b>TOTAL</b>
1.1	Coefficient for type of construction		1.00*
1.2	Height in Stories**		1.5
1.3	Total GFA (excluding basement more than 50% below grade)**	m <sup>2</sup>	960
1.4	Fire Flow Required***	L/min	7,000
1.5	15% Reduction for Occupancy Charge - low fire hazard; limited combustible***	L/min	-1,050
1.6	Fire Flow Required***	L/min	5,950
1.7	No Reduction for Automatic Sprinklers**	L/min	0
1.8	Charge for Building Separation		
	North: Nearest Building	26m	10%
	West: Nearest Building	35m	5%
	South: Nearest Building	8m	20%
	East: Nearest Building	120m	0%
1.9	Charge for Building Separation	L/min	2,083
2.0	Fire Flow Required	L/min	9,000
2.1	Fire Flow Required	L/s	150.0

\*Based on Architect recommendation for proposed construction type

\*\*Based on Architectural Stats received from Icke Brochu Architects Inc. dated July 29th, 2020

\*\*\*Based on FUS Guidelines

**TABLE B2.2 - FIRE DEMAND CALCULATIONS - SFIL BLOCK #3  
BASED ON F.U.S. GUIDELINES**

			<b>TOTAL</b>
1.1	Coefficient for type of construction		1.00*
1.2	Height in Stories**		1.5
1.3	Total GFA (excluding basement more than 50% below grade)**	m <sup>2</sup>	600
1.4	Fire Flow Required***	L/min	6,000
1.5	15% Reduction for Occupancy Charge - low fire hazard; limited combustible***	L/min	-900
1.6	Fire Flow Required***	L/min	5,100
1.7	No Reduction for Automatic Sprinklers**	L/min	0
1.8	Charge for Building Separation		
	North: Nearest Building	8m	20%
	West: Nearest Building	55m	0%
	South: Nearest Building	8m	20%
	East: Nearest Building	120m	0%
1.9	Charge for Building Separation	L/min	2,040
2.0	Fire Flow Required	L/min	8,000
2.1	Fire Flow Required	L/s	133.3

\*Based on Architect recommendation for proposed construction type

\*\*Based on Architectural Stats received from Icke Brochu Architects Inc. dated July 29th, 2020

\*\*\*Based on FUS Guidelines

**TABLE B2.2 - FIRE DEMAND CALCULATIONS - SFIL BLOCK #4  
BASED ON F.U.S. GUIDELINES**

			<b>TOTAL</b>
1.1	Coefficient for type of construction		1.00*
1.2	Height in Stories**		1.5
1.3	Total GFA (excluding basement more than 50% below grade)**	m <sup>2</sup>	720
1.4	Fire Flow Required***	L/min	6,000
1.5	15% Reduction for Occupancy Charge - low fire hazard; limited combustible***	L/min	-900
1.6	Fire Flow Required***	L/min	5,100
1.7	No Reduction for Automatic Sprinklers**	L/min	0
1.8	Charge for Building Separation		
	North: Nearest Building	100m	0%
	West: Nearest Building	8m	20%
	South: Nearest Building	120m	0%
	East: Nearest Building	85m	0%
1.9	Charge for Building Separation	L/min	1,020
2.0	Fire Flow Required	L/min	7,000
2.1	Fire Flow Required	L/s	116.7

\*Based on Architect recommendation for proposed construction type

\*\*Based on Architectural Stats received from Icke Brochu Architects Inc. dated July 29th, 2020

\*\*\*Based on FUS Guidelines

TABLE B2.6 - Summary of Fire Flows

		<b>TOTAL</b>
1.0 Apartment Building	L/s	283.33
2.0 SFIL Block 1	L/s	116.67
3.0 SFIL Block 2	L/s	150.00
4.0 SFIL Block 3	L/s	133.33
5.0 SFIL Block 4	L/s	116.67
6.0 Controlling Fire Flow	L/s	283.33

<b>TABLE B3 - PROPOSED REDEVELOPMENT TOTAL WATER DEMAND</b>		
<p>PER REGION OF HALTON DESIGN CRITERIA AND MECP DESIGN GUIDELINES, WATER SUPPLY SYSTEMS SHOULD BE DESIGNED TO SATISFY THE GREATER OF EITHER OF THE FOLLOWING DEMANDS:</p>		
<p>-MAXIMUM DAY DOMESTIC DEMAND PLUS FIRE FLOW</p>		
<p>-PEAK HOUR DOMESTIC DEMAND</p>		
<p><b><u>MAX DAY &amp; FIRE FLOWS</u></b></p>		
Max Day Residential	7.2 L/s	
Fire Flow*	283.3 L/s	
<b>Total Max Day &amp; Fire Flow</b>	<b>290.5 L/s</b>	
<p><b><u>PEAK HOUR DOMESTIC DEMAND</u></b></p>		
Peak Rate Residential	12.7 L/s	
<b>Total Peak Rate</b>	<b>12.7 L/s</b>	
<p>THEREFORE, MAX DAY + FIRE FLOW IS GOVERNING REQUIREMENT</p>		
<p><b><u>WATER DEMAND</u></b></p>		
Max Day	7.2 L/s	430 L/min
Fire Flow*	283.3 L/s	17000 L/min
<b>Total Max Day &amp; Fire Flow</b>	<b>290.5 L/s</b>	<b>17,430 L/min</b>
<p>*Max fire flow as per Table B2.6</p>		

# Lozzi Aqua Check

4820 18th Sideroad  
Schomberg, Ontario  
LOG-1T0

Massimo Lozzi Cell: 416 990-2131  
E-mail: lozziaquacheck@gmail.com

## Hydrant Flow Test Form

Job Location: 1280 Dundas St W, Mississauga

Date: June 26, 2020

### Test Date

Time of Test: 1:30 pm

Location of Hydrant: hydrant in front of 2457 Wooden Hill Circle.

Residual hydrant: at 2465 Wooden Hill Circle.

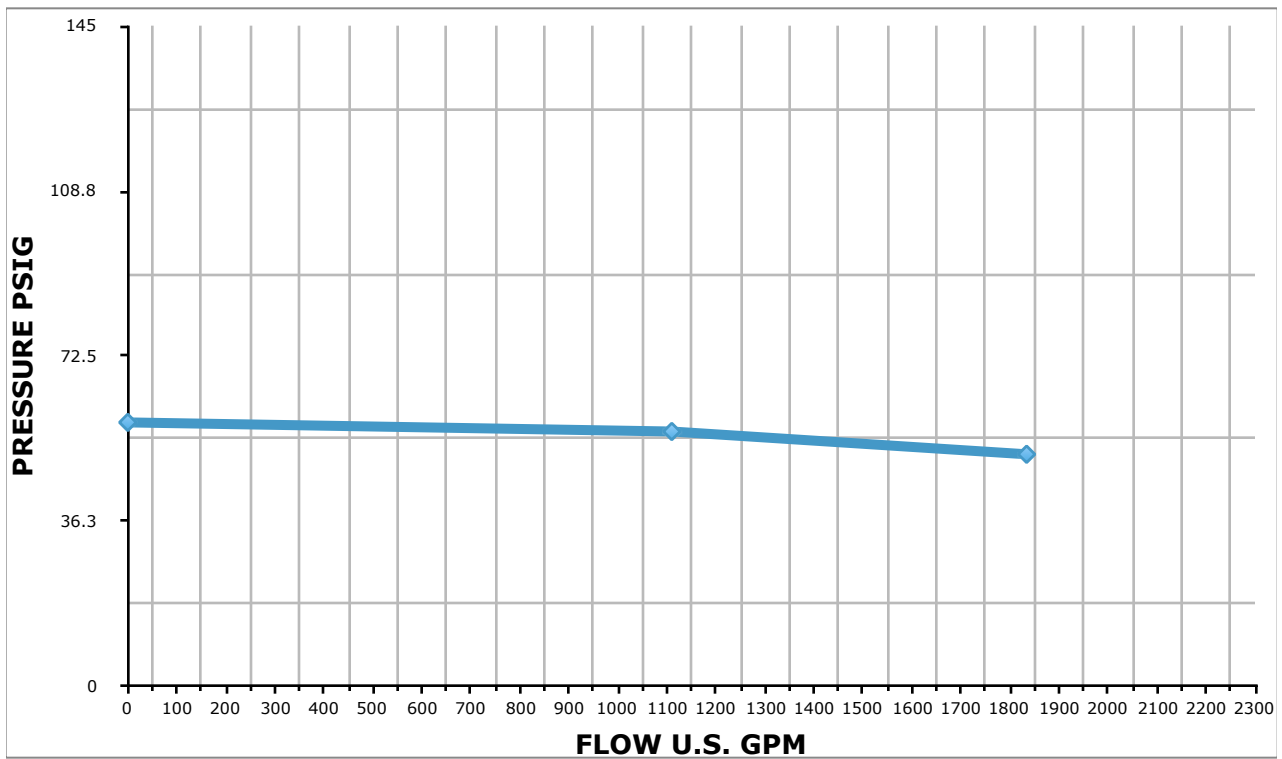
Main Size: 200 mm

Static Pressure: 58 psi

Theoretical GPM at 20 psi - 4572 gpm

	Number of Outlets & Orifice Size	Pitot Pressure (psi)	Flow (U.S. G.P.M.)	Residual Pressure (psi)
1.	Static	0	0	58
2.	1 x 2 ½	44	1110	56
3.	2 x 2 ½	30	1834	54

Note :Flow test conducted in accordance with NFPA Std 291





# Lozzi Aqua Check

4820 18th Sideroad  
Schomberg, Ontario  
LOG-1T0

Massimo Lozzi Cell: 416 990-2131  
E-mail: lozziaquacheck@gmail.com

## Hydrant Flow Test Form

Job Location: 1280 Dundas St W, Mississauga

Date: June 26, 2020

### Test Date

Time of Test: 1:00 pm

Location of Hydrant: hydrant at Dundas St W and Proudfoot Trail

Residual hydrant: at Dashwood Dr and Proudfoot Trail

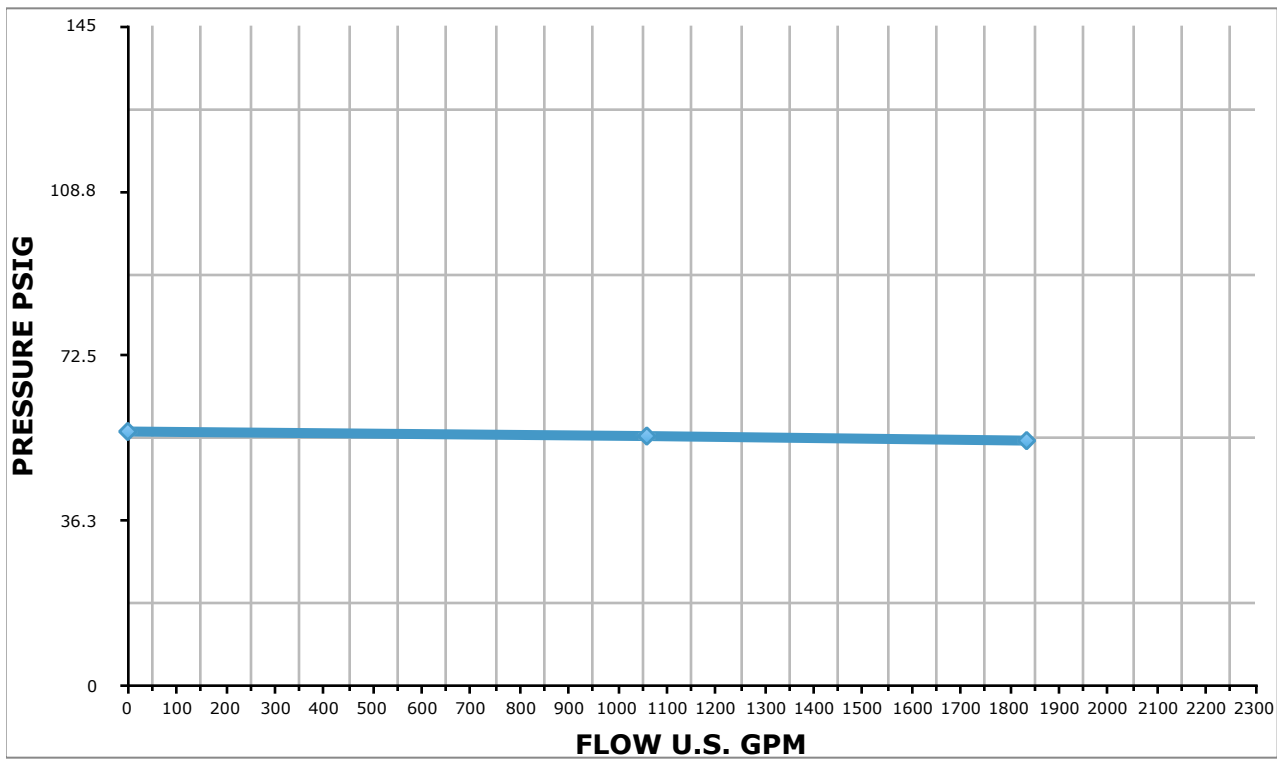
Main Size: 1200 mm

Static Pressure: 56 psi

Theoretical GPM at 20 psi - 8734 gpm

	Number of Outlets & Orifice Size	Pitot Pressure (psi)	Flow (U.S. G.P.M.)	Residual Pressure (psi)
1.	Static	0	0	56
2.	1 x 2 ½	40	1059	55
3.	2 x 2 ½	30	1834	54

Note :Flow test conducted in accordance with NFPA Std 291



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## **APPENDIX C**

### **Sanitary Demand Calculations**

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**Appendix C  
Sanitary Servicing Demand Analysis**

RVA 1950288

**TABLE C1 - PROPOSED SANITARY FLOW ESTIMATE (275 L/c/d)**

		<b>TOTAL</b>
1.1	Total Units*	units 342
1.2	Total Apartment Building Ground Floor Area (GFA)*	ha 3.1
1.3	Total Apartment Building population based on 285 persons/hectare**	persons 884
1.4	Total Seniors Friendly Independent Living Units (SFIL) Ground Floor Area (GFA)*	ha 0.32
1.5	Total Seniors Friendly Independent Living Units (SFIL) population based on 135 persons/hectare**	persons 43
1.6	Total Residential Population	persons 927
1.7	Total Population Used for Calculation Purposes***	persons 1,000
1.8	Total Residential Flow @ 275 L/person/day**	L/day 275000
1.9	Total Residential Flow	L/s 3.18
2.0	Peaking Factor****	3.8
2.01	<b>Total Residential Dry Weather Flow</b>	<b>L/s 12.09</b>

\*Based on Architectural Stats received from Icke Brochu Architects Inc. dated July 29th 2020

\*\* as per Halton Region Water and Wastewater Linear Design Manual April 2019 Version 4.0

\*\*\* The population was rounded up to provide a conservative figure for demand calculations.

\*\*\*\* Peaking Factor calculated by using modified Harmon's Formula ( $K_{av} * (1 + 14/(4 + P^{0.5}))$ ).  $K_{av} = 1$

**Appendix C**  
**Sanitary Servicing Demand Analysis**

RVA 195028

**TABLE C2 - PROPOSED SANITARY FLOW ESTIMATE - INFILTRATION**

1.0	Site Area*	m <sup>2</sup>	46233
1.1	Site Area	ha	4.6233
1.2	Infiltration Allowance**	L/ha/s	0.286
1.3	<b>Total Infiltration Flow</b>	L/s	<b>1.32</b>

---

\*From Topographic Plan and Architectural Stats dated July 29th 2020

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\*\* as per Halton Region Water and Wastewater Linear Design Manual April 2019 Version 4.0

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Appendix C  
Sanitary Servicing Demand Analysis

RVA 195028

TABLE C3 - PROPOSED TOTAL SANITARY FLOW ESTIMATE

		TOTAL
3.1	Total Residential Dry Weather Flow	L/s 12.09
3.2	Total Infiltration Flow	L/s 1.32
3.3	<b>Total Sanitary Peak Flow</b>	<b>L/s</b> <b>13.42</b>

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**APPENDIX D**

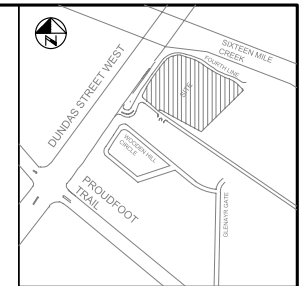
**Civil Drawings**

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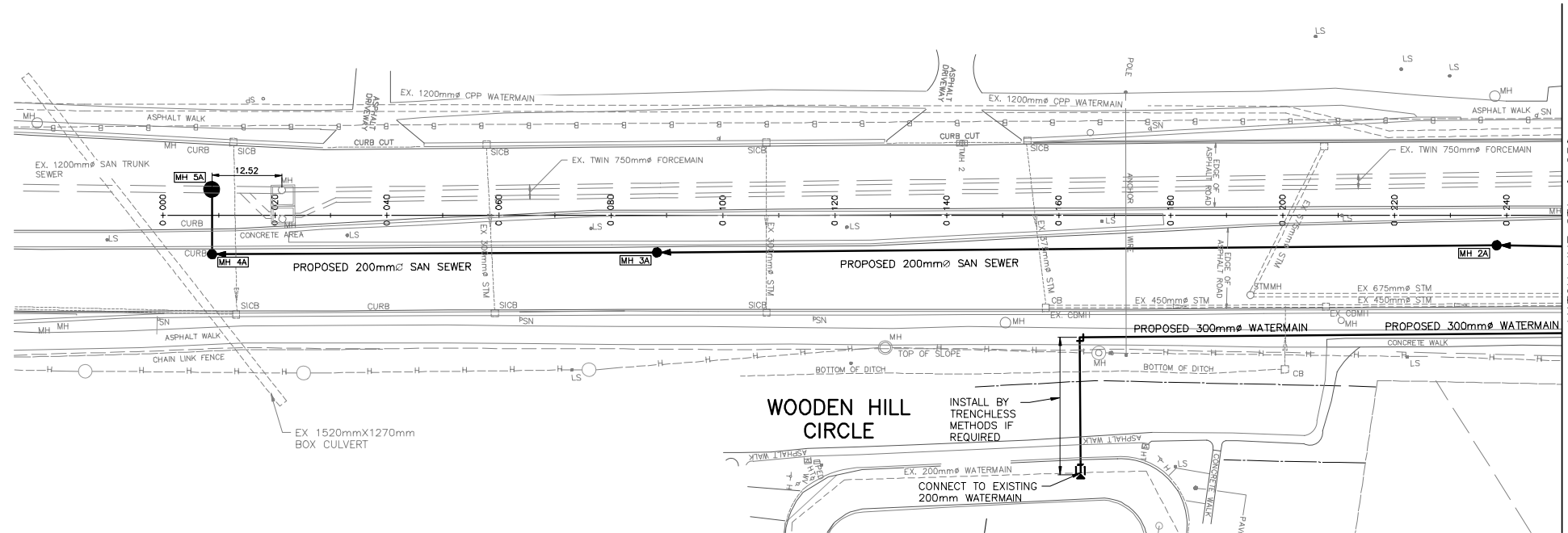
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# CONCEPTUAL PLAN AND PROFILE SKETCH

PROPOSED ALIGNMENT OF WATERMAIN AND SANITARY SEWER SHOWN SCHEMATICALLY FOR DISCUSSION PURPOSES TO SUPPORT 1280 DUNDAS STREET WEST ZBA APPLICATION



KEY PLAN  
N.T.S.



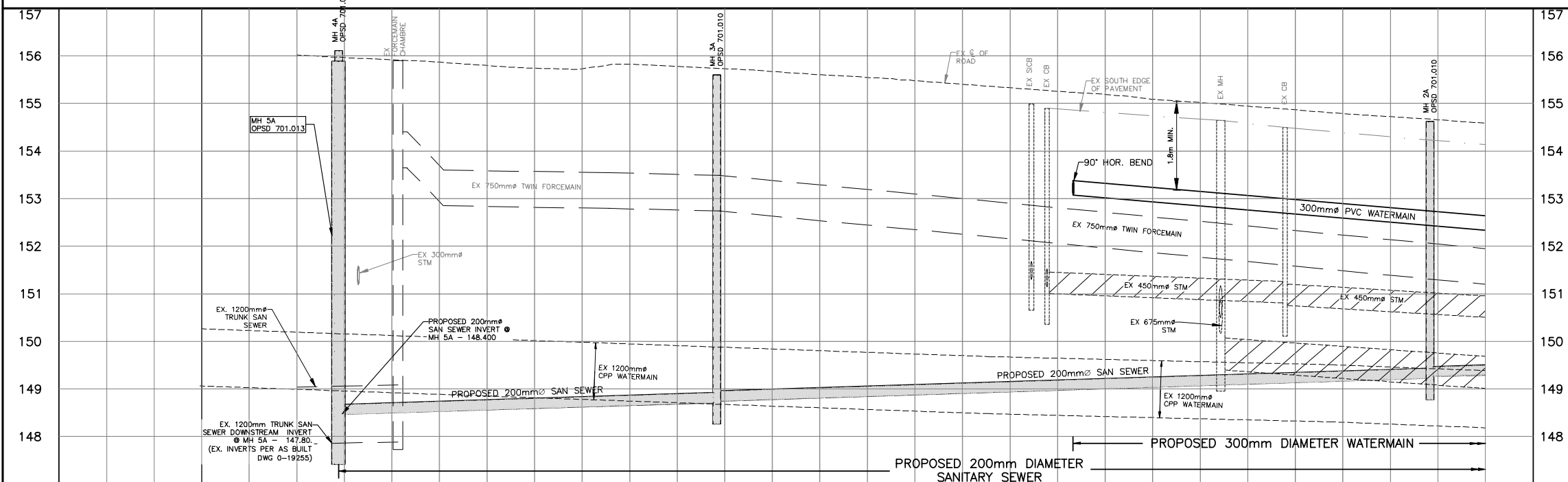
MATCH LINE STA. 0+250  
SEE SHEET PP2

**LEGEND**

- LS EX LIGHT STANDARD
- MH EX MANHOLE
- DSICB EX DOUBLE SIDE INLET CATCHBASIN
- SICB EX SIDE INLET CATCHBASIN
- CB EX CATCHBASIN
- EX STORM SEWER
- EX SANITARY FORCEMAIN
- EX WATER
- EX BELL CANADA CONDUIT
- EX HYDRO CABLE
- G EX GAS MAIN
- PLUG
- PROP WATERMAIN
- PROP SANITARY SEWER
- PROP MANHOLE
- PROP HYDRANT AND VALVE
- PROP WATERMAIN TEE

## DUNDAS STREET WEST (REG RD 5)

THE LOCATION OF UTILITIES IS APPROXIMATE ONLY. THE CONTRACTOR SHALL PROVE THE LOCATION OF UTILITIES AND SHALL BE RESPONSIBLE FOR ADEQUATE PROTECTION FROM DAMAGE



ELEVATIONS	156.01 156.014	155.82 155.819	155.80 155.796	155.73 155.730	155.78 155.779	155.67 155.672	155.65 155.648	155.40 155.401	155.28 155.255	155.08 155.088	154.84 154.842	154.79 154.786	154.66 154.656	ELEVATIONS
WATERMAIN INVERTS	11.6m - 200mm PVC SAN @ 0.32%											300mm PVC WATERMAIN	WATERMAIN INVERTS	
SANITARY INVERTS	79.5m - 200mm PVC SAN @ 0.32%											150.0m - 200mm PVC SAN @ 0.32%	SANITARY INVERTS	
CHAINAGE	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	CHAINAGE

NO.	DATE	BY	ISSUED FOR ZBA APPROVAL		
1	20/08/14	M.S.	ISSUED FOR ZBA APPROVAL		X
REVISIONS					
DESIGN	M.S.	CH'KD	D.A.S.	DATE	
DRAWN	C.C.	CH'KD		2020-07-06	
SCALE					
1:500 HORIZ.			REFERENCES		
1:50 VERT.					
REGIONAL			FIELD NOTES		
SEE COVER SHEET FOR REGIONAL ACCEPTANCE			STAMP		

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PROPOSED 300mm WATERMAIN AND 200mm SANITARY ON DUNDAS STREET WEST (REG. RD. 5) FROM 130m EAST OF PRUDFOOT TRAIL TO 35m WEST OF FOURTH LINE STA 0+000 TO STA 0+250 IN THE TOWN OF OAKVILLE

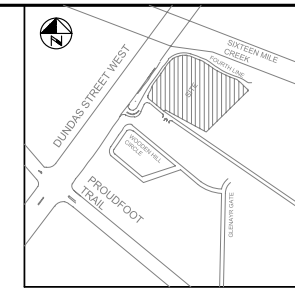
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CONTRACT NO. X-XXXX-XX DRAWING NO. SHEET PP1 OF PP2

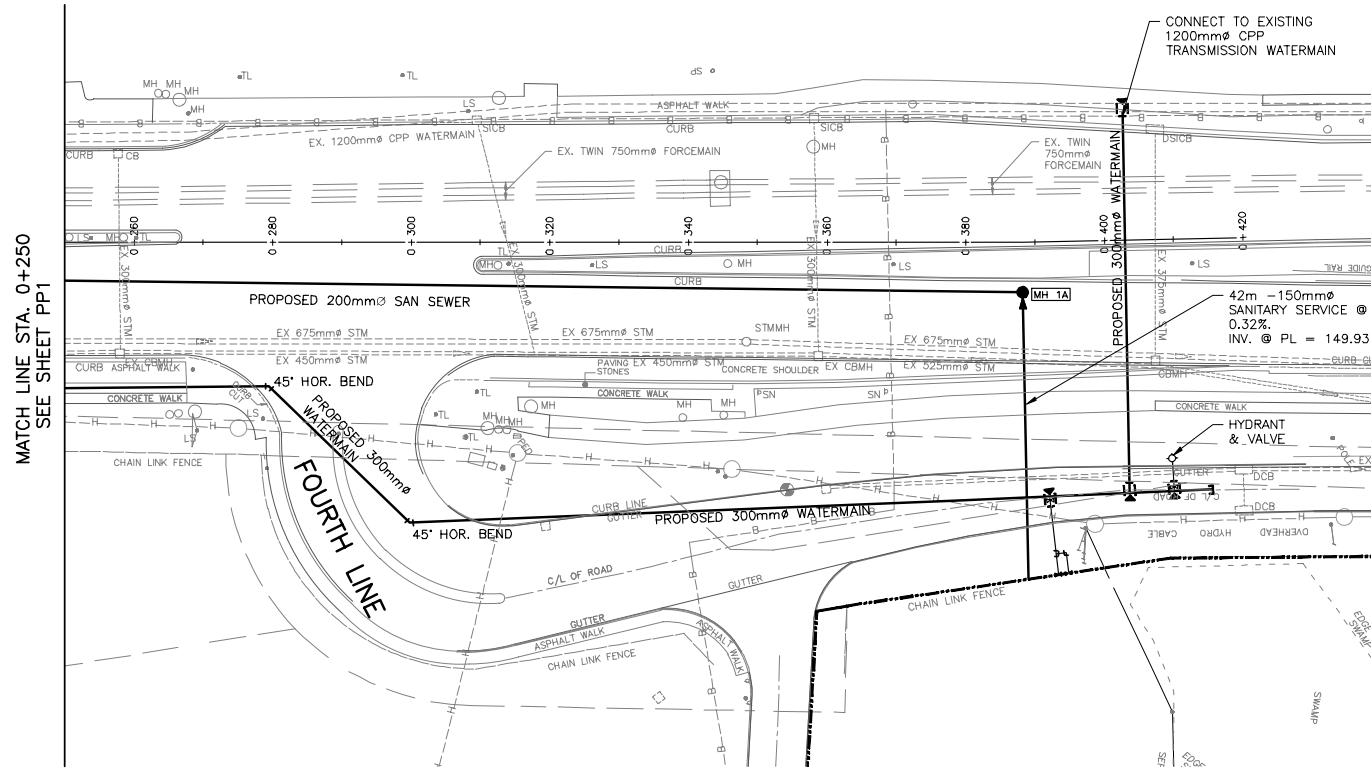
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Lopulski, PPT  
Date: 08/24/2020 Time: 01:52:49 PM

# CONCEPTUAL PLAN AND PROFILE SKETCH

PROPOSED ALIGNMENT OF WATERMAIN AND SANITARY SEWER SHOWN SCHEMATICALLY FOR DISCUSSION PURPOSES TO SUPPORT 1280 DUNDAS STREET WEST ZBA APPLICATION



KEY PLAN  
N.T.S.

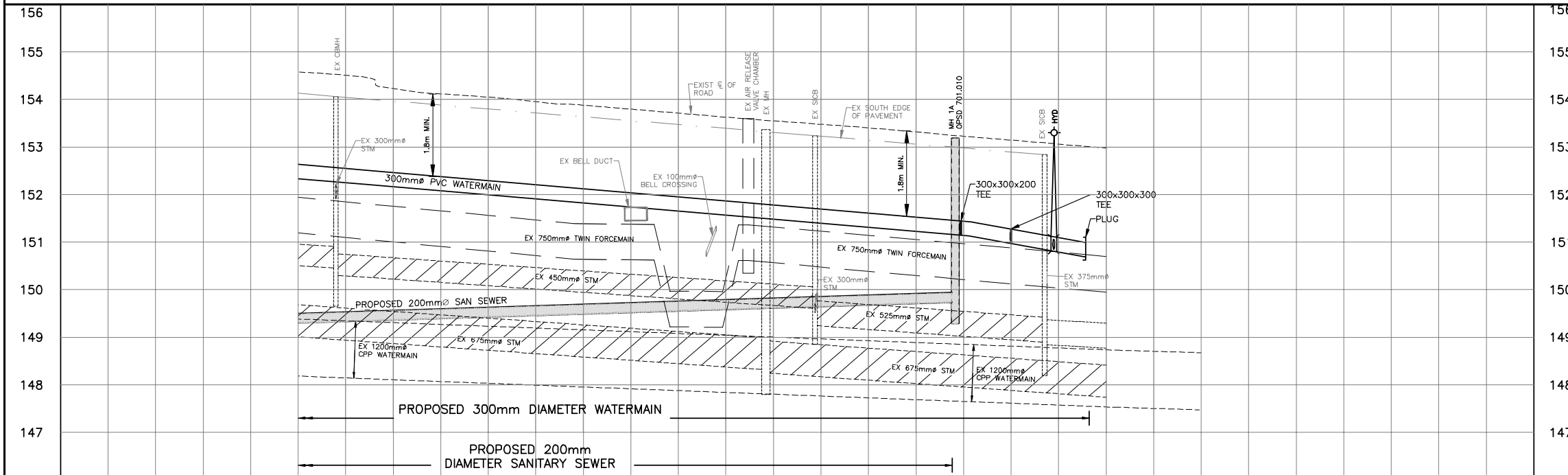


## DUNDAS STREET WEST (REG RD 5)

LEGEND

- LS EX LIGHT STANDARD
- MH EX MANHOLE
- DSICB EX DOUBLE SIDE INLET CATCHBASIN
- SICB EX SIDE INLET CATCHBASIN
- CB EX CATCHBASIN
- EX STORM SEWER
- EX SANITARY FORCEMAIN
- EX WATER
- B EX BELL CANADA CONDUIT
- H EX HYDRO CABLE
- G EX GAS MAIN
- PLUG
- PROP WATERMAIN
- PROP SANITARY SEWER
- PROP MANHOLE
- PROP HYDRANT AND VALVE
- PROP WATERMAIN TEE

THE LOCATION OF UTILITIES IS APPROXIMATE ONLY. THE CONTRACTOR SHALL PROVE THE LOCATION OF UTILITIES AND SHALL BE RESPONSIBLE FOR ADEQUATE PROTECTION FROM DAMAGE



℄ ELEVATIONS	154.51 154.508	154.12 154.116	153.95 153.952	153.80 153.796	153.63 153.627	153.45 153.477	153.32 153.317	153.14 153.145	152.98 152.976	℄ ELEVATIONS
WATERMAIN INVERTS	300mm PVC WATERMAIN									WATERMAIN INVERTS
SANITARY INVERTS	150.0m - 200mm PVC SAN @ 0.32%									SANITARY INVERTS
CHAINAGE	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	CHAINAGE

NO.	DATE	BY	REVISIONS	DATE
1	20/08/14	M.S.	ISSUED FOR ZBA APPROVAL	
				2020-07-06

SCALE	1:500 HORIZ.	0 5 10 20	REFERENCES
	1:50 VERT.	0 0.5 1 2	
REGIONAL	FIELD NOTES		
	STAMP		
SEE COVER SHEET FOR REGIONAL ACCEPTANCE			

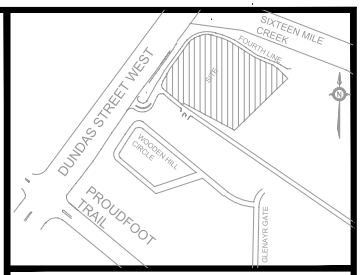
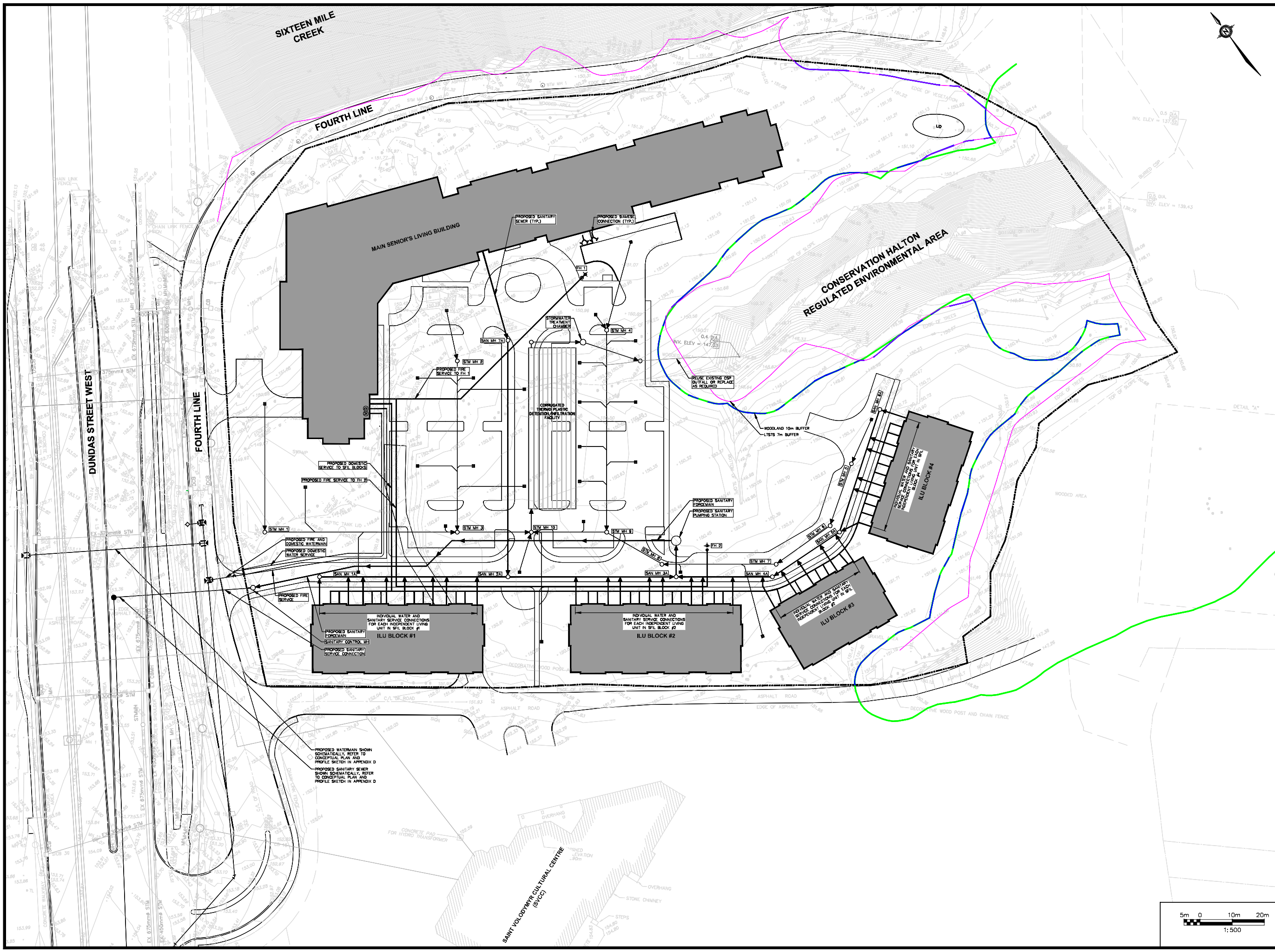
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PROPOSED 300mm WATERMAIN AND 200mm SANITARY ON DUNDAS STREET WEST (REG. RD. 5) FROM 35m WEST OF FOURTH LINE TO 65m EAST OF FOURTH LINE STA 0+250 TO STA 0+420 IN THE TOWN OF OAKVILLE	
CONSULTANT FILE NO. <b>195028</b>	REGIONAL DRAWING NO.
CONTRACT NO. <b>X-XXXX-XX</b>	DRAWING NO. SHEET <b>PP2</b> OF <b>PP2</b>

PR-XXXX-XX XX OF XX  
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Date: 08/24/2020 Time: 01:53:20 PM





KEY PLAN		
N.T.S.		
No.	Date	Comments
1	2020/09/XX	ISSUED FOR ZBA APPROVAL

THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER RVA DRAWINGS

LEGEND	
	PROPERTY LINE
	CATCHBASIN WITH GOSS TRAP
	MH
	SANITARY SEWER AND FORCMAIN
	WATERMAIN
	STORM SEWER
	VALVE
	SIAMESE CONNECTION
	FIRE HYDRANT
	WATER METER
	DETECTOR ASSEMBLY
	ARCHITECT'S PROPERTY LINE
	LTSIS 7m BUFFER LINE
	WOODLAND 10m BUFFER LINE

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Drawing Prepared By:

R.V. Anderson Associates Limited  
engineering • environment • infrastructure

Client:

**DELMANOR WEST OAK INC.**

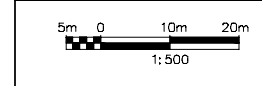
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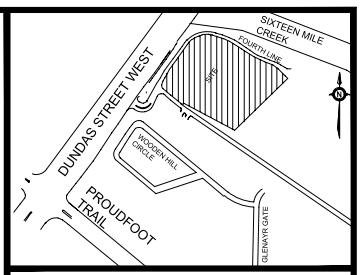
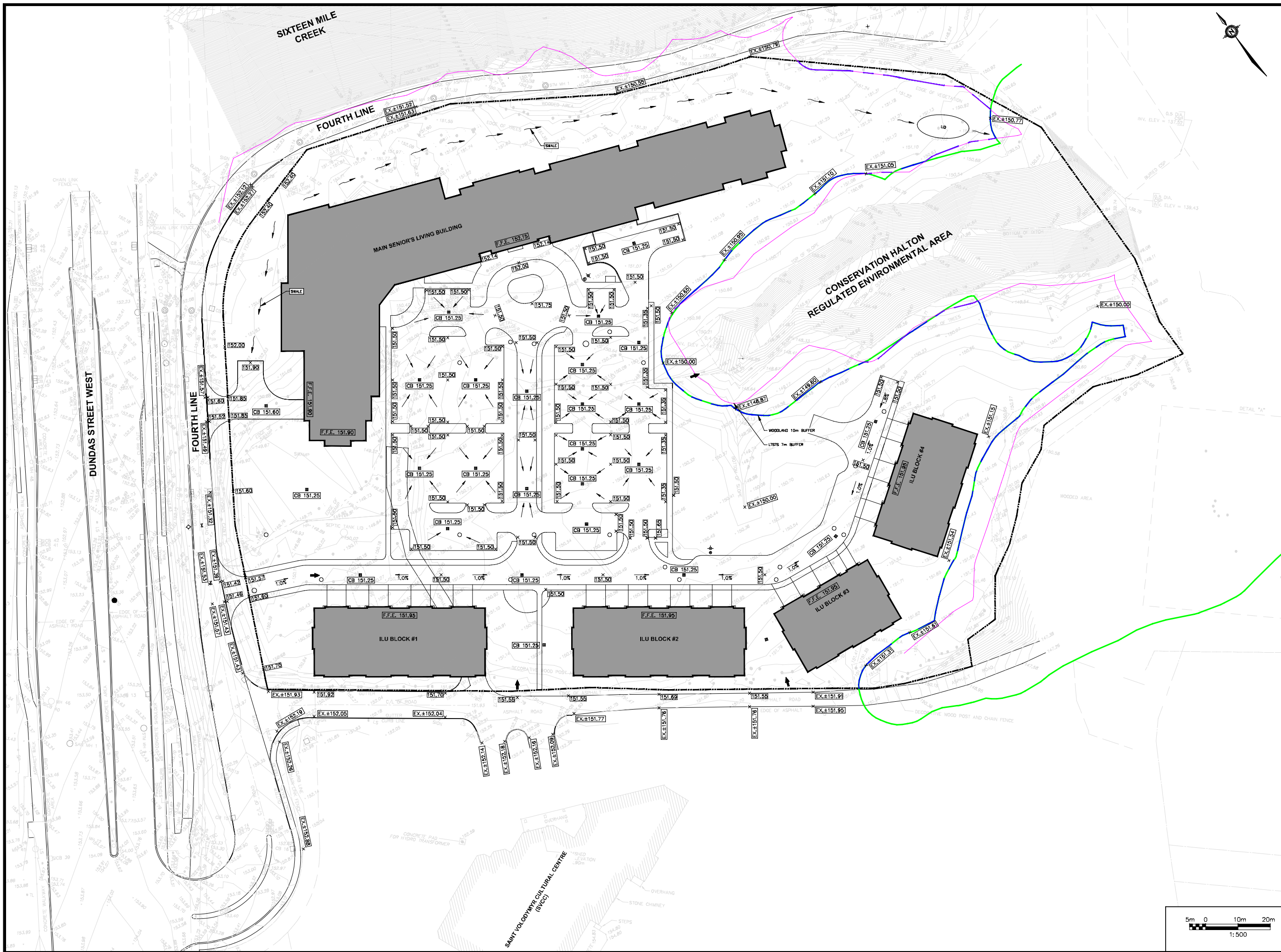
**1280 DUNDAS STREET WEST REDEVELOPMENT DELMANOR WEST OAK**

Drawing Title:

**CONCEPTUAL SITE SERVICING FIGURE**

Drawn:	M.S.	Design:	D.A.S.	Date:	JULY 2020
Checked:	D.A.S.	Approved:	A.S.T.	Scale:	1:500
CADD File:	195028-S-Servicing.dwg			Proj. No.:	<b>C-1</b>
Project No.:	195028				





KEY PLAN  
N.T.S.

No.	Date	Comments
1	2020/09/XX	ISSUED FOR ZBA APPROVAL

THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER RVA DRAWINGS

LEGEND

---	PROPERTY LINE
■	CATCHBASIN WITH GOSS TRAP
○	STORM AND SANITARY MANHOLE
151.50	PROPOSED ELEVATION
EX.±151.49	EXISTING ELEVATION
1.0%	PROPOSED SLOPE
→	PROPOSED OVERLAND FLOW ROUTE
—	PROPOSED SWALE
◆	VALVE
+	SIAMSE CONNECTION
+	FIRE HYDRANT
---	ARCHITECTS PROPERTY LINE
---	LTSTB 7m BUFFER LINE
---	WOODLAND 10m BUFFER LINE

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Drawing Prepared By:

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Client:  
**DELMANOR WEST OAK INC.**

Project Name:  
**1280 DUNDAS STREET WEST REDEVELOPMENT DELMANOR WEST OAK**

Drawing Title:  
**CONCEPTUAL SITE GRADING FIGURE**

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Checked:	D.A.S.	Approved:	A.S.T.	Scale:	1:500
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