Servicing and Stormwater Management Report: 36 & 40 Jamie Avenue

Stantec Project No. 160401647

February 23, 2022

Prepared for:

Star Motors of Ottawa

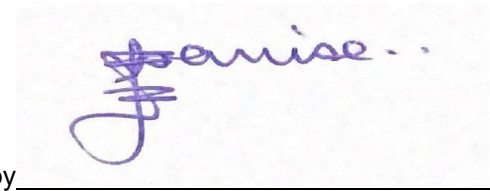
Prepared by:

Stantec Consulting Ltd.

300-1331 Clyde Avenue
Ottawa ON K2C 3G4

Revision	Description	Author		Quality Check		Independent Review	
0	1st Submission SPA	NN	2022-01-28	PM	2022-02-23	KK	2022-02-03

This document entitled Servicing and Stormwater Management Report: 36 & 40 Jamie Avenue was prepared by Stantec Consulting Ltd. (“Stantec”) for the account of Star Motors of Ottawa (the “Client”). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.



Prepared by _____

Nwanise Nwanise, EIT

Reviewed by _____

Peter Moroz, P.Eng., MBA

Approved by _____

Kris Kilborn

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

Stantec Consulting Ltd. has been commissioned by Star Motors of Ottawa to prepare the following servicing and stormwater management (SWM) report in support of a site plan control application in respect of the proposed light industrial redevelopment for the properties known municipally as 36 and 40 Jamie Avenue. The properties are located in the Merivale Industrial Area in the City of Ottawa and are currently occupied by two separate buildings owned by Star Motors. The redevelopment will involve the amalgamation of the existing buildings by introducing a building addition between the existing buildings. The building is proposed to function as an auto-body shop.

The subject property is approximately 0.38ha in area containing two existing buildings, site access and 20 surface parking. The architect (Brian K. Clark) has prepared a proposed site plan to support the site plan control application (see **Appendix B**). The site plan shows 20 surface parking and the amalgamation of the two existing buildings on Lot 9 & Lot 10 into one new building. The new building will continue to be serviced by the existing municipal water and wastewater service on Jamie Avenue.

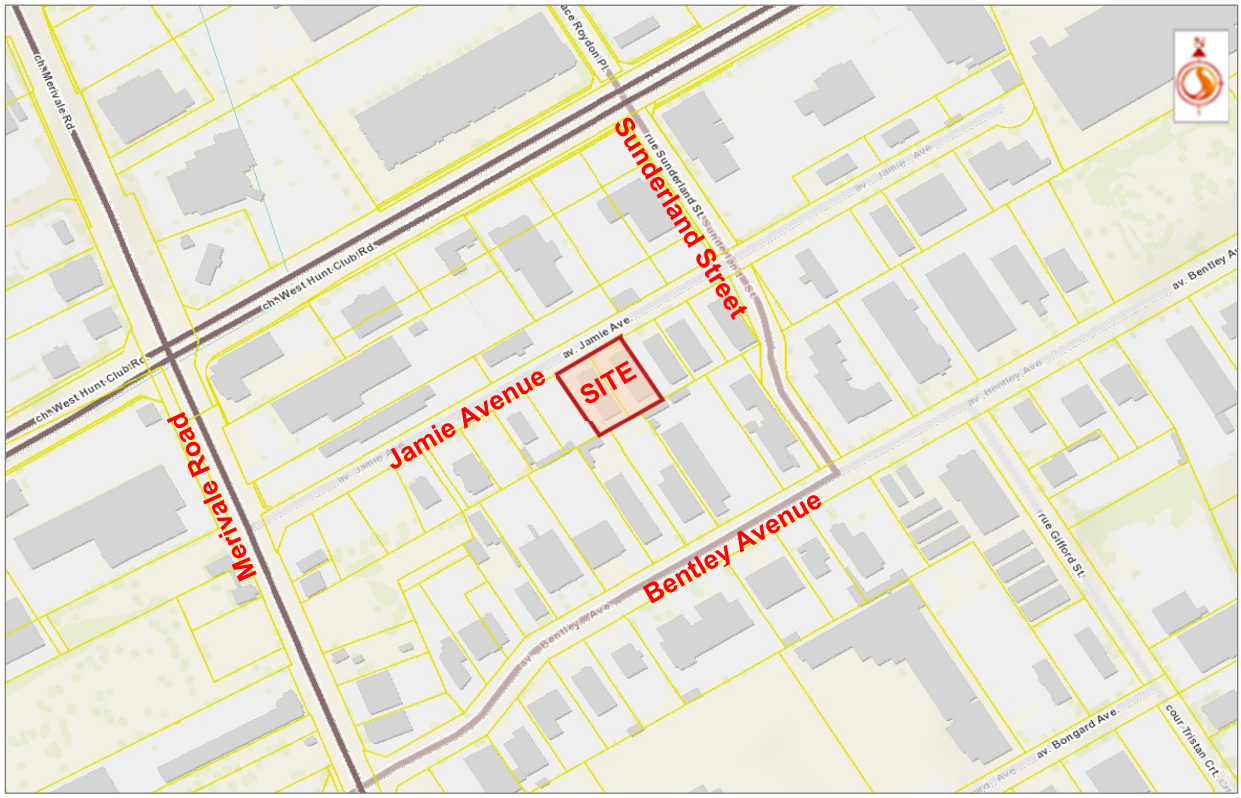


Figure 1 : Key Plan

1.1 OBJECTIVE

This servicing and stormwater management report has been prepared to demonstrate that the existing municipal infrastructure servicing the project site is sufficient to meet the servicing requirements of the redevelopment while adopting the most suitable stormwater management approach that complies with the City of Ottawa guidelines and applicable environmental laws required for the site plan control application.

Criteria and constraints provided by the City of Ottawa in previous consultations as well as existing site conditions have been used as a basis for the design and the preparation of this brief. Specific elements and potential development constraints to be addressed are as follows:

- Potable Water Servicing
    - Estimate water demands for the proposed redevelopment which will be serviced by an existing 305mm diameter ductile iron watermain fronting the site along Jamie Avenue.
    - Watermain servicing for the redevelopment is to be able to provide average day and maximum day and peak hour demands (i.e., non-emergency conditions) at pressures within the acceptable range of 50 to 80 psi (345 to 552 kPa).
    - Under fire flow (emergency) conditions with maximum day demands, the water distribution system is to maintain a minimum pressure greater than 20 psi (140 kPa).
    - The existing water service connections and fire hydrant fronting the site will provide potable water and emergency fire flow.
    - The new building will be feed by the internal plumbing of the existing buildings.
- Wastewater Servicing
    - Estimate wastewater flows contributed by the redevelopment and demonstrate that the new building can be adequately serviced by the existing 250mm diameter sanitary sewer on Jamie Avenue.
- Prepare a grading plan in accordance with the proposed site plan and existing grades.
- Stormwater Management and Servicing
    - To establish that the predevelopment impervious ratio for the site is not being increased and therefore existing stormwater management is not impacted by the redevelopment.
    - Post development peak 100-year flows controlled to the predevelopment peak 5-year release rate with a runoff coefficient of C=0.5 and concentration time of 10 mins.

Drawing SSGP-1 in **Appendix F** show general arrangement and details of the existing services on the site.

2.0 REFERENCES

Documents referenced in preparation of this Servicing and stormwater management report for 36 and 40 Jamie Avenue include:

- *City of Ottawa Sewer Design Guidelines*, 2nd Edition, City of Ottawa, October 2012.
- *City of Ottawa Design Guidelines – Water Distribution*, 1st Edition, Infrastructure Services Department, City of Ottawa, July 2010.
- *Geotechnical Investigation – Proposed Building Addition*, 36 and 40 Jamie Avenue, Ottawa, Ontario, Paterson Group, February 16, 2021.
- *Technical Bulletin ISDTB-2014-02 Revision to Ottawa Design Guidelines – Water*, City of Ottawa, May 2014.
- *Technical Bulletin PIEDTB-2016-01 Revisions to Ottawa Design Guidelines – Sewer,* City of Ottawa, September 2016.
- *Technical Bulletin ISTB-2018-01 Revision to Ottawa Design Guidelines – Sewer,* City of Ottawa, March 2018.
- *Technical Bulletin ISTB-2018-02 Revision to Ottawa Design Guidelines – Water Distribution,* City of Ottawa, March 2018.
- *Technical Bulletin ISTB-2021-03 Revision to Ottawa Design Guidelines – Water Distribution,* City of Ottawa, August 2021.

3.0 POTABLE WATER SERVICING

3.1 BACKGROUND

The subject site is located within the City of Ottawa's 2W2C pressure zone. The site is currently serviced by existing connections to the 305mm diameter DI watermain fronting the site on Jamie Avenue. There is also an existing hydrant fronting the site. It is anticipated that potable water demand and emergency fire flow requirements for the site will be met by these facilities.

3.2 WATER DEMANDS

3.2.1 Industrial Water Demands

Water demand for the redevelopment was estimated based on the floor areas shown in the site plan provided by the architect (see Appendix B). The floor areas were used to estimate the water demand for the site. The existing buildings on 36 & 40 Jamie Avenue cover an estimated area of 1312m^2 while the new addition covers an estimated area of 698m^2. Light Industrial water demand was calculated using the building areas.Error! Reference source not found. summarises the water demand of the redevelopment based on the site plan.

Table 3–1: Estimated Water Demands

Building ID	Commercial Area (m^2)	Daily Demand Rate (L/ha/d)	Average Day Demand (L/s)	Max. Day Demand (L/s)	Peak Hour Demand (L/s)
Existing Buildings on 36 & 40 Jamie Avenue	1312	35000	0.05	0.08	0.14
Proposed Addition	698	35000	0.03	0.04	0.08
Total Site	**2010**		**0.08**	**0.12**	**0.22**

The City of Ottawa's *Water Distribution Guidelines* (2010) were used to estimate the industrial water demand for the proposed redevelopment. An average daily rate of 35000 L/ha/d for light industrial use was applied to existing buildings and addition as provided in the stie plan by Brian K. Clark.

Per the City of Ottawa's *Water Distribution Guidelines*, peaking factors of 1.5 were applied to the average day demands to calculate maximum day demands while peaking factors of 1.8 were applied to the maximum day demands to calculate the peak hour demands for the entire site. Based on 0.39 ha of

commercial space the average day demand (AVDY) for the entire site was determined to be 0.08 L/s, with a maximum daily demand (MXDY) of 0.12 L/s and a peak hour demand (PKHR) of 0.22 L/s. Refer to **Appendix** Error! Reference source not found. for detailed industrial water demand estimates.

Based on these results, the one of the existing private water service connections to the buildings will be adequate to provide potable water supply to the redevelopment. However, the second water service connections will be retained to provide redundancy for the site.

3.2.2 Fire Flow Demands

Fire flow requirements were estimated using the Office of the Fire Marshal (OFM) Guideline (1999) which provides guidance in evaluating fire protection water supply in additions to existing buildings in line with part 3 of the Ontario Building Code (OBC). Office of the Fire Marshal (OFM) methodology is based on the building construction type, building classification according to OBC, water supply coefficient, total building volume, property line exposure distances, and availability of a fire safety plan.

$\mathbf{Q = KVS_{tot}}$

Q = Volume of water required (L)

V = Total building volume (m^3)

K = Water supply coefficient from Table 1

$\mathbf{S_{tot}}$ **=** Total of spatial coefficient values from property line exposures on all sides as obtained from the formula

$S_{tot} = 1.0 + [S_{side1} + S_{side2} + S_{side3} + S_{side4}]$

As provided by the architect, it was assumed that the building is sprinklered and of Group F, Division 2 occupancy constructed with non-combustible materials without fire resistance ratings. A potential Siamese connection is shown in **Drawing SSGP-1** in **Appendix F**. The OBC/OFM calculations for all the buildings are included in **Appendix A.2**. The boundary conditions request to the City was based on a fire flow demand of 9000 L/min (150 L/s) for being the worst-case scenario for the redevelopment (all buildings inclusive).

3.2.3 Boundary Conditions

The boundary conditions from February 2021 was used to verify that the available residual watermain pressures on Jamie avenue are sufficient to meet the current water demands of the site based on the proposed site plan.

Table 3–2 below show boundary conditions received from the city in February 2021.

Table 3–2: Boundary Conditions for 36 & 40 Jamie Avenue

Scenarios	Boundary conditions (February 2021)
Minimum HGL	124.9 m

Potable Water Servicing

Maximum HGL	132.9 m
Max Day + Fire Flow (150 L/s)	127.1 m

Based on the provided boundary conditions and finish floor elevation at the subject site estimated at 88.60m, a residual pressure of **55 psi** will be available during fire flow conditions. This well exceeds the minimum required pressure during fire flow conditions of 20 psi indicating that there is sufficient fire flow available to service the proposed development.

On-site pressures are expected to range from **52 psi** to **63 psi** under normal operating conditions. These values are within of the normal operating pressure range as defined by City of Ottawa design guidelines (desired **50** to **80** psi and not less than **40 psi**). Since the proposed building is a 2-storey building with an average storey height of 3.51m, an additional head loss of **34.47 kPa (5.0 ps**i) expected for every additional storey above ground elevation resulting in a residual pressure of **40 psi**. Hence, there is sufficient pressure at acceptable levels on the second floor during fire flow conditions.

Based on these results, there is currently sufficient supply and pressure in the water distribution system to meet the demands of the expected addition to the existing buildings.

4.0 WASTEWATER SERVICING

4.1 BACKGROUND

The subject site is contained within a separated sewer area in the Merivale Industrial Area. An existing 250 mm diameter PVC sanitary sewer fronts the site on Jamie avenue. This sanitary sewer collects wastewater from the existing buildings on 36 and 40 Jamie avenue, each with separate connections to the sewer. The new addition will be serviced through the internal plumbing of the existing buildings, the amalgamated building will outlet to a new 250mm dia sanitary lateral complete with backwater valve, proposed to serve the entire site. **Drawing SSGP-1** in **Appendix F** show the proposed wastewater service connection for the site.

4.2 DESIGN CRITERIA

Through consultation with the City of Ottawa as shown in **Appendix C.1**, it was determined that the proposed addition must be serviced through the existing buildings and the design must demonstrate that the existing services can accommodate the additional demand or upsizing the existing services.

Therefore, the peak sanitary discharge from the site was calculated based on the unit mix provided in the site plan (**Appendix B**).

As outlined in the City of Ottawa's *Sewer Design Guidelines*, the following criteria were used to calculate estimated wastewater flow rates for the site.

- Average wastewater generation (Light industrial flow) - 35,000 L/gross ha/ day
- Peaking factor - 1.0 (non-coincident peak)
- Extraneous flow allowance - 0.33 l/s/ha

4.3 ANALYSIS

The addition to the existing building will be serviced through the internal plumbing of the existing buildings. Oil-grit separator is proposed to be installed within the building and outlet to the sanitary sewer service connection to the building. It is anticipated that the peak wastewater flow from the new building will be collected by a new private sanitary sewer connection servicing the entire site.

A sanitary sewer design sheet was prepared and is included in **Appendix C.2.** The estimated wastewater flows to be generated are based on the gross area of light industrial use spaces as contained in the site plan provided by Brian K. Clark. Peaking factor and extraneous flow contributions were estimated based on the City of Ottawa's *Sewer Design Guidelines*. The total area of the amalgamated buildings is estimated as 0.20ha, the total site area of 0.45ha was used to estimate extraneous contributions to the sanitary sewer. The peak wastewater flows were calculated to be 0.32L/s.

Wastewater Servicing

The anticipated wastewater peak flow generated from the proposed development is summarized in **Table 4**–1:

Table 4–1 - Estimated Total Wastewater Peak Flow

Light Industrial Use Areas				
Building ID	**Area (m^2)**	**Peak Factor**	**Peak Flow (L/s)**	**Infiltration Flow (L/s)**
Amalgamated building	2012	1.0	0.19	0.13
Total Wastewater peak flows				**0.32**

1. Design peak flow based on 35,000 L/ha/day flow calculated using gross area of light industrial use spaces.
2. Peak factor of light industrial areas taken as 1.0 (non-coincidental peak) as per City guidelines.
3. Infiltration design flow equals 0.33 L/s/ha.

The design demonstrates that the proposed addition will be through the existing building and the 250mm diameter municipal sanitary service on Jamie Avenue would be sufficient to accommodate the additional wastewater flows.

5.0 STORMWATER MANAGEMENT

5.1 OBJECTIVES

The goal of this stormwater servicing and stormwater management (SWM) plan is to determine the measures necessary to control the quantity and quality of stormwater released from the proposed redevelopment, to meet the criteria established during the consultation process with City of Ottawa and Rideau Valley Conservation Authority (RVCA), and to provide sufficient details required for approval and construction.

5.2 EXISTING CONDITIONS AND SWM CRITERIA

The proposed re-development area (0.38 ha) currently consists of two existing buildings separated by an asphalt parking area. The roof of the existing buildings provides storm detention and control benefits, capturing all runoff from the roof areas before release at controlled rates to the internal plumbing and onsite storm sewer connected to the 900mm diameter concrete pipe on Jamie Avenue.

The grading at the back of the property flows from the rear property line towards the existing / new buildings south to north, also the flows from east to west and are captured by an existing catch-basin on the west side of the development this provides stormwater management for the parking and access areas. On the north end of the site, part of the storm runoff flows into an existing catch-basin while the rest of it sheet flows uncontrolled to the Right of way on Jamie Avenue, there is also green verge within this area. **Drawing SSGP-1** in **Appendix F** details the existing stormwater drainage plan for the site.

The existing drainage plan will be maintained as much as the grading and construction would permit.

The Stormwater Management (SWM) criteria for the subject site is based on pre-application consultation comments in **Appendix D.1** as provided by the City of Ottawa in November 2020 as follows:

i. The city would not require stormwater management if the impervious area being built on does not already provide stormwater management. Therefore, the servicing will brief will discuss that the impervious ratio is not being increased and therefore stormwater management would not be required.
ii. Quantity Control will be required for the area of the proposed addition.
iii. Control the 100 - year post development storm events to the 5 – year storm event.
iv. The 5-yr storm event using the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.
v. Allowable Runoff coefficient (C): 0.5.

Other criteria considered in the SWM design are described in Section 5 of the Ottawa Sewer Design Guidelines (October 2012) including all subsequent technical bulletins.

Stormwater Management

The proposed new building location currently consist of an impervious asphalt parking of approx. 0.07 ha with no stormwater management and C=0.90. Based on the City's criteria this stormwater management brief will discuss that the proposed redevelopment will not increase the impervious ratio of this area.

The runoff coefficient (C=0.50) as provided by the City was used to calculate the allowable release rate for the redevelopment area. The run-off coefficient of the proposed development roof area has been estimated as C = 0.90.

The allowable peak stormwater flow rate for the redevelopment area was calculated as follows using the Modified Rational Method:

$$Q = 2.78\,(C)(I)(A)$$

Where:

$Q = peak\ flow\ rate, L/s$

$C = site\ runoff\ coefficient$

$I = rainfall\ intensity, mm/hr\ (per\ City\ of\ Ottawa\ IDF\ curves)$

$A = drainage\ area, ha$

$$5 - year\ Intensity\ (mm/hr) = \frac{998.071}{(10 + 6.053)^{0.814}} = 104.19\ mm/hr$$

$$Q = 2.78(0.50)(104.19 mm/hr)(0.070\ ha) = \mathbf{10.14\ L/s}$$

Therefore, the post-development peak flows up to the 100-year storm event must be controlled to **10.14 L/s**. The pre-development time of concentration was assumed to be 10 minutes given that the existing site is serviced through two existing catch basins connected to the existing adjacent storm sewer system with an inlet time of 10 minutes as per City guidelines contain detailed MRM calculations.

The RVCA confirmed that no enhanced water quality protection (80% TSS removal) is required for the site as there is a municipal stormwater management pond downstream providing quality protections for the site, correspondence with the RVCA is included in **Appendix D.3.**

5.3 STORMWATER MANAGEMENT DESIGN

The existing stormwater management design for the site will be maintained as much as possible and will not be affected by the redevelopment this includes parking, access road areas and all uncontrolled areas, as described in **section 5.2** above.

The roof of the proposed building addition will provide storm detention and control benefits to storm runoff from the roof area before release at a controlled rate to the building internal plumbing outleting to a new 200mm diameter storm service connecting the building to a proposed 1200mm diameter storm monitoring manhole which outlets to the existing 900mm diameter concrete pipe running north to south on Jamie Avenue via a 250mm diameter storm lateral as shown on **Drawing SSGP-1** in **Appendix F**.

The roof drains will be coordinated with the building's architect and mechanical engineer to help size the internal plumbing system appropriately. Groundwater levels are observed at 82.55m which is 4 meters

lower than the proposed USF at 86.80m based on Geotech report by Paterson. The Geotech mentions the foundation drain is optional, however should a foundation drain be installed to, the proposed storm lead can support a gravity drain to the sewer.

5.3.1 Water Quantity Control

The imperviousness ratio of the site is not being increased by the proposed development. Roof storage will be providing additional detention benefits by controlling the expected post development 100-year storm run-off from the proposed redevelopment area to the 5-year predevelopment runoff.

The Modified Rational Method (MRM) was used to estimate the predevelopment runoff of the proposed building area currently used as an asphalt parking area to be 10.14 L/s. as well as the flow rate and volume of runoff generated from the roof of the proposed building addition under post-development conditions. The MRM spreadsheet is included in **Appendix D.1.**

The following assumptions were made in the creation of the storm drainage plan and accompanying MRM spreadsheet:

1) Rooftop storage will be provided for the proposed new building.
2) Available roof area was assumed 80%
3) The roof drains will provide stormwater detention.
4) The Standard Watts Model R1100 Accutrol Roof Drain or equivalent is recommended.
5) Max. Allowable Depth of Roof Ponding not more than 150mm.

5.3.1.1 Roof Storage

The roof area of the proposed building addition is approx. 700 m^2 with 80% (560m^2) of the roof area assumed to be available for storage, the roof area imperviousness ratio of 0.99 was used to calculate the runoff coeeficent for the roof area as C = 0.90. The roof area will be equipped with 2 roof notches operated 75% open, designed to meet achieve max. allowable depth of Ponding of 0.15m without overtopping the storage as per the Ontario Building Code. In a 100-year storm event the drawdown time was calculated as 3.1hr as shown in MRM Spreadsheet in **Appendix D.1.**

5.3.2 Results

Table 5–1 and **Table 5**–2 demonstrate that the proposed stormwater management plan provides adequate attenuation storage to meet the target peak outflow for the site.

Table 5–1: Estimated Post-Development Discharge (5-Year)

Area Type	$Q_{release}$ (L/s)	Target (L/s)
ROOF	2.47	10.14

Area Type	$Q_{release}$ (L/s)	Target (L/s)
Total	**2.47**	

Table 5–2: Estimated Post-Development Discharge (100-Year)

Area Type	$Q_{release}$ (L/s)	Target (L/s)
ROOF	3.15	10.14
Total	**3.15**	

5.3.3 Water Quality Control

The RVCA confirmed that no enhanced water quality protection (80% TSS removal) is required for the site as there is a municipal stormwater management pond downstream providing quality protections for the area, correspondence with the RVCA is included in **Appendix D.3.**

6.0 SITE GRADING AND DRAINAGE

The proposed development site measures approximately 0.38 ha in area and consist of two existing buildings, site access and 20 surface parking. The grading at the back of the property flows from the rear property line towards the existing / new buildings south to north, also the flows from east to west and are captured by an existing catch-basin on the west side of the development this provides stormwater management for the parking and access areas. On the north end of the site, part of the storm runoff flows into an existing catch-basin while the rest of it sheet flows uncontrolled to the Right of way on Jamie Avenue, there is also green verge within this area.

The site grading and drainage will be maintained as much as possible and would not be affected by the proposed re-development. As recommended by the geotechnical investigation by Paterson, Topsoil and deleterious fill, such as those containing organic materials, or construction debris/remnants should be stripped from under any buildings, paved areas, pipe bedding and other settlement sensitive structures.

Please refer to **Drawing SSGP-1** in Error! Reference source not found. for the conceptual site grading plan, which maintains the general drainage pattern of the existing condition site and matches all perimeter grades.

7.0 UTILITIES

The site is within a mature neighbourhood and currently serviced by existing utilities providing natural gas and fibre optics telecommunication services like Bell Canada. The site will continue to be serviced through connection to these existing services.

There is an existing hydro transformer on the concrete pad with hydro lines fronting the site. A locate information request has been forwarded to OntarioOneCall, see confirmation in **Appendix D.4**

Should an additional connection to the existing utility be required, detailed design of the required utility service will be completed by the respective utility company. as part of the future development of the lands.

8.0 EROSION CONTROL DURING CONSTRUCTION

In order to protect downstream water quality and prevent sediment build up in catch basins and storm sewers, erosion and sediment control measures must be implemented during construction. The following recommendations will be included in the contract documents and communicated to the Contractor.

1. Implement best management practices to provide appropriate protection of the existing and proposed drainage system and the receiving water course(s).

2. Limit the extent of the exposed soils at any given time.

3. Re-vegetate exposed areas as soon as possible.

4. Minimize the area to be cleared and grubbed.

5. Protect exposed slopes with geotextiles, geogrid, or synthetic mulches.

6. Provide sediment traps and basins during dewatering works.

7. Install sediment traps (such as SiltSack® by Terrafix) between catch basins and frames.

8. Schedule the construction works at times which avoid flooding due to seasonal rains.

The Contractor will also be required to complete inspections and guarantee the proper performance of their erosion and sediment control measures at least after every rainfall. The inspections are to include:

- Verification that water is not flowing under silt barriers.

- Cleaning and changing the sediment traps placed on catch basins.

Erosion Control During Construction

Refer to **Drawing EC/DS-1** for the proposed location of silt fences, straw bales, and other erosion control measures.

9.0 GEOTECHNICAL INVESTIGATION

Paterson Group (Paterson) was commissioned by Star Motors of Ottawa to conduct a geotechnical investigation for the proposed building addition to be located at 36 and 40 Jamie Avenue in the City of Ottawa.

The objective of the geotechnical investigation was determining the subsoil and groundwater conditions at this site by means of test pits as well as to provide geotechnical recommendations pertaining to design of the proposed development including construction considerations which may affect the design.

The ground surface across the subject site is relatively flat and at grade with the surrounding roadways and properties. Currently, a 2-storey building occupies the west portion of the site, and a one storey building occupies the east portion of the site, while the rest of the site serves as a private at-grade parking for the existing buildings. The subject site is bordered by Jamie Avenue to the north, and by one to two storey commercial buildings with associated parking lots to the other sides.

Generally, the soil profile at the test hole locations consists of asphaltic concrete layer and fill material overlying a deep dense silty sand layer. Based on available geological mapping, the bedrock in the subject area consists of sandstone and dolomite of the March formation, with an overburden drift thickness of 15 to 25 m depth.

Groundwater levels were measured during the current investigation on January 28, 2021 within the installed monitoring wells. The measured groundwater levels are presented in report in **Appendix E.1** below. The long-term groundwater table is expected to range between 5 to 6 m below existing grade.

Fill placed for grading beneath the building areas should consist, unless otherwise specified, of clean imported granular fill, such as Ontario Provincial Standard Specifications (OPSS) Granular A or Granular B Type II. The imported fill material should be tested and approved prior to delivery. The fill should be placed in maximum 300 mm thick loose lifts and compacted by suitable compaction equipment. Fill placed beneath the building should be compacted to a minimum of 98% of the standard Proctor maximum dry density (SPMDD). With the removal of all topsoil and deleterious fill from within the footprint of the proposed buildings, the native soil surface will be considered to be an acceptable subgrade on which to commence backfilling for floor slab construction. Any soft areas should be removed and backfilled with appropriate backfill material prior to placing any fill. OPSS Granular B Type II, with a maximum particle size of 50 mm, are recommended for backfilling below the floor slab. For any structures with slab-on-grade construction, the upper 200 mm of sub-slab fill is recommended to consist of OPSS Granular A crushed stone. All backfill material within the footprint of the proposed buildings should be placed in maximum 300 mm thick loose layers and compacted to a minimum of 98% of the SPMDD.

9.1.1 Pavement Design

Car only parking areas, driveways and access lanes are anticipated at this site. The proposed pavement structures are shown in **Table 9–1** and **Table 9–2**.

Table 9–1: Recommended Pavement Structure - Driveways and Car Only Parking Areas

Thickness (mm)	Material Description
50	Wear Course - HL 3 or Superpave 12.5 Asphaltic Concrete
150	BASE - OPSS Granular A Crushed Stone
300	SUBBASE - OPSS Granular B Type II
SUBGRADE - Either fill, in situ soil or OPSS Granular B Type I or II material placed over in situ soil or fill	

Table 9–2: Recommended Pavement Structure - Access Lanes

Thickness (mm)	Material Description
40	Wear Course - HL-3 or Superpave 12.5 Asphaltic Concrete
50	Binder Course - HL-8 or Superpave 19.0 Asphaltic Concrete
150	BASE - OPSS Granular A Crushed Stone
400	SUBBASE - OPSS Granular B Type II SUBGRADE
SUBGRADE - Either fill, in situ soil, or OPSS Granular B Type I or II material placed over in situ soil or fill.	

9.1.2 Some Design and Construction Precautions

A perimeter foundation drainage system is considered optional for the proposed building. The system should consist of a 100 to 150 mm diameter perforated corrugated plastic pipe, surrounded on all sides by 150 mm of 10 mm clear crushed stone, placed at the footing level around the exterior perimeter of the structure. The clear stone should be wrapped in a non-woven geotextile. The pipe should have a positive outlet, such as a gravity connection to the storm sewer or sump pump pit.

Precautions must be taken if winter construction is considered for this project. The subsoil conditions at this site consist of frost susceptible materials. In the presence of water and freezing conditions, ice could form within the soil mass. Heaving and settlement upon thawing could occur.

In the event of construction during below zero temperatures, the founding stratum should be protected from freezing temperatures by the use of straw, propane heaters and tarpaulins or other suitable means. In this regard, the base of the excavations should be insulated from sub-zero temperatures immediately upon exposure and until such time as heat is adequately supplied to the building and the footings are protected with sufficient soil cover to prevent freezing at founding level.

10.0 APPROVALS/PERMITS

Consultations with the Ministry of the Environment Conservation and Parks (MECP) Environmental Compliance Approvals (ECA) are currently ongoing to confirm if the site is subject to a direct ECA submission and next steps to complete it, refer to **Appendix** Error! Reference source not found. for details.

If the ground or surface water volumes being pumped during the construction phase are between 50,000 and 400,000 L/day, it is required to register on the Environmental Activity and Sector Registry (EASR). A minimum of two to four weeks should be allotted for completion of the EASR registration and the preparation of the Water Taking and Discharge Plan by a Qualified Person as stipulated under O.Reg. 63/16. A Permit to Take Water (PTTW) through the MECP would be required for dewatering in excess of 400,000 L/day, which is unlikely for this site. However, if a PTTW is required, at least 4 to 5 months should be allowed for completion of the application and issuance of the permit by the MECP. If blasting is used to remove the bedrock as part of the excavation for the building foundation, prior approval is required from the owners/operators of any water storage reservoir, pumping station, and water works transformer station within 200 m of the site.

11.0 CONCLUSIONS

11.1 WATER SERVICING

Based on the supplied boundary conditions for existing watermain and calculated domestic and fire flow demands for the subject site, the existing watermain on Jamie avenue has sufficient capacity to sustain the required domestic and emergency fire flow demands by the proposed addition to the existing buildings.

11.2 WASTEWATER SERVICING

The subject site is contained within a separated sewer area in the Merivale Industrial Area. An existing 250 mm diameter PVC sanitary sewer fronts the site on Jamie avenue. This sanitary sewer collects wastewater from the existing buildings on 36 and 40 Jamie avenue, each with separate connections to the sewer. The new addition will be serviced through the internal plumbing of the existing buildings, the amalgamated building will outlet to a new single 250mm diameter sanitary lateral complete with backwater valve, proposed to serve the entire site.

11.3 STORMWATER SERVICING AND MANAGEMENT

The imperviousness ratio of the site is not being increased by the proposed development. Roof storage will be providing additional detention benefits by controlling the expected post development 100-year storm run-off from the proposed redevelopment area to the 5-year predevelopment runoff.

The RVCA confirmed that no enhanced water quality protection (80% TSS removal) is required for the site as there is a municipal stormwater management pond downstream providing quality protections for the site.

11.4 GEOTECHNICAL CONSIDERATIONS

A geotechnical investigation was conducted by Paterson to determine the subsurface properties of the site, including groundwater elevations. A set of recommendations are provided in this report as geotechnical guidance for the design and construction. No

11.5 GRADING

The proposed development site measures approximately 0.38 ha in area and consist of two existing buildings, site access and 20 surface parking. The site grading and drainage will be maintained as much as possible and would not be affected by the proposed re-development.

11.6 UTILITIES

The site is within a mature neighbourhood and currently serviced by existing utilities providing natural gas and fibre optics telecommunication services like Bell Canada. The site will continue to be serviced through connection to these existing services.

APPENDICES

Appendix A POTABLE WATER SERVICING

A.1 WATER DEMAND CALCULATIONS

36 & 40 Jamie Avenue (Auto Body Shop) - Water Demand Estimates

Based on a Site Plan provided by Architect - Brian K. Clark (Dec 2020)

Demand type

Light Industrial use

Building ID	Commercial Area (m^2)	Daily Demand Rate (L/ha/d)[1]	Avg. Day Demand [2]		Max. Day Demand [2]		Peak Hour Demand [2]	
			(L/min)	(L/s)	(L/min)	(L/s)	(L/min)	(L/s)
Existing Bldg. on 36 & 40	1,312.07	35000	3.2	0.05	4.8	0.08	8.6	0.14
Proposed Addition	698.37	35000	1.7	0.03	2.5	0.04	4.6	0.08
Total Site :	**2,010.44**	**-**	**4.9**	**0.08**	**7.3**	**0.12**	**13.2**	**0.22**

1 Water demand for the site is based on an Average Day Demand for Industrial use sourced from Table 4.2 of the City of Ottawa Water Distribution Design Guidelines (2010).

2 City of Ottawa water demand criteria was used to estimate peak demand rates for industrial use are as follows:

maximum daily demand rate = 1.5 x average day demand rate

peak hour demand rate = 1.8 x maximum day demand rate

A.2 FIRE FLOW REQUIREMENTS PER OFM 1999/ OBC GUIDELINES

Fire Flow Calculations as per Ontario Building Code 2006 (Appendix A)

Project 36 - 40 Jamie Ave
Project # 160401647
Date 27-Jan-22

Designed by: NN
Checked by: RT
Description: Automobile Body Shop

$Q = KVS_{tot}$

Q = Volume of water required (L)
V = Total building volume (m3)
K = Water supply coefficient from Table 1
S_{tot} = Sotal of spatial coefficeint values from property line exposures on all sides as obtained from the formula

$S_{tot} = 1.0 + [S_{side1} + S_{side2} + S_{side3} + S_{side4}]$

1	Type of construction	Building Classification		Water Supply Coefficient
	Non-Combustible without Fire-Resistance Ratings	E, F-2		27
2	Area of one floor (m^2)	number of floors	height of ceiling (m)	Total Building Volume (m^3)
	2012	2	3.51	14,124
3	Side	Exposure Distance (m)	Spatial Coefficient	Total Spatial Coeffiecient
	North	9.6	0	1.6
	East	3	0.5	
	South	9	0.1	
	West	12.5	0	
4	Established Fire Safety Plan?	Reduction in Volume (%)		Total Volume Reduction
	no	0%		0%
5				**Total Volume 'Q' (L)**
				610,157
				Minimum Required Fire Flow (L/min)
				9,000

Notes:

1). In line with section 6.4 of OFM 1999 Guideline fire protection water supply is required for the addition to the existing 36 & 40 Jamie Avenue.
2). Calculations are based on F2 building occupancy type as provided by Architect -Brian K. Clark.

A.3 BOUNDARY CONDITIONS

Nwanise, Nwanise

From: Rasool, Rubina <Rubina.Rasool@ottawa.ca>
Sent: Thursday, February 25, 2021 9:19 AM
To: Nwanise, Nwanise
Cc: Rathnasooriya, Thakshika; Kilborn, Kris; Sharp, Mike
Subject: RE: 160401647 - 36 & 40 Jamie ave. Hydraulic Boundary Conditions Request
Attachments: 36-40 Jamie February 2021.pdf

Good morning,

The following are boundary conditions, HGL, for hydraulic analysis at 36-40 Jamie (zone 2W2C) assumed to be connected to the 305 mm on Jamie Ave (see attached PDF for location).

Minimum HGL = 124.9 m

Maximum HGL = 132.9 m

Max Day + Fire Flow (150 L/s) = 127.1 m

These are for current conditions and are based on computer model simulation.

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.

Rubina

Rubina Rasool, E.I.T.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - West Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue Laurier Ouest. Ottawa (Ontario) K1P 1J1
rubina.rasool@ottawa.ca

From: Nwanise, Nwanise <Nwanise.Nwanise@stantec.com>
Sent: February 24, 2021 1:53 PM
To: Rasool, Rubina <Rubina.Rasool@ottawa.ca>
Cc: Rathnasooriya, Thakshika <Thakshika.Rathnasooriya@stantec.com>; Kilborn, Kris <kris.kilborn@stantec.com>; Sharp, Mike <Mike.Sharp@stantec.com>
Subject: RE: 160401647 - 36 & 40 Jamie ave. Hydraulic Boundary Conditions Request

Good afternoon,

Thank you for confirming the status of our request, we look forward to hearing from you soon.

Regards,

Nwanise Nwanise, EIT
Engineering intern, Community Development

Direct: (647) 400-1759
Mobile: (647) 400-1759
nwanise.nwanise@stantec.com

Stantec
400 - 1331 Clyde Avenue
Ottawa ON K2C 3G4

From: Rasool, Rubina <Rubina.Rasool@ottawa.ca>
Sent: Wednesday, February 24, 2021 1:37 PM
To: Nwanise, Nwanise <Nwanise.Nwanise@stantec.com>
Cc: Rathnasooriya, Thakshika <Thakshika.Rathnasooriya@stantec.com>; Kilborn, Kris <kris.kilborn@stantec.com>; Sharp, Mike <Mike.Sharp@stantec.com>
Subject: RE: 160401647 - 36 & 40 Jamie ave. Hydraulic Boundary Conditions Request

Good afternoon,

I have not received an update from Water Services and the current turn around time has been 2-3 weeks.

Thanks,

Rubina

Rubina Rasool, E.I.T.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - West Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue Laurier Ouest. Ottawa (Ontario) K1P 1J1
rubina.rasool@ottawa.ca

From: Nwanise, Nwanise <Nwanise.Nwanise@stantec.com>
Sent: February 22, 2021 4:08 PM
To: Rasool, Rubina <Rubina.Rasool@ottawa.ca>
Cc: Rathnasooriya, Thakshika <Thakshika.Rathnasooriya@stantec.com>; Kilborn, Kris <kris.kilborn@stantec.com>; Sharp, Mike <Mike.Sharp@stantec.com>
Subject: RE: 160401647 - 36 & 40 Jamie ave. Hydraulic Boundary Conditions Request

Hi Rubina,

Hope this meets you well. I would like to request a general status update on the hydraulic boundary conditions request sent out on 2021/01/27 for 36 & 40 Jamie avenue site.

We are preparing an adequacy of services report and SWM brief in respect of a site plan control application for the site and your response would help us to complete key aspects of our design.

Attached is a copy of the original email with location map, water demand and fire flow calculations.

Hope to hear from you soon.

Thanks,

Nwanise Nwanise, EIT
Engineering intern, Community Development

Direct: (647) 400-1759
Mobile: (647) 400-1759
nwanise.nwanise@stantec.com

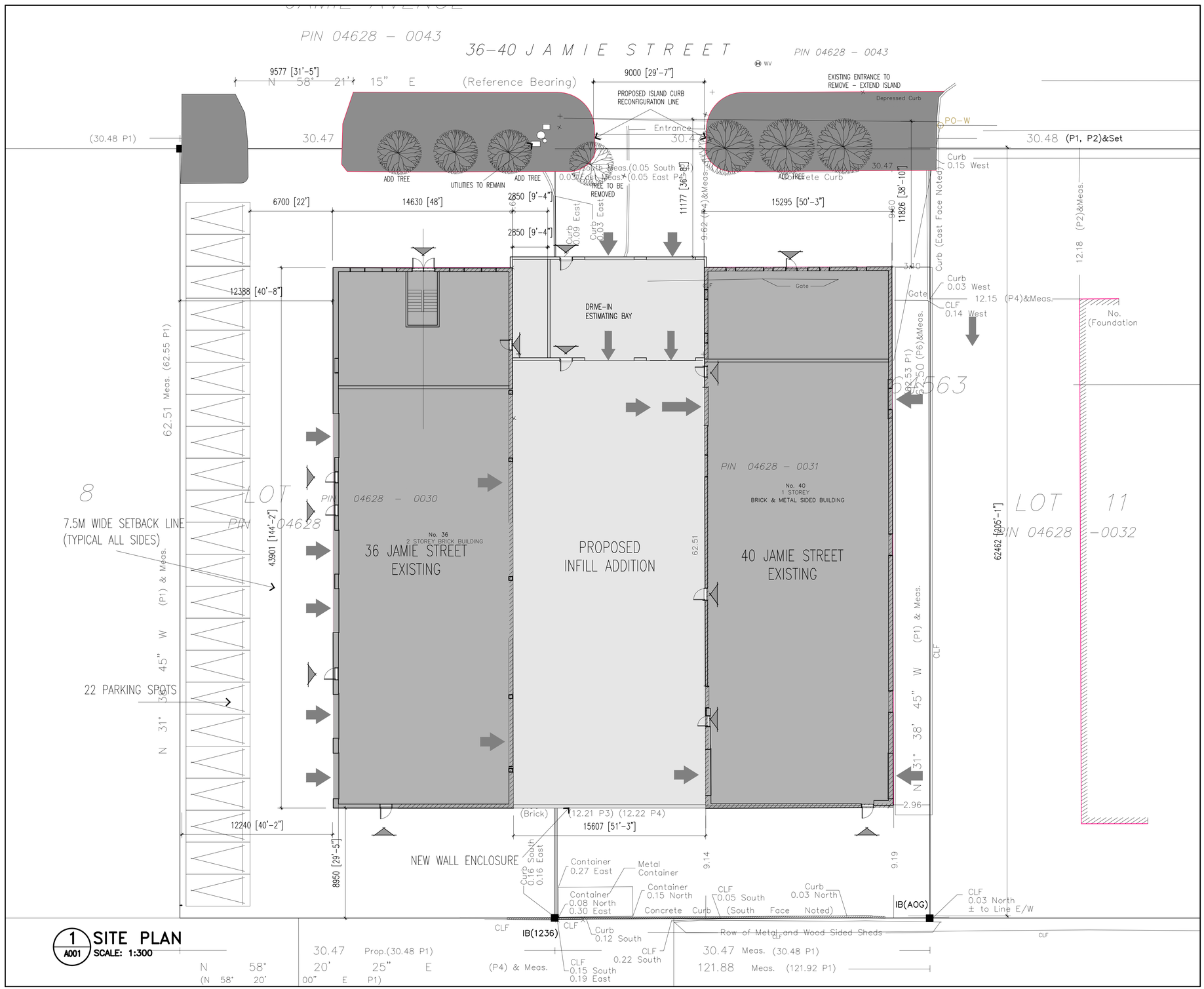
Stantec
400 - 1331 Clyde Avenue
Ottawa ON K2C 3G4

This e-mail originates from the City of Ottawa e-mail system. Any distribution, use or copying of this e-mail or the information it contains by other than the intended recipient(s) is unauthorized. Thank you.

Le présent courriel a été expédié par le système de courriels de la Ville d'Ottawa. Toute distribution, utilisation ou reproduction du courriel ou des renseignements qui s'y trouvent par une personne autre que son destinataire prévu est interdite. Je vous remercie de votre collaboration.

'

Appendix B PROPOSED SITE PLAN



1 A001 **SITE PLAN**
SCALE: 1:300

DRAWING NOTES

NOTES

It is the responsibility of the appropriate contractor to check and verify all dimensions on site and report all errors and or omissions to the Architect.

All contractors must comply with all pertinent codes and by–laws.

Do not scale drawings.

This drawing may not be used for construction until signed by the Architect.

LOCATION MAP

LEGAL DESCRIPTION

no.	date	revision
2		
1	25 AUG. 21	ISSUED FOR SPC REVIEW

Stamp:

brian k. clark
A·R·C·H·I·T·E·C·T
141 Catherine Street, Suite 102
Ottawa, Ontario K2P 1C3
TEL•(613) 238-7412 • FAX-238-1799
Email•bkclarkarchitect@on.aibn.com

Project:

STAR COLLISION
36–40 JAMIE STREET
OTTAWA, ONTARIO

OTTAWA ONTARIO

Drawing:

SITE PLAN

Project No.	Drawn By:	Scale:
2006	DK/DC	1:150

North Arrow:

Date: 25 AUG. 2021

Drawing No.

A001

Appendix C WASTEWATER SERVICING

C.1 PRECONSULTATION WITH CITY OF OTTAWA

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

Legend: **S** indicates that the study or plan is required with application submission.
A indicates that the study or plan may be required to satisfy a condition of approval/draft approval.

For information and guidance on preparing required studies and plans refer here:

S/A	Number of copies	ENGINEERING		S/A	Number of copies
S	5	1. Site Servicing Plan	2. Site Servicing Study	S	3
S	5	3. Grade Control and Drainage Plan	4. Geotechnical Study	S	3
	2	5. Composite Utility Plan	6. Groundwater Impact Study		3
	3	7. Servicing Options Report	8. Wellhead Protection Study		3
	4	9. Transportation Impact Assessment (TIA) *Provide an addendum to the original report	10.Erosion and Sediment Control Plan	S	3
S	3	11.Storm water Management Report / Brief	12.Hydro geological and Terrain Analysis		3
	3	13.Hydraulic Water main Analysis	14.Noise (Stationary)		3
	PDF only	15.Roadway Modification Functional Design	16.Confederation Line Proximity Study		3

S/A	Number of copies	PLANNING / DESIGN / SURVEY		S/A	Number of copies
	15	17.Draft Plan of Subdivision	18.Plan Showing Layout of Parking Garage		2
	5	19.Draft Plan of Condominium	20.Planning Rationale	S	3
S	10	21.Site Plan	22.Minimum Distance Separation (MDS)		3
	15	23.Concept Plan Showing Proposed Land Uses and Landscaping	24.Agrology and Soil Capability Study		3
	3	25.Concept Plan Showing Ultimate Use of Land	26.Cultural Heritage Impact Statement		3
S	3	27.Landscape Plan	28.Archaeological Resource Assessment Requirements: **S** (site plan) **A** (subdivision, condo)		3
S	1	29.Survey Plan	30.Shadow Analysis		3
S	3	31.Architectural Building Elevation Drawings (dimensioned)	32.Design Brief (includes the Design Review Panel Submission Requirements)	S	Available online
	3	33.Wind Analysis			

S/A	Number of copies	ENVIRONMENTAL		S/A	Number of copies
S	3	34.Phase 1 Environmental Site Assessment	35.Impact Assessment of Adjacent Waste Disposal/Former Landfill Site		3
	3	36.Phase 2 Environmental Site Assessment (depends on the outcome of Phase 1)	37.Assessment of Landform Features		3
	3	38.Record of Site Condition	39.Mineral Resource Impact Assessment		3
	3	40.Tree Conservation Report	41.Environmental Impact Statement / Impact Assessment of Endangered Species		3
	3	42.Mine Hazard Study / Abandoned Pit or Quarry Study	43.Integrated Environmental Review (Draft, as part of Planning Rationale)		3

S/A	Number of copies	ADDITIONAL REQUIREMENTS		S/A	Number of copies
	1	44. Applicant's Public Consultation Strategy (may be provided as part of the Planning Rationale)	45. Site Lighting Plan & Certificate	S	1

Meeting Date: November 5, 2020

Application Type: *Site Plan Control*

File Lead (Assigned Planner): Laurel McCreight

Infrastructure Approvals PM: Rubina Rasool

Site Address (Municipal Address): 36 &40 Jamie

*Preliminary Assessment: 1☐ 2☐ 3☐ 4☐ 5

*One (1) indicates that considerable major revisions are required before a planning application is submitted, while five (5) suggests that proposal appears to meet the City's key land use policies and guidelines. **This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.**

It is important to note that the need for additional studies and plans may result during application review. If following the submission of your application, it is determined that material that is not identified in this checklist is required to achieve complete application status, in accordance with the Planning Act and Official Plan requirements, the* Planning, Infrastructure and Economic Development Department *will notify you of outstanding material required within the required 30 day period. Mandatory pre-application consultation will not shorten the City's standard processing timelines, or guarantee that an application will be approved. It is intended to help educate and inform the applicant about submission requirements as well as municipal processes, policies, and key issues in advance of submitting a formal development application. This list is valid for one year following the meeting date. If the application is not submitted within this timeframe the applicant must again pre-consult with the Planning, Infrastructure and Economic Development Department.

From: McCreight, Laurel
To: Smith, Molly
Subject: Pre-Consultation Follow-up: 36 & 40 Jamie
Date: Thursday, November 12, 2020 1:28:12 PM
Attachments: Plans & Study List.pdf
Jamie, 36-40 Design Brief.pdf

Hi Molly,

Please refer to the below regarding the Pre-Application for 36 & 40 Jamie for a Site Plan Control Application for a building addition to two existing buildings. I have also attached the required Plans & Study List for application submission.

An email was sent providing instructions on how to pay the fee for the pre-application consultation.

Below are staff's preliminary comments based on the information available at the time of the pre-consultation meeting:

Planning / Urban Design

- This proposal is in its early stages so the high-level comments reflect that and the lack of detailed drawings (site plan, landscape plan and elevations).
- It is recommended to continue the existing facade treatment of masonry to connect the two existing buildings together.
- It is recommended that the right of way in-front of the new addition be considered more closely (maintain the existing street tree, indicate the existing hydro pole, consolidate and minimize the curb cuts and access points on the site)
- Consider shifting the new vehicular entrance to align with these consolidated street works.
- It is encouraged to find new opportunities to introduce new and support existing landscaping and soft permeable surfaces.
- A Design Brief is a required submittal for all site plan applications.
    - Please see the Design Brief Terms of Reference provided for details.
- Please merge the properties on title.
- Cash-in-lieu of Parkland will be required.
- You are encouraged to contact the Ward Councillor, Councillor Keith Egli, about the proposal.

Engineering

Water

- Water District Plan No: 364-021
- Existing public services: Jamie Ave – 305 mm DI

Boundary Conditions:

- Civil consultant must request boundary conditions from the City's assigned Project Manager prior to first submission.
    - Water boundary condition requests must include the location of the service(s) and the expected loads required by the proposed developments. Please provide all the

following information:

- Location of service(s)
- Type of development and the amount of fire flow required (as per FUS, 1999).
- Average daily demand: ___ l/s.
- Maximum daily demand: ___l/s.
- Maximum hourly daily demand: ___ l/s.

- Fire protection (Fire demand, Hydrant Locations)

- The proposed addition must be serviced through the existing building. The design must demonstrate the existing services can accommodate the additional demand or upsizing the existing services.

Sanitary Sewer

- Existing public services: Jamie Ave – 250 mm PVC
- The proposed addition must be serviced through the existing building. The design must demonstrate the existing services can accommodate the additional demand or upsizing the existing services.

Storm

- Existing public services: Jamie Ave – 900 mm Concrete
- Quality Control: Rideau Valley Conservation Authority to confirm quality control requirements.
- Quantity Control: Quantity control will be required for the area of the proposed addition.
- Allowable Runoff coefficient (C): 0.5
- Allowable flowrate: Control the 100-year storm events to the 5-year storm event
- Ministry of Environment, Conservation and Parks (MECEP)
  - All development applications should be considered for an Environmental Compliance Approval, under MECP regulations.
    - A direct submission ECA will be required for the proposed work as per O. Reg. 525/98 Section 53.3(a), (c), and (d): stormwater management that is services more than one parcel of land, services industrial lands, located on industrial lands.
    - Pre-consultation with local District office of MECP is recommended for direct submission.
    - Consultant completes an MECP request form for a pre-consultation. Sends request to moeccottawasewage@ontario.ca
    - ECA applications are required to be submitted online through the MECP portal. A business account required to submit ECA application. For more information visit https://www.ontario.ca/page/environmental-compliance-approval
    - NOTE: Site Plan Approval is required before any Ministry of the Environment and Climate Change (MOECC) application is sent.

References and Resources

- As per section 53 of the Professional Engineers Act, O. Reg 941/40, R.S.O. 1990, all documents prepared by engineers must be signed and dated on the seal.
- All required plans are to be submitted on standard A1 size sheets (594mm x 841mm) sheets, utilizing a reasonable and appropriate metric scale as per City of Ottawa Servicing and Grading Plan Requirements: title blocks are to be placed on the right of the sheets and not along the bottom. Engineering plans may be combined, but the Site Plans must be provided separately. Plans shall include the survey monument used to confirm datum. Information shall be provided to enable a non-surveyor to locate the survey monument presented by the consultant.
- All required plans & reports are to be provided in *.pdf format (at application submission and for any, and all, re-submissions)
- Please find relevant City of Ottawa Links to Preparing Studies and Plans below:
- https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans#standards-policies-and-guidelines
- To request City of Ottawa plan(s) or report information please contact the City of Ottawa Information Centre:

  InformationCentre@ottawa.ca<mailto:InformationCentre@ottawa.ca>
  (613) 580-2424 ext. 44455
- geoOttawa: http://maps.ottawa.ca/geoOttawa/

Please contact Infrastructure Project Manager Rubina Rasool for follow-up questions.

Transportation

- Please fill out the TIA Screening Form
- Please do not have cars parked in the accesses
- On site plan:
  - Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, accesses and/or sidewalks.
  - Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions).
  - Show all curb radii measurements; ensure that all curb radii are reduced as much as possible
  - Show lane/aisle widths.
  - Provide dedicated pedestrian paths.
  - Grey out any area that will not be impacted by this application.

Please contact Transportation Project Manager, Mike Giampa for follow-up questions.

-

Other

Please refer to the links to "Guide to preparing studies and plans" and fees for general information. Additional information is available related to building permits, development charges, and the Accessibility Design Standards. Be aware that other fees and permits may be required, outside of the

development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

These pre-consultation comments are valid for one year. If you submit a development application(s) after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change. You are as well encouraged to contact us for a follow-up meeting if the plan/concept will be further refined.

Please do not hesitate to contact me if you have any questions.

Regards,
Laurel

Laurel McCreight MCIP, RPP
Planner
Development Review West
Urbaniste
Examen des demandes d'aménagement ouest

City of Ottawa | Ville d'Ottawa
613.580.2424 ext./poste 16587
ottawa.ca/planning / ottawa.ca/urbanisme

C.2 SANITARY SEWER CALCULATION SHEET

SITE:

Star Motors of Ottawa
36 & 40 Jamie Avenue, Ottawa, ON

DATE: 2022-01-27
REVISION: 1
DESIGNED BY: NN
CHECKED BY: RT

SANITARY SEWER DESIGN SHEET
(City of Ottawa)

FILE NUMBER: 160401647

DESIGN PARAMETERS

MAX PEAK FACTOR (RES.)=	4.0	AVG. DAILY FLOW / PERSON	280	l/p/day	MINIMUM VELOCITY	0.60	m/s
MIN PEAK FACTOR (RES.)=	2.0	COMMERCIAL	28,000	l/ha/day	MAXIMUM VELOCITY	3.00	m/s
PEAKING FACTOR (INDUSTRIAL):	2.4	INDUSTRIAL (HEAVY)	55,000	l/ha/day	MANNINGS n	0.013	
PEAKING FACTOR (ICI >20%):	1.5	INDUSTRIAL (LIGHT)	35,000	l/ha/day	BEDDING CLASS	B	
PERSONS / AVG. APARTMENT	1.8	INSTITUTIONAL	28,000	l/ha/day	MINIMUM COVER	2.50	m
PERSONS / 1 BEDROOM	1.4	INFILTRATION	0.33	l/s/Ha	HARMON CORRECTION FACTOR	0.8	
PERSONS / 2 BEDROOM	2.1						

LOCATION			RESIDENTIAL AREA AND POPULATION									COMMERCIAL		INDUSTRIAL (L)		INDUSTRIAL (H)		INSTITUTIONAL		GREEN / UNUSED		C+I+I	INFILTRATION			TOTAL	PIPE								
AREA ID NUMBER	FROM M.H.	TO M.H.	AREA	APARTMENT	1 BEDROOM	2 BEDROOM	POP.	CUMULATIVE AREA	CUMULATIVE POP.	PEAK FACT.	PEAK FLOW	AREA	ACCU. AREA	AREA	ACCU. AREA	AREA	ACCU. AREA	AREA	ACCU. AREA	AREA	ACCU. AREA	PEAK FLOW	TOTAL AREA	ACCU. AREA	INFILT. FLOW	FLOW	LENGTH	DIA	MATERIAL	CLASS	SLOPE	CAP. (FULL)	CAP. V PEAK FLOW	VEL. (FULL)	VEL. (ACT.)
			(ha)					(ha)			(l/s)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(l/s)	(ha)	(ha)	(l/s)	(l/s)	(m)	(mm)			(%)	(l/s)	(%)	(m/s)	(m/s)
BLDG	BLDG	SAN STUB	0.00	0	0	0	0	0.00	0	4.00	0.00	0.00	0.00	0.20	0.20	0.00	0.00	0.00	0.00	0.18	0.18	0.19	0.380	0.38	0.13	0.32	6.9	150	PVC	SDR 35	1.00	15.3	**2.09%**	0.86	0.30
SITE TOTAL																																		

Notes:
1. Building area taken from site plan provided by Brian K. Clark dated January 2022.
2. Building to be serviced by a single sanitary sewer outlet

Appendix D STORMWATER SERVICING AND MANAGEMENT

D.1 MODIFIED RATIONAL METHOD CALCULATIONS

Project #160401647, 36 & 40 Jamie Avenue
Roof Drain Design Sheet, Area ROOF
Standard Watts Model R1100 Accutrol Roof Drain

Rating Curve				Volume Estimation				
Elevation (m)	Discharge Rate (cu.m/s)	Outlet Discharge (cu.m/s)	Storage (cu. m)	Elevation (m)	Area (sq. m)	Volume (cu. m) Increment	Volume (cu. m) Accumulated	Water Depth (m)
0.000	0.0000	0.0000	0	0.000	0	0	0	0.000
0.025	0.0003	0.0006	0	0.025	16	0	0	0.025
0.050	0.0006	0.0013	1	0.050	62	1	1	0.050
0.075	0.0009	0.0017	4	0.075	140	2	4	0.075
0.100	0.0011	0.0022	8	0.100	249	5	8	0.100
0.125	0.0013	0.0027	16	0.125	389	8	16	0.125
0.150	0.0016	0.0032	28	0.150	560	12	28	0.150

Drawdown Estimate			
Total Volume (cu.m)	Total Time (sec)	Vol (cu.m)	Detention Time (hr)
0.0	0.0	0.0	0
0.9	719.1	0.9	0.19976
3.4	1419.6	2.5	0.59409
8.2	2172.1	4.8	1.19745
16.1	2949.1	7.9	2.01663
27.9	3739.5	11.8	3.05538

Rooftop Storage Summary

Total Building Area (sq.m)		700
Assume Available Roof Area (sq.	80%	560
Roof Imperviousness		0.99
Roof Drain Requirement (sq.m/Notch)		900
Number of Roof Notches*		2
Max. Allowable Depth of Roof Ponding (m)		0.15
Max. Allowable Storage (cu.m)		28
Estimated 100 Year Drawdown Time (h)		3.1

* As per Ontario Building Code section OBC 7.4.10.4.(2)(c).

From Watts Drain Catalogue

Head (m)	L/s Open	75%	50%	**25%**	Closed
0.025	0.3155	0.3155	0.3155	**0.3155**	0.3155
0.050	0.6309	0.6309	0.6309	**0.6309**	0.3155
0.075	0.9464	0.8675	0.7886	**0.7098**	0.3155
0.100	1.2618	1.1041	0.9464	**0.7886**	0.3155
0.125	1.5773	1.3407	1.1041	**0.8675**	0.3155
0.150	1.8927	1.5773	1.2618	**0.9464**	0.3155

* Note: Number of drains can be reduced if multiple-notch drain used.

Calculation Results	5yr	100yr	Available
Qresult (cu.m/s)	0.002	0.003	-
Depth (m)	0.114	0.150	0.150
Volume (cu.m)	12.6	27.9	28.0
Draintime (hrs)	1.7	3.1	

Stormwater Management Calculations

File No: **160401647**
Project: **36 & 40 Jamie Avenue**
Date: **22-Feb-21**

SWM Approach:
Post-development to Pre-development flows with C = 0.5

Post-Development Site Conditions:

Overall Runoff Coefficient for Site and Sub-Catchment Areas

Runoff Coefficient Table

Catchment Type	Sub-catchment Area ID / Description		Area (ha) "A"		Runoff Coefficient "C"	"A x C"		Overall Runoff Coefficient
Roof	ROOF	Hard	0.070		0.9	0.063		
		Soft	0.000		0.2	0.000		
	Subtotal			0.07			0.063	0.900
Total				**0.070**			**0.063**	
Overall Runoff Coefficient= C:								**0.90**

Total Roof Areas	**0.070 ha**
Total Tributary Surface Areas (Controlled and Uncontrolled)	**0.000 ha**
Total Tributary Area to Outlet	**0.070 ha**
Total Uncontrolled Areas (Non-Tributary)	**0.000 ha**
Total Site	**0.070 ha**

Stormwater Management Calculations

Project #160401647, 36 & 40 Jamie Avenue
Modified Rational Method Calculatons for Storage

5 yr Intensity $I = a/(t + b)^c$
City of Ottawa

a =	998.071
b =	6.053
c =	0.814

t (min)	I (mm/hr)
10	104.19
20	70.25
30	53.93
40	44.18
50	37.65
60	32.94
70	29.37
80	26.56
90	24.29
100	22.41
110	20.82
120	19.47

5 YEAR Predevelopment Target Release from Portion of Site

Subdrainage Area: Predevelopment Tributary Area to Outlet
Area (ha): 0.0700
C: 0.50

Target release rate

tc (min)	I (5 yr) (mm/hr)	Qtarget (L/s)
10	104.19	**10.14**

Subdrainage Area: ROOF
Area (ha): 0.07
C: 0.90
Maximum Storage Depth: 150 mm
Roof

tc (min)	I (5 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)	Depth (mm)	
10	104.19	18.25	2.28	15.96	9.58	104.1	0.00
20	70.25	12.30	2.42	9.88	11.86	111.3	0.00
30	53.93	9.44	2.46	6.98	12.57	113.5	0.00
40	44.18	7.74	2.47	5.27	**12.65**	113.8	0.00
50	37.65	6.59	2.45	4.14	12.42	113.0	0.00
60	32.94	5.77	2.43	3.34	12.02	111.8	0.00
70	29.37	5.14	2.40	2.74	11.52	110.2	0.00
80	26.56	4.65	2.37	2.28	10.96	108.4	0.00
90	24.29	4.25	2.33	1.92	10.38	106.6	0.00
100	22.41	3.92	2.30	1.63	9.77	104.7	0.00
110	20.82	3.65	2.26	1.39	9.16	102.7	0.00
120	19.47	3.41	2.22	1.19	8.54	100.8	0.00

Storage: **Roof Storage**

	Depth (mm)	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Discharge Check
5-year Water Level	113.76	0.11	2.47	12.65	28.00	0.00

SUMMARY TO OUTLET

		Vrequired	Vavailable*	
Tributary Area	0.070 ha			
Total 5yr Flow to Sewer	2.47 L/s	13	28 m^3	Ok
Non-Tributary Area	0.000 ha			
Total 5yr Flow Uncontrolled	0 L/s			
Total Area	0.070 ha			
Total 5yr Flow	2 L/s			
Target	10.14 L/s			

Project #160401647, 36 & 40 Jamie Avenue
Modified Rational Method Calculatons for Storage

100 yr Intensity $I = a/(t + b)^c$
City of Ottawa

a =	1735.688
b =	6.014
c =	0.820

t (min)	I (mm/hr)
10	178.56
20	119.95
30	91.87
40	75.15
50	63.95
60	55.89
70	49.79
80	44.99
90	41.11
100	37.90
110	35.20
120	32.89

100 YEAR Predevelopment Target Release from Portion of Site

Subdrainage Area: Predevelopment Tributary Area to Outlet
Area (ha): 0.0700
C: 0.50

Estimated Time of Concentration after Development

Target release rate **10.14 L/s**

Based on City of Ottawa requirements

Subdrainage Area: ROOF
Area (ha): 0.07
C: 1.00
Maximum Storage Depth: 150 mm
Roof

tc (min)	I (100 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)	Depth (mm)	
10	178.56	34.75	2.80	31.95	19.17	131.3	0.00
20	119.95	23.34	3.01	20.33	24.40	142.4	0.00
30	91.87	17.88	3.10	14.78	26.60	147.0	0.00
40	75.15	14.62	3.14	11.49	27.57	149.1	0.00
50	63.95	12.45	3.15	9.30	**27.89**	149.8	0.00
60	55.89	10.88	3.15	7.73	27.83	149.6	0.00
70	49.79	9.69	3.14	6.55	27.53	149.0	0.00
80	44.99	8.76	3.12	5.64	27.06	148.0	0.00
90	41.11	8.00	3.09	4.91	26.49	146.8	0.00
100	37.90	7.38	3.07	4.31	25.85	145.4	0.00
110	35.20	6.85	3.04	3.81	25.15	144.0	0.00
120	32.89	6.40	3.01	3.39	24.41	142.4	0.00

Storage: Roof Storage

	Depth (mm)	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Discharge Check
100-year Water Level	149.76	0.15	3.15	27.89	28.00	0.00

SUMMARY TO OUTLET

		Vrequired	Vavailable*	
Tributary Area	0.070 ha			
Total 100yr Flow to Sewer	3.15 L/s	28	28 m^3	Ok
Non-Tributary Area	0.000 ha			
Total 100yr Flow Uncontrolled	0 L/s			
Total Area	0.070 ha			
Total 100yr Flow	3 L/s			
Target	10.14 L/s			

D.2 CORRESPONDENCE WITH CITY ON STORMWATER CRITERIA

From: McCreight, Laurel
To: Smith, Molly
Subject: FW: Pre-Application Consultation Request - 36 and 40 Jamie Avenue
Date: Monday, November 16, 2020 11:52:03 AM

Hi Molly,

Please see the below from infrastructure.

Thanks,
Laurel

From: Rasool, Rubina <Rubina.Rasool@ottawa.ca>
Sent: November 16, 2020 11:49 AM
To: McCreight, Laurel <Laurel.McCreight@ottawa.ca>
Subject: RE: Pre-Application Consultation Request - 36 and 40 Jamie Avenue

Good day Laurel,

Asset Management followed-up this morning with regards to the site. We would not require stormwater management if the impervious area being built on does not already provide stormwater management. The servicing brief can discuss the impervious ratio is not being increased and therefore stormwater management would not be required.

Thanks,

Rubina

Rubina Rasool, E.I.T.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - West Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue Laurier Ouest. Ottawa (Ontario) K1P 1J1
rubina.rasool@ottawa.ca

D.3 CORRESPONDENCE WITH RVCA ON STORMWATER QUALITY CONTROL

From:	Eric Lalande
To:	Nwanise, Nwanise
Cc:	Kilborn, Kris; Rathnasooriya, Thakshika; Sharp, Mike
Subject:	RE: 160401647 -36 & 40 Jamie Avenue - RVCA Stormwater Quality Control Criteria
Date:	Tuesday, January 26, 2021 3:19:09 PM

Hello Nwanise,

The RVCA required enhanced level protection (80% TSS removal) prior to the downstream outlet. It would appear that there is a municipal stormwater management pond downstream providing quality protections for the site. As such, no quality protection is required on-site.

Thank you,

Eric Lalande, MCIP, RPP
Planner, RVCA
613-692-3571 x1137

From: Nwanise, Nwanise <Nwanise.Nwanise@stantec.com>
Sent: Tuesday, January 26, 2021 9:51 AM
To: Eric Lalande <eric.lalande@rvca.ca>
Cc: Kilborn, Kris <kris.kilborn@stantec.com>; Rathnasooriya, Thakshika <Thakshika.Rathnasooriya@stantec.com>; Sharp, Mike <Mike.Sharp@stantec.com>
Subject: 160401647 -36 & 40 Jamie Avenue - RVCA Stormwater Quality Control Criteria

Good morning Eric,

Stantec is preparing a civil engineering design submission in support of a site plan control application for a building addition to two existing buildings on 36 & 40 Jamie Avenue in the City of Ottawa (indicated as Lot 9 & 10 in attached site plans).

In our pre-application consultation, the City has directed us to consult with you before the submission of our engineering package to confirm the stormwater quality control requirement (s) for the site. May you please provide us with this information?

Below is a list of some key site information:

i. The development is an addition to the two existing buildings on 36 & 40 Jamie avenue connecting both buildings to become one, we anticipate that the proposed addition would be serviced through the existing building's facilities.
ii. There is an existing 900mm concrete storm sewer fronting the site on Jamie avenue.
iii. The proposed building is an automobile body shop of Group F and Division 2 occupancy (i.e. medium hazard industrial)
iv. 20 surface parking spots are proposed on the west corner of Lot 9.
v. Stormwater quantity control for the site is anticipated to be provided via rooftop storage and an underground stormwater storage tank/ cistern (yet to be determined) both controlled by ICDs to achieve a minimum water quality & target release rate.
vi. The City of Ottawa has indicated that the allowable stormwater release rate is to be calculated

using:

- Allowable Runoff coefficient (C): 0.5.
- Allowable flowrate: Control the 100-year storm events to the 5-year storm event.

Thank you in advance for your help.

Please let me know if you require any additional information from our end.

Regards,

Nwanise Nwanise, EIT
Engineering intern, Community Development

Direct: (647) 400-1759
Mobile: (647) 400-1759
nwanise.nwanise@stantec.com

Stantec
400 - 1331 Clyde Avenue
Ottawa ON K2C 3G4

D.4 LOCATE REQUEST FROM ONTARIO ONE CALL

Nwanise, Nwanise

From: solutions@on1call.com
Sent: Friday, January 28, 2022 2:41 PM
To: Nwanise, Nwanise
Subject: Request 2022059482
Attachments: MapSelection_28012022_14382350.jpg

LOCATE REQUEST CONFIRMATION

REQUEST #:	REQUEST PRIORITY:	REQUEST TYPE:	WORK TO BEGIN DATE:
2022059482	**PLANNING**	**REGULAR**	**02/04/2022**
Update of Request #	**Project #:**	**Call Date: 01/28/2022 02:32:27 PM**	**Transmit Date: 01/28/2022 02:40:22 PM**

REQUESTOR'S CONTACT INFORMATION	
Contractor ID: 381141 **Contact Name:** NWANISE ETIENAM NWANISE **Company Name:** STANTEC CONSULTING LTD. **Address:** - 1331 CLYDE AVE, OTTAWA, ON, K2C 3G4 **Email:** nwanise.nwanise@stantec.com **Primary Phone #:** (647) 400-1759 **Cell Phone #:**	**Contact Name:** **Contact #:**

DIG INFORMATION		
Region/County: OTTAWA **Community:** **City:** OTTAWA **Address:** 36, JAMIE AVE **Intersecting Street 1:** SUNDERLAND ST **Intersecting Street 2:** MERIVALE RD	**Reason for Work:** DESIGN AND PLANNING	**Work End Date:**

ADDITIONAL INFORMATION	QUALIFYING INFORMATION
A BUILDING ADDITION IS BEING PROPOSED IN BETWEEN 36 AND 40 JAMIE AVENUE	

MEMBERS NOTIFIED: The following owners of underground infrastructure in the area of your excavation site have been notified.		
Member Name	**Station Code**	**Initial Status**
BELL CANADA - PLANNING (BCPRE)	BCPRE	Notification sent

MAP SELECTION: Map Selection provided by the excavator through Ontario One Call's map tool or through agent interpretation by

Name: 36 and 40 Jamie Ave
Start Date: 2022/02/04

Area: 4716.00sq. m

D.5 STORM DESIGN SHEET

Appendix E EXTERNAL REPORTS

E.1 GEOTECHNICAL INVESTIGATION BY PATERSON (FEBUARY 2022)

Stantec

JOB NAME	
DATE:	2022-02-03
REVISION:	1
DESIGNED BY:	NN
CHECKED BY:	PM

STORM SEWER DESIGN SHEET
(City of Ottawa)

FILE NUMBER: **160401647**

DESIGN PARAMETERS

$I = a / (t+b)^c$ (As per City of Ottawa Guidelines, 2012)

	1:2 yr	1:5 yr	1:10 yr	1:100 yr
a =	732.951	998.071	1174.184	1735.688
b =	6.199	6.053	6.014	6.014
c =	0.810	0.814	0.816	0.820

MANNING'S n = 0.013 BEDDING CLASS = B
MINIMUM COVER: 2.00 m
TIME OF ENTRY 10 min

LOCATION			DRAINAGE AREA																						PIPE SELECTION											
AREA ID NUMBER	FROM M.H.	TO M.H.	AREA (2-YEAR) (ha)	AREA (5-YEAR) (ha)	AREA (10-YEAR) (ha)	AREA (100-YEAR) (ha)	AREA (ROOF) (ha)	C (2-YEAR) (-)	C (5-YEAR) (-)	C (10-YEAR) (-)	C (100-YEAR) (-)	A x C (2-YEAR) (ha)	ACCUM AxC (2YR) (ha)	A x C (5-YEAR) (ha)	ACCUM. AxC (5YR) (ha)	A x C (10-YEAR) (ha)	ACCUM. AxC (10YR) (ha)	A x C (100-YEAR) (ha)	ACCUM. AxC (100YR) (ha)	T of C (min)	$I_{2\text{-YEAR}}$ (mm/h)	$I_{5\text{-YEAR}}$ (mm/h)	$I_{10\text{-YEAR}}$ (mm/h)	$I_{100\text{-YEAR}}$ (mm/h)	$Q_{CONTROL}$ (L/s)	ACCUM. $Q_{CONTROL}$ (L/s)	Q_{ACT} (CIA/360) (L/s)	LENGTH (m)	PIPE WIDTH OR DIAMETEI (mm)	PIPE HEIGHT (mm)	PIPE SHAPE (-)	MATERIAL (-)	CLASS (-)	SLOPE %	Q_{CAP} (FULL) (L/s)	% FULL (-)	VEL. (FULL) (m/s)	VEL. (ACT) (m/s)	TIME OF FLOW (min)
TOTAL SITE	BLDG	STM 1	0.00	0.00	0.00	0.00	0.70	0.00	0.90	0.00	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.00	76.81	104.19	122.14	178.56	3.2	3.2	3.2	5.9	200	200	CIRCULAR	PVC	-	1.00	33.3	**9.46%**	1.05	0.55	0.18
	STM 1	EX STM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.00	76.81	104.19	122.14	178.56	0.0	3.2	3.2	19.9	250	250	CIRCULAR	PVC	-	1.00	60.4	**5.22%**	1.22	0.54	0.62
																				10.18									250	250									

Appendix F DRAWINGS

GENERAL NOTES AND SPECIFICATIONS

1. ALL MATERIALS AND CONSTRUCTION METHODS TO BE IN ACCORDANCE WITH OPS AND CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS AND OPSD SUPPLEMENT, ONTARIO PROVINCIAL STANDARDS WILL APPLY WHERE NO CITY STANDARDS ARE AVAILABLE.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND BEAR COST OF SAME INCLUDING WATER PERMIT AND ASSOCIATED COSTS.
3. SERVICE AND UTILITY LOCATIONS ARE APPROXIMATE, CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING SERVICES AND UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING LOCATES FROM ALL UTILITY COMPANIES TO LOCATE EXISTING UTILITIES PRIOR TO EXCAVATION. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTION AND REINSTATEMENT.
4. ALL DISTURBED AREAS SHALL BE REINSTATED TO EQUAL OR BETTER CONDITION TO THE SATISFACTION OF THE ENGINEER & THE CITY. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH OPSD 509,010 ,OPSS 310, AND CITY OF OTTAWA R10.
5. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATION FOR CONSTRUCTION PROJECTS". THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.
6. WHERE EC PLANS ARE NOT FOLLOWED, OR ARE FOUND TO PROVIDE INSUFFICIENT PROTECTION, THE CONTRACTOR SHALL SUBMIT AN EROSION AND SEDIMENTATION CONTROL PLAN THAT WILL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE PROTECTION FOR RECEIVING STORM SEWERS OR DRAINAGE DURING CONSTRUCTION ACTIVITIES, THIS PLAN SHALL INCLUDE BUT NOT BE LIMITED TO CATCH BASINS INSERTS, STRAW BALE CHECK DAMS AND SEDIMENT CONTROLS AROUND ALL DISTURBED AREAS, DEWATERING SHALL BE PUMPED INTO SEDIMENT TRAPS.
7. SITE PLAN PREPARED BY: BRIAN K CLARK ARCHITECT. PROJECT No. 2006, DRAWING No. A001, DATED AUGUST 25, 2021, REVISION 1.
8. TOPOGRAPHIC SURVEY SUPPLIED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. TOPOGRAPHIC PLAN OF LOT 9 AND 10. REGISTERED PLAN 564563, CITY OF OTTAWA.
9. REFER TO LANDSCAPE ARCHITECTURE PLAN FOR ALL LANDSCAPING FEATURES (ie. TREES, WALKWAYS, PARK DETAILS, NOISE BARRIERS, FENCES etc.)
10. GEOTECHNICAL INVESTIGATION PREPARED BY PATERSON GROUP. GEOTECHNICAL INVESTIGATION PROPOSED BUILDING ADDITION, 36 AND 40 JAMIE AVENUE, OTTAWA, ON. DATED FEB 16, 2021. REPORT No. PG5634-1. GEOTECHNICAL INFORMATION PRESENTED ON THESE DRAWINGS MAY BE INTERPOLATED FROM THE ORIGINAL REPORT. REFER TO ORIGINAL GEOTECHNICAL REPORT FOR ADDITIONAL DETAILS AND TO VERIFY ASSUMPTIONS MADE HEREIN.
11. STREET LIGHTING TO CITY OF OTTAWA STANDARDS.
12. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED. DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES TO BE REPORTED IMMEDIATELY TO ENGINEER.
13. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS PRIOR WRITTEN APPROVAL BY THE CONTRACT ADMINISTRATOR AND PROJECT ENGINEER HAS BEEN OBTAINED.
14. HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE TO BE NOTIFIED IF DEEPLY BURRIED ARCHEOLOGICAL REMAINS ARE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES.

ROADWORKS

1. ALL TOPSOIL AND ORGANIC MATERIAL TO BE STRIPPED FROM WITHIN THE FULL RIGHT OF WAY PRIOR TO CONSTRUCTION.
2. SUB-EXCAVATE SOFT AREAS & FILL WITH GRANULAR 'B' COMPACTED IN 0,30m LAYERS.
3. ALL GRANULAR FOR ROADS SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
4. ROAD SUBDRAINS SHALL BE CONSTRUCTED AS PER CITY OF OTTAWA STANDARD R1.
5. ASPHALT WEAR COURSE SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS & NECESSARY REPAIRS HAVE BEEN CARRIED OUT TO THE SATISFACTION OF THE CONSULTANT.
6. CONTRACTOR TO OBTAIN A ROAD OCCUPANCY PERMIT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL ROAD ALLOWANCE IF REQUIRED BY THE MUNICIPALITY. ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR TO BACKFILLING.
7. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD R10, AND OPSD 509,010, AND OPSS 310.
8. CONCRETE CURBS SHALL BE CONSTRUCTED AS PER CITY STANDARD SC1,1 AND SC1,3 (BARRIER OR MOUNTABLE CURB AS SHOWN ON DRAWINGS).
9. CONCRETE SIDEWALKS SHALL BE CONSTRUCTED AS PER CITY STANDARDS SC3 AND SC1,4.

PAVEMENT CONSTRUCTION AS PER GEOTECHNICAL INVESTIGATION BY BY PATERSON GROUP. GEOTECHNICAL INVESTIGATION PROPOSED BUILDING ADDITION, 36 AND 40 JAMIE AVENUE, OTTAWA, ON.

HEAVY DUTY ASPHALT
40mm HL3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
50mm HL8 OR SUPERPAVE 19.0 ASPHALTIC CONCRETE
150 OPSS GRANULAR 'A' BASE
400 OPSS GRANULAR 'B' TYPE II

LIGHT DUTY ASPHALT
50mm HL 3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
150mm OPSS GRANULAR 'A' BASE
300mm OPSS GRANULAR 'B' TYPE II

WATER SUPPLY SERVICING

1. THE CONTRACTOR SHALL CONSTRUCT WATERMAIN, WATER SERVICES, CONNECTIONS & APPURTENANCES AS PER CITY OF OTTAWA SPECIFICATIONS & SHALL CO-ORDINATE AND PAY ALL RELATED COSTS INCLUDING THE COST OF CONNECTION, INSPECTION & DISINFECTION BY CITY PERSONNEL.
2. WATERMAIN PIPE MATERIAL SHALL BE PVC CL.150 DR18. DEFLECTION OF WATERMAIN PIPE IS NOT TO EXCEED 1/2 OF THAT SPECIFIED BY THE MANUFACTURER. PVC WATERMAINS TO BE INSTALLED WITH TRACER WIRE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD W36.
3. WATER SERVICES ARE TO BE PEX TUBING AS PER CITY OF OTTAWA STANDARD W26 (UNLESS OTHERWISE NOTED). WATER SERVICE TO EXTEND 2,0M BEYOND PROPERTY LINE. STAND POST TO BE INSTALLED AT PROPERTY LINE. ROLL OF PEX MIN 8M LONG TO BE LEFT. NOTE : 20mm INSIDE DIAMETER REQUIRED
4. FIRE HYDRANTS TO BE INSTALLED AS PER CITY OF OTTAWA STANDARDS W18 AND W19.
5. WATER VALVES TO BE INSTALLED AS PER CITY OF OTTAWA STANDARD W24.
6. WATERMAIN TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. W17 UNLESS OTHERWISE SPECIFIED, BEDDING AND COVER MATERIAL TO BE SPECIFIED BY PROJECT GEOTECHNICAL CONSULTANT.
7. SERVICE CONNECTIONS SHALL BE INSTALLED A MINIMUM OF 2400mm FROM ANY CATCHBASIN, MANHOLE, OR OBJECT THAT MAY CONTRIBUTE TO FREEZING. THERMAL INSULATION SHALL BE INSTALLED ON ALL PROPOSED CB'S ON THE W/M STREET SIDE WHERE 2400mm SEPARATION CANNOT BE ACHIEVED,(AS PER CITY OF OTTAWA W22 & W23)
8. CATHODIC PROTECTION TO BE SUPPLIED ON METALLIC FITTINGS AS PER CITY OF OTTAWA W40 AND W42.
9. THRUST BLOCKS TO BE INSTALLED AS PER CITY OF OTTAWA STANDARDS W25,3 AND W25.4.
10. WATERMAIN TO HAVE MIN. 2,4m COVER. WHERE WATERMAIN COVER IS LESS THAN 2,4m, INSULATION TO BE SUPPLIED IN ACCORDANCE WITH CITY STANDARD W22.
11. WATERMAIN CROSSINGS ABOVE AND BELOW SEWERS TO BE INSTALLED AS PER CITY OF OTTAWA STANDARD W25 AND W25,2.
12. PRESSURE REDUCING VALVES (PRV'S) ON ALL UNITS TO BE INSTALLED AS PER ONTARIO PLUMBING CODE.

STORM AND SANITARY SEWERS

1. STORM AND SANITARY SEWERS 375mm DIA, OR SMALLER SHALL BE PVC SDR35, SANITARY SEWERS LARGER THAN 375mm SHALL BE CONCRETE CSA A 257,2 CLASS 100D AS PER OPSD 807.010.
2. ALL STORM AND SANITARY SEWER BEDDING SHALL BE INSTALLED AS PER CITY OF OTTAWA STANDARDS S6 AND S7, CLASS "B" BEDDING, UNLESS OTHERWISE NOTED, SUITABLE BEDDING AND COVER MATERIAL TO BE SPECIFIED BY GEOTECHNICAL CONSULTANT.
3. STORM AND SANITARY MANHOLES SHALL BE 1200mm DIAMETER IN ACCORDANCE WITH OPSD-701.01 (UNLESS OTHERWISE NOTED) c/w FRAME AND COVER AS PER CITY OF OTTAWA S24, S24.1, AND S25 WHERE APPLICABLE, CATCH BASIN MANHOLE FRAME AND COVERS PER S19, S28, AND S28.1 WHERE APPLICABLE. ALL STORM MANHOLES WITH SEWERS 900mm DIA SEWERS AND OVER IN SIZE SHALL BE BENCHED. ALL OTHER STORM MANHOLES SHALL BE COMPLETED WITH 300mm SUMPS AS PER CITY STANDARDS. SANITARY MANHOLES SHALL NOT HAVE SUMPS.
4. ALL SEWERS CONSTRUCTED WITH GRADES 0.50% OR LESS TO BE INSTALLED WITH LASER AND CHECKED WITH LEVEL INSTRUMENT PRIOR TO BACKFILLING.
5. FOR STORM SEWER INSTALLATION (EXCLUDING CB LEADS) THE MINIMUM DEPTH OF COVER OVER THE CROWN OF THE SEWER IS 2.0m, FOR SANITARY SEWERS THE MINIMUM DEPTH OF COVER IS 2.5m OVER PIPE OBVERT.
6. ALL STORM AND SANITARY SERVICES TO BE EQUIPPED WITH APPROVED BACKWATER VALVES AS PER CITY STANDARD (S14, S14.1, AND S14.2).
7. STORM AND SANITARY SERVICE LATERALS TO BE SDR 28 INSTALLED AT MIN. 1.0% SLOPE. SINGLE STORM SERVICES TO BE 100mmØ, SINGLE SANITARY SERVICES TO BE 135mmØ. (SERVICES TO EXTEND 2.0m BEYOND PROPERTY LINE)
8. CATCH BASINS SHALL BE INSTALLED IN ACCORDANCE WITH CITY STANDARDS S1, S2, S3 c/w FRAME AND GRATE AS PER S19, CURB INLET FRAME AND GRATE PER S22 AND S23. PROVIDE 150mm ADJUSTED SPACERS. ALL CATCH BASINS SHALL HAVE SUMPS (600mm DEEP). STREET CATCH BASIN LEADS SHALL BE 200mm DIA.(MIN) PVC SDR 35 AT 1.0% GRADE WHERE NOT OTHERWISE SHOWN ON PLAN. CATCH BASINS WILL BE INSTALLED WITH INLET CONTROL DEVICES (ICD) AS PER ICD SCHEDULE ON STORM DRAINAGE PLAN.
9. STREET CATCH BASINS TO BE INSTALLED c/w SUBDRAINS 3m LONG IN FOUR ORTHOGONAL DIRECTIONS OR LONGITUDINALLY WHEN PLACED ALONG A CURB, AND AT AN ELEVATION OF 300mm BELOW SUBGRADE LEVEL.
10. REAR LOT PERFORATED PIPE TO BE INSTALLED AS PER CITY OF OTTAWA STANDARDS S29. REAR LOT STRUCTURES TO BE INSTALLED AS PER CITY OF OTTAWA STANDARD W30 AND W31.
11. CLAY SEALS TO BE INSTALLED AS PER CITY STANDARD DRAWING S8. THE SEALS SHOULD BE AT LEAST 1.5m LONG (IN THE TRENCH DIRECTION) AND SHOULD EXTEND FROM TRENCH WALL TO TRENCH WALL. GENERALLY, THE SEALS SHOULD EXTEND FROM THE FROST LINE AND FULLY PENETRATE THE BEDDING, SUBBEDDING AND COVER MATERIAL. THE BARRIERS SHOULD CONSIST OF RELATIVELY DRY AND COMPACTABLE BROWN SILTY CLAY PLACED IN MAXIMUM 225mm THICK LOOSE LAYERS COMPACTED TO A MINIMUM OF 95% OF THE MATERIAL'S SPMDD. THE CLAY SEALS SHOULD BE PLACED AT THE SITE BOUNDARIES AND AT STRATEGIC LOCATIONS AT NO MORE THAN 60m INTERVALS IN THE SERVICE TRENCHES. FOR DETAILS REFER TO GEOTECHNICAL INVESTIGATION .
12. GRANULAR "A" SHALL BE PLACED TO A MINIMUM THICKNESS OF 300 mm AROUND ALL STRUCTURES WITHIN PAVEMENT AREA AND COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR DENSITY.
13. CONTRACTOR SHALL PERFORM LEAKAGE TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS IN ACCORDANCE WITH OPSS 410 AND OPSS 407. CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF ALL STORM AND SANITARY SEWERS. A COPY OF THE VIDEO AND INSPECTION REPORT SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW.
14. ANY SEWER ABANDONMENT TO BE CONDUCTED ACCORDING TO CITY OF OTTAWA STANDARD S11.4

GRADING

1. ALL GRANULAR BASE & SUB BASE COURSE MATERIALS SHALL BE COMPACTED TO 98% STANDARD PROCTOR MAX. DRY DENSITY.
2. SUB-EXCAVATE SOFT AREAS & FILL WITH GRANULAR 'B' COMPACTED IN 0,30m LAYERS.
3. ALL DISTURBED GRASSED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER, WITH SOD ON MIN. 100mm TOPSOIL. THE RELOCATION OF TREES AND SHRUBS SHALL BE SUBJECT TO APPROVAL BY THE PROJECT LANDSCAPE ARCHITECT OR ENGINEER.
4. 100 YEAR PONDING DEPTH TO BE 0,35m (MAXIMUM).
5. EMBANKMENTS TO BE SLOPED AT MIN. 3:1, UNLESS OTHERWISE SPECIFIED.
6. ALL SWALES TO BE CONSTRUCTED AS PER CITY STANDARD S29.
7. ALL ROOF DOWNSPOUTS TO DISCHARGE TO THE GROUND ONTO SPLASH PADS AND SHALL NOT BE DIRECTED TO THE STORM SEWER , OR THE BUILDING FOUNDATION DRAIN.
8. TOP OF GRATE (T/G) ELEVATIONS FOR ALL STREET CATCHBASINS SHOWN ON PLANS, REFER TO THE ELEVATION AT EDGE OF PAVEMENT, OR GUTTERLINE WHERE APPLICABLE.
9. ALL RETAINING WALLS GREATER THAN 1.0m IN HEIGHT ARE TO BE DESIGNED, APPROVED, AND STAMPED BY STRUCTURAL ENGINEER.
10. FENCES OR RAILINGS ARE REQUIRED FOR RETAINING WALLS GREATER THAN 0,60m IN HEIGHT.
11. EXCESS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE.
12. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH CONTRACT ADMINISTRATOR AND THE CITY OF OTTAWA PRIOR TO TREE CUTTING.
13. REFER TO DRAWING EC-1 FOR EROSION AND SEDIMENT CONTROL DETAILS.

Best Management Practices

CONTRACTOR TO PROVIDE EROSION AND SEDIMENT CONTROLS (BEST MANAGEMENT PRACTICES) DURING CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

EROSION MUST BE MINIMIZED AND SEDIMENTS MUST BE REMOVED FROM CONSTRUCTION SITE RUN-OFF IN ORDER TO PROTECT DOWNSTREAM AREAS. DURING ALL CONSTRUCTION, EROSION AND SEDIMENTATION SHOULD BE CONTROLLED BY THE FOLLOWING TECHNIQUES:

1. LIMIT THE EXTENT OF EXPOSED SOILS AT ANY GIVEN TIME.
2. REVEGETATE EXPOSED AREAS AND SLOPES AS SOON AS POSSIBLE.
3. MINIMIZE AREA TO BE CLEARED AND GRUBBED.
4. PROTECT EXPOSED SLOPES WITH PLASTIC OR SYNTHETIC MULCHES.
5. INSTALL CATCH BASIN INSERTS OR EQUIVALENT IN ALL PROPOSED CATCH BASINS AND CATCH BASIN MANHOLES AND IN ALL EXISTING CATCH BASINS THAT WILL RECEIVE RUN-OFF FROM THE SITE.
6. A SILT FENCE SHALL BE INSTALLED AROUND THE PERIMETER OF ALL AND ANY STOCKPILES OF MATERIAL TO BE USED OR REMOVED FROM SITE. (LOCATION TO BE DETERMINED)
7. A VISUAL INSPECTION SHALL BE DONE DAILY ON SEDIMENT CONTROL MEASURES AND CLEANED OF ANY ACCUMULATED SILT AS REQUIRED. THE DEPOSITS WILL BE DISPOSED OFF SITE AS PER THE REQUIREMENTS OF THE CONTRACT.
8. SEDIMENT CONTROL BARRIERS MAY ONLY BE REMOVED TEMPORARILY WITH APPROVAL OF CONTRACT ADMINISTRATOR TO ACCOMMODATE CONSTRUCTION OPERATIONS. ALL AFFECTED BARRIERS MUST BE REINSTATED AT NIGHT WHEN CONSTRUCTION IS COMPLETED. NO REMOVAL WILL OCCUR IF THERE IS A SIGNIFICANT RAINFALL EVENT ANTICIPATED (>10mm) UNLESS A NEW DEVICE HAS BEEN INSTALLED TO PROTECT EXISTING STORM AND SANITARY SEWER SYSTEMS, OR DOWNSTREAM WATERCOURSES.
9. NO REFUELING OR CLEANING OF EQUIPMENT IS PERMITTED NEAR ANY EXISTING WATERWAY.
10. CONTRACTOR SHALL REMOVE SEDIMENT CONTROL MEASURES WHEN, IN THE OPINION OF THE CONTRACT ADMINISTRATOR, THE MEASURE(S) IS NO LONGER REQUIRED. NO CONTROL MEASURES SHALL BE PERMANENTLEY REMOVED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE CONTRACT ADMINISTRATOR.
11. THE CONTRACTOR SHALL PERIODICALLY, OR WHEN REQUESTED BY THE CONTRACT ADMINISTRATOR, CLEAN OUT ACCUMULATED SEDIMENTS AS REQUIRED.
12. THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO THE WATERCOURSE. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.
13. CONTRACTOR SHALL INSTALL MUD MATS AT ALL CONSTRUCTION ENTRANCES TO THE SITE.
14. STORMWATER SWALES TO BE COVERED WITH HYDRO-SEED AND MULCH.

LEGEND

EXISTING CONDITIONS

- EXISTING WATERMAIN
- EXISTING VALVE AND VALVE BOX
- EXISTING VALVE CHAMBER
- EXISTING REDUCER
- EXISTING FIRE HYDRANT
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING CATCHBASIN MANHOLE
- EXISTING CATCHBASIN
- EXISTING SUBDRAIN CATCHBASIN
- EXISTING SWALE
- REMOVAL ITEM

SERVICING AND GRADING

- PROPOSED WATERMAIN
- PROPOSED VALVE AND VALVE BOX
- PROPOSED VALVE CHAMBER
- PROPOSED REDUCER
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED CATCHBASIN
- EX/FUT. WATERMAIN
- EXISTING/FUTURE VALVE AND VALVE BOX
- EXISTING/FUTURE VALVE CHAMBER
- EXISTING/FUTURE REDUCER
- EXISTING/FUTURE FIRE HYDRANT
- EXISTING/FUTURE SANITARY SEWER
- EXISTING/FUTURE STORM SEWER
- EXISTING/FUTURE CATCHBASIN MANHOLE
- EXISTING/FUTURE CATCHBASIN
- PROPOSED DEPRESSED CURB LOCATIONS (DC)
- PROPOSED BARRIER CURB
- THERMAL INSULATION ON STORM SEWER WHERE COVER IS LESS THAN 1.5m, THERMAL INSULATION ON WATERMAIN WHERE COVER IS LESS THAN 2.4m AS PER W22.
- WATER METER AND REMOTE WATER METER LOCATION (M / RM)
- EX. WATER METER AND REMOTE WATER METER LOCATION (M / RM)
- ORIGINAL GROUND ELEVATION 99.99
- PROPOSED ELEVATION 99.99
- PROPOSED LOT CORNER ELEVATION 99.99
- EXISTING ELEVATION AT LOT CORNER 99.99
- FLOW DIRECTION AND GRADE 2.0%
- FINISHED FIRST FLOOR ELEVATION FFE=100.00
- UNDERSIDE OF FOOTING ELEVATION USF=97.00
- ENGINEERED FILL REQUIRED (E.F.)
- TERRACING 3:1 SLOPE MAXIMUM (UNLESS OTHERWISE SHOWN) 3:1
- DIRECTION OF EXISTING OVERLAND FLOW
- HEAVY DUTY ASPHALT.

SANITARY DRAINAGE

- C100A / 0.31 COM — SANITARY DRAINAGE AREA ID#; COMMERCIAL FLOW RATE OF 28000L/ha/day APPLIED; SANITARY DRAINAGE AREA ha.
- G100A / 0.11 INFL — SANITARY DRAINAGE AREA ID#; INFILTRATION RATE OF 0.28 L/s/Ha APPLIED; SANITARY DRAINAGE AREA ha.
- SANITARY DRAINAGE AREA
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER

GRADING

- ORIGINAL GROUND ELEVATION 99.99
- PROPOSED ELEVATION 99.99
- PROPOSED LOT CORNER ELEVATION 99.99
- EXISTING ELEVATION AT LOT CORNER 99.99
- FLOW DIRECTION AND GRADE 2.0%
- FINISHED FIRST FLOOR ELEVATION FFE=100.00
- UNDERSIDE OF FOOTING ELEVATION USF=97.00
- ENGINEERED FILL REQUIRED (E.F.)
- TERRACING 3:1 SLOPE MAXIMUM (UNLESS OTHERWISE SHOWN) 3:1
- DIRECTION OF PROPOSED OVERLAND FLOW
- PROPOSED VALVE BOX
- PROPOSED VALVE CHAMBER
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM SEWER MANHOLE
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED DEPRESSED CURB LOCATION (D.C.)
- PROPOSED BARRIER CURB
- PROPOSED COMMUNITY MAILBOX LOCATIONS (CMB)
- HEAVY DUTY ASPHALT.
- OVERLAND SPILL LOCATION
- TWSI LOCATION AS PER CITY STD
- CIRCULAR ORIFICE (SEE ICD TABLE ON SSP-1 AND SD-1)

STORM DRAINAGE

- L101A / 1.00 / 0.85 — AREA ID; RUNOFF COEFFICIENT; STORM DRAINAGE AREA ha.
- STORM DRAINAGE BOUNDARY
- MAXIMUM STATIC PONDING LIMITS
- DIRECTION OF OVERLAND FLOW
- DIRECTION OF EXISTING OVERLAND FLOW
- PROPOSED STORM SEWER
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- CIRCULAR ORIFICE (SEE ICD TABLE ON SSP-1 AND SD-1)
- EXISTING STORM SEWER
- EXISTING CATCHBASIN
- THERMAL INSULATION ON STORM SEWER WHERE COVER IS LESS THAN 1.5m, THERMAL INSULATION ON WATERMAIN WHERE COVER IS LESS THAN 2.4m AS PER W22.

EROSION CONTROL

- PROPOSED SILT FENCE BARRIER AS PER OPSD 219.110
- PROPOSED CATCH BASIN PROTECTION AS PER DETAIL.
- PROPOSED MUD MAT LOCATION
- PROPOSED VALVE BOX
- PROPOSED VALVE CHAMBER
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM SEWER MANHOLE
- PROPOSED CATCHBASIN

Stantec

Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

Notes

Revision	By	Appd.	YY.MM.DD
0 ISSUED TO CITY FOR SPA	MJS	KK	22.02.11

File Name: 160401647 DB	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MJS	KK	MJS	21.01.20

Permit-Seal

Client/Project
STAR MOTORS

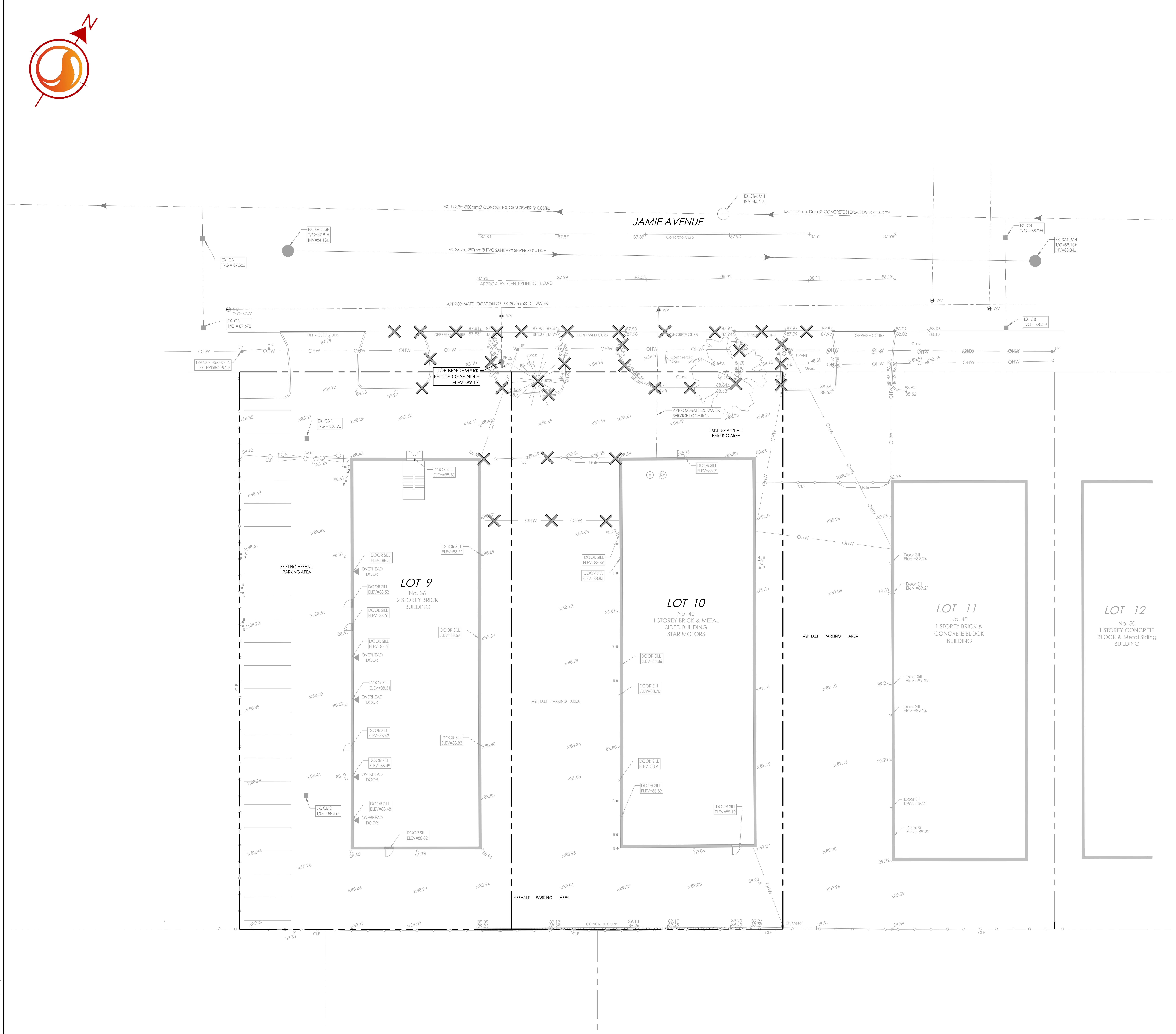
STAR MOTORS BODY SHOP
36-40 JAMIE AVENUE INFILL ADDITION
OTTAWA, ON, CANADA

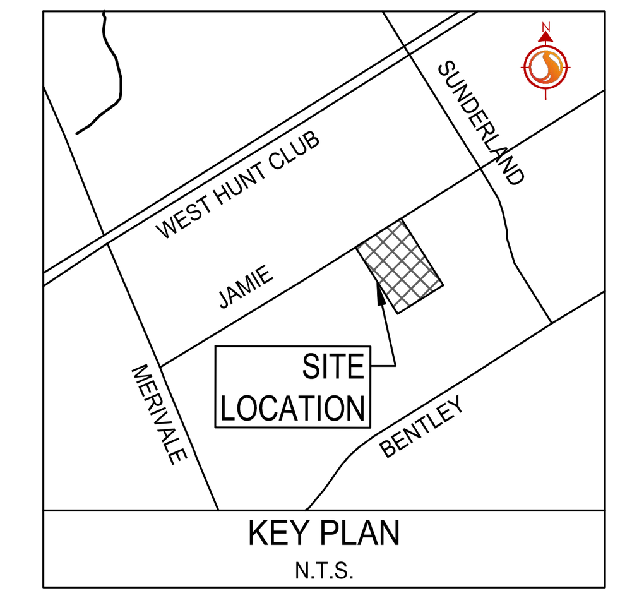
Title
NOTES AND LEGEND PLAN

Project No.	Scale	
160401647		
Drawing No.	Sheet	Revision
NL-1	1 of 6	0

PLAN # ?????

D22-22-22-2222





Stantec

Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

- EXISTING WATERMAIN
- EXISTING VALVE AND VALVE BOX
- EXISTING VALVE CHAMBER
- EXISTING REDUCER
- EXISTING FIRE HYDRANT
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING CATCHBASIN MANHOLE
- EXISTING CATCHBASIN
- EXISTING SUBDRAIN CATCHBASIN
- EXISTING SWALE
- REMOVAL ITEM

Notes

Revision		By	Appd.	YY.MM.DD
0	ISSUED TO CITY FOR SPA	MJS	KK	22.02.11

File Name: 160401647 DB	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MJS	KK	MJS	21.01.20

Permit-Seal

Client/Project
STAR MOTORS

STAR MOTORS BODY SHOP
36-40 JAMIE AVENUE INFILL ADDITION
OTTAWA, ON, CANADA

Title
EXISTING CONDITIONS AND REMOVALS PLAN

Project No. 160401647
Scale 1:200 (0 2 6 10m)

Drawing No. EX-1
Sheet 2 of 6
Revision 0

PLAN # ?????

D??-??-????

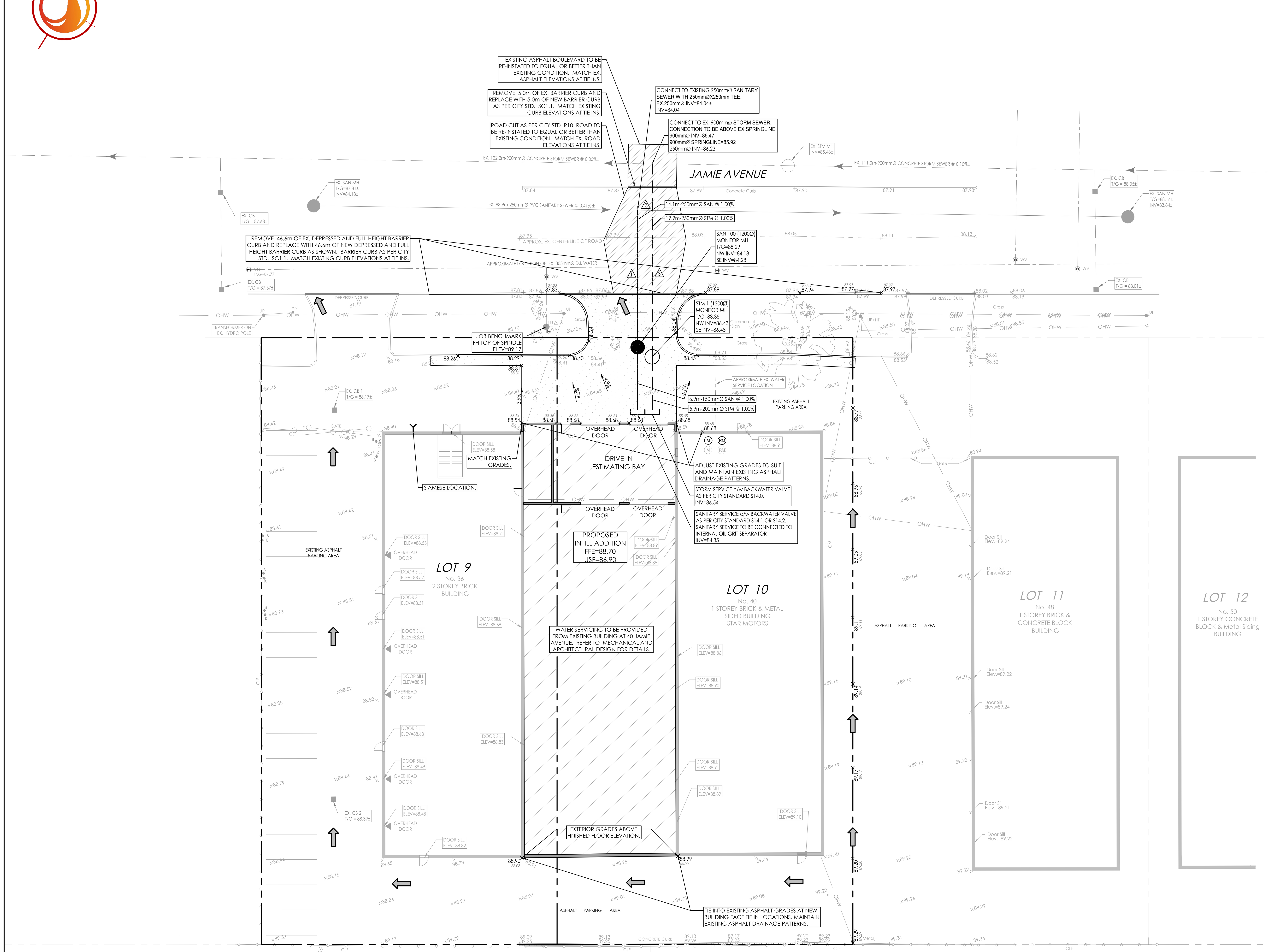
V:\01-604\active\160401647\design\drawing\160401647 DB.dwg
2022/02/10 3:53 PM By: Sharp, Mike

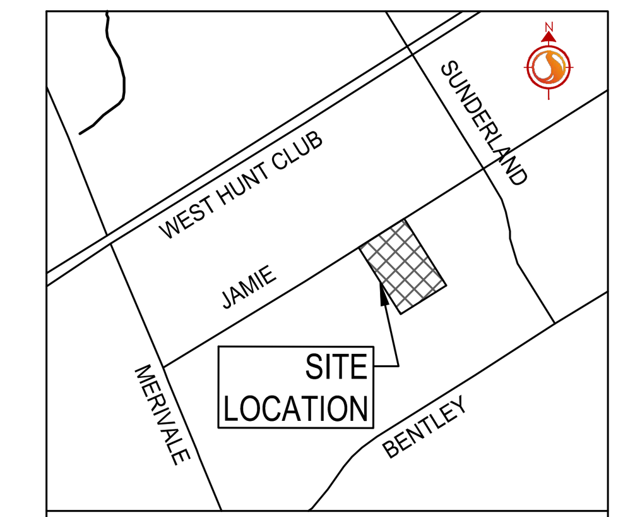
ORIGINAL SHEET - ARCH D

SCHEDULE OF ROOF RELEASE RATES				
DRAIN TYPE	TRIBUTARY AREA ID	# OF DRAINS	100YR Head (m)	100YR RELEASE RATE (L/s)
WATTS ACCUFLOW (100% OPEN)	?????	??	??	??

SEWER AND WATERMAIN CROSSING TABLE						
CROSSING	STM INV	STM OBV	SAN INV	SAN OBV	WTR TOP	WTR BTM
1			84.13	84.38	85.83	85.53
2	86.28	86.53	84.04	84.29		
3	86.34	86.59			85.84	85.54

* BRACKETS DENOTE ADJUSTED VALUE WITH CONCRETE PIPE THICKNESS





KEY PLAN
N.T.S.

PROPOSED ASPHALT STRUCTURE

HEAVY DUTY ASPHALT
40mm HL3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
50mm HL8 OR SUPERPAVE 19.0 ASPHALTIC CONCRETE
150mm OPSS GRANULAR A BASE
400mm OPSS GRANULAR B TYPE II

LIGHT DUTY AREAS
50mm HL3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
150 OPSS GRANULAR 'A' BASE
300 OPSS GRANULAR 'B' TYPE II

Stantec

Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

- PROPOSED WATERMAIN
- PROPOSED VALVE AND VALVE BOX
- PROPOSED VALVE CHAMBER
- PROPOSED REDUCER
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED CATCHBASIN
- EX/FUT. WATERMAIN
- EXISTING/FUTURE VALVE AND VALVE BOX
- EXISTING/FUTURE VALVE CHAMBER
- EXISTING/FUTURE REDUCER
- EXISTING/FUTURE FIRE HYDRANT
- EXISTING/FUTURE SANITARY SEWER
- EXISTING/FUTURE STORM SEWER
- EXISTING/FUTURE CATCHBASIN MANHOLE
- EXISTING/FUTURE CATCHBASIN
- DC — PROPOSED DEPRESSED CURB LOCATIONS
- PROPOSED BARRIER CURB
- THERMAL INSULATION ON STORM SEWER WHERE COVER IS LESS THAN 1.5m. THERMAL INSULATION ON WATERMAIN WHERE COVER IS LESS THAN 2.4m AS PER W22.
- M RM — WATER METER AND REMOTE WATER METER LOCATION
- M RM — EX. WATER METER AND REMOTE WATER METER LOCATION
- 99.99 — ORIGINAL GROUND ELEVATION
- 99.99 — PROPOSED ELEVATION
- 99.99 / 98.88 — PROPOSED LOT CORNER ELEVATION / EXISTING ELEVATION AT LOT CORNER
- 2.0% — FLOW DIRECTION AND GRADE
- FFE=100.00 — FINISHED FIRST FLOOR ELEVATION
- USF=97.00 — UNDERSIDE OF FOOTING ELEVATION
- E.F. — ENGINEERED FILL REQUIRED
- 3:1 — TERRACING 3:1 SLOPE MAXIMUM (UNLESS OTHERWISE SHOWN)
- DIRECTION OF EXISTING OVERLAND FLOW
- HEAVY DUTY ASPHALT.

Notes

1. WATER SERVICING TO BE SUPPLIED FROM 40 JAMIE AVENUE. REFER TO MECHANICAL AND ARCHITECTURAL DRAWINGS FOR DETAILS.
2. NEW BUILDING TO BE SPRINKLERED. DETAILS TO BE PROVIDED BY MECHANICAL ENGINEER.
3. NEW BUILDING ADDITION TO INCLUDE OIL / GRIT SEPARATOR INSIDE BUILDING AS PART OF SANITARY PLUMBING PRIOR TO CONNECTING TO SANITARY SEWER SERVICE.
4. FLOOR DRAINS IN SHOP AREA TO BE CONNECTED TO INTERNAL SANITARY PLUMBING.
5. ONLY ROOF AND FOOTING DRAINAGE (IF REQUIRED) TO BE CONNECTED TO STORM SEWER SERVICE.
6. DEPTH OF EX. 300mmØ D.I. WATERMAIN IN JAMIE AVENUE TAKE FROM AS BUILT PLAN No. N-110 SHEET 2 OF 3 = 6.9ft OR 2.1m.
7. CONTRACTOR TO NOTIFY ENGINEER OR CONTRACT ADMINISTRATOR OF ANY DISCREPANCIES NOTED ON PLAN PRIOR TO CONTINUING WITH CONSTRUCTION.
8. EXISTING DRAINAGE PATTERNS ON SITE TO BE MAINTAINED.
9. FOR ELECTRICAL, COMMUNICATIONS AND GAS SERVICING, REFER TO MECHANICAL DRAWINGS.

0 ISSUED TO CITY FOR SPA	MJS	KK	22.02.11
Revision	By	Appd.	YY.MM.DD

File Name: 160401647 DB	MJS	KK	MJS	21.01.20
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project
STAR MOTORS

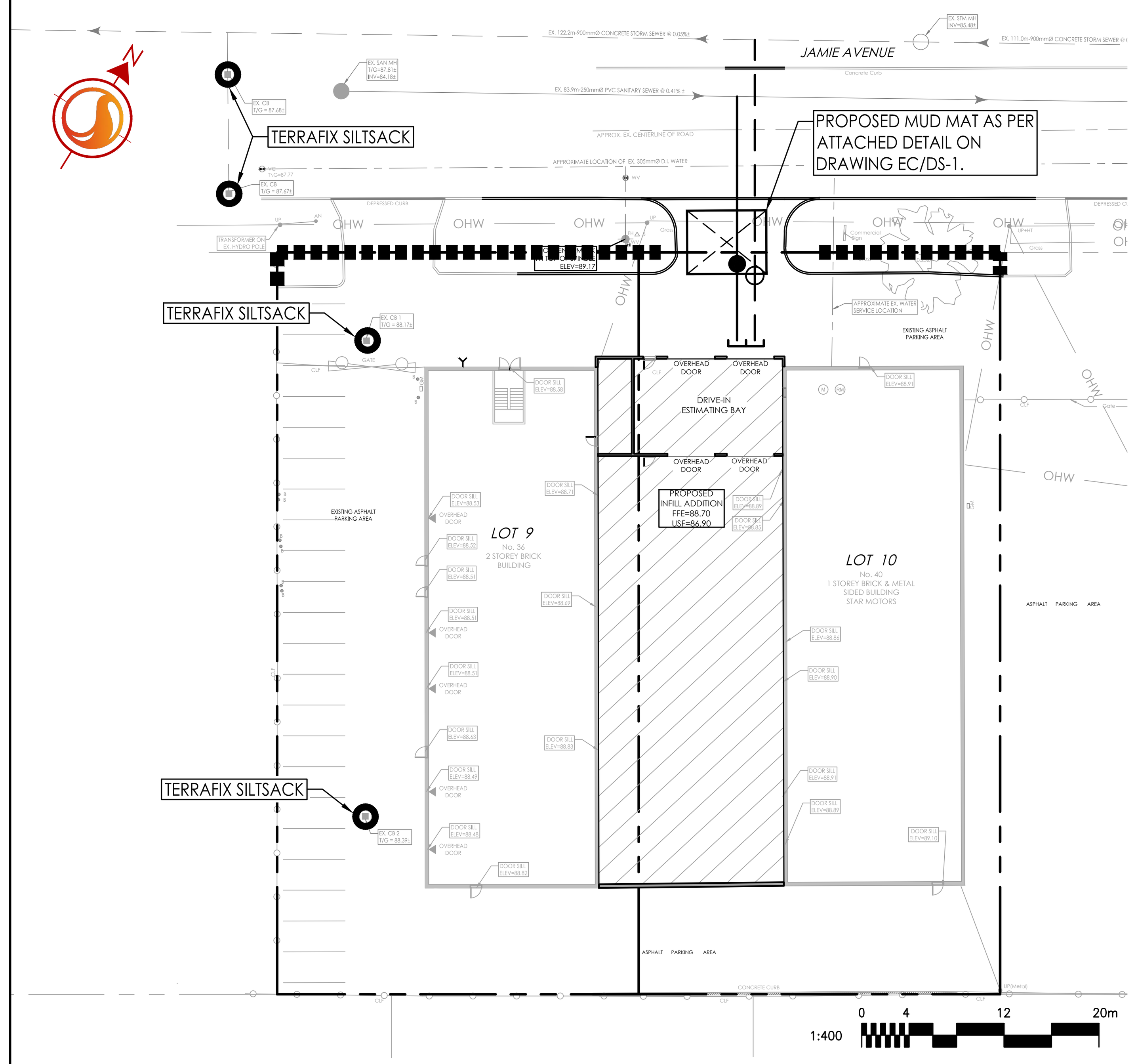
STAR MOTORS BODY SHOP
36-40 JAMIE AVENUE INFILL ADDITION
OTTAWA, ON, CANADA

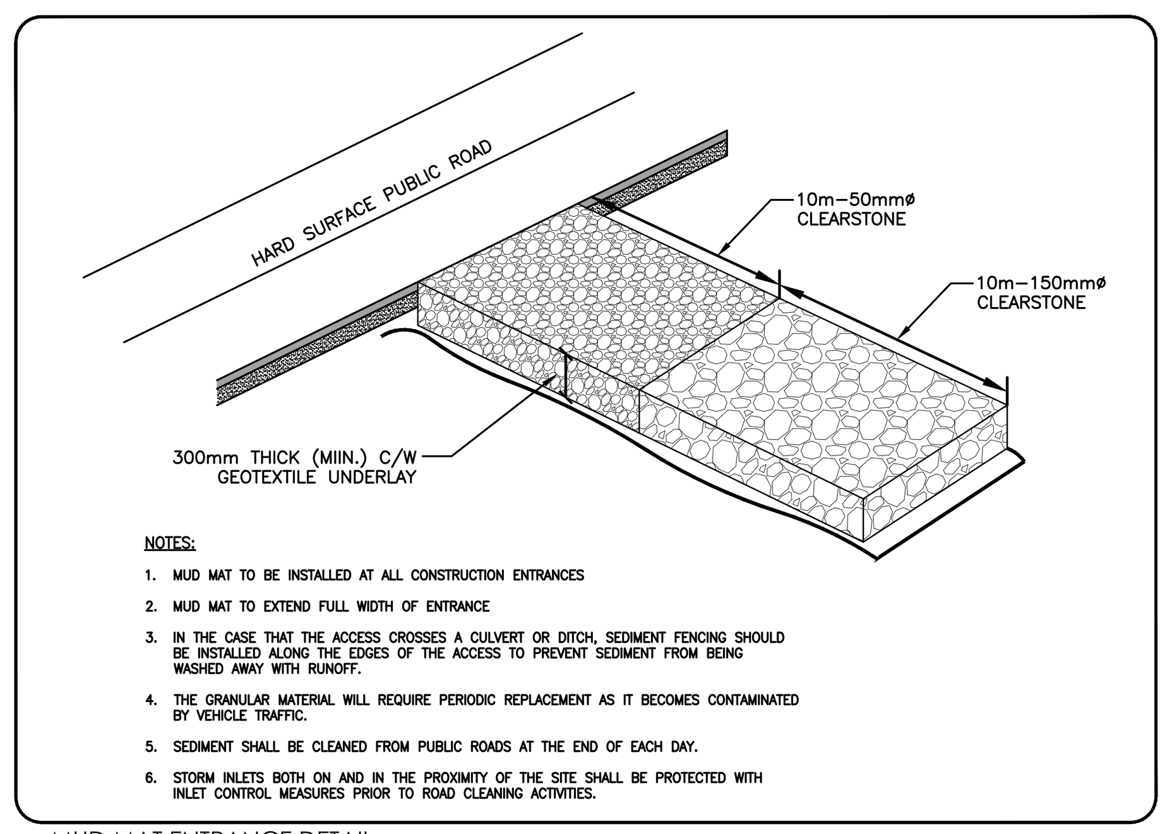
Title
SITE SERVICING AND GRADING PLAN

Project No. 160401647
Scale 1:200 0 2 6 10m

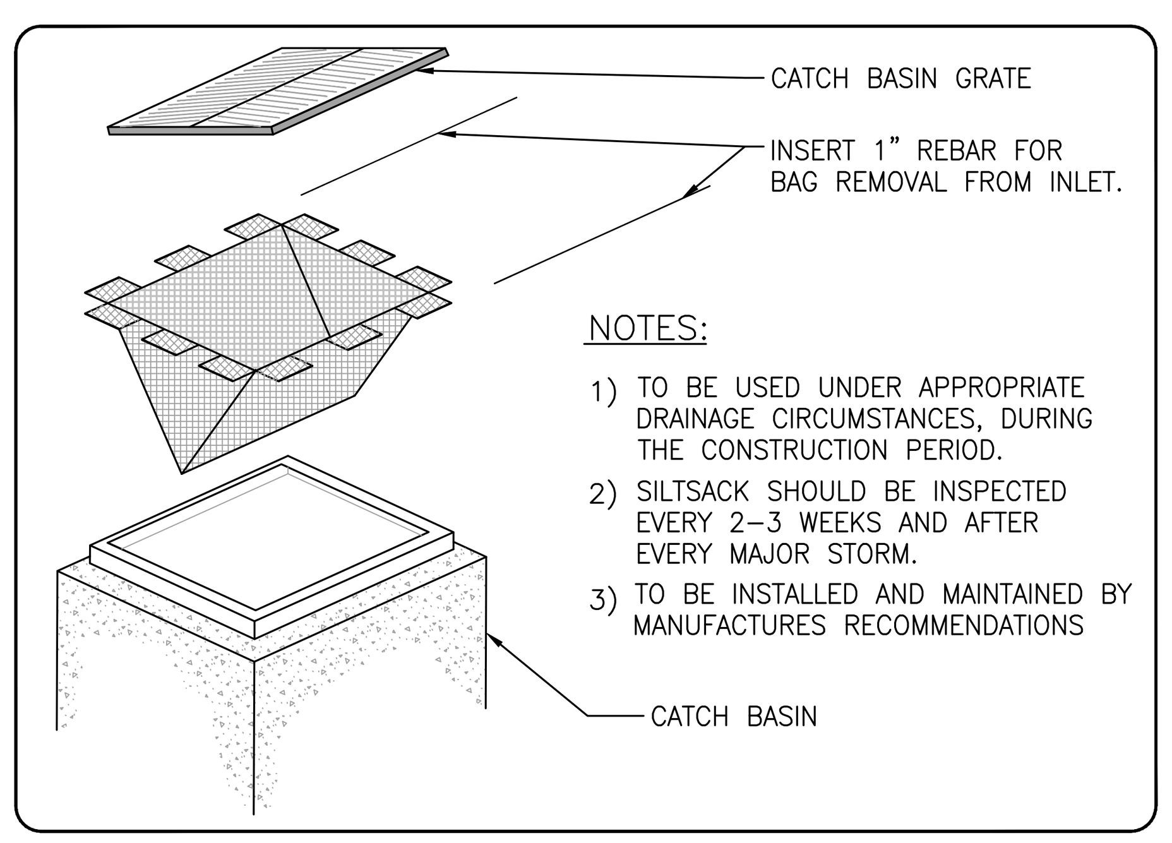
Drawing No. SSGP-1
Sheet 3 of 6
Revision 0

PLAN # ?????
D?? - ?? - ?? - ????

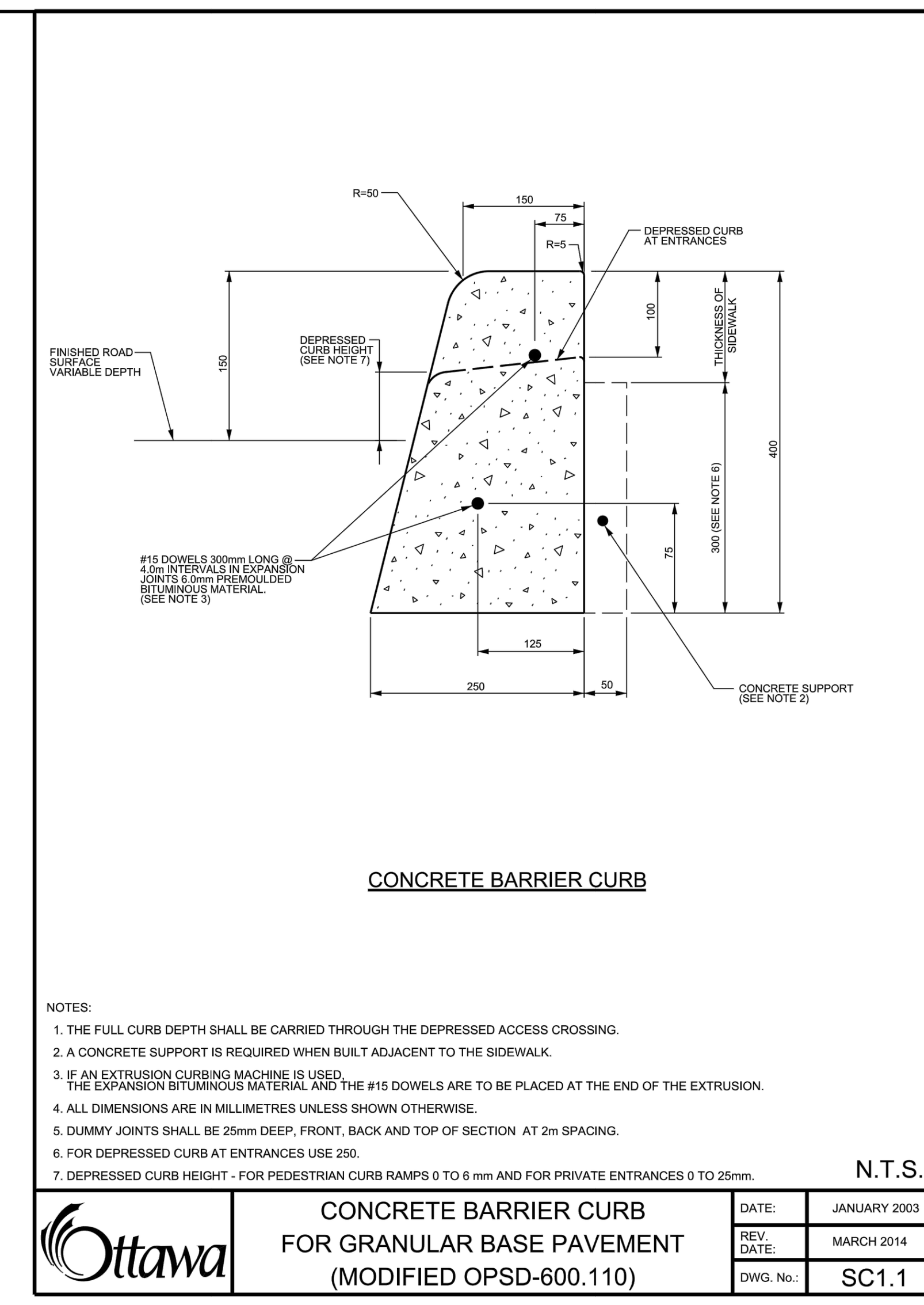


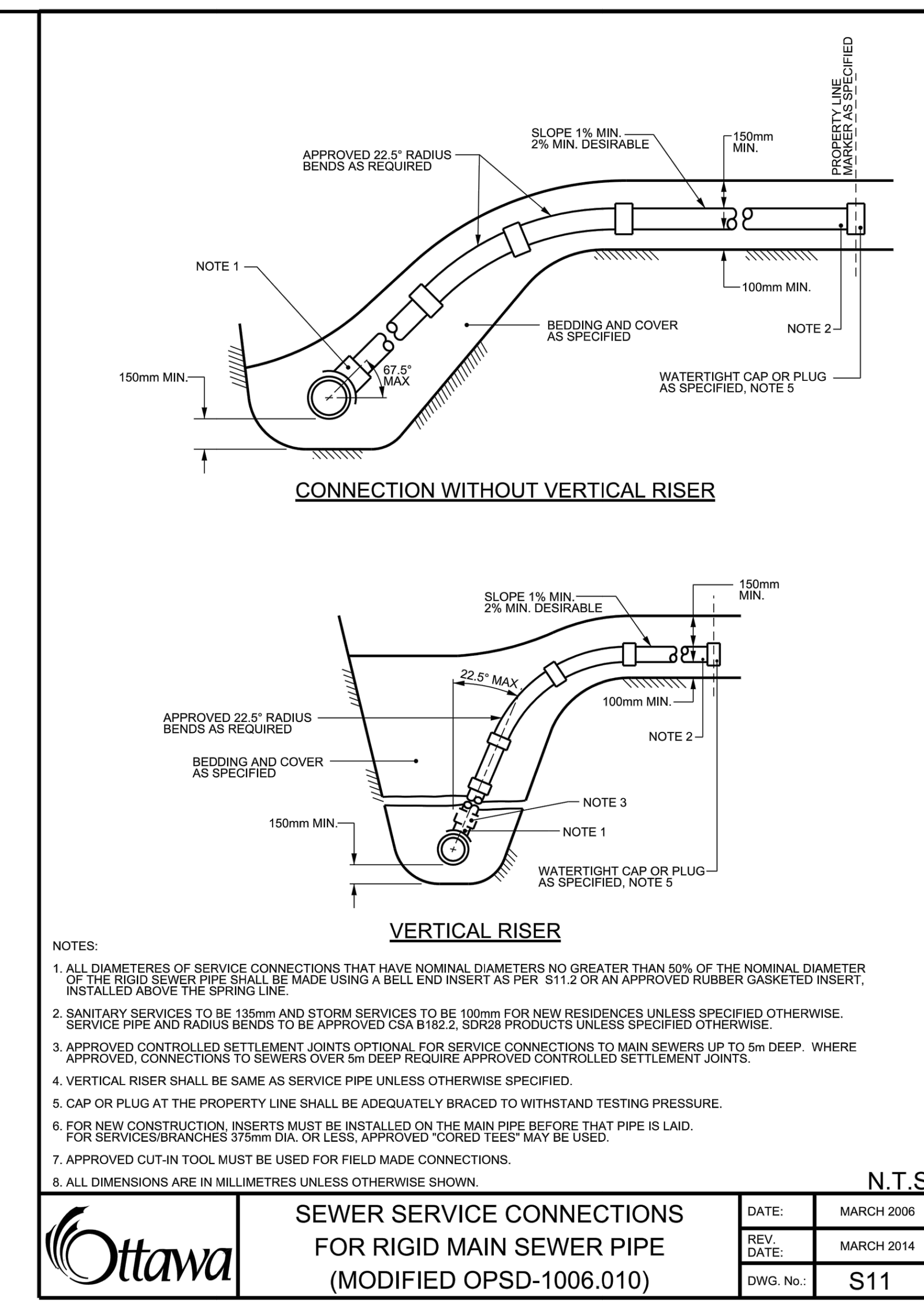


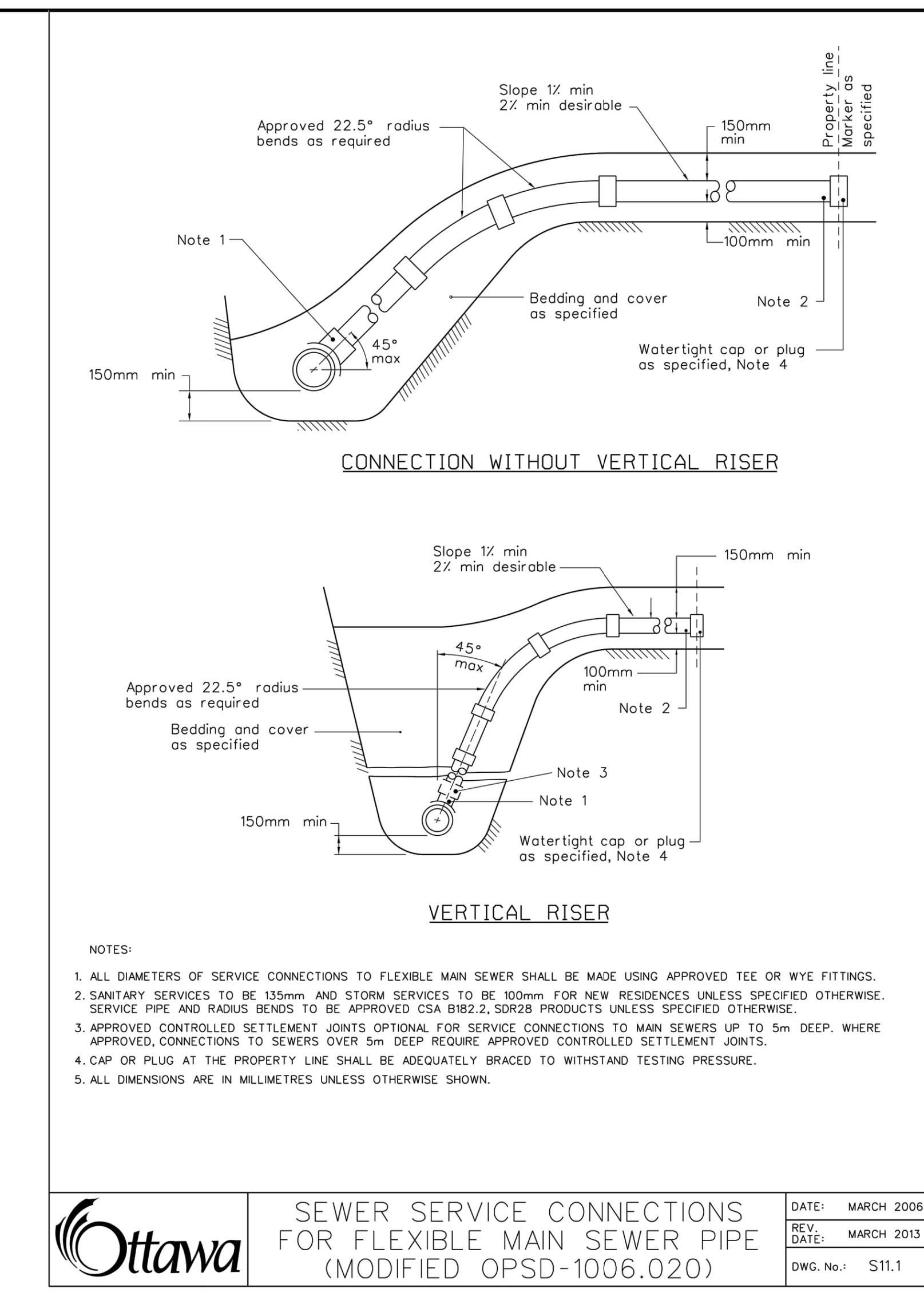
MUD MAT ENTRANCE DETAIL
SCALE: N.T.S.

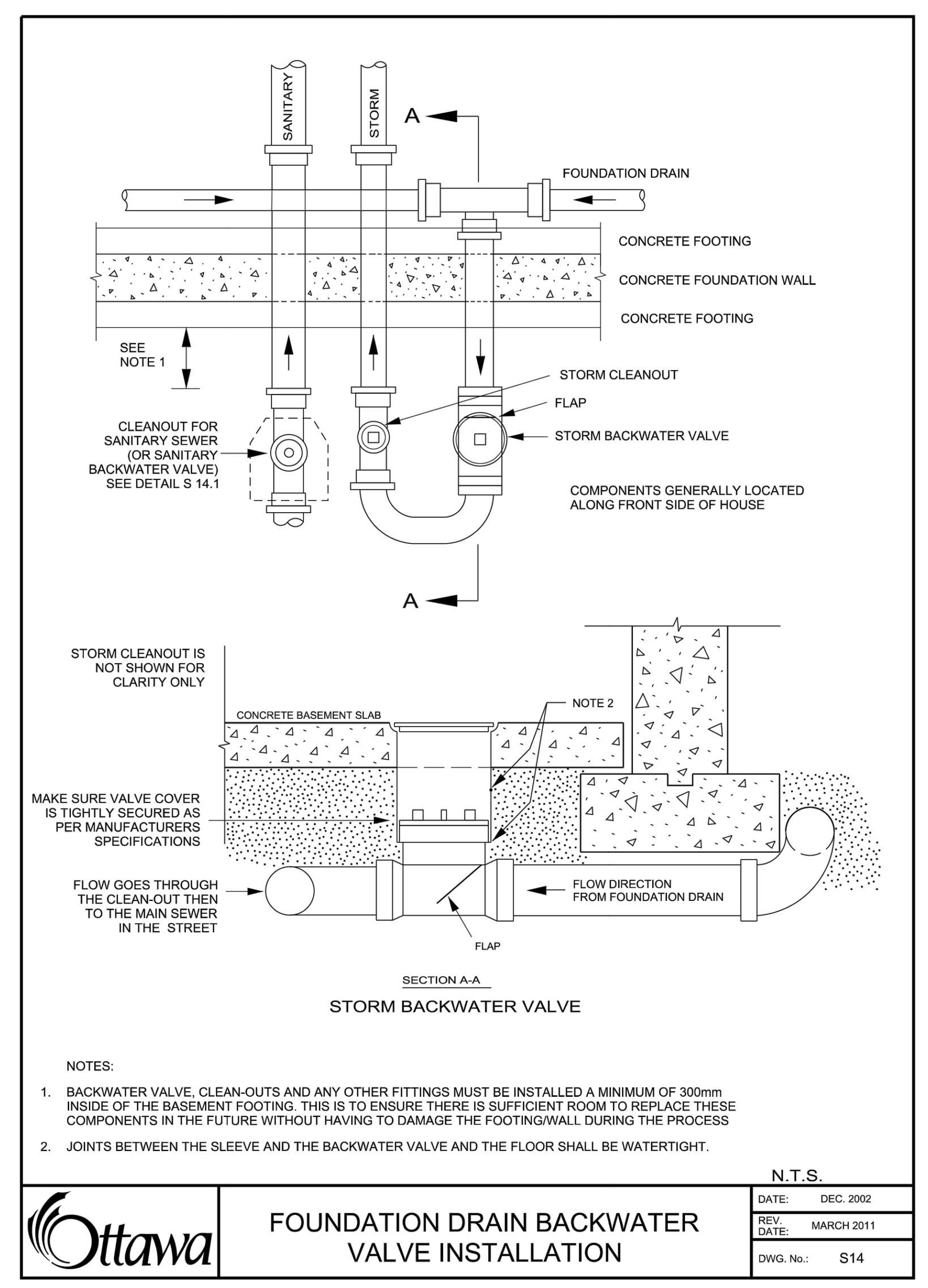


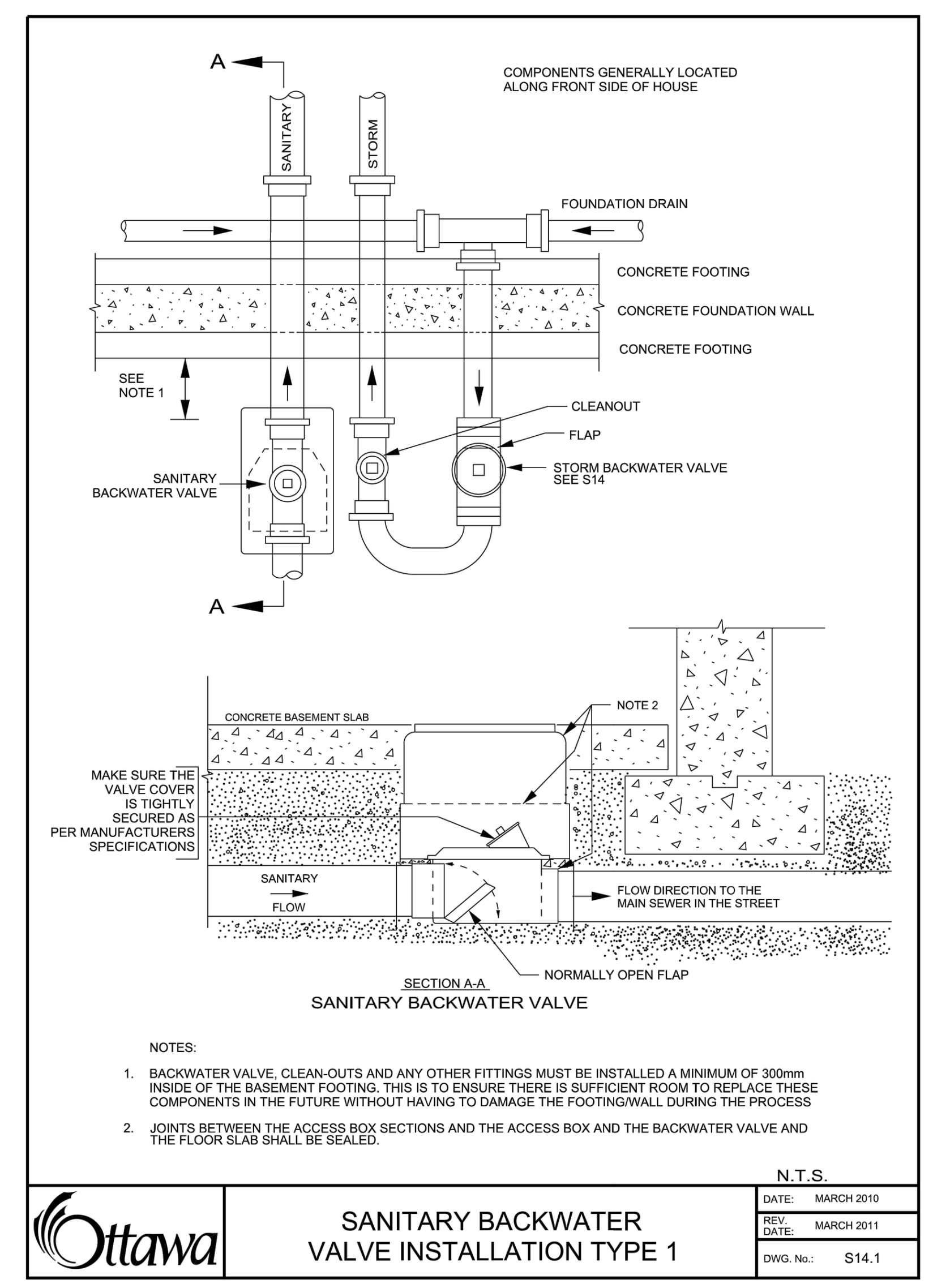
ROADSIDE CATCH BASIN PROTECTION DETAIL: TERRAFIX SILTSACK
SCALE: N.T.S.

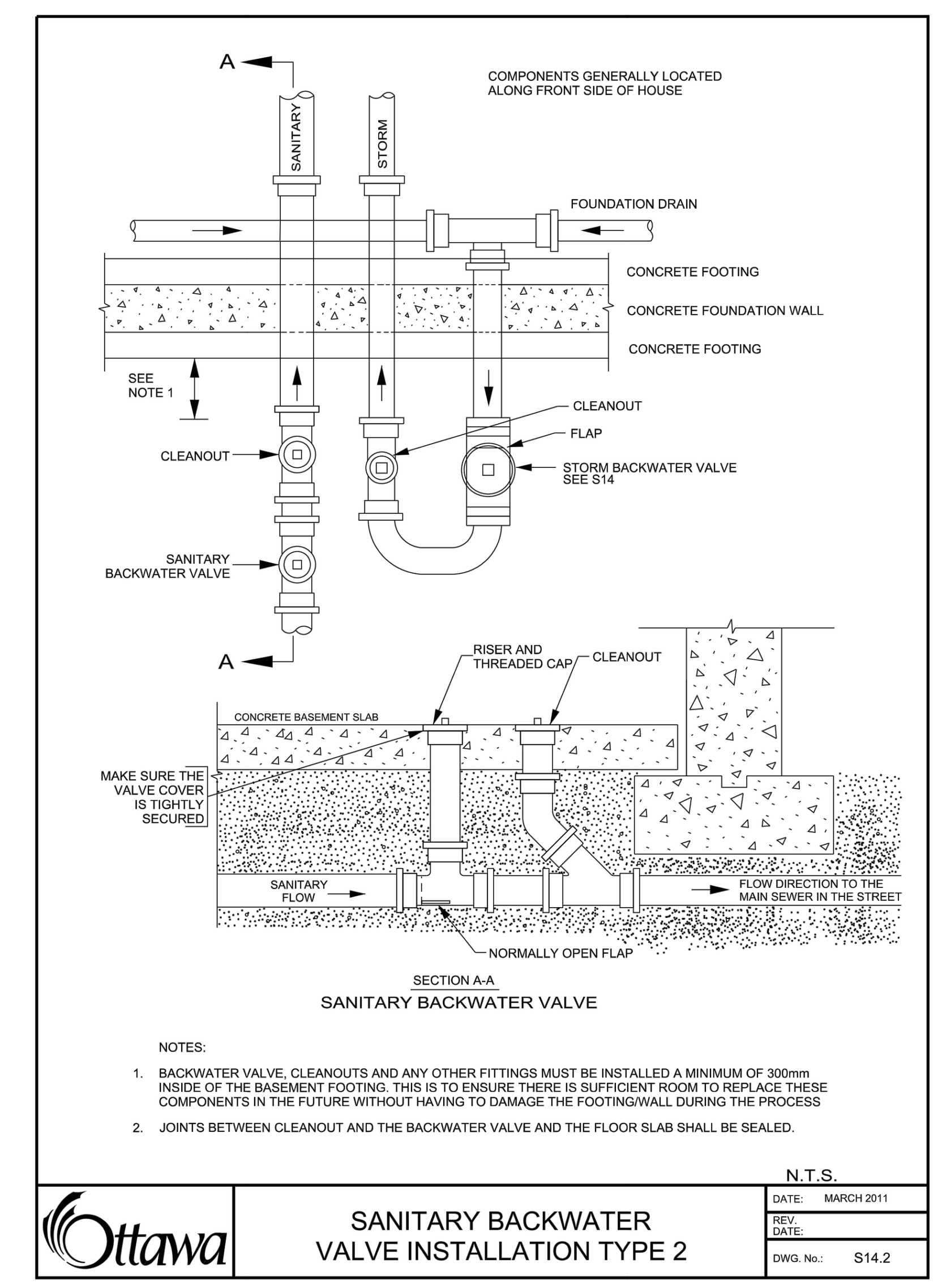


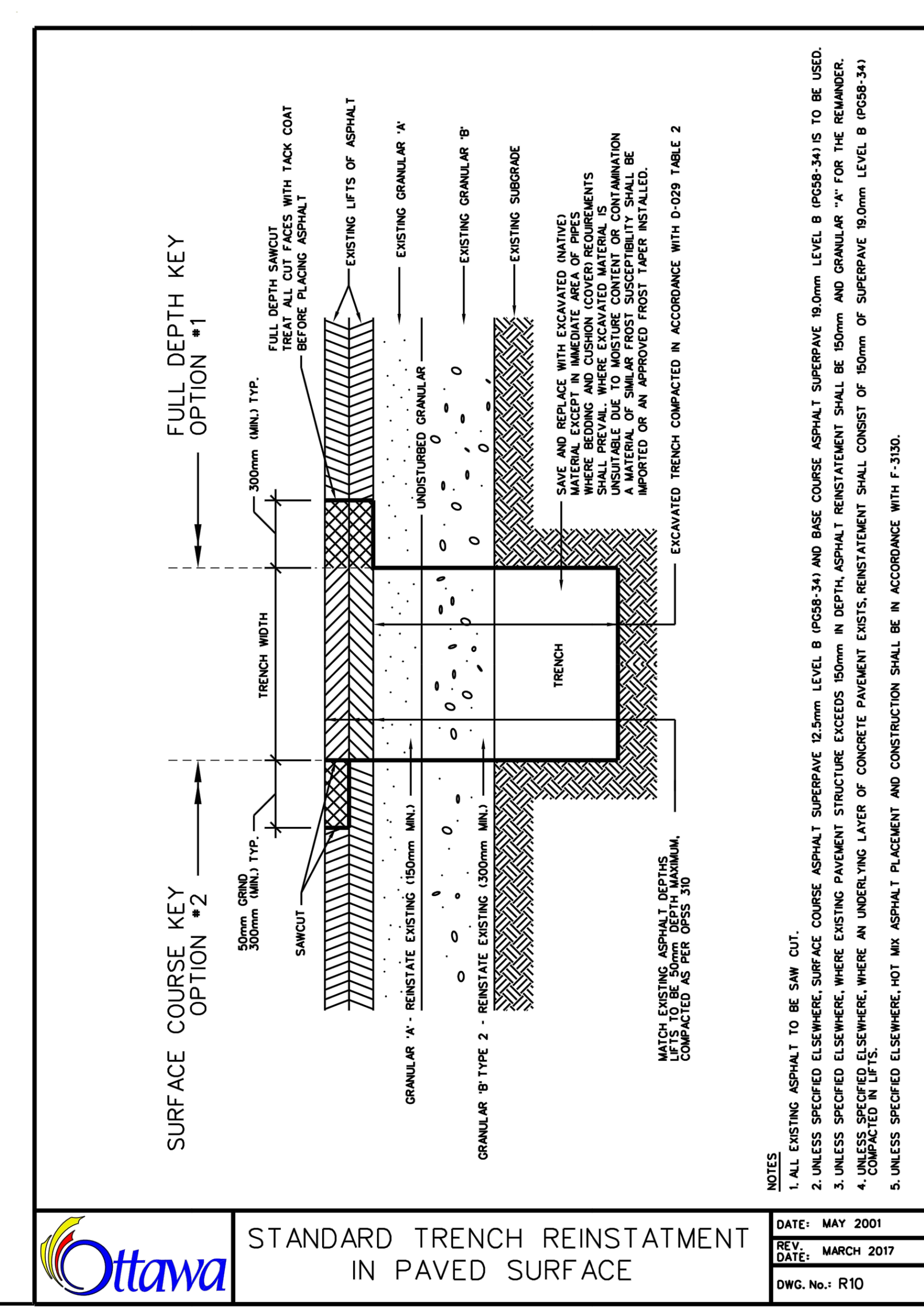


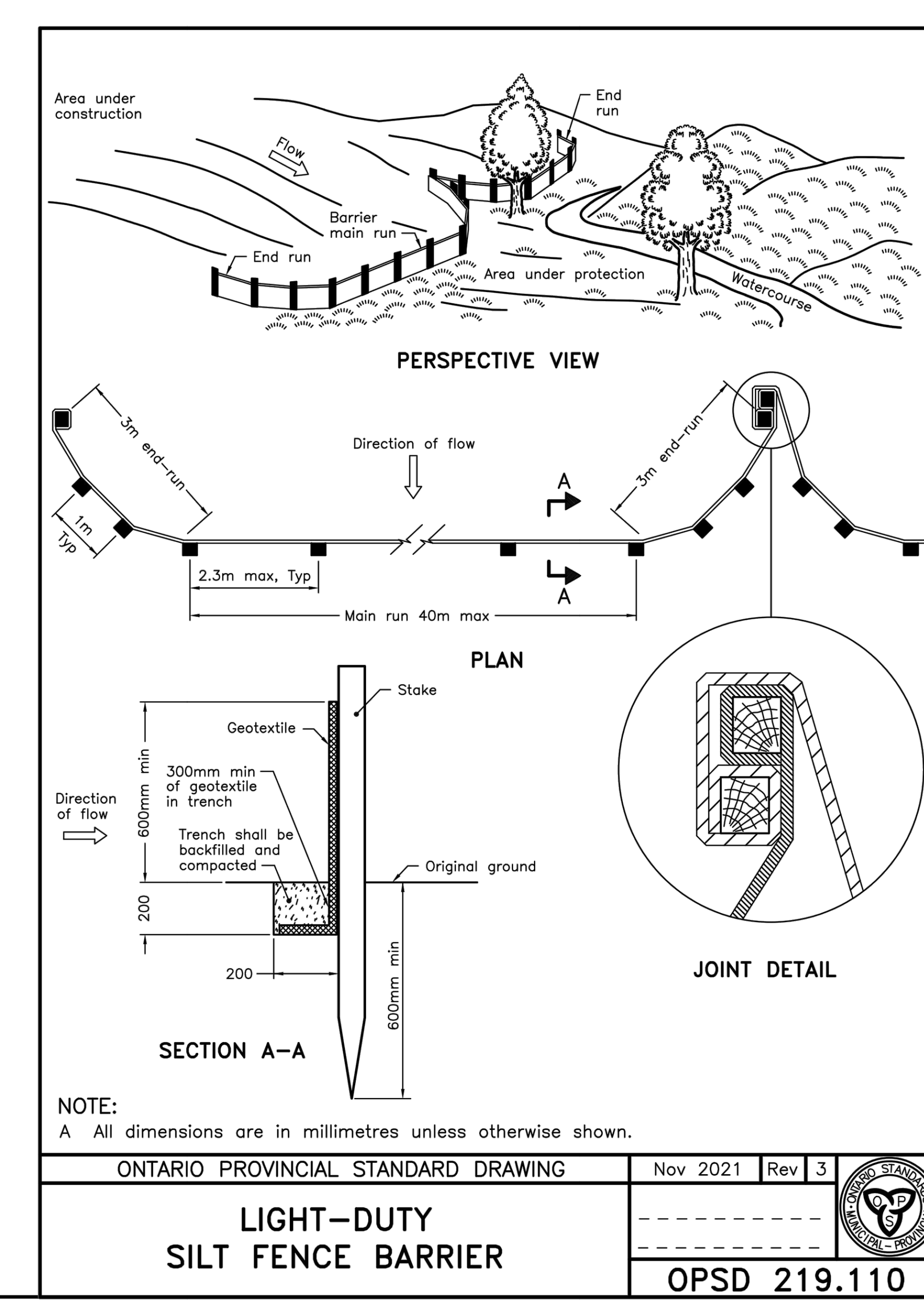












Stantec

Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

- PROPOSED SILT FENCE BARRIER AS PER OPSD 219.110
- PROPOSED CATCH BASIN PROTECTION AS PER DETAIL.
- PROPOSED MUD MAT LOCATION
- PROPOSED VALVE BOX
- PROPOSED VALVE CHAMBER
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM SEWER MANHOLE
- PROPOSED CATCHBASIN

Best Management Practices

CONTRACTOR TO PROVIDE EROSION AND SEDIMENT CONTROLS (BEST MANAGEMENT PRACTICES) DURING CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

EROSION MUST BE MINIMIZED AND SEDIMENTS MUST BE REMOVED FROM CONSTRUCTION SITE RUN-OFF IN ORDER TO PROTECT DOWNSTREAM AREAS. DURING ALL CONSTRUCTION, EROSION AND SEDIMENTATION SHOULD BE CONTROLLED BY THE FOLLOWING TECHNIQUES:

1. LIMIT THE EXTENT OF EXPOSED SOILS AT ANY GIVEN TIME.
2. REVEGETATE EXPOSED AREAS AND SLOPES AS SOON AS POSSIBLE.
3. MINIMIZE AREA TO BE CLEARED AND GRUBBED.
4. PROTECT EXPOSED SLOPES WITH PLASTIC OR SYNTHETIC MULCHES.
5. INSTALL CATCH BASIN INSERTS OR EQUIVALENT IN ALL PROPOSED CATCH BASINS AND CATCH BASIN MANHOLES AND IN ALL EXISTING CATCH BASINS THAT WILL RECEIVE RUN-OFF FROM THE SITE.
6. A SILT FENCE SHALL BE INSTALLED AROUND THE PERIMETER OF ALL AND ANY STOCKPILES OF MATERIAL TO BE USED OR REMOVED FROM SITE. (LOCATION TO BE DETERMINED)
7. A VISUAL INSPECTION SHALL BE DONE DAILY ON SEDIMENT CONTROL MEASURES AND CLEANED OF ANY ACCUMULATED SILT AS REQUIRED. THE DEPOSITS WILL BE DISPOSED OFF SITE AS PER THE REQUIREMENTS OF THE CONTRACT.
8. SEDIMENT CONTROL BARRIERS MAY ONLY BE REMOVED TEMPORARILY WITH APPROVAL OF CONTRACT ADMINISTRATOR TO ACCOMMODATE CONSTRUCTION OPERATIONS. ALL AFFECTED BARRIERS MUST BE REINSTATED AT NIGHT WHEN CONSTRUCTION IS COMPLETED. NO REMOVAL WILL OCCUR IF THERE IS A SIGNIFICANT RAINFALL EVENT ANTICIPATED (>10mm) UNLESS A NEW DEVICE HAS BEEN INSTALLED TO PROTECT EXISTING STORM AND SANITARY SEWER SYSTEMS, OR DOWNSTREAM WATERCOURSES.
9. NO REFUELING OR CLEANING OF EQUIPMENT IS PERMITTED NEAR ANY EXISTING WATERWAY.
10. CONTRACTOR SHALL REMOVE SEDIMENT CONTROL MEASURES WHEN, IN THE OPINION OF THE CONTRACT ADMINISTRATOR, THE MEASURE(S) IS NO LONGER REQUIRED. NO CONTROL MEASURES SHALL BE PERMANENTLEY REMOVED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE CONTRACT ADMINISTRATOR.
11. THE CONTRACTOR SHALL PERIODICALLY, OR WHEN REQUESTED BY THE CONTRACT ADMINISTRATOR, CLEAN OUT ACCUMULATED SEDIMENTS AS REQUIRED.
12. THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO THE WATERCOURSE. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.
13. CONTRACTOR SHALL INSTALL MUD MATS AT ALL CONSTRUCTION ENTRANCES TO THE SITE.
14. STORMWATER SWALES TO BE COVERED WITH HYDRO-SEED AND MULCH.

Revision		By	Appd.	YY.MM.DD
0	ISSUED TO CITY FOR SPA	MJS	KK	22.02.11

File Name: 160401647 DB	MJS	KK	MJS	21.01.20
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project
STAR MOTORS

STAR MOTORS BODY SHOP
36-40 JAMIE AVENUE INFILL ADDITION
OTTAWA, ON, CANADA

Title
EROSION CONTROL PLAN AND DETAIL SHEET

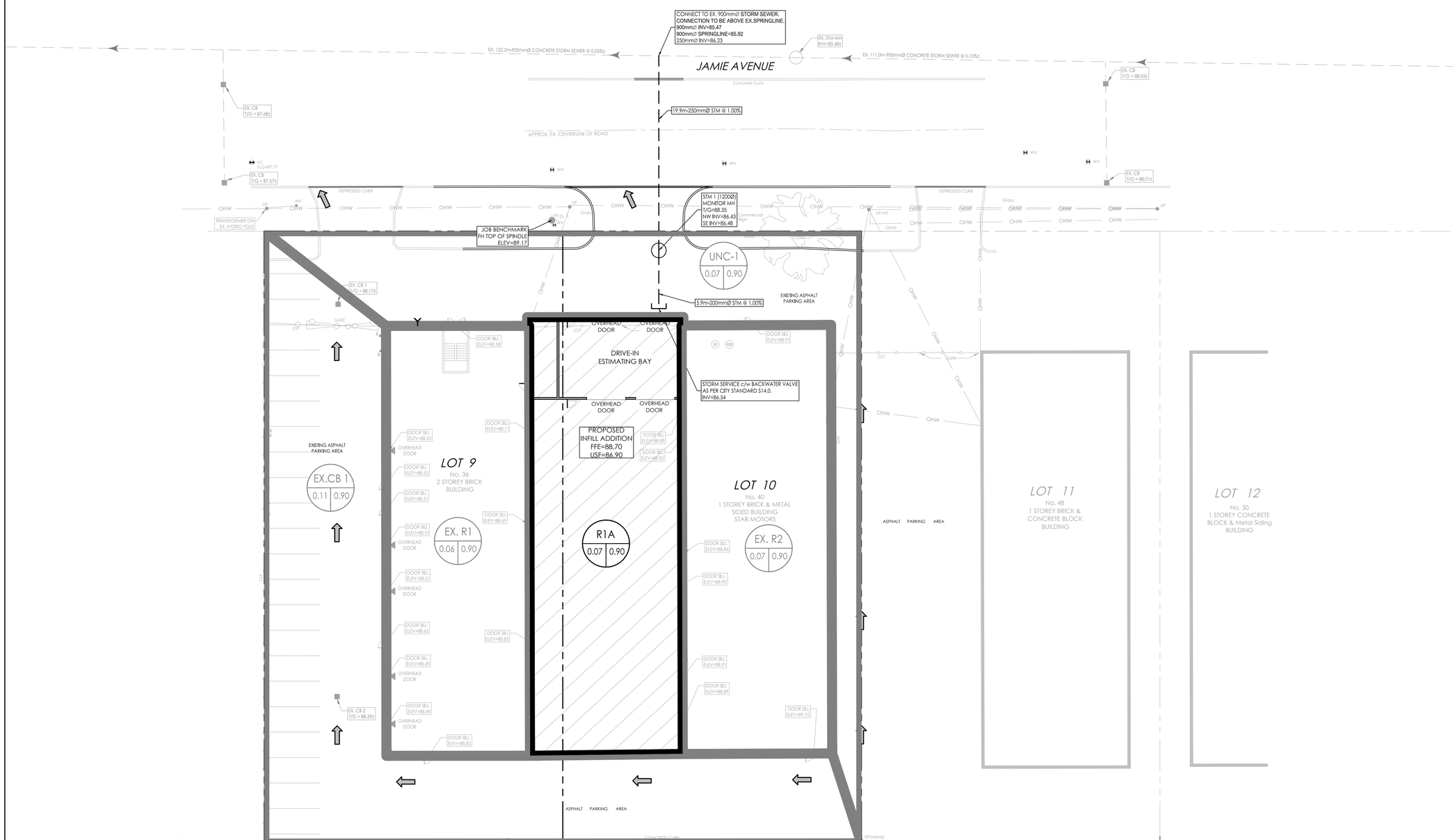
Project No. 160401647
Scale

Drawing No.	Sheet	Revision
EC/DS-1	4 of 6	0

PLAN # ?????

D??-??-??-????

ORIGINAL SHEET - ARCH D



KEY PLAN
N.T.S.

Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

- L101A / 1.00 | 0.85 — AREA ID; RUNOFF COEFFICIENT; STORM DRAINAGE AREA ha.
- STORM DRAINAGE BOUNDARY
- MAXIMUM STATIC PONDING LIMITS
- DIRECTION OF OVERLAND FLOW
- DIRECTION OF EXISTING OVERLAND FLOW
- PROPOSED STORM SEWER
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- CIRCULAR ORIFICE (SEE ICD TABLE ON SSP-1 AND SD-1)
- EXISTING STORM SEWER
- EXISTING CATCHBASIN
- THERMAL INSULATION ON STORM SEWER WHERE COVER IS LESS THAN 1.5m. THERMAL INSULATION ON WATERMAIN WHERE COVER IS LESS THAN 2.4m AS PER W22.

Notes

0	ISSUED TO CITY FOR SPA	MJS	KK	22.02.11
Revision		By	Appd.	YY.MM.DD

File Name: 160401647 DB	MJS	KK	MJS	21.01.20
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project
STAR MOTORS

STAR MOTORS BODY SHOP
36-40 JAMIE AVENUE INFILL ADDITION
OTTAWA, ON, CANADA

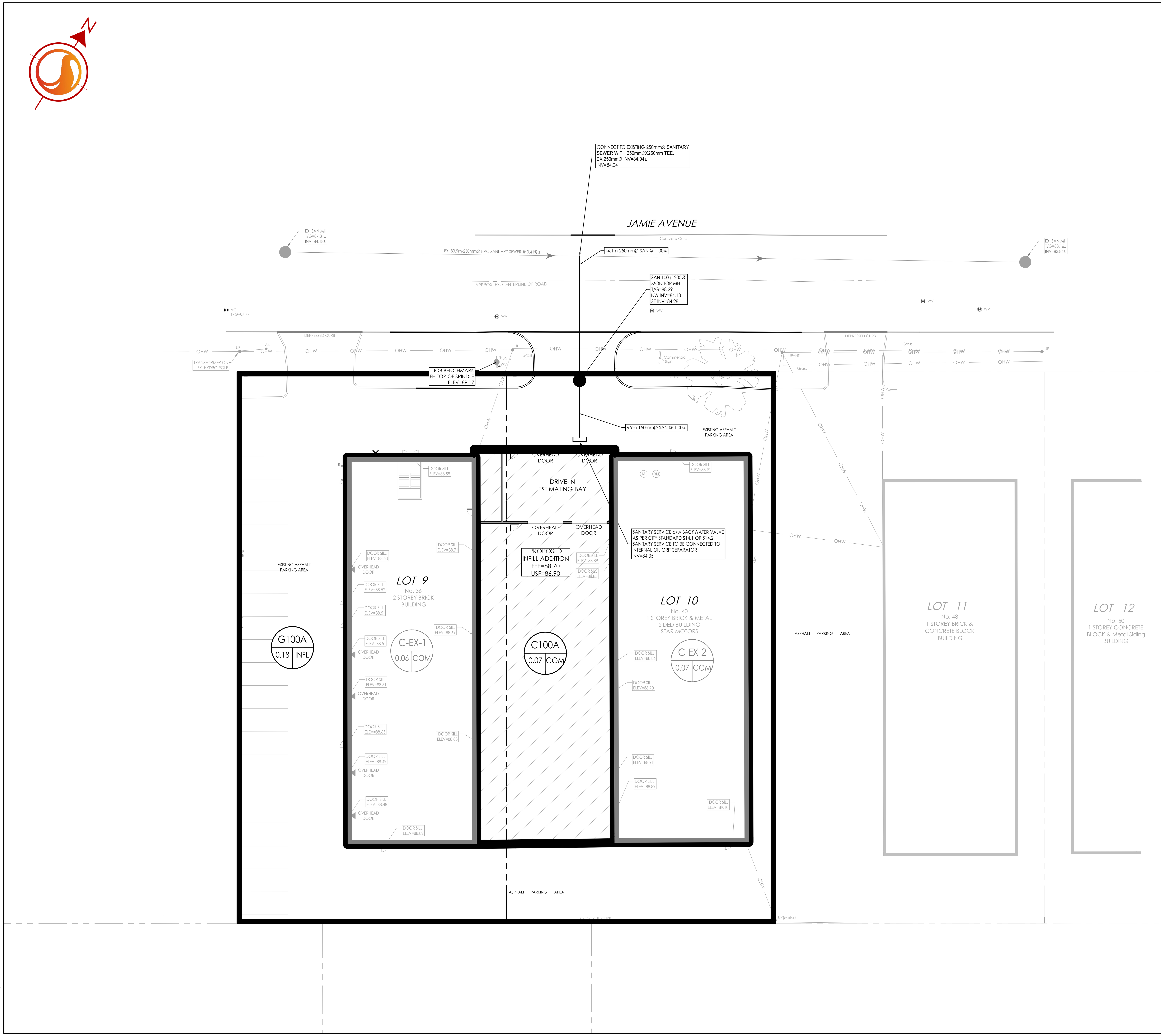
Title
STORM DRAINAGE AREA PLAN

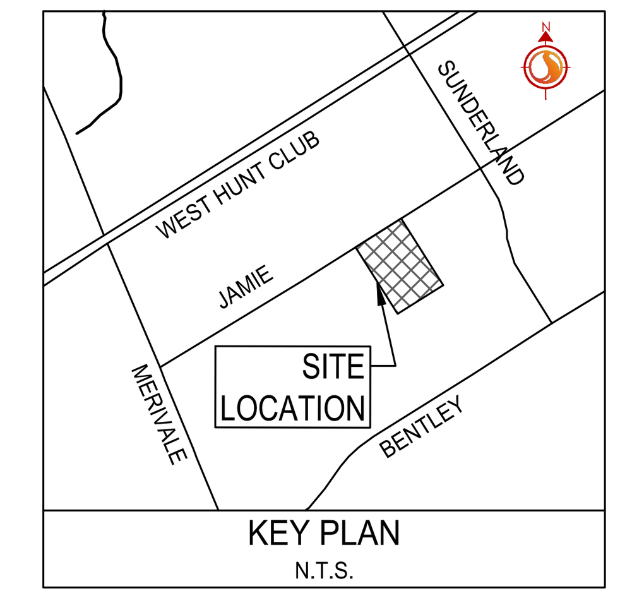
Project No.	Scale	Sheet	Revision
160401647	1:200 (0, 2, 6, 10m)	5 of 6	0
Drawing No. SD-1			PLAN # ?????

D22-22-22-2222

V:\01-ott\active\160401647\design\drawings\160401647 DB.dwg
2022/02/10 3:54 PM By: Shapp, Mike

ORIGINAL SHEET - ARCH D





Stantec

Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

- C100A — SANITARY DRAINAGE AREA ID#
- COM — COMMERCIAL FLOW RATE OF 28000L/ha/day APPLIED
- 0.31 — SANITARY DRAINAGE AREA ha.
- G100A — SANITARY DRAINAGE AREA ID#
- INFL — INFILTRATION RATE OF 0.28 L/s/Ha APPLIED
- 0.11 — SANITARY DRAINAGE AREA ha.
- SANITARY DRAINAGE AREA
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER

Notes

0 ISSUED TO CITY FOR SPA	MJS	KK	22.02.11
Revision	By	Appd.	YY.MM.DD

File Name: 160401647 DB	MJS	KK	MJS	21.01.20
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project

STAR MOTORS

STAR MOTORS BODY SHOP
36-40 JAMIE AVENUE INFILL ADDITION
OTTAWA, ON, CANADA

Title

SANITARY DRAINAGE AREA PLAN

Project No. 160401647 | Scale 1:200

Drawing No. SA-1 | Sheet 6 of 6 | Revision 0

PLAN # ?????

D??-??-????

V:\01-604\active\160401647\design\drawing\160401647 DB.dwg
2022/02/10 3:54 PM By: Sharp, Mike

ORIGINAL SHEET - ARCH D