URBANTECH®

FUNCTIONAL SERVICING REPORT & STORMWATER MANAGEMENT STUDY DRAFT PLAN OF SUBDIVISION

420 – 468 South Service Road East
GE Lands

TOWN OF OAKVILLE
REGION OF HALTON

PREPARED FOR
South Service Holding Corp.

Urbantech File No.: 23-307

1st SUBMISSION – October 2025
2nd SUBMISSION – October 2026

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1 INTRODUCTION

This report provides functional servicing design and stormwater management information in support of Official Plan Amendment (approved as OPA 83) and Zoning By-law Amendment (approved as By-law 2026-074) for the 420-468 South Service Road East property (GE Lands) in the Town of Oakville (Town), Region of Halton (Region). By-laws 2026-073 and 2026-074 establish a planning framework for the property that permits multi-block mixed use development, new public roads, and public park space. This report is submitted as the 2nd FSR Submission in support of the Draft Plan of Subdivision application.

The servicing and development concepts presented in this report are based on the draft plan of subdivision prepared by MHBC Planning (available in **Appendix A)**, with input from the following reference reports:

- Preliminary Geotechnical Investigation Report (EXP, August 2025)
- Hydrogeological Investigation Report (September EXP, 2025)
- Conservation Halton Spill Flood Hazard Policies: Technical Guide (Conservation Halton, April 2025)
- Town of Oakville Flood Mitigation Opportunities Study Lower Morrison and Lower Wedgewood Creeks (Town of Oakville, 2024)
- Liveable Oakville Plan / Town of Oakville Official Plan (Town of Oakville, 2021 Consolidation)
- Midtown Oakville Stormwater Management Plan Report (Town of Oakville, March 2026)
- Midtown Oakville Transportation Plan (Town of Oakville, March 2026)
- Region of Halton 2022 Development Charges Update Water/Wastewater Technical Report (GM BluePlan, September 2021)
- Water and Wastewater Area Servicing Plan for Midtown Oakville – Addendum (GM BluePlan, January 2021)
- Water and Wastewater Area Servicing Plan – Addendum 2 (Town of Oakville, March 2026)
- Region of Halton Integrated Master Plan Public Final Report (Region of Halton, April 2026)
- Region of Halton PR-3447/3547 Sanitary Sewer Replacement on Trafalgar Road, Issued for Tender Design Drawings (Region of Halton, January 2026)

Design information considers the following guidelines:

- Town of Oakville Development Engineering Procedures and Guidelines (2023)
- Town of Oakville Consolidated Linear Infrastructure Environmental Compliance Approvals (CLI ECA)
- Regional Municipality of Halton Water and Wastewater Linear Design Manual (2025)

This report demonstrates the feasibility of site servicing for the proposed development, including water, sanitary, stormwater management, preliminary site grading and erosion & sediment control. The servicing strategy includes recommendations for both interim (Phase 1A) and ultimate (build-out) conditions, with an approach that utilizes existing infrastructure for near-term development while broader Midtown Oakville planning continues. In accordance with Conservation Halton's updated spill policies (April 2025), hydraulic modelling of Morrison Creek has been completed and is included in this submission (refer to **Appendix D**). The modelling addresses potential post-development spill hazards and identifies options for mitigation.

Supporting drawings are available in **Appendix C.** Drawings do not provide design information pertaining to the internal servicing of the proposed buildings. As part of the civil engineering design, a set of stormwater, sanitary, and water connections will be provided for the proposed residential

development, beyond which it will be the responsibility of the building mechanical engineer to design the internal servicing concept, in conformance with the servicing and grading design.

1.1. Subject Site

The GE Lands are located in the Town of Oakville and Region of Halton. The lands are bound by the Queen Elizabeth Way (QEW) highway and South Service Road to the north. The CN Railway Line is to the south. The lands to the east and west are currently used for employment (office space, light industrial and hospitality).

The site is approximately 27 acres and was previously used for industrial purposes. The property is currently vacant, save for one structure (the GE Lamp Plant former office building, registered as a Heritage Property). The remaining land is previously disturbed, with concrete slabs and parking areas covering most of the site. There are some naturalized areas along the east, west, and south property boundaries, but no Conservation Halton regulated areas or areas identified as Natural Heritage.

The proposed development includes four (4) quadrants of mixed residential and commercial towers (identified as Phase 1, Phase 2, Phase 3 and Phase 4 in the attached Draft Plan, **Appendix A**), intermixed with strata parks that allow for pedestrian access and privately-owned park space. There are two (2) public park blocks at the south limit of the plan in Phase 4, identified as Block 7 and Block 9. The public park spaces are situated at a lower grade than the remainder of the plan, allowing for the required transition elevation to accommodate the proposed future Metrolinx underpass and Cross Road corridor. The road network includes a local road to the west of Phase 1 and Phase 3 (Street A), an east-west collector road (Davis Road extension), and two arterial roads (the Cross Road extension along the south boundary of the property and a new north-south arterial running through the middle of the site). Development phasing is shown on the Draft Plan in **Appendix A** and on **Drawing PH-1** in **Appendix C**. Phase 1A is intended to proceed first in the near-term (2027 construction), with the remainder of the property advancing with the Town's road network (including the Cross Avenue corridor) and the extension of water, sanitary and storm services (in accordance with the Midtown Stormwater Master Plan and Water / Wastewater Area Servicing Plan)..

From a servicing perspective, it is important to note that the approved Midtown Transportation Master Plan includes the north-south arterial road including a fly-over across the QEW to the north and an underpass across the CN Rail Line to the south. This results in a significant grade change across the site plan, which impacts grading, servicing and spill mitigation (discussed further in the sections that follow).

1.2. Midtown Oakville Background

The Town identifies Midtown Oakville as a key growth and redevelopment area, intended to be developed as a high density, mixed-use, transit supportive neighbourhood. The Midtown Oakville Official Plan Amendment (OPA 70) was adopted by Town Council in February 2025. OPA 70 is not yet in force and effect, as the OPA remains with the Minister of Municipal Affairs and Housing (MMAH) for final approval. On-going planning and implementation studies (led by the Town of Oakville with Jacobs) continue to set direction for ultimate transportation, stormwater management and servicing. The Midtown Oakville Transportation Plan, the Water and Wastewater Area Servicing Plan (Addendum 2) and the Midtown Stormwater Management Plan Report, all completed in 2026, provide guidance on Midtown-wide implementation requirements.

Urbantech has considered this on-going work (as discussed in the sections that follow), where available and appropriate. It is acknowledged that the Town continues to advance Roadway

Functional Designs, a Phasing and Implementation Strategy and an overall Funding / Financing Strategy for Midtown.

1.3. Region of Halton Background

The Region of Halton released their updated Integrated Master Plan in April 2026. The previous Master Plan was completed in 2011 with a planning horizon to 2031. The new Master Plan reviews infrastructure needs to 2051. The Region is working with the Town of Oakville to ensure growth projections for Midtown Oakville are properly identified and considered.

The Region is also advancing the construction of a new 1200 mm diameter trunk sanitary sewer along the Trafalgar Road corridor from Argus Road to Lawson Street (PR-3447/3547). At the time of writing, the Region has initiated construction of the sewer, with completion planned in late 2027. This capital project, identified most recently in the Region's 2022 Development Charges Technical Update Report (GM BluePlan, 2021) and financed through the 2023 Allocation Program, will alleviate existing sanitary capacity constraints in the Midtown Oakville area. Region Staff have shared the Issued for Tender drawings with Urbantech for coordination.

1.4. Conservation Halton – Spill Modelling

Conservation Halton (CH) issued its *Spill Flood Hazard Policies: Technical Guid*e in April 2025. The document provides clear direction for evaluating and managing new development within areas affected by spill flood hazards. According to CH, a spill occurs when floodwaters leave a watercourse, valley, or floodplain and flow overland in multiple directions before rejoining the same watercourse downstream or entering another watershed. Such spill flows can extend into areas not typically associated with riverine flooding and often exhibit complex flow patterns.

CH's flood mapping identifies a spill area north of the GE Midtown site, generally along the QEW corridor. Detailed hydraulic modeling has been completed by CH, which confirms the specific characteristics of the spill and its downstream influence.

As part of the functional servicing work for GE Midtown, Urbantech obtained the CH regional 2D spill model, prepared for the Morrison Creek / Midtown Oakville / Sixteen Mile Creek system. The model was used to evaluate the spill condition on the GE Midtown site during a Regional Storm event, under existing and post-development conditions. A supporting memorandum is included in **Appendix D**, summarizing the analysis, model results, and potential mitigation measures.

Modelling indicates that, assuming barriers along the QEW are removed, spill flows would enter the GE Midtown site under post-development Regional Storm conditions. Spill mitigation is not required for Phase 1, as spill flows would be conveyed through the site and bypass the initial phase of the development.

For the ultimate condition of the site, spill flows can be managed through proposed swales within the 14 m MTO setback (adjacent to South Service Road and north of Phase 2). These flows would be captured in a culvert and directed to a second swale on the east side of Street B, within the Town owned land. This swale would carry flows to culverts beneath Future Cross Avenue and maintain the spill south of the site. This approach protects proposed buildings, access routes, underground parking, and adjacent properties. This ultimate approach is technically feasible and appropriate for draft plan approval. However, the strategy will continue to evolve in coordination with the Town of Oakville and CH. Please refer to **Appendix D** for full details.

2 EXISTING CONDITIONS & SITE GRADING DESIGN

2.1. Existing Soil Conditions

A preliminary geotechnical investigation was completed by EXP Services Inc. (August 2025 – available under separate cover) for the proposed site. The study included twenty-one boreholes advanced to depths of up to 15 m, most terminating in Georgian Bay Shale bedrock.

The subsurface profile generally consists of variable fill and reworked native soils (silty clay to sandy fill) overlying stiff to hard silty clay till, underlain by shallow shale bedrock at depths ranging from about 1.5 m to 4.0 m below grade.

Underground parking excavations up to 13–14 m below grade are expected to extend through fill, till, and shale. Re-use of on-site fill is limited and imported OPSS Granular A/B materials are recommended for backfill and roadway construction.

Overall, the site is considered geotechnically suitable for the proposed development (favourable for high-rise construction) but challenging for implementation of LIDs and groundwater infiltration.

2.2. Existing Groundwater Conditions

A hydrogeological investigation was undertaken by EXP Services Inc. (September 2025 – available under separate cover) for the proposed site. The study evaluated groundwater, hydrostratigraphy, and preliminary dewatering requirements for the planned towers and underground parking structures.

Groundwater levels measured across multiple monitoring wells ranged from 1.1 m to 6.4 m below grade, with flow generally directed southwest toward Morrison Creek. Hydraulic testing confirmed low permeability conditions and low hydraulic conductivity across the site. These results combined with the proposed building geometries, suggest both temporary and permanent de-watering may be required. Rates will be estimated and refined as planning continues. It is acknowledged that the Town of Oakville does not support permanent (long-term) groundwater discharge to the stormwater system as uncontrolled flow. Full waterproofing of building foundations is carried in the current plans, although further discussion with Town Staff would be helpful on this matter, considering the extent of proposed high-density development across Midtown. An alternate approach to waterproofing such as overcontrol of stormwater tank discharge, etc., could be explored for the broader area.

Groundwater quality sampling showed no exceedances of Town of Oakville storm sewer criteria, and only manganese exceeded Halton sanitary sewer limits. Temporary treatment (e.g., filtration or sedimentation) is recommended during construction dewatering to control suspended solids and metals prior to discharge.

Overall, the report concludes that the site's hydrogeological conditions are suitable for the proposed deep foundation and parking structures. Dewatering can be managed, with limited environmental impact expected on nearby wells or surface water features such as Morrison Creek or Sixteen Mile Creek. A comprehensive Water Taking and Discharge Plan, incorporating the hydrogeological findings, EASR registration, and geotechnical review of settlement potential, will be completed prior to construction.

It is important to note that the high groundwater table and geotechnical characteristics of the site may require subsurface drainage (edge drains, collector drains, etc.) integrated into road designs to control and manage groundwater. This will be further reviewed at site plan.

2.3. Site Grading Design

The existing site ranges in elevation between approximately 105 masl (meters above sea level) and 101 masl, sloping generally from north to south (towards the CN Rail Line). For the purposes of the draft plan, road grading outside of the property limits was advanced to understand boundary grades of all Phases, as well as stormwater management and sanitary infrastructure requirements (alignment, cover, etc.).

In general, site grading design (as shown on **Drawing GRD-1 and Drawing GRD-1.1** in **Appendix C**) considers the following requirements and constraints:

- Conformance to the Town of Oakville's grading criteria.
- Minimizing cut to fill operations and work towards a balanced site.
- Matching existing boundary grading conditions.
- Maintaining required drainage boundaries.
- Providing minimum cover on proposed servicing.
- Managing road grades and servicing requirements considering the flyover and underpass associated with the new north-south arterial road.

Preliminary site grading is constrained by the overpass and underpass along the mid-block north-south arterial road and associated impacts to the Cross Avenue extension. Architecturally, there is a significant drop in grade in Block 7 and Block 9 (park space) to accommodate the road transition. Further grading coordination will be required as design proceeds to ensure infrastructure (road design, sanitary and stormwater management) is designed to accommodate the grade requirements. As an example, 100-year capture is proposed for ROWs in part to avoid overland flow directed to the underpass. Detailed block grading will be completed at the site plan stage. It is noted that functional design of both future Cross Avenue and of the north-south arterial (both future Town roads) have been advanced through GE draft plan work in order to understand internal block grading and servicing. This will be shared and coordinated with the Town as their Roadway Functional Design study advances.

3 WATER SERVICING

3.1. Existing Conditions - Water

3.1.1. Existing Water Infrastructure

Midtown Oakville (including the GE Lands site) is located within Water Pressure Zone O2 (Oakville Zone 2), serviced by the Region's lake-based water treatment plants. Existing water distribution infrastructure immediately adjacent to the property includes:

- 300 mm Zone O2 watermain on Davis Road (immediately west of the site).
- 900 mm / 750 mm Zone O2 transmission main on South Service Road (immediately north of the site), originating from the Davis Road Booster Pumping Station (west of the site, near Trafalgar Road).
- 300 mm Zone O2 watermain on South Service Road (at the northeast corner of the site).

Refer to **Drawing WM-1 and Drawing WM-1.1** in **Appendix C** for additional information.

Water is supplied to Zone O2 via the Davis Road Booster Pumping Station (BPS), located west of the subject site at Davis Road and Trafalgar Road. Floating storage for Zone O2 is supplied by the Glenashton (Eighth Line) Reservoir.

3.1.2. Existing Water Demand

There is no current water demand associated with the GE Lands site.

3.2. Proposed Conditions - Water

3.2.1. Proposed Water Servicing Strategy (Phase 1A – Interim Condition)

As identified in **Appendix A1** (Draft Plan), the southwest corner of Phase 1 (Block 1) is proposed to advance immediately as Phase 1A of development, equivalent to roughly 457 units. This block includes a podium, 29-story tower and two mid-rise buildings. The Phase 1A location provides access to existing infrastructure and is not reliant on the new north-south arterial road or the Cross Road extension to move forward. Street A will be constructed as part of Phase 1A development to provide a connection between Davis Road and South Service Road. The boulevard of Davis Road will be advanced from Street A to the southeast corner of Phase 1A to provide pedestrian access to the Phase 1A buildings and associated privately-owned park space. The remainder of the Davis Road corridor, east of Street A, is proposed to be constructed as part of Phase 2 to accommodate future access and municipal servicing requirements, neither of which are necessary to support Phase 1A or Phase 1B. Advancing this portion of road with Phase 1A would be premature, as the design of the associated underground infrastructure, including pipe sizes, alignments and depths, remains dependent on future Phase 2 servicing requirements and the detailed design of the Cross Road extension. Deferring construction of this portion of Davis Road to Phase 2 will allow the corridor and associated infrastructure to be designed and implemented in a coordinated manner, while avoiding unnecessary construction and potential future modifications.

The water servicing strategy for Phase 1A is shown in **Drawing WM-1** and includes the existing 300 mm watermain on Davis Road (west of the property) as well as a new 300 mm watermain proposed within Street A from Davis Road north to the existing 750 mm watermain on South Service Road. This network is consistent with the ultimate strategy put forward in the Midtown Water and

Wastewater Area Servicing Plan (Jacobs, 2026) and provides a fully looped Zone O2 system supporting the Phase 1A development. Hydraulic modelling is recommended at the site plan stage to validate system performance. Given the proximity of the GE Midtown site to the Davis Road Booster Station and the relatively low flow demands associated with Phase 1A, the existing system is expected to provide adequate flow and pressure for interim servicing needs. See **Section 3.2.4** for additional information regarding system capacity.

In the long-term, the water network supporting Phase 1A can be incorporated directly into the broader Midtown Oakville water network. There is no throw-away or interim infrastructure proposed.

3.2.2. Proposed Water Servicing Strategy (Ultimate Build-Out)

As shown in **Drawing WM-1.1**, new watermain infrastructure along Davis Road and Cross Avenue establishes the primary servicing framework for the GE Midtown plan area. These new mains connect to the existing 300 mm pipes on Davis Road and South Service Road (Zone O2), creating a fully looped network. Additional 300 mm watermains are proposed along Street A (north of Davis Road, which will be installed as part of Phase 1A development), the new north-south arterial (south of Davis Road) and on future Street B (east of the GE Midtown site) to further strengthen system resiliency and provide servicing continuity to adjacent properties.

The strategy proposed for the GE Midtown site and shown in **Drawing WM-1.1** is consistent with the water network proposed in the Midtown Water and Wastewater Area Servicing Plan (Jacobs, 2026). The ASP proposes 200 mm to 300 mm watermains along the Davis Road and Cross Avenue extensions (east / west corridors), with north / south watermain connections in several locations for looping. We have assumed all local watermains are 300 mm diameter given the density proposed in this area and typical fire supply requirements for high-rise buildings. Final watermain size will be confirmed at site plan.

Comprehensive hydraulic modelling was undertaken as part of the 2026 Jacobs ASP. Results of the modelling shown no concerns across the Midtown development with respect to system capacity and delivery pressure. As such, site-specific hydraulic modelling for GE Midtown is not recommended at this time but will be undertaken at Site Plan stage, when additional information is available regarding development timing, built-form, construction type and architectural details for each Phase and Block.

In addition to the above, please note that:

- Watermains will provide all domestic flow and fire protection to the GE Lands development.
- Per Region of Halton guidelines, a 200 mm diameter fire service and 150 mm diameter domestic (residential) service will be required for each block. A second 200 mm fire service may be required but will be confirmed at site plan with the mechanical engineer. The mechanical consultant will also be responsible for the design of all the internal water services.
- The final location of the fire department connection (siamese connection) for the buildings will need to be located within 80 m of a municipal fire hydrant. Fire hydrant location will be determined at detailed design but will meet Region of Halton criteria for location and spacing.

Refer to **Drawing WM-1.1** in **Appendix C** for additional information.

3.2.3. Proposed Water System Demands

Proposed domestic water demand for the GE Lands site has been calculated using the following information:

- Preliminary Site Statistics (total unit count and preliminary commercial GFA).
- Region of Halton Water and Wastewater Linear Design Criteria (per capita usage, max day / peak hour factors), per the 2025 Linear Design Manual.
- Region of Halton Built Boundary Housing Occupancy Rates and Employment Rates (per the 2022 DC Background Study, Table A-4 and Table A-8)

The domestic water usage projected for the site is as follows, with supporting calculations available in **Appendix B:**

Phase 1A:

- Population: 777 people, 21 jobs
- Avg. Day Usage: 230 L/person/day, 190 L/employee/day
- Average Day Demand: 2.12 L/s
- Max Day Demand: 4.02 L/s
- Max Hour Demand: 6.35 L/s

Ultimate Build-Out (Full Site):

- Population: 9,544 people, 244 jobs
- Avg. Day Usage: 230 L/person/day, 190 L/employee/day
- Average Day Demand: 25.94 L/s
- Max Day Demand: 49.29 L/s
- Max Hour Demand: 77.82 L/s

Fire flow will be estimated at the site plan stage using the Fire Underwriters Survey (2020) methodology when additional information is available regarding built-form, construction type, building use, sprinkler installation, and protection for vertical openings. Per Regional criteria, the water system will be designed for the higher of Max Hour or Max Day + Fire.

3.2.4. Water System Capacity Analysis

The ability of the Regional water system to support short-term growth (i.e., to 2031) and long-term growth (i.e., to 2051) in Midtown Oakville area was evaluated as part of Halton Region's Integrated Master Plan (Halton Region, GEI, 2026).

As noted in **Section 3.1.1**, Midtown Oakville is serviced by Pressure Zone O2, with pumping provided by the Davis Road Booster Pump Station (BPS) and floating storage provided by the Glenashton (Eighth Line) reservoir. The Master Plan notes that no upgrades are required to the Davis Road BPS out to 2051. Baseline (2022) demand at Davis Road BPS is noted as 19 MLD, with a 2051 demand of 48.6 MLD (both are below the firm capacity of the station at 74 MLD). Long-term, pumping in Zone O2 will be supported by the new Burloak BPS (in detailed design), which will provide resiliency and security to the zone.

Storage available at the Glenashton reservoir is currently 17.4 ML. Baseline (2022) storage requirements are noted at 10.1 ML, with future requirements of 19.4 ML. There is a planned expansion of this reservoir in the 2030 timeframe to 24 ML, meant to maximize the Davis Road BPS capacity and facilitate additional transfer of water to growth areas in north Oakville, Milton and Georgetown. It will not impact the ability of the Midtown Oakville area to move forward in the interim.

Similarly, there is a planned twinning of the 750 mm transmission main from the Davis Road BPS to the Glenashton Reservoir in the 2040 timeframe. This is also to facilitate moving water north to other growth areas in the Region and will not impact Midtown build-out.

The ASP confirms that there is capacity in the existing 300 mm watermains on Davis Road and South Service Road to provide sufficient flow and pressure to support growth in Midtown (i.e., there are no recommendations to replace the existing services on these corridors). The broader local water system will be augmented with additional cross-connections on future north/south road alignments, as discussed in sections above.

The existing system is robust, with good distribution and looping. The south Halton water system is highly integrated; water treatment capacity is not dependent on a single plant. Midtown Oakville receives water predominantly from the Oakville WTP and Burloak WTP. An expansion is currently proceeding at the Burloak WTP (from 55 MLD to 165 MLD), with completion in 2031. The Region has indicated through their recent infrastructure review as part of the 2023 Allocation Program that capacity exists in the treatment and transmission main system to meet the Town of Oakville's housing pledge of 33,000 units by 2031, without major upgrades to treatment plants. The Town will rely on both greenfield and built-boundary growth (in key nodes like Midtown Oakville) to meet their 2031 housing goals.

Given work done to-date, water system capacity is not expected to be a limiting factor for development of the GE Lands. As planning proceeds, water distribution pressure and fire flow requirements for the site can be reviewed in more detail. Water hydraulic modelling will be undertaken at site plan when additional information is available regarding neighbouring developments and long-term plans for Midtown Oakville.

4 SANITARY SERVICING

4.1. Existing Conditions – Wastewater

4.1.1. Existing Wastewater Infrastructure

The majority of Midtown Oakville (including the GE Lands) is located within the Oakville Southwest Wastewater Treatment Plant (WWTP) catchment area. Wastewater from the area currently drains to an existing trunk sewer along Trafalgar Road which flows south to Rebecca Street and then west to the WWTP.

The Region of Halton has advised that the existing trunk sewer on Trafalgar Road (between Cross Avenue and Cornwall Road) is undersized and currently does not have capacity to accommodate new growth in Midtown. An upgrade project is ongoing by the Region to increase the size of the trunk sewer on Trafalgar Road to 1200 mm, which will alleviate this constraint. The Region has started construction on this new sewer, with completion planned in late 2027. As outlined in the Midtown Water and Wastewater Area Servicing Plan (Jacobs, 2026), there is a single connection proposed for all Midtown development to the new 1200 mm trunk sewer, located on the west side of Trafalgar Road, at Argus Road.

The eastern boundary of Midtown, extending from east of the GE Lands to Chartwell Road, drains away from Trafalgar Road to the Ninth Line Wastewater Pump Station (WWPS) and the Oakville Southeast WWTP via an existing 750 mm trunk sewer on Chartwell Road.

Existing wastewater distribution infrastructure immediately adjacent to the GE Lands property includes:

- 300 mm sanitary sewer on Davis Road (immediately west of the site), draining west to the existing Trafalgar Road sanitary trunk system.
- 300 mm sanitary sewer on South Service Road (at the northeast corner of the site), draining east to the Chartwell Road sanitary trunk sewer.

Refer to **Drawing SER-1** in **Appendix C** for additional information.

4.1.2. Existing Wastewater Demands

There is no current wastewater demand associated with the GE Lands site.

4.2. Proposed Conditions – Wastewater (Sanitary)

4.2.1. Proposed Sanitary Servicing Strategy (Phase 1A – Interim Condition)

As outlined in **Section 3.2.1** and illustrated in **Appendix A** (Draft Plan), the southwest corner of Phase 1 is proposed to advance immediately as Phase 1A of development, equivalent to roughly 457 units.

The interim (Phase 1A) servicing strategy for the GE Midtown site is shown in **Drawing SAN-1** and **Drawing SAN-2**. Rose Corporation has been working closely with Region of Halton Staff on the development of an interim solution, given that the ultimate servicing strategy for the site is dependent on the Cross Avenue extension and on the design and installation of significant wastewater infrastructure running east to west across Midtown to the Argus Road connection. The final network

will not be in place in time to service the first phase of the GE Midtown development and there is no alternative connection to the new 1200 mm Trafalgar trunk sewer. As such, the Region has confirmed that Phase 1A can proceed as follows:

- Phase 1A will discharge to the existing 300 mm Davis Road sanitary sewer, originally constructed in 1945 using vitrified clay. This sewer was identified in 2003 CCTV inspections as being in poor condition. However, records confirm that the sewer was re-lined in the 2011 timeframe, significantly improving its long-term functionality. Updated CCTV inspections in March 2025 show the pipe to be clean and functional, and therefore suitable for interim use to accommodate Phase 1A flows.

- Flows will continue south in the existing sanitary system via a 300 mm sewer on Trafalgar Road that extends from Davis Road to Cross Ave. This sewer was also constructed in 1945 but has not been re-lined. The Region has completed a CCTV assessment (summer 2026) and has initiated a project to re-line this sewer in Fall 2026 so that is it suitable for Phase 1A use.

- South of this sewer, the existing Trafalgar network is newer and in good state of repair. The Region has confirmed that there is capacity in this system (upon commissioning of the new 1200 mm trunk sewer) to accommodate Phase 1A flows.

Under ultimate conditions, and in accordance with the 2026 ASP, the existing 300 mm pipe on Davis Road will remain in operation long-term. The Phase 1A service connection from Davis Road to Trafalgar Road and south through the existing 300 mm on Trafalgar Road will be decommissioned. Phase 1A (as well as the remainder of the Phase 1 block) will remain connected to the Davis Road sewer but will be re-directed south to the Cross Avenue main sub-trunk (via a new external local road) and directed west to the new 1200 mm trunk sewer. As shown in the sanitary design sheets (**Appendix B**) depending on the development proposed external to the GE site, the existing 300 mm pipe on Davis Road west of the GE site may not be suitably sized for long-term growth. Population estimates for external lands will continue to evolve as Midtown planning continues.

Refer to **Drawing SAN-1** and **Drawing SAN-2** in **Appendix C** for the proposed Phase 1A sanitary servicing plan. Sanitary design sheets (included in **Appendix B**) confirm that sufficient capacity is available in the existing Davis Road and re-lined Trafalgar Road 300 mm sewers to accommodate the Phase 1A development, in addition to existing users. Design sheets also indicate there is additional capacity in the system to potentially advance other blocks in Phase 1, depending on development timing and in consultation with Halton Region.

4.2.2. Proposed Sanitary Servicing Strategy (Ultimate Build-Out)

The proposed sanitary servicing strategy for the full GE Midtown site is shown in **Drawing SAN-1.1** and **Drawing SAN-2.1** in **Appendix C**. Consistent with the Midtown ASP (Jacobs, 2026), all wastewater generated from the site is proposed to be directed west to the new 1200 mm Trafalgar Road Trunk Sewer. There is a single connection provided for Midtown development, located at Argus Road and South Service Road, west of Trafalgar. Wastewater flows from east of Trafalgar Road are conveyed west along the new Cross Avenue corridor and then north to the Argus Road connection, via a network of 450 mm – 750 mm diameter pipes. While not currently captured in the Region's capital program, it is assumed that the forthcoming DC Background Study and associated technical reports will identify DC eligible pipes in this network, in accordance with the Region's Local Service Guidelines.

For the GE Midtown site, sanitary flows are proposed to drain to new local sanitary sewers extending west along Davis Road and south along Street A. Flows will then be conveyed through the broader

Midtown Oakville sanitary system along Cross Avenue, west to Argus Road, and north to the proposed 1200 mm sanitary trunk sewer connection at Argus Road and South Service Road. Implementation of this ultimate servicing strategy is dependent on the timing of future Cross Avenue design and construction, including the associated underground infrastructure required to convey flows west and north to the new trunk sewer. Urbantech has raised concerns about the long-term suitability of the proposed connection at Argus Road for the GE Midtown site, given the length of the proposed sanitary sewer alignment and the associated depth and grading constraints. The Region has confirmed in writing that the connection at Argus is suitable for gravity conveyance of all flows east of Trafalgar Road to the new sanitary connection currently under construction.

4.2.3. Proposed Wastewater Generation

The future wastewater (sanitary) generation rate for the GE Lands site has been calculated using the following information:

- Site Statistics.
- Region of Halton Water and Wastewater Linear Design Criteria (per capita generation rate, average day demand, peaking factor, and inflow / infiltration rate).
- Region of Halton Built Boundary Housing Occupancy Rates and Employment Rates (per the 2022 DC Background Study, Table A-4 and Table A-8).

The wastewater generation rates projected for the site are as follows, with supporting calculations available in **Appendix B**.

Phase 1A:

- Population: 777 people, 21 jobs
- Avg. Day Usage: 215 L/person/day, 185 L/employee/day
- Avg. Dry Weather Flow: 1.98 L/s
- Peaking Factor (Modified Harmon): 3.86
- Inflow / Infiltration: 0.17 L/s (0.60 ha)
- Peak Wet Weather Flow: 7.81 L/s

Ultimate Build-Out (Full Site):

- Population: 9,544 people, 244 jobs
- Avg. Day Usage: 215 L/person/day, 185 L/employee/day
- Avg. Dry Weather Flow: 24.27 L/s
- Peaking Factor (Modified Harmon): 2.96
- Inflow / Infiltration: 2.49 L/s (8.89 ha)
- Peak Wet Weather Flow: 74.43 L/s

4.2.4. Wastewater System Capacity

As noted in **Section 4.1.1** the Region is moving forward with a sewer upgrade project on Trafalgar Road, which will provide long-term capacity to accommodate growth in Midtown. The Region has previously completed upgrades to the downstream trunk sewer system on Trafalgar Road, Rebecca Street and Lakeshore Road, up to the Oakville Southwest WWTP. The Region has confirmed that sufficient sanitary servicing capacity is available under both interim and ultimate conditions. Under interim conditions, sanitary flows can be accommodated within the existing 300mm sanitary sewers

on Davis and Trafalgar Roads, which are currently being relined by the Region. Under ultimate conditions, sanitary capacity will be available within the new 1200mm Trafalgar Road Trunk Sewer, which has been designed to accommodate the GE subject lands, as well as future growth throughout the Midtown Oakville area.

Similar to the water system, the ability of the broader Regional sanitary system to support short-term growth (to 2031) and long-term growth (to build-out) in Midtown was evaluated through the Integrated Master Plan (Halton Region, GEI, 2026). The Master Plan concludes that:

- There is sufficient capacity at the Oakville Southwest WWTP to support near-term growth in Midtown. Currently treatment capacity at the Southwest WWTP is 45 MLD, with average day flows over the past 10 years showing a declining trend from approximately 30 MLD to 20 MLD. Given growth projections in the Oakville Southwest WWTP catchment, including Midtown Oakville, the Region has identified that a plant expansion from 45 MLD to 60 MLD may be required in the 2041 timeframe. The need and timing for the future expansion will continue to evolve over time. The Region is also planning a flow diversion from the Bronte GO MTSA from the Southwest WWTP to the Mid-Halton WWTP to alleviate capacity concerns at Southwest WWTP.
- There are no sanitary pump stations between Midtown Oakville and the Oakville Southwest WWTP. There are no wastewater pump station capacity considerations or concerns.
- There are no sewer upgrade projects planned downstream of Midtown that would impact the conveyance capacity to the treatment plant.

As such, once the Region has completed the trunk sewer upgrades on Trafalgar Road (2027 timeframe), sanitary trunk sewer capacity is not expected to be a limiting factor for development of the GE Lands. Calculations show that the existing Davis Road sewer can accommodate Phase 1A sanitary flow (and beyond) (see **Appendix B**), which will allow for initial development to proceed. Other Blocks will rely on future sanitary and road infrastructure as the Midtown area builds-out.

5 STORM DRAINAGE & STORMWATER MANAGEMENT

5.1. Existing Storm Drainage

Under existing conditions, the majority of the site drainage is conveyed in a southeasterly direction towards an existing ditch, which runs along the southeast boundary of the subject lands. The existing ditch flows from north to south.

Existing drainage conditions are illustrated on **Drawing STM-1**, provided in **Appendix C**. Several external drainage catchments are conveyed through the subject lands under existing conditions:

- EXT1 & EXT4: boulevard drainage from South Service Road East;
- EXT2 & EXT3: drainage from the existing property to the southwest;
- EXT5: drainage from the existing property to the east; and
- EXT6 & EXT7: drainage from the existing property to the east.

Major and minor flows from a portion of the existing drainage area (catchments EX1 and EXT1) are captured and conveyed to the existing 600 mm ø storm sewer on Davis Drive, as shown on **Drawing STM-1,** provided in **Appendix C**. The existing storm drainage outlets are described in **Table 5-1**.

Table 5-1: Existing Storm Outlets

Catchments	Total Drainage Area (ha)	Storm Connection / Outlet
EXT1 & EX1	2.97	EX.STM.MH 13 (Ex. 600 mm ø storm sewer)
EXT2, EXT3, EX2, EXT4, EXT5, EXT6 & EXT7	9.74	CNR Crossing
Total	**12.71**	Lower Morrison Creek West

It is noted that all of the drainage for the subject site falls within the Lower Morrison Creek subwatershed, and under existing conditions discharges to Lower Morrison Creek West, per the Midtown SWM Plan Report (2026).

5.2. Proposed Ultimate Storm Drainage Plan

Under post-development conditions, the majority of the subject site discharges to Lower Morrison Creek West, while a small portion of the site discharges to Lower Morrison Creek East, per the Midtown SWM Plan Report (2026). The post-development drainage plan is shown on **Drawing STM-2.1**, provided in **Appendix C**. The proposed storm drainage outlets are described in **Table 5-2**.

Table 5-2: Proposed Storm Outlets

Subwatershed	Catchment IDs	Total Drainage Area (ha)	Storm Connection / Outlet
Lower Morrison Creek West	BLK1A, BLK1B, 8, 9, 11 & EXT3	3.62	Davis Drive - EX.STM.MH 1 (Ex. 600 mm ø storm pipe)
	BLK2, BLK3, BLK4, 4, 5, 6 & 10	6.32	Future Cross Avenue (West) – STM.MH 1 (Fut. 1200x1800 mm Box Pipe)
	1, 2, 3, BLK3.1 & BLK4.1	2.16	Drains to Pumped Underpass at Cross Ave. (STM.FUT 14) to CNR Crossing; Ultimate Outlet by Others
Lower Morrison Creek East	7 & EXT4	0.94	Future Cross Avenue (East) to Morrison Creek
Total	**-**	**13.04**	Lower Morrison Creek

A storm sewer system is proposed throughout the subject site to convey flows from the 10-year return period storm event, as per Town of Oakville standards. The storm sewers have been sized using the Rational Method and Town of Oakville intensity-duration-frequency (IDF) parameters and runoff coefficients.

The proposed minor system storm sewer plan is illustrated on **Drawing STM-2.1**, provided in **Appendix C**. Storm sewer design calculations are also included in **Appendix B**.

As illustrated on **Drawing STM-2** provided in **Appendix C**, the southwest corner of Phase 1, storm catchment BLK 1A) is proposed to advance as Phase 1A of development.

Phase 1A of the GE Midtown site is proposed to connect to the existing 600 mm storm sewer on Davis Road, with flows directed westward. The post-development flows at Davis Drive are controlled such that the pre-development flow of 717 L/s is not exceeded under post-development conditions. The pre- and post-development storm sewer design sheets for the existing and proposed discharge at Davis Drive are provided in **Appendix B**.

Street A stormwater management will also be required to support the Phase 1A development, as shown on **Drawing STM-2**.

5.3. Stormwater Management

In accordance with Town of Oakville requirements for stormwater management, and as outlined in the Midtown Stormwater Management Plan Report (March 2026), the design criteria for the subject site are as follows:

Stormwater Quantity Control (Peak Flow Control)

The subject site drains to Lower Morrison Creek under both pre- and post-development conditions. As noted in the Midtown SWM Plan Report (March 2026), unitary storage requirements were established for both Lower Morrison Creek East (211.8 m^3/impervious ha) and Lower Morrison Creek West (199.7 m^3/impervious ha).

As per the Midtown SWM Plan Report (March 2026), "*post-development ultimate discharge to the receiving water body must not exceed allowable flow targets. The proposed design must also ensure no flooding or surcharge occurs in either the minor or major conveyance systems, applying the 1:5-year return period for the minor system and the 1:100-year return period for the major system*."

Stormwater Runoff Volume Reduction (Water Balance)

As per the Midtown SWM Plan Report (March 2026), "*future development within the Midtown area is to provide retention of 25 mm, applied to the impervious area*."

As noted in the Midtown SWM Plan Report (March 2026), unitary retention requirements were established for both Lower Morrison Creek East (104.2 m^3/impervious ha) and Lower Morrison Creek West (93.1 m^3/impervious ha).

The runoff volume reduction of the 25 mm target shall follow the following hierarchy, as per Appendix A of the Town's ECA:

1. Retention (infiltration, reuse or evapotranspiration)
2. Filtration (Absorption and increased depression storage)
3. Conventional stormwater management (Detention and attenuation)

Stormwater Quality Control

As per the Midtown SWM Plan Report (March 2026), "*future development within the Midtown area is to achieve Enhanced Level 1 Protection (80% long-term removal of TSS*." As noted in the Midtown SWM Plan, a Treatment Train approach is preferred, which may include a combination of oil/grit separator (OGS) units, CB Shields and feasible Green Infrastructure / LID measures.

5.3.1. Stormwater Quantity Control (Peak Flow Control)

As noted in **Section 5.3**, unitary storage requirements were established for both Lower Morrison Creek East (211.8 m^3/impervious ha) and Lower Morrison Creek West (199.7 m^3/impervious ha), per the Midtown SWM Plan Report (March 2026).

Quantity control storage for the site plan blocks (Phase 1, Phase 2, Phase 3 and Phase 4) is to be provided by underground storage tanks. Runoff from the site plan blocks will be collected through proposed roof drains, trench drains, and surface area drains and conveyed to the underground stormwater tanks. An emergency overland flow route is to be provided from each underground stormwater tank to the proposed right-of-way (ROW). More details on the emergency flow route will be provided at the detailed design stage (with coordination from the mechanical engineer).

Quantity control storage for the road ROW catchments will be provided by superpipes, integrated with the proposed storm servicing plan. ROW runoff from the 100-year storm will be captured in catchbasins and directed to the storm sewer system, where the proposed superpipes will provide the required storage attenuation.

The proposed quantity control measures for the subject lands are aligned with the SWM recommendations from the March 2026 Midtown SWM Plan.

The proposed ultimate stormwater management plan is shown on **Drawing STM-2.1**, provided in **Appendix C. Table 5-3** summarizes the proposed storage for the subject development in order to meet the quantity control requirements, as per the Midtown SWM Plan.

Table 5-3: Quantity Control – Required Storage

Catchment Area IDs	Total Area (ha)	Unit Storage Volume (m^3/imp ha)	Storage Volume Required (m^3)	Storage Type Proposed
BLK1A & BLK1B	2.42	199.7 (Lower Morrison Creek West)	965*	Storage tank within proposed building; configuration to be confirmed at detailed design
BLK2	2.13		425	Storage tank within proposed building; configuration to be confirmed at detailed design
BLK3	1.24		248	Storage tank within proposed building; configuration to be confirmed at detailed design
BLK4	1.19		238	Storage tank within proposed building; configuration to be confirmed at detailed design
BLK3.1	0.40		17	Storage within park LID (Aquabox or approved equivalent; configuration to be confirmed at detailed design
BLK4.1	0.26		11	Storage within park LID (Aquabox or approved equivalent; configuration to be confirmed at detailed design
1	0.57		114	134.3m-900x1800 mm Superpipe within Cross Avenue ROW (From STM-FUT11 to STM.FUT10)
2	0.56		112	99.3m-900x1800 mm Superpipe within Cross Avenue ROW (From STM-FUT13 to STM.FUT10)
3	0.37		74	103.5m-900x1800 mm Superpipe within North-South Road ROW (From STM-FUT12 to STM.FUT10)
4, 5, 6 & 10	1.76		351	147.9m-1200x3000 mm Superpipe within Street “A” ROW (From STM.MH3to STM.MH1)

Catchment Area IDs	Total Area (ha)	Unit Storage Volume (m^3/imp ha)	Storage Volume Required (m^3)	Storage Type Proposed
8, 9 & 11	1.07		214	174.4m-900x1800 mm Superpipe within Street "A" ROW (From STM.MH13 to EX.STM.MH13)
7	0.52	211.8 (Lower Morrison Creek East)	110	144.4m-900x1800 mm Superpipe within the Future Cross Avenue ROW (From STM-FUT8 to the creek outlet)
Total	**12.49**	**-**	**2,397**	**-**

**Note: Block 1 is proposed to be over controlled beyond the unit target volume, per the Midtown SWM Plan Report (March 2026), such that the pre-development flow to the existing 600 mm storm sewer on Davis Drive is not exceeded.*

As noted in the Midtown SWM Plan Report (March 2026), a comparison of pre- and post-development flows was completed with the Midtown PCSWMM model to confirm that the proposed subject development does not impact flows downstream. As per **Table 5-4** below, the comparison of 100-year flows under pre- and post-development conditions confirm that the subject development does not result in increased flows downstream under proposed conditions. The downstream nodes selected for the flow comparison are based on Table 9-8 from the Midtown SWM Plan Report (March 2026). The updated PCSWMM model files are included in **Appendix B**.

Table 5-4: Downstream Flow Comparison

PCSWMM Junction ID	100-Year Pre-Development Flow (Midtown PCSWMM Model – Existing Conditions, March 2026)	100-Year Post-Development Flow (Midtown PCSWMM Model – Future Conditions, Urbantech Update October 2026)	% Change in Flows
Tee15_LMC	20.234	15.127	-25.2%
J2353.323	22.129	17.161	-22.1%
J165	22.105	16.596	-24.9%
J867.2666	44.339	35.456	-20.0%

5.3.2. Stormwater Runoff Volume Reduction

As noted in **Section 5.3**, 25 mm of retention is to be provided over the entire impervious area of the subject site, in accordance with the Midtown SWM Plan (March 2026) and the Town's CLI-ECA requirements. As per the Midtown SWM Plan Report (March 2026), unitary retention requirements were established for both Lower Morrison Creek East (104.2 m^3/impervious ha) and Lower Morrison Creek West (93.1 m^3/impervious ha). **Table 5-5** summarizes the proposed storage for the subject development in order to meet the runoff volume reduction requirements, as per the Midtown SWM Plan.

Table 5-5: Runoff Volume Reduction Requirements

Catchment Area IDs	Total Area (ha)	Impervious Area (ha)	Unit Storage Volume (m^3/imp ha)	Storage Volume Required (m^3)
Blocks: BLK1A, BLK1B, BLK2, BLK3, BLK3.1, BLK4, BLK4.1)	7.64	7.12	93.1 (Lower Morrison Creek West)	663
ROWs (West): 1-6, 8-11	4.33	4.33		403
ROWs (East): 7	0.52	0.52	104.2 (Lower Morrison Creek East)	54
Total	**12.49**	**-**	**-**	**1,120**

As shown on **Drawing STM-2.1**, two infiltration/filtration galleries are proposed on the east side of site within the park areas of Block 7 and Block 9. The total retention volume provided in the parks is 1,253 m^3, which exceeds the volume reduction target of 1,120 m^3.

The detailed LID and water balance mitigation plan will be provided through detailed design at the site plan approval stage. Site constraints such as clearance to the seasonally high groundwater level will be considered in the selection, implementation, and location of the proposed LID measures. As noted in **Section 2.1**, the existing bedrock conditions may limit the implementation of LID measures. As such the soil / bedrock conditions are also to be considered at the detailed design stage as part of the overall water balance mitigation plan.

The runoff volume control measures for the subject lands are aligned with the SWM recommendations per the Midtown SWM Plan Report (March 2026), which proposes underground storage and green infrastructure within parks.

5.3.3. Stormwater Quality Control

As per the Midtown SWM Plan Report (March 2026), Enhanced Level 1 protection for the removal of >80% of total suspended solids (TSS) is to be provided for the subject site. Enhanced Level quality control is to be provided for the proposed development by either filtration (via Jellyfish units, or approved equivalent) within the proposed development blocks, and via a treatment train approach for the proposed rights-of-way (ROWs) combining treatment via oil/grit separator (OGS) units and CB Shields.

Adequate maintenance will need to be undertaken for all proposed water quality treatment measures, to provide a minimum 80% TSS removal. The detailed design phase will provide further details on any maintenance requirements, proposed sizing, and proposed specifications for all proposed water quality measures.

It should be noted that additional quality control will be provided by the proposed infiltration/filtration facilities within the Block 7 and Block 9 park areas, as discussed in **Section 5.3.2**. The proposed quality control measures for the subject lands are aligned with the SWM recommendations from the March 2026 Midtown SWM Plan Report.

5.3.4. Spill Mitigation

Conservation Halton's *Spill Flood Hazard Policies: Technical Guide* (April 2025) outlines requirements for assessing development in areas impacted by spill flood hazards. CH mapping identifies a spill area north of the GE Midtown site along the QEW, confirmed through detailed hydraulic modelling. Urbantech applied CH's regional 2D spill model for the Morrison Creek / Midtown Oakville / Sixteen Mile Creek system to evaluate existing and post-development Regional Storm conditions. Modelling indicates that, if the QEW barriers are removed, spill flows would enter the site under existing and post-development conditions. Under existing conditions, the majority of the spill is directed to the south, towards the rail corridor, with the remaining flows discharging from the site at the south west and south east sides of the subject lands. Under ultimate conditions, spill flows are proposed to be managed through a swale within the 14 m MTO setback, captured in a culvert, and directed to a second swale on the east side of Street B, then conveyed beneath Future Cross Avenue to convey the flows to the approximate existing "outlet" location spill south of the site. This approach will continue to evolve in coordination with the Town of Oakville and CH, as the Future Cross Avenue road grading design and Town of Oakville spill study progress Overall, the strategy aims to avoid impacts off-site and attempts to preserve the existing spill flow paths to the extent possible, recognizing that other works (e.g. development of the future Town-owned park lands and extension of Cross Avenue, and other public infrastructure) will also impact the floodplain and spill direction. The spill memo also documents how the northwest quadrant of the subject lands can proceed without impacting the spill elsewhere, given that the management strategy is located on the eastern half of the subject lands.

Additional information is included in **Section 1.4**, with the full memo in **Appendix D**.

6 EROSION & SEDIMENT CONTROL

Erosion and sediment controls for the subject lands will be designed in conformance with the Town of Oakville and Conservation Halton guidelines. Erosion and sediment controls will be implemented during all site construction works including but not limited to topsoil stripping, bulk earthworks, foundation excavation, site servicing and stockpiling of materials and will conform to ESC guidelines (2019). The following erosion and sediment control measures are proposed to be implemented during construction:

- Installing heavy duty silt control fencing along the perimeter of the site at strategic locations.
- Installing a temporary mud mat at the construction site entrance.
- Wrapping the tops of all inlet structures with filter fabric and using install silt sacks.
- Tree preservation fencing in accordance with the tree preservation plan, if required.
- Gravel mud mat at the construction vehicle access point to minimize off-site tracking of sediments.
- Inspecting all sediment and erosion control controls to maintain them in good repair until such time as the Engineer or the Town approves their removal.

If required, site-specific measures will be determined during the detailed design / site alteration application stage. A detailed Erosion & Sediment Control Plan will be provided in the future through the detailed design stage.

7 CONCLUSIONS

This report confirms the feasibility of full municipal servicing, supporting the proposed mixed-use redevelopment of the GE Midtown site. The proposed servicing strategy accommodates both interim (Phase 1A) and ultimate build-out conditions, aligning with the Town's Midtown Oakville growth vision and ongoing Regional infrastructure planning. Servicing concepts have been developed in consideration of the Town's and Region's latest design criteria, current master planning initiatives, and Conservation Halton's updated spill policies.

From a water servicing perspective, the development can be adequately serviced from existing Zone O2 infrastructure via Davis Road, supported by the Davis Road Booster Pumping Station and Eighth Line Reservoir. Interim servicing for Phase 1A is proposed to proceed using existing 300 mm watermains, with sufficient flow and pressure anticipated for both domestic and fire protection demands. The ultimate build-out strategy provides a looped watermain network along Davis Road, Cross Avenue, and new internal roadways.

For sanitary servicing, the initial phase will be supported by existing 300 mm sanitary sewers on Davis Road and Trafalgar Road, which have been structurally relined and verified for capacity through recent CCTV inspection. Ultimate flows from the full development are proposed to discharge west to the new 1200 mm Trafalgar Road Trunk Sewer currently in construction by Halton Region, via future Cross Avenue. The Trafalgar Road Trunk Sewer provides long-term sewer capacity to accommodate Midtown growth.

The stormwater management strategy meets Town and Conservation Halton requirements for quantity, quality, and water balance control. Runoff will be managed through a combination of underground storage tanks within the development blocks, superpipes within the municipal rights-of-way, and infiltration galleries within park blocks. The plan provides on-site control of peak flows to the Lower Morrison Creek system, achieves enhanced (Level 1) water quality treatment, and satisfies the Town's water balance target of 25 mm retention.

Spill analysis using Conservation Halton's regional 2D model confirms that spills entering the GE Midtown site across the QEW can be safely managed through on-site grading and conveyance measures.

In conclusion, the proposed servicing, stormwater management, and spill mitigation strategies collectively demonstrate that the GE Lands can be developed in a safe, sustainable, and coordinated manner consistent with current Town, Region, and Conservation Halton requirements. The proposed approach supports early phases of development while remaining adaptable to future infrastructure improvements and policy updates arising from ongoing master planning for Midtown Oakville.

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Report Prepared by:



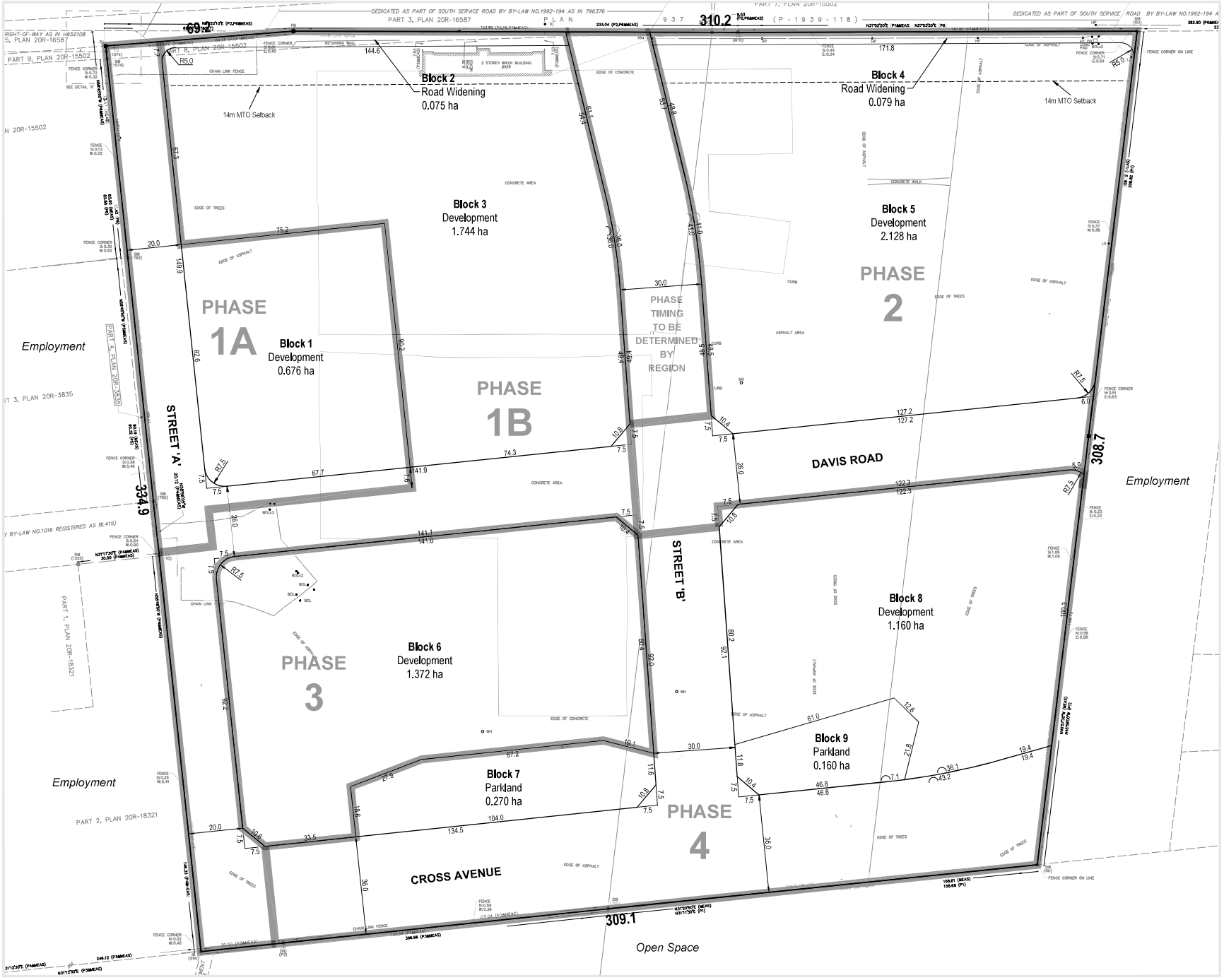


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Associate, Manager, Water Resources

APPENDIX A:
Draft Plan of Subdivision

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urbantech.com



LEGAL DESCRIPTION
PART OF LOT 12, CONCESSION 3, SOUTH OF DUNDAS ST
(GEOGRAPHIC TOWNSHIP OF TRAFALGAR, COUNTY OF HALTON)
AND LOTS 113 AND 114, REGISTERED PLAN 1009
TOWN OF OAKVILLE
REGIONAL MUNICIPALITY OF HALTON

OWNER'S CERTIFICATE

I AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

Date: September 18, 2026 Signature:
Daniel Berholtz
South Service Holding Corporation

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN

Date: September 17, 2026 Signature: John Yuen
John Yuen
Ontario Land Surveyor (O.L.S.)



Subject Lands

north

Scale: 1:50,000

Additional Information Required Under Section 51(17) of the Planning Act R.S.O. 1990, c.P.13 as Amended:

A. As Shown
B. As Shown
C. As Shown Above
D. Residential, Commercial, Community, Park, Privately Owned Public Open Space (POPS), Parkland, Stratified Parks
E. Employment, Open Space; As Shown
F. As Shown
F.1. To Be Discussed With Municipality
G. As Shown
H. Municipal Water Supply
I. Silty Clay, Silty Sand, Sand, and Gravel
J. All Services as Required
K. All Services as Required
L. As Shown

SITE STATISTICS

Block No.	Block Name	Phase	Hectares	Acres
1	Development	1A	0.676	1.671
2	Road Widening	1B	0.075	0.185
3	Development	1B	1.744	4.309
4	Road Widening	2	0.079	0.196
5	Development	2	2.128	5.258
6	Development	3	1.372	3.391
7	Parkland	3	0.270	0.668
8	Development	4	1.160	2.867
9	Parkland	4	0.160	0.395
Street 'A', Street 'B', Davis Road, Cross Avenue	Rights-of-Way		3.385	8.365
		Total:	11.049	27.302

No.	DATE	REVISION	BY
11	2026-09-31	Revise Block 1 and 3 to match phasing boundaries	RM
10	2026-09-25	Revise phasing boundaries	RM
9	2026-09-10	Correct right-of-way offsets for Street 'A' and Cross Ave	RM
8	2026-09-10	Revise blocks 1 and 3	RM
7	2026-07-30	Consolidate blocks 2, 6 - 12; Consolidate blocks 3 - 5	RM
6	2026-05-04	Remove blocks within Phases 2, 3, and 4	RM
5	2025-10-22	Populate Section 51(17) Planning Act information	RM
4	2025-10-16	Split easterly POPS block; Add Blocks 10 and 11	RM
3	2025-10-10	Update block delineation lines to match construction phasing	RM
2	2025-09-13	Update line-work as per master plan	RM

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
301-12 JAMES STREET NORTH, HAMILTON, ON, L8R 2J9 | P: 905.639.8686 | WWW.MHBCPLAN.COM

Approval Stamp

Date: September 11, 2026
File No.: 1677 - X
Plan Scale: 1:600
Drawn By: R.M.
Checked By: D.M.

Project:
The Rose Corporation
420 South Service Rd E

north

File Name:
Draft Plan of Subdivision

APPENDIX B:
Design Information, Calculations and Modelling Files

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STORM SEWER DESIGN SHEET

5-100 year capture (Cross Ave)

420 SOUTH SERVICE ROAD

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 23-307
Date: 9-Oct-26
Designed by: SR
Checked by: RM

DESIGN CRITERIA

Min. Diameter =	**300**	**mm**	**Rainfall Intensity =**	**A / (Tc+B)^c**
Mannings 'n'=	**0.013**			
Starting Tc =	**10**	**min**	**A =**	**1170**
			B =	**5.8**
Factor of Safety =	**5**	**%**	**c =**	**0.843**

Orifice Control
Pumped system under Rail
NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
DAVIS ROAD	BLK4	5					114.2		0.381	0.381	0.381	11.5	0.50	675	0.594	1.66	10.00	0.12	10.12	64%
DAVIS ROAD	BLK2	5					114.2		0.685	0.685	0.685	14.5	0.50	750	0.787	1.78	10.00	0.14	10.14	87%
DAVIS ROAD	5	4	0.39	0.90	0.35	0.35	113.4	0.111	0.391	1.457	1.567	148.3	0.50	1050	1.931	2.23	10.14	1.11	11.24	81%
N-S ROAD	6	4	0.62	0.90	0.56	0.56	114.2	0.177	0.177	0.177	0.354	42.7	0.50	600	0.434	1.54	10.00	0.46	10.46	82%
DAVIS ROAD	4	3	0.42	0.90	0.38	1.29	107.1	0.383	0.382	2.016	2.399	157.4	0.50	1200	2.757	2.44	11.24	1.08	12.32	87%
STREET A	3	2				1.29	101.8	0.364		2.016	2.380	27.9	0.50	1200x3000 (BOX)	11.131	3.09	12.32	0.15	12.47	21%
STREETA	BLK3	2					114.2		0.505	0.505	0.505	4.1	0.50	675	0.594	1.66	10.00	0.04	10.04	85%
STREET A	2	1	0.33	0.90	0.30	1.58	101.0	0.445	0.408	2.929	1.950	120.0	0.25	1200x3000 (BOX)	7.871	2.19	12.47	0.91	13.39	25%
FUT. CROSS AVENUE	EXT 2	1	2.72	0.90	2.45	2.45	114.2	0.777			0.777	10.0	0.50	825	1.015	1.90	10.00	0.09	10.09	77%
FUT. CROSS AVENUE	1	10	0.90	0.90	0.81	4.84	97.0	1.304	0.245	1.950	3.254	260.8	0.25	1200x1800 (BOX)	4.204	1.95	13.39	2.23	15.62	77%
SOUTH SERVICE ROAD E.	10	36				4.84	88.4	1.189		1.950	3.139	81.1	0.25	1200x1800 (BOX)	4.204	1.95	15.62	0.69	16.31	75%
DAVIS ROAD	BLK4.1	FUT.13	0.26	0.35	0.09	0.09	265.8	0.067	0.000	0.000	0.067	0.0	0.00	0	0.000	0.00	0.00	0.00	0.00	0%
CROSS AVENUE	FUT.13	FUT.10	0.56	0.90	0.50	0.60	114.2	0.189	0.000	0.000	0.189	99.3	0.50	900x1800 (BOX)	3.949	2.44	10.00	0.68	10.68	5%
N-S ROAD	FUT.12	FUT.10	0.37	0.90	0.33	0.33	114.2	0.106	0.000	0.000	0.106	103.5	5.00	900x1800 (BOX)	12.487	7.71	10.00	0.22	10.22	1%
CROSS AVENUE	BLK3.1	FUT.11	0.40	0.90	0.36	0.36	114.2	0.114	0.000	0.000	0.114	103.5	5.00	900x1800 (BOX)	12.487	7.71	10.00	0.22	10.22	1%
CROSS AVENUE	FUT.11	FUT.10	0.57	0.90	0.51	0.87	112.9	0.274	0.000	0.000	0.274	134.3	0.50	900x1800 (BOX)	3.949	2.44	10.22	0.92	11.14	7%
N-S ROAD	FUT.10	FUT.14	0.00	0.00	0.00	1.80	107.7	0.539	0.000	0.000	0.250	16.6	7.00	900x1800 (BOX)	14.775	9.12	11.14	0.03	11.17	2%
0	0	0	0.00	0.00	0.00	0.00	0.0	0.000	0.000	0.000	0.000	0.0	0.00	0	0.000	0.00	0.00	0.00	0.00	0%
FUT. STREET B	FUT.9	FUT.8					114.2		0.148	0.148	0.148	267.4	0.50	675	0.594	1.66	10.00	2.68	12.68	25%
FUT. CROSS AVENUE	FUT.8	CREEK OUTLET					100.1		0.120	0.268	0.268	144.4	0.25	900x1800 (BOX)	2.792	1.72	12.68	1.40	14.08	10%

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PROJECT DETAILS

Title1:	**Cross**
Title2:	**Constant Flow (100yr Minor System Capture)**
Project Name:	
Municipality:	
Project No:	
Date:	
Designed by:	
Checked by:	

IDF Parameters				
$I=A/(T+b)^c$		5-yr	100-yr	
	A	1170	2150	
	B	5.8	5.7	
	C	0.843	0.861	

CAPTURE	AREA ID	CAPTURE	Area ha	R 5-year	AR 5-year	Flow Length m	Velocity m/s	Tc* min	I10 mm/hr	I100 mm/hr	Q10 m3/s	Q100 m3/s	Q100-Q10 m3/s	Const. flow m3/s
	7		0.52	0.90	0.47		2.00	10.00	114.21	200.8	0.1	0.502	0.354	0.354
	6		0.39	0.90	0.35		2.00	10.00	114.21	200.8	0.1	0.502	0.391	0.391
	5		0.62	0.90	0.56		2.00	10.00	114.21	200.8	0.2	0.502	0.325	0.325
	4		0.42	0.90	0.38		2.00	10.00	114.21	200.8	0.1	0.502	0.382	0.382
	1		0.57	0.90	0.51		2.00	10.00	114.21	200.8	0.2	0.502	0.339	0.339
	2		0.56	0.90	0.50		2.00	10.00	114.21	200.8	0.2	0.502	0.342	0.342
	3		0.37	0.90	0.33		2.00	10.00	114.21	200.8	0.1	0.502	0.396	0.396
	EXT1		0.90	0.90	0.81		2.00	10.00	114.21	200.8	0.3	0.502	0.245	0.245
	EXT 4		0.42	0.90	0.38		2.00	10.00	114.21	200.8	0.1	0.502	0.382	0.382
	10		0.33	0.90	0.30		2.00	10.00	114.21	200.8	0.1	0.502	0.408	0.408

Total Area 5.1

Tc calcs *where Tc = starting Tc + flow length/velocity*
(starting Tc = 15min)

Assumed Velocities for Calculation of time of Concentration

Pipe Flow V 2.0 m/s

OLF Velocit 1.5 m/s

External Fl 0.25 m/s

URBANTECH

EXISTING STORM SEWER DESIGN SHEET

5-100 year capture (Davis)

420 SOUTH SERVICE ROAD

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 23-307
Date: 9-Oct-26
Designed by: SR
Checked by: RM

DESIGN CRITERIA

Min. Diameter =	300	mm	Rainfall Intensity =	A / (Tc+B)^c
Mannings 'n'=	0.013			
Starting Tc =	10	min	A =	1170
			B =	5.8
Factor of Safety =	5	%	c =	0.843

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
DAVIS ROAD	EXMH13	EXMH9					114.2		0.717	0.717	0.717	72.1	0.37	600	0.373	1.32	10.00	0.91	10.91	192%

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URBANTECH®

STORM SEWER DESIGN SHEET

5-100 year capture (Davis) ULTIMATE

420 SOUTH SERVICE ROAD

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 23-307
Date: 9-Oct-26
Designed by: SR
Checked by: RM

DESIGN CRITERIA

Min. Diameter =	300	mm	Rainfall Intensity =	A / (Tc+B)^c
Mannings 'n'=	0.013			
Starting Tc =	10	min	A =	1170
			B =	5.8
Factor of Safety =	5	%	c =	0.843

Orifice Control

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
SOUTH SERVICE ROAD	15	13	0.70	0.90	0.63	0.63	114.2	0.200	0.804	0.804	1.004	381.2	0.50	900	1.280	2.01	10.00	3.16	13.16	78%
STREET A	BLK1	13	2.42	0.90	2.18	2.18	114.2	0.691			0.691	11.4	0.50	825	1.015	1.90	10.00	0.10	10.10	68%
STREET A	13	11	0.36	0.90	0.32	3.13	98.0	0.852		0.804	1.656	174.4	0.25	900x1800 (BOX)	2.792	1.72	13.16	1.69	14.84	59%
STREET A	11	EX13	0.01	0.90	0.01	3.14	91.2	0.795		0.804	0.717	20.1	0.25	900x1800 (BOX)	2.792	1.72	14.84	0.19	15.04	26%
DAVIS ROAD	EX13	EX9				3.14	90.4	0.717			0.717	72.1	0.37	600	0.373	1.32	15.04	0.91	15.95	192%

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URBANTECH®

STORM SEWER DESIGN SHEET

5-100 year capture (Davis) PH1

420 SOUTH SERVICE ROAD

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 23-307
Date: 9-Oct-26
Designed by: SR
Checked by: RM

DESIGN CRITERIA

Min. Diameter =	**300**	**mm**	**Rainfall Intensity =**	**A / (Tc+B)^c**
Mannings 'n'=	**0.013**			
Starting Tc =	**10**	**min**	**A =**	**1170**
			B =	**5.8**
Factor of Safety =	**5**	**%**	**c =**	**0.843**

Orifice Control

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
SOUTH SERVICE ROAD	15	13	0.70	0.90	0.63	0.63	114.2	0.200	0.804	0.804	1.004				1.280	2.01	10.00	3.16	13.16	
STREET A	BLK1	13	2.42	0.90	2.18	2.18	114.2	0.691			0.691	11.4	0.50	825	1.015	1.90	10.00	0.10	10.10	68%
STREET A	13	11	0.36	0.90	0.32	3.13	98.0	0.852		0.804	1.656	174.4	0.25	900x1800 (BOX)	2.792	1.72	13.16	1.69	14.84	59%
STREET A	11	EX13	0.01	0.90	0.01	3.14	91.2	0.795		0.804	0.717	20.1	0.25	900x1800 (BOX)	2.792	1.72	14.84	0.19	15.04	26%
DAVIS ROAD	EX13	EX9				3.14	90.4	0.717			0.717	72.1	0.37	600	0.373	1.32	15.04	0.91	15.95	192%

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PROJECT DETAILS	
Title1:	**DAVIS**
Title2:	**Constant Flow (100yr System Capture)**
Project Name:	
Municipality:	
Project No:	
Date:	
Designed by:	
Checked by:	

IDF Parameters			
$I=A/(T+b)^c$		5-yr	100-yr
	A	1170	2150
	B	5.8	5.7
	C	0.843	0.861

CAPTURE	AREA ID	CAPTURE	Area ha	R 5-year	AR 5-year	Flow Length m	Velocity m/s	Tc* min	I10 mm/hr	I100 mm/hr	Q10 m3/s	Q100 m3/s	Q100-Q10 m3/s	Const. flow m3/s
	9		0.7	0.90	0.63		2.00	10.00	114.21	200.8	0.2	0.502	0.302	0.302
	EXT 3		0.13	0.90	0.12		2.00	10.00	114.21	200.8	0.0	0.502	0.465	0.465
	8		0.36	0.90	0.32		2.00	10.00	114.21	200.8	0.1	0.502	0.399	0.399
	11		0.01	0.90	0.01		2.00	10.00	114.21	200.8	0.0	0.502	0.499	0.499
	EXT 1		0.38	0.71	0.27		1.50	10.00	114.21	200.8	0.1	0.396	0.310	0.310
	EX 1		2.586	0.77	1.99		1.50	10.00	114.21	200.8	0.6	1.110	0.479	0.479

Total Area 4.166

Tc calcs *where Tc = starting Tc + flow length/velocity*
(starting Tc = 15min)

Assumed Velocities for Calculation of time of Concentration

Pipe Flow \ 2.0 m/s

OLF Velocil 1.5 m/s

External Fl 0.25 m/s

URBANTECH®

SANITARY SEWER DESIGN SHEET

PHASE 1A

420 SOUTH SERVICE ROAD

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 23-307
Date: 9-Oct-26
Designed by: RM
Checked by: KC

DESIGN CRITERIA

Min Diameter =	200	mm	Avg. Domestic Flow =	215.0	l/c/d
Mannings 'n'=	0.013		Infiltration =	0.280	l/s/ha
Min. Velocity =	0.6	m/s	Max. Peaking Factor =	4.50	
Max. Velocity =	3.0	m/s	Min. Peaking Factor=	2.00	
Factor of Safety =	20	%			

NOMINAL PIPE SIZE USED

RESIDENTIAL										COMMERCIAL/INDUSTRIAL/INSTITUTIONAL						FLOW CALCULATIONS							PIPE DATA					
STREET	FROM MH	TO MH	AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (p/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RES. FLOW (l/s)	COMM. FLOW (l/s)	ACCUM. COMM. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)
PHASE 1A	BLK1A	8A	0.52	0.52				777	777							0.1	777	3.87	7.5			7.6	1.00	200	32.8	1.0	0.8	23%
STREET A	8A	7A	0.08	0.60					777							0.2	777	3.87	7.5			7.6	3.00	200	56.8	1.8	1.3	13%
DAVIS ROAD	7A	EX.5		0.60					777							0.2	777	3.87	7.5			7.6	0.30	200	18.0	0.6	0.5	43%
DAVIS ROAD	EX.5	EX.12	4.15	4.75		145		602	1379							1.3	1379	3.71	12.7			14.0	0.67	300	79.2	1.1	0.8	18%
DAVIS ROAD	EX.12	EX.17	1.96	6.71		145		285	1664							1.9	1664	3.65	15.1			17.0	0.29	300	52.1	0.7	0.6	33%
DAVIS ROAD	EX.17	EX.18	0.45	7.16					1664							2.0	1664	3.65	15.1			17.1	0.48	300	67.0	0.9	0.8	26%
TRAFALGER	EX.18	EX.19	0.75	7.91					1664							2.2	1664	3.65	15.1			17.3	0.27	300	50.2	0.7	0.6	34%
TRAFALGER	EX.42	EX.19	2.61	2.61												0.7						0.7	0.40	300	61.2	0.9	0.3	1%
TRAFALGER	EX.19	EX.22	2.51	13.03		145		364	2028							3.6	2028	3.58	18.1			21.7	0.56	300	72.4	1.0	0.9	30%
TRAFALGER	EX.23	EX.22	2.62	2.62		145		380	380							0.7	380	4.03	3.8			4.5	0.26	300	49.3	0.7	0.4	9%
TRAFALGER	EX.22	EX.39		15.65					2408							4.4	2408	3.52	21.1			25.5	0.15	300	37.5	0.5	0.6	68%
TRAFALGER	EX.39	EX.40	0.35	16.00					2408							4.5	2408	3.52	21.1			25.6	0.48	300	67.0	0.9	0.9	38%
TRAFALGER	EX.40	EX.41		16.00					2408							4.5	2408	3.52	21.1			25.6	0.50	300	68.4	1.0	0.9	37%
TRAFALGER	EX.41	EX.44		16.00					2408							4.5	2408	3.52	21.1			25.6	0.46	300	65.6	0.9	0.8	39%
TRAFALGER	EX.44	EX.45	1.20	17.20		145		174	2582							4.8	2582	3.50	22.5			27.3	0.53	300	70.4	1.0	0.9	39%
TRAFALGER	EX.81	EX.82	0.35	0.35		145		51	51							0.1	51	4.31	0.5			0.6	0.49	200	23.0	0.7	0.3	3%
TRAFALGER	EX.82	EX.83	0.31	0.66					51							0.2	51	4.31	0.5			0.7	2.57	200	52.6	1.7	0.5	1%
TRAFALGER	EX.83	EX.45		0.66					51							0.2	51	4.31	0.5			0.7	0.60	200	25.4	0.8	0.3	3%
TRAFALGER	EX.45	EX.46		17.86					2633							5.0	2633	3.49	22.9			27.9	0.62	300	76.1	1.1	1.0	37%
TRAFALGER	EX.46	EX.47		17.86					2633							5.0	2633	3.49	22.9			27.9	0.44	300	64.1	0.9	0.8	43%
TRAFALGER	EX.47	EX.48		17.86					2633							5.0	2633	3.49	22.9			27.9	0.50	300	68.4	1.0	0.9	41%

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WASTEWATER GENERATION CALCULATIONS - PHASE 1A

Project Name: GE Lands (420 South Service Rd)
Municipality: Town of Oakville
Project No.: 23-307

Prepared by: NS
Checked by: KC
Date: 1-Oct-26

Sanitary Flow Calculations

Average Dry Weather Flow

Population =	777	persons, from Site Statistics
Per Capita WW Generation Rate (Res) =	215	L/person/day
Average Dry Weather Flow =	1.93	L/s
Employment =	21	employees, from Site Statistics
Per Capita WW Generation Rate (Emp) =	185	L/employee/day
Average Dry Weather Flow =	0.05	L/s
Total Average Dry Weather Flow =	1.98	L/s

Peaking Factor (Modified Harmon)

Peaking Factor =	3.86	

Inflow /Infiltration

Factor =	0.280	L/ha/s
Area =	0.600	ha
I/I =	0.168	L/s

Design Flow = 7.81 L/s

Notes:
1. Wastewater generation per Region of Halton Water and Wastwater Linear Design Manual (2025)

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WASTEWATER GENERATION - PHASE 1A - POPULATION ESTIMATE

Project Name: GE Lands (420 South Service Rd)
Municipality: Town of Oakville
Project No.: 23-307

Prepared by: NS
Checked by: KC
Date: 1-Oct-26

Persons Per Unit (Note 2)

Apartments - Less Than 2-Bed	1.7	persons per unit
Apartments - Greater Than 2-Bed	1.7	persons per unit

Retail (Note 3)

Square Foot per Employee	403	sq. ft. / employee
	37	sq. m / employee

Site Population Estimate

	1-Bed Units	2+ Bed Units	Total Units	Population Residential	Non-Res GCA (m^2)
Total Plan Area					
Phase 1A (Towers 1A, 1B)	274	183	457	777	804
TOTAL	**274**	**183**	**457**	**777**	**804**

Notes:
1. Proposed Unit Count (by Block) by Graziani and Corazza Architects (October 2026)
2. Persons Per Unit (Apartments) from Halton Region 2025 Linear Design Manual (Table 3-1)
3. Square foot per employee (Commercial) from Halton Region 2022 DC Background Study Table A-8 (Employment - Total Floor Area Forecast)

URBANTECH®

SANITARY SEWER DESIGN SHEET

ULTIMATE CONDITION

420 SOUTH SERVICE ROAD

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 23-307
Date: 9-Oct-26
Designed by: RM
Checked by: KC

DESIGN CRITERIA

Min Diameter =	200	mm	Avg. Domestic Flow =	215.0	l/c/d
Mannings 'n'=	0.013		Infiltration =	0.280	l/s/ha
Min. Velocity =	0.6	m/s	Max. Peaking Factor =	4.50	
Max. Velocity =	3.0	m/s	Min. Peaking Factor=	2.00	
Factor of Safety =	20	%			

NOMINAL PIPE SIZE USED

			RESIDENTIAL							COMMERCIAL/INDUSTRIAL/INSTITUTIONAL						FLOW CALCULATIONS							PIPE DATA					
STREET	FROM MH	TO MH	AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (p/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RES. FLOW (l/s)	COMM. FLOW (l/s)	ACCUM. COMM. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)
TOWN PARK SPACE (EXT)	FUT2	10A	0.66	0.66		25		17	17							0.2	17	4.39	0.2			0.4	1.00	200	32.8	1.0	0.3	1%
FUT.STREET B (EXT)	10A	9A	0.22	0.88					17							0.2	17	4.39	0.2			0.4	0.50	200	23.2	0.7	0.3	2%
TOWN PARK SPACE (EXT)	FUT1	12A	0.87	0.87		25		22	22							0.2	22	4.37	0.2			0.5	1.00	200	32.8	1.0	0.3	1%
FUT.STREET B (EXT)	12A	9A	0.32	1.19					22							0.3	22	4.37	0.2			0.6	0.50	200	23.2	0.7	0.3	2%
DAVIS ROAD	9A	5A	0.32	2.39					39							0.7	39	4.34	0.4			1.1	0.35	200	19.4	0.6	0.3	6%
PHASE 2 BLOCK	BLK2A	5A	2.13	2.13				3064	3064							0.6	3064	3.43	26.2			26.8	1.00	200	32.8	1.0	1.2	82%
PHASE 4 BLOCK	BLK4A	5A	1.46	1.46				1653	1653							0.4	1653	3.65	15.0			15.4	1.00	200	32.8	1.0	1.0	47%
DAVIS ROAD	5A	4A	0.08	6.06					4756							1.7	4756	3.27	38.6			40.3	0.20	375	78.4	0.7	0.7	51%
PHASE 3 BLOCK	BLK3A	4A	1.64	1.64				1723	1723							0.5	1723	3.64	15.6			16.0	1.00	200	32.8	1.0	1.0	49%
DAVIS ROAD	4A	3A	0.44	8.14					6479							2.3	6479	3.14	50.6			52.9	0.20	375	78.4	0.7	0.8	67%
STREET A	3A	93A	0.32	8.46					6479							2.4	6479	3.14	50.6			53.0	0.20	375	78.4	0.7	0.8	68%
ESTIMATE - EXT. DEMAND	EXT2	93A	1.39	1.39		600		834	834							0.4	834	3.85	8.0			8.4	1.00	200	32.8	1.0	0.9	26%
ESTIMATE - EXT. DEMAND	EXT3	93A	1.32	1.32		600		792	792							0.4	792	3.86	7.6			8.0	1.00	200	32.8	1.0	0.9	24%
FUT. CROSS AVE	93A	92A	0.94	12.11					8105							3.4	8105	3.04	61.4			64.8	0.20	750	497.9	1.1	0.8	13%
PHASE 1 BLOCK	BLK1A	8A	2.42	2.42				3106	3106							0.7	3106	3.43	26.5			27.2	1.00	300	96.7	1.4	1.2	28%
STREET A	8A	7A	0.08	2.50					3106							0.7	3106	3.43	26.5			27.2	3.00	300	167.5	2.4	1.7	16%
DAVIS ROAD	7A	EX.5		2.50					3106							0.7	3106	3.43	26.5			27.2	0.30	300	53.0	0.7	0.7	51%
DAVIS ROAD	EX.5	EX.12	2.78	5.28		600		1668	4774							1.5	4774	3.26	38.8			40.2	0.67	300	79.2	1.1	1.1	51%
DAVIS ROAD	EX.12	EX.17	0.62	5.90		600		372	5146							1.7	5146	3.23	41.4			43.1	0.29	300	52.1	0.7	0.8	83%
SOUTH SERV ROAD	EX.17	91A	0.44	6.34		600		264	5410							1.8	5410	3.21	43.3			45.0	1.00	300	96.7	1.4	1.3	47%
SOUTH SERV ROAD	91A	92A	0.27	6.61					5410							1.9	5410	3.21	43.3			45.1	0.20	375	78.4	0.7	0.7	58%
FUT. CROSS AVE	92A	ARGUS	2.59	21.31		600		1554	15069							6.0	15069	2.78	104.1			110.1	0.20	750	497.9	1.1	0.9	22%

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www.urbantech.com

WASTEWATER GENERATION CALCULATIONS - ULTIMATE CONDITIONS

Project Name: GE Lands (420 South Service Rd)
Municipality: Town of Oakville
Project No.: 23-307

Prepared by: NS
Checked by: KC
Date: 1-Oct-26

Sanitary Flow Calculations

Average Dry Weather Flow

Population =	9544	persons, from Site Statistics
Per Capita WW Generation Rate (Res) =	215	L/person/day
Average Dry Weather Flow =	23.75	L/s
Employment =	244	employees, from Site Statistics
Per Capita WW Generation Rate (Emp) =	185	L/employee/day
Average Dry Weather Flow =	0.52	L/s
Total Average Dry Weather Flow =	24.27	L/s

Peaking Factor (Modified Harmon)

Peaking Factor =	2.96	

Inflow /Infiltration

Factor =	0.280	L/ha/s
Area =	8.890	ha
I/I =	2.489	L/s

Design Flow = 74.43 L/s

Notes:
1. Wastewater generation per Region of Halton Water and Wastwater Linear Design Manual (2025)

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WASTEWATER GENERATION - ULTIMATE CONDITIONS - POPULATION ESTIMATE

Project Name: GE Lands (420 South Service Rd)
Municipality: Town of Oakville
Project No.: 23-307

Prepared by: NS
Checked by: KC
Date: 1-Oct-26

Persons Per Unit (Note 2)

Apartments - Less Than 2-Bed	1.7	persons per unit
Apartments - Greater Than 2-Bed	1.7	persons per unit

Retail (Note 3)

Square Foot per Employee	403	sq. ft. / employee
	37	sq. m / employee

Site Population Estimate

	1-Bed Units	2+ Bed Units	Total Units	Population Residential	Non-Res GCA (m^2)
Total Plan Area					
Phase 1	1096	731	1827	3106	1503
Phase 2	1081	721	1802	3063	1514
Phase 3	608	405	1013	1722	3293
Phase 4	583	389	972	1652	2808
TOTAL	**3,368**	**2,246**	**5,614**	**9,544**	**9,117**

Notes:
1. Proposed Unit Count (by Block) by Graziani and Corazza Architects (October 2026)
2. Persons Per Unit (Apartments) from Halton Region 2025 Linear Design Manual (Table 3-1)
3. Square foot per employee (Commercial) from Halton Region 2022 DC Background Study Table A-8 (Employment - Total Floor Area Forecast)

URBANTECH

WATER DEMAND CALCULATIONS - PHASE 1A

Project Name: GE Lands (420 South Service Road)
Municipality: Town of Oakville
Project No.: 23-307

Prepared by: NS
Checked by: KC
Date: 1-Oct-26

Domestic Flow Calculations

Average Day Demand

Population =	777	persons, from Site Statistics
Per Capital Water Demand (Res) =	230	L/person/day
Average Water Demand =	2.07	L/s
Employment =	21	employees, from Site Statistics
Per Capital Water Demand (Emp) =	190	L/employee/day
Average Water Demand =	0.05	L/s
Total Average Day Water Demand =	2.12	L/s

Max Day Demand

Max Day Factor (Residential) =	1.90	peaking factor
Max Day Demand (Residential) =	3.93	L/s
Max Day Factor (Employment) =	1.90	peaking factor
Max Day Demand (Employment) =	0.09	L/s
Total Max Day Water Demand =	4.02	L/s

Max Hour Demand

Peak Hour Factor (Residential) =	3.0	residential peaking factor
Peak Hour Demand (Residential) =	6.20	L/s
Peak Hour Factor (Employment) =	3.00	employment peaking factor
Peak Hour Demand (Employment) =	0.14	L/s
Total Peak Hour Water Demand =	6.35	L/s

Notes:
1. Water usage per Region of Halton Water and Wastwater Linear Design Manual (2025)

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WATER DEMAND - PHASE 1 - POPULATION ESTIMATE

Project Name: GE Lands (420 South Service Road)
Municipality: Town of Oakville
Project No.: 23-307

Prepared by: NS
Checked by: KC
Date: 1-Oct-26

Persons Per Unit (Note 2)

Apartments - Less Than 2-Bed	1.7	persons per unit
Apartments - Greater Than 2-Bed	1.7	persons per unit

Retail (Note 3)

Square Foot per Employee	403	sq. ft. / employee
	37	sq. m / employee

Site Population Estimate

	1-Bed Units	2-Bed Units	Total Units	Population Residential	Non-Res GCA (m^2)
Total Plan Area					
Phase 1A (Towers 1A, 1B)	274	183	457	777	804
TOTAL	**274**	**183**	**457**	**777**	**804**

Notes:
1. Proposed Unit Count (by Block) by Graziani and Corazza Architects (October 2026)
2. Persons Per Unit (Apartments) from Halton Region 2025 Linear Design Manual (Table 2-1)
3. Square foot per employee (Commercial) from Halton Region 2022 DC Background Study Table A-8 (Employment - Total Floor Area Forecast)

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WATER DEMAND CALCULATIONS - ULTIMATE CONDITION

Project Name: GE Lands (420 South Service Road)
Municipality: Town of Oakville
Project No.: 23-307

Prepared by: NS
Checked by: KC
Date: 1-Oct-26

Domestic Flow Calculations

Average Day Demand

Population =	9544	persons, from Site Statistics
Per Capital Water Demand (Res) =	230	L/person/day
Average Water Demand =	25.41	L/s
Employment =	244	employees, from Site Statistics
Per Capital Water Demand (Emp) =	190	L/employee/day
Average Water Demand =	0.54	L/s
Total Average Day Water Demand =	25.94	L/s

Max Day Demand

Max Day Factor (Residential) =	1.90	peaking factor
Max Day Demand (Residential) =	48.27	L/s
Max Day Factor (Employment) =	1.90	peaking factor
Max Day Demand (Employment) =	1.02	L/s
Total Max Day Water Demand =	49.29	L/s

Max Hour Demand

Peak Hour Factor (Residential) =	3.0	residential peaking factor
Peak Hour Demand (Residential) =	76.22	L/s
Peak Hour Factor (Employment) =	3.00	employment peaking factor
Peak Hour Demand (Employment) =	1.61	L/s
Total Peak Hour Water Demand =	77.82	L/s

Notes:
1. Water usage per Region of Halton Water and Wastwater Linear Design Manual (2025)

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WATER DEMAND - ULTIMATE CONDITIONS - POPULATION ESTIMATE

Project Name: GE Lands (420 South Service Road)
Municipality: Town of Oakville
Project No.: 23-307

Prepared by: NS
Checked by: KC
Date: 1-Oct-26

Persons Per Unit (Note 2)

Apartments - Less Than 2-Bed	1.7	persons per unit
Apartments - Greater Than 2-Bed	1.7	persons per unit

Retail (Note 3)

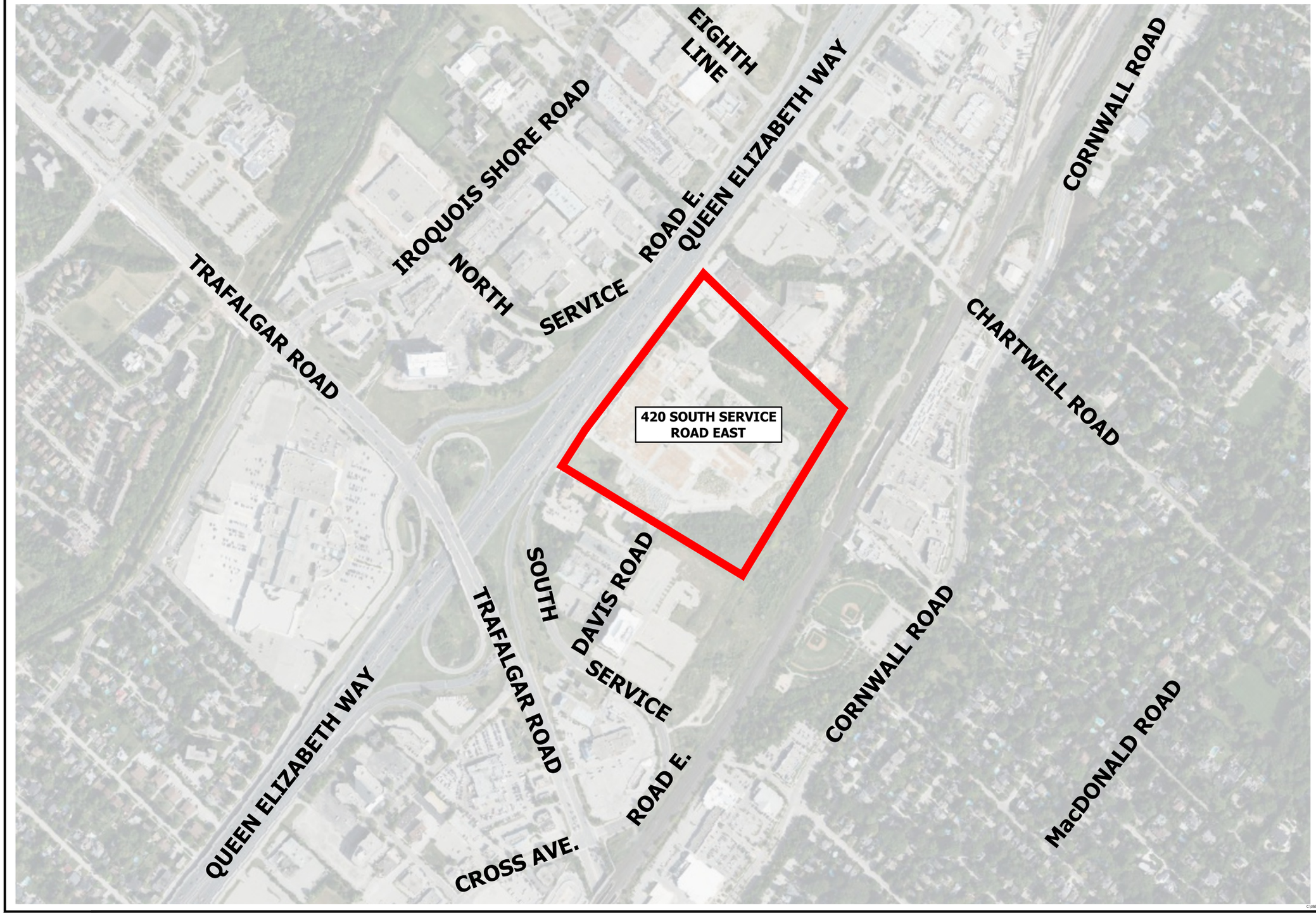
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	1-Bed Units	2-Bed Units	Total Units	Population Residential	Non-Res GCA (m^2)
Total Plan Area					
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Notes:
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2. Persons Per Unit (Apartments) from Halton Region 2025 Linear Design Manual (Table 2-1)
3. Square foot per employee (Commercial) from Halton Region 2022 DC Background Study Table A-8 (Employment - Total Floor Area Forecast)

APPENDIX C:
Drawing Package



N

LEGEND

LIMIT OF DEVELOPMENT

BENCHMARK

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

CONTROL ID	EASTING	NORTHING	ELEVATION
00820208149	606389.733	4812958.951	111.672
00820208150	606731.198	4813293.073	107.023

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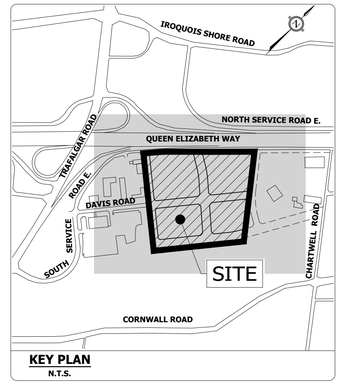
420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

SITE LOCATION PLAN

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:6000	**SLP-1**

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LEGEND

- LIMIT OF DEVELOPMENT
- FUTURE / EXISTING DEVELOPMENT LANDS
- PHASE 1A
- PHASE 1B
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE TBD

BENCHMARK

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

CONTROL ID	EASTING	NORTHING	ELEVATION
00820208149	606389.733	4812958.951	111.672
00820208150	606731.198	4813293.073	107.023

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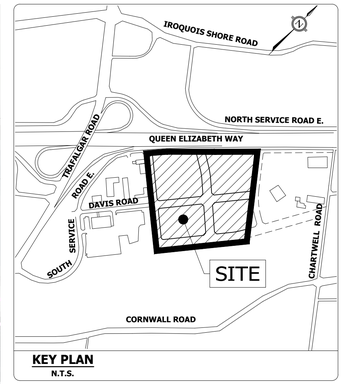
420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

PHASING PLAN

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**PH-1**

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING STORM MANHOLE ID
- EXISTING GROUND ELEVATION
- EXISTING SEWER INVERTS
- EXISTING SANITARY MANHOLE ID
- EXISTING GROUND ELEVATION
- EXISTING SEWER INVERTS
- EXISTING CONTOUR & ELEVATION
- EXISTING OVERLAND FLOW ROUTE
- EXISTING WATERCOURSE
- EXISTING CATCH BASIN
- EXISTING TREES
- FUTURE / EXISTING DEVELOPMENT LANDS

BENCHMARK
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

CONTROL ID	EASTING	NORTHING	ELEVATION
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00820208150	606731.198	4813293.073	107.023

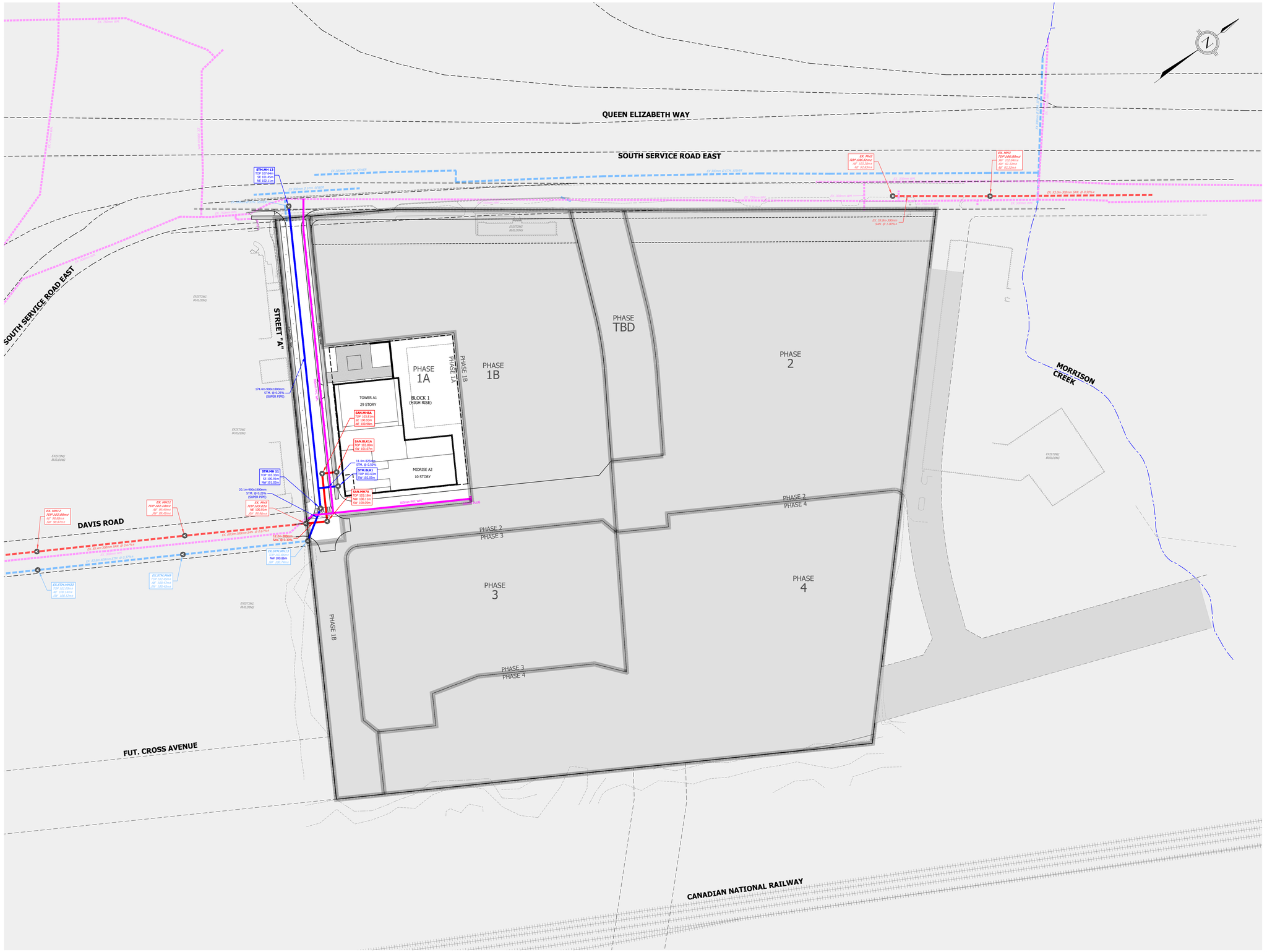
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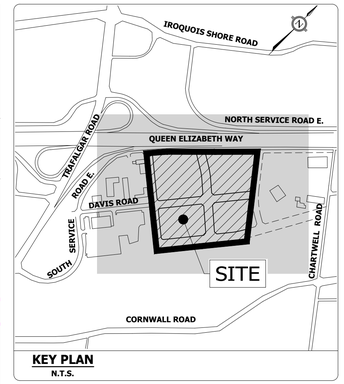
420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

EXISTING CONDITIONS PLAN

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**EXC-1**

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED STORM SEWER
- PROPOSED PUMPED STORM SYSTEM
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- FUTURE STORM SEWER
- FUTURE SANITARY SEWER
- FUTURE WATERMAIN
- EXISTING CATCH BASIN
- MANHOLE ID / GROUND ELEVATION / SEWER INVERTS (STM.MH2)
- MANHOLE ID / GROUND ELEVATION / SEWER INVERTS (SAN.MH7A)
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

CONTROL ID	EASTING	NORTHING	ELEVATION
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00820208150	606731.198	4813293.073	107.023

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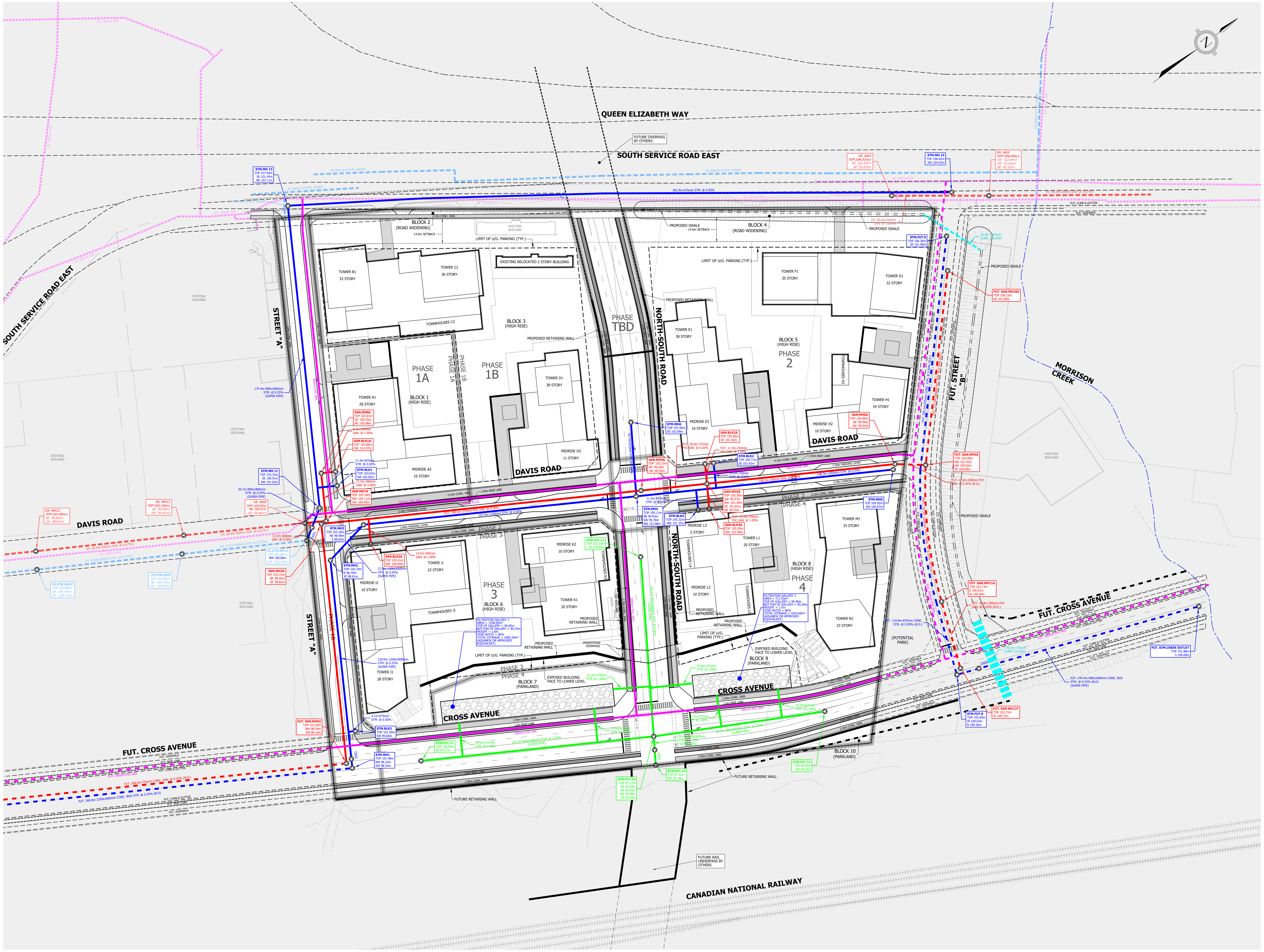
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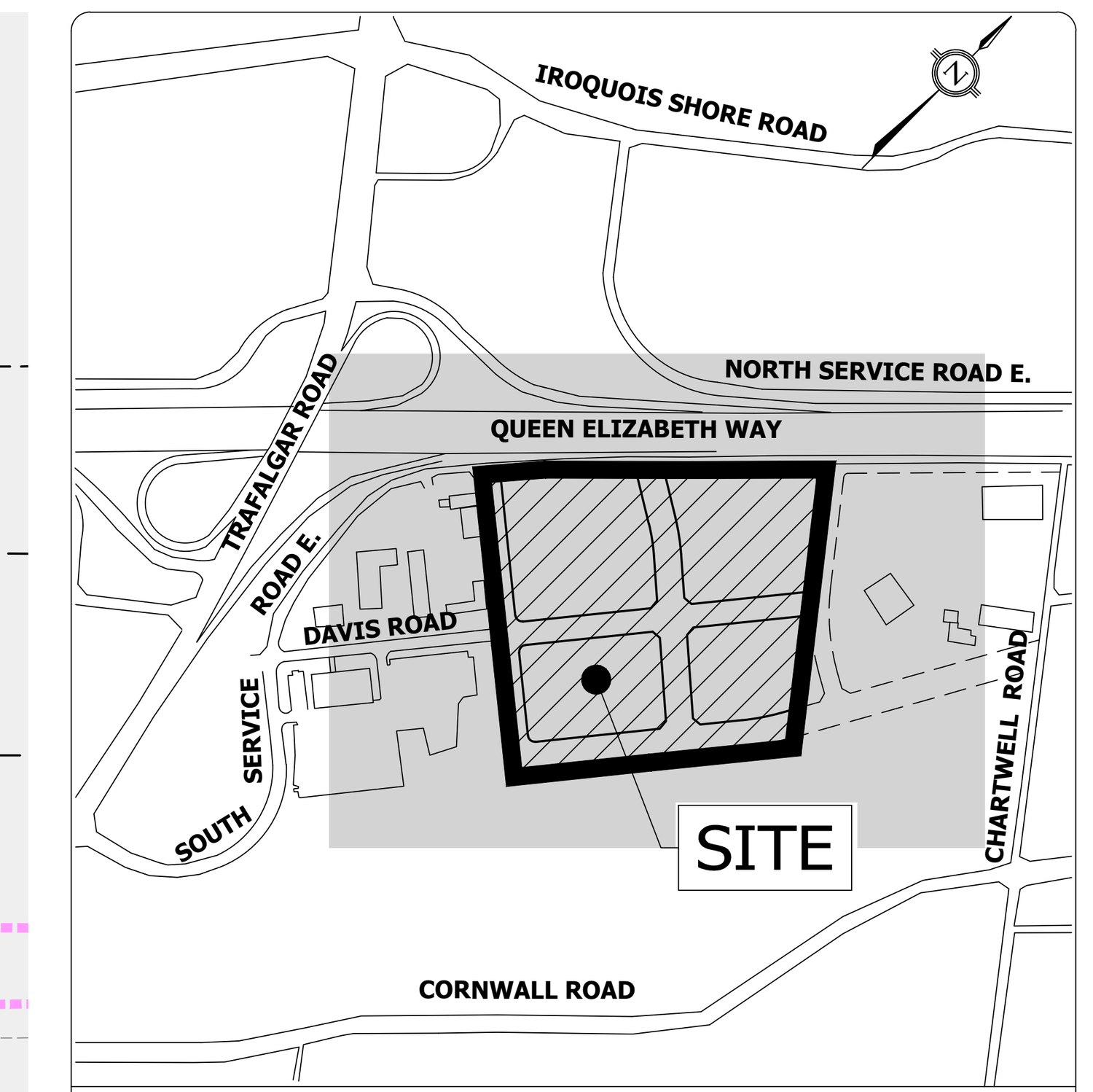
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420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

SERVICING PLAN
(PHASE 1)
(PART 1 OF 4)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**SER-1**





KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED STORM SEWER
- PROPOSED PUMPED STORM SYSTEM
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- FUTURE STORM SEWER
- FUTURE SANITARY SEWER
- FUTURE WATERMAIN
- EXISTING CATCH BASIN
- STM.MH2 / TOP 102.77m / N 98.79m / SE 98.60m — MANHOLE ID, GROUND ELEVATION, SEWER INVERTS
- SAN.MH7A / TOP 103.10m / NW 100.10m / SW 100.05m — MANHOLE ID, GROUND ELEVATION, SEWER INVERTS
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

CONTROL ID	EASTING	NORTHING	ELEVATION
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00820208150	606731.198	4813293.073	107.023

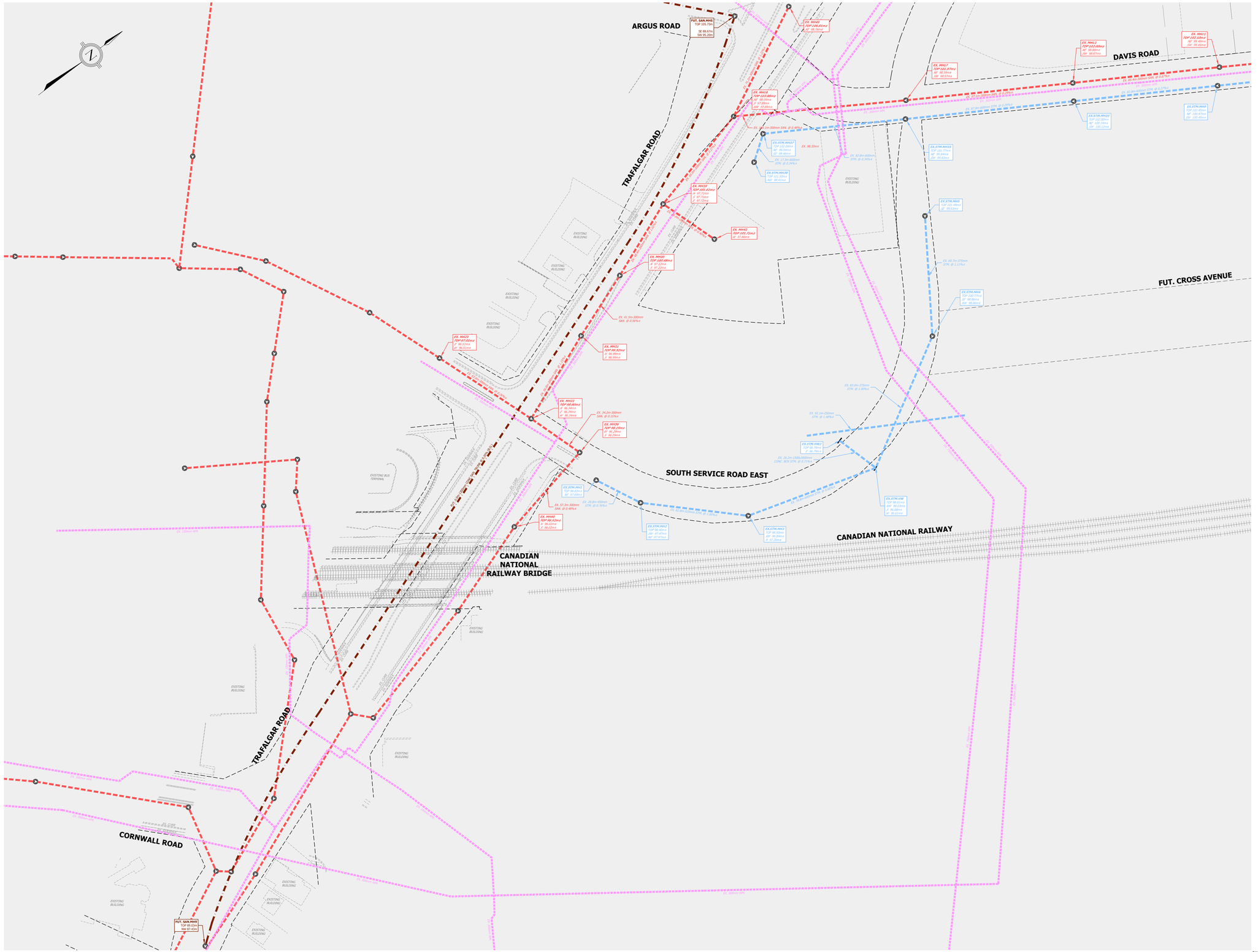
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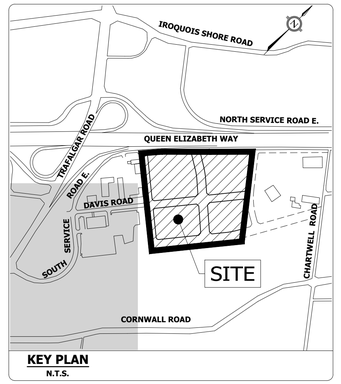
420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

SERVICING PLAN
(ULTIMATE)
(PART 2 OF 4)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	SER-1.1

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED STORM SEWER
- PROPOSED PUMPED STORM SYSTEM
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- FUTURE STORM SEWER
- FUTURE SANITARY SEWER
- FUTURE WATERMAIN
- EXISTING CATCH BASIN
- MANHOLE ID / GROUND ELEVATION / SEWER INVERTS (STM.MH2 — TOP 102.77m — IN 98.70m — OF 98.60m)
- MANHOLE ID / GROUND ELEVATION / SEWER INVERTS (SAN.MH7A — TOP 103.10m — INF 100.22m — INF 100.07m)
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

CONTROL ID	EASTING	NORTHING	ELEVATION
00820208149	606389.733	4812958.951	111.672
00820208150	606731.198	4813293.073	107.023

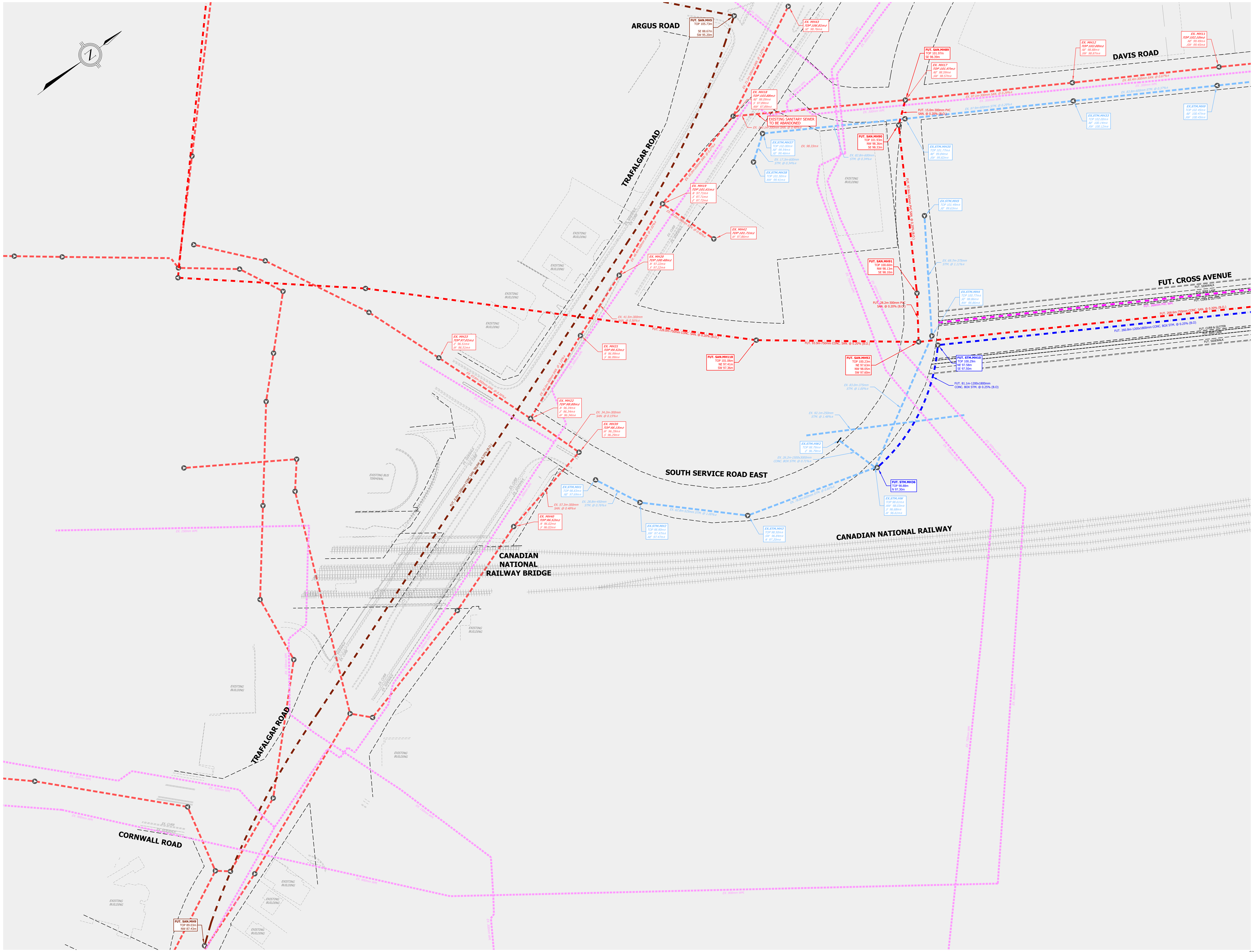
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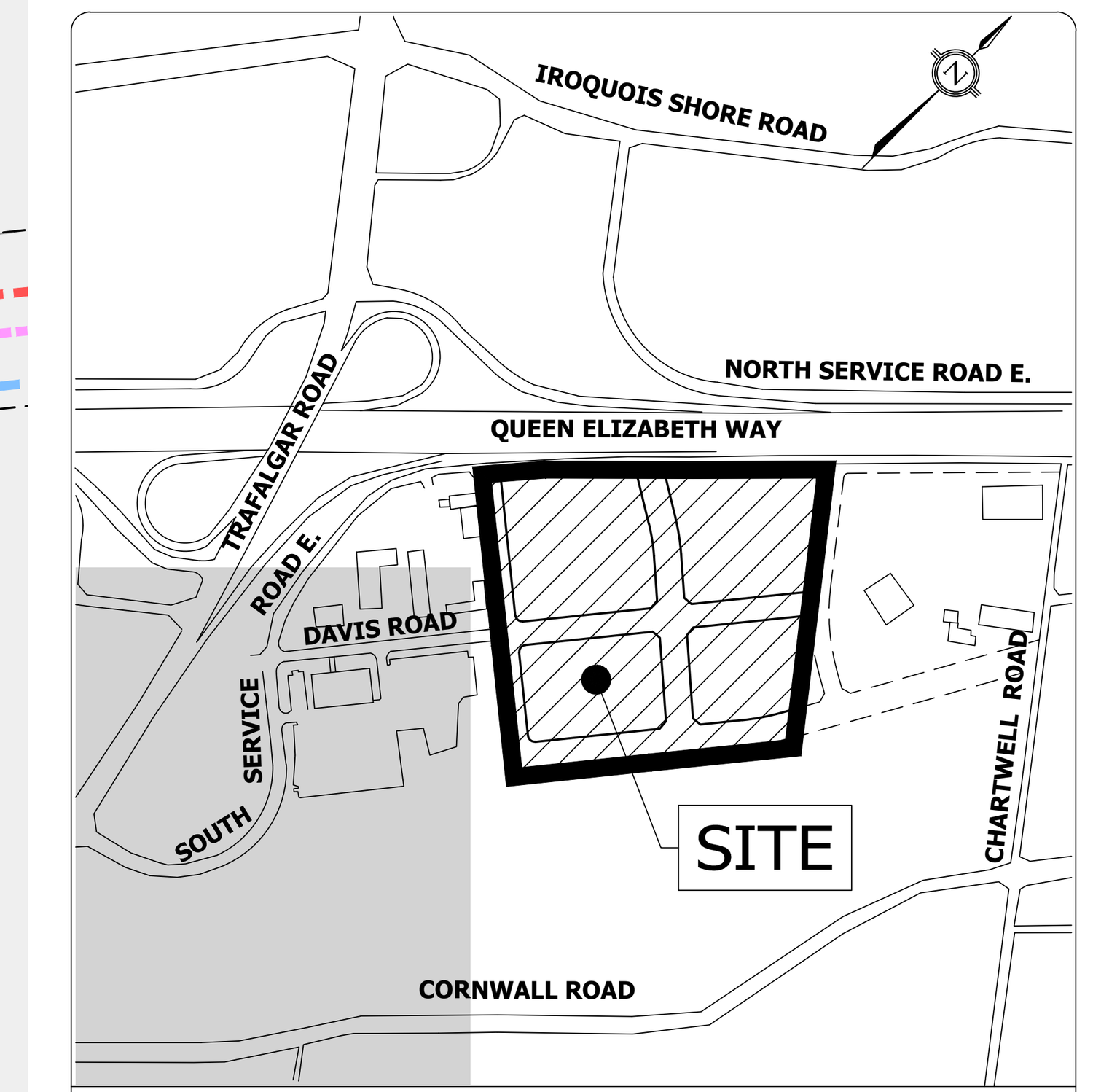
420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

SERVICING PLAN
(PHASE 1)
(PART 3 OF 4)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**SER-2**

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED STORM SEWER
- PROPOSED PUMPED STORM SYSTEM
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- FUTURE STORM SEWER
- FUTURE SANITARY SEWER
- FUTURE WATERMAIN
- EXISTING CATCH BASIN
- STM.MH2 TOP 102.77m N 98.79m SE 98.60m — MANHOLE ID, GROUND ELEVATION, SEWER INVERTS
- SAN.MH7A TOP 103.10m NW 100.10m SW 100.05m — MANHOLE ID, GROUND ELEVATION, SEWER INVERTS
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

CONTROL ID	EASTING	NORTHING	ELEVATION
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00820208150	606731.198	4813293.073	107.023

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420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

SERVICING PLAN
(ULTIMATE)
(PART 4 OF 4)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	SER-2.1

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QUEEN ELIZABETH WAY

SOUTH SERVICE ROAD EAST

EX. MH2
TOP 188.42mø
INF 103.09mø
INF 92.63mø

EX. MH3
TOP 188.08mø
INF 103.64mø
IOF 92.32mø
INF 92.32mø

EX. 55.8m-300mm SAN. @ 1.00%ø

EX. 93.0m-300mm SAN. @ 0.50%ø

14.0m SETBACK

14.0m SETBACK

EXISTING BUILDING

STREET "A"

PHASE 1B

PHASE 1A

PHASE 1

0.52ha

777

TOWER A1
29 STORY

PHASE 1B

PHASE 1B

PHASE TBD

PHASE 2

MORRISON CREEK

EXT2
4.15ha
602

1
0.08ha
-

SAN.MH3A
TOP 103.81m
SE 100.55m
NE 100.96m

27.5m-300mm
SAN. @ 0.50%

SAN.BLK1A
TOP 103.89m
INV 101.07m

SAN.MH1A
TOP 103.10m
INV 100.12m

MIDRISE A2
10 STORY

EX. MH2
TOP 188.42mø
IOF 99.96mø

DAVIS ROAD

EX. MH12
TOP 187.68mø
INF 99.89mø
IOF 99.81mø

EX. 69.8m-300mm SAN. @ 0.67%ø

EX. MH11
TOP 187.74mø
INF 99.49mø
IOF 99.49mø

12.2m-300mm
SAN. @ 0.30%

PHASE 2
PHASE 3

PHASE 2
PHASE 4

PHASE 3

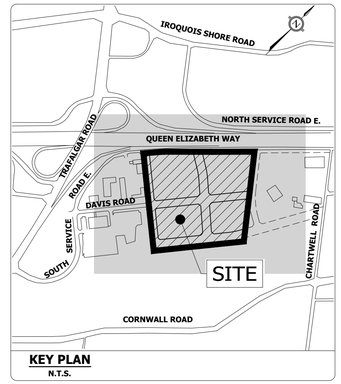
PHASE 4

PHASE 1B

PHASE 3
PHASE 4

EXT3
1.96ha
285

CANADIAN NATIONAL RAILWAY



KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- FUTURE SANITARY SEWER
- FUTURE SANITARY TRUNK SEWER
- SAN.MH7A (TOP 183.50m, INV 100.10m, INV 100.05m) — MANHOLE ID / GROUND ELEVATION / SEWER INVERTS
- BLK 1 / 2.42ha / 4511 — DRAINAGE AREA ID / DRAINAGE AREA (Ha.) / POPULATION
- EXT2 / 4.59ha / 9180 — EXISTING DRAINAGE AREA ID / EXISTING DRAINAGE AREA (Ha.) / EXISTING POPULATION
- SANITARY DRAINAGE BOUNDARY
- EXISTING SANITARY DRAINAGE BOUNDARY
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

CONTROL ID	EASTING	NORTHING	ELEVATION
00820208149	606389.733	4812958.951	111.672
00820208150	606731.198	4813293.073	107.023

URBANTECH

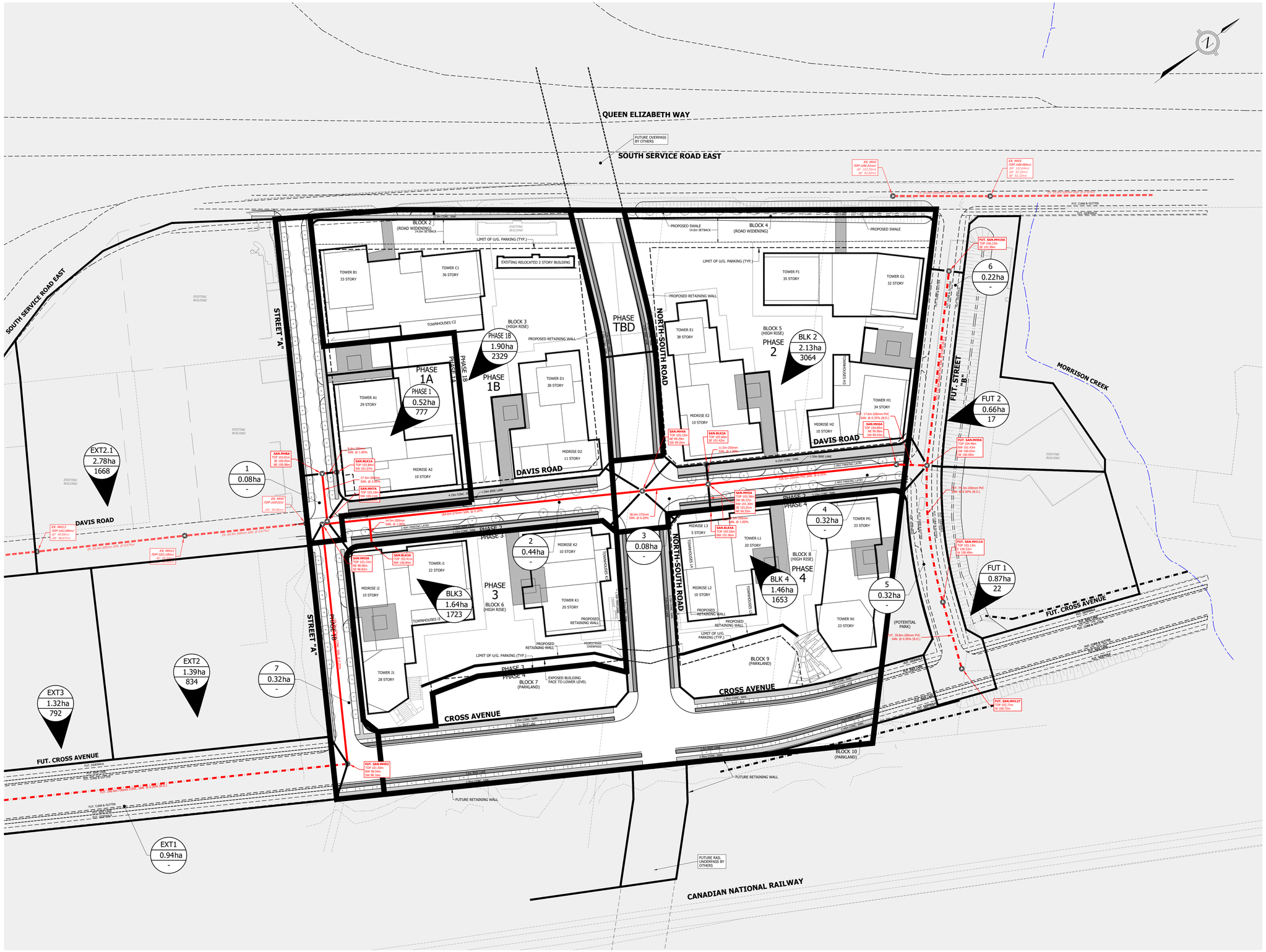
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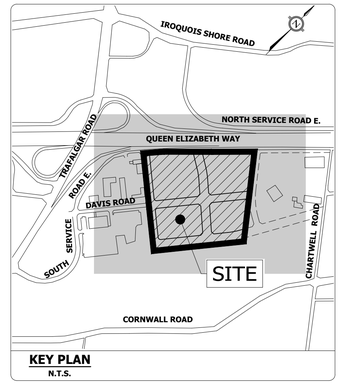
420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

SANITARY DRAINAGE PLAN
(PHASE 1)
(PART 1 OF 4)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**SAN-1**

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- FUTURE SANITARY SEWER
- FUTURE SANITARY TRUNK SEWER
- SAN.MH7A — MANHOLE ID (TOP 103.53m, INV 100.10m, SW 100.05m)
- GROUND ELEVATION
- SEWER INVERTS
- BLK 1 / 2.42ha / 4511 — DRAINAGE AREA ID
- DRAINAGE AREA (Ha.)
- POPULATION
- EXT2 / 4.59ha / 9180 — EXISTING DRAINAGE AREA ID
- EXISTING DRAINAGE AREA (Ha.)
- EXISTING POPULATION
- SANITARY DRAINAGE BOUNDARY
- EXISTING SANITARY DRAINAGE BOUNDARY
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

CONTROL ID	EASTING	NORTHING	ELEVATION
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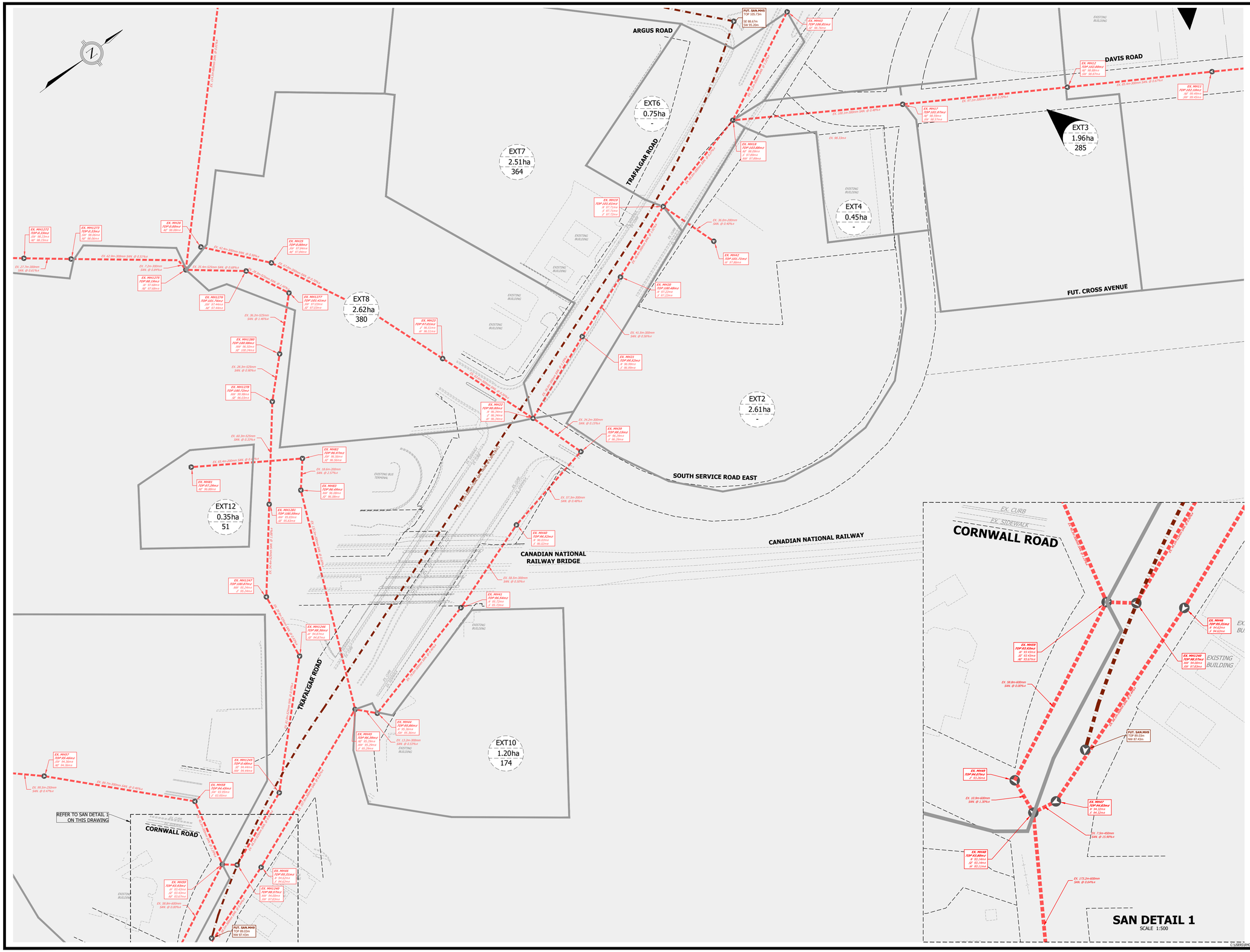
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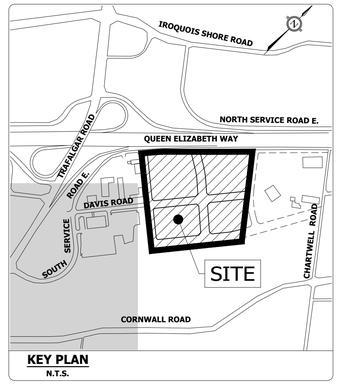
420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

SANITARY DRAINAGE PLAN
(ULTIMATE)
(PART 2 OF 4)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	SAN-1.1

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- FUTURE SANITARY SEWER
- FUTURE SANITARY TRUNK SEWER
- MANHOLE ID / GROUND ELEVATION / SEWER INVERTS
- BLK 1 / 2.42ha / 4511 — DRAINAGE AREA ID / DRAINAGE AREA (Ha.) / POPULATION
- EXT2 / 4.59ha / 9180 — EXISTING DRAINAGE AREA ID / EXISTING DRAINAGE AREA (Ha.) / EXISTING POPULATION
- SANITARY DRAINAGE BOUNDARY
- EXISTING SANITARY DRAINAGE BOUNDARY
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK

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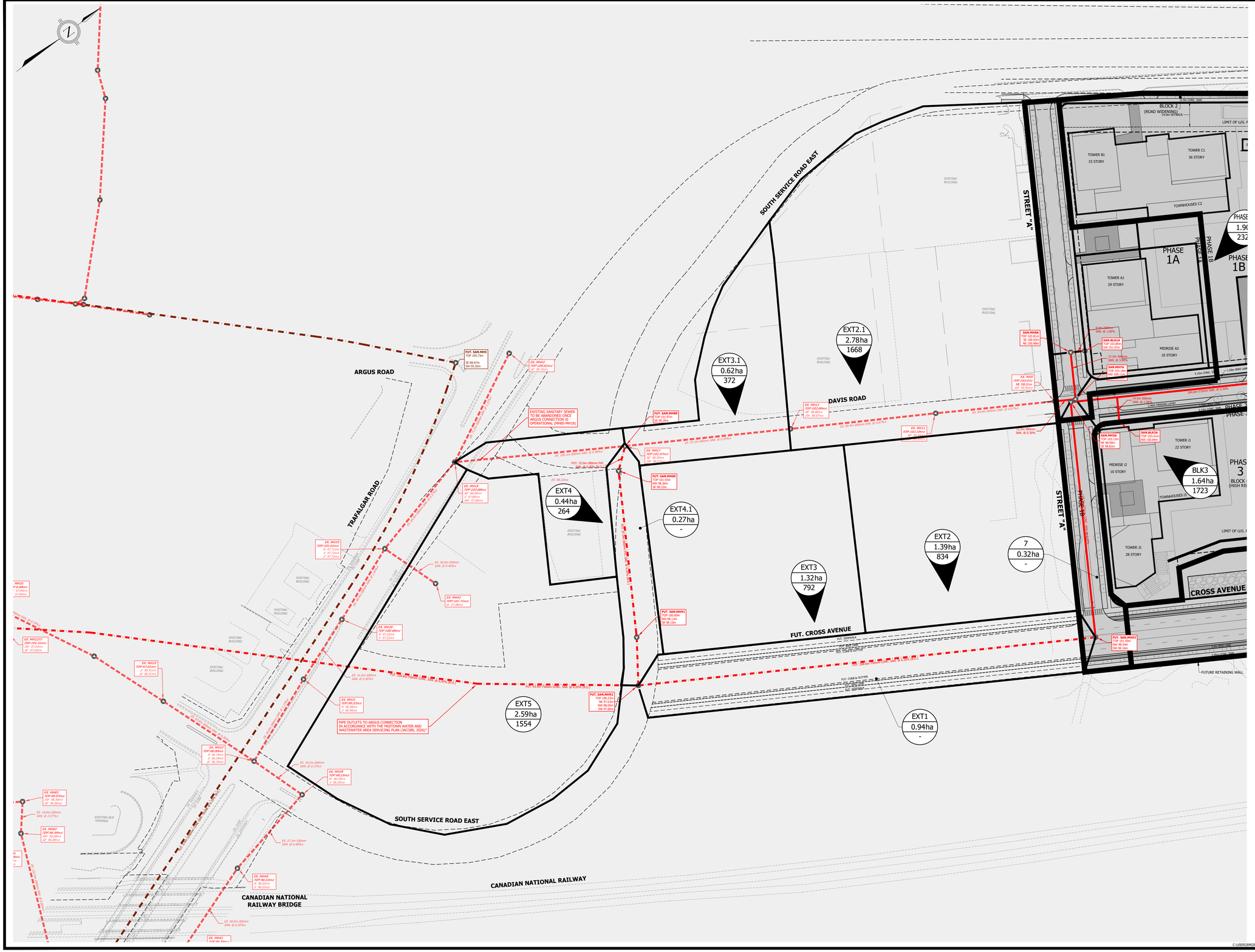
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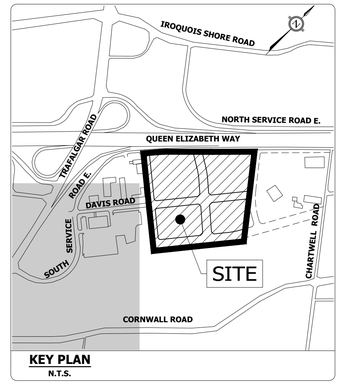
SANITARY DRAINAGE PLAN
(PHASE 1)
(PART 3 OF 4)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**SAN-2**

SAN DETAIL 1
SCALE 1:500

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- FUTURE SANITARY SEWER
- FUTURE SANITARY TRUNK SEWER
- SAN.MH7A / TOP 103.50m / INV 100.10m / SW 100.05m — MANHOLE ID, GROUND ELEVATION, SEWER INVERTS
- BLK 1 / 2.42ha / 4511 — DRAINAGE AREA ID, DRAINAGE AREA (Ha.), POPULATION
- EXT2 / 4.59ha / 9180 — EXISTING DRAINAGE AREA ID, EXISTING DRAINAGE AREA (Ha.), EXISTING POPULATION
- SANITARY DRAINAGE BOUNDARY
- EXISTING SANITARY DRAINAGE BOUNDARY
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK
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CONTROL ID	EASTING	NORTHING	ELEVATION
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00820208150	606731.198	4813293.073	107.023

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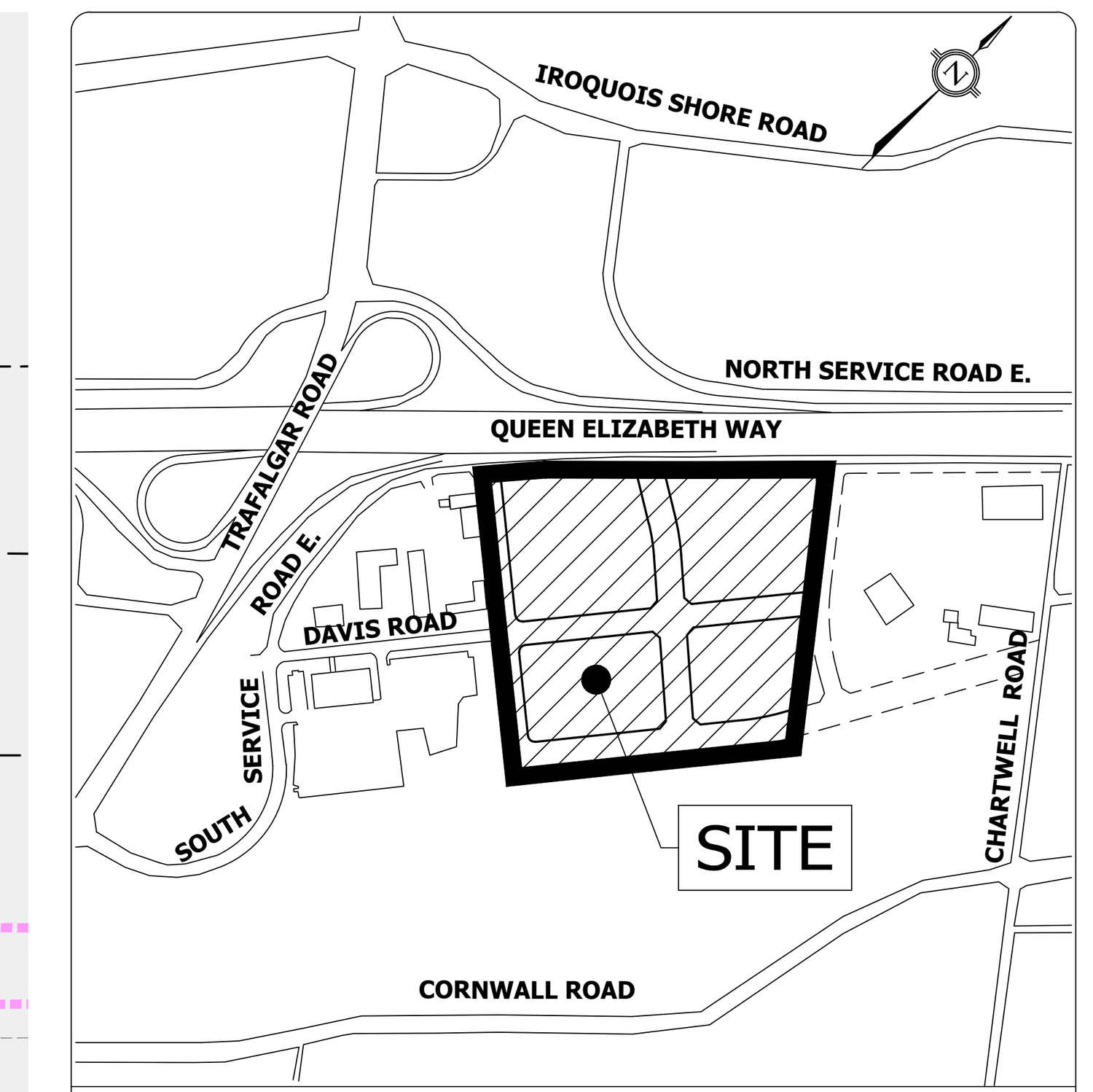
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TOWN OF OAKVILLE

SANITARY DRAINAGE PLAN
(ULTIMATE)
(PART 4 OF 4)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	SAN-2.1

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED WATERMAIN
- EXISTING WATERMAIN
- FUTURE WATERMAIN
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

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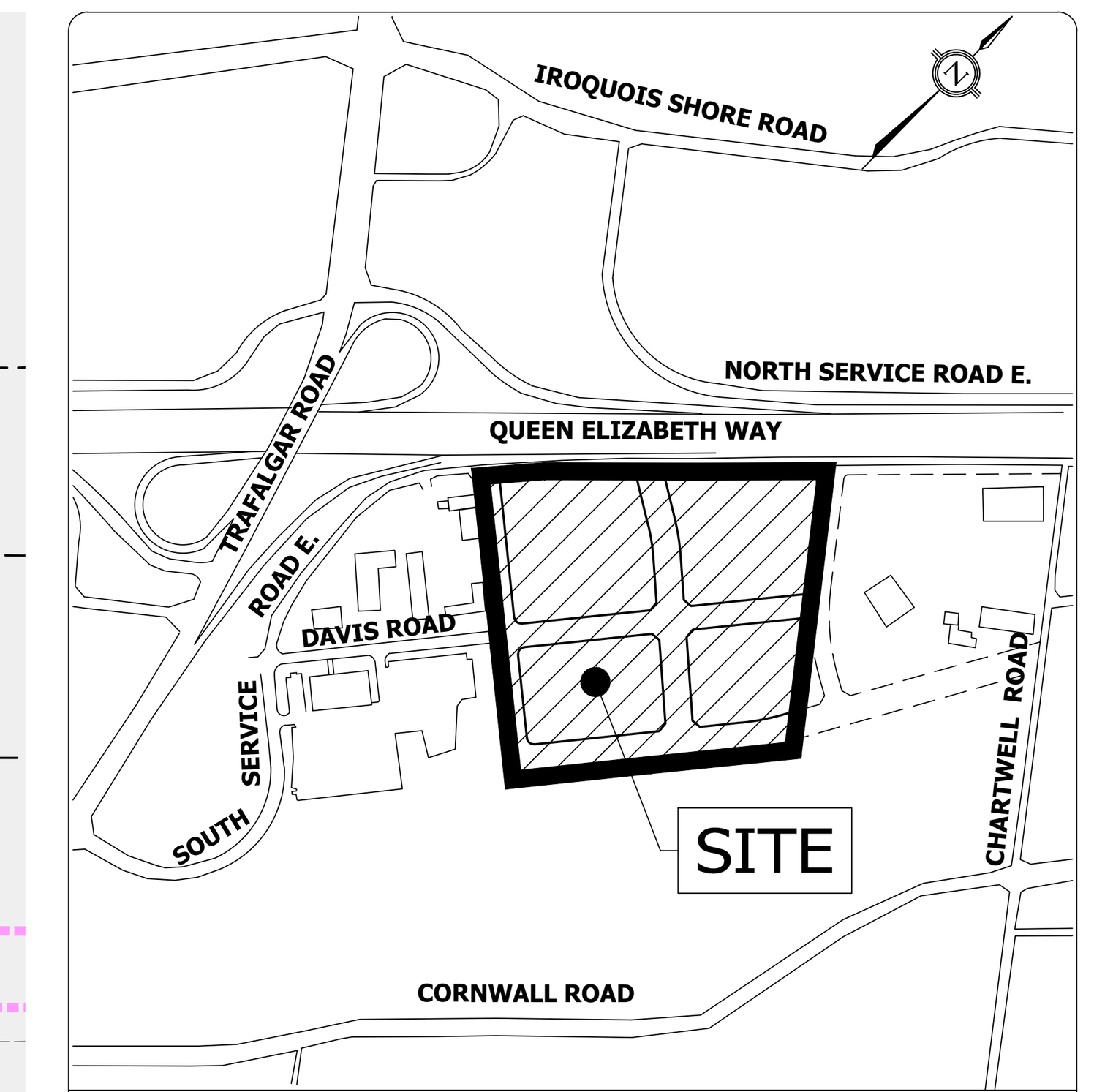
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TOWN OF OAKVILLE

WATERMAIN DISTRIBUTION PLAN
(PHASE 1)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**WM-1**

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED WATERMAIN
- EXISTING WATERMAIN
- FUTURE WATERMAIN
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

CONTROL ID	EASTING	NORTHING	ELEVATION
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00820208150	606731.198	4813293.073	107.023

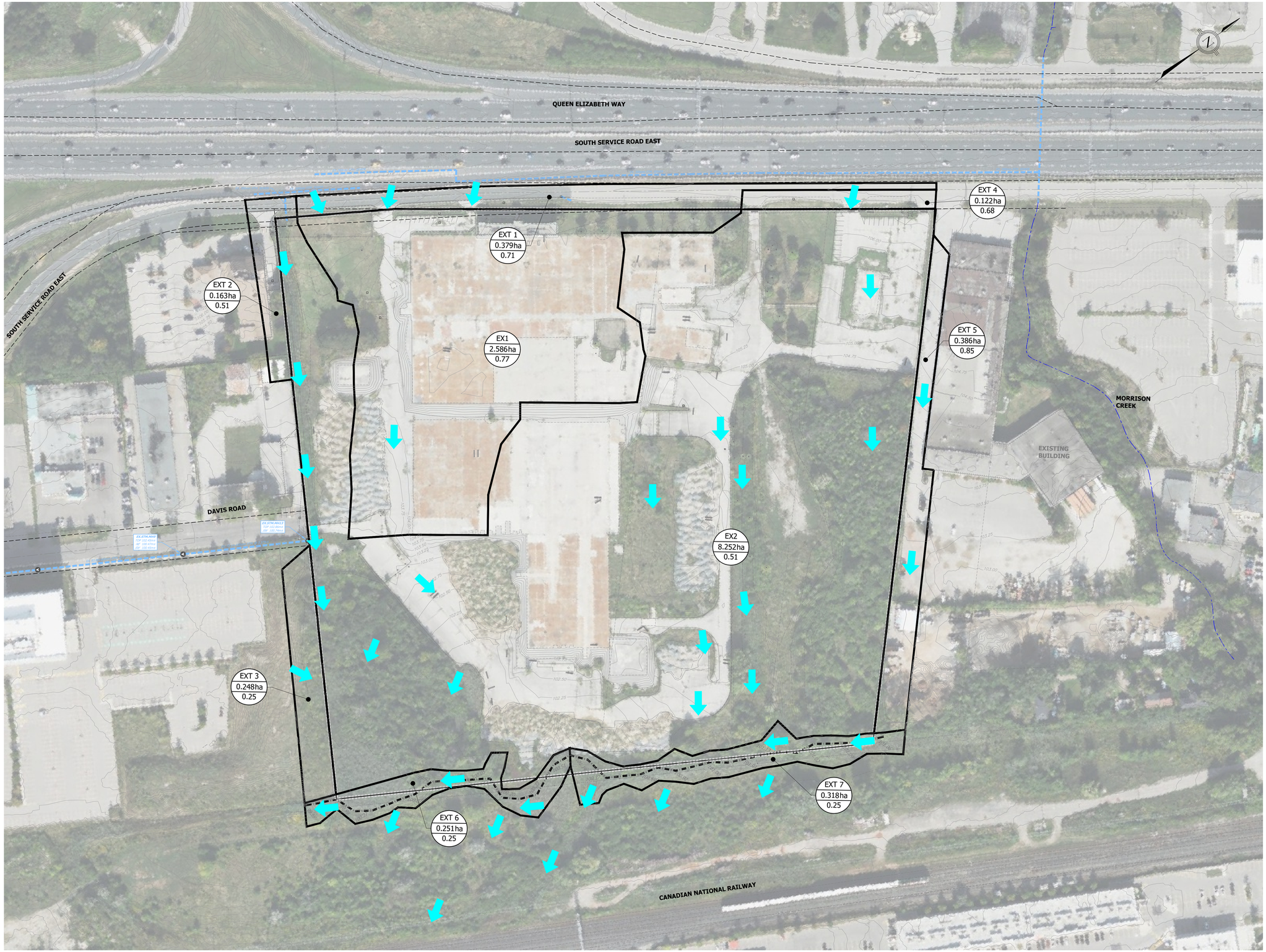
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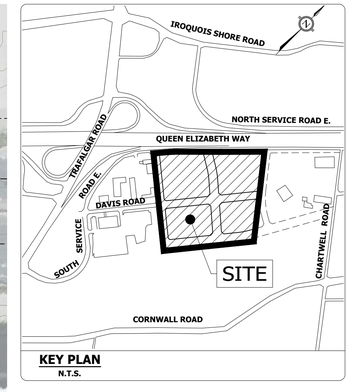
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TOWN OF OAKVILLE

WATERMAIN DISTRIBUTION PLAN
(ULTIMATE)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	WM-1.1

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- EXISTING STORM SEWER
- EXISTING STORM MANHOLE ID
- EXISTING GROUND ELEVATION
- EXISTING SEWER INVERTS
- EXISTING AREA ID
- EXISTING DRAINAGE AREA (Ha.)
- EXISTING RUNOFF COEFFICIENT
- EXISTING CONTOUR & ELEVATION
- EXISTING OVERLAND FLOW ROUTE
- EXISTING CATCH BASIN
- EXISTING STORM DRAINAGE BOUNDARY
- EXISTING WATERCOURSE
- FUTURE / EXISTING DEVELOPMENT LANDS

BENCHMARK
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

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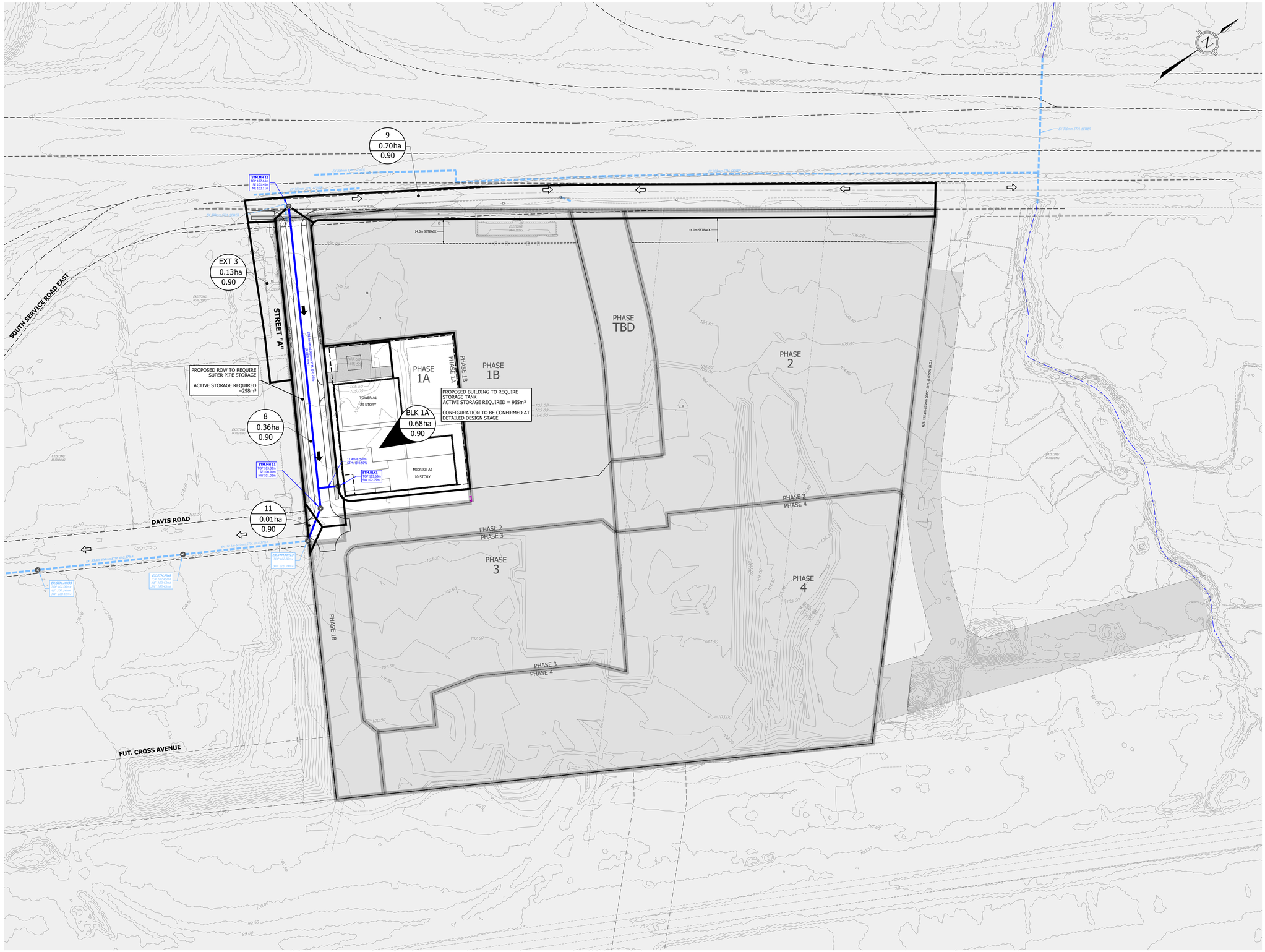
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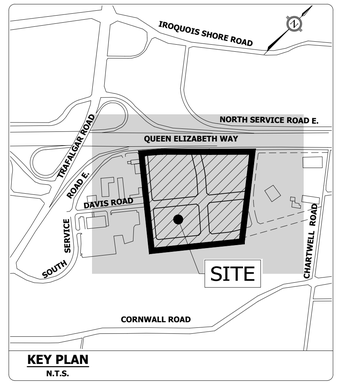
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TOWN OF OAKVILLE

PRE-DEVELOPMENT STORM DRAINAGE PLAN

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**STM-1**

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED STORM SEWER
- PROPOSED PUMPED STORM SYSTEM
- EXISTING STORM SEWER
- FUTURE STORM SEWER
- PROPOSED CULVERT
- MANHOLE ID
- GROUND ELEVATION
- SEWER INVERTS
- PROPOSED AREA I.D.
- PROPOSED DRAINAGE AREA (Ha.)
- PROPOSED RUNOFF COEFFICIENT
- EXISTING CONTOUR & ELEVATION
- PROPOSED OVERLAND FLOW ROUTE
- EXISTING OVERLAND FLOW ROUTE
- PROPOSED STORM DRAINAGE BOUNDARY
- EXISTING STORM DRAINAGE BOUNDARY
- EXISTING WATERCOURSE
- 100 YR CAPTURE AREA
- PUMPED AREA
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28 :78) AND ARE DERIVED FROM MINISTRY OF TRANSPORTATION CONTROLS No. 00820208149 AND 00820208150

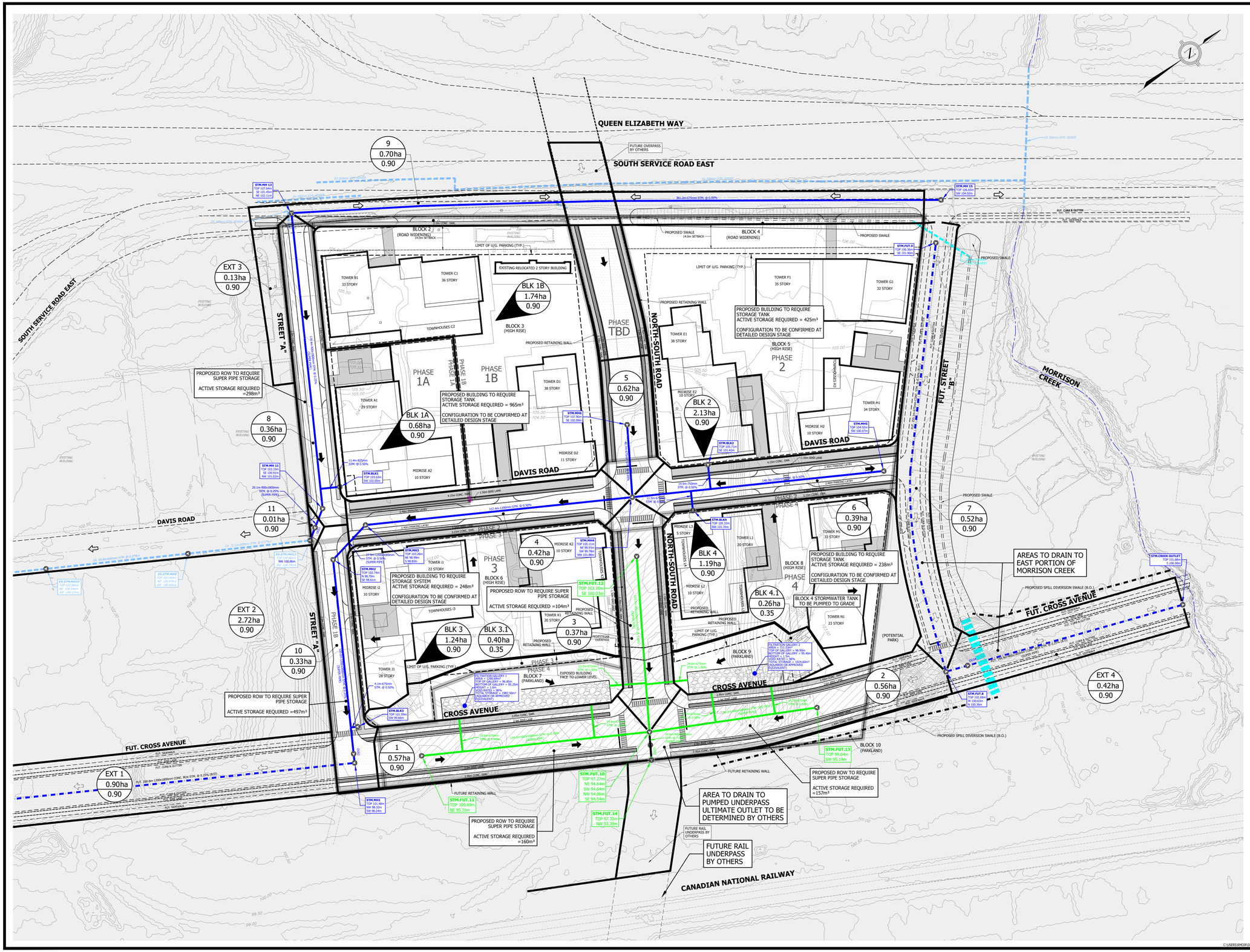
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00820208150	606731.198	4813293.073	107.023

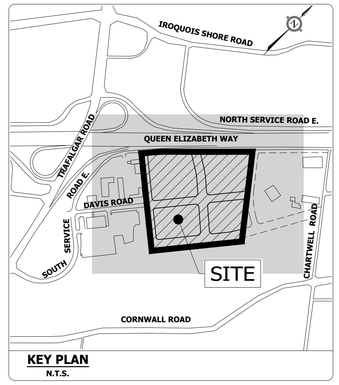
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420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

POST-STORM DRAINAGE PLAN
(PHASE 1)
(PART 1 OF 4)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**STM-2**





KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED STORM SEWER
- PROPOSED PUMPED STORM SYSTEM
- EXISTING STORM SEWER
- FUTURE STORM SEWER
- PROPOSED CULVERT
- MANHOLE ID / GROUND ELEVATION / SEWER INVERTS
- PROPOSED AREA I.D. / PROPOSED DRAINAGE AREA (Ha.) / PROPOSED RUNOFF COEFFICIENT
- EXISTING CONTOUR & ELEVATION
- PROPOSED OVERLAND FLOW ROUTE
- EXISTING OVERLAND FLOW ROUTE
- PROPOSED STORM DRAINAGE BOUNDARY
- EXISTING STORM DRAINAGE BOUNDARY
- EXISTING WATERCOURSE
- 100 YR CAPTURE AREA
- PUMPED AREA
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK

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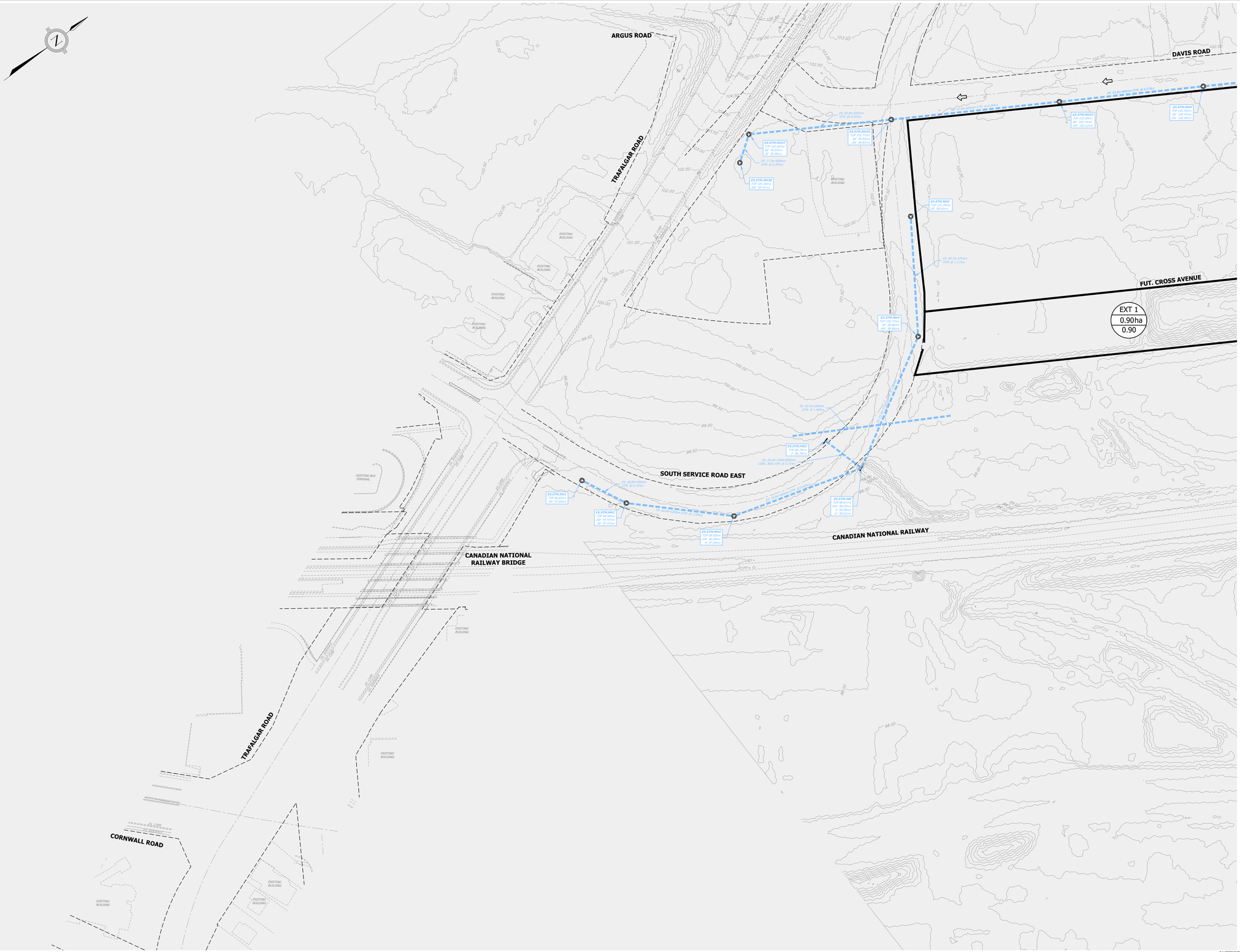
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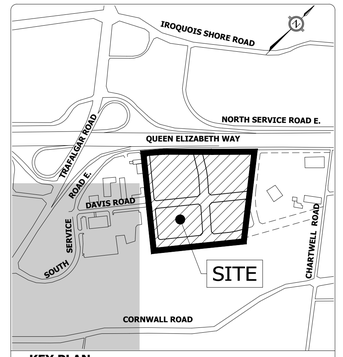
420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

POST STORM DRAINAGE PLAN
(ULTIMATE)
(PART 2 OF 4)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**STM-2.1**

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED STORM SEWER
- PROPOSED PUMPED STORM SYSTEM
- EXISTING STORM SEWER
- FUTURE STORM SEWER
- MANHOLE ID / GROUND ELEVATION / SEWER INVERTS
- PROPOSED AREA I.D. / PROPOSED DRAINAGE AREA (Ha.) / PROPOSED RUNOFF COEFFICIENT
- EXISTING CONTOUR & ELEVATION
- PROPOSED OVERLAND FLOW ROUTE
- EXISTING OVERLAND FLOW ROUTE
- PROPOSED STORM DRAINAGE BOUNDARY
- EXISTING STORM DRAINAGE BOUNDARY
- EXISTING WATERCOURSE
- 100 YR CAPTURE AREA
- PUMPED AREA
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

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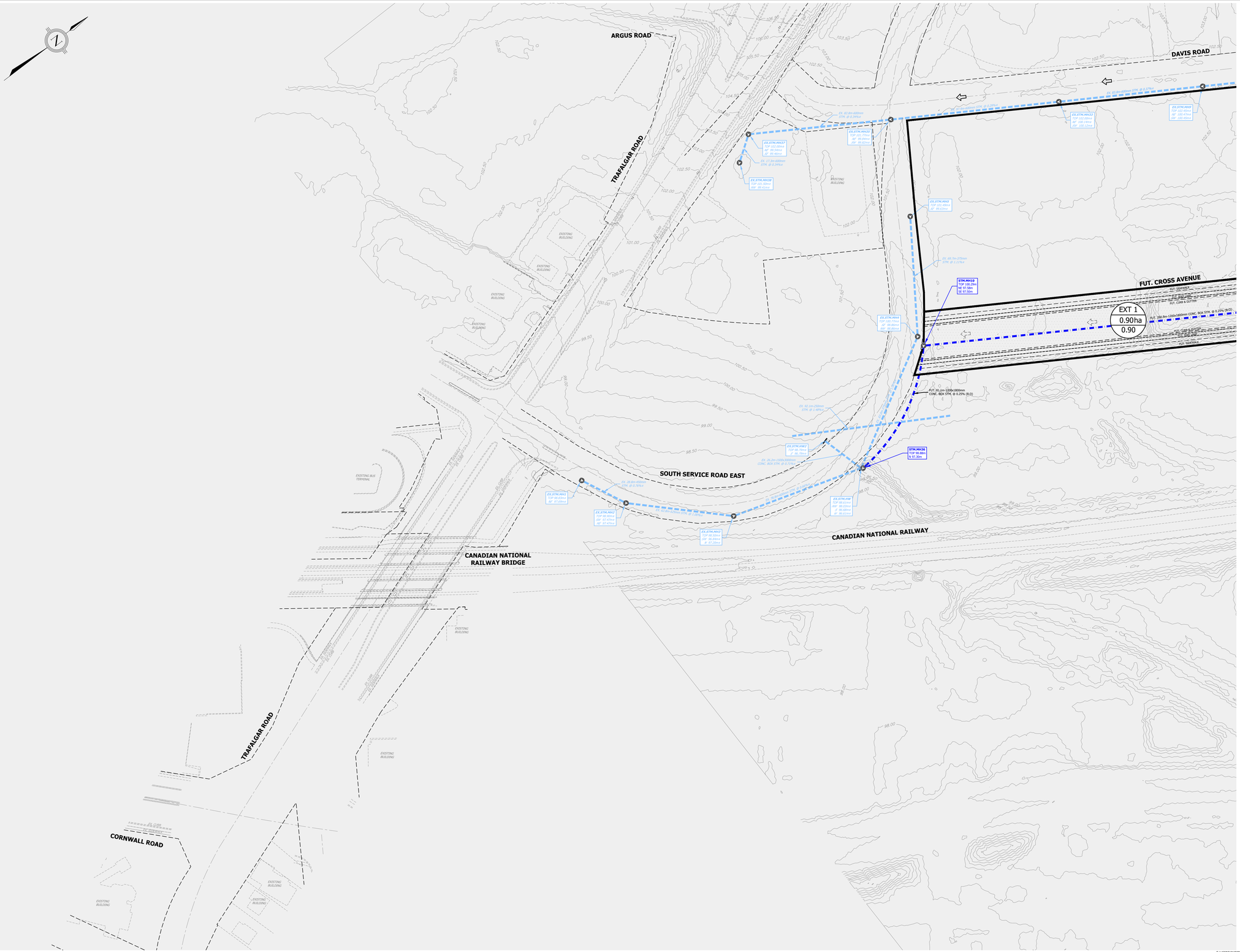
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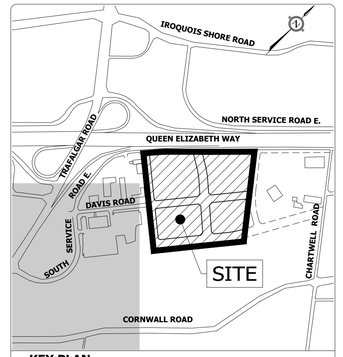
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420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

POST-STORM DRAINAGE PLAN
(PHASE 1)
(PART 3 OF 4)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**STM-3**





KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- PROPOSED STORM SEWER
- PROPOSED PUMPED STORM SYSTEM
- EXISTING STORM SEWER
- FUTURE STORM SEWER
- MANHOLE ID / GROUND ELEVATION / SEWER INVERTS (STM.MH2, TOP 102.77m, N 96.70m, SE 96.60m)
- PROPOSED AREA I.D. / PROPOSED DRAINAGE AREA (Ha.) / PROPOSED RUNOFF COEFFICIENT (1, 0.57Ha, 0.90)
- EXISTING CONTOUR & ELEVATION
- PROPOSED OVERLAND FLOW ROUTE
- EXISTING OVERLAND FLOW ROUTE
- PROPOSED STORM DRAINAGE BOUNDARY
- EXISTING STORM DRAINAGE BOUNDARY
- EXISTING WATERCOURSE
- 100 YR CAPTURE AREA
- PUMPED AREA
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

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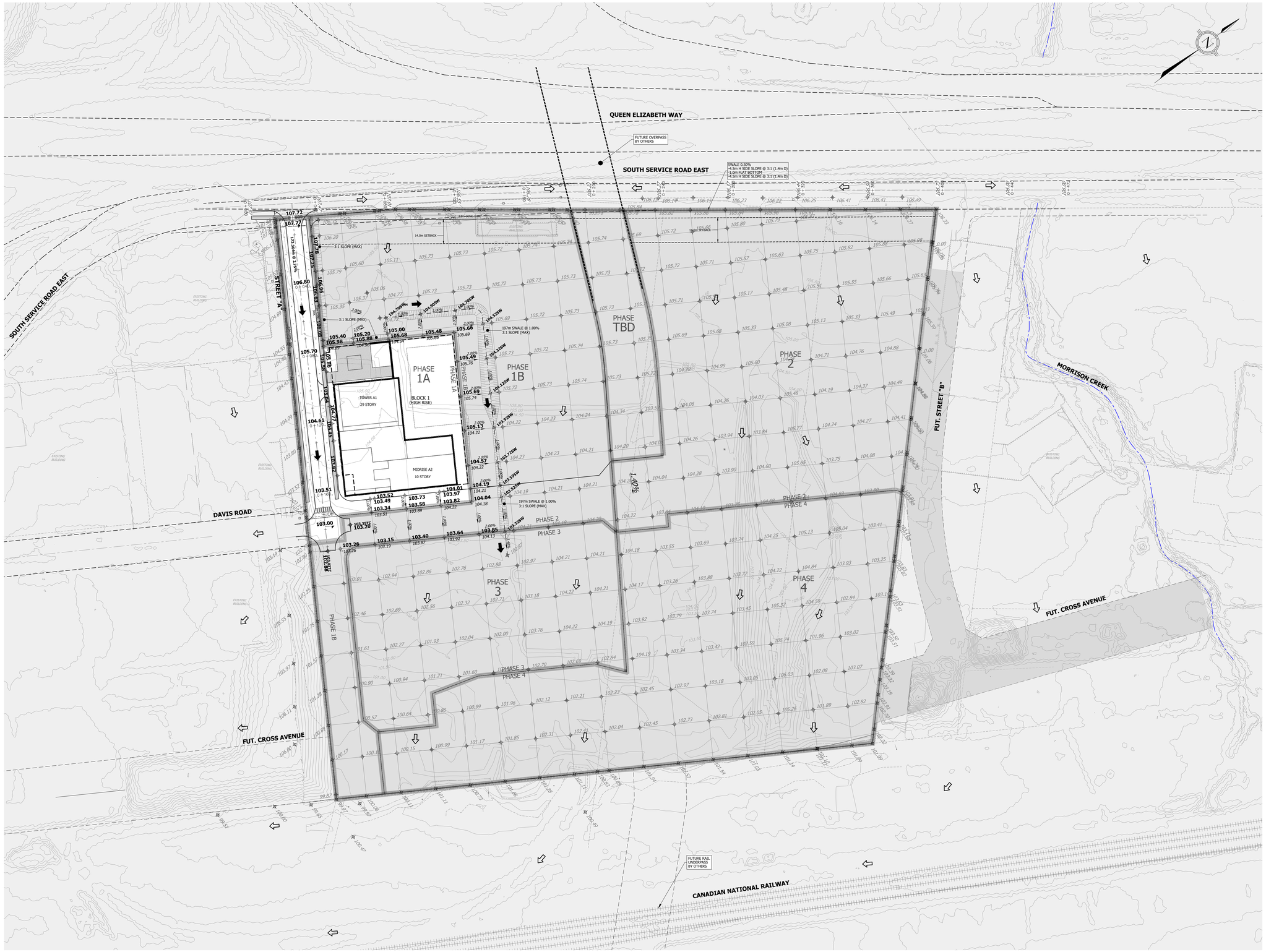
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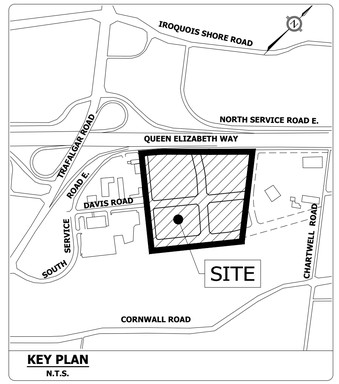
420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

POST STORM DRAINAGE PLAN
(ULTIMATE)
(PART 4 OF 4)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**STM-3.1**

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- 105.50 PROPOSED ELEVATION
- 105.50 EXISTING ELEVATION
- MAXIMUM 3:1 (UNLESS OTHERWISE NOTED)
- EXISTING CONTOUR & ELEVATION
- PROPOSED OVERLAND FLOW ROUTE
- EXISTING OVERLAND FLOW ROUTE
- FUTURE OVERLAND FLOW ROUTE
- PROPOSED CULVERT
- PROPOSED SWALE
- EXISTING WATERCOURSE
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

BENCHMARK

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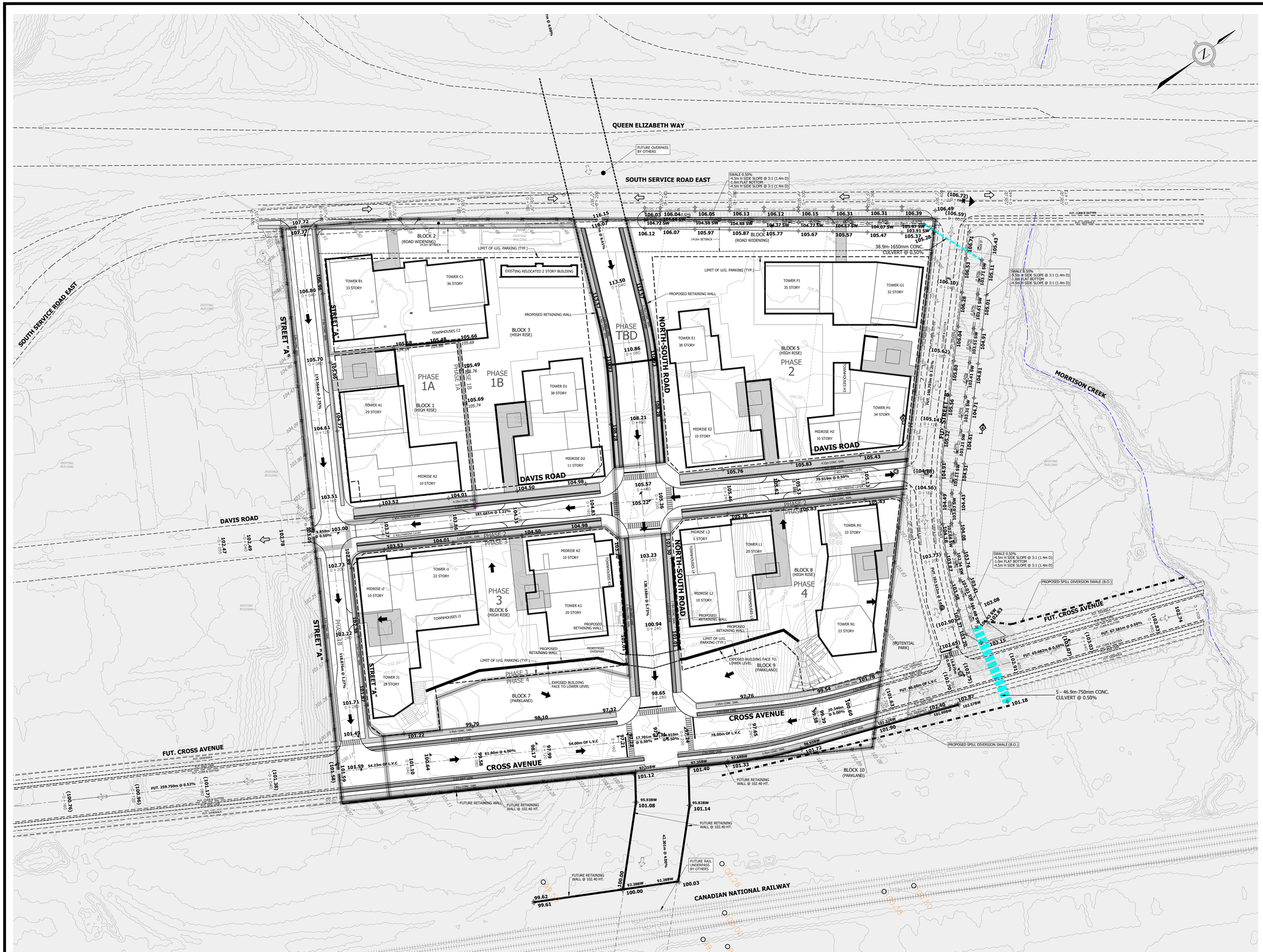
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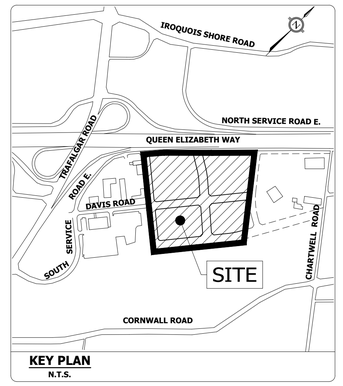
420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

GRADING PLAN
(PHASE 1)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**GRD-1**

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KEY PLAN
N.T.S.

LEGEND

- LIMIT OF DEVELOPMENT
- 105.50 PROPOSED ELEVATION
- 105.50 EXISTING ELEVATION
- MAXIMUM 3:1 (UNLESS OTHERWISE NOTED)
- EXISTING CONTOUR & ELEVATION
- PROPOSED OVERLAND FLOW ROUTE
- EXISTING OVERLAND FLOW ROUTE
- FUTURE OVERLAND FLOW ROUTE
- PROPOSED CULVERT
- PROPOSED SWALE
- EXISTING WATERCOURSE
- EXISTING DEVELOPMENT LANDS
- FUTURE PHASE OF DEVELOPMENT
- PHASE LIMIT

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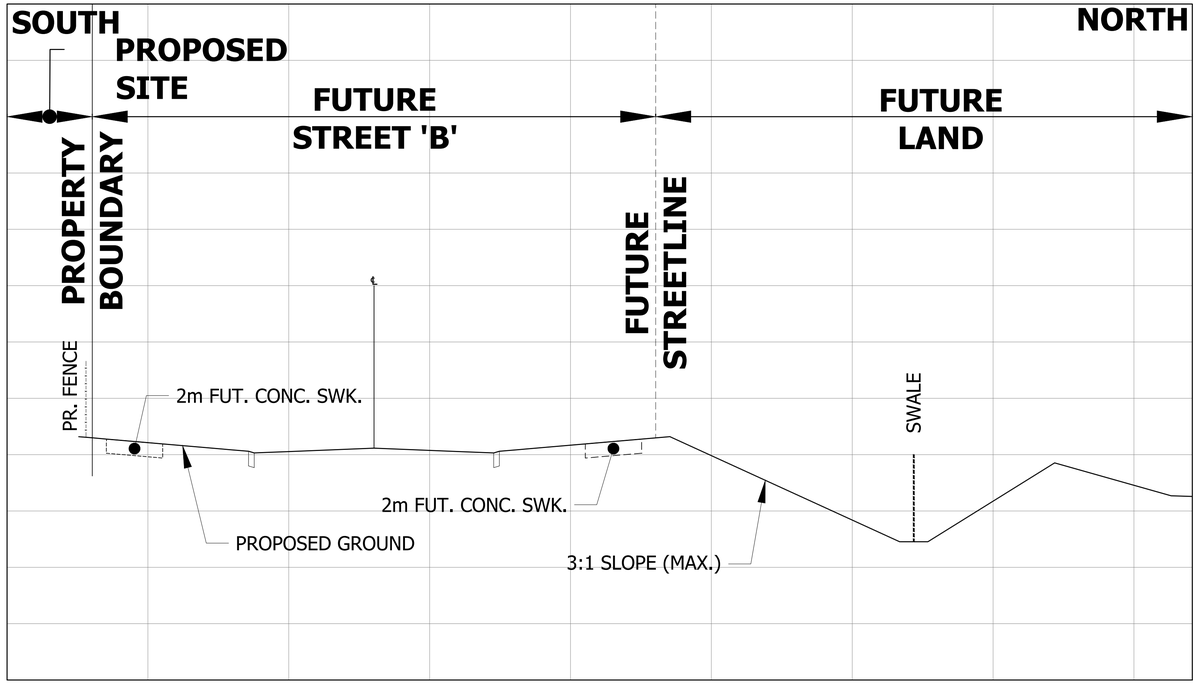
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420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

GRADING PLAN
(ULTIMATE)

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**GRD-1.1**

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SECTION A-A

H = 1:500 V = 1:250

BENCHMARK

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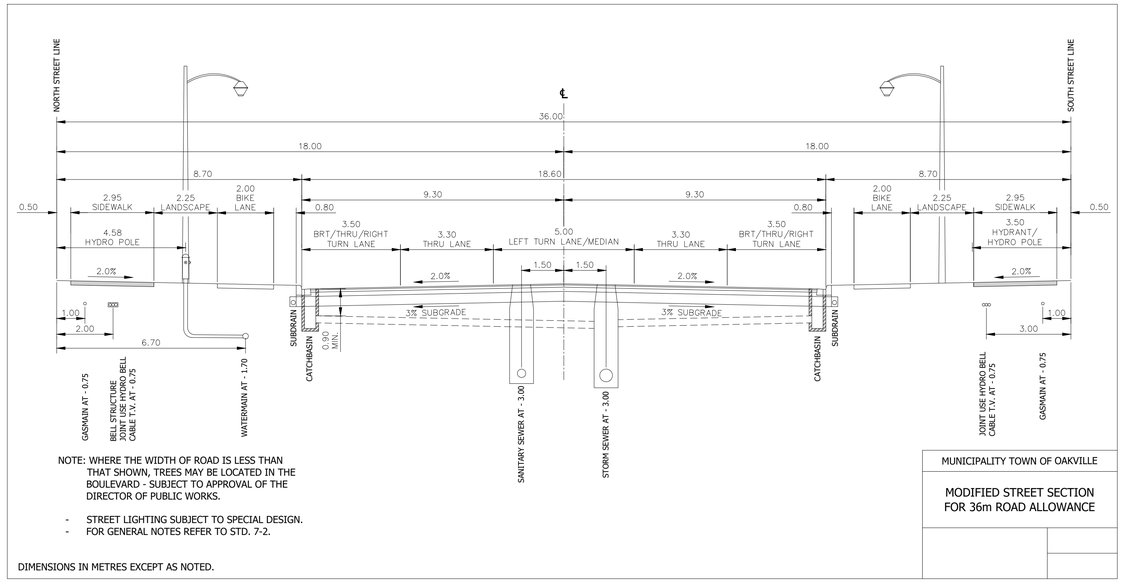
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420 SOUTH SERVICE ROAD EAST
TOWN OF OAKVILLE

GRADING SECTION

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:1000	**GRD-2**

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NOTE: WHERE THE WIDTH OF ROAD IS LESS THAN THAT SHOWN, TREES MAY BE LOCATED IN THE BOULEVARD - SUBJECT TO APPROVAL OF THE DIRECTOR OF PUBLIC WORKS.

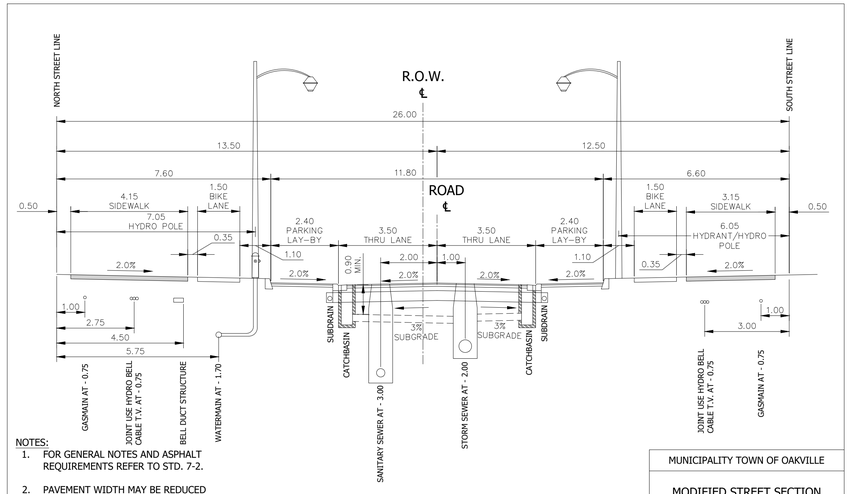
- STREET LIGHTING SUBJECT TO SPECIAL DESIGN.
- FOR GENERAL NOTES REFER TO STD. 7-2.

DIMENSIONS IN METRES EXCEPT AS NOTED.

MUNICIPALITY TOWN OF OAKVILLE

MODIFIED STREET SECTION FOR 36m ROAD ALLOWANCE

CROSS AVENUE WEST OF NORTH-SOUTH ROAD



NOTES:

1. FOR GENERAL NOTES AND ASPHALT REQUIREMENTS REFER TO STD. 7-2.
2. PAVEMENT WIDTH MAY BE REDUCED TO 12.50m FOR INDUSTRIAL ARTERIALS AND TO 10.00m FOR INDUSTRIAL COLLECTORS SUBJECT TO DIRECTOR OF PUBLIC WORKS APPROVAL. IN THESE CASES BOULEVARD WIDTHS WILL VARY.

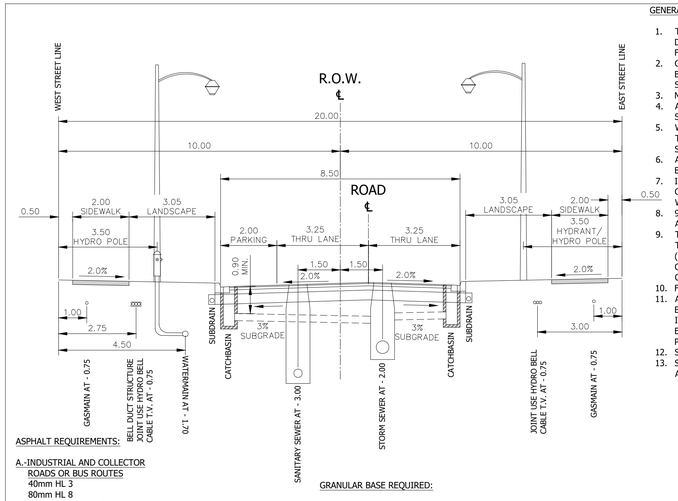
DIMENSIONS IN METRES EXCEPT AS NOTED.

MUNICIPALITY TOWN OF OAKVILLE

MODIFIED STREET SECTION FOR 26m ROAD ALLOWANCE

STD. 7-3

DAVIS ROAD



ASPHALT REQUIREMENTS:

A.-INDUSTRIAL AND COLLECTOR ROADS OR BUS ROUTES
40mm HL 3
80mm HL 8
B.-RESIDENTIAL ROADS (NO BUSES)
40mm HL 3
50mm HL 8
C.-DRIVEWAYS
50mm DRIVEWAYS MIX ASPHALT (HL-3A)

GRANULAR BASE REQUIRED:

A.-ALL ROADS
150mm OF GRANULAR 'A' MATERIAL HL 3
350mm OF GRANULAR 'B' SUB-BASE (SEE NOTE 2)
B.-DRIVEWAYS
150mm OF 19mm CRUSHER RUN STONE

GENERAL NOTES:

1. THE ELEVATION AT STREET LINE FOR LOT DRAINAGE SHALL BE 150mm HIGHER THAN THE FINISHED ROAD CROWN.
2. GRANULAR 'B' SUB-BASE THICKNESS MAY BE REDUCED BY 75mm WHEN GROUND CONDITIONS CONSIDERED SUITABLE BY THE DIRECTOR OF PUBLIC WORKS.
3. MAXIMUM ROAD GRADIENT 7%.
4. ALL MATERIAL TO MEET ONTARIO PROVINCIAL STANDARD SPECIFICATIONS.
5. WATERMAINS AND SANITARY SEWERS TO CONFORM TO LATEST REGIONAL MUNICIPALITY OF HALTON SPECIFICATIONS AND REQUIREMENTS.
6. ALL DRIVEWAYS BETWEEN CURB AND SIDEWALKS TO BE ASPHALTED.
7. IF ANY TRENCH AFFECTS EITHER THE ROADWAY OR CURBS, THEN COMPACTED GRANULAR 'B' MATERIAL WILL BE REQUIRED FOR THE BACKFILL.
8. 9.00m PAVEMENT TO BE USED ON MINOR COLLECTOR AND LOCAL INDUSTRIAL ROADS.
9. TOP COURSE ASPHALTIC CONCRETE SHALL BE ADDED TO THE ROAD ONLY AFTER ADJACENT BUILDINGS (HOMES, INDUSTRIAL, COMMERCIAL, ETC.) HAVE BEEN CONSTRUCTED AND OR ONLY WITH THE SPECIFIC CONSENT OF THE DIRECTOR OF PUBLIC WORKS.
10. FULL LENGTH SUB-DRAINS ARE TO BE INSTALLED.
11. AN EXTRA 150mm THICKNESS OF GRANULAR 'B' SHALL BE ADDED AT ARTERIAL AND INDUSTRIAL ROAD INTERSECTIONS. THIS EXTRA DEPTH SHALL BE EXTENDED FOR A MINIMUM OF 15mm FROM THE PROPERTY LINE OF THE INTERSECTING STREET.
12. SUB-GRADE CROSS-FALL SHALL BE 3 PERCENT.
13. SODDING REQUIREMENTS TO CONFORM TO OPSS 570 AND 571.

MUNICIPALITY TOWN OF OAKVILLE

MODIFIED STREET SECTION FOR 20m ROAD ALLOWANCE

STD. 7-2

STREET "A" & FUT. STREET "B"

BENCHMARK

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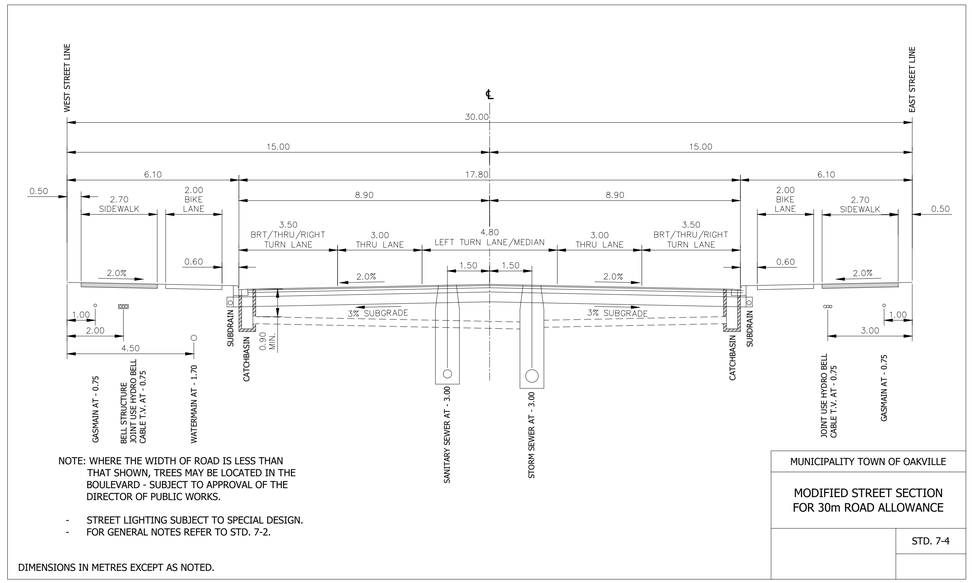
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420 SOUTH SERVICE ROAD EAST
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TYPICAL ROAD CROSS SECTIONS

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:100	**RXS-1**

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NOTE: WHERE THE WIDTH OF ROAD IS LESS THAN THAT SHOWN, TREES MAY BE LOCATED IN THE BOULEVARD - SUBJECT TO APPROVAL OF THE DIRECTOR OF PUBLIC WORKS.

- STREET LIGHTING SUBJECT TO SPECIAL DESIGN.
- FOR GENERAL NOTES REFER TO STD. 7-2.

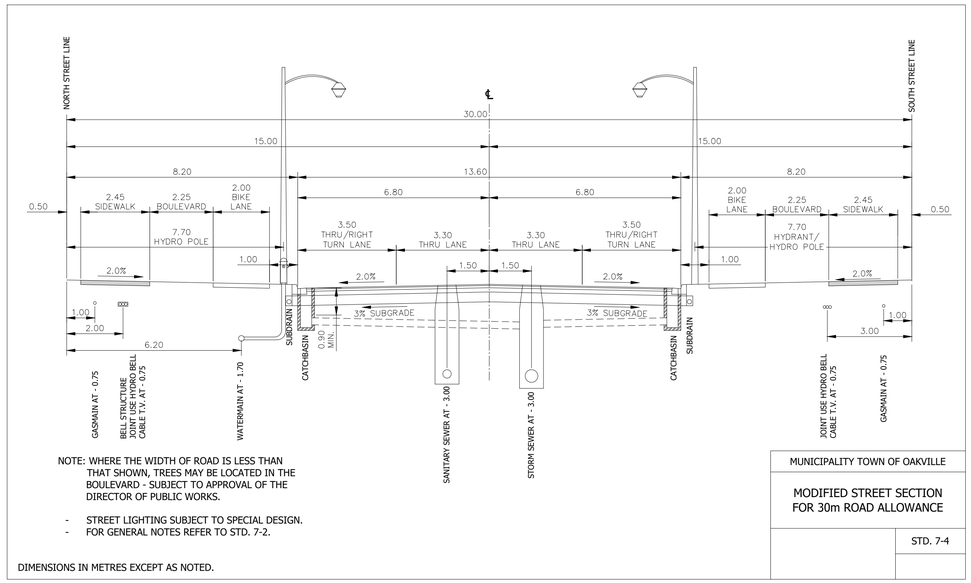
DIMENSIONS IN METRES EXCEPT AS NOTED.

MUNICIPALITY TOWN OF OAKVILLE

MODIFIED STREET SECTION FOR 30m ROAD ALLOWANCE

STD. 7-4

NORTH-SOUTH ROAD



NOTE: WHERE THE WIDTH OF ROAD IS LESS THAN THAT SHOWN, TREES MAY BE LOCATED IN THE BOULEVARD - SUBJECT TO APPROVAL OF THE DIRECTOR OF PUBLIC WORKS.

- STREET LIGHTING SUBJECT TO SPECIAL DESIGN.
- FOR GENERAL NOTES REFER TO STD. 7-2.

DIMENSIONS IN METRES EXCEPT AS NOTED.

MUNICIPALITY TOWN OF OAKVILLE

MODIFIED STREET SECTION FOR 30m ROAD ALLOWANCE

STD. 7-4

FUT. CROSS AVENUE EAST OF NORTH-SOUTH ROAD

BENCHMARK

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TOWN OF OAKVILLE

TYPICAL ROAD CROSS SECTIONS

PROJECT No.	DATE	SCALE	DWG No.
23-307	OCT. 2025	1:100	**RXS-2**

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APPENDIX D:
2D Flood / Spill Assessment Memo

Memorandum

To:	Alex Lenarduzzi	**Date:**	October 13, 2026
Cc:			
From:	Andrew Fata	**Project #:**	**23-307**
Re:	2D Flood/Spill Assessment – Existing and Proposed Conditions, Mitigation Options, and CH Spill Policy Context		

1. Purpose & Scope

This memo documents the two-dimensional (2D) flood/spill modelling completed for the 420-468 South Service Road (Rose Corp. / former GE Lands) using Conservation Halton's (CH) regional 2D model prepared for the Morrison Creek / Midtown Oakville / Sixteen Mile Creek to Lower Morrison system.

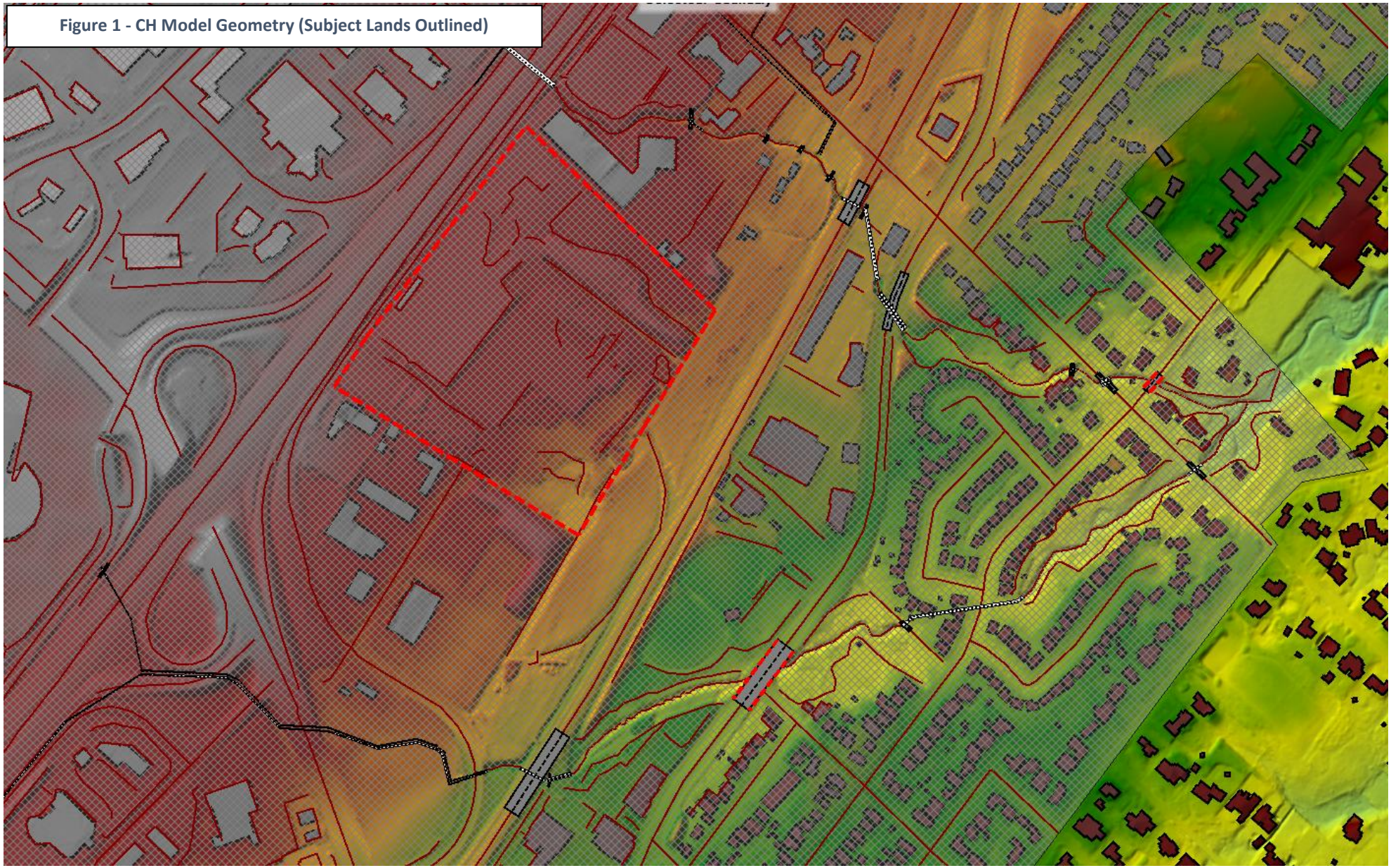
Results are summarized for existing and proposed conditions and are interpreted in the context of CH's recently approved Spill Flood Hazard Policies and Technical Guide (April 17, 2025).

2. Modelling Framework

- **Base Model Geometry:** CH's 2D hydraulic model for Midtown Oakville (Sixteen Mile Creek to Lower Morrison Creek Flood Hazard Mapping model) was obtained through a Data Licencing Agreement from Conservation Halton. The model was dated February 2025.
- No changes to the existing conditions models (with and without barriers) were made.
- **Flows:** Flows were based on the CH 2D model – no changes to flows were made. Only the Regional flows were simulated for this evaluation.
- **Terrain** – 2023 LiDAR (source: Conservation Halton 2D model; CGVD 2023) – no changes to the existing terrain were made.

Figure 1 illustrates the site location and geometry including the culverts, breaklines and mesh elements (10m grid; 2m grid along QEW, subject lands and detailed breaklines) in the model.

Figure 1 - CH Model Geometry (Subject Lands Outlined)



- **Model Scenarios Evaluated:**

The following scenarios were simulated using the baseline models provided by CH.

  - (i) Existing with QEW barriers as per CH model, no changes
  - (ii) Existing without QEW barriers as per CH model, no changes
  - (iii) Proposed Phase 1 (north west quadrant) development only
  - (iv) Proposed site grading with mitigation measures
    - Includes west-east swale within 14m MTO setback on north side of property
    - Includes culvert crossing from west to east across future north-south road
    - Includes north-south swale along east side of future north-south road
    - Assumes Cross Avenue extension along subject lands
    - Includes culvert crossing beneath future Cross Avenue extension
    - Assumes existing building on future parkland area is removed.
    - Does not include any future works in the rail corridor (underpass / grading, etc.)
    - Does not assume full extension of future Cross Avenue to the east – this exacerbates local flooding to the east, unrelated to the development of the subject lands.

- **Model output evaluated:**

The following results were extracted from the model results:

- Maximum Depth / floodplain extent
- Depth x velocity mapping
- Hydrograph results at key comparison locations.

- **Flow locations evaluated:**

To evaluate the impact to flows downstream of the subject lands, hydrograph results were extracted at the following locations, which are represented on **Figure 2**:

- north, west, south and east property lines, to evaluate the flow in and out of the subject lands;
- east, middle, and west sections along rail corridor, to evaluate the changes in flows resulting from the underpass and proposed flow diversions;
- existing / proposed drainage outlet at south west outlet to Lower Morrison Creek, which represents the proposed outlet of the minor system from the subject lands;
- Cornwall Road, east of Trafalgar Road, to evaluate flows leaving the Lower Morrison Creek system and discharging into the Sixteen Mile Creek system
- Trafalgar Road, at South Service Road, to evaluate overall flow changes to Sixteen Mile Creek

3. Results – Existing Conditions

(i) With QEW Barriers: The model indicates no spill on the subject lands; flows remain contained north of the highway due to the existing barriers along the centerline of the road.

The following figures E1A, E2A, and E3A illustrate the extent of the existing depths, the depth x velocity graphs, and flow direction based on particle trace, respectively.

This scenario was not evaluated further, as CH staff has indicated that the flood hazards / spill must be determined with *no* barriers in place. The following figures are therefore presented for information only, as a best case scenario for the subject lands.

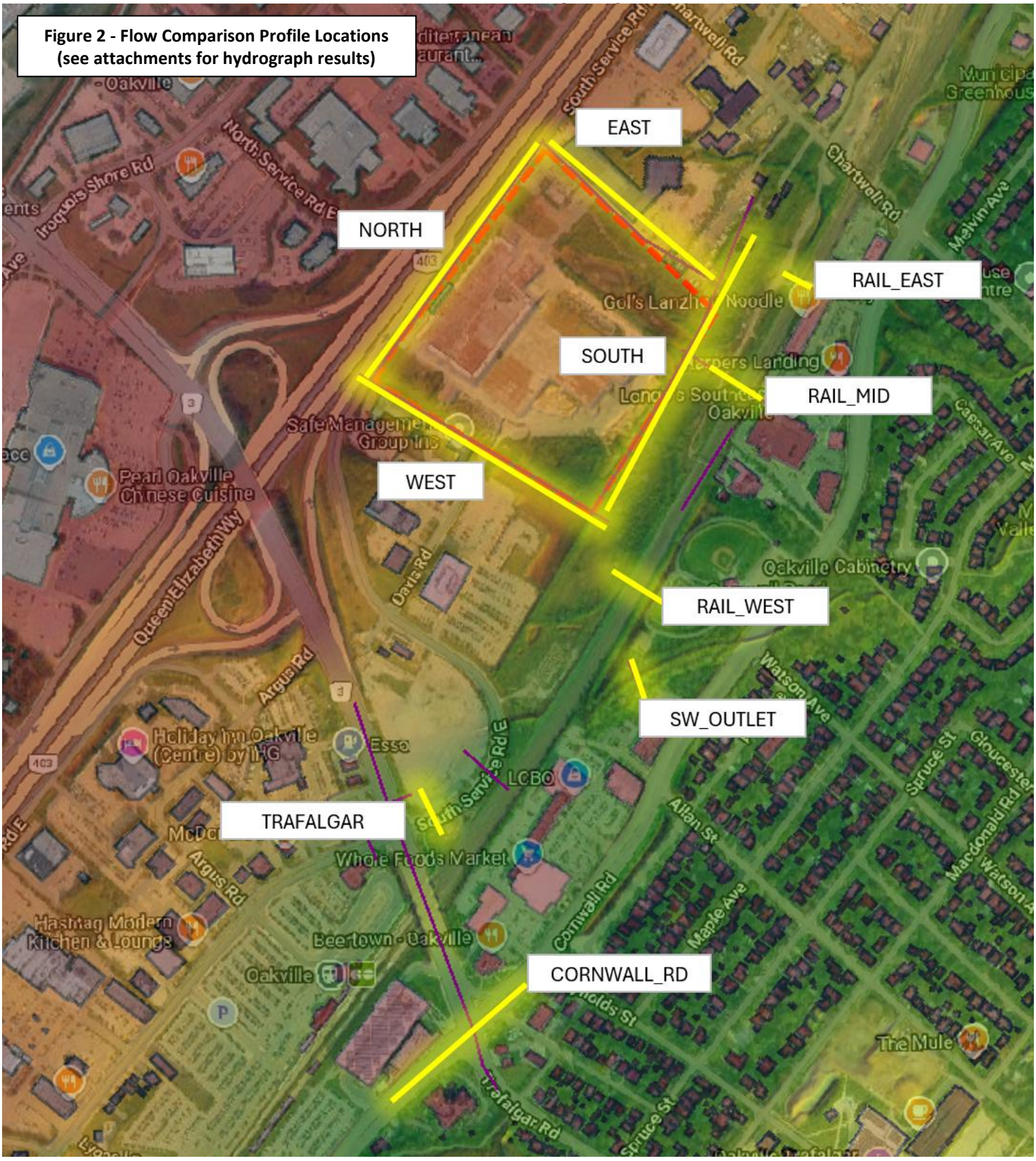

Figure 2 - Flow Comparison Profile Locations
(see attachments for hydrograph results)
EAST
NORTH
RAIL_EAST
SOUTH
RAIL_MID
WEST
RAIL_WEST
SW_OUTLET
TRAFALGAR
CORNWALL_RD
Oakville
North Service Rd E
Iroquois Shore Rd
South Service Rd
Chartwell Rd
Melvin Ave
Harpers Landing
Safe Management Group Inc
Pearl Oakville Chinese Cuisine
Queen Elizabeth Wy
Davis Rd
Oakville Cabinetry
Argus Rd
Holiday Inn Oakville (Centre) by IHG
Esso
LCBO
Whole Foods Market
Hashtag Modern Kitchen & Lounge
Beertown - Oakville
Cornwall Rd
Maple Ave
Allan St
Spruce St
Macdonald Rd
Watson Ave
The Mule
Trafalgar Rd
403

Figure E1A – Existing Regional Flood Depth

(With QEW Barriers)

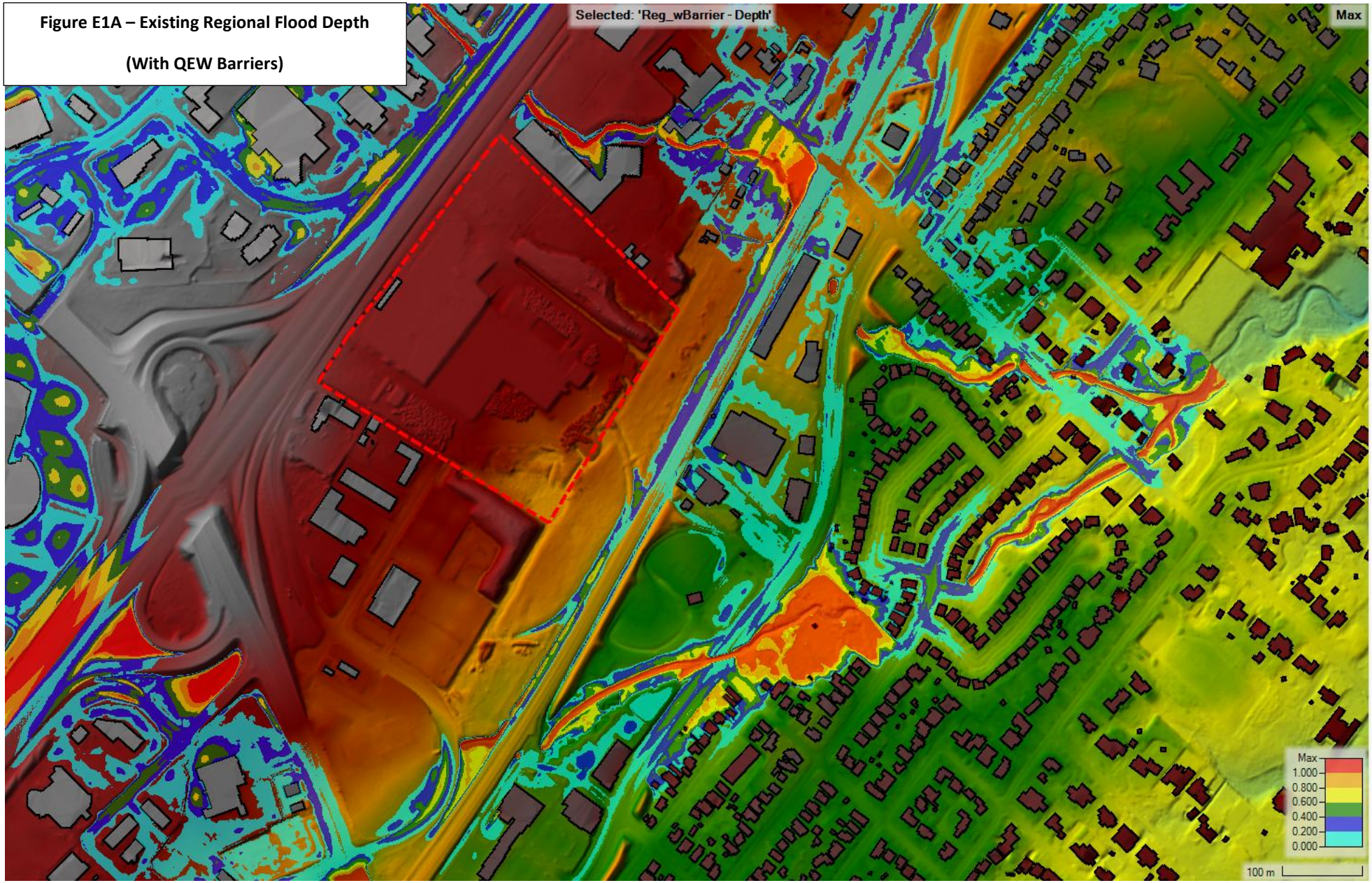


Figure E2A – Existing Regional Depth x Velocity

(With QEW Barriers)

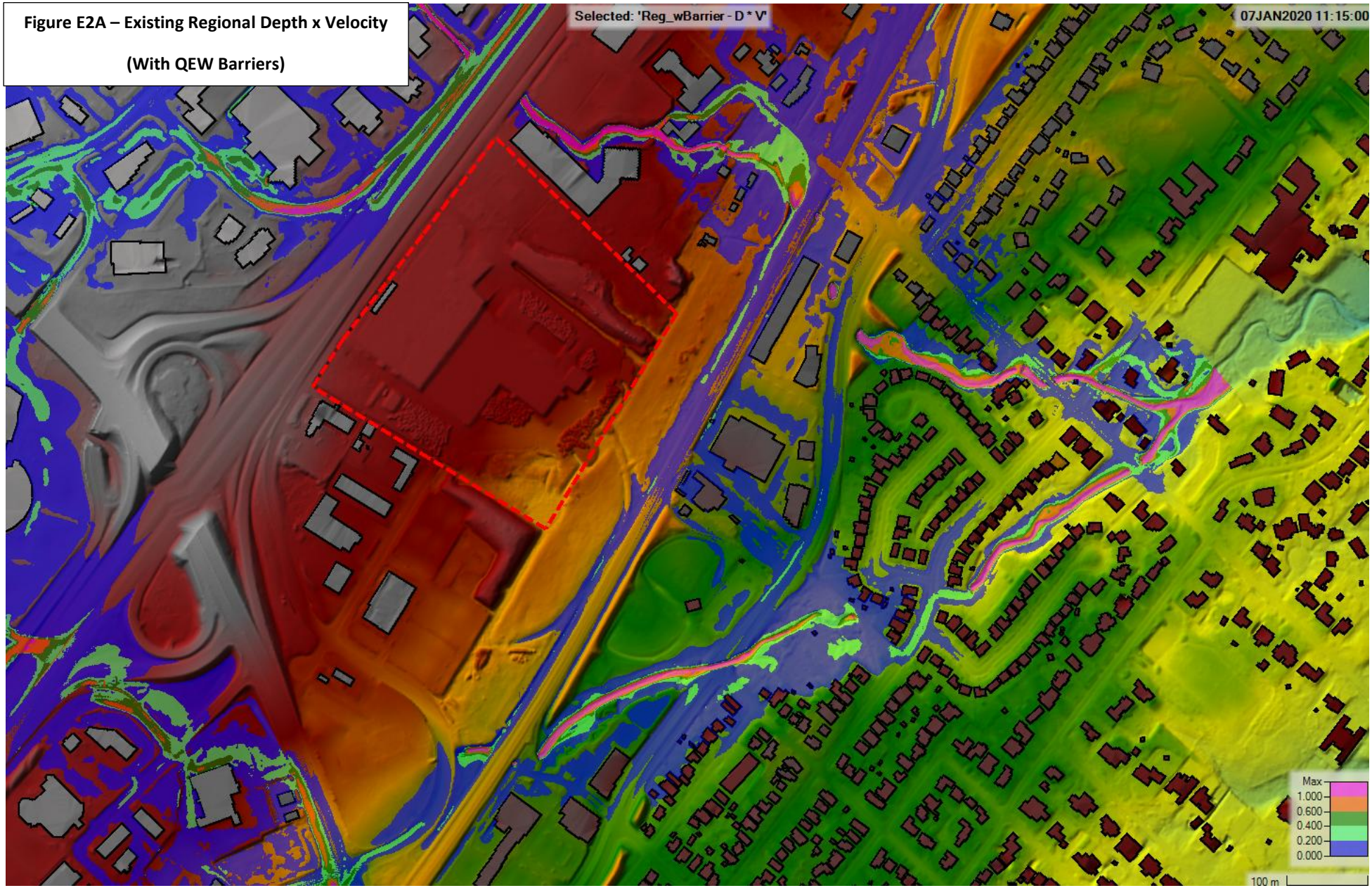
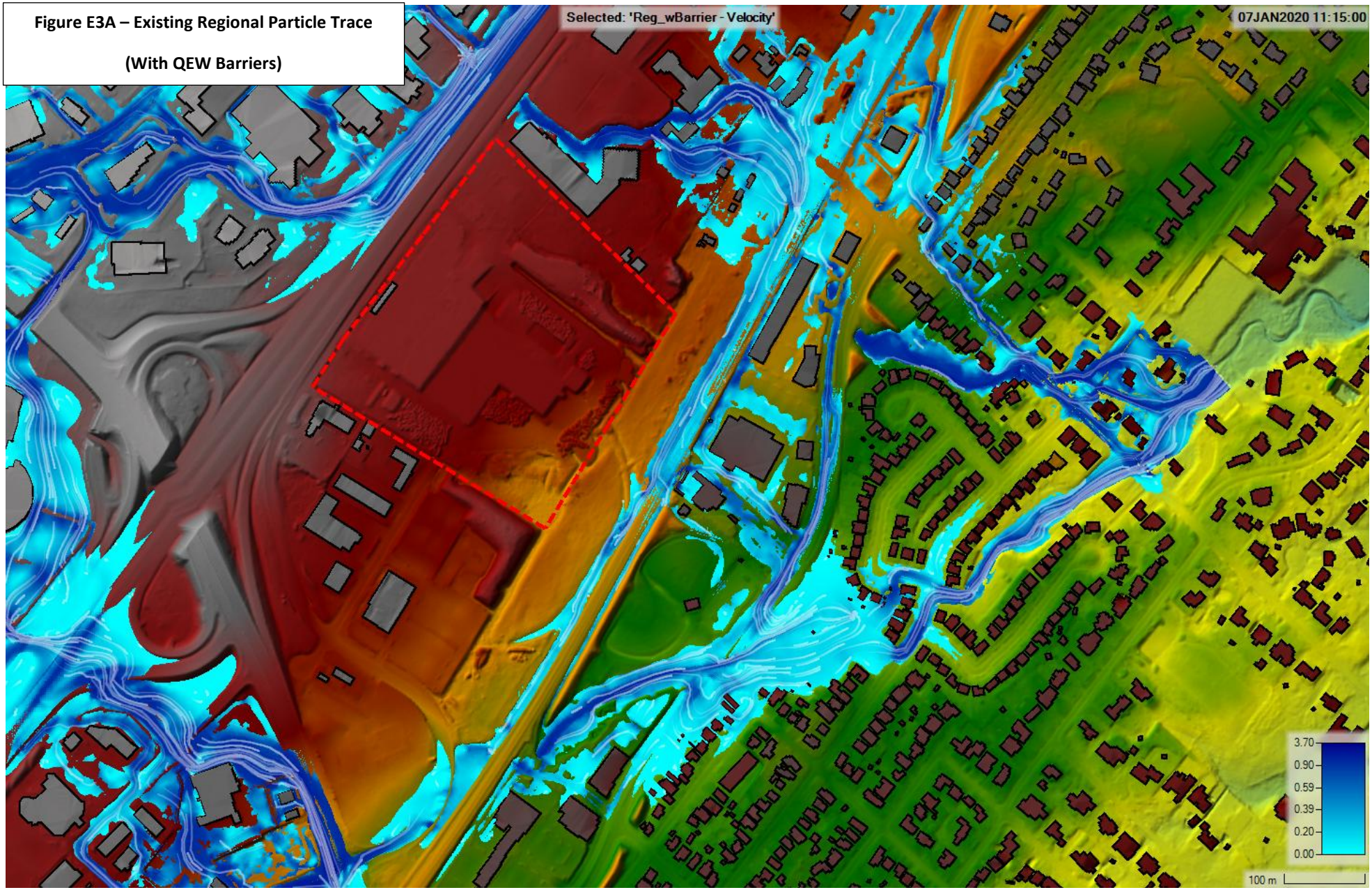


Figure E3A – Existing Regional Particle Trace

(With QEW Barriers)



(ii) Without QEW Barriers: A spill of approximately 29.67 m³/s overtops south of the QEW in the vicinity of the subject lands, with 5.9m³/s spilling directly into the subject property. The spill entering the subject property discharges primarily to the south/south-west. At the railway berm to the south, flow spreads laterally west and eastward. Additional spill areas east of the site drain towards existing rail culverts, which lacks adequate capacity; overflow is redirected west along the north side of the rail embankment.

Flow depths and extents, as well as Depth x Velocity on the subject lands are provided on the following figures, and a comparison of the with and without barriers hydrographs at the key locations defined on Figure 2 are also included.

In general, depths throughout the subject lands are less than 0.3m, with isolated areas of increased depth where ponding areas / depressions existing. The depth of flow on South Service Road generally less than 0.3m. Refer to Figure E1B for the depth results.

Depth x Velocity is also minimal within the subject lands (Figure E2B).

In terms of existing flows, the “without barrier” scenario allows the spill of ~5m³/s (“North” flow comparison location) to enter the subject lands and increase the flows at the various locations identified on Figure 2. While approximately 0.52m³/s leaves from the “west” site boundary, and another 0.58m³/s from the east side boundary, the majority of the spill (5.2m³/s) through the subject lands discharges to the south, following the topography of the subject lands. From this point, flows accumulate along the rail corridor and drain from east to west, approaching the “south west” outlet. The additional spill flow through the subject lands does not significantly impact the flow at the south west outlet when compared to the “with barriers” scenario, possibly due to capacity limitations in the culvert beneath the rail corridor, and due to a spill towards Cornwall Road / Trafalgar Road from east to west, north of the rail corridor. Figure E3B illustrates the approximate flow paths that the spill follows.

The hydrographs in the attachments are provided at each of the flow comparison locations in Figure 2.

Figure E1B – Existing Regional Depth

(No Barriers)

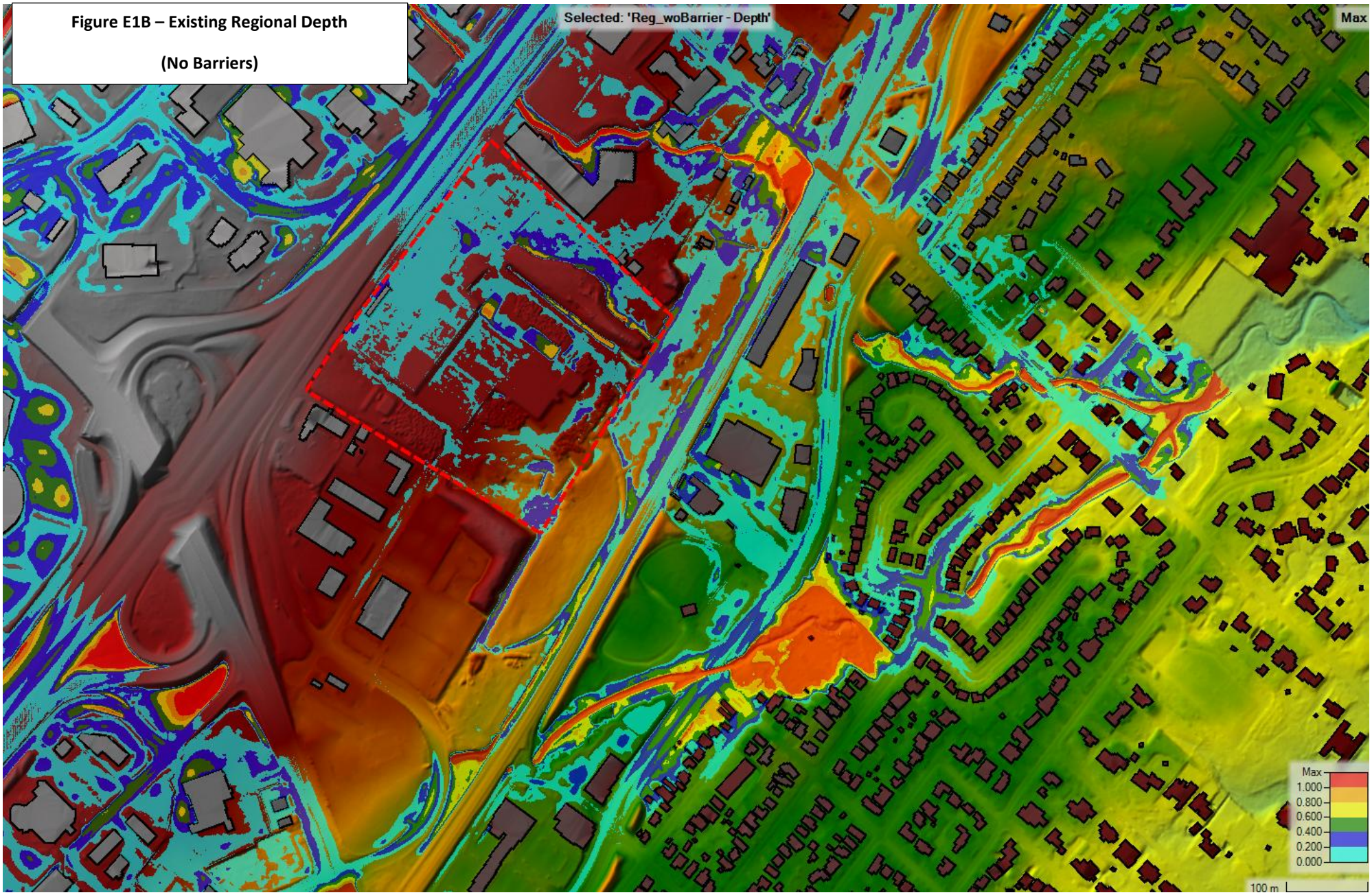


Figure E2B – Existing Regional Depth x Velocity

(No Barriers)

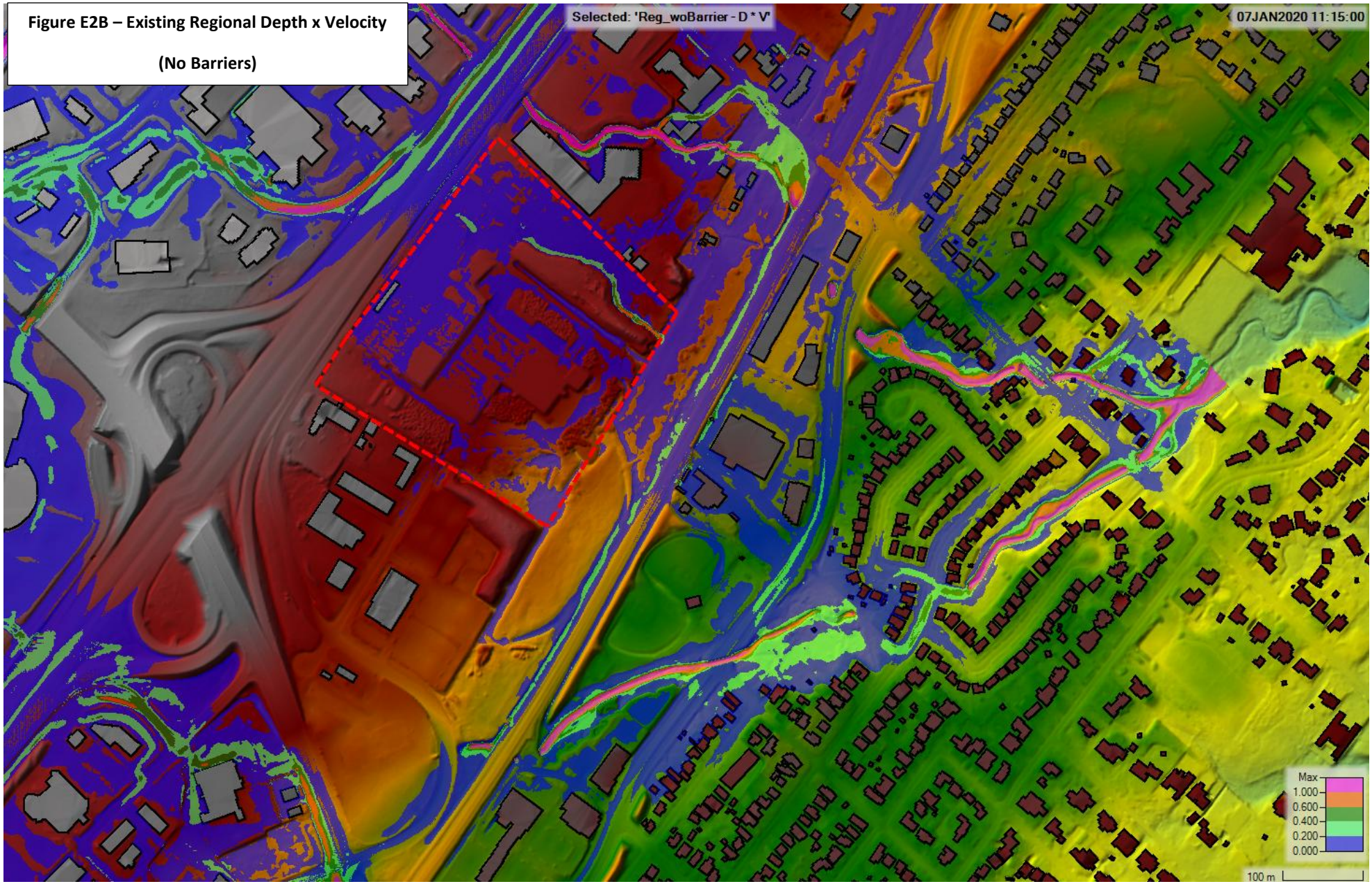
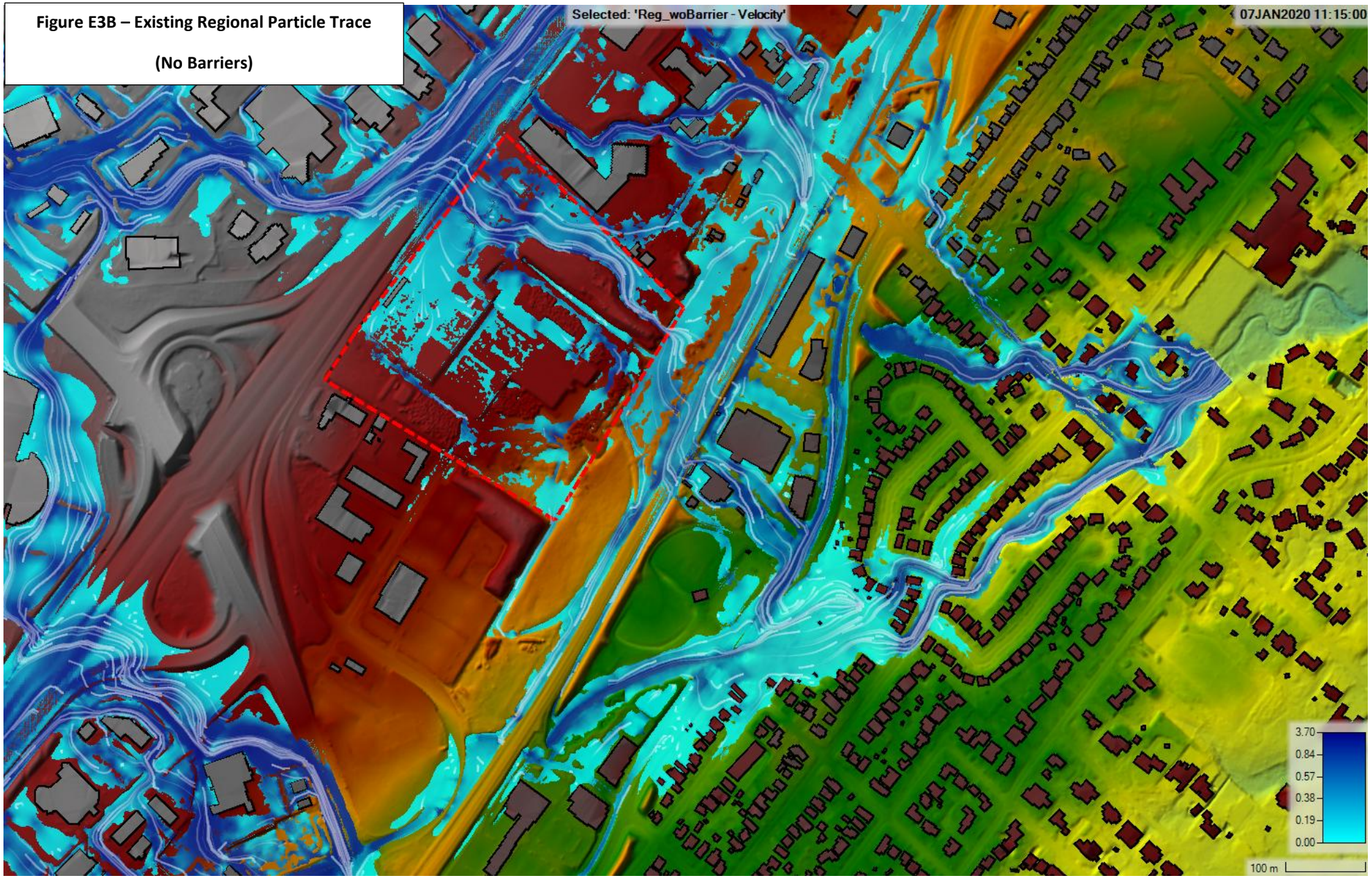


Figure E3B – Existing Regional Particle Trace

(No Barriers)



4. Results – Proposed Development of the Subject Lands

To simulate the proposed development, the CH 2D model surface and mesh were updated with the proposed (preliminary) site grading for the subject property as well as the future road extensions anticipated for Midtown Oakville in the vicinity of the subject lands, including the future overpass over the QEW and the Cross Avenue extension along the south property line. The proposed site was simulated with a 2m mesh.

In the best-case scenario (with QEW Barriers), there is no impact to the site, compared to the existing "with QEW Barriers" scenario. This future scenario with barriers was not modelled as CH has indicated the "with barriers" scenario would not be considered for flood hazard / spill mapping.

Therefore, the no-barrier condition was simulated, which shows how the spill of ~5.9m^3/s can be managed to avoid impacts to the subject lands based on the future grading scenario. The spill approaches the north frontage similar to existing conditions.

Phase 1

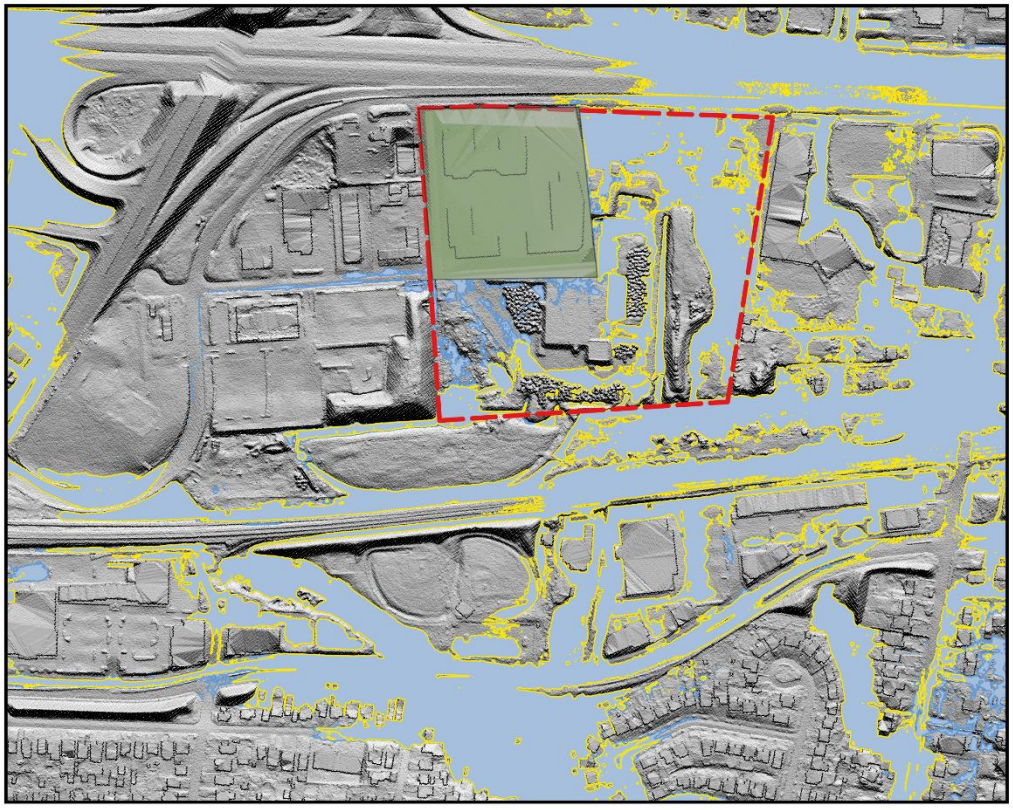
An analysis of the Phase 1 lands (approximately limited to the northwest quadrant of the subject lands was completed to determine if the initial phases of the subject lands can proceed ahead of completion of the major infrastructure works such as the overpass and proposed spill diversion (discussed in the next section).

This scenario was simulated by raising the grades / filling the surface in the Phase 1 area. The resulting floodplain mapping is shown below. Spill/flooding is eliminated in the Phase 1 area and beyond (to the west), as the Phase 1 fill effectively prevents spill flows from discharging from the west/south west outlets of the site (improving off-site conditions). The total volume floodplain / spill filled on the Phase 1 area is approximately 1.1 ha, but the depths in this area are negligible, resulting in only 466m^3 of flood / spill "storage" removed from the system.

As shown on the attached hydrographs, the Phase 1 development results in negligible changes in flows off-site, which can likely be eliminated through refined grading / analysis during the Phase 1 site plan stage if deemed necessary. The flood mapping comparison indicates that the Phase 1 floodplain is generally identical or smaller than the existing conditions results.

URBANTECH®

420 South Service Road
Phase 1 - Regional Floodplain



Project:
23-307

Legend
- Study Area
- Existing
- Phase 1 filled

0 100 200 m

Proposed Conditions (all phases)

To mitigate the impact of the spill on the proposed building locations, assuming full build out of the subject lands, the following strategy is proposed:

- A swale (depth varies) along the north frontage (within the 14 m MTO setback) running east to west will intercept the spill approaching from the north and convey it easterly, to a 39m long, 5m wide x 1.8m high culvert beneath the future north-south road proposed immediately to the east of the subject lands. Grading and swales within the MTO corridor is permissible; this was recently proposed / accepted by MTO in the Mattamy Ninth Line / Derry-Britannia area where the proposed subdivision abutted the future Highway 413 corridor.

- The culvert will discharge to a proposed swale on the Town lands / within the ROW and/or future park area running the full length of the future road. This swale is approximately 10m wide and can serve additional purposes beyond spill conveyance, including managing park and road drainage and servicing as an LID BMP opportunity. It should be noted that removal of the existing building on the future park lands causes spill to spread through the future park block and into the swale.

- The swale will discharge to the south, into the rail corridor via a 47m long, 10m wide by 0.9m high culvert beneath the future Cross Avenue extension. The cover on Cross Avenue is limited, hence the wider culvert required at this location.

- The discharge location is approximately 50m east of the existing spill outlet from the site. Future works by the Town (underpass / Cross Avenue design) may aim to convey the spill flow back towards the east to maintain the existing outlet location, but at this time, no grading within the rail corridor is proposed.

- This approach directs the spill away from the subject lands and attempts to return it to the approximate existing outlet on the south side, to the extent feasible. It is acknowledged that further coordination with the Town is required to proceed with this approach.

- The resulting flows at all outlets are summarized in the following table and in the hydrographs attached to this memo. As shown, the Phase 1 development causes a negligible increase in flows, offset by a larger decrease in flows elsewhere. Similarly, the proposed development results in significantly lower flows at most locations, with the exception of the east rail flow check location. This increase (approximately 774 L/s) could potentially be mitigated through the aforementioned grading works within the rail corridor or other measures including consideration of storage in a granular medium beneath the proposed swales (i.e. if designed as a bio-swale).

Location	Existing (m^3/s)	Phase 1 only (m^3/s)	Proposed (m^3/s)	Phase 1 vs Existing	Proposed vs Existing
East	0.579	0.604	0	+4.3%	-100.0%
West	0.52	0.36	0	-30.8%	-100.0%
South	5.203	5.281	0.47	+1.5%	-91.0%
North	5.841	5.807	5.825	-0.6%	-0.3%
Rail (East)	3.18	3.105	3.954	-2.4%	+24.3%
Rail (Middle)	6.038	6.058	4.658	+0.3%	-22.9%
Rail (West)	3.044	3.085	2.46	+1.3%	-19.2%
SW Outlet	16.788	16.775	16.437	-0.1%	-2.1%
Trafalgar (South Service)	1.214	1.208	0.981	-0.5%	-19.2%
Cornwall Rd	20.489	20.463	20.288	-0.1%	-1.0%

Figure P4 compares the change in depth (proposed depth minus existing depth) to visualize the impacts / improvements to the system. Light colors represent minimal changes – within 1 to 2 cm, whereas darker colors represent more significant changes. Green represents improvements / reductions in depth, and red represents increases in depth. The blue shading implies no change in depth.

Figure P5 indicates the overall flows / “flow balancing: at various locations farther downstream of the subject lands, additional to those shown in the attached hydrographs, and how they change between the existing and proposed scenarios. Note that flow input locations from the original CH model are shown on this plan as well.

To ensure no impacts to the existing underpass at Trafalgar Road, Figure P6 represents the Trafalgar Road profile and the resulting depths from each scenario – there is no significant difference at this location in terms of depth change.

Figure P1 – Proposed Regional Depth

(No Barriers)

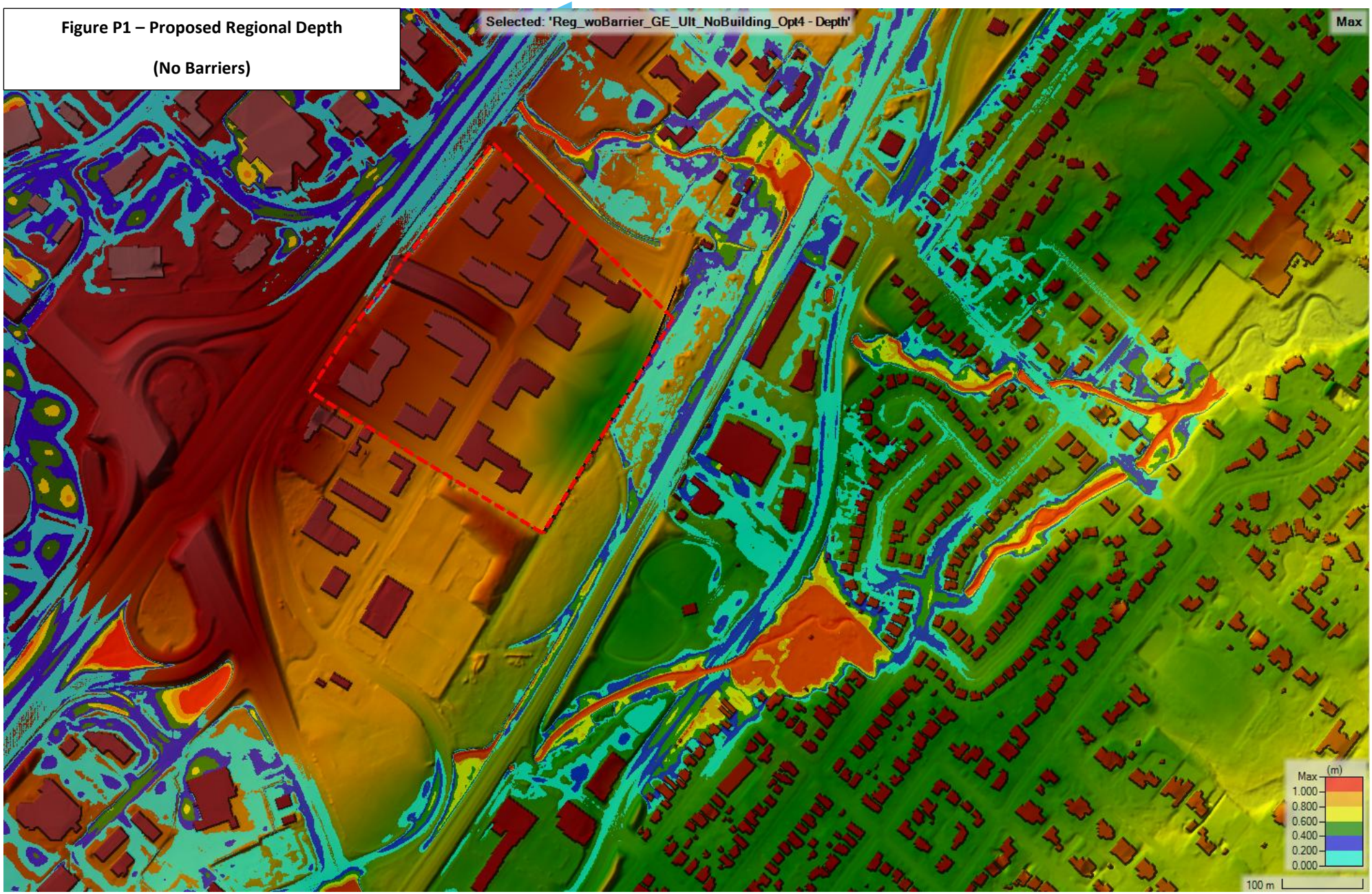


Figure P2 – Proposed Regional Depth x Velocity

(No Barriers)

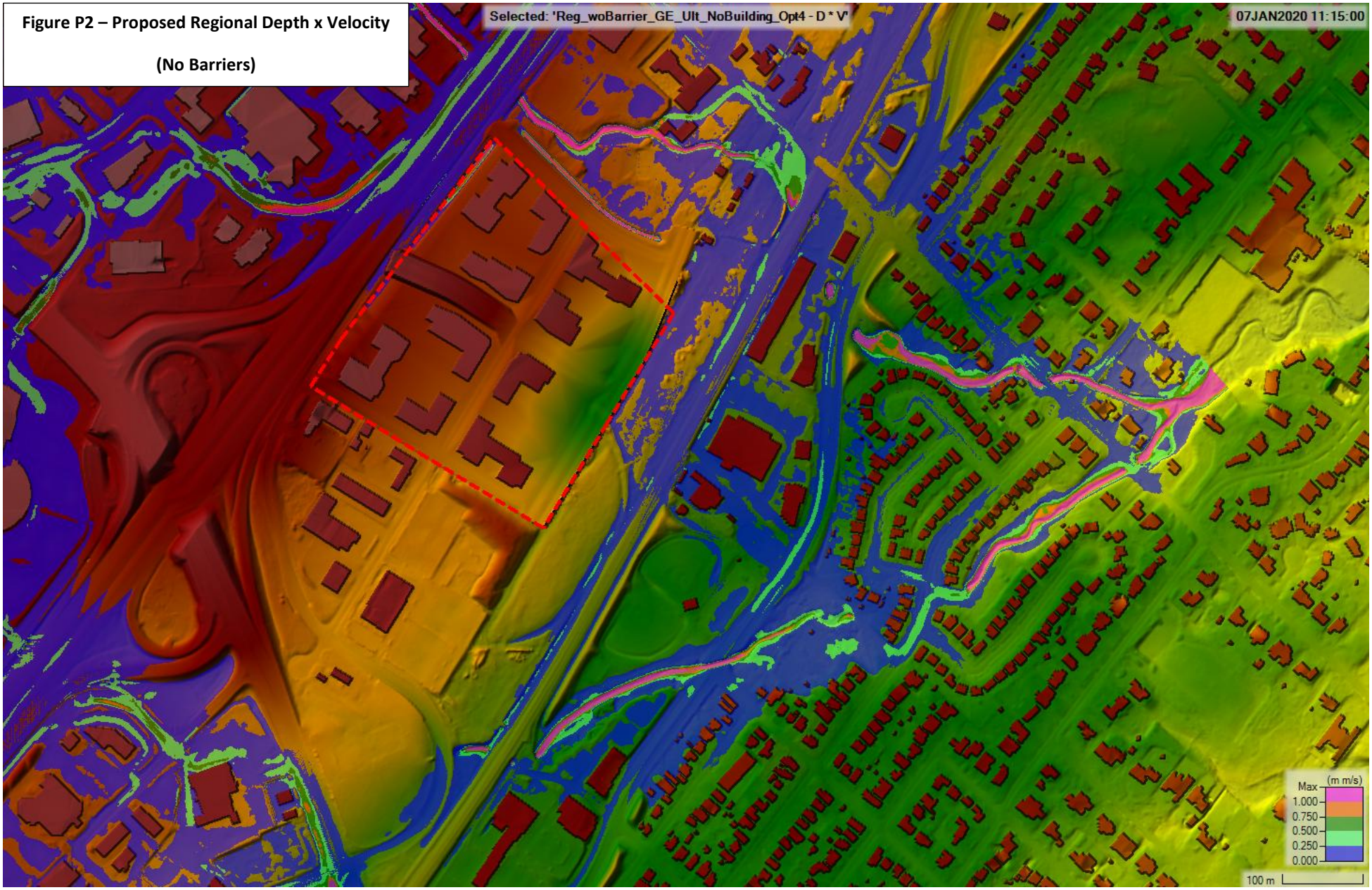
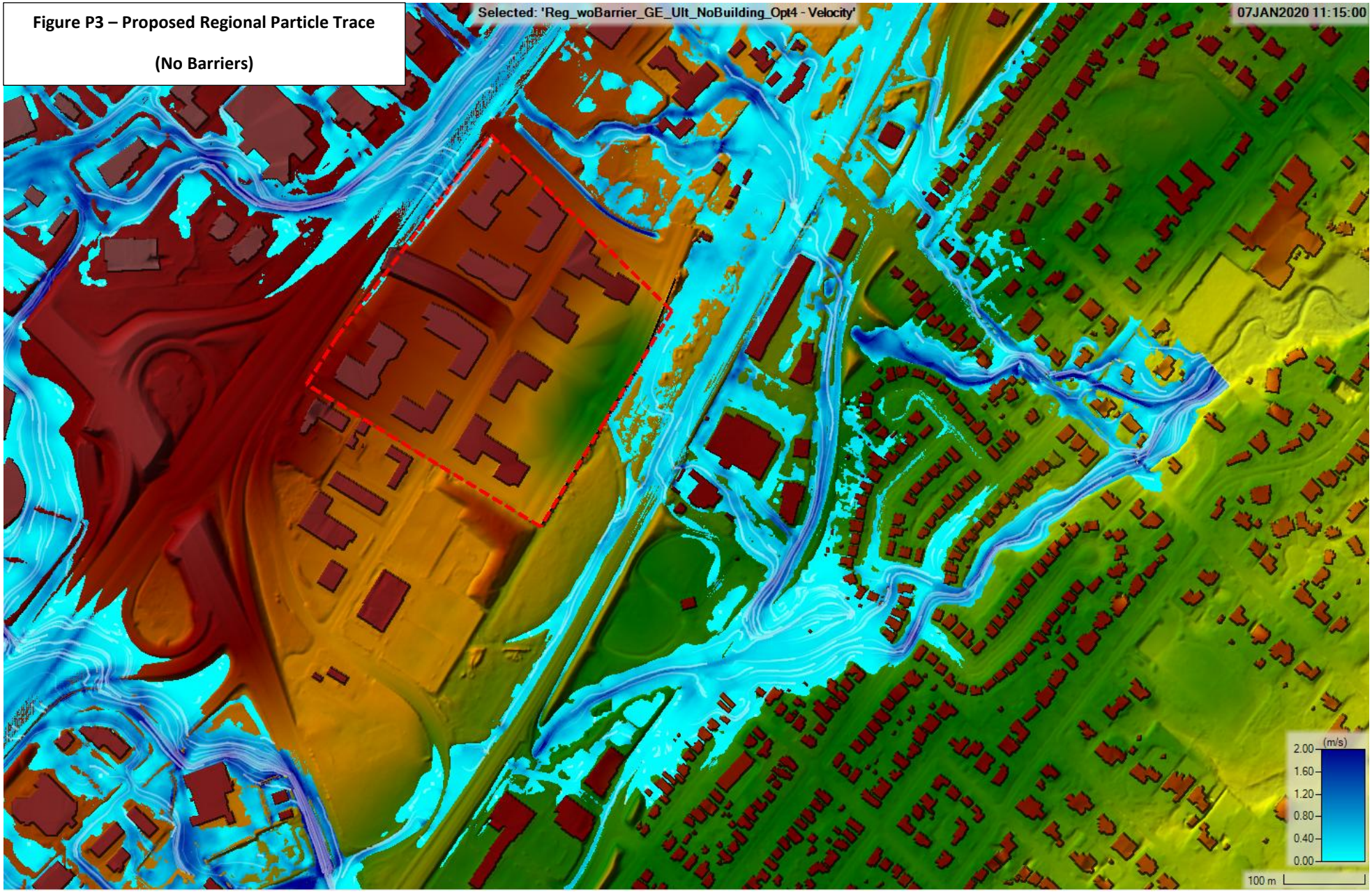


Figure P3 – Proposed Regional Particle Trace

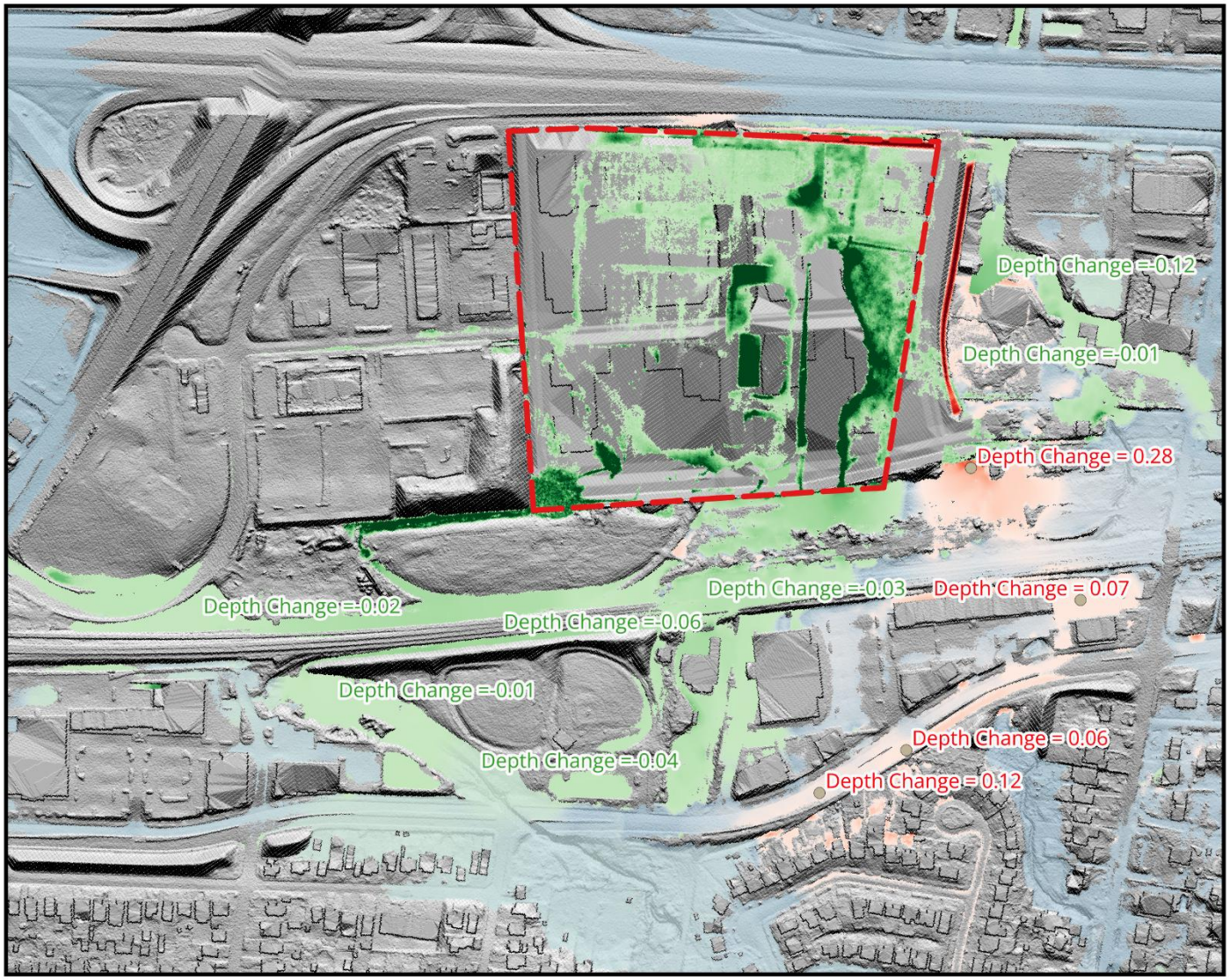
(No Barriers)



URBANTECH®

Figure P4 – Change in Depth (Proposed vs. Existing)

(No Barriers)



Project: 23-307

Legend

Study Area

Depth Decrease

0
-0.3

Depth increase

0.75
0

No change

0

N

0 100 200 m

Figure P5 – Regional Flow Balancing

(All Scenarios)

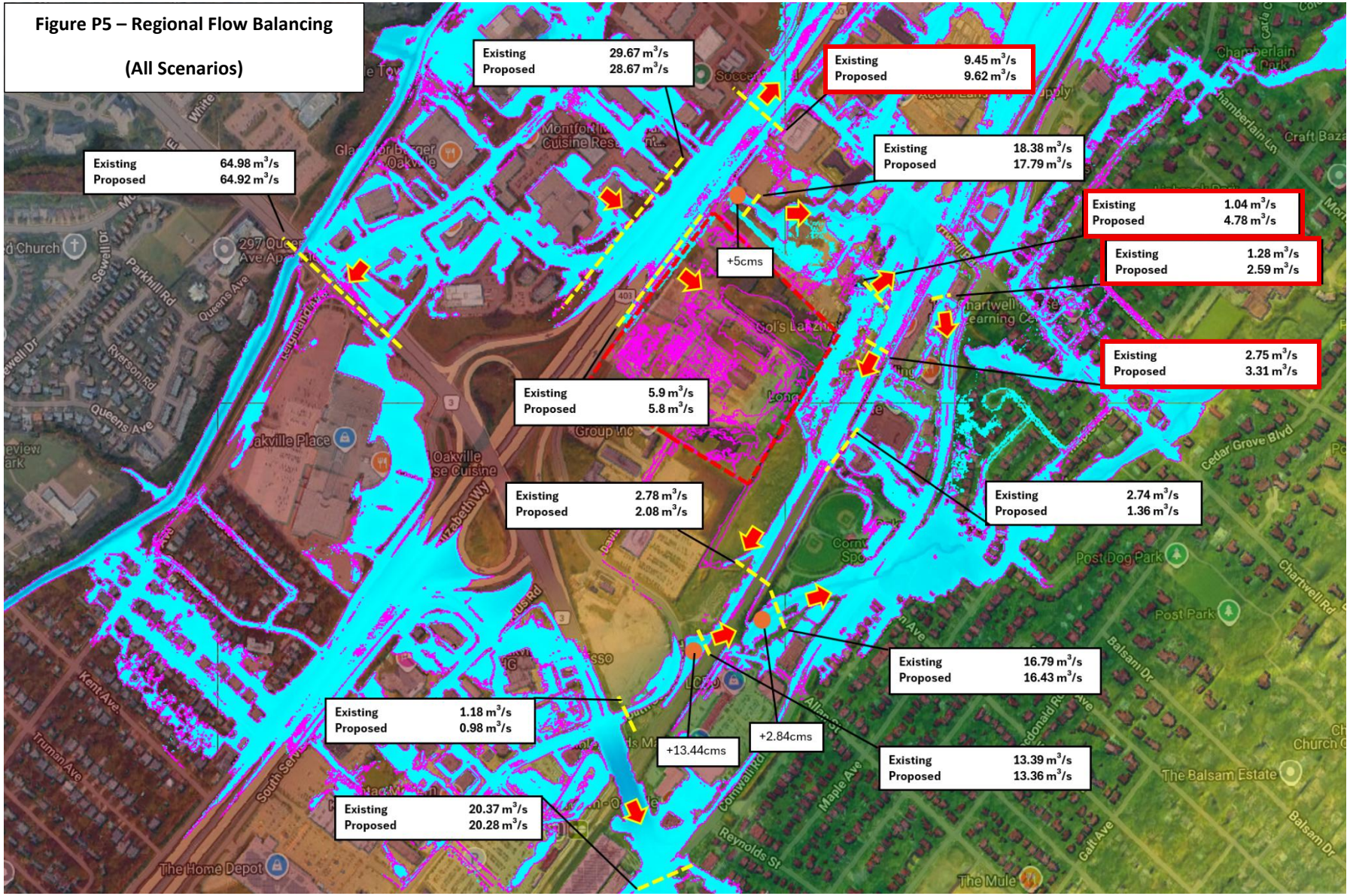
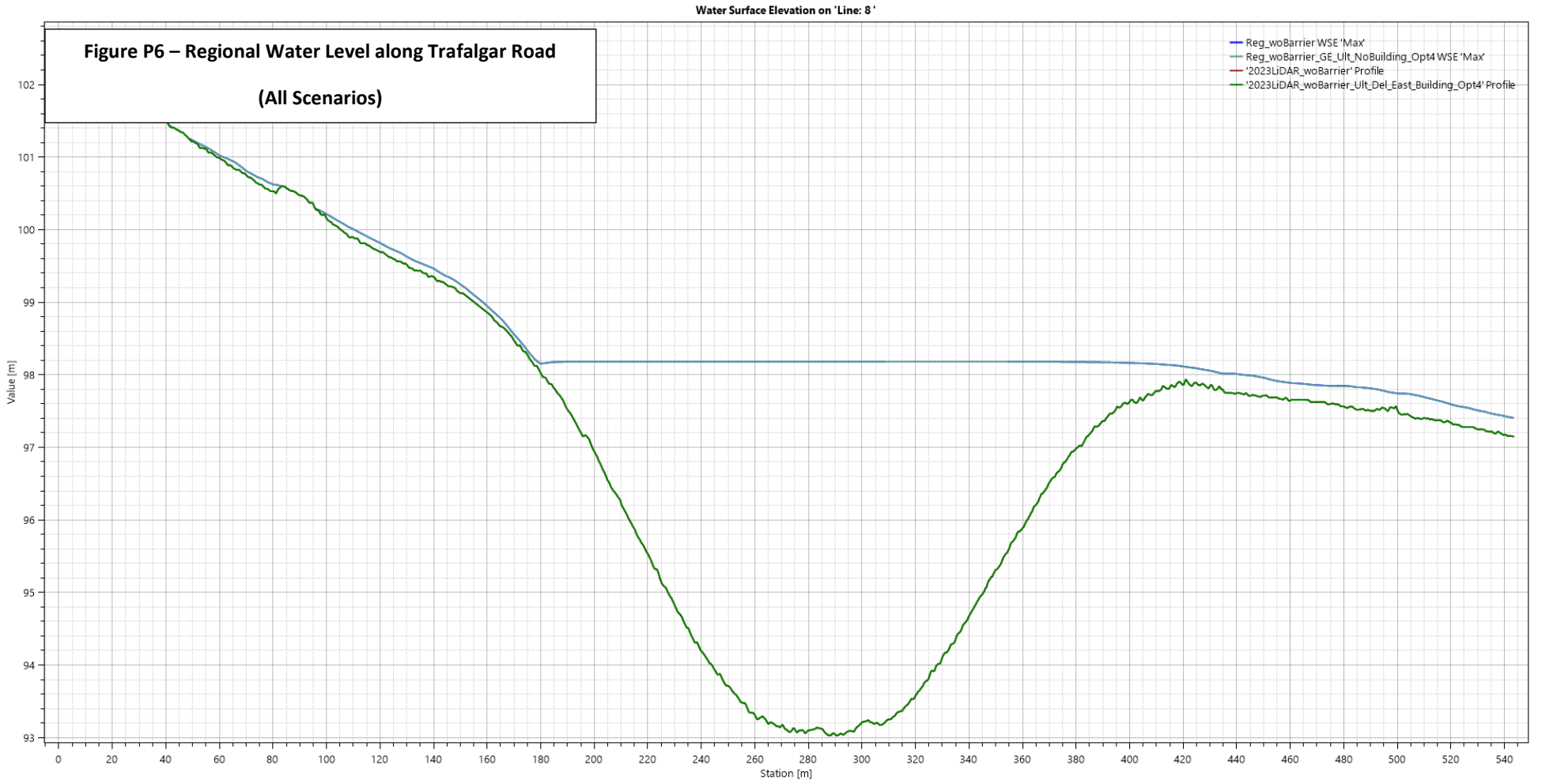


Figure P6 – Regional Water Level along Trafalgar Road

(All Scenarios)



5. Other Solution Examined

The solution presented in this memo was the outcome of several design concepts. The following other solutions were evaluated by Urbantech and CH/Town staff, namely:

- Enforce the maintenance of barriers along QEW (unlikely due to jurisdiction and CH policy)
- Intercepting spill flows and piping (via large diameter storm sewers) to outlets at the south west / rail corridor (conveyance of spills in public sewer infrastructure was not preferrable to CH staff, and is challenging from a gravity drainage, flow interception and cover perspective).
- Conveying spill flows through the private strata park blocks and public roads (not feasible due to grading constraints, and the extent of flow spreading through the public blocks and road grades; limited capacity in curb cuts and major system to convey spill)
- Storage of flows to reduce peaks – deemed to be impractical due to the large spill volume (in excess of 30,000$m^{3.}$

6. Key Assumptions & Limitations

2D Model: Terrain, structures, and hydraulic controls are as per CH's 2D model and are relied on for accuracy (correct flows, culvert information, model parameters, etc.). Preliminary grading for the subject lands is high level and will be refined through subsequent submissions.

Surrounding infrastructure: It is understood that the Town continues to refine the overpass / ultimate road grades including Cross Avenue, and is currently undertaking a separate spill study. Continued coordination with Town and CH staff will be undertaken.

7. Conclusions

The following scenarios and their high-level conclusions are summarized below:

- **Existing / Proposed (barriers in place):** No spill impact to subject lands.

- **Existing (no barriers):** ~5.9 m^3/s spill traverses the site to the south/south-west, interacts with the rail berm, and is partially redirected east, with capacity exceedance at the existing culvert and secondary westward routing along the rail corridor / spill towards Trafalgar Road.

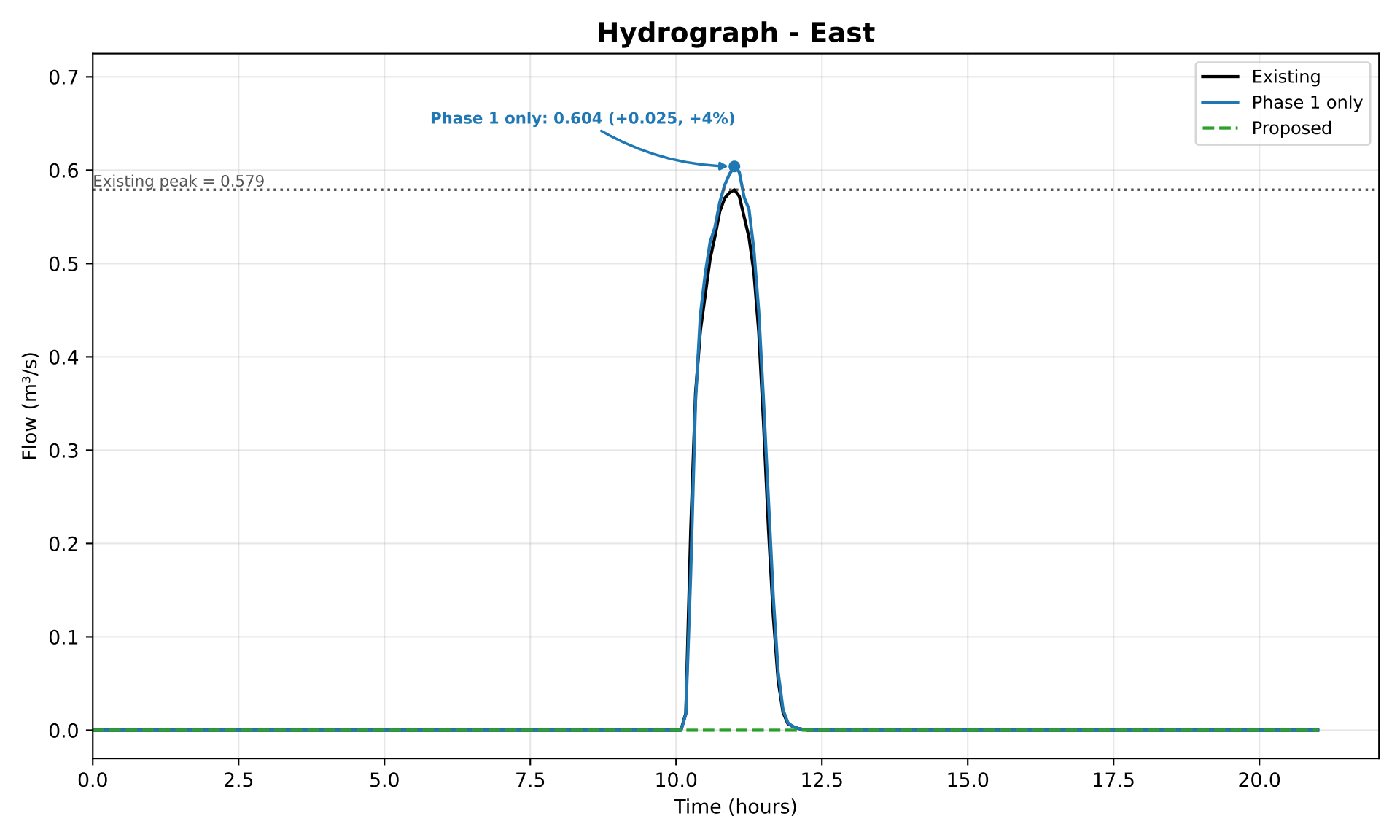
- **Proposed (no barriers):** A swale system on the north side of the subject lands (within the MTO setback) and along the future public road east of the subject lands will convey the spill flows towards the rail corridor. Flows are generally reduced in most locations, save for increases along the south east that could be mitigated through grading / drainage refinements along Cross Avenue / within the rail corridor. However, the overall improvements to the system elsewhere may offset local increases of several centimeters off site.

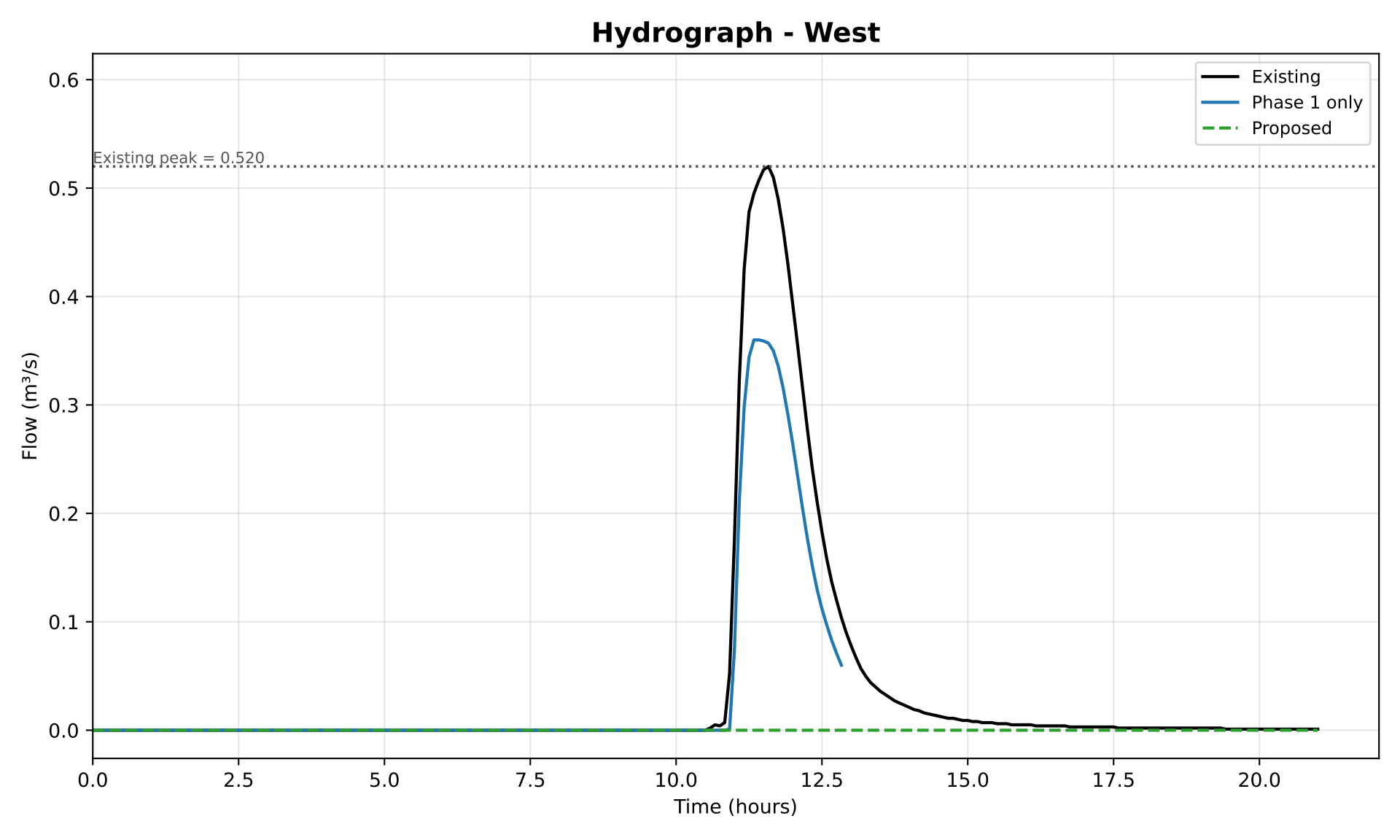
Additional coordination / input from CH is required to review the proposed strategy and comment on the flow changes and depth changes in the study area and beyond. For Phase 1 (Block 1), however, the analysis in this memorandum demonstrates that no spill mitigation works are needed to proceed, with only negligible off-site changes that can be refined at the site plan stage. As the full mitigation strategy depends on the overpass, Cross Avenue and further coordination with the Town and CH, we anticipate that regional storm spill will be addressed through conditions of Draft Plan Approval tied to the phased development of Blocks 2, 3 and 4.

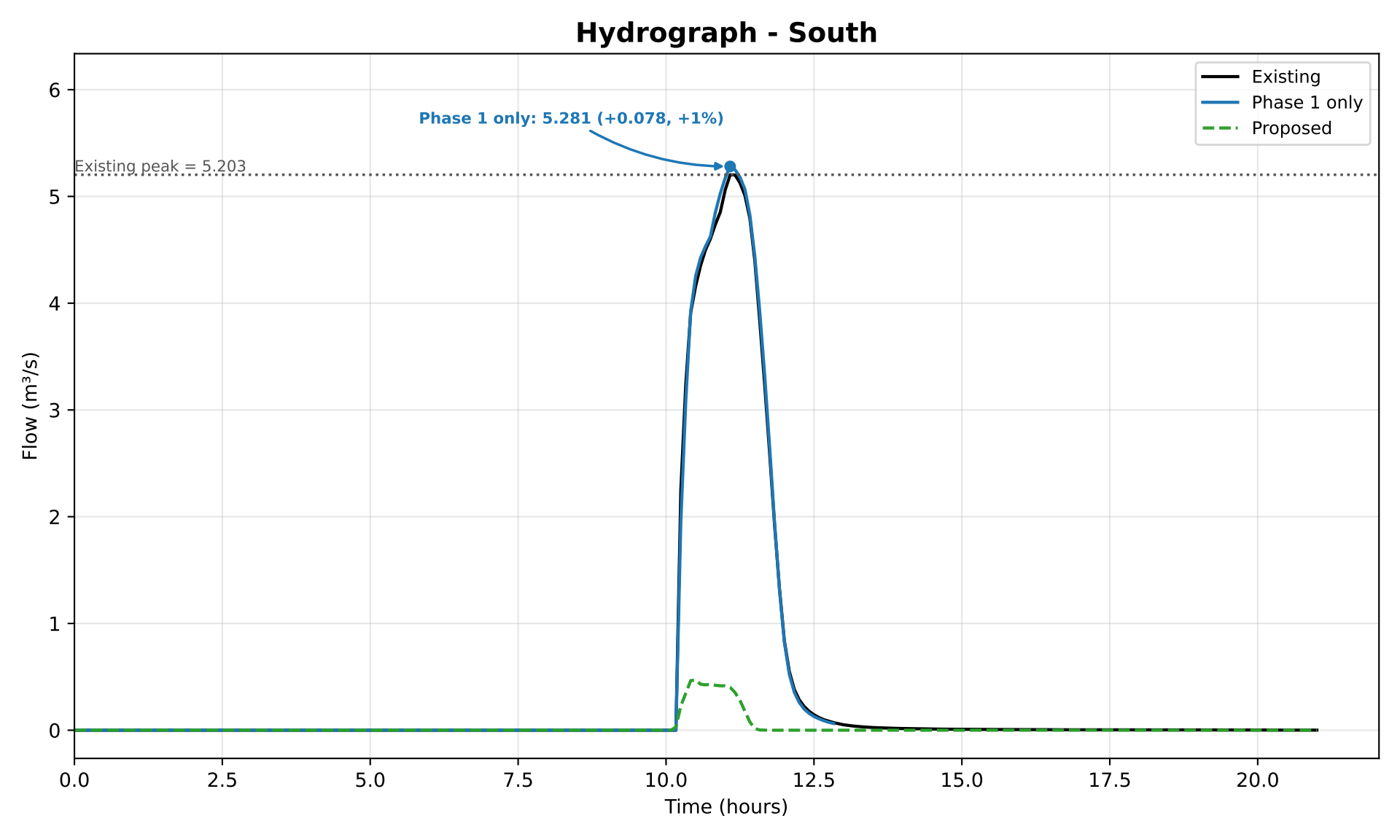
Regards,
Urbantech® Consulting

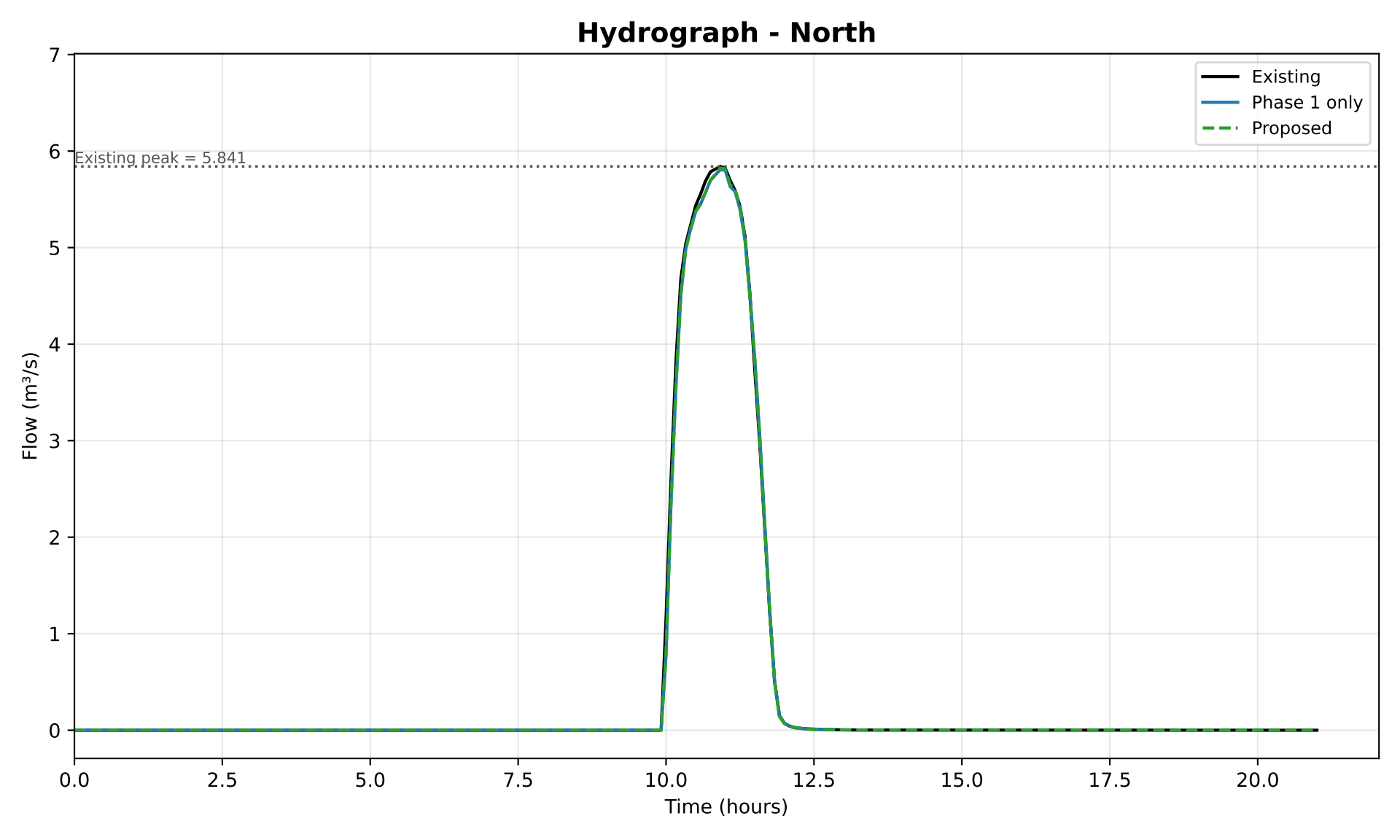
Andrew Fata, M.Sc.Eng., P.Eng.
Senior Associate, Water Resources

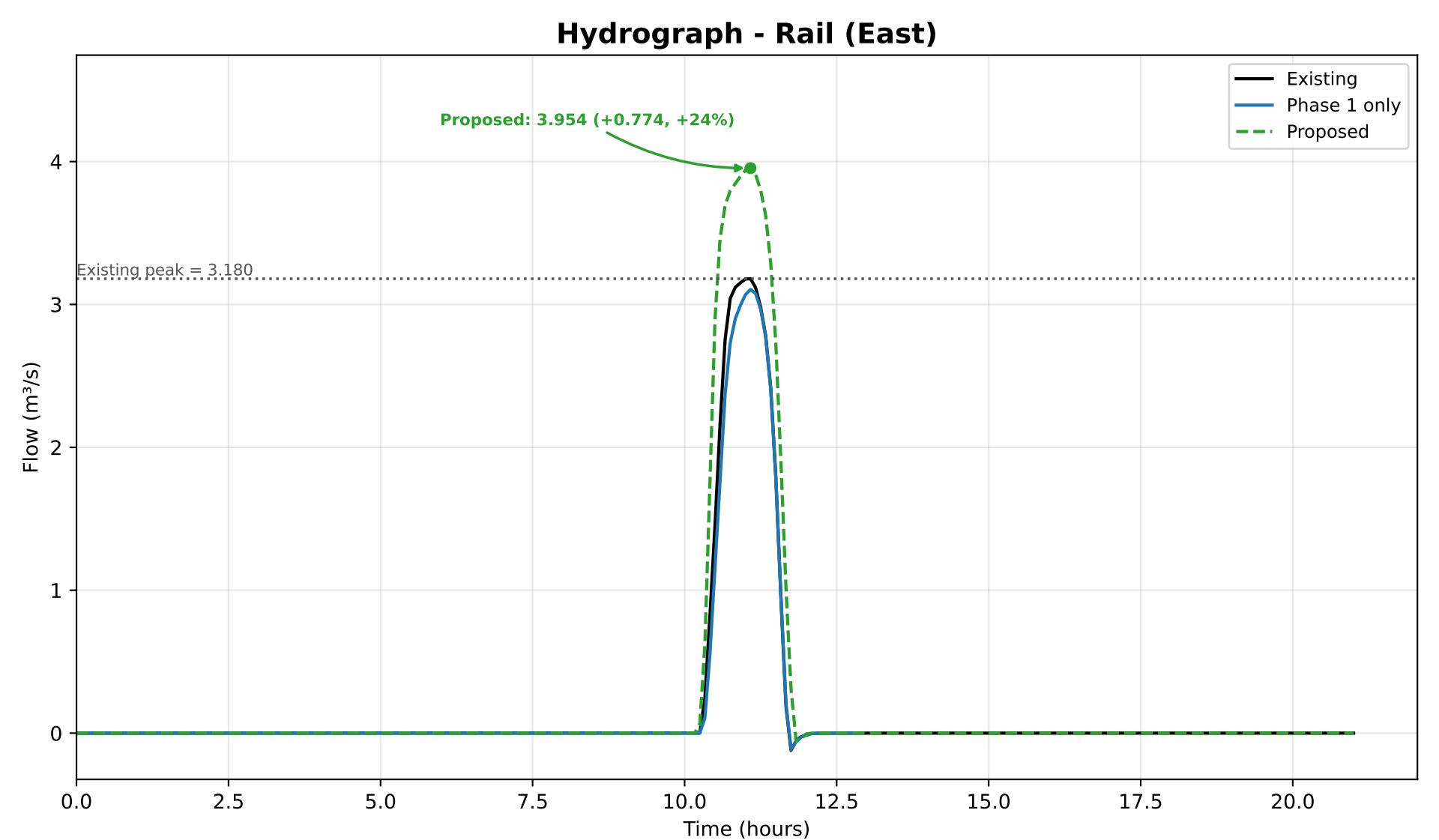
Attachments: Digital Model Files
Existing, Phase 1, and Proposed Hydrograph results

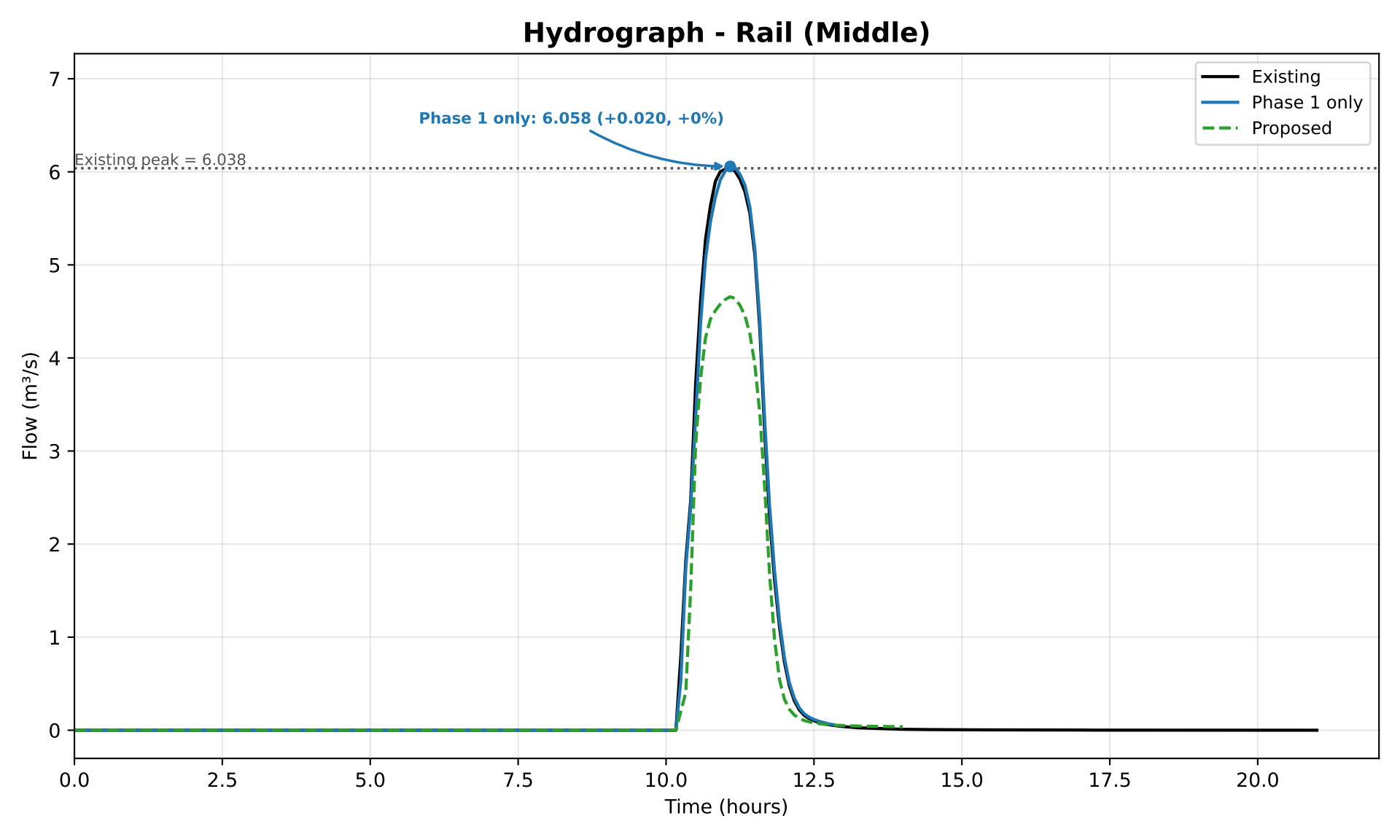

Hydrograph - East
Existing
Phase 1 only
Proposed
Phase 1 only: 0.604 (+0.025, +4%)
Existing peak = 0.579
Flow (m³/s)
Time (hours)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

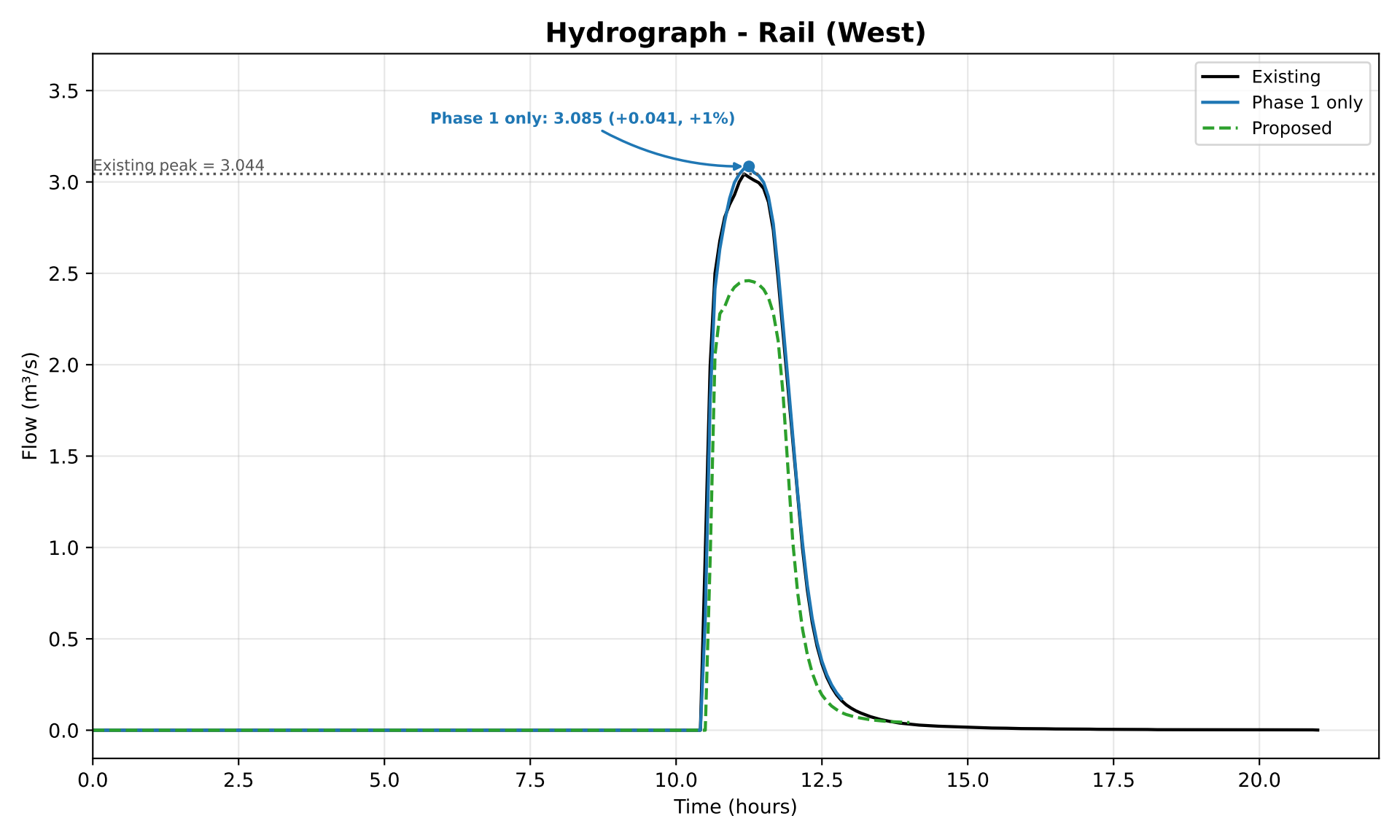

Hydrograph - West
Existing
Phase 1 only
Proposed
Existing peak = 0.520
Flow (m³/s)
Time (hours)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

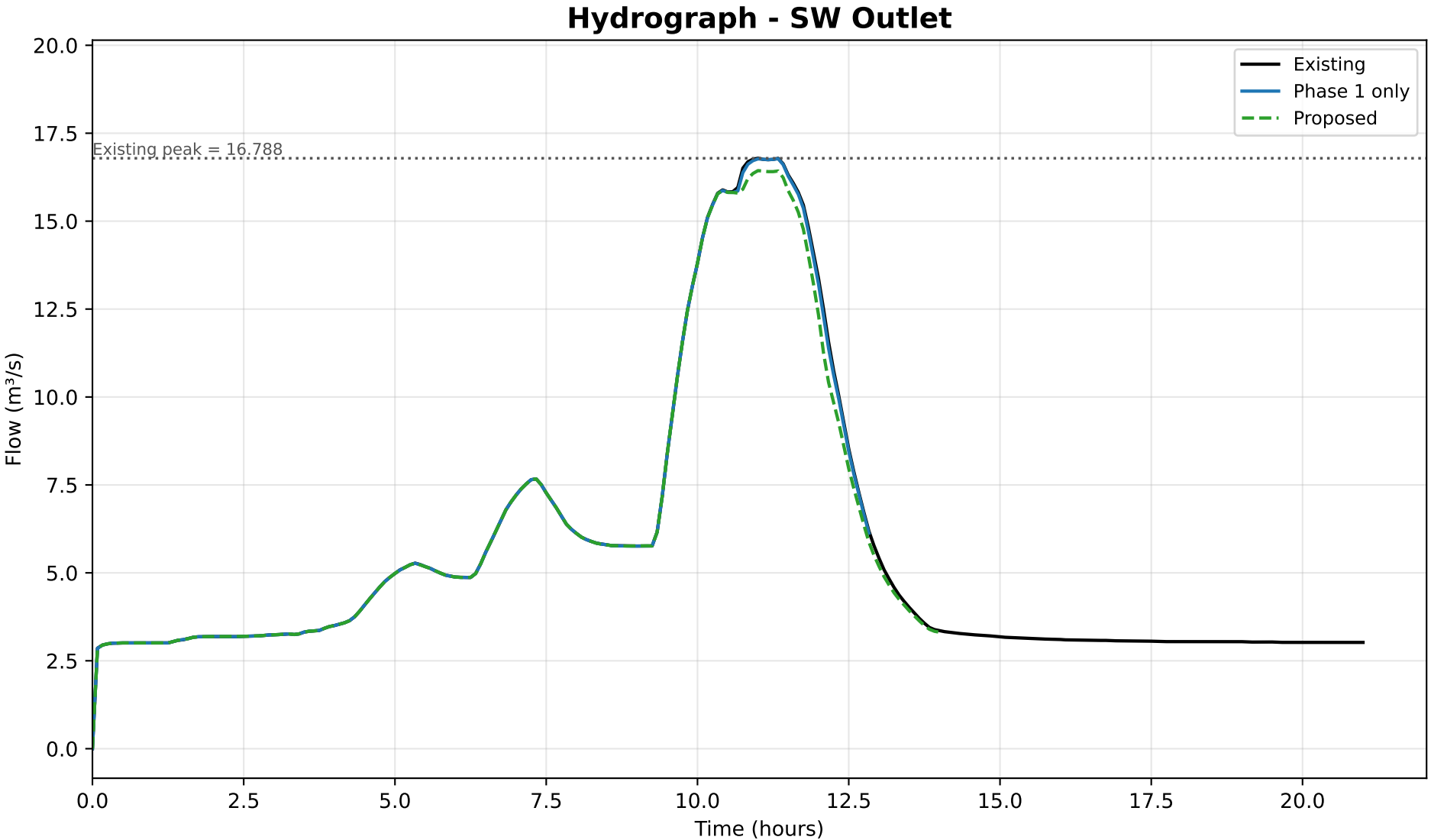

Hydrograph - South
Existing
Phase 1 only
Proposed
Phase 1 only: 5.281 (+0.078, +1%)
Existing peak = 5.203
Flow (m³/s)
Time (hours)
0
1
2
3
4
5
6
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

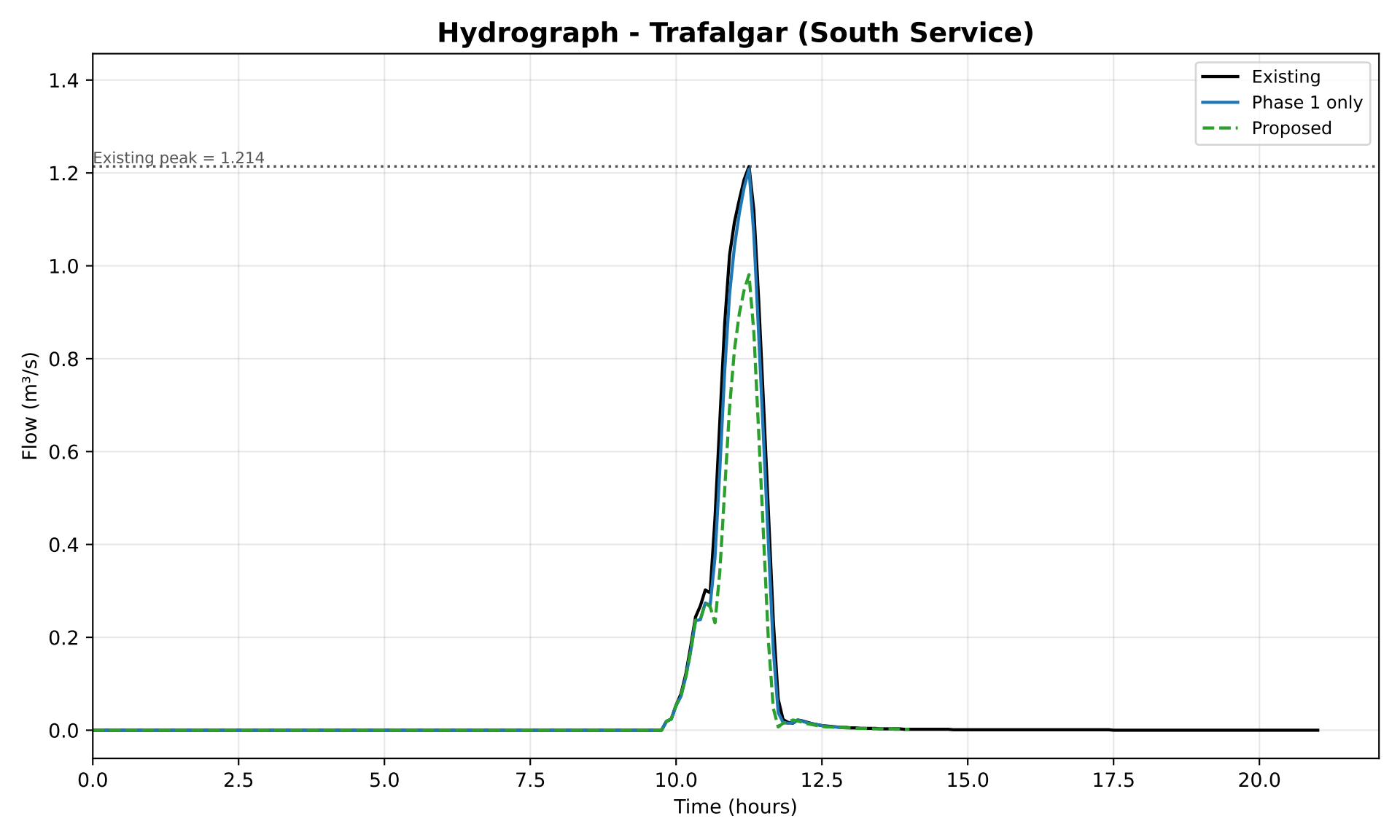

Hydrograph - North
Existing
Phase 1 only
Proposed
Existing peak = 5.841
Flow (m³/s)
Time (hours)
0
1
2
3
4
5
6
7
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0

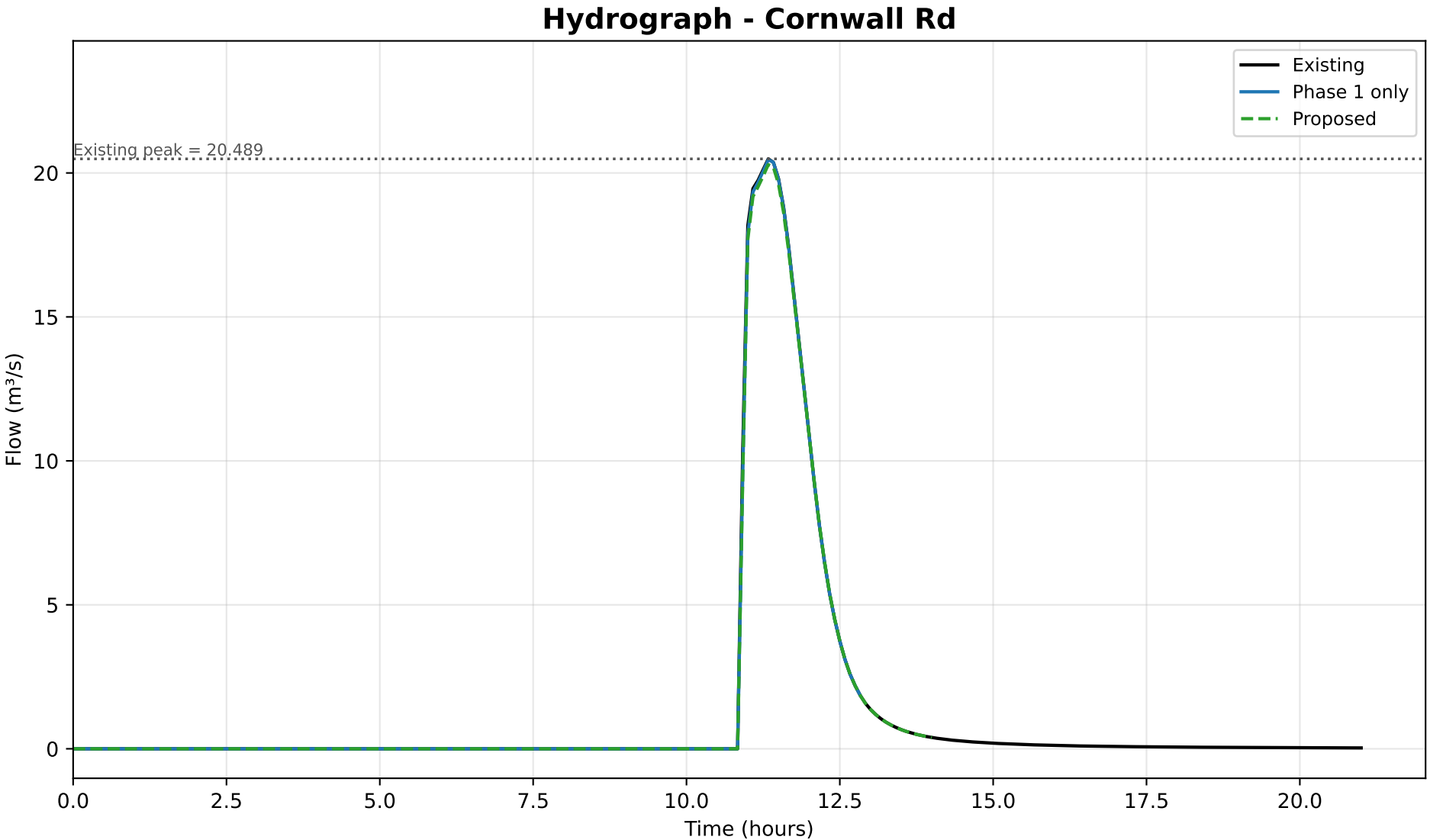

Hydrograph - Rail (East)
Existing
Phase 1 only
Proposed
Proposed: 3.954 (+0.774, +24%)
Existing peak = 3.180
Flow (m³/s)
Time (hours)
0
1
2
3
4
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


Hydrograph - Rail (Middle)
Existing
Phase 1 only
Proposed
Phase 1 only: 6.058 (+0.020, +0%)
Existing peak = 6.038
Flow (m³/s)
Time (hours)
0
1
2
3
4
5
6
7
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


Hydrograph - Rail (West)
Existing
Phase 1 only
Proposed
Phase 1 only: 3.085 (+0.041, +1%)
Existing peak = 3.044
Flow (m³/s)
Time (hours)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


Hydrograph - SW Outlet
Existing
Phase 1 only
Proposed
Existing peak = 16.788
Flow (m³/s)
Time (hours)
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


Hydrograph - Trafalgar (South Service)
Existing
Phase 1 only
Proposed
Existing peak = 1.214
Flow (m³/s)
Time (hours)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


Hydrograph - Cornwall Rd
Existing
Phase 1 only
Proposed
Existing peak = 20.489
Flow (m³/s)
0
5
10
15
20
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
Time (hours)