
The following changes in the tender documents are effective immediately. This addendum will form part of the contract documents.

Responses (R) to Questions (Q) Received

Q1

Specification section 1.1.4 (Site Facilities Provision) and 1.1.5 (Site Facilities Operation). Can PWGSC please confirm if the contractor is responsible for provision of noise and air monitoring station and meteorological station. If yes can PWGSC confirm parameters, sampling frequency and specification for the various monitoring equipment?

R1

The contractor is responsible for all off site environmental impacts including air and noise. It is up to the contractor to determine what level of provision and operation for monitoring is required. Beyond this PWGSC has no specific requirements.

Q2

Appendix 1 for Base Work (A) states Backfill Placement and compaction of 6,000 m3 of material while Figure 8 in tender documents states “the excavation will not be backfilled and the excavation walls should be protected with 20 mil LLDPE or approved equivalent.” Please confirm if the excavation is to be backfilled with the 6,000 m3 of material or if material to be stockpiled onsite for use at a later date?

R2

Based on field conditions and as directed by the Departmental Representative, up to approximately 6,000 cubic meters of Backfill Placement and Compaction will occur as part of the Base Work. If this Work does not proceed as part of the Base Work, then all of the Backfill Placement and Compaction will occur as part of the Optional Work. This work will be paid at the unit rate for the quantity actually backfilled.

Q3

Is there a barge ramp at the site to receive barges of backfill. If so, what is the largest size barge that can be received at the ramp?

R3

There is no barge ramp onsite.

Q4**What is the Setback From Power Poles?****R4**

To protect poles within the excavations limits, there must be a 3 m setback at surface with a stable excavation slope not exceeding 1:1 from the poles.

Q5**What are the holding cell dimensions in order to price liners, installation, and disposal of existing liners?****R5**

The Contractor must inspect the condition of the storage cells and repair the storage cells prior to usage. For the FY2014-15 Base Work the Contractor must remove and dispose of the existing storage cell liners and supply and install new liners. The storage cell liners shall be replaced with 30 mil LLDPE or approved equivalent. The dimensions of the storage cell liners required are:

- Cell #1: 61 x 44 m
- Cell #2: 66 x 36 m
- Cell #3: 54 x 31 m
- Cell #4: 37 x 26 m

The cost to remove and dispose the existing liners will be made under "Site Preparation". The cost to supply and install the new liners will be made under "Site Facilities Provision".

Q6**Is there a discharge point to discharge treated water on-site?****R6**

The on-site treated wastewater discharge point is Burrard Inlet. The Contractor must obtain Discharge Approval from the appropriate regulatory agency otherwise wastewater disposal must be transported off-site.

SPECIFICATIONS

.1 Section 31 23 33.01– Excavating, Trenching and Backfilling

Paragraph 3.10.2:

- (1) **Replace:** the entire paragraph with the following:
“For FY2014-15 the excavation will be backfilled up to approximately 6000 m3 as directed by the Department Representative. The excavation walls must be protected with 20 mil low-density polyethylene (LLDPE) or approved equivalent prior to backfilling.”

DRAWINGS

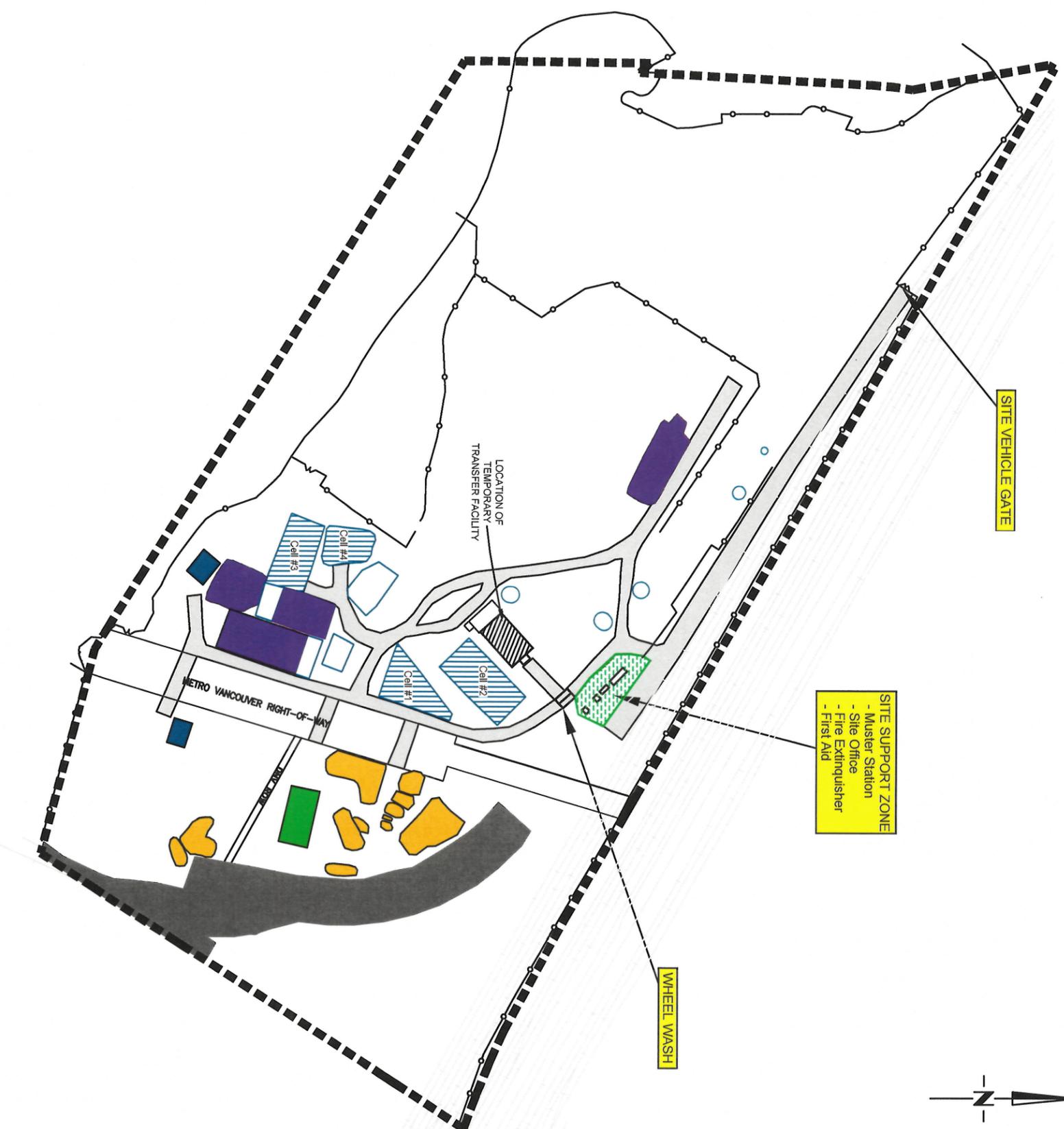
Replace Figures 4, 7, 8, 11, 14, and 15 with the attached.

END OF ADDENDUM No. 1

NOTES:

1. There are four empty storage cells and one temporary transfer facility available for the Contractor to store excavated soils with an approximate total capacity of 10,500 m³
2. The Contractor must inspect the condition of the storage cells and repair the storage cells prior to usage. The Contractor must remove and dispose of the existing storage cell liners and supply and install new liners. The storage cells must meet the following requirements:
 - A berm 0.75 metre in height is to be maintained using suitable clean material.
 - The base of the containment cell shall be graded such that the positive drainage of water/sludge to one low area will occur. The low area shall contain a sump with a slotted pipe such that drained water can be pumped from the containment cell.
 - The storage cell liners shall be replaced with 30 mil LLDPE or approved equivalent. The dimensions of the storage cell liners required are:
 - Cell #1: 61 x 44 m
 - Cell #2: 66 x 36 m
 - Cell #3: 54 x 31 m
 - Cell #4: 37 x 26m
 - The liner is to extend up and over the containment berm, covering 75% of the downward slope.
 - A suitable layer of bedding sand (150 mm thick) shall be placed in the containment cell.
 - The storage cells shall include a suitably sized cover of 20 mil woven polyethylene (WPE) or approved equivalent and materials (rope, tires, sandbags or approved equivalent) to secure the cover. Additionally, soil must be placed around the base of the storage cell to further secure the cover.
 - An access ramp shall be constructed to allow excavator and tandem axle dump truck access.
3. Other wastes (asphalt, concrete, wood, metal and general waste) excavated shall be stockpiled by the Contractor in designated areas approved by Department Representative.

- Legend**
- PEC Site Boundary
 - - - Site Perimeter Fencing
 - Access Roads
 - New Pavement Area
 - Gravel/Cobble/Soil/Debris Stockpiles
 - Lysimeter Pad
 - Water Holding Cell
 - Gravel/Cobble Stockpile
 - Metals Contaminated Soil Stockpile
 - Empty Storage Cell

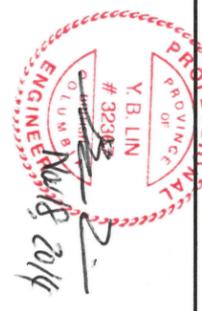


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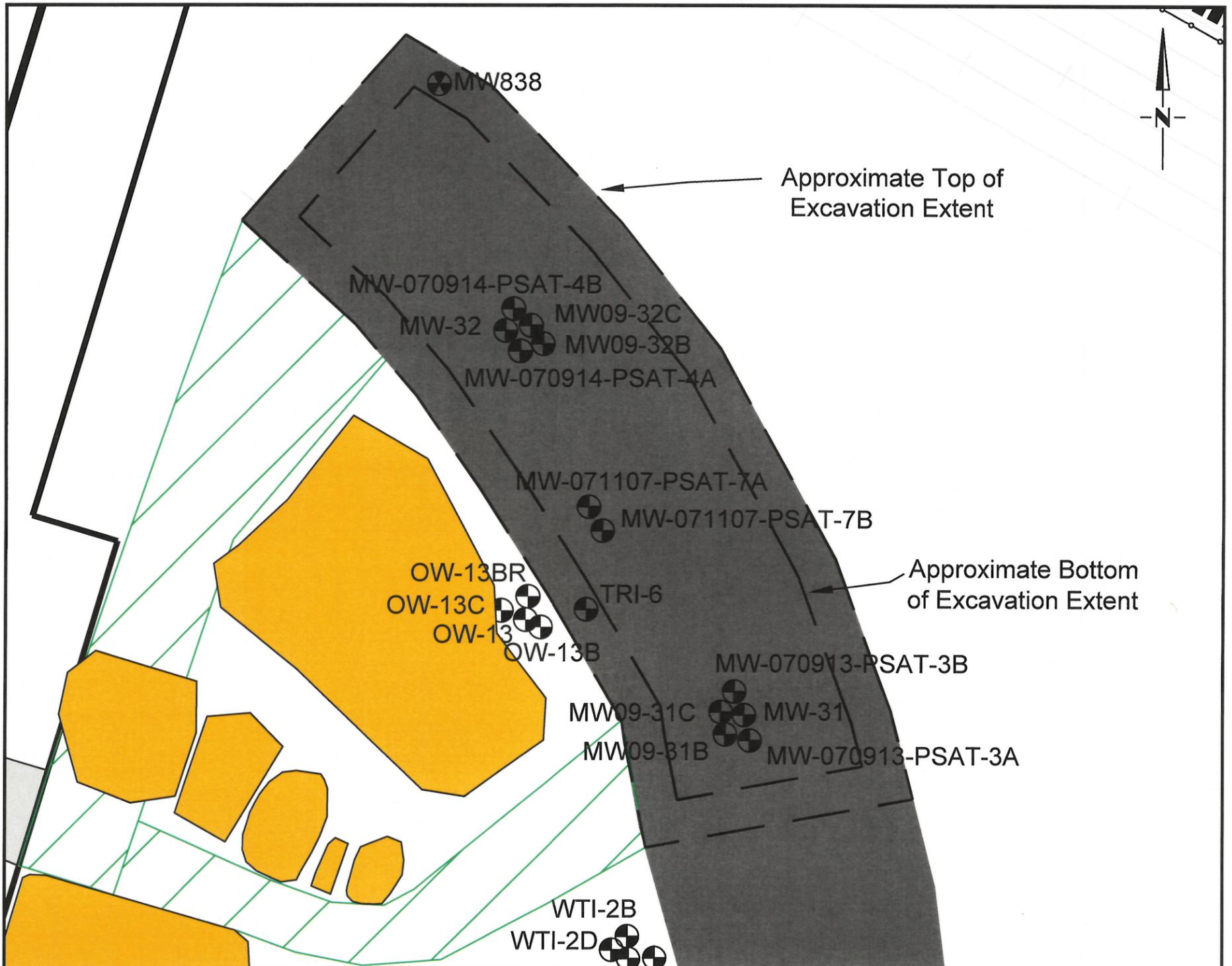
HEMMERA
CLIENT: ENVIRONMENT CANADA

PROJECT No. 457-002.44 November 2014 Figure 4

FORMER HEEDE CRANE AREA INTERIM REMEDIATION
PACIFIC ENVIRONMENT CENTRE SITE, WEST VANCOUVER, BC



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NOTES:

1. The depth of excavation from the existing grade to the groundwater table is approximately 3.5 m below grade.
2. The excavation walls must be sloped 1 horizontal (H) to 1 Vertical (V).
3. Monitoring wells within the proposed excavation footprint shall be persevered. To protect poles within the excavations limits, there must be a 3 m setback at surface with a stable excavation slope not exceeding 1:1 from the poles.
4. Other wastes (asphalt, concrete, wood, metal and general waste) excavated shall be stockpiled by the Contractor in designated areas approved by the Department Representative.
5. Utility lines which are abandoned and not in use may be removed during excavation activities.
6. More than 100 groundwater-monitoring wells (MWs) have been installed on-site, including within and near the work areas. The Contractor must make all reasonable efforts to maintain the integrity of the MWs located within the excavation footprint (13 MWs located within the excavation footprint) and outside of the excavation footprint. If necessary, the Contractor may cut and cap the MWs polyvinyl chloride (PVC) well pipes as the excavation progresses. The Contractor is responsible for the cost of repairs necessary to the MWs in the event they are damaged during their activities. An effort has been made to identify and mark the MWs on-site; however, extreme caution must be exercised during the moving of equipment, placing of materials, foot traffic, etc.
7. Currently there are no known recorded archaeological deposits within the proposed excavation area. If, while conducting the excavation, the Contractor finds anything of an unusual nature within the fill that cannot be identified, and which they have any reason to suspect may be an archaeological deposit, work must be stopped. The Contractor is responsible for informing the Department Representative of the situation. In such cases, an archaeologist may be required to inspect the site, and advise of appropriate measures to be taken prior to the resumption of work on-site.
8. Any schedule changes, work plan changes or additional costs related to archaeological interruptions shall be approved by the Department Representative prior to undertaking alterations to the work plan or schedule.
9. The excavation of material shall continue until the limits of the excavation are reached based on visual observation of groundwater table by the Department Representative. Soil analytical chemistry results for the proposed excavation area are attached for reference purposes only (see Appendix B, Table 1). A limited quantity of hazardous waste and suspect hazardous waste soils will be removed as part of the excavation program. The suspect hazardous waste soils must be segregated from the waste soils during excavation and stockpiled in a designated soil storage cell determined by the Department Representative. Borehole logs from the excavation area are attached for reference purposes only (see Appendix C).
10. The Contractor's excavator will be required to retrieve soils for sampling activities conducted by the Department Representative. It is expected that the Contractor is aware that the progress of the remedial excavation may be slower than typical construction excavations on sites where contaminated soils are not anticipated to be present. A minimum of two excavation floor confirmatory soil samples will be collected from within a grid of 10 m increments. The time required to retrieve samples using the excavator shall be built into the Contractor's excavation and management costs in the Schedule of Items and Prices.
13. Slope protection of excavated areas shall not proceed until approved by the Department Representative.
14. Groundwater and surface water may be encountered during the proposed excavation. This water shall be collected and stored on-site by the Contractor on an as needed basis as determined by the Department Representative. The water will be sampled by the Department Representative and analyzed at the PESC laboratory. The laboratory turnaround time for water samples is anticipated to be four working days. The workday immediately following the date the samples are submitted is considered to be day number one. If required by the Department Representative, the water will be removed from the site for treatment and disposal by the Contractor. Groundwater analytical chemistry results from the proposed excavation area are provided for reference purposes only (see Appendix B, Table 2).
15. Active dewatering for the purposes of lowering the water table during excavation is not part of the project, however occasional dewatering may be required as a result of heavy precipitation events and if required by the Department Representative.

Work by Others

- A. The Department Representative will be on-site during the excavation program to verify and document the excavation procedures, confirm the Contractor's adherence to their construction plans and their methods to limit overall excavated soil volumes, maintain project quality assurance/quality control (QA/QC), and other Department Representative requests. PWGSC will be in contact with the Department Representative to monitor and address any issues that may impact the budget, schedule and technical aspect of the project. Any potential changes to the contract will be discussed for recommendation and final approval by PWGSC in consultation with the Department Representative.
- B. The Department Representative will identify suspect waste, and suspect hazardous waste soils requiring segregation during the excavation and stockpiling of excavated soil.

Legend

- PEC Site Boundary
- Site Perimeter Fencing
- New Pavement Area
- Gravel/Cobble/Soil/Debris Stockpiles
- ▲ Proposed Access Road to Excavation Area
- ⊕ Monitoring Well

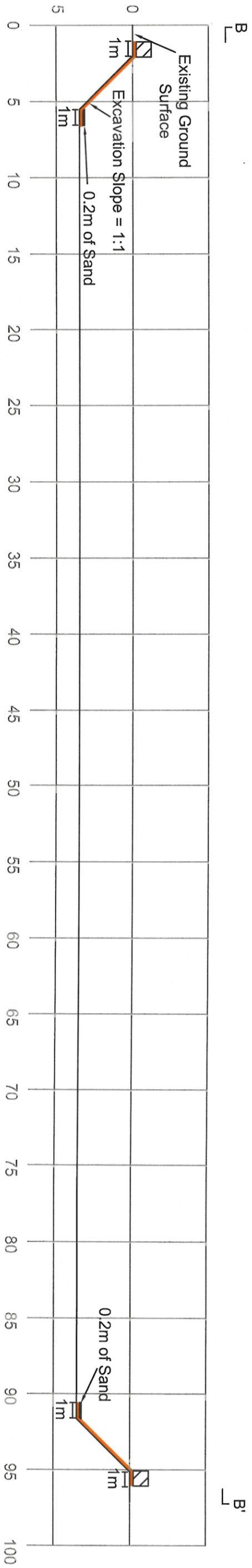
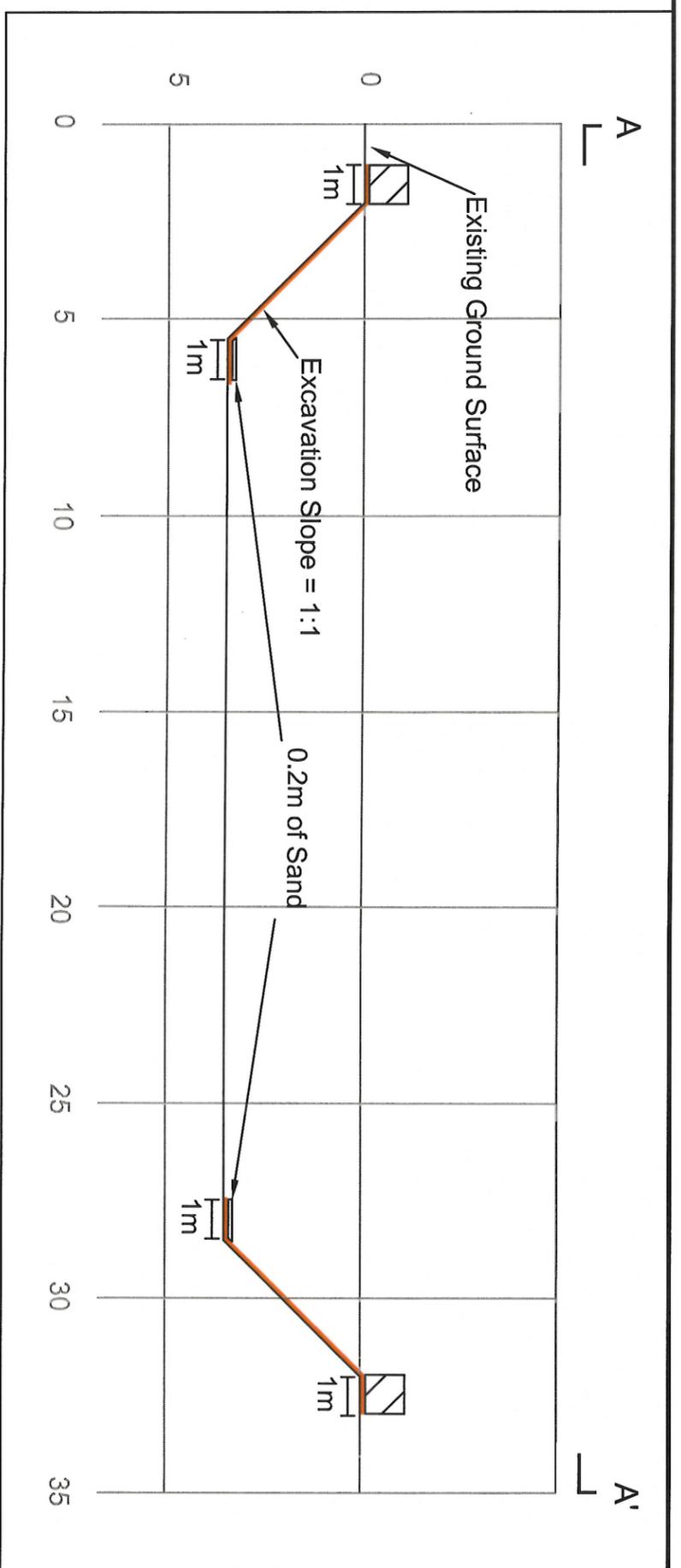
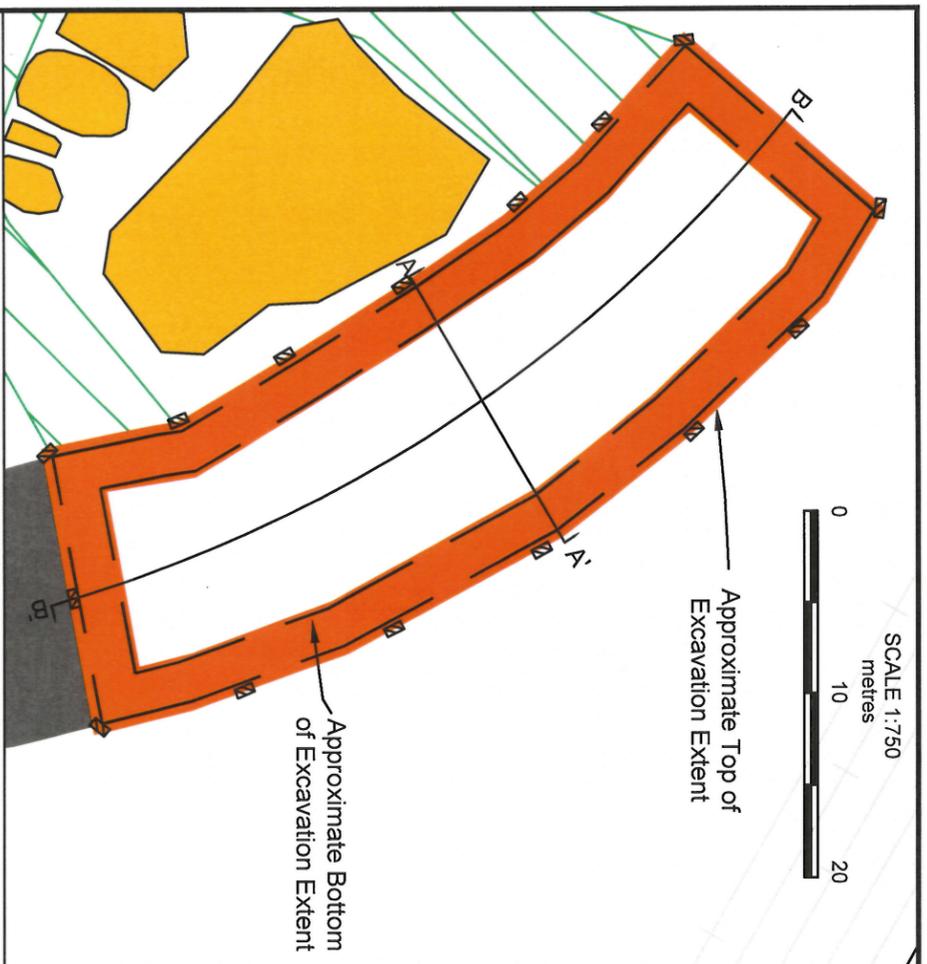


CLIENT: ENVIRONMENT CANADA

FORMER HEEDE CRANE AREA INTERIM REMEDIATION
PACIFIC ENVIRONMENT CENTRE SITE, WEST VANCOUVER, BC

EXCAVATION DETAIL WITH MONITORING WELLS

PROJECT No. 457-002.44 November 2014 Figure 7



Legend

- PEC Site Boundary
- - - Site Perimeter Fencing
- ▬ New Pavement Area
- ▬ Gravel/Cobble/Soil/Debris Stockpiles
- ▬ Proposed Access Road to Excavation Area
- ▬ 20 mil LLDPE Liner (Plan View)
- ▬ 20 mil LLDPE Liner (Cross Section)
- ▬ Lock Block
- ▬ Sand

PROFESSIONAL ENGINEER
Y.B. LIN
#2277
O.C. 18, 2014

- NOTES:**
- The excavation will be backfilled up to approximately 6000 m³ as directed by the Department Representative. The excavation walls must be protected with 20 mil LLDPE or approved equivalent prior to backfilling.
 - The liner is to extend approximately 1.0 m onto the excavation floor and existing ground surface.
 - The liner must be secured by placing lock blocks (approximately 16 blocks) on the ground surface and sand or approved equivalent of approximately 0.2m thick within the excavation floor.

- The backfill should be compacted in place in controlled lifts not exceeding 0.5 metres in thickness. Compaction should be done using large ride-on compaction equipment.
- The backfill materials shall be placed to a minimum of 95 percent of their Modified Proctor Maximum Dry Density (ASTM D1557) while at a moisture content within 2 percent of optimum for compaction.
- The Department Representative shall coordinate third party density testing services to provide quality assurance of the work.
- A ladder or approved equivalent should be installed to provide access to the excavation floor.

CLIENT: **HEMMERA** ENVIRONMENT CANADA

PROJECT No. 457-002.44 November 2014

CROSS SECTION VIEW OF
FORMER HEEDE CRANE AREA INTERIM REMEDIATION
PACIFIC ENVIRONMENT CENTRE SITE, WEST VANCOUVER, BC

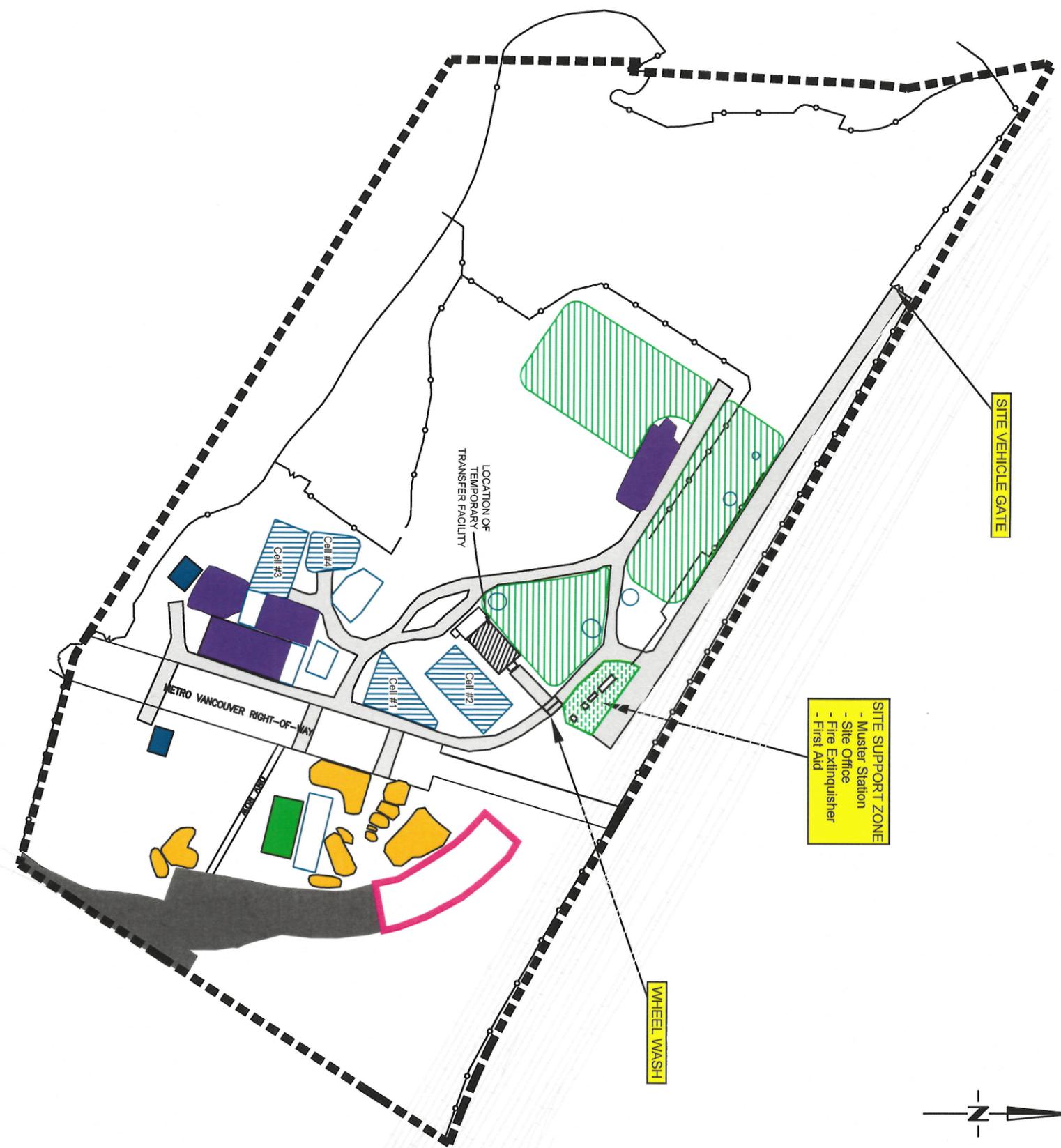
POST-EXCAVATION AREA LAYOUT
Figure 8

NOTES:

1. There are four empty storage cells and one temporary transfer facility available for the Contractor to store excavated soils with an approximate total capacity of 10,500 m³
2. The Contractor must inspect the condition of the storage cells and repair the storage cells prior to usage, if damaged. The Contractor must supply any products required for the repair of the storage cells. If the liners cannot be repaired, the storage cell liners shall be replaced with 30 mil LLDPE or approved equivalent. The Contractor must remove and dispose of the existing storage cell liners and supply and install new liners. The dimensions of the storage cell liners required are:
 - Cell #1: 61 x 44 m
 - Cell #2: 66 x 36 m
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3. The storage cells must meet the following requirements:
 - A berm 0.75 metre in height is to be maintained using suitable clean material.
 - The base of the containment cell shall be graded such that the positive drainage of water/sludge to one low area will occur. The low area shall contain a sump with a slotted pipe such that drained water can be pumped from the containment cell.
 - The liner is to extend up and over the containment berm, covering 75% of the downward slope.
 - A suitable layer of bedding sand (150 mm thick) shall be placed in the containment cell.
 - The storage cells shall include a suitably sized cover of 20 mil woven polyethylene (WPE) or approved equivalent and materials (rope, tires, sandbags or approved equivalent) to secure the cover. Additionally, soil must be placed around the base of the storage cell to further secure the cover.
 - An access ramp shall be constructed to allow excavator and tandem axle dump truck access.
4. Other wastes (asphalt, concrete, wood, metal and general waste) excavated shall be stockpiled by the Contractor in designated areas approved by Department Representative.

Legend

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- - - Site Perimeter Fencing
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- Lysimeter Pad
- Water Holding Cell
- Open Excavation
- Backfill Stockpile
- Gravel/Cobble Stockpile
- Metals Contaminated Soil Stockpile
- Empty Storage Cell



PROFESSIONAL
ENGINEER
Y. B. LIN
27353
Nov 18, 2014

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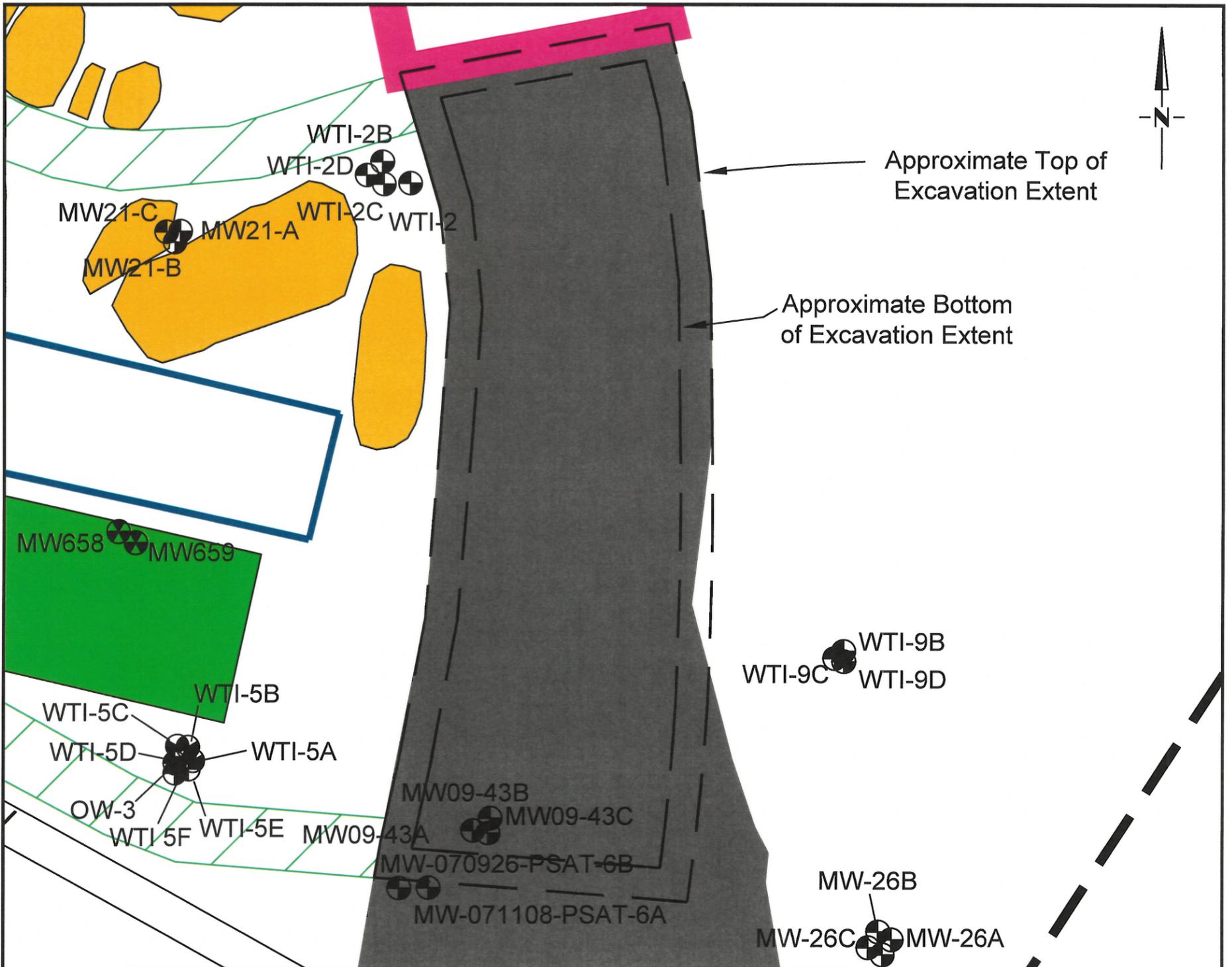
HEMMERA
ENVIRONMENT CANADA

CLIENT: ENVIRONMENT CANADA

PROJECT No. 457-002.44 November 2014 Figure 11

FORMER HEEDE CRANE AREA INTERIM REMEDIATION
PACIFIC ENVIRONMENT CENTRE SITE, WEST VANCOUVER, BC

STOCKPILE MAP - OPTIONAL WORK



NOTES:

- The depth of excavation from the existing grade to the groundwater table is approximately 3.5 m below grade.
- The excavation walls must be sloped 1 horizontal (H) to 1 Vertical (V).
- Monitoring wells within the proposed excavation footprint shall be persevered. To protect poles within the excavations limits, there must be a 3 m setback at surface with a stable excavation slope not exceeding 1:1 from the poles.
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- Any schedule changes, work plan changes or additional costs related to archaeological interruptions shall be approved by the Department Representative prior to undertaking alterations to the work plan or schedule.
- The excavation of material shall continue until the limits of the excavation are reached based on visual observation of groundwater table by the Department Representative. Soil analytical chemistry results for the proposed excavation area are attached for reference purposes only (see Appendix B, Table 1). A limited quantity of hazardous waste and suspect hazardous waste soils will be removed as part of the excavation program. The suspect hazardous waste soils must be segregated from the waste soils during excavation and stockpiled in a designated soil storage cell determined by the Department Representative. Borehole logs from the excavation area are attached for reference purposes only (see Appendix C).

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13. Slope protection of excavated areas shall not proceed until approved by the Department Representative.

14. Groundwater and surface water may be encountered during the proposed excavation. This water shall be collected and stored on-site by the Contractor on an as needed basis as determined by the Department Representative. The water will be sampled by the Department Representative and analyzed at the PESC laboratory. The laboratory turnaround time for water samples is anticipated to be four working days. The workday immediately following the date the samples are submitted is considered to be day number one. If required by the Department Representative, the water will be removed from the site for treatment and disposal by the Contractor. Groundwater analytical chemistry results from the proposed excavation area are provided for reference purposes only (see Appendix B, Table 2).

15. Active dewatering for the purposes of lowering the water table during excavation is not part of the project, however occasional dewatering may be required as a result of heavy precipitation events and if required by the Department Representative.

Work by Others

- The Department Representative will be on-site during the excavation program to verify and document the excavation procedures, confirm the Contractor's adherence to their construction plans and their methods to limit overall excavated soil volumes, maintain project quality assurance/quality control (QA/QC), and other Department Representative requests. PWGSC will be in contact with the Department Representative to monitor and address any issues that may impact the budget, schedule and technical aspect of the project. Any potential changes to the contract will be discussed for recommendation and final approval by PWGSC in consultation with the Department Representative.
- The Department Representative will identify suspect waste, and suspect hazardous waste soils requiring segregation during the excavation and stockpiling of excavated soil.

PROFESSIONAL
OF
Y.B. LIN
32367
BRITISH COLUMBIA
ENGINEER
Nov 18, 2014

Legend

- PEC Site Boundary
- Site Perimeter Fencing
- New Pavement Area
- Gravel/Cobble/Soil/Debris Stockpiles
- ▨ Proposed Access Road to Excavation Area
- Lysimeter Pad
- Open Excavation
- Gravel/Cobble Stockpile
- ⊕ Monitoring Well

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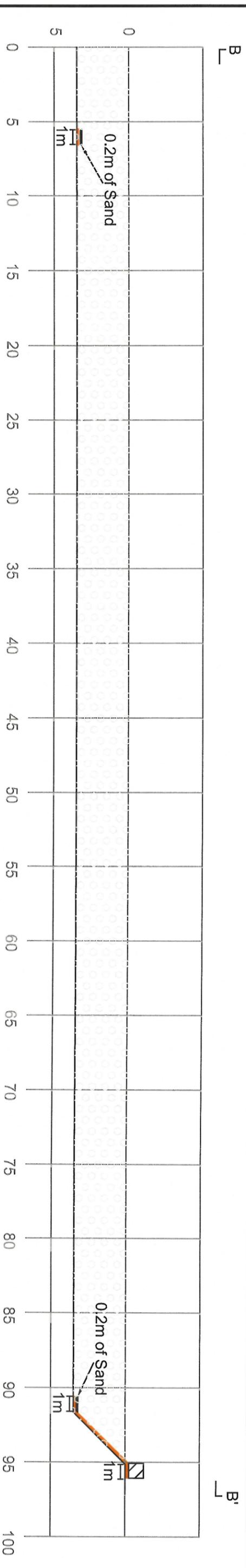
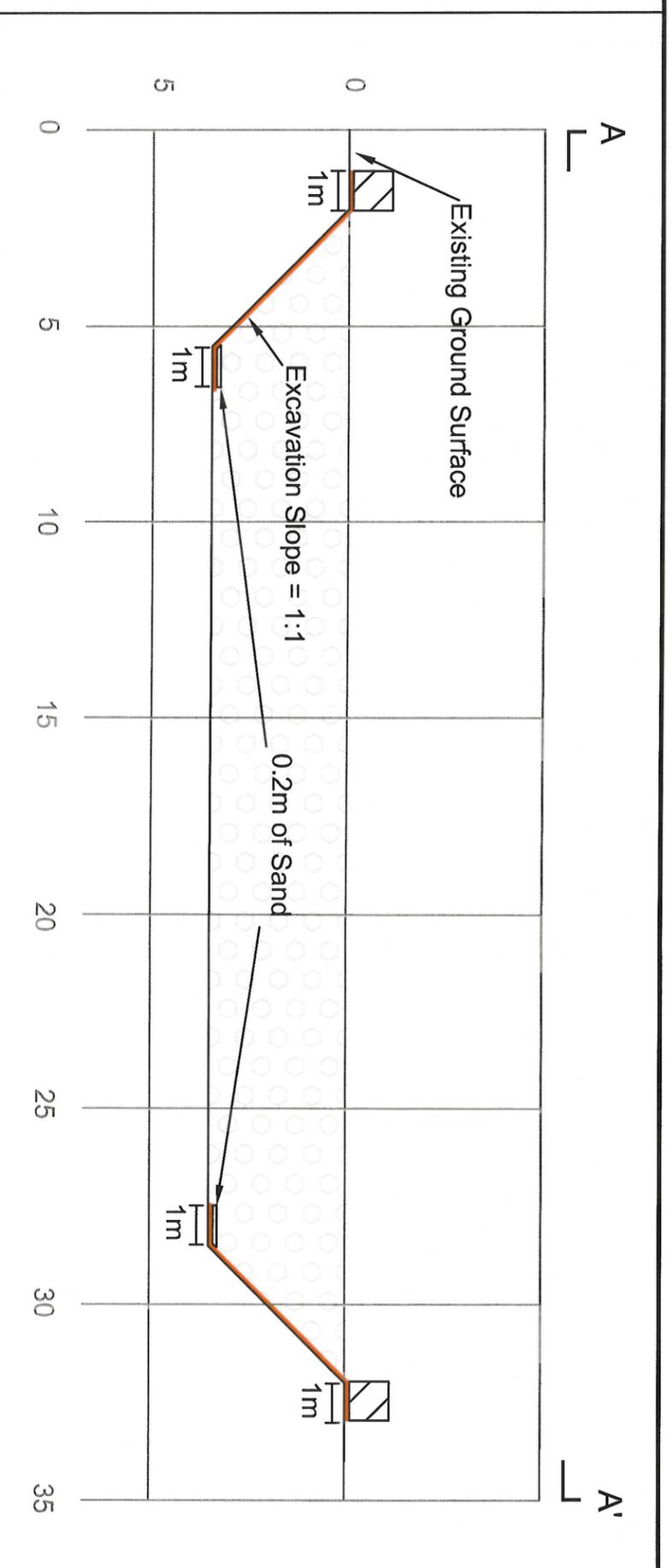
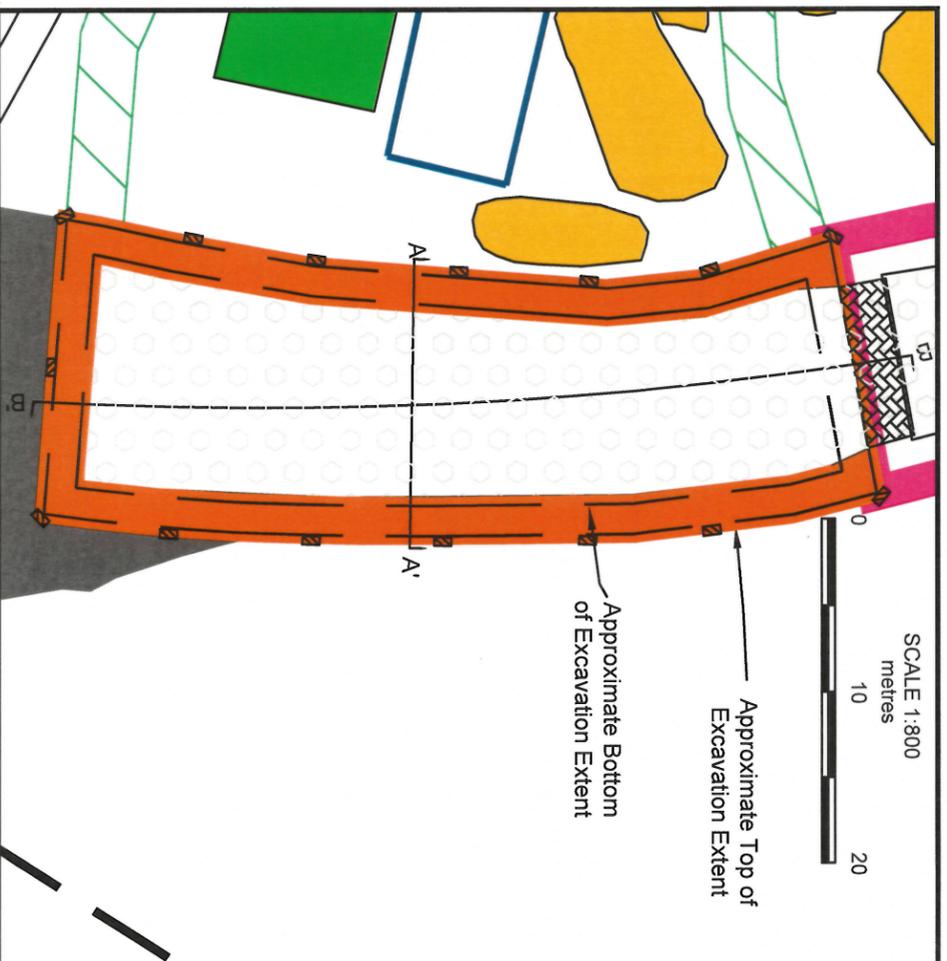
CLIENT:
 ENVIRONMENT CANADA

FORMER HEEDE CRANE AREA INTERIM REMEDIATION
PACIFIC ENVIRONMENT CENTRE SITE, WEST VANCOUVER, BC

EXCAVATION DETAIL WITH MONITORING
WELLS - OPTIONAL WORK

PROJECT No. 457-002.44 November 2014 Figure 14

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- Legend**
- PEC Site Boundary
 - Site Perimeter Fencing
 - New Pavement Area
 - Gravel/Cobble/Soil/Debris Stockpiles
 - Proposed Access Road to Excavation Area
 - Liner to be cut and removed
 - Lysimeter Pad
 - Gravel/Cobble Stockpile
 - 20 mil LLDPE Liner (Plan View)
 - 20 mil LLDPE Liner (Cross Section)
 - Lock Block
 - Backfill



- NOTES:**
- The Contractor is required to backfill both excavations to pre-excavation surface elevations using backfill materials imported by the Contractor. The excavation walls must be protected with 20 mil LLDPE or approved equivalent.
 - The liner is to extend approximately 1.0 m onto the excavation floor and existing ground surface, and must be secured by placing lock blocks (approximately 16 blocks) on the ground surface.
 - The backfill should be compacted in place in controlled lifts not exceeding 0.5 metres in thickness. Compaction should be done using large ride-on compaction equipment.
 - The backfill materials shall be placed to a minimum of 95 percent of their Modified Proctor Maximum Dry Density (ASTM D1557) while at a moisture content within 2 percent of optimum for compaction.
 - The Department Representative shall coordinate third party density testing services to provide quality assurance of the work.

CLIENT: **HEMMERA** ENVIRONMENT CANADA

PROJECT No. 457-002.44 November 2014 Figure 15

CROSS SECTION VIEW OF FORMER HEEDE CRANE AREA INTERIM REMEDIATION PACIFIC ENVIRONMENT CENTRE SITE, WEST VANCOUVER, BC