CITY OF PORT MOODY

Development Permit No. DP000064

BC TRANSPORTATON FINANCING AUTHORITY
940 BLANSHARD STREET
VICTORIA, BC
V8W 3E6

1. This Development Permit is issued subject to compliance with all applicable City Bylaws, except as specifically varied or supplemented by this Permit.

2. This Permit applies to those lands in Port Moody, British Columbia more particularly described below and including all buildings, structures and other development thereon:

   CLARKE STREET ROAD ALLOWANCE IN BETWEEN GRANT STREET AND MOODY STREET ADJACENT TO THE SKYTRAIN RAIL LINE AS SHOWN IN THE KEY PLAN IN THE DRAWING PACKAGE INCLUDED IN SCHEDULE "A"

   (the "**Lands**")

3. The following plans and documents are made part of this Permit and, notwithstanding any other provision, no works shall be performed upon the Lands covered by this Permit, nor shall any building or structure be erected, constructed, repaired, renovated or sited, that is not in substantial accordance with the following and strictly in accordance with all terms and conditions of this Permit:

4. The following requirement is hereby imposed under section 490(1)(c) of the *Local Government Act:*

   a) Substantial construction shall commence within two (2) years of the date of the Council resolution authorizing issuance of this Development Permit or the Permit will lapse.

5. The following requirements are hereby imposed under sections 489(b), 490(2) and 491(2), (4), (7), and (8) of the Local Government Act:

   a) The site shall be developed in accordance with the attached plans and documents:

      1) EMUP Propulsion Power Upgrades – 90% Submission, prepared by Francl Architecture Inc., dated July 19, 2023, pages 1 through 20. and attached as Schedule 'A'

6. As conditions of this Development Permit, the following shall be provided to the City of Port Moody for review:

    a) Final IFC Architectural Drawings
    b) Final Tree Management Plan
    c) Final Landscape Plan
    d) Stormwater Management Plan
    e) Construction Management Plan
    f) Erosion and Sediment Control Plan
    g) Fire Department Access Plan

7. As a condition of this permit the owner shall notify the City Arborist upon installation of tree protection fencing, prior to commencement of any construction activities.

8. As a condition of this permit the owner will be required to provide full-depth road reconstruction for areas within the road right-of-way disturbed for underground service or mainline addition or abandonment.

Development Permit: Hazardous Lands – Soil Liquefaction

(a) 60% Geotechnical Design Report – Titled “EMUP Propulsion Power Upgrades Project, Moody Centre Station – 60% Geotechnical Design Report, South Coast British Columbia Transportation Authority SNC-Lavalin Project: 675448, on file with the City, prepared SNC Lavalin and dated December 19, 2022. and attached as Schedule B to this permit, and any amendments thereto subsequently reviewed by the City.

4. Prior to the commencement of construction the owner will provide the City with an final Geotechnical Design Report which includes a statement confirming that the site is safe for the intended use.

CITY OF PORT MOODY, by its authorized signatories:

_____

Michael Olubiyi
Manager of Development Planning
(for)

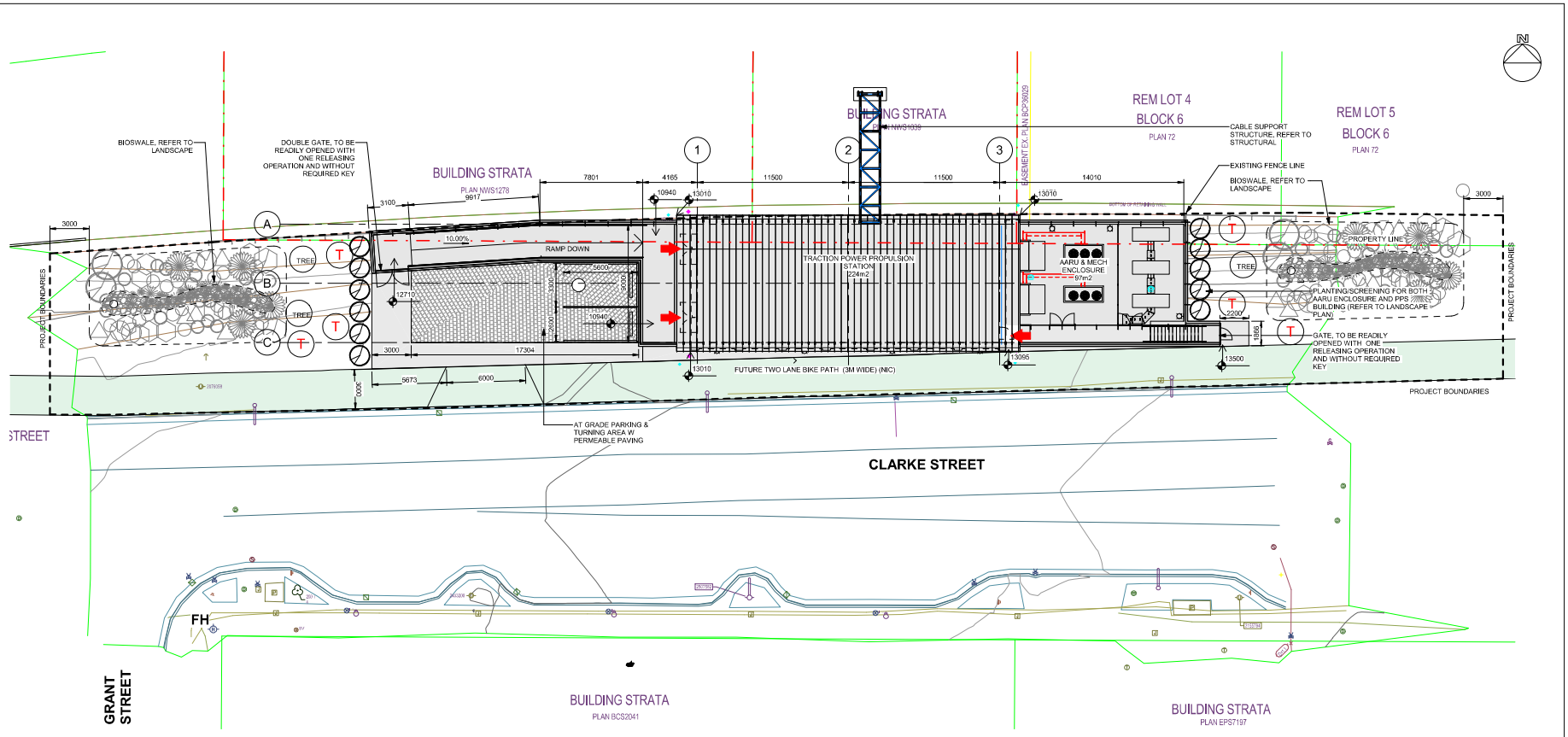
Kate Zanon
General Manager of Community Development

Pursuant to City of Port Moody Development Permit Delegation Bylaw, 2015, No. 3032

Dated on the ____ of _____, 2024.

SCHEDULE A

Architectural Drawings



1 / 0005 SITE PLAN - CLARKE STREET
1 : 150

SITE INFORMATION
(calculated based on project boundaries)

LOT AREA: 1472.1sq.m
BUILDING FOOTPRINT: 490.1sq.m
LOT COVERAGE = 33.3%
FLOOR AREA RATIO: 0.33

ANSI D 22" x 34"

Last Plotted: 2023-07-31 8:32:41 AM
Last saved by:
Filename: BM 360::675448 - EMUP PPS Upgrades/Site_PoMo.rvt

ISSUE/REVISION					REFERENCES
B	2023-07-19		90% SUBMISSION		
A	2022-11-23		60% SUBMISSION		
PA	2022-08-04		30% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francl architecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT
EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	VERONIKA KURBET
DESIGNED BY	VERONIKA KURBET
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

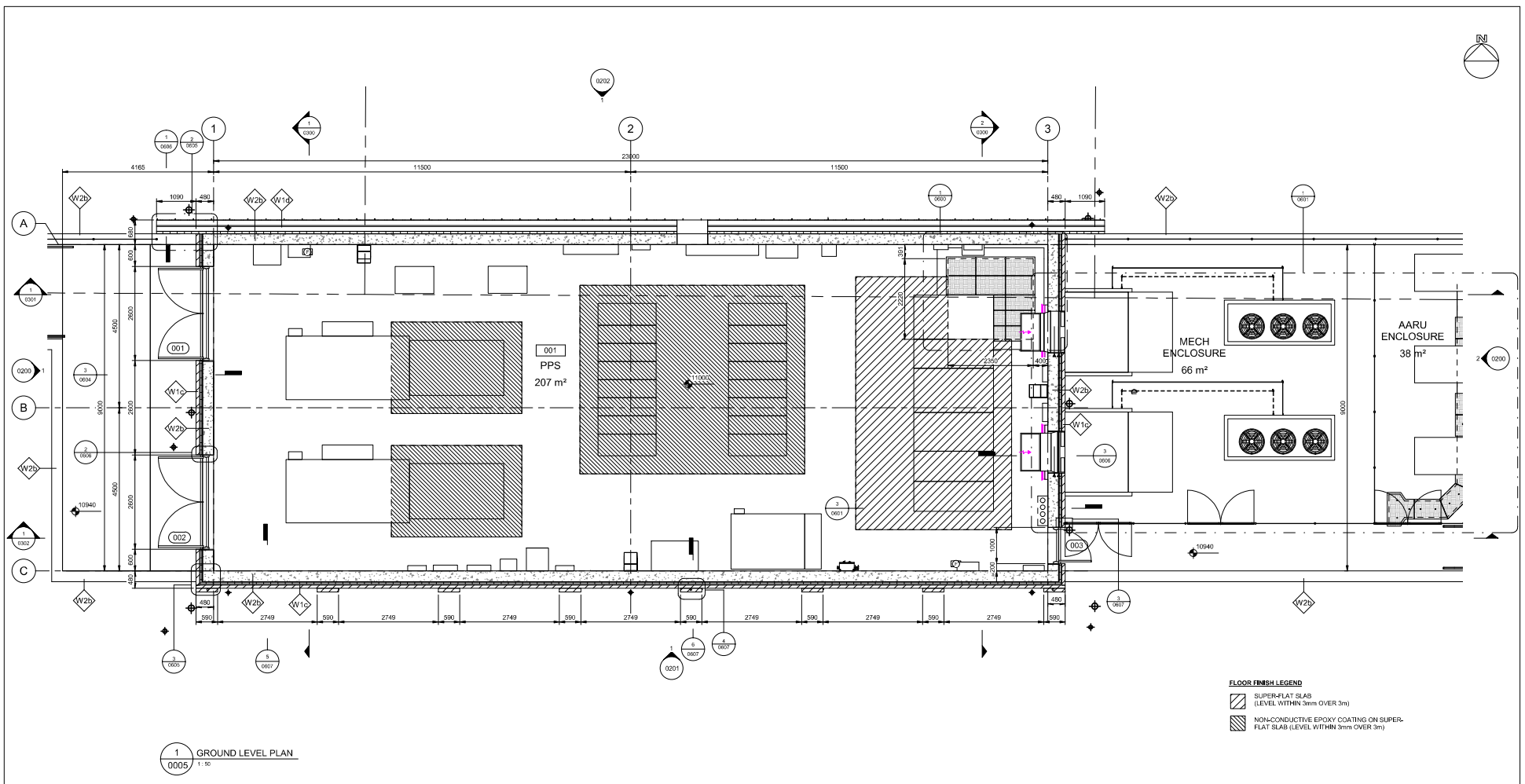
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
SITE PLAN

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0100- -B

Attachment 3



1 0005 GROUND LEVEL PLAN 1 : 50

ANSI D 22" x 34"

Last Plotted: 2023-07-31 8:32:42 AM
Last saved by:
Filename: BM 360::675448 - EMUP PPS Upgrades/Site_PoMo.rvt

ISSUE/REVISION			REFERENCES		
B	2023-07-19		90% SUBMISSION		
A	2022-11-23		60% SUBMISSION		
PA	2022-08-04		30% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

NOT FOR CONSTRUCTION
2023-07-19

PROJECT
EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

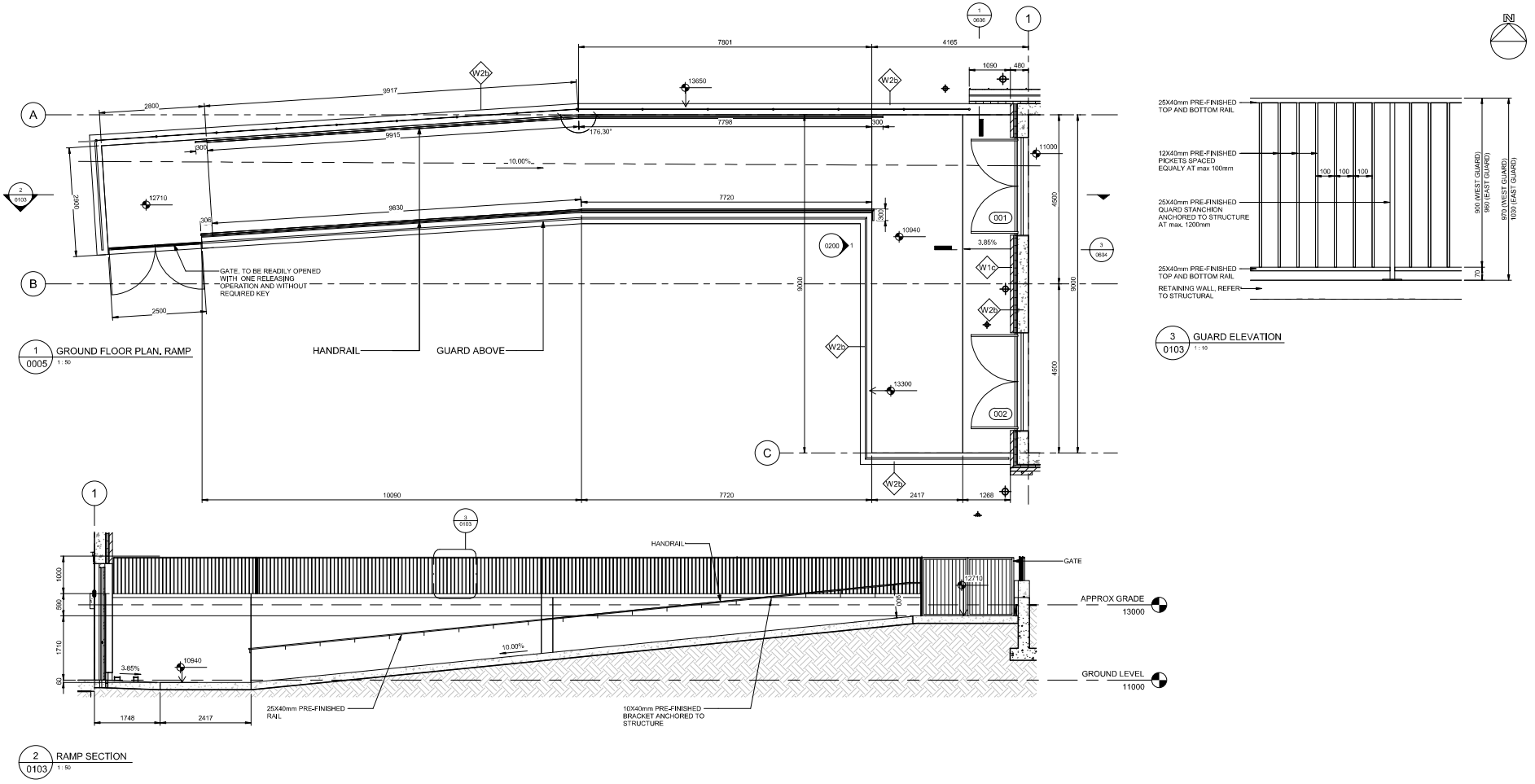
DRAWN BY	VERONIKA KURBET
DESIGNED BY	VERONIKA KURBET
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
GROUND LEVEL PLAN

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0102- -B



1 / 0005 GROUND FLOOR PLAN, RAMP 1 : 50

3 / 0103 GUARD ELEVATION 1 : 10

2 / 0103 RAMP SECTION 1 : 50

ANSI D 22" x 34"

Last Plotted: 2023-07-31 8:32:43 AM
Last saved by:
Filename: BM 360::675448 - EMUP PPS Upgrades\Site_PoMo.rvt

ISSUE/REVISION			REFERENCES		
B	2023-07-19		90% SUBMISSION		
A	2022-11-23		60% SUBMISSION		
PA	2022-08-04		30% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

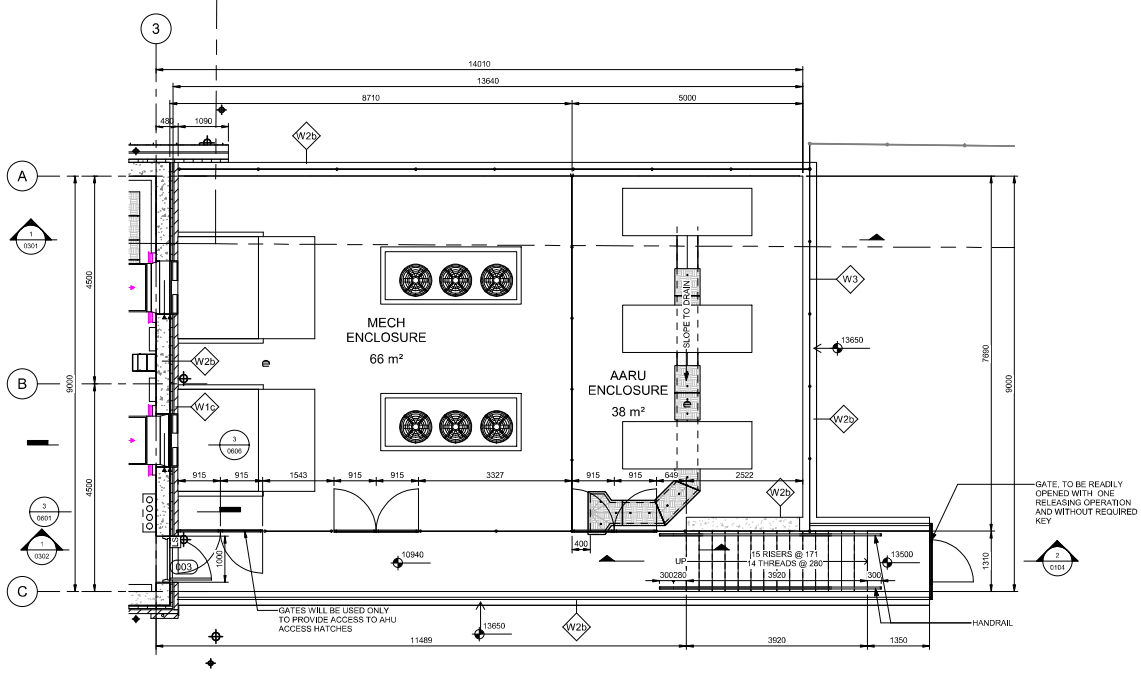
DRAWN BY	VERONIKA KURBET
DESIGNED BY	VERONIKA KURBET
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
GROUND LEVEL PLAN, RAMP

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0103- -B



1 / 0005 GROUND FLOOR PLAN. ELCLOSURE
1 : 50

2 / 0104 STAIR SECTION
1 : 50

ANSI D 22" x 34"

Last Plotted: 2023-07-31 8:32:44 AM
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt
Last saved by:

ISSUE/REVISION			REFERENCES		
B	2023-07-19		90% SUBMISSION		
A	2022-11-23		60% SUBMISSION		
PA	2022-08-04		30% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	VERONIKA KURBET
DESIGNED BY	VERONIKA KURBET
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

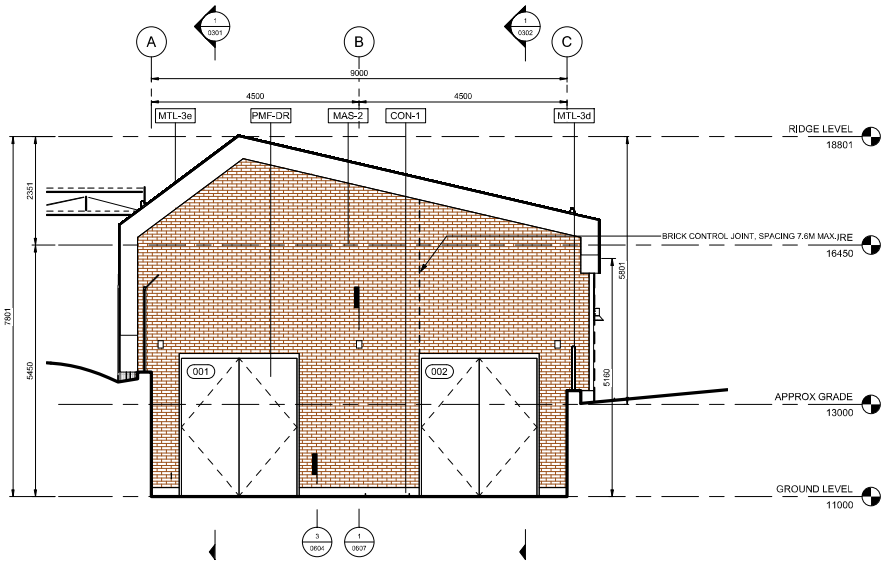
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

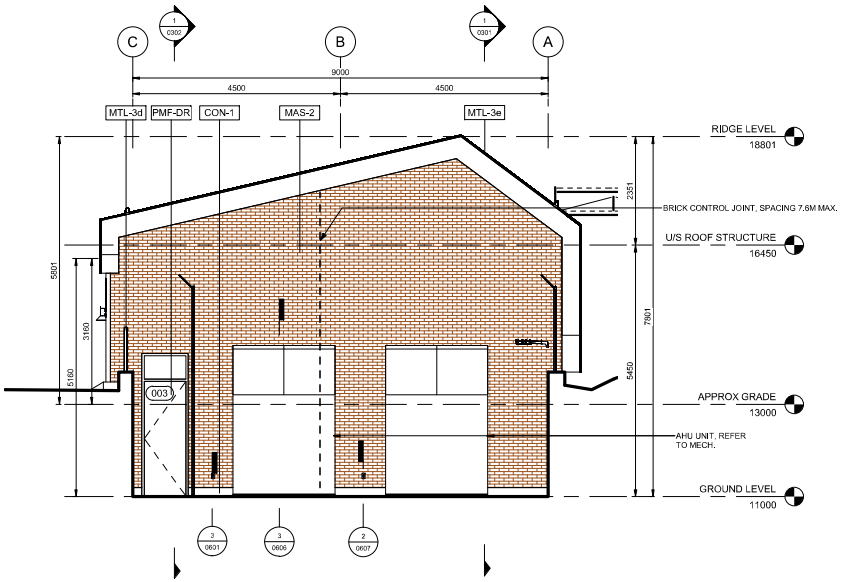
SHEET TITLE
GROUND LEVEL PLAN. ENCLOSURE

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0104- -B

ANSI D 22" x 34"



1 / 0102 WEST ELEVATION
1 : 50



2 / 0102 EAST ELEVATION
1 : 50

ELEVATION MATERIAL LEGEND

MAS-2	FACE BRICK, COLOR TBC
MTL-3e	STANDING SEAM - BLACK, COLOUR TBC
MTL-3d	GUARD W PICKETS - BLACK, COLOUR TBC
CON-1	CONCRETE FACED RIGID INSULATION
PMF-DR	INSULATED METAL DOOR W PRESSED METAL FRAME, PAINTED, COLOUR TBC
FC-1	FENCE, TYPE TBC

Last Plotted: 2023-07-31 8:32:45 AM
Last saved by:
Filename: BM 360::675448 - EMUP PPS Upgrades/Site_PoMo.rvt

ISSUE/REVISION

I/R	DATE	BY	DESCRIPTION	APPR
B	2023-07-19		90% SUBMISSION	
A	2022-11-23		60% SUBMISSION	
PA	2022-08-04		30% SUBMISSION	

REFERENCES

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	VERONIKA KURBET
DESIGNED BY	VERONIKA KURBET
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

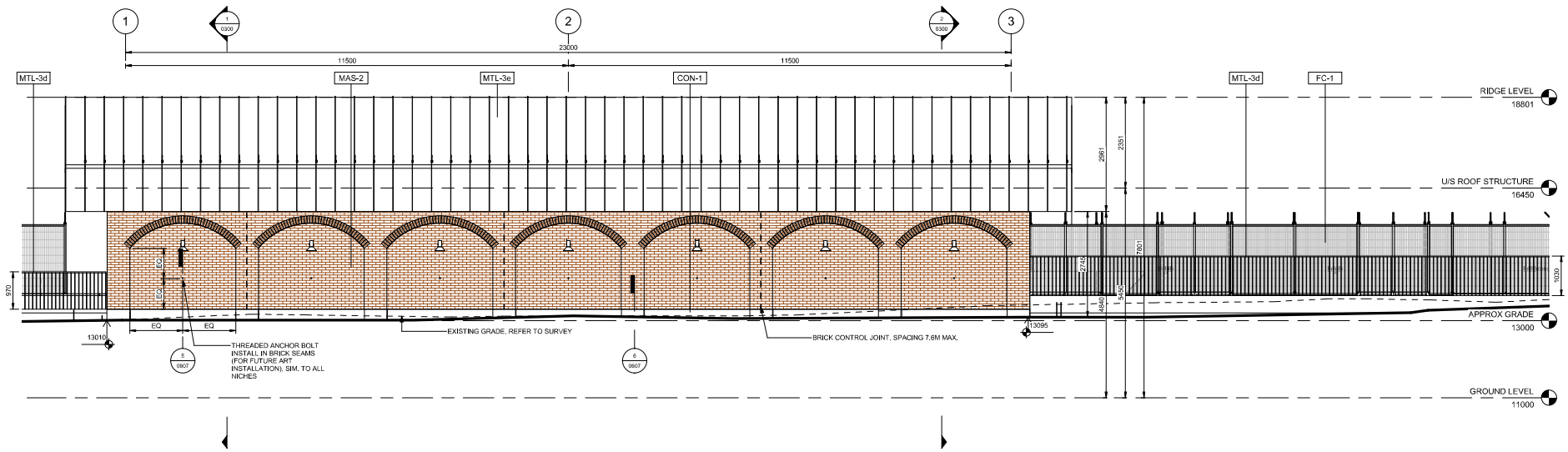
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
ELEVATIONS

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0200- -B

ANSI D 22" x 34"



1 / 0102 SOUTH ELEVATION
1 : 50

ELEVATION MATERIAL LEGEND

MAS-2	FACE BRICK, COLOR TBC
MTL-3e	STANDING SEAM - BLACK, COLOUR TBC
MTL-3d	GUARD W PICKETS - BLACK, COLOUR TBC
CON-1	CONCRETE FACED RIGID INSULATION
PMF-DR	INSULATED METAL DOOR w PRESSED METAL FRAME, PAINTED, COLOUR TBC
FC-1	FENCE, TYPE TBC

Last Plotted: 2023-07-31 8:32:46 AM
Last saved by:
Filename: BM 360::675448 - EMUP PPS Upgrades/Site_PaMe.rvt

ISSUE/REVISION

I/R	DATE	BY	DESCRIPTION	APPR
B	2023-07-19		90% SUBMISSION	
A	2022-11-23		60% SUBMISSION	
PA	2022-08-04		30% SUBMISSION	

REFERENCES

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	VERONIKA KURBET
DESIGNED BY	VERONIKA KURBET
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

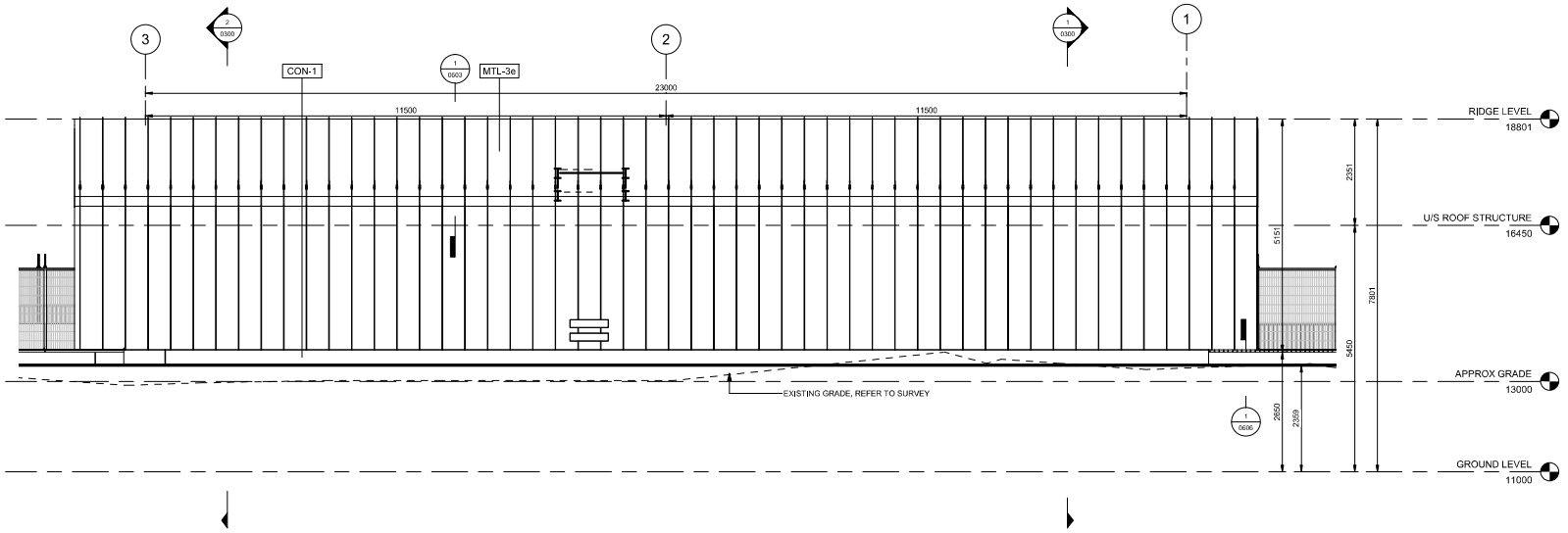
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
ELEVATIONS

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0201- -B

ANSI D 22" x 34"



1 / 0102 NORTH ELEVATION
1 : 50

ELEVATION MATERIAL LEGEND

MAS-2	FACE BRICK, COLOR TBC
MTL-3e	STANDING SEAM - BLACK, COLOUR TBC
MTL-3d	GUARD W PICKETS - BLACK, COLOUR TBC
CON-1	CONCRETE FACED RIGID INSULATION
PMF-DR	INSULATED METAL DOOR W PRESSED METAL FRAME, PAINTED, COLOUR TBC
FC-1	FENCE, TYPE TBC

Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PaMe.rvt
Last Plotted: 2023-07-31 8:32:46 AM

ISSUE/REVISION

I/R	DATE	BY	DESCRIPTION	APPR
B	2023-07-19		90% SUBMISSION	
A	2022-11-23		60% SUBMISSION	
PA	2022-08-04		30% SUBMISSION	

REFERENCES

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	VERONIKA KURBET
DESIGNED BY	VERONIKA KURBET
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

CONTRACT NUMBER

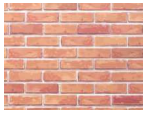
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
ELEVATIONS

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0202- -B

ANSI D 22" x 34"

MAS-2 - FACE BRICK



MTL-3e - STANDING SEAM METAL

MTL-3d - GURAD

FC-1 - FENCE

ELEVATION MATERIAL LEGEND

MAS-2	FACE BRICK, COLOR TBC
MTL-3e	STANDING SEAM - BLACK, COLOUR TBC
MTL-3d	GUARD W PICKETS - BLACK, COLOUR TBC
CON -1	CONCRETE FACED RIGID INSULATION
PMF-DR	INSULATED METAL DOOR w PRESSED METAL FRAME, PAINTED, COLOUR TBC
FC-1	FENCE, TYPE TBC

Last saved by:
Filename: BM 380-i675448 - EMUP PPS Upgrades/Site_PsMe.rvt
Last Plotted: 2023-07-31 8:32:47 AM

ISSUE/REVISION **REFERENCES**

A	2023-07-19		90% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES

PORT MOODY

DRAWING INFORMATION

DRAWN BY	VERONIKA KURBET
DESIGNED BY	VERONIKA KURBET
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
3D VIEW

DRAWING NUMBER
193028 - 03 -1000- STMCZ- FR- AG- 0203- A

ANSI D 22" x 34"

Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt
Last Plotted: 2023-07-31 8:32:47 AM

ISSUE/REVISION **REFERENCES**

I/R	DATE	BY	DESCRIPTION	APPR

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francl architecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY Author
DESIGNED BY Designer
CHECKED BY Checker
APPROVED BY Approver

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
3D VIEW

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 204-

ANSI D 22" x 34"

1. EAST VIEW

2. SOUTH-EAST VIEW

3. WEST VIEW

4. NORTH-EAST VIEW

5. NORTH-WEST VIEW

CONTEXT PLAN

Last saved by:
Filename: BM 360::675448 - EMUP PPS Upgrades\Site_PoMo.rvt
Last Plotted: 2023-07-31 8:32:49 AM

ISSUE/REVISION				REFERENCES	
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS
ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS
ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION

KEY PLAN

PROJECT
EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION
DRAWN BY Author
DESIGNED BY Designer
CHECKED BY Checker
APPROVED BY Approver

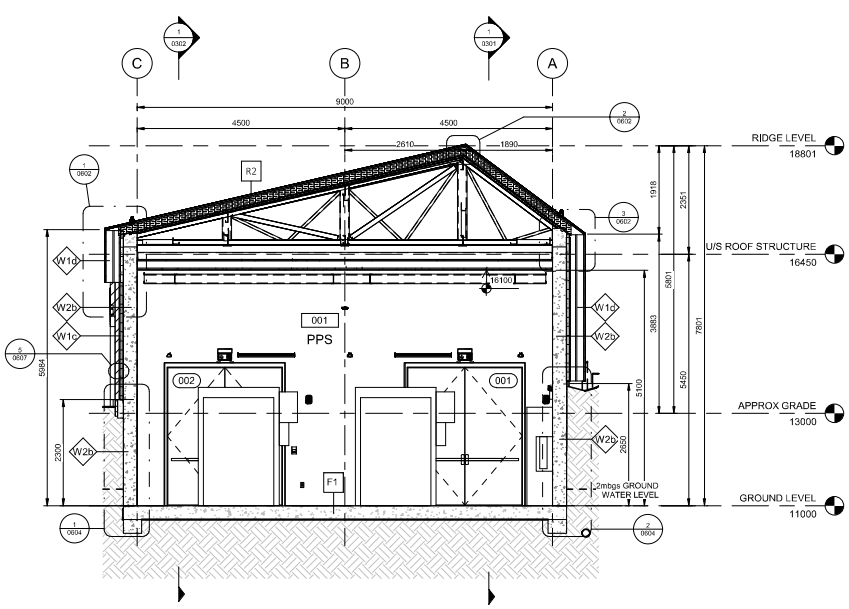
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

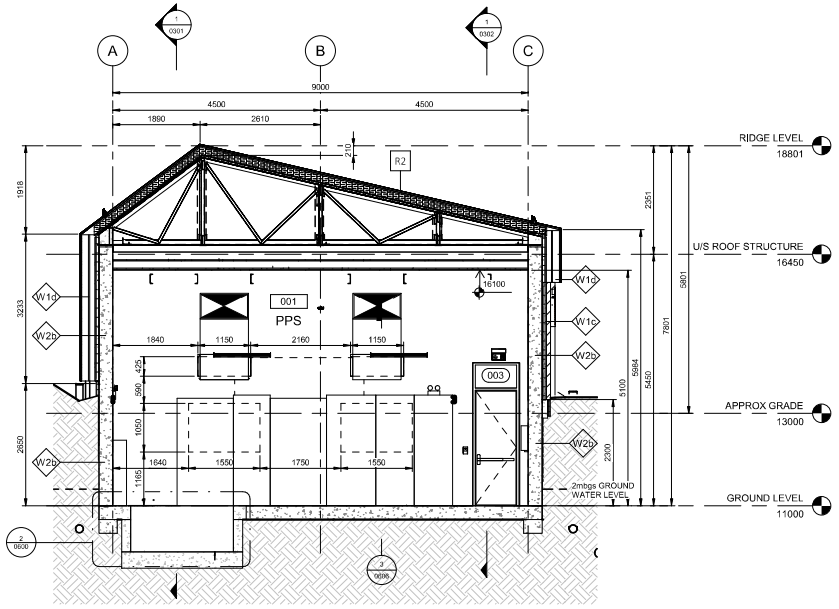
SHEET TITLE
SITE PHOTOS

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 205-

ANSI D 22" x 34"



1 0102 SECTION A
1 : 50



2 0102 SECTION B
1 : 50

Last saved by:
Filename: BM 360::675448 - EMUP PPS Upgrades\Site_PsMe.rvt
Last Plotted: 2023-07-31 8:32:50 AM

ISSUE/REVISION				REFERENCES	
B	2023-07-19		90% SUBMISSION		
A	2022-11-23		60% SUBMISSION		
PA	2022-08-04		30% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	VERONIKA KURBET
DESIGNED BY	VERONIKA KURBET
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

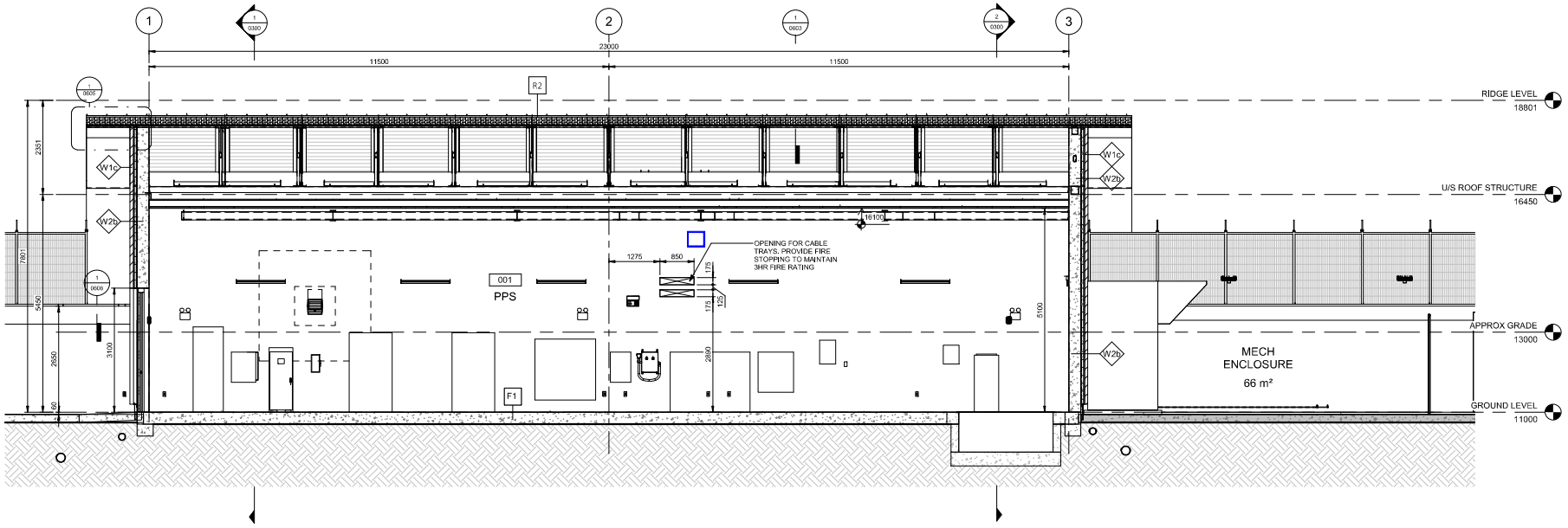
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
SECTIONS

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0300- -B

ANSI D 22" x 34"



1 / 0102 SECTION C
1 : 50

Last Plotted: 2023-07-31 8:32:51 AM
Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PsMe.rvt

ISSUE/REVISION					REFERENCES
B	2023-07-19		90% SUBMISSION		
A	2022-11-23		60% SUBMISSION		
PA	2022-08-04		30% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

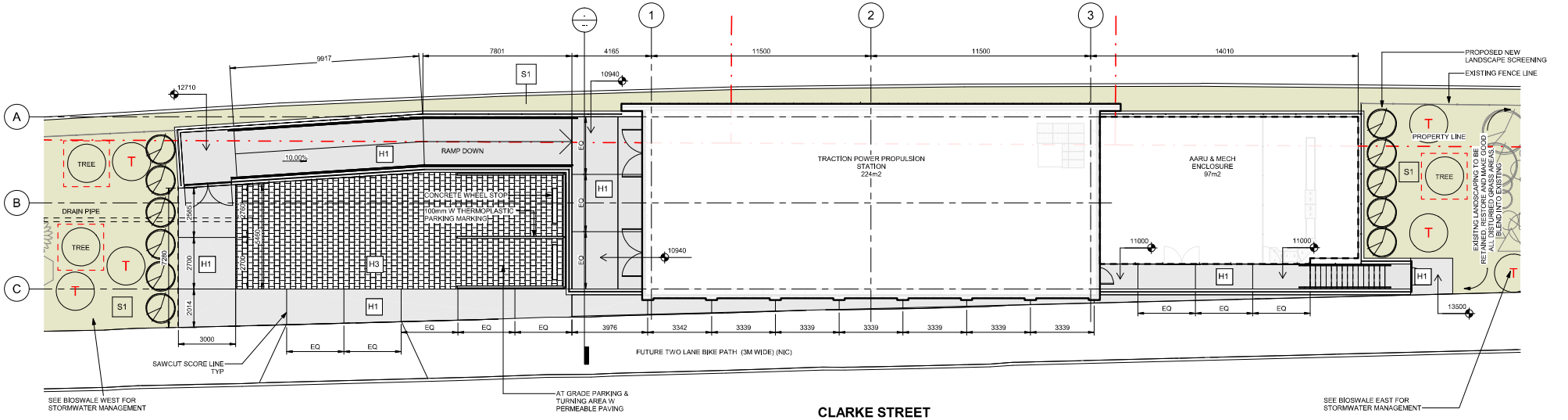
DRAWN BY	VERONIKA KURBET
DESIGNED BY	VERONIKA KURBET
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
SECTIONS

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0301- -B



1 / 0005 LANDSCAPE PLAN - CLARKE STREET 1 : 100

HARDSCAPE

H1	**CAST-IN-PLACE CONCRETE PAVEMENT** Colour: Natural Finish: Medium Sandblast	
H2	**ASPHALT PAVEMENT - VEHICULAR** REFER TO CIVIL	
H3	**HEAVY VEHICLE RATED PERMEABLE PAVERS** Product: Pavedrain or similar Manufacturer: Pavedrain Colour: Natural	

SOFTSCAPE

S1	**TURFGRASS** Hydroseed with chafer beetle resistant seed mix, refer to general notes and specifications	

LANDSCAPE WALLS

SITE FURNISHINGS

KEY NOTES

LEGEND

TREE	EXISITING TREE TO BE RETAINED AND PROTECTED REFER TO DETAIL
T	TRANSPLANTED TREE
	PROPOSED NEW TREE REFER TO DETAIL ***N/A**
	EXISTING LANDSCAPING TO BE RETAINED AND PROTECTED

ISSUE/REVISION **REFERENCES**

A	2023-07-19		90% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

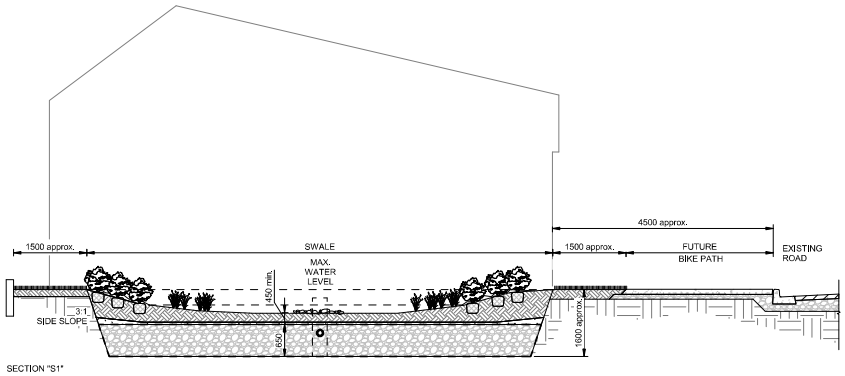
DRAWN BY	JASONE OLLOQUI
DESIGNED BY	JOSE GONZALEZ
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

CONTRACT NUMBER

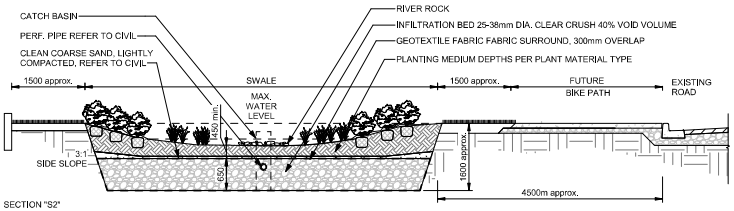
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
LANDSCAPE PLAN

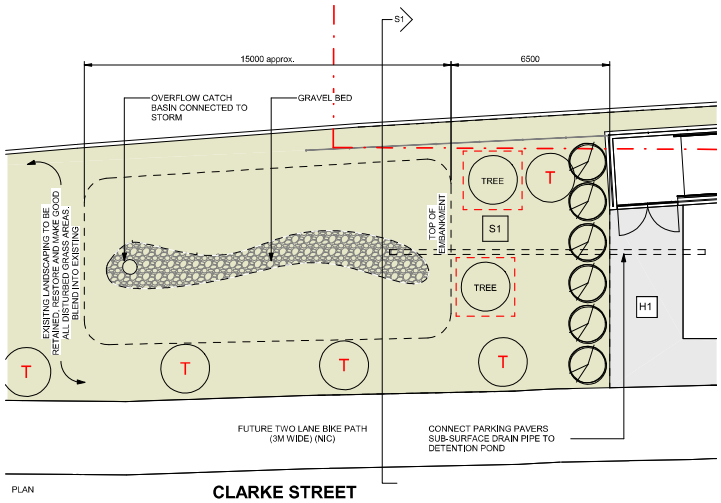
DRAWING NUMBER
193028 - 03 -1000- STMCZ- FR- AS- 0702- A



SECTION "S1"



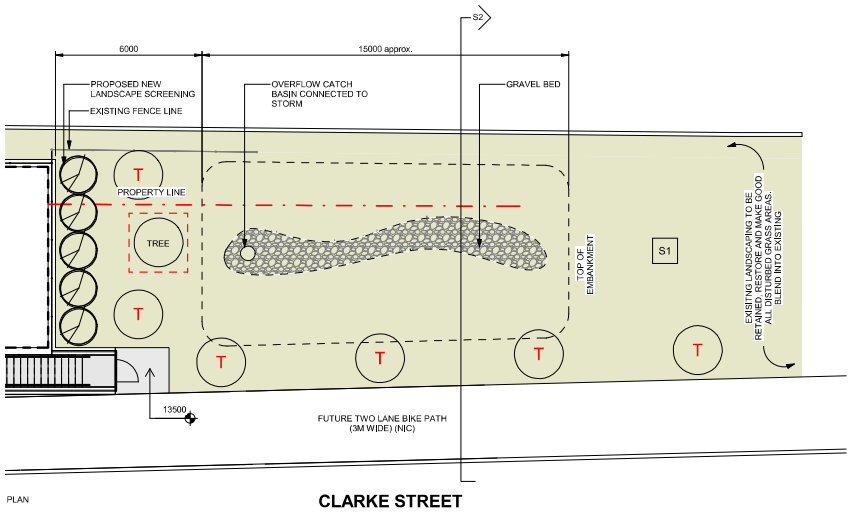
SECTION "S2"



PLAN

CLARKE STREET

1 / 0005 BIOSWALE WEST FOR STORMWATER MANAGEMENT
1 : 100



PLAN

CLARKE STREET

5 / 0005 BIOSWALE EAST FOR STORMWATER MANAGEMENT
1 : 100

ANSI D 22" x 34"

Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt
Last Plotted: 8/4/2023 11:46:46 AM

ISSUE/REVISION			REFERENCES		
A	2023-07-19		90% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

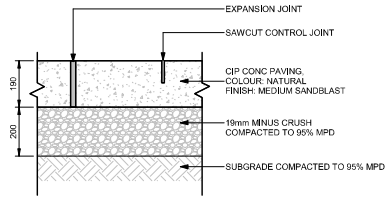
DRAWN BY	JASONE OLLOQUI
DESIGNED BY	JOSE GONZALEZ
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

CONTRACT NUMBER

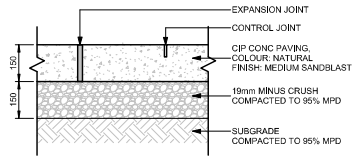
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
SWALES

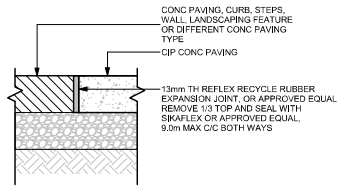
DRAWING NUMBER
193028 - 03 -1000- STMCZ- FR- AS- 0702b- A



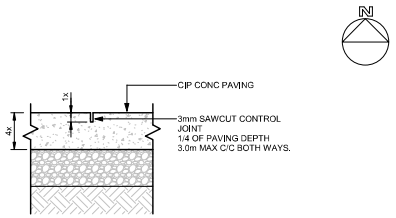
1 CIP CONC PAVEMENT - VEHICULAR
1 : 10



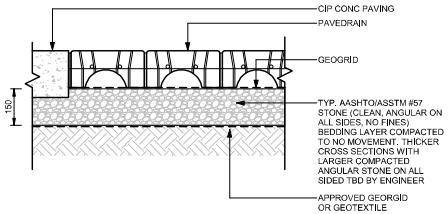
2 CIP CONC PAVEMENT - PEDESTRIAN
1 : 10



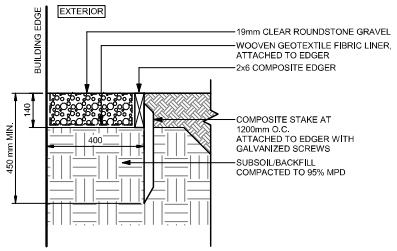
3 EXPANSION JOINT
1 : 10



4 SAWCUT CONTROL JOINT
1 : 10



5 HEAVY VEHICLE RATED PERMEABLE PAVERS
1 : 10



6 DRIP STRIP
1 : 10

ISSUE/REVISION | **REFERENCES**

A	2023-07-19		90% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

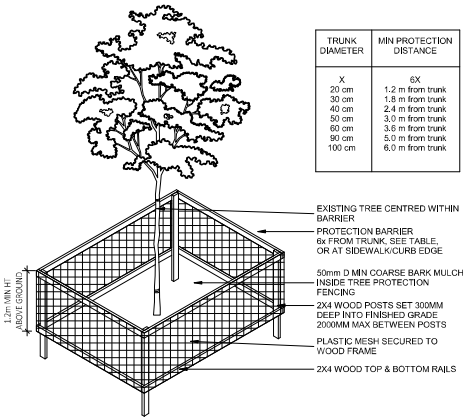
DRAWN BY	JASONE OLLOQUI
DESIGNED BY	JOSE GONZALEZ
CHECKED BY	BRENDAN AVERY
APPROVED BY	LEWIS JUDD

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
DETAILS - LANDSCAPE

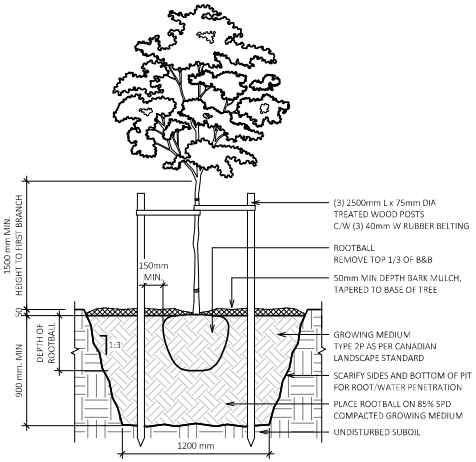
DRAWING NUMBER
193028 - 03 -1000- STMCZ- FR- AS- 0703- A



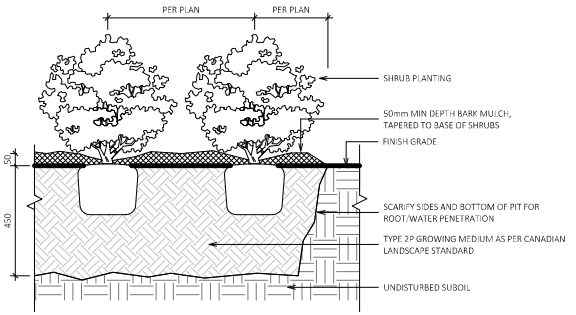
TRUNK DIAMETER	MIN PROTECTION DISTANCE
X	6X
20 cm	1.2 m from trunk
30 cm	1.8 m from trunk
40 cm	2.4 m from trunk
50 cm	3.0 m from trunk
60 cm	3.6 m from trunk
90 cm	5.0 m from trunk
100 cm	6.0 m from trunk

NOTES:
1. INSTALL BARRIER BEFORE CONSTRUCTION BEGINS AND KEEP IN PLACE UNTIL CONSTRUCTION IS COMPLETE
2. DO NOT PARK VEHICLES, STORE EQUIPMENT OR MATERIALS INSIDE TREE PROTECTION AREA
3. MAINTAIN EXISTING GRADES AT PROTECTION BARRIER
4. CONTRACTOR RESPONSIBLE FOR MAINTENANCE OF TREE PROTECTION BARRIER
5. ANY DAMAGED TREES OR PLANT MATERIAL TO BE REPLACED AT CONTRACTOR'S EXPENSE

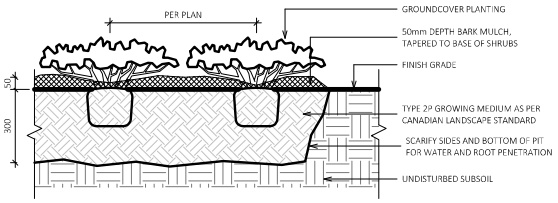
1 TREE PROTECTION FENCE
1 : 20



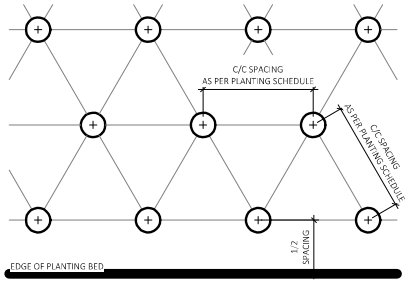
2 TREE PLANTING
1 : 20



3 SHRUB PLANTING
1 : 10



4 GROUNDCOVER PLANTING
1 : 10



5 PLANTING SPACING PLAN
1 : 10

ISSUE/REVISION

IR	DATE	BY	DESCRIPTION	APPR
A	2023-07-19		90% SUBMISSION	

REFERENCES

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

NOT FOR CONSTRUCTION
2023-07-19

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	JASONE OLLOQUI
DESIGNED BY	JOSE GONZALEZ
CHECKED BY	LEWIS JUDD
APPROVED BY	LEWIS JUDD

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
DETAILS - LANDSCAPE

DRAWING NUMBER
193028 - 03 -1000- STMCZ- FR- AS- 0704- A

SCHEDULE B

Geotechnical Design Report

Attachment 3

SNC·LAVALIN

EMUP Propulsion Power Upgrades Project

Moody Centre Station – 60% Geotechnical Design Report

South Coast British Columbia Transportation Authority

December 19, 2022

SNC-Lavalin Project: 675448

Internal Reference: 193028-03-2000-STMCZ-SL-BJ-0001> Draft Rev. A

SNC·LAVALIN

Signature Page

Prepared By:

Mohammad Khandan Bakavoli, P.Eng.
Senior Geotechnical Engineer
Geoscience & Materials Practice
Engineering Services Canada

Reviewed By:

Mohsen Nicksiar, PhD, P.Eng.
Geotechnical Operations Manager – Lower Mainland
Geoscience & Materials Practice
Engineering Services Canada

SNC·LAVALIN

Table of Contents

SNC·LAVALIN

Table of Contents (Cont'd)

In-Text Figures

In-Text Tables

Appendices

P:\CP\SNC-LAVALIN R&T\675448\50_DELIV\52_DRAFT\MOODY CENTRE\20221219_675448_RPT_TRANSLINK_MOODY CENTRE_GEOTECH_INVESTIGATION_60%_DRAFT.DOCX

SNC·LAVALIN

1 Introduction

SNC-Lavalin Inc. (SNC-Lavalin) has been retained by South Coast British Columbia Transportation Authority (SCBCTA, or TransLink) to provide geotechnical design services for the SkyTrain Expo and Millennium Line Propulsion Power Upgrades (EMUP) project. This project consists of upgrades to multiple SkyTrain stations located in Vancouver, Burnaby, Surrey, Coquitlam and Port Moody, British Columbia (BC). The locations and scope of the upgrades are generally variable between the SkyTrain stations that are being improved however, in some cases, a part of the upgrade includes a new Propulsion Power System (PPS) building.

The scope of this 60% design report is to review the geotechnical components of the Moody Centre SkyTrain Station PPS and provide geotechnical recommendations for the design and construction of the PPS elements.

The following tasks were performed as a part of this 60% design report:

- Compile and review existing information pertinent to this project site, including:
  - Available geotechnical reports provided by TransLink and SNC-Lavalin's internal documents for nearby projects, including:
    - EBA Engineering Consultants Ltd., Evergreen Line Rapid Transit Project Combined Moody Centre Station and At-Grade Guideway (Section 340) provided for SNLC-Lavalin Construction (Western) Inc. (SLCW), August 2013.
    - EBA Engineering Consultants Ltd., Evergreen Line Rapid Transit Project At-Grade Guideway Structures (Section 330B) provided for SNLC-Lavalin Construction (Western) Inc. (SLCW), January 2014.
  - Aerial photos, topographic maps, ortho-imagery, utilities mapping and other relevant drawings and datasets; and
  - Published geological maps and technical papers for the general project area.
- Provide design seismic hazard parameters based on the newly published NBCC 2020.
- Provide foundation design parameters and recommendations for select foundation types and construction methodologies.
- Provide general construction recommendations including for site preparation, frost penetration, subgrade preparation, backfilling, site drainage, excavations, dewatering.
- Provide recommendation for the new utility design construction.

Note, the environmental aspect of the project is beyond the scope of this report.

SNC·LAVALIN

2 Site and Project Description

The Moody Centre SkyTrain Station is situated in the north of Barnet Highway and south of Murray Street, between Williams and Hugh Streets in Port Moody, B.C. The station and surrounding area are shown in Figure 2.1.

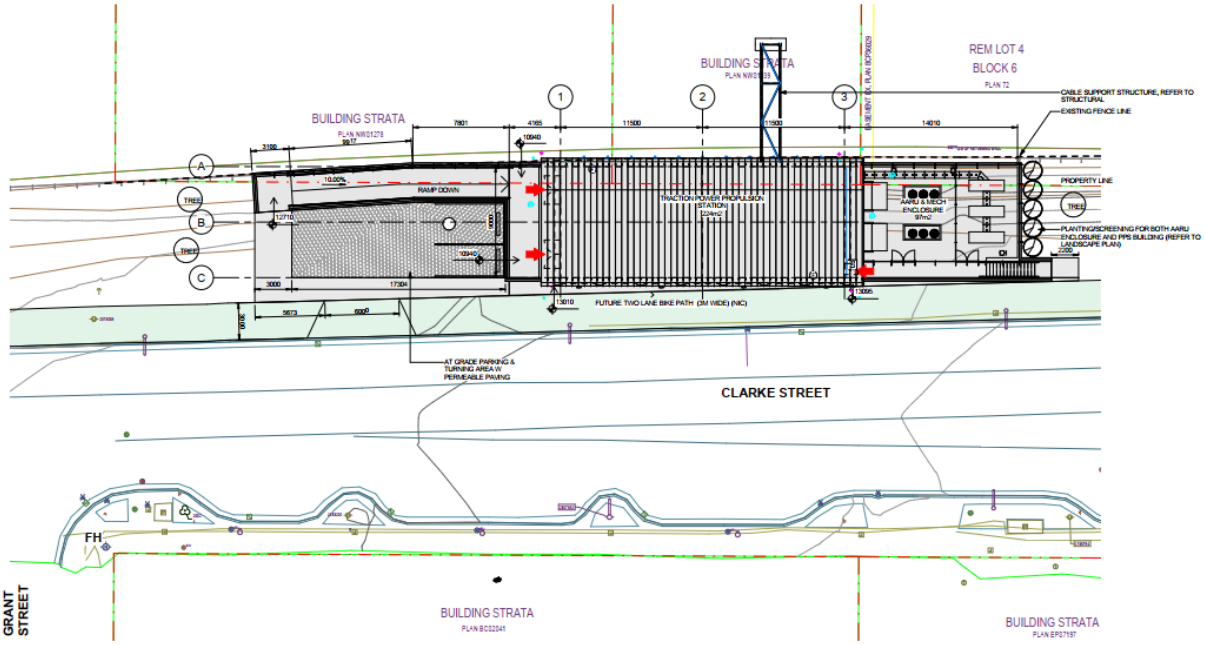
Figure 2.1: Moody Centre SkyTrain Station (image obtained from Google Earth)

TransLink has proposed that the PPS building at Moody Centre Station to be located north of Clarke Street, between Grant and Moody Streets (See Appendix I, Drawing No. 193028-03 -1000-STMCZ- FR- AG- 0001- A).

The proposed upgrades will include construction of slab foundations to support the PPS building. The development of the PPS site will include the construction of a new paved road, new buried utilities, and parking spaces.

Figure 2.2 shows the proposed layout of the PPS building relative to nearby landmarks.

Figure 2.2: Proposed PPS Building Location. (Reference Drawing 193028-03 -1000- STMCZ- FR-AG- 0100-A)



Preliminary drawings showing some design elements in plan view can be found in the Drawings section at the end of this report. A map showing the locations of historical boreholes can be found in Appendix II.

SNC·LAVALIN

3 Historical Document Review

3.1 General

As a part of the geotechnical design process, SNC-Lavalin reviewed the available geotechnical reports and as-build drawings provided by TransLink. The following documents were provided to us:

- Available geotechnical reports provided by SNC-Lavalin's internal documents for nearby projects.
- EBA Engineering Consultants Ltd., Evergreen Line Rapid Transit Project Combined Moody Centre Station and At-Grade Guideway (Section 340) provided for SNLC-Lavalin Construction (Western) Inc. (SLCW), August 2013.
- EBA Engineering Consultants Ltd., Evergreen Line Rapid Transit Project At-Grade Guideway Structures (Section 330B) provided for SNLC-Lavalin Construction (Western) Inc. (SLCW), January 2014.
- Published geological maps and technical papers for the general project area.

The geotechnical information found in these historical reports has been compiled and summarised in this section. The below subsurface geology should be considered as a summary only; further information can be found in the individual historical reports (Appendix II).

- Fill: loose to compact, grading from sandy silt to silty sand to gravelly sand and sand with trace of silt, scattered cobbles and boulders, and organics including wood debris. The fill is up to 3.5 m thick in the vicinity of Kyle Creek.
- Debris fan, marine and shoreline deposits (Salish Sediments): These deposits were formed by debris floods and flows sourced from the gullies south of the alignment, but with some interlayering of finer-grained marine and shoreline sediments. The deposits vary in thickness from 2 m to 10 m and generally consist of loose to compact interbeds of sand, silty sand, silt and gravel. Occasional cobbles and organic layers including peat and wood debris are also known to occur in these deposits.
- Marine deposits (Capilano Sediments): These deposits vary in thickness from 3 m to 13 m and generally consist of soft to stiff silt and clay with zones of sandy silt and thin lenses of sand and gravel overlying loose to compact interlayered silt and sand. Shell fragments, wood debris, wood fibers and organic layers are also present.
- Glaciomarine Deposits (Capilano Sediments): These deposits vary in thickness from 5 m to 14 m and generally consist of a compact to very dense assemblage of sand, gravel, silt and some clay with occasional cobbles and boulders. In some areas these deposits have a similar texture to till-like soils but have generally not been overridden by glacial ice, and therefore, tend to less dense than the underlying Vashon Sediments.
- Till-like deposits (Vashon Sediments): These deposits generally consist of massive, very dense silty sand to sandy silt with variable gravel and occasional cobbles and boulders. Based on local experience and the results of previous site investigations these deposits may also contain lenses/seams of silt or water-bearing sand and gravel. The depth to these deposits ranges from about 15 m to 30 m below the existing ground surface.

Around the footprint of the proposed PPS building (100m from each side), there are four boreholes and seven CPT soundings from EBA 2013 and 2014 reports (See Appendix II). Table 3-1 summarized the depth of selected boreholes, CPTs, lab and In-situ tests performed in each borehole.

SNC·LAVALIN

Table 3-1: Summary of the Selected Boreholes, Depth, Lab and In-situ Testing

BH/CPT	Year of drilling/CPT sounding	Approximate Distance from the footprint of PPS Building (m)	Depth (m)	Performed Lab Tests	In-situ Testing
BH09-305	2009	At the footprint	33.30	Moisture Content, Index limits, Organic Contents	SPT
BOH/BPT12-S3-525	2012	100	29.10	Moisture Content, Index limits, Organic Contents	BPT
BOH12-03	2012	60	32.00	-	BPT
MR12-S3-524	2012	100	38.20	Moisture Content, Index limits, Cyclic Direct Simple Shear (CDSS)	SPT, Downhole, Field Vane
CP13-619-800	2013	80	18.65	-	-
CP13-619-880	2013	At the footprint	21.40	-	-
CP13-619-900	2013	At the footprint	19.70	-	-
CP13-619-920	2013	At the footprint	17.45	-	-
CP13-619-961	2013	20	20.90	-	-
CP13-619-980	2013	40	23.35	-	-
CP13-620-000	2013	70	18.35	-	-

Based on the above boreholes and CPTs, the general subsoil for the studied area is described in the following Section 4.

SNC·LAVALIN

4 Subsurface Conditions

4.1 General

As there is no site-specific field investigation for the PPS building at Moody Centre Station, the EBA 2013 and 2014 reports were used for geotechnical subsurface conditions. Soil descriptions discussed in this section are based on the classifications and methodologies that were used in both reports. The closest borehole/CPT to the proposed footprint of the PPS building are BH09-305, CPT619880, CPT619900 and CPT619920, that subsurface conditions are inferred mainly from these borehole and CPT soundings. Additionally, the other nearby boreholes such as BH/BPT12-S3-525, BH12-03, and MR12-S3-524 were also considered in the current project. The location of the boreholes and the most relevant borehole logs are provided in Appendix II.

4.2 Surface Fills

The above-referenced reports include the borehole information obtained in 2009 in which the Fill layer was described as silty sand, some gravel with cobbles and organic material. However, since that time, the existing buildings at the location of BH09-305 were demolished to provide room for the Evergreen Line construction, and a green area was built at that location (as per historical imagery of the Google Earth). Hence, the thickness of the surface Fill is expected to be changed since 2009. The approximate thickness of the Fill layer was considered to be 2 m to 2.5 m

4.3 Upper Silty Sand to Sandy Silt

Below the Fill, the material is generally loose to compact silty Sand to Sand, contains cobbles with some silt and gravel with increasing fine content with depth becoming silty Sand to sandy Silt. The thickness of this layer is about 8 m.

4.4 Silty Clay to Clayey Silt

There is a 7 m layer of soft to firm silty Clay to clayey Silt, which contains lenses of sandy Silt and silty Sand. The Atterberg limits were measured on two samples and plasticity index of 18 and 28 were reported.

4.5 Lower Silty Sand to Sandy Silt

Below the silty Clay to clayey Silt layer, there is an approximately 2m thickness layer which mainly consists of loose to compact silty Sand to sandy Silt layer, trace gravel.

4.6 Sand and Gravel

This layer generally consists of compact to very dense Sand and Gravel, trace cobbles. The thickness of the layer is approximately 15 m.

4.7 Till-Like

The very dense sandy Silt, some gravel with trace cobbles encountered at depth of 32 m, inferred as till-like soil. The Till-like material in the studied area is generally silty Sand to sandy Silt with variable gravel, cobbles and boulders content and may contain water-bearing lenses of sand and gravel.

4.8 Groundwater

The groundwater table was located within the subsurface fill layer at approximately 1.5 metre below ground surface (mbgs) to 3.5 mbgs. In BH09-305, the groundwater table was not recorded but a wet sample collected at depth of 2 m. In the current design, water table considered to be at depth of 2 m. It is considered likely that the water table on site is influenced by the nearby creek, and vary seasonally with snow melt and increased precipitation.

SNC·LAVALIN

5 Seismic Considerations

NBCC 2020 has adopted the use of foundation factors that are dependent on local site soils condition, shaking level, and site period for structural design considerations. The effects of local site conditions are characterized based on the average shear wave velocity or SPT N value of the soils or rock within the upper 30 m of the project location.

Based on the high-level liquefaction screening, the sand and silt underlying the site are susceptible to liquefaction during major earthquake events (1:2475-year return periods). Since these layers are potentially liquefiable, the site is classified as “Site Class F” in accordance with NBCC 2020. However, since the fundamental period of the proposed structure is less than 0.5 second (according to the structural team it is equal to 0.17 seconds) values of “Site Class D” can be used for the design.

SNC-Lavalin has obtained site specific hazard parameters for the investigation area from the National Resources Canada website[1]. A copy of the results for the area can be found in Appendix III.

The predicted peak ground horizontal accelerations and spectral accelerations for the different earthquake return period at the project site are provided in Table 5-1 based on NBCC 2020 seismic hazard values.

Table 5-1: Summary of 2020 NBCC Site Class D Seismic Hazard Parameters

Location	Seismic Return Period (yr)	PGA (g)	S_a (0.2)	S_a (0.5)	S_a (1.0)	S_a (2.0)
Moody Centre PPS Building	2475	0.468	1.02	1.06	0.753	0.460

5.1 Liquefaction Analysis

Since there is no site-specific response analysis required, the simplified total-stress based procedure was incorporated using the site-specific Peak Ground Acceleration (PGA) and earthquake magnitude. The liquefaction assessments were completed using available SPT blow counts from BH09-305. The following subsections describe methodology and summarize results of liquefaction analyses.

5.1.1 Methodology

The potential for seismic liquefaction triggering for the non-cohesive soils have been assessed using Boulanger and Idriss (2014) and Idriss and Boulanger (2008) SPT-based methods using the commercially available software CLiq. 3.3.2.9 developed by GeoLogismiki.

In the current assessment, as per Section 4, the upper soil layers are generally silty Sand, sandy Silt to Sand, which are potentially liquefiable. The factor of safety against liquefaction/cyclic softening at each depth was calculated using the following relation:

$$FS = \frac{CRR_{7.5}MSF}{CSR}K_\alpha K_\sigma$$

Where MSF=magnitude scaling factor

K_a = ground slope correction factor

K_s = overburden stress correction factor

[1] Natural Resources Canada (2020). *Seismic Hazard Calculator.* Retrieved from 2020 National Building Code of Canada Seismic Hazard Tool (nrcan.gc.ca)

A factor of safety less than 1.0 Indicates a high liquefaction potential. However, computing a factor of safety against soil liquefaction is not as important as carrying out the analysis with a consistent methodology and taking into consideration the anticipated variability of the in-situ soil resistance and variables that define the earthquake ground motions.

The Cyclic Resistance Ratio (CRR) of layers to cyclic loading was estimated from the SPT measurements, specifically from BH09-305. In addition, the CSR was modified for earthquake magnitude, overburden pressure, and shear stress level in static condition.

It is worth noting that, at the time of this report and as per SNC-Lavalin correspondence with National Resources Canada (dated July 19, 2022), the 6th generation of seismic hazard deaggregation analyses are not yet released, so that for the purpose of the current liquefaction assessment, the 5th generation deaggregation plots were used. As per the 5th generation hazard model provided by Geological Survey of Canada (GSC), the moment magnitude (Mw) for the site is considered 7.1 for crustal and Inslab earthquake suites and 8.4 for interface earthquakes.

5.1.1.1 Cyclic Stress Ratio

For sand, the CRR for liquefaction assessment is calculated using both Boulanger and Idriss (2014) and Idriss and Boulanger (2008) methods by normalizing the SPT blow counts to overburden pressure, and adjustment based on the fines content in order to represent the equivalent clean sand ($N1_{60,cs}$).

5.1.1.2 Extent of Potential Liquefiable Layers

Liquefaction triggering assessment was completed according to the methodology described in Section 5.1.1. Table 5-2 demonstrates the extent of liquefaction.

Liquefaction triggering assessment results and the profile of FOS are presented schematically in Appendix IV.

Table 5-2: Extent of Liquefaction

	Extent of Liquefaction Elevation (m)	
	Idriss & Boulanger (2008)	**Boulanger & Idriss (2014)**
Simplified Procedure, 2475yr	+8.8 to +8.1 +7.4 to +2.0	+8.8 to +8.1 +7.4 to +2.0

5.1.1.3 Post-Liquefaction Settlement and Lateral Ground Movement

Dissipation of the excess pore water pressure developed during and after strong ground motions would cause settlement of the ground. Semi-empirical method developed and proposed by Idriss and Boulanger (2008) and Wu et al. (2002) were used to estimate the post-liquefaction settlement. The proposed methodology is very similar to the one proposed by Yoshimine et al (2006).

Post-liquefaction free-filed settlement was estimated for the generalized soil profile and presented in Table 5-3. The anticipated differential settlement should be expected to be 50% of the total.

Soil liquefaction will result in lateral ground displacements. The lateral displacements are caused by strain softening of liquefied soil and earthquake-induced cyclic inertia forces. The ground lateral displacements, for a screening level assessment, can be estimated using the simplified empirical method proposed by Youd et al. (2002). In addition, liquefaction may induce large lateral ground spreading displacements, maybe in the order of several metres, however the liquefaction-induced permanent displacements are

difficult to quantify with confidence. As the SkyTrain At-grade guideway is supported by Deep Soil Mixing (DSM) wall (EBA 2014 report), and the footprint of the PPS building located in south side of the guideway, it is anticipated that there is no post-liquefaction later displacement along the North-South direction. However, there would be lateral displacement in the East-West direction (the ground slope is around 1.5%) in case of liquefaction. The estimated post-liquefaction and lateral displacement are presented in Table 5-3.

Table 5-3: Post-liquefaction Reconsolidation Settlement and Lateral Displacement

	Post Liquefaction Settlement (mm)	Lateral Displacement (m)
2475yr Earthquake	200-300 mm	0.05-0.3m

SNC·LAVALIN

6 Geotechnical Recommendations

6.1 General Construction Recommendations

6.1.1 Site Preparation

Preparation of the site for construction is anticipated to consist of some or all of the following items:

- Removal and replacement of the existing green area;
- Stripping of the PPS footprint, including the removal of organic materials, such as topsoil, grass, stumps, and garbage from the area adjacent to the existing SkyTrain retaining wall/fence; and
- Since there is no site-specific field investigation, BH09-305 (EBA 2013 and 2014 report) was used. Based on this borehole the fill and topsoil material (to the EL +9.00m) should be removed a backfilled with engineering fill.

6.1.2 Frost Protection

Frost penetration will impact foundations due to the expansion of pore water in the soils. Based on historical temperature data for the Port Moody area, the estimated maximum frost penetration depth is approximately 450 mm. The effect of snow cover, a higher ground water table, vehicle traffic, and higher moisture contents all affect the depth of frost penetration.

Any concrete constructions such as footings should be designed so that they are founded on a freely draining material with their base at least 450 mm below the surrounding ground cover to reduce the risk of frost induced stresses.

6.1.3 Subgrade Preparation

Subgrade preparations should consist of the removal of organics and loose or saturated surficial soils. The exposed native deposits should be inspected for organic materials, saturated spots, and material consistency by a geotechnical engineer upon exposure through excavation. Any soft spots, or saturated zones shall be removed and sub-excavated by 200 mm before being replaced with an approved compacted engineered granular fill. When the excavation floor is deemed acceptable, a proof roll test shall be performed to verify its competence. This proof roll shall be witnessed and verified by SNC-Lavalin's geotechnical engineer.

In the absence of site-specific field investigation, the BH09-305 (EBA 2013 and 2014 report) was used. In this borehole, the depth of fill and topsoil was around 2 m to 2.5 m. Due to variability of the existing fill soils, it is anticipated that this material should be removed from the project footprint and replaced with engineered fill material. Besides, as per Section 5.1, the soil below EL. +8.8 m is deemed to be liquefiable, hence to minimize the differential settlement the subgrade should be reinforced with geogrid.

Furthermore, subgrade preparation prior to structural elements installation should include excavation to design elevation, sub-excavation of boulders, any isolated locations that contain organic fill, protruding construction debris, wood waste or other oversaturated soils, and soft or yielding soils, and replacement of this unsuitable soil with engineered structural fill prepared as per Section 6.1.4.

Subgrade soils should be reviewed by SNC-Lavalin's geotechnical engineer prior to compaction or backfilling.

SNC·LAVALIN

6.1.4 Engineered Fill

Engineered fill material should be free from any frozen soil, organic materials, and contamination. All placed engineered fill material should be compacted to 100% of Standard Proctor Maximum Dry Density (SPMDD) at moisture contents within ± 2% of optimum. Individual layers of placed loose material (lifts) shall not exceed 300 mm in thickness.

Qualified geotechnical personnel should monitor the quality and placement of all fill soils. The compaction of the fill should be routinely monitored by field density testing. Test results should be submitted to the geotechnical engineer for review.

6.1.5 Building Drainage and Dewatering

Groundwater, where encountered, will likely be found just above the level of the nearby creek and within the fill soils. If dewatering during construction is necessary (either from seepage or during rainfall events), construction dewatering procedures should include routing of water to a suitable outlet. Within excavations, it is recommended that dewatering include directing water to sump areas, from where it may be pumped to a suitable outlet. These sumps and pumps (along with a power source) are to be provided by the contractor and be readily available to prevent water from pooling in the excavations. Both surface water run-off and groundwater should be managed in this way while following local guidelines and bylaws on construction water discharge.

The foundation drainage system for the PPS building at Moody Centre should consist of a minimum 150 mm diameter perforated rigid pipe placed (perforations downwards) along the exterior base of the foundation perimeter and tight-lined to a storm drain system or another suitable outlet. The pipe should be bedded on at least 100 mm of 19 mm coarse clear crushed gravel and be backfilled with minimum 200 mm of a similar drainage gravel wrapped in nonwoven geotextile with a minimum of 150 mm of overlap.

The site should also be graded so that surface water run-off is directed away from the PPS building and towards catch-basins, which are connected to a storm sewer drain or another suitable outlet.

6.1.6 Construction Excavations

Excavations that remain open for less than seven days are considered to be temporary and are likely to be the dominant excavation type encountered during construction. Although not anticipated to be deeper than 1 m, temporary excavation slopes shall be no steeper than 1.5(H):1(V) for temporary shallow (less than 1.8 m) excavations in the native, compact, fill. Water should not be allowed to flow on the side slopes of the excavation or pond at the base of the excavation. Relevant British Columbia (WorkSafeBC) regulations should be adhered to for minimum requirements for temporary excavations. Note, excavations in excess of 1.2 m depth should be reviewed by the geotechnical engineer as required by WorkSafeBC.

6.1.7 Utility Construction and Bedding Requirements

It is understood that new catch-basins and associated sewer lines are to be constructed as a part of the PPS building at Moody Centre.

Newly constructed sewer pipes should be founded on 200 mm of compacted, clean, bedding sand. This same bedding sand should be placed and compacted around the pipe on all sides to 95 % SPMDD using a vibrating plate tamper.

Utility trenches should be excavated to below the frost penetration depth described previously and using the same excavation recommendations presented above. Where sloped excavations are not desired to facilitate utility installation, trench boxes or an alternative, compliant, engineered shoring system can be used to limit the footprint of utility excavations, subject to approval of the geotechnical engineer. Support excavation may be near vertical provided a shoring system is properly installed prior to worker entry.

6.1.8 Slab-on-Grade

Prior to slab-on-grade construction, the subgrade should be prepared and reviewed as described in Section 6.1.3. Slabs-on-grade should be constructed on a minimum 150 mm thick layer of 19 mm clear crushed gravel to act as a capillary break. It is also recommended that a vapor barrier consisting of polyethylene sheeting be placed between the slab and the bedding material to limit the migration of moisture.

Grade re-instatement below the slab should be conducted using engineered fill as described in Section 6.1.4. In-place density testing should be completed on the under-slab fills to confirm that the fill placed below the slab has been compacted to a minimum of 100% of SPMDD. The Geotechnical Engineer should review the subgrade prior to both concrete and fill placement.

A geotextile liner should be placed between the clear crushed gravel fills and silt or clay soils (where encountered) to act as a particle break and improve the long-term performance of the subgrade. This geotextile should consist of a Nilex 4551 or approved equivalent and rolls of this geotextile should overlap at least 200 mm to ensure coverage during the placement of backfill soils.

6.2 Foundation Design Recommendations

6.2.1 Design Recommendations

Based on the anticipated PPS elements and the presence of near surface competent soils (having engineered fill to the elevation of +9.0 m), shallow raft foundations are the recommended foundation type to be utilized at the Moody Centre PPS location. This section provides recommendations for the design and construction of these footings.

Footings placed on the engineered fill, if placed as per Sections 6.1.1, 6.1.3 and 6.1.4 may be designed using the following:

- Raft footings may be designed using Serviceability Limit State (SLS) bearing resistance of 150 kPa. Factored ultimate bearing resistance (ULS) may be taken as 225 kPa.

The subgrade modulus for engineering fill can be considered as 10 MN/m3.

Footings/slabs should not be constructed during freezing conditions without appropriate heating and hoarding procedures being followed. As mentioned in Section 6.1.3, the engineered fill below the raft foundation should be reinforced with geogrids (Nilex Biaxial BX1200 or approved equivalent product) to minimize the effect of post-liquefaction differential settlement.

6.2.2 Long-term Consolidation Settlement

As stated in Section 4, there is a 7 m-thick layer of soft to firm silty Clay to clayey Silt, which contains lenses of sandy Silt and silty Sand with the thickness of 25 mm to 50 mm. These fine-grained materials are considered to be potentially compressible, and under sustained loading there may experience long-term consolidation settlement.

The long-term consolidation settlement was estimated using Settle3 (Rocscience, Ver. 5.007). Considering a sustained uniform load of 45 kPa was applied to the raft footing (Correspondence with structural engineer [October 31, 2022]), the settlement was estimated to be in the order of 120 mm to 150 mm. The long-term settlement will be decreased to 50 mm if the minimum distance within 3 m from footprint of the structure.

It is worth noting that in the absence of consolidation tests, the parameters for calculations were estimated using empirical correlations.

6.3 Pavement Recommendations

According to the architectural design team, the preliminary plans for the Moody Centre PPS site call for the addition of a Permeable Architectural Precast Concrete Blocks (PACB) for the access roads and parking areas. Based on the results of the field investigation, SNC-Lavalin has developed a road pavement structure using PACB system that is designed to support the expected traffic loads for the project area. The pavement details are provided in Table 6-1.

Table 6-1: Pavement Structure Recommendations

Pavement Element	Pavement	Bedding Layer/Road Base Fill	Sub-Base Fill
Composition	Architectural Precast Heavy Duty Concrete Blocks	19 mm MINUS with no fines	75 mm MINUS
Thickness (mm)	150 mm	100 mm	450 mm

An excavation depth of approximately 700 mm is expected in order to remove the existing mixed fills (though final designed site grading may vary the ultimate excavation depth required). Should excavations encounter contaminated soil, soil that is saturated or overly soft, hog fuel or other debris-heavy fills, some over-excavations may be required to remove these unsuitable materials.

It is recommended that a layer of biaxial geogrid to be placed below the sub-base fill layer along the access road and parking areas to control potential differential settlement due to the presence of compressible subsurface soil. The geogrid should be protected from any potential damages during construction by using either geotextile layers or smaller particle materials such as 19 mm minus material with minimum 100 mm thickness.

Gradation of the bedding layer material should be in accordance with AASHTO #57 and should be free of fine content. As with foundation fills, all fill materials are to be compacted to 100% of SPMDD and be within ±2% of optimum moisture content as determined though Proctor laboratory testing. Loose lift thickness is not to exceed 300 mm in thickness. Some existing fills (if deemed suitable by the on-site geotechnical engineer) may be reused below the designed pavement sections as below pavement fill, however, it is expected that the existing fill will not be suitable for use as “other Grade Fill” and will be removed or otherwise recycled.

Site grading and catch-basin (CB) coverage should be designed to ensure proper drainage of the gravel road surface and to prevent pooling. Service connections and pipe diameters should be designed to provide efficient drainage, and oil/water separators may be added as needed.

SNC·LAVALIN

7 Construction Review

The preceding section outlines recommendations for the design and construction of the proposed development. Review of certain aspects of construction are required to satisfy the requirements of the BC Building Codes and Engineers and Geoscience BC (EGBC) requirements and to document that the recommendations of the geotechnical report are followed.

It is the contractor's responsibility to contact SNC-Lavalin a minimum of 48 hours in advance to notify us that a field review is required. In summary, geotechnical engineer field reviews are required for the following aspects of the work but not limited to:

- Review of site preparation;
- Review of grading, drainage system installation, Quality Assurance on structural grade fill placement, compaction testing, and road/parking construction;
- Review of engineered fill placement and compaction testing, including density testing of any engineered fill placed under slabs-on-grade and footings;
- Review of foundation subgrade prior to footing construction;
- Review of foundation backfill material and compaction; and
- Review of excavations in excess of 1.2 m depth as required by WorkSafeBC.

Since construction will happen in proximity of existing elevated guideway structures and existing utility lines, a detailed construction impact assessment, including a geotechnical instrumentation and monitoring plan, is required prior to the construction commencement.

A construction support scope and cost estimate can be provided in later stages of the project.

8 Closure

Please be advised that the contents of this report are based on information provided to us and results of field and laboratory testing performed by SNC-Lavalin, and our understanding of the proposed development as described in this report. If the development plans change, or if during construction the subsurface soil conditions are noted to be different than those described in this report, SNC-Lavalin should be notified promptly and the recommendations on the geotechnical aspects of the proposed development reviewed and adjusted accordingly. This report assumes that SNC-Lavalin will complete field reviews during construction.

SNC-Lavalin trusts that this report meets your expectations and requirements. Please do not hesitate to contact the signees of this report with any questions, comments or feedback concerning the content or presentation of this report.

SNC·LAVALIN

9 Notice to Reader

This report has been prepared and the work referred to in this report has been undertaken by SNC-Lavalin Inc. (SNC-Lavalin) for the exclusive use of TransLink, who has been party to the development of the scope of work and understands its limitations. The methodology, findings, conclusions, and recommendations in this report are based solely upon the scope of work and subject to the time and budgetary considerations described in the proposal and/or contract pursuant to which this report was issued. Any use, reliance on, or decision made by a third party based on this report is the sole responsibility of such third party. SNC-Lavalin accepts no liability or responsibility for any damages that may be suffered or incurred by any third party as a result of the use of, reliance on, or any decision made based on this report.

The findings, conclusions, and recommendations in this report (i) have been developed in a manner consistent with the level of skill normally exercised by professionals currently practicing under similar conditions in the area, and (ii) reflect SNC-Lavalin's best judgment based on information available at the time of preparation of this report. No other warranties, either expressed or implied, are made as to the professional services provided under the terms of our original contract and included in this report. The findings and conclusions contained in this report are valid only as of the date of this report and may be based, in part, upon information provided by others. If any of the information is inaccurate, new information is discovered, site conditions change, or standards are amended, modifications to this report may be necessary. The results of this assessment should in no way be construed as a warranty that the subject site is free from any and all environmental impact.

Any soil and rock descriptions in this report and associated logs have been made with the intent of providing general information on the subsurface conditions of the site. This information should not be used as geotechnical data for any purpose unless specifically addressed in the text of this report. Groundwater conditions described in this report refer only to those observed at the location and time of observation noted in the report.

This report must be read as a whole, as sections taken out of context may be misleading. If discrepancies occur between the preliminary (draft) and final version of this report, it is the final version that takes precedence. Nothing in this report is intended to constitute or provide a legal opinion.

The contents of this report are confidential and proprietary. Other than by TransLink, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted without the express written permission of TransLink and SNC-Lavalin.

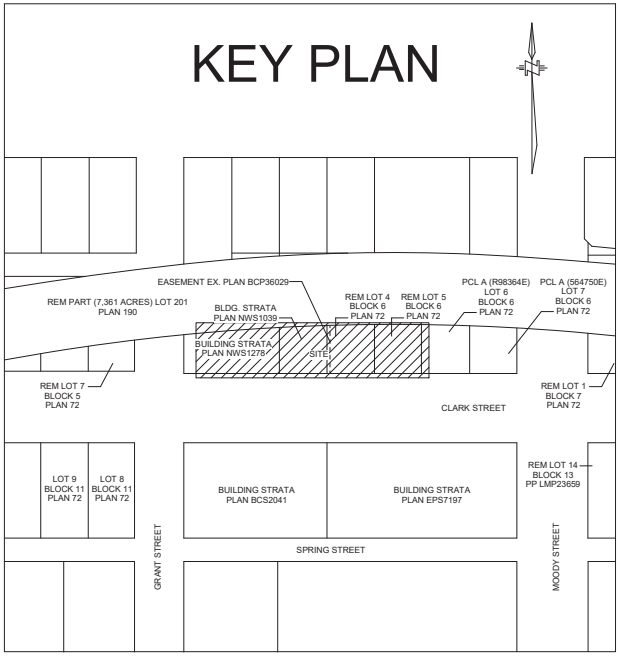
Appendix I

Drawings

ANSI D 22" x 34"

Expo and Millennium Upgrade Project (EMUP)
Propulsion Power Upgrades

ARCHITECTURAL
PORT MOODY



60% SUBMISSION
23/11/22

DRAWING LIST

Sheet Number	Sheet Name	Sheet Issue Date	Current Revision
0001	COVER SHEET	23/11/22	A
0004	GENERAL NOTES	23/11/22	A
0005	CODE COMPLIANCE	23/11/22	A
0100	SITE PLAN	23/11/22	A
0102	GROUND FLOOR PLAN	23/11/22	A
0103	GROUND FLOOR PLAN. RAMP	23/11/22	A
0104	GROUND FLOOR PLAN. ENCLOSURE	23/11/22	A
0105	ROOF PLAN	23/11/22	A
0200	ELEVATIONS	23/11/22	A
0201	ELEVATIONS	23/11/22	A
0202	ELEVATIONS	23/11/22	A
0300	SECTIONS	23/11/22	A
0301	SECTIONS	23/11/22	A
0302	SECTIONS	23/11/22	A
0600	FOUNDATION DETAILS	23/11/22	A
0601	FOUNDATION DETAILS	23/11/22	A
0602	ROOF & WALL DETAILS	23/11/22	A
0603	WALL & FOUNDATION DETAILS	23/11/22	A
0604	WALL DETAILS	23/11/22	A
0605	WALL DETAILS	23/11/22	A
0606	MISC DETAILS	23/11/22	A

FRANCL ARCHITECTURE

TRANSLINK

PROVINCE CONTRACT No.	SUB-CONSULTANT No.
193028	675448
DRAWING No.	
193028-03 -1000- STMCZ- FR- AG- 0001- A	A

Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt
Last Plotted: 2022-11-24 3:47:46 PM

PROJECT INFORMATION

PROJECT NAME: EXPO AND MILLENNIUM UPGRADE PROJECT (EMUP) PROPULSION POWER UPGRADES
PORT MOODY

PROJECT ADDRESS: OPPOSITE 2705 CLARKE ST IN PORT MOODY
LEGAL DESCRIPTION:

MAJOR OCCUPANCY: GROUP F, DIVISION 2
CONSTRUCTION TYPE: NON-COMBUSTIBLE
BUILDING HEIGHT: 1 STOREY (7.0m)
BUILDING AREA: 224 sq.m
STREETS FACING: 1
SPRINKLER SYSTEM: N/A
FIRE ALARM SYSTEM: TBC

REFERENCE CODES: (REFER TO CODE REPORT FOR FULL LIST OF APPLICABLE CODES)
BCBC - BRITISH COLUMBIA BUILDING CODE 2018
ASHRAE/IES 90.1 2016 EDITION
TRANSLINK BUILDING CODE CRITERIA 2019, FIXED GUIDEWAY RAPID TRANSIT SYSTEMS (TBCC)

GENERAL NOTES

1. THE GENERAL NOTES ARE TO BE READ IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS AND ALL OTHER DISCIPLINES' DOCUMENTS.
2. DO NOT SCALE FROM THE DRAWINGS. USE THE INDICATED DIMENSIONS. CONSULT WITH THE ARCHITECT FOR ANY UNCLEAR DIMENSION BEFORE PROCEEDING.
3. ALL DIMENSIONS ARE METRIC U.N.O.
4. ALL DIMENSIONS SHALL BE VERIFIED AND COORDINATED ON SITE PRIOR TO PROCEEDING WITH CONSTRUCTION.
5. ARCHITECTURAL DOCUMENTS GOVERN OVER STRUCTURAL FOR LAYOUT OF ALL COMPONENTS, STRUCTURAL DOCUMENTS SHALL GOVERN FOR MEMBER AND COMPONENT SIZES, AND REINFORCEMENT REQUIREMENTS.
6. ENSURE ALL FIRESTOPPING OF SERVICES IS EXECUTED AS SPECIFIED BY THE RESPECTIVE DIVISIONS 15 AND 16, AND IS IN ACCORDANCE WITH THE APPLICABLE REGULATIONS.
7. ALL WORK IS TO BE IN COMPLIANCE WITH THE 2018 BRITISH COLUMBIA BUILDING CODE AND ALL BUILDING REGULATIONS (SEE BUILDING CODE SUMMARY FOR APPLICABLE BYLAWS).
8. THE ARCHITECT SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES AND REQUEST CLARIFICATION IN WRITING ON INTERPRETATION OF ALL ASPECTS OF THE WORK.
9. WHERE EXISTING COMPONENTS ARE AFFECTED OR DAMAGED BY WORK OF THIS CONTRACT, ALL SUCH AREAS ARE TO BE MADE GOOD.
10. CONTROL JOINTS ARE TO BE PROVIDED FOR ALL MATERIALS IN ACCORDANCE WITH ACCEPTED INDUSTRY PRACTICE U.N.O.
11. PROVIDE CONTINUOUS SEALS AT JOINTS OF WALLS, CEILINGS, PARTITIONS, PLENUMS AND DOORS TO ENSURE CONTINUITY OF FIRE SEPARATIONS AND EFFICIENCY OF AIR PRESSURIZATION WHERE REQUIRED.
12. EXPOSED MANUFACTURER LOGOS AND NAMES ON MATERIALS AND COMPONENTS ARE NOT ACCEPTABLE IN PUBLIC AREAS.
13. HEADROOM IS CRITICAL. ALL SERVICES ON THE CEILINGS AND MUST BE INSTALLED TIGHT TO THE CEILINGS AND MUST FOLLOW THE LAYOUTS SHOWN. NOTIFY THE ARCHITECT IMMEDIATELY SHOULD CONFLICTS OR PROBLEMS BE OBSERVED.
14. IF APPLICABLE SPRINKLER DESIGN TO BE FINALIZED WITH SPRINKLER CONTRACTOR AND SHOP DRAWINGS, ALL LEVELS.
15. ALL WORK PERFORMED SHALL COMPLY WITH THE CONSTRUCTION DOCUMENTS, DRAWINGS AND SPECIFICATIONS, INCLUDING THESE NOTES.
16. THE SPECIFICATIONS ARE BOUND SEPARATELY IN BOOKS AND ARE PART OF THE CONSTRUCTION DOCUMENTS.
17. THE ORGANIZATION OF THE DRAWINGS AND SPECIFICATIONS IS NOT INTENDED TO CONTROL HOW THE WORK SHOULD BE DIVIDED AMONG THE CONTRACTORS AND SUBCONTRACTORS, NEITHER IS SUCH ORGANIZATION INTENDED TO DICTATE WHAT IS THE EXTENT OF WORK PERFORMED BY EACH TRADE.
18. WHEN A CONFLICT EXISTS WITHIN OR BETWEEN ANY PART(S) OF THE CONSTRUCTION DOCUMENTS, OR BETWEEN THE CONSTRUCTION DOCUMENTS AND ANY EITHER APPLICABLE INDUSTRY STANDARD(S) OR APPLICABLE CODE(S), ORDINANCE(S) OR OTHER RELATED LEGAL REQUIREMENTS, THE MOST STRINGENT REQUIREMENTS SHALL APPLY. INFORMATION SHOWN IN DETAILS AND SMALLER SCALE DRAWINGS TAKES PRECEDENCE OVER LARGER SCALE DRAWINGS. SPECIFICATIONS AND SCHEDULES TAKE PRECEDENCE OVER DRAWINGS.
19. NO DEVIATION FROM THE CONSTRUCTION DOCUMENTS (DRAWINGS OR SPECIFICATIONS) SHALL BE MADE WITHOUT WRITTEN APPROVAL OF THE ARCHITECT.
20. THE ARCHITECTURAL DRAWINGS ARE PART OF A LARGER SET OF DRAWINGS WHICH, WHEN COMPLETE, CONSISTS OF ALL DRAWINGS LISTED BY THE INDEX OF DRAWINGS. THE WORK DESCRIBED BY THE DRAWINGS OF ANY ONE DISCIPLINE MAY BE AFFECTED BY THE WORK DESCRIBED ON THE DRAWINGS OF ANOTHER DISCIPLINE AND MAY REQUIRE REFERENCE TO THE DRAWINGS OF ANOTHER DISCIPLINE. PARTIAL SETS OF DRAWINGS ARE INCOMPLETE AND SHOULD NOT BE DISTRIBUTED OR UTILIZED BY THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW AND COORDINATE THE WORK OF ALL SUBCONTRACTORS, TRADES, AND SUPPLIERS WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS BEFORE COMMENCING CONSTRUCTION, AND TO ASSURE THAT ALL PARTIES ARE AWARE OF ALL REQUIREMENTS, REGARDLESS OF WHERE THE REQUIREMENTS OCCUR IN THE CONTRACT DOCUMENTS.
21. AS PART OF THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE WORK OF ALL SUBCONTRACTORS, TRADES, AND SUPPLIERS, THE CONTRACTOR SHALL IDENTIFY AND NOTIFY THE ARCHITECTS OF ANY CONFLICTS BETWEEN THE WORK OF DIFFERENT PARTIES AT THE EARLIEST POSSIBLE DATE SO AS TO ALLOW REASONABLE TIME FOR THE CONFLICT TO BE RESOLVED WITHOUT DELAYING THE WORK.
22. ALL DIMENSIONS ARE TO THE FACE OF FINISHED SURFACE U.N.O.
23. CEILING HEIGHT DIMENSIONS ARE TO THE FINISHED SURFACES.
24. ANY FINISH INDICATED ON A PARTICULAR WALL APPLIES FOR THE ENTIRE UNINTERRUPTED LENGTH OF THE WALL, U.N.O.
25. EXTEND THE ACOUSTICAL AND THE FIRE SEPARATION FROM FLOOR TO STRUCTURE ABOVE, U.N.O.
26. SCOPE OF WORK INDICATED ON THE DOCUMENTS AS "N.I.C." IS NOT IN THE CONTRACT.
27. GLASS DOORS AND GLASS PANEL ADJACENT TO DOORS OR WALKING SURFACES SHALL BE OF SAFETY GLASS, ACCORDING TO THE APPLICABLE CODES AND REGULATIONS.
28. EFFECTIVELY ISOLATE DISSIMILAR MATERIALS TO AVOID GALVANIC DETERIORATION OR ANY OTHER KIND OF HARMFUL REACTION.
29. THE ARCHITECTURAL DRAWINGS ESTABLISH AND COORDINATE THE FINISHED APPEARANCE AND LOCATION OF ALL EXPOSED ELEMENTS OF THE WORK OF ALL THE TRADES, INCLUDING THAT WORK WHICH IS ILLUSTRATED PRIMARILY ON DRAWINGS OF OTHER DISCIPLINES. LOCATIONS SHOWN ON OTHER DRAWINGS ARE SCHEMATIC UNLESS OTHERWISE NOTED ON THE ARCHITECTURAL DRAWINGS. THE ARCHITECTURAL DRAWINGS TAKE PRECEDENCE FOR THE FINISHED APPEARANCE AND EXACT LOCATION OF ALL PARTS OF THE WORK (CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION).
30. THE ARCHITECTURAL FLOOR PLANS, REFLECTED CEILING PLANS, SECTIONS, AND ELEVATIONS ILLUSTRATE THE EXACT LOCATION OF MANY, BUT NOT ALL EXPOSED PARTS OF THE WORK. APPLY THE RULES INDICATED BY THE DRAWINGS "MOUNTING HEIGHTS" TO DETERMINE THE EXACT LOCATION OF EACH PART OF THE WORK.
31. REFER TO THE STRUCTURAL, MECHANICAL, ELECTRICAL, FIRE SUPPRESSION PLUMBING AND DESIGN ASSIST PARTNERS DRAWINGS FOR THE DETAILED DESIGN OF STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND DESIGN ASSIST PARTNERS SYSTEMS, OF WHICH PORTIONS MAY BE SHOWN ON THE ARCHITECTURAL DRAWINGS.
32. FINISH FLOOR ELEVATIONS ARE TO TOP OF CONCRETE FLOOR SLAB U.N.O. WHERE THE CONCRETE IS DEPRESSED TO ACCOMMODATE MORTAR BEDS, SETTING BEDS, RAISED ACCESS FLOORS, AND OTHER SIMILAR FLOOR ASSEMBLIES, FINISHED FLOOR ELEVATIONS ARE TO TOP OF FINISHED FLOOR ASSEMBLY. ON EDGE OF SLAB PLANS, ELEVATIONS AT DEPRESSIONS ARE TO TOP OF PRIMARY SLAB.
33. FOR TYPICAL DIMENSIONING CONVENTIONS REFER TO "DIMENSIONING CONVENTIONS" ON THIS SHEET.
34. FOR ILLUSTRATION AND DEFINITION OF TYPICAL SYMBOLS USED ON THE ARCHITECTURAL DRAWINGS, SEE THE DRAWINGS "ARCHITECTURAL SYMBOLS."
35. ADDITIONAL SYMBOLS, NOT SHOWN OR DEFINED ON THE DRAWING "ARCHITECTURAL SYMBOLS" MAY OCCUR AND ARE DEFINED ON THE OTHER DRAWINGS.
36. GRID LINES IDENTIFIED WITH A LETTER DESIGNATION ARE PARALLEL, U.N.O., GRID LINES IDENTIFIED WITH A NUMBER DESIGNATION ARE PARALLEL AND PERPENDICULAR TO THOSE WITH LETTER DESIGNATIONS, U.N.O.

WALL/ROOF/FLOOR ASSEMBLY

WALL ASSEMBLIES

W1c

FRR	-
STC	-
U-VALUE	
R-VALUE	11.78

GRAPHIC

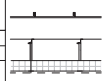
INSULATED FACE BRICK WALL
- 89mm FACE BRICK W ANTI-GRAFFITY COATING
- 25mm CAVITY
- THERMALLY BROKEN MASONRY TIE
- 65mm SEMI-RIGID INSULATION
- AIR/WATER/VAPOUR BARRIER
- STRUCTURAL WALL - REFER TO STRUCTURAL DRAWINGS

NOTES: FRR PROVIDED BY STRUCTURAL WALL

W1d

FRR	
STC	
U-VALUE	
R-VALUE	11.78

GRAPHIC



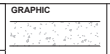
STANDING SEAM METAL CLADDING
- STANDING SEAM METAL PANEL
- 150mm Z-GIRT (HORIZONTAL)
- 225mm THERMALLY BROKEN CLIPS W VERTICAL Z-GIRT
- 65mm SEMI-RIGID INSULATION (IN BETWEEN CLIPS)
- AIR/WATER/VAPOUR BARRIER
- STRUCTURAL WALL - REFER TO STRUCTURAL DRAWINGS

NOTES: FRR PROVIDED BY STRUCTURAL WALL

W2b

FRR	2HR
STC	-

GRAPHIC



CAST-IN-PLACE CONCRETE WALL
- SIZES PER STRUCTURAL DESIGN
- EXPOSED NATURAL CONCRETE FINISH

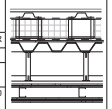
NOTES:

ROOF ASSEMBLIES

R2

FRR	2HR
STC	
U-VALUE	
R-VALUE	30

GRAPHIC



STANDING SEAM ROOF
- STANDING SEAM METAL ROOF
- 175mm THERMALLY BROKEN CLIPS W HORIZONTAL HAT-TRACK
- VAPOUR PERMEABLE SEPARATION MEMBRANE
- 150mm RIGID INSULATION IN BETWEEN CLIPS
- AIR/WATER/VAPOUR BARRIER
- 12.5mm DECK OVERLAY BOARD
- STEEL DECK- REFER TO STRUCTURAL DRAWINGS
- STEEL TRUSS - REFER TO STRUCTURAL DRAWINGS
- CEILING:
  - 2 LAYERS OF 16mm TYPE X GWB LOOSELY LAYED
  - 150mm STEEL STUD
  - 3 LAYERS OF 16mm TYPE X GWB

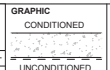
NOTES: CEILING ULC DESIGN- I506

FLOOR ASSEMBLIES

F1

FRR	-
STC	-

GRAPHIC



SLAB ON GRADE
- CONCRETE SLAB - REFER TO STRUCTURAL
- SHEET MEMBRANE WATERPROOFING
- REFER TO STRUCTURAL FOR BELOW SLAB FILL

NOTES: LOCALIZED INSULATION AT PERIMETER. REFER TO DETAILS

EXTERIOR FENCING

W3

FRR	
STC	

GRAPHIC

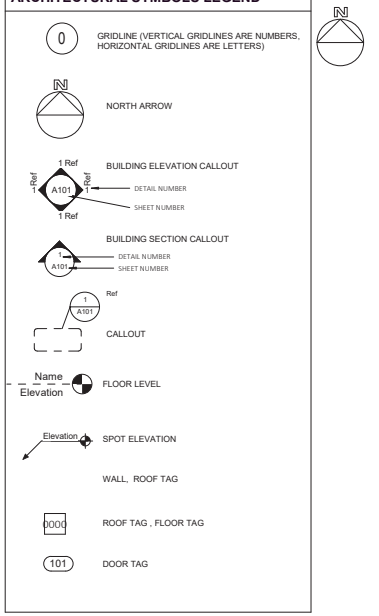
FENCING
- FENCE, TYPE TBC

NOTES:

ABBREVIATIONS

AARU	AUTOMATIC ASSURED RECEPTIVITY UNITS
AFF	ABOVE FINISH FLOOR
AVB	AIR VAPOUR BARRIER
AHU	AIR HANDLING UNIT
ALUM	ALUMINIUM
ANOD	ANODIZED
ARCH	ARCHITECTURAL
@	AT
CIP	CAST IN PLACE
CL	CENTRE LINE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CJ	CONTROL JOINT
CONT	CONTINUOUS
DIA OR Ø	DIAMETER
DN	DOWN
DWG	DRAWING
EA	EACH
ELEV	ELEVATION
ELEC	ELECTRICAL
ERD	EMERGENCY ROOF DRAIN
EQ	EQUAL
EJ	EXPANSION JOINT
EXT	EXTERIOR
FF	FINISH FLOOR
FA	FIRE ALARM
FAP	FIRE ANNUNCIATOR PANEL
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FHC	FIRE HOSE CABINET
FH	FIRE HYDRANT
FR	FIRE RATED
FRR	FIRE RESISTANCE RATING
FL	FLOOR
FD	FLOOR DRAIN
FURR	FURRING
GALV	GALVANIZED
GA	GAUGE
GWB	GYPSUM WALL BOARD
HDWR	HARDWARE
HORIZ	HORIZONTAL
HB	HOSE BIBB
HR	HOUR
MAU	MAKEUP AIR UNIT
MH	MANHOLE
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MISC	MISCELLANEOUS
N/A	NOT APPLICABLE
N.I.C	NOT IN CONTRACT
NTS	NOT TO SCALE
O/C	ON CENTRE
O/H	OVERHEAD
PT	PAINT
PCC	PRE-CAST CONCRETE
PFM	PRE-FINISHED METAL
PPS	PROPULSION POWER STATION
RWL	RAIN WATER LEADER
RCP	REFLECTED CEILING PLAN
REQ	REQUIRED
ROW	RIGHT OF WAY
RM	ROOM
RD	ROOF DRAIN
RO	ROUGH OPENING
SAN	SANITARY
SA	SELF ADHERED
SIM	SIMILAR
SPECS	SPECIFICATIONS
SS	STAINLESS STEEL
STRUCT	STRUCTURAL
SQ.M	SQUARE METRE
TEMP	TEMPORARY
T/D	TELEPHONE/DATA
TO	TOP OF
TYP	TYPICAL
U/S	UNDERSIDE
ULC	UNDERWRITERS LABORATORIES OF CANADA
UNO	UNLESS NOTED OTHERWISE
VB	VAPOUR BARRIER
VR	VAPOUR RETARDER
W	WITH

ARCHITECTURAL SYMBOLS LEGEND

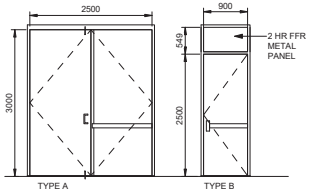


GENERAL DOOR NOTES

1. ALL EXTERIOR DOORS ARE TO CONFORM TO THE ASTM F476-84 STANDARD.
2. DOOR HARDWARE IS TO BE REKEYED AFTER CONSTRUCTION
3. INSULATED EXTERIOR METAL DOORS TO CONFORM TO CAN/CGSB-92.5-M
4. RATED DOORS AND FRAMES SHALL HAVE ULC LABEL
5. ALL DOORS TO BE SUPPLIED WITH TYPICAL DOOR HARDWARE AND SPECIFIC APPLICATION HARDWARE LISTED IN THE LEGEND.
6. ALL HARDWARE TO BE COMMERCIAL GRADE.
7. HARDWARE FINISH TO BE SATIN CHROME, SATIN STAINLESS STEEL, SATIN CHROMIUM OR CLEAR ANODIZED ALUMINUM.
8. ALL DOORS WITHIN A FIRE SEPARATION, RATED WALL, OR IN A ROOM CONTAINING HAZARDOUS MATERIALS TO HAVE SELF CLOSING MECHANISM AND SMOKE SEALS
9. ALL DOORS WITHIN A FIRE SEPARATION TO HAVE AN ALUMINUM THRESHOLD IF THE FLOORING MATERIAL IS COMBUSTIBLE

Door Schedule

Type Mark	Mark	Height	Width	Thickness	Rough Height	Rough Width	Frame Material	Door Material	Door Leaf and Frame Finish	Insulated	Fire Rating (FRR)	Door Hardware
C	001	3000	2500	45	3100	2600	PSF	INSM	PT-2	Yes	2 FRR	CL, SS, TH, WS, AS, SB, PB
C	002	3000	2500	45	3100	2600	PSF	INSM	PT-2	Yes	2 FRR	CL, SS, TH, WS, AS, SB, PB
B	003	2500	900	45	3100	1000	PSF	INSM	PT-2	Yes	2 FRR	LS, CR, CL, SS, TH, WS, AS, PB, ES



DOOR SCHEDULE LEGEND

PSF	PRESSED STEEL FRAME
INSM	INSULATED METAL DOOR
PT-2	PAINTED - COLOR BROWN
LS	LOCKSET (HARDWIRED ELECTRONIC MORTISE LOCK)
CL	CLOSER
SS	SMOKE SEAL
TH	THRESHOLD
WS	WEATHER STRIPPING
SB	SPRING BOLT
CR	CARD READER
PB	PUSH BAR
AS	SECURITY ASTRAGAL FULL LENGHT
ES	ELECTRIC STRIKE

ELEVATION MATERIAL LEGEND

MAS-2	FACE BRICK, COLOR TBC
MTL-3f	GUARD WITH PICKETS - BLACK, COLOR TBC
MTL-3e	STANDING SEAM - BLACK, COLOUR TBC
MTL-3d	GUARD W PICKETS - BLACK, COLOUR TBC
CON -1	CONCRETE FACED RIGID INSULATION
PMF-DR	INSULATED METAL DOOR w PRESSED METAL FRAME, PAINTED, COLOUR TBC
FC-1	FENCE, TYPE TBC

ISSUE/REVISION

I/R	DATE	BY	DESCRIPTION	APPR
A	2022-11-23		60% SUBMISSION	
PA	2022-08-04		30% SUBMISSION	

REFERENCES

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

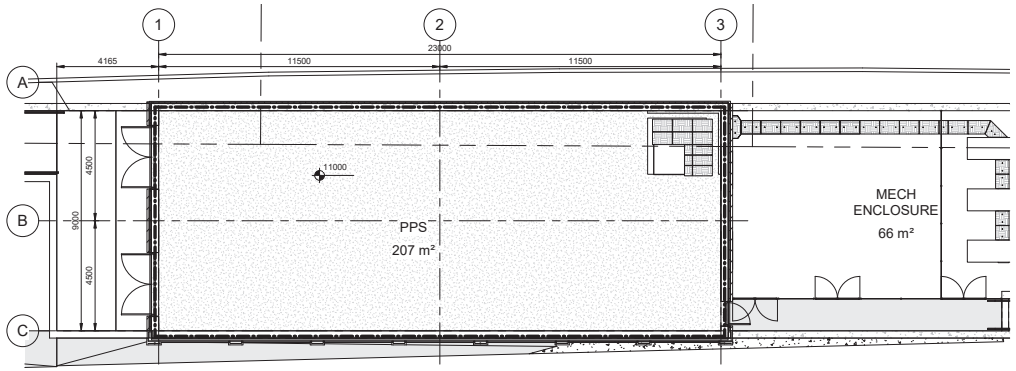
DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

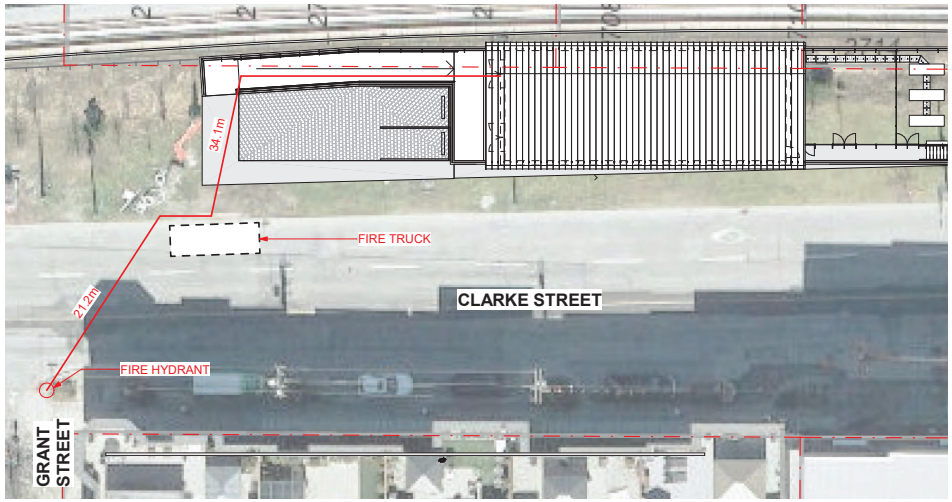
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
GENERAL NOTES

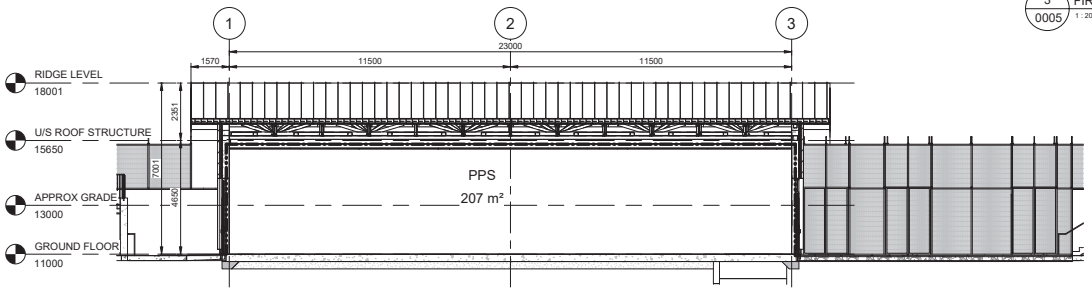
DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0004- A



1 / 0005 GROUND FLOOR - CODE ANALYSIS
1 : 100



3 / 0005 FIRE DEPARTMENT ACCESS
1 : 200



2 SECTION - CODE ANALYSIS
1 : 100

FIRE SEPARATIONS
2HR FRR
3HR FRR

ANSI D 22" x 34"

Last Plotted: 2022-11-24 3:47:54 PM
Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt

ISSUE/REVISION **REFERENCES**

A	2022-11-23		60% SUBMISSION		
PA	2022-08-04		30% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francl architecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES

PORT MOODY

DRAWING INFORMATION

DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

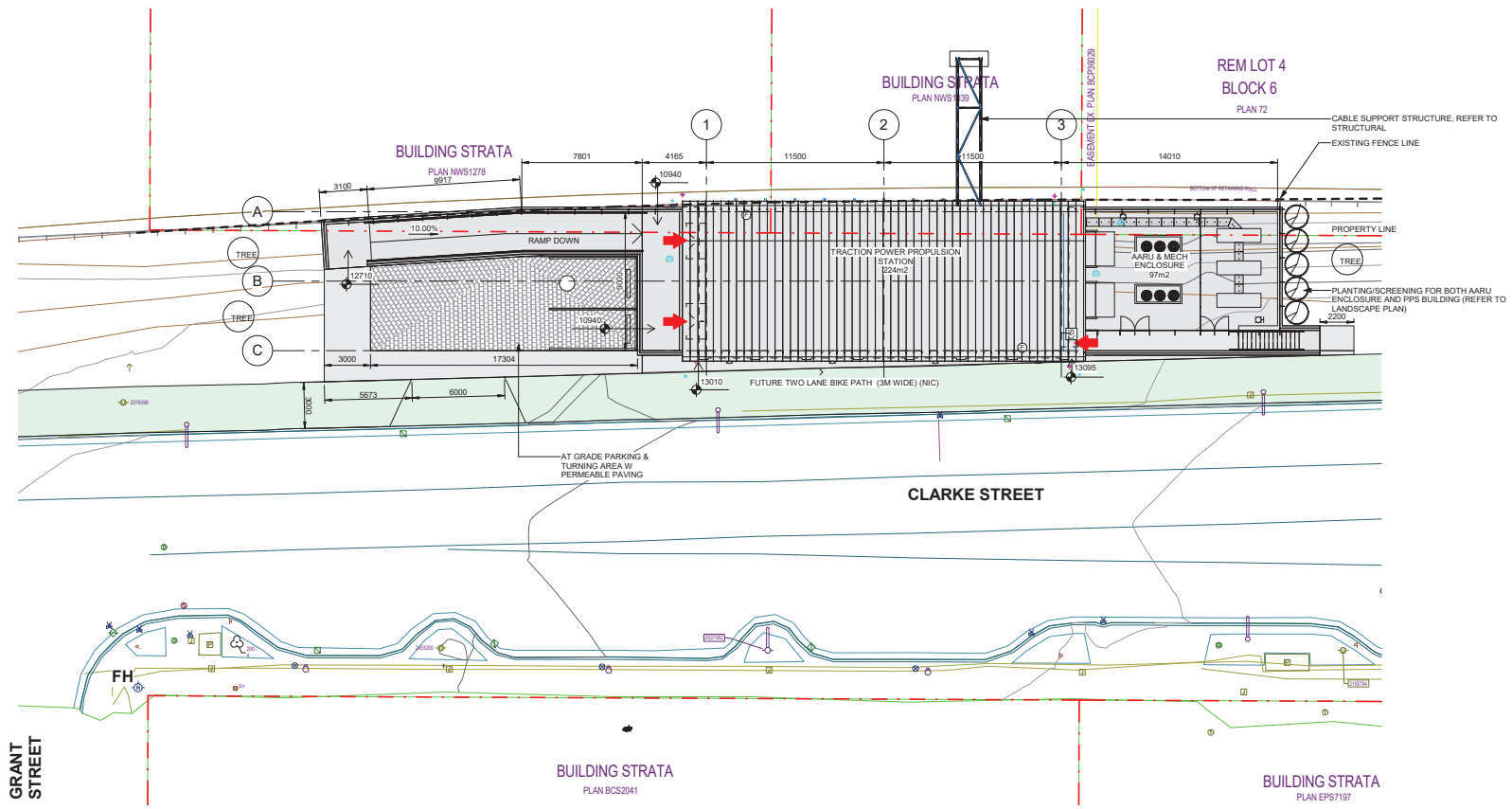
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
CODE COMPLIANCE

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0005- A

Attachment 3



1 / 0005 SITE PLAN - CLARKE STREET
1 : 150

ANSI D 22" x 34"

Last Plotted: 2022-11-24 3:47:57 PM
Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt

ISSUE/REVISION				REFERENCES		
A	2022-11-23		60% SUBMISSION			
PA	2022-08-04		30% SUBMISSION			
I/R	DATE	BY	DESCRIPTION	APPR		

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES

PORT MOODY

DRAWING INFORMATION

DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

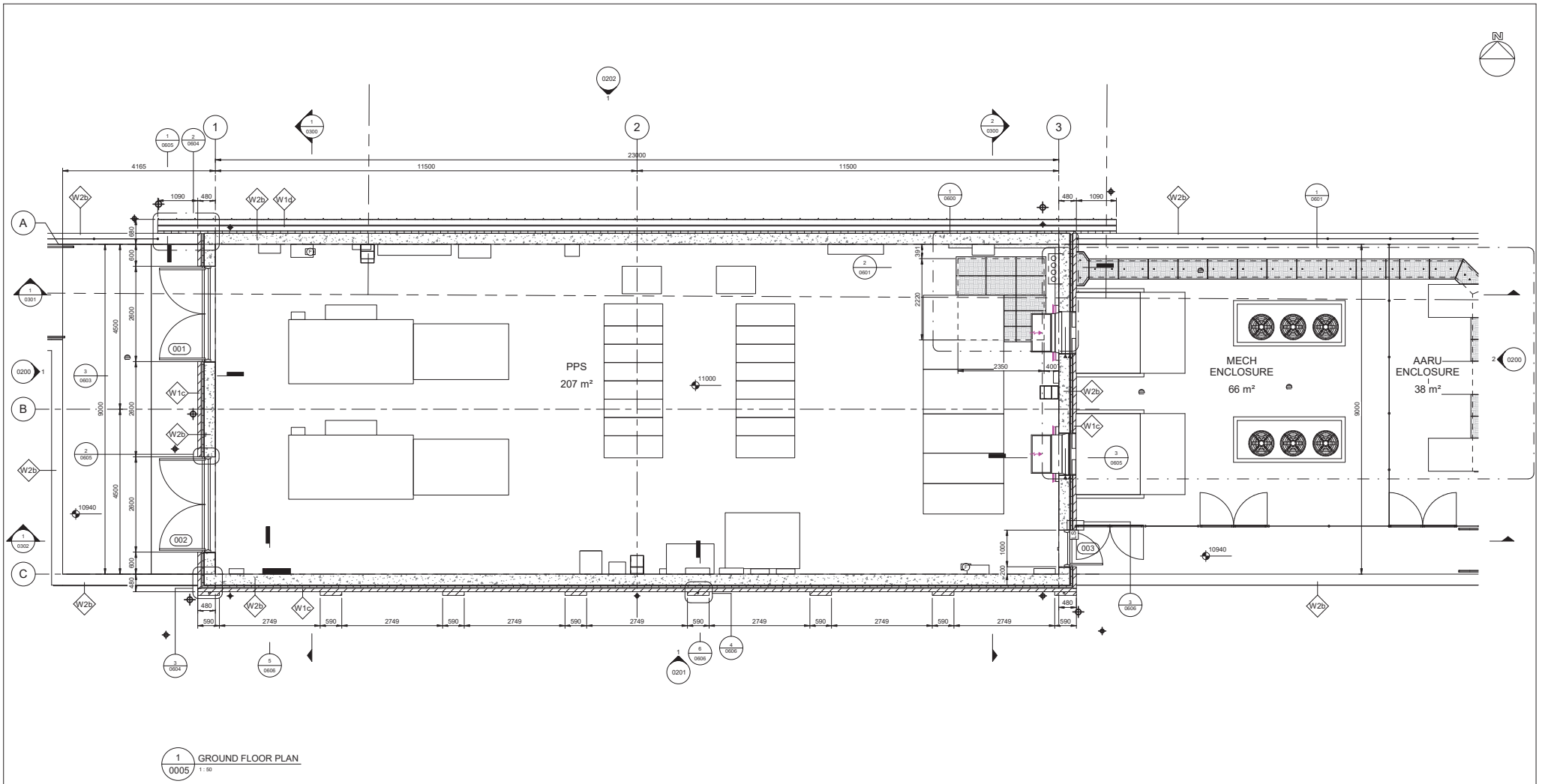
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
SITE PLAN

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0100- A

Attachment 3



1 / 0005 GROUND FLOOR PLAN
1 : 50

ANSI D 22" x 34"

Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt
Last Plotted: 2022-11-24 3:47:58 PM

ISSUE/REVISION			REFERENCES		
A	2022-11-23		60% SUBMISSION		
PA	2022-08-04		30% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

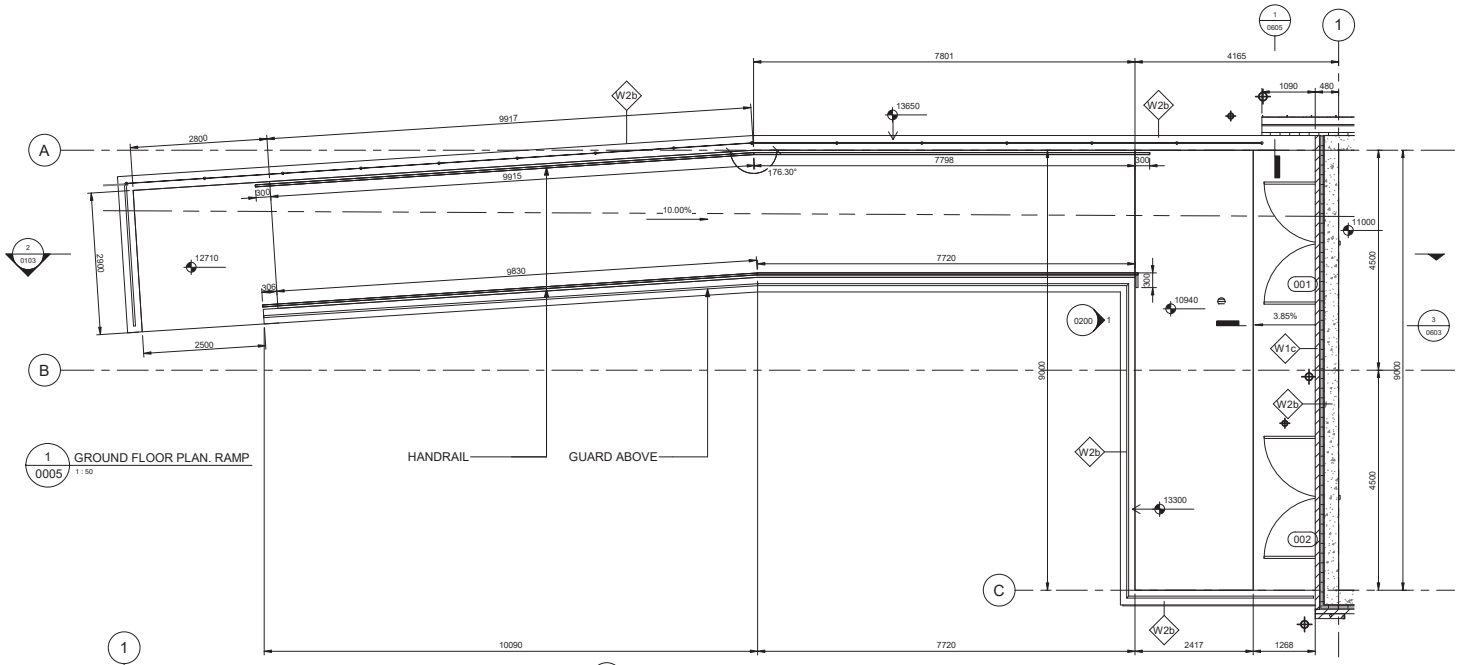
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

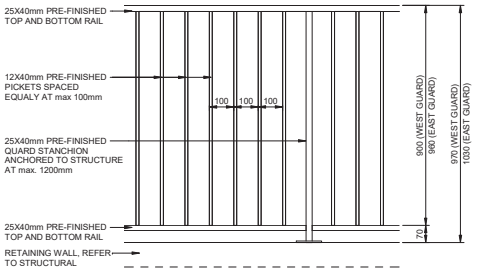
SHEET TITLE
GROUND FLOOR PLAN

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0102- A

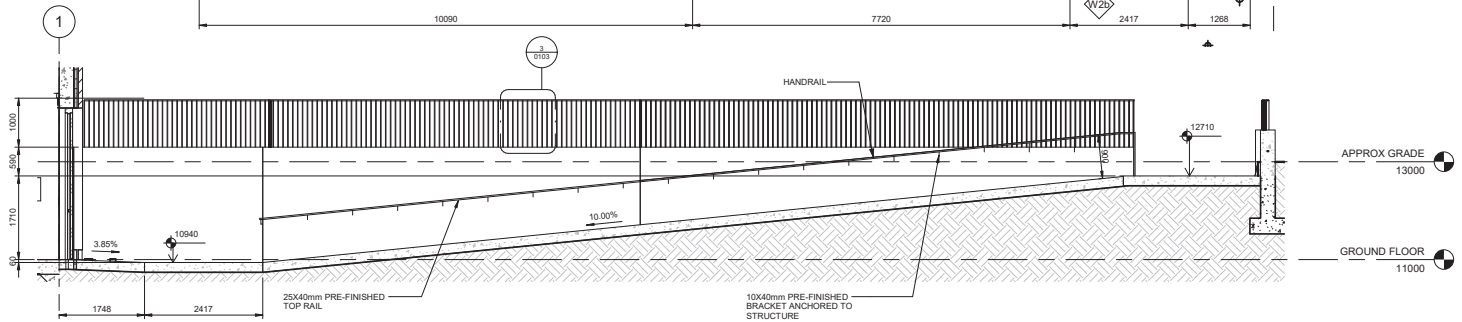
Attachment 3



1 0005 GROUND FLOOR PLAN. RAMP
1 : 50



3 0103 GUARD ELEVATION
1 : 10



2 0103 RAMP SECTION
1 : 50

ANSI D 22" x 34"

Last Plotted: 2022-11-24 3:48:00 PM
Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt

ISSUE/REVISION

I/R	DATE	BY	DESCRIPTION	APPR
A	2022-11-23		60% SUBMISSION	
PA	2022-08-04		30% SUBMISSION	

REFERENCES

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

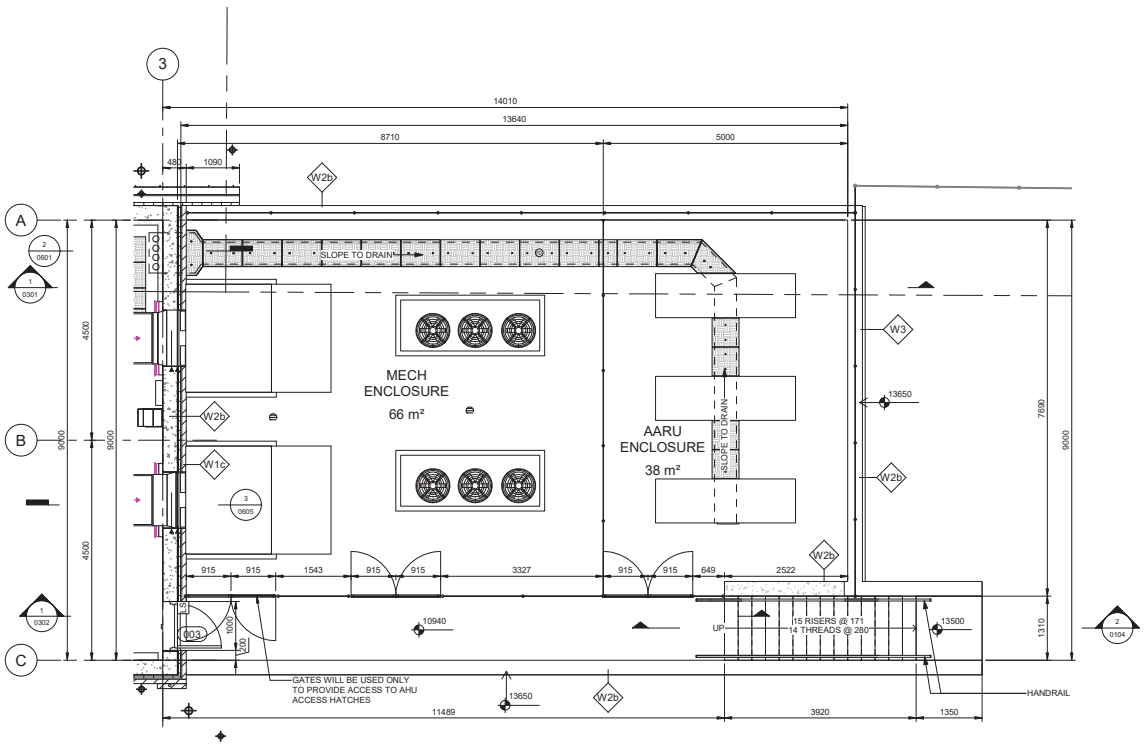
DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

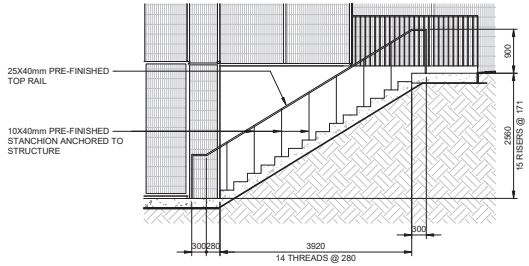
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
GROUND FLOOR PLAN. RAMP

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0103- A



1 / 0005 GROUND FLOOR PLAN. ELCLOSURE
1 : 50



2 / 0104 STAIR SECTION
1 : 50

N

ISSUE/REVISION

I/R	DATE	BY	DESCRIPTION	APPR
A	2022-11-23		60% SUBMISSION	
PA	2022-08-04		30% SUBMISSION	

REFERENCES

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

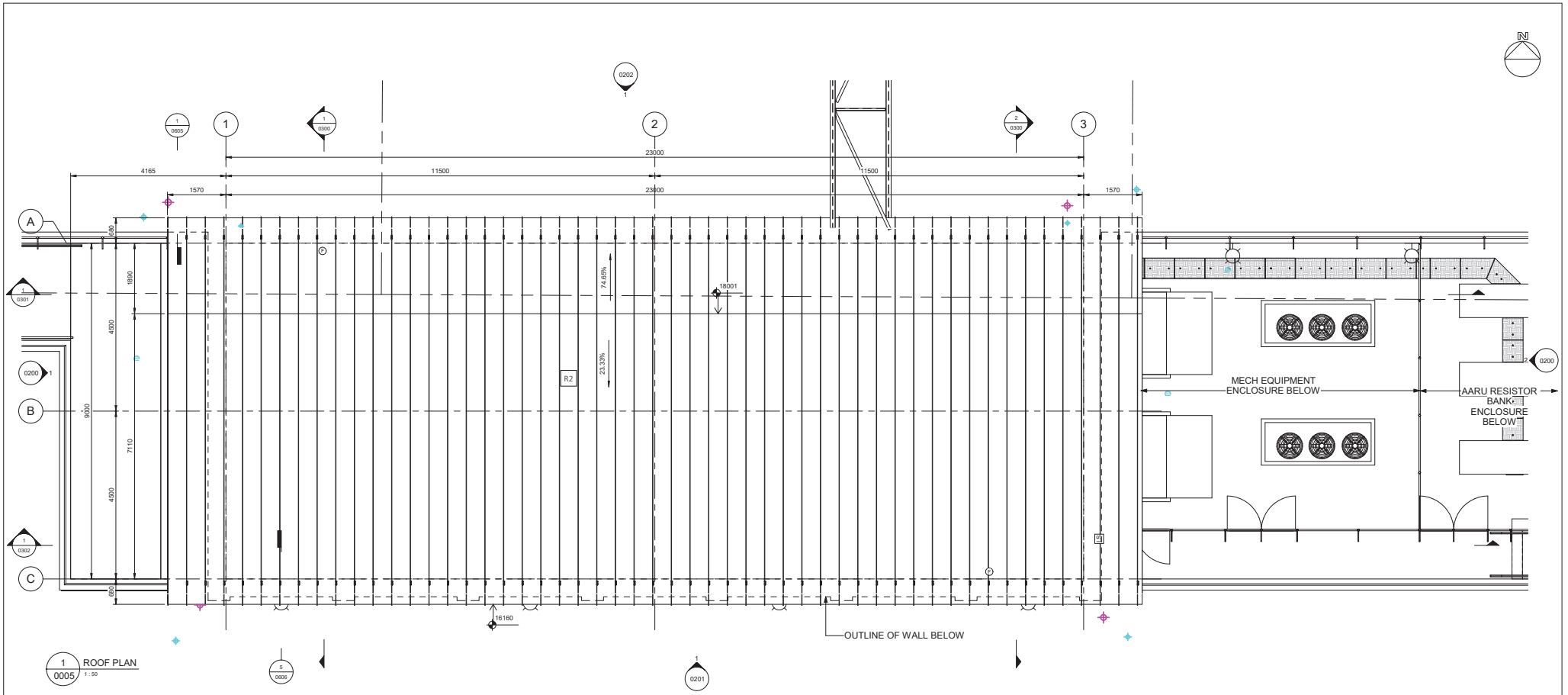
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
GROUND FLOOR PLAN.
ENCLOSURE

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0104- A

Attachment 3



ANSI D 22" x 34"

Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt
Last Plotted: 2022-11-24 3:48:03 PM

ISSUE/REVISION			REFERENCES		
A	2022-11-23		60% SUBMISSION		
PA	2022-08-04		30% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

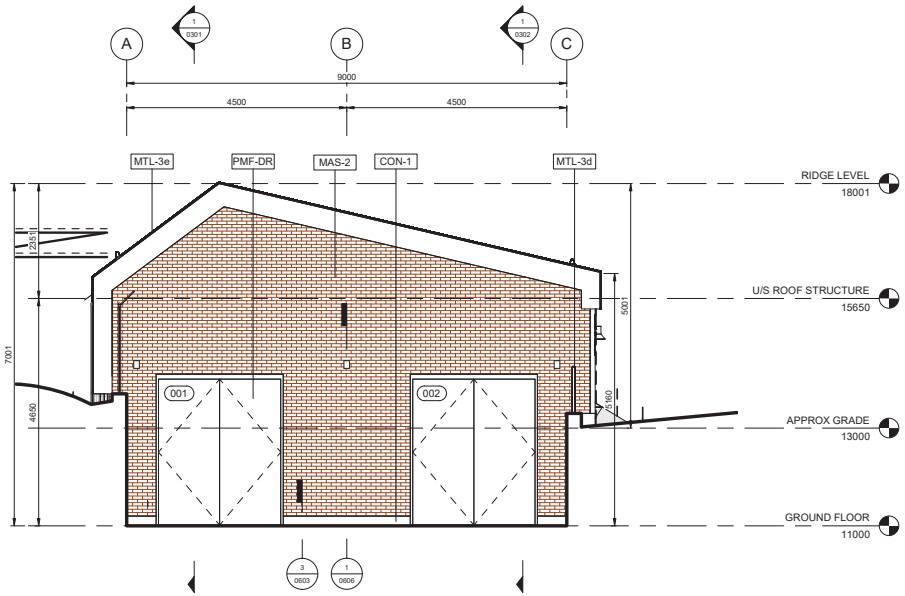
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

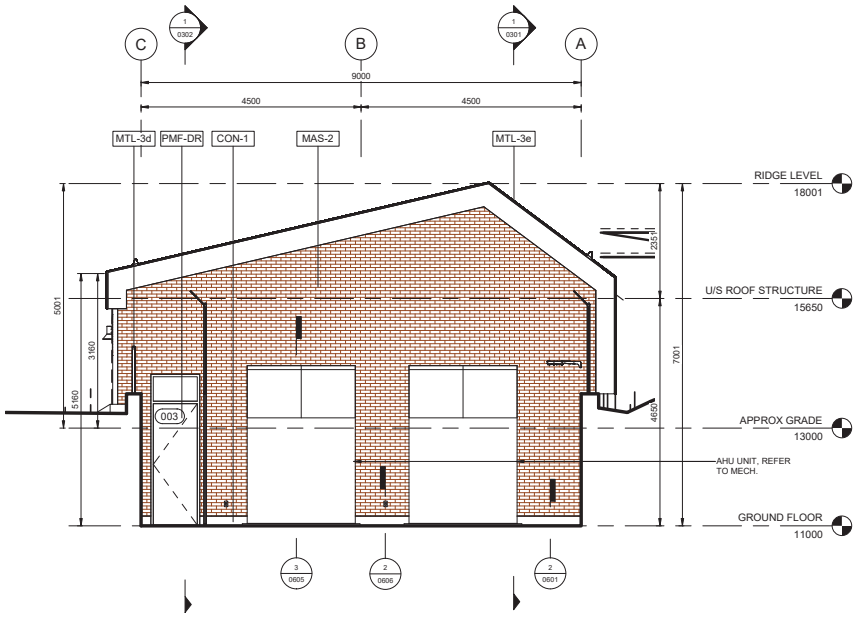
SHEET TITLE
ROOF PLAN

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0105- A

Attachment 3



1 0102 WEST ELEVATION 1 : 50



2 0102 EAST ELEVATION 1 : 50

ELEVATION MATERIAL LEGEND

MAS-2	FACE BRICK, COLOR TBC
MTL-3f	GUARD WITH PICKETS - BLACK, COLOR TBC
MTL-3e	STANDING SEAM - BLACK, COLOUR TBC
MTL-3d	GUARD W/ PICKETS - BLACK, COLOUR TBC
CON -1	CONCRETE FACED RIGID INSULATION
PMF-DR	INSULATED METAL DOOR w PRESSED METAL FRAME, PAINTED, COLOUR TBC
FC-1	FENCE, TYPE TBC

ANSI D 22" x 34"

Last Plotted: 2022-11-24 3:46:06 PM
Last saved by:
Filename: BIM 360/#675448 - EMUP PPS Upgrades/Site_PoMo.rvt

ISSUE/REVISION **REFERENCES**

A	2022-11-23		60% SUBMISSION		
PA	2022-08-04		30% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

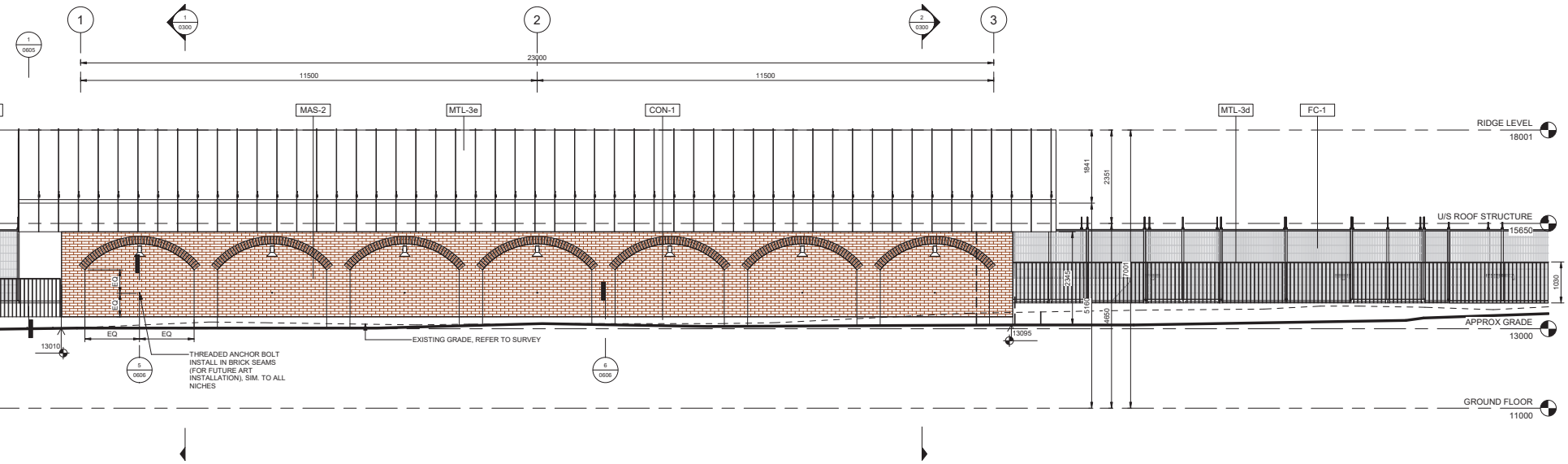
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
ELEVATIONS

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0200- A

Attachment 3



1 / 0102 SOUTH ELEVATION
1 : 50

ELEVATION MATERIAL LEGEND

MAS-2	FACE BRICK, COLOR TBC
MTL-3f	GUARD WITH PICKETS - BLACK, COLOR TBC
MTL-3e	STANDING SEAM - BLACK, COLOUR TBC
MTL-3d	GUARD W/ PICKETS - BLACK, COLOUR TBC
CON -1	CONCRETE FACED RIGID INSULATION
PMF-DR	INSULATED METAL DOOR w PRESSED METAL FRAME, PAINTED, COLOUR TBC
FC-1	FENCE, TYPE TBC

ANSI D 22" x 34"

Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt
Last Plotted: 2022-11-24 3:48:07 PM

ISSUE/REVISION — **REFERENCES**

I/R	DATE	BY	DESCRIPTION	APPR
A	2022-11-23		60% SUBMISSION	
PA	2022-08-04		30% SUBMISSION	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

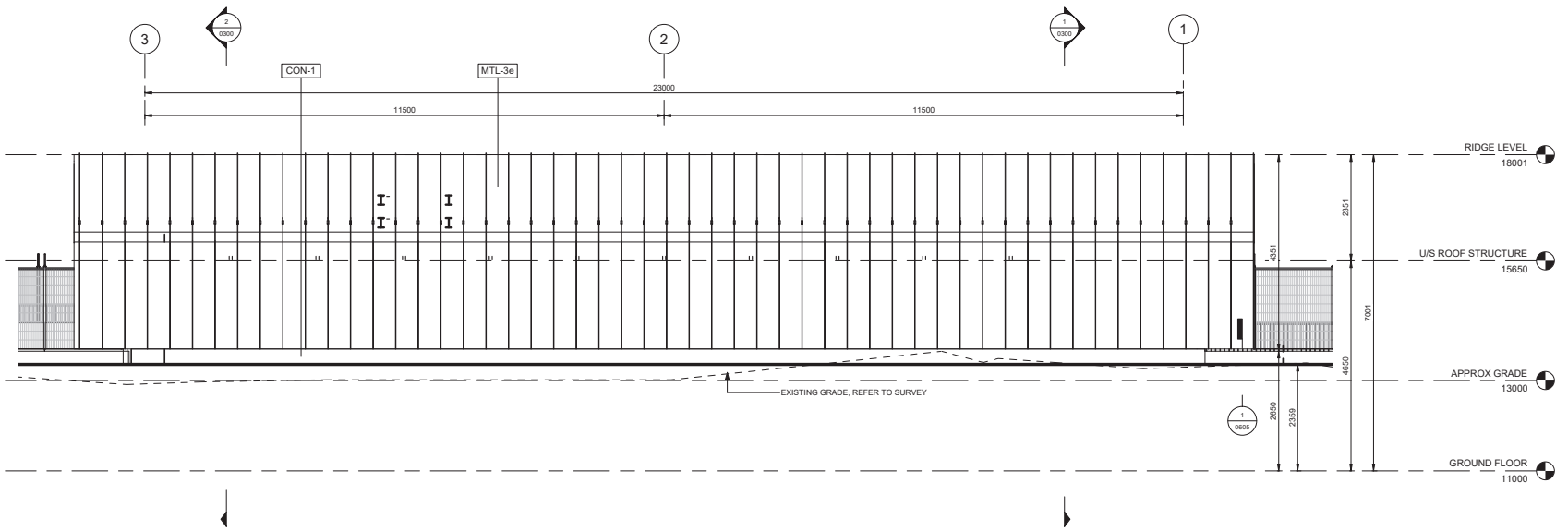
DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
ELEVATIONS

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0201- A



1 / 0102 NORTH ELEVATION
1 : 50

ELEVATION MATERIAL LEGEND

MAS-2	FACE BRICK, COLOR TBC
MTL-3f	GUARD WITH PICKETS - BLACK, COLOR TBC
MTL-3e	STANDING SEAM - BLACK, COLOUR TBC
MTL-3d	GUARD W/ PICKETS - BLACK, COLOUR TBC
CON -1	CONCRETE FACED RIGID INSULATION
PMF-DR	INSULATED METAL DOOR w PRESSED METAL FRAME, PAINTED, COLOUR TBC
FC-1	FENCE, TYPE TBC

ISSUE/REVISION **REFERENCES**

I/R	DATE	BY	DESCRIPTION	APPR
A	2022-11-23		60% SUBMISSION	
PA	2022-08-04		30% SUBMISSION	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francIarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES

PORT MOODY

DRAWING INFORMATION

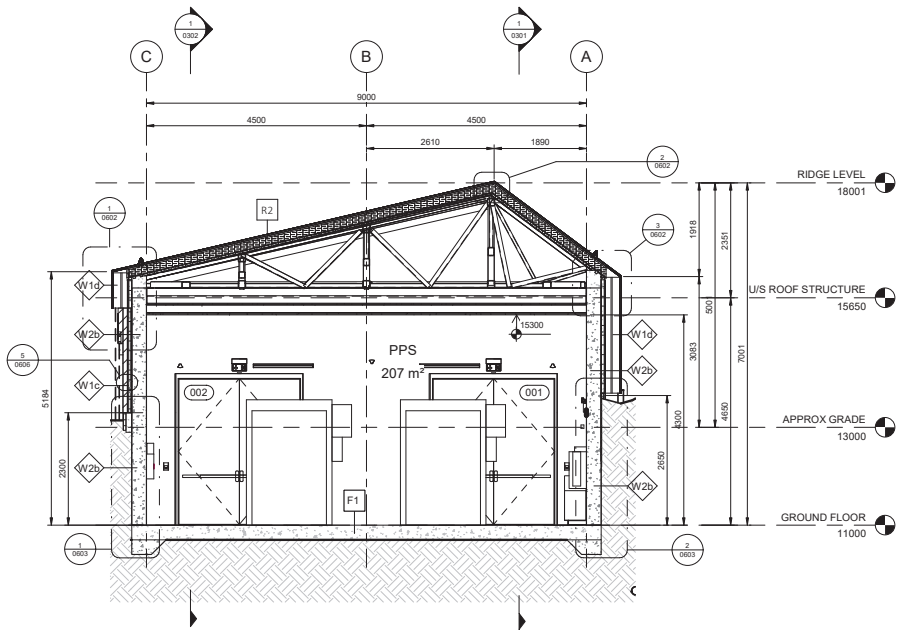
DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

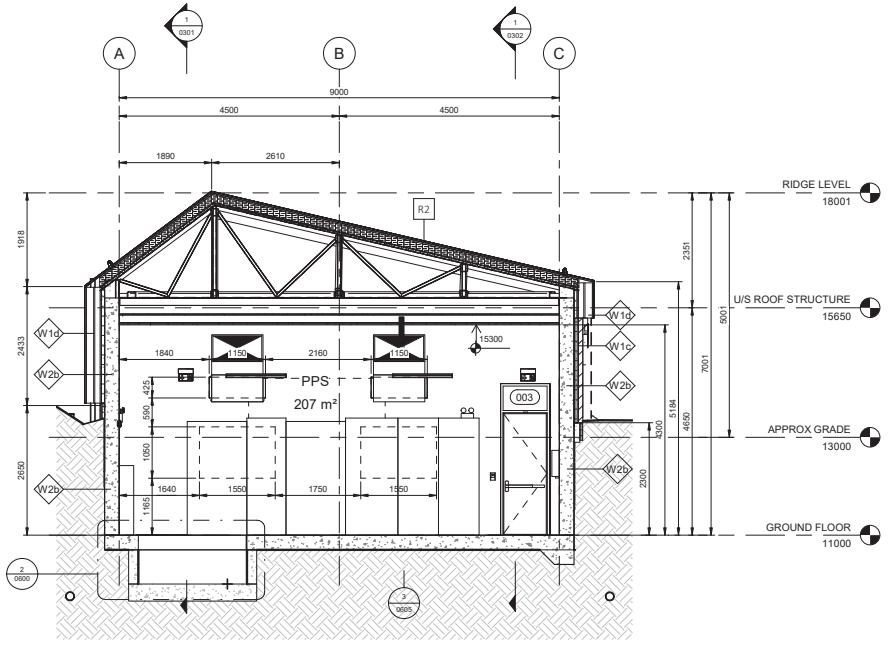
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
ELEVATIONS

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0202- A



1 0102 SECTION A
1 : 50



2 0102 SECTION B
1 : 50

ISSUE/REVISION

A	2022-11-23		60% SUBMISSION		
PA	2022-08-04		30% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

REFERENCES

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

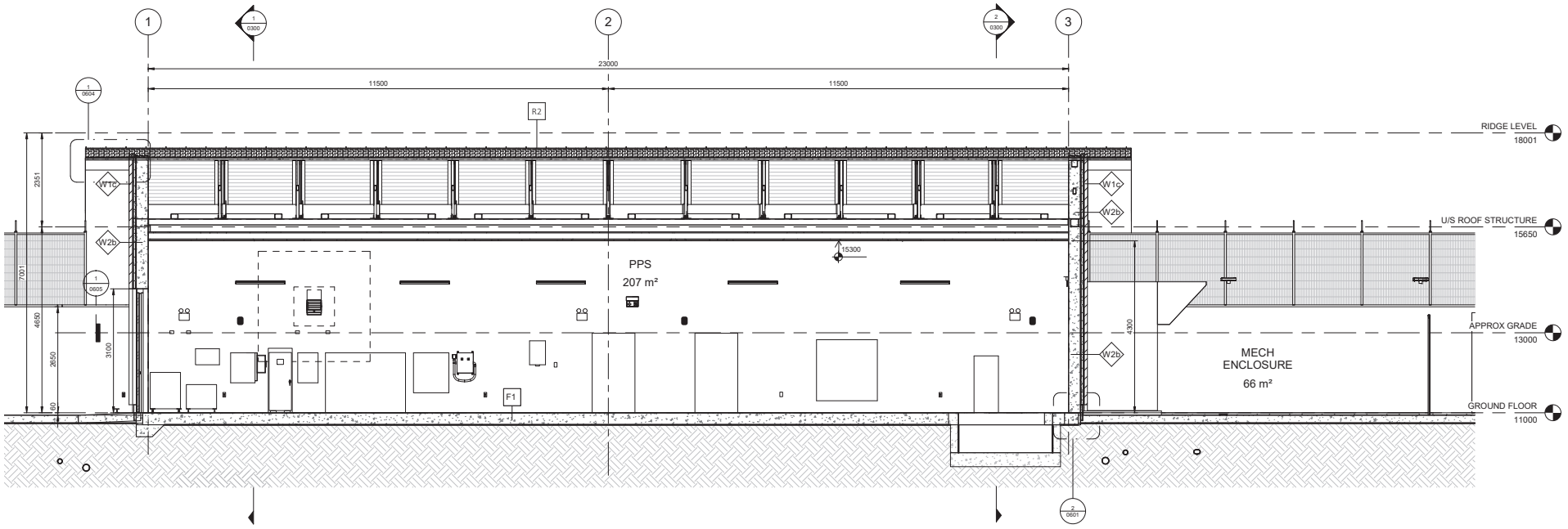
DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
SECTIONS

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0300- A



1 / 0102 SECTION C
1 : 50

ISSUE/REVISION | **REFERENCES**

I/R	DATE	BY	DESCRIPTION	APPR
A	2022-11-23		60% SUBMISSION	
PA	2022-08-04		30% SUBMISSION	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

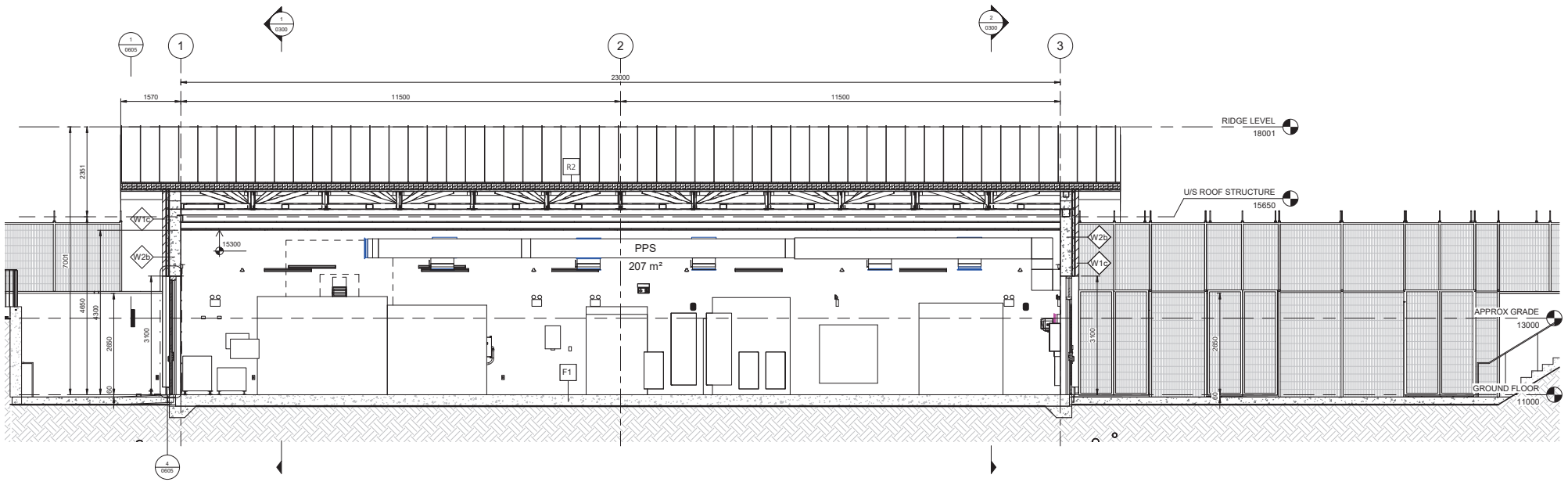
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
SECTIONS

DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0301- A

Attachment 3



1 / 0102 SECTION D
1 : 50

ANSI D 22" x 34"

Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt
Last Plotted: 2022-11-24 3:46:15 PM

ISSUE/REVISION			REFERENCES		
A	2022-11-23		60% SUBMISSION		
PA	2022-08-04		30% SUBMISSION		
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

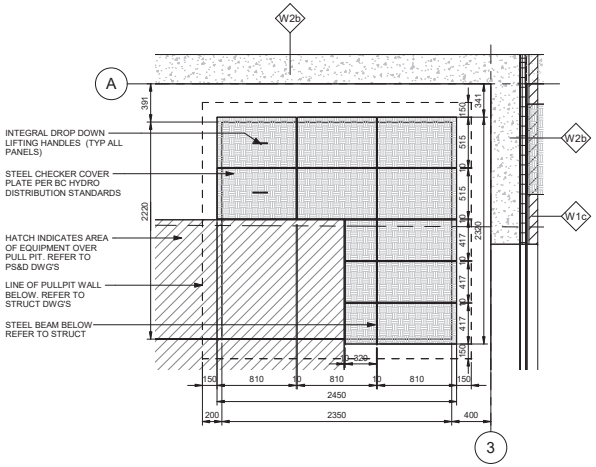
DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

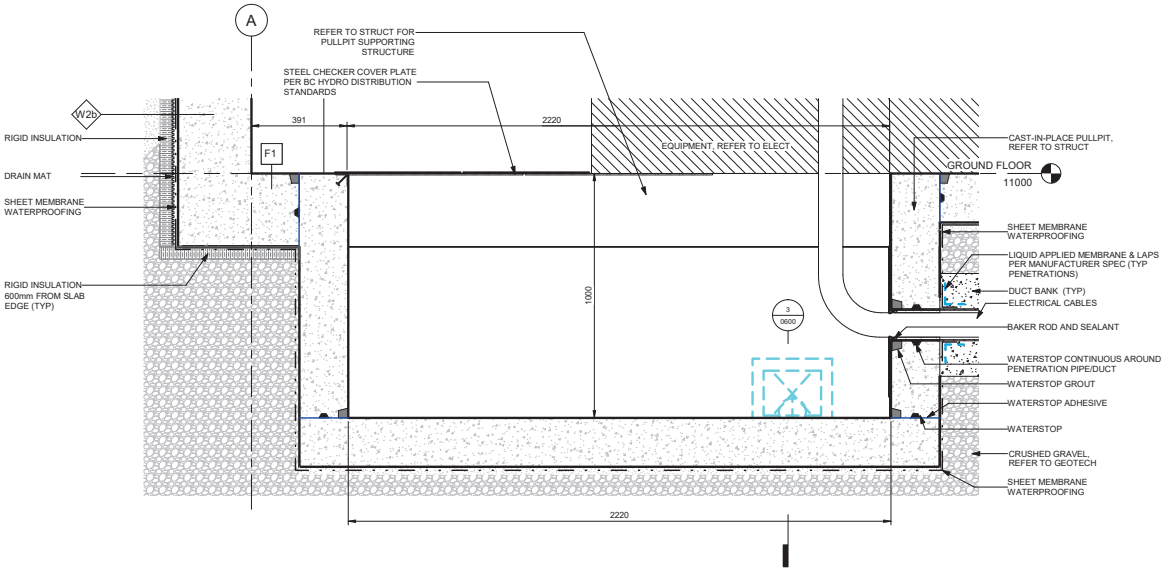
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
SECTIONS

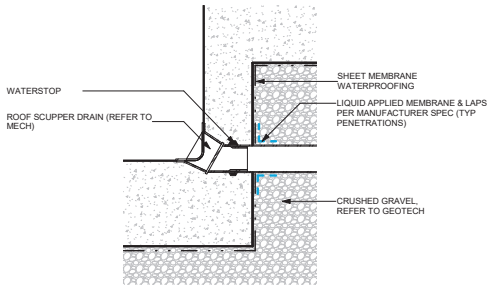
DRAWING NUMBER
193028-03 -1000- STMCZ- FR- AG- 0302- A



1 / 0102 BC HYDRO PULL PIT - ENLARGED
1 : 25



2 / 0300 BC HYDRO PULLPIT SECTION
1 : 10



3 / 0600 PULLPIT DRAIN SECTION
1 : 10

ISSUE/REVISION | **REFERENCES**

I/R	DATE	BY	DESCRIPTION	APPR
A	2022-11-23		60% SUBMISSION	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

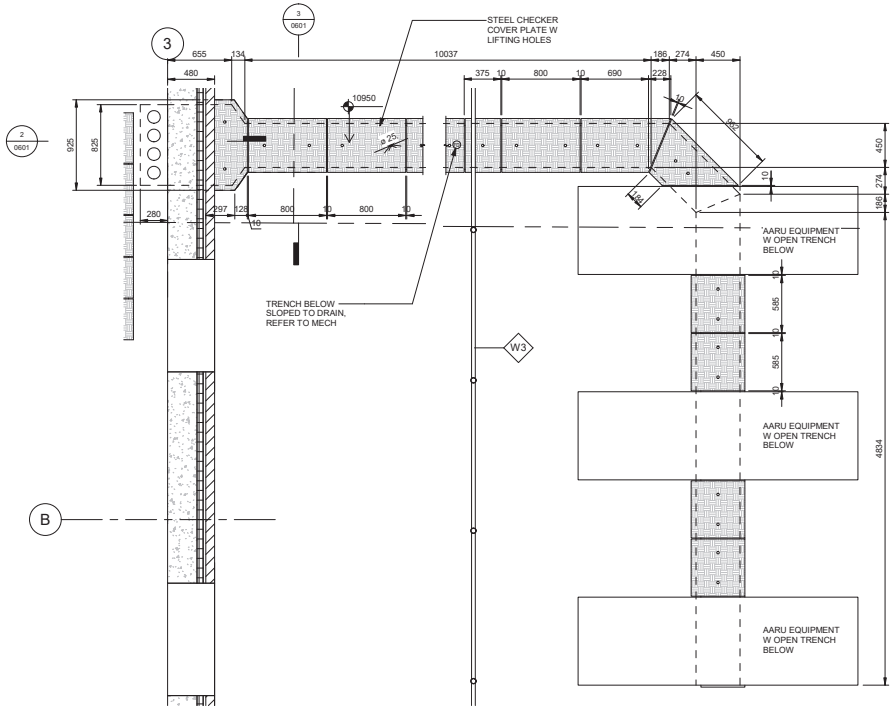
DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

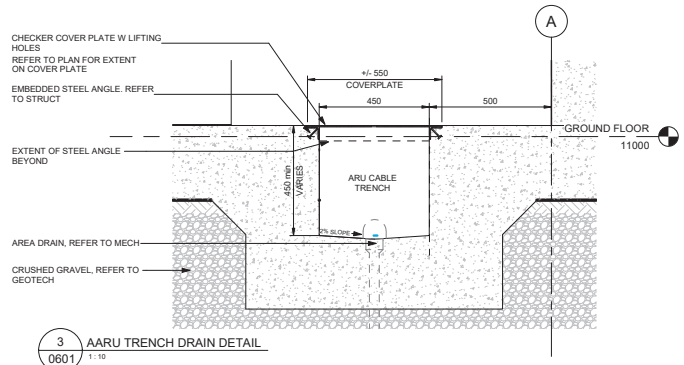
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
FOUNDATION DETAILS

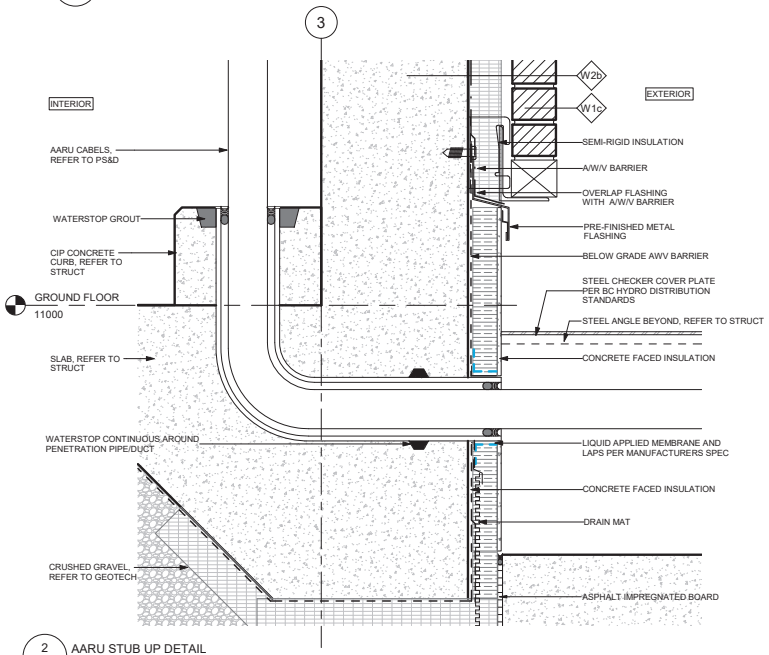
DRAWING NUMBER
193028 - 03 -1000- STMCZ- FR- AG- 0600- A



1 / 0102 AARU TRENCH - ENLARGED 1 : 25



3 / 0601 AARU TRENCH DRAIN DETAIL 1 : 10



2 / 0102 AARU STUB UP DETAIL 1 : 5

ANSI D 22" x 34"

Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt
Last Plotted: 2022-11-24 3:48:16 PM

ISSUE/REVISION

I/R	DATE	BY	DESCRIPTION	APPR
A	2022-11-23		60% SUBMISSION	

REFERENCES

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

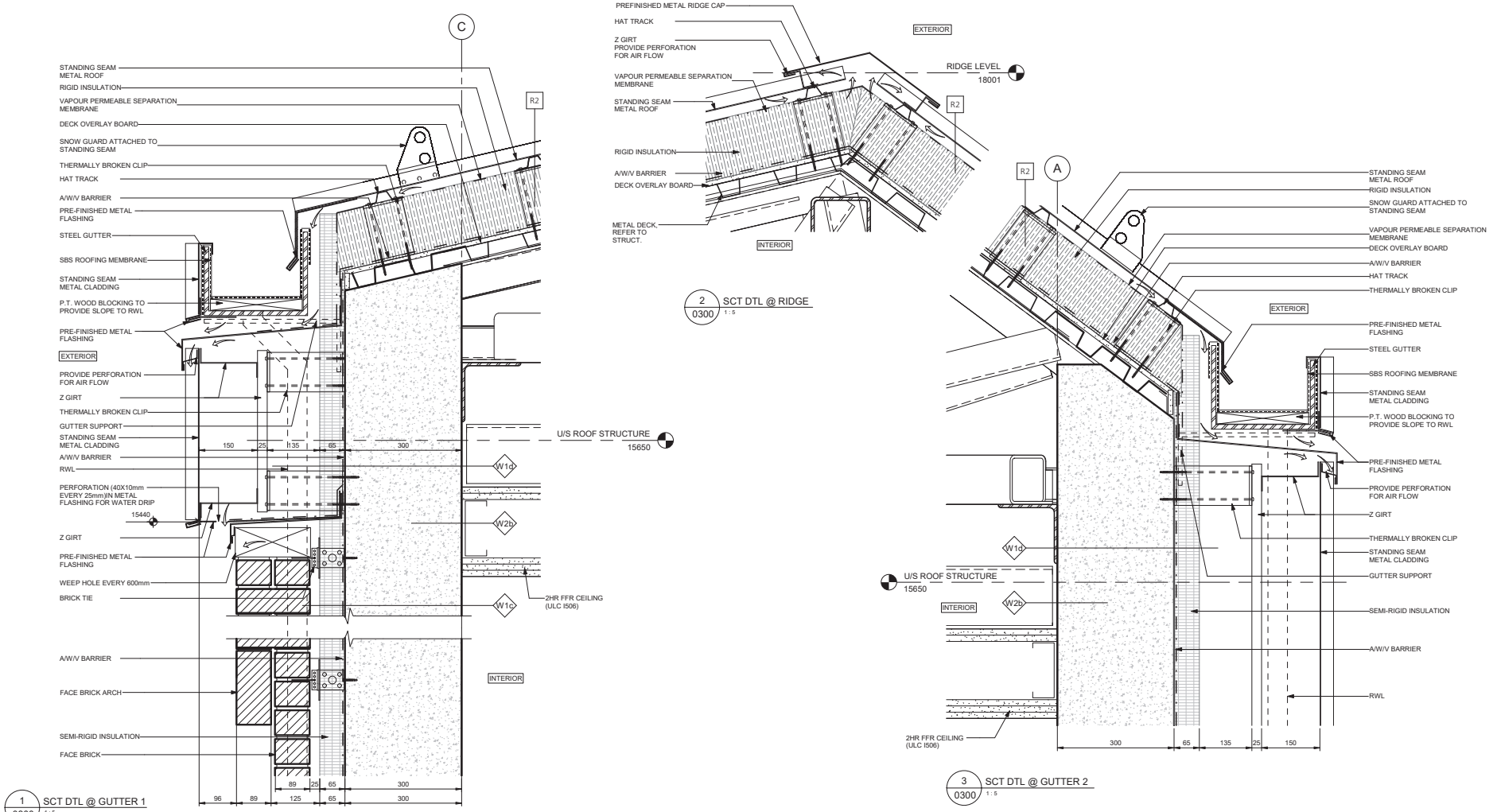
DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
FOUNDATION DETAILS

DRAWING NUMBER
193028 - 03 -1000- STMCZ- FR- AG- 0601- A



ANSI D 22" x 34"

Last Plotted: 2022-11-24 3:46:18 PM
Last saved by:
Filename: BIM 360/#675448 - EMUP PPS Upgrades/Site_PoMo.rvt

ISSUE/REVISION				REFERENCES		
A	2022-11-23		60% SUBMISSION			
I/R	DATE	BY	DESCRIPTION	APPR		

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES

PORT MOODY

DRAWING INFORMATION

DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

PROJECT NUMBER

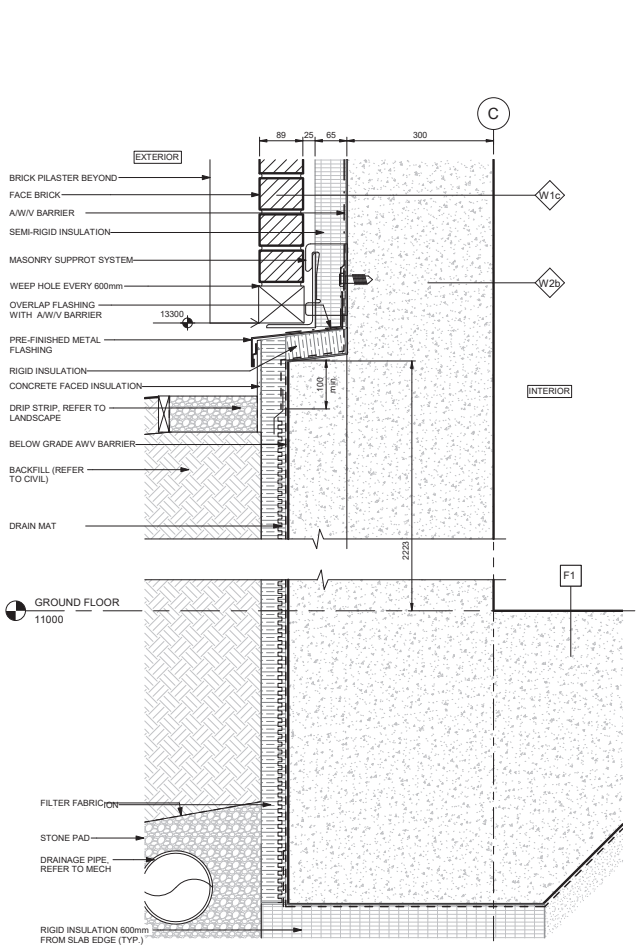
193028 (SNC #675448)

SHEET TITLE

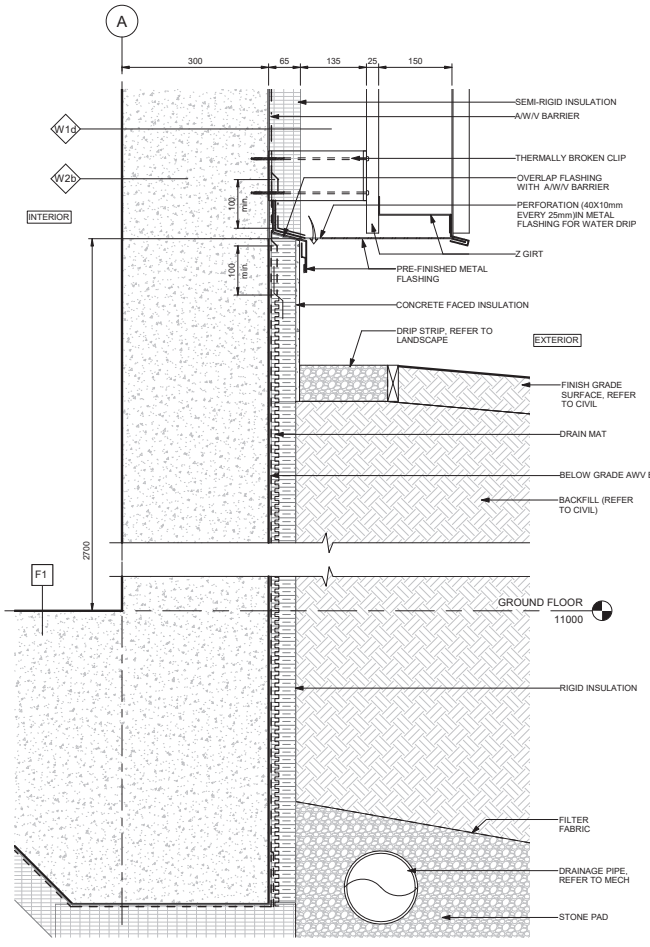
ROOF & WALL DETAILS

DRAWING NUMBER

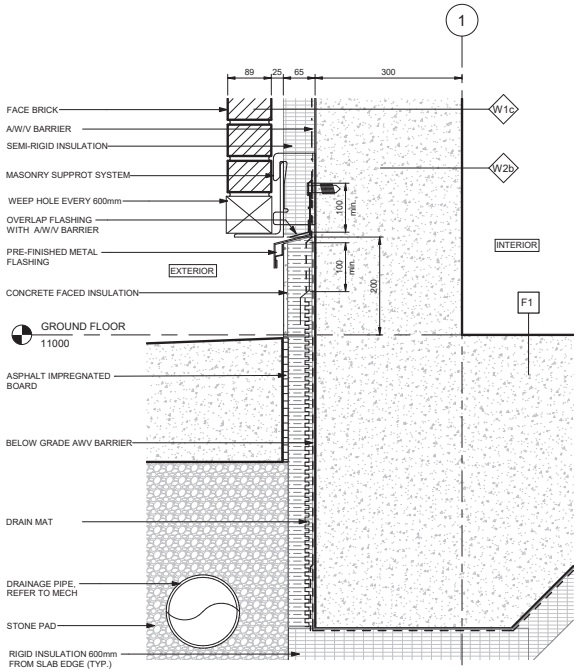
193028 - 03 -1000- STMCZ- FR- AG- 0602- A



1 / 0300 SCT DTL @ GRAT WITH BRICK CLADDING 1 : 5



2 / 0300 SECTION DETAIL @ GRADE WITH METAL CLADDING 1 : 5



3 / 0102 SCT DTL @ GRADE 1 : 5

ISSUE/REVISION | **REFERENCES**

I/R	DATE	BY	DESCRIPTION	APPR
A	2022-11-23		60% SUBMISSION	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

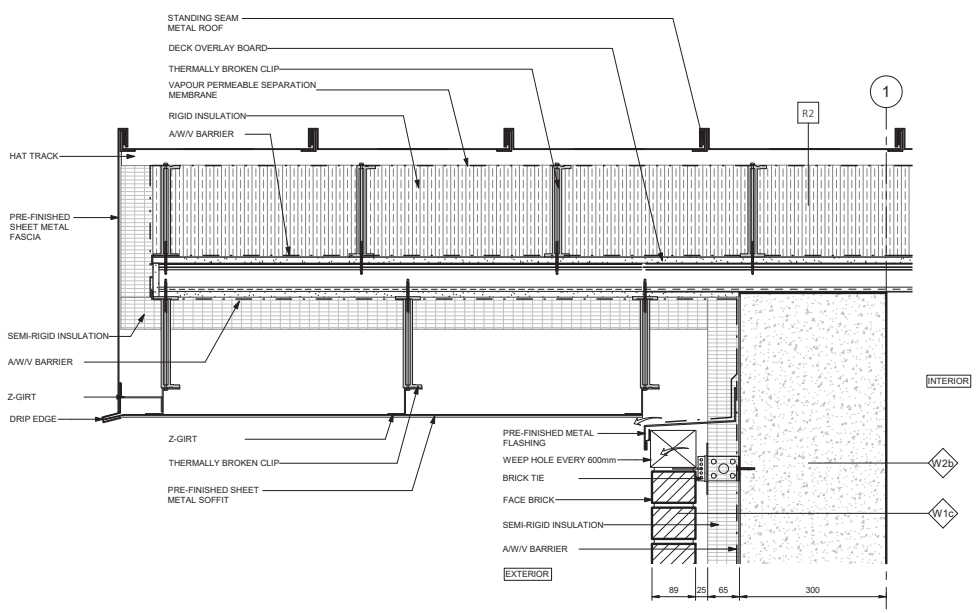
DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

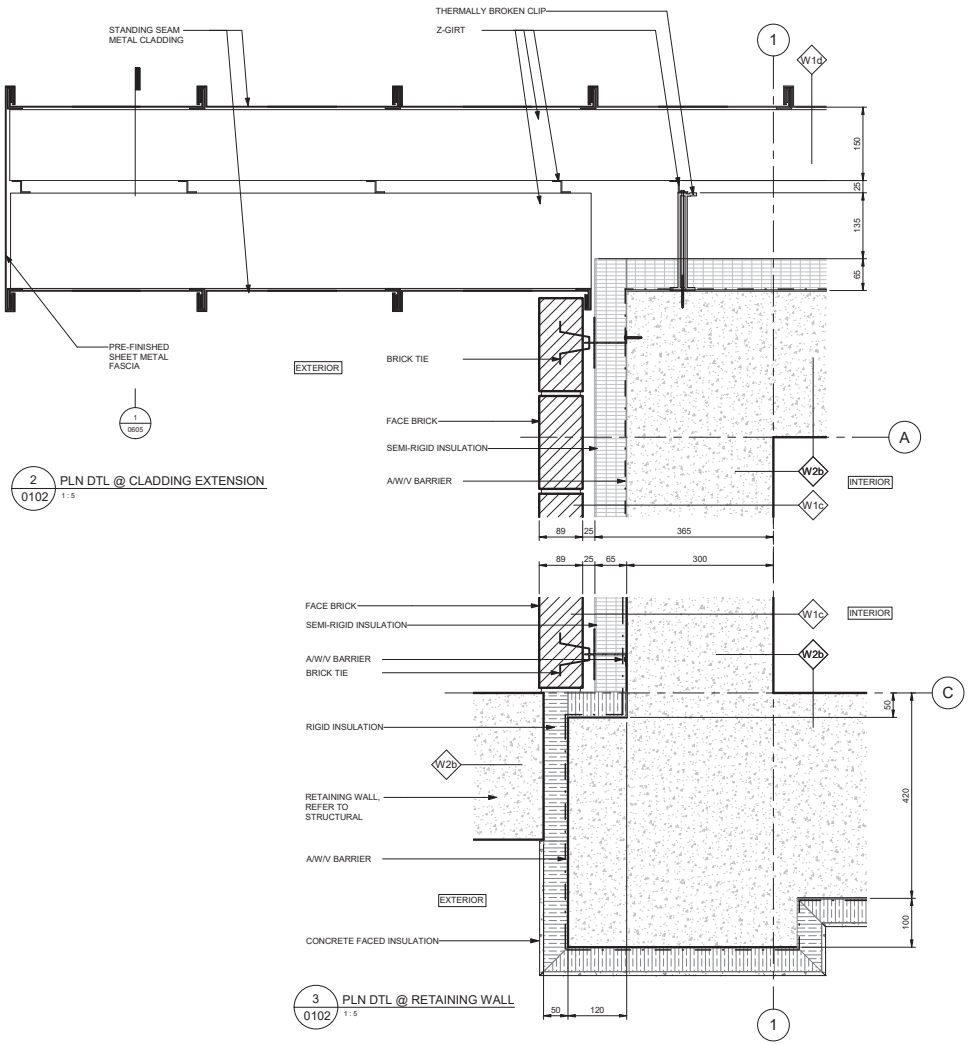
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
WALL & FOUNDATION DETAILS

DRAWING NUMBER
193028 - 03 -1000- STMCZ- FR- AG- 0603- A



1 / 0301 SCT DTL @ ROOF OVERHANG 1 : 5



2 / 0102 PLN DTL @ CLADDING EXTENSION 1 : 5

3 / 0102 PLN DTL @ RETAINING WALL 1 : 5

ANSI D 22" x 34"

Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt
Last Plotted: 2022-11-24 3:46:19 PM

ISSUE/REVISION

I/R	DATE	BY	DESCRIPTION	APPR
A	2022-11-23		60% SUBMISSION	

REFERENCES

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

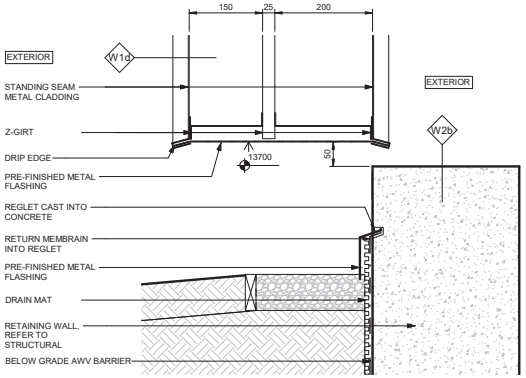
DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

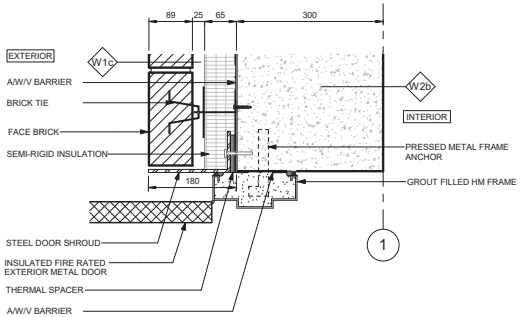
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
WALL DETAILS

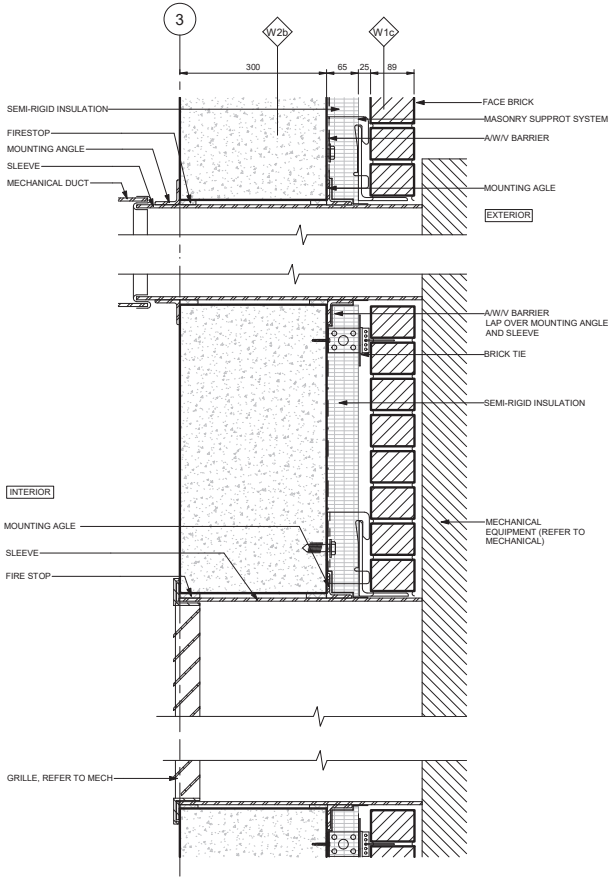
DRAWING NUMBER
193028 - 03 -1000- STMCZ- FR- AG- 0604- A



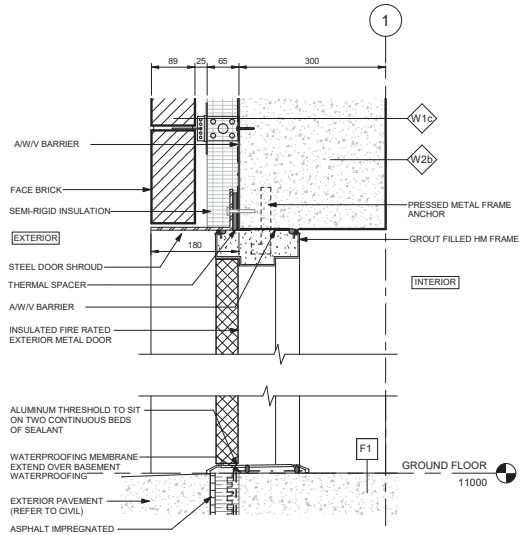
1 / 0102 SCT DTL @ RETAINIG WALL
1 : 5



2 / 0102 PLN DTL @ DOOR JAMB
1 : 5



3 / 0102 SCT DTL @ WALL PENETRATION BY MECH EQUIPMENT
1 : 5



4 / 0302 SCT DTL @ DOOR
1 : 5

ANSI D 22" x 34"

Last Plotted: 2022-11-24 3:48:19 PM
Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/Site_PoMo.rvt

ISSUE/REVISION | **REFERENCES**

I/R	DATE	BY	DESCRIPTION	APPR
A	2022-11-23		60% SUBMISSION	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

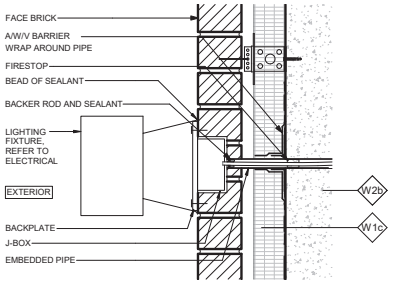
DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

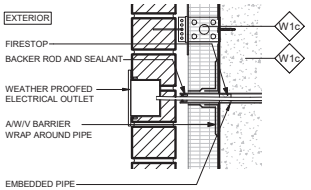
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
WALL DETAILS

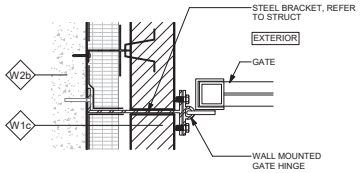
DRAWING NUMBER
193028 - 03 -1000- STMCZ- FR- AG- 0605- A



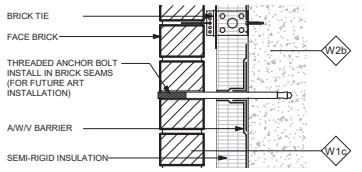
1 / 0200 SCT DTL @ EXT LIGHT FIXTURE 1 : 5



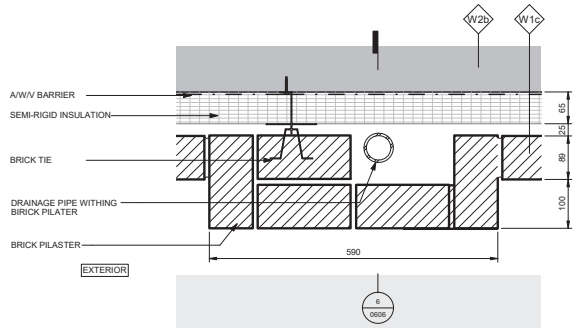
2 / 0200 SCT DTL @ ELECTRICAL OUTLET 1 : 5



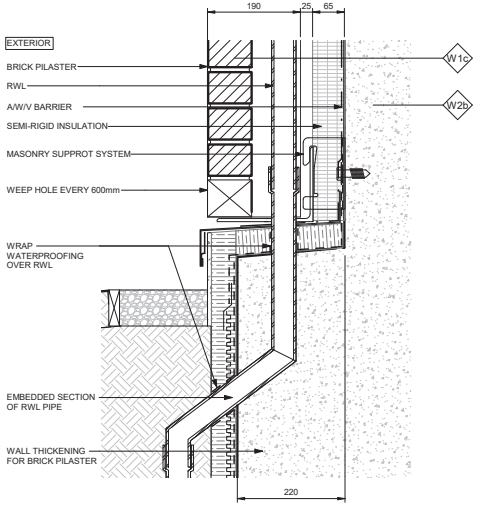
3 / 0102 PLN DTL @ WALL MOUNTED GATE HINGE 1 : 5



5 / 0102 SCT DTL @ ANCOR FOR FUTURE ART INSTALATION 1 : 5



4 / 0102 PLN DTL @ RWL 1 : 5



6 / 0102 SCT DTL @ RWL 1 : 5

ISSUE/REVISION

I/R	DATE	BY	DESCRIPTION	APPR
A	2022-11-23		60% SUBMISSION	

REFERENCES

TRANS LINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	Author
DESIGNED BY	Designer
CHECKED BY	Checker
APPROVED BY	Approver

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

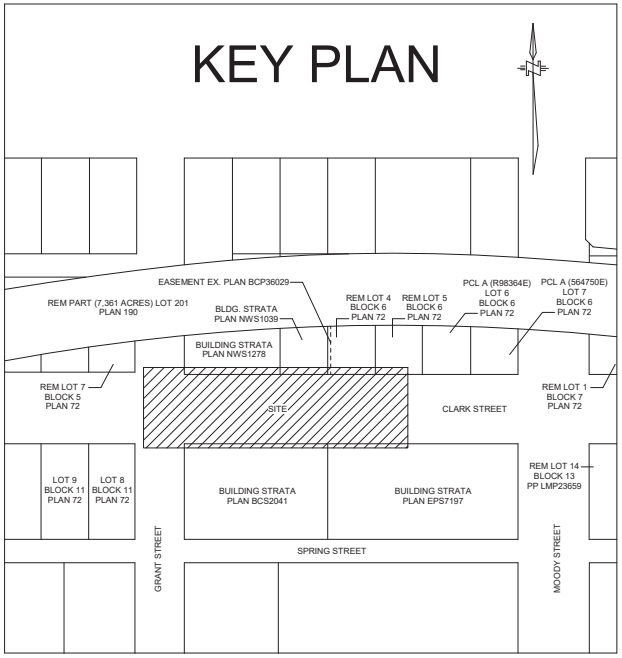
SHEET TITLE
MISC DETAILS

DRAWING NUMBER
193028 - 03 -1000- STMCZ- FR- AG- 0606- A

ANSI D 22" x 34"

Expo and Millennium Upgrade Project (EMUP)
Propulsion Power Upgrades

STRUCTURAL
PORT MOODY



60% SUBMISSION
2022-11-23

Certified ISO 9001

SNC·LAVALIN

TRANSLINK

PROVINCE CONTRACT No.	SUB-CONSULTANT No.
193028	SNC #675448
DRAWING No.	
193028-03 -1000- STMCZ- SL- SG- 0000- A	A

Last Plotted: 2022-11-23 8:16:26 PM
Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/675448-S-PoMo.rvt

STRUCTURAL NOTES

1. THE METRIC SYSTEM OF MEASUREMENT IS USED ON ALL DRAWINGS. ELEVATIONS AND STATIONS ARE SHOWN IN METRES AND ALL OTHER DIMENSIONS ARE SHOWN IN MILLIMETRES UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL VERIFY DIMENSIONS BEFORE CONSTRUCTION AND REPORT DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. DO NOT SCALE DRAWINGS.
2. READ THE STRUCTURAL DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS.
3. REFER TO THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR DIMENSIONS OF OPENINGS, SLEEVES AND OTHER COMPONENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS. CONTRACTOR TO CONFIRM EQUIPMENT DIMENSIONS AND ALL OTHER CRITICAL DETAILS PRIOR TO CONSTRUCTION. REPORT DISCREPANCIES AND OBTAIN APPROVAL PRIOR TO PROCEEDING WITH CONSTRUCTION.
4. NOTIFY THE STRUCTURAL DESIGNER 24 HOURS IN ADVANCE FOR INSPECTIONS WHERE REQUIRED.
5. VERIFY SIZE AND LOCATION OF ALL INSERTS, DRAINS, OPENINGS, RECESSES ETC..
6. DRAWINGS SHOW COMPLETED STRUCTURES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF FORMWORK, SHORING AND OTHER TEMPORARY STRUCTURES DURING CONSTRUCTION. ALL SUCH STRUCTURES SHALL HAVE SUFFICIENT CAPACITY TO RESIST CONSTRUCTION LOADINGS.
7. CONSTRUCTION METHODS REQUIRING TEMPORARY SHORING OR BRACING SHALL BE SUBMITTED TO THE DESIGNER FOR REVIEW. THE CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF BRITISH COLUMBIA TO DESIGN AND TAKE RESPONSIBILITY FOR TEMPORARY SHORING AND BRACING AS REQUIRED TO COMPLETE THE CONSTRUCTION.
8. CONSTRUCTION OF THE WORKS SHALL COMPLY WITH THE FOLLOWING IN ORDER OF PRECEDENCE:
   a. DRAWINGS AND DRAWING NOTES
   b. GENERAL NOTES
   c. PROJECT CONSTRUCTION SPECIFICATIONS
9. DIMENSIONS GIVEN ON THE PLANS ARE MEASURED AT A REFERENCE TEMPERATURE OF 15°C UNO
10. ALL PLAN DIMENSIONS ARE MEASURED HORIZONTALLY UNO.

DESIGN DATA

1. DESIGN CODES:
   BRITISH COLUMBIA BUILDING CODE 2018 (BCBC)
   CAN/CSA S304.1-19 DESIGN OF MASONRY STRUCTURES
   CAN/CSA A23.3-19 DESIGN OF CONCRETE STRUCTURES
   CAN/CSA S16-19 DESIGN OF STEEL STRUCTURES
   TRANSLINK BUILDING CODE CRITERIA (TLBCC)
2. DESIGN LOADS:
   FLOOR LIVE LOAD - 12 kPa
   CEILING ATTACHMENT LOAD - 2.65 kPa
   ROOF LIVE LOAD - 1 kPa
   ROOF SNOW (1/50) S_s - 3.0 kPa; S_r - 0.30 kPa; I_s - 1.25 (ULS) AND 0.75 (SLS)
   WIND (1/50) q - 0.48 kPa; I_w - 1.25 (ULS) AND 0.75 (SLS)
   SEISMIC Sa(0.2) - 0.753; Sa(0.5) - 0.661; Sa(1.0) - 0.378; Sa(2.0) - 0.233; Sa(5.0) - 0.075; Sa(10.0) - 0.027; PGA - 0.326; PGV - 0.490; I_E - 1.5
   SITE CLASS TBD
3. IMPORTANCE CATEGORY : POST DISASTER
4. GEOTECHNICAL CONSIDERATIONS:
   TBD PENDING GEOTECHNICAL REPORT

CONCRETE NOTES

1. CONCRETE SHALL CONFORM TO CSA STANDARD A23.1-19/A23.2-19
   ALL CAST-IN-PLACE CONCRETE SHALL HAVE PROPERTIES AS FOLLOWS:

ELEMENT	COMPRESSIVE STRENGTH 28 DAYS (MPa)	MAX. WCM RATIO	EXPOSURE CLASS	MAX. SIZE OF COARSE AGGREGATE	AIR CONTENT
FOUNDATION	30	0.5	F1	20	5-8%
EXTERIOR SLAB	35 (56 DAYS)	0.4	C1	20	5-8%
INTERIOR SLAB ON GRADE, GRADE BEAM, PILE CAP, SUSPENDED SLAB AND ROOF OVERLAY	30	-	N	20	NONE

2. CONCRETE COVER TO REINFORCEMENT FOR CAST-IN-PLACE CONCRETE AS FOR EXPOSURE CONDITION AND 2-HOUR FIRE RATING REQUIREMENT SHALL BE PROVIDED AS FOLLOWS, UNLESS NOTED OTHERWISE:
   a) CONCRETE CAST AGAINST FORMWORK AND SUBSEQUENTLY EXPOSED TO EARTH OR WEATHER = 60 mm
   b) INSIDE FACE OF SLABS AND EXTERIOR WALLS = 40 mm
   c) INTERIOR WALLS = 40 mm
   d) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH = 75 mm
3. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 20 mm UNLESS NOTED OTHERWISE.
4. PRIOR TO POURING CONCRETE THE CONTRACTOR SHALL CHECK ALL OPENINGS, ANCHOR BOLTS, INSERTS AND EMBEDDED ITEMS REQUIRED FOR MECHANICAL, ELECTRICAL OR UTILITY SUPPORT PURPOSES AS SHOWN ON THE DRAWINGS, ANY DISCREPANCIES NOT REPORTED TO THE ENGINEER FOR CLARIFICATION SHALL BECOME RESPONSIBILITY OF THE CONTRACTOR.
5. GROUT SHALL BE OF NON-SHRINK, NON-METALLIC TYPE, MINIMUM 3 DAYS COMPRESSIVE STRENGTH SHALL BE = 40 MPa UNLESS NOTED OTHERWISE.
6. CONCRETE FINISHES:
   BASE SLAB TOP - TROWELLED
   WALLS: EXTERIOR - CAST AGAINST A PLYWOOD OR STEEL FORMED SURFACE
   INTERIOR - CAST AGAINST A PLYWOOD OR STEEL FORMED SURFACE
   REFER TO CONSTRUCTION SPECIFICATION 03 35 00 FOR ADDITIONAL FINISHING REQUIREMENTS.
7. CONSTRUCTION TOLERANCES TO BE PROVIDED IN PROJECT CONSTRUCTION SPECIFICATIONS.

CONCRETE REINFORCEMENT NOTES

1. REINFORCEMENT STEEL SHALL BE IN ACCORDANCE WITH CAN/CSA-G30.18-M92 GRADE 400W.
2. ALL LAPS OF REINFORCING BARS FOR SPLICES SHALL BE AS FOLLOWS U.N.O:

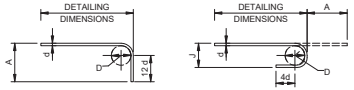
BAR SIZE	UNCOATED	UNCOATED TOP BARS*
10M	400	450
15M	500	650
20M	650	850
25M	1000	1300
30M	1200	1600

* HORIZONTAL REINFORCEMENT WITH MORE THAN 300 mm CONCRETE BELOW BARS

BAR SIZE	BAR DIA d (mm)	GRADE (MPa)	90° STD HOOKS	180° STD HOOKS	
			A (mm)	A (mm)	J (mm)
10M	11.3	400	180	140	90
15M	16.0	400	260	180	130
20M	19.5	400	310	220	160
25M	25.2	400	400	280	200
30M	29.9	400	510	400	300
35M	35.7	400	640	550	430

STANDARD PIN DIA (D) FOR 90° AND 180° HOOKS
GRADE 400 MPa.

D=6d for 10M to 25M
D=8d for 30M
D=10d for 35M to 55M



STANDARD 90° HOOK

STANDARD 180° HOOK

FOUNDATIONS

1. FOUNDATIONS ARE DESIGNED IN ACCORDANCE WITH GEOTECHNICAL DESIGN REPORT REFERENCED UNDER DESIGN DATA OF THE GENERAL NOTES.
2. BEARING SURFACES MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER IMMEDIATELY BEFORE FOOTING CONCRETE IS PLACED.
3. FOOTING ELEVATIONS AND SIZES ARE SUBJECT TO REVISION WHERE SITE CONDITIONS DIFFER FROM ANTICIPATED SOIL CONDITIONS.
4. FOOTINGS AND SLAB-ON-GRADE BEARING ON COMPACTED, GRANULAR STRUCTURAL FILL SHALL BE COMPACTED TO A MODIFIED PROCTOR AS OUTLINED IN THE GEOTECHNICAL ENGINEER'S REPORT OR RELEVANT CONSTRUCTION SPECIFICATIONS. MODIFIED PROCTOR VALUE TO BE VERIFIED BY COMPACTION TESTING AND RESULT TO BE SUBMITTED TO THE ENGINEER. A 150 mm THICK LAYER OF COMPACTED 19mm MINUS CRUSHED GRAVEL TO BE PLACED BELOW SLAB.
5. ALL FOOTING WALLS SHALL BE CENTERED BELOW CMU WALLS UNLESS DETAILED OTHERWISE. DOWELS TO MATCH VERTICAL BARS.
6. FOUNDATION WALLS SHALL BE BACKFILLED IN EVEN LIFTS PLACED ON BOTH SIDES OF THE WALL AFTER CONCRETE CURING PERIOD HAS BEEN COMPLETED.
7. COORDINATE WITH ARCHITECTURAL AND OTHER CONSULTANT'S DRAWINGS FOR GROUND ELEVATIONS, OPENINGS, DRAINAGE SLOPES, WATERPROOFING, ETC..

CONCRETE EMBEDMENTS

1. INSTALL CONDUITS AND DUCTS EMBEDDED IN CONCRETE IN ACCORDANCE WITH THE FOLLOWING GUIDELINES EXCEPT WITH THE APPROVAL OF THE STRUCTURAL ENGINEER.
   i. CONDUITS
      a. LOCATE BETWEEN REINFORCING STEEL LAYERS.
      b. MAXIMUM SIZE IN ONE LAYER TO BE 1/3 OF THE CONCRETE SLAB THICKNESS.
      c. MAXIMUM SIZE IN TWO LAYERS CROSSING TO BE 1/4 OF THE SLAB THICKNESS.
      d. CROSSING OF THREE LAYERS WILL NOT BE PERMITTED.
      e. CLEAR SPACE BETWEEN PARALLEL CONDUITS SHALL BE ONE DIAMETER OR 40 MINIMUM HORIZONTALLY AND VERTICALLY.
   ii. DUCTS
      a. LOCATE BETWEEN REINFORCING STEEL LAYERS.
      b. MAXIMUM SIZE TO BE 1/3 OF THE SLAB THICKNESS.
      c. CROSSING OF DUCTS WILL NOT BE PERMITTED.
      e. CLEAR SPACE BETWEEN DUCTS TO BE 300 mm.
   iii. PIPES
      a. PIPES SHALL BE EMBEDDED IN CONCRETE WALLS AS REQUIRED.
      b. REINFORCING BARS SHALL BE DISPLACED TO MISS THE PIPE AS MUCH AS POSSIBLE.
      c. ANY BARS CUT SHALL BE REPLACED WITH BARS OF THE SAME SIZE, ONE ON EACH SIDE OF THE PIPE, TWICE THE LENGTH OF LAP SPLICE.
      d. APPLY SWELL STOP WATER STOP AROUND PIPE AT CENTRE OF WALL THICKNESS.
2. COORDINATE WITH ARCHITECTURAL AND MECHANICAL DRAWING FOR OPENINGS, CURBS, SLEEVES, WATERPROOFING, ETC.

ABBREVIATIONS

A	-	90 DEGREE HOOK PARAMETER
APPROX	-	APPROXIMATELY
ARCH	-	ARCHITECTURAL
AVE	-	AVENUE
BH	-	BOREHOLE
BW	-	BOTH WAY
C/L	-	CENTRELINE
CIP	-	CAST IN PLACE
CLR	-	CLEAR
CMU	-	CONCRETE MASONRY UNIT
CSA	-	CANADIAN STANDARDS ASSOCIATION
D	-	DEPTH
DIA	-	DIAMETER
DWG	-	DRAWING
EL	-	ELEVATION
EW	-	EACH WAY
FF	-	FAR FACE
FS	-	FAR SIDE
HT	-	HEIGHT
HORIZ	-	HORIZONTAL
HWY	-	HIGHWAY
I/B	-	INBOUND
INV	-	INVERT
kN	-	KILONEWTON
kPa	-	KILOPASCAL
LHS	-	LEFT HAND SIDE
LONGIT	-	LONGITUDINAL
m	-	METRE
MECH	-	MECHANICAL
MIN	-	MINIMUM
mm	-	MILLIMETRE
MPa	-	MEGAPASCAL
NF	-	NEAR FACE
NS	-	NEAR SIDE
NTS	-	NOT TO SCALE
O/B	-	OUTBOUND
O/C	-	ON CENTRE
OG	-	ORIGINAL GROUND
RD	-	ROAD
REV	-	REVISION
RHS	-	RIGHT HAND SIDE
ROW	-	RIGHT OF WAY
STA	-	STATION
STD	-	STANDARD
T&B	-	TOP AND BOTTOM
TBD	-	TO BE DETERMINED
THK	-	THICK
TOC	-	TOP OF CONCRETE
TOW	-	TOP OF WALL
TYP	-	TYPICAL
U/S	-	UNDERSIDE
UNO	-	UNLESS NOTED OTHERWISE
VERT	-	VERTICAL
W	-	WIDTH
W/	-	WITH

DRAWING LIST

DRAWING NUMBER	SHEET TITLE	ISSUED DATE	REV
0000	COVER SHEET	2022-11-23	A
0001	GENERAL NOTES - SHEET 1	2022-11-23	A
0002	GENERAL NOTES - SHEET 2	2022-11-23	A
0010	FOOTING AND GROUND FLOOR PLAN	2022-11-23	A
0020	ROOF FRAMING PLAN	2022-11-23	A
0030	SECTIONS	2022-11-23	A
0040	TYPICAL REINFORCING CONCRETE DETAILS	2022-11-23	A
0050	REINFORCING CONCRETE DETAILS	2022-11-23	A
0060	ROOF TRUSS ELEVATIONS AND DETAILS - SHEET 1	2022-11-23	A
0070	ROOF TRUSS ELEVATIONS AND DETAILS - SHEET 2	2022-11-23	A

ISSUE/REVISION — **REFERENCES**

I/R	DATE	BY	DESCRIPTION	APPR	
A	2022-11-23	JV	60% SUBMISSION	WZ	
PA	2022-08-05	CF	30% SUBMISSION	KB	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francl architecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	A.CHEUNG
DESIGNED BY	C.FRANCIS
CHECKED BY	M.HAN
APPROVED BY	K.BRIGNALL

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
GENERAL NOTES - SHEET 1

DRAWING NUMBER
193028 - 03 -1000- STMCZ- SL- SG- 0001- A

ANSI D 22" x 34"

LOAD BEARING MASONRY

1. FOR ADDITIONAL REQUIREMENTS SEE UNIT MASONRY SPECIFICATION AND STRUCTURAL DRAWINGS.
2. MASONRY WORK SHALL CONFORM TO CSA S304 AND ITS REFERENCED DOCUMENTS, INCLUDNG:
   a. CONCRETE BLOCK TO CAN/CSA-A165.1, TYPE H/20/A, UNLESS NOTED OTHERWISE ON SCHEDULE (BASED ON NET AREA)
   b. MORTAR TO CAN/CSA-A179, TYPE 'S' FOR ALL WALLS
   c. GROUT TO CAN/CSA-A179 (20MPa)
   d. MASONRY WIRE REINFORCING TO CSA ASTM A185/A185 M-07
   e. REINFORCING BARS TO CAN/CSA-G30.18 - 400 MPa
   f. JOINT REINFORCING TO CSA G30.14 AND CSA G30.15
   g. CONNECTORS TO CAN/CSA-A370
   h. PRACTICE TO CAN/CSA-A371
3. STRUCTURAL DRAWINGS INDICATE ONLY LOAD-BEARING WALLS. DESIGN IS BASED ON ENGINEERING ANALYSIS ACCORDING TO CSA S304.
4. CONCRETE MASONRY UNITS SHALL CONFORM TO CSA A165 SERIES - 04. COMPRESSIVE STRENGTH FOR CMU SHALL BE 20 MPa AT 28 DAYS WITH f'm = 10 MPa. MASONRY CONTRACTOR SHALL PROVIDE TO THE ENGINEER WRITTEN CONFIRMATION OF UNIT STRENGTHS PRIOR TO INSTALLATION.
5. USE ONLY TYPE 'S' MORTAR TO CSA A179-14. NO CALCIUM CHLORIDE IN ANY FORM IS PERMITTED IN THE GROUT OR MORTAR MIXES. MINIMUM STRENGTH OF MORTAR CUBE AT 28 DAYS SHALL BE 20MPa.
6. MASONRY CONTRACTOR MUST DISCUSS ALL MASONRY CONSTRUCTION WITH THE ENGINEER PRIOR TO COMMENCING WORK.
7. FILL BLOCK CORES UNDER ALL CONCENTRATED LOADS WITH 20 MPa CONCRETE GROUT TO A DEPTH OF AT LEAST 400 mm MEASURED DOWN FROM THE BEARING.
8. PROVIDE GALVANIZED HEAVY DUTY LADDER TYPE OR GALVANIZED TRUSS TYPE MASONRY JOINT REINFORCING 3.8 mm DIA (9 Ga) IN HORIZONTAL JOINTS EVERY SECOND COURSE (400 mm) UNLESS NOTED OTHERWISE IN DRAWINGS.
9. PROVIDE LINTELS OVER ALL OPENINGS IN WALLS.
10. PROVIDE 2-15M CONTINUOUS IN TOP COURSE OF WALL, UNDER BEAM OR JOIST BEARING AND FILL CELLS SOLID WITH 20 MPa CONCRETE GROUT.
11. LAPS: WIRE REINFORCEMENT - 200 mm
    10M BARS - 450 mm
    15M BARS - 650 mm
    20M BARS - 850 mm
12. UNLESS NOTED OTHERWISE, PROVIDE 2-15M VERTICAL BARS FULL HEIGHT AT:
    a. ENDS OF WALLS.
    b. EACH CORNER AND AT INTERSECTIONS.
    c. EACH SIDE OF DOORS AND OTHER OPENINGS.
13. ALL VERTICAL REINFORCING SHALL BE CONTINUED TO WITHIN 50 mm OF TOP OF THE WALL.
14. PROVIDE HOOKED DOWELS FROM BOTTOM OF CONCRETE BASE TO MATCH VERTICAL MASONRY WALL REINFORCING. THE CONTRACTOR AND MASONRY CONTRACTOR SHALL ENSURE DOWELS ARE CENTERED ACCURATELY WITH CELLS OVER.
15. ALL BARS MUST BE CONTINUOUS, PROPERLY LAPPED AT SPLICES. AT CORNERS AND INTERSECTIONS, HORIZONTAL REINFORCEMENT SHALL BE BENT AND LAPPED.
16. PROVIDE CLEANOUTS FOR ALL CELLS TO BE REINFORCED, REPEAT CLEANOUTS ABOVE BOND BEAMS.
17. FILL ALL CELLS WITH 20 MPa CONCRETE (10 mm AGGREGATE, 180 mm SLUMP) VIBRATE OR PUDDLE TO FILL CELLS COMPLETELY.
18. FILL CELLS IN 1200 mm LIFTS.
19. CONTROL JOINTS SHALL BE INSTALLED AT MAXIMUM SPACING OF 6000 mm UNLESS OTHERWISE SHOWN ON DRAWINGS.
20. CONTROL JOINTS AND EXPANSION JOINTS SHALL BE CONTINUED THROUGH BOND BEAMS UNLESS OTHERWISE SHOWN.
21. OUTSIDE FACE OF CONCRETE MASONRY UNIT WALLS SHALL BE WATERPROOFED AS PER SPECIFICATIONS AND ARCHITECTURAL DRAWINGS.
22. NO MASONRY WORK SHALL BE PERMITED WITH TEMPERATURE BELOW 5° CELSIUS, UNLESS COLD TEMPERATURE CONSTRUCTION PRACTICE IS IMPLEMENTED.
23. PROVIDE 1200 mm STARTER DOWELS TO MATCH ALL VERTICAL REINFORCING, UNLESS NOTED OTHERWISE.
24. LOAD BEARING MASONRY IS SHOWN AS ON PLAN.
25. DO NOT USE EXPANSION ANCHORS IN MASONRY WALL.
26. INTERLOCK COURSES SHALL BE PROVIDED AT ALL WALL CORNERS AND INTERSECTIONS WITH RUNNING BOND, UNLESS NOTED OTHERWISE ON DRAWINGS.

STRUCTURAL & MISCELLANEOUS STEEL NOTES

1. STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION SHALL COMPLY WITH THE LATEST EDITIONS OF GOVERNING CODES, SPECIFICATIONS AND STANDARDS INCLUDING:
   - BC BUILDING CODE (BCBC)
   - CISC CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL
   - CAN/CSA S16-14 LIMIT STATES DESIGN OF STEEL STRUCTURES
2. STRUCTURAL STEEL MATERIALS:
   - NEW, FREE FROM DEFECTS IMPAIRING STRENGTH OR DURABILITY.
     a. STRUCTURAL STEEL SHAPES SHALL CONFORM TO CAN/CSA-G40.20-13/G40.21-13. ALL MATERIALS SHALL BE 350W GRADE UNLESS SHOWN AS 350WT OR OTHERWISE IN DESIGN DRAWINGS. HOLLOW SECTIONS SHALL BE 350W GRADE, CLASS 'C' MATERIAL. PLATES, CHANNELS, ANGLES AND BARS SHALL BE 300W GRADE.
     b. HIGH STRENGTH BOLTS, ASTM A325, TYPE 1.
     c. ANCHOR RODS SHALL BE ASTM A307 FOR GENERAL APPLICATION AND ASTM F1554 GRADE 105 FOR HIGH STRENGTH APPLICATION OR AS OTHERWISE INDICATED ON THE DRAWING.
     d. WELDING RODS CSA-W59-18, E49xx LOW HYDROGEN TYPE.
3. THE DESIGN, DETAILING, AND FABRICATION OF MEMBER CONNECTIONS SHALL BE IN ACCORDANCE WITH CURRENT PRACTICES TO CONTROL BRITTLE FRACTURE OF MEMBERS OR ASSEMBLIES.
4. DESIGN ALL BOLTED STRUCTURAL CONNECTIONS AS BEARING TYPE IN ACCORDANCE WITH CISC STANDARDS USING A MINIMUM OF TWO M20 BOLTS. SMALLER SIZE BOLTS MAY BE USED IN MINOR MEMBER CONNECTIONS AS APPROVED ON SHOP DRAWINGS.
5. DESIGN BEAM CONNECTIONS IN ACCORDANCE WITH CISC HANDBOOK LIMIT STATE DESIGN, LATEST EDITION. USING THE GREATER OF FOLLOWING BEAM SHEAR PLUS AXIAL LOADS IF SHOWN:
   a. BEAM REACTIONS IF SHOWN ON THE DRAWINGS
   b. HALF THE SHEAR CAPACITY OF THE MEMBER CONNECTED
   c. SPLICE CONNECTIONS SHALL DEVELOP THE FULL DESIGN STRENGTH OF THE MEMBER UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
6. USE STANDARD BOLT HOLES IN ACCORDANCE WITH CISC STANDARDS.
7. CONTACT SURFACES OF CONNECTIONS WHEN ASSEMBLED IN FIELD SHALL BE FREE FROM OIL, LOOSE SCALE, AND ANY FOREIGN MATERIAL THAT WOULD PREVENT THE SOLID SEATING OF THE PARTS.
8. TEST A MINIMUM OF 10% OF ALL BOLTS, BUT NOT LESS THAN ONE BOLT PER MEMBER PER CONNECTION WITH A HAND TORQUE WRENCH TO CHECK THE PROPER EXECUTION OF BOLTING.
9. WELD IN ACCORDANCE WITH THE LATEST EDITION OF CSA W59 WELDED STEEL CONSTRUCTION.
10. ALL WELDING OPERATORS SHALL BE CERTIFIED IN ACCORDANCE WITH CSA W47.1 (DIVISION 1 OR 2.1) QUALIFICATION REQUIREMENTS.
11. PROVIDE ALL GROUT, AS PER SPECIFICATION, BETWEEN TOP OF CONCRETE AND UNDERSIDE OF BASE PLATE. GROUT DIMENSION WHERE IS SHOWN IS NOMINAL.
12. COATING:
    a. PAINTING
       ALL STEEL TO BE PAINTED UNLESS NOTED OTHERWISE ON THE DRAWINGS TO SPECIFICATION. PROVIDE TOUCH-UP PAINT TO DAMAGED SURFACES INCLUDING FIELD WELDING AREA.
    b. HOT DIP GALVANIZING
       WHERE NOTED ON DRAWING STEEL SHALL BE HOT DIP GALVANIZED TO CSA G164. REPAIR ALL DAMAGE ON GALVANIZING SURFACES WITH TWO COATS OF ZINGA-ZINC RICH PAINT, INCLUDING FIELD WELDING AREA.
13. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS TO SHOW ALL DETAILS AND MATERIAL SPECIFICATION AND TO BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF BRITISH COLUMBIA FOR CONNECTION DESIGN. THE ENGINEER SEALING SHOP DRAWINGS SHALL BE RESPONSIBLE FOR ALL FIELD REVIEW OF THEIR WORK AND SHALL PROVIDE A SEALED LETTER (SCHEDULE - S) CONFIRMING THAT WORK HAS BEEN COMPLETED IN ACCORDANCE WITH FINAL REVIEWED SHOP DRAWINGS AND ALL CODE REQUIREMENTS.
14. SHOP AND FIELD INSPECTION AND TESTING OF STEEL FABRICATION, ERECTION AND INSTALLATION TO BE COMPLETED BY AN INDEPENDENT TESTING AND INSPECTION AGENCY RETAINED BY THE OWNER. TESTING AGENCY SHALL BE CERTIFIED TO CSA-W178.

STEEL DECK

1. DESIGN, FABRICATE AND INSTALL STEEL DECK TO CSA S136 AND CANADIAN SHEET STEEL BUILDING INSTITUTE STANDARDS CSSBI 10M.
2. STEEL DECK, UNLESS NOTED OTHERWISE ON DRAWINGS, SHALL BE PREFORMED 38mm DEEP MINIMUM 22GA THICKNESS CONFORMING TO ASTM A653/ASTM A653M. STEEL DECK SHALL BE ZINC-COATED CONFORMING TO ASTM A653/A653M, ZF75 FOR INTERIOR EXPOSURE, Z275 FOR EXTERIOR EXPOSURE AND UNHEATED AREAS. DECK FLUTES SPACED AT 152mm MAXIMUM ON CENTER.
3. PROVIDE ROOF DECK TYPE P3606 COMPOSITE BY CANAM OR APPROVED EQUIVALENT.
4. FASTEN DECK TO SUPPORTING MEMBER AS FOLLOW UNLESS NOTED OTHERWISE ON ROOF PLAN DRAWING.
   a. STRUCTURAL STEEL: HILTI X-ENP-19, @ 300mm c/c MINIMUM
5. FASTEN DECK SIDE LAPS WITH #10 SCREW @ 300mm c/c MINIMUM, UNLESS NOTED OTHERWISE ON ROOF PLAN DRAWING.
6. DECKING INSTALLERS MUST PROVIDE A VALID TRAINED OPERATOR - HILTI DECK FASTENING SYSTEM CARD. A DIRECT REPRESENTATIVE OF HILTI TO BE ON-SITE DURING INITIAL INSTALLATION TO PROVIDE TRAINING TO INSTALLERS IN PROPER SELECTION AND INSTALLATION PROCEDURES.
7. PLACE DECK SHEET IN A MINIMUM 3 SPAN LENGTH EXCEPT WHERE OTHERWISE APPROVED.
8. UNLESS NOTED OTHERWISE, REINFORCE ALL ROOF DECK OPENINGS GREATER THAN 150mm AND LESS THAN 400 mm WITH L38X38X6.4 EXTENDED AND FASTENED TO MINIMUM TWO FLUTES ON EACH SIDE OF OPENING. FRAME OPENINGS EQUAL TO 400mm OR LARGER WITH MINIMUM L76X76X6.4 EXTENDED TO MAIN STRUCTURAL MEMBERS OR AS SHOWN ON THE DRAWINGS.
9. SUBMIT DECK SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS SHALL SHOW ALL DETAILS AND MATERIAL SPECIFICATIONS.

FIELD REVIEWS

1. THE CONTRACTOR'S SUPERINTENDENT IS TO PRE-INSPECT THE WORK TO CONFIRM WORK IS COMPLETED AS PER DOCUMENTS AND PROVIDE THE ENGINEER'S REPRESENTATIVE WITH A MINIMUM OF 72 HOURS NOTICE IN ACCORDANCE WITH BCBC 2018 AND MUNICIPAL BYLAWS FOR ROUTINE INSPECTIONS OF:
   a. GENERAL SITE CONDITIONS PRIOR TO FORMING.
   b. REINFORCING STEEL AND POUR CONDITIONS PRIOR TO EACH CONCRETE POUR.
   c. STRUCTURAL STEEL FRAMING PRIOR TO BEING COVERED.
   d. UPON PROJECT COMPLETION.
2. THE GEOTECHNICAL ENGINEER SHALL REVIEW FINAL PLANS AND INSPECT THE SITE PREPARATION WORK TO CONFIRM THAT THE SOIL CONDITIONS ARE CONSISTENT WITH DESIGN ASSUMPTIONS AND DESIGN RECOMMENDATIONS. INSPECTION TO INCLUDE THE FOLLOWING:
   a. BASE MATERIALS FOR CONFIRMATION OF ASSUMED SOIL BEARING.
   b. TESTING FOR COMPACTION OF ANY STRUCTURAL FILL REQUIRED UNDER FOOTINGS AND GRADE SLAB.
   c. BACKFILL AROUND / UNDER GROUND SERVICES.
3. THE GEOTECHNICAL ENGINEER TO BE NOTIFIED MINIMUM 2-WEEKS PRIOR TO ANY FOOTING POURS FOR INSPECTION AS NOTED ABOVE.
4. REINSPECTION REQUIRED BY THE ENGINEER DUE TO INCOMPLETE WORK AND / OR DEFICIENCIES FROM PREVIOUS INSPECTIONS, SHALL BE AT THE EXPENSE OF THE CONTRACTOR.
5. ALL WORK SHALL BE MADE ACCESSIBLE FOR INSPECTION. FAILURE TO GIVE REQUIRED NOTIFICATION AND ACCESSIBILITY MAY RESULT IN THE ENGINEER REQUESTING THE REMOVAL AND REPLACEMENT OF THE WORK AT THE CONTRACTOR'S EXPENSE.
6. REVIEW OF THE WORK, OR ANY PORTION THEREOF, BY THE ENGINEER SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY AND OBLIGATION TO COMPLY WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS.

Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades\675448-S-PoMo.rvt
Last Plotted: 2022-11-23 6:58:04 PM

ISSUE/REVISION **REFERENCES**

A	2022-11-23	JV	60% SUBMISSION	WZ	
PA	2022-08-05	CF	30% SUBMISSION	KB	
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francl architecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	A.CHEUNG
DESIGNED BY	C.FRANCIS
CHECKED BY	M.HAN
APPROVED BY	K.BRIGNALL

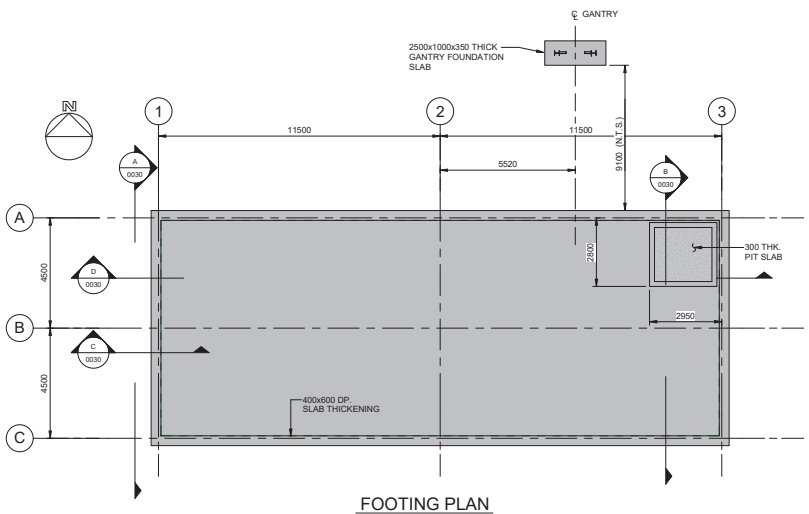
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
GENERAL NOTES - SHEET 2

DRAWING NUMBER
193028 - 03 -1000- STMCZ- SL- SG- 0002- A

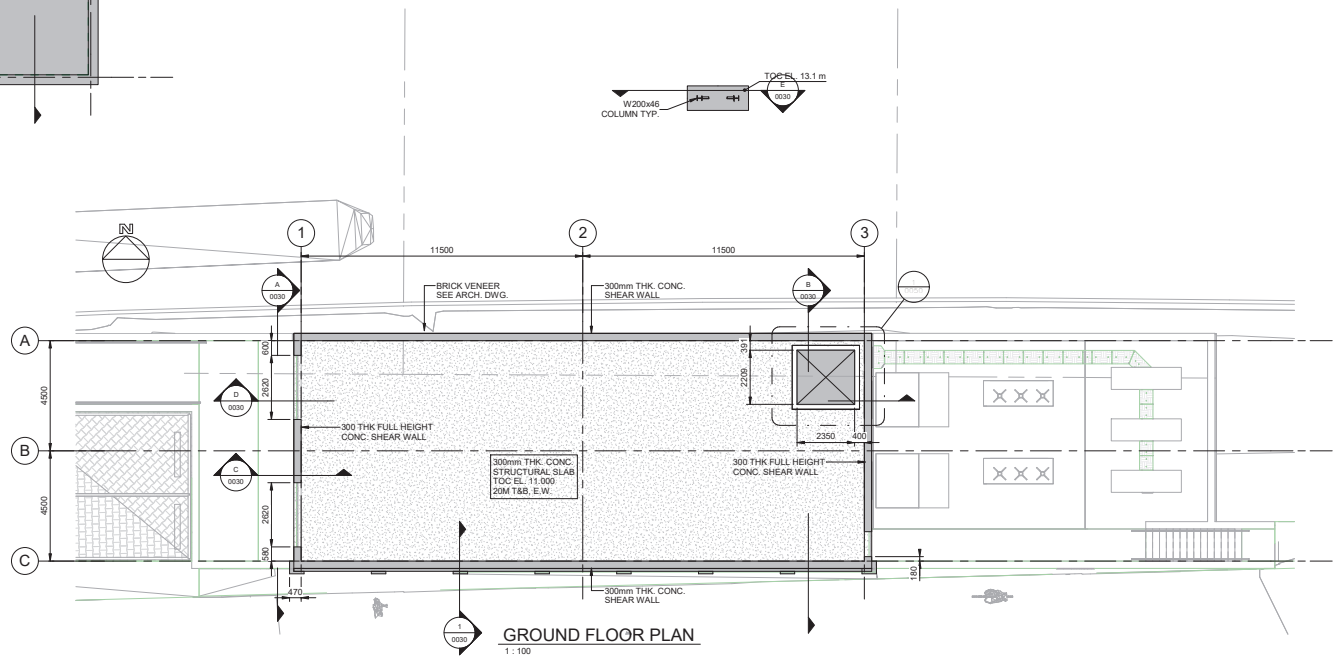
Attachment 3



FOOTING PLAN
1 : 100

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. FOR SETTING OUT DETAILS, REFER TO CIVIL AND ARCHITECT DRAWINGS.
3. FOR CABLE DUCT DETAILS, REFER TO SYSTEM DRAWINGS.
4. FOR CONDUIT LOCATION REFER TO E&M DRAWINGS.
5. REFER TO ARCHITECT DRAWINGS FOR EXTENT OF 15 mm +/- 3 DEEP EPOXY FLOOR TO BE SET IN CONCRETE SLAB.



GROUND FLOOR PLAN
1 : 100

Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades\675448-S-PoMo.rvt
Last Plotted: 2022-11-23 7:24:15 PM

ANSI D 22" x 34"

ISSUE/REVISION				REFERENCES		
A	2022-11-23	JV	60% SUBMISSION		WZ	
PA	2022-08-05	CF	30% SUBMISSION		KB	
I/R	DATE	BY	DESCRIPTION		APPR	

TRANS LINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

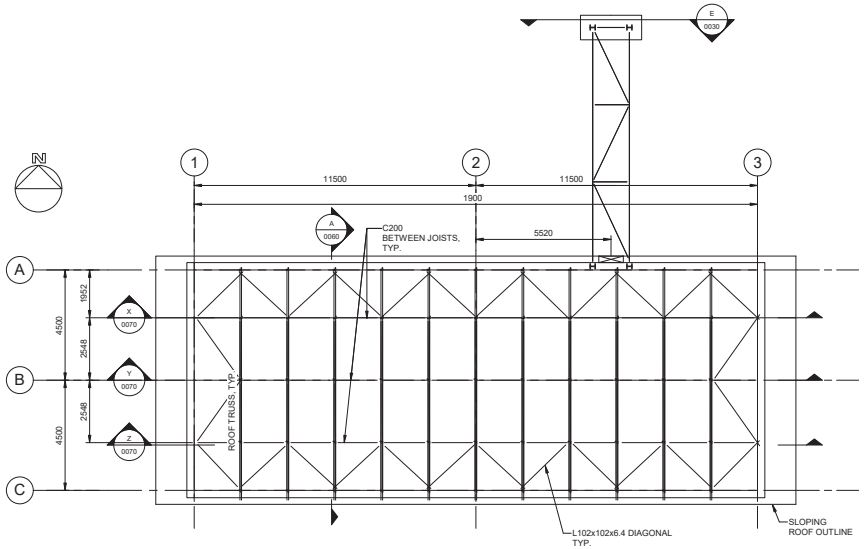
DRAWN BY	A.CHEUNG
DESIGNED BY	C.FRANCIS
CHECKED BY	M.HAN
APPROVED BY	K.BRIGNALL

CONTRACT NUMBER

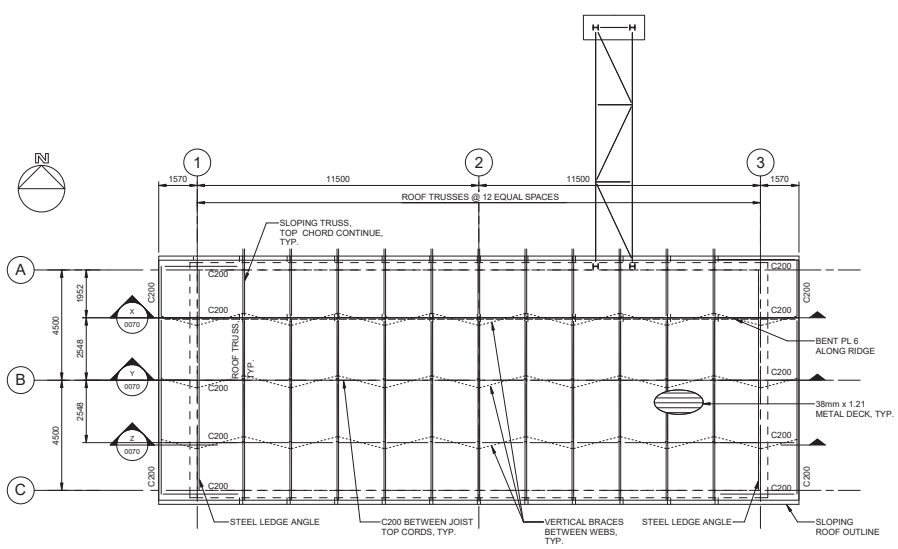
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
FOOTING AND GROUND FLOOR PLAN

DRAWING NUMBER
193028 - 03 -1000- STMCZ- SL- SG- 0010- A



ROOF JOIST BOTTOM CHORD PLAN
1 : 100



ROOF TRUSS FRAMING PLAN
1 : 100

ISSUE/REVISION **REFERENCES**

A	2022-11-23	JV	60% SUBMISSION	WZ	
PA	2022-08-05	CF	30% SUBMISSION	KB	
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

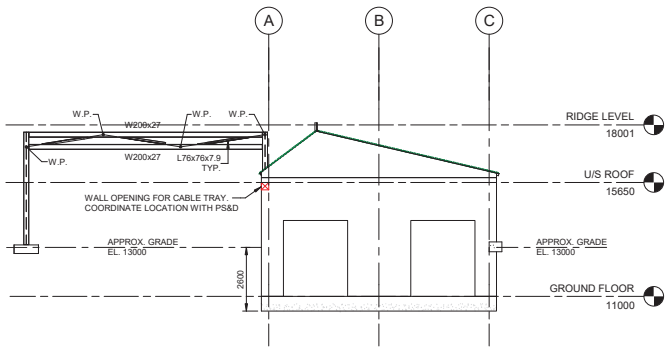
DRAWN BY	A.CHEUNG
DESIGNED BY	C.FRANCIS
CHECKED BY	M.HAN
APPROVED BY	K.BRIGNALL

CONTRACT NUMBER

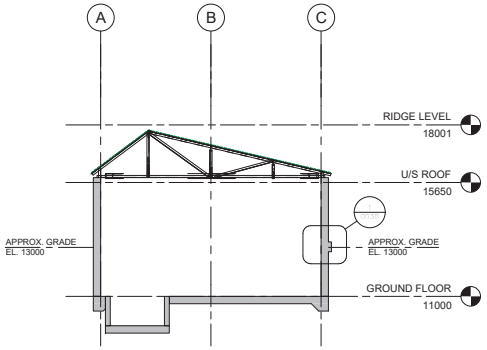
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
ROOF FRAMING PLAN

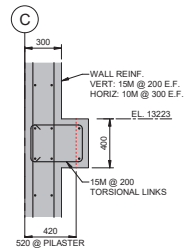
DRAWING NUMBER
193028 - 03 -1000- STMCZ- SL- SG- 0020- A



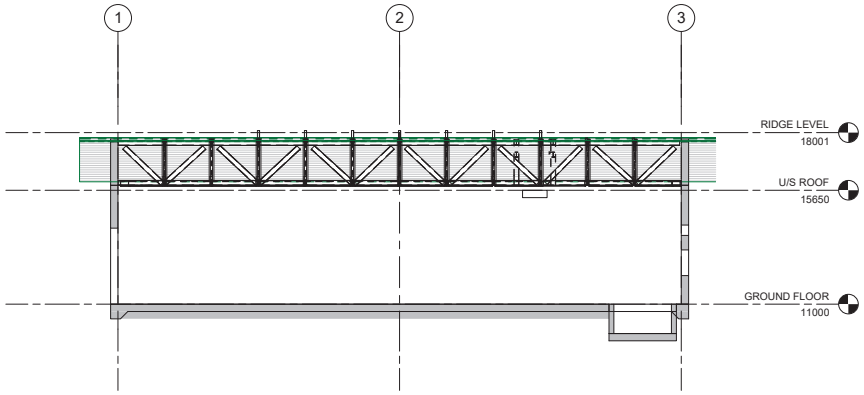
A 0010 SECTION 1 : 100



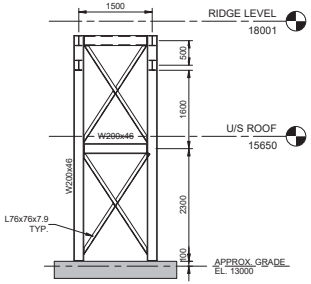
B 0010 SECTION 1 : 100



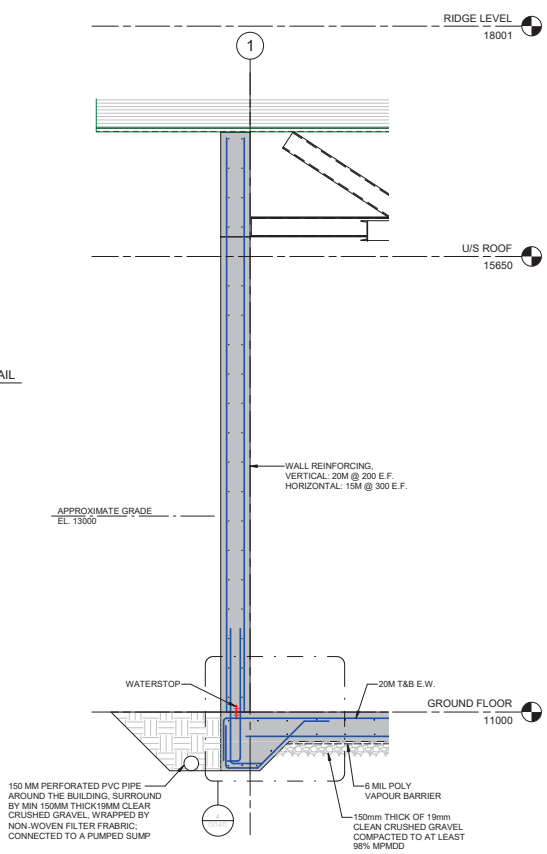
1 0010 WALL THICKENING DETAIL 1 : 20



D 0010 SECTION 1 : 100



E 0010 SECTION 1 : 50



C 0010 SECTION 1 : 25

ANSI D 22" x 34"

Last Plotted: 2022-11-23 7:24:23 PM
Last saved by:
Filename: BIM 360://675448 - EMUP PPS Upgrades/675448-S-PoMo.rvt

ISSUE/REVISION **REFERENCES**

A	2022-11-23	JV	60% SUBMISSION	WZ	
PA	2022-08-05	CF	30% SUBMISSION	KB	
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

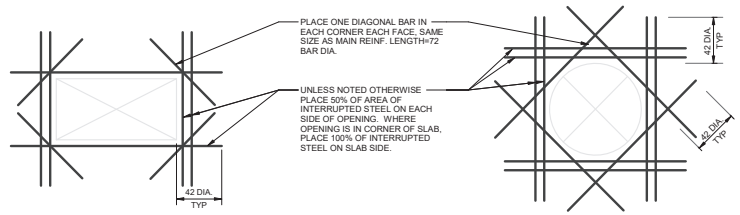
DRAWN BY	A.CHEUNG
DESIGNED BY	C.FRANCIS
CHECKED BY	M.HAN
APPROVED BY	K.BRIGNALL

CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

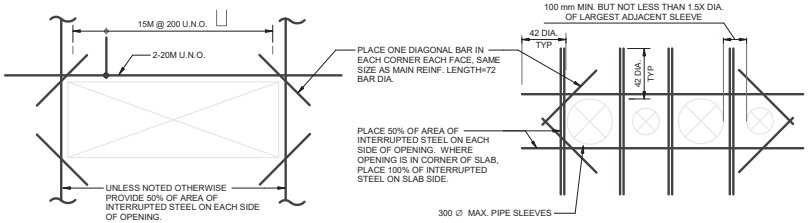
SHEET TITLE
SECTIONS

DRAWING NUMBER
193028 - 03 -1000- STMCZ- SL- SG- 0030- A



RECTANGULAR OPENING

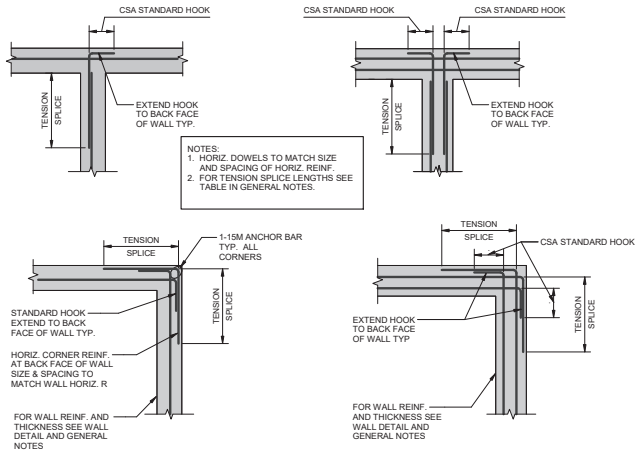
CIRCULAR OPENING



LINTEL REINFORCING FOR DOOR/LOUVRE OPENINGS W/ SPAN > 2500

SLEEVES

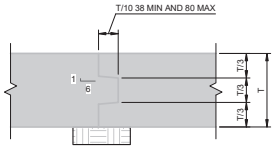
1 WALLS AND SLABS ADDITIONAL REINFORCEMENT TO OPENINGS
1 : 1



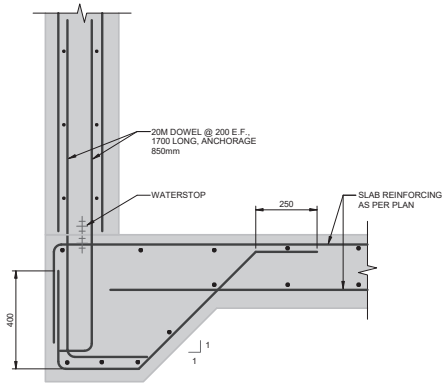
SINGLE CURTAIN

DOUBLE CURTAIN

2 HORIZONTAL REINFORCEMENT AT WALL CORNERS U.N.O.
1 : 1



3 KEYED JOINT SLAB
1 : 10



4 TYPICAL SLAB THICKENING
0030 1 : 10

ISSUE/REVISION				REFERENCES	
A	2022-11-23	JV	60% SUBMISSION	WZ	
PA	2022-08-05	CF	30% SUBMISSION	KB	
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.francl architecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

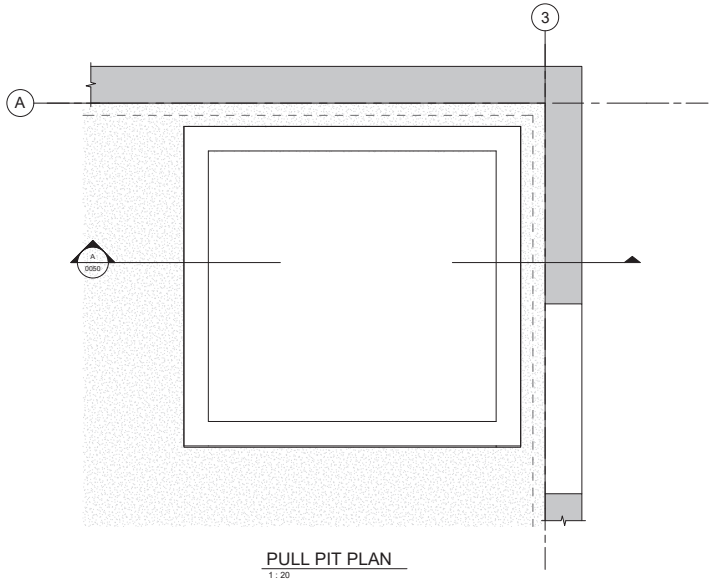
DRAWN BY	A.CHEUNG
DESIGNED BY	C.FRANCIS
CHECKED BY	M.HAN
APPROVED BY	K.BRIGNALL

CONTRACT NUMBER

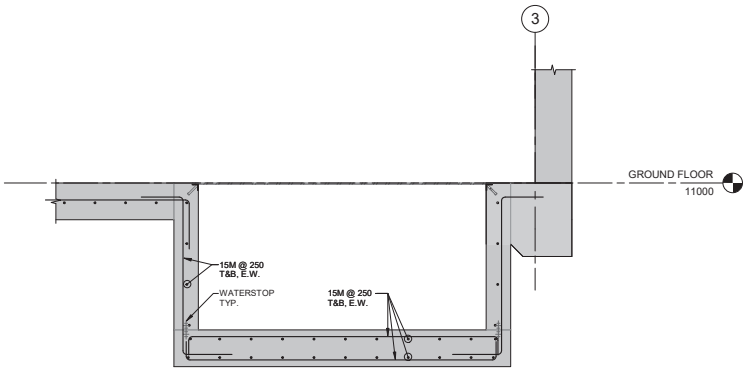
PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
TYPICAL REINFORCING CONCRETE DETAILS

DRAWING NUMBER
193028 - 03 -1000- STMCZ- SL- SG- 0040- A



PULL PIT PLAN
1 : 20



A 0050 SECTION
1 : 20

ISSUE/REVISION | **REFERENCES**

A	2022-11-23	JV	60% SUBMISSION	WZ	
PA	2022-08-05	CF	30% SUBMISSION	KB	
I/R	DATE	BY	DESCRIPTION	APPR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	A.CHEUNG
DESIGNED BY	C.FRANCIS
CHECKED BY	M.HAN
APPROVED BY	K.BRIGNALL

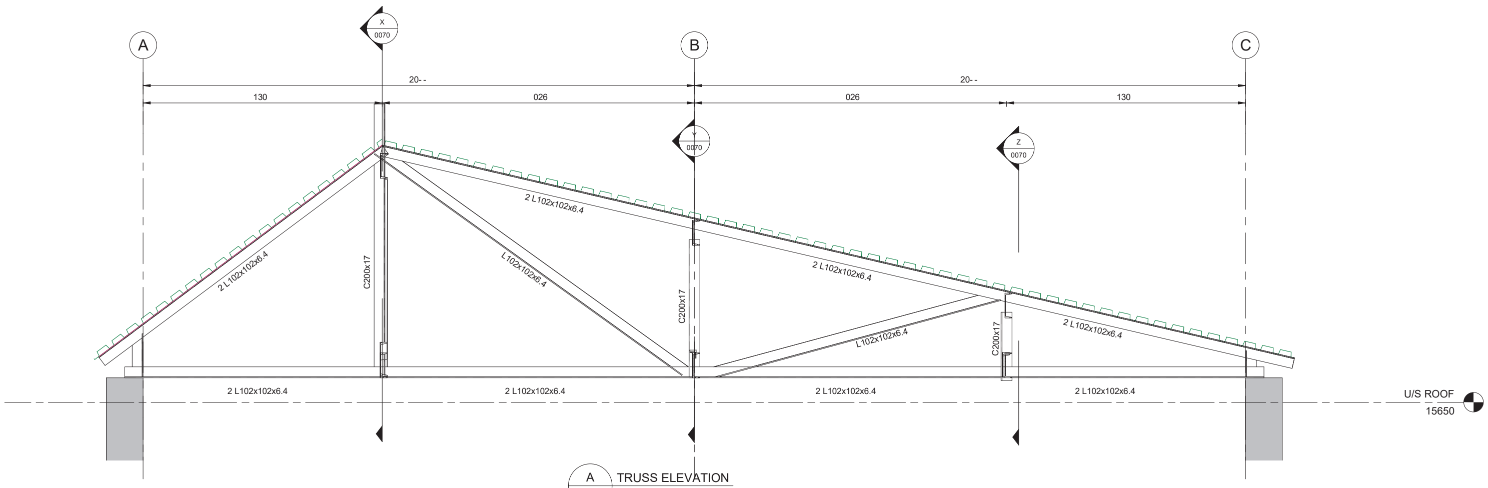
CONTRACT NUMBER

PROJECT NUMBER
193028 (SNC #675448)

SHEET TITLE
REINFORCING CONCRETE DETAILS

DRAWING NUMBER
193028 - 03 -1000- STMCZ- SL- SG- 0050- A

Attachment 3



A
0020
TRUSS ELEVATION
1 : 20

ISSUE/REVISION **REFERENCES**

A	- :11: 5	JV	7- %SUI B/SS/ON	WZ	
MA	- :- 6:- 0	CF	5- %SUI B/SS/ON	KI	
/4R	DATE	I Y	DESCR/MT/ON	AMMR	

TRANSLINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES

PORT MOODY

DRAWING INFORMATION

DRAWN BY	A.CHEUNG
DESIGNED BY	C.FRANCIS
CHECKED BY	M.HAN
APPROVED BY	K.BRIGNALL

CONTRACT NUMBER

PROJECT NUMBER

193028 (SNC #675448)

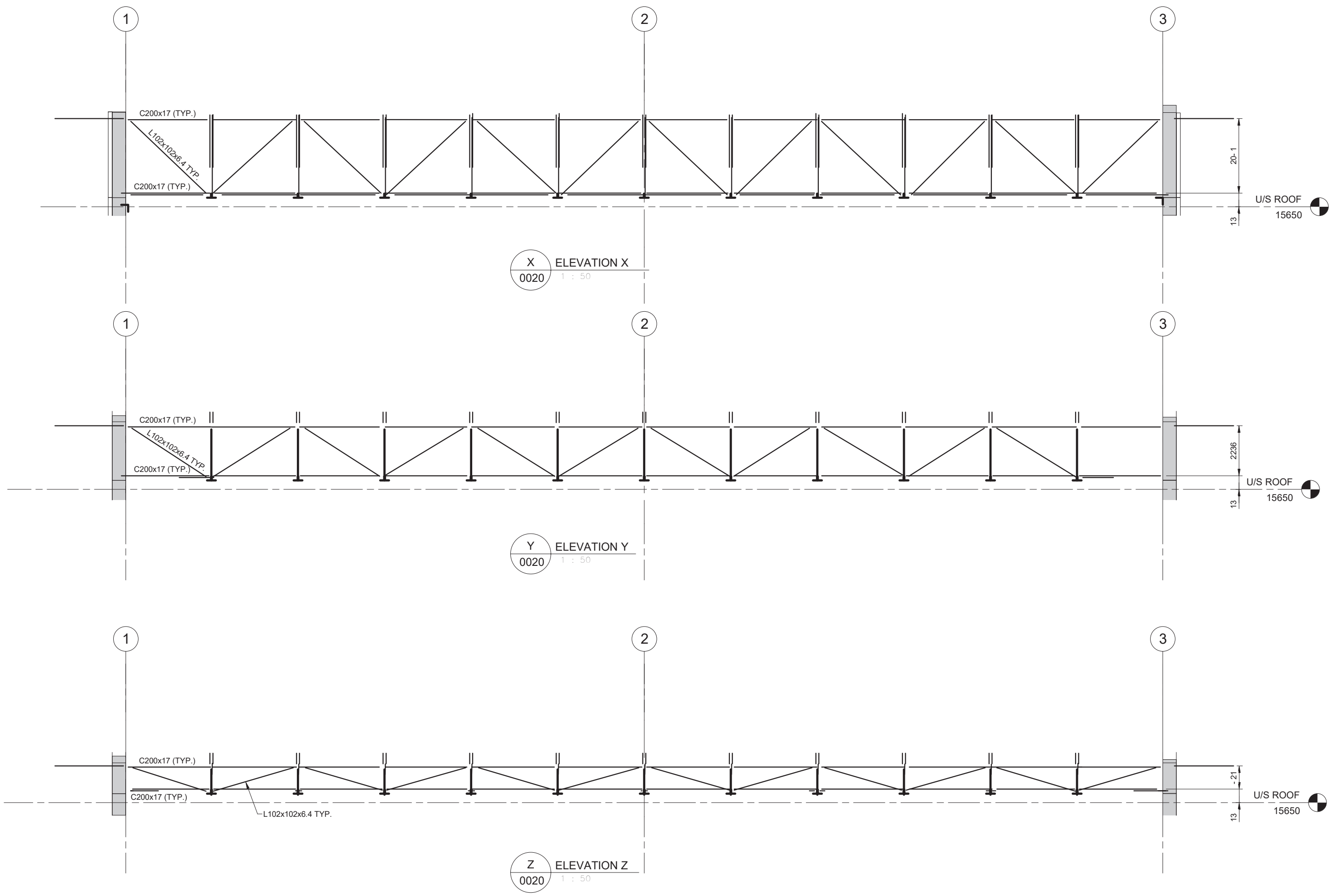
SHEET TITLE

ROOF TRUSS ELEVATIONS AND DETAILS - SHEET 1

DRAWING NUMBER

193028 - 03 -1000- STMCZ- SL- SG- 0060-A

Attachment 3



ISSUE/REVISION					REFERENCES
A	3 :22: 1	JV	03% SUMP ISSION	WZ	
4A	3 :36:3-	CF	13% SUMP ISSION	KM	
BR	DATE	MY	DESCRIPTION	A44R	

TRANS LINK

CONSULTANTS

ELECTRICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

MECHANICAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

CONSULTANTS

ARCHITECTURE
FRANCL Architecture Inc.
1684 West 2nd Avenue
Vancouver, BC V6J 1H4
604 688 3252 tel
www.franclarchitecture.com

STRUCTURAL
SNC-Lavalin
Suite 1300 - 3777 Kingsway Street
Burnaby, B.C. V5H 3Z7
604 662-3555 tel 604 662-7688 fax
www.snclavalin.com

REGISTRATION

KEY PLAN

PROJECT

EMUP PROPULSION POWER UPGRADES
PORT MOODY

DRAWING INFORMATION

DRAWN BY	A.CHEUNG
DESIGNED BY	C.FRANCIS
CHECKED BY	M.HAN
APPROVED BY	K.BRIGNALL

CONTRACT NUMBER

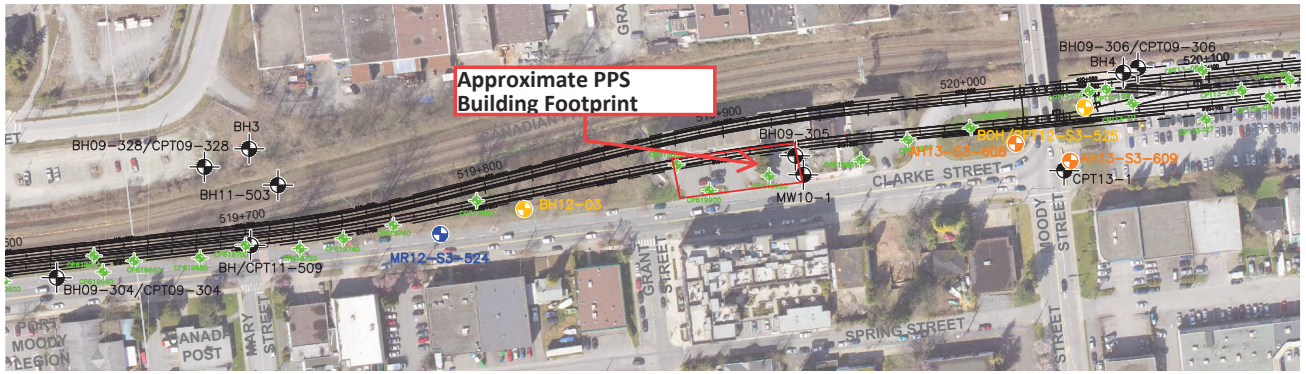
PROJECT NUMBER
193028 (SNC #675448)

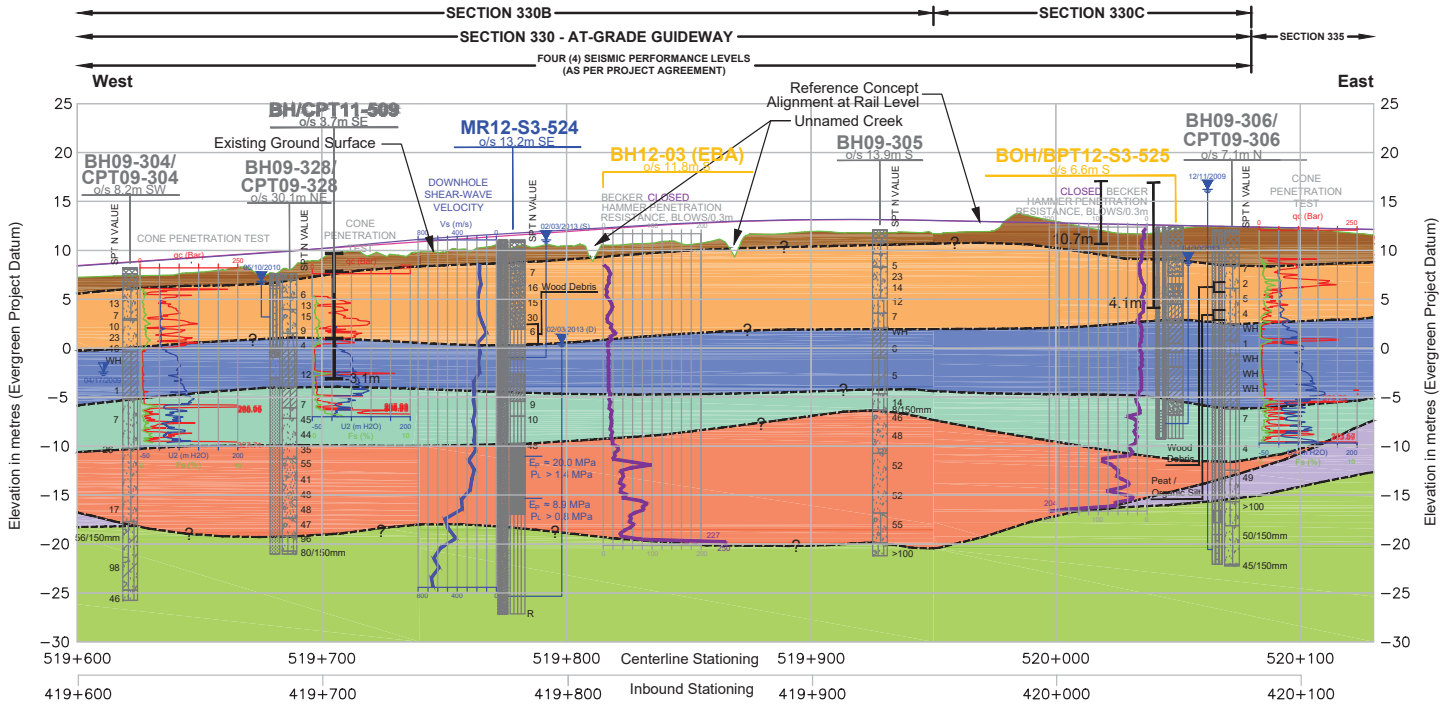
SHEET TITLE
ROOF TRUSS ELEVATIONS AND DETAILS - SHEET 2

DRAWING NUMBER
193028 - 03 -1000- STMCZ- SL- SG- 0070- A

Appendix II

Borehole/CPT Logs





GEOLOGIC BOUNDARIES LEGEND

UNIT	LAYER	LITHOLOGIC UNIT	DESCRIPTION	INFERRED CONSISTENCY
	Fill	-	Varies	Varies
	Debris fan, marine and shoreline deposits	Salish Sediments	Sand with variable silt, gravel, occasional cobbles, organic layers and wood debris	Loose to compact
	Marine deposits	Capilano Sediments	Silt and clay with lenses of sand and gravel; may contain organic layers and wood debris	Soft to firm
			Interlayered silt and sand with variable gravel; may contain organic layers and wood debris	Compact to dense
	Glaciomarine deposits	Capilano Sediments	Sand and silt with variable clay, gravel and occasional cobbles / boulders	Compact to very dense
			Sand and gravel with occasional cobbles / boulders	Compact to very dense
	Till-like deposits	Vashon Sediments	Sand and silt with variable gravel and occasional cobbles / boulders; may contain water-bearing lenses of sand and gravel	Very dense

LEGEND

- Sonic Testhole
- Auger Testhole
- Cone Penetration Testhole
- Mud Rotary Testhole
- Becker Hammer Testhole
- ODEX Teshole
- Previous Testhole (position approx.)
- Piezometric Level

NOTES:

(1) Figures derived from CADD files provided from the Golder Associates Ltd. report submitted to CH2M Hill Canada Ltd. and the ELRT project entitled "ELRT Project - Surface Alignment Factual Geotechnical Report", dated January 09, 2013. The inferred stratigraphy shown on these figures is based solely on EBA's own evaluation of the available testhole information.
(2) Stratigraphy is known only at the locations of the testholes. Actual geology and stratigraphy between testholes may vary from that shown on this drawing.
(3) Stratigraphy in testhole logs at locations offset from the alignment centerline may vary from that shown on the profile.
(4) Lithologic unit references from GSC Map 1484A.

ISSUED FOR USE

HORIZONTAL SCALE 1:2000
20 0 20 40 80m
VERTICAL SCALE 1:500
5 0 5 10 20m

CLIENT
ELRT CONSTRUCTION

EBA A TETRA TECH COMPANY

EVERGREEN LINE RAPID TRANSIT PROJECT

SECTION 330 - AT-GRADE GUIDEWAY TESTHOLE LOCATION AND SOIL PROFILE

PROJECT NO.	DWN	CKD	REV
V13103058	RL	YP	1
OFFICE: EBA-VANC	DATE: Jan 24, 2014		

Figure 2b

Q:\Vancouver\Engineering\V13\Projects\V13103011 Evergreen Line Rapid Transit\Drawings\EBA drawings\V13103058\V13103058_59 001 001 SEG 3_RGc.dwg [SEC330YPP2B] January 24, 2014 - 2:07:55 pm (BY: LAI, RYAN)

PROJECT No.: 08-1411-0115

RECORD OF BOREHOLE: BH09-305

SHEET 1 OF 4

LOCATION: 2708 & 2710 Clarke Street, Port Moody
N: 5458164.77 E: 510899.29
Survey Provided by: Mason Surveys Inc.

DATUM: Local

DRILLING DATE: July 2 to 3, 2009
DRILLING CONTRACTOR: Foundex Explorations Ltd.

SAMPLER HAMMER, 64kg; DROP, 762mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl, NP - Non-Plastic (20 40 60 80)	ADDITIONAL LAB. TESTING	STANDPIPE INSTALLATION AND WATER LEVELS
0	Vacuumed	Ground Surface		12.12							
		DRAIN ROCK. [FILL]		0.05							
		Inferred, moist, dark brown, silty SAND, some gravel, contains cobbles and organics/topsoil. [FILL]			1	GS				O	
1				10.90	2	GS				O	
		Inferred, moist, brown, silty SAND, some gravel, contains cobbles, rootlets and topsoil.		1.22							
2				9.68							
		Inferred, loose, moist to wet, brown to grey SAND, some silt and gravel, contains cobbles.		2.44							
3				8.31	3	51 DO	5				
				3.81	4	51 DO	23			M	
4		- at 4.88m, cobble.									
		- at 5.18m, cobble. Compact, moist to wet, brown to grey, gravelly SAND, some silt, contains silt layers (25 mm thick) and cobbles.			5	51 DO	14				
5				5.11							
	HT-1000 Truck Mounted Rotary Drill Rig			7.01	6	51 DO	12			M	
6	Mud Rotary	Compact to loose, wet, grey, silty SAND to sandy SILT, trace gravel.									
				3.58							
7		- at 8.53 to 9.45m, trace black organics.		8.53	7	51 DO	7				
		Loose, wet, grey, silty SAND to sandy SILT, trace clay.									
8											
9											
10		*CONTINUED NEXT PAGE*									

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: L.W.
CHECKED: W.L.

Project Co-ordinates to UTM NAD 83 Zone 10 Conversion: Project North * 0.999596150; Project East * 0.999596150

File:Z:\ACTIVEYEAR 2008\1411\08-1411-0115 (EVERGREEN PROJECT)\GINT\08-1411-0115_FACTUAL_REPORT.GPJ Output Form:BOREHOLE (AUTO) Template:BC REGION TEMPLATE BETA 1.GDT Library:BC REGION LIBRARY.GLB KCapes 4/10/10

PROJECT No.: 08-1411-0115

RECORD OF BOREHOLE: BH09-305

SHEET 2 OF 4

LOCATION: 2708 & 2710 Clarke Street, Port Moody
N: 5458164.77 E: 510899.29
Survey Provided by: Mason Surveys Inc.

DRILLING DATE: July 2 to 3, 2009
DRILLING CONTRACTOR: Foundex Explorations Ltd.

DATUM: Local

SAMPLER HAMMER, 64kg; DROP, 762mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl, NP - Non-Plastic)	ADDITIONAL LAB. TESTING	STANDPIPE INSTALLATION AND WATER LEVELS
10	HT-1000 Truck Mounted Rotary Drill Rig Mud Rotary			-2.06 10.06							
		Soft to firm, wet, grey SILTY CLAY to CLAY, contains sandy silt and silty sand layers (25 to 50mm).			8	51 DO	WH			MH	
11											
					9A	76 TO					
12					9B	51 DO	6				
13				-0.99 13.11							
					10	76 TO		⊕ +		H, C, LV	
14											
		Firm, wet, grey CLAYEY SILT, some fine sand, contains soft, grey, silty clay and silty sand layers.			11	51 DO	5				
15											
16											
				-4.65 16.76							
17		Loose to compact, wet, grey, silty SAND to sandy SILT, trace gravel.									
					12	51 DO	14				
18				-6.32 18.44	13A	51 DO	8/150mm				
					13B	51 DO	46				
19		Compact to dense, wet, grey SAND and GRAVEL, trace silt, contains cobbles. - at 19.50m, cobble.									
20		*CONTINUED NEXT PAGE*									

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: L.W.
CHECKED: W.L.

Project Co-ordinates to UTM NAD 83 Zone 10 Conversion: Project North * 0.999596150; Project East * 0.999596150

PROJECT No.: 08-1411-0115

RECORD OF BOREHOLE: BH09-305

SHEET 3 OF 4

LOCATION: 2708 & 2710 Clarke Street, Port Moody
N: 5458164.77 E: 510899.29
Survey Provided by: Mason Surveys Inc.

DRILLING DATE: July 2 to 3, 2009
DRILLING CONTRACTOR: Foundex Explorations Ltd.

DATUM: Local

SAMPLER HAMMER, 64kg; DROP, 762mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl, NP - Non-Plastic) (20 40 60 80)	ADDITIONAL LAB. TESTING	STANDPIPE INSTALLATION AND WATER LEVELS
20											
21	HT-1000 Truck Mounted Rotary Drill Rig Mud Rotary	- at 20.72m, cobble. Compact to dense, wet, grey SAND and GRAVEL, trace silt, contains cobbles. *(continued)*			14	51 DO	48		○	M	
22		- at 22.25m, cobble.									
23				-10.74 22.86							
24					15	51 DO	52		○	M	
25											
26		- at 25.60 to 26.21m, sand and gravel layer. Dense, moist to wet, grey SAND, trace gravel and silt.									
27					16	51 DO	52		○		
28											
29				-16.84 28.96							
30		Dense, moist to wet, grey SAND and GRAVEL, some silt, contains cobbles.			17	51	55				
		CONTINUED NEXT PAGE									

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: L.W.
CHECKED: W.L.

Project Co-ordinates to UTM NAD 83 Zone 10 Conversion: Project North * 0.999596150; Project East * 0.999596150

File:Z:\ACTIVEYEAR.2008\1411\08-1411-0115 (EVERGREEN PROJECT)\GINT\08-1411-0115_FACTUAL_REPORT.GPJ Output Form:BOREHOLE (AUTO) Template:BC REGION TEMPLATE BETA 1.GDT Library:BC REGION LIBRARY.GLB KCapes 4/10/10

PROJECT No.: 08-1411-0115

RECORD OF BOREHOLE: BH09-305

SHEET 4 OF 4

LOCATION: 2708 & 2710 Clarke Street, Port Moody
N: 5458164.77 E: 510899.29
Survey Provided by: Mason Surveys Inc.

DRILLING DATE: July 2 to 3, 2009
DRILLING CONTRACTOR: Foundex Explorations Ltd.

DATUM: Local

SAMPLER HAMMER, 64kg; DROP, 762mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl, NP - Non-Plastic) (20 40 60 80)	ADDITIONAL LAB. TESTING	STANDPIPE INSTALLATION AND WATER LEVELS
30	HT-1000 Truck Mounted Rotary Drill Rig Mud Rotary	- at 30.18m, cobble.			17	DO 51 DO	55		○		
31		Dense, moist to wet, grey SAND and GRAVEL, some silt, contains cobbles. *(continued)*									
32		- at 32.00m, cobble.		-19.89 32.00							
33		Very dense, moist, grey, sandy SILT, some gravel, contains cobbles.			18	51 DO	>100		○		
34		End of Borehole.		-21.18 33.30							Completed borehole grouted to surface.
35											
36											
37											
38											
39											
40											

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: L.W.
CHECKED: W.L.

Project Co-ordinates to UTM NAD 83 Zone 10 Conversion: Project North * 0.999596150; Project East * 0.999596150

File:Z:\ACTIVEYEAR.2008\1411\08-1411-0115 (EVERGREEN PROJECT)\GINT\08-1411-0115_FACTUAL_REPORT.GPJ. Output Form:BOREHOLE (AUTO) Template:BC REGION TEMPLATE BETA 1.GDT Library:BC REGION LIBRARY.GLB KCapes: 4/10/10

BOREHOLE LOG: BOH/BPT12-S3-525

EGRT CONSTRUCTION

LOCATION: NE corner of Clarke St and Moody St, Port Moody | PROJECT NO: V13103058-01

STATION: 520+049 | OFFSET: 7 m R | ELEVATION: 12.39 m

CLIENT: SGJV | NORTHING: 5458170.69 | EASTING: 511019.07 | ZONE: 10

Depth (m)	DRILLING METHOD	DESCRIPTION	SAMPLE NUMBER	BPT N_b (Blows)	Bounce Chamber Pressure (kPa)	FINES (%)	SAND (%)	GRAVEL (%)
0	Becker Hammer (Open and Closed Ended)	SAND and GRAVEL, trace silt, occasional cobbles, contains rootlets and wood fragments, damp, loose, dark brown; fine to coarse sand; fine and coarse sub-rounded gravel (FILL)	1	3	83	7	55	38
				8	83			
				6	83			
1				6	83			
		SAND, some gravel, trace silt, damp, loose, brown; medium sand; coarse subrounded to subangular gravel (FILL)		11	83			
			2	12	83	5	78	17
2				11	83			
		SAND, silty, some gravel, wet, compact, brown; fine sand, fine subangular gravel (POSSIBLE FILL)		10	90			
				9	90			
			3	12	90	22	61	17
3				11	103			
				13	103			
		SAND, some gravel, trace silt, wet, compact, varies grey to dark brown; fine to medium sand; fine and coarse subangular to subrounded gravel	4	17	103	6	75	19
			5	17	103			
4			6	15	103			
		- pull-out test at 4.6 m (casing friction - closed ended)		15	103			
				14	103			
5		- contains frequent pieces of fibrous dark brown wood debris up to 250 mm long	7	12	103	7	74	19
				10	103			
				6	90			
6			8	6	90	6	81	13
				7	90			
		SAND and SILT, trace gravel, trace clay, wet, compact, browny grey; fine to medium sand; fine and coarse, subangular to subrounded gravel; contains occasional to frequent pieces of fibrous wood debris	9	9	90			
				12	90			
7			10	8	90	49	49	2
				7	90			
		SILT, sandy, trace clay, trace gravel, moist, firm, grey, low plasticity; fine sand, contains pieces of dark brown decomposing wood debris		8	90			
				8	90			
8			11	8	90	70	29	1
				15	110			
				14	110			
9		SAND, some silt, trace to some clay, wet, compact, grey; fine sand	12	22	117			
		- pull-out test at 9.5 m (casing friction - closed ended)		14	117			

BOUNCE CHAMBER PRESSURE (kPa): 40 80 120 160

● BECKER PENETRATION TEST (N_b)

○ BECKER OPEN HOLE TEST (N_b) (Blows/305mm)

▲ POCKET PEN. (kPa) ▲: 100 200 300 400

FIELD VANE (kPa): REMOULDED ◇ PEAK ◆; 10 20 30 40

PLASTIC M.C. LIQUID; 20 40 60 80

01-Mar-13

09-Mar-13

25 mm Standpipe

Elevation (m): 12 11 10 9 8 7 6 5 4 3

eba A TETRA TECH COMPANY

1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

DRILLING CONTRACTOR: Foundex Explorations | COMPLETION DEPTH: 29.1m

DRILLING RIG TYPE: HAV-180 Becker Hammer | STARTED: 11/13/2012

LOGGED BY: RB | COMPLETED: 11/15/2012

REVIEWED BY: BH |

BOREHOLE LOG: BOH/BPT12-S3-525

EGRT CONSTRUCTION

LOCATION: NE corner of Clarke St and Moody St, Port Moody | PROJECT NO: V13103058-01

STATION: 520+049 | OFFSET: 7 m R | ELEVATION: 12.39 m

CLIENT: SGJV | NORTHING: 5458170.69 | EASTING: 511019.07 | ZONE: 10

Depth (m)	DRILLING METHOD	DESCRIPTION	SAMPLE NUMBER	BPT N_b (Blows)	Bounce Chamber Pressure (kPa)	FINES (%)	SAND (%)	GRAVEL (%)
11	Becker Hammer (Open and Closed Ended)	CLAY, silty, trace sand, wet, soft to firm, grey, high plasticity; fine sand	13	12	117	96	4	0
				11	90			
				12	90			
				11	90			
				13	90			
12		- contains occasional lenses of fine SAND below 11.9 m		13	90			
			14	17	103			
				14	103			
				14	103			
13		SILT, some clay, trace sand, wet, soft to firm, grey, low plasticity; fine sand		11	103			
				12	90			
			15	10	90	93	7	0
				12	90			
14				10	90			
		CLAY, some silt to silty, trace sand, trace gravel, wet, firm, grey, low plasticity; fine sand, fine subangular gravel		16	103			
		- pull-out test at 14.3 m (casing friction - closed ended)		13	103			
15			16	13	103			
				12	103			
				12	103			
16				12	103			
			17	12	103			
				12	103			
				12	103			
17				19	103			
			18	17	103			
				23	110			
		SAND, silty, trace clay, wet, compact, grey; fine sand		22	110			
18				19	110			
			19	17	110			
				15	110			
19				15	110			
		SILT, sandy, some clay, moist to wet, firm, grey; fine sand		41	138			
		- pull-out test at 19.2 m (casing friction - closed ended)		25	138			
			20	21	138	74	26	0

BOUNCE CHAMBER PRESSURE (kPa): 40 80 120 160

● BECKER PENETRATION TEST (N_b)

○ BECKER OPEN HOLE TEST (N_b) (Blows/305mm)

PARTICLE SIZE DISTRIBUTION

▲ POCKET PEN. (kPa) ▲: 100 200 300 400

FIELD VANE (kPa): REMOULDED ◇ — ◆ PEAK: 10 20 30 40

PLASTIC — M.C. — LIQUID: 20 40 60 80

25 mm Standpipe

Elevation (m): 2 1 0 -1 -2 -3 -4 -5 -6 -7

eba A TETRA TECH COMPANY
1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

DRILLING CONTRACTOR: Foundex Explorations | COMPLETION DEPTH: 29.1m

DRILLING RIG TYPE: HAV-180 Becker Hammer | STARTED: 11/13/2012

LOGGED BY: RB | COMPLETED: 11/15/2012

REVIEWED BY: BH |

BOREHOLE LOG: BOH/BPT12-S3-525

EGRT CONSTRUCTION

LOCATION: NE corner of Clarke St and Moody St, Port Moody | PROJECT NO: V13103058-01

STATION: 520+049 | OFFSET: 7 m R | ELEVATION: 12.39 m

CLIENT: SGJV | NORTHING: 5458170.69 | EASTING: 511019.07 | ZONE: 10

Depth (m)	DRILLING METHOD	DESCRIPTION	GRAPHICAL LEGEND	SAMPLE TYPE	SAMPLE NUMBER	PENETRATION TESTS: BPT N_b (Blows)	PENETRATION TESTS: Bounce Chamber Pressure (kPa)	BOUNCE CHAMBER PRESSURE (kPa) / BECKER PENETRATION TEST (N_b) / BECKER OPEN HOLE TEST (N_b) (Blows/305mm)	PARTICLE SIZE DISTRIBUTION: FINES (%)	SAND (%)	GRAVEL (%)	POCKET PEN. (kPa) / FIELD VANE (kPa) / PLASTIC M.C. LIQUID	25 mm Standpipe	Elevation (m)
21	Becker Hammer (Open and Closed Ended)	- trace clay below 20.4 m			21	24	138							-8
						21	138							
						27	138							
						24	124							-9
						20	117							
		End of Becker open hole drilling at 21.6 m depth (target depth reached).				23	117							
22		- Standpipe piezometer installed in borehole as indicated.				24	117							
		- pull-out test at 22.3 m (casing friction - closed ended)				38	131							-10
						34	138							
23						29	159							
						37	159							-11
						91	159							
24						91	159							
						75	159							-12
						67	152							
						60	152							
25						59	152							
		- pull-out test at 25.3 m (casing friction - closed ended)				63	145							-13
						52	145							
26						40	145							
						37	145							-14
						53	145							
27						83	159							
						55	152							-15
						29	138							
28						31	138							
						65	145							-16
		- pull-out test No. 7 at 28.4 m (casing friction - closed ended)				66	145							
						166	145							
29						204	159	204						
		End of Testhole at 29.1 m depth (refusal).												
		- Standpipe piezometer installed in testhole as indicated.												
		- Estimates of the soil consistency were determined from BPT blowcounts, drill rig performance, and visual classification of recovered samples. These												

eba A TETRA TECH COMPANY
1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

DRILLING CONTRACTOR: Foundex Explorations | COMPLETION DEPTH: 29.1m

DRILLING RIG TYPE: HAV-180 Becker Hammer | STARTED: 11/13/2012

LOGGED BY: RB | COMPLETED: 11/15/2012

REVIEWED BY: BH |

BOREHOLE LOG: BOH/BPT12-S3-525

EGRT CONSTRUCTION

LOCATION: NE corner of Clarke St and Moody St, Port Moody | PROJECT NO: V13103058-01

STATION: 520+049 | OFFSET: 7 m R | ELEVATION: 12.39 m

CLIENT: SGJV | NORTHING: 5458170.69 | EASTING: 511019.07 | ZONE: 10

Depth (m)	DRILLING METHOD	DESCRIPTION	GRAPHICAL LEGEND	SAMPLE TYPE	SAMPLE NUMBER	PENETRATION TESTS: BPT N_b (Blows)	PENETRATION TESTS: Bounce Chamber Pressure (kPa)	BOUNCE CHAMBER PRESSURE (kPa) 40 80 120 160 / BECKER PENETRATION TEST (N_b) / BECKER OPEN HOLE TEST (N_b) (Blows/305mm) 40 80 120 160	PARTICLE SIZE DISTRIBUTION: FINES (%)	SAND (%)	GRAVEL (%)	▲ POCKET PEN. (kPa) ▲ 100 200 300 400 / FIELD VANE (kPa) REMOULDED PEAK 10 20 30 40 / PLASTIC M.C. LIQUID 20 40 60 80	25 mm Standpipe	Elevation (m)
		estimates are based on engineering judgement and are subjective. - Moisture content values for cohesionless soils may not be representative of in-situ conditions due to drilling disturbance. - Fines content values may not be representative of in-situ conditions due to drilling disturbance. - Reported blowcounts are uncorrected field values. - Becker open blow count values should not be relied upon for design and are provided for relative comparison only.												

eba A TETRA TECH COMPANY
1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

DRILLING CONTRACTOR: Foundex Explorations | COMPLETION DEPTH: 29.1m

DRILLING RIG TYPE: HAV-180 Becker Hammer | STARTED: 11/13/2012

LOGGED BY: RB | COMPLETED: 11/15/2012

REVIEWED BY: BH |

BOREHOLE LOG: BH12-03

LOCATION: Clarke St. @ Grant St., Port Moody		PROJECT NO: V13103058-01
STATION: 519+815	OFFSET: 15 m R	ELEVATION: 11.7 m
CLIENT: SNC-Lavalin	NORTHING: 5458152	EASTING: 510787
		ZONE: 10

Depth (m)	DRILLING METHOD	DESCRIPTION	BPT N_b (Blows)	Bounce Chamber Pressure (kPa)	FINES (%)	SAND (%)	GRAVEL (%)	Backfill	Elevation (m)
0	Hydro-Vac	NO SAMPLE RECOVERY - VACUUM EXCAVATED							11
3	Becker Hammer (Closed Ended)	Becker hammer drilling (closed ended) to 32.0 m depth - no soil samples recovered	2	110					10
			9	110					
			12	110					9
			15	110					
			12	110					8
			11	110					
			12	110					7
			8	79					
			6	79					6
			8	79					
			6	79					5
			9	79					
			14	79					4
			17	90					
			19	93					3
			17	93					
			13	93					2
			9	79					
			8	79					
			9	79					
			17	93					
			15	107					
			20	107					

PENETRATION TESTS

BOUNCE CHAMBER PRESSURE (kPa): 40 80 120 160

● BECKER PENETRATION TEST (N_b)

○ BECKER OPEN HOLE TEST (N_b) (Blows/305mm)

PARTICLE SIZE DISTRIBUTION

▲ POCKET PEN. (kPa) ▲: 100 200 300 400

FIELD VANE (kPa): REMOULDED ◇ PEAK ◆: 10 20 30 40

PLASTIC M.C. LIQUID: 10 20 30 40

eba A TETRA TECH COMPANY

1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

DRILLING CONTRACTOR: Foundex Explorations	COMPLETION DEPTH: 32m
DRILLING RIG TYPE: HAV-180 Becker Hammer	STARTED: 4/24/2012
LOGGED BY: AT	COMPLETED: 4/24/2012
REVIEWED BY: BH	Page 1 of 4

BOREHOLE LOG: BH12-03

LOCATION: Clarke St. @ Grant St., Port Moody		PROJECT NO: V13103058-01
STATION: 519+815	OFFSET: 15 m R	ELEVATION: 11.7 m
CLIENT: SNC-Lavalin	NORTHING: 5458152	EASTING: 510787
		ZONE: 10

Depth (m)	DRILLING METHOD	DESCRIPTION	BPT N_b (Blows)	Bounce Chamber Pressure (kPa)	FINES (%)	SAND (%)	GRAVEL (%)	Backfill	Elevation (m)
11	Becker Hammer (Closed Ended)	Becker hammer drilling (closed ended) to 32.0 m depth - no soil samples recovered	26	107					1
			13	107					
			18	107					
			10	107					0
12			9	79					
			11	79					
			10	79					
			12	79					-1
			10	79					
13			11	79					
			11	79					
			10	79					-2
			11	79					
14			11	79					
			11	79					
			11	79					-3
			11	79					
15			11	79					
			11	79					
			11	79					-4
			11	79					
16			14	79					
			14	79					-5
			12	86					
17			15	86					
			13	86					
			12	86					-6
18			18	93					
			16	93					
			15	93					-7
19			17	86					
			17	107					
			16	90					-8

PENETRATION TESTS

BOUNCE CHAMBER PRESSURE (kPa) 40 80 120 160

● BECKER PENETRATION TEST (N_b)

○ BECKER OPEN HOLE TEST (N_b) (Blows/305mm) 40 80 120 160

PARTICLE SIZE DISTRIBUTION

▲ POCKET PEN. (kPa) ▲ 100 200 300 400

FIELD VANE (kPa) REMOULDED ◇ PEAK ◆ 10 20 30 40

PLASTIC M.C. LIQUID 10 20 30 40

eba A TETRA TECH COMPANY
1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

DRILLING CONTRACTOR: Foundex Explorations	COMPLETION DEPTH: 32m
DRILLING RIG TYPE: HAV-180 Becker Hammer	STARTED: 4/24/2012
LOGGED BY: AT	COMPLETED: 4/24/2012
REVIEWED BY: BH	Page 2 of 4

BOREHOLE LOG: BH12-03

LOCATION: Clarke St. @ Grant St., Port Moody		PROJECT NO: V13103058-01
STATION: 519+815	OFFSET: 15 m R	ELEVATION: 11.7 m
CLIENT: SNC-Lavalin	NORTHING: 5458152	EASTING: 510787
		ZONE: 10

Depth (m)	DRILLING METHOD	DESCRIPTION	BPT N_0 (Blows)	Bounce Chamber Pressure (kPa)	FINES (%)	SAND (%)	GRAVEL (%)	Backfill	Elevation (m)
21	Becker Hammer (Closed Ended)	Becker hammer drilling (closed ended) to 32.0 m depth - no soil samples recovered	14	90					-9
			19	90					
			16	90					
			17	90					
			19	103					-10
22			19	103					
			30	114					
			31	110					
			23	114					-11
23			24	110					
			19	103					
			58	141					-12
			98	148					
24			57	145					
			35	152					-13
			40	152					
			41	155					
25			36	155					-14
			33	114					
			43	128					
			36	138					-15
26			35	131					
			48	145					
			39	145					-16
27			77	145					
			90	138					
			80	148					-17
28			83	148					
			65	152					
			54	128					
29			57	117					-18
			53	138					
			63	138					

PENETRATION TESTS
BOUNCE CHAMBER PRESSURE (kPa) 40 80 120 160
● BECKER PENETRATION TEST (N_0)
○ BECKER OPEN HOLE TEST (N_0) (Blows/305mm) 40 80 120 160
PARTICLE SIZE DISTRIBUTION
▲ POCKET PEN. (kPa) ▲ 100 200 300 400
FIELD VANE (kPa) REMOULDED PEAK 10 20 30 40
PLASTIC M.C. LIQUID 10 20 30 40

DRILLING CONTRACTOR: Foundex Explorations		COMPLETION DEPTH: 32m
DRILLING RIG TYPE: HAV-180 Becker Hammer		STARTED: 4/24/2012
LOGGED BY: AT		COMPLETED: 4/24/2012
REVIEWED BY: BH		Page 3 of 4

A TETRA TECH COMPANY
1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

BOREHOLE LOG: BH12-03

LOCATION: Clarke St. @ Grant St., Port Moody		PROJECT NO: V13103058-01
STATION: 519+815	OFFSET: 15 m R	ELEVATION: 11.7 m
CLIENT: SNC-Lavalin	NORTHING: 5458152	EASTING: 510787
		ZONE: 10

Depth (m)	DRILLING METHOD	DESCRIPTION	BPT N_0 (Blows)	Bounce Chamber Pressure (kPa)	FINES (%)	SAND (%)	GRAVEL (%)	Backfill	Elevation (m)
31		Becker hammer drilling (closed ended) to 32.0 m depth - no soil samples recovered	55	145					-19
			43	152					
			34	148					
			37	145					
			77	152					
			227	159					
			250	159					
32		End of Testhole at 32.0 m (refusal). - Reported BPT blowcounts are uncorrected field values.							-20

PENETRATION TESTS

BOUNCE CHAMBER PRESSURE (kPa) — 40 80 120 160

● BECKER PENETRATION TEST (N_0)

○ BECKER OPEN HOLE TEST (N_0) (Blows/305mm)

PARTICLE SIZE DISTRIBUTION

▲ POCKET PEN. (kPa) ▲ — 100 200 300 400

FIELD VANE (kPa) — REMOULDED ◇ PEAK ◆ — 10 20 30 40

PLASTIC M.C. LIQUID — 10 20 30 40

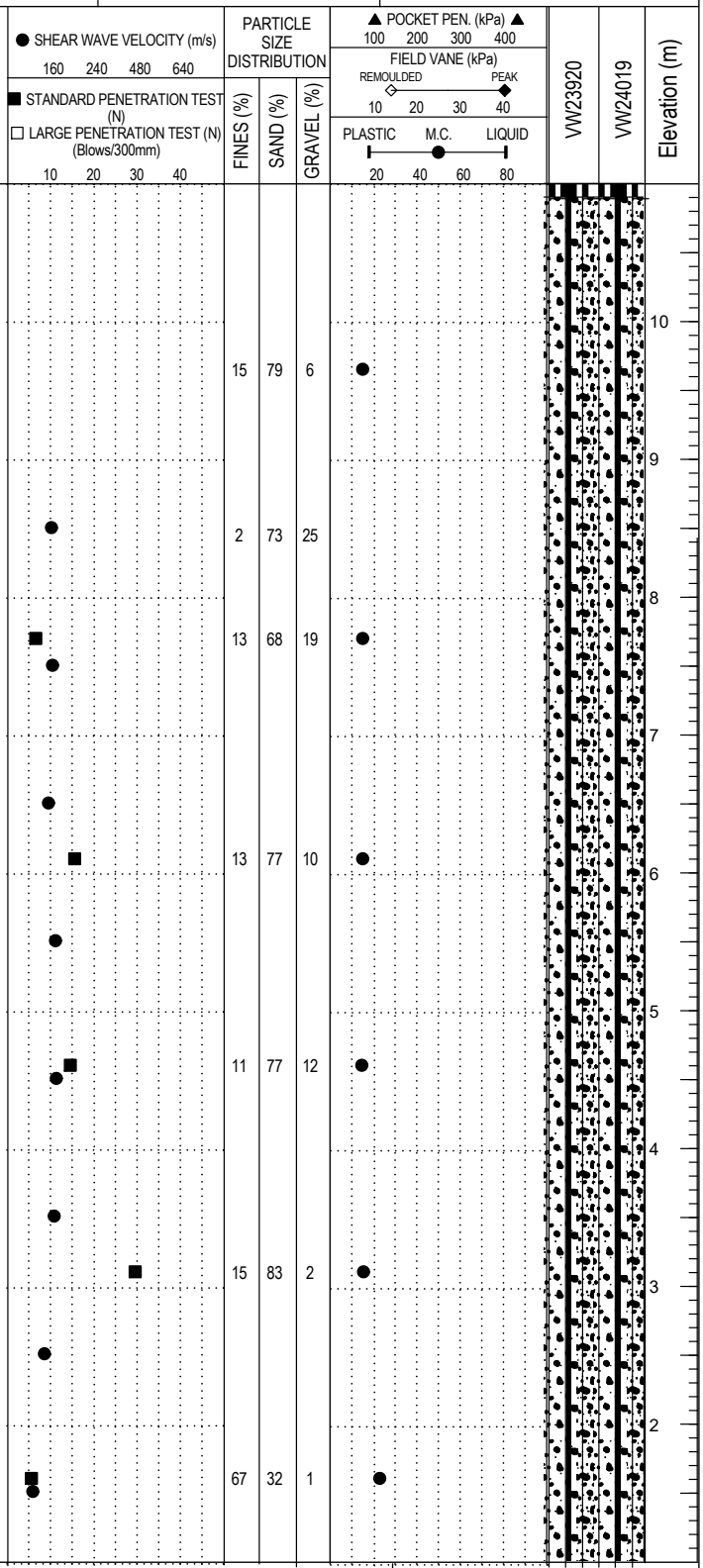
eba A TETRA TECH COMPANY
1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

DRILLING CONTRACTOR: Foundex Explorations	COMPLETION DEPTH: 32m
DRILLING RIG TYPE: HAV-180 Becker Hammer	STARTED: 4/24/2012
LOGGED BY: AT	COMPLETED: 4/24/2012
REVIEWED BY: BH	Page 4 of 4

BOREHOLE LOG: MR12-S3-524

LOCATION: Clarke Street between Grant St and Mary St		PROJECT NO: V13103058-01
STATION: 519+780	OFFSET: 15 m R	ELEVATION: 11 m
CLIENT: SGJV	NORTHING: 5458150	EASTING: 510753	ZONE: 10

Depth (m)	Drilling Method	DESCRIPTION	Sample Number	Penetration Tests (Blows/300mm)	Fines (%)	Sand (%)	Gravel (%)	Elevation (m)
0	Hydro-Vac	ASPHALT - 200 mm						
		SAND, gravelly, trace silt, damp, brown; fine to medium sand; fine and coarse, subrounded to subangular gravel (FILL)	1					
1		SAND, gravelly, trace to some silt, moist, orangey brown; fine sand; fine and coarse subangular to subrounded gravel; contains roots (POSSIBLE FILL)	2		15	79	6	10
2		-brown at 2.3 m	3		2	73	25	9
3	Mud Rotary (Normal Circulation)	SAND, some gravel, some silt, moist, browny orange; fine to coarse sand; fine gravel SPT* at 3.0 m: 5 / 2 // 2 / 1 / 1 / 3 / 3 / 3 (N = 7), Recovery = 77% (*blowcounts recorded in 75 mm intervals)	4	7	13	68	19	8
4		SAND, silty, trace gravel, moist, loose, grey; fine sand; coarse subrounded gravel; contains dark brown elongate wood pieces up to 15 mm long						7
5		SAND, some silt, trace to some gravel, damp, compact, browny grey; fine to coarse sand; fine subangular to subrounded gravel; contains thin lenses of stiff grey SILT SPT* at 4.6 m: 2 / 4 // 4 / 4 / 4 / 4 / 3 / 5 (N = 16), Recovery = 62% (*blowcounts recorded in 75 mm intervals)	5	16	13	77	10	6
6		SPT* at 6.1 m: 6 / 5 // 4 / 4 / 3 / 4 / 4 / 5 (N = 15), Recovery = 66% (*blowcounts recorded in 75 mm intervals)	6	15	11	77	12	5
7		-grey below 7.6 m						4
8		SPT* at 7.6 m: 6 / 7 // 6 / 8 / 7 / 9 / 8 / 9 (N = 30), Recovery = 81% (*blowcounts recorded in 75 mm intervals)	7	30	15	83	2	3
9		SILT, sandy, trace clay, trace gravel, damp, firm, grey, non-plastic; fine sand; contains frequent elongate fragments of dark brown wood debris up to 20 mm long SPT* at 9.1 m: 1 / 1 // 2 / 2 / 1 / 1 / 1 / 2	8	6	67	32	1	2



DRILLING CONTRACTOR: Mud Bay Drilling Co.		COMPLETION DEPTH: 38.2m
DRILLING RIG TYPE: Fraste Multidrill XL		STARTED: 12/4/2012
LOGGED BY: RB		COMPLETED: 12/6/2012
REVIEWED BY: BH		Page 1 of 5

A TETRA TECH COMPANY
1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

BOREHOLE LOG: MR12-S3-524

LOCATION: Clarke Street between Grant St and Mary St		PROJECT NO: V13103058-01
STATION: 519+780	OFFSET: 15 m R	ELEVATION: 11 m
CLIENT: SGJV	NORTHING: 5458150	EASTING: 510753
		ZONE: 10

Depth (m)	DRILLING METHOD	DESCRIPTION	SAMPLE NUMBER	PENETRATION TESTS (Blows/300mm)	FINES (%)	SAND (%)	GRAVEL (%)	Elevation (m)
	Mud Rotary (Normal Circulation)	(N = 6), Recovery = 87% (*blowcounts recorded in 75 mm intervals)						
11		ORGANIC SILT, some clay to clayey, trace sand, trace gravel, trace shells, moist, firm, grey, high plasticity; fine sand, fine subangular gravel	ST1					0
		Nilcon vane test at 11.7 m						
12		Inferred SILT, some clay, trace sand, moist, firm, grey, low plasticity	ST2					-1
13		Nilcon vane test at 13.3 m						-2
14		CLAY, silty, trace sand, trace gravel, moist, firm, grey, low plasticity; fine to medium sand; fine subangular gravel	ST3					-3
		Nilcon vane test at 14.8 m						
15								-4
16								-5
17		SILT, sandy, some clay, moist, stiff, grey, low plasticity; fine sand SPT* at 16.5 m: 9 / 6 // 4 / 2 / 2 / 1 / 2 / 2 (N = 9), Recovery = 116% (*blowcounts recorded in 75 mm intervals)	9	9				-6
18		SILT, some sand, some clay, damp, stiff, non-plastic, grey; fine sand SPT* at 18 m: 3 / 3 // 3 / 3 / 2 / 2 / 3 / 2 (N = 10), Recovery = 100% (*blowcounts recorded in 75 mm intervals)	10	10	84	16	0	-7
19								-8

GRAPHICAL LEGEND / SAMPLE TYPE

SHEAR WAVE VELOCITY (m/s): 160 240 480 640

STANDARD PENETRATION TEST (N)

LARGE PENETRATION TEST (N) (Blows/300mm): 10 20 30 40

PARTICLE SIZE DISTRIBUTION

POCKET PEN. (kPa): 100 200 300 400

FIELD VANE (kPa): REMOULDED / PEAK; 10 20 30 40

PLASTIC / M.C. / LIQUID: 20 40 60 80

VW23920 / VW24019

ND

EBA A TETRA TECH COMPANY
1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

DRILLING CONTRACTOR: Mud Bay Drilling Co.	COMPLETION DEPTH: 38.2m
DRILLING RIG TYPE: Fraste Multidrill XL	STARTED: 12/4/2012
LOGGED BY: RB	COMPLETED: 12/6/2012
REVIEWED BY: BH	Page 2 of 5

BOREHOLE LOG: MR12-S3-524

EGRT CONSTRUCTION

LOCATION: Clarke Street between Grant St and Mary St		PROJECT NO: V13103058-01
STATION: 519+780	OFFSET: 15 m R	ELEVATION: 11 m
CLIENT: SGJV	NORTHING: 5458150	EASTING: 510753
		ZONE: 10

Depth (m)	DRILLING METHOD	DESCRIPTION	GRAPHICAL LEGEND	SAMPLE TYPE	SAMPLE NUMBER	PENETRATION TESTS (Blows/300mm)	SHEAR WAVE VELOCITY (m/s) 160 240 480 640 / STANDARD PENETRATION TEST (N) / LARGE PENETRATION TEST (N) (Blows/300mm) 10 20 30 40	PARTICLE SIZE DISTRIBUTION FINES (%)	SAND (%)	GRAVEL (%)	POCKET PEN. (kPa) 100 200 300 400 / FIELD VANE (kPa) REMOULDED PEAK 10 20 30 40 / PLASTIC M.C. LIQUID 20 40 60 80	VW23920	VW24019	Elevation (m)
21	Mud Rotary (Normal Circulation)	SPT* at 20.7 m: 6 / 10 // 13 / 13 / 11 / 11 / 9 / 12 (N = 48), Recovery = 84% (*blowcounts recorded in 75 mm intervals)			11	48		8	90	2				-10
		SAND, trace silt, trace gravel, damp, dense, grey; fine to coarse sand												
22		Pressuremeter Test #1 at 22.1 m												-11
23														-12
24														-13
25														-14
26		Pressuremeter Test #2 at 26.4 m												-15
27														-16
28		Inferred SILT, sandy, trace gravel, dense to very dense, grey (TILL-LIKE)												-17
29														-18

eba A TETRA TECH COMPANY
1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

DRILLING CONTRACTOR: Mud Bay Drilling Co.	COMPLETION DEPTH: 38.2m
DRILLING RIG TYPE: Fraste Multidrill XL	STARTED: 12/4/2012
LOGGED BY: RB	COMPLETED: 12/6/2012
REVIEWED BY: BH	Page 3 of 5

BOREHOLE LOG: MR12-S3-524

LOCATION: Clarke Street between Grant St and Mary St		PROJECT NO: V13103058-01
STATION: 519+780	OFFSET: 15 m R	ELEVATION: 11 m
CLIENT: SGJV	NORTHING: 5458150	EASTING: 510753
		ZONE: 10

Depth (m)	DRILLING METHOD	DESCRIPTION	GRAPHICAL LEGEND	SAMPLE TYPE	SAMPLE NUMBER	PENETRATION TESTS (Blows/300mm)	SHEAR WAVE VELOCITY (m/s) 160 240 480 640 / STANDARD PENETRATION TEST (N) / LARGE PENETRATION TEST (N) (Blows/300mm) 10 20 30 40	PARTICLE SIZE DISTRIBUTION FINES (%)	SAND (%)	GRAVEL (%)	POCKET PEN. (kPa) 100 200 300 400 / FIELD VANE (kPa) REMOULDED PEAK 10 20 30 40 / PLASTIC M.C. LIQUID 20 40 60 80	VW23920	VW24019	Elevation (m)
31	Mud Rotary (Normal Circulation)													-20
32														-21
33														-22
34														-23
35														-24
36														-25
37														-26
38		SPT* at 38.1 m: 60 / 93 // - / - / - / - / - / - (N > 50), Recovery = 158% (*blowcounts recorded in 75 mm intervals)			12	>153		50	43	7				-27
		End of Testhole at 38.2 m (target depth reached). - Testhole grouted to surface with 63.5 mm diameter Sch. 40 PVC casing and vibrating-wire piezometers installed at 12.0 and 36.4 m. - Estimates of the soil consistency were determined from overburden stress, drill rig performance, insitu test results and visual classification of recovered samples. These												

A TETRA TECH COMPANY
1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

DRILLING CONTRACTOR: Mud Bay Drilling Co.	COMPLETION DEPTH: 38.2m
DRILLING RIG TYPE: Fraste Multidrill XL	STARTED: 12/4/2012
LOGGED BY: RB	COMPLETED: 12/6/2012
REVIEWED BY: BH	Page 4 of 5

BOREHOLE LOG: MR12-S3-524

LOCATION: Clarke Street between Grant St and Mary St			PROJECT NO: V13103058-01
STATION: 519+780	OFFSET: 15 m R		ELEVATION: 11 m
CLIENT: SGJV	NORTHING: 5458150	EASTING: 510753	ZONE: 10

Depth (m)	DRILLING METHOD	DESCRIPTION	GRAPHICAL LEGEND	SAMPLE TYPE	SAMPLE NUMBER	PENETRATION TESTS (Blows/300mm)	SHEAR WAVE VELOCITY (m/s) 160 240 480 640 / STANDARD PENETRATION TEST (N) / LARGE PENETRATION TEST (N) (Blows/300mm) 10 20 30 40	PARTICLE SIZE DISTRIBUTION: FINES (%)	SAND (%)	GRAVEL (%)	POCKET PEN. (kPa) 100 200 300 400 / FIELD VANE (kPa) REMOULDED PEAK 10 20 30 40 / PLASTIC M.C. LIQUID 20 40 60 80	VW23920	VW24019	Elevation (m)
		estimates are based on engineering judgement and are subjective. - SPT blowcounts were recorded in 75 mm (3") intervals. - Reported blowcounts are uncorrected field values. - SPT recovery is based on the length of the recovered sample compared to the distance driven. - Moisture content values for cohesionless soils may not be representative of in-situ conditions due to drilling disturbance. - Borehole location, collar elevation and chainage/offset are approximate.												

DRILLING CONTRACTOR: Mud Bay Drilling Co.		COMPLETION DEPTH: 38.2m
DRILLING RIG TYPE: Fraste Multidrill XL		STARTED: 12/4/2012
LOGGED BY: RB		COMPLETED: 12/6/2012
REVIEWED BY: BH		Page 5 of 5

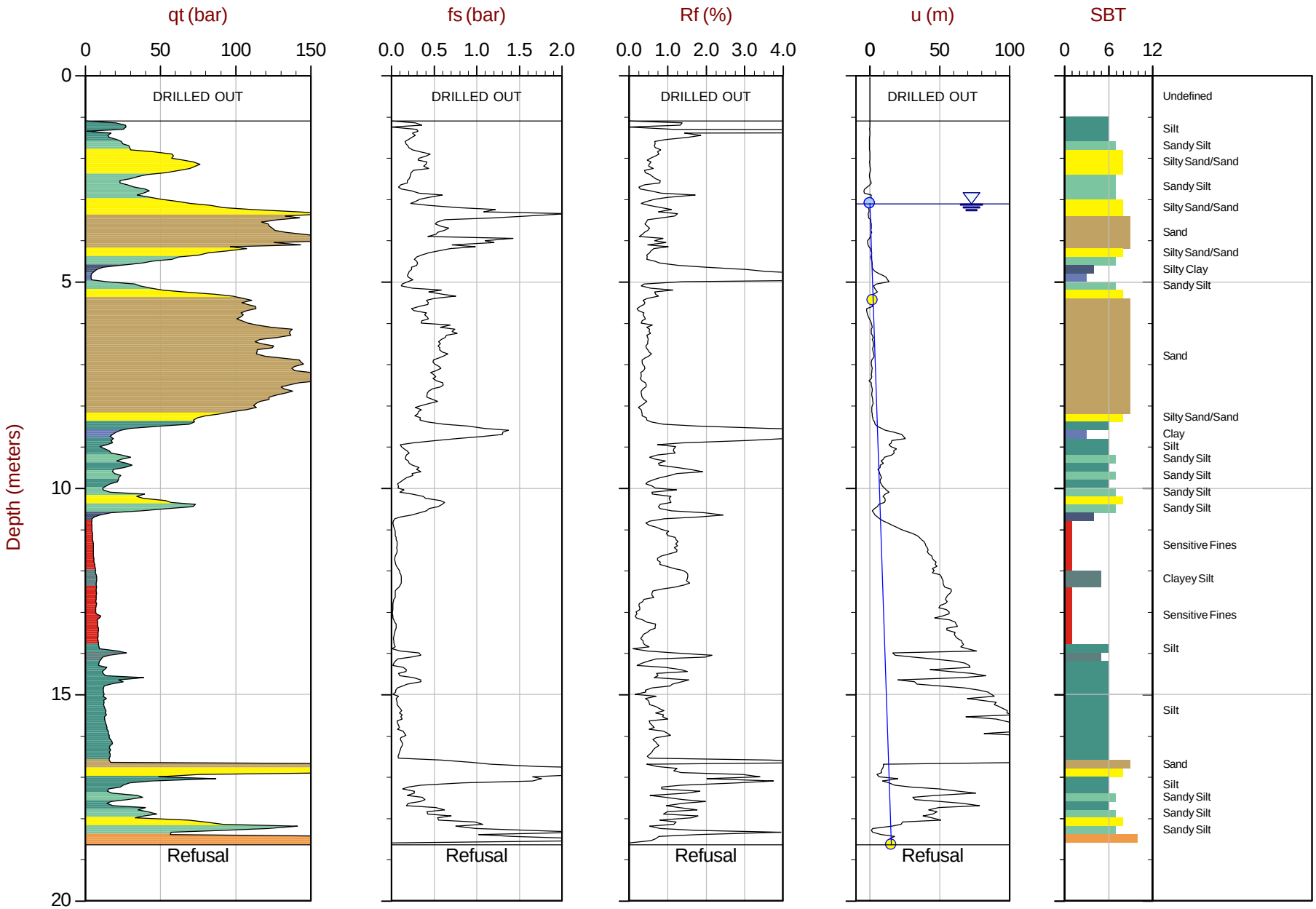
A TETRA TECH COMPANY
1066 West Hastings Street
Vancouver
BC V6E 3X2
CANADA
p. 604.685.0275
f. 604.684.6241

CONETEC

GRAHAM

Job No: 13-02006
Date: 05:01:13 12:47
Site: Clarke St., Port Moody, BC

Sounding: CPT13-619+800
Cone: 351:T1500F15U500



Max Depth: 18.650 m / 61.19 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.200 m

File: 13-02006_CP619800.COR
Unit Wt: SBT Chart Soil Zones
Overplot Item: Ueq Assumed Ueq Hydrostatic Line

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM 10N N: 5458361m E: 510668m
Page No: 1 of 1

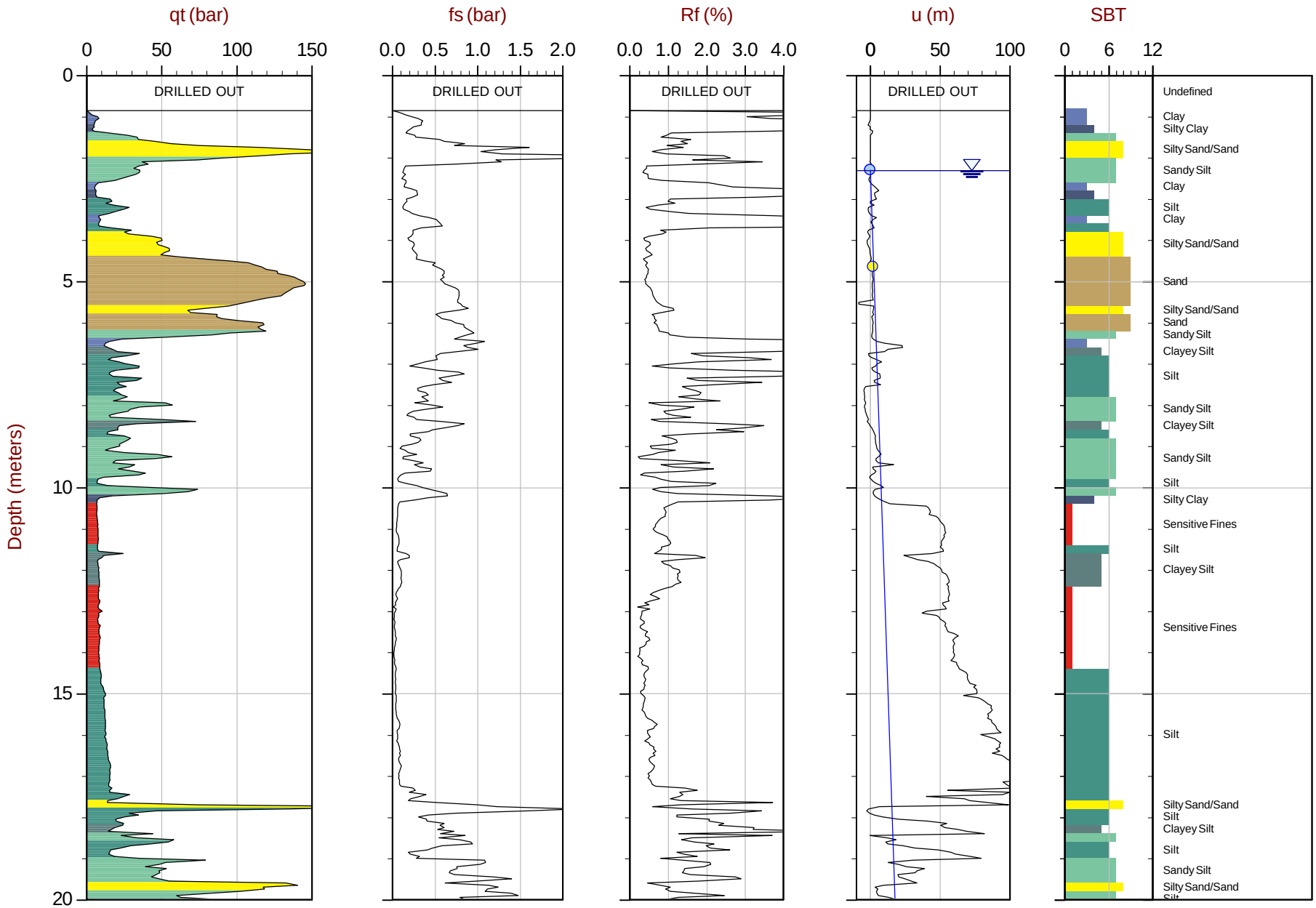
The reported coordinates were acquired from hand-held GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

GRAHAM

Job No: 13-02006
Date: 05:01:13 14:57
Site: Clarke St., Port Moody, BC

Sounding: CPT13-619+880
Cone: 351:T1500F15U500



Max Depth: 21.400 m / 70.21 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.200 m

File: 13-02006_CP619880.COR
Unit Wt: SBT Chart Soil Zones
Overplot Item: Ueq Assumed Ueq Hydrostatic Line

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM 10N N: 5458366m E: 510751m
Page No: 1 of 2

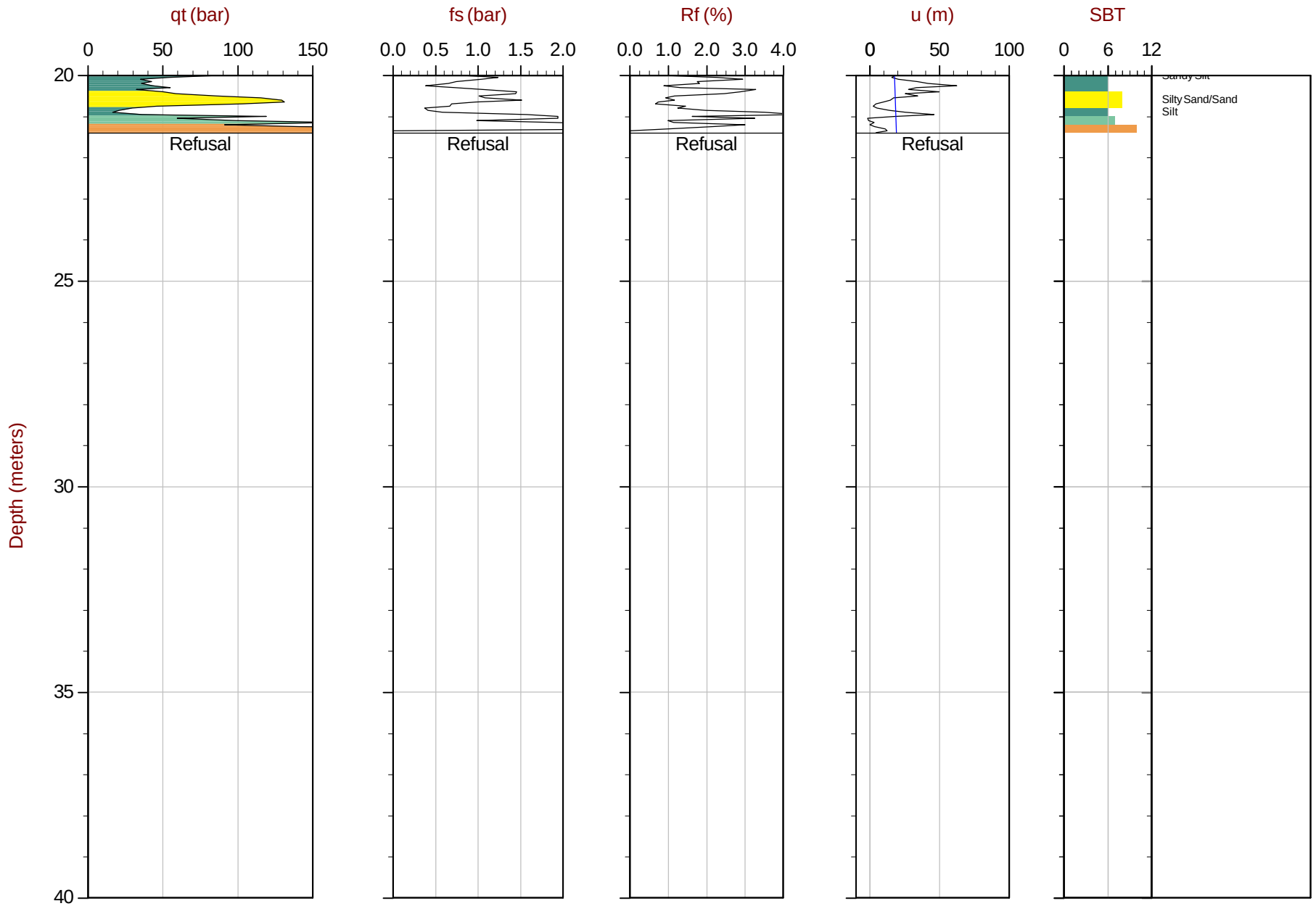
The reported coordinates were acquired from hand-held GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

GRAHAM

Job No: 13-02006
Date: 05:01:13 14:57
Site: Clarke St., Port Moody, BC

Sounding: CPT13-619+880
Cone: 351:T1500F15U500



Max Depth: 21.400 m / 70.21 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.200 m

File: 13-02006_CP619880.COR
Unit Wt: SBT Chart Soil Zones
Overplot Item: Ueq Assumed Ueq Hydrostatic Line

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM 10N N: 5458366m E: 510751m
Page No: 2 of 2

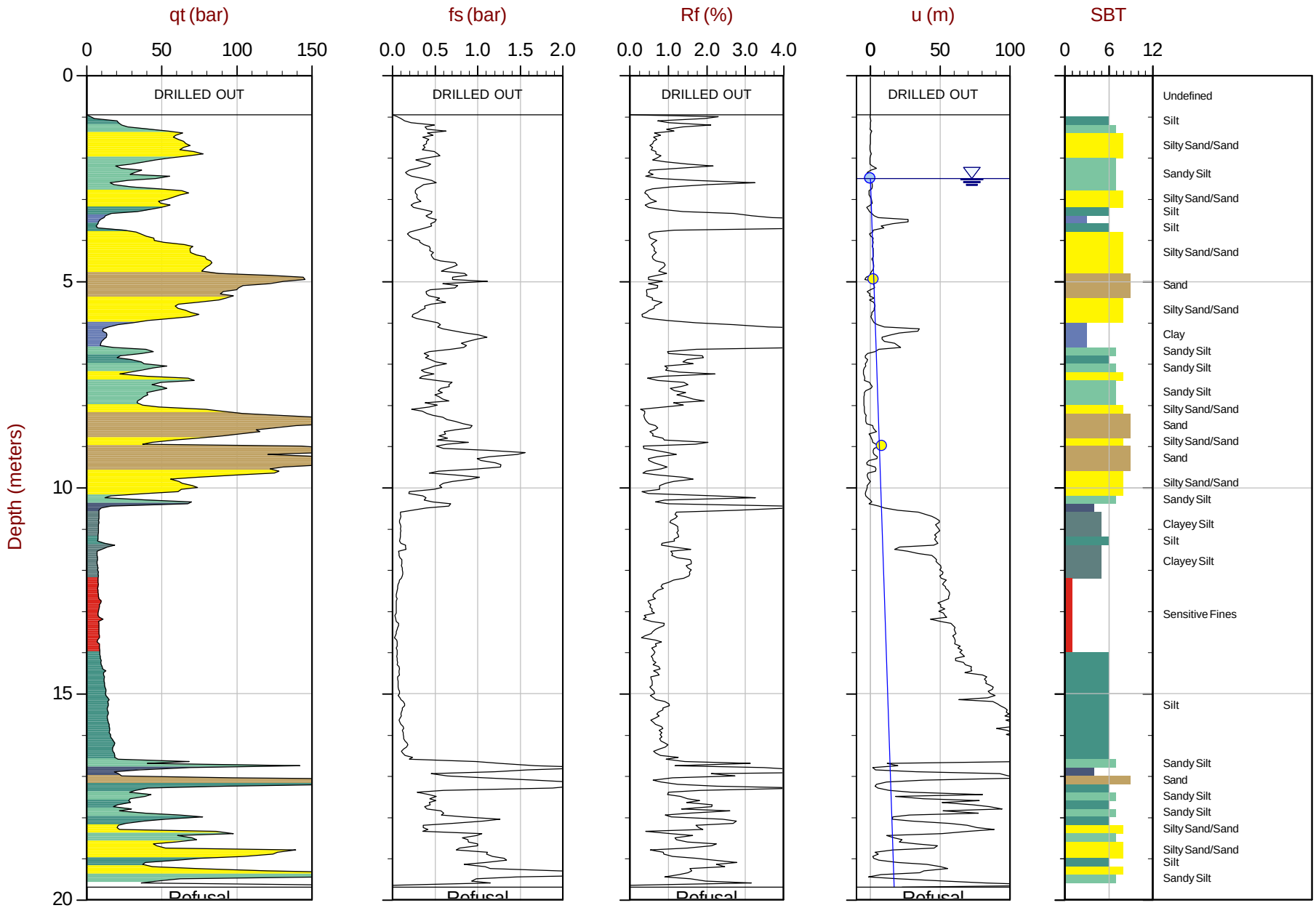
The reported coordinates were acquired from hand-held GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

GRAHAM

Job No: 13-02006
Date: 05:02:13 08:58
Site: Clarke St., Port Moody, BC

Sounding: CPT13-619+900
Cone: 351:T1500F15U500



Max Depth: 19.700 m / 64.63 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.200 m

File: 13-02006_CP619900.COR
Unit Wt: SBT Chart Soil Zones
Overplot Item: Ueq Assumed Ueq Hydrostatic Line

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM 10N N: 5458354 m E: 510763 m
Page No: 1 of 1

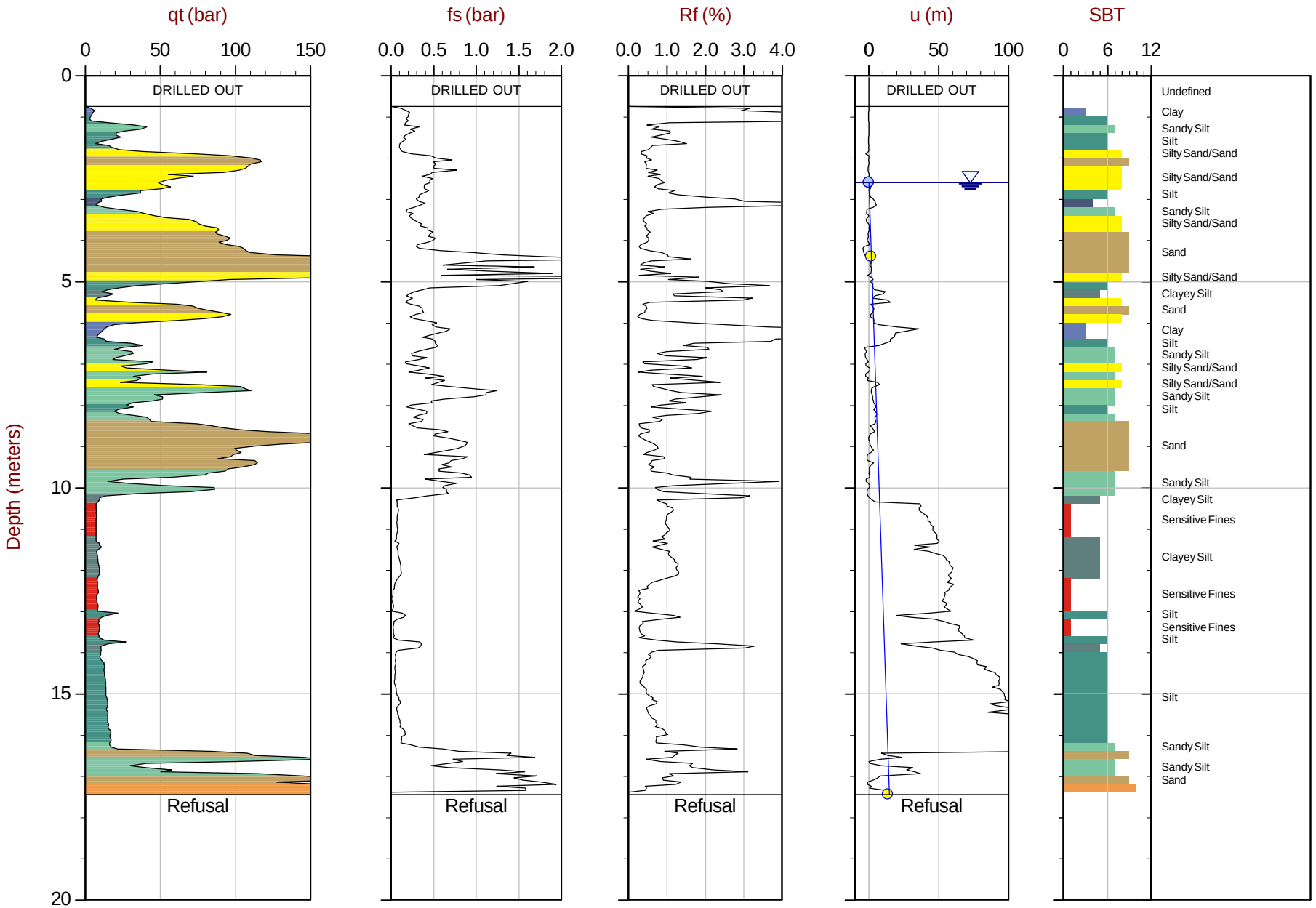
The reported coordinates were acquired from hand-held GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

GRAHAM

Job No: 13-02006
Date: 05:02:13 10:42
Site: Clarke St., Port Moody, BC

Sounding: CPT13-619+920
Cone: 351:T1500F15U500



Max Depth: 17.450 m / 57.25 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.200 m

File: 13-02006_CP619920.COR
Unit Wt: SBT Chart Soil Zones
Overplot Item: Ueq Assumed Ueq Hydrostatic Line

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM 10N N: 5458357 m E: 510788m
Page No: 1 of 1

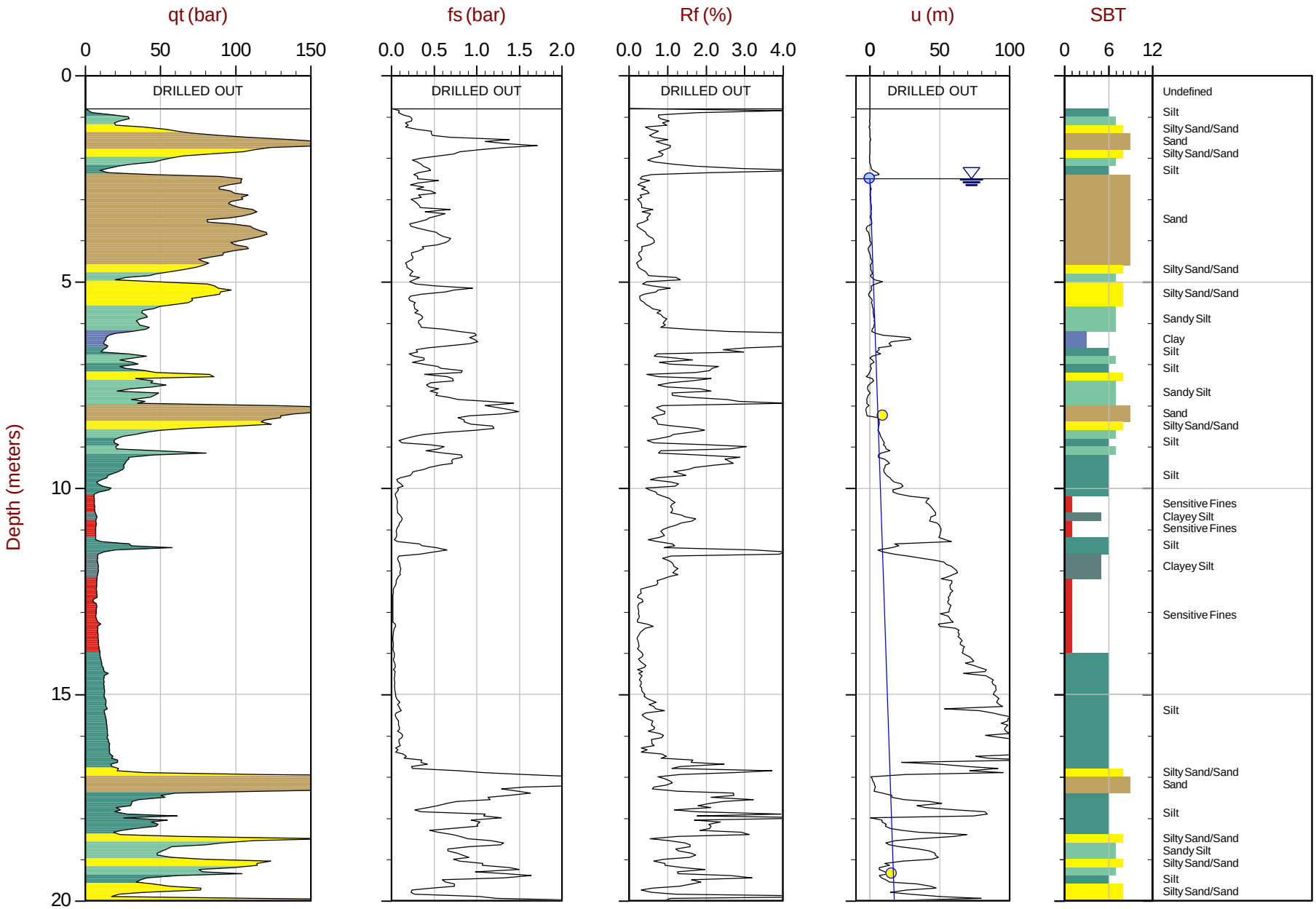
The reported coordinates were acquired from hand-held GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

GRAHAM

Job No: 13-02006
Date: 05:02:13 16:01
Site: Clarke St., Port Moody, BC

Sounding: CPT13-619+961
Cone: 351:T1500F15U500



Max Depth: 20.900 m / 68.57 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.200 m

File: 13-02006_CP619961.COR
Unit Wt: SBT Chart Soil Zones
Overplot Item: Ueq Assumed Ueq Hydrostatic Line

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM 10N N: 5458359 m E: 510826 m
Page No: 1 of 2

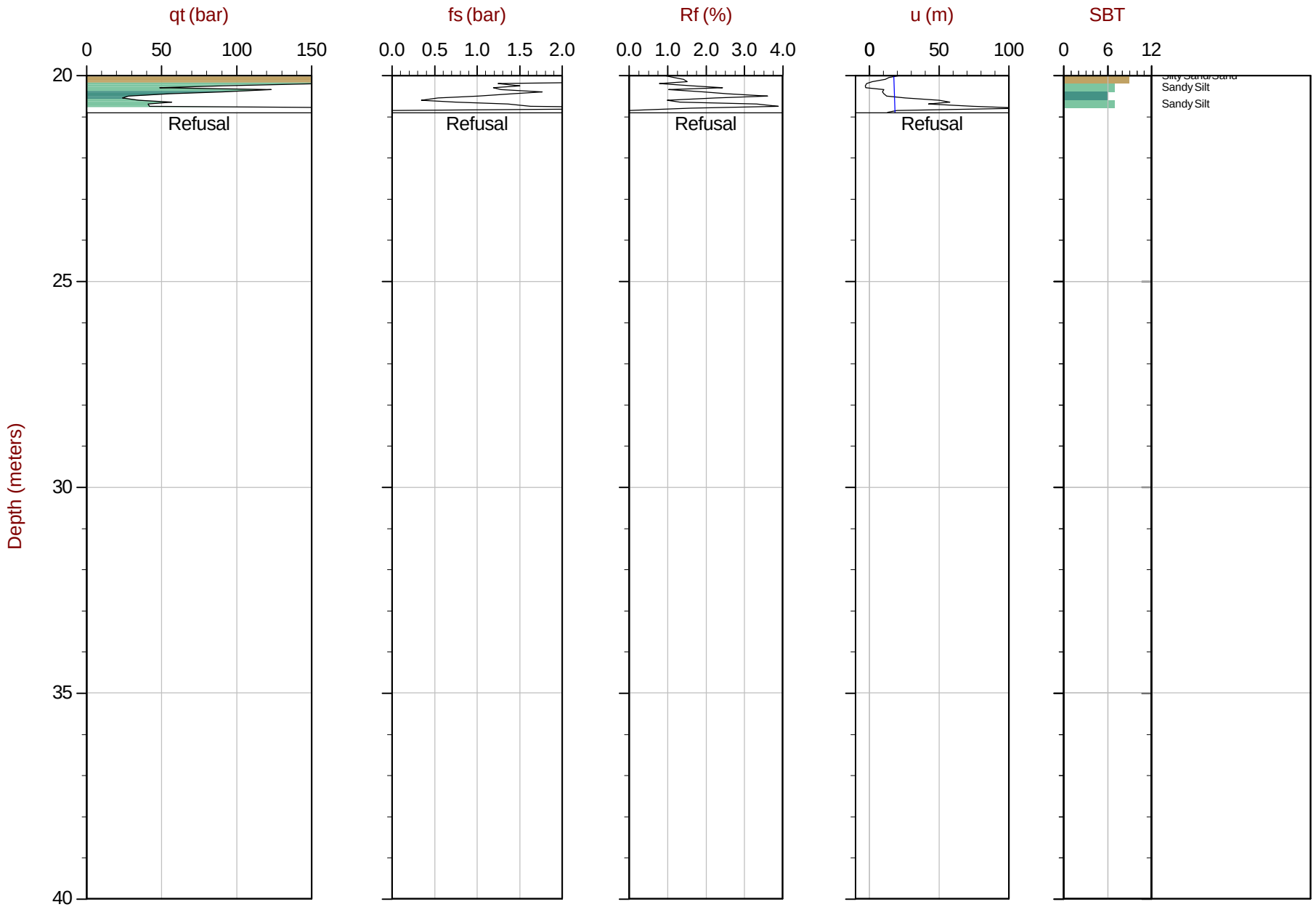
The reported coordinates were acquired from hand-held GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

GRAHAM

Job No: 13-02006
Date: 05:02:13 16:01
Site: Clarke St., Port Moody, BC

Sounding: CPT13-619+961
Cone: 351:T1500F15U500



Max Depth: 20.900 m / 68.57 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.200 m

File: 13-02006_CP619961.COR
Unit Wt: SBT Chart Soil Zones
Overplot Item: Ueq Assumed Ueq Hydrostatic Line

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM 10N N: 5458359m E: 510826m
Page No: 2 of 2

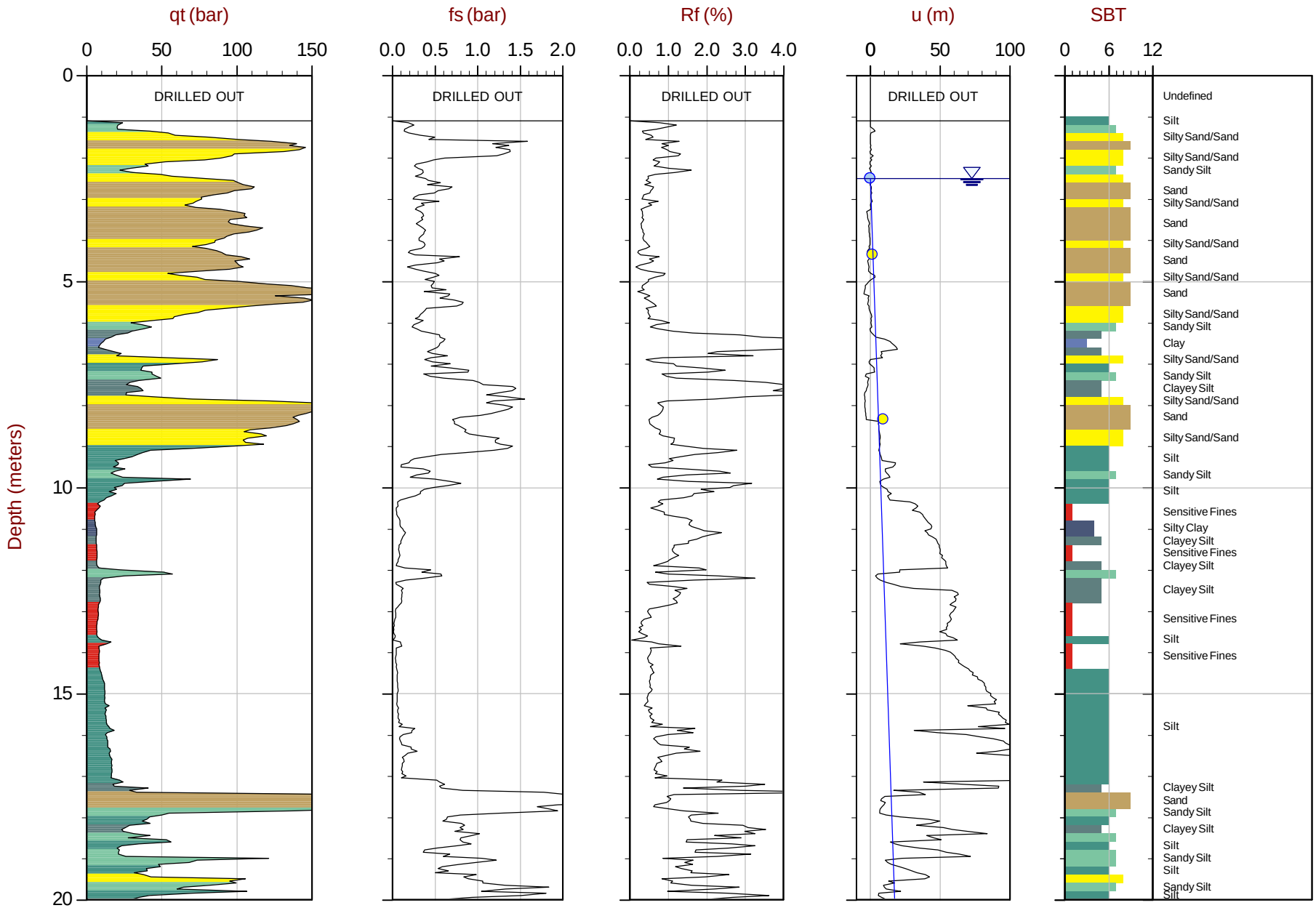
The reported coordinates were acquired from hand-held GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

GRAHAM

Job No: 13-02006
Date: 05:02:13 14:05
Site: Clarke St., Port Moody, BC

Sounding: CPT13-619+980
Cone: 351:T1500F15U500



Max Depth: 23.350 m / 76.61 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.200 m

File: 13-02006_CP619980.COR
Unit Wt: SBT Chart Soil Zones
Overplot Item: Ueq Assumed Ueq Hydrostatic Line

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM 10N N: 5458365m E: 510846m
Page No: 1 of 2

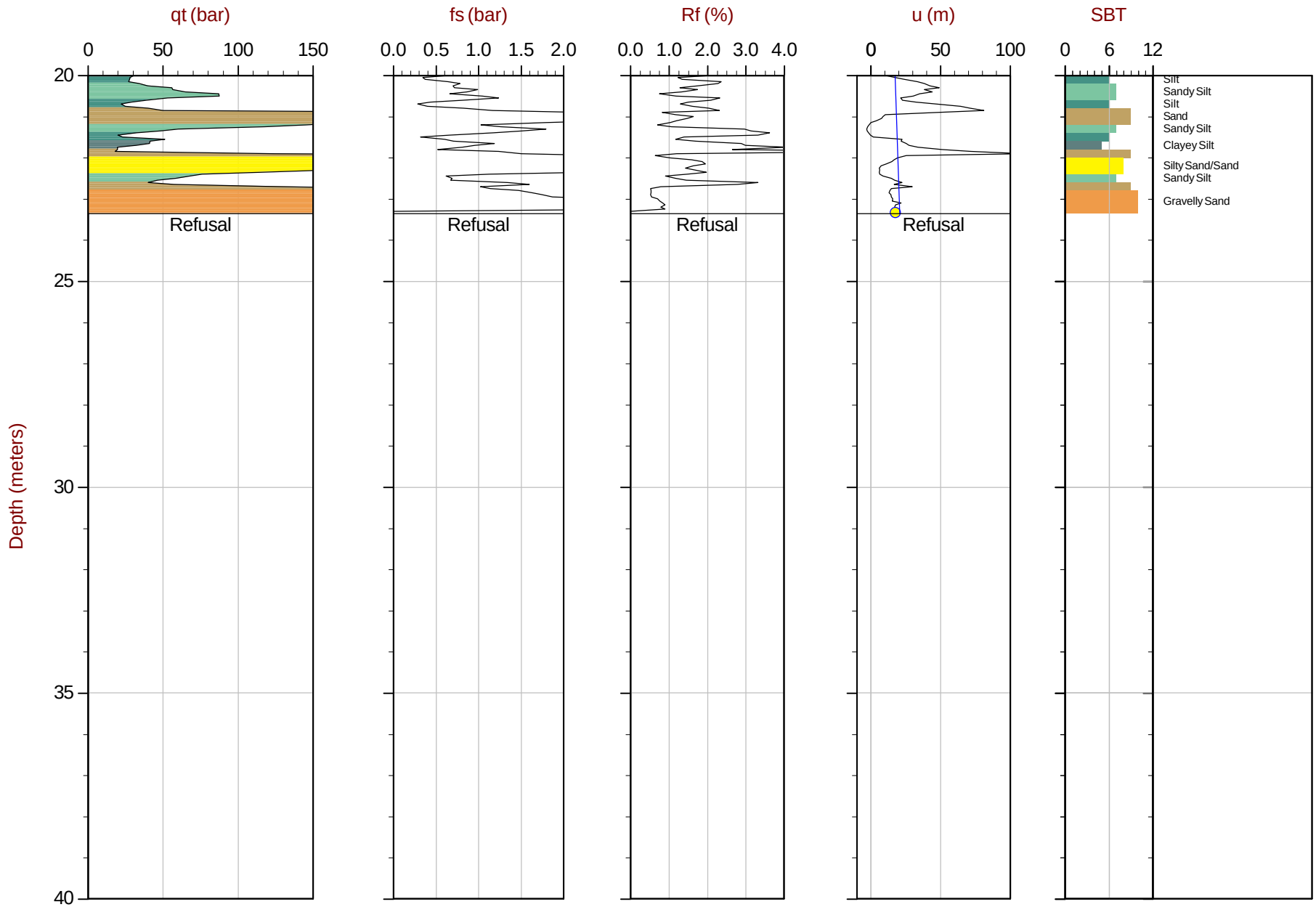
The reported coordinates were acquired from hand-held GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

GRAHAM

Job No: 13-02006
Date: 05:02:13 14:05
Site: Clarke St., Port Moody, BC

Sounding: CPT13-619+980
Cone: 351:T1500F15U500



Max Depth: 23.350 m / 76.61 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.200 m

File: 13-02006_CP619980.COR
Unit Wt: SBT Chart Soil Zones
Overplot Item: Ueq Assumed Ueq Hydrostatic Line

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM 10N N: 5458365m E: 510846m
Page No: 2 of 2

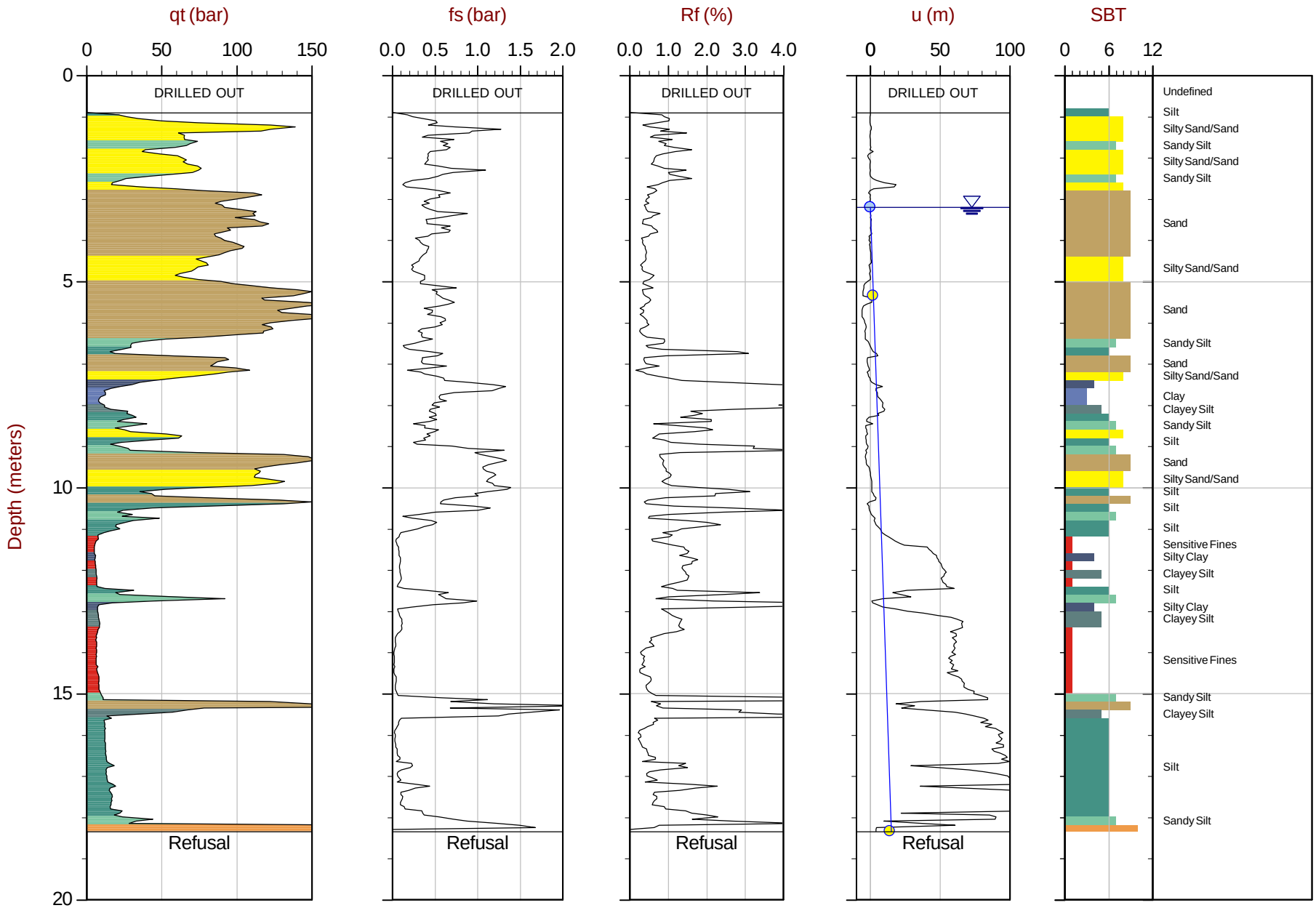
The reported coordinates were acquired from hand-held GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

GRAHAM

Job No: 13-02006
Date: 05:02:13 12:14
Site: Clarke St., Port Moody, BC

Sounding: CPT13-620+000
Cone: 351:T1500F15U500



Max Depth: 18.350 m / 60.20 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: 0.200 m

File: 13-02006_CP620000.COR
Unit Wt: SBT Chart Soil Zones
Overplot Item: Ueq Assumed Ueq Hydrostatic Line

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM 10N N: 5458367 m E: 510872 m
Page No: 1 of 1

The reported coordinates were acquired from hand-held GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Appendix III

NBCC 2020 Seismic Hazard Parameters

Government of Canada / Gouvernement du Canada

Canada.ca > Natural Resources Canada > Earthquakes Canada

2020 National Building Code of Canada Seismic Hazard Tool

This application provides seismic values for the design of buildings in Canada under Part 4 of the National Building Code of Canada (NBC) 2020 as prescribed in Article 1.1.3.1. of Division B of the NBC 2020.

Seismic Hazard Values

User requested values

Code edition	NBC 2020
Site designation X_S	X_D
Latitude (°)	49.278
Longitude (°)	-122.852

Please select one of the tabs below.

NBC 2020 | Additional Values | Plots | API | Background Information

The NBC 5% damped spectral acceleration values can be viewed in the NBC tab. Additional hazard values for your site can be found below.

The 5%-damped spectral acceleration (S_a(T), where T is the period, in s) and peak ground acceleration (PGA) values are given in units of acceleration due to gravity (g, 9.81 m/s^2). Peak ground velocity (PGV) is given in m/s. Probability is expressed in terms of percent (%) exceedance in 50 years.

By default, all probabilities for the user-specified site designation are shown. Other site designations can be selected from the respective drop-down menu in the table. In low hazard regions, a minimum value of 0.001g for T ≤ 2.0s and of 0.0001g for T > 2.0s is assigned. Further information on the calculation of seismic hazard is provided in the *Background Information* tab.

Site Designation: XD	Probability: All	$S_a(0.05)$	$S_a(0.1)$	$S_a(0.2)$	$S_a(0.3)$	$S_a(0.5)$	$S_a(1.0)$	$S_a(2.0)$	$S_a(5.0)$	$S_a(10.0)$	PGA	PGV
X_D	2	0.606	0.868	1.02	1.12	1.06	0.753	0.46	0.142	0.0541	0.468	0.697
X_D	2.5	0.556	0.801	0.953	1.05	0.982	0.689	0.412	0.121	0.0448	0.435	0.629
X_D	3.5	0.489	0.703	0.851	0.931	0.866	0.599	0.345	0.0942	0.0338	0.387	0.538
X_D	5	0.423	0.61	0.75	0.819	0.753	0.51	0.282	0.0725	0.0254	0.339	0.45
X_D	7	0.365	0.53	0.661	0.717	0.654	0.433	0.23	0.057	0.0197	0.295	0.378
X_D	10	0.311	0.452	0.57	0.618	0.555	0.36	0.183	0.0442	0.015	0.253	0.31
X_D	14	0.263	0.385	0.491	0.529	0.469	0.298	0.145	0.0346	0.0115	0.216	0.254
X_D	20	0.216	0.319	0.412	0.44	0.386	0.238	0.112	0.0262	0.00849	0.178	0.203
X_D	30	0.167	0.247	0.325	0.345	0.298	0.179	0.0811	0.0184	0.00572	0.139	0.153
X_D	40	0.133	0.199	0.265	0.281	0.24	0.141	0.0625	0.0138	0.00412	0.112	0.121

Download CSV

← Go back to the seismic hazard calculator form

Date modified: 2021-04-06

Appendix IV

Liquefaction Triggering Assessment

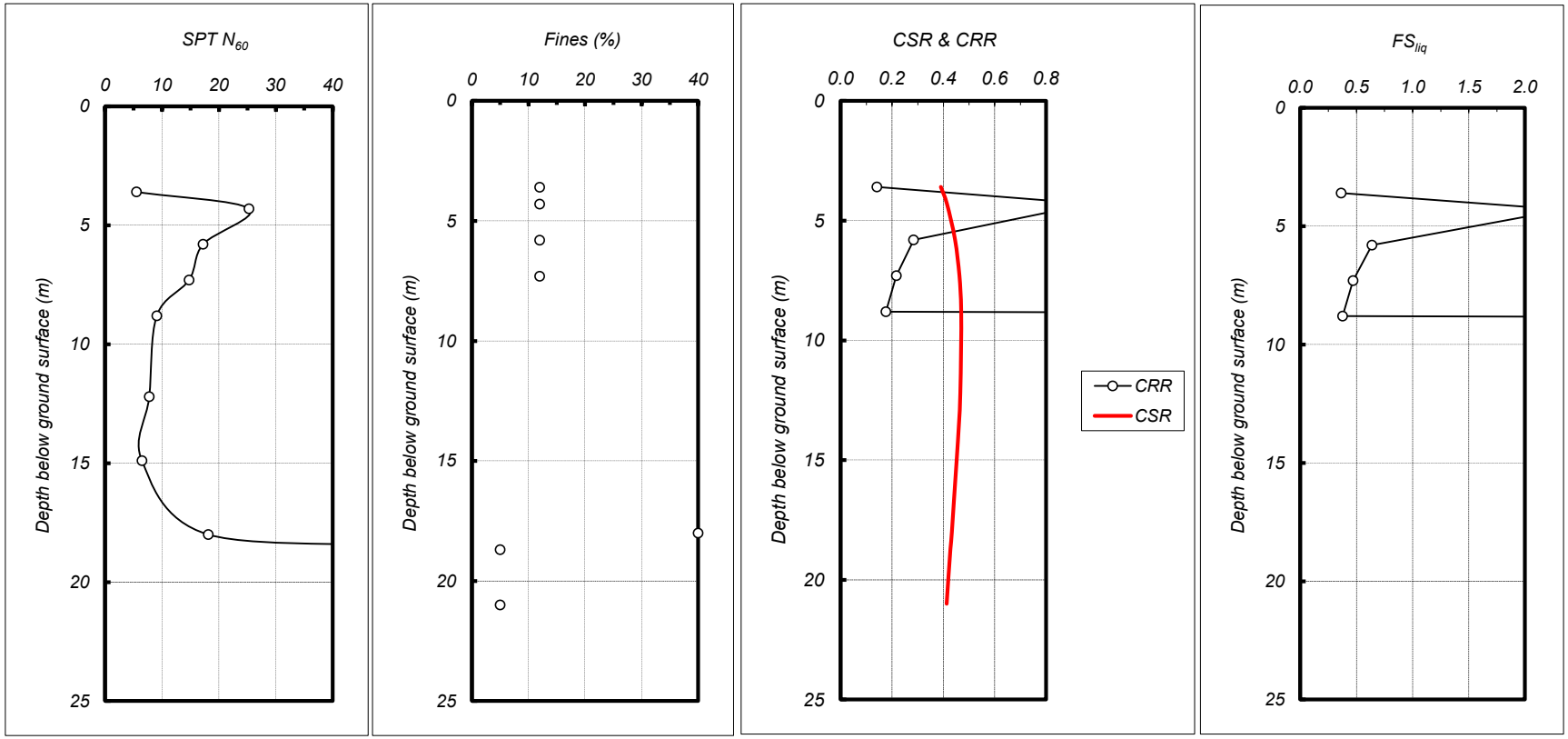
2022-12-15

SNC·LAVALIN

Project: Moody Centre PPS
Borehole: BH09-305
Station: 0

Input parameters:

Peak ground accel (g) =	0.47
Earthquake magnitude, M =	7.1
Water table depth (m) =	2
Average g above water table (kN/m3) =	18
Average g below water table (kN/m3) =	18
Hammer Energy Ratio=	74



GeoLogismiki
Geotechnical Engineers
Merarhias 56
http://www.geologismiki.gr

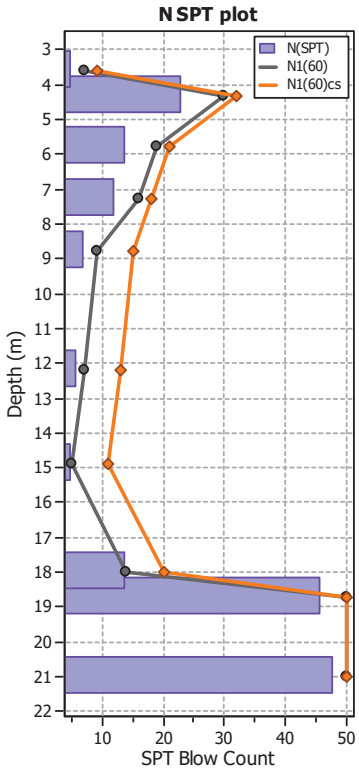
SPT BASED LIQUEFACTION ANALYSIS REPORT

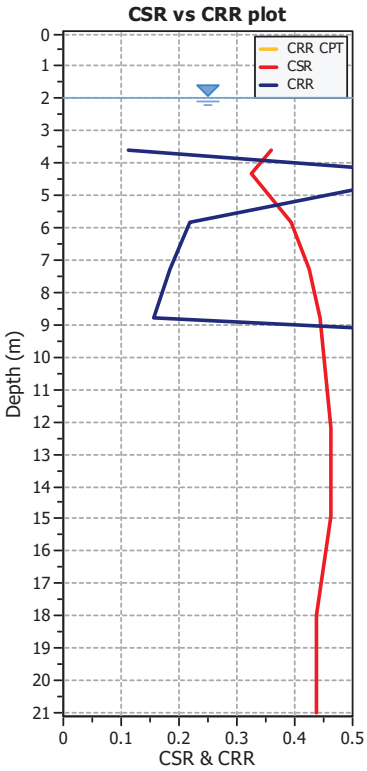
Project title : Moody Centre PPS Building **Location : Port Moody, BC**

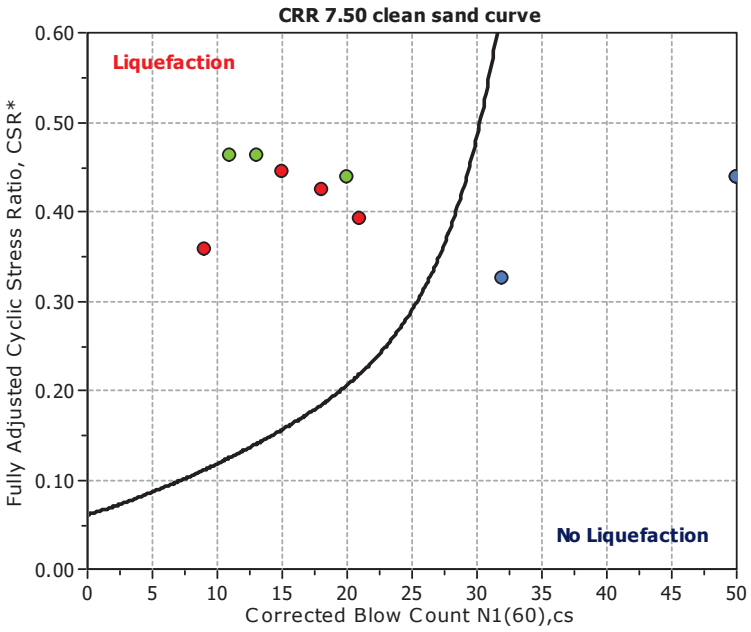
Borehole Name : BH09-305

:: Input parameters and analysis properties ::

Analysis method:	Idriss & Boulanger 2014	G.W.T. (in-situ):	2.00	EQ site conditions:	Same as initial
Fines correction method:	Idriss & Boulanger 2014	G.W.T. (earthq.):	2.00		
Sampling method:	Standard Sample	Earthquake magnitude M_w:	7.10		
Borehole diameter:	65 mm to 11 5mm	Peak ground acceleration:	0.47		
Rod length:	1.50	SPT results rounding mode:	Nearest		
Hammer energy ratio:	1.23				







:: Cyclic Stress Ratio fully adjusted (CSR*) numeric results ::

No	Depth (m)	Weight (kN/m³)	u_o (kPa)	σ_v (kPa)	Ext. Load (kPa)	σ'_v (kPa)	r_d	CSR	K_σ	MSF_{max}	MSF	CSR^*
1	3.60	18.00	15.70	64.80	0.00	49.10	0.97	0.390	1.06	1.17	1.02	0.358
2	4.30	18.00	22.56	77.40	0.00	54.84	0.96	0.414	1.10	2.12	1.16	0.325
3	5.80	18.00	37.28	104.40	0.00	67.12	0.94	0.446	1.06	1.53	1.07	0.392
4	7.30	18.00	51.99	131.40	0.00	79.41	0.91	0.462	1.03	1.42	1.06	0.424
5	8.80	18.00	66.71	158.40	0.00	91.69	0.89	0.470	1.01	1.32	1.04	0.445
6	12.20	17.00	100.06	216.20	0.00	116.14	0.83	0.472	0.99	1.26	1.04	2.000
7	14.90	17.00	126.55	262.10	0.00	135.55	0.78	0.463	0.97	1.21	1.03	2.000
8	18.00	18.50	156.96	319.45	0.00	162.49	0.73	0.439	0.94	1.49	1.07	2.000
9	18.70	18.50	163.83	332.40	0.00	168.57	0.72	0.433	0.85	2.20	1.17	0.439
10	21.00	18.50	186.39	374.95	0.00	188.56	0.68	0.416	0.81	2.20	1.17	0.438

Abbreviations

Depth: Depth from free surface where SPT was performed (m) during eq.
u_0: Water pressure at test point (kPa) during eq.
σ_v: Total overburden pressure at test point (kPa) during eq.
σ_v': Effective overburden pressure based on GWT during earthquake (kPa) during eq.
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Effective overburden stress factor
K_σ: Magnitude Scaling Factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) numeric results ::

No	Depth (m)	Fines %	u_o (kPa)	σ_v (kPa)	σ'_v (kPa)	N_{SPT}	C_N	C_R	C_B	C_S	C_E	$N_{1(60)}$	$\Delta(N_1)_{60}$	$N_{1(60),cs}$	$CRR_{7.5}$	F.S.
1	3.60	12.00	15.70	64.80	49.10	5	1.49	0.85	1.00	1.00	1.23	7	2.07	9	0.111	0.31
2	4.30	12.00	22.56	77.40	54.84	23	1.24	0.85	1.00	1.00	1.23	30	2.07	32	0.644	1.98
3	5.80	12.00	37.28	104.40	67.12	14	1.19	0.95	1.00	1.00	1.23	19	2.07	21	0.219	0.56
4	7.30	12.00	51.99	131.40	79.41	12	1.12	0.95	1.00	1.00	1.23	16	2.07	18	0.184	0.43
5	8.80	55.00	66.71	158.40	91.69	7	1.05	1.00	1.00	1.00	1.23	9	5.61	15	0.156	0.35
6	12.20	80.00	100.06	216.20	116.14	6	0.93	1.00	1.00	1.00	1.23	7	5.54	13	4.000	2.00
7	14.90	80.00	126.55	262.10	135.55	5	0.86	1.00	1.00	1.00	1.23	5	5.54	11	4.000	2.00
8	18.00	40.00	156.96	319.45	162.49	14	0.81	1.00	1.00	1.00	1.23	14	5.58	20	4.000	2.00
9	18.70	5.00	163.83	332.40	168.57	46	0.87	1.00	1.00	1.00	1.23	50	0.00	50	607.527	2.00
10	21.00	5.00	186.39	374.95	188.56	48	0.85	1.00	1.00	1.00	1.23	50	0.00	50	607.527	2.00

Abbreviations

Depth: Depth from free surface where SPT was performed (m)
Weight: Soil unit weight from previous test point to current (kN/m³)
u_0: Water pressure at test point (kPa)
σ_v: Total overburden pressure at test point (kPa)
σ_v': Effective overburden pressure based on in situ GWT (kPa)
N_{SPT}: Number of blows count in the field (blows/30 cm)
C_N: Overburden pressure factor
C_E: Energy ratio factor
C_B: Borehole diameter factor
C_R: Rod length factor
C_S: Sampling method factor
$N_{1(60)}$: Number of blows corrected for 60% energy
$\Delta N_{1(60),cs}$ Fines correction
$N_{1(60),cs}$: Number of blows corrected for 60% energy and fines
$CRR_{7.5}$: Cyclic Resistance Ratio for M_w 7.50
F.S.: Factor of safety against liquefaction

SNC·LAVALIN

SNC-Lavalin Inc.
Suite 1100 - 745 Thurlow Street
Vancouver, British Columbia, Canada V6E 0C5
t. 604.515.5151
www.snclavalin.com