ACCESS PROPERTY DEVELOPMENT

415 LEGGET DRIVE & 2700 SOLANDT ROAD OTTAWA, ON

SERVICING REPORT

MARCH 25, 2022
2ND SUBMISSION

ACCESS PROPERTY DEVELOPMENT
ACCESS GROUP OF COMPANIES

wsp

415 LEGGET DRIVE & 2700 SOLANDT ROAD OTTAWA, ON

SERVICING REPORT

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SITE PLAN APPLICATION
2ND SUBMISSION

PROJECT NO.: 219-00058-04
DATE: MARCH 2022

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1 GENERAL

1.1 EXECUTIVE SUMMARY

WSP was retained by Access Property Development to provide servicing and grading design services for the proposed new industrial development, including two new commercial buildings, located at 415 Legget Drive & 2700 Solandt Road. The site is situated on the east quadrant of the Legget Drive and Solandt Road intersection. This report outlines findings and calculations pertaining to the servicing of the proposed development for buildings A and B with a gross building footprint of 18,580 m².

Currently the land proposed for development is a mostly paved parking lot with minor landscaping around the perimeter. There is also a grassed and wooded area towards the centre of the site. Stormwater runoff is mainly conveyed through sheet flow over the impervious asphalt surface towards a stormwater management pond at the northeast corner of the site. An existing building is located on the southwest side of the site. This existing building has a footprint of 9,600 m² and a gross area of 14,400 m². The total building footprint for proposed Building A is 11,400 m² and proposed Building B is 7,180 m². The site is surrounded by commercial and light industrial development.

The site is part of blocks 33 and 34 of registered plan M-280 City of Ottawa (refer to Appendix B for the Legal and Topographical Survey Plan by Farley, Smith & Denis Surveying Ltd, October 2021). Based on the topographic survey, the ground, predominantly asphalt surfaced, slopes towards the low point at the stormwater management pond. There is a notch in the curb in the north parking lot that allows for drainage through the wooded area and towards the pond. The stormwater management pond is then controlled by means of a weir where it then outflows to a drainage channel and continues onto the Kizell Drain.

The City of Ottawa required that the design of a drainage and stormwater management system in this development must be prepared in accordance with the following documents:

- Sewer Design Guidelines, City of Ottawa, October 2012;
- Stormwater Management Planning and Design Manual, Ministry of the Environment, March 2003; and
- Stormwater Management Facility Design Guidelines, City of Ottawa, April 2012
- Mississippi Valley Conservation Authority Consultation Requirements

This report was prepared utilizing servicing design criteria obtained from available sources, and outlines the design for water, sanitary wastewater, and stormwater facilities.

The format of this report matches that of the servicing study checklist found in Section 4 of the City of Ottawa's Servicing Study Guidelines for Development Applications, November 2009.

The following municipal services are available within Legget Road to the development as recorded from as-built drawings from City of Ottawa and as identified by the City of Ottawa in the pre-consult meeting notes:

Legget Drive:

- 305mm DI watermain with 250mm service extending to property
- 750mm concrete sanitary sewer with 250mm PVC service extending to property
- 375mm PVC storm sewer

Solandt Road:

- 305mm PVC watermain
- No sanitary sewer on Solandt
- 525mm concrete storm sewer

It is proposed that:

- The existing 250mm water service will be extended and looped to connect to Solandt Road to service the two proposed buildings.
- The existing 350mm sanitary service will be extended to service the two proposed building.
- On-site stormwater management systems, employing surface and roof storage will be provided to attenuate flow rates leaving the new parking lot and new building roof. Existing drainage patterns, previously established controlled flow rates will be maintained. Refer to the stormwater management report for details.

1.2 DATE AND REVISION NUMBER

This version of the report is the first revision, dated October 25th, 2021.

1.3 LOCATION MAP AND PLAN

The proposed development is located at 415 Legget Drive & 2700 Solandt Road, in the City of Ottawa as shown in Figure 1-1 below.

Figure 1-1 Site Location

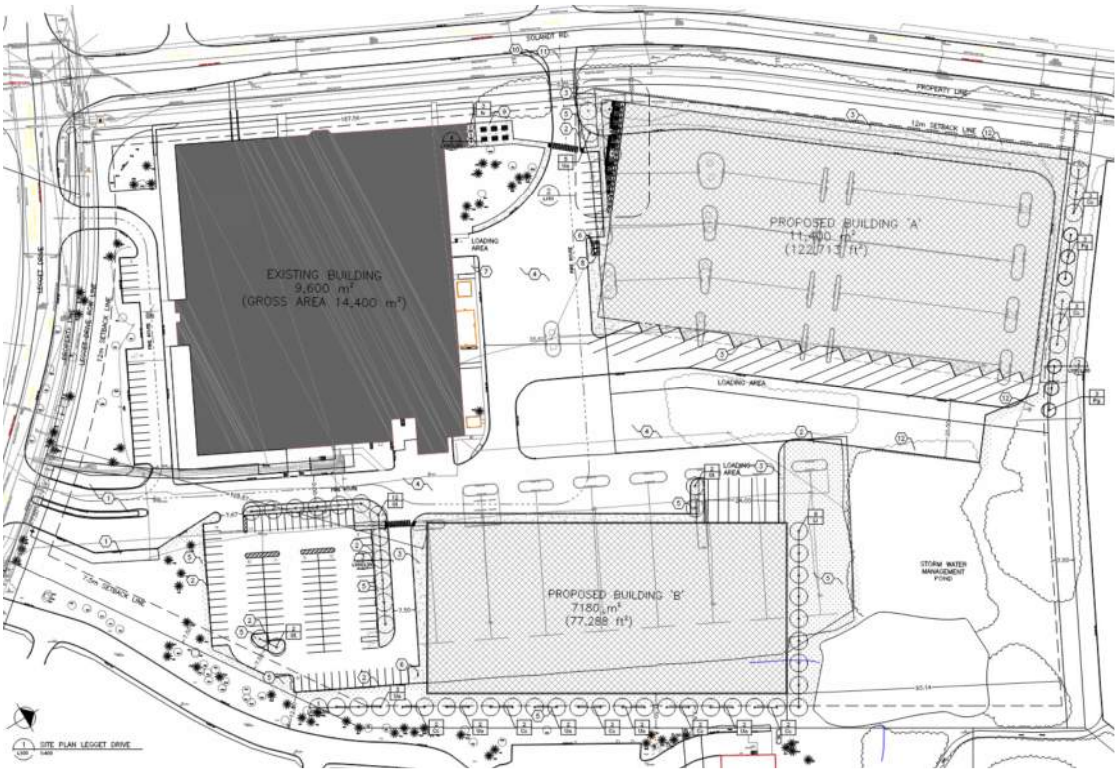

Figure 1-2 Site Plan

1.4 ADHERENCE TO ZONING AND RELATED REQUIREMENTS

The proposed property use will be in conformance with zoning and related requirements prior to approval and construction and is understood to be in conformance with current zoning.

1.5 PRE-CONSULTATION MEETINGS

A pre-consultation meeting was held with the City of Ottawa on September 27, 2021. Notes from this meeting are provided in Appendix A.

1.6 HIGHER LEVEL STUDIES

The review for servicing has been undertaken in conformance with, and utilizing information from, the following documents:

- Ottawa Sewer Design Guidelines, Second Edition, Document SDG002, October 2012, City of Ottawa including:
    - Technical Bulletin ISDTB-2012-4 (20 June 2012)
    - Technical Bulletin ISDTB-2014-01 (05 February 2014)
    - Technical Bulletin PIEDTB-2016-01 (September 6, 2018)
    - Technical Bulletin ISDTB-2018-01 (21 March 2018)
    - Technical Bulletin ISDTB-2018-04 (27 June 2018)
- Ottawa Design Guidelines – Water Distribution, July 2010 (WDG001), including:
    - Technical Bulletin ISDTB-2014-02 (May 27, 2014)
    - Technical Bulletin ISTB-2018-02 (21 March 2018)
- Stormwater Management Planning and Design Manual, Ontario Ministry of the Environment and Climate Change, March 2003 (SMPDM).
- Design Guidelines for Drinking-Water Systems, Ontario Ministry of the Environment and Climate Change, 2008 (GDWS).
- Fire Underwriters Survey, Water Supply for Public Fire Protection (FUS), 1999.

1.7 STATEMENT OF OBJECTIVES AND SERVICING CRITERIA

The objective of the site servicing is to meet the requirements for the proposed modification of the site while adhering to the stipulations of the applicable higher-level studies and City of Ottawa servicing design guidelines.

1.8 AVAILABLE EXISTING AND PROPOSED INFRASTRUCTURE

Existing water and sanitary services extend to the property from mains on Legget Drive. The existing 250mm water service will be extended and looped to connect to the watermain on 305mm PVC watermain on Solandt Drive. This existing main on Solandt is located towards the near side shoulder of the roadway. Therefor a major road cut is not expected. The extended and looped service will have laterals to service the two proposed buildings.

The existing 250mm sanitary service on the property will also be extended with the addition of a few manholes. This will allow for sanitary servicing of the two proposed buildings.

While there are storm sewers located on Legget Drive and Solandt Road, there are no underground storm sewers in the proposed development area of the property. Drainage occurs through sheet flow from the asphalt surfaces towards the stormwater management pond on the northeast corner of the property. From here, water drains by means of an overflow weir towards a drainage channel and then onwards to Kizell Drain. The proposed grading plan for the site will follow similar a drainage plan. Much of the overland flow from the asphalt surfaces will be directed towards the stormwater management pond. Proposed ditches around the perimeter of the site will also direct runoff towards the pond. The proposed buildings will also make use of roof retention and low flow drains to further reduce peak runoff.

1.9 ENVIRONMENTALLY SIGNIFICANT AREAS, WATERCOURSES AND MUNICIPAL DRAINS

The proposed development site is surrounded by commercial and light industrial lands. The Mississippi Valley Conservation Authority (MVCA) has been consulted regarding this development and they have provided the following correspondence:

We note that the subject property is not mapped as regulated by MVCA under Ontario Regulation 153/06 – "Development and Interference with Wetlands and Alterations to Shoreline or Watercourses". However, if modifications to any of the existing watercourses is required for the stormwater outlet, a permit from MVCA would be required for these works. We do also note that the flood plain mapping for Kizell Drain did not incorporate the existing pond on the subject property within the study limit.

The subject property is located within both the Shirley's Brook subwatershed and the Kizell Drain subwatershed. Both subwatersheds require an enhanced level of water quality protection, which requires 80% total suspended solids removal. Kizell Drain is a Cold-Cool water system and Shirley's Brook is a Cool-Warm system, therefore temperature mitigation should be a consideration in the stormwater design.

No alterations will be made to the existing water body nor the stormwater outlet, therefore a permit from MVCA will not be required. Removal of 80% of total suspended solids as well as design of temperature mitigation will be incorporated in the project. Please reference the stormwater management report for more detail.

1.10 CONCEPT LEVEL MASTER GRADING PLAN

A detailed grading plan for the development site has been developed, matching the existing overland flow pattern of directing overflow drainage to the existing stormwater management pond at the northeast corner of the site. The site topographic survey, included in Appendix A, provides evidence of direction of overland flow of the site from west to east.

Existing grades at the property line and existing building will be maintained. Minor regrading of the existing surfaces will be required to accommodate the proposed buildings. Enhanced grass swales have been proposed to direct the surface and roof runoff toward the existing stormwater management pond.

1.11 IMPACTS ON PRIVATE SERVICES

Refer to Section 1.8. Existing water and sanitary services on the property will be extended to service the two proposed buildings. Temporary shutdown to the existing building at 415 Legget Drive will be required to make the final water connection. It is not expected that any existing services or appurtenances will require relocation.

1.12 DEVELOPMENT PHASING

No development phasing is expected for the current proposal.

1.13 GEOTECHNICAL SUTDY

A geotechnical investigation report has been prepared by WSP, titled 415 Legget Drive Renovation and Fit-Up and New Site Developments (October, 2021), and its recommendations has been taken into account in developing the engineering specifications.

1.14 DRAWING REQUIREMENT

The engineering plans submitted for site plan approval are in compliance with City requirements.

2 WATER DISTRIBUTION

2.1 CONSISTENCY WITH MASTER SERVICING STUDY AND AVAILABILITY OF PUBLIC INFRASTRUCTURE

There is an existing 305mm diameter public watermain along Legget Drive providing water to the existing building at 415 Legget Drive via an existing 250mm diameter private watermain. For the proposed development, the existing 250mm diameter private watermain extended from the existing 305mm municipal watermain along Legget Drive will continue to provide water demand and fire protection to the existing building as well as the proposed two buildings. The existing private 250mm watermain will be extended and looped to connect to the watermain on the nearside shoulder of Solandt Drive. Sprinkler and domestic services will be extended to each of the proposed buildings. Two new fire hydrants will also be provided for each building for a total of four additional hydrants. No changes are required to the existing City water distribution system to allow servicing for this property. The existing water meter at the existing building is still the primary water meter for the site. Domestic feeder mains to service building A and B will be connected to the existing water meter.

2.2 SYSTEM CONSTRAINTS AND BOUNDARY CONDITIONS

Boundary conditions have been obtained from the City of Ottawa at the 305 mm diameter watermain on Legget Drive and Solandt Road for the development, are included to Appendix C. A max fire flow demand of 167 l/s (10,000 l/min) has been calculated for the proposed buildings A and B, and a fire flow demand of 200 l/s (12,000 l/min) has also been calculated for the existing building at 415 Legget Drive as noted in Section 2.4.

Table 2-1: Boundary Conditions

BOUNDARY CONDITIONS @ Connection 1 – Legget Drive		
SCENARIO	HGL (m)	Pressure (psi)
Maximum HGL	131.0	75.1
Minimum HGL (Peak Hour)	126.4	68.4
Max Day + Fire Flow	122.6	63.1

BOUNDARY CONDITIONS @ Connection 2 – Solandt Road		
SCENARIO	HGL (m)	Pressure (psi)
Maximum HGL	131.0	76.0
Minimum HGL (Peak Hour)	126.3	69.3
Max Day + Fire Flow	120.5	61.0

2.3 CONFIRMATION OF ADEQUATE DOMESTIC SUPPLY AND PRESSURE

Water demands are based on Table 4.2 of the Ottawa Design Guidelines – Water Distribution. As previously noted, the development is considered as light industrial development, consisting of three one-storey commercial buildings. A water demand calculation sheet is included in Appendix C, and the total water demands are summarized as follows:

Table 2-2: Water Demand

Domestic Water Demand			
SCENARIO	BLDG A	BLDG B	EXISTING BUILDING
Average Daily	0.37 L/s	0.22 L/s	0.31 L/s
Maximum Hour	0.55 L/s	0.32 L/s	0.47 L/s
Peak Hour	1.00 L/s	0.58 L/s	0.84 L/s

The 2010 City of Ottawa Water Distribution Guidelines stated that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 552 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in the guidelines are as follows:

Minimum Pressure — Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)

Fire Flow — During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.

Maximum Pressure — Maximum pressure at any point the distribution system shall not exceed 689 kPa (100 psi). In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls may be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

A water model software, WaterGEMS was used to perform the water distribution analyze for the proposed development including proposed buildings A and B, and existing building. The minimum water pressure inside the building at the connection is determined with the minimum HGL condition, resulting in a pressure of 483 kPa for Building A, 487 kPa for Building B, and 475 kPa for existing building which exceeds the minimum requirement of 276 kPa per the guidelines. Refer to Appendix C for detail water distribution analyze output.

Table 2-3: Summary of the minimum water pressure under peak hour scenario

Peak Hour – Junction	
ID	Pressure (kPa)
J-1	479
J-2	483
J-3	489
J-4	490
J-5	488
J-6	484
J-7	483
J-8	483
J-10	475
J-12	490

J-13	483
J-14	487
J-15	487
FH2	479
J-18	479
J-23	489
EX. FH	479
FH1	496

2.4 CONFIRMATION OF ADEQUATE FIRE FLOW PROTECTION

The fire flow rate has been calculated using the Fire Underwriters Survey (FUS) method. The method takes into account the type of building construction, the building occupancy, the use of sprinklers and the exposures to adjacent structures. Assuming non-combustible construction and with sprinkler system, a fire flow demand of 167 l/s for Proposed Building A, and Building B, and 200 l/s for the existing building at 415 Legget Drive have been calculated. A copy of the calculation is included in Appendix C.

The fire demand for the proposed and existing development can be serviced through the combination of existing and proposed hydrants. There is one existing private fire hydrant at the front/east face of the existing building. There are also several municipal fire hydrants located along Solandt Drive on the near side shoulder of the road to the property. There will be additional proposed private fire hydrants to ensure coverage and to meet required flow. All the proposed and existing hydrants are rated at 5700 l/min.

The proposed buildings A and B on site and the existing building at 415 Legget Drive will be serviced by laterals off of the extended 250 mm private watermain. The sprinkler services will run into the water sprinkler rooms of the proposed buildings. The proposed buildings will be sprinklered and fire protection will be provided with the fire department Siamese connection within 45 m of new and existing private fire hydrants located on site.

The boundary condition for Maximum Day and Fire Flow results the available fire flows of 221.05 l/s, 268.46 l/s and 230.98 l/s at FH2, EX. FH and FH1. In the guidelines, a minimum residual pressure of 140 kPa must be maintained in the distribution system for a fire flow and maximum day event. As the available demand fire flow is achieved, the fire flow requirement is exceeded.

Table 2-4: Summary of the available fire flow under Max Day + Fire scenario

Max Day + Fire	
ID	Available Fire Flow (l/s)
FH2	221.05
EX. FH	268.46
FH1	230.98

2.5 CHECK OF HIGH PRESSURE

High pressure is not a concern. The maximum water pressure inside the building at the connection is determined with the maximum HGL condition, resulting in a pressure range from 522 kPa to 534 kPa which is less than the 552 kPa threshold in the guideline in which pressure control is required. Based on this result, pressure control is not required for the existing and proposed buildings.

2.6 PHASING CONSTRAINTS

No phasing constraints exist.

2.7 RELIABILITY REQUIREMENTS

The main private watermain will be looped and connected at both Legget Drive and Solandt Road provided some extra redundancy in the system. A redundant service is not required as the buildings use are storage warehouse, minimal domestic demand is expected. DMA chamber as per City of Ottawa Standard W3 and shut-off valve will be provided. Domestic service to buildings A and B will be serviced through the existing water meter at the existing building. Sprinkler services for fire to the buildings will be connected to the main private 250mm water looping.

2.8 NEED FOR PRESSURE ZONE BOUNDAY MODIFICATION

There is no need for a pressure zone boundary modification.

2.9 CAPABILITY OF MAJOR INFRASTRUCTURE TO SUPPLY SUFFICIENT WATER

The current infrastructure is capable of meeting the domestic demand based on City requirements and fire demand as determined by FUS requirements for the proposed buildings.

2.10 DESCRIPTION OF PROPOSED WATER DISTRIBUTION NETWORK

The existing 250 mm private watermain will continue to be used to service both the proposed development and existing site. The existing private 250mm watermain will be extended and looped to connect to the watermain on the nearside shoulder of Solandt Drive. Sprinkler services will be extended to each of the proposed buildings from the main line. Domestic services will be extended from the existing building water room after the existing water meter. New hydrants will be within 45 metres of the fire department connection to both Proposed Buildings A and B.

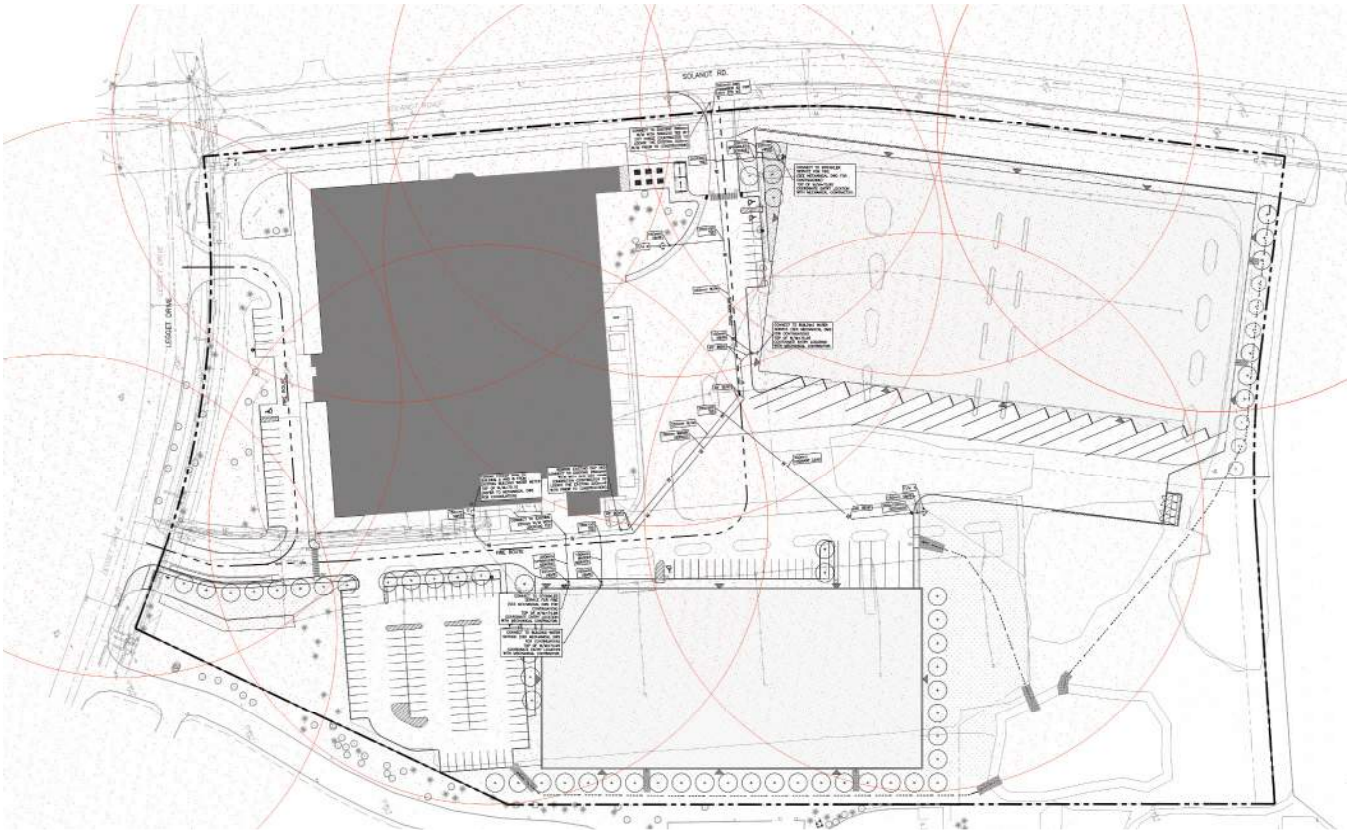

Figure 2-1 Hydrant Cover

2.11 OFF-SITE REQUIREMENTS

A connection to the watermain on Solandt Drive is being proposed to loop the existing 250mm private watermain. No other off-site improvements to watermains, feedermains, pumping stations, or other water infrastructure are required to maintain existing conditions and service the adjacent buildings.

2.12 CALCULATION OF WATER DEMANDS

Water demands were calculated by as described in Sections 2.3 and 2.4 above.

2.13 MODEL SCHEMATIC

The water works consist a 250mm watermain extension, one existing private fire hydrants, two proposed private fire hydrants, four water services connections including sprinkler and domestic for proposed buildings A and B. No changes are being proposed to water servicing for the existing building. The works are further illustrated in the site servicing plan provided in Appendix E. A model schematic will be provided with InfoWater for this development once the boundary condition is obtained.

3 WASTEWATER DISPOSAL

3.1 DESIGN CRITERIA

In accordance with the City of Ottawa's Sewer Design Guidelines, the following design criteria have been utilized in order to predict wastewater flows generated by the subject site and complete the sewer design;

- Minimum Velocity 0.6 m/s
- Maximum Velocity 3.0 m/s
- Manning Roughness Coefficient 0.013
- Average sanitary flow for Commercial Flow 28,000 L/Ha/day
- Average sanitary flow for Light Industrial Flow 35,000 L/Ha/day
- Light Industrial Peaking Factor 1.5
- Infiltration Allowance (Total) 0.33 L/s/Ha
- Minimum Sewer Slopes – 200 mm diameter 0.32%

3.2 CONSISTENCY WITH MASTER SERVICING STUDY

The outlet for the sanitary service from the existing building and two proposed buildings is the existing 750 mm diameter municipal sanitary sewer on Legget Drive. This sanitary sewer is also known as the Marchwood Collector. The Ottawa Sewer Design Guidelines provide estimates of sewage flows based on commercial development. The anticipated average daily flow based on a total development area of 5.8 Ha is 1.77 L/s. Applying the peaking factor of 1.5, and adding the extraneous flow, the estimated ultimate peak flow is 4.73 L/s.

The Ottawa Sewer Design Guidelines provide estimates of sewage flows based on commercial development. Sanitary demand calculations can be found in Appendix D and an illustration of the proposed sanitary service can be found on the site servicing plan in Appendix E.

3.3 REVIEW OF SOIL CONDITIONS

There are no specific local subsurface conditions that suggest the need for a higher extraneous flow allowance.

3.4 DESCRIPTION OF EXISTING SANITARY SEWER

The outlet for the sanitary service from the existing building and two proposed buildings is the existing 750 mm diameter municipal sanitary sewer on Legget Drive. This sanitary sewer is also known as the Marchwood Collector. There is an existing 250mm service that services the existing building at 415 Legget Drive. This existing service will be extended to service the proposed two buildings. Hence no new connections to the collector sewer on Legget Drive will be required.

3.5 VERIFICATION OF AVAILABLE CAPACITY IN DOWNSTREAM SEWER

City of Ottawa has confirmed that there is no capacity issue in the accepting sewer for these proposed flows. The capacity of the existing 250 mm diameter sanitary service on the property at 1% slope is 73.3 L/s, which is adequate for the flow assumptions from the proposed development as noted above. As noted above, the expected flow based on the proposed development will be lower than the flow allowance assumed for the site based on the Sewer Design Guidelines.

3.6 CALCULATIONS FOR NEW SANITARY SEWER

The proposed sanitary sewers connecting to the existing service will be a minimum of 250mm diameter and installed at no less than 1%. This results in a capacity of 73.3 L/s which will be more than adequate to meet anticipated demands of the proposed development.

3.7 DESCRIPTION OF PROPOSED SEWER NETWORK

The proposed sanitary sewer network on site will consist of extending the existing 250mm PVC service and addition of a series of manholes. Additional 200mm sewer laterals will be used to connect the proposed buildings to the extended 250mm sewer.

3.8 ENVIRONMENTAL CONSTRAINTS

There are no previously identified environmental constraints that impact the sanitary servicing design in order to preserve the physical condition of watercourses, vegetation, or soil cover, or to manage water quantity or quality.

3.9 PUMPING REQUIREMENTS

The proposed development will have no impact on existing pumping stations and will not require new pumping facilities.

3.10 FORCE-MAINS

No force-mains are required specifically for this development.

3.11 EMERGENCY OVERFLOWS FROM SANITARY PUMPING STATIONS

No pumping stations are required for this site, except as required internally for the plumbing design to service the lower area of the building.

3.12 SPECIAL CONSIDERATIONS

There is no known need for special considerations for sanitary sewer design related to existing site conditions.

4 SITE STORM SERVICING

4.1 EXISTING CONDITION

Drainage from the site currently flows overland to a receiving stormwater management pond. Through use of a weir, water overflows into a drainage channel and then onto the Kizell Drain on the north east of the property.

As noted in the pre-consultation meeting and associated notes from Mississippi Valley Conservation Authority and the City of Ottawa, the stormwater design for the site modifications is required to result post-development peak flows for the site will be controlled to pre-development peak flows.

The MVCA has asked that new development should achieve 80% TSS removal and that temperature mitigation be considered in the proposed design.

4.2 ANALYSIS OF AVAILABLE CAPACITY IN PUBLIC INFRASTRUCTURE

The allowable release rate for the 6.33 Ha site has been calculated in SWM memo. The total allowable release rate is 2150 L/s for a 100-year return period storm. Detailed calculations are provided in SWM memo. The receiving Kizell Drain currently accepts uncontrolled flow from the site equal to or greater than the allowable release rate of 1750 L/s that will be generated from the proposed development under the 100-year return period storm event. The existing topography conveys overland runoff to Kizell Drain.

4.3 DRAINAGE DRAWING

Appendix E contains relevant drawings pertaining to proposed site grading and drainage sub-area catchments.

4.4 WATER QUANTITY CONTROL OBJECTIVE

Refer to the Stormwater Management Memo for the water quantity objective for the site.

4.5 WATER QUALITY CONTROL OBJECTIVE

As noted previously, the designated water quality control objective is the achieve 80% TSS removal.

It is assumed that runoff from the proposed rooftop areas and walkways areas will be free of typical sediment-generating activities and therefore runoff will leave them effectively unchanged and can be considered clean for the purposes of water quality assessment. It should be noted that the typical sediment-generating activities are in areas with vehicular access, such as loading areas and parking areas. In the case of this development, the overall parking area is reduced and replaced with the roof areas of the proposed buildings. Therefore, the overall water quality leaving the site is considered to be improved upon existing conditions.

Under existing conditions, a treatment train approach of grassed ditches and a wet pond exist on site which will be maintained under proposed conditions. Vegetation in the grassed ditches decrease the velocity of flow, allowing for sedimentation and filtration. Additionally, wet ponds allow for extended detention times allowing sediment to settle out prior to discharge. Finally, site runoff is generally directed over pervious grassed area, helping to filter out additional sediment and slow the runoff, prior to entering the pond. The combination of the existing quality control measures on

site, as well as the overall reduction in parking area, is considered sufficient to meet the quality control requirements of this site.

4.6 DESIGN CRITERIA

The stormwater system was designed following the principles of dual drainage, making accommodation for both major and minor flow.

Some of the key criteria include the following:

- Design Storm (minor system) — 1:2-year return (Ottawa)
- Rational Method Sewer Sizing
- Initial Time of Concentration — 10 minutes
- Runoff Coefficients
  - Landscaped Areas — C = 0.25
  - Asphalt/Concrete — C = 0.90
  - Traditional Roof — C = 0.90
- Pipe Velocities — 0.80 m/s to 6.0 m/s
- Minimum Pipe Size — 250 mm diameter (200 mm CB Leads and service pipes)

4.7 PROPOSED MINOR SYSTEM

There are no proposed underground sewers for this development. Drainage will occur through overland flow and use of ditches and swales to convey water to the existing stormwater management pond.

4.8 STORMWATER MANAGEMENT

Refer to Stormwater Management Memo for details.

4.9 INLET CONTROLS

Refer to Stormwater Management Memo for details.

4.10 ON-SITE DETENTION

Refer to Stormwater Management Memo for details.

4.11 WATERCOURSES

The minor and major flow will be ultimately directed to the Kizell Drain then to Ruisseau Watts Creek.

4.12 PRE AND POST DEVELOPMENT PEAK FLOW RATES

Pre and post development peak flow rates for the impacted areas of the site have been noted in the Stormwater Management Memo and storm sewer design sheet.

4.13 DIVERSION OF DRAINAGE CATCHMENT AREAS

There is no major diversion of drainage catchment areas. Drainage will follow existing overland sheet flow patterns. In some cases, drainage will be directed to perimeter ditches that will convey water to the existing stormwater management pond. No changes will be made to the pond.

4.14 DOWNSTREAM CAPACITY WHERE QUANTITY CONTROL IS NOT PROPOSED

This checklist item is not applicable to this development as quantity control is provided.

4.15 IMPACTS TO RECEIVING WATERCOURSES

No significant negative impact is anticipated to downstream receiving watercourses due to proposed quantity and quality control measures.

4.16 MUNICIPAL DRAINS AND RELATED APPROVALS

Kizell Drain is the receiving watercourse for the proposed development. Drainage from the proposed and existing sites will be ultimately directed to the Kizell Drain.

4.17 MEANS OF CONVEYANCE AND STORAGE CAPACITY

The means of flow conveyance and storage capacity are described in the Stormwater Management Memo. No permits are required from MVCA since no watercourses are being altered. Ongoing consultation with the MVCA will be maintained.

4.18 HYDRAULIC ANALYSIS

Hydraulic calculations for the site storm sewers are provided in the storm sewer design sheet and the Stormwater Management Memo.

4.19 IDENTIFICATION OF FLOODPLAINS

The proposed stormwater management measures will be directed outside the flood plain which are described in the Stormwater Management Memo.

4.20 FILL CONSTRAINTS

There are no known fill constraints applicable to this site related to Kizell Drain floodplain. The site is generally being raised higher relative to existing conditions. No fill constraints related to soil conditions are anticipated, as confirmed in the geotechnical report.

5 SEDIMENT AND EROSION CONTROL

5.1 GENERAL

During construction, existing storm sewer system can be exposed to sediment loadings. A number of construction techniques designed to reduce unnecessary construction sediment loadings will be used including;

- The installation of straw bales within existing drainage features surrounding the site;
- Bulkhead barriers will be installed in the outlet pipes;
- Filter cloths will remain on open surface structures such as manholes and catchbasins until these structures are commissioned and put into use;
- Installation of silt fence, where applicable, around the perimeter of the proposed work area.

During construction of the services, any trench dewatering using pumps will be fitted with a "filter sock." Thus, any pumped groundwater will be filtered prior to release to the existing surface runoff. The contractor will inspect and maintain the filter sock as needed including sediment removal and disposal.

All catchbasins, and to a lesser degree, manholes, convey surface water to sewers. Consequently, until the surrounding surface has been completed, these structures will be covered to prevent sediment from entering the minor storm sewer system. These measures will stay in place and be maintained during construction and build-out until it is appropriate to remove them.

During construction of any development both imported and native soils are placed in stockpiles. Mitigative measures and proper management to prevent these materials entering the sewer system are needed.

During construction of the deeper watermains and sewers, imported granular bedding materials are temporarily stockpiled on site. These materials are however quickly used up and generally placed before any catchbasins are installed.

Refer to the Erosion and Sedimentation Control Plan provided in Appendix E.

6 APPROVAL AND PERMIT REQUIREMENTS

6.1 GENERAL

The proposed development is subject to site plan approval and building permit approval.

Comments from MVCA and City have been addressed. Ongoing consultation with MVCA and City will be maintained.

ECA will be required as directed by City of Ottawa. ECA application will be submitted after the Site Plan Approval.

7 CONCLUSION CHECKLIST

7.1 CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the proposed development can meet all provided servicing constraints and associated requirements. It is recommended that this report be submitted to the City of Ottawa in support of the application for site plan approval.

7.2 COMMENTS RECEIVED FROM REVIEW AGENCIES

This is the second submission, there is no comment at this point.

APPENDIX

A

- PRE-CONSULTATION MEETING NOTES
- EMAIL CORRESPONDENCE WITH CITY OF OTTAWA
- EMAIL CORRESPONDENCE WITH MVCA

Pre-Application Consultation Meeting Notes

11:00am to 12:00pm, September 27, 2021, via Microsoft Teams
Property Address: 415 Legget Drive and 2700 Solandt Road
File No.: PC2021-0327

Attendees:

Molly Smith – Planner, City of Ottawa
Matthew Ippersiel – Planner (Urban Design), City of Ottawa
Matthew Hayley – Planner (Environmental), City of Ottawa
Jeffrey Ren – Co-op Student, City of Ottawa
Jill MacDonald – WSP
Justyna Garbos – WSP
Survir Pursnani – WSP
Jie Chen – Architecture49
Frank Abrantes – Access Storage
Hind Barnieh – Access Storage

Regrets:

Mark Richardson – Forester, City of Ottawa
Neeti Paudel – Project Manager (Transportation), City of Ottawa
Jessica Valic – Project Manager (Infrastructure), City of Ottawa
Jeff Goettling – Planner (Parks), City of Ottawa

Applicant's Proposal:

- The proposed development will be split into two phases – the first phase is interior retrofit of the existing building and the second phase is the construction of the two new warehouse buildings in the current parking lot
- The new buildings will be between 24 and 36 feet in height
- A total of 176 surface level parking spaces will be provided
- Access to the proposed development will be via the three existing accesses from Legget Drive and Solandt Road
- No minor variance being sought; the applicants expect that the proposed development conforms to the Zoning By-law.
- The applicant is targeting a submission on or before October 27

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

Infrastructure
Water

Available Watermain

- 305mm (DI) – Legget Dr (existing 250mm service is located off this main)
- 305mm (PVC) – Solandt Rd

- Per WDG 4.3.1, where basic demand is greater than 50 m^3/day, there shall be a minimum of two water services, separated by an isolation valve, to avoid creation of vulnerable service area.
- Per WDG 4.4.7.2, District Meter Area (DMA) Chamber is required for services greater than 150mm in diameter.
- Only one water service is permitted per parcel. Servicing for additional buildings must be accomplished through internal branching of existing water service. If larger water service is required to accommodate additional development, please utilize the location of the existing service to limit cuts in watermain. If a new service is required, and existing location cannot be used, the existing service must be blanked at the main
- Demonstrate that the water service is adequately sized for increased water use.
- Demonstrate that adequate fire flow from fire hydrants and required pressures per City of Ottawa Water Design Guidelines are available. Provide fire hydrant coverage plan.

Boundary Conditions

Request prior to first submission. Contact assigned City Infrastructure Project Manager with the following information

- Location of service(s)
- Type of development
- Fire flow (per FUS method – include FUS calculation sheet with boundary condition request – boundary conditions will not be requested without fire flow calculations)
- Average Daily Demand (l/s)
- Maximum Hourly Demand (l/s)
- Maximum Daily Demand (l/s)

Sanitary

Available Sanitary Sewer

- 750mm (CONR) – Legget Dr – Marchwood Collector
- No available sanitary main on Solandt Rd
- Connections to collector sewers are discouraged. It is assumed that the existing building sanitary service is connected to this collector sewer. Reuse existing connection location to limit cuts in sanitary sewer.
- Demonstrate that the existing sanitary service is adequately sized for increased flow.
- Demonstrate that there is sufficient/adequate residual capacity in the receiving system to accommodate increase in flow
- Provided the existing service is adequately sized, please CCTV existing lateral to determine the condition of the lateral and submit CCTV video and report with application. If service is in poor condition, repair/replacement will be required.

Storm

Available Storm Sewer

- 525mm (CONC) – Solandt Rd
- 375mm (PVC) – Legget Dr

Stormwater Management

- Quantity Control
    - Required for the site up to and including the 100-yr storm event.
    - Refer to Shirley's Brook and Watts Creek Subwatershed Study Report for relevant environmental protection targets.
    - Consult Stormwater Management Plan, Kanata Research Park, City of Kanata for relevant stormwater management criteria.
    - Existing ditch system and wet pond exist on site.
    - If underground/inline stormwater storage is proposed, an average release rate equal to 50% of the determined peak allowable rate must be used. Otherwise, disregard the underground/inline storage as available storage or provide modeling to support the proposed design. The reasoning for this restriction is that the discharge rate at full storage is not representative of the discharge rate for more frequent storm events. Halving the discharge rate compensates for the inaccuracies of the modified rational method when underground storage is used.
    - Provide both pre and post development stormwater management plans, showing individual drainage areas and their respective coefficient.
    - If roof storage is proposed, please provide a roof drainage plan showing the 5 and 100-year storm ponding levels. Include the roof drain type, opening settings, and flow rate.
    - Per Technical Bulletin PIEDTB-2016-01 section 8.3.11.1 there shall be no surface ponding on private parking areas during the 2-year storm rainfall event.
    - Please note that the minimum orifice dia. for a plug style ICD is 83mm and the minimum flow rate from a vortex ICD is 6 L/s in order to reduce the likelihood of plugging.
- Quality Control: Please consult Conservation Authority (CA) regarding water quality control restrictions for the subject site. Include correspondence in servicing report.
- Ministry of Environment, Conservation, and Parks (MECP): Designer to determine if approval for sewage works under Section 53 of OWRA is required and to determine the type of application required. Reviews will be done through Transfer of Review or Direct Submission.
- Stormwater drainage systems that are designed to accommodate drainage from two separate parcels require an ECA.

Geotechnical Investigation

- Geotechnical Report is required for this development proposal.
- The Geotechnical Report shall speak to any proposed underground stormwater storage and provide confirmation that the site subsurface characteristics (groundwater table elevation, soil type) are appropriate. Of note, the high groundwater table must be 1.0m above the bottom of any proposed storage system per MECP requirements.

Exterior Lighting

- If exterior light fixtures are proposed, provide a plan showing the location of all exterior fixtures and include a table providing fixture details (make, model, mounting heights). All external light fixtures must meet the criteria for full cut-off classification as recognized by the Illuminating Engineering Society of North America (IESNA or IES), resulting in minimal light spillage onto

adjacent properties (as a guideline, 0.5 fc is normally the maximum allowable spillage). Provide certification letter from a relevant Professional Engineer.

Required Studies

- Servicing/Stormwater Management Report (Submit completed Servicing Study Checklist with Servicing Report)
- Geotechnical Investigation

Required Plans

- Site Servicing Plan
- Grade Control and Drainage Plan (Show major overland flow route)
- Erosion and Sediment Control Plan (Can be combined with grading plan)
- Existing Conditions and Removals Plan
- SWM Plans

General Information

1. The Servicing Study Guidelines for Development Applications are available at the following address: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans#servicing-study-guidelines-development-applications
2. Servicing and site works shall be in accordance with the following documents:
   - Ottawa Sewer Design Guidelines (October 2012) (including subsequent Technical Bulletins)
   - Ottawa Design Guidelines – Water Distribution (2010) (including subsequent Technical Bulletins)
   - Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
   - Ottawa Standard Tender Documents (latest version)
3. Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-2424 x.44455).
4. Any proposed work in utility easements requires written consent of easement owner.
5. **All submitted report and plan pdf documents to be flattened and unsecured to allow for editing and ease of use.**
6. All documents prepared by Engineers shall be signed and dated on the seal.

Please contact Infrastructure Project Manager Jessica Valic (jessica.valic@ottawa.ca) for follow-up questions.

Planning

- The application will be considered Site Plan Control (Manager Approval, Public Consultation), please fine the application form and information on fees here.
- Please review the following Official Plan policies and Zoning By-law provisions:

    - The subject site is designated as Urban Employment Area in the Official Plan
    - The subject site is zone Business Park Industrial Zone, Subzone 6 – Kanata North Business Park (IP6).
- The New Official Plan will be going to Planning Committee on October 14, 2021 and then to City Council for adoption on October 27, 2021 – please be aware of the following New Official Plan policies:
    - The subject site is designated as 'Kanata North Economic District' with an 'Evolving Neighbourhood' overlay; policies for the 'Kanata North Economic District' can be found under Section 6.6.3.2 of the revised draft New Official Plan.
        - Please provide a review and summary of the designation and applicable policies as they apply to the site.
    - The 'Kanata North Economic District' is expected to be the site of a Community Planning Permit System pilot project – the pilot project would require the passage of a Community Planning Permit System by-law after the New Official Plan comes into effect.
    - A complete application is received by no later than the day before the new Official Plan is adopted (October 27, 2021), it will be processed on the basis of existing Official Plan policy provided it is consistent with the 2020 Provincial Policy Statement.
    - Applications received after the day before the new Official Plan is adopted will be reviewed and evaluated on the basis of the policies of the new Official Plan.
    - Based on the submitted concept plan and the draft New Official Plan available at the time of the pre-consultation meeting, the proposed development does not appear to be affected by any proposed policy changes.

- Please consider providing only the minimum number of required parking spaces.
- Please consider relocating the parking spaces between the right-of-way and the existing building.
- Please incorporate additional landscaping throughout the parking lot through the introduction of additional parking lot islands and along the perimeter of the property where sidewalks would be found.
- Please ensure that all landscaping provisions for parking lots are being followed; please refer to Section 110 of the Zoning By-law.
- Please provide shaded landscaped pedestrian connections from the public sidewalk to building entrances.
- For bicycle parking, consider providing covered shelters for bicycle parking or integrate within buildings.
- Please refrain from designing blank walls along the street frontages; buildings should be street-oriented with entrances facing the street with highly transparent ground-floor facades.
- Please consider integrating pedestrian-oriented features such as shade trees, bicycle/scooter parking, outdoor seating areas and street furniture.
- Please ensure that the proposed development complies with all applicable provisions of the Zoning By-law and provide a comprehensive zoning table on the submitted site plan and report.
- Please note that Councillor Jenna Sudds has resigned as Councillor for Kanata North (Ward 4) – please reach out to her successor when applicable.
    - City Council will be declaring the office vacant and staff will recommend that City Council approve interim delegations of authority with respect to Ward 4 matters on

October 13, 2021, Council will then appoint person to fill the vacancy or hold a by-election.

- The application will be subject to public consultation (conducted through the posting of on-site signage, the notification of community groups, and through the City of Ottawa's DevApps website); please note that the Councillor may also ask for a Community Information and Comment Session.
- Please determine if Section 37 applies.

Urban Design

- Specific Design Comments
    - Avoid blank walls facing the public realm. Integrate as much glazing, transparency, entrances and active frontages as possible facing Legget and Solandt, particularly at the ground floor.
    - Integrate a generous landscaping treatment along Solandt that is in keeping with the character of Kanata Business Park. This often includes coniferous species of trees.
    - Consider opportunities for pedestrian-oriented features such as shade trees, bicycle/scooter parking, outdoor seating areas and street furniture
    - To minimize the impact on the public realm, service areas such as parking, loading, vehicle access and service entrances should be at the rear of the buildings. Use landscaping to screen them from the public realm.
    - Where exposed to the public realm, use landscaping to screen parking lots as much as possible.
    - Integrate as much greening into the parking lot as possible and ensure strong and logical pedestrian connectivity to building entrances.

- New Official Plan (New OP) – Note that the draft new OP aims to designate the greater area that this property falls within as a "Special Economic District" and as a Design Priority Area. The new policy will aim to enhance mobility options, encourage mixed-use development and promote enhanced urban design. Please refer to Section 6.6.3.2 of the draft plan. Though not currently in effect, the proponent is strongly encouraged to implement the new vision for the area as much as possible.

- Kanata North Tech Park Community Planning Permit Pilot Study (CPP) – Note that a study is currently underway for the greater area that this property falls within, which will have implications for urban design. It is being re-envisioned as a "highly-connected, vibrant mixed-use area where people live, work, connect and play". Refer to the project Website for more details.

- Design Brief – As part of your submission, please include a Design Brief. Please refer to the attached Design Brief Terms of Reference to inform the content of the brief.

- Urban Design Review Panel – In the current policy context, this application is not subject to review by the Urban Design Review Panel (UDRP). While the draft new Official Plan aims to recognize the area as a Design Priority Area, early indications from staff working on the Kanata

North CPP are that the area will likely be exempt from review by the UDRP (though it is possible that this may be subject to change).

Please contact Urban Design Planner Matthew Ippersiel (Matthew.Ippersiel@ottawa.ca) for follow-up questions.

Environmental Planning

Bird-safe Design

- Given the height of the proposal (mid to high rise) the proposal will need to review and incorporate bird safe design elements. Some of the risk factors include glass and related design traps such as corner glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here: https://ottawa.ca/en/planning-development-and-construction/developing-property/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans .

Environmental Impact Statement (EIS) to address species at risk and provide recommendations on wildlife mitigations.

- Blanding's turtles sighted in the area, indicating regulated habitat may be present on the property, particularly in the parts around the pond. MECP consultation will likely be required to address the limits of Blanding's turtle habitat and to obtain the necessary approvals.

Please contact Environmental Planner Matthew Hayley (Matthew.Hayley@ottawa.ca) for follow-up questions.

Forestry

- A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
    a. an approved TCR is a requirement of Site Plan approval.
    b. The TCR may be combined with the Landscape Plan provided all information is supplied.
- As of January 1 2021, any removal of privately-owned trees 10cm or larger in diameter, or publicly (City) owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
- The Planning Forester from Planning and Growth Management as well as foresters from Forestry Services will review the submitted TCR.
    a. If tree removal is required, both municipal and privately-owned trees will be addressed in a single permit issued through the Planning Forester.
    b. Compensation may be required for city owned trees – if so, it will need to be paid prior to the release of the tree permit.
- The TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition.
- Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line).
- The TCR must list all trees on adjacent sites if they have a critical root zone that extends onto the development site.

- If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained.
- All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca.
    a. The location of tree protection fencing must be shown on a plan
    b. Show the critical root zone of the retained trees
    c. If excavation will occur within the critical root zone, please show the limits of excavation
- The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
- For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca or on City of Ottawa.

Landscape Plan tree planting requirements:

For additional information on the following please contact tracy.smith@Ottawa.ca

Minimum Setbacks

- Maintain 1.5m from sidewalk or MUP/cycle track.
- Maintain 2.5m from curb
- Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing.
- Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

Tree specifications

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

Hard surface planting

- Curb style planter is highly recommended
- No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- Trees are to be planted at grade

Soil Volume

- Please ensure adequate soil volumes are met:

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

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

Sensitive Marine Clay

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

Please contact Planning Forester Mark Richardson (Mark.Richardson@ottawa.ca) for follow-up questions.

Transportation

- Follow Traffic Impact Assessment Guidelines
  - Proceed with scoping.
  - Start this process asap.
  - Applicant advised that their application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable). Collaboration and communication between development proponents and City staff are required at the end of every step in the TIA process
  - Request base mapping asap if RMA is required. Contact Engineering Services (https://ottawa.ca/en/city-hall/planning-and-development/engineering-services)
- Noise Impact Studies required for the following:
  - Stationary (if, within 100m of noise sensitive land use).
- Ensure clear throat length requirements as per TAC are met at the accesses.
- The easterly access on Legget Drive does not meet the private approach guidelines. This may have to be reconfigured and will be further reviewed in the TIA.
- On site plan:
  - Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, accesses and/or sidewalks.
  - Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions).
  - Show all curb radii measurements; ensure that all curb radii are reduced as much as possible
  - Grey out any area that will not be impacted by this application.

- As the proposed site is industrial and for general public use, AODA legislation applies. Consider using the City's Accessibility Design Standards.
- Number of accessible parking spaces should meet the requirements from Table 3 of the City's accessible Design Standards.
- Site triangles at the following locations on the final plan will be required:
    - Collector Road to Collector Road: 5 metre x 5 metres
- The scoping and forecasting can be submitted together and should be done as soon as possible.

Please contact Transportation Project Manager Neeti Paudel (Neeti.Paudel@ottawa.ca) for follow-up questions.

Parks

- How will the proposal meet the Parkland Dedication (By-law No. 2009-95)?
- For commercial and industrial purposes, the parkland requirement is calculated as 2% of the gross land area of the site being developed.
- The conveyance of land for purposes or the payment of money in-lieu of accepting the conveyance is not required for development, redevelopment, subdivisions or consents, where it is known, or can be demonstrated that the required parkland conveyance or money in-lieu thereof has been previously satisfied.

Please contact Parks Planner Jeff Goettling (Jeff.Goettling@ottawa.ca) for follow-up questions.

Other

Please refer to the links to the guide to preparing studies and plans and development application fees for general information. Additional information is available related to building permits, development charges, and the Accessibility Design Standards. Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

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

Pursnani, Suvir

To: Pursnani, Suvir
Subject: RE: Pre-con Follow-up - 415 Legget & 2700 Solandt Rd

From: Smith, Molly <molly.smith@ottawa.ca>
Sent: October-06-21 2:04 PM
To: MacDonald, Jill <Jill.MacDonald@wsp.com>; De Santi, Nadia <Nadia.De-Santi@wsp.com>
Cc: Valic, Jessica <jessica.valic@ottawa.ca>; Paudel, Neeti <neeti.paudel@ottawa.ca>; Hayley, Matthew <Matthew.Hayley@ottawa.ca>; Ippersiel, Matthew <Matthew.Ippersiel@ottawa.ca>; Goettling, Jeff <jeff.goettling@ottawa.ca>; Richardson, Mark <Mark.Richardson@ottawa.ca>
Subject: Pre-con Follow-up - 415 Legget & 2700 Solandt Rd

Hello Jill,

Please refer to the below regarding the Pre-Application Consultation Meeting held on Monday, September 28, 2021 for the property located at 415 Legget Drive and 2700 Solandt Road for a Site Plan Control (Manager Approval, Public Consultation) application in order to retrofit an existing building for warehouse uses and to construct two new warehouse buildings. I have also attached the required Plans & Study List for the application submission.

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

Planning

- The application will be considered Site Plan Control (Manager Approval, Public Consultation), please fine the application form and information on fees here.
- Please review the following Official Plan policies and Zoning By-law provisions:
    - The subject site is designated as Urban Employment Area in the Official Plan
    - The subject site is zone Business Park Industrial Zone, Subzone 6 – Kanata North Business Park (IP6).
- The New Official Plan will be going to Planning Committee on October 14, 2021 and then to City Council for adoption on October 27, 2021 – please be aware of the following New Official Plan policies:
    - The subject site is designated as 'Kanata North Economic District' with an 'Evolving Neighbourhood' overlay; policies for the 'Kanata North Economic District' can be found under Section 6.6.3.2 of the revised draft New Official Plan.
        - Please provide a review and summary of the designation and applicable policies as they apply to the site.
    - The 'Kanata North Economic District' is expected to be the site of a Community Planning Permit System pilot project – the pilot project would require the passage of a Community Planning Permit System by-law after the New Official Plan comes into effect.
    - A complete application is received by no later than the day before the new Official Plan is adopted (October 27, 2021), it will be processed on the basis of existing Official Plan policy provided it is consistent with the 2020 Provincial Policy Statement.
    - Applications received after the day before the new Official Plan is adopted will be reviewed and evaluated on the basis of the policies of the new Official Plan.
    - Based on the submitted concept plan and the draft New Official Plan available at the time of the pre-consultation meeting, the proposed development does not appear to be affected by any proposed policy changes.

- Please consider providing only the minimum number of required parking spaces.

- Please consider relocating the parking spaces between the right-of-way and the existing building.
- Please incorporate additional landscaping throughout the parking lot through the introduction of additional parking lot islands and along the perimeter of the property where sidewalks would be found.
- Please ensure that all landscaping provisions for parking lots are being followed; please refer to Section 110 of the Zoning By-law.
- Please provide shaded landscaped pedestrian connections from the public sidewalk to building entrances.
- For bicycle parking, consider providing covered shelters for bicycle parking or integrate within buildings.
- Please refrain from designing blank walls along the street frontages; buildings should be street-oriented with entrances facing the street with highly transparent ground-floor facades.
- Please consider integrating pedestrian-oriented features such as shade trees, bicycle/scooter parking, outdoor seating areas and street furniture.
- Please ensure that the proposed development complies with all applicable provisions of the Zoning By-law and provide a comprehensive zoning table on the submitted site plan and report.
- Please note that Councillor Jenna Sudds has resigned as Councillor for Kanata North (Ward 4) – please reach out to her successor when applicable.
    - City Council will be declaring the office vacant and staff will recommend that City Council approve interim delegations of authority with respect to Ward 4 matters on October 13, 2021, Council will then appoint person to fill the vacancy or hold a by-election.
- The application will be subject to public consultation (conducted through the posting of on-site signage, the notification of community groups, and through the City of Ottawa's DevApps website); please note that the Councillor may also ask for a Community Information and Comment Session.

- Please determine if Section 37 applies.

Urban Design

- Specific Design Comments
    - Avoid blank walls facing the public realm. Integrate as much glazing, transparency, entrances and active frontages as possible facing Legget and Solandt, particularly at the ground floor.
    - Integrate a generous landscaping treatment along Solandt that is in keeping with the character of Kanata Business Park. This often includes coniferous species of trees.
    - Consider opportunities for pedestrian-oriented features such as shade trees, bicycle/scooter parking, outdoor seating areas and street furniture
    - To minimize the impact on the public realm, service areas such as parking, loading, vehicle access and service entrances should be at the rear of the buildings. Use landscaping to screen them from the public realm.
    - Where exposed to the public realm, use landscaping to screen parking lots as much as possible.
    - Integrate as much greening into the parking lot as possible and ensure strong and logical pedestrian connectivity to building entrances.

- New Official Plan (New OP) – Note that the draft new OP aims to designate the greater area that this property falls within as a "Special Economic District" and as a Design Priority Area. The new policy will aim to enhance mobility options, encourage mixed-use development and promote enhanced urban design. Please refer to Section 6.6.3.2 of the draft plan. Though not currently in effect, the proponent is strongly encouraged to implement the new vision for the area as much as possible.
- Kanata North Tech Park Community Planning Permit Pilot Study (CPP) – Note that a study is currently underway for the greater area that this property falls within, which will have implications for urban design. It is being re-envisioned as a "highly-connected, vibrant mixed-use area where people live, work, connect and play". Refer to the project Website for more details.

- Design Brief – As part of your submission, please include a Design Brief. Please refer to the attached Design Brief Terms of Reference to inform the content of the brief.
- Urban Design Review Panel – In the current policy context, this application is not subject to review by the Urban Design Review Panel (UDRP). While the draft new Official Plan aims to recognize the area as a Design Priority Area, early indications from staff working on the Kanata North CPP are that the area will likely be exempt from review by the UDRP (though it is possible that this may be subject to change).

Engineering

Available Watermain

- 305mm (DI) – Legget Dr (existing 250mm service is located off this main)
- 305mm (PVC) – Solandt Rd
- Per WDG 4.3.1, where basic demand is greater than 50 m^3/day, there shall be a minimum of two water services, separated by an isolation valve, to avoid creation of vulnerable service area.
- Per WDG 4.4.7.2, District Meter Area (DMA) Chamber is required for services greater than 150mm in diameter.
- Only one water service is permitted per parcel. Servicing for additional buildings must be accomplished through internal branching of existing water service. If larger water service is required to accommodate additional development, please utilize the location of the existing service to limit cuts in watermain. If a new service is required, and existing location cannot be used, the existing service must be blanked at the main
- Demonstrate that the water service is adequately sized for increased water use.
- Demonstrate that adequate fire flow from fire hydrants and required pressures per City of Ottawa Water Design Guidelines are available. Provide fire hydrant coverage plan.

Boundary Conditions

Request prior to first submission. Contact assigned City Infrastructure Project Manager with the following information

- Location of service(s)
- Type of development
- Fire flow (per FUS method – include FUS calculation sheet with boundary condition request – boundary conditions will not be requested without fire flow calculations)
- Average Daily Demand (l/s)
- Maximum Hourly Demand (l/s)
- Maximum Daily Demand (l/s)

Sanitary

Available Sanitary Sewer

- 750mm (CONR) – Legget Dr – Marchwood Collector
- No available sanitary main on Solandt Rd
- Connections to collector sewers are discouraged. It is assumed that the existing building sanitary service is connected to this collector sewer. Reuse existing connection location to limit cuts in sanitary sewer.
- Demonstrate that the existing sanitary service is adequately sized for increased flow.
- Demonstrate that there is sufficient/adequate residual capacity in the receiving system to accommodate increase in flow
- Provided the existing service is adequately sized, please CCTV existing lateral to determine the condition of the lateral and submit CCTV video and report with application. If service is in poor condition, repair/replacement will be required.

Storm

Available Storm Sewer

- 525mm (CONC) – Solandt Rd
- 375mm (PVC) – Legget Dr

Stormwater Management

- Quantity Control
    - Required for the site up to and including the 100-yr storm event.
    - Refer to Shirley's Brook and Watts Creek Subwatershed Study Report for relevant environmental protection targets.
    - Consult Stormwater Management Plan, Kanata Research Park, City of Kanata for relevant stormwater management criteria.
    - Existing ditch system and wet pond exist on site.
    - If underground/inline stormwater storage is proposed, an average release rate equal to 50% of the determined peak allowable rate must be used. Otherwise, disregard the underground/inline storage as available storage or provide modeling to support the proposed design. The reasoning for this restriction is that the discharge rate at full storage is not representative of the discharge rate for more frequent storm events. Halving the discharge rate compensates for the inaccuracies of the modified rational method when underground storage is used.
    - Provide both pre and post development stormwater management plans, showing individual drainage areas and their respective coefficient.
    - If roof storage is proposed, please provide a roof drainage plan showing the 5 and 100-year storm ponding levels. Include the roof drain type, opening settings, and flow rate.
    - Per Technical Bulletin PIEDTB-2016-01 section 8.3.11.1 there shall be no surface ponding on private parking areas during the 2-year storm rainfall event.
    - Please note that the minimum orifice dia. for a plug style ICD is 83mm and the minimum flow rate from a vortex ICD is 6 L/s in order to reduce the likelihood of plugging.
- Quality Control: Please consult Conservation Authority (CA) regarding water quality control restrictions for the subject site. Include correspondence in servicing report.
- Ministry of Environment, Conservation, and Parks (MECP): Designer to determine if approval for sewage works under Section 53 of OWRA is required and to determine the type of application required. Reviews will be done through Transfer of Review or Direct Submission.
- Stormwater drainage systems that are designed to accommodate drainage from two separate parcels require an ECA.

Geotechnical Investigation

- Geotechnical Report is required for this development proposal.
- The Geotechnical Report shall speak to any proposed underground stormwater storage and provide confirmation that the site subsurface characteristics (groundwater table elevation, soil type) are appropriate. Of note, the high groundwater table must be 1.0m above the bottom of any proposed storage system per MECP requirements.

Exterior Lighting

- If exterior light fixtures are proposed, provide a plan showing the location of all exterior fixtures and include a table providing fixture details (make, model, mounting heights). All external light fixtures must meet the criteria for full cut-off classification as recognized by the Illuminating Engineering Society of North America (IESNA or IES), resulting in minimal light spillage onto adjacent properties (as a guideline, 0.5 fc is normally the maximum allowable spillage). Provide certification letter from a relevant Professional Engineer.

Required Studies

- Servicing/Stormwater Management Report (Submit completed Servicing Study Checklist with Servicing Report)
- Geotechnical Investigation

Required Plans

- Site Servicing Plan
- Grade Control and Drainage Plan (Show major overland flow route)
- Erosion and Sediment Control Plan (Can be combined with grading plan)
- Existing Conditions and Removals Plan
- SWM Plans

General Information

1. The Servicing Study Guidelines for Development Applications are available at the following address: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans#servicing-study-guidelines-development-applications
2. Servicing and site works shall be in accordance with the following documents:
   - Ottawa Sewer Design Guidelines (October 2012) (including subsequent Technical Bulletins)
   - Ottawa Design Guidelines – Water Distribution (2010) (including subsequent Technical Bulletins)
   - Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
   - Ottawa Standard Tender Documents (latest version)
3. Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-2424 x.44455).
4. Any proposed work in utility easements requires written consent of easement owner.
5. **All submitted report and plan pdf documents to be flattened and unsecured to allow for editing and ease of use.**
6. All documents prepared by Engineers shall be signed and dated on the seal.

Transportation

- Follow Traffic Impact Assessment Guidelines
  - Proceed with scoping.
  - Start this process asap.
  - Applicant advised that their application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable). Collaboration and communication between development proponents and City staff are required at the end of every step in the TIA process
  - Request base mapping asap if RMA is required. Contact Engineering Services (https://ottawa.ca/en/city-hall/planning-and-development/engineering-services)
- Noise Impact Studies required for the following:
  - Stationary (if, within 100m of noise sensitive land use).
- Ensure clear throat length requirements as per TAC are met at the accesses.
- The easterly access on Legget Drive does not meet the private approach guidelines. This may have to be reconfigured and will be further reviewed in the TIA.
- On site plan:
  - Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, accesses and/or sidewalks.
  - Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions).
  - Show all curb radii measurements; ensure that all curb radii are reduced as much as possible
  - Grey out any area that will not be impacted by this application.
- As the proposed site is industrial and for general public use, AODA legislation applies. Consider using the City's Accessibility Design Standards.

- Number of accessible parking spaces should meet the requirements from Table 3 of the City's accessible Design Standards.
- Site triangles at the following locations on the final plan will be required:
    - Collector Road to Collector Road: 5 metre x 5 metres
- The scoping and forecasting can be submitted together and should be done as soon as possible.

Environmental

Bird-safe Design

- Given the height of the proposal (mid to high rise) the proposal will need to review and incorporate bird safe design elements. Some of the risk factors include glass and related design traps such as corner glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here: https://ottawa.ca/en/planning-development-and-construction/developing-property/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans .

Environmental Impact Statement (EIS) to address species at risk and provide recommendations on wildlife mitigations.

- Blanding's turtles sighted in the area, indicating regulated habitat may be present on the property, particularly in the parts around the pond. MECP consultation will likely be required to address the limits of Blanding's turtle habitat and to obtain the necessary approvals.

Parkland

- How will the proposal meet the Parkland Dedication (By-law No. 2009-95)?
- For commercial and industrial purposes, the parkland requirement is calculated as 2% of the gross land area of the site being developed.
- The conveyance of land for purposes or the payment of money in-lieu of accepting the conveyance is not required for development, redevelopment, subdivisions or consents, where it is known, or can be demonstrated that the required parkland conveyance or money in-lieu thereof has been previously satisfied.

City Surveyor

- The determination of property boundaries, minimum setbacks and other regulatory constraints are a critical component of development. An Ontario Land Surveyor (O.L.S.) needs to be consulted at the outset of a project to ensure properties are properly defined and can be used as the geospatial framework for the development.
- Topographic details may also be required for a project and should be either carried out by the O.L.S. that has provided the Legal Survey or done in consultation with the O.L.S. to ensure that the project is integrated to the appropriate control network.

Questions regarding the above requirements can be directed to the City's Surveyor, Bill Harper, at Bill.Harper@ottawa.ca

Forestry

- A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
    a. an approved TCR is a requirement of Site Plan approval.
    b. The TCR may be combined with the Landscape Plan provided all information is supplied.
- As of January 1 2021, any removal of privately-owned trees 10cm or larger in diameter, or publicly (City) owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.

- The Planning Forester from Planning and Growth Management as well as foresters from Forestry Services will review the submitted TCR.
    a. If tree removal is required, both municipal and privately-owned trees will be addressed in a single permit issued through the Planning Forester.
    b. Compensation may be required for city owned trees – if so, it will need to be paid prior to the release of the tree permit.
- The TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition.
- Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line).
- The TCR must list all trees on adjacent sites if they have a critical root zone that extends onto the development site.
- If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained.
- All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca.
    a. The location of tree protection fencing must be shown on a plan
    b. Show the critical root zone of the retained trees
    c. If excavation will occur within the critical root zone, please show the limits of excavation
- The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
- For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca or on City of Ottawa.

Landscape Plan tree planting requirements:

For additional information on the following please contact tracy.smith@Ottawa.ca

Minimum Setbacks

- Maintain 1.5m from sidewalk or MUP/cycle track.
- Maintain 2.5m from curb
- Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing.
- Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

Tree specifications

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

Hard surface planting

- Curb style planter is highly recommended
- No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.

- Trees are to be planted at grade

Soil Volume

- Please ensure adequate soil volumes are met:

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

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

Sensitive Marine Clay

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

Other

- Plans are to be standard A1 size (594 mm x 841 mm) sheets, utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400 or 1:500).
- All PDF submitted documents are to be unlocked and flattened.
- A Waste Reduction Workplan Summary is required for the construction project as required by O.Reg. 102/94, being "Waste Audits and Waste Reduction Work Plans" made under the Environmental Protection Act, RSO 1990, c E.19, as amended.

Please refer to the links to Guide to preparing studies and plans and fees for further information. Additional information is available related to building permits, development charges, and the Accessibility Design Standards. Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

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

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

Regards,

Molly

Molly Smith, MCIP, RPP

Planner II / Urbaniste II
Development Review West / Examen des demandes d'aménagement ouest
City of Ottawa / Ville d'Ottawa
ottawa.ca/planning / ottawa.ca/urbanisme

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Pursnani, Suvir

From: Jadallah, Ayham
Sent: October 19, 2021 11:47 AM
To: Pursnani, Suvir
Subject: FW: stormwater management study - 415 Legget site development
Attachments: 415 Legget Dr Map.pdf

Hi Suvir,

Please find below MVCA requirements regarding STM quality control for your reference.

Thanks,
Ayham

From: Erica Ogden <eogden@mvc.on.ca>
Sent: Monday, October 18, 2021 1:35 PM
To: Jadallah, Ayham <Ayham.Jadallah@wsp.com>
Cc: Chris McGuire <cmcguire@mvc.on.ca>
Subject: RE: stormwater management study - 415 Legget site development

Hello Ayham,

Thank you for contacting MVCA. Please find attached a map which identifies the regulated areas in the vicinity of the subject property.

We note that the subject property is not mapped as regulated by MVCA under Ontario Regulation 153/06 – "Development and Interference with Wetlands and Alterations to Shoreline or Watercourses". However, if modifications to any of the existing watercourses is required for the stormwater outlet, a permit from MVCA would be required for these works. We do also note that the flood plain mapping for Kizell Drain did not incorporate the existing pond on the subject property within the study limit.

The subject property is located within both the Shirley's Brook subwatershed and the Kizell Drain subwatershed. Both subwatersheds require an enhanced level of water quality protection, which requires 80% total suspended solids removal. Kizell Drain is a Cold-Cool water system and Shirley's Brook is a Cool-Warm system, therefore temperature mitigation should be a consideration in the stormwater design.

Both subwatersheds are a part of MVCA's City Stream Watch Program, more information about Shirley's Brook and Kizell Drain is available on our website.

If you have any other questions, please feel free to contact me.

Thank you,

Erica C. Ogden, MCIP, RPP | Environmental Planner | Mississippi Valley Conservation Authority
10970 Highway 7, Carleton Place, ON K7C 3P1
www.mvc.on.ca |c. 613 451 0463 |o. 613 253 0006 ext. 229| eogden@mvc.on.ca

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From: Chris McGuire
Sent: October 13, 2021 3:47 PM

To: Jadallah, Ayham <Ayham.Jadallah@wsp.com>
Cc: Erica Ogden <eogden@mvc.on.ca>
Subject: RE: stormwater management study - 415 Legget site development

Thanks Ayham,

I've reached out to our Environmental Planner for the City of Ottawa, Erica Ogden. We will get back to you soon.

Chris
613-894-3945

From: Jadallah, Ayham <Ayham.Jadallah@wsp.com>
Sent: October 13, 2021 3:29 PM
To: Chris McGuire <cmcguire@mvc.on.ca>
Subject: FW: stormwater management study - 415 Legget site development

Hi Christopher,

This is a kind reminder regarding the below request.

Thanks,

Ayham Jadallah, P.Eng, M.Eng
Project Engineer

D+ 1 604-904-4660

From: Jadallah, Ayham
Sent: Wednesday, October 13, 2021 9:01 AM
To: cmcguire@mvc.on.ca
Subject: stormwater management study - 415 Legget site development

Dear Christopher,

My name is Ayham Jadallah and I'm a water resources engineer at WSP, currently I'm working on the stormwater management report for a site development in Kanata, the site located at 415 Legget & 2700 Solandt Rd, during the Pre-Consultation meeting the City has asked to consult the Conservation Authority regarding the quality control restrictions in this location and to include MVCA requirements in the servicing report "*Quality Control: Please consult Conservation Authority (CA) regarding water quality control restrictions for the subject site. Include correspondence in servicing report*."

Can you please provide the required stormwater quality control restrictions in this location.

Thanks,
Ayham Jadallah, P.Eng, M.Eng
Project Engineer

D+ 1 604-904-4660

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APPENDIX

B

- LEGAL AND TOPOGRAPHIC SURVEY

350833, 5022982

PLAN OF SURVEY OF

PART OF BLOCKS 33 AND 34 REGISTERED PLAN M-280 CITY OF OTTAWA

Scale 1: 500

0 5 10 20 30 40 50 metres

Metric Note

Distances and coordinates on this plan are in metres and can be converted to feet by dividing by 0.3048.

Distance Note

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.99992.

Bearing Note

Bearings hereon are grid bearings derived from the Can-Net Real Time Network and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) Nad-83 (Original).

For bearing comparisons, a rotation of 0°00'55" counter-clockwise was applied to bearings on P1, P2.

Boundary Note

This Plan is to be read in conjunction with a Topographic Sketch, Sheets 1 to 9 dated October 19, 2021 (FSD Ref. 524-21)

TOPOGRAPHIC SKETCH SHEETS 1 TO 9

1	2	3
4	5	6
7	8	9

KEYMAP SCALE 1:4000

Notes & Legend

Denotes

- ⊕ = Survey Monument Planted
- ■ = Survey Monument Found
- SIB = Standard Iron Bar
- SSIB = Short Standard Iron Bar
- IB = Iron Bar
- CP = Concrete Pin
- (Wit) = Witness
- Meas = Measured
- (P1) = Plan 4R-29533
- (P2) = Plan by (857) dated October 3, 3012 (Ref. No.42-M-280)
- C/L = Centreline
- CLF = Chain Link Fence

Surveyor's Certificate

I certify that :

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Regulations made under them.
2. The survey was completed on the 18th day of October, 2021.

Oct. 19/21
Date

Daniel Robinson
Ontario Land Surveyor

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-15630

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR
In accordance with Regulation 1026, Section 29 (3).

FARLEY, SMITH & DENIS SURVEYING LTD.
ONTARIO LAND SURVEYORS
CANADA LAND SURVEYORS
Unit 275, 30 COLONNADE ROAD, OTTAWA, ONTARIO K2E 7J6
TEL. (613) 727-8226 E-mail: fsdsurveys@bellnet.ca

FILE No.: 524-21

SRPR 24(36)

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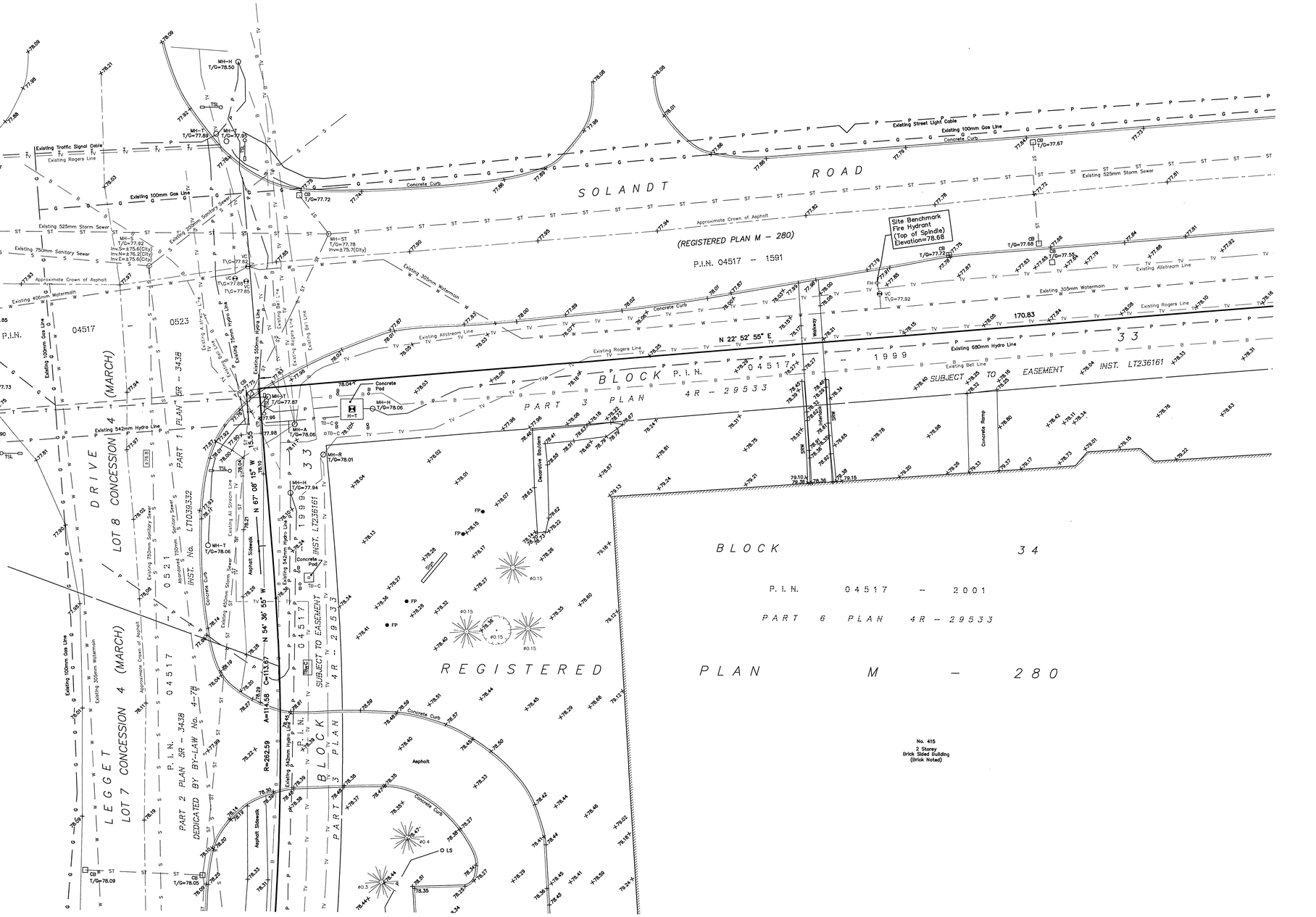

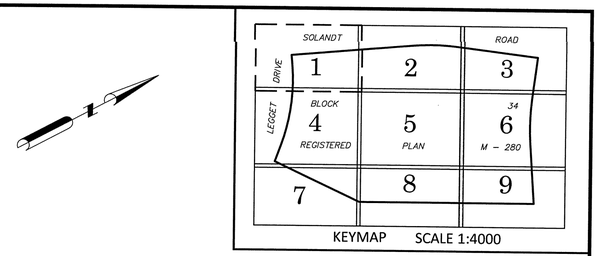

TOPOGRAPHIC SKETCH OF

SHEET 1 OF 9

PART OF BLOCKS 33 AND 34 REGISTERED PLAN M-280 CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2021

Scale 1: 200

0 2.5 5 10 15 20 metres

Metric Note

Distances and coordinates on this plan are in metres and can be converted to feet by dividing by 0.3048.

Distance Note

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.99992.

Boundary Note

This Sketch is to be read in conjunction with a Surveyor's Real Property Report dated October 19, 2021 (FSD Ref. 524-21)

Elevation Notes

1. Elevations shown are geodetic and are referred to Geodetic Datum CGVD-1928 :1978.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

Utility Notes

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. Underground utility data compiled from City of Ottawa utility sheet reference: D-L-04, D-L-05, D-L-11, C-L-18, C-L-23, C-L-24, C-L-28, C-L-29, 9648, 11609, 13508.
4. Sanitary and storm sewer grades and inverts were compiled from: Field measurement and City of Ottawa Utility Sheets.
5. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Caution Note

a) This is NOT a Plan of Survey and shall not be used except for the purpose indicated in the title block.
b) This Sketch is protected by Copyright © .

Notes & Legend

MH–ST	Denotes	Maintenance Hole (Storm)
MH–S	"	Maintenance Hole (Sanitary)
MH–R	"	Maintenance Hole (Rogers)
MH–B	"	Maintenance Hole (Bell)
MH–T	"	Maintenance Hole (Traffic)
MH–H	"	Maintenance Hole (Hydro)
MH–W	"	Maintenance Hole (Water)
MH–A	"	Maintenance Hole (Allstream)
MH	"	Maintenance Hole (Unidentified)
ST	"	Underground Storm Sewer
S	"	Underground Sanitary Sewer
W	"	Underground Water
P	"	Underground Hydro
G	"	Underground Gas
B	"	Underground Bell / Telus
TV	"	Underground Rogers / Allstream
OHW	"	Overhead Wires
VC	"	Valve Chamber (Watermain)
	"	Traffic Light
TSL	"	Utility Pole
UP	"	Anchor
AN	"	Light Standard
LS	"	Catch Basin
CB	"	Fire Hydrant
FH	"	Cable Terminal Box
TB–C	"	Bell Terminal Box
TB–B	"	Telus Terminal Box
TB–T	"	Flag Pole
FP	"	Electrical Charger
EC	"	Hydro Transformer
H–T	"	Invert
Inv.	"	Top of Grate
T/G	"	Underside of Eave
U/Eave	"	Top of Foundation
TpFdn	"	Elevation
El	"	Centreline
C/L	"	Water Valve
WV	"	Gas Meter
GM	"	Bollard
B	"	Sign
S	"	Diameter
Ø	"	Concrete Retaining Wall
CRW	"	Stone Retaining Wall
SRW	"	Location of Elevations
+65.00	"	Top of Concrete Curb / Retaining Wall Elevation
+65.00	"	Deciduous Tree - The Symbol shown denotes location and trunk diameter only. Size of its' root system/overhead canopy may be smaller/larger than the symbol size depicted on this plan.
	"	Coniferous Tree - The Symbol shown denotes location and trunk diameter only. Size of its' root system/overhead canopy may be smaller/larger than the symbol size depicted on this plan.

Fieldwork was completed on the 18th day of October, 2021.

Oct. 19/21
Date

Daniel Robinson
Ontario Land Surveyor

FARLEY, SMITH & DENIS SURVEYING LTD.

ONTARIO LAND SURVEYORS
CANADA LAND SURVEYORS

Unit 275, 30 COLONNADE ROAD, OTTAWA, ONTARIO K2E 7J6
TEL. (613) 727-8226 E-mail: fsdsurveys@bellnet.ca

FILE No.: 524-21

TOPO 24X36_Sheet 1

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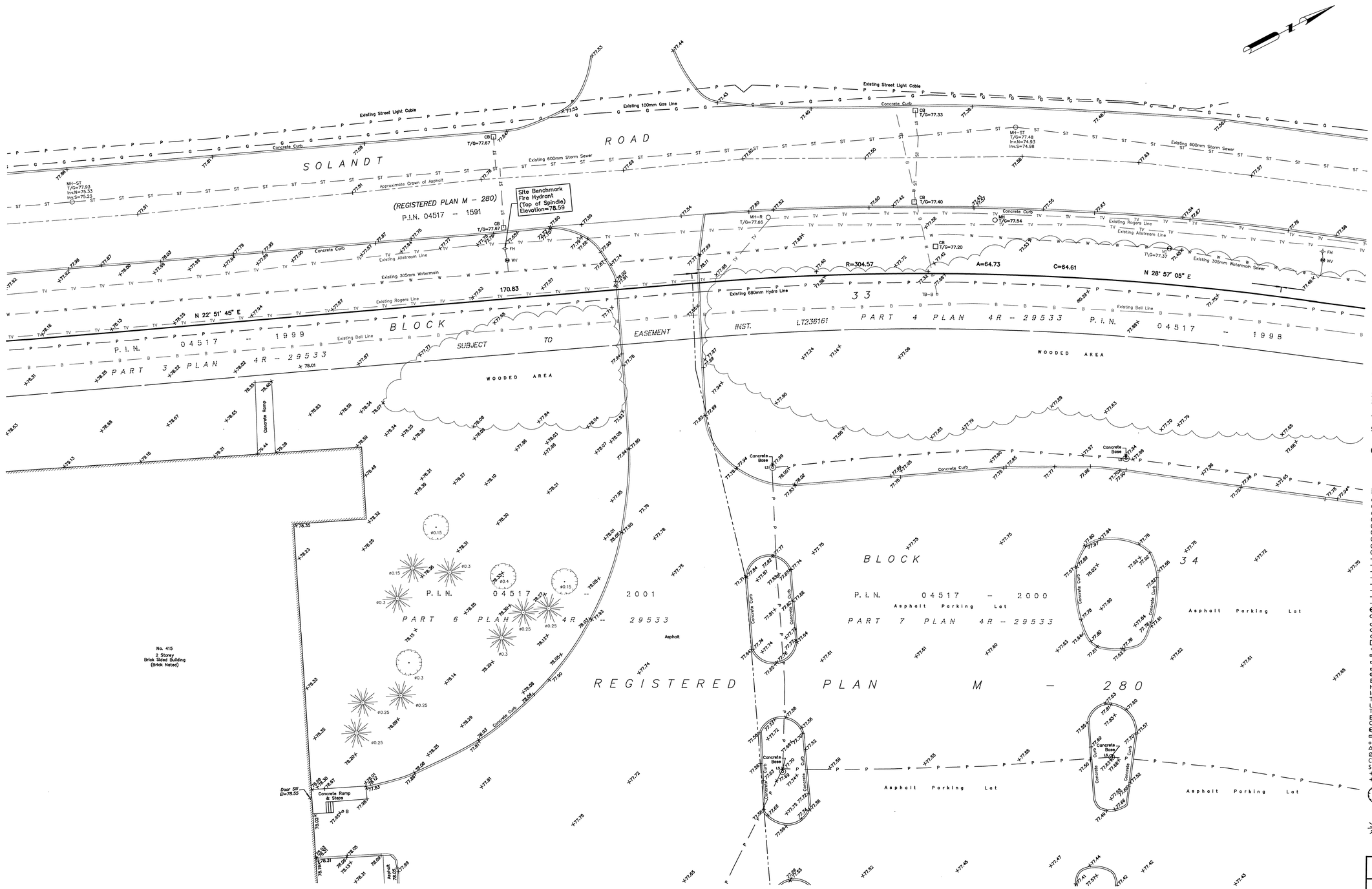

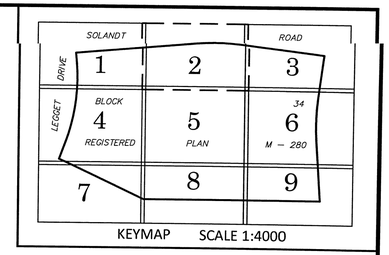

TOPOGRAPHIC SKETCH OF SHEET 2 OF 9

PART OF BLOCKS 33 AND 34 REGISTERED PLAN M-280 CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2021

Scale 1: 200

0 2.5 5 10 15 20 metres

Metric Note

Distances and coordinates on this plan are in metres and can be converted to feet by dividing by 0.3048.

Distance Note

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.99992.

Boundary Note

This Sketch is to be read in conjunction with a Surveyor's Real Property Report dated *October 19, 2021 (FSD Ref. 524-21)*

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Notes & Legend

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MH-R	"	Maintenance Hole (Rogers)
MH-B	"	Maintenance Hole (Bell)
MH-T	"	Maintenance Hole (Traffic)
MH-H	"	Maintenance Hole (Hydro)
MH-W	"	Maintenance Hole (Water)
MH-A	"	Maintenance Hole (Allstream)
MH	"	Maintenance Hole (Unidentified)
ST	"	Underground Storm Sewer
S	"	Underground Sanitary Sewer
W	"	Underground Water
P	"	Underground Hydro
G	"	Underground Gas
B	"	Underground Bell / Telus
TV	"	Underground Rogers / Allstream
OHW	"	Overhead Wires
VC	"	Valve Chamber (Watermain)
	"	Traffic Light
TSL		
UP	"	Utility Pole
AN	"	Anchor
LS	"	Light Standard
CB	"	Catch Basin
FH	"	Fire Hydrant
TB-C	"	Cable Terminal Box
TB-B	"	Bell Terminal Box
TB-T	"	Telus Terminal Box
FP	"	Flag Pole
EC	"	Electrical Charger
H-T	"	Hydro Transformer
Inv.	"	Invert
T/G	"	Top of Grate
U/Eave	"	Underside of Eave
TpFdn	"	Top of Foundation
El	"	Elevation
C/L	"	Centreline
WV	"	Water Valve
GM	"	Gas Meter
B	"	Bollard
S	"	Sign
Ø	"	Diameter
CRW	"	Concrete Retaining Wall
SRW	"	Stone Retaining Wall
+ 65.00	"	Location of Elevations
+ 65.00	"	Top of Concrete Curb / Retaining Wall Elevation
	"	Deciduous Tree - The Symbol shown denotes location and trunk diameter only. Size of its' root system/overhead canopy may be smaller/larger than the symbol size depicted on this plan.
	"	Coniferous Tree - The Symbol shown denotes location and trunk diameter only. Size of its' root system/overhead canopy may be smaller/larger than the symbol size depicted on this plan.

Fieldwork was completed on the 18th day of October, 2021.

Oct. 19/21
Date

Daniel Robinson
Ontario Land Surveyor

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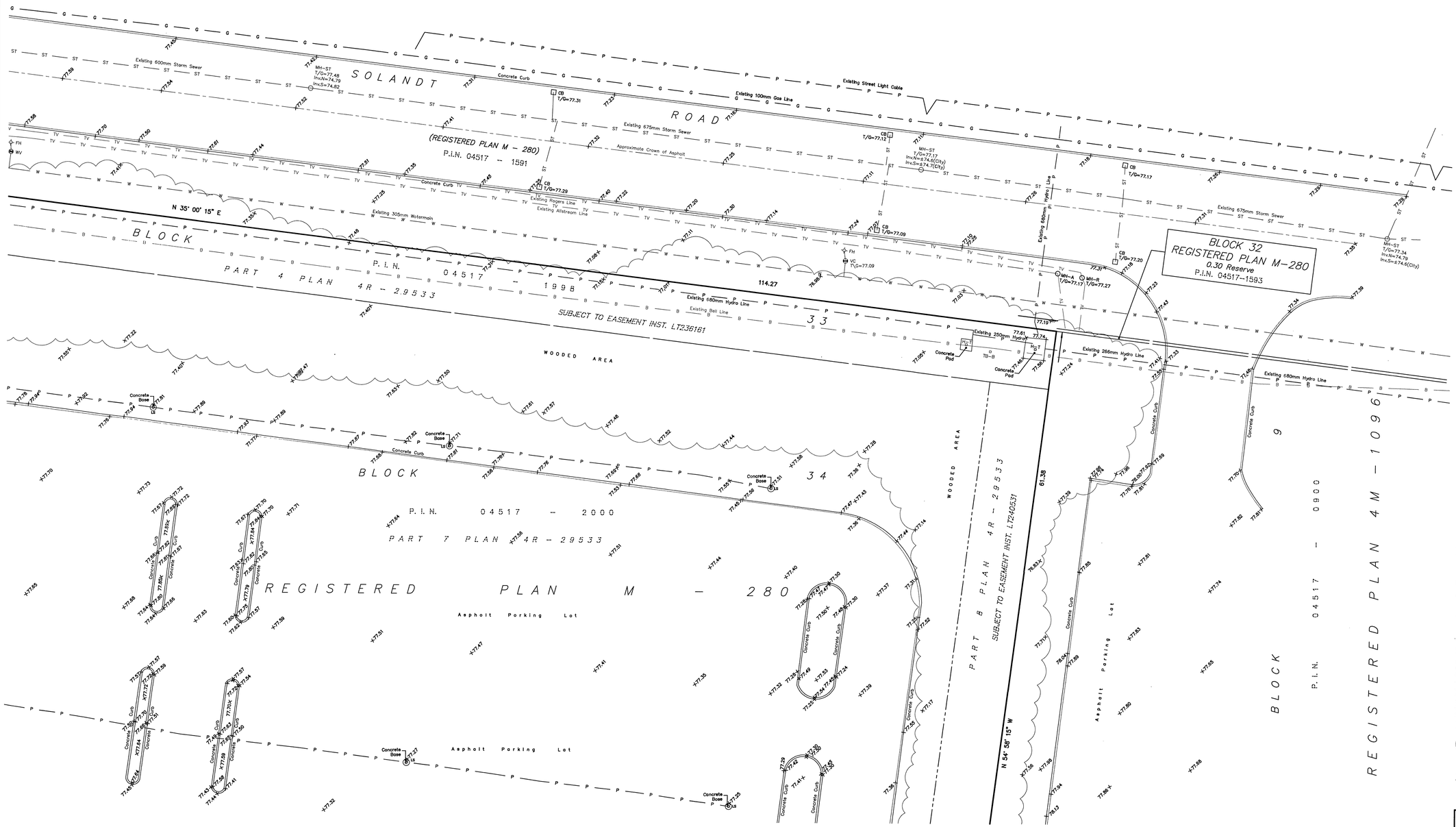
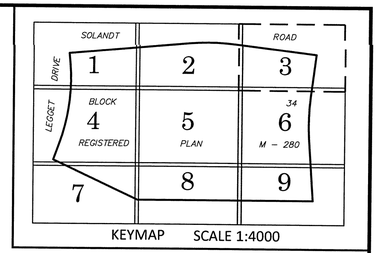
FILE No. : 524-21

TOPO 24X36_Sheet 2

J:\2021\524-21_415 Legget Dr & 2700 Solandt Rd_topo\Final\524-21 415 Legget Dr-2700 Silandt Rd_BL33-34 RP M-280_Topo_F.dwg

350833, 5022982





TOPOGRAPHIC SKETCH OF SHEET 3 OF 9

PART OF BLOCKS 33 AND 34 REGISTERED PLAN M-280 CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2021

Scale 1: 200

0 2.5 5 10 15 20 metres

Metric Note

Distances and coordinates on this plan are in metres and can be converted to feet by dividing by 0.3048.

Distance Note

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.99992.

Boundary Note

This Sketch is to be read in conjunction with a Surveyor's Real Property Report dated October 19, 2021 (FSD Ref. 524-21)

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OHW	"	Overhead Wires
VC	"	Valve Chamber (Watermain)
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AN	"	Anchor
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H-T	"	Hydro Transformer
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ToFdn	"	Top of Foundation
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C/L	"	Centreline
WV	"	Water Valve
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Oct. 19/21
Date

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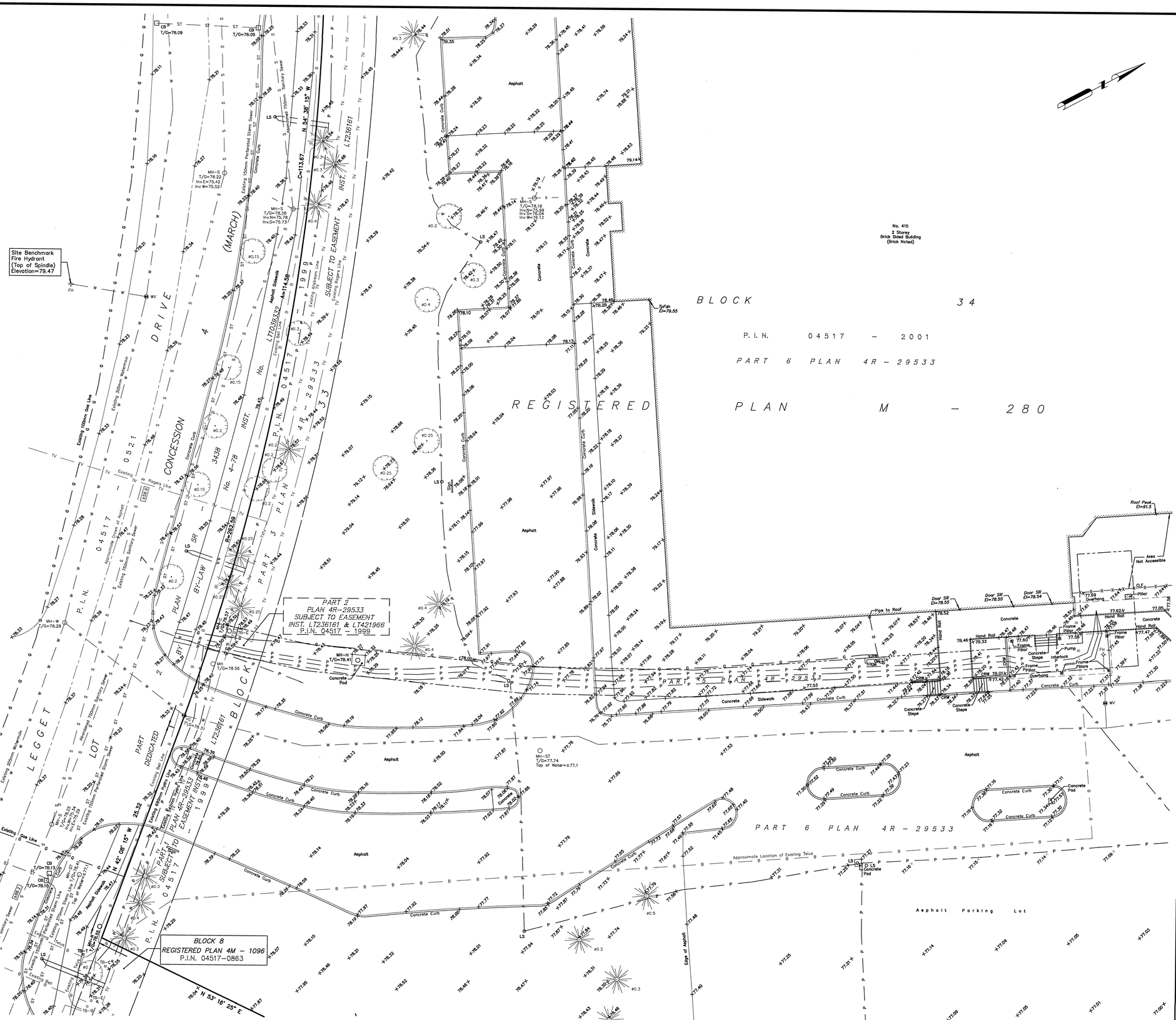
FILE No.: 524-21

TOPO 2AX36_Sheet 3

J:\2021\524-21_415 Legget Dr & 2700 Solandt Rd_topo\Final\524-21 415 Legget Dr-2700 Silandt Rd_BL33-34 RP M-280_Topo_F.dwg



350833, 5022982

KEYMAP SCALE 1:4000

TOPOGRAPHIC SKETCH OF

SHEET 4 OF 9

PART OF BLOCKS 33 AND 34
REGISTERED PLAN M-280
CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2021

Scale 1: 200

0 2.5 5 10 15 20 metres

Metric Note

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Distance Note

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Boundary Note

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Fieldwork was completed on the 18th day of October, 2021.

Oct-19/21
Date

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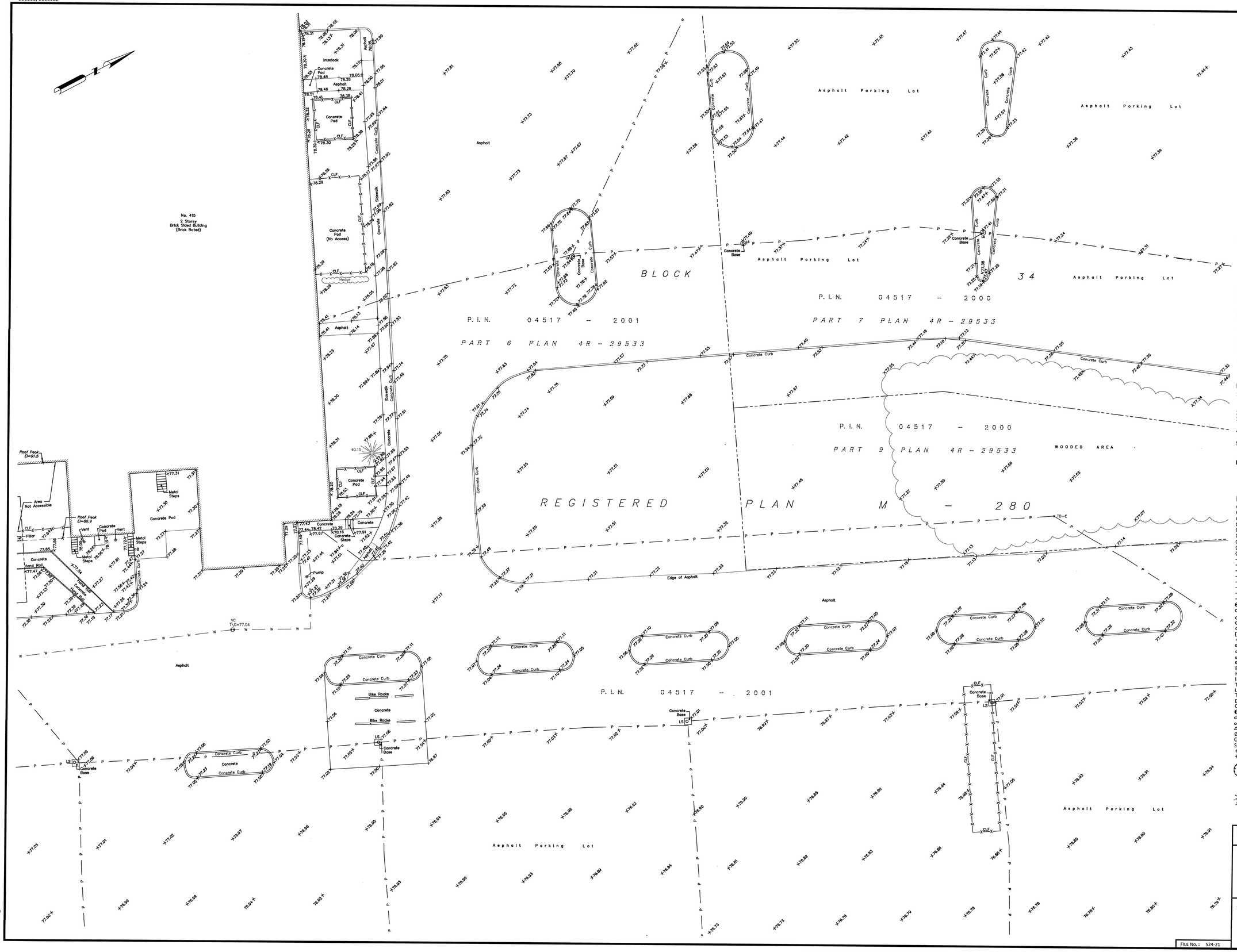
FILE No. : 524-21

J:\2021\524-21_415 Legget Dr & 2700 Solandt Rd_topo\Final\524-21 415 Legget Dr-2700 Silandt Rd_BL33-34 RP M-280_Topo_F.dwg

TOPO 24X36_Sheet 4



350833, 5022982

KEYMAP SCALE 1:4000

TOPOGRAPHIC SKETCH OF

SHEET 5 OF 9

PART OF BLOCKS 33 AND 34
REGISTERED PLAN M-280
CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2021

Scale 1: 200

0 2.5 5 10 15 20 metres

Metric Note

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△ S	"	Sign
Ø	"	Diameter
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Oct. 19/21
Date

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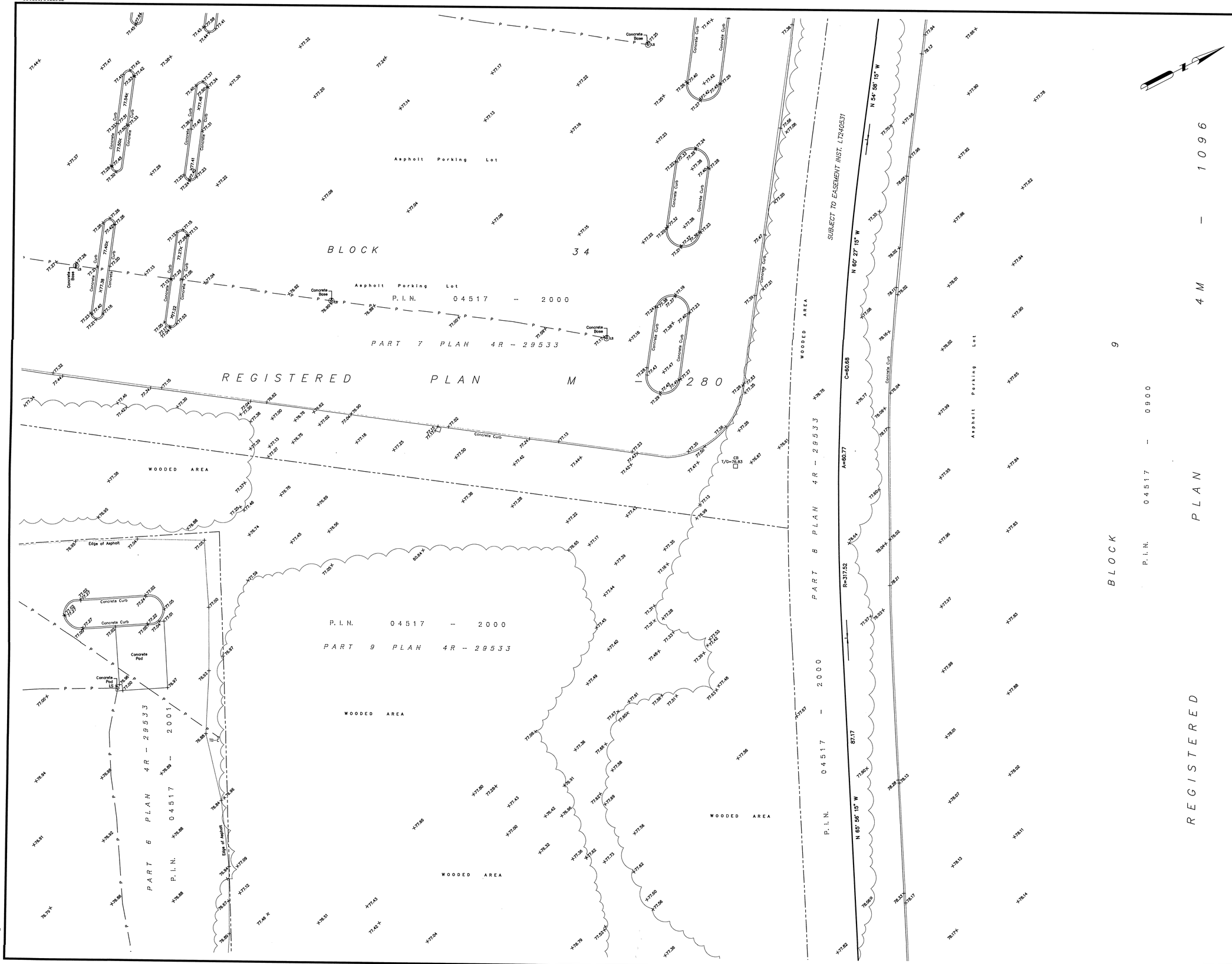
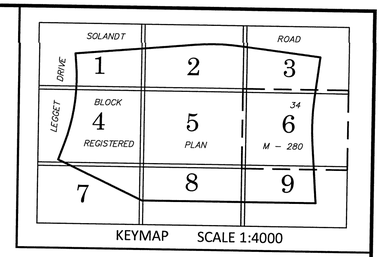
FILE No. : 524-21

TOPO 24X36_Sheet 5

J:\2021\524-21_415 Legget Dr & 2700 Solandt Rd_topo\Final\524-21 415 Legget Dr-2700 Silandt Rd_BL33-34 RP M-280_Topo_F.dwg

350833, 5022982





TOPOGRAPHIC SKETCH OF

SHEET 6 OF 9

PART OF BLOCKS 33 AND 34 REGISTERED PLAN M-280 CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2021

Scale 1: 200

0 2.5 5 10 15 20 metres

Metric Note

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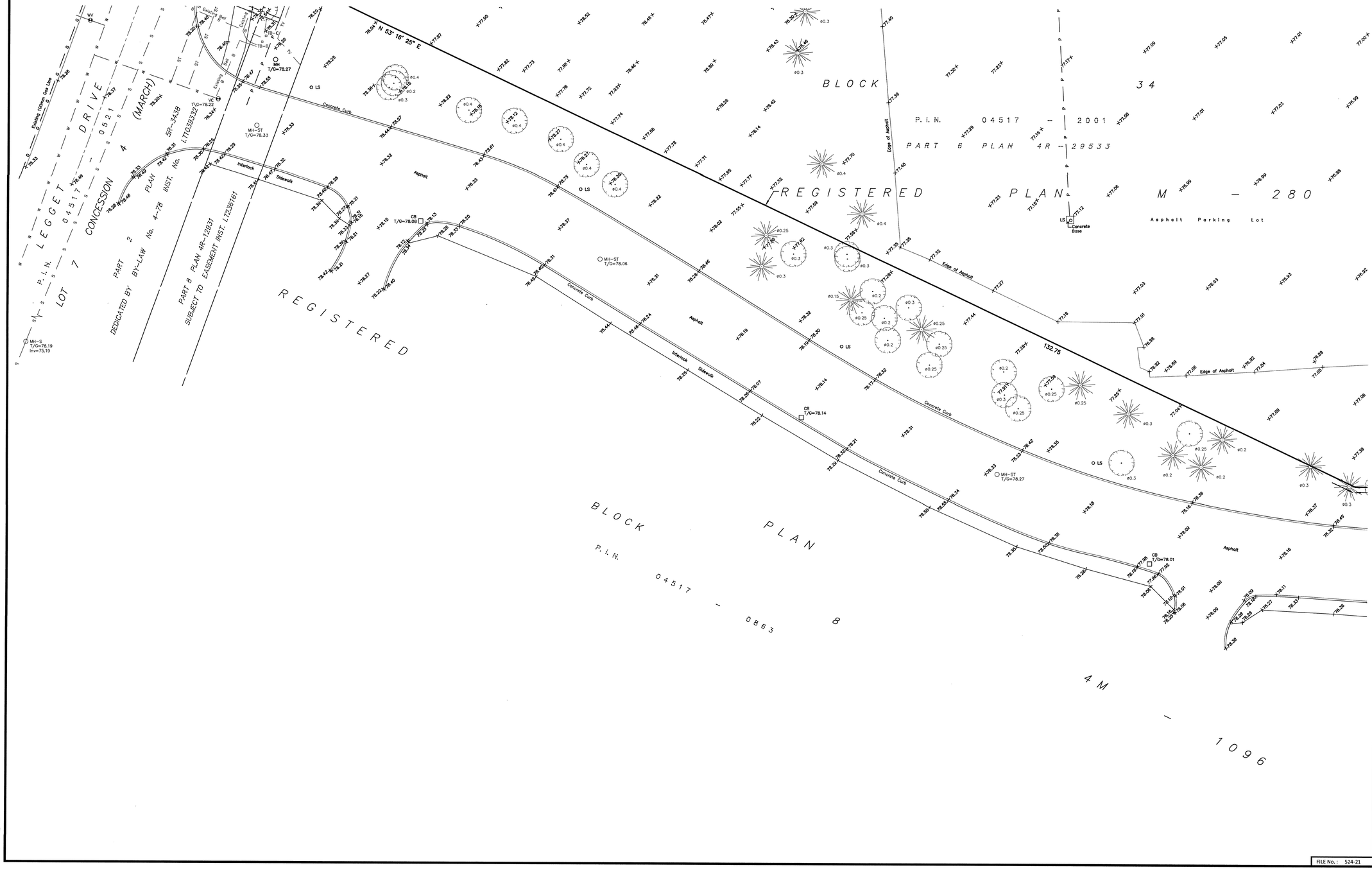
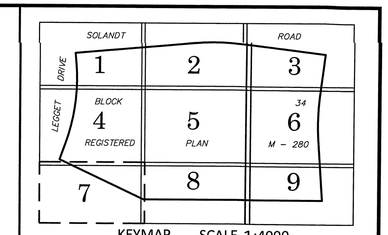
FILE No.: 524-21

J:\2021\524-21_415 Legget Dr & 2700 Solandt Rd_topo\Final\524-21 415 Legget Dr-2700 Silandt Rd_BL33-34 RP M-280_Topo_F.dwg

TOPO 24X36_Sheet 6

350833, 5022982





TOPOGRAPHIC SKETCH OF

SHEET 7 OF 9

PART OF BLOCKS 33 AND 34 REGISTERED PLAN M-280 CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2021

Scale 1: 200

0 2.5 5 10 15 20 metres

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Notes & Legend

MH-ST	Denotes	Maintenance Hole (Storm)
MH-S	"	Maintenance Hole (Sanitary)
MH-R	"	Maintenance Hole (Rogers)
MH-B	"	Maintenance Hole (Bell)
MH-T	"	Maintenance Hole (Traffic)
MH-H	"	Maintenance Hole (Hydro)
MH-W	"	Maintenance Hole (Water)
MH-A	"	Maintenance Hole (Allstream)
MH	"	Maintenance Hole (Unidentified)
ST	"	Underground Storm Sewer
S	"	Underground Sanitary Sewer
W	"	Underground Water
P	"	Underground Hydro
G	"	Underground Gas
B	"	Underground Bell / Telus
TV	"	Underground Rogers / Allstream
OHW	"	Overhead Wires
VC	"	Valve Chamber (Watermain)
TSL	"	Traffic Light
UUP	"	Utility Pole
AN	"	Anchor
LS	"	Light Standard
CB	"	Catch Basin
FH	"	Fire Hydrant
TB-C	"	Cable Terminal Box
TB-B	"	Bell Terminal Box
TB-T	"	Telus Terminal Box
FP	"	Flag Pole
EC	"	Electrical Charger
H-T	"	Hydro Transformer
Inv.	"	Invert
T/G	"	Top of Grate
U/Eave	"	Underside of Eave
TpFdn	"	Top of Foundation
El	"	Elevation
C/L	"	Centreline
WV	"	Water Valve
GM	"	Gas Meter
B	"	Bollard
S	"	Sign
Ø	"	Diameter
CRW	"	Concrete Retaining Wall
SRW	"	Stone Retaining Wall
+65.00	"	Location of Elevations
+65.00	"	Top of Concrete Curb / Retaining Wall Elevation
	"	Deciduous Tree - The Symbol shown denotes location and trunk diameter only. Size of its' root system/overhead canopy may be smaller/larger than the symbol size depicted on this plan.
	"	Coniferous Tree - The Symbol shown denotes location and trunk diameter only. Size of its' root system/overhead canopy may be smaller/larger than the symbol size depicted on this plan.

Fieldwork was completed on the 18th day of October, 2021.

Oct. 19/21
Date

Daniel Robinson
Ontario Land Surveyor

FARLEY, SMITH & DENIS SURVEYING LTD.

ONTARIO LAND SURVEYORS
CANADA LAND SURVEYORS

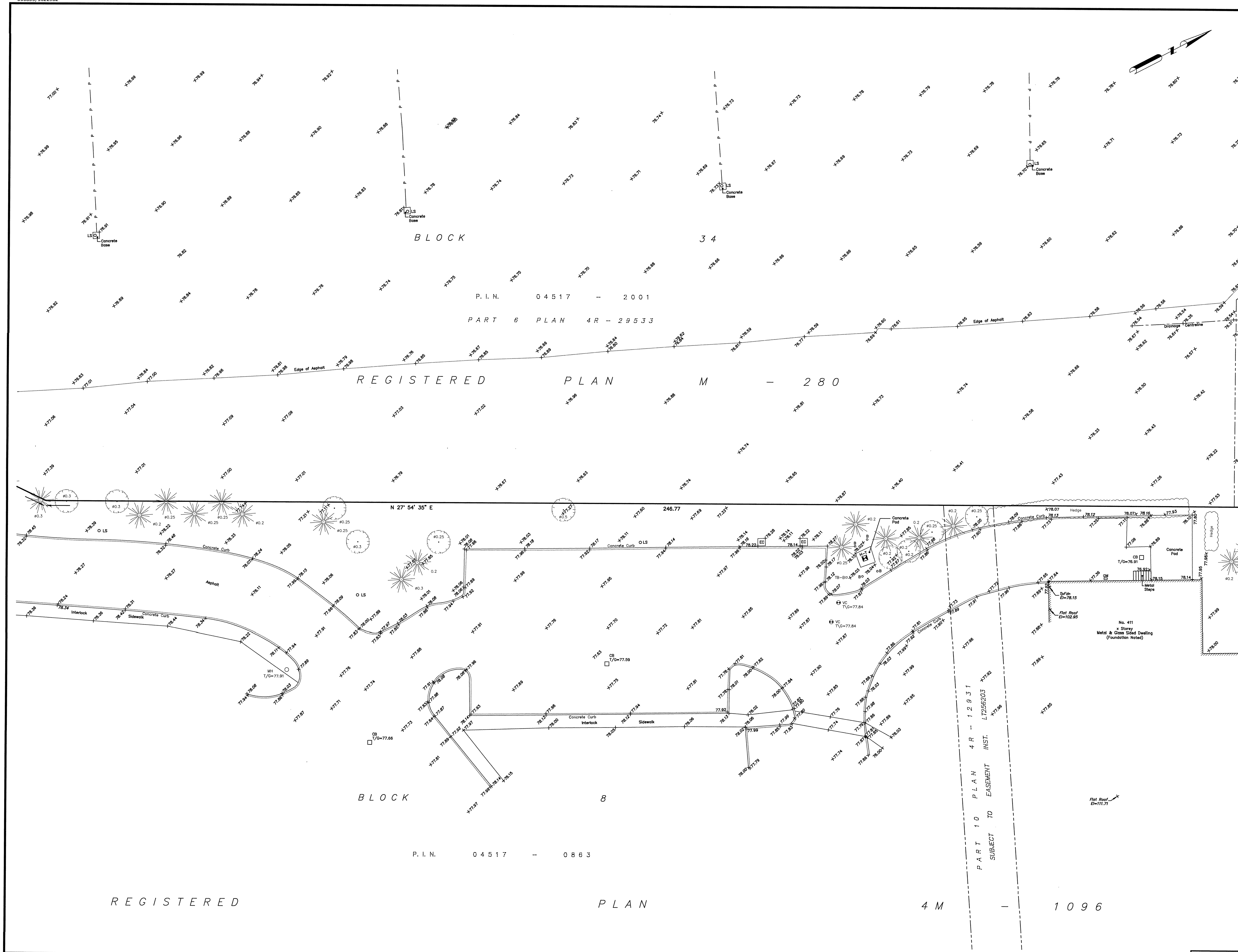
Unit 275, 30 COLONNADE ROAD, OTTAWA, ONTARIO K2E 7J6
TEL. (613) 727-8226 E-mail: fsdsurveys@bellnet.ca

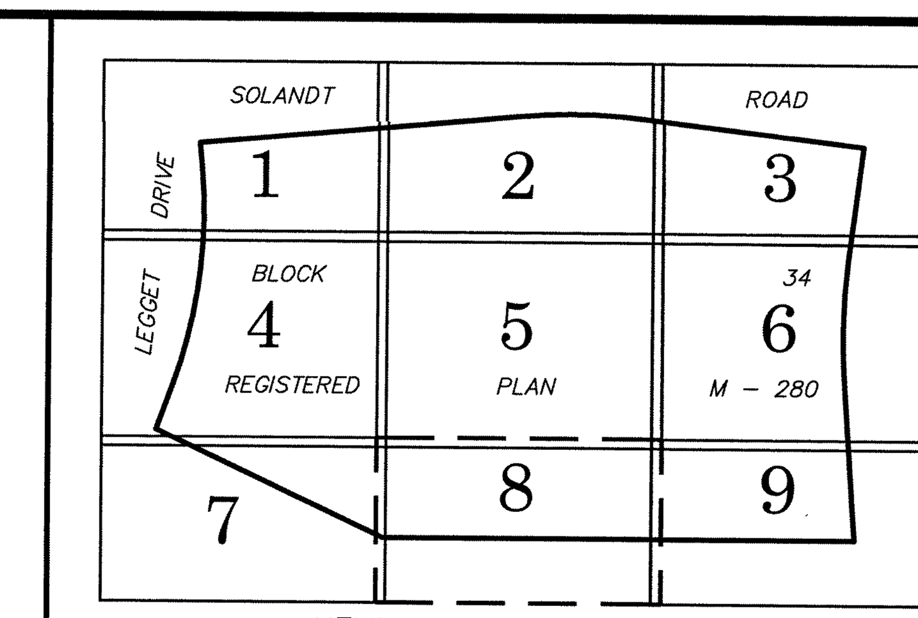
FILE No.: 524-21

TOPO 24X36_Sheet 7

J:\2021\524-21_415 Legget Dr & 2700 Solandt Rd_topo\Final\524-21 415 Legget Dr-2700 Silandt Rd_BL33-34 RP M-280_Topo_F.dwg

350833, 5022982





KEYMAP SCALE 1:4000

TOPOGRAPHIC SKETCH OF

SHEET 8 OF 9

PART OF BLOCKS 33 AND 34
REGISTERED PLAN M-280
CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2021

Scale 1: 200

0 2.5 5 10 15 20 metres

Metric Note
Distances and coordinates on this plan are in metres and can be converted to feet by dividing by 0.3048.

Distance Note
Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.99992.

Boundary Note
This Sketch is to be read in conjunction with a Surveyor's Real Property Report dated October 19, 2021 (FSD Ref. 524-21)

Elevation Notes
1. Elevations shown are geodetic and are referred to Geodetic Datum CGVD-1928 :1978.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

Utility Notes
1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. Underground utility data compiled from City of Ottawa utility sheet reference: D-L-04, D-L-05, D-L-11, C-L-18, C-L-23, C-L-24, C-L-28, C-L-29, 9648, 11609, 13508.
4. Sanitary and storm sewer grades and inverts were compiled from: Field measurement and City of Ottawa Utility Sheets.
5. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Caution Note
a) This is NOT a Plan of Survey and shall not be used except for the purpose indicated in the title block.
b) This Sketch is protected by Copyright ©.

Notes & Legend

	Denotes	
MH–ST	"	Maintenance Hole (Storm)
MH–S	"	Maintenance Hole (Sanitary)
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MH–B	"	Maintenance Hole (Bell)
MH–T	"	Maintenance Hole (Traffic)
MH–H	"	Maintenance Hole (Hydro)
MH–W	"	Maintenance Hole (Water)
MH–A	"	Maintenance Hole (Allstream)
MH	"	Maintenance Hole (Unidentified)
ST	"	Underground Storm Sewer
S	"	Underground Sanitary Sewer
W	"	Underground Water
P	"	Underground Hydro
G	"	Underground Gas
B	"	Underground Bell / Telus
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OW	"	Overhead Wires
VC	"	Valve Chamber (Watermain)
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UP	"	Utility Pole
AN	"	Anchor
LS	"	Light Standard
CB	"	Catch Basin
FH	"	Fire Hydrant
TB–C	"	Cable Terminal Box
TB–B	"	Bell Terminal Box
TB–T	"	Telus Terminal Box
FP	"	Flag Pole
EC	"	Electrical Charger
H-T	"	Hydro Transformer
Inv.	"	Invert
T/G	"	Top of Grate
U/Eave	"	Underside of Eave
TpFdn	"	Top of Foundation
El	"	Elevation
C/L	"	Centreline
WV	"	Water Valve
GM	"	Gas Meter
B	"	Bollard
S	"	Sign
Ø	"	Diameter
CRW	"	Concrete Retaining Wall
SRW	"	Stone Retaining Wall
+65.00	"	Location of Elevations
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Date

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FILE No.: 524-21

TOPO 24X36_Sheet 8

J:\2021\524-21_415 Legget Dr & 2700 Solandt Rd_topo\Final\524-21 415 Legget Dr-2700 Silandt Rd_BL33-34 RP M-280_Topo_F.dwg

APPENDIX

C

- WATERMAIN BOUNDARY CONDITIONS FROM CITY OF OTTAWA
- FIRE UNDERWRITERS SURVEY – FIRE FLOW CALCULATION
- WATER DEMAND CALCULATION
- WATER MODEL OUTPUT – WATERGEM

Boundary Conditions
415 Legget Drive

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	54	0.90
Maximum Daily Demand	80	1.34
Peak Hour	134	2.24
Fire Flow Demand #1	12,000	200.00

Location

Results

Connection 1 – Legget Dr.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	131.0	75.1
Peak Hour	126.4	68.4
Max Day plus Fire 1	122.6	63.1

Ground Elevation = 78.2 m

Connection 2 – Solandt Rd.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	131.0	76.0
Peak Hour	126.3	69.3
Max Day plus Fire 1	120.5	61.0

Ground Elevation = 77.6 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. 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.

Fire Flow Design Sheet (FUS)
415 Legget Drive
City of Ottawa
WSP Project No. 219-00058-04
Date: 02-Feb-22

Proposed Building A
Fire Flow Requirements Based on Fire Underwriters Survey (FUS) 1999

1. An estimate of the Fire Flow required for a given fire area may be estimated by: $F = 220\ C\ \sqrt{A}$

F = required fire flow in litres per minute
C = coefficient related to the type of construction
- 1.5 for wood construction (structure essentially combustible)
- 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
- 0.8 for noncombustible construction (unprotected metal structural components, masonry or metal walls)
- 0.6 for fire-resistive construction (fully protected frame, floors, roof)

A = total floor area in square metres (including all storeys, but excluding basements at least 50% below grade)

A = 11400 m^2
C = 0.8
F = 18791.7 L/min

rounded off to 19,000 L/min (min value of 2000 L/min)

2. The value obtained in 1. may be reduced by as much as 25% for occupancies having a low contents fire hazard.

Non-combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

Reduction due to low occupancy hazard -15% x 19,000 = 16,150 L/min

3. The value obtained in 2. may be reduced by as much as 50% for buildings equipped with automatic sprinkler protection.

Adequate Sprinkler confirms to NFPA13	-30%
Water supply common for sprinklers & fire hoses	-10%
Fully supervised system	-10%
No Automatic Sprinkler System	0%

Reduction due to Sprinkler System -40% x 16,150 = -6,460 L/min

4. The value obtained in 2. is increased for structures exposed within 45 metres by the fire area under consideration.

Separation	Charge
0 to 3 m	25%
3.1 to 10 m	20%
10.1 to 20 m	15%
20.1 to 30 m	10%
30.1 to 45 m	5%

Side 1	70	0%	north side
Side 2	140	0%	east side
Side 3	65	0%	south side
Side 4	47	0%	west side
		0%	(Total shall not exceed 75%)

Increase due to separation 0% x 16,150 = 0 L/min

5. The flow requirement is the value obtained in 2., minus the reduction in 3., plus the addition in 4.

The fire flow requirement is 10,000 L/min (Rounded to nearest 1000 L/min)
or **167 L/sec**
or 2,642 gpm (us)
or 2,200 gpm (uk)

Based on method described in:
"Water Supply for Public Fire Protection - A Guide to Recommended Practice", 1991
by Fire Underwriters Survey

Fire Flow Design Sheet (FUS)
415 Legget Drive
City of Ottawa
WSP Project No. 219-00058-04
Date: 02-Feb-22

Proposed Building B
Fire Flow Requirements Based on Fire Underwriters Survey (FUS) 1999

1. An estimate of the Fire Flow required for a given fire area may be estimated by: $F = 220\ C\ \sqrt{A}$

F = required fire flow in litres per minute
C = coefficient related to the type of construction
- 1.5 for wood construction (structure essentially combustible)
- 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
- 0.8 for noncombustible construction (unprotected metal structural components, masonry or metal walls)
- 0.6 for fire-resistive construction (fully protected frame, floors, roof)

A = total floor area in square metres (including all storeys, but excluding basements at least 50% below grade)

A = 6650 m^2
C = 0.8
F = 14352.4 L/min

rounded off to 14,000 L/min (min value of 2000 L/min)

2. The value obtained in 1. may be reduced by as much as 25% for occupancies having a low contents fire hazard.

Non-combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

Reduction due to low occupancy hazard -15% x 14,000 = 11,900 L/min

3. The value obtained in 2. may be reduced by as much as 50% for buildings equipped with automatic sprinkler protection.

Adequate Sprinkler confirms to NFPA13	-30%
Water supply common for sprinklers & fire hoses	-10%
Fully supervised system	-10%
No Automatic Sprinkler System	0%

Reduction due to Sprinkler System -40% x 11,900 = -4,760 L/min

4. The value obtained in 2. is increased for structures exposed within 45 metres by the fire area under consideration.

Separation	Charge
0 to 3 m	25%
3.1 to 10 m	20%
10.1 to 20 m	15%
20.1 to 30 m	10%
30.1 to 45 m	5%

Side 1	27	10%	north side
Side 2	220	0%	east side
Side 3	22	10%	south side
Side 4	250	0%	west side
		20%	(Total shall not exceed 75%)

Increase due to separation 20% x 11,900 = 2,380 L/min

5. The flow requirement is the value obtained in 2., minus the reduction in 3., plus the addition in 4.

The fire flow requirement is 10,000 L/min (Rounded to nearest 1000 L/min)
or **167 L/sec**
or 2,642 gpm (us)
or 2,200 gpm (uk)

Based on method described in:
"Water Supply for Public Fire Protection - A Guide to Recommended Practice", 1991
by Fire Underwriters Survey

Fire Flow Design Sheet (FUS)
415 Legget Drive
City of Ottawa
WSP Project No. 219-00058-04
Date: 02-Feb-22

Existing Building 415 Legget Drive
Fire Flow Requirements Based on Fire Underwriters Survey (FUS) 1999

1. An estimate of the Fire Flow required for a given fire area may be estimated by: $F = 220\ C\ \sqrt{A}$

F = required fire flow in litres per minute
C = coefficient related to the type of construction
- 1.5 for wood construction (structure essentially combustible)
- 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
- 0.8 for noncombustible construction (unprotected metal structural components, masonry or metal walls)
- 0.6 for fire-resistive construction (fully protected frame, floors, roof)

A = total floor area in square metres (including all storeys, but excluding basements at least 50% below grade)

A = 14400 m^2
C = 0.8
F = 21120.0 L/min

rounded off to 21,000 L/min (min value of 2000 L/min)

2. The value obtained in 1. may be reduced by as much as 25% for occupancies having a low contents fire hazard.

Non-combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

Reduction due to low occupancy hazard -15% x 21,000 = 17,850 L/min

3. The value obtained in 2. may be reduced by as much as 50% for buildings equipped with automatic sprinkler protection.

Adequate Sprinkler confirms to NFPA13	-30%
Water supply common for sprinklers & fire hoses	-10%
Fully supervised system	-10%
No Automatic Sprinkler System	0%

Reduction due to Sprinkler System -40% x 17,850 = -7,140 L/min

4. The value obtained in 2. is increased for structures exposed within 45 metres by the fire area under consideration.

Separation	Charge
0 to 3 m	25%
3.1 to 10 m	20%
10.1 to 20 m	15%
20.1 to 30 m	10%
30.1 to 45 m	5%

Side 1	50	0%	north side
Side 2	48	0%	east side
Side 3	27	10%	south side
Side 4	85	0%	west side
		10%	(Total shall not exceed 75%)

Increase due to separation 10% x 17,850 = 1,785 L/min

5. The flow requirement is the value obtained in 2., minus the reduction in 3., plus the addition in 4.

The fire flow requirement is 12,000 L/min (Rounded to nearest 1000 L/min)
or **200 L/sec**
or 3,170 gpm (us)
or 2,640 gpm (uk)

Based on method described in:
"Water Supply for Public Fire Protection - A Guide to Recommended Practice", 1991
by Fire Underwriters Survey

Water Demand Calculation Sheet

Project:	**415 Legget Drive**	**Date:**	**2022-02-02**
Location:	**City of Ottawa**	**Design:**	**DY**
WSP Project No.	**219-00058-04**	**Page:**	**1 of 1**

Development	Residential				Non-Residentail			Average Daily Demand (l/s)			Maximum Daily Demand (l/s)			Maximum Hourly Demand (l/s)			Max Fire Demand
	Units			Pop.	Industrial	Institutional	Commercial										
	SF	APT	ST		(ha)	(ha)	(ha)	Res.	Non-Res.	Total	Res.	Non-Res.	Total	Res.	Non-Res.	Total	(l/s)
Building A							1.14		0.37	0.37		0.55	0.55		1.00	1.00	167
Building B							0.67		0.22	0.22		0.32	0.32		0.58	0.58	167
Existing Building							0.96		0.31	0.31		0.47	0.47		0.84	0.84	200
Total Area (incl. Existing)							2.77		0.90	0.90		1.34	1.34		2.42	2.42	

Population Densities

Single Family	3.4	person/unit
Semi-Detached	2.7	person/unit
Duplex	2.3	person/unit
Townhome (Row)	2.7	person/unit
Bachelor Apartment	1.4	person/unit
1 Bedroom Apartment	1.4	person/unit
2 Bedroom Apartment	2.1	person/unit
3 Bedroom Apartment	3.1	person/unit
4 Bedroom Apartment	4.1	person/unit
Avg. Apartment	1.8	person/unit

Average Daily Demand

Residentail	280	l/cap/day
Industrial	35000	l/ha/day
Institutional	28000	l/ha/day
Commercial	28000	l/ha/day

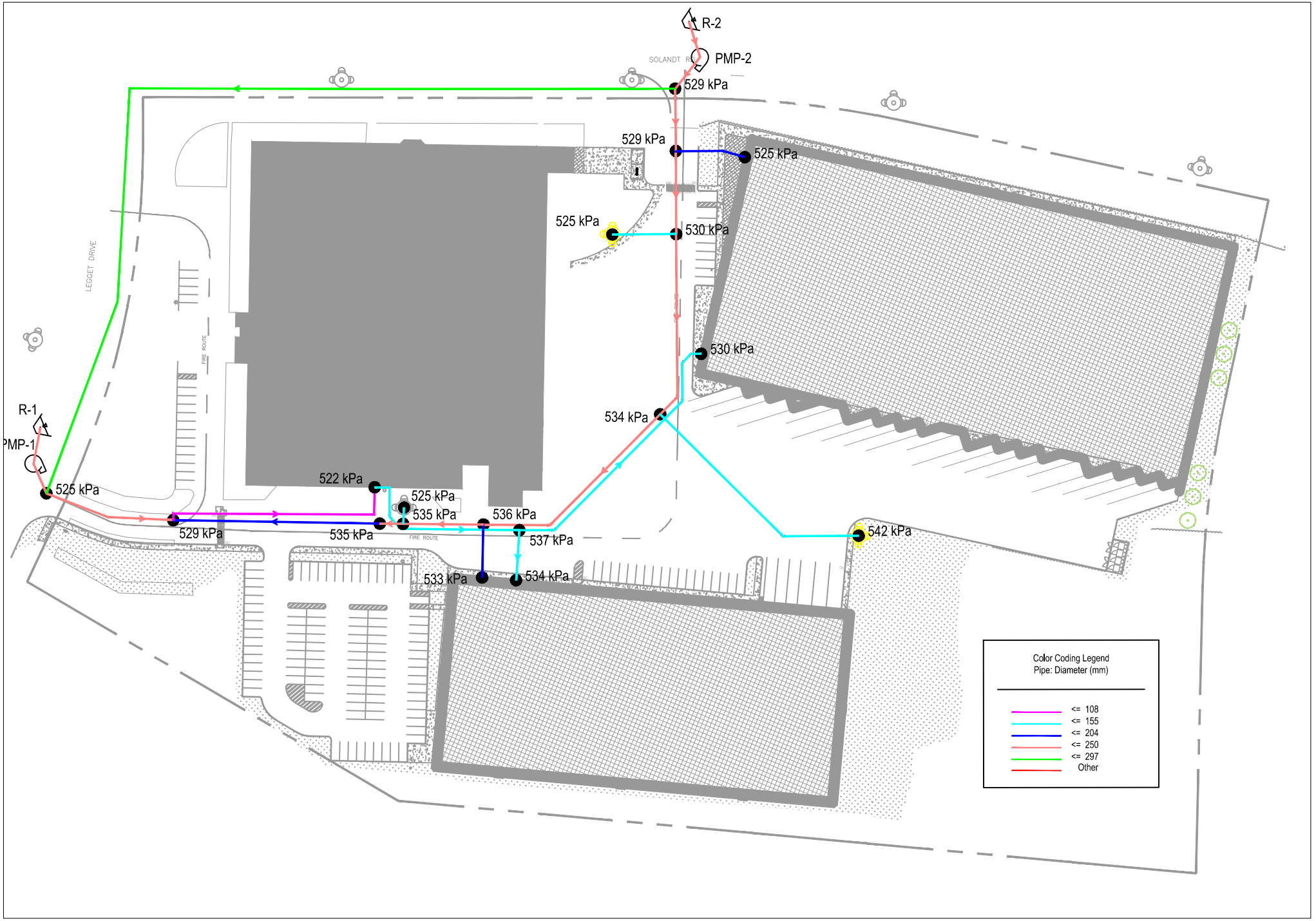
Maximum Daily Demand

Residential	2.5	x avg. day
Industrial	1.5	x avg. day
Institutional	1.5	x avg. day
Commercial	1.5	x avg. day

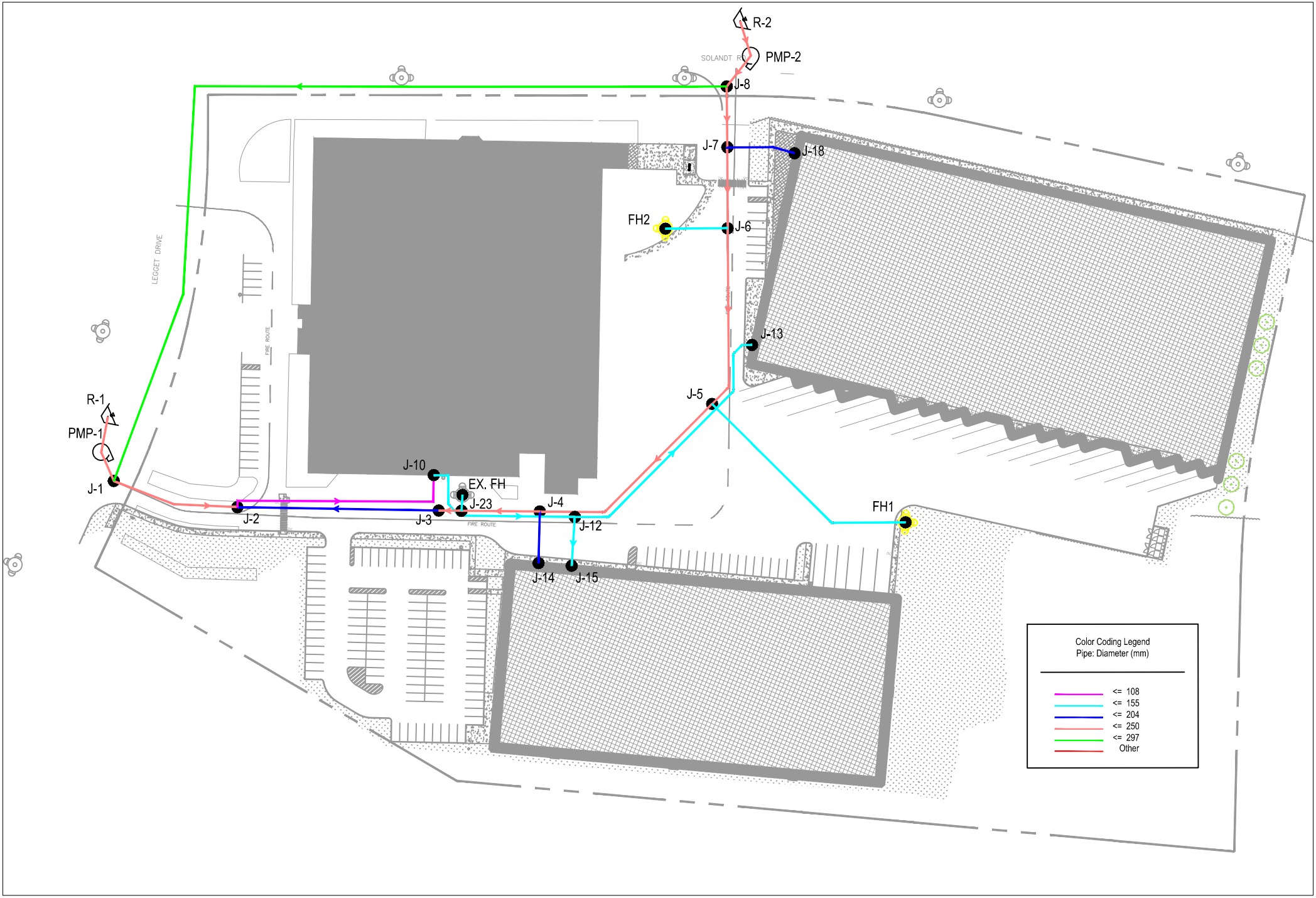
Maximum Hourly Demand

Residential	2.2	x max. day
Industrial	1.8	x max. day
Institutional	1.8	x max. day
Commercial	1.8	x max. day

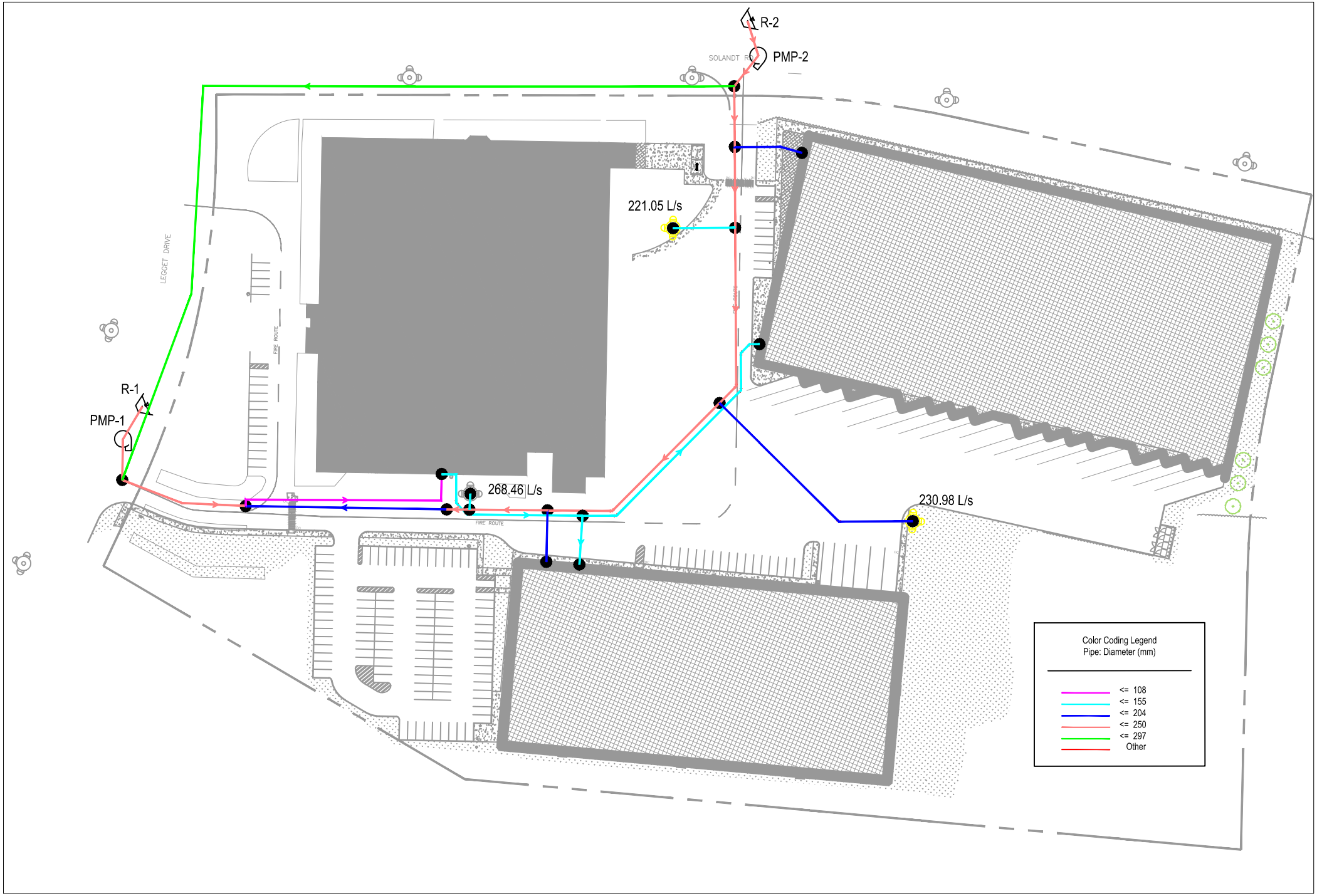
415 Legget Drive - Scenario Average Day



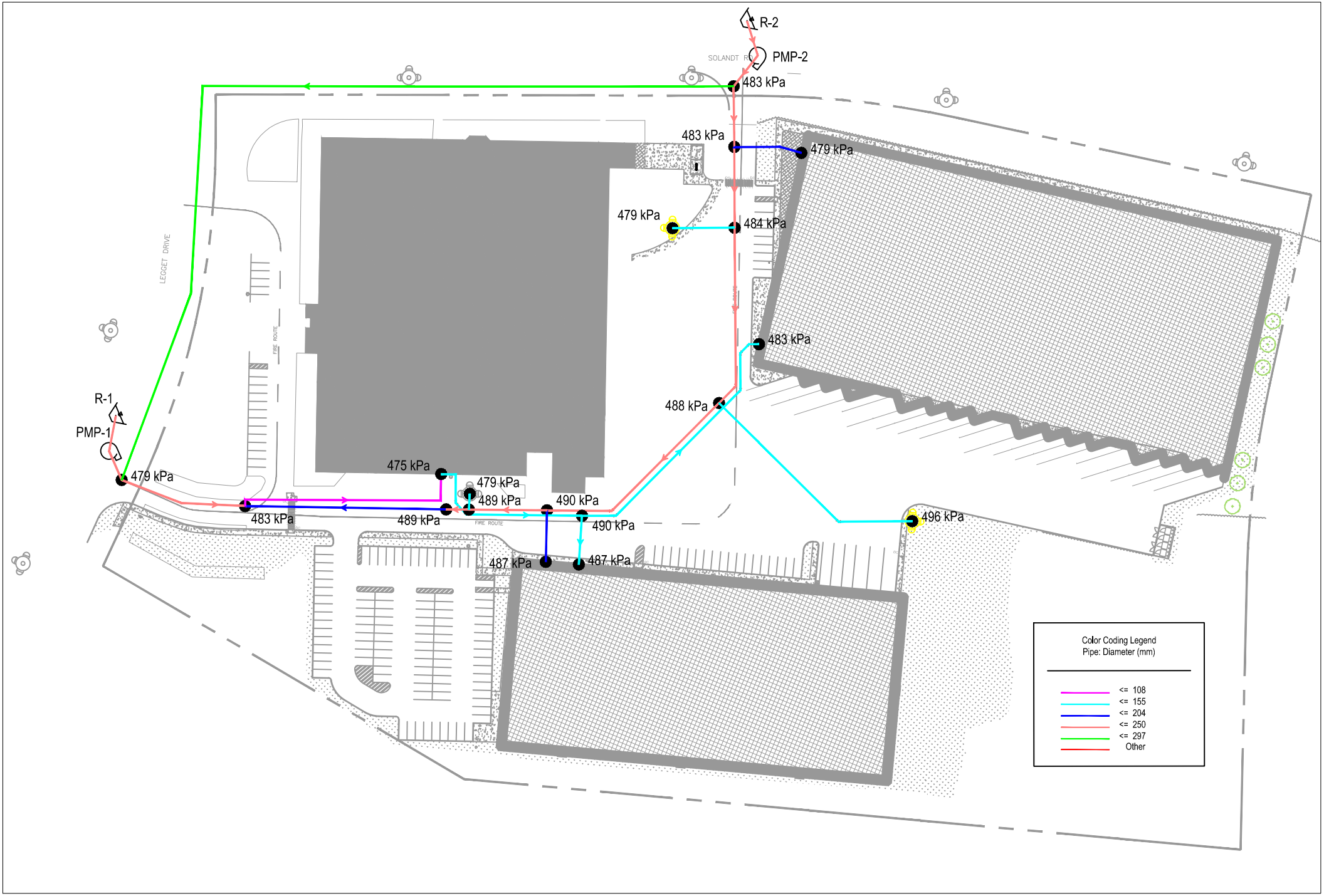
415 Legget Drive - WaterCAD Hydraulic Model Sketch



415 Legget Drive - Scenario Maximum Day + Fire



415 Legget Drive - Scenario Peak Hour



Avg Day - Junction Report

Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)
J-1	78.24	0	131.9	525
J-2	77.88	0	131.9	529
J-3	77.26	0	131.9	535
J-4	77.15	0	131.9	536
J-5	77.38	0	131.9	534
J-6	77.79	0	131.9	530
J-7	77.82	0	131.9	529
J-8	77.83	0	131.9	529
J-10	78.55	0.31	131.88	522
J-12	77.05	0	131.88	537
J-13	77.77	0.37	131.88	530
J-14	77.47	0	131.9	533
J-15	77.35	0.22	131.88	534
FH2	78.24	0	131.9	525
J-18	78.25	0	131.9	525
J-23	77.21	0	131.9	535
EX. FH	78.25	0	131.9	525
FH1	76.47	0	131.9	542

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Headloss Gradient (m/m)	Has User Defined Length?	Length (User Defined) (m)
P-1	11.3	R-1	PMP-1	250	PVC	110	0	0	0	TRUE	0.5
P-2	10	PMP-1	J-1	250	PVC	110	0	0	0	TRUE	0.5
P-3	40.5	J-1	J-2	250	PVC	110	0.56	0.01	0	FALSE	0
P-4	63.7	J-2	J-3	204	PVC	110	-0.34	0.01	0	FALSE	0
P-6	68.7	J-4	J-5	250	PVC	110	-0.34	0.01	0	FALSE	0
P-7	57.7	J-5	J-6	250	PVC	110	-0.34	0.01	0	FALSE	0
P-8	25.6	J-6	J-7	250	PVC	110	-0.34	0.01	0	FALSE	0
P-9	19.2	J-7	J-8	250	PVC	110	-0.34	0.01	0	FALSE	0
P-11	11.4	R-2	PMP-2	250	PVC	110	0.9	0.02	0	TRUE	0.5
P-12	12.3	PMP-2	J-8	250	PVC	110	0.9	0.02	0	TRUE	0.5
P-13	72.2	J-2	J-10	108	PVC	100	0.9	0.1	0	FALSE	0
P-17	55.1	J-10	J-12	155	PVC	100	0.59	0.03	0	FALSE	0
P-18	85.5	J-12	J-13	150	PVC	100	0.37	0.02	0	FALSE	0
P-19	16.3	J-14	J-4	204	PVC	110	0	0	0	FALSE	0
P-20	15.5	J-15	J-12	155	PVC	100	-0.22	0.01	0	FALSE	0
P-22	19.7	FH2	J-6	154	PVC	100	0	0	0	FALSE	0
P-23	21.6	J-18	J-7	204	PVC	110	0	0	0	FALSE	0
P-5(1)	7.2	J-3	J-23	250	PVC	110	-0.34	0.01	0	FALSE	0
P-5(2)	24.7	J-23	J-4	250	PVC	110	-0.34	0.01	0	FALSE	0
P-24	5	EX. FH	J-23	155	PVC	100	0	0	0	FALSE	0
P-25	76.6	FH1	J-5	155	PVC	100	0	0	0	FALSE	0
P-26	296.8	J-1	J-8	297	PVC	120	-0.56	0.01	0	FALSE	0

Label	Fire Flow Iterations	Satisfies Fire Flow Constraints?	Fire Flow (Available) (L/s)	Flow (Total Available) (L/s)
FH2	4	TRUE	221.05	221.05
EX. FH	4	TRUE	268.46	268.46
FH1	4	TRUE	230.98	230.98

Pressure (Residual Lower Limit) (kPa)	Pressure (Calculated Residual) (kPa)	Pressure (Zone Lower Limit) (kPa)
140	140	140
140	140	140
140	140	140

Pressure (Calculated Zone Lower Limit) (kPa)	Junction w/ Minimum Pressure (Zone)	Pressure (System Lower Limit) (kPa)
369	J-6	140
230	J-23	140
334	J-5	140

Pressure (Calculated System Lower Limit) (kPa)	Junction w/ Minimum Pressure (System)	Is Fire Flow Run Balanced?
369	J-6	TRUE
230	J-23	TRUE
334	J-5	TRUE

Peak Hour - Junction Report

Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)
J-1	78.24	0	127.2	479
J-2	77.88	0	127.2	483
J-3	77.26	0	127.2	489
J-4	77.15	0	127.2	490
J-5	77.38	0	127.2	488
J-6	77.79	0	127.2	484
J-7	77.82	0	127.2	483
J-8	77.83	0	127.2	483
J-10	78.55	0.84	127.09	475
J-12	77.05	0	127.08	490
J-13	77.77	1	127.07	483
J-14	77.47	0	127.2	487
J-15	77.35	0.59	127.08	487
FH2	78.24	0	127.2	479
J-18	78.25	0	127.2	479
J-23	77.21	0	127.2	489
EX. FH	78.25	0	127.2	479
FH1	76.47	0	127.2	496

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Headloss Gradient (m/m)	Has User Defined Length?	Length (User Defined) (m)
P-1	11.3	R-1	PMP-1	250	PVC	110	0	0	0	TRUE	0.5
P-2	10	PMP-1	J-1	250	PVC	110	0	0	0	TRUE	0.5
P-3	40.5	J-1	J-2	250	PVC	110	1.51	0.03	0	FALSE	0
P-4	63.7	J-2	J-3	204	PVC	110	-0.92	0.03	0	FALSE	0
P-6	68.7	J-4	J-5	250	PVC	110	-0.92	0.02	0	FALSE	0
P-7	57.7	J-5	J-6	250	PVC	110	-0.92	0.02	0	FALSE	0
P-8	25.6	J-6	J-7	250	PVC	110	-0.92	0.02	0	FALSE	0
P-9	19.2	J-7	J-8	250	PVC	110	-0.92	0.02	0	FALSE	0
P-11	11.4	R-2	PMP-2	250	PVC	110	2.43	0.05	0	TRUE	0.5
P-12	12.3	PMP-2	J-8	250	PVC	110	2.43	0.05	0	TRUE	0.5
P-13	72.2	J-2	J-10	108	PVC	100	2.43	0.27	0.002	FALSE	0
P-17	55.1	J-10	J-12	155	PVC	100	1.59	0.08	0	FALSE	0
P-18	85.5	J-12	J-13	150	PVC	100	1	0.06	0	FALSE	0
P-19	16.3	J-14	J-4	204	PVC	110	0	0	0	FALSE	0
P-20	15.5	J-15	J-12	155	PVC	100	-0.59	0.03	0	FALSE	0
P-22	19.7	FH2	J-6	154	PVC	100	0	0	0	FALSE	0
P-23	21.6	J-18	J-7	204	PVC	110	0	0	0	FALSE	0
P-5(1)	7.2	J-3	J-23	250	PVC	110	-0.92	0.02	0	FALSE	0
P-5(2)	24.7	J-23	J-4	250	PVC	110	-0.92	0.02	0	FALSE	0
P-24	5	EX. FH	J-23	155	PVC	100	0	0	0	FALSE	0
P-25	76.6	FH1	J-5	154	PVC	100	0	0	0	FALSE	0
P-26	296.8	J-1	J-8	297	PVC	120	-1.51	0.02	0	FALSE	0

APPENDIX

D

- SANITARY DEMAND CALCULATION SHEET

SANITARY SEWAGE - PROPOSED SANITARY FLOWS

Average Wastewater Flows:		
Residential	280	L/c/d
Commercial	28,000	L/gross ha/d
Institutional	28,000	L/gross ha/d
Light Industrial	35,000	L/gross ha/d
Heavy Industrial	55,000	L/gross ha/d

Peaking Factors:	
Residential	Harmon Equation
Commercial (>20% Area)	1.5
Commercial (<20% Area)	1.0
Institutional (>20% Area)	1.5
Institutional (<20% Area)	1.0
Industrial	Per Figure in Appendix 4-B

$$P.F. = 1 + \left(\frac{14}{4 + \left(\frac{P}{1000}^{\frac{1}{2}} \right)} \right) * \mathrm{K}$$

where P = population
K = correction factor = 0.8

Peak Extraneous Flows:	
Infiltration Allowance	0.33
Less than 10 ha:	
Foundation Drain Allowance	5.0
10 ha - 100 ha:	
Foundation Drain Allowance	3.0
Greater than 100 ha:	
Foundation Drain Allowance	2.0

Unit Type	**Person Per Unit**	**Hotel/Condo**
Single Family	3.4	
Semi-detached	2.7	
Duplex	2.3	
Townhouse (row)	2.7	
Apartments:		
Bachelor	1.4	
1 Bedroom	1.4	
2 Bedroom	2.1	
3 Bedroom	3.1	
Average Apt.	1.8	
Total Population		**0**

0

	415 Legget - 3 Buildings		
Demand Type=	**Commercial**		
Average Day Demand=	28,000		L/gross ha/d
Population	**0**		
Site Area (ha)	**5.800**		
	28,000	x	6
	162,400		L/day
Average Daily Flow=	**1.88**		**L/s**
Peaking Factor Type	Commercial		
Peaking Factor	1.5		*Max=4
	1.5	x	average day
	1.5	x	162,400
	243,600		L/day
Peak Daily Flow=	**2.82**		**L/s**
Infiltration Allowance	0.33		
	0.33	x	lot area
	0.33	x	5.800
Peak Extraneous Flow=	**1.91**		**L/s**
	peak daily flow	+	extraneous flow
	2.82	+	1.91
Total Peak Design Flow=	**4.73**		**L/s**

*Total site area was divided by 4 (for 4 towers) to calculate infilitration allowance for each building

Total Peak Sanitary Flow **4.73** **L/s**

APPENDIX

E

- EXISTING CONDITIONS AND REMOVALS PLAN
- SITE GRADING PLAN
- SITE SERVICING PLAN
- EROSION AND SEDIMENTATION CONTROL PLAN
- STORMWATER MANAGEMENT PLANS

LEGEND

REMOVE EXISTING UNDERGROUND INFRASTRUCTURE

REMOVE EXISTING ABOVEGROUND INFRASTRUCTURE

REMOVE EXISTING PAVEMENT STRUCTURE

CONSULTANT:

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KEY PLAN:

CLIENT:

ACCESS STORAGE

CLIENT REF. #: –

PROJECT:

415 LEGGET DRIVE
ACCESS STORAGE

SEAL:

LICENSED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2022-03-25
PROVINCE OF ONTARIO

NORTH

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DRAWN BY: J.T.	
CHECKED BY: D.Y.	25mm

DISCIPLINE: CIVIL

TITLE: REMOVAL PLAN

SHEET NUMBER: C02

SHEET #: 3 OF 8

ISSUE: REVISED AS PER CITY COMMENTS

REV #: 0

DATE OF: 2022/03/18

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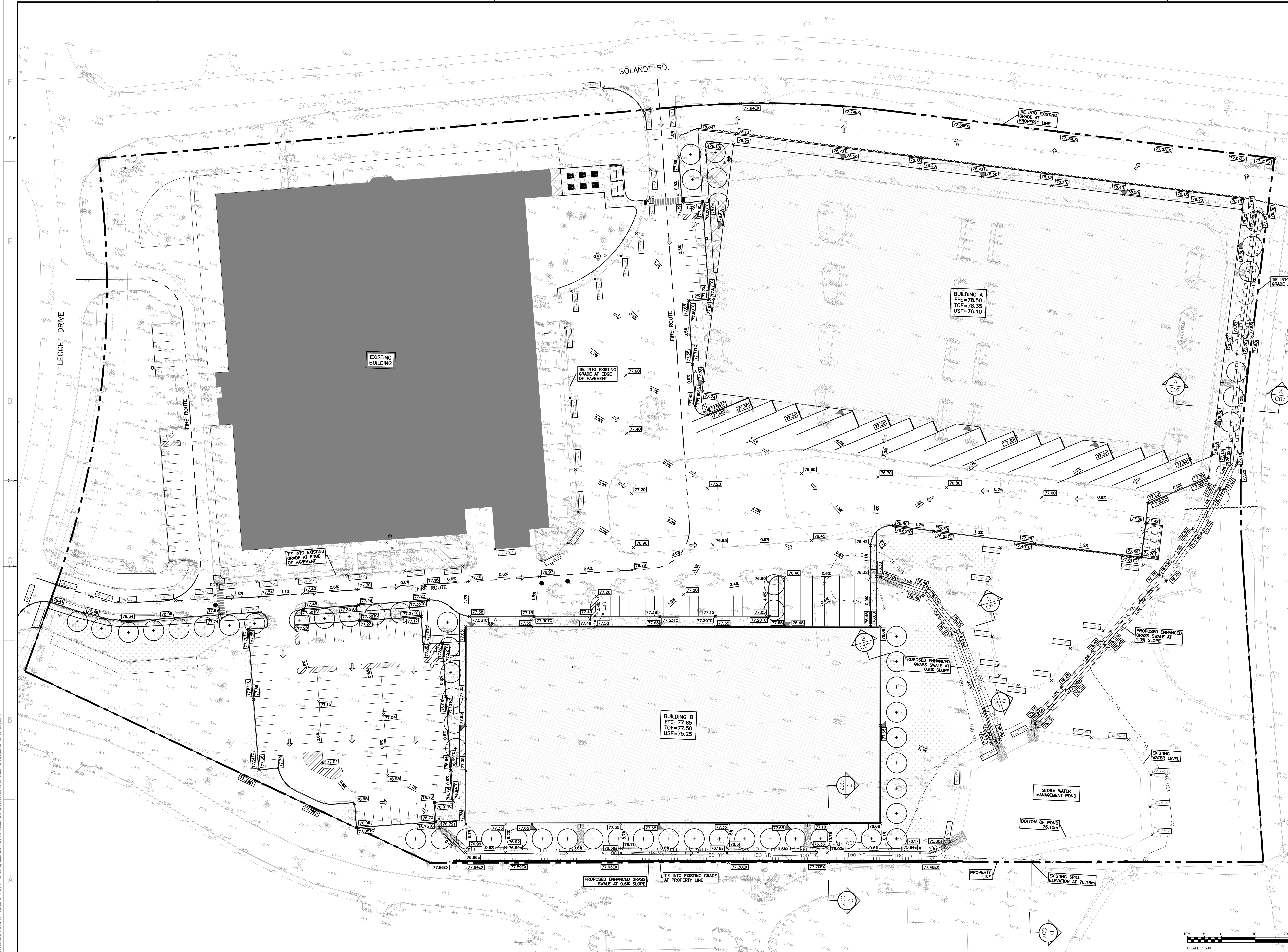

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CLIENT REF. #: --

PROJECT:

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ACCESS STORAGE

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DRAWN BY: J.T.
CHECKED BY: D.Y.

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GRADING PLAN

SHEET NUMBER: C03
SHEET #: 4 OF 8

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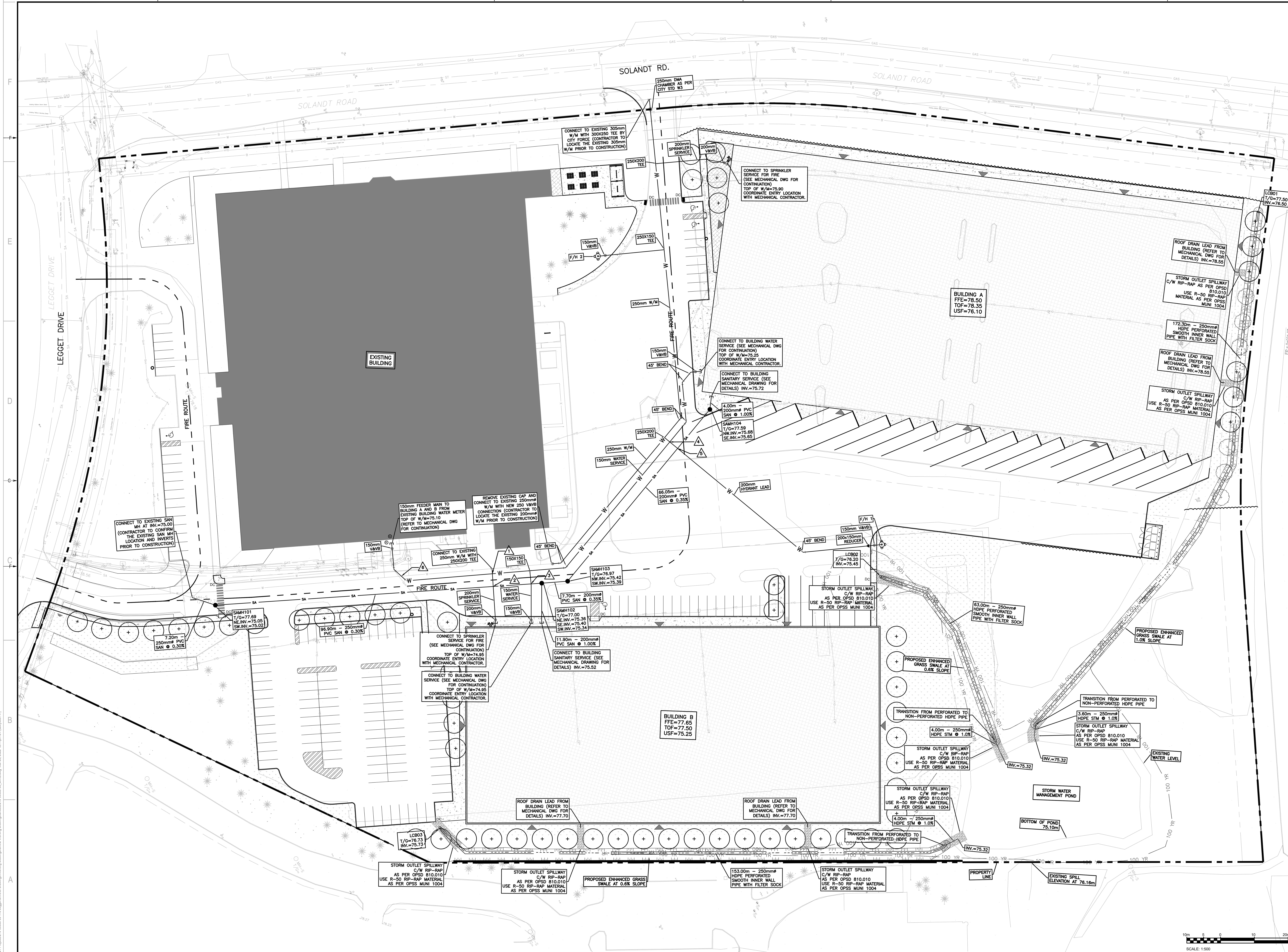

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KEY PLAN:

SITE

CLIENT:

ACCESS STORAGE

CLIENT REF. #: –

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TITLE:

SERVICING PLAN

SHEET NUMBER: C04
SHEET #: 5 OF 8

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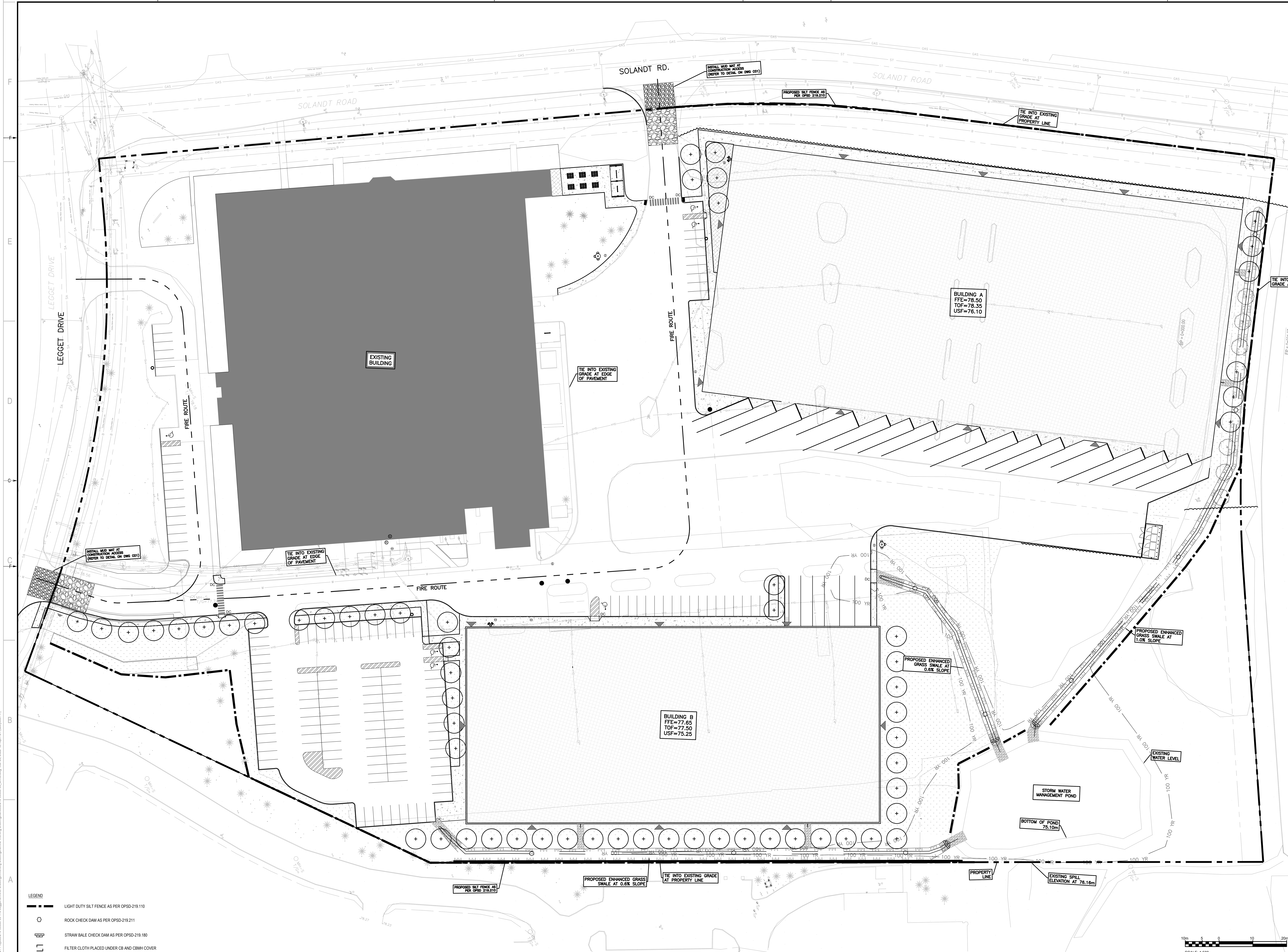

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TITLE:

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V:\10-13 ME 2021 Projects\219-00058-03 415 Legget Drive\3. Drawings\Working drawings\Civil\2 Working drawings

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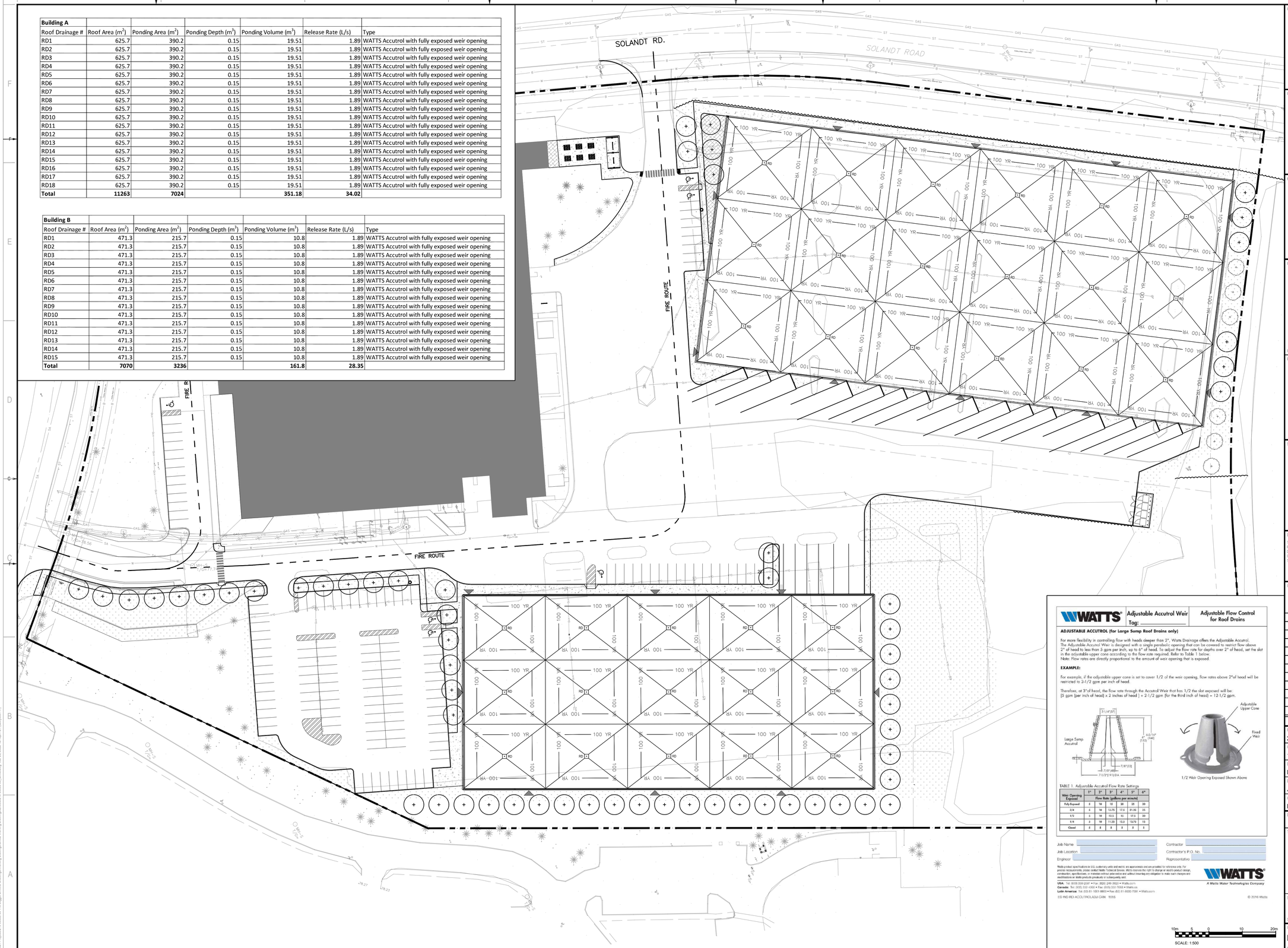

Building A						
Roof Drainage #	Roof Area (m^2)	Ponding Area (m^2)	Ponding Depth (m^3)	Ponding Volume (m^3)	Release Rate (L/s)	Type
RD1	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD2	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD3	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD4	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD5	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD6	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD7	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD8	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD9	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD10	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD11	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD12	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD13	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD14	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD15	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD16	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD17	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
RD18	625.7	390.2	0.15	19.51	1.89	WATTS Accutrol with fully exposed weir opening
Total	**11263**	**7024**		**351.18**	**34.02**	

Building B						
Roof Drainage #	Roof Area (m^2)	Ponding Area (m^2)	Ponding Depth (m^3)	Ponding Volume (m^3)	Release Rate (L/s)	Type
RD1	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD2	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD3	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD4	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD5	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD6	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD7	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD8	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD9	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD10	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD11	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD12	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD13	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD14	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
RD15	471.3	215.7	0.15	10.8	1.89	WATTS Accutrol with fully exposed weir opening
Total	**7070**	**3236**		**161.8**	**28.35**	

WATTS Adjustable Accutrol Weir
Tag: ____
Adjustable Flow Control for Roof Drains

ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

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

EXAMPLE:

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

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

1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

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

Job Name ____
Job Location ____
Engineer ____
Contractor ____
Contractor's P.O. No. ____
Representative ____

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ES-WD-RD-ACCUTROLADJ-CAN 1615

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10m 5 0 10 20m
SCALE: 1:500

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KEY PLAN:

CLIENT:
ACCESS STORAGE

CLIENT REF. #: --

PROJECT:
415 LEGGET DRIVE
ACCESS STORAGE

SEAL:
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100230568
2022-03-25

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DESIGNED BY: D.Y.
DRAWN BY: J.T.
CHECKED BY: D.Y.
IF THIS BAR IS NOT 1" LONG, ADJUST YOUR PLOTTING SCALE.
25mm
DISCIPLINE: CIVIL
TITLE: ROOF PLAN
SHEET NUMBER: C04
SHEET #: 7 OF 8
ISSUE: REVISED AS PER CITY COMMENTS
DATE OF: 2022/03/18
REV #: 0

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