



File #: 141-55363-02

June 5, 2017

CWH Design Build General Partnership
Unit 650, 1055 W. Hastings St.
Vancouver, BC V6E 2E9

Attention: Mr. Dana Buchart – Deputy Construction Manager

Project: Performance Verification Plan – Meets and Bounds of the Teck Acute Care Centre Development, 880 West 28th Avenue, Vancouver, BC ("Site") ID# 13783

1. INTRODUCTION

WSP Canada Inc. (WSP) has prepared this Performance Verification Plan (PVP) in support of an application for a Certificate of Compliance (CofC) for Metes and Bounds of the Teck Acute Care Centre development located at 880 West 28th Avenue, Vancouver referred to as "Site" with Site ID 13783 for CWH Design Build General Partnership (CWH). This PVP presents the principal risk controls that apply at the Site to ensure the CofC for the Site remains valid (i.e., the key risk controls of Schedule B). The PVP was prepared in accordance with the MOE Procedure 12: Procedures for preparing and issuing contaminated sites legal instruments (2015a) and Administrative Guidance 14 Performance Verification Plans, Contingency Plans and Operations and maintenance Plans (2015b). The BC Ministry of Environment and the Society of Contaminated Sites Approved Professional (CSAP) can rely on this PVP report.

2. PRINCIPAL RISK CONTROLS

A Human Health and Ecological Risk Assessment (HHERA) was conducted for the Site and the results are presented in the WSP report, "Environmental Investigation, Excavation Monitoring and Risk Assessment", 880 West 28 Avenue, Vancouver, BC (WSP 2017b), prepared by WSP Canada Inc. dated 5 June 2017. The HHERA was prepared based on the findings and conclusions presented in the investigation and monitoring sections of WSP 2017b report and data presented in Appendix G of the WSP 2017a report.

The principal risk controls for the Site on which WSP 2017 HHERA was based, as presented in Schedule B of the CofC, are as follows:

WSP Canada Inc.
#100 – 20339 96 Avenue
Langley, British Columbia
V1M 0E4

Tel: +1 604-533-2992
Fax: +1 604-533-0768

www.wspgroup.com

1. Groundwater at the Site must not be used as a drinking water source.
2. Monitor indoor air quality for vapour potential contaminants of concern (PCOCs) that include Ethylbenzene, Chloroform, Naphthalene, Styrene, Toluene and Xylenes within the underground parkade to account for seasonal variations and to demonstrate compliance with CSR RL Standards.
3. The following risk controls apply to the zones of soil contamination as depicted on Figure 12 and outlined in the meets and bounds (See Attachment):

The existing pavement (asphalt or concrete) within Zones A, B and E must be maintained, and reinstated if it is breached.

Metes and bounds description for whole site:

All that part of Block 1009, Except Those Portions on Plans 12393, 12719 and Reference Plan 14318 District Lot 526 Group 1 New Westminster District Plan 10359 which may be more particularly described as:

Starting at the northwesterly corner of said Block 1009 (The Subject Property), thence 105° 33' 45" , a distance of 203.904 metres to the point of commencement;
Thence, 99° 55' 08" , a distance of 25.156 metres;
Thence, 140° 55' 08" , a distance of 16.775 metres;
Thence, 50° 55' 08" , a distance of 1.620 metres;
Thence, 140° 55' 08" , a distance of 13.000 metres;
Thence, 230° 55' 08" , a distance of 2.900 metres;
Thence, 140° 55' 08" , a distance of 2.990 metres;
Thence, 230° 55' 08" , a distance of 3.300 metres;
Thence, 140° 55' 08" , a distance of 5.000 metres;
Thence, 230° 55' 08" , a distance of 93.056 metres;
Thence, 140° 55' 08" , a distance of 73.693 metres;
Thence, 230° 55' 08" , a distance of 4.290 metres;
Thence, 140° 55' 08" , a distance of 4.565 metres;
Thence, 50° 55' 08" , a distance of 1.549 metres;
Thence, 140° 55' 08" , a distance of 36.747 metres;
Thence, 230° 55' 08" , a distance of 7.191 metres;
Thence, 320° 55' 08" , a distance of 1.300 metres;
Thence, 230° 55' 08" , a distance of 2.112 metres;
Thence, 140° 55' 08" , a distance of 6.300 metres;
Thence, 50° 55' 08" , a distance of 14.737 metres;
Thence, 320° 55' 08" , a distance of 4.142 metres;
Thence, 50° 55' 08" , a distance of 24.563 metres;
Thence, 320° 55' 08" , a distance of 10.499 metres;
Thence, 50° 55' 08" , a distance of 21.863 metres;
Thence, 320° 55' 08" , a distance of 14.260 metres;
Thence, 50° 55' 08" , a distance of 42.571 metres;
Thence, 1° 26' 45" , a distance of 17.933 metres;
Thence, 320° 55' 08" , a distance of 11.080 metres;
Thence, 50° 55' 08" , a distance of 39.810 metres;
Thence, 91° 17' 16" , a distance of 36.515 metres;

Thence, northerly and westerly on a curve to the left of radius 8.138 metres, an arc distance of 10.160 metres; - Start Point 1

Thence, $320^{\circ} 55' 08''$, a distance of 88.924 metres;
Thence, $298^{\circ} 25' 18''$, a distance of 14.503 metres;
Thence, northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 9.020 metres;
Thence, northerly and westerly on a curve to the left of radius 49.994 metres, an arc distance of 8.777 metres;
Thence, $271^{\circ} 55' 08''$, a distance of 28.668 metres;
Thence, $268^{\circ} 53' 33''$, a distance of 10.968 metres;
Thence, $238^{\circ} 53' 20''$, a distance of 24.019 metres;
Thence, $230^{\circ} 55' 08''$, a distance of 19.098 metres;
Thence, $200^{\circ} 21' 29''$, a distance of 7.665 metres more or less to the point of commencement.

Zone A – Consisting of three parts

Part 1 of Zone A From Starting Point 1,

Thence, $320^{\circ} 55' 08''$, a distance of 88.924 metres;
Thence, $298^{\circ} 25' 18''$, a distance of 14.503 metres;
Thence, northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 4.510 metres to the commencement point;
From commencement: continue northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 4.510 metres to the commencement point;
Thence, northerly and westerly on a curve to the left of radius 49.994 metres, an arc distance of 8.777 metres;

Part 2 of Zone A From Starting Point 1

Thence, $320^{\circ} 55' 08''$, a distance of 88.924 metres;
Thence, $298^{\circ} 25' 18''$, a distance of 14.503 metres;
Thence, northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 9.020 metres;
Thence, northerly and westerly on a curve to the left of radius 49.994 metres, an arc distance of 8.777 metres;
Thence, $189^{\circ} 50' 23''$, a distance of 8.346 metres to the commencement point;
From commencement point:
Thence, $166^{\circ} 45' 31''$, a distance of 0.951 metres
Thence, $256^{\circ} 52' 14''$, a distance of 1.098 metres
Thence, $346^{\circ} 45' 31''$, a distance of 0.951 metres
Thence, $76^{\circ} 52' 14''$, a distance of 1.098 metres to the point of commencement;

Part 3 of Zone A From Starting Point 1

Thence, $320^{\circ} 55' 08''$, a distance of 88.924 metres;
Thence, $298^{\circ} 25' 18''$, a distance of 14.503 metres;
Thence, northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 9.020 metres;
Thence, northerly and westerly on a curve to the left of radius 49.994 metres, an arc distance of 8.777 metres;
Thence, $271^{\circ} 55' 08''$, a distance of 2.553 metres to point of commencement;
From commencement point:
Thence, $271^{\circ} 55' 08''$, a distance of 1.810 metres;
Thence, $176^{\circ} 54' 29''$, a distance of 2.560 metres;

Thence, 268° 0' 37", a distance of 1.870 metres;

Thence, 176° 54' 29", a distance of 2.468 metres to the point of commencement;

Zone B – From Starting Point 1, thence, 320° 55' 08" , a distance of 75.263m;

thence, 230° 53' 20" , a distance of 18.634m to the commencement point of the Zone B;

thence, 39° 9' 21" , a distance of 1.287m

thence, 129° 9' 21" , a distance of 0.603m

thence, 219° 9' 21" , a distance of 1.287m

thence, 309° 9' 21" , a distance of 0.603m to the point of commencement

Zone E – From Starting Point 1, thence, 320° 55' 08" , distance of between 4.539m and 9.161m

3. DETERMINATION OF PROCEDURE 12 REMEDIATION TYPE

Based on the principal risk controls for the Site (i.e., the use of combination of intrinsic, institutional and engineering controls to mitigate/eliminate risk at the Site and lack of imminent risk in the event that controls were either not implemented or were rendered ineffective), the remediation Type applicable at the Site is considered to be Type 2.

Under a Remediation Type 2 scenario, MOE (2015a; 2015b) indicates that a PVP is required, while an operations and a maintenance plan may be required.

4. PERFORMANCE VERIFICATION PLAN - ACTIONS

A PVP is required to ensure that the principal risk controls upon which the HHRA is based are being met at the Site.

This includes the maintenance of up-to-date records of performance verification actions and result for the Site being maintained by the responsible person or their agents. If requested by the Director, the responsible person (or their agents) will provide these records to the MOE. As well, if requested by the MOE, responsible person(s) will provide a signed statement on whether conditions set out in Schedule B of the CofC continue to be met.

The following performance verification measures are required to implement risk controls:

1. Notification in the form of conditions in Schedule B of the Certificate of Compliance that groundwater at the Site must not be used for drinking water purposes (including bathing/showering, cooking, gardening, etc.). No drinking water well should be installed at the Site in the future. The responsible person for the Site or their agent shall maintain records indicating that the risk control have been and continues to be met.
2. Notification in the form of conditions in Schedule B of the Certificate of Compliance that ambient air monitoring in the underground parkade at the Site must be conducted by qualified professionals in two different seasons to ensure compliance with the BC CSR Residential Land use standards. The responsible person for the Site or their agent shall maintain records indicating that the risk control have been and continues to be met. If monitoring event identifies concentrations of vapour PCOCs (Ethylbenzene, Chloroform,

Naphthalene, Styrene, Toluene and Xylenes) close to and/or above the CSR Residential Land use standards, it should be confirmed with additional monitoring and assessed with respect to human health risk and should be risk managed, if needed. Risk management measure could include increasing the ventilation rate within the parkade.

3. Notification in the form of conditions in Schedule B of the Certificate of Compliance that the configuration of the present paved areas as depicted on the attached Figure 12 shall be maintained. The responsible person for the Site or their agent shall maintain records indicating that the risk controls have been and continues to be met.

If requested by the Director, the responsible person must provide a signed statement confirming maintenance of the risk control. This may include providing a signed statement by an Approved Professional.

5. RATIONALE FOR PVP

1. The Site is serviced by municipally supplied potable water and there are no active drinking water wells at the Site, currently, or planned in the future. Therefore, it is unlikely that Site groundwater may be used for drinking purposes. This institutional risk control of groundwater at the Site not to be used as a drinking water source will ensure that the Site groundwater is not used for drinking purposes.
2. In the absence of actual soil vapour data at APEC 2/AEC4, soil vapour concentrations have been predicted from modelled groundwater concentrations which have been predicted from measured concentrations of the dilution/neutralization tanks contents. As the predicted xylene and chloroform concentrations after application of sub-slab attenuation factor exceeded the CSR RL standards, ambient air monitoring for PCOCs (Ethylbenzene, Chloroform, Naphthalene, Styrene, Toluene and Xylenes) is required to be conducted at least in two different seasons to account for seasonal variability and to confirm compliance with CSR RL standards.
3. The risk controls specifying maintenance of configuration of the paved areas and reinstatement of breached pavement over areas with soil contamination serves to reasonably prevent additional direct contact with soil by human or ecological receptors with soil contamination, above and beyond that assumed within the HHERA. Paved surfaces act as hard caps preventing operable exposure pathways to underlying impacted soil. Lastly, risk estimates for potential receptors, human and ecological, with operable pathways were quantified and have demonstrated to meet BC MOE risk based standards.

6. REFERENCES

- MOE, 2015a. Procedure 12: Procedures for preparing and issuing contaminated sites legal instruments, BC Ministry of Environment, Victoria, BC, December 2015.
- MOE. 2015b. Administrative Guidance 14. Performance Verification Plans, Contingency Plans and Operations and Maintenance Plans. BC Ministry of Environment, Victoria, BC, December 2015.
- WSP 2017a: Stage 1 Preliminary Site Investigation, Teck Acute Care Centre, 880 West 28th Avenue, Vancouver, BC, Prepared by WSP Canada Inc., dated 5 June 2016.
Appendix G: Letter 2017-002, APEC 2 – Former Acid Dilution / Neutralization Tank, Prepared by WSP Canada Inc. dated 5 June 2017.
- WSP 2017b: Environmental Investigations, Excavation Monitoring and Risk Assessment, Teck Acute Care Centre, 880 West 28th Avenue, Vancouver, BC, Prepared by WSP Canada Inc., dated 5 June 2016.
- WSP 2017c: Letter 2017-001, APEC 2 – Former Acid Dilution / Neutralization Tank, Prepared by WSP Canada Inc. dated 29 May 2017.

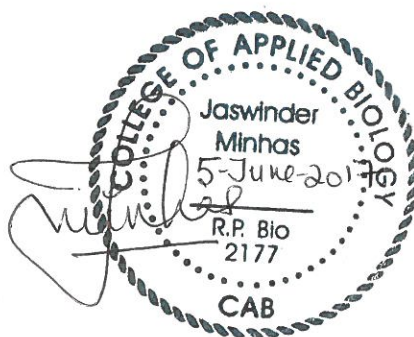
7. CLOSURE

WSP has prepared this report exclusively for CWH Design Build General Partnership (CWH). The BC Ministry of Environment and the BC Society of Contaminated Sites Approved Professionals can rely on the report. The conclusions made in this PVP reflect WSP's best judgement in light of the information available at the time of preparation. No other warranty, expressed or implied, is made. Any use which a third party makes of this PVP, or any reliance on or decisions to be made or actions based on it, are the responsibility of such third parties. WSP accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions based on this PVP.

Respectfully submitted,

WSP Canada Inc.

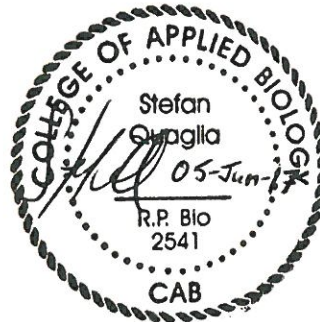
Prepared by:



Per: _____

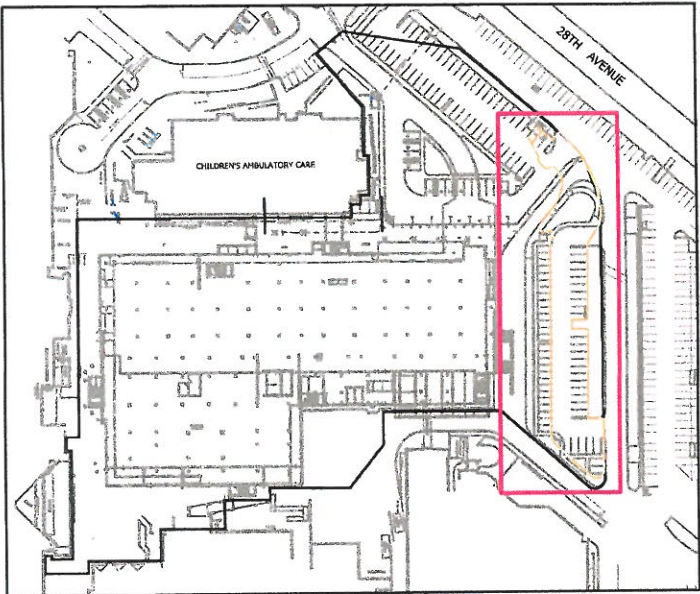
Jas Minhas, M.E.T., R.P.Bio.
Environmental Toxicologist

Reviewed by:



Per: _____

Stefan Quaglia, R.P.Bio., CSAP
Senior Risk Assessor



KEY PLAN
SCALE: 1:2500

ZONE A	17-NW1 @1.5m	17-EW2 @0.8m	17-EW3 @0.7m	17-DEW1 @0.7m
Barium	1230	482	760	821
Lead	1160	<	<	<
Silver	47.4	22.8	29.3	35.2
Tin	<	<	<	<
Zinc	2630	<	474	559

ZONE B	17-SE-WW1
Lead	1100

ZONE C	17-LEW5 @0.4m
Barium	817
Lead	692

ZONE D	17-LEW1RR @0.4m
Arsenic	33.7
Barium	2400
Zinc	2620

ZONE E	17-EW11 @0.5m	17-EW11 @0.8m	17-BH25 @0.9m	17-BH26 @0.6m
Barium	<	<	<	1350
Lead	<	<	<	8710
Tin	388	590	66.2	615
SPLP Lead	-	-	-	0.028

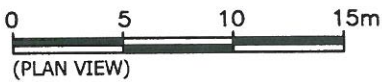
LEGEND

- SITE BOUNDARY
- FINAL EXCAVATION LIMITS
- LANDSCAPED AREA
- EXCAVATION SOIL SAMPLE LOCATION
- SAMPLE MEETS CSR RL STANDARDS
- SAMPLE EXCEEDS CSR RL STANDARDS
- LESS THAN CSR RL STANDARDS
- NOT ANALYZED

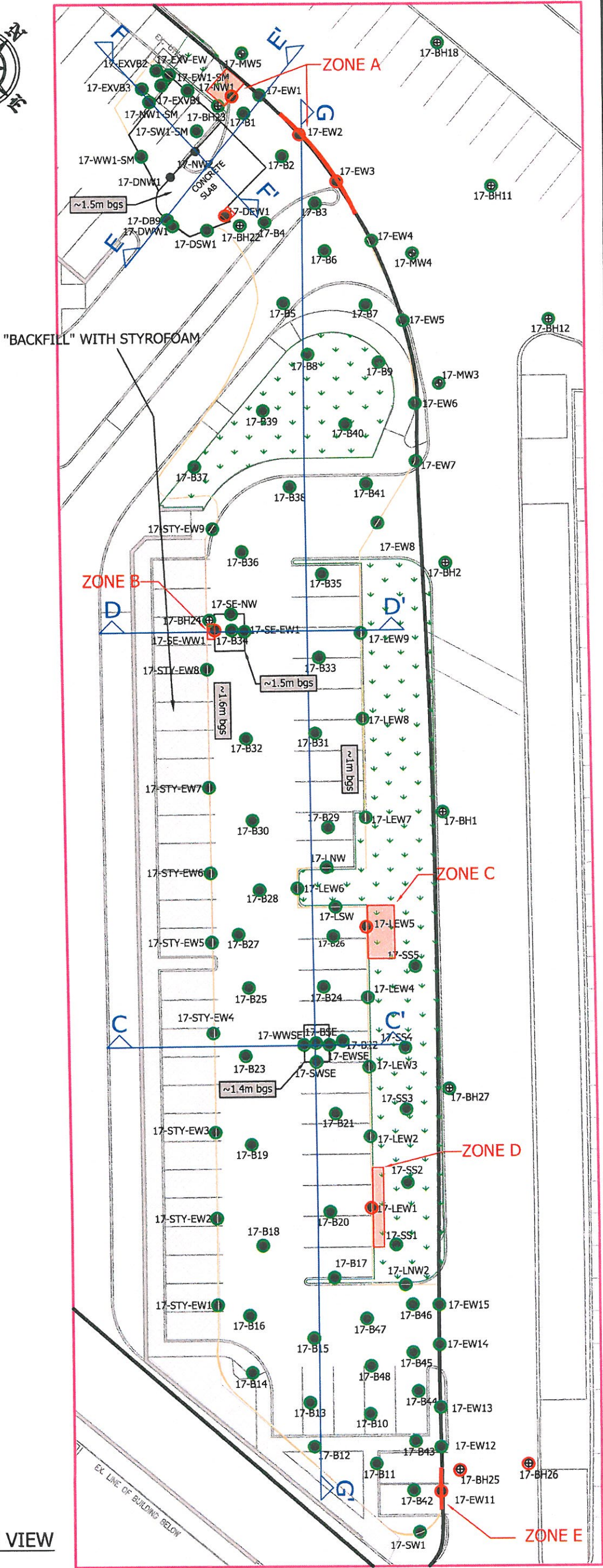
NOTE

- CONCENTRATIONS ARE ALL IN $\mu\text{g/g}$.
- FOR CORSS-SECTIONS REFER TO FIGURE 17.

SCALE



PLAN VIEW





WSP CANADA INC.
#100 - 20539 96 AVENUE, LANGLEY, BC V1M 0E4
PHONE: 604 533-2992 - FAX: 604 533-0768 - WWW.WSPGROUP.COM

TITLE: Final On-site Excavation Soil Sample Locations
PROJECT: Environmental Investigation, Excavation Monitoring and Risk Assessment
880 West 28th Avenue, Vancouver, BC
CWH Design Build GP

DES.	JL
CH.	JT
APP.	SCALE AS SHOWN
FILE NO.	DATE MAY 2017
DWG. NO.	141-55363-02
	12

Zone B – From Starting Point 1, thence, $320^{\circ} 55' 08''$, a distance of 75.263m;
 thence, $230^{\circ} 53' 20''$, a distance of 18.634m to starting point B;
 thence, $39^{\circ} 8' 21''$, a distance of 1.287m
 thence, $129^{\circ} 8' 21''$, a distance of 0.603m
 thence, $219^{\circ} 8' 21''$, a distance of 1.287m
 thence, $309^{\circ} 8' 21''$, a distance of 0.603m to starting point B



Zone A – Consisting of three parts

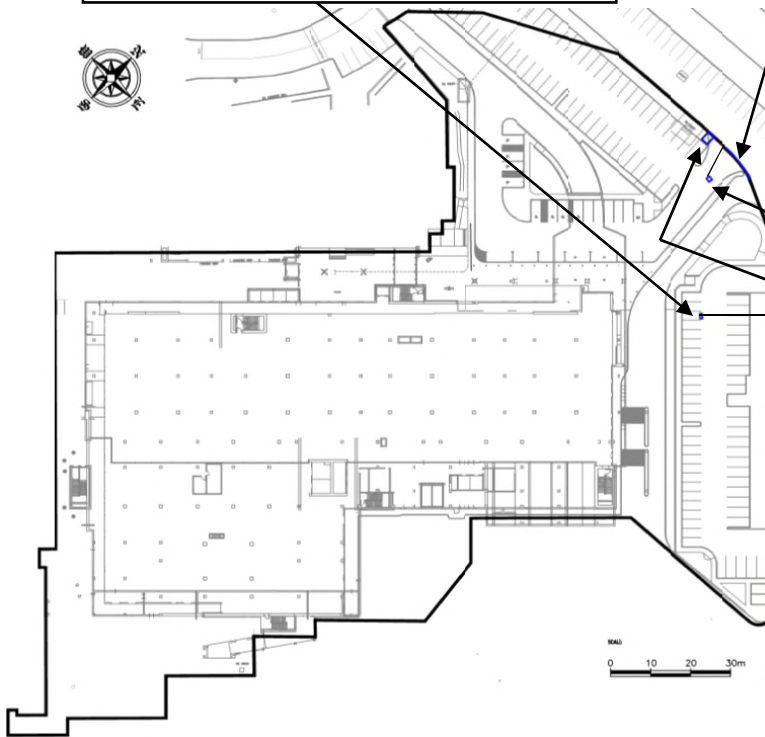
Part 1 of Zone A From Starting Point 1,
 Thence, $320^{\circ} 55' 08''$, a distance of 88.924 metres;
 Thence, $288^{\circ} 25' 18''$, a distance of 14.503 metres;
 Thence, northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 4.510 metres to the starting point A1;
 From commencement: continue northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 4.510 metres;
 Thence, northerly and westerly on a curve to the left of radius 49.994 metres, an arc distance of 8.777 metres;

Part 2 of Zone A From Starting Point 1
 Thence, $320^{\circ} 55' 08''$, a distance of 88.924 metres;
 Thence, $288^{\circ} 25' 18''$, a distance of 14.503 metres;
 Thence, northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 9.020 metres;
 Thence, northerly and westerly on a curve to the left of radius 49.994 metres, an arc distance of 8.777 metres;
 Thence, $189^{\circ} 50' 23''$, a distance of 8.346 metres to the starting point A2;
 From starting point A2:
 Thence, $166^{\circ} 45' 31''$, a distance of 0.951 metres
 Thence, $256^{\circ} 52' 14''$, a distance of 1.098 metres
 Thence, $346^{\circ} 45' 31''$, a distance of 0.951 metres
 Thence, $78^{\circ} 52' 14''$, a distance of 1.098 metres to starting point A2;

Part 3 of Zone A From Starting Point 1
 Thence, $320^{\circ} 55' 08''$, a distance of 88.924 metres;
 Thence, $288^{\circ} 25' 18''$, a distance of 14.503 metres;
 Thence, northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 9.020 metres;
 Thence, northerly and westerly on a curve to the left of radius 49.994 metres, an arc distance of 8.777 metres;
 Thence, $271^{\circ} 55' 08''$, a distance of 2.553 metres to starting point A3;
 From starting point A3:
 Thence, $271^{\circ} 55' 08''$, a distance of 1.810 metres;
 Thence, $176^{\circ} 54' 29''$, a distance of 2.560 metres;
 Thence, $288^{\circ} 0' 37''$, a distance of 1.870 metres;
 Thence, $176^{\circ} 54' 29''$, a distance of 2.468 metres to starting point A3;

Zone E – From Starting Point 1, thence, $320^{\circ} 55' 08''$, distance of between 4.539m and 9.161m

SCALE
 0 10 20 30m



Zone A – Consisting of three parts

Part 1 of Zone A From Starting Point 1,

Thence, 320° 55' 08" , a distance of 88.924 metres;

Thence, 298° 25' 18" , a distance of 14.503 metres;

Thence, northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 4.510 metres to the starting point A1;

From commencement: continue northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 4.510 metres;

Thence, northerly and westerly on a curve to the left of radius 49.994 metres, an arc distance of 8.777 metres;

Part 2 of Zone A From Starting Point 1

Thence, 320° 55' 08" , a distance of 88.924 metres;

Thence, 298° 25' 18" , a distance of 14.503 metres;

Thence, northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 9.020 metres;

Thence, northerly and westerly on a curve to the left of radius 49.994 metres, an arc distance of 8.777 metres;

Thence, 189° 50' 23" , a distance of 8.346 metres to the starting point A2;

From starting point A2:

Thence, 166° 45' 31" , a distance of 0.951 metres

Thence, 256° 52' 14" , a distance of 1.098 metres

Thence, 346° 45' 31" , a distance of 0.951 metres

Thence, 76° 52' 14" , a distance of 1.098 metres to starting point A2;

Part 3 of Zone A From Starting Point 1

Thence, 320° 55' 08" , a distance of 88.924 metres;

Thence, 298° 25' 18" , a distance of 14.503 metres;

Thence, northerly and westerly on a curve to the left of radius 210.816 metres, an arc distance of 9.020 metres;

Thence, northerly and westerly on a curve to the left of radius 49.994 metres, an arc distance of 8.777 metres;

Thence, 271° 55' 08" , a distance of 2.553 metres to starting point A3;

From starting point A3:

Thence, 271° 55' 08" , a distance of 1.810 metres;

Thence, 176° 54' 29" , a distance of 2.560 metres;

Thence, 268° 0' 37" , a distance of 1.870 metres;

Thence, 176° 54' 29" , a distance of 2.468 metres to starting point A3;

Zone B – From Starting Point 1, thence, 320° 55' 08" , a distance of 75.263m;

thence, 230° 53' 20" , a distance of 18.634m to starting point B;

thence, 39° 9' 21" , a distance of 1.287m

thence, 129° 9' 21" , a distance of 0.603m

thence, 219° 9' 21" , a distance of 1.287m

thence, 309° 9' 21" , a distance of 0.603m to starting point B

Zone E – From Starting Point 1, thence, 320° 55' 08" , distance of between 4.539m and 9.161m