



## Development Permit Panel

Council Chambers, City Hall  
6911 No. 3 Road

Wednesday, October 11, 2017  
3:30 p.m.

### MINUTES

*Motion to adopt the minutes of the Development Permit Panel meeting held on September 27, 2017.*



1. **DEVELOPMENT PERMIT 16-735007**  
(REDMS No. 5493885)

APPLICANT: Alex Sartori  
PROPERTY LOCATION: 6020 No. 4 Road

#### Director's Recommendations

*That a Development Permit be issued which would:*

1. *permit the construction of a Single-Family Residential Dwelling at 6020 No. 4 Road on a site zoned "Agriculture (AG1)" and designated as an Environmentally Sensitive Area (ESA); and*
2. *vary the provisions of Richmond Zoning Bylaw 8500 to increase the maximum area of the farm home plate from 1,000 m<sup>2</sup> to 1,342 m<sup>2</sup>.*



2. **DEVELOPMENT PERMIT 16-741741**  
(REDMS No. 5528835)

APPLICANT: Vancouver Airport Fuel Facilities Corporation (VAFFC)  
PROPERTY LOCATION: 15040 Williams Road

ITEM

**Director's Recommendations**

*That a Development Permit be issued which would permit the construction of a Marine Terminal Facility for aviation/jet fuel delivery at 15040 Williams Road on a site zoned "Industrial (I)" and partially designated as an Environmentally Sensitive Area (ESA).*



**3. New Business**

**4. Date of Next Meeting:     October 25, 2017**

**ADJOURNMENT**



**Development Permit Panel  
Wednesday, September 27, 2017**

Time: 3:30 p.m.  
Place: Council Chambers  
Richmond City Hall  
Present: Joe Erceg, Chair  
Cathryn Volkering Carlile, General Manager, Community Services  
Robert Gonzalez, General Manager, Engineering and Public Works

The meeting was called to order at 3:30 p.m.

**Minutes**

It was moved and seconded

*That the minutes of the meeting of the Development Permit Panel held on September 13, 2017, be adopted.*

**CARRIED**

**1. Development Permit 16-726865**  
(REDMS No. 5510231)

APPLICANT: Zhao XD Architect Ltd.

PROPERTY LOCATION: 8631 Alexandra Road

**INTENT OF PERMIT:**

1. Permit the construction of a two-storey commercial building at 8631 Alexandra Road on a site zoned "Auto-Oriented Commercial (CA)"; and
2. Vary the provisions of Richmond Zoning Bylaw 8500 to reduce the minimum interior (west) side yard from 3 m to 0 m.

## **Development Permit Panel**

### **Wednesday, September 27, 2017**

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#### **Applicant's Comments**

Xuedong Zhao, Zhao XD Architect Ltd., provided background information on the proposed development and highlighted the following:

- the proposed two-storey commercial building aims to achieve a commercial character through variations in volumes, materials, colours and textures and enhance the shopping experience in the neighbourhood;
- the location of the outdoor parking at the back of the building maximizes the distance of the building from the residential neighbourhood to the north of the subject site; and
- the building is sited and oriented to create a continuous street wall along Alexandra Road, which necessitates the requested setback variance for the minimum interior west side yard.

David Jerke, van der Zalm + Associates, Inc., briefed the Panel on the main landscaping features of the proposed development, noting that (i) the proposed landscaping will create a pedestrian-friendly street frontage, (ii) benches, pavers and pedestrian-friendly landscaping at the building entrances will be installed along the street frontage, (iii) fencing and hedges are proposed at the north property line to provide a buffer between the outdoor parking area and the residential neighbourhood to the north, (iv) bio-swales will be introduced depending on the grades of the parking area, and (v) selection of street tree species will be coordinated with City staff for planting along Alexandra Road and the City road to the east of the subject site.

In response to queries from the Panel, Mr. Zhao confirmed that a barrier free access from the handicapped parking stall to the building entrance at the rear is provided, and Mr. Jerke acknowledged that the bicycle parking racks at the southeast corner of the outdoor parking area will be visible from inside the building and from the street.

#### **Staff Comments**

Wayne Craig, Director, Development, noted that (i) there will be a Servicing Agreement associated with the project prior to issuance of the building permit for frontage improvements along Alexandra Road and Sorenson Crescent and site servicing, (ii) the proposed setback variance for the minimum interior west side yard would allow the project to achieve a continuous commercial street wall along Alexandra Road, and (iii) the project has been designed to achieve a LEED silver equivalent standard.

In response to a query from the Panel, Mr. Craig confirmed that the requested interior side yard setback variance is a common variance granted to commercial projects to achieve a continuous street wall frontage and similar variances have been granted to projects on Alexandra Road.



## Development Permit Panel

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#### Gallery Comments

Connie Tang, 8611 Alexandra Road, owner of the restaurant immediately adjacent to the west of the subject site, expressed concern regarding the potential adverse impacts to the restaurant's customers and commercial operations during the construction of the proposed project.

In response to Ms. Tang's concern, the Chair advised that a construction traffic management plan is required to be submitted by the applicant prior to building permit issuance and suggested that she coordinates with the Planner regarding her project construction-related concerns.

In response to a query from Ms. Tang, Mr. Zhao stated that the project would be constructed over a period of approximately one year.

#### Correspondence

None.

#### Panel Decision

It was moved and seconded

*That a Development Permit be issued which would*

1. *Permit the construction of a two-storey commercial building at 8631 Alexandra Road on a site zoned "Auto-Oriented Commercial (CA)"; and*
2. *Vary the provisions of Richmond Zoning Bylaw 8500 to reduce the minimum interior (west) side yard from 3 m to 0 m.*

**CARRIED**

#### 2. Development Permit 16-735007 (REDMS No. 5493885)

APPLICANT: Alex Sartori

PROPERTY LOCATION: 6020 No. 4 Road

INTENT OF PERMIT:

1. Permit the construction of a Single-Family Residential Dwelling at 6020 No. 4 Road on a site zoned "Agriculture (AG1)" and designated as an Environmentally Sensitive Area (ESA); and
2. Vary the provisions of Richmond Zoning Bylaw 8500 to increase the maximum area of the farm home plate from 1,000 m<sup>2</sup> to 1,342 m<sup>2</sup>.

3.

## **Development Permit Panel**

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#### **Applicant's Comments**

Stephen Sims, Sartori Environmental Inc., briefed the Panel on the main design changes made by the applicant to the proposed development in response to the Panel's comments and the application's referral back to staff at the April 12, 2017 Panel meeting and highlighted the following:

- the driveway that was previously proposed on the south side of the house has been removed;
- the southern driveway is proposed to be replaced by an Environmentally Sensitive Area (ESA) landscaping which will increase the total ESA on the subject site by approximately 550 square meters;
- all the hard surfaces and structures previously located on top of the septic field have been removed and replaced with grass;
- the size of the house has been reduced to comply with the recently enacted bylaw regarding the maximum house size for the "Agricultural (AG1)" zone; and
- the previously proposed port cochere has been removed.

Chloe Lee, Bouthouse Design Group, provided background information on the main landscaping features for the project, noting that (i) the removal of the previously proposed southern driveway has resulted in an increase of total ESA on the subject site, (ii) birch trees have been replaced with native cherry trees in response to a comment from the public at the previous Panel meeting, (iii) native species are proposed for all plantings on the ESA, and (iv) the landscaping cost for the project has increased due to additional ESA planting.

In response to queries from the Panel, Ms. Lee acknowledged that the revised planting scheme on the ESA will achieve a more natural landscaping for the project and provide a more suitable habitat for insects, birds and animals at the site.

Mr. Sims added that invasive species on the ESA at the eastern portion of the site will be removed and perimeter fencing installed to mitigate possible encroachment into the adjacent property to the east of the subject site.

#### **Staff Comments**

Mr. Craig noted the significant revisions made by the applicant to the original design of the project since its previous consideration by the Panel, which includes reducing the amount of hard surfaces on site and increasing ESA planting by approximately 6,000 square feet.

Mr. Craig further noted that staff support the proposed variance on the maximum area of the farm home plate as (i) the subject application, originally received in 2016, was in-stream when the City's bylaws related to the farm home plate area and house size were enacted in May 2017, and (ii) the house size has been reduced to comply with the new bylaw.

## **Development Permit Panel**

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In addition, Mr. Craig stated that staff requested the driveway entry be located as far south as possible along No. 4 Road to enhance traffic safety and minimize vehicular conflict at the intersection of No. 4 Road and Westminster Highway which has contributed to the larger farm home plate area for the subject development.

In response to queries from the Panel, Mr. Craig acknowledged that (i) the house will have to be relocated closer to No. 4 Road and the driveway reduced in order to comply with the maximum farm home plate area without significantly redesigning the house, (ii) the paved areas adjacent to the indoor garage have been reduced to the maximum extent possible but would still allow space for manoeuvring, (iii) permeable paving is proposed for the paved areas to help provide infiltration into the site, (iv) the ESA landscaping in front of No. 4 Road is included in the farm home plate area of the subject development, (v) moving the house to the minimum required setback from No. 4 Road would reduce the variance to the farm home plate area; however, native planting in front of No. 4 Road is proposed to provide a buffer from the busy road, and (vi) the project's environmental consultant could provide an assessment of the benefits of relocating the house to the southern portion of the site adjacent to the southern driveway entry in terms of potential increase and enhancement of ESA.

#### **Gallery Comments**

Anne Lerner, 12633 No. 2 Road, expressed appreciation for the Panel's comments on the proposed development to ensure that the applicant comply with the City's maximum farm home plate area.

In addition, Ms. Lerner stated that the Panel's handling of the subject development permit application would positively impact future applicants' compliance to the recently enacted City bylaw related to the farm home plate area.

Stephen Guo, Qualicon, project manager for the proposed development, provided a brief comment on the proposal for the relocation of the house to the southern portion of the subject site.

#### **Correspondence**

None.

#### **Panel Discussion**

The Panel noted the significant changes made by the applicant to the original design of the project; however, the Panel was of the opinion that the applicant could have done more to comply with the spirit of the City's zoning regulations regarding developments located on agricultural lands and ESAs.

Suggestion was then made to refer the subject development permit application to the Panel's next meeting on October 11, 2017 so that the applicant could work with staff to investigate opportunities for further changes to the revised project design to eliminate or reduce the proposed variance to the maximum area for the farm home plate.

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It was also suggested that the project's design team, including the architect, be present at the Panel's next meeting to explain the proposed changes.

**Panel Decision**

It was moved and seconded

*That Development Permit application 16-735007 be referred to, and form part of, the Development Permit Panel agenda at the Panel's next meeting scheduled for Wednesday, October 11, 2017 at 3:30 p.m. in the Council Chambers at Richmond Hall, for the purpose of further exploration of changes to the design of the proposed development to eliminate or reduce the proposed variance to the City's maximum farm home plate area.*

**CARRIED**

**3. Date of Next Meeting: October 11, 2017**

**4. Adjournment**

It was moved and seconded

*That the meeting be adjourned at 4:16 p.m.*

**CARRIED**

Certified a true and correct copy of the Minutes of the meeting of the Development Permit Panel of the Council of the City of Richmond held on Wednesday, September 27, 2017.

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Joe Erceg  
Chair

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Rustico Agawin  
Auxiliary Committee Clerk



# City of Richmond

## Memorandum Planning and Development Division Development Applications

**To:** Development Permit Panel

**Date:** October 3, 2017

**From:** Wayne Craig  
Director, Development

**File:** DP 16-735007

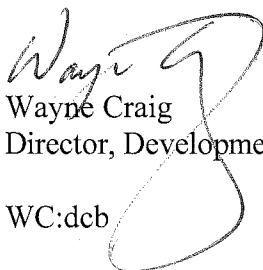
**Re:** Development Permit 16-735700 Alex Sartori 6020 No. 4 Road

At the Development Permit Panel meeting on September 27, 2017, the Panel made the following motion with regard to the above application:

*That Development Permit application 16-735007 be referred to, and form part of, the Development Permit Panel agenda at the Panel's next meeting scheduled for Wednesday, October 11, 2017 at 3:30 p.m. in the Council Chambers at Richmond Hall, for the purpose of further exploration of changes to the design of the proposed development to eliminate or reduce the proposed variance to the City's maximum farm home plate area.*

Stephen Guo, the project manager, has subsequently written to staff indicating that their design team is working to revise their plans with the aim of eliminating or reducing the proposed farm home plate area variance but will need more time to do so. Mr. Guo is requesting that the application be rescheduled to a later DP Panel meeting agenda.

If the Panel agrees to the applicant's request to defer the item it will be presented at a future Development Permit Panel meeting and that the typical notice requirements will apply.

  
Wayne Craig  
Director, Development  
WC:dcb



# City of Richmond

## Report to Development Permit Panel

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**To:** Development Permit Panel

**Date:** September 6, 2017

**From:** Wayne Craig  
Director, Development

**File:** DP 16-735007

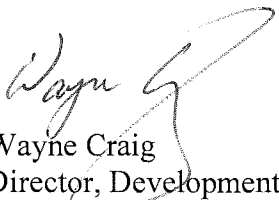
**Re:** Application by Alex Sartori for a Development Permit at 6020 No. 4 Road

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### Staff Recommendation

That a Development Permit be issued which would:

1. Permit the construction of a Single-Family Residential Dwelling at 6020 No. 4 Road on a site zoned "Agriculture (AG1)" and designated as an Environmentally Sensitive Area (ESA); and
2. Vary the provisions of Richmond Zoning Bylaw 8500 to increase the maximum area of the farm home plate from 1,000 m<sup>2</sup> to 1,342 m<sup>2</sup>.



Wayne Craig  
Director, Development

DCB:blg  
Att. 3

## Staff Report

### Origin

Alex Sartori has applied to the City of Richmond for permission to develop a single detached dwelling at 6020 No. 4 Road on a site zoned "Agriculture (AG1)" and designated as an Environmentally Sensitive Area (ESA) in the Official Community Plan (OCP). The site is currently vacant. A rezoning is not required as the proposed uses are consistent with the "Agriculture (AG1)" zone.

### Background

This application was initially reviewed by the Development Permit Panel at the meeting on April 12, 2017 (Attachment A), but was referred back to staff under the following referral motion:

***"That Development Permit application 16-735007 be referred back to staff for further discussions with the applicant to:***

- 1. Consider redesigning the proposed development to minimize its encroachment into the ESA;***
- 2. Investigate and address potential impacts of the proposed development to neighbouring properties' drainage;***
- 3. Review and reconcile data provided by staff and the applicant regarding the extent of the proposed development's impacts to the ESA;***
- 4. Clarify the rationale for the proposed location of the septic field; and***
- 5. Further explain how the proposed landscaping would enhance the redefined ESA and mitigate the development's impacts to the ESA."***

This supplemental report is being brought forward to:

- Provide a response to the referral.
- Provide a summary of revisions made to the development proposal.
- Outline how the revised application responds to recent amendments to the "Agriculture (AG1)" zone on May 17, 2017.
- Provide information regarding the revised Development Permit considerations.
- Present the revised Development Permit for DP Panel consideration.

### Development Information

Please refer to this report and the revised Development Permit plans that accompany this report for:

- Information regarding the revisions made to the proposal for the subject site to address the Development Permit Panel referral motion.
- Compliance with the recently amended "Agriculture (AG1)" zone; specifically with regard to the maximum floor area for a principal dwelling unit and the maximum area of the farm home plate.

- Revised Development Permit considerations.
- Revised Development Application Data Sheet.

Please refer to the original Staff Report dated March 27, 2017 (Attachment A) for information pertaining to:

- Surrounding development.
- The Biologist's Environmental Assessment.
- The Arborist's Report and Assessment.
- Aircraft Noise Indemnification.
- Flood-Plain Covenant.
- Servicing Requirements.
- Financial Impacts.

A revised Development Application Data Sheet is provided in "Attachment B" for a comparison of the proposed development data with the relevant bylaw requirements.

### **Staff Comments**

The proposed scheme attached to this report has satisfactorily addressed the significant urban design issues and other staff comments identified as part of the review of the subject Development Permit application. In addition, it complies with the intent of the applicable sections of the Official Community Plan and is generally in compliance with the "Agriculture (AG1)" zone except for the zoning variances noted below.

### **Zoning Compliance/Variations (staff comments in bold)**

The applicant requests to vary the provisions of Richmond Zoning Bylaw 8500 to increase the maximum area of the farm home plate to 1,342 m<sup>2</sup>.

*(Staff supports the proposed variance as:*

- a. The application (originally received June 16, 2016) was in-stream at the time that the "Agricultural (AG1)" farm home plate provisions were enacted on May 17, 2017. The owners have undertaken a significant reduction in the size of the proposed residential dwelling to comply with the 1,000 m<sup>2</sup> (10,763.9 ft<sup>2</sup>) maximum house size. Achieving compliance with the 1,000 m<sup>2</sup> farm home plate would require a complete redesign of the home and therefore impose additional hardship on the property owner.*
- b. At staff's request the entry driveway has been proposed as far south as possible to move it further away from the Westminster Highway and No. 4 Road intersection. Accommodating this location also contributes to the larger farm home plate).*

With exception to the requested farm home plate variance, the proposed development will be in full compliance with the "Agricultural (AG1)" zone, including the newly adopted 1,000 m<sup>2</sup> maximum house size requirement.



## Analysis

### Responses to Panel Comments

Panel Comment: ***Consider redesigning the proposed development to minimize its encroachment into the ESA.***

Response: The proponents have reduced the size of the house from 1,067.21 m<sup>2</sup> (11,487.35 ft.<sup>2</sup>) to 999.35 m<sup>2</sup> (10,656.9 ft.<sup>2</sup>) and eliminated the driveway which was previously planned along the south side of the house. That southern driveway is proposed to be replaced by additional ESA landscaping. In addition, all the structures previously located overtop of the septic field have been removed and replaced with grass.

Panel Comment: ***Investigate and address potential impacts of the proposed development to neighbouring properties' drainage.***

Response: An updated grading plan has been submitted showing transitions to the adjacent properties. The grade differences are confined to the western portion of the lot with no grade changes at the rear of the property where the ESA is to be retained. Along the south side of the house the previous driveway will be replaced with native landscaping, allowing more infiltration into the soil. In addition, perimeter drainage will be required as part of the Building Permit application requirements. Perimeter drainage is required around the area being filled – in this case, at the western portion of the site where the house is proposed to be located. This combination of increased ground infiltration and perimeter drainage represent reasonable measures to address the majority of the storm run-off concerns from the site.

Panel Comment: ***Review and reconcile data provided by staff and the applicant regarding the extent of the proposed development's impacts to the ESA.***

Response: The site plan has been significantly modified by reducing the size of the house and increasing the area proposed to be planted and retained as ESA. The estimated area of the retained and enhanced ESA is approximately 1,934.5 m<sup>2</sup> (20,822.41 ft.<sup>2</sup>). This is an increase of the ESA of approximately 547.6 m<sup>2</sup> (5,894 ft.<sup>2</sup>) from the original application submission. The Development Permit Considerations include a requirement for submission of a sketch plan prepared by a surveyor which will be used to prepare a protective covenant for the ESA areas on the subject site.

Panel Comment: ***Clarify the rationale for the proposed location of the septic field.***

Response: The septic field is proposed to be located just to the east of the existing house, but will not encroach into the existing ESA. The sanitary system design was prepared by a professional engineer to meet the requirements of the proposed house. Its size and location are appropriate to the proposed use. The septic field area is not included in the total ESA area calculation, but this area will be grass covered.

Panel Comment: ***Further explain how the proposed landscaping would enhance the redefined ESA and mitigate the development's impacts to the ESA.***

Response: Three areas are proposed to be enhanced under the revised site plan:

- a. In and around the existing tree stand at the eastern end of the property, where invasive vegetation will be removed and replaced with native shrubs and trees.
- b. Across the area previously proposed for a driveway along the south side of the house, which is currently grassed with no trees and few native shrubs. The enhancement plan proposes a variety of native shrubs and trees to be installed; which will allow more opportunities for use by birds and small animals.
- c. Within part of the front yard setback adjacent to No. 4 Road.  
Although this area is not included in the ESA calculations, it is proposed to be planted with a variety of native shrubs and trees replacing the largely grassed area at the front of the lot helping to increase the area of native planted landscaping.

The proposed vegetation selections are intended to diversify the habitat by broadening the vegetation types, attracting a wider range of birds and animals at the site and providing new foraging opportunities (e.g. by including shrubs with berries in the species mix). These two aspects should increase the overall value for wildlife over the existing situation.

The revised landscape plan will result in approximately 84 more trees and 356 more shrubs than the original submission overall. A total of 282 trees, 977 shrubs and 506 ground cover plants are proposed to be planted on site under the revised landscape plan.

#### Revised Development Permit Considerations

Based on the revised submission, the Development Permit Considerations were adjusted as follows:

- The required landscape security is increased from \$28,548.52 to \$74,749.06 to reflect the increased area of landscaping. The revised total now includes both ESA and non-ESA landscaping costs.
- A new requirement has been added for the submission of a sketch plan prepared by a registered BC Surveyor that outlines the ESA area. The sketch plan will be used in a legal agreement to be registered on Title to ensure that the ESA landscaping is maintained and not abandoned.

The revised Development Permit Considerations are located in Attachment C.

#### **Conclusions**

The proponent for the proposed development has made extensive modifications to the project to address the issues identified by the Advisory Design Panel and staff. Significant reductions have been made to the floor area of the house to comply with the amended "Agriculture (AG1)" zone. At the same time, the overall landscaping areas have been significantly increased and areas of hard surface removed.

As the application was in-stream at the time that the "Agricultural (AG1)" zone farm home plate provisions were enacted for which compliance would impose additional hardship on the property owners, staff recommend that the Development Permit be endorsed with a variance to increase the maximum area of the farm home plate to 1,342 m<sup>2</sup>, and issuance by Council be recommended.



David Brownlee  
Planner 2  
(604-276-4200)

DCB:blg

List of Attachments:

- Attachment A: Original Staff Report to Development Permit Panel (dated March 27, 2017)
- Attachment B: Development Application Data Sheet
- Attachment C: Development Permit Considerations



City of  
Richmond

## Report to Development Permit Panel

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To: Development Permit Panel

Date: March 27, 2017

From: Wayne Craig  
Director, Development

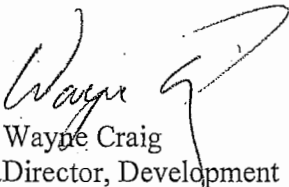
File: DP 16-735007

Re: Application by Alex Sartori for a Development Permit at 6020 No. 4 Road

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### Staff Recommendation

That a Development Permit be issued which would permit the construction of a Single-Family Residential Dwelling at 6020 No. 4 Road on a site zoned "Agriculture (AG1)" zone and designated as an Environmentally Sensitive Area (ESA).

  
Wayne Craig  
Director, Development

DCB:blg  
Att. 3

## **Staff Report**

### **Origin**

Alex Sartori has applied to the City of Richmond for permission to develop a single detached dwelling at 6020 No. 4 Road on a site zoned "Agriculture (AG1)" and designated as an Environmentally Sensitive Area (ESA) in the Official Community Plan. The application was submitted on June 16, 2016. The site is currently vacant.

A rezoning is not required.

### **Development Information**

The development proposal involves the construction of a new single-family dwelling with a new driveway and a new septic field to support the development. The primary proposed residential uses will be within the front 50 m of the lot. A septic field with an outdoor fireplace and wood deck on top of the septic field will be located beyond the 50 m setback.

The subject property is entirely designated as an Environmentally Sensitive Area in Richmond's Official Community Plan however, a ground truthed environmental assessment suggests that the most valuable environmental assets occur in the eastern portion of the site which is proposed to be retained. This is explained further in the "Biologist's Environmental Assessment" section later in this report.

Please refer to the attached Development Application Data Sheet (Attachment 1) for a comparison of the proposed development data with the relevant bylaw requirements.

### **Background**

Development surrounding the subject site is as follows:

To the north: a 0.35 ha (0.87 ac) lot zoned "Agriculture (AG1)" and currently used as a veterinary office.

To the east: a 0.35 ha (0.87 ac) no access lot zoned "Agriculture (AG1)". That lot is fully treed and has no existing structures.

To the south: a 0.18 ha (0.44 ac) lot zoned "Agriculture (AG1)" and containing a single-family dwelling.

On the west side of No. 4 Road is:

- A 0.35 ha (0.86 ac) corner lot zoned "Gas & Service Stations (CG2)". The site is currently vacant and a rezoning application (RZ 16-742722) to allow 19 townhouse units is currently under review by the City.
- A 1.33 ha (3.29 ac) lot zoned "Town Housing (ZT59) – North McLennan (City Centre).
- A 0.39 ha (0.95 ac) lot zoned "Medium Density Townhouses (RTM2)".

## **Zoning**

Single detached housing is a permitted use on a parcel under "Agriculture (AG1)" zoning and as such, structures must be consistent with this use. The proposed use is consistent with the AG1 zoning. The conceptual house plans submitted for this application will be subject to a future Building Permit and will be required to conform to all Bylaws at the time of the Building Permit review.

## **Staff Comments**

The proposed scheme attached to this report has satisfactorily addressed the Environmentally Sensitive Area issues and other staff comments identified as part of the review of the subject Development Permit application.

## **Analysis**

### ***Site Planning***

- The house and driveway are both accommodated within the 50 m maximum setback from No. 4 Road as per the "Agriculture (AG1)" zone.
- The entry driveway has been located as far south as possible due to the proximity to the Westminster Highway/No. 4 Road intersection.
- The proposed site plan does not result in any impacts to bylaw-sized trees on the property.
- The site grading plan indicates that the portion of the property east of the 50 m maximum building setback boundary will be kept at the current existing grade, with the exception that some re-grading is proposed for those areas where invasive vegetation are to be removed.
- The site grading for the portion of the property west of the 50 m maximum building setback boundary will be raised to address the flood construction elevations. Approximately 0.16 ha (17,016 ft<sup>2</sup>) is proposed to be raised with fill is less than the 0.2 ha (21,528 ft<sup>2</sup>) Agricultural Land Commission review threshold.
- Permeable pavers are proposed for both the internal drive aisles and the pedestrian walkway to the front entrance.

### ***Proposed House***

The applicant is proposing to build a two-storey residential dwelling with an attached three car garage. The house footprint will be approximately 633.76 m<sup>2</sup> (6,822 ft<sup>2</sup>) in area.

The house will require a Building Permit and will be required to conform to the City's Bylaws at the time of the application.

### ***Arborist's Report***

- Both an Arborist's Report and a Biologist's Report have been submitted and that work in concert with each other. The Arborist's report (dated April 25, 2016), prepared by Mountain Maple Garden & Tree Service Ltd., identifies 24 bylaw-sized trees on-site; at the rear (eastern side) of the property. The majority of the trees are deciduous (Birch, Oak and Alder trees). All 24 trees are to be retained. The submission is also accompanied by a letter stating that "Certified Arborist supervision is required for any works within the vicinity of the roots of the retained trees within the ESA". This will be required as the Biologist's Report recommends removal of invasive plant species from areas around trees and shrubs to

be retained in the eastern portion of the site. Mountain Maple Ltd. has submitted a letter of undertaking to provide site supervision for all on-site works within or adjacent to the ESA.

- The Development Permit Considerations (Attachment 3) include a requirement for the submission of a contract entered into between the applicant and a Certified Arborist for supervision of any on-site works within the vicinity of the roots of the retained trees within the Environmentally Sensitive Area (ESA).
- To ensure that the proposed enhancements have the best chance of survival and that invasive species are controlled, the Development Permit Considerations include a requirement for monitoring and annual reporting by a Qualified Environmental Professional for three years.

The City's Tree Preservation Coordinator has reviewed the Arborist's Report and has provided the following comments:

- 23 trees located on site and in designated ESA are to be retained and protected.
- 1 tree (11 in. Birch – no tag#) located on-site (but outside ESA) to be retained and protected.
- 8 trees located off site to be retained.

Requirements for the installation of protective fencing for retained trees, the ESA and for silt control measures are included in the Development Permit Considerations.

### ***Biologist's Environmental Assessment***

As stated previously, the entire subject site is designated as an Environmentally Sensitive Area (ESA) in the Official Community Plan however a ground-truthed Biologist's environmental assessment (report dated June 14, 2016, prepared by Sartori Environmental Services) and subsequent direct communication with the Biologist indicates that the most valuable environmental assets occur in the eastern portion of the site.

The Biologist's key findings are outlined below:

- The Official Community Plan designates the site as "FRWT - Freshwater Wetland" however no evidence was found of hydric (wet/moist) soils, which should be present within a freshwater wetland. Similarly, the lack of aquatic plant communities on the site do not support the designation as a freshwater wetland.
- The western portion of the property is primarily grassed with Himalayan Blackberry along the perimeter and there is no reported evidence of the site being farmed or used for grazing.
- Anthropogenic impacts (e.g. concrete rubble, indications of prior structures and debris, etc.) are evident in the western portion of the property.
- The eastern portion of the site contains a treed area with a dense under-storey in a mix of native and non-native species. The treed area covers approximately 964 m<sup>2</sup> at the eastern end of the site. The Biologist advises that this portion of the site has a much higher ecological diversity and function than the western portion of the property.
- Himalayan Blackberry dominates the outer 1 – 3 m of the interface area with the treed area (see Landscape Plan L2).
- Small quantities of other invasive species (English Holly, English Laurel) are also found in the periphery of the treed area.

***Proposed Environmentally Sensitive Area Enhancement***

Based on the site observations, the Biologist's assessment locates and spatially defines the most valuable ecological portion of the site (see Attachment 2) and proposes a prescription for its enhancement as a reasonable trade-off for the impacts of the proposed development in the western portion of the site. Key elements of the proposal include the following:

- All the building and pavement areas will be kept within the first 50 m (164 ft.) of the lot with only the proposed septic field and associated wood deck and seating area being beyond the 50 m mark.
- All the existing trees on the property are to be retained.
- The eastern portion of the site is proposed to be enhanced by carefully removing invasive species and installing native species trees and shrubs to enhance/expand this area and discourage re-establishment of invasive species.
- Temporary protective fencing and silt control measures will be installed outside the redefined ESA area (as proposed in Attachment 2) prior to construction activity.
- Invasive species around the periphery and within the treed area will be carefully removed under the supervision of a Certified Arborist.
- Enhancement planting within the redefined ESA will consist of 48 trees, 130 native shrubs and ground covers over an area of approximately 529 m<sup>2</sup> (5,694 ft<sup>2</sup>).
- All of the vegetation planting within the redefined ESA will be native species.
- A landscape security in the amount of \$28,548.52 is included in the Development Permit Considerations for the landscaping within the redefined ESA area.
- A permanent split-rail wood fence will be installed as a physical barrier that the redefined ESA is to be protected.
- Three years of monitoring and annual reporting will be undertaken by a Qualified Environmental Professional.
- A legal agreement is proposed to protect the redefined Environmentally Sensitive Area (Attachment 2); an area of approximately 1,386.9 m<sup>2</sup> (14,928.5 ft<sup>2</sup>) to ensure that it is retained and not removed. This area encompasses approximately 39.3% of the subject site.

The Biologist indicates that, while there are ecological values provided by the grassland area in the western portion of the site, the ecological values provided by enhancing and permanently protecting the eastern portion of the site will be much higher and will support a greater diversity of both plant and animal species. The overall objective of the proposed compensation and enhancement is for long term maintenance and conservation. The proposed enhancement plans aim to achieve this.

***Landscaping Plan – Outside the Redefined ESA***

In addition to the landscaping enhancements within the redefined ESA, the applicant has proposed landscaping for area outside the redefined ESA incorporates a high percentage of trees, shrubs and ground cover species considered to be native local species. The area adjacent to No. 4 Road is proposed to contain a row of Western Red Cedar trees; with a Red Alder and a Vine Maple tree flanking the driveway entrance. These same tree species are sprinkled along the internal drive aisle and in front of the house along with Japanese Magnolias, Japanese Black Pine trees, Bitter Cherry and Paper Birch trees.



Shrubs and ground covers include Red Osier Dogwood, Indian Plum, Salmonberry, Red Elderberry, Dwarf English Boxwood, Field Mint, and Rhododendron. The complete list of shrubs and ground covers is shown on the submitted landscape plans. The Development Permit Considerations include a requirement for submission of a separate landscape security for the non-ESA planting to ensure appropriate installation.

The tree and shrub species selections in this area will be complementary to the proposed planting enhancements within the “redefined” Environmentally Sensitive Area (as shown in Attachment 2).

### ***Aircraft Noise Indemnification***

The Development Permit Considerations include the registration of an aircraft noise indemnity as the property is located within Richmond’s Aircraft Noise Policy Area.

### ***Flood-Plain Covenant***

The Development Permit Considerations include the registration of a Flood-Plain Covenant on title identifying a minimum habitable elevation of 2.9 m GSC.

### ***Servicing Requirements***

A Servicing Agreement will not be required for this development. Utility connections and frontage improvements will be addressed at Building Permit stage via one or more work orders. These improvements are detailed in the Development Permit Considerations (Attachment 3) and include:

- Water service connections.
- Registration of Statutory Rights-of-Way for storm utilities.
- Only a single driveway access to be located as far south as possible to be permitted.
- Relocation of any existing power poles and/or guy wires within the property boundaries, etc.

### ***Financial Impacts***

The application results in an insignificant Operational Budget Impact (OBI) for off-site City infrastructure (such as road works, waterworks, storm sewers, sanitary sewers, street lights, street trees and traffic signals).

March 27, 2017

- 7 -

### **Conclusions**

Staff concur that the proposed retention and enhancement of the eastern portion of the subject site should provide greater ecological benefit than is currently afforded by the grassed area in the western portion of the site that would be impacted by the development. On the basis of the environmental assessment and the proposed compensation and enhancement plans staff recommend that the Development Permit be endorsed, and issuance by Council be recommended.



David Brownlee  
Planner 2  
(604-276-4200)

DCB:blg

### Attachments

- Attachment 1: Development Application Data Sheet
- Attachment 2: Sketch Plan of the Redefined ESA (Proposed)
- Attachment 3: Development Permit Considerations



City of  
Richmond

## Development Application Data Sheet

Development Applications Department

**DP 16-735007**

**Attachment 1**

Address: 6020 No. 4 Road

Applicant: Alex Sartori

Owner: Jessica Sun and Qi Ming Wang

Planning Area(s): East Richmond

Floor Area Gross: 1,067.21 m<sup>2</sup> (11,487.75 ft<sup>2</sup>)

	Existing	Proposed
Site Area:	3,529.70 m <sup>2</sup> (37,993.4 ft <sup>2</sup> ) m <sup>2</sup>	Same
Land Uses:	Vacant	Single Detached Dwelling
OCP Designation:	Agriculture	Same
Zoning:	Agriculture (AG1)	Same
Number of Units:	None	1

	Bylaw Requirement	Proposed	Variance
Floor Area Ratio:	0.6	0.31	none permitted
Lot Coverage:	Max. 35%	18%	None
Setback – Front Yard:	Min. 6.0 m	9.35 m	None
Setback – Interior Side Yard (north):	Min. 1.2 m	1.22 m	None
Setback – Interior Side Yard (south):	Min. 3.0 m	11.37 m	None
Setback – Rear Yard:	Min. 6.0 m	45.50 m	None
Height (m):	Max. 10.5 m (no more than 2.5 storeys)	10.0 m (2 storeys)	None
Lot Size:	Min. 828 m <sup>2</sup> for Single Detached Housing	3,529.70	None
Total off-street Spaces:	3	5	None
Secondary Suite	Max. 90 m <sup>2</sup>	85.42 m <sup>2</sup>	None

# SKETCH PLAN SHOWING AREA OF PROPOSED COVENANT OVER ENVIRONMENTALLY SENSITIVE AREA ON LOT "B", BLOCK 64, SECTION 11, BLOCK 4 NORTH, RANGE 6 WEST, GROUP ONE, NEW WESTMINSTER DISTRICT, PLAN 1228

1 : 400

BCGS 92G.015

ALL DISTANCES ARE IN METRES AND DECIMALS THEREOF.

THE INTENDED PLOT SIZE OF THIS PLAN IS 432mm IN WIDTH BY 280mm IN HEIGHT (B SIZE) WHEN PLOTTED AT A SCALE OF 1:400.

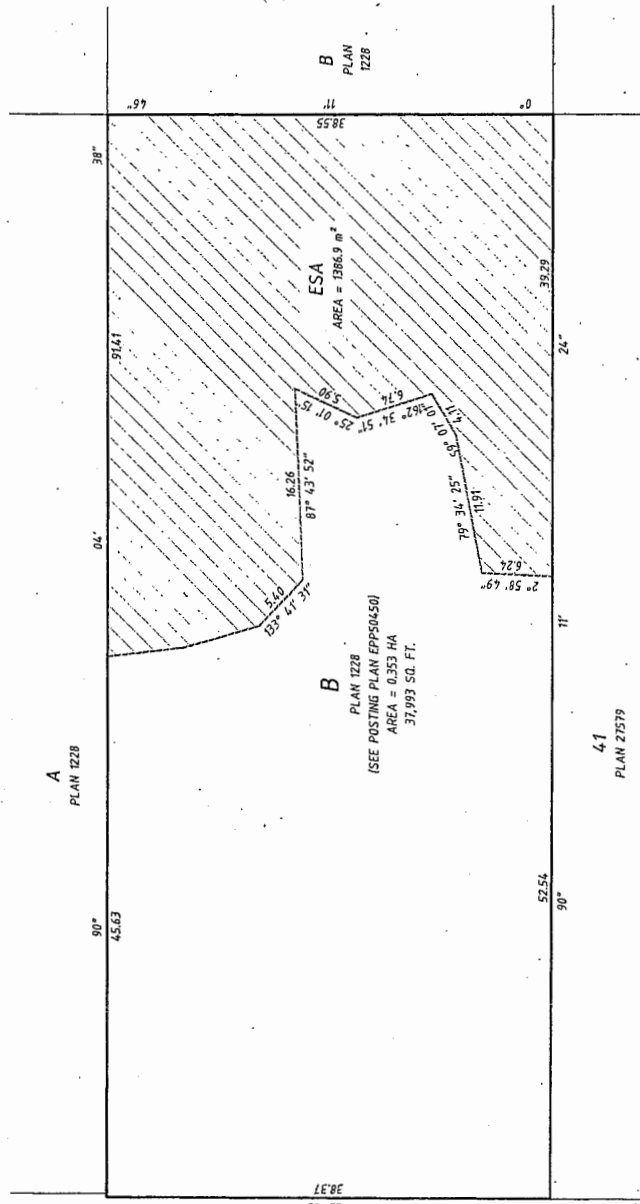
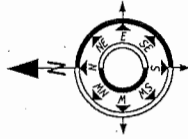
INTEGRATED SURVEY AREA NO. 18 (RICHMOND) M403(CSR) 4.0.0.BC.LG.VRD.

GRID BEARINGS ARE DERIVED FROM DUAL FREQUENCY GNSS RTK OBSERVATIONS ARE REFERRED TO THE CENTRAL MERIDIAN OF UTM ZONE 10.

THIS PLAN SHOWS HORIZONTAL GROUND-LEVEL DISTANCES UNLESS OTHERWISE SPECIFIED.

TO COMPUTE GRID DISTANCES, MULTIPLY GROUND LEVEL DISTANCES BY THE AVERAGE COMBINED FACTOR OF 0.9996034 WHICH HAS BEEN DERIVED FROM GEODETIC CONTROL MONUMENT 845190.

THE UTM COORDINATES AND ESTIMATED HORIZONTAL POSITIONAL ACCURACY ACHIEVED ARE DERIVED FROM DUAL FREQUENCY GNSS RTK OBSERVATIONS TO GEODETIC CONTROL MONUMENT 869792, LELU ISLAND (BCLU).



NO. 4 ROAD

## LEGEND

ESA ENVIRONMENTALLY SENSITIVE AREA

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INFO@360SURVEYS.CA  
WWW.360SURVEYS.CA  
JOB: 2015051  
FILE: 20150510WG



City of  
Richmond

Development Permit Considerations  
Development Applications Department  
6911 No. 3 Road, Richmond, BC V6Y 2C1

**Address:** 6020 No. 4 Road

**File No.:** DP 16-735007

**Prior to approval of the Development Permit, the developer is required to complete the following:**

1. Receipt of a landscaping security acceptable to the Director of Development in the amount of \$28,548.52 (based on the costs estimate provided by a CSLA registered landscape Architect including 10% contingency) for Environmentally Sensitive Area landscaping.
2. Submission of a cost estimate and security for the non-Environmentally Sensitive Area landscaping acceptable to the Director of Development and as prepared by a CSLA registered landscape Architect, including 10% contingency.
3. Submission of a Contract entered into between the applicant and a Certified Arborist for supervision of any on-site works conducted within the Environmentally Sensitive Area (ESA) as outlined in the Sketch Plan by 360 Land Surveying Ltd or within the tree protection zone of the trees to be retained.
4. Submission of a Contract entered into between the applicant and a Qualified Environmental Professional to monitor and provide annual reporting to the City on the ESA area for three years.
5. Installation of appropriate tree protection fencing around all trees to be retained as part of the development prior to any construction activities, including building demolition, occurring on-site.
6. Installation of appropriate Environmentally Sensitive Area protection fencing and silt control fencing at the location indicated on the Landscape plans (dated Dec. 2016) prior to any construction activities, including building demolition, occurring on-site.
7. Registration of an aircraft noise indemnity Covenant on Title.
8. Registration of a flood-plain Covenant on title identifying a minimum habitable elevation of 2.9 m GSC. The site is in East Richmond.
9. Registration of a legal agreement on title to ensure that landscaping retained and planted within the Environmentally Sensitive Area as identified in the ESA Sketch Plan by 360 Land Surveying Ltd is maintained as outlined in the Environmentally Sensitive Area report by Sartori Environmental Services (dated June 14, 2016) and will not be abandoned or removed.

**Prior to Building Permit Issuance, the developer must complete the following requirements:**

1. Enter into a Work Order\* for the design and construction of utility connections and frontage improvements. Works include, but may not be limited to the following:

**DP 16-735007 – 6020 No.4 Rd - Engineering Servicing Requirements:**

**Scope:** *ALEX SARTORI has applied to the City of Richmond for permission to construct an approximately 929 square meters (10,000 square feet) single-family dwelling at 6020 No 4 Road on a site designated as Environmentally Sensitive Area.*

**A servicing agreement is not required.**

**a. Water Works:**

- Using the OCP Model, there is 867 L/s of water available at a 20 psi residual at the No. 4 Road frontage. Based on your proposed development, your site requires a minimum fire flow of 95 L/s.

- The Developer is required to:
  - Submit Fire Underwriter Survey (FUS) or International Organization for Standardization (ISO) fire flow calculations to confirm the development has adequate fire flow for onsite fire protection. Calculations must be signed and sealed by a Professional Engineer and be based on Building Permit Stage and Building designs.
- At the Developers cost, the City is to:
  - Install a new water service connection complete with meter and meter box off of the existing 300 mm AC watermain on No.4 Road.

**b. Storm Sewer Works:**

- The Developer is required to:
  - Provide a 3.0 m by 3.0 m utility SRW at the west property line for the proposed storm inspection chamber.
  - Provide a 3.0 m by 11.0 m utility SRW at the southwest corner of the lot for the existing storm inspection chamber STIC49676.
- At the Developers cost, the City is to:
  - Install a new storm service connection off of the existing box culvert on No.4 Road complete with inspection chamber.
  - Cut & cap the existing storm service leads at the northwest and southwest corners of the subject site.

**c. Sanitary Sewer Works:**

As per Policy 7401, properties outside of City sewer boundaries are not permitted to connect to the City sanitary sewer. An on-site sanitary disposal system is required, to be designed by a Professional Engineer.

**d. Frontage Improvements:**

- The Developer is required to:
  - Coordinate with BC Hydro, Telus and other private communication service providers:
    - When relocating/modifying any of the existing power poles and/or guy wires within the property frontages.
    - To determine if above ground structures are required and coordinate their locations (e.g. PMT, LPT, Shaw cabinets, Telus Kiosks, etc.).
  - Complete other frontage improvements as per Transportation's requirements.

**e. General Items:**

- a. The Developer is required to:
  - The subject site is located in an environmentally sensitive area (ESA), coordination with the City's Planning and Development Department is required.
  - Enter into, if required, additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering, including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.
2. Submission of a Construction Parking and Traffic Management Plan to the Transportation Department. Management Plan shall include location for parking for services, deliveries, workers, loading, application for any lane closures, and proper construction traffic controls as per Traffic Control Manual for works on Roadways (by Ministry of Transportation) and MMCD Traffic Regulation Section 01570.

3. If applicable, payment of latecomer agreement charges associated with eligible latecomer works.
4. Obtain a Building Permit (BP) for any construction hoarding. If construction hoarding is required to temporarily occupy a public street, the air space above a public street, or any part thereof, additional City approvals and associated fees may be required as part of the Building Permit. For additional information, contact the Building Approvals Department at 604-276-4285.

**Note:**

- \* This requires a separate application.
- Where the Director of Development deems appropriate, the preceding agreements are to be drawn not only as personal covenants of the property owner, but also as covenants pursuant to Section 219 of the Land Title Act. All agreements to be registered in the Land Title Office shall have priority over all such liens, charges and encumbrances as is considered advisable by the Director of Development. All agreements to be registered in the Land Title Office shall, unless the Director of Development determines otherwise, be fully registered in the Land Title Office prior to enactment of the appropriate bylaw.

The preceding agreements shall provide security to the City including indemnities, warranties, equitable/rent charges, letters of credit and withholding permits, as deemed necessary or advisable by the Director of Development. All agreements shall be in a form and content satisfactory to the Director of Development.
- Additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering may be required including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.
- Applicants for all City Permits are required to comply at all times with the conditions of the Provincial *Wildlife Act* and Federal *Migratory Birds Convention Act*, which contains prohibitions on the removal or disturbance of both birds and their nests. Issuance of Municipal permits does not give an individual authority to contravene these legislations. The City of Richmond recommends that where significant trees or vegetation exists on site, the services of a Qualified Environmental Professional (QEP) be secured to perform a survey and ensure that development activities are in compliance with all relevant legislation.

Signed \_\_\_\_\_

Date \_\_\_\_\_



# City of Richmond

## Development Permit

No. DP 16-735007

To the Holder: ALEX SARTORI  
Property Address: 6020 NO. 4 ROAD  
Address: C/O CHLOE LEE  
BOUTHOUSE DESIGN GROUP INC.  
#1 - 3331 VIKING WAY, RICHMOND BC

1. This Development Permit is issued subject to compliance with all of the Bylaws of the City applicable thereto, except as specifically varied or supplemented by this Permit.
2. This Development Permit applies to and only to those lands shown cross-hatched on the attached Schedule "A" and any and all buildings, structures and other development thereon.
3. Subject to Section 692 of the Local Government Act, R.S.B.C.: buildings and structures; off-street parking and loading facilities; roads and parking areas; and landscaping and screening shall be constructed generally in accordance with Plans #1 to #15 attached hereto.
4. Sanitary sewers, water, drainage, highways, street lighting, underground wiring, and sidewalks, shall be provided as required.
5. As a condition of the issuance of this Permit, the City is holding the security in the amount of \$28,548.52 to ensure that development is carried out in accordance with the terms and conditions of this Permit. Should any interest be earned upon the security, it shall accrue to the Holder if the security is returned. The condition of the posting of the security is that should the Holder fail to carry out the development hereby authorized, according to the terms and conditions of this Permit within the time provided, the City may use the security to carry out the work by its servants, agents or contractors, and any surplus shall be paid over to the Holder. Should the Holder carry out the development permitted by this permit within the time set out herein, the security shall be returned to the Holder. The City may retain the security for up to one year after inspection of the completed landscaping in order to ensure that plant material has survived.
6. If the Holder does not commence the construction permitted by this Permit within 24 months of the date of this Permit, this Permit shall lapse and the security shall be returned in full.



No. DP 16-735007

To the Holder: ALEX SARTORI

Property Address: 6020 NO. 4 ROAD

Address: C/O CHLOE LEE  
BOUTHOUSE DESIGN GROUP INC.  
#1 - 3331 VIKING WAY, RICHMOND BC

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7. The land described herein shall be developed generally in accordance with the terms and conditions and provisions of this Permit and any plans and specifications attached to this Permit which shall form a part hereof.

This Permit is not a Building Permit.

AUTHORIZING RESOLUTION NO.  
DAY OF

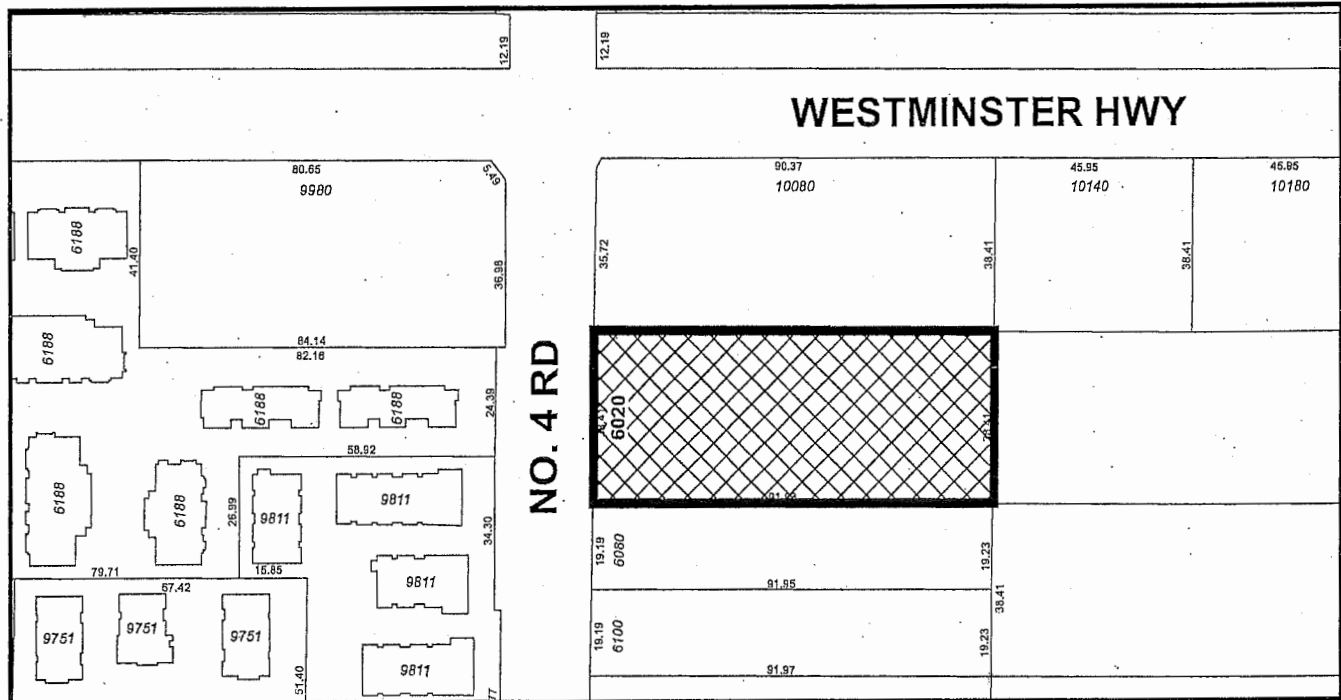
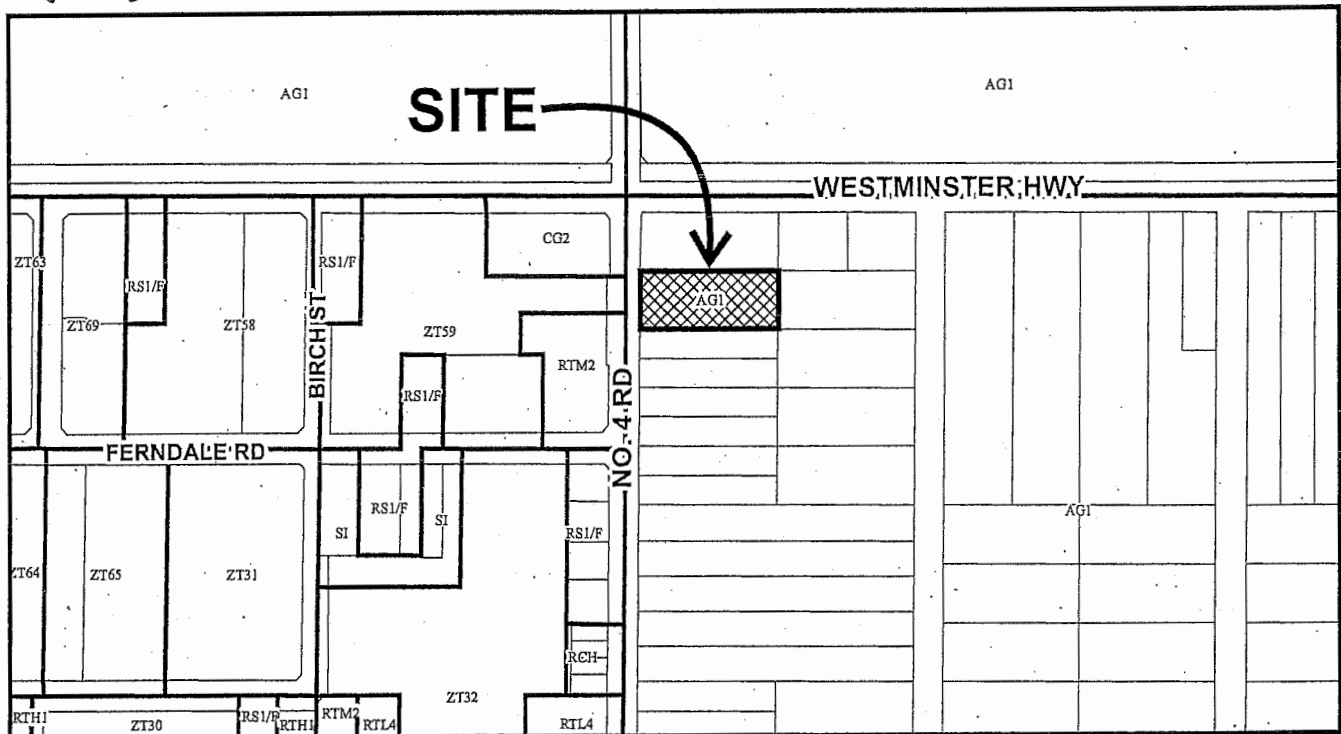
ISSUED BY THE COUNCIL THE

DELIVERED THIS DAY OF

\_\_\_\_\_  
MAYOR



# City of Richmond

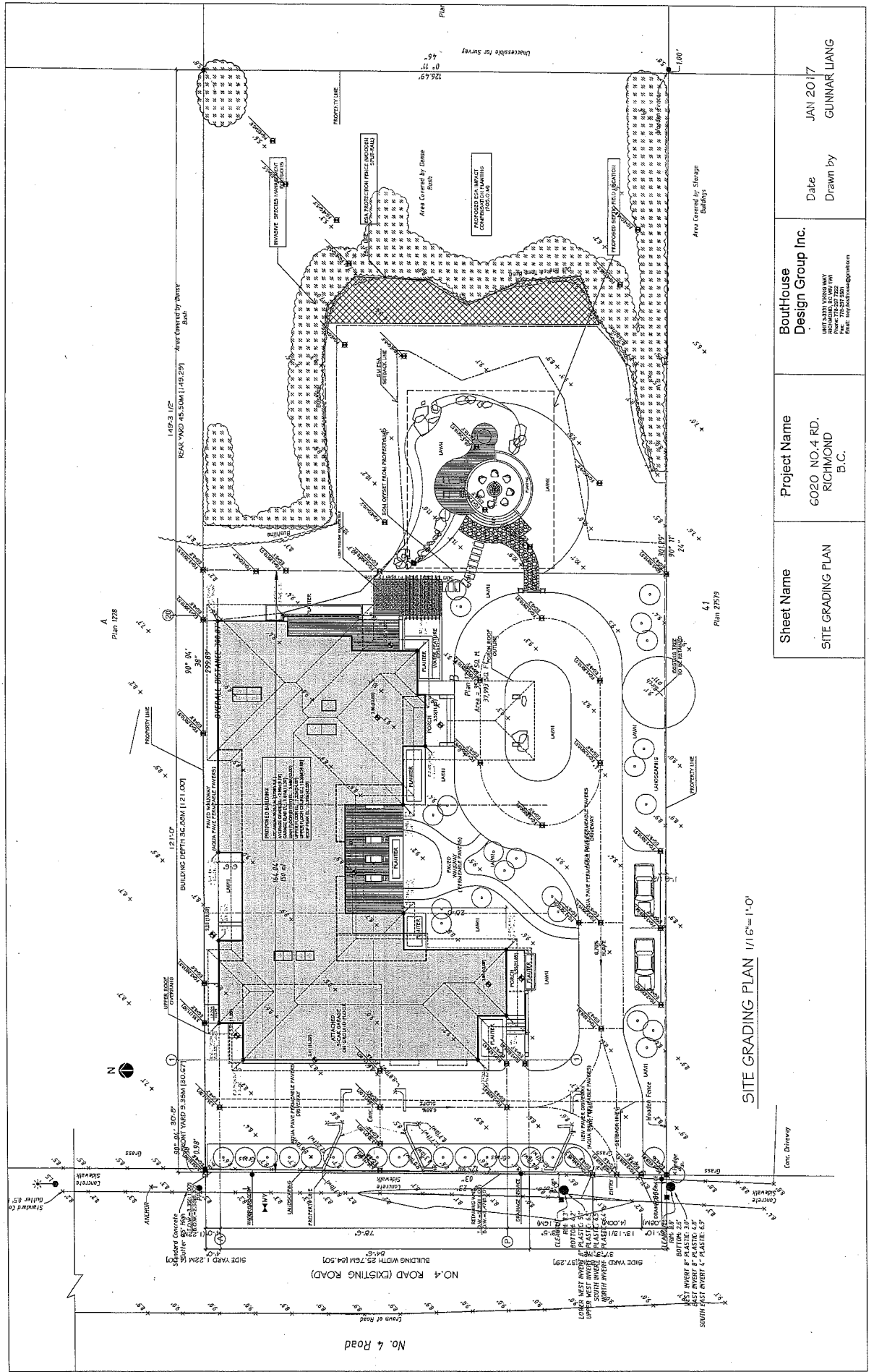


DP 16-735007

Original Date: 07/08/16

Revision Date:

Note: Dimensions are in METRES



SITE GRADING PLAN 1/16" = 1'-0"

Sheet Name

SITE GRADING PLAN

Project Name

6020 NO.4 RD.  
RICHMOND  
B.C.

BoutHouse  
Design Group Inc.

UNIT 3, 3011 VICTORIA WAY  
RICHMOND, B.C. V6V 1W1  
Tel: 604.273.2222  
Fax: 604.273.2222  
Email: info@bouthouse.ca

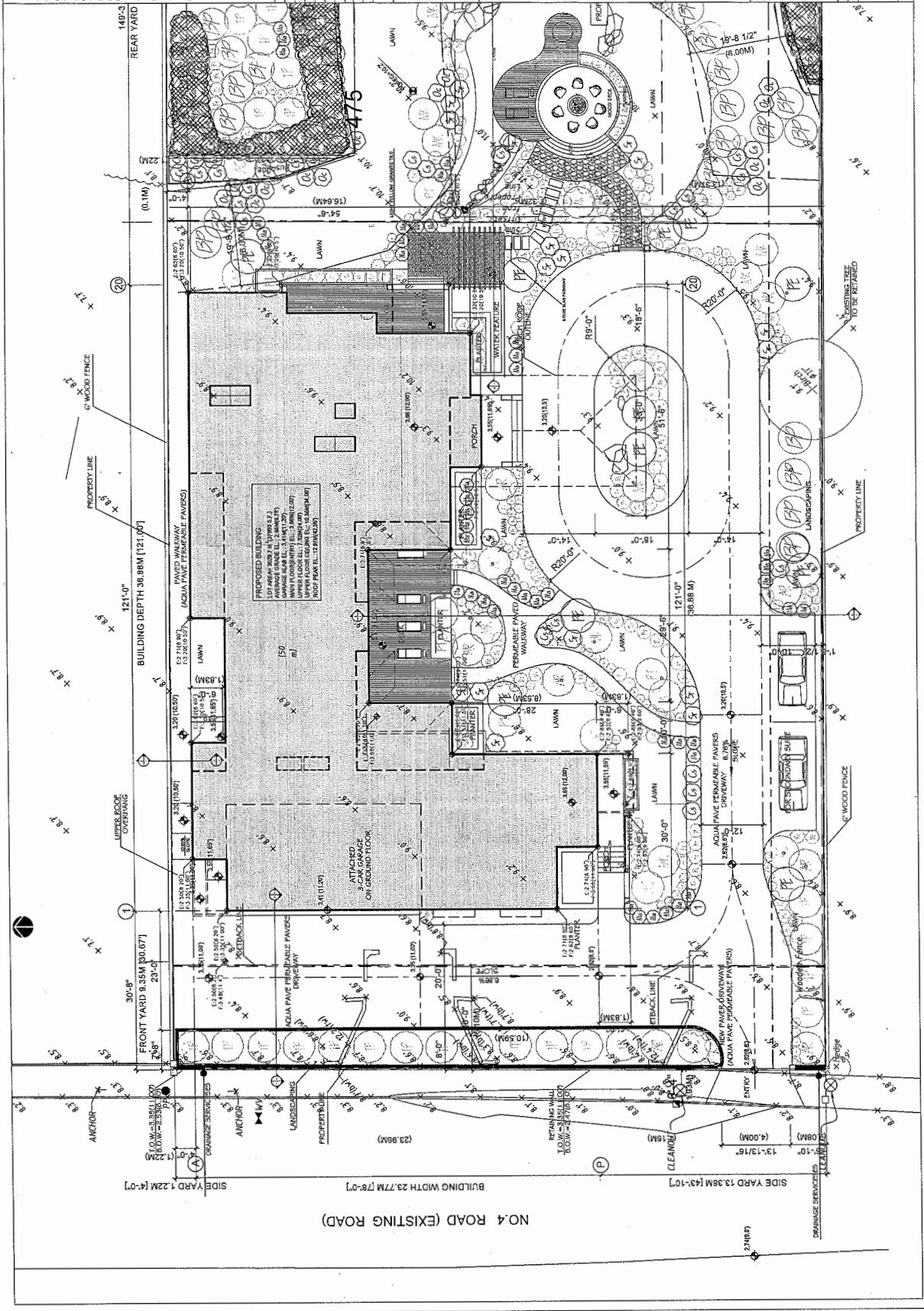
Date  
Drawn by

JAN 2017  
GUNNAR LIANG

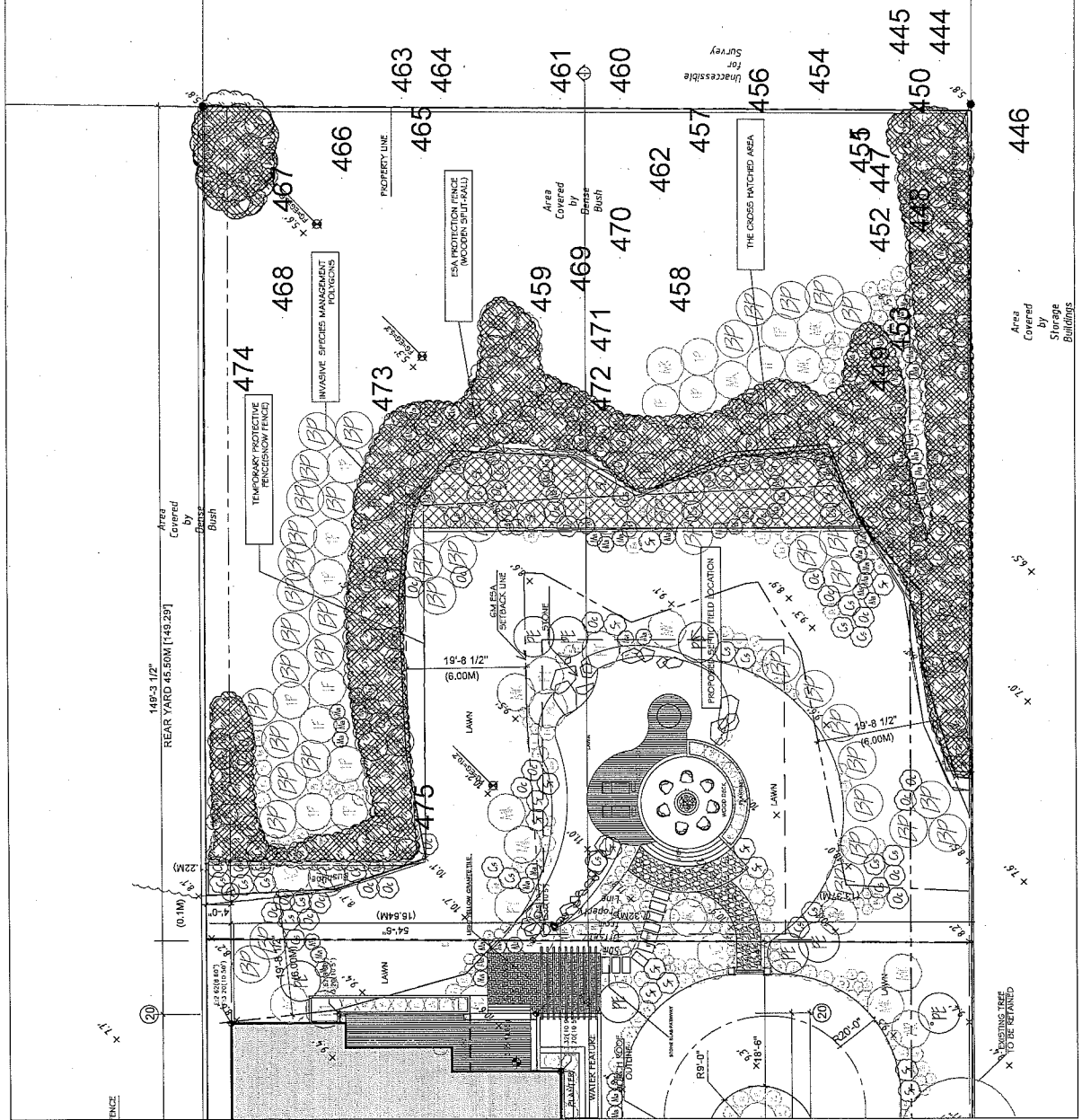
DP 16-735007

APR 12 2017

1 of 1



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87				



THE GENERAL CONTRACTOR SHALL REVIEW THE DOCUMENTS FOR CONFORMANCE WITH THE CITY OF RICHMOND AND SHALL ADVISE THE DESIGNER OF ANY DISCREPANCY HE MAY NOTE. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE GENERAL CONTRACTOR'S OMISSIONS AND ERRORS AND OMISSIONS TO THE DESIGNER. THESE DRAWINGS ARE INTENDED FOR ARCHITECTURAL INFORMATION ONLY. THE CONTRACTOR AND ANY OTHER PERSON SHALL BE ADVISED TO REFER TO CIVIL, STRUCTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT.

No.	Description	Date

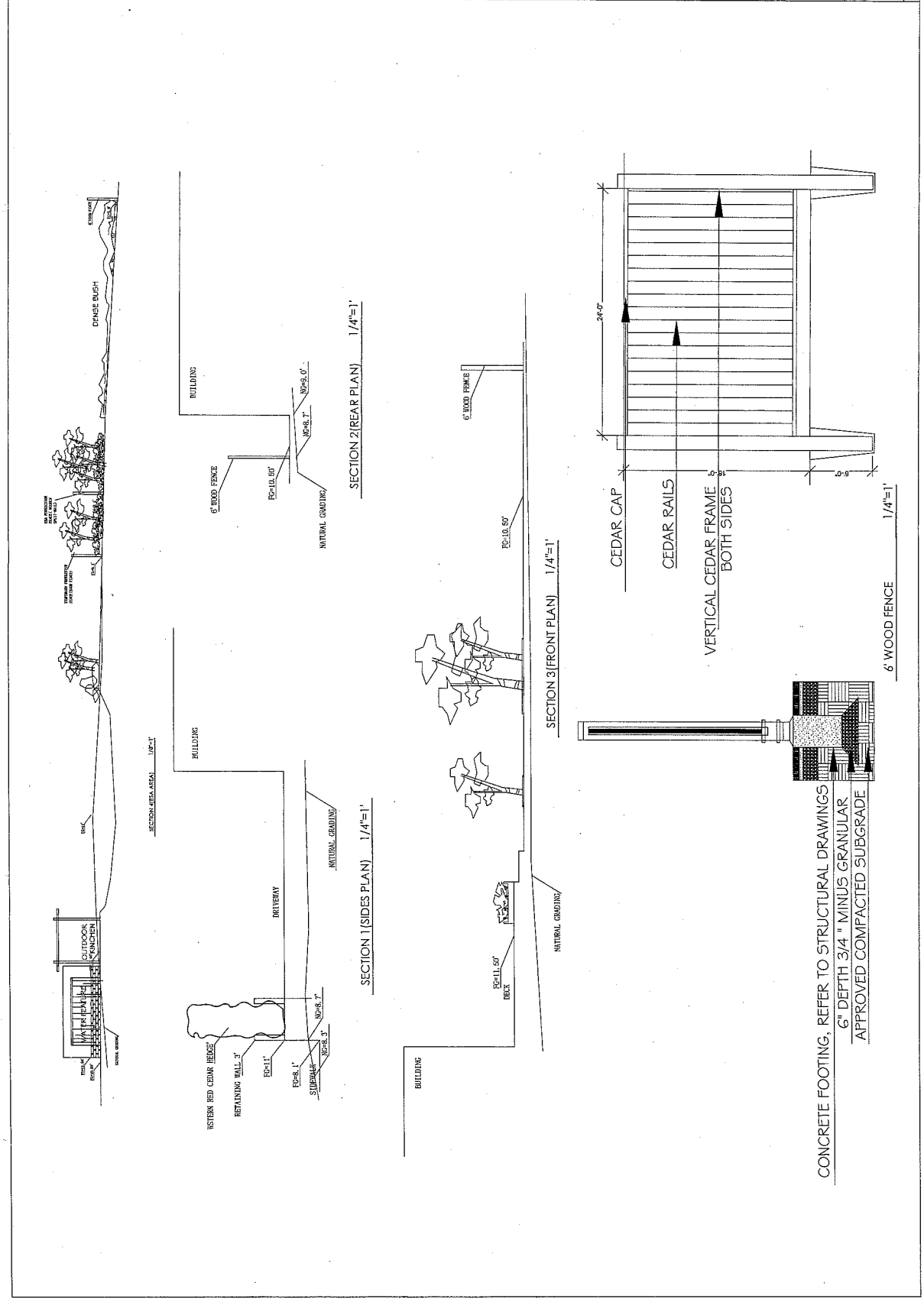
1775 W. 9th Ave.  
Richmond, BC V6X 1A1  
Phone: 604-273-1111  
Fax: 604-273-1112  
Email: info@harriss.com

**Project Name**  
6020  
No. 4 Road  
Richmond B.C.

**Sheet Name**  
LANDSCAPE PLAN

Date: Dec. 2016  
Quantity: 1.2

**L3**  
Scale: 1/4" = 1'-0"  
1/8" = 1'-0"



CONCRETE FOOTING. REFER TO STRUCTURAL DRAWINGS  
6" DEPTH 3/4" MINUS GRANULAR  
APPROVED COMPACTED SUBGRADE

6' WOOD FENCE 1/4" = 1'

CEDAR CAP  
CEDAR RAILS  
VERTICAL CEDAR FRAME  
BOTH SIDES

SECTION 2 (REAR PLAN) 1/4" = 1'

SECTION 3 (FRONT PLAN) 1/4" = 1'

SECTION 1 (SIDES PLAN) 1/4" = 1'



**DP 16-735007**

**Attachment B**

Address: 6020 No. 4 Road

Applicant: Alex Sartori

Owner: Jessica Sun and Qi Ming Wang

Planning Area(s): East Richmond

Floor Area Gross: 999.64 m<sup>2</sup> (10,760.0 ft.<sup>2</sup>)

	Existing	Proposed
<b>Site Area:</b>	3,529.70 m <sup>2</sup> (37,993.4 ft <sup>2</sup> ) m <sup>2</sup>	Same
<b>Land Uses:</b>	Vacant	Single Detached Dwelling
<b>OCP Designation:</b>	Agriculture	Same
<b>Zoning:</b>	Agriculture (AG1)	Same
<b>Number of Units:</b>	None	1

	Bylaw Requirement	Proposed	Variance
Floor Area Ratio:	0.6	0.3	none permitted
Lot Coverage:	Max. 35%	16.87%	None
Setback – Front Yard:	Min. 6.0 m	11.63 m	None
Setback – Interior Side Yard (north):	Min. 1.2 m	1.22 m	None
Setback – Interior Side Yard (south):	Min. 3.0 m	11.37 m	None
Setback – Rear Yard:	Min. 6.0 m	45.5 m	None
Height (m):	Max. 10.5 m (no more than 2.5 storeys)	10.17 m (2 storeys)	None
Lot Size:	Min. 828 m <sup>2</sup> for Single Detached Housing	3,529.70 m <sup>2</sup>	None
Total off-street Spaces:	3	3	None
House Size:	Max. 1000 m <sup>2</sup>	999.35 m <sup>2</sup>	None
Farm Home Plate Area:	Max. 1000 m <sup>2</sup>	1,342 m <sup>2</sup>	Variance



**Address:** 6020 No. 4 Road

**File No.:** DP 16-735007

**Prior to approval of the Development Permit, the developer is required to complete the following:**

1. Receipt of a landscaping security acceptable to the Director of Development in the amount of \$58,332.34 (based on the costs estimate provided by a landscape Architect including 10% contingency) for Environmentally Sensitive Area landscaping.
2. Receipt of a landscaping security acceptable to the Director of Development in the amount of \$16,416.72 (based on the costs estimate provided by a landscape Architect including 10% contingency) for non-Environmentally Sensitive Area landscaping.
3. Submission of a Contract entered into between the applicant and a Certified Arborist for supervision of any on-site works conducted within the Environmentally Sensitive Area (ESA) or within the tree protection zone of the trees to be retained.
4. Submission of a Contract entered into between the applicant and a Qualified Environmental Professional to monitor and provide annual reporting to the City on the ESA area for three years.
5. Installation of appropriate tree protection fencing around all trees to be retained as part of the development prior to any construction activities; including building demolition, occurring on-site.
6. Installation of appropriate Environmentally Sensitive Area protection fencing and silt control fencing between the development areas of the site and the retained vegetation area of the site prior to any construction activities; including building demolition, occurring on-site.
7. Registration of an aircraft noise indemnity Covenant on Title.
8. Registration of a flood-plain Covenant on Title identifying a minimum habitable elevation of 2.9 m GSC. The site is in East Richmond.
9. Submission of a sketch plan prepared by a registered surveyor, and to the satisfaction of the Director of Development, defining the boundary between the ESA area and non-ESA area.
10. Registration of a legal agreement on Title to ensure that retained and enhanced landscaping within the ESA area as shown in the surveyor's sketch plan described in Condition 9 is maintained as outlined in the Environmentally Sensitive Area report by Sartori Environmental Services (dated June 14, 2016) and will not be abandoned or removed.

**Prior to Building Permit Issuance, the developer must complete the following requirements:**

1. Enter into a Work Order\* for the design and construction of utility connections and frontage improvements. Works include, but may not be limited to the following:

**DP 16-735007 – 6020 No.4 Rd - Engineering Servicing Requirements:**

**Scope:** ALEX SARTORI has applied to the City of Richmond for permission to construct an approximately 929 square meters (10,000 square feet) single-family dwelling at 6020 No 4 Road on a site designated as Environmentally Sensitive Area.

**A servicing agreement is not required.**



**a. Water Works:**

- Using the OCP Model, there is 867 L/s of water available at a 20 psi residual at the No. 4 Road frontage. Based on your proposed development, your site requires a minimum fire flow of 95 L/s.
- The Developer is required to:
  - Submit Fire Underwriter Survey (FUS) or International Organization for Standardization (ISO) fire flow calculations to confirm the development has adequate fire flow for on-site fire protection. Calculations must be signed and sealed by a Professional Engineer and be based on Building Permit Stage and Building designs.
- At the Developers cost, the City is to:
  - Install a new water service connection complete with meter and meter box off of the existing 300 mm AC watermain on No.4 Road.

**b. Storm Sewer Works:**

- The Developer is required to:
  - Provide a 3.0 m by 3.0 m utility Statutory right-of-way (SRW) at the west property line for the proposed storm inspection chamber.
  - Provide a 3.0 m by 11.0 m utility SRW at the southwest corner of the lot for the existing storm inspection chamber STIC49676.
- At the Developers cost, the City is to:
  - Install a new storm service connection off of the existing box culvert on No.4 Road complete with inspection chamber.
  - Cut and cap the existing storm service leads at the northwest and southwest corners of the subject site.

**c. Sanitary Sewer Works:**

As per Policy 7401, properties outside of City sewer boundaries are not permitted to connect to the City sanitary sewer. An on-site sanitary disposal system is required, to be designed by a Professional Engineer.

**d. Frontage Improvements:**

- The Developer is required to:
  - Coordinate with BC Hydro, Telus and other private communication service providers:
    - When relocating/modifying any of the existing power poles and/or guy wires within the property frontages.
    - To determine if above ground structures are required and coordinate their locations (e.g. PMT, LPT, Shaw cabinets, Telus Kiosks, etc.).
  - Complete other frontage improvements as per Transportation Department's requirements.

**e. General Items:**

- a. The Developer is required to:
  - The subject site is located in an environmentally sensitive area (ESA); coordination with the City's Planning and Development Department is required.

- Enter into, if required, additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering, including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.
- 2. Submission of a Construction Parking and Traffic Management Plan to the Transportation Department. Management Plan shall include location for parking for services, deliveries, workers, loading, application for any lane closures, and proper construction traffic controls as per Traffic Control Manual for works on Roadways (by Ministry of Transportation) and MMCD Traffic Regulation Section 01570.
- 3. If applicable, payment of latecomer agreement charges associated with eligible latecomer works.
- 4. Obtain a Building Permit (BP) for any construction hoarding. If construction hoarding is required to temporarily occupy a public street, the air space above a public street, or any part thereof, additional City approvals and associated fees may be required as part of the Building Permit. For additional information, contact the Building Approvals Department at 604-276-4285.

**Note:**

- \* This requires a separate application.
- Where the Director of Development deems appropriate, the preceding agreements are to be drawn not only as personal covenants of the property owner, but also as covenants pursuant to Section 219 of the Land Title Act. All agreements to be registered in the Land Title Office shall have priority over all such liens, charges and encumbrances as is considered advisable by the Director of Development. All agreements to be registered in the Land Title Office shall, unless the Director of Development determines otherwise, be fully registered in the Land Title Office prior to enactment of the appropriate bylaw.

The preceding agreements shall provide security to the City including indemnities, warranties, equitable/rent charges, letters of credit and withholding permits, as deemed necessary or advisable by the Director of Development. All agreements shall be in a form and content satisfactory to the Director of Development.
- Additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering may be required including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.
- Applicants for all City Permits are required to comply at all times with the conditions of the Provincial *Wildlife Act* and Federal *Migratory Birds Convention Act*; which contains prohibitions on the removal or disturbance of both birds and their nests. Issuance of Municipal permits does not give an individual authority to contravene these legislations. The City of Richmond recommends that where significant trees or vegetation exists on-site, the services of a Qualified Environmental Professional (QEP) be secured to perform a survey and ensure that development activities are in compliance with all relevant legislation.

---

Signed

---

Date



# City of Richmond

## Development Permit

No. DP 16-735007

To the Holder: ALEX SARTORI  
Property Address: 6020 NO. 4 ROAD  
Address: C/O BOUTHOUSE DESIGN GROUP INC.  
#1 - 3331 VIKING WAY  
RICHMOND, BC V6V 1W1

1. This Development Permit is issued subject to compliance with all of the Bylaws of the City applicable thereto, except as specifically varied or supplemented by this Permit.
2. This Development Permit applies to and only to those lands shown cross-hatched on the attached Schedule "A" and any and all buildings, structures and other development thereon.
  - a) The "Richmond Zoning Bylaw 8500" is hereby varied to increase the maximum area of the farm home plate to 1,342 m<sup>2</sup>.
3. Subject to Section 692 of the Local Government Act, R.S.B.C.: buildings and structures; off-street parking and loading facilities; roads and parking areas; and landscaping and screening shall be constructed generally in accordance with Plans #1 to #5 attached hereto.
4. Sanitary sewers, water, drainage, highways, street lighting, underground wiring, and sidewalks, shall be provided as required.
5. As a condition of the issuance of this Permit, the City is holding the security in the amount of \$58,332.34 for ESA landscaping and \$16,416.72 for non-ESA landscaping to ensure that development is carried out in accordance with the terms and conditions of this Permit. Should any interest be earned upon the security, it shall accrue to the Holder if the security is returned. The condition of the posting of the security is that should the Holder fail to carry out the development hereby authorized, according to the terms and conditions of this Permit within the time provided, the City may use the security to carry out the work by its servants, agents or contractors, and any surplus shall be paid over to the Holder. Should the Holder carry out the development permitted by this permit within the time set out herein, the security shall be returned to the Holder. The City may retain the security for up to one year after inspection of the completed landscaping in order to ensure that plant material has survived. Note that, post installation, the reduced security for ESA may be held for the duration of the three year monitoring period.
6. If the Holder does not commence the construction permitted by this Permit within 24 months of the date of this Permit, this Permit shall lapse and the security shall be returned in full.

# Development Permit

No. DP 16-735007

To the Holder: ALEX SARTORI  
Property Address: 6020 NO. 4 ROAD  
Address: C/O BOUTHOUSE DESIGN GROUP INC.  
#1 - 3331 VIKING WAY  
RICHMOND, BC V6V 1W1

---

7. The land described herein shall be developed generally in accordance with the terms and conditions and provisions of this Permit and any plans and specifications attached to this Permit which shall form a part hereof.

This Permit is not a Building Permit.

AUTHORIZING RESOLUTION NO.  
DAY OF

ISSUED BY THE COUNCIL THE

DELIVERED THIS DAY OF

---

MAYOR









[illegible]

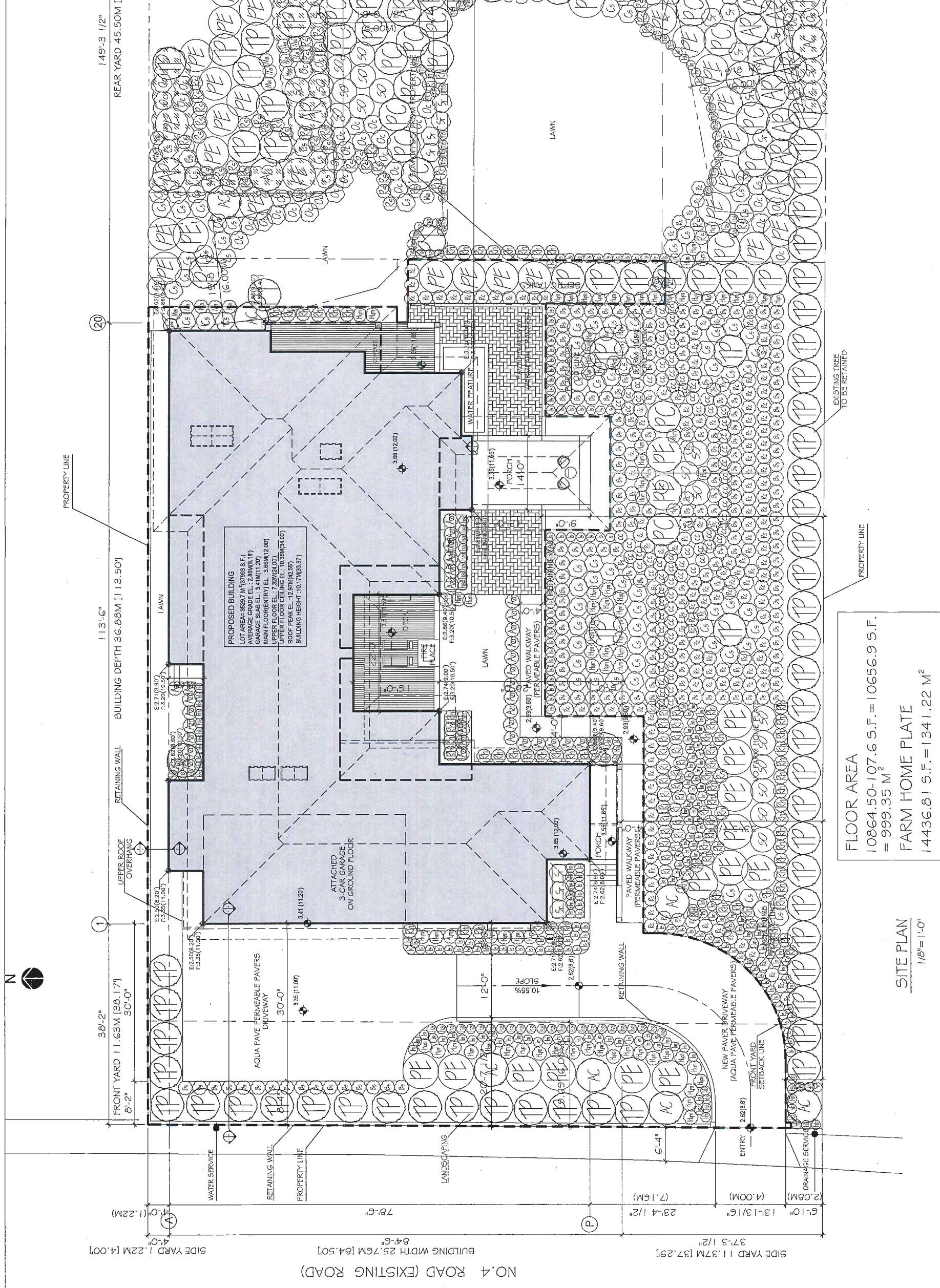
Project Name  
6020  
No.4 Road  
Richmond B.C.

Sheet Name  
LANDSCAPE PLAN

Date	Dec. 2016
Drawn by	Y.Z

Scale  $1/8" = 1'-0"$

28





THE GENERAL CONTRACTOR SHALL REVIEW THE DOCUMENTS FOR CONFORMANCE WITH THE CODES AND BY-LAWS AND SHALL ADVISE THE DESIGNER OF ANY DISCREPANCY HE MAY NOTE. THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE DESIGNER.

THESE DRAWINGS ARE INTENDED FOR ARCHITECTURAL INFORMATION ONLY. THE CONTRACTOR AND ANY OTHER PERSON USING THESE DRAWINGS INFORMATION ARE ADVISED TO REFER TO CIVIL, STRUCTURE, MECHANICAL, ELECTRICAL AND INTERIOR DESIGN RELATING TO THOSE DISCIPLINES.

[illegible]

1777 W11h Ave,  
VANCOUVER, BC  
Phone: 2045837612  
Email: yukae000@gmail.com

Project Name

6020  
No.4 Road  
Richmond B.C.

Sheet Name  
LANDSCAPE PLAN

Date	Dec. 2016
Drawn by	Y.Z

2

Scale  
1/8" = 1'-0"

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE
TREES	AC	115	Acer circinnatum	1.5W/5' tall
	AR	40	Alnus robura	Red alder
	PE	80	Prunus corymbosa	Bitter cherry
	PF	85	Tilia plena	Flowering red cedar
	PC	28	Rosa flaura	Pacific Crabapple
	PT	2	Prunus coccinea	Ladyapple Flae
	SO	32	Sorbus spp.	Mountain Ash
	SHRUBS			
	HR	105	Hydrangea macrophylla	Big leafed Hydrangea
	RB	100	Rhododendron	Rhododendron
	CE	120	Cornus stolonifera	Red stier dogwood
	JA	35	Bauha sempervirens 'Saffronloom'	Dark English Boxwood
	AF	37	AMAZILIA JAUERICA	AMER (RED FLOR)
	SE	45	Sambucus racemosa	Red 4-leavedberry
	CE	64	Quercus coccinea/foalis	Indianhaw
	RA	127	Rubus spectabilis	Salmalberry
	HA	158	Rubus atrovaria	Yard Hie
	RE	146	Rosa flaurapra	Snow Rose
	RI	29	Ribes sanguinea	Red Flowering Currant
	PERENNIALS/PERMUS			
GROUND COVER	LE	118	Lupinus polybalbus	Lupine
	LA	121	Leucadia apina	English Lavender var
	JA	118	Juniperus	Japanese forest grass
	HA	118	Hierba	'BIG DADY' HIERBA
	ME	35	MUSCATHUS SPENSIS	MULLEN GRASS
	CE	16	Cornus canadensis	Banesherry

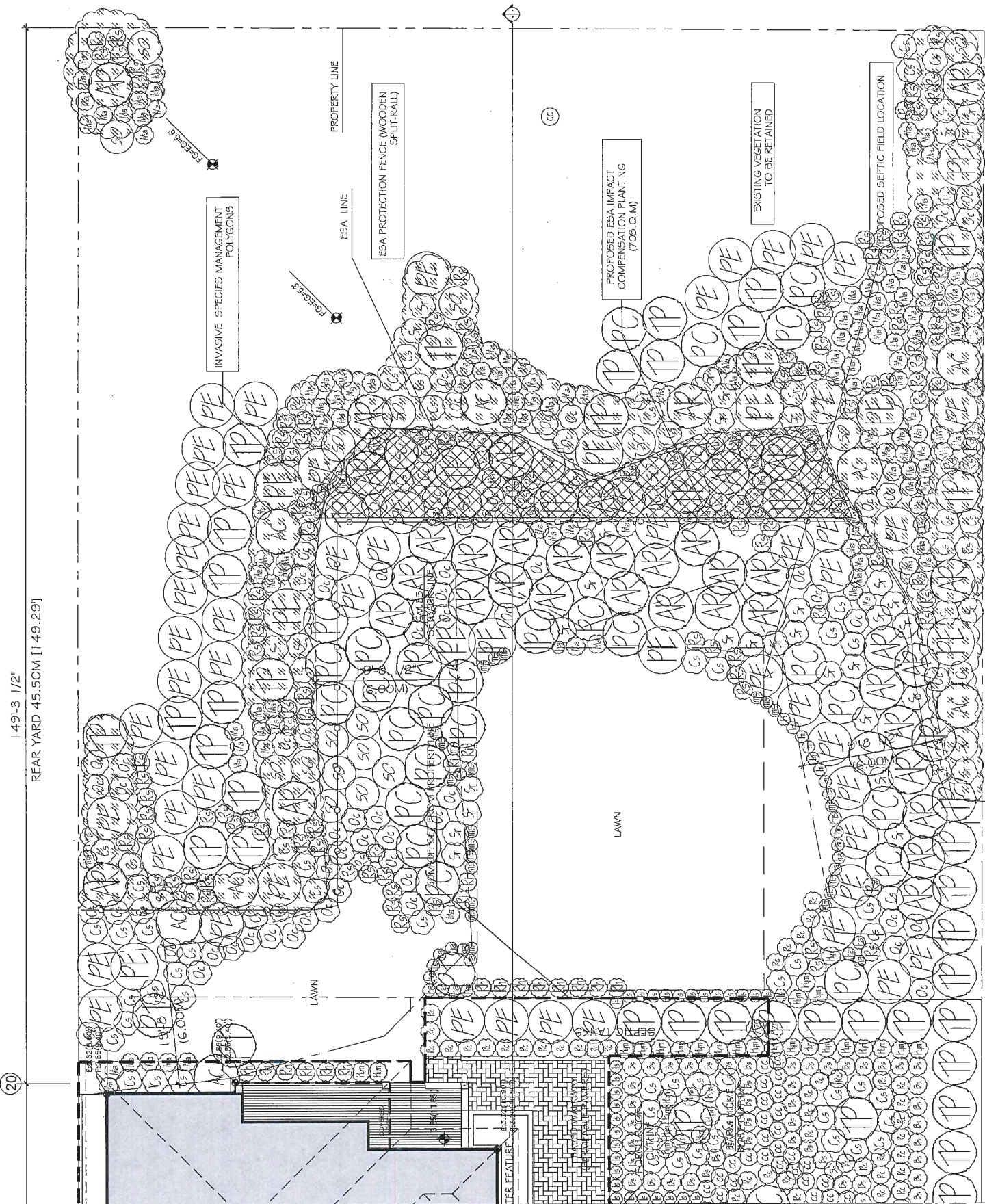
James D. Buckley

- [illegible]

WITH ESA (1550.00 S.Q.F)

TOTAL AREA OF ESA  
(20822.41 S.Q.F)

ON-ESA LANDSCAPING  
AREA(661.51 S.Q.F)



EXISTING TREE  
TO BE RETAINED



THE GENERAL CONTRACTOR SHALL REVIEW THE DOCUMENTS FOR CONFORMANCE CODES AND BY-LAWS AND SHALL ADVISE THE DESIGNER OF ANY DISCREPANCY HE MAY NOTE. THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE DESIGNER.

DO NOT SCALE THE DRAWING.

THESE DRAWINGS ARE INTENDED FOR ARCHITECTURAL INFORMATION ONLY. THE CONTRACTOR AND ANY OTHER PERSON USING THESE DRAWINGS INFORMATION ARE ADVISED TO REFER TO CIVIL, STRUCTURE, MECHANICAL, ELECTRICAL AND INTERIOR DESIGN RELATING TO THOSE DISCIPLINES.

No.	Revisions	Date
1	ISSUED FOR DP.	30 Aug 17

1777 W7th Ave.  
PACIFICOVER INC  
P.O. Box 10000  
Richmond B.C. V6V 1C2  
Email: yvlee000@gmail.com

Project Name

6020  
No.4 Road  
Richmond B.C.

Sheet Name

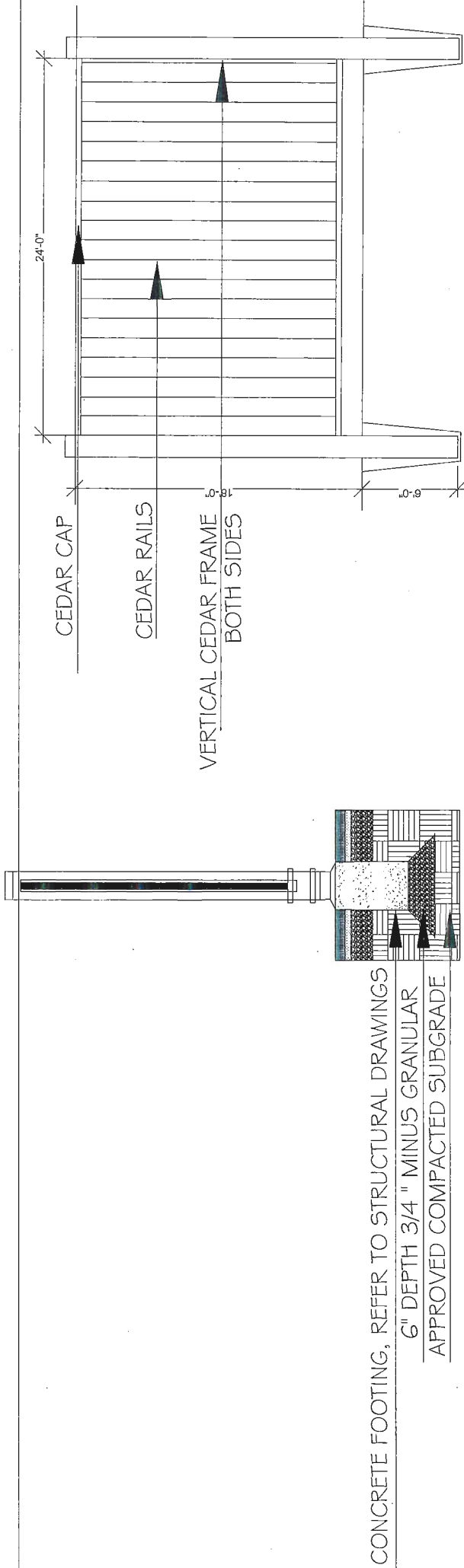
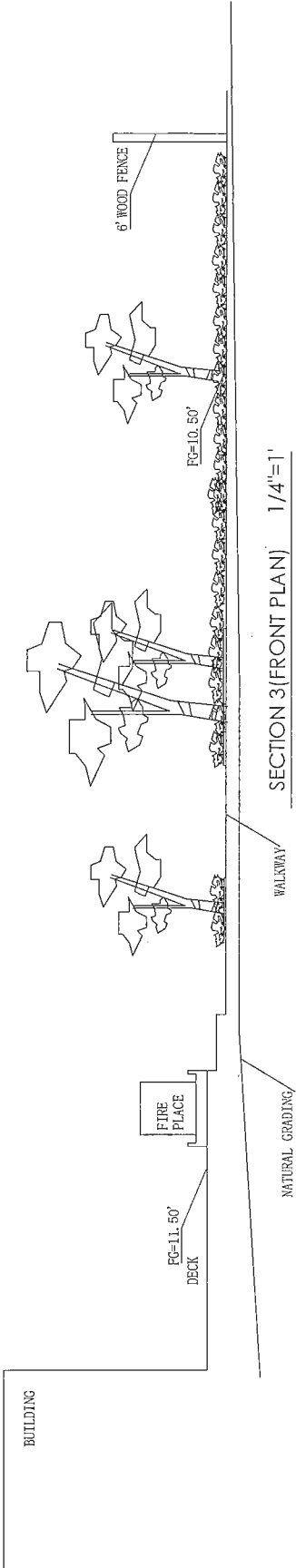
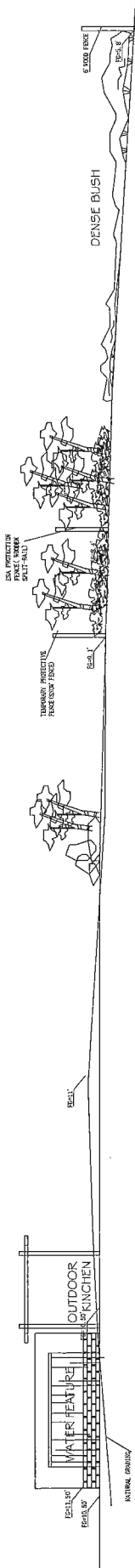
LANDSCAPE PLAN

Date	Dec. 2016
Drawn by	Y.Z

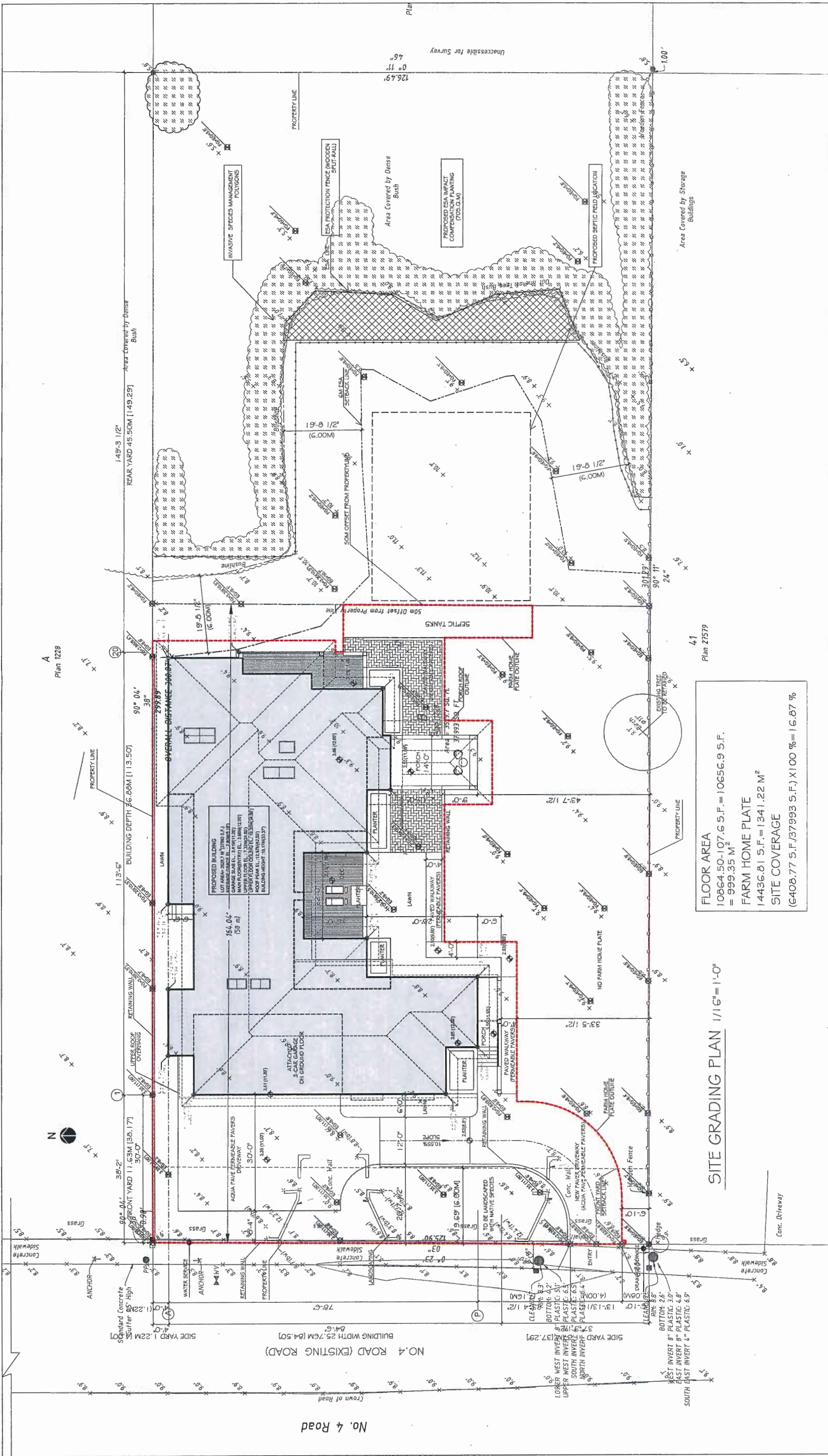
L3

Scale	1/4" = 1'-0" 1/8" = 1'-0"
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Plan #4



CONCRETE FOOTING, REFER TO STRUCTURAL DRAWINGS  
6" DEPTH 3/4" MINUS GRANULAR  
APPROVED COMPACTED SUBGRADE



Sheet Name	Project Name	BoutHouse Design Group Inc.	Date
SITE GRADING PLAN	6020 NO.4 RD. RICHMOND B.C.	UNIT 3-331 VIKING WAY RICHMOND, BC V6V 1W1 Phone: 778-297 7222 Fax: 778-297 7223 Email: tony.bouthouse@gmail.com	AUG. 2017

Drawn by GUNNAR LIANG

Plan #5

DP 16-735007

SEP 27 2017



# City of Richmond

## Report to Development Permit Panel

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**To:** Development Permit Panel

**Date:** September 20, 2017

**From:** Wayne Craig  
Director, Development

**File:** DP 16-741741

**Re:** Application by Vancouver Airport Fuel Facilities Corporation (VAFFC) for a  
Development Permit at 15040 Williams Road

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### Staff Recommendation

That a Development Permit be issued which would permit the construction of a Marine Terminal Facility for aviation/jet fuel delivery at 15040 Williams Road on a site zoned "Industrial (I)" and partially designated as an Environmentally Sensitive Area (ESA).



Wayne Craig  
Director, Development

DCB:blg  
Att. 5

## Staff Report

### Origin

The Vancouver Airport Fuel Facilities Corporation (VAFFC) has applied to the City of Richmond for permission to develop a Marine Terminal Facility for aviation/jet fuel delivery at 15040 Williams Road on a site zoned “Industrial (I)” and that is partially designated as an Environmentally Sensitive Area (ESA). The site is currently vacant.

The proposed use conforms to the existing “Industrial (I)” zoning and the subject site does not require rezoning.

To accommodate the proposed Marine Terminal Facility one or more Servicing Agreements will be required at Building Permit stage. The Servicing Agreement(s) will include the design and construction of approximately 350 m of new dikes across the subject site, design and construction of a new publically accessible trail and associated landscaping through the site, design and construction of utility and frontage works and off-site ESA and Riparian Management Area (RMA) landscaping as outlined in this DP plan submission.

### Development Information

The VAFFC is currently working on a Vancouver Airport Fuel Delivery project involving three main components:

- A “Fuel Receiving Facility” for fuel storage on Port of Vancouver owned lands on the north side of Williams Road (Richmond Key 42267) (currently under construction).
- A 13 km (8 mile) long underground pipeline running from the Fuel Receiving Facility to the aviation tanks at the Vancouver Airport on Sea Island.
- A “Marine Terminal” for off-loading aviation/jet fuel from vessels at 15040 Williams Road.

The applicant’s stated intent for the Fuel Delivery project is to “secure and enhance the present and future aviation fuel delivery to the Vancouver International Airport”.

The overall project has been reviewed under a five year harmonized Federal and Provincial environmental review led by the BC Environmental Assessment Office (BCEAO) and was awarded an Environmental Assessment Certificate (EAC) in December, 2013. The Environmental Assessment Office attached 64 conditions to the EAC which it felt are in the public interest and “will prevent or reduce potential adverse environmental, social, economic, heritage or health impacts of the project, such that no significant residual adverse effects are expected”. Key issues addressed in the 64 EAC conditions include:

- Development and implementation of a Construction Environmental Management Plan (CEMP);
- Implementing a Traffic Management Plan;
- Retaining the Services of an Environmental Monitor;
- Developing and implementing an Operations Environmental Management Plan (OEMP);
- Fisheries, Aquatic and Surface Water Quality;

- Fuels, Chemical and Materials Storage and Handling;
- Vegetation and Wildlife;
- Air Quality;
- Noise;
- Social and Economic issues;
- Spill Prevention, Preparedness and Emergency Response;
- Accidents or Malfunctions; and
- Fire Prevention, Preparedness and Emergency Response.

The VAFFC obtained a construction permit from the Port of Vancouver in February 2016, allowing them to begin construction of the Fuel Receiving Facility on Port of Vancouver property on the north side of Williams Road.

A permit has also been issued to the VAFFC (April 3, 2017) by the BC Oil and Gas Commission, authorizing it to construct and operate a pipeline to transmit jet fuel as described in their application to the Commission and allowing it to utilize a waterlot lease under Provincial jurisdiction adjacent to the subject site. Note that the fuel storage facility on Port Metro Vancouver lands and the pipeline are not part of this Development Permit application.

With regard to the subject Development Permit application the City's jurisdiction is limited primarily to the subject site and the immediate surroundings with the specific focus on the project's implications to the protection of the natural environment, its ecosystems and biological diversity as authorized under the Local Government Act (2015). The City's Official Community Plan outlines the Development Permit Guidelines for Environmentally Sensitive Areas and form the framework for assessing the development proposal.

A separate report, prepared by City Engineering staff, will be presented for Council's review and consideration of a Municipal Access Agreement (MAA) which is required for those portions of the proposed pipeline to be located on City land.

#### Development Permit Application Requirement

A portion of the Marine Terminal site has a designated 'intertidal' and 'shoreline' Environmentally Sensitive Area (ESA) that will be impacted by the proposed Marine Terminal development and a Development Permit (DP) is therefore required.

Impacts to Riparian Management Area features arising from the Marine Terminal development will also be addressed through the proposed DP. The primary focus of this Development Permit is to ensure that the environmental impacts to the ESA and RMA features are identified and acceptable mitigation, compensation and enhancement actions are incorporated into the proposed development plan in accordance with the Official Community Plan's Development Permit guidelines for Environmentally Sensitive Areas.

#### Marine Terminal Project Description

The subject site, located at 15040 Williams Road, covers an area of approximately 40,468.56 m<sup>2</sup> (10 ac.), including 31,241.73 m<sup>2</sup> (7.72 ac.) of land and a 9,226.83 m<sup>2</sup> (2.28 ac.) area in the Fraser



River covered by a Provincial water lot lease. The site is bisected by a 30 m (98.4 ft.) wide CN Rail right-of-way (ROW).

The portion of the site north of the CN Rail ROW is currently proposed to contain only limited infrastructure including, an underground fuel delivery pipe to carry fuel from the subject property to YVR, an underground potable water pipe line and a small shed structure to house a water meter and a backflow preventer.

The portion of the site south of the CN Rail ROW abuts approximately 300 linear metres (984 ft.) of the Main Arm of the Fraser River and is proposed to contain the primary infrastructure of the Marine Terminal facility – some of which will extend out over the water and into the Provincial water lot lease area. Any structures within the Provincial water lot are outside City jurisdiction. The water lot falls under the jurisdiction of the BC Oil and Gas Commission (OGC) under a Provincial interdepartmental working agreement for projects regulated by the OGC.

The purpose of the Marine Terminal facility is to allow marine vessels to dock and safely transfer aviation/jet fuel from the vessels to the fuel receiving facility being built on Port of Vancouver property on the north side of Williams Road (Richmond Key 42267). The fuel is proposed to be transferred from the Marine Terminal facility to the fuel receiving facility by pipelines that will cross under Williams Road. According to the VAFFC's submission to the BC Environmental Assessment Office, the Marine Terminal facility will receive approximately one fuel barge each week. The standard barge will have an average capacity of between 30 to 40 million litres of fuel. When in operation, the Marine Terminal facility will have up to approximately 10 employees on site.

The proposed Marine Terminal site was previously used as a scrap metal storage and transfer facility. The previous owner partially filled the property and constructed a wharf, allowing vessels to moor and transfer scrap metal to and from the site. The VAFFC intends to undertake the following actions to repurpose the site:

- Removal of an existing 30 m x 120 m wharf and concrete filled piles at the waterfront.
- Re-grading of the foreshore and intertidal zone.
- Upland seismic stabilization in the form of ground densification within the ESA.
- Construction of new berthing and mooring structures for a range of marine vessels.
- Install pile-supported containment structures upstream and downstream of the proposed vessel moorage area.
- Construct fuel uploading arms, piping and manifold to transfer fuel from vessel to pipeline to the fuel receiving facility on Port Metro Vancouver's property on the north side of Williams Road.
- Install both Municipal and river water fire pump systems for redundant supply of fire protection water to both the Marine Terminal and fuel receiving facility.
- Install six buildings or enclosures, totalling approximately 205.94 m<sup>2</sup> (2,216.7 ft<sup>2</sup>) in area to provide a control room/washroom, a fuel lab, an electrical house, fire pumps and hydro foam storage for fire suppression.
- Install a utility dock for dedicated full time spill response vessels.

- Install a containment and treatment system for storm run-off and contained transfer areas.
- Install perimeter landscaping and fencing.

The development proposal includes:

- The provision of a pedestrian trail accommodated within a 6 m wide right-of-way (ROW) through the site;
- The design and construction of a 4.7 m high dike and an associated 7.5 m wide ROW that will connect to existing City dikes on the adjacent properties to the east and west of the subject site;
- A \$62,000 cash donation is also proposed for the construction of a pedestrian observation platform to be located on "Lot K" east of Williams Road and overlooking the Fraser River; and
- Environmental enhancements and compensation planting are proposed to address the anticipated impacts to environmental features within the designated ESA and RMA areas.

The Development Permit considerations include the requirements for registration of the various right-of-way agreements and the proposed cash donation for the pedestrian observation platform.

One or more Servicing Agreements will be required for various works, including utility connections (water services with backflow prevention device, storm sewer outfall with an oil and grit separator), dike design and construction, off-site riparian area improvements and ESA compensation, trail design and construction. These Servicing Agreements will be addressed under separate applications and will need to be entered into prior to Building Permit issuance. The requirements for the Servicing Agreements are included in the Development Permit considerations.

Please refer to the attached Development Application Data Sheet (Attachment 1) for a comparison of the proposed development data with the relevant bylaw requirements.

## **Background**

Development surrounding the subject site is as follows:

To the north is:

- A 30.45 ha (75.24 ac.) "Industrial (I)" zoned parcel owned by the Fraser River Port Authority (aka Port Metro Vancouver). Most of that site is vacant except for the south western corner, which is currently under construction to accommodate the VAFFC "fuel receiving facility".
- An 11.77 ha (29.08 ac.) "Industrial (I)" zoned parcel owned by Ecowaste Industries. That site is part of a 15 to 20 year redevelopment project approved under Development Permit (DP 11-566011 - issued January 23, 2017).

To the east is:

- A City-owned waterfront parcel known as "Lot K". The lot is zoned "Industrial (I)" and is approximately 7.05 ha (17.41 ac.) in size. It includes a segment of the City's dikes.

To the west is:

- The continuation of the 30 m (98 ft.) wide CN Rail right-of-way. There are currently no rail lines within the right-of-way.

- A vacant 2.65 ha (6.56 ac.) City-owned lot zoned “Light Industrial (IL)”.
- A vacant 3.64 ha (9 ac.) City-owned waterfront lot zoned “Entertainment & Athletics (CEA)”. This property contains both a segment of the City’s dike system and a recreational trail.

To the south is:

- The Main Arm of the Fraser River.

### **Rezoning and Public Hearing Results**

A rezoning is not required to accommodate the proposed uses on the subject property, as they conform to the site’s existing “Industrial (I)” zoning.

### **Staff Comments**

The proposed scheme attached to this report has satisfactorily addressed the environmental and site planning issues and other staff comments identified as part of the review of the subject Development Permit application. In addition, it complies with the intent of the applicable sections of the Official Community Plan (OCP) and is in compliance with the “Industrial (I)” zone. No variances are requested for this application.

### **Analysis**

#### Environmentally Sensitive Area Designations (ESA)

The City’s Official Community Plan (OCP) identifies the subject site as having both an ‘Intertidal’ ESA and a ‘Shoreline’ ESA. The ‘Intertidal’ ESA runs along the site’s interface with the Fraser River extending from the average high water mark outward 30 m into the river. The ‘Shoreline’ ESA runs along the site’s interface with the Fraser River but extends landward 30 m into the site. These two ESA types are described by the City as follows:

‘Intertidal’: Applicable to coastal areas within 30 m (98.43 ft.) (seaward) of the high water mark which are influenced by waves, tides, and other processes along the Fraser River of Strait of Georgia. This area can include mudflats, vegetated estuarine or salt marsh communities and developed shorelines with riprap, docks and pilings. The intertidal is important for fish and wildlife and particularly for fish such as juvenile salmon. They are also important for dike protection.

‘Shoreline’: Applicable to coastal areas within 30 m (98.43 ft.) landward of the high water mark with environmental values related to their association to the Fraser River and Strait of Georgia. This is a marine riparian zone that typically includes the crest and back slope of the perimeter dike, as well as developed or natural areas landward of the dike. Shoreline areas are important for fish and wildlife within forests and other ecosystems within the shoreline area. They also serve to filter contaminants and sediments and help protect Richmond’s dikes.

#### Biologist’s ESA Assessment

The biologist’s ESA assessment indicates that the Marine Terminal property has undergone significant alterations by the previous owners. They note that the ‘intertidal’ ESA area was “green coded” (i.e. low productivity habitat) under the Fraser River Estuary Management Program (FREMP). The biologist assessed the intertidal ESA as having a low diversity of



habitats (no mudflat, marsh or sandflat) and only small patches of poor quality habitat and a high level of invasive plant cover.

With regard to the 'shoreline' ESA area, the biologist's assessment is that this area is largely devoid of vegetation with the majority of the existing vegetation consisting almost entirely invasive plant species. The sole exception to this assessment is a 208 m<sup>2</sup> patch of native Red Alder and Black Cottonwood saplings near the south-western area of the site which the report indicates "constitutes marginal wildlife habitat". As confirmed by the arborist, none of these trees are bylaw-sized trees (i.e. 20 cm or greater diameter) and will be removed.

No Provincially designated plant or animal 'species at risk' were identified in the biologist's assessment of the Marine Terminal site.

City staff concur with the biologist's assessment of the RMA and ESA conditions at the subject site.

#### Riparian Management Areas (RMA)

As part of the City's 2006 Riparian Response Strategy, and in consultation with the Department of Fisheries and Oceans, a 5 m (16.4 ft.) wide Riparian Management Area (RMA) setback was established along a minor watercourse fronting the subject site within the Williams Road ROW to the north of the site. A similar designation was not assigned to the minor watercourse along the Savage Road ROW south of Williams Road, however, discussions between staff and the applicant's biologist have resulted in an agreement to note the area along the Savage Road ROW between the CN Rail ROW and Williams Road as an "inferred RMA" effectively treating this area as a minor RMA also requiring a minimum 5 m (16.4 ft.) wide setback. The RMA areas are shown on Plan #12 in the applicant's submission package.

#### Biologist's RMA Assessment

A registered professional Biologist was hired by the proponent to assess the baseline bio-inventory environmental conditions at the Marine Terminal site and provide recommendations on habitat impact mitigation, compensation and enhancement in accordance with the City's Official Community Plan.

Assessment reports (Hatfield Consultants, July 2016, November 2016, December 2017, February 2017, June 2017) were submitted for the subject property assessing both the Riparian Management Areas (RMA) and the Environmentally Sensitive Areas (ESA).

With regard to the RMA, the biologist indicates that the watercourse adjacent to Williams Road is a non-fish-bearing, ephemeral and highly disturbed drainage ditch with opportunity for improvement. Their environmental inventory shows that Red Alder trees encompassed an area of approximately 276 m<sup>2</sup>, approximately 29.3% of the Williams Road RMA. Himalayan Blackberry and non-native herbs cover approximately 332 m<sup>2</sup> and remnant infrastructure materials over an area of approximately 198 m<sup>2</sup> within the RMA. The reports note that an existing solid barrier fence installed overtop of lock blocks by the previous owner approximately 2.5 m from the high water mark (HWM) limits the amount of vegetation that could otherwise occur within the 5 m RMA setback.

The Savage Road “inferred RMA” was also identified as an ephemeral drainage ditch, lacking fish and having no connectivity to fish-bearing habitat. The reports indicate that this narrow RMA area is highly disturbed, comprised primarily of Himalayan Blackberry and bordered by reed canary grass and non-native herbs. Red Alder trees cover approximately 107 m<sup>2</sup> primarily on the east side of the ditch within the Savage Road RMA. Similar to the situation along Williams Road, the existing fence along the Savage Road RMA is also located about 2.5 m from HWM and again reduces the effective RMA setback area by half.

#### Impacts to the Site’s RMAs and ESAs from the Proposed Development

As proposed, the Marine Terminal development is anticipated to result in the following impacts to the RMA and ESA features:

- a) RMA (riparian areas along Savage Road and Williams Road)
  - Removal of the existing property fence and the underlying concrete blocks.
  - Re-grading of the two RMA areas (with retention of the existing trees).
  - Installation of a new property fence outside the RMA 5 m buffer.
- b) Intertidal ESA (area extending 30 m below the high water mark (HWM))
  - Removal of the existing bulkhead wharf.
  - Re-grading of the riverbed below the HWM to a 2:1 slope.
  - Recovering the bank with clean, coarse armour (rip rap).
  - Re-grading most of the banks north and south of the existing wharf and replacement of the concrete rubble with clean, coarse armour (approximately 75% of the river frontage will be improved (cleaned and stabilized)).
  - Installation of infrastructure into the water area to provide for the moorage of vessels, offloading of fuel, and various safety and containment measures. The biologist indicates that the in-water infrastructure (an unloading platform with spill containment, berthing and mooring dolphins and a utility boat dock) will total approximately 0.29 ha of the project footprint – much of this occurring in the same location as the existing wharf which is proposed to be removed. In-river structures will be supported by steel pipe piles and will have concrete and steel decks.
- c) Shoreline ESA (upland area within 30 m of the HWM)
  - Excavation of top soil and replacement with clean, imported fill landward of the top of bank.
  - Compaction and stabilization using stone columns.
  - Removal of the 208 m<sup>2</sup> (2,239 ft<sup>2</sup>) of native tree saplings as a result of the need to undertake seismic compaction and stabilize the site.
  - Portions of the site will be raised to approximately 4.7 m GSC for dike installation and flood protection.

#### Proposed Compensation and Enhancements for RMA and ESA Impacts

- a) RMA
  - Establishing a new property fence at a minimum of 5 m setback from the RMA.
  - Re-grading the RMA to remove invasive vegetation and create better growing areas for re-vegetation.
  - Re-vegetation of the new 5 m wide RMA with native vegetation.

- The net compensation will be an approximate 2 for 1 replacement/enhancement for both RMA areas (Williams Road and Savage Road) for a total of 1,090.6 m<sup>2</sup> enhanced RMA.
- b) Intertidal ESA
- Restoration of approximately 36,000 m<sup>3</sup> of the Fraser River flowing water environment as a result of the removal of the existing wharf.
  - Re-grading of the water interface in place of the existing wharf will create a narrow intertidal band along the shoreline providing new microhabitats for small aquatic plants, fish and invertebrates.
  - The biologist indicates that upgrading the bank armour will benefit for small aquatic life forms.
  - A total of 283 linear metres of the intertidal ESA foreshore will be improved.
  - Staff asked the VAFFC to consider additional foreshore habitat enhancements (e.g. bench marshes) at the subject site or on nearby intertidal areas. After a more detailed review was undertaken by a professional Biologist it was determined that the developer's proposed modifications to the foreshore/intertidal area will, of themselves, provide intertidal and sub-tidal habitat gains and improvement to habitat conditions at the site in comparison to the baseline situation. On this basis, no further foreshore enhancement works were sought. The Biologist's assessment is provided in Attachment 4.
- c) Shoreline ESA
- Compensation for the anticipated loss of 208 m<sup>2</sup> of tree saplings from the shoreline ESA is proposed to be undertaken both on-site, with the installation of:
    - Approximately 344.0 m<sup>2</sup> of native riparian shrubs and ground cover vegetation in the north-eastern corner of the site adjacent to the Fraser River.
    - An additional 144.6 m<sup>2</sup> of native trees, riparian shrubs and ground cover vegetation to be installed in two off site locations on adjacent City-owned lands to the south west of the subject property.
    - The combined 488.5 m<sup>2</sup> of compensation will result in a 2.34 for 1 enhancement/replacement by area with more than 70% of the compensation occurring on-site.
  - Registration of legal agreements on Title for the on-site portions of the RMA and ESA enhancement/compensation areas is included in the Development Permit (DP) considerations to ensure these areas are retained. The DP considerations also include a requirement for submission of securities in the amount of \$82,049 to ensure that the required ESA and RMA landscaping is installed to the satisfaction of the Director of Development.
  - Submission of securities in the amount of \$54,252.00 for three years of maintenance and \$8,712.00 for monitoring with annual reporting by a Qualified Environmental Professional (QEP) for both the on-site and off-site ESA, RMA and trail enhancement areas is included in the Development Permit considerations.
  - As proposed, landscaping plans for the ESA, RMA, the public trail buffer planting and the additional planting adjacent to the proposed pedestrian trail includes approximately 340 trees, 2016 shrubs and 4,760 ground cover plants. All selections will be species native to the area.

A balance sheet summary of the anticipated impacts and compensation/enhancements is provided on Plan #25 of the applicant's submission plans.

#### Arborist Report

As part of the required base-line assessment of the Marine Terminal site, the proponent contracted with uTree Environmental Consultants to undertake an assessment of the trees on and around the property that may be affected by the project. The submitted arborist's report has the following findings:

##### a. On-site Trees

The arborist's report indicates that there are no bylaw-sized (i.e. > 20 cm) trees present on the Marine Terminal site. The report indicates that a small stand of non-bylaw sized Alder sapling trees will be impacted by the development. Compensation for these trees is addressed in the Environmentally Sensitive Area (ESA) section earlier in this report as the stand is located within a designated ESA.

##### b. Off-site Trees

The arborist's report identifies 37 off-site Alder, Cottonwood and Birch trees located along Williams Road and within the Savage Road ROW. Most of these trees are within the City's designated Riparian Management Areas (RMA). The report indicates that these trees are "all young and show good vigour despite historical damage by ditch cleaning, wind and other factors". All these trees are recommended to be retained.

The report also comments on a mature stand of trees treed area on City owned land outside the south-western corner of the Marine Terminal property. Many of these mature trees are up to 24 m (80 ft.) tall and their condition ranges from good to dead. The report recommends mitigation measures in this stand for safety reasons before any work can begin on-site on the dike/trail in the vicinity of this stand.

##### c. Arborist Recommendations

The arborist recommends the installation of tree protection fencing for the off-site trees being retained, pruning and limb removal in the vicinity of the off-site dike/trail areas to be under supervision of a certified arborist, invasive vegetation removal within the tree protection area by hand only and activity within the drip line of retained trees to be done under the supervision of a Qualified Environmental Professional (QEP) or a certified arborist. The report also recommended the removal of four dead / hazardous trees from the City's tree stand at the south-western corner of the Marine Terminal site.

##### d. Staff Review

Parks staff reviewed the arborist's findings and are in agreement with them. Parks staff have authorized the removal of four hazardous dead and leaning cottonwoods from the City owned tree stand at the south-western corner of the Marine Terminal site due to concerns of crew safety.

The arborist's recommendations regarding protective fencing and the supervision by a QEP or certified arborist have been incorporated into the Development Permit considerations.

ESA Guideline Checklist

The applicant was asked to respond to an Environmentally Sensitive Areas DP Guideline checklist. The intent of the checklist is to provide an overview of the anticipated ESA impacts and the proposed compensation/enhancement, as well as to ensure that the overall objectives of the City's ESA Strategy are being achieved. The guidelines address both the intertidal and shoreline areas and include aspects such as maintaining ecological processes, minimizing shade coverage from structures, requiring environmental assessments and implementing mitigation measures, providing safe access to the public, restoration of degraded habitat, etc.

A copy of the applicant's responses is provided in Attachment 2. Staff's assessment is that the applicant's proposed compensation and enhancement plan adequately addresses the City's ESA DP guidelines.

Construction Environmental Management Plan

One of the 64 conditions of the Environmental Assessment Offices' (EAO) Environmental Assessment Certificate (EAC) requires the proponent to prepare and implement a Construction Environmental Management Plan (CEMP). The CEMP is a requirement of the EAO and has been approved by them for this project. There is no requirement for Municipal approval of the 200 plus page document however the CEMP has been provided to, and has reviewed by, the City's Environmental Sustainability Department and the Engineering Department. City staff do not have any specific concerns with the CEMP as it relates to the Development Permit.

The CEMP is required to include the following:

- Accidents or Malfunctions Management Plan;
- Air Quality and Dust Control Management Plan;
- Archaeological Management Plan;
- Contaminated Sites Management Plan;
- Fuels, Chemicals and Materials Storage and Handling Plan;
- Noise Management Plan;
- Spill Prevention and Emergency Response Plan;
- Surface Water Quality/Fisheries Protection and Sediment Control Plan;
- Vegetation and Wildlife Management Plan; and
- Waste Management Plan.

The intent of the CEMP is to ensure that construction activities will comply with the EAC.

Proposed Public Trail

The VAFFC had originally proposed a public trail alignment around the perimeter of the subject site. Because of the concerns raised by City staff with regard to the trail crossing over the CN Rail ROW, an alternative alignment a-top the proposed dike alignment near the waterfront was suggested to the applicant. The VAFFC reviewed this proposal in terms of the implications to the anticipated future operations of the site and the attendant safety concerns to the public and the facility. The VAFFC also reviewed the proposed waterfront trail location with Transport Canada; the agency responsible for reviewing and approving safety and security measures for port related activities and were advised by Transport Canada that a trail located at the waterfront would be a significant concern for both pedestrian safety and site security.

The VAFFC subsequently submitted a detailed rationale statement examining and assessing each of the alignment options for the trail location (see Attachment 3). The VAFFC ultimately concluded that a trail alignment in proximity to the shoreline would not be viable and instead, proposed an alternative alignment for the trail running parallel to the CN Rail right-of-way, as a compromise between the options of going across the CN Rail line and around the subject site or locating the trail across the subject site's waterfront. The proposed alternative alignment paralleling the CN Rail right-of-way has been reviewed and accepted by City Park's staff.

The revised pedestrian trail alignment is proposed to be accommodated within a 6 m wide right-of-way with public right-of-passage. The right-of-way would be designed to accommodate a 3 m wide limestone pathway with 1.5 m wide vegetated strips along both sides. The proponent will be responsible for the trail construction to the City's standards. After the usual maintenance period, on-going maintenance and liability of the trail will transfer to the City. Conceptual planting plans and cross sections for the trail are included in the Development Permit plans (see Plans #18 – 20), but minor modifications may occur through the required Servicing Agreement for the trail's design and construction.

Both the trail right-of-way registration and the requirement to enter into a Servicing Agreement for the construction of the trail are included in the Development Permit considerations. Requirements for submission of trail landscape securities in the amount of \$105,065.40 are also included in the DP considerations.

In recognition of the City's desire for direct access to the waterfront for viewing, the proponent has also agreed provide a voluntary cash contribution of \$62,000 toward the future construction of a pedestrian observation platform to be located on "Lot K" east of Williams Road and overlooking the Fraser River. The proponent has submitted a conceptual design for the viewing platform which was reviewed and approved by Parks staff. Actual construction of the viewing platform will occur in conjunction with future dike improvement works along the Lot K area. The cash contribution for the viewing platform is also included in the Development Permit considerations.

#### Dike Provision and Foreshore Covenant Requirements

The current Marine Terminal proposal will result in the subject site being raised, seismically stabilized and a new 4.7 m high dike being constructed within a 7.5 m wide right-of-way (see Plan # 3 for the proposed dike alignment). The dike will be designed to accommodate the future raising of the dike to 5.5 m elevation, the height recommended by the Province. Buildings will be required to be setback a minimum of 7.0 m from the dike right-of-way. Registration of a legal agreement establishing the right-of-way and obligating the applicant to enter into a Servicing Agreement for the design and construction of the dike are included in the Development Permit considerations. The Development Permit considerations also include a requirement for discharge of the existing foreshore maintenance covenant (BG 285960) and registration of a new legal agreement to ensure that the newly reshaped river bank and armament is maintained and will not be altered without City approval. Maintenance of the foreshore armament will be the proponent's responsibility. Both the dike construction and the foreshore armament will be subject to the City's and the Provincial Diking Authority's satisfaction.

### Transportation Issues

A traffic impact study was undertaken by Tetra Tech (final version dated Jun 29, 2017). The Marine Terminal portion of the study includes information on: the type and number of vehicles expected to access the facility, the time of day vehicles access the site, anticipated travel routes and the number of vehicles generated by employees at any given time. As a result of study, modifications were made to the development plans to ensure that all parking and loading needs will be appropriate for the site and that vehicle accesses and fronting roadways are able to accommodate the anticipated vehicle movements. The study indicates that the proposed Marine Terminal will only generate a minimal amount of traffic with less than 20 cars per day and a maximum of one truck (less than 5 tonnes in size) per day.

Based on the traffic impact study the proposed development will provide:

- A single vehicle access to Williams Road.
- Four regular parking spaces.
- One handicapped parking space.
- One Class 1 bicycle space and three Class 2 bicycle spaces.

The City's Transportation staff reviewed and concurred with the submitted traffic impact study's recommendations for the Marine Terminal.

As proposed, the development will comply with the relevant parking and loading provisions of Zoning Bylaw No. 8500.

In addition to addressing the parking and loading provisions, an on-site location has been designated for garbage and recycling containers and has been reviewed and accepted by staff.

### CN Rail Review

As the CN's rail corridor runs through the site, the applicant was requested to seek comment on the proposed development from CN Rail.

CN Rail is still undertaking their detailed review of the proposed development plan to "ensure that it is compliant with all Transport Canada Rules and Regulations related to crossings and construction adjacent to a rail corridor", but has provided a letter (dated August 28, 2017) confirming "at this point, that we are not opposed to VAFFC's development, and that a technical solution in compliance with all applicable regulations and standards can be developed."

Based on CN Rail's response, a requirement has been included in the Development Permit considerations that, prior to Building Permit issuance, the proponent is to submit a final sign-off letter of from CN Railway, to the satisfaction of the City's Director of Transportation and the Director of Engineering, for the VAFFC Marine Terminal project at 15040 Williams Road. If CN Railway's approval includes conditions or requirements, the proponent must provide means to meet those conditions/requirements to the satisfaction of the City's Director of Transportation.

Note that should any future mitigation measures be triggered when / if CN Rail constructs and activates the railway the requirement for the proponent to implement such measures, at its sole cost, has been included in the proposed Municipal Access Agreement (MAA).

### Frontage Improvements

As a result of the proposed development, the City will take ownership of developer-contributed assets, such as dike maintenance, roadworks, waterworks, storm sewers, sanitary sewers, street lights, street trees. The anticipated operating budget impact for the ongoing maintenance of these assets is \$125,000.00 per annum. The majority of this figure is associated with the maintenance of the proposed addition of approximately 350 m of new dike infrastructure across the subject site. Dike maintenance costs for the City typically average approximately \$350.00 per linear metre.

The operating budget impacts will be considered as part of the 2019 Operating Budget.

### **Conclusions**

Staff worked with the applicant to ensure that all the Environmentally Sensitive Area (ESA) and Riparian Management Area (RMA) impacts arising from the proposed development have been identified and appropriate mitigation, compensation and enhancement measures are incorporated into the development plans. Compensation/enhancement for the impacts to the ESA and RMA features will result in a better than 2 for 1 net habitat gain and will incorporate native vegetation species enhancements and secure appropriate monitoring measures for three years.

Changes to the intertidal area will result in an improved, more stable and properly armoured bank for the 283 m length of the property's foreshore. The project will also result in the installation of a full 4.7 m high dike and a separate public trail connection through the subject site - both of which will be designed and constructed to City standards and secured with registered right-of-way agreements. A voluntary cash contribution for the future construction of a pedestrian observation platform overlooking the Fraser River near the subject site is also provided.

As the proposed development will meet applicable policies and the Development Permit Guidelines for Environmentally Sensitive Areas, staff recommend that the Development Permit be endorsed, and issuance by Council be recommended.



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### List of Attachments

- Attachment 1: Development Application Data Sheet
- Attachment 2: Response to ESA DP Guidelines
- Attachment 3: Proponent's Trail Location Rationale Statement
- Attachment 4: Biologist Professional Opinion on Potential for Post Development Foreshore Habitat Improvement
- Attachment 5: Development Permit Considerations





**DP 16-741741**

**Attachment 1**

Address: 15040 Williams Road

Vancouver Airport Fuel Facilities Corporation

Applicant: (VAFFC)

Owner: Same

Planning Area(s): Fraser Lands

Floor Area Gross: 205.94 m<sup>2</sup> (2,216.7 ft<sup>2</sup>)

	Existing	Proposed
<b>Site Area:</b>	40,468.56 m <sup>2</sup> (10 ac.) including 31,241.73 m <sup>2</sup> (7.72 ac.) of land and 9,226.83 m <sup>2</sup> (2.28 ac.) of land covered by water	Same total area however the area of land and land covered by water will change.
<b>Land Uses:</b>	Vacant	'Industrial' - Marine Terminal Facility
<b>OCP Designation:</b>	Industrial	Same
<b>Zoning:</b>	Industrial (I)	Same

	Bylaw Requirement	Proposed	Variance
Floor Area Ratio:	1.0	0.006	none permitted
Lot Coverage:	Max. 60%	0.52%	None
Setback – Front Yard:	Min. 3.0 m	More than 3.0 m	None
Setback – Exterior Side Yard:	Min. 3.0 m	More than 3.0 m	None
Setback – Interior Side Yard:	No Minimum	More than 3.0 m	None
Setback – Rear Yard:	No Minimum	More than 3.0 m for buildings. Structures extend out into the Provincial water lot lease area.	None
Height (m): Buildings	Max. 12 m	Less than 6.0 m	None
Height (m): Structures	Max. 20 m	19.7 m (gangway tower)	None
Lot Size:	No Minimum	40,468.56 m <sup>2</sup>	None
Off-street Parking Spaces –	1 space per 100.0 m <sup>2</sup> of gross leasable floor area of building (3 spaces required)	5 including 1 handicapped space	None

Bicycle Spaces:	Class 1: 0.27 spaces per each 100.0 m <sup>2</sup> of gross leasable floor area greater than 100.0 m <sup>2</sup> (1 space required). Class 2: 0.27 spaces per each 100.0 m <sup>2</sup> of gross leasable floor area greater than 100.0 m <sup>2</sup> (1 space required)..	Class 1: 1 space Class 2: 1 space	None
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**2012 OCP DEVELOPMENT PERMIT GUIDELINES FOR ESA  
AS APPLICABLE TO 15040 WILLIAMS ROAD**

**Intertidal Guidelines**

DP GUIDELINE	PERFORMANCE CRITERIA	RESPONSE
<p>a) Preserve all intertidal zones, except in accordance with the conditions of the Development Permit and other necessary permits or approvals (e.g., FREMP, Port Metro Vancouver, and Navigable Waters).</p>	<ul style="list-style-type: none"> <li>Linear metres of intertidal retained, removed, enhanced/created.</li> <li>Overall net gain/loss of intertidal habitat.</li> </ul>	<p><b>Summary</b> Approximately 75% (283 m) of the property river frontage will be modified/ enhanced to achieve a more stable (2:1) intertidal slope. Clean, competent materials will be added to a depth of approximately 16 m below the river bed. Bank stabilization works will involve: (1) removing the existing 127 m long wharf resulting in restoration of approximately 36,000 m<sup>3</sup> of the water column and 400 m<sup>2</sup> of new shoreline; and (2) replacing 156 m of overly steep (1.5:1 slope) and poor quality concrete rubble currently armouring the bank on either side of the wharf.</p> <p>Overall, approximately 8,000 m<sup>3</sup> of bank armour will be upgraded below the high water mark. The intertidal zone associated with the property will be significantly more stable, and will have clean, rounded materials which are more conducive to providing interstitial refugia for small aquatic organisms than densely-packed angular rubble or vertical steep pipes.</p> <p><b>Linear metres of intertidal:</b></p> <ul style="list-style-type: none"> <li><u>retained - 94 m</u></li> <li><u>removed - 0 m</u></li> <li><u>enhanced/created - 283 m</u></li> </ul>

			Overall net gain/loss - 283 m
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<p>b) Maintain ecological processes important to the long-term health of the intertidal zone including drainage and hydrology and natural sediment or detritus movement (accretion and erosion).</p>	<ul style="list-style-type: none"> <li>• Assess proposed net change to intertidal ecological processes.</li> </ul>	<p>Replacing the closely spaced vertical steel pipes that form a sealed 'box' in the river with stable, coarse bank armour, will lead to the creation of a continuous, linear, sloped, interstitial habitat below the high water mark. Although the post-development intertidal zone of the property will be enhanced when compared with existing conditions, this positive ecological net change is not expected to contribute significantly to the ecological processes of the already green-coded (low productivity) intertidal habitat along the property (i.e., the newly created interstitial habitat associated with the property's intertidal zone will likely remain green-coded low productivity habitat).</p>
<p>c) Development must not increase shade or disrupt the movement of detritus or other materials. Where water access is necessary for transportation or recreation facilities, filling of the intertidal zone shall be avoided. The preferred method of development over the intertidal zone is on pilings or floating structures.</p>	<ul style="list-style-type: none"> <li>• Area of shading coverage</li> <li>• Measures employed to avoid, mitigate, compensate impacts.</li> </ul>	<p>In-river infrastructure will be minimal and installed on low density piles to minimize shading and flow interference. With this design, the effects are expected to be negligible through the low productivity intertidal zone fronting the marine terminal, and considering the typically high turbidity of the river and consequent absence of a perceptible photic zone. Construction mitigation measures will be described in detail in the construction environmental management plan (CEMP).</p>
<p>d) Consider contiguous or nearby ESA areas such as shoreline zone which have the potential to influence the intertidal zone.</p>	<ul style="list-style-type: none"> <li>• Assess impact of removal/relocation of adjacent shoreline habitat.</li> <li>• Measures employed to avoid, mitigate, compensate impacts.</li> </ul>	<p>There is no natural vegetation in the shoreline ESA area of the property beyond a small 208 m<sup>2</sup> patch of native saplings, set 7 m from the high water mark. The saplings have no notable influence on the intertidal zone. However, compensation is proposed for the loss of this small patch, in the form of habitat enhancement in the northeast corner of the marine terminal property and along the more productive</p>

<p>e) No alterations should be made to the intertidal area without an appropriate environmental assessment and implementation of mitigation measures. The City may require preparation of an Environmental Protection Plan (EPP) prepared by a qualified professional to guide environmental management on sensitive, complex, or large sites.</p>		<p>shoreline areas adjacent to the property (refer to Shoreline Guidelines section). Construction mitigation measures will be described in detail in the construction environmental management plan (CEMP).</p>
	<ul style="list-style-type: none"> <li>• Submission of an acceptable Environmental Report inclusive of protection, mitigation and compensation measures.</li> <li>• Habitat Balance</li> <li>• Vegetation assessment, habitat utilization, sediment transfer modeling.</li> <li>• Construction and post construction monitoring plans.</li> </ul>	<p>A harmonized federal and provincial environmental assessment of the potential effects of the marine terminal development, including mitigation measures, potential residual effects and cumulative effects was conducted over a 5-year period. That review process was comprehensive and robust, with both levels of government concluding that significant effects were unlikely. Conditional environmental assessment approvals were granted in December 2013.</p> <p>Notwithstanding the aforementioned environmental assessment, the potential effects of the marine terminal development to the intertidal and shoreline ESAs associated with the property were further assessed as described in the Environmental Report that was prepared for the City of Richmond, and submitted to the City as part of the Development Permit (DP) application. The Environmental Report describes the site features and characteristics in detail, and presents recommended protection, mitigation and compensation measures.</p> <p>A habitat compensation plan was prepared as part of the DP application to the City, which includes a habitat balance sheet. However, the development of the marine terminal will result in</p>

		<p>zero loss of intertidal habitat (there will be an increase in interstitial refugia availability through wharf removal and bank stabilization works, but this is considered a negligible-to-marginal gain in intertidal habitat).</p> <p>Foreshore works will involve a mix of floating and land-based equipment. Details on construction mitigation measures are provided in the project's environmental assessment certificate application document, and will be described in detail in the construction environmental management plan (CEMP). The City will be provided a copy of the draft CEMP at least 60 days before the start of construction.</p> <p>No trail will be constructed in the intertidal zone.</p>
	<ul style="list-style-type: none"> <li>• Linear metres of trail encroachment into intertidal zone.</li> </ul>	<p>Foreshore works along the green-coded (low productivity habitat) shoreline will be conducted in accordance with federal (DFO) and provincial (OGC) regulatory permits for works in or next to water. Construction mitigation measures will be described in detail in the construction environmental management plan (CEMP).</p>
<p>f) No recreational trails or other facilities shall be constructed in the intertidal zone.</p> <p>g) Permitted works shall use careful site design to avoid the most sensitive portions of the intertidal zone (see FREMP habitat coding).</p>	<ul style="list-style-type: none"> <li>• FREMP habitat coding.</li> <li>• Measures employed to avoid, mitigate, compensate impacts.</li> </ul>	<p>There will be no safe access to the waterfront on the marine terminal property itself. A trail will be safely set back from the shoreline, which will connect the existing City trail (115 m to the southwest of the property) to an unobstructed view point immediately northeast of the marine terminal. There is currently no intertidal vegetation in the marine terminal ESA area</p>
<p>h) All works within or adjacent to the intertidal zone shall be constructed, where required, to preserve and enhance the shoreline by:</p> <ul style="list-style-type: none"> <li>o providing safe, durable access such that people are afforded an unobstructed view of the waterfront wherever possible;</li> </ul>	<ul style="list-style-type: none"> <li>• Accommodation of safe, access and unobstructed views of the waterfront.</li> <li>• Area of mature intertidal vegetation retained.</li> <li>• Area of replanted native intertidal vegetation.</li> <li>• Invasive species control plan.</li> </ul>	

<ul style="list-style-type: none"> <li>o retaining mature vegetation, including existing large trees, shrubs, and aquatic vegetation;</li> <li>o replanting disturbed areas with native vegetation.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring Plan.</li> </ul>	<p>(except algae on rip-rap rubble); nor will there be once the marine terminal is constructed.</p>
<p>i) Where possible, restore degraded intertidal zones by removing historical fill, structures, or contaminated sediment, and recreating natural habitats such as mudflats and marsh.</p>	<ul style="list-style-type: none"> <li>• Linear metres of intertidal fill removed.</li> <li>• Area and type of mudflat / marsh created.</li> </ul>	<p>Mudflat and marsh creation is not possible along this green-coded section of the intertidal zone, nor is it warranted. Bank stabilization is a priority at this location (approximately 283 m; refer to Intertidal Guidelines section row a).</p>
<p>j) Conformance with these guidelines does not exempt applicants from meeting requirements of other agencies, such as participating in the Fraser River Estuary Management Program (FREM), and Port Metro Vancouver. It is the responsibility of proponents to ensure they meet all external requirements.</p>	<ul style="list-style-type: none"> <li>• External agency approvals achieved.</li> </ul>	<p>Noted.</p>



## Shoreline Guidelines

DP GUIDELINE	PERFORMANCE CRITERIA	RESPONSE
<p>a) Preserve all natural vegetation and all trees in the shoreline zone, except in accordance with the conditions of the Development Permit and other necessary permits or approvals (e.g., FREMP, Port Metro Vancouver, and Navigable Waters).</p>	<ul style="list-style-type: none"> <li>Linear metres of shoreline zone retained, removed, enhanced/created.</li> <li>Overall net gain/loss.</li> </ul>	<p><b>Summary</b>  A 52-m long by 4-m wide patch of native pole sapling trees represents the only natural vegetation to be removed during the development of the marine terminal (the remainder of the site is comprised of compacted fill with scattered weeds and herbs; there are invasive shrubs at the top of bank on either side of the current wharf).</p> <p>A compensation plan was prepared as part of the DP application, which proposes to compensate for its loss by mechanically removing Himalayan blackberry and other non-native plants in portions of the shoreline ESA that are on site, and on either side of the marine terminal (along a red-coded intertidal zone to the southwest, and a yellow-coded intertidal zone to the northeast) and planting native trees, shrubs and herbs. This compensation work will be done at a 2:1 ratio, resulting in a habitat net gain of 416 m<sup>2</sup>.</p> <p><b>Linear metres of shoreline zone:</b></p> <ul style="list-style-type: none"> <li>retained — N/A</li> <li>removed - 52 m (alder patch)</li> <li>enhanced/created: 104 m</li> </ul> <p><b>Overall net gain/loss: 52 m</b></p>

<p>b) Maintain ecological processes important to the long-term health of the shoreline zone including drainage and hydrology.</p>	<ul style="list-style-type: none"> <li>Assess proposed net change to shoreline ecological processes.</li> </ul>	<p>The shoreline ESA at the marine terminal property has no sensitive habitats, no wildlife habitat features, and borders a green-coded (low productivity habitat) intertidal zone. Wildlife is limited to transient, foraging birds. The ESA provides minimal contributions to the ecological processes typical of a river riparian zone (i.e., shade and nutrient inputs to river, water filtration, flood management, or the provision of wildlife habitat).</p>
<p>c) Consider contiguous or nearby ESA areas such as the intertidal zone which have the potential to influence the shoreline zone.</p>	<ul style="list-style-type: none"> <li>Assess impact of changes to the intertidal zone to the adjacent shoreline habitat.</li> <li>Measures employed to avoid, mitigate, compensate impacts.</li> </ul>	<p>Loss of some native saplings on the marine terminal property can be readily compensated for by planting native species along the property's northeast edge and enhancing adjacent, more functional ESA areas (refer to Shoreline Guidelines section row a). Construction mitigation measures will be described in detail in the construction environmental management plan (CEMP).</p>
<p>d) No alterations should be made to the shoreline zone without an appropriate environmental assessment and implementation of mitigation measures. The City may require preparation of an Environmental Protection Plan (EPP) prepared by a qualified professional to guide environmental management on sensitive, complex, or large sites.</p>	<ul style="list-style-type: none"> <li>Submission of an acceptable Environmental Report inclusive of protection, mitigation and compensation measures.</li> <li>Habitat Balance</li> </ul>	<p>A harmonized federal and provincial environmental assessment of the potential effects of the marine terminal development, including mitigation measures, potential residual effects and cumulative effects was conducted over a 5-year period. That review process was comprehensive and robust, with both levels of government concluding that significant effects were unlikely. Conditional environmental assessment approvals were granted in December 2013.</p> <p>Notwithstanding the aforementioned environmental assessment, the potential</p>

		<p>effects of the marine terminal development to the intertidal and shoreline ESAs associated with the property were further assessed as described in the Environmental Report that was prepared for the City of Richmond, and submitted to the City as part of the Development Permit (DP) application. The Environmental Report describes the site features and characteristics in detail, and presents recommended protection, mitigation and compensation measures. Construction mitigation measures will be described in detail in the construction environmental management plan (CEMP).</p> <p>There will be a minor loss of marginal habitat in the shoreline ESA (refer to Shoreline Guidelines section rows a and b), which will be compensated for through habitat improvements on site and in adjacent ESA areas bordering more productive shoreline zones: refer to Shoreline Guidelines section, rows a and c). A habitat compensation plan (including a habitat balance sheet) and planting prescription guidelines were prepared. The latter is in addition to the landscape design for the marine terminal and the trail sections being established on either side of the property for the City of Richmond. This planting prescription plan provides guidance on: (1) invasive plant removal and handling; (2) revegetation (native species to plant, pot size, spacing); and (3) the monitoring of native plant survival/invasive plant</p>
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			colonization rates during the subsequent three years, so that additional plant management actions can be outlined. The cost of the planting and monitoring, including a 10% contingency for supplemental planting, will be provided by the landscape architect once the project and trail designs are approved.
e) No recreational trails or other facilities shall be constructed in the shorelines zone without written approvals from FREMP or other regulatory bodies.	<ul style="list-style-type: none"> <li>• Approvals from external agencies for works within the shoreline zone (e.g. DFO, Provincial Diking Authority, FLNRO, EC)</li> </ul>		Noted.
f) Permitted works shall use careful site design to avoid the most sensitive portions of the shoreline zone.	<ul style="list-style-type: none"> <li>• FREMP habitat coding.</li> <li>• Measures employed to avoid, mitigate, compensate impacts.</li> </ul>		There are no sensitive areas in the shoreline zone of the marine terminal, which borders low productivity habitat (green-coded intertidal zone).
g) Water quality and natural systems shall be protected by leaving stream banks intact and by not altering natural slopes and existing vegetation.	<ul style="list-style-type: none"> <li>• Water quality measures employed.</li> <li>• Area of natural slopes/existing vegetation impacted / enhanced.</li> </ul>		Works below the high water mark will be conducted in compliance with regulatory permit conditions. Refer to Intertidal Guidelines section rows e and g. Water quality measures will be described in the Project CEMP. Habitat enhancement works in the ESA areas will occur above the dike crest (avoid the high water mark and dike slope). Sediment and erosion control measures will be used to isolate the high water mark from revegetation areas upslope
h) All works within or adjacent to the shoreline zone shall be constructed, where required, to preserve and enhance shoreline values by: <ul style="list-style-type: none"> <li>o providing safe, durable access such</li> </ul>	<ul style="list-style-type: none"> <li>• Accommodation of safe, access and unobstructed views of the waterfront.</li> <li>• Area of mature shoreline vegetation retained.</li> </ul>		Refer to Intertidal Guidelines section row h re. water front access.  There is no mature shoreline vegetation to retain. Areas of replanted native shoreline

<p>that people are afforded an unobstructed view of the waterfront wherever possible;</p> <ul style="list-style-type: none"> <li>o retaining mature vegetation, including existing large trees, shrubs, and aquatic vegetation;</li> <li>o replanting disturbed areas with native vegetation.</li> </ul>	<ul style="list-style-type: none"> <li>• Area of replanted native shoreline vegetation.</li> <li>• Submission of an acceptable, detailed planting and monitoring plans.</li> </ul>	<p>vegetation are addressed in the Shoreline Guidelines section (rows a to c).</p> <p>A planting prescription, including monitoring, was prepared (refer to Shore Guidelines section row d).</p>
<p>i) Development proposals that include measures to restore degraded shoreline zones by removing historical fill, structures, or contaminated sediment, and recreating natural habitats such as riparian forest may increase the level of support by the agencies provided that the works comply with DFO and FREMP guidelines. In many areas, the shoreline zone has been developed or landscaped and improvements including tree planting will enhance its ecological value over the long-term.</p>	<ul style="list-style-type: none"> <li>• Linear metres of shoreline fill removed.</li> <li>• Area of natural habitat created.</li> <li>• Number of trees removed and replanted.</li> </ul>	<p>Old fill material from the marine terminal property will be removed and replaced with cleaner and more suitable materials. Works will occur along approximately 75% (283 m) of the property's shoreline zone, which is approximately 377 m long.</p> <p>No natural habitat will be created in the Shoreline ESA on the marine terminal property. The removal of 208 m<sup>2</sup> of native saplings in the shoreline ESA will be compensated for as outlined in Shoreline Guidelines section row a to c). There is currently no other 'natural habitat' on site.</p>
<p>j) Conformance with these guidelines does not exempt applicants from meeting requirements of other agencies, such as those participating in FREMP and Port Metro Vancouver. It is the responsibility of proponents to ensure they meet all external requirements.</p>	<ul style="list-style-type: none"> <li>• External agency approvals achieved.</li> </ul>	<p>Noted.</p>



VAFCC / Vancouver Airport  
**Fuel Facilities Corporation**  
AN FSM GROUP MANAGED CORPORATION

March 13, 2017

David Brownlee, Planner 2 – Urban Design  
 Planning & Development Division  
 City of Richmond  
 6911 No. 3 Road  
 Richmond, BC, V6Y 2C1

**RE: Rationale for Dyke Trail location at 15040 Williams Road  
 Vancouver Airport Fuel Delivery Project**

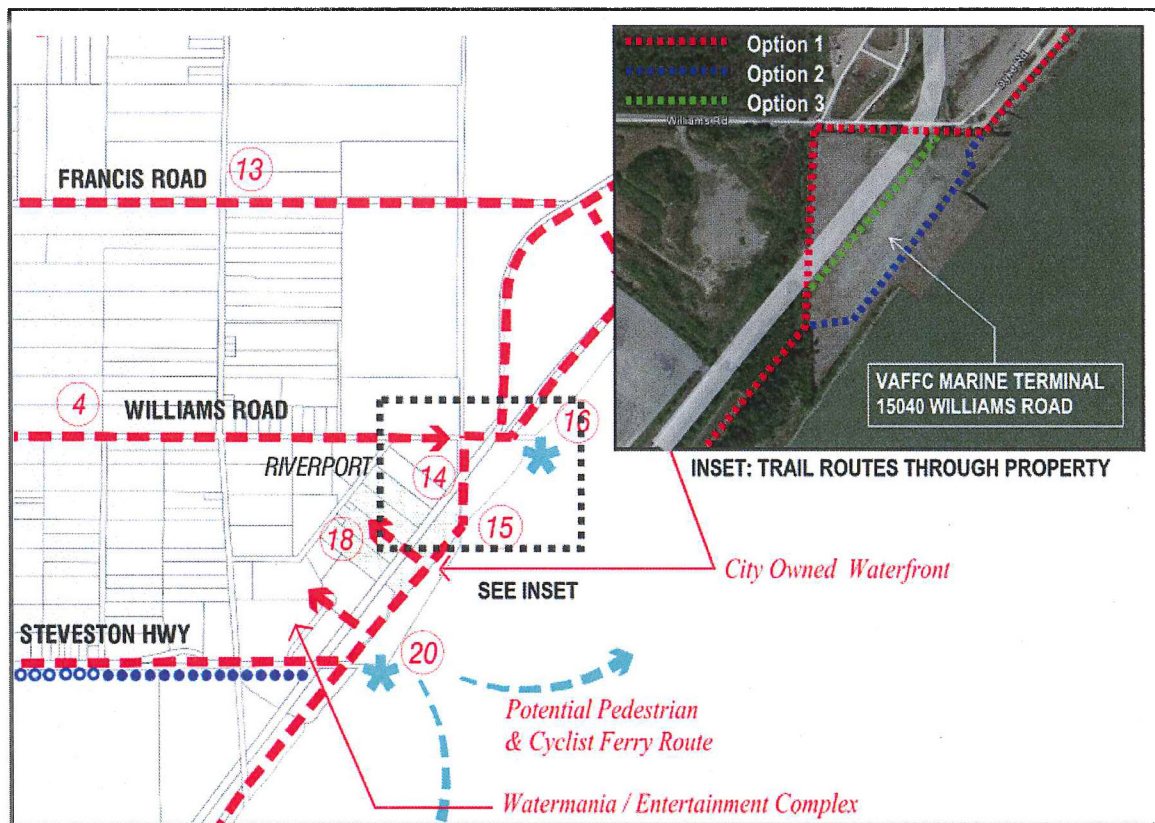
Dear Mr. Brownlee:

This letter is provided to the City of Richmond in support of the Vancouver Airport Fuel Facilities Corporation (VAFCC) application for Development Permit (ESA) in connection with the development of its property at 15040 Williams Road, Richmond, BC.

VAFCC is constructing a Marine Terminal and fuel offloading system at this property as part of the Vancouver Airport Fuel Delivery Project. The industrial waterfront property is located at the east end of Williams Road and is bisected by a CN Rail corridor and a dyke structure that forms part of the perimeter dyke system protecting Lulu Island from flood and sea level rise conditions associated with the Fraser River estuary. The property is currently fenced and does not provide for any trail connectivity through or around the property to connect to existing trail systems northeast or southwest of the property boundaries.

In establishing the conditions for approval of the project under the harmonized Environmental Assessment process between 2009 and 2013, VAFCC agreed to construct a connecting trail on the property to contribute to the City's overall Trail Strategy as described in the Official Community Plan. In its Environmental Assessment application, VAFCC proposed that the trail follow the suggested trail network identified in the 2010 Richmond Trail Strategy (Option 1 in Figure 1 below). However, in its comments to the subsequent Development Permit application made by VAFCC, the City identified a preference for the trail to connect across the property as close to the shoreline as possible, estimated as Option 2 in Figure 1.

VAFCC has reconsidered its design to accommodate the City's request, and has determined that the position of the trail immediately next to the shoreline is not viable from an operational standpoint. VAFCC is offering to construct the trail in the location identified as Option 3 in Figure 1. The rationale for the route is discussed in the next section.



**Figure 1. Excerpt from Richmond Trail Strategy with VAFRC property inset.**

### Rationale

VAFFC proposed route Option 1 in its initial Development Permit application to achieve consistency with the OCP. VAFFC identified further merits of this option as follows:

- Maximizes separation from operational areas of the Marine Terminal
- Aligns with properties boundaries with limited development value
- Overlaps with roads or road right-of-ways minimizing property dedication to this use.

As indicated earlier, the City has identified the desire to place the trail adjacent to the shoreline if possible (Option 2), consistent with public trail development in other areas of the city, and to avoid crossing of the CN Rail corridor in two locations as would be required under Option 1. VAFFC accommodated this request and has prepared a revised design aligning the trail across the front portion of the site, identified as Option 3, away from the shoreline but on the river side of the CN corridor. VAFFC recognizes the value of having the trail avoid rail crossings and align with the waterfront, however, due primarily to strict operational requirements, asserts that the trail must be set back from the waterfront area to provide security to the terminal and safety to the travelling public.

The following details are provided for additional clarity:

- Option 3 maximizes separation from operational areas of the Marine Terminal without pushing the trail across the CN rail corridor;
- Option 3 would have greater success in meeting the International Ship and Port Facility Security Code “ISPS Code” requirements which identifies restricted areas that must be considered in the Port Facility Security Plan “PFSP”, including:
  - shore and waterside areas immediately adjacent to the ship;
  - embarkation and disembarkation areas, passenger and ship’s personnel holding and processing areas including search points;
  - areas where loading, unloading or storage of cargo and stores is undertaken;
  - locations where security sensitive information, including cargo documentation, is held;
  - areas where dangerous goods and hazardous substances are held;
  - vessel traffic management system control rooms, aids to navigation and port control buildings, including security and surveillance control rooms;
  - areas where security and surveillance equipment are stored or located;
  - essential electrical, radio and telecommunication, water and other utility installations; and
  - other locations in the port facility where access by vessels, vehicles and individuals should be restricted.

The placement of any public space or public right-of-way in areas identified as restricted would require operational constraints such as closure during operations, confinement by fencing on both sides, significant physical barriers to protect against ship mooring ropes and cables, and highly restrictive signage warning the public of the danger and prohibited activities.

- Due to the safety and security constraints in the operational area, Option 3 will provide a more enjoyable public experience than Option 2 for the following reasons:
  - Fencing will be required on only one side of the trail;
  - Mild grade changes will provide for some landscaping and visual variability;
  - Users will experience less operational noise and visual distraction of the facility operations;
  - Trail closures will be minimized or eliminated during the securing of vessels upon arrival;
  - There will be less restrictive signage identifying safety requirements for public passage (ie smoking, loitering, etc).

VAFFC is currently undertaking a Security Vulnerability Assessment (SVA) which must be reviewed and approved by Transport Canada. The assessment considers the facility operations and layout and recommends security features (ie fencing, surveillance, access control, barrier protection, etc) to be incorporated into the facility to maximize safety and security of the facility. The assessment and findings are confidential, however the draft assessment contains the following excerpt specific to this facility and would not be compromised by the trail if positioned in accordance with Option 3:



***Restricted Areas***

*The Marine Transportation Security Regulations (MTSR) of Canada and the IMO's International Ship and Port Facility Security (ISPS) Code require that certain areas be restricted to avoid any possibility of sabotage and limit accidents. Such areas include those that require deterrence of unauthorized access; places where security and surveillance systems are located; land areas adjacent to where vessels interface with the facility; places where security sensitive information is kept, inclusive of cargo documentation; location of central controls for security and surveillance systems; location of central lighting controls; location of critical infrastructure including water, electric, telecommunications and process control rooms; areas designated for the unloading of cargo, and areas containing dangerous cargoes. (MTSR – 329.) Such restricted areas must be alarmed, have access control, lighting and be monitored in some way to ensure any tampering or breach is detected and responded to. Further, the level of surveillance of the restricted areas must increase in response to any raised marine security level (MARSEC) above level 1. The restricted areas for this facility should include:*

1. *The marine terminal area which contains:*
  - a. *The dock and off-loading equipment*
  - b. *The spill containment areas*
  - c. *The building housing utilities controls (electric, water, telecommunications) and security equipment (alarm panels, security lighting, video recording.)*
  - d. *The building housing operations controls.*
2. *The tank farm which contains*
  - a. *An operations building*
  - b. *A power transformer*
  - c. *An emergency generator*
  - d. *An electrical building (E-house) for all electrical cabling and controls*
  - e. *A foam monitor enclosure and a foam distribution enclosure*
  - f. *Six storage tanks for Jet A-1*
3. *Piping and pumps for the product which are exposed and/or accessible and which are thereby vulnerable to tampering or attack.*

*For organizational purposes each of these designated areas will be addressed separately.*

***1. Marine Terminal -General***

*The terminal includes many of the key assets including operational controls for the terminal, utility controls, backup power, fire suppression buildings and equipment and the spill containment areas. This area is to be surrounded by a fence line which will extent from the water on the southwest boundary to the location of the easement that runs through the property, and back to the waterline in the northeast of the property. It is noted that local pedestrians have in the past walked along the river bank onto what is now part of the facility. It is therefore imperative that the fence line extend to and into the river to preclude passage along the bank. This needs to be done on both the northeast and southwest ends of the fence line.*

### Closure

VAFFC requests that the City consider the alternative presented by VAFFC in its updated submissions related to the Development Permit application supporting the Option 3 location. Updated design drawings, landscape drawings, and Environmental Reports have all been recently submitted with this option in mind.

VAFFC recognizes the need for public access and wishes to do its part in connecting neighbourhoods with this initiative. VAFFC's recommendation for the trail location maximizes safety and security for both the public users and the operational staff at the marine terminal facility. The VAFFC development team would be happy to meet to discuss these items in more detail if required.

Sincerely,  
Vancouver Airport Fuel Facilities Corporation

A handwritten signature in blue ink, appearing to read 'APL', is positioned above the printed name of the signatory.

Adrian Pollard, P.Eng.  
Project Director



# MEMO

**Date:** May 23, 2017 HCP Ref No.: VAFFC6773-NV  
**From:** Cory Bettles, MSc, RPBio, FP-C, Senior Fisheries Manager  
**To:** Adrian Pollard, PEng, Director of Engineering, FSM Management Group Inc.  
**Subject:** Vancouver Airport Fuel Delivery Project, Marine Terminal Development: Professional opinion on potential for post-development foreshore habitat improvement

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## 1.0 Context

Vancouver Airport Fuel Facilities Corporation (VAFFC) has received Environmental Assessment (EA) approvals from the provincial and federal governments to construct and operate a new aviation fuel delivery system (the Project) to serve Vancouver International Airport (YVR). The Project was subject to a robust 5-year coordinated provincial and federal environmental assessment review that involved agencies and departments from all levels of government, which was concluded in December 2013 with the issuance of conditional approvals from British Columbia (BC) Ministers and Vancouver Fraser Port Authority (VFPA). Fisheries and Oceans Canada (DFO) was an active participant throughout the Project review process and all issues of concern with respect to potential residual effects to fish and fish habitat were addressed in the EA to the satisfaction of the federal regulator.

The Project includes construction and operation of a marine terminal located at 15040 Williams Road on the north shore of the South Arm of the Fraser River located in Richmond, BC; a fuel receiving facility located on nearby industrial zoned property that VAFFC has leased from VFPA; and underground pipelines to transfer fuel from the marine terminal to the fuel receiving facility (fuel transfer pipeline) and then to YVR (fuel delivery pipeline).

As part of VAFFC's permitting requirements post-EA certification, submission of a Development Permit (DP) application to the City of Richmond (CoR) was executed for the marine terminal component. Since DP application filing, follow-up information requests (IRs) and position statements have been issued by the CoR. Most recently, the CoR issued their position with respect to the anticipated habitat improvement to be gained with the removal and replacement of the current infrastructure at the site. Their position stated that,

*"[t]he foreshore restructuring will not be considered as habitat improvement along the water edge of the property. As the CoR feels that the water flows are too high to provide any benefit increases. The CoR requests that VAFFC submit a proposal for improving habitat upland of the MT. (Bench marsh)."*

VAFFC has requested an unbiased professional opinion as to whether the planned marine terminal development will result in "improved habitat" compared to existing conditions and whether additional habitat enhancement is justified. Professional opinion has been formulated based on a review of pertinent information including the EA information record, the DP application submitted to the CoR, DP Guidelines

for Environmentally Sensitive Areas (ESAs) applicable to 15040 Williams Road, site-specific engineering designs, and scientific literature.

## **2.0 Summary of Intertidal (Foreshore) Baseline Conditions**

Characterization of the current intertidal (foreshore) habitat conditions at the marine terminal site is described in detail in the DP application submitted to the CoR. Below, I highlight key features.

Intertidal areas are influenced by waves, tides, and other processes along the Fraser River or Strait of Georgia. Typical conditions of an intertidal zone include mudflats, tidal channels and pools, salt marsh communities, as well as developed shorelines (wharves, pilings, bank armouring). Natural intertidal zone features represent important fish and wildlife habitat. The majority of habitat and aquatic resource information available for the Lower Fraser River has been synthesized by the Fraser River Estuary Management Program (FREMP). The intertidal (foreshore) of the property has been classified as low productivity habitat ("green coded"; FREMP, 2006).

There is a CoR designated ESA along the property shoreline, which encompasses an intertidal (foreshore) zone 30 m seaward of the high water mark (HWM), and a shoreline zone 30 m landward of the HWM. The entire portion of the ESA on the property represents the south-eastern portion of the Project's DP Area.

The shoreline of the industrial-zoned property includes a backfilled protruding steel pipe pile bulkhead wharf and steep intertidal areas on either side comprising poor quality concrete rubble with embedded rebar.

## **3.0 Net Result of Bulkhead Wharf Removal and Regrading of the Existing Foreshore**

Based on a review of the current footprint conditions and proposed engineering design for the site, there will be additional intertidal and subtidal area gained below the HWM with the removal of existing and development/construction of new structures and shoreline. Removal of the bulkhead wharf and re-grading of the shoreline is aimed to create a new intertidal area of approximately 730 square meters ( $m^2$ ), and additional subtidal area of approximately 3,000 $m^2$ . The proposed re-grading of the existing shoreline on either side of the removed dock to a shallower slope will result in approximately 625  $m^2$  of new intertidal area. The resulting net gain of intertidal area post-development will be approximately 1,355  $m^2$  while the net gain of subtidal area is to be approximately 3,000  $m^2$ . The shoreline to be exposed by the dock removal and large volume of existing rubble on either side of the dock, will be replaced by appropriate and fit-for-purpose angular rip-rap material.

## **4.0 Positive Effects of Replaced Rip-Rap on Fish and Fish Habitat**

Positive effects of rip-rap on fish and aquatic resources in lotic environments has been described in scientific literature. Positive effects have been reported in large and small riverine systems and were usually attributed to degraded conditions prior to rip-rap installation in combination with the use of other mitigative measures (Craig and Zale 2001). Below I provide a couple of those examples where rip-rap resulted in positive outcomes and supports the position that the proposed use of rip-rap at the marine terminal will provide an improvement of habitat conditions.

Schmetterling et al. (2001) found that rip-rap provided habitat for juvenile salmonids in watercourses that have been severely degraded. Whether juvenile salmonids would utilize the proposed rip-rap at this site

along the Fraser River is unknown. However, the presence of the rip-rap would provide additional refuge habitat (albeit a small amount) for juvenile salmonids in the lower Fraser River.

Hinch and Rand (1998) observed that rip-rap placed to control erosion along the Nechako River, BC, generated small reverse flow fields (i.e., eddy vortices) along the foreshore that were used by adult sockeye salmon to facilitate their migration upstream. Migration through reaches with constrictions (e.g., large islands, gravel bars or large rock outcroppings) was found to require higher energy expenditure than that through reaches with parallel, straight banks. The additional placement of rip-rap at the site, including replacement of existing rubble, may provide improved conditions (reduced velocities) during upstream migration of all adult salmon species.

Craig and Zale (2001) observed that aquatic invertebrates flourish in rip-rap because it provides many interstices and high surface area suggesting that it may provide a superior food source for fish. Regardless of whether fish utilize the increased abundance of invertebrates as a food source, the expected increase in productivity is of overall benefit to the aquatic environment.

## **5.0 Opinion**

Based on my review of the existing information that characterizes current baseline intertidal and shoreline conditions of the site, available scientific literature that highlights where the use of rip-rap can offer improvements to habitat conditions in degraded areas, and the 2012 CoR OCP DP Guidelines for ESAs (specific to Intertidal Guidelines), I am of the opinion that the dock removal, shoreline regrading and proposed use of angular rip-rap in the intertidal (foreshore) area will provide intertidal and subtidal habitat gains and some level of improvement to habitat conditions at the site in comparison to what baseline conditions currently offer. The scientific literature provides evidence that rip-rap can provide some enhancement opportunities in areas that have been tarnished, as is the case here including the potential to reduce flow velocities in the area. Additionally, the area will likely benefit from the protruding steel sheet pile spill containment walls that are proposed at the upriver and downriver extents of the property providing further (secondary opportunity to reduce flow velocity in the terminal area.

The level of 'improvement' is not expected to be substantial – I agree with the response provided in (b) of the 2012 OCP DP Guidelines for ESA that states, "...[any] positive ecological net change is not expected to contribute significantly to the ecological processes of the already green-coded (low productivity) intertidal [foreshore] habitat along the property". However, no additional degradation of habitat conditions at the site through the use of rip-rap are to be expected (given the site is already low productivity habitat), hence no additional enhancement (e.g., upland habitat as requested by the CoR) is warranted.

## **6.0 Closing**

My professional opinion is based solely on the information reviewed as described herein. I reserve the right to expand, modify or otherwise amend my opinion as additional information becomes available.

Regards,



Cory Bettles, MSc, RPBio, FP-C  
Senior Fisheries Manager  
Certified Fisheries Professional  
Hatfield Consultants

#### Literature Cited

Craig, A.J., and A.V. Zale. 2001. Effects of bank stabilization structures on fish and their habitat. US Geological Survey, Washington Department of Ecology, and Montana State University. Bozeman, MT, 29 pp.

Schmetterling, D.A., C.G. Clancy, and T.M. Brandt. 2001. Effects of rip-rap bank reinforcement on stream salmonids in the western United States. Fisheries 26(7):6-13.

Hinch, S.G., and P.S. Rand. 1998. Swim speeds and energy use of upriver-migrating *Oncorhynchus nerka*: Role of local environment and fish characteristics. Can. J. Fish. Aquat. Sci. 55:1821-1831.



## Development Permit Considerations

Development Applications Department  
6911 No. 3 Road, Richmond, BC V6Y 2C1

**Address:** 15040 Williams Road

**File No.:** DP 16-741741

**Prior to approval of the Development Permit, the developer is required to complete the following:**

1. Receipt of a Letter of Credit/security for \$250,078.40 inclusive of the following:
  - On-site ESA and RMA landscaping in the amount of \$67,589.50,
  - On-site non ESA/RMA landscaping (slope adjacent to trail) in the amount of \$14,459.50,
  - On-site Trail landscaping in the amount of \$105,065.40
  - Three years of maintenance (ESA/RMA/Trail/non ESA/RMA) in the amount of, \$54,252.00.
  - Three years of monitoring (ESA/RMA/Trail) in the amount of \$8,712.00.

(The above amounts being based on the costs estimate provided by a BCSLA Registered Landscape Architect including 10% contingency).

Off-site ESA/RMA securities will be addressed through a Servicing Agreement.
2. Submission of a contract entered into between the applicant and a Qualified Environmental Professional (QEP) to monitor all planting ESA, RMA and trail vegetation installations and to provide three years of post-installation monitoring with annual reporting for the on-site and the off-site ESA and RMA enhancement areas and the pedestrian trail vegetation installation. The Contract should include the scope of work to be undertaken, including: the proposed number of site monitoring inspections, and a provision any remedial works during the monitoring period. Planting within RMA areas is to comply with Provincial RAR re-vegetation guidelines.
3. Submission of a contract to ensure that pruning and limb removal of retained trees is under supervision of a certified arborist, invasive vegetation removal within the tree protection area by hand only and activity within the drip line of retained trees to be done under the supervision of a Qualified Environmental Professional (QEP) or a certified arborist as outlined in the arborist's report.
4. Installation of appropriate tree protection fencing around all trees identified for retention by the Arborist (uTree Environmental Consultants report). Fencing is to be installed to the City's standards as part of the development prior to any construction activities occurring on-site.
5. Submission of payment in the amount of \$62,000 to the City of Richmond, as a voluntary contribution for the design and future construction of a pedestrian observation platform overlooking the Fraser River and located to the east of Williams Road at the City's discretion. Timing of the platform construction may be affected by future dike improvements.
6. Registration of a 6 metre wide statutory right-of-way with public right of passage through 15040 Williams Road to accommodate a public trail in an alignment generally along the southern side of the CN Rail right-of-way as indicated in the Development Permit application and to the satisfaction of the Senior Manager of Parks. After completion of the Servicing Agreement maintenance period, the City will be responsible for maintenance and liability associated with the SRW.
7. Registration of a 7.5 metre wide statutory right-of-way for dike through 15040 Williams Road in an alignment generally near the property's foreshore with the Fraser River as indicated in the Development Permit application and to the satisfaction of the General Manager of Engineering. After completion of the Servicing Agreement maintenance period, the City will be responsible for maintenance and liability associated with the SRW. The SRW will provide the City with rights for access and the ability to maintain the works. The agreement should include a minimum building setback from the SRW of 7.0 metres.
8. Registration of a flood plain covenant on title identifying a minimum habitable elevation of 3.0 / 4.35 m GSC split approximately at the alignment of the southern edge of the CN Rail right-of-way.

Initial: \_\_\_\_\_

9. Registration of a legal agreement on title to ensure that landscaping planted as part of the on-site ESA and the on-site RMA is maintained and will not be abandoned or removed. Registration of a statutory right-of-way, and/or other legal agreements or measures, as determined to the satisfaction of the Director of Development.
10. Discharge of the existing foreshore covenant (BG 285960).
11. Registration of a legal agreement on title to require the owner to design and construct bank protection along the river to the satisfaction of the General Manager, Engineering and the Inspector of Dikes and to provide the City with access to the land to inspect and maintain the works should the owner fail to do so. The owner will be responsible for the ongoing maintenance and liability of the works. The intent of the covenant is to ensure that the area outside of the 7.5 m right-of-way will be constructed and maintained in a manner that protects the dike and cannot be modified without consent of the City of Richmond and the Provincial Inspector of Dikes.

**Prior to Building Permit Issuance, the developer must complete the following requirements:**

1. Enter into a Servicing Agreement\* for the design and construction of a dike across 15040 Williams Road within the 7.5 m wide right-of-way and integration with existing dikes on adjacent properties acceptable to the General Manager, Engineering.
2. Enter into a Servicing Agreement\* for the design and construction of a 6 m wide park trail across 15040 Williams Road and integration with existing trails on adjacent properties acceptable to the Senior Manager of Parks. Works include, but may not be limited to, a 3 m wide aggregate trail surface with vegetation strips on both sides to the satisfaction of the Senior Manager of Parks.
3. Enter into a Servicing Agreement\* for the design and construction of utility and frontage works and the off-site ESA/RMA landscaping enhancement areas identified as per the landscaping plans submitted under DP 16-741741. Works include, but may not be limited to the following:

Water Works:

- a. Using the OCP Model, there is 583 L/s of water available at a 20 psi residual at the Williams Road frontage. Based on your proposed development, your site requires a minimum fire flow of 250 L/s.
- b. The Developer is required to:
  - Submit Fire Underwriter Survey (FUS) or International Organization for Standardization (ISO) fire flow calculations to confirm development has adequate fire flow for onsite fire protection. Calculations must be signed and sealed by a Professional Engineer and be based on Building Permit Stage Building designs.
  - Install a single water service connection to serve the development site. The service connection can be split at the property line, and two meters installed (one for fire, one for domestic use) inside meter chamber(s).
  - Install backflow prevention device at property line.
  - Provide statutory right-of-way for meter and meter chamber.
- c. At Developer's cost, the City is to:
  - Complete all tie-ins for the proposed works to existing City infrastructure.

Storm Sewer Works:

- a. The Developer is required to:
  - Design and construct a storm sewer outfall into the RMA ditch utilizing appropriate sediment and erosion control methods, such as daltalok bags, and provide a functional plan within the first servicing agreement submission for review and approval by the City.
  - Install an oil & grit separator upstream of the proposed outfall, and provide the City with a separator maintenance plan within the first servicing agreement submission for review and approval.

Sanitary Sewer Works:

- a. The Developer is required to:
  - N/A

Frontage Improvements:

- a. The Developer is required to:

Initial: \_\_\_\_\_



- Coordinate with BC Hydro, Telus and other private communication service providers:
- When relocating/modifying any of the existing power poles and/or guy wires within the property frontages.
- To locate all above ground utility cabinets and kiosks required to service the proposed development within the developments site (see list below for examples). A functional plan showing conceptual locations for such infrastructure shall be included in the development process design review. Please coordinate with the respective private utility companies and the project's lighting and traffic signal consultants to confirm the requirements (e.g., statutory right-of-way dimensions) and the locations for the aboveground structures. If a private utility company does not require an aboveground structure, that company shall confirm this via a letter to be submitted to the City. The following are examples of statutory right-of-ways that shall be shown in the functional plan and registered prior to SA design approval:
  - BC Hydro PMT – 4mW X 5m (deep)
  - BC Hydro LPT – 3.5mW X 3.5m (deep)
  - Street light kiosk – 1.5mW X 1.5m (deep)
  - Traffic signal kiosk – 2mW X 1.5m (deep)
  - Traffic signal UPS – 1mW X 1m (deep)
  - Shaw cable kiosk – 1mW X 1m (deep) – show possible location in functional plan
  - Telus FDH cabinet-1.1 m W X 1 m (deep – show possible location in functional plan
- Implement a riparian enhancement planting plan in the 5.0 m RMA watercourse along the Williams Road frontage.

Dike Improvements:

- a. The Developer is required to satisfy the following for the dike:
  - The dike shall be designed by a Professional Geotechnical Engineer.
  - The elevation of the dike crest shall be raised to minimum 4.7 m geodetic, and designed to accommodate a future elevation of 5.5 m. On the waterside of the dike, the slope shall be maximum 2:1. On the landside of the dike, the slope shall be maximum 3:1.
  - The crest of the dike shall be minimum 4.0 m wide.
  - Provide a 7.5 m statutory right-of-way for the dike.
  - There shall be a minimum building setback of 7.0 m from the dike right-of-way.
  - The drip line of any trees shall be set back at least 8.0 m from the future toe of the dike.
  - Above ground pipes crossing the dike right-of-way shall be removable to allow for dike inspection and maintenance.
  - Design the dike and operations in a manner that allows for vehicular and man access along the dike upon the City's request.
  - The dike along the frontage of the development site shall be tied in to the adjacent dikes to the north and south at a maximum slope of 3:1. Developer to be responsible to locate the dike to the north and south for a smooth transition. No retaining walls within the dike crest or slope area are allowed.
  - All dike construction, including materials, shall be in conformance with City standard drawing MB-98 or MB-99, Dike Design and Construction Guide – Best Management Practices for British Columbia (2003), and Environmental Guidelines for Vegetation Management on Flood Protection Works to Protect Public Safety and the Environment (1999).
  - The design and construction of the dike shall be done to the satisfaction of the General Manager, Engineering and Public Works, and any other relevant dike approving authorities.
  - Discharge existing foreshore covenant and register a new foreshore covenant to ensure that the area outside of the 7.5 m right-of-way will be constructed and maintained in a manner that protects the dike and cannot be modified without consent of the City of Richmond and Inspector of Dikes.

General Items:

- a. The Developer is required to:

Initial: \_\_\_\_\_

- Develop a sediment and erosion control and protection fencing plan for the proposed works to minimize impact to the 5.0m RMA along Williams Road during construction, to the satisfaction of the City. A functional plan must be reviewed and approved by the City prior to development permit issuance.
  - Provide, within the first servicing agreement submission, a geotechnical assessment of preload and soil preparation impacts on the existing utilities fronting the development site and provide mitigation recommendations.
  - Enter into, if required, additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering, including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.
  - Prepare and submit a design and sealed cost estimate (inclusive of a 10% contingency) as prepared by a qualified professional for the construction of a foreshore observation deck to the satisfaction of the Senior Manager, Parks and the Director, Engineering.
  - Submit a voluntary cash contribution for the construction of the foreshore observation deck to the satisfaction of the Senior Manager, Parks and the Director, Engineering.
- b. Plan and undertake the off-site ESA and RMA landscaping as per the landscaping plans submitted under DP 16-741741. A Qualified Environmental Professional (QEP) to monitor all planting ESA, RMA and trail vegetation installations and to provide three years of post-installation monitoring with annual reporting for the on-site and the off-site ESA, the RMA enhancement areas and the pedestrian trail vegetation installation. Planting within RMA areas is to comply with Provincial RAR re-vegetation guidelines.
- c. Ensure that all pruning and limb removal of retained trees is to be under supervision of a certified arborist, invasive vegetation removal within the tree protection area is by hand only and activity within the drip line of retained trees to be done under the supervision of a Qualified Environmental Professional (QEP) or a certified arborist as outlined in the arborist's report.
4. City arborist (Conor Sheridan: 604-244-1208, [CSheridan@richmond.ca](mailto:CSheridan@richmond.ca)) to be notified prior to commencement of works within the drip line of existing retained offsite trees. Provide 3 business days minimum notice.
5. City Parks to review all offsite planting after it is in place (contact Steve Priest, Supervisor of Horticulture: 604-244-1208, and Miriam Plishka, Park Planner: 604-233-3310). Once plant material and placement have been accepted by the City, the maintenance period will commence.
6. Submission of a final sign-off letter of from CN Railway, to the satisfaction of the City's Director of Transportation and the Director of Engineering, for the VAFFC Marine Terminal project at 15040 Williams Road. If CN Railway's approval includes conditions or requirements, the proponent must provide means to meet those conditions / requirements to the satisfaction of the City's Director of Transportation.
7. Submission of a Construction Parking and Traffic Management Plan to the Transportation Department. Management Plan shall include location for parking for services, deliveries, workers, loading, application for any lane closures, and proper construction traffic controls as per Traffic Control Manual for works on Roadways (by Ministry of Transportation) and MMCD Traffic Regulation Section 01570.
8. Obtain a Building Permit (BP) for any construction hoarding. If construction hoarding is required to temporarily occupy a public street, the air space above a public street, or any part thereof, additional City approvals and associated fees may be required as part of the Building Permit. For additional information, contact the Building Approvals Department at 604-276-4285.

**Note:**

- \* This requires a separate application.
  - Where the Director of Development deems appropriate, the preceding agreements are to be drawn not only as personal covenants of the property owner but also as covenants pursuant to Section 219 of the Land Title Act.
- All agreements to be registered in the Land Title Office shall have priority over all such liens, charges and encumbrances as is considered advisable by the Director of Development. All agreements to be registered in the Land Title Office shall, unless the

Initial: \_\_\_\_\_

Director of Development determines otherwise, be fully registered in the Land Title Office prior to enactment of the appropriate bylaw.

The preceding agreements shall provide security to the City including indemnities, warranties, equitable/rent charges, letters of credit and withholding permits, as deemed necessary or advisable by the Director of Development. All agreements shall be in a form and content satisfactory to the Director of Development.

- Additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering may be required including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.
- Applicants for all City Permits are required to comply at all times with the conditions of the Provincial *Wildlife Act* and Federal *Migratory Birds Convention Act*, which contains prohibitions on the removal or disturbance of both birds and their nests. Issuance of Municipal permits does not give an individual authority to contravene these legislations. The City of Richmond recommends that where significant trees or vegetation exists on site, the services of a Qualified Environmental Professional (QEP) be secured to perform a survey and ensure that development activities are in compliance with all relevant legislation.

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Signed

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Date



# City of Richmond

## Development Permit

No. DP 16-741741

To the Holder: VANCOUVER AIRPORT FUEL FACILITIES CORPORATION

Property Address: 15040 WILLIAMS ROAD

Address: C/O FSM MANAGEMENT GROUP INC.  
108 – 12300 HORSESHOE WAY  
RICHMOND, BC V7A 4Z1

1. This Development Permit is issued subject to compliance with all of the Bylaws of the City applicable thereto, except as specifically varied or supplemented by this Permit.
2. This Development Permit applies to and only to those lands shown cross-hatched on the attached Schedule "A" and any and all buildings, structures and other development thereon.
3. Subject to Section 692 of the Local Government Act, R.S.B.C.: buildings and structures; off-street parking and loading facilities; roads and parking areas; and landscaping and screening shall be constructed generally in accordance with Plans #1 to #25 attached hereto.
4. Sanitary sewers, water, drainage, highways, street lighting, underground wiring, and sidewalks, shall be provided as required.
5. As a condition of the issuance of this Permit, the City is holding the security in the amount of \$250,078.40 (including, on-site ESA/RMA \$67,589.50, on-site non-ESA \$14,459.50, on-site trail planting \$105,065.40, 3 years of maintenance \$54,252.00 and 3 years of monitoring \$8,712.00) to ensure that development is carried out in accordance with the terms and conditions of this Permit. Should any interest be earned upon the security, it shall accrue to the Holder if the security is returned. The condition of the posting of the security is that should the Holder fail to carry out the development hereby authorized, according to the terms and conditions of this Permit within the time provided, the City may use the security to carry out the work by its servants, agents or contractors, and any surplus shall be paid over to the Holder. Should the Holder carry out the development permitted by this permit within the time set out herein, the security shall be returned to the Holder. The City may retain the security for up to three years after inspection of the completed landscaping in order to ensure that plant material has survived.
6. If the Holder does not commence the construction permitted by this Permit within 24 months of the date of this Permit, this Permit shall lapse and the security shall be returned in full.

**Development Permit**  
**No. DP 16-741741**

To the Holder: VANCOUVER AIRPORT FUEL FACILITIES CORPORATION  
Property Address: 15040 WILLIAMS ROAD  
Address: C/O FSM MANAGEMENT GROUP INC.  
108 - 12300 HORSESHOE WAY  
RICHMOND, BC V7A 4Z1

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7. The land described herein shall be developed generally in accordance with the terms and conditions and provisions of this Permit and any plans and specifications attached to this Permit which shall form a part hereof.

This Permit is not a Building Permit.

AUTHORIZING RESOLUTION NO.  
DAY OF , .

ISSUED BY THE COUNCIL THE

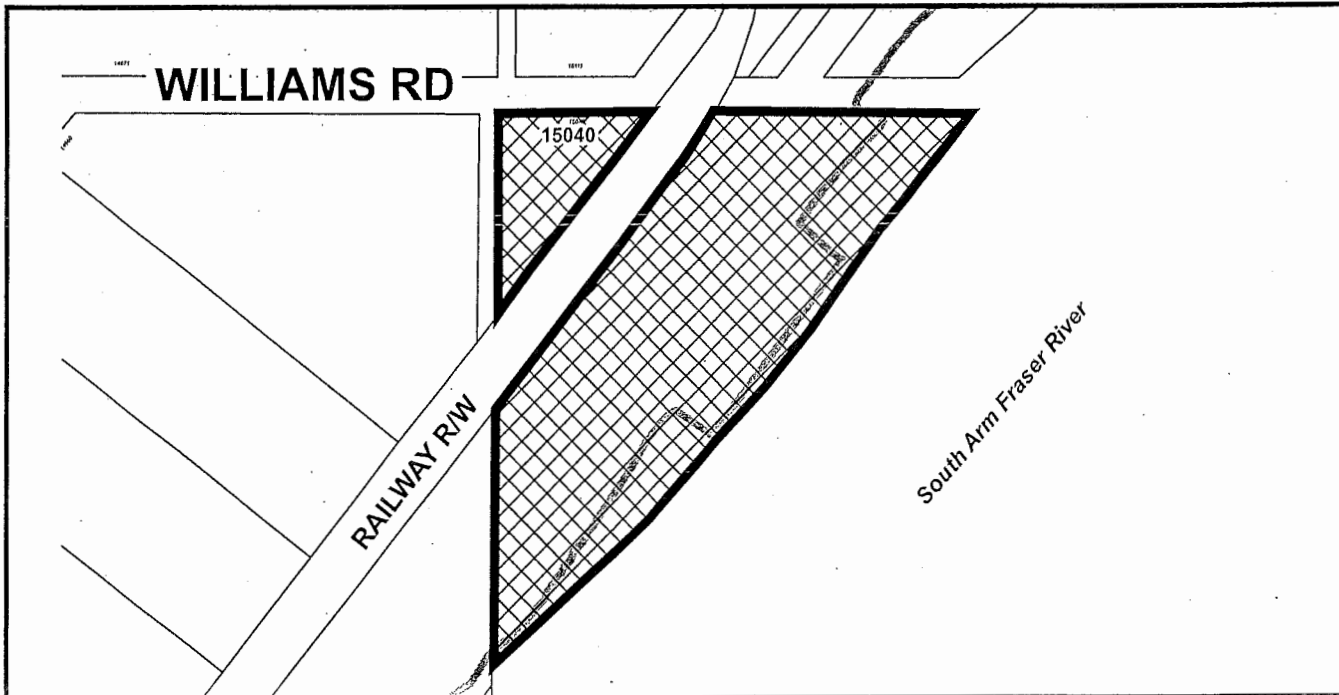
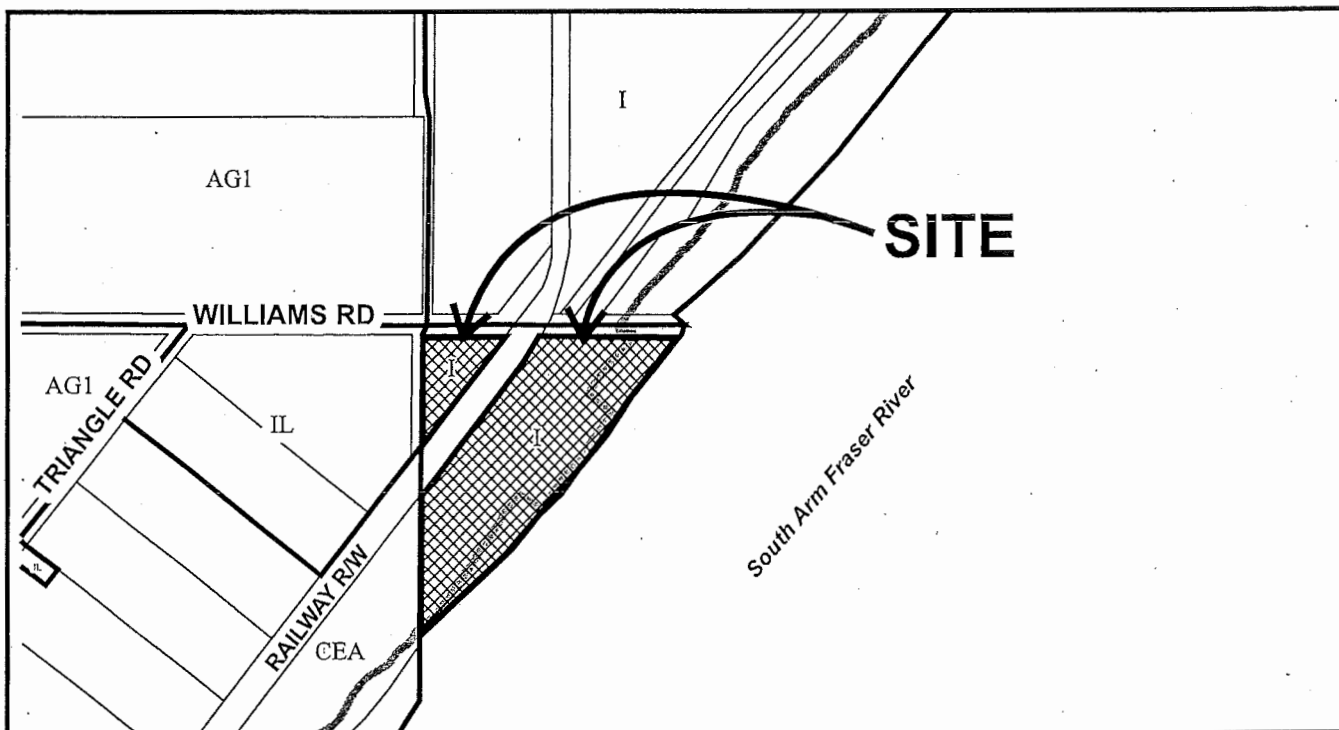
DELIVERED THIS DAY OF , .

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MAYOR



City of  
Richmond



DP 16-741741  
SCHEDULE "A"

Original Date: 08/22/16

Revision Date:

Note: Dimensions are in METRES

Figure 1 Vancouver Airport Fuel Delivery Project – Marine Terminal site location.



This plan is reprinted from the  
ESA and RMA Environmental Report  
by  
Hatfield Environmental Consultants

**JAMON ORIENTE LTD.**  
lenoscaoe architects

#306 - 4464 West 10th Avenue  
Vancouver, BC, Canada  
V6R 2H9  
t: 604-222-9200  
e: dno@telus.net  
w: damonorienteltd.ca

Project  
**VAFFC MARINE TERMINAL FACILITY**

Drawing  
**MARINE TERMINAL SITE LOCATION**

Scale: nts  
Date:  
Project Number: 2014-280  
30 June 2017 Development Permit Application Resubmission

Dwg

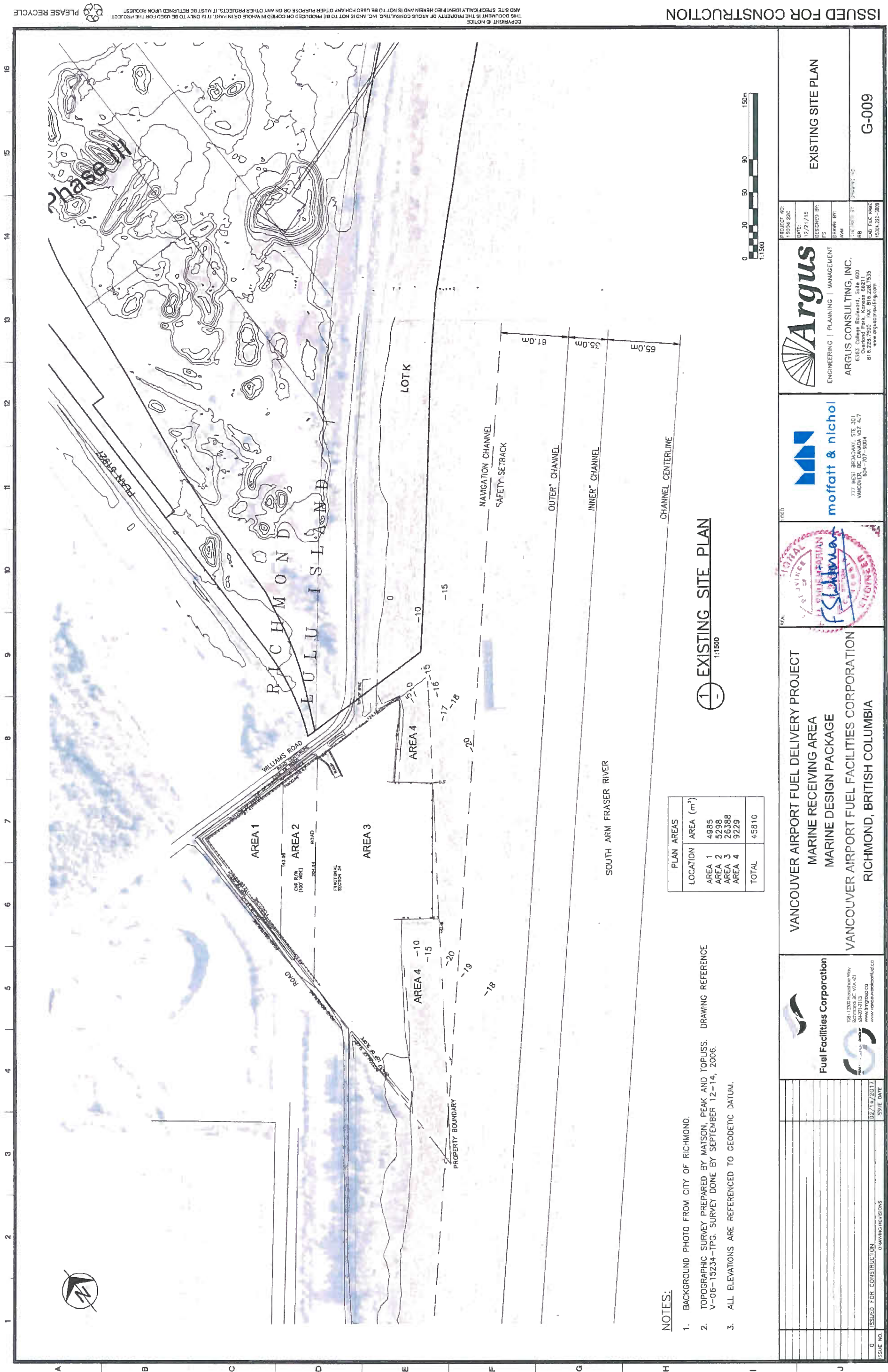
L0.02

Reference

SEP 27 2017

DP 16-741741








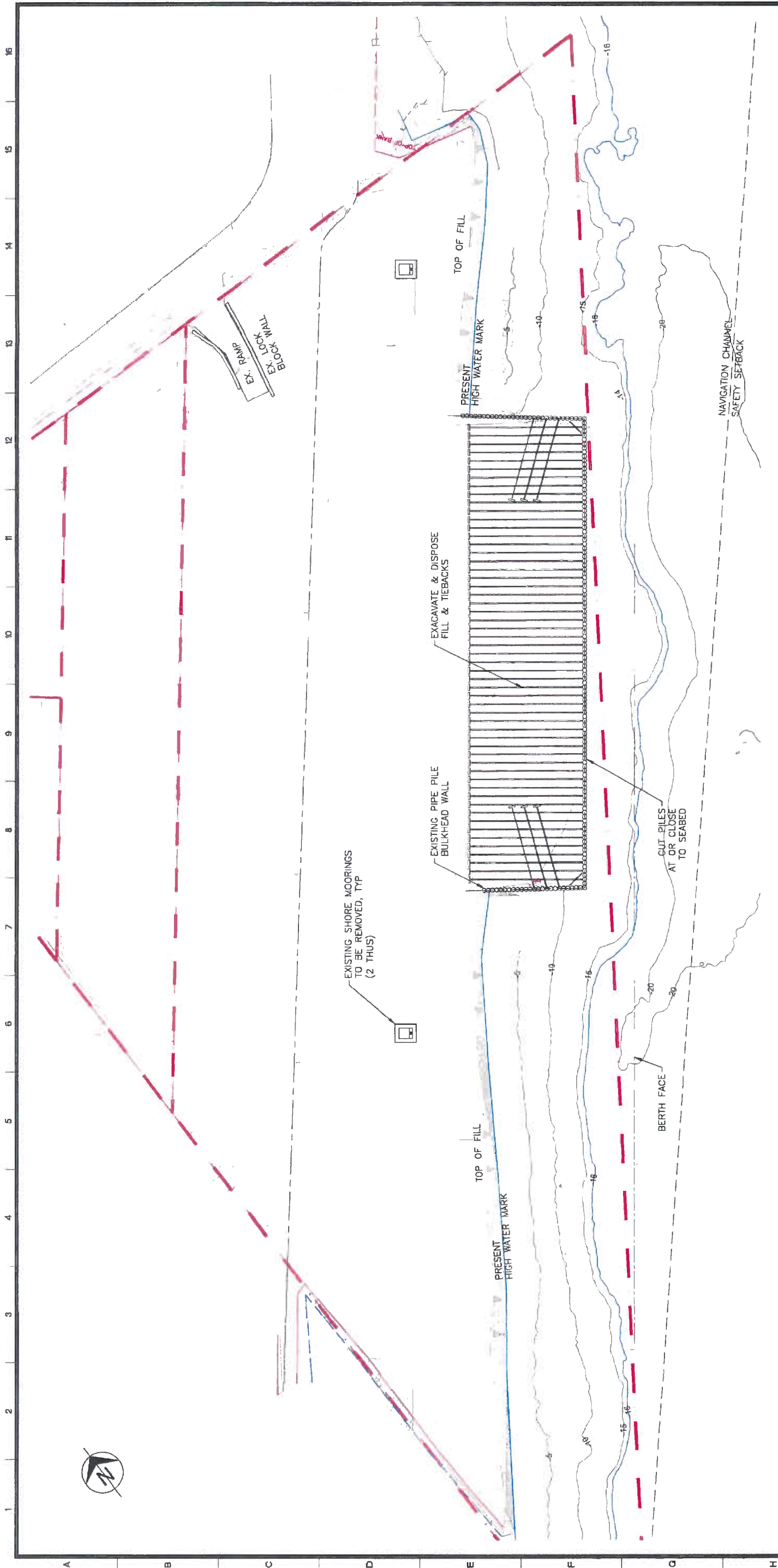
NOTES:

1. BACKGROUND PHOTO FROM CITY OF RICHMOND.
2. TOPOGRAPHIC SURVEY PREPARED BY MATSON, PEAK AND TOPUSS. DRAWING REFERENCE V-06-15234-TPG. SURVEY DONE BY SEPTEMBER 12-14, 2006.
3. ALL ELEVATIONS ARE REFERENCED TO GEODETIC DATUM.

PLAN AREAS	
LOCATION	AREA (m <sup>2</sup> )
AREA 1	4985
AREA 2	5298
AREA 3	26388
AREA 4	9229
TOTAL	45810

 <b>Fuel Facilities Corporation</b> 128-11230 Hastings Way Richmond BC V6V 4J1 www.fuelfacilities.ca www.vancouverairport.ca		 <b>moffatt &amp; nichol</b> 777 WEST BROADWAY, STE. 301 VANCOUVER, BC CANADA V5Z 4J7 604-707-9004 www.moffattnichol.com		 <b>Argus</b> ENGINEERING   PLANNING   MANAGEMENT <b>ARGUS CONSULTING, INC.</b> 6363 College Boulevard, Suite 600 Overland Park, Kansas 66211 816-451-0000 www.argusconsulting.com		<b>EXISTING SITE PLAN</b> G-009	
ISSUED FOR CONSTRUCTION		DRAWING REVISIONS		PROJECT NO: 15004 22C			
DATE: 02/14/2017		ISSUE DATE:		DATE: 12/2/15			
DESIGNED BY: FS		DRAWN BY: AVM		CHECKED BY: FS			
PROJECT NO: 15004 22C		PROJECT NAME: VANCOUVER AIRPORT FUEL DELIVERY PROJECT		PROJECT NAME: VANCOUVER AIRPORT FUEL DELIVERY PROJECT			





1 DEMOLITION PLAN  
1:500

- LEGEND:
- PROPERTY BOUNDARY
- NOTES:
1. CONTOURS ARE BASED ON GEODETIC DATUM.



 Fuel Facilities Corporation 12811 128th Avenue Way Richmond, BC V6V 1A4 604-271-7113 www.fuelfacilities.com		 moffatt & nichol 177 WEST BROADWAY, STE 301 VANCOUVER, BC CANADA V5Z 4J7 604-707-9004		 Argus ENGINEERING PLANNING   MANAGEMENT ARGUS CONSULTING, INC. 6363 College Boulevard, Suite 800 Overland Park, Kansas 66211 913-222-1000 www.argusconsulting.com		MARINE TERMINAL DEMOLITION PLAN	
VANCOUVER AIRPORT FUEL DELIVERY PROJECT MARINE RECEIVING AREA MARINE DESIGN PACKAGE		VANCOUVER AIRPORT FUEL FACILITIES CORPORATION RICHMOND, BRITISH COLUMBIA		PROJECT NO 15004-22C		DATE 12/18/15	
ISSUED FOR CONSTRUCTION		DRAWING REVISIONS		DESIGNED BY RFB		DRAWN BY AJM	
ISSUE NO.		ISSUE DATE		CHECKED BY RFB		DATE 12/18/15	
				CADD FILE NAME 15004-22C.dwg		G-020	

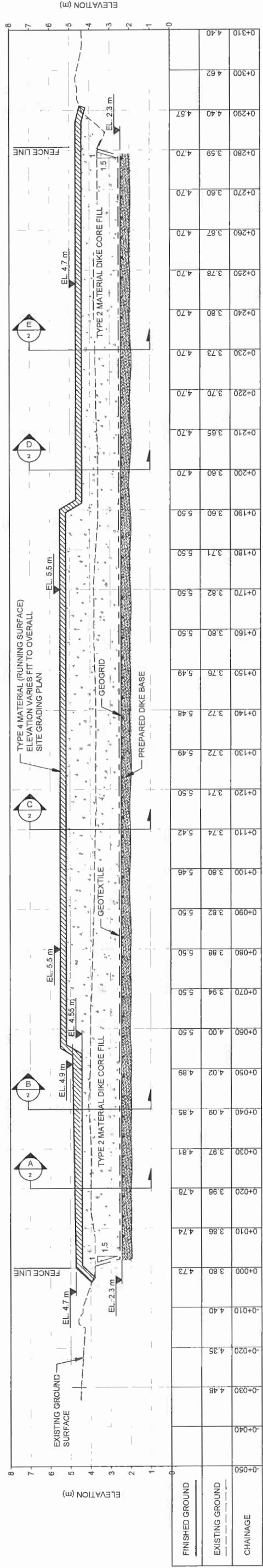
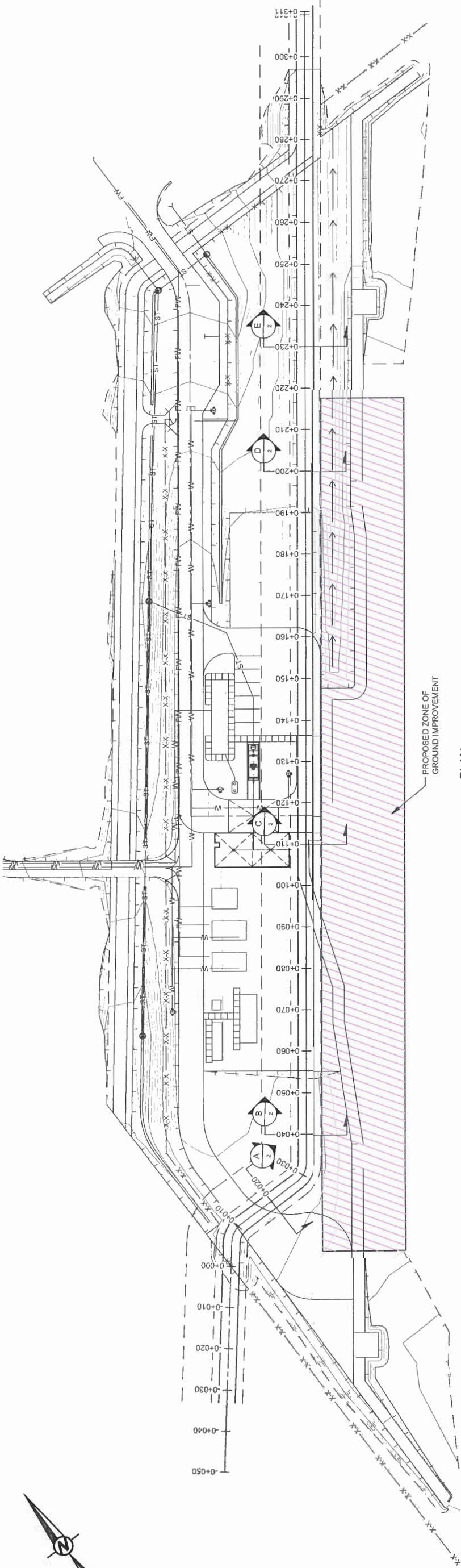










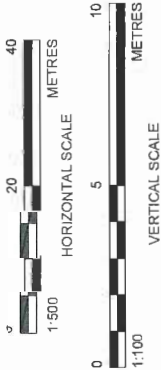


ELEVATION PROFILE

NOTES(S)

1. BASE DRAWING PROVIDED BY ARGUS CONSULTING  
CAD FILE: L2.01.DWG. DATED RECEIVED MAY 10, 2017.  
ELEVATION SHOWN ARE IN GEODETIC DATUM
2. DATUM NAD 83, PROJECTION ZONE 10
3. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE FOLLOWING:  
5 A) CURRENT EDITION OF THE CITY OF RICHMOND SUPPLEMENTARY SPECIFICATIONS AND DETAIL DRAWINGS AND ASSOCIATED EDITION OF THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS.  
5 B) PROVINCE OF BRITISH COLUMBIA MINISTRY OF ENVIRONMENT, LANDS AND PARKS "ENVIRONMENTAL GUIDELINES FOR VEGETATION MANAGEMENT ON FLOOD PROTECTION WORKS TO PROTECT PUBLIC SAFETY AND THE ENVIRONMENT" AND "RIPRAP DESIGN AND CONSTRUCTION GUIDE" AND "DIKE DESIGN AND CONSTRUCTION GUIDE. BEST MANAGEMENT PRACTICES FOR BRITISH COLUMBIA".  
6. COMPATIBILITY OF THE MATERIAL SHOULD BE CHECKED BEFORE AND DURING CONSTRUCTION TO CONFIRM WHETHER GEOTEXTILE FABRIC IS NEEDED.

DRAFT



CLIENT  
FSM MANAGEMENT GROUP

CONSULTANT	YYYY.MM.DD	2017-06-19
DESIGNED	M. MAO / J. JI	
PREPARED	GB	
REVIEWED	M. MAO	
APPROVED	J. JI	

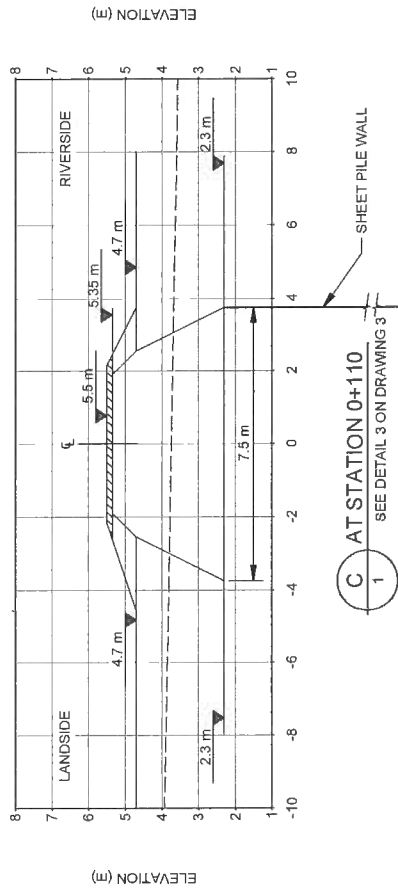
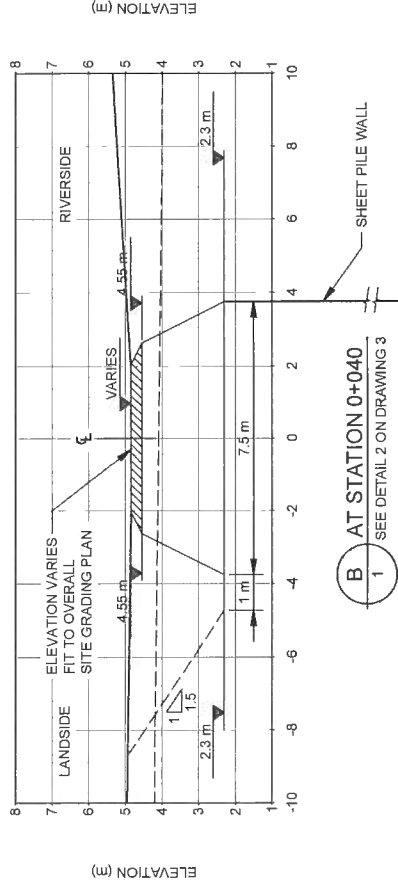
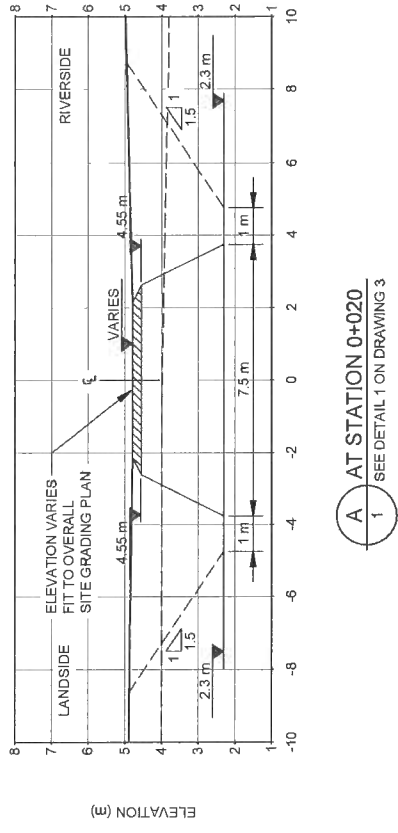
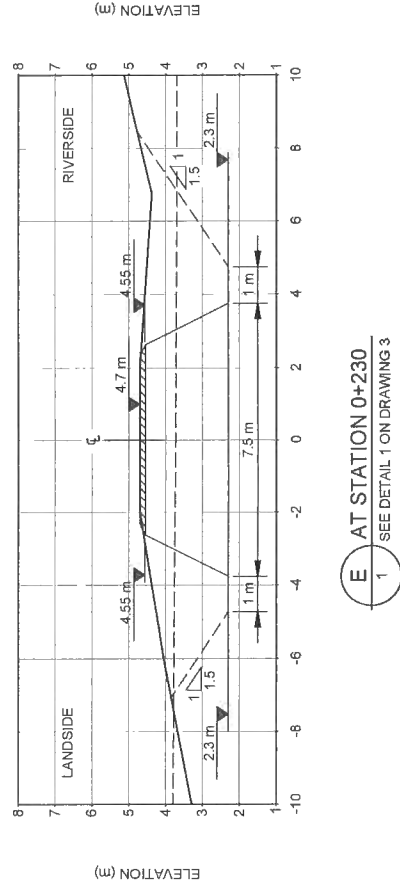
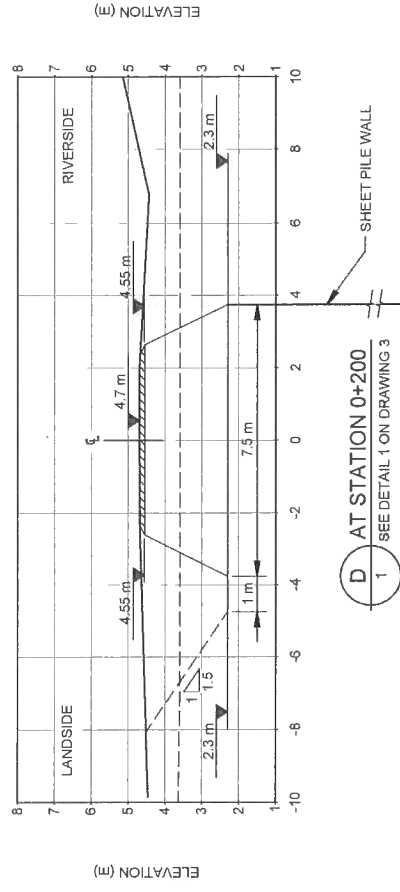


PROJECT  
VANCOUVER AIRPORT FUEL DELIVERY PROJECT  
NEW FLOOD PROTECTION DIKE  
15040 WILLIAMS ROAD, RICHMOND, B.C.

TITLE  
PLAN AND ELEVATION PROFILE

PROJECT NO.	1406834	PHASE	9442	REV.	B	FIGURE	1
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Plan #5



NOTE(S)

1. BASE DRAWING PROVIDED BY ARGUS CONSULTING  
CAD FILE: L2.01.DWG. DATED RECEIVED MAY 10, 2017.
2. ELEVATION SHOWN ARE IN GEODETTIC DATUM
3. DATUM NAD 83, PROJECTION ZONE 10

CLIENT  
FSM MANAGEMENT GROUP

**DRAFT**



CONSULTANT

2017-06-19	YYYY-MM
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DESIGNED  
M. MIAO / J. JI

PREPARED	GB
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[illegible]

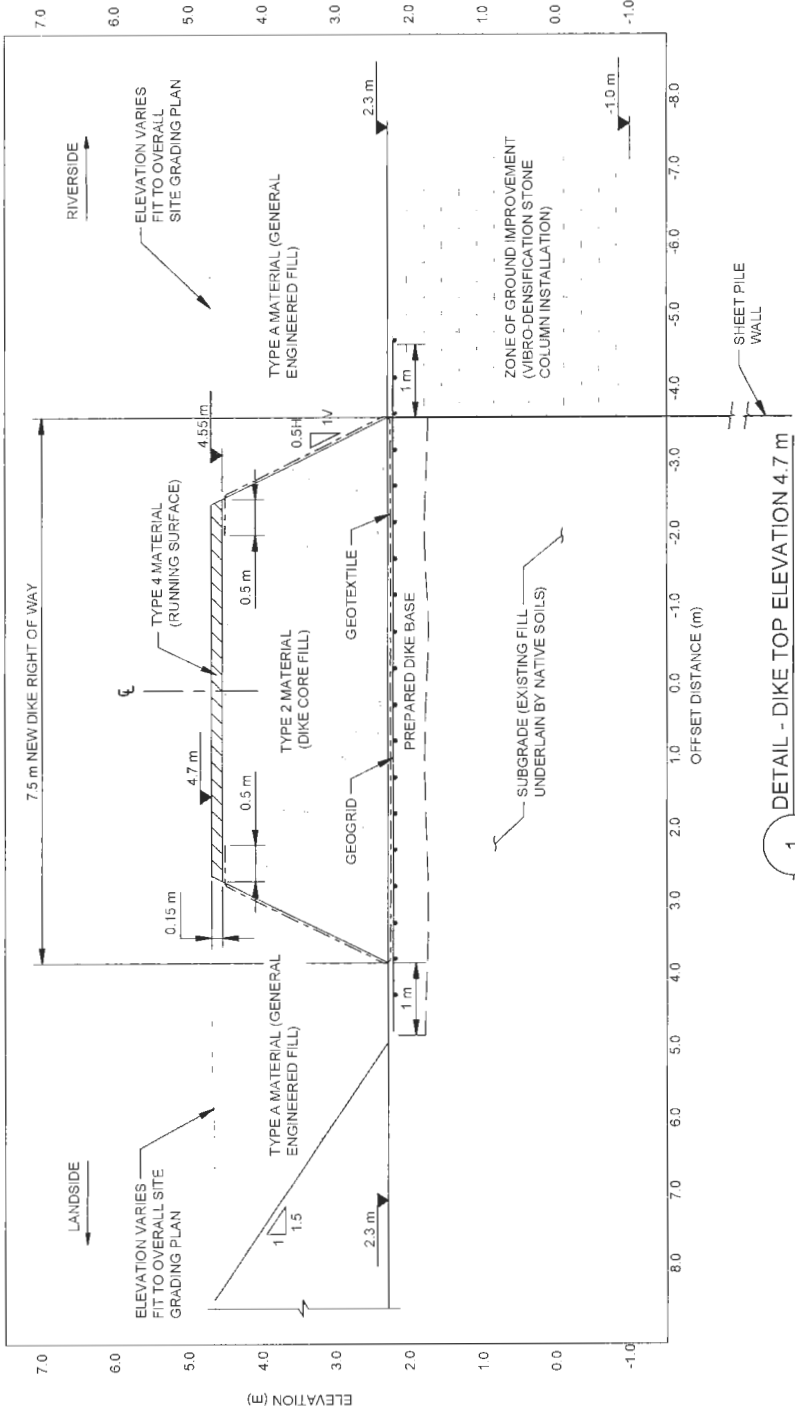
PROJECT  
VANCOUVER AIRPORT FUEL DELIVERY PROJECT  
NEW FLOOD PROTECTION DIKE  
15040 WILLIAMS ROAD, RICHMOND, B.C

**TITLE**  
**CROSS SECTIONS**

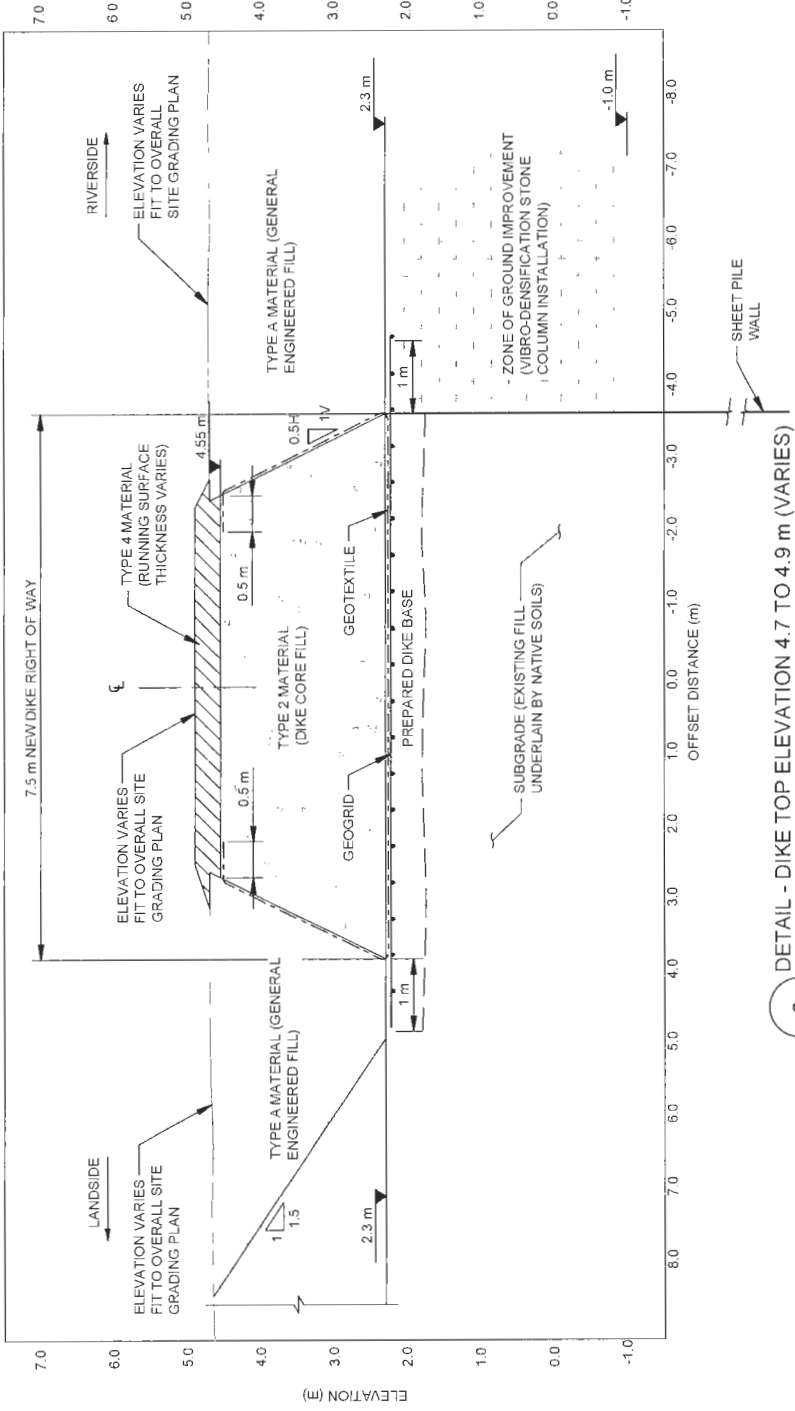
PROJECT NO.	PHASE
1406834	9442

Plaza #6

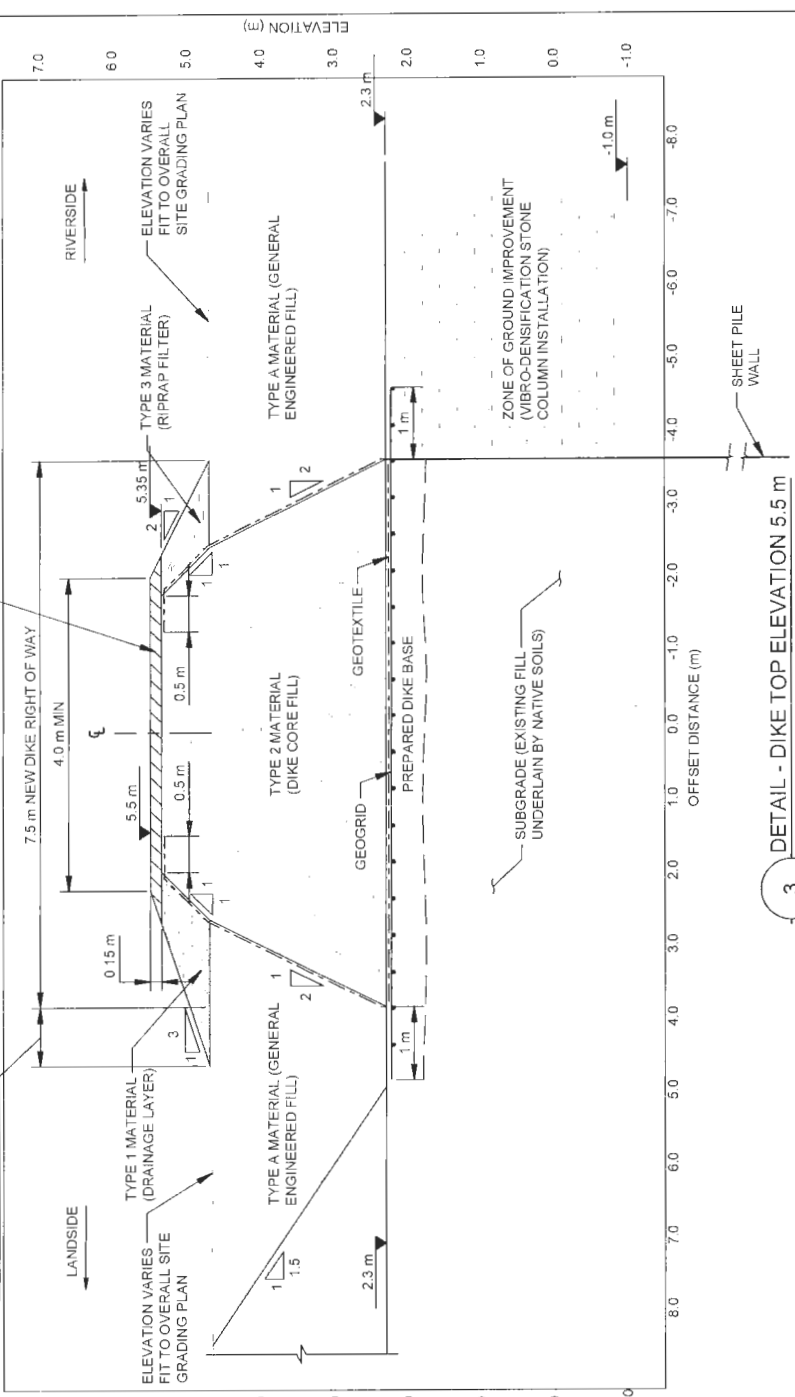




1 DETAIL - DIKE TOP ELEVATION 4.7 m



2 DETAIL - DIKE TOP ELEVATION 4.7 TO 4.9 m (VARIES)



3 DETAIL - DIKE TOP ELEVATION 5.5 m

**TYPE 1 MATERIAL (DRAINAGE LAYER)**  
Type 1 material shall consist of clean well-graded 75 mm minus sand and gravel meeting the following gradation limits

PARTICLE SIZE (mm)	PERCENTAGE BY WEIGHT PASSING
75	100
37.5	60 - 100
19	35 - 80
9.5	28 - 60
4.75	20 - 40
2.36	15 - 30
1.18	10 - 20
0.6	5 - 15
0.3	3 - 10
0.075	0 - 5

**TYPE 2 MATERIAL (BULK FILL OR DIKE CORE FILL)**  
Type 2 material shall consist of well-graded sand with 15 to 30 percent fines passing 0.075 mm sieve meeting the following gradation limits

PARTICLE SIZE (mm)	PERCENTAGE BY WEIGHT PASSING
19	100
4.75	80 - 100
0.425	25 - 90
0.15	18 - 50
0.075	15 - 30

**TYPE 3 MATERIAL (RIPRAP FILTER)**  
Type 3 material shall consist of clean well-graded pit-run or processed sand, gravel and cobbles, or quarried stone meeting the following gradation limits

PARTICLE SIZE (mm)	PERCENTAGE BY WEIGHT PASSING
200	100
75	60 - 90
9.5	30 - 65
0.85	5 - 30
0.15	0 - 5

**TYPE 4 MATERIAL (RUNNING SURFACE)**  
Type 4 material shall consist of clean well-graded 19mm minus sand and gravel or road mulch meeting the following gradation limits

PARTICLE SIZE (mm)	PERCENTAGE BY WEIGHT PASSING
19	100
12.5	75 - 100
9.5	60 - 90
4.75	40 - 70
2.36	27 - 55
1.18	16 - 42
0.6	8 - 30
0.3	5 - 20
0.075	2 - 8

**TYPE A MATERIAL (GENERAL ENGINEERED FILL)**  
Type A material shall consist of clean well-graded 75 mm minus sand and gravel meeting the following gradation limits

PARTICLE SIZE (mm)	PERCENTAGE BY WEIGHT PASSING
75	100
37.5	30 - 100
19	20 - 100
4.75	10 - 80
1.18	6 - 32
0.3	4 - 15
0.075	0 - 5

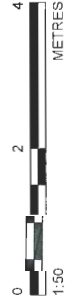
CLIENT  
FSM MANAGEMENT GROUP

PROJECT  
VANCOUVER AIRPORT FUEL DELIVERY PROJECT  
NEW FLOOD PROTECTION DIKE  
15040 WILLIAMS ROAD, RICHMOND, B.C.

TITLE  
TYPICAL DETAILS

DESIGNED	M. MIAO / J. JI
PREPARED	GB
REVIEWED	M. MIAO
APPROVED	J. JI

DATE  
2017.06.19



- NOTE(S)  
1. BASE DRAWING PROVIDED BY ARGUS CONSULTING  
2. CAD FILE: 12.01.DWG, DATED RECEIVED MAY 10, 2017.  
3. ELEVATION SHOWN ARE IN GEODETIC DATUM  
4. DATUM NAD 83, PROJECTION ZONE 10

PROJECT NO  
1406834

PHASE  
9442

REV  
B


SHEET  
3

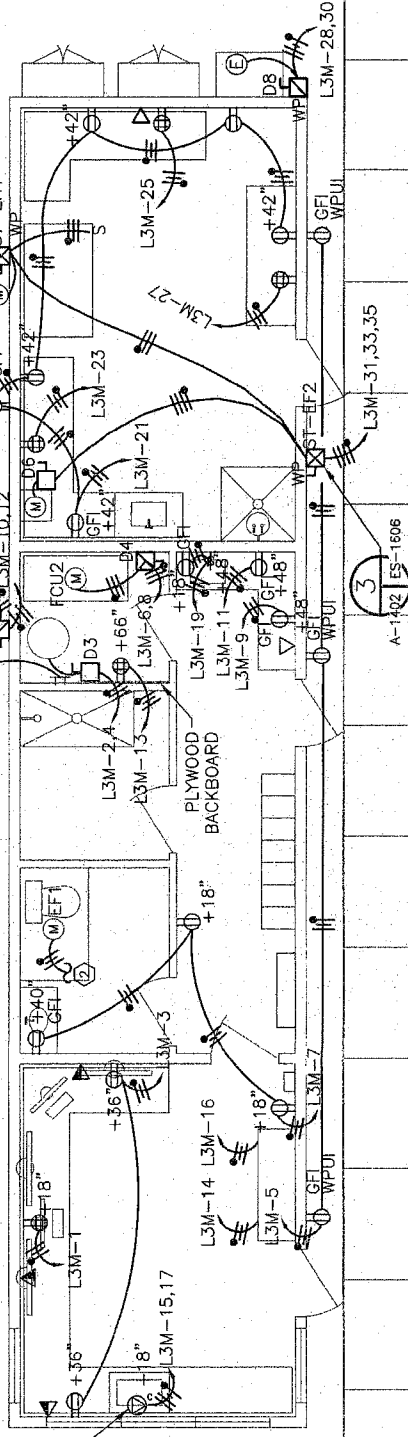
Plan #7



ITEM(S)	QUANTITY	TAG(S)	EQUIPMENT LIST	DESCRIPTION
1	1	MR-CR-4	COMMUNICATIONS RACK 4	
2	1	MR-CR-5	COMMUNICATIONS RACK 5	
3	1	EF1	EXHAUST FAN 1	
4	1	WH1	WATER HEATER 1	
5	1	FCU2	FAN COIL UNIT 2	
6	1	CU2	CONDENSING UNIT 2	
7	1	D5	SERVICE DISCONNECT (CU2)	
8	1	D4	SERVICE DISCONNECT (FCU2)	
9	1	D3	SERVICE DISCONNECT (WH1)	
10	1	BKBD	PLYWOOD BACKBOARD	
11	1	GAP1	GENERATOR ANUNCIATOR PANEL	
12	1	L3M	PANELBOARD L3M	
13	1	MOB2	MASTER GROUND BAR 2	
14	1	NODE1	FIRE ALARM CONTROL PANEL	
15	1	EH1	EXHAUST HOOD	
16	1	CT1	WATER ONLY SINK	
17	1	CB1	WORKBENCH BASE CABINETS	
18	1	EWSH1	EYE WASH / SHOWER STATION	
19	2	CB2	CABINET BASE AND OVERHEAD UNIT (LEFT CORNER)	
20	2	CO	OUTDOOR FUEL SAMPLE CABINETS	
21	1	FW1	FIRE WALL BETWEEN OPERATIONS AND FUEL LAB	
22	1	WPJ2	WALL PACKAGE UNIT 2	
23	1	EF2	EXHAUST FAN	
24	1	D6	SERVICE DISCONNECT (EF2)	
25	1	D7	SERVICE DISCONNECT (WPJ2)	
26	1	ST-EF2	MOTOR STARTER (EF2)	
27	1	ST-EH1	MOTOR STARTER (EH1)	

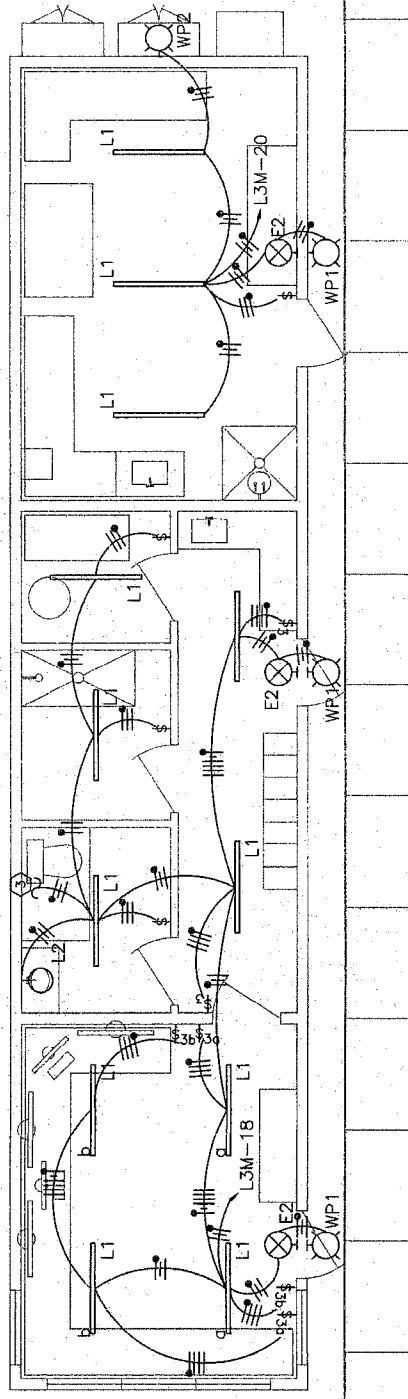
NOTES:

1. SEE DRAWINGS E-1001 AND E-1002 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
  2. ELECTRICAL WORK SHOWN WITH DARK LINE WEIGHT SHALL BE PROVIDED.
  3. SEE 1700 SERIES DRAWINGS FOR CABLE, DUCTBANK, LIGHTING, PANELBOARD, AND RACEWAY SCHEDULES.
-  KEYNOTES:
1. PROVIDE GROUND COILED IN MECHANICAL ROOM; BOND TO BUILDING COUNTERPOISE FROM MASTER GROUND BAR. SEE DRAWING ES-1104 FOR CONTINUATION.
  2. SEE CONTINUATION FOR EXHAUST FAN ON DETAIL 3 LIGHTING LAYOUT ON THIS SHEET.
  3. SEE CONTINUATION FOR EXHAUST FAN ON DETAIL 2 POWER LAYOUT ON THIS SHEET.
  4. PROVIDE RECEPTACLE TO MATCH UPS EQUIPMENT PLUG.



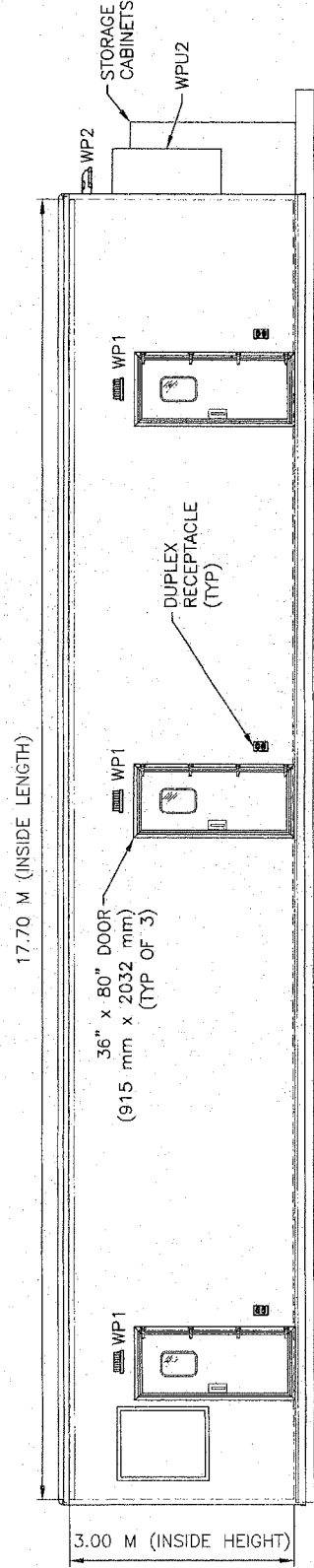
## ELECTRICAL EQUIPMENT LAYOUT

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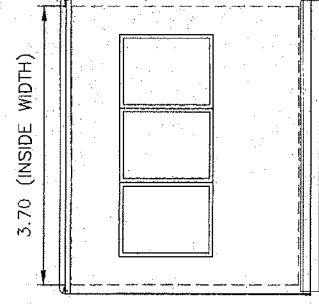
## 2 POWER & COMMUNICATIONS LAYOUT

ES-1203	A-1402	1:50
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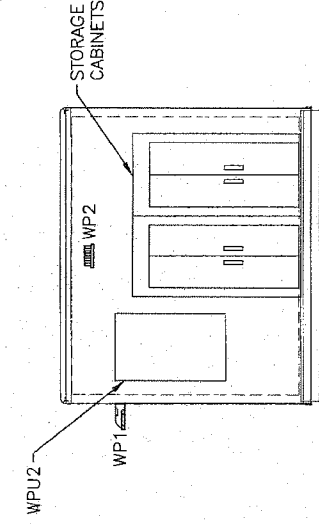
## A SECTION

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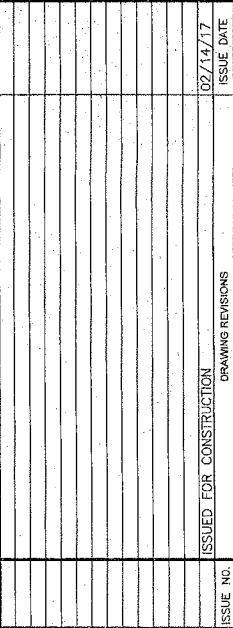
**SECTION**

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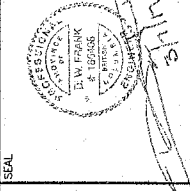
**SECTION C**

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VANCOUVER AIRPORT FUEL DELIVERY PROJECT  
MARINE RECEIVING AREA

VANCOUVER AIRPORT FUEL FACILITIES CORPORATION  
RICHMOND, BRITISH COLUMBIA



ENGINEERING | PLANNING | MANAGEMENT

ARGUS CONSULTING INC.

6363 College Boulevard, Suite 600  
Overland Park, Kansas 66211  
816.228.7500 FAX 816.228.7535  
[www.orgusconsulting.com](http://www.orgusconsulting.com)

PROJECT NO: 15004.22	DATE: 03/19/15	DESIGNED BY: WBJ	DRAWN BY: SMF	CHECKED BY: DWF	CAD FILE NAME: 15004.22CA1402
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OPS1 OPERATIONS BLDG AND  
FL1 FUEL LAB FLOOR PLANS

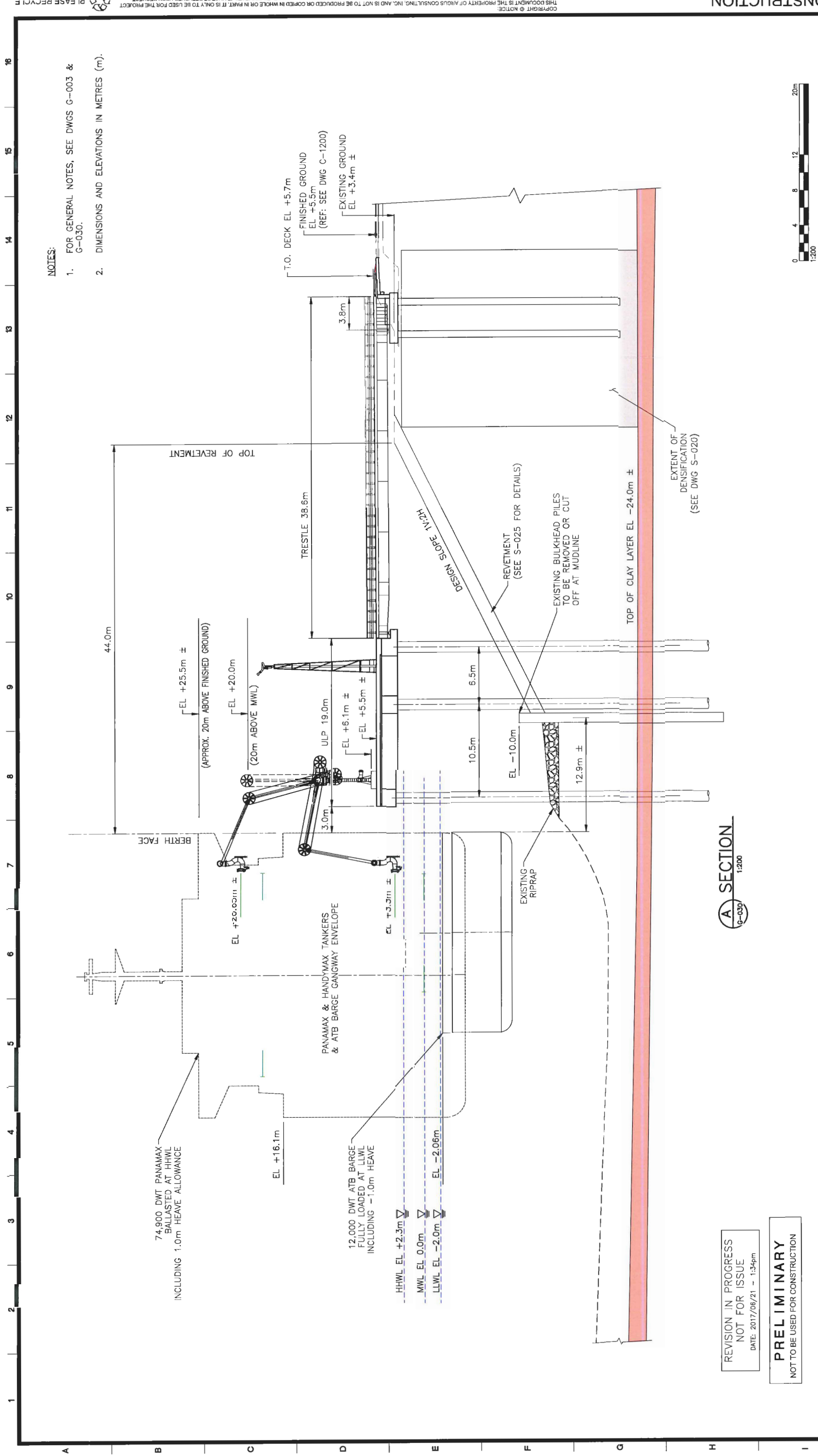
A-1402

Plotted: Y:\Comm\YVR - Vancouver\15004 VAFDP\Draws\22-Marine\22C - Design\Arch\15004.22CA1402.dwg on 03/6/17 at 1:58 PM by GCROWDER using acad.sib

2207







REVISION IN PROGRESS  
NOT FOR ISSUE

DATE: 2017/06/21 - 1:34pm

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

[illegible]

**FSM GROUP**  
108 - 12300 Horseshoe Way  
Richmond, BC, V7A 4Z1  
604-271-7113  
[www.fsmgroup.ca](http://www.fsmgroup.ca)  
[www.vancouverairportfuel.ca](http://www.vancouverairportfuel.ca)

VANCOUVER AIRPORT FUEL DELIVERY PROJECT  
MARINE RECEIVING AREA  
MARINE DESIGN PACKAGE  
VANCOUVER AIRPORT FUEL FACILITIES CORPORATION  
RICHMOND, BRITISH COLUMBIA



777 WEST BROADWAY, STE 301  
VANCOUVER, BC CANADA V5Z 4J7  
604-707-9004



ENGINEERING | PLANNING | MANAGEMENT

**ARGUS CONSULTING, INC.**  
8363 College Boulevard, Suite 600  
Overland Park, Kansas 66211  
816.628.7500 FAX 816.628.7535  
[www.argusconsulting.com](http://www.argusconsulting.com)

PROJECT NO: 15004.22C	DATE: 10/20/15	DESIGNED BY: SP	DRAWN BY: A/M	CHECKED BY: RB	CAD FILE NAME: 15004.22C-0034
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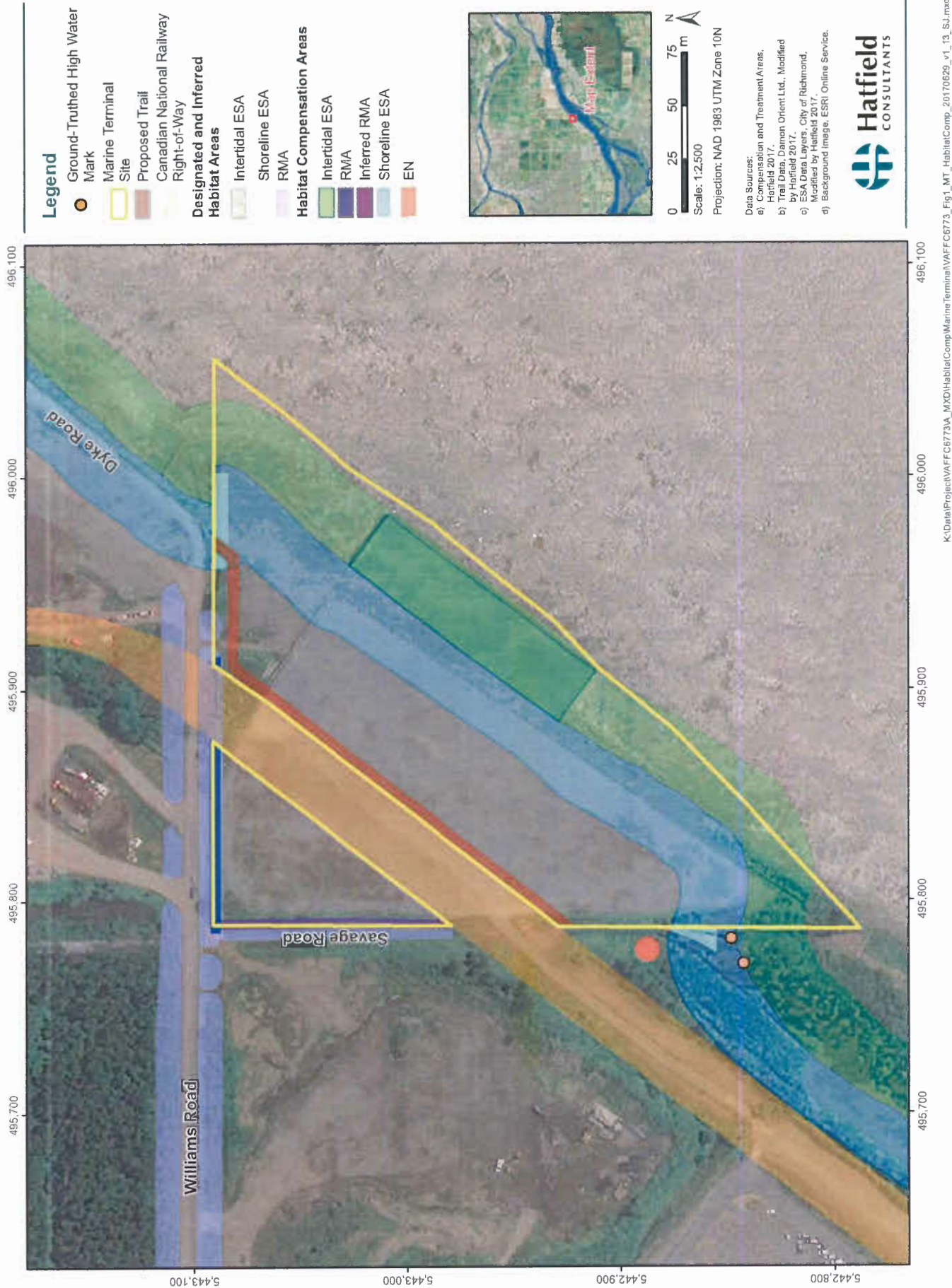
G-034

Plotted: P:\8338 VC Vancouver Airport Fuel Delivery Project\CADD\Active\15004.22C-G034.dwg on 06/21/17 at 1:34 PM by AMANUZON using Arqus.stb

Plan #11

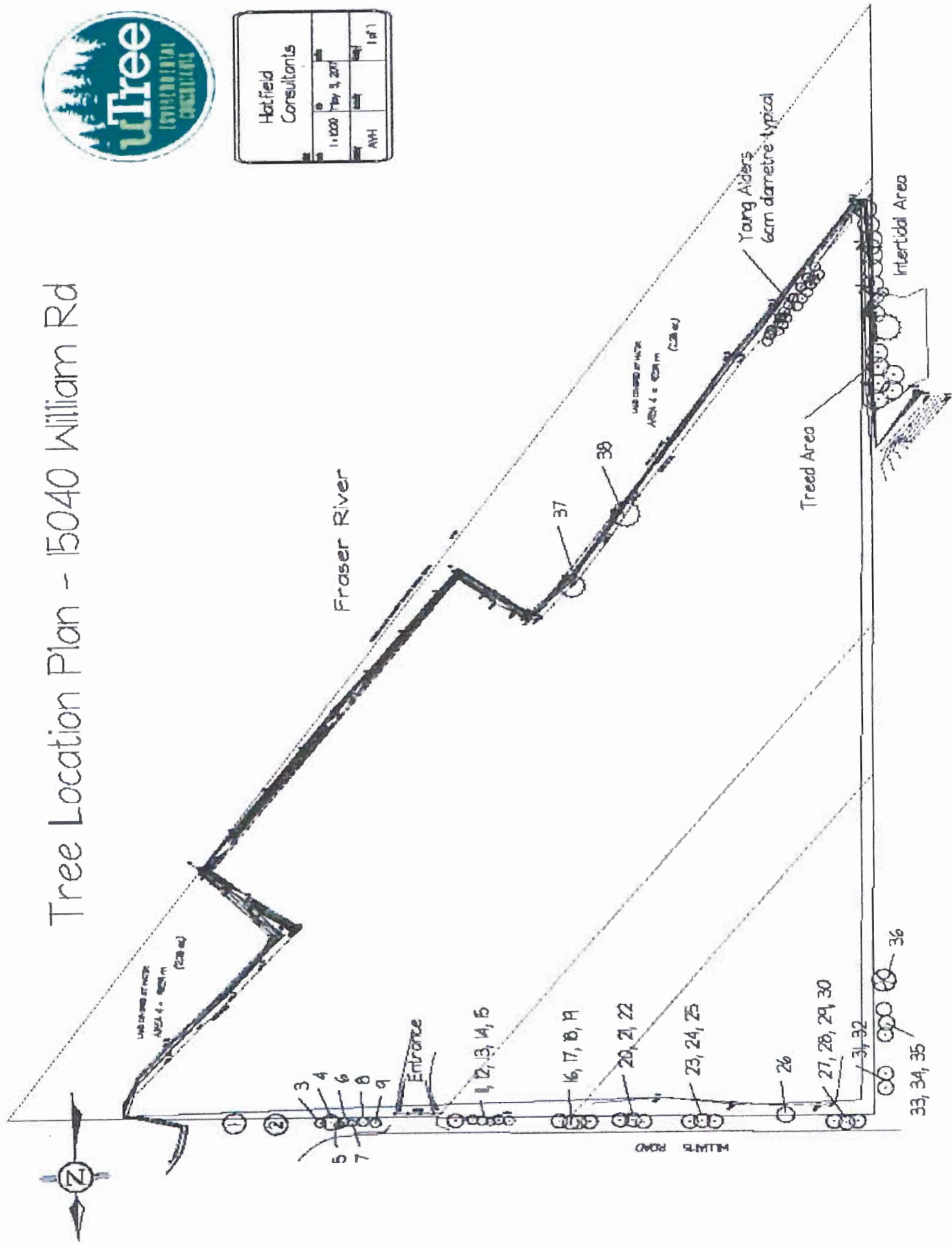


Figure 1 Vancouver Airport Fuel Delivery Project – Marine terminal proposed habitat compensation areas



This plan is reprinted from the  
ESA and RMA Environmental Impacts Report  
by  
Hatfield Environmental Consultants

# Tree Location Plan - 15040 William Rd

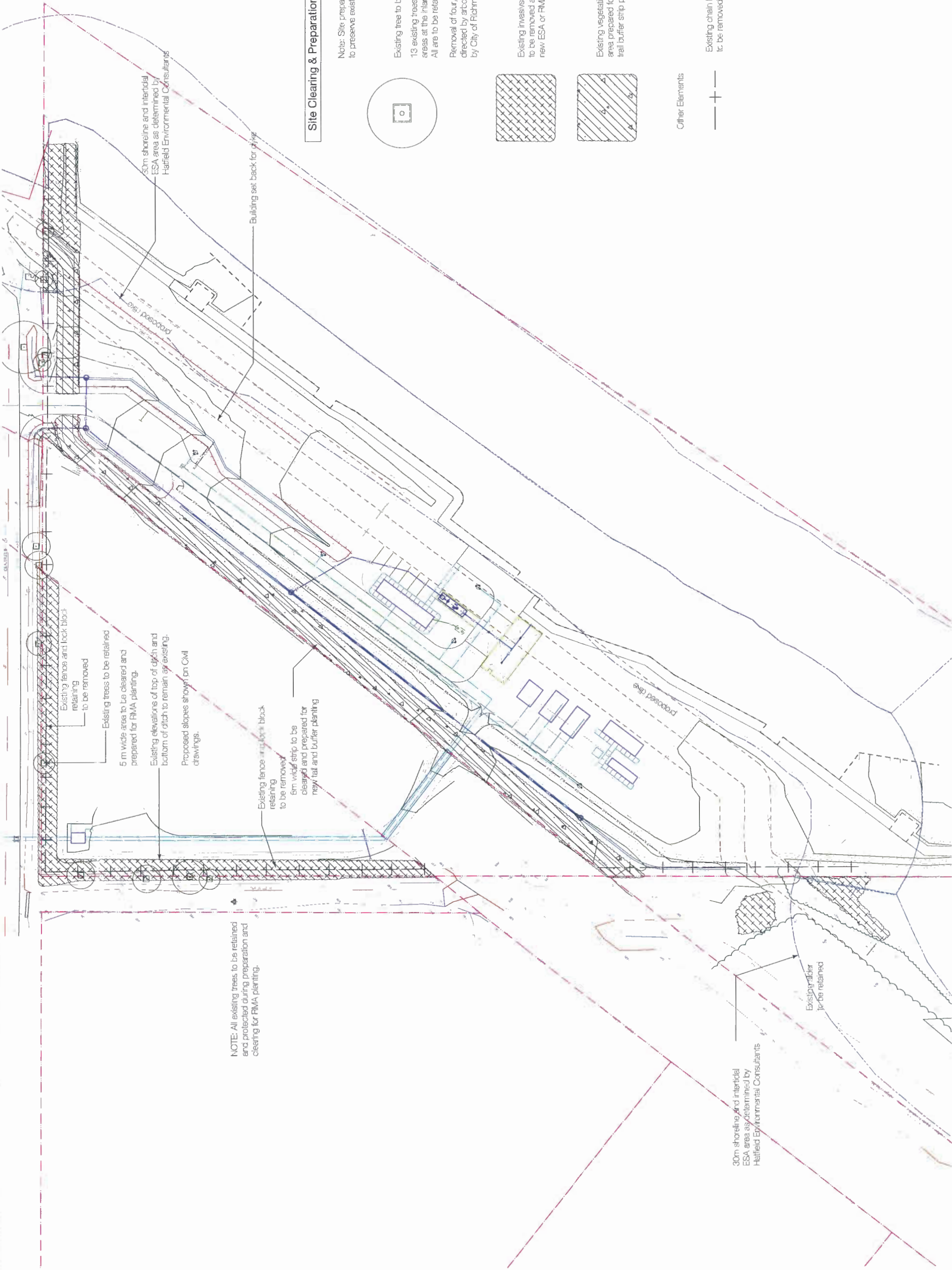


Hatfield Consultants			
1:000	May 3, 2017		1st
AH			

uTree Environmental Consultants.

p 604-328-0614 e [avanderhelml@gmail.com](mailto:avanderhelml@gmail.com) w [www.utree.com](http://www.utree.com)





NOTE: All existing trees to be retained and protected during preparation and clearing for RMA planting.

Existing trees to be retained  
Existing fence and lock block retaining walls to be removed  
5 m wide area to be cleared and prepared for RMA planting.  
Existing elevations of top of ditch and bottom of ditch to remain as existing.  
Proposed slopes shown on Civil drawings.

Existing fence and lock block retaining walls to be removed  
6 m wide strip to be cleared and prepared for new fall and buffer planting

30m shoreline and intertidal ESA area as determined by Hatfield Environmental Consultants

Building set back for diving

30m shoreline and intertidal ESA area as determined by Hatfield Environmental Consultants

Existing alder to be retained

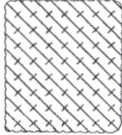
### Site Clearing & Preparation Key - Landscape

Note: Site preparation work in RMA and ESA areas to preserve existing ditch slopes and locations.



Existing tree to be retained  
13 existing trees are found on the RMA areas at the inland site perimeter. All are to be retained

Removal of four, off-site trees only as directed by arborist and as approved by City of Richmond Parks Staff



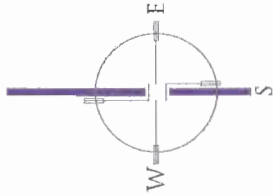
Existing invasive species of vegetation to be removed and area prepared for new ESA or RMA planting



Existing vegetation to be removed and area prepared for new gravel trail and trail buffer strip planting

Other Elements

Existing chain link and/or metal panel fence to be removed



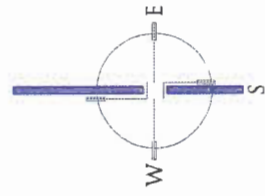
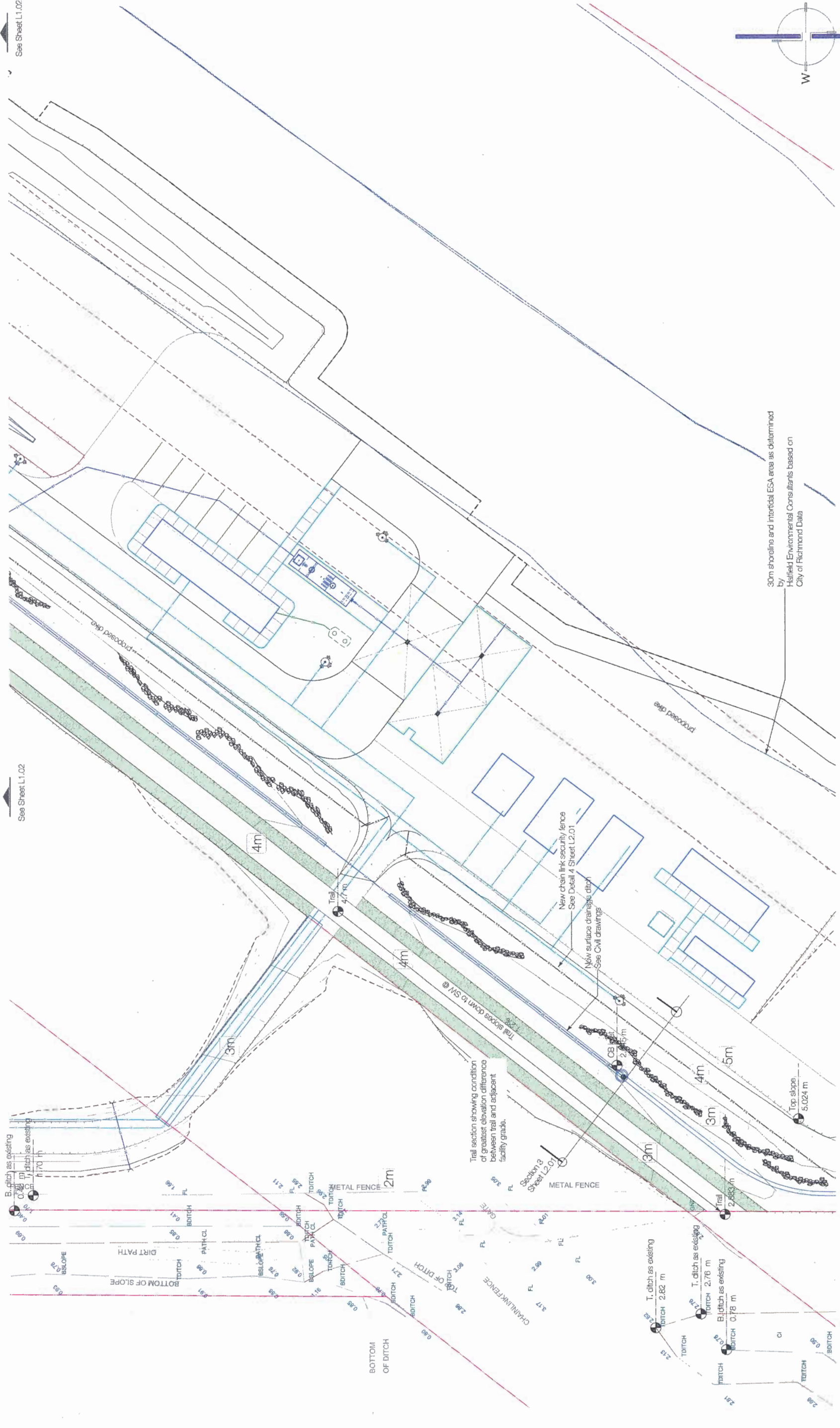






See Sheet L1.02

See Sheet L1.02



30m shoreline and intertidal ESA area as determined by Halffield Environmental Consultants based on City of Richmond Data



DAMON ORIENTE LTD.  
landscape architects

4008 - 4465 West 108 Avenue  
Vancouver, BC Canada  
V6R 2H9  
T: 604-222-8200  
F: 604-222-8212  
E: info@damonorienteltd.com  
W: damonorienteltd.com

Project  
VAFFC MARINE TERMINAL FACILITY  
16040 Williams Road, Richmond BC

Drawing  
TRAIL LAYOUT - SOUTH

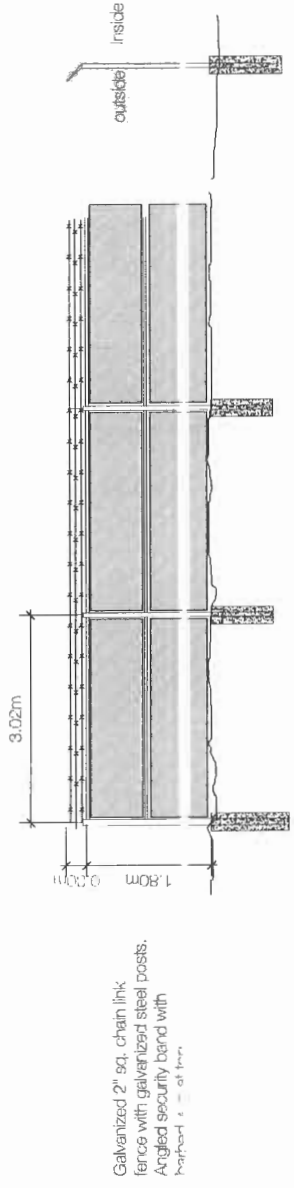
Issue: 19 July 2017 Development Permit Application  
30 June 2017 Development Permit Application Submission  
Date: February 2017  
Development Permit No: DE-16-741741  
Building Permit No.  
Project Number: 2014-280

Dwg  
L1.03

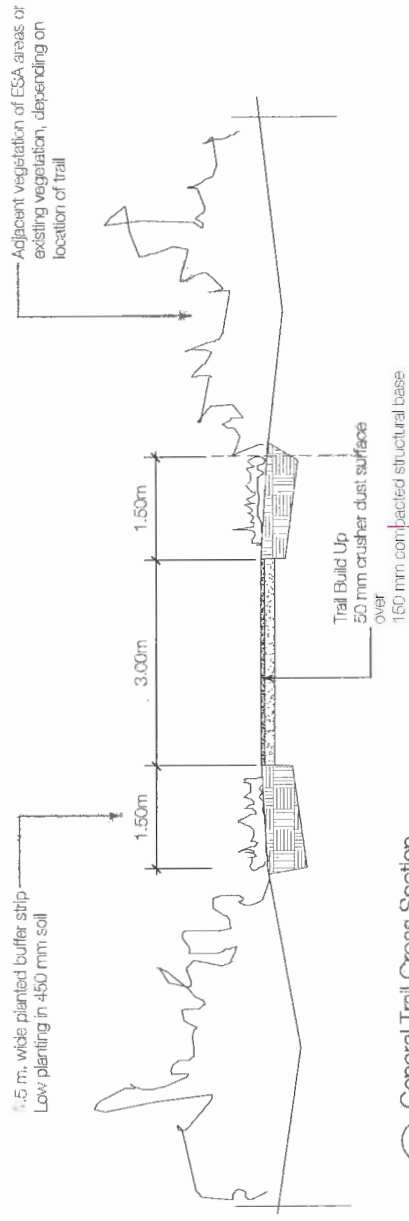
BP 16-7417 41

Plan #17

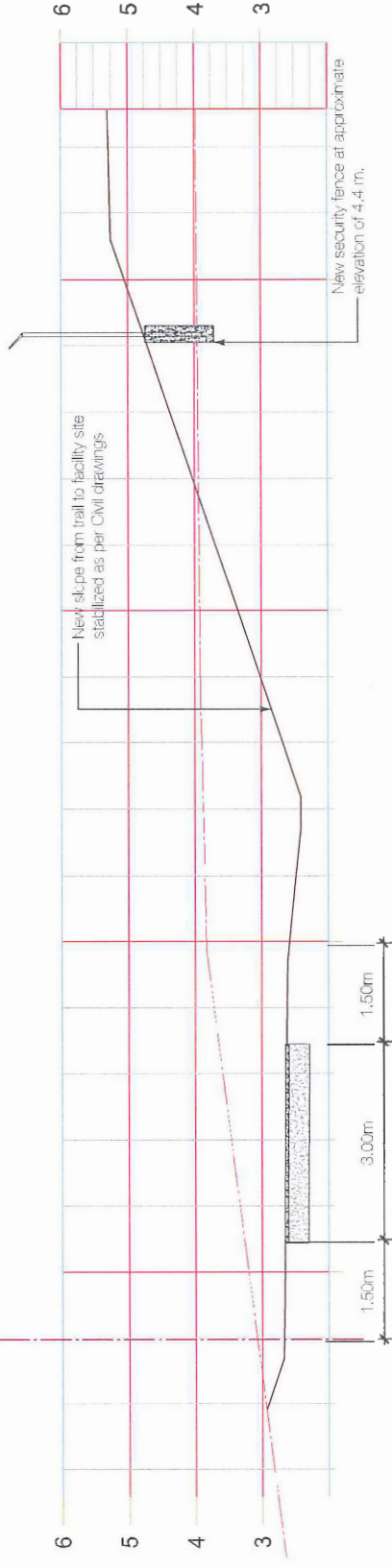




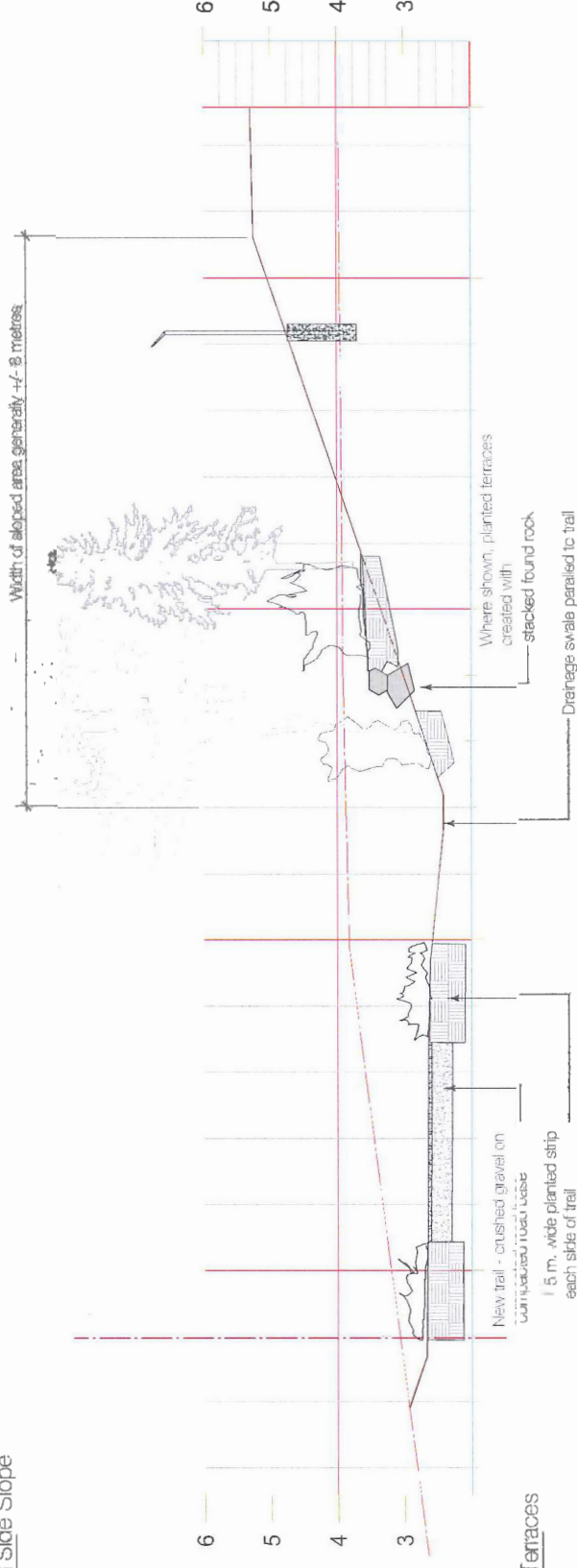
1 Security Fence - Typical



General Trail Cross Section



Trail Through Facility Site - Standard Side Slope

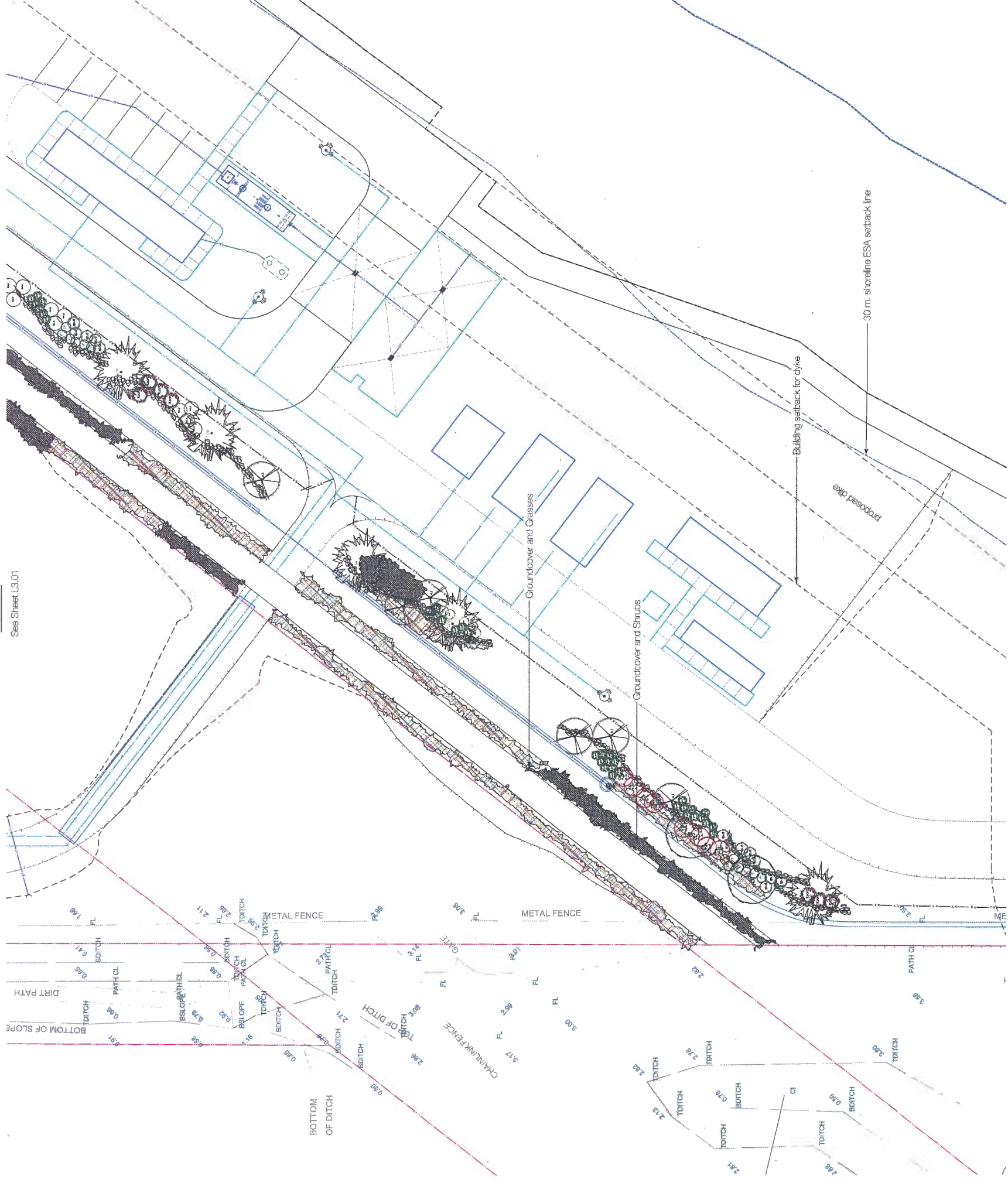


### Trail Through Facility Site - Planted Terraces









See Sheet L3.01

See Sheet L3.01

**General Planting Areas Key**

Trail Planting 1 - Groundcover

Arctostaphylos uva-ursi Kinnikinnick

Fragaria chiloensis Coastal strawberry

Trail Planting 2 - Groundcover & Grasses

Arctostaphylos uva-ursi Kinnikinnick

Elymus glaucus Blue Lyme grass

Leymus mollis Dune grass

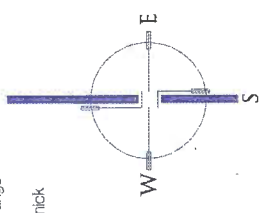
Trail Planting 3 - Groundcover & Shrubs

Rosa gymnocarpa Baldhio rose

Rhus glabra Smooth sumac

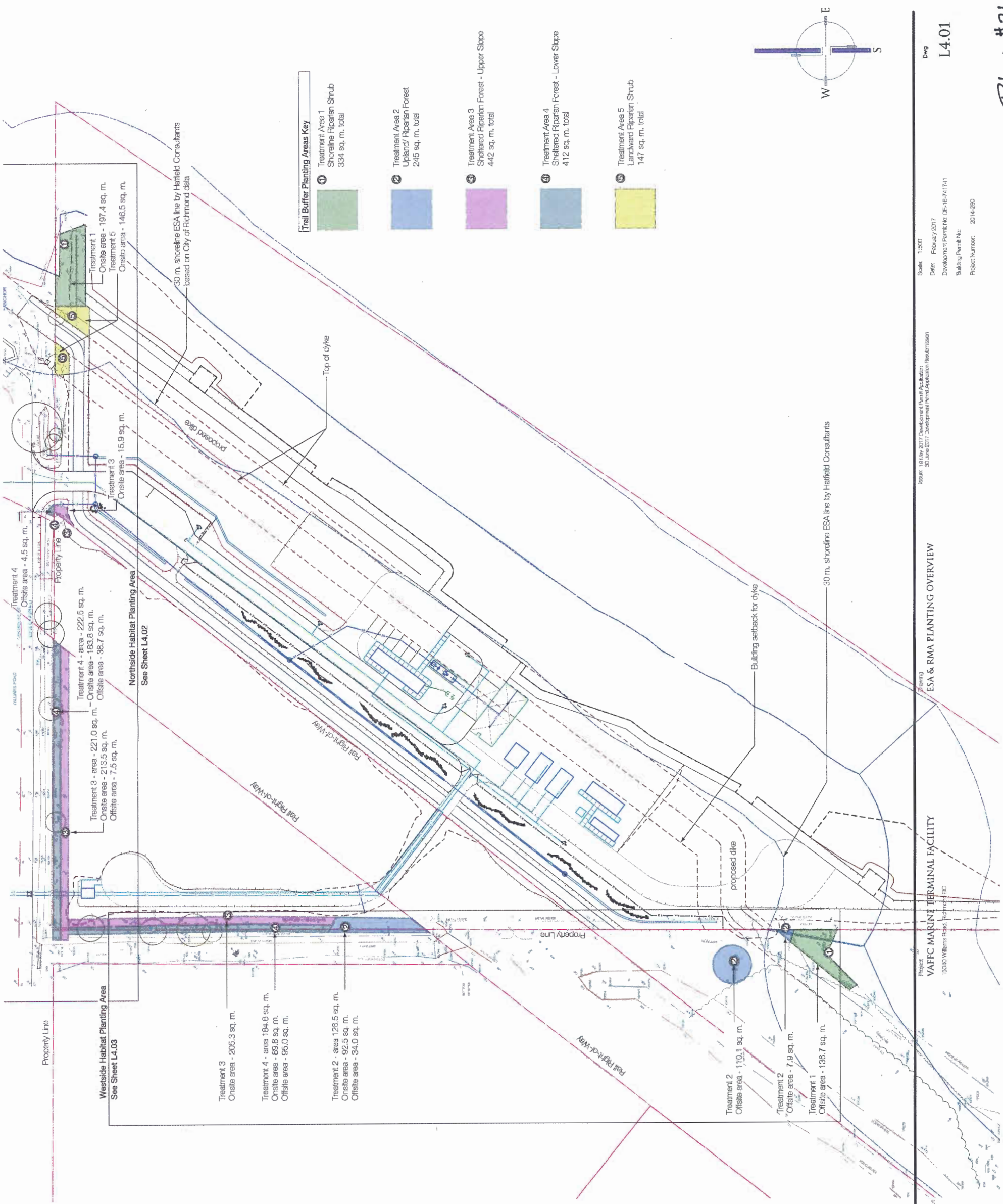
Philadelphus lewisii Mock orange

Arctostaphylos uva-ursi Kinnikinnick

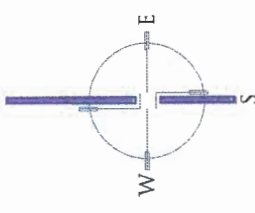





DP 16-7417 41



Trail Buffer Planting Areas Key	
①	Treatment Area 1 Shoreline Riparian Shrub 334 sq. m. total
②	Treatment Area 2 Upland/ Riparian Forest 245 sq. m. total
③	Treatment Area 3 Sheltered Riparian Forest - Upper Slope 442 sq. m. total
④	Treatment Area 4 Sheltered Riparian Forest - Lower Slope 412 sq. m. total
⑤	Treatment Area 5 Landward Riparian Shrub 147 sq. m. total



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Project  
**VAFRC MARINE TERMINAL FACILITY**  
15040 Weyers Road, Richmond BC

Issue: 19 May 2017 Development Permit Application  
30 June 2017 Development Permit Application Resubmission

Scale: 1:500  
Date: February 2017  
Development Permit No: DE-16-741741  
Building Permit No:  
Project Number: 2014-250

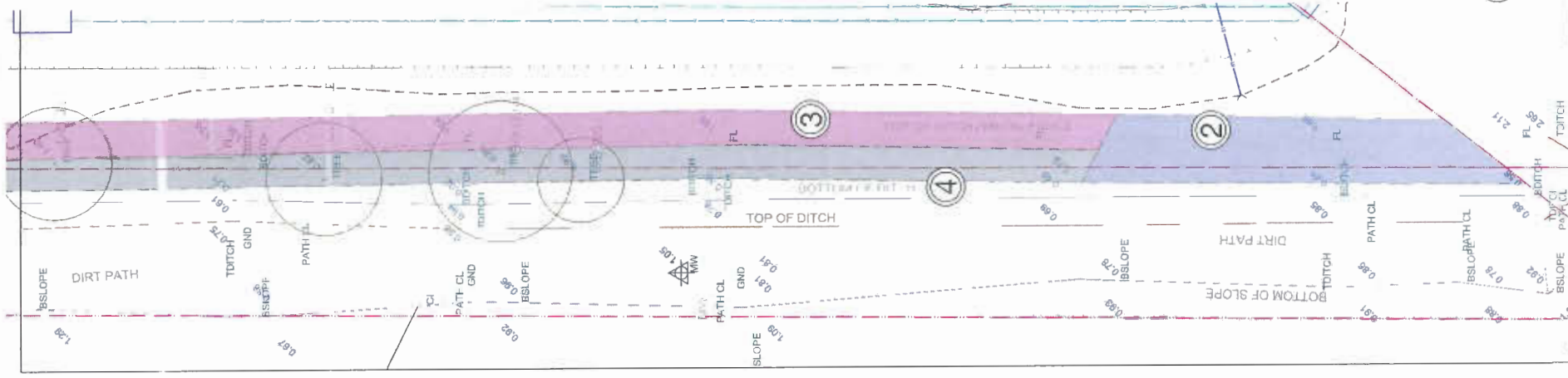
DWG  
**L4.01**

**ESA & RMA PLANTING OVERVIEW**

Plan #21







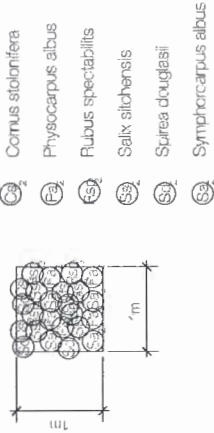
Treatment 2 - Upland/ Riparian Forest



Treatment 3 - Sheltered Riparian Forest - Upper Slope



Treatment 4 - Sheltered Riparian Forest - Lower Slope



3 Savage Road R.O.W RMA Areas

4 Southwest Corner ESA Area

Plant List for ESA, RMA Planting Areas

ID	Quantity	Latin Name	Common Name	Scheduled Size	Notes
	0		Vine maple	#3 pot	
	80	Acer cinnatum		#5 pot	
	7	Acer macrophyllum	Bigleaf maple	#3 pot	
	112	Alnus rubra	Red alder	#2 pot	
	17	Corylus cornuta var. 'Californica'	Beaked hazelnut	#3 pot	
	74	Populus trichocarpa	Black cottonwood	#2 pot	
	4	Pseudotsuga menziesii	Douglas fir	#10 pot	
	13	Thuja plicata	Western redcedar	#5 pot	
	12	Tsuga heterophylla	Western hemlock	#5 pot	

Shrubs & Herbs

ID	Quantity	Latin Name	Common Name	Scheduled Size	Notes
	0		Redosier dogwood	#2 pot	
	62	Cornus stolonifera		#2 pot	
	33	Mahonia nervosa	Dull Oregon grape	#2 pot	
	72	Physocarpus albus	Pacific ninebark	#2 pot	
	40	Polystichum munitum	Swordfern	#2 pot	
	34	Ribes sanguineum	Red flowering currant	#2 pot	
	55	Rubus spectabilis	Thimbleberry	#2 pot	
	450	Rubus parviflorus	Salmonberry	#2 pot	
	69	Sambucus racemosa	Red elderberry	#2 pot	
	62	Salix sitchensis	Sitka willow	#2 pot	
	149	Spiraea douglasii	Steeplebush	#2 pot	
	148	Symphoricarpos albus	Snowberry	#2 pot	

Plant List for Trail Buffer Planting Areas

ID	Quantity	Latin Name	Common Name	Scheduled Size	Notes
	0		Oregon grape	#2 pot	
	80	Mahonia aquatolium	Dull Oregon grape	#2 pot	
	324	Mahonia nervosa	Baldhip rose	#2 pot	
	325	Rosa gymnocarpa			

Groundcover & Grasses

ID	Quantity	Latin Name	Common Name	Scheduled Size	Notes
	0		Kinnikinnick	10 cm pot	
	1740	Arctostaphylos uva-ursi	Blue lyme grass	10 cm pot	
	1395	Elymus glaucus	Coastal strawberry	10 cm pot	
	160	Fragaria chiloensis	Dune grass	10 cm pot	
	1365	Leymus mollis			

Shrubs & Herbs

ID	Quantity	Latin Name	Common Name	Scheduled Size	Notes
	0		Oregon grape	#2 pot	
	80	Mahonia aquatolium	Dull Oregon grape	#2 pot	
	324	Mahonia nervosa	Baldhip rose	#2 pot	
	325	Rosa gymnocarpa			

Plant List for On-site Slope Areas Adjacent to the Trail

ID	Quantity	Latin Name	Common Name	Scheduled Size	Notes
	11	Amelanchier laevis	Allegheny Serviceberry	#5 pot	
	2	Betula papyrifera	Paper birch	#2 pot	
	8	Pinus contorta	Shore pine	#10 pot	

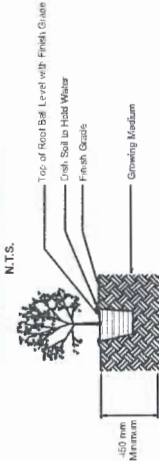
Shrubs

ID	Quantity	Latin Name	Common Name	Scheduled Size	Notes
	8	Cornus sericea 'stolonifera'	Redosier Dogwood	#2 pot	
	21	Gaultheria shallon	Salal	#1 pot	
	10	Holodiscus discolor	oceanspray	#2 pot	
	5	Mahonia aquatolium	Oregon grape	#2 pot	
	43	Polystichum munitum	Western swordfern	#1 pot	
	13	Ribes sanguineum 'King Edward VII'	King Edward VII Flowering Currant	#2 pot	
	13	Spiraea douglasii	Hardhack spiraea	#2 pot	
	0				

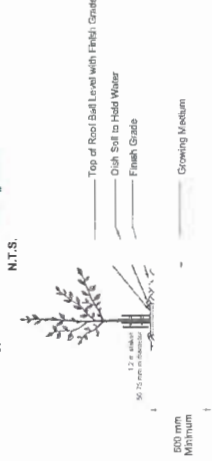
General Landscape Specifications

- Areas requiring topsoil shall be fine graded by raking out spoil material and debris such as rocks, asphalt and concrete over 50 mm in diameter, and scarified to a minimum depth of 150 mm immediately before placing topsoil.
- Topsoil and any amendments to the growing medium shall meet the criteria described in the British Columbia Landscape Standards for background (natural) areas (refer to adjacent table for particle size, acidity and drainage specifications).
- Topsoil shall be tested by an accredited soil testing laboratory, prior to delivery.
- Screened topsoil must be applied with a minimum thickness of 450 mm in shrub planting areas and 600 mm in treed areas. Topsoil must be free of subsoil, wood (including woody plant parts), loaic materials, stones over 30 mm, foreign objects, propagules of plant species designated as noxious under the BC Weed Control Act and Regulation, and other invasive or undesirable plant species.
- All plant material that has not been salvaged from the construction footprint shall be of guaranteed nursery stock, densely branched, well-established (minimum leaf density of 55%), free of invasive/noxious plant material and meet the criteria specified in City of Richmond Engineering and Public Works Department Supplementary Specifications and Detail Drawings, Version 3, 2016, Schedule G – Tree Planting on Sidewalks and Boulevards (they replace the specifications in Section 32 53 01 – Planting of Trees, Shrubs, and Ground Covers in the MMCD Platinum Edition).
- Plants in containers shall have a well-established root system, reaching the sides of the container but not being root banded. Soil must hold together when a plant is removed from its container.
- The City of Richmond's Engineering and Public Works department must be notified once nursery stock has arrived on site, for inspection prior to planting. Fall planting (following the last drought period in September or October), or spring planting (March or April) is recommended.
- Native trees, shrubs and herbs must be set plumb and fully immersed in growing medium, such that the top of the rootball is set at or slightly above the finished grade. Planting wells will be established to increase the capture and retention of water. The soil around each new plant will be tamped and watered in layers. Trees will be securely staked on both sides.
- The soil must be raked once the revegetation work is complete. A fall rye should be spread in the enhancement areas to prevent erosion and provide some shelter for new plants until they become fully established.
- Habitat enhancement works should be supervised by a certified landscape architect (or horticulturalist) to ensure compliance with the BC Landscape Standards and City and Richmond specifications for the planting of trees, shrubs, and ground cover.
- The contractor shall provide maintenance including, watering, removal of invasive species and replacement of dead stock for a period of three (3) years following planting.

Typical Container Shrub Planting Detail



Typical Container Tree Planting Detail



Topsoil (growing medium) specifications.

Soil Attribute	Criteria
Gravel > 30 mm	≤ 10% of dry weight
Sand 0.05 - 2 mm	30 - 70% of dry weight
Silt and clay combined	Max of 50% of dry weight
Organic content	10 - 20% of dry weight
Hydraulic conductivity	2 cm/hour
pH	4.5 - 7.0

Halfield PROJECT MANAGEMENT				Vancouver Airport Fuel Delivery Project: Habitat Enhancement On By Marine Terminal	
DESIGN	DRAWN	TK	DATE	PROFESSIONAL SEAL	DRAWING NUMBER
	LD		Feb 2, 2017		6773-01
REVISION					
0					

Treatment 1 (Shoreline Riparian Shrub) – 197 m²

Common name	Botanical Name	% of Area	Stock Size	Planting Density
Salmonberry	Rubus spectabilis	50	No. 3 pot	1 plant per 1 m²
Thimbleberry	Rubus parviflorus	10	No. 2 pot	1 plant per 1 m²
Steeplebush	Spiraea douglasii	20	No. 2 pot	1 plant per 1 m²
Snowberry	Symphoricarpos albus	10	No. 2 pot	1 plant per 1 m²
Dull Oregon Grape	Mahonia nervosa	10	No. 2 pot	1 plant per 1 m²

Treatment 2 (Upland/Riparian Forest) – 246 m²

Common name	Botanical Name	% of Area	Stock Size	Planting Density
Coastal Douglas-fir	Pseudotsuga douglasii	6	No. 10 pot	1 plant per 4 m²
Western redcedar	Thuja plicata	6	No. 5 pot	1 plant per 4 m²
Western hemlock	Tsuga heterophylla	7	No. 5 pot	1 plant per 4 m²
Bigleaf maple	Acer macrophyllum	6	No. 5 pot	1 plant per 4 m²
Red alder	Alnus Rubra	17	No. 3 pot	1 plant per 1 m²
Black cottonwood	Populus trichocarpa	12	No. 3 pot	1 plant per 1 m²
Salmonberry	Rubus spectabilis	14	No. 3 pot	1 plant per 1 m²
Beaked hazelnut	Corylus cornuta var. California	7	No. 2 pot	1 plant per 1 m²

Red elderberry	Sambucus racemosa	15	No. 3 pot	1 plant per 1 m²
Red-flowering currant	Ribes sanguineum	5	No. 2 pot	1 plant per 1 m²
Snowberry	Symphoricarpos albus	7	No. 2 pot	1 plant per 1 m²

Treatment 3 (Sheltered Riparian Forest – Upper Slope) – 442 m²

Common name	Botanical Name	% of Area	Stock Size	Planting Density
Western redcedar	Thuja plicata	8	No. 5 pot	1 plant per 4 m²
Western hemlock	Tsuga heterophylla	7	No. 5 pot	1 plant per 4 m²
Red alder	Alnus Rubra	10	No. 3 pot	1 plant per 1 m²
Black cottonwood	trichocarpa Rubus	10	No. 3 pot	1 plant per 1 m²
Salmonberry	spectabilis	23	No. 3 pot	1 plant per 1 m²
Pacific ninebark	Physocarpus albus	7	No. 2 pot	1 plant per 1 m²
Vine maple	Acer circinatum	18	No. 3 pot	1 plant per 1 m²
Snowberry	Symphoricarpos albus	8	No. 2 pot	1 plant per 1 m²
Sword fern	Polystichum munitum	9	No. 2 pot	1 plant per 1 m²



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Project  
VAFC MARINE TERMINAL FACILITY

50-60 Wilfrid Avenue, Richmond BC

Issue: 18 May 2017 Development Permit Application  
SO 24-16-227 Development Permit Application - Reclamation  
18 May 2017 Development Permit Application - Reclamation

Drawn By  
SPECIFICATION NOTES AND PLANT LISTS

Scale 1:500

Date: February 2017

Described Part: 14 DE 673-17-1

Building Permit No.

Project Number: 2017-280

DWG

L0.05

Plan #24



Table 1    Habitat Balance Sheet for the Marine Terminal Site Development.

Location	Habitat (m <sup>2</sup> )			Comments
Habitat Impact Summary				
Marine Terminal Property	Existing	Post-construction	Net Change	Enhancement Area
Shoreline ESA	208.0	344.0	+136.0	+344.0
Existing ESA is an area of fill and gravel, and largely barren. Two young trees and one small marginal habitat patch containing native red alder and black cottonwood saplings with an understory of invasive shrubs and herbs will be lost to development. A 2.4:1 compensation for this loss will be achieved by enhancing Shoreline ESA in northeast corner of the property (344 m <sup>2</sup> ) and adjacent to the property (see below). Overall, 70% of ESA enhancement works would be onsite.				
Intertidal ESA		Refer to comments		
Green-coded low productivity habitat. Replacing the 3,256 m <sup>2</sup> wharf structure with clean, stable bank armour will restore approximately 36,000 m <sup>3</sup> of open river flow environment and provide approximately 3,800 m <sup>3</sup> of new, stable micro-refugia for flora and fauna. Upgrading concrete rubble rip-rap on either side of the existing wharf footprint will improve stability and quality of substrate refugia over 4,400 m <sup>3</sup> (total of 8,000 m <sup>3</sup> at base of slope along marine terminal property).				
Williams Road RMA	176.3	413.2	+236.9	+413.2
These RMAs are degraded by invasive species and dust generated by the high volume of Ecowaste truck traffic. Only the trees are native and these will not be eliminated by the development. Although there is no defensible ecological rationale for it, 2.2:1 habitat compensation is proposed, by removing the existing fences to restore the full 5 m width of each RMA, and by regrading the sites and replacing invasive shrubs and herbs with native vegetation. Overall, 82% of RMA enhancement works would be onsite.				
Savage Road RMA (inferred)	95.0	387.6	+292.6	+387.6
Proposed Habitat Compensation				
Adjacent to Property				
Shoreline ESA	N/A	N/A	N/A	+144.6
To further compensate for marginal habitat loss from the marine terminal property Shoreline ESA, invasive plants southwest of the property, by red-coded intertidal habitat, will be replaced with native plants.				
Williams Road RMA	50.7	50.7	0	50.7
A portion of the RMAs are beyond the property boundary, which will thus involve limited offsite enhancement work (11% for Williams Road RMA; 25% for Savage Road RMA).				
Savage Road RMA (inferred)	129.0	129.0	0	129.0
A portion of the CN ROW in the Williams Road RMA will be compensated for by replacing invasive species with native ones between the Savage Road RMA and Shoreline ESA, as a contribution to the local Ecological Network (the remaining 72 m <sup>2</sup> of the ROW compensation was shifted to the onsite Shoreline ESA).				
Upland Habitat	N/A	N/A	N/A	+110.1
Gains and Losses				
Terrestrial Habitat				+1,579.2 m <sup>2</sup>
2:1 habitat enhancement in Shoreline ESAs for a 208 m <sup>2</sup> onsite shoreline disturbance and a portion of the Williams RMA overlapping with the CN ROW (53% on site). Approximately 2:1 habitat compensation and enhancement to RMAs (54% on site).				
Aquatic Habitat				+3,800.0 m <sup>3</sup>
Improvements to Intertidal ESA by replacing vertical steel-pile wharf with clean, stable bank armour.				

This schedule is reprinted from the  
ESA and RMA Environmental Impacts Report  
by  
Hatfield Environmental Consultants