MCR ENGINEERS LTD.
GEO-ENVIRONMENTAL CONSULTANTS

111 ZENWAY BLVD., UNIT 4, VAUGHAN, ONTARIO, L4H 3H9
TEL: 416.675.0160 FAX: 905.851.1722
office@mccrak.com

1271 DENISON ST., UNIT 45, MARKHAM, ONTARIO, L3R 4B5
TEL: 905.470.0160 FAX: 905.475.6371
denison@mccrak.com

WWW.MCCRAK.COM

G5822 **AUGUST 2024**

GEOTECHNICAL REPORT
PROPOSED DEVELOPMENT
3085 – 3105 HURONTARIO STREET
MISSISSAUGA, ONTARIO

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1 COPY	MCR ENGINEERS LTD.

PREPARED FOR:

MATTAMY HOMES CANADA
3300 BLOOR ST. WEST, SUITE 1800,
TORONTO, ONTARIO
M8X 2X2

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1.0 INTRODUCTION

MCR was retained by Mattamy Homes Canada in partnership with Equity Three Holdings Inc. (the Client), to carry out a geotechnical investigation for the proposed residential and commercial development located at the 3081 – 3095 Hurontario Street, in the City of Mississauga, Ontario (hereafter referred to as 'the Site').

The objective of the report was to determine design data required for foundations, dewatering, shoring/excavation, backfill, slab on grade and pavement. The above design and construction issues are addressed in the following report.

2.0 SITE CONDITIONS

The site is located on the east side of Hurontario Street, between Kirwin Avenue and Dundas Street East, in the City of Mississauga.

The Site is presently occupied by two [2] storey commercial building, in the southwestern portion and a two [2] storey above grade parking structure on the eastern portion of the Site. The Site is bounded by Kirwin Avenue to the north, residential building to the east, commercial buildings to the south and Hurontario Street to the west.

3.0 PROPOSED DEVELOPMENT

The Site is proposed for a residential and commercial development consisting of a thirty-six [36] storey building with four to twelve [4 to 12] storey podium (Tower 1), a thirty-nine [39] storey building with four to twelve [4 to 12] storey podium (Tower 2), a thirty-three [33] storey building with four to twelve [4 to 12] storey podium (Tower 3) and a thirty-one [31] storey building with four to twelve [4 to 12] storey podium (Tower 4) over three [3] levels of combined underground parking (Appendix A).

It is understood that the ground floor finished elevation (FFE) ranges from 117.85 to 116.10 m and P3 FFE will be at 105.70 m.

4.0 SITE INVESTIGATION

Three [3] boreholes, BH 1, BH 2 and BH 101, were drilled at the subject site by Soil-Mat on April 8, 2019, and March 12, 2020 to depths of 7.90, 4.65 and 13.85 m.

Two [2] boreholes, BH 19-3 and BH 19-4, were drilled at the subject site by WSP on July 3, 2019, to depths of 4.40 m.

Two [2] supplementary boreholes, BH 101 and BH 102, were drilled at the subject site by MCR on March 15 and 16, 2023, to depths of 5.05 and 5.35 m.

Monitoring wells were installed in all the boreholes, except BH 1, for long term groundwater monitoring and sampling.

The borehole locations are shown on Drawing No. 1 and borehole logs by MCR and others are enclosed in Appendices B and C.

Soil samples were taken using the Standard Penetration Test (SPT) method and were placed in clean, sealed plastic bags in the field and transported back to our laboratory where they were further examined for soil characterization.

Selected samples were transported to Bureau Veritas to be tested for common corrosion parameters, including pH, resistivity, oxygen reduction potential (redox), chlorides and sulphate content. The laboratory test results are presented in Appendix D.

The elevation of the borehole by Soil-Mat was determined relative to a geodetic benchmark, described as the door sill located on the north face of the existing building located at 3085 Hurontario Street West, with the reported geodetic elevation of 116.40 metres, all as per the Site Servicing and Grading Plan drawing by McConnell Maughan Limited Plan 313E-2., dated July 1986.

MCR borehole elevations referred to in this report are geodetic and metric and are interpolated from the survey plans by R-PE Surveying Ltd., dated February 24, 2021.

5.0 SOIL AND GROUNDWATER CONDITIONS

Subsurface conditions encountered at the borehole locations are shown on Borehole Log Sheets, attached in Appendices B and C, and summarized on a Soil Profile/Drawing No. 2 & 3, as follows:

Pavement: A layer of asphalt, 100 to 200 mm in thickness, was present at the surface of BH 1, BH 2, and BH 101 (by Soil-Mat) and BH 101 (by MCR) and was followed by 150 to 250 mm of granular fill. A layer of concrete, 165 to 200 mm in thickness, was present at the surface of BH 19-3 (by WSP) and BH 102 (by MCR) and was followed by 150 to mm of granular fill in BH 102.

Possible topsoil with approximate 100 mm thickness was observed at the surface of BH 19-4 (by WSP).

For the purpose of offsite disposal, the type/quality and extent of the existing fill should be explored by further test pit/borehole investigation prior to contract award.

Sand/Silty Sand Till: Loose to very dense layer sand/silty sand till was detected below the pavement/possible topsoil in all boreholes and extended to depths of 1.75 to 3.65 m. The brown/light brown/dark brown sand/silty sand till deposit was in moist to wet condition and contained trace gravel and boulder, some silt and occasional organics in upper level.

Clayey Silt (Till): Very stiff to hard clayey stilt (till) was encountered below the sand/silty sand (till) in BH 1, BH 2 and BH 101 (by Soil-Mat), BH 19-3 and BH19-4 (by WSP) and BH 102 (by MCR) and extended to the underlying weathered shale at depths of 2.45 to 4.30 m. The grey clayey silt (till) deposit was in a moist to wet condition and contained trace of sand and gravel.

Silty Sand Till/Weathered Shale Complex: Very dense silty sand till/weathered shale complex was found below the silty sand till in BH 101 (by MCR) and extended to the underlying weathered shale at a depth of 4.60 m. The brown silty sand till/weathered shale complex was in a wet condition and contained trace gravel.

It should be noted that the till/sand soil is an unsorted sediment; therefore, boulders and cobbles are anticipated.

Shale Bedrock: Weathered shale bedrock was spotted below the clayey silt (till)/silty sand till/weathered shale complex in all boreholes at about depth of 2.45 to 4.60 m, i.e., at about Elevations of 114.00 to 111.25 m, and extended to the maximum depth of the borehole.

The surface of the shale bedrock will vary across the site; therefore, it should be confirmed by further borehole investigation and during foundation installations.

Groundwater: Upon competition of drilling, BH 101 (by Soil-Mat) remained dry. Groundwater level was not measured in BH 101 and BH 102 (by MCR) upon competition of drilling. The results of groundwater level monitoring are summarized in Table 1.

Table 1 – Groundwater Level Monitoring Results

Monitoring Well Id	Ground Surface Elevation (masl)	Water Level (mbgs)	Groundwater Elevation (masl)	Date of Measurement (mm/dd/yyyy)	Depth of Well (mbgs)	Depth of Bentonite (mbgs)	Length of Screen (m)	Inside Diameter of Pipe (mm)	Top of Monitoring Well
Boreholes by Soil-Mat									
BH 2	116.15	3.10	113.05	04/24/2019	4.40	2.80	1.52	50	Flush Mount
		3.00	113.15	05/07/2019					
		3.10	113.05	04/17/202					
BH 101	116.23	4.60	111.63	03/27/2020	13.63	4.30	9.20	50	Flush Mount
		4.50	111.73	04/17/2020					
Boreholes by WSP									
BH 19-3	115.51	2.51	113.00	8/9/2019	3.55	1.85	3.05	50	Flush Mount
BH 19-4	118.26	3.13	115.13	8/9/2019	3.55	1.85	3.05	50	Flush Mount
Boreholes by MCR									
BH 101	116.95	1.83	115.12	04/11/2023	4.57	0.91	3.05	50	Flush Mount
BH 102	116.47	3.71	112.76	04/11/2023	5.33	1.68	3.05	50	Flush Mount
Min	115.51	1.83	111.63	-	3.55	-	-	-	-
Max	118.26	4.60	115.13	-	13.63	-	-	-	-
Average	116.60	3.28	113.18	-	5.84	-	-	-	-

Please note that the groundwater levels are subject to seasonal fluctuations. Consequently, definitive information on the long-term groundwater levels could not be obtained at the present time.

The sedimentary bedrock may contain waterbearing bedding planes. When these bedding planes are intercepted in rock excavation, caissons or elevator pistons etc., a substantial amount of water, often under a hydrostatic head may be encountered.

A Geohydrology assessment study is completed by MCR and the results are presented in a separate report.

6.0 FOUNDATION

The Site is proposed for a residential and commercial development consisting of a thirty-six [36] storey building with four to twelve [4 to 12] storey podium (Tower 1), a thirty-nine [39] storey building with four to twelve [4 to 12] storey podium (Tower 2), a thirty-three [33] storey building with four to twelve [4 to 12] storey podium (Tower 3) and a thirty-one [31] storey building with four to twelve [4 to 12] storey podium (Tower 4) over three [3] levels of combined underground parking (Appendix A).

It is understood that the ground floor finished elevation (FFE) ranges from 117.85 to 116.10 m and P3 FFE will be at 105.70 m.

Based on the encountered soil/rock foundation conditions, the proposed development, with three U/G parking levels, can be supported on a spread/strip footings founded in sound shale bedrock.

The recommendations are based on the current information and design. Should changes are made during the design phase or construction, this office must be informed and retained to modify recommendations accordingly or propose additional field work.

6.1 SPREAD/STRIP FOOTINGS

The proposed footings could be proportioned using the following bearing resistance:

Factored Bearing Resistance at ULS = 7000 kPa
Bearing Resistance at SLS = 5000 kPa

When founded in sound shale bedrock at or below Elevations of 105.20 m, and at least 1.50 m below the surface of the shale bedrock, subject to design grades and the depth of shale bedrock across the site.

Coefficient of Subgrade Reaction k (for sound shale) = 100 MN/m^3 is considered applicable.

6.2 GENERAL FOUNDATION NOTES

It is recommended that your excavation and construction contract provisions include unit prices for excavation into wet soils which may contain cobbles, boulders and erratic rock to minimize potential unexpected extra costs during excavation and foundation installations.

Adjacent footings, founded at different elevations, preferably are to be stepped at 10 horizontal to 7 vertical, subject to rock condition during excavations.

For frost protection requirements, the exterior footings and footings in unheated areas in unheated P3 areas must have a minimum shale bedrock cover of 0.5 m.

Any water or loose materials must be removed from the footing bases prior to placing concrete.

The recommended resistance at SLS allows for up to 25 mm of total settlement. Potential differential settlements are to be evaluated after completion of the foundation drawings.

Furthermore, the recommended bearing resistance and foundation elevations have been calculated from the limited borehole information and are intended for design purposes only.

More specific information with respect to rock/foundation conditions will be available when the proposed shoring/foundation construction is underway. Therefore, the encountered rock/foundation conditions must be verified in the field, and footings must be inspected and approved by our office prior to placement of concrete.

7.0 EARTHQUAKE CONSIDERATION

The building must be designed to resist a minimum lateral seismic force, V, which the National Building Code assumes to act in any direction.

As per the 2024 Ontario Building Code (OBC), the site classification for seismic design must be determined using the average shear wave velocity in the top 30 meters (Vs30), calculated from in situ measurements. If shear wave velocity tests are unavailable, classification can alternatively be based on undrained shear strength (su) or penetration resistance (N-values), in accordance with the OBC and the National Building Code of Canada. The parameters for determining the site classification for seismic response are detailed in Table 4.1.8.4-B of the OBC 2024.

Based on the limited data from boreholes drilled on-site, sound shale bedrock is present below the assumed founding elevation of 105.2 m for raft/footings. Therefore, the site is classified as Class B for seismic analysis, per Table 4.1.8.4-B of the OBC 2024. Design spectral accelerations are outlined in Table 4.1.8.4-C.

To further define and confirm the site classification, a Shear Wave Velocity (SWV) test must be conducted.

8.0 BASEMENT WALLS

Underground parking walls should be designed to resist a pressure "p", at any depth, "h" below the surface, as given by the expression:

$$p = K[\gamma h + q]$$

Where: K = 0.40 is the earth pressure coefficient considered applicable

K = 0.25 is the shale pressure coefficient considered applicable

γ = 21.7 kN/m^3 is the unit weight of backfill

q = an allowance for surcharge.

The above equation assumes that perimeter drains will be provided and that the backfill against subsurface walls, where applicable, would be a free draining granular

material.

However, subject to further groundwater monitoring results, we suggest that perimeter walls below the groundwater level be designed for hydrostatic pressure to resist a pressure "p", at any depth "h" below the surface, as given by the expression:

$$p = \begin{cases} Kq + K\gamma_m h & h \le D_w \\ Kq + K\gamma_w D_w + K(\gamma_s - \gamma_w)(h - D_w) + \gamma_w(h - D_w) & h > D_w \end{cases}$$

Where: K = 0.50 is the earth pressure coefficient considered applicable

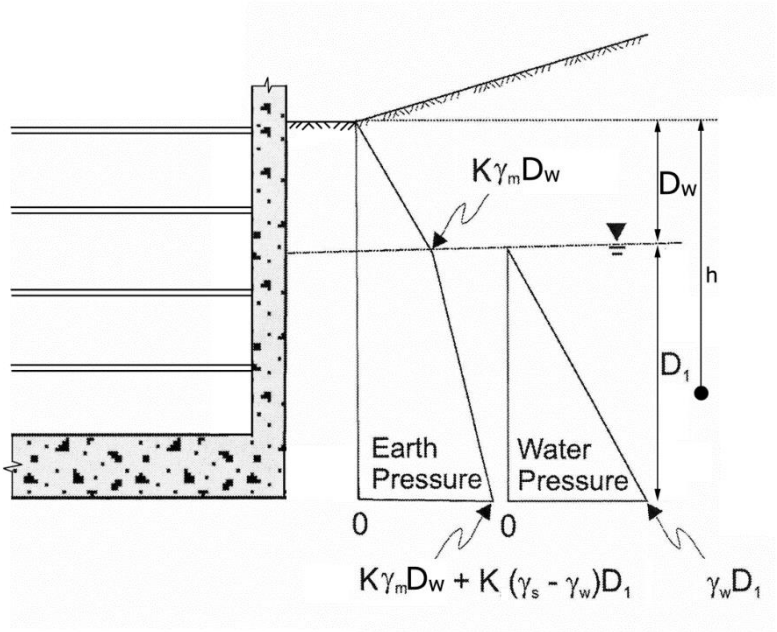
K = 0.25 is the shale pressure coefficient considered applicable

γ_m = 20 kN/m^3 is moist or wet soil unit weight

γ_s = 21.7 kN/m^3 is saturated soil unit weight

γ_w = 9.80 kN/m^3 is the unit weight of water

q = an allowance for surcharge



9.0 DEWATERING

The excavation for the proposed underground parking will extend below the groundwater table.

For soldier pile/lagging, to protect the sides of the excavation from being disturbed by excess groundwater pressure, i.e. to prevent quick sand/dilating silt conditions, the **water table must initially be lowered to at least 1.0 m below the top of bedrock.**

The selected dewatering system, eductors/well points/deep inclined rock embedded wells, designed by a speciality contractor, will be most effective if it is installed and activated at the earliest opportunity during general excavation.

To control potential localized groundwater influx, bedrock could be trenched, and temporary sump pumps installed.

The dewatering contract must be performance driven and the contractor must provide a performance bond. In addition, upon completion of system's installation, contractor must produce a written statement that "The system installed is robust enough to lower and maintain groundwater at least 1.0 m below the lowest footing/shaft elevation, without impacting the integrity of shoring or foundation soils.

Where caisson wall shoring is required, any breaches in caisson wall shoring might result in localized piping. Creation of piping channels might increase the volume of both temporary dewatering and permanent drainage. It is critical that during general excavation **potential formation of localized piping be carefully evaluated and appropriate corrective measures implemented.**

In addition, a pre-construction survey of adjacent structures/roads should be carried out prior to the dewatering/shoring construction stage. Potential adverse effects on adjacent structures, due to the dewatering must be assessed/quantified and suitable preventive/remedial measures implemented.

10.0 EXCAVATION AND BACKFILL

Excess soils shall be managed in accordance to O. Reg. 406/19. As of January 1, 2022, the Project Leader may be required to file a notice in the registry as prescribed under Section 8 of the regulation. The notice shall contain the information set out in Schedule 1 of the regulation. Before the notice is filed the Project Leader shall ensure that a Qualified Person (Qualified Person within the meaning of Section 5 or 6 of O. Reg. 153/04) prepares the documents, as required, under Sections 11, 12, 13 of the regulation.

The Project Leader shall, if required to file a notice and before removing excess soil from the project area, develop and apply a tracking system in accordance with the Soil Rules, to track each load of excess soil during its transportation and deposit.

No major problems will be encountered for the anticipated depth of general excavations, carried out within a shoring wall enclosure.

The excavation in weathered shale bedrock can be carried out with a heavy-duty backhoe. However, the shoring/foundation contractor must be aware that the harder and thick limestone/dolostone slabs are interbedded with the shale bedrock.

For excavation above the water table, the anticipated water seepage, if any, into the excavations from the more permeable seams/lenses or surface run-off can be handled by conventional pumping methods.

A dewatering system such as eductors/well points/deep inclined wells embedded in bedrock will be required for excavation at/below the groundwater level, above bedrock, subject to long term groundwater monitoring results.

In service trenches (outside the building), the fill should be suitable for compaction, i.e. free of limestone fragments of a size greater than 150 mm, and with natural moisture content, which is within 2 percent of the optimum moisture content.

The backfill material should be compacted to at least 98 percent of the Standard Proctor Maximum Dry Density (SPMDD).

The backfill under floor slab against subsurface walls, where applicable, should be free draining granular fill, preferably conforming to the Ontario Provincial Standard Specification for granular base course, Granular B.

11.0 SHORING

A shoring system should be designed to protect adjacent structures and services. The fourth edition of the Foundation Manual should be referred to for the design of the shoring system.

It should be noted that groundwater and cobbles/boulders might be encountered during soldier pile/caisson construction, and the contractor must be prepared to deal with boulders and water seepage into the caisson shafts without undue delays.

Specifically, the shoring contractor may experience difficulties during the drilling the much harder/thick limestone slabs.

Subject to groundwater conditions/monitoring results; it might be difficult to prevent groundwater from penetrating into the excavation through gaps in timber lagging.

The geotechnical parameters, which are considered to be applicable for the design, are as follows:

Active earth pressure coefficient Ka = 0.45 for walls in areas where structures or sensitive services are being supported.

Active earth pressure coefficient Ka = 0.28 for remaining areas.

Natural unit weight of soil = 21.7 kN/m^3

Passive pressure coefficient in shale bedrock Kp = 5

Any surcharge loads must be included in the lateral pressure calculations.

Lateral movements of the shoring wall, designed using Ka = 0.28, are expected to be in order of 15 mm. They are expected to be less if Ka value of 0.45 is used. The expected movements are based on a properly constructed system.

The horizontal and vertical movements should be monitored during construction to ensure satisfactory performance of the shoring system.

The soil and rock anchors should be designed for 20 and 600 kPa respectively subject to confirmation by on-site load tests. It is re-iterated that subsurface conditions **may vary beyond the site's confines**. As a result, the design values must be confirmed by at least two load tests, carried out to twice the design load.

The encountered sedimentary shale bedrock contains frequent limestone interbeds. In addition, weaker vertical or inclined 'rubble' zones could be intercepted in rock excavations. Typically, as a safety measure, a wire mesh in combination with plywood has been used to cover localized rubble zones.

It is imperative that a stability analysis of the entire support system is undertaken prior to commencement of construction. The final shoring design should be reviewed by our office.

Space and groundwater influx permitting, lowest parking level could be excavated "neat" into the rock face. A sufficient rock bench/rock bolts will be required to secure the integrity of the shoring system.

The exposed rock face could be shotcreted (if required) and covered as shown on Drawing No. 4, subject to site condition/field inspection during excavation.

The shoring system and surrounding structures must be monitored for horizontal and vertical movements, prior to, during and after the excavation.

In addition, a pre-construction survey of adjacent structures/roads should be carried out prior to the shoring/design/construction stage. Any potential adverse effect on adjacent structures should be assessed and suitable preventive/remedial measures implemented.

12.0 SLAB ON GRADE AND PERMANENT DRAINAGE

The lowest garage floor slabs can be constructed as slab on grade (SOG), supported by shale bedrock.

Upon completion of foundation work, the SOG should rest on a well compacted bed of size 19 mm clear stone at least 200 mm thick. The stone bed would act as a barrier and prevent capillary rise of moisture from the subgrade to the floor slab.

A permanent Private Water Drainage System (PWDS), as shown on Drawings No. 4 and 5, where shoring is constructed, should be considered. Please note that MCR does not prepare working/shop drawings for the PWDS.

To minimize siltation, all drainage pipe connections must be solid slotted PVC, with elbows and Ts, no "butt" end connections should be permitted. The pipes should slope to a sump at a minimum 1% slope.

Perimeter drainage pipes, with a positive gravity outlet, should be solid and slotted PVC with a minimum of 0.5% slope. In addition, silt traps must be provided at convenient/accessible locations.

We request that PWDS drawings indicate design elevations for both perimeter and underfloor installation. MCR will provide calculations for sizing of permanent pumps, when required.

Upon completion of general excavation, scope and adequacy of the PWDS is to be re-evaluated. The installation of PWDS must be inspected by our office, prior to placement of filter stone.

Any design changes must be approved by the architect and reflected on mandatory as built drawings*.

* A copy of this section "Slab on grade and Permanent Water Drainage System" page should be posted at a site office as a permanent display.

A comprehensive three-year maintenance contract is recommended to ensure the

continued efficiency of the Permanent Drainage System. This contract would involve semi-annual inspections of ports, sump pits, weepers, and sand traps, etc. with the aim of proactively preventing any blockages and maintaining smooth operations. In cases of system clogs, it is suggested that vac trucks be employed for a complete system flush.

In addition, the elevator pit should be fully waterproofed as shown on Drawing No. 6.

13.0 UNDERGROUND UTILITIES

The problem areas of road settlement largely occur adjacent to manholes, catch basins and service crossings.

The on-site soil would generally be difficult to compact in these areas, and it is therefore recommended that a sand backfill be used in confined areas.

The backfill in the upper 1.0 m from the subgrade should be compacted to 98 % SPMDD. Below this zone, a 95 % SPMDD compaction is considered to be acceptable.

In areas where the founding material, below the proposed invert levels, consists of till, Granular Class B bedding is recommended. It should be noted, however, that the recommended type of bedding is to be placed on undisturbed subgrade.

If the construction methods will disturb the subgrade, i.e. excess hydrostatic pressure, piping, boulder removal etc., then higher-class bedding may have to be used.

In water-bearing sand and silt, the bedding should consist of 20 mm Crusher-Run Limestone meeting the O.P.S. Granular A specification requirements.

In addition, in soft and/or wet areas, higher- class bedding and/or Geotextile filter fabric may have to be used.

Subject to the encountered soil/rock conditions during excavation, all beddings and covers for the watermain and sewers should comply with and follow the Transportation and Works Standard Drawings provided by the City of Mississauga, the Public Works Standard Drawings provided by the Region of Peel, as enclosed in Appendix E, and Section 6 – Design Requirements of Site Plans, Rezoning, Land Division, and Condominium enclosed in Appendix F.

The excavations should be back sloped at 45 degrees in accordance with the Occupational Health and Safety Act.

The excavation in the fill, till and weathered shale bedrock can be carried out with a heavy-duty backhoe.

However, the contractor must be aware that the relatively harder/thicker limestone slabs interbedded in the shale bedrock may be encountered and require the use of jack-hammer or hoe ram.

For excavation above the water table, the anticipated water seepage, if any, into the excavations from the more permeable seams/lenses or surface run-off can be handled by conventional pumping methods.

A dewatering system such as well point system will be required for excavation below the groundwater level, subject to groundwater monitoring results and excavation condition.

The material to be used for backfilling in service trenches should be suitable for compaction, i.e. free of organic and with moisture content within 2 percent of the optimum moisture value.

The backfill material shall be compacted to at least 98 percent of the Standard Proctor Maximum Dry Density (SPMDD), or as per the City of Mississauga standards, if different.

If the service trench excavation/grading process will take place in winter months, granular materials should be used for subgrade/trench backfill due to frost effect.

The minimum bedding thickness should be at least 150 mm but this thickness should be increased by the pipe diameter and/or project's specifications. In addition, where the subgrade consists of fill material, the minimum bedding thickness should be increased to at least 250 mm.

14.0 PAVEMENT

The critical section of pavement will be at the transition from the infinitely rigid substructure onto soil/backfill subgrade.

As a result, we suggest that an approach type slab be considered to protect underground utilities (on the City's property) at the entrance/exit points, as shown on Drawing No. 7.

The approach slab will alleviate detrimental effects of dynamic loading/settlement/pavement depression in the backfill to the rigid substructure.

In pavement areas, any organic soil/topsoil/loose fill should be removed (subject to field inspection) and the base should be thoroughly proof-rolled. Any soft spots revealed during proof rolling should be sub-excavated and backfilled with suitable materials, compacted to 98 % SPMDD.

The natural soil is of a low permeability and frost susceptible. The design of pavement is therefore mainly influenced by the need to minimize the effects of freezing and thawing. Consequently, the ground must not be unnecessarily disturbed and drainage must be provided.

The subgrade should be sloped at least 2% to facilitate drainage towards catch basins and the final subgrade should be compacted before the pavement is constructed.

It should be noted that the subgrade should be dry, not spongy, during the compaction and construction of the [sub] base. Soft or spongy subgrade areas should also be sub-excavated and properly replaced with suitable approved backfill, compacted to 98 % SPMDD.

The subgrade will suffer strength regression if water is allowed to infiltrate into the mantle. Therefore, sub-drains should be installed (subject to field inspection) to prevent surface water from infiltrating into the road subgrade.

For construction of concrete curbs, it is recommended that the concrete curbs be constructed on a granular base of at least 300 mm thick of granular A material, subject

to pavement design. In addition, in soft and/or wet areas Geotextile filter fabric may have to be used.

All granular materials used in the pavement construction should be compacted to 100% of the Standard Proctor Maximum Dry Density. Asphaltic concrete layer should be compacted to the range of 92 to 96.5% of maximum relative density.

Should the proposed roads be constructed during wet seasons, the moisture content in the subgrade will probably be above the optimum, and this will render its shear strength inadequate to support paving equipment traffic. In the above case, the granular sub/base should be replaced by an equal thickness of compacted size 50 mm Crusher-Run Limestone.

Subject to the anticipated road traffic volumes/AADT/axle loads, the pavement structural design matrix as per City of Mississauga Standards presented in Table 2 and attached in Appendix G, must be followed.

Table 2 – Pavement Structural Design Matrix as Per City of Mississauga

Class of Road	Structural Road Component	Minimum Structural Road Depth (mm)			
Arterial / Industrial & Residential / Collector Local Industrial	Top Course Asphalt	40	40	40	40
	Base Course Asphalt	60	85	100	100
	Granular Base	200	200	200	200
	Granular Sub-Base	65	325	400	400
	Total Depth	**365**	**650**	**740**	**740**
Minor Local Industrial / Minor Residential / Collector	Top Course Asphalt	40	40	40	40
	Base Course Asphalt	50	85	100	100
	Granular Base	200	200	200	200
	Granular Sub-Base	0	225	325	360
	Total Depth	**290**	**580**	**665**	**700**
Residential (Minor Local/Local)	Top Course Asphalt	40	40	40	40
	Base Course Asphalt	50	85	85	100
	Granular Base	200	200	200	200
	Granular Sub-Base	0	175	235	250
	Total Depth	**290**	**500**	**560**	**590**
Frost Susceptibility Factor		1 (80% Sand)	3 5 7 (30% MAX. Silt; 30% MIN. Sand)	11 (55% MAX. Silt)	15 (+55% Silt)

In accordance with Section 6 – Design Requirements of Site Plans, Rezoning, Land Division, and Condominium (Appendix F), the following modifications presented in Table 3, along with other modifications specified in Section 6 – Design Requirements, should be applied to the design of internal private roadways:

Table 3 – Modification for Internal Private Roadways

Class of Road	Structural Road Component	Minimum Structural Road Depth (mm)
Internal Private Roadways	OPSS H.L.3	40
	OPSS H.L.8	65
	OPSS Granular 'A'	200
	OPSS Granular 'B'	250
Driveways To Individual, Single, Semi or Townhouse	H.L.3F	25
	H.L.8	50
	Granular 'A'	150

Please refer to Drawing No. 8 & 9 for a typical pavement structure above the garage roof slab.

Pavement designs, as per the City of Mississauga Standard Requirements, attached to this report as Appendices F and G, are adequate for this Development subject to site inspection during construction.

15.0 CHEMICAL PROPERTIES OF THE SOIL

One (1) sample from BH 101 (by MCR) was submitted to Bureau Veritas to be tested for common corrosion parameters, including pH, resistivity, oxygen reduction potential (redox), chlorides, sulfides and sulphate content. The laboratory test results are presented in Appendix D.

15.1 CORROSIVITY

The results regarding corrosivity of the subsurface soil and the corresponding points based on American Water Works Association (AWWA) document, "Polyethylene Encasement for Ductile-Iron Pipe Systems" ANSI/AWWA C105/A21.5-18, dated December 1, 2018, are presented in Table 3.

Table 4 – Results of Soil Corrosivity Potential

Sample ID	Depth (m)	Parameter	Measured Value	ANSI/AWWA Point Rating	Total ANSI/AWWA Points
BH101 SS5	2.44	Sulphide (%)	0.00015	2	13
		pH	7.83	0	
		Resistivity (ohm.cm)	1100	10	
		Redox Potential (mV)	260	0	
		Moisture (%)	14	1	

According to AWWA ten points indicates that soil is corrosive to ductile-iron pipe; protection is needed. It should be noted that the analytical results only provide an indication of the potential for corrosion.

15.2 SULPHATE ATTACK

The concentration of water-soluble sulphate content of the tested sample was 0.004% which is below the CSA Standard of 0.1% water-soluble sulphate (Table 3 - Additional Requirements for Concrete Subjected to Sulphate Attack from Canadian Standard CSA A23.1). Therefore, no particular protection measure, such as special concrete mix, against sulphate attack needs to be implemented.

16.0 GENERAL COMMENTS

The comments given in this report are intended only as guidance for design engineers and are subject to field verification during construction. As more specific subsurface information, with respect to conditions between boreholes becomes available during excavations on the subject site, this report should be updated.

Contractors bidding on or undertaking the work should decide on their own investigations, as well as their own interpretations of the factual borehole results. This concern specifically applies to the classification of the subsurface soil and the potential reuse of these soils on/off site.

The contractors must draw their own conclusions as to how the near surface and subsurface conditions may affect them.

The information provided in this report can be relied upon by the City of Mississauga. We trust this report contains information requested at this time. However, if any clarification is required or if we can be of further assistance, please call us.

Respectfully,

MCR Engineers Ltd.

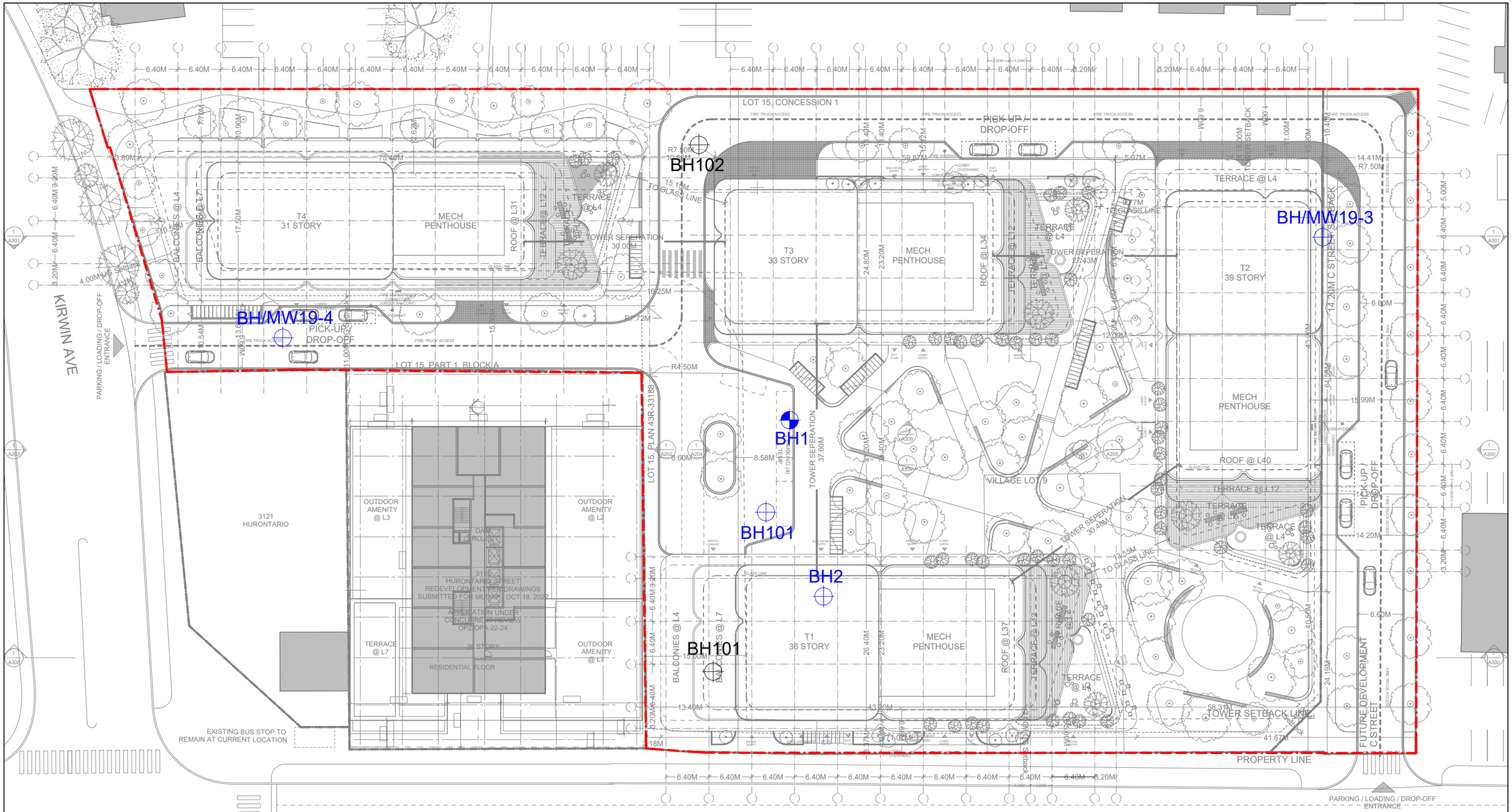
Report Prepared by

Salman Tavassoli, M.Sc., P.Eng.

Reviewed by

L.J. Rak, M.Eng., P.Eng.

DRAWINGS



LEGEND:

- PROPERTY BOUNDARY
- MONITORING WELL INSTALLED BY MCR, 2023
- BOREHOLE/MONITORING WELL BY OTHERS, 2019

Drawing Notes: Image drafted from property survey, Toronto Maps, Google Maps, and site inspections. Not for construction purposes.

PROJECT NORTH

TRUE NORTH

0 5 10 20

SCALE (m)

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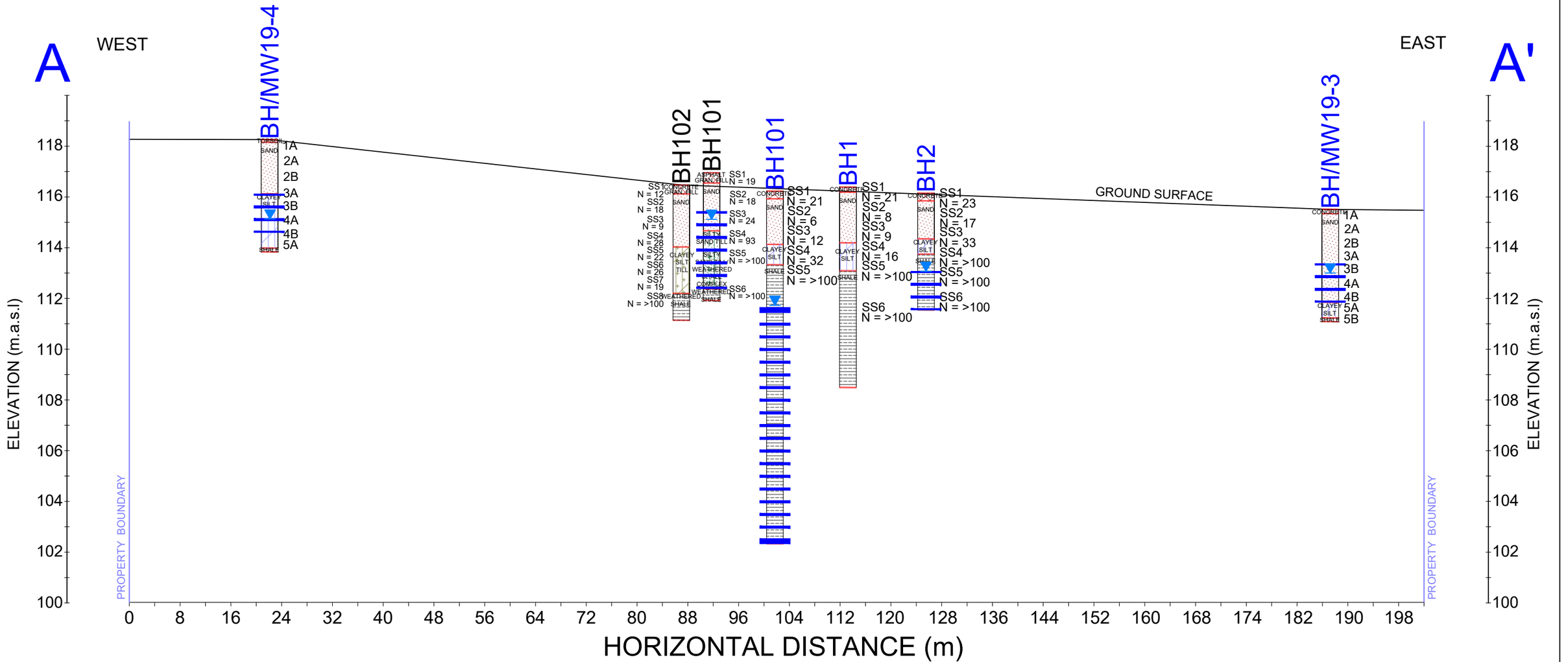
3085-3105 HURONTARIO STREET, MISSISSAUGA, ONTARIO

BOREHOLE LOCATION PLAN

Project No.	Date	Drawn by:	Checked by:	Drawing No.
GE5822	JULY 2024	CM	ST	1



LEGEND:

- SCREENED INTERVALS
- ELEVATION MARK (masl)
- APPROXIMATE WATER LEVEL
- FILL
- SAND
- SILTY SAND
- SHALE
- SILT
- CLAYEY SILT
- SANDY SILT

MCR ENGINEERS LTD
GEO-ENVIRONMENTAL CONSULTANTS

3085-3105 HURONTARIO STREET, MISSISSAUGA, ONTARIO

CROSS-SECTION A-A'

Project No.	Date	Drawn by:	Checked by:	Drawing No.
GE5822	AUGUST 2023	CM	ST	2

B

NORTH

SOUTH

B'

GROUND SURFACE

BH102

SS1 N = 12
SS2 N = 18
SS3 N = 9
SS4 N = 28
SS5 N = 22
SS6 N = 26
SS7 N = 19
SS8 N = >100

CONCRETE
GRANULAR FILL
SAND
CLAYEY SILT TILL
WEATHERED SHALE

BH/MW19-3

CONCRETE
SAND
1A
2A
2B
3A
3B
4A
4B
5A
CLAYEY SILT
SHALE
5B

BH/MW19-4

TOPSOIL
SAND
1A
2A
2B
CLAYEY SILT
3A
3B
4A
4B
SHALE
5A

BH1

CONCRETE
SAND
SS1 N = 21
SS2 N = 8
SS3 N = 9
SS4 N = 16
SS5 N = >100
CLAYEY SILT
SHALE
SS6 N = >100

BH101

CONCRETE
SAND
SS1 N = 21
SS2 N = 6
SS3 N = 12
SS4 N = 32
SS5 N = >100
CLAYEY SILT
SHALE

BH2

CONCRETE
SAND
SS1 N = 23
SS2 N = 17
SS3 N = 33
SS4 N = >100
SS5 N = >100
SS6 N = >100
CLAYEY SILT
SHALE

BH101

ASPHALT
GRANULAR FILL
SAND
SS1 N = 19
SS2 N = 18
SS3 N = 24
SILTY SAND TILL
SS4 N = 93
SILTY SAND WEATHERED COMPLEX
SS5 N = >100
WEATHERED SHALE
SS6 N = >100

PROPERTY BOUNDARY

PROPERTY BOUNDARY

ELEVATION (m.a.s.l)

118
116
114
112
110
108
106
104
102
100

0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100

HORIZONTAL DISTANCE (m)

LEGEND:

- SCREENED INTERVALS
- ELEVATION MARK (masl)
- APPROXIMATE WATER LEVEL
- FILL
- SAND
- SILTY SAND
- SHALE
- SILT
- CLAYEY SILT
- SANDY SILT

MCR ENGINEERS LTD
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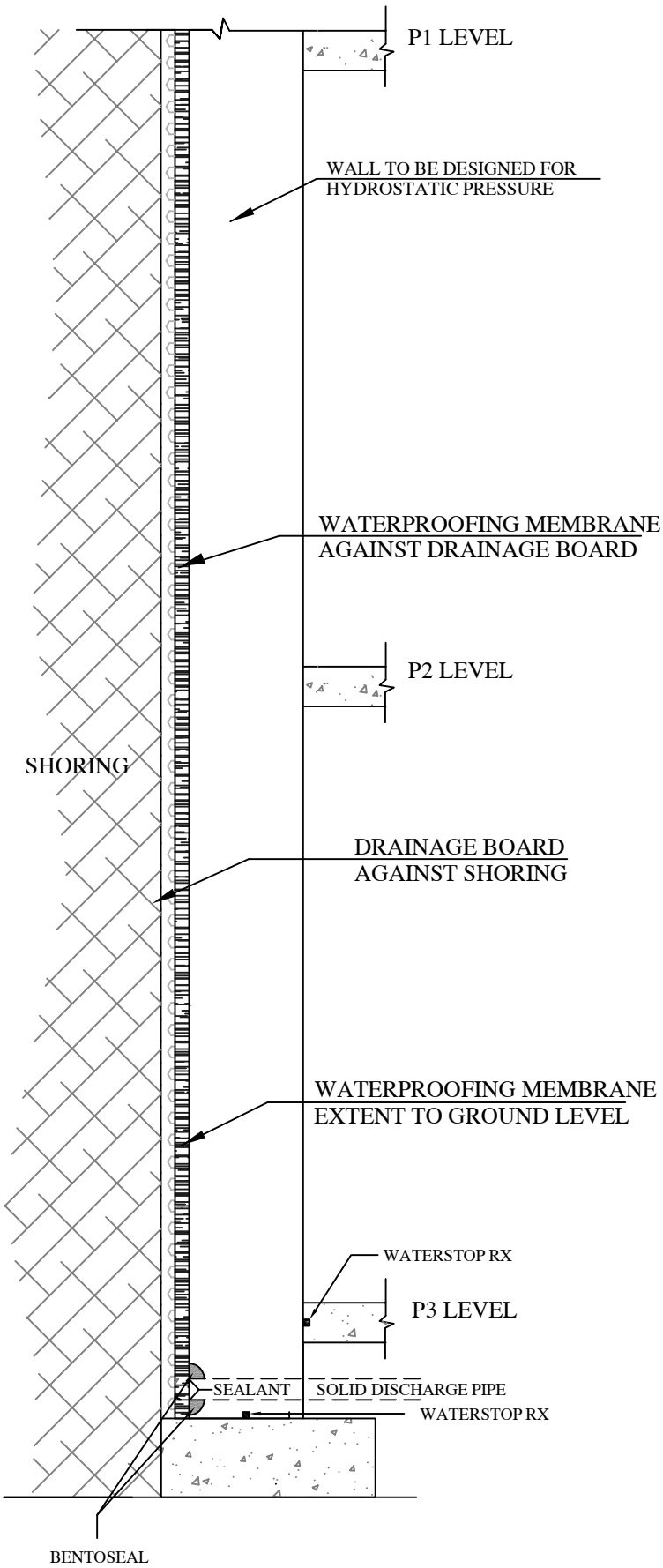
3085-3105 HURONTARIO STREET, MISSISSAUGA, ONTARIO

CROSS-SECTION B-B'

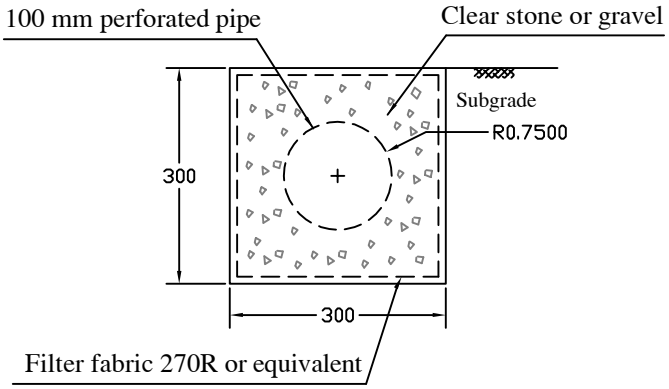
Project No.	Date	Drawn by:	Checked by:	Drawing No.
GE5822	AUGUST 2023	CM	ST	3

SUGGESTED EXTERIOR DRAINAGE AGAINST SHORING



NOTE:

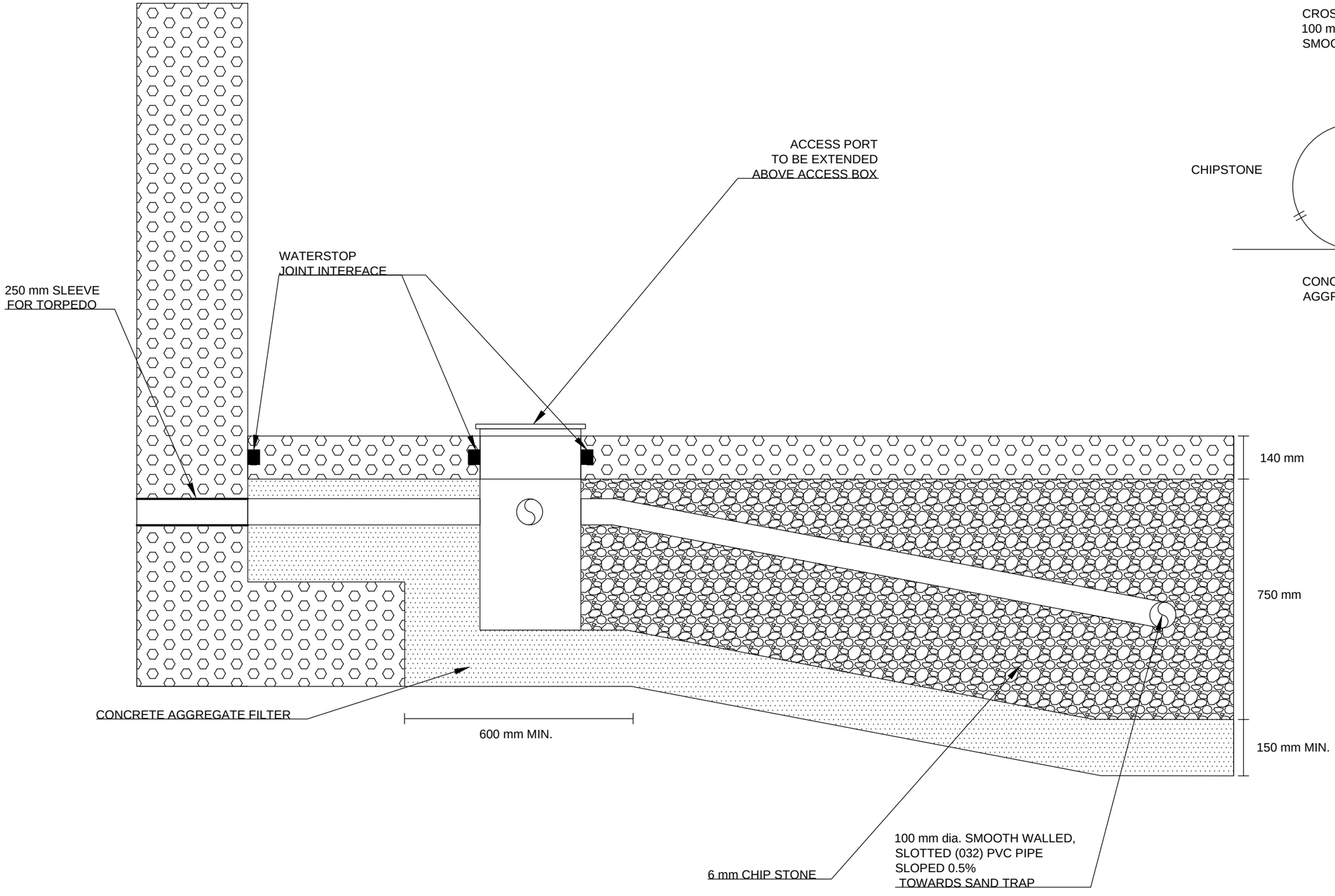
* All permanent drainage pipes must have Geotextile filter sleeve to prevent long term silting. To further minimize siltation of the drainage system, all drainage pipe connections must be solid PVC elbows and Ts, no "butt" end connections should be permitted.
* Perimeter collection pipe to be solid pipe.



DETAILS OF SUB-FLOOR DRAINS
TO BE PLACED IN PARALLEL ROWS 6- 8M (20'- 25')
CENTERLINE TO CENTERLINE.

MCR ENGINEERS LTD.
GEO-ENVIRONMENTAL CONSULTANTS

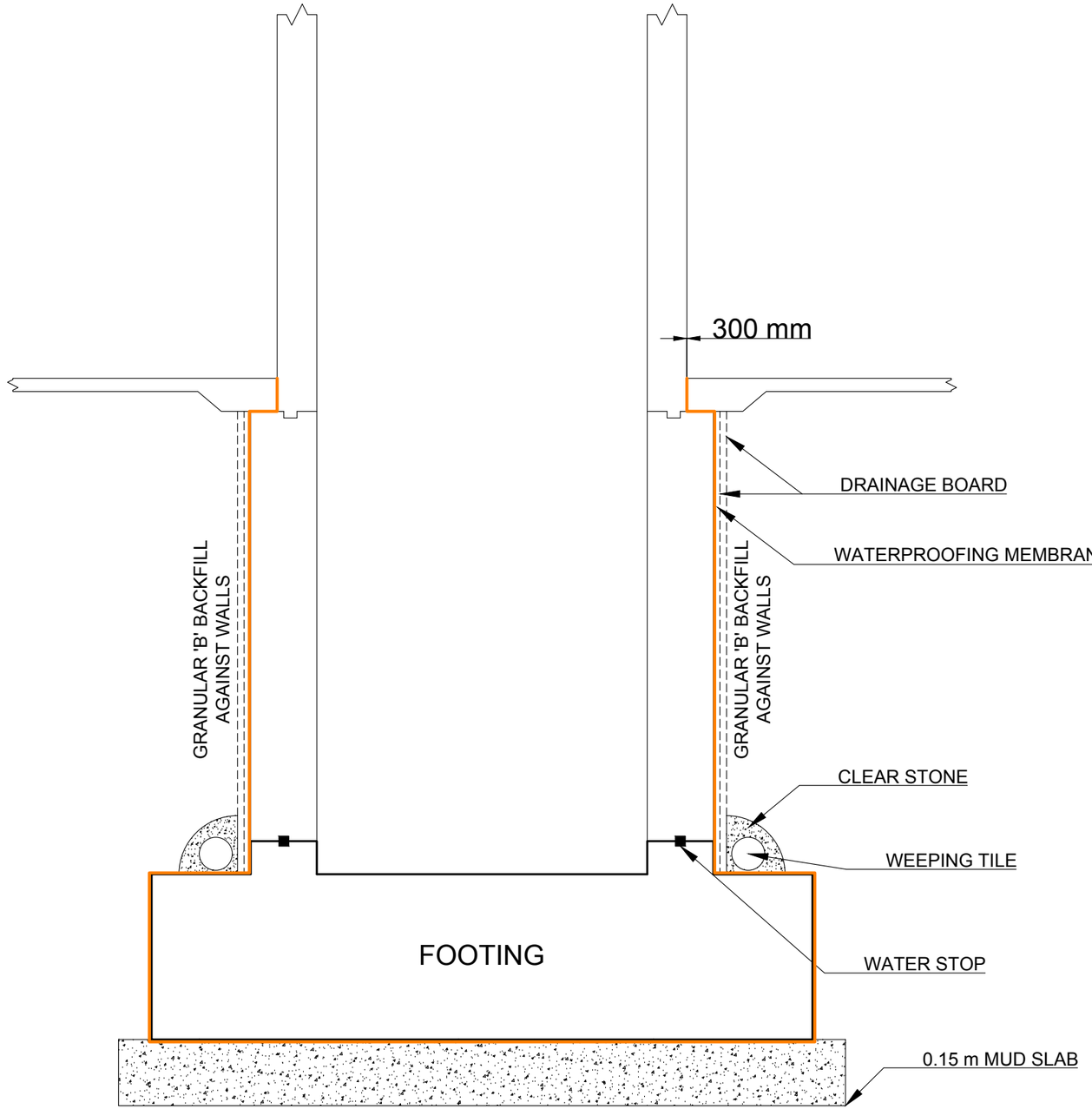
Project :	PROPOSED DEVELOPMENT		
Scale : N.T.S.	Date :	Drawing No. 4	



MCR | MCR ENGINEERS LTD
GEO-ENVIRONMENTAL CONSULTANTS

PRIVATE WATER DRAINAGE SYSTEM

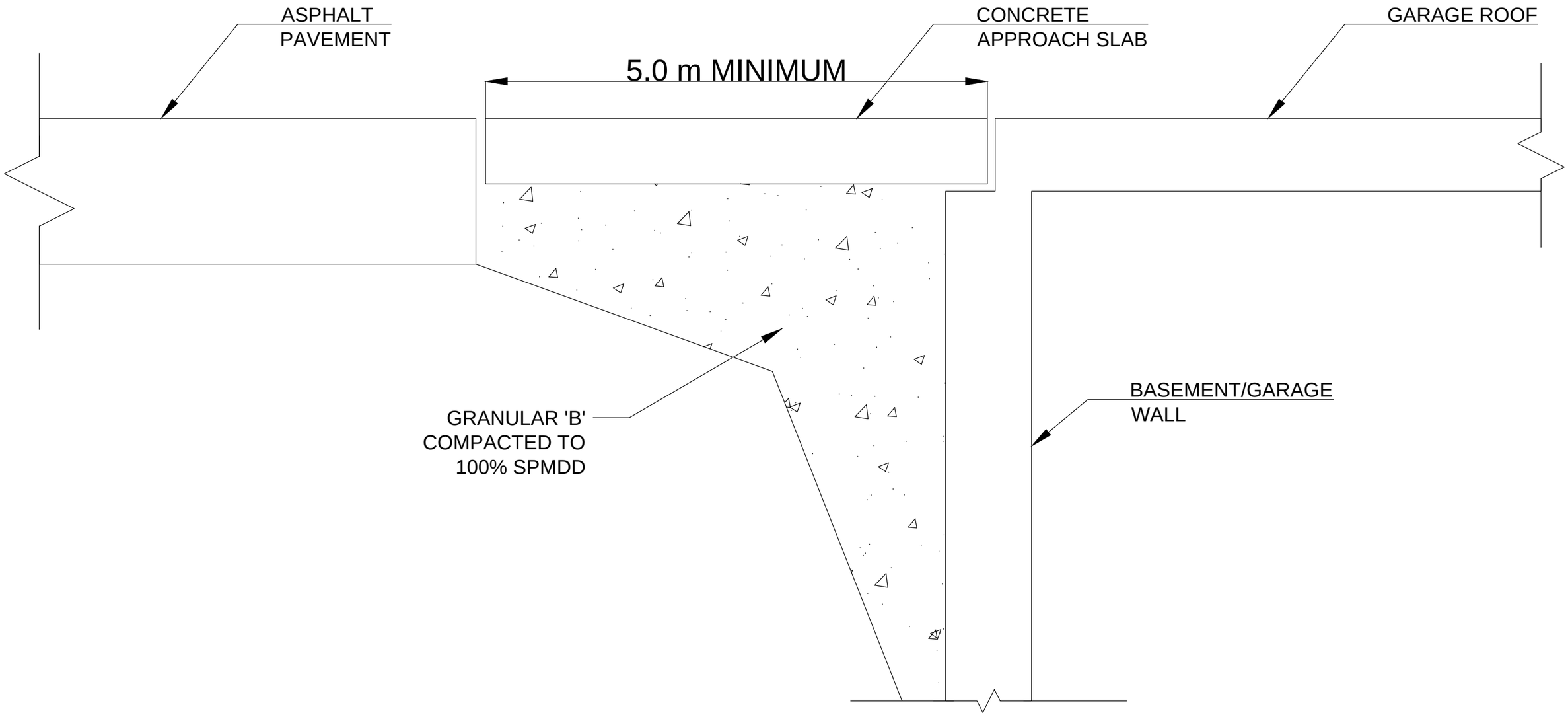
Scale:	Drawing No.
NTS	5



MCR ENGINEERS LTD
GEO-ENVIRONMENTAL CONSULTANTS

TYPICAL ELEVATOR PIT WATERPROOFING

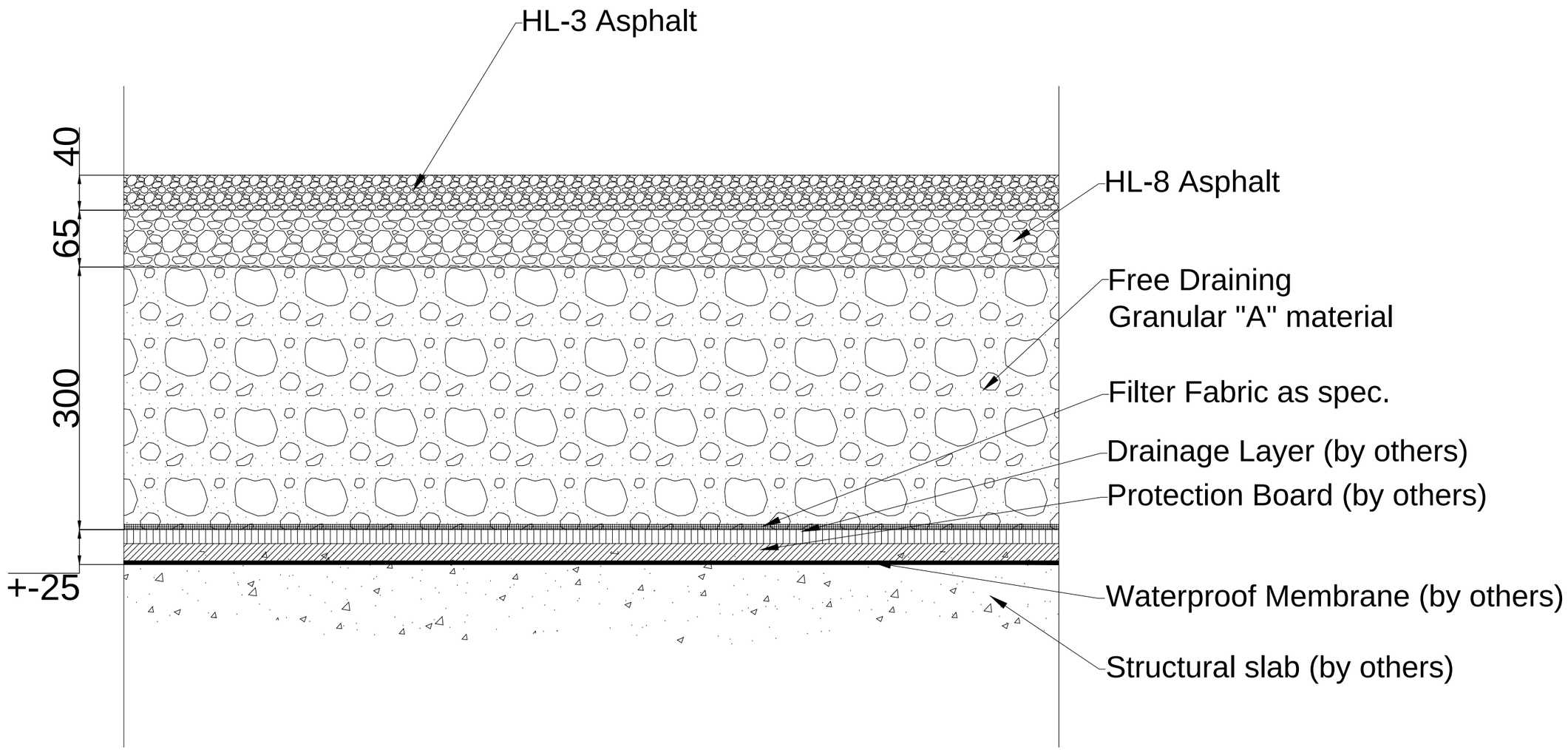
Scale:	Drawing No.
NTS	6



MCR ENGINEERS LTD
GEO-ENVIRONMENTAL CONSULTANTS

SUGGESTED APPROACH
SLAB DETAIL

Scale:	Drawing No.
NTS	7



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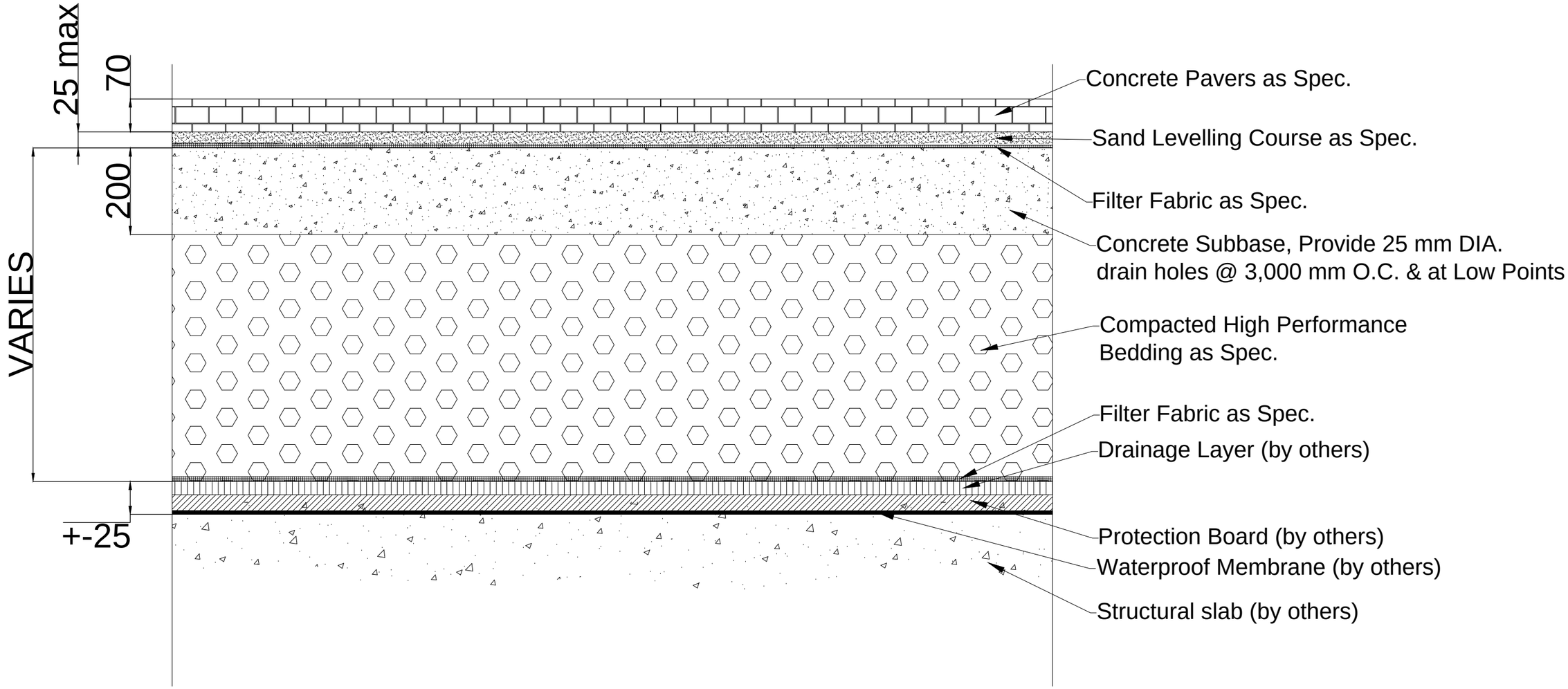
PAVEMENT ABOVE
GARAGE ROOF SLAB

Scale:	Drawing No.
NTS	8



MCR ENGINEERS LTD
GEO-ENVIRONMENTAL CONSULTANTS

PAVEMENT ABOVE
GARAGE ROOF SLAB

Scale:	Drawing No.
NTS	9

APPENDIX A

3085 HURONTARIO ST

ARCHITECTURAL DRAWINGS		
SHEET	**DRAWING TITLE**	**SCALE**
GENERAL		
A-001	COVER SHEET & DRAWING LIST	N/A
A-010	SURVEY & DEVELOPMENT SITE PLAN & PHASING PLAN	SEE DWG
A-011	CONTEXT PLAN	1:800
A-012	SITE PLAN	1:300
A-013	SIMPLIFIED SITE PLAN	1:300
A-030	PROJECT STATISTICS	N/A
A-040	PERSPECTIVE RENDERINGS	N/A
A-041	PERSPECTIVE RENDERINGS	N/A
PLANS		
A-100	LEVEL P3 PLAN	1:300
A-101	LEVEL P2 PLAN	1:300
A-102	LEVEL P1 PLAN	1:300
A-103	LEVEL P1 MEZZANINE PLAN	1:300
A-104	GROUND LEVEL PLAN	1:300
A-105	GROUND LEVEL MEZZANINE PLAN	1:300
A-106	LEVEL 2 PLAN	1:300
A-107	LEVEL 3 PLAN	1:300
A-108	LEVEL 4 PLAN	1:300
A-109	LEVEL 5 PLAN	1:300
A-110	LEVEL 6 PLAN	1:300
A-111	LEVEL 7 PLAN	1:300
A-112	LEVEL 8-11 PLAN	1:300
A-113	LEVEL 12 PLAN	1:300
A-114	TYPICAL TOWER PLAN	1:300
A-115	MECHANICAL PENTHOUSE PLAN	1:300
A-116	ROOF LEVEL PLAN	1:300
EXTERIOR ELEVATIONS		
A-200	SOUTH ELEVATION 1	1:300
A-201	SOUTH ELEVATION 2	1:300
A-202	SOUTH ELEVATION 3	1:300
A-203	NORTH ELEVATION 1	1:300
A-204	NORTH ELEVATION 2	1:300
A-205	NORTH ELEVATION 3	1:300
A-206	EAST ELEVATION 1	1:300
A-207	EAST ELEVATION 2	1:300
A-208	WEST ELEVATION 1	1:300
A-209	WEST ELEVATION 2	1:300
EXTERIOR SECTIONS		
A-300	SECTION 1	1:300
A-301	SECTION 2	1:300
A-302	SECTION 3	1:300
A-303	SECTION 4	1:300
A-304	SECTION 5	1:300

PRELIMINARY
NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	DATE
1	ISSUED FOR RE-ZONING RESUBMISSION	2024.09.18

OWNER
EQUITY THREE HOLDINGS INC.
3300 BLOOR STREET WEST, SUITE 1800
TORONTO, ON M8X 2X2
T 905 907 8888
MATTAMY HOMES CANADA

DESIGN ARCHITECT
3XN USA LLC
141 FLUSHING AVE, BLDG 77, FL 12, STE 07
BROOKLYN, NY 11205
T +1 646 843 9770

ARCHITECT OF RECORD
KIRKOR
20 DE BOERS DR. SUITE 400
TORONTO ON M3J 0H1
T 416 665 6060

CONSULTANTS
NAK
421 RONCESVALLES AVE
TORONTO, ON M6R 2N1
JABLONSKY AST AND PARTNERS
3 CONCORDE GATE, 4TH FLOOR
TORONTO, ON M3C 3N7
SMITH + ANDERSEN
1100 – 100 SHEPPARD AVE. EAST
TORONTO, ON M2N 6N5
SOBERMAN ENGINEERING
60 ST. CLAIR AVENUE EAST, SUITE 806
TORONTO, ON M4T 1N5
SPANIER GROUP
786 ST CLAIR AVE W SUITE B
TORONTO, ON M6C 1B6
URBANTECH
2030 BRISTOL CIRCLE, SUITE 105
OAKVILLE, ON L6H 0H2
WALMSLEY ENVIRONMENTAL
103-30 OLD MILL ROAD
ETOBICOKE, ON M8X 0A5
FOOTPRINT
100 SHEPPARD AVE E, SUITE 1100
TORONTO, ON M2N 6N5
BA CONSULTING GROUP
95 ST. CLAIR AVE. W, SUITE 1000
TORONTO, ON M4V 1N6
GRADIENT WIND ENGINEERING
127 WALGREEN ROAD
OTTAWA, ON K0A 1L0
GLEN SCHNARR & ASSOCIATES
10 KINGSBRIDGE GARDEN CIRCLE, SUITE 700
MISSISSAUGA, ON L5R 3K6
PRIMARY ENGINEERING
EAST TOWER, 77 CITY CENTRE DR, SUITE 501
MISSISSAUGA, ON L5B 1M5
HGC ENGINEERING
2000 ARGENTIA ROAD, PLAZA 1, SUITE 203
MISSISSAUGA, ON L5N 1P7

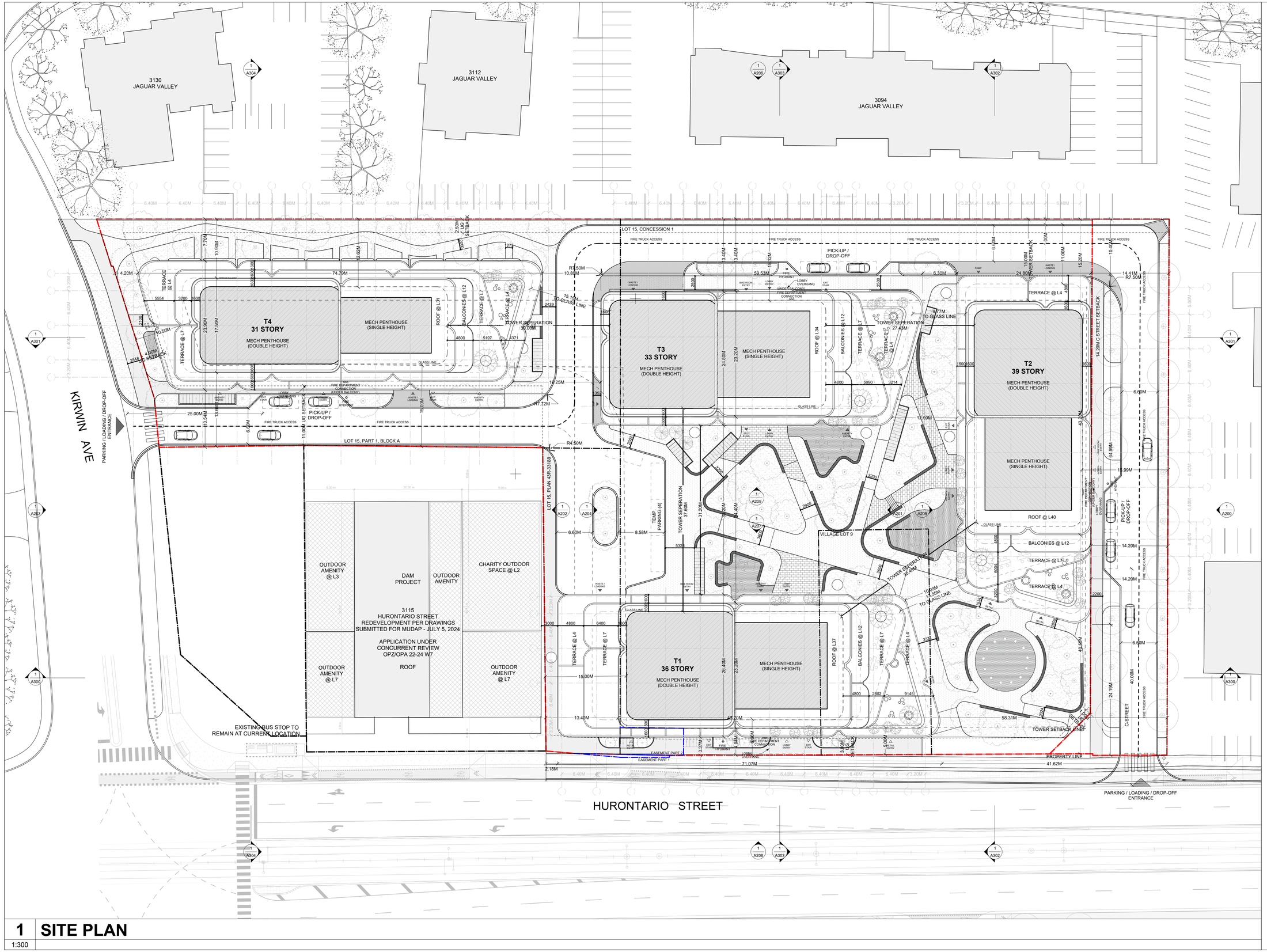
3085 HURONTARIO ST

3085 HURONTARIO ST. MISSISSAUGA
ON L5A 2G9

DRAWING TITLE

TITLE SHEET & DRAWING LIST

PROJECT NUMBER	850010
SCALE	NO SCALE
SHEET SIZE	ARCH D
DRAWING NO.	**A001**
DATE	2024.09.18
REVIEWED BY	DKI



1 SITE PLAN

1:300

LEGEND

- ACCESS
- SITE BOUNDARY
- EASEMENT BOUNDARY
- LOT BOUNDARY

N

THE PART(S) ENUMERATED HEREUNDER REFERS TO LAND IN WHICH ALL RIGHT, TITLE AND INTEREST ASSOCIATED WITH THE HURONTARIO LRT PROJECT IS EXPROPRIATED BY METROLINX, RESERVING A RIGHT OF WAY IN FAVOUR OF THE OWNER OF THE REMAINING LANDS UNTIL SUCH TIME AS THE LANDS HAVE BEEN DEDICATED FOR PUBLIC HIGHWAY PURPOSES.

PART	LOT	CONCESSION	PIN	NAME OF MOST RECENT TRANSFEREE	AREA
1	PART OF 15	1 NORTH OF DUNDAS STREET	PART OF 13157-0181(LT)	EQUITY THREE HOLDINGS INC.	6 SQ M

THE PART(S) ENUMERATED HEREUNDER REFERS TO LAND IN WHICH A TEMPORARY LIMITED INTEREST FOR THE PURPOSES OF A FREE, UNINTERRUPTED AND UNOBSTRUCTED TEMPORARY EASEMENT IN GROSS OR RIGHTS IN THE NATURE OF A TEMPORARY EASEMENT IN GROSS, ON AN EXCLUSIVE BASIS FOR A TERM OF SIXTY (60) DAYS COMMENCING ON NO LESS THAN THREE (3) MONTHS WRITTEN NOTICE, BUT EXPIRING IN ANY EVENT ON DECEMBER 31, 2025 ASSOCIATED WITH THE HURONTARIO LRT PROJECT IS EXPROPRIATED BY METROLINX.

PART	LOT	CONCESSION	PIN	NAME OF MOST RECENT TRANSFEREE	AREA
2	PART OF 15	1 NORTH OF DUNDAS STREET	PART OF 13157-0181(LT)	EQUITY THREE HOLDINGS INC.	59 SQ M

PRELIMINARY
NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	DATE
1	ISSUED FOR RE-ZONING RESUBMISSION	2024.09.18

OWNER
EQUITY THREE HOLDINGS INC.
3300 BLOOR STREET WEST, SUITE 1800
TORONTO, ON M8X 2X2
T 905 907 8888
MATTAMY HOMES CANADA

DESIGN ARCHITECT
3XN USA LLC
141 FLUSHING AVE, BLDG 77, FL 12, STE 07
BROOKLYN, NY 11205
T +1 646 843 9770

ARCHITECT OF RECORD
KIRKOR
20 DE BOERS DR. SUITE 400
TORONTO ON M3J 0H1
T 416 665 6060

CONSULTANTS
NAK
421 RONCESVALLES AVE
TORONTO, ON M6R 2N1
JABLONSKY AST AND PARTNERS
3 CONCORDE GATE, 4TH FLOOR
TORONTO, ON M3C 3N7
SMITH + ANDERSEN
1100 – 100 SHEPPARD AVE. EAST
TORONTO, ON M2N 6N5
SOBERMAN ENGINEERING
60 ST. CLAIR AVENUE EAST, SUITE 806
TORONTO, ON M4T 1N5
SPANIER GROUP
786 ST CLAIR AVE W SUITE B
TORONTO, ON M6C 1B6
URBANTECH
2030 BRISTOL CIRCLE, SUITE 105
OAKVILLE, ON L6H 0H2
WALMSLEY ENVIRONMENTAL
103-30 OLD MILL ROAD
ETOBICOKE, ON M8X 0A5
FOOTPRINT
100 SHEPPARD AVE E, SUITE 1100
TORONTO, ON M2N 6N5
BA CONSULTING GROUP
95 ST. CLAIR AVE. W, SUITE 1000
TORONTO, ON M4V 1N6
GRADIENT WIND ENGINEERING
127 WALGREEN ROAD
OTTAWA, ON K0A 1L0
GLEN SCHNARR & ASSOCIATES
10 KINGSBRIDGE GARDEN CIRCLE, SUITE 700
MISSISSAUGA, ON L5R 3K6
PRIMARY ENGINEERING
EAST TOWER, 77 CITY CENTRE DR, SUITE 501
MISSISSAUGA, ON L5B 1M5
HGC ENGINEERING
2000 ARGENTIA ROAD, PLAZA 1, SUITE 203
MISSISSAUGA, ON L5N 1P7

3085 HURONTARIO ST

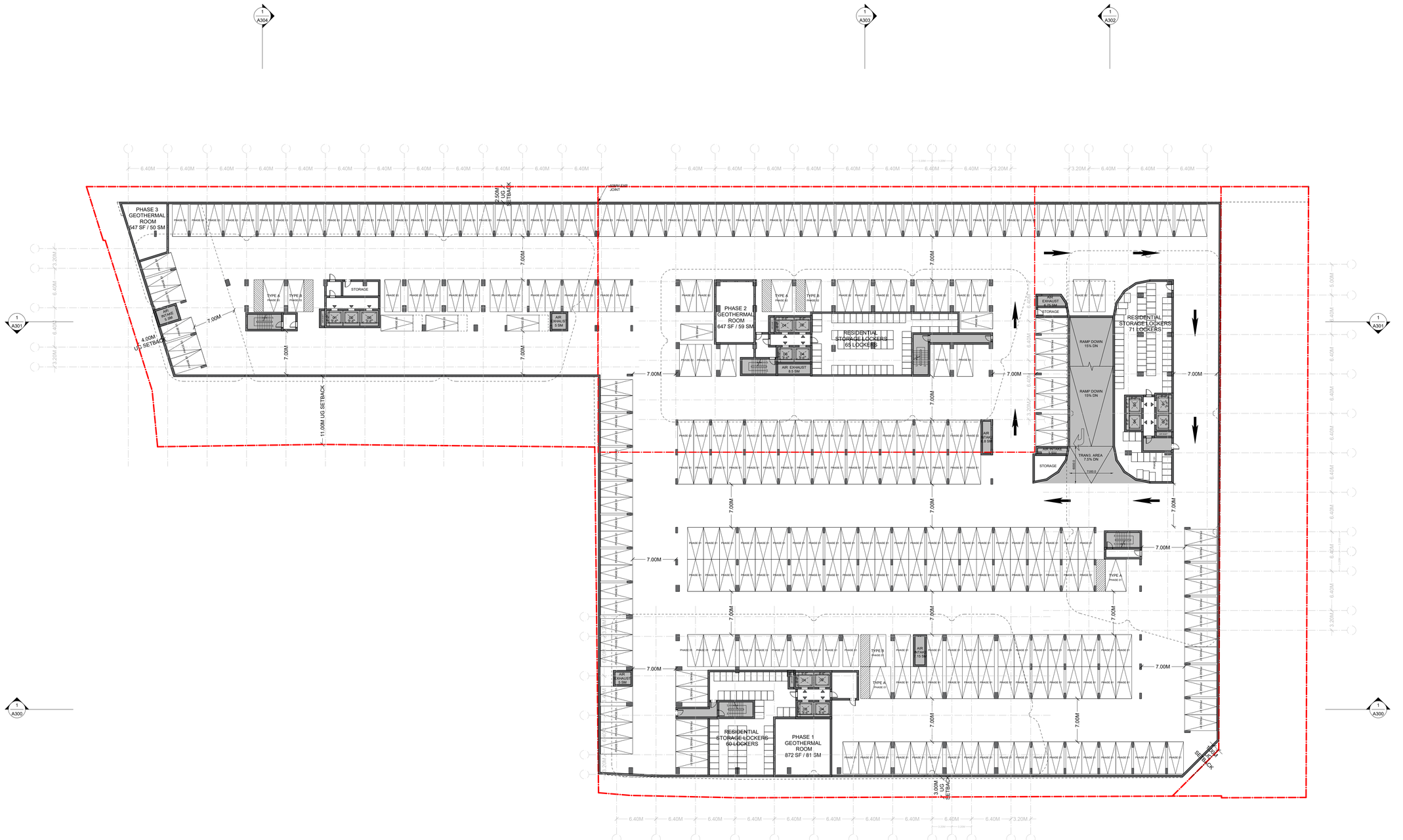
3085 HURONTARIO ST. MISSISSAUGA
ON L5A 2G9

DRAWING TITLE

SITE PLAN

.

PROJECT NUMBER	850010
SCALE	1:300
SHEET SIZE	ARCH D
DRAWING NO.	**A012**
DATE	2024.09.18
REVIEWED BY	DKI



PARKING

POTENTIAL CAR SHARE STALLS

N

TYPICAL CAR PARKING SPACE

TYPE A CAR PARKING SPACE

TYPE B CAR PARKING SPACE

PRELIMINARY
NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	DATE
1	ISSUED FOR RE-ZONING RESUBMISSION	2024.09.18

OWNER
EQUITY THREE HOLDINGS INC.
3300 BLOOR STREET WEST, SUITE 1800
TORONTO, ON M8X 2X2
T 905 907 8888
MATTAMY HOMES CANADA

DESIGN ARCHITECT
3XN USA LLC
141 FLUSHING AVE, BLDG 77, FL 12, STE 07
BROOKLYN, NY 11205
T +1 646 843 9770

ARCHITECT OF RECORD
KIRKOR
20 DE BOERS DR. SUITE 400
TORONTO ON M3J 0H1
T 416 665 6060

CONSULTANTS
NAK
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3 CONCORDE GATE, 4TH FLOOR
TORONTO, ON M3C 3N7
SMITH + ANDERSEN
1100 – 100 SHEPPARD AVE. EAST
TORONTO, ON M2N 6N5
SOBERMAN ENGINEERING
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TORONTO, ON M4T 1N5
SPANIER GROUP
786 ST CLAIR AVE W SUITE B
TORONTO, ON M6C 1B6
URBANTECH
2030 BRISTOL CIRCLE, SUITE 105
OAKVILLE, ON L6H 0H2
WALMSLEY ENVIRONMENTAL
103-30 OLD MILL ROAD
ETOBICOKE, ON M8X 0A5
FOOTPRINT
100 SHEPPARD AVE E, SUITE 1100
TORONTO, ON M2N 6N5
BA CONSULTING GROUP
95 ST. CLAIR AVE. W, SUITE 1000
TORONTO, ON M4V 1N6
GRADIENT WIND ENGINEERING
127 WALGREEN ROAD
OTTAWA, ON K0A 1L0
GLEN SCHNARR & ASSOCIATES
10 KINGSBRIDGE GARDEN CIRCLE, SUITE 700
MISSISSAUGA, ON L5R 3K6
PRIMARY ENGINEERING
EAST TOWER, 77 CITY CENTRE DR, SUITE 501
MISSISSAUGA, ON L5B 1M5
HGC ENGINEERING
2000 ARGENTIA ROAD, PLAZA 1, SUITE 203
MISSISSAUGA, ON L5N 1P7

3085 HURONTARIO ST

3085 HURONTARIO ST. MISSISSAUGA
ON L5A 2G9

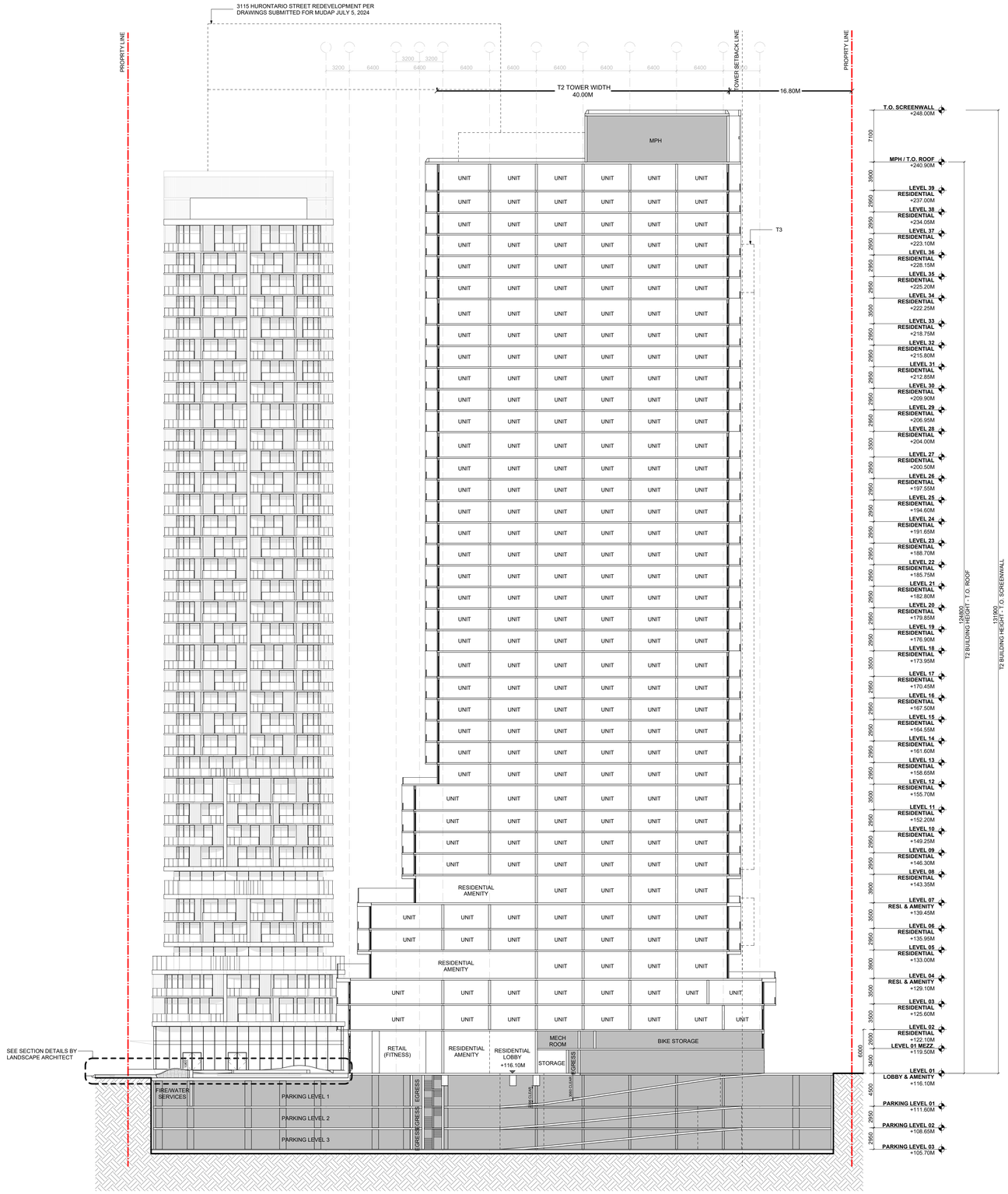
DRAWING TITLE

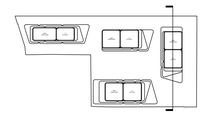
PARKING LEVEL 3 FLOOR PLAN

PROJECT NUMBER	850010
SCALE	1:300
SHEET SIZE	ARCH D
DRAWING NO.	**A100**
DATE	2024.09.18
REVIEWED BY	DKI

1 PARKING LEVEL 3 FLOOR PLAN

1:300





KEY PLAN

PRELIMINARY NOT FOR CONSTRUCTION		
1	ISSUED FOR RE-ZONING RESUBMISSION	2024.09.18
ISSUE	DESCRIPTION	DATE

OWNER
EQUITY THREE HOLDINGS INC.
3300 BLOOR STREET WEST, SUITE 1800
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3XN USA LLC
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EAST TOWER, 77 CITY CENTRE DR, SUITE 501
MISSISSAUGA, ON L5B 1M5
HGC ENGINEERING
2000 ARGENTIA ROAD, PLAZA 1, SUITE 203
MISSISSAUGA, ON L5N 1P7

3085 HURONTARIO ST

3085 HURONTARIO ST. MISSISSAUGA
ON L5A 2G9

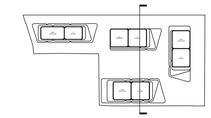
DRAWING TITLE

SECTION 3

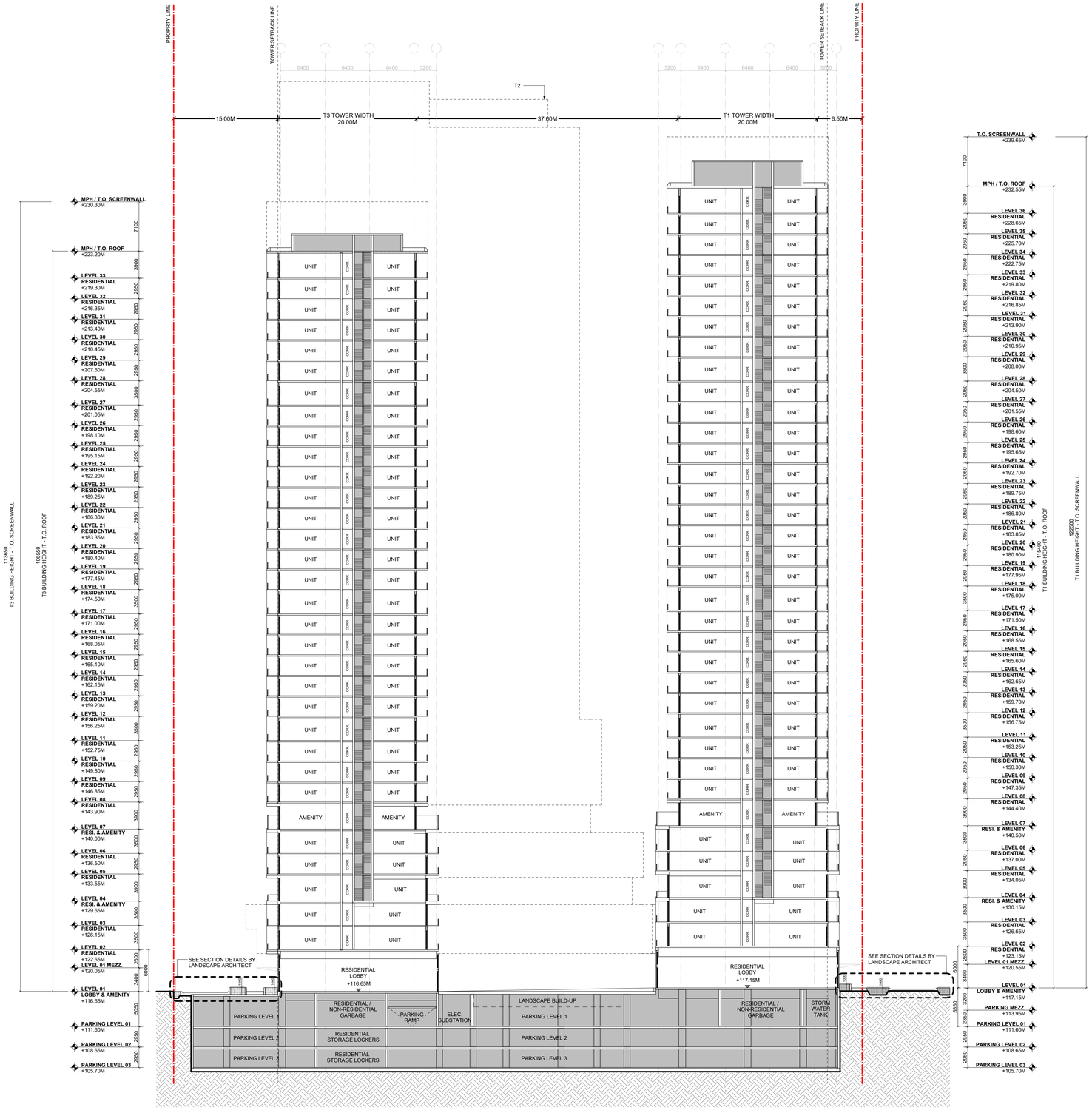
.

PROJECT NUMBER	850010
SCALE	1:300
SHEET SIZE	ARCH D
DRAWING NO.	**A302**
DATE	2024.09.18
REVIEWED BY	DKI

1 SECTION 3
1:300



KEY PLAN



1 SECTION 4

1:300

PRELIMINARY
NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	DATE
1	ISSUED FOR RE-ZONING RESUBMISSION	2024.09.18

OWNER
EQUITY THREE HOLDINGS INC.
3300 BLOOR STREET WEST, SUITE 1800
TORONTO, ON M8X 2X2
T 905 907 8888
MATTAMY HOMES CANADA

DESIGN ARCHITECT
3XN USA LLC
141 FLUSHING AVE, BLDG 77, FL 12, STE 07
BROOKLYN, NY 11205
T +1 646 843 9770

ARCHITECT OF RECORD
KIRKOR
20 DE BOERS DR. SUITE 400
TORONTO ON M3J 0H1
T 416 665 6060

CONSULTANTS
NAK
421 RONCESVALLES AVE
TORONTO, ON M6R 2N1
JABLONSKY AST AND PARTNERS
3 CONCORDE GATE, 4TH FLOOR
TORONTO, ON M3C 3N7
SMITH + ANDERSEN
1100 – 100 SHEPPARD AVE. EAST
TORONTO, ON M2N 6N5
SOBERMAN ENGINEERING
60 ST. CLAIR AVENUE EAST, SUITE 806
TORONTO, ON M4T 1N5
SPANIER GROUP
786 ST CLAIR AVE W SUITE B
TORONTO, ON M6C 1B6
URBANTECH
2030 BRISTOL CIRCLE, SUITE 105
OAKVILLE, ON L6H 0H2
WALMSLEY ENVIRONMENTAL
103-30 OLD MILL ROAD
ETOBICOKE, ON M8X 0A5
FOOTPRINT
100 SHEPPARD AVE E, SUITE 1100
TORONTO, ON M2N 6N5
BA CONSULTING GROUP
95 ST. CLAIR AVE. W, SUITE 1000
TORONTO, ON M4V 1N6
GRADIENT WIND ENGINEERING
127 WALGREEN ROAD
OTTAWA, ON K0A 1L0
GLEN SCHNARR & ASSOCIATES
10 KINGSBRIDGE GARDEN CIRCLE, SUITE 700
MISSISSAUGA, ON L5R 3K6
PRIMARY ENGINEERING
EAST TOWER, 77 CITY CENTRE DR, SUITE 501
MISSISSAUGA, ON L5B 1M5
HGC ENGINEERING
2000 ARGENTIA ROAD, PLAZA 1, SUITE 203
MISSISSAUGA, ON L5N 1P7

3085 HURONTARIO ST

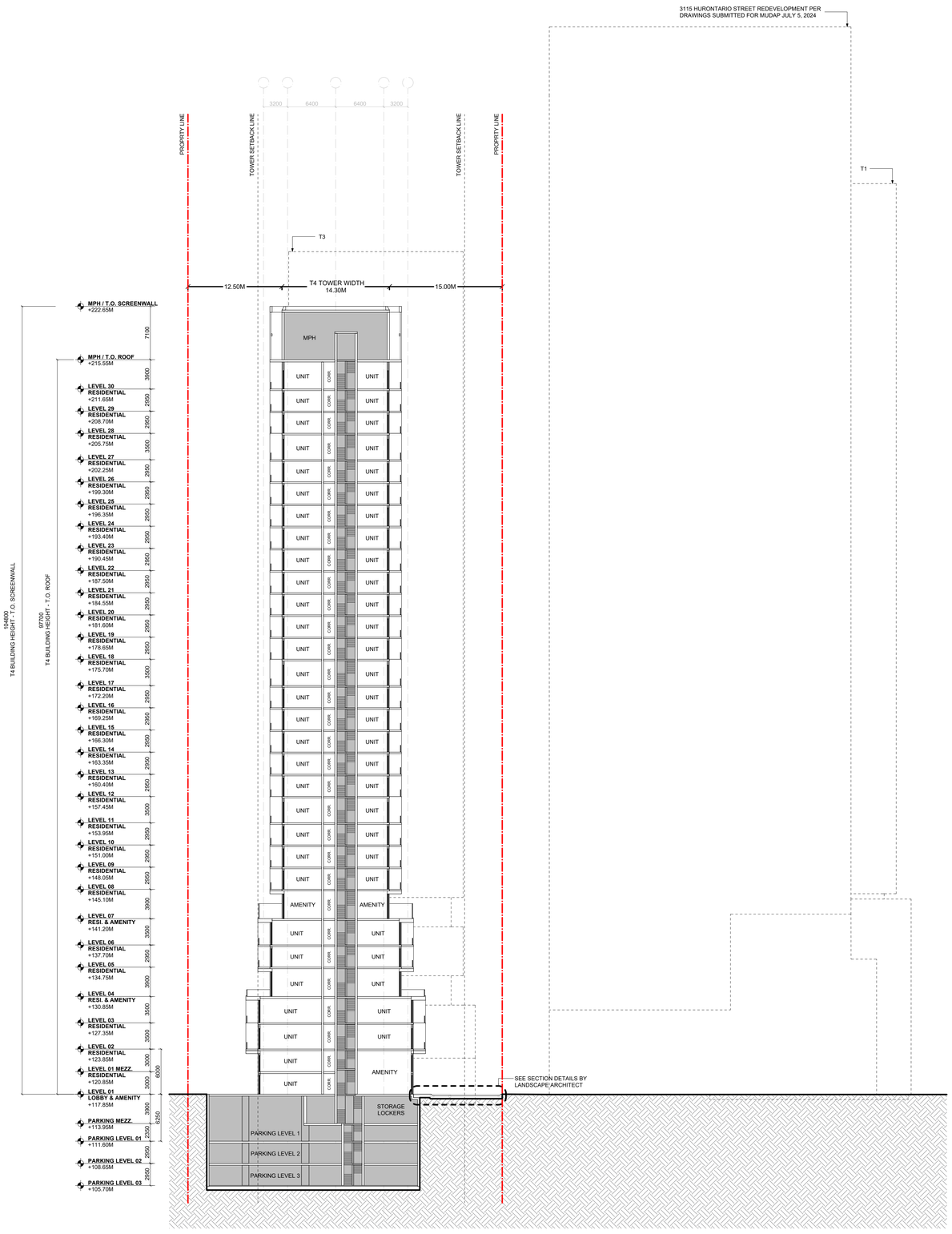
3085 HURONTARIO ST. MISSISSAUGA
ON L5A 2G9

DRAWING TITLE

SECTION 4

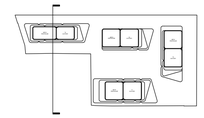
.

PROJECT NUMBER	850010
SCALE	1:300
SHEET SIZE	ARCH D
DRAWING NO.	**A303**
DATE	2024.09.18
REVIEWED BY	DKI



1 SECTION 5

1:300



KEY PLAN

PRELIMINARY
NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	DATE
1	ISSUED FOR RE-ZONING RESUBMISSION	2024.09.18

OWNER
EQUITY THREE HOLDINGS INC.
3300 BLOOR STREET WEST, SUITE 1800
TORONTO, ON M8X 2X2
T 905 907 8888
MATTAMY HOMES CANADA

DESIGN ARCHITECT
3XN USA LLC
141 FLUSHING AVE, BLDG 77, FL 12, STE 07
BROOKLYN, NY 11205
T +1 646 843 9770

ARCHITECT OF RECORD
KIRKOR
20 DE BOERS DR. SUITE 400
TORONTO ON M3J 0H1
T 416 665 6060

CONSULTANTS
NAK
421 RONCESVALLES AVE
TORONTO, ON M6R 2N1
JABLONSKY AST AND PARTNERS
3 CONCORDE GATE, 4TH FLOOR
TORONTO, ON M3C 3N7
SMITH + ANDERSEN
1100 – 100 SHEPPARD AVE. EAST
TORONTO, ON M2N 6N5
SOBERMAN ENGINEERING
60 ST. CLAIR AVENUE EAST, SUITE 806
TORONTO, ON M4T 1N5
SPANIER GROUP
786 ST CLAIR AVE W SUITE B
TORONTO, ON M6C 1B6
URBANTECH
2030 BRISTOL CIRCLE, SUITE 105
OAKVILLE, ON L6H 0H2
WALMSLEY ENVIRONMENTAL
103-30 OLD MILL ROAD
ETOBICOKE, ON M8X 0A5
FOOTPRINT
100 SHEPPARD AVE E, SUITE 1100
TORONTO, ON M2N 6N5
BA CONSULTING GROUP
95 ST. CLAIR AVE. W, SUITE 1000
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GRADIENT WIND ENGINEERING
127 WALGREEN ROAD
OTTAWA, ON K0A 1L0
GLEN SCHNARR & ASSOCIATES
10 KINGSBRIDGE GARDEN CIRCLE, SUITE 700
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PRIMARY ENGINEERING
EAST TOWER, 77 CITY CENTRE DR, SUITE 501
MISSISSAUGA, ON L5B 1M5
HGC ENGINEERING
2000 ARGENTIA ROAD, PLAZA 1, SUITE 203
MISSISSAUGA, ON L5N 1P7

3085 HURONTARIO ST

3085 HURONTARIO ST. MISSISSAUGA
ON L5A 2G9

DRAWING TITLE

SECTION 5

.

PROJECT NUMBER	850010
SCALE	1:300
SHEET SIZE	ARCH D
DRAWING NO.	**A304**
DATE	2024.09.18
REVIEWED BY	DKI

APPENDIX B

RECORD OF BOREHOLE 101

PROJECT : GE5822
LOCATION : 3085-3105 Hurontario Street, Mississauga, Ontario
STARTED : March 16, 2023
COMPLETED : March 16, 2023

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✚ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		116.95							
	POWER BORING / HOLLOW STEM AUGER	150mm ASPHALT		116.80							Flush Mount Cover
		250mm GRANULAR FILL		0.15	1	SS	19				
		SAND: fine, brown, moist, compact.		116.55 0.40	2	SS	18				Bentonite
					3	SS	24				116.04
2											1.52 m Long 50 mm ID PVC Riser
		SILTY SAND TILL: trace of shale fragments and gravel, brown, wet, very dense.		114.66 2.29	4	SS	93				
		SILTY SAND TILL/WEATHERED SHALE COMPLEX: trace of gravel, brown, wet, very dense.		113.90 3.05	5	SS	>100				Silica Sand
4											3.05 m Long 50 mm ID Well Screen
		WEATHERED SHALE: grey, moist.		112.38 4.57	6	SS	>100				112.38
		End of Borehole		111.92 5.03							
6		Note: 1) Water level was not measured on completion of drilling. 2) Water level was measured at 1.83 mbgs on Apr. 11, 2023.									

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 1.83 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : RS
CHECKED : CM

MCR LOG ENVIRONMENTAL 5822.GPJ 4-13-23

RECORD OF BOREHOLE 102

PROJECT : GE5822
LOCATION : 3085-3105 Hurontario Street, Mississauga, Ontario
STARTED : March 15, 2023
COMPLETED : March 16, 2023

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	ORGANIC VAPOUR READINGS (ppm) ⊗ 100 200 300 400 / % LEL - (hexane) □ 20 40 60 80	SHEAR STRENGTH: Cu, KPa nat V - ✚ rem V - ● Q - ✖ U - ▲ 20 40 60 80 / WATER CONTENT, PERCENT wp w wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		116.47							
	POWER BORING / HOLLOW STEM AUGER	200mm CONCRETE		116.27							Flush Mount Cover
		150mm GRANULAR FILL		0.20 116.12	1	SS	12				
		SAND: fine, dark brown to brown, moist to wet, compact to dense. - trace of gravel until 0.61 m.		0.35	2	SS	18				Bentonite
					3	SS	9				114.79
2					4	SS	28				2.29 m Long 50 mm ID PVC Riser
		CLAYEY SILT TILL: trace of sand and gravel, brown to grey, moist, very stiff.		114.03 2.44	5	SS	22				
					6	SS	26				Silica Sand
4					7	SS	19				▽
		WEATHERED SHALE		112.20 4.27	8	SS	>100				3.05 m Long 50 mm ID Well Screen
					9	SS					
		End of Borehole Note: 1) Water level was not measured on completion of drilling. 2) Water level was measured at 3.71 mbgs on Apr. 11, 2023.		111.14 5.33							111.14
6											

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 3.71 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : RS
CHECKED : CM

MCR LOG ENVIRONMENTAL 5822.GPJ 4-13-23

APPENDIX C

Log of Borehole No. 1

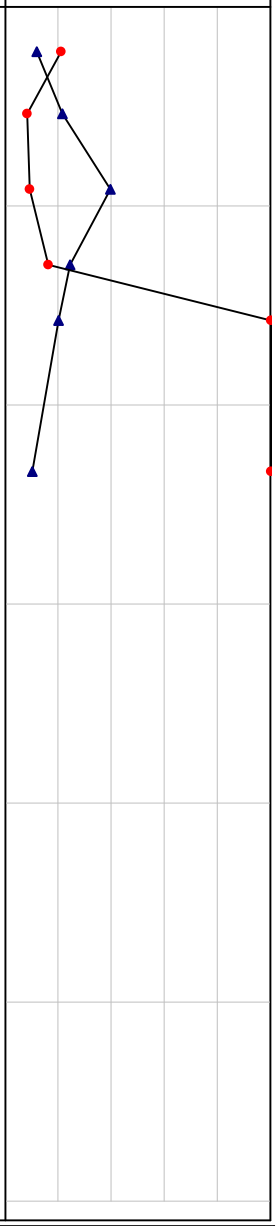
Project No: SM 190138-G
Project: Proposed Condominium Building
Location: 3085 Hurontario Street, Mississauga
Client: Oakhill Environmental Inc.

Project Manager: Kyle Richardson
Borehole Location: See Drawing No. 1
UTM Coordinates - N: 4826460
E: 611511

Soil-Mat

Depth (ft / m)	Elevation (m)	Description	Well Data	SAMPLE Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
	116.39	Ground Surface								
0 / 0	116.09	**Pavement Structure** Approximately 100 millimetres of asphaltic concrete over 200 millimetres of compact granular base.								
1 /		**Sand** Brown, medium in gradation, trace gravel, occasional organics in upper level, loose.		SS	1	9,10,11,7	21			
2 / 1				SS	2	3,4,4,9	8			
6 /	114.20			SS	3	5,5,4,6	9			
9 / 2		**Clayey Silt** Grey, trace gravel, very stiff.		SS	4	4,7,9,12	16		>4.5	
10 / 3	113.10			SS	5	14,50/5"	100			
13 / 4		**Dundas Shale** Grey with occasional harder limestone layers, highly weathered in upper levels, becoming more sound with depth, hard.			6	50/4"	100			
19 / 6				NQ	7	RQD 29.4%				
23 / 7				NQ	8	RQD 35.7%				
25 /	108.50									
26 / 8		End of Borehole NOTES: 1. Borehole was advanced using hollow stem auger equipment on April 8, 2019 to auger refusal at a depth of 5.2 metres, then the bedrock cored to a depth of approximately 7.9 metres using Nq diamond barrel equipment. 2. Borehole was backfilled as per Ontario Regulation 903. 3. Soil samples will be discarded after 3 months unless otherwise directed by our client.								
29 / 9										
33 / 10										
36 / 11										
39										

Moisture Content w% (10 20 30 40)
Standard Penetration Test blows/300mm (20 40 60 80)



Drill Method: Hollow Stem Augers
Drill Date: April 8, 2019
Hole Size: 200 millimetres
Drilling Contractor: Geo-Environmental

Soil-Mat Engineers & Consultants Ltd.
130 Lancing Drive, Hamilton, ON L8W 3A1
T: 905.318.7440 F: 905.318.7455
E: info@soil-mat.ca

Datum: Benchmark
Field Logged by: ZRV
Checked by: KR
Sheet: 1 of 1

Log of Borehole No. 2

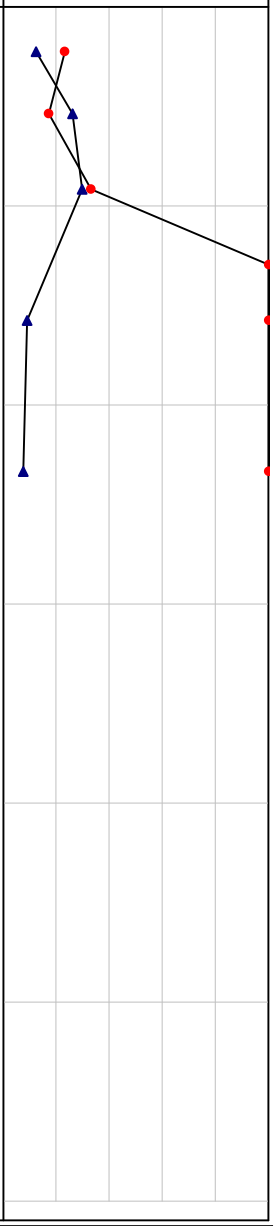
Project No: SM 190138-G
Project: Proposed Condominium Building
Location: 3085 Hurontario Street, Mississauga
Client: Oakhill Environmental Inc.

Project Manager: Kyle Richardson
Borehole Location: See Drawing No. 1
UTM Coordinates - N: 4826436
E: 611503

Soil-Mat

Depth (ft / m)	Elevation (m)	Description	Well Data	SAMPLE Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
	116.15	Ground Surface								
0 / 0	115.85	**Pavement Structure** Approximately 150 millimetres of asphaltic concrete over 150 millimetres of compact granular base.								
4 / 1	114.40	**Sand** Brown, medium in gradation, trace gravel, occasional organics in upper level, compact.		SS	1	12,12,11,9	23			
7 / 2	113.70	**Clayey Silt** Grey, trace gravel, hard.		SS	2	3,5,12,19	17			
10 / 3	111.50	**Dundas Shale** Grey with occasional harder limestone layers, highly weathered in upper levels, becoming more sound with depth, hard.		SS	3	12,22,11,13	33			
				SS	4	11,50/4"	100			
				SS	5	50/5"	100			
15 / 5		End of Borehole			6	50/3"	100			

Moisture Content w% (10 20 30 40)
Standard Penetration Test blows/300mm (20 40 60 80)



NOTES:

1. Borehole was advanced using hollow stem auger equipment on April 8, 2019 to auger refusal on assumed bedrock at a depth of approximately 4.6 metres.

2. Borehole was backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client.

4. A monitoring well was installed. The following free groundwater level readings have been measured:

April 24, 2019 - 3.1 metres

May 7, 2019 - 3.0 metres

April 17, 2020 - 3.1 metres

Drill Method: Hollow Stem Augers
Drill Date: April 8, 2019
Hole Size: 200 millimetres
Drilling Contractor: Geo-Environmental

Soil-Mat Engineers & Consultants Ltd.
130 Lancing Drive, Hamilton, ON L8W 3A1
T: 905.318.7440 F: 905.318.7455
E: info@soil-mat.ca

Datum: Temporary Benchmark
Field Logged by: ZRV
Checked by: KR
Sheet: 1 of 1

Log of Borehole No. 101

Project No: SM 190138-G
Project: Proposed Condominium Building
Location: 3085 Hurontario Street, Mississauga
Client: Oakhill Environmental Inc.

Project Manager: Kyle Richardson
Borehole Location: See Drawing No. 1
UTM Coordinates - N: 4826448
E: 611500

Soil-Mat

Depth (ft / m)	Elevation (m)	Description	Well Data	SAMPLE Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)	Moisture Content w% (10 20 30 40) / Standard Penetration Test blows/300mm (20 40 60 80)
	116.23	Ground Surface									
0 / 0	115.93	**Pavement Structure** Approximately 100 millimetres of asphaltic concrete over 200 millimetres of compact granular base.									
1 /		**Sand** Brown, medium in gradation, trace gravel, loose to compact.		SS	1	12,11,10,9	21				
2 / 1				SS	2	5,4,2,2	6				
3 /				SS	3	4,5,7,9	12				
4 /	114.10	**Clayey Silt** Grey, trace gravel, very stiff.		SS	4	6,10,22,50/3"	32		>4.5		
5 / 2	113.40	**Dundas Shale** Grey with occasional harder limestone layers, highly weathered in upper levels, becoming more sound with depth, hard.		SS	5	50/3"	100				
6 /				NQ	7	RQD 0%					
7 / 3				NQ	8	RQD 64.2%					
8 /				NQ	9	RQD 78.8%					
9 / 4				NQ	10	RQD 62.9%					13.8 MPa 13.5 MPa
10 /				NQ	11	RQD 44.2%					11.8 MPa 14.2 MPa
11 / 5				NQ	12	RQD 23.6%					69.3 MPa
12 /											
13 / 6											
14 /											
15 / 7											
16 /											
17 / 8											
18 /											
19 / 9											
20 /											
21 / 10											
22 /											
23 / 11											
24 /											
25 /											
26 / 12											
27 /											
28 /											
29 / 13											
30 /											
31 /											
32 / 14											
33 /											
34 /											
35 / 15											
36 /											
37 /											
38 / 16											
39 /											

Drill Method: Hollow Stem Augers
Drill Date: March 12, 2020
Hole Size: 200 millimetres
Drilling Contractor: Davis Drilling

Soil-Mat Engineers & Consultants Ltd.
130 Lancing Drive, Hamilton, ON L8W 3A1
T: 905.318.7440 F: 905.318.7455
E: info@soil-mat.ca

Datum: Temporary Benchmark
Field Logged by: SW
Checked by: KR
Sheet: 1 of 2

Log of Borehole No. 101

Project No: SM 190138-G
Project: Proposed Condominium Building
Location: 3085 Hurontario Street, Mississauga
Client: Oakhill Environmental Inc.

Project Manager: Kyle Richardson
Borehole Location: See Drawing No. 1
UTM Coordinates - N: 4826448
E: 611500

Soil-Mat

Depth	Elevation (m)	Symbol	Description	Well Data	SAMPLE Type	SAMPLE Number	SAMPLE Blow Counts	SAMPLE Blows/300mm	SAMPLE Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)	Moisture Content w% (10 20 30 40) / Standard Penetration Test blows/300mm (20 40 60 80)
40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	13 14 15 16 17 18 19 20 21 22 23				NQ	13	RQD 56.7%					56.3 MPa 12.4 MPa
	102.40		End of Borehole									

NOTES:

1. Borehole was advanced using hollow stem auger equipment on March 12, 2020 to auger refusal at a depth of 3.0 metres, then the bedrock cored to a depth of approximately 13.8 metres using Nq diamond barrel equipment.

2. Borehole was backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client.

4. A monitoring well was installed. The following free ground water level readings have been measured:

March 27, 2020 - 4.6 metres below the existing ground surface

April 17, 2020 - 4.5 metres below the existing ground surface

Drill Method: Hollow Stem Augers
Drill Date: March 12, 2020
Hole Size: 200 millimetres
Drilling Contractor: Davis Drilling

Soil-Mat Engineers & Consultants Ltd.
130 Lancing Drive, Hamilton, ON L8W 3A1
T: 905.318.7440 F: 905.318.7455
E: info@soil-mat.ca

Datum: Temporary Benchmark
Field Logged by: SW
Checked by: KR
Sheet: 2 of 2

MONITORING WELL DRILLING RECORD : **BH19-3**

Project Number: **191-02120-01**

3085 Hurontario Street, Mississuaga, Ontario
Phase Two Environmental Site Assessment
Equity Builders

DRILLING DETAILS

Date (Start):	7/3/2019
Date (End):	7/3/2019
Drilling Company:	Strata Drilling Group
Drilling Equipment:	CME 420M
Drilling Method:	Solid Stem Auger
Borehole Diameter:	38.1 mm
Drilling Fluid:	N/A

SURVEY DETAILS

Easting:	m
Northing:	m
Surface Elevation:	115.51 masl
Top of Well Elevation:	115.44 masl

ODOUR
L - Light
M - Medium
S - Strong

VISUAL
D - Dispersed with Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
DT - Dual Tube
MC - Macro Core
NR - No Recovery

CHEMICAL ANALYSIS

Metals	Sb As Ba Be B Cd Cr Co Cu Pb Mo Ni Se Ag Tl U V Zn
Inorg.	Inorganic Compounds
PHC	Petroleum Hydrocarbons (F1-F4)
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
VOC	Volatile Organic Compounds
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
D/F	Dioxins & Furans
Phenol	Phenolic Compounds
GSA	Grain-size Analysis

(m) DEPTH / *ELEVATION* (masl)	LITHOLOGY / GEOLOGY: STRATIGRAPHY	LITHOLOGY / GEOLOGY: DESCRIPTION	OBSERVATIONS: PID *CGD* (ppm)	OBSERVATIONS: ODOUR (L M S)	OBSERVATIONS: VISUAL (D S)	SAMPLES: SAMPLE TYPE & No.	SAMPLES: % RECOVERY	SAMPLES: N (Blow/15cm)	SAMPLES: CHEMICAL ANALYSIS	SAMPLES: DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
0.05 / *115.81*		**CONCRETE** : approximately 165.1 mm										— CONCRETE (FLUSH MOUNT)	
115.46		**SAND** : trace gravel, light brown, moist	0			DT1A	50%						
0.5		*some silt*											0.5
			0			DT2A	67%		pH				
1.0												BENTONITE	1.0
1.5			0			DT2B	67%						1.5
			0.1			DT3A	58%						
2.0			0			DT3B	58%						2.0
2.5		*light brown, wet*	0.2			DT4A	100%						2.5
3.0		*some silt, trace boulder, light brown, wet @ 3.05m*	0			DT4B	100%					SAND SCREEN Length: 1.52 m Diam.: 38.1 mm Slot: #10	3.0
3.5													3.5
3.66 / *111.85*		**CLAYEY SILT** : grey, very moist, dense	0.2			DT5A	100%		GSA Gr % Sa % Si % Cl % Hydrometer				
4.0													4.0
4.27 / *111.24*		**SHALE** : moist, grey	0			DT5B	83%						
4.42		***END OF BOREHOLE*** *Bedrock refusal @ 4.48m; MW Installed at 3.57 m.*										WATER MARKER Depth : 2.51 m Elev. : 113 m Date : 8/9/2019	
4.5													4.5

Project : DATABASE_MASTER.GPJ Report : WSP_EN_WELL-ENVIRONMENTAL 8/13/2019

Prepared by: Sheema Everett
Reviewed by: Lindsy Levesque

MONITORING WELL DRILLING RECORD : **BH19-4**

Project Number: **191-02120-01**

3085 Hurontario Street, Mississuaga, Ontario
Phase Two Environmental Site Assessment
Equity Builders

DRILLING DETAILS		SURVEY DETAILS		ODOUR	SAMPLE TYPE	CHEMICAL ANALYSIS	
Date (Start):	7/3/2019	Easting:	611464.98 m	L - Light	DC - Diamond Corer	Metals	Sb As Ba Be B Cd Cr Co Cu Pb Mo Ni Se Ag Tl U V Zn
Date (End):	7/3/2019	Northing:	4826526.176 m	M - Medium	SS - Split Spoon	Inorg.	Inorganic Compounds
Drilling Company:	Strata Drilling Group	Surface Elevation:	118.26 masl	S - Strong	MA - Manual Auger	PHC	Petroleum Hydrocarbons (F1-F4)
Drilling Equipment:	CME 420M	Top of Well Elevation:	118.18 masl	VISUAL	TR - Trowel	BTEX	Benzene, Toluene, Ethylbenzene, Xylene
Drilling Method:	Solid Stem Auger			D - Dispersed with Product	ST - Shelby Tube	VOC	Volatile Organic Compounds
Borehole Diameter:	38.1 mm			S - Saturated with Product	DT - Dual Tube	PAH	Polycyclic Aromatic Hydrocarbons
Drilling Fluid:	N/A				MC - Macro Core	PCB	Polychlorinated Biphenyl
					NR - No Recovery	D/F	Dioxins & Furans
						Phenol	Phenolic Compounds
						GSA	Grain-size Analysis

(m) DEPTH / *ELEVATION* (masl)	LITHOLOGY / GEOLOGY: STRATIGRAPHY	LITHOLOGY / GEOLOGY: DESCRIPTION	OBSERVATIONS: PID / *CGD* (ppm)	OBSERVATIONS: ODOUR (L M S)	OBSERVATIONS: VISUAL (D S)	SAMPLES: SAMPLE TYPE & No.	SAMPLES: % RECOVERY	SAMPLES: N (Blow/15cm)	SAMPLES: CHEMICAL ANALYSIS	SAMPLES: DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
118.26 / 0.10		**TOPSOIL** : approximately 101.6 mm										CONCRETE (FLUSH MOUNT)	
118.16		**SAND** : light brown, moist, loose	125.4			DT1A	83%						
0.5													0.5
			2.1			DT2A	75%						
1.0												BENTONITE	1.0
		some silt, light brown, moist											
1.5			0.3			DT2B	75%						1.5
		very moist											
2.0			0.3			DT3A	63%		pH GSA Gr % Sa % Si % Cl %				2.0
2.13 / 116.13		**CLAYEY SILT** : grey, very moist to wet,											
2.5			0.1			DT3B	42%						2.5
3.0		*trace boulders, coarse sand seam @ 3.05m, wet*	15.7			DT4A	100%		PHC VOC			SAND SCREEN Length: 1.52 m Diam.: 38.1 mm Slot: #10	3.0
3.5			0.1			DT4B	100%						3.5
4.0			0.1			DT5A	44%						4.0
4.27 / 113.99		**SHALE** : moist, grey											
4.42		*Bedrock refusal at 4.48 m. MW Install at 3.57m.*											
4.5												WATER MARKER Depth : 3.13 m Elev. : 115.13 m Date : 8/9/2019	4.5

Project : DATABASE_MASTER.GPJ Report : WSP_EN_WELL-ENVIRONMENTAL 8/13/2019

Prepared by: Sheema Everett
Reviewed by: Lindsy Levesque

APPENDIX D

Your Project #: 5822
Your C.O.C. #: 887415-02-01

Attention: Salman Tavassoli

McClymont & Rak Engineers Inc
111 Zenway Blvd
Unit 4
Vaughan, ON
CANADA L4H 3H9

Report Date: 2023/03/28
Report #: R7564611
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C379774
Received: 2023/03/21, 19:31

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Chloride (20:1 extract)	1	2023/03/27	2023/03/28	CAM SOP-00463	MOE E3013 m
Conductivity	1	2023/03/27	2023/03/27	CAM SOP-00414	OMOE E3530 v1 m
Moisture (Subcontracted) (1, 2)	1	N/A	2023/03/25	AB SOP-00002	CCME PHC-CWS m
Sulphide in Soil (1)	1	N/A	2023/03/24	AB SOP-00080	EPA9030B/SM4500S2-DF
pH CaCl2 EXTRACT	1	2023/03/27	2023/03/27	CAM SOP-00413	EPA 9045 D m
Redox Potential (3)	1	2023/03/27	2023/03/28	CAM SOP-00421	SM 2580 B
Resistivity of Soil	1	2023/03/21	2023/03/27	CAM SOP-00414	SM 23 2510 m
Sulphate (20:1 Extract)	1	2023/03/27	2023/03/28	CAM SOP-00464	MOE E3013 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Calgary (19th), 4000 19th Street NE , Calgary, AB, T2E 6P8
(2) Offsite analysis requires that subcontracted moisture be reported.

Your Project #: 5822
Your C.O.C. #: 887415-02-01

Attention: Salman Tavassoli

McClymont & Rak Engineers Inc
111 Zenway Blvd
Unit 4
Vaughan, ON
CANADA L4H 3H9

Report Date: 2023/03/28
Report #: R7564611
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C379774

Received: 2023/03/21, 19:31

(3) Oxidation-Reduction Potential (ORP) values are determined using a Ag/AgCl reference electrode. The test is therefore, not SCC accredited for this matrix.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Antonella Brasil, Senior Project Manager
Email: Antonella.Brasil@bureauveritas.com
Phone# (905)817-5817

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C379774
Report Date: 2023/03/28

McClymont & Rak Engineers Inc
Client Project #: 5822
Sampler Initials: AS

SOIL CORROSIVITY PACKAGE (SOIL)

Bureau Veritas ID		VIQ748		
Sampling Date		2023/03/16		
COC Number		887415-02-01		
	UNITS	**BH-102 SS5**	**RDL**	**QC Batch**
Calculated Parameters				
Resistivity	ohm-cm	1100		8564481
CONVENTIONALS				
Redox Potential	mV	260	N/A	8574500
Inorganics				
Soluble (20:1) Chloride (Cl-)	ug/g	450	20	8574353
Conductivity	umho/cm	937	2	8574944
Available (CaCl2) pH	pH	7.83		8574775
Soluble (20:1) Sulphate (SO4	ug/g	40	20	8574356
Sulphide	mg/kg	1.5	0.5	8577650

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C379774
Report Date: 2023/03/28

McClymont & Rak Engineers Inc
Client Project #: 5822
Sampler Initials: AS

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		VIQ748		
Sampling Date		2023/03/16		
COC Number		887415-02-01		
	UNITS	BH-102 SS5	RDL	QC Batch
Physical Testing				
Moisture-Subcontracted	%	14	0.30	8576120

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C379774
Report Date: 2023/03/28

McClymont & Rak Engineers Inc
Client Project #: 5822
Sampler Initials: AS

TEST SUMMARY

Bureau Veritas ID: VIQ748
Sample ID: BH-102 SS5
Matrix: Soil

Collected: 2023/03/16
Shipped:
Received: 2023/03/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride (20:1 extract)	KONE/EC	8574353	2023/03/27	2023/03/28	Massarat Jan
Conductivity	AT	8574944	2023/03/27	2023/03/27	Gurparteek KAUR
Moisture (Subcontracted)	BAL	8576120	N/A	2023/03/25	Ashley Henderson
Sulphide in Soil	SPEC	8577650	N/A	2023/03/24	Bailey Morrison
pH CaCl2 EXTRACT	AT	8574775	2023/03/27	2023/03/27	Taslima Aktar
Redox Potential	COND	8574500	2023/03/27	2023/03/28	Gurparteek KAUR
Resistivity of Soil		8564481	2023/03/27	2023/03/27	Automated Statchk
Sulphate (20:1 Extract)	KONE/EC	8574356	2023/03/27	2023/03/28	Alina Dobreanu

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	9.0°C
Package 2	6.7°C

Cooler custody seals were present and intact .

Results relate only to the items tested.

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Bureau Veritas Job #: C379774
Report Date: 2023/03/28

QUALITY ASSURANCE REPORT

McClymont & Rak Engineers Inc
Client Project #: 5822
Sampler Initials: AS

			Matrix Spike		SPIKED BLANK		Method Blank	
QC Batch	**Parameter**	**Date**	**% Recovery**	**QC Limits**	**% Recovery**	**QC Limits**	**Value**	**UNITS**
8574353	Soluble (20:1) Chloride (Cl-)	2023/03/28	106	70 - 130	109	70 - 130	<20	ug/g
8574356	Soluble (20:1) Sulphate (SO4)	2023/03/28	97	70 - 130	98	70 - 130	<20	ug/g
8574500	Redox Potential	2023/03/28			102	95 - 105		
8574775	Available (CaCl2) pH	2023/03/27			100	97 - 103		
8574944	Conductivity	2023/03/27			106	90 - 110	<2	umho/cm
8576120	Moisture-Subcontracted	2023/03/25					<0.30	%
8577650	Sulphide	2023/03/24	113	75 - 125	113	75 - 125	<0.5	mg/kg

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere, Senior Scientific Specialist

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

Suwan (Sze Yeung) Fock, B.Sc., Scientific Specialist

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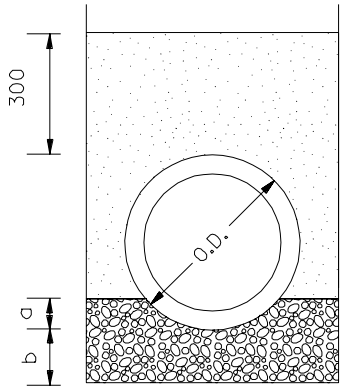
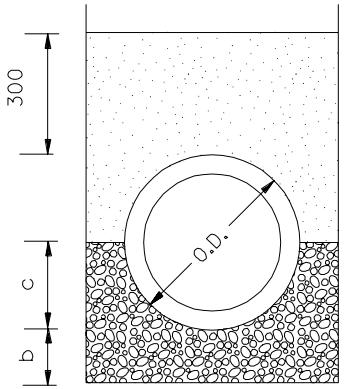
APPENDIX E

METRIC
ALL DIMENSIONS IN MILLIMETRES

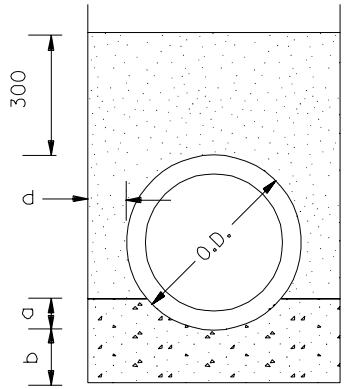
CLASS C
LOAD FACTOR 1.5



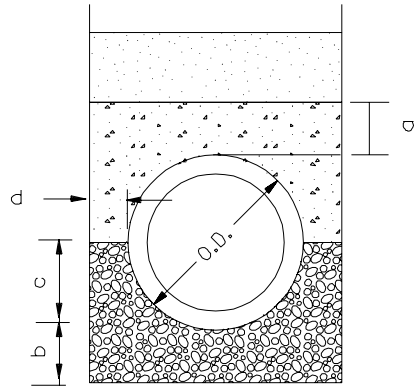
CLASS B
LOAD FACTOR 1.9



CLASS A
LOAD FACTOR 2.4



CLASS A-A
LOAD FACTOR 2.8



LEGEND

CONCRETE

SEWER BEDDING

SAND COVER

a = O.D./4
b = O.D./4 (100mm MIN. - 200mm MAX.)
c = O.D./2
d = O.D./8 (100mm MIN.)

F.S. (SAFETY FACTOR) = 1.5 FOR NON-REINFORCED PIPE
= 1.0 FOR REINFORCED PIPE

$$\left[\text{SAFE SUPPORTING STRENGTH OF PIPE}\right] = \frac{\left[\text{ASTM-3 EDGE BEARING STRENGTH}\right] \times \left[\text{LOAD FACTOR}\right]}{\text{F.S.}}$$

NOTES

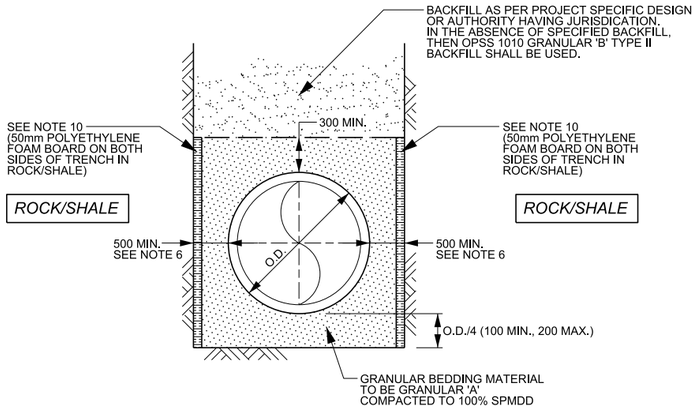
1. O.D. NOT TO INCLUDE BELL.
2. THE TRENCH WIDTHS SHOWN SHALL BE MAINTAINED TO THE TOP OF PIPE.
3. CONCRETE TO BE 15MPa AT 28 DAYS.
4. THE PIPE BED IS TO BE CAREFULLY SHAPED TO RECEIVE THE LOWEST SEGMENT OF PIPE.
5. STONE SIZE WITHIN 300mm OF THE SURFACE OF THE PIPE SHALL NOT EXCEED 50mm.
6. COMPACTION OF ALL BEDDING AND COVER MATERIAL SHALL BE 95% STANDARD PROCTOR.
7. WHERE SHEATHING IS USED A BOND BREAKING MATERIAL IS REQUIRED BETWEEN CONCRETE BEDDING AND SHEATHING.
8. BEDDING MATERIAL SHALL CONFORM TO OPSS 1010 GRANULAR 'A' CITY STANDARD No. 2112.110 OR 2112.140 (WITH APPROVAL)
9. STANDARD SAND COVER MATERIAL SHALL CONFORM TO CITY OF MISSISSAUGA STANDARD No. 2112.100

INSIDE PIPE DIA. (mm)	MAX. TRENCH WIDTH (mm)	INSIDE PIPE DIA. (mm)	MAX. TRENCH WIDTH (mm)
250	1200	1200	2300
300	1200	1350	2600
375	1300	1500	2800
450	1400	1650	3100
525	1400	1800	3400
600	1500	1950	3600
675	1600	2100	3800
750	1700	2250	3900
825	1800	2400	4100
900	1900	2550	4300
975	2000	2700	4500
1050	2000	3000	4800

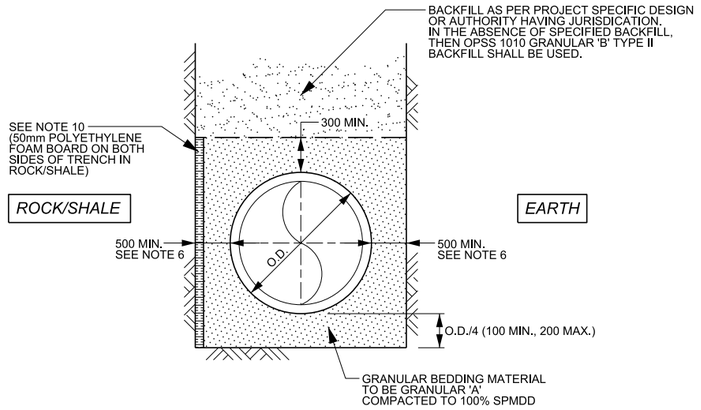
MISSISSAUGA
Transportation and Works

STANDARD
BEDDING FOR CONCRETE PIPE

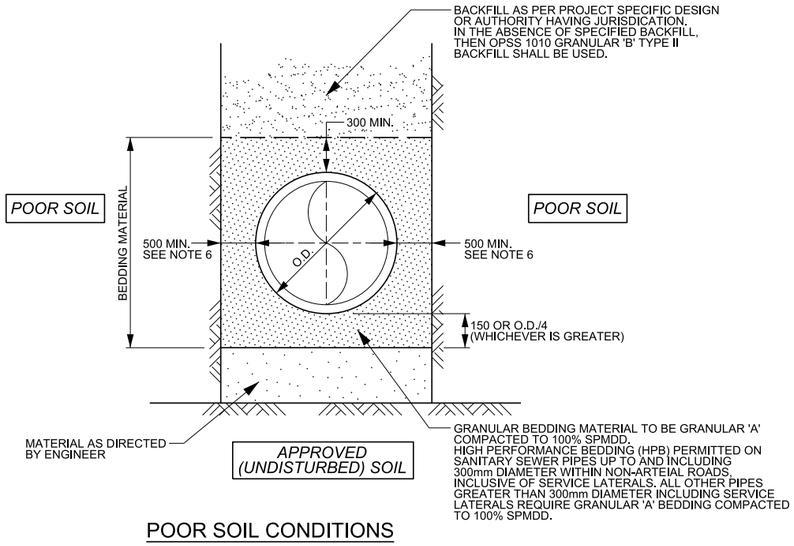
EFF. DATE	2002-01-01	SCALE	N.T.S.
REV.		STANDARD No.	2112.080



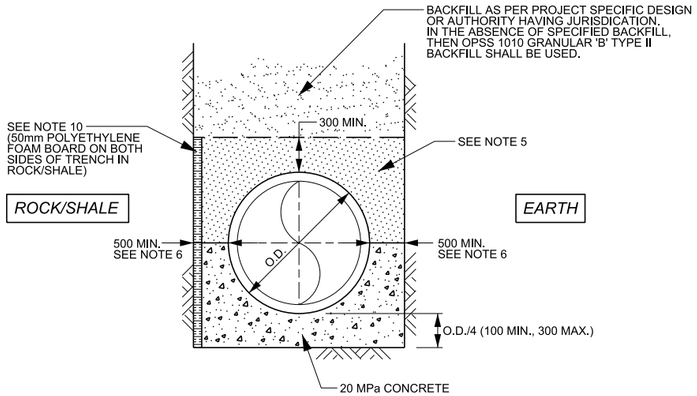
GRANULAR BEDDING



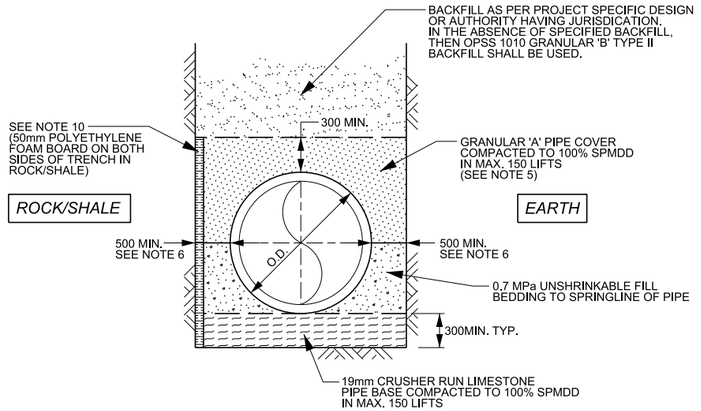
GRANULAR BEDDING



POOR SOIL CONDITIONS

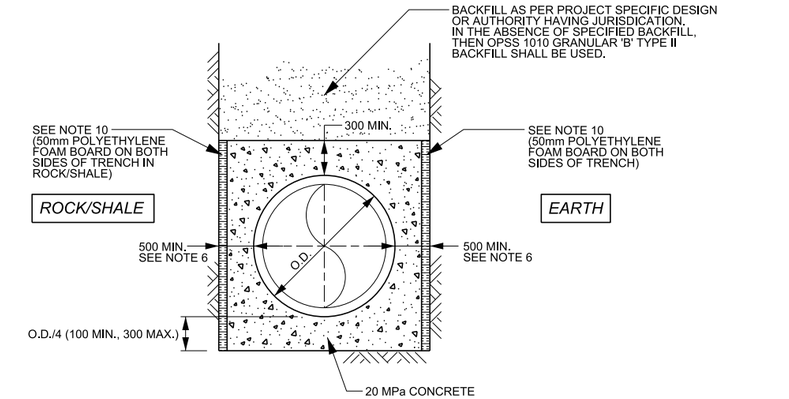


CONCRETE CRADLE



UNSHRINKABLE FILL FOR LARGE DIAMETER PIPES

(SEE NOTE 11b)



CONCRETE ENCASEMENT

NOTE

1. GRANULAR MATERIAL TO BE PLACED IN TRENCH IN 150mm LIFTS (MAX.) AND COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
2. IN CASE OF OVER-EXCAVATION TRENCH TO BE FILLED TO BOTTOM OF PIPE WITH APPROVED MATERIALS IN 150mm LAYERS AND COMPACTED TO 100% STANDARD PROCTOR DENSITY.
3. IN POOR SOILS PIPE FOUNDATION TO BE PROVIDED AS PER DESIGN. ADDITIONAL BEDDING MODIFICATIONS MAY BE REQUIRED AS PER DESIGN.
4. BACKFILL ABOVE BEDDING AS REQUIRED PER DESIGN. NATIVE BACKFILL NOT PERMITTED UNDER PAVED PORTIONS.
5. COVER MATERIAL TO BE AS PER OPSS 1010 GRANULAR 'A'.
6. MINIMUM TRENCH WIDTH TO BE O.D. PLUS 2 x 500mm, PLUS 2 x 50mm (FOR COMPRESSIBLE MATERIAL IN ROCK/SHALE), UNLESS PROJECT SPECIFIC BEDDING STATES OTHERWISE. PIPE TO BE LOCATED IN THE CENTER OF TRENCH.
7. TRENCH BACKFILL MATERIAL AS PER PROJECT SPECIFIC DESIGN, GEOTECHNICAL REPORT RECOMMENDATIONS AND AUTHORITY HAVING JURISDICTION STANDARDS/REQUIREMENTS.
8. THE CONSULTANT SHALL RECOMMEND THE APPROPRIATE BEDDING REQUIREMENTS BASED ON THE FINDINGS OF THE GEOTECHNICAL INVESTIGATION AND PROVIDE A CROSS-SECTION ILLUSTRATION ON THE FIRST PLAN & PROFILE DRAWING OR GENERAL DETAIL PAGE.
9. IN ROCK EXCAVATION, A MINIMUM OF 150mm GRANULAR MATERIAL BEDDING IS REQUIRED UNDERNEATH THE PIPE (FOR PVC), AND UP TO SPRING LINE FOR CONCRETE PIPE.
10. IN ROCK OR SHALE TRENCH CONDITIONS, INSTALL 50mm THICK POLYETHYLENE FOAM BOARDS, ON BOTH SIDES OF TRENCH, BETWEEN TRENCH WALL AND BACKFILL. REFER TO PROJECT SPECIFIC REQUIREMENTS. POLYETHYLENE FOAM TO BE EITHER DOW ETHAFOAMT 400 OR NORDIC VOID 400 OR APPROVED EQUAL.
11. a) HIGH PERFORMANCE BEDDING PERMITTED ON SANITARY PIPES LESS THAN AND EQUAL TO 300mm DIAMETER WITHIN NON-ARTERIAL ROADS, INCLUSIVE OF SERVICE LATERALS. ALL OTHER PIPES GREATER THAN 300mm DIAMETER, INCLUDING SERVICE LATERALS, SHALL USE GRANULAR 'A' AS PER OPSS 1010 COMPACTED TO 100% SPMDD AS BEDDING AND COVER. ALTERNATIVE FOR LARGE DIAMETER PIPE, SEE NOTE 11b) BELOW.

    b) FOR LARGE DIAMETER PIPE (GREATER THAN OR EQUAL TO 750mm) UNSHRINKABLE FILL MAY BE USED TO FILL TRENCH VOID TO THE SPRINGLINE OF THE PIPE DIAMETER. GRANULAR 'A' AS PER OPSS 1010 COMPACTED TO 100% SPMDD TO BE USED TO 300mm OVER PIPE DIAMETER.
12. THE STANDARDS SHOWN ON THIS DRAWING SHALL APPLY TO MUNICIPAL SERVICES.

BEDDING DETAILS ARE INTENDED FOR GENERAL INFORMATION. REFER TO CONTRACT SPECIFICATIONS AND GEOTECHNICAL REPORT FOR PROJECT SPECIFIC REQUIREMENTS.

Region of Peel
working with you

PUBLIC WORKS
STANDARD DRAWING

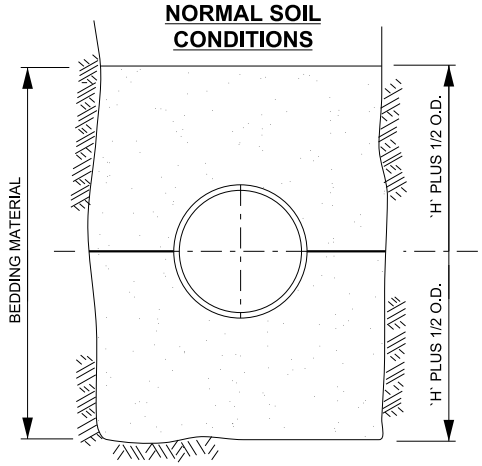
BEDDING AND COVER DETAILS
FOR SEWERS

REV. DATE: AUGUST 2020

REVISION NUMBER: 2	FOR REVISION TRACKING REFER TO STD. DWG. 2-0-2
APPROVED BY **A.P.**	DRAWN BY **AINLEY GROUP**
STD. DWG. NUMBER **2-3-1**	SCALE **N.T.S.**

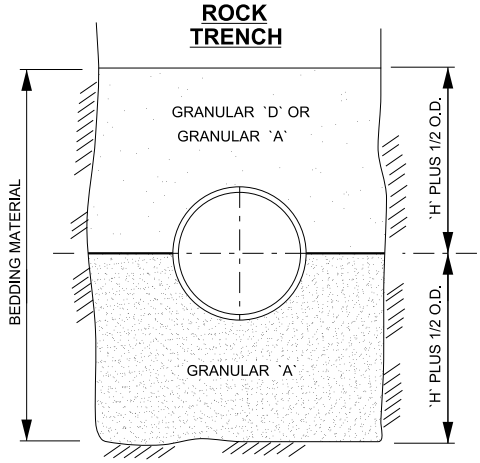
BEDDING DETAILS ARE INTENDED FOR GENERAL INFORMATION. REFER TO CONTRACT SPECIFICATIONS AND GEOTECHNICAL REPORT FOR PROJECT SPECIFIC REQUIREMENTS.

NORMAL SOIL CONDITIONS



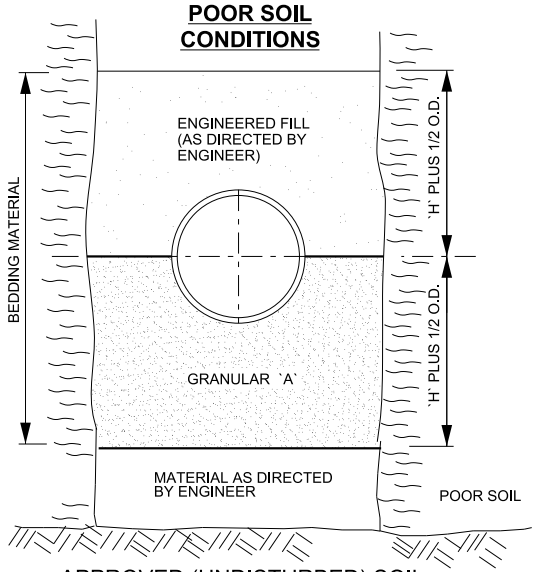
(UNDISTURBED) SOIL

ROCK TRENCH



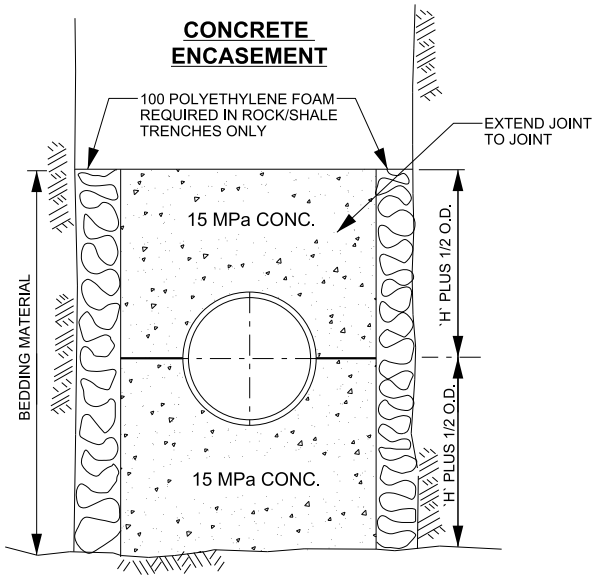
ROCK

POOR SOIL CONDITIONS



APPROVED (UNDISTURBED) SOIL

CONCRETE ENCASEMENT



CONCRETE ENCASED WHERE SPECIFIED

NOTE

1. FOR P.V.C. AND DUCTILE IRON PIPE, BEDDING MATERIAL TO BE GRANULAR D (LIMESTONE SCREENING COLOUR TO BE BETWEEN LIGHT GREY TO WHITE) 150mm ABOVE THE TOP OF PIPE.
2. MATERIAL TO BE PLACED IN TRENCH IN 150mm LAYERS AND COMPACTED TO 100% STANDARD PROCTOR DENSITY.
3. IN CASE OF OVER-EXCAVATION TRENCH TO BE FILLED TO BOTTOM OF PIPE WITH APPROVED MATERIALS IN 150mm LAYERS AND COMPACTED TO 100% STANDARD PROCTOR DENSITY.
4. IN POOR SOILS ENGINEER MAY VARY PIPE FOUNDATION TO SUIT.
5. BACKFILL ABOVE BEDDING AS APPROVED BY PROJECT MANAGER.
6. GRANULAR MATERIAL AS PER OPS SPECIFICATIONS AND REGION OF PEEL CAPITAL WORKS VOLUME 2 SPECIFICATIONS.
7. 'H'=150 OR DIA./4 OF WATERMAIN WHICH EVER IS GREATER.
8. MIN. TRENCH WIDTH TO BE O.D. PLUS 600mm MAX. TRENCH WIDTH TO BE O.D. PLUS 750mm, UNLESS PROJECT SPECIFIC BEDDING STATES OTHERWISE.
9. COVER MATERIAL, NO STONES GREATER THAN 25mm WILL BE PERMITTED.
10. APPROVED SOIL AS PER GEOTECHNICAL REPORT RECOMMENDATIONS.
11. TO ADDRESS TIME DEPENDANT DEFORMATION IN ROCK OR SHALE TRENCH CONDITIONS, INSTALL 100mm THICK POLYETHYLENE FOAM FOR ALL CONCRETE ENCASED WATERMAIN INSTALLATIONS. REFER TO PROJECT SPECIFIC REQUIREMENTS. POLYETHYLENE FOAM TO BE EITHER DOW ETHAFOAMT 400 OR NORDIC VOID 400 OR APPROVED EQUAL.

Region of Peel
Working for you

PUBLIC WORKS
STANDARD DRAWING

REV. DATE: APRIL 2014

APPROVED BY	DRAWN BY
A.P.	AINLEY GROUP

WATERMAIN BEDDING

STD. DWG. NUMBER	SCALE
1-5-1	N.T.S.

APPENDIX F

SITE PLANS, REZONING, LAND DIVISION AND CONDOMINIUM

SECTION 6 - DESIGN REQUIREMENTS

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6.01 DESIGN STANDARDS AND SERVICING POLICY FOR MULTI-FAMILY AND RESIDENTAIL/INDUSTRIAL CONDOMINIUM DEVELOPMENTS

6.01.01 General Requirements

Engineering drawings shall be prepared to the satisfaction of the City, to show location of all underground services, including Sanitary, Storm, Watermains, Hydro, Telecommunications, Gas, etc., together with the location of all roadways, sidewalks and boulevards, certified and stamped by a registered Professional Engineer of the Province of Ontario.

Roadways shall not be considered to form any part of the required parking.

Designated fire access routes shall be provided throughout the development to the standards of the Fire Department and Emergency Services Division and in accordance with good engineering practise. (Refer also to fire routes By-law No. 1036-81, as amended)

Multi-family developments shall be signed so as to easily identify the location of all blocks. Such signs shall be approved by the Urban Design Section of the Planning and Building Department.

Proper waste collection areas must be provided throughout the development so that the waste haulers vehicles can enter the development and collect waste efficiently and safely. Such arrangements shall be in accordance with standards as set down by the Regional Municipality of Peel.

A certified statement signed and stamped by a registered Professional Engineer of the Province of Ontario stating that all services have been designed and constructed in accordance with the City of Mississauga Standards and Servicing Policy for Multi-family and Condominium Developments is required prior to registration of the development.

6.01.02 Internal Private Roadways

Internal private roadways shall be designed in accordance with the current City of Mississauga design criteria for a minor residential street (including curbs, curb and gutters, subdrains and sidewalks where applicable) in accordance with the latest Ontario Provincial Standard Drawings and Specifications or City Standards and Requirements as applicable; with the following modifications:

- Minimum width of roadway shall be 7.0m

- Minimum centre line turning radius shall be 12m (fire truck) for any development which has no buildings over three stories.

- Lengths of driveways must be a minimum of 6m measured from the back of the sidewalk, where a sidewalk exists or 6m from the back of the curb, where no sidewalk exists

- Minimum overhead clearance shall be 5.0m

- The minimum pavement structure for the roads will be as follows, but may vary depending upon site soil conditions. For site conditions or any specific uses which require extra strength pavement, the pavement structure shall be substantiated by a report from the applicant's geotechnical consultant

250mm	OPSS Granular 'B'
200mm	OPSS Granular 'A'
65mm	OPSS H.L.8
40mm	OPSS H.L.3

- Parking lots shall be structurally designed to the equivalent of the internal road design standards.

- The minimum pavement structure for driveways to individual, single, semi or townhouse units will be as follows:

150mm	Granular 'A'
50mm	H.L.8
25mm	H.L.3F

6.01.03 Watermains and Water Services

- Watermains and water services shall be designed and constructed in accordance with the most recent requirements of the Region of Peel, the Ontario Building Code and in accordance with municipal by-laws.

- Trench backfill for the watermain and water service installations shall consist of native or granular material, free of organics and contaminants, placed and compacted in lifts as required to achieve a minimum compaction of 95% of the Standard Dry Density. (OPSS 514.07.08)

- *Shall be designed and constructed in accordance with the Region of Peel design Criteria and Development Procedures Manual, latest edition.*

- Upon completion of the site work and services and prior to registration, a certified statement signed and stamped is required from a registered/licensed Professional Engineer of the Province of Ontario confirming that all water boxes have been raised to final grade, uncovered and in a clean condition.

6.01.04 Storm and Sanitary Sewers, Drains and Appurtenances

- The storm and sanitary sewers, drains and appurtenances shall be designed and constructed in accordance with the most recent requirements of the Ontario Building Code and in accordance with the appropriate municipal By-laws.

- Trench backfill for the storm and sanitary sewer and drain installations shall consist of native or granular material, free of organics and contaminants, placed and compacted in lifts as required to achieve a minimum compaction of 95% of the Standard Proctor Density. (OPSS 514.07.08)

- Upon completion of the site servicing works building construction and landscaping; the storm sewer system, including catchbasins and leads shall be cleaned and flushed.

- Flushing operations shall comply with the current Storm Sewer Use By-Law adopted by Council and be certified by a registered Professional Engineer from the Province of Ontario upon completion.

6.01.05 Streetlighting

- The average horizontal maintained lux rating referred to herein represents the average illumination on the traffic used pavement, between curb lines when the illuminating source is at its lowest output and the luminaire is at its dirtiest condition.

- Luminaires shall be chosen to distribute the light away from residential buildings and onto roadways, pathways or parking lots.

- Every residential unit shall be provided with exterior lighting fixtures located near all entrances.

- Luminaires and poles shall have an average life expectancy of 20 years and shall be vandal resistant.

- All lighting installations shall conform to the requirements of the Canadian Standards Association, Electrical Code of Ontario.

- All installation shall be subject to The Electrical Safety Authority (ESA) inspection.

- All wiring shall be underground.

- The total lighting system must be completed and operational prior to occupancy.

6.01.06 Individual Unit Services

- Storm sewers, sanitary sewers and watermains shall not be permitted to be constructed under any building except in special circumstances as permitted in the Ontario Building Code.

6.01.07 Utilities

Gas, Hydro the provision of Telecommunications, etc., shall be constructed underground and in accordance with the applicable utility company's requirements. The Developer's Consultant will arrange for the necessary design co-ordination with the various utility companies and receive acceptance/approval from each utility company, prior to the issuance of Building permits.

6.01.08 Erosion and Sediment Control

Condominium developments which are within 30m of a watercourse and/or which are comprised of an area in excess of 1 hectare shall be subject to the provisions of the current Erosion and Sediment Control By-law adopted by Council. The developer will be required to apply for an Erosion and Sediment Control Permit prior to undertaking any land stripping or regrading activities within the lands.

Standard Drawings – Common Element Condominium Roads

Dwg. No. – Common Element Condominium road cross section with off-street parking

Dwg. No. – Common Element Condominium road cross section with on-street parking.

APPENDIX G

CLASS OF ROAD	STRUCTURAL ROAD COMPONENT	MINIMUM STRUCTURAL ROAD DEPTH (mm)			
ARTERIAL	TOP COURSE ASPHALT	40	40	40	40
INDUSTRIAL& RESIDENTIAL	BASE COURSE ASPHALT	60	85	100	100
COLLECTOR	GRANULAR BASE	200	200	200	200
LOCAL INDUSTRIAL	GRANULAR SUB-BASE	65	325	400	400
	TOTAL DEPTH	365	650	740	740
MINOR LOCAL INDUSTRIAL	TOP COURSE ASPHALT	40	40	40	40
	BASE COURSE ASPHALT	50	85	100	100
MINOR RESIDENTIAL	GRANULAR BASE	200	200	200	200
COLLECTOR	GRANULAR SUB-BASE	0	255	325	360
	TOTAL DEPTH	290	580	665	700
RESIDENTIAL	TOP COURSE ASPHALT	40	40	40	40
(MINOR LOCAL/LOCAL)	BASE COURSE ASPHALT	50	85	85	100
	GRANULAR BASE	200	200	200	200
	GRANULAR SUB-BASE	0	175	235	250
	TOTAL DEPTH	290	500	560	590
FROST SUSCEPTIBILITY FACTOR		1 (80% SAND)	3 5 7 (30% MAX. SILT; 30% MIN. SAND)	II (55% MAX. SILT)	15 (+55% SILT)

NOTES:

1. THE TOP COURSE ASPHALT SHALL BE OPSS H.L.3 FOR ALL ROAD CLASSES EXCEPT ARTERIAL ROADS WHICH SHALL BE OPSS H.L.1. TOP COURSE ASPHALTIC CONCRETE SHALL BE ADDED TO THE ROAD AFTER ADJACENT BUILDINGS HAVE BEEN BUILT TO A STAGE DEEMED SUFFICIENT BY THE COMMISSIONER OF TRANSPORTATION AND WORKS.
2. THE BASE COURSE ASPHALT ON RESIDENTIAL ROADS SHALL BE OPSS 1150 H.L.8. BASE ASPHALT MAY CONTAIN UP TO 25% RAP. ON INDUSTRIAL AND ARTERIAL ROADS THE BASE ASPHALT SHALL BE HEAVY DUTY BINDER COURSE (HDBC) ASPHALT.
3. PITRUN GRANULAR A & B WERE CONSIDERED TO ESTABLISH GRANULAR PORTION OF ROAD STRUCTURE. THE USE OF LIMESTONE MATERIAL IS PREFERRED. GRANULARS UTILIZED ARE TO BE SIMILAR IN CHARARCTERISTICS WITHIN ANY GIVEN ROAD (EX. STANDARD GRAVEL OR LIMESTONE). MIXING OF MATERIAL TYPES WITHIN THE SAME ROAD STRUCTURE WILL NOT BE PERMITTED
4. THE TOP 1000mm OF THE SUB-GRADE SHALL BE COMPACTED TO A MINIMUM OF 98% OF STANDARD PROCTOR DENSITY WITHIN 2% OF OPTIMUM MOISTURE CONTENT.
5. AT ARTERIAL ROAD OR INDUSTRIAL ROAD INTERSECTIONS, AN ADDITIONAL 150mm THICKNESS OF OPSS GRANULAR 'B', OR EQUIVALENT, SHALL BE ADDED. THIS EXTRA DEPTH SHALL EXTEND FOR A MINIMUM OF 15 METRES FROM THE PROPERTY LINE OF THE INTERSECTING ROAD.
6. FULL LENGTH SUB-DRAINS SHALL BE INSTALLED ON ALL ROADS
7. THESE ARE MINIMUM STRUCTURAL ROAD DESIGN REQUIREMENTS. THE CONSULTANT BEARS THE ULTIMATE RESPONSIBILITY FOR THE DESIGN AND THE PERFORMANCE OF THAT DESIGN AS CONSTRUCTED.
8. WHERE TWO STAGE CURBS ARE UTILIZED; BASE COURSE ASPHALT IS REQUIRED TO BE GROUND AWAY OR SAWCUT FROM BASE CURB PRIOR TO PLACEMENT OF TOP CURB
9. GRANULAR B TYPE I SHALL HAVE A MAXIMUM OF 65% PASSING THE 4.75mm SIEVE

MISSISSAUGA

STANDARD

PAVEMENT AND ROAD BASE DESIGN REQUIREMENTS

EFF. DATE		2002-01-01	SCALE	N.T.S.
REV.	3	2018-04-01	STANDARD No.	2220.010