City of Ottawa Newcomer Reception Centre

Technical Brief

Stantec

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Executive Summary

This Technical Brief Report provides an evaluation of five potential sites for Newcomer Reception Centres, which will serve as temporary housing for approximately 150 persons per site. The proposed Newcomer Reception Centres are anticipated to be of modular tension fabric buildings (Sprung Structures) that measure approximately 30,000 square feet (2,787 m^2) in area, and feature 150 bed spaces, a commercial kitchen, laundry, washroom facilities, storage areas, staff support areas and exterior program space including and 20 parking spaces.

The objective of this brief is to evaluate the five candidate sites based on civil servicing, site layout, geotechnical, environmental, transportation, zoning compliance, and provide recommendation pertaining to suitability of these sites for Newcomer Reception Centres, along with concept plan and site development costs.

The evaluated candidate sites are:

- 1005/1045 Greenbank (Ward 24)
- 1645 Woodroffe (Ward 9)
- 40 Hearst Way (Eagleson Park and Ride) (Ward 23)
- 3311 Woodroffe (Nepean Woods Park and Ride) (Ward 24)
- 160 Lees Avenue (Ward 17)

Due to environmental and geotechnical concerns and associated risks, the 160 Lees Avenue candidate site was deemed unsuitable as a site for the proposed Newcomer Reception Centres, as such no further evaluation for civil servicing, transportation, and zoning constraints were completed.

Based on the full evaluation of the remaining sites, only 3 sites were deemed suitable to accommodate the City Programming needs, specifically 30,000 sq. ft. building footprint, these were: 1645 Woodroffe Avenue, 40 Hearst Way, and 3311 Woodroffe Avenue. The 1005/1045 Greenbank site was evaluated but due to an additional use on the site for a rail maintenance yard, the remaining site area would not meet the City Program needs and would only be able to accommodate smaller structure (approx. 20,000 sq. ft.).

1 Background

Stantec Consulting Ltd. has been commissioned by the City of Ottawa to provide a technical brief detailing the evaluation of five potential sites for Newcomer Reception Centres, which will serve as temporary housing for approximately 150 persons per site.

The objective of this brief is to evaluate the five candidate sites based on civil servicing, geotechnical, environmental, transportation, and zoning compliance constraints and provide recommendations to the City, from strictly technical perspective, on site selection and suitability for Newcomer Reception Centres.

1.1 Conceptual Site Specifications and Servicing

The proposed Newcomer Reception Centres are anticipated to be of modular tension fabric buildings (Sprung Structures) that measure approximately 30,000 square feet (2,787 m^2) in area, and feature 150 bed spaces, a commercial kitchen, laundry, washroom facilities, storage areas, staff support areas and exterior program space including and 20 parking spaces. The Sprung Structure will feature a 2.0-metre-wide concrete surface apron surround and be equipped with exterior mechanical heating and cooling equipment. The size of the building was determined based on the Draft Program Requirements provided by the City of Ottawa.

The modular tension fabric building (Sprung Structure) was used as 'Base' building, due to the cost and time savings associated with erecting building of this size. These types of structures can be designed to suit various size of site plans and can house various aspects of uses. An example of this structure is a 40-bed temporary Offload Medicine Transition Unit (OMTU) at the Civic hospital (Ottawa), and most recently as a 24-hour Respite Site at 1155 King St. W in Toronto with a space for up to 100 people.

1.2 Candidate Site Descriptions

The site provided by the City for evaluation are in Barrhaven, Nepean, and Kanata within the City of Ottawa. These are as follows:

- 1005/1045 Greenbank (Ward 24)
- 1645 Woodroffe (Ward 9)
- 40 Hearst Way (Eagleson Park and Ride) (Ward 23)
- 3311 Woodroffe (Nepean Woods Park and Ride) (Ward 24)
- 160 Lees Avenue (Ward 17)

1.2.1 40 Hearst Way

The 40 Hearst Way site is located within the west end of the Eagleson Park and Ride lot in the east end of Kanata. It is bound by Hearst Way to the south, existing commercial development to the west, Highway 417 exit ramp to the north, and the Eagleson Park and Ride lot to the south and east, as shown in the figure below.

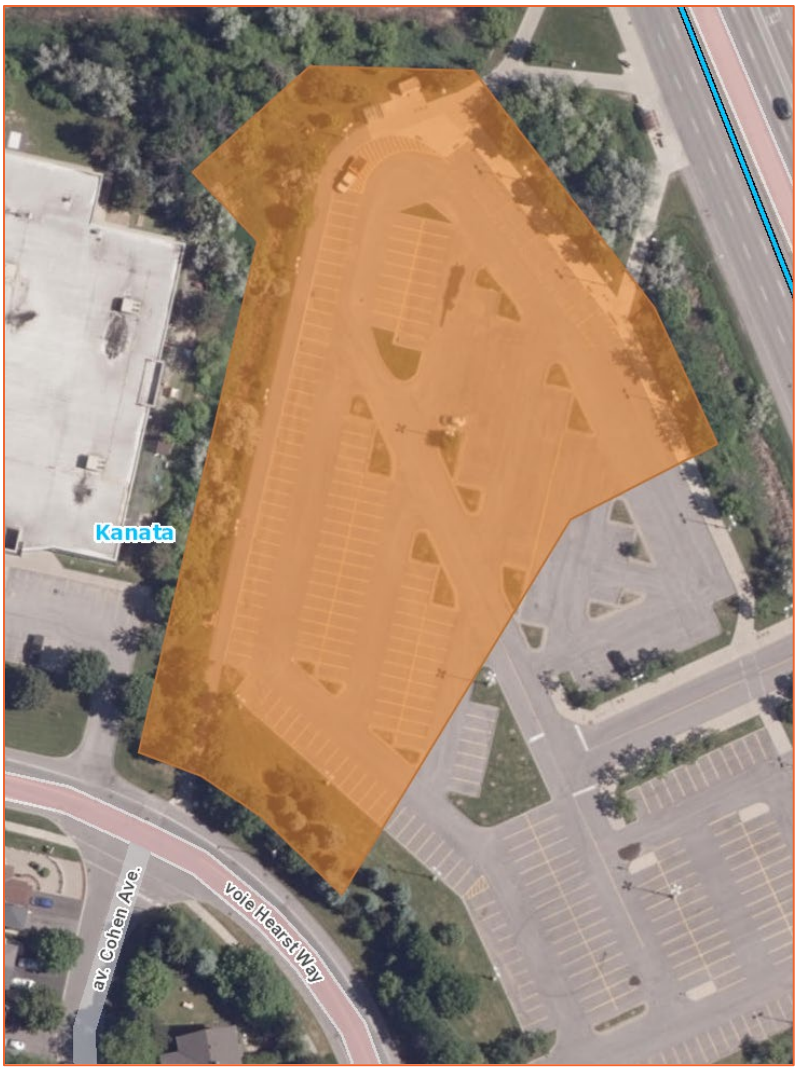


Figure 1.1: 40 Hearst Way Site Location

1.2.2 160 Lees Avenue

The 160 Lees Avenue site is located just east of Springhurst Park near Old Ottawa East. It is bound by Lees Avenue to the north, the Rideau River to the south, Springhurst Park and existing residential development to the west, and existing residential development to the east, as shown in the figure below.

Figure 1.2: 160 Lees Avenue Site Location

Given the site's former use as an industrial landfill and due to environmental concerns, the 160 Lees Avenue site is **not recommended** for consideration for the location of the proposed Newcomer Reception Centre, thus, no evaluations on civil servicing, transportation, and zoning constraints were conducted. Details of the environmental considerations for the site are discussed in **Section 2.1**.

1.2.3 1005/1045 Greenbank Road

The 1005 Greenbank Road site is located at the northeast quadrant of the intersection between Greenbank Road and Highbury Park Drive in Barrhaven. It is within vacant City-owned land bounded by the future LRT Maintenance Facility access to the east, Highbury Park Drive to the south, Greenbank Road to the west, and the VIA Rail Smiths Falls railway line to the north, as shown in the figure below.

Figure 1.3: 105 Greenbank Road Site Location

In correspondence with the City, it is noted that the building will need to be on a smaller footprint to accommodate the future LRT maintenance yard and separate access road to the existing pump station from Greenbank Road. Therefore, the proposed building will have a reduced footprint of approximately 20,000 square feet for this site and may not meet the City program needs.

1.2.4 1645 Woodroffe Avenue

The 1645 Woodroffe Avenue site is located on a field east of the Confederation Education Centre (CEC) just north of the Nepean Sportsplex. It is bounded by West Hunt Club Road to the north, the CEC and Woodroffe Avenue to the west, the Nepean Sportsplex to the south, and wooded area to the east, as shown in the figure below.

Figure 1.4: 1645 Woodroffe Avenue Site Location

1.2.5 3311 Woodroffe Avenue

The 3311 Woodroffe Avenue site is located between the Nepean Woods Transitway Station and an existing commercial mall fronting Strandherd Drive in Barrhaven. The site is bound by Woodroffe Avenue to the west, Strandherd Drive and existing commercial development to the north, the Nepean Woods Transitway Station to the south, and Crestway Drive to the east, as shown in the figure below.

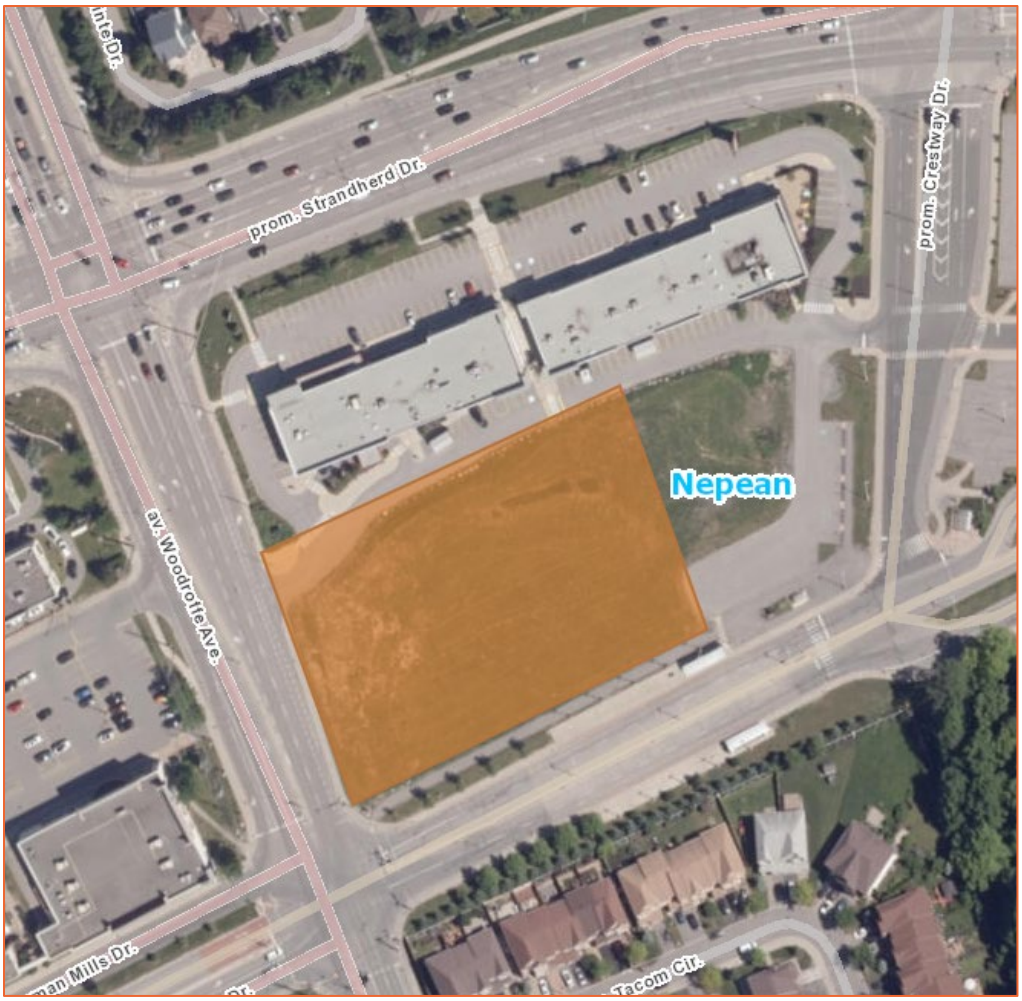


Figure 1.5: 3311 Woodroffe Avenue Site Location

2 Site Evaluations

2.1 160 Lees Avenue

2.1.1 Civil

The civil servicing evaluation did not proceed further.

2.1.2 Geotechnical

Based on geological mapping, the site's subsurface profile is anticipated to consist of fine-textured glaciomarine deposits of silt and clay with minor sand and gravel. Bedrock consisting of limestone, shale, dolostone, or siltstone of the Billings formation is anticipated at approximately 8 m to 12 m depth.

In environmental assessments conducted by INTERA in 1995, the site was observed to have fill containing ash and cinder fill and garbage fill extending from 2m – 6m in depth below ground surface. The fill unit was underlain by native soils consisting of a soft, sensitive silty clay. The INTERA Environmental Management Plan saw groundwater conditions monitored, with the levels observed to be around 2 m to 5 m below ground surface. A 2015 Historical Review and Site Inspection conducted by SNC-Lavalin identified a 0.45 m silty clay fill soil cap installed over the contaminated soils and waste across the site. Additionally, excavated materials from an off-site project were placed on the eastern slope of the site in 2009. These materials were deemed geotechnically unstable for use.

The preliminary desktop review of the available subsurface information comprised of the following observations and assessments:

- The site's historical use as a landfill and presence of ash, cinder fill, and unsuitable soil dumping raises serious geotechnical concerns regarding geotechnical resistance, short-term and long-term consolidation, and differential settlements.
- The native subgrade material anticipated at the site consisted generally of a silty clay material with soft to firm consistency. Long-term settlement of the clay deposit should be assessed, as the sensitive clay materials had relatively low undrained shear strengths and are susceptible to disturbance causing large settlements.
- Nearby and on-site monitoring wells have detected groundwater levels as shallow as 1.8 m deep, as such groundwater is expected to be encountered during soil removal operations and may require control/management.
- Grade raise restrictions may be applied for the site, as any grade raises would induce additional loading and settlements of the silty clay deposit.

- The site is underlain by Champlain Sea (Leda) clay soils that are prone to frost heave. The unweathered clay should not be exposed to freezing conditions, and any excavations that extend into the unweathered clay should only be conducted in non-freezing conditions.

Accounting for the design of the proposed structures and the concrete raft slab foundation, the main geotechnical considerations involve bearing capacity of the soil, induced settlements from loading, and frost heave. Based on assessments, the current surficial material is not suitable to be used as a subgrade for a slab-on-grade building unless the existing fills are removed and replaced with engineering fill or the building is founded on deep foundations.

2.1.3 Environmental

The site was historically industrial land and was the location of a landfill. An Environmental Management Plan was prepared for the site in 1995 by INTERA and comprised of the following risk management strategies:

- Groundwater sampling and monitoring on a regular basis.
- Maintaining the property as a park.
- Inspection of the remedial systems on a regular basis.
- Implementing corrective measures necessary to maintain the integrity of the remedial systems.
- Restricting or banning activities which could compromise the remedial systems or expose workers or the public to unnecessary risks.
- Ensuring the planned land use would not change.

A follow-up Environmental Management Plan in 1997 included a soil remediation project to remove soil impacted with coal tar from an area of the site south of the proposed location of the temporary housing facilities. A soil cap of imported silty clay up to 0.45 m thick was placed at the site within 10 m to the Rideau River, and a methane venting system installed at the area of the former landfill.

Based on the requirement to maintain the risk management measures outlined in the Environmental Management Plan, this site is **not recommended** as a location for the proposed temporary housing facilities.

2.1.4 Transportation

The transportation evaluation did not proceed further.

2.1.5 Zoning

The zoning evaluation did not proceed further.

2.2 40 Hearst Way

2.2.1 Civil

The existing civil servicing available in the vicinity of the site comprises the 305mm diameter watermain and the 250mm diameter sanitary sewers on Hearst Way. The existing park and ride lot within the development area is presently serviced by an onsite 600mm diameter storm sewer at the west end with additional connected catch basins. This storm sewer ultimately outlets to the 750mm diameter storm sewer on Hearst Way.

2.2.1.1 Potable Water Demands

2.2.1.1.1 Domestic Water Demands

The proposed Newcomer Reception Centre is projected to be serviced off the existing 305 mm diameter watermain in Hearst Way. The preliminary water demands are calculated using the City of Ottawa Water Distribution Guidelines (2010) as amended, and ISTB 2021-03 Technical Bulletin.

A daily rate of 225 L/bedspace/day for hotels is used to estimate average day (AVDY) potable water demands for the buildings. However, as residents may be living in the facilities for several months at the time and water consumption patterns be similar to a residential use, therefore residential peaking factors are used for the maximum day (MXDY) demand, determined by multiplying the AVDY demands by a peaking factor of 2.5, and the peak hourly (PKHR) demand, which is determined by multiplying the MXDY by a peaking factor of 2.2.

Table 2.1: Estimated Water Demands

Bedspace	AVDY (L/s)	MXDY (L/s)	PKHR (L/s)
150	0.4	1.0	2.1

Details of the water demand calculations are shown in **Appendix A.1**.

2.2.1.1.2 Fire Flow Demand

Preliminary fire flow requirements are estimated using the methodology described in the document *Fire Underwriters Survey's Water Supply for Public Fire Protection* (2020). The sprung structures are aluminum frame fabric structures, as such a construction type of Wood Frame construction with a Combustible occupancy charge was applied. The structure will be fully sprinklered with a supervised sprinkler system to the NFPA 13 standard.

The proposed structure was determined to have a fire flow demand of approximately 150 L/s (9,000 L/min), as detailed in **Appendix A.2**.

2.2.1.1.3 Conceptual Level of Servicing

The estimated water and fire flow demands were used to define the level of servicing required for the conceptual development from the municipal watermain and hydrants within the Hearst Way ROW. **Table 2.2** below outlines the boundary conditions provided by the City of Ottawa on November 5, 2024, attached in **Appendix A.3**.

Table 2.2: Hearst Way Boundary Conditions

	Connection at Hearst Way
Min. HGL (m)	156.6
Max. HGL (m)	118.3
Max. Day + Fire Flow (150 L/s) HGL (m)	108.7

An anticipated finished floor elevation of 95.4 m at Hearst Way will serve as the ground elevation for the calculation of residual pressures at ground level. On-site pressures are expected to range from **87.0** to **93.3 psi** (600 to 643.2 kPa) under normal operating conditions. These values exceed the normal operating pressure range of 50 to 80 psi (344.7 to 551.6 kPa) and no less than 40 psi (275.8 kPa), as defined by the City of Ottawa's design guidelines, therefore a pressure-reducing valve would be required in the water servicing for the site.

The boundary conditions provided for the proposed development under maximum day demands demonstrate that a fire flow rate of 150.0 L/s is available with a residual pressure above the required minimum 20 psi (137.9 kPa). This demonstrates that sufficient fire flow is available for the proposed development.

Based on these results, there is currently adequate supply and pressure in the water distribution system to meet the domestic and fire flow demands expected from the new development, though a pressure reducing valve would be required to bring the servicing pressures down to within the City's normal operating range.

2.2.1.2 Wastewater Servicing

The proposed Newcomer Reception Centres are projected to be serviced off the existing 250 mm diameter sanitary sewers for wastewater servicing. The preliminary sanitary peak flows are calculated using the City of Ottawa Sewer Design Guidelines (2012) and the MECP Design Guidelines for Sewage Works, and the criteria to estimate the peak flows comprises of the following:

- Minimum velocity = 0.6 m/s (0.8 m/s for upstream sections)
- Maximum velocity = 3.0 m/s
- Manning roughness coefficient for all smooth wall pipes = 0.013
- Minimum size of sanitary sewer service = 135 mm

- Minimum grade of sanitary sewer service = 1.0 % (2.0 % preferred)
- Average wastewater generation = 225 L/bedspace/day (per City Design Guidelines)
- Peak Factor = based on Harmon Equation; maximum of 4.0 (residential)
- Harmon correction factor = 0.8
- Infiltration allowance = 0.33 L/s/ha (per City Design Guidelines)
- Minimum cover for sewer service connections – 2.0 m

The estimated wastewater flows to be generated is summarized below and detailed in **Appendix B.1**.

Table 2.3: Estimated Total Wastewater Peak Flow

Peak Residential Wastewater Flow			Infiltration Flow (L/s)	Total Peak Flow (L/s)
Bedspace	**Peak Factor**	**Peak Flow (L/s)**		
150	3.55	1.4	0.2	1.6

The City of Ottawa has confirmed that the downstream sanitary sewers in Hearst Way have adequate capacity to receive the additional 1.6 L/s of peak flow from the development, as shown in **Appendix B.2**.

2.2.1.3 Stormwater Management

In correspondence with City of Ottawa staff, it is confirmed that post-development runoff is to be controlled to pre-development levels on-site for SWM quantity control. As the existing site is nearly completely paved (impervious area), no additional SWM measures are anticipated to meet quantity control requirements.

As for quality control measures, City of Ottawa staff have identified the site will not be subject to any additional quality control requirements if drainage continues to be directed to the existing grassed swales on site. In the event such a condition is not possible, an in-line oil/grit separator is proposed to provide additional quality control for captured stormwater runoff from the site.

It is expected that the existing on-site storm sewers and catch basins within the west end of the park and ride lot will need to be removed or relocated to accommodate the proposed development. The proposed structure will be serviced via direct service connection to the Hearst Way watermain and sanitary sewer. Given elevations of the existing storm sewer within Hearst Way, it is anticipated that the sanitary building connection will be required to be elevated to permit sewer crossing, which in turn will require that the sanitary service connection be insulated to provide an adequate gravity outlet for the proposed building.

A conceptual site servicing and grading plan has been prepared and included in **Appendix D**.

2.2.2 Geotechnical

Based on geological mapping, the subsurface conditions are anticipated to consist of fine-textured glaciomarine deposits of silt and clay with minor sand and gravel. Bedrock consisting of dolostone, or sandstone of the Beekmantown Group is expected at approximately 2 m to 9 m depth.

Golder conducted a geotechnical investigation of the site in 2002 before it was developed. The subsurface materials were described to have consisted of fill (consisting of crushed stone, sand, clayey silt, and silty sand with some cobbles) underlain by sand, silty sand, and clayey silt. Beneath these materials, an extensive deposit of sensitive, soft, silty clay, layered with clayey silt and fine sand was identified at all borehole locations. A weathered crust was observed and deemed of stiff to very stiff consistency. The silty clay deposit was not fully penetrated during the investigation, however as part of a previous investigation, it was found through dynamic cone penetration tests that the deposit extended up to 51.5 m in depth below ground surface. . Groundwater ranged from approximately 1.4 m to 1.8 m below the ground surface. Given the investigation occurred prior to the parking lot construction, the fill, topsoil, and surficial layers outlined in the investigation have likely been removed/altered during the construction.

The preliminary desktop review of the available subsurface information comprised of the following observations and assessments:

- The site is currently used as a parking lot. The asphalt should be removed from the footprint of the proposed slab-on-grade. The fill materials placed as pavement structure for the parking lot will need to be assessed and may need to be replaced by engineered fill materials.
- The native subgrade material anticipated at the site consisted generally of a thick and extensive silty clay material, which is compressible and susceptible to large settlements when loading exceeds its pre-consolidation pressure. As such, the site's geotechnical resistance is expected to be relatively low to limit settlement.
- Groundwater levels were measured to be 1.4 m to 1.8 m deep in previous investigations, as such groundwater is expected to be encountered if excavation extended below the groundwater table and may require control/management.
- Grade raise restrictions are expected for the site and should be assessed based on site-specific data. Any organic soil encountered would need to be removed from all building and parking areas.
- The site is underlain by Champlain Sea (Leda) clay soils that are prone to frost heave. The unweathered clay should not be exposed to freezing conditions, and any excavations that extend into the unweathered clay should only be conducted in non-freezing conditions.

The site could be considered suitable for the proposed buildings with the following considerations:

- Limited graded raises may be possible.

- Native soils beneath the pavement structures are frost susceptible, as such the use of insulation must be considered, and it must extend a minimum of 2 m from the edge of the slab.
- Could be assumed that all existing granular will need to be removed and replaced with compacted non-frost-susceptible material. Reuse of the removed materials may be allowed, depending on the results of future testing.
- Perimeter drains at the bottom of the granular materials should be considered.
- Given the parking lot construction may have altered the near surface material, a site-specific geotechnical investigation is required.

2.2.3 Environmental

The site has been used as paved parking lot for the Eagleson Park and Ride lot since 2005. As there were no environmental reports provided, nor environmental soil sampling, any soil that is excavated for the construction of this project will need to be tested for suitability for reuse at the Site. Any excess soil that requires off site removal will be subjected to the requirements of Ontario Regulation 416/19, and given the land use change, a record of site condition under Ontario Regulation 153/04 may be required.

2.2.4 Transportation

The site currently operates as a Park and Ride facility with approximately 440 parking spaces and bi-directional traffic lanes for vehicle access. The proposed facility eliminates approximately 61 parking spaces including 8 accessible spaces. The facility is located such that standard vehicle access can be via existing entrances (2) and lanes within the parking lot, however vehicles with larger turning movements (garbage, delivery, fire route, etc.) would require modifications to these access lanes to reach the proposed facility. It is suggested a new access to Hearst Way provide a direct route to the building for these larger vehicles to minimize their impact on the site (affects 4 more spaces if aligned with existing parking access lanes) which could also align with the proposed servicing to minimize construction impact.

The site has direct access to transit on Hearst Way, Eagleson Road and at the main Eagleson Park and Ride lot on the east side of Eagleson.

There are a number of sidewalks within and around the perimeter of the site. An existing asphalt sidewalk links the site to Hearst Way, however there are no pedestrian facilities on the north side of Hearst, as such staff have identified new sidewalk is required to provide proper pedestrian linkages along Hearst Way. There are several sidewalks on the north side of the park and ride linking to Eagleson (and the actual transit station) which would provide access for pedestrians to/from the facility.

There are no specific cycling facilities within the site nor along Eagleson Road. There are on-road cycle lanes along Hearst Way.

2.2.5 Zoning

The zoning review of this site was limited solely to a review of City of Ottawa Zoning By-law 2008-250; no other land use planning considerations were reviewed (e.g., Provincial Planning Statement 2024; City of Ottawa Official Plan; any applicable subsidiary plans; urban design guidelines; surrounding context, etc.).

The property is zoned IL1[1438] - Light Industrial Zone, Subzone 1, subject to zoning exception 1438. A "shelter" is not listed as a permitted land use under the property's zoning. Zoning exception 1438 adds a "hotel" as an additional permitted land use and sets out provisions specific to the use, all of which are unrelated to a shelter.

The below table shows the applicable provisions of the Zoning By-law and how they apply to the concept plan in its current state. It is understood the concept plan will be subject to further design refinement, which may influence zoning compliance. Further, there are aspects of the concept plan that have not yet been fully detailed, (e.g., required landscape setbacks and percentages) and that will inform zoning compliance.

Table 2.4: Zoning Provisions Applicable to 40 Hearst Way

Section	Provision	Required / Permitted	Provided (per current concept plan)	Compliance / Notes
Table 204A	Minimum Lot Area	4,000 m2	Approx. 10,230 m2	Compliant
Table 204A	Minimum Lot Width	45 m	Approx. 50.3 m	Compliant (assuming Hearst Way is the front lot line)
Table 204A	Maximum Lot Coverage	45% of lot area	<45% (Approx. 27%)	Compliant
Table 204A	Minimum Front and Corner Side Yard Setback	9 m	Front yard setback: approx. 40.6 m	Compliant (assuming Hearst Way is the front lot line)
Table 204A	Minimum Rear Yard Setback	7.5 m	Approx. 10.4 m	Compliant
Table 204A	Minimum Interior Side Yard Setback	4.5 m	Approx. 12.6 m and 14.7 m	Compliant
Table 204A	Maximum Principal Building Height, including accessory structures	13.5 m	Can be designed to comply	Compliance to be determined once concept plan is finalized.
Table 101, R26	Minimum Parking Space Rates (Shelter)	1 per 100 m2 of GFA, minimum of 1 = approx. 11 spaces (GFA = approx. 1,094 square metres)	20 parking spaces	Compliant

106(1)	Motor vehicle parking space must be:	At least 2.6 m wide and 5.2 m long	Width: 2.6 m Length: 5.2 m	Compliant
Table 111A(i)	Minimum bicycle space rates (all other non-residential uses)	1 per 1500 m2 of GFA = 0 spaces (GFA = approx. 1,094 m2)	2	Compliant. Assumes “shelter” is a non-residential use per the zoning by-law
Table 113A(d)	Minimum Number of Vehicle Loading Spaces Required per Square Metres of Gross Floor Area	1 per 1000-1999 m2 of GFA = 1 space (GFA = approx. 1,094 m2)	1 space	Compliant. Assumes “shelter” is a non-residential use per the zoning by-law (if considered a residential use compliance is still achieved).
Table 113B	Minimum width and length of loading space	Width: 3.5 m Length: 7 m	Width: 3.5 m Length: 7 m	Compliant
Table 107	Minimum required aisle width for 71-90 degree angled parking	6.7 m	6.7 m	Compliant
Section 110(3)	All outdoor refuse collection and refuse loading areas contained within or accessed via a parking lot must be:	-9 m from a lot line abutting a public street -3 m from any other lot line -Screened from view by an opaque screen with a minimum height of 2 m	Approx. 14.8 m	Compliant

A shelter development on the property would require a Zoning By-law Amendment to add “shelter” as a permitted land use to the site’s existing zoning or to change the site’s zoning to one that permits a “shelter” (e.g., institutional zone). Any Zoning By-law Amendment to add “shelter” as a permitted land use to the site’s existing zoning may require the introduction of shelter-specific provisions different from those of the existing IL1[1438] zone, which has provisions based generally on light industrial type land uses.

2.3 1005 and 1045 Greenbank Road

2.3.1 Civil

The existing civil servicing available in the vicinity of the site comprises of a 200mm diameter watermain, 200mm diameter sanitary sewer, and a 375 mm diameter storm sewer in Highbury Park Drive. Storm sewers also exist within Greenbank Road to the west but are not suitable for connection. Similarly, the 760mm diameter backbone watermain within Greenbank Road is also not suitable for direct connection for the proposed development.

2.3.1.1 Potable Water Demands

2.3.1.1.1 Domestic Water Demands

The proposed Newcomer Reception Centre is projected to be serviced off the existing 200 mm diameter watermain in Highbury Park Drive. The preliminary water demands are calculated using the City of Ottawa Water Distribution Guidelines (2010) as amended, and ISTB 2021-03 Technical Bulletin.

A daily rate of 225 L/bedspace/day for hotels is used to estimate average day (AVDY) potable water demands for the buildings. However, as residents may be living in the facilities for several months at the time and water consumption patterns be similar to a residential use, therefore residential peaking factors are used for the maximum day (MXDY) demand, determined by multiplying the AVDY demands by a peaking factor of 2.5, and the peak hourly (PKHR) demand, which is determined by multiplying the MXDY by a peaking factor of 2.2.

Table 2.5: Estimated Water Demands

Bedspace	AVDY (L/s)	MXDY (L/s)	PKHR (L/s)
150	0.4	1.0	2.1

Details of the water demand calculations are shown in **Appendix A.1**.

2.3.1.1.2 Fire Flow Demand

Preliminary fire flow requirements are estimated using the methodology described in the document *Fire Underwriters Survey's Water Supply for Public Fire Protection* (2020). The sprung structures are aluminum frame fabric structures, as such a construction type of Wood Frame construction with a Combustible occupancy charge was applied. The structure will be fully sprinklered with a supervised sprinkler system to the NFPA 13 standard.

The proposed structure was determined to have a fire flow demand of approximately 150 L/s (9,000 L/min), as detailed in **Appendix A.2**.

2.3.1.1.3 Conceptual Level of Servicing

The estimated water and fire flow demands were used to define the level of servicing required for the conceptual development from the municipal watermain and hydrants within the Highbury Park Drive ROW. **Table 2** below outlines the boundary conditions provided by the City of Ottawa on November 5, 2024, attached in **Appendix A.3**. Note that the pressure zone in the South Urban Community (SUC) will undergo reconfiguration, as such both pre-SUC reconfiguration and post-SUC reconfiguration HGLs were provided.

Table 2.6: Highbury Park Drive Boundary Conditions

	Pre-SUC	Post-SUC
Min. HGL (m)	143.8	144.7
Max. HGL (m)	156.9	146.9
Max. Day + Fire Flow (150 L/s) HGL (m)	133.9	141.4

An anticipated finished floor elevation of 98.5 m at Highbury Park Drive will serve as the ground elevation for the calculation of residual pressures at ground level. Under pre-SUC reconfiguration conditions, on-site pressures are expected to range from **64.4** to **83.0 psi** (444 to 572.6 kPa) under normal operating conditions. The maximum pressures exceed the normal operating pressure range of 50 to 80 psi (344.7 to 551.6 kPa) and no less than 40 psi (275.8 kPa), as defined by the City of Ottawa's design guidelines.

By contrast, under post-SUC reconfiguration conditions, on-site pressures are expected to range from **65.7** to **68.8 psi** (453 to 474.5 kPa) under normal operating conditions, which falls within the 50 to 80 psi normal operating pressure range. Therefore, if the site is developed before the SUC reconfiguration, a pressure-reducing valve would be required in the water servicing for the site.

The boundary conditions provided for the proposed development under maximum day demands demonstrate that a fire flow rate of 150.0 L/s is available with a residual pressure above the required minimum 20 psi (137.9 kPa). This demonstrates that sufficient fire flow is available for the proposed development.

Based on these results, there is currently adequate supply and pressure in the water distribution system to meet the domestic and fire flow demands expected from the new development, though a pressure reducing valve would be required to bring the servicing pressures down to within the City's normal operating range should the site be developed before the SUC reconfiguration.

2.3.1.2 Wastewater Servicing

The proposed Newcomer Reception Centres are projected to be serviced off the existing 200 mm diameter sanitary sewers in Highbury Park Drive for wastewater servicing. The preliminary sanitary peak flows are calculated using the City of Ottawa Sewer Design Guidelines (2012) and the MECP Design Guidelines for Sewage Works, and the criteria to estimate the peak flows comprises of the following:

- Minimum velocity = 0.6 m/s (0.8 m/s for upstream sections)
- Maximum velocity = 3.0 m/s
- Manning roughness coefficient for all smooth wall pipes = 0.013
- Minimum size of sanitary sewer service = 135 mm
- Minimum grade of sanitary sewer service = 1.0 % (2.0 % preferred)
- Average wastewater generation = 225 L/bedspace/day (per City Design Guidelines)

- Peak Factor = based on Harmon Equation; maximum of 4.0 (residential)
- Harmon correction factor = 0.8
- Infiltration allowance = 0.33 L/s/ha (per City Design Guidelines)
- Minimum cover for sewer service connections – 2.0 m

The estimated wastewater flows to be generated is summarized below.

Table 2.7: Estimated Total Wastewater Peak Flow

Peak Residential Wastewater Flow			Infiltration Flow (L/s)	Total Peak Flow (L/s)
Bedspace	Peak Factor	Peak Flow (L/s)		
150	3.55	1.4	0.2	1.6

The City of Ottawa has confirmed that the downstream sanitary sewers in Highbury Park Drive have adequate capacity to receive the additional 1.6 L/s of peak flow from the development, as shown in **Appendix B.2**.

2.3.1.3 Stormwater Management

The site is not subject to any additional SWM quality control criteria as the proposed outlet for the site to Highbury Drive is managed by an existing downstream stormwater management facility.

Per correspondence with City of Ottawa staff and in consideration of storm discharge to the Highbury Park Drive outlet, the site will be required to control post-development peak runoff from all storm events, up to and including the 100-year storm event, to the 5-year predevelopment level with a maximum runoff coefficient of C=0.5 and a minimum time of concentration (tc) of 10 minutes. Based on the above, as well as an estimated full site coverage area of 0.5ha at a conservative runoff coefficient of C=0.9, a modified Rational Method calculation sheet was developed (included in attached appendices) to quantify required SWM quantity storage under the 5 and 100-year storm events. The required storage volumes for the 5-year and 100-year storm events are estimated as 35m^3 and 114m^3 respectively. The required storage will be accommodated through the use of surface ponding in paved parking areas for storm events exceeding the 2-year storm event, and potentially through the use of a controlled release dry pond or subsurface storage unit located south of the proposed structure and prior to discharge to the Highbury Park storm sewer.

Should direction of storm runoff northwards towards the existing storm pump station and LRT corridor to the northeast become a preferred option, it is assumed that further storage will be required to limit peak runoff to pre-development levels for all storm events. Based on an entirely pervious pre-development site condition (runoff C=0.2), the site would require approximately 141m^3 of storage to meet pre-development release rates. This volume would be required to be provided in a dry pond, with the additional requirement of construction of a discharge swale or sewer to be installed to direct site outflows to the existing sewer west of the Transitway and south of the rail line. As identified by City of Ottawa staff, this

option will require further investigation and approval from groups internal to the City of Ottawa including but not limited to the LRT office for future transit infrastructure and the Wastewater Facilities group for the adjacent pump station.

A conceptual site servicing and grading plan has been prepared and included in **Appendix D**.

2.3.2 Geotechnical

Based on the geological mapping, the subsurface conditions are anticipated to consist of fine-textured glaciomarine deposits of silt and clay with minor sand and gravel and sandy silt to silty sand till on Paleozoic bedrock. Bedrock consisting of dolostone, or sandstone of the Beekmantown Group is expected at approximately 2 m to 5 m depth.

Through the Phase II Environmental Site Assessments conducted by Concentric Associates in 2013 and GEMTEC in 2017, the site was observed to have overburden material extending to approximately 1 m below the ground surface or less, consisting of sand and gravel, silty sand or sand. Groundwater was encountered between 5.6 m and 6.9 m below the ground surface in the Concentric Associates investigation.

The preliminary desktop review of the available subsurface information comprised of the following observations and assessments:

- The site's historical use raises potential geotechnical concerns regarding geotechnical resistance and differential settlements due to the presence of uncontrolled fill and topsoil materials. Any topsoil and organic soils would need to be removed from all parking and building areas. The existing fill present at site should be removed from the proposed building footprints.
- Nearby and on-site monitoring wells have detected groundwater with relatively shallow levels, as such groundwater is expected to be encountered during soil removal operations and may require control/management.
- Grade raise restrictions may be applied for portions of the site if the presence of fine-grained deposits is confirmed at the site.

The site could be considered suitable for the proposed buildings with the following considerations:

- All fill within the proposed building footprint must be removed and replaced with engineered fill.
- Native soils could be silty and are frost susceptible, as such the use of insulation must be considered, and it must extend a minimum of 2 m from the edge of the slab.
- Perimeter drains at the bottom of the granular materials should be considered.
- A site-specific geotechnical investigation is required.

2.3.3 Environmental

Based on the Phase II Environmental Site Assessment conducted by AMEC in 2007, the site was used as a snow disposal facility. Further ESAs conducted saw soil and groundwater samples collected and tested for comparison to site condition standards stipulated in the Ontario Ministry of the Environment (MECP) Ontario Regulation (O.Reg) 153/04, with additional testing analysis done for comparison with the MECP's *Soil, Ground Water, and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (2011). The Concentric 2013 investigation identified the follow potential environmental concerns:

- A former underground storage tank at the site from the 1950s to 1990s and an aboveground storage tank at the site from the 1960s to 1990s.
- The property located adjacent to the north side of the site was a former snow dump facility, with large piles of fill observed on this property at the time of the site visit and were noted in aerial photos dated back to the 1980s.
- A fire training facility is located south of the site at 1075 Greenbank Road.

Based on the investigation reports, environmental concerns associated with the proposed site for the temporary housing facilities were identified. Prior to development, the soil in the vicinity of the proposed temporary housing facilities should be assessed and the impacted soil removed. Excavated soil during construction that meet the site condition standards can be reused on site, however, if excess soil requires offsite removal, requirements of O.Reg 416/19 shall be considered. Furthermore, a record of site condition under O.Reg 153/04 would be required, as the proposed site was recently used as community use and the proposed use would be considered a more restrictive land use.

2.3.4 Transportation

The site is accessed via an existing right-in/right-out entrance off the northbound lanes of Greenbank Road. The access geometry needs to accommodate larger vehicle access to delivery and garbage pickup points, fire route and shared access to the adjacent stormwater facilities in coordination with the required parking. If a secondary access is provided to Highbury Park Drive, then it should be set to the easterly limit of the site in consideration of westbound traffic queuing on Highbury approaching the Greenbank signalized intersection.

Transit service is available on Greenbank Road, with the nearest transit station located approximately 700m south off Greenbank.

Sidewalks should provide direct linkages to both Greenbank Road and Highbury Park and anticipate a path to the signalized intersection.

Cycling should be accommodated onsite and formally linked to the Greenbank Road on-road cycling lanes and MUP on the west side of Greenbank through the signalized intersection of Greenbank and Highbury Park.

The above facilities will need to consider the grade differential between Greenbank Road and the facility.

2.3.5 Zoning

The zoning review of this site was limited solely to a review of City of Ottawa Zoning By-law 2008-250; no other land use planning considerations were reviewed (e.g., Provincial Planning Statement 2024; City of Ottawa Official Plan; any applicable subsidiary plans; urban design guidelines; surrounding context, etc.).

The property at 1045 Greenbank Road is zoned DR – Development Reserve Zone and I1B – Minor Institutional Zone, Subzone B. A “shelter” is not a permitted land use within the DR zone, so the shelter cannot be located on the DR zoned portion of the property without a zoning by-law amendment approving such. A “shelter” is a permitted land use in the I1B zone, however this zone makes up a small portion of the site and could not accommodate a shelter on its own.

The property at 1005 Greenbank Road is zoned I1B [1] - Minor Institutional Zone, Subzone B, subject to zoning exception 1. The I1B zone permits “shelter” as a land use. Zoning exception 1 adds a “snow disposal facility” as an additional permitted land use, which is unrelated to a shelter.

Through consultation with the City project team, it is understood that the two properties making up this site are planned to accommodate future stormwater and light rail transit infrastructure, which will greatly reduce the amount of land available that is suitably zoned to accommodate a shelter. Accordingly, the amount of available land leftover for consideration of a shelter that achieves the City’s design specifications is not sufficient for achieving zoning compliance.

2.4 1645 Woodroffe Avenue

2.4.1 Civil

The existing civil servicing available in the vicinity of the site includes a private 200mm diameter watermain, a 250mm diameter sanitary sewer, and a 600mm to 750mm diameter storm sewers servicing the Nepean Sportsplex within Nepean Sportsplex Drive. Servicing is also available in West Hunt Club Road to the north which includes a 525mm storm sewer and a 610mm diameter backbone watermain. It is assumed connection to the backbone main will not be feasible for site development.

2.4.1.1 Potable Water Demands

2.4.1.1.1 Domestic Water Demands

The proposed Newcomer Reception Centre is projected to be serviced off the existing private 200 mm diameter watermain in Nepean Sportsplex Drive. The preliminary water demands are calculated using the City of Ottawa Water Distribution Guidelines (2010) as amended, and ISTB 2021-03 Technical Bulletin.

A daily rate of 225 L/bedspace/day for hotels is used to estimate average day (AVDY) potable water demands for the buildings. However, as residents may be living in the facilities for several months at the

time and water consumption patterns be similar to a residential use, therefore residential peaking factors are used for the maximum day (MXDY) demand, determined by multiplying the AVDY demands by a peaking factor of 2.5, and the peak hourly (PKHR) demand, which is determined by multiplying the MXDY by a peaking factor of 2.2.

Table 2.8: Estimated Water Demands

Bedspace	AVDY (L/s)	MXDY (L/s)	PKHR (L/s)
150	0.4	1.0	2.1

Details of the water demand calculations are shown in **Appendix A.1**.

2.4.1.1.2 Fire Flow Demand

Preliminary fire flow requirements are estimated using the methodology described in the document *Fire Underwriters Survey's Water Supply for Public Fire Protection* (2020). The sprung structures are aluminum frame fabric structures, as such a construction type of Wood Frame construction with a Combustible occupancy charge was applied. The structure will be fully sprinklered with a supervised sprinkler system to the NFPA 13 standard.

The proposed structure was determined to have a fire flow demand of approximately 150 L/s (9,000 L/min), as detailed in **Appendix A.2**.

2.4.1.1.3 Conceptual Level of Servicing

The estimated water and fire flow demands were used to define the level of servicing required for the conceptual development from the municipal watermain and hydrants within the Woodroffe Avenue ROW. **Table 2** below outlines the boundary conditions provided by the City of Ottawa on November 5, 2024, attached in **Appendix A.3**.

Table 2.9: Woodroffe Avenue Boundary Conditions

	Connection at Woodroffe Avenue
Min. HGL (m)	125.3
Max. HGL (m)	133.3
Max. Day + Fire Flow (150 L/s) HGL (m)	124.6

A conceptual watermain model containing the existing private watermain servicing the Nepean Sportsplex was built to evaluate the pressures for the conceptual water servicing. On-site pressures are expected to range from **47.3** to **61.0 psi** (326 to 421 kPa) under normal operating conditions. These values are within the normal operating pressure range of 50 to 80 psi (344.7 to 551.6 kPa) and no less than 40 psi (275.8 kPa), as defined by the City of Ottawa's design guidelines.

Fire flows under the existing private watermain configuration were evaluated, and it was determined that a second watermain connection at Woodroffe Avenue would be required to provide the required fire flows for the site and meet the minimum required residual pressure of 20 psi (137.9 kPa).

2.4.1.2 Wastewater Servicing

The proposed Newcomer Reception Centres are projected to be serviced off the existing private 250 mm diameter sanitary sewers in Nepean Sportsplex Drive for wastewater servicing. The preliminary sanitary peak flows are calculated using the City of Ottawa Sewer Design Guidelines (2012) and the MECP Design Guidelines for Sewage Works, and the criteria to estimate the peak flows comprises of the following:

- Minimum velocity = 0.6 m/s (0.8 m/s for upstream sections)
- Maximum velocity = 3.0 m/s
- Manning roughness coefficient for all smooth wall pipes = 0.013
- Minimum size of sanitary sewer service = 135 mm
- Minimum grade of sanitary sewer service = 1.0 % (2.0 % preferred)
- Average wastewater generation = 225 L/bedspace/day (per City Design Guidelines)
- Peak Factor = based on Harmon Equation; maximum of 4.0 (residential)
- Harmon correction factor = 0.8
- Infiltration allowance = 0.33 L/s/ha (per City Design Guidelines)
- Minimum cover for sewer service connections – 2.0 m

The estimated wastewater flows to be generated is summarized below.

Table 2.10: Estimated Total Wastewater Peak Flow

Peak Residential Wastewater Flow			Infiltration Flow (L/s)	Total Peak Flow (L/s)
Bedspace	**Peak Factor**	**Peak Flow (L/s)**		
150	3.55	1.4	0.2	1.6

The existing sanitary would be extended north to the subject site to service the proposed facility.

The City of Ottawa has confirmed that the downstream sanitary sewers have adequate capacity to receive the additional 1.6 L/s of peak flow from the development, as shown in **Appendix B.2**.

2.4.1.3 Stormwater Management

Per correspondence with City of Ottawa staff, the site is not subject to any additional SWM quality control criteria. Two potential options were identified to provide an outlet for storm sewers within the development site, either connection to the storm sewers within Nepean Sportsplex Drive and ultimately to the Woodroffe Avenue storm sewer, or by conveying runoff through a proposed outlet channel or pipe to Hunt Club Road. It is noted that the Hunt Club Road sewer is of small diameter and likely does not maintain significant capacity to accept flows from the development.

As such, the site will be required to control all storm events, up to and including the 100-year event with discharge to the Woodroffe Avenue sewer to the 2-year predevelopment level. Runoff exceeding these criteria would either be detained on site or conveyed overland towards West Hunt Club Road. It is assumed that this overland drainage may not also exceed predevelopment rates for existing sheet flow runoff from the site to Hunt Club. Any drainage directed to the adjacent forested area will require approval from the National Capital Commission (NCC).

Based on the above, an existing site runoff coefficient of C=0.2 (fully undeveloped site area), runoff time of concentration of 10 minutes, as well as an estimated full site coverage area of 0.5ha at a conservative runoff coefficient of C=0.9, a modified Rational Method calculation sheet was developed (included in attached appendices) to quantify required SWM quantity storage under the 2 and 100-year storm events. The required storage volumes for the 2-year and 100-year storm events are estimated as 53m^3 and 153m^3 respectively. This storage is inclusive of allowance for overland discharge of approximately 21.4L/s to the West Hunt Club roadside ditch. Should this discharge not be permitted, the required storage increases to 203 m^3 for the 100-year storm event. The required storage will be accommodated through the use of surface ponding in paved parking areas for storm events exceeding the 2-year storm event, and potentially through the use of a controlled release dry pond or subsurface storage unit located south of the proposed structure and prior to discharge to the Nepean Sports Complex Drive storm sewer.

A conceptual site servicing and grading plan has been prepared and included in **Appendix D**.

2.4.2 Geotechnical

Based on the geological mapping, the subsurface conditions are anticipated to consist of either organic deposits or coarse-textured glaciomarine deposits. Bedrock consisting of dolostone, or sandstone of the Beekmantown Group is expected at approximately 15 m to 18 m depth.

Through borehole records for boreholes located to the west and southwest of the proposed site, subsurface conditions consist of a 0.3 m to 1.0 m thick layer of fill material underlain by an approximately 6 m to 11 m thick silty sand to sand deposit, in turn underlain by sandstone bedrock. Upon review of the EXP Services Inc. 2019 Geotechnical and Environmental Investigation, the subsurface conditions near the site, within the northeast football field, were identified as 75 to 330 mm of topsoil underlain by approximately 1.1 to 1.5 m of sandy fill (with organics and gravel), underlain by a loose to compact sand and silty sand extending to a depth of approximately 4 to 5.6 m below ground surface. Groundwater was

encountered between 4.6 m and 5.0 m below the ground surface. None of the historical investigations provided information on the bedrock depth.

The preliminary desktop review of the available subsurface information comprised of the following observations and assessments:

- The existing topsoil and fill materials present at the site within the building footprint would need to be removed.
- While the encountered native subgrade material near the site generally consisted of a sand to silty sand deposit with loose to compact relative density, an organic deposit could be encountered based on the available surficial geology mapping. As such, any organic soil encountered at the site would need to be removed from all parking and building areas.
- Groundwater levels were measured at 4.6 to 5.0 m below ground surface. The levels are subject to seasonal fluctuations and may be at a higher level during wet weather periods. However, groundwater is not expected to be encountered during soil removal operations.

The site could be considered suitable for the proposed buildings with the following considerations:

- All existing topsoil, fill, and organic materials should be removed and replaced with engineered fill.
- Native soils could be silty and are frost susceptible, as such the use of insulation must be considered, and it must extend a minimum of 2 m from the edge of the slab.
- Perimeter drains at the bottom of the granular materials should be considered.
- A site-specific geotechnical investigation is required, and allowable grade-raise at the site should be assessed.

2.4.3 Environmental

The Terrapex 2008 report identified significant residual hydrocarbons remain in the vicinity of the former heating oil underground storage tanks (UST) sites, near the site of the Confederation Education Centre. A follow-up report by SLR compiled in 2009 identified soil and groundwater impacts stemming from the former USTs as extending approximately 35 m east of the Confederation Education Centre building. As the impacted areas are situated approximately 60 m west of the proposed temporary housing structure, and the proposed site's location being considered as cross-gradient to the interpreted groundwater flow direction, the petroleum hydrocarbon impacts in the soil and groundwater are not anticipated to present a concern with respect to the proposed temporary housing structure at the site.

Excavated soil during construction could be reused on site, however, if excess soil requires offsite removal, requirements of O.Reg 416/19 shall be considered. As the site has always been vacant land, a record of site condition under O.Reg 153/04 is anticipated to not be required.

2.4.4 Transportation

The proposed site is accessed via a connection to the existing Sportsplex / Confederation Education Centre driveway with signalized access to Woodroffe Avenue. The access geometry needs to accommodate larger vehicle access to delivery and garbage pickup points, and fire route in coordination with the required parking.

Transit service is available on Woodroffe Avenue (BRT) at the entrance's signalized intersection.

Sidewalks should provide direct linkages to the surrounding property's MUPs and sidewalks that link to the adjacent facilities, Woodroffe Avenue and West Hunt Club Road.

Cycling should be accommodated onsite and formally linked to the Woodroffe Avenue and West Hunt Club Road on-road cycling lanes and recreational pathways through the existing MUPs.

2.4.5 Zoning

The zoning review of this site was limited solely to a review of City of Ottawa Zoning By-law 2008-250; no other land use planning considerations were reviewed (e.g., Provincial Planning Statement 2024; City of Ottawa Official Plan; any applicable subsidiary plans; urban design guidelines; surrounding context, etc.).

It is noted that the site is owned by the NCC, and through consultation with them it was confirmed that the City has initiated the Federal Approvals process for this location under consideration for a shelter development. Further, we understand the proposal has been assigned as a level 2 Federal Land Use, Design and Transaction Approval (FLUDTA). The typical service standard for completing an approval of this level is 2-4 months following submission of a complete application for review by the NCC. The NCC has confirmed that in addition to the FLUDTA an Environmental Determination will be required under the Impact Assessment Act due to the work taking place on federal land, and that this determination is required for a complete FLUDTA application. Lastly, the NCC confirmed there will be technical materials to be provided in support of the application, and that an application decision would be voted on by the NCC's Board of Directors.

The portion of the property under consideration for a shelter is zoned RI4 – Rural Institutional Zone, Subzone 4. The RI4 zone lists "shelter" as a permitted land use.

The below table shows the applicable provisions of the Zoning By-law and how they apply to the concept plan in its current state. It is understood the concept plan will be subject to further design refinement, which may influence zoning compliance. Further, there are aspects of the concept plan that have not yet been fully detailed, (e.g., required landscape setbacks and percentages) and that will inform zoning compliance.

Table 2.11: Zoning Provisions Applicable to 1645 Woodroffe Avenue

Section	Provision	Required / Permitted	Provided (per current concept plan)	Compliance / Notes
Table 224B	Minimum Lot Area	1 ha	Approx. 129.2 ha	Compliant
Table 224B	Minimum Lot Width	75 m	Approx. 738 m	Compliant (assuming Woodroffe Avenue is the front lot line)
Table 224B	Minimum Front Yard Setback	9 m	Approx. 170.7 m	Compliant
Table 224B	Minimum Rear Yard Setback	10 m	Approx. 1,198.7 m	Compliant
Table 224B	Minimum Interior Side Yard Setback	9 m	Approx. 576.9 m	Compliant
Table 224B	Minimum Corner Side Yard Setback	9 m	Approx. 52 m	Compliant
Table 224B	Maximum Principal Building Height	12 m	Can be designed to comply	Compliance to be determined once concept plans are finalized.
Table 224B	Maximum Lot Coverage	30%	<30%	Compliant (accounts for all buildings on site and the shelter)
Table 224B	Minimum Landscaped Area	20%	Can be designed to comply	Compliance to be determined once concept plans are finalized.
Table 101, R26	Minimum Parking Space Rates (Shelter)	1 per 100 m2 of GFA, minimum of 1 = approx. 11 spaces (GFA = approx. 1,094 m2)	20 parking spaces	Compliant
106(1)	Motor vehicle parking space must be:	At least 2.6 m wide and 5.2 m long	Width: 2.6 m Length: 5.2 m	Compliant
Table 113A(d)	Minimum Number of Vehicle Loading Spaces Required per Square Metres of Gross Floor Area	1 per 1000-1999 m2 of GFA = 1 space (GFA = approx. 1,094 m2)	Can be designed to comply	Compliance to be determined once concept plans are finalized.

Table 113B	Minimum width and length of loading space	Width: 3.5 m Length: 7 m	Width: 3.5 m Length: 7 m	Compliant
Table 107	Minimum required aisle width for 71-90 degree angled parking	6.7 m	7 m	Compliant
Section 110(1)	Landscaping Provisions for Parking Lots	a minimum of 15% of the area of any parking lot must be provided as perimeter or interior landscaped area. interior landscaping may be provided as various landscaped islands, landscaped medians, pedestrian pathways or public plazas	Can be designed to comply	Compliance to be determined once concept plans are finalized.
Section 110(1)	Landscaping Provisions for Parking Lots	a landscaped buffer must be provided between the perimeter of the parking lot and a lot line: 3 m where abutting a street and 1.5 metre where not abutting a street -a driveway may cross the landscaped buffer	Can be designed to comply	Compliance to be determined once concept plans are finalized.
Section 110(3)	All outdoor refuse collection and refuse loading areas contained within or accessed via a parking lot must be:	-9 m from a lot line abutting a public street -3 m from any other lot line -Screened from view by an opaque screen with a minimum height of 2 m	Can be designed to comply	Compliance to be determined once concept plans are finalized.

The land use “shelter” is permitted by the site’s RI4 zone. The current state of the concept plan demonstrates compliance with most applicable zoning provisions, and where compliance is not yet confirmed, there is potential for the concept plan to be refined to achieve compliance.

2.5 3311 Woodroffe Avenue

2.5.1 Civil

The existing civil servicing available in the vicinity of the site comprises the private 200 mm diameter watermains servicing the existing commercial development to the north, a 150 mm diameter private watermain within the Transitway to the south, a 400 mm diameter watermain in Woodroffe Avenue, 200 mm diameter sanitary sewers within the Transitway, and the 375 mm to 450 mm diameter storm sewers within the Transitway to the south and east. The conceptual site servicing considers water and sanitary services from City-managed mains within the Transitway.

2.5.1.1 Potable Water Demands

2.5.1.1.1 Domestic Water Demands

The proposed Newcomer Reception Centre is projected to be serviced off the existing private 150 mm diameter watermain in the Transitway. The preliminary water demands are calculated using the City of Ottawa Water Distribution Guidelines (2010) as amended, and ISTB 2021-03 Technical Bulletin.

A daily rate of 225 L/bedspace/day for hotels is used to estimate average day (AVDY) potable water demands for the buildings. However, as residents may be living in the facilities for several months at the time and water consumption patterns be similar to a residential use, therefore residential peaking factors are used for the maximum day (MXDY) demand, determined by multiplying the AVDY demands by a peaking factor of 2.5, and the peak hourly (PKHR) demand, which is determined by multiplying the MXDY by a peaking factor of 2.2.

Table 2.12: Estimated Water Demands

Bedspace	AVDY (L/s)	MXDY (L/s)	PKHR (L/s)
150	0.4	1.0	2.1

Details of the water demand calculations are shown in **Appendix A.1**.

2.5.1.1.2 Fire Flow Demand

Preliminary fire flow requirements are estimated using the methodology described in the document *Fire Underwriters Survey's Water Supply for Public Fire Protection* (2020). The sprung structures are aluminum frame fabric structures, as such a construction type of Wood Frame construction with a Combustible occupancy charge was applied. The structure will be fully sprinklered with a supervised sprinkler system to the NFPA 13 standard.

The proposed structure was determined to have a fire flow demand of approximately 150 L/s (9,000 L/min), as detailed in **Appendix A.2**.

2.5.1.1.3 Conceptual Level of Servicing

The estimated water and fire flow demands were used to define the level of servicing required for the conceptual development from the municipal watermain and hydrants within the Woodroffe Avenue ROW. **Table 2** below outlines the boundary conditions provided by the City of Ottawa on November 5, 2024, attached in **Appendix A.3**. Note that the pressure zone in the South Urban Community (SUC) will undergo reconfiguration, as such both pre-SUC reconfiguration and post-SUC reconfiguration HGLs were provided.

Table 2.13: Woodroffe Avenue Boundary Conditions

	Pre-SUC	Post-SUC
Min. HGL (m)	143.3	144.0
Max. HGL (m)	156.6	146.9
Max. Day + Fire Flow (150 L/s) HGL (m)	133.1	144.4

An anticipated finished floor elevation of 98 m at Woodroffe Avenue will serve as the ground elevation for the calculation of residual pressures at ground level. Under pre-SUC reconfiguration conditions, on-site pressures are expected to range from **64.4** to **83.3 psi** (444 to 572.6 kPa) under normal operating conditions. The maximum pressures exceed the normal operating pressure range of 50 to 80 psi (344.7 to 551.6 kPa) and no less than 40 psi (275.8 kPa), as defined by the City of Ottawa's design guidelines.

By contrast, under post-SUC reconfiguration conditions, on-site pressures are expected to range from **65.4** to **69.5 psi** (451 to 479.4 kPa) under normal operating conditions, which falls within the 50 to 80 psi normal operating pressure range. Therefore, if the site is developed before the SUC reconfiguration, a pressure-reducing valve would be required in the water servicing for the site.

The boundary conditions provided for the proposed development under maximum day demands demonstrate that a fire flow rate of 150.0 L/s is available with a residual pressure above the required minimum 20 psi (137.9 kPa). This demonstrates that sufficient fire flow is available for the proposed development.

Based on these results, there is currently adequate supply and pressure in the water distribution system to meet the domestic and fire flow demands expected from the new development, though a pressure reducing valve would be required to bring the servicing pressures down to within the City's normal operating range should the site be developed before the SUC reconfiguration.

2.5.1.2 Wastewater Servicing

The proposed Newcomer Reception Centres are projected to be serviced off the existing private 200 mm diameter sanitary sewers in the Transitway for wastewater servicing. The preliminary sanitary peak flows are calculated using the City of Ottawa Sewer Design Guidelines (2012) and the MECP Design Guidelines for Sewage Works, and the criteria to estimate the peak flows comprises of the following:

- Minimum velocity = 0.6 m/s (0.8 m/s for upstream sections)

- Maximum velocity = 3.0 m/s
- Manning roughness coefficient for all smooth wall pipes = 0.013
- Minimum size of sanitary sewer service = 135 mm
- Minimum grade of sanitary sewer service = 1.0 % (2.0 % preferred)
- Average wastewater generation = 225 L/bedspace/day (per City Design Guidelines)
- Peak Factor = based on Harmon Equation; maximum of 4.0 (residential)
- Harmon correction factor = 0.8
- Infiltration allowance = 0.33 L/s/ha (per City Design Guidelines)
- Minimum cover for sewer service connections – 2.0 m

The estimated wastewater flows to be generated is summarized below.

Table 2.14: Estimated Total Wastewater Peak Flow

Peak Residential Wastewater Flow			Infiltration Flow (L/s)	Total Peak Flow (L/s)
Bedspace	**Peak Factor**	**Peak Flow (L/s)**		
150	3.55	1.4	0.2	1.6

The City of Ottawa has confirmed that the downstream sanitary sewers have adequate capacity to receive the additional 1.6 L/s of peak flow from the development, as shown in **Appendix B.2**.

2.5.1.3 Stormwater Management

Per correspondence with City of Ottawa staff, the site is not subject to any SWM quality control criteria as quality control has been previously provided for the site via downstream stormwater management facility.

Per the stormwater management criteria for the existing Minto commercial development to the north (EXP, 2012), the site is subject to stormwater quantity control with a restricted release rate to the Transitway/Crestway Drive storm sewer of 79.9L/s, or approximately 59.2L/s/ha. Storm runoff will be directed either through surface swales or by pipe to the existing connection point identified by the EXP drawings (noted as TEMP CBMH). Based on the above, an estimated runoff time of concentration of 10 minutes, as well as an estimated full site coverage area of 0.5ha at a conservative runoff coefficient of C=0.9, a modified Rational Method calculation sheet was developed (included in attached appendices) to quantify required SWM quantity storage under the 2 and 100-year storm events. The required storage volumes for the 2-year and 100-year storm events are estimated as 43m^3 and 180m^3 respectively. The required storage will be accommodated through the use of surface ponding in paved parking areas for storm events exceeding the 2-year storm event, and potentially through the use of a controlled release

dry pond or subsurface storage unit located east of the proposed structure and prior to discharge to the Transitway/Crestway Drive storm sewer.

The storm sewer proposed for connection is relatively shallow. Storm servicing for the proposed site may require additional insulation or fill to permit an adequate gravity service connection.

Significant grading works including the potential for a retaining wall along the northerly proposed parking/access route may be required to manage the approximately 3.0m in grade change from the Transitway connection to grades within the commercial parking lot at the northern site boundary.

A conceptual site servicing and grading plan has been prepared and included in **Appendix D**.

2.5.2 Geotechnical

Based on the geological mapping, the subsurface conditions are anticipated to consist of sandy silt to silty sand till on Paleozoic terrain. Bedrock consisting of dolostone, or sandstone of the Beekmantown Group is expected at approximately 10 m to 16 m depth.

Upon review of the Ontario Geological Survey borehole database, a borehole record identified subsurface conditions consisting of a 0.3 m to 1 m fill material underlain by a varying soil materials including silty sand, sand, and silty clay. Bedrock was recorded in a MECP Well Record at approximately 13 m below the ground surface.

The preliminary desktop review of the available subsurface information comprised of the following observations and assessments:

- Any existing fill materials present at the site within the building footprint would need to be removed and replaced with engineered fill.
- The native subgrade material may consist generally of a sand to silty sand till material.
- Any organic soil encountered at the site would need to be removed from all parking and building areas.
- Information on groundwater levels at the site were not available at the time of the preparation of this report.
- Grade raises may be required at the site. Grade raise restrictions may apply for the site if compressible clay or silty clay are present.

The site could be considered suitable for the proposed buildings with the following considerations:

- Native soils could be silty and are frost susceptible, as such the use of insulation must be considered, and it must extend a minimum of 2 m from the edge of the slab.
- Perimeter drains at the bottom of the granular materials should be considered.

- A site-specific geotechnical investigation is required. Allowable grade raises will depend on the subsurface conditions identified at the site.

2.5.3 Environmental

The Phase II Environmental Site Assessment was conducted by DST in 2010 and in it, the report identified the following potential concerns for the site.

- A gas station with three underground storage tanks storing gasoline was operational immediately northwest of the site between 2002 and 2005.
- The site was used as a staging ground for neighbourhood construction activities from 1995 to the report date.
- Presence of fill material from unknown sources.

Furthermore, analysis indicated that the sampled soil from the site met the applicable provincial site condition standards for residential use.

Based on the reports, no environmental concerns were identified. Excavated soil during construction could be reused on site, however, if excess soil requires offsite removal, requirements of O.Reg 416/19 shall be considered. As the site has always been vacant land, the proposed use would not be considered a more restrictive land use and a record of site condition under O.Reg 153/04 is anticipated to not be required.

2.5.4 Transportation

The proposed site is accessed via a modification to the “Kiss & Ride” drop-off area which is connected to the existing Crestway Drive/Transitway link. A second connection to the private access is being considered to provide a more direct link to Woodroffe Avenue via right-in/right-out on the northbound lanes. The access geometry needs modification to accommodate larger vehicle access to delivery and garbage pickup points, and fire route in coordination with the required parking.

Transit service is available at the abutting Transit Station (Nepean Woods), Woodroffe Avenue, Chapman Mills Drive and Crestway Drive.

Sidewalks should provide direct links to Woodroffe, the transit station, Crestway and MUP.

Cycling should be accommodated onsite and formally linked to the Woodroffe Avenue and Chapman Mills Drive on-road cycling lanes as well as the bi-directional segregated cycling facility on Crestway linking to Strandherd Drive.

The above facilities will need to consider the grade differentials between Woodroffe Avenue, the private access, Kiss & Ride and the facility.

2.5.5 Zoning

The zoning review of this site was limited solely to a review of City of Ottawa Zoning By-law 2008-250; no other land use planning considerations were reviewed (e.g., Provincial Planning Statement 2024; City of Ottawa Official Plan; any applicable subsidiary plans; urban design guidelines; surrounding context, etc.).

The property is zoned GM9[1920] – General Mixed Use Zone, Subzone 9, subject to zoning exception 1920. Zoning Exception 1920 adds a “parking lot” as an additional permitted land use, which is unrelated to a shelter. While the parent GM zone lists “shelter” as a permitted land use, the site is subject to Subzone 9 which does not permit “shelter” as a land use.

The below table shows the applicable provisions of the Zoning By-law and how they apply to the concept plan in its current state. It is understood the concept plan will be subject to further design refinement, which may influence zoning compliance. Further, there are aspects of the concept plan that have not yet been fully detailed, (e.g., required landscape setbacks and percentages) and that will inform zoning compliance.

Table 2.15: Zoning Provisions Applicable to 3311 Woodroffe Avenue

Section	Provision	Required / Permitted	Provided (per current concept plan)	Compliance / Notes
Table 187	Minimum Lot Area	No minimum	Approx. 4 ha	Compliant
Table 187	Minimum Lot Width	No minimum	Approx. 100 m	Compliant (assumes a right of way taking along Woodroffe Avenue)
Table 187	Minimum Front Yard and Corner Side Yard Setback	3 m	Approx. 13.5 m	Compliant
Table 187	Minimum Rear Yard Setback	3 m abutting a street	Approx. 195 m	Compliant
Table 187	Minimum Interior Side Yard Setback	5 m for a non-residential building	Approx. 16 m and 50.3 m	Compliant
Table 187	Maximum Building Height	18 m	Can be designed to comply	Compliance to be determined once concept plans are finalized.
Table 187	Maximum Floor Space Index	2	Can be designed to comply	Compliance to be determined once concept plans are finalized.

Table 187	Minimum Width of Landscaped Area	3 m abutting a street, residential zone, or institutional zone	Can be designed to comply	Compliance to be determined once concept plans are finalized.
Table 101, R26	Minimum Parking Space Rates (Shelter)	1 per 100 m2 of GFA, minimum of 1 = approx. 11 spaces (GFA = approx. 1,094 m2)	20 parking spaces	Compliant
106(1)	Motor vehicle parking space must be:	At least 2.6 me wide and 5.2 me long	Width: 2.6 m Length: 5.2 metres	Compliant
Table 111A(i)	Minimum bicycle space rates (all other non-residential uses)	1 per 1500 m2 of GFA = 0 spaces (GFA = approx. 1,094 m2)	Can be designed to comply	Compliance to be determined once concept plans are finalized.
Table 113A(d)	Minimum Number of Vehicle Loading Spaces Required per Square Metres of Gross Floor Area	1 per 1000-1999 m2 of GFA = 1 space (GFA = approx. 1,094 m2)	Can be designed to comply	Compliance to be determined once concept plans are finalized.
Table 113B	Minimum width and length of loading space	Width: 3.5 m Length: 7 m	Can be designed to comply	Compliance to be determined once concept plans are finalized.
Table 107	Minimum required aisle width for 71-90 degree angled parking	6.7 metres	6.7 metres	Compliant
Section 110(1)	Landscaping Provisions for Parking Lots	a minimum of 15% of the area of any parking lot must be provided as perimeter or interior landscaped area. Interior landscaping may be provided as various landscaped islands, landscaped medians, pedestrian pathways or public plazas	Can be designed to comply	Compliance to be determined once concept plans are finalized.
Section 110(1)	Landscaping Provisions for Parking Lots	a landscaped buffer must be provided between the perimeter of the parking lot and a lot line: 3 m where abutting a street and 1.5 metre where not abutting a street -a driveway may cross the landscaped buffer	Can be designed to comply	Compliance to be determined once concept plans are finalized.

Section 110(3)	All outdoor refuse collection and refuse loading areas contained within or accessed via a parking lot must be:	-9 m from a lot line abutting a public street -3 m from any other lot line -Screened from view by an opaque screen with a minimum height of 2 m	Can be designed to comply	Compliance to be determined once concept plans are finalized.

A shelter development on the property would require a Zoning By-law Amendment to add “shelter” as a permitted land use to the site’s existing zoning or to change the site’s zoning to one that permits a “shelter” (e.g., institutional zone). Any Zoning By-law Amendment to add “shelter” as a permitted land use to the site’s existing zoning may require the introduction of shelter-specific provisions different from those of the existing GM9[1920] zone.

2.6 Opinion of Probable Cost

Class D Opinion of Probable Costs were completed for site development works based on the concept site plan and engineering assumptions (Appendix D). The works include all hard and soft servicing and road/parking construction costs, excluding the concrete pad, Sprung Structure and associated fit up, building mechanical and electrical equipment. The budget includes provision for engineering services, city internal costs, utility provisions and miscellaneous cost, and 25% contingency. Refer to Appendix F for details.

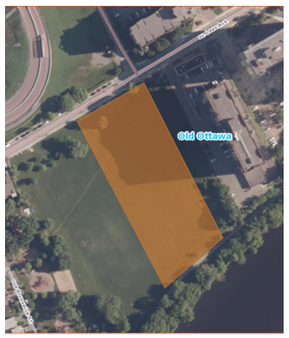
2.7 Overall Evaluation

The objective of this brief is to evaluate the five candidate sites based on civil servicing, site layout, geotechnical, environmental, transportation, zoning compliance, and provide recommendation pertaining to suitability of these sites for Newcomer Reception Centres, along with concept plan and site development costs.

An evaluation matrix (shown below) was developed to compare the sites and identify advantages, disadvantages and risks for each site. Key advantages and disadvantages were tallied in the evaluation matrix to provide general guidance in the selection process and should be taken into consideration in the overall selection of the preferred location.

City of Ottawa Newcomer Reception Centre
Scoped Evaluation Matrix

Table 1:

	40 Hearst Way (Eagleson Park and Ride)	1645 Woodroffe Avenue (Nepean Sportsplex)	3311 Woodroffe Avenue (Nepean Transitway)	1005 Greenbank Road	160 Lees Avenue
Alternative Schematic					
Alternative Description	• 30,000 sq. ft. Sprung structure within the northwest corner of the existing Eagleson Road Park N Ride.	• 30,000 sq. ft Sprung structure within the northeast corner of the Nepean Sportsplex Site (NCC Lands)	• 30,000 sq. ft. Sprung structure placed in vacant parcel west of existing Nepean Park N Ride.	• 20,000 sq. ft. Sprung structure placed within remnant portion of the parcel adjacent to future LRT Maintenance Yard at Greenbank Road and Highbury Avenue.	• 160 Lees Avenue, anticipated as 30,000 sq. ft. Sprung structure, full evaluation not completed due to significant environmental and geotechnical constraints.
Civil Engineering					
• *Available Wastewater Servicing*	• No Identified downstream wastewater constraints	• No Identified downstream wastewater constraints for Public Sewers • Capacity Analysis of Private Sanitary Sewer Required	• No Identified downstream wastewater constraints	• No Identified downstream wastewater constraints	• Site Not Evaluated
• *Stormwater Management*	• Quality Control – Site Design to Determine if additional quality treatment required. • Quantity Control – Post to Pre however limited quantity control required due to largely impervious under pre-development.	• Quality Control – No additional quality treatment required. • Quantity Control – Post to Pre through parking lot storage and additional 100yr storage through tank or dry pond.	• Quality Control – No additional quality treatment required. • Quantity Control – SWM controlled to Restricted Release rate through surface storage, dry pond, or subsurface storage	• Quality Control – No additional quality treatment required. • Quantity Control – Post to Pre through parking lot storage and additional 100yr storage through tank or dry pond.	• Site Not Evaluated
• *Available Municipal Water Supply*	• Adequate Municipal Water Supply for domestic and anticipated fire flow • Pressure Reducing Valve expected.	• Adequate domestic water supply available through private on-site main. • Provision of Required Fire Flow requires secondary water service to Woodroffe main.	• Adequate Municipal Water Supply for domestic and anticipated fire flow	• Adequate Municipal Water Supply for domestic and anticipated fire flow	• Site Not Evaluated

Legend: preferred moderately preferred not preferred

City of Ottawa Newcomer Reception Centre
Scoped Evaluation Matrix

	40 Hearst Way (Eagleson Park and Ride)	1645 Woodroffe Avenue (Nepean Sportsplex)	3311 Woodroffe Avenue (Nepean Transitway)	1005 Greenbank Road	160 Lees Avenue
Site Layout and Area					
• *Adequate Site Area for Planned Program Space.*	• Adequate Space Provided	• Adequate Space Provided	• Adequate Space Provided	• Inadequate Space Provided for required program space. Site layout would yield <20,000 sq.ft. building. • Site Boundary and Roadway widenings to be reviewed • Shared Access provided with future LRT Maintenance Facility.	• Site not evaluated
Geotechnical Desktop Review					
• *Anticipated Suitability of Underlying Soils*	• Suitable with Conditions	• Suitable with Conditions	• Suitable with Conditions	• Suitable with Conditions	• current surficial material is not suitable to be used as a subgrade for a slab-on-grade building unless the existing fills are removed and replaced with engineering fill or the building is founded on deep foundations.
• *Excavation and Removal of Existing Uncompacted Fill Material Expected.*	• Existing Asphalt and granular sub-base assumed to be excavated and removed off-site	• 0.30m topsoil within work area assumed to be excavated and removed off-site • 1.5m of unsuitable existing fill material assumed to be excavated, removed off-site, and replaced with engineered fill	• No information on the topsoil depth • 0.3m to 1m fill material to be excavated, removed off-site, and replaced with engineered fill	• All fill within the proposed building footprint must be removed and replaced with engineered fill.	• Surficial material would require significant excavation and removal to adequately prepare the site.
• *Groundwater Impacts*	• Groundwater not expected within this scope of work	• Groundwater not expected within this scope of work	• Groundwater levels not available for this study area	• Groundwater impacts expected	• Not Evaluated.
Environmental Desktop Review					
• *Site Environmental Management Plan*	• No EMP	• No EMP	• No EMP	• No EMP	• Based on the requirement to maintain the risk management measures outlined in the Environmental Management Plan, this site is **not recommended** as a location for the proposed temporary housing facilities.
• *Record of Site Conditions*	• given the land use change, a record of site condition under Ontario Regulation 153/04 may be required	• RSC not anticipated	• RSC not anticipated	• record of site condition under O.Reg 153/04 would be required for removal of soil off-site, as the proposed site was recently used as community use and the proposed use would be considered a more restrictive land use.	• Required.
• *Other Environmental Impacts*	• No additional Environmental Concerns.	• The petroleum hydrocarbon impacts in soil and groundwater near the site of the Confederation Education Centre are not anticipated to present a concern with respect to the proposed temporary housing structure at this Site.	• No additional Environmental Concerns.	• Based on the investigation reports, environmental concerns associated with the proposed site for the temporary housing facilities were identified. Prior to development, the soil in the vicinity of the proposed temporary housing facilities should be assessed and the impacted soil removed. Excavated soil during	• Not Evaluated

Legend: preferred moderately preferred not preferred

City of Ottawa Newcomer Reception Centre
Scoped Evaluation Matrix

	40 Hearst Way (Eagleson Park and Ride)	1645 Woodroffe Avenue (Nepean Sportsplex)	3311 Woodroffe Avenue (Nepean Transitway)	1005 Greenbank Road	160 Lees Avenue
				construction that meet the site condition standards can be reused on site, however, if excess soil requires offsite removal, requirements of O.Reg 416/19 shall be considered	
Transportation Review					
• *Transportation Access*	• Site Access via new Hearst Way access and existing Eagleson Road Park-N-Ride Access	• Site Access via existing Nepean Sportsplex site access.	• Site access via commercial site entrance and shared access with transit station drop-off. • Easement agreements for access to be reviewed to confirm arrangement.	• Site Access to be shared with future LRT Maintenance Facility • Location of Highbury Avenue entrance to be reviewed. • Greenbank Access to pump station for maintenance to be maintained.	• Not Evaluated
• *Pedestrian Access*	• Pedestrian Access to Hearst Way, Eagleson Road and Eagleson Road • Direct access to Transit Station (Eagleson)	• Sidewalks connect site to the existing MUPs and sidewalks of adjacent facilities, Woodroffe Avenue and West Hunt Club Road. • Access to transit service (BRT) available on Woodroffe Avenue at the Sportsplex entrance.	• Sidewalks connect site to Woodroffe Avenue, Chapman Mills Drive and Crestway Drive and existing MUP. • Direct access to Transit Station (Nepean Woods)	• Sidewalks connect site to Greenbank Road and Highbury Park. • Access to transit service (bus) is available on Greenbank Road. Nearest transit station located 700m south at Strandherd Station.	• Not Evaluated
• *Cycling Facilities*	• There are no specific cycling facilities within the site nor along Eagleson Road. • There are on-road cycle lanes along Hearst Way.	• Cycling accommodated onsite and connected to the Woodroffe Avenue and West Hunt Club Road on-road cycling lanes and existing MUPs.	• Cycling accommodated onsite and connected to Woodroffe Avenue and Chapman Mills Drive on-road cycling lanes as well as the bi-directional segregated cycling facility on Crestway.	• Cycling accommodated onsite and connected to Greenbank Road on-road cycling lanes and existing MUP on Greenbank.	• Not Evaluated
• *Other Transportation Impacts*	• Impacts to Existing Park-N-Ride including relocation of existing drop off area. • New sidewalk and/or PXO on Hearst Way may be required	• No other items identified	• No other items identified	• No other items identified	• Not Evaluated
Planning Review					
• *Rezoning Required*	• Can be designed to comply with Zoning	• Can be designed to comply with Zoning	• Can be designed to comply with Zoning	• Available land for consideration of a shelter that achieves the City's design specifications is not sufficient for achieving zoning compliance.	• Not Evaluated
• *Other Planning Consideration*	• Zoning By-law Amendment is required to add "shelter" as a permitted land use to the site's existing zoning or to change the site's zoning to one that permits a "shelter" • Any Zoning By-law Amendment to add "shelter" as a permitted land use to the site's existing	• The land use "shelter" is permitted by the site's RI4 zone. The current state of the concept plan demonstrates compliance with most applicable zoning provisions, and where compliance is not yet confirmed, there is potential for the concept plan to be refined to achieve compliance	• Zoning By-law Amendment is required to add "shelter" as a permitted land use to the site's existing zoning or to change the site's zoning to one that permits a "shelter" • Any Zoning By-law Amendment to add "shelter" as a permitted land use to the site's existing zoning may	• A "shelter" is not a permitted land use within the DR zone, so the shelter cannot be located on the DR zoned portion of the property without a zoning by-law amendment approving such. • A "shelter" is a permitted land use in the remainder of the properties zoned I1B.	• Not Evaluated

Legend: preferred moderately preferred not preferred

City of Ottawa Newcomer Reception Centre
Scoped Evaluation Matrix

	40 Hearst Way (Eagleson Park and Ride)	1645 Woodroffe Avenue (Nepean Sportsplex)	3311 Woodroffe Avenue (Nepean Transitway)	1005 Greenbank Road	160 Lees Avenue
	zoning may require the introduction of shelter-specific provisions different from those of the existing IL1[1438] zone, which has provisions based generally on light industrial type land uses	• The NCC has confirmed that in addition to the FLUDTA an Environmental Determination will be required under the Impact Assessment Act due to the work taking place on federal land, and that this determination is required for a complete FLUDTA application	require the introduction of shelter-specific provisions different from those of the existing GM9[1920] zone.		
Cost					
Cost *Qualitative*	• Moderate construction costs.	• Higher construction costs.	• Moderate construction costs.	• Moderate construction costs.	• Not Evaluated
Summary					
Key Advantages	✓ Site suitable for Construction	✓ Site suitable for Construction	✓ Site suitable for Construction	✓ Site suitable for Construction but reduced program space	
Key Disadvantages	✘ Site may require RSC, which potentially could impact schedule	✘ Higher construction costs due to provision for secondary water connection.	✘ Access shared with commercial property and transitway drop off station.	✘ Site Does Not Meet City Program Requirements	✘ Site Not Recommended Due to Environmental and Geotechnical Risks

Notes:
1. Potential impacts (or effects) are measured as preferred, moderately preferred, or not preferred based on the anticipated effort to address the issue (following inclusion of standard and readily available mitigative measures).

Legend: preferred moderately preferred not preferred

3 Conclusion

Five candidate sites were evaluation based on civil servicing, site layout, geotechnical, environmental, transportation, zoning compliance, and provide recommendation pertaining to suitability of these sites for Newcomer Reception Centres, along with concept plan and site development costs.

The evaluated candidate sites include:

- 1005/1045 Greenbank (Ward 24)
- 1645 Woodroffe (Ward 9)
- 40 Hearst Way (Eagleson Park and Ride) (Ward 23)
- 3311 Woodroffe (Nepean Woods Park and Ride) (Ward 24)
- 160 Lees Avenue (Ward 17)

Due to environmental and geotechnical concerns and associated risks, the 160 Lees Avenue candidate site was deemed unsuitable as a site for the proposed Newcomer Reception Centres, as such no further evaluation for civil servicing, transportation, and zoning constraints were completed.

Based on the full evaluation of the remaining sites, only 3 sites were deemed suitable to accommodate the City Programming needs, specifically 30,000 sq. Ft. Building footprint, these were: 1645 Woodroffe, 40 Hearst Way, and 3311 Woodroffe. Due to future planned work related to future stormwater and light rail transit infrastructure, which will greatly reduce the amount of land available that is suitably zoned to accommodate a shelter, the 1005/1045 Greenbank site would not meet the City Program needs and would only be able to accommodate smaller structure (approx. 20,000 sq. Ft.).

Appendices

Appendix A Water Servicing

A.1 Water Demand

Newcomer Reception Centre, Ottawa, ON - Domestic Water Demand Estimates

Project No. 160402068 Designed by: MW
Revision: 01 Checked by:
Date: 29-Oct-2024 Date Checked:
City File No. PC2024-0301

Demand conversion factors per Table 4.2 of the City of Ottawa Water Design Guidelines and Technical Bulletin ISTB-2021-03:		
Institutional (Hotel)	225	L/bed/day

Population	Avg Day Demand		Max Day Demand		Peak Hour Demand	
	(L/min)	(L/s)	(L/min)	(L/s)	(L/min)	(L/s)
150	23.4	0.39	58.6	0.98	128.9	2.15

Notes:

1 Water demand criteria used to estimate peak demand rates for residential demands are as follows:

maximum daily demand rate = 2.5 x average day demand rate

peak hour demand rate = 2.2 x maximum day demand rate (as per Technical Bulletin ISD-2010-02)

A.2 Fire Flow Demand

FUS Fire Flow Calculation Sheet - 2020 FUS Guidelines

Stantec Project #: 160402068
Project Name: City of Ottawa - Newcomer Reception Centres
Date: 2024-10-29
Fire Flow Calculation #: 2
Description: Approximately 30,000 sq.ft. Aluminum Frame Fabric Structure

Notes: Conceptual Design Flows; 40 Hearst Drive

Step	Task	Notes										Value Used	Req'd Fire Flow (L/min)
1	Determine Type of Construction	Type V - Wood Frame / Type IV-D - Mass Timber Construction										1.5	-
2	Determine Effective Floor Area	Sum of All Floor Areas										-	-
		2787										2787	-
3	Determine Required Fire Flow	($F = 220 \times C \times A^{1/2}$). Round to nearest 1000 L/min										-	17000
4	Determine Occupancy Charge	Combustible										0%	17000
5	Determine Sprinkler Reduction	Conforms to NFPA 13										-30%	-8500
		Standard Water Supply										-10%	
		Fully Supervised										-10%	
		% Coverage of Sprinkler System										100%	
6	Determine Increase for Exposures (Max. 75%)	Direction	Exposure Distance (m)	Exposed Length (m)	Exposed Height (Stories)	Length-Height Factor (m x stories)	Construction of Adjacent Wall	Firewall / Sprinklered ?				-	-
		North	> 30	0	0	0-20	Type V	NO				0%	340
		East	> 30	0	0	0-20	Type V	NO				0%	
		South	> 30	0	0	0-20	Type V	NO				0%	
		West	20.1 to 30	24	1	21-49	Type V	NO				2%	
7	Determine Final Required Fire Flow	Total Required Fire Flow in L/min, Rounded to Nearest 1000L/min											9000
		Total Required Fire Flow in L/s											150.0
		Required Duration of Fire Flow (hrs)											2.00
		Required Volume of Fire Flow (m^3)											1080

A.3 Boundary Conditions

Boundary Conditions
Sprung Structure – 40 Hearst

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	23	0.39
Maximum Daily Demand	59	0.98
Peak Hour	129	2.15
Fire Flow Demand #1	9,000	150.00

Location

Results

Connection 1 – Hearst Way

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	161.0	93.4
Peak Hour	156.6	87.1
Max Day plus Fire Flow #1	151.8	80.4

[1] Ground Elevation = 95.3 m

Notes

1. As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:
    - If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
    - Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

Boundary Conditions
Sprung Structure – 1005 Greenbank

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	23	0.39
Maximum Daily Demand	59	0.98
Peak Hour	129	2.15
Fire Flow Demand #1	9,000	150.00

Location

Results

Existing Conditions

Connection 1 – Highbury Park

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	156.9	79.1
Peak Hour	143.8	60.5
Max Day plus Fire Flow #1	133.9	46.4

[1] Ground Elevation = 101.3 m

Future SUC

Connection 1 – Highbury Park

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	146.9	64.9
Peak Hour	144.7	61.7
Max Day plus Fire Flow #1	141.4	57.0

[1] Ground Elevation = 101.3 m

Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

Wu, Michael

From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Sent: November 5, 2024 12:15
To: Wu, Michael; Moroz, Peter
Cc: Gillis, Sheridan; Mottalib, Abdul; Kluke, Jenny
Subject: RE: City File No. PC2024-0301 - Newcomer Reception Centre Boundary Conditions Request
Attachments: 40 Hearst (31Oct2024).docx; 1005 Greenbank (31Oct2024).docx; 3311 Woodroffe (31Oct2024).docx; 1645 Woodroffe Avenue November 2024.pdf

Hi Michael,

Please find attached the boundary conditions results for the sites outside the greenbelt. Please note that for 1005 Greenbank and 3311 Woodroffe the future SUC pressure zone results were provided. This future water pressure zone is anticipated to be completed in 2027. For the time being, the more conservative existing conditions should be used.

Boundary conditions results for 1645 Woodroffe are presented below:

The following are boundary conditions, HGL, for hydraulic analysis at 1645 Woodroffe Avenue (zone 2W2C) assumed to be connected to the 305 mm watermain on Woodroffe Avenue (see attached PDF for location).

Min HGL = 125.3 m
Max HGL = 133.3 m
Max Day + Fire Flow (150 L/s) = 124.6 m

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

As previously mentioned, hydraulic analysis to demonstrate adequate domestic and fireflow pressures will be required for the sites at 3311 Woodroffe and 1645 Woodroffe which are connecting to private watermains that are not modelled by the city. Hydraulic analysis may also be required for the other sites if a private watermain serving a fire hydrant must be installed.

Best Regards,

Vincent Duquette, E.I.T
Project Manager, Infrastructure Approvals | Gestionnaire de projet, Projets d'infrastructure
Development Review – All Ward | Direction de l'examen des projets d'aménagement - Tous les quartiers
Planning, Development and Building Services Department (PDBS)| Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West | 110 avenue Laurier Ouest
Ottawa, ON K1P 1J1
613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

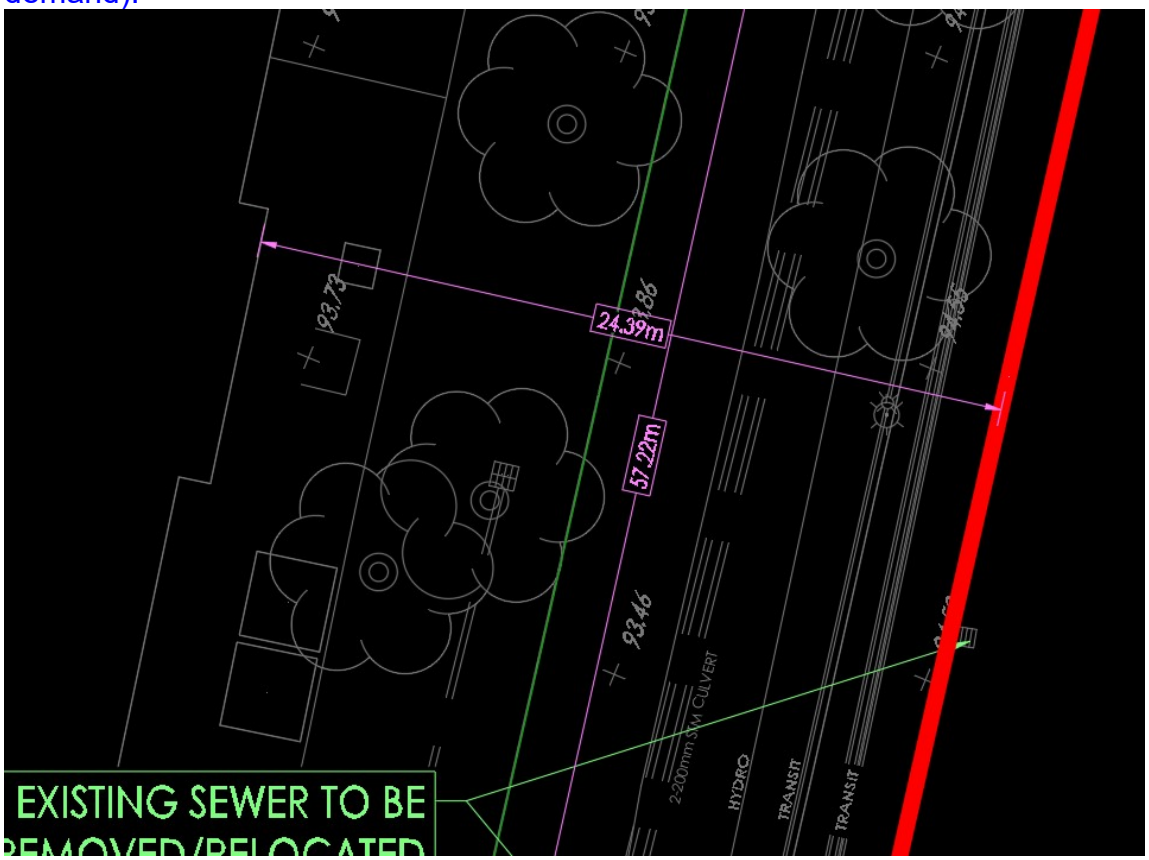
From: Wu, Michael <Michael.Wu@stantec.com>
Sent: October 31, 2024 3:08 PM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>; Moroz, Peter <peter.moroz@stantec.com>
Cc: Gillis, Sheridan <Sheridan.Gillis@stantec.com>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>; Kluke, Jenny

<jennifer.kluke@ottawa.ca>
Subject: RE: City File No. PC2024-0301 - Newcomer Reception Centre Boundary Conditions Request

Good afternoon, Vincent:

Attached are the updated water and fire flow demands sheets per the request below. The revised demands are as follows:

- Average Day Demand: 0.39 L/s
- Maximum Day Demand: 0.98 L/s
- Peak Hour Demand: 2.15 L/s
- Fire Flow Demand (40 Hearst Drive concept): 150 L/s (The west exposure distance, at around 24.4 m with an exposed length of around 57 m, has no impact to the fire flow demand).



Please let us know if you have any questions.

Thanks,

Michael Wu EIT
Civil Engineering Intern, Community Development

Direct: 1 (613) 738-6033
Michael.Wu@stantec.com

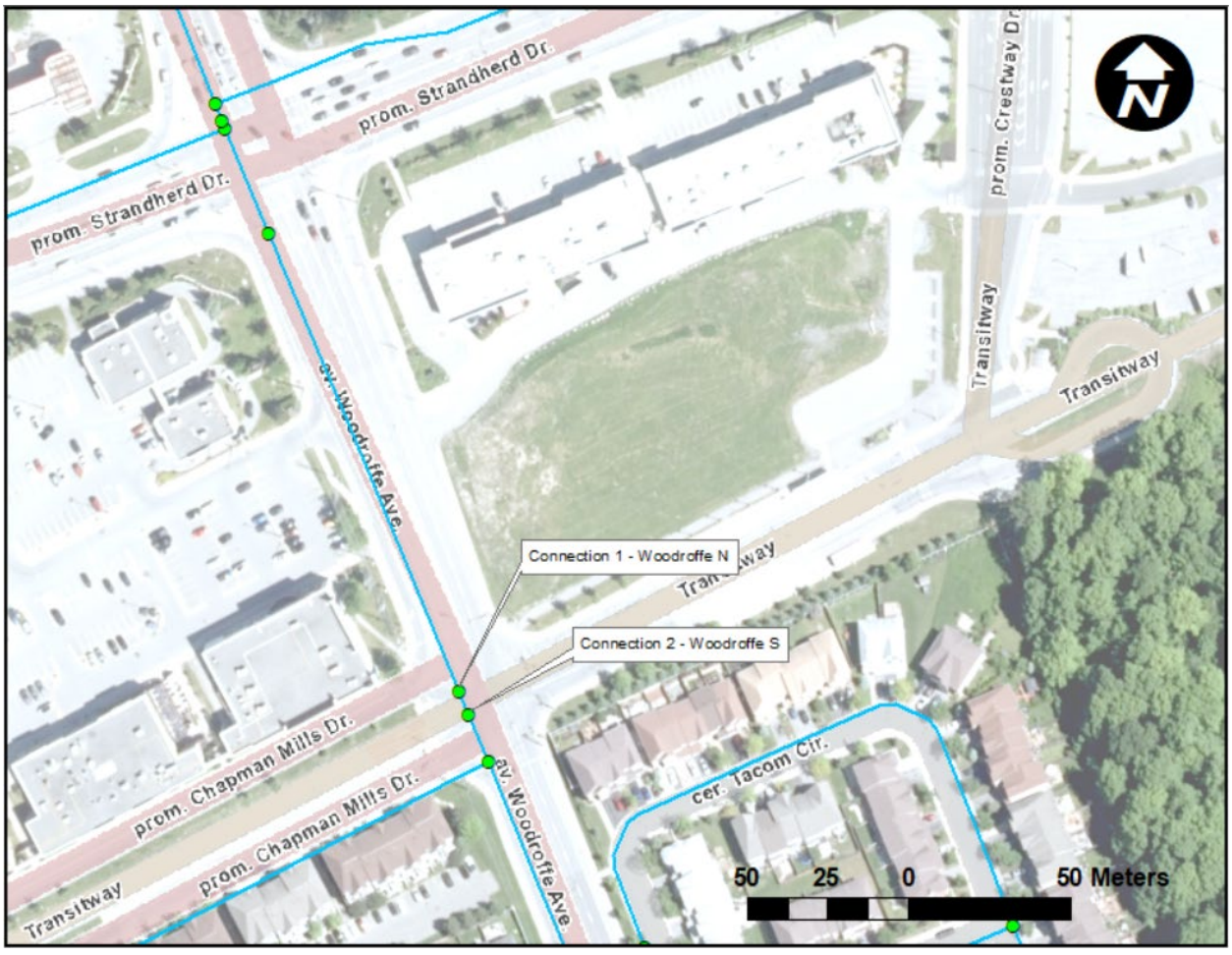
Stantec
300-1331 Clyde Avenue
Ottawa ON K2C 3G4

Boundary Conditions
Sprung Structure – 3311 Woodroffe

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	23	0.39
Maximum Daily Demand	59	0.98
Peak Hour	129	2.15
Fire Flow Demand #1	9,000	150.00

Location



Results

Existing Conditions

Connection 1 – Woodroffe N

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	156.6	82.0
Peak Hour	143.3	63.0
Max Day plus Fire Flow #1	133.1	48.6

[1] Ground Elevation = 98.9 m

Connection 2 – Woodroffe S

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	156.6	81.8
Peak Hour	143.3	62.8
Max Day plus Fire Flow #1	133.1	48.4

[1] Ground Elevation = 99.1 m

Future SUC

Connection 1 – Woodroffe N

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	146.9	68.1
Peak Hour	144.0	64.0
Max Day plus Fire Flow #1	144.4	64.7

[1] Ground Elevation = 98.9 m

Connection 2 – Woodroffe S

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	146.9	67.9
Peak Hour	144.0	63.8
Max Day plus Fire Flow #1	144.4	64.5

[1] Ground Elevation = 99.1 m

Notes

1. As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:
    - If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
    - Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.
2. Demands for proposed Connection 2 at existing 150 mm water main along Transitway were assigned to upstream junction at Woodroffe Avenue off the public looped watermains. The engineer must calculate headloss off the dead-end main.

Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

Appendix B Wastewater Servicing

B.1 Conceptual Sanitary Peak Flows

SITE:

Newcomer Reception Centres

DATE: 2024-10-29
REVISION: 1
DESIGNED BY: MW
CHECKED BY:

SANITARY SEWER DESIGN SHEET
(City of Ottawa)

FILE NUMBER: 160402068
CITY FILE NO. PC2024-0301

DESIGN PARAMETERS

MAX PEAK FACTOR (RES.)=	4.0	FLOW/BEDSPACE	225 l/bed/day	MINIMUM VELOCITY	0.60 m/s
MIN PEAK FACTOR (RES.)=	2.0	COMMERCIAL	28,000 l/ha/day	MAXIMUM VELOCITY	3.00 m/s
PEAKING FACTOR (INDUSTRIAL):	2.4	INDUSTRIAL (HEAVY)	55,000 l/ha/day	MANNINGS n	0.013
PEAKING FACTOR (ICI >20%):	1.5	INDUSTRIAL (LIGHT)	35,000 l/ha/day	BEDDING CLASS	B
		INSTITUTIONAL	28,000 l/ha/day	MINIMUM COVER	2.50 m
		INFILTRATION	0.33 l/s/Ha	HARMON CORRECTION FACTOR	0.8

LOCATION			RESIDENTIAL						COMM/AMENITY		INDUSTRIAL (L)		INDUSTRIAL (H)		INSTITUTIONAL		GREEN / UNUSED		C+I+I	INFILTRATION			TOTAL	PI			
AREA ID NUMBER	FROM M.H.	TO M.H.	AREA (ha)	BEDS	CUMULATIVE AREA (ha)	POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	TOTAL AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	FLOW (l/s)	LENGTH (m)	DIA (mm)	MATERIAL	CLASS
PROPOSED SITE	SITE	EX SAN	0.279	150	0.279	150	3.55	1.39	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.00	0.500	0.50	0.17	1.55				

Notes

1. 225 L/bedspace/day based on Hotel flow from City of Ottawa Sanitary Design Guidelines.

B.2 Confirmation of Sanitary Sewer Capacity

Wu, Michael

From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Sent: November 5, 2024 13:03
To: Wu, Michael
Cc: Moroz, Peter; Gillis, Sheridan; Mottalib, Abdul; Kluke, Jenny
Subject: RE: City File No. PC2024-0301 - Newcomer Reception Centre Sanitary Sewer Capacity Confirmation

Hi Michael,

There is no downstream concerns for the city sanitary sewers accepting the proposed 1.6 L/s peak flow at any of the four of the proposed sites. However, at 1645 Woodroffe Avenue and 3311 Woodroffe Avenue, where the sanitary connection is proposed to connect to a private sanitary sewer, it will have to be demonstrated that the existing private sanitary sewer has capacity for the proposed peak flows.

Best Regards,

Vincent Duquette, E.I.T
Project Manager, Infrastructure Approvals | Gestionnaire de projet, Projets d'infrastructure
Development Review – All Ward | Direction de l'examen des projets d'aménagement - Tous les quartiers
Planning, Development and Building Services Department (PDBS)| Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West | 110 avenue Laurier Ouest
Ottawa, ON K1P 1J1
613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Wu, Michael <Michael.Wu@stantec.com>
Sent: October 31, 2024 4:15 PM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Cc: Moroz, Peter <peter.moroz@stantec.com>; Gillis, Sheridan <Sheridan.Gillis@stantec.com>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>; Kluke, Jenny <jennifer.kluke@ottawa.ca>
Subject: City File No. PC2024-0301 - Newcomer Reception Centre Sanitary Sewer Capacity Confirmation

Good afternoon, Vincent:

Further to the boundary conditions request, we would like confirmation that the following downstream sanitary sewers can receive an additional 1.6 L/s of peak flow from the conceptual Newcomer Reception Centre:

- 40 Hearst Way: The 250 mm diameter sanitary sewers in Hearst Way
- 1005 Greenbank Road: The 200 mm diameter sanitary sewers in Highbury Park Drive
- 1645 Woodroffe Avenue: The 250 mm diameter sanitary sewers servicing the Nepean Sportsplex, within Nepean Sportsplex Drive
- 3311 Woodroffe Avenue: The 200 mm diameter sanitary sewers within the southwest Transitway

Attached is the sanitary calculation sheet for your review and reference.

Please let us know if you require further information or have any questions.

Thanks,

Michael Wu EIT
Civil Engineering Intern, Community Development

Direct: 1 (613) 738-6033
Michael.Wu@stantec.com

Stantec
300-1331 Clyde Avenue
Ottawa ON K2C 3G4

'

'

Appendix C Conceptual Stormwater Management

Stormwater Management Calculations

Project #160402068, 1005 Greenbank Road
Modified Rational Method Calculations for Storage

5 yr Intensity
City of Ottawa

$I = a/(t + b)^c$

a =	998.071
b =	6.053
c =	0.814

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

5 YEAR Predevelopment Target Release from Portion of Site

Subdrainage Area: Predevelopment Tributary Area to Outlet
Area (ha): 0.5000
C: 0.50

Typical Time of Concentration

tc (min)	I (5 yr) (mm/hr)	Qtarget (L/s)
10	104.19	**72.41**

5 YEAR Modified Rational Method for Entire Site

Subdrainage Area: 1005_GB — Controlled - Tributary
Area (ha): 0.50
C: 0.90

tc (min)	I (5 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)
10	104.2	130.3	72.4	57.9	**34.8**
20	70.3	87.9	72.4	15.5	18.6
30	53.9	67.5	72.4	0.0	0.0
40	44.2	55.3	72.4	0.0	0.0
50	37.7	47.1	72.4	0.0	0.0
60	32.9	41.2	72.4	0.0	0.0
70	29.4	36.7	72.4	0.0	0.0
80	26.6	33.2	72.4	0.0	0.0
90	24.3	30.4	72.4	0.0	0.0
100	22.4	28.0	72.4	0.0	0.0
110	20.8	26.0	72.4	0.0	0.0
120	19.5	24.4	72.4	0.0	0.0

Storage: Surface Storage Above CB / Dry Pond

	Stage	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Volume Check
5-year Water Level	-	-	72.4	34.8	114.0	OK

SUMMARY TO OUTLET

			Vrequired	Vavailable*	
Tributary Area	0.500	ha			
Total 5yr Flow to Sewer	72	L/s	0	0 m^3	Ok
Non-Tributary Area	0.000	ha			
Total 5yr Flow Uncontrolled	0	L/s			
Total Area	0.500	ha			
Total 5yr Flow	72	L/s			
Target	72	L/s			

Project #160402068, 1005 Greenbank Road
Modified Rational Method Calculations for Storage

100 yr Intensity
City of Ottawa

$I = a/(t + b)^c$

a =	1735.688
b =	6.014
c =	0.820

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

100 YEAR Modified Rational Method for Entire Site

Subdrainage Area: 1005_GB — Controlled - Tributary
Area (ha): 0.50
C: 1.00

tc (min)	I (100 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)
10	178.6	248.2	72.4	175.8	105.5
20	120.0	166.7	72.4	94.3	**113.2**
30	91.9	127.7	72.4	55.3	99.5
40	75.1	104.5	72.4	32.1	76.9
50	64.0	88.9	72.4	16.5	49.5
60	55.9	77.7	72.4	5.3	19.1
70	49.8	69.2	72.4	0.0	0.0
80	45.0	62.5	72.4	0.0	0.0
90	41.1	57.1	72.4	0.0	0.0
100	37.9	52.7	72.4	0.0	0.0
110	35.2	48.9	72.4	0.0	0.0
120	32.9	45.7	72.4	0.0	0.0

Storage: Surface Storage Above CB / Dry Pond

	Stage	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Volume Check
100-year Water Level	-	-	72.4	113.2	114.0	OK
					0.80	

SUMMARY TO OUTLET

			Vrequired	Vavailable*	
Tributary Area	0.500	ha			
Total 100yr Flow to Sewer	72	L/s	0	0 m^3	Ok
Non-Tributary Area	0.000	ha			
Total 100yr Flow Uncontrolled	0	L/s			
Total Area	0.500	ha			
Total 100yr Flow	72	L/s			
Target	72	L/s			

Stormwater Management Calculations

Project #160402068, 1005 Greenbank Road
Modified Rational Method Calculations for Storage

5 yr Intensity
City of Ottawa

$I = a/(t + b)^c$

a =	998.071
b =	6.053
c =	0.814

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

5 YEAR Predevelopment Target Release from Portion of Site

Subdrainage Area: Predevelopment Tributary Area to Outlet
Area (ha): 0.5000
C: 0.20

Typical Time of Concentration

tc (min)	I (5 yr) (mm/hr)	Qtarget (L/s)
10	104.19	**29.0**

5 YEAR Modified Rational Method for Entire Site

Subdrainage Area: 1005_GB — Controlled - Tributary
Area (ha): 0.50
C: 0.90

tc (min)	I (5 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)
10	104.2	130.3	29.0	101.3	60.8
20	70.3	87.9	29.0	58.9	**70.7**
30	53.9	67.5	29.0	38.5	69.2
40	44.2	55.3	29.0	26.3	63.1
50	37.7	47.1	29.0	18.1	54.3
60	32.9	41.2	29.0	12.2	44.0
70	29.4	36.7	29.0	7.7	32.5
80	26.6	33.2	29.0	4.2	20.3
90	24.3	30.4	29.0	1.4	7.5
100	22.4	28.0	29.0	0.0	0.0
110	20.8	26.0	29.0	0.0	0.0
120	19.5	24.4	29.0	0.0	0.0

Storage: Surface Storage Above CB / Dry Pond

	Stage	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Volume Check
5-year Water Level	-	-	29.0	70.7	141.0	OK

SUMMARY TO OUTLET

		Vrequired	Vavailable*	
Tributary Area	0.500 ha			
Total 5yr Flow to Sewer	29 L/s	0	0 m^3	Ok
Non-Tributary Area	0.000 ha			
Total 5yr Flow Uncontrolled	0 L/s			
Total Area	0.500 ha			
Total 5yr Flow	29 L/s			
Target	29 L/s			

Project #160402068, 1005 Greenbank Road
Modified Rational Method Calculations for Storage

100 yr Intensity
City of Ottawa

$I = a/(t + b)^c$

a =	1735.688
b =	6.014
c =	0.820

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

100 YEAR Predevelopment Target Release from Portion of Site

Subdrainage Area: Predevelopment Tributary Area to Outlet
Area (ha): 0.5000
C: 0.20

Typical Time of Concentration

tc (min)	I (100 yr) (mm/hr)	Qtarget (L/s)
10	178.56	**49.6**

100 YEAR Modified Rational Method for Entire Site

Subdrainage Area: 1005_GB — Controlled - Tributary
Area (ha): 0.50
C: 1.00

tc (min)	I (100 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)
10	178.6	248.2	49.6	198.6	119.2
20	120.0	166.7	49.6	117.1	140.6
30	91.9	127.7	49.6	78.1	**140.6**
40	75.1	104.5	49.6	54.9	131.6
50	64.0	88.9	49.6	39.3	117.9
60	55.9	77.7	49.6	28.1	101.1
70	49.8	69.2	49.6	19.6	82.4
80	45.0	62.5	49.6	12.9	62.1
90	41.1	57.1	49.6	7.5	40.7
100	37.9	52.7	49.6	3.1	18.5
110	35.2	48.9	49.6	0.0	0.0
120	32.9	45.7	49.6	0.0	0.0

Storage: Surface Storage Above CB / Dry Pond

	Stage	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Volume Check
100-year Water Level	-	-	49.6	140.6	141.0	OK
					0.43	

SUMMARY TO OUTLET

		Vrequired	Vavailable*	
Tributary Area	0.500 ha			
Total 100yr Flow to Sewer	50 L/s	0	0 m^3	Ok
Non-Tributary Area	0.000 ha			
Total 100yr Flow Uncontrolled	0 L/s			
Total Area	0.500 ha			
Total 100yr Flow	50 L/s			
Target	50 L/s			

Stormwater Management Calculations

Project #160402068, 1645 Woodroffe Avenue
Modified Rational Method Calculations for Storage

2 yr Intensity
City of Ottawa

$I = a/(t + b)^c$

a =	732.951
b =	6.199
c =	0.81

t (min)	I (mm/hr)
10	76.81
20	52.03
30	40.04
40	32.86
50	28.04
60	24.56
70	21.91
80	19.83
90	18.14
100	16.75
110	15.57
120	14.56

2 YEAR Predevelopment Target Release from Portion of Site

Subdrainage Area: Predevelopment Tributary Area to Outlet
Area (ha): 0.5000
C: 0.20

Typical Time of Concentration

tc (min)	I (2 yr) (mm/hr)	Qtarget (L/s)
10	76.81	**21.35**

(Multiplied by 2 for allowance overland to Hunt Club)

2 YEAR Modified Rational Method for Entire Site

Subdrainage Area: 1645_WD — Controlled - Tributary
Area (ha): 0.50
C: 0.90

tc (min)	I (2 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)
10	76.8	96.1	21.4	74.7	44.8
20	52.0	65.1	21.4	43.7	**52.5**
30	40.0	50.1	21.4	28.7	51.7
40	32.9	41.1	21.4	19.8	47.4
50	28.0	35.1	21.4	13.7	41.2
60	24.6	30.7	21.4	9.4	33.7
70	21.9	27.4	21.4	6.1	25.5
80	19.8	24.8	21.4	3.5	16.6
90	18.1	22.7	21.4	1.3	7.3
100	16.7	20.9	21.4	0.0	0.0
110	15.6	19.5	21.4	0.0	0.0
120	14.6	18.2	21.4	0.0	0.0

Storage: Surface Storage Above CB / Dry Pond

	Stage	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Volume Check
2-year Water Level	-	-	21.4	52.5	153.0	OK

SUMMARY TO OUTLET

			Vrequired	Vavailable*	
Tributary Area	0.500	ha			
Total 2yr Flow to Sewer	43	L/s	0	0 m^3	Ok
Non-Tributary Area	0.000	ha			
Total 2yr Flow Uncontrolled	0	L/s			
Total Area	0.500	ha			
Total 2yr Flow	21	L/s			
Target	21	L/s			

Project #160402068, 1645 Woodroffe Avenue
Modified Rational Method Calculations for Storage

100 yr Intensity
City of Ottawa

$I = a/(t + b)^c$

a =	1735.688
b =	6.014
c =	0.820

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

100 YEAR Modified Rational Method for Entire Site

Subdrainage Area: 1645_WD — Controlled - Tributary
Area (ha): 0.50
C: 1.00

tc (min)	I (100 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)
10	178.6	248.2	42.7	205.5	123.3
20	120.0	166.7	42.7	124.0	148.8
30	91.9	127.7	42.7	85.0	**153.0**
40	75.1	104.5	42.7	61.7	148.2
50	64.0	88.9	42.7	46.2	138.6
60	55.9	77.7	42.7	35.0	126.0
70	49.8	69.2	42.7	26.5	111.3
80	45.0	62.5	42.7	19.8	95.2
90	41.1	57.1	42.7	14.4	78.0
100	37.9	52.7	42.7	10.0	59.9
110	35.2	48.9	42.7	6.2	41.1
120	32.9	45.7	42.7	3.0	21.7

Storage: Surface Storage Above CB / Dry Pond

	Stage	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Volume Check
100-year Water Level	-	-	42.7	153.0	153.0	OK
					0.01	

SUMMARY TO OUTLET

			Vrequired	Vavailable*	
Tributary Area	0.500	ha			
Total 100yr Flow to Sewer	43	L/s	0	0 m^3	Ok
Non-Tributary Area	0.000	ha			
Total 100yr Flow Uncontrolled	0	L/s			
Total Area	0.500	ha			
Total 100yr Flow	43	L/s			
Target	43	L/s			

Stormwater Management Calculations

Project #160402068, 3311 Woodroffe Avenue
Modified Rational Method Calculations for Storage

2 yr Intensity
City of Ottawa

$I = a/(t + b)^c$

a =	732.951
b =	6.199
c =	0.81

t (min)	I (mm/hr)
10	76.81
20	52.03
30	40.04
40	32.86
50	28.04
60	24.56
70	21.91
80	19.83
90	18.14
100	16.75
110	15.57
120	14.56

2 YEAR Predevelopment Target Release from Portion of Site

Subdrainage Area: Predevelopment Tributary Area to Outlet
Area (ha): 0.5000
C: 0.33

Typical Time of Concentration

tc (min)	I (2 yr) (mm/hr)	Qtarget (L/s)
-	-	**29.60**

(59.2 L/s/ha per EXP, 2012)

2 YEAR Modified Rational Method for Entire Site

Subdrainage Area: 3311_WD — Controlled - Tributary
Area (ha): 0.50
C: 0.90

tc (min)	I (2 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)
10	76.8	96.1	29.6	66.5	39.9
20	52.0	65.1	29.6	35.5	**42.6**
30	40.0	50.1	29.6	20.5	36.9
40	32.9	41.1	29.6	11.5	27.6
50	28.0	35.1	29.6	5.5	16.4
60	24.6	30.7	29.6	1.1	4.0
70	21.9	27.4	29.6	0.0	0.0
80	19.8	24.8	29.6	0.0	0.0
90	18.1	22.7	29.6	0.0	0.0
100	16.7	20.9	29.6	0.0	0.0
110	15.6	19.5	29.6	0.0	0.0
120	14.6	18.2	29.6	0.0	0.0

Storage: Surface Storage Above CB / Dry Pond

	Stage	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Volume Check
2-year Water Level	-	-	29.6	42.6	180.0	OK

SUMMARY TO OUTLET

			Vrequired	Vavailable*	
Tributary Area	0.500	ha			
Total 2yr Flow to Sewer	30	L/s	0	0 m^3	Ok
Non-Tributary Area	0.000	ha			
Total 2yr Flow Uncontrolled	0	L/s			
Total Area	0.500	ha			
Total 2yr Flow	30	L/s			
Target	30	L/s			

Project #160402068, 3311 Woodroffe Avenue
Modified Rational Method Calculations for Storage

100 yr Intensity
City of Ottawa

$I = a/(t + b)^c$

a =	1735.688
b =	6.014
c =	0.820

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

100 YEAR Modified Rational Method for Entire Site

Subdrainage Area: 3311_WD — Controlled - Tributary
Area (ha): 0.50
C: 1.00

tc (min)	I (100 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)
10	178.6	248.2	29.6	218.6	131.2
20	120.0	166.7	29.6	137.1	164.6
30	91.9	127.7	29.6	98.1	176.6
40	75.1	104.5	29.6	74.9	**179.6**
50	64.0	88.9	29.6	59.3	177.9
60	55.9	77.7	29.6	48.1	173.1
70	49.8	69.2	29.6	39.6	166.4
80	45.0	62.5	29.6	32.9	158.1
90	41.1	57.1	29.6	27.5	148.7
100	37.9	52.7	29.6	23.1	138.5
110	35.2	48.9	29.6	19.3	127.6
120	32.9	45.7	29.6	16.1	116.1

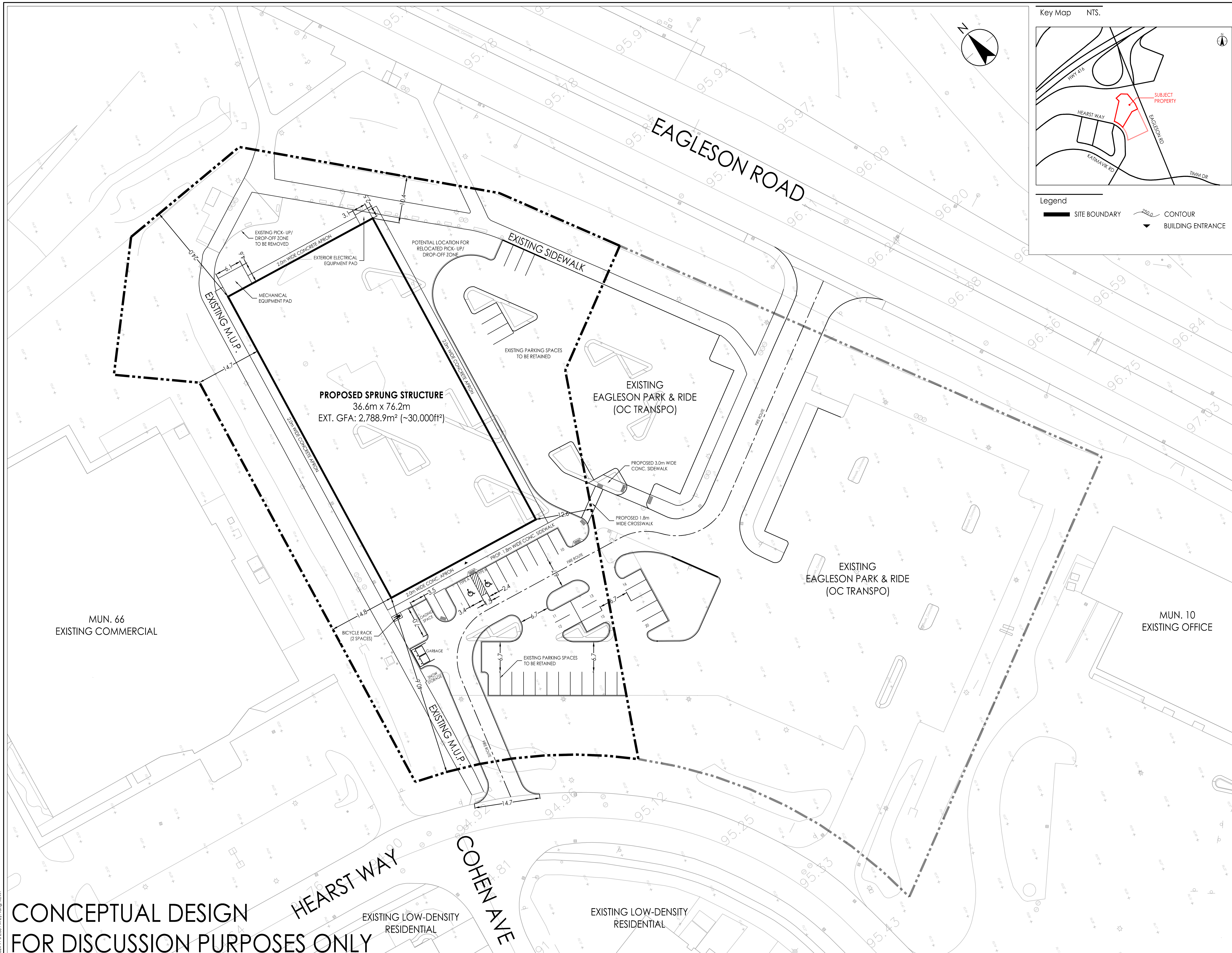
Storage: Surface Storage Above CB / Dry Pond

	Stage	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Volume Check
100-year Water Level	-	-	29.6	179.6	180.0	OK
					0.36	

SUMMARY TO OUTLET

			Vrequired	Vavailable*	
Tributary Area	0.500	ha			
Total 100yr Flow to Sewer	30	L/s	0	0 m^3	Ok
Non-Tributary Area	0.000	ha			
Total 100yr Flow Uncontrolled	0	L/s			
Total Area	0.500	ha			
Total 100yr Flow	30	L/s			
Target	30	L/s			

Appendix D Conceptual Site Plans



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Liability Note

Details of Development

ZONING		LIGHT INDUSTRIAL ZONE, SUBZONE 1, EXCEPTION 1438 (IL1[1438])*	
SITE DETAILS		REQUIRED	PROVIDED
SETBACKS	FY	9.0m	40.6m
	RY	7.5m	10.4m
	CORNER SY	9.0m	N/A
	INT. SY	4.5m	12.6m/14.7m
MINIMUM LOT AREA		4,000m²	8,918.1m²
MINIMUM LOT WIDTH		45.0m	50.3m
MAXIMUM LOT COVERAGE		45.0% (4,013.1m²)	31.3% (2,788.9m²)
MAXIMUM BUILDING HEIGHT		13.5m	TBD
MINIMUM LANDSCAPED AREA WIDTH		3m	TBD
OFF-STREET PARKING		11 SPACES	20 SPACES
BARRIER FREE PARKING		1 SPACE (1 TYPE 'A', 0 TYPE 'B')	2 SPACES (1 TYPE 'A', 1 TYPE 'B')
BICYCLE PARKING		1 SPACE	2 SPACES
LOADING SPACES		1 SPACE	1 SPACE

Parking Calculation

SHELTER:
1 SPACE PER 100m²
(1,094.0m² / 100m²) x 1 SPACE = 11 SPACES

BICYCLE PARKING:
1 SPACE PER 1,500m²
(1,094.0m² / 1,500m²) x 1 SPACES = 0.7> 1 SPACE

BARRIER FREE PARKING:
1 SPACE FOR 20-99 PARKING SPACES
1 SPACE (1 TYPE 'A', 0 TYPE 'B')

Notes

1. SHELTERS ARE NOT PERMITTED IN IL1 ZONES.
2. ZONING BY LAW AMENDMENT MAY BE REQUIRED.

Revision

Revision	By	Appd.	YY.MM.DD

Issued

Issued	By	Appd.	YY.MM.DD
1. CLIENT REVIEW	KT	SG	2024.11.06

File Name: 160402068_r-db_40hearst	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	KT	SG	KT	24.10.31

Permit-Seal

Client/Project
CITY OF OTTAWA

POTENTIAL LOCATIONS FOR TEMPORARY HOUSING
Ottawa, ON Canada

Title
40 HEARST WAY
CONCEPTUAL SITE PLAN

Project No. 160402068
Scale HORZ – 1 : 400

Drawing No. CP-1
Sheet 1 of 1
Revision 0

ORIGINAL SHEET - ANSI D

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ORIGINAL SHEET - ARCH D

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Ottawa ON
Tel. 613.722.4420
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Legend

- PROPOSED WATERMAIN
- PROPOSED VALVE AND VALVE BOX
- PROPOSED HYDRANT
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED WATER METER
- PROPOSED REMOTE WATER METER
- 99.99 PROPOSED ELEVATION
- 98.88 PROPOSED ELEVATION EXISTING ELEVATION
- 2.0% FLOW DIRECTION AND GRADE
- FF=99.99 FINISHED FIRST FLOOR ELEVATION
- TERRACING 3:1 SLOPE MAXIMUM (UNLESS OTHERWISE SHOWN)
- PROPOSED SWALE

Notes

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

2	ISSUED TO CITY FOR COMMENTS	JP	PM/SGG	24.11.01
1	ISSUED TO CITY FOR COMMENTS	JP	PM/SGG	24.10.18
Revision		By	Appd.	YY.MM.DD

File Name: 160402068.40_HEARST.dwg	JP	PM	JP	24.10.17
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project
CITY OF OTTAWA

POTENTIAL LOCATIONS FOR TEMPORARY HOUSING.
EVALUATION AND CONCEPTUAL DESIGN FOR SPRUNG FACILITIES
Ottwa, Ontario

Title
40 HEARST WAY
CONCEPTUAL GRADING & SERVICING PLAN

Project No.	Scale	Sheet	Revision
160402068	1:500 (0 5 15 25m)		
Drawing No.			
SSGP-1		2 of 2	2

Details of Development – 1045 GREENBANK ROAD (SOUTH)

ZONING	DEVELOPMENT RESERVE ZONE (DR)*		
SITE DETAILS		REQUIRED	PROVIDED
SETBACKS	FY	7.5m	16.6m
	RY	7.5m	0.0m
	CORNER SY	7.5m	9.8m
	INT. SY	7.5m	15.7m
MINIMUM LOT AREA		NO MIN.	2,945.8m²
MINIMUM LOT WIDTH		NO MIN.	34.3m
MAXIMUM LOT COVERAGE		30.0% (883.7m²)	36.7% (1,081.5m²)
MAXIMUM BUILDING HEIGHT		11.0m	TBD
MINIMUM LANDSCAPED AREA		N/A	TBD

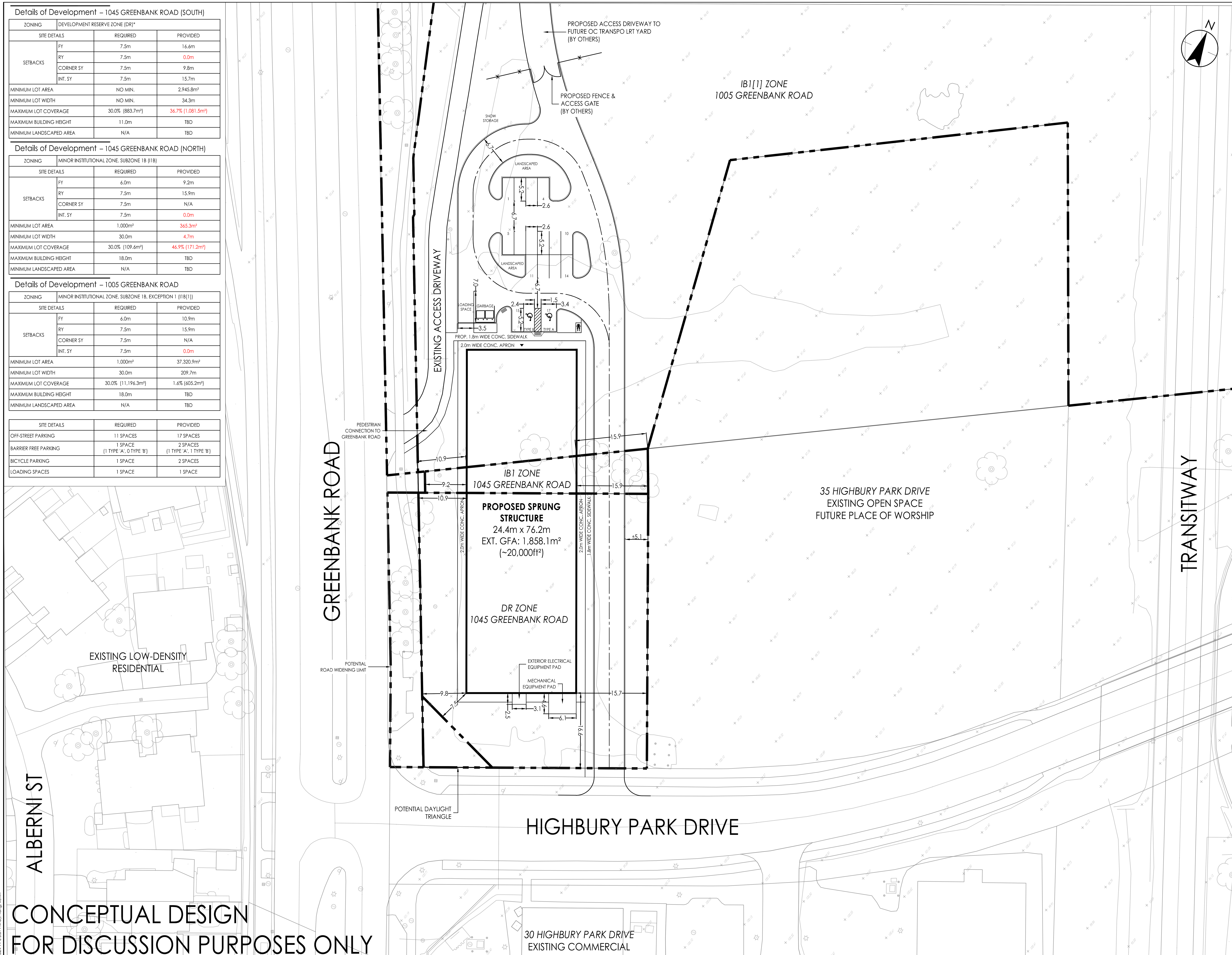
Details of Development – 1045 GREENBANK ROAD (NORTH)

ZONING	MINOR INSTITUTIONAL ZONE, SUBZONE 1B (I1B)		
SITE DETAILS		REQUIRED	PROVIDED
SETBACKS	FY	6.0m	9.2m
	RY	7.5m	15.9m
	CORNER SY	7.5m	N/A
	INT. SY	7.5m	0.0m
MINIMUM LOT AREA		1,000m²	365.3m²
MINIMUM LOT WIDTH		30.0m	4.7m
MAXIMUM LOT COVERAGE		30.0% (109.6m²)	46.9% (171.2m²)
MAXIMUM BUILDING HEIGHT		18.0m	TBD
MINIMUM LANDSCAPED AREA		N/A	TBD

Details of Development – 1005 GREENBANK ROAD

ZONING	MINOR INSTITUTIONAL ZONE, SUBZONE 1B, EXCEPTION 1 (I1B[1])		
SITE DETAILS		REQUIRED	PROVIDED
SETBACKS	FY	6.0m	10.9m
	RY	7.5m	15.9m
	CORNER SY	7.5m	N/A
	INT. SY	7.5m	0.0m
MINIMUM LOT AREA		1,000m²	37,320.9m²
MINIMUM LOT WIDTH		30.0m	209.7m
MAXIMUM LOT COVERAGE		30.0% (11,196.3m²)	1.6% (605.2m²)
MAXIMUM BUILDING HEIGHT		18.0m	TBD
MINIMUM LANDSCAPED AREA		N/A	TBD

SITE DETAILS	REQUIRED	PROVIDED
OFF-STREET PARKING	11 SPACES	17 SPACES
BARRIER FREE PARKING	1 SPACE (1 TYPE 'A', 0 TYPE 'B')	2 SPACES (1 TYPE 'A', 1 TYPE 'B')
BICYCLE PARKING	1 SPACE	2 SPACES
LOADING SPACES	1 SPACE	1 SPACE



CONCEPTUAL DESIGN
FOR DISCUSSION PURPOSES ONLY

ORIGINAL SHEET - ANSI D

Stantec

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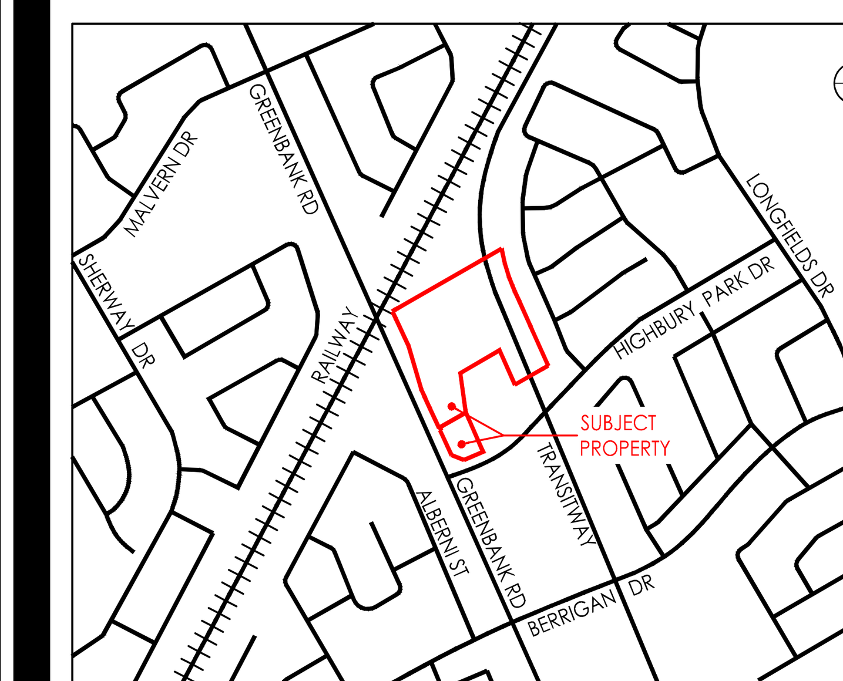
London ON N6K 0J5
Tel. 519-645-2007
www.stantec.com

Key Map NTS.



Legend

SITE BOUNDARY
CONTOUR
BUILDING ENTRANCE

Parking Calculation

SHELTER:
1 SPACE PER 100m²
(1,094.0m² / 100m²) x 1 SPACE = 11 SPACES

BICYCLE PARKING:
1 SPACE PER 1,500m
(1,094m² / 1,500m²) x 1 SPACE = 0.7 > 1 SPACE

BARRIER FREE PARKING:
1 SPACE FOR 20-99 PARKING SPACES
1 SPACE (1 TYPE 'A', 0 TYPE 'B')

Notes

1. THE PROPOSED BUILDING LIES ON 3 ZONES.
2. SHELTERS ARE NOT PERMITTED IN DR ZONES.
3. ZONING BY LAW AMENDMENT MAY BE REQUIRED.

Revision	By	Appd.	YY.MM.DD
1. CLIENT REVIEW	KT	SG	2024.11.06
Issued	By	Appd.	YY.MM.DD

File Name: 160402068_r-db_1005greenbank	KT	SG	KT	24.11.05
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project

CITY OF OTTAWA

POTENTIAL LOCATIONS FOR TEMPORARY HOUSING

Ottawa, ON Canada

Title

1005 GREENBANK ROAD
CONCEPTUAL SITE PLAN

Project No.	Scale
160402068	HORZ – 1 : 400

Drawing No.	Sheet	Revision
CP-1	1 of 1	0

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Legend

- PROPOSED WATERMAIN
- PROPOSED VALVE AND VALVE BOX
- PROPOSED HYDRANT
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED WATER METER
- PROPOSED REMOTE WATER METER
- 99.99 PROPOSED ELEVATION
- 98.88 PROPOSED ELEVATION EXISTING ELEVATION
- 2.0% FLOW DIRECTION AND GRADE
- FF=99.99 FINISHED FIRST FLOOR ELEVATION
- TERRACING 3:1 SLOPE MAXIMUM (UNLESS OTHERWISE SHOWN)
- PROPOSED SWALE

Notes

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

2	ISSUED TO CITY FOR COMMENTS	JP	PM/SGG	24.11.06
1	ISSUED TO CITY FOR COMMENTS	JP	PM/SGG	24.10.18
Revision		By	Appd.	YY.MM.DD

File Name: 160402068.GREENBANK.dwg	JP	PM	JP	24.10.17
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

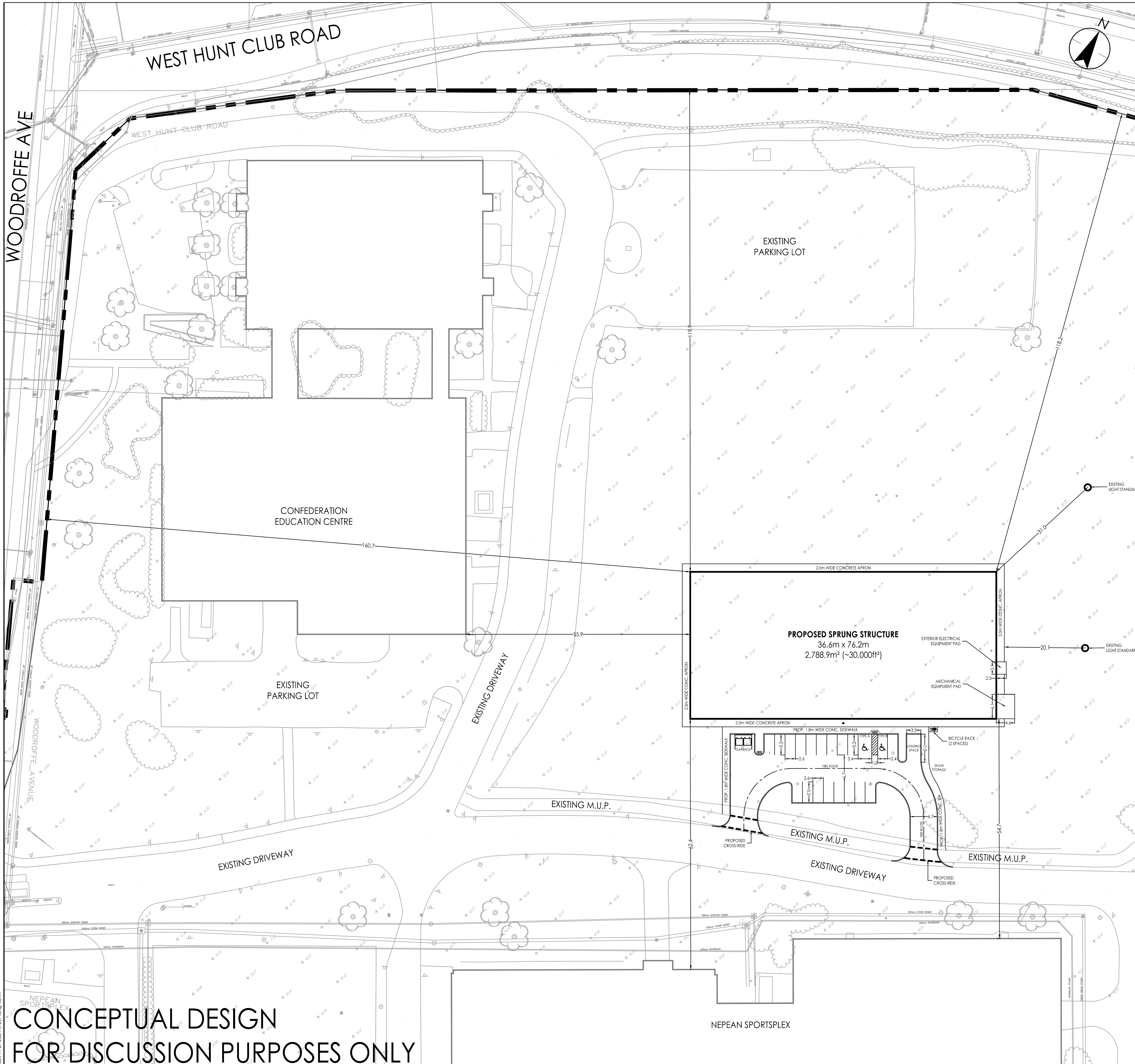
Permit-Seal

Client/Project
CITY OF OTTAWA

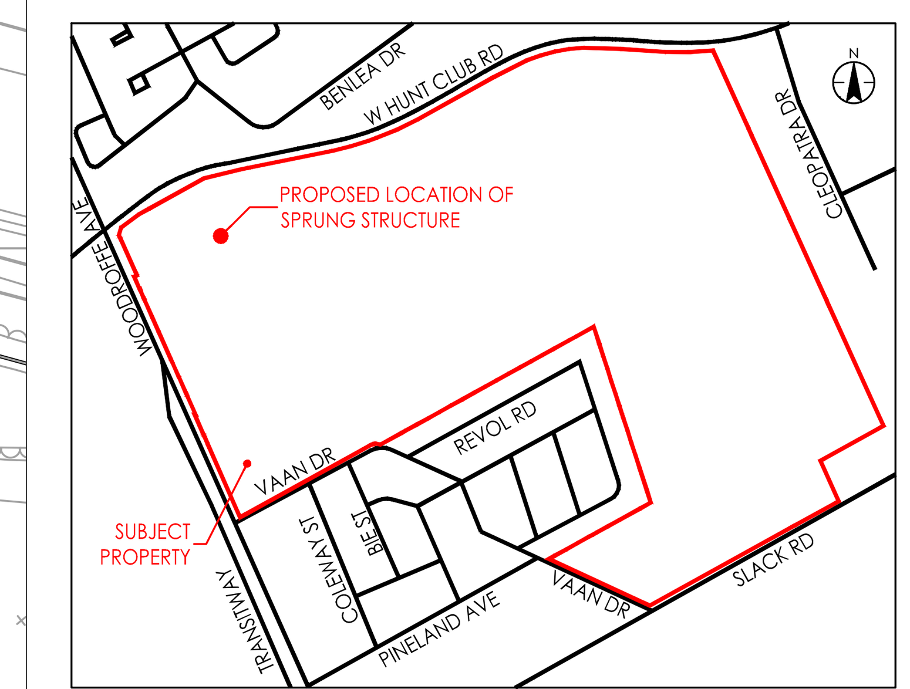
POTENTIAL LOCATIONS FOR TEMPORARY HOUSING.
EVALUATION AND CONCEPTUAL DESIGN FOR SPRUNG FACILITIES
Ottwa, Ontario

Title
1045/1005 GREEBBANK ROAD.
CONCEPTUAL GRADING & SERVICING PLAN

Project No.	Scale	Drawing No.	Sheet	Revision
160402068	1:500 (0 5 15 25m)	SSGP-1	2 of 2	2



Key Map NTS.



Legend

- SITE BOUNDARY
- 250.0 CONTOUR
- BUILDING ENTRANCE

CONCEPTUAL DESIGN
FOR DISCUSSION PURPOSES ONLY

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Liability Note

The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.

Details of Development

ZONING	RURAL INSTITITIONAL ZONE (RI4)		
SITE DETAILS		REQUIRED	PROVIDED
SETBACKS	FY	9.0m	160.7m
	RY	10.0m	1,208.6m
	CORNER SY	9.0m	118.2m
	INT. SY	9.0m	576.9m
MINIMUM LOT AREA		1.0ha	129.2ha
MINIMUM LOT FRONTAGE		75.0m	738.0m
MAXIMUM LOT COVERAGE		30.0% (38.7ha)	0.002% (0.28ha)
MAXIMUM BUILDING HEIGHT		12.0m	TBD
MINIMUM LANDSCAPED AREA		20.0% (25.8ha)	TBD
OFF-STREET PARKING		11 SPACES	20 SPACES
BARRIER FREE PARKING		1 SPACE (1 TYPE 'A', 0 TYPE 'B')	2 SPACES (1 TYPE 'A', 1 TYPE 'B')
BICYCLE PARKING		0 SPACES	2 SPACES
LOADING SPACES		1 SPACE	1 SPACE

Parking Calculation

SHELTER:
1 SPACES PER 100m²
(1,094.0m² / 100m²) x 1 SPACES = 11 SPACES

BICYCLE PARKING:
1 SPACE PER 1,500m²
0 SPACES

BARRIER FREE PARKING:
1 SPACE FOR 20-99 PARKING SPACES
1 SPACE (1 TYPE 'A', 0 TYPE 'B')

Notes

1. THE PROVIDED LOT COVERAGE DOES NOT INCLUDE EXISTING BUILDINGS LOCATED ON THE PARCEL.

Revision

	By	Appd.	YY.MM.DD

Issued

	By	Appd.	YY.MM.DD
2. PER CLIENT COMMENTS	KT	SG	2024.11.29
1. CLIENT REVIEW	KT	SG	2024.10.31

File Name: 160402068_r-db_1645woodroffe	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	KT	SG	KT	24.10.30

Permit-Seal

Client/Project

CITY OF OTTAWA

POTENTIAL LOCATIONS FOR TEMPORARY HOUSING
Ottawa, ON Canada

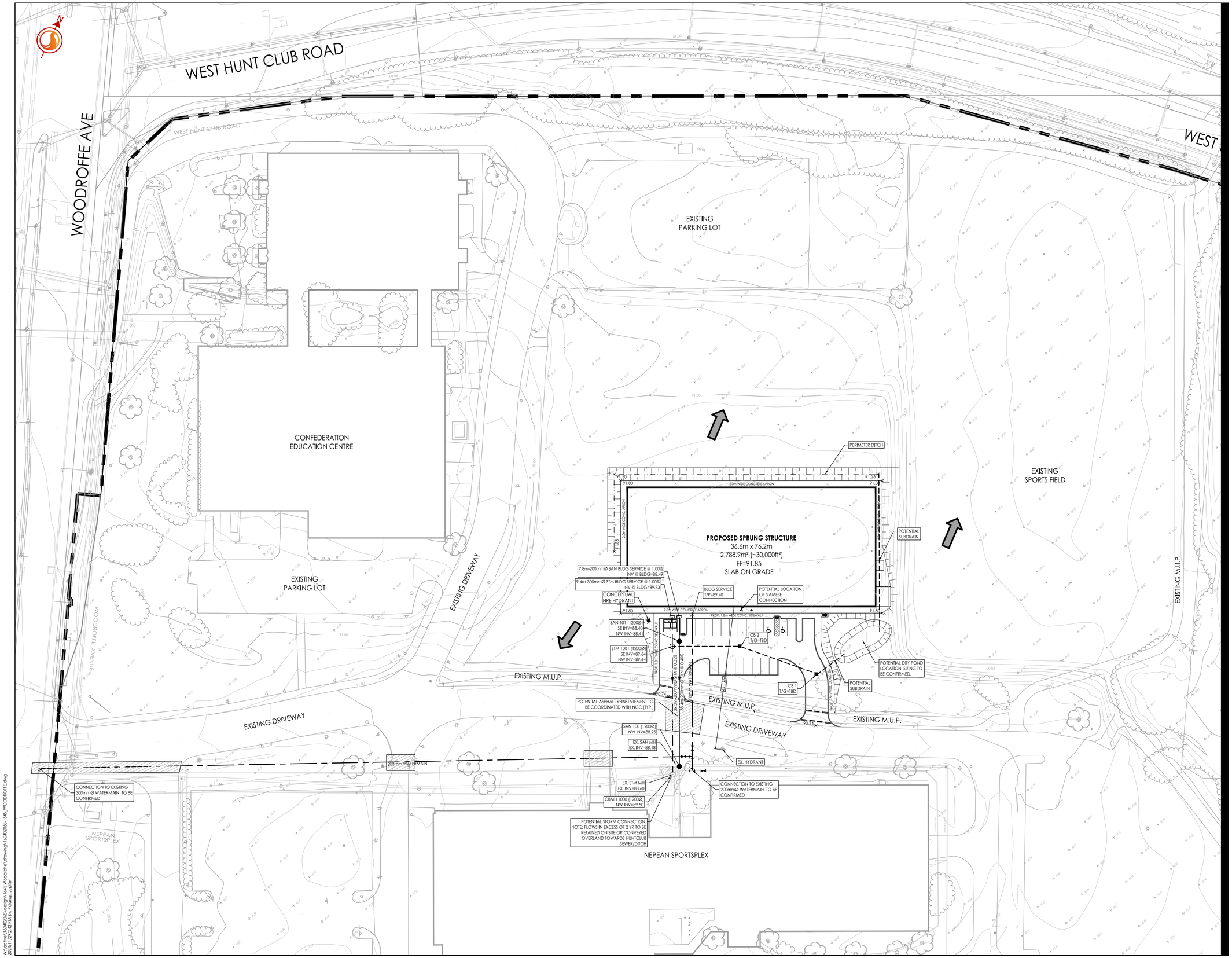
Title

1645 WOODROFFE AVENUE
CONCEPTUAL SITE PLAN

Project No.	Scale
160402068	HORZ — 1 : 500

Drawing No.	Sheet	Revision
CP-1	1 of 1	0

ORIGINAL SHEET - ANSI D



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2024/11/29 2:42 PM By: Pallarga, Jaclyn

ORIGINAL SHEET - ARCH D

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Legend

- PROPOSED WATERMAIN
- PROPOSED VALVE AND VALVE BOX
- PROPOSED HYDRANT
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED WATER METER
- PROPOSED REMOTE WATER METER
- 99.99 PROPOSED ELEVATION
- 98.88 PROPOSED ELEVATION EXISTING ELEVATION
- 2.0% FLOW DIRECTION AND GRADE
- FF=99.99 FINISHED FIRST FLOOR ELEVATION
- TERRACING 3:1 SLOPE MAXIMUM (UNLESS OTHERWISE SHOWN)
- PROPOSED SWALE

Notes

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

3	ISSUED TO CITY FOR COMMENTS	JP	PM/SGG	24.11.29
2	ISSUED TO CITY FOR COMMENTS	JP	PM/SGG	24.10.31
1	ISSUED TO CITY FOR COMMENTS	JP	PM/SGG	24.10.18
Revision		By	Appd.	YY.MM.DD

File Name: 160402068-1645_WOODROFFE.dwg	JP	PM	JP	24.10.17
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

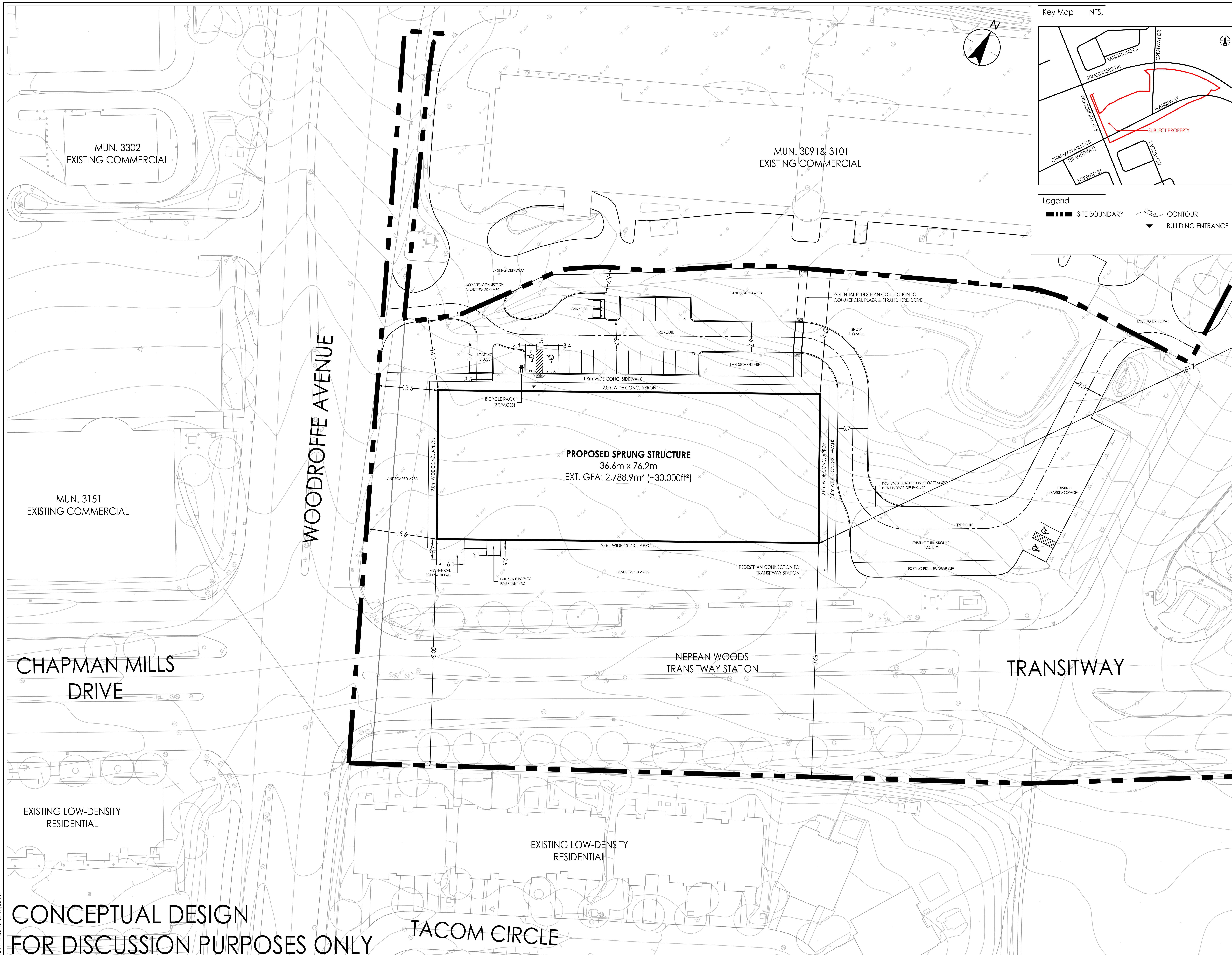
Client/Project
CITY OF OTTAWA

POTENTIAL LOCATIONS FOR TEMPORARY HOUSING.
EVALUATION AND CONCEPTUAL DESIGN FOR SPRUNG FACILITIES
Ottwa, Ontario

Title
1645 WOODROFFE AVENUE
CONCEPTUAL GRADING & SERVICING PLAN

Project No.	Scale	Sheet	Revision
160402068	1:500 (0 5 15 25m)	2 of 3	3

Drawing No.
SSGP-1



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Tel. 519-645-2007
www.stantec.com

Liability Note

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Details of Development

ZONING	GENERAL MIXED-USE ZONE, SUBZONE 9, EXCEPTION 1920 (GM9[1920])*		
SITE DETAILS		REQUIRED	PROVIDED
SETBACKS	FY	3.0m	13.5m
	RY	3.0m	181.7m
	CORNER SY	3.0m	N/A
	INT. SY	5.0m	16.0m/50.3m
MINIMUM LOT AREA		NO MIN.	40,322.7m²
MINIMUM LOT WIDTH		NO. MIN	98.3m
MAXIMUM LOT COVERAGE		N/A	6.9% (2,788.9m²)
MAXIMUM BUILDING HEIGHT		18.0m	TBD
MINIMUM LANDSCAPED AREA WIDTH		3.0m	5.7m
OFF-STREET PARKING		11 SPACES	20 SPACES
BARRIER FREE PARKING		1 SPACE (1 TYPE 'A', 0 TYPE 'B')	2 SPACES (1 TYPE 'A', 1 TYPE 'B')
BICYCLE PARKING		1 SPACE	2 SPACES
LOADING SPACES		1 SPACE	1 SPACE

Parking Calculation

SHELTER:
1 SPACE PER 100m²
(1,094.0m² / 100m²) x 1 SPACE = 11 SPACES

BARRIER FREE PARKING:
1 SPACE FOR 20-99 PARKING SPACES
1 SPACE (1 TYPE 'A', 0 TYPE 'B')

BICYCLE PARKING:
1 SPACE PER 1,500m²
(1,094.0m² / 1,500m²) x 1 SPACE = 0.7> 1 SPACE

Notes

1. SHELTERS ARE NOT PERMITTED IN GM9 ZONES.
2. ZONING BY LAW AMENDMENT MAY BE REQUIRED.

Revision	By	Appd.	YY.MM.DD
1. CLIENT REVIEW	KT	SG	2024.11.06
Issued	By	Appd.	YY.MM.DD

File Name: 160402068_r-db_3311woodroffe	KT	SG	KT	24.11.01
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project

CITY OF OTTAWA

POTENTIAL LOCATIONS FOR TEMPORARY HOUSING

Ottawa, ON Canada

Title

3311 WOODROFFE AVENUE
CONCEPTUAL SITE PLAN

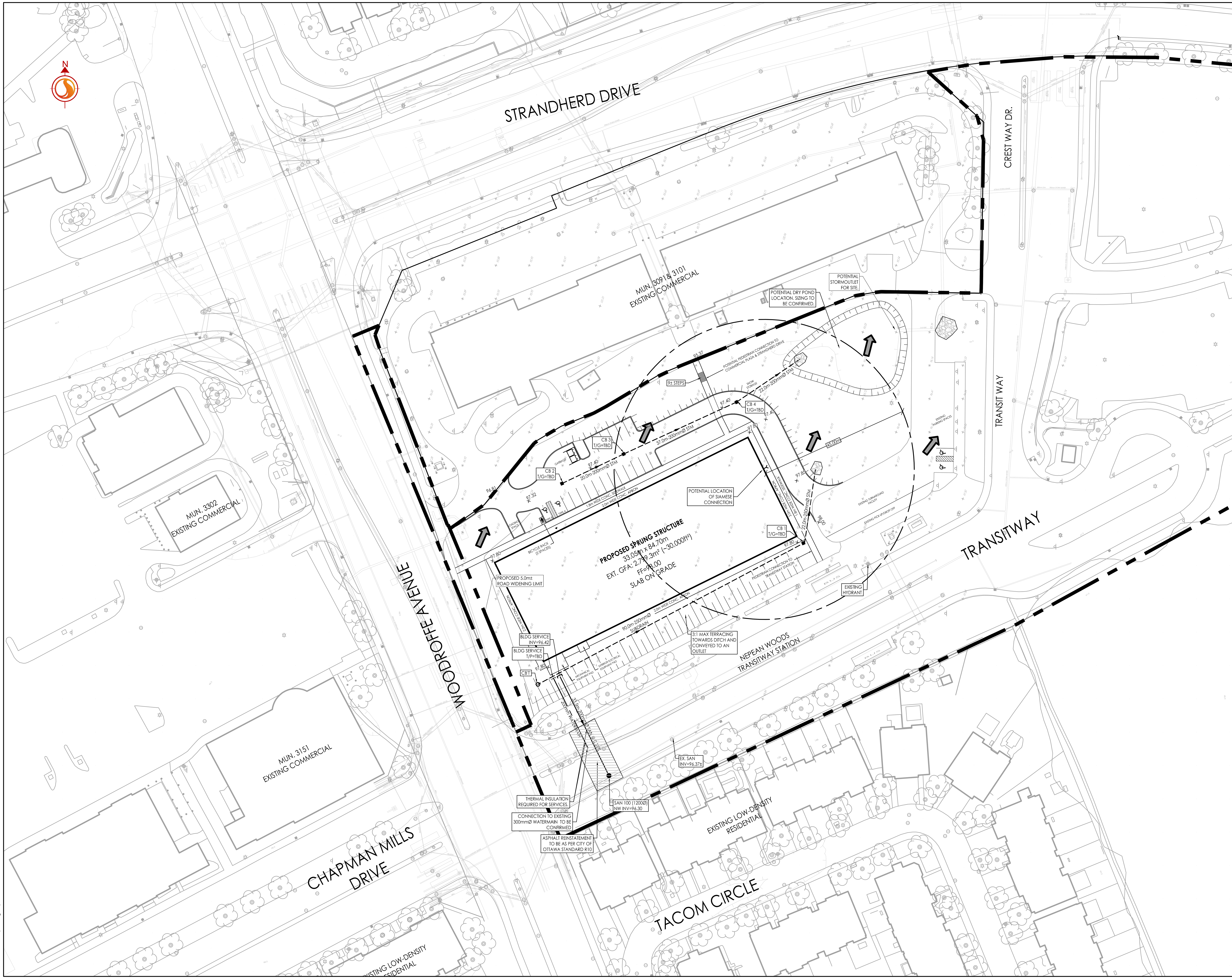
Project No. 160402068

Scale HORZ – 1 : 400

Drawing No. CP-1

Sheet 1 of 1

Revision 0



Stantec

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Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

PROPOSED WATERMAIN
PROPOSED VALVE AND VALVE BOX
PROPOSED HYDRANT
PROPOSED SANITARY SEWER
PROPOSED STORM SEWER
PROPOSED CATCH BASIN MANHOLE
PROPOSED CATCH BASIN
M PROPOSED WATER METER
RM PROPOSED REMOTE WATER METER
× 99.99 PROPOSED ELEVATION
× 98.88 PROPOSED ELEVATION EXISTING ELEVATION
2.0% FLOW DIRECTION AND GRADE
FF=99.99 FINISHED FIRST FLOOR ELEVATION
TERRACING 3:1 SLOPE MAXIMUM (UNLESS OTHERWISE SHOWN)
PROPOSED SWALE

Notes

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

2	ISSUED TO CITY FOR COMMENTS	JP	PM/SGG	24.11.04
1	ISSUED TO CITY FOR COMMENTS	JP	PM/SGG	24.10.18
Revision		By	Appd.	YY.MM.DD

	JP	PM	JP	24.10.17
File Name: 160402068.3311_WOODROFFE.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project
CITY OF OTTAWA

POTENTIAL LOCATIONS FOR TEMPORARY HOUSING.
EVALUATION AND CONCEPTUAL DESIGN FOR SPRUNG FACILITIES
Ottwa, Ontario

Title
3311 WOODROFFE AVENUE
CONCEPTUAL GRADING &
SERVICING PLAN

Project No. 160402068
Scale 1:500

Drawing No. SSGP-1
Sheet 2 of 2
Revision 2

ORIGINAL SHEET - ARCH D

Appendix E Environmental Memos

Stantec

Memo

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Project/File:	160402068	Date:	October 28, 2024

Reference: Preliminary Desktop Geotechnical Site Evaluation – Temporary Housing at 5 Locations: 1645 Woodroffe Ave., Ottawa, ON; 3311 Woodroffe Ave., Ottawa, ON; 40 Hearst Way, Ottawa, ON; 1005 Greenbank Rd., Ottawa, ON; 160 Lees Ave., Ottawa, ON

Introduction

Stantec Consulting Ltd. (Stantec) has been retained by the City of Ottawa (herein referred to as “the City”) to provide preliminary geotechnical engineering consulting services in support of the Temporary Housing Site Evaluation at five different locations across Ottawa, Ontario. It is understood that the City is hoping to select suitable sites for the construction of temporary housing facilities accommodating approximately 150-200 persons per site. The buildings are anticipated to be modular tension fabric buildings (Sprung Structures), with a single storey floor plate on a concrete pad (estimated to be 45 m x 83 m that accommodates both the building structure and the exterior mechanical heating and cooling equipment).

As part of the above noted services, Stantec has been tasked with preparing preliminary geotechnical desktop evaluations of the sites. The available subsurface information within and in the vicinity of each site is reviewed; a summary and initial geotechnical input on the site’s suitability for the proposed development is provided.

The information provided in this memo outlines a general summary of the anticipated subgrade conditions at each site and preliminary constraints/issues associated with the anticipated subsurface conditions. The geotechnical considerations for the sites are based on reviewed historical information and are preliminary in nature. They should not be used for design purposes. Limitations associated with this report and its contents are provided in the Statement of General Conditions appended to this document.

Site #1 - 1645 Woodroffe Ave., Ottawa, ON

Site Description

The site is bound by Hunt Club Road to the north, the Nepean Sportsplex facility to the south, undeveloped forested land to the east, and Confederation High School to the west. The site currently consists of a vegetated sports field with ground surface elevations of approximately 88 m to 90 m based on available satellite imagery. The site generally slopes down to the north towards the Hunt Club Road. Historically, the site was undeveloped prior to the construction of the Nepean Sportsplex facility and Confederation High School in the early 1970s.

Available Subsurface Information

The Ontario Geological Survey (OGS) Surficial Geology Map (MRD128-Rev), Physiology of Southern Ontario Map (MRD-228), and Bedrock Map (MRD126-Rev) were reviewed. The physiology of Southern Ontario Map indicates that the study area is on clay plains. According to the surficial geology map, the surficial subsurface conditions at the study area are anticipated to consist of either organic deposits (peat, muck, or marl) or coarse-textured glaciomarine deposits (sand, gravel, minor silt and clay). Bedrock consisting of dolostone or sandstone of the Beekmantown Group is anticipated at a depth of approximately 15 m to 18 m based on the Bedrock Map.

Upon reviewal of the OGS Geotechnical Borehole database, no boreholes were located within the project site, however, several boreholes were located to the west and southwest of the proposed location (along the Woodroffe Ave. and within the Nepean Sportsplex facility). Based on the records of these boreholes, subsurface conditions consist of a 0.3 m to 1.0 m thick layer of fill material underlain by about a 6 m to 11 m thick silty sand to sand deposit, in turn underlain by sandstone bedrock.

No geotechnical investigation report was available in the Ministry of Transportation (MTO) Geocres database at or in vicinity of the study area.

Multiple historical environmental and geotechnical site investigations conducted at or in proximity of the site were reviewed. Of interest is the Geotechnical and Environmental Investigation for the Installation of Light Standards in Lower Playfield of the Confederation High School (EXP Services Inc., 2019). Based on the six boreholes advanced during investigation, the subsurface conditions at the site consisted of:

- 75 mm to 330 mm of topsoil; underlain by
- approximately 1.1 m to 1.5 m of loose to compact sandy fill with organics and gravel; underlain by,
- a loose to compact sand/silty sand, extended to a depth of approximately 4.0 m to 5.6 m.

Fine-textured materials consisting of silty clay or clayey silt were encountered in BH4 and BH6 of this investigation above and beneath the sand layer at elevations of 97 m to 99 m. The groundwater table was measured at a depth of 4.6 m to 5.0 m at the installed monitoring wells.

None of the historical investigations provided information on bedrock depth at the site.

Preliminary Geotechnical Considerations

The following provides a summary of some key geotechnical aspects based on the preliminary desktop review of the available subsurface information and the anticipated subsurface conditions at the site:

- The existing topsoil and fill materials present at the site within the building footprint would need to be removed.
- The native subgrade material encountered at the boreholes advanced at the site consisted generally of a sand to silty sand deposit with loose to compact relative density. However, organic deposit could be expected based on the available surficial geology map. Any organic soil encountered at the site would need to be removed from all parking and building areas.
- Groundwater levels were measured at 4.6 m to 5.0 m depth at the installed monitoring wells at the site (EXP, 2019). However, the groundwater is subject to seasonal fluctuations and may be at a higher level during wet weather periods. Groundwater is not expected to be encountered during expected soil removal operations (limited to 1.5 m depth).
- Clay layers were observed in the relatively shallow boreholes of the EXP investigation. Depending on the extent and thickness of the clay deposit at the site, settlements could be a concern at the site.

The site could be considered suitable for the construction of the building with the following considerations:

- All existing topsoil and fill materials should be removed and replaced with engineered fill.
- The silty soils expected to be encountered at the site are frost susceptible. Therefore, the use of insulation must be considered, and it must extend a minimum of 2 m from the edge of the slab.
- The use of perimeter drains at the bottom of the granular materials should be considered.
- Allowable grade-raise at the site should be assessed based on the site-specific geotechnical data and will depend on the thickness and extent of the clayey soil layers.
- A site-specific geotechnical investigation is required to identify actual site conditions.

Site #2 - 3311 Woodroffe Ave., Ottawa, ON

Site Description

The site is bound by commercial buildings to the north, a transitway to the south, a transitway and parking lot to the east and Woodroffe Avenue to the west. The site currently consists of a vegetated field with ground surface elevations of approximately 94 to 99 m based on available satellite imagery. The site generally slopes down to the northeast towards Crestway Drive. Based on a review of the available historical aerial photographs, the site was used for agricultural purposes until approximately 1991, when earthwork and construction equipment was stored on-site, presumably to facilitate the development of the surrounding properties. In 2011 the commercial buildings to the north of the site were constructed and the site was left in its current state up to present day.

Available Subsurface Information

The Ontario Geological Survey (OGS) Surficial Geology Map (MRD128-Rev), Physiology of Southern Ontario Map (MRD-228), and Bedrock Map (MRD126-Rev) were reviewed. The Physiology of Southern Ontario Map indicates that the study area is on clay plains. According to the surficial geology map, the surficial subsurface conditions within the study area are anticipated to consist of sandy silt to silty sand till on Paleozoic terrain. Bedrock consisting of dolostone or sandstone of the Beekmantown Group is expected at 10 m to 16 m in depth based on the Bedrock Map (limited data points available).

Upon reviewal of the OGS Geotechnical Borehole database, a borehole was located in the vicinity of the study area. Based on the borehole record from 1999, the subsurface consists of a 0.3 m to 1 m fill material underlain by a varying soil materials including silty sand, sand, and silty clay. Based on a review of the Ministry of Environment, Conservation, and Parks (MECP) Well Record database, bedrock was reported to be encountered at about 13 m depth in a water well record in the vicinity of the site.

No geotechnical investigation report was available for the site our surrounding area in the Ministry of Transportation (MTO) Geocres database. Historical environmental and geotechnical site investigations were not available for review at the time of the preparation of this report.

Preliminary Assessment

The following provides a summary of some key geotechnical aspects of the site based on the preliminary desktop review of the subsurface information available:

- The historical use of the site for earthwork and construction equipment presents potential geotechnical concerns with regards to unknown fill presence at the site. The existing fill materials present on site within the building footprint would need to be removed and replaced with engineered fill.
- The native subgrade material anticipated at the site may consist generally of a sand to silty sand till material.
- Any organic soils if encountered at the site, would need to be removed from all parking and building areas.
- Information on groundwater level at the site was not available.
- Based on the topographical satellite imagery and historical investigations, the existing grading of the site is fairly variable. Grade raises may be required at the site. Grade raise restrictions may apply for the site if compressible clay or silty clay are present at the site.

The site could be considered suitable for the construction of the building with the following considerations:

- Limited graded raises may be possible for this site. The actual allowable grade raise will depend on the subsurface conditions at the site.
- Native soils could be silty and, therefore, should be considered frost susceptible. The use of insulation must be considered, and it must extend a minimum of 2 m from the edge of the slab.
- The use of perimeter drains at the bottom of the granular materials should be considered.
- A site-specific geotechnical investigation is required to identify actual site conditions.

Site #3 - 40 Hearst Way, Ottawa, Ontario

Site Description

The site is bound by a Highway 417 exit ramp to the north, commercial buildings to the south, Eagleson Road to the east, and Hearst Way and a commercial lot to the west. The site currently consists of a parking lot with an approximate ground surface elevation of 95 m based on the available satellite imagery. The site is generally flat with a slight slope. Historically, the site was used mainly for agricultural purposes until the 1970s, when construction work was conducted for Highway 417 and the residential development to the west. The site remained undeveloped until 2002, when the current day parking lot was constructed.

Available Subsurface Information

The Ontario Geological Survey (OGS) Surficial Geology Map (MRD128-Rev), Physiology of Southern Ontario Map (MRD-228), and Bedrock Map (MRD126-Rev) were reviewed. The physiology of Southern Ontario Map indicates that the study area is on clay plains. According to the surficial geology map, the surficial subsurface conditions at the study area are anticipated to consist of fine-textured glaciomarine deposits of silt and clay with minor sand and gravel. Bedrock consisting of dolostone or sandstone of the Beekmantown Group is expected at approximately 2 m to 9 m depth based on the Bedrock Map.

The OGS maintains a database of Geotechnical Borehole records within Southern Ontario. The data set is available as a GIS-based map that shows records of geotechnical boreholes across Southern Ontario. Upon reviewal of the borehole records contained in the OGS database, nine boreholes were located within in the study area. As a geotechnical investigation report related to these boreholes was available, the subsurface details of these boreholes are discussed in the next subsection. The bedrock depth was reported in two borehole records in vicinity of the site at approximately 1.8 m (however, bedrock appears to be variable between 1.8 m and 43.6 m based on the Ministry of Environment, Conservation, and Parks (MECP) Well Record database).

A geotechnical investigation report, conducted in the vicinity of the site, was available in the Ministry of Transportation (MTO) Geocres database (the Foundation Investigation and Design of Proposed Culvert Replacement – Highway 417 – GEOCRES Reference No. 31G05-224, Golder, 2010). Based on the review of the report, the subsurface stratigraphy, as reported in the borehole closest to the site, consisted of a 0.1 m topsoil layer, underlain by a firm to very stiff silty clay deposit to the termination depth of borehole (9.5 m). The silty clay deposit contains a silty sand interlayer from 1.5 m to 2.3 m. Groundwater was measured at an elevation of approximately 86 m in the installed monitoring well.

Previous Investigations

One historical investigation was provided and reviewed for additional insight into the subsurface conditions at the site. The geotechnical investigation was carried out for the Proposed Eagleson Road Park and Ride Lot Expansion (Golder Associates Ltd., 2002) and consisted of advancing nine boreholes at the site to 3.7 m and 5.8 m depth.

In summary, fill material (consisting of crushed stone, sand, clayey silt, and silty sand with some cobbles) was encountered along the west boundary of the site adjacent to Hearst Way, with a varying thickness of 0.2 m to 0.5 m, and topsoil was encountered at ground surface in borehole locations at the rest of the site. Surficial deposits of sand, silty sand, and clayey silt were encountered within the southwest portion of the site beneath the topsoil and fill materials, with a thickness of approximately 0.2 m to 1.4 m.

An extensive deposit of sensitive silty clay, layered with clayey silt and fine sand, was encountered at all boreholes. The sensitive silty clay deposit was often layered with clayey silt, fine sand, and silty fine sand. The upper portion of the silty clay was weathered to a grey-brown crust and extended to approximately 2.0 m to 2.4 m in depth (elevation of 93.4 m to 92.2 m). The weathered crust was deemed stiff to very stiff with “N” values ranging from 1 to 8. In-situ vane testing within the grey/unweathered portion of the clay resulted in undrained shear strengths of 15 kPa to 39 kPa, indicating a soft to firm consistency for the clay. The clay deposit was not fully penetrated during the investigation (as boreholes were terminated at 3.7 m and 5.8 m depth), but it was reported that, as part of a previous investigation at the site, dynamic cone penetration tests (DCPTs) were conducted. Refusal during the DCPTs occurred at depths ranging from 47 m to 51.5 m depth. The groundwater levels in the standpipes monitoring were measured at about 1.8 m and 1.4 m depth (elevation 93.0 m and 93.2 m, respectively) on November 5, 2002.

It should be noted that this investigation occurred prior to the construction of the parking lot and the fill, topsoil, and surficial layers outlined in the investigation have likely been removed/altered during the parking lot construction.

Preliminary Assessment

The following provides a summary of some key geotechnical aspects of the site based on the preliminary desktop review of the subsurface information available:

- The site is currently used as a parking lot. The asphalt should be removed from the footprint of the proposed slab-on-grade. The fill materials placed as pavement structure for the parking lot will need to be assessed and may need to be replaced by engineered fill materials. Additionally, any other existing fill material not deemed part of the parking lot structure present at the site within the building footprint would need to be removed.
- The native subgrade material anticipated at the site consisted generally of a thick and extensive silty clay material. The silty clay is compressible and is susceptible to large settlements when loading exceeds its preconsolidation pressure. The geotechnical resistance at the site is expected to be relatively low to limit clay deposit settlement.

- The grade raise limitation at the site is expected and should be assessed based on site-specific data.
- Any organic soil encountered at the site would need to be removed from all parking and building areas.
- Groundwater levels were measured at about 1.8 m and 1.4 m depths in previous investigation at the site. Groundwater is expected to be encountered if excavation extended below the groundwater level and groundwater control/management may be required.
- The site is underlain by Champlain Sea (Leda) clay soils that are prone to frost heave. In particular, the grey, unweathered/intact portions of the clay are susceptible to an extreme magnitude of frost heave when frozen for the first time (e.g. due to exposure in new excavations). The unweathered clay should not be exposed to freezing conditions. Excavations that extend into this portion of the clay should only be conducted in non-freezing conditions.

The site could be considered suitable for the construction of the building with the following considerations:

- Limited graded raises may be possible for this site.
- Native soils beneath the pavement structures are considered frost susceptible. The use of insulation must be considered, and it must extend a minimum of 2 m from the edge of the slab.
- For the construction of the building, could be assumed that all existing granular will need to be removed and replaced with compacted non-frost-susceptible material. Depending on the results of future testing, reuse of these material may be allowed from a geotechnical perspective.
- The use of perimeter drains at the bottom of the granular materials should be considered.
- A site-specific geotechnical investigation is required to identify actual site conditions, especially the changes in the near surface material as a result of parking lot construction.

Site #4 - 1005 Greenbank Rd., Ottawa, ON

Site Description

The site is bound by a railway track to the north, Highbury Park Drive to the south, a transitway to the east and Greenbank Road to the west. The site currently consists of a vegetated field with ground surface elevations of 95 m to 100 m based on a satellite imagery. The site generally slopes down to the north towards the railway track. Historically, the site was used for agricultural purposes prior to 1965 and until approximately 2007, when construction work was completed for the transitway and Greenbank Road. The site was used for stockpiling and minor utility infrastructure. The site is currently undeveloped and has been historically used for a variety of purposes including snow disposal.

Available Subsurface Information

The Ontario Geological Survey (OGS) Surficial Geology Map (MRD128-Rev), Physiology of Southern Ontario Map (MRD-228), and Bedrock Map (MRD126-Rev) were reviewed. The physiology of Southern Ontario Map indicates that the study area is on clay plains. According to the surficial geology map, the surficial subsurface conditions are anticipated to consist of fine-textured glaciomarine deposits of silt and clay with minor sand and gravel in majority study area with the exception of the southwest corner of the site, where sandy silt to silty sand till on Paleozoic bedrock is expected. Based on the bedrock map, bedrock consisting of dolostone or sandstone of the Beekmantown Group is expected at approximately 2 m to 5 m depth.

Upon reviewal of the OGS Geotechnical Borehole database, a borehole record, dated 1976, was identified adjacent to the study area. The subsurface conditions identified on the borehole record consist of deposits of sand and silt, underlain by sandstone bedrock at 2.7 m depth.

A review of the Ministry of Environment, Conservation, and Parks (MECP) Well Record database provided three on-site records dated in 2011 and 2014 that outlined the subsurface conditions during their respective installations. Two records located in the southwest corner of the site indicated dolostone bedrock, at a depth of 0.3 and 1.5 m, overlain by clayey silt and topsoil. The third record indicated bedrock at surface. The location of the MECP well records have been found to be inaccurate in some cases, and the subsurface information included in these records is generally not verifiable. Reference to, and reliance on subsurface information from this source should be used with caution.

Previous Investigations

Multiple historical site investigations were conducted at or in proximity of the site, with historical boreholes providing subsurface information. Two Environmental Site Assessment (ESA) were relevant to the purposes of this review and are discussed below:

- The Limited Phase II ESA (GEMTEC, 2017) which consisted of testpits providing information on the subsurface conditions of the site. In summary, the site was found to consist of sand and gravel fill encountered at 0.1 m to 0.5 m underlain by dense native soils (sand and gravel, silty sand, or sand). All six testpits observed practical refusal on inferred bedrock at depths of 1 m or less. Groundwater seepage was observed in one of the testpits at a depth of 0.6 m.
- A Phase II ESA was conducted in 1045 Greenbank Road (Concentric Associates, 2013), which included the drilling of five boreholes in the southern corner of the current site. The subsurface conditions encountered during this investigation consisted of a thin layer of topsoil (encountered at two of the borehole locations), underlain by a very loose sand deposit overlaying bedrock. The overburden thickness was about 1 m or less. The bedrock was identified as grey limestone/dolostone. The groundwater depth was observed to range between 5.6 and 6.9 m below ground surface (elevation of 92.1 to 92.7 m).

Preliminary Assessment

The following provides a summary of some key geotechnical aspects of the site based on the preliminary desktop review of the subsurface information available:

- The historical use of the site raises potential geotechnical concerns with regards to geotechnical resistance and differential settlements due to the presence of uncontrolled fill and topsoil materials. Any topsoil and organic soils encountered at the site would need to be removed from all parking and building areas. The existing fill present at site should be removed from the proposed building footprints.
- Groundwater levels were relatively shallow in nearby and on-site monitoring wells. Groundwater is expected to be encountered during soil removal operations and may require groundwater control/management.
- Based on the topographic data available from the satellite imagery and historical investigations, the existing grading of the site is fairly variable. Therefore, grade raises may be required at the site. Grade raise restrictions may apply for the portion of the site if presence of fine-grained deposits (as identified in the surficial geology mapping) are confirmed at the site.

The site could be considered suitable for the construction of the building with the following considerations:

- A variable amount of fill removal can be expected. All fill within the proposed building footprint must be removed and replaced with engineered fill.
- The native deposits at the site could be silty and, therefore, frost susceptible. The use of thermal insulation must be considered for slab-on-grade construction. The insulation must extend a minimum of 2 m from the edge of the slab.

- The use of perimeter drains at the bottom of the granular materials should be considered
- A site-specific geotechnical investigation is required to identify actual site conditions.

Site # 5 - 160 Lees Ave., Ottawa, ON

Site Description

The site is bound by Lees Avenue to the north, the Rideau River Nature Trial and Rideau River to the south, the University of Ottawa Lees Campus to the east and Springhurst Park and residential buildings to the west. The site currently consists of a vegetated field with ground surface elevations of 56 m to 60 m based on available satellite imagery. The site generally slopes down to the south towards the Rideau River. Historically, the site was used as a garbage, ash, and cinders landfill prior to 1958 and was used as an industrial tar distillation and roofing manufacturer complex between the 1960s and late 1990s before being remediated and converted to the current vegetated field.

Available Subsurface Information

The Ontario Geological Survey (OGS) Surficial Geology Map (MRD128-Rev), Physiology of Southern Ontario Map (MRD-228), and Bedrock Map (MRD126-Rev) were reviewed. The Physiology of Southern Ontario Map indicates that the study area is on clay plains. According to the surficial geology map, the surficial subsurface conditions at the study area are anticipated to consist of fine-textured glaciomarine deposits of silt and clay with minor sand and gravel. Bedrock consisting of limestone, shale, dolostone or siltstone of the Billings Formation is anticipated at approximately 8 m to 12 m depth according to the Bedrock Map.

The OGS maintains a database of Geotechnical Borehole records within Southern Ontario. The data set is available as a GIS-based map that shows records of geotechnical boreholes across Southern Ontario. Upon reviewal of the OGS Geotechnical Borehole database, two boreholes, dated 1972, were located within the footprint of University of Ottawa Lees Campus to the east of the site. Based on the borehole records the subsurface conditions consist of a 1 m to 3 m fill material underlain by a 4 m to 9 m thick silt to silty clay layer, underlain by a very dense glacial till, underlain by a shale/limestone bedrock at 15.8 m and 16.9 m in depth.

Based on a review of the Ministry of Transportation (MTO) Geocres database, subsurface information was available from a geotechnical investigation conducted within and in vicinity of the study area. The results of the investigation were reported in “Preliminary Foundation Report for the Proposed Structure Sites – Highway 17 – GEOCRES Reference No. 31G05-112”. One of the boreholes was advanced within the study area in 1969. The subsurface stratigraphy as described in the borehole records consisted of 1.2 m of fill (fly ash and slag fragments) underlain by a 7.9 m of stiff to very stiff silty clay to clay, underlain by a 2.1 m thick compact silt layer, underlain by a 1.7 m thick layer of very dense glacial till, underlain by shale bedrock. Groundwater levels were measured in the installed monitoring wells at the borehole location at a depth of approximately 1.8 m (elevations of 56.4 m) in June of 1969.

Previous Investigations

Two historical environmental site investigations that were conducted at or in proximity of the site and are relevant to the purposes of this review are discussed below:

- The 1995 INTERA Information Technologies Corporations Environmental Management Plan - The INTERA Environmental Management Plan consisted of 32 boreholes and 21 monitoring wells providing insight on the subsurface conditions of the site. In summary, the site was found to consist of ash and cider fill and garbage fill extending from 2-6 m in depth below ground surface. The soil unit was underlain by native soils consisting of a soft, sensitive silty clay. None of the boreholes in this investigation encountered the bedrock. Groundwater conditions in the monitoring wells installed during this investigation returned groundwater levels ranging from 2 m to 5 m below ground surface.
- The Historical Review and Site Inspection (SNC-Lavalin, 2015, v2) was conducted at the site to investigate excess soil placed on an existing soil cap that was located on the eastern slope of the site. It was reported in this report that, in 1997, as part of the Environmental Management Plan (INTERA, 1995), a 0.45 m silty clay fill soil cap was installed over the contaminated soils and waste across the site. Additionally, in 2009, excavated materials from an off-site project were placed on the eastern slope of the site. These materials were deemed geotechnically unsuitable for use.

Preliminary Assessment

The following provides a summary of some key geotechnical issues based on the preliminary desktop review of the subsurface information available and the anticipated subsurface conditions at the site:

- The historical use of the site as a landfill and presence of ash, cinder fill, and unsuitable soil dumping raise geotechnical concerns with regards to geotechnical resistance, and short-term, long-term, and differential settlements. Based on this preliminary review, it can be expected that these materials and any other existing fill will need to be excavated and replaced with suitable engineered fill materials within the proposed building footprint.
- The native subgrade material anticipated at the site consisted generally of a silty clay material with soft to firm consistency. Long-term settlement of the clay deposit should be assessed. The sensitive clay materials had relatively low undrained shear strengths and is susceptible to disturbance and large settlements.
- Groundwater levels were relatively shallow (as low as 1.8 m deep) in nearby and on-site monitoring wells. Groundwater is expected to be encountered during soil removal operations and may require groundwater control/management.
- Based on the topographical satellite imagery and historical investigations, the existing grading of the site is fairly variable. Grade raises may be required and would induce additional loading and settlements of the silty clay deposit. Grade raise restrictions may apply for the site.
- The site is underlain by Champlain Sea (Leda) clay soils that are prone to frost heave. In particular, the grey, unweathered/intact portions of the clay are susceptible to an extreme magnitude of frost heave when frozen for the first time (e.g. due to exposure in new excavations/cut section). The unweathered clay should not be exposed to freezing conditions. Excavations that extend into the unweathered clay should only be conducted in non-freezing conditions.

Without conducting a geotechnical site investigation, the following geotechnical recommendations are considered preliminary only and should not be used for design purposes.

Based on the design of the proposed structures and the use of a concrete raft slab as the foundation, the main geotechnical considerations involve bearing capacity of the soil, induced settlements from loading, and frost heave.

Based on the available information, the current surficial material is not suitable to be used as subgrade for a slab-on-grade building unless the existing fills are removed and replaced with engineering fill or the building is founded on deep foundations.

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Closure

The conclusions in the Report are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from the Client and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Regards,

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Stantec

STATEMENT OF GENERAL CONDITIONS

USE OF THIS REPORT: This professional work product ("hereinafter referred to as the Report") has been prepared for the sole benefit of the Client in accordance with Stantec's contract with the Client. While the Report may be provided by the Client to applicable authorities having jurisdiction and to other third parties in connection with the project, Stantec disclaims any legal duty based upon warranty, reliance, or any other theory to any third party, and will not be liable to such third party for any damages or losses of any kind that may result.

BASIS OF THIS REPORT: This Report relates solely to the site-specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The information, opinions, conclusions and/or recommendations made in this Report are in accordance with Stantec's present understanding of the site-specific project as described by the Client. The applicability of these is restricted to the site conditions encountered at the time the scope of work was conducted and do not take into account any subsequent changes. If the proposed site-specific project differs or is modified from what is described in this Report or if the site conditions are altered, this Report is no longer valid unless Stantec is requested by the Client to review and revise the Report to reflect the differing or modified project specifics and/or the altered site conditions. This Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose or site, and any unauthorized use or reliance is at the recipient's own risk.

STANDARD OF CARE: Preparation of this Report, and all associated work, was carried out in accordance with the normally accepted standard of care in the state or province of execution for the specific professional service provided to the Client. No other warranty is made.

PROVIDED INFORMATION: Stantec has assumed all information received from the Client and third parties in the preparation of this Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

INTERPRETATION OF SITE CONDITIONS: Soil, rock, or other material descriptions, and statements regarding their condition, made in this Report are based on site conditions encountered by Stantec at the time of the scope of work and at the specific testing and/or sampling locations. Classifications and statements of condition have been made in accordance with normally accepted practices which are judgmental in nature; no specific description should be considered exact, but rather reflective of the anticipated material behaviour. Extrapolation of in-situ conditions can only be made to some limited extent beyond the sampling or test points. The extent depends on variability of the soil, rock and groundwater conditions as influenced by geological processes, construction activity, and site use.

VARYING OR UNEXPECTED CONDITIONS: Should any site or subsurface conditions be encountered that are different from those described in this Report or encountered at the test and/or sample locations, Stantec must be notified immediately to assess if the varying or unexpected conditions are substantial and if reassessments of the Report conclusions or recommendations are required. Stantec will not be responsible to any party for damages incurred as a result of failing to notify Stantec that differing site or subsurface conditions are present upon becoming aware of such conditions.

PLANNING, DESIGN, OR CONSTRUCTION: Development or design plans and specifications should be reviewed by Stantec geotechnical engineers, sufficiently ahead of initiating the next project stage (e.g., property acquisition, tender, construction, etc.), to confirm that this Report completely addresses the elaborated project specifics and that the contents of this Report have been properly interpreted. Specialty quality assurance services (e.g., field observations and testing) during construction are a necessary part of the evaluation of subsurface conditions and site work. Site work relating to the recommendations included in this Report should only be carried out in the presence of a qualified geotechnical engineer; Stantec cannot be responsible for site work carried out without being present.

Stantec

Memo

To:	Sheridan Gillis Ottawa	From:	Allen MacGarvie Ottawa
Project/File:	160402068	Date:	November 19, 2024

Reference: Temporary Housing Site Evaluations – 1645 Woodroffe Avenue, Ottawa

Stantec Consulting Ltd. (Stantec) is pleased to provide this evaluation of the environmental condition of the new proposed location at 1645 Woodroffe Avenue for the construction of temporary housing facilities accommodating approximately 150-200 people. We understand the proposed location of the temporary housing facilities would be the former sports fields upper for the Confederation High School part of the 1645 Woodroffe Avenue property (the Site).

Stantec reviewed the following environmental and geotechnical reports to assess the environmental condition of the Site:

- *Report on Subsoil Investigation, Field House, Sportsplex Park, Woodroffe Avenue, Nepean* dated August 5, 1983, completed by McRostie Genest Middlemiss & Associates Ltd. (McRostie 1983)
- *Report on Subsoil Investigation, Nepean Sportsplex, Woodroffe Avenue, Nepean, Ontario* dated July 31, 1985, completed by John D. Paterson & Associates Ltd. (Paterson 1985)
- *Geotechnical Investigation, Arena III, Nepean Sportsplex, 1701 Woodroffe Avenue, Nepean, Ontario* dated December 1998 completed by Fondex Ontario Limited (Fondex 1998)
- *Pile Inspection Report Arena III, Nepean Sportsplex, 1701 Woodroffe Avenue, Nepean, Ontario* dated June 1999 completed by Fondex Ontario Limited (Fondex 1999)
- *Evaluation Environnementale De Site Phase I Selon La Norme CSA Z768-01, 1701 Woodroffe, Ottawa (Ontario)*, dated February 2005 completed by S.M. Environnement (SM 2005).
- *Enhanced Phase I Environmental Site Assessment, 1645 Woodroffe Avenue, Ottawa, Ontario,* dated March 2008, completed by Terrapex Environmental Ltd. (Terrapex 2008)
- *Environmental Monitoring, OCDSB – Confederation High School, 1645 Woodroffe Avenue, Ottawa, ON* dated September 19, 2009, completed by SLR Consulting (Canada) Ltd. (SLR 2009)
- *Limited Phase II Environmental Site Assessment, 1005 Greenbank Road, Ottawa, Ontario* dated November 22, 2017, completed by Gemtec Consulting Engineers and Scientists Limited (GEMTEC 2017)

Reference: Temporary Housing Site Evaluations

- *Environmental Monitoring and Contaminant Management Plan – 2021 to 2022, Confederation Education Centre High School, 1645 Woodroffe Avenue, Ottawa, Ontario* dated December 19, 2022, completed by CM3 Environmental (CM3 2022)

- *Environmental Monitoring and Contaminant Management Plan – 2022 to 2023, Confederation Education Centre, 1645 Woodroffe Avenue, Ottawa, Ontario* dated December 7, 2023, completed by CM3 Environmental (CM3 2023)

No environmental soil or groundwater sampling or analyses was completed as part of the geotechnical reports (McRostie, Paterson and Fondex); however, the reports identified the soil in the assessed portions of the property as sand. Groundwater was measured at a depth of approximately 5 m below ground surface.

The SM 2005 report did not identify any potential environmental concern with the Site.

The Terrapex 2008 report identified a potential concern associated with the Confederation High School building located in the northwest part of 1645 Woodroffe Avenue, approximately 60 m east of the proposed location of the temporary housing facilities. The reports reviewed as part of the Terrapex 2008 report suggested that significant residual hydrocarbons remain in the vicinity of former heating oil underground storage tanks (USTs). The groundwater flow was reported to be to the north (i.e. not in the direction of the site). Based on the available information, the petroleum hydrocarbons at the school present a potential concern; however, it is considered to be a minimal concern due to the separation distance from the proposed location of the temporary housing facilities and its cross-gradient position relative to the reported groundwater flow direction.

The SLR 2009 report identified soil and groundwater impacts associated with a former underground storage tank (UST) located adjacent to the former Confederation High School building. The soil impacts consist of soil impacted with benzene, toluene, ethylbenzene, and total xylenes (BTEX), petroleum hydrocarbons (PCHs) in the F1 to F4 range, and polycyclic aromatic hydrocarbons (PAHs). The impacted soil has an average thickness of approximately 3.0 m and was encountered between the depths of 4.7 to 9.7 m below ground surface (bgs). Groundwater impacts including both liquid phase hydrocarbons (i.e., free product) and concentrations of PHC F2-F3 above federal and/or provincial standards were identified. The groundwater flow was reported to be to the north – northeast (i.e. not in the direction of the Site). The SLR 2009 report identified the soil and groundwater impacts extending approximately 35 m east of the Confederation High School building.

The CM3 2022 and CM3 2023 reports are annual groundwater monitoring reports of select monitoring wells installed within the petroleum hydrocarbon impacted soil and groundwater plume. The reports indicate liquid phase hydrocarbons remain in 10 of the monitoring wells located in the vicinity of the former UST and the extent of the groundwater impacts extend to approximately 20 m east of the Confederation Education Centre building within the east service road.

Based on the available information, the petroleum hydrocarbons at the school present an environmental concern to 1645 Woodroffe Avenue; however, the soil and groundwater impacts are well-defined in the area adjacent to the school building and are situated approximately 60 m west of the proposed temporary housing structure. In addition, the proposed location of the temporary housing structure is considered to be cross-gradient to the interpreted groundwater flow direction. As such, the petroleum hydrocarbon impacts in soil and groundwater are not anticipated to present a concern with respect to the proposed temporary housing structure at this Site.

Reference: Temporary Housing Site Evaluations

Soil excavated for the construction of this project could be reused at the Site. However, if excess soil requires off site removal then the requirements of Ontario Regulation 416/19 – On-Site and Excess Soil Management will need to be considered.

Since the proposed location of the temporary housing facilities is currently and has always been vacant land, the proposed use would not be considered a more restrictive land use and a record of site condition under Ontario Regulation 153/04 is not anticipated to be required.

Respectfully yours,

STANTEC CONSULTING LTD.

Allen MacGarvie CET, PMP
Principal, Environmental Remediation
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allen.macgarvie@stantec.com

Attachment: [Attachment]

Stantec

Memo

To:	Sheridan Gillis Ottawa	From:	Allen MacGarvie Ottawa
Project/File:	160402068	Date:	October 17, 2024

Reference: Temporary Housing Site Evaluations – 3311 Woodroffe Avenue, Ottawa

Stantec Consulting Ltd. (Stantec) is pleased to provide this evaluation of the environmental condition of the proposed location at 3311 Woodroffe Avenue for the construction of temporary housing facilities accommodating approximately 150-200 people. We understand the proposed location of the temporary housing facilities would be in the vacant undeveloped part of the 3311 Woodroffe Avenue property (the Site).

Stantec reviewed the following environmental and geotechnical reports to assess the environmental condition of the Site:

- *Geotechnical Investigation, Chapman Mills Park and Ride Facility, Woodroffe Avenue and Strandherd Drive, Ottawa, Ontario* dated December 2009 completed by DST Consulting Engineers (DST 2009)
- *Phase I and II Environmental Site Assessment, Chapman Mills Park and Ride, 3311 Woodroffe Avenue, Ottawa, Ontario* dated May 2010 completed by DST Consulting Engineers (DST 2010)

The geotechnical report (DST 2009) did not include any environmental testing of the soil or groundwater; however, the report identified the soil at the Site as sand overlying sand and silt above the bedrock. Bedrock was encountered at between 1.5 and 3.0 m below ground surface (m bgs). Groundwater was reported to be within the bedrock at depths greater than 4.5 m bgs.

The DST 2010 Phase I ESA report identified the following potential concerns for the Site

- A gas station with three underground storage tanks (USTs) storing gasoline, each with a capacity of 50,000L, was operational immediately northwest of the site between 2002 and 2005.
- The site was used as a staging ground for neighbourhood construction activities between approximately 1995 and the report date.
- The presence of fill material from unknown sources.

The DST 2010 Phase II ESA collected 10 surface soil samples from the study area, 3 of which were collected from the proposed location of the temporary housing facilities. One borehole/monitoring well was drilled at the northwest corner of the study site to address the concerns related to the former gas station. The surface soil and borehole soil sample were submitted for laboratory analyses of metals, petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs) and/or polycyclic aromatic hydrocarbons (PAHs). No groundwater sample was collected because the monitoring well was dry at the time of sampling, the depth to the bottom of the monitoring well was 6.7 m bgs.

Reference: Temporary Housing Site Evaluations

Analytical results indicated the soil met the applicable provincial site condition standards for residential Confederation High School and use with coarse-grained soils.

Based on the results of the reports provided for review, no environmental concerns were identified. Soil excavated for the construction of this project could be reused at the Site; however, if excess soil requires off site removal, then the requirements of Ontario Regulation 416/19 – On-Site and Excess Soil Management will need to be considered.

Since the proposed location of the temporary housing facilities is currently and has always been vacant land, the proposed use would not be considered a more restrictive land use and a record of site condition under Ontario Regulation 153/04 is not anticipated to be required.

Respectfully yours,

STANTEC CONSULTING LTD.

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Attachment: [Attachment]

Stantec

Memo

To:	Sheridan Gillis Ottawa	From:	Allen MacGarvie Ottawa
Project/File:	160402068	Date:	October 17, 2024

Reference: Temporary Housing Site Evaluations – 1005 and 1045 Greenbank Road, Ottawa

Stantec Consulting Ltd. (Stantec) is pleased to provide this evaluation of the environmental condition of the proposed location at 1005 and 1045 Greenbank Road for the construction of temporary housing facilities accommodating approximately 150-200 people. We understand the proposed location of the temporary housing facilities would be in the southeastern part of the 1005 and 1045 Greenbank Road property (the Site).

Stantec reviewed the following environmental and geotechnical reports to assess the environmental condition of the Site:

- *Limited Phase II Environmental Site Assessment, Surface Soil Sampling – Greenbank Snow Disposal Facility (SDF), Longfields Drive, 123 Acres, Ottawa (Nepean), Ontario* dated May 14, 2007 completed by AMEC Earth and Environmental (AMEC 2007)
- *Phase II Environmental Site Assessment, Southwest Transitway Extension, Ottawa (Barrhaven), Ontario* dated October 1, 2008 completed by Golder Associates (Golder 2008)
- *Phase I Environmental Site Assessment, 1045 Greenbank Road, Ottawa, Ontario d*ated April 2, 2013 completed by Concentric Associates International Incorporated (Concentric 2013a)
- *Phase II Environmental Site Assessment, 1045 Greenbank Road, Ottawa, Ontario* dated July 19, 2013 completed by Concentric Associates International Incorporated (Concentric 2013b)
- *Limited Phase II Environmental Site Assessment, 1005 Greenbank Road, Ottawa, Ontario* dated November 22, 2017 completed by Gemtec Consulting Engineers and Scientists Limited (GEMTEC 2017)

Based on our review of the AMEC 2007 report, the Site was used as a snow disposal facility; however, the soil samples collected as part of the study were not collected within the proposed location of the temporary housing facilities.

The Phase II ESA completed by Golder included one borehole and one auger hole within the Site. The report indicated that overburden material extended to approximately 1.2 m below ground surface (bgs) and groundwater was encountered between 4 and 6 m bgs. Soil and groundwater samples were submitted for chemical analyses of benzene, toluene, ethylbenzene, and xylene (BTEX), petroleum hydrocarbons (PHC) - F1 to F4, heavy metals, and sodium adsorption ratio (SAR). The soil and groundwater analytical results

were compared to the Ontario Ministry of the Environment (MOE) Ontario Regulation (O. Reg.) 153/04, Table 1 and Table 3 commercial site condition standards (SCS). Soil samples met the MOE Table 3 standards and exceeded the Table 1 standards for SAR and PHCs. When the results were compared to the 2011 residential standards the results met the Table 7 and exceed the Table 1 standards for SAR.

The Concentric 2013a report identified the following potential environmental concerns:

- A former underground storage tank at the site between the 1950's to the 1990's and an aboveground storage tank at the site from 1960's to the 1990's.
- The property located adjacent to the north side of the site was formerly used as a snow dump facility. Large piles of fill were observed on this property at the time of the site visit and were noted in aerial photos dating back to the 1980s.
- A fire training facility is located at 1075 Greenbank Road, south of the site.

The Concentric 2013b report documented the findings of the Phase II ESA undertaken to assess the potential environmental concerns identified in the Phase I ESA. Five boreholes completed as monitoring wells were drilled at the site and soil and groundwater samples were submitted for laboratory analysis of PHCs, VOCs, metals and inorganics, and polycyclic aromatic hydrocarbons (PAHs). Soil and groundwater analytical results were compared to the Ontario Ministry of Environment (MOE) *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011)*. Specifically, the Table 7 Generic Site Condition Standards for shallow Soils in a Non-Potable Groundwater Condition for Industrial/ Commercial/ Community (I/C/C) land use were used for the assessment of the results. The results indicated that the soil concentrations for the analyzed parameters met the applicable MOE Table 7 commercial and residential standards. The analytical results indicated that the collected groundwater samples met the MOE Table 7 standards with the exception of the sample collected from 13 - MW5 which contained a chloride concentration of 2,010 mg/L exceeding the MOE Table 7 standard of 1,800 mg/L.

The GEMTEC 2017 Limited Phase II ESA completed at 1005 Greenbank Road consisted of the assessment of the following potential environmental concerns: fill material piles and asphalt/cold patch material observed at the Site. Eight test pits were advanced and eight soil samples were collected for laboratory analyses of metals and inorganics, PHCs, PAHs and BTEX. Soil analytical results were compared to the Ontario Ministry of Environment and Climate Change (MOECC) *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOECC, 2011)*. Specifically, the Table 7 Generic Site Condition Standards for Shallow Soils in a Non-Potable Groundwater Condition for Industrial/ Commercial/ Community (I/C/C) land use were used for the assessment of the results. The results indicated that the soil concentrations for the analyzed parameters met the applicable MOE Table 7 standard. Stantec compared to current residential standards and identified the exceedances of benzo(b)fluoranthene (TP17-4A), PHC F3 (TP17-3A and TP17-6A).

Based on the results of the reports provided for review, environmental concerns associated with the proposed location of the temporary housing facilities were identified. The soil in the vicinity of the proposed temporary housing facilities should be assessed and impacted soil removed from the site prior to development. Soil excavated for the construction of this project that meets the SCS could be reused at the Site. However, if excess soil requires off site removal, then the requirements of Ontario Regulation 416/19 – On-Site and Excess Soil Management will need to be considered.

Reference: Temporary Housing Site Evaluations

Since the proposed location of the temporary housing facilities has been recently used as community use, the proposed use would be considered a more restrictive land use and a record of site condition under Ontario Regulation 153/04 would be required.

Respectfully yours,

STANTEC CONSULTING LTD.

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Attachment: [Attachment]

Stantec

Memo

To:	Sheridan Gillis Ottawa	From:	Allen MacGarvie Ottawa
Project/File:	160402068	Date:	October 17, 2024

Reference: Temporary Housing Site Evaluations – 40 Hearst Avenue, Kanata

Stantec Consulting Ltd. (Stantec) is pleased to provide this evaluation of the environmental condition of the proposed location at 40 Hearst Avenue for the construction of temporary housing facilities accommodating approximately 150-200 people. We understand the proposed location of the temporary housing facilities would be in the western part of the 40 Hearst Avenue property (the Site).

Stantec reviewed the following environmental and geotechnical reports to assess the environmental condition of the property:

- *Geotechnical Investigation, Proposed Eagleson Road Park and Ride Lot Expansion, Ottawa, Ontario* dated December 9, 2002 completed by Golder Associates (Golder 2002)

Based on our review of the Golder 2002 report, the Site was undeveloped in 2002. The soils were described to consist of approximately 150 to 200 mm of topsoil overlying sensitive silty clay, often layered with silty clay and silty fine sand. Groundwater ranged from approximately 1.4 to 1.8 meters below surface grade in November 2002.

There were no environmental reports provided and no environmental soil sampling completed at the proposed location of the temporary housing facilities. We understand that the Site has been used as a paved parking lot since approximately 2005. Soil excavated for the construction of this project will need to be tested to determine if it can be reused at the Site. If excess soil requires off site removal, then the requirements of Ontario Regulation 416/19 – On-Site and Excess Soil Management will need to be considered.

In addition, due to the land use change from parking lot (community land use) to residential/community land use, a record of site condition under Ontario Regulation 153/04 may be required.]

Respectfully yours,

STANTEC CONSULTING LTD.

Allen MacGarvie CET, PMP
Principal, Environmental Remediation

Reference: Temporary Housing Site Evaluations

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Attachment: [Attachment]

Stantec

Memo

To:	Sheridan Gillis Ottawa	From:	Allen MacGarvie Ottawa
Project/File:	160402068	Date:	October 17, 2024

Reference: Temporary Housing Site Evaluations – 160 Lees Avenue, Ottawa

Stantec Consulting Ltd. (Stantec) is pleased to provide this evaluation of the environmental condition of the proposed location at 160 Lees Avenue for the construction of temporary housing facilities accommodating approximately 150-200 people. We understand the proposed location of the temporary housing facilities would be in the northeastern part of the 160 Lees Avenue property (the Site).

Stantec reviewed the following environmental and geotechnical reports to assess the environmental condition of the property:

- *Preliminary Environmental Assessment, Proposed Brunswick Lane Reconstruction from Springhurst to Lees Avenue, Ottawa, Ontario* dated November 23, 1992 completed by John D. Paterson & Associates Ltd. (Paterson 1992)
- *Property Transfer Assessment of Lees Avenue Armoury, 160 Lees Avenue, Ottawa, Ontario* dated May 12, 1993 completed by Raven Beck Environmental Ltd., Ottawa, Ontario (Raven Beck 1993)
- *Phase II Site Characterization Study, 160 Lees Avenue, Ottawa, Ontario* dated August 1994 completed by ADAMAS Environmental Inc. (ADAMAS 1994)
- *Phase III Environmental Remediation Assessment, DND Armoury Site, 160 Lees Avenue, Ottawa* dated March 8, 1995 completed by Intera Information Technologies Corporation (Intera 1995a)
- *Environmental Management Plan, DND Armoury Site, 160 Lees Avenue, Ottawa* dated November 6, 1995 completed by Intera Information Technologies Corporation (Intera 1995b)
- *Excavation and Disposal of Coal Tar Impacted Soil, 160 Lees Avenue, Ottawa* dated February 7, 1997 completed by Aqua Terre Solutions Inc. (Aqua Terre 1997)
- *1998 Remedial Program, 160 Lees Avenue, Ottawa, Ontario* dated August 13, 1999 completed by Aqua Terre Solutions Inc. (Aqua Terre 1999a)
- *1999 Remedial Program, 160 Lees Avenue, Ottawa, Ontario* dated December 15, 1999 completed by Aqua Terre Solutions Inc. (Aqua Terre 1999b)

Reference: Temporary Housing Site Evaluations

- *Geotechnical Investigation, Easement from Hawthorne Street to Lees Avenue, Ottawa, Ontario* dated February 25, 2000 completed by Oliver, Mangione, McCalla & Associates (OMM 2000)

- *Phase II - Environmental Site Assessment, Lees Avenue, Brunswick Street to the Transitway, Ottawa, Ontario* dated June 23, 2000 completed by John D. Paterson & Associates Ltd. (Paterson 2000)

- *2000 Remedial Program, Summary Report, 160 Lees Avenue, Ottawa, Ontario* dated February 9, 2001 completed by Aqua Terre Solutions Inc. (Aqua Terre 2001)

- *Environmental Assessment - Lees Avenue, Ottawa, Ontario* dated October 2, 2003 completed by Aqua Terre Solutions Inc. (Aqua Terre 2003)

- *Site Restoration Monitoring and Surface Soil Sampling, 160 - 168 Lees Avenue, Ottawa, Ontario* dated July 18, 2007 completed by Aqua Terre Solutions Inc. (Aqua Terre 2007)

- *Limited Phase II Environmental Site Assessment/Preliminary Hydrogeological Assessment, Rideau River Interceptor between St. Paul's and the Transitway, Ottawa, ON* dated August 22, 2008 completed by Jacques Whitford (JW 2008a)

- *Geotechnical Investigation Report, Rideau River Interceptor Rehabilitation, Ottawa, ON dated August 22, 2008 completed by Jacques Whitford (JW 2008b)*

- *Phase I Environmental Site Assessment, 160 Lees Avenue, Ottawa, Ontario* dated February 5, 2013 completed by Geofirma Engineering Ltd. (Geofirma 2013)

- *Historical Review and Site Inspection, v2, 160 Lees Avenue and Adjacent Properties, Ottawa, Ontario* dated April 13, 2015 completed by SNC-Lavalin Inc. (SNC 2015)

- *2015 In-Situ Shallow Soil Investigation, 160 and 166 Lees Avenue, Ottawa, Ontario dated December 2017 completed by SNC-Lavalin Inc. (SNC 2017).*

Based on our review of the Paterson 1992, Raven Beck 1993, and Intera 1995a reports provided for review the area of interest for the location of the temporary housing facilities at 160 Lees Avenue has fill containing ash and cinders to a depth of approximately 3 meters below ground surface (bgs). Metals impacts were identified in the soil samples submitted for laboratory analyses from this fill material.

An Environmental Management Plan was prepared by Intera 1995b. The Environmental Management Plan included the following risk management measures:

- Monitoring and sampling the groundwater on a regular basis

- Maintaining the property as a park

- Inspecting the remedial systems (i.e., soil cap, shoreline protection, methane venting system) on a regular basis

Reference: Temporary Housing Site Evaluations

- Implementing corrective measures necessary to maintain the integrity of the remedial system
- Restricting or banning activities which could compromise the remedial systems or expose workers or the public to unnecessary risks; and
- Ensuring the planned land use would not change.

Implementation of the Environmental management plan in 1997 included a soil remediation project to remove soil impacted with coal tar from an area of the Site south of the proposed location of the temporary housing facilities. A soil cap of imported silty clay up to 0.45 m thick was placed at the site to within 10 m of the Rideau River. A methane venting system was placed in the area of the former landfill.

Groundwater monitoring and methane monitoring were discontinued in 2000 based on three years of monitoring data.

The reports prepared for the Site and surrounding properties, that were provided for review, included similar findings.

Based on the requirement to maintain the risk management measures outlined in the Environmental Management Plan, this Site is not recommended as a location for the proposed temporary housing facilities. Additional evaluation of site conditions, risk assessment and/or risk management measures would be required to support further consideration of this Site.

In addition, due to the industrial historical land and proposed residential land use, a record of site condition under Ontario Regulation 153/04 may be required.

Respectfully yours,

STANTEC CONSULTING LTD.

Allen MacGarvie CET, PMP
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Attachment: [Attachment]

Appendix F Cost Estimate

City of Ottawa Newcomer Reception Centres - 40 Hearst Way (Eagleson Park N Ride)
On-Site Works
Pre-Construction Opinion of Probable Costs
Class D- November 4, 2024

COST COMPONENT						AMOUNT
CONSTRUCTION						
	SECTION 1.0: GENERAL					$ 494,232.00
	SECTION 2.0: CULVERTS					$ -
	SECTION 3.0: STORM SEWERS					$ 122,327.00
	SECTION 4.0: WATERMAIN					$ 81,260.13
	SECTION 5.0: SANITARY SEWER					$ 53,357.00
	SECTION 6.0: ROAD/PARKING					$ 259,617.50
	SECTION 7.0: UTILITIES					$ 120,000.00
	SECTION 8.0: LANDSCAPING					$ 13,250.00
					Construction Estimate	**$ 1,144,043.63**
ENGINEERING AND ARCHITECTURAL SERVICES						
Engineering and Construction Management		% of Constn		15%	$ 1,144,043.63	$ 171,606.54
CITY INTERNAL COSTS		**% of Constn**		5%	$ 1,144,043.63	$ 57,202.18
UTILITY PROVISION				5%	$ 1,144,043.63	$ 57,202.18
MISCELLANEOUS				3%	$ 1,144,043.63	$ 34,321.31
SUB-TOTAL						**$ 1,464,375.85**
CONTINGENCY					**25%**	$ 366,093.96
					Total Cost	**$ 1,830,469.81**

Notes

* Cost Estimate Excludes works related to excess soils regulation or disposal soils deemed contaminated off-site
* Cost Estimate includes only provisional estimate for dewatering, rock excavation, and subgrade preparation. Detailed Geotechnical Report will be required to determine final site development requirements.
* Cost Estimate does not include any soil improvement program including preloading operations.
* Costs exclude all building related costs including underslab drainage and slab insulation. Assumes completion of site devleopement to building pad preparation.

SCHEDULE OF ITEMS

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres - 40 Hearst Way (Eagleson Park N Ride)**

Date: 4-Nov-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
SECTION 1.0: GENERAL								
1.01		F-1006	SP#	Mobilization/General Conditions	LS	1	$ 25,000.00	$ 25,000.00
1.02		F-1010	SP#	Traffic Management Plan (including coordination for road closure permits provisional)	LS	1	$ 5,000.00	$ 5,000.00
1.03	A020.01	F-1010	SP#	Traffic Control	LS	1	$ 15,000.00	$ 15,000.00
1.04	A030.01	F-1013	SP#	Construction site pedestrian control	LS	1	$ 20,000.00	$ 20,000.00
1.05	A040.02	805, F-1005		Erosion and sediment control	LS	1	$ 10,000.00	$ 10,000.00
1.06				Remove Asphalt As Required to Permit Construction and and Dispose of Material Off-Site (Assumes 0.10m Asphalt)	sq.m	4500	$ 10.00	$ 45,000.00
1.07				Remove and Dispose of Existing Granular Parking Lot Off-Site	cu.m	1922	$ 50.00	$ 96,120.00
1.08				Import Select Granular Material for Building Pad Prep (Assumes replacement of existing 600mm granular base with new compacted granular base)	cu.m	1922	$ 67.50	$ 129,762.00
1.09	L210.01	314, 501, F-3147		Granular 'A' Building Sub-Base Assumes 450mm depth to be confirmed at time of detailed design	t	3810	$ 35.00	$ 133,350.00
1.10	A060.01	F-1011		Pre-construction Inspection	LS	1	$ 5,000.00	$ 5,000.00
1.11			SP#	Support and protection of existing sewers and utilities	LS	1	$ 10,000.00	$ 10,000.00
1.12		517		Dewatering	LS	1	$ -	$ -
							Section 1.0 Total	**$ 494,232.00**
SECTION 2.0: CULVERTS								
2.1	E029.01	421, F-4210		300 mm Galvanized CSP culvert 68 x 13 x 2.0 mm Cl. B bedding	m (P)	0	$ 600.00	$ -
							Section 2.0 Total	**$ -**
SECTION 3.0: STORM SEWERS								
3.02	F020.01	407 F-4070		1200mm dia. Storm maintenance hole	ea (P)	2	$ 12,000.00	$ 24,000.00
3.03	F020.02	407 F-4070		1500mm dia. Storm maintenance hole	ea (P)	0	$ 13,500.00	$ -
3.04	F020.03	407 F-4070		1800mm dia. Storm maintenance hole	ea (P)	0	$ 15,000.00	$ -
3.05	F020.04	407 F-4070		2400mm dia. Storm maintenance hole	ea (P)	0	$ 22,476.00	$ -

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres - 40 Hearst Way (Eagleson Park N Ride)**

Date: 4-Nov-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
3.06				Stormceptor	ea (P)	0	$ 40,000.00	$ -
3.07	F040.01	407. F-4070		600mm x 600mm PCC catch basin per OPSD-705.010 c/w Leads	ea (P)	4	$ 7,500.00	$ 30,000.00
3.08	F090.02			375mm Storm Sewer	m	100	$ 586.79	$ 58,679.00
3.09	F100.02			525mm Storm Sewer	m	0	$ 410.00	$ -
3.1	F140.02			750mm Concrete Storm Sewer	m	0	$ 660.35	$ -
3.11	F180.02			1050mm Concrete Storm Sewer	m	0	$ 1,082.00	$ -
3.12	F300.04	409 F-4090		Cleaning and Televise Sewers	m	100	$ 12.00	$ 1,200.00
3.13	F300.15	410, F-4101		Connection into Existing	ea	2	$ 2,974.00	$ 5,948.00
3.14	F240.01	410, F-4100, F-4101	SP#	Storm Service Connection, PCV pipe	ea	1	$ 2,500.00	$ 2,500.00
3.15				Outlet Ditching	m	0	$ 150.00	$ -
3.15				Stormwater Sorage Dry Pond	ea	0	$ -	$ -
							Section 3.0 Total	**$ 122,327.00**
SECTION 4.0: WATERMAIN								
4.01	G030.03	441, F-4411, F-4412, F-4491, F-4492, F-4493, F-4494		Primary 200mm Watermain, PVC, CL 150, DR-18 including all appurtenances	m (P)	61	$ 840.33	$ 51,260.13
4.03			SP#	Water Permit and Connections to Exsiting Mains	ea	1	$ 30,000.00	$ 30,000.00
							Section 4.0 Total	**$ 81,260.13**
SECTION 5.0: SANITARY SEWERS								
5.1	H010.01	407, F-4070		1200 mm Dia. Round Sanitary Maintenance holes, Type OPSD 701.010	ea (P)	2	$ 13,500.00	$ 27,000.00
5.2	H030.02	410, F-4100		250 mm PVC Sanitary Pipe Sewer, Class SDR 35	m (P)	60	$ 375.00	$ 22,500.00
5.3		410, F-4100, F-4101	SP#	Sanitary Service Connection	ea	1	$ 1,126.00	$ 1,126.00
5.5	H210.02	410, F-4101		Connection into existing sanitary maintenance holes, catch basins, ditch inlets, culverts and sewers	ea	1	$ 2,011.00	$ 2,011.00
5.6	H210.10	409 F-4090		Cleaning and Televise Sewers	m	60	$ 12.00	$ 720.00
							Section 5.0 Total	**$ 53,357.00**

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres - 40 Hearst Way (Eagleson Park N Ride)**

Date: 4-Nov-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
SECTION 6.0: ROAD/PARKING								
6.01				Subgrade Prep	m2 (P)	1200	3.5	$ 4,200.00
6.02	L210.01	314, 501, F-3147		Granular 'A' (incl. sidewalk base)	t	525	$ 35.00	$ 18,375.00
6.03	L210.03	314, 501, F-3147		Granular 'B' Type II	t	875	$ 25.00	$ 21,875.00
6.04	L250.07	351, 904, F-3510, F-9040, F-9045		Monolithic concrete sidewalks, boulevards and islands	m2 (P)	110	$ 215.00	$ 23,650.00
6.05	L260.01	351, 904, F-3531, F-9040, F-9045		Concrete barrier curb as per SC1.1	m (P)	432	$ 120.00	$ 51,840.00
6.06	L380.16	F-3101, F-3106, F-3130		Performance Graded Superpave 12.5mm FC1 Level D (PG 64-34)	t	125	$ 297.82	$ 37,227.50
6.07	L390.05	F-3101, F-3106, F-3130		Performance Graded Superpave 19mm Level D (PG 64-34) (assumes 100mm asphalt everywhere)	t	310	$ 215.00	$ 66,650.00
6.08				Retaining wall	m2	0	$ 900.00	$ -
6.09				Curb and Aspahlt Removals	LS	1	$ 25,000.00	$ 25,000.00
6.1		710	SP#	Pavement Markings	LS	1	$ 15,000.00	$ 15,000.00
							Section 6.0 Total	**$ 259,617.50**
SECTION 7.0: UTILITIES								
7.1			SP#	Utilities (Hydro, Gas, Telecom)	lm	150	$ 500.00	$ 75,000.00
7.2				Street Light /Relocations	ea	6	$ 7,500.00	$ 45,000.00
							Section 7.0 Total	**$ 120,000.00**
SECTION 8.0: LANDSCAPING								
8.1	T020.03	802, F-8021,		Topsoil, Imported (100mm thick)	m2 (P)	500	$ 3.50	$ 1,750.00
8.2				Trees On-Site (Estimated)	ea	10	$ 550.00	$ 5,500.00
8.3				Trees Off-Site	ea	0	$ 550.00	$ -
8.4	T030.05	803, F-8031,		On Site Sodding including watering	m2 (P)	500	$ 12.00	$ 6,000.00
8.5	T030.05	803, F-8031,		Off Site Sodding including watering	m2 (P)	0	$ 12.00	$ -
							Section 8.0 Total	**$ 13,250.00**
							Total Cost	**$ 1,144,043.63**

City of Ottawa Newcomer Reception Centres - 1005 Greenbank Road
On-Site Works
Pre-Construction Opinion of Probable Costs
Class D- November 4, 2024

COST COMPONENT						AMOUNT
CONSTRUCTION						
	SECTION 1.0: GENERAL					$ 466,416.50
	SECTION 2.0: CULVERTS					$ -
	SECTION 3.0: STORM SEWERS					$ 163,519.04
	SECTION 4.0: WATERMAIN					$ 59,348.58
	SECTION 5.0: SANITARY SEWER					$ 26,041.10
	SECTION 6.0: ROAD/PARKING					$ 406,102.70
	SECTION 7.0: UTILITIES					$ 75,000.00
	SECTION 8.0: LANDSCAPING					$ 32,625.00
					Construction Estimate	**$ 1,229,052.92**
ENGINEERING AND ARCHITECTURAL SERVICES						
Engineering and Construction Management		% of Constn		15%	$ 1,229,052.92	$ 184,357.94
CITY INTERNAL COSTS		**% of Constn**		5%	$ 1,229,052.92	$ 61,452.65
UTILITY PROVISION				5%	$ 1,229,052.92	$ 61,452.65
MISCELLANEOUS				3%	$ 1,229,052.92	$ 36,871.59
SUB-TOTAL						**$ 1,573,187.74**
CONTINGENCY					**25%**	$ 393,296.93
					Total Cost	**$ 1,966,484.67**

Notes
* Cost Estimate Excludes works related to excess soils regulation or disposal soils deemed contaminated off-site
* Cost Estimate includes only provisional estimate for dewatering, rock excavation, and subgrade preparation. Detailed Geotechnical Report will be required to determine final site development requirements.
* Cost Estimate does not include any soil improvement program including preloading operations.
* Costs exclude all building related costs including underslab drainage and building pad insulation. Assumes completion of site devleopement to building pad preparation.

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres -1005 Greenbank Road**

Date: 4-Nov-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
SECTION 1.0: GENERAL								
1.01		F-1006	SP#	Mobilization/General Conditions	LS	1	$ 25,000.00	$ 25,000.00
1.02		F-1010	SP#	Traffic Management Plan (including coordination for road closure permits provisional)	LS	1	$ 5,000.00	$ 5,000.00
1.03	A020.01	F-1010	SP#	Traffic Control	LS	1	$ 15,000.00	$ 15,000.00
1.04	A030.01	F-1013	SP#	Construction site pedestrian control	LS	1	$ 2,500.00	$ 2,500.00
1.05	A040.02	805, F-1005		Erosion and sediment control	LS	1	$ 35,000.00	$ 35,000.00
1.06				Remove and Dispose of Existing Overburden Material Off-Site (Assumes 0.15m granular and topsoil)	cu.m	1181	$ 50.00	$ 59,025.00
1.07				Remove and Dispose of Existing Subgrade Fill Material Off-Site (Assumes 0.85m of overexcavated Unsuitable Fill Material)	cu.m	1926	$ 50.00	$ 96,305.00
1.08				Import Select Subgrade Material for Building Pad Prep 0.30m avg. depth of material (Assumes Engineered Fill to underside of 450mm granular subgrade)	cu.m	680	$ 67.50	$ 45,886.50
1.09				Import Fill Material for Parking lot subgrade 0.55m avg. depth of material (Assumes Suitable Fill Material to underside of Parking Structure)	cu.m	875	$ 50.00	$ 43,725.00
1.10	L210.01	314, 501, F-3147		Granular 'A' Building Sub-Base Assumes 450mm to be confirmed at time of detailed design	t	2685	$ 35.00	$ 93,975.00
1.11	A060.01	F-1011		Pre-construction Inspection	LS	1	$ 5,000.00	$ 5,000.00
1.12			SP#	Support and protection of existing watermain and utilities	LS	1	$ 10,000.00	$ 10,000.00
1.13		517		Dewatering	LS	1	$ 30,000.00	$ 30,000.00
							Section 1.0 Total	**$ 466,416.50**
SECTION 2.0: CULVERTS								
2.1	E029.01	421, F-4210		300 mm Galvanized CSP culvert 68 x 13 x 2.0 mm Cl. B bedding	m (P)	0	$ 600.00	$ -
							Section 2.0 Total	**$ -**
SECTION 3.0: STORM SEWERS								
3.02	F020.01	407 F-4070		1200mm dia. Storm maintenance hole	ea (P)	3	$ 12,000.00	$ 36,000.00
3.03	F020.02	407 F-4070		1500mm dia. Storm maintenance hole	ea (P)	0	$ 13,500.00	$ -

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres -1005 Greenbank Road**

Date: 4-Nov-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
3.04	F020.03	407 F-4070		1800mm dia. Storm maintenance hole	ea (P)	0	$ 15,000.00	$ -
3.05	F020.04	407 F-4070		2400mm dia. Storm maintenance hole	ea (P)	0	$ 22,476.00	$ -
3.06				Stormceptor	ea (P)	0	$ 40,000.00	$ -
3.07	F040.01	407. F-4070		600mm x 600mm PCC catch basin per OPSD-705.010 c/w Leads	ea (P)	4	$ 5,608.76	$ 22,435.04
3.08	F090.02			300mm Storm Sewer	m	130	$ 485.00	$ 63,050.00
3.09	F100.02			525mm Storm Sewer	m	0	$ 410.00	$ -
3.1	F140.02			750mm Concrete Storm Sewer	m	0	$ 660.35	$ -
3.11	F180.02			1050mm Concrete Storm Sewer	m	0	$ 1,082.00	$ -
3.12	F300.04	409 F-4090		Cleaning and Televise Sewers	m	130	$ 12.00	$ 1,560.00
3.13	F300.15	410, F-4101		Connection into Existing	ea	1	$ 2,974.00	$ 2,974.00
3.14	F240.01	410, F-4100, F-4101	SP#	Storm Service Connection, PCV pipe	ea	1	$ 2,500.00	$ 2,500.00
3.15				Outlet Ditching	m	0	$ 150.00	$ -
3.15				Stormwater Sorage Dry Pond (Assumes approximately 115 cu.m of total storage requried for 100yr stm event)	ea	1	$ 35,000.00	$ 35,000.00
							Section 3.0 Total	**$ 163,519.04**
SECTION 4.0: WATERMAIN								
4.01	G030.03	441, F-4411, F-4412, F-4491, F-4492, F-4493, F-4494		Primary 200mm Watermain, PVC, CL 150, DR-18 including all appurtenances	m (P)	26	$ 840.33	$ 21,848.58
4.02	G150.06			Excavation and backfill for relocation, blankings and connections to existing watermains	ea	1	$ 7,500.00	$ 7,500.00
4.03			SP#	Water service Connection and Water Permit	ea	1	$ 30,000.00	$ 30,000.00
							Section 4.0 Total	**$ 59,348.58**
SECTION 5.0: SANITARY SEWERS								
5.1	H010.01	407, F-4070		1200 mm Dia. Round Sanitary Maintenance holes, Type OPSD 701.010	ea (P)	1	$ 13,500.00	$ 13,500.00
5.2	H030.02	410, F-4100		250 mm PVC Sanitary Pipe Sewer, Class SDR 35	m (P)	24	$ 375.00	$ 9,112.50
5.3		410, F-4100, F-4101	SP#	Sanitary Service Connection	ea	1	$ 1,126.00	$ 1,126.00

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres -1005 Greenbank Road**

Date: 4-Nov-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
5.5	H210.02	410, F-4101		Connection into existing sanitary maintenance holes, catch basins, ditch inlets, culverts and sewers	ea	1	$ 2,011.00	$ 2,011.00
5.6	H210.10	409 F-4090		Cleaning and Televise Sewers	m	24	$ 12.00	$ 291.60
							Section 5.0 Total	**$ 26,041.10**
SECTION 6.0: ROAD/PARKING								
6.01				Subgrade Prep	m2 (P)	1365	3.5	$ 4,777.85
6.02	L210.01	314, 501, F-3147		Granular 'A' (incl. sidewalk base)	t	1015	$ 35.00	$ 35,525.00
6.03	L210.03	314, 501, F-3147		Granular 'B' Type II	t	1645	$ 25.00	$ 41,125.00
6.04	L250.07	351, 904, F-3510, F-9040, F-9045		Monolithic concrete sidewalks, boulevards and islands	m2 (P)	285	$ 90.00	$ 25,650.00
6.05	L260.01	351, 904, F-3531, F-9040, F-9045		Concrete barrier curb as per SC1.1	m (P)	817	$ 120.00	$ 98,040.00
6.06	L380.16	F-3101, F-3106, F-3130		Performance Graded Superpave 12.5mm FC1 Level D (PG 64-34)	t	235	$ 297.82	$ 69,987.70
6.07	L390.05	F-3101, F-3106, F-3130		Performance Graded Superpave 19mm Level D (PG 64-34) (assumes 100mm asphalt everywhere)	t	585	$ 215.00	$ 125,775.00
6.08				Retaining wall	m2	0	$ 900.00	$ -
6.08				Guard Rail on Retaining wall	m	0	$ 250.00	$ -
6.09		710	SP#	Pavement Markings	LS	1	$ 10,000.00	$ 10,000.00
							Section 6.0 Total	**$ 406,102.70**
SECTION 7.0: UTILITIES								
7.1			SP#	Utilities (Hydro, Gas, Telecom)	lm	30	$ 500.00	$ 15,000.00
7.2				Street Light	ea	8	$ 7,500.00	$ 60,000.00
							Section 7.0 Total	**$ 75,000.00**
SECTION 8.0: LANDSCAPING								
8.1	T020.03	802, F-8021,		Topsoil, Imported (100mm thick)	m2 (P)	1750	$ 3.50	$ 6,125.00
8.2				Trees On-Site (Estimated)	ea	10	$ 550.00	$ 5,500.00
8.3				Trees Off-Site	ea	0	$ 550.00	$ -
8.4	T030.05	803, F-8031,		On Site Sodding including watering	m2 (P)	1750	$ 12.00	$ 21,000.00

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres -1005 Greenbank Road**

Date: 4-Nov-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
8.5	T030.05	803, F-8031,		Off Site Sodding including watering	m2 (P)	0	$ 12.00	$ -
							Section 8.0 Total	**$ 32,625.00**
							Total Cost	**$ 1,229,052.92**

City of Ottawa Newcomer Reception Centres - 1645 Woodroffe Avenue
On-Site Works
Pre-Construction Opinion of Probable Costs
Class D- December 02, 2024

COST COMPONENT						AMOUNT
CONSTRUCTION						
	SECTION 1.0: GENERAL					$ 924,063.38
	SECTION 2.0: CULVERTS					$ -
	SECTION 3.0: STORM SEWERS					$ 142,668.52
	SECTION 4.0: WATERMAIN					$ 224,311.51
	SECTION 5.0: SANITARY SEWER					$ 34,903.40
	SECTION 6.0: ROAD/PARKING					$ 167,032.00
	SECTION 7.0: UTILITIES					$ 120,000.00
	SECTION 8.0: LANDSCAPING					$ 47,000.00
					Construction Estimate	**$ 1,659,978.81**
ENGINEERING AND ARCHITECTURAL SERVICES						
Engineering and Construction Management		% of Constn		15%	$ 1,659,978.81	$ 248,996.82
CITY INTERNAL COSTS		**% of Constn**		5%	$ 1,659,978.81	$ 82,998.94
UTILITY PROVISION				5%	$ 1,659,978.81	$ 82,998.94
MISCELLANEOUS				3%	$ 1,659,978.81	$ 49,799.36
SUB-TOTAL						**$ 2,124,772.87**
CONTINGENCY					**25%**	$ 531,193.22
					Total Cost	**$ 2,655,966.09**

Notes
* Cost Estimate Excludes works related to excess soils regulation or disposal soils deemed contaminated off-site
* Cost Estimate includes only provisional estimate for dewatering, rock excavation, and subgrade preparation. Detailed Geotechnical Report will be required to determine final site development requirements.
* Cost Estimate does not include any soil improvement program including preloading operations.
* Costs exclude all building related costs including underslab drainage and building pad insulation. Assumes completion of site devleopement to building pad preparation.

ISD12-5240

SCHEDULE OF ITEMS

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres - 1645 Woodroffe Avenue**

Date: 2-Dec-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
SECTION 1.0: GENERAL								
1.01		F-1006	SP#	Mobilization/General Conditions	LS	1	$ 25,000.00	$ 25,000.00
1.02		F-1010	SP#	Traffic Management Plan (including coordination for road closure permits provisional)	LS	1	$ 5,000.00	$ 5,000.00
1.03	A020.01	F-1010	SP#	Traffic Control	LS	1	$ 15,000.00	$ 15,000.00
1.04	A030.01	F-1013	SP#	Construction site pedestrian control	LS	1	$ 2,500.00	$ 2,500.00
1.05	A040.02	805, F-1005		Erosion and sediment control	LS	1	$ 35,000.00	$ 35,000.00
1.06				Remove and Dispose of Topsoils Material Off-Site (Assumes 0.3m topsoil)	cu.m	1800	$ 35.00	$ 63,000.00
1.07				Remove and Dispose of Existing Subgrade Fill Material Off-Site (Assumes 1.5m of overexcavated Unsuitable Fill Material)	cu.m	5678	$ 50.00	$ 283,875.00
1.08				Import Select Subgrade Material for Building Pad Prep 1.25m avg. depth of material (Assumes Engineered Fill to underside of 450mm granular subgrade)	cu.m	4731	$ 67.50	$ 319,359.38
1.09				Import Fill Material for Parking lot subgrade 0.05m avg. depth of material (Assumes Suitable Fill Material to underside of Parking Structure)	cu.m	57	$ 50.00	$ 2,829.00
1.10	L210.01	314, 501, F-3147		Granular 'A' Building Sub-Base Assumes 450mm to be confirmed at time of detailed design	t	4500	$ 35.00	$ 157,500.00
1.11	A060.01	F-1011		Pre-construction Inspection	LS	1	$ 5,000.00	$ 5,000.00
1.12			SP#	Support and protection of existing watermain and utilities	LS	1	$ 10,000.00	$ 10,000.00
1.13		517		Dewatering	LS	0	$ 30,000.00	$ -
							Section 1.0 Total	**$ 924,063.38**
SECTION 2.0: CULVERTS								
2.1	E029.01	421, F-4210		300 mm Galvanized CSP culvert 68 x 13 x 2.0 mm Cl. B bedding	m (P)	0	$ 600.00	$ -
							Section 2.0 Total	**$ -**
SECTION 3.0: STORM SEWERS								
3.02	F020.01	407 F-4070		1200mm dia. Storm maintenance hole	ea (P)	1	$ 12,000.00	$ 12,000.00
3.03	F020.02	407 F-4070		1500mm dia. Storm maintenance hole	ea (P)	0	$ 13,500.00	$ -

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres - 1645 Woodroffe Avenue**

Date: 2-Dec-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
3.04	F020.03	407 F-4070		1800mm dia. Storm maintenance hole	ea (P)	0	$ 15,000.00	$ -
3.05	F020.04	407 F-4070		2400mm dia. Storm maintenance hole	ea (P)	0	$ 22,476.00	$ -
3.06				Stormceptor	ea (P)	0	$ 40,000.00	$ -
3.07	F040.01	407. F-4070		600mm x 600mm PCC catch basin per OPSD-705.010 c/w Leads	ea (P)	2	$ 5,608.76	$ 11,217.52
3.08	F090.02			300mm Storm Sewer	m	91	$ 485.00	$ 44,135.00
3.09	F100.02			525mm Storm Sewer	m	0	$ 410.00	$ -
3.1	F140.02			750mm Concrete Storm Sewer	m	0	$ 660.35	$ -
3.11	F180.02			1050mm Concrete Storm Sewer	m	0	$ 1,082.00	$ -
3.12	F300.04	409 F-4090		Cleaning and Televise Sewers	m	91	$ 12.00	$ 1,092.00
3.13	F300.15	410, F-4101		Connection into Existing	ea	1	$ 2,974.00	$ 2,974.00
3.14	F240.01	410, F-4100, F-4101	SP#	Storm Service Connection, PCV pipe	ea	1	$ 2,500.00	$ 2,500.00
3.15				Outlet Ditching	m	225	$ 150.00	$ 33,750.00
3.15				Stormwater Sorage Dry Pond (Assumes approximately 100 cu.m of parking lot storage with additonal 50cu.m of storage requried for 100yr stm event)	ea	1	$ 35,000.00	$ 35,000.00
							Section 3.0 Total	**$ 142,668.52**
SECTION 4.0: WATERMAIN								
4.01	G030.03	441, F-4411, F-4412, F-4491, F-4492, F-4493, F-4494		Primary 200mm Watermain, PVC, CL 150, DR-18 including all appurtenances	m (P)	47	$ 840.33	$ 39,495.51
4.01	G030.03	441, F-4411, F-4412, F-4491, F-4492, F-4493, F-4494		Secondary 200mm Watermain, PVC, CL 150, DR-18 including all appurtenances and reinstatement	m (P)	200	$ 840.33	$ 168,066.00
4.02	G150.06			Excavation and backfill for relocation, blankings and connections to existing watermains	ea	2	$ 7,500.00	$ 15,000.00
4.03			SP#	Water service Connection(Feeding Individual Commercial Units with Single Water Service)	ea	1	$ 1,750.00	$ 1,750.00
							Section 4.0 Total	**$ 224,311.51**
SECTION 5.0: SANITARY SEWERS								
5.1	H010.01	407, F-4070		1200 mm Dia. Round Sanitary Maintenance holes, Type OPSD 701.010	ea (P)	1	$ 13,500.00	$ 13,500.00

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres - 1645 Woodroffe Avenue**

Date: 2-Dec-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
5.2	H030.02	410, F-4100		250 mm PVC Sanitary Pipe Sewer, Class SDR 35	m (P)	47	$ 375.00	$ 17,700.00
5.3		410, F-4100, F-4101	SP#	Sanitary Service Connection	ea	1	$ 1,126.00	$ 1,126.00
5.5	H210.02	410, F-4101		Connection into existing sanitary maintenance holes, catch basins, ditch inlets, culverts and sewers	ea	1	$ 2,011.00	$ 2,011.00
5.6	H210.10	409 F-4090		Cleaning and Televise Sewers	m	47	$ 12.00	$ 566.40
							Section 5.0 Total	**$ 34,903.40**
SECTION 6.0: ROAD/PARKING								
6.01				Subgrade Prep	m2 (P)	1037	3.5	$ 3,630.55
6.02	L210.01	314, 501, F-3147		Granular 'A' (incl. sidewalk base)	t	450	$ 35.00	$ 15,750.00
6.03	L210.03	314, 501, F-3147		Granular 'B' Type II	t	685	$ 25.00	$ 17,125.00
6.04	L250.07	351, 904, F-3510, F-9040, F-9045		Monolithic concrete sidewalks, boulevards and islands	m2 (P)	182	$ 90.00	$ 16,380.00
6.05	L260.01	351, 904, F-3531, F-9040, F-9045		Concrete barrier curb as per SC1.1	m (P)	211	$ 120.00	$ 25,320.00
6.06	L380.16	F-3101, F-3106, F-3130		Performance Graded Superpave 12.5mm FC1 Level D (PG 64-34)	t	100	$ 297.82	$ 29,782.00
6.07	L390.05	F-3101, F-3106, F-3130		Performance Graded Superpave 19mm Level D (PG 64-34) (assumes 100mm asphalt everywhere)	t	245	$ 215.00	$ 52,675.00
6.08				Retaining wall	m2	0	$ 900.00	$ -
6.08				Guard Rail on Retaining wall	m	0	$ 250.00	$ -
6.09		710	SP#	Pavement Markings	LS	1	$ 10,000.00	$ 10,000.00
							Section 6.0 Total	**$ 167,032.00**
SECTION 7.0: UTILITIES								
7.1			SP#	Utilities (Hydro, Gas, Telecom)	lm	150	$ 500.00	$ 75,000.00
7.2				Street Light	ea	6	$ 7,500.00	$ 45,000.00
							Section 7.0 Total	**$ 120,000.00**
SECTION 8.0: LANDSCAPING								
8.1	T020.03	802, F-8021,		Topsoil, Imported (100mm thick)	m2 (P)	2500	$ 3.50	$ 8,750.00
8.2				Trees On-Site (Estimated)	ea	15	$ 550.00	$ 8,250.00

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres - 1645 Woodroffe Avenue**

Date: 2-Dec-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
8.3				Trees Off-Site	ea	0	$ 550.00	$ -
8.4	T030.05	803, F-8031,		On Site Sodding including watering	m2 (P)	2500	$ 12.00	$ 30,000.00
8.5	T030.05	803, F-8031,		Off Site Sodding including watering	m2 (P)	0	$ 12.00	$ -
							Section 8.0 Total	**$ 47,000.00**
							Total Cost	**$ 1,659,978.81**

City of Ottawa Newcomer Reception Centres - 3311 Woodroffe Avenue
On-Site Works
Pre-Construction Opinion of Probable Costs
Class D- November 4, 2024

COST COMPONENT						AMOUNT
CONSTRUCTION						
	SECTION 1.0: GENERAL					$ 621,575.00
	SECTION 2.0: CULVERTS					$ -
	SECTION 3.0: STORM SEWERS					$ 244,827.00
	SECTION 4.0: WATERMAIN					$ 49,327.59
	SECTION 5.0: SANITARY SEWER					$ 29,601.50
	SECTION 6.0: ROAD/PARKING					$ 312,827.50
	SECTION 7.0: UTILITIES					$ 70,000.00
	SECTION 8.0: LANDSCAPING					$ 13,250.00
					Construction Estimate	**$ 1,341,408.59**
ENGINEERING AND ARCHITECTURAL SERVICES						
Engineering and Construction Management		% of Constn		15%	$ 1,341,408.59	$ 201,211.29
CITY INTERNAL COSTS		**% of Constn**		5%	$ 1,341,408.59	$ 67,070.43
UTILITY PROVISION				5%	$ 1,341,408.59	$ 67,070.43
MISCELLANEOUS				3%	$ 1,341,408.59	$ 40,242.26
SUB-TOTAL						**$ 1,717,003.00**
CONTINGENCY					**25%**	$ 429,250.75
					Total Cost	**$ 2,146,253.74**

Notes
* Cost Estimate Excludes works related to excess soils regulation or disposal soils deemed contaminated off-site
* Cost Estimate includes only provisional estimate for dewatering, rock excavation, and subgrade preparation. Detailed Geotechnical Report will be required to determine final site development requirements.
* Cost Estimate does not include any soil improvement program including preloading operations.
* Costs exclude all building related costs including underslab drainage or slab insulation. Assumes completion of site devleopement to building pad preparation.

ISD12-5240

SCHEDULE OF ITEMS

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres - 3311 Woodroffe Avenue**

Date: 4-Nov-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
SECTION 1.0: GENERAL								
1.01		F-1006	SP#	Mobilization/General Conditions	LS	1	$ 25,000.00	$ 25,000.00
1.02		F-1010	SP#	Traffic Management Plan (including coordination for road closure permits provisional)	LS	1	$ 5,000.00	$ 5,000.00
1.03	A020.01	F-1010	SP#	Traffic Control	LS	1	$ 15,000.00	$ 15,000.00
1.04	A030.01	F-1013	SP#	Construction site pedestrian control	LS	1	$ 20,000.00	$ 20,000.00
1.05	A040.02	805, F-1005		Erosion and sediment control	LS	1	$ 10,000.00	$ 10,000.00
1.06				Remove Topsoil As Required to Permit Construction and and Dispose of Material Off-Site (Assumes 0.30m Topsoil)	cu.m	1500	$ 25.00	$ 37,500.00
1.07				Remove and Dispose of Existing Subgrade Fill Material Off-Site (Assumes 0.70m of Fill Material below Topsoil)	cu.m	3500	$ 50.00	$ 175,000.00
1.08				Import Select Subgrade Material for Building Pad Prep (Assumes average of 450mm of Engineered Fill to underside of 450mm granular subgrade)	cu.m	2250	$ 67.50	$ 151,875.00
1.09	L210.01	314, 501, F-3147		Granular 'A' Building Sub-Base Assumes 450mm average to be confirmed at time of detailed design	t	3920	$ 35.00	$ 137,200.00
1.10	A060.01	F-1011		Pre-construction Inspection	LS	1	$ 5,000.00	$ 5,000.00
1.11			SP#	Support and protection of existing sewers and utilities	LS	1	$ 10,000.00	$ 10,000.00
1.12		517		Dewatering	LS	1	$ 30,000.00	$ 30,000.00
							Section 1.0 Total	**$ 621,575.00**
SECTION 2.0: CULVERTS								
2.1	E029.01	421, F-4210		300 mm Galvanized CSP culvert 68 x 13 x 2.0 mm Cl. B bedding	m (P)	0	$ 600.00	$ -
							Section 2.0 Total	**$ -**
SECTION 3.0: STORM SEWERS								
3.01	F020.01	407 F-4070		1200mm dia. Storm maintenance hole	ea (P)	2	$ 12,000.00	$ 24,000.00
3.02	F020.02	407 F-4070		1500mm dia. Storm maintenance hole	ea (P)	0	$ 13,500.00	$ -
3.03	F020.03	407 F-4070		1800mm dia. Storm maintenance hole	ea (P)	0	$ 15,000.00	$ -
3.04	F020.04	407 F-4070		2400mm dia. Storm maintenance hole	ea (P)	0	$ 22,476.00	$ -

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres - 3311 Woodroffe Avenue**

Date: 4-Nov-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
3.04				Stormceptor	ea (P)	0	$ 40,000.00	$ -
3.05	F040.01	407. F-4070		600mm x 600mm PCC catch basin per OPSD-705.010 c/w Leads	ea (P)	3	$ 7,500.00	$ 22,500.00
3.06	F090.02			375mm Storm Sewer	m	100	$ 586.79	$ 58,679.00
3.07	F100.02			525mm Storm Sewer	m	0	$ 410.00	$ -
3.08	F140.02			750mm Concrete Storm Sewer	m	0	$ 660.35	$ -
3.09	F180.02			1050mm Concrete Storm Sewer	m	0	$ 1,082.00	$ -
3.1	F300.04	409 F-4090		Cleaning and Televise Sewers	m	100	$ 12.00	$ 1,200.00
3.11	F300.15	410, F-4101		Connection into Existing	ea	2	$ 2,974.00	$ 5,948.00
3.12	F240.01	410, F-4100, F-4101	SP#	Storm Service Connection, PCV pipe	ea	1	$ 2,500.00	$ 2,500.00
3.13				Outlet Ditching	m	0	$ 150.00	$ -
3.14				Stormwater Storage Dry Pond (assumes 130cu.m of storage required in additon to 50 cu.m of parking lot storage)	cu.m	130	$ 1,000.00	$ 130,000.00
							Section 3.0 Total	**$ 244,827.00**
SECTION 4.0: WATERMAIN								
4.01	G030.03	441, F-4411, F-4412, F-4491, F-4492, F-4493, F-4494		Primary 200mm Watermain, PVC, CL 150, DR-18 including all appurtenances	m (P)	23	$ 840.33	$ 19,327.59
4.02			SP#	Water Permit and Connections to Exsiting Mains	ea	1	$ 30,000.00	$ 30,000.00
							Section 4.0 Total	**$ 49,327.59**
SECTION 5.0: SANITARY SEWERS								
5.01	H010.01	407, F-4070		1200 mm Dia. Round Sanitary Maintenance holes, Type OPSD 701.010	ea (P)	1	$ 13,500.00	$ 13,500.00
5.02	H030.02	410, F-4100		250 mm PVC Sanitary Pipe Sewer, Class SDR 35	m (P)	34	$ 375.00	$ 12,562.50
5.03		410, F-4100, F-4101	SP#	Sanitary Service Connection	ea	1	$ 1,126.00	$ 1,126.00
5.04	H210.02	410, F-4101		Connection into existing sanitary maintenance holes, catch basins, ditch inlets, culverts and sewers	ea	1	$ 2,011.00	$ 2,011.00
5.05	H210.10	409 F-4090		Cleaning and Televise Sewers	m	34	$ 12.00	$ 402.00
							Section 5.0 Total	**$ 29,601.50**

CONTRACT ITEM LISTING SHEET

Job Description: **City of Ottawa Newcomer Reception Centres - 3311 Woodroffe Avenue**

Date: 4-Nov-24

Contract No.:

Prepared By: **SG/MW**

Reviewed By: **GR**

ITEM NO	CITY ITEM CODE	SPEC NO	EXTRA SPEC NO	ITEM	UNIT	ESTIM. QUANT.	UNIT RATE	AMOUNT
SECTION 6.0: ROAD/PARKING								
6.01				Subgrade Prep	m2 (P)	1197	3.5	$ 4,189.50
6.02	L210.01	314, 501, F-3147		Granular 'A' (incl. sidewalk base)	t	580	$ 35.00	$ 20,300.00
6.03	L210.03	314, 501, F-3147		Granular 'B' Type II	t	870	$ 25.00	$ 21,750.00
6.04	L250.07	351, 904, F-3510, F-9040, F-9045		Monolithic concrete sidewalks, boulevards and islands	m2 (P)	260	$ 215.00	$ 55,900.00
6.05	L260.01	351, 904, F-3531, F-9040, F-9045		Concrete barrier curb as per SC1.1	m (P)	300	$ 120.00	$ 36,000.00
6.06	L380.16	F-3101, F-3106, F-3130		Performance Graded Superpave 12.5mm FC1 Level D (PG 64-34)	t	125	$ 297.82	$ 37,227.50
6.07	L390.05	F-3101, F-3106, F-3130		Performance Graded Superpave 19mm Level D (PG 64-34) (assumes 100mm asphalt everywhere)	t	310	$ 215.00	$ 66,650.00
6.08				Transitway Reinstatement	m2	200	$ 250.00	$ 50,000.00
6.09				Curb and Aspahlt Removals	LS	1	$ 10,000.00	$ 10,000.00
6.10		710	SP#	Pavement Markings	LS	1	$ 15,000.00	$ 15,000.00
							Section 6.0 Total	**$ 312,827.50**
SECTION 7.0: UTILITIES								
7.01			SP#	Utilities (Hydro, Gas, Telecom)	lm	50	$ 500.00	$ 25,000.00
7.02				Street Light /Relocations	ea	6	$ 7,500.00	$ 45,000.00
							Section 7.0 Total	**$ 70,000.00**
SECTION 8.0: LANDSCAPING								
8.01	T020.03	802, F-8021,		Topsoil, Imported (100mm thick)	m2 (P)	500	$ 3.50	$ 1,750.00
8.02				Trees On-Site (Estimated)	ea	10	$ 550.00	$ 5,500.00
8.03				Trees Off-Site	ea	0	$ 550.00	$ -
8.04	T030.05	803, F-8031,		On Site Sodding including watering	m2 (P)	500	$ 12.00	$ 6,000.00
8.05	T030.05	803, F-8031,		Off Site Sodding including watering	m2 (P)	0	$ 12.00	$ -
							Section 8.0 Total	**$ 13,250.00**
							Total Cost	**$ 1,341,408.59**

With every community, we redefine what's possible.

Stantec is a global leader in sustainable architecture, engineering, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.