



LeBreton Library Parcel

Constructability Report

December 2022 | TYLin Ref. 10399

Dream Asset Management



TABLE OF CONTENTS

1	INTRODUCTION.....	1
1.1	Existing Infrastructure	1
1.2	Existing Geotechnical Conditions	2
2	PROPOSED SITE DEVELOPMENT.....	4
2.1	Overview	4
2.2	Site Grading	4
2.3	Retaining Walls & OLRT Interface.....	5
2.4	Air Ducts.....	5
2.5	Albert-Slater Reconstruction Project	6
2.6	Albert-Booth Vault Infrastructure	6
2.7	Sewer Heat Recovery System.....	7
3	INFRASTRUCTURE PROTECTION REQUIREMENTS	8
4	PROPOSED PROTECTION MEASURES	9
4.1	Setbacks and Temporary Shoring Design.....	9
4.2	Settlement and Vibration Monitoring	9
4.3	Structural Loading.....	11
4.4	Pre and Post Construction CCTV Surveys	12
5	CONCLUSIONS.....	13

APPENDICES

APPENDIX A Site Grading Plan

APPENDIX B Landscape Architecture Drawings (Retaining Walls)

APPENDIX C Architectural Site Plan (Air Ducts)

APPENDIX D Architectural Drg. A40-02 (City Vault, South-West Corner of Site)

APPENDIX E Shoring Design Package

APPENDIX F Construction Logistics Plan

APPENDIX G Structural Engineering Documentation

APPENDIX H City Comments & Geotechnical Analysis Memo

LIST OF FIGURES

Figure 1-1	Existing City Infrastructure.....	3
Figure 2-1	Albert-Booth Proposed Landscape Layout	7
Figure 4-1	Albert Street HPWM Setback.....	9

1 INTRODUCTION

TYLin has been retained by Dream Asset Management to compile a Constructability Report for the proposed redevelopment of the LeBreton Library Parcel (LBLEP), located at 665 Albert Street, Ottawa, Ontario (“the site”).

The intent of this report is to consolidate project information relevant to protection of existing buried City infrastructure in the vicinity of the site – and to document the proposals in place for the necessary protection of this infrastructure through the construction and operation of the redeveloped site.

The report should be read in conjunction with supporting Site Plan Application materials – including, but not limited to the Geotechnical Investigation Report, Site Servicing/Grading drawing package, as well as the Architectural and Landscape Architecture drawing sets.

1.1 Existing Infrastructure

In existing conditions, the site generally consists of hard-packed gravel areas used for vehicular access – understood to remain from its previous use as a construction staging area for the City’s Stage 1 Light Rail Transit (OLRT) project. The site generally falls to the north and slopes down relatively steeply along the northern edge to the elevation of the OLRT tracks.

The key pieces of City infrastructure in the vicinity of the project site are:

- ▶ 2400 mm internal diameter concrete sewer pipe (“EWT”, East-West Tunnel), which crosses the northwest corner of the site and connects the diversion chamber within Booth Street to the Combined Sewer Storage Tunnel (CSST) east of the site.
 - ▶ As per City as-built drawings provided (and through reference to the City’s GeoOttawa online portal data) the invert elevation of this pipe at the western edge of the site is approximately 45.7 m (and it drops at around 0.25% as it runs east).
- ▶ 1800 mm internal diameter concrete Interceptor Outfall Sewer (IOS) trunk sanitary sewer, which crosses the northwest corner of the site.
 - ▶ With reference to the City’s GeoOttawa online portal data, the invert elevation of this IOS pipe at the western edge of the site is approximately 44.8 m (and it drops as it runs east).
- ▶ 3000 mm internal diameter concrete storm sewer pipe, which crosses the northwest corner of the site before turning north and passing below the OLRT tracks.
 - ▶ As per City as-built drawings provided (and through reference to GeoOttawa) the invert elevation of this pipe at the western edge of the site is approximately 46.7 m

(and it drops at around 0.25% as it runs east).

- ▶ 1220 mm internal diameter steel high pressure water main (HPWM) running east-west with Albert Street, to the south of the site.

Please refer to **Figure 1-1** for illustration of the existing infrastructure described above, relative to proposed site plan development.

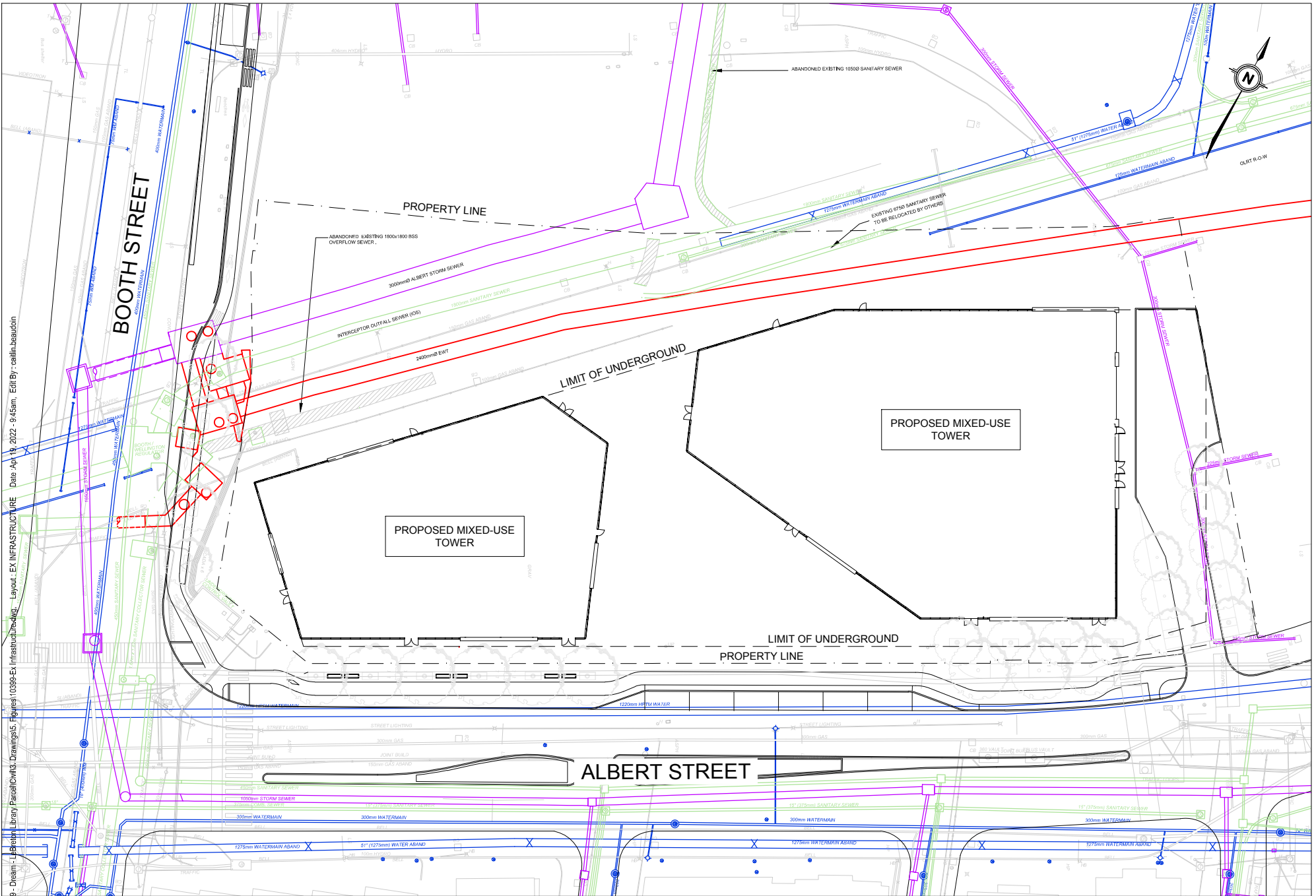
1.2 Existing Geotechnical Conditions

Golder Associates Ltd. completed a Geotechnical Investigation for the site (Golder Report Ref. 22511882, dated April 2022). The report describes the results of fieldwork investigations undertaken on site – including 6 no. boreholes (BHs) previously completed by Golder as part of a previous assignment on the project site in 2011, supplemented by an additional 5 no. BH locations advanced in February 2022.

The study documents a subsurface stratigraphy within the project area of surficial fill materials overlying glacial till, which in turn overlies limestone and shale bedrock.

- ▶ **Fill Material** was encountered in each of the boreholes from ground surface (to depths ranging from 2.1 to 3.7 m below the existing surface) – generally heterogeneous in nature ranging from silty sand to sand. The fill also contained gravel, brick fragments, concrete and mortar fragments, glass, wood and layers of organic material and clay – as well cobbles and boulders encountered during drilling. Testing indicated that the fill has a highly variable very loose to very dense state of packing.
- ▶ **Glacial Till** deposits were encountered beneath the fill material at all boreholes, typically consisting of a heterogeneous mixture of gravel, cobbles, and boulders in a matrix of sand and silt with a trace to some clay. The 2011 boreholes did not fully penetrate the till layer, however the five boreholes drilled during the 2022 investigation were all extended through the till and into the underlying bedrock, confirming the till extended to depths of 11.2 to 14.7 m below existing ground. Standard penetration testing indicated that the majority of the till has a dense to very dense state of packing.
- ▶ **Bedrock:** The 2011 boreholes were all terminated at refusal at depths of 4.2 m to 10.0 m below existing surface, however it is considered unlikely that these refusals were the result of encountering bedrock. The 2022 boreholes were extended through the glacial till deposit into the underlying bedrock and provided elevations of between 48.2 m and 50.5 m (masl) for bedrock elevation. The bedrock consists of limestone with shale interbeds of the Verulam formation.
- ▶ **Groundwater** levels have been measured (February 2022) at elevations ranging from 48.7 m to 55.1 m (masl), although it is noted that these elevations will vary seasonally.

File: G:\Projects\2022\10399 - Dream Asset Management\Drawings\5. Figures\10399-Ex Infrastructure\Layout - EX INFRASTRUCTURE Date: Apr 18, 2022 - 9:45am, Edit By: carlin.beaudoin



8800 Dufferin Street,
Suite 200
Vaughan, ON
L4K 0C5
p: 905.738.5700
f: 905.738.0065

EXISTING CITY INFRASTRUCTURE
665 ALBERT STREET
DREAM ASSET MANAGEMENT

SCALE:	1:750
DATE:	APRIL 2022
DESIGNED BY:	n/a
CHECKED BY:	C.B.

PROJECT No.	10399
FIGURE No.	1-1

2 PROPOSED SITE DEVELOPMENT

2.1 Overview

The proposed site development consists of two towers over low-rise podium structures, with a single two-level basement structure extending over the footprint of both towers. Vehicular access to the site will be via an extension of Empress Avenue at the eastern edge of the site (north off Albert Street) and into the basement via a ramp in the north-east corner of the structure. The current architectural design proposals have set the finished elevation of the P2 basement level 8.7 m below finished ground floor of the new structure (at 54.0 m).

The majority of the ground-level space outside the new buildings will be non-vehicular public realm. A new retaining wall structure will address the grade change between plaza level (which is continuous with Booth Street) and the new multi-use pathway (MUP) running east-west alongside the OLRT line (and passing below Booth Street) along the north edge of the site.

The podiums will contain a variety of commercial and community uses at lower levels, before a shared terrace area marks the transition to the residential apartments in the towers. The residential component will include a high proportion of affordable housing units.

Please refer to the associated Architectural drawing set (Perkins & Will and KPMB) for full details of the proposed development, and the Landscape Architectural set (PFS) for at-grade public realm design. The TYLin/TMIG engineering drawing set shows proposed grading and servicing details.

2.2 Site Grading

In the current (vacant) site conditions the lands fall to the north; at a relatively gentle grade initially, but with a steeper slope as the site approaches the OLRT corridor and transitions down to track level. Grades at the Albert Street interface are currently between 62 and 63 m, dropping to around 61 m at the top of the existing embankment, and interfacing with existing OLRT track level at approximately 56 m along the north property limits. There is a small existing retaining wall along the west edge of the site to manage grade differential between the Booth Street sidewalk elevation and the site grades. There is also an existing gabion basket wall in the northeast corner of the site constructed as part of the City's OLRT works – further discussion on this is provided in the following **Section 2.3**.

In proposed conditions the site will be raised to provide a flatter, plateau area for tower construction and surrounding public realm (also facilitating at-grade connection into the site from Booth Street). Proposed grading will tie-in to existing Albert Street elevations along the

southern limits and the finished grade will generally be maintained at elevations between 62 and 63 m throughout. As noted above, a retaining wall is proposed to manage the grade change from the public realm to the MUP (adjacent to the OLRT). The wall will be around 6-7 m high at the west end, tapering down to the east (as the MUP elevation rises to meet the site grades). These proposals will result in finished grades being raised by between 1 and 3 m over the northern portion of the site.

Appendix A contains the Site Grading plan for reference.

2.3 Retaining Walls & OLRT Interface

As described above, two retaining wall structures are required to manage the elevation transitions along the northern edge of the site. The first one of these is set back within the property limits and will separate the public realm area from the MUP running east-west along the OLRT interface. It will be approximately 7m high at the Booth Street end and taper down to zero as it runs east (and the MUP rises). Construction proposals for this structure are still being advanced, however current design intent is to use a precast block product engineered through a supplier-design arrangement.

The second retaining wall will be located directly along the property limits, managing the grade difference between the MUP (as it drops to pass below the Booth Street Bridge) and the OLRT lands to the north. As noted previously, there is an existing gabion basket wall in the north-east corner of the site (understood to have been constructed during Stage 1 OLRT works) partially fulfilling this function based on existing site grades. To implement the MUP connection, this existing retaining structure needs to be extended, both vertically and horizontally (to the west). Noting that this MUP connection along the north edge of the site has been planned for a number of years (per NCC Master Plan requirements), the LBLP team would welcome confirmation from City staff as to whether any allowances were made during initial design/construction of the gabion wall to facilitate future extension. If available, the team would seek to incorporate these allowances as part of the proposed design, to ensure the works can be completed in an expedient and cost-effective manner.

Appendix B contains drawings extracted from the Landscape Architecture package that show sections through the retaining wall proposals along the north edge of the site.

2.4 Air Ducts

To serve HVAC systems for the new building, an air vent structure is required to connect plant rooms at the first basement level to louvres on the face of the retaining wall to the north. The Project Mechanical Engineer (Smith & Anderson) has developed minimum cross-sectional area

requirements for these conduits (6.3 m² enlarging to 11.0 m² at the retaining wall face), and the team is currently developing proposals for their construction. Current intent is that precast box culvert sections will be used to create the connection. These proposals are noted here only in the context of providing an overview of all works being undertaken in the north portion of the site (crossing the deep City services).

Appendix C contains a copy of the Architectural Site Plan drawing with the Air Duct features highlighted, for reference.

2.5 Albert-Slater Reconstruction Project

It is noted that the City is currently at a relatively advanced stage in terms of planned reconstruction works for Albert Street, as part of the Albert-Slater Reconstruction Project. It is understood that there are two ongoing projects associated with this, and that the split of work occurs just west of Empress Avenue – works along Albert Street east of this point are ahead in terms of schedule, with works to the west following as part of a second design/construction process.

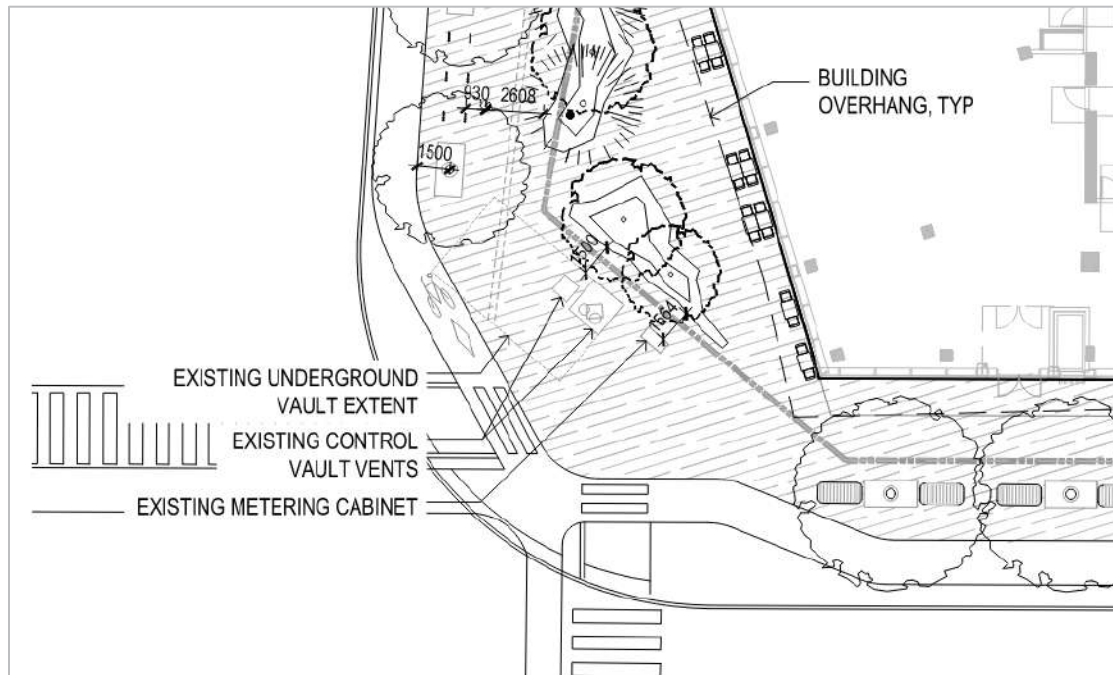
The LBLP design team are in the process of developing proposed modifications to the City's current Empress/Albert intersection design, to incorporate the north extension of Empress, an eastbound left turn lane, as well as the required signalization updates. These plans will be shared with City staff for review and approval via the established contacts within the Albert-Slater Reconstruction team.

Coordination is also ongoing with City staff engaged on the Albert-Slater works west of Empress. Current design plans for the LBLP site (and adjacent streetscape for frontages along Albert and Booth) have been shared with City staff here, and the understanding is that the City design will seek to incorporate these aspects as their design develops. The LBLP team will remain available to City staff in this regard to facilitate any further coordination necessary as proposals are advanced.

2.6 Albert-Booth Vault Infrastructure

The design team are aware of existing City infrastructure within the streetscape at the north-east corner of the Albert-Booth intersection (i.e. south-west corner of LBLP site), consisting of pad-mounted vents and control cabinet, as well as a subsurface vault. As illustrated in **Figure 2-1** (extract from Landscape Architecture Site Plan in south-west corner of the site), the design proposals have been developed to allow these features to be maintained unaffected by the works. **Appendix D** contains a drawing extracted from the Architectural package illustrating showing this City infrastructure relative to new basement construction in both plan and section.

Figure 2-1 Albert-Booth Proposed Landscape Layout



2.7 Sewer Heat Recovery System

It is noted that proposals are being developed to implement a Sewer Heat Recovery system as part of the LBLP project, using the deep trunk sewers as heat sinks for the building’s heating and cooling needs. These proposals are being advanced on behalf of Dream by Equinox, with support on the Civil Engineering aspects (E.g., access chambers from surface level) from Stantec. For further details on this proposed system, reference should be made to separate discussions with City staff.

3 INFRASTRUCTURE PROTECTION REQUIREMENTS

For the Albert Street HPWM, initial City Engineering feedback provided on the bid-level submission (comments document dated December 2021) requested a 6-9 m setback from the water main, depending on depth and soil conditions. The document also noted that Vibration and Settlement Monitoring Programs will be required during construction (to be prepared by a specialist Vibration Monitoring Engineer and Geotechnical Engineer, respectively).

City staff have subsequently provided specific requirements for the Settlement and Vibration Monitoring Program, as well as confirming that the applicable limit would be a maximum vibration of up to 15 mm/s for frequencies exceeding 40 Hz (noting that exceedances require work to be ceased immediately and the City to be notified within 2 hours). Please refer to **Section 4.2** for further discussion.

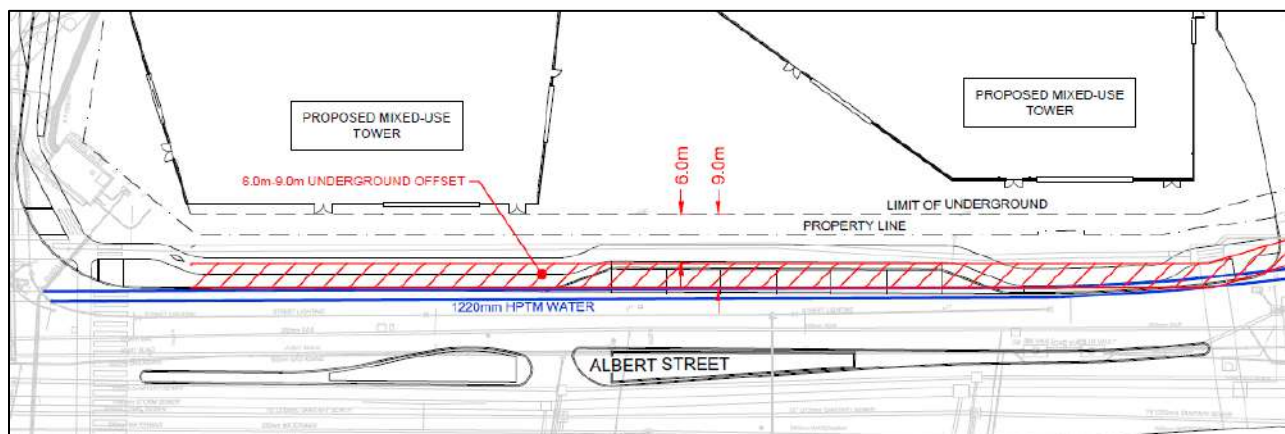
It is also noted that the team has reviewed the City of Ottawa *Infrastructure Build Over Policy* document (dated January 21, 2014 and understood to have been provided as a report to Planning Committee and Council during the Confederation Line Stage 1 OLRT project). This report is supportive of Transit-Oriented Development (TOD) such as the Library Parcel project, and the recommendations direct City staff to implement a uniform, risk-based approach to the assessment of development applications that build over (or adjacent) to City infrastructure. However, no *specific* protection requirements appear to be set out in this document that would dictate provisions for the buried pipework crossing the north-west corner of the site – including the 2400 mm diameter Combined EWT Sewer Pipe (CSST connection), 1800 mm diameter Interceptor Outfall Sewer, or the 3000 mm diameter storm sewer pipe. The team therefore looks forward to working with City staff – through review/comments on this initial report and any necessary subsequent meetings – to develop a reasonable set of infrastructure protection proposals that address City concerns while advancing the project.

4 PROPOSED PROTECTION MEASURES

4.1 Setbacks and Temporary Shoring Design

As illustrated below in **Figure 4-1** the proposed basement structure along Albert Street is horizontally set back from the HPWM by a minimum of 9.0 m along the majority of the project frontage. There is an inflection point in the basement wall alignment close to the south-east corner where the setback temporarily reduces to approximately 7.7 m, however the proposals are considered compliant with the City requirement for a 6.0 to 9.0 m setback.

Figure 4-1 Albert Street HPWM Setback



Through discussion with the project construction partner (Ellis Don) it is understood that current intent is to provide perimeter shoring along Albert Street and Booth Street – created by driven H-piles, with standard strand cable tiebacks and walers – with the remainder of the basement extent to be constructed via open cut. While this represents the current planned approach, it is noted that construction approach remains subject to change as the design progresses and more information becomes available.

For reference, **Appendix E** contains the current shoring design package and **Appendix F** contains the current Ellis Don Construction Logistics Plan. Note that this information will continue to be developed as construction plans are advanced and updates will be provided as needed.

4.2 Settlement and Vibration Monitoring

As noted in **Section 3**, City staff have provided specific requirements for the Settlement and Vibration Monitoring Program, as well as confirming that the applicable limit would be a

maximum vibration of up to 15 mm/s for frequencies exceeding 40 Hz (noting that exceedances require work to be ceased immediately and the City to be notified within 2 hours). The City requirements received are as follows:

In order to help ensure the integrity of the high-pressure transmission main located close the west boundary of the site carries a significant portion of the entire water supply for the City of Ottawa, the Owner acknowledges and agrees to undertake the following:

- 1. A site-specific Settlement and Vibration Monitoring Program (the "Program") shall be developed and stamped by a professional Engineer in the province of Ontario and shall be submitted to the City for their review and approval before the inclusion of the Program in the contract documents.*
- 2. Should monitoring levels of vibration and underground soil movement exceed the maximum limits outline in the Program, the Owner agrees to cease all construction activities immediately, and will take necessary correction option and at the same time will report to the City immediately and will resubmit a revised work plan and Program to the City.*
- 3. In the event that the levels of vibration momentarily exceed the maximum limits outlined in the submitted report/plan but the Owner's on-site consultant is of the professional opinion that no danger exists, the Owner may continue to proceed with the work by a different means, consistent with the report, that does not further cause the levels of vibration /settlement to exceed the maximum limits outlined in the Program. Priors to so proceeding with the work, the exceedance shall be reported to the Construction Services Branch of the City.*
- 4. In the event of any requirement for emergency repairs of this transmission main, the Owner shall reimburse the City for the cost of such repair to the satisfaction of the General Manager, Planning, Real Estate and Economic Development Department.*
- 5. The City reserves the right to issue a stop work order for the construction in the event of an incident which would adversely affect the City's requirement to provide safe drinking water. This may include, but is not limited to, a leak or failure of the high pressure transmission main and /or a failure at one of the water purification plans. Where the stop work order is for a period of 24 hours or less, the City is not responsible for any delay claim billed by the developer. No inference of liability is to be taken from these conditions for any period longer than 24 hours.*
- 6. A certificate of liability insurance shall be submitted to the City wherein the Owner is the named insured and the City of Ottawa is an additional insured. The limits of the policy shall be in the amount of \$25,000,000 and shall be kept in full force and effect for the term of the construction work.*

The LBLP team acknowledges these requirements and commits to developing the required site-specific Settlement and Vibration Monitoring Program and submitting for City review/approval prior to the work being included in contract documents. We note that the construction team has recent experience working under similar constraints within the City of Ottawa and does not foresee any issues maintaining compliance with these requirements.

4.3 Structural Loading

Please refer to **Appendix G** for further details of the proposed structural/foundation design, developed by the Project Structural Engineer (RJC) in conjunction with the Project Geotechnical Engineer (Golder) – this appendix includes a drawing set showing current foundation design alongside estimated locations of City services (specifically EWT and IOS pipes), in both plan and section.

In summary though, the proposed structure will be supported on reinforced concrete caissons drilled down and socketed into the bedrock for all heavily loaded tower structural elements. For the lightly loaded columns and walls, smaller “pipe piles” drilled and socketed to rock will be provided. No conduits pass beneath the footprint of the proposed building. The closest service (2400mm diameter EWT concrete sewer pipe) runs approximately parallel to the north foundation wall with an invert elevation of approximately 45.6m and maintains a horizontal clearance from the proposed foundation wall of between 3 and 10m.

In accordance with Geotechnical recommendations, the deep foundation system underneath the foundation wall and adjacent columns will be socketed 1m into the bedrock, hence loading the rock in friction approximately between elevation 47m and 48m. Based on the provided as-built drawings of the existing services, the minimum horizontal distance from the buried pipe to the edge of the caisson is at least 3m (refer to RJC drawings S198-S198E-S198W-S702 included in the appendix). The invert elevation of the pipe is around elev. 45m, providing a minimum 1H:1V slope from the invert to the highest point of application of the deep foundation force in the rock. Based on Geotechnical recommendations, these conditions should not impose any significant stress increase to the existing services.

The team acknowledges receipt of City comments on the initial issue of the Constructability Report (transmitted by email on November 8th 2022), comprising a memo by Stantec with comments on various aspects of the project in relation to CSST Infrastructure. Please refer to **Appendix H** for a copy of the Stantec memo, along with a response memo from Golder describing additional analyses undertaken and point-by-point responses to the Stantec comments.

4.4 Pre and Post Construction CCTV Surveys

As per City requirements, the contractor will be responsible for undertaking pre and post-development CCTV surveys of the identified buried infrastructure crossing the project site to document the existing conditions and demonstrate that works were completed without damage to City infrastructure.

5 CONCLUSIONS

This Constructability Report is provided to document the presence of existing buried City infrastructure crossing (or in close proximity to) the project site, and to summarize the current design/construction intent with respect to protection of these existing City assets through development. The LBLP team remains available to engage with City staff following their review of this submission to discuss and refine the proposals as needed to advance the project.

Respectfully submitted,

On behalf of TYLin,



Ben Worth, P.Eng.

Senior Project Manager

Disclaimer:

This report includes numerous references to investigations, findings and recommendations of third parties – specifically, from the project Geotechnical Engineer (Golder Associates Ltd.), the project Structural Engineer (RJC Ltd.), and the project construction partner (Ellis Don). This information is consolidated in the Constructability Report for the purposes of City review, however TYLin does not take responsibility for the approval, validation, or ownership of these recommendations from third parties.



APPENDIX A

Site Grading Plan

CONSULTANTS

TMG
8800 Dufferin St., Suite 200, Vaughan, ON L4K 0C5
STRUCTURAL

RJC Engineers
1545 Carlin Ave., Suite 530, Ottawa, ON K1Z 9P9

Smith+Anderson
1600 Carling Ave., Suite 530, Ottawa, ON K1Z 1G3
LANDSCAPING

PFS Studio
1777 W 3rd Ave., Vancouver, BC V6J 1K3

Two Row Architect
1804 6th Line, Oshawa, ON N4A 1M0

CONTRACTOR
ElisDon
2680 Queensview Dr., Ottawa, ON K2B 8J9

STAMP



PROJECT

LEBRETON LIBRARY PARCEL
665 Albert St
Ottawa, ON
Canada



DREAM
30 Adelaide St. E., Suite 301,
Toronto, ON M5C 3H1
KEYPLAN



ISSUE CHART

NO.	DESCRIPTION	DATE
1	ISSUED FOR SPA SUBMISSION	2022-04-04
2	ISSUED FOR SPA SUBMISSION	2022-04-04
3	ISSUED FOR SPA SUBMISSION	2022-04-04
4	ISSUED FOR SPA SUBMISSION	2022-04-04
5	ISSUED FOR SPA SUBMISSION	2022-04-04

ISSUED FOR SPA SUBMISSION - NOT FOR CONSTRUCTION 2022 - 11 - 09



KEY PLAN

N.T.S.

SEE ABBREVIATIONS BELOW

- 200.00, 0.5% MHTA
- 200.00, 0.5% EX MHTA
- PROPOSED ITEMS
- EXISTING ITEMS
- LIMIT OF PROPERTY LINE
- LIMIT OF UNDERGROUND STRUCTURE
- PROP ELEVATION TO MATCH EXISTING
- EMERGENCY OVERLAND FLOW ROUTE
- MH / CBM / DCBM / OGS
- CB / DCB / AD / TD
- HYDRANT / SIAMERE / VALVE BOX

BENCHMARK

ELEVATIONS ARE GEODETIC IN METRES AND DERIVED FROM THE CAN-NET VRS NETWORK MONUMENT, OTTAWA ELEVATION 62.200

BEARING

BEARINGS ARE GRID, DERIVED FROM THE CAN-NET VRS NETWORK OBSERVATIONS ON NIC HORZ CONTROL MONUMENTS 1973035 & 1960311, CENTRAL MERIDIAN 76 30' W LONGITUDE WITH ZONE 9

DRAWING NOTES

- THIS DRAWING IS THE EXCLUSIVE PROPERTY OF THE MUNICIPAL INFRASTRUCTURE GROUP LTD (TMG). THE REPRODUCTION OF ANY PART WITHOUT PRIOR WRITTEN CONSENT FROM TMG IS STRICTLY PROHIBITED.
- THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER DRAWINGS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
- THIS DRAWING IS NOT TO BE ISSUED FOR CONSTRUCTION UNTIL ALL REQUIRED PERMITS HAVE BEEN ISSUED.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, INVERTS AND DATA ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO TMG 48 HOURS PRIOR TO ANY CONSTRUCTION.

ABBREVIATIONS

GENERAL:	SERVICING:	HDPE - HIGH DENSITY POLYETHYLENE
PROP = PROPOSED	BTM = STORM	CONC = CONCRETE
EX = EXISTING	SAN = SANITARY	MH = MANHOLE
	WAT = WATER	DCB = DOUBLE CATCH BASIN
	PVC = POLYVINYL CHLORIDE	AD = AREA DRAIN
	TC = TOP OF CURB	TD = TRENCH DRAIN
	BC = BOTTOM OF CURB	

SCALE: 1:200 4m TMG PROJECT # 10399

DATE: APRIL 2022

DRAWN BY: B.G.

DESIGNED BY: B.G.

CHECKED BY: B.D.



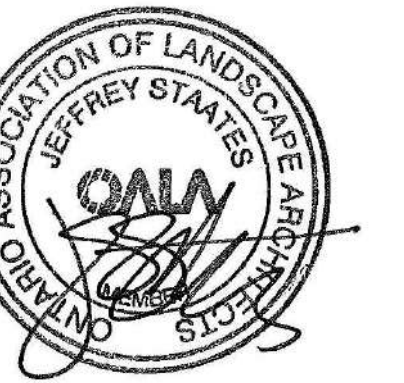


APPENDIX B

Landscape Architecture Drawings (Retaining Walls)

CONSULTANTS

- civil
TMIG
8800 Dufferin St., Suite 200, Vaughan, ON L4K 0C5
- STRUCTURAL
RJC Engineers
1545 Carlin Ave., Suite 304, Ottawa, ON K1Z 6P9
- MEP
Smith+Andersen
1600 Carling Ave., Suite 530, Ottawa, ON K1Z 1G3
- LANDSCAPE
PFS Studio
1777 W 3rd Ave., Vancouver, BC V6J 1KJ
- CONSULTANT
Two Row Architect
1804 6th Line, Chatham, ON N0A 1M0
- CONTRACTOR
Eliadon
2680 Queensview Dr., Ottawa, ON K2B 6J9



PROJECT

**LEBRETON LIBRARY
PARCEL**
665 Albert St
Ottawa, ON
Canada



DREAM
30 Adelaide St. E., Suite 301,
Toronto, ON M5C 3H1
KEYPLAN

ISSUED FOR SPA RESUBMISSION - NOT FOR CONSTRUCTION 2022-11-09

ISSUE CHART

NO.	ISSUE	DATE
2	ISSUED FOR SPA RESUBMISSION	2022-11-09
1	ISSUED FOR SPA RESUBMISSION	2022-04-12
1	ISSUED FOR SPA RESUBMISSION	2022-04-12

Job Number

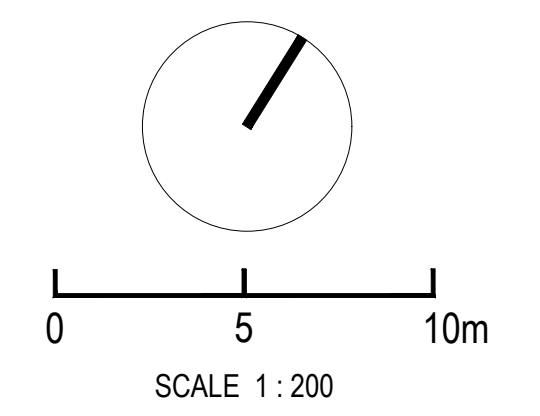
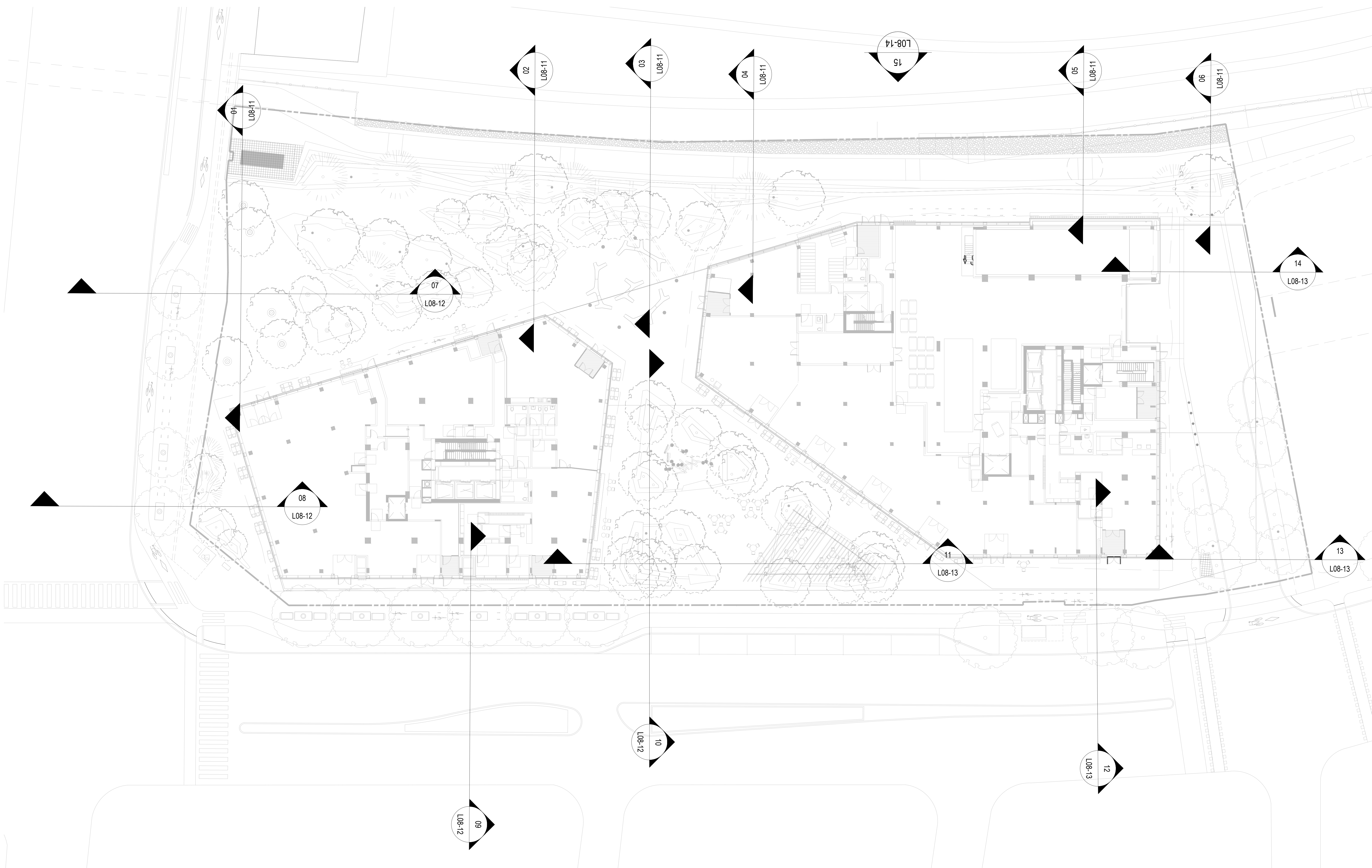
TITLE

SECTION

SHEET NUMBER

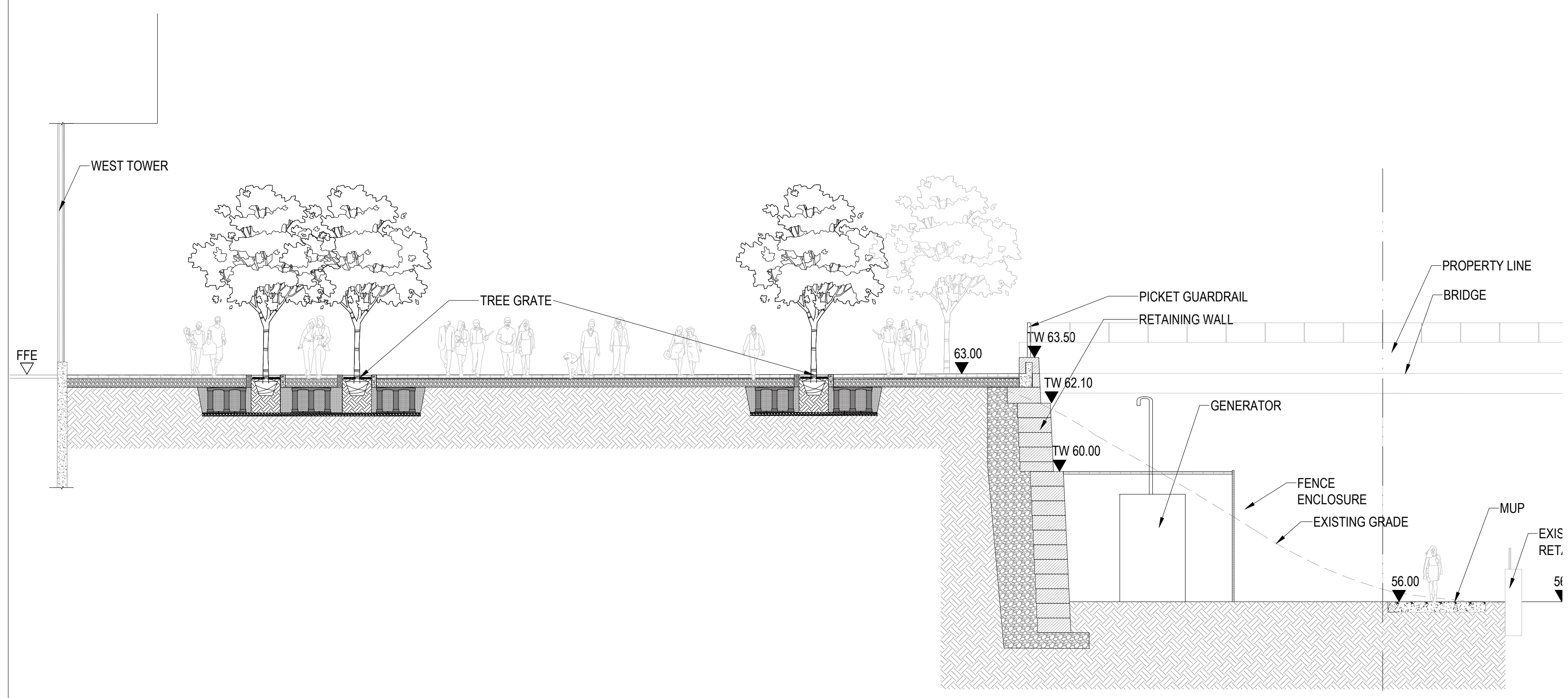
L08-10

© 2022 Perkins and Will

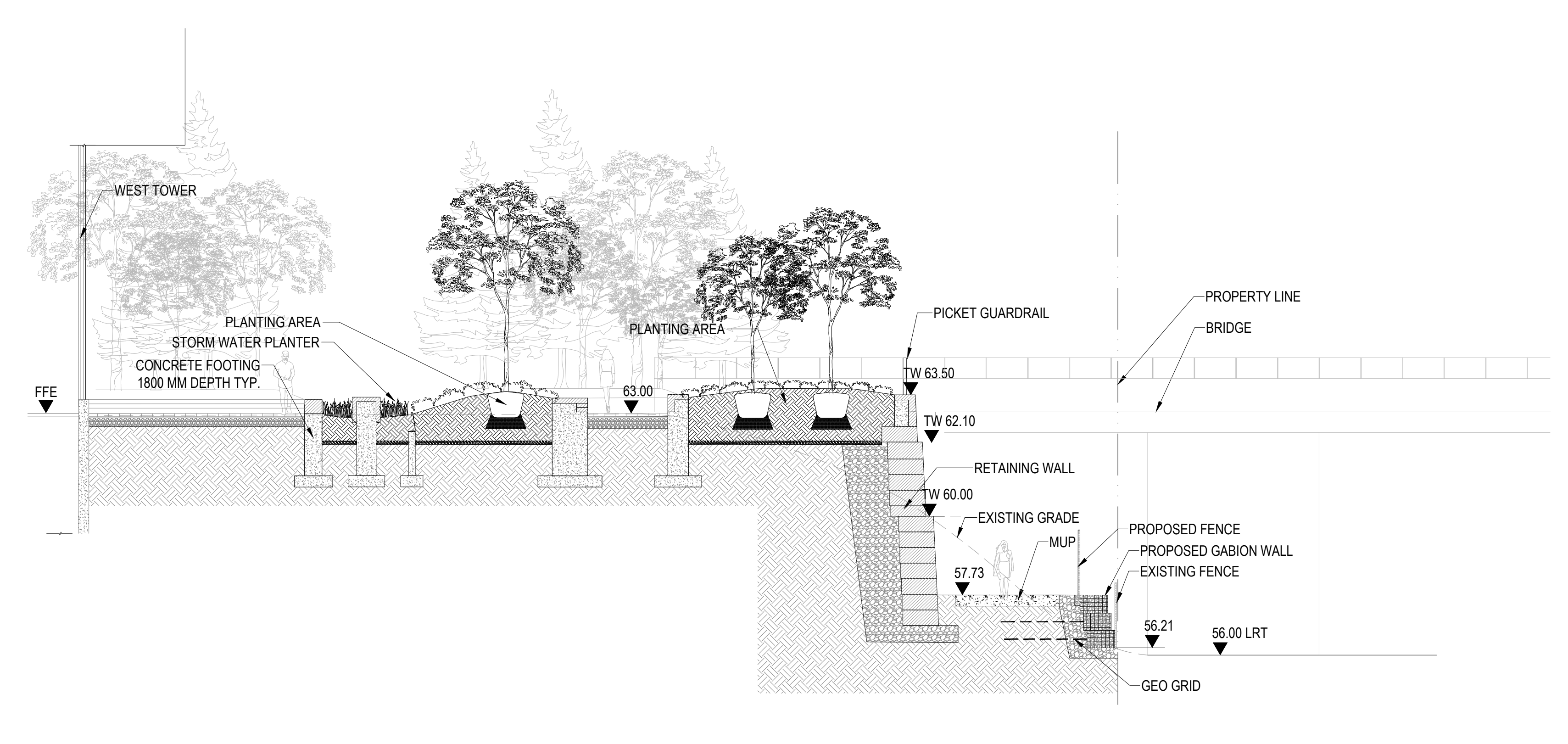


CONSULTANTS

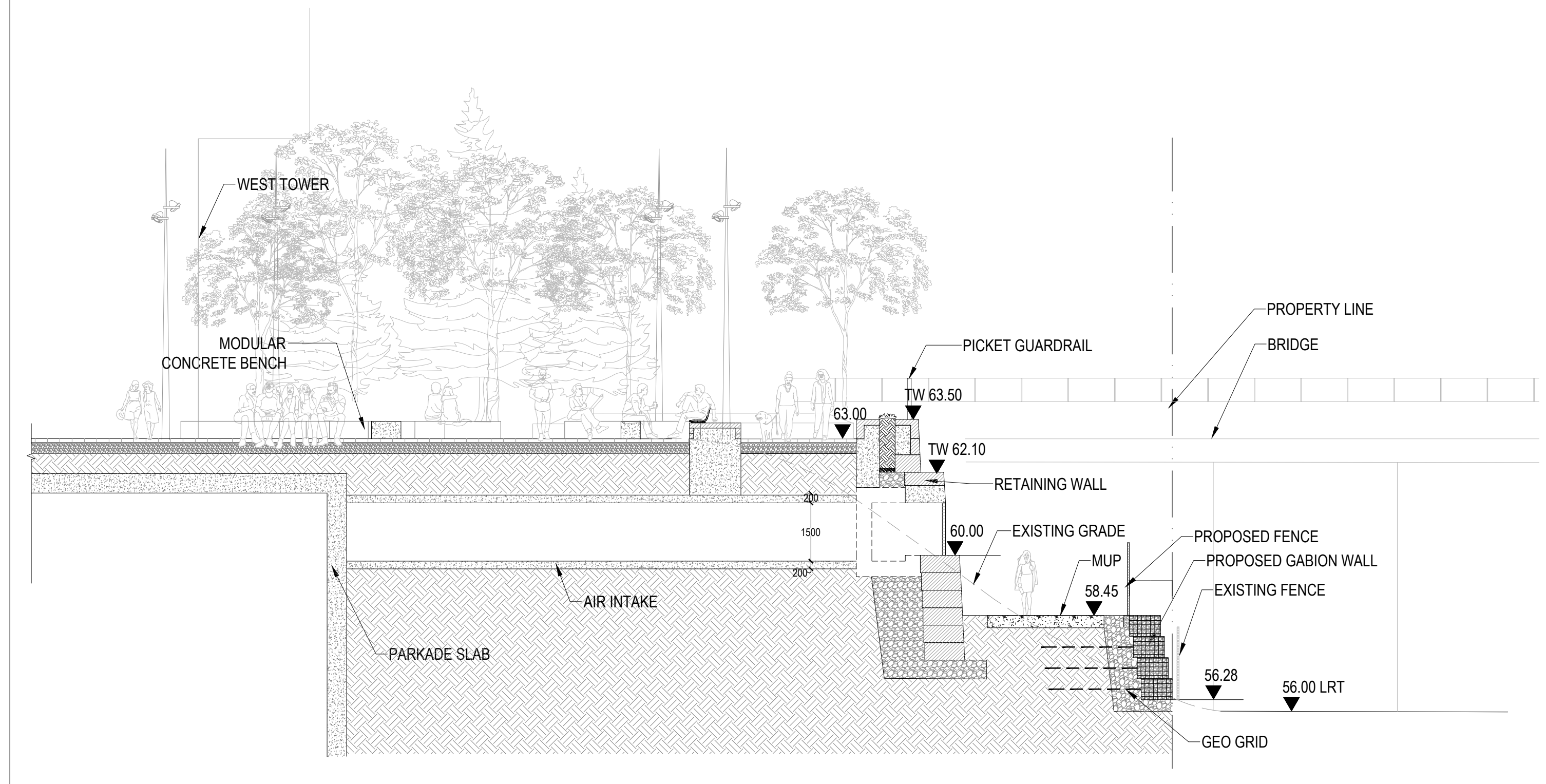
- civ. TMIG
8800 Dufferin St., Suite 200, Vaughan, ON L4K 0C5
- struct. RJC Engineers
1545 Carlin Ave., Suite 304, Ottawa, ON K1Z 6P9
- Smith+Andersen
1600 Carling Ave., Suite 530, Ottawa, ON K1Z 1G3
- LANDSCAPE PFS Studio
1777 W 3rd Ave., Vancouver, BC V6J 1KJ
- Two Row Architect
1804 6th Line, Châteauguay, ON N0A 1M0
- ElisDon
2880 Queensview Dr., Ottawa, ON K2B 6J9



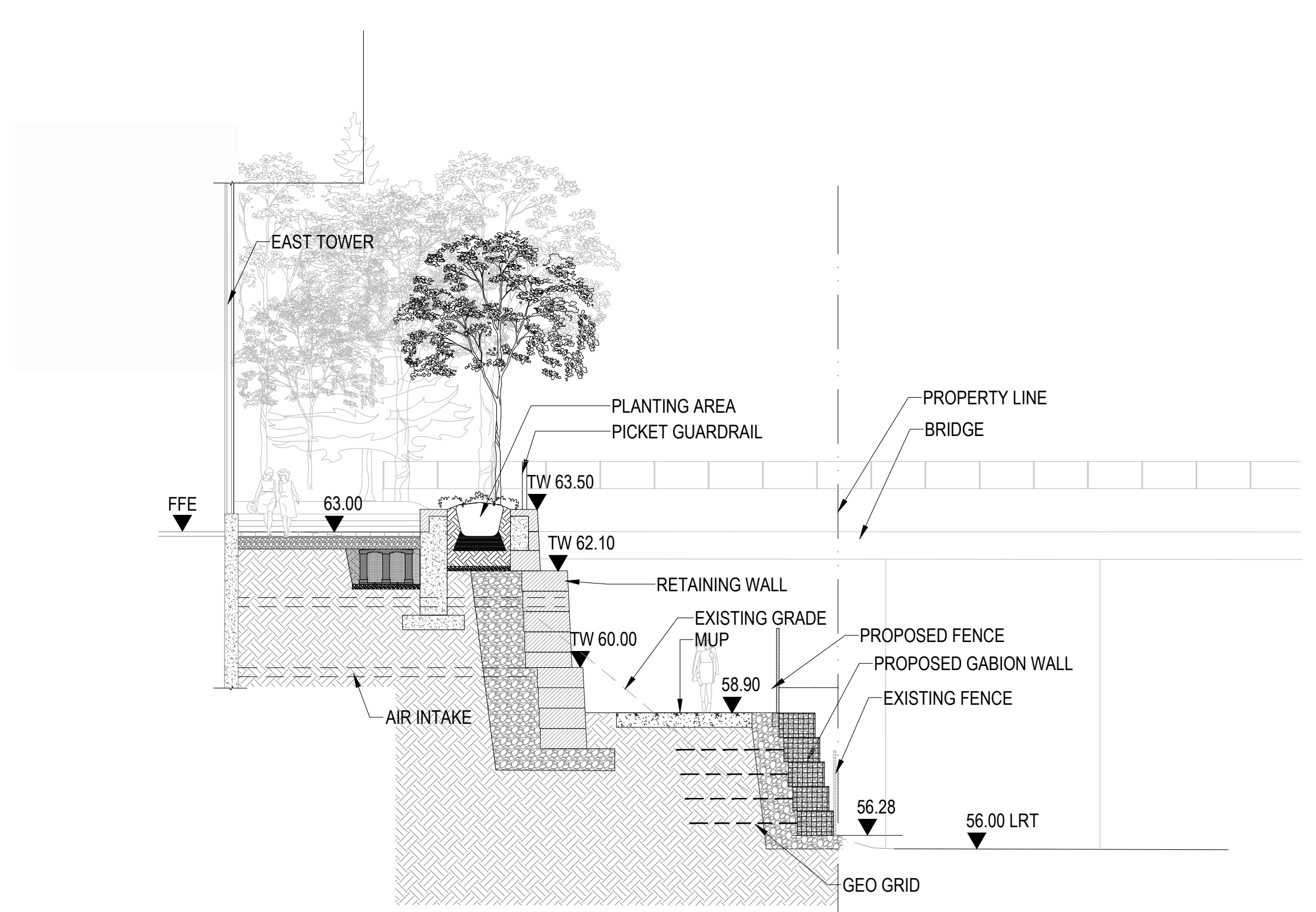
01 MUP TO NORTHWEST UPPER PLAZA
SCALE: 1:100



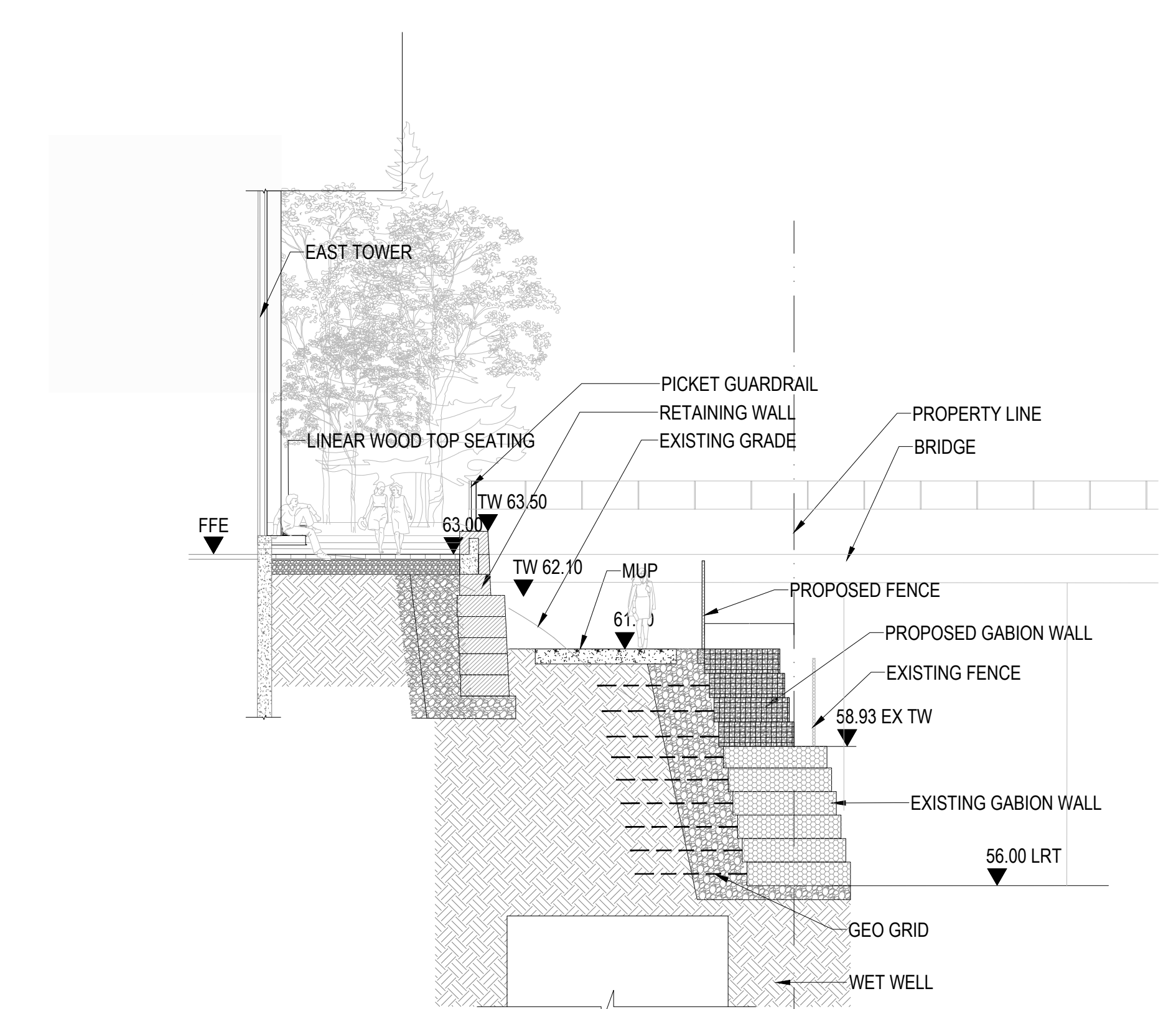
02 MUP TO NORTHWEST UPPER PLAZA
SCALE: 1:100



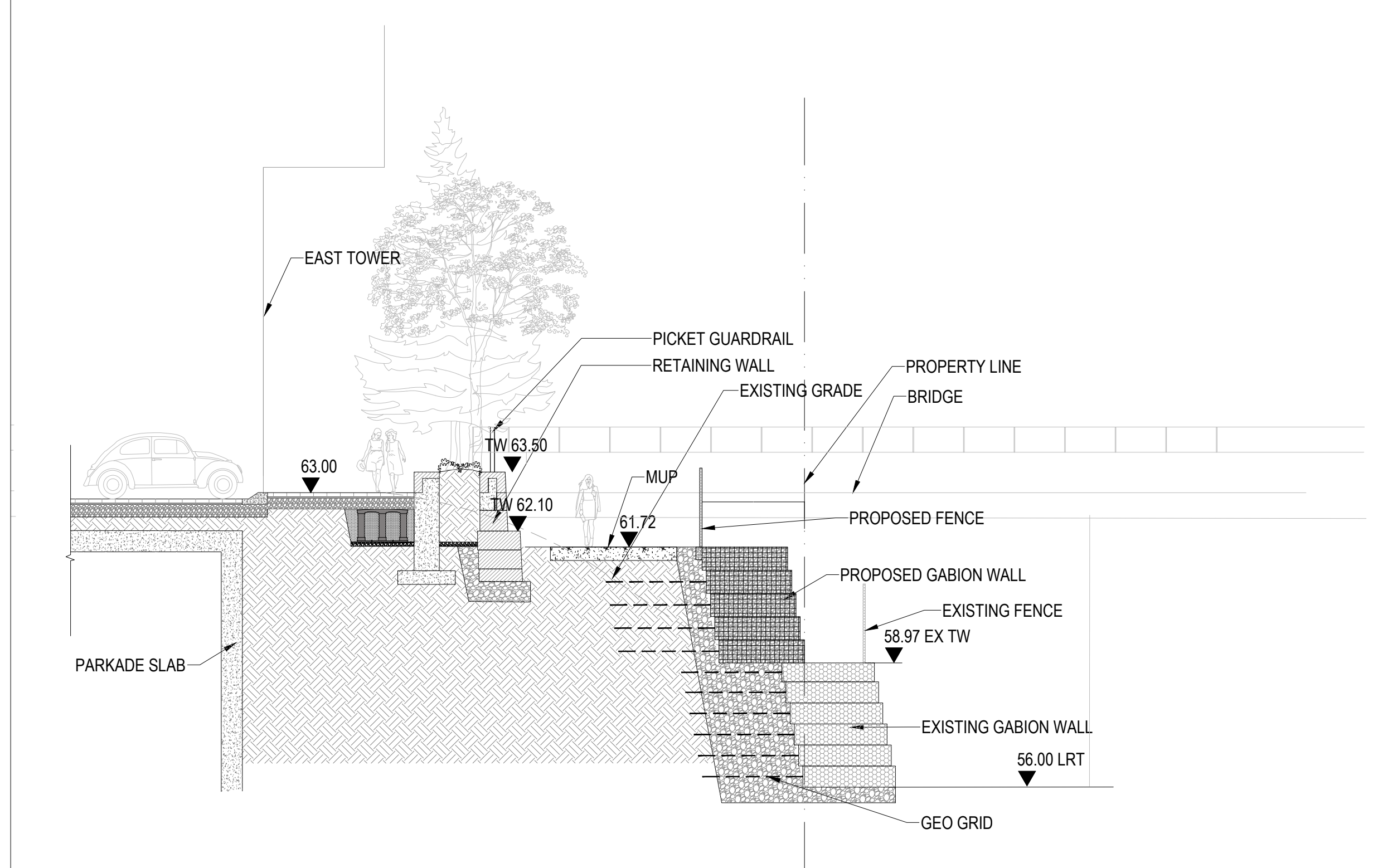
03 MUP TO GATHERING CIRCLE
SCALE: 1:100



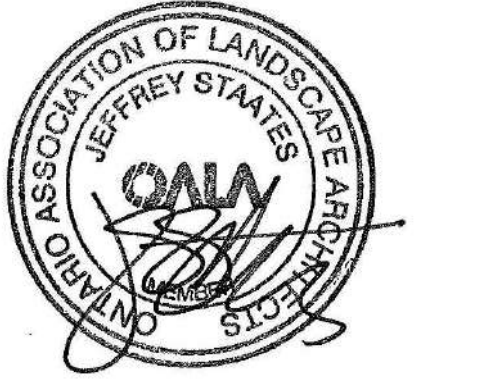
04 MUP TO NORTHEAST UPPER PLAZA
SCALE: 1:100



05 MUP TO NORTHEAST UPPER PLAZA
SCALE: 1:100



06 MUP TO NORTHEAST UPPER PLAZA
SCALE: 1:100



PROJECT

LEBRETON LIBRARY PARCEL
665 Albert St
Ottawa, ON
Canada



DREAM
30 Adelaide St. E., Suite 301,
Toronto, ON M5C 3H1
KEYPLAN

ISSUED FOR SPA RESUBMISSION - NOT FOR CONSTRUCTION 2022-11-09

ISSUE CHART

NO.	DESCRIPTION	DATE
2	ISSUED FOR SPA RESUBMISSION	2022-11-09
1	ISSUED FOR SPA RESUBMISSION	2022-04-11
1	ISSUED FOR SPA RESUBMISSION	2022-04-11

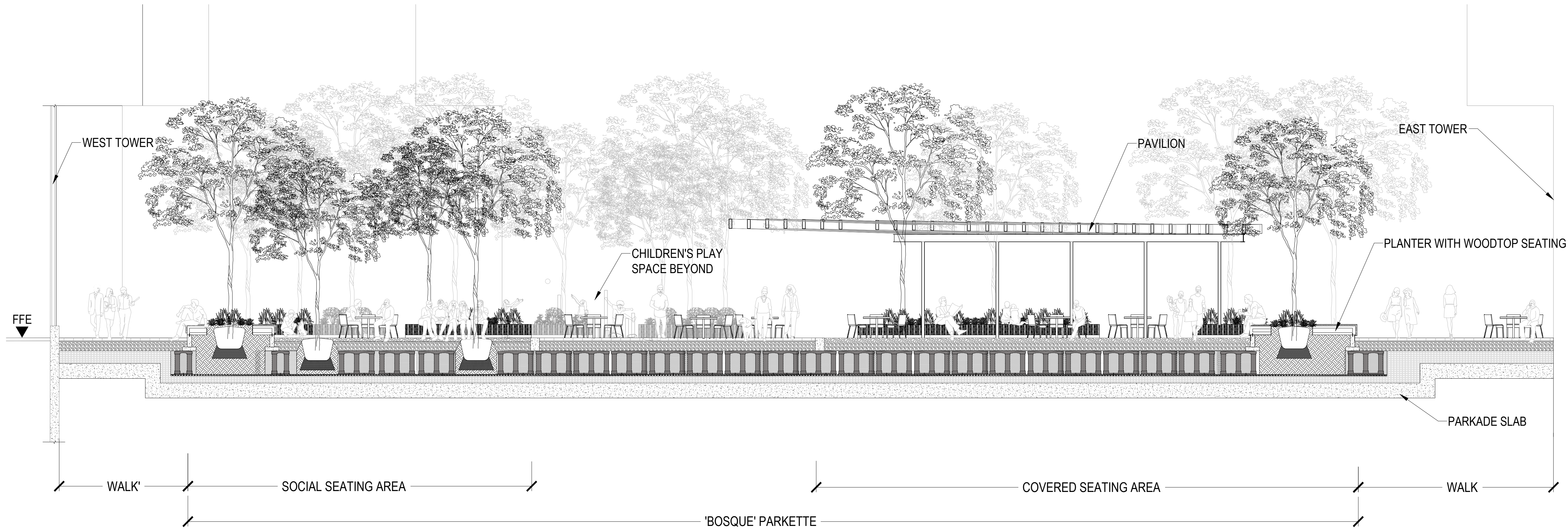
SECTION

SHEET NUMBER

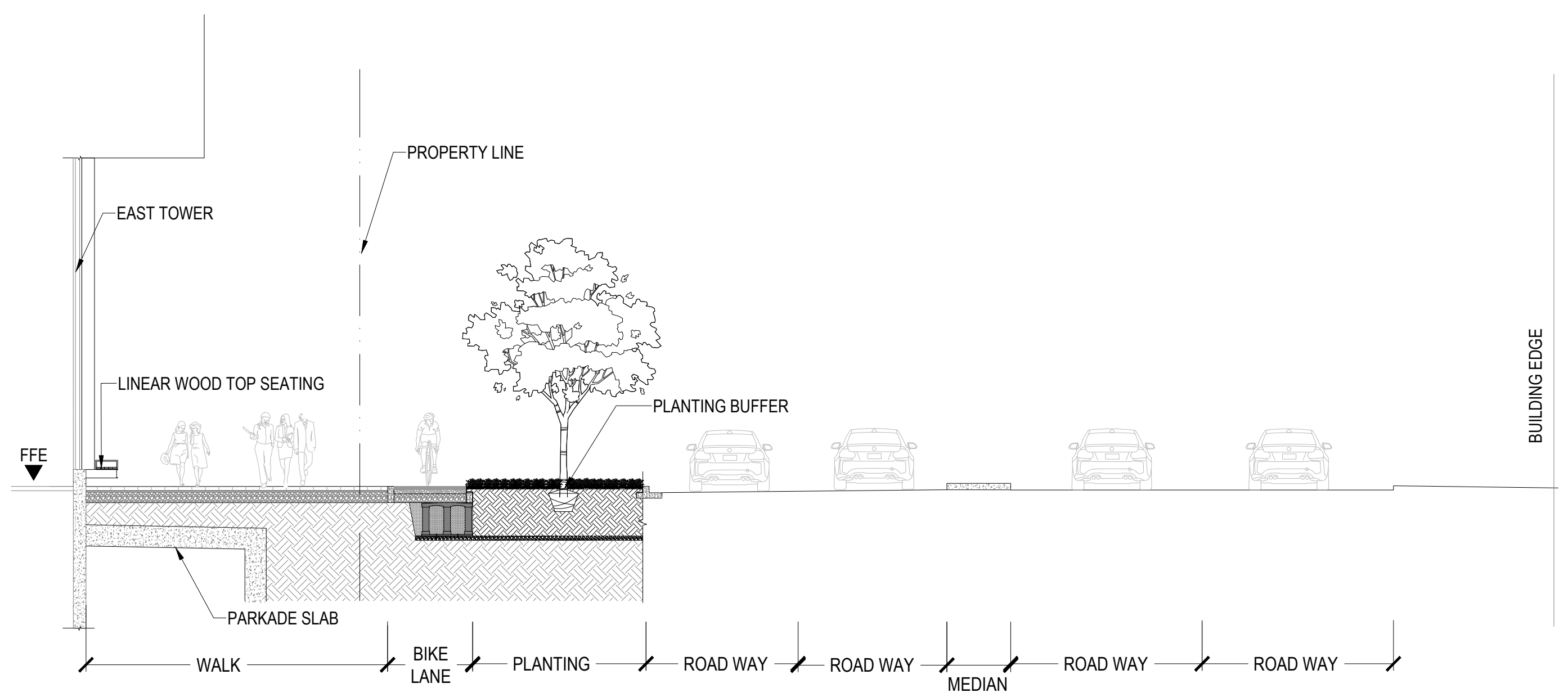
L08-11

CONSULTANTS

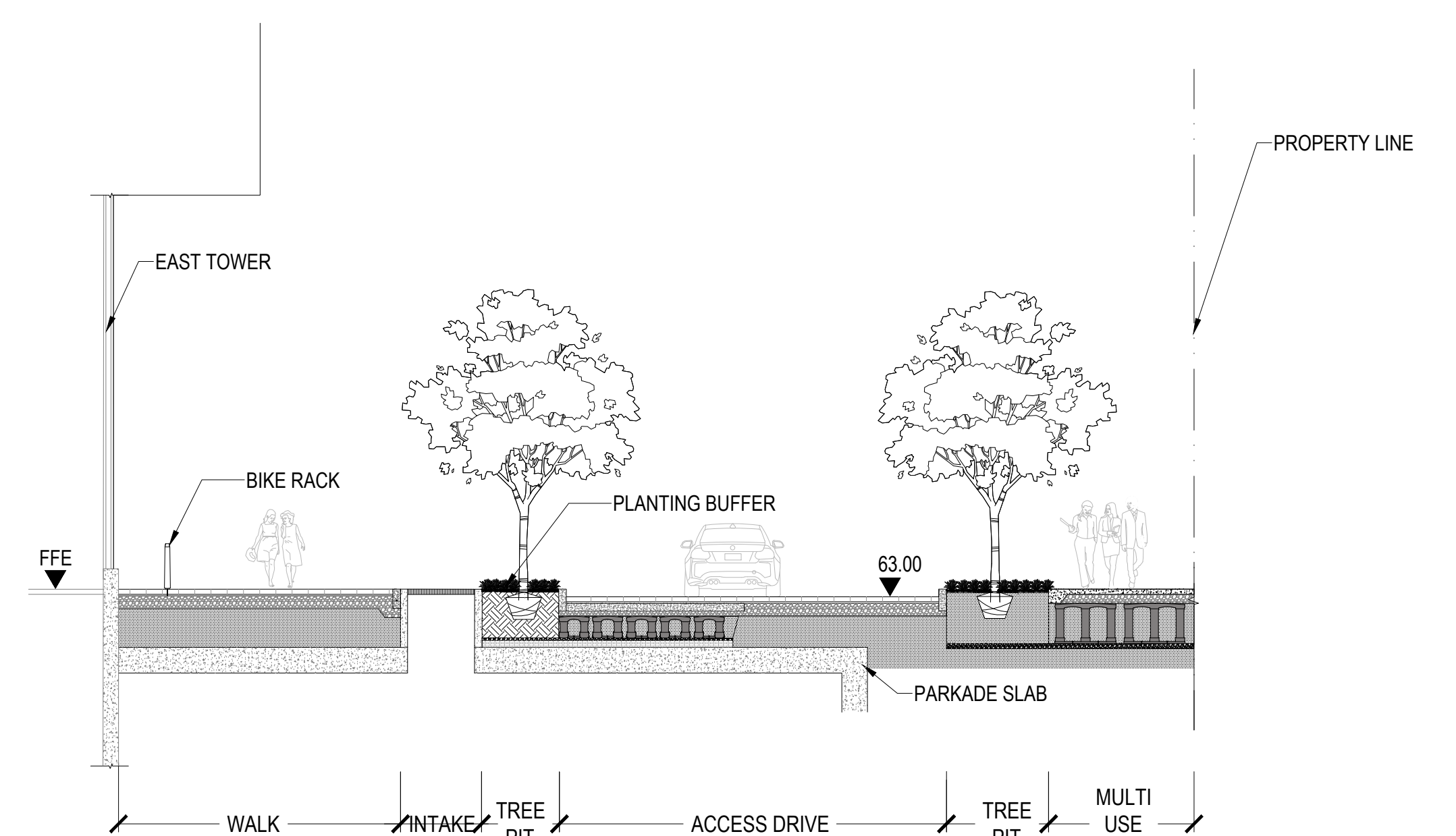
- civil
TMIG
8800 Dufferin St., Suite 200, Vaughan, ON L4K 0C5
STRUCTURAL
- RJC Engineers
1545 Carlin Ave., Suite 304, Ottawa, ON K1Z 6P9
MEP
- Smith+Andersen
1600 Carling Ave., Suite 530, Ottawa, ON K1Z 1G3
LANDSCAPE
- PFS Studio
1777 W 3rd Ave., Vancouver, BC V6J 1K1
- CONTRACT ARCHITECT
Two Row Architect
1804 6th Line, Chatham, ON N0A 1M0
- CONTRACTOR
Eliadon
2680 Queensview Dr., Ottawa, ON K2B 6J9



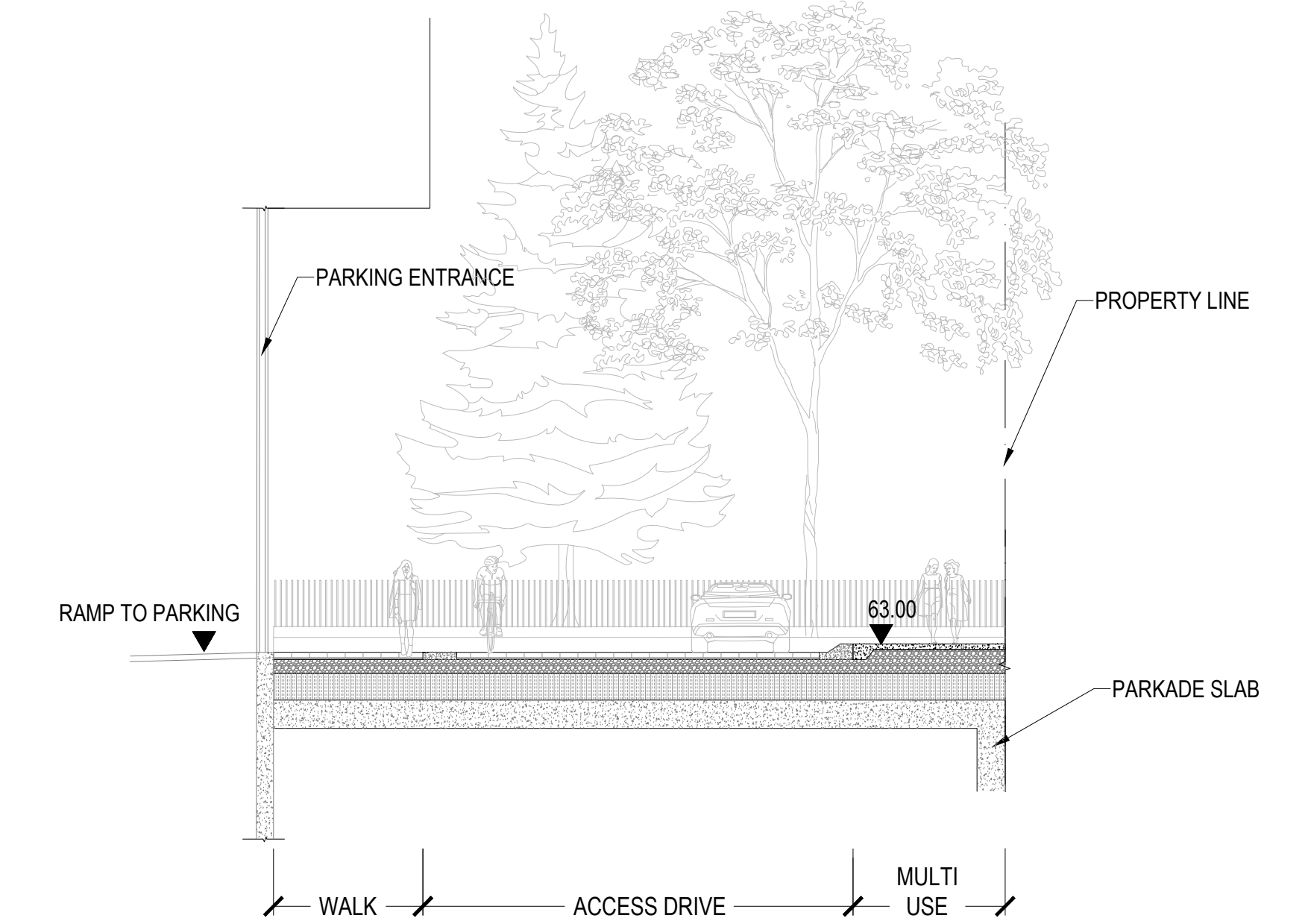
11 'BOSQUE' WEST TO EAST
SCALE: 1:75



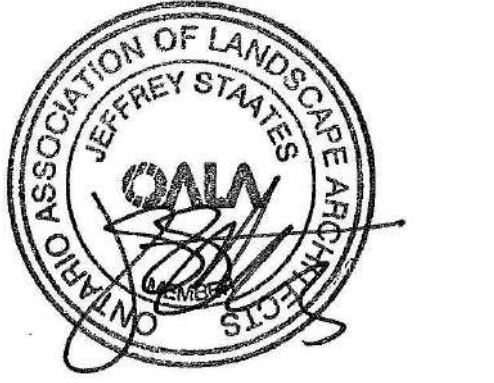
12 ALBERT STREET
SCALE: 1:100



13 SOUTH EMPRESS ACCESS LANE
SCALE: 1:100



14 NORTH EMPRESS ACCESS LANE
SCALE: 1:100



PROJECT

LEBRETON LIBRARY
PARCEL
665 Albert St
Ottawa, ON
Canada



DREAM
30 Adelaide St. E., Suite 301,
Toronto, ON M5C 3H1
KEYPLAN

ISSUED FOR SPA RESUBMISSION - NOT FOR CONSTRUCTION 2022-11-09

ISSUE CHART

NO.	DESCRIPTION	DATE
1	ISSUED FOR SPA RESUBMISSION	2022-11-09
2	ISSUED FOR SPA RESUBMISSION	2022-11-09
3	ISSUED FOR SPA RESUBMISSION	2022-11-09

Job Number _____ TITLE _____

SECTION

SHEET NUMBER

L08-13



APPENDIX C

Architectural Site Plan

(Air Ducts)

CONSULTANTS

TMG
8800 Dufferin St., Suite 200, Vaughan, ON L4K 0C5
STRUCTURAL

RJC Engineers
1545 Carlin Ave., Suite 304, Ottawa, ON K1Z 8P9

Smith+Anderson
1600 Carling Ave., Suite 530, Ottawa, ON K1Z 1G3
LANDSCAPING

PFS Studio
1777 W 3rd Ave., Vancouver, BC V6J 1K1

Two Row Architect
1804 6th Line, Oshawa, ON N4A 1M0

EllisDon
2680 Queensview Dr., Ottawa, ON K2B 6J9

STAMP

PROJECT

LEBRETON LIBRARY
PARCEL
665 Albert St
Ottawa, ON
Canada



DREAM
30 Adelaide St. E., Suite 301,
Toronto, ON M5C 3H1
KEYPLAN



ISSUE CHART

NO.	DATE	DESCRIPTION
1	2022-04-29	ISSUED FOR SPA / ZBA / SPA
2	2022-05-27	ISSUED FOR 60% SD
3	2022-06-10	ISSUED FOR 100% SD
4	2022-08-19	ISSUED FOR 60% SD
5	2022-09-30	ISSUED FOR 100% SD
6	2022-11-09	ISSUED FOR SPA RESUBMISSION
7	2022-11-09	ISSUED FOR KCC 9% FULGATA

ISSUED FOR APPROVALS - NOT FOR CONSTRUCTION 2022-11-09

NOTES

SITE PLAN BASED ON TOPOGRAPHIC SURVEY BY: STANTEC GEOMATICS LTD.
300-1331 CLYDE AVENUE,
OTTAWA, ON K2C 2A9
C/O R. G. BENNETT
APRIL 7, 2022

SITE / ZONING DATA

	REQUIRED	PROVIDED
TOTAL LOT AREA	9,629 m ²	9,629 m ²
GROSS FLOOR AREA	38,275.26 m ²	38,275.26 m ²
FLOOR SPACE INDEX	3.97	3.97
LOT FRONTAGE ON ALBERT STREET	144.0 m	144.0 m
LOT FRONTAGE ON BOOTH STREET	77.9 m	77.9 m
LOT FRONTAGE ON LRT	138.6 m	138.6 m
LOT FRONTAGE ON EAST PROPERTY LINE	63.8 m	63.8 m
PROPOSED BUILDING LENGTH AT GRADE ON ALBERT STREET		
EAST TOWER (PARALLEL)	29.5 m	29.5 m
EAST TOWER (ANGLED)	43.3 m	43.3 m
WEST TOWER (PARALLEL)	42.7 m	42.7 m
WEST TOWER (ANGLED)	30.2 m	30.2 m
PROPOSED BUILDING LENGTH AT GRADE ON BOOTH STREET		
WEST TOWER	24.7 m	24.7 m
PROPOSED BUILDING LENGTH AT GRADE ON LRT		
EAST TOWER (PARALLEL)	42.7 m	42.7 m
EAST TOWER (ANGLED)	21.2 m	21.2 m
EAST TOWER (ANGLED)	15.2 m	15.2 m
WEST TOWER (PARALLEL)	46.2 m	46.2 m
WEST TOWER (ANGLED)	11.4 m	11.4 m
PROPOSED BUILDING LENGTH AT GRADE ON EAST PROPERTY LINE		
EAST TOWER	46.8 m	46.8 m
SETBACK DATA		
FRONT YARD (ALBERT STREET)	NO MIN	1.8 m-4.9 m
CORNER SIDE YARD SETBACK	NO MIN	0.0 m-9.9 m
EASTERLY INTERIOR SIDE YARD SETBACK	9.0 m	9.0 m
REAR YARD SETBACK (LRT)	NO MIN	10 m
TOWER SETBACK FROM EASTERLY SIDE YARD	14.5 m	15.7 m
TOWER DATA		
TOWER SEPARATION	23.0 m	55.3 m
TOWER FLOORPLATE AREA	750 m ² MAX	759 m ²
BUILDING HEIGHT		
EAST TOWER AVERAGE GRADE		62.91 m
MIDPOINT OF EAST TOWER ROOF		167.52 m
EAST TOWER BUILDING HEIGHT	110 m	104.61 m
WEST TOWER AVERAGE GRADE		62.58 m
MIDPOINT OF WEST TOWER ROOF		153.37 m
WEST TOWER BUILDING HEIGHT	127 m	120.79 m

AMENITY AREA

AMENITY LOCATION	AMENITY FUNCTION	AREA
INDOOR AMENITY	COMMUNAL AMENITY	1753.91 m ²
OUTDOOR AMENITY	COMMUNAL AMENITY	2474.59 m ²
OUTDOOR AMENITY	PRIVATE AMENITY	986.16 m ²
TOTAL AMENITY SPACE		5214.57 m²

PARKING SPACES

TYPE	REQUIRED	REQUIRED	PROPOSED
RESIDENT	N/A, MAX 1.5 per 0 MIN, 910 MAX	0	122
RESIDENT BARRIER-FREE	N/A	0	7
TOTAL RESIDENTIAL			129
VISITOR RESIDENTIAL	0.10 unit	61	58 (+3 B-F)
RETAIL	N/A, MAX 10	0	6
DAY CARE	N/A	0	8
RETAIL/DAYCARE BARRIER-FREE	20-99 spaces = 1 (of 61)	1	1
TOTAL VISITOR			76
GRAND TOTAL		61 MIN	205

NOTES
REFER TO A10-008 FOR FURTHER INFORMATION ON VEHICULAR PARKING SPACE SIZES AND WASTE STATISTICS.

LOADING SPACES

TYPE	REQUIRED	PROPOSED
RETAIL	0	SHARED
OTHER (DAY CARE)	1	1
RESIDENTIAL	0	SHARED
TOTAL TYP LOADING SPACES	1	1

1 TYPE G LOADING SPACE IS PROVIDED FOR WASTE COLLECTION
1 ADDITIONAL LSU LOADING SPACE IS LOCATED IN P1 FOR WEST TOWER LOADING CONVENIENCE

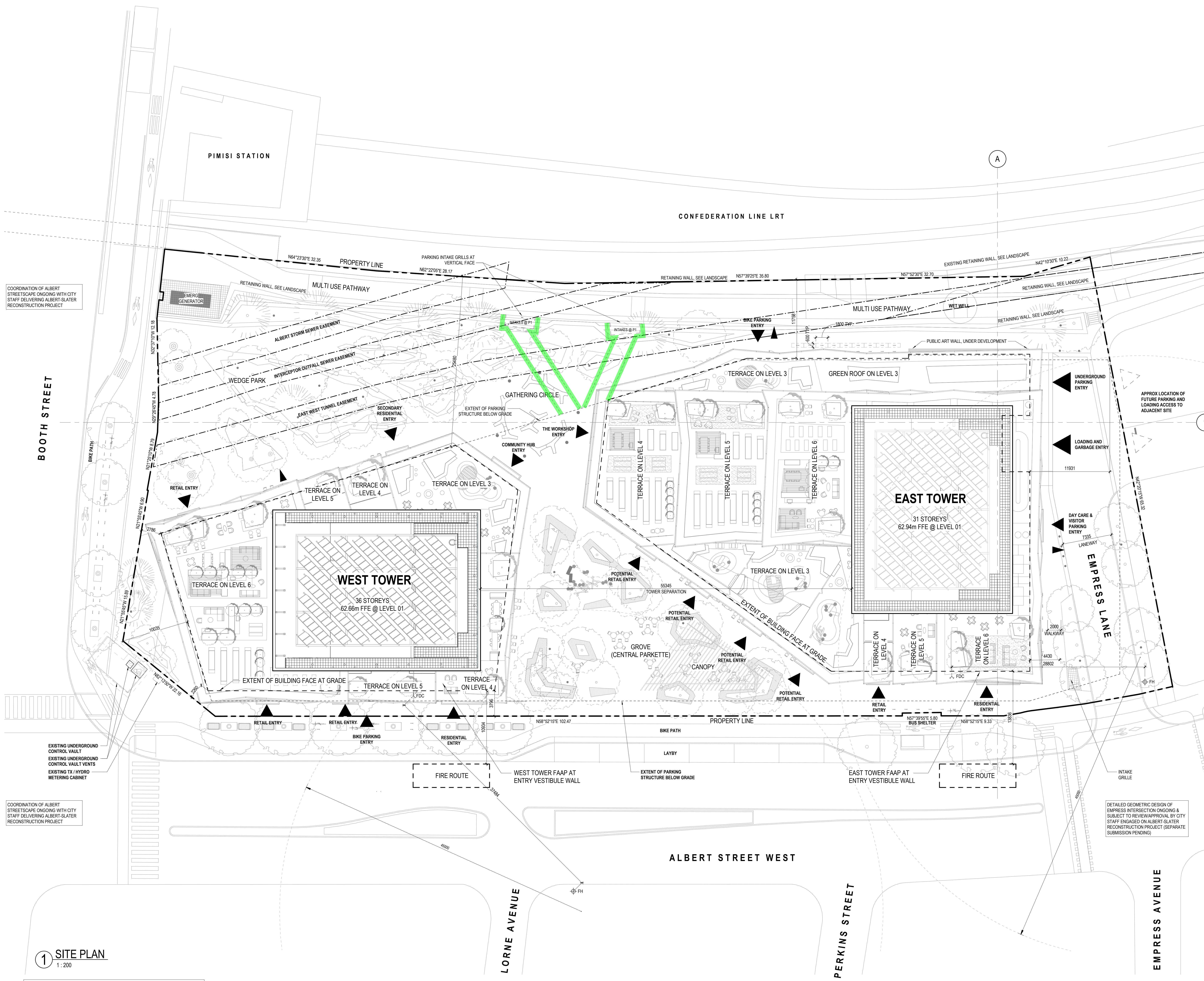
BICYCLE PARKING SPACES

TYPE	PROVISION	REQUIRED	PROPOSED
REQUIRED SPACES			
RESIDENTIAL	0.50 unit	304	304
RETAIL	1/250 m ²	6	6
DAY CARE	1/250 m ²	5	5
TOTAL REQUIRED		315	
PROVIDED SPACES			
INTERIOR SECURE SPACES	MIN 25%	79	80
EXTERIOR SPACES	MAX 50%	N/A	132
TOTAL PROVIDED			212

NUMBER OF SPACES ABOVE AT GROUND LEVEL HORIZONTAL 50% OF REQD 158
INTERIOR 27
EXTERIOR 132
TOTAL 159

STORAGE LOCKERS

TOTAL: 345



1 SITE PLAN
1:200

NOTE
1. REFER TO LANDSCAPE AND CIVIL DRAWING FOR LANDSCAPE DESIGN, SITE LIGHTING, SITE SERVING, AND GRADING INFORMATION.

11/10/2022 9:48:25 PM Autodesk Docs\U:\Breton Files\Library\BRL_Dream_Libreton_022_Plan.mxd

Job Number 44200
TITLE

SITE PLAN & STATISTICS

SHEET NUMBER

G01-01



APPENDIX D

Architectural Drg. A40-02

(City Vault, South-West Corner of Site)

CONSULTANTS

- civil
TMIG
8800 Dufferin St., Suite 200, Vaughan, ON L4K 0C5
- STRUCTURAL
RJC Engineers
1545 Carlin Ave., Suite 304, Ottawa, ON K1Z 8P9
- Smith+Anderson
1600 Carling Ave., Suite 530, Ottawa, ON K1Z 1G3
- LANDSCAPING
PFS Studio
1777 W 3rd Ave., Vancouver, BC V5U 1KJ
- CONSULTANT
Two Row Architect
1804 6th Line, Oshawa, ON N4A 1M0
- CONTRACTOR
EllisDon
2680 Queensview Dr., Ottawa, ON K2B 8J9

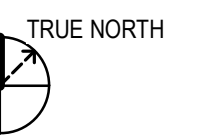
STAMP

PROJECT

LEBRETON LIBRARY PARCEL
665 Albert St
Ottawa, ON
Canada

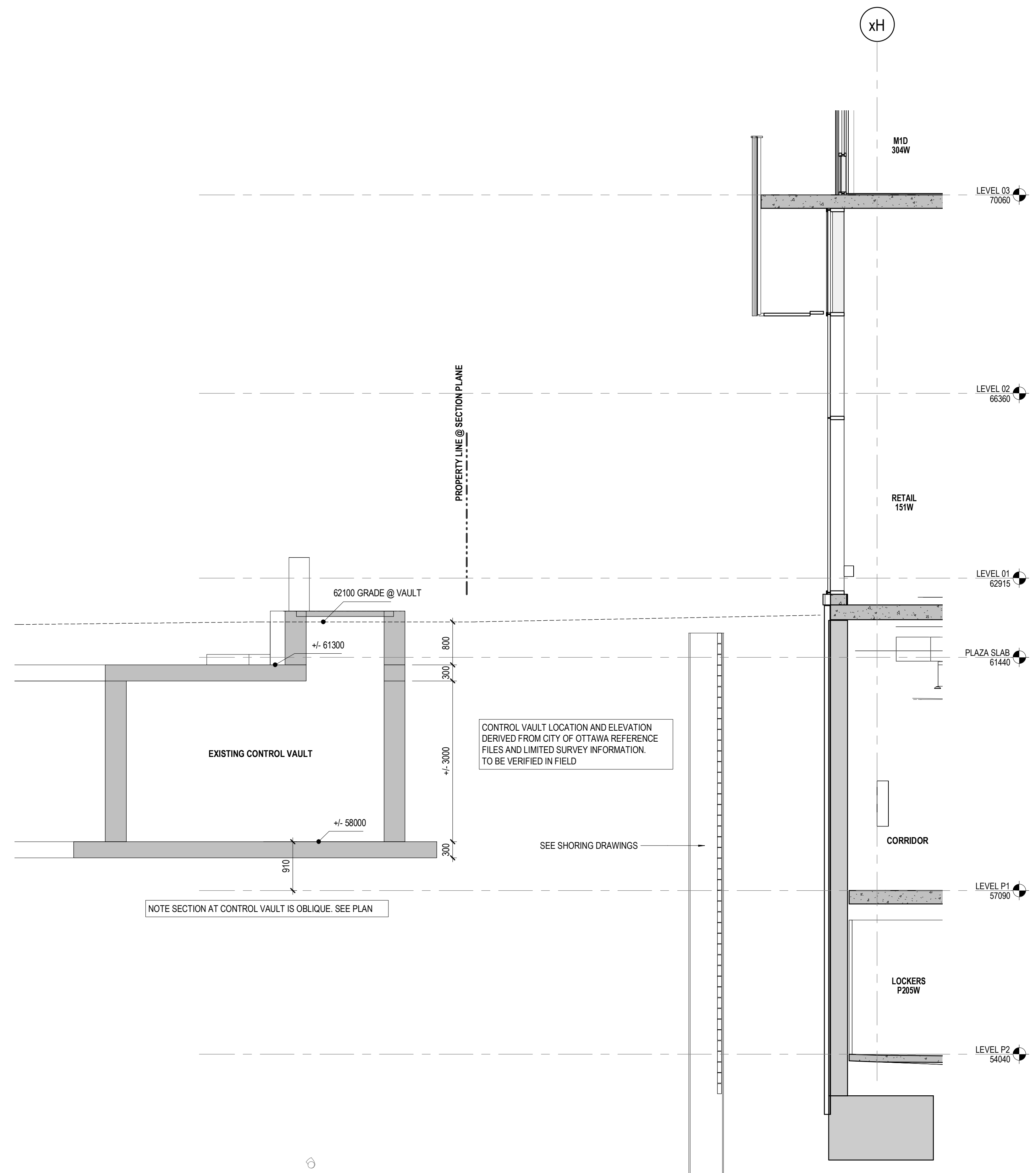


DREAM
30 Adelaide St. E., Suite 301,
Toronto, ON M5C 3H1
KEYPLAN

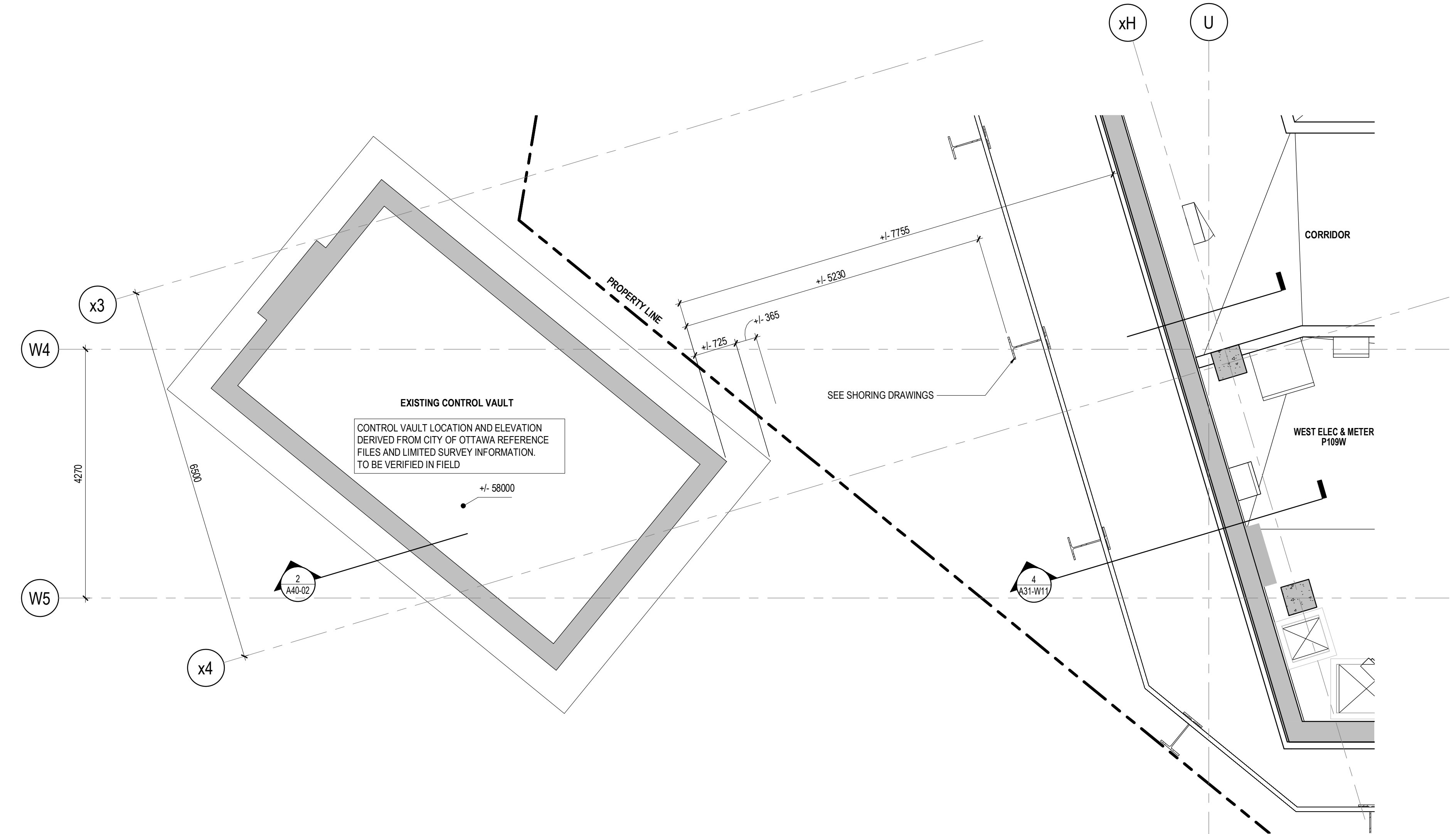


ISSUE CHART

NO.	DATE	DESCRIPTION



② WEST PODIUM - WEST WALL SECTION @ EXISTING CONTROL VAULT
1:50



① EXISTING CONTROL VAULT P1 LEVEL PLAN
1:50



APPENDIX E

Shoring Design Package

SPECIAL NOTES:

- S1. EXACT SHORING WALL ALIGNMENT TO BE CONFIRMED PRIOR TO PILE INSTALLATION BASED ON PROPERTY LINE, ALIGNMENT OF FOUNDATION WALL, AND LOCATION OF UNDERGROUND UTILITIES.
- S2. DESIGN SHOWN ON THESE DRAWINGS IS FOR CONSTRUCTION BY MARATHON UNDERGROUND CONSTRUCTORS CORPORATION ONLY.

GENERAL NOTES:

- 1. STRUCTURAL DESIGN OF SHORING COMPLETED IN ACCORDANCE WITH:
 - a. CANADIAN FOUNDATION ENGINEERING MANUAL
 - b. CSA S16-09 DESIGN OF STEEL STRUCTURES (MEMBER STRENGTH PROVISIONS)
 - c. OBC (2012) - SECTIONS 4.2 AND 4.3
- 2. GROUND CONDITIONS EVALUATED FROM GEOTECHNICAL REPORT "LEBRETON LIBRARY PARCEL, 665 ALBERT STREET OTTAWA, ONTARIO", BY GOLDER DATED APRIL 2022 (REF NO. 22511882).
- 3. FOUNDATION WALL POSITION FOR SHORING ALIGNMENT AND EXCAVATION/LAGGING LEVEL FROM DRAWING S198, S198E AND S198W BY READ JONES CHRISTOFFERSEN LTD, DATED 2022 12 02 (REV 4). SHORING IS SET BACK 2.0M FROM FOUNDATION WALL.
- 4. POSITIONS OF UNDERGROUND UTILITIES FROM DRAWING S1 'SERVICING PLAN' BY TMIG DATED 221109 (REV 6) AND CITY AS-BUILT DRAWING PROVIDED TO MARATHON UNDERGROUND.
- 5. GENERAL BOTTOM OF LAGGING LEVEL OF EL. 52.965 DETERMINED FROM STRUCTURAL DRAWINGS.
- 6. DESIGN LOADING:
 - a. SURCHARGE OF 12KPA ABOVE/BEHIND SHORING WALL. NO HEAVY EQUIPMENT TO BE OPERATED WITHIN 2m OF SHORING WITHOUT REVIEW BY SHORING DESIGN ENGINEER.
 - b. EARTH PRESSURE -

MATERIAL	UNIT WEIGHT (kN/m ³)	FRICTION ANGLE (DEGREES)	ACTIVE EARTH PRESSURE COEFFICIENT
FILL	21	30	0.33
SILTY SAND	21	33	0.29
DENSE GLACIAL TILL	22	37	0.25

- c. NO GROUNDWATER PRESSURE SINCE SHORING WALL IS PERVIOUS.
- 7. MATERIALS
 - a. SOLDIER PILES: H PILES SHALL CONFORM TO CSA-G40.20/G40.21 350W
 - b. PIPE STRUT FOR CORNER BRACE
 - i) 244 mm OD x 12.0 mm (9.625 x 0.472 INCH) WALL PIPE
 - ii) ASTM GRADE 3, Fy = 310 MPa (MIN.)
 - c. ALL OTHER STRUCTURAL STEEL: CSA G40.20/G40.21 350W, OR ASTM A992, OR ASTM A572 GR. 50 (MIN. Fy = 345 MPa).
 - d. TIMBER LAGGING - 4" X 6" ROUGH CUT CONSTRUCTION-GRADE HARDWOOD LUMBER (E.G., POPLAR OR SIMILAR)
 - e. TIE-BACKS AND SOIL ANCHORS: SEE TIE-BACK AND SOIL ANCHOR SCHEDULE. 0.6" 7-WIRE STRAND 270 KSI PER ASTM A-416. MS CABLE GROUT (MIN. 40 MPA)
- 8. WELDING TO CSA W59-13. E49XX WELDING ELECTRODES
- 9. PROVIDE RAILING ON TOP OF WALL AS REQUIRED (REF. O/REG. 213/91).
- 10. ALL EXISTING UTILITIES TO BE LOCATED PRIOR TO SHORING INSTALLATION.
 - a. IF BURIED UTILITIES ARE LOCATED WITHIN 1.5m OF SOLDIER PILE LOCATIONS, EXPOSE UTILITY (HYDROVAC) TO CONFIRM LOCATION.

- b. POSITIONS AND DEPTHS OF ALL BURIED UTILITIES IN PROXIMITY TO TIE-BACK TRAJECTORIES, AND IN PARTICULAR OF HPTM WATERMAIN AND HYDRO DUCT ALONG SOUTH PROPERTY LINE, TO BE CONFIRMED PRIOR TO TIE-BACK DRILLING.
- 11. ANY CHANGES TO DESIGN AND CONSTRUCTION METHODOLOGY TO BE APPROVED BY SHORING DESIGNER PRIOR TO IMPLEMENTATION.
- 12. ALL DIMENSIONS SHOWN IN MILLIMETRES UNLESS NOTED. ELEVATIONS SHOWN IN METRES.
- 13. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT.

INSTALLATION PROCEDURE:

- 1. LOCATE ALL BURIED UTILITIES. CONFIRM NO CONFLICTS WITH SOLDIER PILE LOCATIONS AND TIE-BACK TRAJECTORIES.
- 2. CONFIRM EXACT SHORING ALIGNMENT WITH OWNER, G.C., AND SURVEYOR. NOTE: ENCROACHMENT AGREEMENT FOR PILE LOCATIONS AND TIE-BACKS ARE THE RESPONSIBILITY OF THE CLIENT.
- 3. CONFIRM REQUIRED BOTTOM-OF-EXCAVATION (B.O.E.) LEVEL WITH G.C.
- 4. PRE-DRILL PILE LOCATIONS TO BEDROCK (16" DIAMETER DTHH). MIN 3.5 m TOE REQUIRED BELOW B.O.E. OR MIN. 0.5m INTO BEDROCK, THEN DRIVE PILES TO BEDROCK.
- 5. INSTALL MONITORING TARGETS ON TOP OF PILES.
- 6. SOIL IN FRONT OF PILES TO BE EXCAVATED IN MAXIMUM 1.2m LIFTS PRIOR TO LAGGING INSTALLATION. USE SHORTER LIFTS IF NEEDED TO AVOID SLOUGHING OF BACKFILL.
- 7. INSTALL LAGGING (NO GAPS). PACK BEHIND LAGGING WITH STONE DUST AS REQUIRED TO ENSURE NO VOIDS ARE CREATED AND BACKFILL IS IN GOOD CONTACT WITH LAGGING.
- 8. EXCAVATE TO MAXIMUM OF 0.8 m BELOW UNDERSIDE OF WALER LEVEL. DRILL, INSTALL, AND GROUT STRAND TIE-BACK AND SOIL ANCHORS WHERE INDICATED. INSTALL BRACKET AND WALER. NOTE: CONFIRM NO CONFLICT WITH EXISTING UTILITIES PRIOR TO TIE-BACK DRILLING.
- 9. POST-GROUT SOIL ANCHORS, AS REQUIRED.
- 10. STRESS, TEST, AND LOCK-OFF TIE-BACKS AND SOIL ANCHORS. SEE TIE-BACK AND SOIL ANCHOR SCHEDULE FOR DETAILS. TEST RESULTS TO BE PROVIDED TO SHORING DESIGN ENGINEER. TESTING TO GENERALLY CONFORM TO OPSS942.07.12.06.03. MEASURE WALL DEFLECTION DURING STRESSING AND TESTING. IF WALL MOVEMENT REACHES 25 mm, LOCK-OFF ANCHOR AND REPORT LOCK-OFF LOAD TO DESIGNER.
- 11. CONTINUE EXCAVATION AND LAGGING SEQUENCE TO BOTTOM-OF-EXCAVATION LEVEL.

REMOVAL PROCEDURE:

- 1. ONCE BUILDING FOUNDATION WALL HAS BEEN CONSTRUCTED, BACKFILL BETWEEN SHORING AS NEEDED. COMPACT BACKFILL TO 95% STD. PROCTOR.
- 2. ONLY CUT TIE-BACKS AND REMOVE WALERS ONCE BACKFILL LEVEL IS WITHIN 0.8 m BELOW WALER LEVEL.
- 3. CUT PILES OFF 1.2m BELOW GRADE OR AS REQUIRED BY AGREEMENT WITH CITY/NEIGHBOURS.

MONITORING AND INSPECTIONS:

- 1. CONTINUOUS INSPECTION BY SHORING DESIGN ENGINEER DURING EXCAVATION AND REMOVAL [PER OBC 4.2.2.2(2)(a)(ii)].
- 2. MONITORING TARGETS TO BE INSTALLED AT TOPS OF PILES AT MAX. 10 m SPACING.
- 3. OBTAIN BASELINE READINGS ONCE TARGETS INSTALLED.
- 4. TARGETS TO BE MONITORED WEEKLY THEREAFTER, UNLESS DIRECTED OTHERWISE BY SHORING DESIGN ENGINEER. MONITORING BY OTHERS.
- 5. SHORING DESIGN ENGINEER TO BE NOTIFIED IMMEDIATELY IF DEFLECTION EXCEEDS 15 mm. IF DEFLECTION EXCEEDS 25 mm, EXCAVATION SHOULD STOP UNTIL CONDITIONS ARE REVIEWED BY SHORING DESIGN ENGINEER.
- 6. ON-SITE STAFF SHOULD CARRY OUT DAILY VISUAL INSPECTION DURING EXCAVATION AND SHORING CONSTRUCTION, INCLUDING OF GROUND SURFACE BEHIND SHORING. IF ANY DEFORMATIONS OR GROUND SURFACE CRACKING OR SETTLEMENT ARE OBSERVED, SHORING DESIGN ENGINEER TO BE IMMEDIATELY NOTIFIED.
- 7. VIBRATION MONITORING AND PRE-CONSTRUCTION SURVEY BY OTHERS, IF REQUIRED.



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
www.marathonunderground.com

PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
**665 ALBERT STREET
 OTTAWA, ONTARIO**

JOB No.
22409

DESCRIPTION
NOTES

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MUO
CHECKED BY MIC	

TABLE OF CONTENTS

SHEET NUMBER	DESCRIPTION
MU0	NOTES
MU0A	NOTES
MU1	SITE & UTILITIES PLAN
MU2	SHORING PLAN
MU3	SECTION
MU4	SECTION
MU5	SECTION
MU6	SECTION
MU7	SECTION
MU8	SECTION
MU9	ELEVATION
MU10	ELEVATION
MU11	ELEVATION
MU12	ELEVATION
MU13	ELEVATION
MU14	TYPICAL WALER ASSEMBLY
MU15	BRACKET DETAIL
MU16	W530 BOX WALER DETAIL
MU17	TYPICAL WALER ASSEMBLY - NORTHEAST SHORING WALL ONLY
MU18	BRACKET DETAIL
MU19	W410 BOX WALER DETAIL
MU20	SOIL ANCHOR DETAIL



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE



Marathon Underground Constructors Corporation
6847 Hiram Drive, Greely, ON K4P 1A2
Tel: (613) 821-4800
Fax: (613) 821-3182
www.marathonunderground.com

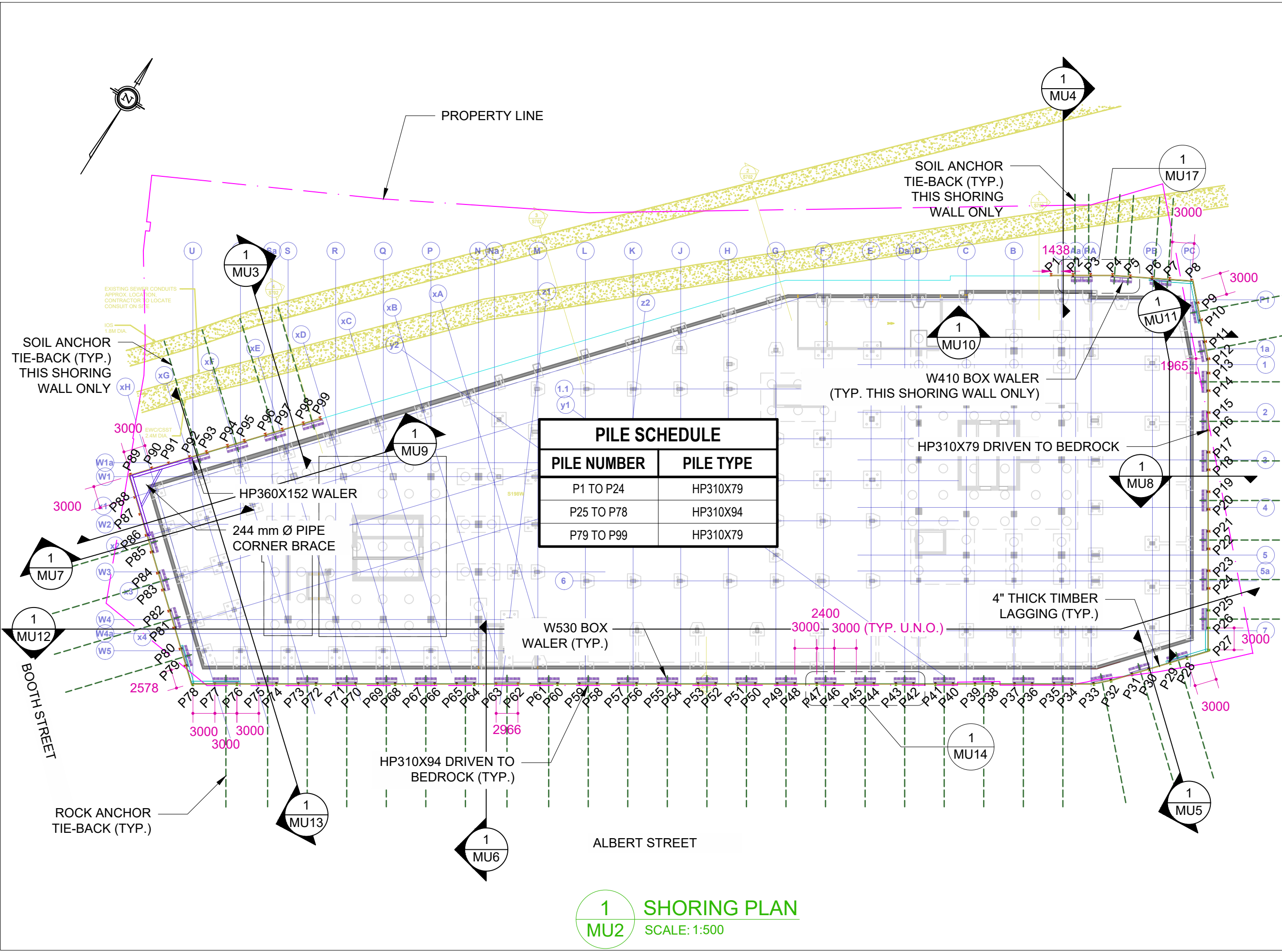
PROJECT
LEBRETON LIBRARY PARCEL
EXCAVATION SHORING

LOCATION
665 ALBERT STREET
OTTAWA, ONTARIO

JOB No.
22409

DESCRIPTION
NOTES

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU0A
CHECKED BY MIC	



PILE SCHEDULE	
PILE NUMBER	PILE TYPE
P1 TO P24	HP310X79
P25 TO P78	HP310X94
P79 TO P99	HP310X79

1 SHORING PLAN
MU2 SCALE: 1:500

1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

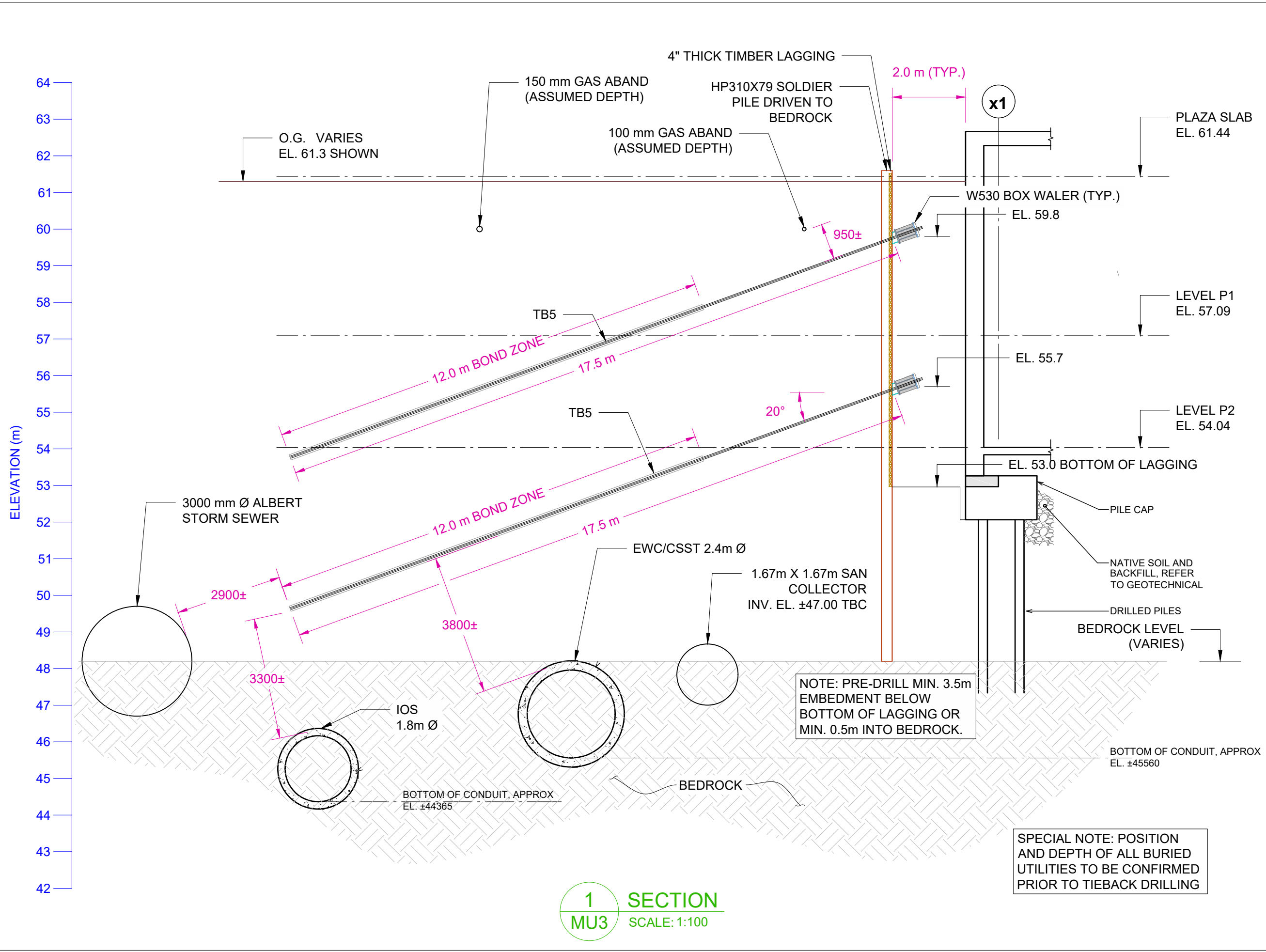
PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
 665 ALBERT STREET
 OTTAWA, ONTARIO

JOB No.
 22409

DESCRIPTION
SHORING PLAN

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU2
CHECKED BY MIC	



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
**665 ALBERT STREET
 OTTAWA, ONTARIO**

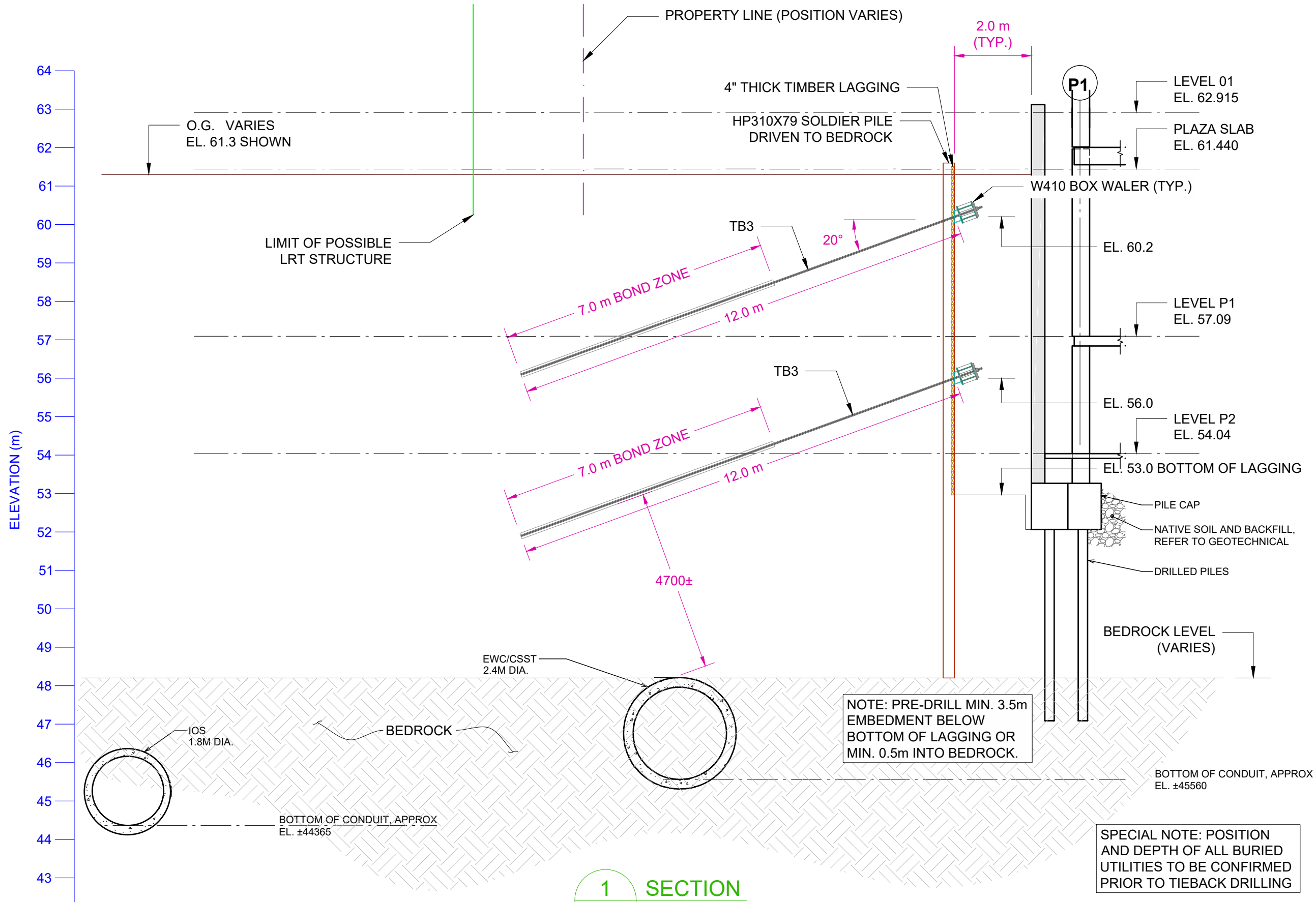
JOB No.
22409

DESCRIPTION SECTION	
DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU3
CHECKED BY MIC	

1 SECTION
MU3
 SCALE: 1:100

**SPECIAL NOTE: POSITION
 AND DEPTH OF ALL BURIED
 UTILITIES TO BE CONFIRMED
 PRIOR TO TIEBACK DRILLING**

**NOTE: PRE-DRILL MIN. 3.5m
 EMBEDMENT BELOW
 BOTTOM OF LAGGING OR
 MIN. 0.5m INTO BEDROCK.**



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

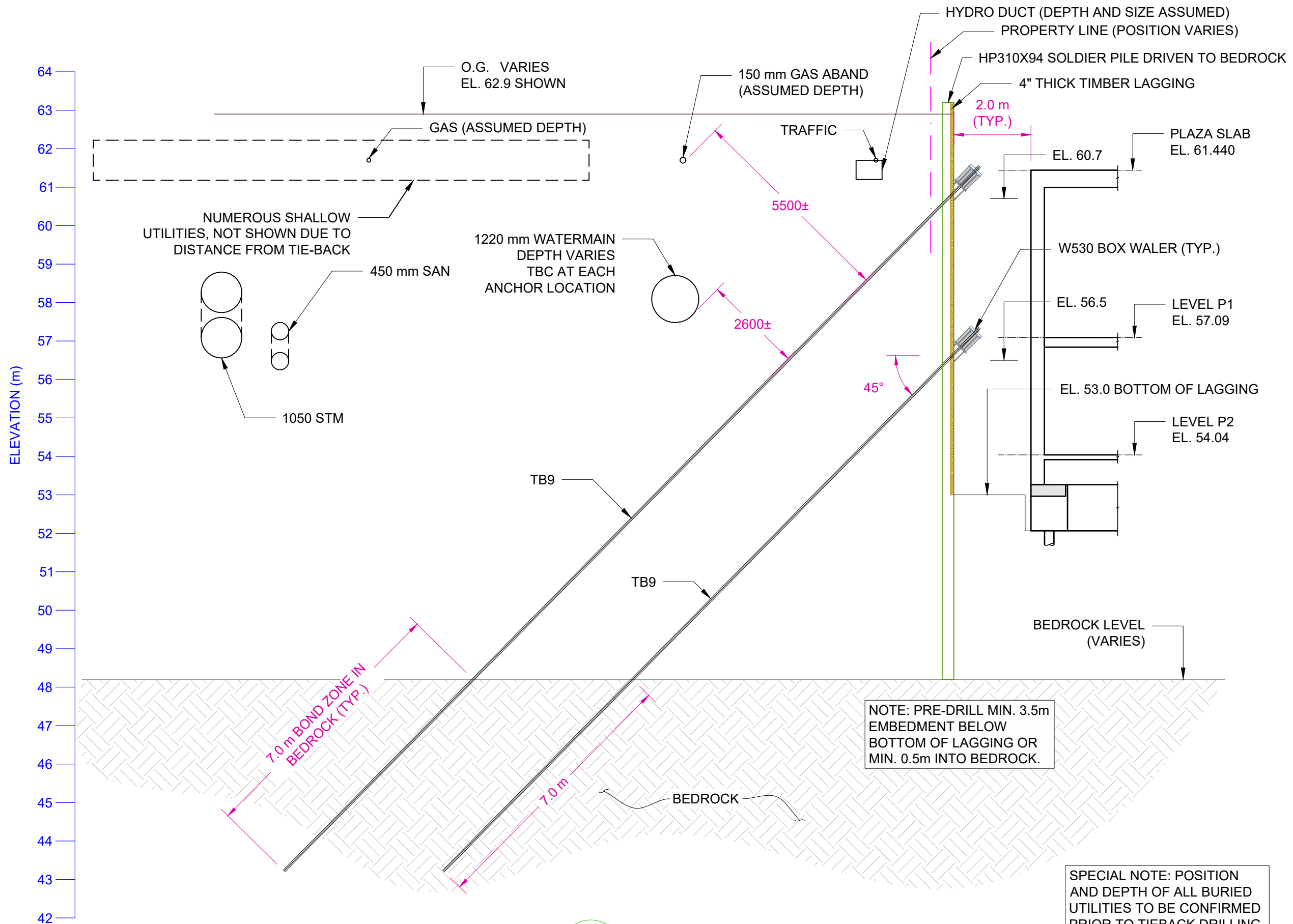
LOCATION
**665 ALBERT STREET
 OTTAWA, ONTARIO**

JOB No.
22409

DESCRIPTION
SECTION

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU4
CHECKED BY MIC	

1 SECTION
MU4 SCALE: 1:100



1 SECTION
MU5 SCALE: 1:100

SPECIAL NOTE: POSITION AND DEPTH OF ALL BURIED UTILITIES TO BE CONFIRMED PRIOR TO TIEBACK DRILLING



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

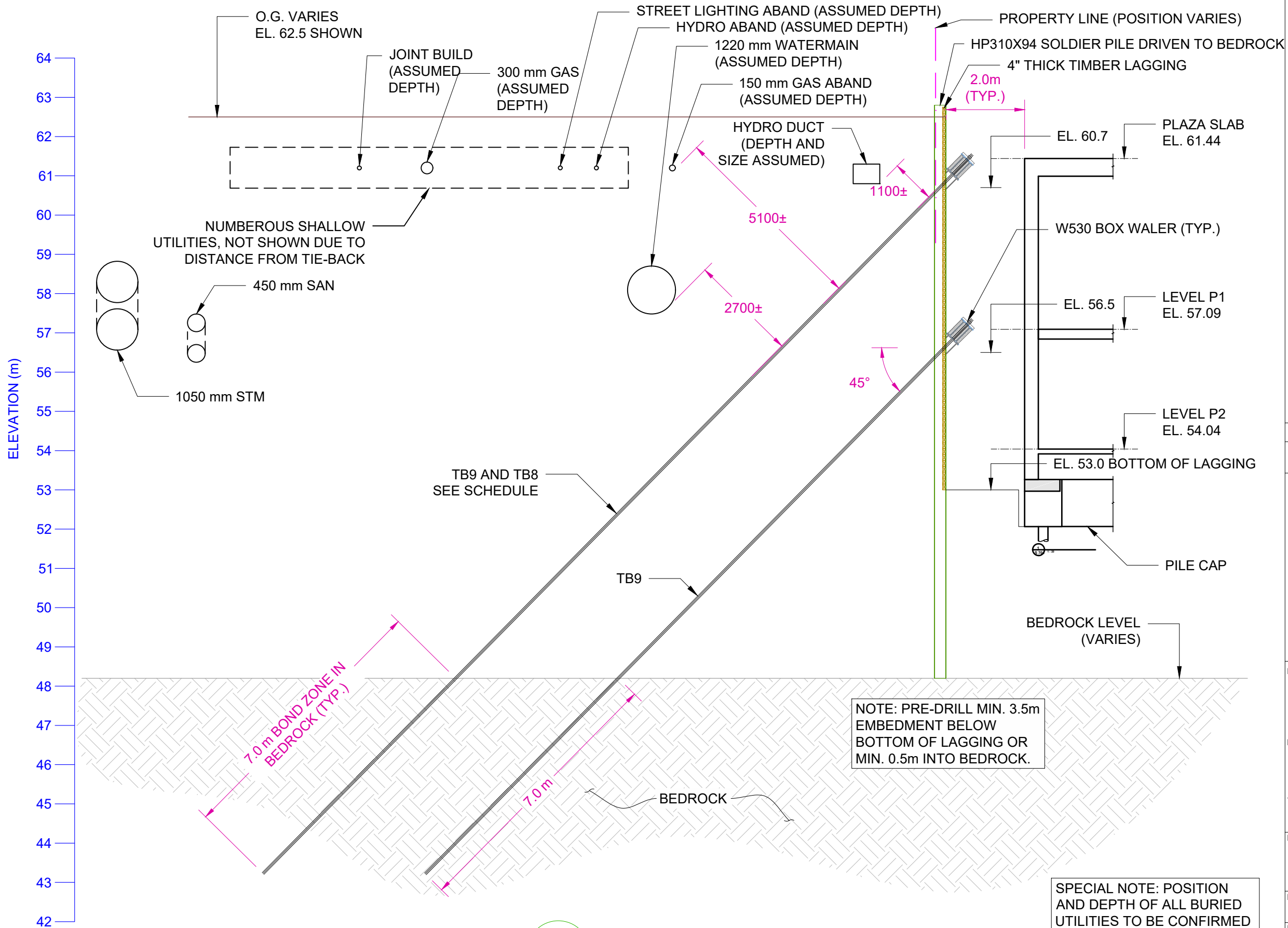
PROJECT
LEBRETON LIBRARY PARCEL EXCAVATION SHORING

LOCATION
 665 ALBERT STREET
 OTTAWA, ONTARIO

JOB No.
 22409

DESCRIPTION
SECTION

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU5
CHECKED BY MIC	



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

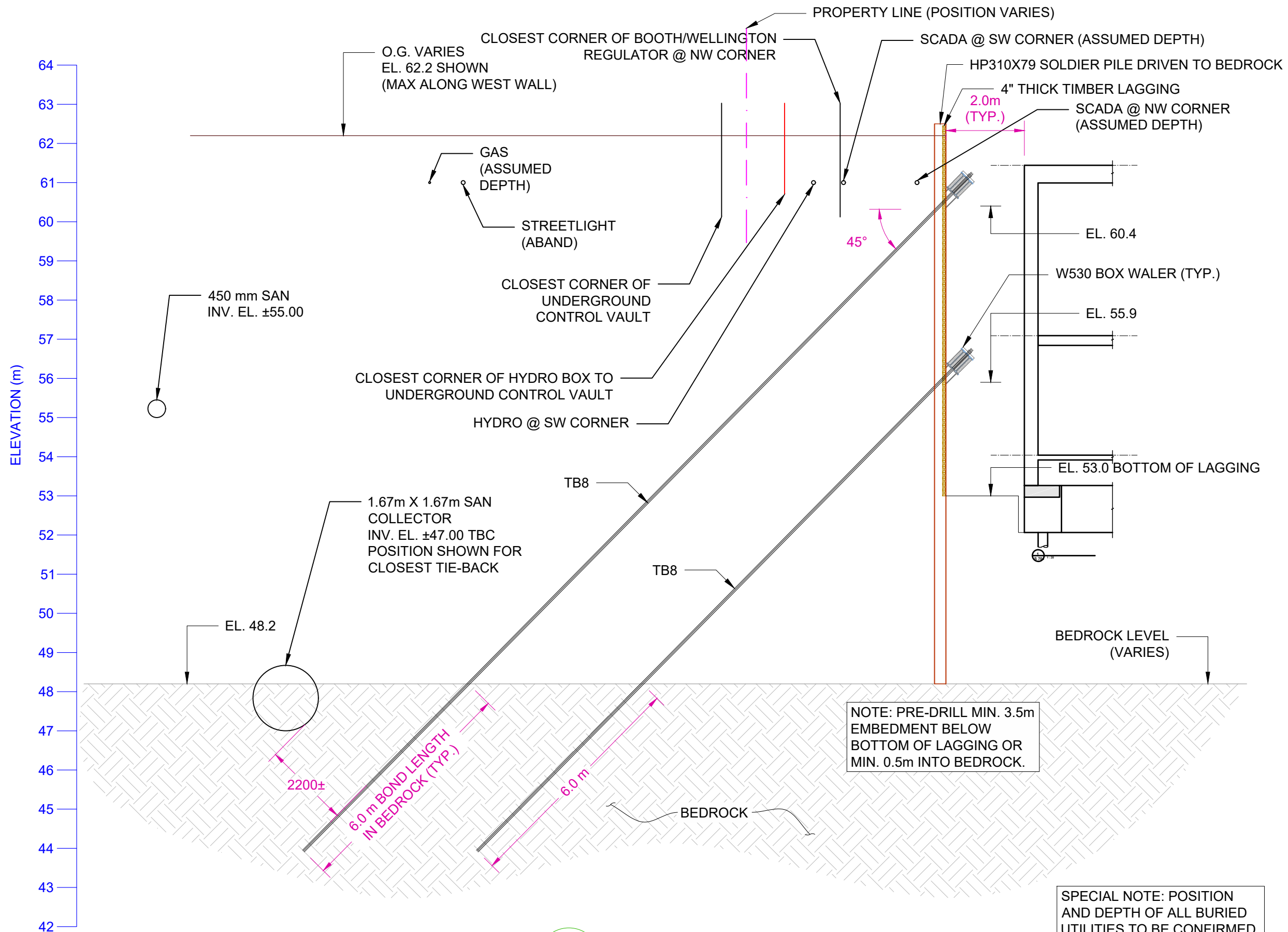
PROJECT
LEBRETON LIBRARY PARCEL EXCAVATION SHORING

LOCATION
 665 ALBERT STREET
 OTTAWA, ONTARIO

JOB No.
 22409

DESCRIPTION		SCALE
SECTION		AS NOTED
DRAWN BY	AC	DRAWING No. MU6
DESIGNED BY	HB	
CHECKED BY	MIC	

1 SECTION
MU6 SCALE: 1:100



1 SECTION
MU7 SCALE: 1:100

SPECIAL NOTE: POSITION AND DEPTH OF ALL BURIED UTILITIES TO BE CONFIRMED PRIOR TO TIEBACK DRILLING



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

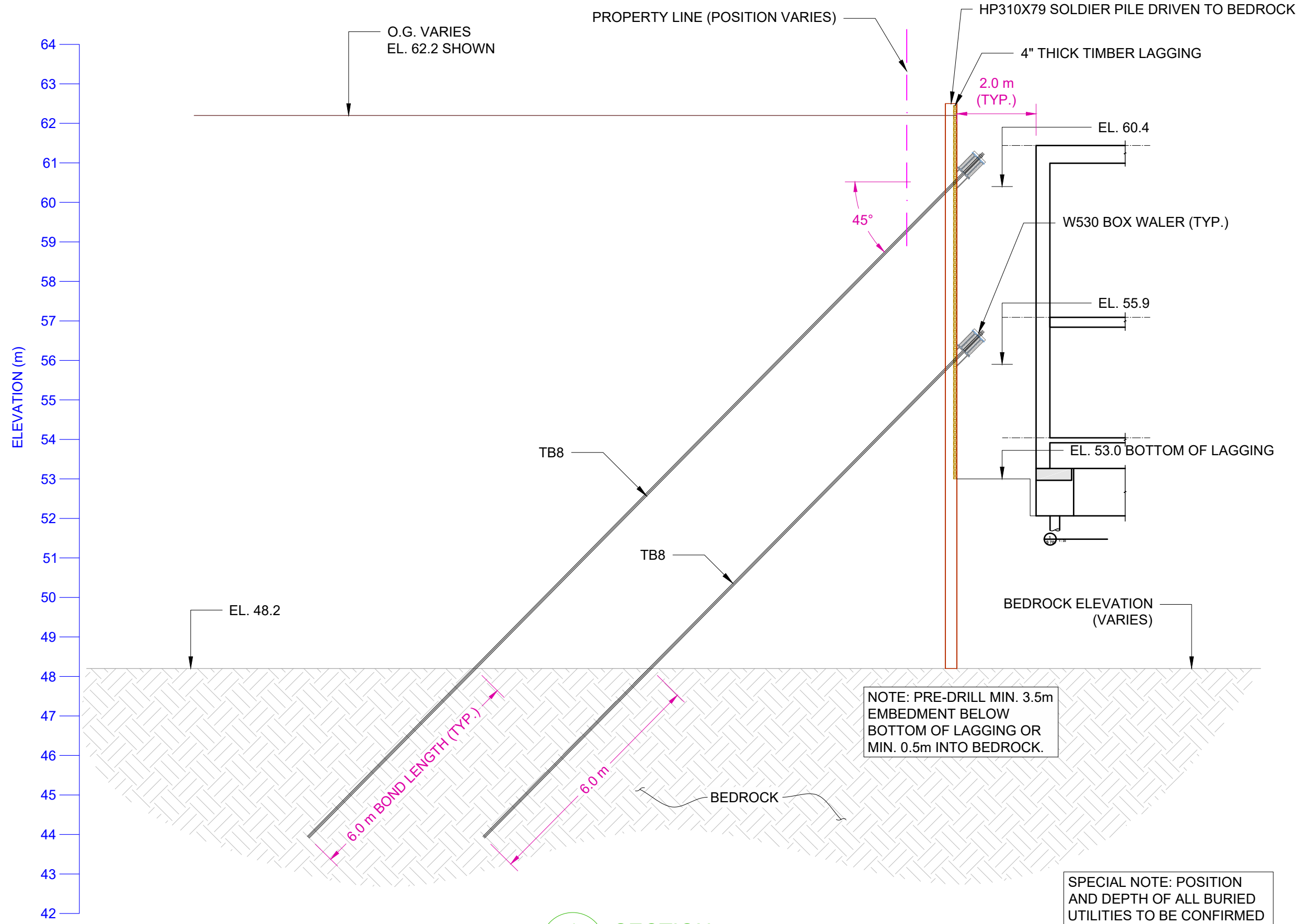
PROJECT
LEBRETON LIBRARY PARCEL EXCAVATION SHORING

LOCATION
 665 ALBERT STREET
 OTTAWA, ONTARIO

JOB No.
 22409

DESCRIPTION
 SECTION

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU7
CHECKED BY MIC	



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Construction Engineers Inc.
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
 665 ALBERT STREET
 OTTAWA, ONTARIO

JOB No.
 22409

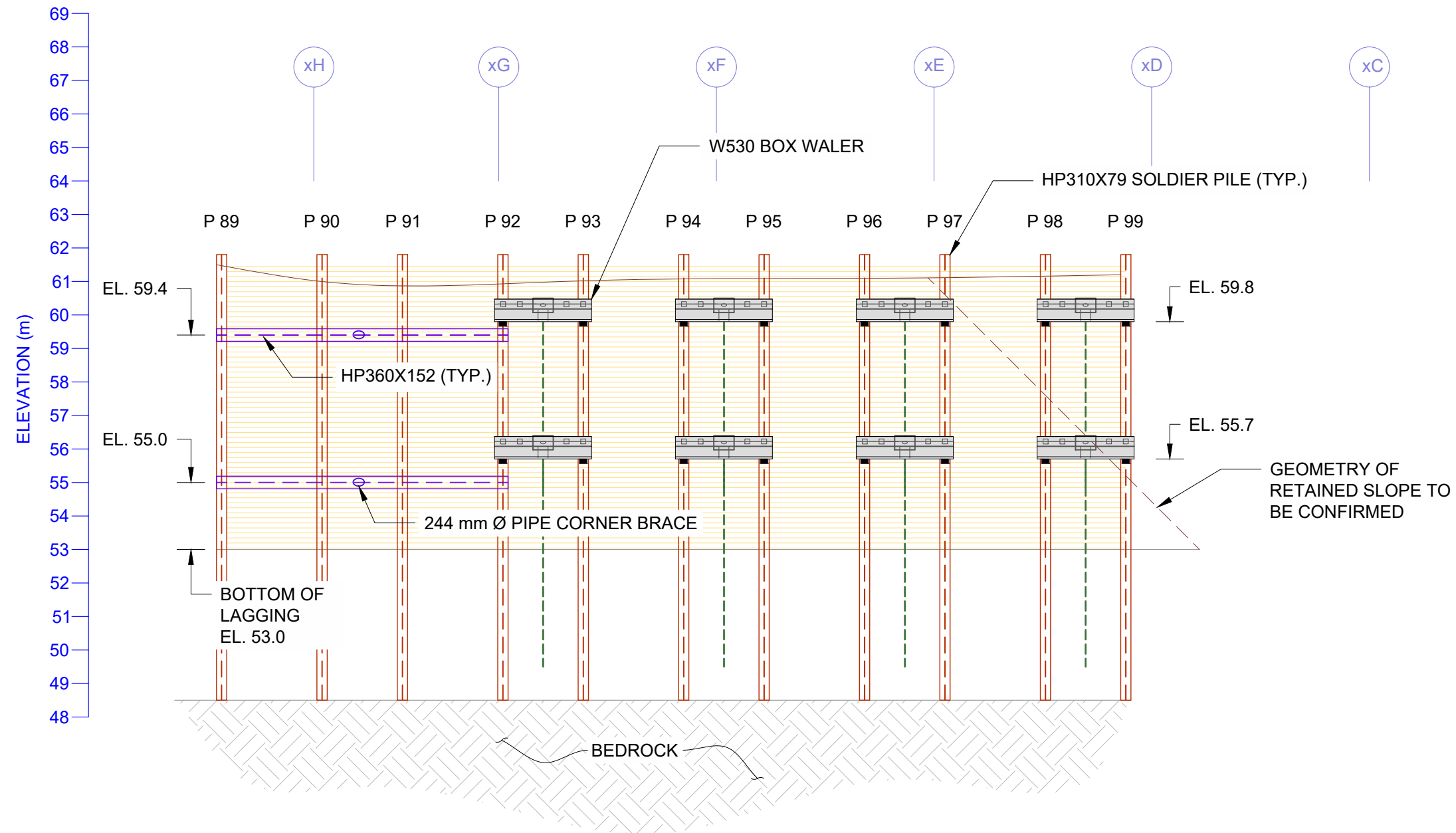
DESCRIPTION
 SECTION

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU8
CHECKED BY MIC	

NOTE: PRE-DRILL MIN. 3.5m
 EMBEDMENT BELOW
 BOTTOM OF LAGGING OR
 MIN. 0.5m INTO BEDROCK.

SPECIAL NOTE: POSITION
 AND DEPTH OF ALL BURIED
 UTILITIES TO BE CONFIRMED
 PRIOR TO TIEBACK DRILLING

1 SECTION
MU8 SCALE: 1:100



1 ELEVATION
MU9 SCALE: 1:150

1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

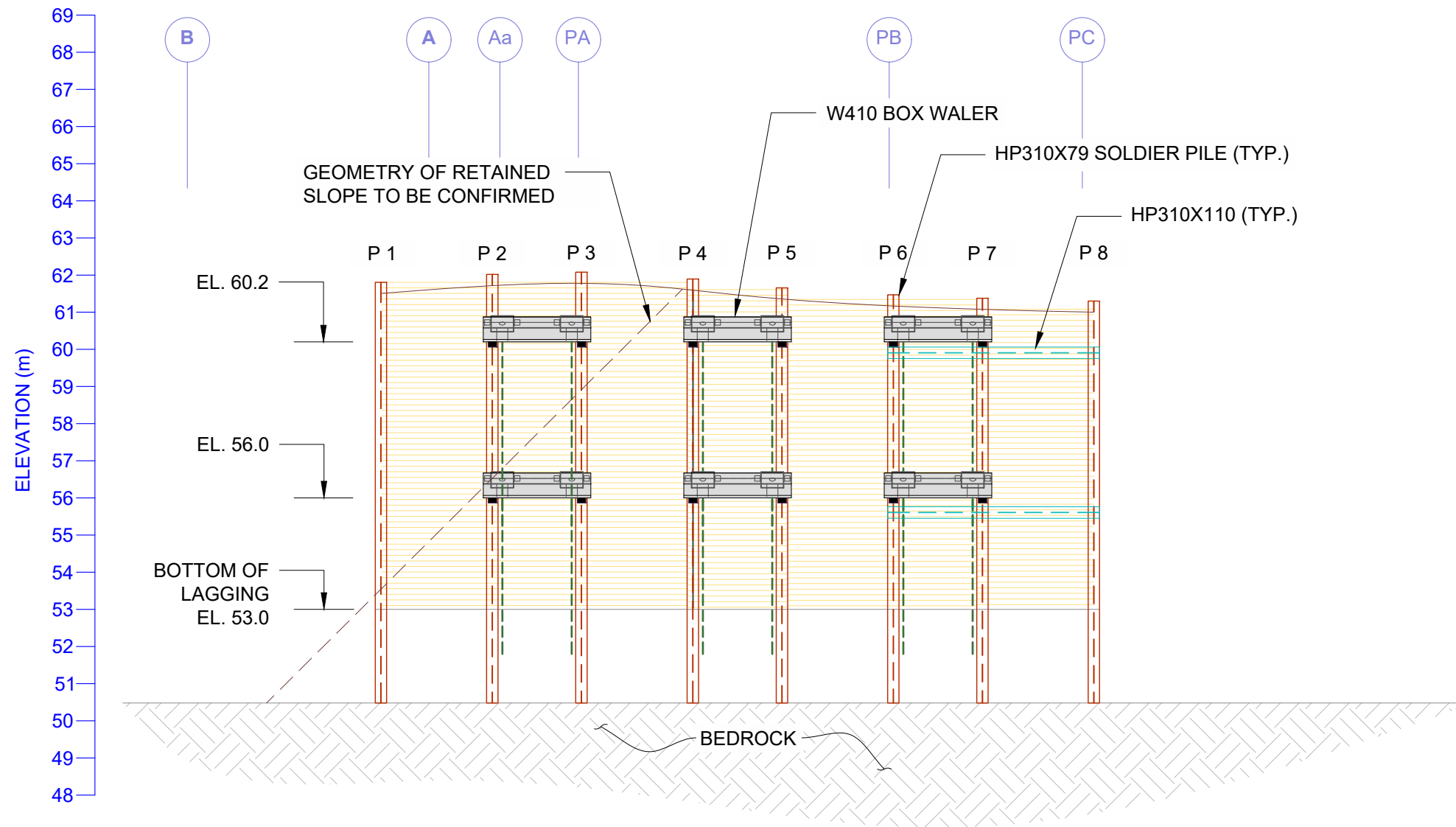
PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
**665 ALBERT STREET
 OTTAWA, ONTARIO**

JOB No.
22409

DESCRIPTION
ELEVATION

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU9
CHECKED BY MIC	



1 ELEVATION
MU10 SCALE: 1:150

1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

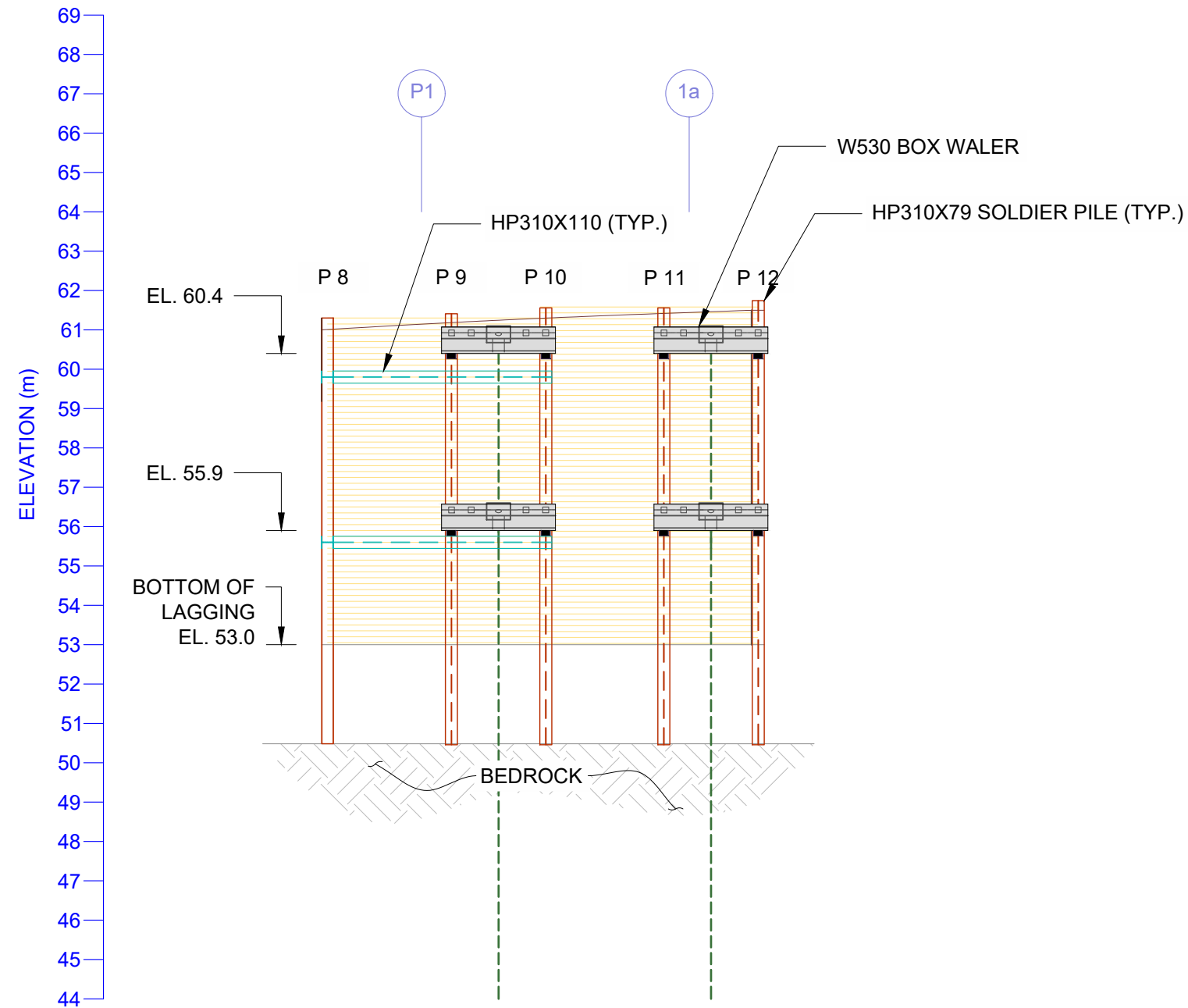
PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
**665 ALBERT STREET
 OTTAWA, ONTARIO**

JOB No.
22409

DESCRIPTION
ELEVATION

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU10
CHECKED BY MIC	



1 ELEVATION
MU11 SCALE: 1:150

1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

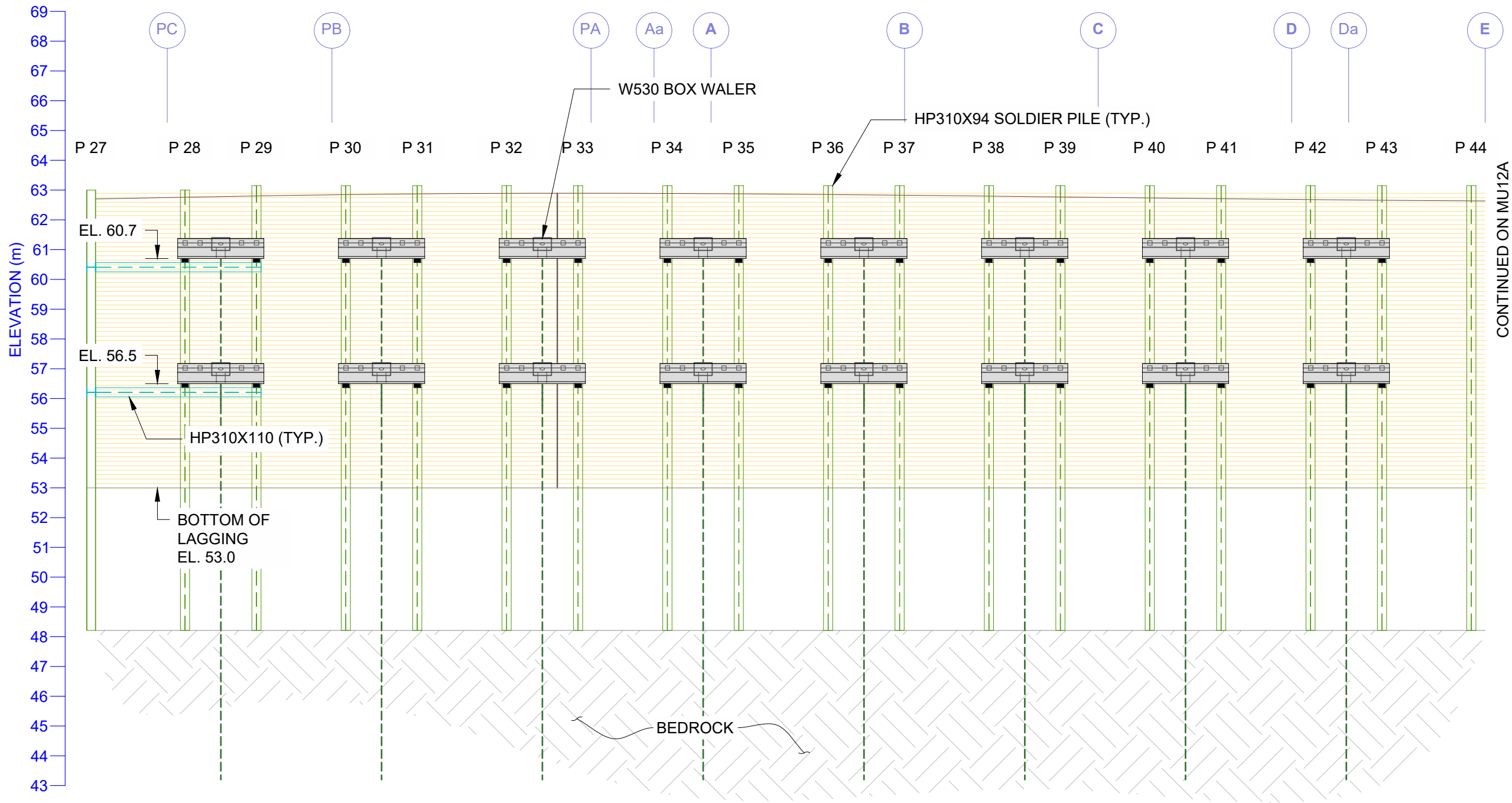
PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
**665 ALBERT STREET
 OTTAWA, ONTARIO**

JOB No.
22409

DESCRIPTION
ELEVATION

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU11
CHECKED BY MIC	



CONTINUED ON MU12A

1 ELEVATION
MU12 SCALE: 1:250

1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

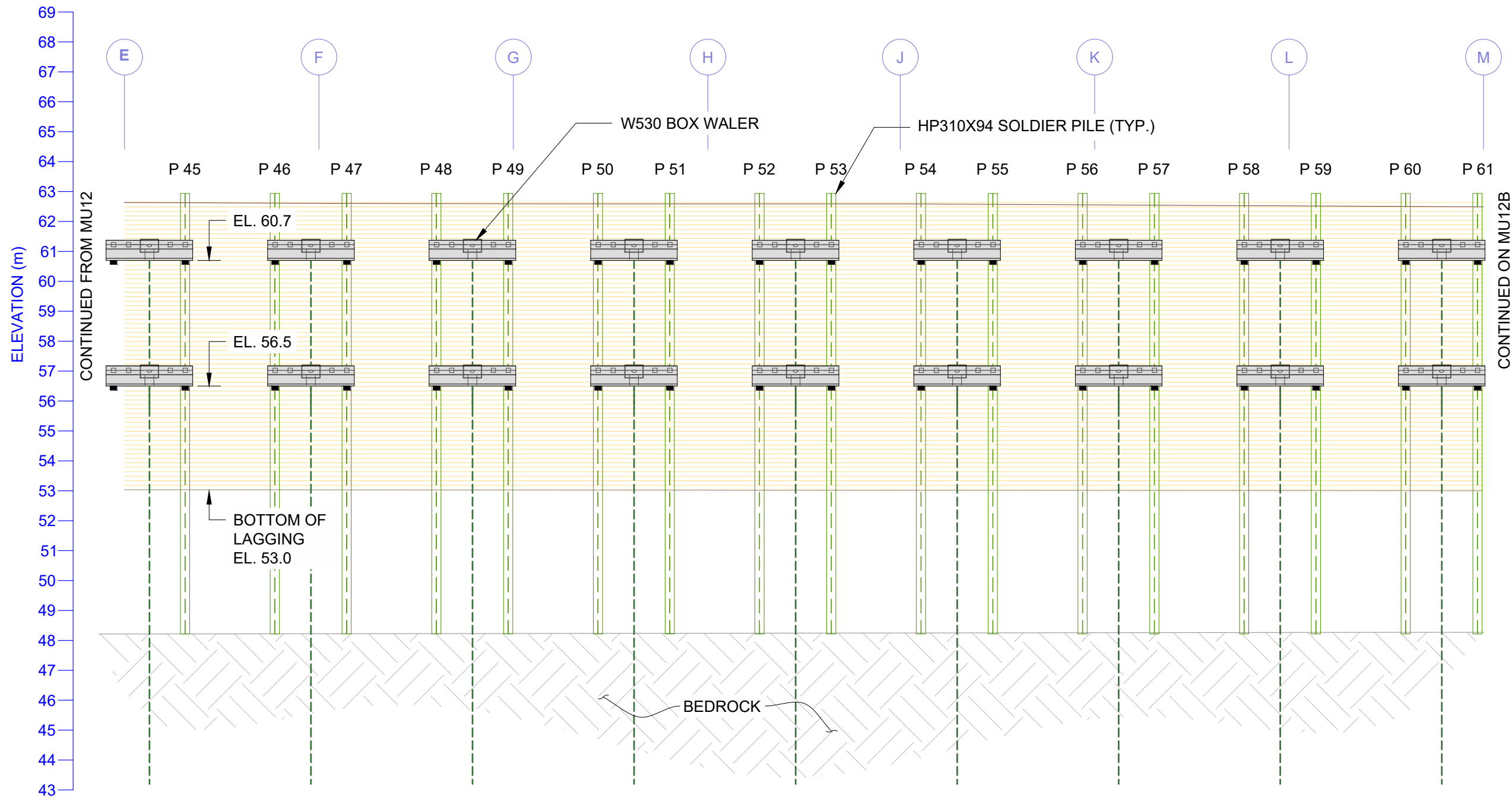
PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
**665 ALBERT STREET
 OTTAWA, ONTARIO**

JOB No.
22409

DESCRIPTION
ELEVATION

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU12
CHECKED BY MIC	



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
www.marathonunderground.com

PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

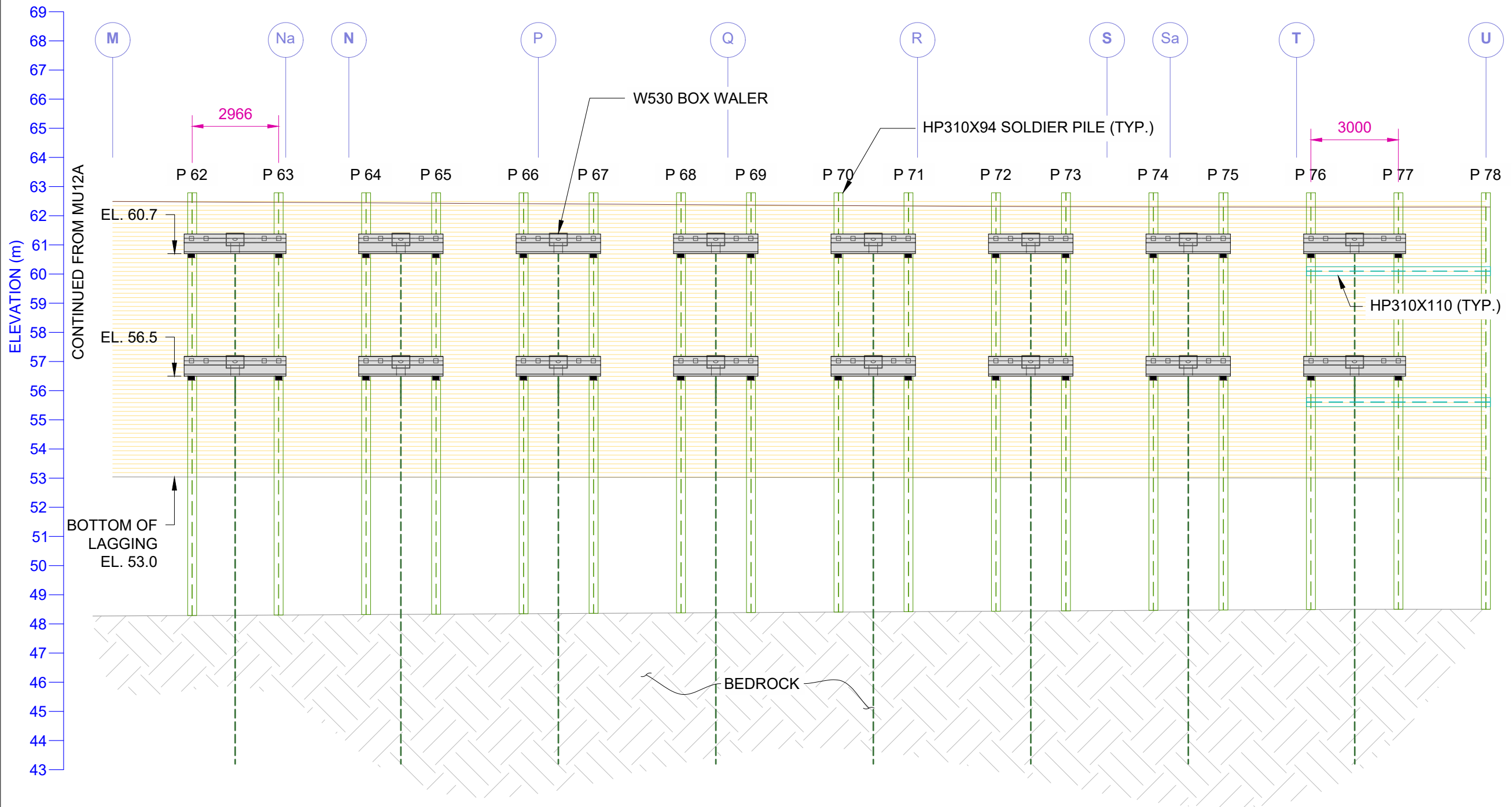
LOCATION
 665 ALBERT STREET
 OTTAWA, ONTARIO

JOB No.
 22409

DESCRIPTION
 ELEVATION

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU12A
CHECKED BY MIC	

1 ELEVATION
 MU12A SCALE: 1:250



1 ELEVATION
 MU12B SCALE: 1:250

1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE



Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

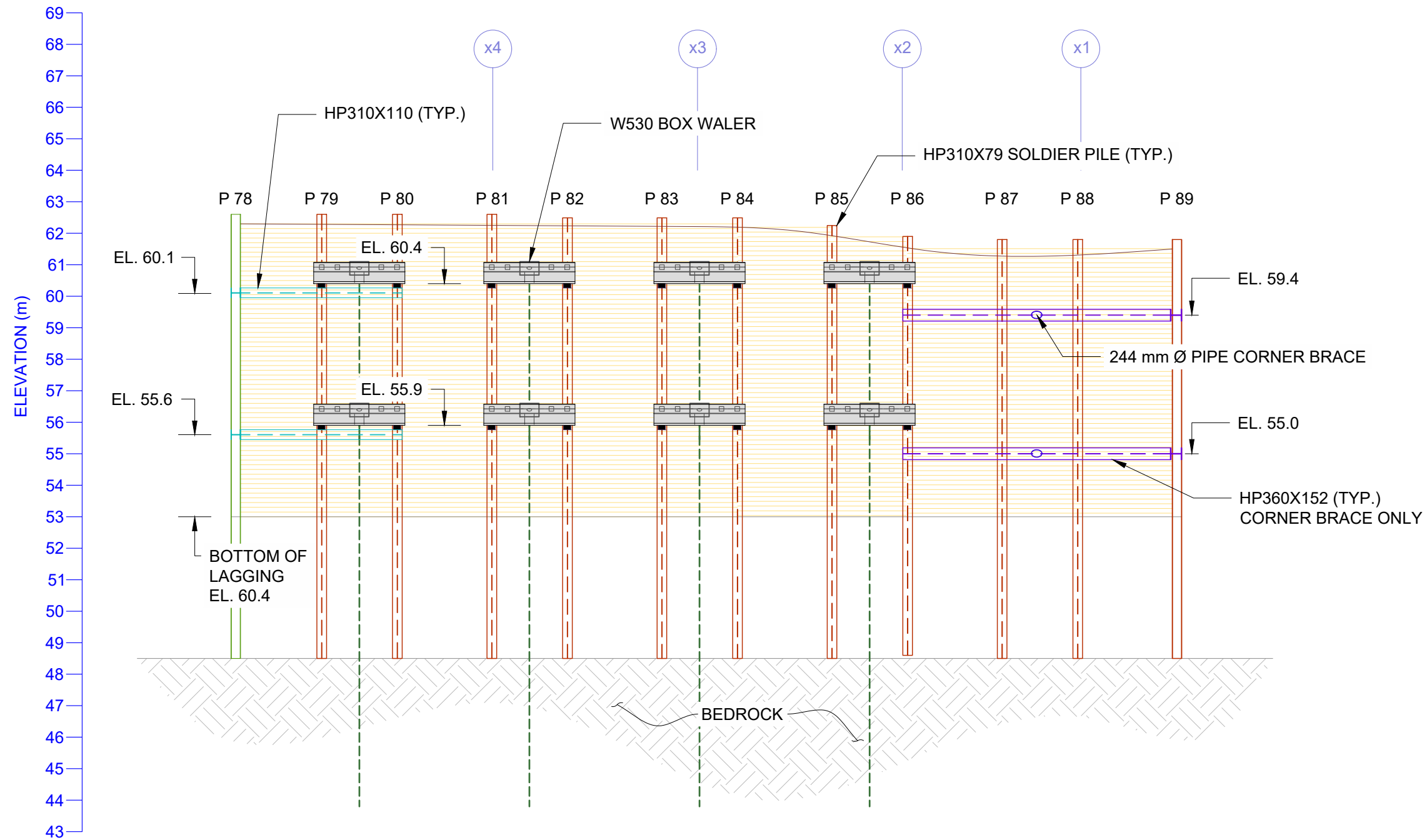
PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
 665 ALBERT STREET
 OTTAWA, ONTARIO

JOB No.
 22409

DESCRIPTION
 ELEVATION

DRAWN BY	AC	SCALE	AS NOTED
DESIGNED BY	HB	DRAWING No.	MU12B
CHECKED BY	MIC		



1 ELEVATION
MU13 SCALE: 1:150

1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

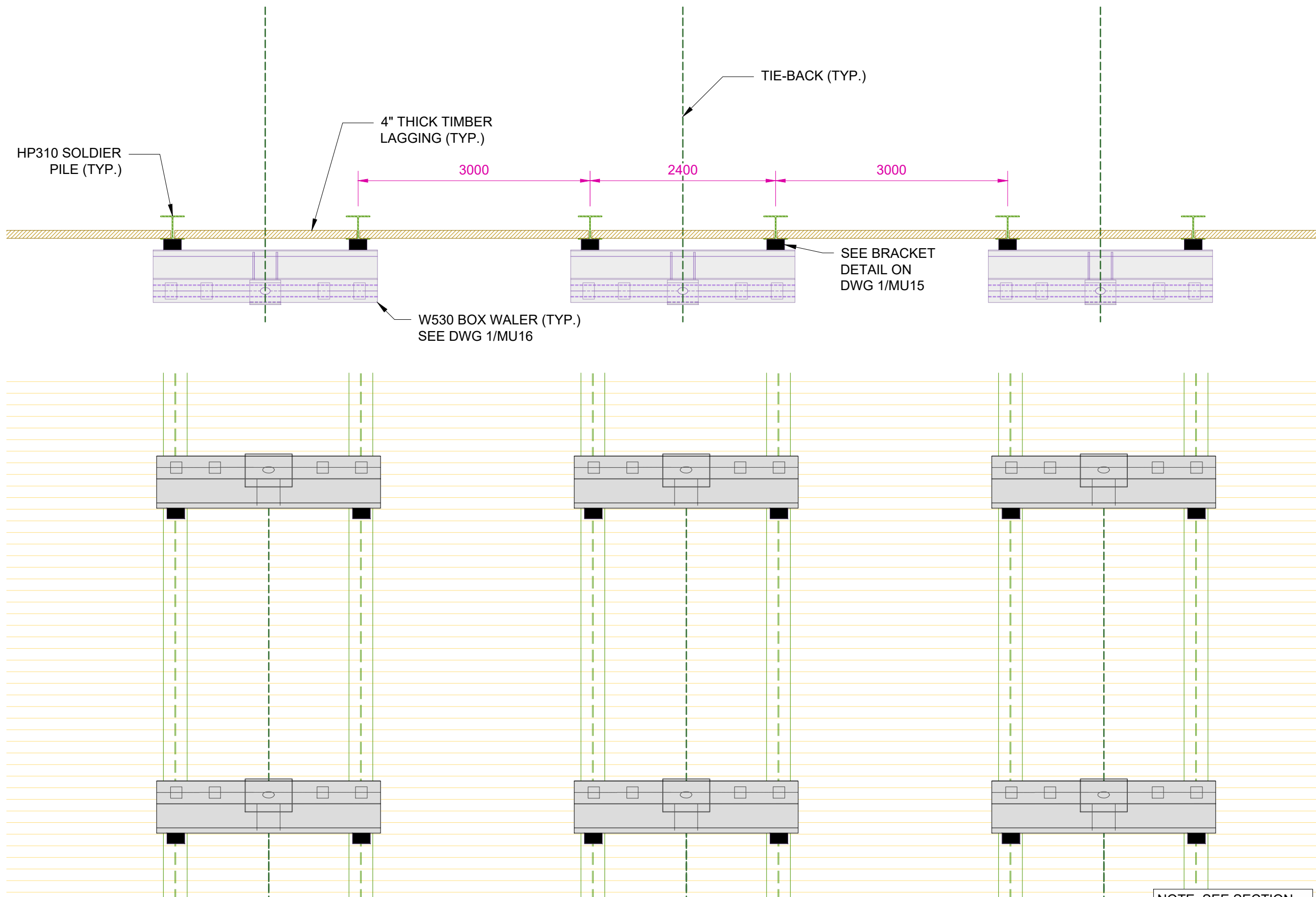
PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
**665 ALBERT STREET
 OTTAWA, ONTARIO**

JOB No.
22409

DESCRIPTION
ELEVATION

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU13
CHECKED BY MIC	



1 TYPICAL WALER ASSEMBLY
 MU14 SCALE: 1:50

NOTE: SEE SECTION AND ELEVATION VIEWS FOR TIE-BACK LEVELS.



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

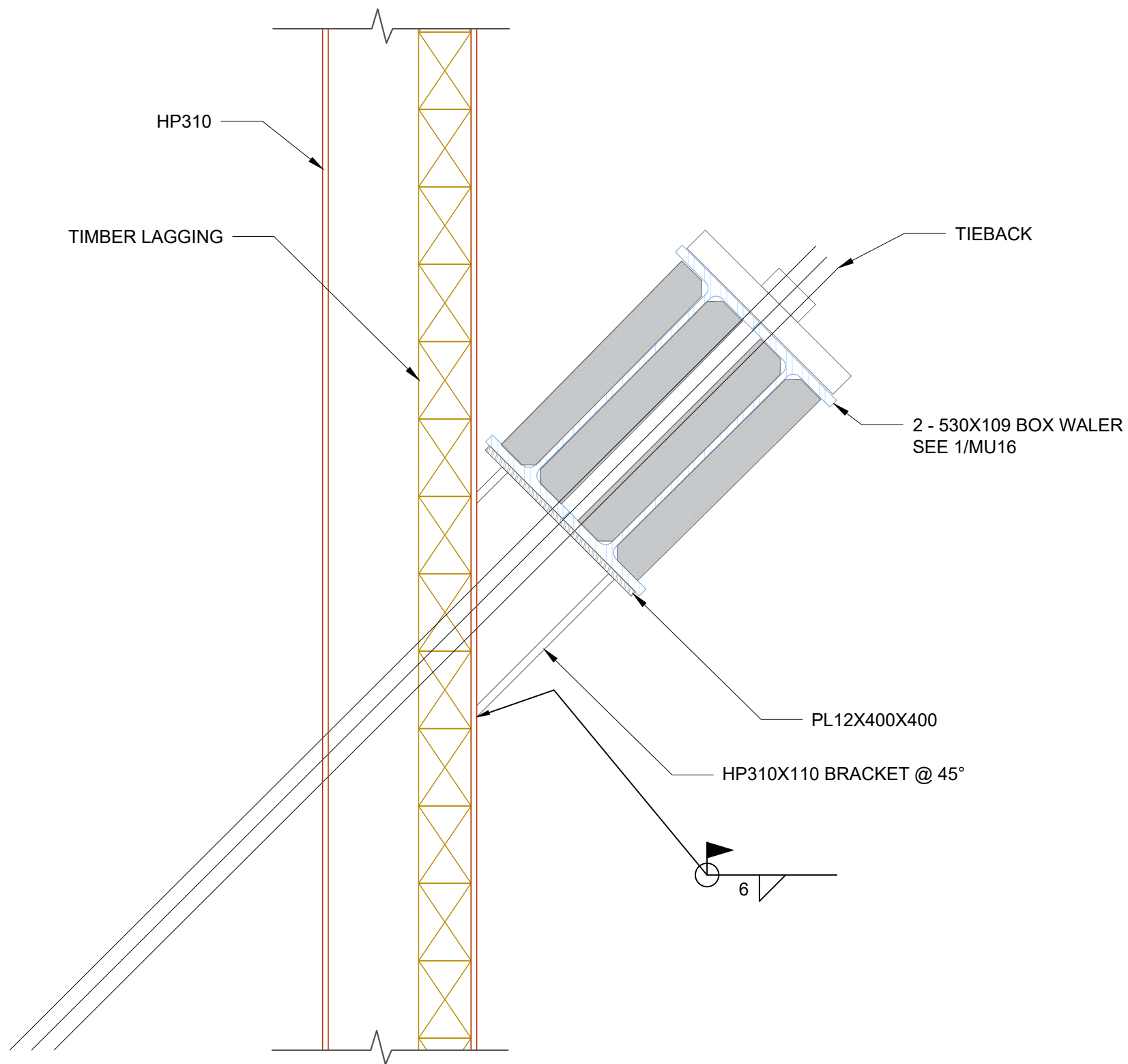
PROJECT
LEBRETON LIBRARY PARCEL EXCAVATION SHORING

LOCATION
 665 ALBERT STREET
 OTTAWA, ONTARIO

JOB No.
 22409

DESCRIPTION
 TYPICAL WALER ASSEMBLY

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU14
CHECKED BY MIC	



1 BRACKET DETAIL
 MU15 SCALE: 1:10



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
www.marathonunderground.com

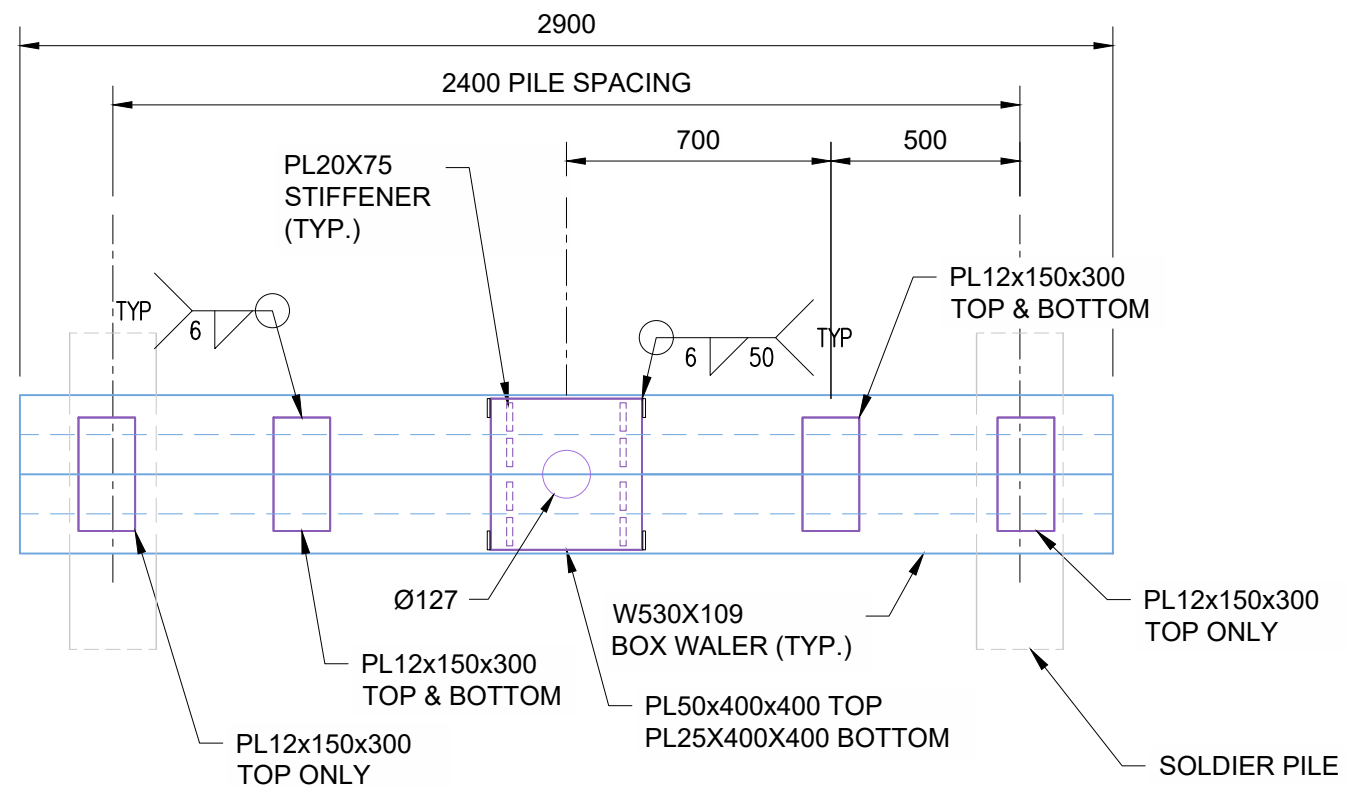
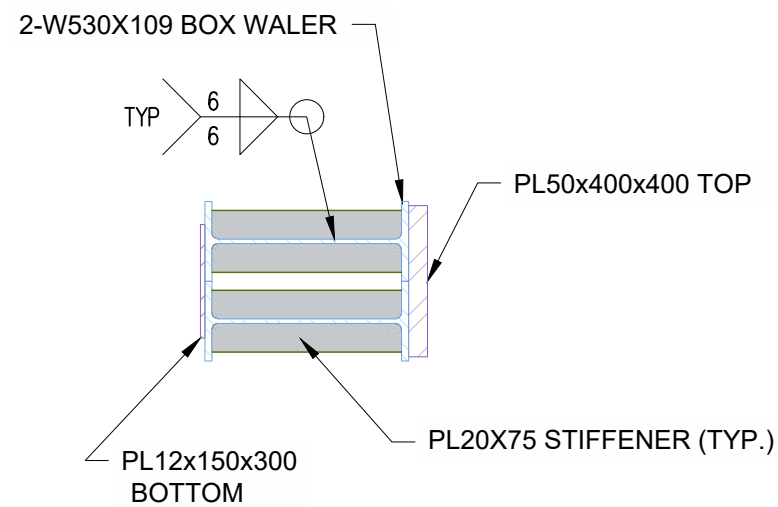
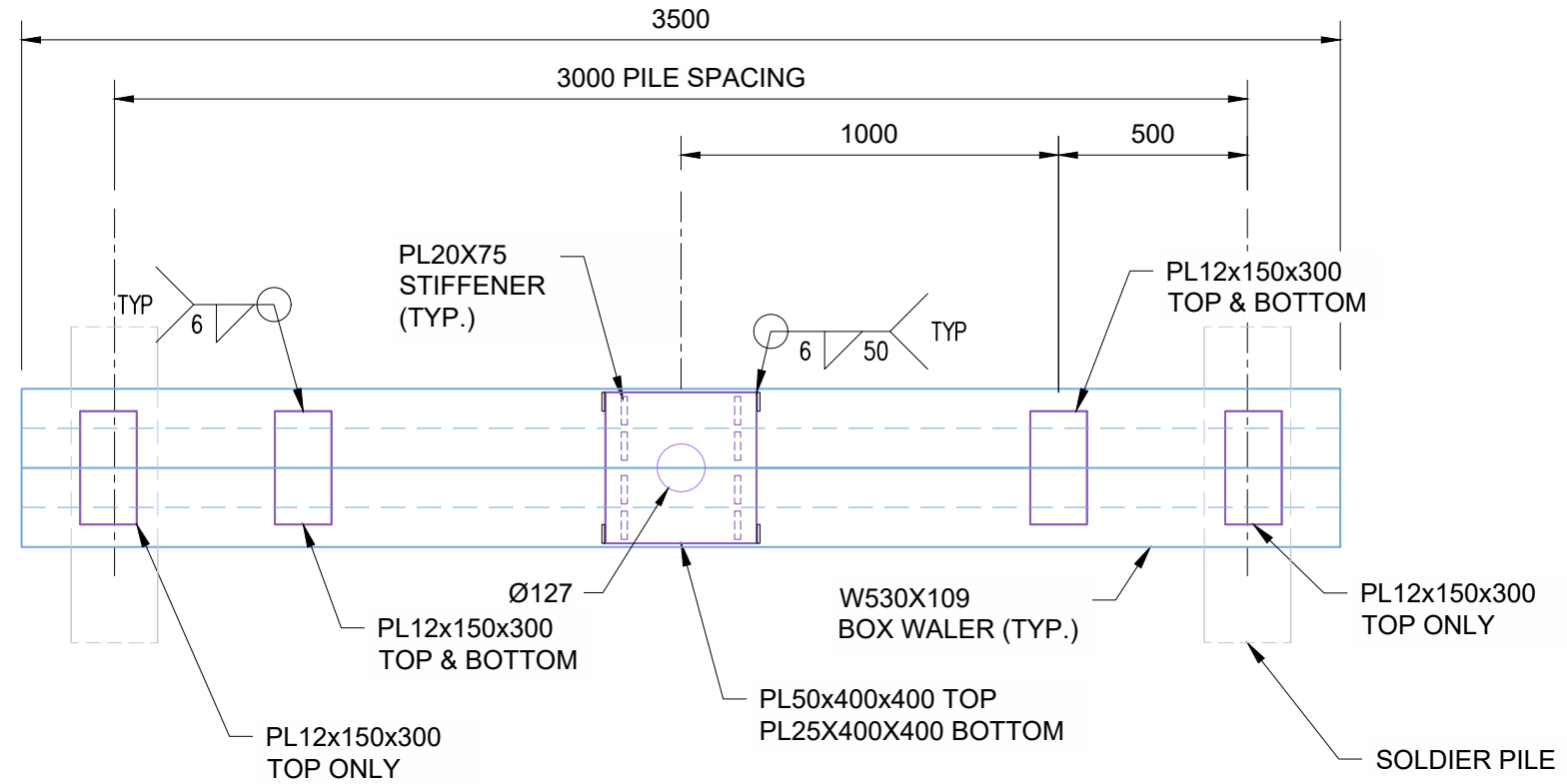
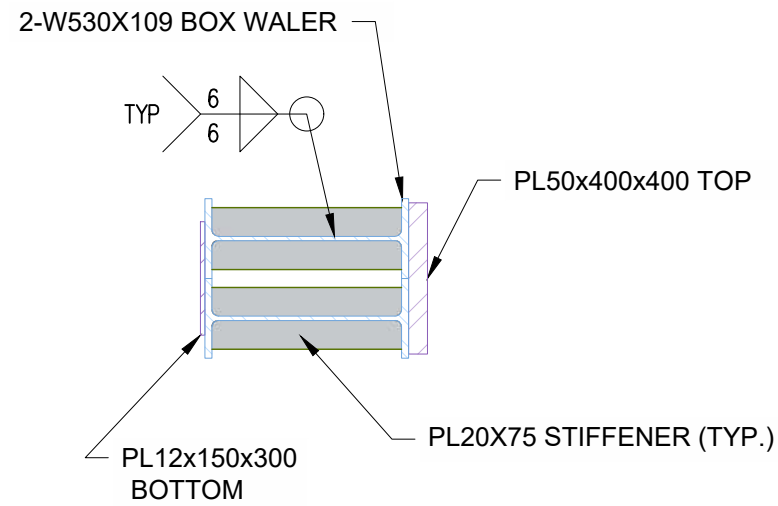
PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
**665 ALBERT STREET
 OTTAWA, ONTARIO**

JOB No.
22409

DESCRIPTION
ELEVATION

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU15
CHECKED BY MIC	



1 W530 BOX WALER DETAIL
MU16 SCALE: 1:20

NOTE: SELECT WALER
BASED ON PILE SPACING
(TYP. 2.4m)



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

Marathon Underground Constructors Corporation
6847 Hiram Drive, Greely, ON K4P 1A2
Tel: (613) 821-4800
Fax: (613) 821-3182
www.marathonunderground.com

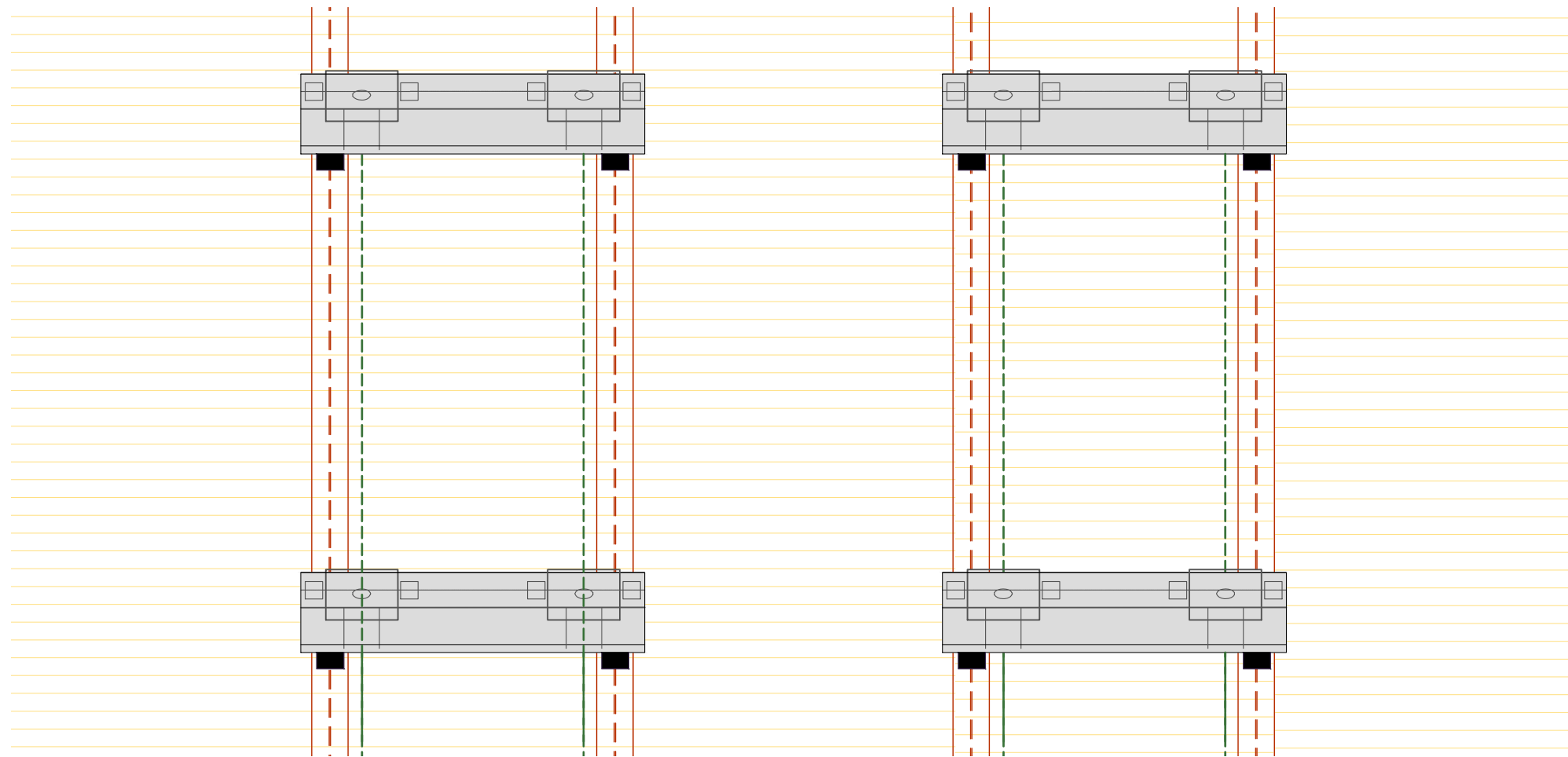
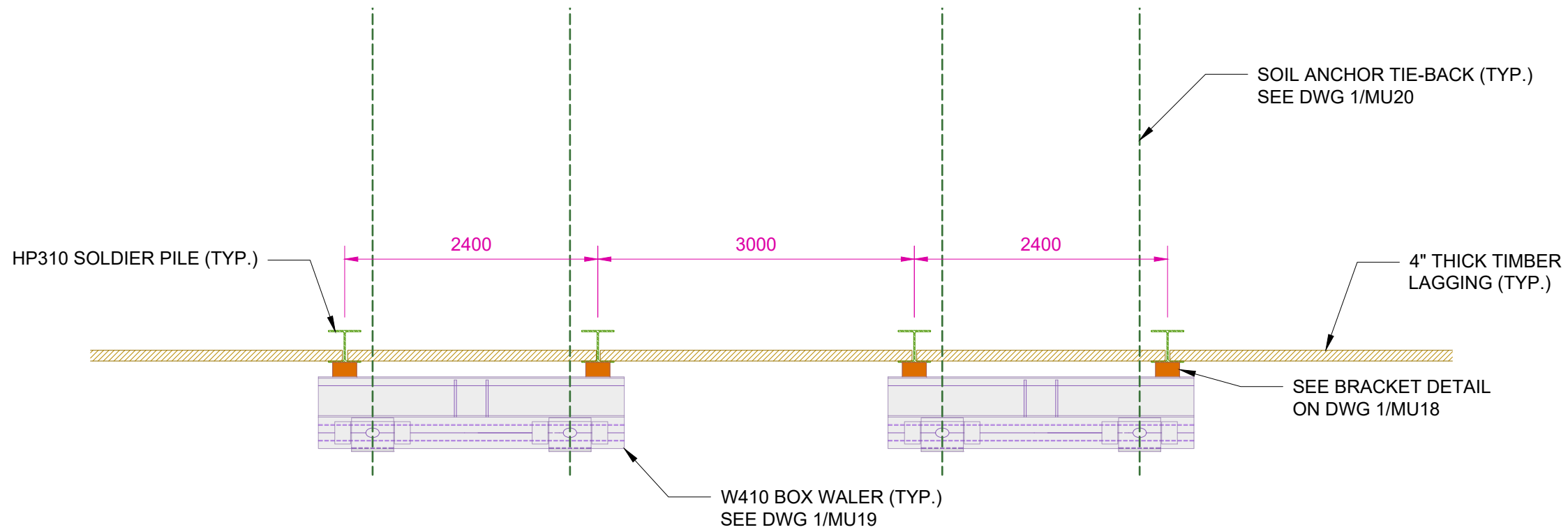
PROJECT
**LEBRETON LIBRARY PARCEL
EXCAVATION SHORING**

LOCATION
665 ALBERT STREET
OTTAWA, ONTARIO

JOB No.
22409

DESCRIPTION
BOX WALER DETAIL

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU16
CHECKED BY MIC	



NOTE: SEE SECTION AND ELEVATION VIEWS FOR TIE-BACK LEVELS.

1 TYPICAL WALER ASSEMBLY - NORTHEAST SHORING WALL ONLY
MU17 SCALE: 1:10



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

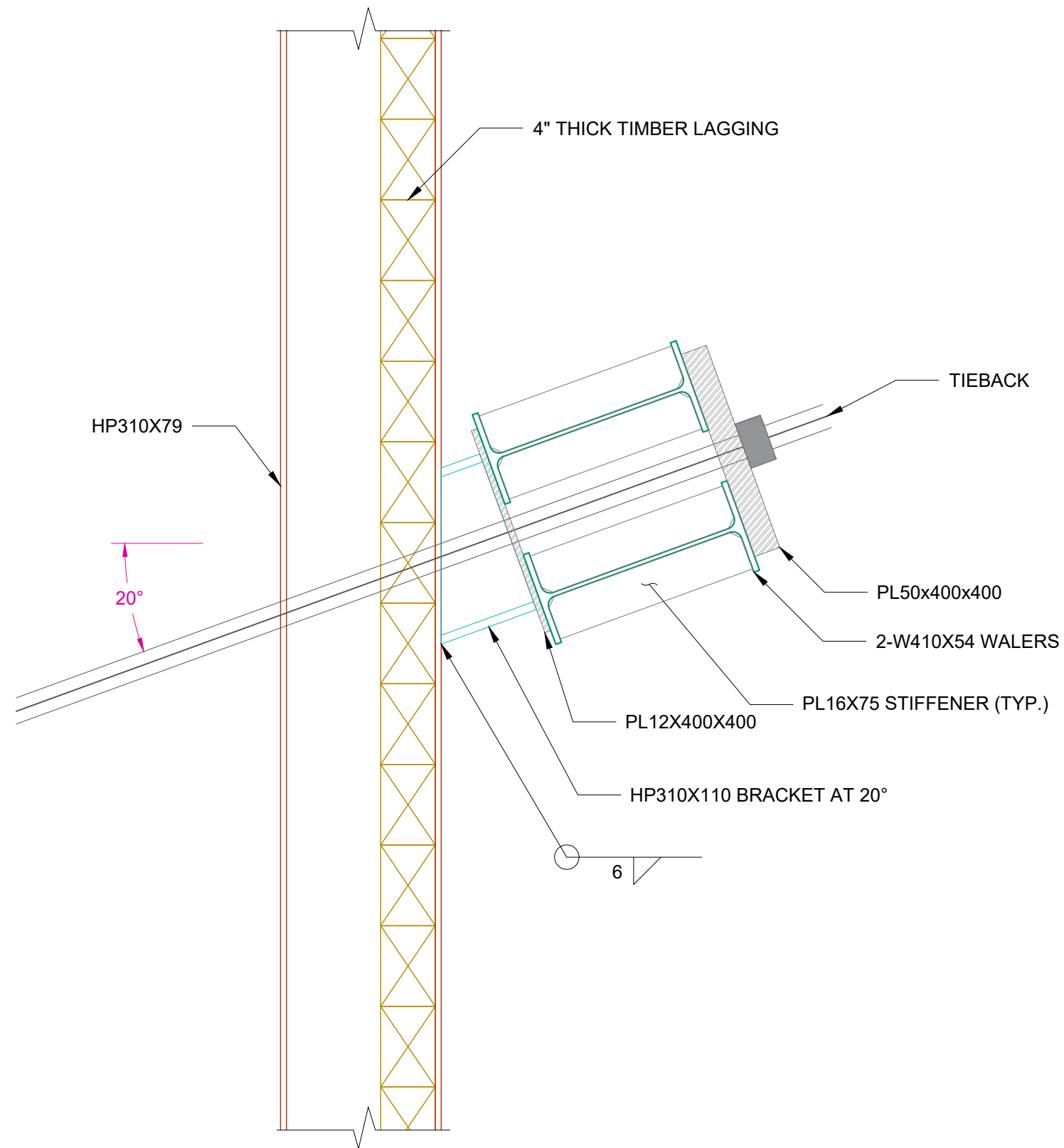
PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
**665 ALBERT STREET
 OTTAWA, ONTARIO**

JOB No.
22409

DESCRIPTION
TYPICAL WALER ASSEMBLY

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU17
CHECKED BY MIC	



1 BRACKET DETAIL
 MU18 SCALE: 1:10



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
www.marathonunderground.com

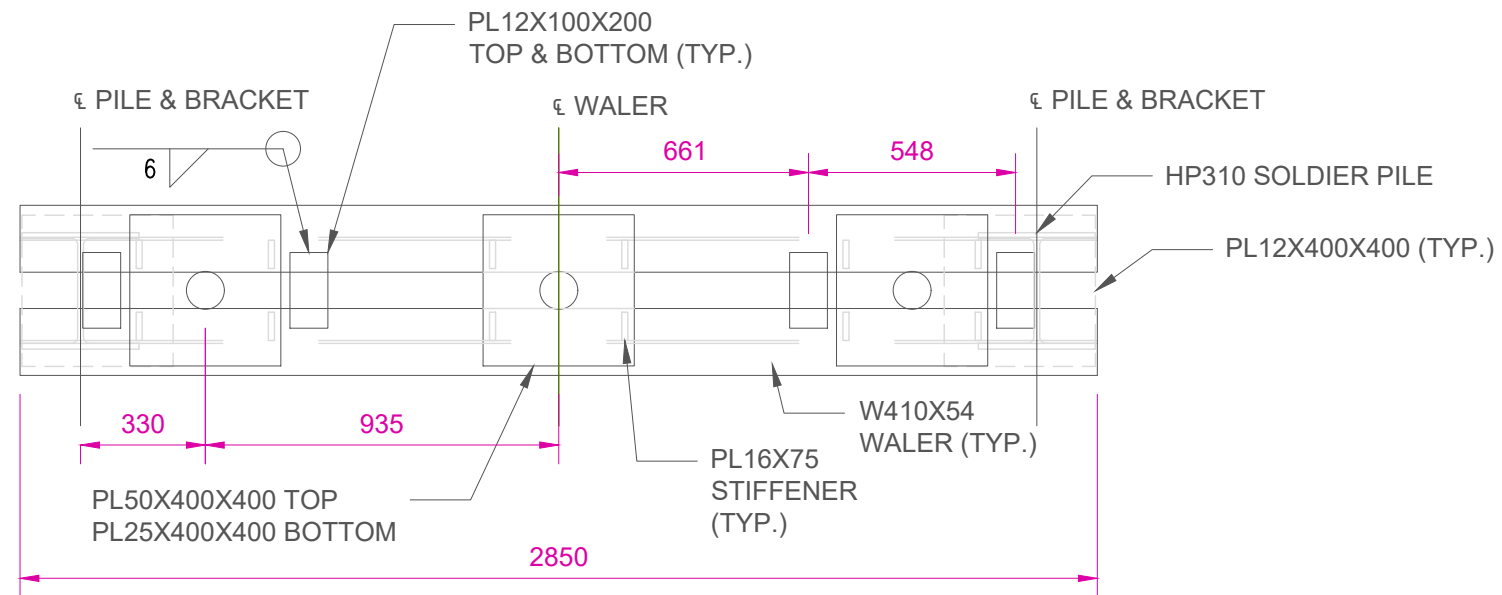
PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
**665 ALBERT STREET
 OTTAWA, ONTARIO**

JOB No.
22409

DESCRIPTION
BRACKET DETAIL

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU18
CHECKED BY MIC	



1 W410 BOX WALER DETAIL
MU19 SCALE: 1:20

1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON
 Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
www.marathonunderground.com

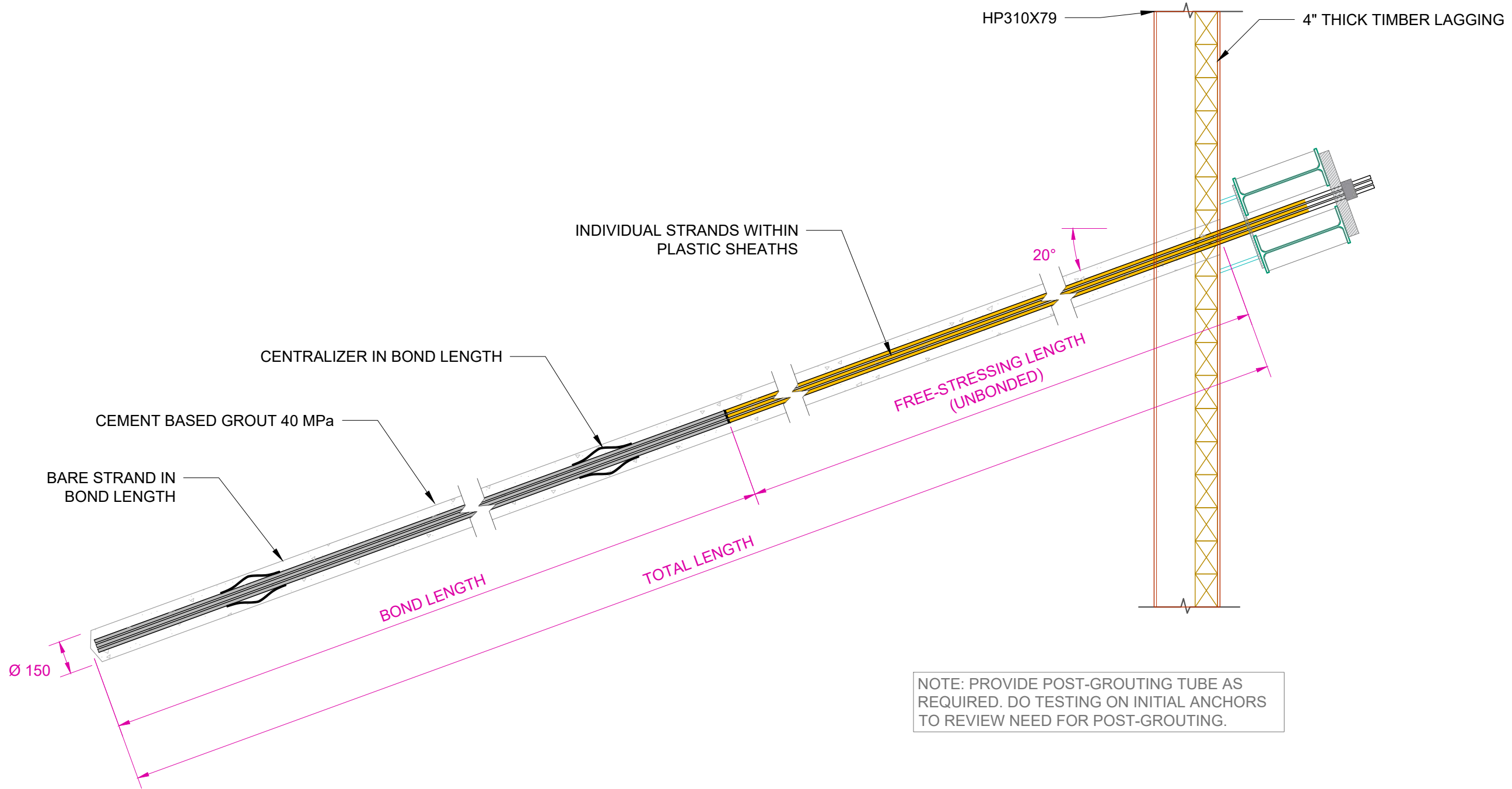
PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
**665 ALBERT STREET
 OTTAWA, ONTARIO**

JOB No.
22409

DESCRIPTION
BOX WALER DETAIL

DRAWN BY AC	SCALE AS NOTED
DESIGNED BY HB	DRAWING No. MU19
CHECKED BY MIC	



NOTE: PROVIDE POST-GROUTING TUBE AS REQUIRED. DO TESTING ON INITIAL ANCHORS TO REVIEW NEED FOR POST-GROUTING.

1 SOIL ANCHOR DETAIL
 MU20 SCALE: 1:20



1	ISSUED FOR REVIEW/PERMIT	2022.12.16
No.	REVISION	DATE

MARATHON

Marathon Underground Constructors Corporation
 6847 Hiram Drive, Greely, ON K4P 1A2
 Tel: (613) 821-4800
 Fax: (613) 821-3182
 www.marathonunderground.com

PROJECT
**LEBRETON LIBRARY PARCEL
 EXCAVATION SHORING**

LOCATION
 665 ALBERT STREET
 OTTAWA, ONTARIO

JOB No.
 22409

DESCRIPTION
SOIL ANCHOR DETAIL

DRAWN BY	AC	SCALE	AS NOTED
DESIGNED BY	HB	DRAWING No.	MU20
CHECKED BY	MIC		



APPENDIX F

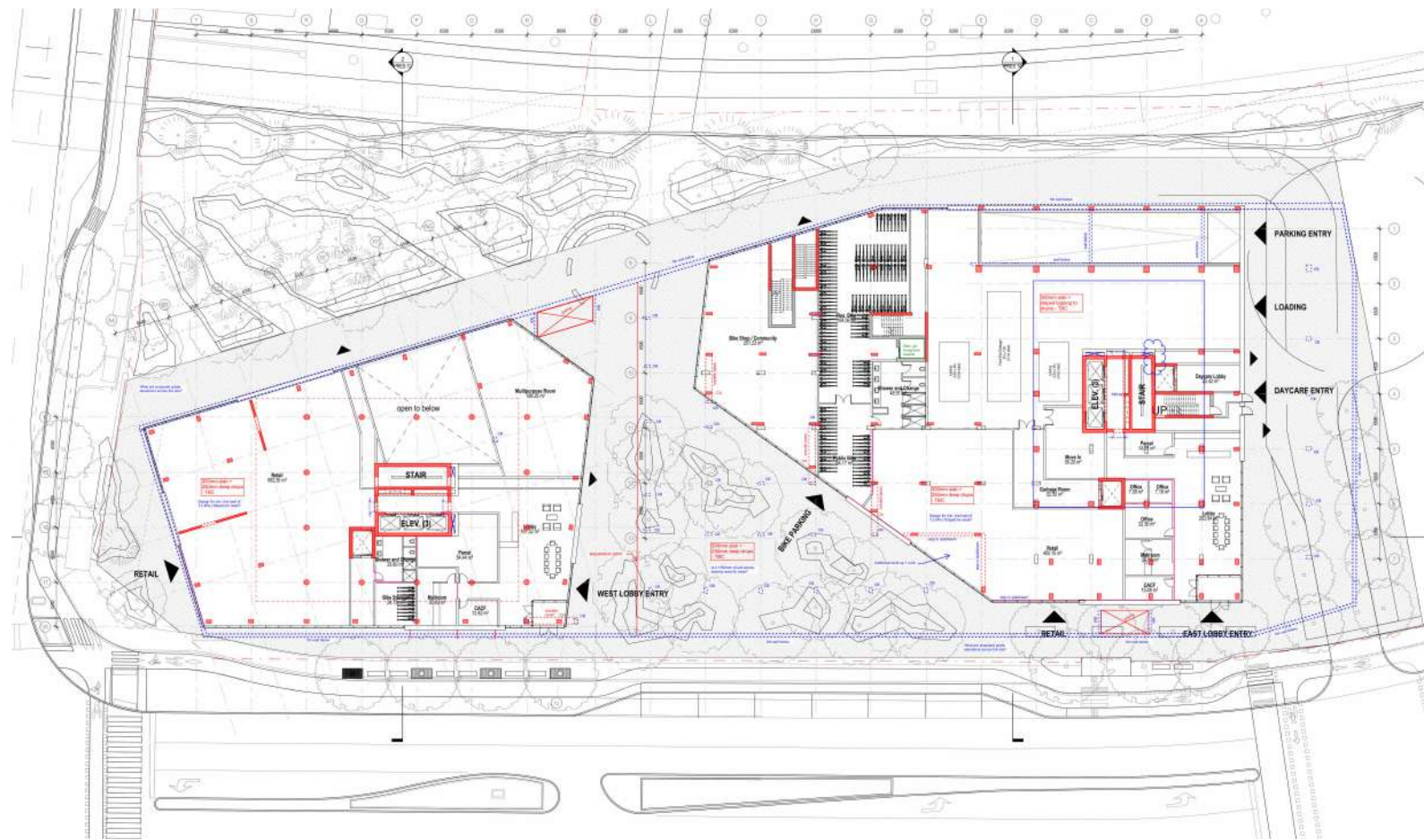
Construction Logistics Plan

LEBRETON LIBRARY PARCEL

655 ALBERT ST. OTTAWA. ONTARIO.

LOGISTICS DRAWINGS


ISSUE DATE: NOVEMBER 16, 2022



DRAWINGS LIST		
DRAWING #	DRAWING TITLE	ISSUE DATE
LLP-LOG-00	Cover Page	Nov 16 2022
LLP-LOG-01	Mobilization and Site Offices	Nov 16 2022
LLP-LOG-02	Excavation Works	Nov 16 2022
LLP-LOG-03	Substructure - Level P1	Nov 16 2022
LLP-LOG-04	Superstructure - Level 1	Nov 16 2022
LLP-LOG-05	Superstructure - Level 3	Nov 16 2022
LLP-LOG-06	Superstructure - Towers Construction	Nov 16 2022
LLP-LOG-07	Site Safety Plan COVID-19	Nov 16 2022
LLP-LOG-08	South Elevation	Nov 16 2022

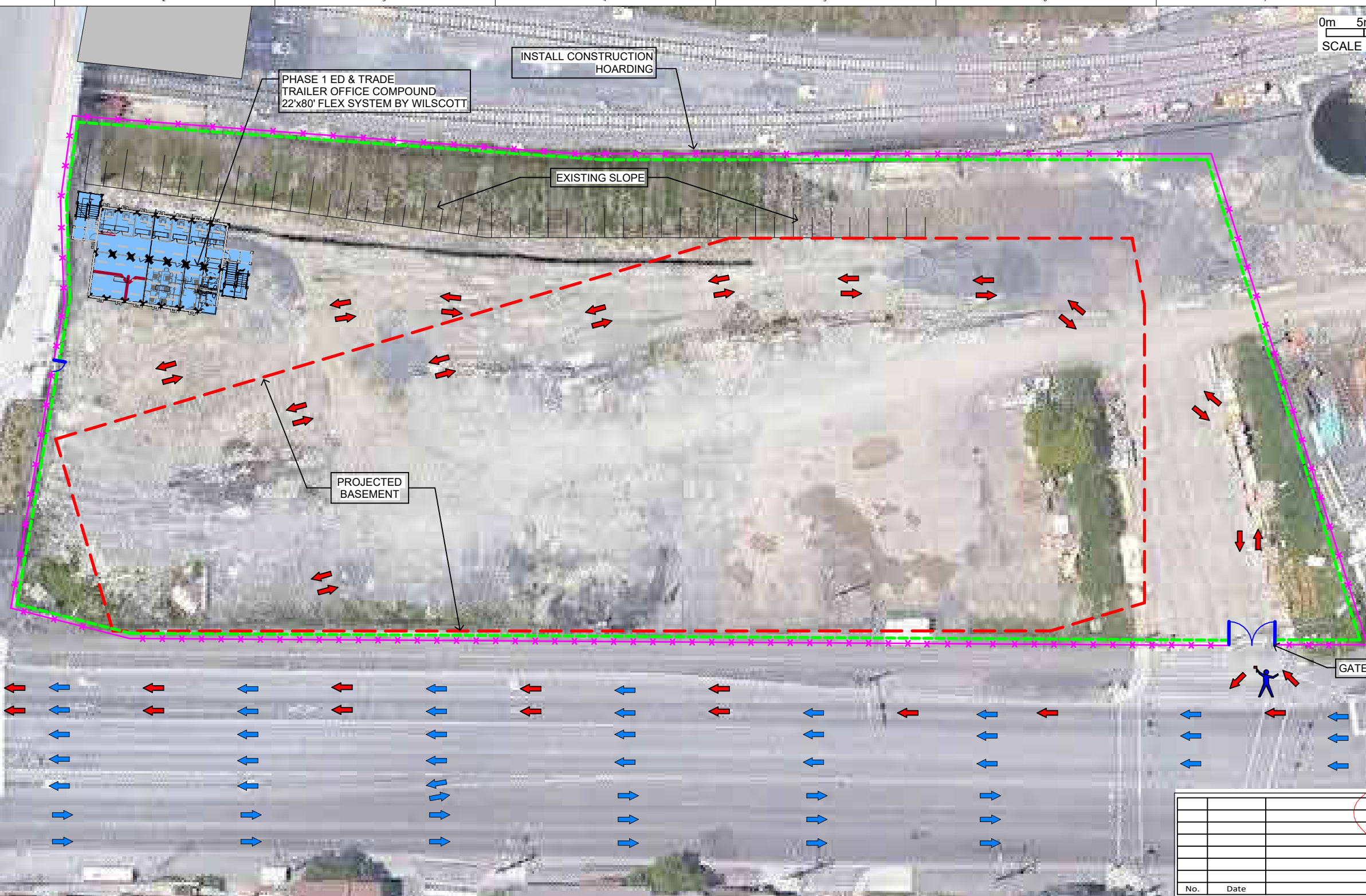
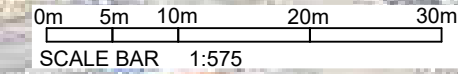
PRELIMINARY
ISSUED FOR REVIEW

No.	Date	Description	By

 <p>EllisDon We build on great relationships™</p>	Construction Sciences Engineering Department 1004 Middlegate Road, Main Floor Mississauga, Ontario, L4Y 1M4 Canada Tel: 905-896-8900 www.ellisdon.com		
	Project Name: Lebreton Library Parcel		Drawing Title: Site Logistics Cover Page
655 Albert St. Ottawa, Ontario.		Date: Nov 16 2022	Scale: 1:40
Job Number: LLP-LOG-00		Drawn By: MR	Rev: 0





MR

Print Date / Time: 11/16/22 2:29:02 PM

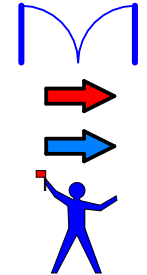






PRELIMINARY
ISSUED FOR REVIEW

LEGEND:

-  EXISTING BUILDING
-  LAYDOWN AREA
-  EXCAVATION WORKS
-  MUD MAT

-  PROPERTY LINE
-  CONSTRUCTION HOARDING
-  SILT FENCE
-  PROJECTED STRUCTURES
-  FOLDING GATE



-  SWING GATE
-  CONSTRUCTION TRAFFIC
-  PUBLIC TRAFFIC
-  FLAGMAN



-  TRAILER OFFICE COMPOUND

No.	Date	Description	By

EllisDon
We build on great relationships™

Project Name:
Lebreton Library Parcel

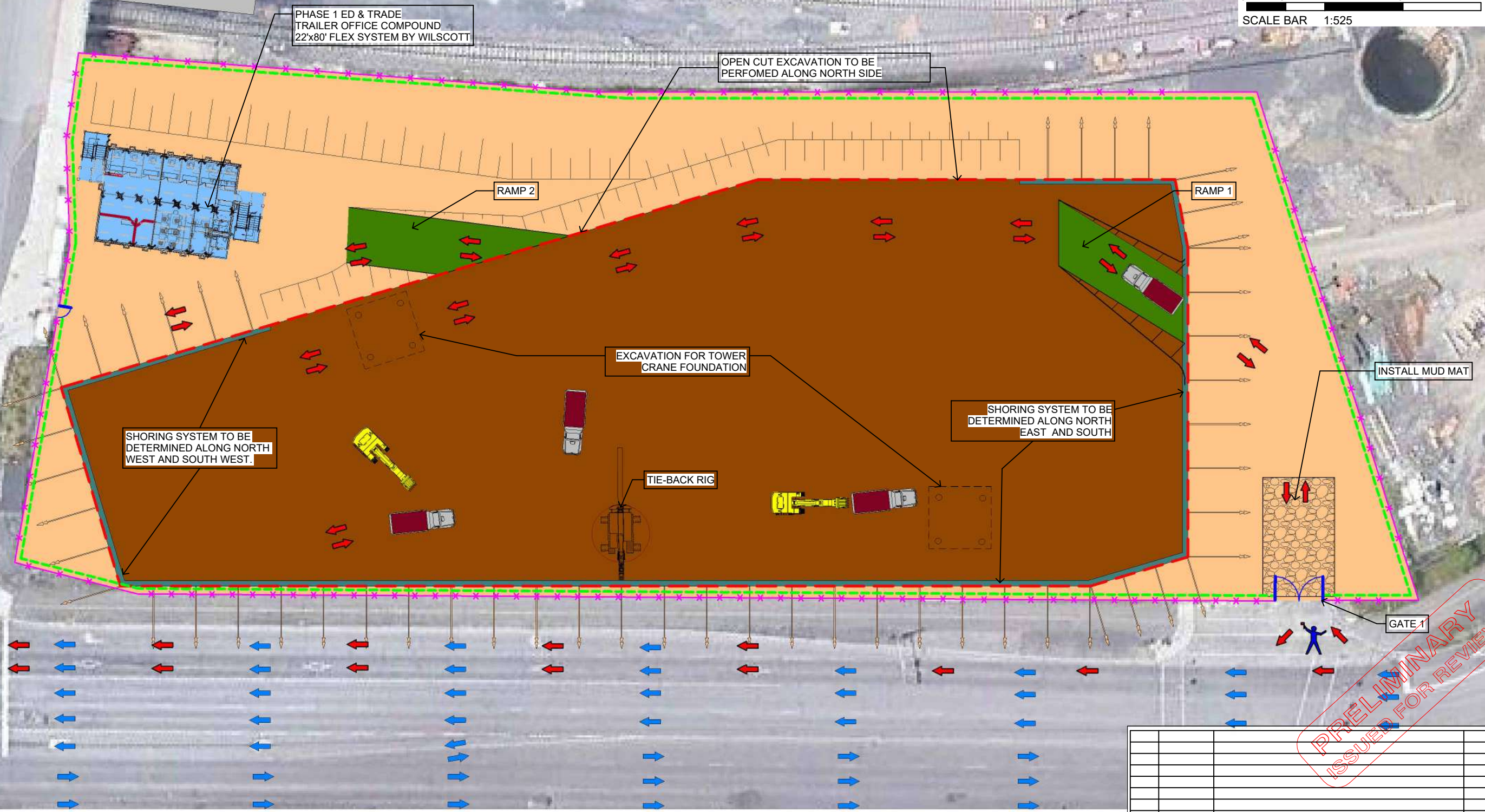
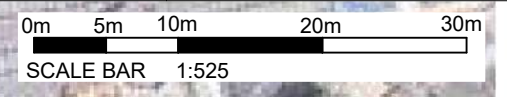
655 Albert St. Ottawa,
Ontario.

Construction Sciences
Engineering Department
1004 Middlegate Road, Main Floor
Mississauga, Ontario, L4Y 1M4
Canada
Tel: 905-896-8900
www.ellisdon.com

Drawing Title:
**Site Logistics
Mobilization and Site Offices**



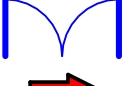
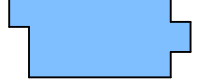



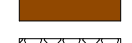


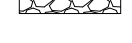



Date: **Nov 16 2022** Scale: As indicated Drawn By: **MR**

Job Number: **LLP-LOG-01** Rev:




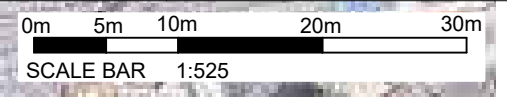
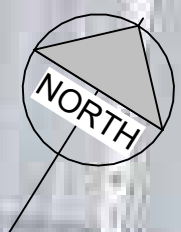
PRELIMINARY
ISSUED FOR REVIEW

LEGEND:

- | | | | | | | | |
|---|-------------------|---|-----------------------|---|----------------------|---|-------------------------|
|  | EXISTING BUILDING |  | PROPERTY LINE |  | SWING GATE |  | TRAILER OFFICE COMPOUND |
|  | LAYDOWN AREA |  | CONSTRUCTION HOARDING |  | CONSTRUCTION TRAFFIC | | |
|  | EXCAVATION WORKS |  | SILT FENCE |  | PUBLIC TRAFFIC | | |
|  | MUD MAT |  | PROJECTED STRUCTURES |  | FLAGMAN | | |
| | |  | FOLDING GATE | | | | |

No.	Date	Description	By

 We build on great relationships™	Construction Sciences Engineering Department 1004 Middlegate Road, Main Floor Mississauga, Ontario, L4Y 1M4 Canada Tel: 905-896-8900 www.ellisdon.com	
	Project Name: Lebreton Library Parcel	
Drawing Title: Site Logistics Excavation Works		Date: Nov 16 2022
655 Albert St. Ottawa, Ontario.		Scale: As indicated Drawn By: MR
Job Number: LLP-LOG-02		Rev:



PHASE 1 ED & TRADE TRAILER OFFICE COMPOUND 22'x80' FLEX SYSTEM BY WILSCOTT

PLACING BOOM FOUNDATION

PLACING BOOM FOUNDATION

PLACING BOOM

TC1 PEINER SK415 R=50m

TC1 PEINER SK415 R=50m

TC2 PEINER SK415 R=55m

TC2 PEINER SK415 R=60m

CONCRETE POURING 2 PLACING BOOMS + STATIONARY PUMP AT GROUND LEVEL

GATE 2

GATE 1

JERSEY BARRIER


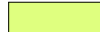











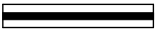
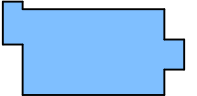
CRANE PICK-UP AREA

JERSEY BARRIER

CRANE PICK-UP AREA

PRELIMINARY
ISSUED FOR REVIEW

LEGEND:

-  EXISTING BUILDING
-  LAYDOWN AREA
-  COVERED HOARDING
-  HIGH COVERED HOARDING
-  PROPERTY LINE
-  CONSTRUCTION HOARDING
-  SILT FENCE
-  PROJECTED STRUCTURES
-  FOLDING GATE
-  SWING GATE
-  CONSTRUCTION TRAFFIC
-  PUBLIC TRAFFIC
-  FLAGMAN
-  JERSEY BARRIER
-  TRAILER OFFICE COMPOUND

No.	Date	Description	By

Print Date / Time: 11/16/22 2:29:05 PM



EllisDon
We build on great relationships™

Construction Sciences
Engineering Department
1004 Middlegate Road, Main Floor
Mississauga, Ontario, L4Y 1M4
Canada
Tel: 905-896-8900
www.ellisdon.com

Project Name:
Lebreton Library Parcel

655 Albert St. Ottawa,
Ontario.

Drawing Title:
**Site Logistics
Substructure - Level P1**

Date: Nov 16 2022	Scale: As indicated	Drawn By: MR
Job Number: LLP-LOG-03	Rev: 0	

0m 5m 10m 20m 30m
SCALE BAR 1:525



PHASE 2 ED & TRADE
TRAILER OFFICE COMPOUND
44'x80' FLEX SYSTEM BY WILSCOTT

SLAB TO BE CHECKED THAT CAN
TAKE THE CONSTRUCTION LOADS

PROJECTED BASEMENT LEVEL

PLACING BOOM

PROJECTED BASEMENT LEVEL

TC1 PEINER
SK415 R=50m

TC1 PEINER SK415 R=50m

TC2 PEINER
SK415 R=55m

TC2 PEINER SK415 R=60m

PLACING BOOM

STAIR

ELEV. (3)

ELEV. (3)

PROJECTED BASEMENT LEVEL

GATE 3

CRANE PICK-UP AREA

GATE 2

CONCRETE POURING
PLACING BOOM +
STATIONARY PUMP
AT GROUND LEVEL

CRANE PICK-UP AREA

GATE 1

PRELIMINARY
ISSUED FOR REVIEW

LEGEND:

- EXISTING BUILDING
- LAYDOWN AREA
- COVERED HOARDING
- HIGH COVERED HOARDING
- PROPERTY LINE
- CONSTRUCTION HOARDING
- SILT FENCE
- PROJECTED STRUCTURES
- FOLDING GATE
- SWING GATE
- CONSTRUCTION TRAFFIC
- PUBLIC TRAFFIC
- FLAGMAN
- JERSEY BARRIER
- TRAILER OFFICE COMPOUND

No.	Date	Description	By

Print Date / Time: 11/16/22 2:29:05 PM

EllisDon
We build on great relationships™

Construction Sciences
Engineering Department
1004 Middlegate Road, Main Floor
Mississauga, Ontario, L4Y 1M4
Canada
Tel: 905-896-8900
www.ellisdon.com

Project Name:
Lebreton Library Parcel

655 Albert St. Ottawa,
Ontario.

Drawing Title:
**Site Logistics
Superstructure - Level 1**

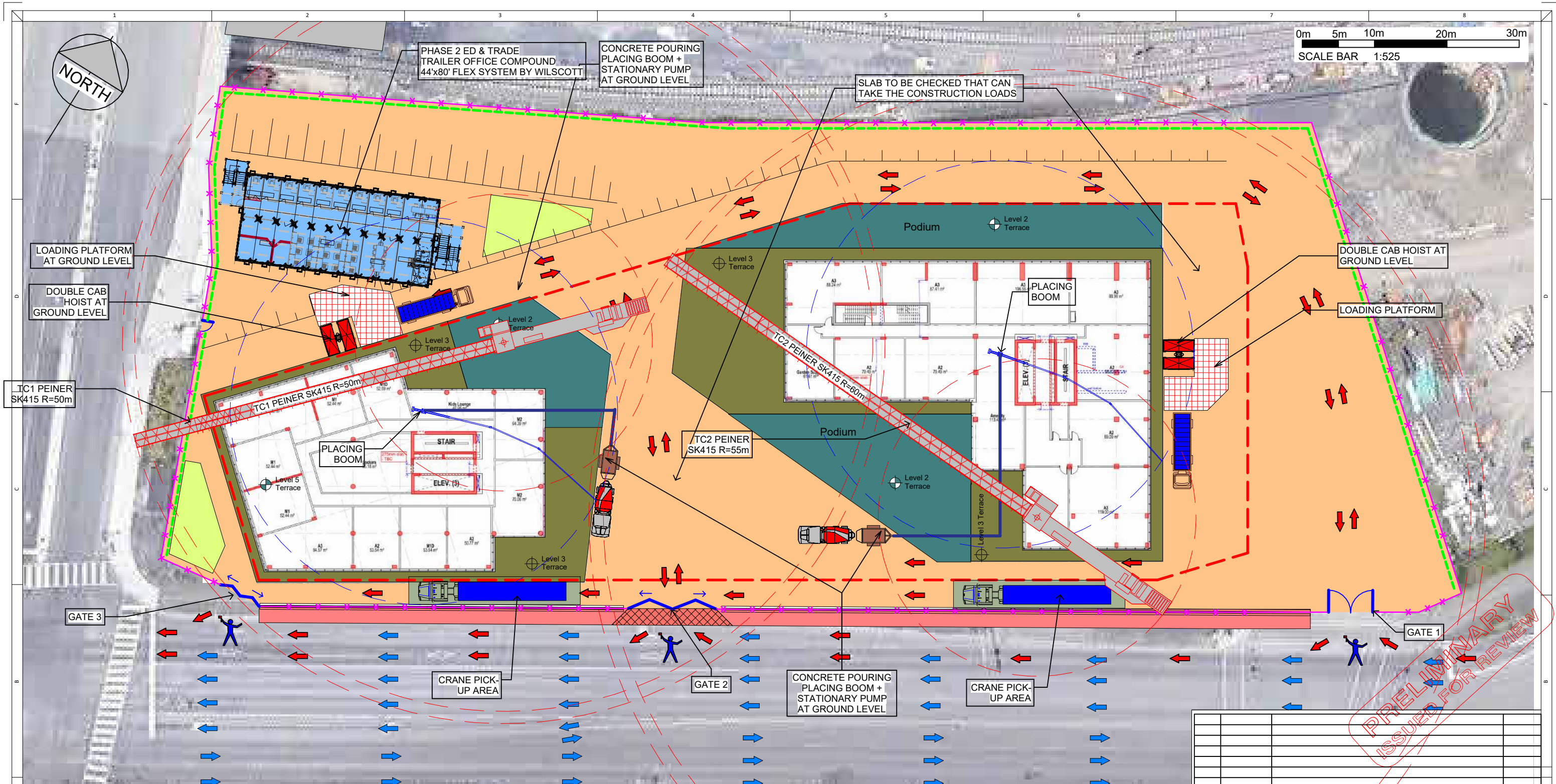
Date:
Nov 16 2022

Job Number:
LLP-LOG-04

Scale:
As indicated

Drawn By:
MR

Rev:



PRELIMINARY
ISSUED FOR REVIEW

No.	Date	Description	By

LEGEND:

	EXISTING BUILDING		PROPERTY LINE		SWING GATE		JERSEY BARRIER
	LAYDOWN AREA		CONSTRUCTION HOARDING		CONSTRUCTION TRAFFIC		TRAILER OFFICE COMPOUND
	COVERED HOARDING		SILT FENCE		PUBLIC TRAFFIC		
	HIGH COVERED HOARDING		PROJECTED STRUCTURES		FLAGMAN		
			FOLDING GATE				

Print Date / Time: 11/16/22 2:29:06 PM

 We build on great relationships™	Construction Sciences Engineering Department 1004 Middlegate Road, Main Floor Mississauga, Ontario, L4Y 1M4 Canada Tel: 905-896-8900 www.ellisdon.com		
	Project Name: Lebreton Library Parcel	Drawing Title: Site Logistics Superstructure - Level 3	
655 Albert St. Ottawa, Ontario.	Date: Nov 16 2022	Scale: As indicated	Drawn By: MR
	Job Number: LLP-LOG-05		Rev:



PHASE 2 ED & TRADE TRAILER OFFICE COMPOUND
44'x80' FLEX SYSTEM BY WILSCOTT

SLAB TO BE CHECKED THAT CAN TAKE THE CONSTRUCTION LOADS

SCAFFOLD PLATFORM AT LEVEL 5 TERRACE

DOUBLE CAB HOIST AT GROUND LEVEL

LOADING PLATFORM

LOADING PLATFORM AT GROUND LEVEL

DOUBLE CAB HOIST AT GROUND LEVEL

SCAFFOLD PLATFORM AT LEVEL 5 TERRACE

TC1 PEINER SK415 R=50m

TC1 PEINER SK415 R=50m

TC2 PEINER SK415 R=55m

TC2 PEINER SK415 R=60m

PLACING BOOM

PLACING BOOM

West Tower

East Tower

GATE 3

GATE 2

GATE 1
















CRANE PICK-UP AREA

CONCRETE POURING PLACING BOOM + STATIONARY PUMP AT GROUND LEVEL

CRANE PICK-UP AREA

PRELIMINARY
ISSUED FOR REVIEW

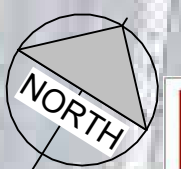
LEGEND:

- | | | | | | | | |
|---|-----------------------|---|-----------------------|---|----------------------|---|-------------------------|
|  | EXISTING BUILDING |  | PROPERTY LINE |  | SWING GATE |  | JERSEY BARRIER |
|  | LAYDOWN AREA |  | CONSTRUCTION HOARDING |  | CONSTRUCTION TRAFFIC |  | TRAILER OFFICE COMPOUND |
|  | COVERED HOARDING |  | SILT FENCE |  | PUBLIC TRAFFIC | | |
|  | HIGH COVERED HOARDING |  | PROJECTED STRUCTURES |  | FLAGMAN | | |
| | |  | FOLDING GATE | | | | |

No.	Date	Description	By

<p>Print Date / Time: 11/16/22 2:29:07 PM</p>  <p>755 Lebreton Library Parcel</p> <p>655 Albert St. Ottawa, Ontario.</p>	<p>Construction Sciences Engineering Department 1004 Middlegate Road, Main Floor Mississauga, Ontario, L4Y 1M4 Canada Tel: 905-896-8900 www.ellisdon.com</p>
	<p>Project Name: Lebreton Library Parcel</p> <p>Drawing Title: Site Logistics Superstructure - Towers Construction</p> <p>Date: Nov 16 2022 Scale: As indicated Drawn By: MR</p> <p>Job Number: Rev: LLP-LOG-06</p>

0m 5m 10m 20m 30m
SCALE BAR 1:525



PHASE 2 ED & TRADE
TRAILER OFFICE COMPOUND
44'x80' FLEX SYSTEM BY WILSCOTT



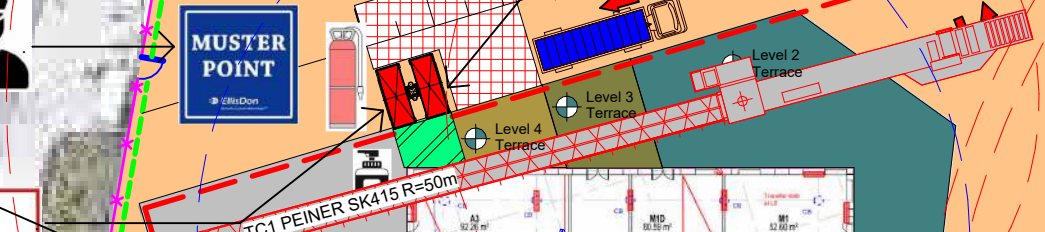
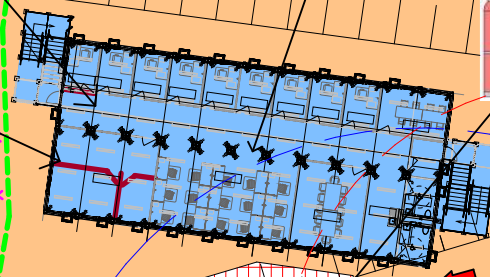
MAXIMUM NUMBER OF PEOPLE ALLOWED ON HOIST CAR AT ONE TIME
5
EllisDon

SUBCONTRACTORS STAGGERED START TIME SCHEDULE

Subcontractor	Start Time

- HEAD PROTECTION
- EYE PROTECTION
- FOOT PROTECTION
- REFLECTIVE VEST
- REQUIRED TO ACCESS

TC1 PEINER SK415 R=50m
MAXIMUM NUMBER OF PEOPLE ALLOWED ON HOIST CAR AT ONE TIME
5
EllisDon



TC2 PEINER SK415 R=55m



GATE 3

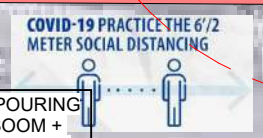
GATE 2

GATE 1

- HEAD PROTECTION
- EYE PROTECTION
- FOOT PROTECTION
- REFLECTIVE VEST
- REQUIRED TO ACCESS



- HEAD PROTECTION
- EYE PROTECTION
- FOOT PROTECTION
- REFLECTIVE VEST
- REQUIRED TO ACCESS



CONCRETE POURING PLACING BOOM + STATIONARY PUMP AT GROUND LEVEL

PRELIMINARY
ISSUED FOR REVIEW

No.	Date	Description	By

LEGEND:

- CONSTRUCTION AREA
- LAYDOWN AREA
- COVERED HOARDING
- HIGH COVERED HOARDING
- PROPERTY LINE
- CONSTRUCTION HOARDING

- FOLDING GATE
- SWING GATE
- CONSTRUCTION TRAFFIC
- PUBLIC TRAFFIC
- FLAGMAN

- TRAILER OFFICE COMPOUND
- FIRE EXTINGUISHER

- SECURITY GUARD
- HAND SANITIZING BOTTLE
- HAND WASH STATION

- HEAD PROTECTION
- EYE PROTECTION
- FOOT PROTECTION
- REFLECTIVE VEST
- REQUIRED TO ACCESS

LOW RISK EXPOSURE TO COVID-19 STANDARD PPE REQUIRED

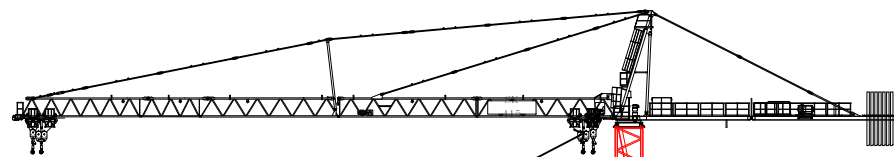
COMMONLY TOUCHED SURFACES OR AREAS THAT REQUIRE MORE FREQUENT CLEANING/SANITIZING (ELEVATOR/ HOIST CONTROLS / BUTTONS, SITE TRAILERS, DOORS HANDLES, EQUIPMENT, ETC.)

Print Date / Time: 11/16/22 2:29:08 PM

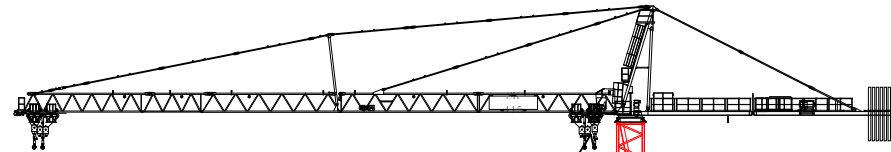
Project Name:
Lebreton Library Parcel
655 Albert St. Ottawa, Ontario.

Construction Sciences
Engineering Department
1004 Middlegate Road, Main Floor
Mississauga, Ontario, L4Y 1M4
Canada
Tel: 905-896-8900
www.ellisdon.com

Drawing Title:
Site Logistics
Site Safety Plan COVID-19
Date: Nov 16 2022 Scale: As indicated Drawn By: MR
Job Number: LLP-LOG-07 Rev:



TC2 PEINER
SK415 50M JIB



TC2 PEINER
SK415 55M JIB

SCAFFOLD PLATFORM AT
LEVEL 5 TERRACE
(NORTH SIDE OF THE
TOWER)

DOUBLE CAB HOIST AT
GROUND LEVEL
(NORTH SIDE OF THE
TOWER)

SCAFFOLD
PLATFORM AT LEVEL 5
TERRACE

DOUBLE CAB
HOIST AT
GROUND LEVEL

Level 40	186500
Level 39	183500
Level 38	180500
Level 37	177500
Level 36	174500
Level 35	171500
Level 34	168500
Level 33	165500
Level 32	162500
Level 31	159500
Level 30	156500
Level 29	153500
Level 28	150500
Level 27	147500
Level 26	144500
Level 25	141500
Level 24	138500
Level 23	135500
Level 22	132500
Level 21	129500
Level 20	126500
Level 19	123500
Level 18	120500
Level 17	117500
Level 16	114500
Level 15	111500
Level 14	108500
Level 13	105500
Level 12	102500
Level 11	99500
Level 10	96500
Level 9	93500
Level 8	90500
Level 7	87500
Level 6	84500
Level 5	81500
Level 4	78500
Level 3	75500
Level 2	72500
Level 1.5 - Mezz.	69500
Plaza Slab	66500
Level 0 - P1	63500

**PRELIMINARY
ISSUED FOR REVIEW**

No.	Date	Description	By

<p>EllisDon We build on great relationships™</p>	<p>Construction Sciences Engineering Department 1004 Middlegate Road, Main Floor Mississauga, Ontario, L4Y 1M4 Canada Tel: 905-896-8900 www.ellisdon.com</p>		
	<p>Project Name: Lebreton Library Parcel</p>	<p>Drawing Title: Site Logistics South Elevation</p>	
<p>655 Albert St. Ottawa, Ontario.</p>	<p>Date: Nov 16 2022</p>	<p>Scale: 1:635</p>	<p>Drawn By: MR</p>
<p>Job Number: LLP-LOG-08</p>	<p>Rev:</p>		

South Elevation

TOWER CRANE FOUNDATION

Parking level

Print Date / Time: 11/16/22 2:29:09 PM



APPENDIX G

Structural Engineering Documentation

November 2, 2022



Engineers

Justin Robitaille
Dream
30 Adelaide st. E
Toronto, ON, M5C 3H1
jrobitaille@dream.ca

Dear Justin Robitaille,

RE: LeBreton Library Parcel

RJC No. [OTT.128984.0001]

**Structural approach for construction adjacent to existing City infrastructure
665 Albert St. Ottawa**

The intent of this letter is to describe the approach taken by the design team to mitigate any structural impact of the proposed development to the existing City infrastructure running in the vicinity of the site.

The proposed structure will be supported on reinforced concrete caissons drilled down and socketed into the bedrock for all heavily loaded tower structural elements. For the lightly loaded columns and walls, smaller “pipe piles” drilled and socketed to rock will be provided.

Based on the as-built drawings available to RJC, three key pieces of City infrastructure run along the north foundation wall of the proposed development site. The closest service is the 2400mm EWT concrete sewer pipe running parallel to the north foundation wall with an invert elevation of approximately 45560. The conduit runs at a distance of 3 to 10m from the foundation wall. No existing conduit is to remain within the footprint of the proposed development.

As per Golder’s geotechnical recommendations, the deep foundation system underneath the foundation wall and adjacent columns will be socketed 1m into the bedrock, hence loading the rock in friction approximately between elevation 47000 and 48000. Based on the provided as-built drawings of the existing services, the minimum horizontal distance from the buried pipe to the edge of the caisson is at least 3m (refer to RJC drawings S198-S198E-S198W-S702 attached to this letter). The invert elevation of the pipe is around elev. 45m, providing a minimum 1H:1V slope from the invert to the highest point of application of the deep foundation force in the rock. Based on Golder’s geotechnical recommendations, these conditions should not impose any significant stress increase to the existing services.



Trusting this letter is sufficient to confirm that the proposed structural foundation system is being designed to mitigate any structural impact on the existing city infrastructure running north of the site. RJC remains available to respond to any questions on this matter.

Best regards,

A handwritten signature in blue ink, appearing to read 'Benoit Boulanger'.

Benoit Boulanger, MAsc, P.Eng.
Regional Manager, Associate



CONSULTANTS

CONV.
TMIG
8800 Dufferin St., Suite 200, Vaughan, ON L4K 0C5
STRUCTURAL



Read Jones Christoffersen Ltd.
Engineers
rjc.ca

1545 Carling Avenue, Suite 304
Ottawa, ON K1Z 8P9 Canada
tel 613-714-7000

LANDSCAPE
Smith+Andersen
1777 W 3rd Ave., Vancouver, BC V6J 1K1

ARCHITECT
PFS Studio
8800 Dufferin St., Suite 200, Vaughan, ON L4K 0C5

CONTRACTOR
Two Row Architect
1804 6th Line, Oshawa, ON N1A 1M0

CONTRACTOR
EllisDon
2680 Queensview Dr., Ottawa, ON K2B 6J9

Drawings Notes

- All drawings, plans, models, designs, specifications and other documents prepared by Read Jones Christoffersen Ltd. (RJC) and used in connection with this project are instruments of service for the work shown in them. The "RJC" and as such are and remain the property of RJC. Whether the Work is executed or not, and RJC reserves the copyright in them and in the Work executed from them, and they shall not be used for any other work or project.
- These drawings are "design drawings" only. They may not be available for use as shop drawings. Use of these drawings as basis drawings for "shop drawings" is not permitted unless written permission concerning certain conditions and limitations is obtained from RJC. The work "as constructed" may vary from what is shown on these drawings.
- Use of these drawings is limited to that identified in the Revision column. Do not construct from these drawings unless marked "Issued for Construction" by RJC in the Revision column, and then only for the scope noted. The drawings shall not be used for "pricing", "costing", or "tender" unless so indicated in the Revision column. "Pricing" or "Costing" drawings are not complete and any prices based on such drawings must allow for this.

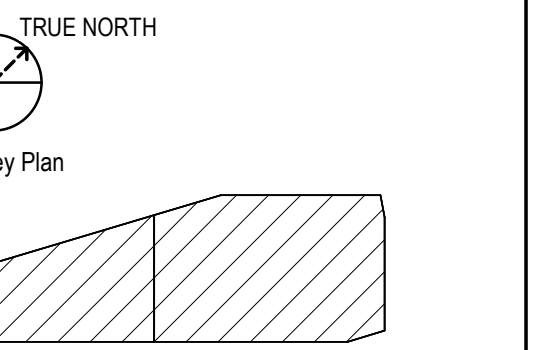
NOT FOR CONSTRUCTION

PROJECT

**LEBRETON LIBRARY
PARCEL**
665 Albert St
Ottawa, ON
Canada



DREAM
30 Adelaide St. E., Suite 301,
Toronto, ON M5C 3H1
KEY PLAN



ISSUE CHART

ISSUE	DATE	DESCRIPTION
1	2022-10-27	ISSUED FOR INFORMATION

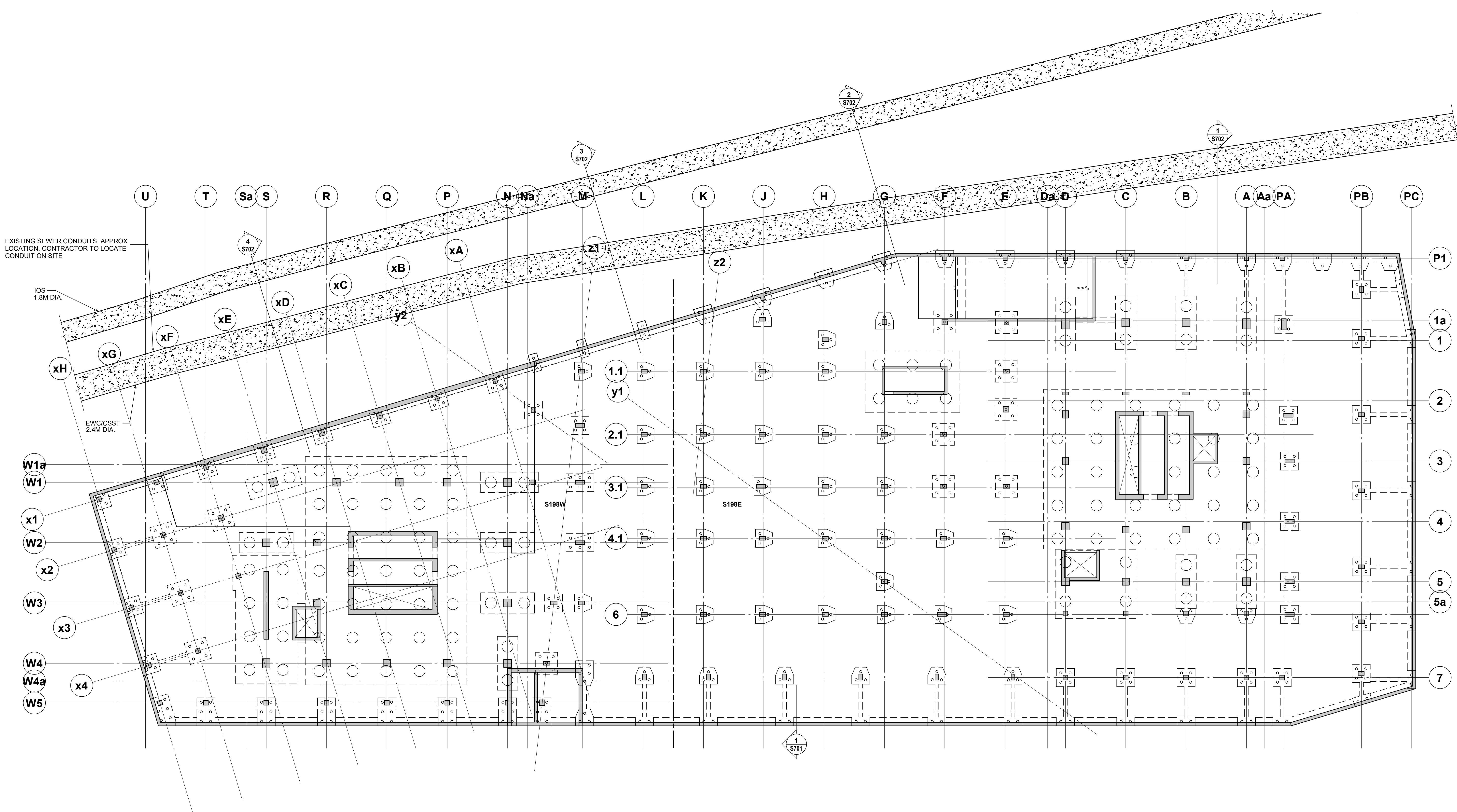
Drawn By: M.M. Scale: As Indicated
Designed By: M.C. Date: 2022-10-27
Checked By: B.B.

Job Number: OTT.128864.0001

OVERALL FOUNDATION PLAN

SHEET NUMBER

S198



OVERALL FOUNDATION PLAN
1:200

FOUNDATION PLAN NOTES

- FOUNDATION ELEVATIONS, BEARING STRATA, BEDROCK DEPTH AND SOCKET LENGTH TO BE VERIFIED BY GEOTECHNICAL ENGINEER ON SITE AND MAY NEED TO BE ADJUSTED ON SITE.
- FOUND TOP OF CAISSONS (OR PILE) CAP (T.O.C.C.) AT ELEVATIONS SHOWN ON PLAN. BOTTOM OF CAISSON OR PILES TO BE DETERMINED BASED MINIMUM SOCKET LENGTH INDICATED IN CAISSONS AND PILES SCHEDULES.
- THE RESULTING BOTTOM OF CAISSON AND PILES ELEVATIONS ARE ESTIMATES BASED ON THE GEOTECHNICAL REPORT. ALLOWANCE SHOULD BE CARRIED BASED ON VARIATIONS FROM THE ASSUMED SITE CONDITIONS.
- BORE HOLE LOCATIONS ARE SHOWN FOR INFORMATION ONLY. REFER TO GEOTECHNICAL REPORT FOR EXACT LOCATIONS.
- CENTRE ALL CAPS, PILASTERS, AND FOOTINGS UNDER COLUMNS EXCEPT AS NOTED ON PLAN.
- SUBGRADE PREPARATION BELOW THE SLAB ON GRADE IS PER THE GEOTECHNICAL REPORTS. SUB-FLOOR DRAINAGE IS PER THE MECHANICAL DRAWINGS.
- REFER TO MECHANICAL DRAWINGS FOR PITS SIZE AND LOCATIONS. REFER TO GENERAL NOTES.
- THE SHORING SYSTEM WHERE SHOWN CONCEPTUALLY IS ONLY TO CLARIFY THE INTERFACE BETWEEN STRUCTURE AND THE EXCAVATION SHORING SYSTEM USED. REFER TO EXCAVATION SHORING PERMIT DRAWINGS FOR LOCATION, SIZE AND DETAILS OF THE TEMPORARY SHORING WALL.
- PROVIDE GROUND SEAL WHERE REQUIRED BY SITE CONDITIONS, GEOTECHNICAL REPORT, OR GEOTECHNICAL CONSULTANT.
- REFER TO THE FOLLOWING DRAWINGS:
 - GENERAL NOTES - S100 SERIES
 - COLUMN SCHEDULE - S300 SERIES
 - SHEAR WALL ELEVATIONS, ZONE SCHEDULE - S400 SERIES

CONSULTANTS

TMIG
8800 Dufferin St., Suite 200, Vaughan, ON L4K 0C5



Read Jones Christoffersen Ltd.
Engineers
rjc.ca
1545 Carling Avenue, Suite 304
Ottawa, ON K1Z 8P9 Canada
tel 613-714-7000

Smith-Andersen
1777 W 3rd Ave., Vancouver, BC V6J 1K1

LANDSCAPE
PFS Studio
8800 Dufferin St., Suite 200, Vaughan, ON L4K 0C5

Two Row Architect
1804 6th Line, Okesville, ON N0A 1M0

CONTRACTOR
ErisDon
2680 Queensview Dr., Ottawa, ON K2B 6J9

- Drawings Notes
- All drawings, plans, models, designs, specifications and other documents prepared by Read Jones Christoffersen Ltd. (RJC) and used in connection with this project are instruments of service for the work shown in these drawings and as such are not to be used for any other work or project. RJC reserves the copyright in them and in the Work executed from them, and they shall not be used for any other work or project.
 - These drawings are "design drawings" only. They may not be available for use as shop drawings. Use of these drawings as basis drawings for "shop drawings" is not permitted unless written permission concerning certain conditions and limitations is obtained from RJC. The work "as constructed" may vary from what is shown on these drawings.
 - Use of these drawings is limited to that identified in the Revision column. Do not construct from these drawings unless marked "Issued for Construction" by RJC in the Revision column, and then only for the scope noted. The drawings shall not be used for "pricing", "costing", or "tender" unless so indicated in the Revision column. "Pricing" or "Costing" drawings are not complete and any prices based on such drawings must allow for this.

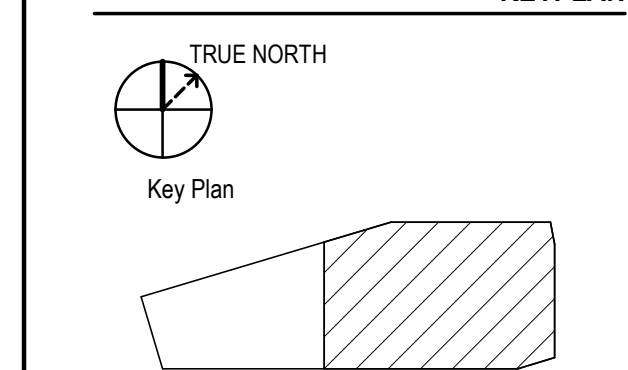
NOT FOR CONSTRUCTION

PROJECT

LEBRETON LIBRARY PARCEL
665 Albert St
Ottawa, ON
Canada



DREAM
30 Adelaide St. E., Suite 301,
Toronto, ON M5C 3H1
KEY PLAN



ISSUE CHART

ISSUE	DATE
1 ISSUED FOR INFORMATION	2022-10-27

Drawn By: M.M. Scale: 1:100
Designed By: M.C. Date: 2022-10-27
Checked By: B.B.

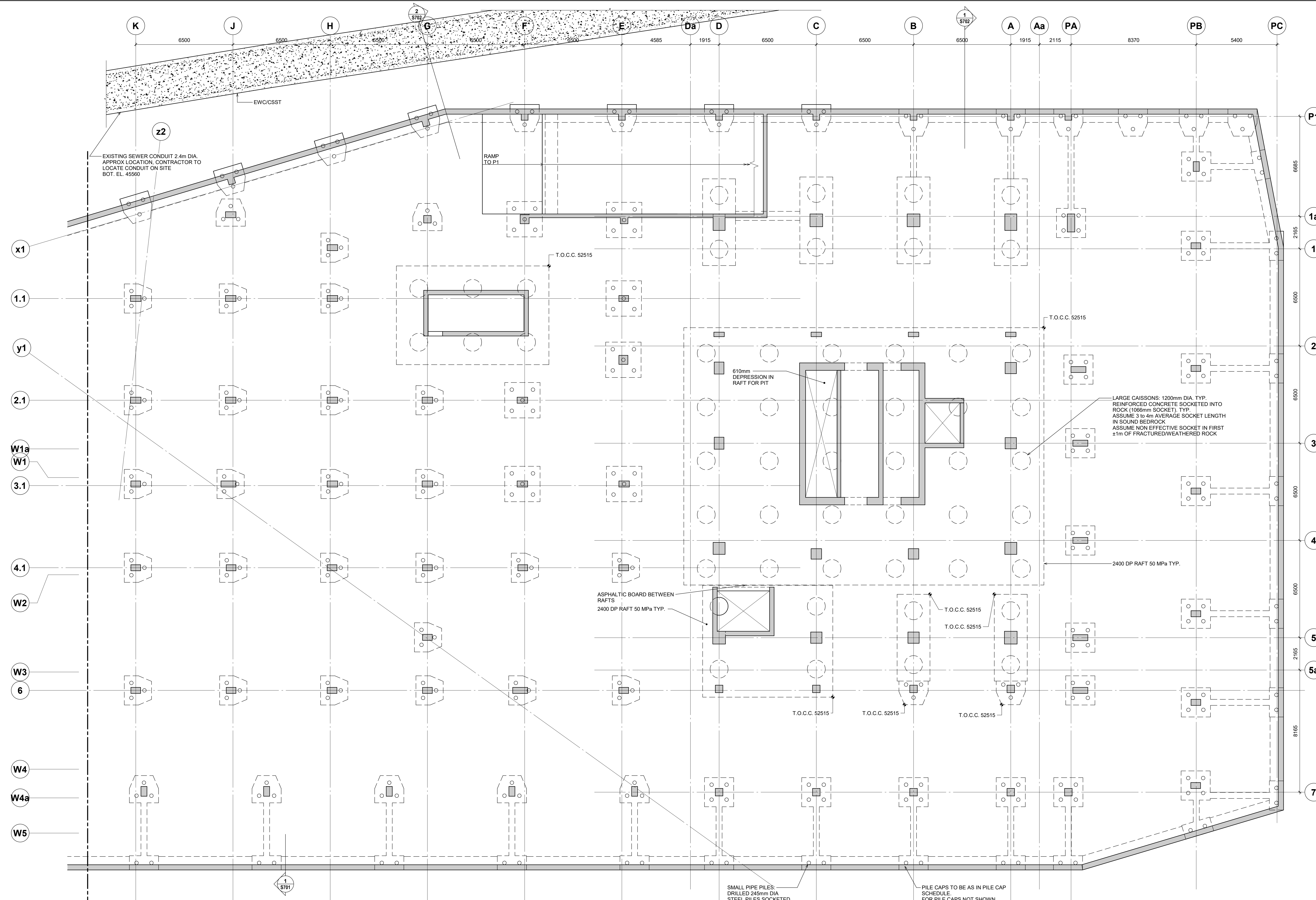
Job Number: OTT.128864.0001

TITLE

ENLARGED PARTIAL FOUNDATION PLAN, EAST

SHEET NUMBER

S198E



ENLARGED PARTIAL FOUNDATION PLAN, EAST
1:100

MARK	A OF PILES	PILE DIA.	F _c (MPa)	DEPTH	REINFORCING STEEL	PLAN DETAIL
CFA1	1	Ø245	35	1200 DEEP	SEE PLAN DETAIL	
CF A2	2	Ø245	35	1200 DEEP	SEE PLAN DETAIL	
CF A3	3	Ø245	35	1200 DEEP	SEE PLAN DETAIL	
CF A4	4	Ø245	35	1200 DEEP	SEE PLAN DETAIL	

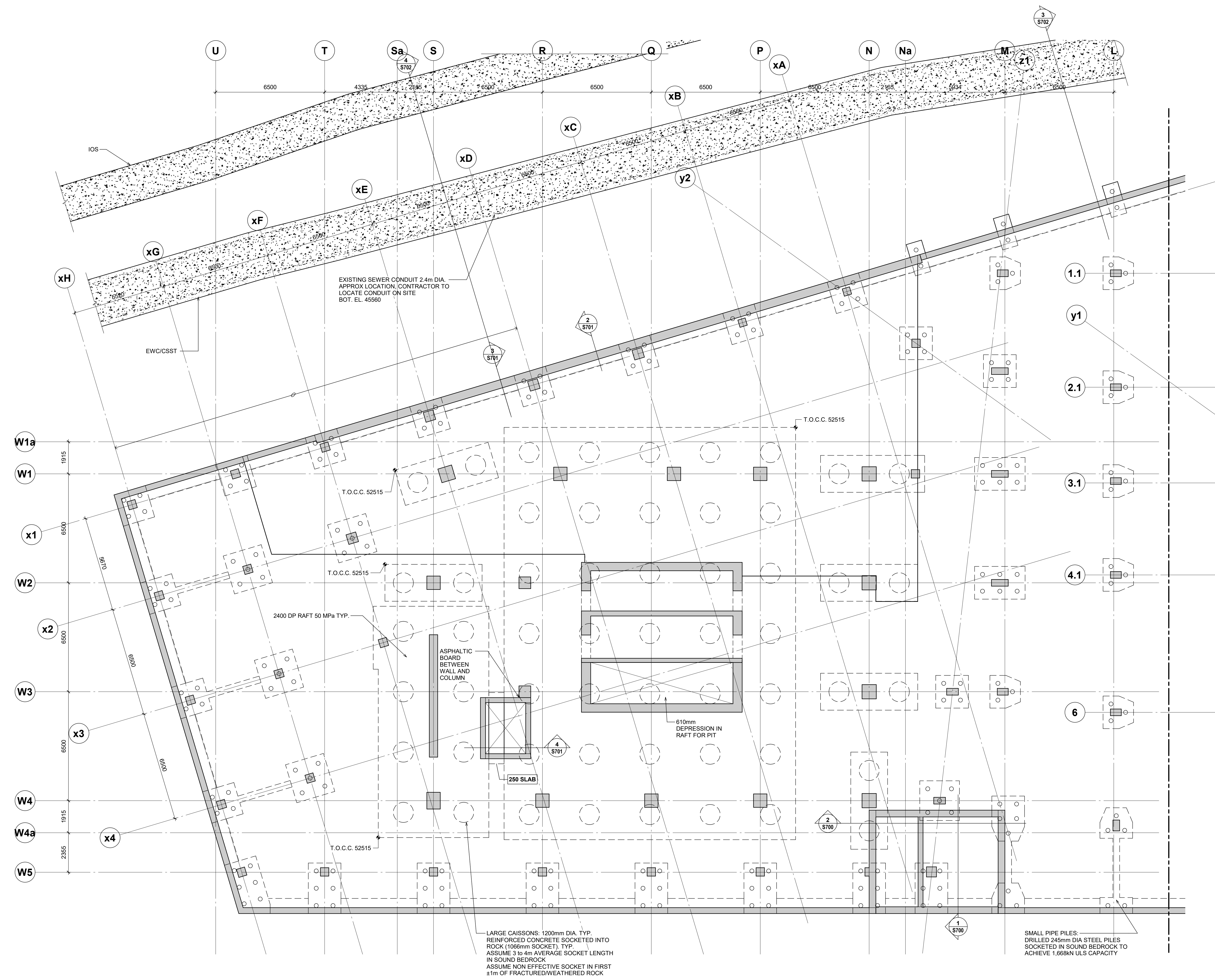
FOUNDATION PLAN NOTES

- REFER TO S198 FOR FOUNDATION PLAN NOTES.
- TOP OF CAISSON CAP (OR PILE) T.O.C.C. TO BE AT EL.53515 TYP. UNLESS OTHERWISE NOTED IN DRAWINGS WITH THE SYMBOL:
- PILE CAPS TO LOWERED AT MECHANICAL PIPE RISERS TO HAVE 450mm MIN BETWEEN T.O.C.C AND ULS OF SLAB ON GROUND.
- TOP OF ROCK AVERAGE IS APPROX. AT ELEV. 48.0m. REFER TO GEOTECHNICAL REPORT
- EXCAVATION AND SHORING SYSTEM SHOWN SCHEMATICALLY ONLY. REFER TO GENERAL CONTRACTOR'S LOGISTIC PLAN AND SHORING SPECIALTY ENGINEER'S DRAWINGS

Drawings Notes
1. All drawings, plans, models, designs, specifications and other documents prepared by Read Jones Christoffersen Ltd. (RJC) and used in connection with this project are instruments of service for the work shown in these drawings. RJC and its staff are not responsible for the property of RJC whether the Work is executed or not, and RJC reserves the copyright in them and in the Work executed from them, and they shall not be used for any other work or project.
2. These drawings are "design drawings" only. They may not be available for use as shop drawings. Use of these drawings as basis drawings for "shop drawings" is not permitted unless written permission concerning certain conditions and limitations is obtained from RJC. The work "as constructed" may vary from what is shown on these drawings.
3. Use of these drawings is limited to that identified in the Revision column. Do not construct from these drawings unless marked "Issued for Construction" by RJC in the Revision column, and then only for the parts noted. The drawings shall not be used for "pricing", "costing", or "tender" unless so indicated in the Revision column. "Pricing" or "Costing" drawings are not complete and any prices based on such drawings must allow for this.

NOT FOR CONSTRUCTION

ISSUE	DATE
1	ISSUED FOR INFORMATION 2022-10-27



ENLARGED PARTIAL FOUNDATION PLAN, WEST
1:100

FOUNDATION PLAN NOTES

- REFER TO S198 FOR FOUNDATION PLAN NOTES.
- TOP OF CAISSON CAP (OR PILE) T.O.C.C. TO BE AT EL.53515 TYP. U.S.O. ON DRAWINGS WITH THE SYMBOL.
 - PILE CAPS TO LOWERED AT MECHANICAL PIPE RISERS TO HAVE 450mm MIN BETWEEN T.O.C.C AND US OF SLAB ON GROUND.
 - TOP OF ROCK AVERAGE IS APPROX. AT ELEV. 48.0m. REFER TO GEOTECHNICAL REPORT.
 - EXCAVATION AND SHORING SYSTEM SHOWN SCHEMATICALLY ONLY. REFER TO GENERAL CONTRACTOR'S LOGISTIC PLAN AND SHORING SPECIALTY ENGINEER'S DRAWINGS.

CONSULTANTS

- TMG
8800 Dufferin St., Suite 200, Vaughan, ON L4K 0C5
- rjc** Creative Thinking Practical Results
Read Jones Christoffersen Ltd. Engineers
rjc.ca
1545 Carling Avenue, Suite 304 Ottawa, ON K1Z 8P9 Canada tel 613-714-7000
- Smith+Anderson
1777 W 3rd Ave., Vancouver, BC V6J 1K1
- PFS Studio
8800 Dufferin St., Suite 200, Vaughan, ON L4K 0C5
- Two Row Architect
1804 6th Line, Oshawa, ON N1A 1M0
- ELSDON
2680 Queensview Dr., Ottawa, ON K2B 6J9

Drawings Notes

- All drawings, plans, models, designs, specifications and other documents prepared by Read Jones Christoffersen Ltd. (RJC) and used in connection with this project are instruments of service for the work shown in these drawings and as such are and remain the property of RJC. Whether the Work is executed or not, and RJC reserves the copyright in them and in the Work executed from them, and they shall not be used for any other work or project.
- These drawings are "design drawings" only. They may not be available for use as shop drawings. Use of these drawings as basis drawings for "shop drawings" is not permitted unless written permission concerning certain conditions and limitations is obtained from RJC. The work "as constructed" may vary from what is shown on these drawings.
- Use of these drawings is limited to that identified in the Revision column. Do not construct from these drawings unless marked "Issued for Construction" by RJC in the Revision column, and then only for the quantity noted. The drawings shall not be used for "pricing", "costing", or "tender" unless so indicated in the Revision column. "Pricing" or "Costing" drawings are not complete and any prices based on such drawings must allow for this.

NOT FOR CONSTRUCTION

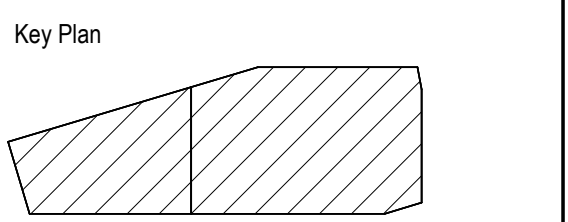
PROJECT

LEBRETON LIBRARY PARCEL
665 Albert St
Ottawa, ON
Canada



DREAM

30 Adelaide St. E., Suite 301,
Toronto, ON M5C 3H1
KEYPLAN



ISSUE CHART

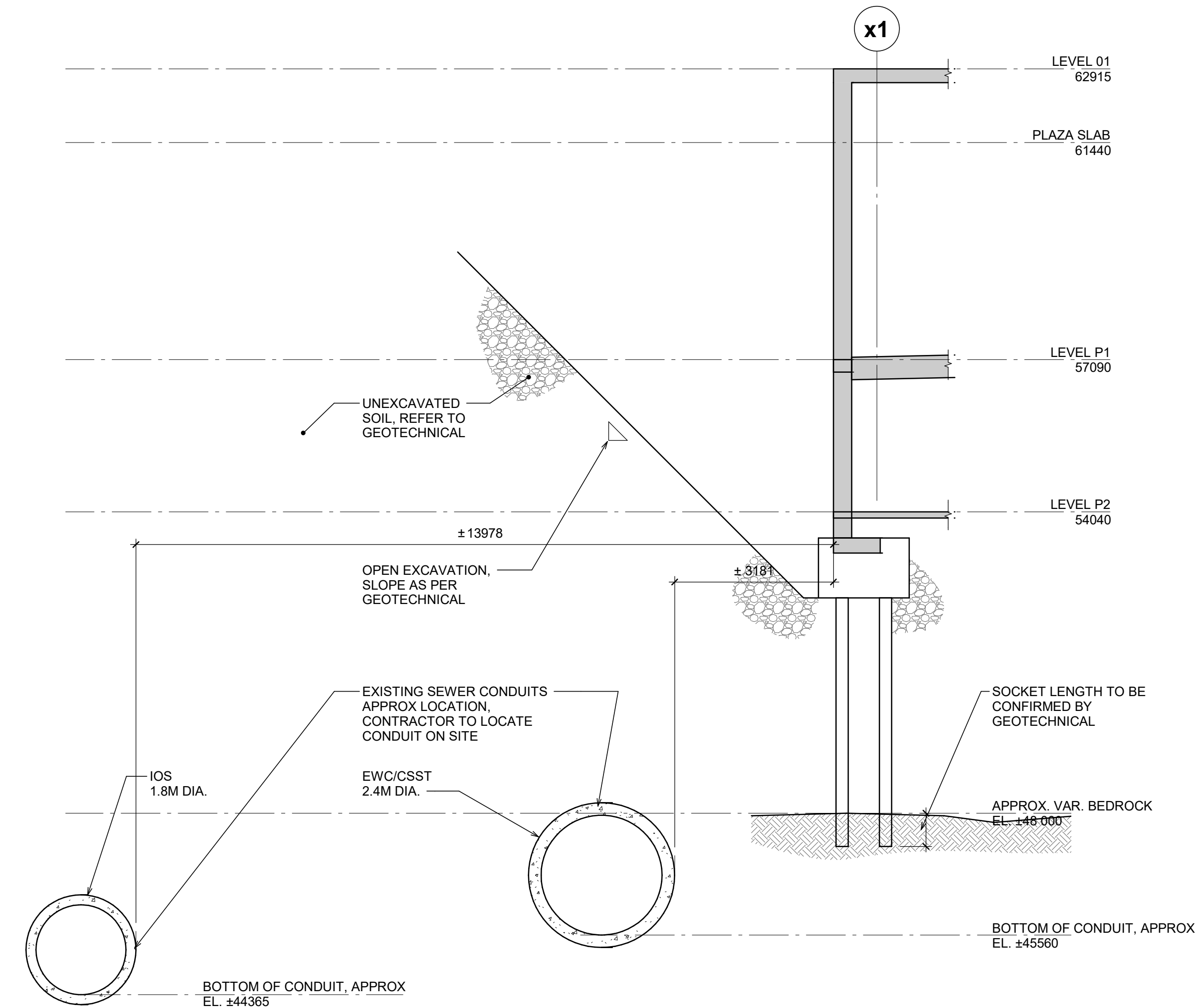
ISSUE	DATE
1	ISSUED FOR INFORMATION 2022-10-27

Drawn By: M.M. Scale: 1:75
Designed By: M.C. Date: 2022-10-27
Checked By: B.B.
Job Number: OTT.128864.0001

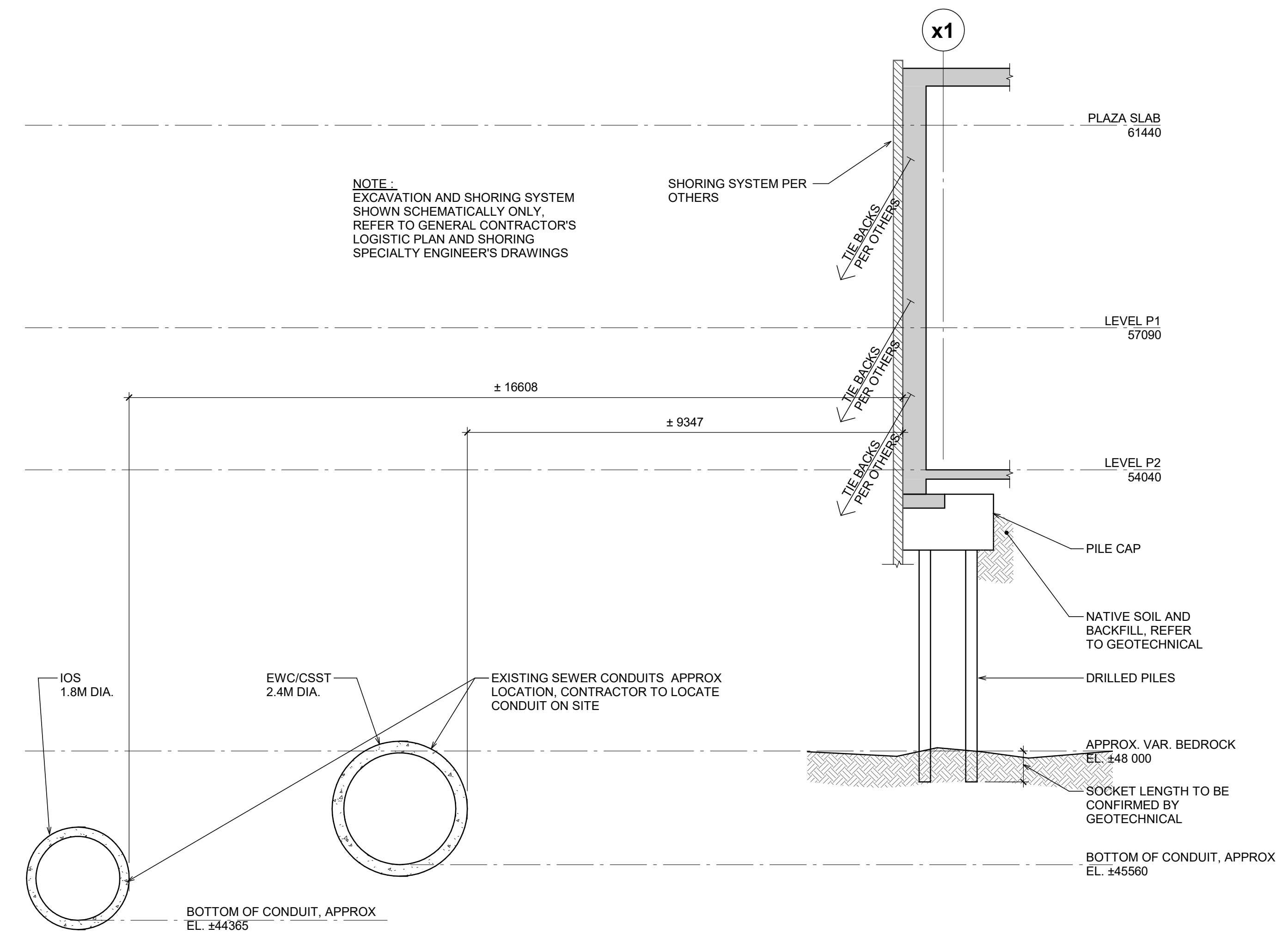
SECTIONS

SHEET NUMBER

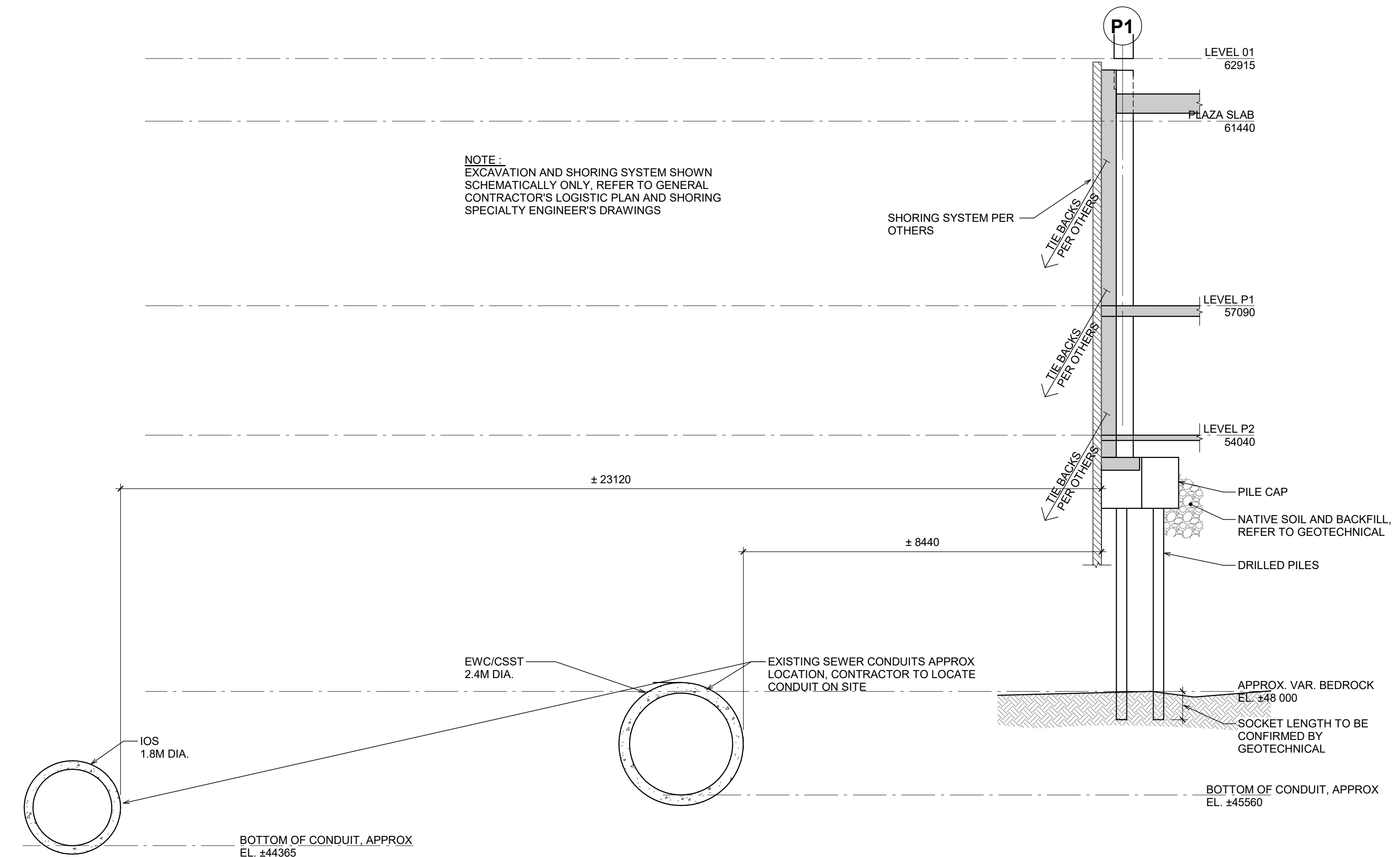
S702



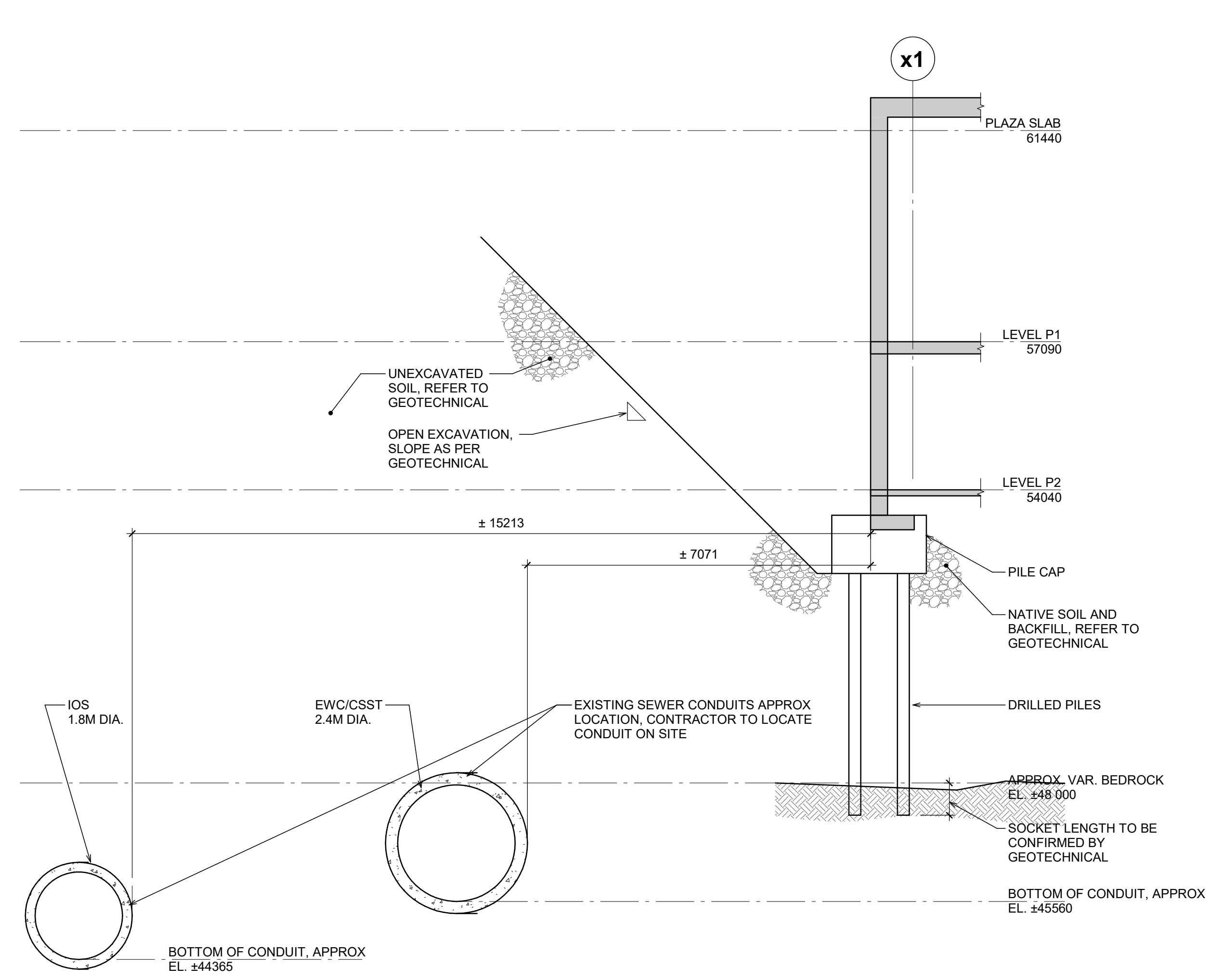
2
S702 1:75



4
S702 1:75



1
S702 1:75



3
S702 1:75



APPENDIX H

H1: City Comments (Stantec Memo)

H2: Golder Response (Geotechnical Analysis Memo)

To: Steven Courtland
City of Ottawa

From: Colin Goodwin, Shawn Ireland
Ottawa ON Office

File: CSST: 665 Albert Development Review Package
Date: November 2, 2022

Reference: CSST: 665 Albert Development Review Package, Stantec Review of Interfacing with CSST Infrastructure

The City requested Stantec complete a review of the development review package submitted for 665 Albert as it relates to potential impacts to adjacent CSST infrastructure at the site. This memo summarizes Stantec's review. Two documents were provided by the City for the review as follows:

1. *LeBreton Library Parcel, Constructability Report* (TYLin Ref. 10399), dated April 2022, Prepared by TYLin for Dream Asset Management; and
2. *Geotechnical Investigation, LeBreton Library Parcel, 665 Albert Street, Ottawa, Ontario*, dated April 2022, Prepared by Golder Associates Ltd. for Dream Impact Master LP.

SUMMARY OF STANTEC REVIEW

The City asked Stantec to review the developer's constructability report and accompanying geotechnical report, which discusses proximity of the development's shoring, excavation, footings, permanent structures etc. on the adjacent 2400mm East-West-Tunnel. Comments are provided as follows:

1. **Background on the EWT pipe:** The East-West-Tunnel (EWT) section in question was installed in 2015-2016 under the Lebreton Flats Diversion Chamber project. As-built drawings prepared for City Contract No. ISD13-2007 depict the pertinent infrastructure. The EWT pipe is Class 185D precast concrete pipe, the pipe depth is around 15m, and was installed via open cut within a rock trench.
2. **Drawings and Construction Plans:** The developer should provide plans showing details of the proposed shoring system and permanent underground works, showing details on proximity to the EWT at several cross sections along the development. The cross section should also include any required temporary shoring and/tie backs that may be required to perform the work, including limits of excavation.
3. **Confirming no loads are applied to the EWT from the proposed development:**
 - a. The EWT was installed via open cut, where the bottom portion of the pipe was installed within a bedrock trench and the pipe was backfilled in concrete within the bedrock trench. Since the pipe/concrete backfill is essentially in direct contact with the rock, the developer should review and confirm that there are no additional loads which will be applied to the EWT from the proposed permanent and/or temporary works.
 - b. The constructability report states that the caissons will be embedded 1 m into rock and that the caisson will be "*at least 3 m (3 times the diameter of the proposed caisson)*" but the report does not actually state the caissons will have a 1 m diameter.
 - c. In the supplied Golder geotechnical report, we could not locate a statement that corroborates the following statement from the constructability report "*Based on Golder's geotechnical*

Reference: CSST: 665 Albert Development Review Package, Stantec Review of Interfacing with CSST Infrastructure

recommendations, these conditions should not impose any significant stress increase to the existing services”.

- d. Is full fixity of the caissons required? Per 5.2.1.4 of the Golder report, if full fixity is required, the caisson depth may need to be increased.
- e. The report also states *“should not impose any significant stress increase to the existing services.”*. The increase stress should be quantified.

4. Miscellaneous comments:

- a. The plans included within the constructability report (Figure 1-1) appears to show the existing Real Time Control (RTC) underground control vault at Booth/Albert and the associated underground ductbanks from this vault to the RTC facilities. It is unclear how/if the infrastructure is affected by the work, but this should be reviewed and addressed by the proponent. Excavations may extend into the footprint of the vault and the ductbanks, potentially requiring temporary support and protection.
 - b. The West tower excavation proposes a shoring system with what appears to be tie-backs (see Excavation Works drawings). Some of these tie-backs appear to be in conflict with the existing RTC regulator and CSST chambers under Booth Street. Shoring system design to consider the location of existing City infrastructure, prevent conflicts with the structures, and confirm that no additional loads will be applied to the structures.
 - c. Site laydown areas and access roads appear to cross over the existing EWT, IOS and Albert Storm Sewer in various locations. It is unclear from the excavation drawings what the site elevations will be at various stages of excavation and construction. The developer should confirm the minimum amount of cover that will remain above the existing sewers within the site and if any protective measures would be required to protect the sewers from construction activity.
 - d. Excavations in proximity to the existing RTC regulator and CSST chambers west of the site should consider the existing CIP retaining wall adjacent to the chambers. The bottom of this wall does not extend very far below existing grade, and may need to be supported if excavation slopes cannot match existing grades at the perimeter of the development site.
 - e. Existing temporary shoring systems in proximity to the RTC and CSST chambers could be in conflict with the proposed works, depending on the required depths of excavation in the area. Developer to consider risk of load transfer to nearby existing infrastructure (EWT, IOS, Albert Storm Sewer) during excavation and removal of pre-existing temporary shoring if conflicts are identified. Pertinent as-built drawings are attached to this memo for clarity.
 - f. The developer should provide drawings of proposed retaining wall along north side of site, and clarify its position relative to the EWT, IOS and Albert Storm Sewer and demonstrate that no additional loads will be imposed on the existing sewers.
- 5. Vibration limits and monitoring:** typical OPSS/City of Ottawa limits should apply to the development work. Developer to establish a vibration monitoring plan that considers the EWT, IOS,

November 2, 2022

Steven Courtland

Page 3 of 3

Reference: CSST: 665 Albert Development Review Package, Stantec Review of Interfacing with CSST Infrastructure

Albert Storm Sewer, and associated chambers including response measures and contingency plans in the event of vibration threshold exceedances.

6. **Pre and post condition surveys:** pre-construction CCTV should be completed along with post-construction CCTV.

SUMMARY

Stantec's review was limited in nature to the documents provided and was intended to identify key areas for consideration by the City and the developer in mitigating impacts to existing CSST related infrastructure adjacent to the development at 665 Albert.

Should you have any question or concerns with the comments provide in this memo, please reach out to Colin or Shawn directly.

Stantec Consulting Ltd.

Colin Goodwin P.Eng.
Environmental Engineer

Phone: 613.697.5124

Colin.Goodwin@stantec.com

Attachment: ISD13-2007 As-Built Drawing C-03
ISD13-2007 As-Built Drawing S-401

c. Adrien Comeau



Shawn Ireland P.Eng.
Environmental Engineer

Phone: 613-218-4845

Shawn.Ireland@stantec.com

**LEBRETON FLATS
DIVERSION CHAMBER**



**3000mm CSST
PLAN AND PROFILE
STA.1+000 TO STA.1+240**

Contract No. **ISD13-2007** Dwg. No. **C-03**

Sheet **1** of **1**

Asset No. _____
Asset Group _____

W. Newell, P. Eng. *General Manager, Infrastructure Services*
R. Dempsey, P. Eng. *Project Manager, Infrastructure Services*

Des. C.G. Chk'd. S.D.
Dwn. E.C. Chk'd. C.G.
Utility Circ. No. Index No.

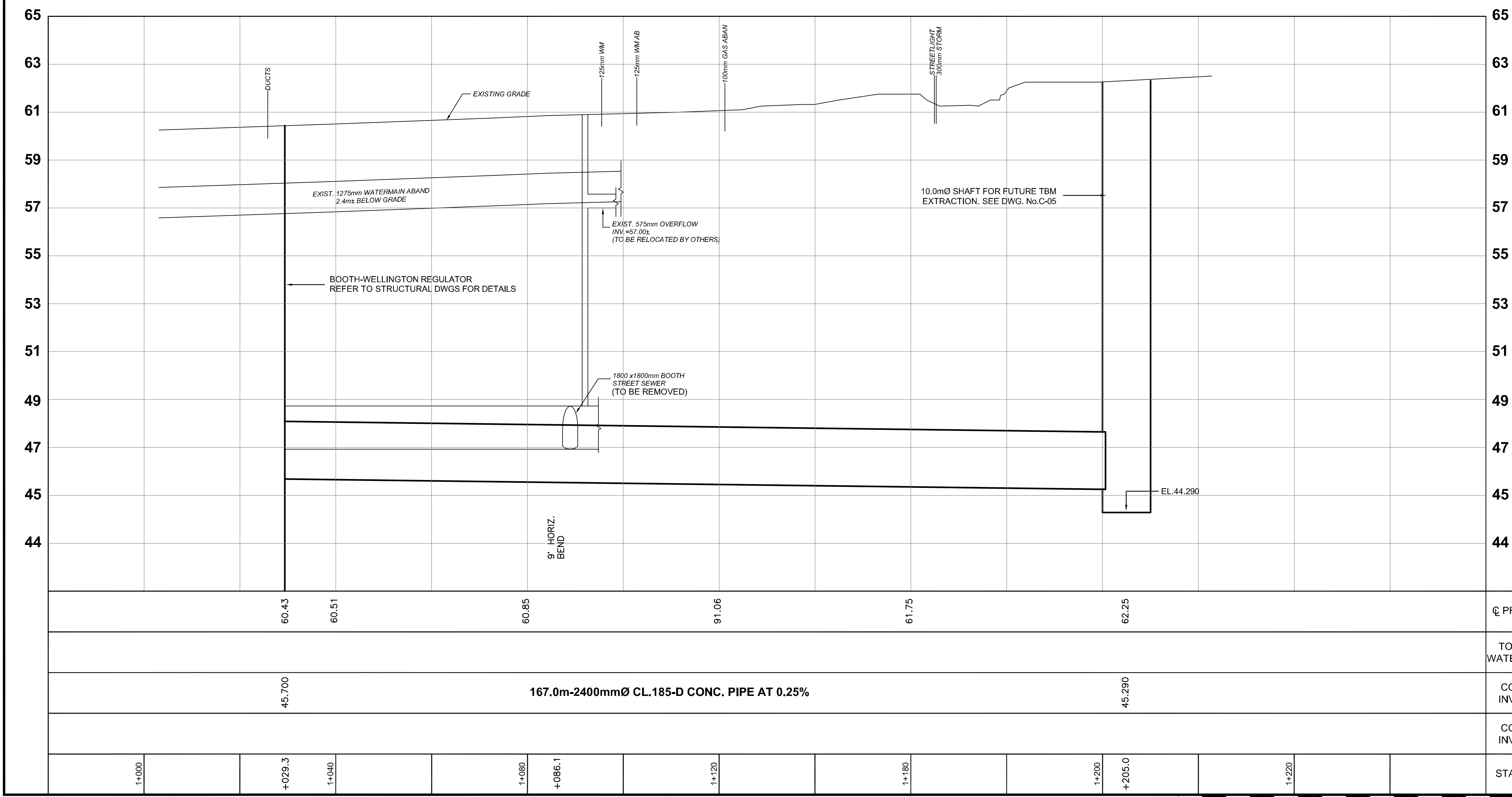
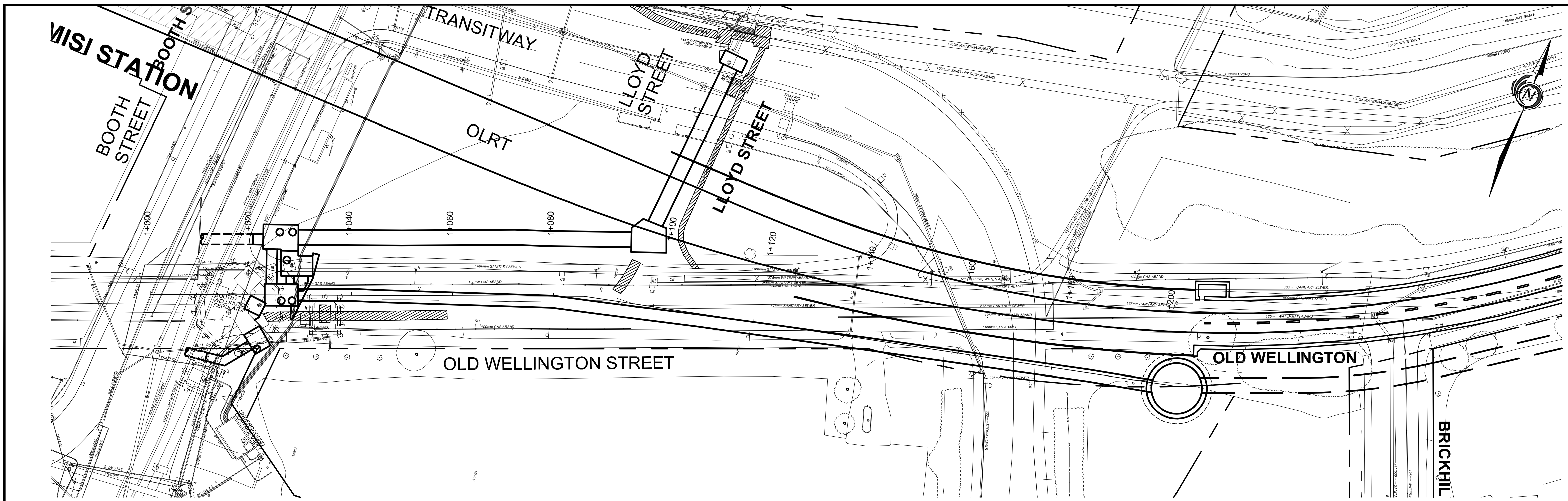
Const. Inspector _____

Scale: HORIZONTAL 500
0m 5 10 20
VERTICAL 100
0m 2 4

NOTE:
The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.



No.	Description	By	Date (dd/mm/yy)
0	ISSUED FOR PRELIMINARY DESIGN	CG/SD	25/10/13
1	ISSUED FOR 90% DESIGN	CG/SD	22/11/13
2	ISSUED FOR TENDER	CG/SD	20/12/13
3	ISSUED FOR ADDENDUM #3	CG/SD	06/03/14
4	ISSUED FOR CONSTRUCTION	C.G.	23/05/14
5	ISSUED FOR SCM #18	J.R.	09/12/14
6	AS BUILT	J.R.	19/10/18



AS BUILT
THIS DRAWING WAS PREPARED FROM INFORMATION PROVIDED BY THE CONTRACTOR. THE ENGINEER DOES NOT TAKE RESPONSIBILITY FOR INFORMATION ON THIS DRAWING THAT IS IN CONFLICT WITH THE EXISTING CONDITION DUE TO INACCURATE OR MISSING INFORMATION ON SOURCE DOCUMENTS PROVIDED.

LEBRETON FLATS DIVERSION CHAMBERS



BOOTH-WELLINGTON REGULATOR
CHAMBER MODIFICATIONS
OVERALL PLAN
SHOWING EXCAVATION SHORING

Contract No. **ISD13-2007** Dwg. No. **S401**

Sheet **00** of **00**

Asset No. **00**

Asset Group **00**

Des. S.A. Chk'd. O.N.

Dwn. D.M. Chk'd. O.N.

Utility Circ. No. **00** Index No. **00**

Const. Inspector **00**

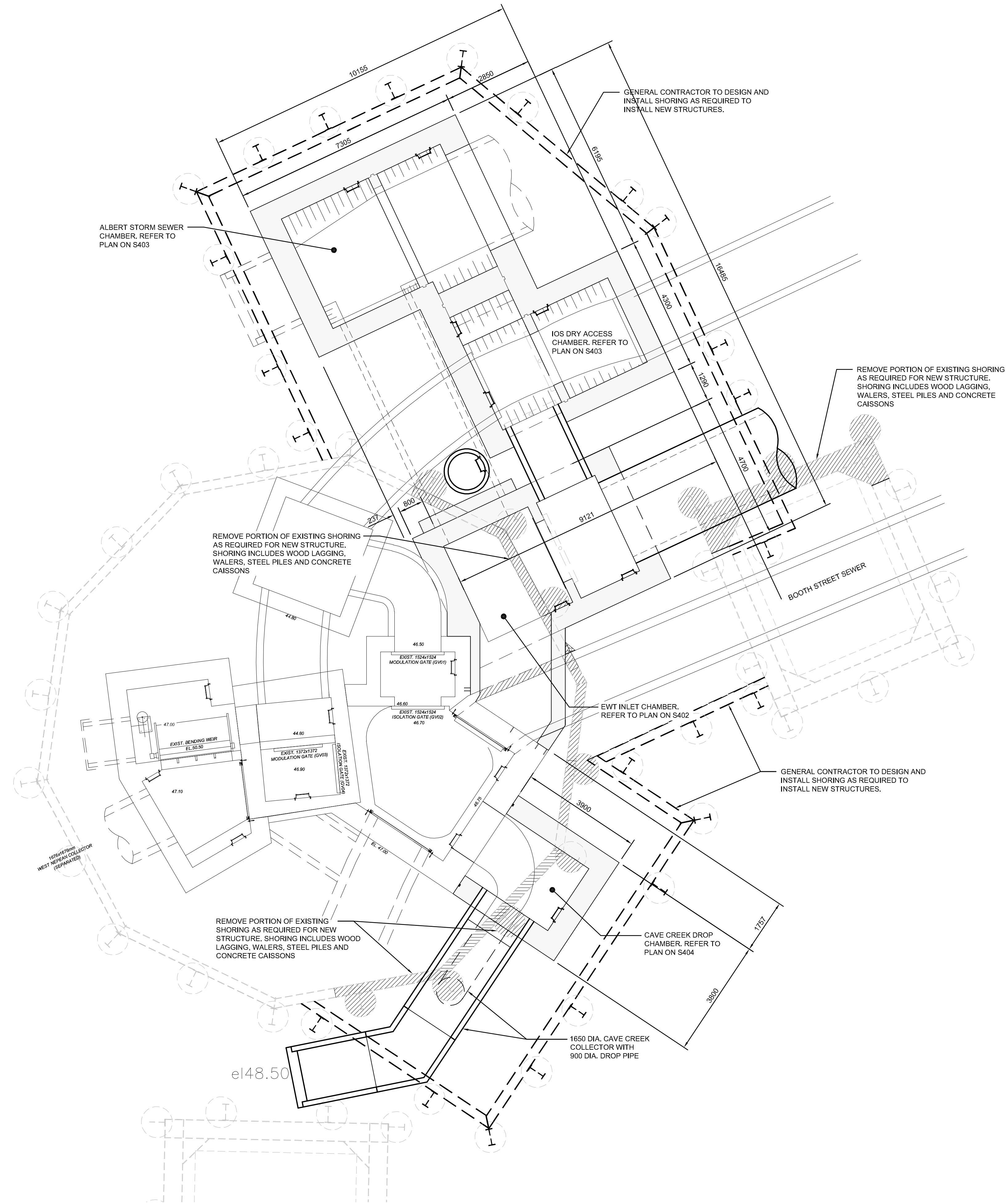
Scale:
AS SHOWN

NOTE:
The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.



Stantec Consulting Ltd.
1331 Clyde Avenue
Ottawa ON Canada
K2C 1K4
Tel: 613.722.4420
Fax: 613.722.2799
www.stantec.com

No.	Description	By	Date (dd/mm/yy)
0	ISSUED FOR 90% DESIGN	S.A.	22/11/13
1	TENDER	S.A.	20/12/13
2	ISSUED FOR ADDENDUM	S.A.	18/02/14
3	ISSUED FOR CONSTRUCTION	S.A.	23/05/14
4	ISSUED FOR SCM#40	S.A.	04/06/15
5	ISSUED FOR SCM#40R1	S.A.	09/06/15
6	ISSUED FOR AS-BUILT DRAWINGS	S.A.	11/06/18



- GENERAL NOTES FOR ALL CHAMBERS:**
- REFER TO SPECIFICATIONS AND CIVIL DRAWINGS FOR FURTHER SHORING EXCAVATION PROTECTION NOTES.
 - BEFORE COMMENCING WORK, THE CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER OF ONTARIO TO DESIGN AND DETAIL THE EXCAVATION PROTECTION SYSTEMS.
 - CONTRACTOR SHALL MINIMIZE EFFECTS OF VIBRATIONS DUE TO CONSTRUCTION OF SHORING SYSTEM TO THE SATISFACTION OF ENGINEER.
 - SHORING FOR THE NEW WORKS SHOWN FOR ILLUSTRATION PURPOSE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF EXCAVATION PROTECTION SYSTEM. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SHOWING DETAILS OF METHOD AND DESIGN CALCULATIONS OF PROPOSED SHORING SYSTEMS TO ENGINEER FOR REVIEW. THESE SUBMISSIONS MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IN ONTARIO. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 - REFER TO GEOTECHNICAL INVESTIGATION ENTITLED "GEOTECHNICAL INVESTIGATION ALBERT STREET SEWER - CSST WEST EXTENSION LEBRETON FLATS OTTAWA, ONTARIO" PREPARED BY GOLDER ASSOCIATES DATED NOVEMBER 2013, FOR SOIL PARAMETERS AND GEOTECHNICAL RECOMMENDATIONS.
 - PROVIDE ADEQUATE DEWATERING SYSTEM TO ENSURE A REASONABLY DRY EXCAVATION AND COMPLY WITH PTTW.
 - PAINT ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE WITH 2 COATS OF BITUMINOUS PAINT.
 - ALL FASTENERS TO BE 316 STAINLESS STEEL.
 - BEDROCK BEARING SURFACES OF CHAMBERS TO BE INSPECTED AND APPROVED BY GEOTECHNICAL ENGINEER BEFORE POURING CONCRETE.
 - 30MPa CONCRETE MIX. USE TYPE MS CEMENT AND CONCRETE IS TO BE AIR ENTRAINED WITH HIGH RANGE SUPERPLASTICIZER.
 - REFER TO CIVIL DRAWINGS AND GEOTECHNICAL REPORT FOR BACKFILL REQUIREMENTS AND REFER TO TYPICAL BACKFILL NOTES ON CIVIL DRAWINGS, IF NOT INDICATED ON STRUCTURAL DRAWINGS.
 - PROVIDE PVC WATERSTOP AT ALL CONSTRUCTION JOINTS.
 - REFER TO CIVIL DRAWINGS FOR SUGGESTED CONSTRUCTION SEQUENCING AND FLOW MANAGEMENT PLAN.
 - FORM BENCHING IN SHAPES AS DIRECTED BY ENGINEER ON-SITE.
 - ROUGHEN SURFACE OF CONCRETE AND APPLY BONDING AGENT IMMEDIATELY PRIOR TO POURING CONCRETE BENCHING.
 - DESIGN REMOVABLE CONCRETE PANELS TO WITHSTAND OVERBURDEN WEIGHT AND HIGHWAY LOADING. SUBMIT SHOP DRAWINGS CERTIFIED BY A PROFESSIONAL ENGINEER IN ONTARIO.

TECHNICAL MEMORANDUM

DATE December 19, 2022

Project No. 22511882 (20141216)

TO Justin Robataille, Dream Properties

CC Ben Worth, TY Lin

FROM Chris Hendry

EMAIL chris.hendry@wsp.com

REVIEW OF PROPOSED FOUNDATIONS AND CSST INFRASTRUCTURE – DREAM LEBRETON PROJECT

Ben,

As requested, Golder has reviewed the proposed foundations for the Dream LeBreton project and their potential impact on the existing CSST infrastructure.

The following documents have been reviewed:

- A letter prepared by RJC Engineers (RJC) titled “LeBreton Library Parcel, Structural Approach for Construction Adjacent to Existing City Infrastructure”, dated November 2, 2022. This letter contains foundation plans and cross sections for the proposed new development.
- A memo prepared by Stantec Consulting Ltd. (Stantec) titled “CSST: 665 Albert Development Review Package, Stantec Review of Interfacing with CSST Infrastructure”, dated November 2, 2022.

Proposed Foundations

There are two types of foundations proposed for the new development:

- The high-rise towers (which are in the interior of the overall structure) are supported on 1200 mm diameter caissons, socketed 3 m to 4 m into rock.
- The podium and exterior walls are supported on groups of 245 mm diameter pipe piles, also socketed into bedrock. Along the northern perimeter wall (which is the area relevant to a discussion of the CSST Infrastructure) the piles are installed in groups of three. These pipe piles are intended to carry factored ULS loads of 1,668 kN. The piles have also been designed to carry horizontal loads of 75 kN to account for possible eccentricity of loading as well as small lateral loads.

The foundation locations and cross sections are shown on the plans prepared by RJC and attached to their November 2 letter.

Existing CSST Infrastructure

Based on information contained in the Stantec memo as well as the RJC drawings, there is an existing 2.4 m diameter precast concrete sewer which forms part of the CSST infrastructure. This sewer is referred to as the EWT tunnel. The EWT tunnel is located 3.2 m from the exterior wall at its closest point to the new building (see Section 2 on Sheet 702 of the RJC foundation drawings). At all other locations the distance is greater than 3.2 m.

The EWT was installed in a trench within the bedrock at the site, and the sewer obvert is at an elevation roughly coincident with the anticipated bedrock surface (and therefore the sewer is at a similar elevation to the proposed rock sockets).

There is a second, slightly deeper, 1.8 m diameter sewer (identified as the IOS) located some 7 m north (further from the building).

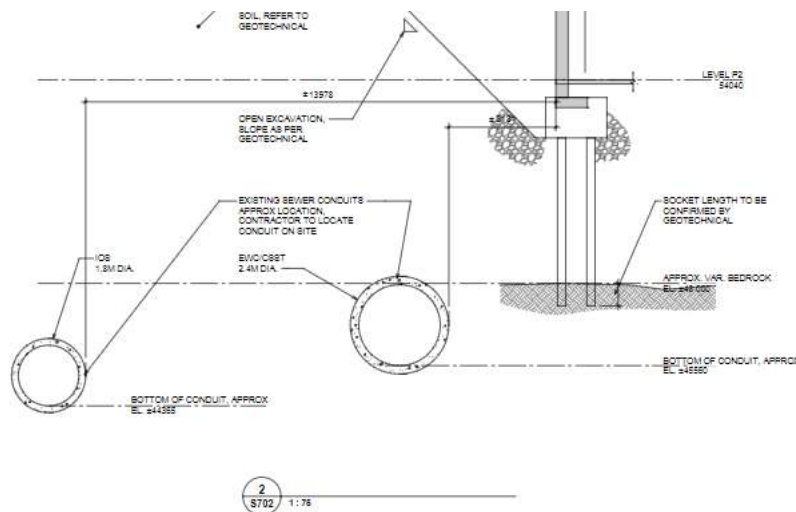


Figure 1 - Example Cross Section Along North Foundation Wall

Impact of the Proposed Foundations on the EWT

As part of this review, Golder has evaluated the potential for the proposed new building foundations to impact the existing EWT.

Large Diameter Interior Caissons

The closest large interior caissons which support the towers are located approximately 12 to 15 m from the EWT. This corresponds to approximately 10 to 12 times the diameter of the piles¹. This distance is beyond the area identified in the CSST guidance as requiring specific consideration. Regardless, at these distances, no meaningful interaction between the EWT and the interior caissons should be expected, even if the caissons are resisting large lateral loads.

¹ The zone of influence of a pile or foundation is proportional to the loaded area; for a given load intensity, larger foundations will cause stress changes in a larger mass of soil/rock. Typically, individual footings will cause stress changes within 2 – 3 times their width, while continuous strip footings may cause stress changes within 4 to 6 times their width.

Small Diameter Pipe Piles

The smaller pipe pile groups supporting the north foundation wall are located approximately 3.2 m from the EWT (at the location of the closest group to the sewer; other pile groups are further away).

A conservative approach commonly adopted to determine the potential for vertical foundation loads to impact the ground below them is to assume that the foundations could impact an area below a 1:1 line extending down and out from the edge of the foundation. A less conservative (but more accurate) approach is presented in the Canadian Foundation Engineering Manual which presents stress contours below a uniformly loaded area obtained from elastic solutions presented in Poulos and Davis (1974). A similar method for calculating stress distributions within the ground due to imposed loading (the Boussinesq stress distribution) is also common.

Both of these methods (a simple assumed 1:1 line and series of stress contours as per the CFEM) are presented on the cross-sections attached. As can be seen from these cross sections, there is no expectation that any meaningful loading would be transferred to the EWT by the foundation piles. It should also be noted that the stress contours presented treat the pile group as a single foundation unit. If consideration was given to the individual 245 mm diameter piles the stressed area would be dramatically smaller. As can be seen in the attached figures, there is no potential for the exterior piles to transfer any significant vertical loading to the EWT.

The exterior piles are designed to accommodate nominal lateral loads due to eccentricities in construction as well as minor lateral loads applied to the pile caps. The majority of the small lateral loads would typically be resisted by the approximately 8 m of soil between the bedrock and the top of pile cap. This soil is above the EWT and lateral stresses in the upper soil have no potential to impact the EWT.

In addition, the 245 mm diameter piles are located approximately 3.2 m from the edge of the EWT. This corresponds to approximately 13 pile diameters at their closest point. Given the distances and the lengths of the piles, there is no significant risk of the small diameter exterior piles transferring any meaningful lateral loads to the EWT.

Additional Comments Related to Stantec Review

The following provides additional discussion related to specific comments contained in the November 2 Stantec Review. Note that not all comments are related to the foundations and so only responses relevant to the geotechnical aspects of the pile foundations are provided.

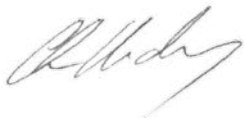
- Comment 3a: Golder has reviewed the foundation drawings and confirms that there are no additional loads expected to be applied to the EWT by the proposed foundations.
- Comment 3b: The current RJC drawings indicate that the caisson foundations will have a diameter of 1.2 m and will have a rock socket depth of 3 to 4 m.
- Comment 3c: The statement is not included in the geotechnical report because the foundations were not designed at the time of preparing the report. We believe this statement in the constructability report refers to subsequent correspondence and discussion. Regardless, it is Golder's opinion that the currently proposed foundations should not impose any significant stress increase to the existing services in question and, notwithstanding the reference, the statement in the constructability report is generally valid.

- Comment 3d: The caissons are designed to have a rock socket depth of 3 to 4 m which is approximately 3 times the proposed diameter. This would typically be sufficient to be considered fixed (though the quality of the rock sockets does need to be confirmed during construction).
- Comment 3e: Given the discussion above, the increase in stress due to the permanent foundations is expected to be essentially zero.
- Comments 4a to 4e: These comments relate to shoring and temporary works which are designed by others. Golder would be pleased to provide additional review as required as these aspects of the project are designed in further detail.
- Comment 5: Golder agrees that a vibration monitoring plan should be developed for the project. Golder can assist with development of a vibration monitoring plan if required.
- Comment 6: Golder agrees that pre- and post-construction CCTV inspections should be carried out.

Closure

We trust this provides the information you require at this time. Should you require anything further, or have any questions please feel free to contact the undersigned at your convenience.

Golder Associates Ltd.



Chris Hendry, M.Eng., P.Eng.
Sr. Principal Geotechnical Engineer

CH/ljv

Attachments: Figure 1 – Cross-Sections

[https://golderassociates.sharepoint.com/sites/158117/project files/7 correspondence/20221214 response to city comments re foundations and csst/22511882 20141216 tm rev0 2022'12'19 lbip foundation review.docx](https://golderassociates.sharepoint.com/sites/158117/project%20files/7%20correspondence/20221214%20response%20to%20city%20comments%20re%20foundations%20and%20csst/22511882%2020141216%20tm%20rev0%202022%2012%2019%20lbip%20foundation%20review.docx)

