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## KRP Properties 535 Legget Drive Serviceability Report

**535 Legget Drive**  
**City of Ottawa**  
**Serviceability Report**

Prepared By:

**NOVATECH**  
Suite 200, 240 Michael Cowpland Drive  
Ottawa, Ontario  
K2M 1P6

October 9th, 2024

Novatech File: 124045  
Ref: R-2024-083

October 9, 2024

City of Ottawa  
Planning, Infrastructure and Economic Development Department  
Planning and Infrastructure Approvals Branch  
110 Laurier Avenue West, 4<sup>th</sup> Floor  
Ottawa ON, K1P 1J1

**Attention: Anton Chetrar, Infrastructure Project Manager  
Development Review**

**Reference: 535 Legget Drive  
Serviceability Report  
Our File No.: 124045**

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Please find enclosed the Serviceability Report for the above-noted development located at 535 Legget Drive in the City of Ottawa. This report is being submitted in support of a site plan application to convert the 11 floors of the existing building from office space to ground floor commercial and upper floor residential units.

Should you have any questions or require additional information, please contact the undersigned.

Yours truly,

**NOVATECH**



Greg MacDonald, P. Eng.  
Director, Land Development and Public Sector Infrastructure

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## 1.0 INTRODUCTION

Novatech has been retained to prepare a Serviceability Report on behalf of KRP Properties to assess the site services to the existing building located at 535 Legget Drive. The report is in support of a site plan application for the conversion of offices to residential units. The ground floor will remain commercial. **Figure 1 - Key Plan** shows the site location.

### 1.1 Existing Conditions

The subject site is located at 535 Legget Drive and is approximately 1.3 hectares (ha.) in size.

Presently the site is occupied by an existing 11-storey office tower, addressed 535 Legget Drive (Tower C), surrounded by Brookstreet Hotel and KRP owned properties (555 Legget Drive and 515 Legget Drive). The building currently contains office space on all 11 floors.

The subject site is bound by Legget Drive to the south-west and surrounding KRP owned properties. Existing infrastructure on the surrounding streets is described in Section 2-4 and is shown in **Figure 2 – Existing Conditions Plan**.

The original design of the existing development was designed by Novatech Engineering and design information is provided in the following report;

- 'Kanata Research Park – Tower C, Stormwater Management Report', prepared by Novatech Engineering Consultants dated December, 1998 (Referenced as Novatech Original).

### 1.2 Proposed Development

It is proposed to convert the existing office building at 535 Legget to a mixed-use building containing commercial (office space, coffee shop etc..) on the ground floor and residential units on floors 2-11. The converted building will contain a total of 117 residential units, and 397m<sup>2</sup> of commercial space on the ground floor as shown in **Figure 3 – Proposed Site Plan**.

## 2.0 WATER SERVICING

There is an existing 610mm diameter concrete pressure pipe (C-301) watermain within Legget Drive which services the existing development. The existing building at 535 Legget Drive is serviced by a single 200 mm service from the 610mmmm diameter watermain within Legget Drive. The existing building is sprinkled and is equipped with a siamese connection located near the existing entrance at the west corner of the building. Existing hydrant coverage is provided by two hydrants on Legget Drive.

The City of Ottawa amended the second paragraph in Section 4.3.1 of its Water Distribution Design Guidelines to read as follows:

“Industrial, commercial, institutional service areas with a basic day demand greater than 50 m<sup>3</sup>/day and residential areas servicing 50 or more dwellings shall be connected with a minimum of two watermains, separated by an isolation valve, to avoid the creation of a vulnerable service area.”



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CITY OF OTTAWA  
535 LEGGET DRIVE

### KEY PLAN

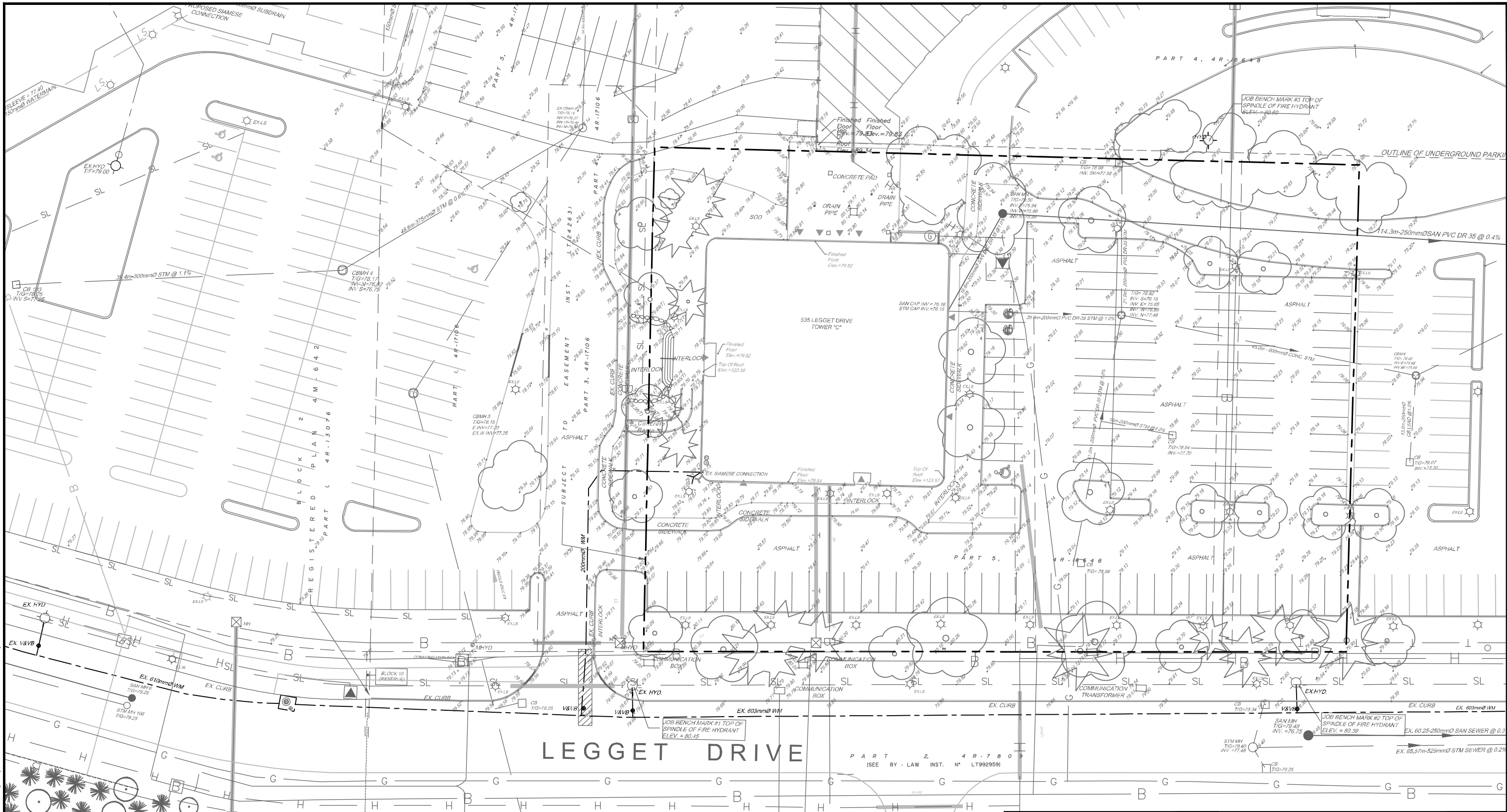
SCALE N.T.S

DATE JULY 2024

JOB 124045

FIGURE FIGURE-1

M:\2024\124045\CAD\_Existing\124045-EX\_UPDATE.dwg, Figure 2, Sep 11, 2024 - 1:18pm, cferguson

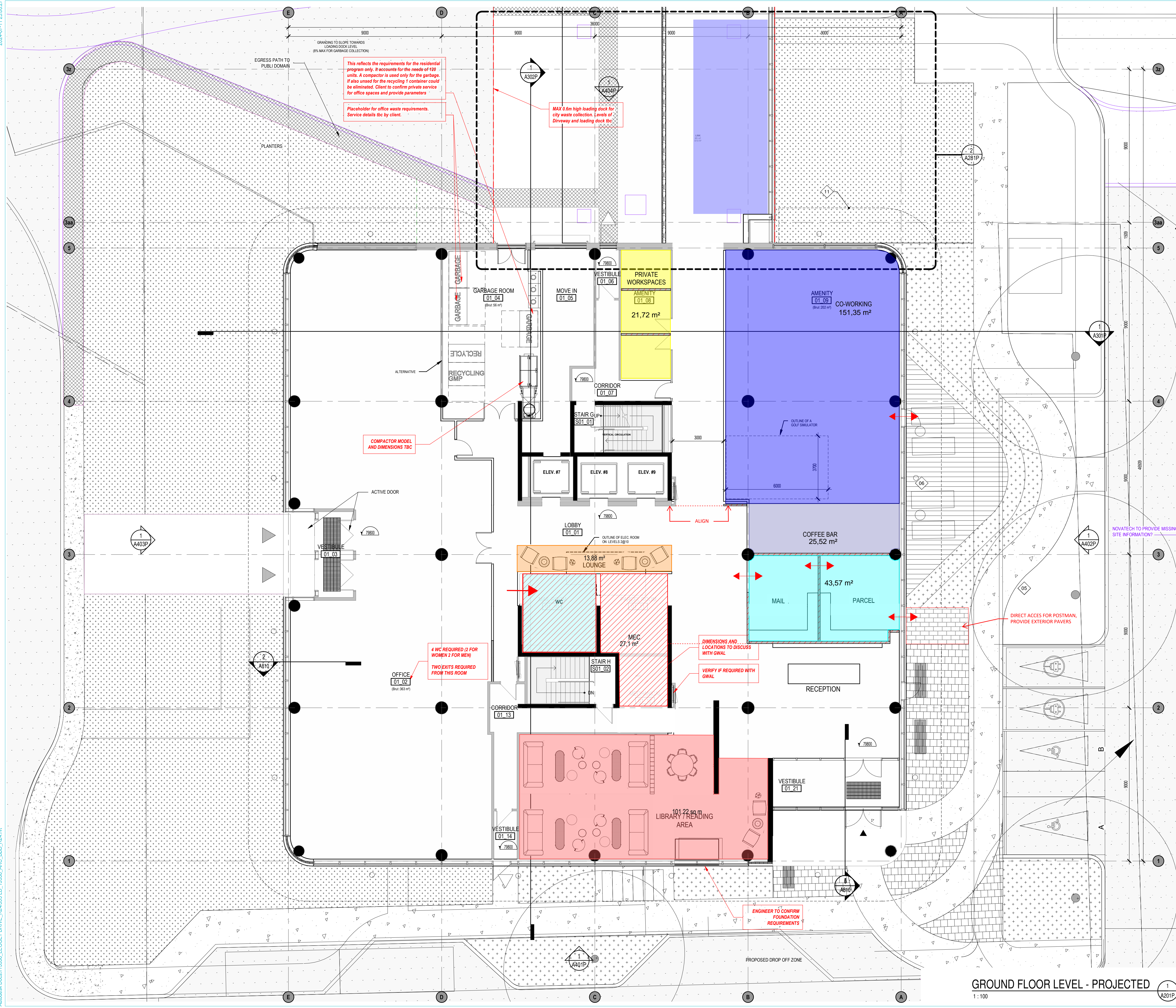


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**535 LEGGET DRIVE**  
**EXISTING CONDITIONS**  
**PLAN**

SCALE	1 : 500	
DATE	SEPT 2024	FIGURE
JOB	124045	FIG-2



GROUND FLOOR LEVEL - PROJECTED  
1:100

GENERAL NOTES	
# NOTE	DESCRIPTION
01	CANOPY OUTLINE
02	LINK HOTEL
03	NEW ENTRANCE SIDEWALK
04	PROPOSED NEW VEHICULAR ENTRANCE
05	NEW LANDSCAPE AREA
06	NEW EXTERIOR AMENITY SPACE
07	NEW SIGNAGE
08	ADDITIONAL TREE (REFER TO LANDSCAPE ARCHITECT)
09	BIKE RACK (1.5m X 0.6m MINIMUM)
10	PROJECTED BUILDING OUTLINE - GROUND FLOOR
11	MARQUEE OUTLINE
12	LOW CEILING
13	NEW STAIRCASE OUTLINE
14	PROJECTED BUILDING OUTLINE - SECOND FLOOR

NOTES GÉNÉRALES - General Notes

- Ces documents d'architecture sont la propriété exclusive de NEUF architect(e)s et ne peuvent être utilisés, reproduits ou copiés sans autorisation préalable. / These architectural documents are the exclusive property of NEUF architect(e)s and cannot be used, copied or reproduced without written pre-authorization.
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SCEAU / Seal

LINE TYPE & ACCESS LEGEND	
▲	VEHICULAR ENTRY
▲	ACCESS TO BUILDING
▲	ACCESS TO OFFICE
▲	EXITS
---	FIRE ROUTE (ON SITE)
→	CIRCULATION ARROW

PARKING LEGEND	
▲	BARRIER FREE PARKING SPACE 6.0m X 3.4m (min.)
▲	BARRIER FREE PARKING SPACE 6.0m X 2.4m (min.)
▲	PARALLEL PARKING FOR VISITORS 6.7m X 2.6m (min.)
▲	TYPICAL PARKING SPACE 6.0m X 2.6m (min.)
▲	EV PARKING SPACE 6.0m X 2.6m (min.)

SURFACE LEGEND	
■	ELEMENT TO CONFIRM WITH SURVEY
■	PEDESTRIAN PATH (BY LANDSCAPE ARCHITECT)
■	LANDSCAPING (BY LANDSCAPE ARCHITECT)
■	TERRACE (BY LANDSCAPE ARCHITECT)
■	INTERVENTION AREA
■	ASPHALT (REFER TO CIVIL)
■	PAVING (BY LANDSCAPE ARCHITECT)
■	DEPRESSED SIDEWALK/ BARRIER FREE TACTILE PAVERS

WALL AND DOOR LEGEND	
■	EXISTING WALL
■	EXISTING STRUCTURE
---	DEMOLISHED WALL
---	NEW WALL
---	DEMOLISHED DOOR
---	EXISTING DOOR
---	NEW DOOR

PLAN SYMBOL LEGEND	
⊠	RAILING OR GUARDRAIL TYPE - SEE PAGE XX FOR DETAILS
#	GENERAL NOTES - SEE LEGEND FOR DESCRIPTION
⊞	WINDOW OR CURTAIN WALL TYPE - SEE PAGE XX FOR DETAILS
⊞	WALL TYPE - SEE PAGE A800 & A801 FOR DETAILS
RT-XX	ROOF TYPE - SEE PAGE A800 & A801 FOR DETAILS
XX	DOOR NUMBER - SEE PAGE A800 & A801 FOR DETAILS
XX	ROOM NUMBER - SEE PLANS FOR DETAILS
XX	EXTERIOR MATERIAL TYPE - SEE PAGE A800 - A803 FOR LEGEND
→	PATH OF TRAVEL - SEE PLANS FOR DETAILS

NOVATECH TO CONFIRM DIMENSIONS  
REQUIRED NUMBER OF EV  
REQUIRED NUMBER OF BF  
REQUIRED NUMBER OF VISITORS

NOVATECH TO PROVIDE MISSING SITE INFORMATION?

DIRECT ACCESS FOR POSTMAN, PROVIDE EXTERIOR PAVERS

DIMENSIONS AND LOCATIONS TO DISCUSS WITH GWAL  
VERIFY IF REQUIRED WITH GWAL

ENGINEER TO CONFIRM FOUNDATION REQUIREMENTS

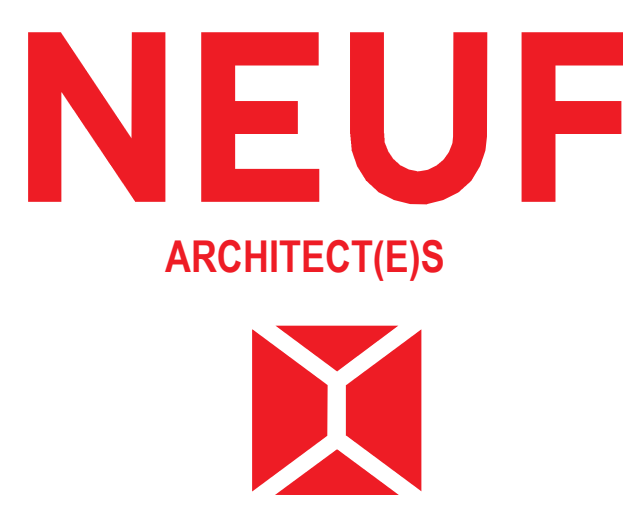
This reflects the requirements for the residential program only. It accounts for the needs of 120 units. A compactor is used only for the garbage. If also used for the recycling 1 container could be eliminated. Client to confirm private service for office spaces and provide parameters

Placeholder for office waste requirements. Service details tbc by client.

MAX 0.6m high loading dock for city waste collection. Levels of 2. Dirway and loading dock tbc.

COMPACTOR MODEL AND DIMENSIONS TBC

4 WC REQUIRED (2 FOR WOMEN 2 FOR MEN)  
TWO EXITS REQUIRED FROM THIS ROOM



OUVRAGE Project  
**535 LEGGET DRIVE**  
NO PROJECT No: 13338  
EMPLACEMENT Location: 535 LEGGET DRIVE, KANATA, ONTARIO

NO	REVISION	DATE (aa-mm-ii)
B	ÉMISSION POUR COORDINATION	2024 06 21
C	AUDIT PROGRAMMATION	2024 06 25

Preliminary  
DO NOT USE FOR CONSTRUCTION

DESSINÉ PAR Drawn by: AT MS  
DATE (aa-mm-ii): 24.06.11  
TITRE DU DESSIN Drawing Title: GROUND FLOOR - PROJECTED

VERIFIÉ PAR Checked by: KP  
ÉCHELLE Scale: As indicated

REVISION Revision: C  
NO. DESSIN Drawing Number: A201P



This replaced the previous wording which read:

“Service areas with a basic day demand greater than 50 m<sup>3</sup>/day (about 50 homes) shall be connected with a minimum of two feeder mains to avoid the creation of a vulnerable service area.”

The second paragraph of Section 4.3.1 was also amended to add the following:

“Individual residential facilities with a basic day demand greater than 50 m<sup>3</sup>/day shall be connected with a minimum of two water services, separated by an isolation valve, to avoid the creation of a vulnerable service area.”

“Basic Day Demand is defined as “The demand when there is no outdoor watering demand, which is during a typical winter day.” It is clear that it is separate from and less than the Average Day Demand of 280 L/cap/day.

As 535 Legget Drive is an individual residential facility, connected by one 200 mm water service calculations were performed to determine if a second water service should be added. Calculations were performed using a basic day demand of 240 L/cap/day, based on monitoring results undertaken on the Shadow Ridge Subdivision in May 2013 (excerpt attached in **Appendix B**).

Basic Day Demand = 202 population x 240 L/cap/day = 48,480 L/day = 48.48 m<sup>3</sup>/day.

Based on the above a second water service is not required.

Water demand calculations have been calculated using criteria from Section 4 of the City of Ottawa Water Distribution Guidelines and the Ontario Building Code as provided in **Table 2.1 – Watermain Design Parameters and Criteria**. Demand is shown in **Table 2.2 – Estimated Water Demands**.

**Table 2.1: Watermain Design Parameters and Criteria**

Domestic Demand Design Parameters	Design Parameters
Unit Population:	
1-Bedroom Apartment	1.4 people/unit
2-Bedroom Apartment	2.1 people/unit
Commercial Demand	28 L/gross ha/day
Basic Day Residential Demand (BSDY)	240 L/c/d
Maximum Day Demand (MXDY)	Residential: 2.5 x Basic Day Commercial: 1.5 x Basic Day
Peak Hour Demand (PKHR)	Residential: 2.2 x Maximum Day Commercial: 2.7 x Basic Day
<b>Fire Demand (FF) Design</b>	
Per FUS 2020	

System Pressure Criteria Design Parameters	Criteria
Maximum Pressure (BSDY) Condition	< 80 psi occupied areas < 100 psi unoccupied areas
Minimum Pressure (PKHR) Condition	> 40 psi
Minimum Pressure (MXDY+FF) Condition	> 20 psi

The required fire demand was calculated using the Fire Underwriters Survey 2020 (FUS) Guidelines. Through correspondence with the architect, it is understood that the proposed building use will be residential occupancy (Limited Combustible), composed of fire resistive construction (2 hrs.), and containing a fully supervised sprinkler system designed as per NFPA 13.

The water demand calculations, fire flow calculations and correspondence are provided in **Appendix B** for reference.

**Table 2.2: Estimated Water Demand**

Population	Commercial Area (m <sup>2</sup> )	Ave. Daily Demand (L/s)	Max. Daily Demand (L/s)	Peak Hour Demand (L/s)	Fire Flow (L/s)
202	397	0.67	3.22	4.87	117

Note as per ITSB-2018-02 the fire flow was distributed among several surrounding hydrants as outlined in **Table 2.3**.

**Table 2.3: Maximum Flow to be considered from a given hydrant.**

Hydrant Class	Distance to building (m)	Contribution to Fire Flow	
		(L/min)	(L/s)
AA	≤75	5700	95
	>75 and ≥150	3800	63.33
A	≤75	3800	63.33
	>75 and ≥150	2850	47.50
B	≤75	1900	31.67
	>75 and ≥150	1500	25.00
C	≤75	800	13.33
	>75 and ≥150	800	13.33

Based on City of Ottawa mapping all existing hydrants within the vicinity of the proposed building are Class AA (Blue). As the fire flow is calculated as 117 L/s, two (2) hydrants will be

required to achieve the required flow. There are presently 2 existing class AA Hydrants within the boulevards of Legget Drive within 75m of the building wall capable of providing a combined maximum flow of 190L/s as per **Table 2.3**. One hydrant is within 45m of the proposed siamese connection. Should the City shut down part of the 610 mm watermain by closing the valve north of the entrance fire demand can be achieved of the other hydrants along Legget Drive and on site which can provide an adequate fire flow of 120 L/s. Refer to **Appendix B** for calculations. **Figure 4 – Hydrant Coverage** shows the site hydrant coverage plan.

The above water demand information was submitted to the City for boundary conditions from the City's water model. These boundary conditions when received will be used to analyze the performance of the proposed and existing watermain systems for three theoretical conditions:

- 1) High Pressure check under Average Day conditions
- 2) Peak Hour demand
- 3) Maximum Day + Fire Flow demand.

### 3.0 SANITARY SERVICING

#### 3.1 Existing Sanitary Conditions

There are existing City sanitary sewers in Legget Drive fronting the development. There is an existing 250mm diameter sanitary sewer within Legget Drive and a 250mm to 700mm diameter trunk sewer which runs through the Marshes Golf Course to the pump station located on Legget Drive.

The existing building is ultimately serviced with a 250mm diameter sewer building drain (building to external manhole) via the trunk sewer within Marshes Golf Course which ultimately outlets to the pump station on Legget Drive. The condition of the existing service was reviewed using CCTV technology completed by Clean Water Works (CWW). The pipe is in good condition but has a sump approximately 10m from the manhole towards the building. The sump will be repaired during construction. The CWW report is included within **Appendix C** for reference.

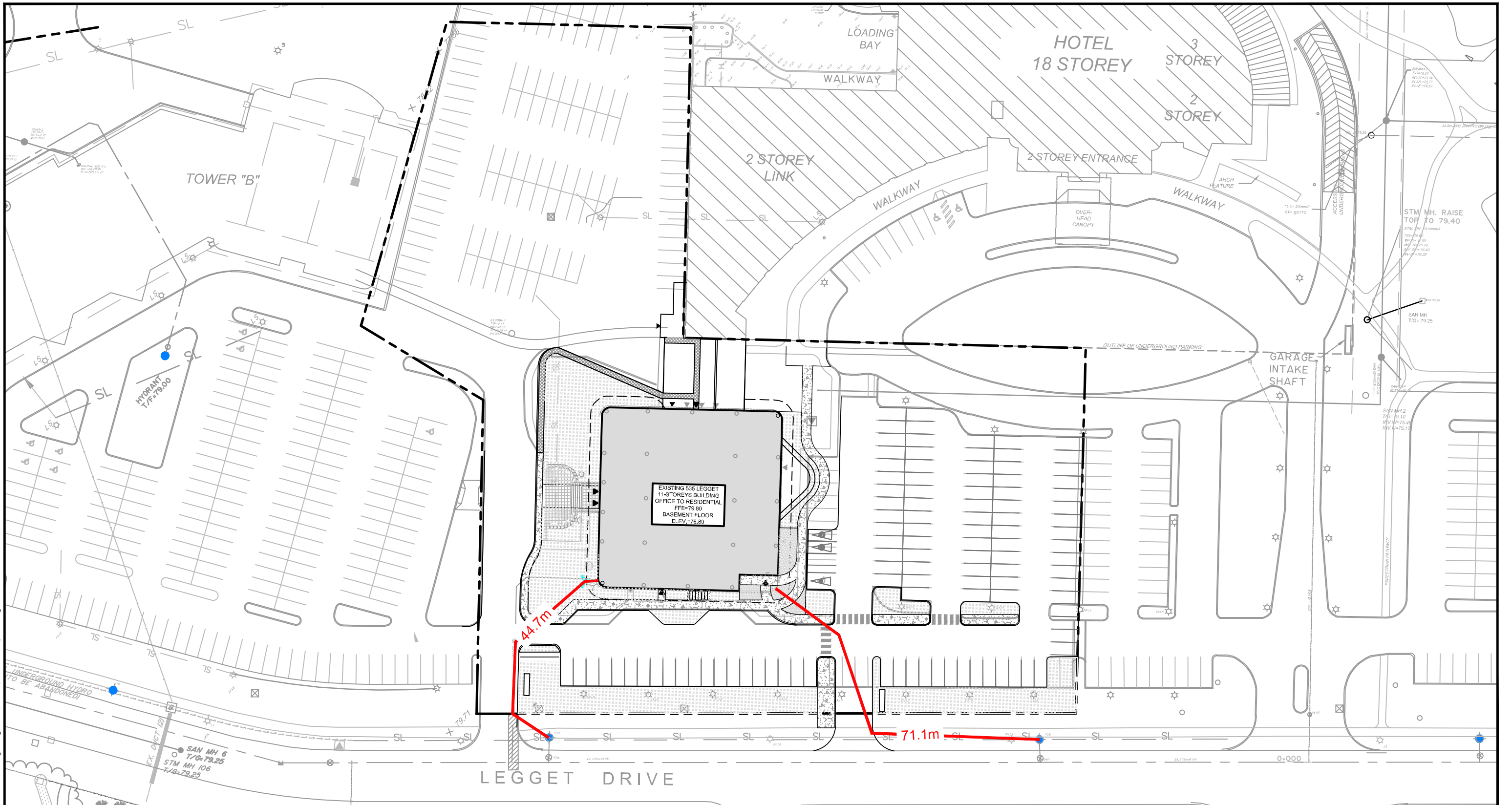
The existing office development currently occupying 535 Legget Drive has a peak sanitary flow including infiltration was calculated to be **1.79 L/s**. The overall pre-development sanitary design sheet for the trunk sewer within Marshes Golf Course and surrounding KRP property can be found in **Appendix C**.

#### 3.2 Proposed Sanitary






It is proposed to service the proposed development with the existing 250mm diameter sanitary sewer.

Sanitary flows for the proposed development were calculated using criteria from Section 4 of the City of Ottawa Sewer Design Guidelines and the Ontario Building Code as follows:

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**LEGEND**

-  PROPERTY LINE
-  PROPOSED SIAMESE CONNECTION
-  EXISTING CLASS AA HYDRANT
-  PROPOSED HYDRANT
-  DISTANCE FROM HYDRANT TO SIAMESE CONNECTION/ BUILDING ENTRANCE




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CITY OF OTTAWA  
 535 LEGGET DRIVE

**COVERAGE PLAN**

SCALE 1 : 750 

DATE	JOB	FIGURE
AUGUST 2024	124045	COV

**Table 3.1: Sanitary Sewer Design Parameters**

Design Component	Design Parameter
Unit Population: 1-Bedroom Apartment 2-Bedroom Apartment	1.4 people/unit 2.1 people/unit
Residential Flow Rate	Design = 280 L/cap/day
Residential Peaking Factor	Harmon Equation (min=2.0, max=4.0) Harmon Correction Factor = 0.8m (Design)
Commercial Peaking Factor	1.0 (less than 20% of contributing area) 1.5 (more than 20% of contributing area)
Extraneous Flow Rate	Design = 0.33 L/s/ha
Minimum Pipe Size	250mm Diameter
Minimum Velocity <sup>1</sup>	0.6 m/s
Maximum Velocity	3.0 m/s
Minimum Pipe Cover	2.0 m (Unless frost protection provided)

The peak sanitary flow including infiltration for the proposed use of the building was calculated to be **2.71 L/s**. Detailed sanitary flow calculations are provided in **Appendix C** for reference.

### 3.3 Sanitary Downstream Analysis

The increase in sanitary flow from **1.79L/s** (pre-development) to **2.71 L/s** (post-development) was analysed in the downstream system.

The slight increase in flow creates a negligible difference within the downstream system. The downstream system still has adequate capacity in all runs. The highest  $Q/Q_{FULL}$  within the KRP sanitary truck sewer system downstream of the site is 36.35%.

Refer to post-development sanitary sheet within **Appendix C** for reference.

## 4.0 STORM SERVICING

### 4.1 Existing Storm Conditions

Currently the building is being serviced by a 250mm diameter storm service which ultimately outlets to the existing KRP Storm Pond to the north-east. The condition of the existing service was reviewed using CCTV technology completed by CWW. The pipe is in good condition but has a sump approximately 10m from the manhole towards the building. The sump will be repaired during construction. The CWW report is included within **Appendix D** for reference.

## 4.2 Proposed Storm

It is proposed to service the development to the existing 250mm diameter storm sewer. Refer to the General Plan of Services (124045-GP) for more details.

**Table 4.1: Storm Sewer Design Parameters**

Parameter	Design Criteria
Local Roads	2 Year Return Period
Storm Sewer Design	Rational Method
IDF Rainfall Data	Ottawa Sewer Design Guidelines
Initial Time of Concentration (Tc)	10 min
Minimum Velocity	0.8 m/s
Maximum Velocity	3.0 m/s
Minimum Diameter	250 mm

Refer to **Appendix D** for detailed storm drainage area plans and storm sewer design sheets.

## 5.0 STORM DRAINAGE AND STORMWATER MANAGEMENT

The stormwater management strategy for the site is based on the established criteria from the City of Ottawa, and the Novatech Original Report.

### 5.1 Design Criteria

Through correspondence with the City of Ottawa, the Novatech Original Report and our knowledge of development requirements in the area, the following criteria have been adopted to control post-development stormwater discharge from the site:

- Control proposed post-development flows to existing pre-development flows.
- Provide source controls which are in conformity with the City of Ottawa requirements, where possible;
- Limit ponding to 0.15 m for all rooftop storage areas and 0.30 m for all parking storage areas;
- Ensure no surface ponding during the 2-year Storm event; and
- Provide guidelines to ensure that site preparation and construction is in accordance with the current Best Management Practices for Erosion and Sediment Control.

The approach to the stormwater management design is to determine the allowable release rate for the site, calculate the uncontrolled flow, and ensure that the remaining flow, in combination with the uncontrolled flow, does not exceed the allowable release rate. All proposed development runoff in excess of the allowable release rate, will be attenuated on-site prior to being released into the storm sewers.

## 5.2 Quantity Control

The allowable release rate for the development was calculated to be 98.4L/s in the 5-year and 152.5 L/s in the 100-year based on the Novatech Original. Novatech Original calculations can be found in **Appendix D**.

The pre-existing conditions storm drainage area plan and design sheet can be found in **Appendix D** for reference. The runoff coefficient of the existing site was calculated to be **0.73**. Additionally, the post-development storm drainage area plan and design sheet can be found in **Appendix D** for reference. The runoff coefficient of the post-development site was calculated to be **0.74**.

Drainage areas from the previous Original Novatech Report will remain unchanged. The original storm drainage plan and storage volumes, release rates, ponding depths and orifice sizes for the 5-year and 100-year event from Novatech Original Report has been included in **Appendix D**.

### Design Storms

The design storms are based on City of Ottawa design storms. Design storms were used for the 2, 5, and 100-year return periods (i.e storm events) for the new roof drainage plan.

### Model Parameters

Post-Development roof drainage catchments were modelled based on the proposed site plan shown on drawing **124045-ROOF** within **Appendix D**. The building roofs were assumed to have no depression storage.

The roof has been divided into ten (10) drainage areas for the post development condition. The drainage areas are as follows;

#### **Area R-01, R-02**

- Stormwater from the building roof will be captured and controlled by flow control roof drains prior to releasing to the existing storm sewer servicing the development. The ponding will be limited to 0.15m in depth with overflow scuppers provided for emergencies. Storage of stormwater will be provided for storms up to and including the 100-year event. Further details will be provided once a mechanical consultant is retained for the subject development.

#### **Area R-03, R-04, R-05, R-06**

- Stormwater from the upper floor terraces will be captured and released to ground level via a downspout. Splash pads will be provided on grade to mitigate erosion. Released stormwater will drain to the existing catch basins within the development.

#### **Area R-07, R-08, R-09, R-10**

- Stormwater capture via the 2nd floor canopy roof will be captured and control by flow control roof drains. The area for each canopy roof drain was calculated by utilizing the horizontal area of the drainage area plus 25% of vertical area from floors 2-11. The four areas were equalized for simplicity. Storage of stormwater will be provided for storms up to and including the 100-year event.

**Table 5.1** below summarizes the flow, storage required, and storage provided for each of the new roof drainage areas.

**Roof Post-Development Stormwater Management Summary**

Area ID	Area (ha)	1:5 Year Weighted Cw	1:100 Year Weighted Cw	Control Device		Outlet Location	2 Year Storm Event				5 Year Storm Event				100 Year Storm Event				
							Release (L/s)	Ponding Depth* (m)	Req'd Vol (cu.m)	Max. Vol. Provided (cu.m.)	Release (L/s)	Ponding Depth* (m)	Req'd Vol (cu.m)	Max. Vol. Provided (cu.m.)	Release (L/s)	Ponding Depth* (m)	Req'd Vol (cu.m)	Max. Vol. Provided (cu.m.)	
R-01	0.055	0.90	1.00	Accutrol RD-100-A-ADJ	Full Open	KRP Pond	1.17	0.09	8.09	27.60	1.41	0.11	11.33	27.60	1.77	0.14	24.58	27.60	
R-02	0.055	0.90	1.00	Accutrol RD-100-A-ADJ	Full Open	KRP Pond	1.17	0.09	8.09	27.60	1.41	0.11	11.33	27.60	1.77	0.14	24.58	27.60	
R-03	0.006	0.90	1.00	N/A		KRP Pond	1.10				1.50				2.90				
R-04	0.006	0.90	1.00	N/A		KRP Pond	1.10				1.50				2.90				
R-05	0.006	0.90	1.00	N/A		KRP Pond	1.10				1.50				2.90				
R-06	0.006	0.90	1.00	N/A		KRP Pond	1.10				1.50				2.90				
R-07	0.034	0.90	1.00	Accutrol RD-100-A-ADJ	3/4 Open	KRP Pond	1.04	0.10	4.25	14.98	1.33	0.12	5.87	14.98	1.57	0.15	13.39	14.98	
R-08	0.034	0.90	1.00	Accutrol RD-100-A-ADJ	3/4 Open	KRP Pond	1.04	0.10	4.25	14.98	1.33	0.12	5.87	14.98	1.57	0.15	13.39	14.98	
R-09	0.034	0.90	1.00	Accutrol RD-100-A-ADJ	3/4 Open	KRP Pond	1.04	0.10	4.25	14.98	1.33	0.12	5.87	14.98	1.57	0.15	13.39	14.98	
R-10	0.034	0.90	1.00	Accutrol RD-100-A-ADJ	3/4 Open	KRP Pond	1.04	0.10	4.25	14.98	1.33	0.12	5.87	14.98	1.57	0.15	13.39	14.98	
<b>Post-Development Flow</b>							<b>10.9</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>14.1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>21.4</b>	<b>-</b>	<b>49.2</b>	<b>-</b>	
<b>Total Allowable Release Rate</b>							<b>22.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>22.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>22.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

\* Ponding depth is measured from the control device

Note Roof storage and flows are based on preliminary roof plans. Areas and storage will be updated once a mechanical engineer is retained, and final drawings are prepared.



## 6.0 EROSION AND SEDIMENT CONTROL

Temporary erosion and sediment control measures will be implemented on-site during construction in accordance with the Best Management Practices for Erosion and Sediment Control. This includes the following temporary measures:

- Filter socks (catchbasin inserts) will be placed in existing and proposed catchbasins and catchbasin manholes, and will remain in place until vegetation has been established and construction is completed;
- Silt fencing will be placed along the surrounding construction limits;
- The contractor will be required to perform regular street sweeping and cleaning as required, to suppress dust and to provide safe and clean roadways adjacent to the construction site;

Erosion and sediment control measures should be inspected daily and after every rain event to determine maintenance, repair, or replacement requirements. Sediments that enter site sewers shall be removed immediately by the contractor. These measures will be implemented prior to the commencement of construction and maintained in good order until vegetation has been established. Refer to the Erosion and Sediment Control Plan (**124045-ESC**) for additional information.

## 7.0 CONCLUSIONS AND RECOMMENDATIONS

### Watermain

The analysis of the existing and proposed watermain network confirms the following:

- The existing 200mm dia. watermain service which connects to the existing 610mm in Legget Drive will continue to service the proposed development.
- It is expected that there are adequate flows to service the proposed fire protections system which will be confirmed once boundary conditions are received.

### Sanitary Servicing

The analysis of the existing and proposed sanitary system confirms the following:

- It is proposed to service the development with the existing 200mm sanitary service.
- The peak sanitary flow including infiltration for the proposed use of the building was calculated to be **2.71 L/s**.
- The slight increase in flow creates a negligible difference within the downstream system. The downstream system still has adequate capacity in all runs.

### Strom Servicing

The analysis of the existing and proposed sanitary system confirms the following:

- It is proposed to service the development with the existing 250mm storm service.
- The runoff coefficient of the post-development site was calculated to be **0.74**. We believe the 0.01 increase in runoff coefficient is negligible.
- Proposed roof drains releasing **15.1 L/s** - less than pre-development allowable.

- All other drainage areas from the previous Original Novatech Report will remain unchanged.

## 8.0 CLOSURE

This report is submitted for review and approval in support of the site plan application. Please contact the undersigned should you have questions or require additional information.

## NOVATECH

Prepared by:



**Curtis Ferguson, E.I.T.**  
Engineering Intern, Land Development  
and Public Sector Infrastructure

Reviewed by:



**Greg MacDonald, P.Eng**  
Director, Land Development and Public  
Sector Infrastructure

**Appendix A**  
**Pre-Consultation Minutes**

July 22, 2024

James Ireland  
Novatech  
Via email: j.ireland@novatech-eng.com

**Subject: Pre-Consultation: Meeting Feedback  
Proposed Site Plan Control Application – 535 Legget Drive**

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on [Enter Date of Meeting](#).

**Pre-Consultation Preliminary Assessment**

1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	5 <input type="checkbox"/>
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One (1) indicates that considerable major revisions are required while five (5) suggests that the 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.

**Next Steps**

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please consider proceeding to a Phase 3 pre-consultation. Fill in the Pre-consultation Application Form and submit it together with the necessary studies and/or plans to [planningcirculations@ottawa.ca](mailto:planningcirculations@ottawa.ca).
2. In your subsequent submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.
3. Please note, if your development proposal changes significantly in scope, design, or density, you may be required to complete or repeat the pre-consultation process before filing an Official application.

**Supporting Information and Material Requirements**

1. The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.

- a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on [Ottawa.ca](http://Ottawa.ca). These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

### **Consultation with Technical Agencies**

1. You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

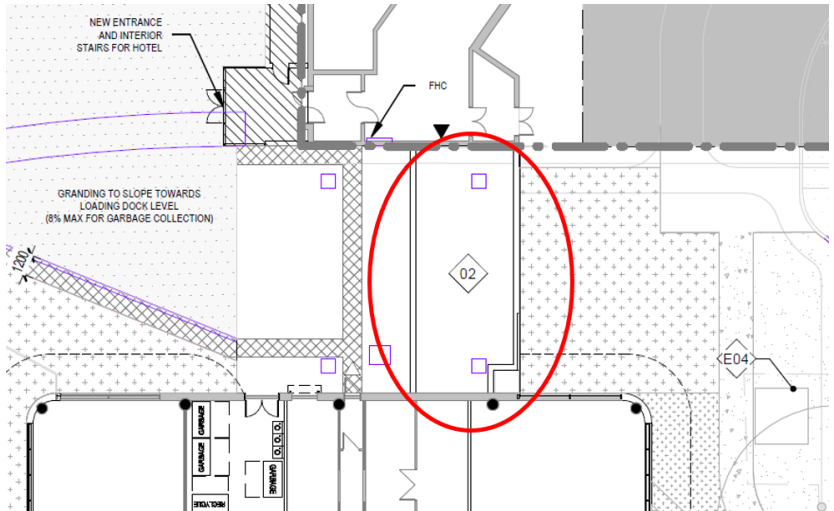
### **Planning**

Comments:

1. The following policies apply to the site:
  - a. The site is designated within the Kanata North Economic District on Schedule B5 – Suburban Transect
  - b. The subject site is situated within 600 meters of a future BRT station located at at March/Terry Fox and March/Solandt, as shown on Schedule C2 – Transit Network – Ultimate
  - c. Per Schedule C4 – Urban Road Network, Legget Drive is classified as an existing collector road.
  - d. The site is located within a Design Priority Area identified on Schedule C7-A – Design Priority Areas – Urban.
2. Provide dimensions on plans to confirm zoning compliance and/or identify any performance standards requiring relief.
3. Explore opportunities to introduce more landscaped areas/medians, tree plantings and outdoor amenity areas into the existing surface parking areas.
4. Remove front yard parking between the building and Legget Drive. Policy 5h of Section 6.6.3.2 states that surface parking along Legget Drive shall be discouraged and as development occurs, phasing out of existing visible parking is encouraged. As well, the policy directs that surface parking lots should not be located between the right of way and the main entrance of the building.
5. Proposed sidewalk connection to Legget Drive is appreciated. Please ensure that the walkway has a minimum width of 2 metres, per Policy 5f of Section 6.6.3.2 in the Official Plan.
6. It is understood that the applicant is not intending to provide ground-floor commercial space as part of the development. Staff have concerns that this

approach does not align with the planned function of activity centres in the KNED, per Policy 4 of Section 6.6.3.2 of the OP. Ensure this matter is addressed in the Planning Rationale required in support of the associated Zoning By-law Amendment.

7. Staff appreciate that the main entrance has been oriented to Legget Drive.
8. Provide vehicular parking calculation in the next submission. Based on the information currently available, it appears that's zoning relief is required - 109 spaces provided, 164 required (based on 117 units). Staff have no concerns with reducing the parking rates, as Policy 4(3) of Section 6.6.3.2 directs that development within activity centres shall not require minimum parking.
9. Provide additional information on proposed bicycle parking in the next submission. It appears that six spaces are provided along the Legget Drive façade. How many interior bicycle parking spaces are being provided?
  - a. Please provide an adequate number of bicycle parking facilities in accordance with Policy 9 of Section 4.1.2:
    - i. Long-term bicycle parking facilities shall be secure, sheltered and usable by all types of cyclists. Where located inside buildings, long-term bicycle parking facilities shall provide safe, accessible, direct and convenient access to the exterior; and
    - ii. Short-term bicycle parking facilities shall be highly visible, well-lit, near building entrances and where appropriate, sheltered.
10. Provide further information on how amenity area will be provided. Refer to Section 137 of the Zoning By-law for minimum requirements.
  - a. Please confirm if residents are allowed to use the amenity areas located in the hotel to the North.
  - b. Explore opportunities to provide outdoor amenity space; consider reducing parking in the front yard, and replacing it with amenity space.
11. If the intention is to be eligible for City waste pick-up, please note that the garbage bins must be brought to an accessible collection point – to be reviewed further at formal review. Waste Collection Services has confirmed that they would not collect the bins from the loading dock.
12. Provide further information on how the connection with the hotel functions (shown as Note 02 Link Hotel on the Site Plan). It appears to be an open-air connection currently – is the intention to have a building connection?



### 13. Section 37 requirements / Community Benefits Charge

- a. The former Section 37 regime has been replaced with a “Community Benefits Charge”, [By-law No. 2022-307](#), of 4% of the land value. This charge will be required for ALL buildings that are 5 or more storeys and 10 or more units and will be required at the time of building permit unless the development is subject to an existing registered Section 37 agreement. Questions regarding this change can be directed to [Ranbir.Singh@ottawa.ca](mailto:Ranbir.Singh@ottawa.ca).

### 14. Office-to-Residential Conversion

- a. The Site Plan Control process for Office-to-Residential Conversions with no additions or new storeys are subject to the following:
  - i. A scoped list of minimum required materials.
  - ii. A Site Plan Control – Standard application fee
- b. Refer to feedback provided for PC2024-0128 for additional discussion.

15. Please note that there is an on-going Community Planning Permit (CPP) Study for the Kanata North Economic District. It is anticipated that the Pilot CPP By-law will be adopted by Council in September 2024. More information on the study can be found on [Engage Ottawa](#).

16. Please note that Urban Design Guidelines are currently being prepared for the Kanata North Economic District. It is anticipated that that the design guidelines will be completed in the next year and will apply to the proposed development.

Please contact Elizabeth Desmarais at [Elizabeth.Desmarais@ottawa.ca](mailto:Elizabeth.Desmarais@ottawa.ca) for more information/to review the draft guidelines.

#### 17. Required Applications

- a. Site Plan Control – more information on the process can be found [here](#).
  - i. Standard Site Plan Control application fee applies.
- b. Major Zoning By-law Amendment – more information on the process can be found [here](#). Refer to previous pre-con notes (File No. PC2024-0128) for feedback on this file.

Feel free to contact Colette Gorni, Planner II, for follow-up questions.

### **Urban Design**

Comments:

#### **Submission Requirements**

18. Urban Design Brief is required. Please see attached customized Terms of Reference to guide the preparation.

- a. The Urban Design Brief should be structured by generally following the headings highlighted under Section 3 – Contents of these Terms of Reference.

19. The site is within a Design Priority Area, attendance at the UDRP is strongly recommended.

20. Additional drawings and studies are required as shown on the SPIL. Please follow the terms of references ( [Planning application submission information and materials | City of Ottawa](#)) the prepare these drawings and studies. These include:

- a. Design Brief
- b. Site Plan
- c. Concept Plan (can be a part of the design brief)
- d. Landscape Plan
- e. Elevations
- f. Conceptual Floor Plans
- g. UDRP Report (optional)



## Comments on Preliminary Design

Applicants are to provide a response to the below comments in the Design Brief:

21. The site is in a Design Priority Area, these are areas in the city where the new Official Plan anticipates design excellence and a high-quality public realm treatment to be achieved. Please ensure that these policies are addressed within the design brief.
22. Attendance at UDRP is recommended.
23. Please provide a concept plan illustrating the development in the wider context. Vehicular and pedestrian circulation between the subject property, Brookstreet Hotel and 555 Legget should be illustrated.
24. The drop off area should be reconfigured to provide additional landscape area and opportunity for retail patio in the future. In line with the Official Plan, it would be preferred to remove or reduce parking in the front of the building.
25. Juliet balconies are appreciated. Projecting balconies are not appropriate.
26. New building entrance should be more prominent.
27. Staff is looking forward to seeing more detail of the building façade including the proposed connection to the hotel.



28. If fencing is provided on the amenity space. Please consider low, transparent fencing to lessen impact on the public realm.
29. Please provide bicycle parking spaces according to city standards. Please ensure that bicycle parking is well incorporated into landscape design.
30. The sidewalks shown in the plan are quite narrow. A minimum of 1.8m should be provided.

Feel free to contact Lisa Stern, Urban Design Planner, for follow-up questions.

## **Engineering**

### Comments:

31. Water Quantity Control: Storm water quantity control is not required but it is recommended to look at ways to control storm water flow on site.
32. Water Quality Control is provided at the Pond.
33. Provide the proposed Sanitary sewer release rate to confirm that there is sufficient capacity.
34. As discussed at the Pre-Consult on April 16, 2024, please provide confirmation that the sanitary sewer leaving the site, currently shown as private on GeoOttawa, is now public and runs through a private easement.
35. Existing building service laterals will require a CCTV inspection and report to ensure existing services to be re-used are in good working order and meet current minimum size requirements. Located services to be placed on existing condition plan.
36. Water Supply Redundancy: Residential buildings with a basic day demand greater than 50m<sup>3</sup>/day (0.57 L/s) are required to be connected to a minimum of two water services separated by an isolation valve to avoid a vulnerable service area as per the Ottawa Design Guidelines - Water Distribution, WDG001, July 2010 Clause 4.3.1 Configuration.

It was noted at the meeting that the basic day demand for the proposed development will be below the 50m<sup>3</sup>/day (0.57 L/s). The Consultant will need to demonstrate in the Site Servicing Report that the basic day demand is below the 50m<sup>3</sup>/day and provide confirmation from the architect regarding the population count on the proposed residential building.

Note: The existing water service to the building is off Legget Drive. The watermain on Legget Drive is a 610mm concrete pressure pipe (C-301). The City periodically isolates these C-301 watermains for structural inspections and therefore do not allow two connections to backbone watermains for redundancy. Further, the applicant will have to demonstrate that they can achieve the required fire flows to their site with the 610mm watermain isolated.

37. Please review Technical Bulletin ISTB-2018-02, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A hydrant coverage figure shall be provided and demonstrate there is adequate fire protection for the proposal. Two or more public hydrants are anticipated to be required to handle fire flow.
38. Boundary conditions are required to confirm that the require fire flows can be achieved as well as availability of the domestic water pressure on the City street

in front of the development. Use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons. Please provide the following information to the City of Ottawa via email to request water distribution network boundary conditions for the subject site. Please note that once this information has been provided to the City of Ottawa it takes approximately 5-10 business days to receive boundary conditions.

- a. Type of Development and Units
- b. Site Address
- c. A plan showing the proposed water service connection location.
- d. Average Daily Demand (L/s)
- e. Maximum Daily Demand (L/s)
- f. Peak Hour Demand (L/s)
- g. Fire Flow (L/min)

[Fire flow demand requirements shall be based on ISTB-2021-03]. Exposure separation distances shall be defined on a figure to support the FUS calculation and required fire flow (RFF). Hydrant capacity shall be assessed to demonstrate the RFF can be achieved. Please identify which hydrants are being considered to meet the RFF on a fire hydrant coverage plan as part of the boundary conditions request.

39. List of required reports and plans:

- a. PLANS:
  - i. Existing Conditions and Removals Plan
  - ii. Site Servicing Plan (if new services are proposed)
  - iii. Road Reinstatement Plan (if new services are proposed)
  - iv. Topographical survey
- b. REPORTS:
  - i. Site Servicing Report
  - ii. Erosion and Sediment Control Plan/Brief

- iii. Hydraulic Watermain Analysis
- iv. Stormwater Management Report and Servicing Brief
- v. Phase I ESA
- vi. Record of Site Condition
- vii. Phase II ESA (Depending on recommendations of Phase I ESA)

Feel free to contact Anton Chetrar, Project Manager, for follow-up questions at [anton.chetrar@ottawa.ca](mailto:anton.chetrar@ottawa.ca)

### **Noise**

Comments:

40. Noise Impact Studies required for the following:

- a. Road, as the site is within proximity to a collector road (Legget Drive).
- b. Stationary, due to the proximity to neighboring exposed mechanical equipment and/or if there will be any exposed mechanical equipment.

Feel free to contact Rochelle Fortier-Lesage ([rochelle.fortier@ottawa.ca](mailto:rochelle.fortier@ottawa.ca)), Transportation Project Manager, for follow-up questions.

### **Transportation**

Comments:

- 41. Correct TIA Screening form. The site plan shows a new access is proposed to Legget Drive which would trigger a limited scope TIA per recommendations from the Office-to-Residential Conversions report. In this case a design review memo will suffice. Include relevant elements from Modules 4.1 to 4.5 of the TIA guidelines. Feel free to reach out to discuss the scope.
- 42. Ensure that the development proposal complies with the Right-of-Way protection requirements - See [Schedule C16 of the Official Plan](#).
- 43. The new proposed access to Legget Drive is offset from the existing access to 570 March on the south side of the street. Preference is to align the accesses to mitigate overlapping left turn conflicts.
- 44. If one-way traffic is proposed for the east-west drive aisle located to the south of the building, then the access aisle width should be reduced to clarify this function. One-way and do not enter signage should also be provided and shown on the plan.

45. Show on-site circulation elements along the main westerly drive aisle and the rear of the site, including any proposed/existing pavement markings. It is unclear what changes (if any) are proposed to the loading dock at the rear of the site. Please provide turning movement diagrams for the loading dock if physical changes are proposed.
46. Show the existing lay-by on the west side of the building at the main entrance. Are any changes proposed? Drop-offs are also noted on the south side of the building. Preference is to consolidate these drop-off zones and provide one clearly defined area.
47. Upgrade the existing asphalt pathway on the Legget Drive frontage to a concrete sidewalk.
48. Provide a pedestrian connection along the east side of the existing entrance and laneway.
49. On site plan:
  - a. Ensure site accesses meet the [City's Private Approach Bylaw](#) and all driveways/aisles meet the requirements outlined in [Section 107 of the Zoning By-law](#).
  - b. Show all details of the roads abutting the site; include such items as pavement markings, accesses and/or sidewalks.
  - c. Ensure all internal pathways are a minimum of 1.5m wide. A width of 1.8m to 2.0m is desirable.
  - d. Turning movement diagrams at the new proposed access will be required.
  - e. Clear throat length requirements for apartments (100-200 units) on a collector is 15m. Ensure this length is provided and dimension it on the site plan.
  - f. Corner clearances should follow minimum distances set out within TAC Figure 8.8.2.
  - g. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible and fall within TAC guidelines (Figure 8.5.1).
  - h. Sidewalk is to be continuous across access as per City Specification 7.1.
  - i. Show dimensions for site elements (i.e. lane/aisle widths, access width, parking stalls, sidewalks, pedestrian pathways, etc.)

- j. Please consider using the [City's Accessibility Design Standards](#), which provide a summary of AODA requirements.
- k. Grey out any area that will not be impacted by this application.

Feel free to contact Rochelle Fortier-Lesage (rochelle.fortier@ottawa.ca), Transportation Project Manager, for follow-up questions.

### **Environment**

Comments:

50. No comments.

Feel free to contact Matthew Hayley, Environmental Planner, for follow-up questions.

### **Forestry**

Comments:

#### **Tree Conservation Report**

- 51. The concept plan provided at PC2 shows a proposed new vehicular entrance from Legget, through a treed area, and changes appear to be proposed at the western building entrance as well. With this and the fact that this is now a Site Plan application, a Tree Conservation Report is required in accordance with Schedule E of the Tree Protection By-law. Ownership of all trees on the subject site and with Critical Root Zones extending onto the subject site must be determined, and plans must show how they will be protected from proposed works.
- 52. Section 4.8.2 of the New Official Plan provides strong direction to maintain the urban forest canopy and its ecosystem services during intensification noting when considering the impacts on individual trees, planning and development decisions, including Committee of Adjustment decisions, shall give priority to the retention and protection of large, healthy trees over replacement plantings and compensation. Applications must address the cumulative impacts on the urban forest, over time and space, with the goal of 40% urban forest canopy cover in mind. Further, that the City and the Committee of Adjustment may refuse a development application where it deems the loss of a tree(s) avoidable.
- 53. The locations of vehicle entrances, curbs, buildings, and structures should account for the retention and protection of significant trees on and adjacent to the site, including those that provide privacy for neighboring properties.
- 54. If any shared or adjacent trees are impacted by the proposal, the applicant is responsible for consulting with the owners of the trees and for obtaining signed

permission if any trees must be removed. If no permission is granted, plans must be designed to allow for the full protection of these trees.

55. A permit is required prior to removal of any protected trees on site. The tree permit will be released upon site plan approval. Please contact the planner associated with the file or the Planning Forester, Nancy Young (Nancy.young@ottawa.ca) for information on obtaining the tree permit.
56. To ensure that no harm is caused to breeding birds, tree removal and vegetation clearing should be avoided during the migratory bird season (April 15 – August 15) as specified by The City of Ottawa's Environmental Impact Study Guidelines.

### Tree Conservation Report Requirements

57. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
58. An approved TCR is a requirement of Site Plan approval.
59. The TCR may be combined with the LP provided all information is supplied
60. Any removal of privately-owned trees 10cm or larger in diameter, or city-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
61. Compensation may be required for the removal of city owned trees.
62. The TCR must contain 2 separate plans:
  - a. Plan/Map 1 - show existing conditions with tree cover information
  - b. Plan/Map 2 - show proposed development with tree cover information
63. Please ensure retained trees are shown on the landscape plan.
64. The TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition.
65. Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
66. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained.
67. All retained trees must be shown, and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca.

68. The location of tree protection fencing must be shown on the plan.
69. Show the critical root zone of the retained trees.
70. The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.

### Landscape Plan Comments

71. A Landscape Plan is required with this application and must address all requirements within the Landscape Plan Terms of Reference [https://documents.ottawa.ca/sites/documents/files/landscape\\_tor\\_en.pdf](https://documents.ottawa.ca/sites/documents/files/landscape_tor_en.pdf), including the projection of canopy cover toward the target of 40%, and confirmation of adequate soil volumes to support any proposed trees. This may be combined with the TCR to clarify the existing and proposed trees.
72. The Official Plan section 4.8.2, sub 3 provides the following direction related to tree planting related to site plans:
  - a. Preserve and provide space for mature, healthy trees on private and public property, including the provision of adequate volumes of high-quality soil as recommended by a Landscape Architect;
  - b. On urban properties subject to site plan control or community planning permits, development shall create tree planting areas within the site and in the adjacent boulevard, as applicable, that meet the soil volume requirements in any applicable City standards or best management practices or in accordance with the recommendation of a Landscape Architect;
73. Please confirm the amount of parking required vs provided.
  - a. Given the proposed rezoning to residential use, it is a high priority to provide outdoor green space for tree planting, shade, and amenity use. It is strongly recommended to convert some of the existing parking space (particularly that facing Legget) to soft landscaping for this purpose. The conceptual Landscape Plan should be updated to account for such changes to the parking and landscaping on site.
    - i. Planting additional trees within the ROW facing Legget should be prioritized to help screen the view of the parking lot from the road.

### Landscape Plan Requirements

74. The City recommends the following Best Management Practices to improve the climate change resiliency of new developments:



- a. For parking lots, provide 1 new tree for every 5 parking spaces to help cool the landscape of the site.
- b. Confirm sufficient Soil volumes to support canopy cover on site (30m<sup>3</sup> for street trees)
- c. Proposed species must not include invasive species and target a minimum of 50% native species.

75. Minimum Setbacks:

- a. Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
- b. Maintain 2.5m from curb.
- c. Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- d. Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

76. Tree Specifications:

- a. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- b. Maximize the use of large deciduous species wherever possible to maximize future canopy coverage.
- c. Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
- d. Plant native trees whenever possible.
- e. No root barriers, dead-man anchor systems, or planters are permitted.
- f. No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

77. Hard Surface Planting:

- a. Curb style planter is highly recommended.

- b. No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- c. Trees are to be planted at grade.

78. Soil Volume:

- a. Please document on the LP that adequate soil volumes can be met:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

- b. Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay.

79. Sensitive Marine Clay

- a. Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines.

Feel free to contact Nancy Young (nancy.young@ottawa.ca), Forester, for follow-up questions.

Tree Canopy

- 80. The landscape plan shall show how the proposed tree planting will replace and increase canopy cover on the site over time, to support the City's 40% urban forest canopy cover target.
- 81. At a site level, efforts shall be made to provide as much canopy cover as possible, through tree planting and tree retention, with an aim of 40% canopy cover at 40 years, as appropriate. Indicate on the plan the projected future canopy cover at 40 years for the site.

Feel free to contact Nancy Young (nancy.young@ottawa.ca), Forester, for follow-up questions.

## **Parkland**

Comments:

82. Please be sure that the application provides a parkland conveyance requirement calculation and provides rationale for the most suitable way to address parkland policies of Section 4.4 of the Official Plan.
83. The applicable rate is 1 ha per 600 units. Based on 127 units, at the noted rate, the parkland dedication amount is 0.212 ha. The parkland dedication amount is capped at 10% the gross land area for sites less than 5 ha in size. As this is the case and the gross land area is 1.24 ha, the applicable parkland dedication amount is 0.124 ha.
84. Please note Official Plan Policy 4.4.1.3) For Site Plan Control applications in the Downtown, Inner Urban, Outer Urban and Suburban Transects, where the development site is more than 4,000 square metres, the City shall place a priority on acquisition of land for park(s) as per the Planning Act and the Parkland Dedication By-law.
85. Please note Parkland Dedication By-law Section 8, 4. "Where conveyance of land for park purposes is not feasible within the site being developed, the City: may consider the conveyance of land outside of the site being developed if the City is satisfied that the land provides a benefit to the residents of the land being developed".
86. Will the applicant be participating in a landowners agreement to provide for the dedication and construction of parks in the Kanata North Economic District?

Feel free to contact Anissa McAlpine, Parks Planner, for follow-up questions at [anissa.mcalpine@ottawa.ca](mailto:anissa.mcalpine@ottawa.ca).

---

## **Other**

87. The High-Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design. The HPDS was passed by Council on April 13, 2022.
  - a. At this time, the HPDS is not in effect and Council has referred the 2023 HPDS Update Report back to staff with direction to bring forward an updated report to Committee with recommendations for revised phasing timelines, resource requirements and associated amendments to the Site Plan Control By-law by no later than Q1 2024.

- b. Please refer to the HPDS information attached and [ottawa.ca/HPDS](http://ottawa.ca/HPDS) for more information.

Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

Yours Truly,  
Colette Gorni

- c.c. Nishan Dave, Planner I (DR West)  
Spencer Mulvaney, Planning Co-op Student (DR West)  
Anton Chetrar, Infrastructure Project Manager  
Ryan Brault, Infrastructure Project Manager  
Rochelle Fortier, Transportation Project Manager  
Nancy Young, Planning Forester  
Anissa McAlpine, Parks Planner  
Elizabeth Desmarais, Planner (KNED Design Guidelines)

**Appendix B**  
**Water Servicing**

## Boundary Condition Request

**Novatech Project #:** 124045  
**Project Name:** KRP Tower C conversion  
**Date:** 8/28/2024  
**Input By:** Curtis Ferguson, E.I.T.  
**Reviewed By:** Anthony Mestwarp, P.Eng.  
**Drawing Reference:**

**Legend:** Input by User   No Input Required    
 Calculated Cells →    
**Reference:** Ottawa Design Guidelines - Water Distribution (2010 and TBs)  
 MOE Design Guidelines for Drinking-Water Systems (2008)  
 Fire Underwriter's Survey Guideline (2020)  
 Ontario Building Code, Part 3 (2012)

Small System = YES

	# of Dwellings	Area (ha.)	Pop. Equiv.	Average Day Demand (L/s)	Maximum Day Demand (L/s)	Peak Hour Demand (L/s)	
<b>Residential Input</b>							
Apartments (2-BR)	54		113.40	0.37	1.80	2.72	
Apartments (1-BR)	63		88.20	0.29	1.40	2.12	
<b>Industrial / Commercial / Institutional (ICI) Input</b>							
Industrial Area - Light				0.00	0.00	0.00	
Industrial Area - Heavy				0.00	0.00	0.00	
Commercial Area				0.04	0.01	0.02	0.04
Institutional Area				0.00	0.00	0.00	
Other Area					0.00	0.00	0.00
<b>Totals</b>	<b>117</b>	<b>0.04</b>	<b>201.60</b>	<b>0.67</b>	<b>3.22</b>	<b>4.87</b>	

### Summary

i. Type of Development and Units:	11-Storey Apartment Building with 117 units
ii. Site Address:	535 Legget Drive, Ottawa, Ontario
iii. Proposed Water Service Connection Location(s):	Legget Drive
iv. Average Day Flow Demand:	0.67 L/s
v. Peak Hour Flow Demand:	4.87 L/s
vi. Maximum Day Flow Demand:	3.22 L/s
vii. Required Fire Flow #1:	7000 L/min
viii. Required Fire Flow #2:	L/min
ix. Required Fire Flow #3:	L/min

**Design Parameters**

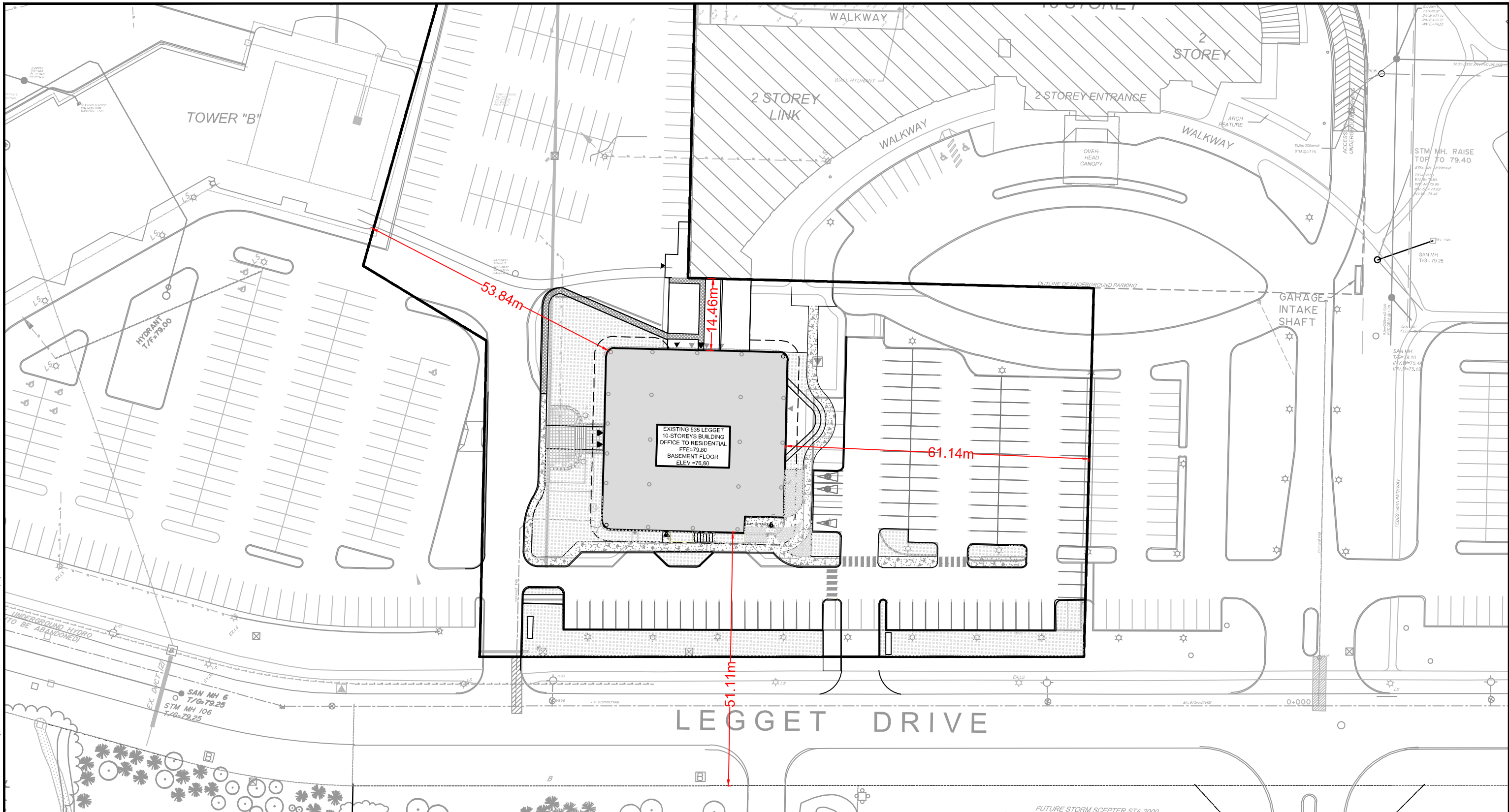
Residential						
Unit Type Population Equiv.	Singles	Semis/ Towns	Apts (2-BR)	Apts (1-BR)	Apts (Avg)	Apts (3-BR)
	3.4	2.7	2.1	1.4	1.8	3.1
Daily Demand	L/per person/day					
Average Demand	280					
Basic Demand	240					

Residential Peaking Factors		Max Day (x Avg Day)	Peak Hour (x Avg Day)
Small System (If Applicable)  <i>Modified</i>	Pop.		
	0	9.50	14.30
	30	9.50	14.30
	150	4.90	7.40
	300	3.60	5.50
	450	3.00	5.50
	500	2.90	5.50
Large System (Default)	> 500	2.50	5.50

Institutional / Commercial / Industrial				
Industrial		Commercial	Institutional	Other Area
Light	Heavy			
L/gross ha/day				L/m <sup>2</sup> /day
35,000	55,000	28,000	28,000	5

ICI Peaking Factors	Max Day (x Avg Day)	Peak Hour (x Avg Day)
	1.50	2.70

M:\2024\124045\CAD\Civil\Figures\Separation.dwg, FUS SEP, Jul 15, 2024 - 12:53pm, amusyaju



### LEGEND

- PROPERTY LINE
- PROPOSED TACTILE INDICATOR
- PROPOSED ENTRANCE
- PROPOSED DEPRESSED CURB



**NOVATECH**

Engineers, Planners & Landscape Architects  
 Suite 200, 240 Michael Cowpland Drive  
 Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643  
 Facsimile (613) 254-5867  
 Website www.novatech-eng.com

CITY OF OTTAWA  
 535 Legget Dr

### FUS SEPARATION

SCALE	1 : 750	
DATE	JULY 2024	FIGURE
JOB	124045	FUS



# FUS - Fire Flow Calculations



**Novatech Project #:** 124045  
**Project Name:** Tower C Conversion KRPC  
**Date:** 6/24/2024  
**Input By:** Curtis Ferguson, E.I.T.  
**Reviewed By:** Greg MacDonald, P.Eng.  
**Drawing Reference:** 124045-FUS SEP

**Legend:** Input by User  
 No Input Required  
**Reference:** Fire Underwriter's Survey Guideline (2020)  
 Formula Method

**Building Description:** 11 Storey Tower - Office to Residential Conversion  
**Type II - Non-combustible construction**

Step		Choose		Value Used	Total Fire Flow (L/min)
<b>Base Fire Flow</b>					
1	<b>Construction Material</b>		<b>Multiplier</b>		0.8
	<b>Coefficient related to type of construction</b> <b>C</b>	Type V - Wood frame		1.5	
		Type IV - Mass Timber		Varies	
		Type III - Ordinary construction		1	
		Type II - Non-combustible construction	Yes	0.8	
Type I - Fire resistive construction (2 hrs)			0.6		
2	<b>Floor Area</b>				16,000
	<b>A</b>	Building Footprint (m <sup>2</sup> )	1313		
		Number of Floors/Storeys	11		
		Protected Openings (1 hr) if C<1.0	No		
		Area of structure considered (m <sup>2</sup> )		7,878	
<b>F</b>	Base fire flow without reductions				
	$F = 220 C (A)^{0.5}$				
<b>Reductions or Surcharges</b>					
3	<b>Occupancy hazard reduction or surcharge</b>		<b>FUS Table 3</b>	<b>Reduction/Surcharge</b>	13,600
	<b>(1)</b>	Non-combustible		-25%	
		Limited combustible	Yes	-15%	
		Combustible		0%	
		Free burning		15%	
Rapid burning			25%		
4	<b>Sprinkler Reduction</b>		<b>FUS Table 4</b>	<b>Reduction</b>	-6,800
	<b>(2)</b>	Adequately Designed System (NFPA 13)	Yes	-30%	
		Standard Water Supply	Yes	-10%	
		Fully Supervised System	Yes	-10%	
		<b>Cumulative Sub-Total</b>			
	Area of Sprinklered Coverage (m <sup>2</sup> )	14443	100%		
		<b>Cumulative Total</b>	<b>-50%</b>		
5	<b>Exposure Surcharge</b>		<b>FUS Table 5</b>	<b>Surcharge</b>	0
	<b>(3)</b>	North Side	>30m	0%	
		East Side	>30m	0%	
		South Side	>30m	0%	
		West Side	>30m	0%	
		<b>Cumulative Total</b>	<b>0%</b>		
<b>Results</b>					
6	<b>(1) + (2) + (3)</b>	<b>Total Required Fire Flow, rounded to nearest 1000L/min</b>		<b>L/min</b>	<b>7,000</b>
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s
				or	USGPM

## Curtis Ferguson

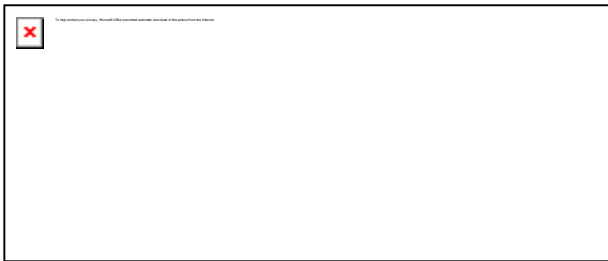
---

**From:** Mayank Shekhawat <mshekhawat@neuf.ca>  
**Sent:** Thursday, August 1, 2024 5:37 PM  
**To:** Curtis Ferguson  
**Cc:** Greg MacDonald  
**Subject:** RE: 535 Legget Drive - KRP Properties (124045)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hi Curtis,

Apologies for missing your initial email. Please see response in **green** below-



**MAYANK SHEKHAWAT**, COA, INTERN OAA, LEED AP BD+C, MRAIC  
Diplômé en architecture (INTMD). Graduate Architect (INTMD)  
T 514 847 1117 #360 F 514 847 2287 C 514 386 2389  
630, boul. René-Lévesque O. 32<sup>e</sup> étage, Montréal (QC) H3B 1S6  
47 Clarence Street, suite 406, Ottawa (ON) K1N 9K1  
**NEUF ARCHITECTES INC.**

**50 ANS ET TOUJOURS NEUF . 50 YEARS AND STILL NEUF**

---

**From:** Curtis Ferguson <c.ferguson@novatech-eng.com>  
**Sent:** Thursday, August 1, 2024 1:49 PM  
**To:** Mayank Shekhawat <mshekhawat@neuf.ca>  
**Cc:** Greg MacDonald <g.Macdonald@novatech-eng.com>  
**Subject:** RE: 535 Legget Drive - KRP Properties (124045)

Hi Mayank,

Hope you are doing well.

Checking in on below.

Thanks,

**Curtis Ferguson**, B.A.Sc., E.I.T. | Land Development

**NOVATECH**

Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 EXT: 331

The information contained in this email message is confidential and is for exclusive use of the addressee.

---

**From:** Curtis Ferguson  
**Sent:** Tuesday, July 16, 2024 1:34 PM  
**To:** Mayank Shekhawat <[mshekhawat@neuf.ca](mailto:mshekhawat@neuf.ca)>

Cc: Greg MacDonald <[g.Macdonald@novatech-eng.com](mailto:g.Macdonald@novatech-eng.com)>

Subject: 535 Legget Drive - KRP Properties (124045)

Hi Mayank,

I have a few questions regarding 535 Legget Drive hoping you can confirm.

- Do we have a finalized unit count? +/- 117 units

FUS (building construction);

- Confirmed building floor area (of all floors). +/- 16 104 sqm (Gross floor area)
- Construction Material (one of below);
  - Type V – Wood Frame
  - Type IV – Mass Timber
  - Type III – Ordinary Construction
  - Type II – Non-Combustible Construction
  - Type I – Fire Resistive Construction (2hrs) These categories are in reference to the IBC? Can you provide a bit more clarification on the purpose of this information? At the first look, considering it's a high-rise building with concrete structure (2hrs) and uses concrete panels and a curtain wall system for the envelope (non-combustible materials), it seems to be a Type I construction.
- Occupancy hazard (one of below); These categories are in reference to the IBC? Can you provide a bit more clarification on the purpose of this information? Again, if it is a type I construction, the material category it corresponds to would be non-combustible.
  - Non-combustible
  - Limited combustible
  - Combustible
- Sprinkler Reduction; Please verify with GWAL
  - Adequately Designed System (NFPA 13) – Yes OR No
  - Standard Water Supply – Yes OR No
  - Fully Supervised System – Yes OR No

Thanks,

Curtis Ferguson, B.A.Sc., E.I.T. | Land Development

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## Curtis Ferguson

---

**From:** Mark Sarasin <marks@gwal.com>  
**Sent:** Friday, August 2, 2024 1:21 PM  
**To:** Curtis Ferguson; Raj Vyas; Xiangyu Cai; Liaqat Ali  
**Cc:** Greg MacDonald; Mayank Shekhawat  
**Subject:** RE: 535 Legget Drive - KRP Properties (124045)

Yes to all

**Mark Sarasin**, P.Eng | **Senior Associate, Mechanical Engineer**  
GOODKEY, WEEDMARK & ASSOCIATES LTD.

**Vacation Alert: Aug.6 – Aug.9, 2024**

Email: [marks@gwal.com](mailto:marks@gwal.com)

Office: (613) 727-5111 ext. 308 Mobile: (613) 816-0844

Address: 1688 Woodward Drive | Ottawa, Ontario | K2C 3R8

Website: [www.gwal.com](http://www.gwal.com)



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---

**From:** Curtis Ferguson <c.ferguson@novatech-eng.com>  
**Sent:** Friday, August 2, 2024 10:03 AM  
**To:** Mark Sarasin <marks@gwal.com>; Raj Vyas <RajV@gwal.com>; Xiangyu Cai <xcai@gwal.com>; Liaqat Ali <lali@gwal.com>  
**Cc:** Greg MacDonald <g.Macdonald@novatech-eng.com>; Mayank Shekhawat <mshekhawat@neuf.ca>  
**Subject:** RE: 535 Legget Drive - KRP Properties (124045)

Good Morning Team GWAL,

Please confirm below regarding sprinkler systems within the existing 535 Legget Drive.

- Sprinkler Reduction; **Please verify with GWAL**
  - Adequately Designed System (NFPA 13) – **Yes OR No**
  - Standard Water Supply – **Yes OR No**
  - Fully Supervised System – **Yes OR No**

Thanks,

**Curtis Ferguson**, B.A.Sc., E.I.T. | Land Development

## **NOVATECH**

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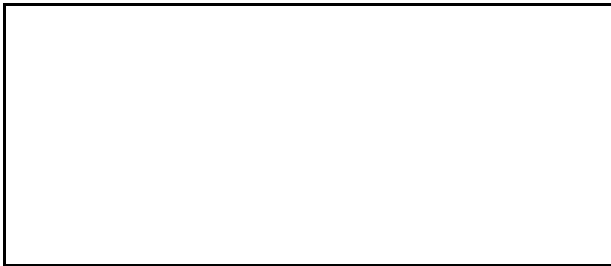
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**Cc:** Greg MacDonald <[g.Macdonald@novatech-eng.com](mailto:g.Macdonald@novatech-eng.com)>

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Diplômé en architecture (INTMD). Graduate Architect (INTMD)  
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**Cc:** Greg MacDonald <[g.Macdonald@novatech-eng.com](mailto:g.Macdonald@novatech-eng.com)>  
**Subject:** 535 Legget Drive - KRP Properties (124045)

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  - Combustible
- Sprinkler Reduction; Please verify with GWAL
  - Adequately Designed System (NFPA 13) – Yes OR No
  - Standard Water Supply – Yes OR No
  - Fully Supervised System – Yes OR No

Thanks,

**Curtis Ferguson**, B.A.Sc., E.I.T. | Land Development

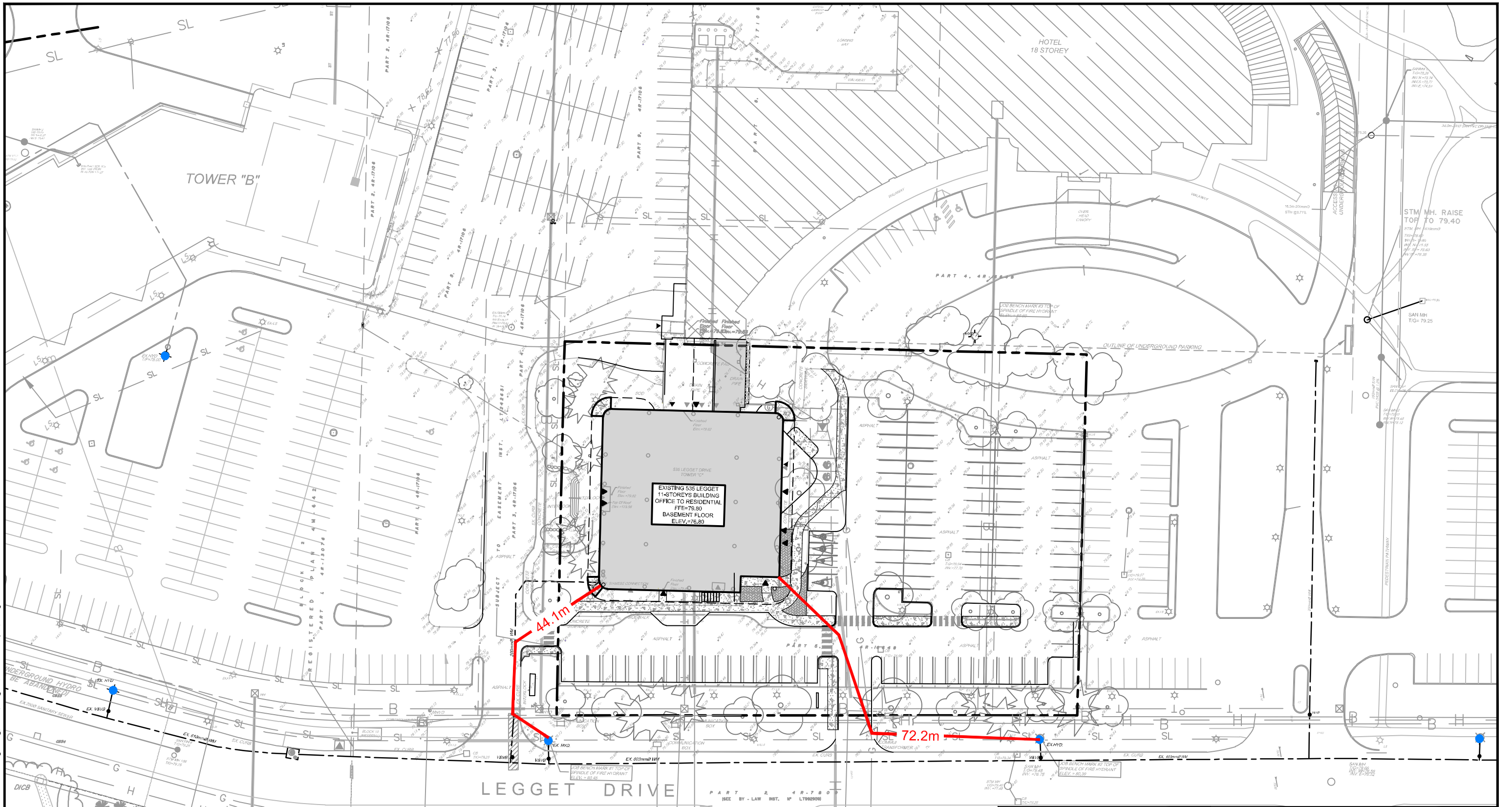
**NOVATECH**

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**LEGEND**

-  PROPERTY LINE
-  EXISTING SIAMESE CONNECTION
-  EXISTING CLASS AA HYDRANT
-  DISTANCE FROM HYDRANT TO SIAMESE CONNECTION/ BUILDING ENTRANCE




**NOVATECH**

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 Facsimile (613) 254-5867  
 Website www.novatech-eng.com

CITY OF OTTAWA  
 535 LEGGET DRIVE

**COVERAGE PLAN**

SCALE 1 : 750 

DATE	JOB	FIGURE
SEPT 2024	124045	COV

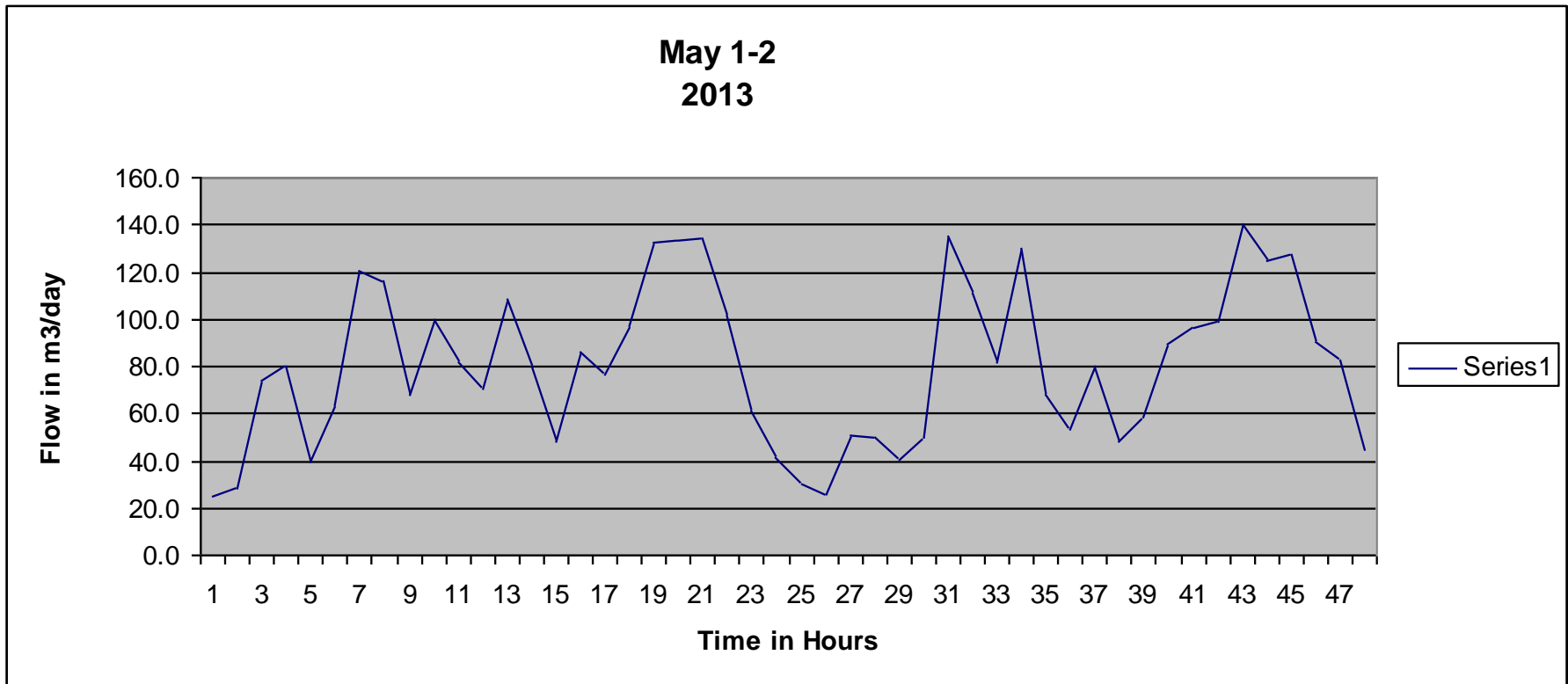


Figure 1 Typical Two Day Period - No Lawn Watering

**Occupancy Summary**

Total Phase 1 Units = 164

Less:

4 Units Within Existing Temporary Road Connections

16 Units Built but Not Sold

22 Units Built but Not Yet Occupied

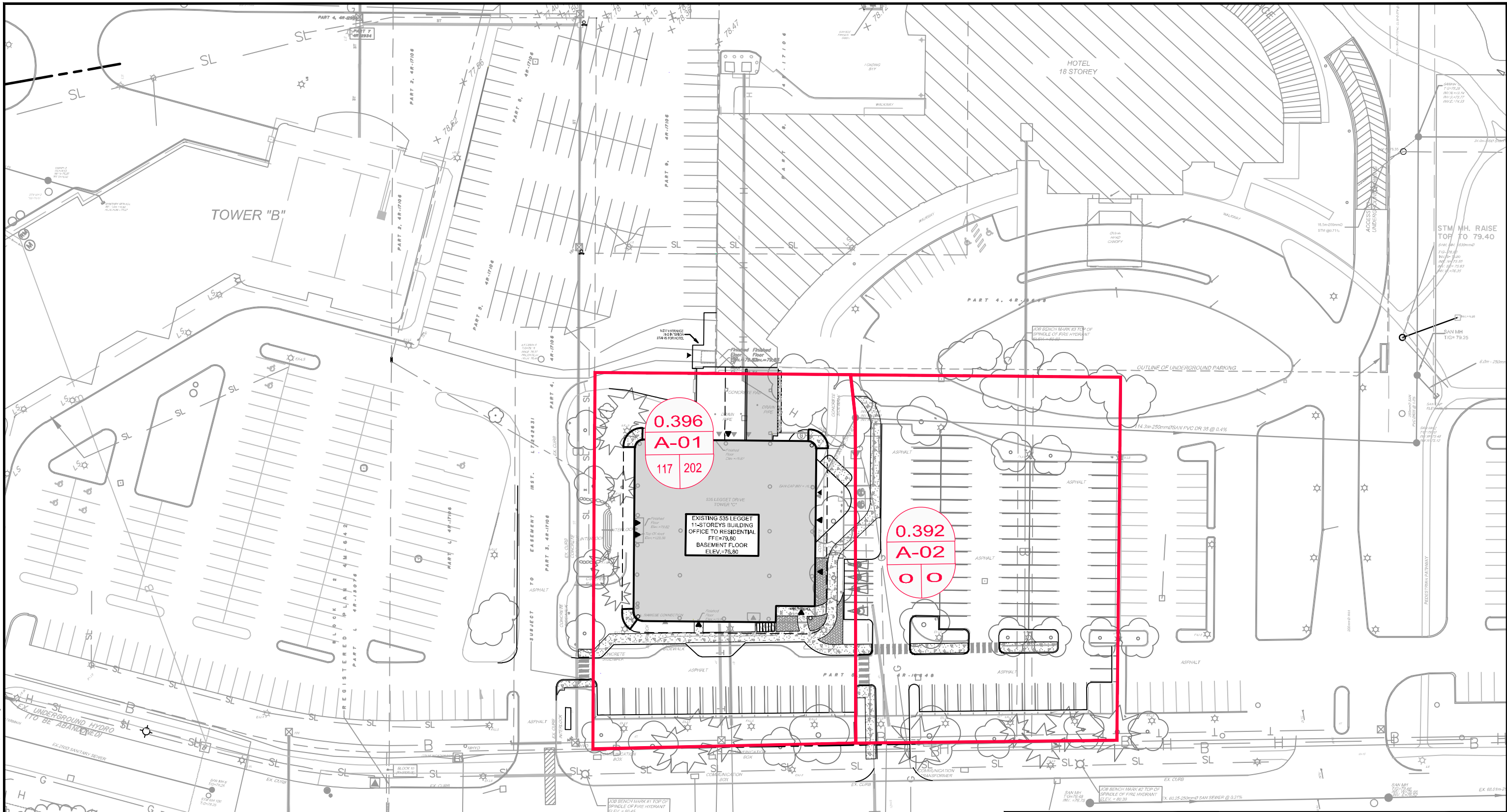
**Total: 122 Units in Use**

**Basic Day Demand = 80 m3/day = 80,000 L/day per 330 people (122 units x 2.7 ppu) = 243 L/cap/day**



**Appendix C**  
**Sanitary Servicing**

M:\2024\124045\CAD\Civil\124045-SAN.dwg, SAN, Sep 11, 2024 - 3:20pm, cleguson



0.396  
A-01  
117 202

0.392  
A-02  
0 0

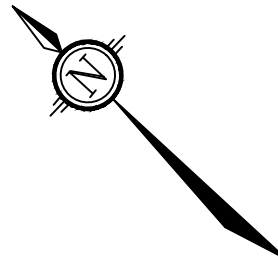
EXISTING 535 LEGGET  
11-STORY BUILDING  
OFFICE TO RESIDENTIAL  
FFE=79.80  
BASEMENT FLOOR  
ELEV.=75.80

**LEGEND**

- PROPERTY LINE
- PROPOSED SANITARY SEWER AND MANHOLE
- EXISTING SANITARY MANHOLE & SEWER
- SANITARY SEWER DRAINAGE AREA BOUNDARY

0.396  
A-01  
117 202

DRAINAGE AREA (ha)  
SAN SEWER PIPE RUN  
NO. UNITS/POPULATION



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Website www.novatech-eng.com

CITY OF OTTAWA  
535 LEGGET DRIVE

**SANITARY DRAINAGE  
AREA PLAN**

SCALE	1 : 750	
DATE	SEPT 2024	JOB 124045
FIGURE	SAN	

SANITARY SEWER DESIGN SHEET



Novatech Project #: 124045  
 Project Name: 535 Legget Drive  
 Date: 9/11/2024  
 Input By: Anjush Musyaju E.I.T.  
 Reviewed By: Curtis Ferguson E.I.T.  
 Drawing Reference: 124045-SAN

Legend: Design Input by User  
 As-Built Input by User  
 Cumulative Cell  
 Calculated Design Cell Output  
 Calculated Annual Cell Output  
 Calculated Rare Cell Output  
 Reference: City of Ottawa - Sewer Design Guidelines (2012 and TBs)  
 MOE - Design Guidelines for Sewage Works (2008)

Location				Demand																	Design Capacity								
Street	Area ID	From MH	To MH	Residential Flow							Industrial / Commercial / Institutional (ICI) Flow							Extraneous Flow Area Method		Total Design Flow	Proposed Sewer Pipe Sizing / Design								
				1 Bedroom	2 Bedroom	Population (in 1000's)	Cumulative Population (in 1000's)	Average Pop. Flow Q(q) (L/s)	Design Peaking Factor M	Peak Design Pop. Flow Q(p) (L/s)	Res. Drainage Area (ha.)	Cumulative Res. Drainage Area (ha.)	Commercial / Institutional Area (ha.)	Cumulative Commercial / Institutional Area (ha.)	Average Design Commercial / Institutional Flow (L/s)	Commercial / Institutional Peaking Factor	Cumulative ICI Area (ha.)	Peak Design ICI Flow Q (ici) (L/s)	Cumulative Extraneous Drainage Area (ha.)	Design Extraneous Flow Q(e) (L/s)	Total Peak Design Flow Q(D) (L/s)	Pipe Length (m)	Pipe Size (mm) and Material	Pipe ID Actual (m)	Roughness n	Design Grade So (%)	Capacity Qfull (L/s)	Full Flow Velocity (m/s)	Q(D) / Qfull
Private Site	A1	Tower C	Ex. San MH 1	63	54	0.202	0.202	0.65	3.52	2.30	0.396	0.396	0.040	0.040	0.00	1.00	0.040	0.00	0.436	0.14	2.44	15.0	250 PVC	0.254	0.013	1.00	62.0	1.22	3.9%
Private Site	A2	Ex. San MH 1	Ex. San MH 2	0	0	0.000	0.202	0.65	3.52	2.30	0.392	0.788	0.000	0.000	0.00	1.00	0.000	0.00	0.788	0.26	2.56	54.3	250 PVC	0.254	0.013	0.40	39.2	0.77	6.5%
<b>Totals</b>				<b>63</b>	<b>54</b>	<b>0.202</b>	<b>0.202</b>	<b>0.65</b>	<b>3.52</b>	<b>2.30</b>	<b>0.788</b>	<b>0.788</b>	<b>0.000</b>	<b>0.000</b>	<b>0.00</b>	<b>1.00</b>	<b>0.000</b>	<b>0.00</b>	<b>0.788</b>	<b>0.26</b>	<b>2.56</b>	<b>54.3</b>							

Demand Equation / Parameters

- Q(D), Q(A), Q(R) =  $Q(p) + Q(fd) + Q(ici) + Q(e)$
- Q(p) =  $(P \times q \times M \times K / 86,400)$
- q =  $280$  L/per person/day (design)  
 $200$  L/per person/day (annual and rare)
- M = Harmon Formula (maximum of 4.0)
- K =  $0.8$  (design)  
 $0.6$  (annual and rare)
- Park flow is considered equivalent to a single unit / ha  
Park Demand =  $4$  single unit equivalent / park ha (~ 3,600 L/ha/day)
- Q(fd) =  $0.45$  L/s/unit
- Q(ici) = ICI Area x ICI Flow x ICI Peak
- Q(e) =  $0.33$  L/s/ha (design)  
 $0.30$  L/s/ha (annual)  
 $0.55$  L/s/ha (rare)

Definitions

- Q(D) = Peak Design Flow (L/s)  
 Q(A) = Peak Annual Flow (L/s)  
 Q(R) = Peak Rare Flow (L/s)  
 Q(p) = Peak Design Population Flow (L/s)  
 Q(q) = Average Population Flow (L/s)
- P = Residential Population =  $1.4$  **1 Bedroom**,  $2.1$  **2 Bedroom**,  $3.1$  **3 Bedroom**  
 q = Average Capita Flow  
 M = Harmon Formula  
 K = Harmon Correction Factor  
 Typ. Service Diameter (mm) =  $135$   
 Typ. Service Length (m) =  $15$   
 VI Pipe Rate (L/mm dia/m/hr) =  $0.007$   
 Q(fd) = Foundation Flow (L/s)  
 Q(ici) = Industrial / Commercial / Institutional Flow (L/s)  
 Q(e) = Extraneous Flow (L/s)
- Institutional / Commercial / Industrial**  
 Design =  $35000$   
 Annual / Rare =  $10000$
- Industrial**  
 Design =  $28000$  L/gross ha/day  
 Annual / Rare =  $17000$  L/gross ha/day
- Commercial / Institutional**  
 Design =  $1.0$   
 Annual / Rare =  $1.5$   
 \* ICI Peak = 1.0 Default, 1.5 if ICI in contributing area is >20% (design only)

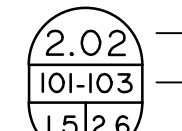


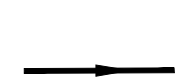

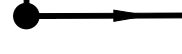


Capacity Equation

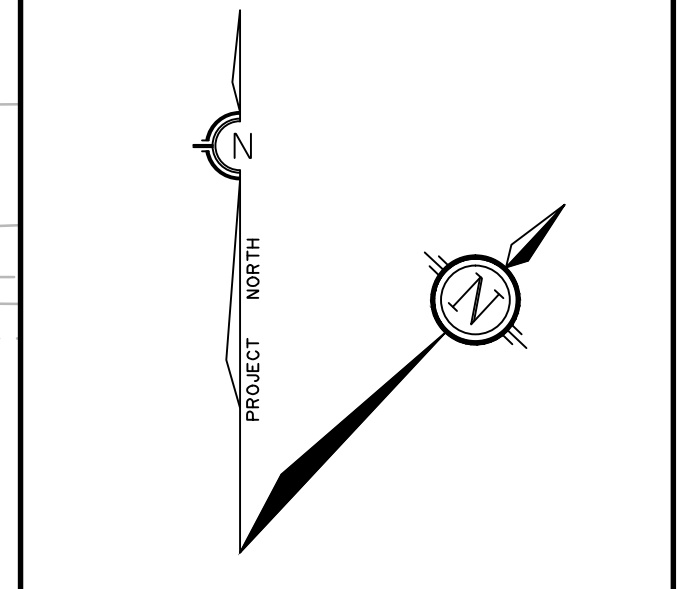
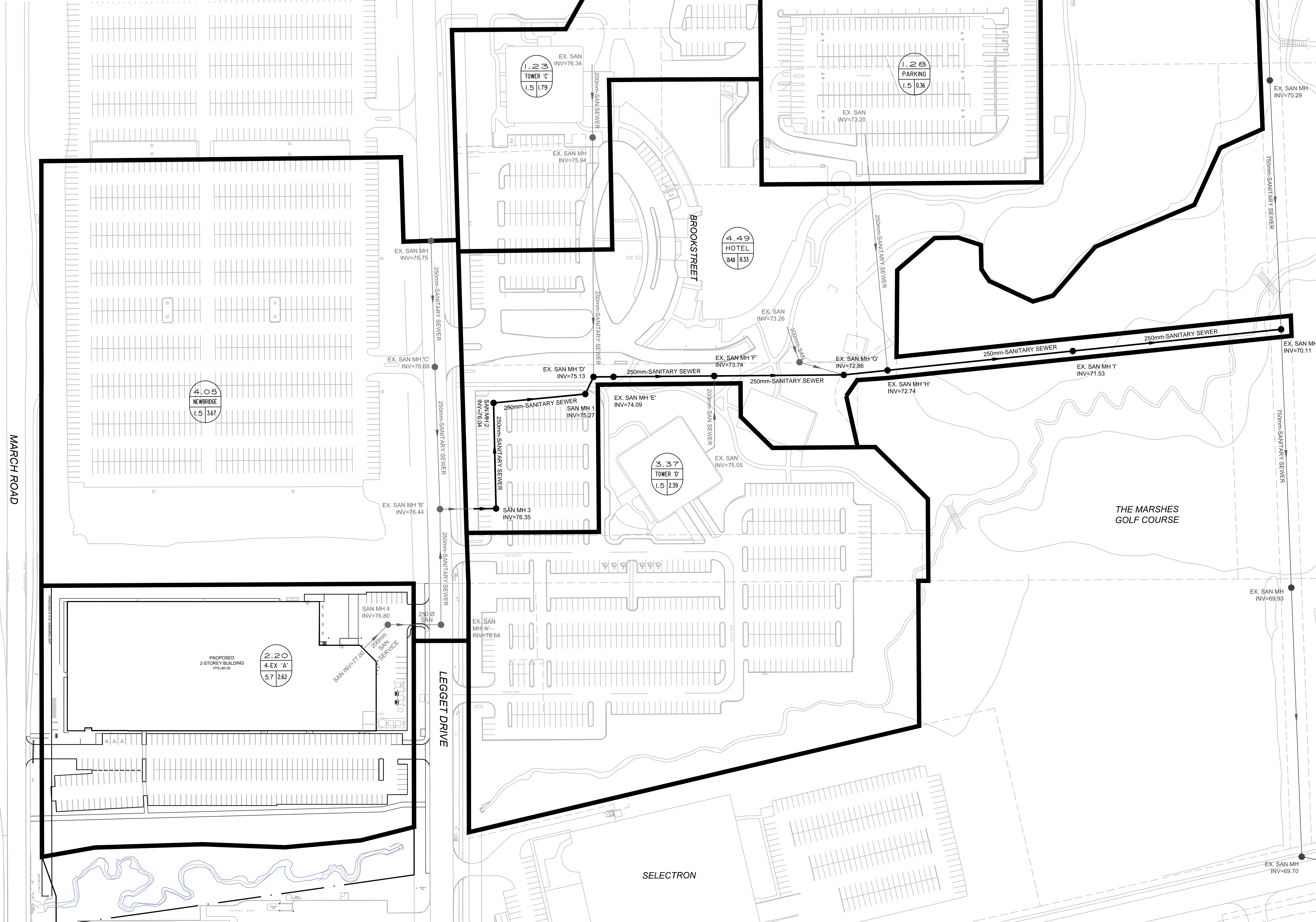
$Q_{full} = 1000 \cdot (1/n) \cdot A_p \cdot R^{2/3} \cdot S_0^{0.5}$

Definitions

- Q full = Capacity (L/s)  
 n = Manning coefficient of roughness (0.013)  
 A<sub>p</sub> = Pipe flow area (m<sup>2</sup>)  
 R = Hydraulic Radius of wetted area (dia/4 for full pipes)  
 S<sub>0</sub> = Pipe slope/gradient

**LEGEND**

-  AREA IN HECTARES
-  AREA IDENTIFIER
-  PEAK FLOW RATE (L/s), incl. Extraneous Flows  
\*Refer to Sanitary and Storm Sewer Design Brief for detailed calculations of flow rates for each development
-  PEAKING FACTOR
-  SANITARY DRAINAGE AREA BOUNDARY
-  DIRECTION OF FLOW
-  SANITARY TRUNK SEWER AND MH
-  TRIBUTARY SANITARY SEWER AND MH



No.	DATE	EMISSION FOUR / OBJECT
1	2014.05.28	ISSUED WITH DSS & SWM REPORT
2	2014.08.08	ISSUED WITH REVISED DSS & SWM REPORT
3	2014.09.25	ISSUED WITH REVISED DSS & SWM REPORT
4	2014.11.12	ISSUED FOR CITY / MOE APPROVAL

NOTE:  
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

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PROJECT NAME:	Sanmina 500 March Rd. Kanata, Ontario		
TITLE:	SANITARY DRAINAGE AREA PLAN		
ISSUE DATE:	2014.11.12	DRAWN BY:	SM
SCALE:	1:750	VERIFIED BY:	FST
NEGL FILE:	114060-SAN	DRAWING NO.:	C200
		REVISION:	4

## SANITARY TRUNK SEWER Sanitary Sewer Design Sheet EXISTING CONDITIONS

PROJECT : 99089-5  
DESIGNED BY: SM/FST  
CHECKED BY: DDB  
DATE: 5-Feb-16



LOCATION			INDIVIDUAL		CUMULATIVE		PEAK FLOWS				PROPOSED SEWER					
AREA	FROM MH	TO MH	FLOW RATE (L/s)	Infiltration Area (tha)	FLOW RATE (L/s)	Infiltration Area (ha)	PEAK FACTOR	PEAK FLOW Q (p) (L/s)	PEAK EXTRAN.FLOW Q(i) (L/s)	PEAK DESIGN FLOW Q (d) (L/s)	LENGTH (m)	PIPE SIZE (mm)	TYPE OF PIPE	GRADE %	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)
528 March Road Site	SAN MH 4	EX. SAN MH A	0.35	2.20	0.35	2.20	5.7	2.00	0.62	<b>2.61</b>	25.4	250	PVC	0.50	43.87	0.87
Legget Drive	EX. SAN MH A	EX. SAN MH B	0.00	0.00	0.35	2.20	5.7	2.00	0.62	<b>2.61</b>	55.1	250	PVC	0.33	35.64	0.70
Legget Drive (Newbridge)	EX. SAN MH	EX. SAN MH C	1.69	4.05	1.69	4.05	1.5	2.54	1.13	<b>3.67</b>	60.3	250	PVC	0.31	34.54	0.68
Legget Drive	EX. SAN MH C	EX. SAN MH B	0.00	0.00	1.69	4.05	1.5	2.54	1.13	<b>3.67</b>	68.0	250	PVC	0.29	33.41	0.66
** Legget Drive	EX. SAN MH B	SAN MH 3	0.00	0.00	2.04	6.25	1.5	3.06	1.75	<b>4.81</b>	26.7	250	PVC	0.25	31.02	0.61
* KRP Site	SAN MH 3	SAN MH 2	0.00	0.00	2.04	6.25	1.5	3.06	1.75	<b>4.81</b>	50.4	250	PVC	0.50	43.87	0.87
* KRP Site	SAN MH 2	SAN MH 1	0.00	0.00	2.04	6.25	1.5	3.06	1.75	<b>4.81</b>	44.0	250	PVC	0.50	43.87	0.87
* KRP Site	SAN MH 1	EX. SAN MH D	0.00	0.00	2.04	6.25	1.5	3.06	1.75	<b>4.81</b>	9.1	250	PVC	1.00	62.04	1.22
KRP Site (Tower C)	TOWER C	EX. SAN MH D	0.96	1.23	0.96	1.23	1.5	1.44	0.34	<b>1.79</b>	114.3	250	PVC	0.40	39.24	0.77
* KRP Site	EX. SAN MH D	EX. SAN MH E	0.00	0.00	3.00	7.48	1.5	4.50	2.09	<b>6.60</b>	9.5	250	PVC	1.00	62.04	1.22
* KRP Site	EX. SAN MH E	EX. SAN MH F	0.00	0.00	3.00	7.48	1.5	4.50	2.09	<b>6.60</b>	48.1	250	PVC	0.67	50.78	1.00
KRP Site (Tower D)	TOWER D	EX. SAN MH F	0.96	3.37	0.96	3.37	1.5	1.44	0.94	<b>2.39</b>	34.0	200	PVC	1.30	39.01	1.20
* KRP Site	EX. SAN MH F	EX. SAN MH G	0.00	0.00	3.96	10.85	1.5	5.95	3.04	<b>8.98</b>	61.9	250	PVC	0.35	36.70	0.72
† KRP Site (Brookstreet Hotel)	HOTEL	EX. SAN MH G	2.21	4.49	2.21	4.49	1.5 - 4.0	7.07	1.26	<b>8.33</b>	22.0	200	PVC	0.90	32.46	1.00
* KRP Site	EX. SAN MH G	EX. SAN MH H	0.00	0.00	6.17	15.34	1.5	9.26	4.30	<b>13.56</b>	21.0	250	PVC	0.38	38.24	0.75
KRP Site (Parking Structure)	PRKG STRUCT	EX. SAN MH H	0.30	1.28	0.30	1.28	1.5	0.45	0.36	<b>0.81</b>	91.1	250	PVC	0.40	39.24	0.77
* KRP Site	EX. SAN MH H	EX. SAN MH I	0.00	0.00	6.47	16.62	1.5	9.71	4.65	<b>14.36</b>	88.9	250	PVC	0.38	38.24	0.75
* KRP Site	EX. SAN MH I	EX. 750 TRUNK	0.00	0.00	6.47	16.62	1.5	9.71	4.65	<b>14.36</b>	100.1	250	PVC	0.52	44.74	0.88

Notes:

1.  $Q(d) = Q(p) + Q(i)$ , where

$Q(d)$  = Design Flow (L/sec)

$Q(p)$  = Population Flow (L/sec)

$Q(i)$  = Extraneous Flow (L/sec)

2.  $Q(i) = 0.28$  L/sec/ha

3. Daily Sewage Flow from Office Towers = 75 L/person/day (Appendix 4-A, Ottawa Sewer Design Guidelines)

4. Commercial Peaking Factor = 1.5 (Figure 4.3 Ottawa Sewer Design Guidelines)

5. Refer to Sanitary Drainage Area Plan (114060-SAN, C200) for details of drainage areas

6. Refer to the 'Sanitary and Storm Sewer Design Brief' for a breakdown of Daily Sewage Flow components and applicable peaking factors from the Brookstreet Hotel

\* Denotes sewers applicable to this MOE ECA application. All other sewers shown on this design sheet are private sewers tributary to the sanitary trunk sewer under application for MOE approval and/or have MOE approval under an existing C of A.

\*\* An existing C of A covers the sanitary stub from SAN MH B north approx. 16.1m to the existing cap. The 10.7m of proposed sewer from the cap to SAN MH 3 is applicable to the new MOE ECA application.

† Total peak sanitary flow from hotel site = 8.33 L/s, including Extraneous Flows (Also refer to Note 6 above for further details)

## SANITARY TRUNK SEWER Sanitary Sewer Design Sheet POST CONDITIONS



PROJECT : 124045  
DESIGNED BY: CJF  
CHECKED BY: GJM  
DATE: 16-Aug-24

LOCATION			INDIVIDUAL		CUMULATIVE		PEAK FLOWS				PROPOSED SEWER						Q/Qfull
AREA	FROM MH	TO MH	FLOW RATE (L/s)	Infiltration Area (ha)	FLOW RATE (L/s)	Infiltration Area (ha)	PEAK FACTOR	PEAK FLOW Q (p) (L/s)	PEAK EXTRAN.FLOW Q(i) (L/s)	PEAK DESIGN FLOW Q (d) (L/s)	LENGTH (m)	PIPE SIZE (mm)	TYPE OF PIPE	GRADE %	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	
528 March Road Site	SAN MH 4	EX. SAN MH A	0.35	2.20	0.35	2.20	5.7	2.00	0.62	<b>2.61</b>	25.4	250	PVC	0.50	43.87	0.87	
Legget Drive	EX. SAN MH A	EX. SAN MH B	0.00	0.00	0.35	2.20	5.7	2.00	0.62	<b>2.61</b>	55.1	250	PVC	0.33	35.64	0.70	
Legget Drive (Newbridge)	EX. SAN MH	EX. SAN MH C	1.69	4.05	1.69	4.05	1.5	2.54	1.13	<b>3.67</b>	60.3	250	PVC	0.31	34.54	0.68	
Legget Drive	EX. SAN MH C	EX. SAN MH B	0.00	0.00	1.69	4.05	1.5	2.54	1.13	<b>3.67</b>	68.0	250	PVC	0.29	33.41	0.66	
** Legget Drive	EX. SAN MH B	SAN MH 3	0.00	0.00	2.04	6.25	1.5	3.06	1.75	<b>4.81</b>	26.7	250	PVC	0.25	31.02	0.61	
* KRP Site	SAN MH 3	SAN MH 2	0.00	0.00	2.04	6.25	1.5	3.06	1.75	<b>4.81</b>	50.4	250	PVC	0.50	43.87	0.87	
* KRP Site	SAN MH 2	SAN MH 1	0.00	0.00	2.04	6.25	1.5	3.06	1.75	<b>4.81</b>	44.0	250	PVC	0.50	43.87	0.87	
* KRP Site	SAN MH 1	EX. SAN MH D	0.00	0.00	2.04	6.25	1.5	3.06	1.75	<b>4.81</b>	9.1	250	PVC	1.00	62.04	1.22	
<b>KRP Site (Tower C)</b>	<b>TOWER C</b>	<b>EX. SAN MH D</b>	<b>0.65</b>	<b>1.24</b>	<b>0.65</b>	<b>1.24</b>	<b>3.5</b>	<b>2.30</b>	<b>0.41</b>	<b>2.71</b>	<b>114.3</b>	<b>250</b>	<b>PVC</b>	<b>0.40</b>	<b>39.24</b>	<b>0.77</b>	
* KRP Site	EX. SAN MH D	EX. SAN MH E	0.00	0.00	2.69	7.49	1.5	4.04	2.10	<b>6.13</b>	9.5	250	PVC	1.00	62.04	1.22	9.89%
* KRP Site	EX. SAN MH E	EX. SAN MH F	0.00	0.00	2.69	7.49	1.5	4.04	2.10	<b>6.13</b>	48.1	250	PVC	0.67	50.78	1.00	12.08%
KRP Site (Tower D)	TOWER D	EX. SAN MH F	0.96	3.37	0.96	3.37	1.5	1.44	0.94	<b>2.39</b>	34.0	200	PVC	1.30	39.01	1.20	6.11%
* KRP Site	EX. SAN MH F	EX. SAN MH G	0.00	0.00	3.65	10.86	1.5	5.48	3.04	<b>8.52</b>	61.9	250	PVC	0.35	36.70	0.72	23.21%
† KRP Site (Brookstreet Hotel)	HOTEL	EX. SAN MH G	2.21	4.49	2.21	4.49	1.5 - 4.0	7.07	1.26	<b>8.33</b>	22.0	200	PVC	0.90	32.46	1.00	25.65%
* KRP Site	EX. SAN MH G	EX. SAN MH H	0.00	0.00	5.86	15.35	1.5	8.79	4.30	<b>13.09</b>	21.0	250	PVC	0.38	38.24	0.75	34.23%
KRP Site (Parking Structure)	PRKG STRUCT	EX. SAN MH H	0.30	1.28	0.30	1.28	1.5	0.45	0.36	<b>0.81</b>	91.1	250	PVC	0.40	39.24	0.77	2.06%
* KRP Site	EX. SAN MH H	EX. SAN MH I	0.00	0.00	6.16	16.63	1.5	9.24	4.66	<b>13.90</b>	88.9	250	PVC	0.38	38.24	0.75	36.35%
* KRP Site	EX. SAN MH I	EX. 750 TRUNK	0.00	0.00	6.16	16.63	1.5	9.24	4.66	<b>13.90</b>	100.1	250	PVC	0.52	44.74	0.88	31.07%

Notes:

1.  $Q(d) = Q(p) + Q(i)$ , where

$Q(d)$  = Design Flow (L/sec)

$Q(p)$  = Population Flow (L/sec)

$Q(i)$  = Extraneous Flow (L/sec)

2.  $Q(i) = 0.28$  L/sec/ha

3. Daily Sewage Flow from Office Towers = 75 L/person/day (Appendix 4-A, Ottawa Sewer Design Guidelines)

4. Commercial Peaking Factor = 1.5 (Figure 4.3 Ottawa Sewer Design Guidelines)

5. Refer to Sanitary Drainage Area Plan (114060-SAN, C200) for details of drainage areas

6. Refer to the 'Sanitary and Storm Sewer Design Brief' for a breakdown of Daily Sewage Flow components and applicable peaking factors from the Brookstreet Hotel

\* Denotes sewers applicable to this MOE ECA application. All other sewers shown on this design sheet are private sewers tributary to the sanitary trunk sewer under application for MOE approval and/or have MOE approval under an existing C of A.

\*\* An existing C of A covers the sanitary stub from SAN MH B north approx. 16.1m to the existing cap. The 10.7m of proposed sewer from the cap to SAN MH 3 is applicable to the new MOE ECA application.

† Total peak sanitary flow from hotel site = 8.33 L/s, including Extraneous Flows (Also refer to Note 6 above for further details)

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INTEGRATED SEWER SOLUTIONS



## **535 LEGGET DRIVE Ottawa, Ontario**

# **SEWER CCTV INSPECTION REPORT**

**Report ID**  
140291SA1

**Sewer Use**  
Sanitary

**Completion Date**  
August 08, 2024

**Inspected Length**  
17.90 meters

**THE WAY IS CLEAR™**

- Watermain Swabbing
- Hydro Vacuum Excavation
- CCTV Inspection of Sewers

- Plumbing & Drain Services
- Structural Rehabilitation of Manholes
- Cured-in-Place-Pipe Lining & Spot Repairs

- Grouting, Test & Seal Joints, Manholes & Services
- Lateral Sewer Inspection & Locates From Main
- Sewer Cleaning, Flushing & Pumping

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2. Structural rating .....	3
3. O&M rating .....	4
4. Pipe summary and condition details .....	5
5. Vision Report© Legend .....	8



# 1. Index of pipes

1 item

Pipe	Start/End	Direction	Road	Date	Diameter	Inspected	Total	Page
BUILDING MHSA56271	MHSA56271 --> BUILDING	U - Upstream	535 Legget Dr.	08/08/2024 8:34 AM	250	17.9	19	5
						Total: 17.9		

## 2. Structural rating

1 item

4 - Significant (1 of 1 items)

Score	Quick	Index	Pipe	Start/End	Direction	Street	Page
5	4111	2.5	BUILDING MHSA56271	MHSA56271 --> BUILDING	Against flow	535 Legget Dr.	5

### 3. O&M rating

1 item

4 - Significant (1 of 1 items)

Score	Quick	Index	Structural	Pipe	Start/End	Direction	Street	Page
14	4321	3.5	4	BUILDING MHSA56271	MHSA56271 --> BUILDING	Against flow	535 Legget Dr.	5

## 4. Pipe summary and condition details

### Pipe identification

<b>Pipe:</b> BUILDING MHSA56271	<b>Direction of inspection:</b> MHSA56271 --> BUILDING
<b>Direction of flow:</b> BUILDING --> MHSA56271	<b>Direction:</b> Against flow

### Pipe location

<b>Road:</b> 535 Legget Dr.	<u>UPSTREAM</u>	<u>DOWNSTREAM</u>
<b>Crossroad:</b>	<b>Easting (X):</b>	<b>Easting (X):</b>
<b>Drainage Area:</b>	<b>Northing (Y):</b>	<b>Northing (Y):</b>
<b>City:</b> Kanata	<b>Elevation (Z):</b>	<b>Elevation (Z):</b>
<b>Location:</b> Parking Lot	<b>GPS Accuracy:</b>	
<b>Owner:</b> Unknown	<b>Coordinate System:</b>	
<b>Road segment:</b>	<b>Vertical Datum:</b>	

### Pipe characteristics

<b>Sewer Use:</b> Sanitary	<b>Inspected length:</b> 17.9
<b>Height:</b> 250	<b>Total length:</b> 19
<b>Width:</b>	<b>Rim/Inv.:</b>
<b>Shape:</b> Circular	<b>Grade/Inv.:</b>
<b>Material:</b> Polyvinyl Chloride	<b>Rim/Grade:</b>
<b>Lining:</b>	<b>Rim/Inv.:</b>
<b>Joint length:</b> 4	<b>Grade/Inv.:</b>
<b>Year laid:</b>	<b>Rim/Grade:</b>
<b>Year renewed:</b>	<b>Sewer category:</b>

### Additional details

<b>Inspection standard:</b> PACP 6.0	<b>Location details:</b>
<b>Date:</b> 08/08/2024 8:34 AM	<b>Surveyed by:</b> Derek Jessup
<b>Project Number:</b>	<b>Certificate #:</b> U06180703002192
<b>Customer:</b> Novatech Engineering	<b>Pre-Cleaning:</b> Jetting
<b>PO number:</b>	<b>Date cleaned:</b>
<b>Work order:</b> 140291	<b>Unit of measurement:</b> Metric
<b>Purpose:</b>	<b>Media label:</b>
<b>Weather:</b> Dry	<b>Sheet #:</b>
<b>Flow control:</b> Not Controlled	

### Structural rating

### O&M rating

### Overall rating

<b>Peak:</b> 4	<b>Peak:</b> 4	<b>Peak:</b> 4
<b>Quick rating:</b> 4111	<b>Quick rating:</b> 4321	<b>Quick rating:</b> 4421
<b>Score:</b> 5	<b>Score:</b> 14	<b>Score:</b> 19
<b>Index:</b> 2.5	<b>Index:</b> 3.5	<b>Index:</b> 3.2

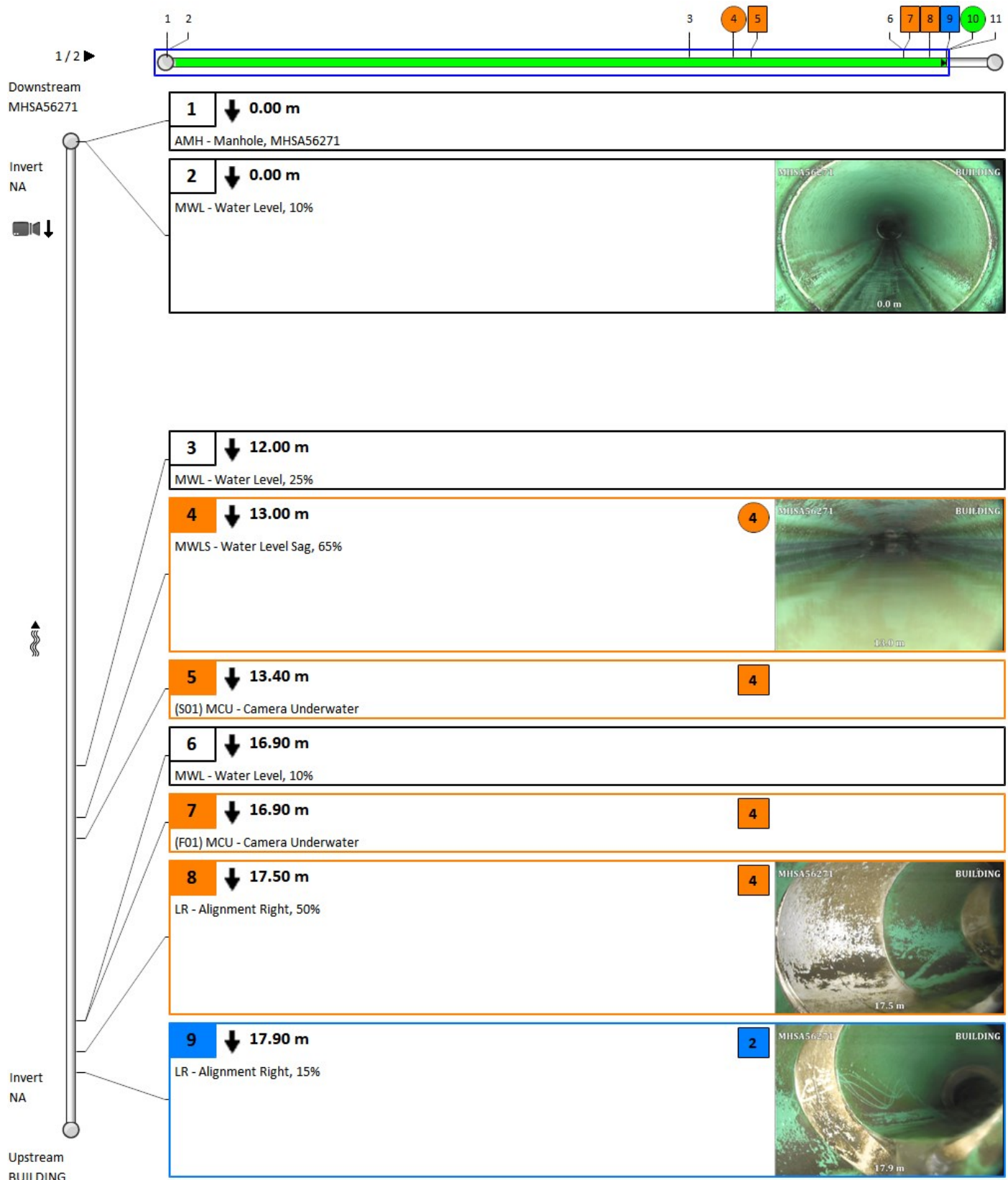
### Additional information

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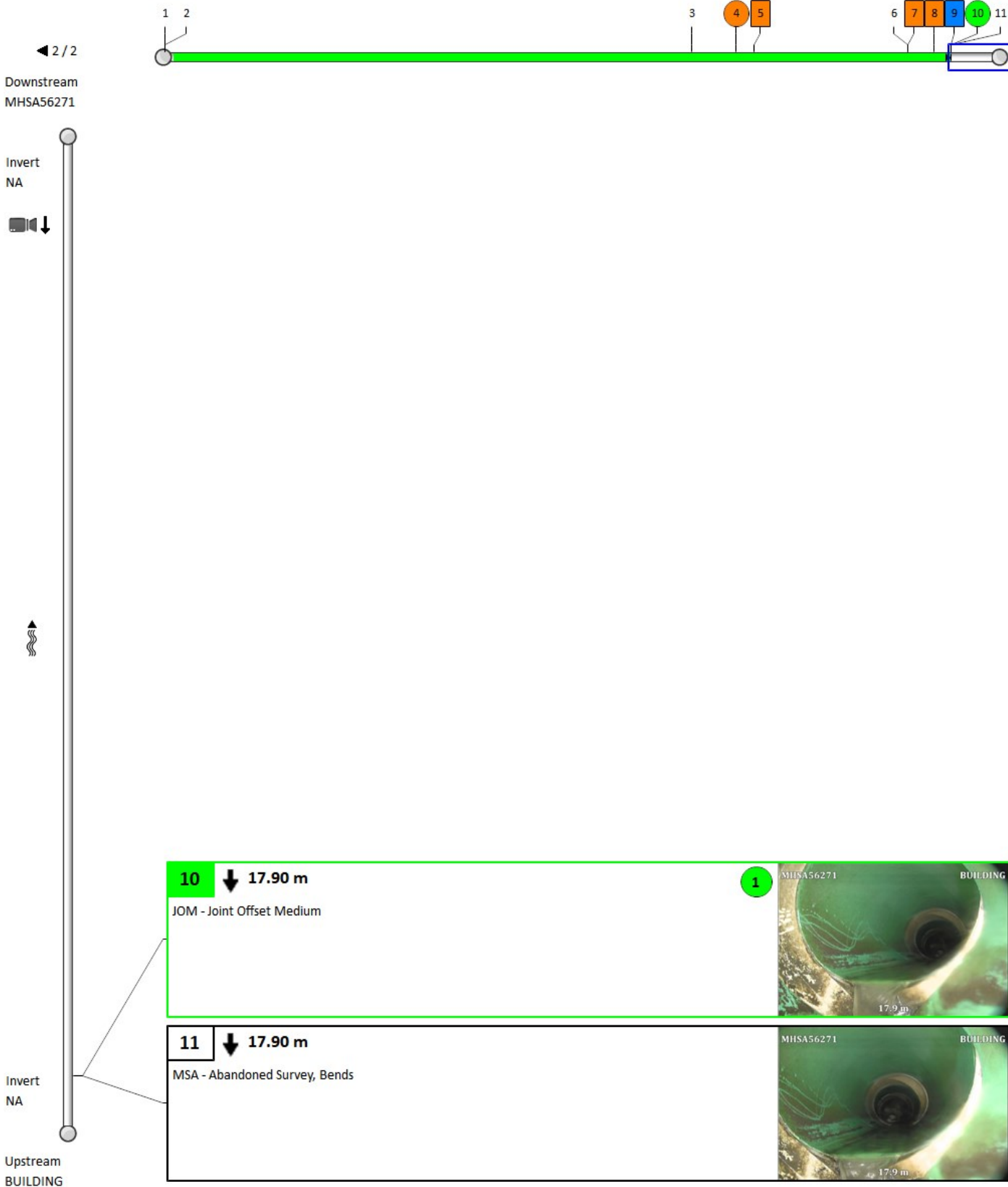
### Other information

<b>Report ID:</b> 140291SA1	<b>Information 6:</b>
<b>Information 2:</b>	<b>Information 7:</b>
<b>Information 3:</b>	<b>Information 8:</b>
<b>Information 4:</b>	<b>Information 9:</b>
<b>Information 5:</b>	<b>Information 10:</b>

# 4. Pipe summary and condition details



# 4. Pipe summary and condition details



FR

535 LEGGET DR



Show search results for 535 leggett

375mmØ PVC

375mmØ PVC

535

250mmØ PVC

MHSA56271

IN92780

200mmØ PVC

MHST56497

250mmØ PVC

600mmØ P

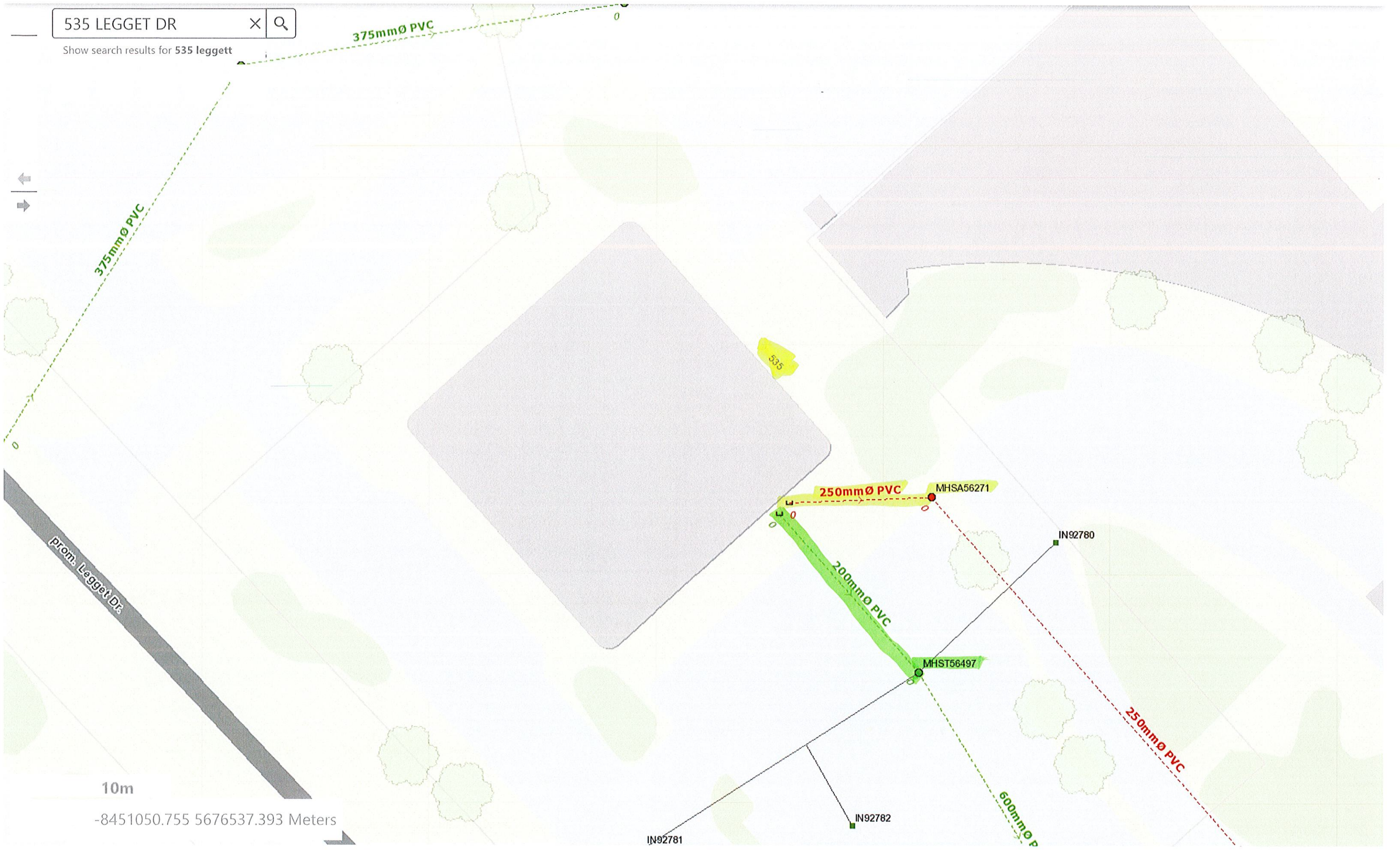
Prom. Legget Dr

10m

















-8451050.755 5676537.393 Meters

IN92781

IN92782



# Vision Report© Legend

	The numbers sequentially identify each observation. They allow you to find complete descriptions and related photos throughout the pages. Note that when the pipe contains too many observations, the Vision© report hides the least important observations to optimize the display*.
60	A number with neither a square nor circle indicates a general observation.
	A circled number indicates a structural anomaly. The color of the circle indicates the severity of the anomaly on a scale of 1 to 5, 5 being the most severe: green=1, blue=2, magenta=3, orange=4 and red=5.
	A number in a square indicates an operation and maintenance anomaly. The color of the square indicates the severity of the anomaly on a scale of 1 to 5, 5 being the most severe: green=1, blue=2, magenta=3, orange=4 and red=5.
◀ 3 / 31 ▶	Indicates the current page number of the inspection report.
	The blue square indicates a section of the pipe; this section is covered in detail on the current page of the report.
	The green line indicates the inspected part of the pipe. The remaining white line indicates the uninspected part of the pipe.
	Indicates the hold points on the camera during an inspection.
	Indicates the hold points on the camera during the reverse inspection.
	Indicates that a reverse inspection was carried out, however the camera did not reach the initial inspection hold point. (the hold point of the initial inspection)
	Indicates that a reverse inspection was carried out and that it has joined (has arrived at) the initial inspection hold point.
401-059B 	Identifies the start manhole number. Note that this manhole is not necessarily the upstream manhole of the pipe.
401-631 	Identifies the end manhole number. Note that this manhole is not necessarily the downstream manhole of the pipe.
	A downward arrow indicates that the inspection was carried out in the direction of the current, whereas an upward arrow indicates an inspection against the current. Note that the manhole located on the upper left of the page is always the start manhole, but not necessarily the upstream manhole of the pipe.
	This camera followed by a downward arrow is located on the upper left of the vertical pipe; it indicates that an inspection was done from this manhole.
	When the second camera appears on the bottom left page it means that a reverse inspection was carried out. Information about the reverse inspection is included in the report, thereby combining both inspections.
Invert 3.40	The measurement shown under the word <Invert> indicates the measurements between the frame and the pipe captured during the inspection. This measurement is available at the top left for the start manhole and the bottom left for the end manhole. If the invert was not measured during the inspection, an <NA> mark will be displayed.
	The downward bold arrow to the right of the observation number indicates that this observation was captured during the initial inspection.
	The blank arrow pointing upwards and located to the right of the observation number indicates that this observation was taken during the reverse inspection period, thereby confirming that this report combined both inspections.
18.40 m	Located to the right of the observation number is a number identifying the observation distance in relation to the start of the pipe.
SRV - Armature visible	A full description of the observation code according to the protocol used.

\*Any hidden observations are readily accessible from the database as well as in other CTSpec report templates.

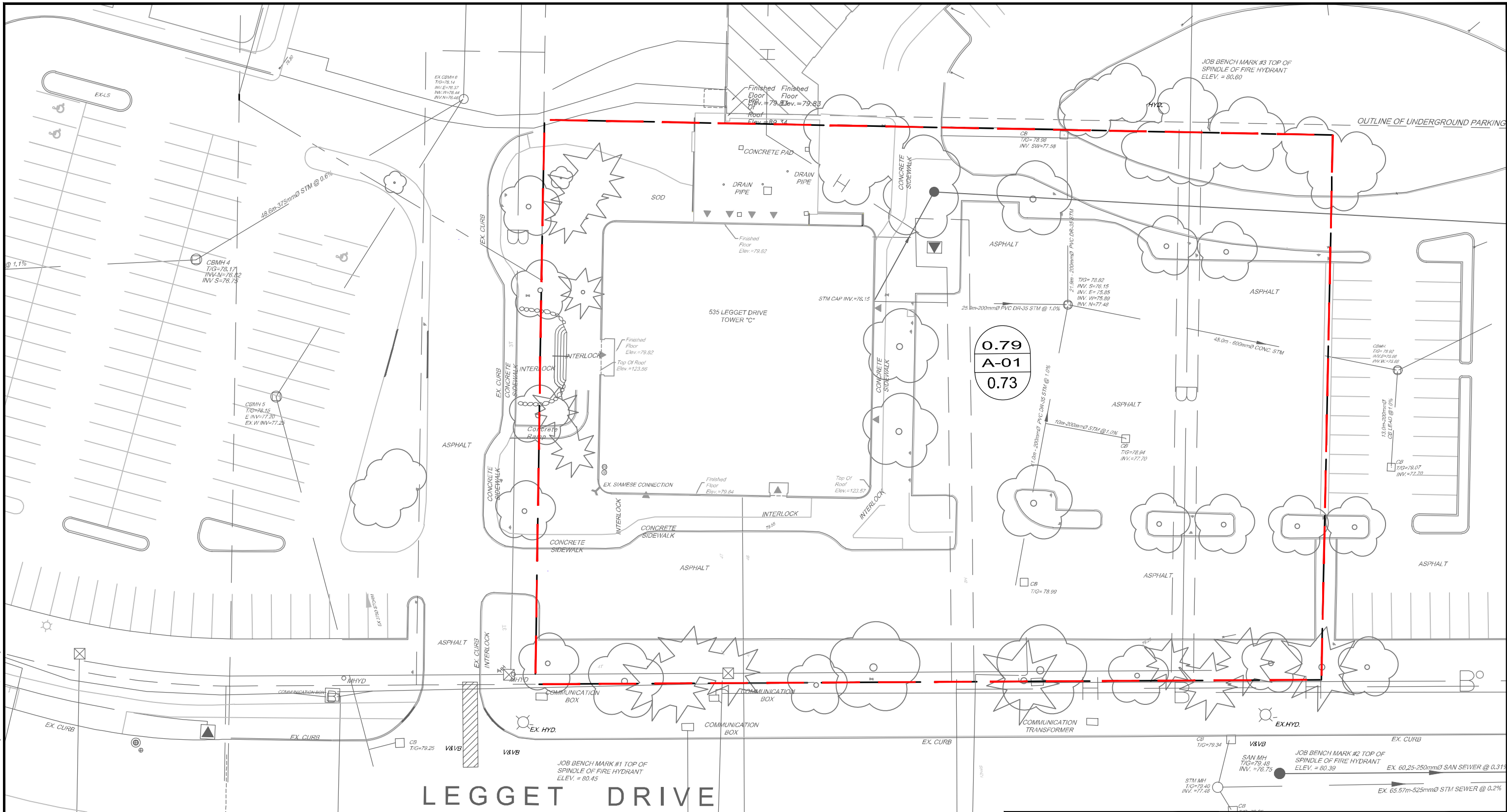
\*\* CTSpec inc. reserves the right to modify, eliminate or add to the product features described in this pamphlet without notice.

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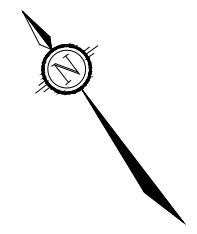
**Appendix D**  
**Storm Servicing and Stormwater Management**

M:\2024\124045\CAD\Civil\124045-Pre\_STM.dwg, 11x17PRE-STM, Aug 30, 2024 - 4:56pm, cleguson



### LEGEND

- PROPERTY LINE
- STORM DRAINAGE AREA BOUNDARY
- AREA IN HECTARES
- MANHOLE TO MANHOLE
- COEFFICIENT



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 Website www.novatech-eng.com

**535 LEGGET DRIVE**

**PRE-DEVELOPMENT STORM DRAINAGE PLAN**

SCALE 1 : 500

DATE	JOB	FIGURE
AUG 2024	124045	PRE-STM

**Novatech Project #:** 124045  
**Project Name:** 535 Legget Drive  
**Date:** 8/26/2024  
**Input By:** Anjush Musyaju, E.I.T.  
**Reviewed By:** Curtis Ferguson, E.I.T.  
**Drawing Reference:** 124045-Pre-STM

Storm Design Event = 2 Year

Location					
Development	Area ID	Hardscape	Landscape	Area A (ha.)	Runoff Coefficient C
535 Legget Drive	A-01	0.60	0.19	0.79	0.73
<b>Totals</b>				<b>0.79</b>	

**Demand Equation / Parameters**

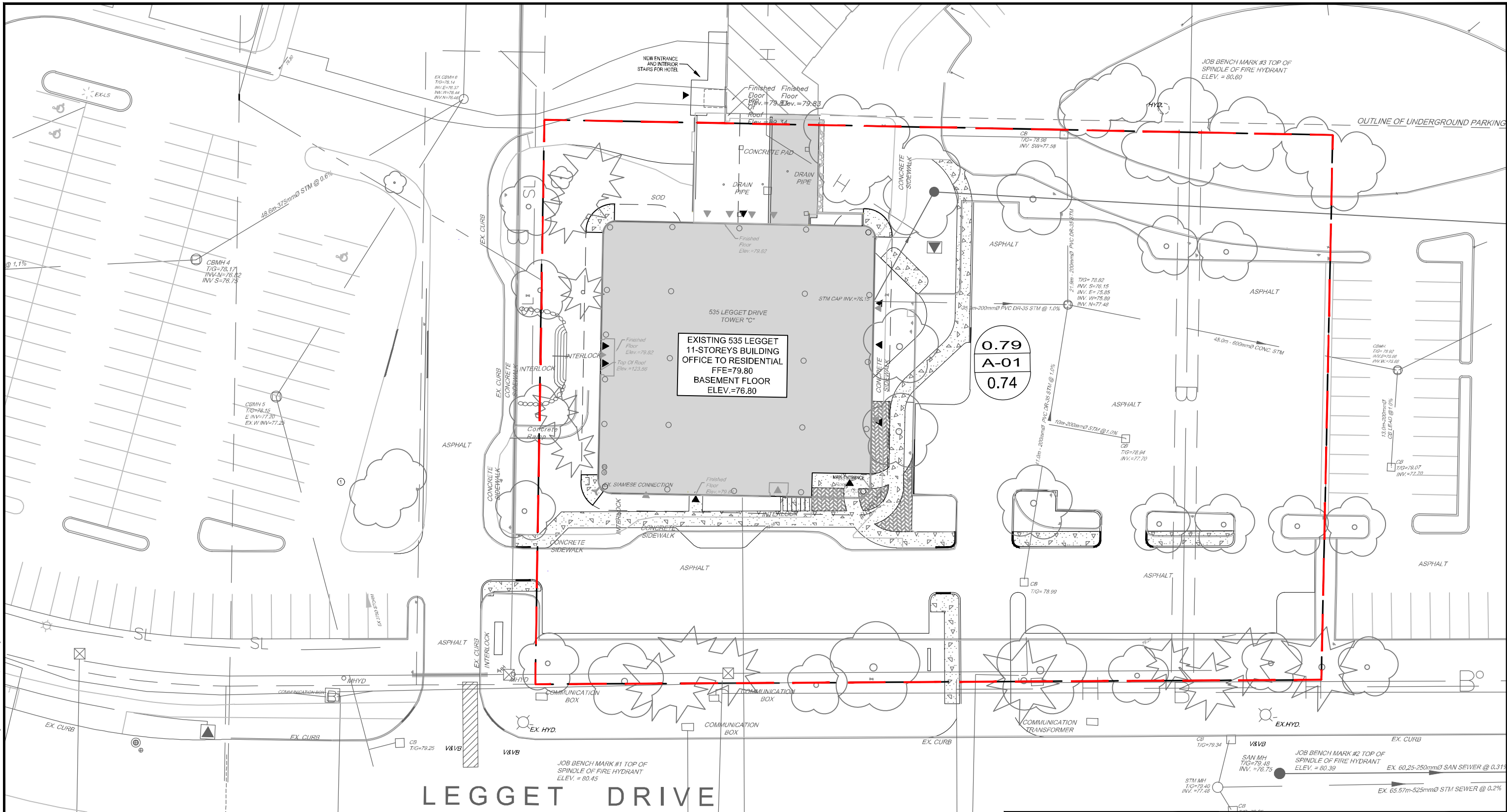
1.  $Q = 2.78 ACI$

**Definitions**

- Q** = Peak flow in litres per second (L/s)
- A** = Area in hectares (ha)
- C** = Weighted runoff coefficient (increased by 25% for 100-year)
- I** = Rainfall intensity in millimeters per hour (mm/hr)

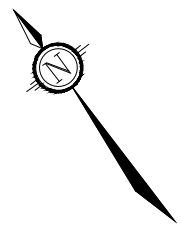
Rainfall intensity is based on City of Ottawa IDF data presented in the City of Ottawa - Sewer Design Guidelines

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**LEGEND**

- PROPERTY LINE
- - - - - STORM DRAINAGE AREA BOUNDARY
- 0.2  
A-02  
0.2 AREA IN HECTARES
- MANHOLE TO MANHOLE
- COEFFICIENT



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535 LEGGET DRIVE

PRE-DEVELOPMENT  
STORM DRAINAGE PLAN

SCALE 1 : 500

DATE <b>SEPT 2024</b>	JOB <b>124045</b>	FIGURE <b>PRE-STW</b>
--------------------------	----------------------	--------------------------

**Novatech Project #:** 124045  
**Project Name:** 535 Legget Drive  
**Date:** 8/26/2024  
**Input By:** Anjush Musyaju, E.I.T.  
**Reviewed By:** Curtis Ferguson, E.I.T.  
**Drawing Reference:** 124045-Post-STM

Storm Design Event = 2 Year

Location					
Development	Area ID	Hardscape	Landscape	Area A (ha.)	Runoff Coefficient C
535 Legget Drive	A-01	0.61	0.18	0.79	0.74
<b>Totals</b>				<b>0.79</b>	

**Demand Equation / Parameters**

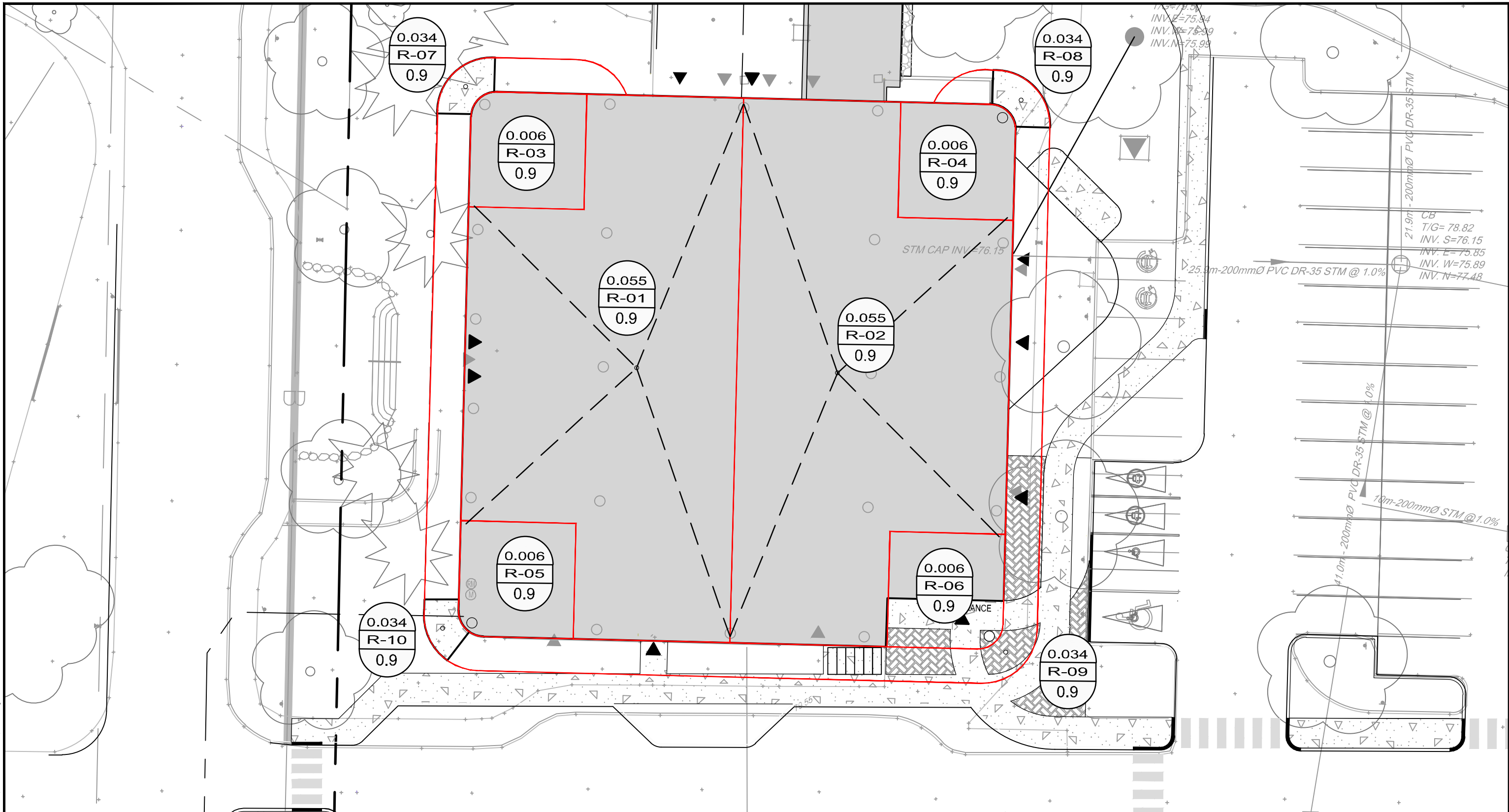
1.  $Q = 2.78 ACI$

**Definitions**



- Q** = Peak flow in litres per second (L/s)
- A** = Area in hectares (ha)
- C** = Weighted runoff coefficient (increased by 25% for 100-year)
- I** = Rainfall intensity in millimeters per hour (mm/hr)

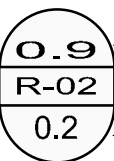
Rainfall intensity is based on City of Ottawa IDF data presented in the City of Ottawa - Sewer Design Guidelines

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### LEGEND

 PROPERTY LINE  
 STORM DRAINAGE AREA BOUNDARY

 AREA IN HECTARES  
 MANHOLE TO MANHOLE  
 COEFFICIENT



# NOVATECH

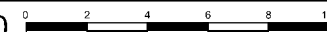
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535 LEGGET DRIVE

## ROOF DRAINAGE PLAN

SCALE 1 : 250



DATE OCT 2024 JOB 124045 FIGURE ROOF

**TABLE 1A: Roof Allowable Flows**

Outlet Options	Area (ha)	Q <sub>ALLOW</sub> (L/s)
535 Legget Drive	0.134	22.0

Note; Allowable Release Rate from  
Novatech Original Report "Kanata  
Research Park - Tower C  
Stromwater Management Report"  
December, 1998

**TABLE 2A: Post-Development Runoff Coefficient "C" - R-03**

Area	Surface	Ha	"C"	C <sub>avg</sub>	*C <sub>100</sub>	Runoff Coefficient Equation $C = (A_{hard} \times 0.9 + A_{soft} \times 0.2) / A_{tot}$ * Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event
Total	Hard	0.006	0.90	0.90	1.00	
0.006	Soft	0.000	0.20			

**TABLE 2B: Post-Development R-03 Flows**

Outlet Options	Area (ha)	C <sub>avg</sub>	Tc (min)	Q <sub>2 Year</sub> (L/s)	Q <sub>5 Year</sub> (L/s)	Q <sub>100 Year</sub> (L/s)
KRP Pond	0.006	0.90	10	1.1	1.5	2.9

Time of Concentration    Tc= 10    min  
 Intensity (2 Year Event)    I<sub>2</sub>= 76.81    mm/hr  
 Intensity (5 Year Event)    I<sub>5</sub>= 104.19    mm/hr  
 Intensity (100 Year Event)    I<sub>100</sub>= 178.56    mm/hr

Equations:  
 Flow Equation  
 $Q = 2.78 \times C \times I \times A$

Where:  
 C is the runoff coefficient  
 I is the rainfall intensity, City of Ottawa IDF  
 A is the total drainage area

100 year Intensity =  $1735.688 / (\text{Time in min} + 6.014)^{0.820}$   
 5 year Intensity =  $998.071 / (\text{Time in min} + 6.053)^{0.814}$   
 2 year Intensity =  $732.951 / (\text{Time in min} + 6.199)^{0.810}$



**TABLE 3A: Post-Development Runoff Coefficient "C" - R-04**

Area	Surface	Ha	"C"	C <sub>avg</sub>	*C <sub>100</sub>
Total	Hard	0.006	0.90	0.90	1.00
0.006	Soft	0.000	0.20		

Runoff Coefficient Equation  
 $C = (A_{hard} \times 0.9 + A_{soft} \times 0.2) / A_{tot}$   
 \* Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event

**TABLE 3B: Post-Development R-04 Flows**

Outlet Options	Area (ha)	C <sub>avg</sub>	Tc (min)	Q <sub>2 Year</sub> (L/s)	Q <sub>5 Year</sub> (L/s)	Q <sub>100 Year</sub> (L/s)
KRP Pond	0.006	0.90	10	1.1	1.5	2.9

Time of Concentration Tc= 10 min  
 Intensity (2 Year Event) I<sub>2</sub>= 76.81 mm/hr  
 Intensity (5 Year Event) I<sub>5</sub>= 104.19 mm/hr  
 Intensity (100 Year Event) I<sub>100</sub>= 178.56 mm/hr

Equations:  
 Flow Equation  
 $Q = 2.78 \times C \times I \times A$

Where:  
 C is the runoff coefficient  
 I is the rainfall intensity, City of Ottawa IDF  
 A is the total drainage area

100 year Intensity =  $1735.688 / (\text{Time in min} + 6.014)^{0.820}$   
 5 year Intensity =  $998.071 / (\text{Time in min} + 6.053)^{0.814}$   
 2 year Intensity =  $732.951 / (\text{Time in min} + 6.199)^{0.810}$

**TABLE 4A: Post-Development Runoff Coefficient "C" - R-05**

Area	Surface	Ha	"C"	C <sub>avg</sub>	*C <sub>100</sub>
Total	Hard	0.006	0.90	0.90	1.00
0.006	Soft	0.000	0.20		

Runoff Coefficient Equation  
 $C = (A_{hard} \times 0.9 + A_{soft} \times 0.2) / A_{tot}$   
 \* Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event

**TABLE 4B: Post-Development R-05 Flows**

Outlet Options	Area (ha)	C <sub>avg</sub>	Tc (min)	Q <sub>2 Year</sub> (L/s)	Q <sub>5 Year</sub> (L/s)	Q <sub>100 Year</sub> (L/s)
KRP Pond	0.006	0.90	10	1.1	1.5	2.9

Time of Concentration Tc= 10 min  
 Intensity (2 Year Event) I<sub>2</sub>= 76.81 mm/hr  
 Intensity (5 Year Event) I<sub>5</sub>= 104.19 mm/hr  
 Intensity (100 Year Event) I<sub>100</sub>= 178.56 mm/hr

Equations:  
 Flow Equation  
 $Q = 2.78 \times C \times I \times A$

Where:  
 C is the runoff coefficient  
 I is the rainfall intensity, City of Ottawa IDF  
 A is the total drainage area

100 year Intensity =  $1735.688 / (\text{Time in min} + 6.014)^{0.820}$   
 5 year Intensity =  $998.071 / (\text{Time in min} + 6.053)^{0.814}$   
 2 year Intensity =  $732.951 / (\text{Time in min} + 6.199)^{0.810}$

**TABLE 5A: Post-Development Runoff Coefficient "C" - R-06**

Area	Surface	Ha	"C"	C <sub>avg</sub>	*C <sub>100</sub>
Total	Hard	0.006	0.90	0.90	1.00
0.006	Soft	0.000	0.20		

Runoff Coefficient Equation  
 $C = (A_{hard} \times 0.9 + A_{soft} \times 0.2) / A_{tot}$   
 \* Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event

**TABLE 5B: Post-Development R-06 Flows**

Outlet Options	Area (ha)	C <sub>avg</sub>	Tc (min)	Q <sub>2 Year</sub> (L/s)	Q <sub>5 Year</sub> (L/s)	Q <sub>100 Year</sub> (L/s)
KRP Pond	0.006	0.90	10	1.1	1.5	2.9

Time of Concentration Tc= 10 min  
 Intensity (2 Year Event) I<sub>2</sub>= 76.81 mm/hr  
 Intensity (5 Year Event) I<sub>5</sub>= 104.19 mm/hr  
 Intensity (100 Year Event) I<sub>100</sub>= 178.56 mm/hr

Equations:  
 Flow Equation  
 $Q = 2.78 \times C \times I \times A$

Where:  
 C is the runoff coefficient  
 I is the rainfall intensity, City of Ottawa IDF  
 A is the total drainage area

100 year Intensity =  $1735.688 / (\text{Time in min} + 6.014)^{0.820}$   
 5 year Intensity =  $998.071 / (\text{Time in min} + 6.053)^{0.814}$   
 2 year Intensity =  $732.951 / (\text{Time in min} + 6.199)^{0.810}$

**TABLE 6A: Post-Development Runoff Coefficient "C" - R-01**

Area	Surface	Ha	5 Year Event		100 Year Event	
			"C"	C <sub>avg</sub>	"C" + 25%	*C <sub>avg</sub>
Total	Hard	0.000	0.90	0.90	1.00	1.00
0.055	Roof	0.055	0.90		1.00	
	Soft	0.000	0.20		0.25	

**TABLE 6B: 2 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-01**

0.055 =Area (ha)  
 0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
2 YEAR	35	36.06	4.96	1.167	3.80	7.97
	40	32.86	4.52	1.167	3.36	8.05
	<b>45</b>	<b>30.24</b>	<b>4.16</b>	<b>1.167</b>	<b>2.99</b>	<b>8.09</b>
	50	28.04	3.86	1.167	2.69	8.08
	55	26.17	3.60	1.167	2.43	8.04

**TABLE 6C: 5 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-01**

0.055 =Area (ha)  
 0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
5 YEAR	40	44.18	6.08	1.406	4.68	11.22
	45	40.63	5.59	1.406	4.19	11.30
	<b>50</b>	<b>37.65</b>	<b>5.18</b>	<b>1.406</b>	<b>3.78</b>	<b>11.33</b>
	55	35.12	4.83	1.406	3.43	11.31
	60	32.94	4.53	1.406	3.13	11.26

**TABLE 6D: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-01**

0.055 =Area (ha)  
 1.00 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
100 YEAR	65	52.65	8.05	1.765	6.29	24.52
	70	49.79	7.61	1.765	5.85	24.57
	<b>75</b>	<b>47.26</b>	<b>7.23</b>	<b>1.765</b>	<b>5.46</b>	<b>24.58</b>
	80	44.99	6.88	1.765	5.12	24.55
	85	42.95	6.57	1.765	4.80	24.50

Equations:

Flow Equation

$$Q = 2.78 \times C \times I \times A$$

Where:

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

Runoff Coefficient Equation

$$C_s = (A_{\text{hard}} \times 0.9 + A_{\text{soft}} \times 0.2) / A_{\text{Tot}}$$

$$C_{100} = (A_{\text{hard}} \times 1.0 + A_{\text{soft}} \times 0.25) / A_{\text{Tot}}$$

TABLE 6E: Storage Provided - R-01

Area R-01: Storage Table			
Head (m)	Area* (m <sup>2</sup> )	Storage Volume (m <sup>3</sup> )	
0.000	0.010	0.00	
0.025	16.537	0.21	
0.050	66.480	1.24	
0.075	148.297	3.93	
0.100	245.091	8.85	
0.125	367.175	16.50	
0.150	520.882	27.60	

\* Area of ponding based on preliminary roof plans. Areas and storage will be updated once a mechanical engineer is retained

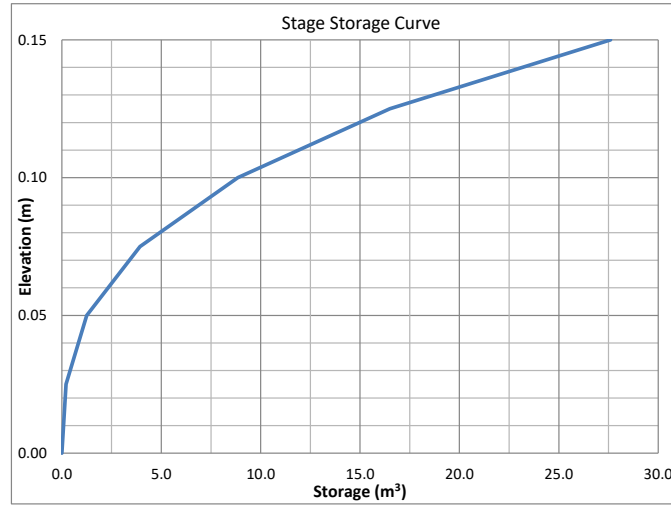



Table 6F: Roof Drain Flows

Roof Drains		
Roof Area	550.089	m <sup>2</sup>
Qty	1	
Type	Accutrol RD-100-A-ADJ	
Setting	Full Open	
Design Head	0.05-0.15	m
Design Flow 1" of head (0.025m)	0.32	L/s (ea)
Design Flow 2" of head (0.051m)	0.63	L/s (ea)
Design Flow 3" of head (0.076m)	0.95	L/s (ea)
Design Flow 4" of head (0.102m)	1.26	L/s (ea)
Design Flow 5" of head (0.127m)	1.58	L/s (ea)
Design Flow 6" of head (0.152m)	1.89	L/s (ea)

Table 6G: Total Roof Storage

Design Event	Roof Drain ID	Flow (L/S)	Head m	Required Volume
2 Year	R-01	1.167	0.094	8.09
5 Year		1.406	0.113	11.33
100 Year		1.766	0.142	24.58



**Adjustable Accutrol Weir**  
Tag: \_\_\_\_\_

**Adjustable Flow Control for Roof Drains**

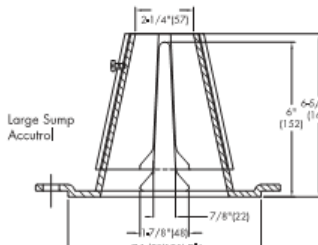
**ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)**

For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the flow rate for depths over 2" of head, set the slot in the adjustable upper cone according to the flow rate required. Refer to Table 1 below.  
 Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

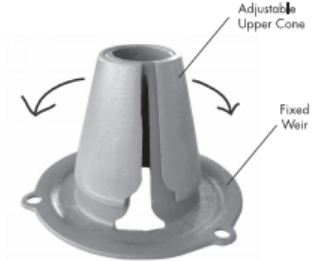
**EXAMPLE:**

For example, if the adjustable upper cone is set to cover 1/2 of the weir opening, flow rates above 2" of head will be restricted to 2-1/2 gpm per inch of head.

Therefore, at 3" of head, the flow rate through the Accutrol Weir that has 1/2 the slot exposed will be:  
 [5 gpm (per inch of head) x 2 inches of head] + 2-1/2 gpm (for the third inch of head) = 12-1/2 gpm.



Large Sump Accutrol



Adjustable Upper Cone  
Fixed Weir

1/2 Weir Opening Exposed Shown Above

**TABLE 1. Adjustable Accutrol Flow Rate Settings**

Weir Opening Exposed	1"	2"	3"	4"	5"	6"
	Flow Rate (gallons per minute)					
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

**TABLE 7A: Post-Development Runoff Coefficient "C" - R-02**

Area	Surface	Ha	5 Year Event		100 Year Event	
			"C"	C <sub>avg</sub>	"C" + 25%	*C <sub>avg</sub>
Total	Hard	0.000	0.90	0.90	1.00	1.00
0.055	Roof	0.055	0.90		1.00	
	Soft	0.000	0.20		0.25	

**TABLE 7B: 2 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-02**

0.055 =Area (ha)  
 0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
2 YEAR	35	36.06	4.96	1.167	3.80	7.97
	40	32.86	4.52	1.167	3.36	8.05
	<b>45</b>	<b>30.24</b>	<b>4.16</b>	<b>1.167</b>	<b>2.99</b>	<b>8.09</b>
	50	28.04	3.86	1.167	2.69	8.08
	55	26.17	3.60	1.167	2.43	8.04

**TABLE 7C: 5 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-02**

0.055 =Area (ha)  
 0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
5 YEAR	40	44.18	6.08	1.406	4.68	11.22
	45	40.63	5.59	1.406	4.19	11.30
	<b>50</b>	<b>37.65</b>	<b>5.18</b>	<b>1.406</b>	<b>3.78</b>	<b>11.33</b>
	55	35.12	4.83	1.406	3.43	11.31
	60	32.94	4.53	1.406	3.13	11.26

**TABLE 7D: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-02**

0.055 =Area (ha)  
 1.00 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
100 YEAR	65	52.65	8.05	1.765	6.29	24.52
	70	49.79	7.61	1.765	5.85	24.57
	<b>75</b>	<b>47.26</b>	<b>7.23</b>	<b>1.765</b>	<b>5.46</b>	<b>24.58</b>
	80	44.99	6.88	1.765	5.12	24.55
	85	42.95	6.57	1.765	4.80	24.50

Equations:

Flow Equation

$$Q = 2.78 \times C \times I \times A$$

Where:

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

Runoff Coefficient Equation

$$C_s = (A_{hard} \times 0.9 + A_{soft} \times 0.2) / A_{Tot}$$

$$C_{100} = (A_{hard} \times 1.0 + A_{soft} \times 0.25) / A_{Tot}$$

TABLE 7E: Storage Provided - R-02

Area R-02: Storage Table		
Head (m)	Area* (m <sup>2</sup> )	Storage Volume (m <sup>3</sup> )
0.000	0.010	0.00
0.025	16.537	0.21
0.050	66.480	1.24
0.075	148.297	3.93
0.100	245.091	8.85
0.125	367.175	16.50
0.150	520.882	27.60

\* Area of ponding based on preliminary roof plans. Areas and storage will be updated once a mechanical engineer is retained

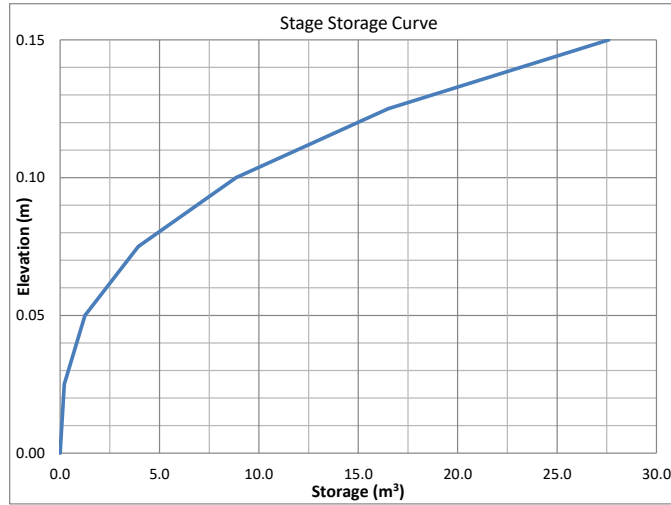


Table 7F: Roof Drain Flows

Roof Drains		
Roof Area	550.089	m <sup>2</sup>
Qty	1	
Type	Accutrol RD-100-A-ADJ	
Setting	Full Open	
Design Head	0.05-0.15	m
Design Flow 1" of head (0.025m)	0.32	L/s (ea)
Design Flow 2" of head (0.051m)	0.63	L/s (ea)
Design Flow 3" of head (0.076m)	0.95	L/s (ea)
Design Flow 4" of head (0.102m)	1.26	L/s (ea)
Design Flow 5" of head (0.127m)	1.58	L/s (ea)
Design Flow 6" of head (0.152m)	1.89	L/s (ea)

Table 7G: Total Roof Storage

Design Event	Roof Drain ID	Flow (L/S)	Head m	Required Volume
2 Year	R-02	1.167	0.094	8.09
5 Year		1.406	0.113	11.33
100 Year		1.766	0.142	24.58

**Adjustable Accutrol Weir**  
Tag: \_\_\_\_\_

**Adjustable Flow Control for Roof Drains**

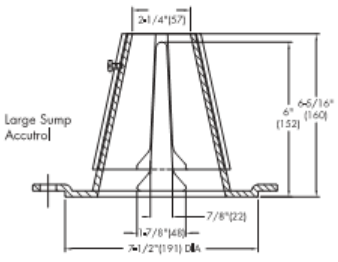
**ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)**

For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the flow rate for depths over 2" of head, set the slot in the adjustable upper cone according to the flow rate required. Refer to Table 1 below.  
 Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

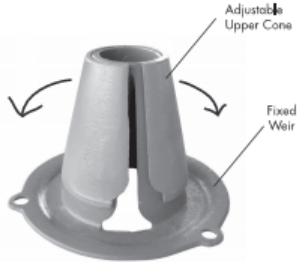
**EXAMPLE:**

For example, if the adjustable upper cone is set to cover 1/2 of the weir opening, flow rates above 2" of head will be restricted to 2-1/2 gpm per inch of head.

Therefore, at 3" of head, the flow rate through the Accutrol Weir that has 1/2 the slot exposed will be:  
 [5 gpm (per inch of head) x 2 inches of head] + 2-1/2 gpm (for the third inch of head) = 12-1/2 gpm.



Large Sump Accutrol



Adjustable Upper Cone  
Fixed Weir

1/2 Weir Opening Exposed Shown Above

**TABLE 1. Adjustable Accutrol Flow Rate Settings**

Weir Opening Exposed	Flow Rate (gallons per minute)					
	1"	2"	3"	4"	5"	6"
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

**TABLE 8A: Post-Development Runoff Coefficient "C" - R-07**

Area	Surface	Ha	5 Year Event		100 Year Event	
			"C"	C <sub>avg</sub>	"C" + 25%	*C <sub>avg</sub>
Total	Hard	0.000	0.90	0.90	1.00	1.00
0.034	Roof	0.034	0.90		1.00	
	Soft	0.000	0.20		0.25	

**TABLE 8B: 2 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-07**

0.034 =Area (ha)  
 0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
2 YEAR	25	45.17	3.84	1.038	2.80	4.20
	30	40.04	3.40	1.038	2.36	4.25
	<b>35</b>	<b>36.06</b>	<b>3.06</b>	<b>1.038</b>	<b>2.02</b>	<b>4.25</b>
	40	32.86	2.79	1.038	1.75	4.21
	45	30.24	2.57	1.038	1.53	4.13

**TABLE 8C: 5 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-07**

0.03394 =Area (ha)  
 0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
5 YEAR	25	60.90	5.17	1.325	3.85	5.77
	30	53.93	4.58	1.325	3.25	5.86
	<b>35</b>	<b>48.52</b>	<b>4.12</b>	<b>1.325</b>	<b>2.80</b>	<b>5.87</b>
	40	44.18	3.75	1.325	2.43	5.82
	45	40.63	3.45	1.325	2.13	5.74

**TABLE 8D: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-07**

0.03394 =Area (ha)  
 1.00 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
100 YEAR	40	75.15	7.09	1.572	5.52	13.24
	45	69.05	6.52	1.572	4.94	13.35
	<b>50</b>	<b>63.95</b>	<b>6.03</b>	<b>1.572</b>	<b>4.46</b>	<b>13.39</b>
	55	59.62	5.63	1.572	4.05	13.38
	60	55.89	5.27	1.572	3.70	13.33

Equations:

Flow Equation  
 $Q = 2.78 \times C \times I \times A$

Where:

C is the runoff coefficient  
 I is the rainfall intensity, City of Ottawa IDF  
 A is the total drainage area

Runoff Coefficient Equation

$$C_s = (A_{\text{hard}} \times 0.9 + A_{\text{soft}} \times 0.2) / A_{\text{Tot}}$$

$$C_{100} = (A_{\text{hard}} \times 1.0 + A_{\text{soft}} \times 0.25) / A_{\text{Tot}}$$



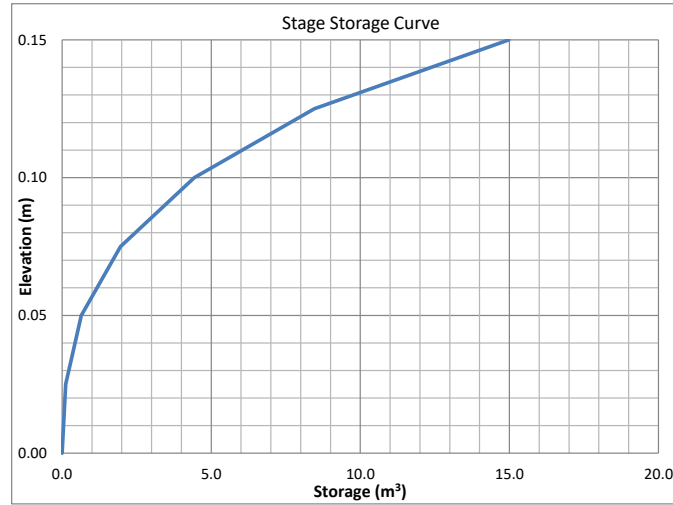
**TABLE 8E: Storage Provided - R-07**

Area R-03: Storage Table		
Head (m)	Area* (m <sup>2</sup> )	Storage Volume (m <sup>3</sup> )
0.000	0.610	0.00
0.025	8.983	0.12
0.050	32.985	0.64
0.075	72.071	1.96
0.100	126.238	4.44
0.125	195.489	8.46
0.150	326.374	14.98

\* Area of ponding based on preliminary roof plans. Areas and storage will be updated once a mechanical engineer is retained

**Table 8F: Roof Drain Flows**

Roof Drains		
Roof Area	339.4	m <sup>2</sup>
Qty	1	
Type	Accutrol RD-100-A-ADJ	
Setting	3/4 Open	
Design Head	0.05-0.15	m
Design Flow 1" of head	0.32	L/s (ea)
Design Flow 2" of head	0.63	L/s (ea)
Design Flow 3" of head	0.87	L/s (ea)
Design Flow 4" of head	1.10	L/s (ea)
Design Flow 5" of head	1.34	L/s (ea)
Design Flow 6" of head	1.58	L/s (ea)



**Table 8G: Total Roof Storage**

Design Event	Roof Drain ID	Flow (L/S)	Head m	Required Volume
2 Year	R-07	1.038	0.099	4.25
5 Year		1.325	0.117	5.87
100 Year		1.572	0.147	13.39

**TABLE 9A: Post-Development Runoff Coefficient "C" - R-08**

Area	Surface	Ha	5 Year Event		100 Year Event	
			"C"	C <sub>avg</sub>	"C" + 25%	*C <sub>avg</sub>
Total	Hard	0.000	0.90	0.90	1.00	1.00
0.034	Roof	0.034	0.90		1.00	
	Soft	0.000	0.20		0.25	

**TABLE 9B: 2 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-08**

0.034 =Area (ha)  
 0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
2 YEAR	25	45.17	3.84	1.038	2.80	4.20
	30	40.04	3.40	1.038	2.36	4.25
	<b>35</b>	<b>36.06</b>	<b>3.06</b>	<b>1.038</b>	<b>2.02</b>	<b>4.25</b>
	40	32.86	2.79	1.038	1.75	4.21
	45	30.24	2.57	1.038	1.53	4.13

**TABLE 9C: 5 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-08**

0.03394 =Area (ha)  
 0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
5 YEAR	25	60.90	5.17	1.325	3.85	5.77
	30	53.93	4.58	1.325	3.25	5.86
	<b>35</b>	<b>48.52</b>	<b>4.12</b>	<b>1.325</b>	<b>2.80</b>	<b>5.87</b>
	40	44.18	3.75	1.325	2.43	5.82
	45	40.63	3.45	1.325	2.13	5.74

**TABLE 9D: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-08**

0.03394 =Area (ha)  
 1.00 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
100 YEAR	40	75.15	7.09	1.572	5.52	13.24
	45	69.05	6.52	1.572	4.94	13.35
	<b>50</b>	<b>63.95</b>	<b>6.03</b>	<b>1.572</b>	<b>4.46</b>	<b>13.39</b>
	55	59.62	5.63	1.572	4.05	13.38
	60	55.89	5.27	1.572	3.70	13.33

Equations:

Flow Equation

$$Q = 2.78 \times C \times I \times A$$

Where:

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

Runoff Coefficient Equation

$$C_s = (A_{hard} \times 0.9 + A_{soft} \times 0.2) / A_{Tot}$$

$$C_{100} = (A_{hard} \times 1.0 + A_{soft} \times 0.25) / A_{Tot}$$

TABLE 9E: Storage Provided - R-08

Area R-03: Storage Table		
Head (m)	Area* (m <sup>2</sup> )	Storage Volume (m <sup>3</sup> )
0.000	0.610	0.00
0.025	8.983	0.12
0.050	32.985	0.64
0.075	72.071	1.96
0.100	126.238	4.44
0.125	195.489	8.46
0.150	326.374	14.98

\* Area of ponding based on preliminary roof plans. Areas and storage will be updated once a mechanical engineer is retained

Table 9F: Roof Drain Flows

Roof Drains		
Roof Area	339.4	m <sup>2</sup>
Qty	1	
Type	Accutrol RD-100-A-ADJ	
Setting	3/4 Open	
Design Head	0.05-0.15	m
Design Flow 1" of head	0.32	L/s (ea)
Design Flow 2" of head	0.63	L/s (ea)
Design Flow 3" of head	0.87	L/s (ea)
Design Flow 4" of head	1.10	L/s (ea)
Design Flow 5" of head	1.34	L/s (ea)
Design Flow 6" of head	1.58	L/s (ea)

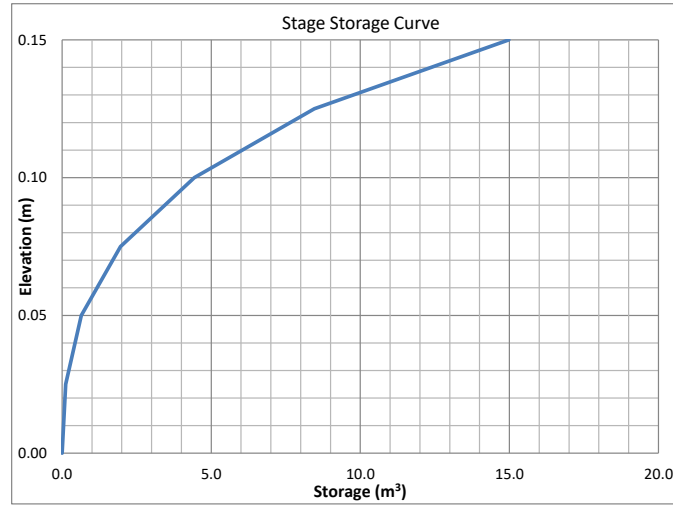


Table 9G: Total Roof Storage

Design Event	Roof Drain ID	Flow (L/S)	Head m	Required Volume
2 Year	R-07	1.038	0.099	4.25
5 Year		1.325	0.117	5.87
100 Year		1.572	0.147	13.39

**TABLE 10A: Post-Development Runoff Coefficient "C" - R-09**

Area	Surface	Ha	5 Year Event		100 Year Event	
			"C"	C <sub>avg</sub>	"C" + 25%	*C <sub>avg</sub>
Total	Hard	0.000	0.90	0.90	1.00	1.00
0.034	Roof	0.034	0.90		1.00	
	Soft	0.000	0.20		0.25	

**TABLE 10B: 2 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-09**

0.034 =Area (ha)  
 0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
2 YEAR	25	45.17	3.84	1.038	2.80	4.20
	30	40.04	3.40	1.038	2.36	4.25
	<b>35</b>	<b>36.06</b>	<b>3.06</b>	<b>1.038</b>	<b>2.02</b>	<b>4.25</b>
	40	32.86	2.79	1.038	1.75	4.21
	45	30.24	2.57	1.038	1.53	4.13

**TABLE 10C: 5 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-09**

0.03394 =Area (ha)  
 0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
5 YEAR	25	60.90	5.17	1.325	3.85	5.77
	30	53.93	4.58	1.325	3.25	5.86
	<b>35</b>	<b>48.52</b>	<b>4.12</b>	<b>1.325</b>	<b>2.80</b>	<b>5.87</b>
	40	44.18	3.75	1.325	2.43	5.82
	45	40.63	3.45	1.325	2.13	5.74

**TABLE 10D: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-09**

0.03394 =Area (ha)  
 1.00 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
100 YEAR	40	75.15	7.09	1.572	5.52	13.24
	45	69.05	6.52	1.572	4.94	13.35
	<b>50</b>	<b>63.95</b>	<b>6.03</b>	<b>1.572</b>	<b>4.46</b>	<b>13.39</b>
	55	59.62	5.63	1.572	4.05	13.38
	60	55.89	5.27	1.572	3.70	13.33

Equations:

Flow Equation  
 $Q = 2.78 \times C \times I \times A$

Where:

C is the runoff coefficient  
 I is the rainfall intensity, City of Ottawa IDF  
 A is the total drainage area

Runoff Coefficient Equation

$$C_s = (A_{\text{hard}} \times 0.9 + A_{\text{soft}} \times 0.2) / A_{\text{Tot}}$$

$$C_{100} = (A_{\text{hard}} \times 1.0 + A_{\text{soft}} \times 0.25) / A_{\text{Tot}}$$

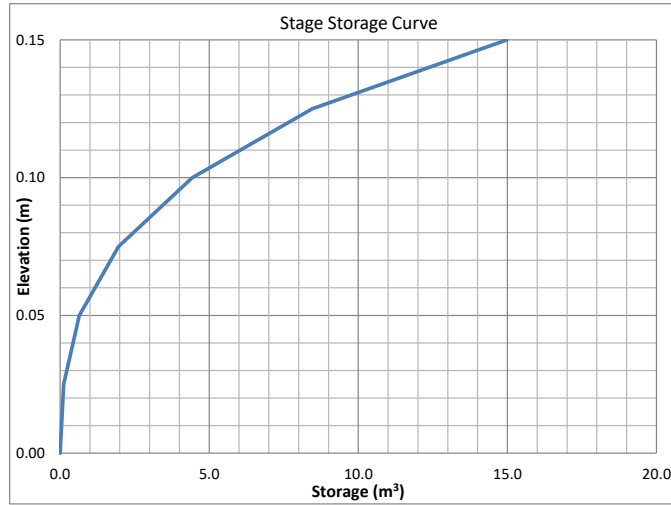
**TABLE 10E: Storage Provided - R-09**

Area R-03: Storage Table		
Head (m)	Area* (m <sup>2</sup> )	Storage Volume (m <sup>3</sup> )
0.000	0.610	0.00
0.025	8.983	0.12
0.050	32.985	0.64
0.075	72.071	1.96
0.100	126.238	4.44
0.125	195.489	8.46
0.150	326.374	14.98

\* Area of ponding based on preliminary roof plans. Areas and storage will be updated once a mechanical engineer is retained

**Table 10F: Roof Drain Flows**

Roof Drains		
Roof Area	339.4	m <sup>2</sup>
Qty	1	
Type	Accutrol RD-100-A-ADJ	
Setting	3/4 Open	
Design Head	0.05-0.15	m
Design Flow 1" of head	0.32	L/s (ea)
Design Flow 2" of head	0.63	L/s (ea)
Design Flow 3" of head	0.87	L/s (ea)
Design Flow 4" of head	1.10	L/s (ea)
Design Flow 5" of head	1.34	L/s (ea)
Design Flow 6" of head	1.58	L/s (ea)



**Table 10G: Total Roof Storage**

Design Event	Roof Drain ID	Flow (L/S)	Head m	Required Volume
2 Year	R-07	1.038	0.099	4.25
5 Year		1.325	0.117	5.87
100 Year		1.572	0.147	13.39

**TABLE 11A: Post-Development Runoff Coefficient "C" - R-10**

Area	Surface	Ha	5 Year Event		100 Year Event	
			"C"	C <sub>avg</sub>	"C" + 25%	*C <sub>avg</sub>
Total	Hard	0.000	0.90	0.90	1.00	1.00
0.034	Roof	0.034	0.90		1.00	
	Soft	0.000	0.20		0.25	

**TABLE 11B: 2 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-10**

0.034 =Area (ha)  
 0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
2 YEAR	25	45.17	3.84	1.038	2.80	4.20
	30	40.04	3.40	1.038	2.36	4.25
	<b>35</b>	<b>36.06</b>	<b>3.06</b>	<b>1.038</b>	<b>2.02</b>	<b>4.25</b>
	40	32.86	2.79	1.038	1.75	4.21
	45	30.24	2.57	1.038	1.53	4.13

**TABLE 11C: 5 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-10**

0.03394 =Area (ha)  
 0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
5 YEAR	25	60.90	5.17	1.325	3.85	5.77
	30	53.93	4.58	1.325	3.25	5.86
	<b>35</b>	<b>48.52</b>	<b>4.12</b>	<b>1.325</b>	<b>2.80</b>	<b>5.87</b>
	40	44.18	3.75	1.325	2.43	5.82
	45	40.63	3.45	1.325	2.13	5.74

**TABLE 11D: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - R-10**

0.03394 =Area (ha)  
 1.00 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
100 YEAR	40	75.15	7.09	1.572	5.52	13.24
	45	69.05	6.52	1.572	4.94	13.35
	<b>50</b>	<b>63.95</b>	<b>6.03</b>	<b>1.572</b>	<b>4.46</b>	<b>13.39</b>
	55	59.62	5.63	1.572	4.05	13.38
	60	55.89	5.27	1.572	3.70	13.33

Equations:

Flow Equation

$$Q = 2.78 \times C \times I \times A$$

Where:

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

Runoff Coefficient Equation

$$C_s = (A_{hard} \times 0.9 + A_{soft} \times 0.2) / A_{Tot}$$

$$C_{100} = (A_{hard} \times 1.0 + A_{soft} \times 0.25) / A_{Tot}$$

TABLE 11E: Storage Provided - R-10

Area R-03: Storage Table		
Head (m)	Area* (m <sup>2</sup> )	Storage Volume (m <sup>3</sup> )
0.000	0.610	0.00
0.025	8.983	0.12
0.050	32.985	0.64
0.075	72.071	1.96
0.100	126.238	4.44
0.125	195.489	8.46
0.150	326.374	14.98

\* Area of ponding based on preliminary roof plans. Areas and storage will be updated once a mechanical engineer is retained

Table 11F: Roof Drain Flows

Roof Drains		
Roof Area	339.4	m <sup>2</sup>
Qty	1	
Type	Accutrol RD-100-A-ADJ	
Setting	3/4 Open	
Design Head	0.05-0.15	m
Design Flow 1" of head	0.32	L/s (ea)
Design Flow 2" of head	0.63	L/s (ea)
Design Flow 3" of head	0.87	L/s (ea)
Design Flow 4" of head	1.10	L/s (ea)
Design Flow 5" of head	1.34	L/s (ea)
Design Flow 6" of head	1.58	L/s (ea)

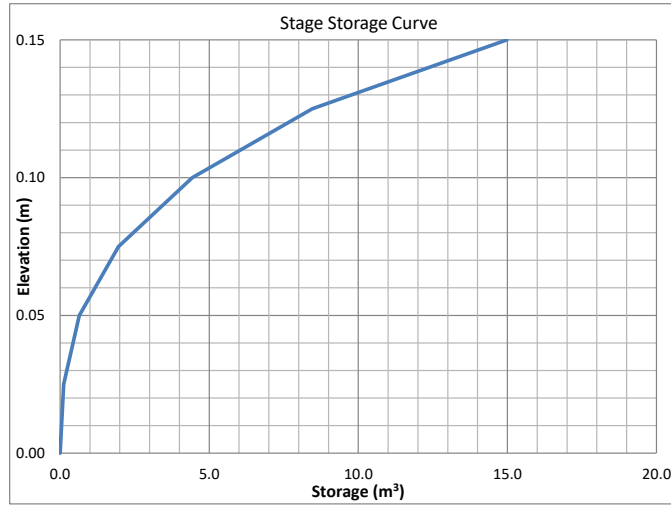


Table 11G: Total Roof Storage

Design Event	Roof Drain ID	Flow (L/S)	Head m	Required Volume
2 Year	R-07	1.038	0.099	4.25
5 Year		1.325	0.117	5.87
100 Year		1.572	0.147	13.39

**Roof Post-Development Stormwater Management Summary**

Area ID	Area (ha)	1:5 Year Weighted Cw	1:100 Year Weighted Cw	Control Device		Outlet Location	2 Year Storm Event				5 Year Storm Event				100 Year Storm Event				
							Release (L/s)	Ponding Depth* (m)	Req'd Vol (cu.m)	Max. Vol. Provided (cu.m.)	Release (L/s)	Ponding Depth* (m)	Req'd Vol (cu.m)	Max. Vol. Provided (cu.m.)	Release (L/s)	Ponding Depth* (m)	Req'd Vol (cu.m)	Max. Vol. Provided (cu.m.)	
R-01	0.055	0.90	1.00	Accutrol RD-100-A-ADJ	Full Open	KRP Pond	1.17	0.09	8.09	27.60	1.41	0.11	11.33	27.60	1.77	0.14	24.58	27.60	
R-02	0.055	0.90	1.00	Accutrol RD-100-A-ADJ	Full Open	KRP Pond	1.17	0.09	8.09	27.60	1.41	0.11	11.33	27.60	1.77	0.14	24.58	27.60	
R-03	0.006	0.90	1.00	N/A		KRP Pond	1.10				1.50				2.90				
R-04	0.006	0.90	1.00	N/A		KRP Pond	1.10				1.50				2.90				
R-05	0.006	0.90	1.00	N/A		KRP Pond	1.10				1.50				2.90				
R-06	0.006	0.90	1.00	N/A		KRP Pond	1.10				1.50				2.90				
R-07	0.034	0.90	1.00	Accutrol RD-100-A-ADJ	3/4 Open	KRP Pond	1.04	0.10	4.25	14.98	1.33	0.12	5.87	14.98	1.57	0.15	13.39	14.98	
R-08	0.034	0.90	1.00	Accutrol RD-100-A-ADJ	3/4 Open	KRP Pond	1.04	0.10	4.25	14.98	1.33	0.12	5.87	14.98	1.57	0.15	13.39	14.98	
R-09	0.034	0.90	1.00	Accutrol RD-100-A-ADJ	3/4 Open	KRP Pond	1.04	0.10	4.25	14.98	1.33	0.12	5.87	14.98	1.57	0.15	13.39	14.98	
R-10	0.034	0.90	1.00	Accutrol RD-100-A-ADJ	3/4 Open	KRP Pond	1.04	0.10	4.25	14.98	1.33	0.12	5.87	14.98	1.57	0.15	13.39	14.98	
<b>Post-Development Flow</b>							<b>10.9</b>	<b>-</b>			<b>14.1</b>	<b>-</b>			<b>21.4</b>	<b>-</b>	<b>49.2</b>		
<b>Total Allowable Release Rate</b>							<b>22.0</b>				<b>22.0</b>				<b>22.0</b>				

\* Ponding depth is measured from the control device

Note Roof storage and flows are based on preliminary roof plans. Areas and storage will be updated once a mechanical engineer is retained, and final drawings are prepared.



**STORM SEWER DESIGN SHEET**

Novatech Project #: 124045  
 Project Name: 535 Legget - KRP Tower C  
 Date Prepared: 9/5/2024  
 Date Revised:  
 Input By: Curtis Ferguson, E.I.T.  
 Reviewed By: Greg MacDonald, P.Eng  
 Drawing Reference: 124045-ROOF

Legend:  
 PROJECT SPECIFIC INFO  
 USER DESIGN INPUT  
 CUMILATIVE CELL  
 CALCULATED DESIGN CELL OUTPUT  
 USER AS-BUILT INPUT

LOCATION			DEMAND										CAPACITY											
			AREA				FLOW						PROPOSED SEWER PIPE SIZING / DESIGN											
From MH	To MH	Area ID	Hardscape	Landscaping	Total Area (ha)	Weighted Runoff Coefficient*	Indivi 2.78 AR	Accum 2.78 AR	Time of Concentratio n (min.)	Rain Intensity (mm/hr)			Peak Flow (L/s)	TOTAL UNRESTRICTED PEAK FLOW (QDesign) (L/s)	PIPE PROPERTIES					CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW (min.)	QPEAK DESIGN / QFULL (%)	
										2yr	5yr	100yr			LENGTH (m)	SIZE / MATERIAL (mm / type)	ID ACTUAL (m)	ROUGHNESS	DESIGN GRADE (%)					
Private Storm Sewer																								
BUILDING	EX. CB	ROOF	0.108	0.000	0.108	0.90	0.27	0.27	10.00	76.81		20.75	20.8	25.4	200 PVC	0.2032	0.013	1.00	34.2	1.06	0.40	60.7%		
			0.000				0.00	0.00	10.00			0.00												
			0.000				0.00	0.00	10.00			0.00												

**DEMAND EQUATION**

Q = 2.78 AIR

Where : Q = Peak flow in litres per second (L/s)  
 A = Area in hectares (ha)  
 R = Weighted runoff coefficient (increased by 25% for 100-year)  
 I = Rainfall intensity in millimeters per hour (mm/hr)  
 Rainfall Intensity (I) is based on City of Ottawa IDF data presented in the City of Ottawa Sewer Design Guidelines (Oct. 2012)

**CAPACITY EQUATION**

Q full= (1/n) A R^(2/3)So^(1/2)

Where : Q full = Capacity (L/s)  
 n = Manning coefficient of roughness (0.013)  
 A = Flow area (m<sup>2</sup>)  
 R = Wetted perimeter (m)  
 So = Pipe Slope/gradient

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Ottawa, Ontario K1B 5L6

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☎ 613.745.9994

www.cwwcanada.com  
1.866.695.0155

**Montreal**

7562, Côte-de-Liesse  
St-Laurent, Quebec H4T 1E7

☎ 514.738.2666  
☎ 514.738.9762



INTEGRATED SEWER SOLUTIONS



## 535 LEGGET DRIVE Ottawa, Ontario

# SEWER CCTV INSPECTION REPORT

**Report ID**  
140291ST1

**Sewer Use**  
Storm

**Completion Date**  
August 08, 2024

**Inspected Length**  
21.40 meters

THE WAY IS CLEAR™

- Watermain Swabbing
- Hydro Vacuum Excavation
- CCTV Inspection of Sewers

- Plumbing & Drain Services
- Structural Rehabilitation of Manholes
- Cured-in-Place-Pipe Lining & Spot Repairs

- Grouting, Test & Seal Joints, Manholes & Services
- Lateral Sewer Inspection & Locates From Main
- Sewer Cleaning, Flushing & Pumping

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3. O&M rating .....	4
4. Pipe summary and condition details .....	5
5. Vision Report© Legend .....	8

# 1. Index of pipes

1 item

Pipe	Start/End	Direction	Road	Date	Diameter	Inspected	Total	Page
BUILDING MHST56497	MHST56497 --> BUILDING	U - Upstream	535 Legget Dr.	08/08/2024 9:08 AM	200	21.4	0	5
						Total: 21.4		

## 2. Structural rating

1 item

5 - Most significant defect grade (1 of 1 items)

Score	Quick	Index	Pipe	Start/End	Direction	Street	Page
7	5121	3.5	BUILDING MHST56497	MHST56497 --> BUILDING	Against flow	535 Legget Dr.	5

### 3. O&M rating

1 item

5 - Most significant defect grade (1 of 1 items)

Score	Quick	Index	Structural	Pipe	Start/End	Direction	Street	Page
9	5141	4.5	5	BUILDING MHST56497	MHST56497 --> BUILDING	Against flow	535 Legget Dr.	5

## 4. Pipe summary and condition details

### Pipe identification

<b>Pipe:</b> BUILDING MHST56497	<b>Direction of inspection:</b> MHST56497 --> BUILDING
<b>Direction of flow:</b> BUILDING --> MHST56497	<b>Direction:</b> Against flow

### Pipe location

<b>Road:</b> 535 Legget Dr.	<u>UPSTREAM</u>	<u>DOWNSTREAM</u>
<b>Crossroad:</b>	<b>Easting (X):</b>	<b>Easting (X):</b>
<b>Drainage Area:</b>	<b>Northing (Y):</b>	<b>Northing (Y):</b>
<b>City:</b> Kanata	<b>Elevation (Z):</b>	<b>Elevation (Z):</b>
<b>Location:</b> Parking Lot	<b>GPS Accuracy:</b>	
<b>Owner:</b> Unknown	<b>Coordinate System:</b>	
<b>Road segment:</b>	<b>Vertical Datum:</b>	

### Pipe characteristics

<b>Sewer Use:</b> Stormwater	<b>Inspected length:</b> 21.4
<b>Height:</b> 200	<b>Total length:</b> 0
<b>Width:</b>	<b>Rim/Inv.:</b>
<b>Shape:</b> Circular	<b>Grade/Inv.:</b>
<b>Material:</b> Polyvinyl Chloride	<b>Rim/Grade:</b>
<b>Lining:</b>	<b>Rim/Inv.:</b>
<b>Joint length:</b> 4	<b>Grade/Inv.:</b>
<b>Year laid:</b>	<b>Rim/Grade:</b>
<b>Year renewed:</b>	<b>Sewer category:</b>

### Additional details

<b>Inspection standard:</b> PACP 6.0	<b>Location details:</b>
<b>Date:</b> 08/08/2024 9:08 AM	<b>Surveyed by:</b> Derek Jessup
<b>Project Number:</b>	<b>Certificate #:</b> U06180703002192
<b>Customer:</b> Novatech Engineering	<b>Pre-Cleaning:</b> Jetting
<b>PO number:</b>	<b>Date cleaned:</b>
<b>Work order:</b> 140291	<b>Unit of measurement:</b> Metric
<b>Purpose:</b>	<b>Media label:</b>
<b>Weather:</b> Dry	<b>Sheet #:</b>
<b>Flow control:</b> Not Controlled	

### Structural rating

### O&M rating

### Overall rating

<b>Peak:</b> 5	<b>Peak:</b> 5	<b>Peak:</b> 5
<b>Quick rating:</b> 5121	<b>Quick rating:</b> 5141	<b>Quick rating:</b> 5241
<b>Score:</b> 7	<b>Score:</b> 9	<b>Score:</b> 16
<b>Index:</b> 3.5	<b>Index:</b> 4.5	<b>Index:</b> 4

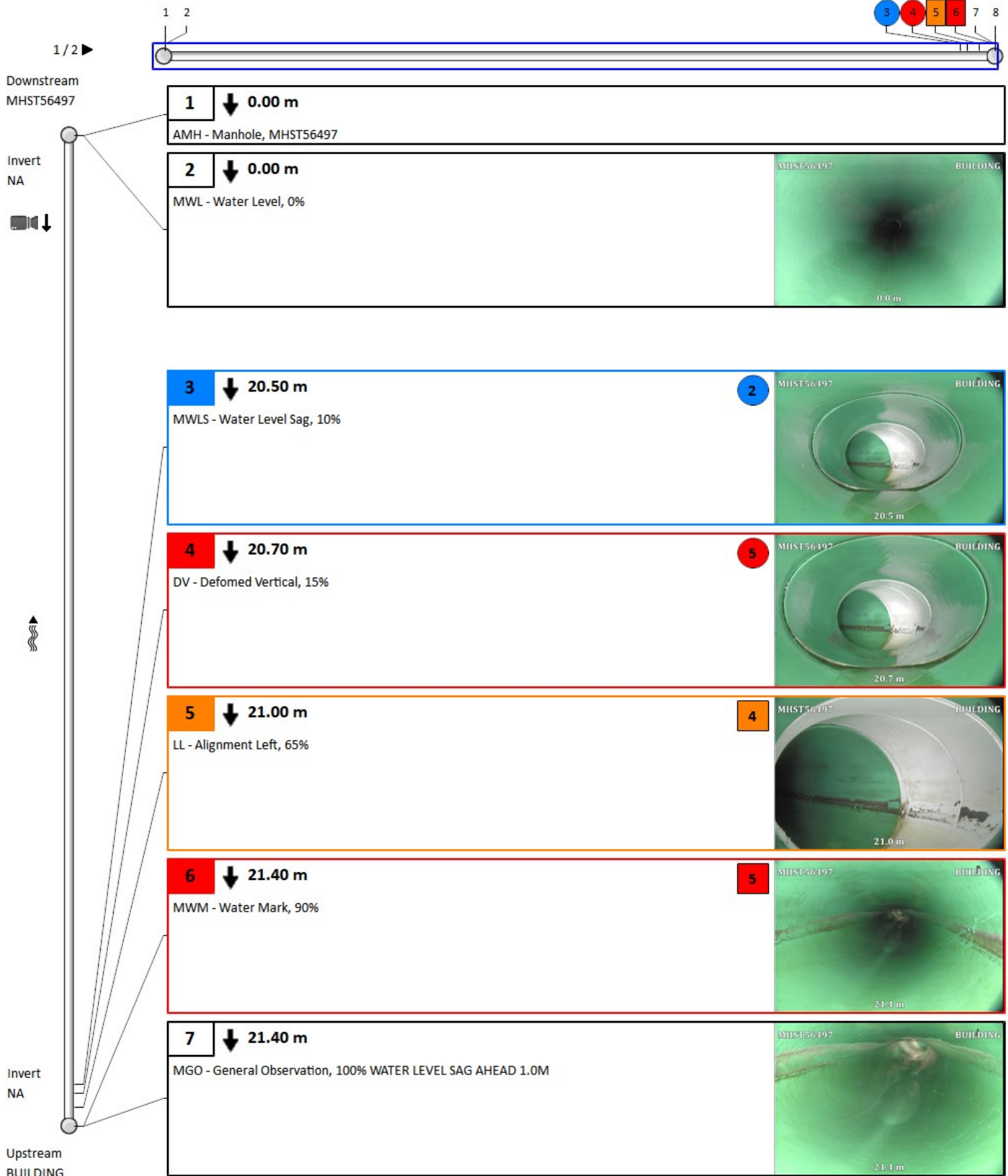
### Additional information

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### Other information

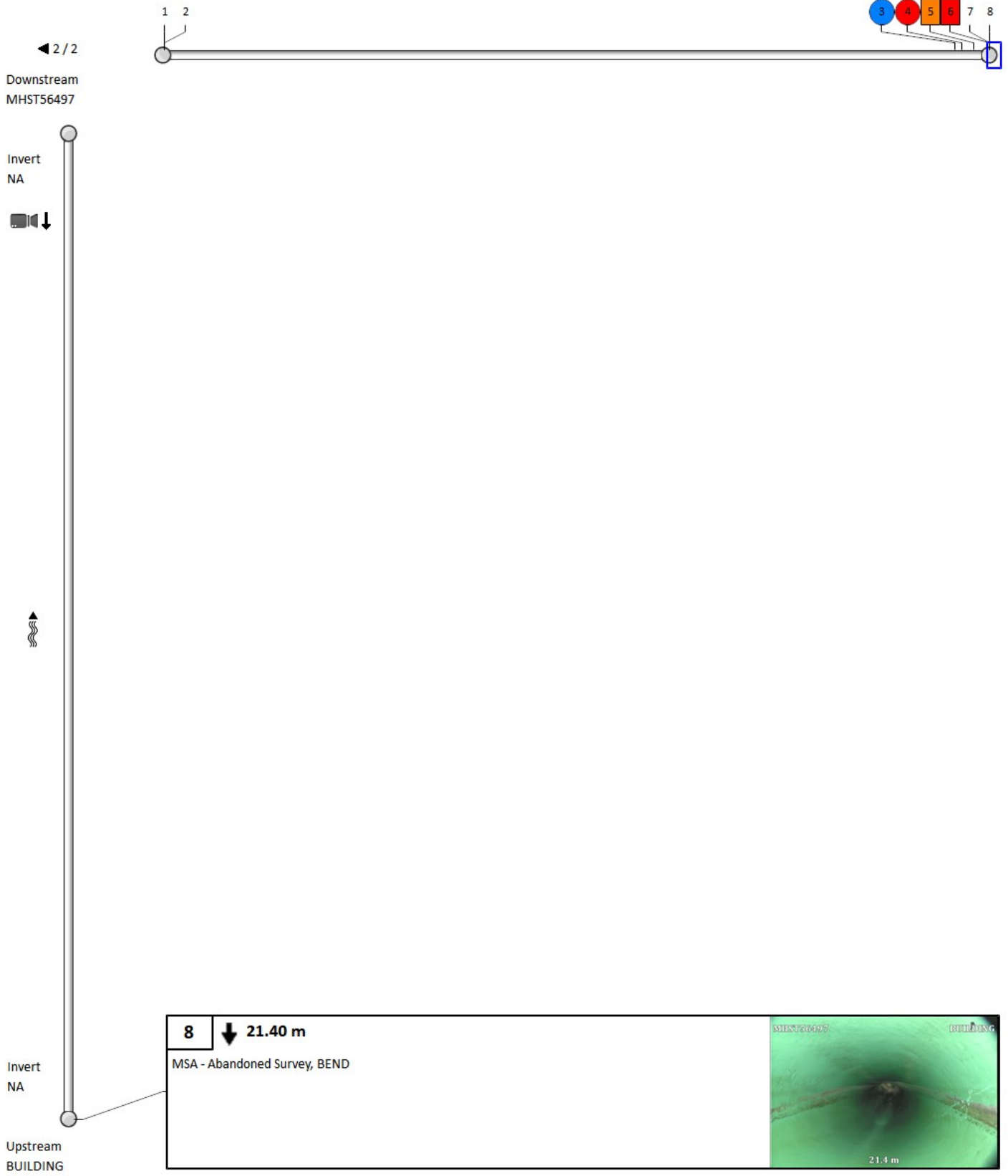
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<b>Information 2:</b>	<b>Information 7:</b>
<b>Information 3:</b>	<b>Information 8:</b>
<b>Information 4:</b>	<b>Information 9:</b>
<b>Information 5:</b>	<b>Information 10:</b>

# 4. Pipe summary and condition details





# 4. Pipe summary and condition details



535 LEGGET DR



Show search results for 535 leggett

375mmØ PVC

375mmØ PVC

535

250mmØ PVC

MHSA56271

IN92780

200mmØ PVC

MHST56497

250mmØ PVC

600mmØ P

Prom. Legget Dr

10m

-8451050.755 5676537.393 Meters

IN92781

IN92782



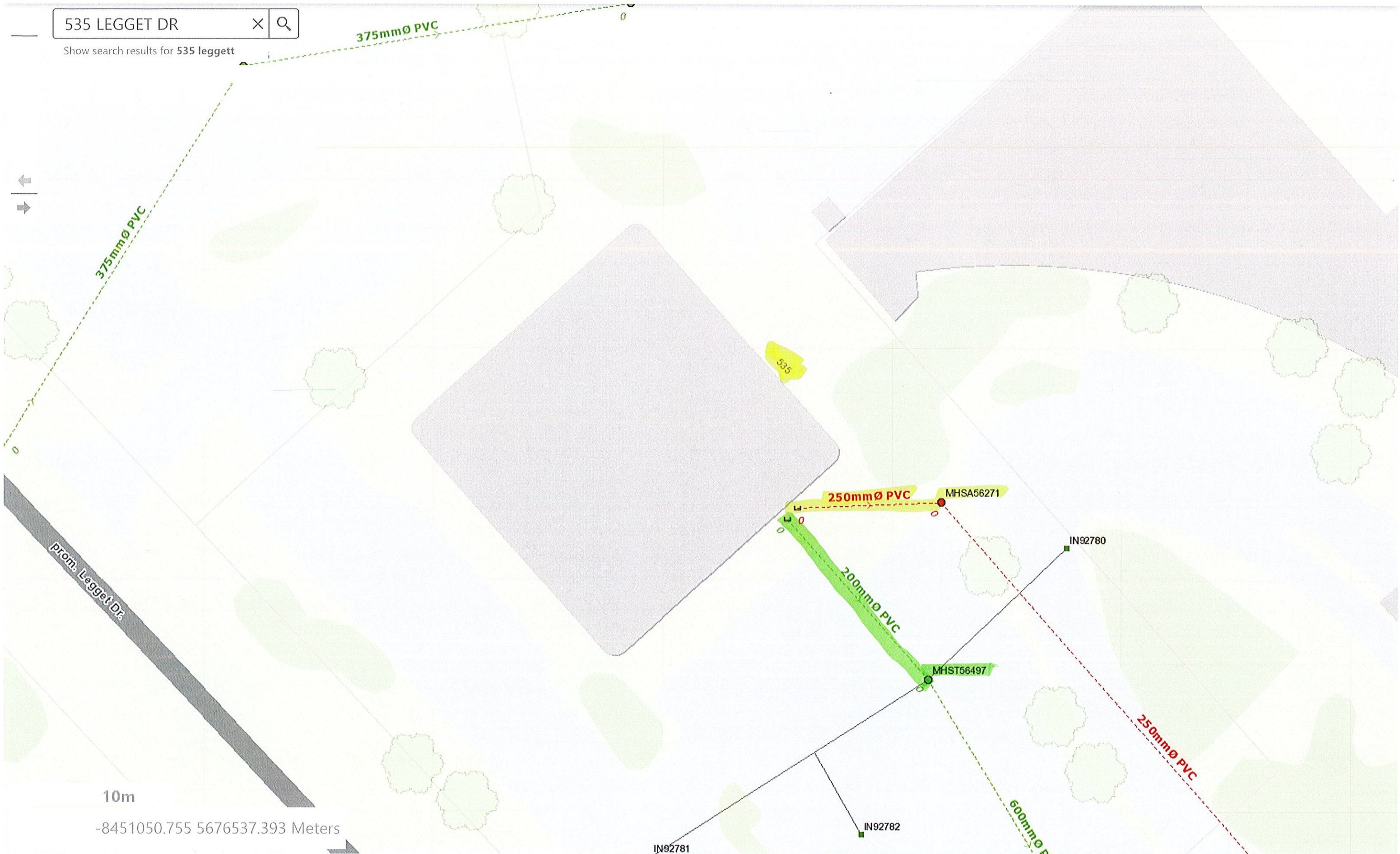
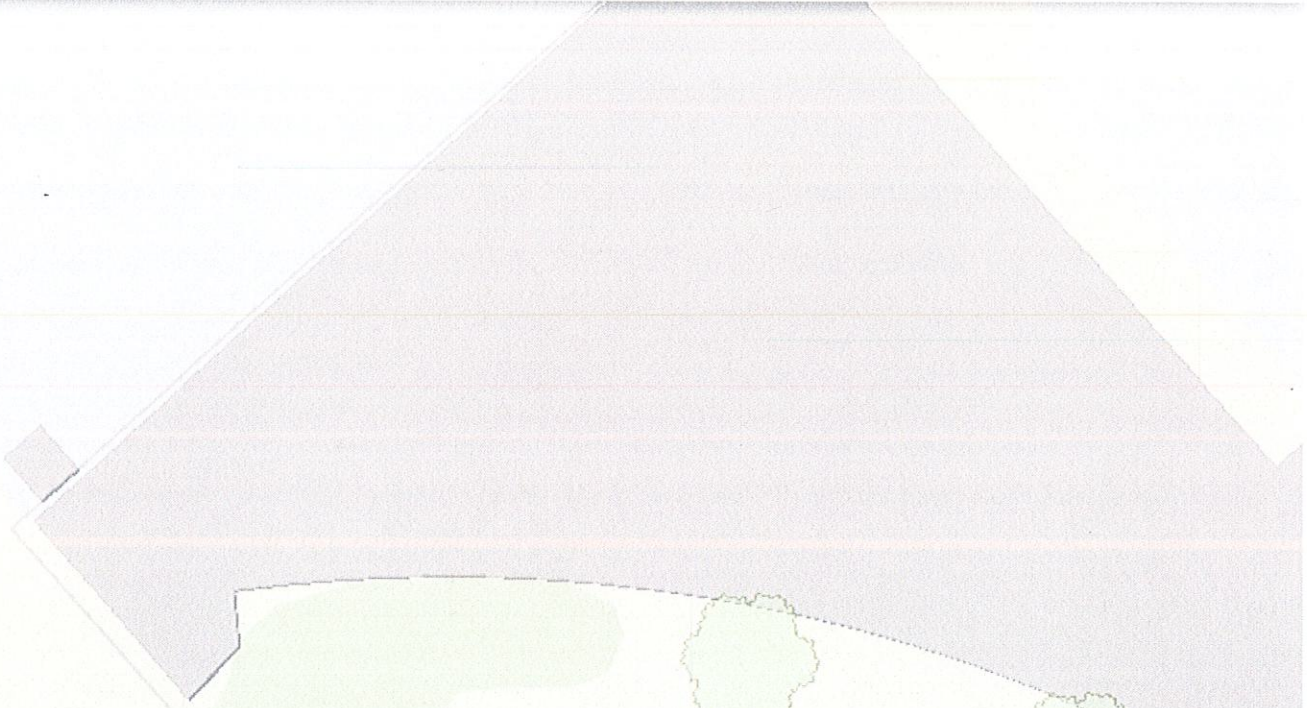
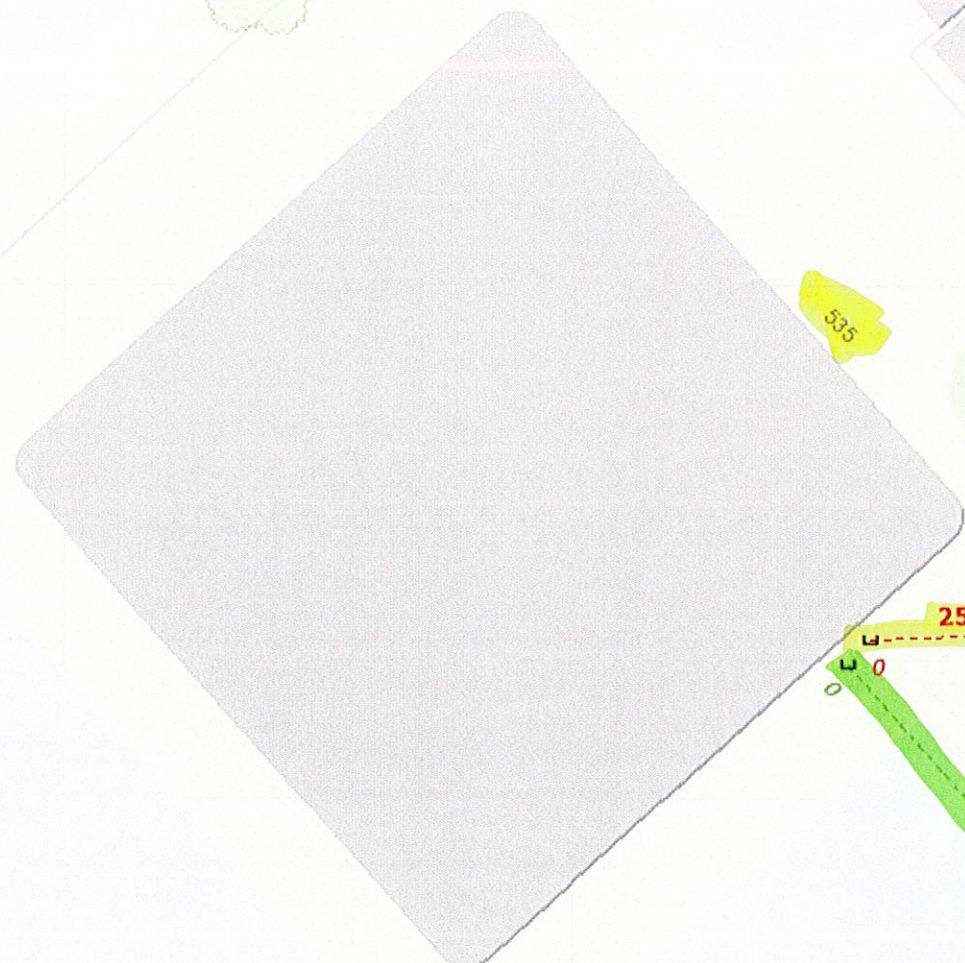
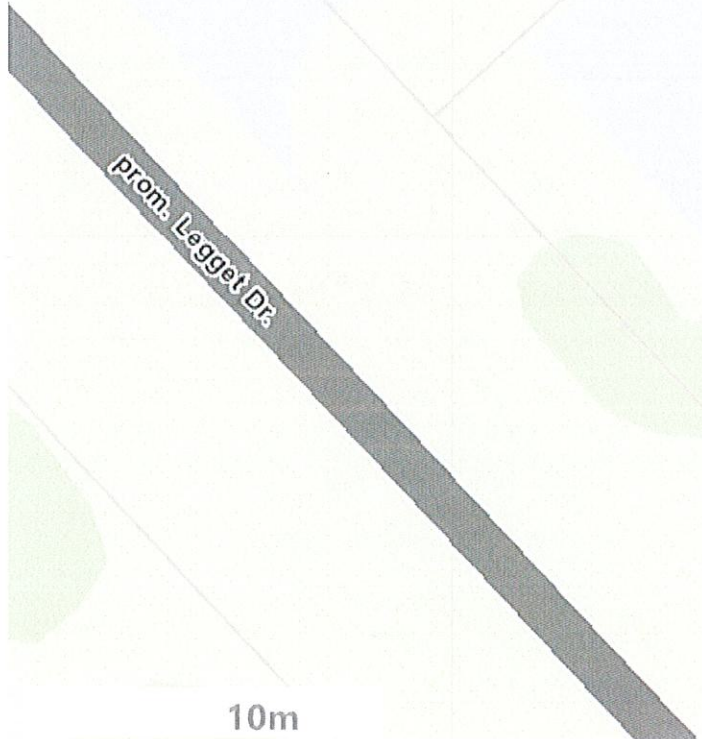
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
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# Vision Report© Legend

	The numbers sequentially identify each observation. They allow you to find complete descriptions and related photos throughout the pages. Note that when the pipe contains too many observations, the Vision© report hides the least important observations to optimize the display*.
60	A number with neither a square nor circle indicates a general observation.
	A circled number indicates a structural anomaly. The color of the circle indicates the severity of the anomaly on a scale of 1 to 5, 5 being the most severe: green=1, blue=2, magenta=3, orange=4 and red=5.
	A number in a square indicates an operation and maintenance anomaly. The color of the square indicates the severity of the anomaly on a scale of 1 to 5, 5 being the most severe: green=1, blue=2, magenta=3, orange=4 and red=5.
◀ 3 / 31 ▶	Indicates the current page number of the inspection report.
	The blue square indicates a section of the pipe; this section is covered in detail on the current page of the report.
	The green line indicates the inspected part of the pipe. The remaining white line indicates the uninspected part of the pipe.
	Indicates the hold points on the camera during an inspection.
	Indicates the hold points on the camera during the reverse inspection.
	Indicates that a reverse inspection was carried out, however the camera did not reach the initial inspection hold point. (the hold point of the initial inspection)
	Indicates that a reverse inspection was carried out and that it has joined (has arrived at) the initial inspection hold point.
401-059B 	Identifies the start manhole number. Note that this manhole is not necessarily the upstream manhole of the pipe.
401-631 	Identifies the end manhole number. Note that this manhole is not necessarily the downstream manhole of the pipe.
 ou	A downward arrow indicates that the inspection was carried out in the direction of the current, whereas an upward arrow indicates an inspection against the current. Note that the manhole located on the upper left of the page is always the start manhole, but not necessarily the upstream manhole of the pipe.
	This camera followed by a downward arrow is located on the upper left of the vertical pipe; it indicates that an inspection was done from this manhole.
	When the second camera appears on the bottom left page it means that a reverse inspection was carried out. Information about the reverse inspection is included in the report, thereby combining both inspections.
Invert 3.40	The measurement shown under the word <Invert> indicates the measurements between the frame and the pipe captured during the inspection. This measurement is available at the top left for the start manhole and the bottom left for the end manhole. If the invert was not measured during the inspection, an <NA> mark will be displayed.
 AMH - R	The downward bold arrow to the right of the observation number indicates that this observation was captured during the initial inspection.
 MSA - I	The blank arrow pointing upwards and located to the right of the observation number indicates that this observation was taken during the reverse inspection period, thereby confirming that this report combined both inspections.
18.40 m	Located to the right of the observation number is a number identifying the observation distance in relation to the start of the pipe.
SRV - Armature visible	A full description of the observation code according to the protocol used.

\*Any hidden observations are readily accessible from the database as well as in other CTSpec report templates.

\*\* CTSpec inc. reserves the right to modify, eliminate or add to the product features described in this pamphlet without notice.

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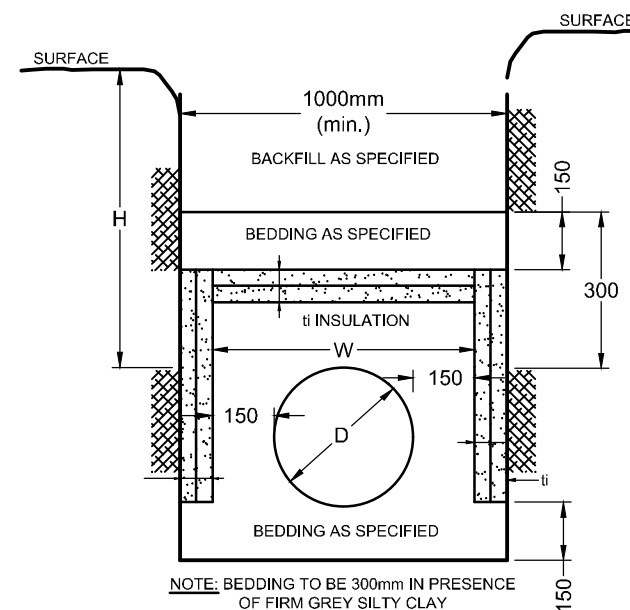
**Appendix E**  
**Drawings**

**SEWER & WATERMAIN INSULATION NOTES:**

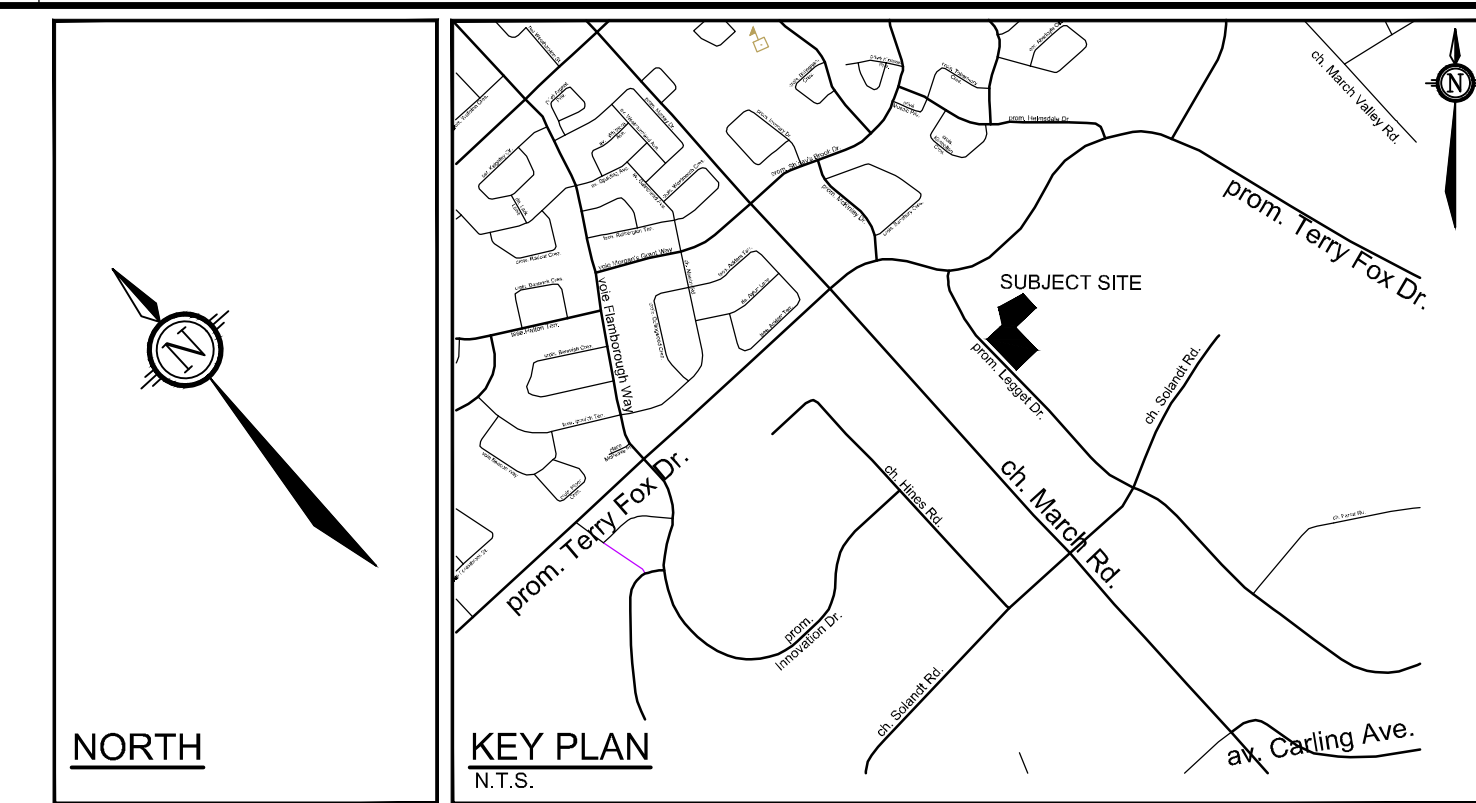
- INSULATE ALL SEWER PIPES THAT HAVE LESS THAN 2.0m COVER AND ALL WATERMAIN WITH LESS THAN 2.4m OF COVER WITH EXPANDED POLYSTYRENE INSULATION AS PER CPSSD 1109.030.
- THE THICKNESS OF INSULATION SHALL BE THE EQUIVALENT OF 25mm FOR EVERY 300mm REDUCTION IN THE REQUIRED DEPTH OF COVER WITH 50mm MINIMUM (SEE TABLE).

COVER SEWER/WATER (mm)	INSULATION THICKNESS (mm)
2000-1700 / 2400-2100	50
1700-1400 / 2100-1800	75
1400-1100 / 1800-1500	100

T = THICKNESS OF INSULATION (mm)  
 W = WIDTH OF INSULATION (mm)  
 W + D = 300 (1000 min.)  
 D = O.D. OF PIPE (mm)



**INSULATION DETAIL FOR SHALLOW SEWERS & WATERMAIN**  
N.T.S.



**LEGEND**

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED THWSI
- PROPOSED RETAINING WALL C/W GUARD RAIL
- PROPOSED CAP
- PROPOSED SANITARY SERVICE
- PROPOSED STORM SEWER
- PROPOSED WATER SERVICE
- PROPOSED HYDRANT c/w LEAD & VALVE
- PROPOSED VALVE AND VALVE BOX
- PROPOSED BUILDING ENTRANCE
- PROPOSED BIKE RACKS
- PROPOSED CROSSWALK PAINTING
- PROPOSED LINE PAINTING
- DIRECTION OF FLOW
- EXISTING UTILITY POLE C/W GUY WIRES
- EXISTING WATERMAIN C/W VALVE & VALVE CHAMBER
- EXISTING HYDRANT C/W VALVE & LEAD
- EXISTING SANITARY MANHOLE & SEWER
- EXISTING STORM MANHOLE & SEWER
- EXISTING CATCHBASIN
- EXISTING CULVERT
- EXISTING BUILDING SERVICES
- EXISTING GAS MAIN
- EXISTING HYDRO LINE
- EXISTING JOINT UTILITY TRENCH
- EXISTING STREET LIGHT
- EXISTING ROAD SIGNAGE
- EXISTING PONDING LIMITS
- EXISTING NOISE WALL
- EXISTING PRIVACY FENCE
- EXISTING TREE

**GENERAL NOTES:**

- COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
- DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
- OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
- BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY AND INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
- RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE CITY OF OTTAWA AND ENGINEER.
- REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
- ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
- ALL ELEVATIONS ARE GEODETIC (CGVD08). THE SITE BENCHMARK IS CURRENTLY SET ON TOP OF THE FIRE HYDRANT SPINDLE (ELEV = 80.45), LOCATED AT THE SOUTHWEST CORNER OF THE EXISTING ENTRANCE OFF LEGGET DRIVE. REFER TO THE FAIRHALL, MOFFATT & WOODLAND LIMITED TOPOGRAPHIC SURVEY OF PART OF LOT 8 CONCESSION 4, GEOGRAPHIC TOWNSHIP OF MARCH, CITY OF OTTAWA.
- REFER TO GEOTECHNICAL REPORT (No. xxx, DATED XXXX.XX.2024), PREPARED BY xxxxx, FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS, AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REFER ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
- REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARDWARE AREAS AND DIMENSIONS.
- REFER TO SERVICING AND STORMWATER MANAGEMENT REPORT PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD. R-2024-083 (DATED SEPTEMBER 13TH, 2024).
- SAV CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
- PROVIDE LINE/PARKING PAINTING.
- CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVICING AS-BUILT INFORMATION MUST INCLUDE PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND TIG ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, TWM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.
- CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION PURPOSES.

**WATERMAIN NOTES:**

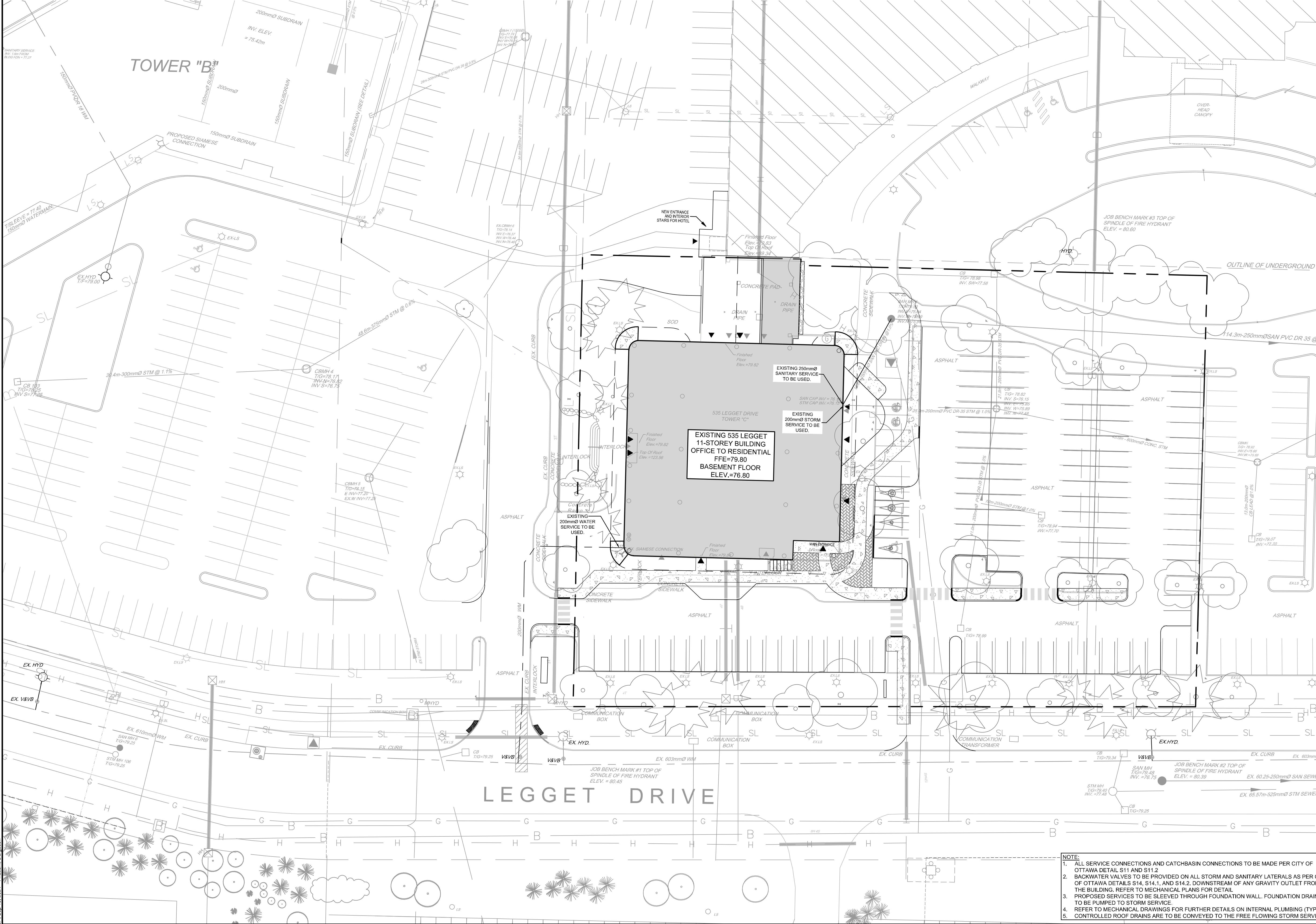
- SPECIFICATIONS:
 

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWER/ABOVE SEWER	W25 / W25.2	CITY OF OTTAWA
WATERMAIN HYDRANT	PVC DR 18	CITY OF OTTAWA
VALVE AND VALVE BOX	W19	CITY OF OTTAWA
W24		CITY OF OTTAWA
- SUPPLY AND CONSTRUCT ALL WATERMANS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMANS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND C/O LOCATIONS OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS.
- WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED. ANY WATERMAIN WITH LESS THAN 2.4m COVER TO BE INSULATED PER THE SHOWN DETAIL.
- PROVIDE MINIMUM 0.25m ABOVE, 0.5m IF BELOW, CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS PER CITY OF OTTAWA STANDARDS W25/W25.2
- WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.
- CATHODIC PROTECTION REQUIRED FOR ALL IRON FITTINGS CITY OF OTTAWA STANDARD DETAILS W-39, 40, 41, 42, 43 AND 44.
- PROVIDE THERMAL INSULATION FOR WATERMAIN AT OPEN STRUCTURES PER CITY OF OTTAWA STANDARD DETAIL W-23.
- IF WATERMAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS LESS THAN HALF THE RECOMMENDATIONS OF THE MANUFACTURER.

**SEWER NOTES:**

- SPECIFICATIONS:
 

ITEM	SPEC. No.	REFERENCE
SEWER TRENCH	S8 & S7	CITY OF OTTAWA
STORM SEWER	PVC DR 35	CITY OF OTTAWA
SANITARY SEWER	PVC DR 35	CITY OF OTTAWA
- INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 2.0m COVER WITH 50mmx1200mm H-40 INSULATION. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION (REFER TO DETAIL).
- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0% (2.0% IS PREFERRED).
- SEWER SERVICE CONNECTIONS PER CITY OF OTTAWA DETAILS S11 AND S11.1.
- PIPE BEDDING FOR SEWER AND WATER PIPES SHOULD CONSIST OF AT LEAST 150mm OF CPSS GRANULAR A. THE BEDDING LAYER THICKNESS SHOULD BE INCREASED TO A MINIMUM OF 300mm WHERE THE SUBGRADE WILL CONSIST OF GREY SILTY CLAY. THE MATERIAL SHOULD BE PLACED IN A MAXIMUM 225mm THICK LOOSE LIFTS AND COMPACTED TO A MINIMUM OF 90% OF ITS SPMD. THE BEDDING SHOULD EXTEND AT LEAST TO THE SPRING LINE OF THE PIPE.
- THE SEWER AND WATER PIPE COVER MATERIAL SHOULD CONSIST OF CPSS GRANULAR A, AND SHOULD EXTEND FROM THE SPRINGLINE OF THE PIPE TO AT LEAST 300mm ABOVE THE OVERTOP OF THE PIPE. THE MATERIAL SHOULD BE PLACED IN MAXIMUM 225mm THICK LIFTS AND COMPACTED TO A MINIMUM OF 90% OF ITS SPMD.
- WHERE HARD SURFACE AREAS ARE CONSIDERED ABOVE TRENCH BACKFILL, THE TRENCH BACKFILL MATERIAL WITHIN THE FROST ZONE (ABOUT 1.8m BELOW FINISHED GRADE) SHOULD MATCH THE SOILS EXPOSED AT THE TRENCH WALLS TO MINIMIZE DIFFERENTIAL FROST HEAVING. THE TRENCH BACKFILL SHOULD BE PLACED IN MAXIMUM 300mm THICK LOOSE LIFTS AND COMPACTED TO A MINIMUM OF 90% OF THE MATERIAL'S SPMD.
- FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX, POSITIVE SEAL AND DURASEAL). THE CONCRETE GRADLE FOR THE PIPE CAN BE ELIMINATED.
- THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPS8 410.07.16, 410.07.18.04 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.
- CONTRACTOR TO TELEVIEW (CCTV) ALL PROPOSED SEWERS, 200mm OR GREATER PRIOR TO BASE COURSE ASPHALT UPON COMPLETION OF CONTRACT. THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.



**NOTE:**  
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- NOTE:**
- ALL SERVICE CONNECTIONS AND CATCHBASIN CONNECTIONS TO BE MADE PER CITY OF OTTAWA DETAIL S11 AND S11.2
  - BACKWATER VALVES TO BE PROVIDED ON ALL STORM AND SANITARY LATERALS AS PER CITY OF OTTAWA DETAILS S14, S14.1, AND S14.2, DOWNSTREAM OF ANY GRAVITY OUTLET FROM THE BUILDING. REFER TO MECHANICAL PLANS FOR DETAIL.
  - PROPOSED SERVICES TO BE SLEEVED THROUGH FOUNDATION WALL. FOUNDATION DRAINS TO BE PUMPED TO STORM SERVICE
  - REFER TO MECHANICAL DRAWINGS FOR FURTHER DETAILS ON INTERNAL PLUMBING (TYP).
  - CONTROLLED ROOF DRAINS ARE TO BE CONVEYED TO THE FREE FLOWING STORM SERVICE.

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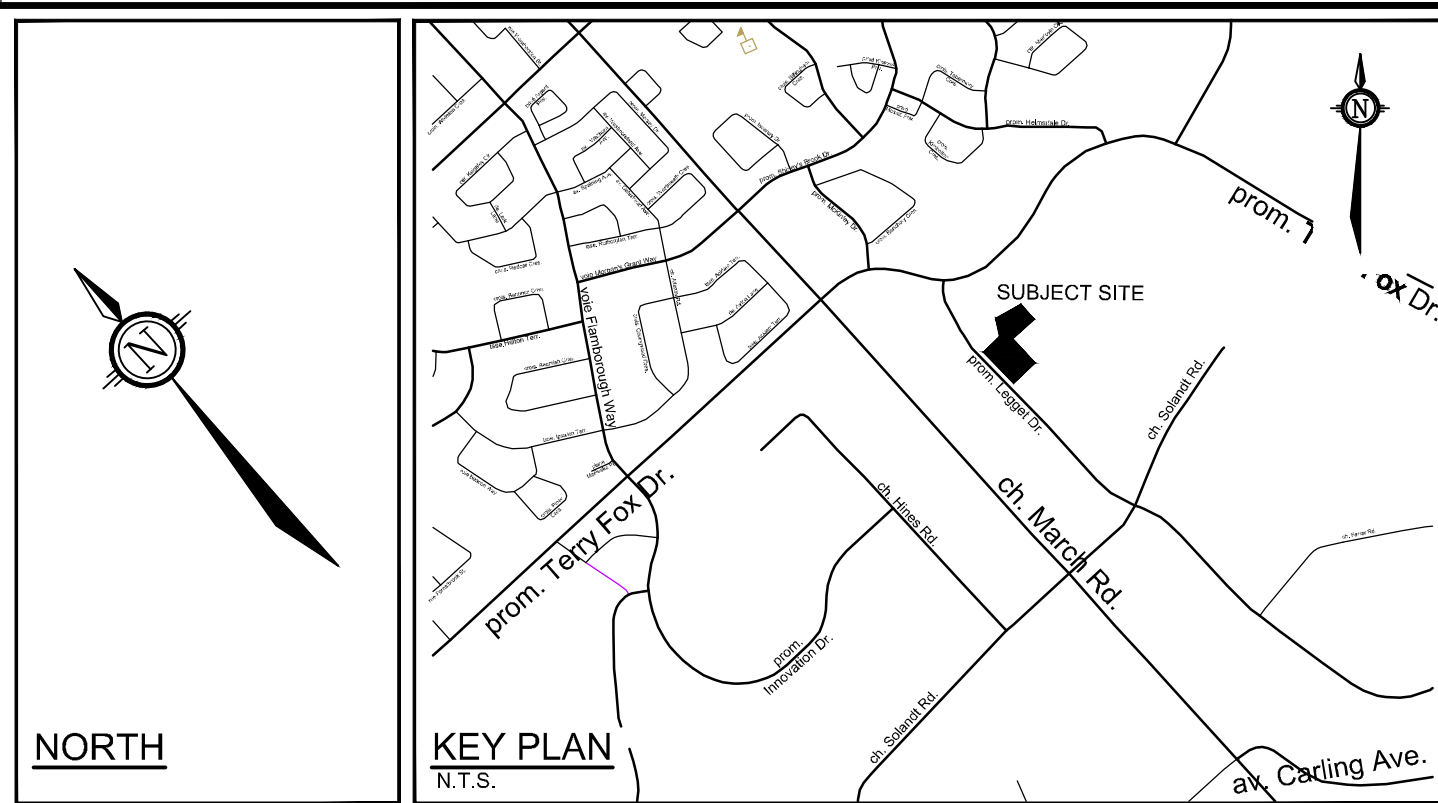
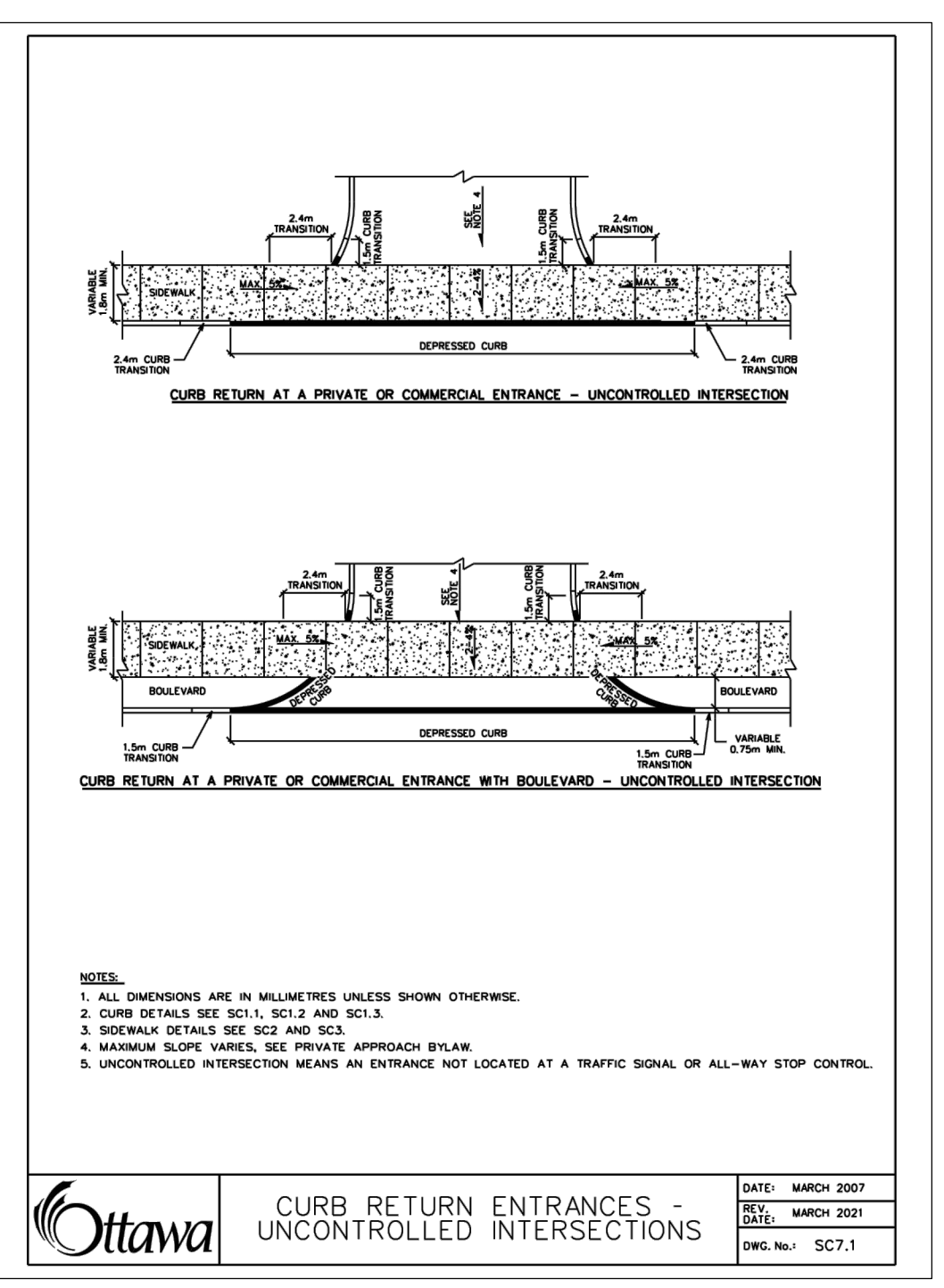
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LOCATION  
 CITY OF OTTAWA  
 535 LEGGET DRIVE

DRAWING NAME  
 GENERAL SERVICING PLAN

PROJECT No.: 124045  
 REV # 1  
 DRAWING No.: 124045-GP



**LEGEND**

—	PROPERTY LINE	○	EXISTING VALVE & VALVE BOX
—	PROPOSED BARRIER CURB	○	EXISTING VALVE & LEAD
—	PROPOSED DEPRESSED CURB	○	EXISTING SANITARY MANHOLE
—	PROPOSED TACTILE WALKING SURFACE INDICATOR (TWSI)	○	EXISTING STORM MANHOLE
—	PROPOSED ELEVATION	○	EXISTING CATCHBASIN
—	EXISTING TOPO SURVEY ELEVATION	○	EXISTING DITCH CENTERLINE
—	EXISTING ELEVATION TO REMAIN	○	EXISTING UTILITY POLE
—	PROPOSED DEPRESSED CURB ELEVATION	○	EXISTING UTILITY POLE ANCHORS
—	PROPOSED TOP OF CURB ELEVATION	○	EXISTING STREETLIGHT
—	PROPOSED VALVE AND VALVE BOX	○	EXISTING ROAD SIGNAGE
—	PROPOSED BUILDING ENTRANCE	○	EXISTING TREE
—	SLOPE AND DIRECTION	—	EXISTING DITCH BOTTOM OF SLOPE
—	DIRECTION OF MAJOR OVERLAND FLOW	—	
—	PROPOSED BIKE RACKS		
—	PROPOSED CROSSWALK PAINTING		
—	PROPOSED LINE PAINTING		
—	PROPOSED HYDRANT & VALVE		
—	PROPOSED TERRACE		

- GENERAL NOTES:**
- COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
  - DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
  - OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
  - BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR \$5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
  - RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE CITY OF OTTAWA AND ENGINEER.
  - REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
  - ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
  - ALL ELEVATIONS ARE GEODETIC (CVG028). THE SITE BENCHMARK IS CURRENTLY SET ON TOP OF THE FIRE HYDRANT SPINDLE (ELEV = 84.45), LOCATED AT THE SOUTHWEST CORNER OF THE EXISTING ENTRANCE OFF LEGGET DRIVE. REFER TO THE FAIRHALL, MOFFATT & WOODLAND LIMITED TOPOGRAPHIC SURVEY OF PART OF LOT 8 CONCESSION 4, GEOGRAPHIC TOWNSHIP OF MARCH, CITY OF OTTAWA.
  - REFER TO GEOTECHNICAL REPORT (No. xxxx, DATED XXXX XX, 2024), PREPARED BY xxxxx FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS, AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
  - REFER TO ARCHITECTS AND LANDSCAPE ARCHITECTS DRAWINGS FOR BUILDING AND HARDWARE AREAS AND DIMENSIONS.
  - REFER TO SERVICING AND STORMWATER MANAGEMENT REPORT PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD. R-2024-083 (DATED SEPTEMBER 13TH, 2024).
  - SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
  - PROVIDE LINE/PARKING PAINTING.
  - CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND TIG ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, TWM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.
  - CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION PURPOSES.

- GRADING NOTES:**
- ALL TOPSOIL, ORGANIC OR DELIQUESCANT MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED PAVED AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
  - NON-SPECIFIED EXISTING FILL, ALONG WITH SITE EXCAVATED SOIL, COULD BE PLACED AS GENERAL LANDSCAPING FILL AND BENEATH EXISTING PARKING AREAS WHERE SETTLEMENT OF THE GROUND IS OF MINOR CONCERN. THESE MATERIALS SHOULD BE SPREAD IN MAXIMUM 300mm THICK LOOSE LIFTS AND COMPACTED BY THE TRACKS OF THE SPREADING EQUIPMENT TO MINIMIZE Voids. IF THE MATERIAL IS TO BE USED TO BUILD UP THE SUB-GRADE LEVEL FOR AREAS TO BE PAVED, IT SHOULD BE COMPACTED IN MINIMUM 300mm THICK LIFTS TO AT LEAST 95% OF THE MATERIALS SPMD. THE PLACEMENT OF SUB-GRADE MATERIAL SHOULD BE REVIEWED AT THE TIME OF PLACEMENT, BY THE GEOTECHNICAL ENGINEER'S PERSONNEL (PATERSON GROUP).
  - EXPOSED SUB-GRADES IN PROPOSED PAVED AREAS SHOULD BE PROOF ROLLED WITH A LARGE STEEL DRUM ROLLER AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
  - ANY SOFT AREAS EVIDENT FROM THE PROOF ROLLING SHOULD BE SUB-EXCAVATED AND REPLACED WITH SUITABLE MATERIAL THAT IS FROST COMPATIBLE WITH THE EXISTING SOILS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
  - FILL USED FOR GRADING BENEATH THE BASE AND SUB-BASE LAYERS OF PAVED AREAS SHOULD CONSIST, UNLESS OTHERWISE SPECIFIED, OF CLEAN IMPORTED GRANULAR FILL, SUCH AS OPSS GRANULAR A, GRANULAR B TYPE I OR SELECT SUB-GRADE MATERIAL. THIS MATERIAL SHOULD BE TESTED AND APPROVED PRIOR TO DELIVERY TO THE SITE. THE FILL SHOULD BE PLACED IN LIFTS NO GREATER THAN 300mm THICK AND COMPACTED USING SUITABLE COMPACTION EQUIPMENT FOR THE LIFT THICKNESS. FILL PLACED BENEATH THE PAVED AREAS SHOULD BE COMPACTED TO AT LEAST 100% OF ITS SPMD.
  - MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
  - MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
  - ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
  - ALL CURBS SHALL BE BARRIER CURB (150mm) UNLESS OTHERWISE NOTED.
  - BACKFILL MATERIAL BELOW SIDEWALK AND WALKWAY SUB-GRADE OR OTHER SETTLEMENT SENSITIVE STRUCTURES WHICH ARE NOT ADJACENT TO THE BUILDINGS SHOULD CONSIST OF FREE DRAINING, NON-FROST SUSCEPTIBLE MATERIAL. THIS MATERIAL SHOULD BE PLACED IN MAXIMUM 300mm THICK LIFTS AND COMPACTED TO AT LEAST 95% OF ITS SPMD UNDER DRY, AND ABOVE FREEZING, CONDITIONS.
  - REFER TO LANDSCAPE PLAN FOR PLANTING AND OTHER LANDSCAPE FEATURE DETAILS.
  - CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GRADING PLAN INDICATING AS-BUILT ELEVATIONS OF ALL DESIGN GRADES SHOWN ON THIS PLAN.

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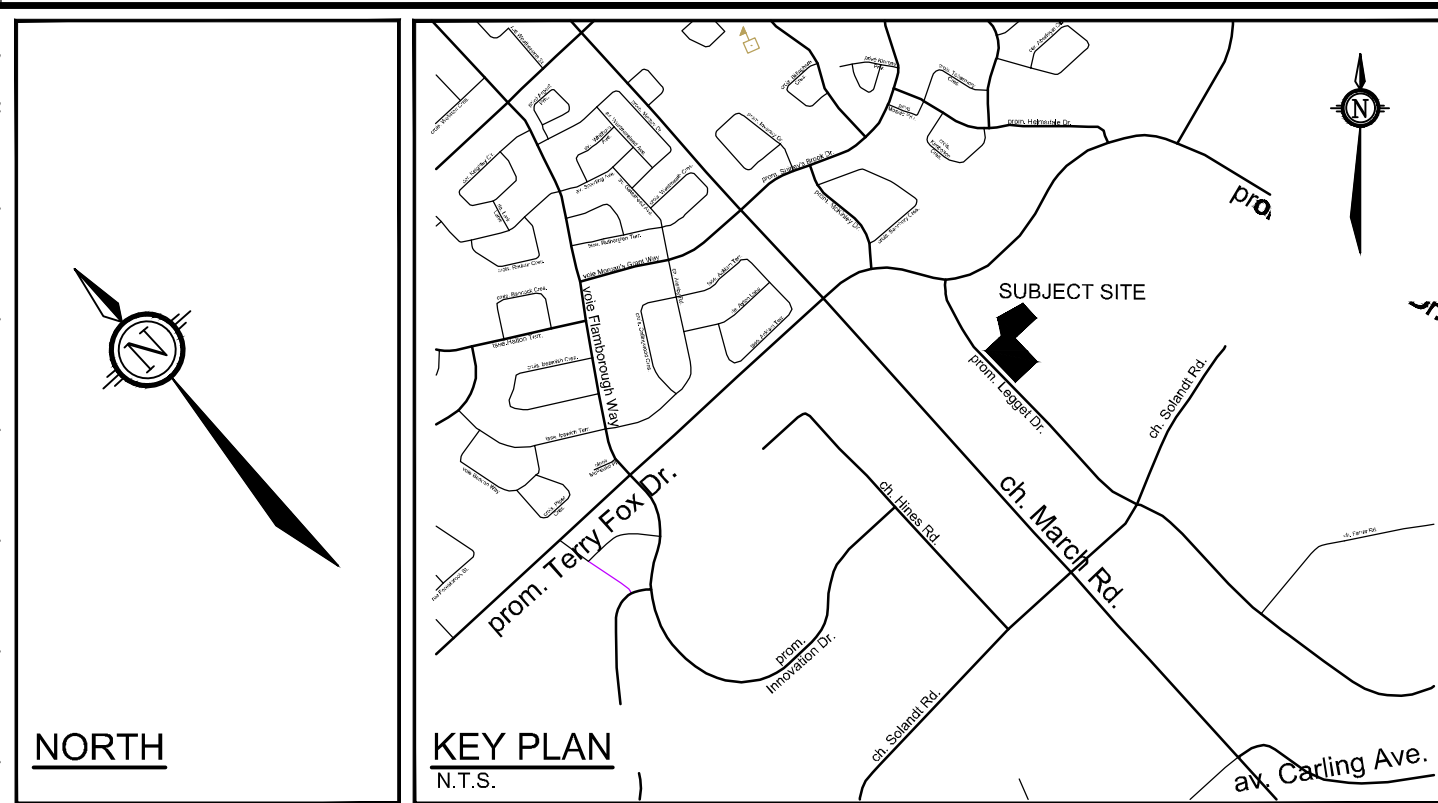
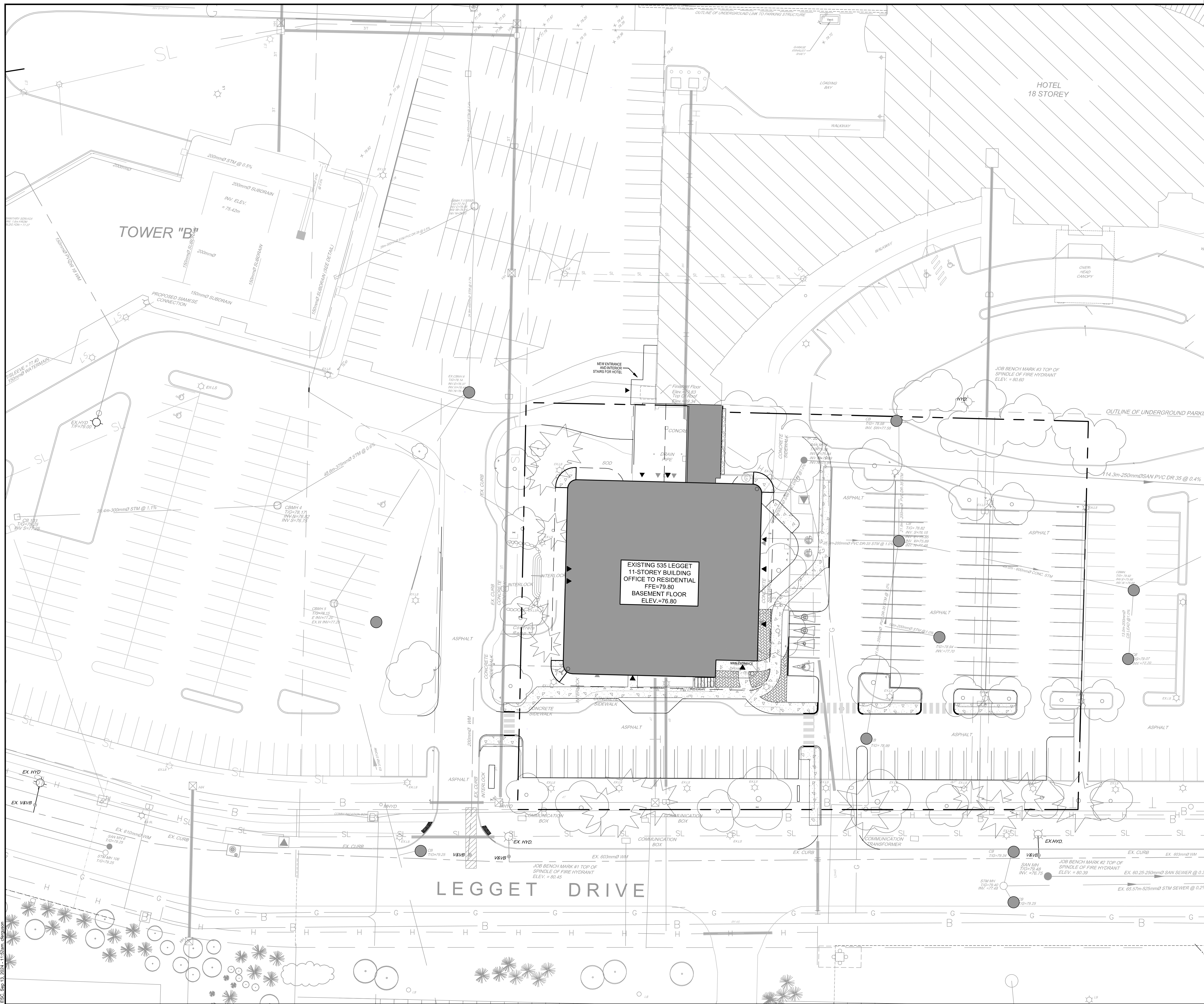
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LOCATION  
CITY OF OTTAWA  
535 LEGGET DRIVE

DRAWING NAME  
GRADING PLAN

PROJECT No.: 124045  
REV: REV #1  
DRAWING No.: 124045-GR



**LEGEND**

--- PROPERTY LINE	STM MH	EXISTING STORM MANHOLE
--- PROPOSED CURB	CB 1	EXISTING CATCHBASIN
--- DC	LS	EXISTING LIGHT STANDARD
● PROPOSED FILTER BAGS AT CATCHBASINS, CATCHBASIN MANHOLES AND TRENCHDRAINS	X	EXISTING FENCE
--- TREE PROTECTION FENCING		

**EROSION AND SEDIMENT CONTROL NOTES:**

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.

- 1) THE OWNER AGREES TO PREPARE AND IMPLEMENT AN EROSION AND SEDIMENT CONTROL PLAN TO THE SATISFACTION OF THE CITY OF OTTAWA, APPROPRIATE TO THE SITE CONDITIONS, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL, SUCH AS BUT NOT LIMITED TO INSTALLING FILTER CLOTHS ACROSS MANHOLE/CATCHBASIN LIDS TO PREVENT SEDIMENTS FROM ENTERING STRUCTURES AND INSTALL AND MAINTAIN A LIGHT DUTY SILT FENCE BARRIER AS REQUIRED.
- 2) THE CONTRACTOR SHALL PLACE FILTER BAGS UNDER THE CATCHBASIN AND MANHOLE GRATES FOR THE DURATION OF CONSTRUCTION AND WILL REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION.
- 3) SILT FENCING FOR ENTIRE PERIMETER OF SITE, SHALL BE UTILIZED TO CONTROL EROSION FROM THE SITE DURING CONSTRUCTION.
- 4) THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
- 5) EROSION AND SEDIMENT CONTROL MEASURES MAY BE MODIFIED IN THE FIELD AT THE DISCRETION OF THE CITY OF OTTAWA SITE INSPECTOR OR CONSERVATION AUTHORITY.

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<p>Engineers, Planners &amp; Landscape Architects Suite 200, 240 Michael Copeland Drive Ottawa, Ontario, Canada K2M 1P6 Telephone: (613) 254-9643 Facsimile: (613) 254-5867 Website: www.novatech-eng.com</p>	LOCATION CITY OF OTTAWA 535 LEGGET DRIVE	PROJECT NO. 124045
	DRAWING NAME EROSION AND SEDIMENT CONTROL PLAN	REV # 1

124045-ESC