APPENDIX SEC-3

PROPERTY CONDITION AUDIT

Property Condition Audit

Energy +

64 Grand Avenue,
Cambridge, Ontario

February 2018

Prepared For:

Energy+
ENERGY+ INC.

Prepared By:

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Appendices

1.0 Summary

This Property Condition Audit is a brief description of site and collection of existing site condition reports for 64 Grand Avenue, Cambridge. This information has been amalgamated to provide a cohesive understanding of the proposed subject site, as part of due diligence fulfillment prior to completion of subject property purchase. The reports found in this document's appendices were completed by the seller, HIP Developments, as part of their development work for the 64 Grand Avenue site as a whole. The 'subject site' referred to in this report is located in the South East corner of the 64 Grand Avenue site (Refer to Site Plan in Appendix A).

2.0 History of Site

The 64 Grand Avenue site was originally the site of Dumfries Foundry, beginning in 1847. Steam engines, turbines and safe doors were all manufactured at this location. The foundry continued operations under several different names and owners until 1987, including Jas Crombie, Goldie McCulloch Limited and Babcock & Wilcox. The buildings were then redeveloped as South Works Antique Mall, which maintained the name of the old 'South Works' factory building.

3.0 Stakeholders

City of Cambridge (Fraser and Glebe Streets)

HIP Developments (Firewall and North boundary)

4.0 Existing Conditions of Site

4.1 Boundaries and Adjacent Properties

The subject property is approximately 71.27m +/- x 30.45m +/-. The South property line aligns with the existing building face. The North property line aligns with the existing building face. The East property line is the midpoint of a proposed fire wall. The West property line is the existing property line at Glebe Street, which aligns with the outside face of an existing stone wall. Refer to Appendix A for Site Plan showing extents of subject site, and Appendix I for site Plan of existing condition.

The subject property is bordered on two sides by City of Cambridge roads (Glebe and Fraser streets), and their respective allowances. Any encroachments towards the South or West will require easements from the City of Cambridge. Fraser and Glebe Streets will be rebuilt in the spring/summer of 2018 to disconnect unused service connections and provide new service connections for the proposed development.

4.2 Site Access

The subject site is currently accessed from Glebe Street through an enclosed open air courtyard, which leads to a door on the west building face. This entrance is at a level ~3m above the existing Ground floor FFE.

Exterior doors leading to the Ground Floor exist on both the North and South of subject building.

View from Fraser/Glebe Intersection

4.3 Trees and Vegetation

There are no trees on the subject site. There is a strip of landscaping on the south side of the subject property, on the Fraser Street road allowance. This landscaping is subject to change as the City rebuilds Fraser Street. There are also existing vines growing on the south building face in some areas.

4.4 Slope

There is a significant grade change on the subject site. Over the seventy metre length of site, there is approximately two metres of vertical grade change from East to West across the site, with the greatest slopes existing close to the Fraser/ Glebe intersection. This follows the natural sloping of existing bedrock condition. The section of Fraser adjacent to the western-most 20m of property has a grade of approximately 8.4%. The maximum slope of pedestrian pathway in Cambridge is 5%, however when there is an existing condition such as this, steeper slopes are acceptable.

The fifty and one hundred year flood lines bisect the 64 Grand Ave site, but the subject site and building are largely outside of these flood zones.

4.5 Aspect to North

The subject building is oriented along its length on an East-West axis, with existing window openings facing North and South. Clerestory windows also face North and South.

Fraser Street Facade

5.0 Existing Built Condition

5.1 Building Description

The subject building is the west portion of 64 Grand Avenue South. The Ground floor area of the subject building is 1,440 sm +/- (15,500 sqft +/-). The building is an historic limestone building with a clerestory roof. The Southwest portion of the subject site is an open air courtyard enclosed by an existing stone wall approximately 3m-4m tall. The Northwest portion of the subject site has an attached garage. The Southwest corner of the subject building has a double height space enclosed in exposed brick masonry.

5.2 Envelope

The subject building has a loadbearing limestone wall assembly 400mm-500mm thick, with no insulation.

5.3 Internal Layout

The interior partitions, constructed for the building's previous use as a mall, have been removed. The interior has a completely open floor plan except for a historic brick enclosure in the South West corner of the building. This enclosure has doorways providing access to a double height space of approximately 900 square feet. All stairs to the upper mezzanine/Glebe entrance have been removed.

5.4 Structural

The existing structure consists of a combination of heavy timber and steel columns and beams. There are also steel rods running North-South between structural elements. A steel crane rail runs along the length of the building. Refer to structural report for further details (Appendix H).

5.5 Windows

Existing windows are aluminum windows in poor disrepair. Seals are broken on several glazing units, allowing for air infiltration. Several windows have exterior wooden louvres.

5.6 Floor

The floor is poured concrete. Changes in elevation occur throughout ground floor through stepping and sloping of floor.

5.7 Roof

The roof is an existing metal roof with patches visible in several places.

6.0 Accessibility

Design and space planning of both interior and exterior space will allow for barrier free movement through the entire office space, as per Ontario Building Code accessibility requirements.

There are barrier free parking opportunities on site, as well as in the future parking structure of the residential tower. On street parking will also continue to be available after the reconstruction of Fraser and Glebe Streets on the West side of Glebe Street and the North side of Fraser Street.

7.0 Environmental Remediation

7.1 Refer to Environmental Assessment (Appendix C)

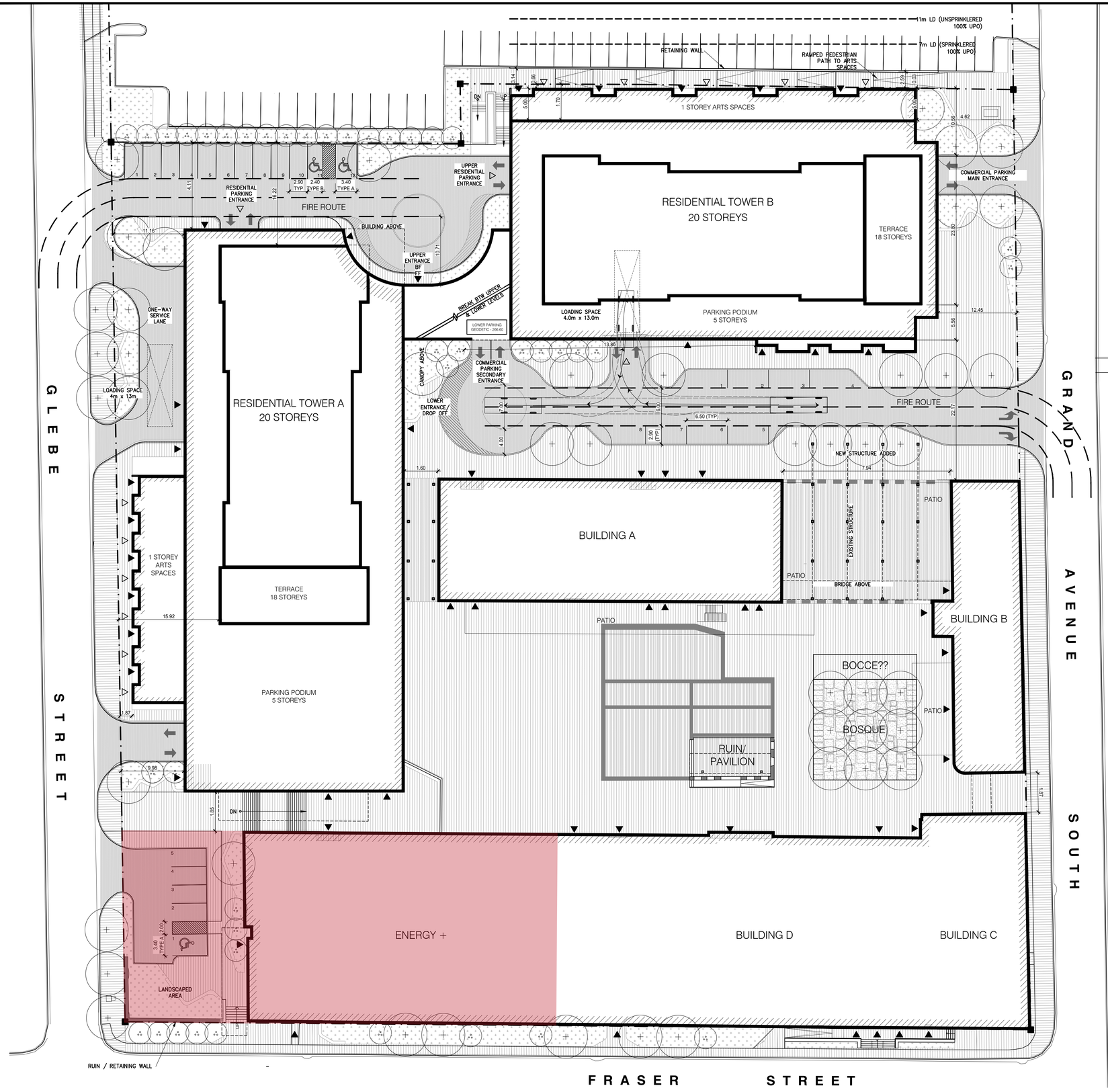
7.2 Refer to Designated Substance Assessment (Appendix B)

8.0 Site Servicing

Removal of unused service connections for water, storm and sanitary are required. New connections will also be required. Refer to Stantec's most recent markup for City of Cambridge Engineers (Appendices D and E).

Appendix A

Design Stage SIte Plan, *MartinSimmons Architects*



SITE DATA:

SITE AREA		2.081 ha	20,810 m²
BUILDING AREA	EXISTING		5,520 m²
	TOWER A		3,080 m²
	TOWER B		2,370 m²
	LOBBY		219 m²
	TOTAL		11,189 m²
LOT COVERAGE	11,189 m²		53.7%
GFA	EXISTING BUILDINGS		7,361 m²
	TOWER A		33,014.3 m²
	TOWER B		29,588.9 m²
	LOBBY		219 m²
	TOTAL		70,183.2 m²
FSI	MINIMUM FSI .5 MAXIMUM FSI 2.0		70,183.2 m² / 20,810 m² = 3.37

	REQUIRED (By-law No. 103-17 O.P. GALT CITY CENTRE) AND OP GALT CITY CENTRE	PROVIDED
BUILDING HT. (m)	69.0m MAX. HEIGHT	BUILDING A 63.3m BUILDING B 64.8m
LOADING	3m X 10m MINIMUM FOR EACH BUILDING A AND B	2 SPACES 4m x 13m x 6.1HTm
PARKING	RESIDENTIAL: 1 SPACE/UNIT = 392 SPACES	RESIDENTS: 458 SPACES
	COMMERCIAL: 5 SPACES/100m² +25% REDUCTION = 162 SPACES	COMMERCIAL: 167 SPACES
	COMMERCIAL (OFFICE): 2.5 SPACES/100m² +25% REDUCTION = 44 SPACES	
	INSTITUTIONAL : 4 SPACES/CLASS +25% REDUCTION = 18 SPACES	
	TOTAL = 616 SPACES	TOTAL = 630 SPACES
BARRIER FREE PARKING	TOTAL: 684 REQUIRES 15 BF) 7 Type A, 8 Type B	TOTAL: 15
BIKE STORAGE		72 BIKE SPACES
UNITS	MAX. 396 UNITS	392 UNITS
AMENITY (RESIDENTIAL)	20 m /DWELLING UNIT W 1 BR = 3,120 m² 30 m /DWELLING UNIT W >1 BR = 7,200 m²	11,033.9 m²
LANDSCAPE	30% LOT AREA (6,241.6 m²)	9,621 m² (46.3%)

SETBACKS:	REQ'D (m):	PROVIDED (m):
FRONT YARD (GLEBE ST.)		
PARKING PODIUM BUILDING A	4.5m	9.98m
TOWER BUILDING A	4.5m	15.92m
FRONT YARD (GRAND AVE.)		
EXISTING EAST AND SOUTH WINGS	0m	0m
PROPOSED BUILDING B	4.5m	12.45m
NORTH INTER. SIDE YARD		
PARKING PODIUM BUILDING B	2.5m	5.02m
TOWER BUILDING B	8.1m	10.56m
PARKING PODIUM BUILDING A	2.5m	13.71m
TOWER BUILDING A	8.1m	16.27m
FRONT YARD (FRASER ST.)		
BUILDING A	4.5m	36.5m
EXISTING SOUTH WING	0m	0m

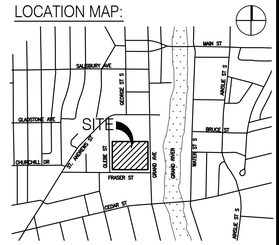
SITE LEGEND:

- PROPERTY LINE
- BUILDING EXIT
- BF – DENOTES BARRIER FREE
- FF– DENOTES FIRE FIGHTER PRINCIPAL ENTRANCE
- GRADE LEVEL OVERHEAD DOOR
- DENOTES FIRE ROUTE MIN. 6.0m WIDE WITH MIN. 12.0m CENTRELINE RADIUS
- BARRIER FREE PARKING
- MH — NEW MANHOLE
- CBMH — NEW CATCH BASIN MANHOLE
- DCBMH — NEW DOUBLE CATCH BASIN MANHOLE
- WV — NEW WATER VALVE
- FH — NEW FIRE HYDRANT
- FDC — NEW FIRE DEPARTMENT CONNECTION
- V — VISITOR PARKING
- OR — NEW LIGHT STANDARD
- LS — LOADING BAY CAUTION LIGHT
- CL — NEW WALL MOUNTED LIGHT
- NEW SOFFIT LIGHT
- DECORATIVE METAL FENCE
- PRIVACY FENCE
- NEW TRAFFIC SIGNAGE
- AIR INTAKE/EXHAUST GRATE
- EXPOSED AGGREGATE PAVING
- EX CB — EXISTING CATCH BASIN
- EX MH — EXISTING MANHOLE
- EX. DCBMH — EXISTING DOUBLE CATCH BASIN MANHOLE
- EX FH — EXISTING FIRE HYDRANT
- EXISTING CHAINLINK FENCE

NOTE: UNMARKED RADII TO BE 1.00m

HIP DEVELOPMENTS

LOCATION MAP:



№	DATE	ISSUE
1	11/23/17	ISSUED FOR SPA #1

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ONTARIO ASSOCIATION OF ARCHITECTS
25 MAY 2017
JASON MARTIN
LICENCE
6045

PROJECT NORTH

PROJECT

SOUTHWORKS RENOVATION

64 GRAND AVENUE, CAMBRIDGE, ONTARIO

DRAWING

OVERALL SITE PLAN

DRAWN BY	CHECKED BY
KD	JM

DATE: JANUARY, 2018

SCALE: 1:300

DRAWING №: A101

PROJECT №: 1892-1

PLOT DATE: 2018-02-16 TIME: 8:49:21 AM FILE PATH: \\10.50.0.66\Master Projects\1892-1 Southworks Gaslight District\1892 2.0 Working Drawings\1892 2.1 Drawings\1892 -A101 SITE.dwg

Appendix B

Designated Substances Assessment, *MTE Consultants*

SOUTHWORKS OUTLET MALL

Designated Substance Audit Report

Project Location:
64 Grand Avenue South
Cambridge, Ontario

Prepared for:
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700 Rupert Street
Waterloo, ON N2V 2B5

Prepared by:
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520 Bingemans Centre Drive
Kitchener, ON N2B 3X9

July 31, 2017

MTE File No.: 41654-200

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APPENDICES

1.0 INTRODUCTION

MTE Consultants Inc. (MTE) was retained by HIP Developments Inc. (HIP) to conduct a Designated Substance Audit for the building located at 64 Grand Avenue South in Cambridge, Ontario.

The purpose of the audit was to identify the presence of Designated Substances within the building(s) in accordance with Section 30 of the Occupational Health & Safety Act (OHSA), in advance of building renovations and partial demolition. This report meets the requirements of Section 30 of the OHSA and the requirements of Ontario Regulation (O. Reg.) 278/05.

2.0 SCOPE OF WORK

The Scope of Work for this assessment was completed by MTE and included the following activities:

- Visual inspection of all accessible areas within the building(s) and all accessible exterior finishes and elements to identify the following suspect Designated Substances:
    - Asbestos;
    - Lead;
    - Mercury; and
    - Silica.
- The following Designated Substances are not expected to be present due to the building use or in a form that is hazardous: Acrylonitrile, Arsenic, Benzene, Coke Oven Emissions, Ethylene Oxide, Isocyanates; and Vinyl Chloride;
- Collection of bulk building material samples suspected to contain asbestos;
- Collection of paint scrape samples suspected to contain lead;
- Submission of samples to an accredited and/or qualified laboratory;
- Interpretation of laboratory results; and
- Preparation of this report of findings and recommendations.

3.0 METHODOLOGY AND ASSESSMENT CRITERIA

This audit was conducted by visual and laboratory identification methods for the assessment of materials outlined in Section 2.0 and their corresponding location, use, condition. Materials that are determined to be asbestos-containing materials (ACM) are further classified by their friability and condition. The areas outlined in Section 2.0 were inspected limited to building components, materials and service connections. Notwithstanding that reasonable attempts were made to identify all Designated Substances, the possibility of concealed substances and material exists and may not become visible until substantial demolition has occurred and therefore are currently undocumented.

All work was conducted in accordance with industry accepted methods and MTE Standard Operating Procedures and did not include the following:

- Locations that may be hazardous to the surveyor, such as electrical equipment;
- Locations concealed by building finishes that require substantial demolition or removal for access or determination of quantities;
- Non-permanent items or personal contents, furnishings; and
- Settled dust or airborne agents unless otherwise stated.

4.0 ASSESSMENT AND RESULTS

Inspections of the building were conducted by MTE on July 7 and 17, 2017.

The three-storey building was constructed in 1847 and was used as a foundry where engines were manufactured. In 1923, the foundry expanded to include manufacturing of boilers, boiler accessories, super heaters, economizers, stokers, engines, pumps, turbines and condensers. The plant was closed in 1973, and was redeveloped as its first factory outlet, Florsheim Shoes, in 1991. In 1996, the building was redeveloped as Southworks Outlet Mall.

A summary of assessed building elements and the potential Designated Substance associated with them is provided below. Refer to Section 4.1 for a summary of findings.

Assessed Building Element	**Material or Composition**	**Potential Designated Substance**
Exterior Finishes/ Structure	Concrete, Stone	Silica Lead in Paints
	Roofing materials	Asbestos
	Structural steel	Lead in Paints
	Silicon based sealants Sealants	None Asbestos
	Wood siding Wood overhangs Decorative trim	Lead in Paints
Mechanical Systems/ Insulations	Gas fired hot water heating	None
	Thermostats	Mercury
	Insulation on pipe straights	Asbestos
	All painted insulations	Lead in Paints
Electrical Systems	Light tubes, bulbs	Mercury
Plumbing Systems	Solder on copper pipe connections Packing in pipe gaskets of sanitary lines	Lead
	Asbestos cement (Transite) pipe	Asbestos

Assessed Building Element	Material or Composition	Potential Designated Substance
Floor Finishes	Vinyl sheet flooring with paper backing Vinyl floor tiles (and associated mastics)	Asbestos
	Laminate, carpet, hardwood, Vinyl sheet flooring (with no paper backing)	None
	Concrete Ceramic tile & grout	Silica
Wall Finishes	Drywall	None - installed post 1990 Lead In paints
	Concrete Ceramic tile & grout	Silica Lead in paints
	Drywall Hard texture finish	Asbestos Lead In paints
Ceiling Finishes	2’ by 2’ medium fissure pinhole ceiling tiles	None - manufacturing date stamp is 2006
	2’ by 4’ medium fissure pinhole ceiling tiles	None - manufacturing date stamp is 1996
	2’ by 4’ long fissure pinhole ceiling tiles	None - manufacturing date stamp is 2009
	1’ by 1’ cellulose ceiling tiles	None
	Glue on cellulose ceiling tiles mastic	Asbestos
	Drywall Hard texture finish	Asbestos Lead In paints

4.1 Findings and Analytical Results

A summary of sampling locations and analytical results are included in Appendix A. Laboratory certificates of analysis are included in Appendix B.

Asbestos

Asbestos was used in building materials throughout the years with a peak usage in the 1950s and 1960s. While the manufacture of most ACM, was banned in the 1970s, buildings constructed in the 1980s have the potential for ACM as well. In 1986 legislation limiting the use of asbestos in consumer products was introduced.

A total of 59 bulk samples of suspect ACM were submitted for asbestos analysis with a total of 93 analyses being performed. The difference between the number of samples submitted and the number of samples analysed can be a function of the stop positive method and analysis of multiple layers, performed by the laboratory, from a single sample reported as additional samples or subsets of a sample.

Bulk samples were submitted for asbestos analysis to Paracel Laboratories Ltd. (Paracel), in Mississauga, Ontario. Paracel is certified under the National Voluntary Laboratory Accreditation Program to perform asbestos analysis of bulk samples. Laboratory analysis was conducted in accordance with the United States Environmental Protection Agency (USEPA), Test Method EPA/600-R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, June, 1993 by Polarized Light Microscopy (PLM) as prescribed by O. Reg. 278/05.

A discussion of ACM identified at the time of the inspection, is provided below. All ACM was in good condition, unless otherwise noted.

Friable ACM:

- Mechanical Insulations:
    - Air Cell pipe insulation on pipe systems.

Non-Friable ACM:

- Exterior beige window sealant.

Vermiculite:

- No attic spaces were present within the building; and
- Concrete block walls were not identified at the time of the inspection and therefore no invasive inspection was conducted for vermiculite loose-fill insulation.

Potentially Concealed Suspect ACM:

- Door core insulation - not inspected, requires dismantling of door;
- Jacketing on electrical wiring – due to age of building may be concealed by wall or ceiling finishes;
- Elevator brakes – elevator equipment not inspected; and
- Vermiculite loose fill insulation in wall cavities – may be concealed by wall or ceiling finishes and requires destructive inspection of finishes.

Suspect or visually confirmed ACM must be deemed to be asbestos-containing and treated as if they contain a type of asbestos other than Chrysotile. Alternatively they may be sampled prior to disturbance to assess the presence of ACM.

Lead

Lead was historically used in mortar pigments, ceramic glazing; plumbing solder, electrical equipment and electronics solder, in pipe gaskets as packing in cast iron bell and spigot joints of sanitary drains, flexible plumbing connections, flashing panels, acoustical dampeners, phone cable casing and some architectural applications. In buildings constructed after 1990, these applications are no longer applicable outside of specialized uses (shielding for medical imaging etc.).

Lead solder on copper pipe connections were visually identified throughout.

A total of 30 paint scrape samples were collected from surfaces represent majority of all paint colours observed throughout the building.

Samples were submitted for laboratory analysis by ASTM D3335-85A "Standard Method to Test for Low Concentrations of Lead in Paint by Atomic Absorption Spectrophotometry" following MOE Method E3470 Inductively Coupled Plasma Optical Emission Spectrometry to Paracel Laboratories Ltd., in Ottawa, Ontario. Paracel is accredited by the Canadian Association of Laboratory Accreditation to perform bulk lead analysis of paint.

Reported laboratory detections of lead ranged between < 20 and 92,000 micrograms per gram (µg/g).

Mercury

Mercury is typically used in building service applications such as fluorescent light tubes, compact fluorescent bulbs, metal halide (sodium halide) lamp bulbs, and neon lights as a vapour. Mercury may exist in thermostats and pipe or mechanical equipment thermometers as a liquid. Mercury is presumed to be present in the above materials.

The following mercury-containing materials were identified by visual observation:

- Approximately 900 fluorescent light tubes; and
- 2 thermostat switches and pipes.

Silica

Silica is present in rock, stone, soil, and sand. Masonry products such as concrete block, brick, and mortar, as well as concrete and associated products contain silica. Due to its ubiquitous nature, silica was historically used in a wide variety of building materials and is still used today in new construction.

The following building materials were identified and are presumed to contain silica:

- Brick and mortar;
- Poured concrete;
- Ceramic tile and grout; and
- Fill and hardscaping throughout the site.

4.2 Conclusions and Recommendations

A detailed summary of recommended actions is provided in Appendix A.

In accordance with Section 30 of OHSA and Section 8 of O. Reg. 278/05 the owner must provide a copy of this report to all contractors doing work at the building. The owner must also provide a copy of this report to all prospective contractors at the time of tendering any work at the building.

Should any additional suspect Designated Substances be discovered during building renovation demolition, work in the vicinity should cease and the materials should not be disturbed until proper notification, testing and abatement instructions are provided. All waste generated as a result of any and all work at the Site must be handled, transported and disposed of in accordance with Ontario Regulation 347 made under the Environmental Protection Act and local by-laws. Based on the assessment findings and analytical results, the following abatement measures are presented. It should be noted that the recommended actions are the minimum required actions, as prescribed by the appropriate Acts, regulations, guidelines, standards, codes and general best practice measures.

Asbestos

ACMs were identified during the assessment. If these materials, including those deemed or suspected, will be disturbed, or will likely be disturbed, during building maintenance, renovations, construction, or demolition activities, they must be handled and disposed of in accordance with the procedures prescribed by O. Reg. 278/05.

Damaged ACM was identified and requires removal or repair.

All asbestos work must be conducted by contractors who are trained and experienced in the type of asbestos operations required, and should be overseen by a qualified third party Health, Safety and Environmental professional. In order to conduct Type 3 asbestos operations, contractors must be certified as Asbestos Abatement Workers AAW (Trade code 253W) and Asbestos Abatement Supervisors AAS (Trade code 253S) by The Ministry of Training, Colleges and Universities (Ministry of Advanced Education and Skills Development) as prescribed by Section 20 of O. Reg. 278/05.

ACM that could be present in concealed locations may become apparent during construction, renovation, alteration, or maintenance activities. If such activities are required or planned, invasive inspections of concealed locations for potential ACM must be performed prior to such activities. Should any suspect ACM be discovered during the course of construction, renovation, alteration, or maintenance activities, work which disturbs the suspect ACM must cease immediately. Suspect ACM must be treated as asbestos-containing or sampled and proven to not contain asbestos. Any activities that require disturbance of ACM must be performed in accordance with Ontario Regulation 278/05.

There are no requirements under current legislation to remove ACM from a building simply because it is present. However, O. Reg. 278/05 requires that an Asbestos Management Program be implemented and maintained by the owner/employer where ACM is identified or suspected present.

Lead

Lead-based paint, lead-containing paint and lead-containing solder on plumbing connections on piping were identified. As such special requirements for the management, handling and disposal of lead-containing materials by the owner, constructor, contractor, sub-contractors and workers apply. The abatement contractor should consult EACO's *Lead Guideline for Construction, Renovation, Maintenance or Repair (October 2014)* for the procedures and methods required to remove and dispose of lead-containing materials.

Low level lead-containing paint is present and the following general procedures are recommended as a precautionary measure as per EACO's *Lead Guideline*:

- General dust control;
- The washing of hands and face at on-site facilities;
- No smoking, eating, chewing gum or drinking in the work area; and
- No removal of painted surfaces by means of abrasive blasting.

Building finishes with the lead-based paint require analysis of Leachable Lead according to Ontario Regulation 558/00 prior to disposal, or they can be deemed hazardous. If determined hazardous, materials must then be manifested and disposed of off-site at a Ministry of Environment facility that is licensed to accept hazardous waste.

Mercury

Mercury-containing fluorescent light tubes and thermostat switches and pipes were observed in fixtures. All mercury containing materials or sources should be removed, intact, prior to any work which may disturb or damage them and cause worker exposure to mercury liquid and/or vapour.

On-site crushing of mercury-containing materials should not occur. Care should be taken to ensure safe storage of the above until recycling or disposal can be coordinated. Under current legislation, mercury waste requires handling and disposal in accordance with Ontario Regulation 490/09 of the OHSA and Ontario Regulation 347 of the Environmental Protection Act.

Silica

Silica is known to be present; therefore special requirements for management and handing are required. The contractor should also consult MOL Occupational Health and Safety Branch's Guideline: *Silica on Construction Projects* (April 2011) for the procedures and methods required to remove and dispose of silica-containing materials.

5.0 LIMITATIONS

Services performed by **MTE Consultants Inc.** (MTE) were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the Environmental Engineering & Consulting profession. No other representation expressed or implied as to the accuracy of the information, conclusions or recommendations is included or intended in this report.

This report was completed for the sole use of MTE and the Client. It was completed in accordance with the approved Scope of Work referred to in Section 2.0. As such, this report may not deal with all issues potentially applicable to the site and may omit issues that are or may be of interest to the reader. MTE makes no representation that the present report has dealt with all-important environmental features, except as provided in the Scope of Work. All findings and conclusions presented in this report are based on site conditions, as they existed during the time period of the investigation. This report is not intended to be exhaustive in scope or to imply a risk-free facility.

Any use which a third party makes of this report, or any reliance on, or decisions to be made based upon it, are the responsibility of such third parties. MTE accepts no responsibility for liabilities incurred by or damages, if any, suffered by any third party as a result of decisions made or actions taken, based upon this report. Others with interest in the site should undertake their own investigations and studies to determine how or if the condition affects them or their plans.

It should be recognized that the passage of time might affect the views, conclusions and recommendations (if any) provided in this report because environmental conditions of a property can change. Should additional or new information become available, MTE recommends that it be brought to our attention in order that we may re-assess the contents of this report.

All of which is respectfully submitted,

MTE CONSULTANTS INC.

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PXS:clt

APPENDIX A

TABLES

TABLE 4.1: BULK ASBESTOS SAMPLE SUMMARY TABLE				
Sample #	**Location**	**Material Description**	**Asbestos Results (Type %)**	**Is Material ACM**
July 7, 2017 Sampling				
S01A	201	Beige Multi-Fleck Vinyl Sheet Flooring	ND	No
S01A	201	Paper Backing	ND	No
S01B	201	Beige Multi-Fleck Vinyl Sheet Flooring	ND	No
S01B	201	Paper Backing	ND	No
S01C	201	Beige Multi-Fleck Vinyl Sheet Flooring	ND	No
S01C	201	Paper Backing	ND	No
S02A	201	Cement Smear Coat	ND	No
S02B	201	Cement Smear Coat	ND	No
S02C	201	Cement Smear Coat	ND	No
S02D	116	Cement Smear Coat	ND	No
S02E	100	Cement Smear Coat	ND	No
S03A	201	Drywall Joint Compound	ND	No
S03B	201	Drywall Joint Compound	ND	No
S03C	201	Drywall Joint Compound	ND	No
S04A	201	12"x12" Grey/Tan Dense Fleck Vinyl Floor Tile	ND	No
S04B	201	12"x12" Grey/Tan Dense Fleck Vinyl Floor Tile	ND	No
S04C	201	12"x12" Grey/Tan Dense Fleck Vinyl Floor Tile	ND	No
S05A	**201 (Exterior)**	**Beige Exterior Window Sealant**	**ND**	**Yes**
S05B	**201 (Exterior)**	**Beige Exterior Window Sealant**	**6.33**	**Yes**
S05C	**201 (Exterior)**	**Beige Exterior Window Sealant**	**NA**	**Yes**
S06A	2nd Floor Existing Vacant Area	Green/Beige Square Vinyl Sheet Flooring	ND	No
S06B	2nd Floor Existing Vacant Area	Green/Beige Square Vinyl Sheet Flooring	ND	No
S06C	2nd Floor Existing Vacant Area	Green/Beige Square Vinyl Sheet Flooring	ND	No
S07A	201 (Exterior)	White Exterior Window Sealant	ND	No
S07B	102 (Exterior)	White Exterior Window Sealant	ND	No
S07C	102 (Exterior)	White Exterior Window Sealant	ND	No
S08A	201	Compound Tie-In on Window Boards	ND	No
S08B	201	Compound Tie-In on Window Boards	ND	No
S08C	201	Compound Tie-In on Window Boards	ND	No
S09A	124	Drywall Joint Compound	ND	No
S09B	124	Drywall Joint Compound	ND	No
S09C	124	Drywall Joint Compound	ND	No
S10A	124	12"x12" Blue Dense Fleck Vinyl Floor Tile (North Building)	ND	No
S10B	124	12"x12" Blue Dense Fleck Vinyl Floor Tile (North Building)	ND	No
S10B	124	Yellow Mastic	ND	No
S10C	124	12"x12" Blue Dense Fleck Vinyl Floor Tile (North Building)	ND	No
S11A	130	12"x12" White with Grey Fleck Vinyl Floor Tile	ND	No
S11A	130	Yellow Mastic	ND	No
S11B	130	12"x12" White with Grey Fleck Vinyl Floor Tile	ND	No
S11B	130	Yellow Mastic	ND	No
S11C	130	12"x12" White with Grey Fleck Vinyl Floor Tile	ND	No
S11C	130	Yellow Mastic	ND	No
S12A	1st Floor South Building Washroom Entrance	12"x12" Green Dense Fleck Vinyl Floor Tile	ND	No
S12B	1st Floor South Building Washroom Entrance	12"x12" Green Dense Fleck Vinyl Floor Tile	ND	No
S12C	1st Floor South Building Washroom Entrance	12"x12" Green Dense Fleck Vinyl Floor Tile	ND	No
S13A	147	12"x12" Blue Dense Fleck Vinyl Floor Tile (South Building)	ND	No

TABLE 4.1: BULK ASBESTOS SAMPLE SUMMARY TABLE				
Sample #	**Location**	**Material Description**	**Asbestos Results (Type %)**	**Is Material ACM**
S13A	147	Black Mastic	ND	No
S13B	147	12"x12" Blue Dense Fleck Vinyl Floor Tile (South Building)	ND	No
S13B	147	Black Mastic	ND	No
S13C	147	12"x12" Blue Dense Fleck Vinyl Floor Tile (South Building)	ND	No
S13C	147	Black Mastic	ND	No
S14A	152	12"x12" Dark Grey Dense Fleck Vinyl Floor Tile	ND	No
S14A	152	Black Mastic	ND	No
S14B	152	12"x12" Dark Grey Dense Fleck Vinyl Floor Tile	ND	No
S14B	152	Black Mastic	ND	No
S14C	152	12"x12" Dark Grey Dense Fleck Vinyl Floor Tile	ND	No
S14C	152	Black Mastic	ND	No
S15A	157	12"x12" Orange Dense Fleck Vinyl Floor Tile	ND	No
S15A	157	Black Mastic	ND	No
S15B	157	12"x12" Orange Dense Fleck Vinyl Floor Tile	ND	No
S15B	157	Black Mastic	ND	No
S15C	157	12"x12" Orange Dense Fleck Vinyl Floor Tile	ND	No
S15C	157	Black Mastic	ND	No
S16A	146	Drywall Joint Compound	ND	No
S16B	152	Drywall Joint Compound	ND	No
S16C	150	Drywall Joint Compound	ND	No
July 17, 2017 Roof Sampling				
S01A	Exterior	Roof - Shingle	ND	No
S01A	Exterior	Roof - Foam Paper	ND	No
S01A	Exterior	Roof - Grey Paper	ND	No
S01A	Exterior	Roof - Brown Paper	ND	No
S01B	Exterior	Roof - Shingle	ND	No
S01B	Exterior	Roof - Foam Paper	ND	No
S01B	Exterior	Roof - Grey Paper	ND	No
S01B	Exterior	Roof - Brown Paper	ND	No
S01C	Exterior	Roof - Shingle	ND	No
S01C	Exterior	Roof - Foam Paper	ND	No
S01C	Exterior	Roof - Grey Paper	ND	No
S01C	Exterior	Roof - Brown Paper	ND	No
S02A	Exterior	Roof - Shingle	ND	No
S02B	Exterior	Roof - Shingle	ND	No
S02C	Exterior	Roof - Shingle	ND	No
S03A	Exterior	Roof - Shingle	ND	No
S03A	Exterior	Roof - Foam Paper	ND	No
S03A	Exterior	Roof - Grey Paper	ND	No
S03A	Exterior	Roof - Brown Paper	ND	No
S03B	Exterior	Roof - Shingle	ND	No
S03B	Exterior	Roof - Foam Paper	ND	No
S03B	Exterior	Roof - Grey Paper	ND	No
S03B	Exterior	Roof - Brown Paper	ND	No
S03C	Exterior	Roof - Shingle	ND	No
S03C	Exterior	Roof - Foam Paper	ND	No

TABLE 4.1: BULK ASBESTOS SAMPLE SUMMARY TABLE

Sample #	Location	Material Description	Asbestos Results (Type %)	Is Material ACM
S03C	Exterior	Roof - Grey Paper	ND	No
S03C	Exterior	Roof - Brown Paper	ND	No

NA: Not Analyzed due to stop positive method **ND**: No asbestos fibres detected above the laboratory minimum detection limit

A bulk material sample containing 0.5% or more asbestos therefore establishes that material as asbestos-containing. In accordance with Table 1 of O. Reg. 278/05, a minimum number of samples for the material to be classified as non asbestos. A homogeneous material is defined by O. Reg. 278/05 “as material that is uniform in colour and texture”. Homogeneous samples are identified by an alphabetical suffix to sample names to represent multiple samples of a homogeneous material. When a homogeneous material is analysed it is determined to be asbestos-containing upon the first positive detection of asbestos equal to or greater than 0.5%. Subsequent samples of the same material are therefore not analysed. Some bulk samples are comprised of multiple layers and as such will require multiple analysis. In such cases each layer is isolated at the laboratory and analysed individually to determine asbestos content. As a result the laboratory may report additional samples beyond the submitted number of samples or include multiple analyses as subsets within a sample.

TABLE 4.2: LEAD IN PAINT SAMPLE SUMMARY TABLE				
Sample #	**Location**	**Material Description**	**Lead Content (ug/g)**	**Classification**
LP1	201	Green on Drywall	< 30*	Low Level Lead-Containing
LP2	201	Tan on Drywall	< 20*	Low Level Lead-Containing
LP3	201	Brown on Drywall	< 20*	Low Level Lead-Containing
LP4	**201**	**Green on Concrete**	**19,700**	**Lead-Based**
LP5	**201**	**Silver on Concrete**	**48,600**	**Lead-Based**
LP6	201	Peach on Drywall	573	Low Level Lead-Containing
LP7	201 (Exterior)	Brown on Wood	< 20*	Low Level Lead-Containing
LP8	124	White on Drywall	< 20*	Low Level Lead-Containing
LP9	124	Beige on Drywall	< 20*	Low Level Lead-Containing
LP10	124	Blue on Steel Ducting	< 20*	Low Level Lead-Containing
LP11	124	Tan on Drywall	< 20*	Low Level Lead-Containing
LP12	120	Mauve on Drywall	< 20*	Low Level Lead-Containing
LP13	120	Olive on Drywall	< 20*	Low Level Lead-Containing
LP14	**120**	**Light Green on Concrete**	**4,340**	**Lead-Containing**
LP15	**120**	**White on Concrete**	**1,390**	**Lead-Containing**
LP16	120 (Exterior)	Brown on Steel Door	< 20*	Low Level Lead-Containing
LP17	114	Beige on Drywall	< 20*	Low Level Lead-Containing
LP18	116	Red on Drywall	< 20*	Low Level Lead-Containing
LP19	116	Light Grey on Drywall	< 20*	Low Level Lead-Containing
LP20	**114**	**Black on Steel**	**1,080**	**Lead-Containing**
LP21	108	Dark Grey on Drywall	< 20*	Low Level Lead-Containing
LP22	108 (Exterior)	Beige on Wood	< 20*	Low Level Lead-Containing
LP23	**100 (Exterior)**	**Red on Wood**	**28,400**	**Lead-Based**
LP24	100 (Exterior)	Dark Grey on Wood	< 36*	Low Level Lead-Containing
LP25	**130**	**Cream on Concrete**	**92,000**	**Lead-Based**
LP26	130	Red on Drywall	< 20*	Low Level Lead-Containing
LP27	146	Black on Drywall	< 20*	Low Level Lead-Containing
LP28	149	Navy Blue on Drywall	< 20*	Low Level Lead-Containing
LP29	159	Teal on Concrete Floor	433	Low Level Lead-Containing
LP30	2nd Floor South Building Stairwell	Black on Concrete	80	Low Level Lead-Containing

"<": The samples analysed reported concentrations of lead to be less than 1000 ug/g and are therefore classified as low level lead-containing. However, no lead concentrations were reported above the sample specific laboratory detection limit.

As outlined in EACO's Lead Guideline for Construction, Renovation, Maintenance or Repair (October 2014), for the purpose of classifying surface coatings and mortars by laboratory analysis, any material containing lead at a concentration:

• Greater than 0.5% by weight (5,000 µg/g, mg/kg, ppm) is considered lead-based;
• Between 0.1 % and 0.5% by weight (1,000 to 5,000 µg/g, mg/kg, ppm) is considered lead-containing; or
• Less than 0.1% (1,000 µg/g, mg/kg, ppm) is considered low level lead-containing.

Table 4.3 - Summary of Designated Substances and Recommended Actions						
Southworks Outlet Mall						
Material	**Location**	**Material Description**	**Approximate Quantity**	**Photograph**	**Management Requirements If No Impacts to Material**	**Recommended Actions If Material Will Be Or Likely Be Impacted By Maintenance, Renovation, Construction or Demolition Activities**
Damaged Asbestos Friable	2nd Floor Connecting Tunnel (West-Side) Between the North and South Portion of the Building	Air Cell Insulation on Piping	30 Linear Feet		Removal and Cleaning in accordance with O. Reg. 278/05 as a Type 3 Operation	Removal in accordance with O. Reg. 278/05 as a Type 3 Operation
Asbestos Non-Friable	Exterior	Beige Sealant on Exterior side of Original Windows	-		In place management in accordance with O. Reg. 278/05	Removal in accordance with O. Reg. 278/05 as a Type 1 Operation
Potentially Concealed Asbestos	Electrical Wiring Throughout	Jacketing on Electrical Wiring	-	-	In place management in accordance with O. Reg. 278/05	Invasive inspection prior to maintenance/renovations/construction/demolition activities, if present and sampling confirms as ACM, removal in accordance with O. Reg. 278/05
Potentially Concealed Asbestos	Doors Throughout	Door Core Insulation	-	-	In place management in accordance with O. Reg. 278/05	Invasive inspection prior to maintenance/renovations/construction/demolition activities, if present and sampling confirms as ACM, removal in accordance with O. Reg. 278/05
Potentially Concealed Asbestos	Wall Cavities	Vermiculite Loose-Fill Insulation	-	-	In place management in accordance with O. Reg. 278/05	Invasive inspection prior to maintenance/renovations/construction/demolition activities, if present and sampling confirms as ACM, removal in accordance with O. Reg. 278/05

Table 4.3 - Summary of Designated Substances and Recommended Actions

Southworks Outlet Mall

Material	Location	Material Description	Approximate Quantity	Photograph	Management Requirements If No Impacts to Material	Recommended Actions If Material Will Be Or Likely Be Impacted By Maintenance, Renovation, Construction or Demolition Activities
Lead-Based Paint	Visually Confirmed Throughout North Building (Suspected Throughout)	Green on Original Concrete Walls	-		Not Applicable	**FOR DEMOLITION** Operating construction or demolition equipment (excavator/bulldozer) as a: Class 1 Operation in accordance with EACO's Lead Guideline. If paint is not removed prior to disposal of building finishes, these materials require analysis of Leachable Lead according to Ontario Regulation 558/00. If confirmed or deemed hazardous, materials must then be manifested and disposed of off-site at a Ministry of Environment facility that is licensed to accept hazardous waste. **FOR RENOVATION** Removal as required prior to maintenance, renovations, construction or demolition activities in accordance with EACO's Lead Guideline as a: Class 1, Class 2A, Class 3A, or a Class 3B Operation If paint is not removed prior to disposal of building finishes, these materials require analysis of Leachable Lead according to Ontario Regulation 558/00. If confirmed or deemed hazardous, materials must then be manifested and disposed of off-site at a Ministry of Environment facility that is licensed to accept hazardous waste.
Lead-Based Paint	Visually Confirmed Throughout North Building (Suspected Throughout)	Silver on Original Concrete Walls	-		In place management in accordance with EACO's Lead Guideline	
Lead-Based Paint	Exterior	Red on Wood Siding	-		In place management in accordance with EACO's Lead Guideline	
Lead-Based Paint	Visually Confirmed in Unit 130 (Suspected Throughout)	Cream on Original Concrete Walls and Wood Doors	-		In place management in accordance with EACO's Lead Guideline	
Lead-Containing Paint	Visually Confirmed in Unit 120 (Suspected Throughout 1st Floor of North Building)	Light Green on Concrete Wall			In place management in accordance with EACO's Lead Guideline	Operating construction or demolition equipment (excavator/bulldozer) as a: Class 1 Operation in accordance with EACO's Lead Guideline
Lead-Containing Paint	Visually Confirmed in Unit 120 (Suspected Throughout 1st Floor of North Building)	White on Concrete Wall				

Table 4.3 - Summary of Designated Substances and Recommended Actions						
Southworks Outlet Mall						
Material	**Location**	**Material Description**	**Approximate Quantity**	**Photograph**	**Management Requirements If No Impacts to Material**	**Recommended Actions If Material Will Be Or Likely Be Impacted By Maintenance, Renovation, Construction or Demolition Activities**
Low Level Lead-Containing Paint	Unit 201	Green on Drywall	-	-	None	General hygiene procedures during renovation activities: General dust control, Washing of hands and face at on-site facilities, No smoking, eating, chewing gum or drinking in the work area, No abrasive blasting
	Unit 201	Tan on Drywall	-	-	None	
	Unit 201	Brown on Drywall	-	-	None	
	Unit 201	Peach on Drywall	-	-	None	
	Exterior	Brown on Wood	-	-	None	
	Unit 124	White on Drywall	-	-	None	
	Unit 124	Beige on Drywall	-	-	None	
	Unit 124	Blue on Steel Ducting and Drywall	-	-	None	
	Unit 124	Tan on Drywall	-	-	None	
	Unit 120	Mauve on Drywall	-	-	None	
	Unit 120	Olive on Drywall	-	-	None	
	Exterior	Brown on Steel Doors	-	-	None	
	Unit 114	Beige on Drywall	-	-	None	
	Unit 116	Red on Drywall	-	-	None	
	Unit 116	Light Grey on Drywall	-	-	None	
	Unit 108	Dark Grey on Drywall	-	-	None	
	Exterior	Beige on Wood	-	-	None	
	Exterior	Dark Grey on Wood	-	-	None	
	Unit 130	Red on Drywall	-	-	None	
	Unit 146	Black on Drywall	-	-	None	
	Unit 149	Navy Blye on Drywall	-	-	None	
	Unit 159	Teal on Concrete Floor	-	-	None	
	2nd Floor South Building Stairwell	Black on Concrete	-	-	None	

Table 4.3 - Summary of Designated Substances and Recommended Actions

Southworks Outlet Mall

Material	Location	Material Description	Approximate Quantity	Photograph	Management Requirements If No Impacts to Material	Recommended Actions If Material Will Be Or Likely Be Impacted By Maintenance, Renovation, Construction or Demolition Activities
Lead	Throughout on Plumbing Connections	Lead Solder on Copper Pipe	-		In place management in accordance with EACO's Lead Guideline	Removal prior to renovation/demolition activities in accordance with EACO's Lead Guideline as a: Class 1 Operation
Potentially Concealed Lead	Concealed on Sanitary/Waste Lines	Lead Packed Pipe Gaskets	-	-	None	Invasive inspection prior to renovation or demolition activities. If confirmed present, removal in accordance with EACO's Lead Guideline as a: Class 1 Operation
Mercury	Throughout in Light Fixtures	Fluorescent Light Tubes in Light Fixtures	900	-	None	Intact removal and storage with no on-site crushing and disposal of materials to a licensed facility
Mercury	3rd Floor of South Building - Existing Vacant Area & Unit 116	Thermostats	2		None	Intact removal and storage with no on-site crushing and disposal of materials to a licensed facility
Silica	Throughout	Brick and Mortar, Poured Concrete, Ceramic Tiles and Grout, and Fill and Hardscaping	-	-	None	During renovation, demolition activities, manage worker exposure in accordance with the Ministry of Labour Guideline Silica on Construction Projects

Notes:
1) A copy of this report should be provided to all prospective contractors prior to tender or quotation, in accordance with Section 30 of the Occupational Health and Safety Act.
2) Recommended actions are the minimum required actions, as prescribed by the appropriate Acts, regulations, guidelines, standards, codes and general best practice measures. Prior to demolition, the Contractor may choose to alter the approach and combine or break out sections of work. This is acceptable provided that the appropriate Acts, regulations, guidelines, standards and codes are followed and afford protection for the health and safety of workers, occupants and the public that is at least equal to the protection that would be provided by complying with the minimum requirements.
3) All waste generated is subject to characterization and disposal in accordance with Ontario Regulation 347.

APPENDIX B

LABORATORY CERTIFICATES OF ANALYSIS

PARACEL LABORATORIES LTD.
TRUSTED. RESPONSIVE. RELIABLE.

15 - 6800 Kitimat Rd
Mississauga, ON, L5N 5M1
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

MTE Consultants Inc. (Kitchener)

520 Bingemans Centre Dr.
Kitchener, ON N2B 3X9
Attn: Aisling Dennett

Client PO:
Project: 41654-200 Southworks
Custody:

Report Date: 18-Jul-2017
Order Date: 12-Jul-2017

Order #: 1728235

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1728235-01	S01A (VSF)
1728235-02	S01B (VSF)
1728235-03	S01C (VSF)
1728235-04	S01A (Backing)
1728235-05	S01B (Backing)
1728235-06	S01C (Backing)
1728235-07	S02A
1728235-08	S02B
1728235-09	S02C
1728235-10	S02D
1728235-11	S02E
1728235-12	S03A
1728235-13	S03B
1728235-14	S03C
1728235-15	S04A (VFT)
1728235-16	S04B (VFT)
1728235-17	S04C (VFT)
1728235-18	S04A (Mastic)
1728235-19	S04B (Mastic)
1728235-20	S04C (Mastic)
1728235-21	S05A
1728235-22	S05B
1728235-23	S05C
1728235-24	S06A
1728235-25	S06B
1728235-26	S06C

Approved By:

Heather S.H. McGregor, BSc
Laboratory Director - Microbiology

PARACEL LABORATORIES LTD.

Order #: 1728235

Certificate of Analysis

Report Date: 18-Jul-2017

Client: MTE Consultants Inc. (Kitchener)

Order Date: 12-Jul-2017

Client PO:

Project Description: 41654-200 Southworks

1728235-27	S07A
1728235-28	S07B
1728235-29	S07C
1728235-30	S08A
1728235-31	S08B
1728235-32	S08C
1728235-33	S09A
1728235-34	S09B
1728235-35	S09C
1728235-36	S010A (VFT)
1728235-37	S010B (VFT)
1728235-38	S010C (VFT)
1728235-39	S010A (Mastic)
1728235-40	S010B (Mastic)
1728235-41	S010C (Mastic)
1728235-42	S011A (VFT)
1728235-43	S011B (VFT)
1728235-44	S011C (VFT)
1728235-45	S011A (Mastic)
1728235-46	S011B (Mastic)
1728235-47	S011C (Mastic)
1728235-48	S012A (VFT)
1728235-49	S012B (VFT)
1728235-50	S012C (VFT)
1728235-51	S012A (Mastic)
1728235-52	S012B (Mastic)
1728235-53	S012C (Mastic)
1728235-54	S013A (VFT)
1728235-55	S013B (VFT)
1728235-56	S013C (VFT)
1728235-57	S013A (Mastic)
1728235-58	S013B (Mastic)
1728235-59	S013C (Mastic)
1728235-60	S014A (VFT)
1728235-61	S014B (VFT)
1728235-62	S014C (VFT)
1728235-63	S014A (Mastic)
1728235-64	S014B (Mastic)
1728235-65	S014C (Mastic)
1728235-66	S015A (VFT)
1728235-67	S015B (VFT)
1728235-68	S015C (VFT)
1728235-69	S015A (Mastic)
1728235-70	S015B (Mastic)

PARACEL LABORATORIES LTD.

Order #: 1728235

Certificate of Analysis

Report Date: 18-Jul-2017

Client: MTE Consultants Inc. (Kitchener)

Order Date: 12-Jul-2017

Client PO:

Project Description: 41654-200 Southworks

1728235-71	S015C (Mastic)
1728235-72	S016A
1728235-73	S016B
1728235-74	S016C

PARACEL LABORATORIES LTD.

Order #: 1728235

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO:

Report Date: 18-Jul-2017
Order Date: 12-Jul-2017
Project Description: 41654-200 Southworks

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.	*Sample Date*	*Layers Analyzed*	*Colour*	*Description*	*Asbestos Detected:*	*Material Identification*	*% Content*
1728235-01	11-Jul-17	sample homogenized	Beige	Vinyl Sheet Flooring	No	Client ID: S01A (VSF) [AS-PRE]	
						Non-Fibers	100
1728235-02	11-Jul-17	sample homogenized	Beige	Vinyl Sheet Flooring	No	Client ID: S01B (VSF) [AS-PRE]	
						Non-Fibers	100
1728235-03	11-Jul-17	sample homogenized	Beige	Vinyl Sheet Flooring	No	Client ID: S01C (VSF) [AS-PRE]	
						Non-Fibers	100
1728235-04	11-Jul-17	sample homogenized	Beige	Backing	No	Client ID: S01A (Backing) [AS-PRE]	
						Cellulose	15
						MMVF	2.62
						Non-Fibers	82.38
1728235-05	11-Jul-17	sample homogenized	Beige	Backing	No	Client ID: S01B (Backing) [AS-PRE]	
						Cellulose	15
						MMVF	2.77
						Non-Fibers	82.23
1728235-06	11-Jul-17	sample homogenized	Beige	Backing	No	Client ID: S01C (Backing) [AS-PRE]	
						Cellulose	15
						MMVF	2.81
						Non-Fibers	82.19
1728235-07	11-Jul-17	sample homogenized	Grey	Cement Smear Coat	No	Client ID: S02A	
						Non-Fibers	100
1728235-08	11-Jul-17	sample homogenized	Grey	Cement Smear Coat	No	Client ID: S02B	
						Non-Fibers	100
1728235-09	11-Jul-17	sample homogenized	Grey	Cement Smear Coat	No	Client ID: S02C	
						Non-Fibers	100
1728235-10	11-Jul-17	sample homogenized	Grey	Cement Smear Coat	No	Client ID: S02D	
						Non-Fibers	100
1728235-11	11-Jul-17	sample homogenized	Grey	Cement Smear Coat	No	Client ID: S02E	
						Non-Fibers	100
1728235-12	11-Jul-17	sample homogenized	White	Drywall Joint Compound	No	Client ID: S03A [AS-PRE]	
						Non-Fibers	100
1728235-13	11-Jul-17	sample homogenized	White	Drywall Joint Compound	No	Client ID: S03B [AS-PRE]	
						Non-Fibers	100
1728235-14	11-Jul-17	sample homogenized	White	Drywall Joint Compound	No	Client ID: S03C [AS-PRE]	
						Non-Fibers	100

PARACEL LABORATORIES LTD.

Order #: 1728235

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO:

Report Date: 18-Jul-2017
Order Date: 12-Jul-2017
Project Description: 41654-200 Southworks

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1728235-15	11-Jul-17	sample homogenized	Grey/Tan	Vinyl Floor Tile	No	Client ID: S04A (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-16	11-Jul-17	sample homogenized	Grey/Tan	Vinyl Floor Tile	No	Client ID: S04B (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-17	11-Jul-17	sample homogenized	Grey/Tan	Vinyl Floor Tile	No	Client ID: S04C (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-18	11-Jul-17					Client ID: S04A (Mastic) [Z-01]	
						not analyzed	
1728235-19	11-Jul-17					Client ID: S04B (Mastic) [Z-01]	
						not analyzed	
1728235-20	11-Jul-17					Client ID: S04C (Mastic) [Z-01]	
						not analyzed	
1728235-21	11-Jul-17	sample homogenized	Beige	Sealant	No	Client ID: S05A [AS-PRE]	
						Non-Fibers	100
1728235-22	11-Jul-17	sample homogenized	Beige	Sealant	Yes	Client ID: S05B [AS-PRE]	
						Chrysotile	6.33
						Non-Fibers	93.67
1728235-23	11-Jul-17					Client ID: S05C	
						not analyzed	
1728235-24	11-Jul-17	sample homogenized	Green/Beige	Vinyl Sheet Flooring	No	Client ID: S06A [AS-PRE]	
						Cellulose	15
						Non-Fibers	85
1728235-25	11-Jul-17	sample homogenized	Green/Beige	Vinyl Sheet Flooring	No	Client ID: S06B [AS-PRE]	
						Cellulose	15
						Non-Fibers	85
1728235-26	11-Jul-17	sample homogenized	Green/Beige	Vinyl Sheet Flooring	No	Client ID: S06C [AS-PRE]	
						Cellulose	15
						Non-Fibers	85
1728235-27	11-Jul-17	sample homogenized	White	Sealant	No	Client ID: S07A [AS-PRE]	
						Non-Fibers	100
1728235-28	11-Jul-17	sample homogenized	White	Sealant	No	Client ID: S07B [AS-PRE]	
						Non-Fibers	100
1728235-29	11-Jul-17	sample homogenized	White	Sealant	No	Client ID: S07C [AS-PRE]	
						Non-Fibers	100

PARACEL LABORATORIES LTD.

Order #: 1728235

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO:

Report Date: 18-Jul-2017
Order Date: 12-Jul-2017
Project Description: 41654-200 Southworks

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1728235-30	11-Jul-17	sample homogenized	White/Grey	npound Tie-in on Window Boa	No	Client ID: S08A [ASLYR]	
						Non-Fibers	100
1728235-31	11-Jul-17	sample homogenized	White/Grey	npound Tie-in on Window Boa	No	Client ID: S08B	
						Non-Fibers	100
1728235-32	11-Jul-17	sample homogenized	White/Grey	npound Tie-in on Window Boa	No	Client ID: S08C	
						Non-Fibers	100
1728235-33	11-Jul-17	sample homogenized	White	Drywall Joint Compound	No	Client ID: S09A	
						Non-Fibers	100
1728235-34	11-Jul-17	sample homogenized	White	Drywall Joint Compound	No	Client ID: S09B	
						Non-Fibers	100
1728235-35	11-Jul-17	sample homogenized	White	Drywall Joint Compound	No	Client ID: S09C	
						Non-Fibers	100
1728235-36	11-Jul-17	sample homogenized	Blue	Vinyl Floor Tile	No	Client ID: S010A (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-37	11-Jul-17	sample homogenized	Blue	Vinyl Floor Tile	No	Client ID: S010B (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-38	11-Jul-17	sample homogenized	Blue	Vinyl Floor Tile	No	Client ID: S010C (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-39	11-Jul-17					Client ID: S010A (Mastic) [Z-01]	
						not analyzed	
1728235-40	11-Jul-17	sample homogenized	Yellow	Mastic	No	Client ID: S010B (Mastic) [AS-PRE]	
						Non-Fibers	100
1728235-41	11-Jul-17					Client ID: S010C (Mastic) [Z-01]	
						not analyzed	
1728235-42	11-Jul-17	sample homogenized	White/Grey	Vinyl Floor Tile	No	Client ID: S011A (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-43	11-Jul-17	sample homogenized	White/Grey	Vinyl Floor Tile	No	Client ID: S011B (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-44	11-Jul-17	sample homogenized	White/Grey	Vinyl Floor Tile	No	Client ID: S011C (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-45	11-Jul-17	sample homogenized	Yellow	Mastic	No	Client ID: S011A (Mastic) [AS-PRE]	
						Non-Fibers	100
1728235-46	11-Jul-17	sample homogenized	Yellow	Mastic	No	Client ID: S011B (Mastic) [AS-PRE]	
						Non-Fibers	100

PARACEL LABORATORIES LTD.

Order #: 1728235

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO:

Report Date: 18-Jul-2017
Order Date: 12-Jul-2017
Project Description: 41654-200 Southworks

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.	*Sample Date*	*Layers Analyzed*	*Colour*	*Description*	*Asbestos Detected:*	*Material Identification*	*% Content*
1728235-47	11-Jul-17	sample homogenized	Yellow	Mastic	No	Client ID: S011C (Mastic) [AS-PRE]	
						Non-Fibers	100
1728235-48	11-Jul-17	sample homogenized	Green	Vinyl Floor Tile	No	Client ID: S012A (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-49	11-Jul-17	sample homogenized	Green	Vinyl Floor Tile	No	Client ID: S012B (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-50	11-Jul-17	sample homogenized	Green	Vinyl Floor Tile	No	Client ID: S012C (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-51	11-Jul-17					Client ID: S012A (Mastic) [Z-01]	
						not analyzed	
1728235-52	11-Jul-17					Client ID: S012B (Mastic) [Z-01]	
						not analyzed	
1728235-53	11-Jul-17					Client ID: S012C (Mastic) [Z-01]	
						not analyzed	
1728235-54	11-Jul-17	sample homogenized	Blue	Vinyl Floor Tile	No	Client ID: S013A (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-55	11-Jul-17	sample homogenized	Blue	Vinyl Floor Tile	No	Client ID: S013B (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-56	11-Jul-17	sample homogenized	Blue	Vinyl Floor Tile	No	Client ID: S013C (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-57	11-Jul-17	sample homogenized	Black	Mastic	No	Client ID: S013A (Mastic) [AS-PRE]	
						Non-Fibers	100
1728235-58	11-Jul-17	sample homogenized	Black	Mastic	No	Client ID: S013B (Mastic) [AS-PRE]	
						Non-Fibers	100
1728235-59	11-Jul-17	sample homogenized	Black	Mastic	No	Client ID: S013C (Mastic) [AS-PRE]	
						Non-Fibers	100
1728235-60	11-Jul-17	sample homogenized	Dark Grey	Vinyl Floor Tile	No	Client ID: S014A (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-61	11-Jul-17	sample homogenized	Dark Grey	Vinyl Floor Tile	No	Client ID: S014B (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-62	11-Jul-17	sample homogenized	Dark Grey	Vinyl Floor Tile	No	Client ID: S014C (VFT) [AS-PRE]	
						Non-Fibers	100
1728235-63	11-Jul-17	sample homogenized	Black	Mastic	No	Client ID: S014A (Mastic) [AS-PRE]	
						Non-Fibers	100

PARACEL LABORATORIES LTD.

Order #: 1728235

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO:

Report Date: 18-Jul-2017
Order Date: 12-Jul-2017
Project Description: 41654-200 Southworks

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.	*Sample Date*	*Layers Analyzed*	*Colour*	*Description*	*Asbestos Detected:*	*Material Identification*	*% Content*
1728235-64	11-Jul-17	sample homogenized	Black	Mastic	No	**Client ID: S014B (Mastic)** [AS-PRE]	
						Non-Fibers	100
1728235-65	11-Jul-17	sample homogenized	Black	Mastic	No	**Client ID: S014C (Mastic)** [AS-PRE]	
						Non-Fibers	100
1728235-66	11-Jul-17	sample homogenized	Orange	Vinyl Floor Tile	No	**Client ID: S015A (VFT)** [AS-PRE]	
						Non-Fibers	100
1728235-67	11-Jul-17	sample homogenized	Orange	Vinyl Floor Tile	No	**Client ID: S015B (VFT)** [AS-PRE]	
						Non-Fibers	100
1728235-68	11-Jul-17	sample homogenized	Orange	Vinyl Floor Tile	No	**Client ID: S015C (VFT)** [AS-PRE]	
						Non-Fibers	100
1728235-69	11-Jul-17	sample homogenized	Black	Mastic	No	**Client ID: S015A (Mastic)** [AS-PRE]	
						Non-Fibers	100
1728235-70	11-Jul-17	sample homogenized	Black	Mastic	No	**Client ID: S015B (Mastic)** [AS-PRE]	
						Non-Fibers	100
1728235-71	11-Jul-17	sample homogenized	Black	Mastic	No	**Client ID: S015C (Mastic)** [AS-PRE]	
						Non-Fibers	100
1728235-72	11-Jul-17	sample homogenized	White/Brown	Drywall Joint Compound	No	**Client ID: S016A** [ASLYR]	
						Non-Fibers	100
1728235-73	11-Jul-17	sample homogenized	White/Brown	Drywall Joint Compound	No	**Client ID: S016B** [ASLYR]	
						Non-Fibers	100
1728235-74	11-Jul-17	sample homogenized	White/Brown	Drywall Joint Compound	No	**Client ID: S016C** [ASLYR]	
						Non-Fibers	100

** MMVF: Man Made Vitreous Fibers: Fiberglass, Mineral Wool, Rockwool, Glasswool*

**** Analytes in bold indicate asbestos mineral content.**

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos, PLM Visual Estimation	by EPA 600/R-93/116	1 - Mississauga	200863-0	17-Jul-17

** Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.*

PARACEL LABORATORIES LTD.

Order #: 1728235

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO:

Report Date: 18-Jul-2017
Order Date: 12-Jul-2017
Project Description: 41654-200 Southworks

Qualifier Notes

Sample Qualifiers :

ASLYR: Layers were noted for this sample, however, the entire sample was homogenized per client request.

AS-PRE: Due to the difficult nature of the bulk sample (interfering fibers/binders), additional NOB preparation was required prior to analysis

Z-01: No Sample

Work Order Revisions / Comments

None

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Paracel ID: 1728235

Chain of Custody

Page 1 of 2

Client Name: MTE Consultants	Project Reference: 41654-200 - Southworks
Contact Name: Aisling Dennett	Quote #:
Address: 520 Bingemans Center. Dr Kitchener ON N2B3X9	PO #:
	Email Address: pscmeniuk@mte85.com; adennett@mte85.com
Telephone: 519-743-6500	

Turnaround Time:

- ☐ Immediate
- ☐ 1 Day
- ☐ 4 Hour
- ☐ 2 Day
- ☐ 8 Hour
- ☐ 3 Day
- ☑ Regular

Date Required: _____

ASBESTOS & MOLD ANALYSIS

Matrix: ☐ Air x Bulk ☐ Tape Lift ☐ Swab ☐ Other **Regulatory Guideline:** 278/05

Required Analyses: ☐ Microscopic Mold ☐ Culturable Mold ☐ Bacteria GRAM PCM x PLM ☐ Chatfield ☐ TEM

Paracel Order Number: 1728235

	Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Asbestos - Bulk: Matrix Description	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	Please refer to attached table							
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

*Each layer will be analyzed and charged separately **Homogenize = All layers are blended into a single uniform sample.

Comments:

Method of Delivery: PUROLATOR

Relinquished By (Sign):	Received at Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Paul Semeniuk			
Date/Time: July 11, 2017 11am	Date/Time:	Date/Time: 12-JUL-17 8:51	Date/Time: July 12-17 9:30

Paracel ID: 1728235

Project	Sample No.	Location (Unit)			Stop Positive	Layered ?	Layer Description
41654-200	S01ABC	201			Y	Y	VSF and Backing
41654-200	S02ABC	201	Cement Smear Coat	7/11/17	N	N	-
41654-200	S02D	116	Cement Smear Coat	7/11/17	N	N	-
41654-200	S02E	100	Cement Smear Coat	7/11/17	N	N	-
41654-200	S03ABC	201	Drywall Joint Compound	7/11/17	Y	N	-
41654-200	S04ABC	201	12x12 Grey/Tan Dense Fleck VFT	7/11/17	Y	Y	VFT and Mastic
41654-200	S05ABC	201 (Exterior)	Beige Window Sealant	7/11/17	Y	N	-
41654-200	S06ABC	2nd Floor Existing Vacant Area	Green/Beige Square VSF	7/11/17	Y	N	-
41654-200	S07A	201 (Exterior)	White Window Sealant	7/11/17	Y	N	-
41654-200	S07BC	102 (Exterior)	White Window Sealant	7/11/17	Y	N	-
41654-200	S08ABC	201	Compound Tie-in on Window Boards	7/11/17	Y	N	-
41654-200	S09ABC	124	Drywall Joint Compound	7/11/17	Y	N	-
41654-200	S10ABC	124	12x12 Blue Dense Fleck VFT (North Building)	7/11/17	Y	Y	VFT and Mastic
41654-200	S11ABC	130	12x12 White with Grey Fleck VFT	7/11/17	Y	Y	VFT and Mastic
41654-200	S12ABC	1st Floor South Building Washroom Entrance	12x12 Green Dense Fleck VFT	7/11/17	Y	Y	VFT and Mastic
41654-200	S13ABC	147	12x12 Blue Dense Fleck VFT (South Building)	7/11/17	Y	Y	VFT and Mastic
41654-200	S14ABC	152	12x12 Dark Grey Dense Fleck VFT	7/11/17	Y	Y	VFT and Mastic
41654-200	S15ABC	157	12x12 Orange Dense Fleck VFT	7/11/17	Y	Y	VFT and Mastic
41654-200	S16A	146	Drywall Joint Compound	7/11/17	Y	N	-
41654-200	S16B	152	Drywall Joint Compound	7/11/17	Y	N	-
41654-200	S16C	150	Drywall Joint Compound	7/11/17	Y	N	-

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Certificate of Analysis

MTE Consultants Inc. (Kitchener)

520 Bingemans Centre Dr.
Kitchener, ON N2B 3X9
Attn: Aisling Dennett

Client PO: 41654-200
Project: Southworks
Custody:

Report Date: 25-Jul-2017
Order Date: 19-Jul-2017

Order #: 1729292

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1729292-01	S01A (Shingles)
1729292-02	S01B (Shingles)
1729292-03	S01C (Shingles)
1729292-04	S01A (Foamwpaper)
1729292-05	S01B (Foamwpaper)
1729292-06	S01C (Foamwpaper)
1729292-07	S01A (grey paper)
1729292-08	S01B (grey paper)
1729292-09	S01C (grey paper)
1729292-10	S01A (brown paper)
1729292-11	S01B (brown paper)
1729292-12	S01C (brown paper)
1729292-13	S02A
1729292-14	S02B
1729292-15	S02C
1729292-16	S03A (shingle)
1729292-17	S03B (shingle)
1729292-18	S03C (shingle)
1729292-19	S03A (foamwpaper)
1729292-20	S03B (foamwpaper)
1729292-21	S03C (foamwpaper)
1729292-22	S03A (grey paper)
1729292-23	S03B (grey paper)
1729292-24	S03C (grey paper)
1729292-25	S03A (brown paper)
1729292-26	S03B (brown paper)

Approved By:

Emma Diaz

Senior Analyst

PARACEL LABORATORIES LTD.

Order #: 1729292

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO: 41654-200

Report Date: 25-Jul-2017
Order Date: 19-Jul-2017
Project Description: Southworks

1729292-27	S03C (brown paper)

PARACEL LABORATORIES LTD.

Order #: 1729292

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO: 41654-200

Report Date: 25-Jul-2017
Order Date: 19-Jul-2017
Project Description: Southworks

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.	*Sample Date*	*Layers Analyzed*	*Colour*	*Description*	*Asbestos Detected:*	*Material Identification*	*% Content*
1729292-01	17-Jul-17	sample homogenized	Black	Shingle	No	**Client ID: S01A (Shingles)** [AS-PRE]	
						Cellulose	10
						Non-Fibers	90
1729292-02	17-Jul-17	sample homogenized	Black	Shingle	No	**Client ID: S01B (Shingles)** [AS-PRE]	
						Cellulose	10
						Non-Fibers	90
1729292-03	17-Jul-17	sample homogenized	Black	Shingle	No	**Client ID: S01C (Shingles)** [AS-PRE]	
						Cellulose	10
						Non-Fibers	90
1729292-04	17-Jul-17	sample homogenized	Beige	Foamwpaper	No	**Client ID: S01A (Foamwpaper)** [AS-PRE]	
						Non-Fibers	100
1729292-05	17-Jul-17	sample homogenized	Brown	Foamwpaper	No	**Client ID: S01B (Foamwpaper)** [AS-PRE]	
						Non-Fibers	100
1729292-06	17-Jul-17	sample homogenized	Beige	Foamwpaper	No	**Client ID: S01C (Foamwpaper)** [AS-PRE]	
						Non-Fibers	100
1729292-07	17-Jul-17	sample homogenized	Grey	Paper	No	**Client ID: S01A (grey paper)** [AS-PRE]	
						Cellulose	90
						MMVF	<MDL
						Non-Fibers	10
1729292-08	17-Jul-17	sample homogenized	Grey	Paper	No	**Client ID: S01B (grey paper)** [AS-PRE]	
						Cellulose	90
						MMVF	0.63
						Non-Fibers	9.37
1729292-09	17-Jul-17	sample homogenized	Grey	Paper	No	**Client ID: S01C (grey paper)** [AS-PRE]	
						Cellulose	90
						MMVF	0.59
						Non-Fibers	9.41
1729292-10	17-Jul-17	sample homogenized	Brown	Paper	No	**Client ID: S01A (brown paper)** [AS-PRE]	
						Non-Fibers	100
1729292-11	17-Jul-17	sample homogenized	Brown	Paper	No	**Client ID: S01B (brown paper)** [AS-PRE]	
						Non-Fibers	100
1729292-12	17-Jul-17	sample homogenized	Brown	Paper	No	**Client ID: S01C (brown paper)** [AS-PRE]	
						Non-Fibers	100

PARACEL LABORATORIES LTD.

Order #: 1729292

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO: 41654-200

Report Date: 25-Jul-2017
Order Date: 19-Jul-2017
Project Description: Southworks

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.	*Sample Date*	*Layers Analyzed*	*Colour*	*Description*	*Asbestos Detected:*	*Material Identification*	*% Content*
1729292-13	17-Jul-17	sample homogenized	Black	Roofing Material	No	Client ID: S02A [AS-PRE]	
						Cellulose	10
						Non-Fibers	90
1729292-14	17-Jul-17	sample homogenized	Black	Roofing Material	No	Client ID: S02B [AS-PRE]	
						Cellulose	10
						Non-Fibers	90
1729292-15	17-Jul-17	sample homogenized	Black	Roofing Material	No	Client ID: S02C [AS-PRE]	
						Cellulose	10
						Non-Fibers	90
1729292-16	17-Jul-17	sample homogenized	Black	Shingle	No	Client ID: S03A (shingle) [AS-PRE]	
						Cellulose	15
						Non-Fibers	85
1729292-17	17-Jul-17	sample homogenized	Black	Shingle	No	Client ID: S03B (shingle) [AS-PRE]	
						Cellulose	15
						Non-Fibers	85
1729292-18	17-Jul-17	sample homogenized	Black	Shingle	No	Client ID: S03C (shingle) [AS-PRE]	
						Cellulose	15
						Non-Fibers	85
1729292-19	17-Jul-17	sample homogenized	Beige	Foamwpaper	No	Client ID: S03A (foamwpaper) [AS-PRE]	
						Non-Fibers	100
1729292-20	17-Jul-17	sample homogenized	Beige	Foamwpaper	No	Client ID: S03B (foamwpaper) [AS-PRE]	
						Non-Fibers	100
1729292-21	17-Jul-17	sample homogenized	Beige	Foamwpaper	No	Client ID: S03C (foamwpaper) [AS-PRE]	
						Non-Fibers	100
1729292-22	17-Jul-17	sample homogenized	Grey	Paper	No	Client ID: S03A (grey paper) [AS-PRE]	
						Non-Fibers	100
1729292-23	17-Jul-17	sample homogenized	Grey	Paper	No	Client ID: S03B (grey paper) [AS-PRE]	
						Non-Fibers	100
1729292-24	17-Jul-17	sample homogenized	Grey	Paper	No	Client ID: S03C (grey paper) [AS-PRE]	
						Non-Fibers	100
1729292-25	17-Jul-17	sample homogenized	Brown	Paper	No	Client ID: S03A (brown paper) [AS-PRE]	
						Non-Fibers	100
1729292-26	17-Jul-17	sample homogenized	Brown	Paper	No	Client ID: S03B (brown paper) [AS-PRE]	
						Non-Fibers	100

PARACEL LABORATORIES LTD.

Order #: 1729292

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO: 41654-200

Report Date: 25-Jul-2017
Order Date: 19-Jul-2017
Project Description: Southworks

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.	*Sample Date*	*Layers Analyzed*	*Colour*	*Description*	*Asbestos Detected:*	*Material Identification*	*% Content*
1729292-27	17-Jul-17	sample homogenized	Brown	Paper	No	Client ID: SO3C (brown paper) [AS-PRE]	
						Non-Fibers	100

** MMVF: Man Made Vitreous Fibers: Fiberglass, Mineral Wool, Rockwool, Glasswool*

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos, PLM Visual Estimation	by EPA 600/R-93/116	1 - Mississauga	200863-0	24-Jul-17

** Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.*

Qualifier Notes

Sample Qualifiers :

AS-PRE: Due to the difficult nature of the bulk sample (interfering fibers/binders), additional NOB preparation was required prior to analysis

Work Order Revisions / Comments

None

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Paracel ID: 1729292

Chain of Custody
(Lab Use Only)

Page ___ of ___

Client Name:MTE Consultants	Project Reference: Southworks
Contact Name: Aisling Dennett	Quote #:
Address:520 Bingemans Center. Dr Kitchener ON N2B3X9	PO #: 41654-200
	Email Address: xxxx@mte85.com; adennett@mte85.com
Telephone:519-743-6500	

Turnaround Time:

- ☐ Immediate
- ☐ 1 Day
- ☐ 4 Hour
- ☐ 2 Day
- ☐ 8 Hour
- ☐ 3 Day
- ✠ Regular

Date Required:_____

ASBESTOS & MOLD ANALYSIS

Matrix: ☐Air xBulk ☐Tape Lift ☐Swab ☐Other **Regulatory Guideline:**_____

Required Analyses: ☐Microscopic Mold ☐Culturable Mold ☐Bacteria GRAM PCM x PLM ☐Chatfield ☐TEM

	Paracel Order Number: 1729292 / Sample ID	Sampling Date	Air Volume (L)	Analysis Required	Asbestos - Bulk: Matrix Description	Positive Stop? (Y/N)	Is the Sample Layered? (Y/N)	If layered, Describe Layer(s) to be Analyzed Separately* or Homogenize all **
1	S01ABC	July 17 2017		PLM	Roofing	y	y	See Blelow
2	S02ABC	July 17 2017		PLM	Roofing	y	y	Homogenize
3	S03ABC	July 17 2017		PLM	Roofing	y	y	See below
4								
5								
6								
7	S01ABC				shingle/foamwpaper/grey paper/ brown paper			cellulose not required
8	S02ABC							
9	S03ABC				shingle/foamwpaper/grey paper/ brown paper			cellulose not required
10								
11								
12								
13								
14								
15								

***Each layer will be analyzed and charged separately **Homogenize = All layers are blended into a single uniform sample.**

Comments:

Method of Delivery: PUROLATOR

Relinquished By (Sign):	Received at Depot:	Received at Lab:	Verified By:
Relinquished By (Print):			
Date/Time:	Date/Time:	Date/Time: 19-JUL-17 8:40	Date/Time: July 19-17 14:00

Chain of Custody (Asbestos) - Rev 0 5 Jan. 2016

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1-800-749-1947
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Certificate of Analysis

MTE Consultants Inc. (Kitchener)

520 Bingemans Centre Dr.
Kitchener, ON N2B 3X9
Attn: Aisling Dennett

Client PO:
Project: 41654-200 Southworks
Custody:

Report Date: 18-Jul-2017
Order Date: 12-Jul-2017

Order #: 1728269

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1728269-01	LP1
1728269-02	LP2
1728269-03	LP3
1728269-04	LP4
1728269-05	LP5
1728269-06	LP6
1728269-07	LP7
1728269-08	LP8
1728269-09	LP9
1728269-10	LP10
1728269-11	LP11
1728269-12	LP12
1728269-13	LP13
1728269-14	LP14
1728269-15	LP15
1728269-16	LP16
1728269-17	LP17
1728269-18	LP18
1728269-19	LP19
1728269-20	LP20
1728269-21	LP21
1728269-22	LP22
1728269-23	LP23
1728269-24	LP24
1728269-25	LP25
1728269-26	LP26
1728269-27	LP27
1728269-28	LP28
1728269-29	LP29
1728269-30	LP30

Approved By:

Dale Robertson, BSc
Laboratory Director

PARACEL LABORATORIES LTD.

Order #: 1728269

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO:

Report Date: 18-Jul-2017
Order Date: 12-Jul-2017
Project Description: 41654-200 Southworks

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-OES	based on MOE E3470, ICP-OES	18-Jul-17	18-Jul-17

Sample and QC Qualifiers Notes

1- GEN01 :Elevated Reporting Limits due to limited sample volume.
2- LG-CNT(Container(s) - Bottle and COC sample ID don't match - Sample bag labelled as LP28.
3- LG-CNT(Container(s) - Bottle and COC sample ID don't match - Sample bag labelled as LP29.
4- LG-CNT(Container(s) - Bottle and COC sample ID don't match - Sample bag labelled as LP30.
5- LG-CNT(Container(s) - Bottle and COC sample ID don't match - Sample bag labelled as LP31.

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

PARACEL LABORATORIES LTD.

Order #: 1728269

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO:

Report Date: 18-Jul-2017
Order Date: 12-Jul-2017
Project Description: 41654-200 Southworks

Sample Results

Lead

Matrix: Paint
Sample Date: 11-Jul-17

Paracel ID	Client ID	Units	MDL	Result
1728269-01	LP1	ug/g	20	<30 [1]
1728269-02	LP2	ug/g	20	<20
1728269-03	LP3	ug/g	20	<20
1728269-04	LP4	ug/g	20	19700
1728269-05	LP5	ug/g	20	48600
1728269-06	LP6	ug/g	20	573
1728269-07	LP7	ug/g	20	<20
1728269-08	LP8	ug/g	20	<20
1728269-09	LP9	ug/g	20	<20
1728269-10	LP10	ug/g	20	<20
1728269-11	LP11	ug/g	20	<20
1728269-12	LP12	ug/g	20	<20
1728269-13	LP13	ug/g	20	<20
1728269-14	LP14	ug/g	20	4340
1728269-15	LP15	ug/g	20	1390
1728269-16	LP16	ug/g	20	<20
1728269-17	LP17	ug/g	20	<20
1728269-18	LP18	ug/g	20	<20
1728269-19	LP19	ug/g	20	<20
1728269-20	LP20	ug/g	20	1080
1728269-21	LP21	ug/g	20	<20
1728269-22	LP22	ug/g	20	<20
1728269-23	LP23	ug/g	20	28400
1728269-24	LP24	ug/g	20	<36 [1]
1728269-25	LP25	ug/g	20	92000
1728269-26	LP26	ug/g	20	<20
1728269-27	LP27	ug/g	20	<20
1728269-28	LP28	ug/g	20	<20
1728269-29	LP29	ug/g	20	433
1728269-30	LP30	ug/g	20	80

Laboratory Internal QA/QC

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Matrix Blank									
Lead	ND	20	ug/g						

PARACEL LABORATORIES LTD.

Order #: 1728269

Certificate of Analysis
Client: MTE Consultants Inc. (Kitchener)
Client PO:

Report Date: 18-Jul-2017
Order Date: 12-Jul-2017
Project Description: 41654-200 Southworks

Matrix Duplicate

Lead	**22600**	**20**	**ug/g**	**19700**			**13.4**	**30**

Matrix Spike

Lead	300		ug/L	40.1	104	70-130		

Paracel ID: 1728269

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p: 1-800-749-1947
e: paracel@paracellabs.com
www.paracellabs.com

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Chain of Custody (Lab Use Only)

Page 1 of 2

Client Name: MTE consultants	Project Reference: 41654-200 - Southworks
Contact Name: Aisling Dennett	Quote #
Address: 520 Bingemans Cettre Drive, Kitchener, ON N2B3X9	PO #
Telephone: 519-743-6500	Email Address: psemeniuk@mte85.com, adennett@mte85.com

TAT: ☑ Regular ☐ 3 Day ☐ 2 Day ☐ 1 Day

Date Required: _____

Criteria: ☑ O. Reg. 153 (As Amended) Table __ ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: _____ ☐ Other: _____

Matrix Type: **S** (Soil/Sed.) **GW** (Ground Water) **SW** (Surface Water) **SS** (Storm/Sanitary Sewer) **P** (Paint) **A** (Air) **O** (Other)

Paracel Order Number: 1728269

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analyses
1	Please refer to attached table						
2							
3							
4							
5							
6							
7							
8	Sample LP27 bag present, but no sample -BS						
9	↳ Client submitted new sample ID page						
10	attached with reporting of the samples						

Comments: following LP27 - BS.

Method of Delivery: Purolator

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab: Rachel Subject	Verified By:
Relinquished By (Print): Paul Semeniuk	Date/Time:	Date/Time: July 12/17 8:30	Date/Time: 07.12.17 11:32
Date/Time: July 11, 2017 11am	Temperature: ____ °C	Temperature: ____ °C	pH Verified [ ] By:

Chain of Custody (Blank) - Rev 0.1 March 2013.xlsx

1728269

Sample Name	Location (Unit)	Colour	Matrix	Material	Sample Date	Required Analysis
LP1	201	Green	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP2	201	Tan	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP3	201	Brown	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP4	201	Green	Concrete	Paint	7/11/17	Lead In Paint MOE Method E3470
LP5	201	Silver	Concrete	Paint	7/11/17	Lead In Paint MOE Method E3470
LP6	201	Peach	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP7	201 (Exterior)	Brown	Wood	Paint	7/11/17	Lead In Paint MOE Method E3470
LP8	124	White	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP9	124	Beige	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP10	124	Blue	Steel Ducting	Paint	7/11/17	Lead In Paint MOE Method E3470
LP11	124	Tan	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP12	120	Mauve	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP13	120	Olive	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP14	120	Green	Original Concrete	Paint	7/11/17	Lead In Paint MOE Method E3470
LP15	120	White	Original Concrete	Paint	7/11/17	Lead In Paint MOE Method E3470
LP16	120 (Exterior)	Brown	Steel Door	Paint	7/11/17	Lead In Paint MOE Method E3470
LP17	114	Beige	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP18	116	Red	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP19	116	Light Grey	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP20	114	Black	Steel	Paint	7/11/17	Lead In Paint MOE Method E3470
LP21	108	Dark Grey	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP22	108 (Exterior)	Beige	Wood	Paint	7/11/17	Lead In Paint MOE Method E3470
LP23	100 (Exterior)	Red	Wood	Paint	7/11/17	Lead In Paint MOE Method E3470
LP24	100 (Exterior)	Dark Grey	Wood	Paint	7/11/17	Lead In Paint MOE Method E3470
LP25	130	White	Concrete	Paint	7/11/17	Lead In Paint MOE Method E3470
LP26	130	Red	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP27	144	Yellow	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP28	146	Black	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP29	149	Navy Blue	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP30	159	Teal	Concrete Floor	Paint	7/11/17	Lead In Paint MOE Method E3470
LP31	2nd Floor South Building Stairwell	Black	Concrete	Paint	7/11/17	Lead In Paint MOE Method E3470

Revised sample page attached - RS.

Paracel ID: 1728269

1728269

Paracel ID: 1728269

Sample Name	Location (Unit)	Colour				Required Analysis
LP1	201	Green	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP2	201	Tan	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP3	201	Brown	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP4	201	Green	Concrete	Paint	7/11/17	Lead In Paint MOE Method E3470
LP5	201	Silver	Concrete	Paint	7/11/17	Lead In Paint MOE Method E3470
LP6	201	Peach	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP7	201 (Exterior)	Brown	Wood	Paint	7/11/17	Lead In Paint MOE Method E3470
LP8	124	White	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP9	124	Beige	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP10	124	Blue	Steel Ducting	Paint	7/11/17	Lead In Paint MOE Method E3470
LP11	124	Tan	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP12	120	Mauve	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP13	120	Olive	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP14	120	Green	Original Concrete	Paint	7/11/17	Lead In Paint MOE Method E3470
LP15	120	White	Original Concrete	Paint	7/11/17	Lead In Paint MOE Method E3470
LP16	120 (Exterior)	Brown	Steel Door	Paint	7/11/17	Lead In Paint MOE Method E3470
LP17	114	Beige	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP18	116	Red	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP19	116	Light Grey	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
LP20	114	Black	Steel	Paint	7/11/17	Lead In Paint MOE Method E3470
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LP22	108 (Exterior)	Beige	Wood	Paint	7/11/17	Lead In Paint MOE Method E3470
LP23	100 (Exterior)	Red	Wood	Paint	7/11/17	Lead In Paint MOE Method E3470
LP24	100 (Exterior)	Dark Grey	Wood	Paint	7/11/17	Lead In Paint MOE Method E3470
LP25	130	White	Concrete	Paint	7/11/17	Lead In Paint MOE Method E3470
LP26	130	Red	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
~~LP27~~	~~144~~	~~Yellow~~	~~Drywall~~	~~Paint~~	~~7/11/17~~	~~Lead In Paint MOE Method E3470~~
LP28 27	146	Black	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
~~LP29~~ 28	149	Navy Blue	Drywall	Paint	7/11/17	Lead In Paint MOE Method E3470
~~LP30~~ 29	159	Teal	Concrete Floor	Paint	7/11/17	Lead In Paint MOE Method E3470
LP31 30	2nd Floor South Building Stairwell	Black	Concrete	Paint	7/11/17	Lead In Paint MOE Method E3470

sample not received

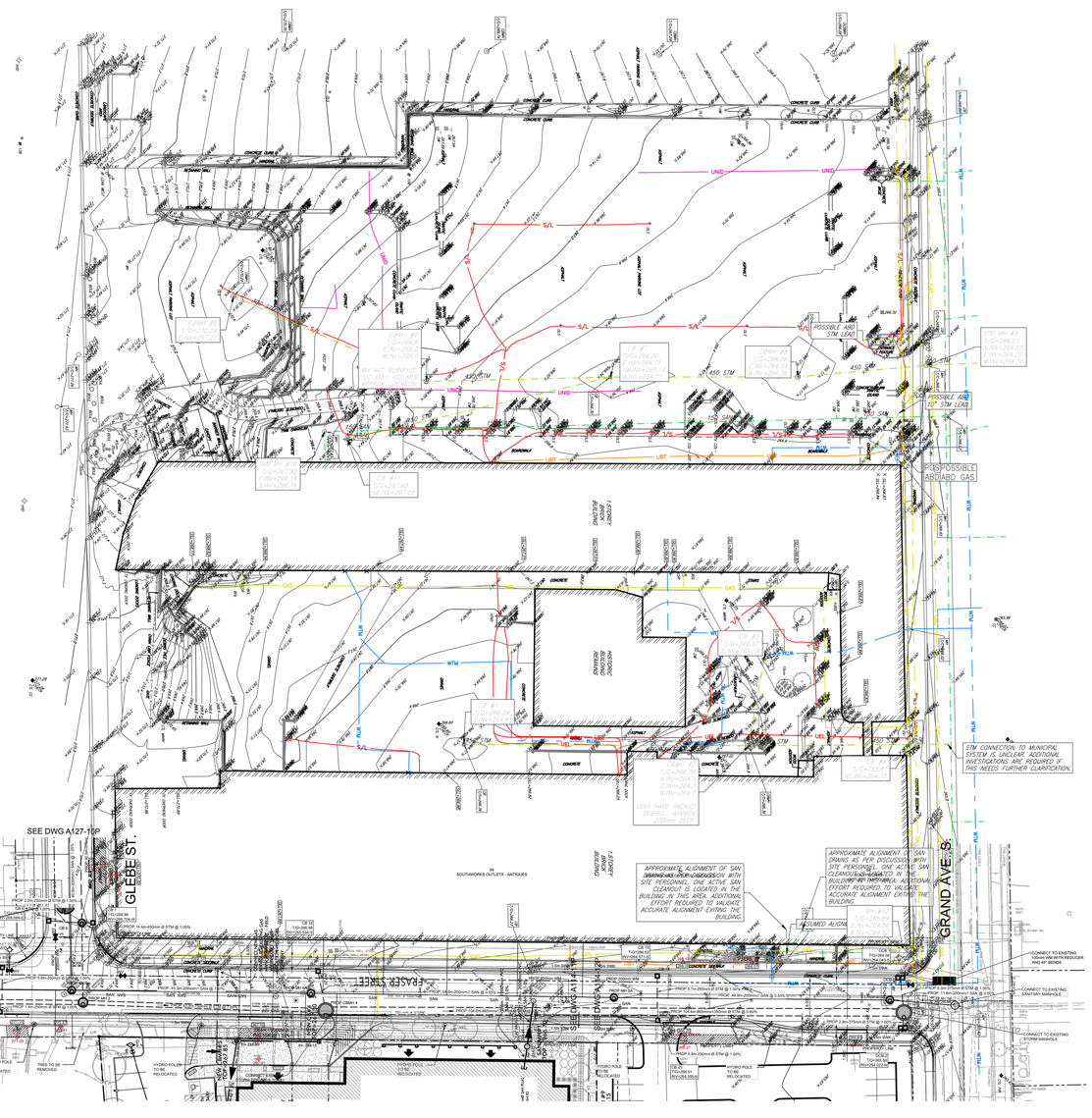
2/2

Appendix C

Environmental Assessment/Risk Assessment – *Not Yet Available*

Appendix D

Civil Drawing of Existing, Stantec



Stantec
300 Hagey Blvd. Suite 100
Waterloo, ON, N2L 0A4
Tel. 519.579.4410
www.stantec.com

Notes

Legend

Revision	By	Appd.	YY.MM.DD
File Name: 161413398_C-UG.dwg	Dwn.	Chkd.	17.10.26 Dsgn. YY.MM.DD

Permit-Seal

Client/Project

Title

Project No.

Scale 1:500 (0, 5, 15, 25m)

Drawing No. | Sheet | Revision

of

V:\01614\active\161413398\design\drawing_04\civil\sheet_files\161413398_C-UG.dwg
2017/10/26 10:49 AM By: Miller, Johnathon

ORIGINAL SHEET - ARCH D

Appendix E

Civil Drawing of Proposed Site Services, Stantec

Stantec
300 Hagey Blvd. Suite 100
Waterloo, ON, N2L 0A4
Tel. 519.579.4410
www.stantec.com

Notes

Legend

Revision	By	Appd.	YY.MM.DD
File Name: 161413398_C-UG.dwg	Dwn.	Chkd.	Dsgn. 17.12.14 YY.MM.DD

Permit-Seal

Client/Project

Title

Project No.

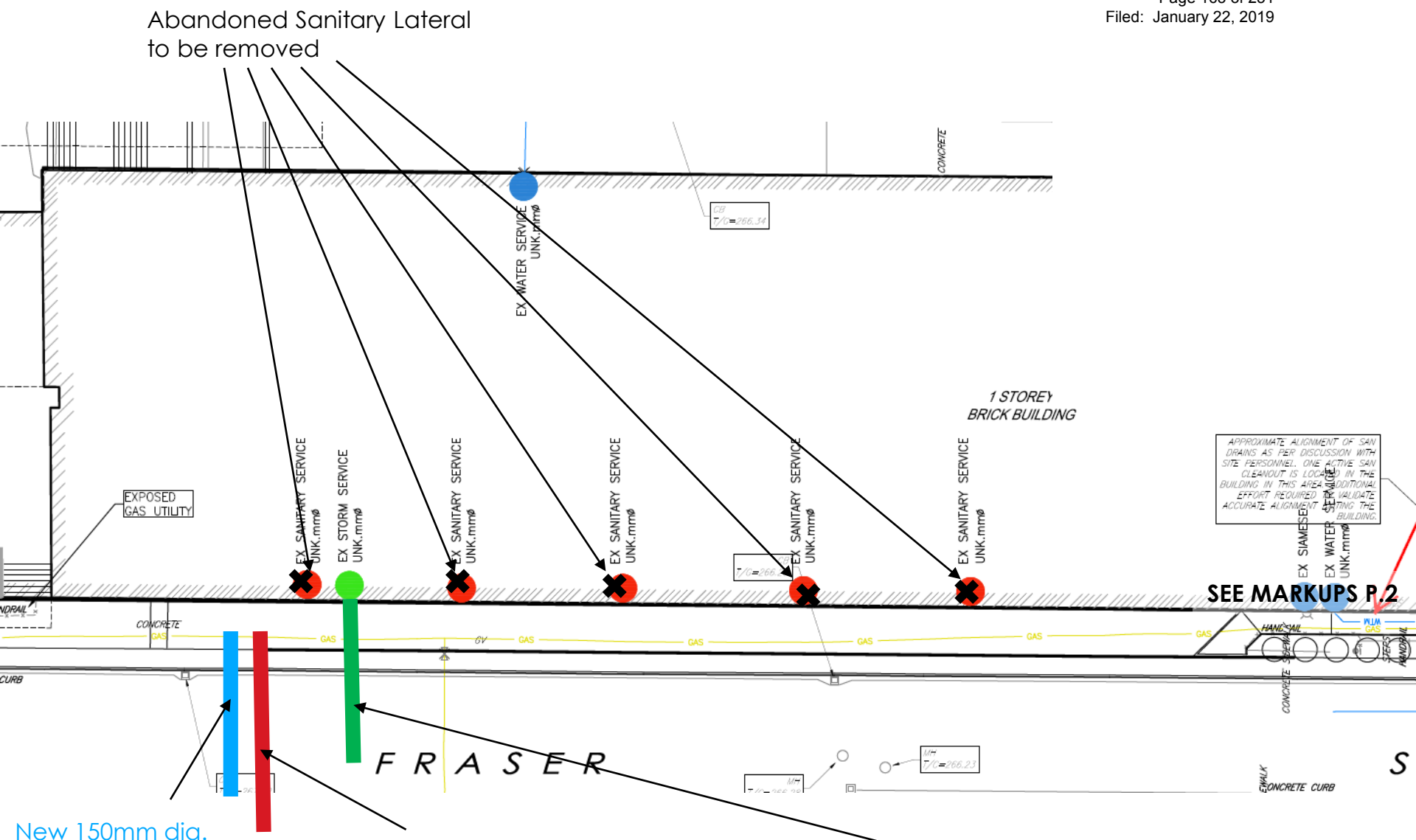
Scale 1:300 (0, 3, 9, 15m)

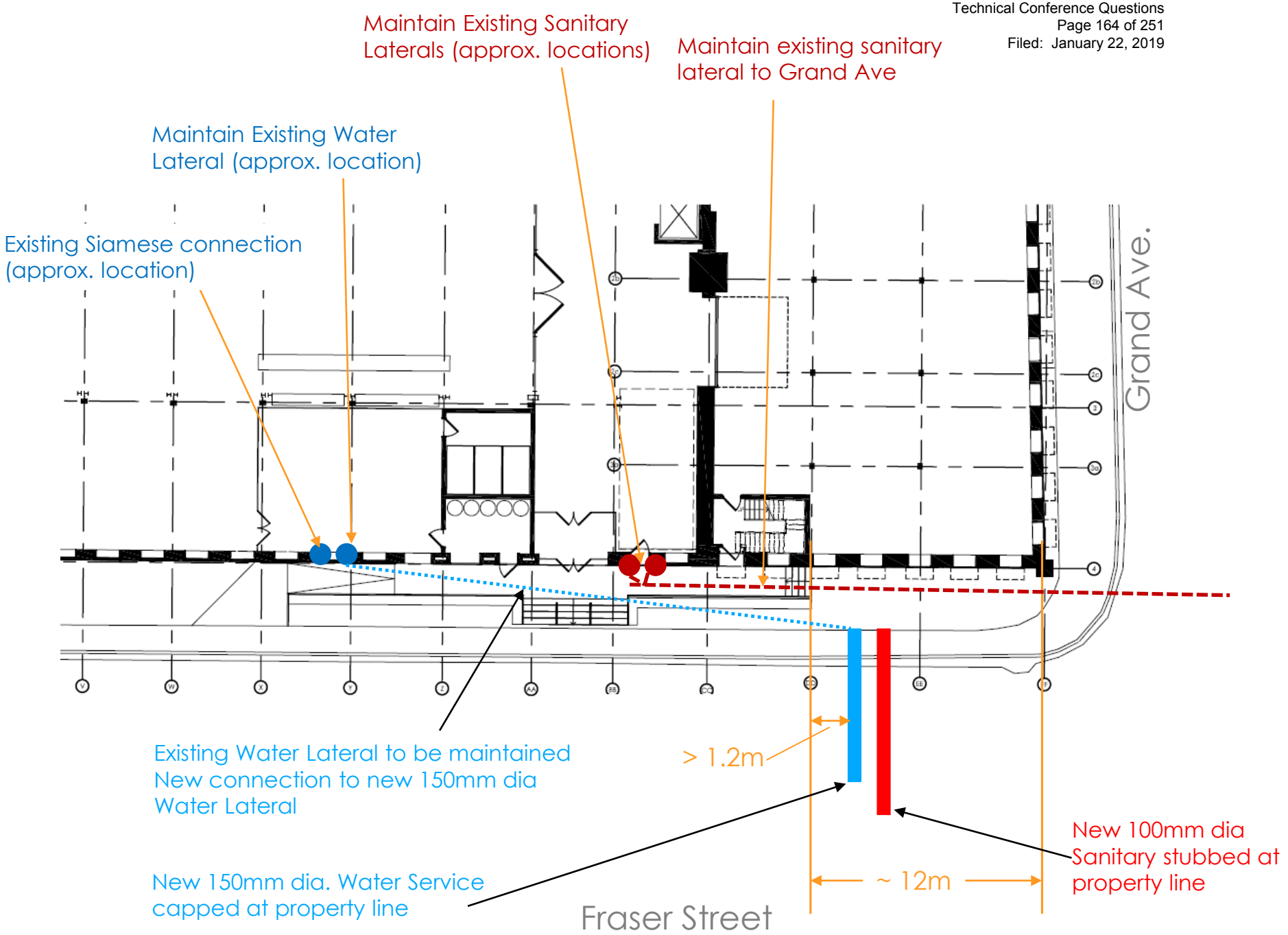
Drawing No. Sheet Revision

of

V:\01161\active\161413398\design\drawing_04\civil\sheet_files\161413398_C-UG.dwg
2017/12/14 5:16 PM By: Robb, Brad

ORIGINAL SHEET - ARCH D


Abandoned Sanitary Lateral to be removed
EX WATER SERVICE UNK.mmø
CONCRETE
1 STOREY BRICK BUILDING
EXPOSED GAS UTILITY
EX SANITARY SERVICE UNK.mmø
EX STORM SERVICE UNK.mmø
EX SANITARY SERVICE UNK.mmø
EX SANITARY SERVICE UNK.mmø
EX SANITARY SERVICE UNK.mmø
EX SANITARY SERVICE UNK.mmø
APPROXIMATE ALIGNMENT OF SAN DRAINS AS PER DISCUSSION WITH SITE PERSONNEL. ONE ACTIVE SAN CLEANOUT IS LOCATED IN THE BUILDING IN THIS AREA ADDITIONAL EFFORT REQUIRED TO VALIDATE ACCURATE ALIGNMENT EXITING THE BUILDING.
EX SIAMESE
EX WATER SERVICE UNK.mmø
SEE MARKUPS P.2
GAS
CURB
FRASER
CONCRETE CURB
New 150mm dia. Water Lateral to be capped at property line
New 100mm dia Sanitary lateral to be capped at property line
Storm service to be maintained and connected to new storm sewer in Fraser


Maintain Existing Sanitary Laterals (approx. locations)
Maintain existing sanitary lateral to Grand Ave
Maintain Existing Water Lateral (approx. location)
Existing Siamese connection (approx. location)
Grand Ave.
Existing Water Lateral to be maintained
New connection to new 150mm dia Water Lateral
> 1.2m
New 100mm dia Sanitary stubbed at property line
~ 12m
New 150mm dia. Water Service capped at property line
Fraser Street

Appendix F

Geotechnical Report, Chung and Vander Doelen Engineering

CHUNG & VANDER DOELEN
ENGINEERING LTD.

GEOTECHNICAL INVESTIGATION
PROPOSED MIXED-USE DEVELOPMENT
64 Grand Avenue South
Cambridge, Ontario

SUBMITTED TO:
HIP Southworks Inc.
700 Rupert Street, Unit A
Waterloo, Ontario
N2V 2B5

ATTENTION:
Mr. Randy Renouf

FILE NO / G17452 / September 25, 2017

CHUNG & VANDER DOELEN
ENGINEERING LTD.

311 VICTORIA STREET NORTH
KITCHENER / ONTARIO / N2H 5E1
519-742-8979

September 25, 2017
File No.: G17452

HIP Southworks Inc.
700 Rupert Street, Unit A
Waterloo, Ontario
N2V 2B5

Attention: Mr. Randy Renouf

RE: Geotechnical Investigation
Proposed Mixed-Use Development
64 Grand Avenue South, Cambridge, Ontario

We take pleasure in enclosing one (1) copy of our Geotechnical Investigation Report carried out at the above-referenced Site. Soil samples will be retained for a period of three (3) months and will thereafter be disposed of unless we are otherwise instructed.

If you have any questions or clarifications are required, please contact the undersigned at your convenience.

We thank you for giving us this opportunity to be of service to you.

Yours truly,
CHUNG & VANDER DOELEN ENGINEERING LTD.

Eric Y. Chung, M. Eng., P.Eng.
Principal Engineer

TABLE OF CONTENTS

LIST OF ENCLOSURES

Appendix A	Limitations of Report
Enclosures 1 to 16	Borehole Log Sheets 1 to 16
Drawing No. 1	Borehole Location Plan

1.0 INTRODUCTION

CHUNG & VANDER DOELEN ENGINEERING LTD. (CVD) has been retained by HIP Southworks Inc. to carry out a geotechnical investigation for the proposed mixed-use development of a site located at 64 Grand Avenue South, Cambridge, Ontario.

The site is currently occupied by two large single-storey retail buildings and is located at the northwest corner of the intersection of Grand Avenue South and Fraser Street in Cambridge, Ontario. It is understood that the proposed redevelopment would consist of two 20-storey residential buildings with podiums. The finished floor elevation has not been established, but it is expected to be slightly higher than the existing site grades.

The purpose of this investigation was to determine the subsurface conditions at the site and, based on the findings, to make geotechnical recommendations for the design and construction of foundation and floor slab.

2.0 FIELD WORK

To investigate the subsurface conditions at the site, sixteen (16) boreholes were advanced to depths between 0.61 and 8.59 m below ground surface between July 26 and August 11, 2017. The borehole locations are indicated on the Borehole Location Plan, Drawing No. 1.

The field work was carried out under the supervision of a member of our engineering team, who logged the boreholes in the field, effected the subsurface sampling, and monitored the groundwater conditions.

The boreholes were advanced using a track-mounted drilling rig, supplied and operated by specialist contractor. The drill rig was equipped with 108 mm I.D. continuous flight hollow stem augers, standard soil sampling equipment, and NQ double tube core diamond drilling equipment. Standard penetration tests (SPTs) in accordance with ASTM Specification D1586, were carried out at frequent intervals of depth in the overburden soils, and the results are shown on the Borehole Logs as Penetration Resistance or "N"-values.

The location and ground surface elevation of the boreholes were surveyed by CVD for the purpose of this report. The ground surface elevations were referenced to a temporary benchmark (TBM) which is shown on Drawing No. 1 and described below:

TBM: Top of catch basin located in the parking lot closest to the middle of the existing building, as shown on Drawing No. 1

Elevation: 266.30 m (geodetic)

3.0 LABORATORY TESTING

Soil samples obtained from the in-situ tests were examined in the field and subsequently brought to our laboratory for visual and tactile examination to confirm field classification. Moisture content determination of all retrieved samples occurred. In addition, two (2) unconfined compression strength tests of representative section of the retrieved rock cores were completed.

4.0 EXISTING SITE CONDITIONS

The site is located just west of the Grand River at the northwest corner of the intersection of Grand Avenue South and Fraser Street in Cambridge, Ontario. Currently the site is occupied by two large single storey retail buildings that stretch the length of the site from west to east. In addition, old building remains are located between the two structures.

The northern portion of the site is occupied by a paved parking lot, and a retaining wall runs along a portion of the northern site limit. The ground surface is topographically high along the western limit of the site (Glebe Street) and slopes down towards the east with the majority of the elevation drop occurring along the western 15 to 20% of the site. The ground surface elevations at the borehole locations ranged between 226.29 and 271.09 m.

5.0 SUBSURFACE CONDITIONS

5.1 General

The detailed subsurface conditions encountered in the sixteen (16) boreholes advanced as part of this investigation are shown on the Borehole Log Sheets, Enclosures 1 to 16, inclusive. The following sections provide descriptions of the major soil deposits encountered in the boreholes.

Soil and bedrock conditions will vary beyond and between the borehole locations. The stratigraphic boundaries shown on the borehole logs are inferred from non-continuous sampling and as such represent approximate location of stratigraphic unit change.

In general, the asphalt pavement was underlain by loose to compact fill materials, followed by moderately weathered to fresh dolostone bedrock.

5.2 Pavement

Pavement was encountered in Boreholes 4 to 14 at the ground surface with measured asphalt and granular base thicknesses between 50 and 75 mm and 200 to 375 mm, respectively.

5.3 Fill

A layer of fill materials was encountered underlying the pavement and at ground surface in Boreholes 1 to 16. The fill layer extended to depths between 0.61 and 3.27 m below ground surface. The composition of the fill materials varied from sandy silt to silty sand to sand and gravel and contained organics in some locations.

The SPT "N"-values measured within fill materials ranged from 2 to 25 blows per 300 mm of penetration, indicating a variable very loose to compact compactness condition. The measured water content of the samples collected from the fill layer ranged between 2 and 25%, thus indicating a moist to wet moisture condition.

5.4 Dolostone Bedrock

Boreholes 1 to 13 were advanced into the bedrock both by utilizing NQ double tube core diamond drilling techniques to depths between 4.37 and 8.59 m. Boreholes 14 to 16 were terminated upon contact with bedrock and auger refusal.

Bedrock was encountered in Boreholes 1 to 16 at depths of 0.61 to 3.27 m. The localized relative deep bedrock contact elevation encountered at Borehole 9 (and possibly elsewhere at the site) could be the result of pits or trenches excavated and backfilled during the previous industrial operations at the site. It is also noted that the bedrock was contacted at much higher elevation at Boreholes 1 and 5 (268.85

and 268.80 m respectively), indicating a rock shelf exists along the western property limit. The other thirteen (13) boreholes contacted bedrock at elevations between 265.0± and 266.5± m.

The following table summarizes the bedrock contact depth and elevation at each borehole location.

Borehole	Ground Surface Elevation (m)	Depth to Bedrock (m)	Bedrock Elevation (m)
1	270.53	1.68	268.85
2	266.75	1.07	265.68
3	267.54	0.91	266.63
4	267.75	1.52	266.23
5	271.09	2.29	268.80
6	268.21	2.13	266.08
7	267.12	1.32	265.80
8	267.87	1.75	266.12
9	266.96	3.27	263.96
10	266.69	1.32	265.37
11	266.74	1.35	265.39
12	266.29	1.07	265.22
13	266.51	0.91	265.60
14*	267.09	0.61	266.48
15*	266.72	1.68	265.04
16*	266.61	0.76	265.85

*Bedrock contact depth and elevation inferred from refusal to augering

The degree to which the bedrock was weathered varied across the profile. Typically, the upper most 0.5 to 1.5 m was found to be moderately weathered, becoming slightly weathered to fresh rock below the upper moderately weathered zone.

The Paleozoic geology of southern Ontario map by the Ontario Geological Survey classifies the bedrock as Guelph Formation dolostone. The rock was light brown to cream to light grey in colour, sucrosic to crystalline in texture and fossiliferous.

An assessment of the quality of the rock was carried out by measuring the Total Core Recovery (TCR) percentage and determining the Rock Quality Designations (RQD) of the various core samples collected from Boreholes 1 to 13. Total Core Recovery (TCR) ranged from 78% to 100% and RQD ranged between 21% and 100%, indicating the rock is of poor to good quality.

In addition, two (2) unconfined compression strength (UCS) tests of representative sections of the retrieved intact rock core from Borehole 3 and 8 were completed. The two samples were measured to have UCS of 56 and 84 MPa, which is representative of the intact rock. The rock mass itself has an average UCS which is a fraction of the intact rock and is the product of the degree of weathering and the number and orientation of the fractures and faults.

5.5 Groundwater

Groundwater conditions were monitored during and following completion of borehole sampling. Boreholes 14 to 16 were observed to be dry upon completion. Boreholes 1 to 13 were observed to be dry prior to rock coring, a process that introduced water to the borehole.

Previous investigation by the environmental consultant indicates that the groundwater table across the site ranges between 259.0± m and 259.7± m, sloping downwards in a south-easterly direction.

It is noted that the observed groundwater table will fluctuate seasonally and in response to major weather events.

6.0 DISCUSSION AND RECOMMENDATIONS

6.1 General

The site is currently occupied by two large single-storey retail buildings and is located at the northwest corner of the intersection of Grand Avenue South and Fraser Street in Cambridge, Ontario. It is understood that the proposed redevelopment would consist of two 20-storey residential buildings with podiums. The finished floor elevation has not been established, but it is expected to be slightly higher than the existing site grades.

In general, the asphalt pavement was underlain by loose to compact fill materials, followed by moderately weathered to fresh dolostone bedrock. Previous investigation by the environmental consultant indicates that the groundwater table across the site ranges between 259.0± m and 259.7± m, sloping downwards in a south-easterly direction.

6.2 Footing Foundations on Bedrock

The footings can be founded on the sound bedrock, below the fill materials and upper moderately weathered bedrock. The footings may be designed using a Factored Geotechnical Reaction of 3,000 kPa (60,000 psf). Bedrock is considered to be relatively unyielding, so a Serviceability Limit State (SLS) is not provided under these conditions. These bearing pressures can be achieved provided that all weathered bedrock that is loose or fractured is removed to reveal undisturbed bedrock materials during construction. Typically, sound bedrock should be encountered approximately 0.5 to 1.0 m (1.5 m at Borehole 5) below the surface of the rock. All soil or rock debris are to be removed to expose clean rock surface to ensure sound contact between the concrete footings and the bedrock.

Spacing between adjacent footing steps should not be steeper than 10H to 7V. Exterior footings and footings in unheated portions of the building should be provided with a soil cover of not less than 1.2 m or equivalent synthetic thermal insulation for adequate frost protection. The founding subgrade is to be protected from frost penetration and any ice formation during winter construction.

It is recommended that the footing excavations be inspected by the geotechnical engineer to ensure adequate bearing and proper subgrade preparation.

6.3 Excavation

Excavations are expected to be between 1.5 and 3± m deep for installing site servicing and foundation construction. The excavations will penetrate loose to compact fill materials and weathered to unweathered bedrock.

The soils are generally considered to be Type 3 Soils in accordance with the latest Occupational Health and Safety Act and trenches should be cut to 1H to 1V throughout. The side slopes should be suitably protected from erosion processes. Where seepage zones are intersected, side slopes are to be flattened locally and the groundwater controlled by suitable means.

For practical considerations, the bedrock surface can be defined as being that elevation which cannot be excavated using a mid-sized tracked excavator operating at its full capacity. Although larger more powerful equipment may be capable of ripping the upper poor quality bedrock, the lower fair to good quality bedrock is expected to require the use of mechanical means such as hoeram or drilling and splitting tools. Ground vibrations due to blasting will pose significant concerns to abutting properties and features and may not prove practical.

Cut slopes made in the overburden soils shall confirm to O. Reg 213 as described in the previous paragraphs. There is no reference to the inclination/configuration of side slopes that can be cut in sound and stable rock. Section 234 (2) (d) "Subsection (1) does not apply with respect to an excavation, that is cut in sound and stable rock". CVD refers to OPSD 802.013 which states that a vertical slope can be made in sound rock in an unsupported trench excavation which is over 1.2 m above the trench bottom. The upper zones of the fractured rock are expected to be similar to Type 1 soil.

The geotechnical engineer should be retained to examine and inspect cut slopes (both soil and bedrock) to ensure construction safety.

It may be necessary to provide support for nearby services if they are located within the applicable influence zone measured from the vertical. For soils and sound/stable bedrock, respective values of 45^0 and 30^0 measured from the vertical can be used.

6.4 Earthquake Considerations

In accordance with The Ontario Building Code 2012 (OBC), the proposed structure should be designed to resist earthquake load and effects as per OBC Subsection 4.1.8.

Based on the anticipated condition of the underlying rock encountered at the boreholes, the site can be classified as a Site Class B as per OBC Table 4.1.8.4.A (Page B4-24).

6.5 Floor Slab Construction

It is recommended that a minimum 150 mm thick layer of Granular "A" be placed and compacted to at least 100% SPMDD beneath the concrete floor slabs to provide uniform support.

The floor slab should be separated structurally from the columns and foundation walls. Sawcut control joints should be provided at regular spacing (less than 30 times the concrete slab thickness) and to depths between one-third to one-quarter of the slab thickness.

6.6 Ground Water Control

Uncontrollable groundwater flows are not expected to be encountered within the anticipated construction excavations. Subsurface seepage and surface water runoff into the excavations may be handled by conventional sump pumping techniques, as and where required. The sump pits should be filtered.

6.7 Lateral Earth Pressure

The unbalanced foundation walls and any other soil retaining structures should be designed to resist the lateral earth pressure acting against these walls. The following formula may be used to calculate the unfactored earth pressure distribution. The factored resistance can be calculated by using a factor of 0.8.

$$P = K (\gamma H + q)$$

where:

P =	lateral earth pressure	kPa
K =	earth pressure coefficient, 0.5 for non-yielding foundation wall earth pressure coefficient, 0.3 for yielding retaining wall	
γ =	unit weight of granular backfill, compacted to 95% SPMDD	21 kN/m^3
H =	unbalanced height of wall	m
q =	surcharge load at ground surface	kPa

The backfill for the foundation walls and retaining walls should be free-draining granular materials which should have less than 8% silt particles (OPSS Granular "B" Type 1). The backfill should be placed in thin layers and compacted to 95% SPMDD. Over-compaction should be avoided. Weeping tiles leading to a frost-free outlet or weep holes should be installed to effect drainage behind the retaining wall.

The sliding resistance of the retaining wall footings should be checked. The unfactored horizontal resistance against sliding between cast-in-place concrete and the various soil and bedrock can be calculated using a friction coefficient as follows:

- Well-compacted granular backfill: 0.45
- Weathered dolostone bedrock: 0.60
- Fresh dolostone bedrock: 0.70

The unit of dolostone bedrock is 25 kN/m^3, and a unit weight of the granular backfill compacted to 95% SPMDD is 21 kN/m^3.

6.8 Access Driveway and Paved Parking Areas

The earth subgrade materials at the site are generally expected to consist of fill materials comprised of mainly sand and silt.

The following flexible pavement structures are recommended based on the results of grain size distribution, assumed CBR values, groundwater table, frost susceptibility of subgrade soils and traffic volume.

Component	Light Duty Pavement (mm)	Heavy Duty Pavement (mm)
Asphaltic Concrete HL3 HL8	 40 40	 40 50
Granular "A" Base	150	150
Granular "B" Sub-base	300	400

The pavement design considers that pavement construction will be carried out during the drier time of the year and that the subgrade is stable, not heaving under construction equipment traffic. If the subgrade is wet or unstable, additional granular sub-base may be required.

The base and sub-base materials should be produced in accordance with the current OPSS specifications, and placed and uniformly compacted to at least 100% SPMDD. The asphaltic concrete should be placed and compacted in accordance with OPSS Form 310 and to at least 92% of the Marshall Density (MRD). Frequent in situ density testing by this office should be carried out to verify that the specified degree of compaction is being achieved and maintained.

It should be noted that even well-compacted trench backfill could settle for a period of time after construction. In this regard, the surface course of the asphaltic concrete should be placed at least one (1) year after trench backfill is completed so as to allow any minor settlements to occur within the trench backfill. The incomplete pavement structure may not be capable of supporting construction traffic. Consequently, minor repairs of the sub-base, base and asphaltic concrete may be required prior to paving with the base course and/or the surface course asphaltic concrete.

The prepared earth subgrade and final pavement surfaces should be graded to direct water runoff away from buildings, sidewalks and other similar pertinent structures. Positive drainage outlets should be provided at all low points of the prepared earth subgrade, such as stub drains extended from the catch-basins.

7.0 CLOSURE

The Limitations of Report, as quoted in Appendix A, is an integral part of this report.

We trust that the information presented in this report is complete within our terms of reference. If there are any further questions concerning this report, please do not hesitate to contact our office.

Yours truly,
CHUNG & VANDER DOELEN ENGINEERING LTD.

Chris Sternik, P.Eng.
Geotechnical Engineer

Eric Y. Chung, M. Eng., P.Eng.
Principal Engineer

APPENDIX A

Limitations of Report

APPENDIX "A"

LIMITATIONS OF REPORT

The conclusions and recommendations given in this report are based on information determined at the testhole locations. Subsurface and groundwater conditions between and beyond the testholes may differ from those encountered at the testhole locations, and conditions may become apparent during construction which could not be detected or anticipated at the time of the site investigation. It is recommended practice that the Soils Engineer be retained during construction to confirm that the subsurface conditions throughout the site do not deviate materially from those encountered in the testholes.

The comments made in this report on potential construction problems and possible methods are intended only for the guidance of the designer. The number of testholes may not be sufficient to determine all the factors that may affect construction methods and costs. For example, the thickness of surficial topsoil or fill layers may vary markedly and unpredictably. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusion as to how the subsurface conditions may affect their work.

The benchmark and elevations mentioned in this report were obtained strictly for use in the geotechnical design of the project and by this office only, and should not be used by any other parties for any other purposes.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. CHUNG & VANDER DOELEN ENGINEERING LIMITED accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

This report does not reflect the environmental issues or concerns unless otherwise stated in the report. The design recommendations given in this report are applicable only to the project described in the text and then only if constructed substantially in accordance with the details stated in this report. Since all details of the design may not be known, we recommend that we be retained during the final design stage to verify that the design is consistent with our recommendations, and that assumptions made in our analysis are valid.

ENCLOSURES

FILE No: G17452

BOREHOLE No. 1

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Aug 11 / 17** TO **Aug 11 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	SHEAR STRENGTH (kPa) FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200 PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80	WATER CONTENT (%) W_P W W_L 10 20 30	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **270.53 m**										
	compact brown FILL, sand and gravel to sand and silt some gravel moist	0.5								0.5	
		1.0		1	SS	16				1.0	water used for rock coring/borehole dry prior to rock coring
268.85		1.5								1.5	
1.68	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 0.5 m mostly slightly weathered to fresh weak to moderately strong	2.0		2	SS	66				2.0	
		2.5		RC1	NQ					2.5	TCR = 94% / RQD = 62%
		3.0								3.0	
		3.5		RC2	NQ					3.5	
		4.0								4.0	TCR = 100% / RQD = 83%
		4.5		RC3	NQ					4.5	
		5.0								5.0	TCR = 100% / RQD = 100%
265.30											
5.23	End of Borehole	5.5								5.5	
		6.0								6.0	
		6.5								6.5	
		7.0								7.0	
		7.5								7.5	
		8.0								8.0	
		8.5								8.5	
		9.0								9.0	
		9.5								9.5	

PROJECT MANAGER: **EYC**

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FILE No: G17452

BOREHOLE No. 2

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Aug 11 / 17** TO **Aug 11 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **266.75 m**								
	loose, dark brown FILL, sand and gravel to silt, some sand trace to some organics moist	0.5						0.5	
265.68		1.0		1	SS	50/ 75mm		1.0	water used for rock coring/borehole dry prior to rock coring
1.07	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 0.5 m mostly slightly weathered to fresh weak to moderately strong	1.5						1.5	
		2.0		RC1	NQ			2.0	TCR = 87% / RQD = 41%
		2.5						2.5	
		3.0						3.0	
		3.5		RC2	NQ			3.5	TCR = 85% / RQD = 67%
		4.0						4.0	
262.28		4.5						4.5	
4.47	End of Borehole	5.0						5.0	
		5.5						5.5	
		6.0						6.0	
		6.5						6.5	
		7.0						7.0	
		7.5						7.5	
		8.0						8.0	
		8.5						8.5	
		9.0						9.0	
		9.5						9.5	

SHEAR STRENGTH (kPa)
FIELD VANE: Peak ⊗ Rem. ×
LAB TEST: Unc. ■ P.P. □
50 100 150 200
PENETRATION RESISTANCE
STANDARD ● DYN. CONE ○
20 40 60 80

WATER CONTENT (%)
W_P W W_L
10 20 30

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FILE No: G17452

BOREHOLE No. 3

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Aug 11 / 17** TO **Aug 11 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	SAMPLE TYPE	N-VALUE	SHEAR STRENGTH (kPa) / PENETRATION RESISTANCE	WATER CONTENT (%) W_P W W_L	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **267.54 m**						FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200; PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80	10 20 30			
	loose, dark brown FILL, sand and gravel to sand and silt moist	0.5								0.5	
266.63 0.91		1.0		1	SS	64				1.0	water used for rock coring/borehole dry prior to rock coring
	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 1.0 m mostly slightly weathered to fresh weak to moderately strong	1.5								1.5	
		2.0		RC1	NQ					2.0	TCR = 94% / RQD = 53%
		2.5								2.5	
		3.0								3.0	
		3.5		RC2	NQ					3.5	TCR = 92% / RQD = 57%
		4.0								4.0	
		4.5								4.5	
		5.0		RC3	NQ					5.0	TCR = 95% / RQD = 88%
		5.5								5.5	UCS (5.64-6.14 m) = 56 MPa
261.47 6.07	End of Borehole	6.0								6.0	
		6.5								6.5	
		7.0								7.0	
		7.5								7.5	
		8.0								8.0	
		8.5								8.5	
		9.0								9.0	
		9.5								9.5	

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FILE No: G17452

BOREHOLE No. 4

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Jul 26 / 17** TO **Jul 26 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	SHEAR STRENGTH (kPa) / PENETRATION RESISTANCE	WATER CONTENT (%)	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **267.75 m**						FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200; STANDARD ● DYN. CONE ○ 20 40 60 80	W_P W W_L 10 20 30			
	50 mm ASPHALT 350 mm GRANULAR BASE very loose, dark brown FILL, silty sand, trace gravel trace to some organics moist	0.5		1	SS	3	●	○		0.5	
266.23		1.0								1.0	water used for rock coring/borehole dry prior to rock coring
1.52	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 0.75 m mostly slightly weathered to fresh weak to moderately strong	1.5								1.5	
		2.0		RC1	NQ					2.0	TCR = 93% / RQD = 21%
		2.5								2.5	
		3.0								3.0	
		3.5		RC2	NQ					3.5	TCR = 100% / RQD = 81%
		4.0								4.0	
		4.5								4.5	
		5.0		RC3	NQ					5.0	TCR = 100% / RQD = 87%
		5.5								5.5	
261.79		6.0								6.0	
5.96	End of Borehole	6.5								6.5	
		7.0								7.0	
		7.5								7.5	
		8.0								8.0	
		8.5								8.5	
		9.0								9.0	
		9.5								9.5	

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FILE No: G17452

BOREHOLE No. 5

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Jul 26 / 17** TO **Jul 26 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	REMARKS
	Ground Elevation: **271.09 m**						
	75 mm ASPHALT 375 mm GRANULAR BASE very loose to loose dark brown FILL, silty sand, trace gravel trace to some organics moist	0.5					
		1.0		1	SS	7	water used for rock coring/borehole dry prior to rock coring
		1.5		2	SS	2	
268.80 2.29		2.0					
	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 1.5 m mostly slightly weathered to fresh weak to moderately strong	2.5		3	SS	50/ 125mm	
		3.0		4	SS	50/ 25mm	
		3.5					
		4.0					
		4.5		RC1	NQ		TCR = 92% / RQD = 57%
		5.0					
		5.5					
		6.0		RC2	NQ		TCR = 97% / RQD = 82%
		6.5					
264.18 6.91	End of Borehole	7.0					
		7.5					
		8.0					
		8.5					
		9.0					
		9.5					

SHEAR STRENGTH (kPa)
FIELD VANE: Peak ⊗ Rem. ×
LAB TEST: Unc. ■ P.P. □
50 100 150 200
PENETRATION RESISTANCE
STANDARD ● DYN. CONE ○
20 40 60 80

WATER CONTENT (%)
W_P W W_L
10 20 30

WELL DATA

CVD BOREHOLE (2017) G17452 SOUTHWORKS.GPJ CVD_ENG.GDT 25/9/17

PROJECT MANAGER: **EYC**

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FILE No: G17452

BOREHOLE No. 6

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Jul 26 / 17** TO **Jul 26 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **268.21 m**								
	50 mm ASPHALT 300 mm GRANULAR BASE loose to compact dark brown FILL, sandy silt, some gravel trace to some organics moist	0.5		1	SS	25		0.5	
		1.0						1.0	water used for rock coring/borehole dry prior to rock coring
		1.5		2	SS	7		1.5	
266.08		2.0						2.0	
2.13	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 0.5 m mostly slightly weathered to fresh weak to moderately strong	2.5		3	SS	50/ 30mm		2.5	
		3.0		RC1	NQ			3.0	TCR = 97% / RQD = 73%
		3.5						3.5	
		4.0						4.0	
		4.5		RC2	NQ			4.5	TCR = 98% / RQD = 80%
		5.0						5.0	
262.73		5.5						5.5	
5.48	End of Borehole	6.0						6.0	
		6.5						6.5	
		7.0						7.0	
		7.5						7.5	
		8.0						8.0	
		8.5						8.5	
		9.0						9.0	
		9.5						9.5	

SHEAR STRENGTH (kPa)
FIELD VANE: Peak ⊗ Rem. ×
LAB TEST: Unc. ■ P.P. □
50 100 150 200
PENETRATION RESISTANCE
STANDARD ● DYN. CONE ○
20 40 60 80

WATER CONTENT (%)
W_P W W_L
10 20 30

PROJECT MANAGER: **EYC**

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CVD BOREHOLE (2017) G17452 SOUTHWORKS.GPJ CVD_ENG.GDT 25/9/17

FILE No: G17452

BOREHOLE No. 7

Enclosure No.: 7
Sheet 1 of 1

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Jul 27 / 17** TO **Jul 27 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	SHEAR STRENGTH (kPa) / WATER CONTENT (%)	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **267.12 m**						FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200; PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80; W_P W W_L 10 20 30			
	50 mm ASPHALT 375 mm GRANULAR BASE									
	very loose dark brown FILL, silty sand trace to some organics moist	0.5							0.5	
		1.0		1	SS	3	●		1.0	water used for rock coring/borehole dry prior to rock coring
265.80 1.32	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 0.5 m mostly slightly weathered to fresh weak to moderately strong	1.5							1.5	
		2.0		RC1	NQ				2.0	TCR = 80% / RQD = 39%
		2.5							2.5	
		3.0							3.0	
		3.5		RC2	NQ				3.5	TCR = 100% / RQD = 84%
		4.0							4.0	
262.75 4.37	End of Borehole	4.5							4.5	
		5.0							5.0	
		5.5							5.5	
		6.0							6.0	
		6.5							6.5	
		7.0							7.0	
		7.5							7.5	
		8.0							8.0	
		8.5							8.5	
		9.0							9.0	
		9.5							9.5	

PROJECT MANAGER: **EYC**

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CVD BOREHOLE (2017) G17452 SOUTHWORKS.GPJ CVD_ENG.GDT 25/9/17

FILE No: G17452

BOREHOLE No. 8

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Jul 27 / 17** TO **Jul 27 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	SAMPLE TYPE	N-VALUE	SHEAR STRENGTH (kPa) FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200 PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80	WATER CONTENT (%) W_P W W_L 10 20 30	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **267.87 m**										
	75 mm ASPHALT 200 mm GRANULAR BASE loose dark brown FILL, silty sand, some gravel moist	0.5 1.0 1.5		1	AS					0.5 1.0 1.5	water used for rock coring/borehole dry prior to rock coring
266.12 1.75	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 1.0 m mostly slightly weathered to fresh weak to moderately strong	2.0 2.5 3.0 3.5 4.0 4.5 5.0		RC1 RC2	NQ NQ					2.0 2.5 3.0 3.5 4.0 4.5 5.0	UCS (2.23-2.73 m) = 84 MPa TCR = 94% / RQD = 68% TCR = 100% / RQD = 77%
262.49 5.38	End of Borehole	5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5								5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5	

PROJECT MANAGER: **EYC**

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CVD BOREHOLE (2017) G17452 SOUTHWORKS.GPJ CVD_ENG.GDT 25/9/17

FILE No: G17452

BOREHOLE No. 9

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Jul 27 / 17** TO **Jul 27 / 17**

SOIL LITHOLOGY

Ground Elevation: **266.96 m**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE
	50 mm ASPHALT 200 mm GRANULAR BASE loose to compact dark brown FILL, silty sand, some gravel brick fragments moist	0.5 1.0 1.5 2.0 2.5 3.0		1 2 3	SS SS SS	25 7 8
263.69 3.27				4	SS	50/ 75mm
	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 1.0 m mostly slightly weathered to fresh weak to moderately strong	3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5		RC1 RC2 RC3	NQ NQ NQ	
258.37 8.59	End of Borehole	8.5 9.0 9.5				

SHEAR STRENGTH (kPa)
FIELD VANE: Peak ⊗ Rem. ×
LAB TEST: Unc. ■ P.P. □
50 100 150 200
PENETRATION RESISTANCE
STANDARD ● DYN. CONE ○
20 40 60 80

WATER CONTENT (%)
W_P W W_L
10 20 30

WELL DATA

DEPTH (m)	REMARKS
1.0	water used for rock coring/borehole dry prior to rock coring
4.5	TCR = 95% / RQD = 61%
6.0	TCR = 87% / RQD = 65%
7.5	TCR = 98% / RQD = 87%

PROJECT MANAGER: **EYC**

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FILE No: G17452

BOREHOLE No. 10

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Jul 28 / 17** TO **Jul 28 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	SHEAR STRENGTH (kPa) FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200 PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80	WATER CONTENT (%) W_P W W_L 10 20 30	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **266.69 m**										
	75 mm ASPHALT 225 mm GRANULAR BASE loose dark brown FILL, sandy silt trace to some organics moist	0.5								0.5	
		1.0		1	SS	7	●			1.0	water used for rock coring/borehole dry prior to rock coring
265.37 1.32	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 1.0 m mostly slightly weathered to fresh weak to moderately strong	1.5								1.5	
		2.0		RC1	NQ					2.0	TCR = 78% / RQD = 37%
		2.5								2.5	
		3.0								3.0	
		3.5		RC2	NQ					3.5	TCR = 93% / RQD = 75%
		4.0								4.0	
		4.5								4.5	
		5.0		RC3	NQ					5.0	TCR = 100% / RQD = 85%
		5.5								5.5	
260.65 6.04	End of Borehole	6.0								6.0	
		6.5								6.5	
		7.0								7.0	
		7.5								7.5	
		8.0								8.0	
		8.5								8.5	
		9.0								9.0	
		9.5								9.5	

PROJECT MANAGER: **EYC**

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FILE No: G17452

BOREHOLE No. 11

Enclosure No.: 11
Sheet 1 of 1

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Jul 28 / 17** TO **Jul 28 / 17**

ELEV./ DEPTH (m)	SOIL LITHOLOGY: DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE: SAMPLE ID	TYPE	N-VALUE	SHEAR STRENGTH (kPa)	WATER CONTENT (%)	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **266.74 m**						FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200 PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80	W_P W W_L 10 20 30			
	50 mm ASPHALT 250 mm GRANULAR BASE loose brown FILL, silty sand and gravel moist	0.5								0.5	
		1.0		1	SS	8	●	○		1.0	water used for rock coring/borehole dry prior to rock coring
265.39 1.35	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 0.75 m mostly slightly weathered to fresh weak to moderately strong	1.5								1.5	
		2.0		RC1	NQ					2.0	TCR = 80% / RQD = 57%
		2.5								2.5	
		3.0								3.0	
		3.5		RC2	NQ					3.5	TCR = 93% / RQD = 83%
		4.0								4.0	
262.36 4.38	End of Borehole	4.5								4.5	
		5.0								5.0	
		5.5								5.5	
		6.0								6.0	
		6.5								6.5	
		7.0								7.0	
		7.5								7.5	
		8.0								8.0	
		8.5								8.5	
		9.0								9.0	
		9.5								9.5	

PROJECT MANAGER: **EYC**

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FILE No: G17452

BOREHOLE No. 12

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Jul 28 / 17** TO **Jul 28 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	SHEAR STRENGTH (kPa) FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200 PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80	WATER CONTENT (%) W_P W W_L 10 20 30	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **266.29 m**										
	75 mm ASPHALT 250 mm GRANULAR BASE compact brown FILL, sand and gravel, some silt moist	0.5								0.5	
265.22 1.07		1.0		1	SS	68	●	○		1.0	water used for rock coring/borehole dry prior to rock coring
	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 1.5 m mostly slightly weathered to fresh weak to moderately strong	1.5		2	SS	50/ 100mm				1.5	
		2.0								2.0	
		2.5								2.5	
		3.0		RC1	NQ					3.0	TCR = 83% / RQD = 57%
		3.5								3.5	
		4.0								4.0	
		4.5		RC2	NQ					4.5	TCR = 93% / RQD = 83%
		5.0								5.0	
260.91 5.38	End of Borehole	5.5								5.5	
		6.0								6.0	
		6.5								6.5	
		7.0								7.0	
		7.5								7.5	
		8.0								8.0	
		8.5								8.5	
		9.0								9.0	
		9.5								9.5	

PROJECT MANAGER: **EYC**

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FILE No: G17452

BOREHOLE No. 13

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **HSA/Rock Core**
Size: **108 mm I.D./NQ**
Date: **Jul 27 / 17** TO **Jul 27 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **266.51 m**								
	75 mm ASPHALT 300 mm GRANULAR BASE loose, dark brown FILL, sandy silt moist	0.5		1	SS	50/ 75mm		0.5	
265.60 0.91	DOLOSTONE BEDROCK (Guelph Formnation) light brown to cream to light grey sucrosic to crystalline fossiliferous moderately weathered upper 1.5 m mostly slightly weathered to fresh weak to moderately strong	1.0						1.0	water used for rock coring/borehole dry prior to rock coring
		1.5		2	SS	50/ 75mm		1.5	
		2.0						2.0	
		2.5		3	SS	50/ 75mm		2.5	
		3.0						3.0	
		3.5		RC1	NQ			3.5	TCR = 79% / RQD = 46%
		4.0						4.0	
		4.5						4.5	
		5.0		RC2	NQ			5.0	TCR = 100% / RQD = 88%
		5.5						5.5	
260.42 6.09	End of Borehole	6.0						6.0	
		6.5						6.5	
		7.0						7.0	
		7.5						7.5	
		8.0						8.0	
		8.5						8.5	
		9.0						9.0	
		9.5						9.5	

SHEAR STRENGTH (kPa)
FIELD VANE: Peak ⊗ Rem. ×
LAB TEST: Unc. ■ P.P. □
50 100 150 200
PENETRATION RESISTANCE
STANDARD ● DYN. CONE ○
20 40 60 80

WATER CONTENT (%)
W_P W W_L
10 20 30

SOIL LITHOLOGY | SAMPLE

PROJECT MANAGER: **EYC**

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ENGINEERING LTD.
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FILE No: G17452

BOREHOLE No. 14

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **Holow Stem Auger**
Size: **108 mm I.D.**
Date: **Aug 11 / 17** TO **Aug 11 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	SHEAR STRENGTH (kPa) FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200 PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80	WATER CONTENT (%) W_P W W_L 10 20 30	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **267.09 m**										
266.48	loose, light grey FILL, silty sand and gravel moist	0.5		1	AS			○		0.5	borehole open and dry to 0.61 m bgs upon completion of drilling
0.61	End of Borehole Auger Refusal	1.0								1.0	
		1.5								1.5	
		2.0								2.0	
		2.5								2.5	
		3.0								3.0	
		3.5								3.5	
		4.0								4.0	
		4.5								4.5	
		5.0								5.0	
		5.5								5.5	
		6.0								6.0	
		6.5								6.5	
		7.0								7.0	
		7.5								7.5	
		8.0								8.0	
		8.5								8.5	
		9.0								9.0	
		9.5								9.5	

PROJECT MANAGER: **EYC**

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Kitchener, Ontario N2H 5E1
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FILE No: G17452

BOREHOLE No. 15

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **Holow Stem Auger**
Size: **108 mm I.D.**
Date: **Aug 11 / 17** TO **Aug 11 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **266.72 m**								
	loose, brown FILL, sandy gravel, some silt moist	0.5		1	AS			0.5	
		1.0		2	SS	5		1.0	
265.04		1.5		3	SS	50/ 75mm		1.5	
1.68	WEATHERED BEDROCK								
264.59		2.0						2.0	borehole open and dry to 2.13 m bgs upon completion of drilling
2.13	End of Borehole Auger Refusal	2.5						2.5	
		3.0						3.0	
		3.5						3.5	
		4.0						4.0	
		4.5						4.5	
		5.0						5.0	
		5.5						5.5	
		6.0						6.0	
		6.5						6.5	
		7.0						7.0	
		7.5						7.5	
		8.0						8.0	
		8.5						8.5	
		9.0						9.0	
		9.5						9.5	

SHEAR STRENGTH (kPa)
FIELD VANE: Peak ⊗ Rem. ×
LAB TEST: Unc. ■ P.P. □
50 100 150 200
PENETRATION RESISTANCE
STANDARD ● DYN. CONE ○
20 40 60 80

WATER CONTENT (%)
W_P W W_L
10 20 30

PROJECT MANAGER: **EYC**

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FILE No: G17452

BOREHOLE No. 16

Enclosure No.: 16
Sheet 1 of 1

Client: **HIP Southworks Inc.**

Project: **Proposed Mixed-Use Development**

Location: **64 Grand Avenue South, Cambridge, Ontario**

EQUIPMENT DATA

Machine: **Diedrich D-50T**
Method: **Holow Stem Auger**
Size: **108 mm I.D.**
Date: **Aug 11 / 17** TO **Aug 11 / 17**

ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	SAMPLE TYPE	N-VALUE	SHEAR STRENGTH (kPa) / WATER CONTENT (%)	WELL DATA	DEPTH (m)	REMARKS
	Ground Elevation: **266.61 m**						FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ (50 100 150 200) PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ (20 40 60 80) W_P W W_L (10 20 30)			
	loose, dark brown FILL, sandy silt trace to some organics moist	0.5		1	AS		○		0.5	
265.85 0.76	WEATHERED BEDROCK	1.0		2	SS	50/ 25mm	●		1.0	borehole open and dry to 1.22 m bgs upon completion of drilling
265.39 1.22	End of Borehole Auger Refusal	1.5							1.5	
		2.0							2.0	
		2.5							2.5	
		3.0							3.0	
		3.5							3.5	
		4.0							4.0	
		4.5							4.5	
		5.0							5.0	
		5.5							5.5	
		6.0							6.0	
		6.5							6.5	
		7.0							7.0	
		7.5							7.5	
		8.0							8.0	
		8.5							8.5	
		9.0							9.0	
		9.5							9.5	

PROJECT MANAGER: **EYC**

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BH 8
Elev.: 267.87 m

BH 11
Elev.: 266.74 m

BH 5
Elev.: 271.09 m

BH 6
Elev.: 268.21 m

BH 9
Elev.: 266.96 m

BH 7
Elev.: 267.12 m

BH 10
Elev.: 266.69 m

TBM
Elev.: 266.30 m

BH 12
Elev.: 266.29 m

BH 4
Elev.: 267.75 m

BH 13
Elev.: 266.51 m

BH 14
Elev.: 267.09 m

BH 3
Elev.: 267.54 m

BH 15
Elev.: 266.72 m

BH 16
Elev: 266.61 m

BH 1
Elev.: 270.53 m

BH 2
Elev.: 266.75 m

GLEBE STREET

GRAND AVENUE SOUTH

FRASER STREET

BUILDING A
PROPOSED 20 STOREY
198 UNIT RESIDENTIAL
BUILDING

BUILDING B
PROPOSED 20 STOREY
198-UNIT RESIDENTIAL BUILDING

PROPOSED
SINGLE STOREY
RESIDENTIAL
LOBBY

12 m INTERIOR SIDE
YARD SETBACK

4.5 m EXTERIOR SIDE
YARD SETBACK

EXISTING BUILDING B
SINGLE STOREY RETAIL
GFA: 676.92 sm (7,286 sf)

EXISTING BUILDING C
GFA: 4,210.3 sm (45,319.3 sf)

EXISTING BUILDING C
(LEVELS 2 AND 3)
ARTISAN SPACE AND STUDIO
GFA: 1,184.74 sm (12,753 sf)

KEY PLAN **SOURCE:** Google Earth

LEGEND

TBM: Top of catch basin located in the parking lot closest to the middle of the existing building
Elev.: 226.30

Borehole Location

BOREHOLE LOCATION PLAN

Proposed Mixed-Use Development

64 Grand Avenue South
Cambridge, Ontario

CHUNG & VANDER DOELEN ENGINEERING LTD.
311 VICTORIA STREET NORTH
KITCHENER / ONTARIO / N2H 5E1 / 519-742-8979

Drawn By: AB	Date: September, 2017	File No.: G17452
Checked By: EYC	Scale: 1:750	Drawing No.: 1

Appendix G

Geotechnical Condition Letter, *Chung and Vander Doelen Engineering*

CHUNG & VANDER DOELEN ENGINEERING LTD.

311 VICTORIA STREET NORTH
KITCHENER / ONTARIO / N2H 5E1
519-742-8979

June 12, 2017
File No.: G17452

Mr. Randy Renouf
HIP Southworks Inc.
700 Rupert Street
Waterloo, Ontario N2V 2B5

and

Mr. Stephen Cameron
Cameron Stephens Mortgage Capital Ltd.
25 Adelaide Street East, Suite 600
Toronto, Ontario M5C 3A1

Re: Geotechnical Condition
Proposed Southworks Development
64 Grand Avenue South, Cambridge, Ontario

CHUNG & VANDER DOELEN ENGINEERING LTD. (CVD) has reviewed environmental reports prepared by exp Services Inc. dated April 29, 2016 and February 8, 2017 for the subject site and an environmental report on the adjacent site to the north (46 Grand Avenue South) to gain an understanding of the soils and bedrock condition underlying the subject parcel of land.

It is our understanding that two (2) 20-storey apartment buildings with a 5-storey podium are being contemplated for the site. Upon reviewing the borehole logs contained in these documents, it is noted that a soil mantle of 1.2 to 2.3 m thick sand and gravel and/or fill materials overlie limestone bedrock. The findings are consistent with the geology in the area of the site.

The limestone bedrock will provide favourable foundation support for the proposed development using conventional footings. The groundwater is located at least 6 m below ground surface and should not present any difficulty during construction. It should be noted that the engineering property of the rock should be determined by diamond coring and logging the quality and testing for compressive strength of the bedrock in order to provide bearing capacity for the final design of the footings.

If you have any questions, please do not hesitate to contact the undersigned.

Respectfully yours,
CHUNG & VANDER DOELEN ENGINEERING LTD.

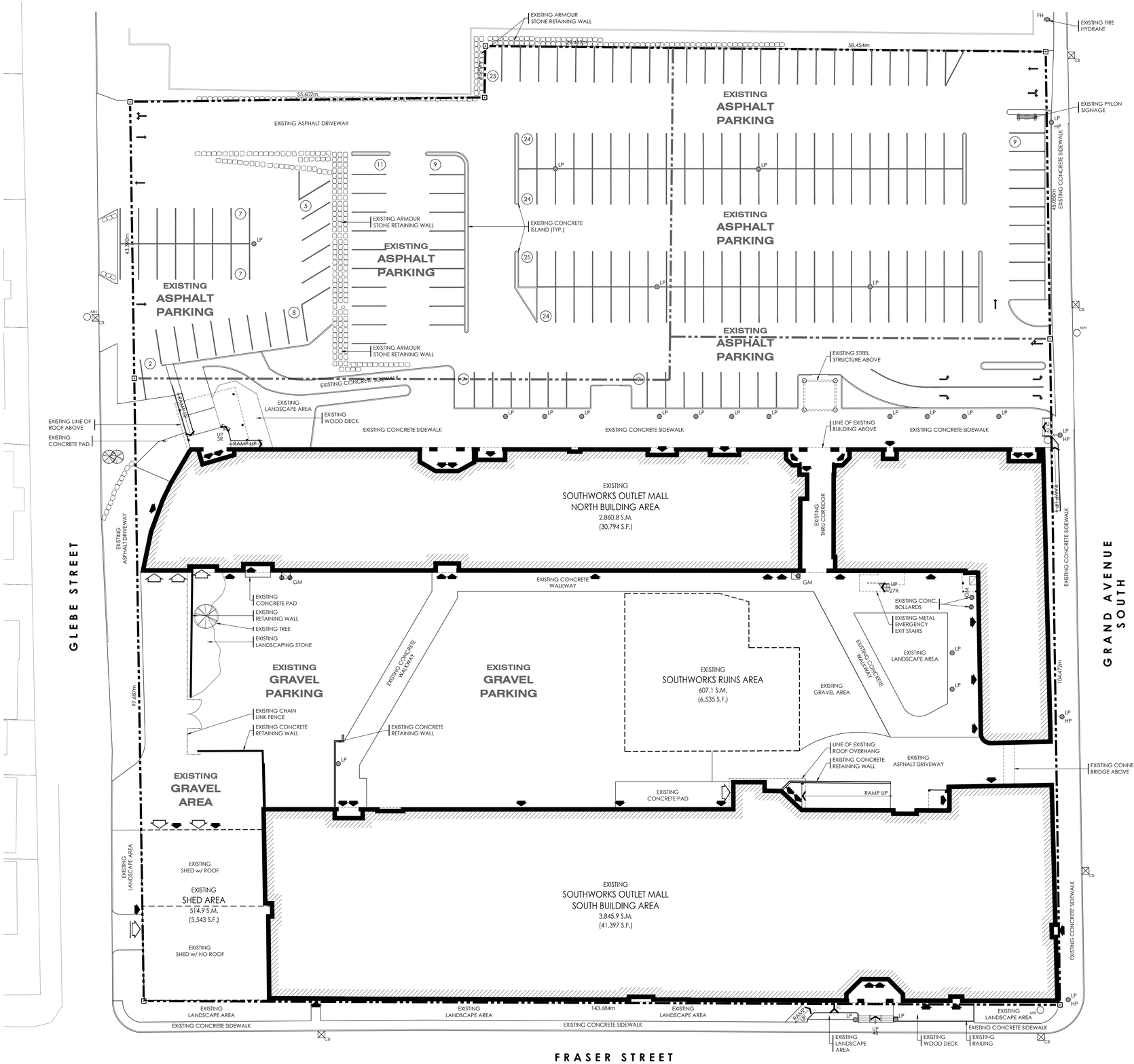
Eric Y. Chung, M. Eng., P.Eng.
Principal Engineer

Appendix H

Structural Report - *Not Yet Available*

Appendix I

Existing SIte Plan, *Measured Edge*



1 EX1.0 **EXISTING SITE PLAN**
SCALE: 1:300

SITE LEGEND

	SURVEYORS IRON BAR (ASSUMED)		PROPERTY LINE (ASSUMED)
MH	MAN HOLE		FENCE
CB	CATCH BASIN		OVERHEAD DOOR
HP	HYDRO POLE		SLIDING OVERHEAD DOOR
LP	LIGHT POLE		MAN DOOR
FH	FIRE HYDRANT		TREE
	BOLLARD		PYLON SIGN LOCATION
GM	GAS METER	1	PARKING SPACES COUNT
	FLOW OF TRAFFIC DIRECTION		

BUILDING DATA

	SF	SM
EXISTING NORTH BUILDING		
GROUND FLOOR AREA	30,794	2,860.8
MEZZANINE FLOOR AREA	1,401	130.2
SECOND FLOOR AREA	32,555	3,024.5
TOTAL NORTH BUILDING AREA	64,750	6,015.5
EXISTING SOUTH BUILDING		
GROUND FLOOR AREA	41,397	3,845.9
SECOND FLOOR AREA @ GLEBE	7,054	655.4
SECOND FLOOR AREA @ GRAND	6,391	593.7
THIRD FLOOR AREA	6,391	593.7
TOTAL SOUTH BUILDING AREA	61,233	5,688.7
EXISTING RUINS AREA	6,535	607.1
EXISTING SHED @ GLEBE	5,543	514.9

TRUE NORTH | PROJECT NORTH

STAMP OF APPROVAL

ENGINEER OR ARCHITECT

No.	REVISIONS	DATE

AS-BUILT OVERALL FLOOR PLAN	2017.06.15
AS-BUILT SITE PLAN	2017.06.13
CHRONOLOGY	DATE

MEASURED EDGE
243 KING STREET E.
KITCHENER ONTARIO
N2G 2K8
TEL: 519.896.4992
FAX: 519.896.2256
INFO@EDGEWOODINC.CA

CLIENT

PROJECT NAME

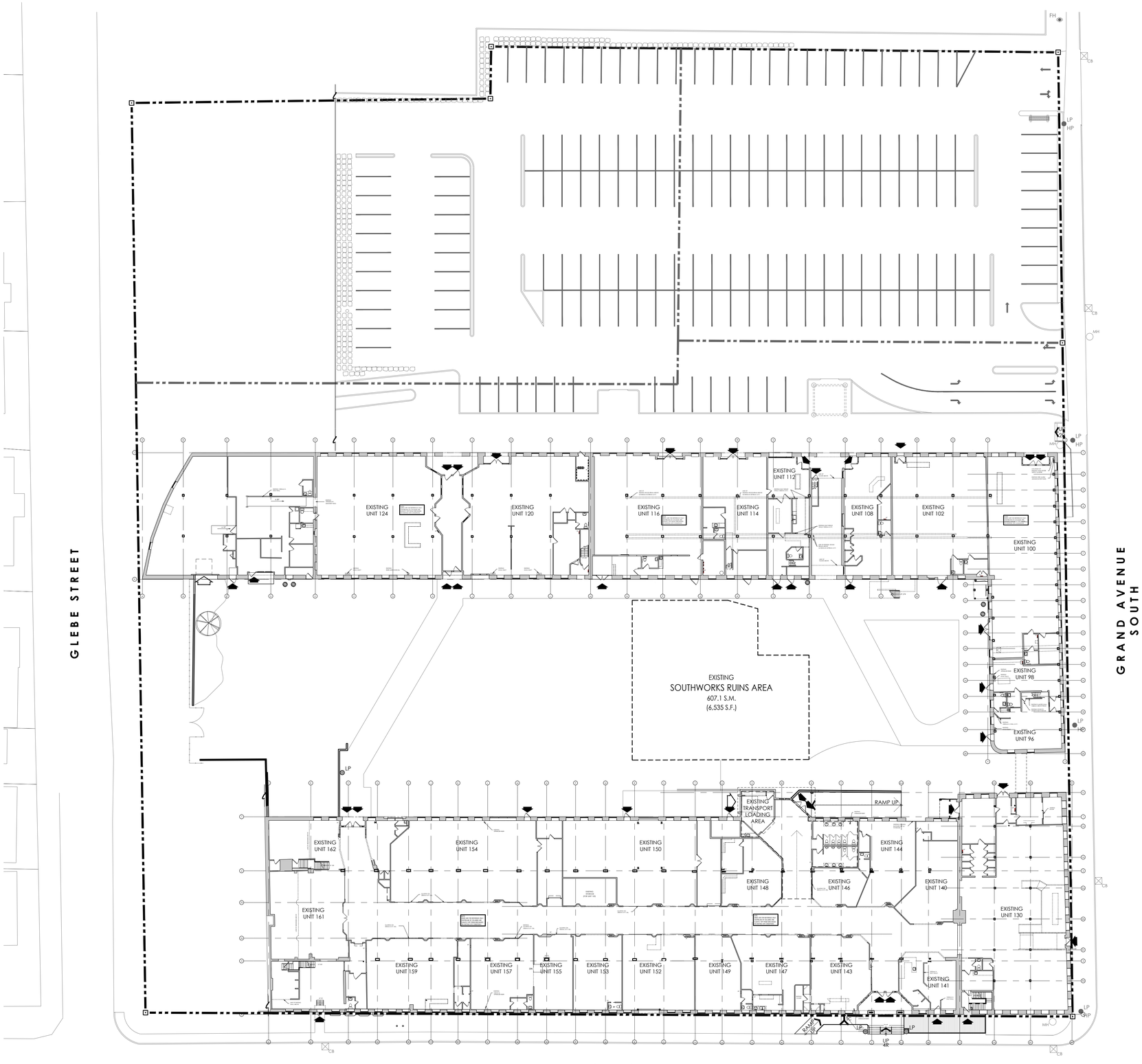
SOUTHWORKS OUTLET MALL
64 GRAND AVE. S., CAMBRIDGE ON N1S 2L8

DRAWING TITLE

EXISTING SITE PLAN

SCALE: 1:300
DRAWING NUMBER: EX1.0
SHEET SIZE: 24x36
PROJECT NUMBER: -

BUILDING DATA	SF	SM
EXISTING NORTH BUILDING		
GROUND FLOOR AREA	30,794	2,860.8
MEZZANINE FLOOR AREA	1,401	130.2
SECOND FLOOR AREA	32,555	3,024.5
TOTAL NORTH BUILDING AREA	64,750	6,015.5
EXISTING SOUTH BUILDING		
GROUND FLOOR AREA	41,397	3,845.9
SECOND FLOOR AREA @ GLEBE	7,054	655.4
SECOND FLOOR AREA @ GRAND	6,391	593.7
THIRD FLOOR AREA	6,391	593.7
TOTAL SOUTH BUILDING AREA	61,233	5,688.7
EXISTING RUINS AREA	6,535	607.1
EXISTING SHED @ GLEBE	5,543	514.9



1 EX2.0 **EXISTING OVERALL GROUND FLOOR PLAN**
SCALE: 1:300

TRUE NORTH

PROJECT NORTH

STAMP OF APPROVAL

ENGINEER OR ARCHITECT

No.	REVISIONS	DATE

CHRONOLOGY	DATE
AS-BUILT OVERALL FLOOR PLAN	2017.06.15
AS-BUILT SITE PLAN	2017.06.13

MEASURED EDGE
243 KING STREET E.
KITCHENER ONTARIO
N2G 2K8
TEL: 519.896.4992
FAX: 519.896.2256
INFO@EDGEWOODINC.CA

CLIENT

PROJECT NAME

SOUTHWORKS OUTLET MALL
64 GRAND AVE. S., CAMBRIDGE ON N1S 2L8

DRAWING TITLE

EXISTING OVERALL GROUND FLOOR PLAN

SCALE: 1:300

DRAWING NUMBER: EX2.0

SHEET SIZE: 24x36

PROJECT NUMBER: -

BUILDING DATA	SF	SM
EXISTING NORTH BUILDING		
GROUND FLOOR AREA	30,794	2,860.8
MEZZANINE FLOOR AREA	1,401	130.2
SECOND FLOOR AREA	32,555	3,024.5
TOTAL NORTH BUILDING AREA	64,750	6,015.5
EXISTING SOUTH BUILDING		
GROUND FLOOR AREA	41,397	3,845.9
SECOND FLOOR AREA @ GLEBE	7,054	655.4
SECOND FLOOR AREA @ GRAND	6,391	593.7
THIRD FLOOR AREA	6,391	593.7
TOTAL SOUTH BUILDING AREA	61,233	5,688.7
EXISTING RUINS AREA	6,535	607.1
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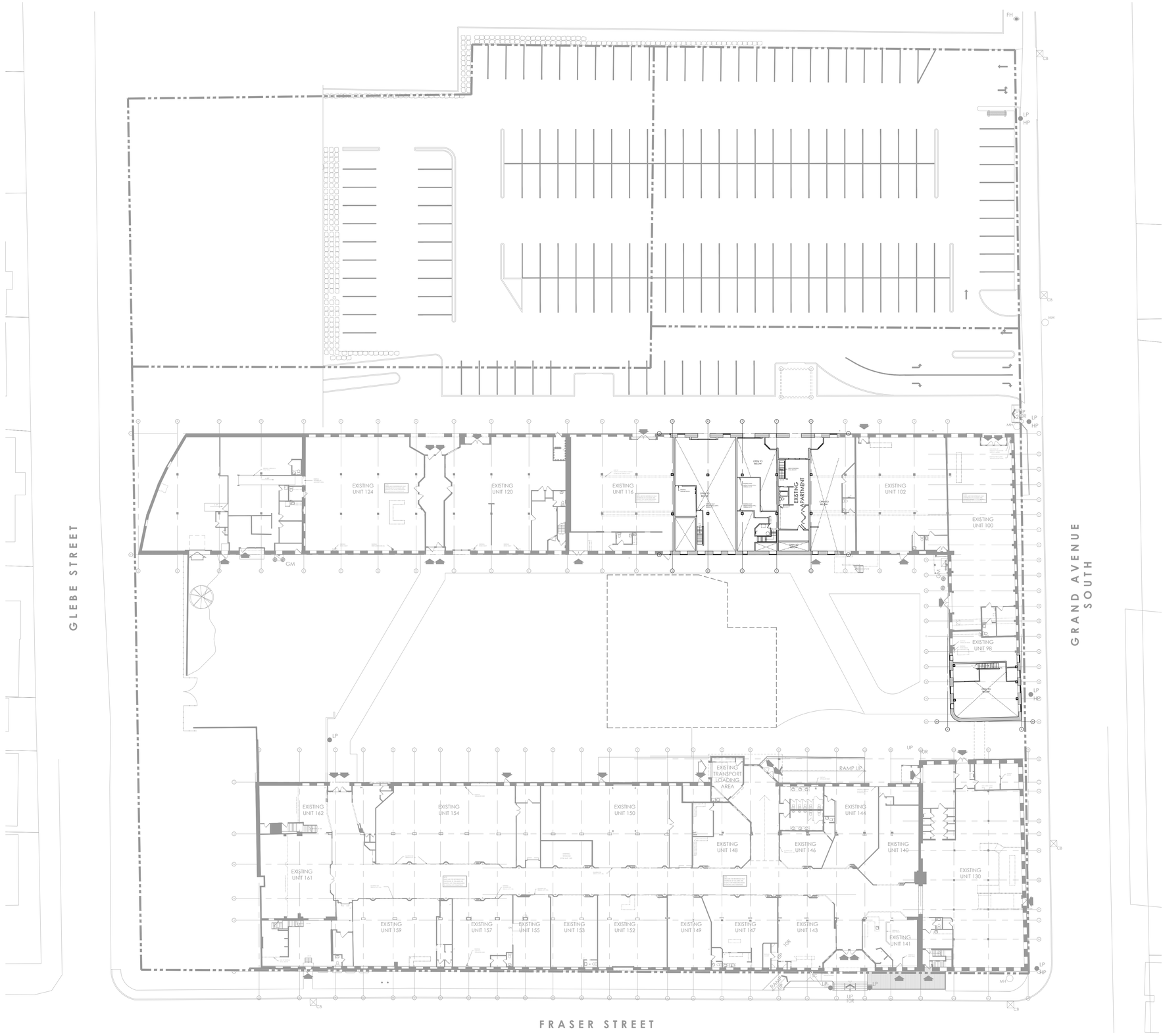

1 EX2.1 **EXISTING MEZZANINE PLAN**
SCALE: 1:300

TRUE NORTH | PROJECT NORTH

STAMP OF APPROVAL

ENGINEER OR ARCHITECT

No.	REVISIONS	DATE

AS-BUILT OVERALL FLOOR PLAN	2017.06.15
AS-BUILT SITE PLAN	2017.06.13
CHRONOLOGY	DATE

MEASURED EDGE
243 KING STREET E.
KITCHENER ONTARIO
N2G 2K8
TEL: 519.896.4992
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CLIENT

PROJECT NAME

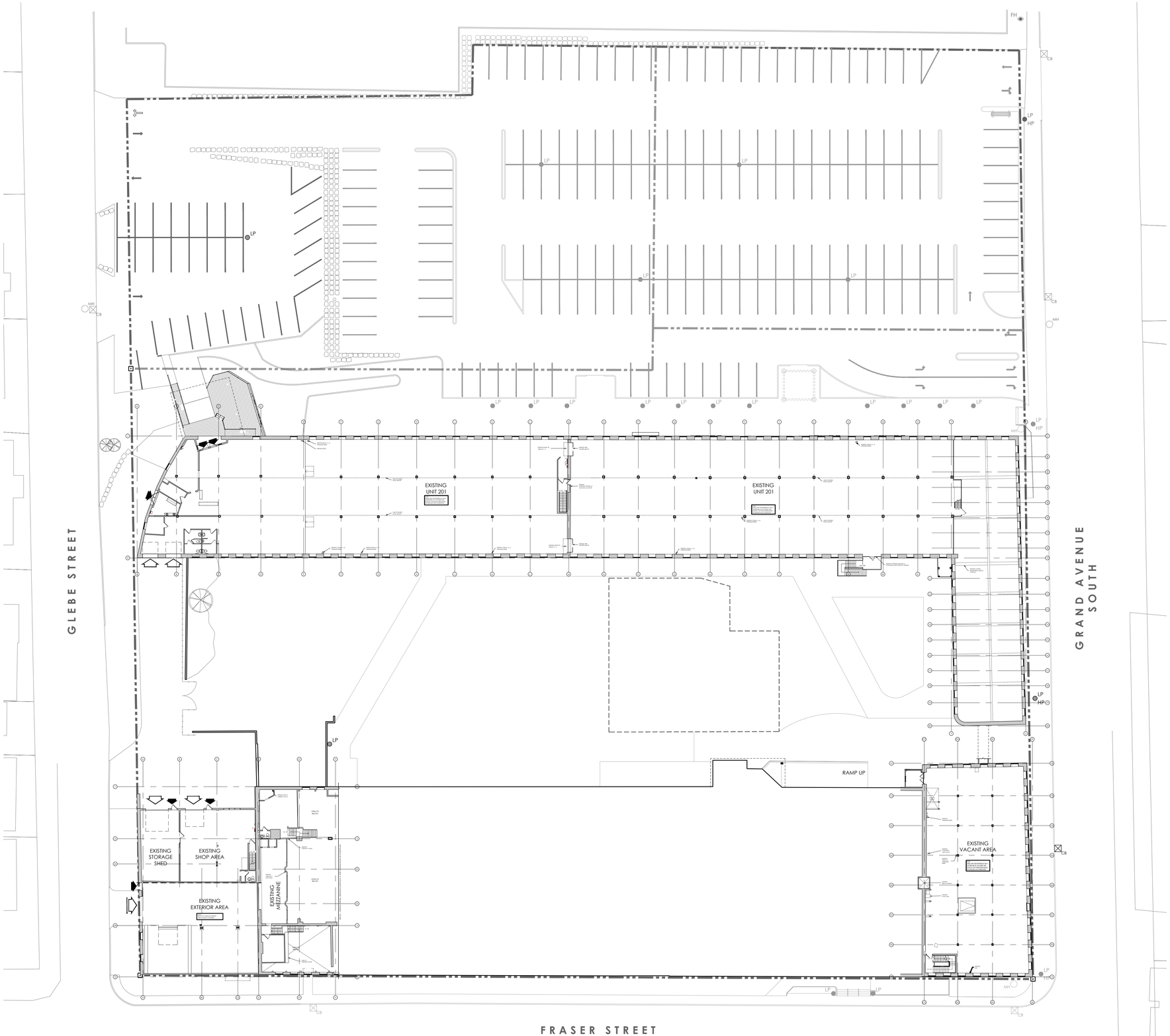
SOUTHWORKS
OUTLET MALL
64 GRAND AVE. S., CAMBRIDGE ON N1S 2L8

DRAWING TITLE

EXISTING
MEZZANINE PLAN

SCALE: 1:300
DRAWING NUMBER: EX2.1
SHEET SIZE: 24x36
PROJECT NUMBER: -

BUILDING DATA	SF	SM
EXISTING NORTH BUILDING		
GROUND FLOOR AREA	30,794	2,860.8
MEZZANINE FLOOR AREA	1,401	130.2
SECOND FLOOR AREA	32,555	3,024.5
TOTAL NORTH BUILDING AREA	64,750	6,015.5
EXISTING SOUTH BUILDING		
GROUND FLOOR AREA	41,397	3,845.9
SECOND FLOOR AREA @ GLEBE	7,054	655.4
SECOND FLOOR AREA @ GRAND	6,391	593.7
THIRD FLOOR AREA	6,391	593.7
TOTAL SOUTH BUILDING AREA	61,233	5,688.7
EXISTING RUINS AREA	6,535	607.1
EXISTING SHED @ GLEBE	5,543	514.9



1 EX2.2 **EXISTING OVERALL SECOND FLOOR PLAN**
SCALE: 1:300

TRUE NORTH | PROJECT NORTH

STAMP OF APPROVAL

ENGINEER OR ARCHITECT

No.	REVISIONS	DATE

CHRONOLOGY	DATE
AS-BUILT OVERALL FLOOR PLAN	2017.06.15
AS-BUILT SITE PLAN	2017.06.13

MEASURED EDGE
243 KING STREET E.
KITCHENER ONTARIO
N2G 2K8
TEL: 519.896.4992
FAX: 519.896.2256
INFO@EDGEWOODINC.CA

CLIENT

PROJECT NAME

SOUTHWORKS OUTLET MALL
64 GRAND AVE. S., CAMBRIDGE ON N1S 2L8

DRAWING TITLE

EXISTING OVERALL SECOND FLOOR PLAN

SCALE: 1:300
DRAWING NUMBER: EX2.2
SHEET SIZE: 24x36
PROJECT NUMBER: -

BUILDING DATA	SF	SM
EXISTING NORTH BUILDING		
GROUND FLOOR AREA	30,794	2,860.8
MEZZANINE FLOOR AREA	1,401	130.2
SECOND FLOOR AREA	32,555	3,024.5
TOTAL NORTH BUILDING AREA	64,750	6,015.5
EXISTING SOUTH BUILDING		
GROUND FLOOR AREA	41,397	3,845.9
SECOND FLOOR AREA @ GLEBE	7,054	655.4
SECOND FLOOR AREA @ GRAND	6,391	593.7
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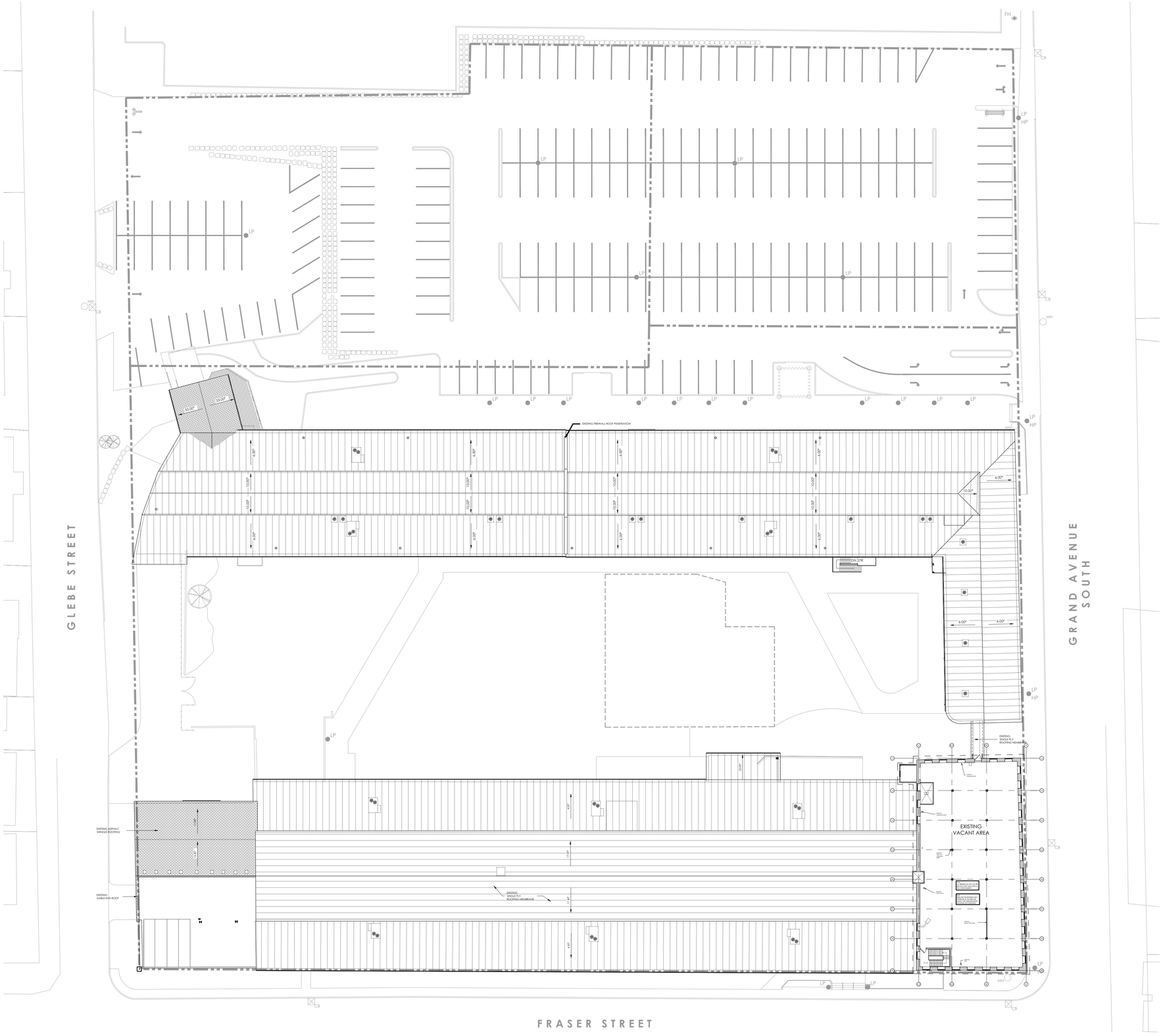
EXISTING RUINS AREA	6,535	607.1
EXISTING SHED @ GLEBE	5,543	514.9



1 EX2.3 **EXISTING OVERALL THIRD FLOOR PLAN**
SCALE: 1:300

TRUE NORTH

PROJECT NORTH

STAMP OF APPROVAL

ENGINEER OR ARCHITECT

No.	REVISIONS	DATE

CHRONOLOGY	DATE
AS-BUILT OVERALL FLOOR PLAN	2017.06.15
AS-BUILT SITE PLAN	2017.06.13

MEASURED EDGE
243 KING STREET E.
KITCHENER ONTARIO
N2G 2K8
TEL: 519.896.4992
FAX: 519.896.2256
INFO@EDGEWOODINC.CA

CLIENT

PROJECT NAME

SOUTHWORKS OUTLET MALL
64 GRAND AVE. S., CAMBRIDGE ON N1S 2L8

DRAWING TITLE

EXISTING OVERALL THIRD FLOOR PLAN

SCALE: 1:300

DRAWING NUMBER: EX2.3

SHEET SIZE: 24x36

PROJECT NUMBER: -

Appendix J

By-law 103-17, *City of Cambridge*

Purpose and Effect of By-law No. 103-17

64 Grand Avenue South – Gaslight District

City File No.: OR01/16

The Purpose of this By-law is to amend the zoning classification of a parcel of land located at 64 Grand Avenue South, legally described as Lot 51-56 and Block A, Plan 456; Lot 27, Plan D10; Part Malcolm Street, Plan 456; City of Cambridge [PIN 03806-0091] and Regional Municipality of Waterloo from the (F)C1RM1M2 and C1RM1 zones to the Holding (H)(F)C1RM1 S. 4.1.327 zone and (H)C1RM1 s. 4.1.327 zone to permit the following:

- A maximum building height of 69 metres (226 ft)
- Maximum of 396 residential units
- A minimum northern interior side yard of 2.5 metres (8.2 ft) for the first five storeys
- A minimum northern interior side yard setback of 8.1 metres (26.57 ft) for storeys six through 20
- A minimum exterior side yard setback of 0 metres for the existing buildings facing Grand Avenue South and Fraser Street
- Site development specifications, including floor space index, and parking requirements shall be based on the site as a whole existing at the date of passing of this by-law despite the future creation of interior lot lines through the registration of a condominium description or approval of severance applications
- A public beverage making establishment (e.g. microbrewery or other similar use) is also a permitted use
- A motor vehicle repair shop and a drive-thru automobile service shop are not permitted
- The definition of a retail commercial establishment is being amended to permit artist studios on the property by allowing goods to be produced on the property as well as being held and offered for sale
- A public square to be used as a place of assembly for gatherings, events and outdoor retail related uses
- A grocery store in which not more than 1500m^2 (16,146 ft^2) of gross leasable commercial floor area is provided
- Remove Industrial M2 zoning from this property so that light industrial uses will not be permitted

All of the currently permitted uses in the Commercial C1 and Residential Multiple RM1 zones would be permitted on this property, with the exception of the motor vehicle repair shop and drive-thru automobile service shop.

The public benefits in exchange for the increased height for the residential towers are to be provided to the satisfaction of the City of Cambridge. The applicant will be required to negotiate with Cambridge Council to enter into a bonusing agreement, registered on title.

A Holding (H) provision is included in the zoning by-law. The Holding provision is not required for the existing Southworks buildings since there is current Commercial C1 zoning in place which allows those existing buildings to be used for non-residential purposes already.

The proposed Holding (H) Provision can be lifted in future by Cambridge Council passing a by-law for the future residential portion of the proposal on the property provided:

1) a bonusing agreement has been registered on the title of the property;

2) a written acknowledgement of a Record of Site Condition by the Ministry of Environment and Climate Change has been provided to the City; and

3) the Transportation Impact Study is finalized to the satisfaction of the City of Cambridge and an agreement is entered into for the construction of the required road improvements.

The Effect of the By-law will permit the construction of two 20 storey residential buildings on the subject property as part of a mixed re-use development of the property.

By-law No. 103-17

of the

City of Cambridge

A By-law to amend Zoning By-law No. 150-85, as amended with respect to land municipally known as 64 Grand Avenue South – Gaslight District

WHEREAS Council of the City of Cambridge has the authority pursuant to Sections 34, 36 and 37 of the *Planning Act*, R.S.O. 1990, c. P. 13, as amended to pass this By-law; and

AND WHEREAS the Council of the City of Cambridge has deemed it advisable to amend Zoning By-law No. 150-85, as amended, and therefore implement the Official Plan of the City of Cambridge; and,

AND WHEREAS the proposed by-law conforms to the Official Plan of the City of Cambridge; and,

AND WHEREAS Council deems that adequate public notice of the public meeting was provided and adequate information regarding this Amendment was presented at the public meeting held January 17th, 2017, and that a further public meeting is not considered necessary in order to proceed with this Amendment; and,

NOW THREFORE BE IT RESOLVED THAT the Corporation of the City of Cambridge enacts as follows:

1. That this by-law shall apply to lands described as Lot 51-56 and Block A, Plan 456; Lot 27, Plan D10; Part Malcolm Street, Plan 456; City of Cambridge [PIN 03806-0091] and Regional Municipality of Waterloo and is shown on Schedule ‘A’ and Schedule ‘B’ attached hereto and forming part of this by-law;

2. And That the City of Cambridge Zoning By-law, being Schedule ‘A’ to By-law No. 150-85, as amended, is hereby further amended by Schedule ‘A’ attached hereto from the (F)C1RM1M2 and C1RM1 zones to the Holding (H)(F)C1RM1 s. 4.1.327 zone and (H)C1RM1 s. 4.1.327 zone;

3. And That the aforesaid City of Cambridge Zoning By-law No. 150-85, as amended, is hereby further amended by adding the following subsection under section 4.1 thereof:

   "4.1.327 – 64 Grand Avenue (Gaslight District) Lot 51-56 and Block A, Plan 456; Lot 27, Plan D10; Part Malcolm Street, Plan 456; City of Cambridge [PIN 03806-0091] and Regional Municipality of Waterloo;

   1) Notwithstanding the provisions of Sections 2.2; 3.1.2.4 (c), (d), (e) and (i); 3.3.2.2 (t) and (v) the following shall apply:
      i) The minimum exterior side yard setback shall be 0 metres for existing buildings Grand Avenue South and Fraser Street;
      ii) The minimum northerly interior side yard building setback for the first five storeys (podium) shall be 2.5 metres;
      iii) The minimum northerly interior side yard setback for the tower portion of the building shall be 8.1 metres;
      iv) The maximum permitted building height of shall be 69.0 metres;
      v) A maximum of 396 residential units is permitted on the site;
      vi) Site development specifications, including floor space index, and parking requirements shall be based on the site as a whole existing at the date of passing of this by-law despite the future creation of interior lot lines through the registration of a condominium description or approval of a severance application;
      vii) A motor vehicle repair shop and a drive-thru automobile service shop are not permitted uses

   2) In addition to Sections 3.3.3.1 and 3.3.2, the following shall apply:
      i) A public beverage making establishment is a permitted use;
      ii) A retail commercial includes any establishment or premises in which goods, produce or merchandise are produced and or held and offered for sale directly to the consumer or user at retail as the principal activity of the establishment is permitted;
      iii) A public square to be used as a place of assembly for gatherings, events and outdoor retail related uses;
      iv) A grocery store in which not more than 1500m^2 of gross leasable commercial floor area is provided

4. And That the aforesaid City of Cambridge Zoning By-law No. 150-85, as amended, is hereby further amending Schedule 'B' as delineated in heavy black line by amending Section 6 - Special Area Zoning Maps, Map No. Z7 by referencing special provision 4.1.327;

5. And That public benefits be provided for the increase in height through bonusing as permitted in the Official Plan and approved by Cambridge Council;

6. And That the Holding (H) provision may be lifted for development of the residential towers once the applicant has: registered the Section 37 Bonusing Agreement on title to the satisfaction of the City Planner; 2) the City is in receipt of an acknowledgement letter from the MOECC for a Record of Site Condition to Residential Standards on the subject property; and 3) the Transportation Impact Study is finalized to the satisfaction of the City of Cambridge and an agreement is entered into for the construction of the required road improvements;

7. And That this By-law shall come into full force and effect on the date it is enacted subject to Official Plan Amendment No. 23 coming into effect pursuant to subsection 24(2) of the *Planning Act*, R.S.O., 1990, c. P. 13, as amended.

PASSED AND ENACTED this 13th day of June, 2017

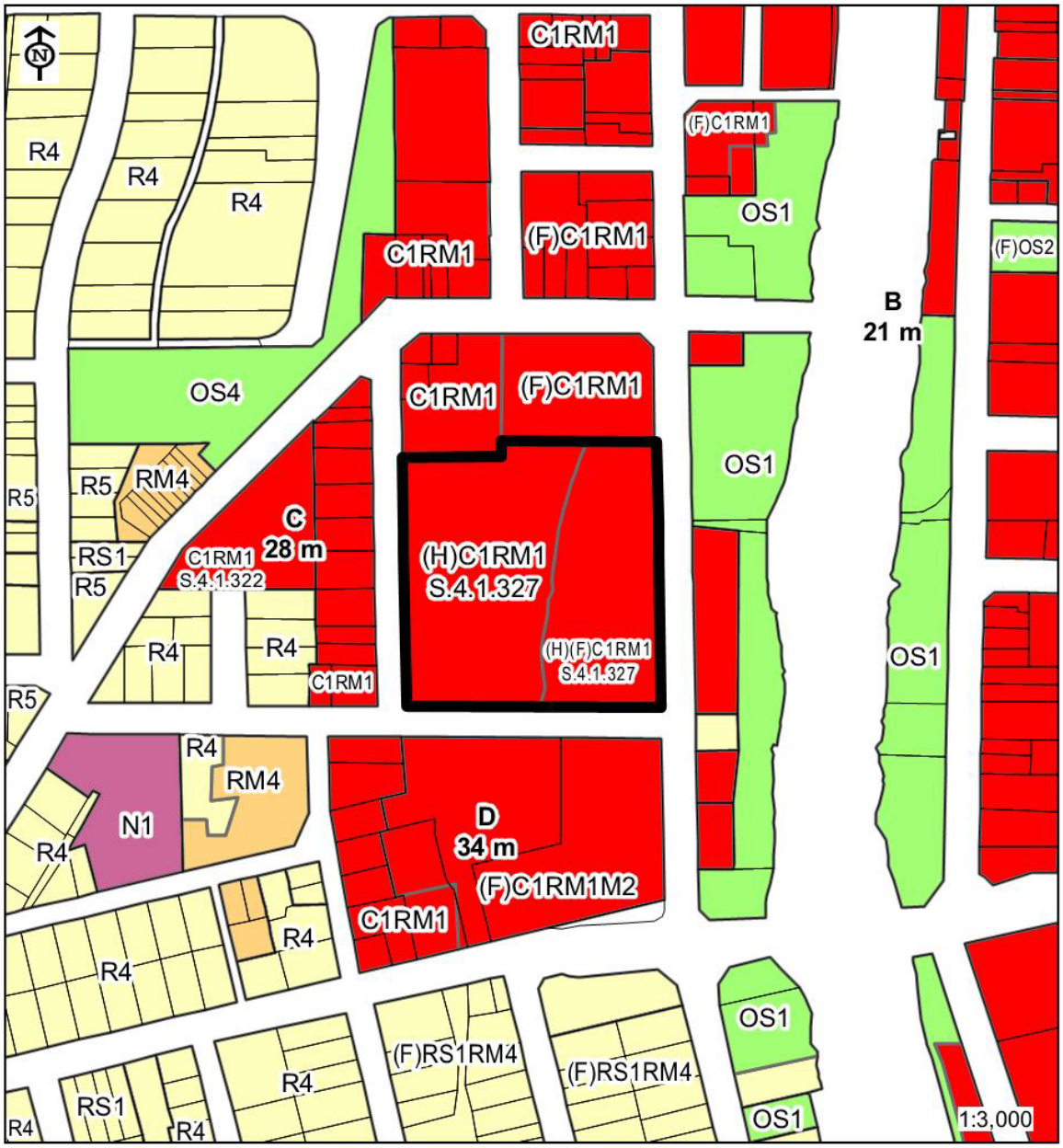
_____

Mayor

_____

Clerk

Schedule 'A'



This is Schedule A attached to and forming part of By-law

Lands affected by the by-law

Zoning Classification

- OPEN SPACE
- MEDIUM HIGH DENSITY RESIDENTIAL
- LOW DENSITY RESIDENTIAL
- INSTITUTIONAL
- COMMERCIAL

CAMBRIDGE
Technology Services
GIS Division

Thursday, May 04, 2017 11:59:25 AM
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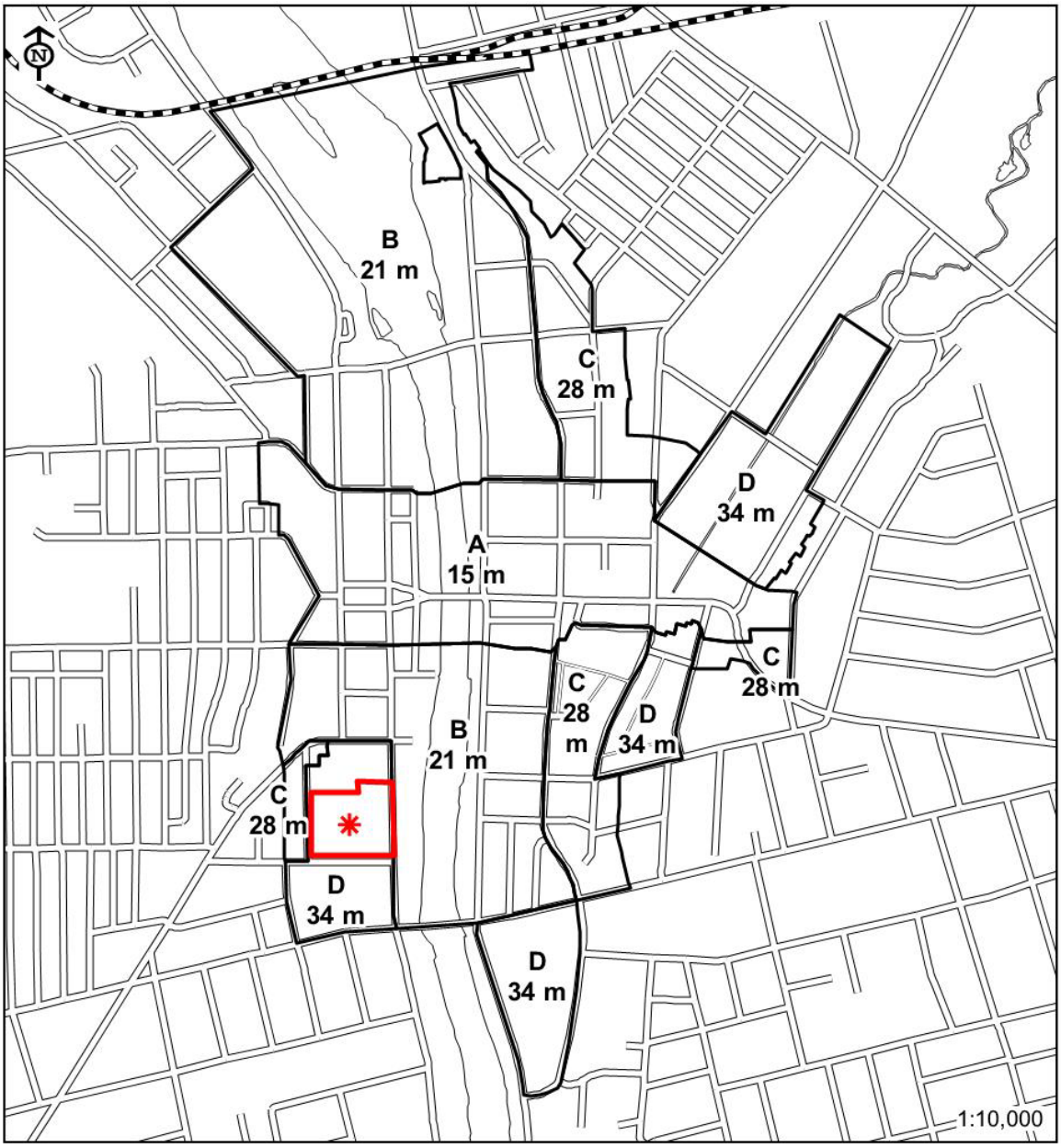
Schedule B – Building Heights



Map Z7 | Maximum Building Heights in the Galt City Centre
See Section 2.1.9
Refer to Section 4.1.255

* **Refer to Section 4.1.327**

CAMBRIDGE
Technology Services
GIS Division

Wednesday, May 03, 2017 3:02:34 PM
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SEC 4

Technical Conference Question

Please confirm that the Class C cost estimate includes a contingency budget of 4%. Please explain why that is an appropriate budgeted amount for a project of this type.

RESPONSE

The current Class C estimate, filed as part of the Design Brief in Response to SEC-1, contains a contingency of $600,000 or 7.4% of the $8.1 million. A portion of the contingency is intended to cover Energy+'s share (50%) of the cost of the dividing wall that is being constructed to split the building between the Energy+ space and the space being retained by the developer. Energy+ has requested information from the developer to confirm the actual cost of the wall as it has been largely completed. Once this cost is known, it will be shown as a separate line item and the contingency will be reduced by the same amount.

Energy+ considers the contingency amount appropriate to cover possible inflationary increases of 3% - 5% between now and the planned construction period in 2020.

SEC 5

Technical Conference Question

P.12-13

With respect to Table 6:

a. Please split out the Energy+ column for each facility (Southworks, Garden Avenue and Bishop St.).

RESPONSE

Energy+ has prepared the following Table 6: Cost and Utilization Comparison to Other Distributors – Updated to Split Energy+ Facilities as requested.

Table 6: Cost and Utilization Comparison to Other Distributors - Updated to Split Energy+ Facilities

LDC	Energy+ (Southworks, Bishop Street & Garden Avenue Combined)	Energy+ (Southworks)	Energy+ (Garden Ave)	Energy+ (Bishop St.)	Waterloo North Hydro Inc	InnPower	Milton Hydro Distribution Inc	PUC Distribution Inc.
OEB Docket	EB-2018-0028				EB-2015-0108 EB-2010-0144	EB-2014-0086	EB-2015-0089	EB- 2012-0162
Year of Occupancy	2020/2022/2024	2022	2020	2024	2011	2015	2015	2012
Functions	Administration & Operations	Administration	Operations	Operations	Administration & Operations	Administration & Operations	Administration & Operations	Administration & Operations
Type of Project	Purchase/ Refurbish	Purchase/ Refurbish	Purchase	Refurbish	Custom Build	Custom Build	Purchase/ Refurbish	New Build
Capital Cost	$14,500,000	$8,100,000	$4,400,000	$2,000,000	$26,682,000	$10,896,704	$12,524,798	$23,000,000
Class of Estimate		Class C	Class D	Not Applicable				
Highest Class Estimate %		+20%	+30%	Assume 30% - Similar to Class D				
Square Footage	88,243	21,892	13,251	53,100	105,000	36,172	91,872	110,382
FTEs	131	67	13	51	125	41	61.5	87
Square Foot per FTE	674	327	1,019	1,041	840	882	1,494	1,269
Capital Cost per FTE	$110,687	$120,896	$338,462	$39,216	$213,456	$265,773	$203,655	$264,368
Capital Cost/Square Foot	$164.32	$370.00	$332.05	$37.66	$254.11	$285.79	$136.33	$208.37
Capital Cost @ Highest End of Estimate Range	$18,040,000	$9,720,000	$5,720,000	$2,600,000				
Capital Cost/FTE @ High Range	$137,710	$145,075	$440,000	$50,980				
Capital Cost/Square Foot @ High Range	$204.44	$444.00	$431.67	$48.96				

Notes:

WNH	Amount based on Actual Costs as provided in EB-2015-0108
InnPower	Amount based on OEB Approved as per Settlement Agreement in EB-2014-0086. Settlement included a reduction of $2,909,000.
	Actual costs as per EB-2016-0085 were $13,491,210, however OEB approved Settlement Amount plus $244,506 for Furniture/Fixtures.
	Amount in table should be $11,141,210 ($10,896,704 plus $244,506)
Milton Hydro	Amount based on OEB Decision in EB-2015-0089. Actual costs were $14,460,000 less disallowed amounts of $1,935,202.
	Amount was revised as part of Motion to Review (EB-2016-0255) to add back $505,950 of a capital gain that should not have reduced rate base.
	Amount in table should be $13,030,748 ($12,524,798 plus $505,950)
PUC Distribution	Amount based on OEB Decision on Cost of Service, which was based on estimate.
	Actual costs as per EB-2017-0071 were $24,789,141, which were accepted as part of rate base as part of the Settlement.

SEC 5

Technical Conference Question

P.12-13

With respect to Table 6:

b. What class of estimate are the Garden Avenue and Bishop St. forecast costs based on?

RESPONSE

The Garden Ave. facility costs were based on a Class D Estimate. As provided for in the Settlement Proposal, the request for the ACM on the Garden Avenue facility has been withdrawn.

The Bishop St. forecast for 2024, which is outside of the five year Distribution System Capital Plan forecast period, and not included in the ACM request, was based on a high level estimate.

SEC 5

Technical Conference Question

P.12-13

With respect to Table 6:

c. Please revise Table 6 to show the Energy+ project costs at the highest end of the class estimate range for all three projects.

RESPONSE

Energy+ has included the following information in the Table 6 provided in response to SEC-5 a) for the three Energy+ projects:

Capital Cost @ Highest End of Estimate – the assumptions used for this estimate are based on: (a) Class C estimate range of +20% for Southworks facility; (b) Class D estimate of range for Garden Ave. facility of + 30%; and (c) Assumed + 30% for Bishop St. as it was neither a Class C or Class D estimate.

Energy+ has also provided the Capital Cost/FTE and Capital Cost/Square Footage using the Highest End of Estimate.

Energy+ does not agree with the premise that each of the projects would be completed at costs that are + 20% to 30% higher than the estimate provide. This is a very unlikely scenario.

SEC 6

Technical Conference Question

P.7

Please provide a copy of all material provided to the Applicant's Board of Directors approving the updated costs to the Southworks facility.

RESPONSE

Attached as Appendix SEC-6 is a copy of the presentation used to update the Board of Directors and obtain approval for the updated cost estimate.

In addition to this information, Board members were also provided with a copy of the Design Brief (September 19, 2018 Draft) and the updated Class C estimate.

APPENDIX SEC-6

PRESENTATION TO BOARD OF DIRECTORS (SOUTHWORKS)

FACILITIES UPDATE AND AMENDED BUDGET APPROVAL

CONFIDENTIAL REPORT TO BOARD OF DIRECTORS

ENERGY+ INC.

GASLIGHT ADMINISTRATIVE OFFICE FACILITY – UPDATE AND BUDGET APPROVAL

- Since our last update in September the following developments have occurred:
  - Martin Simmons have completed a draft Design Brief that provides an overview of the entire Gaslight development, a detailed floor plan for the Energy+ space, environmental mitigation measures, mechanical and electrical design, structural renovations, and architectural finishes. **A copy of this document can be found under the Resources section of the Board portal.**
  - Melloul-Blamey has prepared a Class C estimate based on the Design Brief. This latest estimate inclusive of furniture and a contingency is $8.1 million as compared to the Class D estimate (prepared in March 2017) of $5.0 million. A reconciliation of the two estimates is provided on the next page.

Note: Class D Estimate is generally considered +/- 30% accurate
Class C Estimate is generally considered +/- 20% accurate

Energy+
ENERGY+ INC.

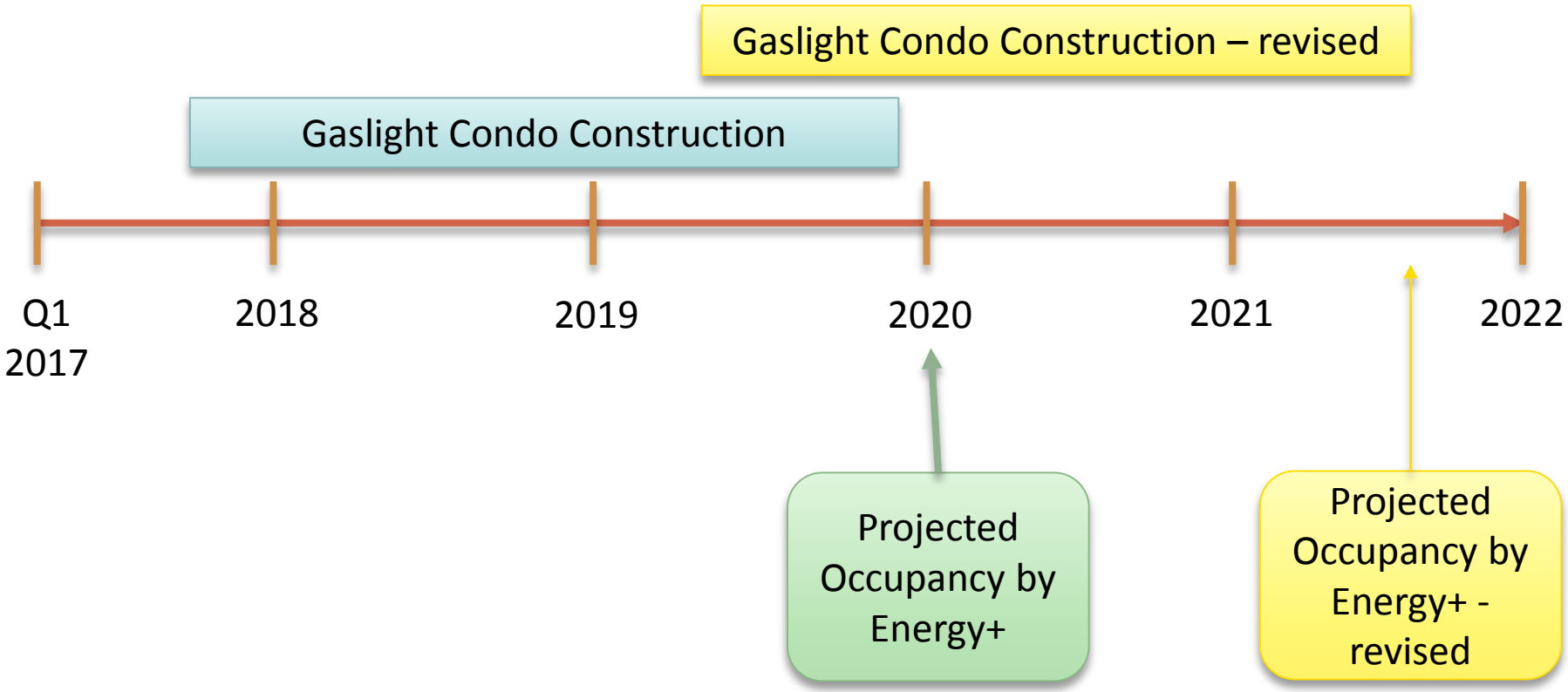
GASLIGHT ADMINISTRATIVE OFFICE FACILITY – RECONCILIATION OF CLASS D VERSUS CLASS C ESTIMATE

Cost Estimate Category	Class D Estimate Mar-17	Class C Estimate Sep-18	Variance	Principle Reason for Variance
Sitework Costs	293,000	538,257	245,257	Environmental mitigation, landscaping
Building Costs	3,044,500	4,576,365	1,531,865	Main entrance wall, firewall, roofing, acoustic treatments
General. Allowances & Fees	808,000	2,088,913	1,280,913	Soil remediation, side roof reinforcement, higher fees
Professional Fees	400,000	675,000	275,000	Higher cost of overall project
Furniture & contingency	500,000	600,000	100,000	Higher contingency
Cost reduction target	-	-400,000	-400,000	Implement lower cost construction materials, lower fees
Total	5,045,500	8,078,535	3,033,035	

Customer impact based on initial budget	$0.68 / month
Customer impact based on revised budget	$1.14 / month

ENERGY+ INC.

UPDATED HIGH LEVEL TIMELINE



ENERGY+ INC.

GASLIGHT ADMINISTRATIVE OFFICE FACILITY – BUDGET APPROVAL

- **Motion to approve proceeding with the development of detailed plans to renovate 21,500 s.f. of administrative office space at 64 Grand Avenue Cambridge based on an updated Class C estimate of $8.1 million.**

- Additional Board approval will be required for the following key project milestones:

  - Closing the purchase of the severed portion of the building which is contingent on

    - Approved Severance Application from the City of Cambridge
    - Environmental due diligence (including peer review of approved Record of Site Condition)

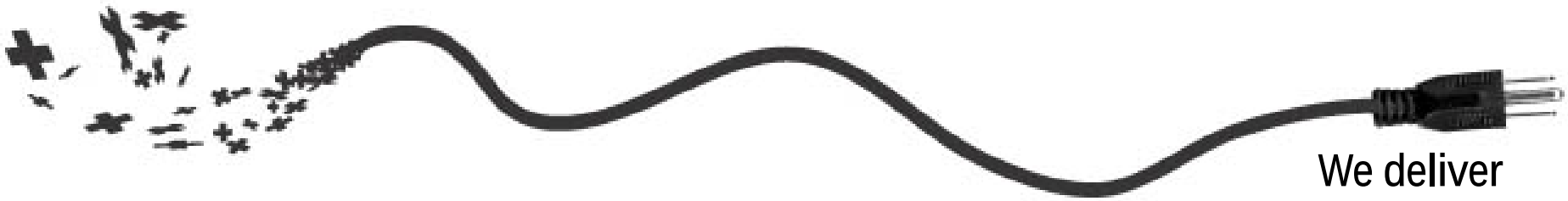
  - Entering into a Construction Agreement with Melloul-Blamey

  - Approval of Class B and Class A cost estimates

ENERGY+ INC.

Thank you!

Questions and Answers



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Energy+
ENERGY+ INC.

SEC 7

Technical Conference Question

P.7-8

Please provide the expected date of the 3 listed project milestones.

RESPONSE

Energy+ expects that the Severance Application will be approved by about mid-February 2019.

Environmental due diligence and a peer review of the approved Record of Site Condition and proposed mitigation solution is expected by the end of March 2019.

Energy+ expects to enter into a Construction Agreement with Melloul-Blamey by the end of April 2019.

Class B Estimates will be developed following completion of construction diagrams by Martin Simmons in the 4th quarter of 2019.

Class A Estimates will be based on tender results expected to be completed in the 1st quarter of 2020.

SEC 8

Technical Conference Question

Please update all interrogatory responses related to the Southworks facility as applicable.

RESPONSE

Please find updated responses to the following interrogatories related to the Southworks facility:

8a) Update IR-2-Staff-12 c

8b) Update IR-2-Staff-12 e

8c) Update IR-2-Staff-12 f

8d) Update IR-2-Staff-12 i

8e) Update IR-1-VECC-2

8a) Update IR-2-Staff-12 c

2–Staff-12 c)

INTERROGATORY

Ref: DSP, Appendix N, Facilities Business Plan - CND

c) Please provide a copy of the Purchase and Sale Agreement between Energy+ and the developer.

Response:

Energy+ notes that there are no further amendments to the Purchase and Sale Agreements. The latest amendment (Amending Agreement #3) was provided in the IR Response.

8b) Update IR-2-Staff-12 e

2–Staff-12 e)

INTERROGATORY

Ref: DSP, Appendix N, Facilities Business Plan - CND

e) Please provide the proposed architectural drawing of site plan and floor plan for the Southworks Facility.

Response:

Please refer to the following updated documents provided in the Design Brief provided in Response to SEC 2:

- Appendix A Site Plan and Severance Plan
- Appendix D Architectural Schematic Design Package, MartinSimmons Architects.

8c) Update IR-2-Staff-12 f

2–Staff-12 f

INTERROGATORY

Ref: DSP, Appendix N, Facilities Business Plan - CND

f) Please provide the project schedule for the Southworks Facility.

Response:

Please refer to Appendix G Draft Schedule in the Design Brief provided in Response to SEC 2.

8d) Update IR-2-Staff-12 i

2–Staff-12 i

INTERROGATORY

Ref: DSP, Appendix N, Facilities Business Plan - CND

i) Please provide the assumptions, analysis and calculations used to arrive at the estimated cost of $4,145,500 (excluding HST) to make 21,892 square feet of space suitable to be an administrative office for Energy+ (estimated by Melloul-Blamey on March 9, 2017).

Response:

Energy+ notes that the estimated costs of the Southworks Facility has been revised as provided for in the Updated Evidence – Appendix 2N Facilities Business Plan.

Please refer to Appendix H Class C Cost Estimate, Melloul-Blamey Construction Inc. contained in the Design Brief provided in Response to SEC 2.

8e) Update IR-1-VECC-2

1-VECC-2

INTERROGATORY

Reference: E1/pg.89

a) Please provide the calculation which supports the estimated typical cost of the planned new facilities of $0.68 per month per customer.

Response:

The following is an updated calculation which supports the estimated typical cost of the planned new facility (Southworks) based on the updated estimated cost of $8.1MM:

Approximate Distribution Rate Impact re Facilities (Southworks Project)

Southworks Development			**Annual**		
Incremental Operating Costs	A	$	123,786	Based on Sq. Ft costs for Bishop St. Location	
Parking Costs		$	150,000	Parking for 70 Employees	
		$	273,786		
Less: Thompson Lease		-$	57,904	Lease costs in 2019 @ $11.25 per sq. ft	
	B	$	215,882		

		Estimated Capital Costs	**Useful Life**	**Annual Dep'n**
Land	$	1		
Building				
Structure	$	6,200,500	75	$ 82,673
Roofing	$	390,500	30	$ 13,017
Mechanical/Electrical	$	1,009,000	25	$ 40,360
Furniture	$	500,000	10	$ 50,000
	$	8,100,001	44	$ 186,050

Estimated Operating Costs, based on Bishop St. Operating Costs			
2018 Building Costs - Per Sq. Ft	$	5.75	
Estimated Sq. Footage		21,528	
	$	123,786	A

Rate Base:				
Incremental OM&A	$	215,882	B	
Working Capital		7.50%		
W/C Allowance	$	16,191	D	
Capital Expenditures	$	8,100,000	C	
W/C Allowance	$	16,191	D	
Rate Base	$	8,116,191		
Deemed Capital Structure				
Debt @ 60%	$	4,869,715	E	
Equity @ 40%	$	3,246,476	F	
	$	8,116,191		
Deemed Interest Rate		4.23%	G	As per 2019 CoS Settlement
Deemed Interest	$	205,989	H=E*G	
Deemed ROE		9.00%	I	As per 2019 CoS Settlement
Allowable ROE	$	292,183	J=F*I	
Revenue Requirement:				
Allowable ROE	$	292,183	J	
PILs	$	40,581	K	Effective rate 12.5%
Pre-tax Income	$	332,764	L=J+K	
Allowable Expenses				
Interest (Deemed)	$	205,989	H	
OM&A	$	215,882	B	
Depreciation	$	186,050	C2	
Total Allowable Expenses	$	607,921	M=H+B+C2	
Total Distribution Revenue Requirement	$	940,685	N=L+M	$ 43.70 Per square foot
Distribution Revenue Requirement	$	34,327,788	O	As per 2019 CoS Settlement
% Increase		2.74%	P=N/O	
Number of Customers		68,956	Q	2022 Estimate
Annual Revenue Per Customer	$	13.64	R=N/Q	
Monthly Revenue Required per Customer	$	1.14	S = R/12	
Total Bill - Estimated using 2019				
Distribution Rates - Avg. Res. 750 kWh	$	102.30		Settlement - Table 3
% Increase on Total Bill		1.1%		

SEC 9

Technical Conference Question

P.18

With respect to bad debt:

a. Please estimate the reduction in bad debt expenses as a result of the move to monthly billing.

RESPONSE

As indicated in the Update to Evidence dated December 31, 2018 (Page 16, paragraph 3), Energy+ did not experience a reduction in bad debt expense related to CND residential customers in 2016 and 2017 and therefore has not made any adjustments for reductions in bad debts in DVA Account 1508 Sub-Account Monthly Billing.

Energy+ also did not experience a reduction in bad debt expense related to GS< 50 kW customers.

Please refer to Response to SEC 9 (b) for further details with respect to the bad debt expense.

SEC 9

Technical Conference Question

P.18

With respect to bad debt:

b. Please provide the monthly bad debt expenses between January 2014 and December 2016.

RESPONSE

Table SEC-3b) i) below provides a summary of the monthly bad debt expense between January 2014 and December 2016. Table SEC-3b) ii) also provides a further bad debt expense analysis.

Energy+ would note the following with respect to the requested summary in Table SEC-3b) i):

- Energy+ has provided the 2014 Board Approved bad debt expense for the former CND, which is the amount of bad debt expense incorporated into CND's existing rates.
- The monthly bad debt expense for 2014 and 2015 represents the bad debt expense for the CND service territory, whereas the monthly expense for 2016 represents the bad debt expense for Energy+, which includes both the CND and Brant service territories. Energy+ does not have the bad debt expense split between service territories for the 2016 year. Energy+ is able to identify the specific write-offs, net of recoveries, in each year by service territory.
- The total bad debt expense for each month is split between: (i) Customer Electric Accounts; and (ii) Miscellaneous Accounts Receivable.
- The Customer Electric Accounts bad debt expense includes all customer classes including residential, GS<50 kW, GS>50 kW and Large Use customer bad debts. The implementation of monthly billing impacted only the residential and GS< 50kW customers in the CND service territory.
- Although not requested, Energy+ has included the bad debt expense for 2017 for Energy+ as well.

- The monthly bad debt expense, with the exception of the month of December, in each year, is fairly consistent, based on the following practices:
    - Energy+ books a monthly bad debt expense equal to the bad debt expense budget for the year; and
    - The monthly bad debt expense may be adjusted in a particular month if there is a material bankruptcy and/or an amount has been recovered (example October 2016).
    - In December of each year, the bad debt expense is adjusted to reflect: (i) actual specific account write-offs for the year; and (ii) an adjustment to the allowance for doubtful accounts to reflect changes in the write-offs and to reflect an estimate of uncollectible accounts, including unbilled revenue.

Table SEC-3b) i) Bad Debt Expense – CND Service Territory 2014-2015 and 2016-2017 Energy+ Inc.

	Year			January	February	March	April	May	June	July	August	September	October	November	December	Year Total
CND Service Territory Only	**2014 Board Approved**		Bad Debt Expense													**212,000**
	2014		Customer Electric Accounts	16,667	16,667	16,667	16,667	16,667	16,667	16,667	16,667	16,667	16,667	16,667	-6,429	**176,908**
			Misc. Accounts Receivable	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	32,771	**43,771**
CND Service Territory Only	**2014**	**Total**		**17,667**	**17,667**	**17,667**	**17,667**	**17,667**	**17,667**	**17,667**	**17,667**	**17,667**	**17,667**	**17,667**	**26,342**	**220,679**
	2015		Customer Electric Accounts	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	-11,239	**164,761**
			Misc. Accounts Receivable	833	833	833	833	833	833	833	833	-5,667	833	833	35,297	**37,960**
CND Service Territory Only	**2015**	**Total**		**16,833**	**16,833**	**16,833**	**16,833**	**16,833**	**16,833**	**16,833**	**16,833**	**10,333**	**16,833**	**16,833**	**24,058**	**202,721**
	2016		Customer Electric Accounts	17,500	17,500	17,500	17,500	17,500	15,508	17,500	17,500	17,500	252,500	17,500	-14,717	**410,791**
			Misc. Accounts Receivable	1,249	1,249	1,249	1,249	1,028	1,249	1,249	1,249	3,268	1,249	1,249	101,261	**116,798**
Energy+ (Both Territories)	**2016**	**Total**		**18,749**	**18,749**	**18,749**	**18,749**	**18,528**	**16,757**	**18,749**	**18,749**	**20,768**	**253,749**	**18,749**	**86,544**	**527,589**
	2017		Customer Electric Accounts	17,667	17,667	17,667	17,667	17,667	17,667	17,667	17,667	17,667	17,667	17,667	-11,678	**182,660**
			Misc. Accounts Receivable	1,250	1,250	1,250	1,250	1,250	5,208	-2,708	1,250	2,724	1,250	1,250	1,250	**16,474**
Energy+ (Both Territories)	**2017**	**Total**		**18,917**	**18,917**	**18,917**	**18,917**	**18,917**	**22,875**	**14,959**	**18,917**	**20,391**	**18,917**	**18,917**	**-10,428**	**199,133**

Energy+ has prepared an analysis below (Table SEC-3b) ii): 2014-2017 Bad Debt Expense Analysis), which reconciles to the total bad debt expense for the periods 2014 through 2017, to support its position that it has not experienced a reduction in bad debts as a result of the transition to monthly billing, in total for both the residential and GS<50 kW classes for the CND service territory.

Bad Debt expense in the year includes specific accounts written-off during the year, net of recoveries, plus adjustments to the allowance for doubtful accounts based on aged accounts receivable.

As illustrated in the Table below (See the Green shaded area "A"), the specific write-off of accounts receivable accounts, net of recoveries, for the residential and GS<50kW accounts in the CND service territory were $156,093 in 2014, compared to $144,664 in 2015, $192,229 in 2016, and $174,467 in 2017. Energy+ has therefore concluded that there has been no reduction in the bad debt expense in 2016 and 2017 with respect to the residential and GS<50 kW accounts in the CND service territory.

Energy+ would also note the following with respect to the analysis:

- 2014 Board Approved Bad Debt Expense for the former Cambridge and North Dumfries Hydro Inc. ("Former CND"). The 2014 Board Approved Bad Debt expense was not split between Customer Electric Accounts and Miscellaneous Accounts Receivable.
- While 2017 bad debt expense for Energy+ declined (from $527,589 in 2016 to $199,133 in 2017), the reduction in 2017 was principally due to: (i) a reduction in bad debt expense related to miscellaneous accounts receivable; and (ii) the 2016 bad debt expense included the write-off of a large commercial account due to bankruptcy.

Table: SEC-3b) ii): 2014 – 2017 Bad Debt Expense Analysis

Bad Debt Expense Analysis	2014 Board Approved - CND Only	CND 2014 Actuals	CND 2015 Actuals	Energy+ 2016 Actuals	Energy+ 2017 Actuals
Actual Bad Debt Expense Write-Offs					
Bad Debt Write-offs for CND Service Territory - Residential and GS<50 kW Only					
Residential		$ 175,598	$ 161,346	$184,852	$196,146
GS<50 kW		$ 15,327	$ 14,962	$ 31,762	$ 16,121
Total		$ 190,924	$ 176,309	$216,613	$212,267
Recoveries for CND Service Territory - Residential and GS<50 kW Only					
Residential		$ (34,832)	$ (31,244)	$ (24,385)	$ (37,800)
GS<50 kW		$ -	$ (401)	$ -	$ -
Total		$ (34,832)	$ (31,645)	$ (24,385)	$ (37,800)
Total Net Write-Offs - CND Service Territory - Residential and GS<50 kW Only					
Residential		$ 140,766	$ 130,103	$160,467	$158,346
GS<50 kW		$ 15,327	$ 14,561	$ 31,762	$ 16,121
Total	A	$ 156,093	$ 144,664	$192,229	$174,467
Bad Debt Write-Off - Other and Brant					
Customer Electric Accounts - CND Only - Other Classes/Changes in Allowance for DA		$ 20,816	$ 20,097	$190,198	$ (9,828)
Customer Electric Accounts - Brant Write-Offs (net of recoveries)		NA	NA	$ 28,364	$ 18,020
		$ 20,816	$ 20,097	$218,562	$ 8,193
Miscellaneous		$ 43,771	$ 37,960	$116,798	$ 16,474
	B	$ 64,587	$ 58,057	$335,360	$ 24,667
TOTAL	=A+B	$ 220,679	$ 202,721	$527,589	$199,133
	CND Board Approved 2014	**CND Only 2014 Actuals**	**CND Only 2015 Actuals**	**Energy+ 2016 Actuals**	**Energy+ 2017 Actuals**
Bad Debt Expense, as per RRR Filing - All Accounts					
Customer Electric Accounts		$ 176,908	$ 164,761	$410,791	$182,660
Mis. Accounts Receivable		$ 43,771	$ 37,960	$116,798	$ 16,474
Total Bad Debt Expense	$ 212,000	$ 220,679	$ 202,721	$527,589	$199,133

SEC 10

Technical Conference Question

P.18

With respect to working capital:

a. Please confirm that the CND working capital that was set in its last cost of service application for 2014 rates was based on a value of 13% of the sum of cost of power and OM&A.

RESPONSE

Energy+ confirms that the CND working capital was set in its last cost of service application for 2014 rates was based on a value of 13% of the sum of cost of power and OM&A.

SEC 10

Technical Conference Question

P.18

With respect to working capital:

b. Please provide the working capital component of CND's approved 2014 revenue requirement.

RESPONSE

The working capital component of CND's approved 2014 revenue requirement was $1,489,594.

SEC 10

Technical Conference Question

P.18

With respect to working capital:

c. Please confirm that adjusting the Board's current working capital allowance default value of 7.5% for the difference between monthly and bi-monthly billing results in a change of value of 4.1%. (See attached Excel spreadsheet for the calculation).

RESPONSE

Energy+ does not confirm that the conversion from monthly to bi-monthly billing would result in a change of value of 4.1% to the working capital percentage for Energy+.

Energy+ notes that the spreadsheet provided by SEC is based on the OEB's default value for Working Capital, which was based on an OEB staff review and analysis of eight lead-lag studies provided to the OEB since 2010 and included in the June 3, 2015 Letter of the Board "Allowance for Working Capital for Electricity Distribution Rate Applications". Energy+ has not prepared a lead-lag study, and is therefore not included in the sample of the eight LDCs used by OEB staff.

Energy+ confirms that SEC has computed the change in value of 4.1% by:

i. Computing a "Working Capital Allowance for Bi-Monthly Billing" by taking the OEB Staff Analysis computation and updating to double the service lag variable from the 15.22 to 30.42.

ii. Computing the difference between the default Working Capital allowance analysis prepared by OEB Staff with the computed working capital allowance in (i).

Energy+ would note the following with respect to this methodology, which SEC asks Energy+ to utilize in responding to SEC-10 (d):

- The methodology assumes that all customers have converted from bi-monthly to monthly billing. In the CND service territory, only customers in the Residential and GS<50 rate classes were impacted by the conversion.

- In the June 3, 2015 OEB Letter of the Board, the OEB noted that the reduction of the working capital allowance from 13% to 7.5% was a result of multiple factors including:

  1) The substantial completion of the smart meter rollout and advanced metering infrastructure, which reduces aggregate meter reading time;

  2) Wider adoption of monthly billing, resulting in a shorter period from service to payment;

  3) Customer information system updates, which reduce time required to calculate customer bills; and

  4) General process improvements.

SEC 10

Technical Conference Question

P.18

With respect to working capital:

d. Please recalculate working capital component of CND's 2014 revenue requirement with working capital value of 8.9%

RESPONSE

Using a working capital value of 8.9%, which is the difference between CND's 13% working capital allowance in 2014 and the SEC computed value from Response to SEC-10 (c), and assuming the working capital amount as per CND's 2014 revenue requirement, the amount is calculated as $1,019,798.

Energy+ does not agree that a computed change based on working capital percentages should be used as a proxy to compute the benefits derived from the transition to monthly billing. Specifically, Energy+ would note the following:

- The accounting order for the monthly billing DVA (EB-2015-0057) approved for the former CND stated the following:

  "The account will be used to record any incremental OM&A costs directly attributable to the transition to monthly billing. Costs to be recorded will be net of any associated cost reductions resulting from the transition, including efforts towards paperless billing, improvements in cashflow or reductions in bad debt." [Emphasis added]

  The accounting order did not make reference to capturing the change in working capital allowance based on the OEB's letter of June 3, 2015.

  Changes to the working capital component of revenue requirement does not constitute a cost, or cost reduction resulting from the transition to monthly billing.

  Energy+ submits that the items listed in the accounting order have been captured in the balance of the DVA, including the estimated cash flow benefit, as documented in the updated evidence.

- In its letter of June 3, 2015, the OEB also provided the view that the use of the default value for the working capital allowance (e.g. 7.5%) should only be implemented during a cost of service application. Energy+'s view is that utilizing a change in working capital allowance for purposes of computing a proxy for cost reductions in the DVA balance for the periods 2016 through 2018 with respect to the transition to monthly billing would be inconsistent with the Board's approach and constitute retroactive rate making.

SEC 11

Technical Conference Question

For any cost allocations scenarios that Energy+ is asked to provide in response to Technical Conference questions from Board Staff or other intervenors, or any updated cost allocation proposals it may provide in any evidence updates, please provide a table showing the distribution bill impacts for customers for each previous rate zone (BCP and CND) and for each rate class.

RESPONSE

Energy+ has provided a summary of the Distribution Rate and Total Bill Impacts for each of the cost allocation scenarios provided in the Responses to Technical Conference questions in Appendix TCQ-SEC 10.

The following table summarizes the assumptions used in each of the scenarios:

Scenario	Assumptions
TCQ VECC 76 Updated Settlement Position	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - One Large Use rate class - No direct allocation to TMMC - Cost allocation to Embedded Distributors per Appendix 2-Q
TCQ VECC 69	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - One Large Use rate class - No direct allocation to TMMC - Cost allocation to Embedded Distributors per Appendix 2-Q
TCQ VECC 72 a	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - One Large Use rate class - Direct allocation of feeders and contributions to TMMC - Cost allocation to Embedded Distributors similar to other classes

TCQ VECC 72 c	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - One Large Use rate class - Direct allocation of feeders and contributions to TMMC - Cost allocation to Embedded Distributors per Appendix 2-Q
TCQ VECC 75 a	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - Two Large Use rate classes - Direct allocation of feeders and contributions to TMMC - Cost allocation to Embedded Distributors similar to other classes
TCQ VECC 75 c	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - Two Large Use rate classes - Direct allocation of feeders and contributions to TMMC - Cost allocation to Embedded Distributors per Appendix 2-Q
TCQ TMMC 2	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - Two Large Use rate classes - Direct allocation of feeders and contributions to TMMC - Direct allocation of estimated poles, meters, O&M to TMMC - Cost allocation to Embedded Distributors per Appendix 2-Q

APPENDIX SEC-11

BILL IMPACT SCENARIOS

CND Bill Amount

CND Service Territory	kWh	kW	Distribution (Fixed & Volumetric)									Total Bill (Excluding HST)								
			Current 2018	Settlement	Settlement Updated per TCQ VECC 76	Scenario TCQ VECC 69	Scenario TCQ VECC 72 a	Scenario TCQ VECC 72 c	Scenario TCQ VECC 75 a	Scenario TCQ VECC 75 c	Scenario TCQ TMMC 2	Current 2018	Settlement	Settlement Updated per TCQ VECC 76	Scenario TCQ VECC 69	Scenario TCQ VECC 72 a	Scenario TCQ VECC 72 c	Scenario TCQ VECC 75 a	Scenario TCQ VECC 75 c	Scenario TCQ TMMC 2
Residential	750	-	24.83	27.61	27.61	27.37	27.56	27.75	27.59	27.78	27.93	96.02	102.30	102.35	102.11	102.31	102.50	102.34	102.53	102.60
Residential	313	-	22.80	27.61	27.61	27.37	27.56	27.75	27.59	27.78	27.93	52.99	59.66	59.68	59.43	59.63	59.83	59.66	59.86	59.93
GS < 50 kW	2,000	-	43.21	46.69	46.70	46.70	46.70	46.70	46.70	46.70	46.70	243.70	255.37	255.49	255.49	255.49	255.49	255.49	255.49	255.14
GS >50 to 999 kW	20,000	60	368.05	318.00	318.01	311.00	318.38	326.19	318.77	326.63	332.00	3,415.31	3,420.69	3,422.90	3,415.79	3,422.88	3,430.80	3,423.27	3,431.24	3,433.01
GS >1,000 to 4,999	800,000	2,000	8,341.83	8,453.67	8,454.37	8,454.37	8,454.37	8,454.37	8,454.37	8,454.37	8,454.37	124,738.16	126,050.38	126,103.86	126,103.86	126,119.90	126,120.13	126,119.90	126,120.12	125,936.60
Large Use 1	6,600,000	16,000	48,858.20	46,679.76	46,685.62	46,685.62	33,026.02	34,608.79	36,605.02	38,370.96	50,133.62	959,490.65	1,006,043.72	1,000,943.39	1,000,943.39	987,007.75	988,619.16	972,720.30	974,529.75	984,867.20
Large Use 2	6,600,000	16,000	48,858.20	46,679.76	46,685.62	46,685.62	33,026.02	34,608.79	30,748.93	32,221.28	16,213.53	959,490.65	1,006,043.72	1,000,943.39	1,000,943.39	987,007.75	988,619.16	988,325.41	989,822.33	972,170.78
Unmetered Scattered Load	100	-	7.15	7.24	7.24	7.24	7.26	7.25	7.27	7.25	7.24	17.39	17.77	17.78	17.78	17.76	17.75	17.77	17.75	17.72
Street Lighting	400,000	700	44,773.08	35,339.88	35,340.23	35,532.02	35,586.10	35,401.40	35,589.68	35,405.05	35,159.46	101,505.50	98,037.38	98,051.30	98,246.43	98,326.82	98,139.09	98,330.46	98,142.80	97,903.80
EMB - WNH	-	8,280	15,870.25	11,283.98	11,283.98	25,192.73	26,255.88	11,283.16	26,307.22	11,283.16	11,276.53	47,845.40	37,972.43	38,238.57	52,396.83	53,117.41	38,088.40	53,168.86	38,088.41	37,094.71
EMB - HONI	1,382,000	2,574	5,296.14	4,515.57	4,515.83	8,697.55	9,035.00	4,515.31	9,045.55	4,515.31	4,520.20	207,486.91	201,417.93	201,500.92	205,757.67	206,613.74	201,696.95	206,625.52	201,696.95	201,448.96

CND % Increase over 2018

CND Service Territory	kWh	kW	Distribution (Fixed & Volumetric)									Total Bill (Excluding HST)								
			Current 2018	Settlement	Settlement Updated per TCQ VECC 76	Scenario TCQ VECC 69	Scenario TCQ VECC 72 a	Scenario TCQ VECC 72 c	Scenario TCQ VECC 75 a	Scenario TCQ VECC 75 c	Scenario TCQ TMMC 2	Current 2018	Settlement	Settlement Updated per TCQ VECC 76	Scenario TCQ VECC 69	Scenario TCQ VECC 72 a	Scenario TCQ VECC 72 c	Scenario TCQ VECC 75 a	Scenario TCQ VECC 75 c	Scenario TCQ TMMC 2
Residential	750	-		11.2%	11.2%	10.2%	11.0%	11.8%	11.1%	11.9%	12.5%		6.5%	6.6%	6.3%	6.6%	6.8%	6.6%	6.8%	6.9%
Residential	313	-		21.1%	21.1%	20.0%	20.9%	21.7%	21.0%	21.8%	22.5%		12.6%	12.6%	12.2%	12.5%	12.9%	12.6%	13.0%	13.1%
GS < 50 kW	2,000	-		8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%		4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.7%
GS >50 to 999 kW	20,000	60		-13.6%	-13.6%	-15.5%	-13.5%	-11.4%	-13.4%	-11.3%	-9.8%		0.2%	0.2%	0.0%	0.2%	0.5%	0.2%	0.5%	0.5%
GS >1,000 to 4,999	800,000	2,000		1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%		1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.0%
Large Use 1	6,600,000	16,000		-4.5%	-4.4%	-4.4%	-32.4%	-29.2%	-25.1%	-21.5%	2.6%		4.9%	4.3%	4.3%	2.9%	3.0%	1.4%	1.6%	2.6%
Large Use 2	6,600,000	16,000		-4.5%	-4.4%	-4.4%	-32.4%	-29.2%	-37.1%	-34.1%	-66.8%		4.9%	4.3%	4.3%	2.9%	3.0%	3.0%	3.2%	1.3%
Unmetered Scattered Load	100	-		1.2%	1.2%	1.2%	1.4%	1.3%	1.6%	1.4%	1.2%		2.2%	2.3%	2.2%	2.1%	2.1%	2.2%	2.1%	1.9%
Street Lighting	400,000	700		-21.1%	-21.1%	-20.6%	-20.5%	-20.9%	-20.5%	-20.9%	-21.5%		-3.4%	-3.4%	-3.2%	-3.1%	-3.3%	-3.1%	-3.3%	-3.5%
EMB - WNH	-	8,280		-28.9%	-28.9%	58.7%	65.4%	-28.9%	65.8%	-28.9%	-28.9%		-20.6%	-20.1%	9.5%	11.0%	-20.4%	11.1%	-20.4%	-22.5%
EMB - HONI	1,382,000	2,574		-14.7%	-14.7%	64.2%	70.6%	-14.7%	70.8%	-14.7%	-14.7%		-2.9%	-2.9%	-0.8%	-0.4%	-2.8%	-0.4%	-2.8%	-2.9%

Brant Bill Amount

Brant Service Territory	kWh	kW	Distribution (Fixed & Volumetric)									Total Bill (Excluding HST)								
			Current 2018	Settlement	Settlement Updated per TCQ VECC 76	Scenario TCQ VECC 69	Scenario TCQ VECC 72 a	Scenario TCQ VECC 72 c	Scenario TCQ VECC 75 a	Scenario TCQ VECC 75 c	Scenario TCQ TMMC 2	Current 2018	Settlement	Settlement Updated per TCQ VECC 76	Scenario TCQ VECC 69	Scenario TCQ VECC 72 a	Scenario TCQ VECC 72 c	Scenario TCQ VECC 75 a	Scenario TCQ VECC 75 c	Scenario TCQ TMMC 2
Residential	750	-	28.28	27.61	27.61	27.37	27.56	27.75	27.59	27.78	27.93	102.93	102.30	102.35	102.11	102.31	102.50	102.34	102.53	102.60
Residential	357	-	26.19	27.61	27.61	27.37	27.56	27.75	27.59	27.78	27.93	63.07	63.95	63.98	63.73	63.93	64.12	63.96	64.15	64.22
GS < 50 kW	2,000	-	53.36	46.69	46.70	46.70	46.70	46.70	46.70	46.70	46.70	262.81	255.37	255.49	255.49	255.49	255.49	255.49	255.49	255.14
GS >50 to 999 kW Interval <10	20,000	60	332.76	318.00	318.01	311.00	318.38	326.19	318.77	326.63	332.00	3,512.04	3,423.14	3,425.36	3,418.24	3,425.33	3,433.25	3,425.72	3,433.69	3,435.46
GS >50 to 999 kW	20,000	60	332.76	318.00	318.01	311.00	318.38	326.19	318.77	326.63	332.00	3,496.48	3,420.69	3,422.90	3,415.79	3,422.88	3,430.80	3,423.27	3,431.24	3,433.01
GS >1,000 to 4,999	800,000	2,000	7,956.38	8,453.67	8,454.37	8,454.37	8,454.37	8,454.37	8,454.37	8,454.37	8,454.37	134,337.28	126,050.38	126,103.86	126,103.86	126,119.90	126,120.13	126,119.90	126,120.12	125,936.60
Unmetered Scattered Load	100	-	4.37	7.24	7.24	7.24	7.26	7.25	7.27	7.25	7.24	14.84	17.78	17.78	17.78	17.76	17.75	17.77	17.75	17.72
Sentinel Lighting	10,000	29	1,227.30	1,696.61	1,696.62	1,701.63	1,704.02	1,695.19	1,704.81	1,695.98	1,687.78	2,378.60	2,774.43	2,774.44	2,779.54	2,854.49	2,845.52	2,855.35	2,846.36	2,850.34
Street Lighting	600,000	176	12,373.13	8,230.18	8,230.27	8,274.93	8,287.53	8,244.51	8,288.36	8,245.36	8,188.17	104,532.03	92,813.32	92,816.82	92,862.32	92,879.79	92,836.01	92,880.64	92,836.88	92,783.09
EMB - BPI	50,000	27	203.08	317.71	317.71	94.26	96.46	317.68	142.44	317.68	317.77	7,849.35	7,229.70	7,229.70	7,002.24	7,036.77	7,236.36	7,082.79	7,236.36	7,237.14
EMB - HON #1	1,300,000	2,340	9,292.48	2,356.44	2,356.44	5,981.95	6,231.05	2,356.18	6,211.30	2,356.21	2,354.79	212,927.34	186,464.55	186,396.95	190,087.00	190,230.29	186,367.47	190,210.45	186,367.50	186,140.29
EMB - HON #2	1,990,000	4,050	96.98	57.39	57.39	923.57	923.46	57.36	923.66	57.39	57.38	276,731.57	268,125.65	268,125.65	269,021.17	269,013.13	268,118.73	269,013.33	268,118.76	267,721.14

Brant % Increase over 2018

Brant Service Territory	kWh	kW	Distribution (Fixed & Volumetric)									Total Bill (Excluding HST)								
			Current 2018	Settlement	Settlement Updated per TCQ VECC 76	Scenario TCQ VECC 69	Scenario TCQ VECC 72 a	Scenario TCQ VECC 72 c	Scenario TCQ VECC 75 a	Scenario TCQ VECC 75 c	Scenario TCQ TMMC 2	Current 2018	Settlement	Settlement Updated per TCQ VECC 76	Scenario TCQ VECC 69	Scenario TCQ VECC 72 a	Scenario TCQ VECC 72 c	Scenario TCQ VECC 75 a	Scenario TCQ VECC 75 c	Scenario TCQ TMMC 2
Residential	750	-		-2.4%	-2.4%	-3.2%	-2.5%	-1.9%	-2.4%	-1.8%	-1.2%		-0.6%	-0.6%	-0.8%	-0.6%	-0.4%	-0.6%	-0.4%	-0.3%
Residential	357	-		5.4%	5.4%	4.5%	5.2%	5.9%	5.3%	6.1%	6.6%		1.4%	1.4%	1.0%	1.4%	1.7%	1.4%	1.7%	1.8%
GS < 50 kW	2,000	-		-12.5%	-12.5%	-12.5%	-12.5%	-12.5%	-12.5%	-12.5%	-12.5%		-2.8%	-2.8%	-2.8%	-2.8%	-2.8%	-2.8%	-2.8%	-2.9%
GS >50 to 999 kW Interval <10	20,000	60		-4.4%	-4.4%	-6.5%	-4.3%	-2.0%	-4.2%	-1.8%	-0.2%		-2.5%	-2.5%	-2.7%	-2.5%	-2.2%	-2.5%	-2.2%	-2.2%
GS >50 to 999 kW	20,000	60		-4.4%	-4.4%	-6.5%	-4.3%	-2.0%	-4.2%	-1.8%	-0.2%		-2.2%	-2.1%	-2.3%	-2.1%	-1.9%	-2.1%	-1.9%	-1.8%
GS >1,000 to 4,999	800,000	2,000		6.3%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%	6.3%		-6.2%	-6.1%	-6.1%	-6.1%	-6.1%	-6.1%	-6.1%	-6.3%
Unmetered Scattered Load	100	-		65.7%	65.7%	65.7%	66.1%	65.9%	66.4%	65.9%	65.7%		19.8%	19.8%	19.8%	19.7%	19.6%	19.8%	19.6%	19.4%
Sentinel Lighting	10,000	29		38.2%	38.2%	38.6%	38.8%	38.1%	38.9%	38.2%	37.5%		16.6%	16.6%	16.9%	20.0%	19.6%	20.0%	19.7%	19.8%
Street Lighting	600,000	176		-33.5%	-33.5%	-33.1%	-33.0%	-33.4%	-33.0%	-33.4%	-33.8%		-11.2%	-11.2%	-11.2%	-11.1%	-11.2%	-11.1%	-11.2%	-11.2%
EMB - BPI	50,000	27		56.4%	56.4%	-53.6%	-52.5%	56.4%	-29.9%	56.4%	56.5%		-7.9%	-7.9%	-10.8%	-10.4%	-7.8%	-9.8%	-7.8%	-7.8%
EMB - HON #1	1,300,000	2,340		-74.6%	-74.6%	-35.6%	-32.9%	-74.6%	-33.2%	-74.6%	-74.7%		-12.4%	-12.5%	-10.7%	-10.7%	-12.5%	-10.7%	-12.5%	-12.6%
EMB - HON #2	1,990,000	4,050		-40.8%	-40.8%	852.3%	852.2%	-40.9%	852.4%	-40.8%	-40.8%		-3.1%	-3.1%	-2.8%	-2.8%	-3.1%	-2.8%	-3.1%	-3.3%

Scenario	Assumptions
TCQ VECC 76 Updated Settlement Position	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - One Large Use rate class - No direct allocation to TMMC - Cost allocation to Embedded Distributors per Appendix 2-Q
TCQ VECC 69	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - One Large Use rate class - No direct allocation to TMMC - Cost allocation to Embedded Distributors per Appendix 2-Q
TCQ VECC 72 a	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - One Large Use rate class - Direct allocation of feeders and contributions to TMMC - Cost allocation to Embedded Distributors similar to other classes
TCQ VECC 72 c	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - One Large Use rate class - Direct allocation of feeders and contributions to TMMC - Cost allocation to Embedded Distributors per Appendix 2-Q
TCQ VECC 75 a	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - Two Large Use rate classes - Direct allocation of feeders and contributions to TMMC - Cost allocation to Embedded Distributors similar to other classes
TCQ VECC 75 c	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - Two Large Use rate classes - Direct allocation of feeders and contributions to TMMC - Cost allocation to Embedded Distributors per Appendix 2-Q
TCQ TMMC 2	- Settlement proposal revenue requirement - Updated LV and RTSR rates per TCQ VECC 79 and TCQ VECC 80 - Updated load forecast per TCQ VECC 66 b - Updated cost allocation of accounts 1805 & 1808 to >50kV - Two Large Use rate classes - Direct allocation of feeders and contributions to TMMC - Direct allocation of estimated poles, meters, O&M to TMMC - Cost allocation to Embedded Distributors per Appendix 2-Q

Energy+ Inc.

EB-2018-0028

Response to Technical Conference Questions

Toyota Motor Manufacturing Canada Inc. (TMMC)

January 22, 2019

Table of Contents

TECHNICAL CONFERENCE TMMC IR-1

Issue: Cost Allocation and Rate Design

References: Energy+ Responses to TMMC Question 10 (April 10, 2018), IR-TMMC-11 (September 14, 2018), IR-TMMC-11(1) (September 14, 2018), Clarification TMMC-3 (September 19, 2018) and Clarification TMMC-5 (September 20, 2018)

Preamble: TMMC requires information regarding the assets that are used to provide distribution service to TMMC.

(a) Please confirm that the following assets are used, exclusively, to provide distribution service to TMMC:

(i) the 21M24 and 21M30 overhead feeders;

(ii) insulators, clamps, bolts, bracket connectors and switches associated with (i) above;

(iii) two TMMC-specific load-break switches;

(iv) a “few” solid blade switches;

(v) the poles located at the Preston TS; and

(vi) the lightning arrestors on the 21M24 and 21M30 overhead feeders.

RESPONSE

Energy+ confirms that the assets listed are used exclusively to provide distribution service to TMMC. Energy+ clarifies part (v) “the poles located at the Preston TS” are associated with part (i).

TECHNICAL CONFERENCE TMMC IR-1

Issue: Cost Allocation and Rate Design

References: Energy+ Responses to TMMC Question 10 (April 10, 2018), IR-TMMC-11 (September 14, 2018), IR-TMMC-11(1) (September 14, 2018), Clarification TMMC-3 (September 19, 2018) and Clarification TMMC-5 (September 20, 2018)

Preamble: TMMC requires information regarding the assets that are used to provide distribution service to TMMC.

(b) Are there any other assets not listed above that are used, exclusively, to provide service to TMMC (for example, TMMC-specific meters)? If "yes," please identify

RESPONSE

Yes, there are four (4) meters that were upgraded in 2015 which are used exclusively to provide distribution service to TMMC. In addition, Energy+ owns the fibre optic link between the Hydro One owned relays at the Preston TS and TMMC owned relays at TMMC.

TECHNICAL CONFERENCE TMMC IR-1

Issue: Cost Allocation and Rate Design

References: Energy+ Responses to TMMC Question 10 (April 10, 2018), IR-TMMC-11 (September 14, 2018), IR-TMMC-11(1) (September 14, 2018), Clarification TMMC-3 (September 19, 2018) and Clarification TMMC-5 (September 20, 2018)

Preamble: TMMC requires information regarding the assets that are used to provide distribution service to TMMC.

(c) Please confirm that the following assets are used to provide distribution service to TMMC as well as to other Energy+ customers:

(i) the 109 poles that support the 21M24 overhead feeder;

(ii) the 145 poles that support the 21M30 feeder;

(iii) four (4) meters that were upgraded in 2015;

(iv) PTs and CTs at the Preston TS; and

(v) general plant assets (eg., vehicles, office, tools and equipment).

RESPONSE

Please note Energy+ response to each of the sub-questions below:

(i) Out of the 109 poles that support the 21M24 overhead feeder, there are 3 poles that are used exclusively for TMMC located at the Preston TS. The remaining 106 poles are used to provide distribution service to TMMC as well as other Energy+ customers.

(ii) Out of the 145 poles that support the 21M30 overhead feeder, there are 3 poles that are used exclusively for TMMC located at the Preston TS. The remaining 142 poles are used to provide distribution service to TMMC as well as other Energy+ customers.

(iii) Four (4) meters that were upgraded in 2015 are exclusivity for TMMC.

(iv) PTs and CTs at the Preston TS are used to provide distribution service to TMMC as well as other Energy+ customers.

(v) General plant assets (e.g., vehicles, office, tools and equipment) are used to provide distribution service to TMMC as well as other Energy+ customers.

TECHNICAL CONFERENCE TMMC IR-1

Issue: Cost Allocation and Rate Design

References: Energy+ Responses to TMMC Question 10 (April 10, 2018), IR-TMMC-11 (September 14, 2018), IR-TMMC-11(1) (September 14, 2018), Clarification TMMC-3 (September 19, 2018) and Clarification TMMC-5 (September 20, 2018)

Preamble: TMMC requires information regarding the assets that are used to provide distribution service to TMMC.

(d) Are there any other assets not listed above that are used to provide distribution service to both TMMC and to other Energy+ customers? If "yes," please identify.

RESPONSE

Yes, there are guys, anchors, grounding / neutral conductors used to provide distribution service to both TMMC and to other Energy+ customers.

TECHNICAL CONFERENCE TMMC IR-1

Issue: Cost Allocation and Rate Design

References: Energy+ Responses to TMMC Question 10 (April 10, 2018), IR-TMMC-11 (September 14, 2018), IR-TMMC-11(1) (September 14, 2018), Clarification TMMC-3 (September 19, 2018) and Clarification TMMC-5 (September 20, 2018)

Preamble: TMMC requires information regarding the assets that are used to provide distribution service to TMMC.

(e) Please provide the 1NCP and 4 NCP loads (in kW) served by the M25, M27, M29 and M42 feeders, as applicable, that are supported on the poles or towers that also support the 21M24 feeder.

RESPONSE

Please note that feeders M23, M27, M29 are supported on some of the poles that also support 21M24. The M25 feeder circuit noted in the question is not on any poles supporting the 21M24 feeder. Please refer to Response to Clarification Question 'TMMC-3' filed on September 19, 2018 for further details.

The following table shows the 1NCP and 4NCP loads (in kW) served by M23, M27, M29.

1NCP	Residential	GS<50	GS>50	StreetLight	GS>1MW	GS>5MW	Embedded Distributors
21M23	5039	1161	1663	81	2669	0	0
12M27	1586	1886	6689	32	768	0	0
21M29	234	1112	5429	71	6095	0	0

4NCP	Residential	GS<50	GS>50	StreetLight	GS>1MW	GS>5MW	Embedded Distributors
21M23	4448	1114	1394	81	2548	0	0
21M27	1487	1817	5907	32	791	0	0
21M29	210	1072	4984	71	6034	0	0

Note: The values provided above are based on the current configuration of Energy+'s distribution system and is deemed a static model. The distribution system is dynamic in nature as planned and unplanned switching events cause changes to feeder loading and customers connected to individual feeders. The loading information used in the table above is based on 2017 data.

TECHNICAL CONFERENCE TMMC IR-1

Issue: Cost Allocation and Rate Design

References: Energy+ Responses to TMMC Question 10 (April 10, 2018), IR-TMMC-11 (September 14, 2018), IR-TMMC-11(1) (September 14, 2018), Clarification TMMC-3 (September 19, 2018) and Clarification TMMC-5 (September 20, 2018)

Preamble: TMMC requires information regarding the assets that are used to provide distribution service to TMMC.

(f) Please provide the 1NCP and 4NCP loads (in kW) served by the M25, M27, M29 and M42 feeders, as applicable, that are supported on the poles or towers that also support the 21M30 feeder.

RESPONSE

Please note that feeders M25, M29, M42 are supported on some of the poles that also support 21M30. The M27 feeder circuit is noted in the question is not on any poles supporting the 21M30 feeder. Please refer to Response to Clarification Question 'TMMC-3' filed on September 19, 2018 for further details.

The following table shows the 1NCP and 4NCP loads (in kW) served by M25, M29, M42.

1NCP	Residential	GS<50	GS>50	StreetLight	GS>1MW	GS>5MW	Embedded Distributors
21M25	4077	1783	2883	88	0	0	9657
21M29	234	1112	5429	71	6095	0	0
2510M42	1006	1578	7854	67	2012	0	0

4NCP	Residential	GS<50	GS>50	StreetLight	GS>1MW	GS>5MW	Embedded Distributors
21M25	3539	1702	2559	88	0	0	9178
21M29	210	1072	4984	71	6034	0	0
2510M42	937	1473	7054	67	2047	0	0

Note: The values provided above are based on the current configuration of Energy+'s distribution system and is deemed a static model. The distribution system is dynamic in nature as planned and unplanned switching events cause changes to feeder loading and customers connected to individual feeders. The loading information used in the table above is based on 2017 data.

TECHNICAL CONFERENCE TMMC IR-2

Issue: Cost Allocation and Rate Design

References: Energy+ 2019 Cost of Service Application ("**Application**"); Settlement Proposal dated December 2, 2018 ("**Settlement Proposal**")

Preamble: TMMC expects to file updated evidence ("**Updated Evidence**") by February 15, 2019 in accordance with Procedural Order No. 7. TMMC expects that the Updated Evidence will include proposal for a TMMC-only rate class and full direct assignment of the costs of providing distribution service to TMMC. TMMC requires certain information from Energy+ in this regard.

(a) Please provide a class cost-of-service ("**CCOS**") study that that reflects the settlement of the revenue requirements elements of the Application as set in the Settlement Proposal and a scenario whereby (i) TMMC is in its own customer rate class; and (ii) the costs of providing distribution service to TMMC are directly assigned to TMMC.

RESPONSE

Energy+ has provided the following Cost Allocation Model that is a scenario that reflects the following: (i) the settlement of the revenue requirement elements of the Application as set out in the Settlement proposal; (ii) TMMC is in its own rate class; and (iii) the estimated costs of providing distribution service to TMMC are directly assigned to TMMC:

i) 2019_EnergyPlus_Cost_Allocation_Model_TC_TMMC_2.xlsm

Energy+ has been asked to prepare a "direct cost allocation" for TMMC in the absence of a detailed planned direct allocation study and has therefore made best efforts to derive an estimate of costs that would be allocated to TMMC within a limited period of time.

In making this estimate, Energy+ considered time spent on certain identifiable operations and maintenance activities associated with servicing TMMC. Energy+ did not go through every single operations and maintenance expenditure within its budget to assign costs to TMMC.

TECHNICAL CONFERENCE TMMC IR-2

Issue: Cost Allocation and Rate Design

References: Energy+ 2019 Cost of Service Application ("**Application**"); Settlement Proposal dated December 2, 2018 ("**Settlement Proposal**")

Preamble: TMMC expects to file updated evidence ("**Updated Evidence**") by February 15, 2019 in accordance with Procedural Order No. 7. TMMC expects that the Updated Evidence will include proposal for a TMMC-only rate class and full direct assignment of the costs of providing distribution service to TMMC. TMMC requires certain information from Energy+ in this regard.

(b) Please provide a working copy of the model that underpins the CCOS provided in response to (a) above.

RESPONSE

Please see Response to Technical Conference TMMC IR-2 a).

TECHNICAL CONFERENCE TMMC IR-2

Issue: Cost Allocation and Rate Design

References: Energy+ 2019 Cost of Service Application ("**Application**"); Settlement Proposal dated December 2, 2018 ("**Settlement Proposal**")

Preamble: TMMC expects to file updated evidence ("**Updated Evidence**") by February 15, 2019 in accordance with Procedural Order No. 7. TMMC expects that the Updated Evidence will include proposal for a TMMC-only rate class and full direct assignment of the costs of providing distribution service to TMMC. TMMC requires certain information from Energy+ in this regard.

(c) Please provide all backup workpapers, in "live" Excel format, that support the direct assignment of costs to TMMC.

RESPONSE

Energy+ has provided the working papers in live excel format that were used to estimate the direct assignment of costs to TMMC. Please refer to the excel file named "2019 Energy+ TMMC Direct Allocation.xlsx".

TECHNICAL CONFERENCE TMMC IR-2

Issue: Cost Allocation and Rate Design

References: Energy+ 2019 Cost of Service Application ("**Application**"); Settlement Proposal dated December 2, 2018 ("**Settlement Proposal**")

Preamble: TMMC expects to file updated evidence ("**Updated Evidence**") by February 15, 2019 in accordance with Procedural Order No. 7. TMMC expects that the Updated Evidence will include proposal for a TMMC-only rate class and full direct assignment of the costs of providing distribution service to TMMC. TMMC requires certain information from Energy+ in this regard.

(d) Please list all of the assumptions that underpin the CCOS provided in response to (a) above, including:

(i) for O&M costs, assumptions with respect to number of allocated hours and hourly rates;

(ii) for costs of distribution assets not used exclusively to serve TMMC, assumptions with respect to total investment, accumulated amortization and net book value allocated to TMMC, for each asset; and

(iii) assumptions with respect to the allocation of any TMMC capital contributions, including amounts and dates of such contributions.

RESPONSE

As previously explained, Energy+ has been asked to prepare a "direct cost allocation" for TMMC in the absence of a detailed direct allocation study and has therefore made best efforts to derive an estimate of costs that would be allocated to TMMC within a limited period of time.

In preparing the direct cost allocation model, and corresponding rates and bill impacts (to respond to Technical Conference Questions SEC-11), Energy+ has assumed standby rates apply.

The following table summarizes the assumed estimated direct costs included in the cost allocation scenario in Response to Technical Conference TMMC-2 a).

Table TMMC-IR-2d): Estimated Direct Allocated Costs to TMMC

	Fixed Assets	Capital Contributions	Accumulated Amortization	O&M	Depreciation
Feeders (1)	$ 274,492.51	$ -	$ (50,039.61)	$ -	$ 9,098.11
Poles (2)	$ 357,321.66	$ -	$ (51,142.25)	$ -	$ 9,298.59
Meters (2)	$ 34,000.00	$ -	$ (9,066.67)	$ -	$ 2,266.67
Contribution	$ -	$ (184,453.81)	$ 53,394.53	$ -	$ (9,708.10)
O&M on Feeders	$ -	$ -	$ -	$ 93,115.09	$ -
Total	$ 665,814.17	$ (184,453.81)	$ (56,853.99)	$ 93,115.09	$ 10,955.27

Notes:
(1) IR-TMMC-11
(2) Clarification-TMMC-3

The following is an explanation of the basis of each of the assumptions used:

Feeders

In Response to IR-TMMC-11, Energy+ provided the estimated values for the feeders as at December 31, 2017. Please refer to Response to VECC-TCQ-71 a) for further information with respect to how these estimates were derived.

Components	Initial Asset Value	Accumulated Depreciation at the end of 2017	Net Book Value at the end of 2017		Annual Depreciation Expense from 2012 to 20XX - IFRS	Annual Depreciation Expense in 2011 - CGAPP	Annual Depreciation Expense from 1996 to 2010 - CGAPP
Total	$ 670,019	$ 431,919	$ 238,100		$ 9,098	$ 25,140	$ 23,479

In preparing the direct allocation analysis, Energy+ identified that the above table previously provided did not reflect the adoption of MIFRS on January 1, 2015, with restatement to January 1, 2014 which results in the cost of the feeder assets being set to NBV at that time, and then accumulated amortization being set to nil. This adjustment was reflected in the Feeder tab in the TMMC Direct Allocation excel spreadsheet and summarized as follows:

TMMC Feeder Costs

	Cost.	Acc. Amort.	NBV
Closing Balance, Dec. 31, 2013 (CGAAP)	$ 670,019.20	$ (395,526.69)	$ 274,492.51

Reset to NBV at Jan. 1, 2014	MIFRS Cost	2014-2018 Depn	NBV Dec. 31, 2018
Adoption of IFRS	$ 274,492.51	$ (45,490.55)	$ 229,001.96

	Opening Cost Jan. 1, 2019	2019 Depreciation	NBV Dec. 31, 2019
2019 Depreciation	$ 229,001.96	$ (9,098.11)	$ 219,903.85

Poles and Meters

The following was the information provided previously with respect to the Poles and Meters as part of Clarification TMMC-3 (excerpts only):

Energy+ has prepared this estimate using assumptions that are based on average asset values in the asset categories, depreciation rates for the asset classes, and based on the information in the asset records with respect to the age of the assets that have been identified as servicing the TMMC plant.

The following chart provides the high level estimate of the asset values as of Dec. 31, 2017:

Table – Clarification – TMMC 3: High Level Estimate of Non-Exclusive Distribution Assets

TOTAL M24 POLES	Estimated Assets			
	Estimated Cost	Estimated Acc. Amort.	Estimated NBV	Estimated Annual Depreciation
Concrete	$ 22,942	$ 19,990	$ 2,952	$ 273
Wood	$ 290,373	$ 174,403	$ 115,970	$ 2,714
Total	$ 313,315	$ 194,393	$ 118,922	$ 2,987
TOTAL M30 POLES	$ 10,196	$ 9,364	$ 832	$ 93
Concrete	$ 743,858	$ 543,485	$ 200,373	$ 6,219
Wood	$ 754,054	$ 552,849	$ 201,205	$ 6,311
TOTAL				
Concrete	$ 33,138	$ 29,354	$ 3,784	$ 366
Wood	$ 1,034,231	$ 717,888	$ 316,343	$ 8,933
	$ 1,067,369	$ 747,242	$ 320,127	$ 9,299
Metering Assets	$ 34,000	$ 5,667	$ 28,333	$ 2,267

In preparing the direct allocation analysis, Energy+ identified that the above table previously provided did not reflect the adoption of MIFRS on January 1, 2015, with restatement to January 1, 2014 which results in the cost of the pole assets being set to NBV at that time, and then accumulated amortization being set to nil. This adjustment was reflected in the Poles tab in the TMMC Direct Allocation excel spreadsheet.

The above noted NBV of poles as at December 31, 2017 was $320,127. The net book value of the poles identified in the Pole tab in the spreadsheet as at December 31, 2017 is $320,127, which is the same as above. The difference in the pole value on the summary tab reflects the average NBV used for the test year, which is the average NBV for 2018 and 2019.

Capital Contribution

The amount of the capital contribution in the TMMC Direct Allocation analysis is estimated based on the following items identified in a letter to TMMC on October 25, 1995, which are specific to the Feeders:

Item No. in Letter	**Estimated Capital Contribution -Feeders**
Item 2 – Supply all labour and material to add 7.8km of 27.6 kV overhead circuit with 795 kcmil conductor to our existing pole line (M30)	[redacted]
Item 4 – Insulation upgrade to 44 kV (M30)	[redacted]
Item 6 – Overhead egress from Preston TS (M30)	[redacted]
Total	[redacted]

Consistent with the Feeders and Poles, the above noted capital contribution amount does not reflect the adoption of MIFRS on January 1, 2015, with restatement to January 1, 2014 which results in the capital contribution being set to NBV at that time, and then accumulated amortization being set to nil. This adjustment was reflected in the Contributions tab in the TMMC Direct Allocation excel spreadsheet.

The other items identified in the letter indicate either “No charge to TMMC” or they are related to the Fibre Optic cable at Preston TS, which is not related to the costs of the Feeders. The costs of the fibre optic cable have not been allocated to TMMC as part of this Direct Allocation analysis, and therefore neither have any related capital contributions.

Operations and Maintenance expenditures (O&M)

The total O&M budget for Energy+ Inc. in the 2019 Test Year is $5,930,641, and the amount estimated for TMMC in the analysis provided is $93,115.

The basis of the estimated Operations and Maintenance expenditures provided in the O&M tab was as follows:

Overhead Maintenance

In the 2019 Test Year Energy+ will be completing a project that will require Energy+ to work on the circuit poles that are used by TMMC. Energy+ has historically performed maintenance activities on weekends in order to avoid any potential risk and/or impact to TMMC’s operations during its peak production hours. Energy+ has not undertaken a detailed study to determine the exact number of maintenance hours that would be completed on the poles and/or other elements of the distribution system that are within TMMC’s proximity on an annual basis.

The 1,500 hours represents the estimated premium hours only to complete the work that has been identified for the 2019 Test Year (i.e. only the overtime component of the estimated hours). There may be other specific operations and maintenance activities that have not been specifically identified at this time.

The number of vehicle hours (375) is based on the estimated number of labour hours (1500) divided by 4, assuming one large truck for every 1 powerline technician.

In addition to the above, Energy+ received the following information from its head of operations: Working on TMMC circuit poles after Hours – Energy+ generally schedules any work on the supply lines for Sundays when TMMC is not in production. This may occur 4 or 5 times per year.

Control Room

Energy+ notes that the total value of Control Room services estimated for TMMC is $4,855. This represents approximately 0.58% of the total 2019 Control Room budget of $828,000. The Control Room Services hours of 73 (0.35% of a total of 20,800 total hours for the Control Room) represents an estimate of time spent by the Control Room Operators to co-ordinate maintenance, as well as for various services provided to TMMC identified by our Control Room staff including:

- Correspondence between Hydro One, TMMC and Energy+ with respect to TMMC reliability, including scheduling of 230 kV switching, Preston TS bus isolation or breaker maintenance for weekends or TMMC shut downs to mitigate risk to TMMC's productions;
- Preparation and distribution of reports to TMMC when an event occurs on the system that affects TMMC's production. This includes any events on the Preston Even bus (M24, M28, M30) feeders or any 230 kV event.
- Feeder Patrols and Monitoring – Energy+ has a Control Room procedure in place to patrol any event on the Preston even bus feeders. Energy+ takes extra measures in order to minimize TMMC exposure to system events.

The hourly rates used were based on the following:

- Overhead maintenance labour rate is the hourly rate for a powerline technician, and does not include any associated benefits or payroll burden.
- Vehicle rate is Energy+'s standard vehicle hourly rate for a large vehicle.
- Control room hourly rate is the average hourly rate of a Control Room operator plus a 49% standard payroll burden.

Tree Trimming

Energy+ only completes trimming on the circuits supplying TMMC during their shutdown each year in July. On average Energy+ completes the work with 1.5 crews for an annual cost of $6,900 per year. Since TMMC is one of Energy+'s most sensitive customers to outages, Energy+ works on the lines each year during TMMC's shutdown to ensure that faster tree growth is trimmed back to eliminate any outages. Over the four years tree trimming cycle, the cost to trim the poles related to the TMMC feeders is 4 x $6,900 = $27,600.

TECHNICAL CONFERENCE TMMC IR-3

(a) Does Energy+ utilize any bulk distribution facilities to provide distribution service to TMMC?

(b) If the response to (a) is "yes," please:

(i) describe these facilities; and

(ii) identify which, if any, of these facilities serve TMMC exclusively and which serve TMMC as well as other customers of Energy+.

(c) Please provide an electrical diagram that depicts the bulk distribution facilities used to provide service to TMMC.

(d) Please confirm that feeders M24 and M30 are radial lines and are not integrated with the rest of Energy+'s distribution system.

RESPONSE

a) Based on the definition of bulk distribution facilities as "assets built to support the distribution system's peak"[1] and assuming TMMC is referring to the assets recorded by Energy+ in USoA accounts 1805-1 (Land Station > 50 kV), 1806-1 (Land Rights Station > 50 kV), 1808-1 (Buildings and Fixtures > 50 kV), and 1815 (Transformer Station Equipment – Normally Primary above 50 kV), Energy+ confirms that it does not utilize any bulk distribution facilities to provide distribution service to TMMC.

b) Not Applicable.

c) Not Applicable.

[1] EB-2005-0317, Cost Allocation Review, Board Directions on Cost Allocation Methodology for Electricity Distributors (Sept. 29, 2006) Pg. 36, as referenced in TMMC Evidence, J. Pollack Incorporated Class Cost of Service Study, Pg. 16)

TECHNICAL CONFERENCE TMMC IR-3

RESPONSE

d) Energy+ confirms that feeders M24 and M30 are not integrated with the rest of Energy+'s distribution system. Energy+ clarifies that feeders M24 and M30 are not normally radial lines as the 27.6kV CB-Tie breaker at TMMC is normally closed. Therefore, the feeders M24 and M30 normally operate in parallel and are considered a looped supply.

Energy+ Inc.

EB-2018-0028

Response to Technical Conference Questions

Vulnerable Energy Consumers Coalition (VECC)

January 22, 2019

Table of Contents

VECC-TCQ - 61

Issue: 1.1 Capital

Reference: Update Evidence December 13, 2018

a) Given the delay in the Southworks project from 2020 to 2022 and the associated uncertainties as to costs why is it not preferable to address funding for this project through an ICM application made in 2020 (or later)?.

RESPONSE

Energy+'s proposal with respect to an ACM for the Southworks facility is based on the understanding that the ACM was intended to enable review during a cost of service application for the need and prudence of any incremental capital module funding requests for discrete projects that are part of a distributor's DSP, and that are planned to come into service during the IRM period ("Advanced Capital Module").

The Southworks facility is expected to be completed during the IRM period and is a discrete capital investment. In accordance with the ACM, "advancing the reviews of eligible discrete capital projects, included as part of a distributor's Distribution System Plan and scheduled to go into service during the IRM term, is expected to facilitate enhanced planning and smoothing of rate impacts, as the distributor, the Board and other stakeholders will be examining the capital projects over the five-year horizon of the DSP."

While the plans for Southworks are not final, and there is some uncertainty with respect to the exact timing, the project is still anticipated within the IRM period.

Energy+ also expects to incur some costs associated with improvements to the building shell (roof, windows, firewall) in 2019 and 2020. In addition, soft costs such as architectural and engineering fees will be incurred as designs are more fully developed.

For these reasons, Energy+ is seeking the review and approval of the need and prudency of this investment as part of the ACM prior to making more significant investments during the construction phase of this project.

VECC-TCQ - 61

Issue: 1.1 Capital

Reference: Update Evidence December 13, 2018

b) Since the Garden Avenue facility, Southwork project and Bishop Street renovations and Thompson Drive lease termination are all part of one facilities plan why is it not preferable to apply for all the projects under the ambit of one multi-year ICM proposal at a later date.

RESPONSE

Energy+ has bundled the three projects in one business plan to illustrate the comprehensive approach it is undertaking to modernize its operational and administrative facilities. The implementation of the three projects, however, carry varying degrees of uncertainty and timing.

The Southworks project is the most advanced of the three. There is much more certainty with respect to the cost estimates, permit approvals, and timeline for construction and occupancy as illustrated in the updated evidence and the responses to the technical questions.

VECC-TCQ - 62

Issue: 1.1 Capital

Reference: Update Evidence December 13, 2018

For each Garden Avenue, Southwork, Bishop Street, and Thompson Drive and Dundas Street facilities please provide a table showing the most recent information of:

i) Where applicable - the start date and completion date of construction/renovations (month and year);

ii) The date of occupancy/vacate and number of staff vacating or occupying on this date (month and year). Please provide both the absolute number of staff and the percentage of current staff using facility in question at the time of occupancy/vacate (e.g. 100% of Dundas Street staff on what month and year and how many staff in total)

iii) Current best estimate of cost of project. If detailed estimates have not yet been developed (i.e. Garden Avenue – please provide the current planning estimate).

RESPONSE

Facility	Construction Period	Occupancy / Move out Date	Number and % Employees	Cost Estimate
Southworks	March 2020 – March 2021	Occupancy July 2021	67 (51%)	$8.1 million
Bishop St.	2024	Engineering & Operations remain occupied	51 (39%)	$2.0 million
Thompson Dr.	N/A	Vacate July 2021	16 (12%)	N/A

Facility	Construction Period	Occupancy / Move out Date	Number and % Employees	Cost Estimate
Dundas St.	N/A	Vacate TBD	13 (10%)	N/A
Shared Facility with BPI	TBD	Occupancy 2020	13 (10%)	$4.4 million

Notes:

1. The dates provided for Southworks construction and occupancy could be pushed out 6 – 9 months based on the detailed construction timeline of the 2 condominium towers that are being constructed as part of the overall development. Energy+ will be utilizing parking space in an adjacent tower for its employees and visitors. Occupancy will only be feasible once the parking garages are completed and construction activity on the site diminishes to a level that enables a safe and comfortable work environment.
2. Any change in the Southworks schedule also affects the schedule for Bishop St. renovations as they cannot begin until all administrative employees are relocated to Southworks.
3. Brantford Power Inc. (BPI) is continuing to explore alternatives for its facility requirements. Energy+ is committed to sharing in the ultimate solution by entering into a long-term lease with BPI.

VECC-TCQ - 63

Issue: 1.1 Capital

Reference: Update Evidence December 13, 2018, pgs. 6-7

a) Please provide a list of the site approvals that are noted as being delayed.

RESPONSE

There are two remaining approvals currently outstanding:

1. Site Plan Approval from the City of Cambridge
2. Severance Approval from the City of Cambridge for Energy+'s portion of the building and property

A key condition for achieving both of these approvals was obtaining a Record of Site Condition from the Ministry of Environment, Parks and Conservation. The Record of Site Condition was obtained on January 3, 2019.

HIP Developments now expects to receive the two remaining approvals from the City by mid-February 2019.

VECC-TCQ - 63

Issue: 1.1 Capital

Reference: Update Evidence December 13, 2018, pgs. 6-7

b) Please provide a list of all approvals required for the Southwork project, noting those that have been received to date and the expected date for outstanding approvals.

RESPONSE

The following lists Energy+'s Board approvals for the Southworks project:

Approvals to date:

1. Approval to enter into a Letter of Understanding with HIP Developments, engage architects, and begin due diligence – March 30, 2017.
2. Approval to execute Purchase & Sale Agreement for the Southworks property (subject to closing conditions) – November 17, 2017.
3. Approval of updated $8.1 million budget – December 13, 2018.

Future Approvals:

1. Closing the Purchase of Southworks property (assumes Severance Application is approved and Environmental peer review is acceptable) – March 30, 2019.
2. Execution of Construction Agreement with Melloul-Blamey – June 30, 2019.
3. Approval of Class B Estimate – September 30, 2019.
4. Approval of Class A Estimate and tenders for construction – January 31, 2020.

Third Party Approvals:

1. Zoning bylaw amendment for a site specific zoning regarding density and building height. All have been fulfilled, just waiting for letter from City of Cambridge.
2. Bylaw Variance, Parking reduction.
3. Application for Consent to sever property.
4. Bylaw variance for reduced setbacks for Artist Studios

5. **Site Plan Approval:**

   Submission #1: July 2018

   Submission #2: September 2018

   Submission #3: January 2018

   Submission #4: By end of January 2019 (last submission addressing final Energy + comments and Engineering comments). Deadline is end of February 2019 to have the Site plan Agreement.

Construction:

1. Firewall Building Permit, February 2018, still open but work is complete.
2. Demolition Permit, April 2018, work ongoing.
3. Building Permit for Base Buildings C and D – January 2019.
4. Building Permit for Event Space (building D) Tenant Improvement – January 2019.
5. Building Permit for two residential towers and podiums –February 2019
6. Building Permit for North Base building (buildings A and B) - February 2019
7. Building Permit for Energy+ part of building – January 2019.

Environmental (all completed):

1. Risk Assessment
2. Certificate of Property Use
3. Record of Site Condition

Final Step still required: During construction, the implementation of vapour mitigation measures and site capping, then final testing to ensure it meets all the requirements of the Risk Assessment.

VECC-TCQ - 63

Issue: 1.1 Capital

Reference: Update Evidence December 13, 2018, pgs. 6-7

c) The evidence states that finalization of the plans for the Southworks facility are pending environmental due diligence. It further states that HIP Developments expects of have a Record of Site Condition for the Ministry of Environment by end of 2018.

i) Is HIP preparing the Record of Site Condition?

ii) Has this Record been filed with the Ministry?

iii) If yes please provide a copy of the Record.

iv) If the Record of Site makes a determination of a concentration of contaminants please indicate when an action plan will be developed to address the contaminants.

RESPONSE

HIP has worked with an environmental consultant to prepare the Record of Site Condition. It has been filed and approved by the Ministry as of January 3, 2019.

A copy of the Record of Site Condition is attached as Appendix VECC-TCQ-63.

The mitigation solution to manage the contaminants is outlined in the Design Brief filed in response to SEC-TCQ – 2.

VECC-TCQ - 63

Issue: 1.1 Capital

Reference: Update Evidence December 13, 2018, pgs. 6-7

d) Was the soil radiation budget (100k) estimated based on a completed Record of Site or was this estimate made prior to environmental work being completed?

RESPONSE

The soil remediation budget of $100,000 is to cover the cost of excavating and disposing soil at the west end of the building where the main entrance is to be located. The estimate was made on the basis of known contaminants from prior testing done at the site.

VECC-TCQ - 63

Issue: 1.1 Capital

Reference: Update Evidence December 13, 2018, pgs. 6-7

e) Has the Committee of Adjustment approved the proposed severance required or the Southworks project? If not please provide the hearing date for this.

RESPONSE

Please see response to VECC-TCQ – 63 (a).

APPENDIX VECC-TCQ – 63

RECORD OF SITE CONDITION (SOUTHWORKS)

Ontario

Record of Site Condition
Under Part XV.1 of the Environmental Protection Act

Summary

Record of Site Condition Number	225266
Date Filed to Environmental Site Registry	2019/01/03
Certification Date	2017/11/17
Current Property Use	Commercial
Intended Property Use	Residential
Certificate of Property Use Number	1038-B4LRUB
Applicable Site Condition Standards	Full Depth Generic Site Conditions Standard, with Potable Ground Water, Coarse Textured Soil, for Residential property use, with RA
Property Municipal Address	64 GRAND AVENUE SOUTH, CAMBRIDGE, ON, N1S 2L8

Notice to Readers Concerning Due Diligence

This record of site condition (RSC) has been filed in the Environmental Site Registry to which the public has access and which contains a notice advising users of the Environmental Site Registry who have dealings with any property to consider conducting their own due diligence with respect to the environmental condition of the property, in addition to reviewing information in the Environmental Site Registry.

Contents of this Record of Site Condition

This RSC consists of this document which is available to be printed directly from the Environmental Site Registry as well as all supporting documentation indicated in this RSC to have been submitted in electronic format to the Ministry of the Environment and Climate Change.

Part 1: Property Ownership, Property Information and Owner's Certifications

Information about the owner who is submitting or authorizing the submission of the record of site condition

Owner name	HIP SOUTHWORKS INC.
Owner type	Firm, corporation or partnership
Authorized person	SCOTT HIGGINS
Mailing address Postal Code	700 RUPERT STREET, WATERLOO Ontario, Canada N2V 2B5
Phone	(519) 886-8855
Fax	(519) 886-8898
Email address	scott@hipdevelopments.com

Record of site condition property location information

Municipal address(es)	64 GRAND AVENUE SOUTH, CAMBRIDGE, ON N1S 2L8
Municipality	Cambridge
Legal description	**See attached Lawyer's letter**
Assessment roll number(s)	040-056-08000-0000
Property identifier number(s)	03806-0091 (LT)

Record of site condition property geographical references

Coordinate system	**UTM**
Datum	**NAD 83**
Zone	17
Easting	555,225.00
Northing	4,800,485.00

Record of site condition property use information

The following types of property uses are defined by the Regulation: Agricultural or other use, Commercial use, Community use, Industrial use, Institutional use, Parkland use, and Residential use.

Current property use	Commercial
Intended property use	Residential
Certificate of property use has been issued under section 168.6 of the Environmental Protection Act	Yes
Certificate of property use number	1038-B4LRUB

Please see the signed statements of property owner, or agent, or receiver at the end of this record of site condition

The rest of this page has been left intentionally blank

Part 2: List of reports, summary of site conditions and qualified person's statements and certifications

Qualified person's information

Name	THIAM CHUAN TAN
Type of licence under Professional Engineers Act	Licence
Licence number	100134808
Quallified person's employer name	EXP SERVICES INC.
Mailing address	110, 220 COMMERCE VALLEY DRIVE WEST, MARKHAM Ontario, L3T 0A8 Canada
Phone	(905) 695-3217
Fax	(905) 695-0167
Email address	travis.tan@exp.com

Municipal information

Local or single-tier municipality	Cambridge
Upper-tier municipality	Waterloo

Ministry of the Environment and Climate Change District Office

District office	Guelph District Office
District office address	1 Stone Road W., Guelph ON N1G 4Y2

Phase one environmental site assessment report

Document used as the phase one environmental site assessment report and updates in submitting the record of site condition for filing

The date the last work on all of the records review, interviews and site reconnaissance components of the phase one environmental site assessment was done (refer to clause 28(1) (a) of O. Reg. 153/04)	(yyyy/mm/dd) 2018-08-08

Type of report	Report title	Date of report (yyyy/mm/dd)	Author of report	Name of consulting company
Phase one environmental site assessment	Phase One Environmental Site Assessment, Southworks Outlet Mall Inc., 64 Grand Avenue South, Cambridge, Ontario	2015-10-13	Carla Reynolds, P. Biol., P. Geo. (Limited)	EXP SERVICES INC.
Update to phase one environmental site assessment	Phase One Environmental Site Assessment Update, 64 Grand Avenue South, Cambridge, Ontario	2018-08-17	Travis Tan, M.A.Sc., P. Eng.	EXP SERVICES INC.

Reports and other documents related to the phase one environmental site assessment

Reports and other documents relied upon in certifying the information set out in section 10 of Schedule A or otherwise used in conducting the phase one environmental site assessment

Report title	Date of report (yyyy/mm/dd)	Author of report	Name of consulting company
Environmental Audit Former Babcock & Wilcock Soth Works Property, Cambridge, Ontario	1991-11-19	William Anderson, P. Eng.	TERRAQUA INVESTIGATIONS LTD.
Phase I and II Environmental Assessment, 64 Grand Avenue South, Cambridge, Ontario	2007-01-10	Jim Phimister, P. Eng.	BARENCO INC.

Phase two environmental site assessment report

Document used as the phase two environmental site assessment report and updates in submitting the record of site condition for filing

The date the last work on all of the planning of the site investigation and conducting the site investigation components of the phase two environmental site assessment was done (refer to clause 33.5(1)(a) of O. Reg. 153/04)	(yyyy/mm/dd) 2017-11-17

Type of report	Report title	Date of report (yyyy/mm/dd)	Author of report	Name of consulting company
Phase two environmental site assessment	Phase Two Environmental Site Assessment, 64 Grand Avenue South, Cambridge, Ontario	2017-11-28	Carla Reynolds, P. Biol., P.Geo. (Limited)	EXP SERVICES INC.

Reports and other documents related to the phase two environmental site assessment

Reports and other documents relied upon in making any certifications in the record of site condition for the purposes of Part IV of Schedule A or otherwise used in conducting the phase two environmental site assessment

Report title	Date of report (yyyy/mm/dd)	Author of report	Name of consulting company
Assessment of Possible Environmental Remediation, South Works Property, 64 Grand Ave., Cambridge, Ontario	1998-11-19	William Anderson, M. Sc., P.Eng.	ANDERSON GEOLOGIC LIMITED
Phase I and II Environmental Assessment, 64 Grand Avenue South, Cambridge, Ontario	2007-01-10	Jim Phimister, P. Eng.	BARENCO INC.
Risk Assessment, 64 Grand Avenue South, Cambridge, Ontario	2012-03-06	Theresa Phillips, Ph. D., QPRA	EXP SERVICES INC.
Phase Two Environmental Site Assessment Update, 64 Grand Avenue South, Cambridge, Ontario	2015-10-13	Carla Reynolds, P. Biol., P.Geo. (Limited)	EXP SERVICES INC.
2010 and 2012 RA Supplementary Subsurface Assessments, 64 Grand Avenue South, Cambridge, Ontario	2016-04-29	F.C. Wendeborn, M.Sc., P. Geo.	EXP SERVICES INC.
Risk Assessment Addendum 2, 64 Grand Avenue South, Cambridge, Ontario	2016-05-12	Theresa Phillips, Ph. D., QPRA	EXP SERVICES INC.
Phase Two Environmental Site Assessment Update, 64 Grand Avenue South, Cambridge, Ontario	2017-02-08	F.C. Wendeborn, M.Sc., P. Geo.	EXP SERVICES INC.
Risk Assessment Addendum 3, 64 Grand Avenue South, Cambridge, Ontario	2017-02-13	Theresa Phillips, Ph. D., QPRA	EXP SERVICES INC.
Risk Assessment Addendum 4, 64 Grand Avenue South, Cambridge, Ontario	2017-11-30	Travis Tan, M.A.Sc., P. Eng., QPRA	EXP SERVICES INC.
Migration and Dilution Assessment of Chlorinated Solvents from 64 Grand Avenue South, Cambridge to the Middleton Street Wellfield	2018-09-10	Reinhard Zapata, Ph. D., P.Geo.	EXP SERVICES INC.

Wellfield		D., P.Geo. and Travis Tan, M.A. Sc., P.Eng.	
Risk Assessment Addendum 5, 64 Grand Avenue South, Cambridge, Ontario	2018-09-10	Travis Tan, M.A.Sc., P. Eng.	EXP SERVICES INC.

Environmental condition

Section 41 applies?	No
Section 43.1 applies?	Yes

Site condition information

Certification date (yyyy/mm/dd)	2017/11/17
Total area of record of site condition property (in hectares)	2.00000
Number of any previously filed record of site condition that applies to any part of the record of site condition property	
Number of any previously filed transition notice that applies to any part of the record of site condition property	
Soil texture	Coarse
Assessment/restoration approach	Full depth generic
Site investigation includes the investigation, sampling and analysis of ground water?	Yes
Is there soil present that is sufficient to investigate, sample and analyze soil on, in or under the property in accordance with s. 6, Schedule E of O.Reg. 153/04?	Yes
Site investigation includes the investigation, sampling and analysis of soil on, in or under the property which is used in the record of site condition?	Yes
Name of the laboratory used to analyze any samples collected of soil, ground water or sediment	AGAT LABORATORIES AND MAXXAM ANALYTICS
Ground water condition (potable, non-potable)	Potable
Applicable site condition standard	TABLE 6

Risk assessment information

A risk assessment has been prepared and accepted by the Director in support of this record of site condition?	Yes
Risk assessment identification number	1193-11
Risk assessment was a site specific risk assessment completed and approved in accordance with the Cleanup Guideline 1996?	No

Table 1 – Maximum contaminant concentrations compared to applicable site condition standards

Measured concentration for contaminants in soil

Contaminant name		Maximum concentration		Applicable site condition	Unit of measure
1	Dioxin/Furan		**0.0000009**	0.000013	µg TEQ/g
2	Chlorophenol, 2-	<	0.1	1.6	µg/g
3	Dichlorophenol, 2,4-	<	0.1	0.19	µg/g
4	Pentachlorophenol	<	0.1	0.1	µg/g
5	Trichlorophenol, 2,4,5-	<	0.1	4.4	µg/g
6	Trichlorophenol, 2,4,6-	<	0.1	2.1	µg/g
7	Chromium VI	<	0.2	8	µg/g
8	Cyanide (CN-)	<	0.05	0.051	µg/g
9	Beryllium	<	1	4	µg/g
10	Boron (total)		**24**	120	µg/g
11	Cobalt		**15**	22	µg/g
12	Silver		**11.3**	20	µg/g
13	Uranium		**0.9**	23	µg/g
14	Vanadium		**36**	86	µg/g
15	Acenaphthene		**7.6**	7.9	µg/g
16	Fluorene		**17**	62	µg/g
17	Petroleum Hydrocarbons F1****	<	20	55	µg/g
18	Petroleum Hydrocarbons F2	<	20	98	µg/g
19	Petroleum Hydrocarbons F3		**300**	300	µg/g
20	Petroleum Hydrocarbons F4		**130**	2800	µg/g
21	Acetone	<	0.5	16	µg/g
22	Bromomethane	<	0.05	0.05	µg/g
23	Carbon Tetrachloride	<	0.05	0.05	µg/g
24	Chlorobenzene	<	0.05	2.4	µg/g
25	Chloroform	<	0.04	0.05	µg/g
26	Dichlorobenzene, 1,2-	<	0.05	1.2	µg/g
27	Dichlorobenzene, 1,3-	<	0.05	4.8	µg/g
28	Dichlorobenzene, 1,4-	<	0.05	0.083	µg/g
29	Dichlorodifluoromethane	<	0.05	16	µg/g
30	Dichloroethane, 1,1-	<	0.02	0.47	µg/g
31	Dichloroethane, 1,2-	<	0.03	0.05	µg/g
32	Dichloroethylene, 1,1-	<	0.05	0.05	µg/g
33	Dichloroethylene, 1,2-cis-	<	0.02	1.9	µg/g
34	Dichloroethylene, 1,2-trans-	<	0.05	0.084	µg/g
35	Dichloropropane, 1,2-	<	0.03	0.05	µg/g

...Continued on next page

Table 1 – Maximum contaminant concentrations compared to applicable site condition standards

Measured concentration for contaminants in soil

Continued from previous page....

Contaminant name		Maximum concentration		Applicable site condition	Unit of measure
36	Dichloropropene,1,3-	<	0.04	0.05	µg/g
37	Ethylene dibromide	<	0.04	0.05	µg/g
38	Hexane (n)	<	0.05	2.8	µg/g
39	Methyl Ethyl Ketone	<	0.5	16	µg/g
40	Methyl Isobutyl Ketone	<	0.5	1.7	µg/g
41	Methyl tert-Butyl Ether (MTBE)	<	0.05	0.75	µg/g
42	Methylene Chloride	<	0.05	0.1	µg/g
43	Styrene	<	0.05	0.7	µg/g
44	Tetrachloroethane, 1,1,1,2-	<	0.04	0.058	µg/g
45	Tetrachloroethane, 1,1,2,2-	<	0.05	0.05	µg/g
46	Trichloroethane, 1,1,1-	<	0.05	0.38	µg/g
47	Trichloroethane, 1,1,2-	<	0.04	0.05	µg/g
48	Trichlorofluoromethane	<	0.05	4	µg/g
49	Vinyl Chloride	<	0.02	0.02	µg/g
50	Bromodichloromethane	<	0.05	1.5	µg/g
51	Bromoform	<	0.002	0.27	µg/g
52	Dibromochloromethane	<	0.05	2.3	µg/g
53	Benzene		**0.008**	0.21	µg/g
54	Ethylbenzene		**0.09**	1.1	µg/g
55	Toluene		**0.18**	2.3	µg/g
56	Xylene Mixture		**0.41**	3.1	µg/g

Table 1 – Maximum contaminant concentrations compared to applicable site condition standards (Continued)

Ground water

Contaminant name		Maximum concentration		Applicable site condition	Unit of measure
1	Dioxin/Furan		**0.0000029**	0.000015	µg TEQ/L
2	Mercury	<	0.1	0.1	µg/L
3	Barium		**307**	1000	µg/L
4	Beryllium	<	1	4	µg/L
5	Boron (total)		**370**	5000	µg/L
6	Cadmium		**1.8**	2.1	µg/L
7	Chromium Total		**22.1**	50	µg/L
8	Cobalt		**1**	3.8	µg/L
9	Copper		**4.8**	69	µg/L
10	Lead	<	0.5	10	µg/L
11	Molybdenum		**21.3**	70	µg/L
12	Nickel		**16.9**	100	µg/L
13	Silver	<	0.5	1.2	µg/L
14	Thallium	<	0.5	2	µg/L
15	Uranium		**9.1**	20	µg/L
16	Vanadium		**6.1**	6.2	µg/L
17	Zinc		**792**	890	µg/L
18	Arsenic		**11.4**	25	µg/L
19	Selenium		**9.4**	10	µg/L
20	Acenaphthene	<	0.2	4.1	µg/L
21	Acenaphthylene	<	0.2	1	µg/L
22	Anthracene	<	0.1	1	µg/L
23	Benz[a]anthracene	<	0.2	1	µg/L
24	Benzo[b]fluoranthene	<	0.1	0.1	µg/L
25	Benzo[ghi]perylene	<	0.2	0.2	µg/L
26	Benzo[k]fluoranthene	<	0.1	0.1	µg/L
27	Chrysene	<	0.1	0.1	µg/L
28	Dibenz[a h]anthracene	<	0.2	0.2	µg/L
29	Fluoranthene	<	0.2	0.41	µg/L
30	Fluorene	<	0.2	120	µg/L
31	Indeno[1 2 3-cd]pyrene	<	0.2	0.2	µg/L
32	Methlynaphthalene, 2-(1-) ***		**0.69**	3.2	µg/L
33	Naphthalene	<	0.2	7	µg/L
34	Phenanthrene		**0.15**	1	µg/L
35	Pyrene	<	0.2	4.1	µg/L

...Continued on next page

Table 1 – Maximum contaminant concentrations compared to applicable site condition standards (Continued)

Ground water

Continued from previous page....

Contaminant name		Maximum concentration		Applicable site condition	Unit of measure
36	Chlorophenol, 2-	<	0.5	8.9	µg/L
37	Dichlorophenol, 2,4-	<	0.3	20	µg/L
38	Pentachlorophenol	<	0.5	30	µg/L
39	Trichlorophenol, 2,4,5-	<	0.2	8.9	µg/L
40	Trichlorophenol, 2,4,6-	<	0.2	2	µg/L
41	Petroleum Hydrocarbons F1****	<	25	420	µg/L
42	Petroleum Hydrocarbons F2	<	100	150	µg/L
43	Petroleum Hydrocarbons F3	<	100	500	µg/L
44	Petroleum Hydrocarbons F4	<	100	500	µg/L
45	Acetone	<	20	2700	µg/L
46	Bromomethane		**0.89**	0.89	µg/L
47	Chlorobenzene	<	0.4	30	µg/L
48	Dichlorobenzene, 1,2-	<	0.4	3	µg/L
49	Dichlorobenzene, 1,3-	<	0.4	59	µg/L
50	Dichlorodifluoromethane	<	0.8	590	µg/L
51	Dichloroethane, 1,1-	<	1.2	5	µg/L
52	Dichloroethylene, 1,2-trans-	<	0.8	1.6	µg/L
53	Dichloropropane, 1,2-		**0.58**	0.58	µg/L
54	Dichloropropene,1,3-	<	0.5	0.5	µg/L
55	Hexane (n)	<	0.8	5	µg/L
56	Methyl Ethyl Ketone	<	10	1800	µg/L
57	Methyl Isobutyl Ketone	<	10	640	µg/L
58	Methyl tert-Butyl Ether (MTBE)	<	0.8	15	µg/L
59	Methylene Chloride	<	1.2	26	µg/L
60	Styrene	<	0.4	5.4	µg/L
61	Tetrachloroethane, 1,1,1,2-	<	0.4	1.1	µg/L
62	Tetrachloroethane, 1,1,2,2-	<	0.4	0.5	µg/L
63	Trichloroethane, 1,1,1-		**1.9**	23	µg/L
64	Trichlorofluoromethane	<	1.6	150	µg/L
65	Bromodichloromethane		**11**	16	µg/L
66	Bromoform		**0.8**	5	µg/L
67	Dibromochloromethane		**7.7**	25	µg/L
68	Ethylbenzene	<	0.4	2.4	µg/L
69	Toluene	<	0.8	24	µg/L
70	Xylene Mixture	<	0.8	72	µg/L

See the attached "Table 2. Maximum contaminant concentrations compared to standards specified in a risk assessment" for standards specified in a risk assessment and comparison to maximum concentrations measured on, in or under the record of site condition property.

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Remedial action and mitigation

Remediated soils

Estimated quantities of the soil, if any, originating at and remaining on the record of site condition property that have been remediated, at a location either on or off the property, to reduce the concentration of contaminants in the soil. Indicate the remediation process or processes used and the estimated amount of soil remediated by each identified process.

Soil remediation process	Estimated quantity of soil (in ground-volume in cubic metres)

Description of remediation

Description of any action taken to reduce the concentration of contaminants (including soil removals) on, in or under the record of site condition property.
NA

Soil or sediment removed and not returned

Estimated quantities of soil or sediment, if any, removed from and not returned to the record of site condition property.

Estimated quantity of soil (in ground-volume in cubic metres)	0.0
Estimated quantity of sediment (in ground-volume in cubic metres)	0.0

Soil brought to the property

Estimated quantity of the soil, if any, being brought from another property to and deposited at the record of site condition property, not including any soil that may have originated at but been remediated off the record of site condition property and that is identified in section 28 of Schedule A.

Estimated quantity of soil brought to the property (in ground-volume in cubic metres)	0.0

Ground water control or treatment measures

Ground water control or treatment measures that were required for the record of site condition property prior to the certification date for the purpose of submitting the record of site condition for filing.
NA

Ground water control or treatment measures that are required for the record of site condition property after the certification date.
NA

Estimated volume of ground water, if any, removed from and not returned to the record of site condition property.

Estimated volume of ground water (in litres)	0.0

Other activities including risk management measures

Constructed works that prior to the certification date for the purpose of submitting the record of site condition for filing, were required to control or otherwise mitigate the release or movement of known existing contaminants at the record of site condition property.

NA

Constructed works that after the certification date, are required to control or otherwise mitigate the release or movement of known existing contaminants at the record of site condition property.

-Vapour Controls:
Engineering controls to mitigate potential risks associated with the inhalation of indoor air exposure scenario is required for all existing and new buildings constructed on-site.

- Soil Barrier:
A barrier to impacted soils is required to prevent human and ecological direct contact with impacted soils. The barrier may consist of both hard cap and soft cap cover systems and will be comprised of existing barriers as well as incorporate building footprints and other surface features that are to be constructed during the redevelopment of the property.

- Health and Safety Plan (HASP):
A HASP is required for protection of construction worker exposure to impacted soil and ground water via direct contact and trench air inhalation.

- Soil and Ground Water Management Plan (SGWMP):
A SGWMP is to be prepared and implemented during all intrusive activities at the site potentially exposing impacted soil and ground water.

- Restriction on Potable Water Collection

- Restriction on Planting of Fruit and Vegetables for Consumption

Additional details of each risk management measure are provided in the Certificate of Property Use (CPU).

Monitoring or Maintenance

Soil Management Measures

Soil monitoring requirements or any requirements for care, maintenance or replacement or any monitoring or control works for known existing contaminants, if any, on the record of site condition property, after the certification date.

-Vapour Control System Monitoring:
Monitoring and maintenance programs are required to ensure the integrity of the building floor slab and vapour mitigation systems to ensure that the engineered controls are effectively keeping concentrations of contaminants to within acceptable levels.

- Soil Barrier Monitoring:
Monitoring and maintenance programs are required to ensure the integrity of the hard and soft cap barriers, existing or new.

- Indoor Air Sampling:
Indoor air sampling is required upon completion of the installation of the vapour mitigation systems.

Additional monitoring and maintenance requirements are provided in the CPU.

Ground water management measures

Ground water monitoring requirements or requirements for care, maintenance or replacement of any monitoring or control works or known existing contaminants, if any, on the record of site condition property, after the certification date.

A Ground Water Monitoring Program (GWMP) is required. Further details are provided in the CPU.

Remediated or removed soil, sediment or ground water from near property boundary

Has any soil, sediment or ground water at the record of site condition property that is or was located within 3 metres of the record of site condition property boundary been remediated or removed for the purpose of remediation?	No

C **Qualified person's statements and certifications**

As the qualified person, I certify that:

☑ A phase one environmental site assessment of the record of site condition property, which includes the evaluation of the information gathered from a records review, site reconnaissance, interviews, a report and any updates required, has been conducted in accordance with the regulation by or under the supervision of a qualified person as required by the regulation.

☑ A phase two environmental site assessment of the record of site condition property, which includes the evaluation of the information gathered from planning and conducting a site investigation, a report, and any updates required, has been conducted in accordance with the regulation by or under the supervision of a qualified person as required by the regulation.

☑ The information represents the site conditions at the sampling points at the time of sampling only and the conditions between and beyond the sampling points may vary.

☑ As of 2017/11/17, in my opinion, based on the phase one environmental site assessment and the phase two environmental site assessment, and any confirmatory sampling, there is no evidence of any contaminants in the soil, ground water or sediment on, in or under the record of site condition property that would interfere with the type of property use to which the record of site condition property will be put, as specified in the record of site condition.

☑ Ground water sampling has been conducted in accordance with the regulation by or under the supervision of a qualified person as required by the regulation.

☑ As of 2017/11/17, in my opinion, based on the phase one and phase two environmental site assessments and any confirmatory sampling, the record of site condition property meets the applicable full depth generic site condition standards prescribed by section 36 of the regulation for all contaminants prescribed by the regulation in relation to the type of property use for which this record of site condition is filed, except for those contaminants (if any) specified in this record of site condition at Table 2, Maximum contaminant concentrations compared to standards specified in a risk assessment.

☑ As of 2017/11/17, the maximum known concentration of each contaminant in soil, sediment and ground water at the record of site condition property for which sampling and analysis has been performed is specified in this record of site condition at Table 1, maximum contaminant concentrations compared to applicable full depth generic site condition standards.

In relation to any contaminant excepted from the certification mentioned above as specified in the record of site condition at Table 2, maximum contaminant concentrations compared to standards specified in a risk assessment, or in relation to any other contaminant that in my opinion is likely to cause an adverse effect:

- ☑ A risk assessment was prepared for the contaminant with respect to the property for which the phase two environmental site assessment was conducted.
- ☑ The Director has accepted the risk assessment under clause 168.5 (1) (a) of the Act.
- ☑ As of 2017/11/17, the property for which the phase two environmental site assessment was conducted meets the standards specified in the risk assessment for the contaminant.

☑ I am a qualified person and have the qualifications required by section 5 of the regulation.

☑ I have in place an insurance policy that satisfies the requirements of section 7 of the regulation.

☑ I acknowledge that the record of site condition will be submitted for filing in the Environmental Site Registry, that records of site condition that are filed in the Registry are available for examination by the public and that the Registry contains a notice advising users of the Registry who have dealings with any property to consider conducting their own due diligence with respect to the environmental condition of the property, in addition to reviewing information in the Registry.

☑ The opinions expressed in this record of site condition are engineering or scientific opinions made in accordance with generally accepted principles and practices as recognized by members of the environmental engineering or science profession or discipline practising at the same time and in the same or similar location.

☑ I do not hold and have not held and my employer EXP SERVICES INC. does not hold and has not held a direct or indirect interest in the record of site condition property or any property which includes the record of site condition property and was the subject of a phase one or environmental site assessment or risk assessment upon which this record of site condition is based.

environmental site assessment or risk assessment upon which this record of site condition is based.

☑ To the best of my knowledge, the certifications and statements in this part of the record of site condition are true as of 2017/11/17.

☑ By signing this record of site condition, I make no express or implied warranties or guarantees.

By checking the boxes above, and entering my membership/licence number in this submission, I, THIAM CHUAN TAN, a qualified person as defined in section 5 of O. Reg. 153/04 am, on 2018/11/16:

a) signing this record of site condition submission as a qualified person; and
b) making all certifications required as a qualified person for this record of site condition.

☑ **I agree**

Additional documentation provided by property owner or agent

The following documents have been submitted to the Ministry of the Environment and Climate Change as part of the record of site condition

Certificate of status or equivalent for the owner
Lawyer's letter consisting of a legal description of the property Copy of any deed(s), transfer(s) or other document(s) by which the record of site condition property was acquired
A Current plan of survey
Property specific standards
Area(s) of potential environmental concern
Table of current and past uses of the phase one property
Phase 2 conceptual site model
Owner or agent certification statements

9.1.1

As an owner:

1. I acknowledge that the record of site condition will be submitted for filing in the Environmental Site Registry, that records of site condition that are filed in the Registry are available for examination by the public and that the Registry contains a notice advising users of the Registry who have dealings with any property to consider conducting their own due diligence with respect to the environmental condition of the property, in addition to reviewing information in the Registry.
2. I have conducted reasonable inquiries to obtain all information relevant to this record of site condition, including information from the other current owners of the record of site condition property named in this part of the record of site condition and I have obtained all information relevant to this record of site condition of which I am aware.
3. I have disclosed all information referred to in paragraph 2 to any qualified person named in this record of site condition.
4. To my knowledge, the statements made in this part of the record of site condition are true as of November 16, 2018 .
5. I have ensured that access to the entire property, including the phase one property, any phase two property and the record of site condition property, has been afforded to the qualified person and to persons supervised by the qualified person, for purposes of conducting the site reconnaissance.

Name of owner: HIP Southworks Inc.

Signature:  Date signed: November 16, 2018

Name of person signing: Scott Higgins, President

I, Scott Higgins, am authorized to and hereby do bind HIP Southworks Inc.

VECC-TCQ - 64

Reference: Update Evidence December 13, 2018, pg. 16

Preamble: In the updated evidence it states: "*Energy+ did not experience a reduction in bad debt expense related to residential customers in 2016 and 2017 and therefore has not made any adjustments for bad debts*."

In response to 4-Staff-59 E+ states:

Billing and collecting expenses were forecast to be lower for 2017 than 2016, predominately as a result of a reduced forecast for Bad Debt Expense. In 2016 a large commercial account filed for bankruptcy, resulting in a higher bad debt expense. Bad debt expense was $527,589 in 2016 compared to the 2017 forecast of $282,004, representing a forecast reduction of $245,585 (Please refer to Exhibit 4, Table 4-14 Bad Debt Expense).

Billing and Collecting expenses are forecast to be 1% lower for 2018, than 2017 as a result of departmental account increases and decreases forecast across the multiple department accounts, resulting in a net decrease of $(18,392) over a $3,372,867 forecast budget.

Further Table 4-14 (Exhibit 4, pg.37 – below) appears to show a drop in bad debt as compared to the 2014 proxy).

Table 4-14: Bad Debt Expense

	2014 BA Former CND	2014 BA Former BCP	2014 BA Proxy	2014 Actual	2015 Actual	2016 Actual	2017 Forecast	2018 Actual	2018 Actual
Bad Debt Expense	212,000	76,933	288,933	511,688	292,731	527,589	282,004	248,660	249,424
Year over Year Increase (Decrease)					(218,957)	234,858	(245,585)	(33,344)	764
Change in Bad Debt Expense - 2019 Test Year vs. 2014 Board Approved Proxy									(39,509)

a) In light of this prior evidence apparently showing a decline in bad debt costs please clarify what evidence is being relied upon for the conclusion that monthly billing has not led to a reduction in bad debt. Specifically please provide the bad debt expenses for 2014 (proxy) to 2018 for the residential class of customers. If any GS customers have moved to monthly billing since 2014 please provide the bad debt amounts for that class(s) separately.

RESPONSE

Energy+ notes that the transition to monthly billing impacted Residential and GS<50 kW customers in the CND service territory only.

As indicated in the Update to Evidence dated December 31, 2018 (Page 16, paragraph 3), Energy+ did not experience a reduction in bad debt expense related to CND residential customers in 2016 and 2017 and therefore has not made any adjustments for reductions in bad debts in DVA Account 1508 Sub-Account Monthly Billing.

Energy+ also did not experience a reduction in bad debt expense related to GS< 50 kW customers in the CND service territory.

The Bad Debt Expense in Table 4-14 of Exhibit 4 represents the following:

- Total bad debt expense for the combined CND and Brant service territories for all customer classes; and
- Total bad debt expense on (i) customer electric accounts; and (ii) miscellaneous accounts receivable.

Please refer to Response to TCQ-SEC 9 (b) for further details with respect to the bad debt expense for 2014 to 2017, which includes bad debt write-off information for the CND Residential and GS<50 kW customer classes.

With respect to 2018, Energy+ has not completed its year-end processes, including a review of its aged accounts receivable and corresponding allowance for doubtful accounts. As a result, the bad debt expense information for 2018 is not currently available. Energy+ would note that the request for disposition of the monthly billing deferral and variance account is currently for the periods up to December 31, 2017. Energy+ will review the bad debt expense for 2018 prior to completing its year-end to determine whether an adjustment should be made to the D&V sub-account for Monthly Billing in 2018 to recognize a reduction, if any, in the bad debt expense for the Residential and GS< 50kW customers in the CND service territory for 2018 as a result of the transition to monthly billing.

VECC-TCQ - 65

Reference: Update Evidence December 13, 2018, pg. 28

a) Please explain the nature of the $21,057 in “Other expenses” related to the move to monthly billing?

RESPONSE

The $21,057 is primarily related to incremental meter reading expenses, mileage, and courier services.

VECC-TCQ - 66

Issue: 3.2 **Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?**

Reference: VECC 47

Settlement Proposal – Load Forecast Model, Summary Tab, Rate Class Energy Model Tab and Rate Class Load Model Tab

OEB Cost Allocation Review Report – Board Directions on Cost Allocation Methodology for Electricity Distributors (RP-2005-0317), Pages 30-31

a) Please confirm that for the Embedded Distributor customer classes, Energy+'s proposal is to base the load forecast for 2018 and 2019 on 2017 actuals.

RESPONSE

a) Confirmed.

VECC-TCQ - 66

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: VECC 47

Settlement Proposal – Load Forecast Model, Summary Tab, Rate Class Energy Model Tab and Rate Class Load Model Tab

OEB Cost Allocation Review Report – Board Directions on Cost Allocation Methodology for Electricity Distributors (RP-2005-0317), Pages 30-31

b) With respect to the Rate Class Load Model Tab, please review the formulae used to determine the 2018 and 2019 forecast kW for Hydro One-#1-BCP, as the formula appears to incorrectly reference the 2017 energy for HON-CND, and confirm whether or not a correction is required.

RESPONSE

b) The formulae used to determine the 2018 and 2019 forecast kW for Hydro One-#1-BCP incorrectly references the 2017 energy for HON-CND. This has been corrected in the proposed load forecast.

Energy+ has filed a revised Settlement load forecast to reflect this correction.

2019 Energy+ Load Forecast Model_V3 VECC 66.xlsx.

VECC-TCQ - 66

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: VECC 47

Settlement Proposal – Load Forecast Model, Summary Tab, Rate Class Energy Model Tab and Rate Class Load Model Tab

OEB Cost Allocation Review Report – Board Directions on Cost Allocation Methodology for Electricity Distributors (RP-2005-0317), Pages 30-31

c) Please confirm that the Energy+ feeders used to supply the following Embedded Distributors also supply other Energy+ customer classes: i) Waterloo North-CND, ii) HON-CND, (iii) Brantford Power-BCP and iv) HON#1-BCP?

RESPONSE

Energy+ confirms that the feeders used to supply the Embedded Distributors noted in Parts (i-iv) also supply other Energy+ customer classes.

VECC-TCQ - 66

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: VECC 47

Settlement Proposal – Load Forecast Model, Summary Tab, Rate Class Energy Model Tab and Rate Class Load Model Tab

OEB Cost Allocation Review Report – Board Directions on Cost Allocation Methodology for Electricity Distributors (RP-2005-0317), Pages 30-31

d) Please confirm that in accordance with the Board's Cost Allocation Review Report, these feeders are not eligible for direct allocation as, in each case, the feeder is not 100% dedicated to customer(s) in the same classification.

RESPONSE

d) It is Energy+'s view that the Embedded Distributors rates are not based on direct allocation. Originally, the Embedded Distributor rates were based on the cost allocation method outlined in Appendix 2-Q. The cost allocation method in Appendix 2-Q reflects the km of line used by the Embedded Distributor along with the portion of load that is delivered over those km of line for the Embedded Distributors compared to the total load delivered over those km of line.

As part of the approved settlement agreement for the former Cambridge and North Dumfries Hydro 2014 Rate Application (EB-2013-0116), the allocated costs for the Embedded Distributors from Appendix 2-Q were entered into tab I9 Direct Allocation of the cost allocation model. This mechanism was used to determine the costs that support the approved 2014 Embedded Distributor rates. Prior to this time the cost allocation method used in Appendix 2-Q was used to determine the Embedded Distributor rates. When information from Appendix 2-Q is entered into Tab I9 of the cost allocation model the model by design adds the appropriate administrative costs to these costs as well as an allocation of rate of return on rate base and PILs. In other words, the Embedded Distributor rates are based on a cost allocation method that is not the same method used for other classes but it is also not a direct allocation method.

VECC-TCQ - 66

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: VECC 47

Settlement Proposal – Load Forecast Model, Summary Tab, Rate Class Energy Model Tab and Rate Class Load Model Tab

OEB Cost Allocation Review Report – Board Directions on Cost Allocation Methodology for Electricity Distributors (RP-2005-0317), Pages 30-31

e) Based on the actual 2017 loads, please provide the 4NCP and 12 CP values for each of the five embedded distributors.

RESPONSE

e) Based on the actual 2017 loads, the 4NCP and 12 CP values for each of the five embedded distributors are as follows.

	2017 4 NCP	2017 12 CP
Embedded Distributor - Hydro One, CND	9,198	22,409
Embedded Distributor - Waterloo North, CND	42,264	95,506
Embedded Distributor - Brantford Power, BCP	738	623
Embedded Distributor - Hydro One #1, BCP	10,107	21,139
Embedded Distributor - Hydro One #2, BCP	37,119	65,898

VECC-TCQ - 67

Issue: 3.2 **Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?**

Reference: **Exhibit 1, pages 182-184**

Exhibit 8, pages 16-18 and Settlement RTSR Workforms

Settlement Proposal – Load Forecast Model, Summary Tab

a) Please confirm that Energy+ receives transmission (i.e., >50 kV) connection services in the following ways: i) from TSs owned by Hydro One Networks-Transmission (e.g. the Preston TS, Galt TS, Brant TS and Brantford TS) for which it is billed Transmission Connection charges by the IESO, ii) from its host distributors (Hydro One Networks-Distribution and BPI) for which it is billed RTSR-Connection charges by the host distributors and iii) from TSs owned wholly or partly by Energy+ (e.g., MTS#1 and the Power Line MTS) for which the costs are included in Energy+'s distribution revenue requirement.

RESPONSE

Confirmed part (i) and part (ii).

For part (iii), Energy+ is charged Line Connection and Network charges by the IESO. However, Energy+ is not charged transformation charges because the transformer station assets are owned by Energy+ and is in its rate base.

VECC-TCQ - 67

Issue: 3.2 **Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?**

Reference: **Exhibit 1, pages 182-184**

Exhibit 8, pages 16-18 and Settlement RTSR Workforms

Settlement Proposal – Load Forecast Model, Summary Tab

b) Please confirm that in deriving its proposed RTSR-Connection rates Energy+ included all of the forecast load for each customer class. If not, what loads were excluded and why?

RESPONSE

Energy+ confirms that in deriving its proposed RTSR-Connection rates Energy+ included all of the load forecast for each customer class from Load Forecast Model in tabs “Summary CND” and “Summary BCP” and the total of two tabs align with “Summary” tab.

VECC-TCQ - 67

Issue: 3.2 **Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?**

Reference: **Exhibit 1, pages 182-184**

Exhibit 8, pages 16-18 and Settlement RTSR Workforms

Settlement Proposal – Load Forecast Model, Summary Tab

c) For each customer class, please provide a breakdown of the forecast 2019 kWh (and kW where applicable) as between that served by Energy+ owned TSs versus that not served by Energy+ owned TSs.

RESPONSE

The following tables summarize the 2019 Forecasted kWh and kW load (where applicable) by class and by ownership of transformer station.

2019 Forecast kWh							
	Residential	GS<50	GS>50	StreetLight	GS>1MW	5MW	Embedded
Total Forecasted System Load	461,453,716	193,967,011	491,288,356	3,798,281	229,378,990	145,141,006	126,523,142
Energy+ Owned MTS#1 & Powerline MTS System Load	118,579,326	72,951,411	219,633,325	976,041	92,969,159	-	-
Hydro One Owned TS Load	342,874,390	121,015,601	271,655,031	2,822,240	136,409,831	145,141,006	126,523,142

2019 Forecast kW							
	Residential	GS<50	GS>50	StreetLight	GS>1MW	5MW	Embedded
Total Forecasted System Load	N/A	N/A	1,550,487	10,945	538,334	361,276	272,103
Energy+ Owned MTS#1 & Powerline MTS System Load	N/A	N/A	693,154	2,813	218,191	-	-
Hydro One Owned TS Load	N/A	N/A	857,333	8,133	320,143	361,276	272,103

Energy+ obtained 2018 system configuration data from its GIS system to develop the forecasted figures presented above for 2019. The distribution system is dynamic and constantly changing based on the most current operating requirements. An example of this is planned and unplanned switching events which require load to be transferred between transformer stations. Therefore, the system configuration information used above is at a point in time and the corresponding load is allotted to Energy+ owned stations versus Hydro One owned stations.

The basis of the energy (kWh) and demand (kW) information is forecasted for 2019 based on the load data from 2017 by applying the same factors as done in Energy+'s load forecast model.

VECC-TCQ - 68

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Cost Allocation Model, Tabs I9 and O4

a) Please confirm that the costs associated with >50 kV facilities (i.e., Accounts 1805-1, 1808-1 and 1815) are allocated to all customer classes except the Embedded Distributor classes.

RESPONSE

a) Confirmed.

VECC-TCQ - 68

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Cost Allocation Model, Tabs I9 and O4

b) Please confirm that the costs in these accounts represent the Energy+ costs associated with MTS#1 and the Power Line MTS. If not confirmed, please explain what facilities the costs are associated with.

RESPONSE

Energy+ confirms that the costs included in Account 1805, 1808, and 1815 represent the costs associated with MTS#1 and the Powerline MTS.

In preparing the response to this question, Energy+ identified an error in the "Break Out" allocation for Accounts 1805 and 1808 in the cost allocation model (Tab I4 BO Assets). Energy+ has corrected the allocation as follows:

Account	Original Allocation %	Revised Allocation %
1805-1 Land Station > 50 kV	63.46%	100%
1805-2 Land Station < 50 kV	36.54%	-
1808-1 Buildings and Fixtures > 50 kV	21.53%	100%
1808-2 Buildings and Fixtures < 50 kV	78.47%	-

Energy+ has filed updated models in Response to VECC-TCQ-76, which includes this revision.

Energy+ has updated all Cost Allocation Models used in all of the Responses to Technical Questions to reflect this change.

VECC-TCQ - 68

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Cost Allocation Model, Tabs I9 and O4

c) Please confirm that the for purposes of allocating these costs the total 12CP value for each customer class (except the Embedded Distributors) is used (including loads not served by >50 kV facilities owned by Energy+).

RESPONSE

c) Confirmed.

VECC-TCQ - 69

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Proposal – Cost Allocation Model

Settlement Proposal – Revenue Requirement Work Form

Settlement Proposal – Tariff Schedules and Bill Impacts

a) Please provide a revised Cost Allocation with the following changes:
   i. No direct allocation of costs to the Embedded Distributor customer classes. All costs allocated using the Board's cost allocation methodology and the appropriate allocators.
   ii. Allocate the costs associated with >50 kV facilities to all customer classes, including the five Embedded Distributor classes.

RESPONSE

a) A Cost Allocation Model scenario with the changes listed in the question has been provided in live Excel format with file name 2019 Energy+_Cost Allocation Model _VECC 69.

VECC-TCQ - 69

Issue: 3.2 **Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?**

Reference: **Settlement Proposal – Cost Allocation Model**

Settlement Proposal – Revenue Requirement Work Form

Settlement Proposal – Tariff Schedules and Bill Impacts

b) Based on the results from part (a) and Energy+'s proposed approach for adjusting Revenue to Cost ratios and designing customer class rates, please provide:

i. A revised Tab 11 per the Revenue Requirement Work Form

ii. The resulting bill impacts for the BCP and CND service areas.

RESPONSE

b)

i) An RRWF model in Excel format, based on the scenario from part (a) and Energy+'s proposed approach for adjusting Revenue to Cost ratios and designing customer class rates has been provided in live Excel format.

2019_Energy+_Rev_Reqt_Work_Form_VECC 69.xlsm.

ii) Please refer to Response to TCQ-SEC-11 for a summary of bill impacts.

VECC-TCQ - 70

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Proposal, Cost Allocation Model, Tabs 14 and E4

Preamble: A portion of E+'s primary and secondary distribution system is underground and a portion of it is overhead.

a) Is it reasonable to view the use of underground primary distribution assets (i.e., Accounts 1840 and 1845) versus overhead primary distribution assets (i.e., Accounts 1830 and 1835) as alternative means of providing Energy+'s customers with primary distribution service? If not, why not?

RESPONSE

No. While it is Energy+'s view that It is reasonable to view the use of underground primary distribution assets (i.e Accounts 1840 and 1845) versus overhead primary distribution assets (ie. Accounts 1830 and 1835) as a technical alternative means of providing Energy+'s customers with primary distribution service. However, it is not a financially feasible alternative especially for main primary lines.

Underground primary distribution assets are used to provide primary distribution service to Energy+ customers in local areas (i.e. Residential subdivisions, takeoffs from a pole line to a three phase padmount transformer). These underground primary lines are mainly 200 Ampere capacity.

For main primary (600 Ampere) capacity lines, primary distribution service is mainly provided overhead. The cost of underground main primary feeders would typically be 8 to 10 times more than the cost of an equivalent capacity overhead line. The underground line requires trenching, restoration for property, switching units to allow connection of customers and larger conductors due to lower ampacity of buried conductors versus overhead.

Even 200A underground primary lines cost several times more 200A overhead primary lines. Energy+ owns kilometers of lines. Most underground primary lines are only installed with

significant customer capital contribution. Otherwise, there would be a large rate impact to existing customers.

VECC-TCQ - 70

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to -cost ratios appropriate?

Reference: Settlement Proposal, Cost Allocation Model, Tabs 14 and E4

Preamble: A portion of E+'s primary and secondary distribution system is underground and a portion of it is overhead.

b) More specifically is it reasonable to view:

i. The use of primary overhead wire/conductors (i.e., Account 1830) as an alternative to the use of primary underground conductors (i.e., Account 1840), and

ii. The use of primary pole/towers (i.e., Account 1835) as an alternative to the use of primary underground conduit (i.e., Account 1845)?

If not, why not?

RESPONSE

No, Energy's view is that it is not reasonable to use (i) primary overhead wire/conductors as an alternative to the use of primary underground conductors and (ii) primary pole/towers as an alternative to the use of primary underground conduit. In addition to the concerns in part a), the reason is that there are municipal by-laws which require the use of underground primary distribution in certain areas. Examples of this include residential subdivisions.

VECC-TCQ - 70

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Proposal, Cost Allocation Model, Tabs 14 and E4

Preamble: A portion of E+'s primary and secondary distribution system is underground and a portion of it is overhead.

c) With respect to Energy+'s primary distribution facilities, what determines whether a particular customer is served using overhead (Accounts 1830 and 1835) or underground (Accounts 1840 and 1845) facilities?

RESPONSE

There are multiple factors that determine whether a customer is served overhead versus underground facilities. Customer preference is one key factor. There are municipal by-laws which require residential subdivisions or core areas that must be fed using underground facilities. In some cases, there are historical drivers which determine how the service is supplied. For example, if an area has an existing overhead distribution, then a new residential home may be supplied off the overhead plant. Service size is another determinant as overhead transformation is limited typically to 500kVA, whereas Energy+ supplies underground transformation up to 3000 kVA. Therefore, larger services beyond 500kVA are supplied using underground pad-mount transformers. Finally, the single biggest driver typically is the cost implications that result from overhead construction versus underground as noted in Part (a) of this question.

VECC-TCQ - 70

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Proposal, Cost Allocation Model, Tabs 14 and E4

Preamble: A portion of E+'s primary and secondary distribution system is underground and a portion of it is overhead.

d) Are any of Energy+'s primary voltage customers served solely by primary underground conductor and conduit (i.e., no overhead lines used)?

RESPONSE

No.

VECC-TCQ - 70

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Proposal, Cost Allocation Model, Tabs 14 and E4

Preamble: A portion of E+'s primary and secondary distribution system is underground and a portion of it is overhead.

e) Are any of Energy+'s customers served solely by primary overhead facilities (i.e., overhead conductors and poles/towers)

RESPONSE

Yes, there are many Energy+ customers that are solely supplied using overhead primary distribution service.

VECC-TCQ - 70

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Proposal, Cost Allocation Model, Tabs 14 and E4

Preamble: A portion of E+'s primary and secondary distribution system is underground and a portion of it is overhead.

f) Please confirm that for purposes of allocating those accounts associated with overhead assets (Accounts 1830 and 1835), the total load for each customer class is used regardless of whether overheard facilities, underground facilities or a combination of both are actually used to deliver the load (with the exception of the Embedded Distributors where direct allocation is applied).

RESPONSE

f) It is confirmed that for purposes of allocating the demand related costs associated with overhead assets (Accounts 1830 and 1835), the total load for each customer class is used regardless of whether overheard facilities, underground facilities or a combination of both are actually used to deliver the load (with the exception of the Embedded Distributors where another cost allocation method is applied).

VECC-TCQ - 70

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Proposal, Cost Allocation Model, Tabs 14 and E4

Preamble: A portion of E+'s primary and secondary distribution system is underground and a portion of it is overhead.

g) Please confirm that for purposes of allocating those accounts associated with underground assets (Accounts 1840 and 1845), the total load for each customer class is used regardless of whether overheard facilities, underground facilities or a combination of both are actually used to deliver the load (with the exception of the Embedded Distributors where direct allocation is applied).

RESPONSE

g) It is confirmed that for purposes of allocating the demand related costs associated with underground assets (Accounts 1840 and 1845), the total load for each customer class is used regardless of whether overheard facilities, underground facilities or a combination of both are actually used to deliver the load (with the exception of the Embedded Distributors where another cost allocation method is applied).

VECC-TCQ - 70

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Proposal, Cost Allocation Model, Tabs 14 and E4

Preamble: A portion of E+'s primary and secondary distribution system is underground and a portion of it is overhead.

h) Can Energy+ provide a breakdown, for each customer class, of the load (kWh) served by overhead versus underground primary distribution facilities (i.e., Accounts 1830 &1835 versus 1840 & 1845)? If so, please do so.

RESPONSE

The effort involved in providing a breakdown, for each customer class, of the load (kWh) served by overhead versus underground primary distribution facilities would be significant. It is difficult to extract this level of granular information from Energy+'s GIS system. In addition, there would be a significant challenge in correlating the information in the GIS system to the Billing system to obtain load (kWh) data for each customer class.

VECC-TCQ - 70

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Proposal, Cost Allocation Model, Tabs 14 and E4

Preamble: A portion of E+'s primary and secondary distribution system is underground and a portion of it is overhead.

i) Please comment on the merits (i.e., from both a practicality and fairness perspective) of allocating: i) the cost of overhead facilities based solely of the portion of the load for each customer class that is served using overhead facilities and ii) the cost of underground facilities based solely on the portion of the load for each customer class that is served using underground facilities.

RESPONSE

Practicality and fairness are only two of a number of factors that need to be considered when assessing these types of changes. Please see Response to VECC-TCQ-73 a) for a listing of all of the relevant factors. While allocating the costs as proposed may be viewed as fair, from a practicality point of view, the work effort is substantial.

VECC-TCQ - 71

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

References: Energy+ response to TMMC April 10, 2018 question 10,

Sub-Question I

TMMC-11

a) In the response to Question 10, Sub-Question I, Energy+ stated: "The assets used exclusive to TMMC would mainly be the 795MCM aluminum wire and associated clamps/bracket/insulators/bolts along with two TMMC specific load break switches and a few solid blade switches. Energy+ has recorded the costs of these assets in the Overhead Conductors and Devices assets category on a pooled asset basis and therefore the asset value, net book value, and annual depreciation expense for these exclusive assets is not specifically available".

Given this response, please explain how the values provided in Energy+ response to TMMC-11 were determined. In responding please indicate whether the asset values are those directly attributable to the specific assets used exclusively by TMMC or whether values have been "estimated". If the latter, please describe how the estimation was done.

RESPONSE

The values provided by Energy+ in response to IR-TMMC-11 were estimates to December 31, 2017.

The following table summarizes the assumptions/information used to derive the initial asset values for the assets used exclusively by TMMC:

Estimate of Initial Asset Values:

Components	USoA Account	Year	Estimation Methodology	Actual / Estimated Asset Value
Loadbreak Switch Installed	1835	2011	Actual Cost	39,277
Loadbreak Switch Installed	1835	2011	Actual Cost	43,758
795 Aluminum Wire Estimated Initial Cost (material, labour, trucking)	1835	1996	Estimate based on Work Order Estimate for Project	429,753
Clamps/Brackets/Insulators/Bolts Estimated Initial Cost (material, labour, trucking)	1835	1996	Estimate based on Work Order Estimate for Project	152,142
In-Line Switches Estimated Initial Cost (material, labour, trucking)	1835	1996	Estimate based on Work Order for Project	5,088
Total				**$ 670,019**

Accumulated Depreciation:

The accumulated depreciation at the end of December 31, 2017 was estimated based on the computation of the cumulative depreciation from the in-service date, using the annual depreciation expense for each identified asset, based on the in-service year, and using the estimated useful lives for Account 1835 under CGAAP, Revised CGAAP and Modified IFRS. The useful lives under Revised CGAAP and Modified IFRS were the same.

Net Book Value:

Net Book Value was computed as the difference between the Estimated Initial Asset Values less the Estimated Accumulated Depreciation to December 31, 2017.

VECC-TCQ - 71

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

References: Energy+ response to TMMC April 10, 2018 question 10,

Sub-Question I

TMMC-11

b) Apart from these assets, are there any other assets recorded in Account 1830 (Overhead Conductors and Devices) that are used (on a shared basis) to provide service to TMMC? If yes, please describe what the assets are.

RESPONSE

Energy+ notes that the Account reference for Overhead Conductors and Devices is Account 1835.

Other assets in Account 1835 which are used to provide distribution service to both TMMC and to other Energy+ customers are: guys, anchors, and grounding / neutral conductors.

VECC-TCQ - 72

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

References: TMMC-11

Settlement Proposal – Cost Allocation Model

a) Please provide a revised version of the Cost Allocation Model filed with the Settlement Proposal where:

   i. The costs of the assets in Account 1835 that are exclusively used by TMMC are directly allocated to the Large User class. (Note: If Energy+ views that the costs in Account 1830 that should be directly allocated to TMMC differ from those identified in the response to TMMC-11, please utilize the updated costs and explain how they were derived)

   ii. TMMC load is included in the allocation of costs to the Large User class for all of the accounts except 1835 and 1845.

   iii. There is no direct allocation of costs to the Embedded Distributor customer classes. All costs allocated using the Board's cost allocation methodology and the appropriate allocators.

   iv. The costs associated with >50 kV facilities are allocated to all customer classes, including the five Embedded Distributor classes.

RESPONSE

a) A Cost Allocation Model scenario with the changes listed in the question has been provided in live Excel format.
2019 Energy+_Cost_Allocation_Model VECC 72a.xls.

For the cost of the assets in Account 1835 that are exclusively used by TMMC, Energy+ has used the information outlined in response to TMMC 2. This assumes feeder fixed asset costs of $274,492 with associated accumulated amortization of ($50,040) and depreciation

of $9,098. These feeder costs are offset by capital contributions of ($184,453) with associated accumulated depreciation of $53,394 and depreciation of ($9,708).

In order to not include TMMC load in the allocation of costs to the Large User class for accounts 1835 and 1845 a new allocation factor has been developed in the cost allocation model, tab E2 Allocators, line 124. The allocation factor is the primary 4 NCP demand allocator excluding the TMMC load. The name of the allocator is PNCP4WO2 and is entered in tab E4 TB Allocation Details, cells F47 and F55. This causes the cost allocation model to not allocate 1835 and 1845 costs to TMMC.

VECC-TCQ - 72

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

References: TMMC-11

Settlement Proposal – Cost Allocation Model

b) Based on the results from part (a) and Energy+'s proposed approach for adjusting Revenue to Cost ratios and designing customer class rates, please provide:

i. A revised Tab 11 per the Revenue Requirement Work Form

ii. The resulting bill impacts for the BCP and CND service areas.

RESPONSE

b)

i) An RRWF model in Excel format, based on the scenario from part (a) and Energy+'s proposed approach for adjusting Revenue to Cost ratios and designing customer class rates has been provided in live Excel format.

2019_Energy+_Rev_Reqt_Work_Form_VECC 72b.xlsm.

ii) Please refer to Response to TCQ-SEC-11 for a summary of bill impacts.

VECC-TCQ - 72

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

References: TMMC-11

Settlement Proposal – Cost Allocation Model

c) If Energy+ does not view the revisions requested under items (ii), (iii) and/or (iv) to be appropriate, please also provide an alternative Cost Allocation model reflecting Energy+'s preferred methodology.

RESPONSE

c) An alternative Cost Allocation model reflecting the results in a) but assuming the allocation of costs to the embedded distributors is consistent with the cost allocation methodology outlined in Appendix 2-Q has been provided in live Excel format with file name: 2019 Energy+_Cost_Allocation_Model VECC 72c.xls.

VECC-TCQ - 72

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to -cost ratios appropriate?

References: TMMC-11

Settlement Proposal – Cost Allocation Model

d) Based on the results from part (c) and Energy+'s proposed approach for adjusting Revenue to Cost ratios and designing customer class rates, please provide:

i. A revised Tab 11 per the Revenue Requirement Work Form

ii. The resulting bill impacts for the BCP and CND service areas.

RESPONSE

d)

i) An RRWF model in Excel format, based on the scenario from part (d) and Energy +'s proposed approach for adjusting Revenue to Cost ratios and designing customer class rates has been provided in live Excel format.

2019_Energy+_Rev_Reqt_Work_Form_VECC 72d.xlsm.

ii) Please refer to Response to TCQ-SEC-11 for a summary of bill impacts.

VECC-TCQ - 73

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: TMMC Response to VECC 17.1

a) TMMC's response to VECC 17.1 states: "In general, a rate classification should be comprised of customers with similar load characteristics". Does Energy+ agree with this statement and with the resulting implication that separate rate classifications should be created for customers with dissimilar load characteristics?

RESPONSE

The Ontario Energy Board has established customer rate classifications that are characterized by similarities in size and load profiles (Residential, GS<50kW, GS 50-4999kW, Large User, Streetlighting, Sentinel Lighting, and Embedded Distributors).

These rate classifications are used consistently by distributors across the entire Province of Ontario. In this manner, the current rate classifications are fair – equals are generally treated equally across multiple LDCs in Ontario.

While recent technological advances in metering and GIS data can provide an opportunity to improve the link between cost drivers and rates, which could increase economic efficiency. However, any such change can be quite complex, controversial and will inevitably create winners and losers.

Energy+ does not agree that separate rate classifications should automatically be created for customers with dissimilar load characteristics.

Rather, the question of whether or not to create a separate rate classification for customers with certain load characteristics should be assessed in view of each of The Principles of Public Utility Rates as originally articulated by James C. Bonbright, 1961, including:

1. Effectiveness in yielding total revenue requirements under the fair-return standard without any socially undesirable expansion of the rate base or socially undesirable level of product quality and safety

2. Revenue stability and predictability, with a minimum of unexpected changes that are seriously adverse to utility companies

3. Stability and predictability of the rates themselves, with a minimum of unexpected changes that are seriously adverse to utility customers and that are intended to provide historical continuity

4. Static efficiency, i.e., discouraging wasteful use of electricity in the aggregate as well as by time of use

5. Reflect all present and future private and social costs in the provision of electricity (i.e., the internalization of all externalities)

6. Fairness in the allocation of costs among customers so that equals are treated equally

7. Avoidance of undue discrimination in rate relationships so as to be, if possible, compensatory (free of subsidies)

8. Dynamic efficiency in promoting innovation and responding to changing demand-supply patterns

9. Simplicity, certainty, convenience of payment, economy in collection, understandability, public acceptability, and feasibility of application

10. Freedom from controversies

The Ontario Energy Board is best positioned to weight all of these factors when assessing a proposal to deviate from the Board's standard approach to rate classifications.

Energy+ will provide as much evidence as it can to assist the Board with such an assessment, and Energy+ will continue to follow the Board's direction in regards to its preferred approach.

VECC-TCQ - 73

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: TMMC Response to VECC 17.1

b) If yes, what “load characteristics” should be considered?

RESPONSE

Not applicable.

VECC-TCQ - 73

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: TMMC Response to VECC 17.1

c) If yes, are there any other factors (apart from load characteristics) that should be also used in determining whether customers should be in the same or separate rate classifications?

RESPONSE

Not applicable.

VECC-TCQ - 73

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: TMMC Response to VECC 17.1

d) If no, what factors should be used in determining whether customers should/should not be in the same rate classification?

RESPONSE

The question of whether or not to create a separate rate classification for customers with certain load characteristics should be assessed in view of each of The Principles of Public Utility Rates as originally articulated by James C. Bonbright, 1961.

VECC-TCQ - 73

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: TMMC Response to VECC 17.1

e) Is Energy+ aware of any Ontario Energy Board decisions, direction or policies that indicate when customers should or should not be included in the same rate classification?

RESPONSE

No. Energy+ would look to the Board Staff to provide input in responding to this question.

VECC-TCQ - 74

Issue: 3.2 **Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?**

Reference: **TMMC Response to Staff 1 b)**

Exhibit 7, pages 3-4

Preamble: **Energy+ current Large Use rate class has two customers: TMMC and one other. Staff Interrogatory 1 b) to TMC requested a cost allocation model with TMMC as a separate class.**

a) Does Energy+ agree that there is likely some diversity in the timing of peak loads of its two Large Use customers such that the sum of the 4NCP values for the each of the two customers is likely to exceed the 4NCP value for the current Large Use class? If not, why not?

RESPONSE

a) Energy+ would agree that there is likely some diversity in the timing of peak loads of its two Large Use customers such that the sum of the 4NCP values for the each of the two customers is likely to exceed the 4NCP value for the current Large Use class.

VECC-TCQ - 74

Issue: 3.2 **Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?**

Reference: **TMMC Response to Staff 1 b)**

Exhibit 7, pages 3-4

Preamble: **Energy+ current Large Use rate class has two customers: TMMC and one other. Staff Interrogatory 1 b) to TMC requested a cost allocation model with TMMC as a separate class.**

b) Using 2016 actual data (as described on pages 3-4 of Exhibit 7) or more recent 2017 data if it is available for the Large User rate class, please provide:
   i. The 4NCP value for the current Large User rate class (unadjusted for Standby),
   ii. The 4NCP value for TMMC (unadjusted for Standby), and
   iii. The 4NCP value for Energy+ other Large Use customer.

RESPONSE

b) Using 2017 actual hourly load data for the Large User rate class, the following has been provided:
   i. The 4NCP value for the current Large User rate class (unadjusted for Standby) is 117,351 kW,
   ii. The 4NCP value for TMMC (unadjusted for Standby) is [redacted] kW, and
   iii. The 4NCP value for Energy+ other Large Use customer is [redacted]kW.

VECC-TCQ - 74

Issue: 3.2 **Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?**

Reference: **TMMC Response to Staff 1 b)**

Exhibit 7, pages 3-4

Preamble: **Energy+ current Large Use rate class has two customers: TMMC and one other. Staff Interrogatory 1 b) to TMC requested a cost allocation model with TMMC as a separate class.**

c) Recognizing that some of the data requested in part (b) is likely confidential, please also provide:
   - The ratio of the 4NCP value for TMMC (item (i)) to the 4NCP value for the current Large User rate class (item (iii)).
   - The ratio of the 4NCP value for the other Large User (item (ii)) to the 4NCP value for the current Large User rate class (item (iii)).

RESPONSE

c) The ratio of the 4NCP value for TMMC (item (ii)) to the 4NCP value for the current Large User rate class (item (i)) is [redacted].

The ratio of the 4NCP value for the other Large User (item (iii)) to the 4NCP value for the current Large User rate class (item (i)) is [redacted].

VECC-TCQ - 75

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: TMMC Response to Staff 1 b)

Settlement Proposal – Cost Allocation Model

a) Please provide a revised version of the Cost Allocation Model filed with the Settlement Proposal where:

i. TMMC is included as a separate customer class and the demand allocators for the two new Large User classes are determined as follows:

- 12CP for each class (prior to the Standby Adjustment to the TMMC allocator) is determined by multiplying the current 12CP demand allocator for the Large User class by each customer's relative contribution to the actual 12CP value for the current Large User class (using either 2016 or, if available, 2017 actual data) and then making the necessary Standby Adjustment.

- 4NCP for each class (prior to the Standby Adjustment to the TMMC demand allocator) is determined by applying the ratios calculated in the preceding question to the 4NCP value (prior to the Standby Adjustment) for the current Large User class and then making the necessary Standby Adjustment.

ii. The costs of the assets in Account 1830 that are exclusively used by TMMC are directly allocated to the Large User class. (Note: Again, if Energy+ views that the costs in Account 1830 that should be directly allocated to TMMC differ from those identified in the response to TMMC-11, please utilize the updated costs.)

iii. TMMC load is included in the allocation of costs for all of the accounts except 1830 and 1840.

iv. There is no direct allocation of costs to the Embedded Distributor customer classes. All costs allocated using the Board-approved cost allocation methodology and the appropriate allocators.

v. The costs associated with >50 kV facilities are allocated to all customer classes, including the five Embedded Distributor classes.

RESPONSE

a) A Cost Allocation Model scenario with the changes listed in the question has been provided in live Excel format.
2019 Energy+_Cost_Allocation_Model VECC 75a.xls.

The method outlined in part i) has been used to determine the 12 CP and 4 NCP for the two new Large User classes using 2017 actual data. This method has been used to define the demand data in tab I8 of the cost allocation model for the two classes. The class representing TMMC has the standby adjustment applied to the demand values for that class.

For the cost of the assets in Account 1835 that are exclusively used by TMMC, Energy+ has used the information outlined in response to TMMC 2. This assumes feeder fixed asset costs of $274,492 with associated accumulated amortization of ($50,040) and depreciation of $9,098. These feeder costs are offset by capital contributions of ($184,453) with associated accumulated depreciation of $53,394 and depreciation of ($9,708).

In order to not include TMMC load in the allocation of costs to the Large User class for accounts 1835 and 1845 a new allocation factor has been developed in the cost allocation model, tab E2 Allocators, line 124. The allocation factor is the primary 4 NCP demand allocator excluding the TMMC load. The name of the allocator is PNCP4WO2 and is entered in tab E4 TB Allocation Details, cells F47 and F55. This causes the cost allocation model to not allocate 1835 and 1845 costs to TMMC.

VECC-TCQ - 75

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to -cost ratios appropriate?

Reference: TMMC Response to Staff 1 b)

Settlement Proposal – Cost Allocation Model

b) Based on the results from part (a) and Energy+'s proposed approach for adjusting Revenue to Cost ratios and designing customer class rates, please provide:

i. A revised Tab 11 per the Revenue Requirement Work Form

ii. The resulting bill impacts for the BCP and CND service areas.

RESPONSE

b)

i) An RRWF model in Excel format, based on the scenario from part (a) and Energy+'s proposed approach for adjusting Revenue to Cost ratios and designing customer class rates has been provided in live Excel format.

2019_Energy+_Rev_Reqt_Work_Form_VECC 75b.xlsm.

ii) Please refer to Response to TCQ-SEC-11 for a summary of bill impacts.

VECC-TCQ - 75

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: TMMC Response to Staff 1 b)

Settlement Proposal – Cost Allocation Model

c) If Energy+ does not view the revisions requested under items (iii), (iv) and/or (v) to be appropriate, please also provide an alternative Cost Allocation model reflecting Energy+'s preferred methodology.

RESPONSE

c) An alternative Cost Allocation model reflecting the results in a) but assuming the allocation of costs to the embedded distributors is consistent with the cost allocation methodology outlined in Appendix 2-Q has been provided in live Excel format.
2019 Energy+_Cost_Allocation_Model VECC 75c.xls.

VECC-TCQ - 75

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: TMMC Response to Staff 1 b)

Settlement Proposal – Cost Allocation Model

d) Based on the results from part (c) and Energy+'s proposed approach for adjusting Revenue to Cost ratios and designing customer class rates, please provide:

i. A revised Tab 11 per the Revenue Requirement Work Form

ii. The resulting bill impacts for the BCP and CND service areas.

RESPONSE

d) i) An RRWF model in Excel format, based on the scenario from part (c) and Energy +'s proposed approach for adjusting Revenue to Cost ratios and designing customer class rates has been provided in live Excel format.

2019_Energy+_Rev_Reqt_Work_Form_VECC 75c.xlsm.

ii) Please refer to Response to TCQ-SEC-11 for a summary of bill impacts.

VECC-TCQ - 76

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Proposal – Cost Allocation Model

a) Please confirm whether the cost allocation methodology used in the Cost Allocation Model filed with the Settlement Proposal represents Energy+'s cost allocation proposal for purposes of setting 2019 rates.

RESPONSE

a) The cost allocation methodology used in the Cost Allocation Model filed with the Settlement Proposal does not represents Energy+'s cost allocation proposal for purposes of setting 2019 rates.

Please refer to Response to VECC-TCQ-76 b).

VECC-TCQ - 76

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to-cost ratios appropriate?

Reference: Settlement Proposal – Cost Allocation Model

b) If not confirmed, please outline the changes that Energy+ would make and provide an alternative cost allocation model that incorporates these changes.

RESPONSE

Energy+ has provided an alternative cost allocation model in live excel format.
2019 Energy+_Cost_Allocation_Model VECC 76b.xls.

i) The load forecast has been updated as per response to VECC-TCQ – 66b)

ii) Account 1805-1 Land Station >50 kV has been assigned 100% of 1805 in Tab I4 BO ASSETS

iii) Account 1808-1 Buildings and Fixtures > 50 kV has been assigned 100% of 1808 in Tab I4 BO ASSETS

VECC-TCQ - 76

Issue: 3.2 Are the proposed cost allocation methodology, allocations, and revenue-to -cost ratios appropriate?

Reference: Settlement Proposal – Cost Allocation Model

c) If an alternative cost allocation is provided in response to part (b), then based on the results from part (b) and Energy+'s proposed approach for adjusting Revenue to Cost ratios and designing customer class rates, please provide:

i. A revised Tab 11 per the Revenue Requirement Work Form

ii. The resulting bill impacts for the BCP and CND service areas.

RESPONSE

c) An updated Revenue Requirement Work Form in excel format has been provided to reflect the changes outlined in part (b).
2019_Energy+_Rev_Reqt_Work_Form_VECC 76c.xlsm.

In addition, Energy+ has also made the following changes to LV and RTSR rates which are reflected in the bill impacts:

i) For LV rates, the adjustment for Standby demand has been removed from the rate calculation.

ii) For RTSR Network rates, the adjustment for Standby demand has been removed from the rate calculation.

iii) Updated the demand adjustment for the Gross Load Billing method for RTSR Connection rates. The adjustment is now 74,376 kW which represents the actual Gross Load impact, as opposed to the prior adjustment of 30,443 kW which represented the impact of the Standby contract capacity.

VECC TCQ -77

Reference: Exhibit 8, pages 22-23
Staff 90

a) Please provide a schedule that sets out the revenues Energy + receive from LV charges for each of the years 2015-2017.

b) Given there is a minimal difference between the 2017 actual load and the 2019 load forecast, please explain why applying the 2017 RTSRs to the 2019 load forecast results in a 46% increase (i.e., from $550,853 to $806,325) in LV costs.

RESPONSE

a) Energy+ has prepared the following table that sets out the revenues received from LV charges from 2015 to 2017.

Summary of LV Revenues

Year	Energy+(CND)	Energy+(BCP)	Energy+
2015	$ 165,776	$ 306,168	$ 471,944
2016	$ 165,254	$ 333,297	$ 498,551
2017	$ 159,269	$ 304,540	$ 463,809

b) The 2019 LV revenue of $806,325 reported in Response to Interrogatory 8-Staff-90 was incorrectly based on the amount filed with the initial application.

As part of the Responses to Interrogatories, Energy+ corrected the LV rates to $507,967. This represents an 8% decrease in revenue compared to 2017 actuals.

VECC TCQ -78

Reference: Exhibit 8, page 18
Settlement Proposal, RTSR Harmonized
OEB Filing Requirements, Chapter 2, page 55

a) Please confirm that all customer classes, including the Embedded Distributors are assessed RTSR charges.

b) Given that the Filing Requirements call for the "allocation of forecasted LV costs to customer classes (generally in proportion to transmission connection rate revenues)", please explain why the Embedded Distributors were not included in the allocation of LV costs.

RESPONSE

a) Energy+ confirms that that all customer classes, including the Embedded Distributors, are assessed RTSR (Network and Connection) charges. Please refer to Response to Staff Interrogatories Table 8-Staff-87 e): Harmonized RTSR Rate Calculation filed September 14, 2018.

b) Consistent with the approach utilized in the 2014 and 2010 Cost of Service Applications for the former Cambridge and North Dumfries Hydro Inc. ("CND"), the Embedded Distributors have not been included in the allocation of LV costs.

It is Energy+'s understanding that the charges levied by Hydro One to Energy+ for LV charges recover the Sub-Transmission ("ST") costs as a result of Energy+ being an embedded distributor, and that Hydro One's embedded distributor load in Energy+'s service territory is not included in the computation of the ST charge.

The charges levied by Brantford Power Inc. to Energy+ for LV may include the load for servicing Hydro One.

VECC-TCQ - 79

Issue: 3.5 **Are the proposed Retail Transmission Service Rates and LV Rates appropriate?**

Reference: **Staff 88**

Staff 64 – Energy + CND LRAMVA Workform, Tab 9

Energy +_Exh1 Response_Addn Cust Questions_April 10, 2018

Settlement Proposal, Load Forecast Model, Rate Class Load Model

Preamble: **Energy + proposes to use Gross Load billing for its LV rates.**

a) Please confirm that Energy + is billed for LV services by both Hydro One and Brantford Hydro.

RESPONSE

a) Energy+ confirms that LV services are billed by both Hydro One and Brantford Power.

VECC-TCQ - 79

Issue: 3.5 Are the proposed Retail Transmission Service Rates and LV Rates appropriate?

Reference: Staff 88

Staff 64 – Energy + CND LRAMVA Workform, Tab 9

Energy +_Exh1 Response_Addn Cust Questions_April 10, 2018

Settlement Proposal, Load Forecast Model, Rate Class Load Model

Preamble: Energy + proposes to use Gross Load billing for its LV rates.

b) Please confirm that, for purposes of determining the proposed LV rates, Energy + used the 2019 Large User forecast that included an adjustment for Standby of 30,443.08 kW which was based on 2017 actual data.

RESPONSE

b) b) Energy+ confirms that it originally used the 2019 Large User forecast that included an adjustment for Standby. Energy+ has updated its proposal to exclude the Standby adjustment of 30,443.08 kW from the calculation of LV rates.

Energy+ has used updated the LV rates reflected in the Bill Impacts, as provided in Response to TCQ-SEC-11.

VECC-TCQ - 79

Issue: 3.5 **Are the proposed Retail Transmission Service Rates and LV Rates appropriate?**

Reference: **Staff 88**

Staff 64 – Energy + CND LRAMVA Workform, Tab 9

Energy +_Exh1 Response_Addn Cust Questions_April 10, 2018

Settlement Proposal, Load Forecast Model, Rate Class Load Model

Preamble: **Energy + proposes to use Gross Load billing for its LV rates.**

c) Does Brantford Hydro use Gross Load billing for its LV charges to Energy +? If not, how does Energy +'s proposal to use Gross Load Billing for its LV charges reflect this fact?

RESPONSE

Brantford Power does not use Gross Load Billing for its LV Charges to Energy+.

Energy+'s revised proposal does not use Gross Load Billing for its LV Charges.

VECC-TCQ - 79

Issue: 3.5 **Are the proposed Retail Transmission Service Rates and LV Rates appropriate?**

Reference: **Staff 88**

Staff 64 – Energy + CND LRAMVA Workform, Tab 9

Energy +_Exh1 Response_Addn Cust Questions_April 10, 2018

Settlement Proposal, Load Forecast Model, Rate Class Load Model

Preamble: **Energy + proposes to use Gross Load billing for its LV rates.**

d) Does Hydro One Networks use Gross Load billing for its LV (ST) charges to Energy+, only if the customers with LDG are served via Hydro One Networks' ST facilities? If yes, how does Energy +'s proposal to use Gross Load Billing for its LV charges reflect this fact?

RESPONSE

Hydro One Networks does not use Gross Load Billing for its LV (ST) charges to Energy+.

Energy+'s revised proposal does not use Gross Load Billing for its LV Charges.

VECC-TCQ - 79

Issue: 3.5 Are the proposed Retail Transmission Service Rates and LV Rates appropriate?

Reference: Staff 88

Staff 64 – Energy + CND LRAMVA Workform, Tab 9

Energy +_Exh1 Response_Addn Cust Questions_April 10, 2018

Settlement Proposal, Load Forecast Model, Rate Class Load Model

Preamble: Energy + proposes to use Gross Load billing for its LV rates.

e) The response to the April 10, 2018 Additional Customer Question 5 (iii) indicates that Energy + expects to have additional load displacement generation installed by the end of 2018 with capacity as low as 30 kW. Does Energy +'s proposal to use Gross Load billing for its LV rates apply to all load displacement generation regardless of size? If not, to what size of load displacement generation will Gross Load billing for LV rates apply?

RESPONSE

Energy+'s updated proposal does not use Gross Load Billing for its LV

Charges.

VECC-TCQ - 80

Issue: 3.6 Is the proposal for using gross load billing for Retail Transmission Rates for customers who have load displacement generation appropriate?

Reference: Staff 88

VECC 54 – Energy + CND LRAMVA Workform, Tab 9

Energy +_Exh1 Response_Addn Cust Questions_April 10, 2018

Settlement Proposal, Load Forecast Model, Rate Class Load Model

Preamble: Energy + proposes to use Gross Load billing for its RTSRs.

a) Please confirm that, for purposes of determining the proposed RTSRs, Energy + used the 2019 Large Use forecast that included an adjustment for Standby of 30,443.08 kW based on 2017 actual data.

RESPONSE

Energy+ confirms that for the purposes of RTSRs that it used the 2019 Large Use forecast that included an adjustment for Standby of 30,443.08 kW based on 2017 actual data. Energy+ has prepared an updated proposal for RTSR which (i) removed the 30,443.08 kW for RTSR Network and (ii) replaced the 30,443.08 kW for standby with a demand adjustment of 74,376 kW for RTRS Connection rates to reflect gross load billing.

Energy+ has used updated the RTSR rates reflected in the Bill Impacts, as provided in Response to TCQ-SEC-11.

VECC-TCQ - 80

Issue: 3.6 Is the proposal for using gross load billing for Retail Transmission Rates for customers who have load displacement generation appropriate?

Reference: Staff 88

VECC 54 – Energy + CND LRAMVA Workform, Tab 9

Energy +_Exh1 Response_Addn Cust Questions_April 10, 2018

Settlement Proposal, Load Forecast Model, Rate Class Load Model

Preamble: Energy + proposes to use Gross Load billing for its RTSRs.

b) Please confirm that, based on actual 2017 data, the demand adjustment for the Gross Load Billing method would be 74,376 kW (i.e., 6,198 kW x 12 per Staff 64 – Energy + CND LRAMVA Workform, Tab 9). If not confirmed, what would be the adjustment based on 2017 actual data and how is it derived?

RESPONSE

Please refer to Part a) of VECC-TCQ – 80.

VECC-TCQ - 80

Issue: 3.6 Is the proposal for using gross load billing for Retail Transmission Rates for customers who have load displacement generation appropriate?

Reference: Staff 88

VECC 54 – Energy + CND LRAMVA Workform, Tab 9

Energy +_Exh1 Response_Addn Cust Questions_April 10, 2018

Settlement Proposal, Load Forecast Model, Rate Class Load Model

Preamble: Energy + proposes to use Gross Load billing for its RTSRs.

c) Please confirm that, if the RTSRs are to be based on Gross Load billing (as proposed by Energy +) then the Large User load forecast for 2019 should be adjusted by the amount identified in the response to part (b) and not 30,443.08 kW.

RESPONSE

Please refer to Part a) of VECC-TCQ – 80.

VECC-TCQ - 80

Issue: 3.6 Is the proposal for using gross load billing for Retail Transmission Rates for customers who have load displacement generation appropriate?

Reference: Staff 88

VECC 54 – Energy + CND LRAMVA Workform, Tab 9

Energy +_Exh1 Response_Addn Cust Questions_April 10, 2018

Settlement Proposal, Load Forecast Model, Rate Class Load Model

Preamble: Energy + proposes to use Gross Load billing for its RTSRs.

d) The response to the April 10, 2018 Additional Customer Question 5 (iii) indicates that Energy + expects to have additional load displacement generation installed by the end of 2018 with capacity as low as 30 kW. Does Energy +'s proposal to use Gross Load billing for its RTSRs apply to all load displacement generation regardless of size? If not, to what size of load displacement generation will Gross Load billing apply?

RESPONSE

Energy+'s proposal to use Gross Load billing for its RTSR Connection rates applies to all load displacement generation regardless of size.

VECC-TCQ - 81

Issue: 3.7 **Is the proposal for implementing a standby charge for the Large Use, GS 1,000 to 4,999 kW and GS 50 to 999 kW customer classes with load displacement appropriate?**

Reference: **Energy+ Response to TMMC-14, part 5**

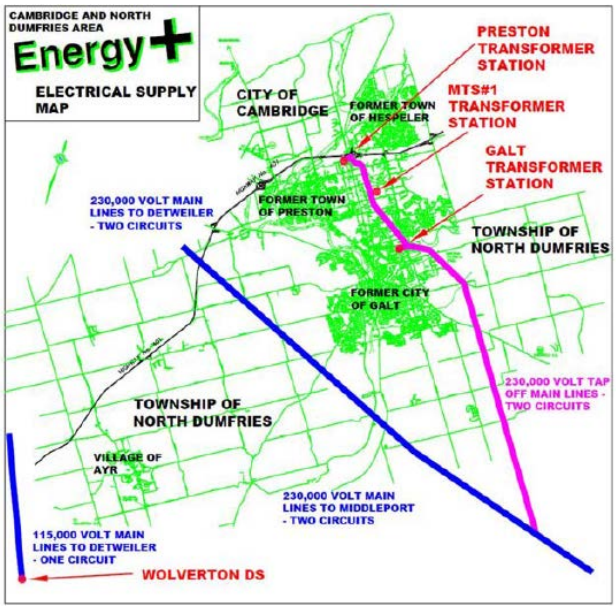
TMMC Response to VECC IR #18

TMMC Response to Staff #1 d)

a) TMMC-14 requested information regarding Energy+'s Cambridge system. Please clarity how Energy+ has defined the "Cambridge System" for purposes of the response. In particular, how does this differ from the portion of Energy+'s system that is served by the Preston TS?

RESPONSE

The Cambridge System is Energy+'s service area in the City of Cambridge / Township of North Dumfries as shown in Distribution System Plan Figure 1-4. The Cambridge System includes Galt TS, Preston TS, and MTS#1. In addition, it includes a distribution supply from Wolverton DS.



The Cambridge System differs from Preston TS as it covers a larger geographical area.

VECC-TCQ - 81

Issue: 3.7 Is the proposal for implementing a standby charge for the Large Use, GS 1,000 to 4,999 kW and GS 50 to 999 kW customer classes with load displacement appropriate?

Reference: Energy+ Response to TMMC-14, part 5

TMMC Response to VECC IR #18

TMMC Response to Staff #1 d)

b) With respect to the excel file provided in response to TMMC-14, part 5, please explain what the columns System Peak (col. E) and Sys Peak with Generation (col. F) represent.

RESPONSE

The column System Peak (col. E) refers to the System Peak in Energy+'s Cambridge System and excludes Renewable Generation projects. The column System Peak with Generation (Col. F) refers to the System Peak plus Renewable Generation projects.

VECC-TCQ - 81

Issue: 3.7 Is the proposal for implementing a standby charge for the Large Use, GS 1,000 to 4,999 kW and GS 50 to 999 kW customer classes with load displacement appropriate?

Reference: Energy+ Response to TMMC-14, part 5

TMMC Response to VECC IR #18

TMMC Response to Staff #1 d)

c) For each of the days/ending hours identified in TMMC-14, part 5, please indicate whether the hour concerned is an on-peak or off-peak hour based on the definition of on-peak provided in TMMC's Response to VECC IR #18.

RESPONSE

The definition of on-peak provided in TMMC's Response to VECC IR #18 was that the "on-peak is weekdays excluding public holidays, between the hours of 7am to 7pm".

Energy+ Response to IR-TMMC-14		**Energy+ Response to VECC TCQ-81 Part c.**
Date	Hour Ending	
07-Jan-16	13:00	On Peak
03-Feb-16	11:00	On Peak
02-Mar-16	2:00	Off-Peak
22-Apr-16	12:00	On Peak
16-May-16	10:00	On Peak
20-Jun-16	12:00	On Peak
07-Jul-16	23:00	Off Peak
05-Aug-16	10:00	On Peak
08-Sep-16	14:00	On Peak
06-Oct-16	14:00	On Peak
02-Nov-16	12:00	On Peak

15-Dec-16	15:00	On Peak
26-Jan-17	21:00	Off-Peak
22-Feb-17	21:00	Off-Peak
27-Mar-17	18:00	On Peak
21-Apr-17	10:00	On Peak
25-May-17	14:00	On Peak
12-Jun-17	12:00	On Peak
12-Jul-17	18:00	On Peak
22-Aug-17	10:00	On Peak
26-Sep-17	14:00	On Peak
23-Oct-17	7:00	Off-Peak
08-Nov-17	8:00	On Peak
05-Dec-17	8:00	On Peak
04-Jan-18	12:00	On Peak
27-Feb-18	13:00	On Peak
01-Mar-18	11:00	On Peak
25-Apr-18	10:00	On Peak
31-May-18	12:00	On Peak
27-Jun-18	18:00	On Peak

VECC-TCQ - 81

Issue: 3.7 Is the proposal for implementing a standby charge for the Large Use, GS 1,000 to 4,999 kW and GS 50 to 999 kW customer classes with load displacement appropriate?

Reference: Energy+ Response to TMMC-14, part 5

TMMC Response to VECC IR #18

TMMC Response to Staff #1 d)

d) For each of the months identified in TMMC-14, part 5, please indicate the peak hour (i.e., day and hour ending) for the Preston TS serving TMMC and whether than hour was in the on-peak or off-peak period.

RESPONSE

Energy+ Response to IR-TMMC-14		**Preston TS Peak Day/Hour**		**On Peak or Off Peak**
Date	Hour Ending	Date	Hour Ending	
07-Jan-16	13:00	28-Jan-16	15:00	On Peak
03-Feb-16	11:00	11-Feb-16	11:00	On Peak
02-Mar-16	2:00	02-Mar-16	09:00	On Peak
22-Apr-16	12:00	22-Apr-16	10:00	On Peak
16-May-16	10:00	27-May-16	13:00	On Peak
20-Jun-16	12:00	20-Jun-16	14:00	On Peak
07-Jul-16	23:00	13-Jul-16	14:00	On Peak
05-Aug-16	10:00	11-Aug-16	13:00	On Peak
08-Sep-16	14:00	7-Sep-16	14:00	On Peak
06-Oct-16	14:00	6-Oct-16	14:00	On Peak
02-Nov-16	12:00	22-Nov-16	11:00	On Peak
15-Dec-16	15:00	15-Dec-16	15:00	On Peak
26-Jan-17	21:00	27-Jan-17	11:00	On Peak
22-Feb-17	21:00	08-Feb-17	11:00	On Peak

27-Mar-17	18:00	14-Mar-17	10:00	On Peak
21-Apr-17	10:00	21-Apr-17	10:00	On Peak
25-May-17	14:00	18-May-17	14:00	On Peak
12-Jun-17	12:00	12-Jun-17	14:00	On Peak
12-Jul-17	18:00	12-Jul-17	13:00	On Peak
22-Aug-17	10:00	01-Aug-17	12:00	On Peak
26-Sep-17	14:00	26-Sep-17	14:00	On Peak
23-Oct-17	7:00	04-Oct-17	13:00	On Peak
08-Nov-17	8:00	16-Nov-17	10:00	On Peak
05-Dec-17	8:00	13-Dec-17	11:00	On Peak
04-Jan-18	12:00	04-Jan-18	12:00	On Peak
27-Feb-18	13:00	05-Feb-18	11:00	On Peak
01-Mar-18	11:00	01-Mar-18	11:00	On Peak
25-Apr-18	10:00	17-Apr-18	09:00	On Peak
31-May-18	12:00	31-May-18	14:00	On Peak
27-Jun-18	18:00	18-Jun-18	10:00	On Peak

CONFIDENTIAL

VECC-TCQ - 81

Issue: 3.7 Is the proposal for implementing a standby charge for the Large Use, GS 1,000 to 4,999 kW and GS 50 to 999 kW customer classes with load displacement appropriate?

Reference: Energy+ Response to TMMC-14, part 5

TMMC Response to VECC IR #18

TMMC Response to Staff #1 d)

CONFIDENTIAL

e) The response by TMMC to Staff 1 d) indicates that Energy+ has access to the hourly metered data for TMMC's LDG. Please indicate the generation output of TMMC's LDG, at the time of each of the monthly hours identified in response to TMMC-14, part 5 (i.e., the time of the Cambridge system peak).

RESPONSE

The monthly hours for TMMC-14 Part 5 are the peak hours for TMMC net load and not the Cambridge system peak. Energy+ has answered VECC TCQ part (e) two ways. Table 1 below answers the IR based on dates/timing of peak TMMC net load. Table 2 answers the IR based on Cambridge system peak.

Table 1 – TMMC Net Load Peaks

Energy+ Response to IR-TMMC-14		**Energy+ Response to VECC TCQ 81 Part e.**
Date	**Hour Ending**	**LDG Output (kW)***
07-Jan-16	13:00	[redacted]
03-Feb-16	11:00	[redacted]
02-Mar-16	2:00	[redacted]
22-Apr-16	12:00	[redacted]
16-May-16	10:00	[redacted]
20-Jun-16	12:00	[redacted]
07-Jul-16	23:00	[redacted]

05-Aug-16	10:00	[redacted]
08-Sep-16	14:00	[redacted]
06-Oct-16	14:00	[redacted]
02-Nov-16	12:00	[redacted]
15-Dec-16	15:00	[redacted]
26-Jan-17	21:00	[redacted]
22-Feb-17	21:00	[redacted]
27-Mar-17	18:00	[redacted]
21-Apr-17	10:00	[redacted]
25-May-17	14:00	[redacted]
12-Jun-17	12:00	[redacted]
12-Jul-17	18:00	[redacted]
22-Aug-17	10:00	[redacted]
26-Sep-17	14:00	[redacted]
23-Oct-17	7:00	[redacted]
08-Nov-17	8:00	[redacted]
05-Dec-17	8:00	[redacted]
04-Jan-18	12:00	[redacted]
27-Feb-18	13:00	[redacted]
01-Mar-18	11:00	[redacted]
25-Apr-18	10:00	[redacted]
31-May-18	12:00	[redacted]
27-Jun-18	18:00	[redacted]

**Figures rounded to the nearest whole number*

Table 2 – Cambridge System Peak

IESO + Embedded Generation

Year	Month	Day	Peak [kW]	Time of Peak	TMMC Generation [kW]
2016	1	4	[redacted]	19	[redacted]
2016	2	11	[redacted]	19	[redacted]
2016	3	2	[redacted]	11	[redacted]
2016	4	4	[redacted]	10	[redacted]
2016	5	27	[redacted]	13	[redacted]
2016	6	20	[redacted]	15	[redacted]
2016	7	13	[redacted]	15	[redacted]
2016	8	10	[redacted]	14	[redacted]
2016	9	7	[redacted]	15	[redacted]
2016	10	6	[redacted]	14	[redacted]
2016	11	21	[redacted]	18	[redacted]
2016	12	15	[redacted]	18	[redacted]
2017	1	4	[redacted]	19	[redacted]
2017	2	2	[redacted]	19	[redacted]
2017	3	14	[redacted]	10	[redacted]
2017	4	6	[redacted]	12	[redacted]

2017	5	18	[redacted]	14	[redacted]
2017	6	12	[redacted]	14	[redacted]
2017	7	12	[redacted]	13	[redacted]
2017	8	21	[redacted]	13	[redacted]
2017	9	25	[redacted]	15	[redacted]
2017	10	4	[redacted]	13	[redacted]
2017	11	23	[redacted]	11	[redacted]
2017	12	12	[redacted]	18	[redacted]
2018	1	4	[redacted]	19	[redacted]
2018	2	7	[redacted]	11	[redacted]
2018	3	14	[redacted]	10	[redacted]
2018	4	17	[redacted]	10	[redacted]
2018	5	28	[redacted]	15	[redacted]
2018	6	18	[redacted]	11	[redacted]
2018	7	5	[redacted]	14	[redacted]
2018	8	15	[redacted]	14	[redacted]

VECC-TCQ - 81

Issue: 3.7 Is the proposal for implementing a standby charge for the Large Use, GS 1,000 to 4,999 kW and GS 50 to 999 kW customer classes with load displacement appropriate?

Reference: Energy+ Response to TMMC-14, part 5

TMMC Response to VECC IR #18

TMMC Response to Staff #1 d)

f) If the definition of the Cambridge system differs from the portion of Energy+'s system served by the Preston TS, then please also indicate the generation output of TMMC's LDG, at the time of each of the monthly hours identified in response to part (d) (i.e., the time of the Preston TS peak).

RESPONSE

Yes, the Cambridge System differs from the portion of Energy+'s system served by the Preston TS. Please see response to VECC TCQ-81 part (a).

Energy+ Response to IR-TMMC-14		**Preston TS Peak Day/Hour**		**On Peak or Off Peak**	**LDG Output [kW]**
Date	Hour Ending	Date	Hour Ending		
07-Jan-16	13:00	28-Jan-16	15:00	On Peak	[redacted]
03-Feb-16	11:00	11-Feb-16	11:00	On Peak	[redacted]
02-Mar-16	2:00	02-Mar-16	09:00	On Peak	[redacted]
22-Apr-16	12:00	22-Apr-16	10:00	On Peak	[redacted]
16-May-16	10:00	27-May-16	13:00	On Peak	[redacted]
20-Jun-16	12:00	20-Jun-16	14:00	On Peak	[redacted]
07-Jul-16	23:00	13-Jul-16	14:00	On Peak	[redacted]
05-Aug-16	10:00	11-Aug-16	13:00	On Peak	[redacted]
08-Sep-16	14:00	7-Sep-16	14:00	On Peak	[redacted]
06-Oct-16	14:00	6-Oct-16	14:00	On Peak	[redacted]

02-Nov-16	12:00	22-Nov-16	11:00	On Peak	[redacted]
15-Dec-16	15:00	15-Dec-16	15:00	On Peak	[redacted]
26-Jan-17	21:00	27-Jan-17	11:00	On Peak	[redacted]
22-Feb-17	21:00	08-Feb-17	11:00	On Peak	[redacted]
27-Mar-17	18:00	14-Mar-17	10:00	On Peak	[redacted]
21-Apr-17	10:00	21-Apr-17	10:00	On Peak	[redacted]
25-May-17	14:00	18-May-17	14:00	On Peak	[redacted]
12-Jun-17	12:00	12-Jun-17	14:00	On Peak	[redacted]
12-Jul-17	18:00	12-Jul-17	13:00	On Peak	[redacted]
22-Aug-17	10:00	01-Aug-17	12:00	On Peak	[redacted]
26-Sep-17	14:00	26-Sep-17	14:00	On Peak	[redacted]
23-Oct-17	7:00	04-Oct-17	13:00	On Peak	[redacted]
08-Nov-17	8:00	16-Nov-17	10:00	On Peak	[redacted]
05-Dec-17	8:00	13-Dec-17	11:00	On Peak	[redacted]
04-Jan-18	12:00	04-Jan-18	12:00	On Peak	[redacted]
27-Feb-18	13:00	05-Feb-18	11:00	On Peak	[redacted]
01-Mar-18	11:00	01-Mar-18	11:00	On Peak	[redacted]
25-Apr-18	10:00	17-Apr-18	09:00	On Peak	[redacted]
31-May-18	12:00	31-May-18	14:00	On Peak	[redacted]
27-Jun-18	18:00	18-Jun-18	10:00	On Peak	[redacted]

VECC-TCQ - 82

Issue: 3.7 **Is the proposal for implementing a standby charge for the Large Use, GS 1,000 to 4,999 kW and GS 50 to 999 kW customer classes with load displacement appropriate?**

Reference: **TMMC-16**

Staff 77

Energy +_Exh1 Response_Addn Cust Questions_April 10, 2018

a) The response to Staff 77 states that it is Energy+'s proposal to offer standby rates to all customer with installed LDG (in the noted customer classes). The response to the April 10, 2018 Additional Customer Question 5 (iii) indicates that Energy + expects there will be customers that have additional load displacement generation by the end of 2018 with capacity as low as 30 kW. Please confirm that if the customer concerned was in one of the noted classes then the Standby rate proposal would apply to the customer with the 30 kW LDG facility. If not, why not?

RESPONSE

Energy+ confirms that its proposal for Standby rates would apply to a customer in any of the GS>50 kW and above rate classes, who intend to install LDG, and would therefore apply to a customer who is proposing a 30 kW LDG facility if that customer is in one of those classes.

VECC-TCQ - 83

Issue: 3.7 **Is the proposal for implementing a standby charge for the Large Use, GS 1,000 to 4,999 kW and GS 50 to 999 kW customer classes with load displacement appropriate?**

Reference: **Staff 77**

Staff 78

SEC 39

a) The responses to Staff 77 b) (3rd bullet) and Staff 78 suggest that a customer with LDG has the option of not contracting for Standby (on the basis that the customer does not require backup supply from Energy + when its LDG is inadequate) and, therefore, not establishing a "contracted capacity" value. Furthermore, the response to SEC 39 suggests that a customer with LDG can opt out of its Standby contract. Please confirm if this is the case.

RESPONSE

Confirmed.

Please also refer to Response to VECC-TCQ-83 b) iii).

VECC-TCQ - 83

Issue: 3.7 **Is the proposal for implementing a standby charge for the Large Use, GS 1,000 to 4,999 kW and GS 50 to 999 kW customer classes with load displacement appropriate?**

Reference: **Staff 77**

Staff 78

SEC 39

b) If this is the case and the customer makes the determination that it will not contract for Standby, please address the following:

i. Are there circumstances under which Energy+ would not accept the customer's determination and require the customer to contract for Standby and establish a contract quantity? If yes, what are the circumstances and what is the minimum contract quantity Energy+ would deem appropriate?

ii. If the customer opts for no Standby contract (and Energy+ accepts), how would Energy + determine, on an ongoing basis, that the customer has not subsequently required standby to supplement its own LDG?

iii. Furthermore, under the circumstances outlined in part (ii), if Energy + determines that the customer has effectively required Standby, will Energy+ require the customer to contract for Standby and what is the minimum contract quantity that Energy+ would deem appropriate?

RESPONSE

i. Yes, there are circumstances under which Energy+ would not accept the customer's determination and require that the customer contract for Standby and establish a contract capacity. At the time of request for connection of the generation, and during annual reviews of the contracted capacity reserve value, Energy+ would require evidence from the customer that an automated scheme was in place to reduce load by the nameplate amount of the generation whenever the generation was unavailable. The action(s) would need to be automated and instantaneous since the loss of

generation has an immediate impact on the demand of the 27.6kV supply feeder and transformer station. Energy+ would review the electrical single line diagram and operating information submitted by the customer to see how this requirement was being met.

As previously identified in Response to IR 7-SEC-39 (a), this could be done through automatic load shedding or the use of additional technology. If the customer is not able to demonstrate any means to reduce load when the generation is unavailable, then Energy+ would require a minimum contract capacity equal to the historical full peak load without the generation in service.

If the customer could demonstrate some ability to reduce load, although not completely, then Energy+ would require a minimum contract capacity equal to the historical full peak load without the generation in service, less the number of kiloWatts of load that the customer is able to reduce instantaneously whenever the generation is unavailable.

If the customer demonstrates 100% ability to reduce load instantaneously by the nameplate amount of the generation then the customer could opt out of the contract capacity.

ii. As part of the Customer Connection Agreement between Energy+ and the customer implementing LDG, Energy+ proposes to add contract terms which would include:

- Customer to install meter(s) that will allow for the measurement of the load on the distribution system and the load on the LDG.
- Based on the meter data, and as part of its regular review, Energy+ would be able to identify and assess whether the customer had required standby service to supplement its own LDG. For larger LDG installations, Energy+ is also aware of when the generation is in service through its SCADA (Supervisory Control and Data Acquisition) system.

iii. As part of the Customer Connection Agreement documentation between Energy+ and the customer implementing LDG, Energy+ proposes to include terms and conditions whereby the customer has indicated that it has elected not to contract for capacity, and that Energy+ reserves the right to impose the Standby/Capacity Charge if it is determined that the customer has failed to meets its obligations under the terms of the agreement.

As part of its contractual obligations, the customer will be required to provide Energy+ with an explanation as to why the automated scheme to reduce load did not achieve the expected outcomes, and the actions that the customer has taken to ensure that the scheme will operate in the future.

Energy+ would than implement a “contracted” Standby/Capacity amount as outlined in response to VECC-TCQ-83 b) i).

VECC-TCQ - 84

Issue: 3.7 **Is the proposal for implementing a standby charge for the Large Use, GS 1,000 to 4,999 kW and GS 50 to 999 kW customer classes with load displacement appropriate?**

Reference: **Energy+ Response to TMMC April 10, 2018 Question 7,**

Sub-Questions II & III

Staff 7 h)

Preamble: **The response to Sub-Question II indicates that Energy+ is willing to accept reasonable proposals from customers with LDG regarding the contract capacity and to negotiate with customers in that regard. Staff 77 h) indicates the customer is expected to provide an estimate for the contracted capacity. The response to Sub-Question III indicates that there will be no penalty provisions if the agreed upon contract capacity is subsequently proven to be too low and revised upwards.**

a) Given this context, what is the incentive for the customer to provide a realistic estimate of the required contracted capacity, when the customer will "benefit" from providing/negotiating a value that is unrealistically low until such time as it is proven to be so, with no subsequent penalty (i.e., the contract quantity will be revised upwards to a more realistic value but then the higher value is only applied on a going forward basis)?

RESPONSE

As part of the process in preparing and approving the Customer Connection Agreement and facilitating the connection of the LDG to the distribution system, Energy+ staff will work with each customer to determine the appropriate level of contracted capacity. As explained in Response to IR 7-SEC-39, and Response to VECC-TCQ-83, if the Customer is requesting a contracted capacity level that is below the capacity of the LDG facility or the customers proposed contracted capacity is below its current and/or historical peak loads in the absence of the LDG, Energy+ will require evidence from the customer that an automated scheme is in place to reduce load by the nameplate amount of the generation whenever the generation is unavailable and will review the electrical single line diagram and operating information

submitted by the customer. As part of the contract terms and conditions, the customer will be attesting to the accuracy of the information provided.

The incentive to the customer in providing an accurate forecast of the contracted capacity to Energy+ is that Energy+ is bound contractually to provide the level of contracted capacity when the customer requires it. In the absence of an appropriate contracted level of capacity, Energy+ would not reserve the capacity and the customer bears the risk that their load requirements may not be met.

Energy+ will review the contracted capacity on an annual basis, and revise the contracted capacity where necessary; this practice will assist in minimizing the exposure to reduced distribution revenue as a result of customers under estimating the amount of contracted capacity required.

VECC-TCQ - 84

Issue: 3.7 **Is the proposal for implementing a standby charge for the Large Use, GS 1,000 to 4,999 kW and GS 50 to 999 kW customer classes with load displacement appropriate?**

Reference: **Energy+ Response to TMMC April 10, 2018 Question 7,**

Sub-Questions II & III

Staff 7 h)

Preamble: **The response to Sub-Question II indicates that Energy+ is willing to accept reasonable proposals from customers with LDG regarding the contract capacity and to negotiate with customers in that regard. Staff 77 h) indicates the customer is expected to provide an estimate for the contracted capacity. The response to Sub-Question III indicates that there will be no penalty provisions if the agreed upon contract capacity is subsequently proven to be too low and revised upwards.**

b) Is there a minimum contract capacity value that Energy+ would deem to be appropriate and, if so, what would it be based on?

RESPONSE

As outlined in Response to VECC-TCQ-83 b), a minimum contract capacity value that Energy+ would deem appropriate would be the historical peak load without the generation in service, less the number of kW of load, if any, that the customer is able to reduce instantaneously whenever the generation is unavailable.

If the customer demonstrates 100% ability to reduce load instantaneously by the nameplate amount of the generation, then the customer could opt out of the contract capacity.

VECC-TCQ - 85

Issue: 3.7 **Is the proposal for implementing a standby charge for the Large Use, GS 1,000 to 4,999 kW and GS 50 to 999 kW customer classes with load displacement appropriate?**

Reference: **Energy+ Response to TMMC April 10, 2018 Question 7,**

Sub-Questions II & III

Staff 78

IR-TMMC 5

a) The responses to Sub-Question II, Staff 78 and TMMC 5 all indicate that Energy+ is willing to consider reasonable proposals from TMMC on how the capacity level should be set as a starting point. Indeed, the response to Sub-Question I suggests that the capacity level included in the Application reflected the fact that there was no feedback from TMMC on this issue. As of the current date, has Energy+ further sought/received feedback from TMMC as to its estimate of the required contract capacity and/or has Energy+ participated in any negotiations with TMMC as to what would be a reasonable contracted capacity value? If yes, what is the outcome to date?

RESPONSE

Subsequent to the filing of Energy+'s Application on April 30, 2018, all correspondence with TMMC with respect to the capacity charge have occurred through the public Application process, including Responses to Customer Questions, TMMC IRs, Responses to Clarification and the filing of evidence by TMMC. TMMC and Energy+ participated in the Settlement Conference in November 2018; the Settlement Conference is subject to confidentiality and privilege rules as set out in the Board's *Rules of Practice and Procedure* and the Board's *Practice Direction on Settlement Conferences*.