



Clayton Subdivision

Functional Servicing Report

Project Location:

Part of Lot 16, Concession 11
Centre Wellington, Ontario

Prepared for:

Cachet Developments Inc.
2555 Meadowpine Boulevard, Unit 3
Mississauga, ON L5N 6C3

Prepared by:

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MTE File No.: 50250-100





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- Existing Conditions Plan (Elora Sands)
MTE Drawing No. 49878-100-EC1.1 Encl.
- Irvine Street Plan and Profile
MTE Drawing No. 50250-100-MS2.1 Encl.
- Woolwich Street East Plan and Profile
MTE Drawing No. 50250-100-MS3.1 Encl.
- Groundwater Separation Plan
MTE Drawing No. 50250-100-QU2.1 Encl.

1.0 Introduction

1.1 Overview

MTE Consultants Inc. (MTE) was retained by Cachet Developments Inc. (Cachet) to prepare the following Functional Servicing Report (FSR) in support of a Draft Plan of Subdivision application. The lands that comprise the Draft Plan of Subdivision are legally described as Part of Lot 16, Concession 11, in the geographic Township of Nichol, located in the community of Salem, Township of Centre Wellington, County of Wellington. These lands are herein referred to as the 'subject lands'. The subject lands are generally bounded by Woolwich Street East to the northwest, by Irvine Street to the southeast, by existing residential (Elora Meadows Subdivision and rural residential) to the south, and by Salem Public School to the west.

Cachet also owns the adjacent parcel of land on the opposite side of Irvine Street located at 7581 Sideroad 15 (SR15) herein referred to as the Elora Sands. The Elora Sands are generally bounded by SR15 to the northwest, by Gerrie Road to the southeast, by existing agricultural (known as the Keating Lands) to the south, by Irvine Street to the southwest, and bisected by the Nichol Drain No. 1 (ND1). At the completion of Phase 1 of the County of Wellington's (County) Municipal Comprehensive Review in 2022/2023, the Elora Sands (39.2ha) lands were included in the settlement area boundary. The Elora Sands are located within the Community Planning Study Area in accordance with the County of Wellington Official Plan. Refer to the Location Plan in **Figure 1.1**.

The subject lands comprise a total area of approximately 12.49ha. The proposed development plans for the subject lands include a residential subdivision with a mix of single detached, street-oriented and lane access townhouse units, a park block, walkway blocks, and municipal rights-of-way. Refer to the Draft Plan of Subdivision prepared by Malone Given Parsons Ltd. (MGP), dated June 13, 2023, in **Appendix A** for more details. The stormwater management facility (SWMF) block is proposed to be located on the adjacent Elora Sands adjacent to ND1 and is described further in **Section 6**. The development plans also include re-constructing Irvine Street, Woolwich Street East, and a portion of Sideroad 15 to an urbanized road cross-section with new road profiles. Irvine Street and Woolwich Street East would be urbanized along the frontage of the subject lands matching back into the existing grading.

The purpose of this Functional Servicing Report is to prepare a servicing strategy for the proposed subdivision which outlines how the subdivision can be developed on full municipal services, including sanitary sewage collection, domestic water, storm drainage, and utilities. This report should be read in conjunction with the *Clayton Subdivision – Preliminary Stormwater Management Report* (July 11, 2023) prepared by MTE.

1.2 Background Information

1.2.1 County of Wellington Official Plan

The County of Wellington underwent a Municipal Comprehensive Review of the County's Official Plan in 2022/2023. As shown within Schedule A-1 – Land Use Plan of the Official Plan, the subject lands are designated as residential, and are within the settlement area boundary.

At the completion of Phase 1 of the County's Municipal Comprehensive Review, the adjacent Elora Sands have been added to the settlement area through an Official Plan Amendment, approved by the Minister of Municipal Affairs and Housing. It is anticipated that the Elora Sands will be included in the Township of Centre Wellington's (Township) urban area through the future Official Plan review process.

1.2.2 Development Charges Background Study

In 2020, Watson & Associated Economists Ltd. were retained by the Township to prepare a Development Charges (DC) Background Study. The study was prepared to analyse and describe the required DC eligible servicing infrastructure required to accommodate future growth of the Township as described within the Official Plan. As per the study, the following infrastructure is DC eligible:

- Watermain extension on Irvine Street (between Bricker Avenue and Woolwich Street East)
- Watermain extension and road improvements on Woolwich Street East (between James Street and Irvine Street)
- Watermain and road improvements on Sideroad 15 (between Irvine Street and Gerrie Road)

1.2.3 Sanitary Servicing Overview

In January 2022, MTE completed a sanitary servicing overview of the subject lands and adjacent Elora Sands and the Keating lands. The technical memo dated January 26, 2022, was prepared to advocate that the Elora Sands and surrounding lands be brought within the settlement area. The memo proves sanitary serviceability, and documents any upgrades required within the existing sanitary infrastructure to accommodate the additional flows.

The sanitary servicing overview confirmed capacity for the Clayton Subdivision discharging to downstream sewers which have adequate capacity to receive sanitary sewage for this development outletting to sanitary manholes within the Elora Meadows development.

To accommodate future development and improvements to Irvine Street, the sanitary sewer within Irvine Street will be extended as part of the Irvine Street improvements.

TOWNSHIP OF CENTRE WELLINGTON



NICHOL DRAIN

SIDEROAD 15

ELORA SANDS

**SUBJECT
LANDS**

WOOLWICH ST E

IRVINE STREET

ELORA MEADOWS SUBDIVISION

BRIGKER AVENUE

GEDDES STREET


IRVINE CREEK

STUMPF STREET

FIGURE 1.1 Date: APR. 07/22
Scale: N.T.S.

**CLAYTON
SUBDIVISION**

LOCATION PLAN



Engineers, Scientists, Surveyors

Project No.: 50250-100

2.0 Existing Conditions

2.1 Topographical Information

The subject lands are generally comprised of rolling agricultural land. A topographical survey was completed for the subject lands by JD Barnes (formerly Black, Shoemaker, Robinson & Donaldson Limited (BSR&D)) in the Fall of 2021. Additional topographical survey surrounding the subject lands and the entire Elora Sands was conducted by MTE in 2022. The existing topography of the subject lands and the Elora Sands are shown in **MTE Drawings 50250-100-EC1.1 and 49878-100-EC1.1**, respectively.

Under existing conditions, the subject lands are moderately sloped throughout a majority of the subject lands (generally 1.0% to 14.5%). The southwest corner experiences a localized steep change in elevation towards the existing rural residential lots. Existing elevations range between 407.3m at the Irvine Street and Woolwich Street East intersection to 414.4m at the high ridge of the lands near the south corner.

The Elora Sands generally consist of moderately sloped topography with slopes typically ranging from 1.0% to 12.5%. Existing elevations within the lands range from approximately 400.8m in the ND1 to 420.5m at the north corner of the lands. The topographical ridge on the subject lands extends into the Elora Sands and Keating lands, generally parallel to the ND1.

2.2 Pre-Development Conditions

Under pre-development conditions, a majority of surface runoff from the subject lands flows from south to north towards the south ditch on Woolwich Street East. The ditch directs flows northeasterly across Irvine Street via a 450mm diameter culvert and through the south ditch on SR15 to ND1, which is a tributary of Irvine Creek. A topographical ridge is present near the south end of the property starting at Irvine Street and curving northwest to Woolwich Street East. Surface runoff from the balance of the subject lands flows generally in a southern direction towards Irvine Creek via several discharge locations, namely Woolwich Street East, existing rural residential properties to the southwest, and Irvine Street and the residential properties to the southeast, via the Queen Street Creek.

Surface runoff from a majority of the Elora Sands, south of ND1, flows northerly directly to ND1 or via the south ditch on SR15. Surface runoff from the balance of the lands south of ND1 flows southerly towards Irvine Street ultimately discharging into Irvine Creek via the Queen Street Creek. Surface runoff from the Elora Sands on the north side of ND1 will flow southerly directly to ND1.

2.3 Source Water Protection and GRCA Mapping

As illustrated in **Appendix B**, the subject lands are within a Wellhead Protection Area (WHPA) and a Significant Groundwater Recharge Area (SGRA) as defined by the Source Water Protection Plan Mapping. A majority of the lands have a WHPA classification of WHPA-C, while the southeastern portion of the lands has a classification of WHPA-B. The majority of the subject lands are within a wellhead vulnerability score of 6 with a small portion to the south having a vulnerability score of 8. There is an existing municipal drinking water supply well located on Aqua Street approximately 850m south of the subject lands.

The SGRA has a vulnerability score of 4, generally indicative of shallow groundwater flow towards Irvine Creek west of the subject lands.

3.0 Proposed Development

The Draft Plan of Subdivision for this residential development comprises the following:

- Residential (single family and townhouse) blocks;
- Park and walkway blocks;
- Municipal rights-of-way (18.0m and 20.0m); and
- Municipal laneway (10.0m width).

3.1 Municipal Right-of-Ways/Laneways

As shown on the Draft Plan, the proposed development is serviced by five local roads; to be connected to Irvine Street, and the existing Marr Drive in the neighbouring Elora Meadows Subdivision. The roadways will be constructed to an urban cross-section, including: asphalt pavement, concrete curb and gutters, concrete sidewalks, street illumination, and boulevard landscaping. A 10.0m wide municipal laneway access is proposed with only necessary services (sanitary and storm) provided and remaining services provided from Street B and Irvine Street.

Refer to **Appendix C** for more details regarding the proposed typical 18.0m and 20.0m right-of-way cross-sections based on the Township’s Draft Development Manual as well as the proposed 10.0m municipal laneway typical cross-section.

A geotechnical investigation for the subject lands was completed by Soil-Mat Engineers & Consultants Ltd. (Soil-Mat), dated October 14, 2021. A supplemental draft hydrogeological assessment was prepared by Soil-Mat, dated July 20, 2022. The proposed pavement structure outlined in these reports is summarized in **Table 3.1** below. The future final design will implement the construction requirements of the Soil-Mat reports.

Table 3.1 – Proposed Pavement Structure

Pavement Structure	Depth (mm)
HL3 Surface Course Asphalt	40
HL4 Binder Course Asphalt	60
Granular ‘A’ Base	150
Granular ‘B’ Sub-base	450

3.2 Irvine Street and Woolwich Street/Sideroad 15 Urbanization

As previously mentioned, urbanization of Woolwich Street East and Sideroad 15 to full urban cross-sections were contemplated within the DC Background Study.

With the urbanization of Irvine Street and Woolwich Street East/SR 15, the road profiles will be updated to meet the Township’s standards and specifications, as well as accommodate the proposed grading and stormwater management (SWM) strategy for the subject lands. The proposed upgrades for Irvine Street and Woolwich Street East/SR15 are illustrated on the plan and profile as shown on **MTE Drawings 50250-100-MS2.1** and **50250-100-MS3.1**, respectively. Irvine Street and SR 15 are being proposed to be upgraded to a full urban cross-section. However, it should be noted that due to existing grading constraints along the north property line, Woolwich Street East is proposed to be constructed to a modified urban cross-section with the north side allowing for transition grading back down to existing elevations. Refer to **Appendix C** for the proposed typical right-of-way cross-sections.

An overland flow block is proposed to provide access from Street A directly to Woolwich Street East functioning as the major storm overland flow route for the subject lands, ultimately directing flows along SR15 to the proposed SWMF.

4.0 Proposed Grading

4.1 Considerations

While developing the preliminary grading design of the subject lands, the following is a list of considerations which influenced and/or governed the conceptual design:

- Match centreline elevations of existing and proposed road grades;
- Match existing and proposed boundary grades around the perimeter of the subdivision lands;
- Ensure major storm event overland flows are directed towards the proposed SWMF;
- Comply with municipal standards for minimum and maximum road and landscaped area grades;
- Ensure adequate cover is provided, where feasible, over municipal services;
- Manage the cut/fill balance for the development; and,
- Maintain 0.45m from basement floor to seasonal high groundwater levels.

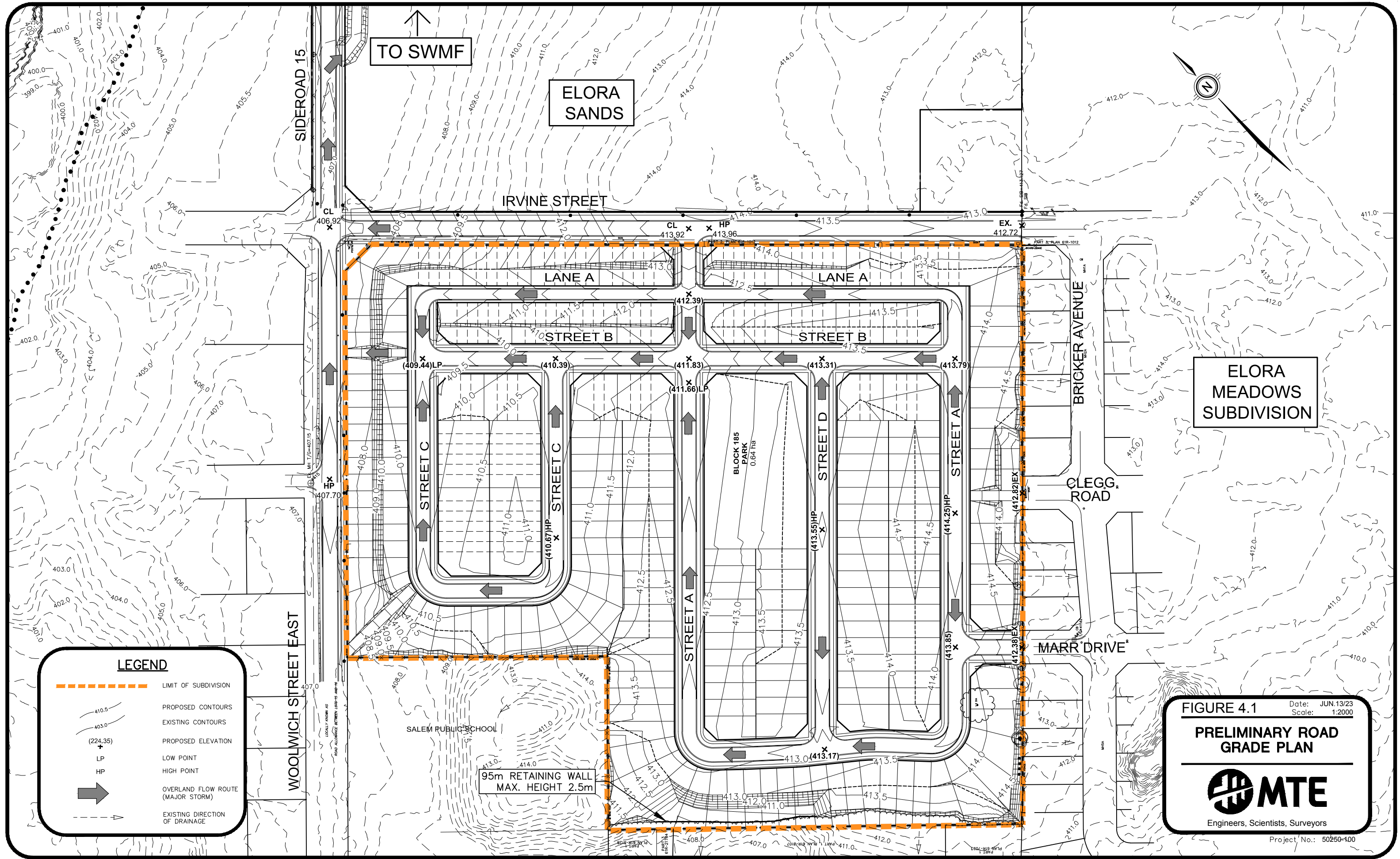
4.2 Lot Grading

Preliminary slopes for centreline of road ranging from 0.5% (minimum) to 4.5% (maximum) were used to complete the preliminary lot grading design. The other considerations listed above were incorporated into the overall preliminary grading design. Preliminary lot grades range from 2.0% (minimum) to 6.0% (maximum) with a combination of traditional back-to-front drainage, split drainage and walkout lots are proposed.

Preliminary finished grades are designed to optimize the earthmoving (cutting and filling) required for road and lot construction. The preliminary finished grade contours are shown in **Figure 4.1**.

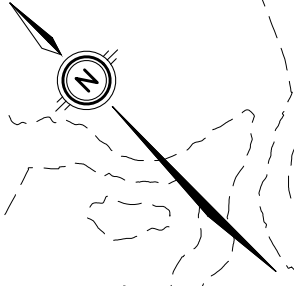
4.3 Groundwater Separation

The seasonal high groundwater surface was modelled based on Soil-Mat's hydrogeological assessment. The preliminary house grades and basement floor elevations were designed to maintain a minimum vertical separation of 0.45m above the seasonal high groundwater elevations. The groundwater separation is illustrated in **MTE Drawing 50250-100-QU2.1**. The contours provided indicate that groundwater is generally found at an elevation ranging between 404.0m and 411.0m. Grading around buildings generally range from 408.0m to 414.5m. Basement floor elevations were assumed to be 2.2m below front of house grade with some walkouts having basement floor elevations 2.5m below the front house grade. The development maintained a separation between the basement floor and seasonal high groundwater of 0.45m and greater.



↑ TO SWMF

ELORA SANDS



ELORA MEADOWS SUBDIVISION

95m RETAINING WALL
MAX. HEIGHT 2.5m

LEGEND

- LIMIT OF SUBDIVISION
- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPOSED ELEVATION
- LOW POINT
- HIGH POINT
- OVERLAND FLOW ROUTE (MAJOR STORM)
- EXISTING DIRECTION OF DRAINAGE

FIGURE 4.1 Date: JUN.13/23
Scale: 1:2000

PRELIMINARY ROAD GRADE PLAN

Engineers, Scientists, Surveyors

Project No.: 50250-100

5.0 Municipal Servicing

5.1 Sanitary Servicing

The subject lands will be serviced by a 200mm diameter deep (>5m) trunk sanitary sewer with 200mm diameter local (>2.5m and <5m) sanitary sewer branches outletting to the existing sanitary sewer at Marr Drive.

Figure 5.1 illustrates a schematic of the sanitary sewer design, including proposed finished road grades and cover over sewers at key points in the sewer network. The cover of these sewers ranges from approximately 2.5m to 9.2m. The deepest point is located near the intersection of Street A and Marr Drive.

The preliminary Sanitary Sewer Design Sheet has been prepared with pipe diameters and slopes for the proposed conditions. The design sheet and the corresponding drainage area plan are included in **Appendix D**.

It should be noted that the main trunk sanitary sewer within the subject lands is proposed at a slope of 0.40% in order to maintain adequate serviceability at the low point of the subject lands while still allowing a positive outlet at the existing sanitary stub. This sanitary design ensures adequate flow velocities (minimum velocity of 0.6m/s) under the Ministry of the Environment, Conservation and Parks (MECP, formerly MOE) design standards and requires approval from the Township of Centre Wellington Managing Director of Infrastructure Services as outlined in Township's standards.

The sanitary sewer at the upstream end will have a depth slightly less than the minimum required depth of 2.8m as per the Township's standards. As a result, some units along Street C and Lane A will have specified minimum basement floor elevations to allow for adequate sanitary drainage.

As per the recommendations in Soil-Mat's hydrogeological assessment, any municipal infrastructure specifically the sanitary sewers located within groundwater will incorporate appropriate groundwater cut-off collars.

5.2 Water Distribution

The subject lands are located within the community of Salem/Elora, adjacent to several existing residential subdivisions and right-of-ways with available domestic water supply.

The existing 300mm watermain on Irvine Street is proposed to be extended from the existing stub near Bricker Avenue to SR15 / Woolwich Street East and then west on Woolwich Street East up to the limits of the subject lands. This watermain extension is anticipated to be required for adequate looping of the development and will be completed as a part of the subdivision servicing. Per the DC Background Study, this watermain extension project should be DC eligible. The anticipated timing for the Irvine Street and Woolwich Street East watermains, per the DC Background Study, is 2029 and 2028, respectively. Discussion with the Township to advance these projects is warranted at this time. It should be noted that the watermain extension on Woolwich Street East (as contemplated in the DC Study) extends beyond the limits of the subject lands up to James Street.

To confirm that adequate pressure and flow demands can be satisfactorily met for the subject lands, a water distribution analysis will be completed by the Township's Engineer. The analysis will confirm the preliminary pipe sizes for the internal water distribution network which is generally 'looped' following the proposed road allowances as shown in **Figure 5.2**.

Based on the Township Engineer's analysis, the following conclusions will be confirmed:

- Connections to the existing and proposed municipal watermains (listed above) will adequately service the proposed water distribution network for the proposed development;
- The proposed water distribution network will provide system pressures within the respective pressure guidelines;
- For which lots (if any) pressure reducing valves (PRVs) will be required;
- Under the proposed development conditions, the recommended Fire Underwriters Survey (FUS) fire flows are satisfied at the minimum MOE pressure requirement of 140kPa; and,
- Velocities in the proposed network do not exceed 5.0m/s.

Water supply for the proposed development will be provided by three (3) external connections to the existing municipal water distribution system as follows:

- Connect 150mm watermain to the existing 150mm watermain stub on Marr Drive.
- Connect 200mm watermain to the proposed 300mm watermain extension on Irvine Street.
- Connect 200mm watermain to the proposed 300mm watermain extension on Woolwich Street East.

5.3 Storm Drainage

Storm drainage for the subject lands will be provided through a combination of minor (storm sewer) and major (overland flow) drainage systems. The storm drainage catchment areas within the subject lands are conveyed via storm sewers along Woolwich Street East and SR15, to the proposed SWMF located within the Elora Sands.

A majority of the onsite drainage will be collected via a storm sewer network, ranging in size from 300mm diameter to 1090x1725mm horizontal elliptical. Storm sewers draining into the SWMF are sized to convey runoff for a 5-year storm event utilizing the IDF curve parameters derived from the Fergus Shand Dam data (as required by the Township). Roof areas for most units, except for the municipal laneway units, will be directed to lot-level stone infiltration galleries to infiltrate the 25mm storm event. Storm sewers will be constructed to typical depths with a minimum cover of 1.5m within the road allowance. Larger storm sewers along SR15 will be constructed with the minimum cover of 1.5m to the springline. Please refer to **Figure 5.3** for the storm sewer network internal to the subdivision and outlet to the SWMF.

The major overland flow route from the subject lands will be directed to Woolwich Street East and SR15 and eventually onto the Elora Sands through a designed open channel into the SWMF. The road profile of SR15 is proposed to be re-constructed to accommodate a low point east of Irvine Street where overland flow will be re-directed onto the Elora Sands transitioning into a 6m wide vegetated flat-bottomed channel designed to convey the 100-year storm event flows with a maximum flow depth of 0.5m.

These conveyance systems will outlet into the proposed forebay within the SWMF at one location. The SWMF outlets into a control manhole sized to convey events up to and including the Regional Storm event. Flows within the control manhole are split into an end-of-pipe infiltration gallery sized to attenuate the 25mm storm event. The remaining flows in excess of the 25mm storm event are conveyed over a series of internal control weirs that outlet towards the ND1 adjacent to the SWMF. The outflow from the SWMF will be conveyed to the ND1 via a

750mm diameter storm sewer discharging on the downstream side of SR15. The ND1 is a cold-water tributary downstream of the Elora Sands which ultimately drains to Irvine Creek, which is a tributary of the Grand River. Irvine Creek and the Grand River are also cold-water fisheries.

Refer to **Appendix E** for more information regarding the preliminary proposed storm sewer system.

5.4 Irvine Street and Woolwich Street East Servicing

Irvine Street and Woolwich Street East are to be urbanized to a full urban cross-section with modifications to the vertical alignments to meet current Township's standards as illustrated on **MTE Drawings 50250-100-MS2.1 and 50250-100-MS3.1**.

In addition to these improvements, the existing sanitary sewer stub on Irvine Street is to be extended as described within the sanitary servicing overview technical memo making provision for the future development of the Elora Sands. Although not required to service the subject lands, it is proposed to extend the existing sanitary trunk sewer on Irvine Street from Bricker Avenue to the Street A / Irvine Street intersection to avoid unnecessary future re-construction.

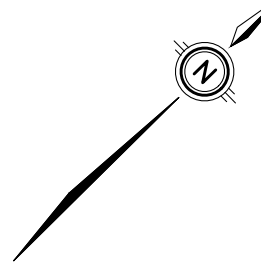
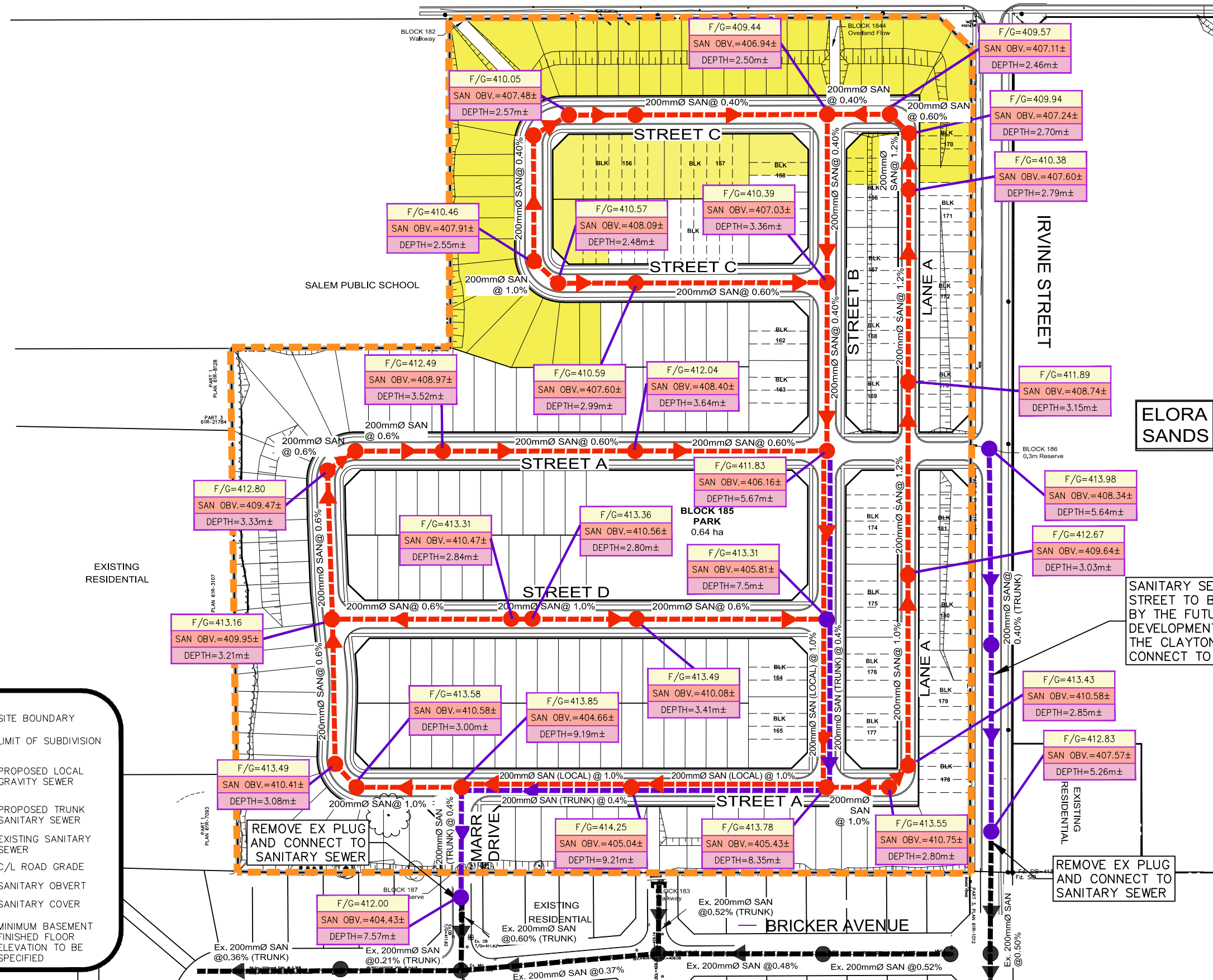
Similarly, the 300mm diameter watermain along Irvine Street would also be constructed from Bricker Avenue to SR15 / Woolwich Street East and extended west on Woolwich Street East to the limits of the subject lands to avoid unnecessary future re-construction.

Irvine Street and Woolwich Street East will be suited with a new storm sewer system to collect storm drainage. This storm sewer system will also convey drainage from the proposed development to the Irvine Street / SR15 intersection and eastward down SR15 and ultimately outletting to the proposed SWMF. The SWMF provides enhanced water quality protection and peak flow attenuation prior to discharging to ND1.

WOOLWICH STREET EAST

EXISTING RESIDENTIAL

SIDEROAD 15



ELORA SANDS

SANITARY SEWER ON IRVINE STREET TO BE EXTENDED FOR USE BY THE FUTURE ELORA SANDS DEVELOPMENT. NO UNITS FROM THE CLAYTON SUBDIVISION WILL CONNECT TO IRVINE STREET.

REMOVE EX PLUG AND CONNECT TO SANITARY SEWER

LEGEND

- SITE BOUNDARY
- - - - - LIMIT OF SUBDIVISION
- - - - - PROPOSED LOCAL GRAVITY SEWER
- - - - - PROPOSED TRUNK SANITARY SEWER
- - - - - EXISTING SANITARY SEWER
- C/L ROAD GRADE
- SANITARY OBVERT
- SANITARY COVER
- MINIMUM BASEMENT FINISHED FLOOR ELEVATION TO BE SPECIFIED

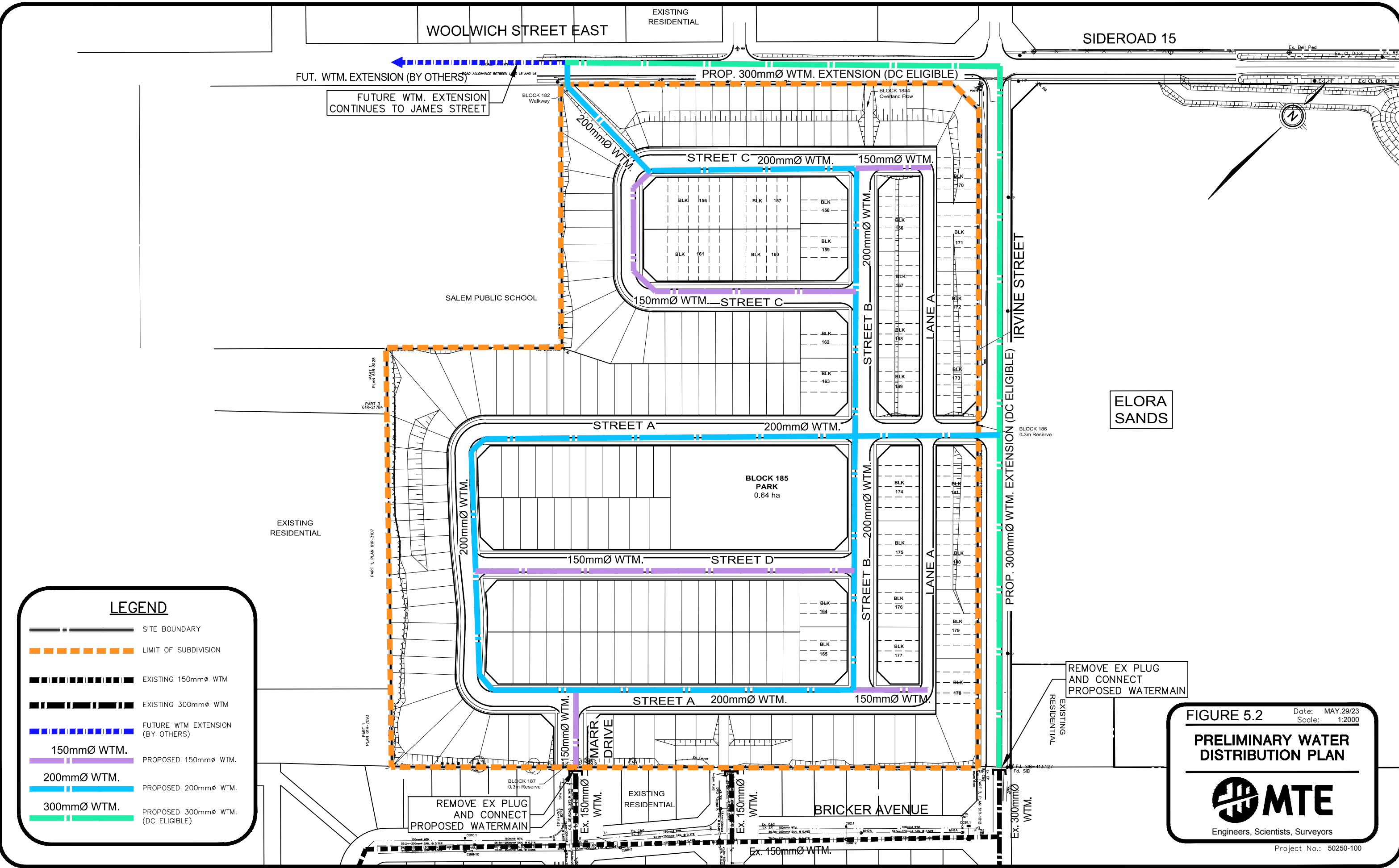
F/G=224.47
 SAN OB.V.=221.80±
 DEPTH=2.67m±

FIGURE 5.1 Date: APR.07/22
Scale: 1:2000

PRELIMINARY SANITARY SERVICING PLAN

MTE
Engineers, Scientists, Surveyors

Project No.: 50250-100



LEGEND

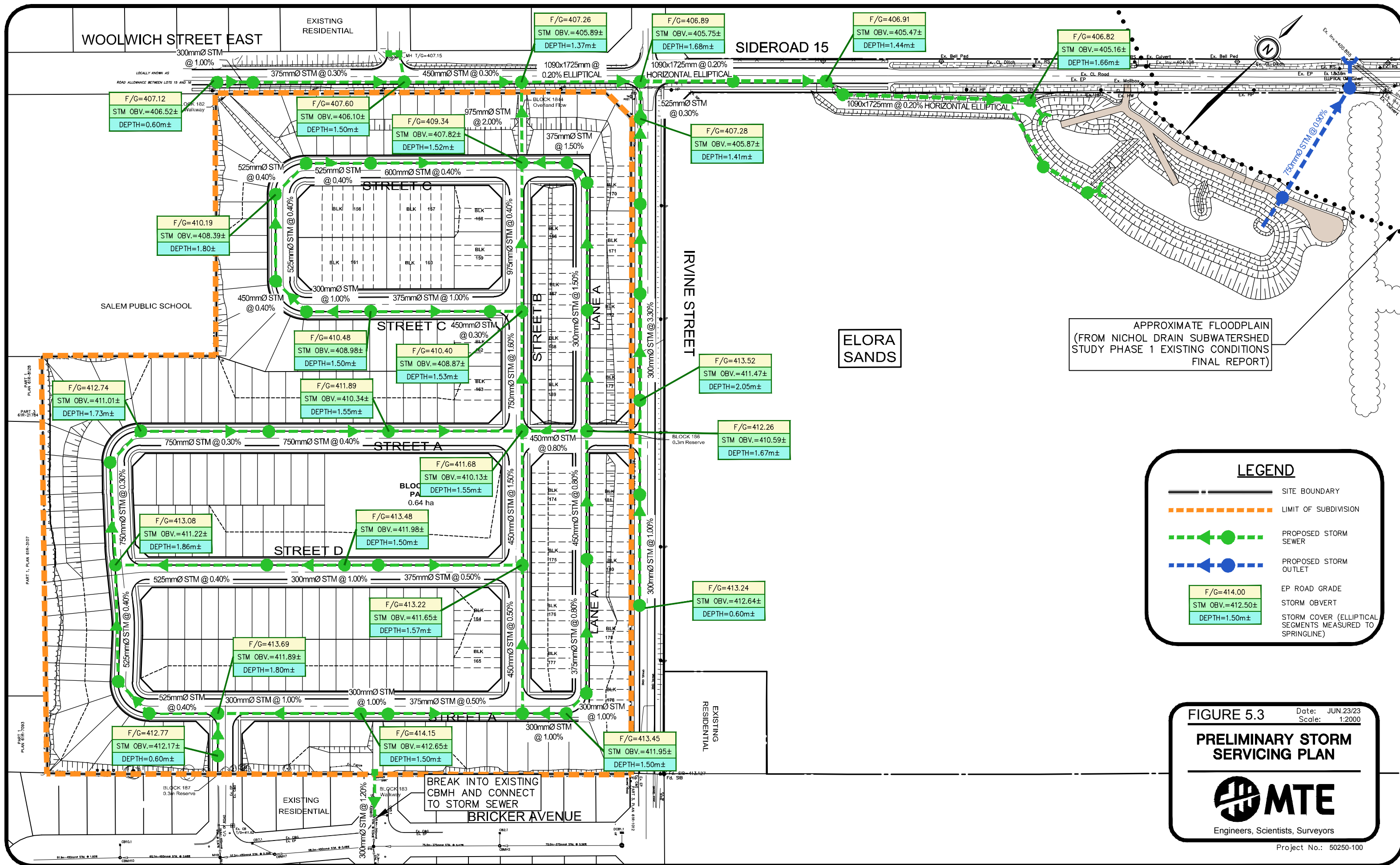
- SITE BOUNDARY
- - - - - LIMIT OF SUBDIVISION
- - - - - EXISTING 150mmØ WTM
- EXISTING 300mmØ WTM
- FUTURE WTM. EXTENSION (BY OTHERS)
- 150mmØ WTM. PROPOSED 150mmØ WTM.
- 200mmØ WTM. PROPOSED 200mmØ WTM.
- 300mmØ WTM. PROPOSED 300mmØ WTM. (DC ELIGIBLE)

FIGURE 5.2 Date: MAY.29/23
Scale: 1:2000

PRELIMINARY WATER DISTRIBUTION PLAN

MTE
Engineers, Scientists, Surveyors

Project No.: 50250-100



6.0 Stormwater Management

The proposed SWM strategy includes water quality, quantity, and erosion control within a proposed SWMF located on the adjacent Elora Sands. The SWM strategy for the proposed development is presented in the *Clayton Subdivision – Preliminary Stormwater Management Report* (July 11, 2023) prepared by MTE. The following summarizes the key points of the report:

- Water quality and quantity control will be provided within one (wet pond) SWMF. The proposed facility will provide peak flow attenuation of runoff from the contributing drainage area for storm events up to and including the 100-year storm event;
- Conveyance of Regional storm flows through the SWMF;
- Enhanced (previously Level 1) water quality control will be provided in the proposed SWMF; and
- Erosion protection within the ND1 is provided through the infiltration of post-development flows for the 25mm storm event.

Storm drainage for the proposed development will be provided through a combination of minor (storm sewer) and major (overland) drainage systems. The storm sewers will be designed for the 5-year storm event, with major overland flow routes generally flowing through the proposed road allowance and drainage channels.

7.0 Utility Servicing

It is anticipated that Hydro One (electrical), Bell Canada (telephone), Enbridge (natural gas), and Rogers Cable, Cogeco, and Wightman (cable TV) can all adequately service the proposed development through the connection to and extension of existing services from Irvine Street and the adjacent Elora Meadows subdivision, where required.

8.0 Conclusions and Recommendations

The main findings of the FSR for the proposed Clayton Subdivision are:

1. The roadworks and lot grading within the proposed development can generally be completed in accordance with the Township's standards while maintaining the minimum cover over the proposed sewers.
2. The proposed development can be adequately serviced for sanitary sewage through the existing Marr Drive sanitary sewer. The main trunk sewer within the subject lands is proposed at 0.40% which is within the MOE guidelines and requires approval from the Township of Centre Wellington Managing Director of Infrastructure Services as outlined in Township's standards.
3. A number of connection points to the existing and proposed municipal watermain system are available to provide water supply for the proposed development. The Township is to confirm whether adequate pressure and flow is available and the sizing of proposed internal water distribution network. It is being proposed that the existing watermain on Irvine Street will be extended to Woolwich Street East and then west to the limits of the subject lands to provide looping for the development.
4. Irvine Street and Woolwich Street East and a portion of Sideroad 15 are to be re-constructed with an urban cross-section and revised road profiles in accordance with the Township's standards. Municipal infrastructure required for the current and future development including sanitary sewers, watermains and storm sewers are proposed to be installed as part of the re-construction of these streets.
5. Stormwater management for the development achieves an enhanced level of water quality control, quantity control to pre-development levels and erosion protection through implementation of the proposed SWMF and infiltration facilities, as outlined in the *Clayton Subdivision - Preliminary Stormwater Management Report*, dated July 11, 2023.
6. The proposed development can be adequately serviced through the extension of existing utilities including hydro, gas, cable TV, and telephone.

All of which is respectfully submitted,
MTE Consultants Inc.



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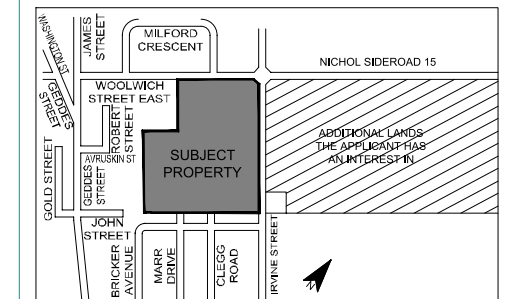
Appendix A

Draft Plan of Subdivision (Reduced)

DRAFT PLAN OF SUBDIVISION

Part of Lot 16,
Concession 11
Township of Centre Wellington
Country of Wellington

KEY PLAN



■ SUBJECT PROPERTY

SCHEDULE OF LAND USE

LOT/BLOCK	LAND USE	UNITS	AREA (ha)
1-155	Single Detached Min. 12.2m	o	26
	Single Detached Min. 10.0m	+	129
156-165	Townhouses Min. 6.1m Street Access	x	47
166-181	Townhouses Min. 6.22m Lane Access	=	84
182-183	Vista / Walkways		0.05
184	Overland Flow		0.02
185	Park		0.64
186-187	0.3m Reserves		0.00
Marr Dr.	20.0m Road in m	31	0.06
ST. A-D	18.0m Road in m	1,396	2.94
Lane A	10.0m Lane in m	282	0.28
TOTAL		1,709	12.49

OWNER'S AUTHORIZATION

I hereby authorize Malone Given Parsons Ltd. to prepare and submit this Draft Plan of Subdivision to the Township of Centre Wellington.

CACHET DEVELOPMENTS (ELORA) INC. _____ Date

SURVEYOR'S CERTIFICATE

I hereby certify that the boundaries of the lands to be subdivided as shown on this Plan and their relationship to the adjacent lands are accurately and correctly shown.

RAY SIBTHORP, O.L.S. _____ Date
J.D. BARNES LTD.

ADDITIONAL INFORMATION

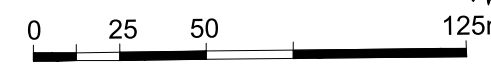
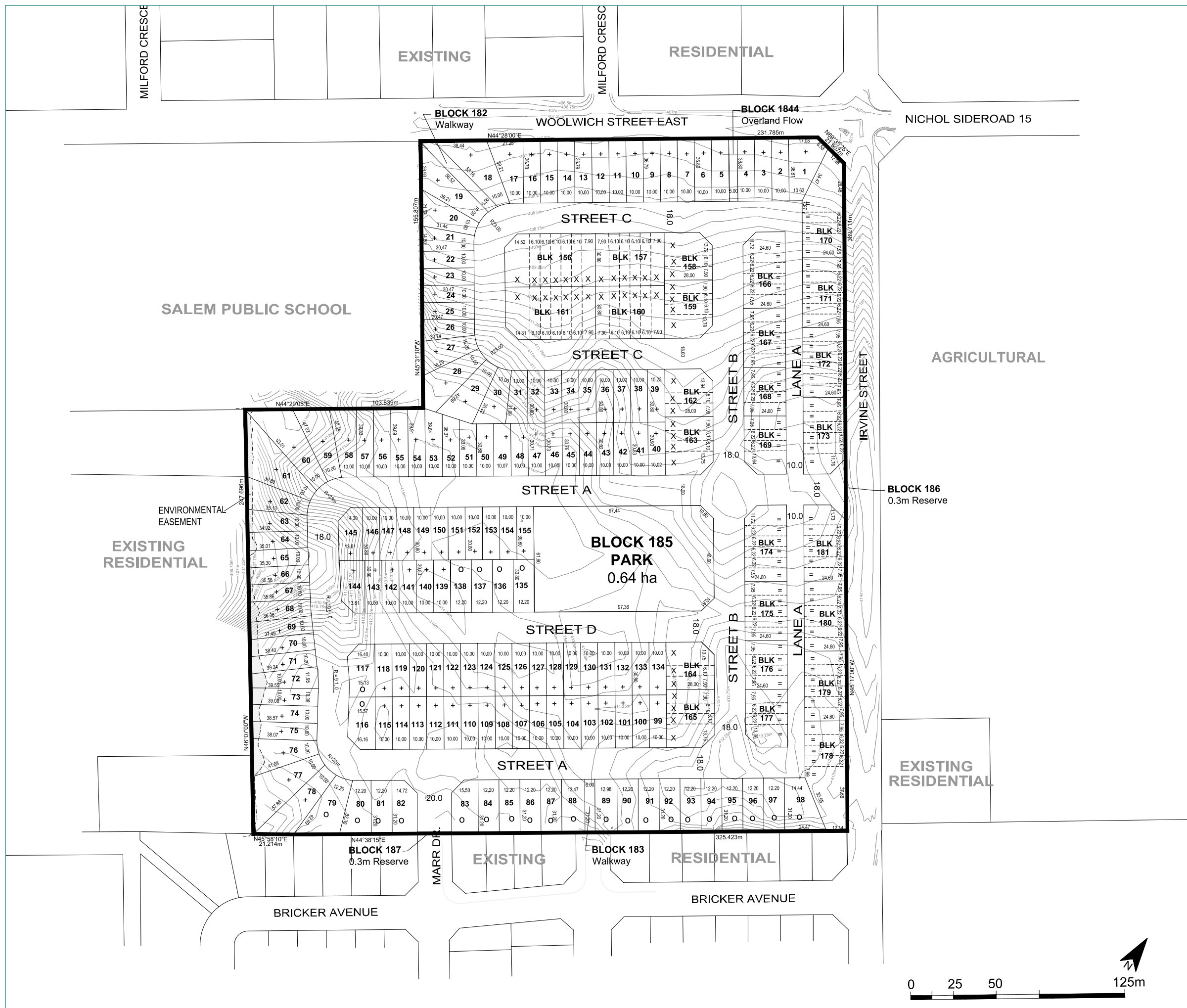
AS REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT, CHAPTER P.13(R.S.O. 1990).

- (a),(e),(f),(g),(j),(l) - As shown of the Draft Plan.
- (b),(c) - As shown on the Draft and Key Plan.
- (d) - Land to be used in accordance with the Schedule of Land Use.
- (i) - Soil is silt and clay loam.
- (h),(k) - Full municipal services to be provided.

Prepared For:
CACHET DEVELOPMENTS (ELORA) INC.

MGP File No.: 22-3192
Date: June 13, 2023

Date	Reason	By



Appendix B

Source Water Protection Plan Mapping (GRCA)



Legend

Lake Erie Shoreline Reach (GRCA)

Lake Erie Flood (GRCA)

Regulated Watercourse (GRCA)

Parcel - Assessment Public (MPAC/MNRF)

SGRA Vulnerability (GRCA)

6

4

2

Floodplain - Special Policy Area (GRCA)

Floodplain (GRCA)

Engineered

Estimated

Approximate

Lake Erie Erosion (GRCA)

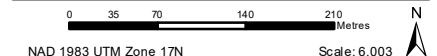
Lake Erie Dynamic Beach (GRCA)

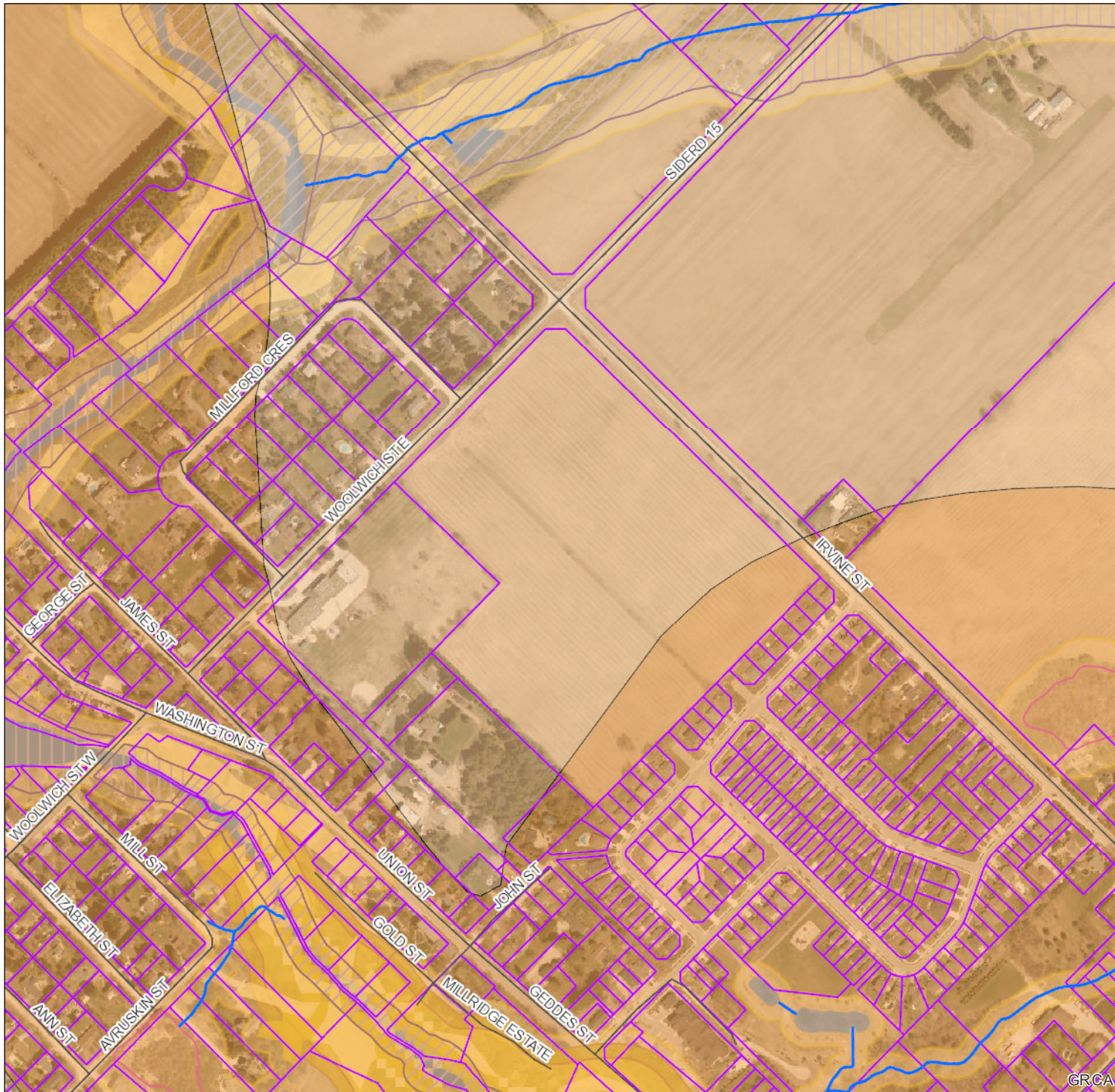
Wetland (GRCA)

Slope Valley (GRCA)

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The source for each data layer is shown in parentheses in the map legend. For a complete listing of sources and citations go to: https://maps.grandriver.ca/Sources-and-Citations.pdf





Legend

Lake Erie Shoreline Reach (GRCA)

Lake Erie Flood (GRCA)

Regulated Watercourse (GRCA)

Parcel - Assessment Public (MPAC/MNRF)

WHPA-Wellhead Protection Area (GRCA)

WHPA-A

WHPA-B

WHPA-C

WHPA-D

Floodplain - Special Policy Area (GRCA)

Floodplain (GRCA)

Engineered

Estimated

Approximate

Lake Erie Erosion (GRCA)

Lake Erie Dynamic Beach (GRCA)

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The source for each data layer is shown in parentheses in the map legend. For a complete listing of sources and citations go to: <https://maps.grandriver.ca/Sources-and-Citations.pdf>



Clayton - WHPA Vulnerability



Legend

- Municipal Well (GRCA)
- Regulated Watercourse (GRCA)

Parcel - Assessment Public (MPAC/MNRF)

WHPA Vulnerability (GRCA)

- 10
- 8
- 6
- 4
- 2

Floodplain - Special Policy Area (GRCA)

Floodplain (GRCA)

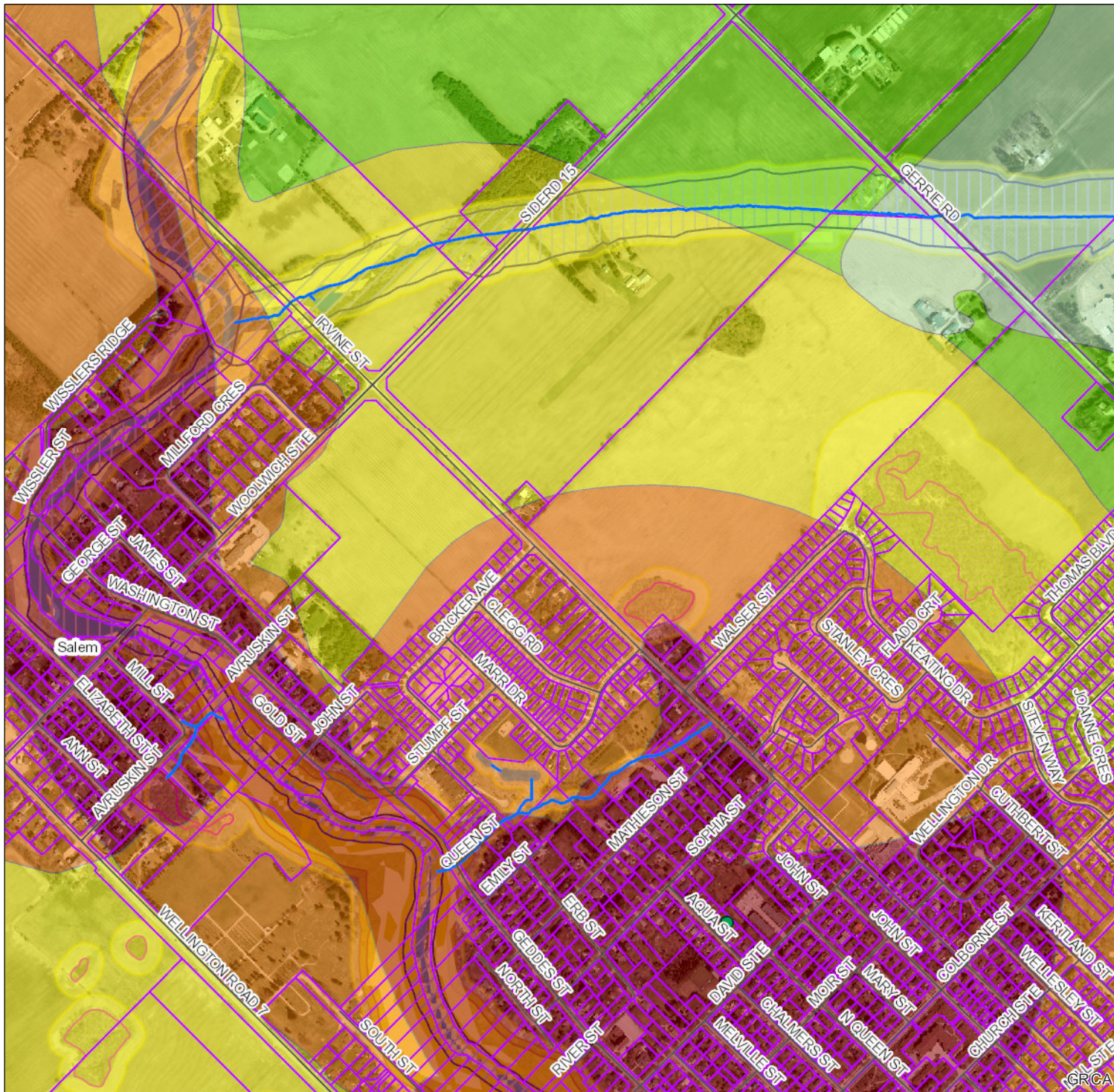
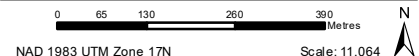
- Engineered
- Estimated
- Approximate

Wetland (GRCA)

Slope Valley (GRCA)

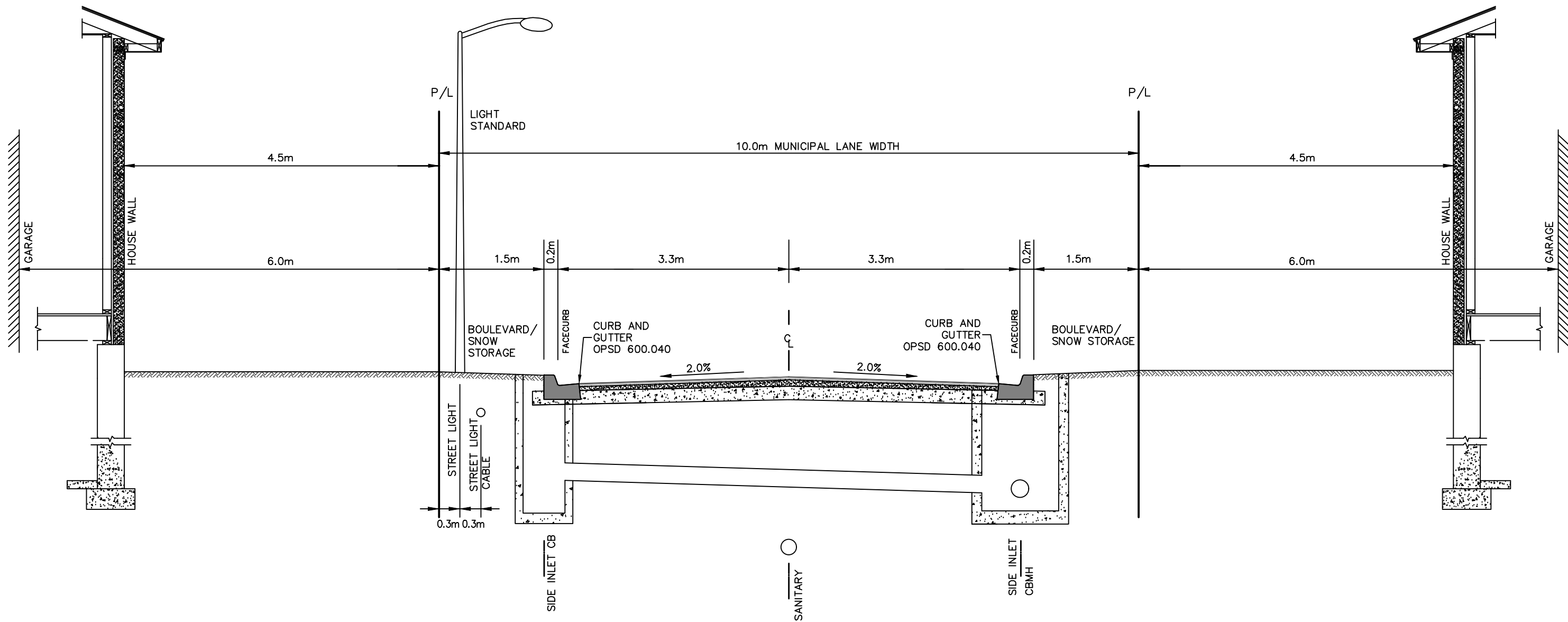
Steep

Copyright Grand River Conservation Authority, 2022.
Disclaimer: This map is for illustrative purposes only. Information contained herein is not a substitute for professional review or a site survey and is subject to change without notice. The Grand River Conservation Authority takes no responsibility for, nor guarantees, the accuracy of the information contained on this map. Any interpretations or conclusions drawn from this map are the sole responsibility of the user.
The source for each data layer is shown in parentheses in the map legend. For a complete listing of sources and citations go to: <https://maps.grandriver.ca/Sources-and-Citations.pdf>



Appendix C

Urban Right-of-Way Typical Cross-Sections



NOTE:
 ALL OTHER UTILITIES/SERVICES
 TO BE PROVIDED FROM STREET
 AT FRONT OF HOUSE

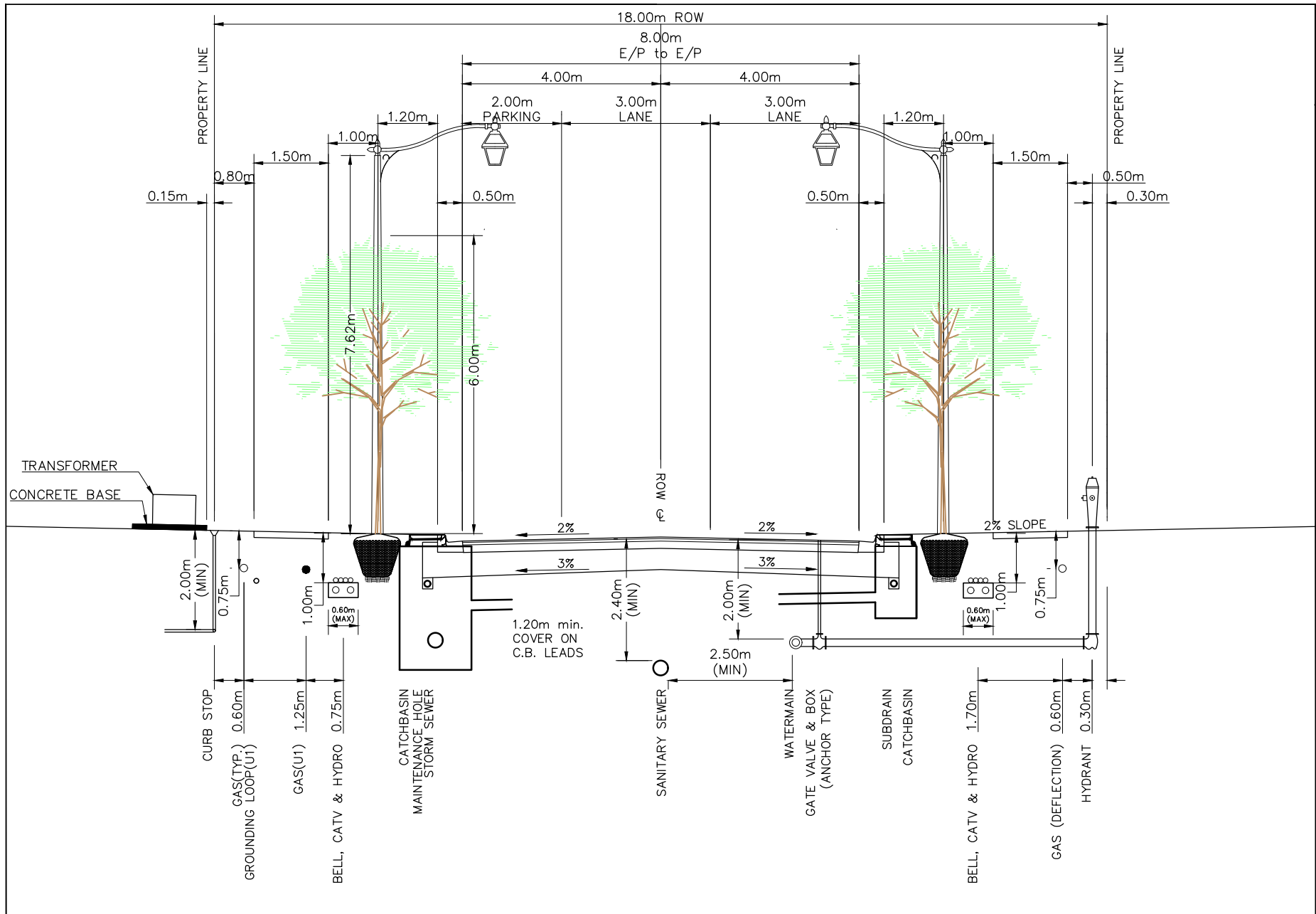
**PROPOSED 10.0m WIDE MUNICIPAL
 LANEWAY TYPICAL CROSS-SECTION**
 N.T.S.

FIGURE 1 Date: MAY.19/23
 Scale: N.T.S.

**CLAYTON SUBDIVISION
 LANEWAY
 CROSS-SECTION**

MTE
 Engineers, Scientists, Surveyors

Project No.: 50250-100



- Note:
1. TRANSFORMER TO BE PLACED AS PER TWSP STANDARD U1.
 2. STREET LIGHT AND SIDEWALK REQUIRED ON ONE SIDE ONLY.
 3. TREE PLANTING ON BOTH SIDES

No	DATE	REVISION
1	AUG 2017	FOR CIRCULATION
1	JULY 2017	DRAFT FOR REVIEW

**LOCAL STREET - 18m ROW
STANDARD CROSS SECTION**

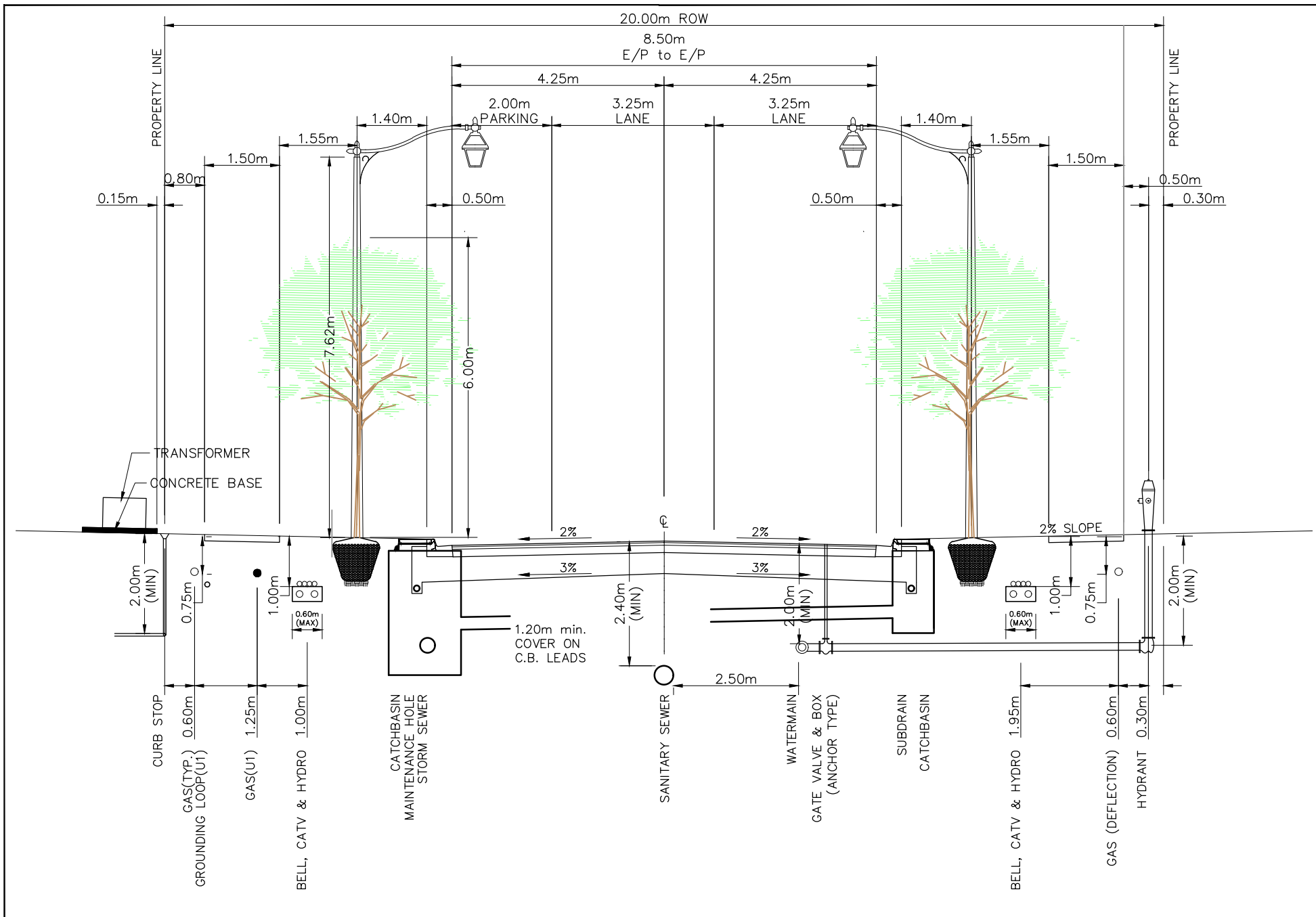
**TOWNSHIP OF CENTRE
WELLINGTON**

1 MACDONALD SQUARE
ELORA, ONTARIO N0B 1S0



SCALE
1:100

STANDARD NUMBER
R5(1)



- Note:
1. TRANSFORMER TO BE PLACED AS PER TWSP STANDARD U1.
 2. TREE PLANTING ON BOTH SIDES
 3. SIDEWALK ON BOTH SIDES

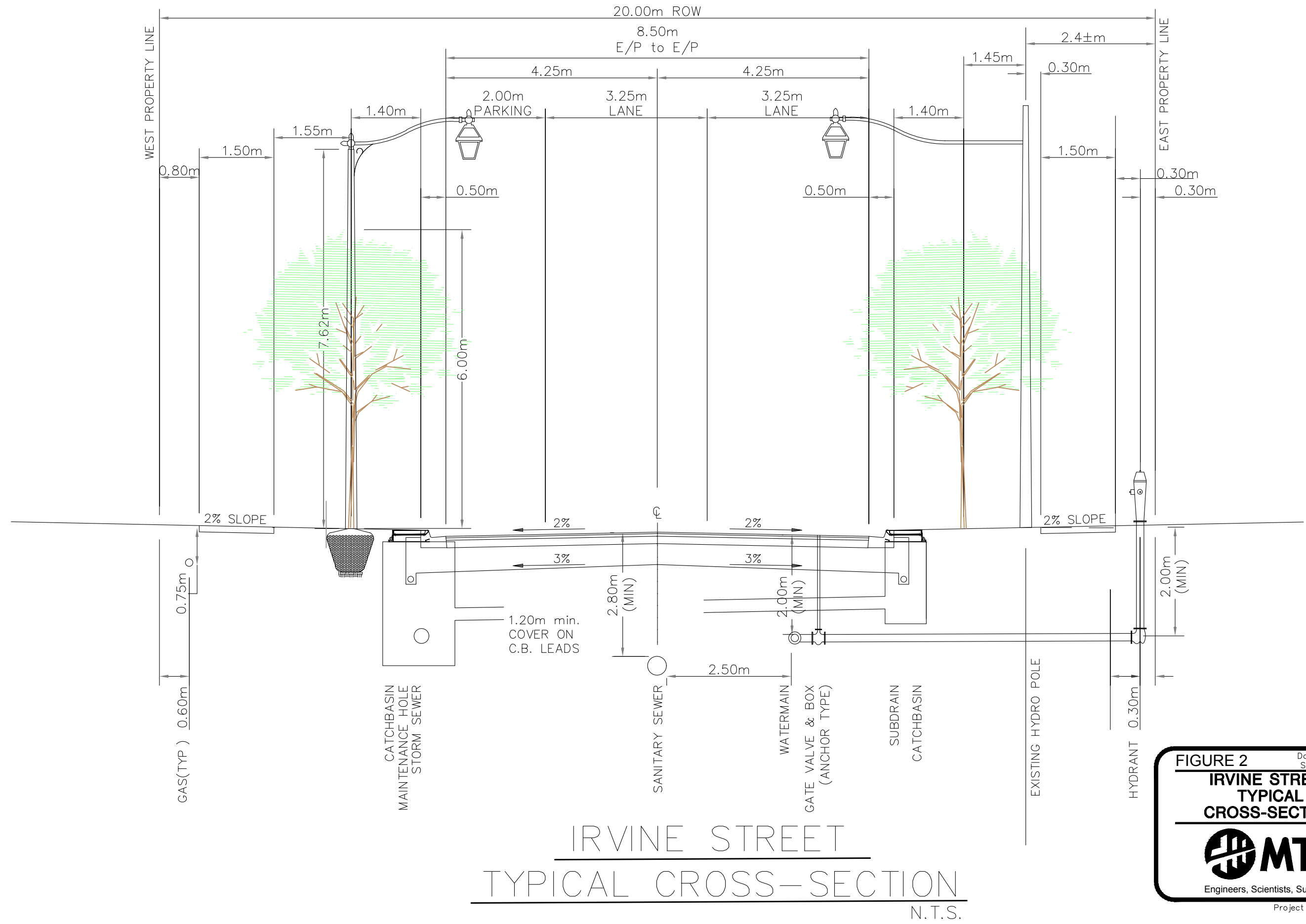
No	DATE	REVISION
1	AUG 2017	FOR CIRCULATION
1	JULY 2017	DRAFT FOR REVIEW

**MINOR COLLECTOR - 20m ROW
STANDARD CROSS SECTION**

**TOWNSHIP OF CENTRE
WELLINGTON**
1 MACDONALD SQUARE
ELORA, ONTARIO N0B 1S0




SCALE
1:100
STANDARD NUMBER
R1(1)



IRVINE STREET
TYPICAL CROSS-SECTION
N.T.S.

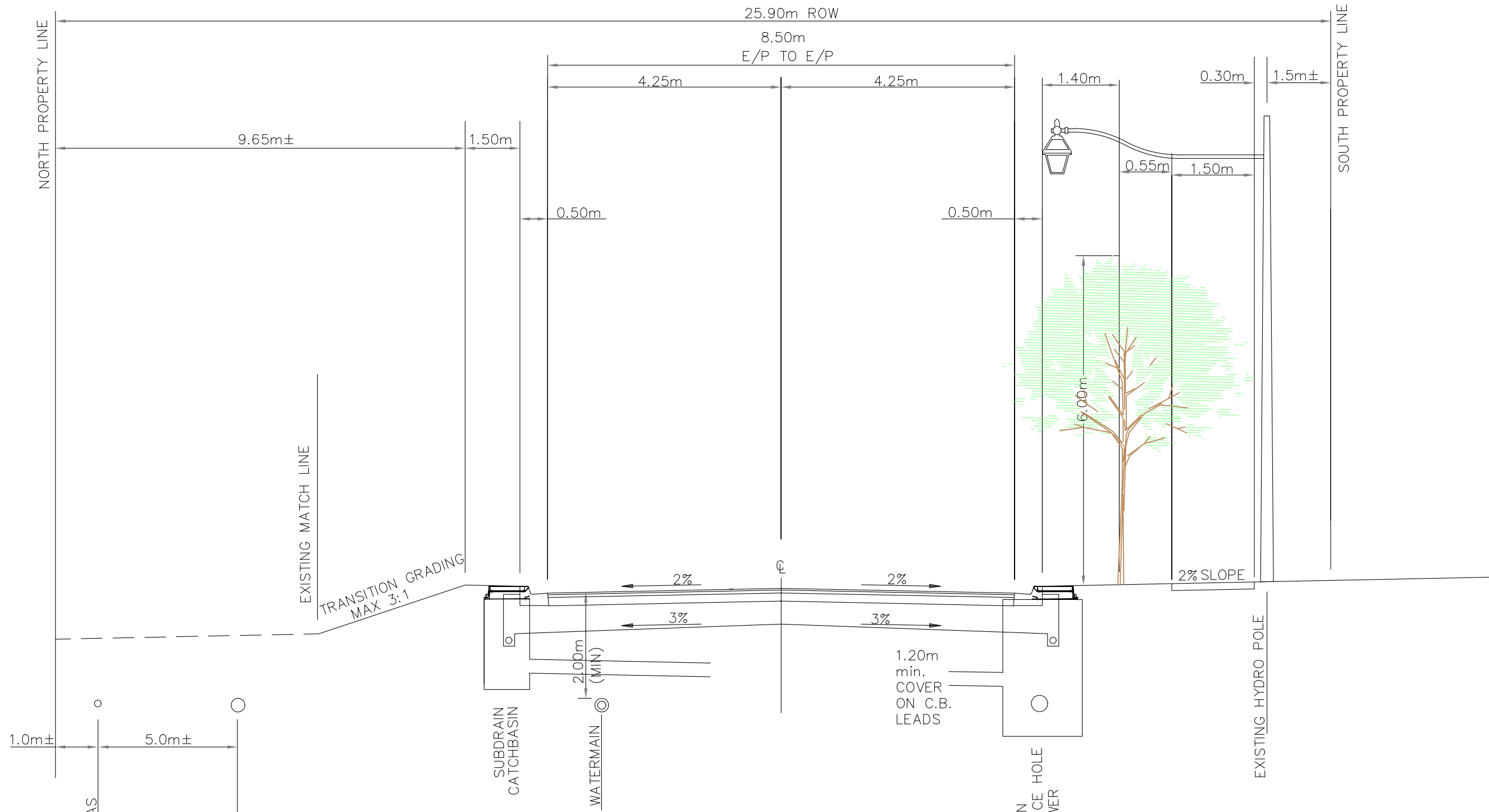
FIGURE 2 Date: JUL.11/23
Scale: N.T.S.

**IRVINE STREET
TYPICAL
CROSS-SECTION**

 **MTE**


Engineers, Scientists, Surveyors

Project No.: 52782-104

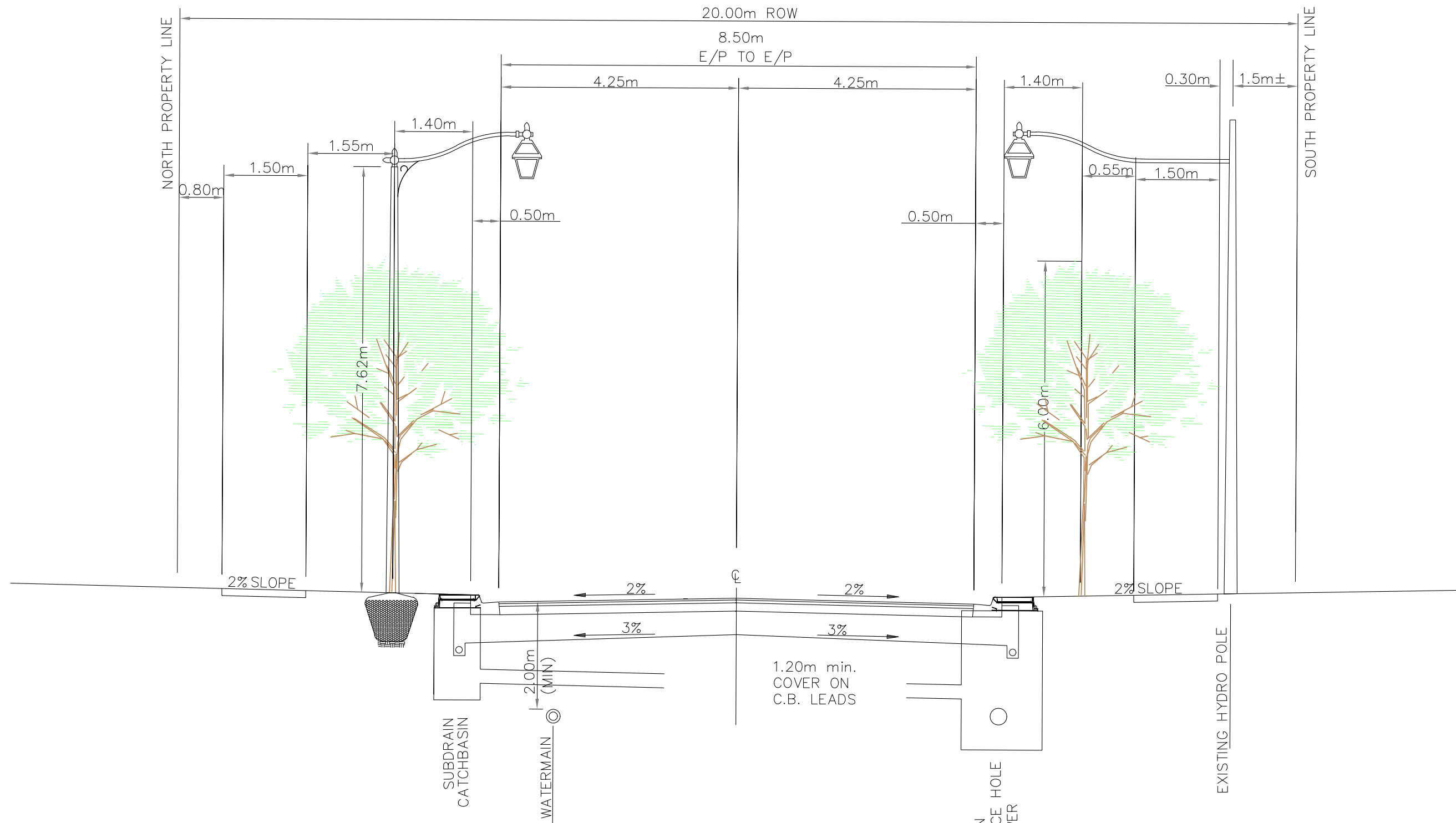


WOOLWICH STREET EAST
 TYPICAL CROSS-SECTION
 N.T.S.

FIGURE 3 Date: JUL.11/23
 Scale: N.T.S.
WOOLWICH STREET EAST
TYPICAL
CROSS-SECTION



MTE
 Engineers, Scientists, Surveyors
 Project No.: 52782-104




SIDEROAD 15
TYPICAL CROSS-SECTION
N.T.S.

FIGURE 4

Date: JUL.11/23
Scale: N.T.S.

SIDEROAD 15 TYPICAL CROSS-SECTION



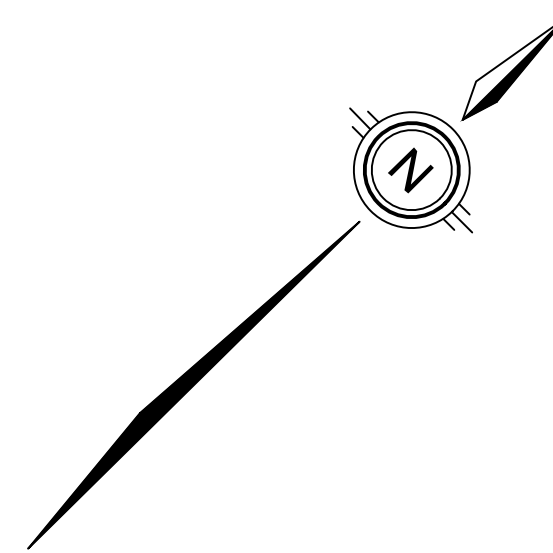
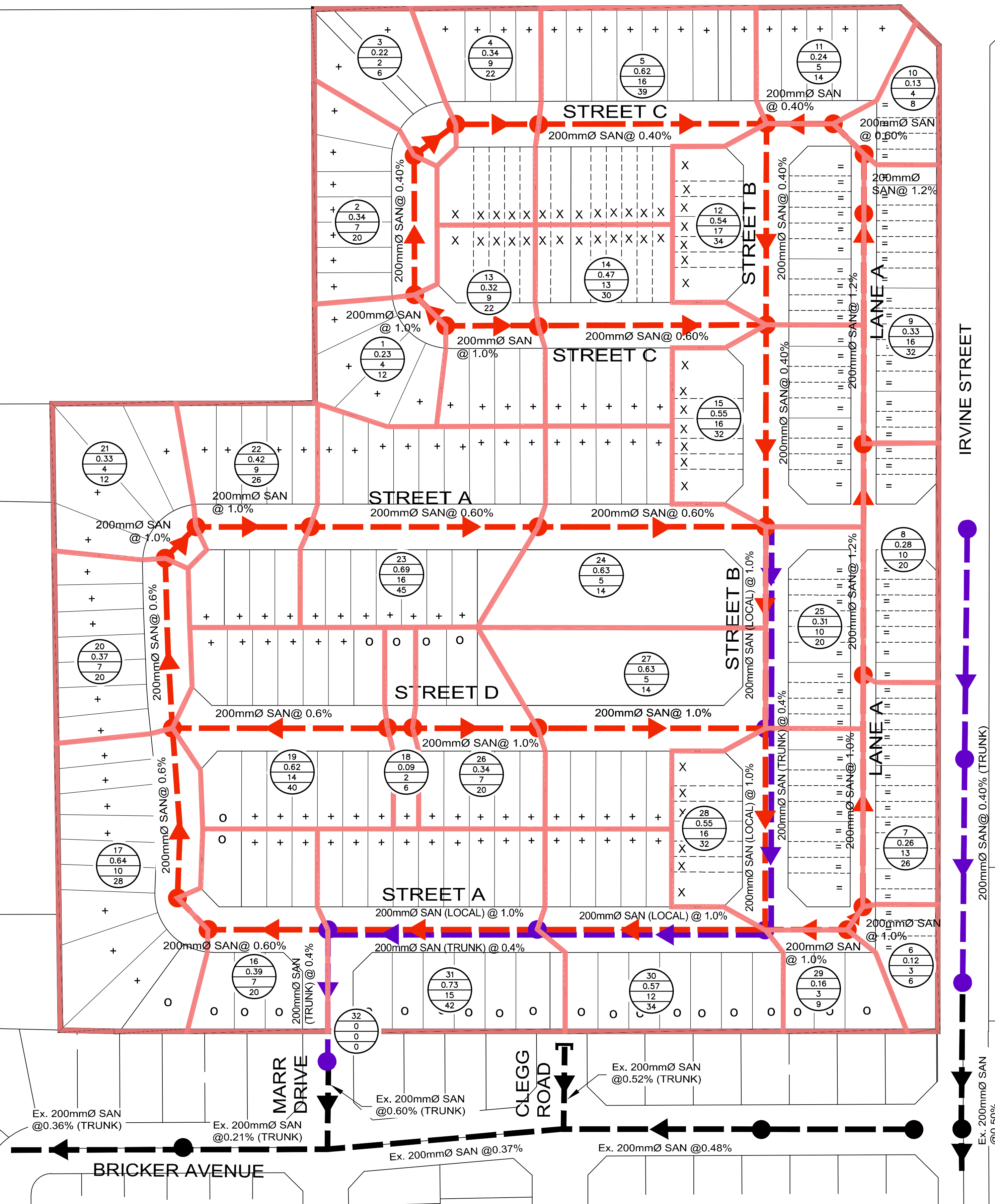
Engineers, Scientists, Surveyors

Project No.: 52782-104

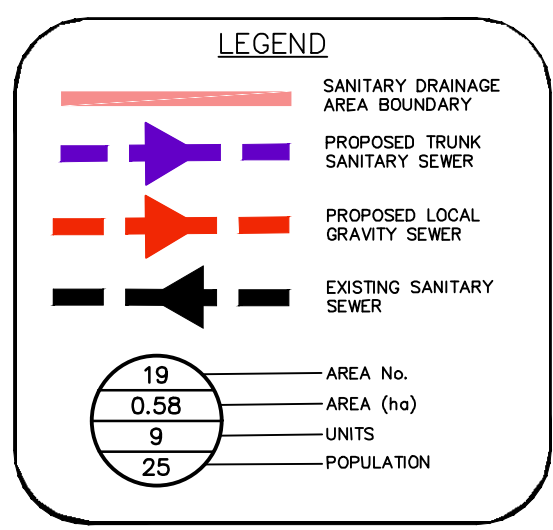
Appendix D

Sanitary Sewer Analysis

WOOLWICH STREET EAST



PROJ. NO. 50250-100
 DATE Jul. 11/23
 SCALE 1:1000
 BY Brianna Wilson
 CAD FILE P:\P\50250\100\TEMP
 DRAWINGS\B\W\50250-100-SAN_DRAINAGE_AREAS-BW.DWG



Clayton Subdivision
Township of
Centre Wellington, Ontario

SANITARY SEWER DESIGN SHEET

Project Number: 50250-100
Date: July 11, 2023
Design By: BVW
Checked By: MXF
File: Q:\50250\100\SAN\50250-100 Sanitary Sewer Design Sheet.xlsx

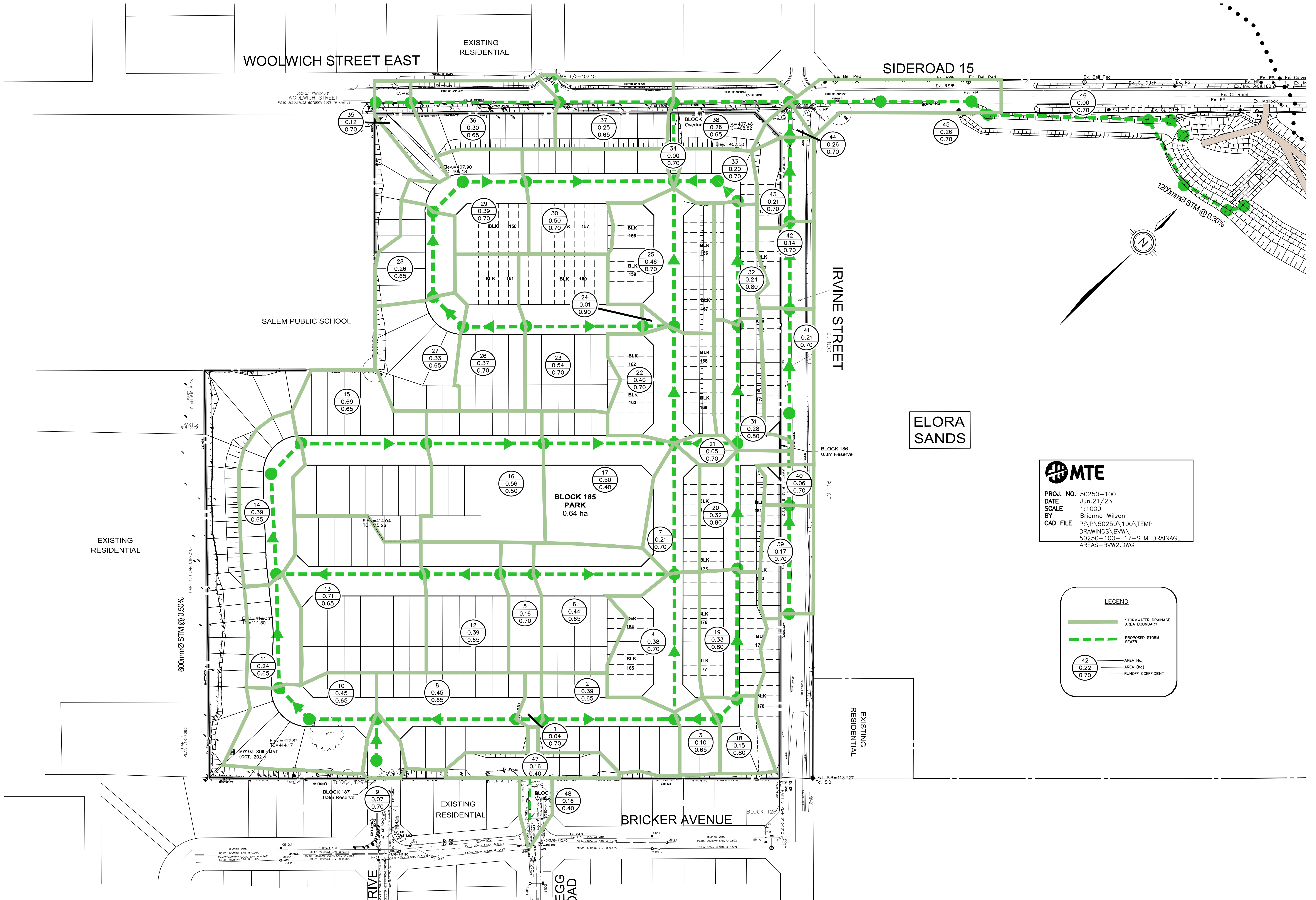
Design Parameters					
Average Daily Flow			Mannings "n" 0.0130		
Residential	0.004	L/s/c	Min. Velocity		0.8 m/sec
	350	L/c/d	Max. Velocity		3.0 m/sec
Residential Harmon Peaking Factor (F)					
Commercial	1.5	L/s/ha	Residential Areas Infiltration		0.15 L/s/ha
Industrial	0.5	L/s/ha			
Inst. / School	2.5	L/s/ha			



LOCATION				UNITS								SCHOOL, INSTITUTIONAL			COMMERCIAL			INDUSTRIAL			INFILTRATION			DESIGN							
STREET	AREA NO.	MANHOLE LOCATION		UNITS				POPUL.	CUMUL. POPUL.	PEAK FACTOR "F"	PEAK RES. FLOW	HECTARES AND FLOW OF EACH ZONING						TOTALS C-I FLOW	AREA	CUMUL. AREA	INFIL. FLOW	TOTAL VOLUME FLOW	LENGTH	SLOPE	PIPE SIZE	CAPACITY	FULL FLOW VELOCITY	% PIPE FULL			
		FROM MH	TO MH	SINGLE DETACHED	TOWNHOUSE	2.50 CUMUL. AREA	1.50 CUMUL. AREA					0.50 CUMUL. AREA	L/s/ha	L/s/ha	L/s/ha	ha	ha												ha	L/sec	L/sec
				ha.	2.80	ppu	2.00	ppu	1000s	1000s	L/sec	ha	ha	L/sec	ha	ha	L/sec	ha	ha	L/sec	L/sec	m	%	mm	L/sec	m/s					
STREET C	1			0.23	4		0	0.011	0.011	4.4098	0.198	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.23	0.035	0.233		1.00	200	32.782	1.044	0.71%
STREET C	2			0.34	7		0	0.020	0.031	4.3529	0.536	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.58	0.086	0.623		0.40	200	20.733	0.660	3.00%
STREET C	3			0.22	2		0	0.006	0.036	4.3407	0.632	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.79	0.119	0.751		0.40	200	20.733	0.660	3.62%
STREET C	4			0.34	4		5	0.021	0.058	4.3019	0.991	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	1.13	0.170	1.161		0.40	200	20.733	0.660	5.60%
STREET C	5			0.62	8		8	0.038	0.096	4.2484	1.631	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	1.76	0.264	1.895		0.40	200	20.733	0.660	9.14%
LANE A	6			0.12	0		3	0.006	0.006	4.4335	0.106	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.017	0.124		1.00	200	32.782	1.044	0.38%
LANE A	7			0.26	0		13	0.026	0.032	4.3502	0.557	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.38	0.057	0.613		1.00	200	32.782	1.044	1.87%
LANE A	8			0.28	0		10	0.020	0.052	4.3112	0.897	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.66	0.099	0.995		1.20	200	35.911	1.144	2.77%
LANE A	9			0.33	0		16	0.032	0.084	4.2635	1.433	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.98	0.148	1.580		1.20	200	35.911	1.144	4.40%
LANE A	10			0.13	0		4	0.008	0.092	4.2533	1.565	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	1.12	0.168	1.733		0.60	200	25.393	0.809	6.82%
STREET C	11			0.24	5		0	0.014	0.106	4.2366	1.796	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	1.36	0.204	2.000		0.40	200	20.733	0.660	9.65%
STREET B	12			0.54	0		17	0.034	0.236	4.1210	3.890	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	3.66	0.549	4.439		0.40	200	20.733	0.660	21.41%
STREET C	13			0.32	4		5	0.021	0.021	4.3771	0.371	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.048	0.419		1.00	200	32.782	1.044	1.28%
STREET C	14			0.47	5		8	0.030	0.051	4.3126	0.883	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.79	0.118	1.002		0.60	200	25.393	0.809	3.94%
STREET B	15			0.55	0		16	0.032	0.319	4.0668	5.193	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	5.00	0.750	5.942		0.40	200	20.733	0.660	28.66%
STREET A	16			0.39	7		0	0.020	0.020	4.3816	0.344	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.39	0.059	0.403		1.00	200	32.782	1.044	1.23%
STREET A	17			0.64	10		0	0.028	0.048	4.3190	0.822	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	1.04	0.155	0.978		0.60	200	25.393	0.809	3.85%
STREET D	18			0.09	2		0	0.006	0.006	4.4357	0.099	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.013	0.112		1.00	200	32.782	1.044	0.34%
STREET D	19			0.62	14		0	0.039	0.045	4.3241	0.775	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.71	0.106	0.881		0.60	200	25.393	0.809	3.47%
STREET A	20			0.37	7		0	0.020	0.112	4.2298	1.895	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	2.11	0.317	2.212		0.60	200	25.393	0.809	8.71%
STREET A	21			0.33	4		0	0.011	0.123	4.2177	2.078	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	2.44	0.366	2.445		0.60	200	25.393	0.809	9.63%
STREET A	22			0.42	9		0	0.025	0.148	4.1925	2.489	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	2.86	0.430	2.918		0.60	200	25.393	0.809	11.49%
STREET A	23			0.69	16		0	0.045	0.193	4.1535	3.210	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	3.56	0.534	3.743		0.60	200	25.393	0.809	14.74%
STREET A	24			0.63	5		0	0.014	0.207	4.1424	3.433	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	4.19	0.629	4.062		0.60	200	25.393	0.809	16.00%
STREET B	25			0.31	0		10	0.020	0.546	3.9541	8.642	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	9.50	1.424	10.067		0.40	200	20.733	0.660	48.55%
STREET D	26			0.34	7		0	0.020	0.020	4.3816	0.344	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.34	0.052	0.395		1.00	200	32.782	1.044	1.21%
STREET D	27			0.63	5		0	0.014	0.034	4.3466	0.584	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.98	0.146	0.731		0.60	200	25.393	0.809	2.88%
STREET B	28			0.55	0		16	0.032	0.612	3.9275	9.614	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	11.02	1.653	11.267		0.40	200	20.733	0.660	54.34%
LANE A	29			0.16	3		0	0.008	0.008	4.4216	0.149	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.025	0.173		1.00	200	32.782	1.044	0.53%
STREET A	30			0.57	12		0	0.034	0.654	3.9114	10.232	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	11.76	1.764	11.996		0.40	200	20.733	0.660	57.86%
STREET A	31			0.73	15		0	0.042	0.696	3.8960	10.846	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	12.48	1.873	12.719		0.40	200	20.733	0.660	61.35%
MARR DRIVE	32			0.00	0		0	0.000	0.696	3.8960	10.846	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.48	1.873	12.719		0.40	200	20.733	0.660	61.35%
Existing Sewer on Marr				0.00	0		0	0.000	0.696	3.8960	10.846	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.48	1.873	12.719		0.60	200	25.393	0.809	50.09%

Appendix E

Storm Sewer Analysis



WOOLWICH STREET EAST

EXISTING RESIDENTIAL

SIDEROAD 15

SALEM PUBLIC SCHOOL

IRVINE STREET

ELORA SANDS

BLOCK 185
PARK
0.64 ha

EXISTING RESIDENTIAL

EXISTING RESIDENTIAL

BRICKER AVENUE

EXISTING RESIDENTIAL

MTE

PROJ. NO. 50250-100
 DATE Jun.21/23
 SCALE 1:1000
 BY Brianna Wilson
 CAD FILE P:\50250\100\TEMP DRAWINGS\BWA\50250-100-F17-STM DRAINAGE AREAS-BW2.DWG


LEGEND

- STORMWATER DRAINAGE AREA BOUNDARY
- PROPOSED STORM SEWER
- AREA No.
AREA (ha)
RUNOFF COEFFICIENT

600mmØ STM @ 0.50%

1200mmØ STM @ 0.30%

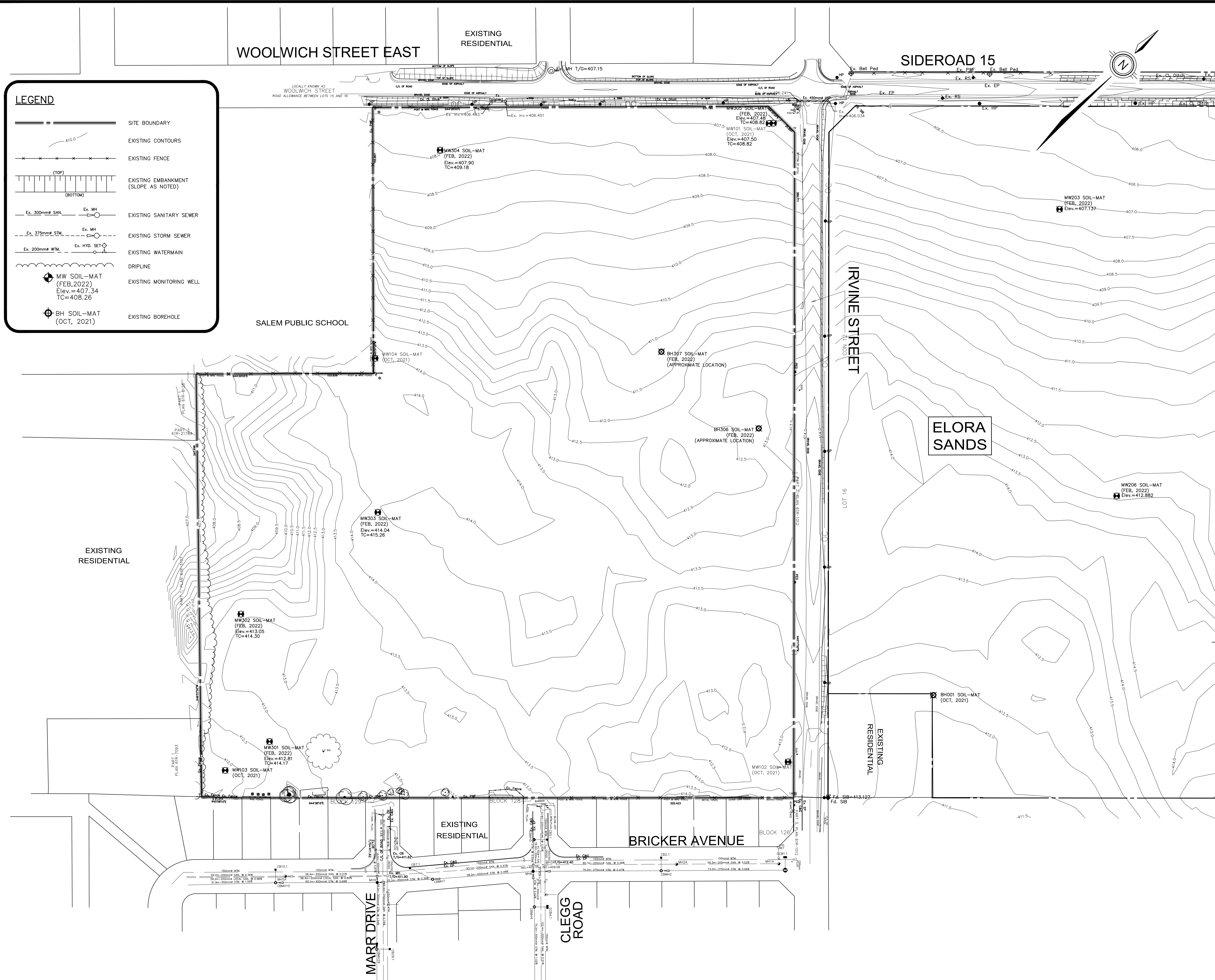


Clayton Subdivision Township of Centre Wellington, Ontario	STORM SEWER DESIGN SHEET		Design Parameters				
	ENGINEERING AND PUBLIC WORKS		5 YEAR STORM				
Project Number: 50250-100 Date: July 11, 2023 Design By: BVW Checked By: MXF File: Q:\50250\100\STM\50250-100 Storm Sewer Design Sheet.xlsx	Drainage Area Plan No:		$Q=kAIR, k=0.00278$ $Intensity (I) = a/(tc+b)^c$ $a = 1436$ $b = 11$ $c = 0.8537$	Manning's "n" 0.013 Min. Velocity 0.800 m/s Max. Velocity 6.000 m/s			

LOCATION				STORMWATER FLOW								DESIGN						
STREET	AREA NUMBER	MANHOLE LOCATION		AREA (A) <i>ha</i>	RUNOFF COEFF. (C)	A x C <i>ha</i>	CUMUL. A x C <i>ha</i>	CONCENTRATION TIME		RAIN INTENSITY (I) <i>mm/hr</i>	FLOW (Q) <i>L/s</i>	PIPE SIZE <i>mm</i>	LENGTH <i>m</i>	SLOPE <i>%</i>	CAPACITY <i>L/s</i>	FULL FLOW VELOCITY <i>m/s</i>	ACTUAL VELOCITY <i>m/s</i>	PIPE FULL <i>%</i>
		FROM MH	TO MH					TOTAL <i>min</i>	IN PIPE <i>min</i>									
Street A	1			0.04	0.70	0.026	0.026	10.000	0.332	106.8	7.8	300	16.3	1.0	96.7	1.37	0.82	8.10
Street A	2			0.39	0.65	0.252	0.278	10.332	1.114	105.3	81.4	375	80.0	0.5	124.0	1.12	1.20	65.69
Street A	3			0.10	0.70	0.072	0.072	10.000	0.394	106.8	21.3	300	26.0	1.0	96.7	1.37	1.10	22.06
Street B	4			0.38	0.70	0.263	0.613	11.445	1.033	100.9	171.8	450	88.2	0.5	201.6	1.27	1.42	85.22
Street D	5			0.16	0.70	0.111	0.111	10.000	0.269	106.8	32.8	300	20.0	1.0	96.7	1.37	1.24	33.96
Street D	6			0.44	0.65	0.285	0.395	10.269	1.121	105.6	116.0	375	85.8	0.5	124.0	1.12	1.28	93.59
Street B	7			0.21	0.70	0.147	1.155	12.478	0.531	97.1	311.7	450	79.0	1.5	349.2	2.20	2.48	89.26
Street A	8			0.45	0.65	0.292	0.292	10.000	0.914	106.8	86.5	300	84.8	1.0	96.7	1.37	1.55	89.47
Marr Drive	9			0.07	0.70	0.049	0.049	10.000	0.427	106.8	14.7	300	25.3	1.0	96.7	1.37	0.99	15.17
Street A	10			0.45	0.65	0.295	0.636	10.914	0.834	102.9	182.0	525	67.3	0.4	272.0	1.26	1.35	66.91
Street A	11			0.24	0.65	0.159	0.795	11.747	0.825	99.7	220.3	525	69.2	0.4	272.0	1.26	1.40	80.99
Street D	12			0.39	0.65	0.254	0.254	10.000	0.509	106.8	75.3	300	46.2	1.0	96.7	1.37	1.51	77.86
Street D	13			0.71	0.65	0.460	0.713	10.509	1.084	104.6	207.4	525	90.0	0.4	272.0	1.26	1.38	76.26
Street A	14			0.39	0.65	0.255	1.764	12.572	0.952	96.7	474.2	750	87.2	0.3	609.8	1.38	1.53	77.77
Street A	15			0.69	0.65	0.449	2.213	13.525	0.808	93.5	575.2	750	76.1	0.3	609.8	1.38	1.57	94.33
Street A	16			0.56	0.50	0.281	2.494	14.333	0.658	91.0	630.5	750	71.2	0.4	704.1	1.59	1.80	89.55
Street A	17			0.50	0.40	0.201	2.695	14.991	0.731	89.0	666.7	750	79.5	0.4	704.1	1.59	1.81	94.69
Lane A	18			0.15	0.80	0.116	0.116	10.000	0.226	106.8	34.5	300	17.0	1.0	96.7	1.37	1.25	35.67
Lane A	19			0.33	0.80	0.266	0.382	10.226	0.856	105.8	112.4	375	79.3	0.8	156.8	1.42	1.54	71.65
Lane A	20			0.32	0.80	0.256	0.638	11.082	0.733	102.3	181.3	450	76.6	0.8	255.0	1.60	1.74	71.10
Street A	21			0.05	0.70	0.034	0.672	11.815	0.366	99.5	185.7	450	38.4	0.8	255.0	1.60	1.75	72.82
Street B	22			0.40	0.70	0.281	4.803	15.722	0.333	86.9	1160.4	750	71.2	1.6	1408.2	3.19	3.56	82.40
Street C	23			0.54	0.70	0.381	0.381	10.000	0.708	106.8	113.0	375	71.6	1.0	175.3	1.59	1.69	64.47
	24			0.01	0.90	0.012	0.393	10.708	0.296	103.8	113.5	450	19.0	0.3	156.2	0.98	1.07	72.66
Street B	25			0.46	0.70	0.325	5.521	16.055	0.682	86.0	1319.8	975	88.3	0.4	1417.4	1.90	2.16	93.12
Street C	26			0.37	0.70	0.259	0.259	10.000	0.419	106.8	76.8	300	38.1	1.0	96.7	1.37	1.52	79.44
Street C	27			0.33	0.65	0.215	0.474	10.419	0.341	105.0	138.3	450	25.6	0.4	180.3	1.13	1.25	76.69
Street C	28			0.26	0.65	0.168	0.641	10.760	0.641	103.6	184.7	525	51.9	0.4	272.0	1.26	1.35	67.90
Street C	29			0.39	0.70	0.273	0.915	11.400	0.749	101.0	256.9	525	64.3	0.4	272.0	1.26	1.43	94.46
Street C	30			0.50	0.70	0.350	1.264	12.150	0.967	98.2	345.3	600	90.0	0.4	388.3	1.37	1.55	88.91
Lane A	31			0.24	0.80	0.192	0.192	10.000	0.723	106.8	57.0	300	72.0	1.5	118.4	1.68	1.66	48.11
Lane A	32			0.20	0.80	0.158	0.350	10.723	0.671	103.7	100.9	300	75.7	1.5	118.4	1.68	1.88	85.18
Lane A	33			0.18	0.70	0.123	0.473	11.394	0.356	101.1	132.8	375	43.7	1.5	214.7	1.94	2.05	61.83

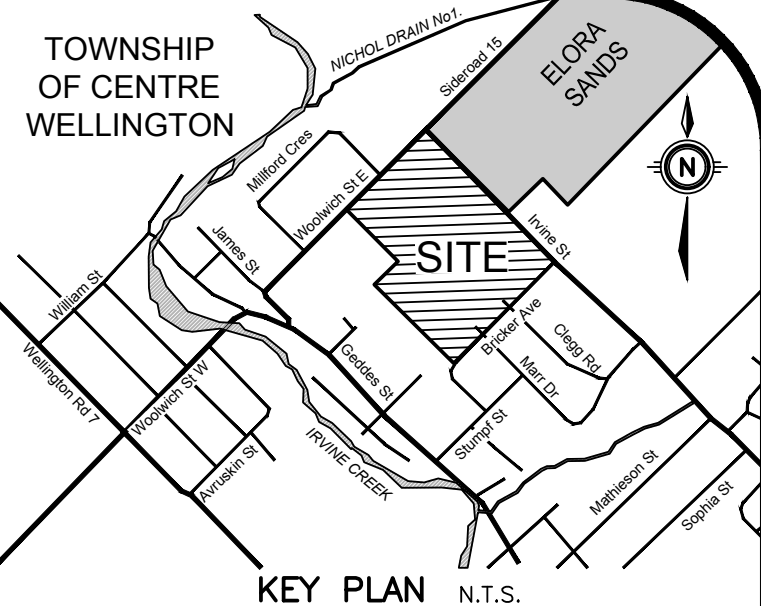
LOCATION				STORMWATER FLOW								DESIGN						
STREET	AREA NUMBER	MANHOLE LOCATION		AREA (A)	RUNOFF COEFF. (C)	A x C	CUMUL. A x C	CONCENTRATION TIME		RAIN INTENSITY (I)	FLOW (Q)	PIPE SIZE	LENGTH	SLOPE	CAPACITY	FULL FLOW VELOCITY	ACTUAL VELOCITY	PIPE FULL
		FROM MH	TO MH					TOTAL	IN PIPE									
Discharge to Woolwich Street E	34			0.00	0.70	0.000	7.258	16.737	0.185	84.2	1698.5	975	48.0	2.0	3169.3	4.24	4.32	53.59
Woolwich Street E end	35			0.12	0.70	0.081	0.081	10.000	0.313	106.8	23.9	300	21.3	1.0	96.7	1.37	1.13	24.71
Woolwich Street E (west of HP)	36			0.30	0.65	0.194	0.275	10.313	1.540	105.4	80.5	375	90.0	0.3	96.0	0.87	0.97	83.82
Woolwich Street E	37			0.25	0.65	0.163	0.437	11.853	1.070	99.3	120.8	450	69.6	0.3	156.2	0.98	1.08	77.34
Woolwich Street E	38			0.26	0.65	0.166	7.862	16.923	0.642	83.7	1829.4	1350 *	70.8	0.2	2387.0	1.67	1.84	76.64
Irvine Street (south of HP)	39			0.17	0.70	0.117	0.117	10.000	0.877	106.8	34.6	300	66.0	1.0	96.7	1.37	1.25	35.82
Irvine Street (south of HP)	40			0.06	0.70	0.043	0.160	10.877	0.691	103.1	45.8	300	55.9	1.0	96.7	1.37	1.35	47.38
Irvine Street from HP N	41			0.26	0.70	0.183	0.343	11.567	0.416	100.4	95.8	300	63.4	3.3	175.7	2.49	2.54	54.53
Irvine Street	42			0.17	0.70	0.116	0.460	11.983	0.328	98.8	126.3	300	53.2	3.3	175.7	2.49	2.70	71.90
Irvine Street	43			0.18	0.70	0.128	0.587	12.311	0.303	97.6	159.4	300	51.2	3.3	175.7	2.49	2.82	90.76
Irvine at intersection	44			0.05	0.70	0.032	0.619	12.614	0.307	96.6	166.3	525	21.7	0.3	235.6	1.09	1.18	70.60
Sideroad 15	45			0.26	0.70	0.185	8.666	17.564	0.987	82.1	1977.9	1350 *	110.4	0.2	2387.0	1.67	1.86	82.86
SWMF Inlet	46			0.00	0.70	0.000	8.666	18.551	0.890	79.7	1921.3	1350 *	99.0	0.20	2387.0	1.67	1.85	80.49
Discharge to Clegg St. **	47			0.16	0.40	0.066	0.066	10.000	0.353	106.8	19.6	300	24.2	1.20	105.9	1.50	1.14	18.46
Existing Clegg Road	48			0.06	0.70	0.043	0.108	10.353	0.314	105.2	31.7	300	18.4	0.54	71.1	1.01	0.98	44.66

*1350mm diam. is circular equivalent to 1090 x 1725 mm horizontal elliptical pipe



LEGEND

- SITE BOUNDARY
- EXISTING CONTOURS
- EXISTING FENCE
- EXISTING EMBANKMENT (SLOPE AS NOTED)
- Ex. 300mm SAN. Ex. MH
- Ex. 375mm STM. Ex. MH
- Ex. 200mm WTM. Ex. HYD. SET
- DRIPLINE
- MW SOIL-MAT (FEB, 2022) Elev.=407.34 TC=408.26
- BH SOIL-MAT (OCT, 2021)



GEODETIC BM ELEV. = 387.982m
ELORA POST OFFICE, BOLT IN FRONT WALL, IN LINTEL OF CENTRE BASEMENT WINDOW. (HISTORICAL NUMBER 16U117E)

SITE BENCHMARK ELEV. = m

NOTE TO CONTRACTOR :
DO NOT SCALE DRAWINGS.
CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
ALL DRAWINGS REMAIN THE PROPERTY OF THE ENGINEER AND SHALL NOT BE REPRODUCED OR REUSED WITHOUT THE ENGINEER'S WRITTEN PERMISSION.
THE OWNER/ARCHITECT/CONTRACTOR IS ADVISED THAT M.T.E. CONSULTANTS INC. CANNOT CERTIFY ANY COMPONENT OF THE SITE WORKS NOT INSPECTED DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO NOTIFY M.T.E. CONSULTANTS INC. PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ARRANGE FOR INSPECTION.

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TOWNSHIP OF CENTRE WELLINGTON

MTE
Engineers, Scientists, Surveyors

519-743-6500

CLIENT
CACHET DEVELOPMENTS INC.
361 Connie Crescent, Suite 200 Concord, Vaughan

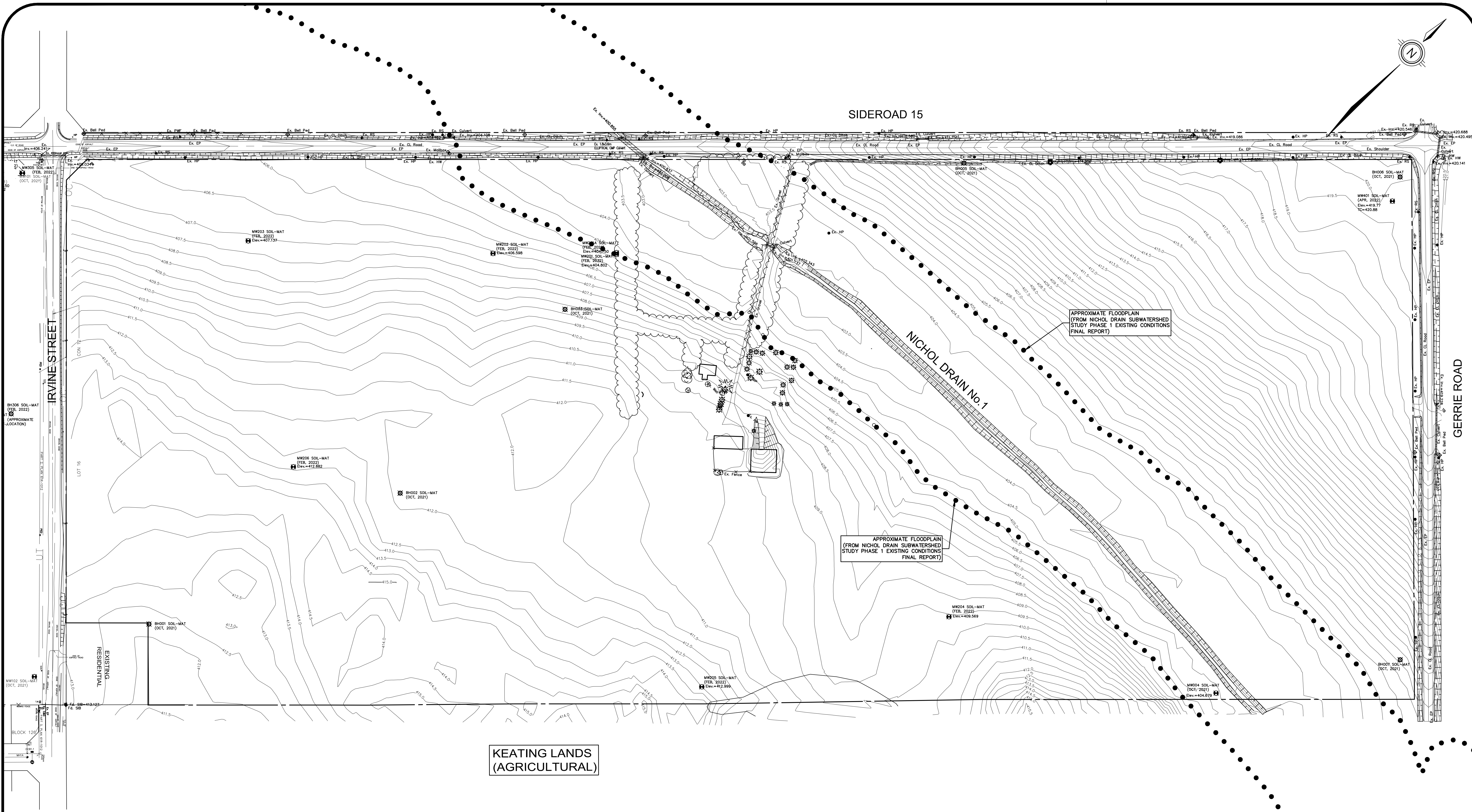
PROJECT
CLAYTON SUBDIVISION
ELORA ONTARIO

EXISTING CONDITIONS PLAN

Project Manager S. PETERSON	Project No. 50250-100
Design By MXF	Checked By JEM
Drawn By ACH	Checked By AJC
Surveyed By MTE	Drawing No.
Date Jul.06/23	EC1.1
Scale 1:1000	Sheet of

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July 15, 2022 - 3:06:17 PM - Plotted By: Michael Felinczak



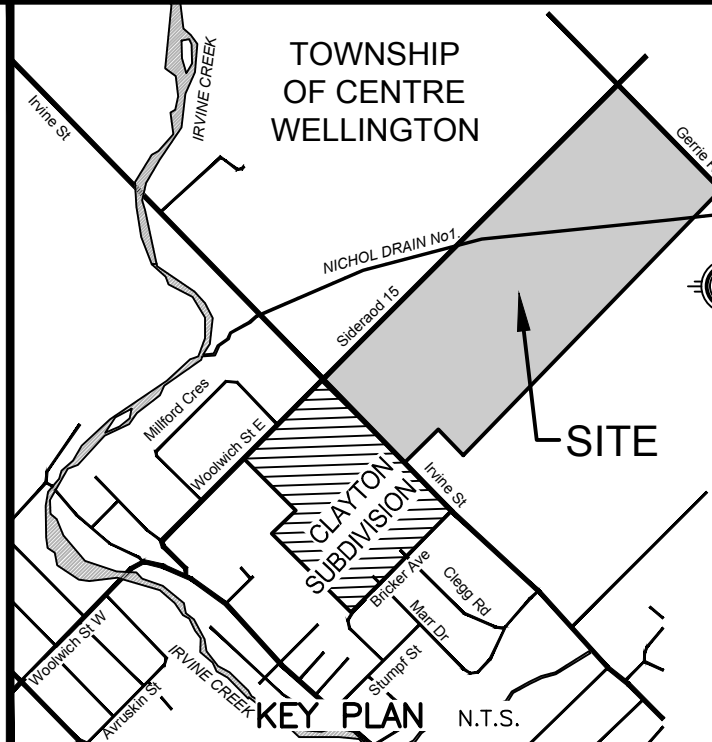
KEATING LANDS
(AGRICULTURAL)

LEGEND

- SITE BOUNDARY
- EXISTING CONTOURS
- EXISTING FENCE
- EXISTING EMBANKMENT (SLOPE AS NOTED)
- APPROXIMATE FLOODPLAIN LIMIT (FROM NDSS)
- DRIPLINE
- MW SOIL-MAT (FEB, 2022)
Elev.=407.34
TC=408.26
- BH SOIL-MAT (OCT, 2021)
- EXISTING MONITORING WELL
- EXISTING BOREHOLE

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TOWNSHIP OF CENTRE WELLINGTON

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GEODETIC BM ELEV. = 387.982m
ELORA POST OFFICE, BOLT IN FRONT WALL, IN LINTEL OF CENTRE BASEMENT WINDOW. (HISTORICAL NUMBER 18U117E)

SITE BENCHMARK ELEV. = m

CLIENT
CACHET DEVELOPMENTS INC.

361 Connie Crescent, Suite 200 Concord, Vaughan

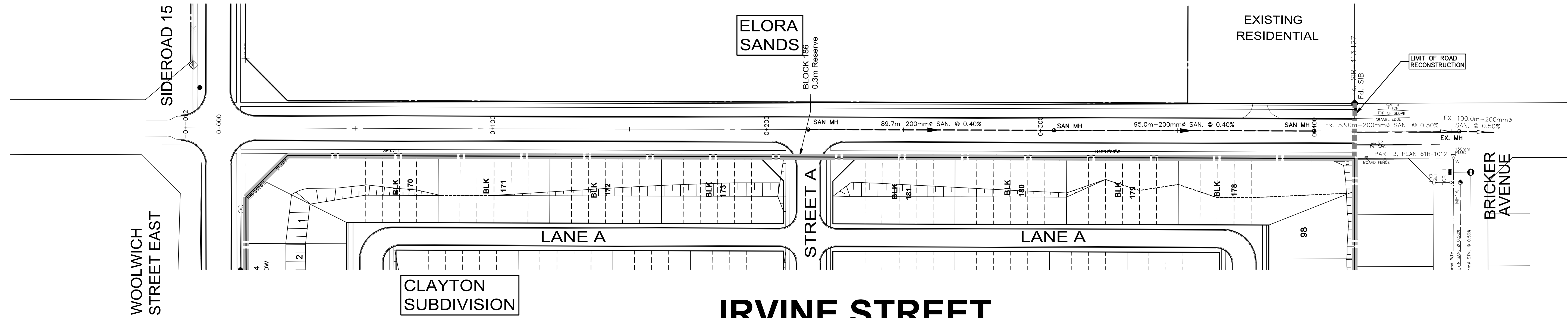
PROJECT
ELORA SANDS

ELORA ONTARIO

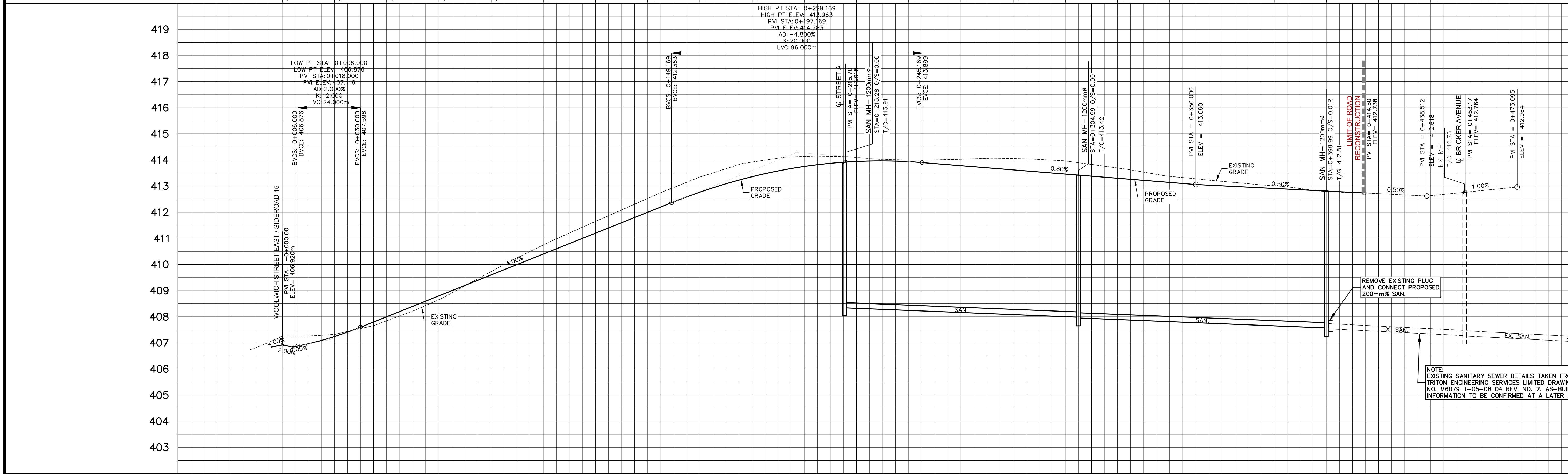
EXISTING CONDITIONS PLAN

519-743-6500

Project Manager S. PETERSON	Project No. 49878-100
Design By MXF	Checked By JEM
Drawn By ACH	Checked By AJC
Surveyed By MTE	Drawing No. EC1.1
Date Apr. 12/22	Scale 1:1250
Sheet of	



CHAINAGE	0	-0+020	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480																			
PROPOSED @ ROAD ELEVATIONS			407.3	406.92	407.3	407.24	407.8	408.00	408.7	408.80	409.7	409.60	410.7	410.40	411.6	411.20	412.5	412.00	413.3	412.77	413.9	413.36	414.1	413.75	414.1	413.94	414.0	413.93	414.0	413.78	414.1	413.62	414.0	413.46	413.7	413.30	413.4	413.14	413.2	413.01	413.0	412.91	412.7	412.71	412.63	412.83



STM. SEWER INVERT	SAN. SEWER INVERT			
	SE408.340	SE407.950	SE407.250	SE407.250

GEODETIC BM ELEV. = 387.982m

ELORA POST OFFICE, BOLT IN FRONT WALL, IN LINTEL OF CENTRE BASEMENT WINDOW. (HISTORICAL NUMBER 16U117E)

SITE BENCHMARK ELEV. = m

TOWNSHIP OF CENTRE WELLINGTON

KEY PLAN N.T.S.

CACHET DEVELOPMENTS INC.

361 Connie Crescent, Suite 200 Concord, Vaughan

CLAYTON SUBDIVISION

IRVINE STREET

STA 0+000 TO STA 0+414.450

CLIENT PROJECT

ELORA DRAWING

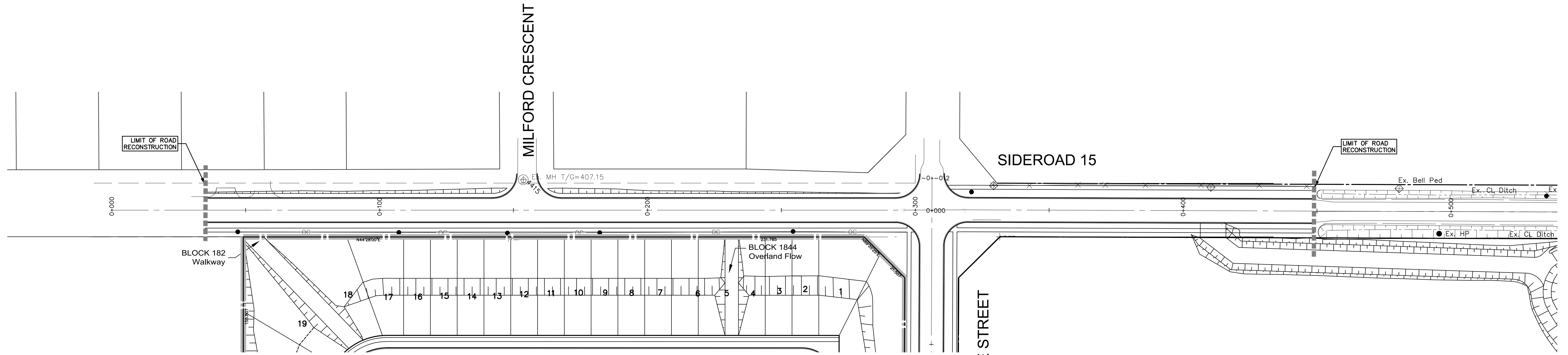
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MTE
Engineers, Scientists, Surveyors

519-743-6500

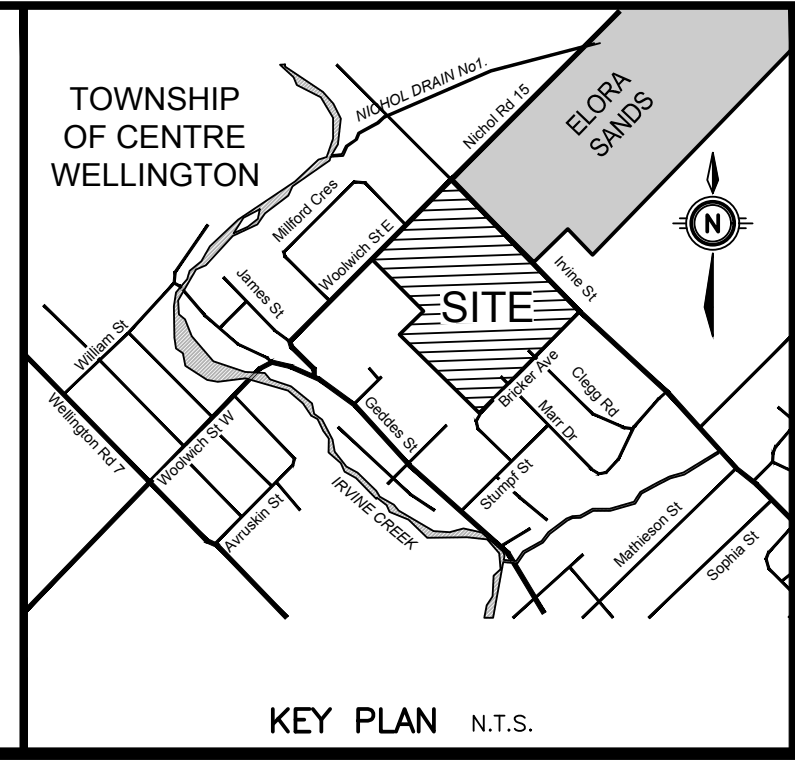
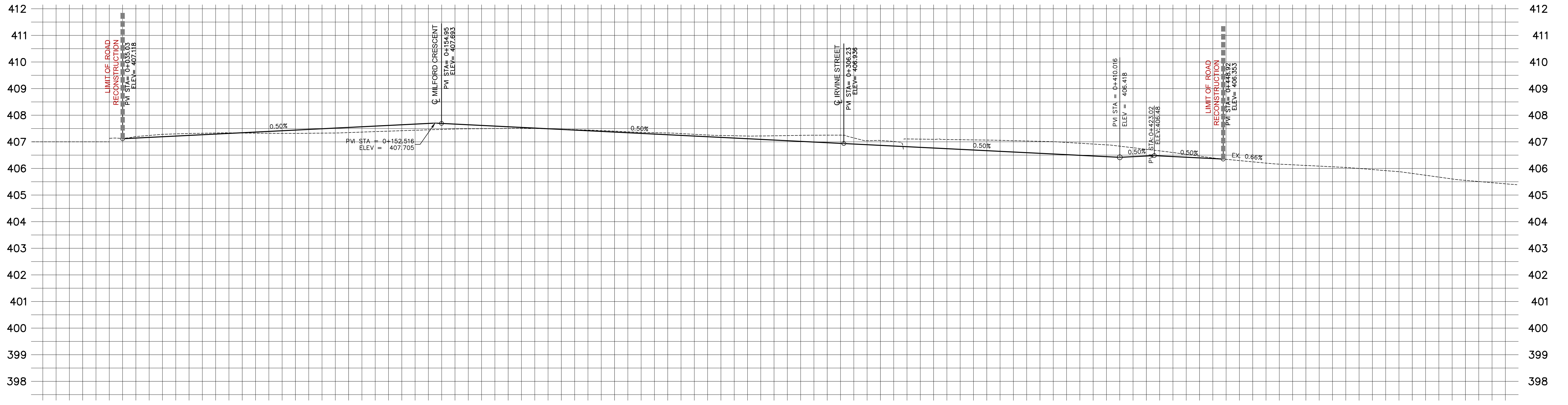
Project Manager	S. PETERSON	Project No.	50250-100
Design By	MXF	Checked By	JEM
Drawn By	ACH	Checked By	MXF
Surveyed By	MTE	Drawing No.	MS2.1
Date	Jun.13/22	Scale	H-1:750 V-1:75
Sheet	of		



WOOLWICH STREET EAST

CHAINAGE	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560
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PROPOSED ROAD ELEVATIONS			407.2 407.14	407.3 407.24	407.3 407.34	407.3 407.44	407.3 407.54	407.4 407.64	407.5 407.67	407.5 407.67	407.5 407.67	407.5 407.67	407.3 407.27	407.2 407.17	407.2 407.07	407.3 406.97	407.1 406.87	406.77	406.67	406.57	406.47	406.47	406.40							
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TOWNSHIP OF CENTRE WELLINGTON	GEODETIC BM	ELEV. = 387.982m
	ELORA POST OFFICE, BOLT IN FRONT WALL, IN LINTEL OF CENTRE BASEMENT WINDOW. (HISTORICAL NUMBER 16U117E)	
	SITE BENCHMARK	ELEV. = m

CLIENT	CACHET DEVELOPMENTS INC.
PROJECT	361 Connie Crescent, Suite 200 Concord, Vaughan
	CLAYTON SUBDIVISION
	ELORA ONTARIO
	WOOLWICH STREET EAST
	STA 0+000 TO STA 0+414.450

Project Manager	S. PETERSON	Project No.	50250-100
Design By	MXF	Checked By	JEM
Drawn By	ACH	Checked By	MXF
Surveyed By	MTE	Drawing No.	MS3.1
Date	Jun.14/23	Scale	H-1:750 V-1:75
Scale	H-1:750 V-1:75	Sheet	of

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MTE FILE PATH:

July 13, 2023 - 12:49:01 PM - Plotted By: Tyler Barry

WOOLWICH STREET EAST

EXISTING RESIDENTIAL

SIDEROAD 15

NICHOL DRAIN 1

LOCALLY KNOWN AS WOOLWICH STREET ROAD ALLOWANCE BETWEEN LOTS 15 AND 16

BLOCK 182 Walkway

SALEM PUBLIC SCHOOL

STREET C

STREET C

STREET A

STREET D

STREET A

BLOCK 185 PARK 0.64 ha

BRICKER AVENUE

IRVINE STREET

EXISTING RESIDENTIAL

ELORA SANDS

NOTE: COMPARISON FOR SWM IS BETWEEN PERMANENT POOL ELEVATION (403.60m) TO GROUNDWATER LEVEL OUTSIDE OF PERMANENT POOL LIMITS, FINISHED GRADE IS USED.

LEGEND

- SITE BOUNDARY
- EXISTING DIRECTION OF DRAINAGE/SWALE
- EXISTING CONTOURS
- APPROXIMATE GROUNDWATER CONTOURS (FROM SOIL-MAT)
- EXISTING DRIPLINE
- EXISTING MONITORING WELL
- EXISTING BOREHOLE
- GROUNDWATER SEPARATION CONTOUR, RED TICKS REPRESENT AREAS WHERE SEPARATION REQUIREMENT IS NOT MET
- GROUNDWATER SEPARATION CONTOUR, GREEN TICKS REPRESENT AREAS WHERE SEPARATION REQUIREMENT IS MET (eg. GROUNDWATER IS 0.92m BELOW FINISHED BASEMENT FLOOR)
- GROUNDWATER SEPARATION CONTOUR, CYAN TICKS REPRESENT AREAS WHERE GROUNDWATER LEVEL IS EXACTLY AT THE FINISHED BASEMENT FLOOR
- APPROXIMATE FLOODPLAIN LIMIT (FROM NDSS)

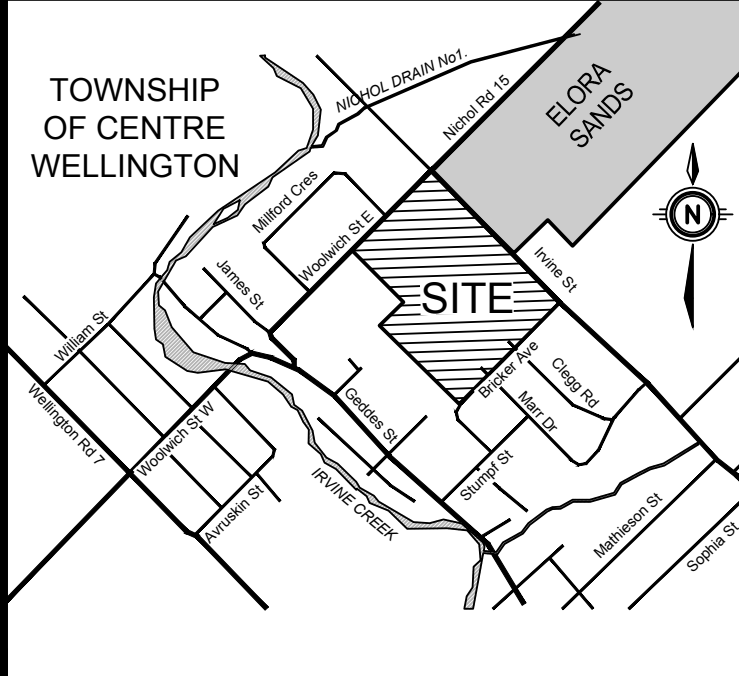
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TOWNSHIP OF CENTRE WELLINGTON

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SITE BENCHMARK ELEV. = m

CLIENT
CACHET DEVELOPMENTS INC.
361 Connie Crescent, Suite 200 Concord, Vaughan

PROJECT
CLAYTON SUBDIVISION
ELORA DRAWING
ONTARIO

Engineers, Scientists, Surveyors

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