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39 Years

Karson Subdivision

Serviceability and Conceptual Stormwater Management Report

Prepared for: Karson Holdings Inc.

Karson Subdivision
3711 - 3725 Carp Road, Ottawa

Serviceability and
Conceptual Stormwater Management Report

Prepared By:

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Suite 200, 240 Michael Cowpland Drive
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K2M 1P6

June 2023

Novatech File: 121173
Ref: R-2022-156

Engineers, Planners & Landscape Architects

June 12, 2023

By Email: jeff.ostafickuk@ottawa.ca

City of Ottawa
Planning, Real Estate and Economic Development
110 Laurier Avenue West, 4th Floor
Ottawa, ON K1P 1J1

Attention: **Jeff Ostafichuk**

Reference: **3711, 3715, 3719, and 3725 Carp Road**
Serviceability and Conceptual Stormwater Management
Our File No.: 121173

Please find enclosed the Serviceability and Conceptual Stormwater Management report, prepared in support of the Draft Plan of Subdivision application for 3711, 3715, 3719 and 3725 Carp Road.

This report outlines the water servicing, sanitary servicing, storm servicing and conceptual stormwater management for the subject site.

If you have any questions, please contact our office.

Yours truly,

NOVATECH

Lisa Bowley, P. Eng.
Project Manager
Land Development Engineering

cc: Karson Holdings Inc.

Table of Contents

List of Figures

List of Appendices

List of Drawings

Draft Plan of Subdivision
Conceptual Grading Plan (121173-CGR, revision 1)
Conceptual Servicing Plan (121173-CGP, revision 1)

1.0 INTRODUCTION

1.1 Purpose

Novatech has prepared this Serviceability and Conceptual Stormwater Management report on behalf of Karson Holdings Inc. to support a Draft Plan of Subdivision application on a site with four municipal addresses – 3711, 3715, 3719 and 3725 Carp Road (together the "Subject Site"). A copy of the Draft Plan of Subdivision is enclosed.

A mixed-use development is proposed with seven, three-storey, buildings on a new street network with surface parking. Refer to the enclosed Concept Plan (Figure 3).

1.2 Site Location and Description

The property is located in the village of Carp (Village core), in the City of Ottawa, and is bounded by railway corridor owned by the City of Ottawa (Principal Branch Line) to the north, by Carp Road, a rural arterial road to the east, and by the Carp River to the south and west. The total site area is approximately 2.28 ha. Refer to **Figure 1** – Key Plan.

The property is currently vacant. Historically the site had been developed with a number of detached dwellings and the office and truck depot for Karson Kartage Konstruction (between 1976 and 2014). By 2015 all of the structures on-site (houses/depot buildings) had been removed, and the subject site has been vacant of development since. Refer to **Figure 2** – Existing Conditions Plan.

1.3 Background

A Pre-application Consultation meeting was held with the City of Ottawa on June 29, 2022. Notes from this meeting are included in **Appendix A**.

The site has specific zoning (VM[666r]) which states that "*Despite Section 58, parking spaces, aisles and driveways are permitted within the flood plain hazard overlay provided such development is undertaken in accordance with Policy 12 of Section 4.8.1 of the Official Plan for the City of Ottawa*" As such, parking is shown in the floodplain. The 2003 Official Plan has since been replaced by the new Official Plan approved by the Minister November 4, 2022. As part of the new Official Plan, portions of the Community Design Plan for the Village of Carp have been included in a new Secondary Plan for the Village of Carp.

Policy 14 of Section 4.3 Environmental Protection states:
Parking and drive aisles, and associated site alteration may be considered within the regulatory flood plain of the Carp River for the properties municipally known as 3725 (3719, 3715, 3711) Carp Road in order to permit redevelopment in accordance with this secondary plan. Measures will be taken to ensure existing impacts to the riparian corridor are improved to the satisfaction of the City of Ottawa and the Mississippi Valley Conservation Authority.

This new policy in the Secondary Plan effectively replaces the permission noted in the Zoning By-law.

1.4 Reference Documents

The following reports and guidelines were used in determining the approach and criteria for the proposed development:

- Water Distribution Design Guidelines (City of Ottawa, July 2010)
- Sewer Design Guidelines (City of Ottawa, October 2012) and Technical Bulletin ISTB-2018-01 (March 21, 2018)
- Village of Carp Environmental Management Plan (Robinson Consultants, November 2004)
- Carp River Watershed/Subwatershed Study (Robinson Consultants, December 2004)
- Village of Carp - Class Environmental Assessment for Water and Wastewater Infrastructure upgrades/Expansion (Stantec, May 2008)
- Erosion Hazard Limit for Karson Kartage Konstruction Head Office in Carp (Parish Geomorphic, October 2009)
- Geotechnical Investigation (Paterson Group, April 11, 2023)
- Updated Environmental Impact Statement (Muncaster Environmental Planning Inc., May 29, 2023)

2.0 PROPOSED DEVELOPMENT

The proposed mixed-use development conceptually includes seven buildings with a total of 78 residential units and 18 commercial units. Two of the buildings, fronting Carp Road are proposed to include 9 “lifestyle units”, which are a mix of a ground floor commercial use with two levels of residential above. The other five buildings are proposed to include 12 stacked residential dwellings each.

Vehicular and pedestrian access is from Carp Road and access through the site would be via private streets. Surface parking spaces are proposed throughout the site. The private streets would be subject to a joint use and maintenance agreement for shared access and responsibility for maintenance. The details of the maintenance agreement would be developed at detailed design.

The bank of the Carp River will be privately owned but publicly accessible open space that will be rehabilitated in accordance with Policy 14 of the Secondary Plan Refer to **Figure 3** – Concept Plan.

Proposed grading and servicing for the site are shown on the Conceptual Grading Plan (121173-CGR) and Conceptual Servicing Plan (121173-CGP).

3.0 MUNICIPAL CAPACITY

The City of Ottawa has indicated that there is currently little to no capacity available for future development in the Village of Carp.

Short term upgrades to the Village of Carp's water and wastewater treatment facilities are underway which would provide additional capacity to service the equivalent of 350 single family units in the Village. Refer to City of Ottawa (Adam Brown) email dated February 8, 2022, included in **Appendix A**.

Prior to 2014, the site had a number of detached dwellings and as well as an office and truck depot for Karson Kartage Konstruction. At the Pre-application Consultation meeting (**Appendix A**) and confirmed by email (**Appendix B**), the City indicated that the flows for the site under these conditions could be used as a credit towards the water supply and sanitary flows for this new development of the site.

4.0 WATER SERVICING

4.1 Proposed Water Distribution System

Water supply would be provided from the existing 200mm diameter watermain on Carp Road.

It is proposed to install a 150mm diameter looped watermain through the site that would service the proposed buildings. Each building would have its own water service. As per City of Ottawa Water Distribution Guidelines for areas with more than 50 dwellings, two watermain connections would be required to avoid the creation of a vulnerable service area. Refer to the **Figure 4** for the proposed watermain layout.

A water card would be completed at the detailed design stage.

4.2 Existing Water Demand

The average day water demand (prior to 2014) was calculated as follows.

Area Zoned Commercial	= 0.93 ha
Average Commercial Demand	= 28,000 L/ha/day
Avg. Day Commercial Demand	= 0.30 L/s
Avg. Residential Demand	= 280 L/cap/day
Population	= 6 units x 3.4 persons/unit = 21
Avg. Day Residential Demand	= 0.07L/s

Total Existing Avg. Day Demand (2014) = **0.37 L/s**

4.3 Proposed Domestic Demand

The proposed domestic water demand for the site was calculated using Water Distribution Guidelines as it summarized as follows.

- Average Day Demand = **0.84 L/s**
- Maximum Day Demand = 3.59 L/s
- Peak Hour Demand = 5.49 L/s

The proposed average day demand represents an increase of **0.47 L/s** (0.84L/s – 0.37L/s) compared to the previously existing water demand prior to 2014. Refer to **Appendix B** for water demand calculations.

Given that short term upgrades are underway, the City did not provide boundary conditions in response to our request. Refer to email from the City of Ottawa (April 24, 2023) included in **Appendix B**. Existing water boundary conditions were assumed based on a general understanding of pressure conditions in the village. The average day and peak hour hydraulic grade lines (HGL's) in the Village of Carp water system were assumed to be 160m and 152m, respectively. The estimated water pressures for the proposed site are summarized in **Table 1** below.

Table 1: Domestic Water Demand Summary

Condition	Demand (L/s)	Avg. Site Elevation (m)	HGL (m)	Estimated Pressure (m)	Allowable Pressure (m)
Average Day (High Pressure)	0.17	93.50	160	66.5	56 (Max)
Peak Hour (Low Pressure)	0.91		152	58.5	28 (Min)

As shown in the table above, there should be sufficient pressure in the existing watermain system to service this development based on the assumed existing boundary conditions in the Village of Carp watermain system. The pressure in the average day condition exceeds the maximum allowable of 56m (80 psi) indicating that pressure reducing valves would likely be required for the proposed development. Water boundary conditions would need to be confirmed with the City at the time of detailed design.

4.4 Fire Protection

The City of Ottawa has indicated a maximum available fire flow in the existing Village of Carp water system of 6,500 L/min (refer to **Appendix A**). It is assumed that this fire flow is available at the minimum residual pressure of 20 psi, but this would need to be confirmed at the time of detailed design. Fire Underwriter's Survey Guideline was completed for 3-storey, wood frame buildings without sprinklers. Based on these parameters, the total required fire flow is approximately 30,000L/min.

Based on the limited amount of fire flow available, additional measures would be required in the construction of the proposed buildings to limit the required fire flow to 6,500 L/min. These measures would be further investigated at the time of detailed design but could include:

- Higher fire resistive construction material
- Sprinkler systems in buildings
- 2-hour fire walls between units
- On-site water storage

Although the City is currently in the process of completing short term upgrades to the Village water system, it is not anticipated that the available fire flow would increased as a results of the upgrades.

5.0 SANITARY SERVICING

5.1 Proposed Sanitary Collection System

Each proposed building would have a single sanitary service connection to a proposed 200mm diameter sanitary sewer on site. The proposed 200mm diameter sanitary sewer would outlet to an existing 450mm diameter sanitary sewer on Carp Road, as shown on **Figure 5.** The existing 450mm diameter sewer flows south on Carp Road and discharges into the sewer on Rivington Street.

5.2 Existing Sanitary Flow

The existing peak sanitary flow (prior to 2014) was calculated as follows.

Area Zoned Commercial	= 0.93 ha
Avg. Commercial Flow	= 28,000 L/ha/day (0.32L/s/ha)
Infiltration Allowance	= 0.33 L/s/ha
Commercial Peaking Factor	= 1.5
Commercial Peak Flow	= 0.91 L/s
Avg. Residential Flow	= 280 L/capita/day
Population	= 6 units x 3.4 persons/unit = 21
Residential Peaking Factor	= 3.5
Residential Peak Flow	= 0.24 Ls
Total Existing Peak Sanitary Flow (2014)	= **1.2 L/s**

5.3 Proposed Sanitary Design Flow

The proposed development would produce a peak sanitary flow of **3.1 L/s** which is an increase of **1.9 L/s** (3.1L/s -1.2L/s) from the existing sanitary design flow that the site produced prior to 2014.

5.4 Downstream Sanitary Sewer Capacity

The change in flow from the existing development represents less than 2% of the capacity of the 450mm diameter sanitary sewer on Carp Road.

Therefore, it is expected that the existing sanitary sewer system has sufficient capacity to service the proposed development. Refer to **Appendix C** for proposed peak flow calculations and existing Carp Road sewer capacity analysis.

6.0 STORM SERVICING

6.1 Existing Storm Sewer System

There is an existing storm sewer on Carp Road, which outlets to the Carp River, south of the subject site.

When the site was previously developed, it had a catchbasin and storm sewer system which drained the parking lot of the truck depot, directly to the Carp River. The site major drainage sheet drains to the Carp River.

6.2 Proposed Storm Drainage System

Storm servicing for the proposed site would include a dual drainage system. A storm sewer system would be used to convey storm events up to and including a 1:5 year event outletting to the Carp River, while flows from storm events exceeding this would be conveyed overland to the Carp River along defined overland flow routes. Each building would have a single storm service. The storm sewer layout is shown on **Figure 6**.

6.3 Storm Drainage Design Flow

The preliminary storm drainage area plans and storm sewer design sheet are included in **Appendix D**.

7.0 CONCEPTUAL STORMWATER MANAGEMENT

7.1 Conceptual Stormwater Management Criteria

Based on the Village of Carp Environmental Management Plan, Mississippi Valley Conservation Authority comments and the Carp River Watershed/ Subwatershed Study the following conceptual stormwater management criteria would apply. Pages and excerpts from these references are include in **Appendix E**.

7.1.1 Stormwater Quantity Control

Reference: Environmental Management Plan (Area H)

Section 4.1
For areas that drain directly to the Carp River, quantity control to reduce peak flows to pre-development levels is not required. Increases in peak flow from these areas are small compared to the flow in the river and the timing of the peak is such that most of the runoff occurs before the river itself peaks.

Section 4.17
This small area of 1.92 ha is physically separated from the village by Regional Road 5, Donald B. Munro Drive, and the Carp River. The development designation of the area is Village Core. The land is very low lying (between 91.4 and 93.0 m). As a result, drainage towards regional Road #5 (elevation approximately 94.0 m) does not appear feasible.

Because the development area is very small, and the "Village Core" land use indicates high density development, appropriate SWMPs appear to be limited to interceptors, in combination with natural buffer strips along the Carp River.

Reference: Pre-Application Consultation Meeting Notes

The Pre-application Consultation meeting notes reference urban City of Ottawa criteria, that the 100-year post-development stormwater runoff must be controlled to the 2-year pre-development runoff based on the receiving sewer.

Stormwater Quantity Control Summary Statement:

The site currently drains directly to the Carp River and does not connect to a municipal storm sewer system. The Environmental Management Plan would govern, and stormwater quantity control would not be provided.

7.1.2 Stormwater Quality Control

Reference: Mississippi Valley Conservation Authority

An '*Enhanced*' level of water quality control corresponding to 80% removal of Total Suspended Solids (TSS) would be required for the site.

7.1.3 Water Balance/Infiltration

Reference: Carp River Watershed/ Subwatershed Study

Th site is described in Carp River Watershed/ Subwatershed Study Figure 3.4.31 as developed and therefore has no requirement for infiltration.

7.2 Stormwater Management Design

7.2.1 Stormwater Quantity Control

Water quantity control is not required for this site.

7.2.2 Stormwater Quality Control

To meet the stormwater quality control requirements (80% TSS removal), the storm sewer system would convey minor storm event flows to an oil and grit separator before discharging to the Carp River. In addition, a natural buffer strip would be provided between the developed area and the Carp River.

7.2.3 Water Balance/Infiltration

Infiltration/Water balance calculations would be completed at the detailed design stage for the Conservation Authority's records, however, infiltration measure are not required.

8.0 EROSION AND SEDIMENT CONTROL MEASURES

The following temporary and permanent erosion and sediment control measures would be implemented in accordance with the "Guidelines on Erosion and Sediment Control for Urban Construction Sites" (Government of Ontario, May 1987). Details would be provided at the detailed design stage.

8.1 Temporary Measures

Temporary erosion and sediment control measures would be implemented prior to construction, would be inspected regularly, and would remain in place throughout construction until vegetation has been established. These measures may include:

- Light duty silt fence installed along the boundary of the site;
- Heavy duty silt fence installed along the banks of the Carp River;
- Filter bags placed under catch basins and maintenance holes;
- Stockpiles located away from watercourses and stabilized against erosion;
- Storing and maintenance of all machinery away from the watercourse;
- Regular street-sweeping conducted once the roads are completed;
- Contractor to immediately report to the engineer or inspector any accidental discharges of sediment material into any watercourse appropriate response measures to be carried out by the contractor without delay;
- No control measure to be permanently removed without prior authorization from the Engineer;
- Contractor advised that failure to implement erosion and sediment control measures may result in penalties imposed by any applicable regulatory agency.

8.2 Permanent Measures

Permanent erosion and sediment control measures would be implemented during construction, would be inspected regularly, and would remain in place once construction is complete. These measures may include:

- Roof leaders directed to grassed surfaces;
- Grassed areas and designed at minimum grade, where possible;
- A hydrodynamic separator upstream of the storm outlet providing 80% TSS removal;
- Rip rap at the storm outlet to the Carp River.

9.0 CONCLUSIONS AND RECOMMENDATIONS

- The proposed mixed-use development conceptually includes seven buildings with a total of 78 residential units and 18 commercial units.
- Flows for the site under the existing conditions will be used as a credit towards the water supply and sanitary flows for this new development of the site.
- The watermain would provide sufficient flow and pressure to service the proposed development.
- Based on the limited amount of fire flow available in the Village, measures would be required in the construction of the proposed buildings to limit the required fire flow to 6,500 L/min.
- The existing sanitary sewer on Carp Road is expected to have sufficient capacity to service the proposed development.
- Stormwater quantity control is not required for this site.
- To meet the stormwater quality control requirements (80% TSS removal), the storm sewer system would convey minor storm event flows to an oil and grit separator before discharging to the Carp River. In addition, a natural buffer strip would be provided between the developed area and the Carp River.
- Infiltration/Water balance calculations would be completed at the detailed design stage for the Conservation Authority's records, however, infiltration measure are not required.
- Erosion and sediment control measures would be implemented prior to and during construction.

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for

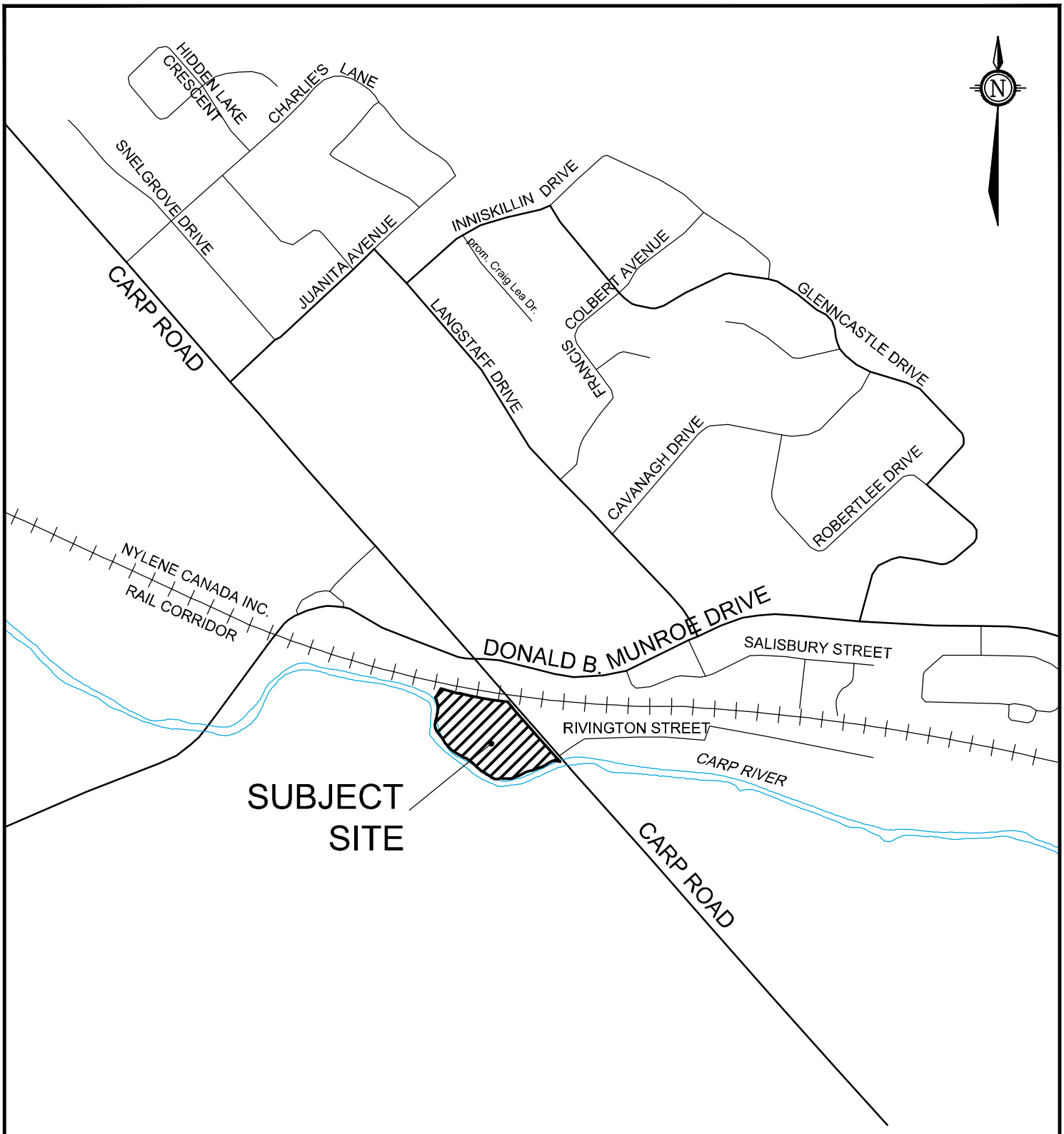
Aden Rongve, B.Eng., EIT
Land Development Engineering

Prepared by:

Lisa Bowley, P. Eng.
Project Manager
Land Development Engineering

Reviewed by:

Susan M. Gordon, P.Eng., MBA
Director
Land Development



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Website www.novatech-eng.com

3725 CARP ROAD
KARSON SUBDIVISION

KEY PLAN

SCALE: N.T.S.

DATE: JUNE 2023

FIGURE: FIGURE 1

SOURCE REFERENCE:

LEGAL INFORMATION: *PLAN OF SURVEY (DRAFT)*

ANNIS, O'SULLIVAN, VOLLEBEKK Ltd / FEBRUARY 12, 2023 / MTM ZONE 9, NAD83 ORIGINAL

TOPOGRAPHIC INFORMATION:

NOVATECH SURVEYS FOR 3725 CARP ROAD:

- *SURVEY 10 (101058) / JANUARY 2020*
- *SURVEY 12 (101058) / OCTOBER 2020*

AERIAL IMAGE:

BING MAPS / 2023 MICROSOFT CORPORATION - 2023 MAXAR SNES (2023) DISTRIBUTION AIRBUS DS

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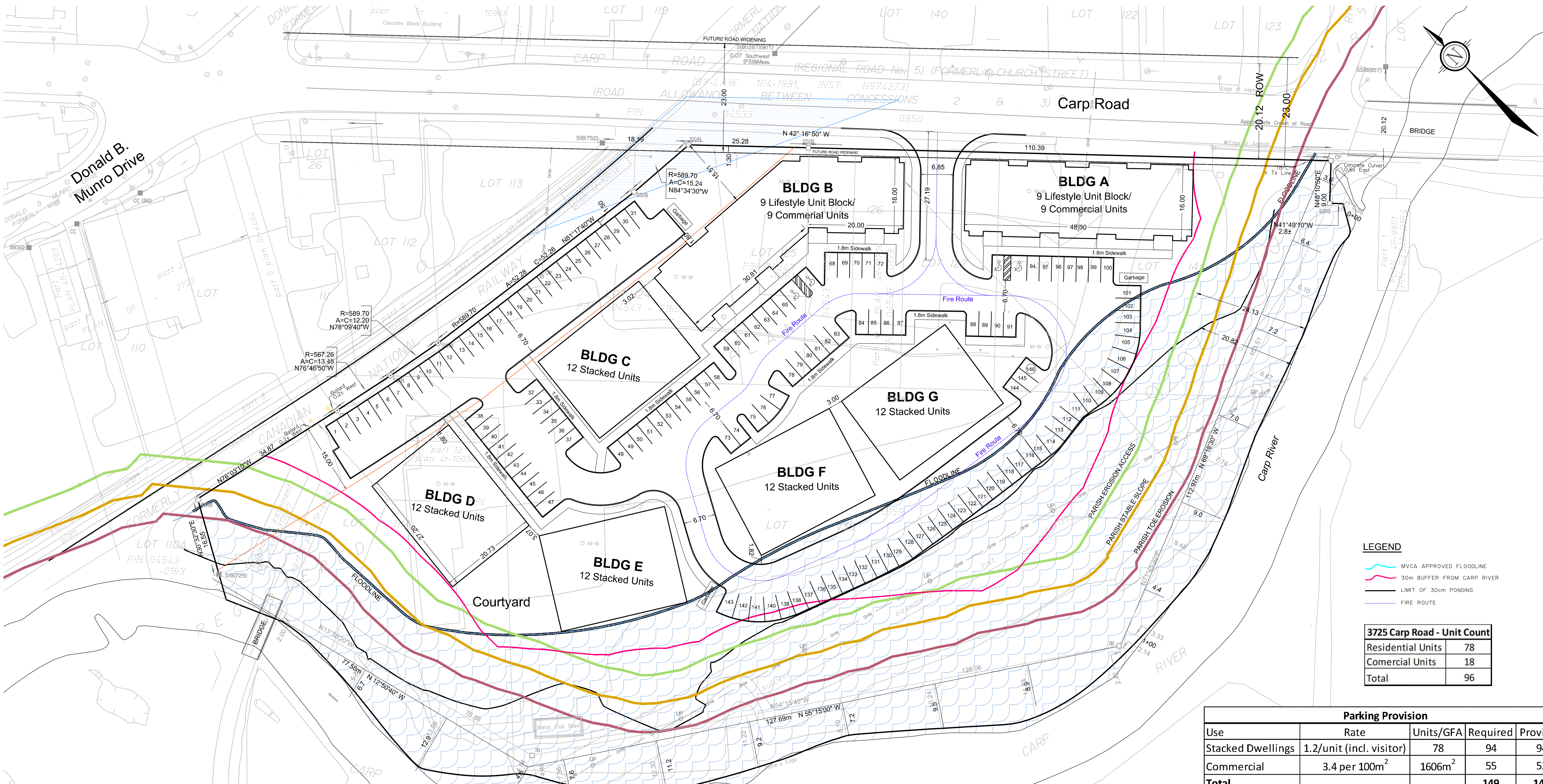
3725 CARP ROAD
KARSON SUBDIVISION

EXISTING CONDITIONS PLAN

SCALE 1 : 1000 (0 10 20 30 40)

DATE JUNE 2023

FIGURE FIGURE 2



3725 Carp Road - Unit Count	
Residential Units	78
Comercial Units	18
Total	96

Parking Provision				
Use	Rate	Units/GFA	Required	Provided
Stacked Dwellings	1.2/unit (incl. visitor)	78	94	94
Commercial	3.4 per 100m^2	1606m^2	55	52
Total			**149**	**146**

SOURCE REFERENCE:
Legal Information: *Plan of Survey (Draft)*
Annis, O'Sullivan, Vollebekk Ltd. / Feb 12, 2023 / MTM Zone 9, Nad83 ORIG
Topographic Information: *1:1000 Topographic Mapping*
City of Ottawa / 2015 / MTM Zone 9, Nad83 ORIG

SOURCE REFERENCE:
Legal Information: *Plan Name*
Source / Date / Coordinate System, Datum
Topographic Information: *1:1000*
City of Ottawa / 2015 / MTM Zone 9, NAD83_Orig

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NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, 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.

No.	REVISION	DATE	BY
2.	GENERAL REVISION	MAR 21/23	JI
1.	UPDATED LEGAL BOUNDARY	MAR 15/23	JI

SCALE
1:400 (A1)
1:400
0 4 8 12 16

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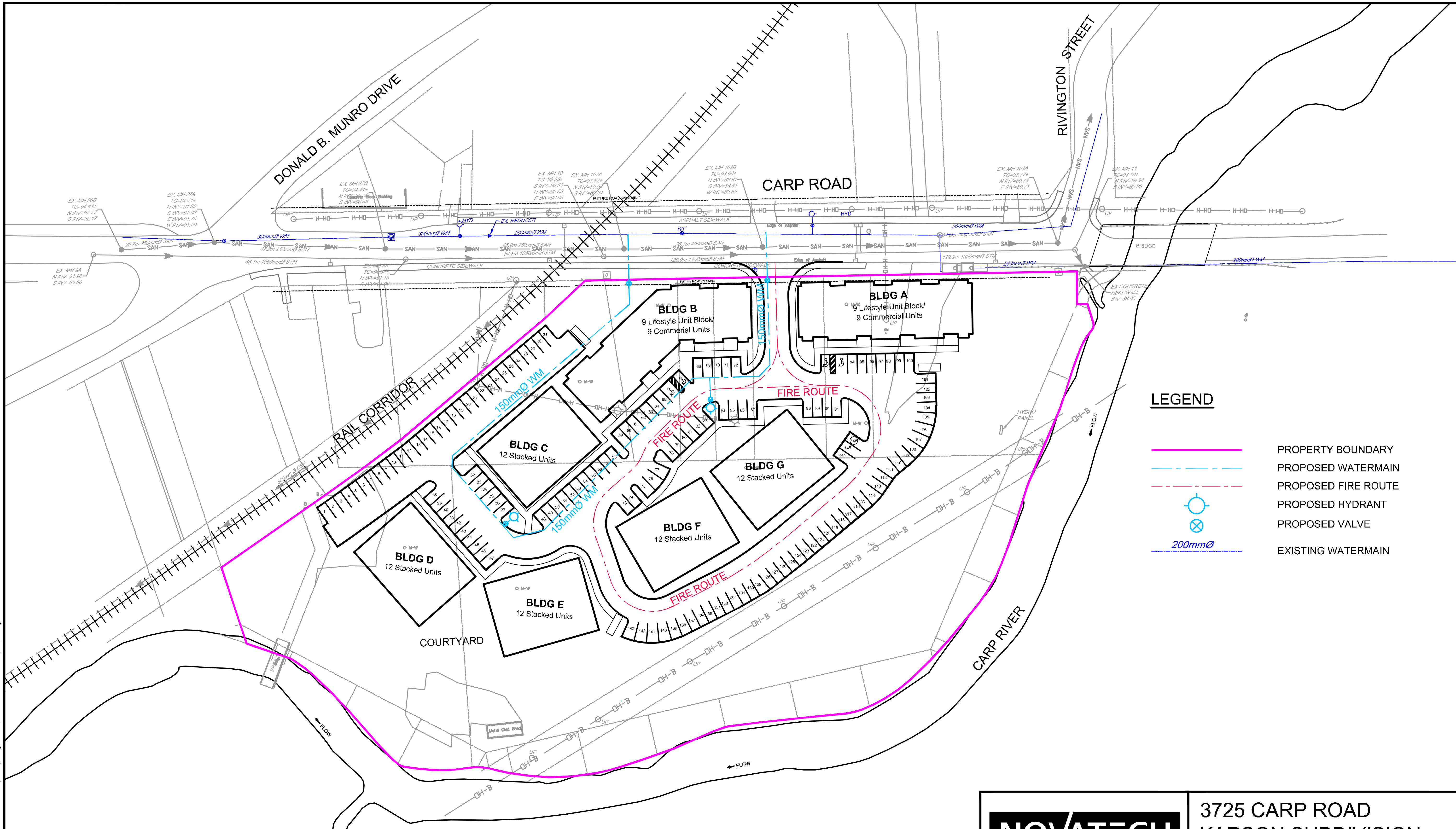
CITY of OTTAWA
3725 CARP ROAD
DRAWING NAME
CONCEPT PLAN 6
PROJECT No. 121173-00
REV REV #2
DRAWING No. 121173-CP6

PLAN24x36.DWG - 914.4mmx609.6mm

FIGURE 3



SOURCE REFERENCE:

LEGAL INFORMATION: *PLAN OF SURVEY (DRAFT)*
ANNIS, O'SULLIVAN, VOLLEBEKK Ltd / FEBRUARY 12, 2023 / MTM ZONE 9, NAD83 ORIGINAL
EXISTING INFRASTRUCTURE: *AS-BUILT PLAN - VILLAGE OF CARP COMMUNAL WATER SUPPLY AND SEWAGE SYSTEMS / KOSTUCH ENGINEERING Ltd. / JUNE 1996*

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3725 CARP ROAD
KARSON SUBDIVISION

WATER SERVICING

SCALE 1 : 1000

DATE JUNE 2023

FIGURE FIGURE 4

SHT11X17.DWG - 279mmX432mm

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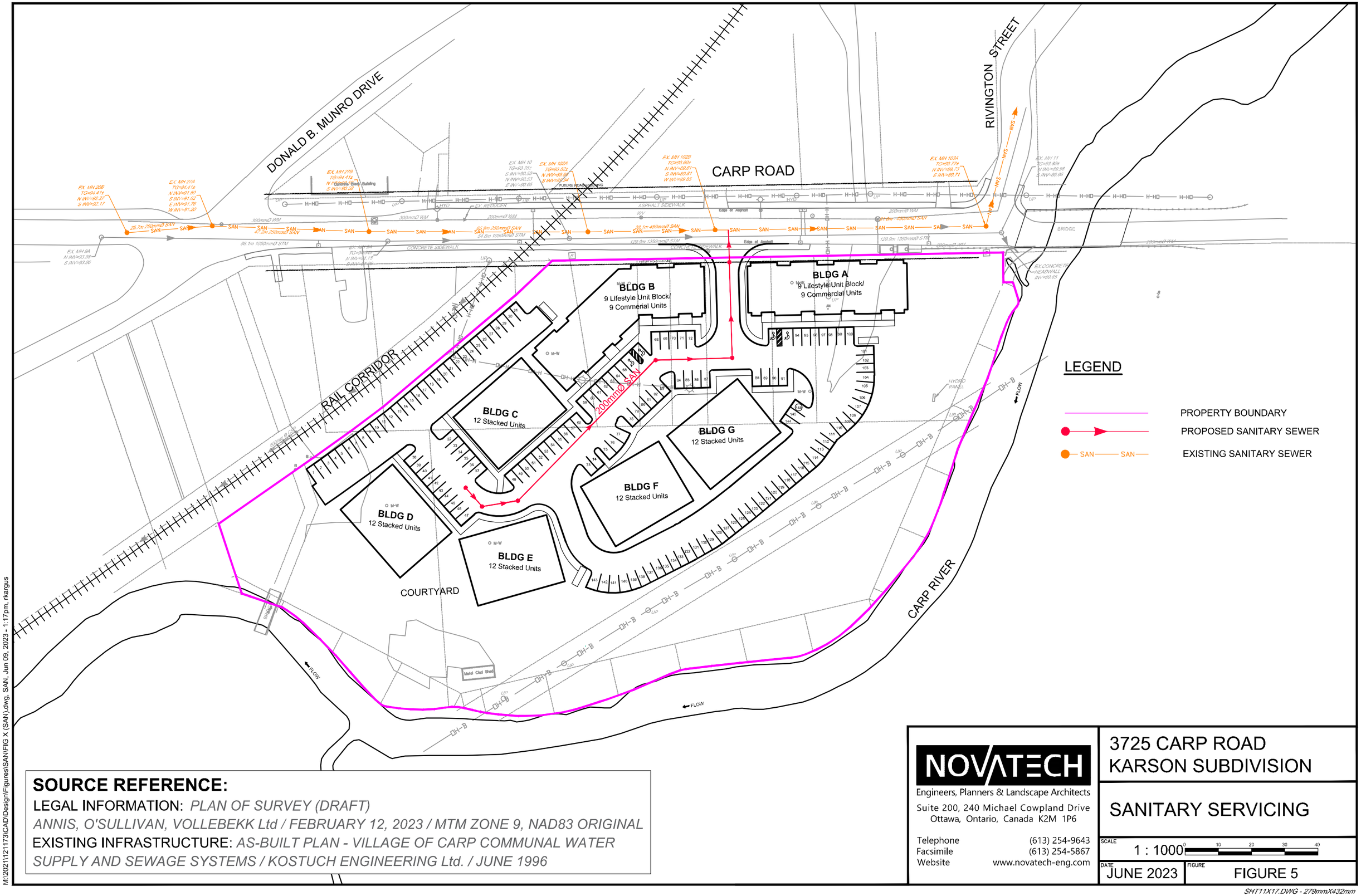

SOURCE REFERENCE:

LEGAL INFORMATION: *PLAN OF SURVEY (DRAFT)*
ANNIS, O'SULLIVAN, VOLLEBEKK Ltd / FEBRUARY 12, 2023 / MTM ZONE 9, NAD83 ORIGINAL
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3725 CARP ROAD
KARSON SUBDIVISION

SANITARY SERVICING

SCALE 1 : 1000 (0 10 20 30 40)
DATE JUNE 2023
FIGURE FIGURE 5

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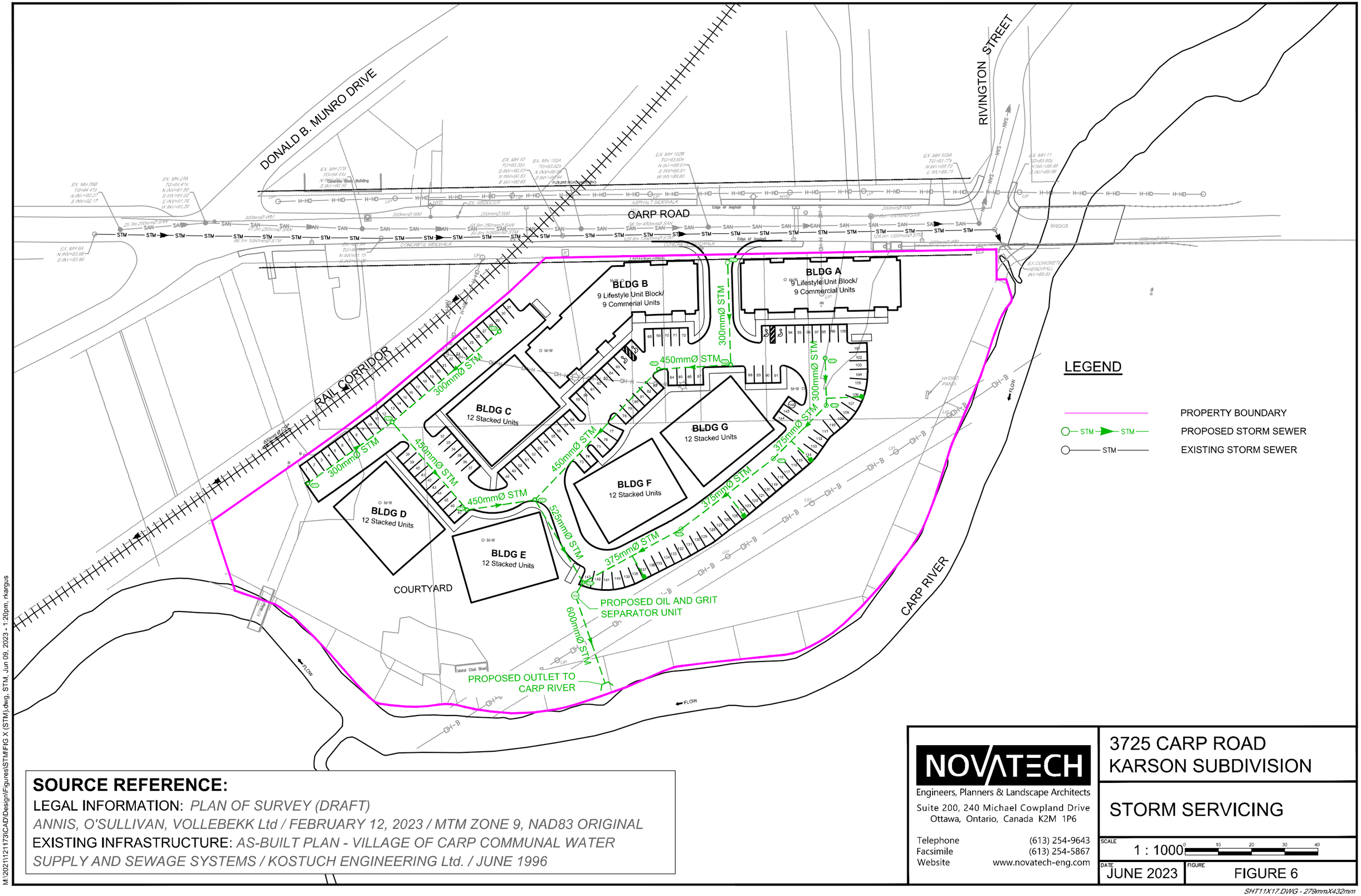

SOURCE REFERENCE:

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3725 CARP ROAD
KARSON SUBDIVISION

STORM SERVICING

SCALE 1 : 1000 (0 10 20 30 40)
DATE JUNE 2023
FIGURE FIGURE 6

Appendix A

1. Pre-Application Consultation Meeting Notes - June 29, 2022
2. Carp Servicing Update email - February 8, 2022

Pre-Application Consultation Meeting Notes

Property Address: 3711-3725 Carp Road
PC2022-0160
June 29th, 2022, Microsoft Teams Meeting

Attendees:
Jeffrey Ostafichuk, City of Ottawa, Planner II
jeffrey.ostafichuk@ottawa.ca
Christine Reist, City of Ottawa, Project Manager – Infrastructure Approvals
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James Ireland, Novatech
Greg Winters, Novatech
Susan Gordon, Novatech
Cris Karson
John Riddell

Regrets:
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Christopher Rogers, City of Ottawa, Program Manager – Infrastructure Approvals
christopher.rogers@ottawa.ca
Adam Brown, City of Ottawa, Manager – Development Review
adam.brown@ottawa.ca

Subject: 3711-3725 Carp Road

Meeting notes:

Opening & attendee introduction
- Introduction of meeting attendees
- Overview of proposal: [describe here]
  - Concept is similar to previous submissions
  - The purpose of the meeting is to consider the draft plan of subdivision to create the roads and blocks for development and secure servicing capacity
  - A proposal to develop the site by means of a plan of subdivision application
  - Mixed use development with 26 commercial/retail ground floor units and 86 residential units including 26 shop top units and 60 townhouses
  - Surface parking provided for residents, visitors and commercial uses
  - One vehicular access from Carp Road

- Servicing capacity: the Village of Carp is constrained with water capacity

Preliminary comments and questions from staff and agencies, including follow-up actions:

- Planning – provided by Jeffrey Ostafichuk
  - Staff will follow up with some of the questions related to servicing
  -

- Engineering – provided by Christine Reist
  - Municipal Servicing Capacity:
    - Although the area of the proposed development has existing municipal services, the Village of Carp is at capacity for municipal water and municipal sanitary servicing. Capacity upgrades to the Carp water and sanitary systems are required. There are projects underway to provide short-term capacity upgrades in the next 2 to 3 years, which would allow the addition of approximately 350 units. It is up to the proponent to decide how to proceed with the application process, but please be aware that there are currently active Plans of Subdivision applications that aim to utilize the additional short-term capacity. Once the short-term functional design study is complete, the City will be planning an expansion to provide long-term capacity upgrades. Please also refer to the email sent February 8, 2022, from Adam Brown, subject “Carp Servicing update”.
    - Final approval of development applications won’t be granted until there is servicing capacity available. Please note that once the newly adopted Official Plan is in effect, draft plan of approval won’t be issued if there is insufficient servicing capacity (as per section 4.7.1, policy 23, “Where adequate services or servicing capacity do not exist to support a proposed plan of subdivision, the City will not issue draft plan approval.”).
    - The site is currently vacant. It is understood that there were formerly buildings on the site that were serviced by the municipal water and wastewater systems. The servicing capacity allocated to these previously existing buildings can be used as a credit towards the proposed development. Further consultation with the City will be required to determine how/if this approach could be implemented for servicing beyond the existing site’s credited capacity given the servicing capacity constraints.

  - Existing Municipal Services:
    - There’s an existing municipal 203 mm dia. watermain in Carp Road and an existing fire hydrant located on the east side of Carp Road, across from the site.
    - There’s an existing municipal sanitary sewer in Carp Road. The sewer is 250 mm dia. along the north end of the site and then becomes 450 mm dia. south of the maintenance hole located in Carp Rd in front of 3715 Carp Rd (MHSA10107).
    - There is an existing municipal storm sewer in Carp Road. The sewer is 1350 mm dia. along most of the site and is 1050 mm dia north of the maintenance hole located in Carp Road, immediately south of the railway (MHST39675). Near the southeast corner of the property, the municipal storm sewer outlets to the Carp River. City records indicate that there is an existing private catchbasin located on 3715 Carp Rd.

- Site Servicing Design:
    - Watermain boundary conditions will need to be requested by the applicant with a list of the demand values, the fire flow demand calculations, and a plan indicating the approximate location of any proposed water service connection. If the fire flow demand calculations use a construction coefficient less than 1, information will need to be provided to support the use of the selected type of construction. It is understood that the fire-fighting flow available is limited and smaller buildings and/or extensive use of firewalls and/or expanded building separation will be necessary.
    - A Water Card will need to be completed for the water meter sizing for developments that are not single residential units connected to a public watermain.
    - The Site Servicing Study must include an assessment of adequacy of public services to support the development, including discussion of the servicing capacity of the connecting systems and anticipated performance.
    - Note that the 2024 Development Charge By-law update may include a water supply and sanitary sewer area-specific development charge.

- Stormwater Management:
    - Stormwater management quality criteria shall be set by Mississippi Valley Conservation Authority (MVCA).
    - The stormwater management quantity criteria for the development is that the 100-year post-development stormwater runoff must be controlled to the 2-year pre-development runoff as per section 8.3.7.3 of the Ottawa Sewer Design Guidelines (SDG). As per SDG 8.3.7.3, the pre-development condition is to be determined using the smaller of a runoff coefficient of 0.5 (0.4 in combined areas) or the actual existing site runoff coefficient.
    - The location is within the area covered by the Carp River Watershed/Sub watershed Study, December 2004, prepared by Robinson Consultants Inc., Aquafor Beech Ltd., Lloyd Phillips and Associates, and Daniel Brunton Consulting Services, as well as the Village of Carp Environmental Management Plan, November 2004, prepared by Robinson Consultants Inc., Final dated March 2005. The Stormwater Management Report must address the requirements of the Carp River Watershed/Sub watershed Study and the Village of Carp Environmental Management Plan.
    - The preliminary plans included with the pre-consultation application don't indicate areas for stormwater management. Note that space is going to be required on the property for the stormwater management systems.
    - It will need to be demonstrated that there is legal and sufficient stormwater outlet from the site. Any existing stormwater runoff from adjacent site(s) that crosses the property must be accommodated by the proposed stormwater management design. If it's proposed to direct any stormwater runoff to the adjacent rail corridor, it will need to be demonstrated that the existing drainage features have sufficient capacity to accept the proposed flows (also refer to 'Rail' section below).

- If there are any new stormwater outlets proposed to the Carp River as part of the SWM plan, or proposed stormwater systems servicing multiple lots, they will require a direct submission Environmental Compliance Approval (ECA) application to the Ministry of the Environment, Conservation and Parks (MECP). Note that oil/grit separators require Environmental Technology Verification (ETV) protocol for ECA approval. The turnaround time for a direct submission ECA from the MECP can be up to one year.
- Please note: Once the development application has been submitted, a request can be made to the City to consider a Transfer of Review (ToR) ECA for sewage works for a private property, instead of the direct submission ECA. This is subject to approval by the City and MECP. Note that the ECA requirements are currently in flux. It is recommended to check with the City when the development application is submitted to confirm the ECA process at that time.

- Geotechnical:
  - Please note that sensitive marine clays are anticipated on the site and, if so, enhanced geotechnical investigation and analysis will be necessary. Investigation of clays should be undertaken with vane shear, Atterberg limits, shrinkage, grain size, grade raise restriction, consolidation, sensitivity, and liquefaction analysis- amongst others.
  - In sensitive marine clays, trees in proximity to foundations can cause foundation damage. Refer to the City's Tree Planting in Sensitive Marine Clay Soils – 2017 Guidelines for additional information.
  - The Geotechnical Investigation Report will also need to include a determination of the seasonal high groundwater elevation and any infiltration rates that may be required for the stormwater management design.

- Slope Stability:
  - Schedule C15 of the newly adopted Official Plan indicates an unstable slope along the Carp River. Due to the presence of the Carp River and associated slope along the south of the site, a Slope Stability Assessment Report in accordance with the "Slope Stability Guidelines for Development Applications in the City of Ottawa" and its Appendix A, "Minimum Requirements for Slope Stability Assessment Reports" will be required.
  - Soils mapping also indicates that the site is in proximity to the location of a known past landslide. The Slope Stability Assessment Report will need to include an exhaustive retrogressive landslide hazard and risk assessment and liquefaction analysis.
  - Please note that "liquefaction" is referring to: liquefaction or liquefaction like behaviour, by any name the consultant chooses to use, describing a lowering of strength, whether by ground-induced motion (whether cyclic or not), or increase in pore-pressure, in any soils (whether sandy or not).
  - Any peer-reviewed and published papers relied on for conclusions shall show unequivocal conclusions agreeing with the design and similitude shall be shown.

- Fluvial Geomorphology:

- Due to the proximity of the Carp River adjacent to the south of the site, a Fluvial Geomorphology Report is required.

- Development Setbacks:
  - The property is within the regulation limit of MVCA and a portion of the site is within the Carp River floodplain. In addition to any setback requirements from MVCA, the Official Plan (OP) has requirements for development setbacks from surface water features (refer to newly adopted OP section 4.9.3 and Zoning By-law section 69). The submitted plans must identify the watercourse setbacks. The setbacks shown on the Concept Plan provided with the pre-consultation application will need to be verified by the City and MVCA when the application is submitted.
  - Mapping of the 1 in 350-year floodplain is not yet available for this property (http://ottawa.ca/floodplainmaps), but it is anticipated that portions of this property will be within the 1 in 350-year floodplain. The area between the 1 in 100-year floodplain and the 1 in 350-year floodplain is defined as the climate change flood vulnerable area. Unlike the 1 in 100-year floodplain maps, the 1 in 350-year floodplain maps are not presently used to define or control limits of development. This comment is provided to provide advance notice that once the 1 in 350-year floodplain mapping is available, it may show that portions of this proposed development are within the climate change flood vulnerable area.

- Environmental Site Assessment:
  - A Phase 1 Environmental Site Assessment (ESA) completed in accordance with Ontario Regulation (O.Reg.) 153/04 is required.
  - A Phase 2 ESA may be required, depending on the outcome of the Phase 1 ESA.
  - A Record of Site Condition will be required as a condition of the Plan of Subdivision approval.

- Rail:
  - The Renfrew Subdivision Rail Corridor is adjacent to the northern site boundary. The rail corridor crosses Carp Road near the northeast corner of the site. The rail corridor property is owned by City of Ottawa and is currently leased to a private company (Nylene Canada). The tenant owns all rail infrastructure and manages rail operations.
  - Zoning By-law section 68 provides setbacks from railway rights-of-way, including prohibiting residential-use buildings within 30m of a railway ROW and restrictions in the vicinity of an intersection of a street and railway track (refer to ZBL Section 68 for additional details).
  - The development is also subject to the requirements of the 2013 study, “Guidelines for New Development in Proximity to Railway Operations", prepared by the Railway Association of Canada and the Federation of Canadian Municipalities (referred to as the ‘Guidelines’ herein). Any requirements from the railway line operator, as well as any other applicable regulations and standards also apply. Please note that the Guidelines include requirements for setbacks, safety barriers, security fencing, noise and vibration, stormwater management and drainage, etc. Where requirements vary between the Guidelines, Zoning By-laws, and

any other applicable regulations and standards, the more stringent requirements shall apply.

- A Rail Safety Report prepared by a consultant is required to identify the applicable rail safety requirements relevant to the site/proposed development and provide any associated recommendations based on the Guidelines and all applicable regulations and standards. Any required mitigation measures are to be included in the civil design. Prior to approval of the Plan of Subdivision application, consultation with the railway line operator is required to obtain their approval of the rail safety design. Documentation of this consultation will need to be provided to the City. Note that the rail safety design is also subject to City approval.
- The contact at Nylene Canada Inc. is Ralph Anzarouth, Managing Director, Phone (613) 623-0556 or Cell (613) 797-4966. Ralph.Anzarouth@nylene.com

- Rail Noise & Vibration:
  - Due to the proximity of the rail corridor to the proposed noise sensitive land-use (residential), a Noise Study is required (newly adopted OP section 10.2.1). Refer to the Transportation comments for additional information on noise requirements. The rail Noise Study can be combined with any other required noise studies.
  - Due to the proposed development being within 75m of a railway right-of-way, a Vibration Study is required (newly adopted OP section 10.2.1, policy 15).

- Snow Storage:
  - Any portion of the subject property which is intended to be used for permanent or temporary snow storage shall be as shown on the Stormwater Management Plan and Grade Control and Drainage Plan. Snow storage shall not interfere with approved grading and drainage patterns. Snow storage areas shall be setback from the property lines, foundations, fencing or landscaping a minimum of 1.5m. Snow storage areas shall not occupy driveways, aisles, required parking spaces, or any portion of a road allowance.

- Exterior Site Lighting:
  - Prior to Plan of Subdivision approval, any exterior lighting proposed for the site requires certification by a qualified Professional Engineer confirming the design complies with the following criteria:
  - Lighting must be designed using only fixtures that meet the criteria for Full-Cut-Off (Sharp cut-off) Classification, as recognized by the Illuminating Engineering Society of North America (IESNA or IES).
  - It must result in minimal light spillage onto adjacent properties. As a guide, 0.5 foot-candle is normally the maximum allowable spillage.
  - The location of the fixtures, fixture types (make, model, and part number), and the mounting heights must be shown on one of the approved plans.

- Utilities:
  - A Composite Utility Plan is required.

- The applicant must determine the locations of any existing or proposed private utilities and confirm they don't conflict with the proposed development.

- Easements/ROWs:
  - Easements and rights-of-ways must be shown on the plans and information on any existing easements or ROWs, must be provided with the application.

- Fire Route:
  - Fire routes are to be designated by By-law for Fire Services to establish them as a legal fire route. If applicable, an 'Application for a Fire Route Designation' form will need to be completed and submitted to the City to add the fire route to the By-law. The form must be filled out by the applicant/agent of the property as well as the property owner. This form will be provided after the application is received or can be provided in advance upon request.

- Permits and Approvals:
  - The property is within the regulation limit of Mississippi Valley Conservation Authority.
  - Please contact MVCA, amongst other federal and provincial departments/agencies, to identify all the necessary permits and approvals required to facilitate the development. Responsibility rests with the developer and their consultant for obtaining all external agency approvals. The address shall be in good standing with all approval agencies. Copies of confirmation of correspondence will be required by the City of Ottawa from all approval agencies that a form of assent is given.
  - The ECA application is not submitted until after City of Ottawa Engineering is satisfied that components directly or indirectly aligned with the ECA process concur with standards, directives, and guidelines of the MECP. No construction shall commence until after a commence work notification is given by Development Review Engineering staff.

- Engineering – provided by Joseph Zagorski
  - Karson should be credited for water and wastewater demands for their existing properties which were demolished or will be demolished as a part of new development.
  - Short-term capacity upgrades to Carp water and wastewater facilities functional design study had been completed. It is estimated that short-term upgrades will provide additional capacity for 350 equivalent single houses units in the Carp Village and 0.2 ML/day additional water supply for Carp Airport development. City Rural Development Review Unit is responsible for capacity allocation.
  - City is in a procurement process of selecting consultant for short-term work detailed design work and tender. Construction of the proposed upgrades should be completed in 2 years-time.
  - Next step will involve functional design study to address necessary upgrades to Carp water and wastewater facilities to accommodate projected Carp build-out development inside current village boundary and Carp Airport. Scenario of potential village boundary expansion to the east along Donald B. Munro Drive

and its impact on water and wastewater servicing facilities will be investigated as well as a part of this study.
- Current Village of Carp and Carp Airport new development servicing fee will be adjusted in 2024 City wide development charge by-law review based on the projected build-out population and estimated costs of long-term work.

Submission requirements and fees

- Outline the submission requirements and fees.
- Additional information regarding fees related to planning applications can be found here.
- Plans are to be standard A1 size (594 mm x 841 mm) or Arch D size (609.6 mm x 914.4 mm) sheets, dimensioned in metric and utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400 or 1:500).
- All PDF submitted documents are to be unlocked and flattened.

Next steps

- We encourage the applicant to discuss the proposal with Councillor, community groups and neighbours

From: Brown, Adam <Adam.Brown@ottawa.ca>
Sent: Tuesday, February 8, 2022 6:54 PM
To: 'Jack Stirling' <jack@tsgdi.ca>; 'Alison Stirling' <alison@tsgdi.ca>; Kyle MacHutchon <kyle@invernesshomes.ca>; 'Melissa Cote' <melissa.cote@taggart.ca>; Jim Moffatt <jmoffatt@ibigroup.com>; 'Matt Nesrallah' <MNesrallah@thomascavanagh.ca>; Pierre Dufresne (pdufresne@thomascavanagh.ca) <pdufresne@thomascavanagh.ca>; John Riddell <J.Riddell@novatech-eng.com>; Susan Gordon <s.gordon@novatech-eng.com>; 'Josh Kardish' <JKardish@eqhomes.ca>; 'andrew@wildeboer.ca' <andrew@wildeboer.ca>; Greg Winters <G.Winters@novatech-eng.com>
Cc: Xu, Lily <Lily.Xu@ottawa.ca>; Whittaker, Damien <Damien.Whittaker@ottawa.ca>; Hall, Kevin <Kevin.Hall@ottawa.ca>; Morgan, Brian <Brian.Morgan@ottawa.ca>; McWilliams, Cheryl <Cheryl.McWilliams@ottawa.ca>; McCormick, Sarah <sarah.mccormick@ottawa.ca>; Ostafichuk, Jeffrey <Jeffrey.Ostafichuk@ottawa.ca>; Zagorski, Joseph <Joseph.Zagorski@ottawa.ca>; Rogers, Christopher <Christopher.Rogers@ottawa.ca>
Subject: Carp Servicing update

Please see below for a status update of the servicing situation in Carp. If you have any questions, please advise

- There is currently no capacity for additional water users in Carp as the current GAC filters operating method is a limiting factor.
- For wastewater, based on the existing flow data, there is limited capacity available (equivalent of 100 single houses). However, because of no overflow protection at the station, Wastewater Operations do not support adding more connections at the present time.
- Infrastructure Planning, in conjunction with consultant RVA, already has a short-term project underway to increase capacity of the water and wastewater systems. The time frame including detailed design and construction phases, would be two to three years from today.
- Once the proposed short-term upgrades are in place, it is estimated that there should be additional water and wastewater capacity for the equivalent of 350 single houses in the Village. For the Carp Airport, there is expected to be an additional allocation of drinking of 0.2 ML/d for a total of 0.7 ML/d.
- It is noted that the City currently has two active Plan of Subdivision applications in the village of Carp.
    - Inverness Homes subdivision (D07-16-19-0034):147 Langstaff. Details here. Unit count is 67 townhouse dwellings and 128 apartment dwellings, total 195.
    - Tartan subdivision (D07-16-21-0035): 232 Donald B. Munro Drive. Details here. Unit count is 57 single detached, 6 semi-detached, 54 townhouse units, total 117.
    - Two other possible applications could be forthcoming, with combined unit count totals estimated at +/- 390.
- The available fire flow at the Carp water plant is 6500 L/min for two hours duration. Due to village topography, depending on the new development location, it could be a lot less. Developers will need to prove that their proposal meets the available fire flow through the development review process.
- Ongoing monitoring of flows will be undertaken in the village as developments advance to reassess capacity as necessary in the future.
- Infrastructure improvements beyond the short-term upgrades will be eight to ten years into the future assuming financing availability.

- The current water and wastewater infrastructure charge, paid at permit issuance for development in Carp, will continue to be assessed. City staff will review a possible change to an area-specific development charge in the 2024 DC by-law update.
- Staff propose reserving future water and wastewater capacity for development in the village at the draft approval stage. As applications are draft approved, water and wastewater flows will be reserved accordingly for that location. However, staff will reserve the right to reassess the allocation of flows to other areas when draft conditions expire if the development has not proceeded.
- Notwithstanding the above recommendation, if the development industry wishes to enter into an agreement for other arrangements to share allocations of flows, City staff are open to participating in these discussions.

Regards,

Adam Brown
City of Ottawa / Ville d'Ottawa
Manager, Development Review - Rural | Gestionnaire, Revue des projets d'aménagement - rurales
Planning, Real Estate and Economic Development Department | Direction générale de la planification, des biens immobiliers et du développement économique
(613) 580-2424 x:28352
http://ottawa.ca/rural
http://ottawa.ca/rurales

Appendix B

1. Water Boundary Conditions email - April 24, 2023
2. 3711 – 3725 Carp Road Water Demand Calculations - May 2023
3. FUS - Fire Flow Calculations - June 8, 2023

From: Smith, Travis <travis.smith@ottawa.ca>
Sent: Monday, April 24, 2023 8:22 AM
To: Aden Rongve
Cc: Lisa Bowley; Whittaker, Damien
Subject: Re: Water Boundary Conditions - 3725 Carp Road

Hi Aden,

With regards to the requested fire flow, please provide the fire flow calculations using the FUS method.

In terms of the credited service capacity discussed in the meeting, the applicant should provide sufficient information and rationale to establish the existing servicing capacity for the municipal water and wastewater system(s), subject to further consultation on the proposed approach with the City.

The information provided on the Water Design Sheet will be reviewed with the fire flow calculations.

Please note the following in regards to site servicing from the pre-consultation meeting held June 29, 2022;

- Fire Flow: If the fire flow demand calculations use a construction coefficient less than 1, information will need to be provided to support the use of the selected type of construction. It is understood that the fire-fighting flow available is limited and smaller buildings and/or extensive use of firewalls and/or expanded building separation will be necessary.
- Servicing Capacity: Although the area of the proposed development has existing municipal services, the Village of Carp is at capacity for municipal water and municipal sanitary servicing. Capacity upgrades to the Carp water and sanitary systems are required. There are projects underway to provide short-term capacity upgrades in the next 2 to 3 years, which would allow the addition of approximately 350 units. It is up to the proponent to decide how to proceed with the application process, but please be aware that there are currently active Plans of Subdivision applications that aim to utilize the additional short-term capacity. Once the short-term functional design study is complete, the City will be planning an expansion to provide long-term capacity upgrades. Please also refer to the email sent February 8, 2022, from Adam Brown, subject “Carp Servicing update”.
- Credited Servicing Capacity: The site is currently vacant. It is understood that there were formerly buildings on the site that were serviced by the municipal water and wastewater systems. The servicing capacity allocated to these previously existing buildings can be used as a credit towards the proposed development. Further consultation with the City will be required to determine how/if this approach could be implemented for servicing beyond the existing site’s credited capacity given the servicing capacity constraints.

Regards,

Travis Smith, P.Eng.
Project Manager
Planning, Real Estate and Economic Development Department / Direction générale de la planification, des biens immobiliers et du développement économique
Development Review - Rural
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West, Ottawa, ON | 110, Avenue. Laurier Ouest, Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 16544, travis.smith@ottawa.ca

*** please note that I will be on vacation starting September 11 and returning September 25, 2023 ***

Note that we are in a hybrid work arrangement, phone contact is limited and email is our best option. Thank you in advance.
Notez que nous sommes dans un arrangement de travail hybride, le contact téléphonique est limité et le courriel est notre meilleure option. Merci en avance.

From: Aden Rongve <a.rongve@novatech-eng.com>
Sent: Friday, April 21, 2023 3:54 PM
To: Smith, Travis <travis.smith@ottawa.ca>

Cc: Lisa Bowley <l.bowley@novatech-eng.com>
Subject: Water Boundary Conditions - 3725 Carp Road

Travis,

As part of a draft plan of subdivision for the site at 3725 Carp Road, we are requesting water boundary conditions. The proposed site includes 78 residential units (stacked townhomes and lifestyle apartments) as well as 9 commercial units. We are proposing to connect to the 200mmØ watermain on Carp Road in two locations. Please find a location plan attached for reference.

We are requesting boundary conditions based on the following. Calculation of the values below are outlined in the attached Water Demand Design Sheet.

- Average Day Demand – 0.79 L/s
- Peak Hour Demand – 5.10 L/s
- Average Day Demand – 3.33 L/s

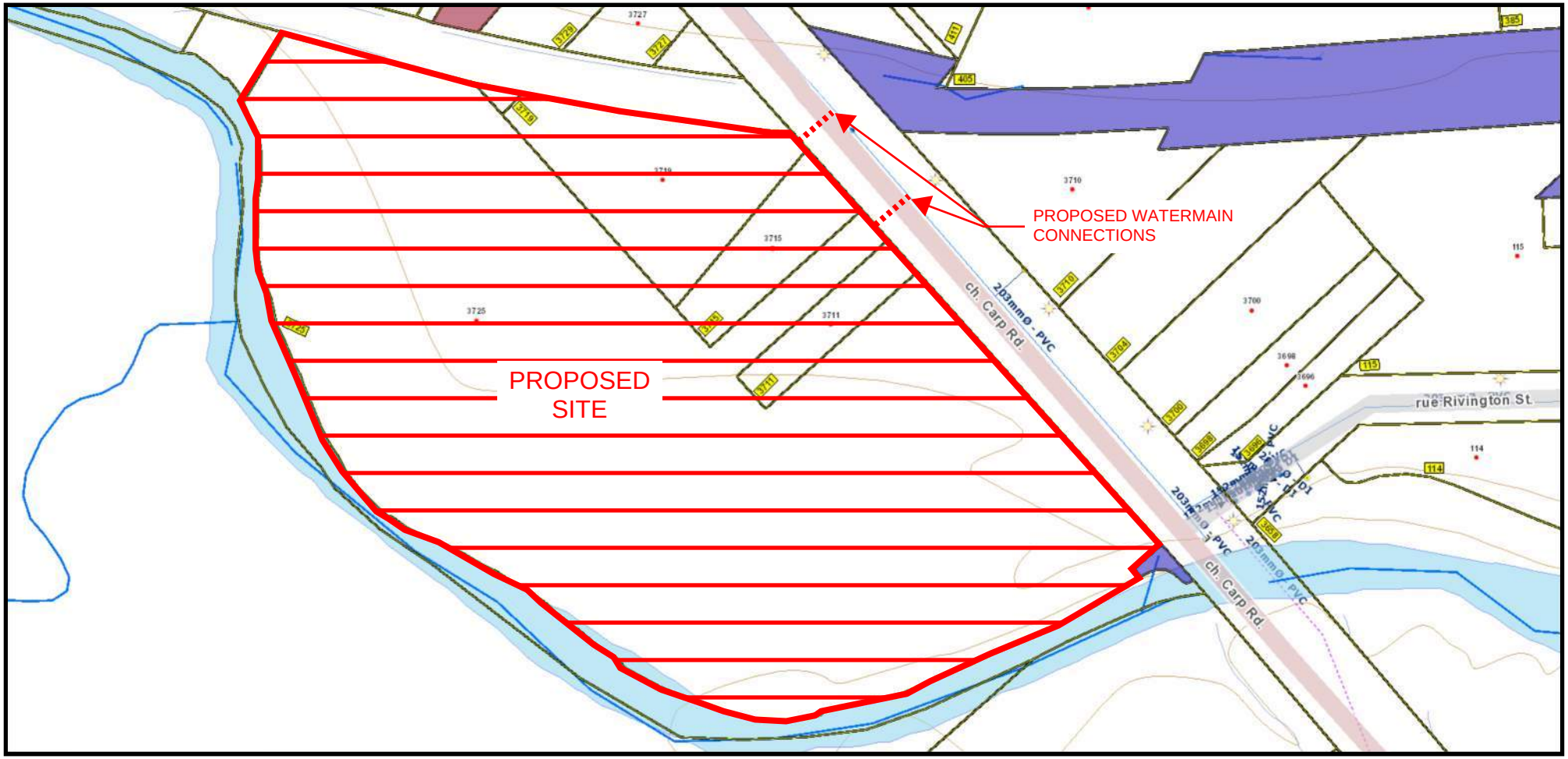
We are also requesting the maximum available fire flow at 20 psi at this location.

Please let us know if you have any questions.

Thank you,

Aden Rongve, B.Sc., EIT
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 ext 324

WATER BOUNDARY CONDITION REQUEST
#3725 CARP ROAD
NOVATECH JOB #: 121173
DATE: APRIL 21, 2023



NOVATECH
Engineers, Planners & Landscape Architects

3711- 3725 CARP ROAD
WATER DEMAND

JOB NO. 121173
DATE: MAY 2023

Residential Population			Commercial	Residential Demand (L/s)			Commercial Demand (L/s)			Total Demand (L/s)		
Stacked Units	Lifestyle Units	Total Population	Gross Area (ha)	Avg Day	Max. Daily	Peak Hour	Avg Day	Max. Daily	Peak Hour	Avg Day	Max. Daily	Peak Hour
60	18	211	0.5	0.68	3.3	5.05	0.16	0.24	0.44	0.84	3.59	5.49

Design Parameters per Section 4.0 Ottawa Water Distribution Design Guidelines:

Stacked Unit Population Population (Townhouse)	2.7	persons/unit
Lifestyle Unit Population (Townhouse)	2.7	persons/unit
Avg. Day Domestic Demand	280	L/capita/day
Commercial Demand	28000	L/ha/day
Max. Daily Demand	1.5	x Avg. Day
Peak Hourly Demand	1.8	x Max. Day

FUS - Fire Flow Calculations

NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 121173
Project Name: Karson Subdivision
Date: 6/8/2023
Input By: L. Bowley
Reviewed By: A. McAuley

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

Building Description: Building B
Type V - Wood frame

Step			Input		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction **C**	Type V - Wood frame	Yes	1.5	1.5	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction		0.8		
		Type I - Fire resistive construction (2 hrs)		0.6		
2	**Floor Area**					
	A	Building Footprint (m^2)	865			
		Number of Floors/Storeys	3			
		Area of structure considered (m^2)			**2,595**	
	F	**Base fire flow without reductions**				**17,000**
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	0%	**17,000**
		Limited combustible		-15%		
		Combustible	Yes	0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	No	-30%		**0**
		Standard Water Supply	No	-10%		
		Fully Supervised System	No	-10%		
				Cumulative Sub-Total	**0%**	
		Area of Sprinklered Coverage (m^2)	0	0%		
				Cumulative Total	**0%**	
5	**Exposure Surcharge**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	0 - 3 m		25%	**12,750**
		East Side	10.1 - 20 m		15%	
		South Side	20.1 - 30 m		10%	
		West Side	0 - 3 m		25%	
				Cumulative Total	**75%**	
Results						
6	(1) + (2) + (3)	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**30,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**500**
				or	USGPM	7,926
7	**Storage Volume**	Required Duration of Fire Flow (hours)	**FUS Table 1**		Hours	7
		Required Volume of Fire Flow (m^3)			m^3	12600

Appendix C

1. Existing Carp Road Sanitary Sewer Design Sheet – May 2023
2. Conceptual Sanitary Design Sheet – June 2023
3. Sanitary Drainage Area Plan (121173-SDA) – June 2023

PROJECT #: 121173
PROJECT NAME: KARSON SUBDIVISION
LOCATION: 3711 - 3725 CARP ROAD, OTTAWA, ON

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: MAY 2023

EXISTING CARP ROAD SANITARY SEWER DESIGN SHEET

MANHOLES		PIPE					
FROM	TO	Size (mm)	Upstream Invert (m)	Downstream Invert (m)	Slope (%)	Length (m)	Capacity (L/s)
EX107	EX108	450	89.94	89.85	0.24	38	138.6
EX108	EX109	450	89.85	89.73	0.15	81	109.7

*Note: Pipe Invert Elevations obtained from GeoOttawa

PROJECT #: 121173
PROJECT NAME: KARSON SUBDIVISION
LOCATION: 3725 CARP ROAD, OTTAWA, ON

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: JUNE 2023

CONCEPTUAL SANITARY DESIGN SHEET

		RESIDENTIAL						COMM.			EXTRANEOUS				PIPE					
FROM	TO	# of Units		TOTAL										Total Flow (L/s)						
		Townhouse	Appts.	Population	Accum. Pop.	Peak Factor	Peak Flow (L/s)	Area (ha)	Accum. Area (ha)	Peak Flow (L/s)	Total Area (ha)	Accum. Area (ha)	Infilt. Flow (L/s)		Size (mm)	Slope (%)	Length (m)	Capacity (L/s)	Full Flow Vel. (m/s)	Q/Q_{full} (%)
SAN6	EX1	78	0	211	211	3.5	2.40	0.50	0.50	0.24	1.35	1.35	0.45	3.1	200	0.40	140	20.7	0.66	14.9%

Design Parameters:

Section 4.0 Ottawa Sewer Design Guidelines (ISTB 2018-01)

Population Densities

- Townhouse	2.7	persons/unit
- Commercial	28000	L/gross ha/day

Design Flows

- Average Residential Flow	280	L/capita/day
- Extraneous Flows	0.33	L/s/ha
Residential Peaking Factor	Harmon Equation	

DONALD B. MUNRO DRIVE

CARP ROAD

RIVINGTON STREET

RAIL CORRIDOR

BLDG A
9 Lifestyle Unit Block/
9 Commercial Units

BLDG B
9 Lifestyle Unit Block/
9 Commercial Units

BLDG C
12 Stacked Units

BLDG D
12 Stacked Units

BLDG E
12 Stacked Units

BLDG F
12 Stacked Units

BLDG G
12 Stacked Units

1.35 ha
SAN5 - EX1
78 | 211

200mmØ SAN

COURTYARD

CARP RIVER

BRIDGE

Metal Clad Shed

FLOW

LEGEND

- 1.35 ha / SAN5 - EX1 / 78 | 211 — DRAINAGE AREA (hectares); MANHOLE TO MANHOLE; POPULATION EQUIVALENT; NUMBER OF UNITS
- SANITARY DRAINAGE AREA
- PROPERTY BOUNDARY
- PROPOSED SANITARY SEWER

SOURCE REFERENCE:

LEGAL INFORMATION: *PLAN OF SURVEY (DRAFT)*
ANNIS, O'SULLIVAN, VOLLEBEKK Ltd / FEBRUARY 12, 2023 / MTM ZONE 9, NAD83 ORIGINAL
EXISTING INFRASTRUCTURE: *AS-BUILT PLAN - VILLAGE OF CARP COMMUNAL WATER SUPPLY AND SEWAGE SYSTEMS / KOSTUCH ENGINEERING Ltd. / JUNE 1996*

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

3725 CARP ROAD
KARSON SUBDIVISION

SANITARY DRAINAGE AREA PLAN

SCALE 1 : 1000 (0 10 20 30 40)
DATE JUNE 2023
FIGURE 121173-SDA

Appendix D

1. 5-year Storm Sewer Design Sheet - June 2023
2. Pre-Development Drainage Area Plan (121173-PRE) revision 1
3. Post-Development Drainage Area Plan (121173-POST) revision 1

PROJECT #: 121173
PROJECT NAME: KARSON SUBDIVISION
LOCATION: CARP, ON

NOVATECH
Engineers, Planners & Landscape Architects

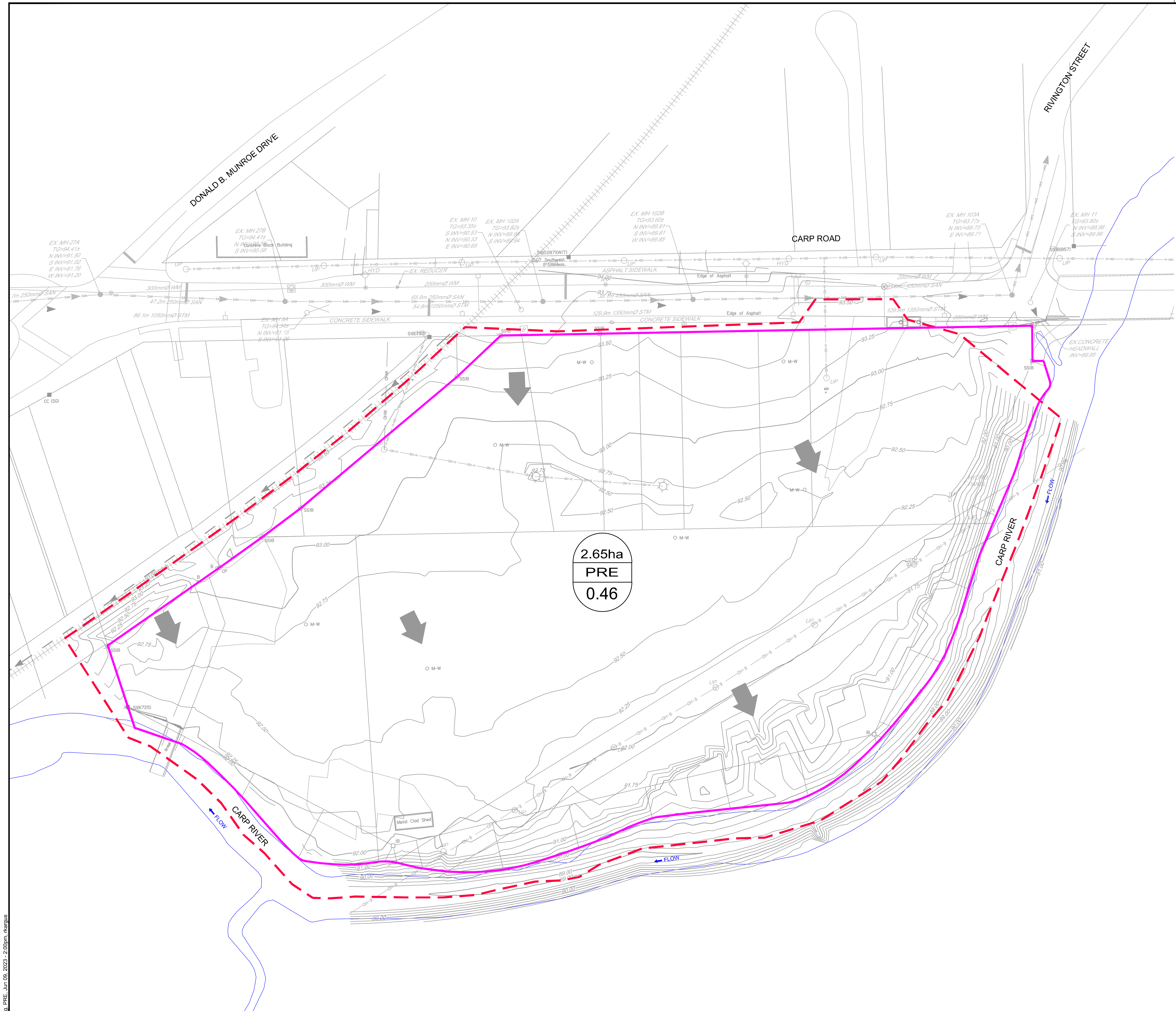
DATE PREPARED: JUNE 2023

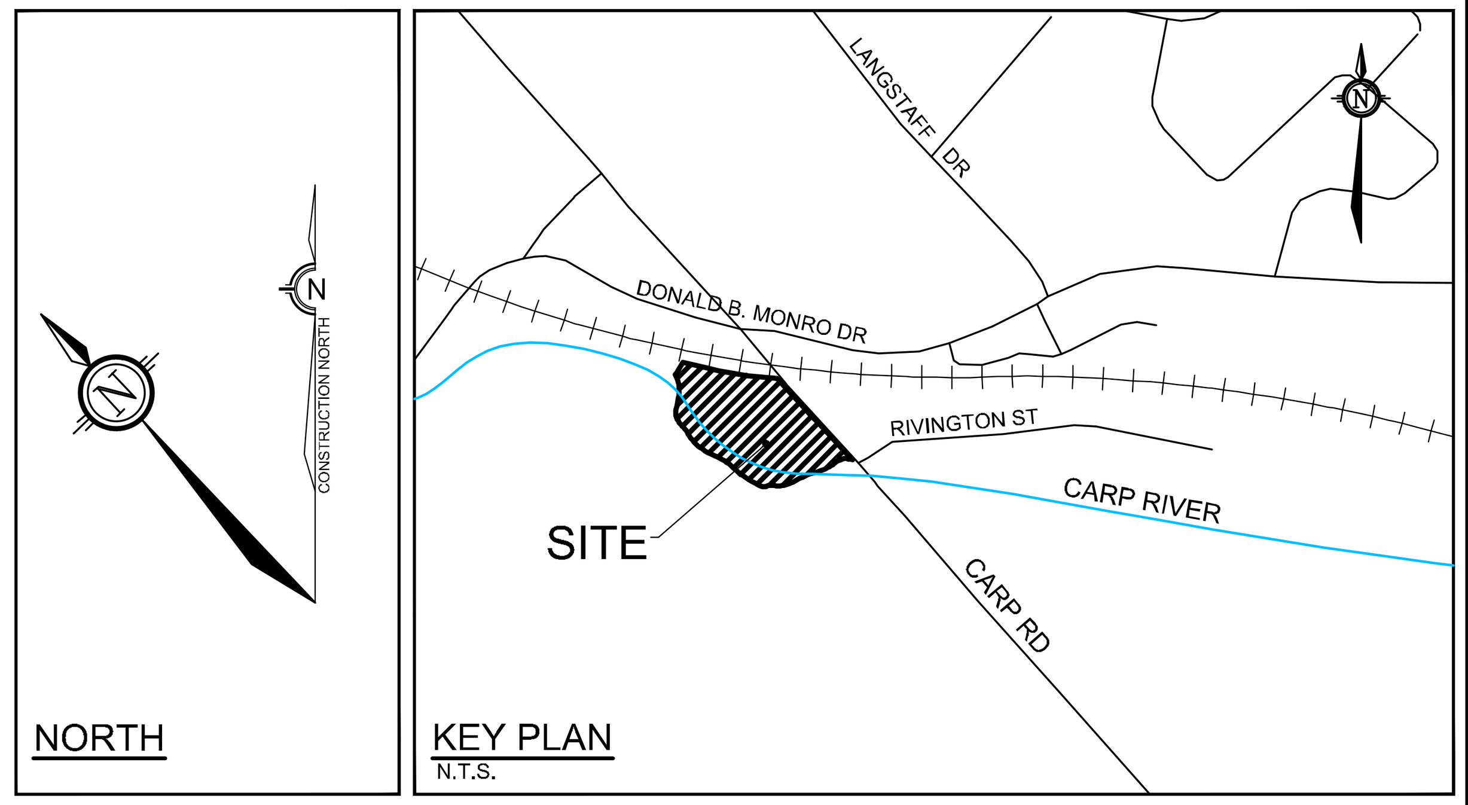
5 Year Storm Sewer Design Sheet

Upstream Manhole	Downstream Manhole	AREA (Ha)			FLOW					PROPOSED SEWER							
		AREA ID	TOTAL AREA	R	INDIV 2.78 AR	ACCUM 2.78 AR	TIME OF CONC.	RAINFALL INTENSITY I	PEAK FLOW Q (l/s)	PIPE SIZE (mm)	PIPE SLOPE (%)	LENGTH (m)	CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW (min.)	EXCESS CAPACITY (l/s)	Q/Qfull
ST1	ST4	A1	0.45	0.81	1.01	1.01	10.00	104.19	105.57	450	0.20	102.0	127.63	0.80	2.12	22.06	0.83
ST8	ST6	A2	0.23	0.60	0.38	0.38	10.00	104.19	39.85	300	0.35	42.0	57.27	0.81	0.86	17.41	0.70
ST7	ST6	A2	0.10	0.60	0.17	0.17	10.00	104.19	17.33	300	0.35	32.0	57.27	0.81	0.66	39.94	0.30
ST6	ST4	A3	0.15	0.80	0.34	0.88	10.86	99.84	88.27	450	0.20	63.0	127.63	0.80	1.31	39.37	0.69
ST4	ST13	A4	0.03	0.68	0.06	1.95	12.99	90.69	177.21	525	0.25	35.0	215.25	0.99	0.59	38.04	0.82
ST9	ST13	A5	0.28	0.79	0.62	0.62	10.00	104.19	64.15	375	0.25	106.0	87.75	0.79	2.23	23.61	0.73
ST13	OUTLET					2.57	13.57	88.47	227.34	600	0.20	33.0	274.87	0.97	0.57	47.53	0.83

Definitions
Q = 2.78 AIR
Q = Peak Flow, in Litres per second (L/s)
A = Area in hectares (ha)
I = 5 YEAR Rainfall Intensity (mm/h)
R = Runoff Coefficient

Notes:
1) Ottawa Rainfall-Intensity Curve
2) Min Velocity = 0.76 m/sec.
3) 5 Year intensity = 998.071 / (time + 6.053)$^{0.814}$





LEGEND

Symbol	Description
2.65ha	DRAINAGE AREA (hectares)
PRE	AREA ID
0.46	RUNOFF COEFFIECIENT
	PROPERTY BOUNDARY
	STORM DRAINAGE AREA
	EXISTING DRAINAGE DITCH
	EXISTING HUNTLEY CREEK WATERCOURSE
	OVERLAND FLOW

TOTAL SITE AREA = 2.30ha

TOTAL DRAINAGE AREA = 2.63ha

SOURCE REFERENCE:

LEGAL INFORMATION: *PLAN OF SURVEY (DRAFTED)*

ARNETT, KENNERDY, RIDDELL & JASON SURVEYING Ltd. / APRIL 30, 1991

TOPOGRAPHIC INFORMATION:

NOVATECH SURVEYS FOR 3725 CARP ROAD:

- *SURVEY 10 (101058) / JANUARY 2020*
- *SURVEY 12 (101058) / OCTOBER 2020*

EXISTING INFRASTRUCTURE: *AS-BUILT PLAN - VILLAGE OF CARP COMMUNAL WATER SUPPLY AND SEWAGE SYSTEMS / KOSTUCH ENGINEERING Ltd. / JUNE 1996*

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, 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.

No.	REVISION	DATE	BY
1.	ISSUED WITH SERVICING AND CONCEPTUAL STORMWATER MANAGEMENT REPORT	JUNE 12/23	LAB

SCALE 1:500

DESIGN	RJK
CHECKED	LAB
DRAWN	RJK
CHECKED	LAB
APPROVED	SMG

FOR REVIEW ONLY

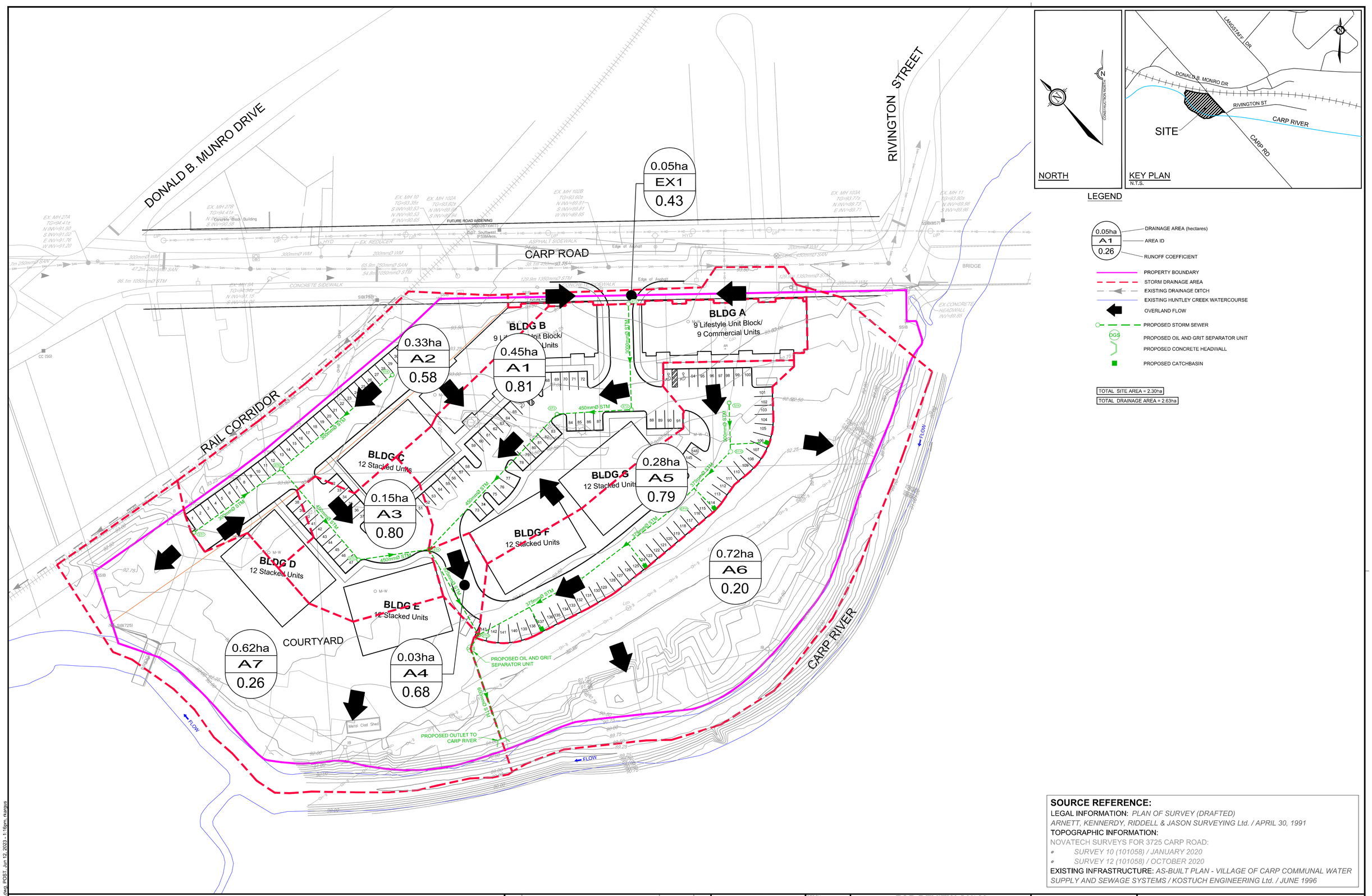
NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
3725 CARP ROAD, CITY OF OTTAWA
KARSON SUBDIVISION

DRAWING NAME
PRE-DEVELOPMENT DRAINAGE AREA PLAN

PROJECT No. 121173
REV # 1
DRAWING No. 121173-PRE

M:\2021\121173\CAD\Design\121173-PRE.dwg, PRE, Jun 09, 2023 - 2:00pm, rkargus



LEGEND

- 0.05ha / EX1 / 0.43 — DRAINAGE AREA (hectares), AREA ID, RUNOFF COEFFICIENT
- PROPERTY BOUNDARY
- STORM DRAINAGE AREA
- EXISTING DRAINAGE DITCH
- EXISTING HUNTLEY CREEK WATERCOURSE
- OVERLAND FLOW
- PROPOSED STORM SEWER
- PROPOSED OIL AND GRIT SEPARATOR UNIT
- PROPOSED CONCRETE HEADWALL
- PROPOSED CATCHBASIN

TOTAL SITE AREA = 2.30ha

TOTAL DRAINAGE AREA = 2.63ha

SOURCE REFERENCE:

LEGAL INFORMATION: *PLAN OF SURVEY (DRAFTED)*
ARNETT, KENNERDY, RIDDELL & JASON SURVEYING Ltd. / APRIL 30, 1991

TOPOGRAPHIC INFORMATION:
NOVATECH SURVEYS FOR 3725 CARP ROAD:

- *SURVEY 10 (101058) / JANUARY 2020*
- *SURVEY 12 (101058) / OCTOBER 2020*

EXISTING INFRASTRUCTURE: *AS-BUILT PLAN - VILLAGE OF CARP COMMUNAL WATER SUPPLY AND SEWAGE SYSTEMS / KOSTUCH ENGINEERING Ltd. / JUNE 1996*

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No.	REVISION	DATE	BY
1.	ISSUED WITH SERVICING AND CONCEPTUAL STORMWATER MANAGEMENT REPORT	JUNE 12/23	LAB

SCALE 1:500 (1:500, 0 5 10 15 20)

DESIGN RJK | CHECKED LAB | DRAWN RJK | CHECKED LAB | APPROVED SMG

FOR REVIEW ONLY

NOVATECH
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Suite 200, 240 Michael Cowpland Drive
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Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
3725 CARP ROAD, CITY OF OTTAWA
KARSON SUBDIVISION

DRAWING NAME
POST-DEVELOPMENT DRAINAGE AREA PLAN

PROJECT No. 121173
REV REV # 1
DRAWING No. 121173-POST

M:\2021\121173\CAD\Design\121173-POST.dwg, POST, Jun 12, 2023 - 1:16pm, rkargus

PLAN41.DWG - 841mmx594mm

Appendix E

1. Figure 2.2, Page 13 and Page 17 from Village of Carp Environmental Management Plan – November 2004
2. Figure 3.4.31 (Groundwater Recharge and Discharge Potential) from Carp River Watershed Study Volume I – December 2004

Robinson Consultants

Robinson Consultants Inc.
Consulting Engineers

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email info@rcii.com
website www.rcii.com

Village of Carp
Environmental Management Plan

Prepared For:

Ottawa

Prepared By:

Robinson Consultants Inc.
Consulting Engineers

Our Project No. 04013
November 2004

Robinson Consultants

Ottawa

N

Control Structure
Beaver Pond

Extended Detention
Wet Pond

Dry Pond

CHARLIE'S LANE
CARP ROAD
JUANITA AVENUE
INNISKILLIN DRIVE
LANGSTAFF DRIVE
CAVANAUGH DRIVE
DONALD B. MUNRO DRIVE
RIVINGTON STREET
Canadian National Railroad
Carp River
Flow
Flow

LEGEND

- Ownership Boundary
- Contributing Area Boundary
- Regulatory Flood Line
- Existing Stormwater Management Facility
- Watercourse (Ravine)
- Drainage Swale
- Culvert or Storm Sewer
- 3a Ownership Area
- D Stormwater Management Area
- I Existing Storm Outfall

EXISTING DRAINAGE
Figure 2.2

feasible. Dry ponds are less desirable because they provide a lower level of treatment. Infiltration trenches/basins are less desirable because of higher maintenance requirements and are not suitable in areas with high groundwater levels.

The use of stream and valley corridor buffer strips provide some treatment of surface runoff from existing and future developments within the village. They would also protect the steep slopes of the valleys of the two watercourses from encroachment.

4.1 Stormwater Management Options

Stormwater management options were evaluated for each development area shown in Figure 2.2 as outlined in **Table 4.1**.

Table 4.1
Development Areas Requiring SWMPs

Area No.*	Development Area No.*	Developable Area (ha)	Description
A	4	4.51	Medium density residential. Drains to RR 5 stormsewer and area 'B'
B	5, 6	5.90	Part of Hidden Estates Subdivision
C	2, 3a, 3b	14.43	Medium Density Residential / Community Core. Generally low lying, along Carp River
D	1	3.50	Medium Density Residential. Generally low lying, along Carp River
E	7a, 7b	6.88	Part of Glenncastle Subdivision
F	8a, 8b	5.30	Fairground Expansion / High Density residential Drains to Glenncastle SWM pond
G	8c	0.91	High Density Residential. Drains to RR 5
H	13	0.45	Village Core. Low lying, along Carp river
I	9, 10, 11	12.96	High/Medium/Low Density Residential
J	12	1.17	Medium Density Residential
K	--	34.50	Former CFP Carp lands

*) see Figure 2.2 and 5.1

For areas that drain directly to the Carp River, quantity control to reduce peak flows to pre-development levels is not required. Increases in peak flow from these areas are small compared to the flow in the river and the timing of the peak is such that most of the runoff occurs before the river itself peaks. A comparison of existing and unattenuated post-development flows from areas 'C', 'D', and 'K', as well as the 5 year peak flow of the Carp River, are presented in **Table 4.2**. SWMHYMO results can be found in **Appendix E**.

Table 4.2
Peak Flow Estimates

ID	Drainage Area (ha)	Peak Flow (m^3/s) / Time to Peak (hrs) *				
		Existing Conds.		Future Conds.		Carp R.
		5 year	100 year	5 year	100 year	5 year
C	22.7	0.2 / 2.4	0.6 / 2.4	1.3 / 1.7	2.8 / 1.6	23 / 10
D	4.8	0.1 / 1.9	0.2 / 1.8	0.55 / 1.5	1.1 / 1.5	
K	34.5	1.0 / 1.7	3.5 / 1.7	2.7 / 1.5	5.6 / 1.5	

*) All flows are based on rainfall only (See Figure 3, Village of Carp Drainage Study)

Pervious Pipe Systems

Pervious pipe systems must be installed in soils with good infiltration potential and a deep groundwater table. Pre-treatment (removal of coarser solids) of road runoff is necessary to prevent clogging and is typically achieved through the use of grassed swales in the boulevard.

End-of-Pipe Systems

Due to the relatively small drainage areas, end-of-pipe **interceptor solutions** such as oil-grit separators (e.g. Stormceptor) may be considered. This type of SWMP is acceptable if it captures and treats at least a 90% of the runoff volume.

SWMPs in area F (part of 8a and 8b) will outlet to the existing SWM facility upstream of Donald B. Munro Drive. In area G (remainder of 8a and 8c), discharge is to the ravine that outlets to the Regional Road 5 sewer.

4.1.7 Area H

This small area of 1.92 ha is physically separated from the village by Regional Road 5, Donald B. Munro Drive, and the Carp River. The development designation of the area is Village Core. The land is very low lying (between 91.4 and 93.0 m). As a result, drainage towards regional Road #5 (elevation approximately 94.0 m) does not appear feasible.

Because the development area is very small, and the "Village Core" land use indicates high density development, appropriate SWMPs appear to be limited to **interceptors**, in combination with **natural buffer strips** along the Carp River.

4.1.8 Areas I and J

Area I includes the development areas 9, 10, and 11. Proposed development for area 9 is medium density residential (1.86 ha), for area 10 low density residential (4.72 ha), and for area 11 high density residential (6.38 ha). Medium density residential is proposed for Area 12 (1.17 ha), which is separated from the other areas by the CNR embankment.

The preferred stormwater management solution for this area would consist of a facility or facilities that address the requirements for both I and J. Available options include lot level and conveyance controls, and end-of-pipe solutions. However, the sandy loam soils that cover most of this area offer only limited opportunities for infiltration. Additionally, the water table is less than 1 metre below existing grade.

The existing railway culvert consists of a 1.98 m diameter concrete pipe. Without surcharging, the capacity of this culvert is approximately 8 m^3/s. Existing 100 year flow at the culvert is approximately 3.59 m^3/s (Village of Carp Drainage Study). Although the existing culvert may have capacity, permission to discharge uncontrolled flows through the culvert must be confirmed with CNR prior to draft plan approval and/or confirmation of the SWM block size required.

To convey uncontrolled flows from area I, the upstream channel must be redesigned, including increased cross-section and erosion protection. The existing ditch inlet and culvert at Donald B. Monroe Drive, which has a capacity of approximately 1 m^3/s, would have to be replaced. Since the channel is not considered fish habitat or of significant environmental value, runoff may also be piped.

Robinson Consultants

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Consulting Engineers

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facsimile 613 592 5995
email info@rcii.com
website www.rcii.com

Carp River Watershed/ Subwatershed Study
Volume I - Main Report

Prepared For:

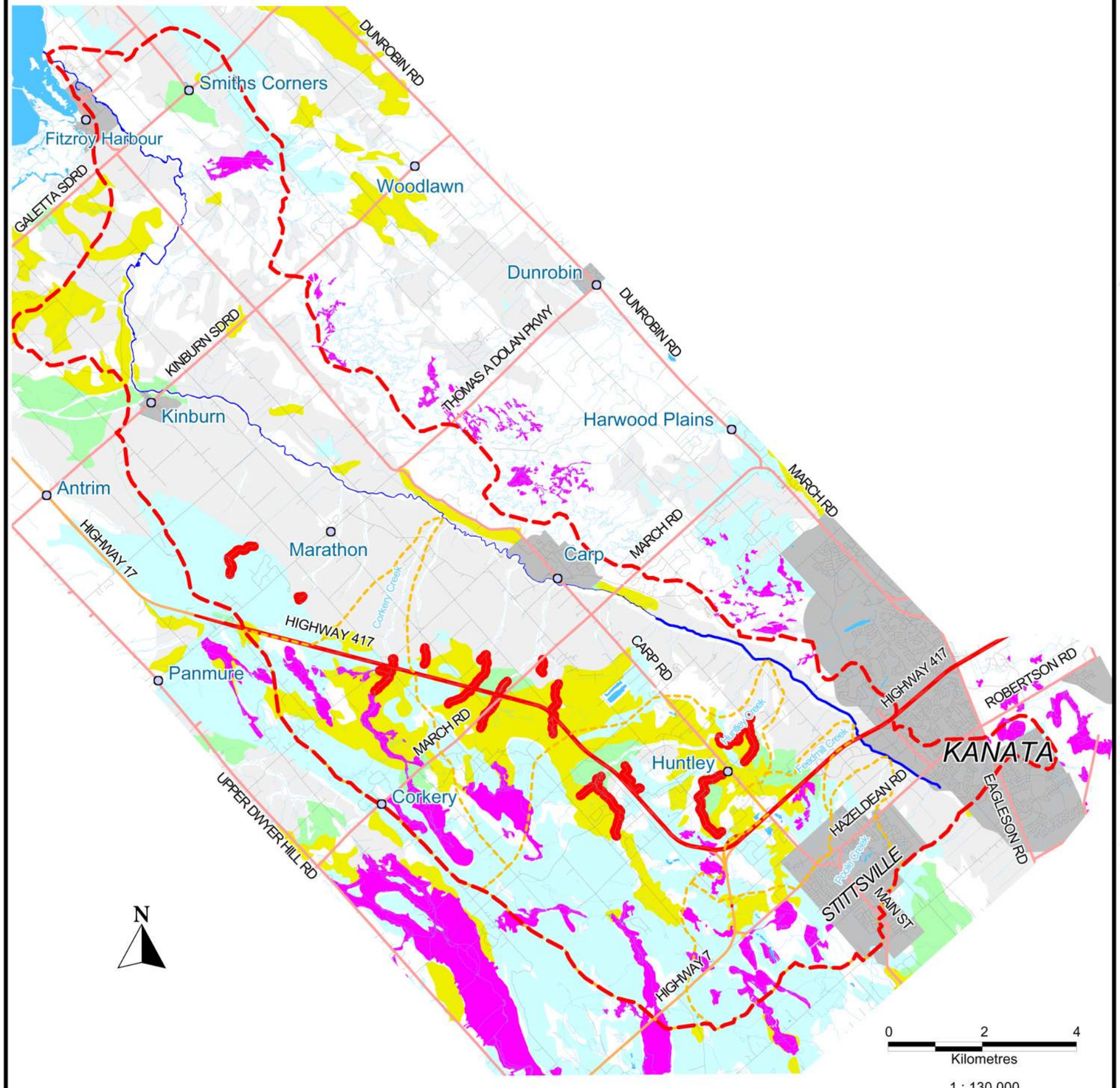
Ottawa

Prepared By:

Robinson Consultants Inc.
Aquafor Beech Ltd.
Lloyd Phillips and Associates
Daniel Brunton Consulting Services

Project No. 00056
December 2004

Figure 3.4.31
Groundwater Recharge and Discharge Potential



Ottawa

- Observed and Geologically-inferred
- Headwater Wetlands

Soils

230	Fine Sand
125	Silt
125	Paleozoic Bedrock
100	Clay
<75	Precambrian Bedrock, Till Organic Deposits Over Till, Escarpment

** Numbers in boxes are annual recharge potentials in mm/year

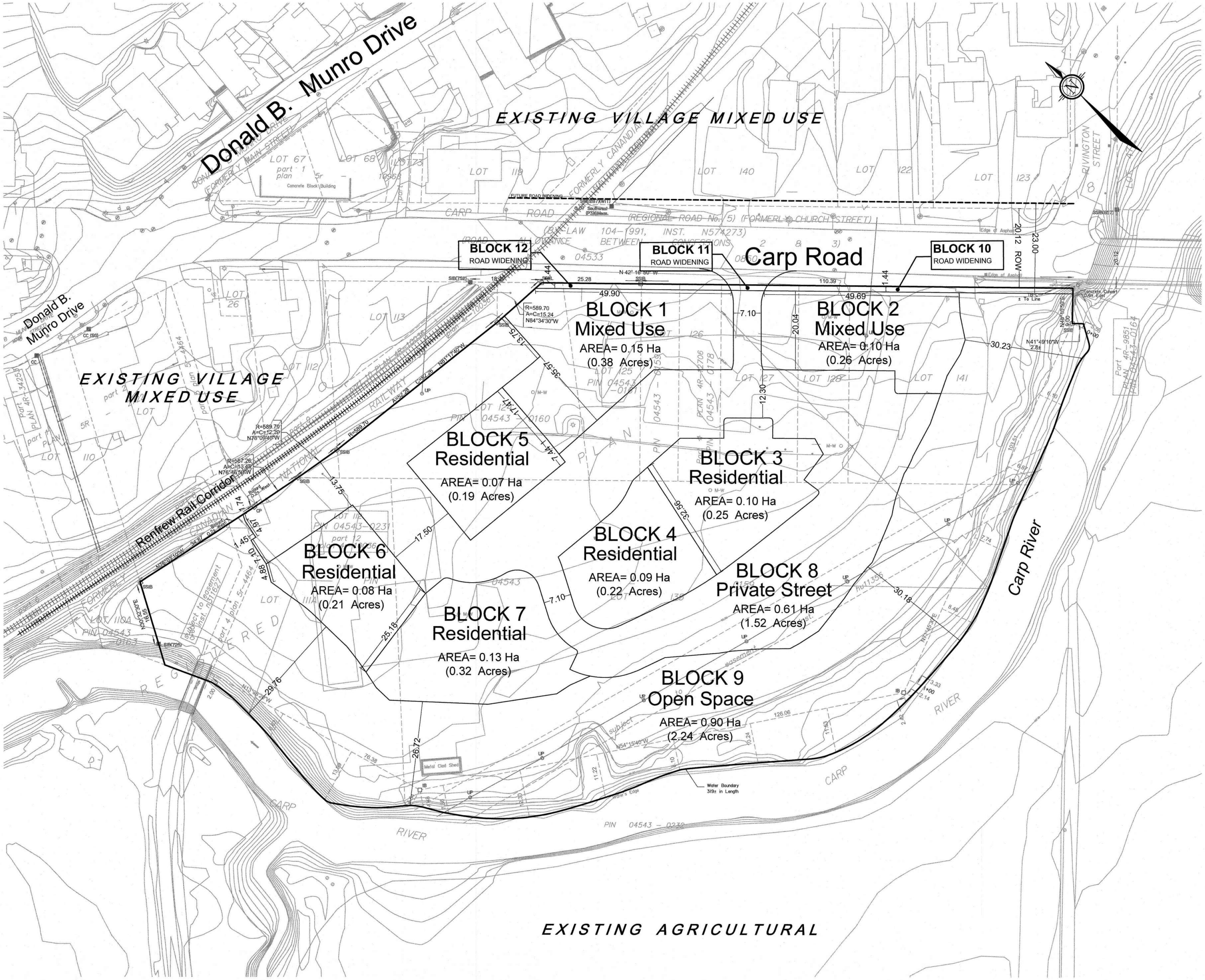
- Built Up
- Carp River Watershed
- Carp River Subwatershed
- Drainage
- Carp River
- Village / Hamlet

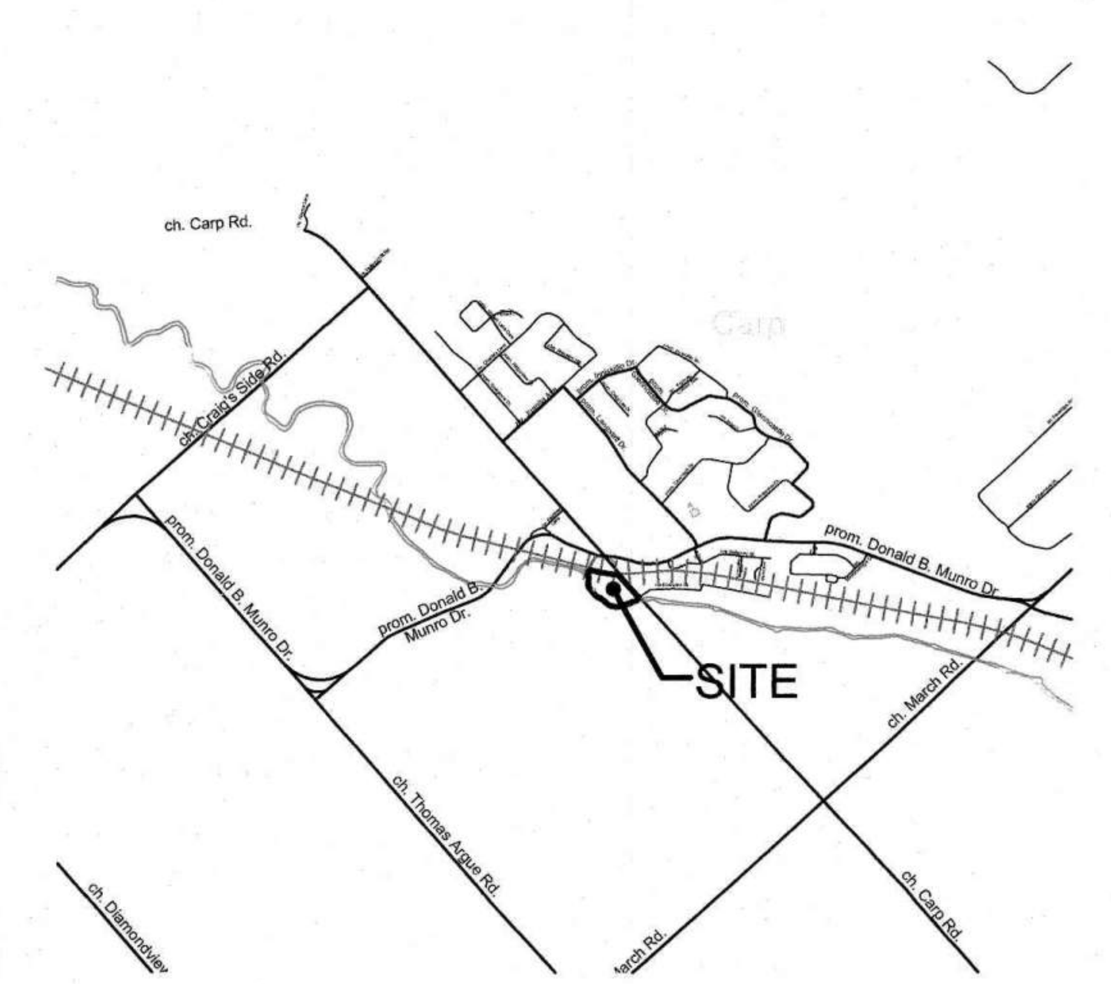
Roads

- 4 Lane Highway
- Highway
- Main
- Secondary

Robinson Consultants

Aquafor Beech Limited





KEY MAP
NOT TO SCALE

METRIC : MEASUREMENTS SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

DRAFT PLAN OF SUBDIVISION OF

LOTS 111A, 124, 125, 126, 127, 128, 135 AND PART OF LOTS 112, 141
REGISTERED PLAN 218
CITY OF OTTAWA

Scale 1 : 500

20 15 10 5 0 10 20 Metres

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJOINING LANDS ARE CORRECTLY SHOWN.

DATED March 31, 2023

J. Cody Anderson
ONTARIO LAND SURVEYOR

Annis, O'Sullivan, Vollebekk Ltd.
ONTARIO LAND SURVEYORS

Job No. 23130-23

OWNER'S CERTIFICATE

I/WE, KARSON HOLDINGS INC.,BEING THE REGISTERED OWNER(S), HEREBY AUTHORIZE NOVATECH TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE CITY OF OTTAWA FOR REVIEW AND APPROVAL.

DATED ____________________

____
owner name

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51 (17) OF THE PLANNING ACT.

A) The boundaries of the land proposed to be subdivided, certified by an Ontario land Surveyor;
As shown on Draft Plan

B) The locations, widths & names of the proposed highways within the proposed subdivision & of existing highways on which the proposed subdivision abuts;
As shown on Draft Plan

C) On a small keyplan, on a scale of not less than 1cm to 100m, all of the land adjacent to the proposed subdivision that is owned by the applicant or in which the applicant has an interest, every subdivision adjacent to the proposed subdivision & the relationship of the boundaries of the land to be subdivided to the boundaries of the township lot of other original grant of which the land forms the whole part;
As Shown on Draft Plan

D) The purpose for which the proposed lots are to be used;
Residential and Mixed Use shown on Draft Plan

E) The existing uses of all adjoining lands;
Village Mixed Use and Agricultural shown on Draft Plan

F) The approximate dimensions & layout of the proposed lots;
As shown on Draft Plan

G) Natural & artificial features such as buildings or other structures or installations, railways, highways, watercources, drainage ditches, wetlands & wooded areas within or adjacent to the land proposed to be subdivided;
As shown on Draft Plan

H) The availability and nature of domestic water supplies;
Development will be supplied with full municipal piped water service

I) The nature & porosity of the soil;
Refer to Geotechnical Report submitted with application

J) Existing contours or elevations as may be required to determine the grade of the highways and the drainage of the land proposed to be subdivided;
Contours shown at 0.25 metre intervals on Draft Plan

K) The municipal services available or to be available to the land proposed to be subdivided;
Development will be supplied with full sanitary and storm water sewer services.

L) The nature & extent of any restrictions affecting the land proposed to be subdivided, including restrictive covenants or easements. 1994, c. 23, s. 30; 1996, c. 4, s. 28 (3).;
As shown on Draft Plan.

3725 CARP ROAD

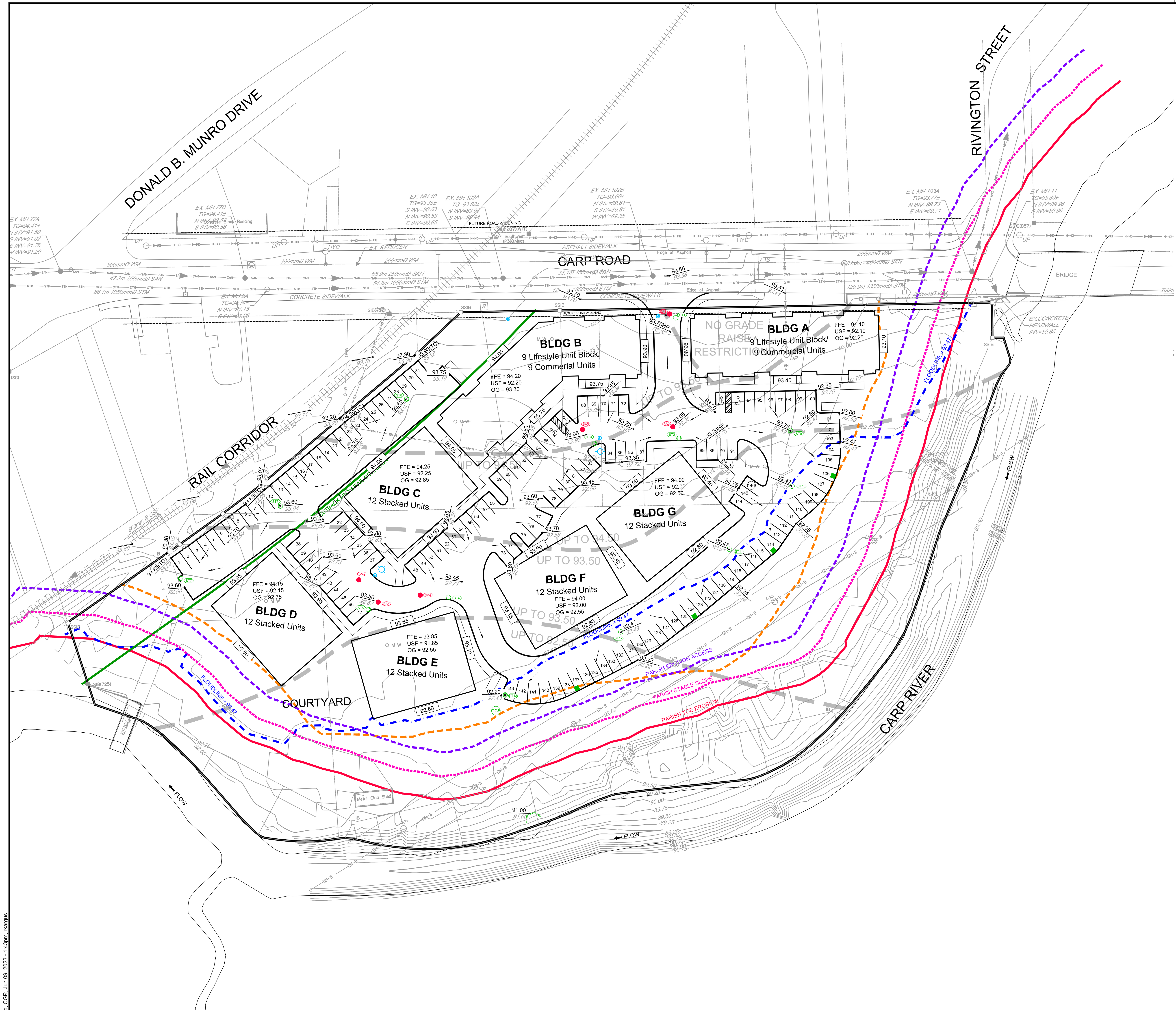
SOURCE REFERENCE:
Legal Information: *Plan of Survey*
Annis O'Sullivan Vollebekk Ltd. / March 17, 2023
Topographic Information: *1:1000*
City of Ottawa / 2015 / MTM Zone 9, NAD83_Orig

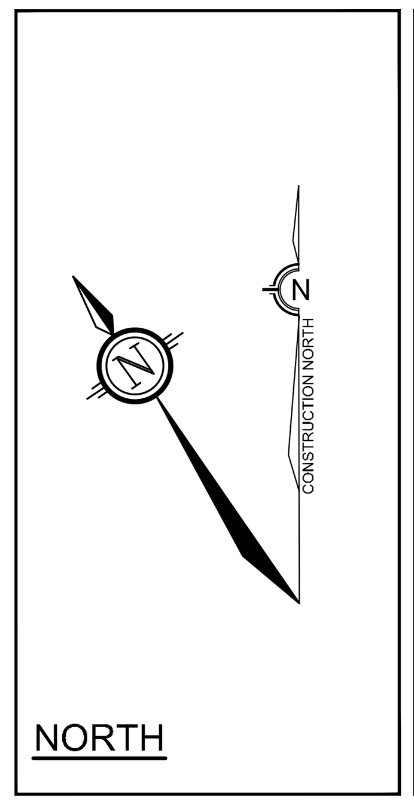
SUBJECT TO THE CONDITIONS, IF ANY, SET FORTH IN OUR LETTER DATED ____________, THIS DRAFT PLAN IS APPROVED BY THE CITY OF OTTAWA UNDER SECTION 51 OF THE PLANNING ACT THIS ______ DAY OF ________, 20____

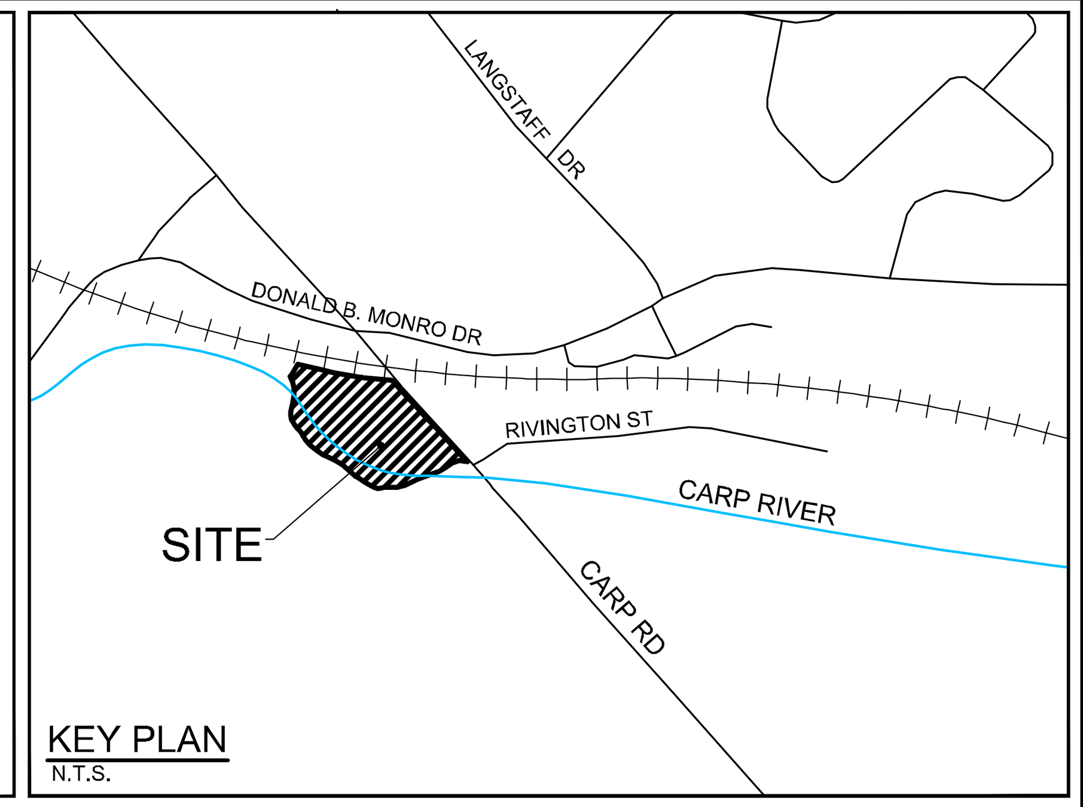
DERRICK MOODIE, MANAGER
DEVELOPMENT REVIEW WEST
PLANNING, INFRASTRUCTURE AND ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

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

PROJECT No. 121173







LEGEND

- PROPERTY BOUNDARY
- 1:100 YEAR FLOODPLAIN ELEVATION 92.47 AS FILLED (INTERPOLATED FROM NOVATECH SURVEY OCTOBER 2020)
- 30m SETBACK FROM CARP RIVER
- EROSION ACCESS LIMIT (PARISH ENGINEERING)
- STABLE SLOPE LIMIT (PARISH ENGINEERING)
- TOE EROSION LIMIT (PARISH ENGINEERING)
- 15m SETBACK FROM RAIL CORRIDOR
- PROPOSED ELEVATION
- *EXISTING ELEVATION*
- TERRACE ELEVATION
- GRADING DIRECTION
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM MANHOLE
- PROPOSED OIL AND GRIT SEPARATOR UNIT
- PROPOSED CONCRETE HEADWALL
- PROPOSED CATCHBASIN
- PROPOSED WATER VALVE
- PROPOSED HYDRANT
- GRADE RAISE RESTRICTIONS (PATERSON GROUP)
- *EXISTING RAILWAY*
- *EXISTING SANITARY*
- *EXISTING STORM SEWER*
- *EXISTING WATERMAIN*
- *EXISTING OVERHEAD HYDRO*
- *EXISTING OVERHEAD BELL*
- *EXISTING WATER VALVE*
- *EXISTING HYDRANT*
- *EXISTING WATER VALVE CHAMBER*
- *EXISTING CATCHBASIN*
- *EXISTING UTILITY POLE*
- *EXISTING LIGHT POST*

SOURCE REFERENCE:

LEGAL INFORMATION: *PLAN OF SURVEY (DRAFTED)*
ARNETT, KENNERDY, RIDDELL & JASON SURVEYING Ltd. / APRIL 30, 1991
TOPOGRAPHIC INFORMATION:
NOVATECH SURVEYS FOR 3725 CARP ROAD:
- *SURVEY 10 (101058) / JANUARY 2020*
- *SURVEY 12 (101058) / OCTOBER 2020*

EXISTING INFRASTRUCTURE: *AS-BUILT PLAN - VILLAGE OF CARP CUMMUNAL WATER SUPPLY AND SEWAGE SYSTEMS / KOSTUCH ENGINEERING Ltd. / JUNE 1996*
PERMISSIBLE GRADE RAISE ELEVATIONS: *GEOTECHNICAL REPORT PG2103-01 BY PATERSON GROUP / APRIL 11, 2023*

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No.	REVISION	DATE	BY
1.	ISSUED WITH SERVICING AND CONCEPTUAL STORMWATER MANAGEMENT REPORT	JUNE 12/23	LAB

SCALE 1:500

1:500 (0 5 10 15 20)

DESIGN	CHECKED	DRAWN	CHECKED	APPROVED
RJK	LAB	RJK	LAB	SMG

FOR REVIEW ONLY

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

LOCATION
3725 CARP ROAD, CITY OF OTTAWA
KARSON SUBDIVISION

DRAWING NAME
CONCEPTUAL GRADING PLAN

PROJECT No. 121173
REV
REV # 1
DRAWING No.
121173-CGR

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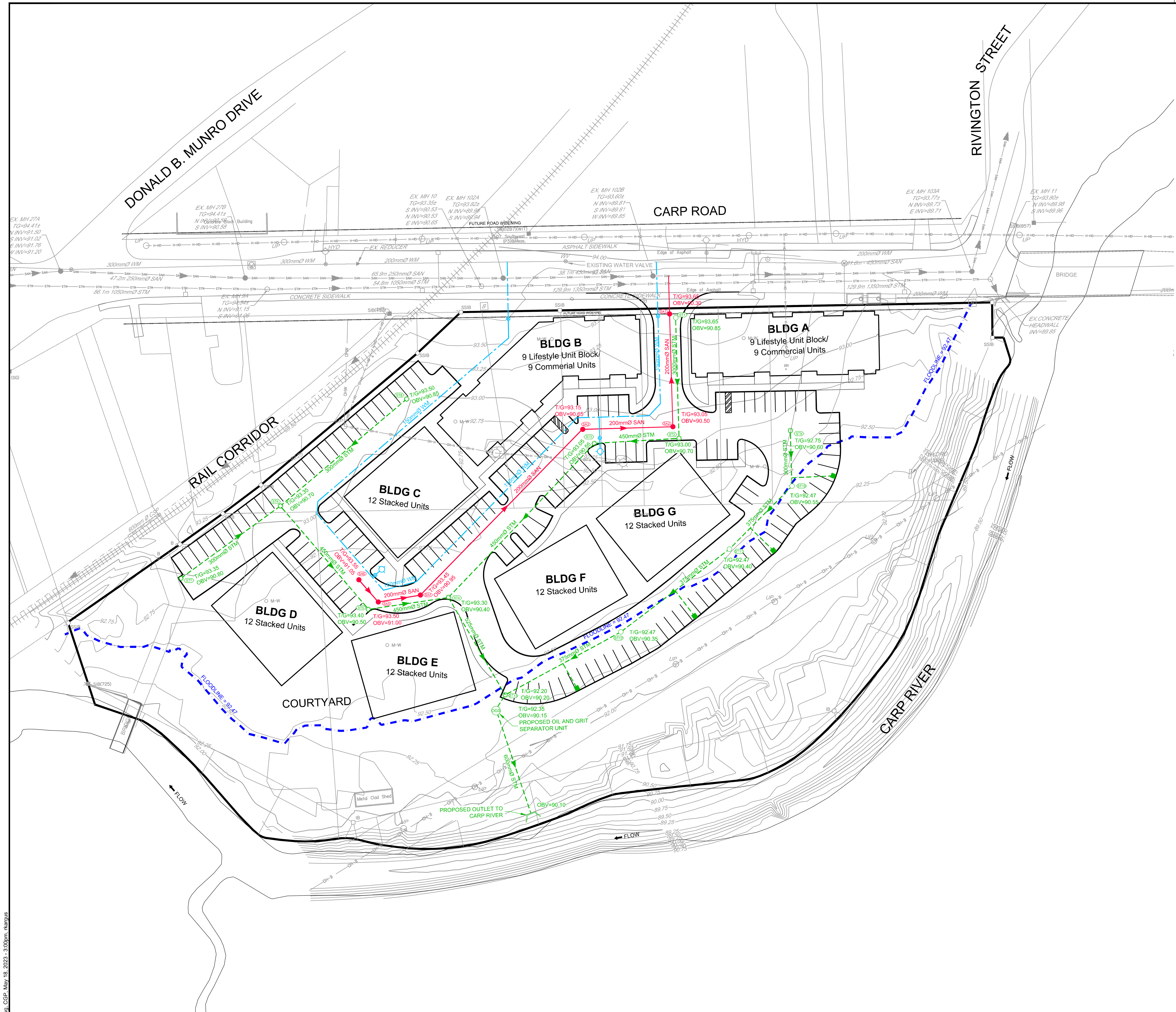
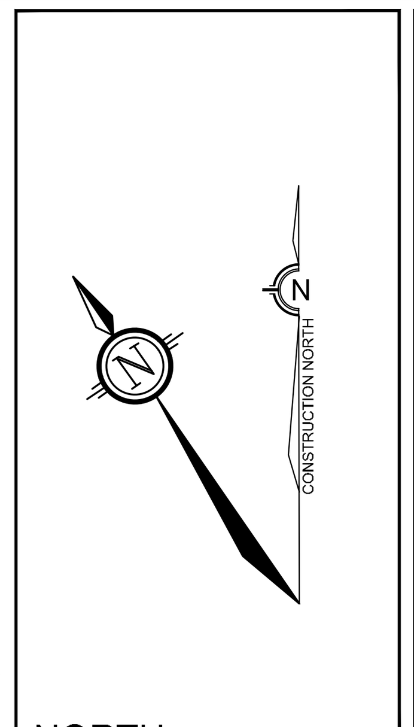
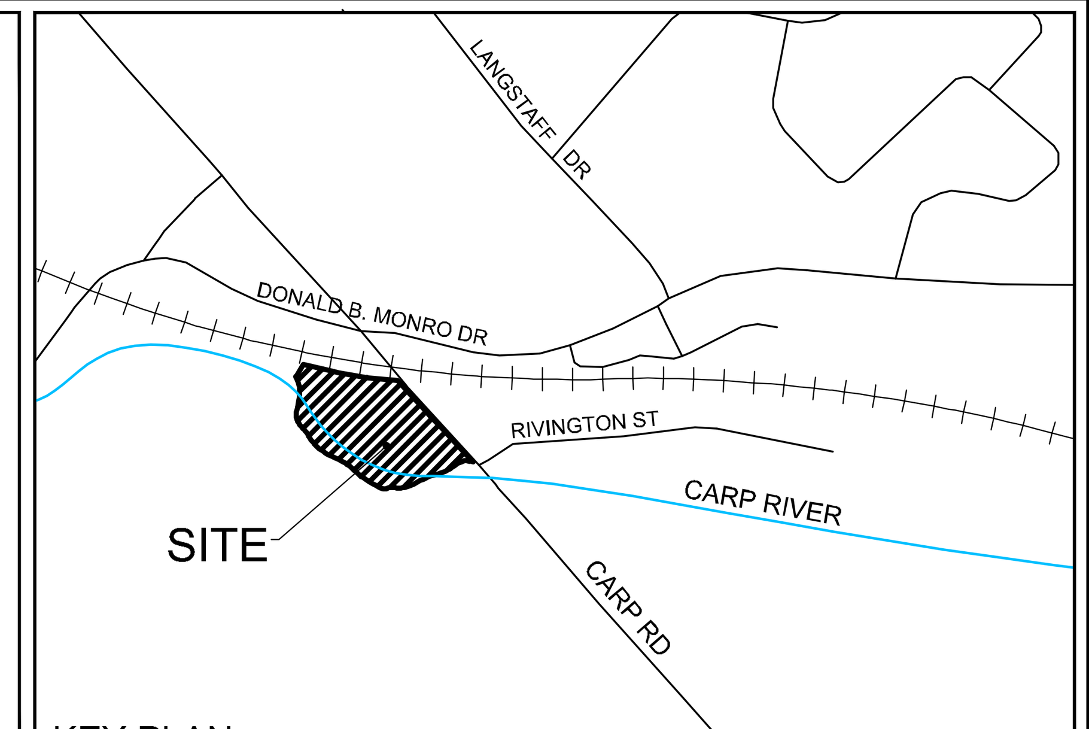




NORTH



KEY PLAN
N.T.S.

LEGEND

- PROPERTY BOUNDARY
- 1:100 YEAR FLOODPLAIN ELEVATION 92.47 AS FILLED (INTERPOLATED FROM NOVATECH SURVEY OCTOBER 2020)
- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED OIL AND GRIT SEPARATOR UNIT
- PROPOSED CONCRETE HEADWALL
- PROPOSED CATCHBASIN
- *EXISTING RAILWAY*
- *EXISTING SANITARY*
- *EXISTING STORM SEWER*
- *EXISTING WATERMAIN*
- *EXISTING OVERHEAD HYDRO*
- *EXISTING OVERHEAD BELL*
- *EXISTING WATER VALVE*
- *EXISTING HYDRANT*
- *EXISTING WATER VALVE CHAMBER*
- *EXISTING CATCHBASIN*
- *EXISTING UTILITY POLE*
- *EXISTING LIGHT POST*

SOURCE REFERENCE:

LEGAL INFORMATION: *PLAN OF SURVEY (DRAFTED)*
ARNETT, KENNERDY, RIDDELL & JASON SURVEYING Ltd. / APRIL 30, 1991
TOPOGRAPHIC INFORMATION:
NOVATECH SURVEYS FOR 3725 CARP ROAD:
- *SURVEY 10 (101058) / JANUARY 2020*
- *SURVEY 12 (101058) / OCTOBER 2020*

EXISTING INFRASTRUCTURE: *AS-BUILT PLAN - VILLAGE OF CARP COMMUNAL WATER SUPPLY AND SEWAGE SYSTEMS / KOSTUCH ENGINEERING Ltd. / JUNE 1996*

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, 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.

No.	REVISION	DATE	BY
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SCALE 1:500

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LOCATION
3725 CARP ROAD, CITY OF OTTAWA
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DRAWING NAME
CONCEPTUAL SERVICING PLAN

PROJECT No. 121173
REV # 1
DRAWING No. 121173-CGP

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