FUNCTIONAL SERVICING REPORT

Water, Sanitary, and Stormwater Management

ASSISTED CARE/LIVING FACILITY

2135 DUNDAS STREET WEST
TOWN OF OAKVILLE

OUR FILE: 1614

PREPARED FOR ASC (OAKVILLE) FACILITY LIMITED PARTNERSHIP

DECEMBER 18, 2023

(905) 338-3366 #1-481 Morden Road, Oakville, ON, L6K 3W6 www.trafalgareng.com

REVISION HISTORY

DATE	REVISION	SUBMISSION
December 18, 2023	4	Issued for Rezoning Application
February, 7 2019	3	Submitted under separate cover
August 17, 2018	2	Submitted under separate cover
November 13, 2017	1	Submitted under separate cover

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APPENDICES

1.0 INTRODUCTION

This report was originally prepared in support of the rezoning and site plan applications for the development of an assisted living/care facility located at 2135 Dundas Street West. The development consisted of approximately 21,031 m^2 combination Assisted Living/Care Units with the building height ranging between four and six floors; there were 98 Assisted Living units and 84 Care units.

This report has been updated to support a rezoning application to permit the conversion of 33 care units into seniors' apartments. Changes to the approved report are denoted in italics below.

Where appropriate, sections have been updated to indicate that certain components have been constructed. This does not constitute a certification or validation of as-constructed components but is provided as information only.

1.1 Project Description

Trafalgar Engineering Ltd. has been retained by All Seniors Care Acquisitions to prepare a Functional Servicing Report in support of the Site Plan Application for the property located at 2135 Dundas Street West in Oakville. This report should be read in conjunction with Trafalgar's Site Servicing Plan *and* Grading Plan, and Architectural and Landscape plans *(by others)* prepared for the development.

The subject site is located on the north-west corner of Dundas Street West and Hospital Gate in Oakville. The site is bounded by Dundas Street West on the south, Hospital Gate on the east, a stormwater management pond (Taplow Pond) to the north and vacant lands to the west. The site has historically been referred to as the Mitic Property.

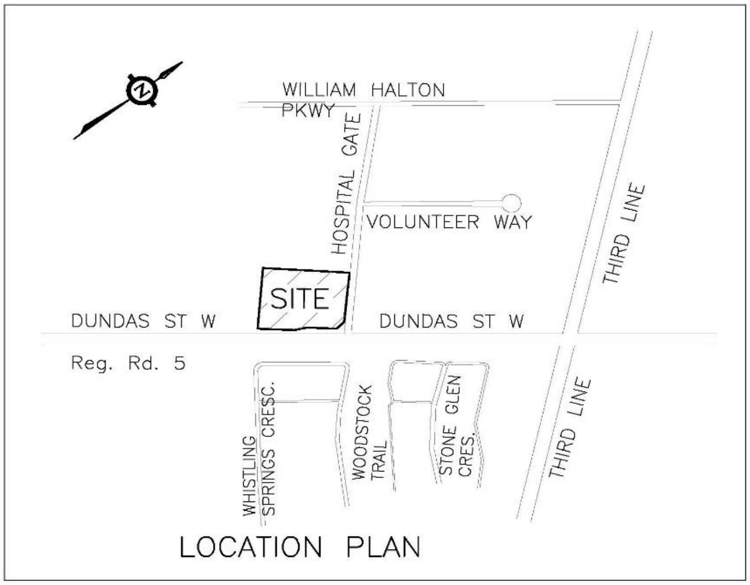
The 1.226 ha site currently contains many buildings including residential dwelling, garages and sheds.

The proposed development for the subject site is for a 21,031 m2 combination Assisted Living/Care Units with the height ranging between four and six floors. There will be 98 Assisted Living units, *51* Care Units, *and 33 seniors' apartments (dwelling units)*. The Assisted Living units will include both 1 bedroom and 2 bedroom units. Vehicle access will be from Hospital Gate to an internal courtyard and a drop-off at the building. Some surface parking will be provided in this area, but the majority of the parking will be underground beneath the building. Access to the building will be provided from the internal driveway at the main floor level and to basement level from the Dundas Street West frontage. Landscape areas are provided around the site with a significant area provided in the western part of the site.

1.2 Previous Studies, Reports and Documents

The following studies/reports/documents were reviewed in the preparation of this report.

- North Oakville Creeks Sub-watershed Study, Town of Oakville, August 2006 (NOCSS)
- North Oakville Creeks Sub-watershed Study Addendum, Town of Oakville, September 5, 2007 (NOCSS Amendment)
- North Oakville Environmental Implementation Report and Functional Servicing Study Terms of Reference, Town of Oakville, August 2, 2007 (Terms of Reference)
- Stormwater Management Planning and Guidelines Manual, Ministry of Environment, March 2003 (MOE Manual)
- Development Engineering Procedures & Guidelines Manual, Town of Oakville, 2016 (Town's Manual)
- Water and Wastewater Linear Design Manual, Regional Municipality of Halton, July 2017 (Region's Manual)
- Sixteen Hollow Employment Area – Area Servicing Plan, WalterFedy, January 31, 2014 (revised June 26, 2014) (ASP)
- Stormwater Management Report, EIR/FSS Update and HHS Pond Design Brief, May 9, 2012, WalterFedy (Hospital EIR/FSS)
- 2135 Dundas Street, Oakville – Mitic Property Site, Stormwater Management Assessment, WalterFedy, February 3, 2017.(WalterFedy Letter)
- Stormwater Management Report – All Senior's Care Acquisition Ltd.-2135 Dundas Street West Oakville, Walterfedy, November 14, 2018 (SWM Report)



2.0 SANITARY DRAINAGE

The below text is provided for context but is out-of-date. The sewer connection to Whistling Springs has been constructed and as-built records are provided in Appendix 'D'.

In the Area Servicing Plan (ASP) prepared by WalterFedy, they had recommended that the subject lands be serviced from the existing 200mm diameter sanitary sewer located On Whistling Springs Crescent, located immediately south of Dundas Street West.

Connection to the existing sewer will require jacking and boring the sewer across Dundas Street West to Whistling Springs, and construction of the sewer to the connection manhole.

A review of record drawings in combination with updated topography indicates that the outlet originally proposed will be in conflict with the existing 1200mm diameter water and storm sewers recently constructed along Dundas Street West. As an alternative, the crossing route has been moved to the east to avoid conflict with the storm sewer. The proposed route may require the relocation of the traffic signal controller for the Dundas Street West/Hospital Gate intersection. This will result in a section of the sewer being constructed along the Whistling Springs Crescent right-of-way. The proposed sanitary sewer route is shown on drawing 1614-S2.

2.1 Estimated Sewage Flows

Since Region of Halton wastewater criteria is based on a unit flow rate per area, there is no change in anticipated discharge with the revised unit mix. The below calculation remains valid.

Sewage flows were estimated using the Region's Manual and assuming the development is similar to a 6 Storey Apartment with equivalent population density of 135per/ha. The resulting flows are summarized below.

- Average Daily Dry Weather Flow = 0.5 L/s
- Peaking Factor = 4.18
- Infiltration Allowance = 0.4 L/s
- Design Flow = 2.6 L/s

2.2 Sanitary Sewer Lateral Sizing

The proposed connection sewer is a 200mm diameter sewer at 1.0% with a capacity of 34 L/s, well in excess of the required capacity. *The sewer connection has been constructed and as-built records are provided in Appendix 'D'.*

2.3 Downstream Capacity

The downstream sanitary sewer system was evaluated and no capacity issues were noted. The system was evaluated to a point where the contributing flows from the site were less than 10% of the total flows.

3.0 WATER SUPPLY

There is an existing 400mm watermain located along Hospital Gate immediately adjacent to the site. There is an existing 1200mm diameter trunk watermain located along Dundas Street West.

Fire flow testing was undertaken by Jackson Waterworks on October 4, 2017 on the existing hydrant on Hospital Gate, immediately adjacent to the site. This testing indicated a static water pressure of 42psi and theoretical fire flow of 3355 USGPM (12,700 L/min.).

3.1 Estimated Water Demands

Water demands were estimated using the Region's Manual and assuming the development is similar to a 6 Storey Apartment with equivalent population density of 135per/ha. The resulting flows are summarized below.

- Average Daily Demand = 32 L/min
- Maximum Daily Demand = 71 L/min
- Maximum Hourly Flow = 126 L/min
- Fire Flow = 6,000 L/min
- Maximum Daily Plus Fire Flow = 6,072 L/min

Based on the hydrant flow test, there is sufficient pressure and flow to provide the required demands. It is noted that the existing static pressures are relatively low and booster pumps and fire flow pumps may be required. The Region of Halton is currently undertaking a study to realign the pressure zones that may raise the static pressure at the site.

Connection to the building for both fire and domestic water will be to the existing 400mm watermain along Hospital Gate Road. *The water connections have been constructed.*

4.0 STORM DRAINAGE

There are no proposed changes to the stormwater management design and it is understood that a revised stormwater management report is not required for this application. However, the original content from the approved report is provided below for completeness.

4.1 Background

NOCSS indicates that the subject site is split between Taplow Creek to the east and McCraney Creek to the west. The Hospital EIR/FSS proposed to divert the eastern part of the subject site to McCraney Creek as part of a land swap.

In the WalterFedy letter it was outlined that the Taplow Pond constructed immediately north of the subject site has sufficient capacity to allow a significant portion of the subject lands to be conveyed to the Taplow Pond. Final details of this diversion are being addressed by WalterFedy and are outlined in the WalterFedy SWM Report.

This report only addresses the design of the site's specific drainage.

4.2 Existing Infrastructure

There is an existing 825mm diameter storm sewer along Hospital Gate adjacent to the subject site. This sewer is the primary outlet pipe from Taplow Pond located north of the subject site. The sewer also received uncontrolled flows from a roadside catch basin along Hospital Gate.

There is a storm sewer system on the south side of Dundas Street. The sewer system collects runoff from Dundas Street West, west of the Hospital Gate intersection. Attached to this system is as catch basin located on the northern part of the Dundas Street West right-of-way. The catch basin collects drainage from part of the existing site.

4.3 Proposed Drainage

Development of the subject site will be split into three different drainage areas.

- Area 1 is the area between the proposed building and Hospital Gate including the entry driveway. This area will sheet flow to Hospital Gate and will be collected in the sewer system along Hospital Gate.

- Area 2 is the areas between the proposed building and the Dundas Street West right-of-way. The western part of this area will sheet flow to Dundas Street West. The eastern area will be conveyed to the existing catch basin in this area.

- Area 3 is the balance of the site and includes the driveway, roof and landscape areas. Runoff from this area will be collected by a series of catch basins connected to a site storm sewer system. The storm sewer will outfall to the Taplow Pond located north of the site. The onsite storm sewer system has been designed to convey the Town of Oakville 5-yr design storm.

Roof drainage will need to be conveyed through internal piping and connected to the internal sewer system. The building's drainage system will need to be water tight to at least elevation 160.20m.

A trench drain will be installed at the bottom of the proposed down ramp to the underground garage and as series of the areas drains installed at the east side of the building. Runoff from these areas will need to be pumped to the internal site's drainage system.

Site flows were calculated using the Rational Method and the Town of Oakville IDF curves. The following table provides summary of the flows from each area.

Summary of Site Flows

Drainage Area	Area ha	Impervious Percentage	Runoff Coefficient	5-year Flow L/s	100-year Flow m^3/s
Hospital Gate (Area 1)	0.0871	58	0.63	17	38
Dundas Street (Area 2)	0.1617	52	0.58	30	65
Building (Area 3A)	0.4916	91	0.84	131	288
Grounds (Area 3B)	0.4594	63	0.66	96	211
Drains to Pond (Area 3C)	0.0269	0	0.25	2	5
Total to Taplow Pond	**0.9779**	**75**	**0.74**	**230**	**505**
Site Total	1.2267	71	0.71	276	607

C_{100} = 1.25xC

To protect the site in the event of an extreme rainfall event or blockage of sewer system, an overland flow route has been provided to the Taplow Pond. A local high point has been provided in the entry driveway to prevent site flows from spilling to Hospital Gate. A second local high point has been established at the top of the down ramp to ensure flow does not spill to the underground garage.

4.4 Flows to Dundas Street

The predevelopment area draining to Dundas Street West the Regional Sewer located on Dundas Street West is 0.262 Ha with an estimate composite runoff coefficient of C=0.39. The calculated pre-development 5-year flow is 33 l/s. This compares to post-development 5-year flow of 30 l/s.

The resulting flow to Dundas Street West is less in the post-development condition.

4.5 LID's

Section 3.3 of the WalterFedy SWM Report discusses in detail the LID restraints and requirements. Section 3.4.3 of the WaterFedy SWM Report concludes by indicating that a 103m^3 infiltration gallery with a 712m^2 foot print is required to meet the water balance requirements for the site.

The site has been designed with the required storage volume and foot print distributed between two infiltration beds.

The infiltration bed on the north side of the building has been sized with an area of 562m^2. Flows from the roof will be directed to the infiltration bed. Manhole 5 has been designed to direct flows to the infiltration bed and by-pass flows to the by-pass sewer at MH 4 in the event of a infiltration bed failure or an extreme rainfall event. Two lines of Cultec Recharger 330XLHD will be utilized distribute the flows through the infiltration bed. Two parallel line of 150mm diameter will assist in the distribution flow flows through the bed.

A smaller infiltration bed of 158 m^2 will be located on the west side of the building. This area will receive runoff from the landscape area located on the western side of the building. The western bed will be linked to north bed through CBMH 8 resulting in two bed acting as one facility. The western bed will have two 150mm diameter perforated pipes running through the bed to distribute the runoff. A by-pass sewer between CBMH 7 and CBMH 8 will be installed to provide conveyance in the event the failure of the infiltration system or in the event of an extreme rainfall event.

The outlet pipe from CBMH 8 will control the outflows from the infiltration bed. The outlet has been set at elevation 157.87 which is 0.47m above the bottom of the bed and results in storage of 158 m^3. The pipe invert is also 0.30 m above the outlet from MH 3 to prevent from backwashing from parking area to the infiltration bed.

4.6 Water Quality

As outlined in the WalterFedy SWM Report the outlet from the site to the Taplow Pond will by-pass the settling basin. To account for the parking lot area will need to be pre-treated prior to discharging to the Taplow SWM Pond. The WaterFedy SWM Report indicated that a pre-treatment removing 50% of the TSP would be appropriate for the site with the stormwater management pond provide settling the balance of 30% of the TSP. Collectively together the Enhanced (Level 1) water quality would be achieved.

Based on an area of 0.494 Ha and impervious percentage of 63% a Stormceptor Model EF6 or equivalent is required.

4.7 Storm Servicing

All stormwater management facilities and private storm sewers have been constructed. Final grading and area drains are in-progress.

5.0 SUMMARY

1. A sanitary connection *is* provided to the existing sewer on Whistling Springs Drive as generally outlined in the ASP *and per the approved FSR prepared by this office*.

2. Water connections for both fire and domestic *have been constructed* to the existing 400mm watermain located on Hospital Gate. Relatively low pressure may require booster pumps and fire pumps to be installed within the building.

3. The storm sewer outlet for the subject property *is to* Taplow Pond. Fringe areas around the site will flow to the systems on the adjacent roadways.

4. To address the water balance issues an infiltration bed in excess of required 712 m^2 bed area and 103 m3 volume *has been* installed.

5. Enhanced (Level 1) water quality *is* provided through a combination of a OGS removing a minimum of 50% of the TSP and the stormwater management pond removing 30% TSP.

6. Flows to Dundas Street West will be maintained at the pre-development levels.

This report was originally sealed by Stephen L. Potter, P.Eng.

This report has been prepared only to support the rezoning application to permit the proposed change in unit mix (conversion of 33 care units to seniors' apartments).

PREPARED BY TRAFALGAR ENGINEERING LTD.

Digitally signed by James Tarleton Nelson, P.Eng. PEO
Date: 2023.12.18 15:17:16 -05'00'

J.T. Nelson, P.Eng.
Principal

LICENSED PROFESSIONAL ENGINEER
J.T. NELSON
100199369
PROVINCE OF ONTARIO

APPENDIX 'A'

TRAFALGAR ENGINEERING LTD.

ESTIMATED SANITARY FLOW

Project:	2135 Dundas Street W. Oakville	**Project No.:**	1614
Desc:	Retiremet Home	**Prepared By:**	S.P
		Checked By:	0

Residential

Land Use / Occupancy Type	Area (ha)	Population Density (pers/ha)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Dry Weather Flow (L/s)
6 Storey Apartment Building	1.23	135	166	275	0.5
TOTAL	**1**		**166**		**0.5**

Residential Peaking Factor:	4.18	
Site Area:	1.23	(ha)
Infiltration Rate:	0.286	(L/s ha)
Infiltration Allowance:	**0.4**	(L/s)
Total Dry Weather Flow:	**0.5**	**(L/s)**
Design Flow:	**2.6**	**(L/s)**

TRAFALGAR ENGINEERING LTD.
Consulting Engineers

SANITARY SEWER DESIGN SHEET (Metric)

Regional Municipality of Halton

Project Name: All Seniors
Project No.: 1614
Date: Oct. 26, 2017

				Tributary Area (Hectares)			Population Density	Population Tributary			Average Q	Average Q	Peaking Factor		Infiltration		PROPOSED SEWER					PIPE	
STREET	FROM MH	TO MH	Length in metres	Res	Comm	Total	(per ha.)	Res	Comm.	Total	m³/s Increment	m³/s Total	M	MAX. Q (m³/s)	(m³/s)	MAX. FLOW (m³/s)	Size (mm)	Slope %	Capacity (m³/s)	Velocity (m/s) Full	Velocity (m/s) Actual	Type	% Cap
Site (Dundas Street)	100A	200A	100.00	1.226	0.00	1.23	135	166	0	166	0.00053	0.00053	4.18	0.0022	0.0004	0.0026	200	0.50	0.030	0.96	0.61	PVC	8
Whistling Spring Cr.	200A	6A	84.00	0.29	0.00	1.52	135	39	0	205	0.00012	0.00065	4.14	0.0027	0.0004	0.0031	200	1.36	0.050	1.58	0.89	PVC	6
Whistling Spring Cr.	6A	5A	10.50	0.08	0.00	1.60	135	11	0	215	0.00003	0.00069	4.14	0.0028	0.0005	0.0033	200	0.95	0.042	1.32	0.86	PVC	8
Whistling Spring Cr.	5A	4A	73.98	0.59	0.00	2.19	135	80	0	295	0.00025	0.00094	4.08	0.0038	0.0006	0.0045	200	0.90	0.040	1.29	0.87	PVC	11
Tovell Drive	20A	7A	56.60	0.37	0.00	0.37	135	50	0	50	0.00016	0.00016	4.31	0.0007	0.0001	0.0008	150	1.25	0.022	1.25	0.66	PVC	4
Tovell Drive	7A	4A	35.20	0.06	0.00	0.43	135	8	0	58	0.00003	0.00018	4.30	0.0008	0.0001	0.0009	200	0.50	0.030	0.96	0.49	PVC	3
Whistling Spring Cr.	4A	3A	81.80	0.67	0.00	3.29	55	37	0	390	0.00012	0.00124	4.03	0.0050	0.0009	0.0059	200	0.70	0.036	1.14	0.87	PVC	17
Youngstown Gate	12A	11A	80.46	0.76	0.00	0.76	55	42	0	42	0.00013	0.00013	4.33	0.0006	0.0002	0.0008	200	0.50	0.030	0.96	0.42	PVC	3
Youngstown Gate	11A	3A	20.76	0.00	0.00	0.76	55	0	0	42	0.00000	0.00013	4.33	0.0006	0.0002	0.0008	200	1.50	0.052	1.66	0.67	PVC	2
Whistling Spring Cr.	3A	2A	83.69	0.41	0.00	4.46	55	23	0	454	0.00007	0.00145	4.00	0.0058	0.0013	0.0071	200	0.60	0.033	1.05	0.85	PVC	21
Whistling Spring Cr.	2A	1A	62.69	0.32	0.00	4.78	55	18	0	472	0.00006	0.00150	3.99	0.0060	0.0014	0.0074	200	0.55	0.032	1.01	0.85	PVC	23
Whistling Spring Cr.	1A	300A	17.49	0.29	0.00	5.07	55	16	0	488	0.00005	0.00155	3.98	0.0062	0.0014	0.0076	200	0.50	0.030	0.96	0.81	PVC	25
Pine Glen Road	11A	300A	36.00	0.31	0.00	0.31	55	17	0	17	0.00005	0.00005	4.39	0.0002	0.0001	0.0003	150	1.38	0.023	1.32	0.49	PVC	1
Pine Glen Road	300A	400A	83.00	0.43	0.00	5.81	55	24	0	529	0.00008	0.00168	3.96	0.0067	0.0017	0.0083	250	0.48	0.054	1.09	0.82	PVC	16
Willhaven Trail	10A	9A	18.82	0.32	0.00	0.32	55	18	0	18	0.00006	0.00006	4.39	0.0002	0.0001	0.0003	200	2.50	0.067	2.15	0.57	PVC	1
Willhaven Trail	9A	8A	35.11	0.28	0.00	0.60	55	15	0	33	0.00005	0.00011	4.35	0.0005	0.0002	0.0006	200	1.50	0.052	1.66	0.65	PVC	1
Willhaven Trail	8A	7A	11.03	0.14	0.00	0.74	55	8	0	41	0.00002	0.00013	4.33	0.0006	0.0002	0.0008	200	1.50	0.052	1.66	0.66	PVC	1
Willhaven Trail	7A	7Ax	42.62	0.29	0.00	1.03	55	16	0	57	0.00005	0.00018	4.30	0.0008	0.0003	0.0011	200	1.00	0.043	1.36	0.65	PVC	3
Willhaven Trail	7Ax	400A	9.79	0.15	0.00	1.18	55	8	0	65	0.00003	0.00021	4.29	0.0009	0.0003	0.0012	200	0.50	0.030	0.96	0.51	PVC	4
Pine Glen Road	400A	500A	82.50	0.35	0.00	7.34	55	19	0	613	0.00006	0.00195	3.93	0.0077	0.0021	0.0098	250	0.57	0.058	1.19	0.91	PVC	17
Whistling Spring Cr.	23A	22A	87.80	0.36	0.00	0.36	135	49	0	49	0.00015	0.00015	4.32	0.0007	0.0001	0.0008	150	1.43	0.024	1.34	0.64	PVC	3
Whistling Spring Cr.	22A	21A	6.70	0.06	0.00	0.42	135	8	0	57	0.00003	0.00018	4.30	0.0008	0.0001	0.0009	200	1.12	0.045	1.44	0.64	PVC	2
Whistling Spring Cr.	21A	16A	52.90	0.27	0.00	0.69	135	36	0	93	0.00012	0.00030	4.25	0.0013	0.0002	0.0015	200	0.82	0.039	1.23	0.61	PVC	4
Whistling Spring Cr.	16A	15A	18.90	0.07	0.00	0.76	135	9	0	103	0.00003	0.00033	4.24	0.0014	0.0002	0.0016	200	1.00	0.043	1.36	0.67	PVC	4
Tovell Drive	20A	15A	74.20	0.47	0.00	0.47	135	63	0	63	0.00020	0.00020	4.29	0.0009	0.0001	0.0010	200	0.71	0.036	1.14	0.53	PVC	3
Whistling Spring Cr.	15A	14A	66.45	0.58	0.00	1.81	55	32	0	198	0.00010	0.00063	4.15	0.0026	0.0005	0.0031	200	0.75	0.037	1.18	0.75	PVC	8
Whistling Spring Cr.	14A	13A	85.36	0.90	0.00	2.71	55	50	0	247	0.00016	0.00079	4.11	0.0032	0.0008	0.0040	200	2.00	0.060	1.92	1.13	PVC	7
Whistling Spring Cr.	13A	500A	27.03	0.25	0.00	2.96	55	14	0	261	0.00004	0.00083	4.10	0.0034	0.0008	0.0043	200	0.50	0.030	0.96	0.69	PVC	14

Peaking Factor, M= [1+(14/(4+Pe^0.5))] where Pe=Eq.pop. in 1000's
Infiltration = Total Area * 0.000286cu.m/s
Mannings n = 0.010

File: 1614 Sanitary Design Sheet.xls
Designed By: JRE
Print Date: 14/11/2017

TRAFALGAR ENGINEERING LTD.
Consulting Engineers

SANITARY SEWER DESIGN SHEET (Metric)

Regional Municipality of Halton

Project Name: All Seniors
Project No.: 1614
Date: Oct. 27, 2017

STREET	FROM MH	TO MH	Length in metres	Tributary Area (Hectares) Res	Comm	Total	Population Density (per ha.)	Population Tributary Res	Comm.	Total	Average Q m^3/s Increment	Average Q m^3/s Total	Peaking Factor M	MAX. Q (m^3/s)	Infiltration (m^3/s)	MAX. FLOW (m^3/s)	PROPOSED SEWER Size (mm)	Slope %	Capacity (m^3/s)	Velocity (m/s) Full	Actual	PIPE Type	% Cap
Shadow Court	41A	40A	13.07	0.21	0.00	0.21	135	28	0	28	0.00009	0.00009	4.36	0.0004	0.0001	0.0005	200	2.00	0.060	1.92	0.59	PVC	1
Shadow Court	40A	39A	35.50	0.19	0.00	0.40	135	26	0	54	0.00008	0.00017	4.31	0.0007	0.0001	0.0009	200	1.50	0.052	1.66	0.73	PVC	2
Shadow Court	39A	38A	54.12	0.26	0.00	0.66	135	35	0	89	0.00011	0.00028	4.26	0.0012	0.0002	0.0014	200	0.50	0.030	0.96	0.52	PVC	5
Shadow Court	38A	37A	12.67	0.00	0.00	0.66	135	0	0	89	0.00000	0.00028	4.26	0.0012	0.0002	0.0014	200	0.50	0.030	0.96	0.52	PVC	5
Shadow Court	37A	36A	51.76	0.40	0.00	1.06	135	54	0	143	0.00017	0.00046	4.20	0.0019	0.0003	0.0022	200	0.50	0.030	0.96	0.58	PVC	7
Shadow Court	36A	29A	20.00	0.09	0.00	1.15	135	12	0	155	0.00004	0.00049	4.19	0.0021	0.0003	0.0024	200	0.50	0.030	0.96	0.58	PVC	8
Stone Glen Cr.	35Ax	35A	30.50	0.16	0.00	0.16	135	22	0	22	0.00007	0.00007	4.38	0.0003	0.0000	0.0003	150	1.83	0.027	1.52	0.52	PVC	1
Stone Glen Cr.	35A	34A	31.00	0.13	0.00	0.29	135	18	0	39	0.00006	0.00012	4.34	0.0005	0.0001	0.0006	200	1.87	0.058	1.86	0.64	PVC	1
Stone Glen Cr.	34A	33A	13.50	0.07	0.00	0.36	135	9	0	49	0.00003	0.00015	4.32	0.0007	0.0001	0.0008	200	1.45	0.051	1.63	0.66	PVC	2
Stone Glen Cr.	33A	32A	62.00	0.39	0.00	0.75	135	53	0	101	0.00017	0.00032	4.24	0.0014	0.0002	0.0016	200	0.77	0.037	1.19	0.59	PVC	4
Stone Glen Cr.	32A	31A	39.00	0.34	0.00	1.09	135	46	0	147	0.00015	0.00047	4.19	0.0020	0.0003	0.0023	200	0.61	0.033	1.06	0.64	PVC	7
Stone Glen Cr.	31A	30A	17.50	0.07	0.00	1.16	135	9	0	157	0.00003	0.00050	4.18	0.0021	0.0003	0.0024	200	0.45	0.029	0.91	0.58	PVC	8
Stone Glen Cr.	30A	29A	74.72	0.55	0.00	1.71	135	74	0	231	0.00024	0.00073	4.12	0.0030	0.0005	0.0035	200	0.56	0.032	1.02	0.69	PVC	11
Stone Glen Cr.	29A	28A	19.91	0.00	0.00	2.86	135	0	0	386	0.00000	0.00123	4.03	0.0050	0.0008	0.0058	200	0.50	0.030	0.96	0.76	PVC	19
Stone Glen Cr.	28A	27A	37.18	0.12	0.00	2.98	135	16	0	402	0.00005	0.00128	4.02	0.0051	0.0009	0.0060	200	0.50	0.030	0.96	0.76	PVC	20
Stone Glen Cr.	27A	15A	79.50	0.16	0.00	3.14	55	9	0	411	0.00003	0.00131	4.02	0.0053	0.0009	0.0062	200	0.45	0.029	0.91	0.74	PVC	22
Stone Glen Cr.	23A	22A	21.00	0.16	0.00	0.16	55	9	0	9	0.00003	0.00003	4.42	0.0001	0.0000	0.0002	150	0.40	0.013	0.71	0.26	PVC	1
Stone Glen Cr.	22A	21A	69.50	0.69	0.00	0.85	55	38	0	47	0.00012	0.00015	4.32	0.0006	0.0002	0.0009	200	0.45	0.029	0.91	0.41	PVC	3
Stone Glen Cr.	21A	15A	30.83	0.18	0.00	1.03	55	10	0	57	0.00003	0.00018	4.30	0.0008	0.0003	0.0011	200	0.40	0.027	0.86	0.45	PVC	4
Stone Glen Ext Ph.8	12A	13A	90.00	0.70	0.00	0.70	135	95	0	95	0.00030	0.00030	4.25	0.0013	0.0002	0.0015	200	1.00	0.043	1.36	0.69	PVC	3
Stone Glen Ext Ph.8	13A	14A	83.00	0.39	0.00	1.09	135	53	0	147	0.00017	0.00047	4.19	0.0020	0.0003	0.0023	200	0.43	0.028	0.89	0.55	PVC	8
Stone Glen Ext Ph.8	14A	15A	30.50	0.13	0.00	1.22	135	18	0	165	0.00006	0.00052	4.18	0.0022	0.0003	0.0025	200	0.41	0.027	0.87	0.57	PVC	9
Pine Glen Road	15A	10A	85.00	0.18	0.00	5.57	55	10	0	642	0.00003	0.00204	3.92	0.0080	0.0016	0.0096	250	0.52	0.056	1.14	0.85	PVC	17
Stone Glen Cr.	26A	25A	37.00	0.28	0.00	0.28	135	38	0	38	0.00012	0.00012	4.34	0.0005	0.0001	0.0006	150	2.00	0.028	1.58	0.65	PVC	2
Stone Glen Cr.	24A	25A	32.00	0.20	0.00	0.20	135	27	0	27	0.00009	0.00009	4.36	0.0004	0.0001	0.0004	150	2.21	0.029	1.67	0.65	PVC	1
Barnboard Hollow	25A	19A	88.50	0.60	0.00	1.08	135	81	0	146	0.00026	0.00046	4.20	0.0019	0.0003	0.0023	200	0.38	0.026	0.84	0.54	PVC	9
Future Condo				0.52	0.00	0.52	135	70	0	70	0.00022												
Woodstock Trail				0.08	0.00	0.60	135	11	0	81	0.00003												
Woodstock Trail				0.60	0.00	1.20	135	81	0	162	0.00026												
Woodstock Trail	Plug	19A	7.50	0.13	0.00	1.33	135	18	0	180	0.00006	0.00057	4.16	0.0024	0.0004	0.0028	200	1.00	0.043	1.36	0.78	PVC	6
Woodstock Trail	19A	18A	72.00	0.43	0.00	2.84	135	58	0	383	0.00018	0.00122	4.03	0.0049	0.0008	0.0057	200	0.52	0.031	0.98	0.76	PVC	19
Woodstock Trail	18A	17A	50.00	0.48	0.00	3.32	55	26	0	410	0.00008	0.00130	4.02	0.0052	0.0009	0.0062	200	0.92	0.041	1.30	0.95	PVC	15
Woodstock Trail	17A	10A	71.00	0.51	0.00	3.83	55	28	0	438	0.00009	0.00139	4.00	0.0056	0.0011	0.0067	200	0.83	0.039	1.24	0.98	PVC	17
Woodstock Ext Ph.8	16A	17A	59.00	0.37	0.00	0.37	135	50	0	50	0.00016	0.00016	4.31	0.0007	0.0001	0.0008	200	1.00	0.043	1.36	0.57	PVC	2
Woodstock Ext Ph.8	17A	18A	83.00	0.63	0.00	1.00	135	85	0	135	0.00027	0.00043	4.21	0.0018	0.0003	0.0021	200	0.51	0.030	0.97	0.59	PVC	7
Woodstock Ext Ph.8	18A	19A	128.00	1.12	0.00	2.12	135	151	0	286	0.00048	0.00091	4.09	0.0037	0.0006	0.0043	200	0.52	0.031	0.98	0.71	PVC	14
Woodstock Ext Ph.8	19A	10A	34.50	0.18	0.00	2.30	135	24	0	311	0.00008	0.00099	4.07	0.0040	0.0007	0.0047	200	1.52	0.053	1.67	1.05	PVC	9
Pine Glen Road	10A	500A	83.00	0.17	0.00	11.87	55	9	0	1400	0.00003	0.00446	3.70	0.0165	0.0034	0.0199	250	0.48	0.054	1.09	1.02	PVC	37
Whistling Spring Ext	500A	15A	53.40	0.36	0.00	22.53	55	20	0	2294	0.00006	0.00730	3.54	0.0258	0.0064	0.0323	300	0.50	0.089	1.26	1.18	PVC	36
Whistling Spring Ext	15A	16A	113.00	0.95	0.00	23.48	55	52	0	2346	0.00017	0.00747	3.53	0.0264	0.0067	0.0331	300	0.48	0.087	1.23	1.17	PVC	38
Whistling Spring Ext	16A	17A	27.20	0.27	0.00	23.75	55	15	0	2361	0.00005	0.00751	3.53	0.0265	0.0068	0.0333	300	0.50	0.089	1.26	1.18	PVC	37

Peaking Factor, M= [1+(14/(4+Pe^0.5))] where Pe=Eq.pop. in 1000's
Infiltration = Total Area * 0.000286cu.m/s
Mannings n = 0.010

File: 1614 Sanitary Design Sheet.xls
Designed By: JRE
Print Date: 14/11/2017

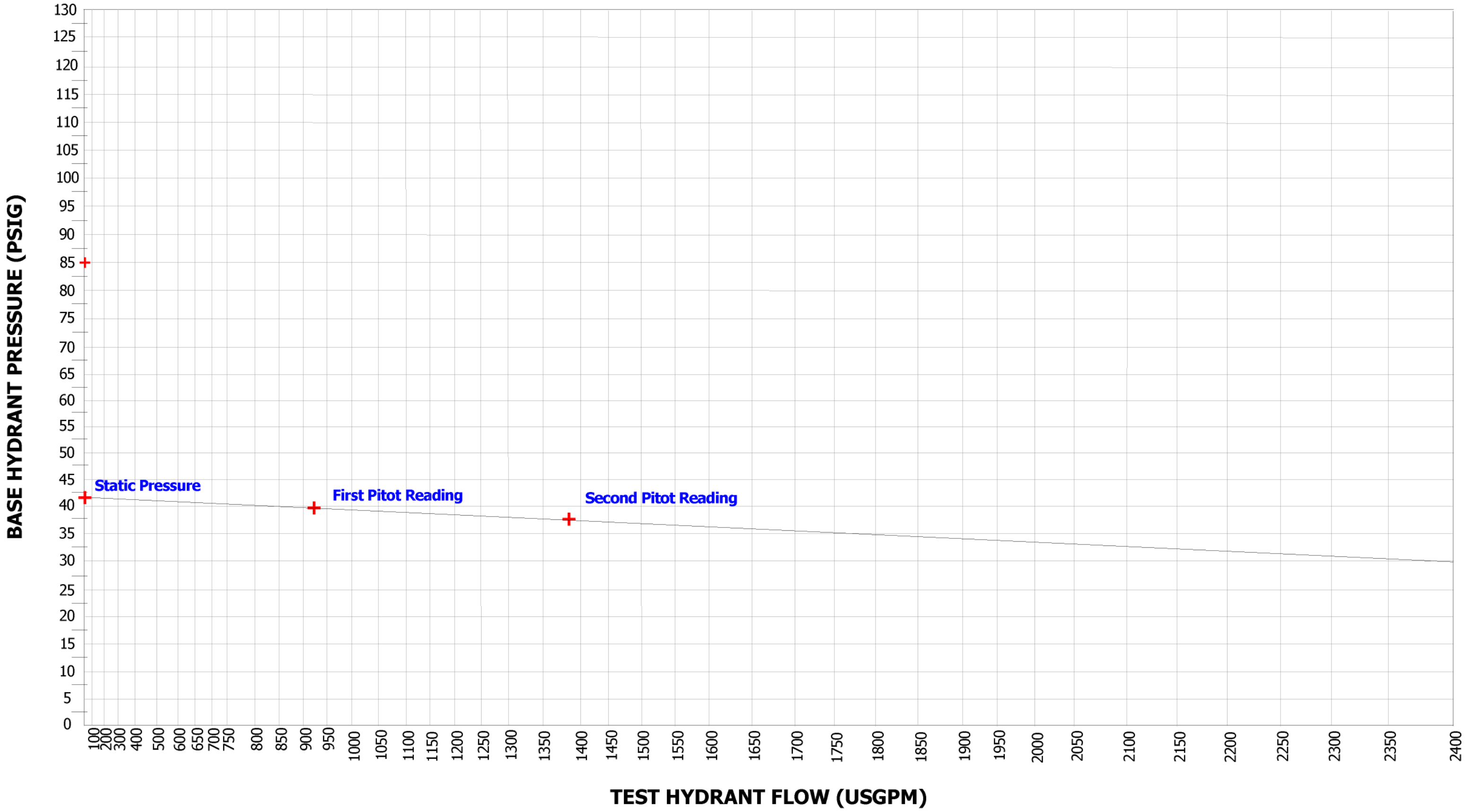
APPENDIX ‘B’

JACKSON WATERWORKS

Telephone: (905) 547-6770
Toll Free: (800)-734-5732
E-mail: jww@bellnet.ca
Website: www.jacksonwaterworks.ca

FIRE HYDRANT FLOW TEST RESULTS

TEST #1 of 1



No. of Ports Open	Port Dia. (in)	Pitot Reading (psig)	Pitot Conversion (usgpm) Conversion Factor = 0	Residual Pressure (psig)
1	2.50	30	919	40
2	2.50	17/17	1384	38
THEORETICAL FLOW @ 20psi			**3355**	

Test Date	04 October 2017
Test Time	08:15am
Pipe Diameter (in)	12
Static Pressure (psig)	42

Site Information		
Site Name or Developer Name	Not Provided	Engineer: Trafalgar Engineering Ltd.
Site Address/Municipality	2135 Dundas Street West, Oakville	
Location of Test Hydrant	Hospital Gate, 2nd North of Dundas Street West	
Location of Base Hydrant	Hospital Gate, 3rd North of Dundas Street West	
Comments	Testing has been completed in accordance with NFPA-291 guidelines wherever and whenever possible and practical. Conversion factors for pitot tube readings have been used depending on hose nozzle internal design and installation profile. Refer to attached cover letter for additional information.	
Verified By	Mark Schmidt	

TRAFALGAR ENGINEERING LTD.

ESTIMATED WATER DEMAND

Project: 2135 Dundas Street W. Oakville
Desc: Retiremet Home

Project No.: 1614
Prepared By: S.P
Checked By: 0

	Occupancy Data					Peaking Factors		Demand Flow		
Land Use / Occupancy Type	Area ha	Population Density (pers/ha)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Demand (L/min)	Max. Peak Hour	Max. Daily		Max. Hour Demand (L/min)	Max. Daily Demand (L/min)
6 Storey Apartment	1.23	135.0	166	275	32	4.00	2.25		126	71
TOTAL	**1**		**166**		**32**			**0**	**126**	**71**

Average Daily Demand: **32 (L/min)**
Maximum Hourly Demand: **126 (L/min)**
Maximum Daily Demand: **71 (L/min)**
Max. Daily Plus Fire: **6071 (L/min)**

<u>Fire Flow</u>
Using Fire Underwriters Survey Methodology:

1. **An estimate of the fire flow is given by the formula** $F = 220C\sqrt{A}$

Where:
F = The required fire flow in litres per minute
C = Coefficient related to the type of construction
A = The total floor area in square metres (including all storeys but excluding basements at least 50% below grade)

Type of Construction: Fire-Resistive   Coefficient: 0.60   Total Floor Area: 5540 (m^2)

Area Note: For fire resistive buildings, consider the two largest adjoining floors plus 50% of the remaining floors up to eight, when openings are inadequately protected. For adequately protected vertical openings consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors

F = 10000 (L/min)   Adequately Protected Vertical Openings: Yes

2. **Adjust the value in No. 1 for occupancy surcharge/reduction**

Occupancy Contents: Limited Combustible   Factor: -15%

F = 8500 (L/min)

3. **Adjust the value in No. 2 for sprinkler**

NFPA 13 Sprinkler:	Yes	Reduction:	30%
Standard Water Supply:	Yes	Reduction:	10%
Fully Supervised:	No	Reduction:	0%
		Total Reduction:	**40%**
		Sprinkler Reduction:	**3400 (L/min)**

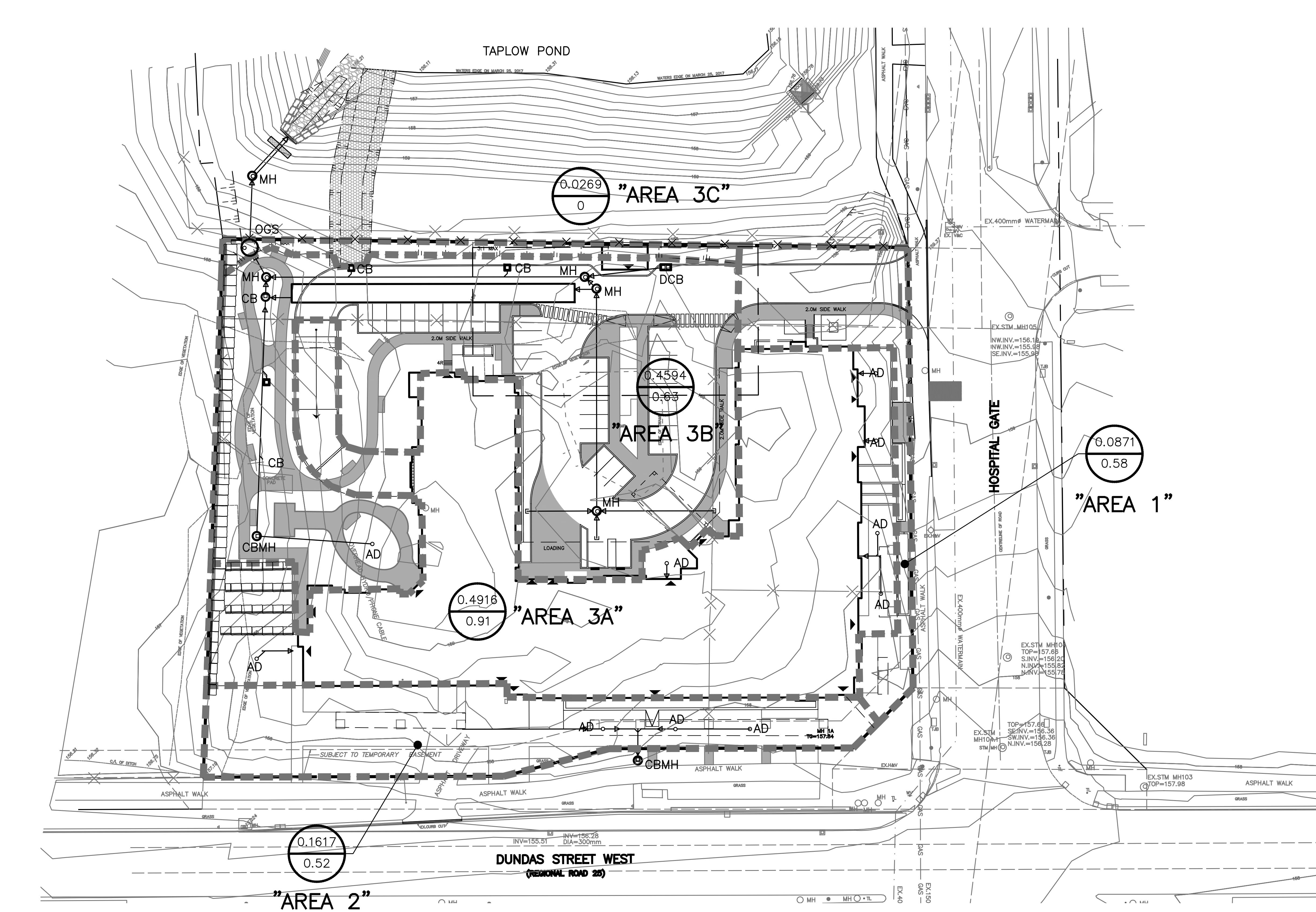
4. **Adjust the value in No. 2 for exposure**

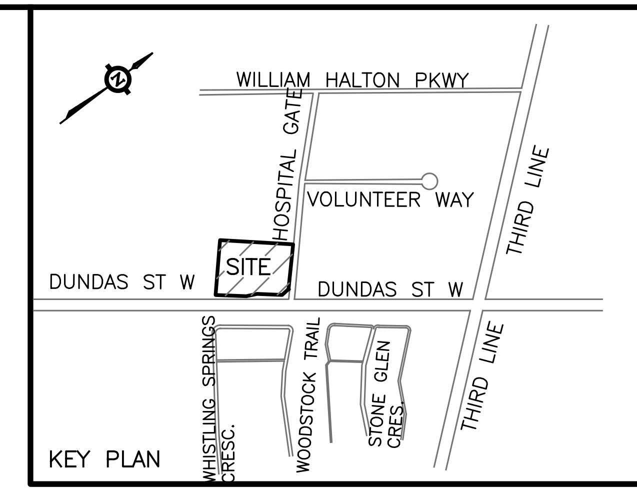
	Separation (m)	Charge
North	50	0%
East	50	0%
South	50	0%
West	15	15%
	Total Charge:	**15%**
	Exposure Charge:	**1275 (L/min)**

5. **Estimated Fire Flow is value in No. 2 less *Sprinkler Reduction* plus *Exposure Charge*, rounded to the nearest 1000**

F = 6000 (L/min)

APPENDIX ‘C’





LEGEND

- 4.90 / 0.7 — STORM DRAINAGE AREA IN HECTARES / IMPERVIOUSNESS
- DRAINAGE AREA BOUNDARY

FILENAME: P:\1614 All Seniors\Drawings\DWG\1614GS.dwg
PLOTDATE: Dec 19, 2023 – 2:56pm

PROJECT TITLE: ASC (OAKVILLE) FACILITY LIMITED PARTNERSHIP			TRAFALGAR ENGINEERING #1-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6 www.trafalgareng.com		
DRAWING TITLE: STORM DRAINAGE AREA PLAN	DESIGN BY: SP/JN	SCALE: 1:750	DRAWING No. FIG 1		
	DRAWN BY: JY/JN	DATE: 17/08/2018			

STORM SEWER DESIGN SHEET (Metric)

TRAFALGAR ENGINEERING LTD.
Consulting Engineers

Town of Oakville

Design For 5 Year Storm Event

Project Name : All Seniors
Project No. : 1614
Date: 17-Dec-18
By: SP

LOCATION	FROM MH	TO MH	DRAINAGE AREA Area A (ha)	Runoff Coeff. R	A x R (ha)	Accum. A x R (ha)	T of C (min)	Intensity (mm/hr)	Expected Flow (l/s)	PROPOSED SEWER Length (m)	Gradient (%age)	Pipe Size (mm)	Manning's Coeff. (n)	Capacity (l/s)	Velocity (m/s)	Time of Flow (min)	Cap. (%age)
West Side	CBMH7	CBMH8	0.1322	0.66	0.087	0.087	10.00	114	**28**	43.0	2.00	250	0.013	**88**	1.74	0.41	31.5
	CBMH8	MH3				0.087	10.41	112	**27**	3.0	2.00	300	0.013	**143**	1.96	0.03	18.9
Building	MH6	MH5	0.4916	0.84	0.413	0.413	10.00	114	**131**	41.0	1.50	375	0.013	**225**	1.97	0.35	58.3
	MH5	CULTEC				0.413	10.35	112	**129**	3.0	2.00	375	0.013	**259**	2.28	0.02	49.6
	MH5	MH4				0.413	10.35	112	**129**	3.0	2.00	375	0.013	**259**	2.28	0.02	49.6
Parking Lot	MH4	MH3	0.3272	0.66	0.216	0.629	10.37	112	**196**	59.0	1.10	425	0.013	**269**	1.83	0.54	72.9
Cultec Outlet	CULTEC	MH3							**0**	4.0	2.00	300	0.013	**143**	1.96	0.03	0.0
	MH3	MH2				0.716	10.90	109	**217**	6.0	1.00	450	0.013	**298**	1.82	0.06	72.7
	MH2	MH1				0.716	10.96	109	**216**	13.0	1.00	525	0.013	**450**	2.01	0.11	48.1
	MH1	HW				0.716	11.07	108	**215**	10.0	0.50	600	0.013	**454**	1.56	0.11	47.3

P:\1614 All Seniors\Calculations\[2018-12-12 Storm Design Sheet.xls]1614 internal sewers

All Seniors
Infiltration Bed Summary

Required Bed Area	712	m2	Per WatlerFedy SWM Report
Required Bed Vol.	103	m3	Per WatlerFedy SWM Report

Bed Area Calculation

Western Bed Area	158	m2
Northern Bed Area	562	m2
TOTAL AREA	**720**	**m2**

Bed Volume Calcultation

			Depth (mm)	Void Ratio	Storage Vol. m3	
Northern Bed Area	562	m2				
Cultec Bed Area	178	m2			54.44	from Cultec chart
Difference	384	m2	0.45	0.4	69.12	
Western Bed	158	m2	0.45	0.4	28.44	
Total Vol.					**152**	**m3**

S. P.

P:\1614 All Seniors\Storm Water Management\[bedvol.xlsx]Sheet1

CULTEC

Founder of Plastic Chamber Technology
Stormwater and Septic Solutions
Since 1986

1-800-4-CULTEC
custservice@cultec.com

Prepared For:		Project Information:		Engineer:		Calculations Performed By:	
Name		All Seniors		S. Potter		Name	
Company Name		3000 Hospital Gate		Trafalgar Engineering		Company Name	
Street Address		Oakville		Street Address		Street Address	
City		State	Zip	City		City	
State	Zip			State	Zip	State	Zip
Phone		Date:	December 17, 2018	Phone		Phone	
Fax				Fax		Fax	
Email				Email		Email	

Input Given Parameters

Unit of Measure	Metric	
Select Model	Recharger 330XLHD	
Stone Porosity	40.0%	
Number of Header Systems	1 Header	
Stone Depth **Above** Chamber	150	mm
Stone Depth **Below** Chamber	150	mm
Workable Bed Depth	1.50	meters
Max. Bed Width	3.45	meters
Storage Volume Required	119.00	cu. meters

Chamber Specifications

Height	775.0	mm
Width	1321.00	mm
Length	2.59	meters
Installed Length	2.13	meters
Bare Chamber Volume	1.48	cu. meters
Installed Chamber Volume	2.24	cu. meters

Image for visual reference only.May not reflect selected model.

Bed Depth	1.41	meters
Bed Width	3.40	meters
Storage Volume Provided	119.48	cu. meters

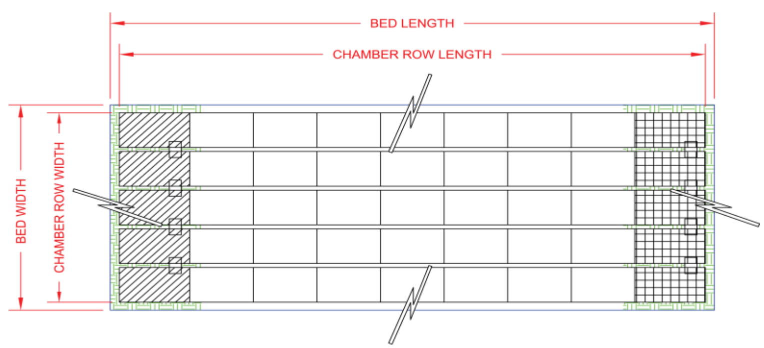
Materials List

Recharger 330XLHD Stormwater System by CULTEC, Inc.

Approx. Unit Count - not for construction	53	pieces
Actual Number of Chambers Required	48	pieces
Starter Chambers	2	pieces
Intermediate Chambers	44	pieces
End Chambers	2	pieces

HVLV FC-24 Feed Connector	1	pieces
CULTEC No. 410™ Filter Fabric	523.08	sq. meters
CULTEC No. 20L Polyethylene Liner	3.40	meters
Stone	119.63	cu. meters

Bed Detail



Number of Rows Wide	2	pieces
Number of Chambers Long	24	pieces
Chamber Row Width	2.79	meters
Chamber Row Length	51.66	meters
Bed Width	3.40	meters
Bed Length	52.27	meters
Bed Area Required	177.91	sq. meters

Bed detail for reference only. Not project specific. Not to scale. Use CULTEC StormGenie to output project specific detail.

Founder of Plastic Chamber Technology
Stormwater and Septic Solutions
Since 1986

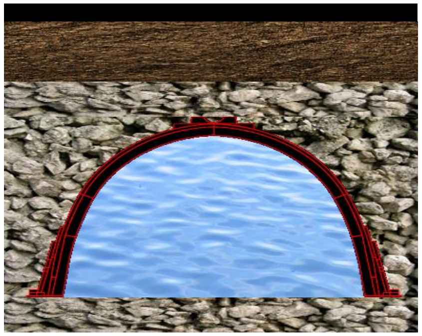
1-800-4-CULTEC
custservice@cultec.com

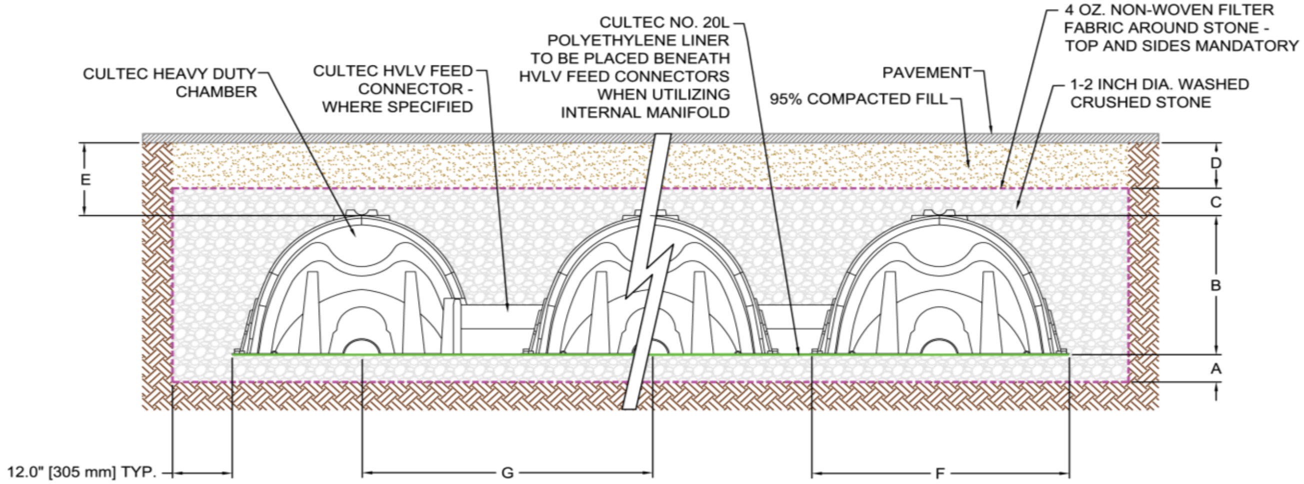
Project Name: All Seniors **Date:** December 17, 2018

Cross Section Detail

Conceptual graphic only. Not job specific.

Recharger 330XLHD		
Pavement	76	mm
95% Compacted Fill	256	mm
Stone Above	150	mm
Chamber Height	774.7	mm
Stone Below	150	mm
Effective Depth	1074.9	mm
Bed Depth	1407.4	mm





A	Depth of Stone Base	**150.0**	mm
B	Chamber Height	**775.0**	mm
C	Depth of Stone Above Units	**150.0**	mm
D	Depth of 95% Compacted Fill	**256.0**	mm
E	Max. Depth of Cover Allowed Above Crown of Chamber	**3.7**	meters
F	Chamber Width	**1321.0**	mm
G	Center to Center Spacing	**1.47**	meters

Recharger 330XLHD	**Breakdown of Storage Provided by Stormwater System**	
Chambers	**71.61**	cu. meters
Feed Connectors	**0.01**	cu. meters
Stone	**47.86**	cu. meters
Total Storage Provided	**119.48**	cu. meters

CULTEC, Inc.
P.O. Box 280, Brookfield, CT 06804 USA
Phone: 203-775-4416 - Fax: 203-775-1462 - **www.cultec.com**

CULTEC, Inc.
P.O. Box 280
Brookfield, CT 06804

Phone: 203-775-4416
Fax: 203-775-1462
www.cultec.com
custservice@cultec.com

Project Information: **Date:**

All Seniors
Storage Depth at 0.45m deep

Chamber Model-	Recharger 330XLHD	
Number of Rows-	2	units
Total number of chambers -	48	units
HVLV FC-24 Feed Connectors-	1	units
Stone Void -	40	%
Stone Base -	152	mm
Stone Above Units -	152	mm
Area -	177.92	m^2
Base of Stone Elevation-	157.40	m

Click for Imperial

177.92 Min. Area Required

Note: Min. Area required is based on 305mm around the system and typ. spacing

Recharger 330XLHD Incremental Storage Volumes

Height of System	Chamber Volume	HVLV Feed Connector Volume	Stone Volume	Cumulative Storage Volume	Total Cumulative Storage Volume	Elevation
mm	m^3	ft3	m^3	m^3	m^3	m
1080	0.000	0.000	1.81	1.81	119.80	158.48
1054	0.000	0.000	1.81	1.81	117.99	158.45
1029	0.000	0.000	1.81	1.81	116.18	158.43
1003	0.000	0.000	1.81	1.81	114.37	158.40
978	0.000	0.000	1.81	1.81	112.57	158.38
953	0.000	0.000	1.81	1.81	110.76	158.35
927	0.001	0.000	0.90	0.90	108.95	158.33
914	0.182	0.000	1.73	1.92	108.05	158.31
889	0.490	0.000	1.61	2.10	106.13	158.29
864	0.806	0.000	1.49	2.29	104.03	158.26
838	1.190	0.000	1.33	2.52	101.74	158.24
813	1.440	0.000	1.23	2.67	99.22	158.21
787	1.661	0.000	1.14	2.80	96.54	158.19
762	1.833	0.000	1.07	2.91	93.74	158.16
737	1.987	0.000	1.01	3.00	90.83	158.14
711	2.121	0.000	0.96	3.08	87.83	158.11
686	2.237	0.000	0.91	3.15	84.75	158.09
660	2.342	0.000	0.87	3.21	81.60	158.06
635	2.438	0.000	0.83	3.27	78.39	158.04
610	2.534	0.000	0.79	3.33	75.12	158.01
584	2.601	0.000	0.77	3.37	71.79	157.98
559	2.717	0.000	0.72	3.44	68.42	157.96
533	2.822	0.000	0.68	3.50	64.98	157.93
508	2.841	0.000	0.67	3.51	61.48	157.91
483	2.870	0.000	0.66	3.53	57.97	157.88
457	2.889	0.002	0.65	3.54	54.44	157.86
432	2.909	0.001	0.64	3.55	50.90	157.83
406	2.918	0.001	0.64	3.56	47.34	157.81
381	2.937	0.001	0.63	3.57	43.78	157.78
356	3.005	0.001	0.61	3.61	40.21	157.76
330	3.081	0.001	0.58	3.66	36.60	157.73
305	3.091	0.001	0.57	3.66	32.94	157.70
279	3.101	0.001	0.57	3.67	29.28	157.68
254	3.110	0.001	0.56	3.67	25.61	157.65
229	3.120	0.001	0.56	3.68	21.94	157.63
203	3.139	0.000	0.55	3.69	18.26	157.60
178	3.187	0.000	0.53	3.72	14.57	157.58
152	0.000	0.000	1.81	1.81	10.85	157.55
127	0.000	0.000	1.81	1.81	9.04	157.53
102	0.000	0.000	1.81	1.81	7.23	157.50
76	0.000	0.000	1.81	1.81	5.42	157.48

CULTEC, Inc.
P.O. Box 280
Brookfield, CT 06804

Phone: 203-775-4416
Fax: 203-775-1462
www.cultec.com
custservice@cultec.com

Recharger 330XLHD Incremental Storage Volumes

Height of System	Chamber Volume	HVLV Feed Connector Volume	Stone Volume	Cumulative Storage Volume	Total Cumulative Storage Volume	Elevation
mm	m^3	ft3	m^3	m^3	m^3	m
51	0.000	0.000	1.81	1.81	3.62	157.45
25	0.000	0.000	1.81	1.81	1.81	157.43
0	0.000	0.000	0.00	0.00	0.00	157.40

Brief Stormceptor Sizing Report - All Seniors

Project Information & Location			
Project Name	All Seniors	**Project Number**	1614
City	Oakville	**State/ Province**	Ontario
Country	Canada	**Date**	11/8/2017
Designer Information		**EOR Information (optional)**	
Name	Stephen Potter	**Name**	
Company	Trafalgar Engineering Ltd.	**Company**	
Phone #	905-338-3366	**Phone #**	
Email	spotter@trafalgareng.com	**Email**	

Stormwater Treatment Recommendation

The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	All Seniors
Target TSS Removal (%)	60
TSS Removal (%) Provided	64
Recommended Stormceptor Model	EF6

The recommended Stormceptor Model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected particle size distribution.

EF Sizing Summary	
EF Model	**% TSS Removal Provided**
EF4	59
EF6	64
EF8	67
EF10	68
EF12	70
StormceptorMAX	Custom

Stormceptor®

FORTERRA™

Sizing Details

Drainage Area	
Total Area (ha)	0.459
Imperviousness %	63.0

Rainfall	
Station Name	TORONTO CENTRAL
State/Province	Ontario
Station ID #	0100
Years of Records	18
Latitude	43°37'N
Longitude	79°23'W

Water Quality Objective	
TSS Removal (%)	60.0
Runoff Volume Capture (%)	
Oil Spill Capture Volume (L)	
Peak Conveyed Flow Rate (L/s)	
Water Quality Flow Rate (L/s)	

Up Stream Storage	
Storage (ha-m)	Discharge (cms)
0.000	0.000

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cms)	

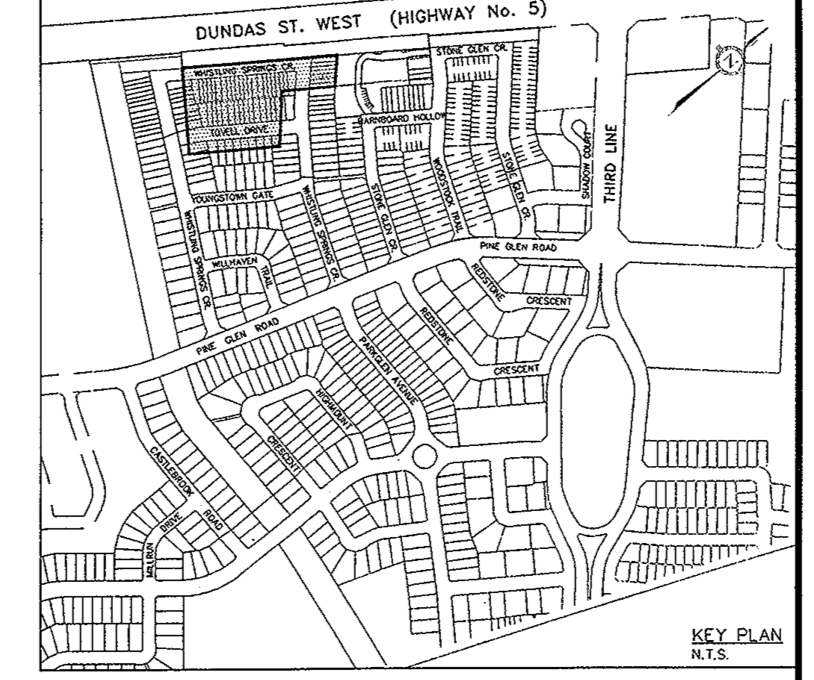
Particle Size Distribution (PSD) The selected PSD defines TSS removal		
CA ETV		
Particle Diameter (microns)	Distribution %	Specific Gravity
2.0	5.0	2.65
5.0	5.0	2.65
8.0	10.0	2.65
20.0	15.0	2.65
50.0	10.0	2.65
75.0	5.0	2.65
100.0	10.0	2.65
150.0	15.0	2.65
250.0	15.0	2.65
500.0	5.0	2.65
1000.0	5.0	2.65

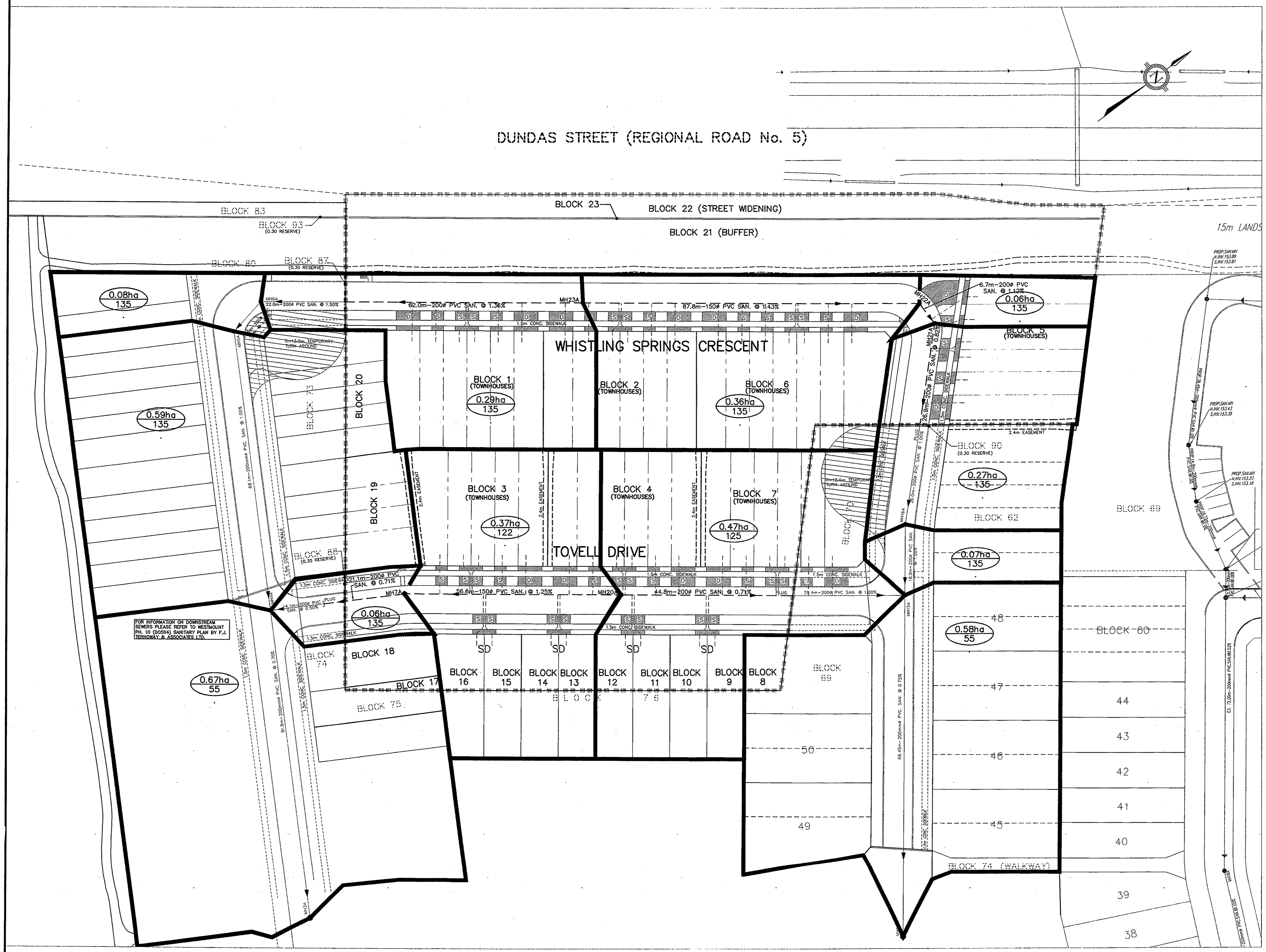
Notes

• Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
• Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
• For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

For Stormceptor Specifications and Drawings Please Visit:
http://www.imbriumsystems.com/technical-specifications

0-13748





LEGEND

1.00ha / 55	EXTERNAL DRAINAGE AREA / POPULATION PER ha
10.00 / 100	DRAINAGE AREA (ha) / MAXIMUM POPULATION PER ha.
(heavy line)	DRAINAGE BOUNDARY

NOTES:

1. FOR GENERAL NOTES SEE DWG. No. 100
2. SOIL INFORMATION BY PAZIN GEOTECHNICAL SERVICES LTD. JUNE 6, 2005 PROJECT REF. # 05-1629
3. TOPOGRAPHIC SURVEY PROVIDED BY RADY-PENTEK & EDWARD SURVEYING LTD # 04-089, DATED AUGUST 9, 2004

BENCHMARK B.M. No. 43 ELEVATION = 140.493

LOCATED ON A CONCRETE MOUNUMENT ON THE NORTH SIDE OF UPPER MIDDLE ROAD JUST EAST OF REEVES ROAD.
THE MONUMENT IS 3.6 METRES NORTH OF THE NORTH EDGE OF PAVEMENT HAVING AN ELEVATION OF 140.493 METRES.

No	Date	By	REVISIONS
1	NOV. 2006	J.A.S.	AS RECORDED

Design	S.S./J.F.K.	Checked	J.A.S.	Date NOVEMBER 2006
Drawn	H.M.	Checked	J.A.S.	

Scale Horz. 1:500 0m 10m 20m

REFERENCES

FIELD NOTES

APPROVALS

Town of Oakville
APPROVED IN PRINCIPAL SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFICATIONS

Manager of Development Services

Regional
DESIGN OF SANITARY & WATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM AREA MUNICIPALITY

ORIGINAL DWG. SIGNED BY R. MACKENZIE APR.18, 2006
Planning and Public Works Department, Halton Region

STAMP
LICENSED PROFESSIONAL ENGINEER
J. A. STEWART
Nov 2/06
PROVINCE OF ONTARIO

Stantec Consulting Ltd.
7270 WOODBINE AVE., SUITE 300
MARKHAM, ONTARIO L3R 4B9
TELEPHONE: (905) 474-0455
FAX: (905) 474-9889
Stantec

OAKVILLE
REGIONAL MUNICIPALITY OF HALTON
TOWN OF OAKVILLE

TITLE
SANITARY DRAINAGE PLAN

OWNER
DAWN VICTORIA HOMES

MUNICIPAL FILE No.	R 0-13748
SD-552.1	DO-599
CONTRACT No. 1 606 21010	SHEET 3 OF 10

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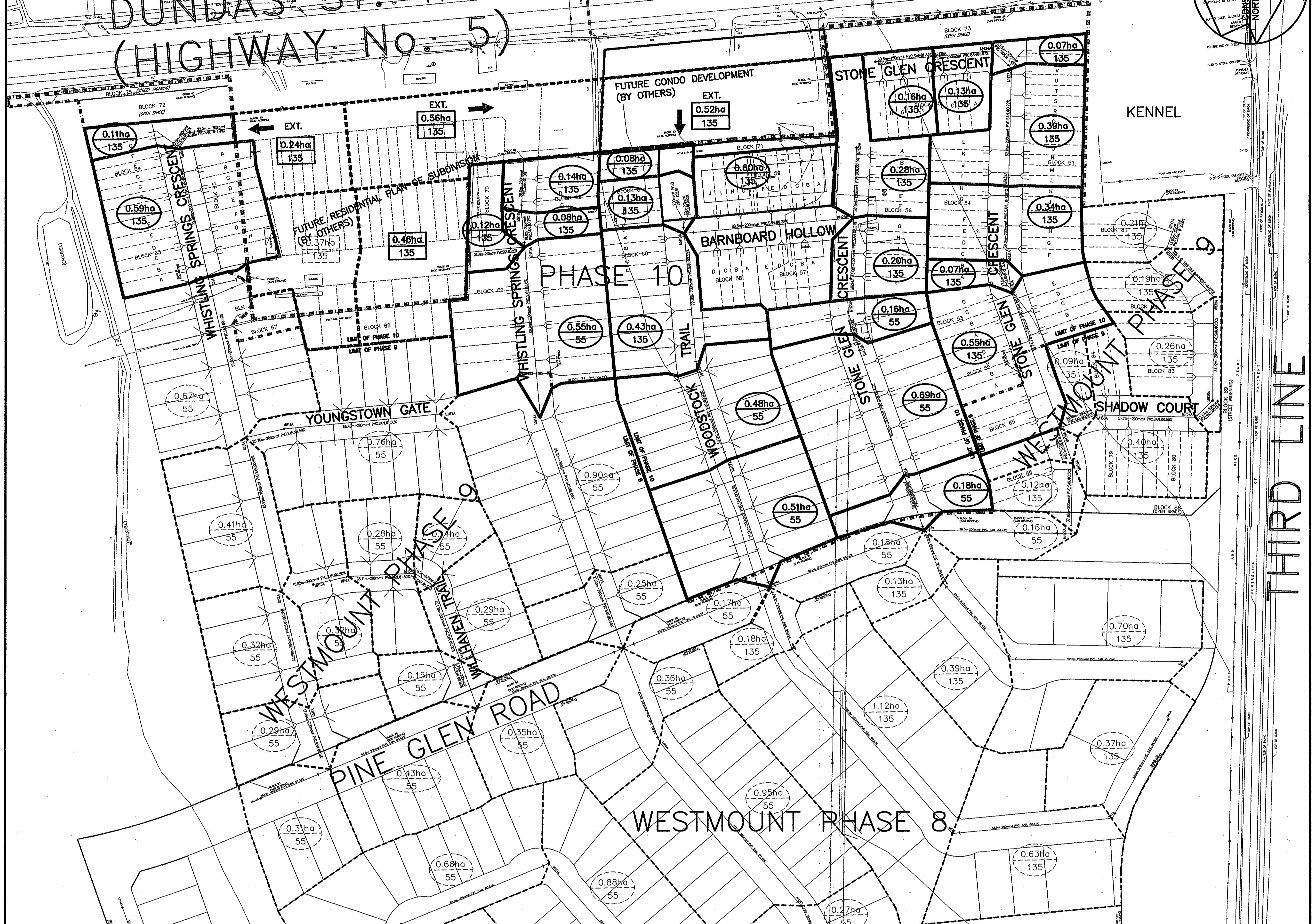


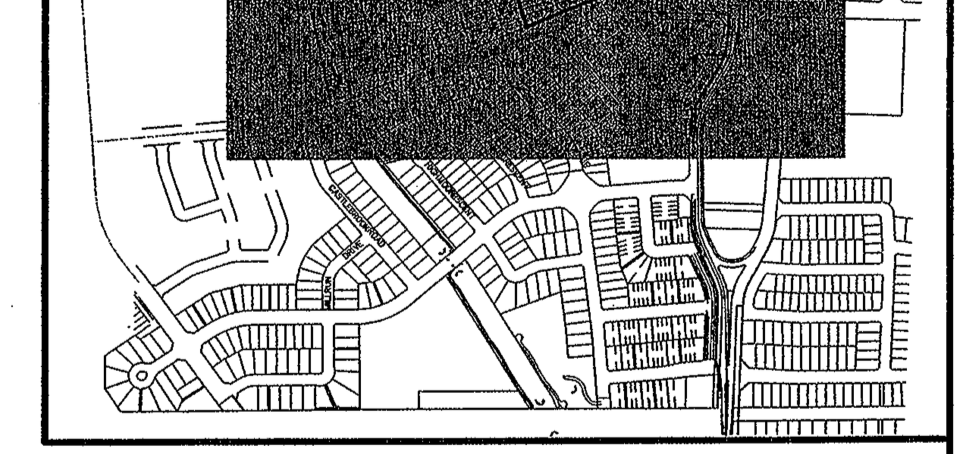
STAMP

L. TERSIGNI

AS CONSTRUCTED COMPLETION CERTIFICATION

THIS IS TO CERTIFY THAT THE WORK SHOWN ON THIS DRAWING RELATED TO THE UNDERGROUND WORKS REQUIRED BY THE REGIONAL MUNICIPALITY OF HALTON AND THE TOWN OF OAKVILLE HAS BEEN COMPLETED IN THE FIELD WITH ALL VARIATIONS AND CORRECTIONS SHOWN, AS PER THE SUBDIVISION AGREEMENT.

DATE: DEC. 1/05 F.J. TERNOWAY & ASSOCIATES LIMITED



KEY PLAN

LEGEND

0.416ha / 55 — DRAINAGE AREA (ha) — POPULATION PER HECTARE (pph)

DRAINAGE BOUNDARY

PHASE BOUNDARY

0.70ha / 135 — DRAINAGE AREA & POPULATION DENSITY

0.70ha / 135 — FUTURE DRAINAGE AREA & POPULATION DENSITY

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.

NOTES

1. REFER TO GENERAL NOTES DRAWING.
2. TOPOGRAPHIC INFORMATION SHOWN ON PLANS ARE BASED ON FIELD SURVEY WORK CONDUCTED BY RADY–PENTEK & EDWARD SURVEYING LIMITED, DATED AUG. 1999
3. REFER TO THE SOIL INVESTIGATION REPORT PREPARED BY SOILENG LIMITED, JUNE 2001, REF. No. 0105–S1

BENCHMARK

ELEVATIONS ARE GEODETIC AND ARE REFERED TO TOWN OF OAKVILLE BENCHMARK NUMBER 200 LOCATED ON THE SOUTH–EAST CORNER OF CONCRETE BOX CULVERT UNDER UPPERMIDDLE ROAD, THE FIRST CULVERT WEST OF FOURTH LINE HAVING ELEVATION OF 141.66 METRES.

No.	Date	By	REVISIONS
1.	12/1/05	A.A.	AS CONSTRUCTED

Design	V.L.	Checked	L.T.	Date JULY 20, 2005
Drawn	V.L.	Checked		
Scale: 1:1000				REFERENCES

APPROVALS

Municipal

APPROVED IN PRINCIPAL SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN STANDARDS AND SPECIFICATIONS

SIGNED BY: G. TRENKLER DATE SEPT. 2, 2005
DEVELOPMENT SERVICES

Regional:

DESIGN OF SANITARY & WATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM AREA MUNICIPALITY

SIGNED BY: R. MACKENZIE DATE SEPT. 2, 2005
PLANNING AND PUBLIC WORKS DEPARTMENT

FIELD NOTES

STAMP

LICENSED PROFESSIONAL ENGINEER L. TERSIGNI PROVINCE OF ONTARIO

F.J. TERNOWAY & ASSOCIATES LIMITED
4265 SHERWOODTOWNE BOULEVARD, SUITE 300
MISSISSAUGA, ONTARIO, L4Z 1Y5, TEL. (905) 896–3933
ENGINEERS PROJECT MANAGERS PLANNERS

MUNICIPALITY

REGIONAL MUNICIPALITY OF HALTON
TOWN OF OAKVILLE

TITLE

WESTMOUNT PHASE 10 SANITARY DRAINAGE AREA PLAN

OWNER

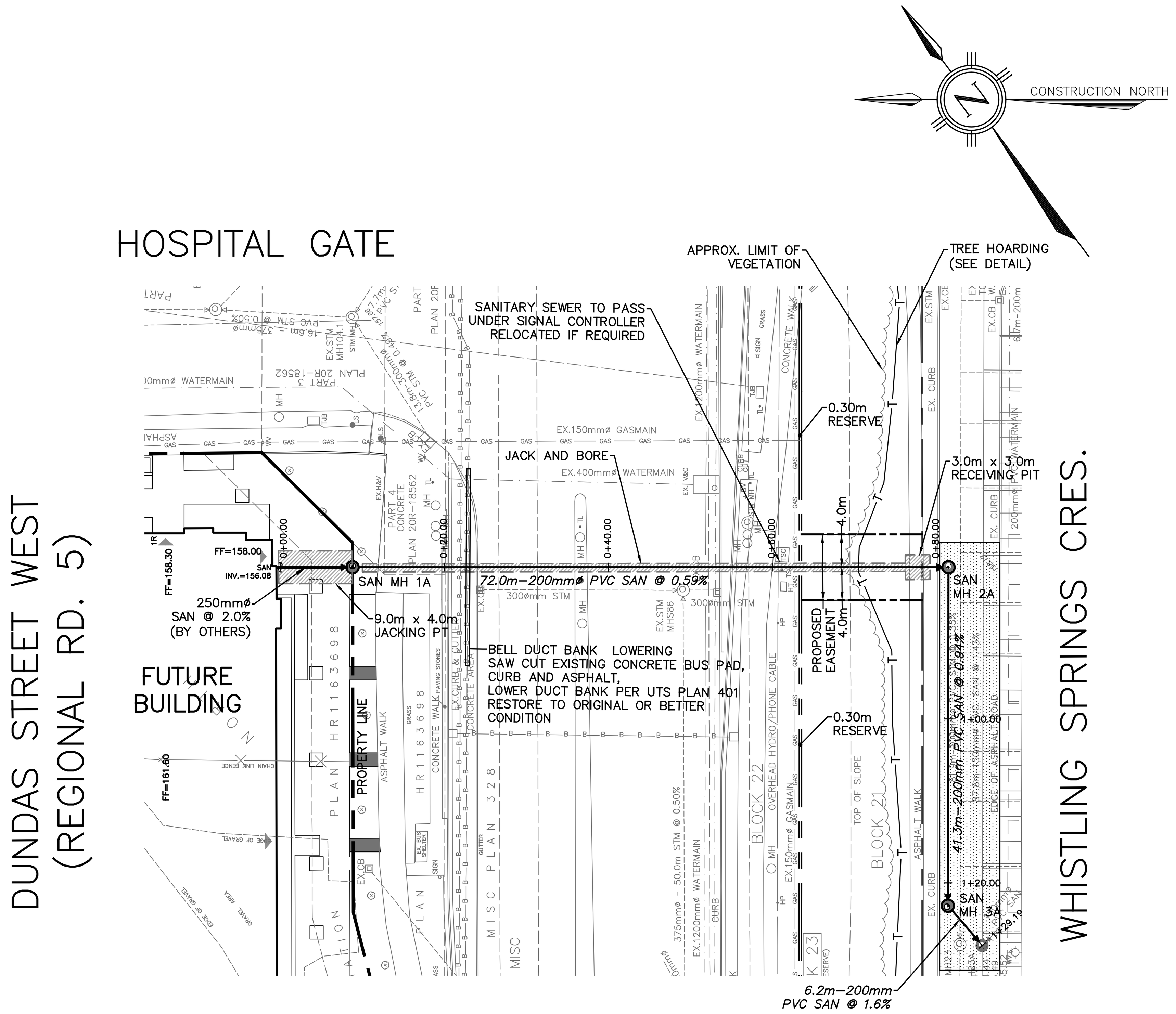
GENSTAR

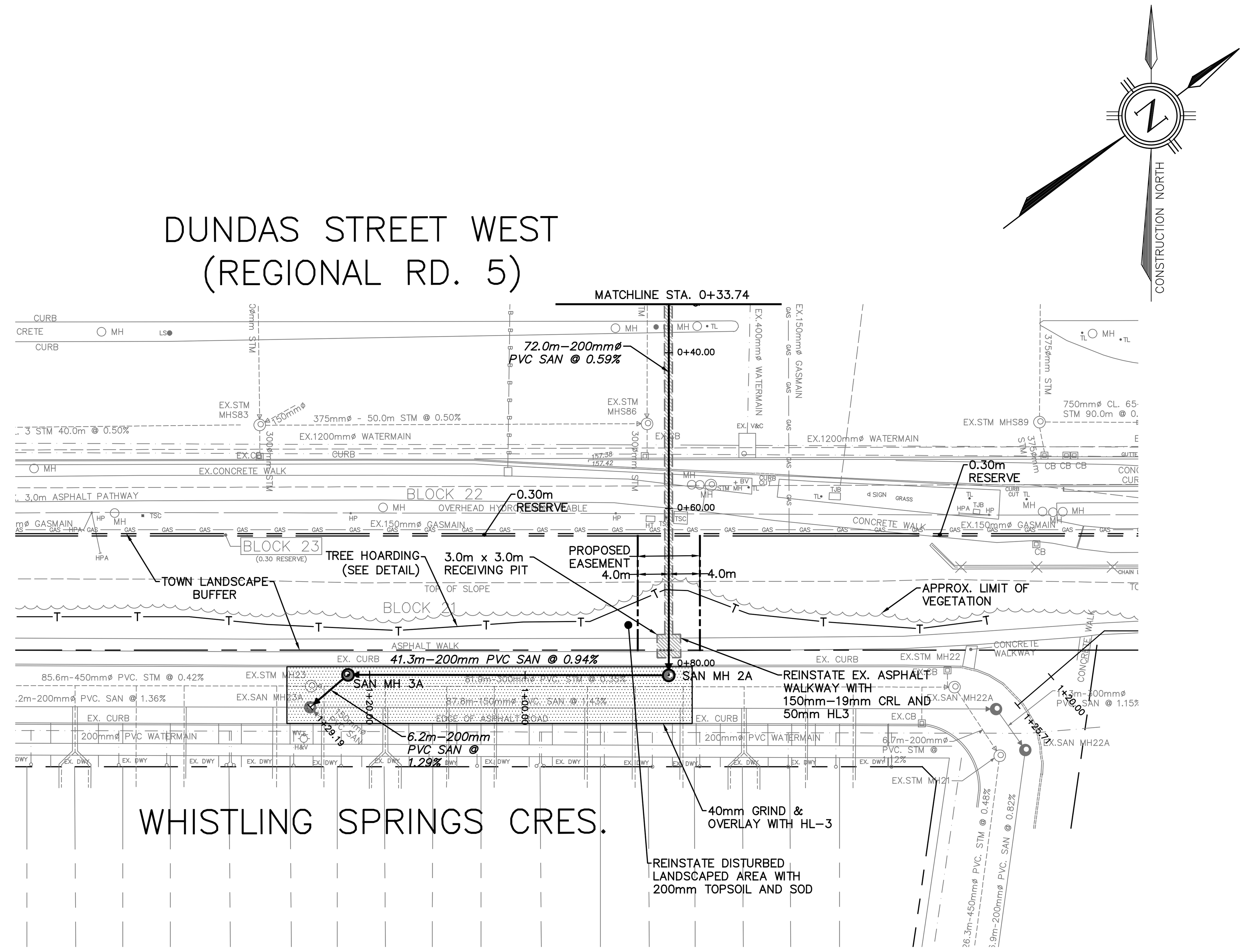
MUNICIPAL FILE No. SD–543.2	REGIONAL FILE No. DO–594
CONTRACT No.	O- 13300
DRAWING No. 331–201	SHEET 3 OF 27

DO–

O- 13300

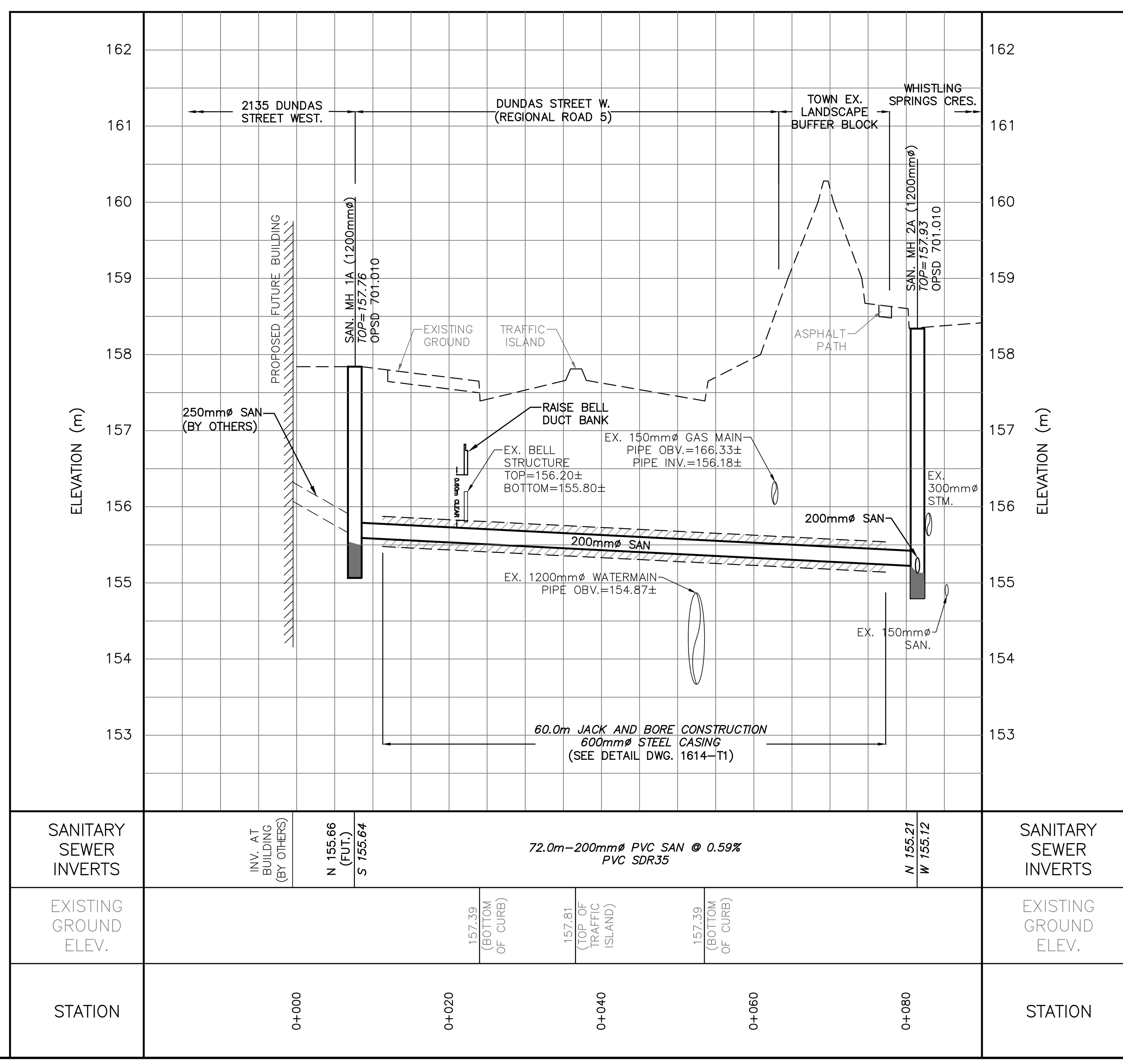
APPENDIX ‘D’

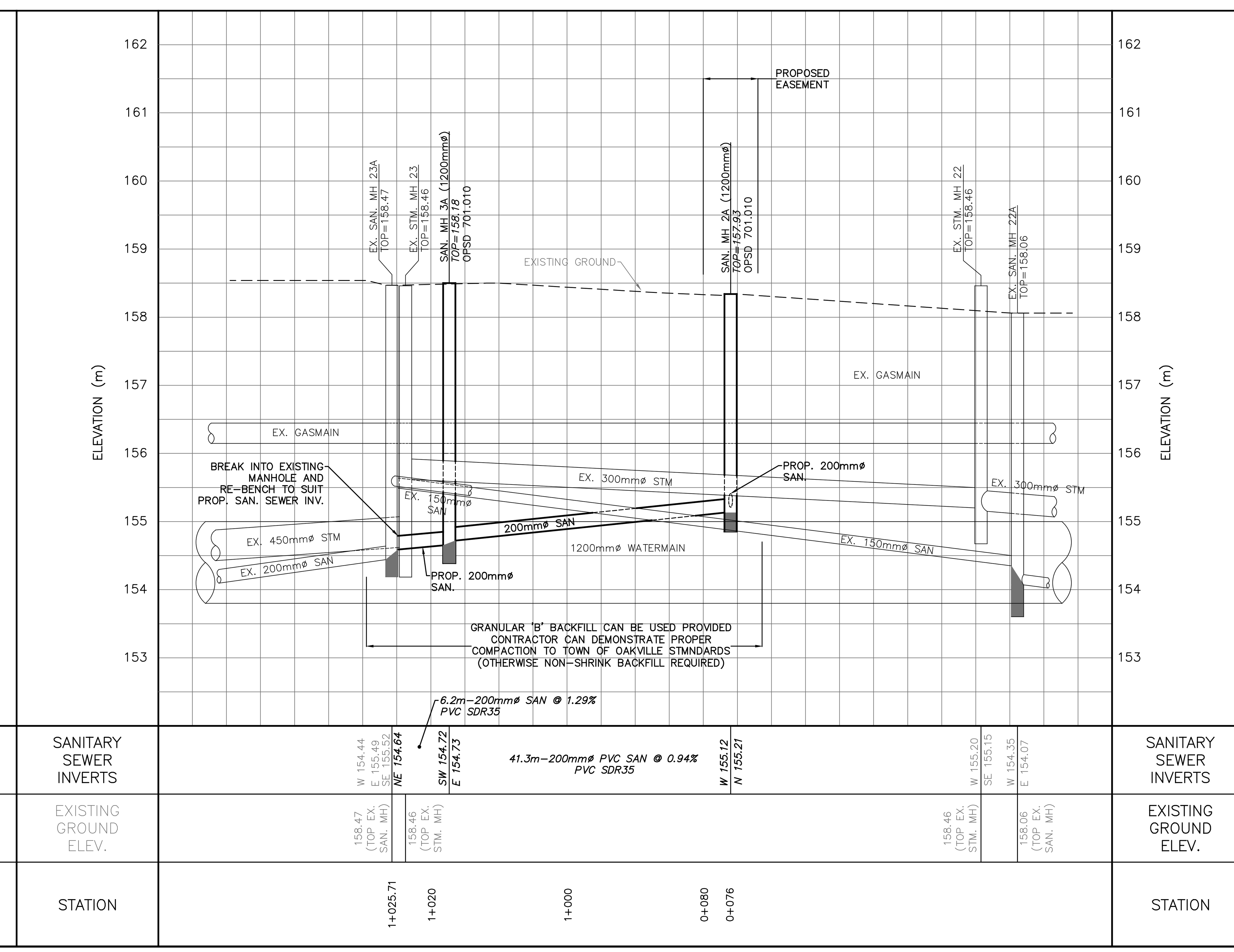


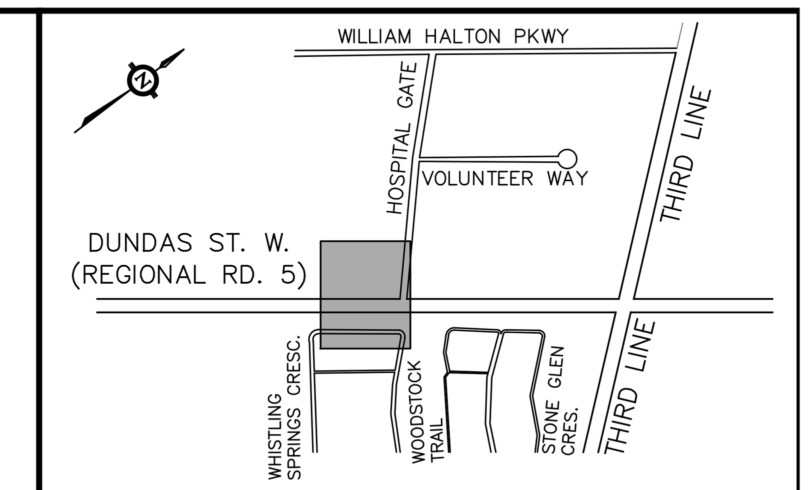


NOTE:
THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND ELEVATIONS OF ALL EXISTING SERVICES PRIOR TO START OF SEWER INSTALLATION

NOTE:
CONTRACTOR TO PROVIDE 24 HOUR NOTICE TO LOCAL RESIDENTS PRIOR TO UNDERTAKING WORK.







KEY PLAN

LEGEND

- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY SEWER
- PROPERTY BOUNDARY
- TREE HOARDING
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING BELL CABLE
- EXISTING GASMAIN
- EXISTING SANITARY MANHOLE
- EXISTING STORM MANHOLE
- EXISTING CATCHBASIN
- EXISTING FIRE HYDRANT

127.65 AS-CONSTRUCTED – ITALICS

BENCHMARK

1. ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND WERE DERIVED FROM THE TOWN OF OAKVILLE BENCHMARK N° 270 HAVING AN ELEVATION OF 152.832m.

SURVEY CREDIT

SURVEY PLAN WAS PREPARED BY J.D. BARNES LIMITED, ONTARIO LAND SURVERYORS. MARCH 25, 2017. DRAWING REF. NUMBER:17-30-065-01-A

No	Date	By/DRN	REVISIONS
5	25/NOV/2021	SP/JC	AS CONSTRUCTED
4	14/APR/2020	SP/GL	BELL COORDINATION
3	04/MAR/2019	SP/ZG	FINAL SUBMISSION
2	06/DEC/2018	SP/GL	SECOND SUBMISSION
1	21/SEPT/2018	SP/GL	FIRST SUBMISSION

Design SP	Chk'd SP	Cad File	1614P – AC.dwg
Drawn GL	Chk'd	Plot Date	12/08/21

Scale HOR 1:500 VER 1:50

Field Notes

APPROVALS

Municipal
APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFICATIONS.

Date:
Manager of Development Services

Bell ☐ Hydro ☐
Gas ☐ Cable ☐
Traf. ☐ Water ☐

Regional Approval
DESIGN OF WATER AND WASTEWATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM AREA MUNICIPALITY.

SIGNED: *RON MACKENZIE* DATE: *MAY 29, 2019*
LEGISLATIVE & PLANNING SERVICES DEPARTMENT

RECORD NOTE:
THIS IS A COMPUTER GENERATED COPY OF AN ORIGINAL DRAWING BEARING THE PROFESSIONAL SEAL AND SIGNATURE OF S. POTTER DATED APRIL 15 2020. AMENDED TO REFLECT "AS-CONSTRUCTED" INFORMATION.

TRAFALGAR ENGINEERING LTD.
481 MORDEN ROAD OAKVILLE, ONTARIO L6K 3W6
TEL: (905) 338–3366 FAX: (905) 338–7734
tel@trafalgareng.com

Municipality
TOWN OF OAKVILLE
Halton REGION

TITLE
3000 HOSPITAL GATE SANITARY SEWER EXTENSION PLAN AND PROFILE
OAKVILLE, ON

REGIONAL FILE No. D0–1051	Consultant Project No. 1614
Contract No. –	Consultant Drawing No. P1–AC
	Sheet 1 OF 5

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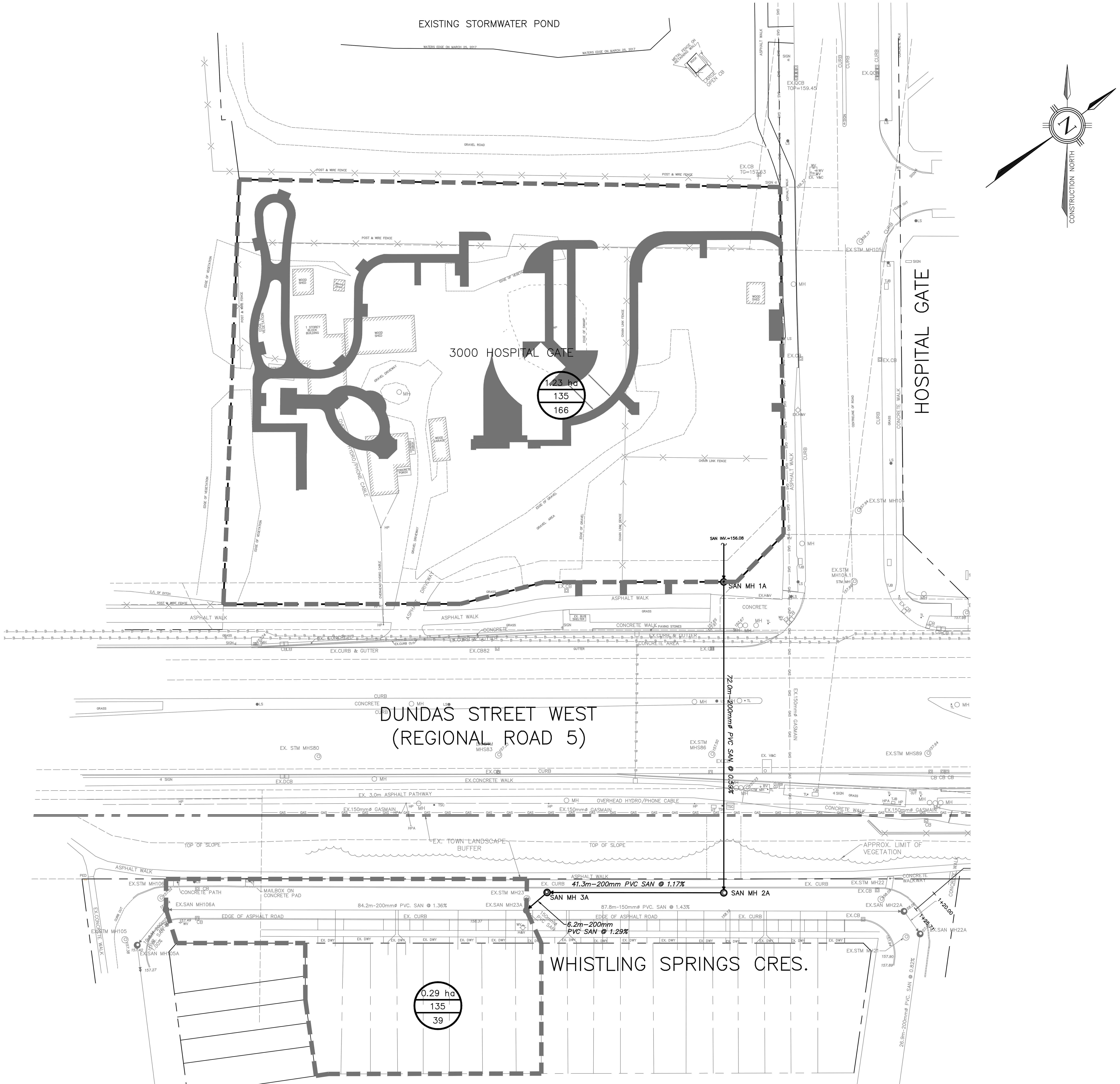
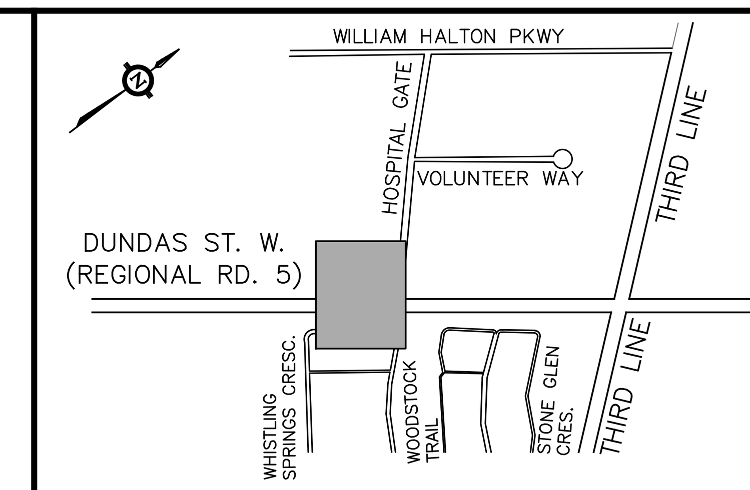
PLOT DATE:Dec 08, 2021 – 1:28pm



KEY PLAN



LEGEND

DRAINAGE AREA BOUNDARY

1.23 ha — AREA IN HECTARES
135 — POPULATION DENSITY PER HECTARE
166 — POPULATION DENSITY

PROPOSED SANITARY MANHOLE
PROPOSED SANITARY SEWER
PROPERTY BOUNDARY
EXISTING SANITARY SEWER
EXISTING SANITARY MANHOLE

127.65 AS–CONSTRUCTED – ITALICS

BENCHMARK

1. ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND WERE DERIVED FROM THE TOWN OF OAKVILLE BENCHMARK N° 270 HAVING AN ELEVATION OF 152.832m.

SURVEY CREDIT

SURVEY PLAN WAS PREPARED BY J.D. BARNES LIMITED, ONTARIO LAND SURVERYORS. MARCH 25, 2017. DRAWING REF. NUMBER:17–30–065–01–A

No	Date	By/DRN	REVISIONS
5	25/NOV/2021	SP/JC	AS CONSTRUCTED
4	15/APR/2020	SP	BELL CONFLICT
3	04/MAR/2019	SP/ZG	FINAL SUBMISSION
2	06/DEC/2018	SP/GL	SECOND SUBMISSION
1	21/SEPT/2018	SP/GL	FIRST SUBMISSION

Design	SP	Chk'd	SP
Drawn	GL	Chk'd	
Cad File	1614S – AC.dw	Plot Date	12/01/21

Scale
HOR 0 5 10 15 20 25 1:500
VER 0 0.5 1 1.5 2 2.5 1:50

Field Notes

Bell	☐	Hydro
Gas	☐	Cable
Traf.	☐	Water

APPROVALS

Municipal
APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFICATIONS.

Date:
Manager of Development Services

Regional Approval
DESIGN OF WATER AND WASTEWATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM AREA MUNICIPALITY.

SIGNED: *RON MACKENZIE* DATE: *MAY 29, 2019*
LEGISLATIVE & PLANNING SERVICES DEPARTMENT

RECORD NOTE:
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TRAFALGAR ENGINEERING LTD.
481 MORDEN ROAD OAKVILLE, ONTARIO L6K 3W6
TEL: (905) 338–3366 FAX: (905) 338–7734
tel@trafalgareng.com

Municipality
TOWN OF OAKVILLE
Halton REGION

TITLE
3000 HOSPITAL GATE SANITARY DRAINAGE AREA
OAKVILLE, ON

REGIONAL FILE No. DO–1051	Consultant Project No. 1614
Contract No. –	Consultant Drawing No. S1–AC
	Sheet 2 OF 5

FILENAME: P:\1614 All Seniors\Drawings\As-Builts\CAD\1614S – AC.dwg
PLOT DATE:Dec 01, 2021 – 3:39pm

Project Name: 2135 Dundas St. W

TRAFALGAR ENGINEERING LTD.
Consulting Engineers

SANITARY SEWER DESIGN SHEET (Metric)

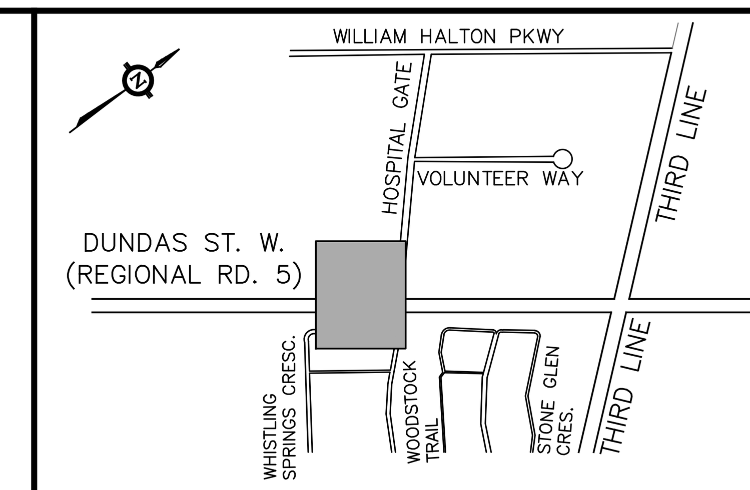
Regional Municipality of Halton

Project No.: 1614
Date: 25-Nov-21
As-constructed

STREET	FROM MH	TO MH	Length in metres	Tributary Area (Hectares) Res	Tributary Area (Hectares) Comm	Tributary Area (Hectares) Total	Population Tributary Res	Population Tributary Comm.	Population Tributary Total	Average Q m³/s Increment	Average Q m³/s Total	Peaking Factor M	MAX. Q (m³/s)	Infiltration (m³/s)	MAX. FLOW (m³/s)	PROPOSED SEWER Size (D) (mm)	PROPOSED SEWER Slope %	PROPOSED SEWER Capacity (m³/s)	Velocity (m/s) Full	Velocity (m/s) Actual	Depth/Dia d/D	PIPE Type	PIPE Class
Across Dundas	1A	2A	***72.0***	1.23	0.00	1.23	166	0	166	0.00053	0.00053	4.18	0.0022	0.0004	0.0026	200	**0.59**	0.025	0.80	0.67	0.18	PVC	DR-35
Whistling Springs Cres.	2A	3A	***41.3***	0.00	0.00	1.23	0	0	166	0.00000	0.00053	4.18	0.0022	0.0004	0.0026	200	***0.94***	0.032	1.01	0.79	0.16	PVC	DR-35
Whistling Springs Cres.	3A	EX 23A	***6.2***	0.00	0.00	1.23	0	0	166	0.00000	0.00053	4.18	0.0022	0.0004	0.0026	200	***1.29***	0.037	1.19	0.87	0.15	PVC	DR-35
Whistling Springs Cres.	EX23A	EX106A	84.2	0.29	0.00	1.52	39	0	205	0.00012	0.00065	4.14	0.0027	0.0004	0.0031	200	1.36	0.038	1.22	0.89	0.17	PVC	DR-35

n = 0.013
Infiltration Rate = 0.000286 **(m³/s)/ha**

P:\1614 All Seniors\Drawings\As-Builts\[1614-San 2021-11-25 As-Built.xls]1614san



KEY PLAN

LEGEND

127.65 AS–CONSTRUCTED – ITALICS

BENCHMARK

1. ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND WERE DERIVED FROM THE TOWN OF OAKVILLE BENCHMARK N° 270 HAVING AN ELEVATION OF 152.832m.

SURVEY CREDIT

SURVEY PLAN WAS PREPARED BY J.D. BARNES LIMITED, ONTARIO LAND SURVERYORS. MARCH 25, 2017. DRAWING REF. NUMBER:17–30–065–01–A

No	Date	By/DRN	REVISIONS
5	25/NOV/2021	SP/JC	AS CONSTRUCTED
4	15/APR/2020	SP	BELL CONFLICT
3	04/MAR/2019	SP/ZG	FINAL SUBMISSION
2	06/DEC/2018	SP/GL	SECOND SUBMISSION
1	21/SEPT/2018	SP/GL	FIRST SUBMISSION

Design: SP	Chk'd: SP	Cad File: 1614S – AC.dw	
Drawn: GL	Chk'd:	Plot Date: 12/06/21	

Scale
HOR 0 5 10 15 20 25 1:500
VER 0 0.5 1 1.5 2 2.5 1:50

Field Notes

Bell	☐	Hydro
Gas	☐	Cable
Traf.	☐	Water

APPROVALS

Municipal
APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFICATIONS.

Date:
Manager of Development Services

Regional Approval
DESIGN OF WATER AND WASTEWATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM AREA MUNICIPALITY.

SIGNED: *RON MACKENZIE* DATE: *MAY 29, 2019*
LEGISLATIVE & PLANNING SERVICES DEPARTMENT

RECORD NOTE:
THIS IS A COMPUTER GENERATED COPY OF AN ORIGINAL DRAWING BEARING THE PROFESSIONAL SEAL AND SIGNATURE OF S. POTTER DATED APRIL 5, 2020. AMENDED TO REFLECT 'AS–CONSTRUCTED' INFORMATION.

TRAFALGAR ENGINEERING LTD.
481 MORDEN ROAD OAKVILLE, ONTARIO L6K 3W6
TEL: (905) 338–3366 FAX: (905) 338–7734
tel@trafalgareng.com

Municipality
TOWN OF OAKVILLE
Halton REGION

TITLE
3000 HOSPITAL GATE SANITARY SEWER DESIGN SHEET
OAKVILLE, ON

REGIONAL FILE No. –
Consultant Project No. 1614
Contract No. –
Consultant Drawing No. S2–AC
Sheet 3 OF 5

FILENAME: P:\1614 All Seniors\Drawings\As-Builts\CAD\1614S – AC.dwg Dec 06, 2021 – 1:09pm

APPENDIX ‘E’

GENERAL NOTES

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS OF THE REGIONAL MUNICIPALITY OF HALTON (INCLUDING REGION OF HALTON'S CONTRACTOR INFORMATION PACKAGE), TOWN OF OAKVILLE AND THE ONTARIO BUILDING CODE (PART 7). ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS (OPSS & OPSD) SHALL BE USED IN ABSENCE OF LOCAL STANDARDS.

2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL, MECHANICAL AND LANDSCAPE DRAWINGS.

3. ALL INFORMATION SHOWN REGARDING THE LOCATION AND SIZE OF EXISTING UTILITIES AND/OR SERVICES HAS NOT BEEN VERIFIED. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION OF UTILITIES PRIOR TO CONSTRUCTION AND PROTECTING AND MAINTAINING DURING CONSTRUCTION.

4. THE CONTRACTOR SHALL CHECK AND VERIFY ALL GIVEN GRADES AND ELEVATIONS PRIOR TO CONSTRUCTION AND REPORT ALL DISCREPENCIES TO THE ENGINEER.

5. ALL GRADING CHANGES SHALL BE APPROVED BY THE ENGINEER AND TOWN OF OAKVILLE PRIOR TO IMPLEMENTATION.

6. THE CONTRACTOR SHALL CLEAN ALL MUD TRACKED ON TO ADJACENT ROADWAYS.

7. CONTRACTOR SHALL FLUSH AND VIDEO STORM AND SANITARY SEWERS UPON INSTALLATION AND PROVIDE VIDEO TO THE ENGINEER.

8. CONTRACTOR SHALL PROVIDE A DIGITAL AS-BUILT SURVEY OF ALL UNDERGROUND AND ABOVEGROUND WORKS TO THE SATISFACTION OF THE ENGINEER.

SERVICING NOTES

1. ALL UTILITIES SHALL BE BACKFILLED WITH GRANULAR BACKFILL COMPACTED TO 98% S.P.M.D.D. NATIVE BACKFILL MAY BE USED WITH THE PERMISSION OF THE GEOTECHNICAL CONSULTANT. BEDDING AND COVER MATERIAL SHALL BE PER THE GEOTECHNICAL CONSULTANT'S RECOMMENDATIONS.

2. BACKFILLING AND RESTORATION WITHIN THE PUBLIC ROW SHALL BE IN ACCORDANCE WITH THE TOWN OF OAKVILLE ROAD CUT PERMIT AND TO THE SATISFACTION OF THE ENGINEERING & CONSTRUCTION DEPARTMENT.

3. SURROUND ALL MANHOLES WITH A MINIMUM OF 1.5m COMPACTED GRANULAR 'C' BACKFILL.

4. ALL ENDS OF SERVICE CONNECTIONS SHALL BE MARKED WITH 50x100 LUMBER PLACED FROM INVERT OF SERVICE TO 1.0m ABOVE GRADE.

STORM SEWERS

1. ALL STORM SEWERS 600 mm AND SMALLER SHALL BE PVC SDR35 CSA B182.2 WITH BEDDING PER OPSD 802.010 UNLESS OTHERWISE NOTED.

2. ALL STORM SEWERS 675 mm AND LARGER SHALL BE REINFORCED CONCRETE PIPE CLASS 65-D CSA A257.2 COMPLETE WITH BEDDING PER OPSD 802.030.

3. CATCHBASIN SHALL BE PER OPSD 705.010, DOUBLE CATCHBASIN PER OPSD 705.020 c/w GRATE PER OPSD 400.100.

4. ALL CB AND CBMH IN PAVED AREAS SHALL BE INSTALLED WITH 3.0m-100mm PERFORATED PIPE c/w FILTER SOCK EXTENDING OUT FROM THE CB AND LOCATED BELOW THE SUBGRADE SURROUNDED BY 50mm GRANULAR 'A'.

5. ALL CB LEADS SHALL BE 250mmø AT 1.0% UNLESS OTHERWISE NOTED. ALL DCB OR DI SHALL BE 300mmø AT 1.0% UNLESS OTHERWISE NOTED.

6. CATCHBASINS IN LANDSCAPE AREAS SHALL BE SUMPLESS AND WITH 'BEEHIVE' TOP PER TOWN STD. 5-2.

7. ALL STORM MH'S SHALL BE 1200mmø PER OPSD 701.010 c/w COVER PER OPSD 401.010, UNLESS OTHERWISE NOTED.

8. ALL CATCHBASIN MANHOLES SHALL BE BENCHED.

WATERMAIN NOTES

1. 100mm AND LARGER SERVICES SHALL BE PVC, C-900, CLASS 150, SDR18 c/w MECHANICAL RESTRAINTS & TRACER WIRE PER REGION OF HALTON REQUIREMENTS.

2. 50mm AND SMALLER SERVICE SHALL BE TYPE "K" SOFT COPPER TUBING.

3. BEDDING ON WATER SERVICE SHALL BE PER OPSD 802.010*.

4. VALVE AND BOX FOR 100mm TO 300mm WATER SERVICE PER REGION OF HALTON STDS.

5. COVER SHALL BE 1.7m MIN. UNLESS OTHERWISE NOTED.

6. CONNECTION TO EXISTING WATERMAIN SHALL BE PER REGION OF HALTON STD RH 409.01.

7. WATER SYSTEM SHALL BE PRESSURE TESTED TO 150 PSI FOR 3 HRS AND WITNESSED BY REGION OF HALTON.

8. HYDRANTS SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA C502 AND SHALL HAVE STEAMER PORTS AS PER REGION STANDARD SPECIFICATIONS (SEE NOTE 11). ALL HYDRANTS SHALL BE INSTALLED AS PER OPSD 1105.010*. IF HYDRANT BARREL DEPTH EXCEEDS 1.7m A HYDRANT THAT CAN BE RAISED FROM THE BOTTOM WITHOUT INCREASING ROD LENGTH IS TO BE USED.

9. * INDICATES O.P.S.D. CAN BE USED AS MODIFIED BY REGION OF HALTON.

10. MINIMUM LATERAL SEPARATION FROM OTHER UTLITIES IS 2.5m

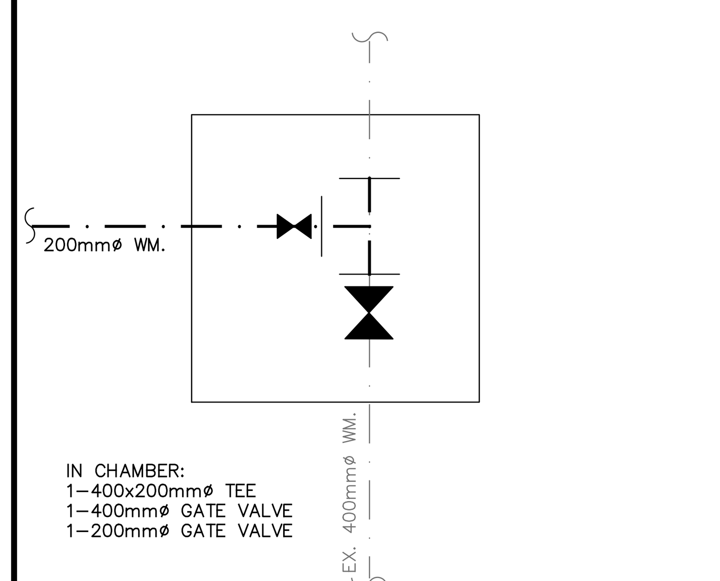
REGIONAL APPROVAL:

REGION DESIGN OF WATER &/OR WASTEWATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM AREA MUNICIPALITY.

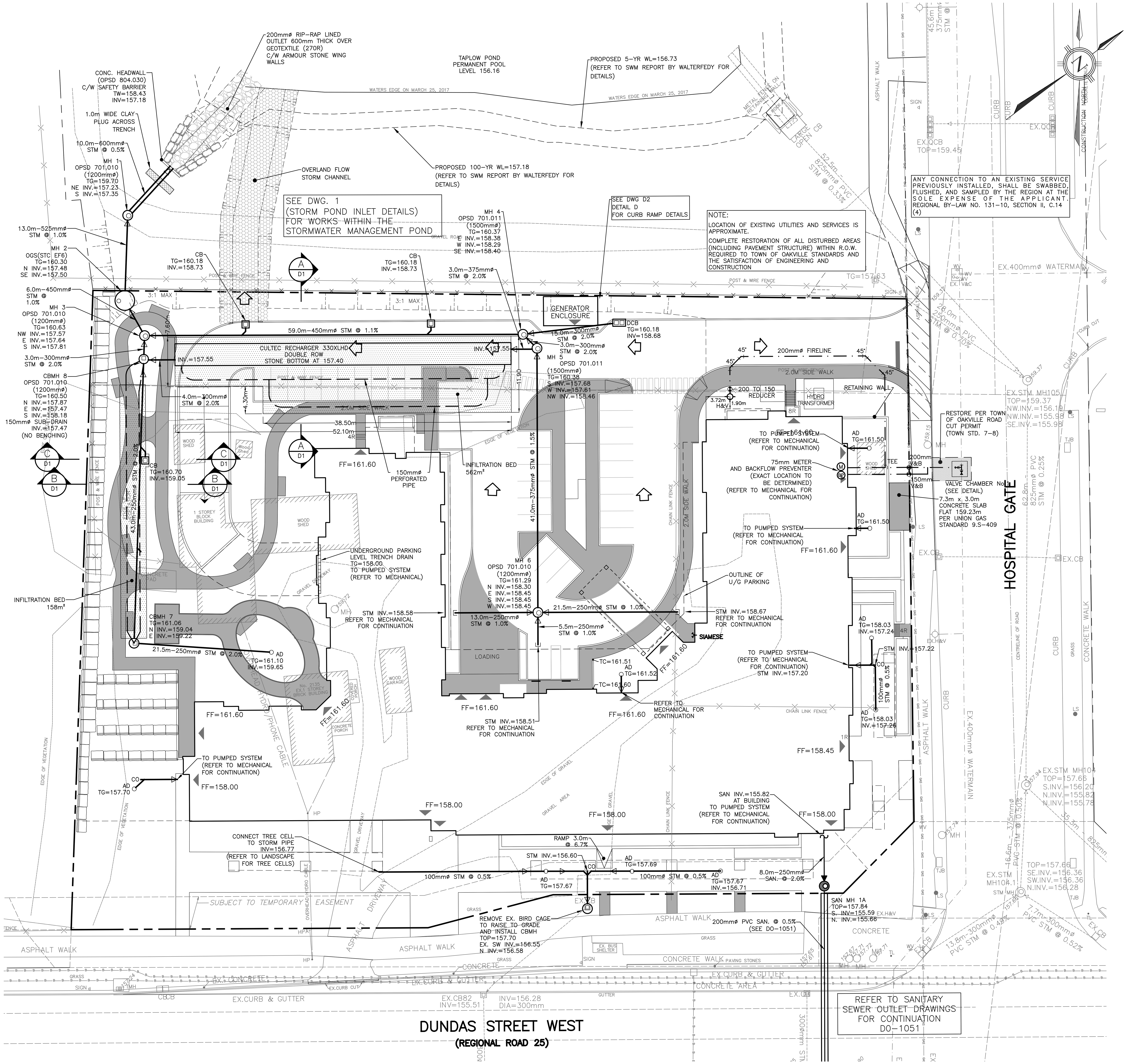
SIGNED:______________________DATED:__________________

INFRASTRUCTURE PLANNING & POLICY

The Applicant should be aware that the approval of the water system on private property is the responsibility of the Local Municipality. Regardless, the Applicant must ensure that the Region of Halton's standards and specifications are met. (the Water and Wastewater Linear Design Manual may be obtained from the Data Management Group at 905-825-6032) Furthermore, all water quality tests must be completed to Halton Region's satisfaction, before the water supply can be turned on.



VALVE CHAMBER No.1
(RH 402.020)
(2400mm X 2400mm)
N.T.S.



KEY PLAN

LEGEND

- PROPOSED CATCHBASIN
- PROPOSED DOUBLE CATCHBASIN
- PROPOSED STORM MANHOLE
- PROPOSED STORM MANHOLE
- AD PROPOSED AREA DRAIN
- PROPOSED SANITARY MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE & BOX
- PROPOSED WATER METER
- PROPOSED BACKFLOW PREVENTER
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING CATCHBASIN
- PROPERTY LINE
- LIMIT U/G GARAGE
- STORMWATER INFILTRATION BED
- 150mmø PERFORATED PIPE
- PROPOSED TREE
- OVERLAND FLOW ROUTE

NO.	DD/MM/YYYY	BY/DRAWN	REVISIONS
11	18/12/2023	JN	REISSUED FOR REZONING APPLICATION (UNIT CHANGE)
10	02/06/2023	AP/MF	REVISED FOR SOIL CELL DRAINAGE
9	16/06/2022	AP/MF	ADDED GENERATOR ENCLOSURE
8	19/03/2021	AP/ZG	REVISED HYDRANT LOCATION
7	13/08/2020	SP	ISSUED FOR SI#1
6	06/05/2020	SP	ADDENDUM #1
5	15/04/2020	SP	SANITARY CONNECTION REVISED
4	05/06/2019	SP/ZG	RE-ISSUED FOR SPA
3	30/05/2019	SP/ZG	WATER VALVE CHAMBER ADDED
2	07/02/2019	SP/GL	RE-ISSUED FOR SPA SUBMISSION

CAD FILE: 1614GS.dwg | PLOT SCALE: 1:1 | PLOT DATE: 12/19/23

BENCHMARK

1. ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND WERE DERIVED FROM THE TOWN OF OAKVILLE BENCHMARK N° 270 HAVING AN ELEVATION OF 152.832m.

2. THE TOPOGRAPHIC DETAIL SHOWN HEREON WAS ACQUIRED ON MONTH 09, 2017 BY J.D. BARNES LIMITED, ONTARIO LAND SURVERYORS.

LICENSED PROFESSIONAL ENGINEER
J. NELSON
100199369
19 DEC 2023
PROVINCE OF ONTARIO

DESIGNED BY | APPROVED BY

TRAFALGAR ENGINEERING
#1-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

PROJECT TITLE
ASC (OAKVILLE) FACILITY LIMITED PARTNERSHIP
ASSISTED LIVING /EXTENDED CARE

LOCATION
3000 HOSPITAL GATE
OAKVILLE, ON
SP8688

DRAWING TITLE
SERVICING PLAN
S.P.1327.001/01

SCALE	1:300	DESIGN BY	SP/JN	PROJECT No.	1614
DRAWN BY	ZG/JN	CHECKED BY	SP	PLAN No.	S1
DATE	26 SEP 2017	SHEET	1 OF 1		

FILENAME: P:\1614 All Seniors\Drawings\DWG\1614GS.dwg
PLOTDATE: Dec 19, 2023 - 2:52pm

GENERAL NOTES

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS OF THE REGIONAL MUNICIPALITY OF HALTON (INCLUDING REGION OF HALTON'S CONTRACTOR INFORMATION PACKAGE), TOWN OF OAKVILLE AND THE ONTARIO BUILDING CODE (PART 7). ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS (OPSS & OPSD) SHALL BE USED IN ABSENCE OF LOCAL STANDARDS.

2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL, MECHANICAL AND LANDSCAPE DRAWINGS.

3. ALL INFORMATION SHOWN REGARDING THE LOCATION AND SIZE OF EXISTING UTILITIES AND/OR SERVICES HAS NOT BEEN VERIFIED. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION OF UTILITIES PRIOR TO CONSTRUCTION AND PROTECTING AND MAINTAINING DURING CONSTRUCTION.

4. THE CONTRACTOR SHALL CHECK AND VERIFY ALL GIVEN GRADES AND ELEVATIONS PRIOR TO CONSTRUCTION AND REPORT ALL DISCREPENCIES TO THE ENGINEER.

5. ALL GRADING CHANGES SHALL BE APPROVED BY THE ENGINEER AND TOWN OF OAKVILLE PRIOR TO IMPLEMENTATION.

6. THE CONTRACTOR SHALL CLEAN ALL MUD TRACKED ON TO ADJACENT ROADWAYS.

GRADING NOTES

1. SEDIMENT CONTROL MEASURES INCLUDING SILT FENCE AND MUD PAD ETC. SHALL BE INSTALLED PRIOR TO START OF CONSTRUCTION, CHECKED AND REPAIRED ON A REGULAR BASIS, AND LEFT IN PLACE UNTIL PAVING AND LANDSCAPING IS COMPLETED. SEDIMENT CONTROL WHEN REMOVED SHALL BE DISPOSED OFF-SITE.

2. ALL TOPSOIL SHALL BE STRIPPED PRIOR TO GRADING.

3. ALL FILL PLACEMENT SHALL BE DONE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEERS RECOMMENDATIONS (TERRAPROBE, OCTOBER 31, 2017).

4. RETAINING WALLS WITH A HEIGHT GREATER THAN 1.0m ARE TO BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER.

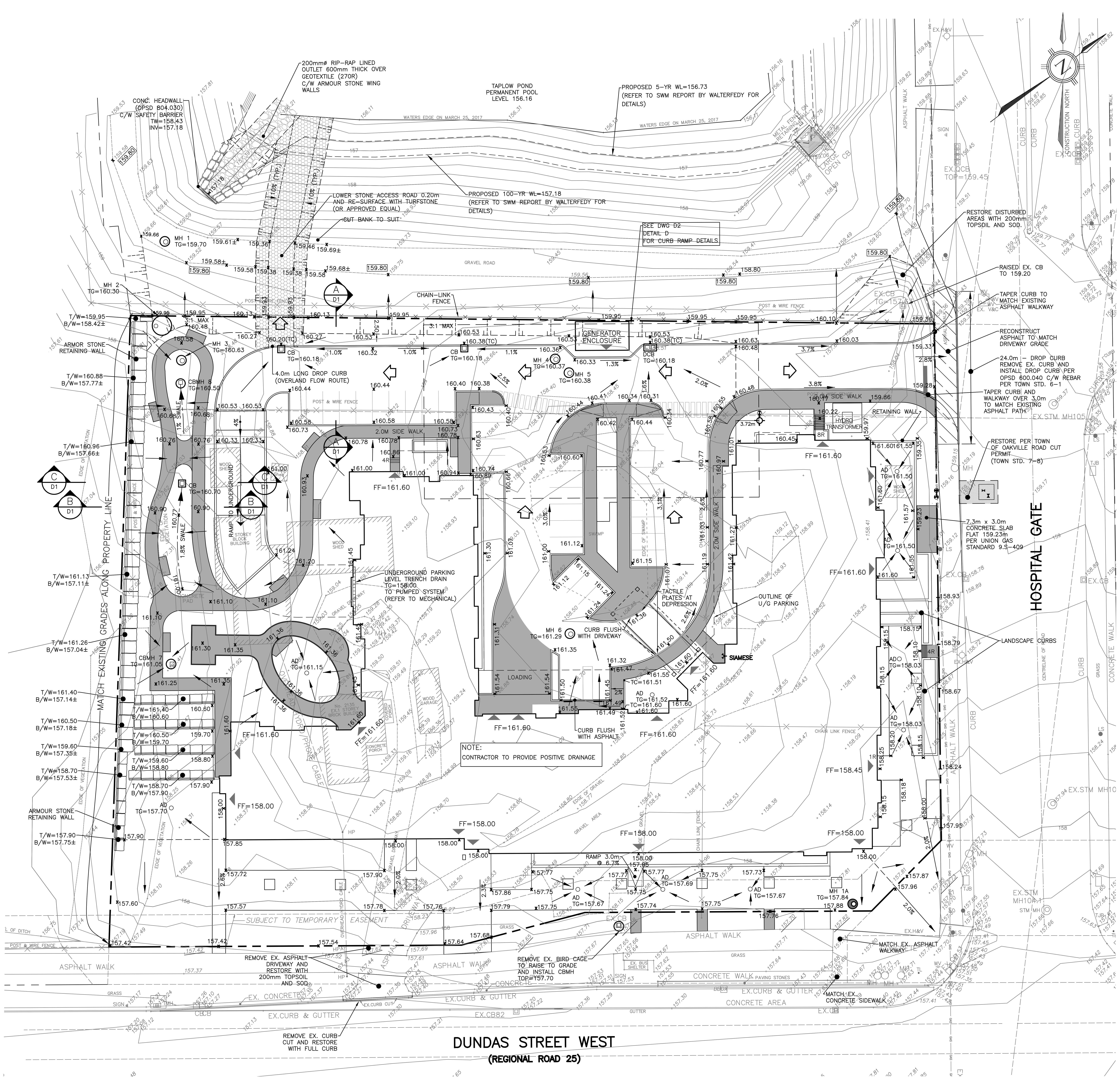
5. ALL DISTURBED AREAS TO BE RESTORED WITH 200mm TOPSOIL AND SOD.

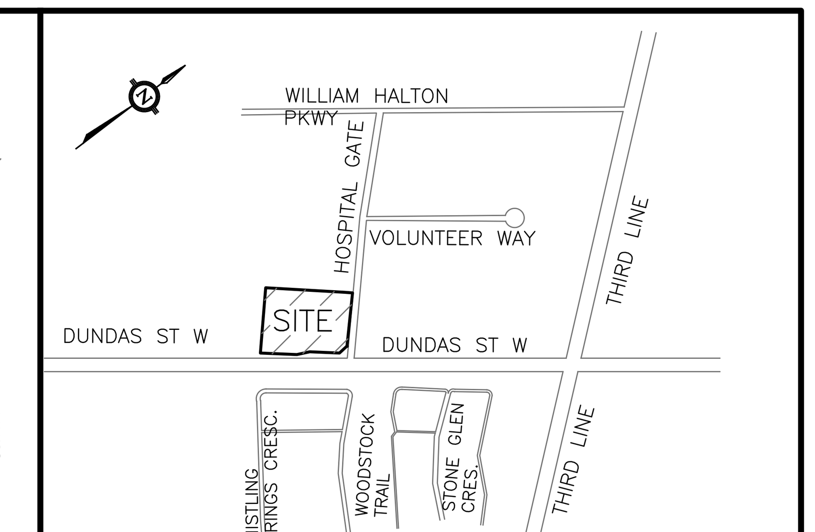
6. ALL DISTURBED AREAS WITH IN PUBLIC R.O.W TO BE REINSTATED TO THE SATISFACTION OF THE ENGINEERNG & CONSTRUCTION DEPARTMENT. EXISTING SODDED BLVD. AREAS TO BE REINSTATED WITH 200mm TOPSOIL AND SOD. SIDEWALKS AND PATHWAYS SHALL BE RESTORED WITH MATERIAL TO MATCH ORIGINAL UNLESS OTHERWISE NOTED.

7. REFER TO GEOTECHNICAL REPORT PREPARED BY EXP DATED JUNE 03, 2017 (FILE No. BRM-00603989-A0) FOR PAVEMENT STRUCTURE

PAVEMENT STRUCTURE (HEAVY DUTY)

HL-3	40mm
HL-8	80mm
19mmCRL	150mm
50mmCRL	350mm





KEY PLAN

LEGEND

× 161.00	PROPOSED ELEVATION
× 159.60	EXISTING ELEVATION
× 159.60	EXISTING ELEVATION TO REMAIN
× 161.00	DEVELOPMENT GRADE BY OTHERS
	PROPOSED SWALE DIRECTION
1.4%	PROPOSED DRAINAGE DIRECTION
	PROPOSED SLOPE
	PROPOSED CATCHBASIN
	PROPOSED DOUBLE CATCHBASIN
	PROPOSED STORM MANHOLE
	PROPOSED STORM MANHOLE
AD	PROPOSED AREA DRAIN
	PROPOSED SANITARY MANHOLE
	PROPOSED FIRE HYDRANT
	PROPOSED VALVE & BOX
	EXISTING STORM MANHOLE
	EXISTING SANITARY MANHOLE
	EXISTING CATCHBASIN
	PROPERTY LINE
	LIMIT U/G GARAGE
	OVERLAND FLOW ROUTE
	CONCRETE PAVING

NO.	DD/MM/YYYY	BY/DRAWN	REVISIONS
13	18/12/2023	JN	REISSUED FOR REZONING APPLICATION (UNIT CHANGE)
12	02/06/2023	AP/MF	ADDITIONAL GRADES AND TACTILE PLATES
11	06/10/2022	AP/MF	REVISED GRADING
10	16/06/2022	AP/MF	ADDED GENERATOR ENCLOSURE
9	25/01/2021	AP/ZG	REVISED GAS METER PAD
8	27/08/2020	SP	ISSUED FOR SI#3
7	13/08/2020	SP	ISSUED FOR SI#1
6	12/09/2019	SP/ZG	ADDED CONCRETE PAVING
5	15/07/2019	SP	SOUTH SIDE GRADING MODIFICATIONS
4	05/06/2019	SP/ZG	RE-ISSUED FOR SPA SUBMISSION
3	30/05/2019	SP/ZG	WATER VALVE CHAMBER ADDED
2	07/02/2019	SP/GL	RE-ISSUED FOR SPA SUBMISSION

CAD FILE: 1614GS.dwg | PLOT SCALE: 1:1 | PLOT DATE: 12/19/23

BENCHMARK

1. ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND WERE DERIVED FROM THE TOWN OF OAKVILLE BENCHMARK N° 270 HAVING AN ELEVATION OF 152.832m.

2. THE TOPOGRAPHIC DETAIL SHOWN HEREON WAS ACQUIRED ON MONTH 09, 2017 BY J.D. BARNES LIMITED, ONTARIO LAND SURVERYORS.

LICENSED PROFESSIONAL ENGINEER
100199369
19 DEC 2023
PROVINCE OF ONTARIO

DESIGNED BY

TRAFALGAR ENGINEERING
#1-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

PROJECT TITLE
ASC (OAKVILLE) FACILITY LIMITED PARTNERSHIP
ASSISTED LIVING /EXTENDED CARE

LOCATION
3000 HOSPITAL GATE
OAKVILLE, ON

DRAWING TITLE
GRADING PLAN

S.P.1327.001/01

SCALE	1:300	DESIGN BY	SP/JN	PROJECT No.	1614
DRAWN BY	ZG/JN	CHECKED BY	SP	PLAN No.	G1
DATE	26 SEP 2017	SHEET	1 OF 1		

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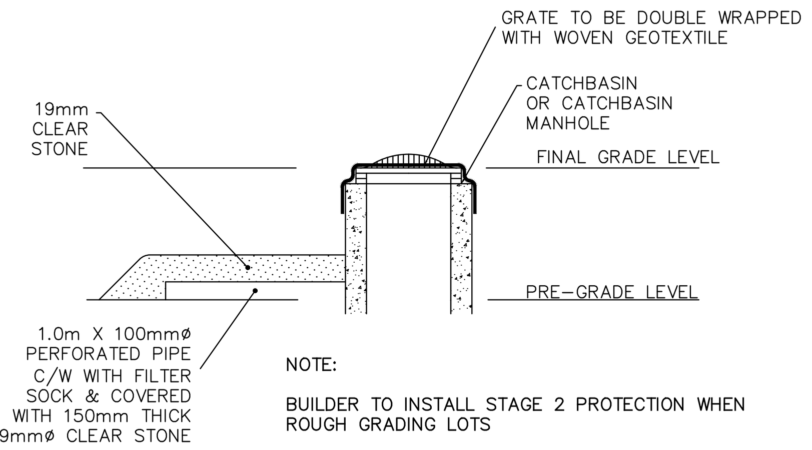
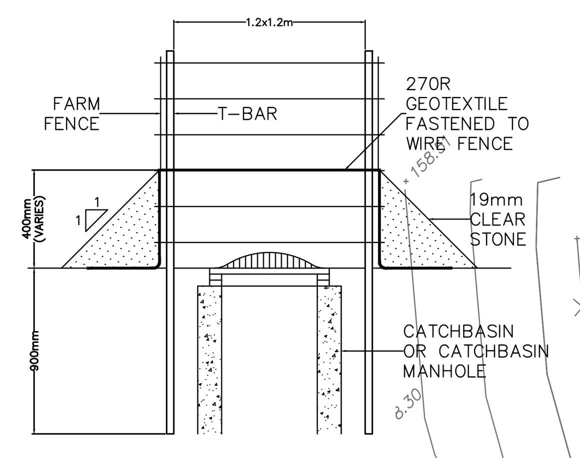


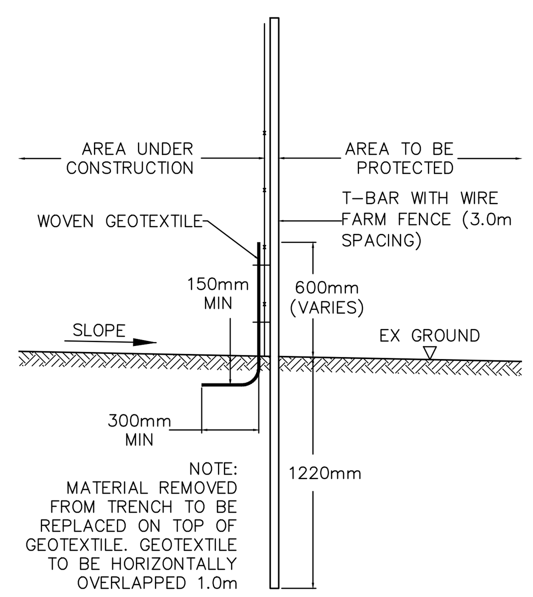
CATCHBASIN SEDIMENT CONTROL OFF ROAD AREAS (STAGE 1)

N.T.S.



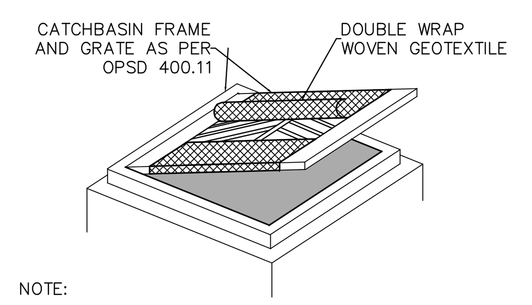
CATCHBASIN SEDIMENT CONTROL OFF ROAD AREAS (STAGE 2)

NTS



SEDIMENTATION CONTROL FENCE

NTS



NOTE:

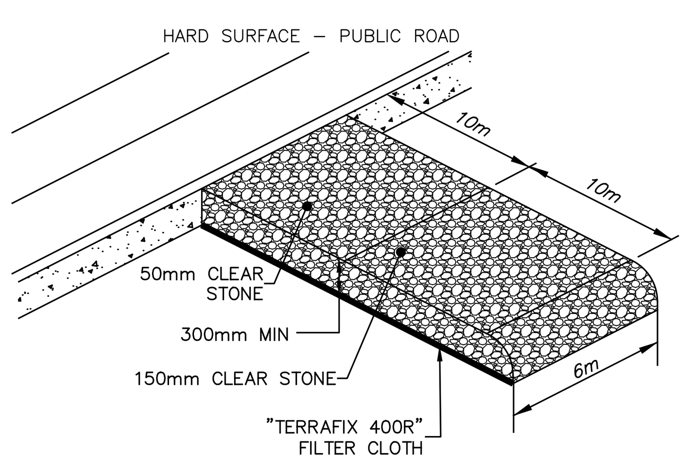
1. TO BE USED UNDER APPROPRIATE DRAINAGE CIRCUMSTANCES, BETWEEN APRIL AND DECEMBER

2. WOVEN GEOTEXTILE TO HAVE EQUIVALENT OPENING SIZE OF 0.15mm AND A MAXIMUM EQUIVALENT OPENING SIZE OF 0.25mm

3. WOVEN GEOTEXTILE TO BE REPLACED PERIODICALLY WHEN ACCUMULATED SEDIMENTS INTERFERES WITH DRAINAGE.

CATCHBASIN SEDIMENT CONTROL IN PAVED AREAS

NTS



NOTE: LOCATION TO BE DETERMINED IN THE FIELD

GRAVEL ACCESS PAD (MUD MAT)

NTS

GENERAL NOTES

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3. ALL INFORMATION SHOWN REGARDING THE LOCATION AND SIZE OF EXISTING UTILITIES AND/OR SERVICES HAS NOT BEEN VERIFIED. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION OF UTILITIES PRIOR TO CONSTRUCTION AND PROTECTING AND MAINTAINING DURING CONSTRUCTION.

4. THE CONTRACTOR SHALL CHECK AND VERIFY ALL GIVEN GRADES AND ELEVATIONS PRIOR TO CONSTRUCTION AND REPORT ALL DISCREPENCIES TO THE ENGINEER.

5. ALL GRADING CHANGES SHALL BE APPROVED BY THE ENGINEER AND TOWN OF OAKVILLE PRIOR TO IMPLEMENTATION.

6. THE CONTRACTOR SHALL CLEAN ALL MUD TRACKED ON TO ADJACENT ROADWAYS.

EROSION AND SEDIMENT CONTROL NOTES

1. EROSION AND SEDIMENTATION FACILITIES TO BE INSTALLED PRIOR TO ANY AREA GRADING OPERATION.

2 ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED, REPAIRED/MAINTAINED WEEKLY AND FOLLOWING ALL SIGNIFICANT RAINFALLS.

3. THE MEASURES AS PROPOSED MAY BE MODIFIED AT THE DISCRETION OF THE ENGINEER TO SUIT THE PROPOSED CONSTRUCTION PROGRAMS. THE GENERAL INTENT OF THE PROPOSED EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES.

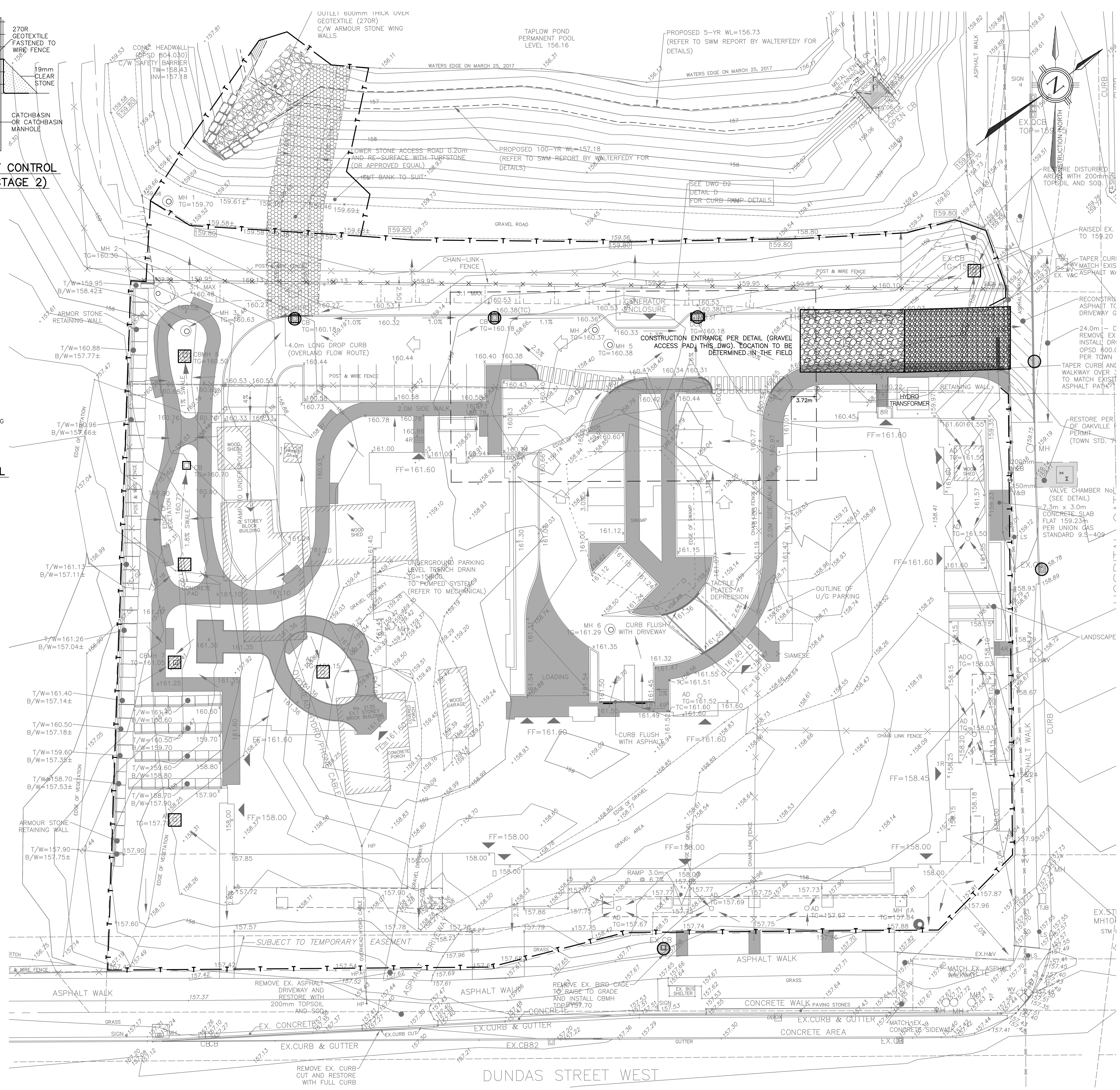
4. DECOMMISSIONING OF ALL EROSION CONTROL MEASURES SHALL OCCUR ONLY ONCE VEGETATIVE COVER IS ESTABLISHED.

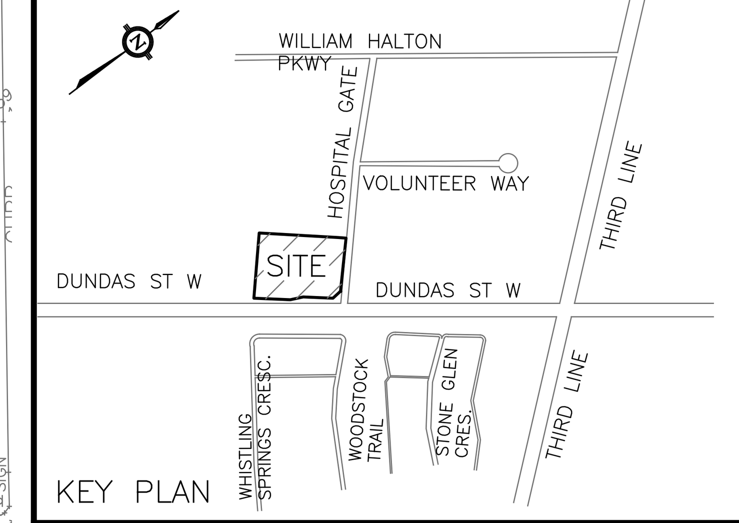
5. DESIGNATED ENTRANCE FOR ALL CONSTRUCTION TRAFFIC TO BE INSTALLED WITH MUD CONTROL DEVICE AS PER MUD MAT DETAIL. MUD CONTROL DEVICES TO BE INSTALLED PRIOR TO START OF CONSTRUCTION AND ARE TO BE MAINTAINED IN GOOD WORKING ORDER UNTIL GRADING WORKS ARE COMPLETED. MUD MAT MAY BE DELETED WITH THE APPROVAL OF THE TOWN OF OAKVILLE.

6. ANY DISTURBED AREA NOT SCHEDULED FOR FURTHER CONSTRUCTION WITHIN 30 DAYS SHALL BE PROVIDED WITH A TEMPORARY SEED.

7. INSTALL CATCHBASIN SEDIMENT CONTROL ON EXISTING CATCHBASINS PRIOR TO START OF CONSTRUCTION.

8. INSTALL CATCHBASIN SEDIMENT CONTROL ON NEW CATCHBASINS AT TIME OF INSTALLATION.





KEY PLAN

LEGEND

	PROPOSED CATCHBASIN
	PROPOSED STORM MANHOLE
	PROPOSED SANITARY MANHOLE
	PROPOSED FIRE HYDRANT
+152.82	EXISTING ELEVATION
+152.82	EXISTING ELEVATION TO REMAIN
000.00	INTERPOLATED EXISTING ELEVATION TO REMAIN
000.00	PROPOSED FINISHED ELEVATION
	PROPOSED DRAINAGE DIRECTION
	PROPOSED SWALE DRAINAGE DIRECTION
	PROPOSED OVERLAND FLOW DIRECTION
	PROPOSED SLOPE
	PROPOSED RETAINING WALL
TC	DENOTES TOP OF CURB
TW	DENOTES TOP OF WALL
BW	DENOTES BOTTOM OF WALL
	SEDIMENT CONTROL CB IN PAVED AREAS
	SEDIMENT CONTROL CB IN LANDSCAPED AREA
—T—T—	SEDIMENTATION CONTROL FENCE

NO.	DATE	BY/DRAWN	REVISIONS
4	18/12/2023	JN	REISSUED FOR REZONING APPLICATION (UNIT CHANGE)
3	05/06/2019	SP	RE-ISSUED FOR SPA SUBMISSION
2	07/02/2019	SP/GL	RE-ISSUED FOR SPA SUBMISSION
1	17/08/2018	JN/JN	ISSUED FOR SPC SUBMISSION

CAD FILE: 1614GS.dwg | PLOT SCALE: 1:1 | PLOT DATE: 12/19/23

BENCHMARK

1. ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND WERE DERIVED FROM THE TOWN OF OAKVILLE BENCHMARK N° 270 HAVING AN ELEVATION OF 152.832m.

2. THE TOPOGRAPHIC DETAIL SHOWN HEREON WAS ACQUIRED ON MONTH 09, 2017 BY J.D. BARNES LIMITED, ONTARIO LAND SURVEYORS.

LICENSED PROFESSIONAL ENGINEER
J. T. NELSON
100199369
19 Dec 2023
PROVINCE OF ONTARIO

DESIGNED BY

APPROVED BY

TRAFALGAR ENGINEERING LTD.
481 MORDEN ROAD OAKVILLE, ONTARIO L6K 3W6
TEL: (905) 338-3366 FAX: (905) 338-7734
tel@trafalgareng.com

PROJECT TITLE

ASC (OAKVILLE) FACILITY LIMITED PARTNERSHIP

ASSISTED LIVING /EXTENDED CARE

LOCATION

3000 HOSPITAL GATE

OAKVILLE, ON

DRAWING TITLE

EROSION AND SEDIMENT CONTROL PLAN

S.P.1327.001/01

SCALE	1:300	DESIGN BY	SP/JN	PROJECT No.	1614
DRAWN BY	ZG/JN	CHECKED BY	SP	PLAN No.	E1
DATE	26 SEP 2017	SHEET	1 OF 1		

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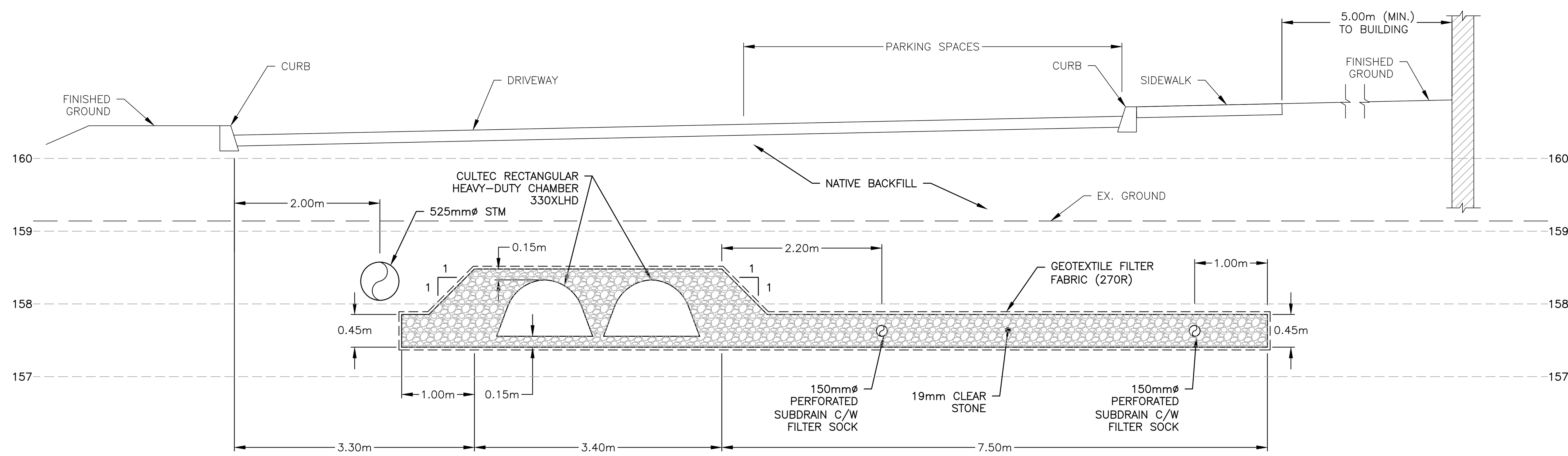
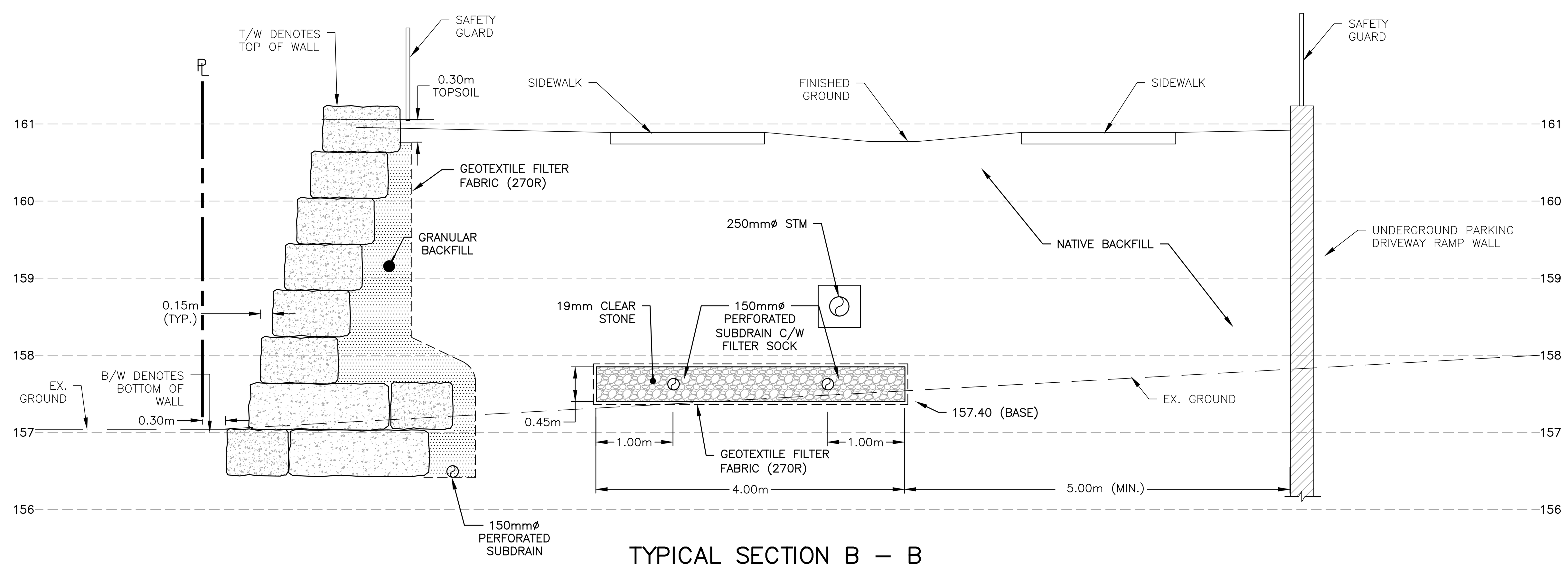
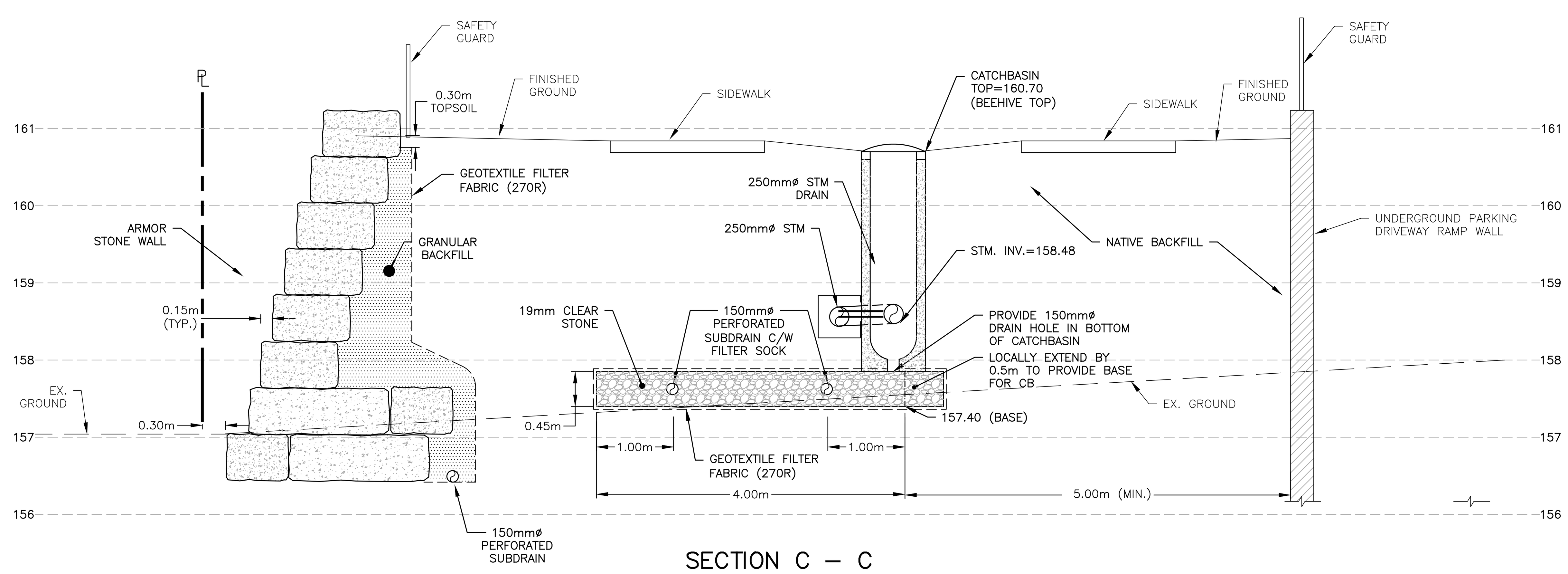


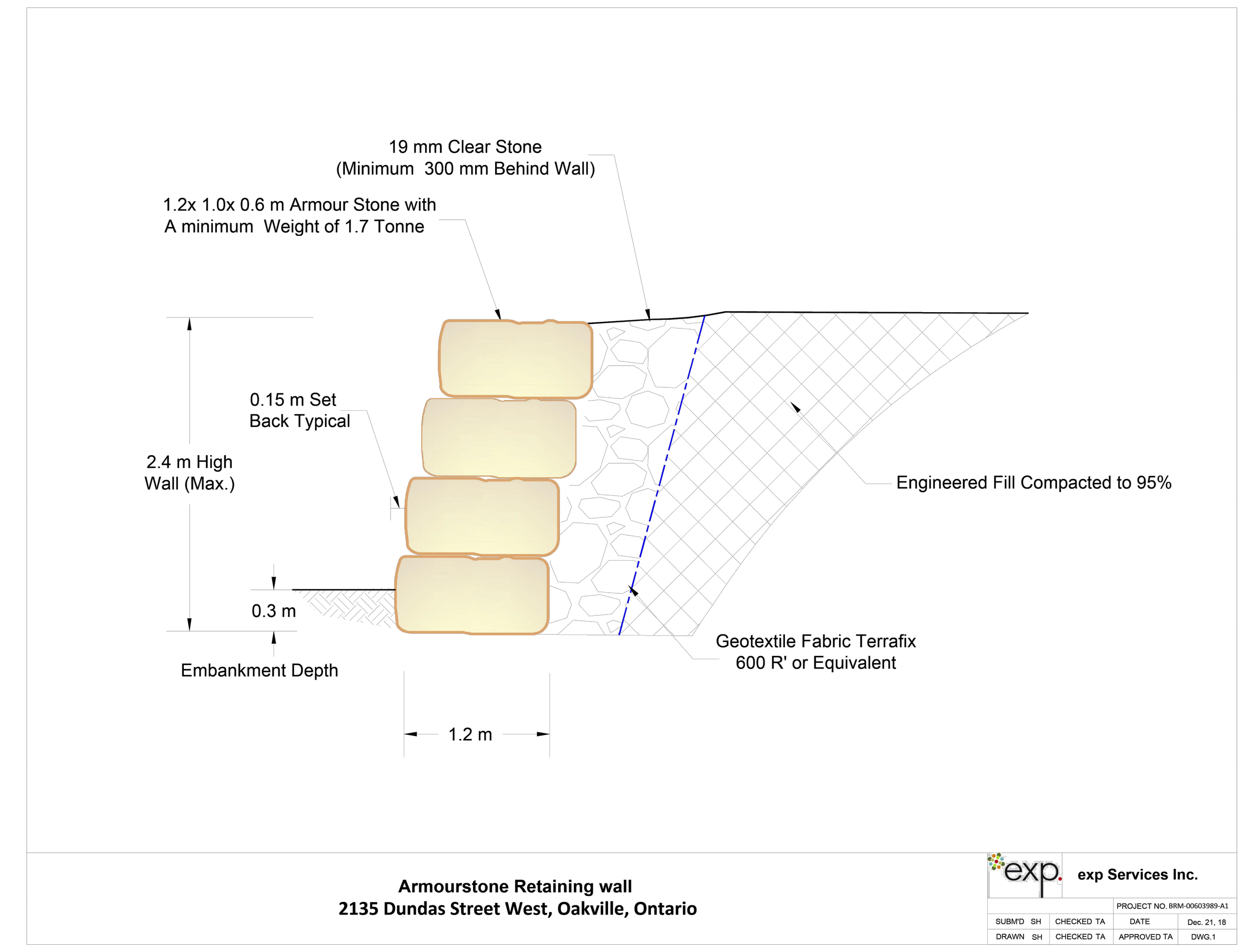
SECTION A – A
TYPICAL SECTION THROUGH STORAGE TANK
1:50

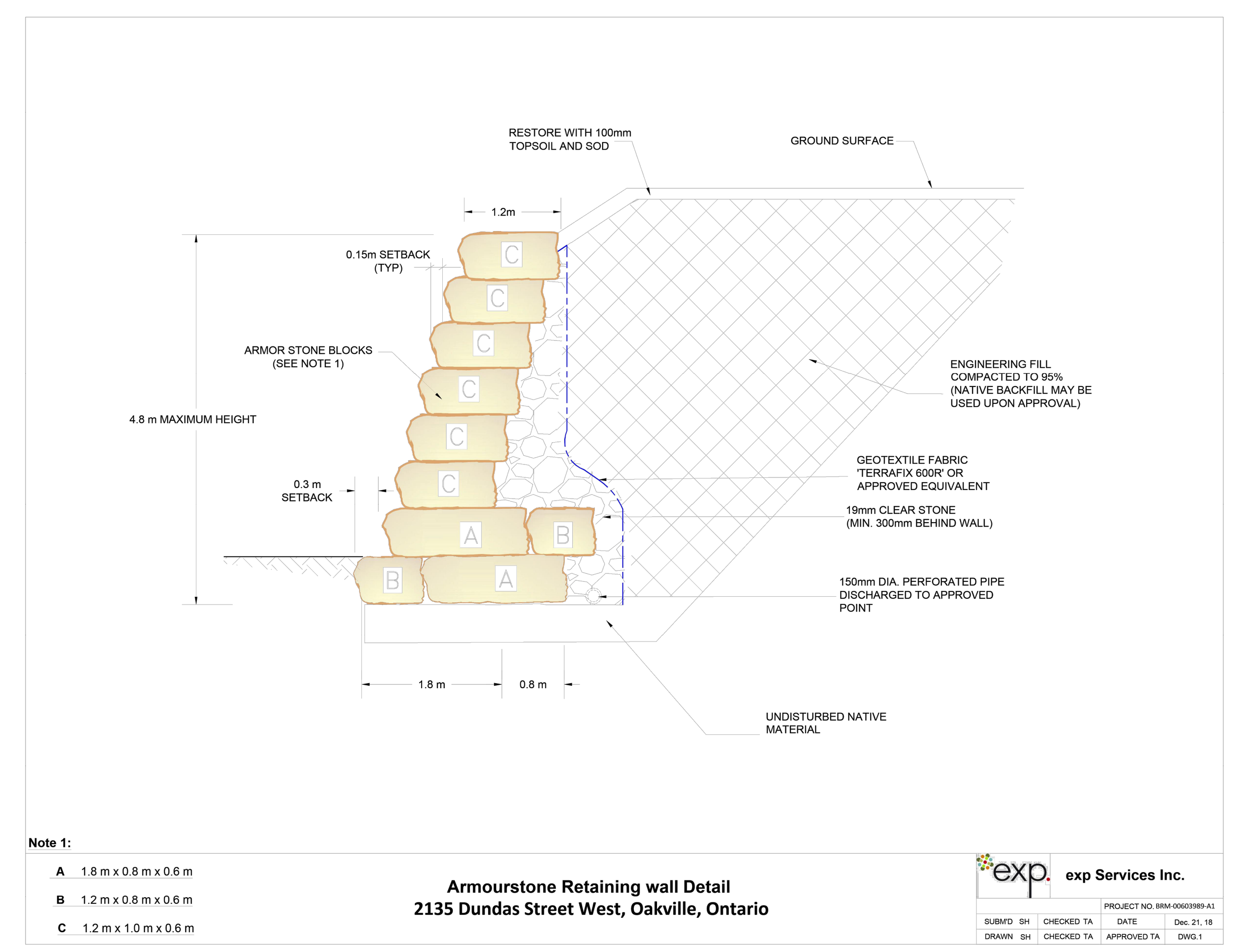


TYPICAL SECTION B – B
WEST INFILTRATION TRENCH
1:50



SECTION C – C
WEST INFILTRATION TRENCH AT CATCHBASIN
1:50



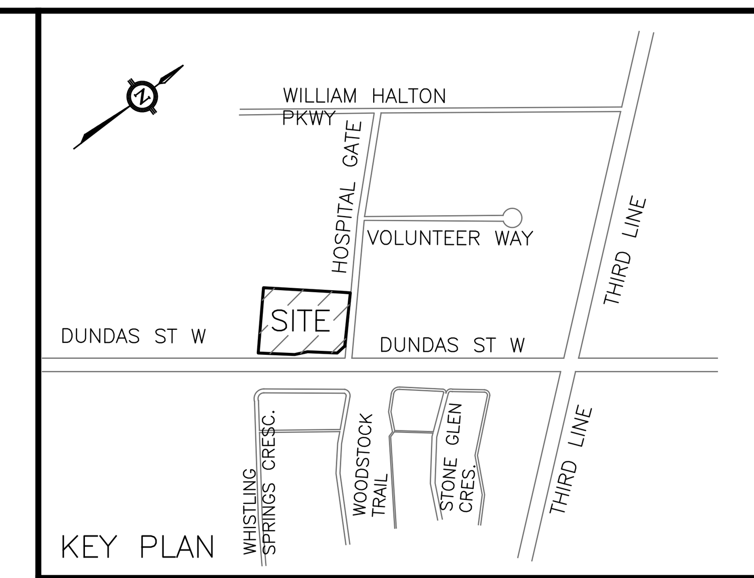


RETAINING WALL NOTES

1. RETAINING WALL DESIGNED BY THEIN AUNG, P.ENG. OF EXP SERVICES. ORIGINAL DESIGN AND CALCULATION SEALED BY T. AUNG DATED 2018–12–21. SEE DETAIL DESIGN REPORT PREPARED BY EXP SERVICES INC DATE 2018–12–21.

2. RETAINING WALL SHALL BE CONSTRUCTED PER THE THE "CONSTRUCTION SPECIFICATION FOR INSTALLATION OF ARMOUR STONES" AS PREPARED BY EXP SERVICE INC. OR AS OTHERWISE APPROVED BY EXP.

3. FOR THE TERRACE WALL REPEAT DRAWING 1 DESIGN FOR EACH LEVEL.



KEY PLAN

LEGEND

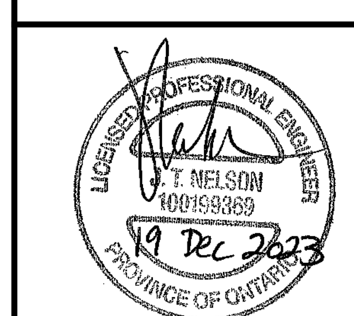
NO.	DD/MM/YYYY	BY/DRAWN	REVISIONS
3	18/12/2023	JN	REISSUED FOR REZONING APPLICATION (UNIT CHANGE)
2	05/06/2019	SP	RE–ISSUED FOR SPA
1	07/02/2019	SP/GL	RE–ISSUED FOR SPA SUBMISSION

CAD FILE: 1614GS.dwg | PLOT SCALE: 1:1 | PLOT DATE: 12/19/23

BENCHMARK

1. ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND WERE DERIVED FROM THE TOWN OF OAKVILLE BENCHMARK N° 270 HAVING AN ELEVATION OF 152.832m.

2. THE TOPOGRAPHIC DETAIL SHOWN HEREON WAS ACQUIRED ON MONTH 09, 2017 BY J.D. BARNES LIMITED, ONTARIO LAND SURVEYORS.



DESIGNED BY

APPROVED BY

TRAFALGAR ENGINEERING
#1-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

PROJECT TITLE
ASC (OAKVILLE) FACILITY LIMITED PARTNERSHIP
ASSISTED LIVING /EXTENDED CARE

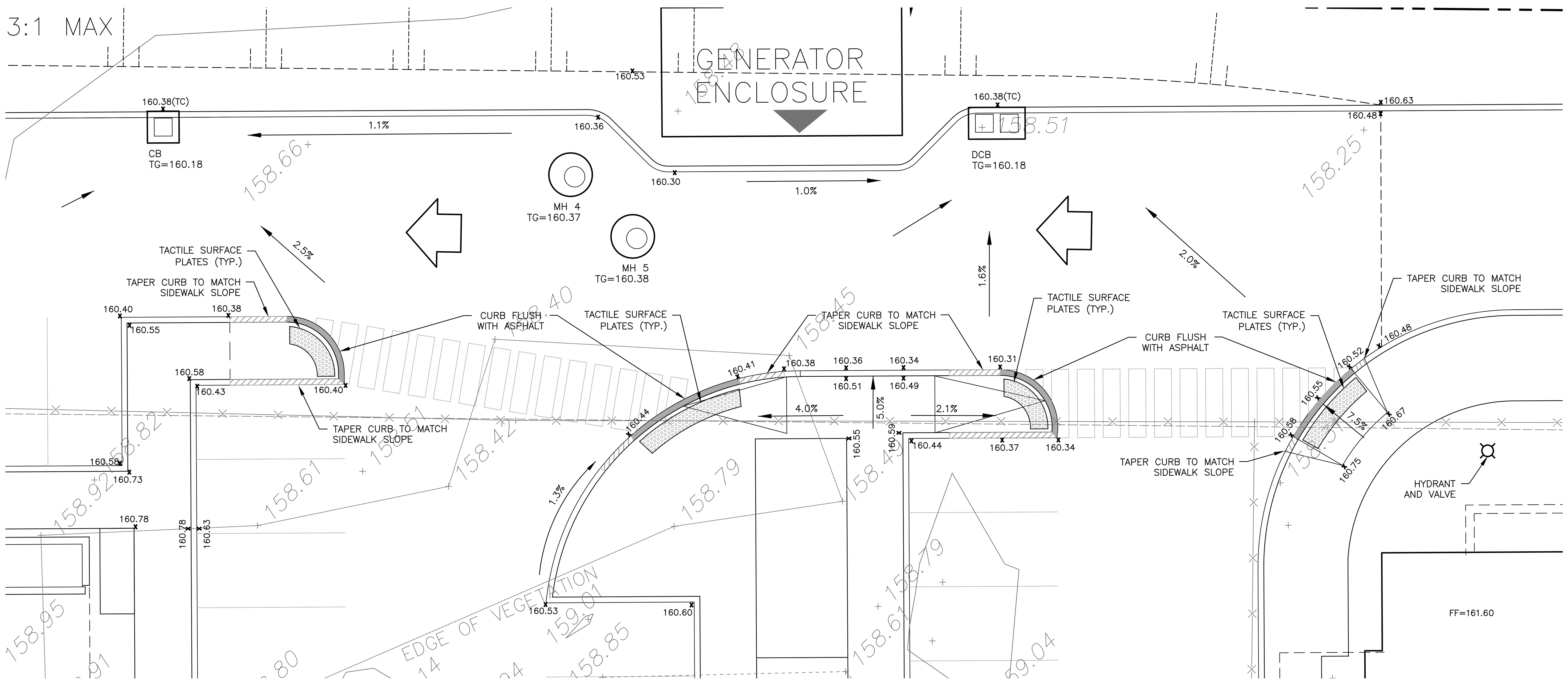
LOCATION
3000 HOSPITAL GATE
OAKVILLE, ON

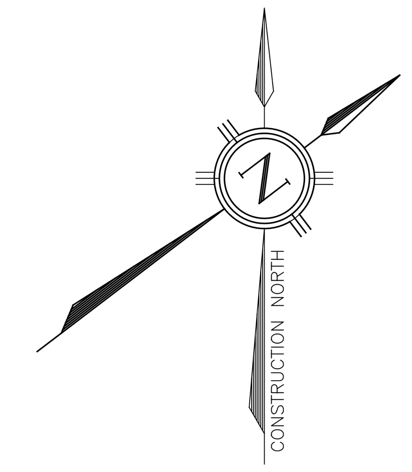
DRAWING TITLE
SECTIONS AND DETAILS

S.P.1327.001/01

SCALE	AS SHOWN	DESIGN BY	SP	PROJECT No.	1614
DRAWN BY	GRL	CHECKED BY	SP	PLAN No.	D1
DATE	12 DEC 2018	SHEET	1 OF 1		

FILENAME: P:\1614 All Seniors\Drawings\DWG\1614GS.dwg
PLOTDATE: Dec 19, 2023 – 2:55pm

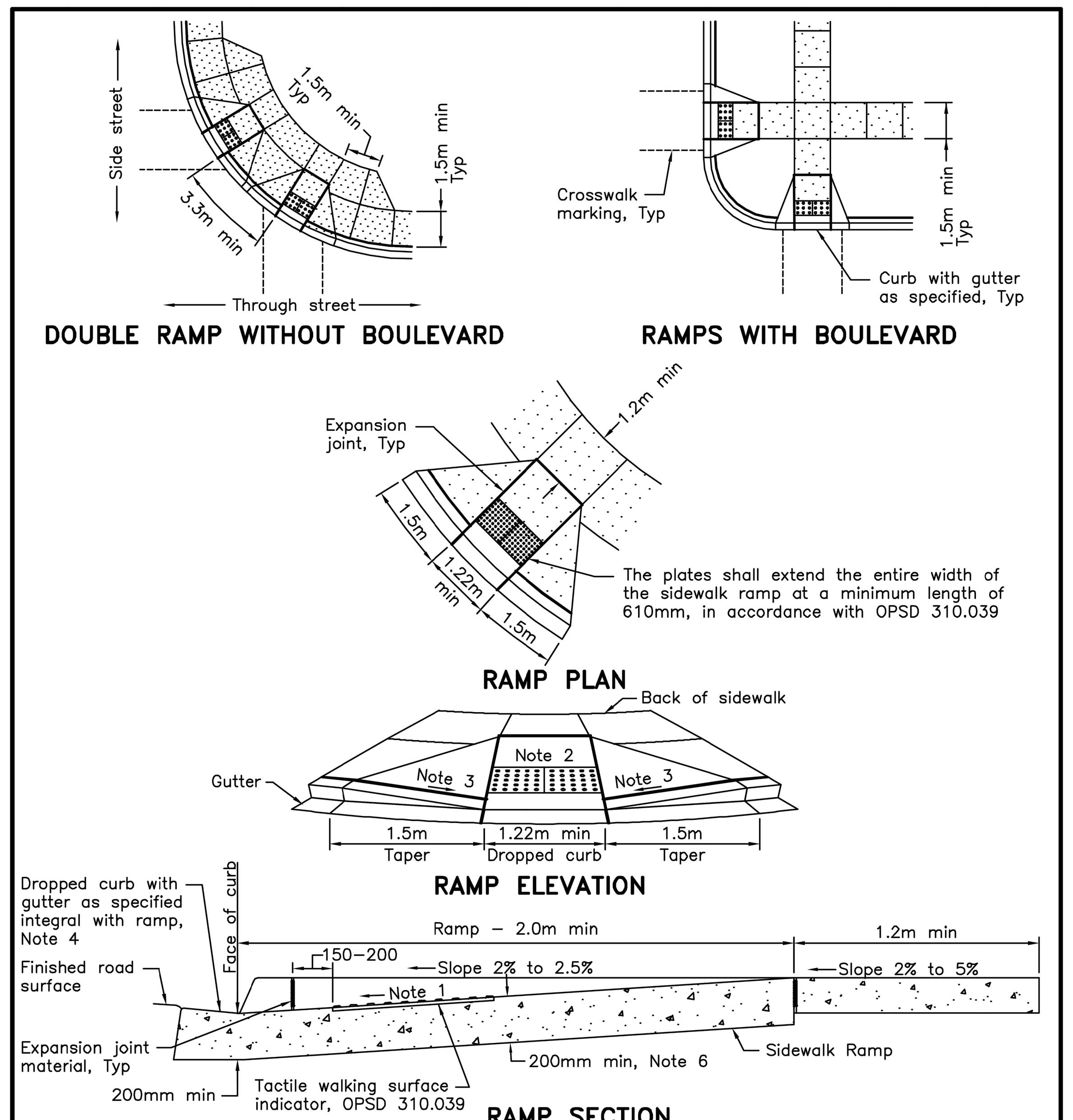




DRIVEWAY DETAIL

1:100

1. SEE OPSD 310.033 AND OPSD 310.039 FOR ADDITIONAL DETAIL.
2. TACTILE PLATE SHALL BE FINISHED WITH BLACK ASPHALTIC DIP FINISH.

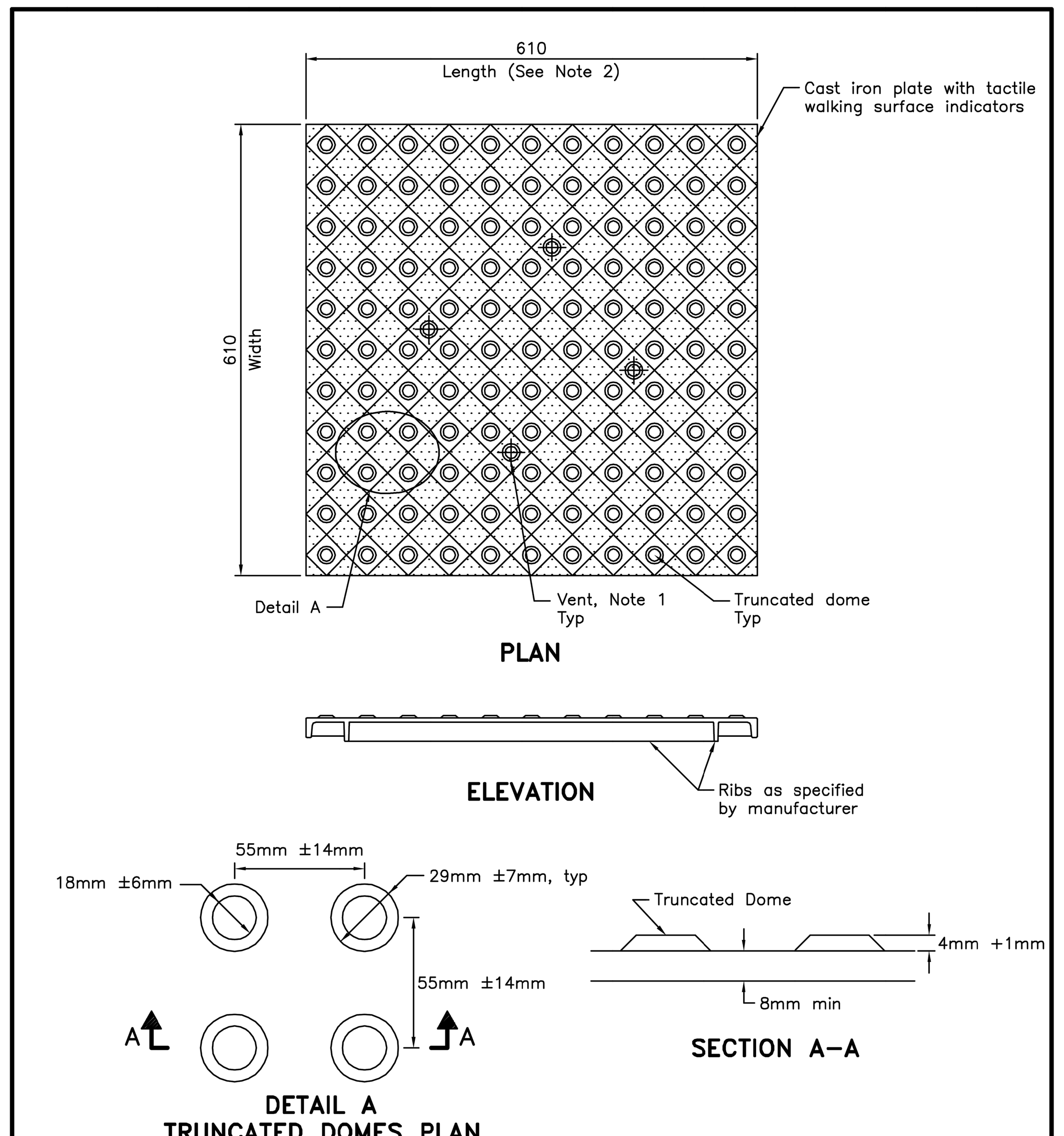


NOTES:
1 Slope of ramp shall not exceed 8%.
2 Cross slope of ramp shall not exceed 2% in either direction.
3 Cross slope of flared side of ramp shall not exceed 8%.
4 Dropped curb at ramp shall be modified to eliminate 30 mm step at gutter line.
5 Minimum thickness of ramp is 200mm. Minimum thickness of sidewalk and flared sides adjacent to ramp is 150mm.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2015 — Rev 0

CONCRETE SIDEWALK RAMPS AT UNSIGNALIZED INTERSECTIONS

OPSD 310.033

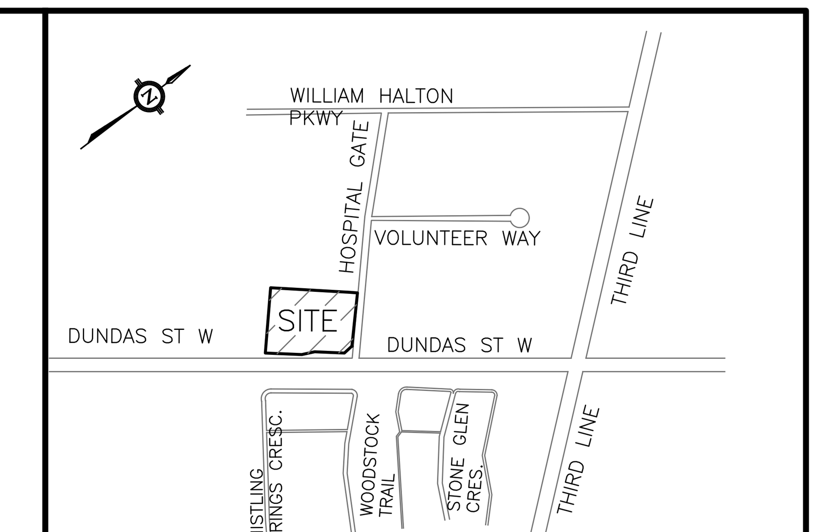


NOTES:
1 Vents shall be as specified by the manufacturer.
2 Length of plate may be increased to suit the curb depression width.
A Adjacent cast iron plates shall be permanently connected using a locking mechanism and any hardware shall be hot dipped galvanized.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2015 — Rev 0

CONCRETE SIDEWALK RAMPS TACTILE WALKING SURFACE INDICATORS COMPONENT

OPSD 310.039



KEY PLAN

LEGEND

- 161.00 — PROPOSED ELEVATION
- 159.60 — EXISTING ELEVATION
- 159.60 — EXISTING ELEVATION TO REMAIN
- 161.00 — DEVELOPMENT GRADE BY OTHERS
- PROPOSED SWALE DIRECTION
- 1.4% — PROPOSED DRAINAGE DIRECTION
- PROPOSED SLOPE
- PROPOSED CATCHBASIN
- PROPOSED DOUBLE CATCHBASIN
- PROPOSED STORM MANHOLE
- PROPOSED STORM MANHOLE
- AD — PROPOSED AREA DRAIN
- PROPOSED SANITARY MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE & BOX
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING CATCHBASIN
- PROPERTY LINE
- LIMIT U/G GARAGE
- OVERLAND FLOW ROUTE

NO.	DD/MM/YYYY	BY/DRAWN	REVISIONS
3	18/12/2023	JN	REISSUED FOR REZONING APPLICATION (UNIT CHANGE)
2	16/06/2022	AP/GL	ADDED GENERATOR ENCLOSURE
1	05/06/2019	SP/ZG	ISSUED FOR SPA

CAD FILE: 1614GS.dwg — PLOT SCALE: 1:1 — PLOT DATE: 12/19/23

BENCHMARK

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LICENSED PROFESSIONAL ENGINEER — T. NELSON — 100159369 — 19 DEC 2023 — PROVINCE OF ONTARIO

DESIGNED BY — APPROVED BY

TRAFALGAR ENGINEERING
#1-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

PROJECT TITLE
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DRAWING TITLE
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S.P.1327.001/01

SCALE	AS NOTED	DESIGN BY	SP/JN	PROJECT No.	1614
DRAWN BY	ZG	CHECKED BY	SP	PLAN No.	D2
DATE	26 SEP 2017	SHEET	1 OF 1		

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