

WATER/WASTEWATER GENERATION REPORT

for

499 Mohawk Road East

Hamilton, Ontario

Prepared for:

499 Mohawk Joint Venture

Prepared by:

LANHACK CONSULTANTS INC.

1709 Upper James Street
Hamilton, ON L9B 1K7

Project No. 22020

August 22, 2022





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1.0 INTRODUCTION

1.1 Overview

Lanhack Consultants Inc. has been retained by the 499 Mohawk Joint Venture Group to prepare a Water/Wastewater Generation Report (WWGR) in support of a proposed residential development at 499 Mohawk Road East which will consist of eight (8) condominium buildings and seven (7) townhouse buildings. The entire site will contain a total of 1,945 units between all the proposed condominium buildings and fifty (50) townhouse units. The property is approximately 3.90 hectares, located on north-west corner of the Mohawk Road East and Upper Sherman Avenue intersection. Please refer to **Figure 1** for the Location Map and **Appendix B** for the Site Plan designed by Graziani and Corazza Architects Inc.

The site is currently developed with a commercial multi-tenant building and parking lot.

The site will be equipped with water service connections to Mohawk Road East and sanitary service connections to Upper Sherman Avenue. The proposed buildings will a combination of non sprinklered and sprinklered,

This portion of the report will provide the conceptual framework for water distribution, fire flows, and sanitary sewage for the development of this site. This report will also provide design drawings, prepared by Graziani and Corazza Architects Inc. and Lanhack Consultants Inc., for the planning applications.

Due to the size of this infill development, GMBLue Plan, through the City of Hamilton, will be preparing a Servicing Study to determine the capacity of the existing combined sewer system. The GMBLue Plan's study will determine which municipal sewers, if any, will be required to be upgraded to accommodate the proposed density.

Please refer to the Graziani and Corazza Architects Inc. and Lanhack Consultants Inc. drawings attached in **Appendix B** for additional information.

1.2 Background Information

The following documents were referenced in the preparation of this report:

Ref. 1: Comprehensive Development Guidelines and Financial Policies Manual (City of Hamilton, 2019)

Ref 2: Ontario Building Code (OBC - 2012)

Ref 3: Ministry of the Environment (MOE) – Design Guidelines for Drinking Water Systems (2008)

1.3 Geotechnical Investigation

The Geotechnical Report will be submitted by others under a separate cover.

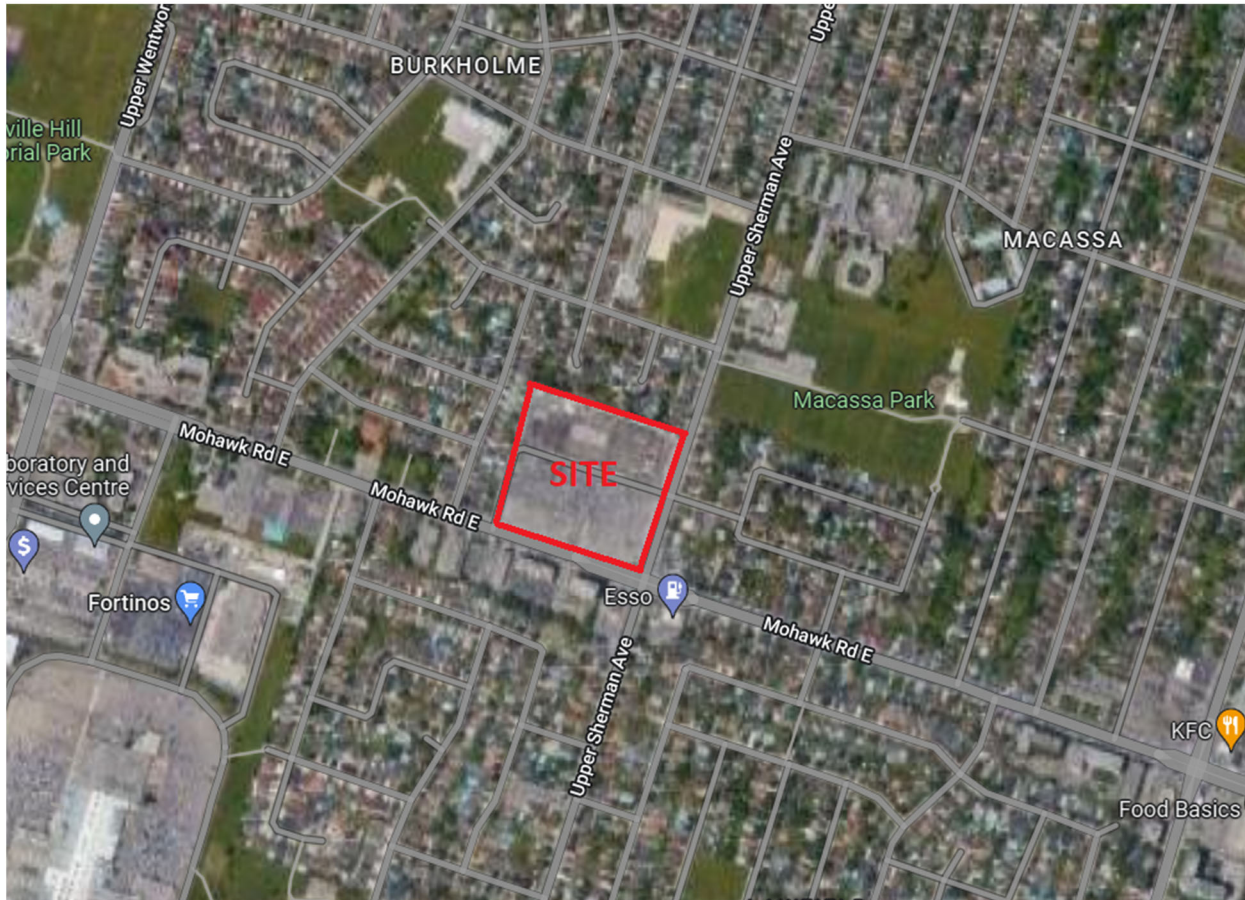


Figure 1: Location plan of 499 Mohawk Road East (via Google Maps)



2.0 Wastewater Assessment

The proposed development will consist of eight (8) residential condominium buildings, containing 1,442 one-bedroom units and 503 two-bedroom units, and fifty (50) three-bedroom townhouse units. Based on the site plan and floor plans prepared by Graziani and Corazza Architects Inc., the design population and equivalent sanitary flow for the development were determined using the City of Hamilton Comprehensive Development Guidelines and Financial Policies Manual 2019.

2.1 Existing Sanitary Drainage System

The sanitary drainage system consists of a 375mm \emptyset combined sewer within the Mohawk Road East right-of-way and a 900mm \emptyset combined sewer along Upper Sherman Avenue. See Servicing Plan in **Appendix B** for more details.

2.2 Sanitary Demands

The anticipated sanitary discharge from the proposed development was estimated using the City of Hamilton Development Guidelines (2019). The sanitary discharge flow from the subject site is summarized in **Table 2.1**.



Table 2.1: Sanitary Discharge Flow Rate

Type of Unit	Number of Bedrooms per Unit ⁽¹⁾	Average Daily Flow per Capita (L/d) ⁽²⁾	Total Number of Units ⁽³⁾	Design Population ⁽⁴⁾	Total Peak Flow ⁽⁵⁾⁽⁶⁾ (L/s)	Including Infiltration Allowance ⁽⁷⁾ (L/s)
1-Bedroom Unit	1.0	360	1,442	2,884	77.94	80.32
2-Bedroom Unit	2.0	360	503	2,012		
3-Bedroom Unit	3.0	360	50	300		
<i>(1) Number of bedrooms based on site plan and floor plans prepared by Graziani and Corazza Architects Inc.</i>						
<i>(2) Average Domestic Sewage Flow Rate from City of Hamilton Development Guideline Chapter E.1.4 Daily Flow = 360 L/day/capita</i>						
<i>(3) Refer to site plan prepared by Graziani and Corazza Architects Inc. – Appendix B</i>						
<i>(4) Design population based on two (2) persons per sleeping room within a dwelling unit or suite. Refer to OBC Section 3.1.17.1.(1).(b)</i>						
<i>(5) Total Avg. Flow = [(Avg. Daily Flow per Capita) x (Total Design Population)] = [360 L/d/person x (2,884 persons + 2,012 persons + 300 persons)] / 24 / 60 / 60 = 21.65 L/s</i>						
<i>(6) Total peak flow determined from City of Hamilton Development Guideline Chapter E.1.5 (Babbitt Formula) $M = 5 / P^{0.2} = 5 / (5,196/1,000)^{0.2} = 3.60$</i>						
<i>(7) Infiltration Allowance determined from the City of Hamilton development Guideline Chapter E.1.6. Infiltration Allowance of 0.6 L/s/ha was used for the site = 0.6 L/s x 3.96 ha = 2.38 L/s</i>						

Total Sanitary Discharge Peak Flow Rate = 80.32 L/s

2.3 Proposed Servicing Plan and Capacity Analysis (Review based on peak flows)

The proposed development will be serviced with three (3) 375mmØ sanitary services. The sanitary services will drain to the 900mmØ combined sewer on Upper Sherman Avenue. As calculated in **Table 3.1**, the total anticipated peak sanitary sewer discharge from the proposed development is **80.32 L/s**.



3.0 Proposed Water Assessment

The proposed development will consist of eight (8) residential condominium buildings, containing 1,442 one-bedroom units and 503 two-bedroom units, and fifty (50) three-bedroom townhouse units. Based on the site plan and floor plans prepared by Graziani and Corazza Architects Inc., the design population for the development will be determined using the Ontario Building Code (OBC 2012), City of Hamilton Design Standards and the equivalent domestic water flow will be determined using the Design Guidelines for Drinking-Water Systems (MOE, 2008).

3.1 Existing Water Distribution System

The municipal water distribution system around the site consists of a 300mm \varnothing within the Mohawk Road East and Upper Sherman Avenue right-of-way. There are four (4) existing fire hydrants located around the proposed development, two (2) hydrants located along Mohawk Road East and two (2) hydrants located along Upper Sherman Avenue. See Servicing Plan in **Appendix B** for more detail.

3.2 Domestic/Fire Water Demands

The expected domestic demand for the proposed development was estimated according to the City of Hamilton Design Standards and MOE design criteria. The estimated water consumption was calculated based on an occupancy rate of 2.0 persons per sleeping room within a dwelling unit or suite as per OBC Section 3.1.17.1(1).(b). The design population will be taken at 5,196 persons at the domestic water demand at a rate of 360 L/day/capita. Anticipated water demands are summarized in **Table 3.1**.

Water supply calculations for fire protection were determined using the Ontario Building Code (OBC 2012) and the City of Hamilton Watermain Fire Flow Requirement Design Guidelines. See **Appendix A** for a detailed analysis. The required fire flow is **150.00 L/s**.



Table 3.1: Estimated Domestic Water Supply Demands

Expected ⁽¹⁾ Population	Average Day ⁽²⁾ Demand (L/s)	Maximum Day ⁽³⁾ Demand (L/s)	Peak Hour ⁽⁴⁾ Demand (L/s)	Fire Flow ⁽⁵⁾ (L/s)	Max. Day + Fire Flow (L/s)
5,196	21.65	41.14	64.95	150.00	191.14
<i>(1) Design population based on two (2) persons per sleeping room within a dwelling unit or suite. Refer to OBC Section 3.1.17.1.(1).(b)</i>					
<i>(2) Average Consumption Rate for Residential Area = 360 L/cap/day = (360 L/d x 5,196 persons) / 24 / 60 / 60 = 21.65 L/s</i>					
<i>(3) *Maximum Day Factor of 1.9 x Average Day Demand</i>					
<i>(4) *Peak Hour Factor of 3.0 x Average Day Demand</i>					
<i>(5) Fire Flow of (150.00 L/s) calculation based on greater of OBC and the City of Hamilton Watermain Fire Flow Requirement Design Guidelines - Appendix A</i>					

**Demand Factors from: City of Hamilton Water and Wastewater Masterplan, Class Environmental Assessment Report (November 2006)*

3.3 Proposed Water Servicing Plan and Analysis

Water servicing for the site will be serviced by a 200mmØ water service connected to the existing 300mmØ watermain along Upper Sherman Avenue and three (3) 200mmØ water services connected to the existing 300mmØ watermain within the Mohawk Road East right-of-way. Refer to the Servicing Plan in **Appendix B** for more details.

The fire department connections will be serviced four (4) proposed private fire hydrants located around the site and standpipes (location to be determined). Refer to the Servicing Plan in **Appendix B** for more details.

Note: Typical water demand analysis would require a fixture-unit approach, but the floor plans have not been finalized yet. Instead, an equivalent population + 360 L/day/person + peak factors were used to determine the water rates. This will provide a rough estimate of water usage rates for the development (at a conservative rate of 360 L/day/person). A fixture-unit approach can be provided at a later date, if required, once floor plans have been finalized.



4.0 Conclusion (Domestic/Fire and Sanitary)

Based on the information provided herein, we conclude that the maximum water supply flow and the sanitary discharge at 499 Mohawk Road East meet the design requirements of the City of Hamilton and the Ministry of Environment (MOE). The available flows within the municipal system will be determined by GMBLue Plan under a separate cover once available.

The sanitary and water requirements are as follows:

Sanitary Drainage System

- The sanitary discharge for the subject site will drain to the exiting 900mmØ combined sewer within the Upper Sherman Avenue right-of-way. The anticipated total peak discharge will be **80.32 L/s**.

Water Supply System

- The water supply for the subject site will be from the existing 300mmØ diameter watermain along Mohawk Road East. The anticipated maximum daily water consumption rate for the development will be **41.14 L/s**.
- A minimum fire suppression flow of **9,000 L/min (150.00 L/s)** will be required as per the Ontario Building Code and City of Hamilton Watermain Fire Flow Requirement Design Guidelines.

We trust the information enclosed is satisfactory. Should you have any questions please do not hesitate to contact our office.

Respectfully submitted,

Glenn Worley
Lanhack Consultants Inc.



Dave Hacking, P.Eng
Lanhack Consultants In



APPENDIX A: Fire Flow Requirements Calculations

The following calculations are for the proposed development at 499 Mohawk Road East, Hamilton, Ontario. The required fire flow for the proposed development is based on the largest residential condominium (Building C) representing the worst-case scenario. The required fire flow will be based calculated using the Ontario Building Code (OBC) and the City of Hamilton Watermain Fire Flow Requirement Design Guidelines, the greater of both methods will be used in the design calculations.

Required Fire Flow calculated using the OBC:

The Ontario Building Code 2012 requires that a minimum water supply source 'Q' be provided at a minimum pressure of 140 kPa (20 psi). The minimum flow 'Q' can be calculated as:

$$Q = K \cdot V \cdot S_{tot}$$

Determining 'K' – Water Supply Coefficient:

As per Graziani and Corazza Architects Inc. design, the building is classified under the OBC as 3.2.2.42 Group C, Any Height, Any Area, Sprinklered. Therefore, the building will be of non-combustible construction with fire separations and fire resistance ratings provided in accordance with Subsection 3.2.2.42.

Using the OBC Div. B – A-3.2.5.7. Table 1 we determine the value of 'K' as:

$$K = 10$$

Determining 'V' – Volume of Building:

The volume (V) of the residential condominium building, using information provided by Graziani and Corazza Architects Inc., is determined to be:

$$V = 86,172 \text{ m}^3$$

Determining 'S_{tot}' – Spatial Coefficient:

The spatial coefficient is based on the exposure distance from the property line to all sides of the residential condominium. Refer to site plan designed by Graziani and Corazza Architects Inc., **Appendix B**. The spatial coefficient can be calculated as:

$$S_{tot} = 1.0 + (S_N + S_E + S_S + S_W)$$

The north side of the building will be used as S_N and will then go in a clockwise manner ending with the west side of the building being S_W . Values for all sides are as follows:



Side	Exposure Distance (m) ⁽¹⁾⁽²⁾⁽³⁾	Spatial Coefficient ⁽⁴⁾
Side S _N	10.00	0.00
Side S _E	19.81	0.00
Side S _S	16.21	0.00
Side S _W	4.00	0.50

(1) Refer to site plan designed by Graziani and Corazza Architects Inc. – Appendix B

(2) When facing a street, the property line shall be deemed to be the centre of the street as per the “Fire Protection Water Supply Guideline for Part 3 in the Ontario Building Code”

(3) When facing a building the exposure distance was calculated using the mid-point between the two buildings

(4) Spatial Coefficient from OBC Div. B – A-3.2.5.7. Figure 1

$$S_{\text{tot}} = 1.0 + (0.00 + 0.00 + 0.00 + 0.50)$$
$$S_{\text{tot}} = 1.5$$

Determining ‘Q’ – Minimum Water Supply in Litres:

$$Q = K \cdot V \cdot S_{\text{tot}}$$

$$Q = 10 \times 86,172 \times 1.5$$

$$Q = 1,292,580 \text{ L}$$

Determining Minimum Water Supply Flow Rate:

Using OBC Div. B – A-3.2.5.7. Table 2 we can determine the minimum water supply flow rate using the value $Q = 1,292,580 \text{ L}$. Since the value of Q is greater than $270,000 \text{ L}$, we can determine the minimum water supply flow rate as:

$$\text{Flow Rate} = 9,000 \text{ L/min} = 150.00 \text{ L/s}$$

Required Fire Flow calculated using City of Hamilton Watermain Fire Flow Requirement Design Guidelines:

The building is classified as a Residential Multi (greater than 3 units) therefore we can determine the target available fire flow as:

$$\text{Flow Rate} = 150.00 \text{ L/s}$$

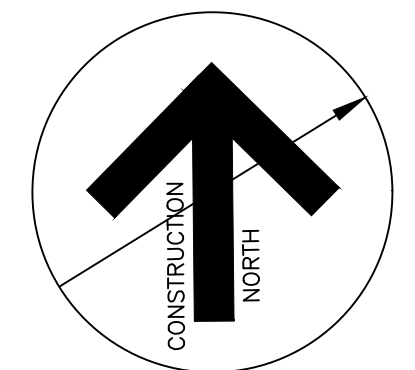


APPENDIX B: Site Plan and Engineering Drawings

- *Statistics prepared by Graziani and Corazza Architects Inc.*
- *Site Plan prepared by Graziani and Corazza Architects Inc.*
- *Preliminary Grading Plan prepared by Lanhack Consultants Inc.*
- *Preliminary Servicing Plan prepared by Lanhack Consultants Inc.*

LEGEND

- EXISTING GRADE
- (XXX.XX) PROPOSED GRADE
- EX(XXX.XX) PROPOSED GRADE + EXISTING GRADE
- FFE(XXX.XX) PROPOSED FINISHED FLOOR ELEVATION
- (XXX.XX)BW PROPOSED BOTTOM OF WALL ELEVATION
- (XXX.XX)TW PROPOSED TOP OF WALL-BOTTOM OF WALL
- (XXX.XX)SW PROPOSED SWALE ELEVATION
- PROPOSED SHEET FLOW DIRECTION
- EXISTING SHEET FLOW DIRECTION
- DIRECTION OF OVERLAND DRAINAGE
- ▲ ENTRANCE
- ▲ OVERHEAD DOOR ENTRANCE
- R# NUMBER OF RISERS
- AD AREA DRAIN
- APP APPROACH
- CB CATCH BASIN
- CBMH CATCH BASIN MANHOLE
- COR CONCRETE CURB
- DAD DOUBLE AREA DRAIN
- DCB DOUBLE CATCH BASIN
- DCBMH DOUBLE CATCH BASIN MANHOLE
- EX EXISTING
- EB ELECTRICAL BOX
- FH FIRE HYDRANT
- HP HYDRO POLE
- HH HAND HOLE
- HMH HYDRO MANHOLE
- LS LIGHT STANDARD
- LP LIGHT POST
- LA LANDSCAPING AREA
- MH MANHOLE
- MW MONITORING WELL
- S/W SIDEWALK
- T/G TOP OF GRATE
- TL TRAFFIC LIGHT
- VC VALVE CHAMBER



GENERAL GRADING NOTES:

- ANY CHANGES IN GRADES AND/OR CATCH BASINS, REQUIRES THE APPROVAL OF THE CITY'S MANAGER OF DEVELOPMENT ENGINEERING.
- THE APPROVAL OF THIS GRADING PLAN DOES NOT EXEMPT THE OWNER'S BONDED CONTRACTOR FROM THE REQUIREMENTS TO OBTAIN THE VARIOUS PERMITS/APPROVALS NORMALLY REQUIRED TO COMPLETE A CONSTRUCTION PROJECT, SUCH AS, BUT NOT LIMITED TO THE FOLLOWING:
 - ROAD OUT PERMITS
 - SEWER PERMITS
 - APPROACH APPROVAL PERMITS
 - COMMITTEE OF ADJUSTMENT
 - ENCROACHMENT AGREEMENTS (IF REQUIRED)
 - RELOCATION SERVICES
- ALL DRIVEWAYS FROM PROPERTY LINES FOR THE FIRST 7.5m SHALL BE WITHIN 5% MAXIMUM GRADE, THEREAFTER, ALL DRIVEWAYS SHALL BE WITHIN 10% MAXIMUM GRADES.
- GRADING ON ADJACENT LANDS NOT OWNED BY THE DEVELOPER, THE DEVELOPER IS REQUIRED TO OBTAIN PERMISSION TO CARRY OUT THE GRADING ON THE ADJACENT LANDS. IF SUCH PERMISSION TO GRADE ON THE LANDS ADJACENT TO THE SITE IS NOT OBTAINED BY THE DEVELOPER, OR IF PERMISSION IS WITHDRAWN PRIOR TO CARRYING OUT THE GRADING, THE DEVELOPER IS REQUIRED TO REVISE THE GRADING PLAN, AS REQUIRED, AND RESUBMIT THE PLAN TO THE CITY FOR APPROVAL.
- ALL OTHER GENERAL GRADING DETAILS AND PROCEDURES ARE TO FOLLOW THE CITY OF HAMILTON DESIGN GUIDELINES.
- ALL PLANS ARE TO BE READ IN CONJUNCTION WITH THE CITY OF HAMILTON SPECIFICATIONS AND STANDARD DRAWINGS.

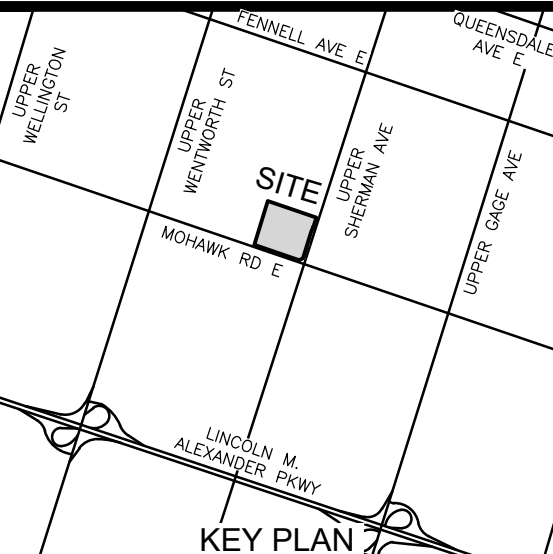
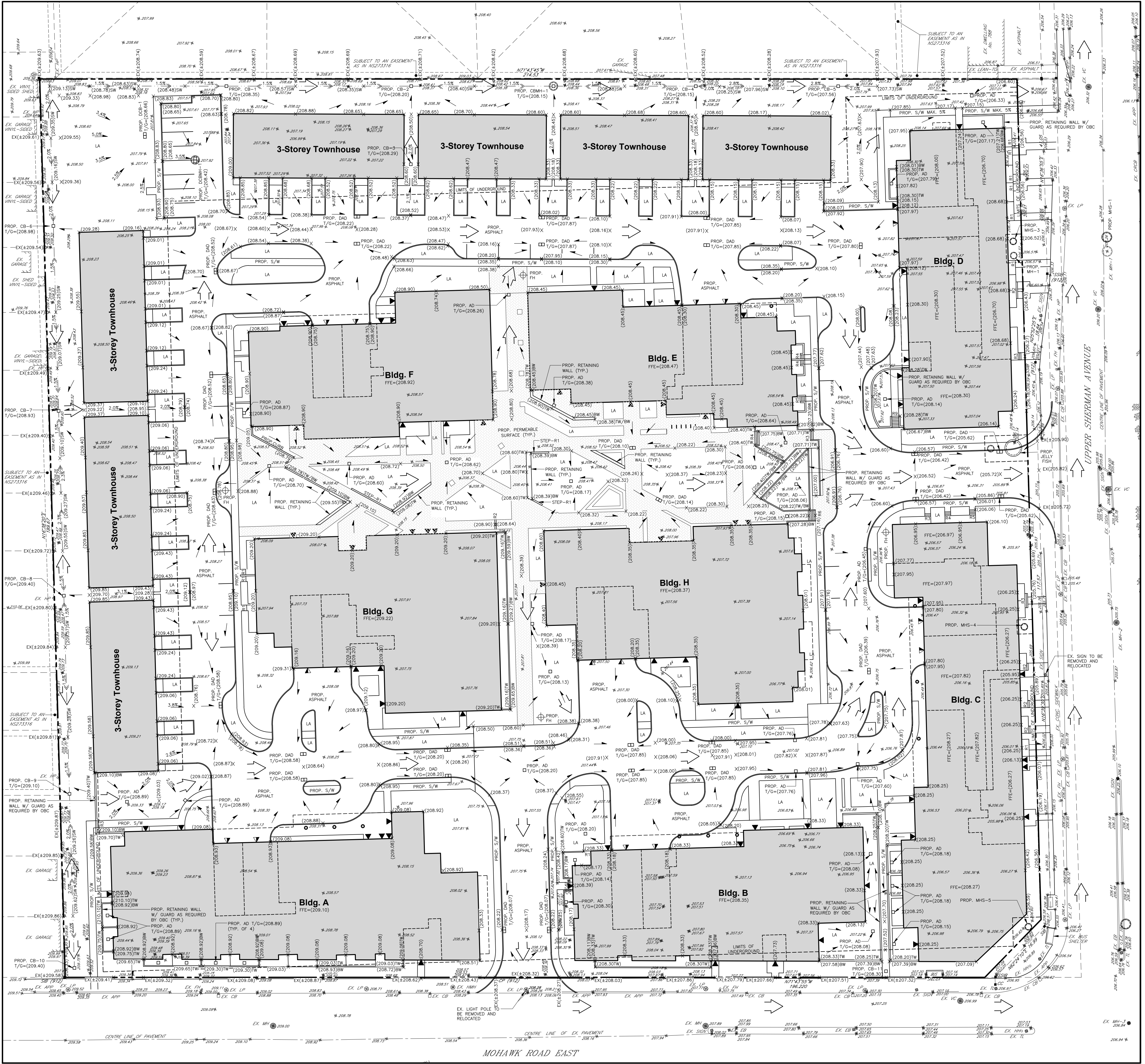
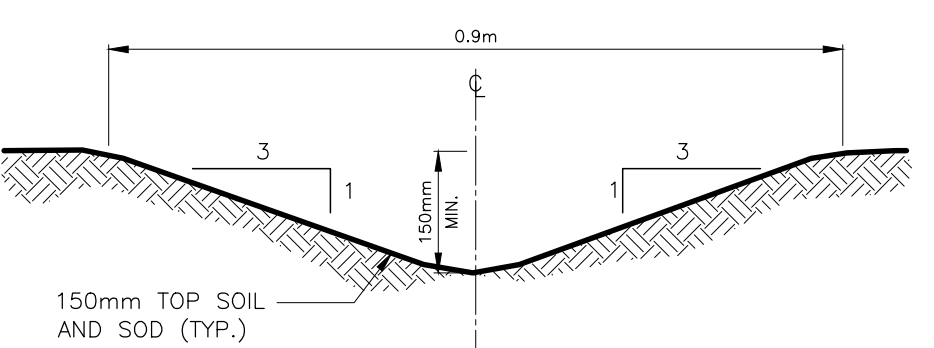
BEFORE STARTING WORK

- THE CONTRACTOR SHALL NOTIFY THE CITY OF HAMILTON AND LANHACK CONSULTANTS INC. AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
- THE POSITION OF THE POLE LINES, CONDUITS, WATERMANS, SEWERS, AND OTHER UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.
- PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, ALL BENCHMARKS, ELEVATIONS, DIMENSIONS, AND GRADES MUST BE CHECKED BY THE CONTRACTOR AND ANY DISCREPANCIES REPORTED TO THE ENGINEER.
- ALL EXISTING UNDERGROUND UTILITIES WITHIN THE LIMITS OF CONSTRUCTION SHALL BE LOCATED, MARKED AND PROTECTED. ANY UTILITIES DAMAGED OR DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.
- AT LEAST TWO DIFFERENT BENCHMARKS MUST BE REFERRED TO AT ALL TIMES.
- 72 HOURS PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS TO LOCATE, EXPOSE AND VERIFY INVERTS OF EXISTING SEWERS AT CONNECTION POINTS, SHOULD THE CONTRACTOR PROCEED WITHOUT COMPLETING THESE LOCATES, EXTRA COSTS RESULTING FROM DELAYS AND STANDBY TIME WILL NOT BE CONSIDERED.

PAVEMENT STRUCTURE

PAVEMENT STRUCTURE LAYER (COMPACTION RATE)	ASPHALT PAWING
HL-3 SURFACE COURSE ASPHALT (97% MARSHALL)	40mm
HL-3 BINDER COURSE ASPHALT (97% MARSHALL)	40mm
GRANULAR "A" BASE COURSE (100% SPMD)	150mm
GRANULAR SUB-BASE 50mm CRUSHER-RUN LIMESTONE (100% SPMD)	200mm
TOTAL THICKNESS	430mm

NOTE: PAVEMENT STRUCTURE TO BE CONFIRMED BY GEOTECHNICAL ENGINEER. REFER TO GEOTECHNICAL REPORT FOR SPECIFICS.
 - SPMD DENOTES STANDARD PROCTOR MAXIMUM DRY DENSITY, ASTM-698
 - REFER TO SITE PLAN ONLY FOR LIMITS AND TYPE OF MATERIAL, FOR ALL SURFACE WORKS



Contractor must verify all dimensions on the Project Site and report any discrepancies before proceeding with the Work.
 This drawing is a part of the Contract Documents and is to be read in conjunction with all other Contract Documents.
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SOURCE: EXISTING BOUNDARY SURVEY AND TOPOGRAPHICAL INFORMATION OBTAINED FROM A.L. McLENNAN LIMITED, DRC. NO. - 36785, DATED - NOVEMBER 1, 2021.
REVISIONS: REVISED NO. 0019650569, ELEVATION=203.774 FRANKLIN RD SCHOOL, AT SOUTHWEST CORNER OF UPPER SHERMAN AVENUE AND FRANKLIN RD.
 THE POSITION OF THE POLE LINES, CONDUITS, WATERMANS, SEWERS, AND OTHER UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

Revision Record

No.	Description	Date (m/d/y)
A	ZONING AND OFFICIAL PLAN AMENDMENT	09/14/22

Issue Record

No.	Description	Date (m/d/y)

LANHACK CONSULTANTS INC.
 Consulting Engineers
 1709 Upper James Street
 Hamilton, ON L9B 1K7
 Tel: (905) 777-1454
 Fax: (905) 336-8142

499 Mohawk Joint Venture

499 MOHAWK ROAD EAST
 HAMILTON, ON

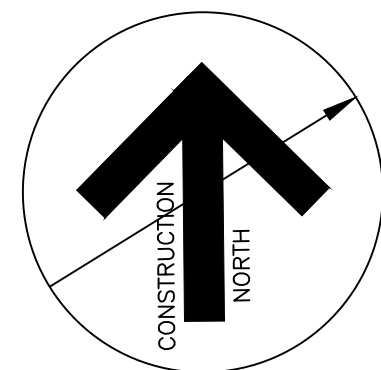
Date: JUNE 2022
 Drawn By: GRW
 Chkd By: SMP
 Scale: AS NOTED

Preliminary Grading Plan

Project No.: 22020 Drawing No.: C1-1 Rev.: A
 Plot Date: 09/14/22
 499 Mohawk Road East, Hamilton, ON L9B 1K7
 20220202 - Grading and Servicing Plan - Prelim

LEGEND

ST	EXISTING STORM SEWER	HP	HYDRO POLE
ST	PROPOSED STORM SEWER W/ FLOW ARRO	HH	HAND HOLE
S	EXISTING SANITARY SEWER	HMH	HYDRO MANHOLE
S	PROPOSED SANITARY SEWER W/ FLOW ARROW	LS	LIGHT STANDARD
W	EXISTING WATERMAIN	LP	LIGHT POST
W	PROPOSED WATERMAIN	LA	LANDSCAPING AREA
○	SANITARY LATERAL	MH	MANHOLE
○	WATER METER	MW	MONITORING WELL
○	BACK FLOW PREVENTER	SM	SANITARY
▲	ENTRANCE	SAN	STORM
▲	OVERHEAD DOOR ENTRANCE	S/W	SIDEWALK
R#	NUMBER OF RISERS	T/G	TOP OF GRATE
AD	AREA DRAIN	T/L	TRAFFIC LIGHT
APP	APPROACH	VC	VALVE CHAMBER
CB	CATCH BASIN		
CBMH	CATCH BASIN MANHOLE		
CCRB	CONCRETE CURB		
DAD	DOUBLE AREA DRAIN		
DCB	DOUBLE CATCH BASIN		
DCBMH	DOUBLE CATCH BASIN MANHOLE		
EB	EXISTING ELECTRICAL BOX		
FH	FIRE HYDRANT		

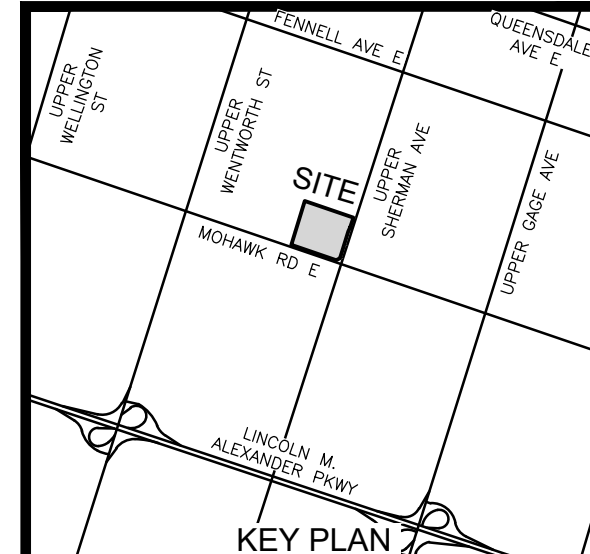
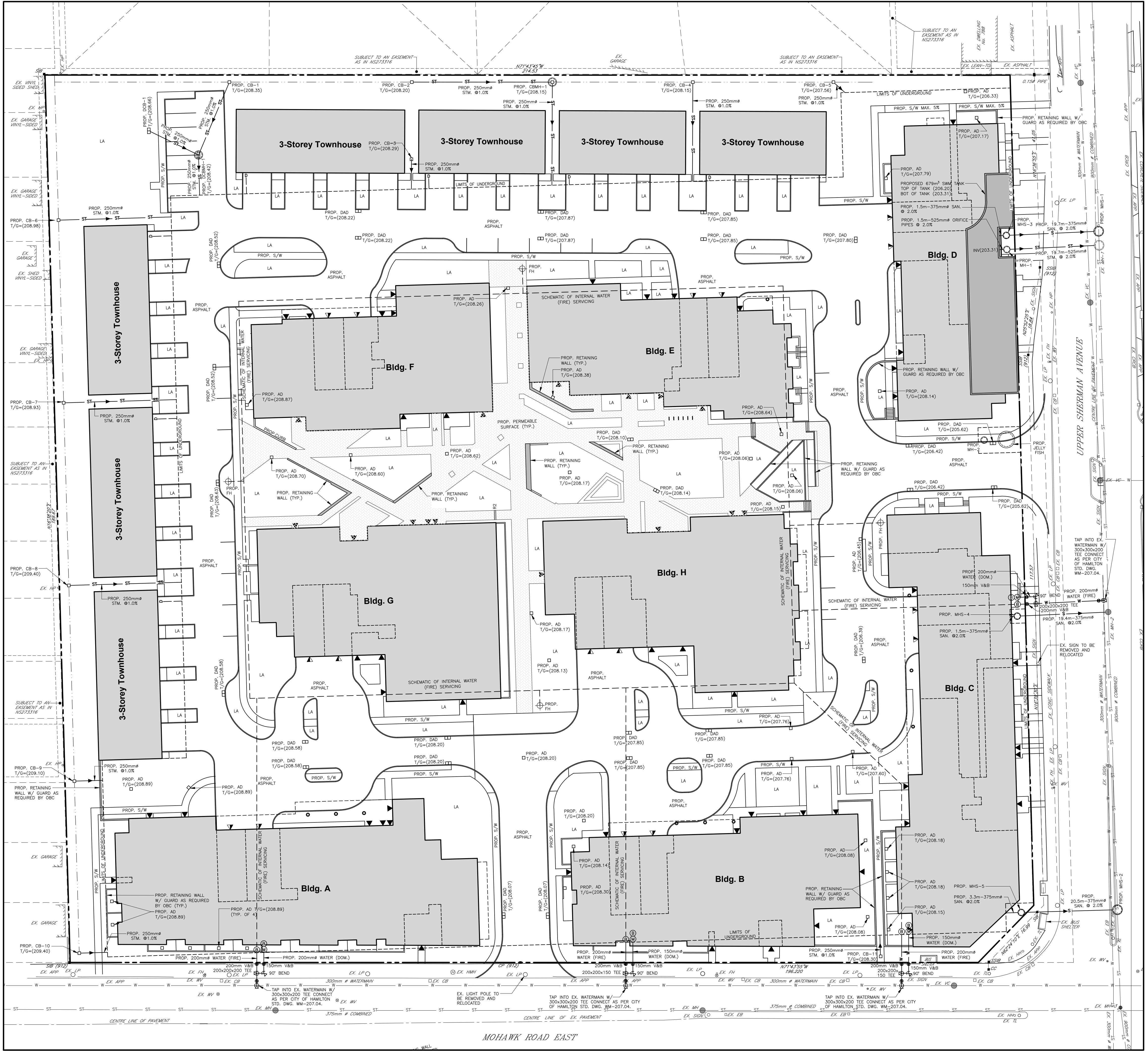


GENERAL SERVICING NOTES:

- ALL SERVICES TO BE INSTALLED AS PER CITY OF HAMILTON CONSTRUCTION AND MATERIAL SPECIFICATIONS MANUAL (LATEST EDITION) AND MINISTRY OF THE ENVIRONMENT GUIDELINES (LATEST EDITION).
- MINIMUM HORIZONTAL SEPARATION BETWEEN WATER SERVICES AND SEWERS SHALL BE 2.5m MEASURED FROM THE CLOSEST PIPE EDGE TO CLOSEST PIPE EDGE. VERTICAL SEPARATION BETWEEN WATERMANS AND SEWERS WHICH CROSS MUST BE 0.5m BETWEEN THE OUTSIDE OF THE WATERMAIN AND THE OUTSIDE OF THE SEWER, WITH THE LENGTH OF THE WATER PIPE BEING CENTERED AT THE POINT OF CROSSING SUCH THAT JOINTS IN THE WATERMAIN WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER, CROSSING PERPENDICULAR IF POSSIBLE.
- ALL WATER SERVICES TO BE INSTALLED WITH A MINIMUM OF 1.6m COVER. SEWERS TO BE INSTALLED WITH A MINIMUM COVER OF 2.20m AT THE PROPERTY LINE BELOW THE FINAL ROAD GRADE OR AT SUCH HIGHER ELEVATION ONLY AS MAY BE NECESSITATED BY THE LEVEL OF THE MAIN SEWER. ON PRIVATE PROPERTY THE MINIMUM COVER IS TO BE NO LESS THAN 1.2m.
- RESTORATION OF ROAD OVER UTILITY CUTS IN HAMILTON TO BE AS PER STANDARD DRAWINGS RD-100.01 AND RD-100.02, WITH GRANULAR "A" BEDDING.
- APPROVAL OF THIS DRAWING IS FOR MATERIAL ACCEPTABILITY AND COMPLIANCE WITH MUNICIPAL AND PROVINCIAL SPECIFICATIONS AND STANDARDS ONLY. APPROVAL AND INSPECTION BY THE CITY OF THE WORKS DOES NOT CERTIFY THE LINE AND GRADE OF THE WORKS AND IT IS THE OWNER'S RESPONSIBILITY TO HAVE THEIR ENGINEER CERTIFY THIS ACCORDINGLY.
- ALL PROPOSED SERVICE ARE TO PASS BELOW EX. WATERMANS, BY A MIN. OF 250mm, BASED ON THE TOP OF THE EX. WATERMAN BEING 1.6m BELOW THE CENTERLINE OF ROAD.
- ALL BUILDING SERVICE SIZES ARE TO BE CONFIRMED BY THE MECHANICAL ENGINEER AT BUILDING DESIGN PHASE.

BEFORE STARTING WORK

- THE CONTRACTOR SHALL NOTIFY THE CITY OF HAMILTON AND LANHACK CONSULTANTS INC. AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE POSITION OF THE POLE LINES, CONDUITS, WATERMANS, SEWERS, AND OTHER UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.
- PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, ALL BENCHMARKS, ELEVATIONS, DIMENSIONS, AND GRADES MUST BE CHECKED BY THE CONTRACTOR AND ANY DISCREPANCIES REPORTED TO THE ENGINEER.
- ALL EXISTING UNDERGROUND UTILITIES WITHIN THE LIMITS OF CONSTRUCTION SHALL BE LOCATED, MARKED AND PROTECTED. ANY UTILITIES DAMAGED OR DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.
- AT LEAST TWO DIFFERENT BENCHMARKS MUST BE REFERRED TO AT ALL TIMES.



Contractor must verify all dimensions on the Project Site and report any discrepancies before proceeding with the Work.

This drawing is a part of the Contract Documents and is to be read in conjunction with all other Contract Documents.

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SOURCE: EXISTING BOUNDARY SURVEY AND TOPOGRAPHICAL INFORMATION OBTAINED FROM A.L. McLENNAN LIMITED, DWG. NO. - 36785, DATED - NOVEMBER 1, 2021.

BENCHMARK: BENCHMARK NO. 2011965059, ELEVATION=203.774 FRANKLIN RD SCHOOL, AT SOUTHWEST CORNER OF UPPER SHERMAN AVENUE AND FRANKLIN RD.

THE POSITION OF THE POLE LINES, CONDUITS, WATERMANS, SEWERS, AND OTHER UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

Revision Record

No.	Description	Date (m/d/y)
A	ZONING AND OFFICIAL PLAN AMENDMENT	09/14/22

Issue Record

No.	Description	Date (m/d/y)

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499 Mohawk Joint Venture

499 MOHAWK ROAD EAST
HAMILTON, ON

Date: JUNE 2022
Drawn By: GRW
Chkd By: SMP
Scale: 1 : 400

Preliminary Servicing Plan

Project No.: 22020 Drawing No.: C2-1 Rev.: A

Plot Date: 09/14/22
499 Mohawk Road East, Hamilton, ON
22020_201 - Grading and Servicing Plan.dwg