CORPORATION OF THE TOWNSHIP OF ESQUIMALT

DESIGN REVIEW COMMITTEE
AGENDA

WEDNESDAY, MAY 11, 2016
3:30 P.M.
ESQUIMALT COUNCIL CHAMBERS

MEMBERS:	Wendy Kay	Paul Newcombe
	Jill Singleton	Carl Rupp
	Paul De Greeff	Roger Wheelock
	Richard Iredale	

RESOURCE MEMBER: Cst. Franco Bruschetta [Non-Voting]

COUNCIL LIAISON: Councillor Susan Low
Councillor Tim Morrison

STAFF LIAISON: Bill Brown, Director of Development Services

SECRETARY: Pearl Barnard

I. CALL TO ORDER

II. LATE ITEMS

III. ADOPTION OF AGENDA

IV. ADOPTION OF MINUTES – APRIL 13, 2016

V. STAFF REPORTS

1) DEVELOPMENT PERMIT and DEVELOPMENT VARIANCE PERMIT
925 Esquimalt Road
[PID 003-329-127, Lot A, Section 11, Esquimalt District, Plan 22176]

PURPOSE OF APPLICATION:

The owner is proposing a new roof for the building which would include a new roof profile. The new roof is an alteration to the form and character of the subject Multi-Unit Residential Building therefore a Development Permit is required. The building is non-conforming to current Zoning Bylaw requirements for both height and siting. The new roof profile will further increase the height of the building; therefore the variance is required before a building permit can be issued.

Staff request the Design Review Committee provide comments on the following:

That the proposed change to the exterior of the building which will increase the height, due to a change of roof profile, is appropriate.

RECOMMENDATION:
That the Esquimalt Design Review Committee [DRC] provide Council and the Director of Development Services with comments on the exterior alteration [new pitched roof] proposed for 925 Esquimalt Road as illustrated in the architectural drawings prepared by Keay Cecco Architecture Ltd., stamped "Received May 3, 2016", and including the following variances for the property at PID 003-329-127, Lot A, Section 11, Esquimalt District, Plan 22176 [925 Esquimalt Road] and make a recommendation to either approve, approve with conditions, or deny the application.

Zoning Bylaw, 1992, No. 2050, Section 44 (4)(a) - Building Height: A 2.0 metre increase to the requirement that no principal building shall exceed a height of 11 metres. [ie. from 11 metres to 13.0 metres], specifically for a 3:12 pitch hip roof.

Zoning Bylaw, 1992, No. 2050, Section 44 (5)(a)(ii) – Siting Requirements – Principal Building: A 1.17 metre decrease to the requirement that no principal building shall be located within 6 metres of an Interior Side Lot Line. [ie. from 6 metres to 4.83 metres], specifically for the balconies located on the east elevation and the north wall of the building.

2) DEVELOPMENT PERMIT APPLICATION
826 Esquimalt Road
[PID 006-075-495 Lot 2, Section 11, Esquimalt District, Plan 4225]

PURPOSE OF APPLICATION:

The applicant is proposing to construct a six storey, 30 unit, multiple family residential building including a grade level podium structure containing a lobby, utility areas and a 22 space parking garage. The podium would extend to the, north, west and east property lines but would maintain a 5.0 metres setback from the street while the 5 storey tower section would step modestly inward on the north, west and east sides thereby somewhat mitigating the perceived mass of the building. Two additional parking spaces dedicated to visitors are proposed to be located in front of the building bringing the total parking to 24 spaces.

This site is located within Development Permit Area No. 1 – Multi-Unit Residential; therefore a development permit is required to ensure the application meets the intent of the design guidelines contained in Section 9.3 of the Township's Official Community Plan.

The applicant is requesting approval of a Development Permit for the form and character, and landscaping proposed on the attached drawings as one is required prior to submitting for a Building Permit. As the applicant had satisfied all outstanding conditions, Esquimalt Council adopted the required change to zoning for this property on Monday, May 2, 2016.

RECOMMENDATION:

That the Esquimalt Design Review Committee [DRC] recommends to Council that the application for a Development Permit authorizing the form and character of the proposed development to that shown on architectural plans provided by Praxis Architects Inc. stamped "Received May 6, 2016", and the landscape plan prepared by Lombard North Group Inc., stamped "Received March 29, 2016", and sited as detailed on the survey plan prepared by J.E. Anderson and Associates, stamped "Received March 29, 2016" for the 6 storey, thirty unit, multiple family residential building proposed to be located at PID 006-075-495 Lot 2, Section 11, Esquimalt District, Plan 4225 [826 Esquimalt Road], be forwarded to Council with a recommendation to either approve, approve with **conditions, or deny the application.**

3) OFFICIAL COMMUNITY PLAN AND REZONING APPLICATION
"Esquimalt Village Project"
1235 Esquimalt Road
Lot 1, Section 11, Plan EPP32782

PURPOSE OF APPLICATION:

The Esquimalt Village Project is a 12,795.1 m^2 mixed-use project proposed for an 8090 m^2 parcel located in the heart of the Township of Esquimalt adjacent to the existing Municipal Hall (Schedule "A"). The Esquimalt Village Project is envisioned as a model example of exemplary mixed-use design that will be the catalyst for the rejuvenation of Esquimalt's core.

At this stage, the Design Review Committee is being asked to comment generally on massing, building height, building setbacks, and site layout. Once the Official Community Plan and Zoning Bylaws have been amended the applicant will submit a development permit application at which time the Design Review Committee will be asked to comment on form and character (including colour, materials, and design details). Because the application includes an amendment to the Official Community Plan that will create a site specific development permit area, it is appropriate to comment on the proposed design guidelines (Schedule "F").

RECOMMENDATION:

The Esquimalt Design Review Committee recommends that the application to amend the Official Community Plan and to rezone the subject property to facilitate the development of the Esquimalt Village Project (EVP) be forwarded to Council with a recommendation to **approve, approve with conditions, or deny the application including reasons for the chosen recommendation.**

VI. STAFF LIAISON STATUS REPORT

VII. NEW BUSINESS

VIII. NEXT REGULAR MEETING
June 8, 2016

IX. ADJOURNMENT

CORPORATION OF THE TOWNSHIP OF ESQUIMALT

ADVISORY DESIGN REVIEW COMMITTEE
MEETING HELD
APRIL 13, 2016
ESQUIMALT COUNCIL CHAMBERS

MEMBERS PRESENT:	Paul De Greeff	Wendy Kay
	Richard Iredale	Jill Singleton
	Carl Rupp	Roger Wheelock
	Cst. Franco Bruschetta	
REGRETS:	Paul Newcombe	
STAFF LIAISON:	Trevor Parkes, Senior Planner	
SECRETARY:	Pearl Barnard	

I. CALL TO ORDER

The meeting was called to order by the Chair, at 3:35 p.m.

II. INTRODUCTIONS AND WELCOME NEW MEMBER

The Committee welcomed new member Roger Wheelock, and thanked outgoing member Michael Phillips. Mr. Weelock introduced himself and gave a brief overview of his background and experience.

III. LATE ITEMS

No late items presented.

IV. ADOPTION OF AGENDA

Moved by Wendy Kay, seconded by Carl Rupp: That the agenda be adopted as distributed. **Carried Unanimously**

ADOPTION OF MINUTES – February 10, 2016 Meeting

Moved by Paul De Greeff, seconded by Richard Iredale: That the minutes of February 10, 2016 be adopted as distributed. **Carried Unanimously.**

V. STAFF REPORTS

1) DEVELOPMENT PERMIT APPLICATION
"West Bay Triangle"
468 Head Street [Lot 8, Block H, Section 11, Esquimalt District, Plan 292]
470 Head Street [Lot 5, Block H, Section 11, Esquimalt District, Plan 292]
472 Head Street [Lot 4, Block H, Section 11, Esquimalt District, Plan 292]
515 Gore Street [Lot 1, Block H, Section 11, Esquimalt District, Plan 292]
509 Gore Street [Lot 2, Block H, Section 11, Esquimalt District, Plan 292]
922 Lyall Street [Strata Lot 1, Section 11, Esquimalt District, Strata Plan 509]
920 Lyall Street [Strata Lot 1, Section 11, Esquimalt District, Strata Plan 509]
918 Lyall Street [Lot 6, Block H, Section 11, Esquimalt District, Plan 292]
912 Lyall Street [Lot 7, Block H, Section 11, Esquimalt District, Plan 292]

Trevor Parkes, Senior Planner gave a brief overview of the project. He explained that the Design Review Committee had considered this application at their last meeting and at that time had expressed some concerns relating to the setbacks, massing of building, amount of

surface parking, lack of green space on the west corner and how this project would relate to the future development to the southeast. In response, the applicant has provided a revised set of drawings and a 3D dimensional imagery for the next phase of development for the adjacent property.

Mark Lindholm, Owner/Applicant, Peter Hardcastle, Hillel Architecture, Karen Hillel, Hillel Architecture and Jeff Shaw, Realtor were in attendance.

Peter Hardcastle gave a PowerPoint presentation outlining the changes Hillel Architecture Inc. had made to their application as a result of the recommendation and comments made by the Committee at the February 10, 2016 meeting. Mr. Hardcastle gave a brief overview of the draft plans for the adjacent property and explained the changes.

- The applicant has agreed to voluntarily register a covenant on both the current development site and the two properties to the east assuring a 12 metre "no build zone" setback from the currently proposed development;
- The sculptural wall screening the parking lot at the west end of the site was removed; and
- Two residential guest surface parking spaces were removed from the westrern parking lot to allow for two very substantial trees to be planted at the intersection of Gore and Lyall Street.

The Design Review Committee Members thanked the applicant for their presentation. DRC Members had the following questions and comments:

- Very nice presentation and design. Beautiful project will help the whole community come to life.
- Pedestrian pathway between Lyall and Head St mid block was discussed. Is it public accessible? Mr. Lindholm clarified it will be accessible to the public, however the pathway will remain private property. Will the area be well lit? The pathway will be generously lit by low level led lighting, and will be built in two phases.
- Has a covenant been registered on both properties to address the setback on the west side? Mr. Hardcaste confirmed that a covenant will be registered on both properties.
- Surface parking was discussed. Park/green space would be better than a parking lot. Do you need the parking lot to make the retail work? Mr. Lindholm advised that surface parking is important for commercial development. If possible, move the visitor's parking spots to the parking garage; the first 12 stalls could be visitor's parking and then a gate to go through for secured parking.
- Could the bus stop be relocated? Mr. Parkes advised that Engineering Services has indicated that it will remain in its current location, but might be relocated slightly northeast along Gore Street.
- Are any of these roads designated as official routes now or in the long term? Mr. Parkes advised Gore Street and Lyall Street are designated as a commuter route.
- Consider enclosing the parking garage and adding enhanced green space within the triangle area. Would be an opportunity to create usable open space. Less noise from below and the visual contrast of looking down at green space versus asphalt. Mr. Hardcastle advised that provision of an enclosure for a green space area would be a change to the site plan coverage. Will discuss further with the Planning Department and owners.
- Is there any shade trees intergraded in the parking area? To be addressed at the Development Permit stage.

The Members liked the building design but felt that enhanced green space was needed on the western portion. It was suggested that the applicant consider enclosing the parking garage and enhance the green space within the triangle area.

RECOMMENDATION:
MOVED by Richard Iredale, seconded by Paul De Greeff: The Esquimalt Design Review Committee recommends that the application for rezoning to facilitate consolidation of nine properties located between Head Street, Gore Street and Lyall Street to permit a new 6 storey, commercial mixed use building containing ground floor commercial space oriented toward Head Street and 73 residential units, sited in accordance with the survey plan prepared by McIlvaney Riley Land Surveying Inc., stamped "Received December 29, 2015", and incorporating height and massing consistent with architectural plans prepared by Hillel Architecture, stamped "Received April 7, 2016" **be forwarded to Council with a recommendation of approval subject to the following conditions:**

1) Consider increasing green space on the western portion of the site adjacent to the intersection of Gore Street and Lyall Street.
2) Consider enclosing the parking garage and adding enhanced green space within the triangle area subsequently created in the center of the second floor courtyard.

The Motion Carried Unanimously

2) DEVELOPMENT PERMIT APPLICATION
826 Esquimalt Road
[PID 006-075-495 Lot 2, Section 11, Esquimalt District, Plan 4225]

Trevor Parkes, Senior Planner gave a brief overview of the project. He explained that this Development Permit is for form and character including landscaping for a proposal that was previously reviewed by the Committee as a rezoning application. If approved, this would be the first project in this area to realize this type of height and density.

Kristin Schulberg and Rob Rocheleau from Praxis Architects Inc., Jim Partlow from Lombard North Group Inc. and Mark Eraut the property owner were in attendance.

Kristin Schulberg gave a PowerPoint presentation outlining the site plan and a brief overview of the building design and materials, as well as some of the landscaping features.

Jim Partlow, Landscape Architect gave a brief overview of the proposed landscape plan for the project.

The Design Review Committee Members thanked the applicant for their presentation. DRC Members had the following questions and comments:

- A Member asked for an update on this project. Mr. Parkes advised that the DRC had previously reviewed the Rezoning Application for this project and at that time made a recommendation to Council to deny the application. It was then presented to the Advisory Planning Commission, their recommendation was favourable. Mr Parkes confirmed that Council has granted 3rd reading noting adoption was withheld pending a registration of a covenant on the property.
- Concerns that the neighbours will be looking at a one storey parking garage. There is usually a setback on the ground floor so neighbours would be looking at a garden not a concrete parking garage. Consider lowering the parking garage further into grade. A concrete parking garage is a really ugly street façade which will be the first thing you see when you come to Esquimalt, a carefully designed entry of this building will give Esquimalt the kind of façade it really deserves.

- Property is too small for this type of density. If you built one of these after another it would not work. If this is the first project in this area on Esquimalt Road; is this going to be the model for what follows afterwards?

The Members felt that the comments made by the DRC last time had not been addressed. Architecture is not the issue, it is in the planning. It was suggested that the applicant consider revising the parking entrance way into the building, lowering the parking garage further into grade and improving compliance with the current OCP Guidelines.

RECOMMENDATION:
MOVED by Richard Iredale, seconded by Paul De Greeff: That the Esquimalt Design Review Committee [DRC] recommends to Council that the application for a Development Permit authorizing the form and character of the proposed development to that shown on architectural plans provided by Praxis Architects Inc. stamped "Received March 29, 2016", and the landscape plan prepared by Lombard North Group Inc., stamped "Received March 29, 2016", and sited as detailed on the survey plan prepared by J.E. Anderson and Associates, stamped "Received March 29, 2016" for the 6 storey, thirty unit, multiple family residential building proposed to be located at PID 006-075-495 Lot 2, Section 11, Esquimalt District, Plan 4225 [826 Esquimalt Road], **be forwarded to Council with a recommendation of approval with the condition that the applicant return to the Design Review Committee with an amended design that addresses the following:**

1) Altering the parking garage access
2) Lowering the parking garage further into grade.
3) Revising the lobby entrance way.
4) Improving compliance with the current Official Community Plan Guidelines.

The Motion Carried Unanimously

Wendy Kay left the meeting at 5:29 p.m.

STAFF LIASON STATUS REPORT

No reports

VI. NEW BUSINESS

No new business

VII. NEXT REGULAR MEETING

Wednesday, May 11, 2016

VIII. ADJOURNMENT

The meeting adjourned at 5:40 p.m.

CERTIFIED CORRECT:

_____ _____

CHAIR, DESIGN REVIEW COMMITTEE ANJA NURVO, CORPORATE OFFICER

THIS 11th DAY OF MAY, 2016

CORPORATION OF THE TOWNSHIP OF ESQUIMALT

Municipal Hall, 1229 Esquimalt Road, Esquimalt, B.C. V9A 3P1
Telephone (250) 414-7100 Fax (250) 414-7111

DRC Meeting: May 11, 2016

STAFF REPORT

DATE: May 3, 2016

TO: Chair and Members of the Design Review Committee

FROM: Karen Hay, Planner
Bill Brown, Director of Development Services

SUBJECT: **DEVELOPMENT PERMIT and DEVELOPMENT VARIANCE PERMIT**
925 Esquimalt Road
[PID 003-329-127, Lot A, Section 11, Esquimalt District, Plan 22176]

RECOMMENDATION:

That the Esquimalt Design Review Committee [DRC] provide Council and the Director of Development Services with comments on the exterior alteration [new pitched roof] proposed for 925 Esquimalt Road as illustrated in the architectural drawings prepared by Keay Cecco Architecture Ltd., stamped "Received May 3, 2016", and including the following variances for the property at PID 003-329-127, Lot A, Section 11, Esquimalt District, Plan 22176 [925 Esquimalt Road] and make a recommendation **to either approve, approve with conditions, or deny the application.**

Zoning Bylaw, 1992, No. 2050, Section 44 (4)(a) - Building Height: A 2.0 metre increase to the requirement that no principal building shall exceed a height of 11 metres. [ie. from 11 metres to 13.0 metres], specifically for a 3:12 pitch hip roof.

Zoning Bylaw, 1992, No. 2050, Section 44 (5)(a)(ii) – Siting Requirements – Principal Building: A 1.17 metre decrease to the requirement that no principal building shall be located within 6 metres of an Interior Side Lot Line. [ie. from 6 metres to 4.83 metres], specifically for the balconies located on the east elevation and the north wall of the building.

BACKGROUND:

Purpose of the Application

The owner is proposing a new roof for the building which would include a new roof profile. The new roof is an alteration to the form and character of the subject Multi-Unit Residential Building therefore a Development Permit is required. The building is non-

conforming to current Zoning Bylaw requirements for both height and siting. The new roof profile will further increase the height of the building; therefore the variance is required before a building permit can be issued.

Staff request the Design Review Committee provide comments on the following:

1. That the proposed change to the exterior of the building which will increase the height, due to a change of roof profile, is appropriate.

Context

Applicant: Matt Embury, Embury Steel Truss and Roof Supply

Architect: John Keay, Keay Cecco Architecture Ltd.

Owner: Michael Shore

Property Size: Metric: 3311.6 m^2 Imperial: 35645 ft^2

Existing Land Use: Multiple Family Apartment Residential

Surrounding Land Uses:

North: Commercial
South: Single and Two Family Residential
West: Multiple Family Apartment Residential
East: Commercial

Note: All projects are subject to compliance with the BC Building Code, Esquimalt Subdivision and Servicing Bylaw, Esquimalt Zoning Bylaw and other Regulations and Policies set by Council.

Development Permit Guidelines

The Official Community Plan Development Permit Area No. 1- Multi-Unit Residential Guidelines [attached] include the following guideline:

> The size and siting of buildings that abut existing single and two-unit and townhouse dwellings should reflect the size and scale of adjacent development and complement the surrounding uses. To achieve this, height and setback restrictions may be imposed as a condition of the development permit.

The subject property does abut an area of predominantly single and two-unit residential properties. Increasing the height and changing the roof line of an existing building could further emphasize the height difference between this building and smaller buildings in the area. The style of roof proposed should lessen any visual impact and the new roof

should cause little increase to the shadowing from this building onto neighbouring properties.

Zoning

The existing building has a flat roof which is 11.89 metres above average grade and exceeds the 11.0 m maximum height currently allowed in the Multiple Family Residential [RM-4] zone [attached]. Adding the new pitched [hip] roof will further increase the height of the roof to 13.0 metres above average grade.

The building is also currently non-conforming with the east edge of the north wall and the balconies on the east side of the building projecting into the interior side setback. The setback variance simply removes the non-conformity for these features that have existed since 1969 and simplifies the process for future replacement of balcony materials.

925 Esquimalt Road

Development Permit Area No. 1 — Multi-Unit Residential

9.3.1 Scope

All land designated Multi-Unit Residential on Schedule "C" are part of DPA No. 1.

9.3.2 Category

Section 919(1)(f) of the *Local Government Act* — form and character, multi-family residential.

9.3.3 Justification

This Plan emphasizes the importance of protecting residential neighbourhoods and encouraging a high quality of construction for new development. It is essential that new multi-unit residential development not have a negative impact on, or be out of character with, existing residential neighbourhoods. The primary objective of Development Permit Area No. 1 is to ensure that the development of multi-unit residential sites is compatible with surrounding uses.

9.3.4 Requirements of Owners of Land within the Development Permit Area

a) Owners of land within Development Permit Area No. 1 must not do any of the following without first obtaining a development Permit in accordance with the guidelines for this Development Permit Area:

i) subdivide lands; or

ii) construct or alter a building or structure;

without first obtaining a Development Permit in accordance with the guidelines of this Development Permit Area.

b) Exemptions:

The following do not require a development permit:

i) construction of buildings or structures less than 10 square metres in area;

ii) minor additions to existing dwellings where the floor area of the addition does not exceed 10 percent of the ground floor area of the dwelling;

iii) emergency repairs to existing structures and public walkways where a potential safety hazard exists;

iv) fences;

v) the cutting of trees as permitted upon application under the municipal tree protection bylaw; and

vi) placement of signs less than 1.5 sq. metres in area.

9.3.5 Guidelines for Owners of Land within the Development Permit Area

a) The size and siting of buildings that abut existing single- and two-unit and townhouse dwellings should reflect the size and scale of adjacent development and complement the surrounding uses. To achieve this, height and setback restrictions may be imposed as a condition of the development permit.

b) New buildings should be designed and sited to minimize visual intrusion onto the privacy of surrounding homes and minimize the casting of shadows onto the private outdoor space of adjacent residential units.

c) High-density multi-unit residential buildings or mixed commercial/residential buildings in commercial areas with a zero front setback should be designed so that the upper storeys are stepped back from the building footprint, with lower building heights along the street front.

d) Landscaping of multi-unit residential sites should emphasize the creation of an attractive streetscape, as well as provide privacy between individual buildings and dwellings, screen parking areas and break up large expanses of paving.

e) Surface parking areas in multi-unit residential developments less than five storeys in height, will be situated away from the street and screened by berms, landscaping or solid fencing or a combination of these three.

f) Underground parking will be provided for any multi-unit residential buildings exceeding four storeys.

g) The retention of public view corridors particularly views to the water should be encouraged wherever possible.

h) To preserve view corridors and complement natural topography, stepped-down building designs are encouraged for sloping sites.

i) Retention and protection of trees and the natural habitat is encouraged wherever possible.

j) Townhouses will be designed such that the habitable space of one dwelling unit abuts the habitable space of another unit and the common wall overlap between adjoining dwellings shall be at least 50 percent.

k) Site lighting in multi-unit residential developments should provide personal safety for residents and visitors and be of the type that reduces glare and does not cause the spill over of light onto adjacent residential sites.

l) Garbage receptacle areas and utility kiosks should be screened by solid fencing or landscaping or a combination of the two.

m) For waterfront sites, retention of natural features and existing trees should be a priority in site planning considerations.

n) When any existing single-unit residence or duplex residence is being redeveloped to a multi-unit residential use by adding on of one or more dwelling units, such addition will be designed so that all of the units form a cohesive whole. In order to achieve cohesiveness:

   i) both, the existing and proposed structures will be in the same architectural style;

   ii) variations between the roofline of the existing building and any proposed addition(s) will be no greater than 1.5 metres;

iii) roof styles and pitches must be complementary;

iv) architectural features such as sloping roofs and dormers should be incorporated into the design to unite the various parts of the structure; and

v) the existing and proposed structure will be constructed using the same or complimentary exterior finishes including roofing materials, window treatments, door styles and other finishing details.

o) Within the area bounded by Tillicum, Craigflower, Lampson and Transfer Streets, redevelopment to multi-unit residential use will require that vehicular access to these sites be off Lampson Street rather than Tillicum, in recognition of the high levels of traffic currently using Tillicum Road.

p) To create a more aesthetic and functional design that links each multi-unit residential project with the streetscape, the following guidelines are recommend:

i) Avoid long, narrow parcels with minimal road frontage (consolidate one or more parcels where necessary);

ii) Place parking areas away from the street; and

iii) Design porches and windows overlooking the street to increase personal interaction and safety.

44. MULTIPLE FAMILY RESIDENTIAL [RM-4]

The intent of this Zone is to accommodate medium density Apartment development.

(1) **Permitted Uses**

The following Uses and no others shall be permitted:

(a) Apartment Residential
(b) Home Occupation

(2) **Floor Area Ratio**

The Floor Area Ratio shall not exceed 1.0.

(3) **Building Height**

(a) No Principal Building shall exceed a Height of 11 metres.

(b) No Accessory Building shall exceed a Height of 4 metres.

(4) **Lot Coverage**

(a) All Principal Buildings, Accessory Buildings and Structures combined shall not cover more than 30% of the Area of a Parcel.

(b) Accessory Buildings and Structures combined shall not exceed 10% of the Area of a Parcel.

(5) **Siting Requirements**

(a) **Principal Building**

(i) Front Setback: No Building shall be located within 7.5 metres of the Front Lot Line.

(ii) Side Setback: No Building shall be located within 6 metres of an Interior Side Lot Line nor 3.6 metres of an Exterior Side Lot Line.

(iii) Rear Setback: No Building shall be located within 7.5 metres of a Rear Lot Line.

(b) **Accessory Building**

(i) Front Setback: No Accessory Building shall be located in front of the front face of the Principal Building.

(ii) Side Setback: No Accessory Building shall be located within 1.5 metres of an Interior Side Lot Line nor 3.6 metres of an Exterior Side Lot Line.

(iii) Rear Setback: No Accessory Building shall be located within 1.5 metres of a Rear Lot Line.

(iv) Building Separation: No Accessory Building shall be located within 2.5 metres of a Principal Building.

(6) **Usable Open Space**

Usable Open Space shall be provided in an amount of not less than 7.5% of the Area of the Parcel.

(7) **Fencing**

Subject to Section 22, no fence shall exceed a Height of 1.2 metres in front of the front face of the Principal Building and 2 metres behind the front face of the Principal Building.

(8) **Off Street Parking**

Off street parking shall be provided in accordance with the requirements of Parking Bylaw, 1992, No. 2011 (as amended).

KEAY CECCO ARCHITECTURE LTD

JOHN KEAY, ARCHITECT AIBC
LARRY CECCO, IA, AIBC, RAIC
1124 FORT STREET,
VICTORIA, V8V 3K8

April 28, 2016

Mayor and Council
Township of Esquimalt
1229 Esquimalt Road
Esquimalt, V9A 3P1

Your Worship and Council

re: 925 Esquimalt Road, Development Permit

You will find enclosed an application for a Development Permit, per our discussions with the Planning Department. The intent of the work is to provide a new metal pitched roof system to replace the existing built up asphalt roof which is at the end of its service life. The new roof will add a design element to the building which we think is attractive. Also, it will avoid the expense and environmental consequences of stripping and disposing of the existing roofing materials.

The roof as shown has a height of 13M to the mid point of the roof, requiring a variance of 1.1M over the existing building height.

I trust this is the information you require, please contact me if you have any questions

Yours truly,

John Keay, Architect

cc: Matt Embury

Tel: 250 382 3823
Email: john@kcarchitecture.ca

B. C. LAND SURVEYOR'S SITE PLAN OF:

LOT A, SECTION 11, ESQUIMALT DISTRICT, PLAN 22176

SCALE 1 : 300

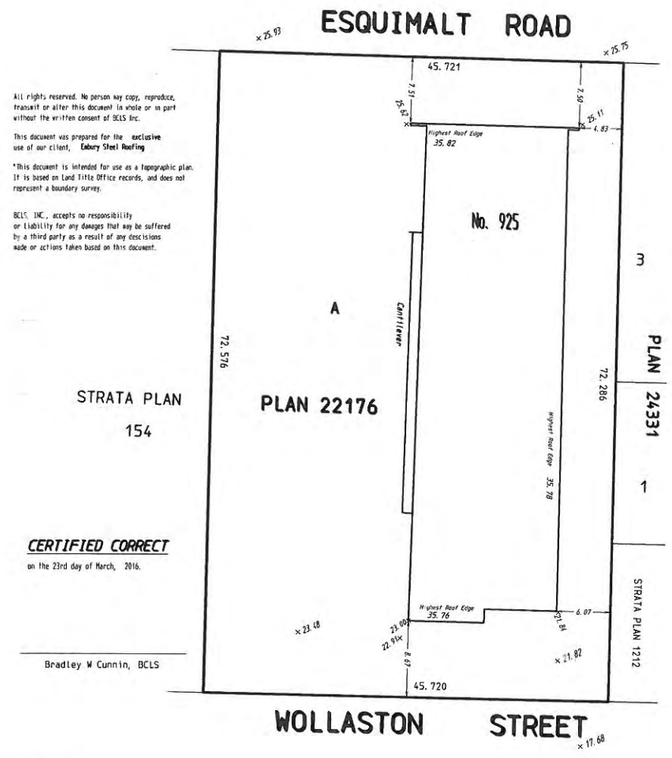
All distances are in metres.

FILE: 11267 - 22
DWG/DATE: 11267spr 2015-05-26
Brad Cunnin Land Surveyor
101 - 2610 Douglas Street
Victoria, BC V8T 4M1
ph. 381-OCLS (6257) fx. 381-2289
brad@bcsurveyor.ca

LEGEND

Elevations are geodetic based on District of Esquimalt Integrated Survey Monument 87H3783 (elev. = 25.495m)
Contours are descriptive, and only accurate to +/- 1/2 interval.
Grade shot are taken at the point marked x,
grade shots at a curb line are in gutter.

MUNICIPALITY	PID No.
Esquimalt	003-329-127
ZONING	**SITE AREA**
RM-4	3311.6 m² 35645 s. f.



CERTIFIED CORRECT

on the 23rd day of March, 2016.

Bradley W Cunnin, BCLS

1 SURVEY
Scale: 1:300

ZONE DATA SHEET

CIVIC ADDRESS: 925 ESQUIMALT ROAD
LEGAL DESCRIPTION: LOT A, SECTION 11, ESQUIMALT DISTRICT, PLAN 22176
ARCHITECT: KEAY CECCO ARCHITECTURE LTD.
2ND FLOOR, 1124 FORT STREET, VICTORIA, BC (250) 382-3823

FLOOR AREA RATIO: UNCHANGED (ALLOWED 1.0)
BUILDING HEIGHT: EXISTING 11.89M PROPOSED ????? (ALLOWED 11M)
LOT COVERAGE: UNCHANGED (ALLOWED 30%)
SETBACKS: UNCHANGED
FRONT: 7.5M (ALLOWED 7.5M)
REAR: 8.67M (ALLOWED 7.5M)
SIDE (EAST): 4.83M (ALLOWED 3.6M)
SIDE (WEST): 22.1M (ALLOWED 6.0M)
PARKING: UNCHANGED

2 CONTEXT SITE PLAN
Scale: NTS

3 CONTEXT PHOTOS
Scale: 1/4" = 1'-0"

KEAY CECCO
ARCHITECTURE LTD.
1124 Fort Street Victoria, BC Canada V8V 3K8
office 250 382-3823 fax 250 382-0413
email: info@keaycecco.com

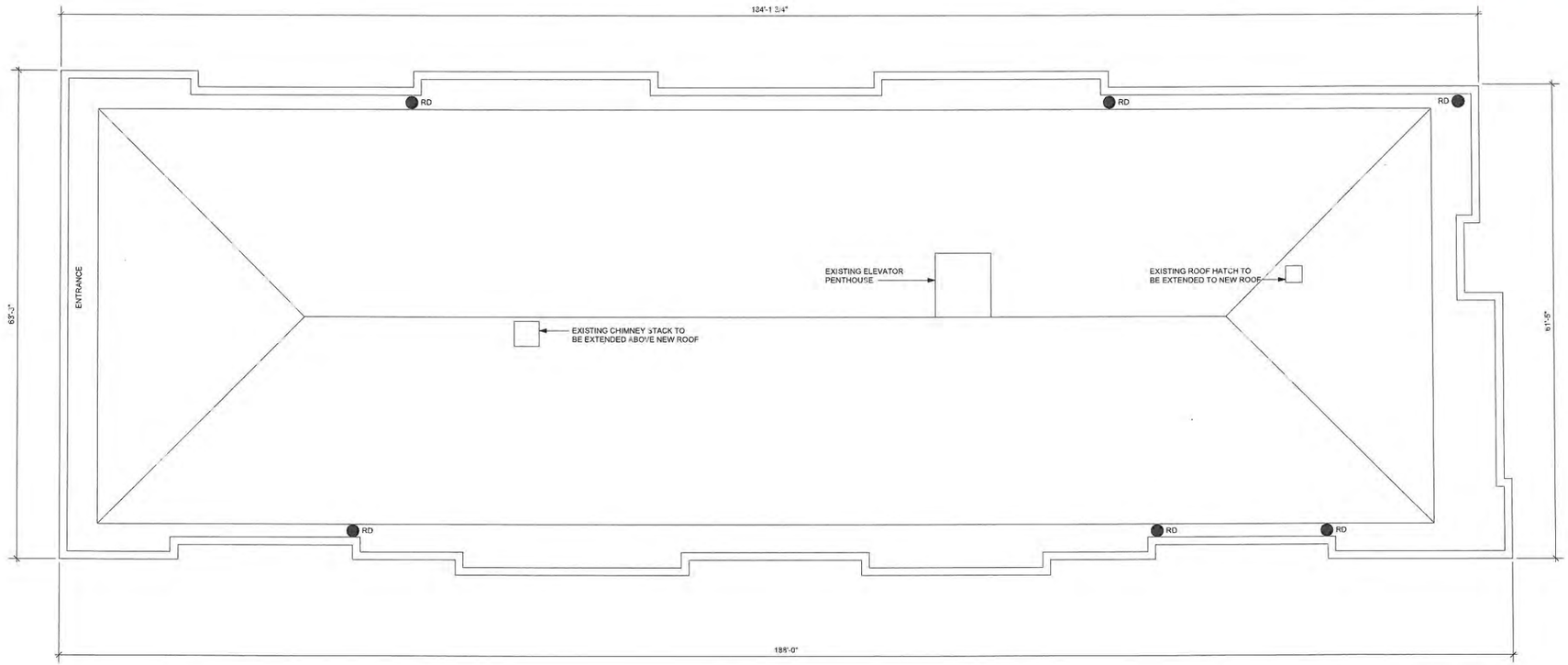
COMMENTS

No.	DESCRIPTION	DATE	BY
1.	DEVELOPMENT PERMIT SUBMISSION	APR 29/16	

925 ESQUIMALT ROAD
VICTORIA, BC

SHEET TITLE
SURVEY & CONTEXT PHOTOS

SCALE	JOB No.
AS NOTED	1124 - 1610
DATE PLOTTED: APRIL 29, 2016	A 1.0
DRAWN BY: NP	



1 ROOF PLAN
Scale: 1/8" = 1'-0"

KEAY CECCO
ARCHITECTURE LTD.
1124 Fort Street Victoria BC Canada V8V 3K8
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email: info@keayarchitecture.ca

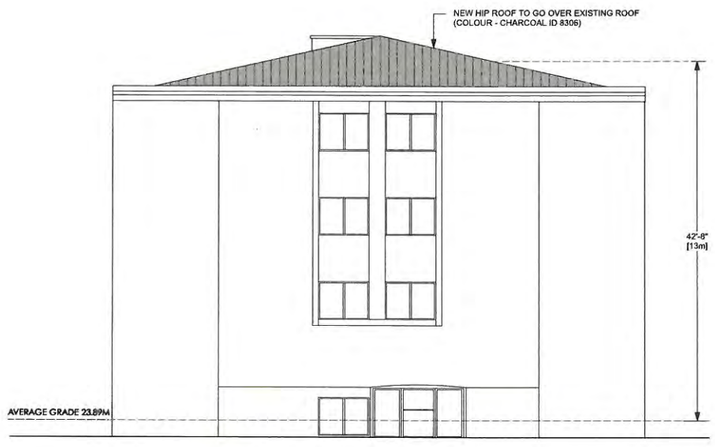
COMMENTS

No.	DESCRIPTION	DATE	BY
1.	DEVELOPMENT PERMIT SUBMISSION	APR 29/16	

925 ESQUIMALT ROAD
VICTORIA, BC

SHEET TITLE
ROOF PLAN

SCALE	JOB No.
AS NOTED	1124 - 1610
DATE PLOTTED	
APRIL 29, 2016	
DRAWN BY	A 2.0
NP	



1 NORTH ELEVATION
Scale: 1/8" = 1'-0"

2 SOUTH ELEVATION
Scale: 1/8" = 1'-0"

KEAY CECCO
ARCHITECTURE LTD.

1124 Fort Street Victoria, BC Canada V8V 3K8
office 250 382-1823 fax 250 382-0413
email: info@kcarchitecture.ca

COMMENTS

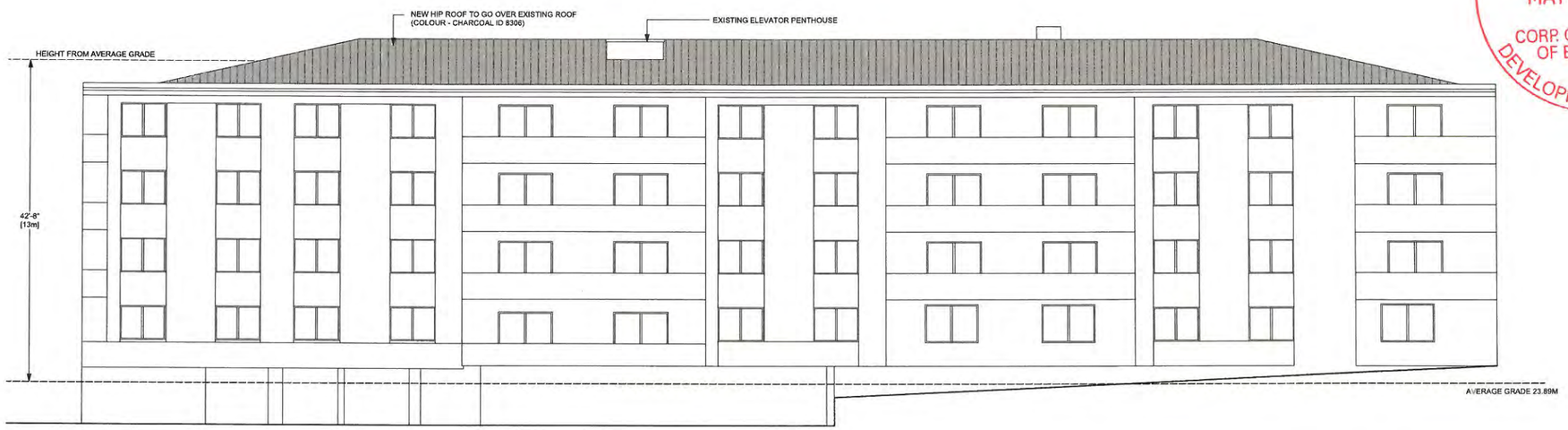
No.	DESCRIPTION	DATE	BY
1.	DEVELOPMENT PERMIT SUBMISSION	APR 29/16	

925 ESQUIMALT ROAD
VICTORIA, BC

SHEET TITLE

NORTH & SOUTH ELEVATIONS

SCALE	JOB No.
AS NOTED	1124 - 1610
DATE PLOTTED	
APRIL 29, 2016	
DRAWN BY	A 3.0
NP	



1 EAST ELEVATION
Scale: 1/8" = 1'-0"

2 WEST ELEVATION
Scale: 1/8" = 1'-0"

RECEIVED
MAY 03 2016
CORP. OF TOWNSHIP OF ESQUIMALT
DEVELOPMENT SERVICES

KEAY CECCO
ARCHITECTURE LTD.

1124 Fort Street Victoria, B.C. Canada V8V 3K8
office 250 382-3923 fax 250 382-0413
email: info@keaycecco.ca

COMMENTS

No.	DESCRIPTION	DATE	BY
1.	DEVELOPMENT PERMIT SUBMISSION	APR 29/16	

925 ESQUIMALT ROAD
VICTORIA, BC

SHEET TITLE
EAST & WEST ELEVATIONS

SCALE	JOB No.
AS NOTED	1124 - 1610
DATE PLOTTED	
APRIL 29, 2016	A 3.1
DRAWN BY	
NP	

B. C. LAND SURVEYOR'S SITE PLAN OF:

LOT A, SECTION 11, ESQUIMALT DISTRICT, PLAN 22176

SCALE 1 : 300

5 0 5 10 15 20

All distances are in metres.

FILE: 11267 - 22
DWG/DATE: 11267sp/ 2015-05-28
Brad Cunnin Land Surveyor
101 - 2610 Douglas Street
Victoria, BC V8T 4M1
ph. 381-BCLS (2257) fx. 381-2289
brad@bcsurveyor.ca

LEGEND

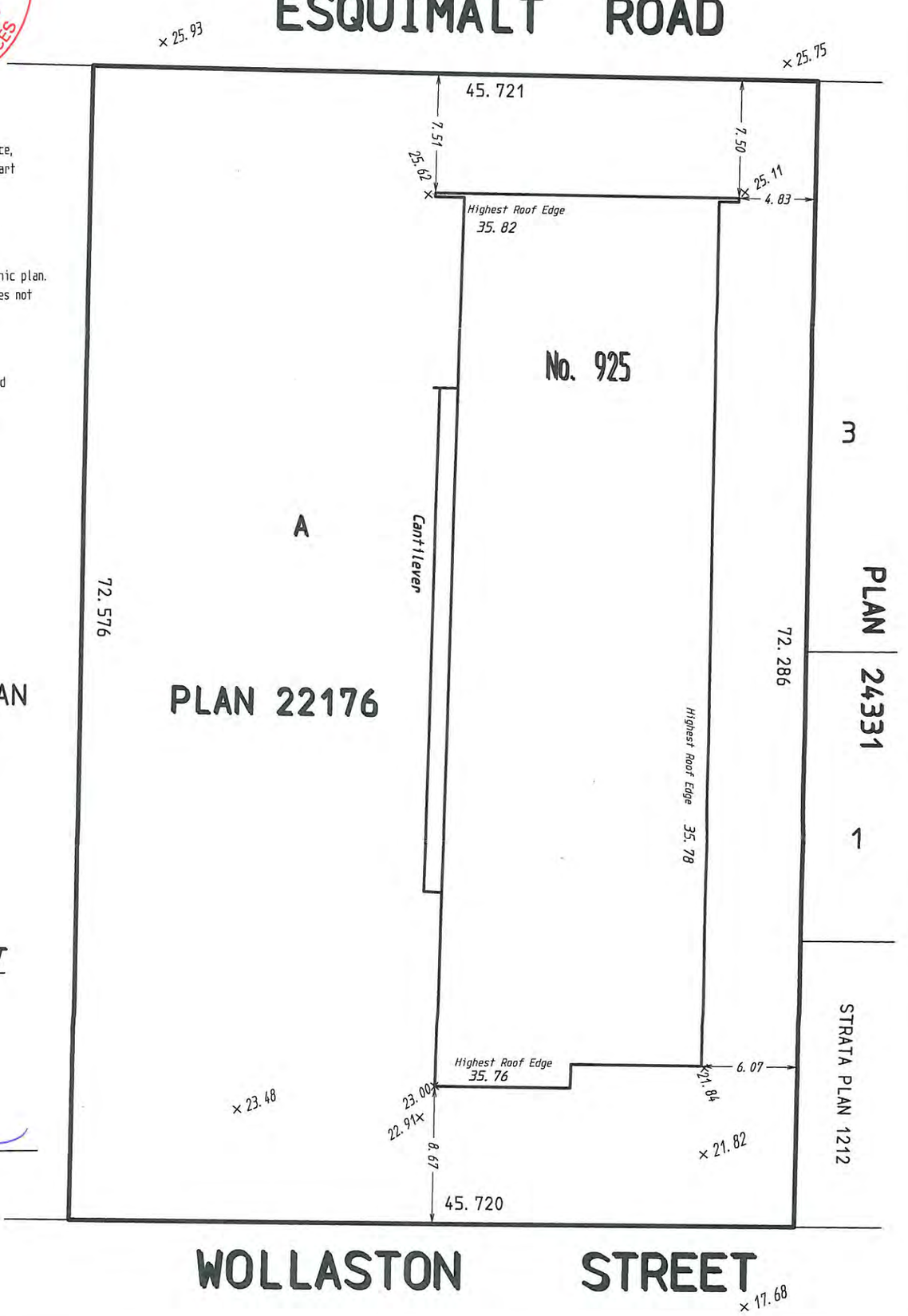
Elevations are geodetic based on District of Esquimalt Integrated Survey Monument 87H3783 (elev. = 25.495m)
Contours are descriptive, and only accurate to +/- 1/2 interval.
Grade shot are taken at the point marked x,
grade shots at a curb line are in gutter.

MUNICIPALITY	PID No.
Esquimalt	003-329-127
ZONING	**SITE AREA**
RM-4	3311.6 m²
	35645 s.f.

This document was prepared for the **exclusive** use of our client, **Embury Steel Roofing**

*This document is intended for use as a topographic plan. It is based on Land Title Office records, and does not represent a boundary survey.

BCLS, INC., accepts no responsibility or liability for any damages that may be suffered by a third party as a result of any descisions made or actions taken based on this document.



STRATA PLAN 154

CERTIFIED CORRECT

on the 23rd day of March, 2016.

Bradley W Cunnin, BCLS

CORPORATION OF THE TOWNSHIP OF ESQUIMALT

Municipal Hall, 1229 Esquimalt Road, Esquimalt, B.C. V9A 3P1
Telephone (250) 414-7100 Fax (250) 414-7111

DRC Meeting: May 11, 2016

STAFF REPORT

DATE: May 6, 2016

TO: Chair and Members of the Design Review Committee

FROM: Trevor Parkes, Senior Planner

SUBJECT: **DEVELOPMENT PERMIT**
826 Esquimalt Road
[PID 006-075-495 Lot 2, Section 11, Esquimalt District, Plan 4225]

RECOMMENDATION:

That the Esquimalt Design Review Committee [DRC] recommends to Council that the application for a Development Permit authorizing the form and character of the proposed development to that shown on architectural plans provided by Praxis Architects Inc. stamped "Received May 6, 2016", and the landscape plan prepared by Lombard North Group Inc., stamped "Received March 29, 2016", and sited as detailed on the survey plan prepared by J.E. Anderson and Associates, stamped "Received March 29, 2016" for the 6 storey, thirty unit, multiple family residential building proposed to be located at PID 006-075-495 Lot 2, Section 11, Esquimalt District, Plan 4225 [826 Esquimalt Road], be forwarded to Council with a recommendation **to either approve, approve with conditions, or deny the application.**

BACKGROUND:

Purpose of the Application:

The applicant is proposing to construct a six storey, 30 unit, multiple family residential building including a grade level podium structure containing a lobby, utility areas and a 22 space parking garage. The podium would extend to the, north, west and east property lines but would maintain a 5.0 metres setback from the street while the 5 storey tower section would step modestly inward on the north, west and east sides thereby somewhat mitigating the perceived mass of the building. Two additional parking spaces dedicated to visitors are proposed to be located in front of the building bringing the total parking to 24 spaces.

This site is located within Development Permit Area No. 1 – Multi-Unit Residential; therefore a development permit is required to ensure the application meets the intent of the design guidelines contained in Section 9.3 of the Township's Official Community Plan.

The applicant is requesting approval of a Development Permit for the form and character, and landscaping proposed on the attached drawings as one is required prior to submitting for a Building Permit. As the applicant had satisfied all outstanding conditions, Esquimalt Council adopted the required change to zoning for this property on Monday, May 2, 2016.

Context

Applicant: Vangaurd Projects Inc. [Mark Eraut]

Owner: Magenta Enterprises Ltd., Inc. No. BC0296034

Property Size: Metric: 924 m^2 Imperial: 9944 ft^2

Existing Land Use: Single Family Residence

Surrounding Land Uses:
North: Single Family Residential
South: Single Family Residential/ Commercial
West: Multiple Family Residential [4 storeys]
East: Multiple Family Residential [2 storeys]

Existing OCP Designation: Multi-Unit, High-Rise Residential

Existing Zoning: CD-96

Comments from Design Review Committee [DRC]

This application was originally considered at the regular meeting of DRC held on April 13, 2016. Members comments included concern that neighbours will be forced to look at the concrete parking garage as opposed to plantings normally provided within setbacks that are absent from this project. Concern was also raised about this built form being repeated along Esquimalt Road as members felt the building fails to represent design that Esquimalt deserves at the entrance to the community.

The DRC resolved that the application should be returned to a future meeting with revised plans that address the following issues:

1) Altering the parking garage access
2) Lowering the parking garage further into grade.
3) Revising the lobby entrance way.
4) Improving compliance with the current Official Community Plan Guidelines.

The Motion Carried Unanimously

In response to this motion the applicant has provided a revised set of drawings, stamped May 6, 2016 [attached], that recess the planting areas along the east and west sides of the second floor terraces into the parking garage thereby allowing the previous wall railing to be replaced with a woven wire metal railing. The applicant states in his letter, stamped received April 29, 2016 [attached], that this will reduce the perceived height of the parking garage by 25%. Additional changes include the expansion of the grill treatment on the east wall of the parking garage to the structural limits of the building. This significant opening will be enhanced by climbing vegetation and there is a panel screen proposed to ensure headlights from vehicles do not spill out of the parking area onto the adjacent site. The amended plans also propose opening and screening the southern wall of the parking garage separating the covered and outdoor visitor parking thereby softening the southern façade and improving access of natural light into the parking structure.

Comments from Other Departments

The plans for this proposal were circulated to other departments and the following comments were received by the submission deadline:

Building Inspection: Building to be constructed to requirements of BC Building Code 2012 and Municipal Building Code Bylaw, 2002, No. 2538. Applicant must address all issues contained within the Township Development Protocol should application be approved. Plans will be reviewed for compliance with BC Building Code upon submission of a Building Permit application.

Engineering Services: Engineering staff have completed a preliminary evaluation of Works and Services that would be required for the 30 unit multiple family residential building proposed to be located at 826 Esquimalt Road. Staff confirms that the design appears achievable on the site and that appropriate works and services are available in the immediate area. If approved the development must be serviced in accordance with bylaw requirements including, but not limited to, new sewer and drain connections, underground hydro, telephone and cable services and new road works may be required up to the centre line of Esquimalt Road. Should the application be approved, additional comments will be provided when detailed civil engineering drawings are submitted as part of a Building Permit application.

ISSUES:

Zoning

CD-96 zoning was specifically tailored to accommodate this proposal. The proposed design is consistent with the form and character presented supporting the rezoning application and the building height, massing, density, siting and parking requirements satisfy all of the CD-96 zone regulations outlined in Amendment Bylaw No. 2864 [attached].

Official Community Plan

Policy direction contained in the Esquimalt Official Community Plan was reviewed by staff and presented to Council as part of the consideration of the rezoning application. Official Community Plan, Section 9.35, Guidelines for Owners of Land within the Development Permit Area No. 1 - Multi-Unit Residential are specifically relevant to consideration of this Development Permit Application [attached].

OCP Section 9.3.5(a) states, in part, that the size and siting of buildings abutting single, two-unit and townhouse dwellings should reflect the size and scale of adjacent development and compliment surrounding uses. The proposed building designed to be consistent with the OCP Land Use Designation for this site, Multi-Unit High-Rise Residential. While the building design is inconsistent with this guideline today, the OCP envisions the adjacent sites to the east and west redeveloping at, or above, 6 storeys and the sites to the north redeveloping in a 4 storey residential form.

OCP Section 9.3.5(b) states, in part, that new buildings should be designed and sited to minimize visual intrusion onto the privacy of surrounding homes and minimize the casting of shadows onto the private outdoor space of adjacent residential units. The proposed building designed to be 18 metres in height with substantial mass therefore it is expected to cast shadows on properties to the east and west. Properties to the north of this parcel are already

affected by the presence of a significant Oak Tree located at the rear of 843 Old Esquimalt Road. The applicant has provided a shadow analysis [attached] showing the impact shadows cast by the proposed building have on neighbouring parcels. Residential units in this proposal are sited in close proximity to the side lot lines, when compared to existing zoning standards. Overlook onto adjacent sites is an unavoidable consequence of this siting profile dictated by the relatively small lot width.

OCP Section 9.3.5(c) states that high density multi-unit residential buildings should be designed so that the upper storeys are stepped back from the building footprint with lower building heights along the street. While the five upper floors do step in from the edges of the first floor podium, it is the opinion of staff that this proposal is not consistent with this design guideline.

OCP Section 9.3.5(d) states that landscaping should emphasize the creation of an attractive streetscape as well as provide privacy between individual buildings and dwellings, screen parking areas and break up large expanses of paving. The proposed installation of two street trees located within the municipal boulevard combined with the multi-stem trees and shrubs proposed for the east and west corners of the Esquimalt Road frontage will soften the grade level impression of the building and screen the two outdoor parking spaces from the street. Proposed planting beds along the east and west sides of the elevated terraces will also serve to create visual interest and provide screening for those using the outdoor terrace patio spaces. The combination of plantings and the retention of the significant oak tree north of the site will preserve and enhance privacy on the northern terrace patios and will provide a focal point for residents looking down from units located on the upper floors.

OCP Section 9.3.5(f) states that underground parking will be provided for any multi-unit residential building exceeding four storey. This proposal does not comply with this design guideline.

OCP Section 9.3.5(i) states that retention and protection of trees and natural habitat is encouraged. The applicant has provided a Tree Assessment [attached] of the significant oak and has, through a covenant, agreed to enforce the recommendations to ensure required tree protection during construction.

OCP Section 9.3.5(k) states that site lighting should provide personal safety while being of a type that reduces glare and does not cause spillover of light onto adjacent parcels. The recessed and partially sunken lobby and shielded pedestrian areas on the terrace level should mitigate any significant light spillover to the street or adjacent sites. It remains unclear to staff whether light passively emitting from the parking garage will have a detrimental impact on the property to the east or the west due to the light permeable security grills proposed along the east and west walls of the parking garage. In recognition of this issue the design now includes panel screens along the open portion of the east wall to mitigate headlights shining on the adjacent building.

OCP Section 9.3.5(l) states garbage receptacle areas should be screened. This is achieved as the garbage and recycling areas are contained within first floor podium.

OCP Section 9.3.5(p)(i) states that in order to create more aesthetic and functional design, long narrow parcels with minimal road frontage should be avoided. The subject property is approximately 19 metres wide across the Esquimalt Road frontage which is a narrow for a multi-unit residential development of this kind.

OCP Section 9.3.5(p)(ii) states that parking areas should be placed away from the street. The parking demand for this high density project has driven the applicant to use as much of the site as possible for parking, including installing spaces in front of the principal building adjacent to the street.

OCP Section 9.3.5(p)(iii) states that porches and windows should overlook the street to increase personal interaction and safety. The proposed design achieves this by providing the outdoor terrace on the second floor and decks and windows for units on floors above.

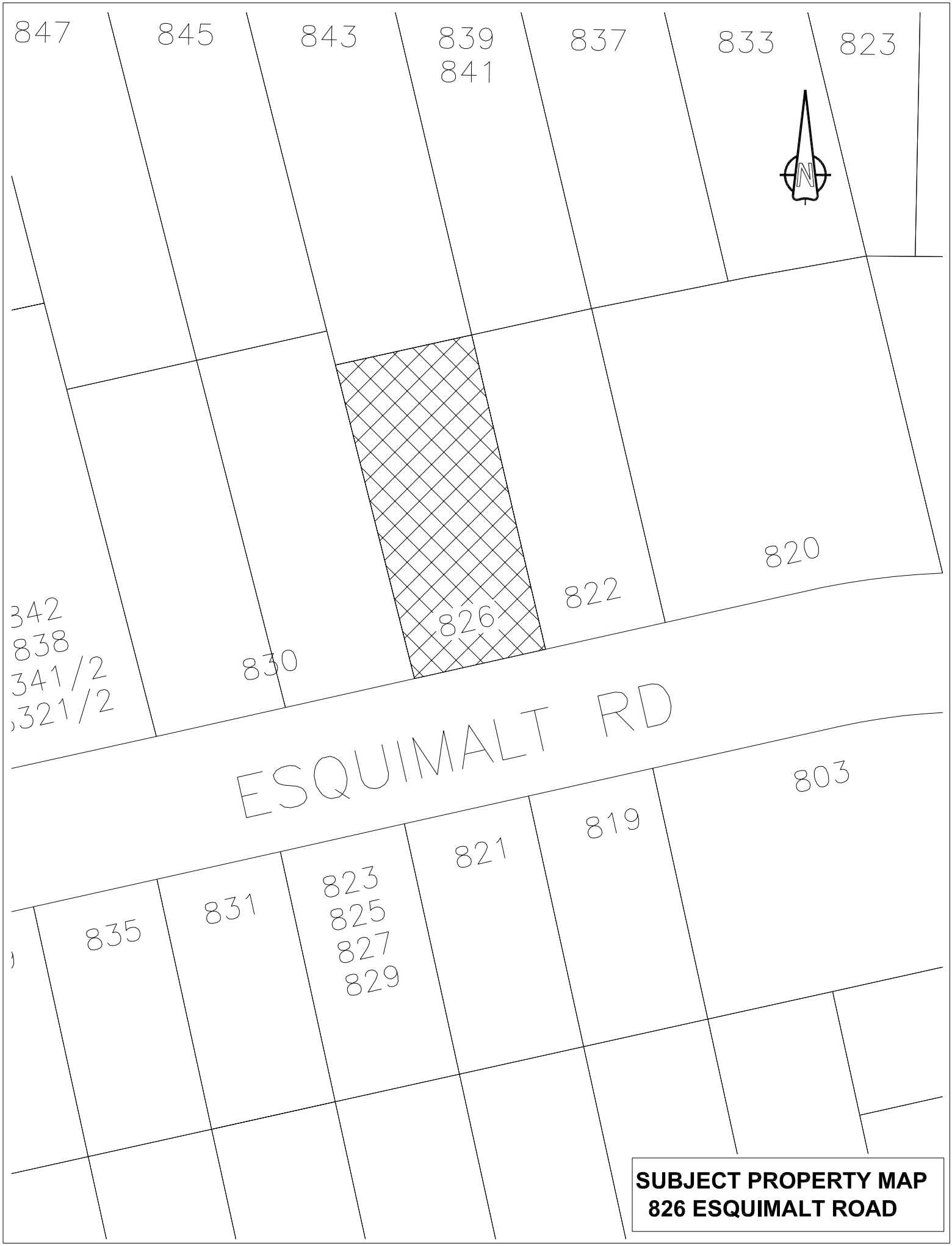
ALTERNATIVES:

1. Forward the application for Development Permit to Council with a **recommendation of approval**.

2. Forward the application for Development Permit to Council with a **recommendation of approval** including specific conditions.

3. Forward the application for Development Permit to Council with a **recommendation of denial**.

Trevor Parkes
Senior Planner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SUBJECT PROPERTY MAP
826 ESQUIMALT ROAD

826 Esquimalt Road

Subject Property Boundary: ——

2013 Aerial Photo

Development Permit Area No. 1 — Multi-Unit Residential

9.3.1 Scope

All land designated Multi-Unit Residential on Schedule "C" are part of DPA No. 1.

9.3.2 Category

Section 919(1)(f) of the *Local Government Act* — form and character, multi-family residential.

9.3.3 Justification

This Plan emphasizes the importance of protecting residential neighbourhoods and encouraging a high quality of construction for new development. It is essential that new multi-unit residential development not have a negative impact on, or be out of character with, existing residential neighbourhoods. The primary objective of Development Permit Area No. 1 is to ensure that the development of multi-unit residential sites is compatible with surrounding uses.

9.3.4 Requirements of Owners of Land within the Development Permit Area

a) Owners of land within Development Permit Area No. 1 must not do any of the following without first obtaining a development Permit in accordance with the guidelines for this Development Permit Area:

i) subdivide lands; or

ii) construct or alter a building or structure;

without first obtaining a Development Permit in accordance with the guidelines of this Development Permit Area.

b) Exemptions:

The following do not require a development permit:

i) construction of buildings or structures less than 10 square metres in area;

ii) minor additions to existing dwellings where the floor area of the addition does not exceed 10 percent of the ground floor area of the dwelling;

iii) emergency repairs to existing structures and public walkways where a potential safety hazard exists;

iv) fences;

v) the cutting of trees as permitted upon application under the municipal tree protection bylaw; and

vi) placement of signs less than 1.5 sq. metres in area.

9.3.5 Guidelines for Owners of Land within the Development Permit Area

a) The size and siting of buildings that abut existing single- and two-unit and townhouse dwellings should reflect the size and scale of adjacent development and complement the surrounding uses. To achieve this, height and setback restrictions may be imposed as a condition of the development permit.

b) New buildings should be designed and sited to minimize visual intrusion onto the privacy of surrounding homes and minimize the casting of shadows onto the private outdoor space of adjacent residential units.

c) High-density multi-unit residential buildings or mixed commercial/residential buildings in commercial areas with a zero front setback should be designed so that the upper storeys are stepped back from the building footprint, with lower building heights along the street front.

d) Landscaping of multi-unit residential sites should emphasize the creation of an attractive streetscape, as well as provide privacy between individual buildings and dwellings, screen parking areas and break up large expanses of paving.

e) Surface parking areas in multi-unit residential developments less than five storeys in height, will be situated away from the street and screened by berms, landscaping or solid fencing or a combination of these three.

f) Underground parking will be provided for any multi-unit residential buildings exceeding four storeys.

g) The retention of public view corridors particularly views to the water should be encouraged wherever possible.

h) To preserve view corridors and complement natural topography, stepped-down building designs are encouraged for sloping sites.

i) Retention and protection of trees and the natural habitat is encouraged wherever possible.

j) Townhouses will be designed such that the habitable space of one dwelling unit abuts the habitable space of another unit and the common wall overlap between adjoining dwellings shall be at least 50 percent.

k) Site lighting in multi-unit residential developments should provide personal safety for residents and visitors and be of the type that reduces glare and does not cause the spill over of light onto adjacent residential sites.

l) Garbage receptacle areas and utility kiosks should be screened by solid fencing or landscaping or a combination of the two.

m) For waterfront sites, retention of natural features and existing trees should be a priority in site planning considerations.

n) When any existing single-unit residence or duplex residence is being redeveloped to a multi-unit residential use by adding on of one or more dwelling units, such addition will be designed so that all of the units form a cohesive whole. In order to achieve cohesiveness:

   i) both, the existing and proposed structures will be in the same architectural style;

   ii) variations between the roofline of the existing building and any proposed addition(s) will be no greater than 1.5 metres;

iii) roof styles and pitches must be complementary;

iv) architectural features such as sloping roofs and dormers should be incorporated into the design to unite the various parts of the structure; and

v) the existing and proposed structure will be constructed using the same or complimentary exterior finishes including roofing materials, window treatments, door styles and other finishing details.

o) Within the area bounded by Tillicum, Craigflower, Lampson and Transfer Streets, redevelopment to multi-unit residential use will require that vehicular access to these sites be off Lampson Street rather than Tillicum, in recognition of the high levels of traffic currently using Tillicum Road.

p) To create a more aesthetic and functional design that links each multi-unit residential project with the streetscape, the following guidelines are recommend:

i) Avoid long, narrow parcels with minimal road frontage (consolidate one or more parcels where necessary);

ii) Place parking areas away from the street; and

iii) Design porches and windows overlooking the street to increase personal interaction and safety.

CORPORATION OF THE TOWNSHIP OF ESQUIMALT

BYLAW NO. 2864

A Bylaw to amend Bylaw No. 2050, cited as the
"Zoning Bylaw, 1992, No. 2050"

THE MUNICIPAL COUNCIL OF THE CORPORATION OF THE TOWNSHIP OF ESQUIMALT, in open meeting assembled, enacts as follows:

1. This bylaw may be cited as the *"ZONING BYLAW, 1992, No. 2050, AMENDMENT BYLAW No. 2864"*.

2. That Bylaw No. 2050, cited as the "Zoning Bylaw, 1992, No. 2050" be amended as follows:

   (1) by adding the following words and figures in Part 31, Zone Designations, in the appropriate alpha-numeric sequence:

   "Comprehensive Development No. 96 (826 Esquimalt Road) CD No. 96"

   (2) by adding the following text as Section 67.83 (or as other appropriately numbered subsection within Section 67):

   67.83 <u>COMPREHENSIVE DEVELOPMENT DISTRICT No. 96 [CD No. 96]</u>

   In that Zone designated as CD No. 96 [Comprehensive Development District No. 96] no Building or Structure or part thereof shall be erected, constructed, placed, maintained or used and no land shall be used except in accordance with and subject to the regulations contained in or incorporated by reference into this Part.

   (1) **<u>Permitted Uses</u>**

   The following Uses and no others shall be permitted:

   (a) Multiple Family Residential
   (b) Home Occupation

   (2) **<u>Number of Buildings and Dwelling Units</u>**

   Maximum One (1) Building containing not more than thirty (30) Multiple Family Dwellings in total. No Accessory Buildings or Structures permitted.

   (3) **<u>Floor Area Ratio</u>**

   The Floor Area Ratio shall not exceed 2.15

   (4) **<u>Unit Size</u>**

   The minimum Floor Area for each Dwelling Unit shall not be less than 44 square metres.

(5) **Parcel Size**

The minimum Parcel Size of fee simple Parcels created by subdivision shall be 920 square metres.

(6) **Building Height**

No Building shall exceed a Height of 18 metres.

(7) **Lot Coverage**

(a) A Building shall not cover more than 90% of the Area of a Parcel.

(b) Notwithstanding 7(a), that portion of a Building constructed above the First Storey shall not cover more than 62% of the Area of a Parcel.

(8) **Siting Requirements**

(a) **Building**

(i) Front Setback [First Storey]: No Building shall be located within 5.0 metres of the Front Lot Line.

(ii) Front Setback [Above First Storey]: No Building shall be located within 6.0 metres of the Front Lot Line.

(iv) Side Setback [First Storey]: No Side Setbacks shall be required

(iv) Side Setback [Above First Storey]: No Building shall be located within 1.5 metres of the western Interior Side Lot Line or within 2.1 metres of the eastern Interior Side Lot Line.

(v) Rear Setback [First Storey]: No Rear Setback shall be required.

(vi) Rear Setback [Above First Storey]: No Building shall be located within 3.3 metres of the Rear Lot Line.

(9) **Siting Exception**

Within the CD-96 zone, the minimum distance to the Front Lot Line, measured from the Front Setback [Above First Storey], may be reduced by not more than 2.1 metres to accommodate a front eave, attached to and forming part of a Principal Building.

(10) **Fencing**

Subject to Section 22, no fence shall exceed a Height of 1.2 metres in front of the front face of the Building and 2 metres behind the front face of the Building.

(11) **Off-Street Parking**

(a) Notwithstanding Section 13 of Parking Bylaw, 1992, No. 2011, off-street parking shall be provided in the ratio of 0.8 spaces per dwelling unit.

(b) A minimum of 4 of the parking spaces required above (11(a)) shall be marked “Visitor”.

(c) A minimum of 1 of the parking spaces required above (11(a)) shall be marked “Car Share Vehicle”.

(d) Notwithstanding Section 9(4) of Parking Bylaw, 1992, No. 2011, a maximum of 2 parking spaces may be located closer to the Front Lot Line than the front face of the Principle Building.

(3) by changing the zoning designation of PID 006-075-495 Lot 2, Section 11, Esquimalt District, Plan 4225 [826 Esquimalt Road] shown cross-hatched on Schedule “A” attached hereto, from RD-3 [Two Family/ Single Family Residential] to CD No. 96 [Comprehensive Development District No. 96].

(4) by changing Schedule ‘A’ Zoning Map, attached to and forming part of “Zoning Bylaw, 1992, No. 2050” to show the changes in zoning classification effected by this bylaw.

READ a first time by the Municipal Council on the 4th day of January, 2016.

READ a second time by the Municipal Council on the 4th day of January, 2016.

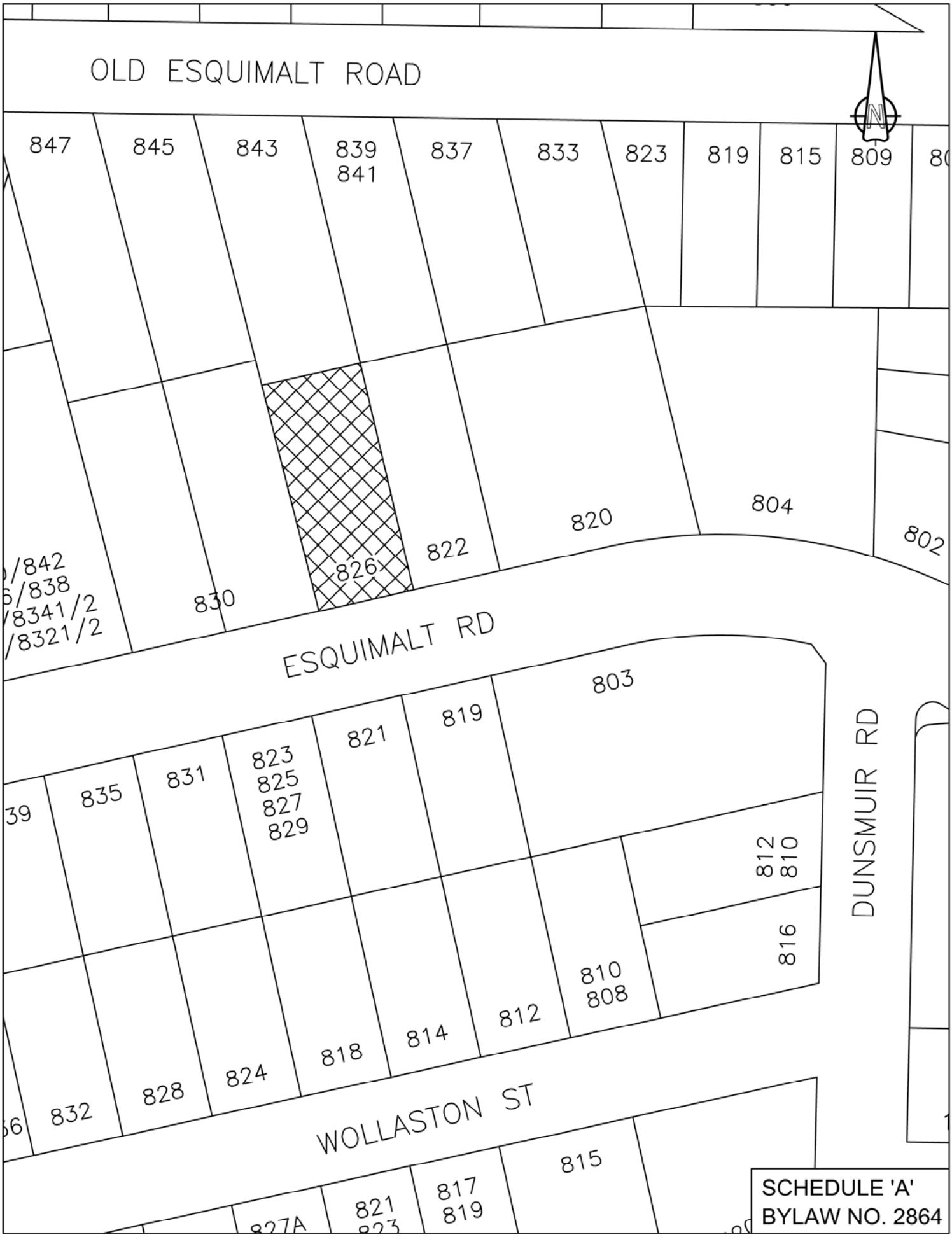
A Public Hearing was held pursuant to Sections 890 and 892 of the *Local Government Act* on the 1st day of February, 2016.

READ a third time by the Municipal Council on the 1st day of February, 2016.

ADOPTED by the Municipal Council on the ---- day of --------, 2016.

BARBARA DESJARDINS
MAYOR

ANJA NURVO
CORPORATE OFFICER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SCHEDULE 'A'
BYLAW NO. 2864

GYE + ASSOCIATES
Consultants in Urban Forestry and Arboriculture

October 26, 2015

Township of Esquimalt
Parks Division

To whom it may concern:

Re: 826 Esquimalt Road

Please find enclosed our Tree Protection Plan and Report for the above property.

BACKGROUND:
The subject property is a residential lot located in a developed area (see overview photo #1). The existing house is proposed for demolition and a new condo is planned for construction in a near future. The owner is applying for a building permit. Site grading for the new structure requires the grade at the back of the lot to be lowered by approximately 1.5m. The area at the back of the lot contains a large rocky outcrop, which lies within the protected root zone of a large Garry Oak growing on the adjacent parcel to the north at 843 Old Esquimalt Road (see photo 2, page following). The grading will necessitate blasting the rock outcrop and there is concern this activity may negatively impact the root habitat of the oak.

ASSIGNMENT:
Gye and Associates (G&A) have been retained to assist the owner of the property to minimize disturbance to the subject oak tree. Our assignment is limited to this one tree; no other trees growing on the site have been assessed.

Photo # 1

Urban Forests by Design

C : 250-739-8825
lserban@gyeandassociates.ca
www.gyeandassociates.ca

METHODOLOGY:

To complete this assignment, we have adopted the following approach.

1. We began by reviewing the proposed site plan with the developer, including the site grading requirements.
2. We visually assessed the condition of the subject oak tree and its growing environment.
3. Using the estimated stem diameter of the oak at 1.4m above grade, we calculated the critical root zone radius of the tree using a multiplier of 12. This radial offset was overlaid onto the attached site plan to provide an approximation of the actual sensitive root area.
4. With this information, we assessed the probable impacts to this environment (and ultimately to the tree) from the blasting and soil removal required to achieve the proposed grades.
5. Based on this assessment, we formulated our recommendations below for the protection of this tree.

OBSERVATIONS:

Site Assessment / History:

- The subject property is rectangular in shape, relative flat except for a gentle slope at the back of the property up toward the oak tree. The site has an old building on it with no evidence of recent soil disturbances.
- The two properties are separated by a chain-link fence.
- Soil plots reveal a loam texture that is relatively free draining.

Photo # 2

Description of the trees on site:

- Six Bigleaf maple trees are located on the property (see attached site plan for tree location) and were the subject of a previous tree management plan.
- The subject Garry oak tree is located on the neighboring property to the north, approximatively 10m distant from the property line.
- The Garry oak tree is well structured with no visible signs of insects' attacks, disease or significant mechanical injuries (see photo #3 and table #1). No surficial roots were observed.

Common Name	Crown Radius (m)	DBH (cm)	PRZr (m)	Structural Condition	Health	Recommendation
Garry oak X 3	12 to 14	70/80/90	18	Good	Good	Protect and retain

Table #1

- The surface of the rocky outcrop is exposed.
- We assess the probability of a tree failure, either in whole or in part, to be low.

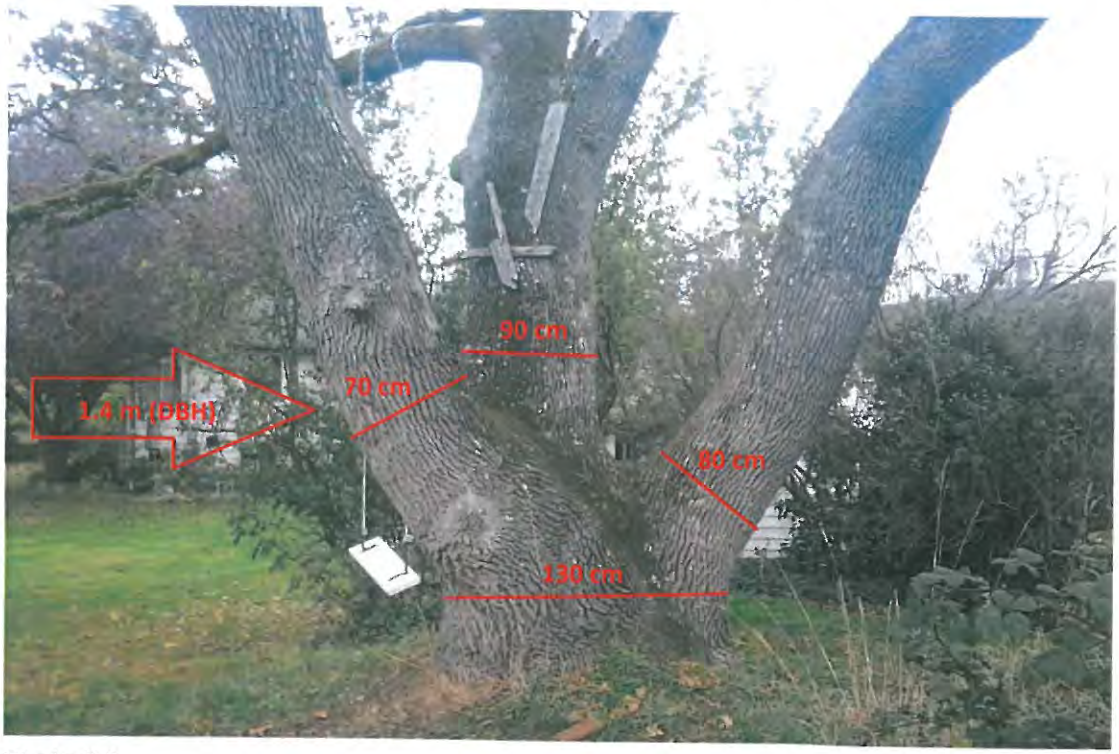


Photo # 3

DISCUSSION:

Based upon our estimated critical root zone calculation, we estimate that 5 – 10% of the tree's root system may be encroaching into the applicant's property in soil areas adjacent to the rock outcrop. These roots are likely to lie within the upper 1 – 1.5m of soil and would be displaced by the proposed grading; however, provided best practices are followed, we do not believe this presents a signicant impact to the

tree. The greatest potential risk to the tree is from rock blasting improperly carried out. Charges that are too large and with too high a peak particle velocity can displace soils further back toward the tree and rupture the fine, non-woody, roots that are responsible for the uptake of moisture and nutrients. These impacts can be avoided if appropriate measures are followed.

TREE PRESERVATION MEASURES:

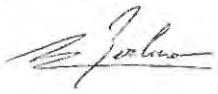
The following protection measures are recommended.

1. Prior to site preparation, temporary fencing should be erected across the back of the site at the furthest extent of the critical root radius. Large format, all-weather, signage should be placed on the fence identifying the area within as protected tree habitat and prohibiting entry.
2. The arborist must meet with the general contractor and the excavation and blasting sub-contractors prior to site work commencing to review tree protection objectives and measures and to review and discuss the blasting plan.
3. The arborist must be present to oversee any work within the protected tree area (TPA), including blasting, excavation, hauling or service trenching.
4. Any change in tree protection fencing or access within the fenced area must be approved beforehand by the project arborist.
5. Procedure for blasting near tree root zones:
   a) Blasting vibrations in the vicinity of the Tree Protection Areas are not to exceed a peak particle velocity of 25 mm/sec.
   b) When blasting is required immediately adjacent to a Tree Protection Area, the blasting contractor must pre-shear the area between the blasting work and the Tree Protection Area. Drill closely spaced holes and use PRIMEAFLEX as the explosive product.
   c) No fertilizer-based explosive is permitted, due to its toxicity to tree roots.
   d) The project arborist must be in attendance when blasting is occurring immediately adjacent to Tree Protection Areas.
   e) The contractor will prevent rock debris from the blast site from entering the TPA.
6. Every care must be taken not to damage the branches of the oak tree. If one or more branches is deemed to interfere with future building, it must be properly pruned under the oversight of the project arborist. Any tree roots damaged during excavation will be pruned back to undamaged tissue by the arborist.
7. The vertical face of the excavation adjacent to the trees will be covered with a geo-textile fabric to prevent soil dessication and erosion.
8. Avoid any unnecessary soil fills and cuts.
9. No equipment, materials or excavated soil will be placed or stored within the TPA. THIS PARTICULARLY INCLUDES HOARDING OF EXCAVATED SOILS NEEDED FOR BACKFILLING OF THE HOUSE FOUNDATION, WHICH IS EXPRESSLY PROHIBITED.

CERTIFICATION:

This report and the opinions expressed within it have been prepared in good faith and to accepted arboricultural standards within the scope afforded by its terms of reference and the resources made available to the consultant.

Prepared by:

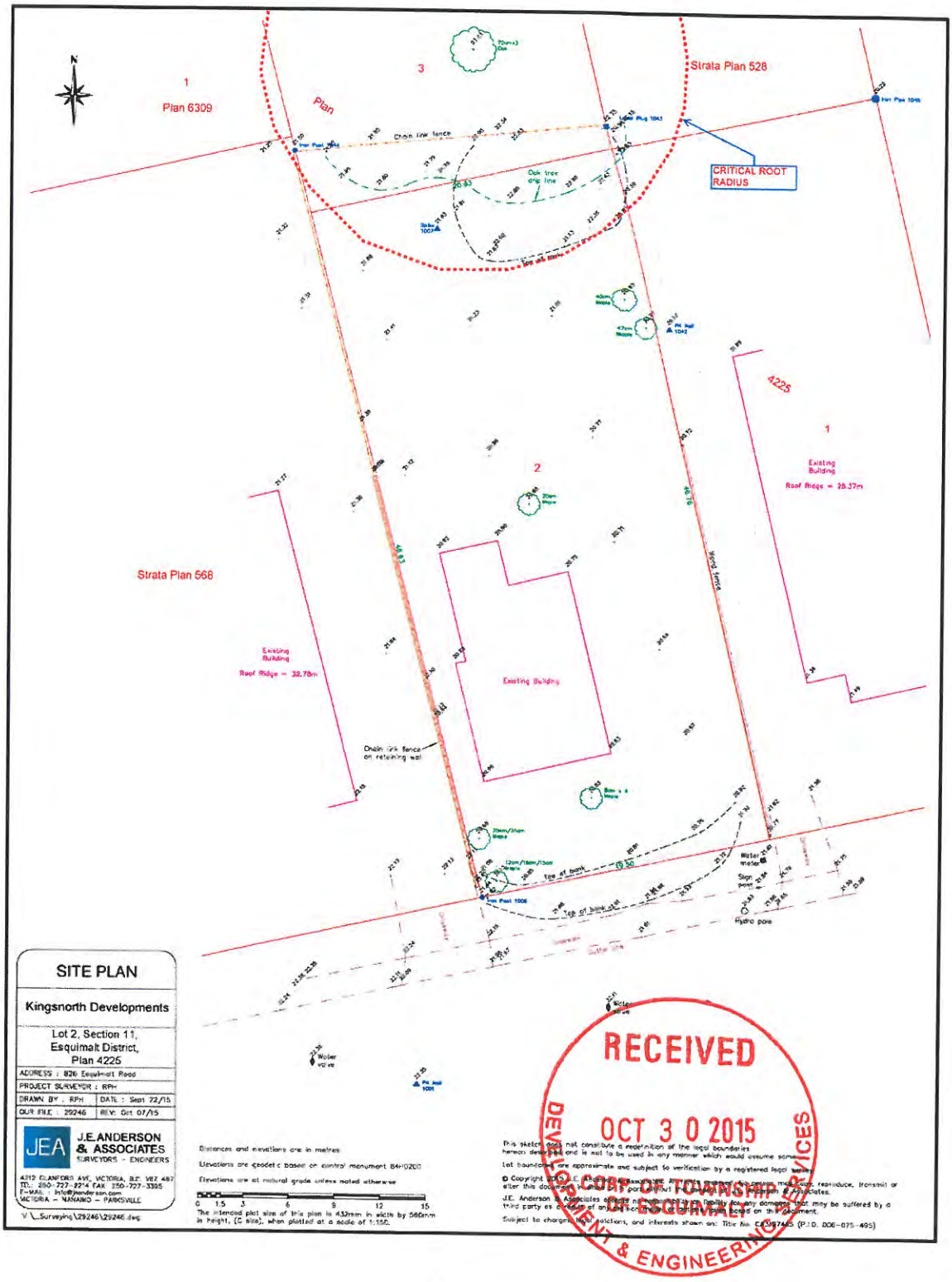


Lucian Serban B.Sc. Forestry
ISA Certified Arborist & Municipal Specialist PN-7558AM
ISA Tree Risk Assessment Qualified
On behalf of Gye and Associates, Urban Forestry Consultants Ltd.

Reviewed by:

Jeremy Gye – Senior Consultant
Consulting Arborist (Diploma, American Society of Consulting Arborists, 1997)
ISA Certified Arborist (Certification No. PN-0144A)
ISA Municipal Specialist (Certification No. PN-0144AM)
Certified Master Woodland Manager (Small Woodlands Program of BC)
On behalf of Gye and Associates, Urban Forestry Consultants Ltd.

Distribution:
Mark Eraut
Michael Levin
Kristin Schulberg
Ryan Hourston


N
1
Plan 6309
3
Plan
Strata Plan 528
Chain link fence
Oak tree drip line
CRITICAL ROOT RADIUS
4225
1
Existing Building
Roof Ridge = 28.37m
2
Strata Plan 568
Existing Building
Roof Ridge = 32.78m
Existing Building
Chain link fence on retaining wall
Wood fence
top of bank
Water meter
Sign post
Hydro pole
Water valve
SITE PLAN
Kingsnorth Developments
Lot 2, Section 11, Esquimalt District, Plan 4225
ADDRESS : 826 Esquimalt Road
PROJECT SURVEYOR : RPH
DRAWN BY : RPH
DATE : Sept 22/15
OUR FILE : 29246
REV: Oct 07/15
J.E.ANDERSON & ASSOCIATES
SURVEYORS - ENGINEERS
4312 CLANFORD AVE, VICTORIA, B.C. V8Z 4B7
TEL: 250-727-2214 FAX: 250-727-3395
E-MAIL : info@anderson.com
VICTORIA - NANAIMO - PARKSVILLE
V:\Surveying\29246\29246.dwg
Distances and elevations are in metres
Elevations are geodetic based on control monument 84H0200
Elevations are at natural grade unless noted otherwise
0 1.5 3 6 9 12 15
The intended plot size of this plan is 432mm in width by 560mm in height, (C size), when plotted at a scale of 1:150.
This sketch does not constitute a redefinition of the legal boundaries hereon described and is not to be used in any manner which would assume same.
Lot boundaries are approximate and subject to verification by a registered legal survey.
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Subject to charges, rights, relations, and interests shown on: Title No. CA5137465 (P.I.D. 006-075-495)
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OCT 30 2015
DEVELOPMENT & ENGINEERING SERVICES
COURT OF TOWNSHIP OF ESQUIMALT

9:00 am

12:00 pm

3:00 pm

6:00 pm

March 21st

June 21st

sept 21st

Dec 21st

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MAR 29 2016
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DEVELOPMENT SERVICES

PRAXIS architects inc.

826 Esquimalt Road - shadow study

December 1st, 2015

Vanguard Projects Inc.

820 Esquimalt Road
Esquimalt, BC

April 29, 2016

Development Services
Township of Esquimalt

Re: Development Permit 826 Esquimalt Road

In response to your letter of April 18, 2016 please see the attached amended architectural plans for the consideration of the Design Review Committee at its next meeting of May 11, 2016.

I believe that the architectural work performed by Kristin Schulberg of Praxis Architects is excellent and the form and character of the proposed building met with tremendous support from residents and council members.

Contrary to the views of the DRC, I have lived or worked in Esquimalt for over 30 years and believe that this building will provide a positive impact on redevelopment to the entry corridor to Esquimalt. A company I operate also owns the property at 820 Esquimalt Road and it is important for this property's future development success that neighbouring buildings be attractive and successful.

That being said the views of the DRC led Kristin to examine what she could do to reduce the height of the parking structure and the results of that examination is what is being presented.

When the Design Review Committee reviews these amendments I would ask that they make comment on the form and character of the building in consideration of the zoning that has been approved for the site.

The main area of discussion seemed to relate to the parking structure and podium. The amendments to the plan are all focussed on these areas. Please note the following changes:

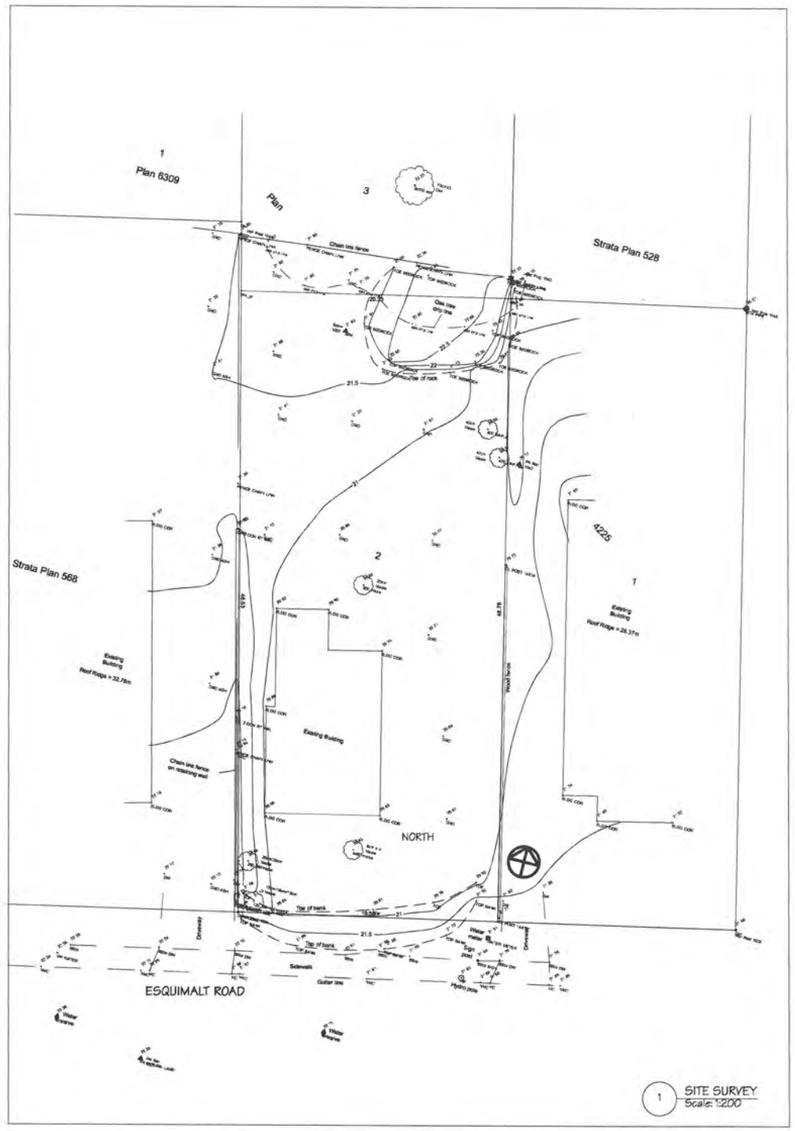
1. East and West Podium Planters have been recessed entirely into the parking structure and the above slab concrete retaining wall/railing has been replaced with a railing along each elevation. Replacing concrete with railings has reduced the "apparent" height of the parking structure by 25% from the east and west elevations and provides a better opportunity for plants to cascade over the side of the parking structure.

2. The expansion of the East Parking Grill has provided for a greater amount of planting area from within the parking structure that will allow more greening of the East Parking area. (The final amount of grill expansion will be dependent on structural engineering requirements)
3. The southeast grill area that separates the visitor surface parking from the below slab visitor parking has been increased in size to incorporate the entire available area that is not required for structural concrete posts

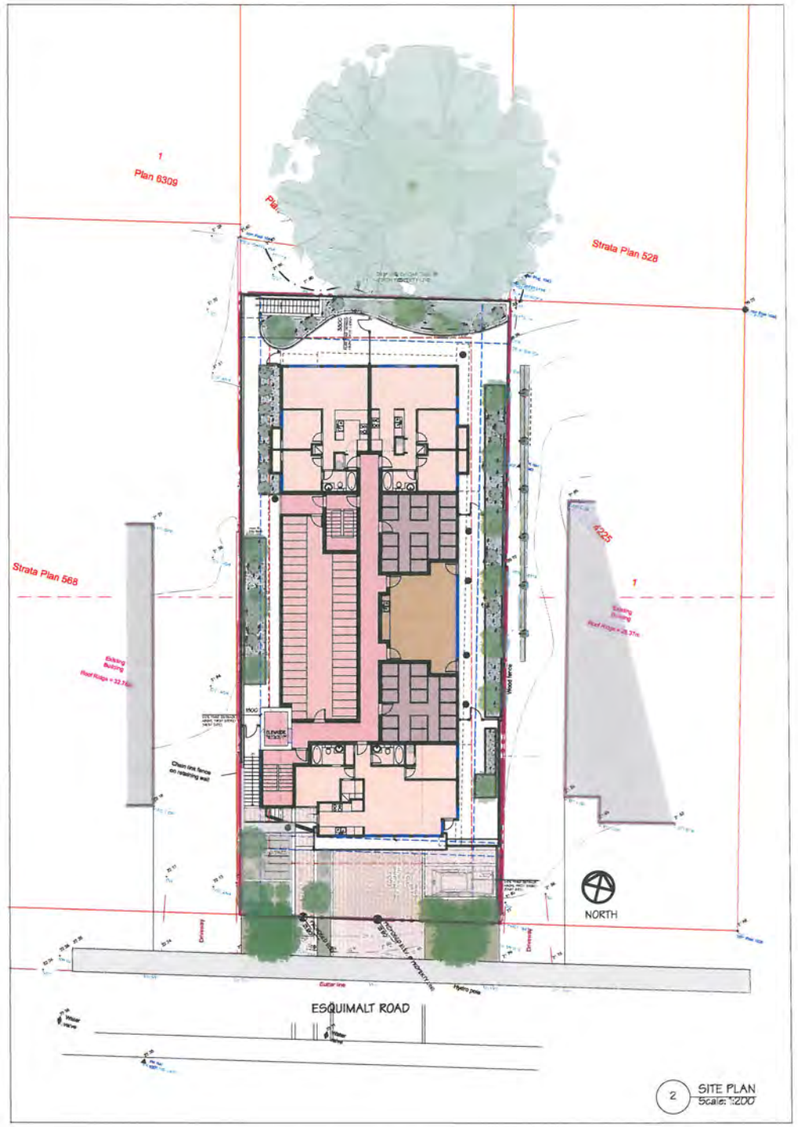
The above changes can be incorporated into the design within the limits imposed by the approved zoning. We hope that these changes meet with the approval of the Design Review Committee.

Regards

Mark Eraut
Vice President
250-213-3230



1 SITE SURVEY
Scale: 1:200



2 SITE PLAN
Scale: 1:200

PROJECT DATA

STREET ADDRESS: 826 ESQUIMALT ROAD

LEGAL DESCRIPTION: LOT 2; SECTION 11;
ESQUIMALT DISTRICT VIP 4225;
PID 006075495

ZONE: CD NO. 96
(COMPREHENSIVE DEVELOPMENT DISTRICT NO. 96)

PERMITTED USES: MULTIPLE FAMILY RESIDENTIAL
HOME OCCUPATION

SITE AREA: 929.887 M2

FLOOR AREA:

	M2
LEVEL ONE	0
LEVEL TWO	370.66
LEVEL THREE	417.299
LEVEL FOUR	417.299
LEVEL FIVE	417.299
LEVEL SIX	379.93
TOTAL FLOOR AREA:	2002.487 M2

FLOOR AREA RATIO: 2002.487 M2 / 929.887 M2 = 2.15

LOT COVERAGE: 88% LEVEL ONE
60% FLOOR LEVELS 3-4-5 (ABOVE FIRST STOREY.)

SETBACKS:

FRONT:	5 METRES	(FIRST STOREY)
	6 METRES	(ABOVE FIRST STOREY)
	3.9 METRES	(@ EAVE / ROOF)
REAR:	0	(FIRST STOREY)
	3.3 METRES	(ABOVE FIRST STOREY)
SIDES:	0	(FIRST STOREY)
WEST	1.5 METRES	(ABOVE FIRST STOREY)
EAST	2.1 METRES	(ABOVE FIRST STOREY)

	2 BED		1+DEN		1 BED		#/FLOOR
LEVEL 1	0		0		0		0
LEVEL 2	3		0		0		3
LEVEL 3	3		2		2		7
LEVEL 4	3		2		2		7
LEVEL 5	3		2		2		7
LEVEL 6	4		2		0		6
TOTALS :	16	+	8	+	6	=	30

TOTAL DWELLING UNITS: 30

PARKING PROVIDED:

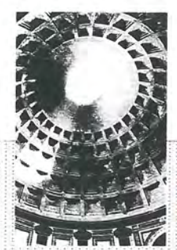
	19	RESIDENT STALLS (BEHIND GATE)
	4	'VISITOR' STALLS
	1	'CAR SHARE VEHICLE' STALL
TOTAL STALLS:	24	(.8 PER DWELLING UNIT)

6 SPACE BIKE RACK PROVIDED FOR VISITORS IN FRONT YARD.

BUILDING HEIGHT: 18 METRES

AVERAGE GRADE: 21.546 =
(21.6 + 21.3 + 21.358 + 21.9 = 86.185 / 4)

AMENITIES PROVIDED: 45 BICYCLE STORAGE UNITS.
30 SECURE STORAGE UNITS.
1 AMENITY ROOM W/ DIRECT GARDEN TERRACE ACCESS.



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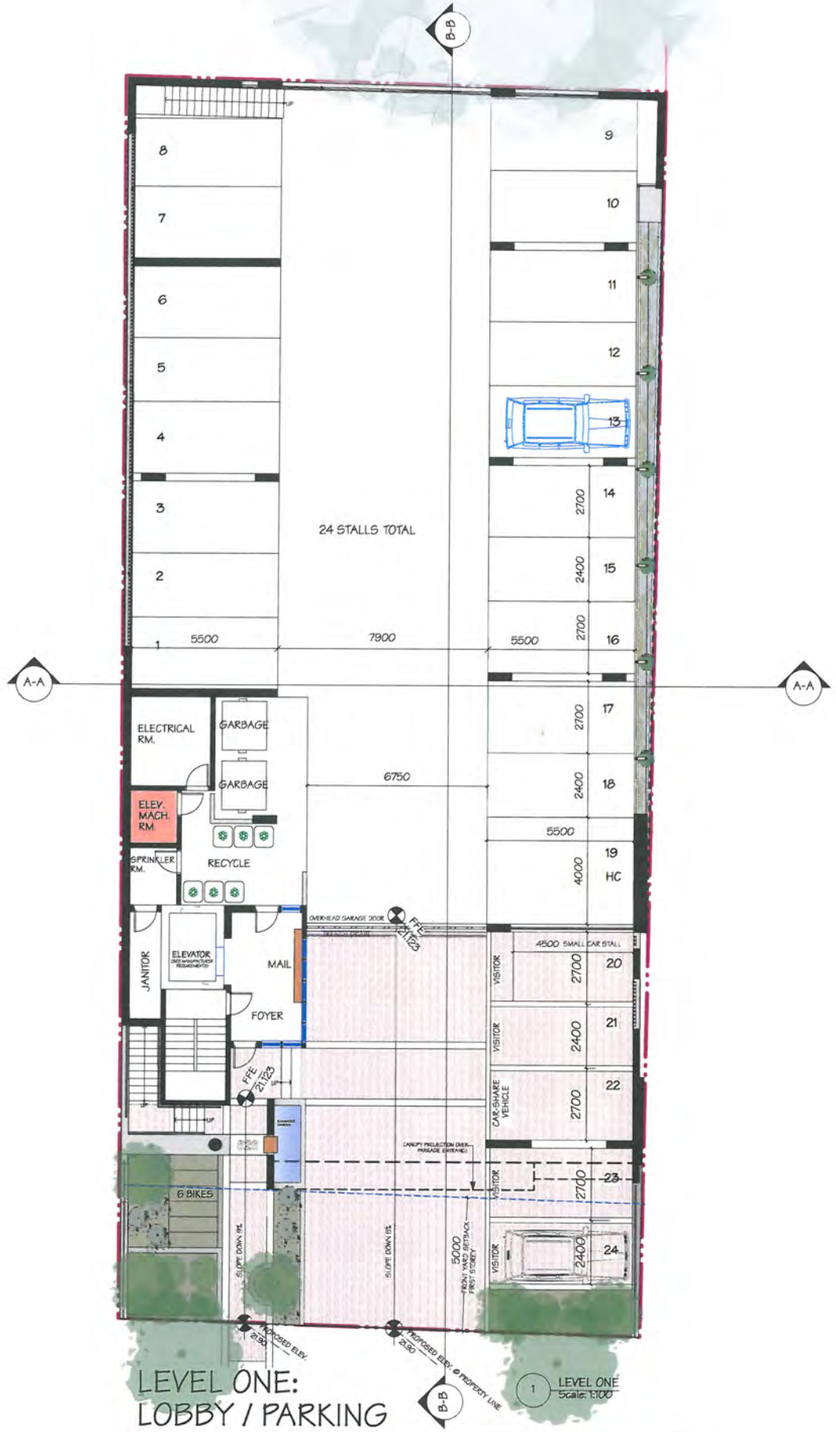
VERDE CONDOMINIUMS
826 ESQUIMALT ROAD
VICTORIA B.C.

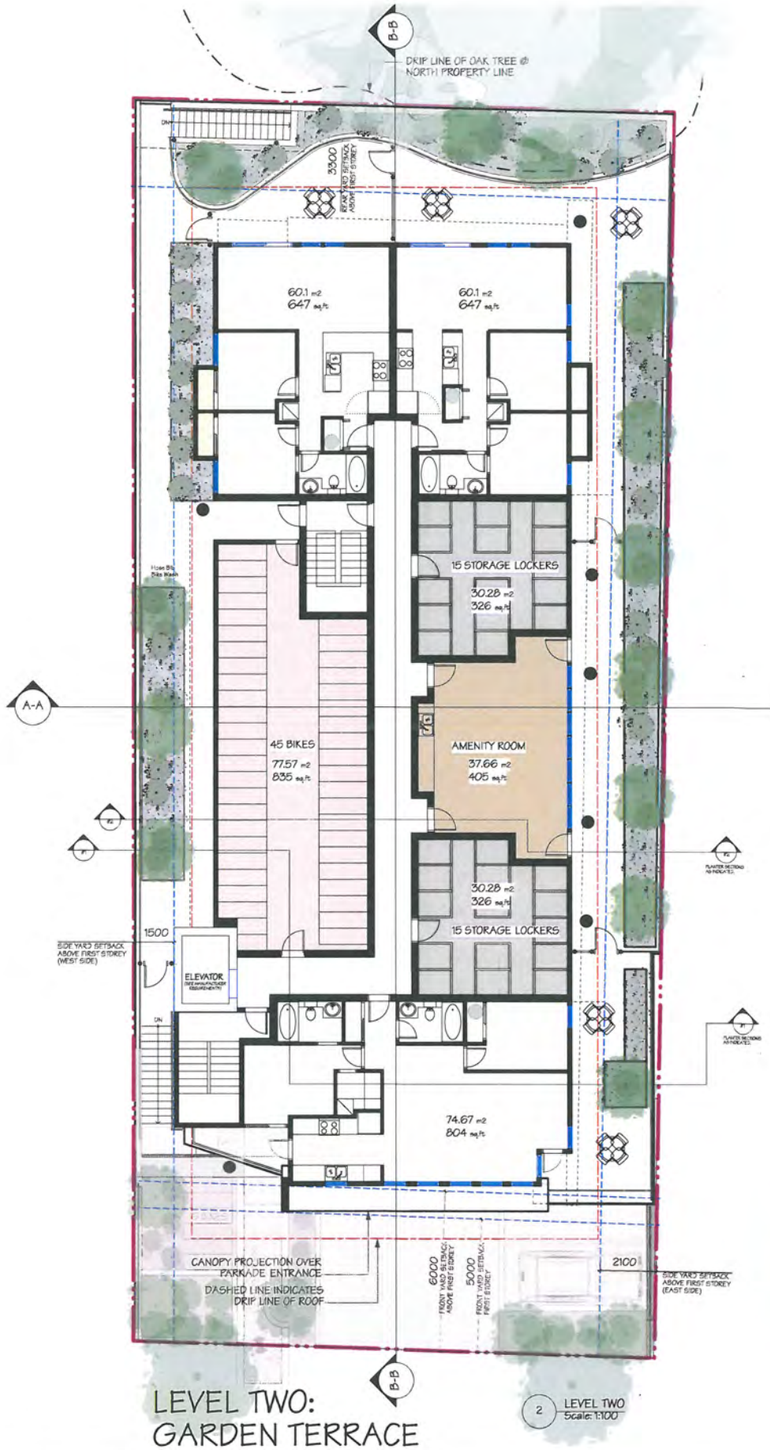
DEVELOPMENT PERMIT APPLICATION MARCH 29TH 2016
SITE SURVEY SITE PLAN
DATA SHEET

A-1



LEVEL ONE:
LOBBY / PARKING

1 LEVEL ONE
Scale: 1:100



LEVEL TWO:
GARDEN TERRACE

2 LEVEL TWO
Scale: 1:100

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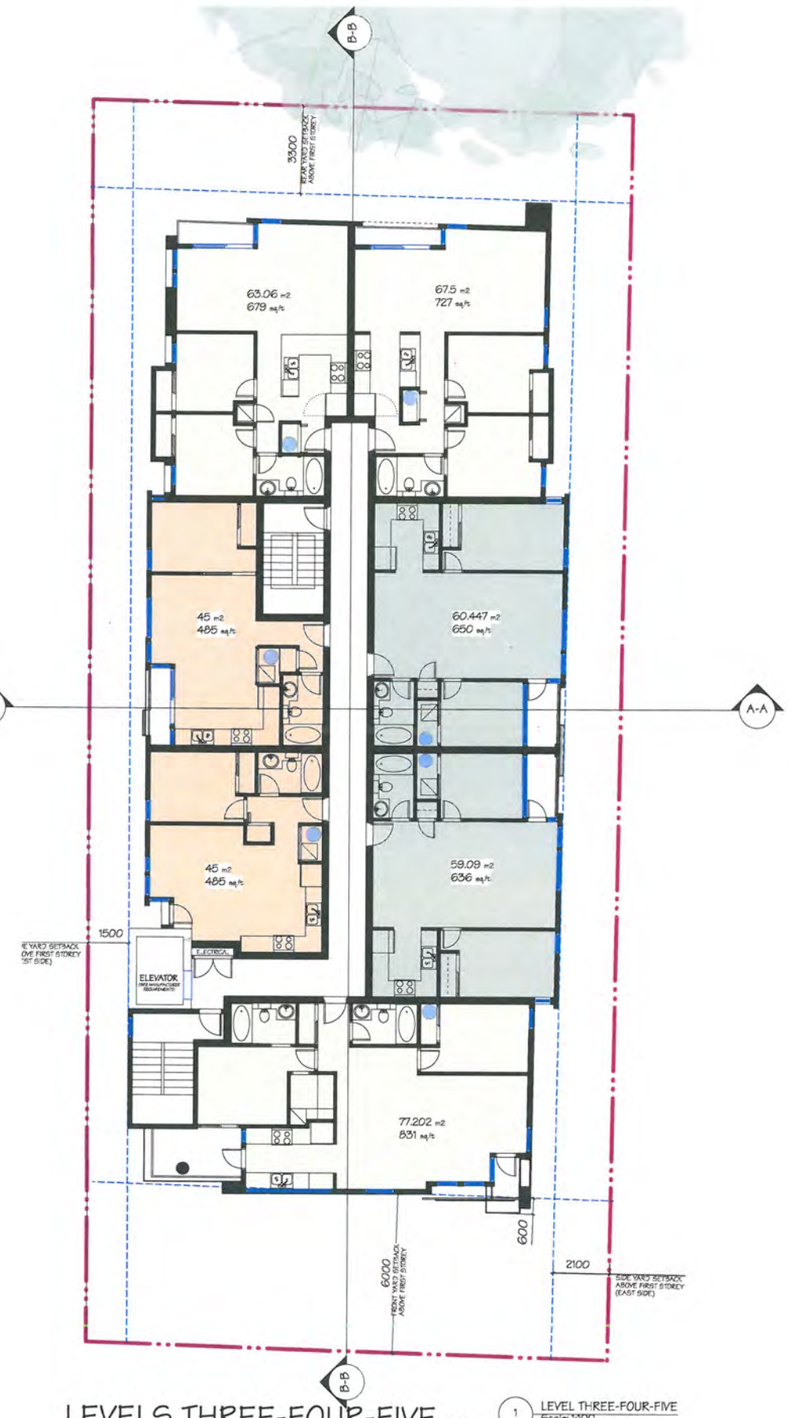
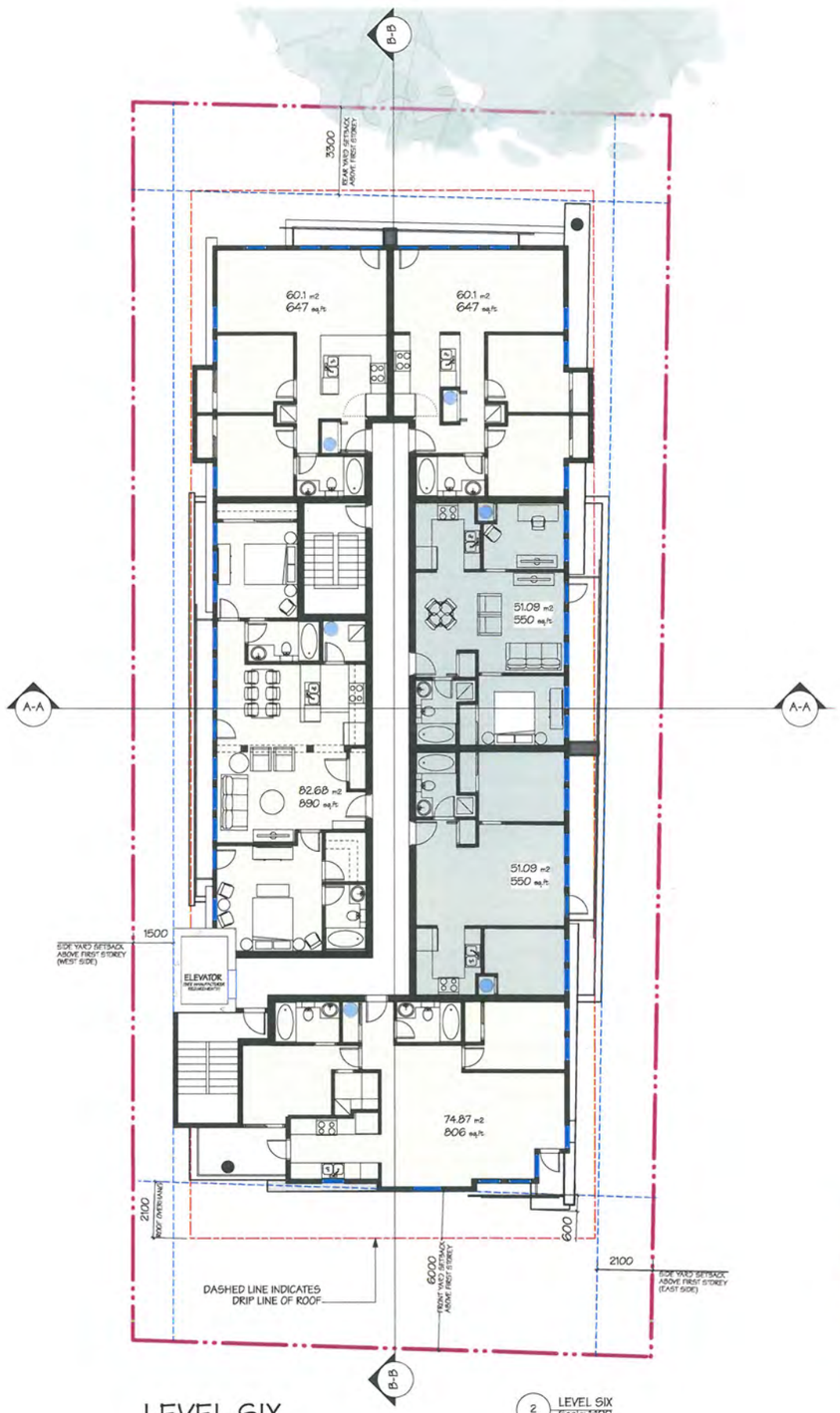
DEVELOPMENT PERMIT APPLICATION MARCH 29TH 2016
PLANS : LEVEL ONE AND TWO

A-2



LEVELS THREE-FOUR-FIVE TYPICAL. (1) LEVEL THREE-FOUR-FIVE Scale: 1:100



LEVEL SIX (2) LEVEL SIX Scale: 1:100

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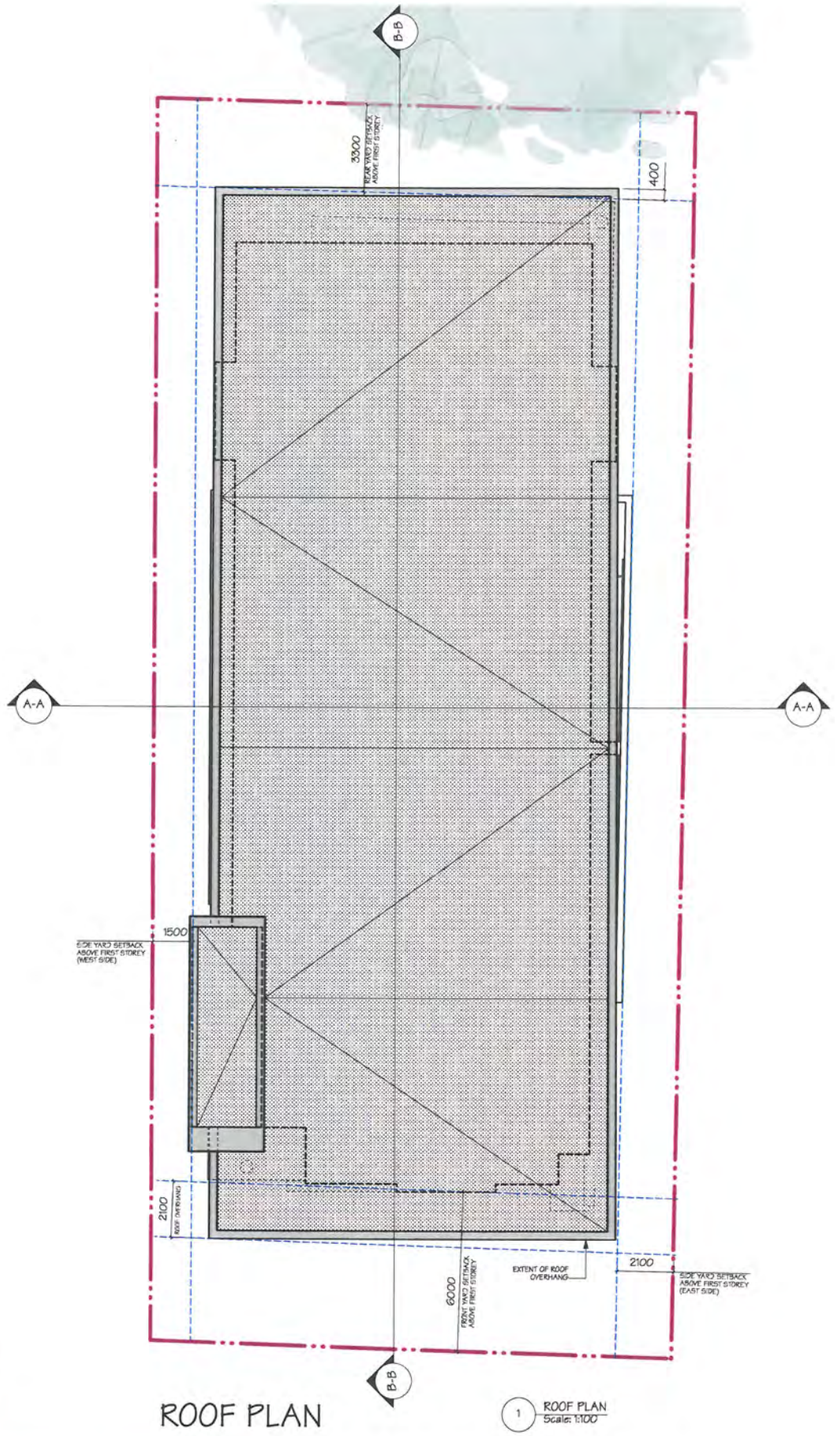
VICTORIA B.C.

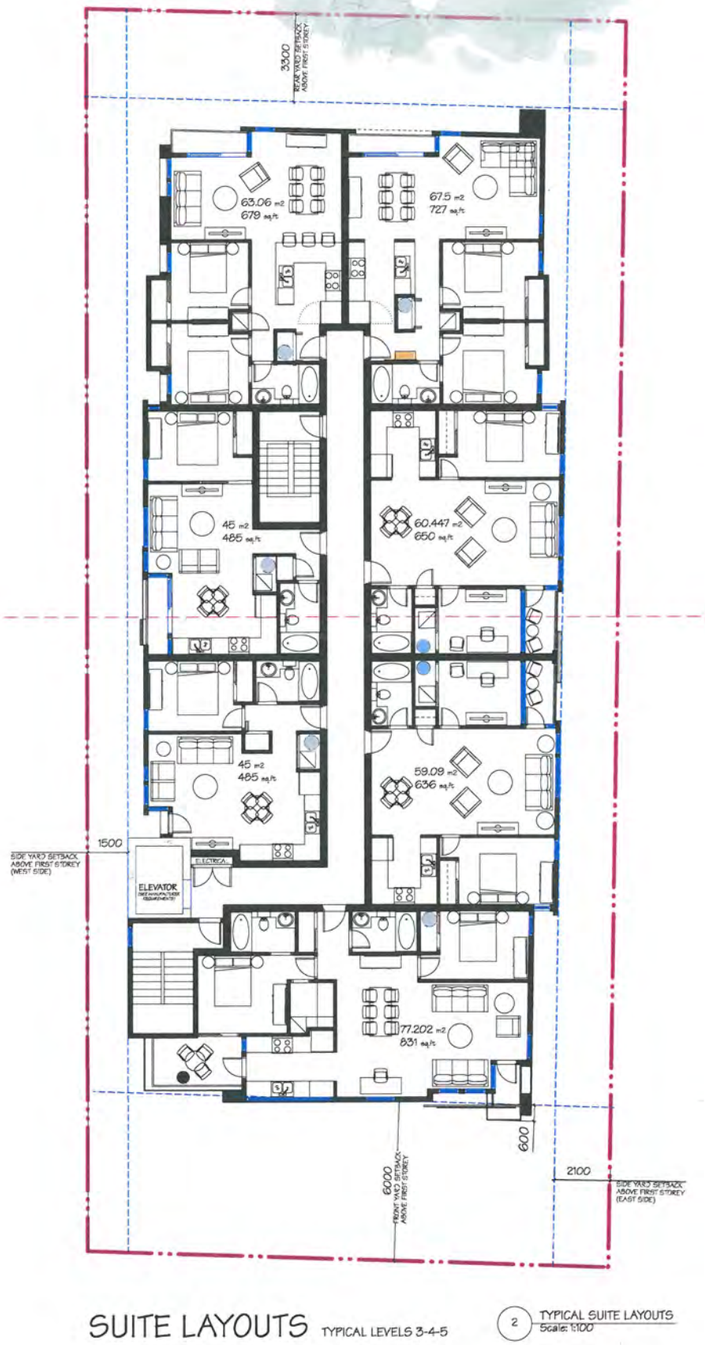
DEVELOPMENT PERMIT APPLICATION MARCH 29TH 2016
PLANS : TYPICAL LEVELS 3-4-5 & LEVEL SIX

A-3



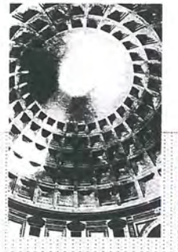
ROOF PLAN

1 ROOF PLAN
Scale: 1:100



SUITE LAYOUTS TYPICAL LEVELS 3-4-5

2 TYPICAL SUITE LAYOUTS
Scale: 1:100



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VICTORIA B.C.

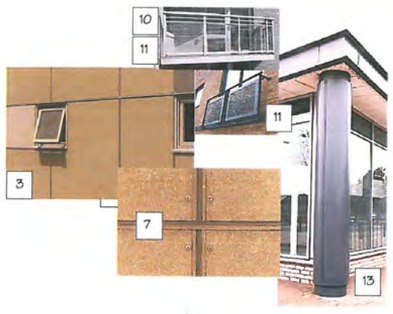
DEVELOPMENT PERMIT APPLICATION MARCH 29TH 2016
PLANS : ROOF PLAN &
SUITE LAYOUT PLAN FOR TYPICAL FLOORS 3-4-5

A-4

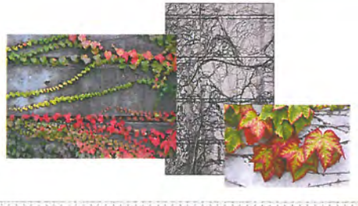
3 SOUTH ELEVATION @ ESQUIMALT ROAD
Scale: 1:100

MATERIALS

1. CONCRETE: C/W VERTICAL + HORIZONTAL REVEAL JOINTS + FORM TIE ARTICULATION.
   FINISH: PAINTED CONCRETE
2. FIBRE-REINFORCED CEMENT BOARD: SMOOTH PANEL
   COLOR: JAMES HARDIE 'COLOR-PLUS' : "HEATHERED MOSS"
3. FIBRE-REINFORCED CEMENT BOARD: SMOOTH PANEL
   COLOR: JAMES HARDIE 'COLOR-PLUS' : "TUSCAN GOLD"
4. STUCCO : FINE TEXTURE
   COLOR: "HORIZON" BENJAMIN MOORE: (BMOC-53)
5. PRE FINISHED METAL FLASHING
   COLOR: "KENDALL CHARCOAL" BEJAMIN MOORE (HC-166)
   COLOR: "HORIZON" BENJAMIN MOORE: (BMOC-53)
6. SOFFIT: WOOD
   COLOR: NATURAL STAIN
7. PRE-FINISHED-PRIMED-COLOR-MATCHED "FRY REGLET":
   COLOR MATCHED TO PANEL COLORS
8. ACCENT PANELS: FIBRE-REINFORCED CEMENT BOARD: SMOOTH PANEL
   COLORS:
   "COVINGTON BLUE" BENJAMIN MOORE (BM HC-138)
   "STUART GOLD" BENJAMIN MOORE (BM HC-10)
   "GEORGIAN BRICK" BENJAMIN MOORE (BM HC-60)
9. WINDOWS: VINYL
   STANDARD COLOR: WHITE
10. GUARDS AND/OR SCREEN:
    WOVEN WIRE SCREEN WITH METAL EDGING
    COLOR: NATURAL ALUMINUM FINISH
    ACCENT PANELS ON GUARDS: SHEET METAL TO MATCH ACCENT COLORS.
11. RAILINGS: 2" DIAMETER PIPE RAIL
    STANDARD COLOR: "CHARCOAL"
12. ACCENT GLAZING: COLORED OPAQUE GLASS TO MATCH ACCENT PANEL COLORS.
13. PRE-FINISHED METAL COLUMN CASING.
    COLOR: "CHARCOAL"
14. PERMEABLE PAVERS: "BELGARD ECO-DUBLIN" OR EQUIVALENT.
    COLOR: "CHARCOAL".



4 EAST ELEVATION
Scale: 1:100



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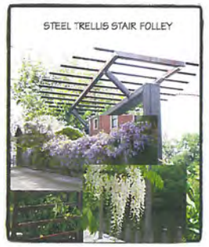
VERDE CONDOMINIUMS
826 ESQUIMALT ROAD
VICTORIA B.C.

DEVELOPMENT PERMIT APPLICATION: MARCH 29TH 2016
ELEVATIONS: SOUTH AND EAST

A-5

1 NORTH ELEVATION
Scale: 1:100



MATERIALS

1. CONCRETE: C/W VERTICAL + HORIZONTAL REVEAL JOINTS + FORM TIE ARTICULATION.
   FINISH: PAINTED CONCRETE
2. FIBRE-REINFORCED CEMENT BOARD: SMOOTH PANEL
   COLOR: JAMES HARDIE 'COLOR-PLUS' : "HEATHERED MOSS"
3. FIBRE-REINFORCED CEMENT BOARD: SMOOTH PANEL
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6. SOFFIT: WOOD
   COLOR: NATURAL STAIN
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   COLOR MATCHED TO PANEL COLORS
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   "STUART GOLD" BENJAMIN MOORE (BM HC-10)
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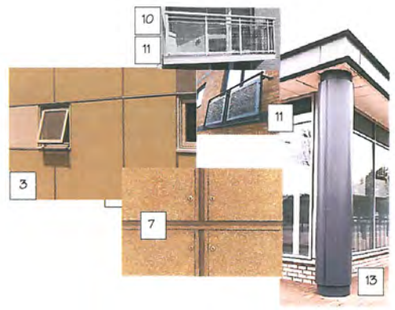
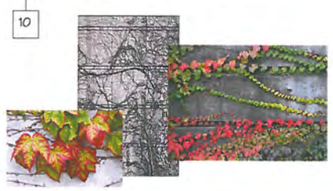
9. WINDOWS: VINYL
   STANDARD COLOR: WHITE
10. GUARDS AND/OR SCREEN:
    WOVEN WIRE SCREEN WITH METAL EDGING
    COLOR: NATURAL ALUMINUM FINISH
    ACCENT PANELS ON GUARDS: SHEET METAL TO MATCH ACCENT COLORS.
11. RAILINGS: 2" DIAMETER PIPE RAIL
    STANDARD COLOR: "CHARCOAL"
12. ACCENT GLAZING: COLORED OPAQUE GLASS TO MATCH ACCENT PANEL COLORS.
13. PRE-FINISHED METAL COLUMN CASING.
    COLOR: "CHARCOAL"
14. PERMEABLE PAVERS: "BELGARD ECO-DUBLIN' OR EQUIVALENT.
    COLOR: "CHARCOAL".



2 WEST ELEVATION
Scale: 1:100


STEEL TRELLIS STAIR FOLLEY



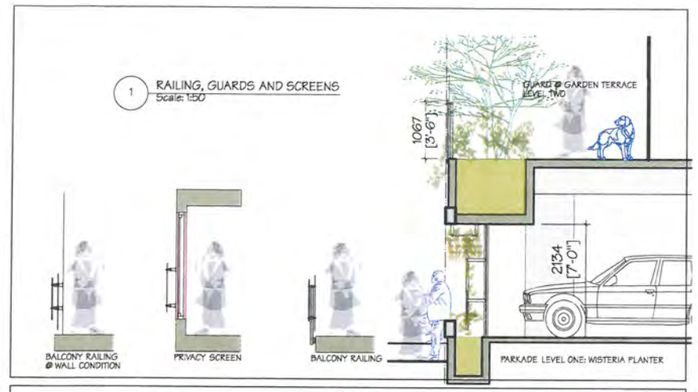

BIKE SWEEP @ STAIR

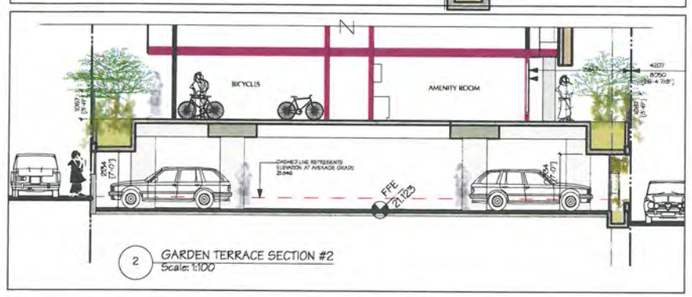
PRAXIS
architects inc.

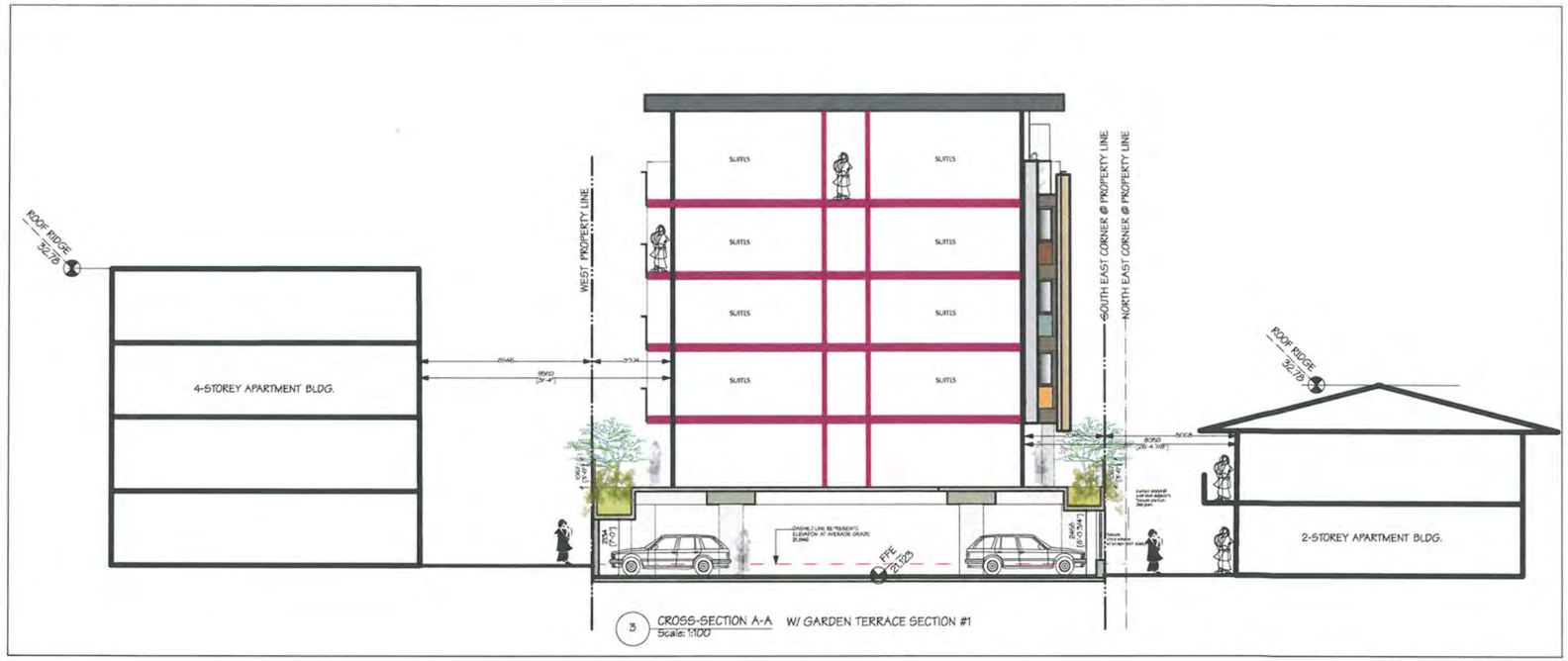
VERDE CONDOMINIUMS
826 ESQUIMALT ROAD
VICTORIA B.C.

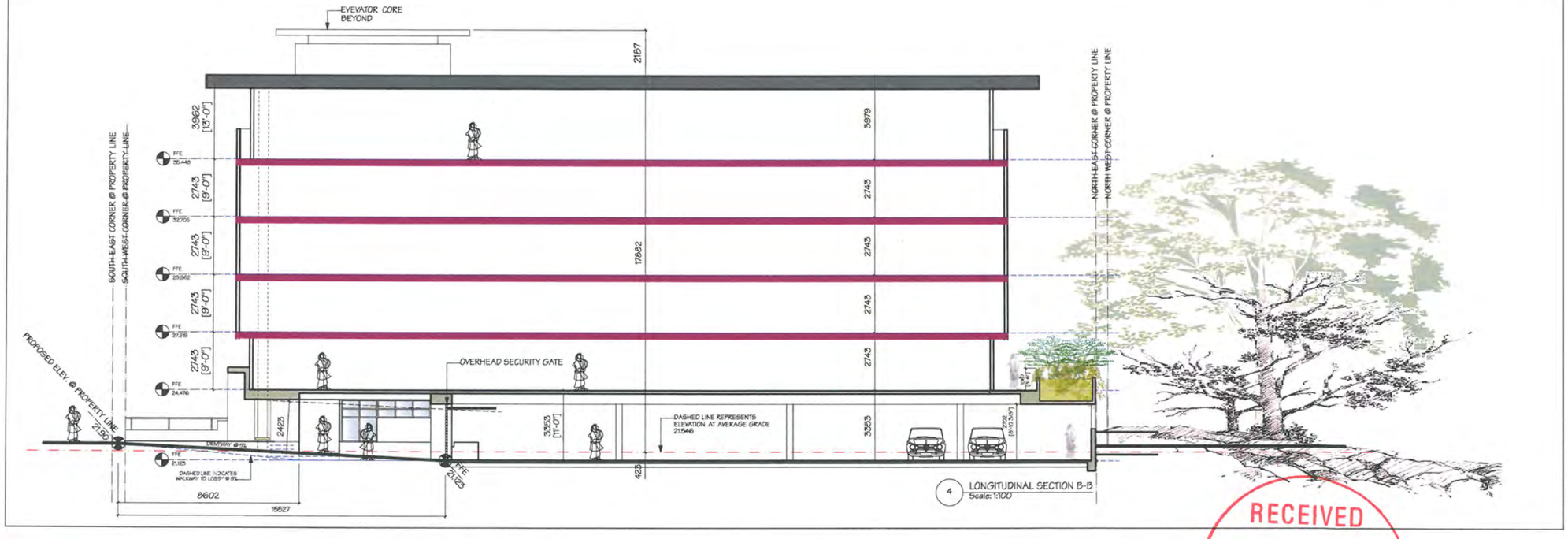
DEVELOPMENT PERMIT APPLICATION MARCH 29TH 2016
ELEVATIONS: NORTH AND WEST

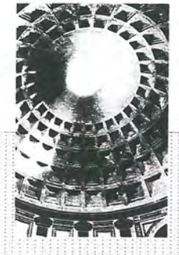
A-6









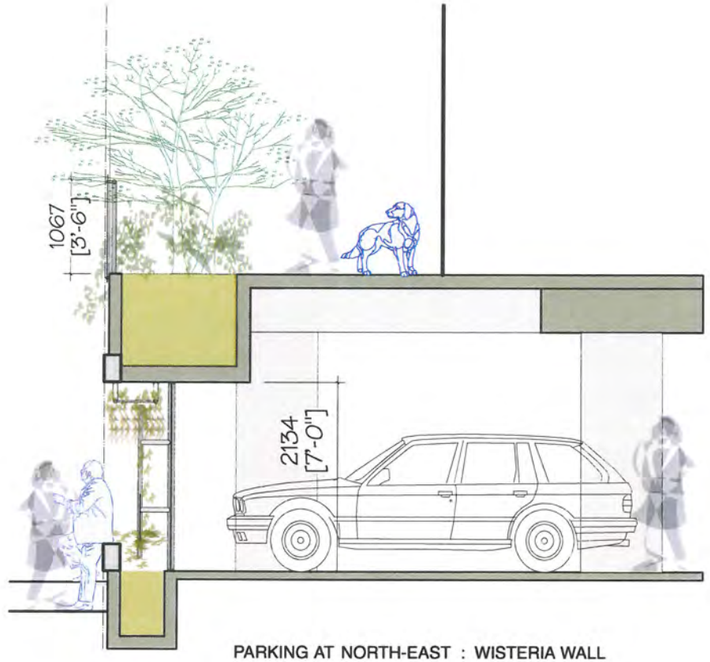


PRAXIS
architects inc.

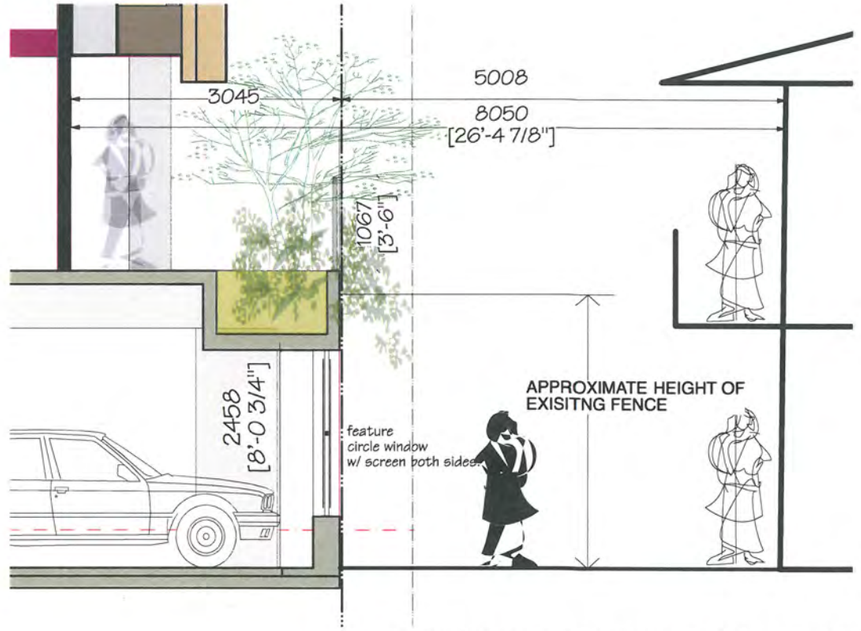
VERDE CONDOMINIUMS
826 ESQUIMALT ROAD
VICTORIA B.C.

DEVELOPMENT PERMIT APPLICATION MARCH 29TH, 2016
SECTIONS

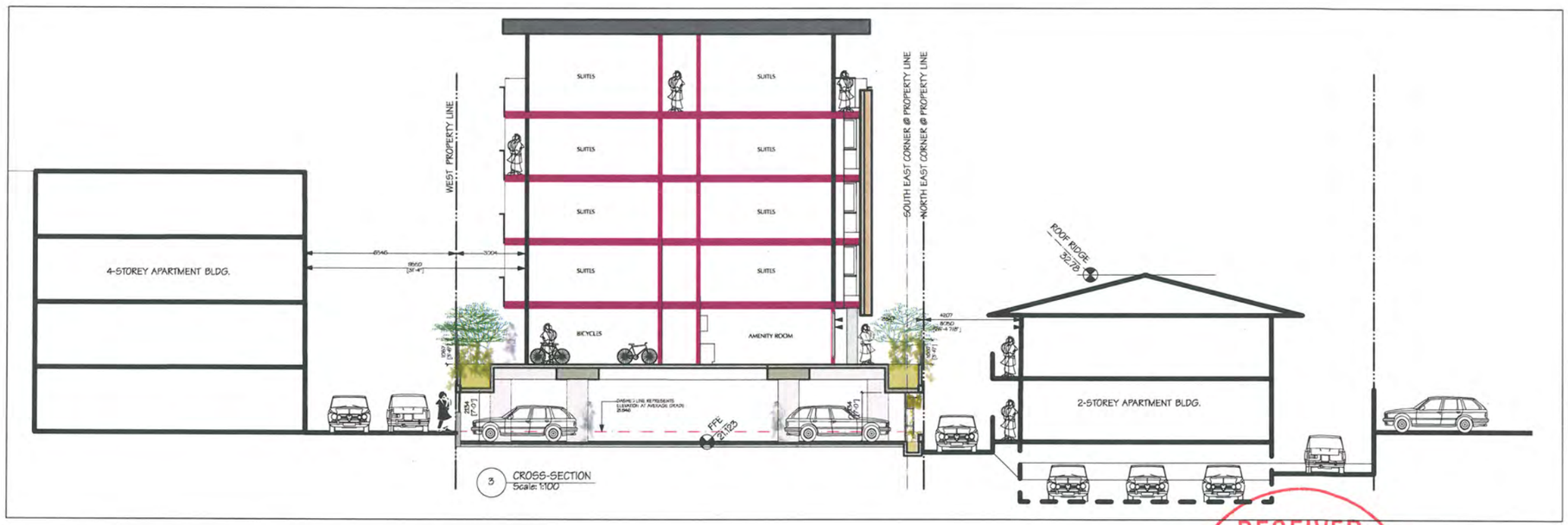
A-7



PARKING AT NORTH-EAST : WISTERIA WALL



PARKING AT SOUTH-EAST : FEATURE CIRCLE WINDOW

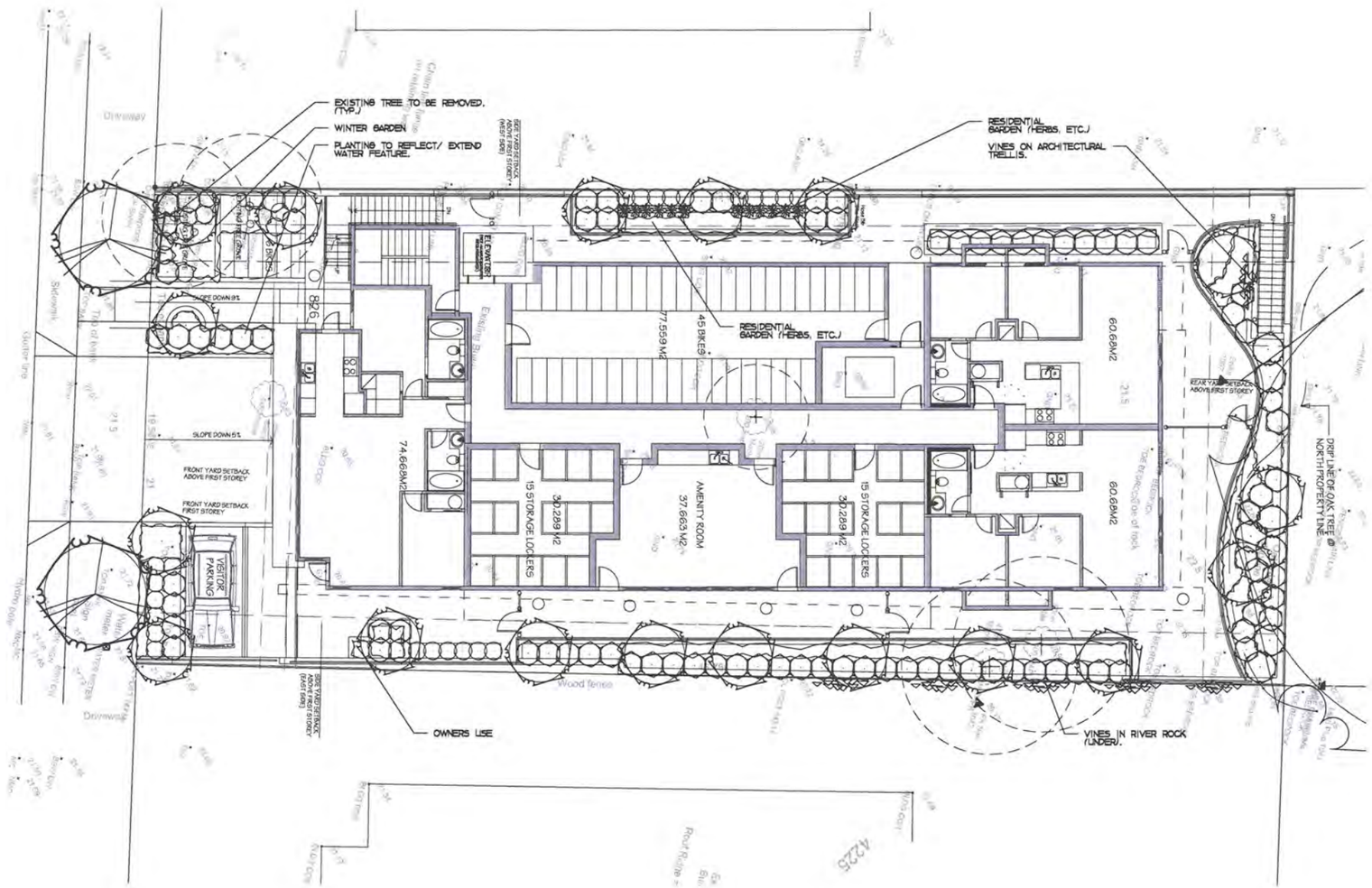


PRAXIS
architects inc.

VERDE CONDOMINIUMS
826 ESQUIMALT ROAD
VICTORIA B.C.

DEVELOPMENT PERMIT APPLICATION MARCH 29TH, 2016
ADJACENT RELATIONSHIPS

A-8



LEGEND

ORNAMENTAL DECIDUOUS TREE TO BE MAGNOLIA VARIETY TO MATCH ESQUIMALT STREET TREE.
SIZE 5.0 CM CAL., APPROXIMATE NO. - 02

MULTISTEM TO BE A SELECTION OF:
STAR MAGNOLIA (DEC), BEAUTY BUSH (DEC), STRAWBERRY TREE (BL), CALIFORNIA LILAC (BL), PINK/ WHITE FLOWERING CURRANT (DEC), LILAC (DEC),
SIZE 1.2 M HT., B&B, APPROXIMATE NO. 18

LARGE SHRUB TO BE A SELECTION OF:
ICOTYA ROSE (DEC), GLOSSY ABELIA (BL), PIERIS (BL), RHODODENDRON (BL), MEXICAN ORANGE (BL), DECIDUOUS AZALEA (DEC), COTONEASTER (BL), PORTUGESE LAUREL (BL),
SIZE 27 CM POT, APPROXIMATE NO. 07

MEDIUM SHRUB TO BE A SELECTION OF:
SNOWBERRY (DEC), RUSSIAN SAGE (DEC), WICHURIANA ROSE (DEC), SWORD FERN (BL), RHODODENDRON (BL), JAPANESE AZALEA (BL), PINK ESCALLONIA (BL), OREGON GRAPE (BL), CALIFORNIA LILAC (BL),
SIZE 27 CM POT, APPROXIMATE NO.88

SMALL SHRUB TO BE A SELECTION OF: DWARF MAHONIA (BL), RHODODENDRON (BL), EDWARD GOUCHER ABELIA (BL), LAVENDER (BL), GOLDFLAME SPIREA (DEC), DWARF JAPANESE AZALEA (BL), MEIDILAND WHITE ROSE (DEC), DEER FERN (BL),
SIZE 21 CM POT, APPROXIMATE NO. 32

VINES TO BE A SELECTION OF: CLIMBING HYDRANGEA (DEC), TRUMPET VINE (DEC), WISTERIA (DEC), BOSTON IVY (DEC)
SIZE 27 CM POT, APPROXIMATE NO. 6

GROUNDCOVER TO BE A SELECTION OF:
KINNIKINNICK (BL), WINTERGREEN (BL), CREEPING ROSEMARY (BL), DUSTY MILLER (P), CAMAS LILY (BL),
SIZE 15 CM POT, PLANT 45 CM O.C.

NOTES

- LANDSCAPE AREAS ARE TO BE IRRIGATED WITH A FULLY AUTOMATIC UNDERGROUND IRRIGATION SYSTEM.
- THIS DRAWING IS CONCEPTUAL ONLY AND NOT INTENDED FOR CONSTRUCTION PURPOSES.
- THIS DRAWING IS FOR SOFT LANDSCAPE ONLY.

NO.	DATE	BY	REVISION

DRAWN	S.P.
CHECKED	J.P.
DATE	MARCH 29, 2016
DRAWING	826E-PIR1.DWG
FILE	253 16 02
1 : 100	

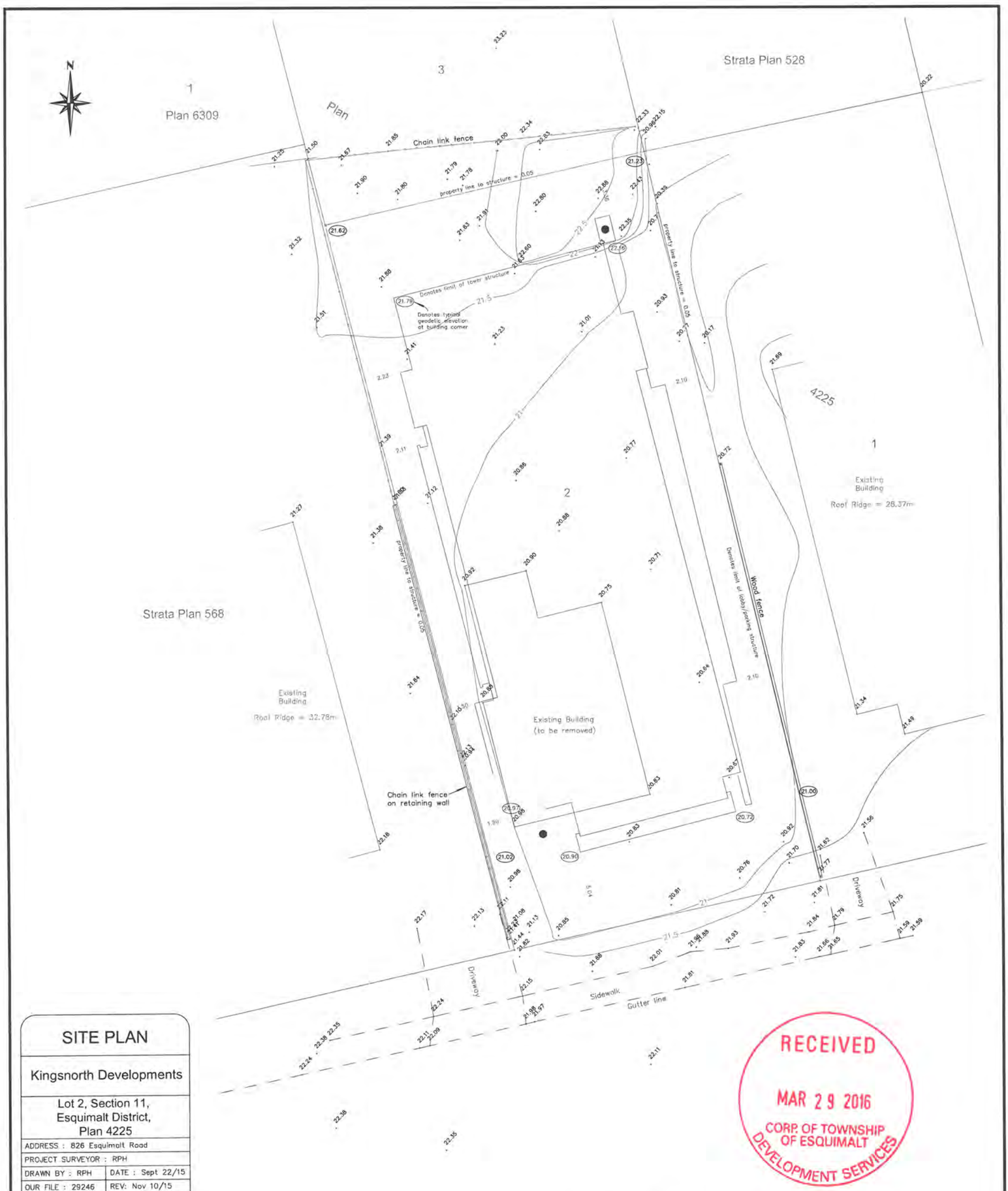
Lombard North Group
LOMBARD NORTH GROUP (BC) INC.
826 CORMORANT STREET
VICTORIA, BRITISH COLUMBIA V8W 1R1
TELEPHONE: (250) 386-1338
FAX: (250) 386-4133
EMAIL: lombard@shaw.ca

JOB NAME

826 ESQUIMALT ROAD
ESQUIMALT, B.C.

CONSULTANT

LANDSCAPE PLAN P1



SITE PLAN

Kingsnorth Developments

Lot 2, Section 11,
Esquimalt District,
Plan 4225

ADDRESS : 826 Esquimalt Road	
PROJECT SURVEYOR : RPH	
DRAWN BY : RPH	DATE : Sept 22/15
OUR FILE : 29246	REV: Nov 10/15

J.E. ANDERSON & ASSOCIATES
SURVEYORS – ENGINEERS

4212 GLANFORD AVE, VICTORIA, B.C. V8Z 4B7
TEL: 250-727-2214 FAX: 250-727-3395
E-MAIL : info@jeanderson.com
VICTORIA – NANAIMO – PARKSVILLE

V:_Surveying\29246\29246.dwg

Distances and elevations are in metres

Elevations are geodetic based on control monument 84H0200

Elevations are at natural grade unless noted otherwise

0 1.5 3 6 9 12 15

The intended plot size of this plan is 432mm in width by 560mm in height, (C size), when plotted at a scale of 1:150.

RECEIVED
MAR 29 2016
CORP. OF TOWNSHIP OF ESQUIMALT
DEVELOPMENT SERVICES

This sketch does not constitute a redefinition of the legal boundaries hereon described and is not to be used in any manner which would assume same.

Lot boundaries are approximate and subject to verification by a registered legal survey

J.E. Anderson & Associates accepts no responsibility or liability for any damages that may be suffered by a third party as a result of any decision made, or actions taken based on this document.

Subject to charges, legal notations, and interests shown on: Title No. CA3127465 (P.I.D. 006-075-495)

CORPORATION OF THE TOWNSHIP OF ESQUIMALT

Municipal Hall, 1229 Esquimalt Road, Esquimalt, B.C. V9A 3P1
Telephone (250) 414-7100 Fax (250) 414-7111

DRC Meeting: May 11, 2016

STAFF REPORT

DATE: May 6, 2016

TO: Chair and Members of the Design Review Committee

FROM: Bill Brown, Director of Development Services

SUBJECT: **OFFICIAL COMMUNITY PLAN AND REZONING APPLICATION**
"Esquimalt Village Project"
1235 Esquimalt Road
Lot 1, Section 11, Plan EPP32782

RECOMMENDATION:

The Esquimalt Design Review Committee recommends that the application to amend the Official Community Plan and to rezone the subject property to facilitate the development of the Esquimalt Village Project (EVP) be forwarded to Council with a recommendation to **approve, approve with conditions, or deny the application including reasons for the chosen recommendation.**

BACKGROUND:

Purpose of the Application

The Esquimalt Village Project is a 12,795.1 m^2 mixed-use project proposed for an 8090 m^2 parcel located in the heart of the Township of Esquimalt adjacent to the existing Municipal Hall (Schedule "A"). The Esquimalt Village Project is envisioned as a model example of exemplary mixed-use design that will be the catalyst for the rejuvenation of Esquimalt's core.

At this stage, the Design Review Committee is being asked to comment generally on massing, building height, building setbacks, and site layout. Once the Official Community Plan and Zoning Bylaws have been amended the applicant will submit a development permit application at which time the Design Review Committee will be asked to comment on form and character (including colour, materials, and design details). Because the application includes an amendment to the Official Community Plan that will create a site specific development permit area, it is appropriate to comment on the proposed design guidelines (Schedule "F").

Context

Applicant/Owner: Township of Esquimalt

Architect: D'Ambrosio Architecture + Urbanism (Franc D'Ambrosio)

Property Size: Metric: 8090 m2 Imperial: 87,085 ft^2

Existing Land Uses: Parking lots, playground, fire truck bay, and pubic open space.

Surrounding Land Uses:
North: Commercial and park.
South: Residential (detached and duplex dwellings).
West: Commercial and institutional (public safety building)
East: Public health unit, day care, and future water park.

Existing Zoning: TC [Town Centre]
P-2 [Parks and Open Space]

Proposed Zoning: CD [Esquimalt Village Project Comprehensive Development District]

Existing OCP Designation: Commercial Mixed-Use [Institutional]

Proposed OCP Designation: Esquimalt Village

Zoning

Density, Site Coverage, and Building Height

The following chart details the setbacks, lot coverage and floor area ratio and parking requirements of this proposal (see also Schedule "B" "Building Data Summary").

Parameter	**Building A** **Residential**	**Building B** **Residential**	**Building C** **Institutional/ Commercial Office**	**Building D** **Mixed use residential rental/ commercial**	**Total**
Gross Floor Area (m^2)	2,582.7	3,036.1	4,506.4	2669.9	12,795.1
Site Area (m^2)					8090
Floor Area Ratio					1.6
Building Height (m)	21.38	21.47	22.05	22.79	N/A
Number of Residential Units	32	37	0	32	101
Site Coverage					52%

Setbacks

Lot Line	**Setback (m)**
Esquimalt Road	0.75
Carlisle Avenue	0.0
Park Place	0.0
Interior Side	0.5

Parking

The applicant has provided a Parking Study (Schedule "D"). The proposed development will include 200 parking stalls for cars (176 of the stalls will be under ground and 39 on the surface). The proposed development will also include 206 bicycle parking stalls

(182 underground and 24 on the surface). The Parking Study concluded in part that, "the proposed parking supply (200 spaces) is appropriate for the site if parking is managed as suggested and the majority of identified TDM measures are adopted. Assuming all TDM measures are adopted, the expected parking demand will be 179 vehicles, which will provide the proponent with some buffer".

Permitted Uses

The Esquimalt Village Project is designed as a mix-use project featuring multi-family market strata units, multi-family market rental units, commercial food and beverage, office, and institutional (library and the Justice Institute of BC).

a) Dwelling – Multi-Family
b) Home Occupation
c) Business and Professional Office
d) Financial Institution
e) Personal Service Establishment
f) Retail Store
g) Restaurant
h) Entertainment

Official Community Plan

The current Esquimalt Official Community Plan contains policies and statements relevant to the West Bay Triangle proposal under the following broad categories:

General Land Use and Development Objectives

The Township encourages a mix of land uses that facilitate multiple modes of transportation and reduce non-essential trips by private motor vehicles.

Public Art

The Township encourages the private sector to include artworks in new and existing developments. The proposed development will include a public art walk.

Smart Design and Construction

The Township encourages the use of sustainable technology in the design of all new buildings, encourages design teams to achieve LEED or equivalent rating and encourages the incorporation of Crime Prevention through Environmental Design [CPTED] principles and measures in new projects.

Keep Urban Settlement Compact – Regional Growth Strategy [RGS]

The RGS encourages densification through a combination of infill and redevelopment to higher densities particularly for areas near transit corridors.

Green Building Features

The architect has taken an "ecological urbanism approach" to the proposed development. This means that, "community planning and urban design issues have been considered comprehensively, from the level of the watershed catchment area through to the macro and micro-climate aspect of the Esquimalt Town Square site" (Schedule "D").

Traffic Study

The applicant has provided a Traffic Impact Assessment (Schedule "C"). The Report recommends that, "No mitigation measures are required or recommended for the adjacent roadways for traffic operations. Pedestrian frontage improvements should be incorporated as required".

Alternatives

1. Forward the application for Rezoning to Council with a **recommendation of approval including reasons for the recommendation**.

2. Forward the application for Rezoning to Council with a **recommendation of approval including specific conditions and including reasons for the recommendation.**

3. Forward the application for Rezoning to Council with a **recommendation of denial including reasons for the recommendation**.

_____

Bill Brown
Director of Development Services




Esquimalt Town Square

1235 Esquimalt Road, Esquimalt BC

OCP/ Rezoning Application

D'AMBROSIO architecture + urbanism 1536

2960 Jutland Road
Victoria BC Canada V8T5K2
tel 250 384 2400
eml mail@fdarc.ca
web www.fdarc.ca

Plans Issued **4 May 2016**

Contacts

Registered Owner
Corporation of the Township of Esquimalt
1229 Esquimalt Road
Esquimalt, B.C.,
V9A 3P1
tel: 250.414.7133

Developer
ARAGON
201-1628 West 1st Avenue
Vancouver, BC
V6J 1G1
Lenny May
tel: 604.732.6170
fax: 604.732.6178

Architect
D'Ambrosio architecture + urbanism
2960 Jutland Road,
Victoria, BC
V8T 5K2
Franc D'Ambrosio
tel: 250.384.2400

Landscape Architect
Murdoch de Greeff Inc.
200 - 524 Culduthel Road
Victoria, BC
V8Z 1G1
Scott Murdoch
tel: 250.412-2891

Civil Consultant
McElhanney Consulting Services Ltd.
Suite 500, 3960 Quadra Street
Victoria, BC
V8X 4A3
Peter Ferguson
tel: 778.746.7422

Transportation
Boulevard Transportation
201-791 Goldstream Avenue
Victoria, BC
V9B 2X5
Dan Casey/ Mitchell Jacobson
tel: 250 388-9877

Surveyor
McElhanney Consulting Services Ltd.
Suite 500, 3960 Quadra Street
Victoria, BC
V8X 4A3
Glen Quarmby
tel: 778.746.7521

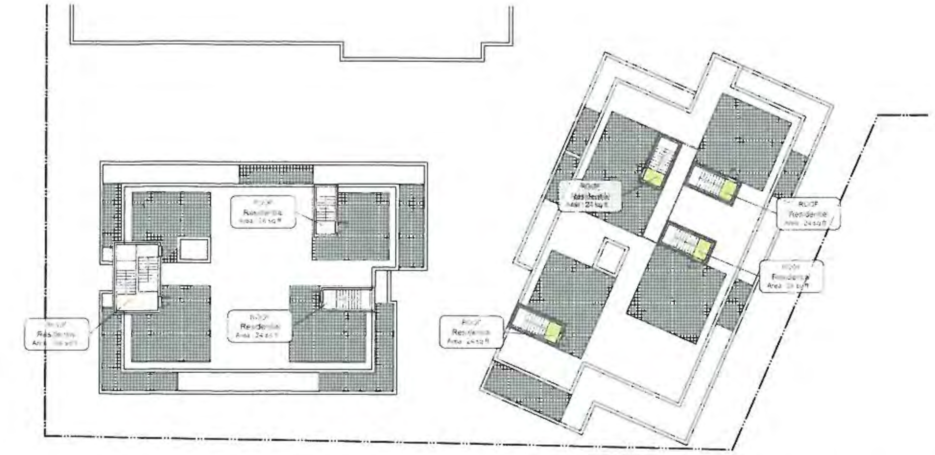
List of Drawings

Architectural

Landscape

Survey

D'AMBROSIO
architecture + urbanism



6 Roof Deck Plans
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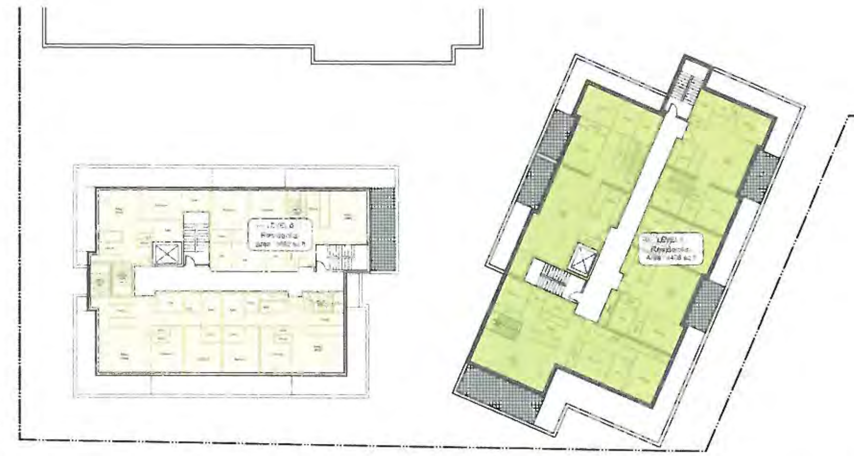
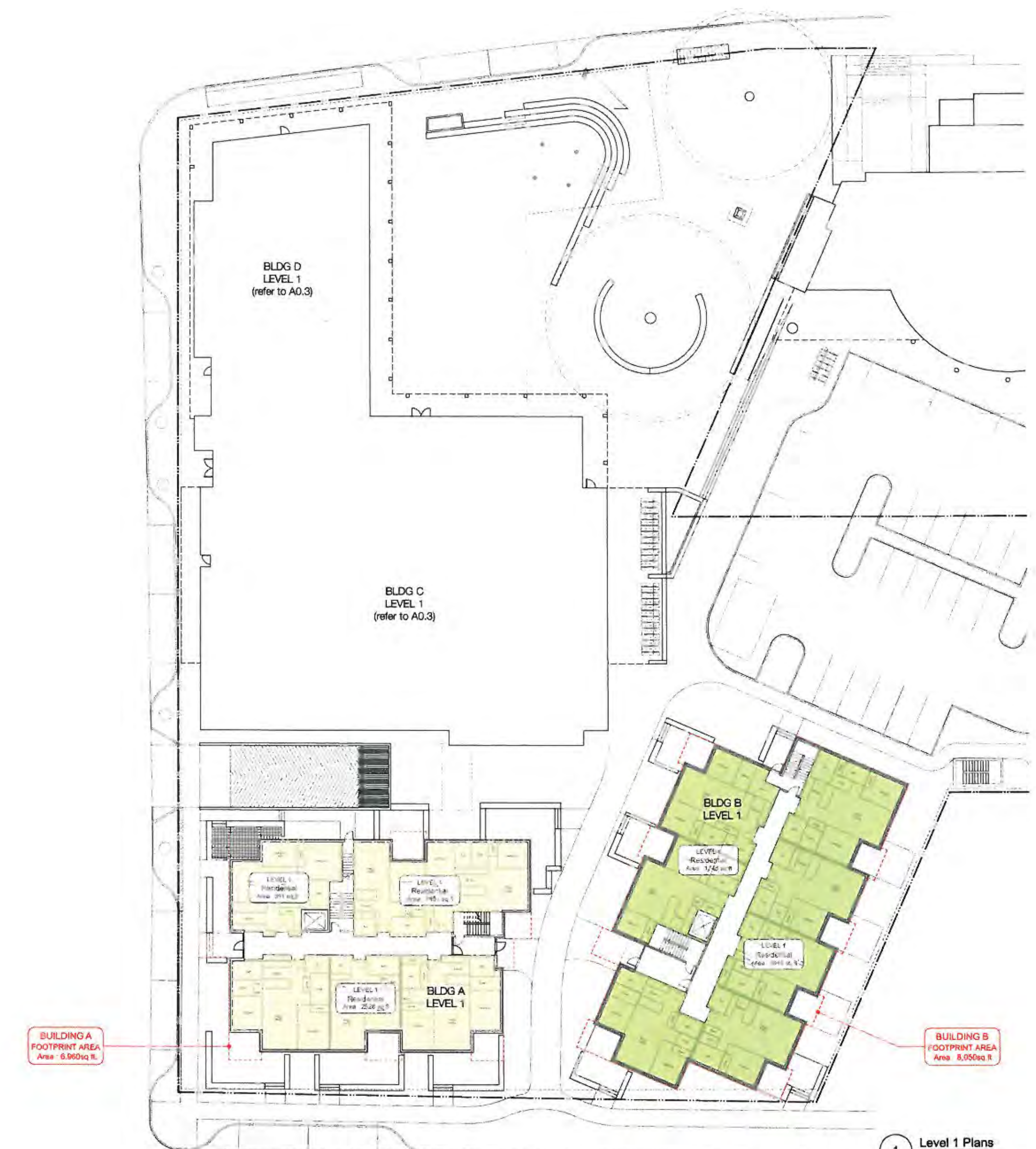


5 Level 6 Plans
Scale: 1:250

4 Level 5 Plans
Scale: 1:250

3 Levels 3-4 Plans
Scale: 1:250

2 Level 2 Plans
Scale: 1:250



1 Level 1 Plans
Scale: 1:250

Esquimalt Town Square (#1536)
Floor Area Calculations

Building A

Floors	Gross Area (sq.ft.)	Gross Area (sq.m)
LEVEL 1	4,932	458.2
LEVEL 2	5,128	476.4
LEVEL 3	5,128	476.4
LEVEL 4	5,128	476.4
LEVEL 5	3,679	341.8
LEVEL 6	3,652	339.3
ROOF	154	14.3
SUBTOTAL BUILDING A	**27,981**	**2,582.7**

Building B

Floors	Gross Area (sq.ft.)	Gross Area (sq.m)
LEVEL 1	5,697	529.3
LEVEL 2	6,024	559.6
LEVEL 3	6,024	559.6
LEVEL 4	6,024	559.6
LEVEL 5	4,408	409.5
LEVEL 6	4,408	409.5
ROOF	96	8.9
SUBTOTAL BUILDING B	**32,681**	**3,036.1**

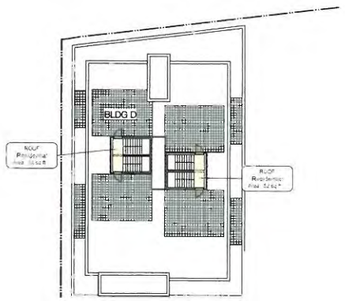
N

rev no	description	date
	OCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

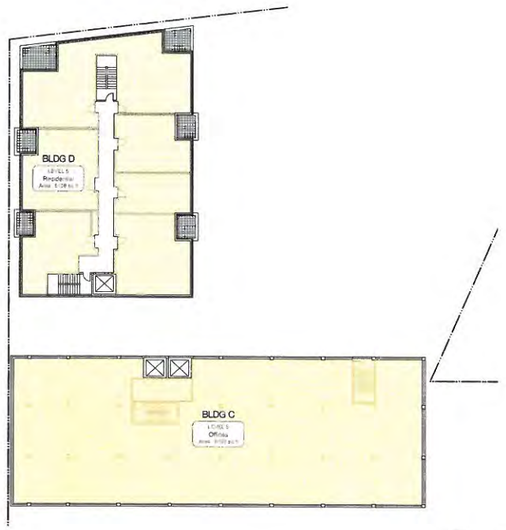
sheet title
Floor Area Diagrams
Buildings A + B

project no.	1536
drawing file	
date	May 4, 2016
scale	1:250
drawn by	ES
checked by	FDA
revision no	sheet no. A0.2

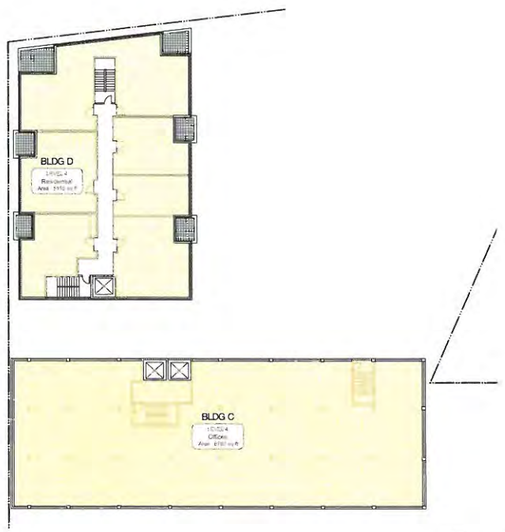


7 Roof Plan
Scale: 1:250

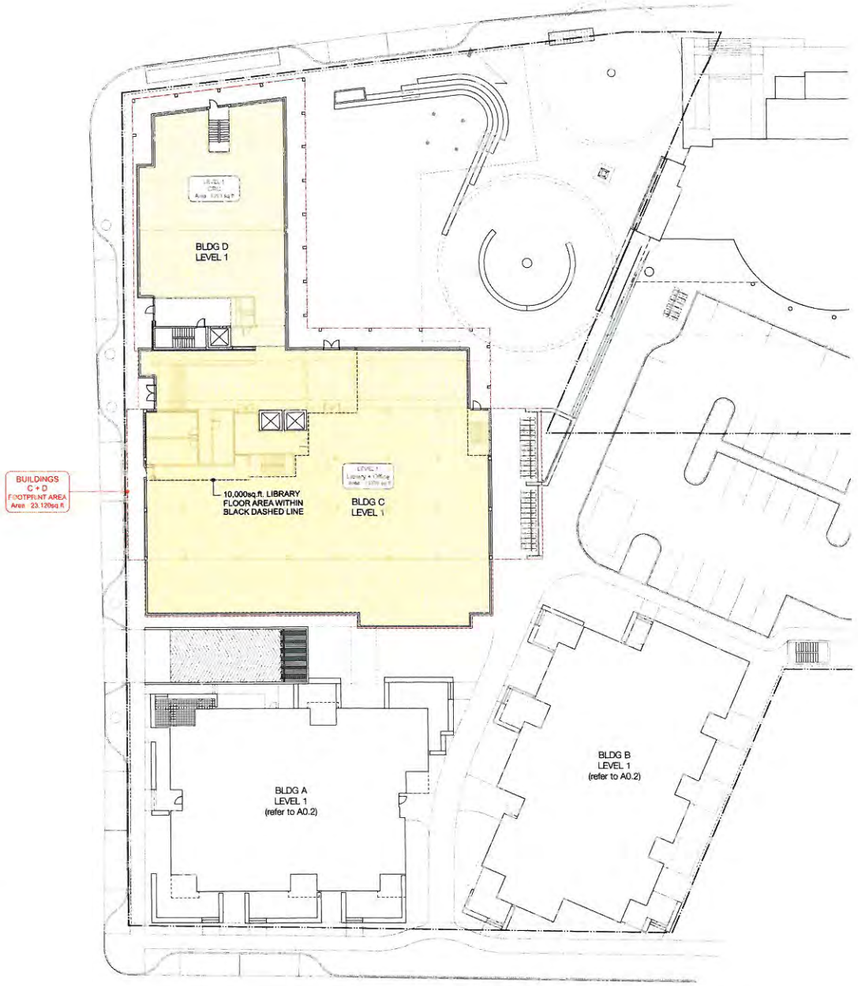
6 Level 6 Plan
Scale: 1:250



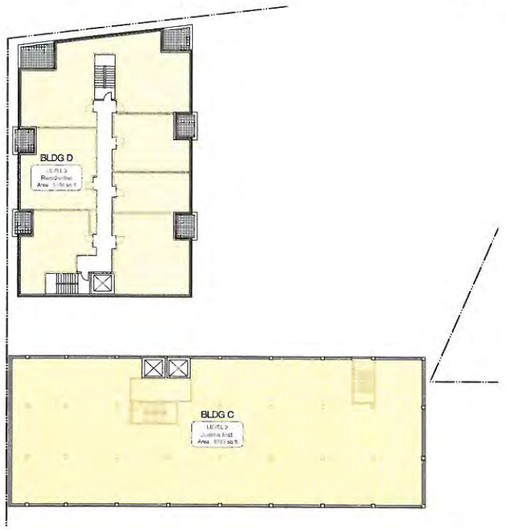
5 Level 5 Plans
Scale: 1:250



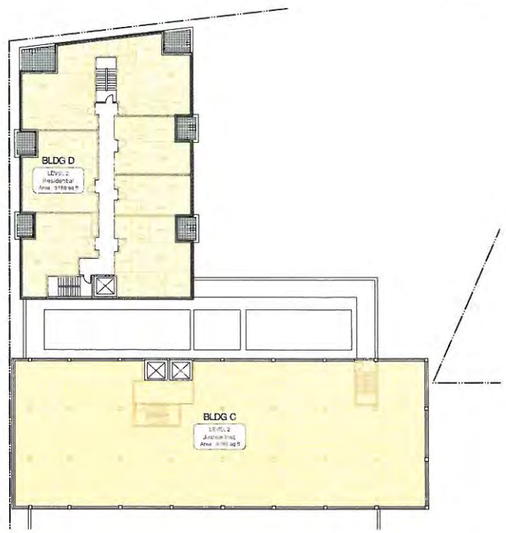
4 Level 4 Plans
Scale: 1:250



1 Level 1 Plans
Scale: 1:250



3 Level 3 Plans
Scale: 1:250



2 Level 2 Plans
Scale: 1:250

Esquimalt Town Square (#1536)
Gross Floor Area Calculations

Building C

Floors	Gross Area (sq.ft.)	Gross Area (sq.m)
LEVEL 1	13,376	1242.6
LEVEL 2	8,783	815.9
LEVEL 3	8,783	815.9
LEVEL 4	8,783	815.9
LEVEL 5	8,783	815.9
Total Building C	**48,508**	**4508.4**

Building D

Floors	Gross Area (sq.ft.)	Gross Area (sq.m)
LEVEL 1	4,261	395.8
LEVEL 2	5,158	479.2
LEVEL 3	5,158	479.2
LEVEL 4	5,158	479.2
LEVEL 5	5,158	479.2
LEVEL 6	3,743	347.7
ROOF	104	9.7
Total Building D	**28,740**	**2669.9**

D'AMBROSIO
architecture + urbanism

N

0 5 10 15m
1:250 scale in metres

rev no	description	date
	OCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Floor Area Diagrams
Buildings C + D

project no.	1536
drawing file	
date	May 4, 2016
scale	1:250
drawn by	ES
checked by	FDA
revision no.	sheet no. A0.3

*NOTE: SURVEY INFORMATION INCLUDED IN SITE PLAN IS BASED ON TOPOGRAPHIC SURVEY PROVIDED BY McELHANNEY DATED APRIL 28, 2015

D'AMBROSIO
architecture + urbanism

N

0 10m
1:200 scale in metres

rev no	description	date
	OCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Site Plan (overall)

project no.	1536
drawing file	
date	May 4, 2016
scale	1:200
drawn by	JB/JH/ES/DR
checked by	FDA
revision no.	sheet no. A1.1

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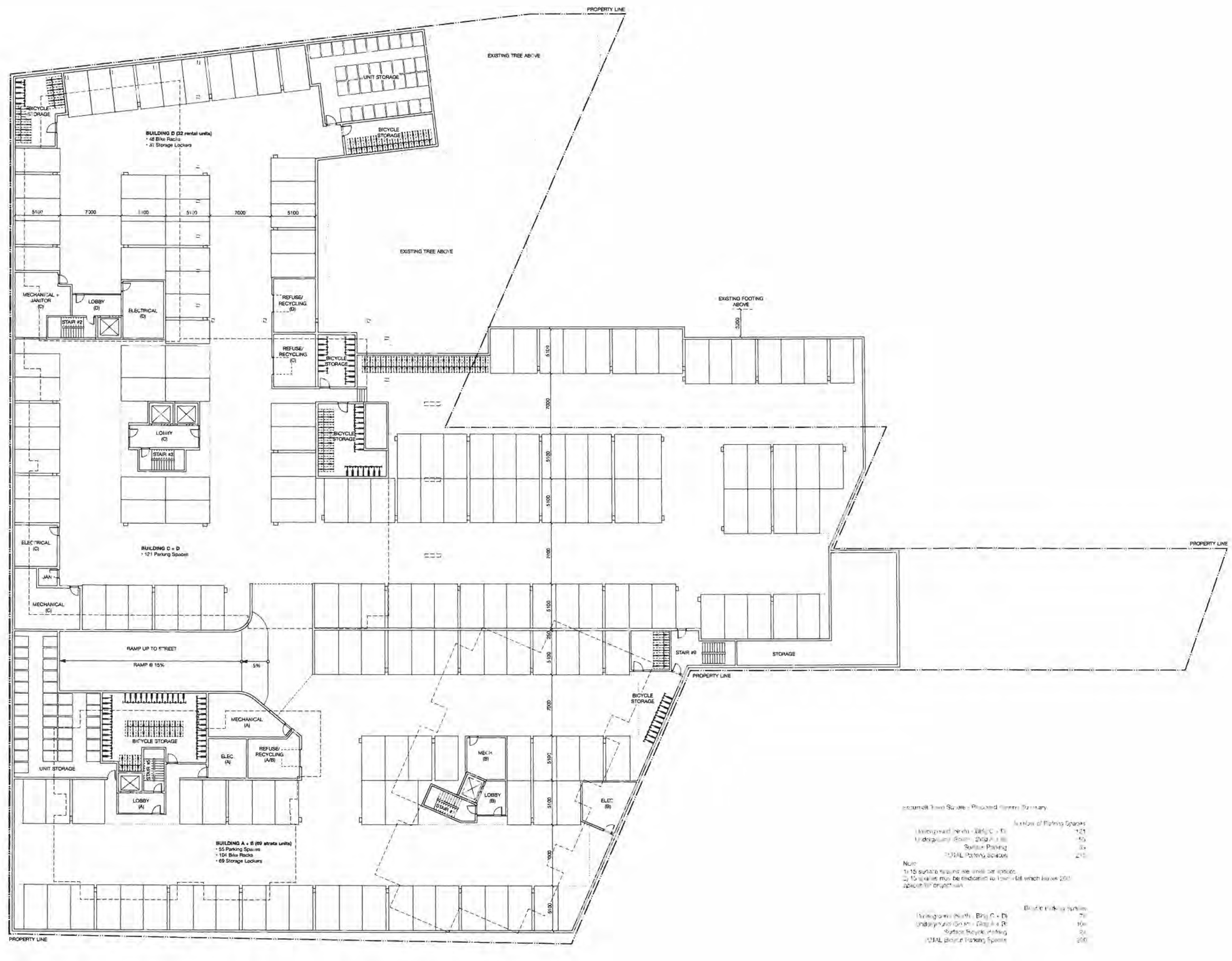
architecture + urbanism


PROPERTY LINE
EXISTING TREE ABOVE
UNIT STORAGE
BICYCLE STORAGE
BUILDING D (32 rental units)
EXISTING FOOTING ABOVE
MECHANICAL + JANITOR (D)
LOBBY (D)
ELECTRICAL (D)
STAIR #2
REFUSE/ RECYCLING (D)
REFUSE/ RECYCLING (C)
LOBBY (C)
BUILDING C + D
• 121 Parking Spaces
ELECTRICAL (C)
MECHANICAL (C)
RAMP UP TO STREET
RAMP @ 15%
5%
STAIR #9
STORAGE
MECHANICAL (A)
ELEC (A)
REFUSE/ RECYCLING (A/B)
LOBBY (A)
MECH (B)
LOBBY (B)
ELEC (B)
BUILDING A + B (89 strata units)
• 55 Parking Spaces
• 104 Bike Racks
• 89 Storage Lockers
Number of Parking Spaces
Surface Parking
Note
Bicycle Parking Spaces
TOTAL Bicycle Parking Spaces
N

rev no	description	date
	OCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
P1 Parking Plan (Overall)

project no	1536
drawing file	
date	May 4, 2016
scale	1:200
drawn by	JB/JH/ES
checked by	FDA
revision no.	sheet no. A1.2

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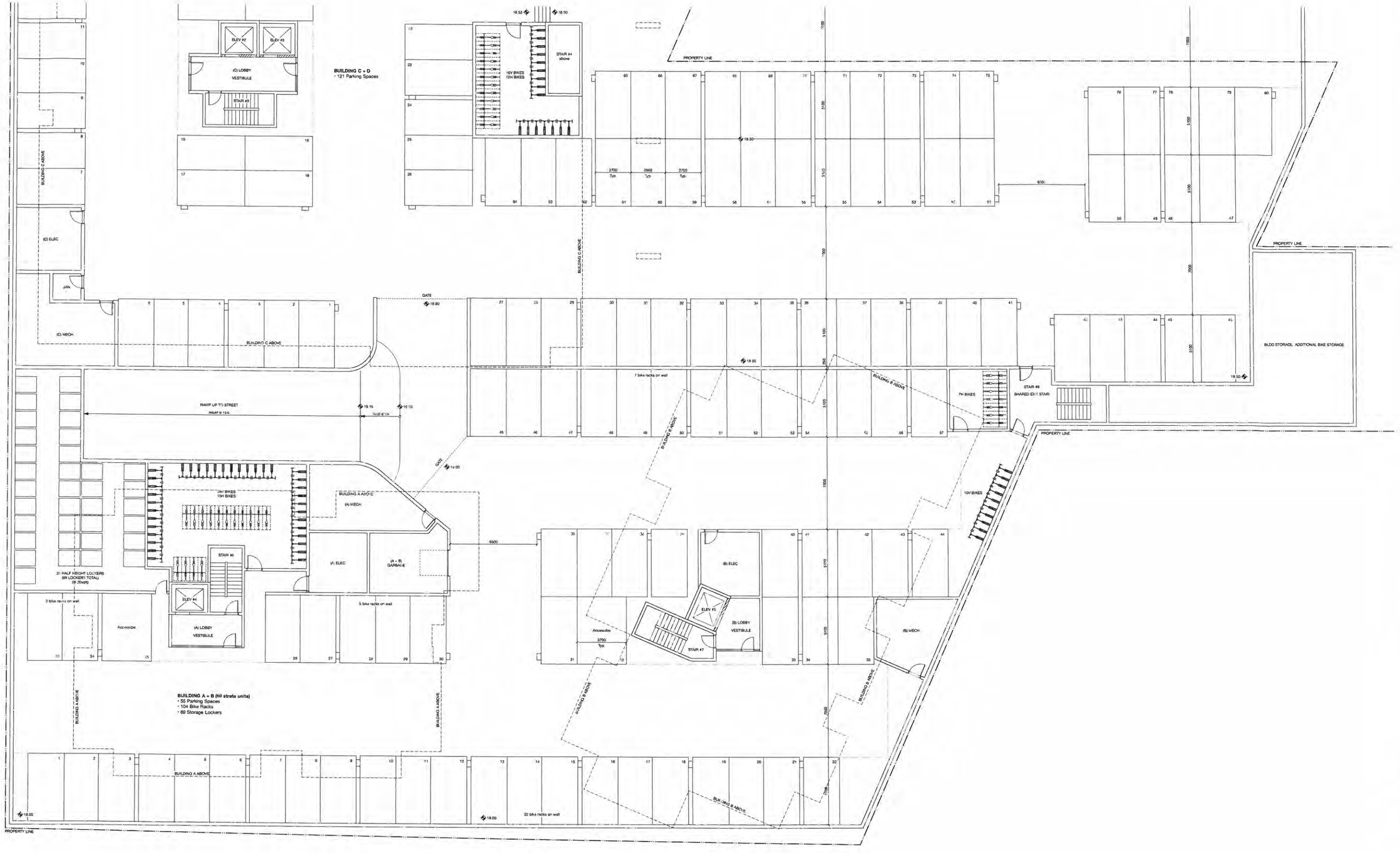
architecture + urbanism



N

0 1m
scale in metres

rev no	description	date
	DCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
P1 Parking Plan (South)

project no.	1536
drawing file	
date	May 4, 2016
scale	1:100
drawn by	JB/JH/ES
checked by	FDA
revision no.	sheet no. A2.1

D'AMBROSIO
architecture + urbanism

PROPERTY LINE

EXISTING TREE ABOVE

34 FULL HEIGHT STORAGE LOCKERS (62sqft)

13H BIKES
5V BIKES

16H BIKES

BUILDING D ABOVE

BUILDING D (32 rental units)
+ 48 Bike Racks
+ 32 Storage Lockers

(D) MECH.

JAN.

(D) LOBBY VESTIBULE

STAIR #5

ELEV #1

(D) ELEC.

Accessible

(D) GARBAGE

BUILDING C ABOVE

16V BIKES

24H BIKES

APPROX. FALL OF EXISTING FOOTING ABOVE

BUILDING C + D
+ 121 Parking Spaces

ELEV #2

ELEV #3

(C) LOBBY VESTIBULE

STAIR #3

STAIR #4 above

16V BIKES
12H BIKES

(C) ELEC.

JAN.

(C) MECH.

GATE

7 bike racks on wall

7H BIKES

STAIR #9
SHARED EXIT STAIR

BLDG STORAGE/ ADDITIONAL BIKE STORAGE

N

DCP / Rezoning — 05/04/2016

rev no	description	date

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
P1 Parking Plan (North)

project no.	1536
drawing file	
date	May 4, 2016
scale	1:100
drawn by	JB/JH/ES
checked by	FDA
revision no.	sheet no. A2.10

D'AMBROSIO
architecture + urbanism

rev no	description	date
	OCP / Rezoning	01/04/2016

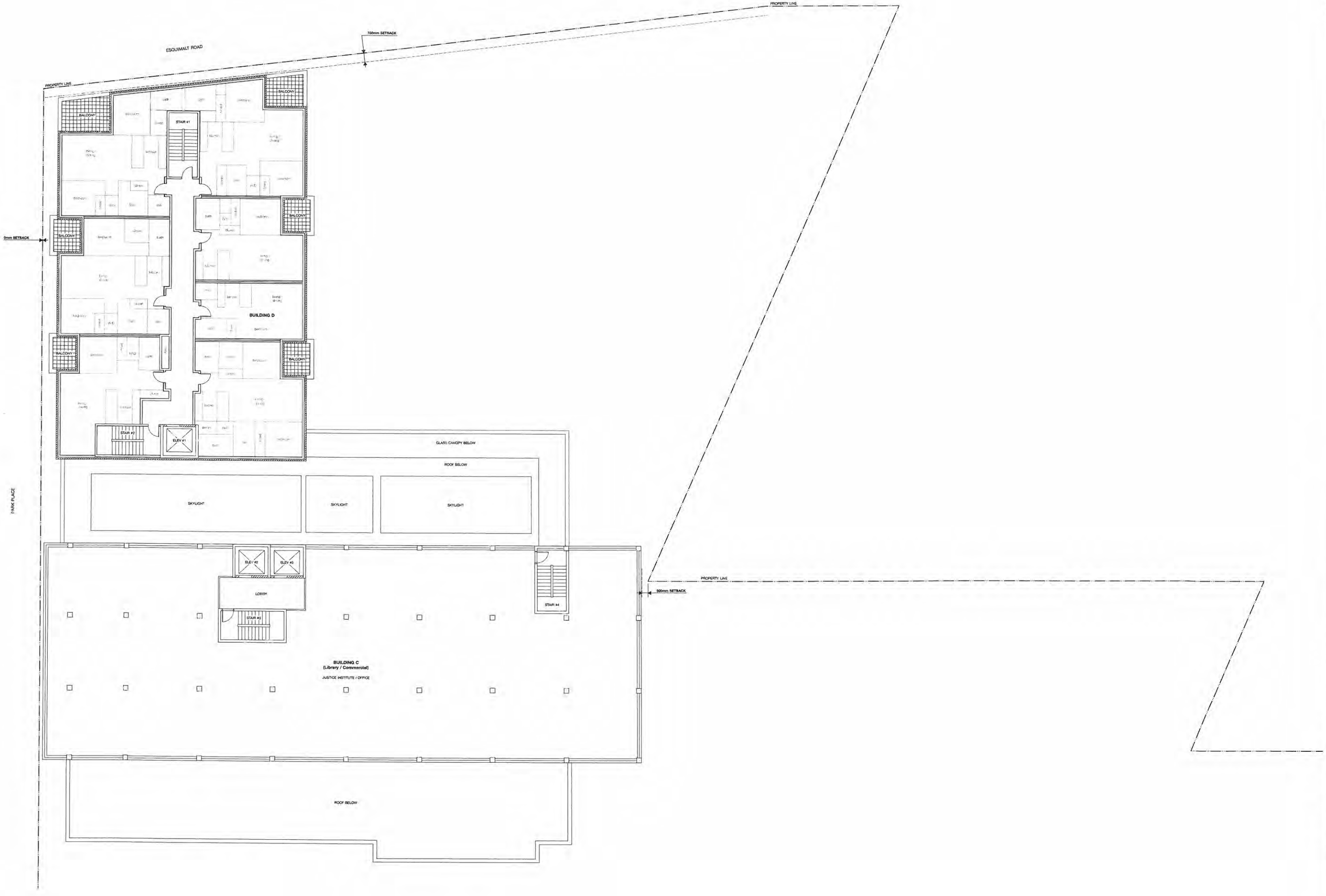
project name

Esquimalt Town Square
Esquimalt, BC

sheet title

Level 1 Floor Plan
Building C and D

project no.	1536
drawing file	
date	May 4, 2016
scale	1:100
drawn by	JB/JH/ES
checked by	FDA
revision no.	sheet no. A2.11



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N

0 1m
1:100 IN METRES

rev no	description	date
	OCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Levels 2 - 5 Floor Plan
Building C and D

project no.	1536
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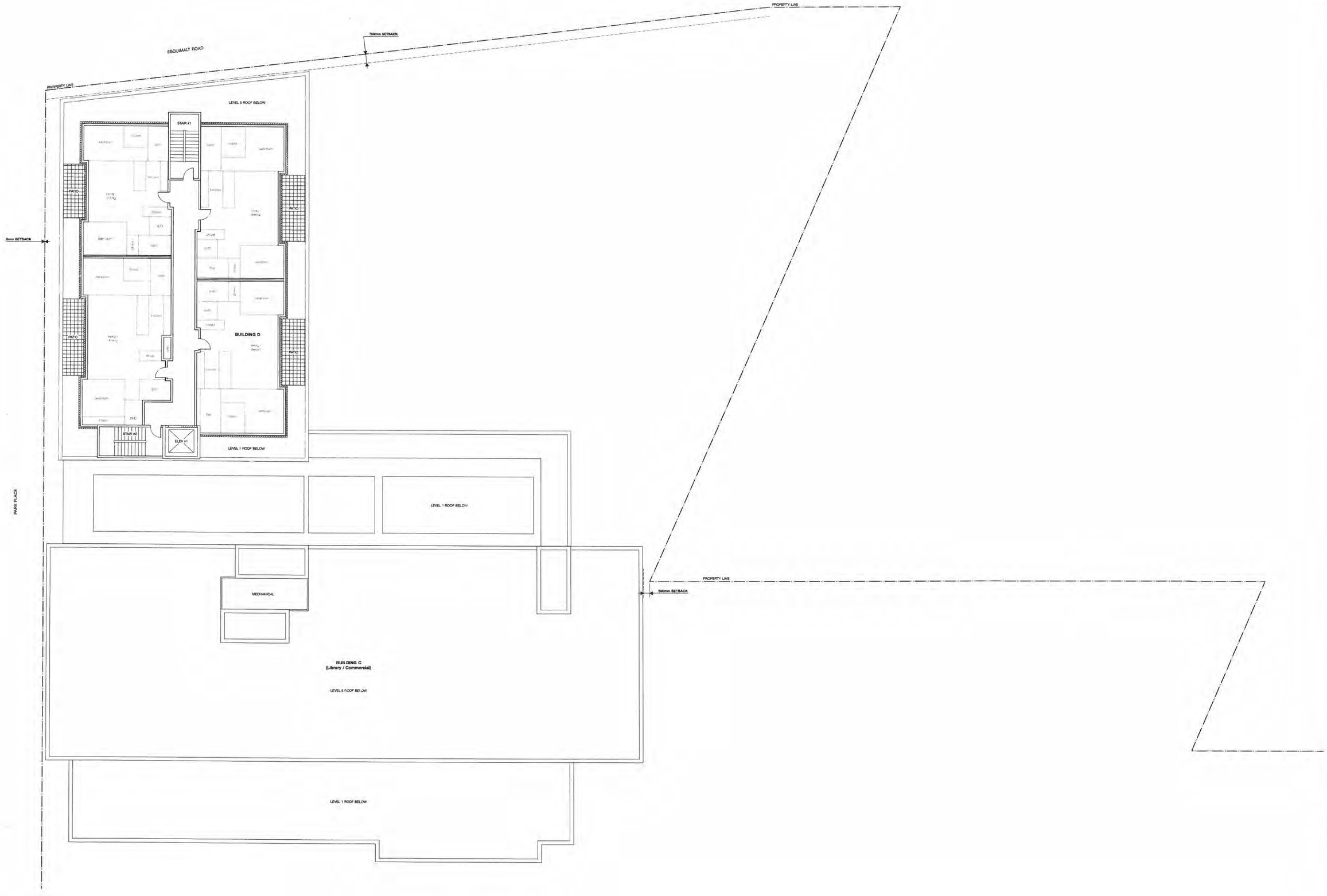

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N

0 1m
1:100 scale in metres

rev no	description	date
	DCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Level 6 Floor Plan
Building D

project no	1536
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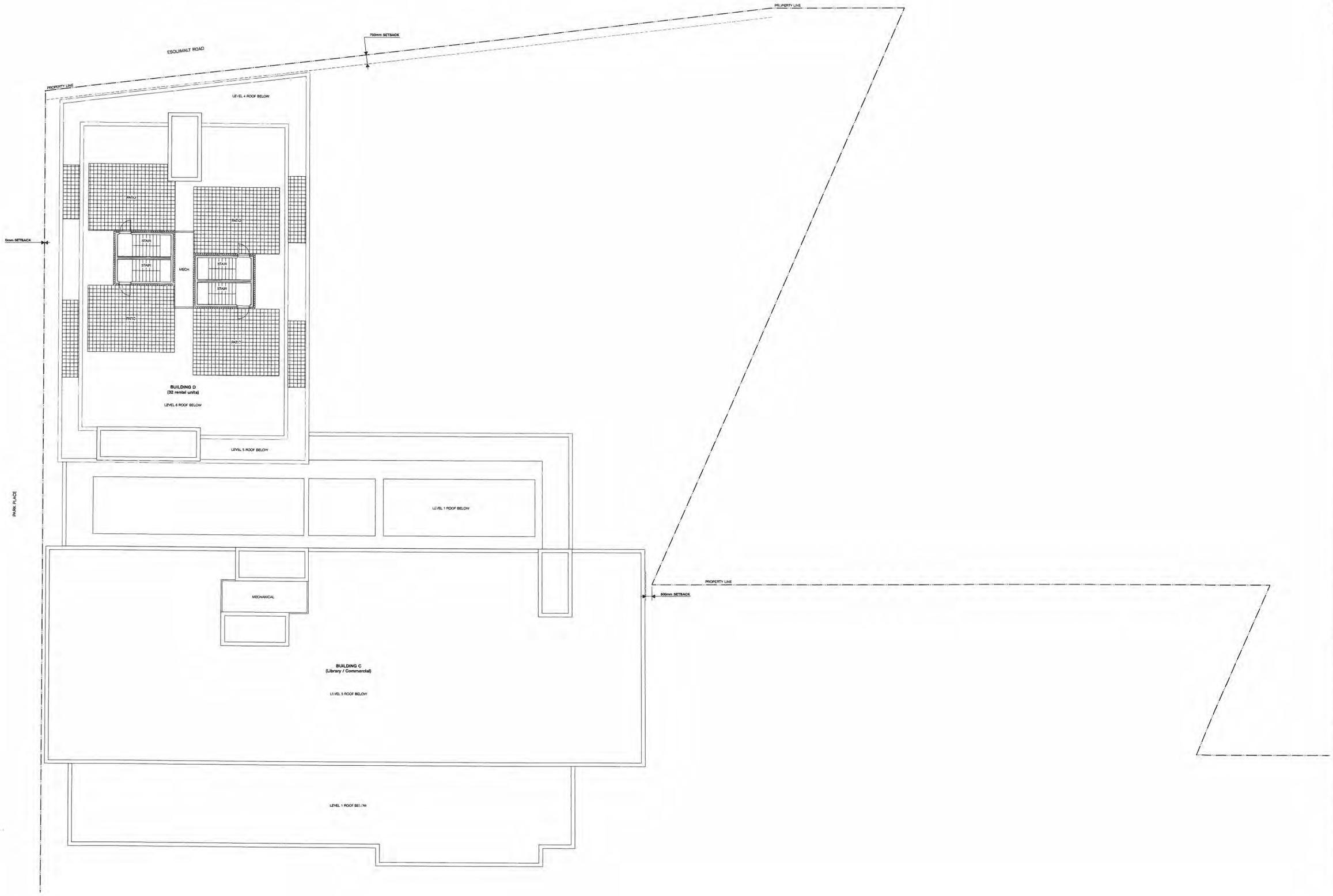

D'AMBROSIO
architecture + urbanism

N

1:100 scale in metres

rev no	description	date
	OCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Roof Plan
Building D

project no.	1536
drawing file	
date	May 4, 2016
scale	1:100
drawn by	JB/JH/ES
checked by	FDA
revision no.	sheet no. A2.14

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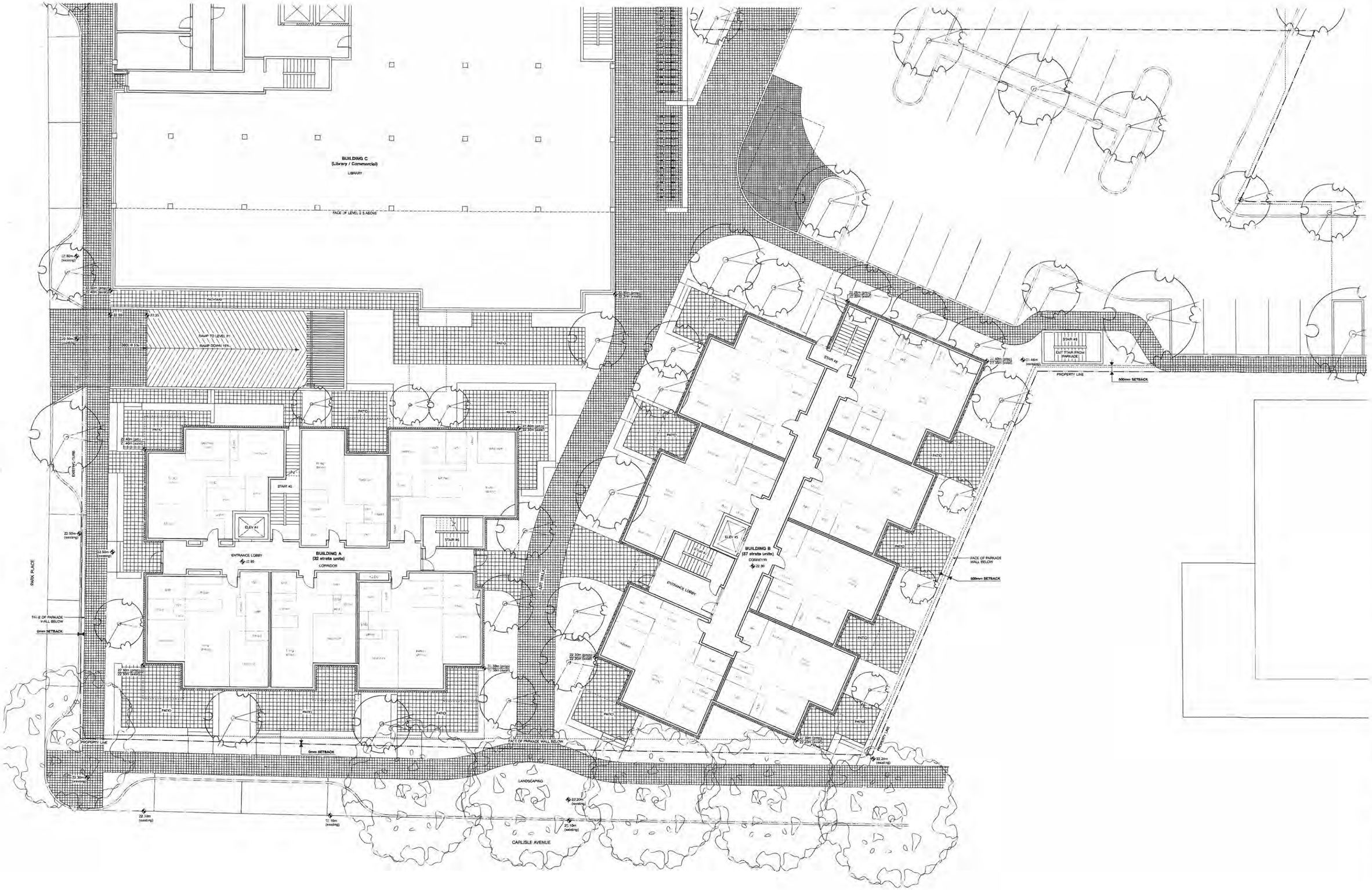

rev no.	description	date
	OCP / Rezoning	05/04/2018

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Level 1 Floor Plan
Building A and B

project no:	1536
drawing file	
date	May 4, 2018
scale	1:100
drawn by	JB/JH/ES
checked by	FDA
revision no	sheet no.
△	A2.2

D'AMBROSIO
architecture + urbanism

BUILDING C

PARK PLACE

0mm SETBACK

PROPERTY LINE

0mm SETBACK

BALCONY

STAIR #5

STAIR #6

BUILDING A
CORRIDOR

BALCONY

BALCONY

BALCONY

BALCONY

BALCONY

BALCONY

BALCONY

STAIR #3

BALCONY

BALCONY

ELEV #5

BUILDING B
CORRIDOR

BALCONY

BALCONY

BALCONY

BALCONY

PROPERTY LINE

600mm SETBACK

600mm SETBACK

CARLISLE AVENUE

N

0 1m 2m
1:100

rev no	description	date
	DCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Level 2 Floor Plan
Building A and B

project no.	1536
drawing file	
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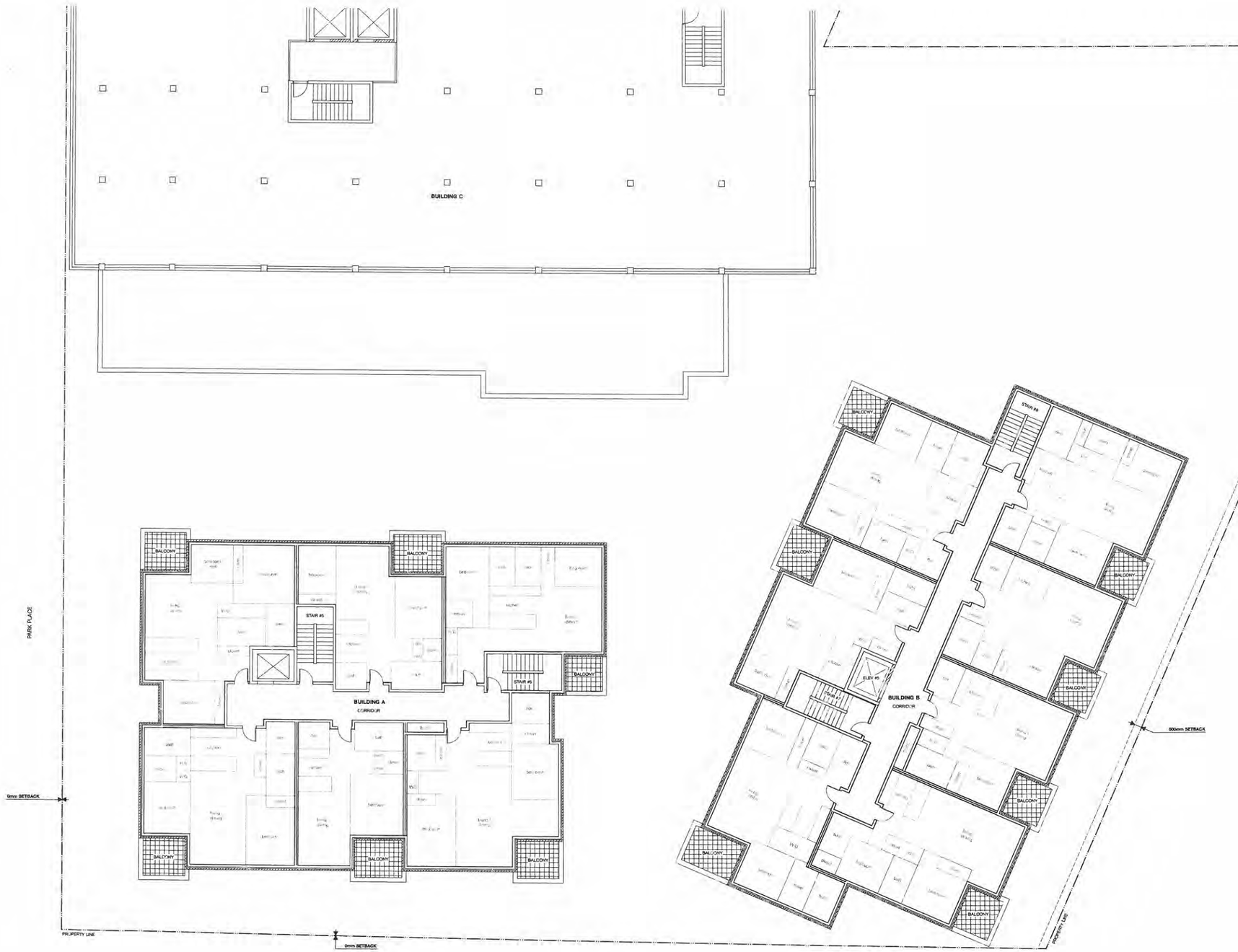
checked by	FDA
revision no.	sheet no. A2.3

D'AMBROSIO
architecture + urbanism



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0 1m
SCALE: 1:100

rev no	description	date
	OCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Levels 3 - 4 Floor Plan
Building A and B

project no.	1536
drawing file	
date	May 4, 2016
scale	1:100
drawn by	JB/JH/ES
checked by	FDA
revision no.	sheet no. A2.4

D'AMBROSIO
architecture + urbanism

BUILDING C

LEVEL 4 ROOF BELOW

STAIR #5

STAIR #6

PATIO

BUILDING A
CORRIDOR

ELCC

LEVEL 4 ROOF BELOW

PATIO

PARK PLACE

0mm SETBACK

PROPERTY LINE

0mm SETBACK

LEVEL 4 ROOF BELOW

STAIR #3

PATIO

BUILDING B
CORRIDOR

ELEV #5

LEVEL 4 ROOF BELOW

PROPERTY LINE

500mm SETBACK

500mm SETBACK

Property Line

CARLISLE AVENUE

N

rev no	description	date
	/CP / Rezoning	01/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Level 5 Floor Plan
Building A and B

project no.	1536
drawing file	
date	May 4, 2016
scale	1:100
drawn by	JB/JH/ES
checked by	FDA
revision no.	sheet no. A2.5

D'AMBROSIO
architecture + urbanism

BUILDING C

LEVEL 4 ROOF BELOW

STAIR #5

BUILDING A
CORRIDOR

ELEC

STAIR #5

LEVEL 4 ROOF BELOW

LEVEL 4 ROOF BELOW

STAIR #3

ELEV #3

BUILDING B
CORRIDOR

LEVEL 4 ROOF BELOW

PROPERTY LINE

500mm SETBACK

500mm SETBACK

PROPERTY LINE

0mm SETBACK

0mm SETBACK

PARK PLACE

CARLISLE AVENUE

N

1:50

rev no	description	date
	DCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Level 6 Floor Plan
Building A and B

project no.	1536
drawing file	
date	May 4, 2016
scale	1:100
drawn by	JB/JH/ES
checked by	FDA
revision no.	sheet no.
1	A2.6

D'AMBROSIO
architecture + urbanism

BUILDING C

LEVEL 4 ROOF BELOW

PATIO

STAIR

BUILDING A
(32 strata units)

LEVEL 5 ROOF BELOW

PARK PLACE

0mm SETBACK

PROPERTY LINE

0mm SETBACK

CARLISLE AVENUE

LEVEL 4 ROOF BELOW

PATIO

STAIR

MECH

BUILDING B
(37 strata units)

LEVEL 5 ROOF BELOW

PROPERTY LINE

500mm SETBACK

PROPERTY LINE

500mm SETBACK

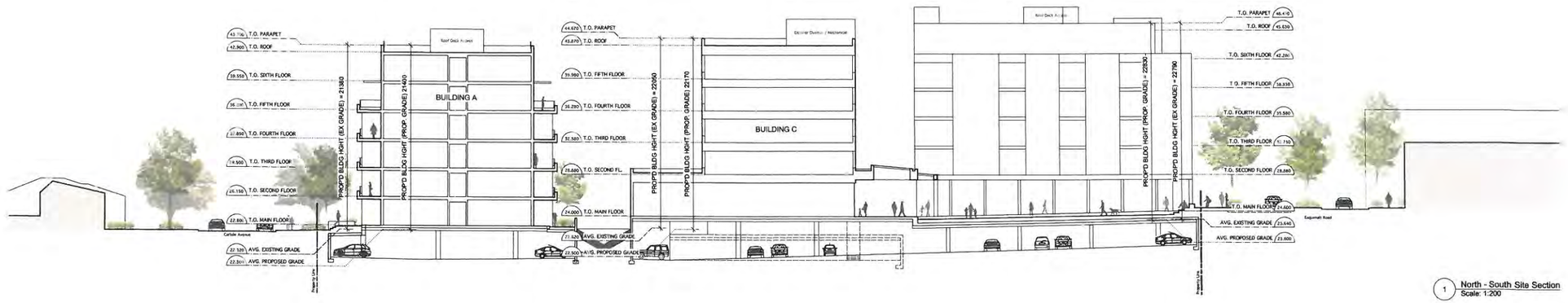
N

rev no	description	date
	OCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

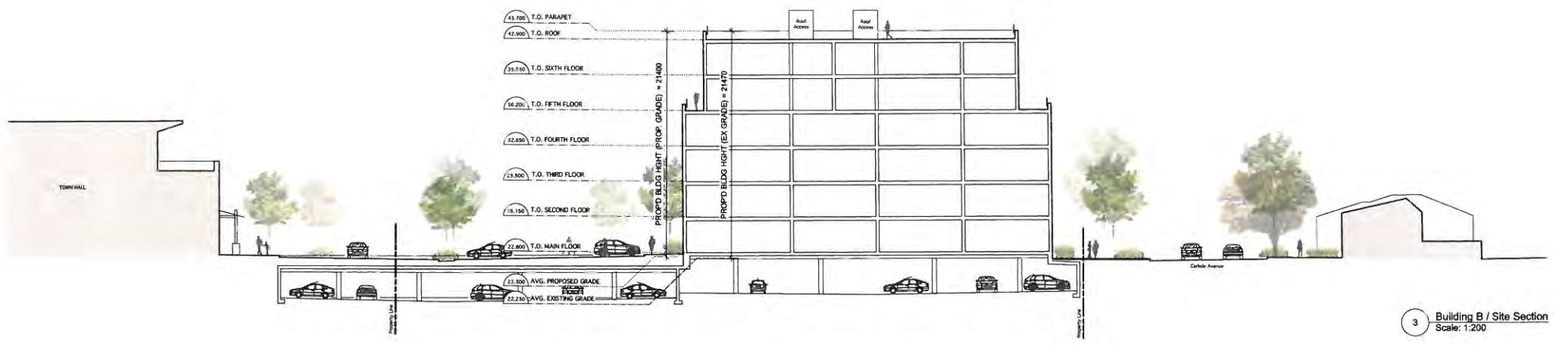
sheet title
Roof Plan
Building A and B

project no.	1536
drawing file	
date	May 4, 2016
scale	1:100
drawn by	JB/JH/ES
checked by	FDA
revision no.	sheet no. A2.7

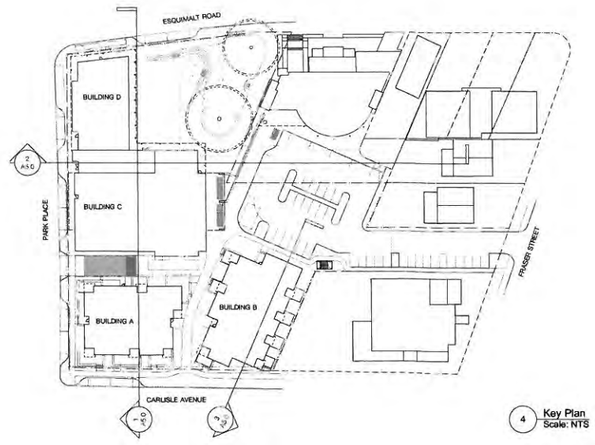


1 North - South Site Section
Scale: 1:200

2 East - West Site Section
Scale: 1:200



3 Building B / Site Section
Scale: 1:200



4 Key Plan
Scale: NTS

D'AMBROSIO
architecture + urbanism

N

rev no	description	date
	OCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Site Sections

project no.	1536
drawing file	
date	May 4, 2016
scale	1:200
drawn by	JH/DR/ES
checked by	FDA
revision no.	sheet no.
△	A5.0

Shadow Studies

May 21st 10:00 am

August 21st 10:00 am

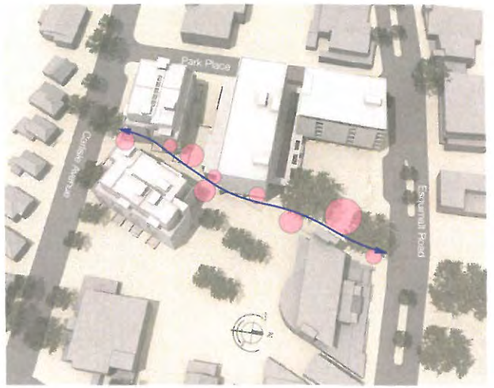
May 21st 12:00 pm

August 21st 12:00 pm

May 21st 3:00 pm

August 21st 3:00 pm

Massing & Circulation Diagrams



Legend

- Town Square
- Residential
- Library
- Retail/Restaurant Ground Floor (Residential Above)
- Pedestrian Movement
- Vehicle Movement
- Art Walk Sculpture Locations

rev no	description	date
	OCP / Rezoning	05/04/2016

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Shadow Studies / Massing & Circulation Diagrams

project no.	1536
drawing file	
date	May 4 2016
scale	NTS
drawn by	PM/NF
checked by	FDA
revision no	sheet no. A6.0

LEGEND

- PROPERTY LINE
- EXTENT OF UNDERGROUND PARKING
- SIDEWALK PAVING
- INTERIOR SITE PAVING
- RESIDENTIAL PAVING
- PARKING AREA PAVING
  ASPHALT / SPECIALTY PAVING
- LAWN AREA
- SHRUB/TREE PLANTING AREA
- RAIN GARDEN ON GRADE
- RAIN PLANTER ON SLAB
- EXISTING TREE
  SEE ARBORIST'S REPORT FOR TREE RETENTION INFORMATION
- PROPOSED MEDIUM - LARGE TREE
- PROPOSED MEDIUM - LARGE TREE
- PROPOSED SMALL - MEDIUM TREE

DRAWING NOTES

1. DO NOT SCALE DRAWING. Verify all property lines and existing structures/vegetation to remain, prior to commencing work.
2. All plan dimensions in metres and all detail dimensions in millimetres.
3. Contractor to confirm location and elevation of all existing services and utilities prior to start of construction.
4. Provide layout of all work for approval by Landscape Architect prior to proceeding with work.
5. Contractor to provide irrigation system for all planters to current BABC Standards and Contract Specification.
6. Plant material, installation and maintenance to conform to the current edition of the BCSLA/BCLNA Landscape Standards.
7. General Contractor and/or sub-contractors are responsible for all costs related to production and submission to consultant of all landscape as-built information including irrigation.
8. Tree protection fencing, for existing trees, to be installed prior to commencement of all site work.

D'AMBROSIO
architecture + urbanism

Murdoch deGreeff inc.
Landscape Planning & Design

NOT FOR CONSTRUCTION

N

rev no	description	date
1	REZONING	12.05.04

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Concept Landscape Plan

project no.	116.07
drawing file	
date	
scale	1:200
drawn by	ML
checked by	SM/PdG
revision no.	sheet no. L1.1

LEGEND

- PROPERTY LINE
- EXTENT OF UNDERGROUND PARKING
- LAWN AREA
- SHRUB/TREE PLANTING AREA
- RAIN GARDEN ON GRADE
- RAIN PLANTER ON SLAB
- DIRECTION OF FLOW

PRELIMINARY RAINWATER MANAGEMENT CALCULATIONS

Catchment Area	Contributing Impervious Area	Design Storm Runoff Volume Contributing to Rain Garden	Stormwater Treatment Capacity per sq. m. of Rain Garden	Preliminary Rain Garden Area Required
	(sq. m.)	(cu. m./day)	(cu. m./day)	(sq.m.)
A	942	44.9	0.9	51.6
B	1641	78.3	0.9	90.0
C	1746	83.3	0.9	95.8
D	562	26.8	0.9	30.8
E	3319	-	-	-
total	16421			433.1

Assumptions

1 The design storm is a two-year, 24 hour rain event. In the Township of Esquimalt, this equals about 53 mm of rain.
2 The rain garden calculations are based on 150 mm live ponding, plus 20% of the sand/ compost growing medium volume at 600 mm depth (assuming growing medium has 20% void space) with a minimum infiltration rate of 2.5 cm/hour (or 48 cm per day), via perforated underdrain.
3 Catchment E will drain to Esquimalt's stormdrain system.

DRAWING NOTES

1. DO NOT SCALE DRAWING. Verify all property lines and existing structures/vegetation to remain, prior to commencing work.
2. All plan dimensions in metres and all detail dimensions in millimetres.
3. Contractor to confirm location and elevation of all existing services and utilities prior to start of construction.
4. Provide layout of all work for approval by Landscape Architect prior to proceeding with work.
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8. Tree protection fencing, for existing trees, to be installed prior to commencement of all site work

D'AMBROSIO
architecture + urbanism

Murdoch de Greeff INC
Landscape Planning & Design

NOT FOR CONSTRUCTION

N

rev no	description	date
1	REZONING	16.05.04

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Stormwater Management Plan

project no.	116.07
drawing file	
date	
scale	1:200
drawn by	ML
checked by	SM/PdG
revision no.	sheet no. L1.2

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Landscape Planning & Design

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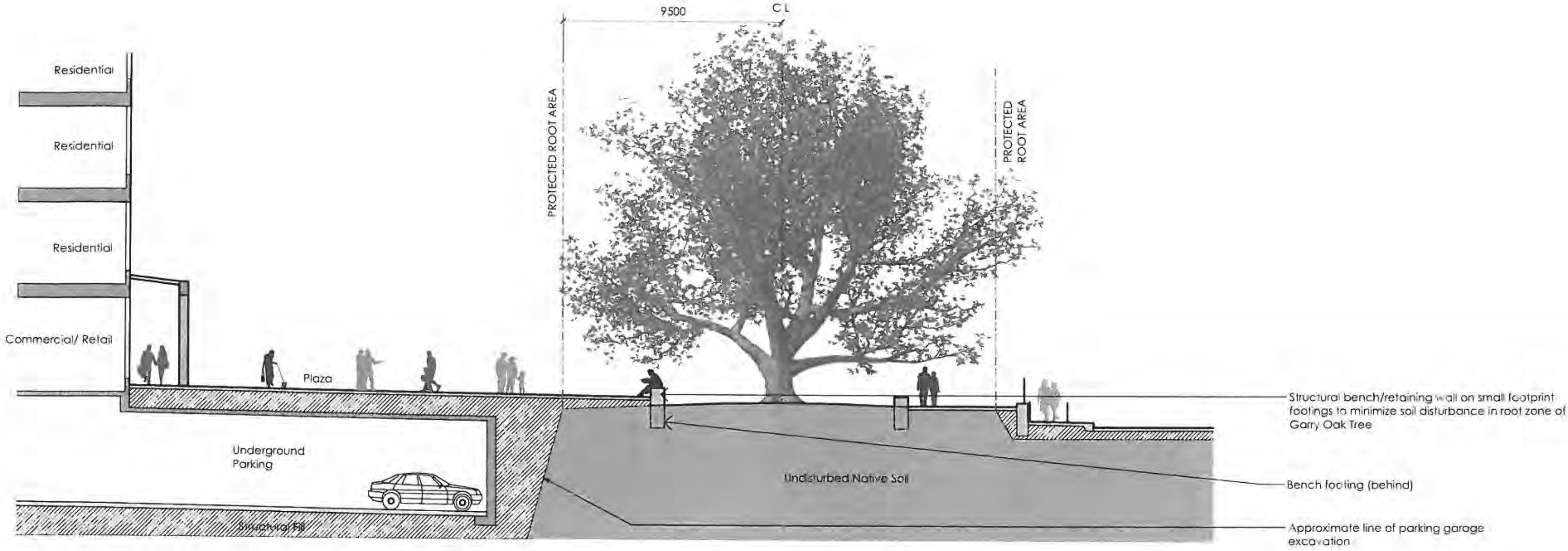
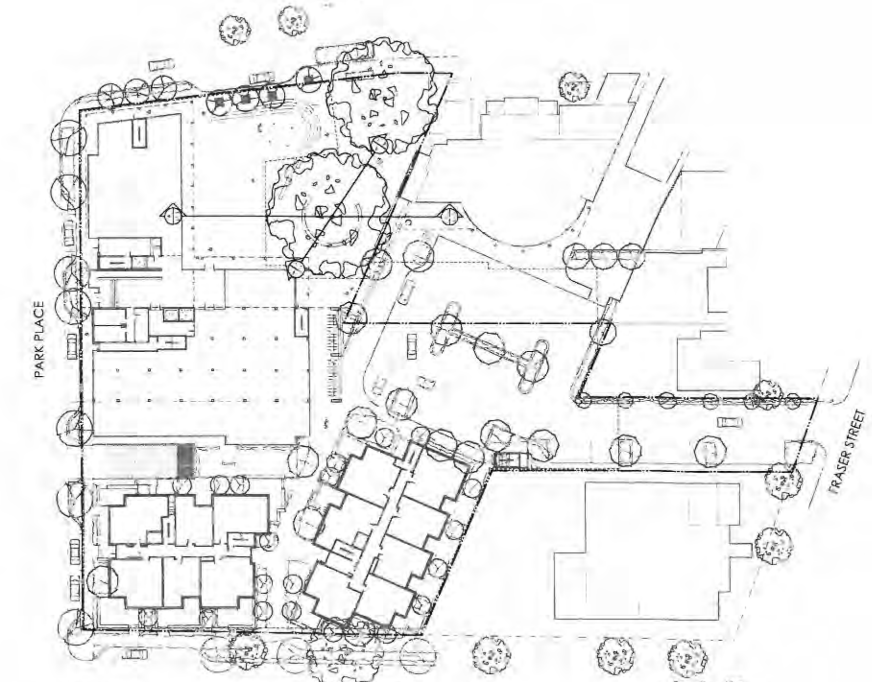
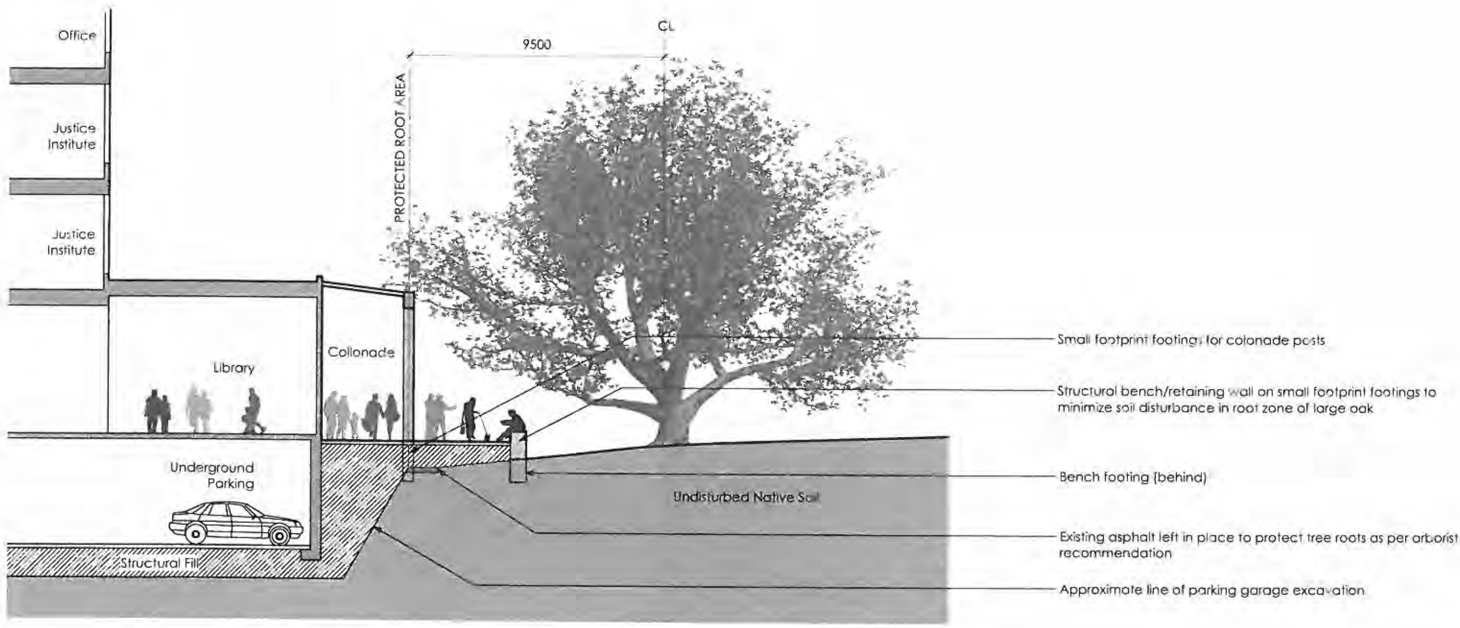


AA / L1.3 SECTION THROUGH EXISTING GARRY OAK
SCALE: 1:100



KEY PLAN



BB / L1.3 SECTION THROUGH EXISTING GARRY OAK
SCALE: 1:100

TREE NOTES

1. All work within dripline of tree will be reviewed by project arborist. Footings for bench will be sited and designed with input from arborist to avoid damage to tree root system. Hardscape surface material and structural base buildup within drip line of tree to be review with arborist. Arborist will supervise and review operations related to soil removal within 9.5 m protected root area (eg. for small footing locations). The grading strategy within the protected root area is to fill rather than cut as recommended by arborist.

2. Bench footings to be located with assistance of arborist to avoid damaging tree roots. Footings within the 9.5m protected root area will be pier footings (not a continuous footing). The bench structure itself would span the space between footings and not disturb existing roots.

DRAWING NOTES

1. DO NOT SCALE DRAWING: Verify all property lines and existing structures/vegetation to remain, prior to commencing work.
2. All plan dimensions in metres and all detail dimensions in millimetres.
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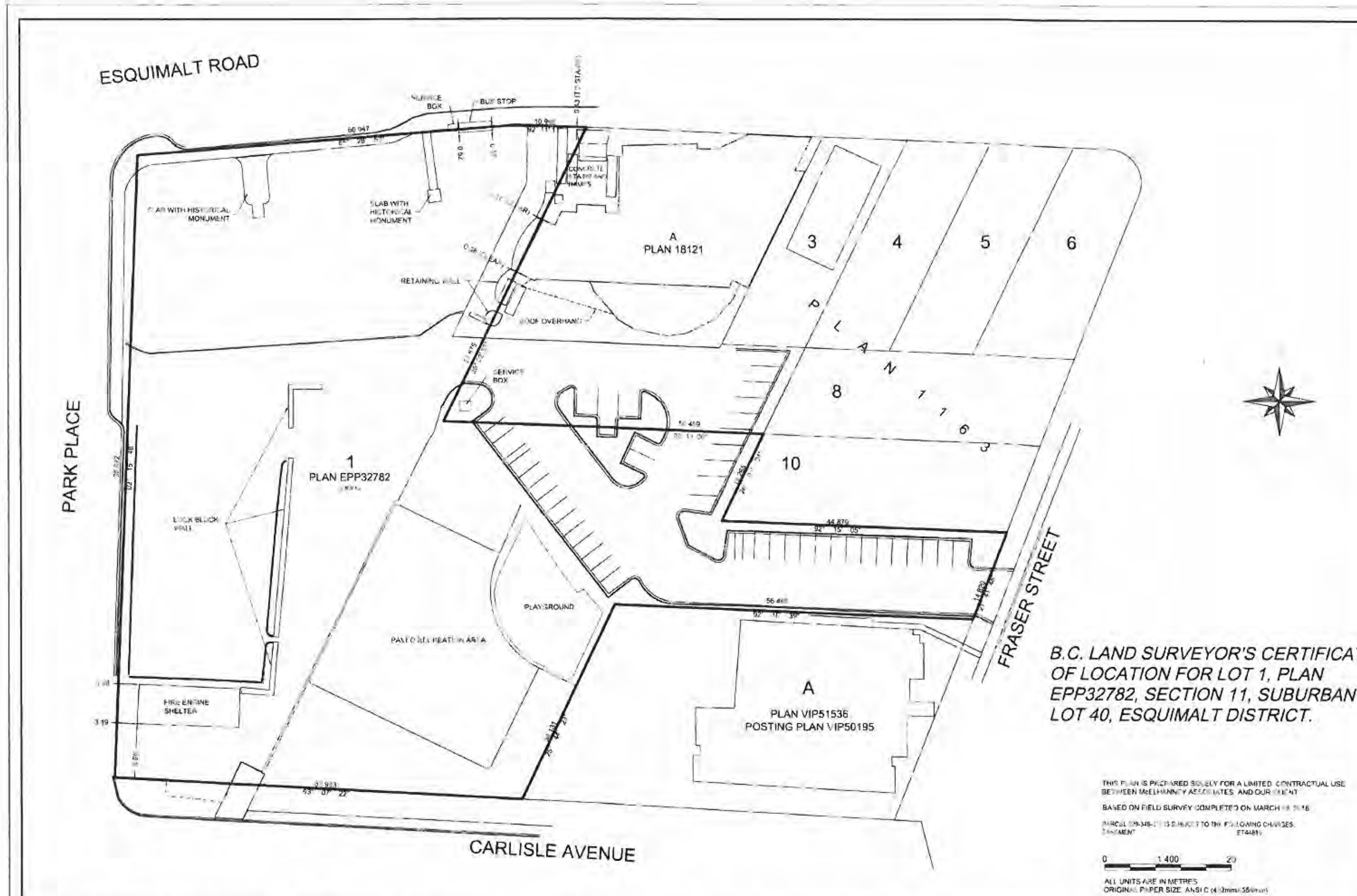
8. Tree protection fencing, for existing trees, to be installed prior to commencement of all site work.

rev no	description	date
1	REZONING	16.0[illegible].04

project name
Esquimalt Town Square
Esquimalt, BC

sheet title
Landscape Sections

project no.	116.07
drawing file	
date	
scale	NTS
drawn by	ML
checked by	SM/PdG
revision no.	sheet no. L1.3



B.C. LAND SURVEYOR'S CERTIFICATE OF LOCATION FOR LOT 1, PLAN EPP32782, SECTION 11, SUBURBAN LOT 40, ESQUIMALT DISTRICT.

THIS PLAN IS PREPARED SOLELY FOR A LIMITED CONTRACTUAL USE BETWEEN McELHANNEY ASSOCIATES AND OUR CLIENT.

BASED ON FIELD SURVEY COMPLETED ON MARCH [illegible] 2016

PARCEL [illegible] IS SUBJECT TO THE FOLLOWING CHARGES:
EASEMENT ET44815

0 1:400 20

ALL UNITS ARE IN METRES
ORIGINAL PAPER SIZE: ANSI C (432mm×356mm)

THIS BUILDING LOCATION CERTIFICATE HAS BEEN PREPARED IN ACCORDANCE WITH THE PROFESSIONAL REFERENCE MANUAL AND IS CERTIFIED CORRECT ACCORDING TO LAND TITLE AND SURVEY AUTHORITY RECORDS AND FIELD SURVEYS. UNREGISTERED INTERESTS HAVE NOT BEEN INCLUDED OR CONSIDERED. DATED THIS 28th DAY OF APRIL, 2016.

GLEN A. QUARMBY BCLS [illegible]

THIS DOCUMENT IS NOT VALID UNLESS ORIGINALLY SIGNED AND SEALED

BUILDING LOCATION CERTIFICATE SHOWING BUILDING EXTERIOR DIMENSIONS AND DIMENSIONS TO PROPERTY LINE

THIS DOCUMENT SHOWS THE RELATIVE LOCATION OF THE SURVEYED STRUCTURES AND FEATURES WITH RESPECT TO THE BOUNDARIES OF THE PARCEL DESCRIBED ABOVE. THIS DOCUMENT SHALL NOT BE USED TO DEFINE PROPERTY LINES OR PROPERTY CORNERS. THE SIGNATORY ACCEPTS NO RESPONSIBILITY OR LIABILITY FOR ANY DAMAGES THAT MAY BE SUFFERED BY A THIRD PARTY AS A RESULT OF ANY DECISIONS MADE, OR ACTIONS TAKEN BASED ON THIS DOCUMENT.

CIVIC ADDRESS: 1235 ESQUIMALT ROAD, ESQUIMALT, BC

PREPARED FOR: ARAGON PROPERTIES LTD.

DIMENSIONS DERIVED FROM PLAN EPP32782
PID: 029-[illegible]

McElhanney
McElhanney Associates Land Surveying Ltd.
500 3960 QUADRA STREET
VICTORIA, BC V8X 4A3
TEL: (250) 370-[illegible]
FILE: [illegible]
DWG: [illegible]

Esquimalt Town Square
#1536

Building Data Summary

Submitted for OCP/ Rezoning Application • May 4, 2016

Legal Address	Lot 1, Plan EPP32782, Section 11, Suburban Lot 40, Esquimalt District
Civic Address	1235 Esquimalt Road
Site Area	87,085 ft²

PROPOSED DATA

Zone	Esquimalt Town Square Comprehensive Development Zone
Setbacks	Esquimalt Road: 0.75 m Carlisle Avenue: 0 m Park Place: 0 m Interior Side Lot: 0.5 m Refer to drawing A1.1
Floor Area	See following page and refer to drawings A0.2, A0.3
Height	Building A 21.38 m Building B 21.47 m Building C 22.05 m Building D 22.79 m Refer to drawing A5.0
# Residential Units	Building A 32 Building B 37 Building C none Building D 32 TOTAL 101
Parking Provided	200 spaces (176 underground, 39 surface, minus 15 for Town Hall) Refer to drawing A1.2
Bicycle Parking Provided	206 spaces (182 underground, 24 surface) Refer to drawings A2.1, A2.10

Building A

Floors	Gross Area (sq.ft.)	Gross Area (sq.m)
LEVEL 1	4,932	458.2
LEVEL 2	5,128	476.4
LEVEL 3	5,128	476.4
LEVEL 4	5,128	476.4
LEVEL 5	3,679	341.8
LEVEL 6	3,652	339.3
ROOF	154	14.3
SUBTOTAL BUILDING A	**27,801**	**2,582.7**

Building B

Floors	Gross Area (sq.ft.)	Gross Area (sq.m)
LEVEL 1	5,697	529.3
LEVEL 2	6,024	559.6
LEVEL 3	6,024	559.6
LEVEL 4	6,024	559.6
LEVEL 5	4,408	409.5
LEVEL 6	4,408	409.5
ROOF	96	8.9
SUBTOTAL BUILDING B	**32,681**	**3,036.1**

Building C

Floors	Gross Area (sq.ft.)	Gross Area (sq.m)
LEVEL 1	13,376	1242.6
LEVEL 2	8,783	815.9
LEVEL 3	8,783	815.9
LEVEL 4	8,783	815.9
LEVEL 5	8,783	815.9
Total Building C	**48,508**	**4506.4**

Building D

Floors	Gross Area (sq.ft.)	Gross Area (sq.m)
LEVEL 1	4,261	395.8
LEVEL 2	5,158	479.2
LEVEL 3	5,158	479.2
LEVEL 4	5,158	479.2
LEVEL 5	5,158	479.2
LEVEL 6	3,743	347.7
ROOF	104	9.7
Total Building D	**28,740**	**2669.9**

Boulevard
TRANSPORTATION
a division of Watt Consulting Group

ESQUIMALT TOWN CENTRE

Traffic Impact Assessment

Prepared for: **Aragon Properties Ltd.**

Prepared by: **Boulevard Transportation, a division of Watt Consulting Group**

Our File: **1958**

Date: **May 2, 2016**

GREAT!

transportation solutions for communities

WATT
Consulting Group
Since 1983

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

Boulevard Transportation Group, a division of Watt Consulting Group, was retained by Aragon Properties Ltd. to conduct a traffic impact assessment for the proposed Esquimalt Town Centre development in Esquimalt, BC.

An analysis of post-development conditions was undertaken in order to provide a clear view of the impacts on the adjacent roadways after full build-out and occupancy. The study assessed traffic impacts of the development, reviewed the site access roads, and assessed the need for any mitigation measures. Study recommendations and conclusions are to provide safe and efficient movement of pedestrians, bicycles and vehicular traffic for the proposed development while minimizing the impact to non-site trips.

The development site is located in the Township of Esquimalt, in the heart of the Esquimalt Village. The study area includes Esquimalt Road, Admirals Road, Park Place, Fraser Street, Lampson Street, Lyall Street and the existing and proposed site accesses. Key intersections in the study area from a traffic conditions / capacity perspective are the following four intersections: Esquimalt Road / Admirals Road, Esquimalt Road / Park Place, Esquimalt Road / Fraser Street and Esquimalt Road / Lampson Street. See **Figure 1** for the study area and site location.

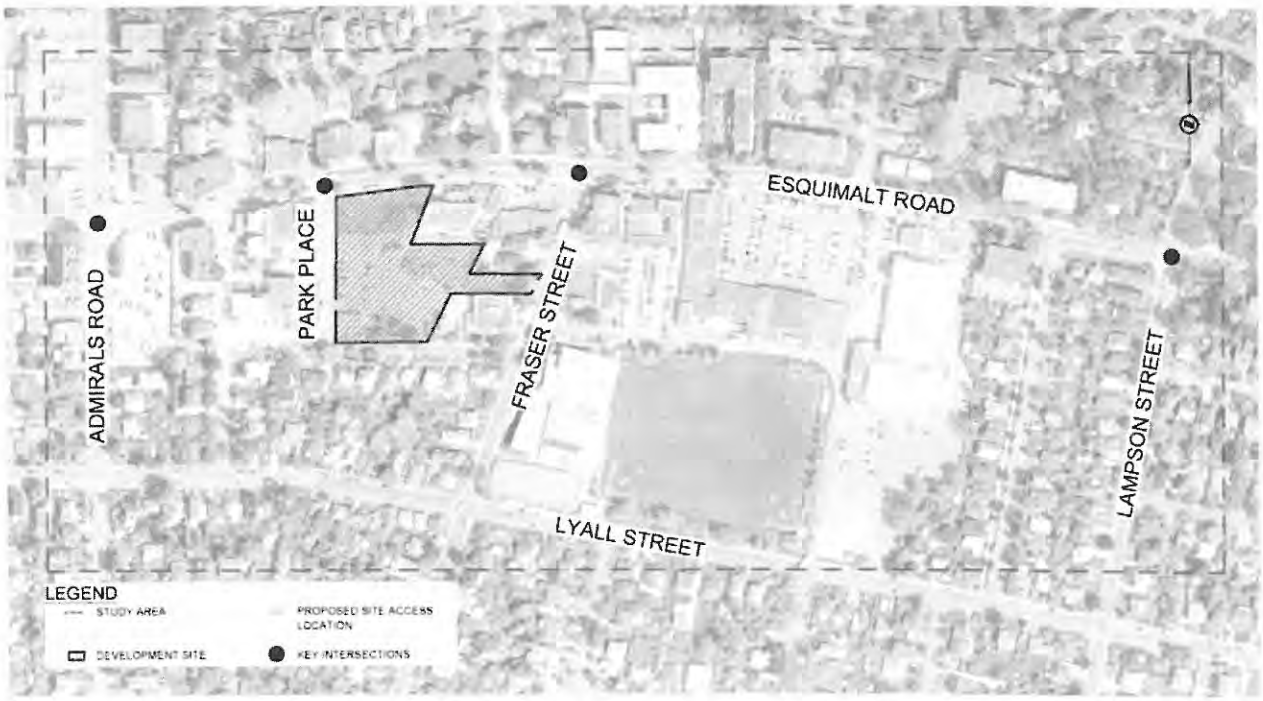


Figure 1: Study Area and Site Location

2.0 EXISTING CONDITIONS

2.1 Road Network

Fraser Street and Park Place are the access roads to the development parking areas. Fraser Street is a two lane collector road with no on street parking along the site frontage. Between Esquimalt Road and Lyall Street, there is "Playground" warning signage with a 30 km/h speed limit. Park Place and Carlisle Avenue are two lane local roads, with on street parking on both sides. Site traffic will also be impacting Esquimalt Road, Admirals Road and Lampson Street which are all major roads in the network.

Esquimalt Road is designated as a Major road and is an important east–west connector for through traffic in the township, as well traffic to/from the Town Centre area. In the study area, it has one motor vehicle lane in each direction, along with left turn lanes or medians, as well bike lanes and parking bays. The posted speed limit on Esquimalt Road through the study area is 40km/hr. Lampson Street and Admirals Road are north–south major roads, and both roads connect several residential neighborhoods.

The intersection of Esquimalt Road & Admirals Road is signalized. At the intersection, there are separate left turn lanes on Esquimalt Road (westbound and eastbound). Admirals Road is a four-lane road at Esquimalt Road. The intersection of Esquimalt Road & Lampson Street is signalized. At the intersection, there are separate right turn lanes on Esquimalt Road and Lampson Street. The posted speed limits on Esquimalt Road and Lampson Street is 40km/hr.

The intersection of Esquimalt Road & Park Place is currently stop controlled on Park Place. At the intersection, there is a westbound left turn lane on Esquimalt Road. The intersection of Esquimalt Road & Fraser Street is currently stop controlled on Fraser Street. At the intersection, there is a westbound left turn lane on Esquimalt Road and a northbound left turn lane on Fraser Street.

2.2 Traffic Volumes

Manual counts were undertaken at the four intersections of Esquimalt Road / Admirals Road, Esquimalt Road / Park Place, Esquimalt Road / Fraser Street, Esquimalt Road / Lampson Street and the two existing accesses to the surface parking lot on Park Place and Fraser Street. The counts for Esquimalt Road / Park Place and Esquimalt Road / Fraser Street were conducted during the AM and PM peak hours on March 22nd, 2016. The counts at the two existing accesses were completed for the PM peak hour on the following day, March 23rd, 2016. The counts for Esquimalt Road / Admirals Road and Esquimalt Road / Lampson Street were conducted previously for the AM and PM peak hours on October 31st, 2012 and October 17th, 2012 respectively. As the 2012 traffic volumes along Esquimalt Road are greater than the 2016 traffic volumes, a growth rate was not applied to the 2012 volumes, which were used as background

volumes without adjustment. See **Figures 2 and 3** for existing AM and PM peak hour turning movement counts.

According to Esquimalt's Official Community Plan, the 2004 population was listed as 17,038 and the 2026 projected population[1] as 21,100. Utilizing the two values, a 1.0% annual growth rate was calculated and used for the long term background traffic projections in this study.

2.3 Existing Site Trips

Currently, there are two site accesses for the existing surface parking lot: one on Park Place and the other on Fraser Street. The existing site trips (total of the two driveways) were measured to be 82 vehicles (34 trips in, 48 trips out) during the PM peak hour.

2.4 Traffic Modelling – Background Information

Analysis of the traffic conditions at the intersections within the study area were undertaken using Synchro software and SimTraffic.

Synchro / SimTraffic is a two-part traffic modelling software that provides analysis of traffic conditions based on traffic control, geometry, volumes and traffic operations. Synchro software (Synchro 9) is used because of its ability to provide analysis using the Highway Capacity Manual (2010) methodology, while SimTraffic integrates established driver behaviours and characteristics to simulate actual conditions by randomly "seeding" or positioning vehicles travelling throughout the network. Synchro uses measures of effectiveness to return the results of the analysis. These measures of effectiveness include level of service (LOS), delay and 95th percentile queue length. The delays and type of traffic control are used to determine the level of service. The level of services are broken down into six letter grades with LOS A being excellent operations and LOS F being unstable/failure operations. Level of service C is generally considered to be an acceptable LOS by most municipalities. Level of service D is generally considered to be on the threshold between acceptable and unacceptable operations.

2.5 Existing Traffic - Results

Existing traffic conditions were analyzed during the AM peak hours and PM peak hours for the four intersections on Esquimalt Road, and the PM peak hours for the two existing parking lot accesses on Fraser Street and Park Place. Existing traffic conditions provide a base point for comparison with post-development conditions. See **Figures 2 and 3** for existing AM and PM peak levels of service.

At the intersection of Esquimalt Road / Admirals Road, all movements are operating at LOS C or better during the AM and PM peak hours.

[1] 2026 projected population from the Capital Regional District's Regional Growth Strategy document

At the intersection of Esquimalt Road / Park Place, all movements are operating at LOS A, except for the northbound movements on Park Place which operate at LOS B during the AM peak hours and at LOS C during the PM peak hours.

At the intersection of Esquimalt Road / Fraser Street, all movements are operating at LOS A, except for the northbound left turn and right turn on Fraser Street. The northbound left turn operates at LOS C during the AM peak hours and at LOS D during the PM peak hours. The northbound right turn operates at LOS B during the AM peak hours and at LOS C during the PM peak hours.

At the intersection of Esquimalt Road / Lampson Street, all movements are operating at LOS C or better during the AM peak hour. During the PM peak hour, the westbound through and left turn movements and the northbound through and left turn movements drop to LOS D from LOS C.

At both site accesses, all movements operate at a LOS A during the PM peak hour.

Overall, the PM peak hour is the worst-case time period for traffic operations in the study area.

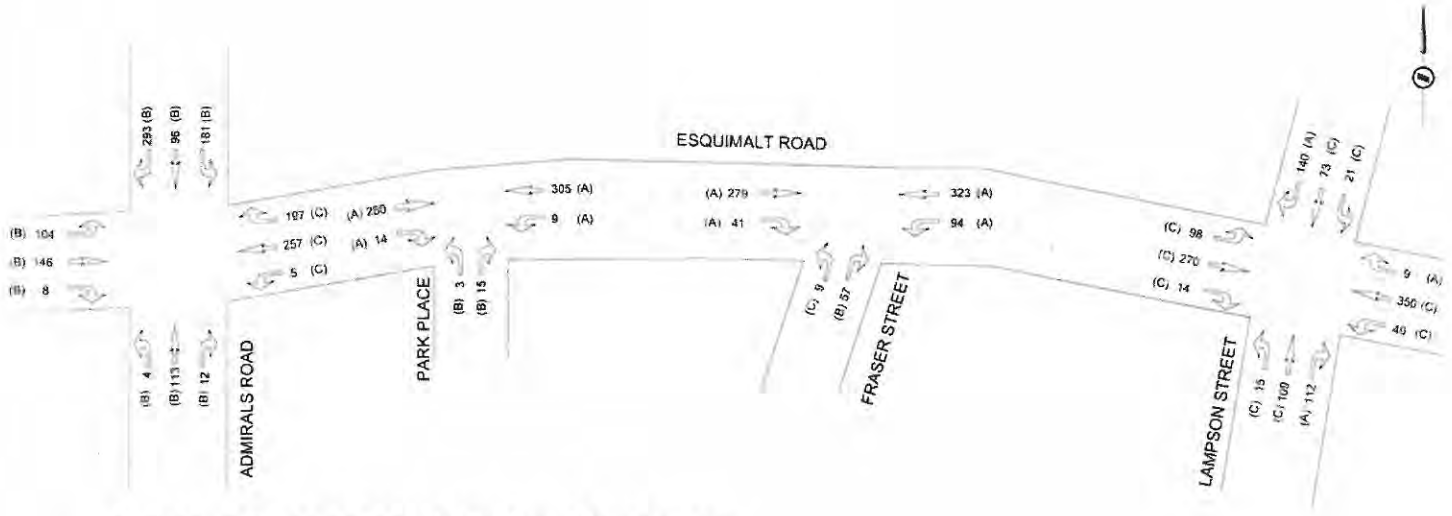


Figure 2: Existing AM Peak Hour Conditions

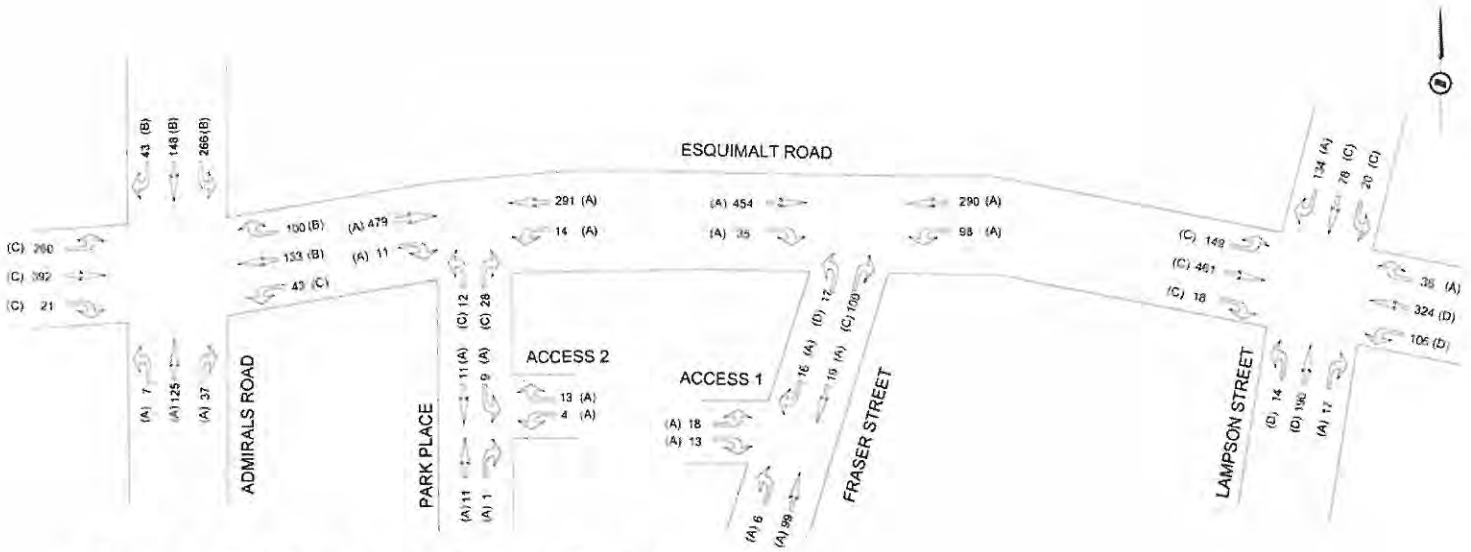


Figure 3: Existing PM Peak Hour Conditions

3.0 POST DEVELOPMENT

3.1 Land Use

At the time of technical analysis, the following land use data was used: 88 condominium units, 47 rental apartment units, 5,300 sq.ft. of specialty retail, a 15,000 sq.ft. library, 9,200 sq.ft. of office space, and a 18,000 sq.ft. Justice Institute. To account for potential changes to final residential unit numbers, this included an additional buffer of 25 residential units (of which 17 were condominium, and 8 were apartments).

At the time of this report production date (May 2, 2016), the site characteristics have been revised to consist of a 10,000 sq.ft. library, 18,000 sq.ft. of office space, 18,000 sq.ft. of Justice Institute, and 4,460 sq.ft. of specialty retail (or potential café), along with 69 condominium and 32 rental apartment units. This represents an increase in combined office/library area of 3,800 sq.ft. and a decrease in the specialty retail space of 840 sq.ft. and decrease of two (2) condominium and seven (7) rental apartment units from what was proposed (and a decrease of 19 condominium and 15 apartment units from what was analyzed). This variation is not anticipated to materially impact the traffic impacts associated with this site, as the traffic analysis buffer of additional residential units that was analyzed (over what is proposed) along with the decrease in retail space more than offsets the increased trips due to an increase of 3,800 sq.ft. of office/library space. See Section 3.3 for trip generation rates by land use.

Note that the existing Municipal Hall building adjacent to the redevelopment area will continue to be used in the future, albeit with a shift in some land uses (e.g. the library will be moving, with that space repurposed to office / Municipal Hall needs). For this study, the existing site vehicle trips associated with this building were assumed to remain in the post-development period.

3.2 Site Access

There are two site accesses proposed for the development. One site access is located on Park Place and leads to an underground parking facility that serves a large majority of the development. The second site access is located on Fraser Street and a surface parking lot. This access will also accommodate the existing Town Hall building, and is assumed to be the primary access and parking lot for library visitors. See **Figure 4** for the proposed site plan and site access locations. Note that the site plan was not finalized at the time of this report's production, however all key elements are reflected in the analysis.

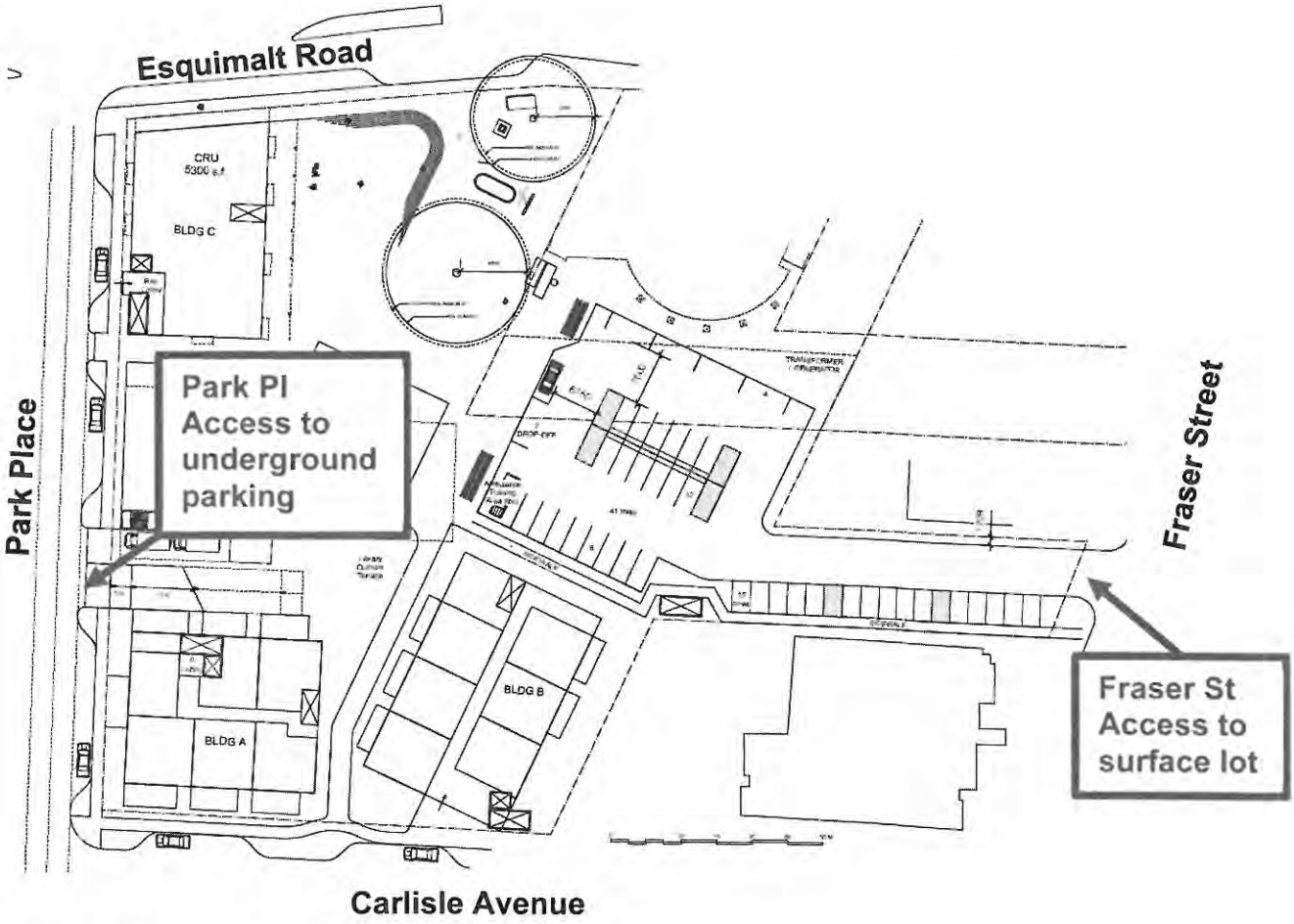


Figure 4: Site Plan and Site Accesses[2]

[2] Site Plan Concept, D'ambrosio Architecture, April 4, 2016

3.3 Trip Generation

Site trips were estimated from the *ITE Trip Generation Manual (9th Edition)* for all trips except for the PM peak Library / Office trips. The *Trip Generation Manual* provides trip rates for a wide variety of land uses gathered from actual sites across North America over the past 35 years.

The Library / Office trips were calculated by taking the existing trips in and out of the parking lots (which are primarily for Municipal Hall / Library) and generating a trip rate by dividing by the size of the complex (20,000 sq.ft.). The trip rate was calculated to be 4.1 / 1000 sq.ft. As a conservative estimate, it is assumed that the existing site trips will persist in the future to account for the Municipal Hall site trips. **Tables 1** and **2** summarize the trip generation rates and estimated site trips by land use during the AM and PM peak hours.

TABLE 1: AM PEAK HOUR TRIP GENERATION

Land Use	ITE Code	Size / Unit	Rate	%In	%Out	In	Out	Total Trips
Retail	826 (820)	5,300 sq.ft	**0.96 / 1000 sq.ft**	62%	38%	3	2	5
Library	590	15,000 sq.ft	**1.04 / 1000 sq.ft**	71%	29%	11	5	16
Office	710	9,200 sq.ft	**1.56 / 1000 sq.ft**	88%	12%	9	1	10
Justice Institute	540	18,000 sq.ft	**2.99 / 1000 sq.ft**	74%	26%	40	14	54
Apartment	220	47 units	**.51 / unit**	20%	80%	5	19	24
Condominiums	230	88 units	**.44 / unit**	17%	83%	7	32	39
Total						**75**	**73**	**148**

TABLE 2: PM PEAK HOUR TRIP GENERATION

Land Use	ITE Code	Size / Unit	Rate	%In	%Out	In	Out	Total Trips
Retail	826	5,300 sq.ft	**2.71 / 1000 sq.ft**	44%	56%	6	8	14
Library / Office	N/A	24,200 sq.ft	**4.1 / 1000 sq.ft**	41%	59%	41	58	99
Justice Institute	540	18,000 sq.ft	**2.54 / 1000 sq.ft**	58%	42%	27	19	46
Apartment	220	47 units	**.62 / unit**	65%	35%	19	10	29
Condominiums	230	88 units	**.52 / unit**	67%	33%	31	15	46
Total						**124**	**110**	**234**

The site generates the most trips in the PM peak hour (1.6 times the AM peak hour). The peak hour volumes along Esquimalt Road between Park Place and Fraser Road are also 25% greater than the AM peak hour. In addition, overall, the LOS during the PM peak hour is worse than the

AM peak hour. Therefore, the analysis is focused on the weekday PM peak hour as it is the worst case recurring time period.

3.3.1 Internal and Pass-by Trips

As the proposed site is a multi-use development, there will be internal trips which are between on-site land uses. Internal trips can be made either by walking or by vehicles using internal roadways without using external streets. An internal capture rate can be generally defined as a percentage reduction that can be applied to the trip generation estimates for individual land uses to account for trips internal to the site. The internal trips should be subtracted out before pass-by trip reductions are applied.

It is estimated that the number of internal trips will be 4 vehicles (2 In, 2 Out) during the PM peak hour. Therefore, the external trips are 230 vehicles (122 In, 108 Out) during the PM peak hour. Also, it is assumed that there are no internal trips to/from the library and the Justice Institute, as while they may occur, they are anticipated to be a low number. For the AM peak hour, it is assumed that there are no internal trips because the retail/office may not be open yet. See **Appendix B** for the internal trip calculation chart.

Though the proposed development includes a commercial component (retail), it is assumed to not generate any pass-by trips from and to nearby roads because it is small in size and is surrounded by several stores and a shopping centre.

3.4 Trip Assignment

The generated site trips were assigned based on the existing trip distributions at the existing site accesses. The trip assignment differs slightly at the accesses between Residential / Commercial and the Office / Library / Justice Institute land uses. For Residential / Commercial, the trip assignment at the access was based on the Fraser Street / Parking Access traffic split as that distribution better reflects the residential neighborhood. For Office / Library / Justice Institute, the trip assignment at the access was based on the sum of the trips in and out of the accesses at Fraser Street and Park Place. Also, the trip assignment for all land uses calculated at Esquimalt Road / Admirals Road was based on the traffic split from the last 15 minutes of the count, as the traffic in the first 45 minutes of the count is observed to be influenced by the Canadian Force Base traffic which does not leave the base in the PM Peak hour anymore. It should be noted that all development traffic, except for the traffic generated by the additional library space, is assumed to exit out of the Park Place access. The library traffic is assumed to use the surface lot, largely because library trips are short duration. The directional splits for the site trips at the accesses are as follows:

Residential / Commercial – PM Peak Hour

Site Trips at Access (Park Place)

Trips In

- 73% of the trip totals are from Esquimalt Road
- 27% of the trip totals are from the south

Trips Out

- 79% of the trip totals are to Esquimalt Road
- 21% of the trip totals are to the South

Office / Library / Justice Institute – PM Peak Hour

Site Trips at Access (Park Place / Fraser Street)

Trips In

- 79% of the trip totals are from Esquimalt Road
- 21% of the trip totals are from the south

Trips Out

- 65% of the trip totals are to Esquimalt Road
- 35% of the trip totals are to the South

The trip distribution for the following intersections are the same for all land uses. The directional splits for the site trips at the intersections are as follows:

All Land uses – PM Peak Hour

Site Trips at Esquimalt Road / Fraser Street and Esquimalt Road / Park Place

Trips In

- 71% of the total trips are from Lampson Street
- 29% of the total trips are from Admirals Road

Trips Out

- 82% of the total trips are to Lampson Street
- 18% of the total trips are to Admirals Road

Site Trips at Esquimalt Road / Lampson Street

Trips In

- 77% are from Esquimalt Road east of Lampson Street
- 23% are from Lampson Street north of Esquimalt Road

Trips out

- 75% are to Esquimalt Road east of Lampson Street
- 25% are from Lampson Street north of Esquimalt Road

Site Trips at Esquimalt Road / Admirals Road

Trips In

- 63% from Admirals Road north of Esquimalt Road
- 37% from Esquimalt Road west of Admirals Road

Trips out

- 59% from Admirals Road north of Esquimalt Road
- 41% from Esquimalt Road west of Admirals Road

Figure 5 outlines the site trips assigned during the PM peak hour at the key intersections.

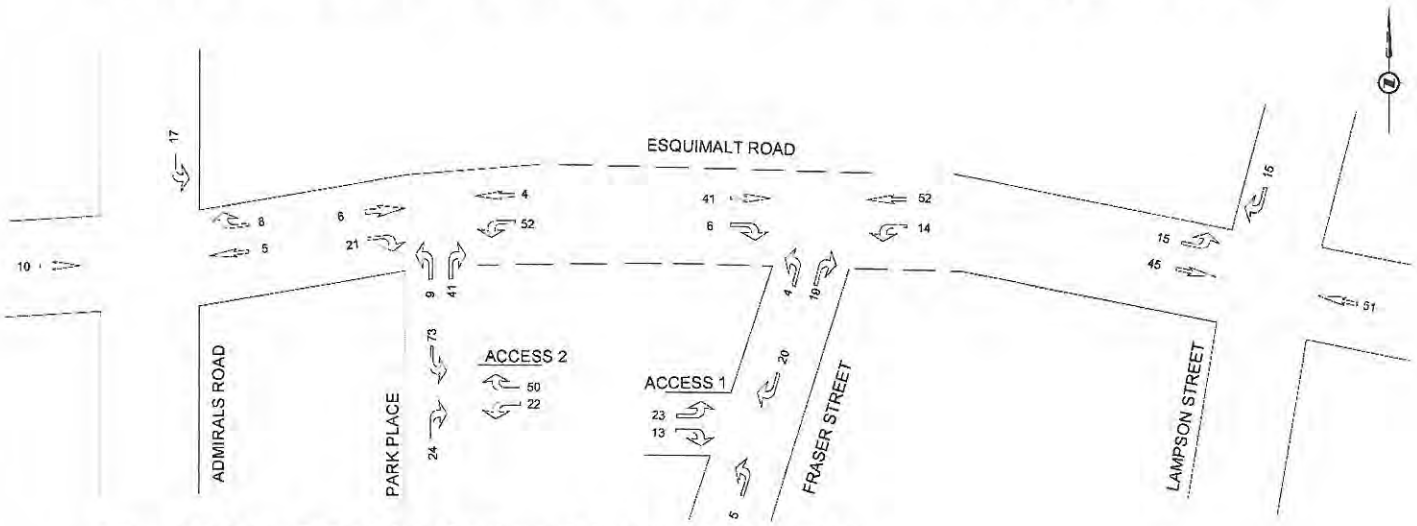


Figure 5: New Site Trips Assigned during PM Peak Hour

3.5 Post Development Roadway Volumes

Though the development is represents a significant increase in land usage for the site, the number of vehicles added to the network is relatively low by comparison to existing traffic volumes, and the adjacent roads will continue to operate within their classification (e.g. local roads will continue to operate as local roads). For example, there are 41 vehicles added to the eastbound through movement along Esquimalt Road at Fraser Street, which is approximately a 9% increase in traffic when compared to the existing eastbound through volume of 454 vehicles. Along Fraser Street, south of the site access, there are 18 vehicles added (two-way total), and spread out over an hour, that is equivalent to approximately one additional vehicle every three minutes. On Park Place, there are 46 additional vehicles going to and from the south via Carlisle Avenue, which is

equivalent to approximately one additional vehicle every 90 seconds. Carlisle Avenue is a local road, and the addition of 46 vehicles will not change that.

3.6 Post Development Traffic Analysis Results

Figure 6 shows the level of service and traffic volumes for the PM peak hour in the post development period, and **Table 3** shows a comparison of post development and existing traffic LOS and delay at key study area intersections.

All intersections and movements, except for the intersections of Esquimalt Road / Lampson Street, Esquimalt Road / Park Place, Esquimalt Road / Fraser Street and the site accesses, continue to operate at the same levels of service as existing conditions. At Esquimalt Road / Park Place, the northbound left / right turn drops from LOS C to LOS D, based on Synchro/HCM 2010 modelling results (and LOS D is generally an acceptable level of service in peak hours). At Esquimalt Road / Fraser Street the northbound left turn drops from LOS D to LOS E, based on Synchro/HCM 2010 results. The average vehicle delay based on SimTraffic, however, is 19.3s which is equivalent to a LOS C. It should be noted that although there was a drop in level of service for Synchro, traffic volumes for the northbound left turn on Fraser Street differ by only four vehicles when compared to existing conditions, and on Park Place by nine vehicles. At Esquimalt Road / Lampson Street the eastbound movements drop from LOS C to LOS D.

At the access on Park Place, the eastbound left and right turn movements drop to LOS B from LOS A, but are still operating at a good level of service. At the access on Fraser Street, the westbound left and right turn movements also drop to LOS B from LOS A. See Section 5.0 for a review of mitigation considerations.

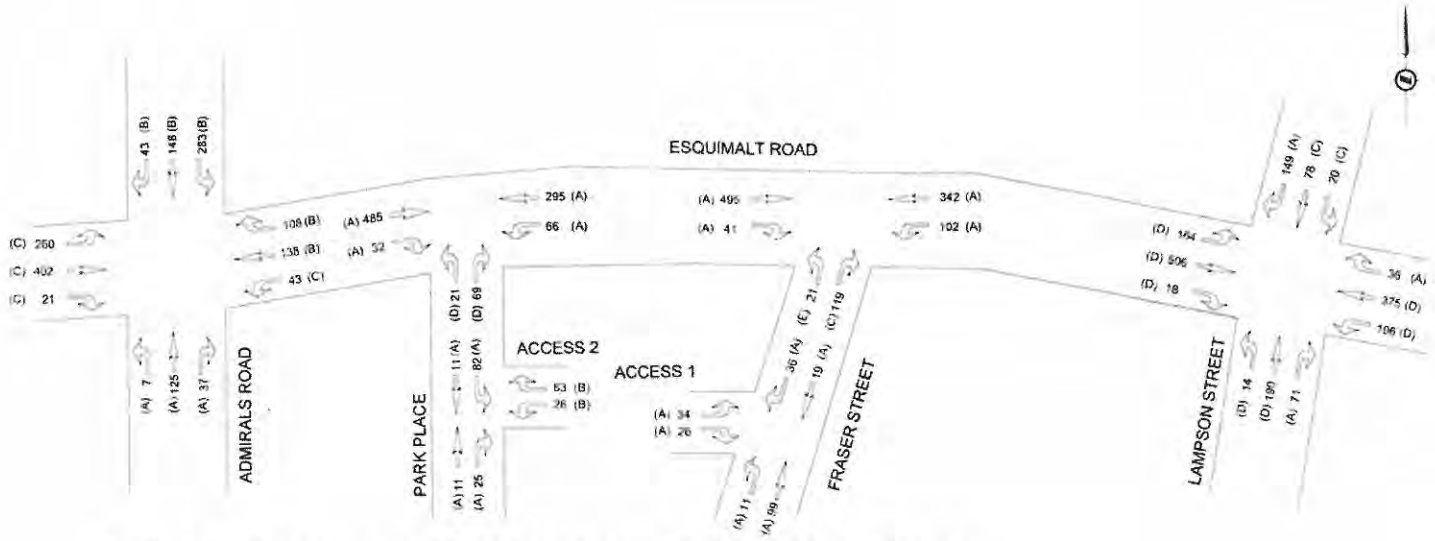


Figure 6: Post Development Conditions during PM Peak Hour

TABLE 3: BACKGROUND AND 2016 POST DEVELOPMENT LOS AND DELAY

Intersection	Movement	LOS		Delay (s)	
		Background	Post Dev	Background	Post Dev
Esquimalt Road / Lampson Street	EB L/T	C	D	32.5	36.2
	EB T/R	C	D	32.5	36.2
	WB L/T	D	D	41.5	51.7
	WBR	A	A	1.7	1.6
	NB L/T	D	D	37.4	39.2
	NBR	A	A	6.8	6.7
	SB L/T	C	C	28.4	29.3
	SBR	A	A	6.7	6.8
Esquimalt Road / Admirals Road	EBL	C	C	26.1	26.9
	EB T/R	C	C	23.4	24.0
	WBL	C	C	34.3	34.3
	WBT	B	B	15.5	15.3
	WB T/R	B	B	15.5	15.3
	NB L/T	A	A	9.0	9.1
	NB T/R	A	A	9.0	9.1
	SB L/T	B	B	17.5	18.2
	SB T/R	B	B	17.5	18.2
Esquimalt Road / Fraser Street	EB T/R	A	A	0	0
	WBL	A	A	9.6	9.9
	WBT	A	A	0	0
	NBL	D	E	30.9	38.1
	NBR	C	C	16.6	18.8
Esquimalt Road / Park Place	EB T/R	A	A	0	0
	WBL	A	A	9.0	9.7
	WBT	A	A	0	0
	NB L/R	C	D	19.9	25.1

3.7 Long Term Conditions (2026 Horizon Year, full buildout)

A long-term analysis for the 10-year horizon (2026) was conducted. To obtain 2026 background traffic volumes, a growth rate of 1.0% was applied to the background volumes. The proposed development traffic was then added to the 2026 background traffic to obtain the 2026 post development conditions. The long term conditions were analyzed in Synchro software. The long term PM peak hour conditions are shown in **Figure 7**.

In the long term, the intersection of Esquimalt Road / Admirals Road, and the two accesses on Park Place and Fraser Street will operate with good or acceptable levels of service in the PM peak hour (all movements at LOS D or better).

The remaining intersections, Esquimalt Road / Lampson Street, Esquimalt Road / Park Place and Esquimalt Road / Fraser Street, will not be operating at a good or acceptable level of services on some approaches in the PM peak hour.

The intersection of Esquimalt Road / Lampson Street has a reduction in level of service along Esquimalt Road, where the westbound through and left turn movements drop from LOS D to LOS E.

At the intersection of Esquimalt Road / Park Place, the northbound left / right turn movement remains at LOS D (same as current-year post development conditions).

At the intersection of Esquimalt Road / Fraser Street, the northbound left turn remains at LOS E. The SimTraffic results yields a delay of 20.7s which is equivalent to LOS C.

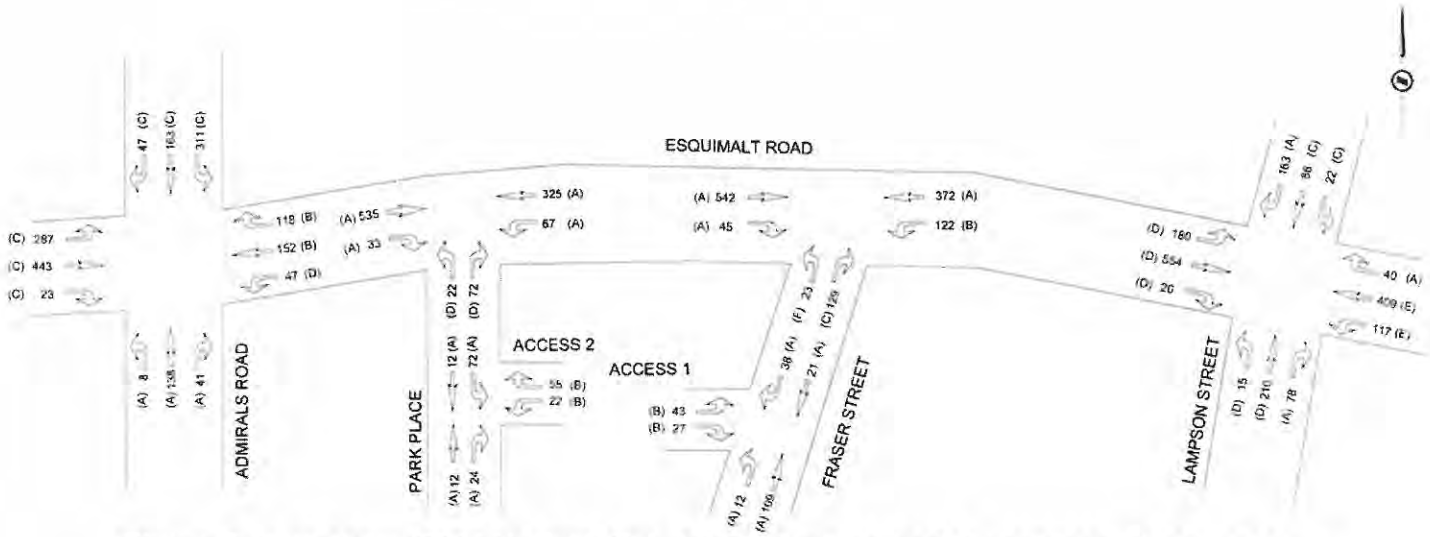


Figure 7: Long-term (2026 Horizon Year) Post-Development Conditions, PM Peak Hour

3.8 Mitigation Review

The two intersections where there are very poor or failing levels of service in the PM peak hour are Fraser Street (northbound left at Esquimalt Road) and Lampson Street (westbound through). These are therefore locations where mitigation for traffic operations is a consideration.

Esquimalt Road / Fraser Street

The northbound left turn movement at Esquimalt Road / Fraser Street is LOS E on opening day and LOS F in the long term (although this assumes continued traffic growth on Esquimalt Road, which may not occur at the assumed rate, as in recent years peak hour volumes have actually

decreased). This is not due to the volume of left turns, which is comparatively low (17 currently, 21 in the near term post development period, and 23 in the long term post development period), but rather due to high volumes on Esquimalt Road that can make finding suitable gaps difficult.

Installing a signal would improve the northbound movement to a good/acceptable LOS B. A signal is not, however, warranted, based on TAC's signal warrant review[3] for existing or post development volumes (near or long term). This is because of the comparatively low volumes that a signal will actually benefit (effectively only the northbound left turns really benefit).

Another option that would improve the northbound left turn level of service is converting the median on the west leg of Esquimalt Road into a two-way left turn lane, which would allow for staged left turns. This would improve the northbound left level of service to LOS C. There is, however, an existing signed and marked crosswalk that would need to be moved so that this option is feasible, and this existing crosswalk is an important crossing for access to/from the Municipal Hall as well as the Esquimalt Rec Centre (and was observed to be well-used).

In consideration that the northbound left turn traffic volume in 2026 on Fraser Street is relatively low and similar to existing day conditions, and that conditions are only an issue in the peak hour, it is reasonable and appropriate to leave the existing traffic operations unchanged (in terms of traffic control and geometry).

Esquimalt Road / Lampson Street
In the 10-year horizon at Esquimalt Road / Lampson Street, the movements on Esquimalt Road drop to LOS E. Signal timing adjustments were investigated in order to see if improvements to the level of service could be realized.

The option of removing the split phasing at Esquimalt Road / Lampson Street was reviewed, with all left turn movements being permissive. The eastbound movement improved from LOS D to LOS B, the westbound through and left turn movement improved from LOS E to LOS C and the northbound through and left turn movement improved from LOS D to LOS C. Therefore, in the longer term, the Township may consider signal timing and phasing changes at this intersection if traffic volumes increase and operational issues are observed.

4.0 OTHER MODES

6.1 Pedestrian Facilities

Currently, there are sidewalks on all adjacent frontage roads and there is an existing path on the southwest end of the site that leads to the existing Esquimalt square. The sidewalks will be retained as part as the development plan, and there will be a "Public Artwalk" that will replace the

[3] Transportation Association of Canada Signal Warrant Handbook, March 2007

existing path. The existing Esquimalt square is to be replaced by the proposed Village Square. The current and proposed facilities provide pedestrians with safe and accessible sidewalks.

There are several marked and signed crosswalks in the vicinity of the site, to facilitate pedestrian movements in the area. There are crosswalks across Esquimalt Road at Park Place and at Fraser Street. There is also a crosswalk across Fraser Street at Carlisle Avenue, which connects the Municipal Hall with the Esquimalt Recreation Centre. These crosswalks are ideally positioned near the outer quadrants of the Town Centre area.

6.2 Bicycle Facilities

Esquimalt Road is designated as a commuter cycling route, and there are bike lanes in both directions from Park Place to the east (up to the border with the City of Victoria), with the exception of a short section in front of the Municipal Hall (where the bike lane ends for the width of six on-street parking stalls due to limited curb-to-curb width) and at the intersections with Lampson Street and Head Street. This is suitable and appropriate for confident commuter cyclists.

Both Fraser Street and Lyall Street are designated as commuter + recreational cycling routes. Fraser Street provides a north-south alignment into residential areas, while Lyall Street provides east-west connectivity for both local residents and commuter traffic. Both streets have shared lanes, which is an appropriate design for lower volume collector roads. These routes provide an alternative for accessing the site from Esquimalt Road on quieter neighbourhood roads.

6.2 Transit

Esquimalt Road is served by two BC Transit routes: #15 and #26. Route 15, which is a regional route connects Esquimalt Village to the University of Victoria via downtown Victoria and Oak Bay. Route #26 also connects Esquimalt Village to the University of Victoria, via Tillicum Centre, Uptown Centre and McKenzie Avenue. In the opposite direction, both routes connect to the HMC Dockyard. There is an existing bus stop in the eastbound direction in front of the proposed site and in the westbound direction just west of Fraser Street, which are easily accessible. In addition to these routes, within 250m, on Admirals Road, there is a stop serviced by Route #25 which connects Esquimalt Village to the Admirals Walk Shopping Centre as well as the Colwood exchange. This route also connects to downtown Victoria and the Quadra/McKenzie area of Saanich, with the nearest stops being at the intersection of Fraser Street and Lyall Street. This site is therefore well-served by transit, which can lessen the dependence on private vehicle trips to/from the site.

5.0 CONCLUSIONS

The following conclusions are made regarding the traffic impact assessment for the proposed Esquimalt Town Centre development.

The proposed development will see an increase in employment, service, and residential uses for the area, which can contribute to creating a more vibrant core area for the Township. The increase in land usage will result in the most acute traffic increases in the PM peak hour, which is also the current busiest time period for the adjacent streets, and thus was the time period used for traffic analysis. The land use analyzed for the traffic models represents a worst case over that which is ultimately proposed (to ensure the ongoing changes to the site plan were accounted for).

The site will result in an estimated 230 additional vehicle trips (combined in and out). Despite the increase in trips, the adjacent roads will all continue to operate within their current functional designations (Esquimalt Road as a major road, Fraser Street as a collector road, and Park Place and Carlisle Avenue as local roads).

In terms of operations at specific intersections, in the near term post-development timeframe, the levels of service will remain the same for most intersections and movements except for northbound left on Fraser Street (drops to LOS E from D), northbound Park Place (drops to LOS D from C), and eastbound through on Esquimalt Rd at Lampson Street (drops to LOS D from C). LOS D is generally considered acceptable in peak hours in urban locations. Note that the LOS E for the northbound left turns is due primarily to the high volume of traffic on Esquimalt Road and not site traffic (with the site, only four additional northbound left turn vehicles are anticipated in the peak hour, up to 21 from 17).

In the longer term (10-year horizon), all movements will remain at LOS D or better except the northbound left on Fraser Street at Esquimalt road will remain at LOS E, and the westbound through movement on Esquimalt Road at Lampson St will drop to LOS E.

In terms of mitigation at Fraser Street and Esquimalt Road, while there are measures that could improve the level of service for the northbound left turn movement, specifically signalization or the conversion of the median into a two-way left turn (to facilitate staged left turns), those measures have drawbacks which make them less desirable than the status quo. A signal is not warranted based on the TAC signal warrant, and a two-way left turn lane would adversely impact the crosswalk across Esquimalt Road at Fraser St. In the longer term at Esquimalt Road and Lampson Street, signal timing changes could be implemented to improve the level of service if needed.

Pedestrians are well served in the area by sidewalks along all site frontage roads, as well as marked and signed crosswalks across Esquimalt Road at Fraser St and Park Place, and across Fraser Street at Carlisle Avenue. Commuter cyclists are accommodated on Esquimalt Road (generally in bike lanes), and both commuter and recreational cyclists are accommodated on Fraser Street and Lyall Street in shared lanes. The site is well served by three transit routes that provide connections throughout the Township and to adjacent municipalities and key destinations.

6.0 RECOMMENDATIONS

No mitigation measures are required or recommended for the adjacent roadways for traffic operations. Pedestrian frontage improvements should be incorporated as required.

APPENDIX A: SYNCHRO BACKGROUND

SYNCHRO MODELLING SOFTWARE DESCRIPTION

The traffic analysis was completed using Synchro and SimTraffic traffic modeling software. Results were measured in delay, level of service (LOS) and 95th percentile queue length. Synchro is based on the Highway Capacity Manual (HCM) methodology. SimTraffic integrates established driver behaviours and characteristics to simulate actual conditions by randomly "seeding" or positioning vehicles travelling throughout the network. The simulation is run five times (five different random seedings of vehicle types, behaviours and arrivals) to obtain statistical significance of the results.

Levels of Service

Traffic operations are typically described in terms of levels of service, which rates the amount of delay per vehicle for each movement and the entire intersection. Levels of service range from LOS A (representing best operations) to LOS E/F (LOS E being poor operations and LOS F being unpredictable/disruptive operations). LOS E/F are generally unacceptable levels of service under normal everyday conditions.

The hierarchy of criteria for grading an intersection or movement not only includes delay times, but also takes into account traffic control type (stop signs or traffic signal). For example, if a vehicle is delayed for 19 seconds at an unsignalized intersection, it is considered to have an average operation, and would therefore be graded as an LOS C. However, at a signalized intersection, a 19 second delay would be considered a good operation and therefore it would be given an LOS B. The table below indicates the range of delay for LOS for signalized and unsignalized intersections.

Table A1: LOS Criteria, by Intersection Traffic Control

Level of Service	Unsignalized Intersection Average Vehicle Delay (sec/veh)	Signalized Intersection Average Vehicle Delay (sec/veh)
A	Less than 10	Less than 10
B	10 to 15	11 to 20
C	15 to 25	20 to 35
D	25 to 35	35 to 55
E	35 to 50	55 to 80
F	More than 50	More than 80

APPENDIX B: 2016 Existing Conditions

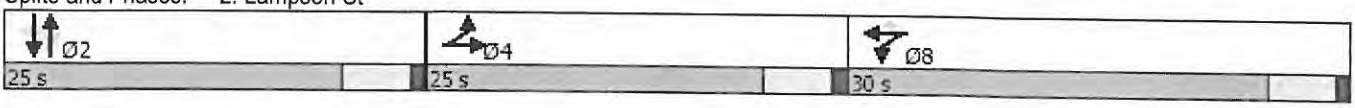
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	270	14	40	350	9	15	109	112	21	73	140
Future Volume (vph)	98	270	14	40	350	9	15	109	112	21	73	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			3%			5%			8%	
Storage Length (m)	30.0		0.0	0.0		70.0	0.0		70.0	0.0		40.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00	0.97		1.00	0.94		0.99	0.92
Frt		0.992				0.850			0.850			0.850
Flt Protected		0.987			0.993			0.994			0.988	
Satd. Flow (prot)	0	3288	0	0	1782	1591	0	1809	1575	0	1720	1463
Flt Permitted		0.987			0.993			0.952			0.895	
Satd. Flow (perm)	0	3282	0	0	1778	1537	0	1726	1481	0	1548	1346
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				95			115			184
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.6			80.0			135.2			109.8	
Travel Time (s)		9.8			5.8			9.7			7.9	
Confl. Peds. (#/hr)	7		13	13		7	18		28	28		18
Confl. Bikes (#/hr)									18			18
Peak Hour Factor	0.82	0.84	0.58	0.56	0.80	0.75	0.75	0.80	0.97	0.66	0.76	0.76
Heavy Vehicles (%)	12%	6%	0%	0%	5%	0%	7%	1%	0%	10%	3%	6%
Adj. Flow (vph)	120	321	24	71	438	12	20	136	115	32	96	184
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	465	0	0	509	12	0	156	115	0	128	184
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.02	1.02	1.02	1.03	1.03	1.03	1.05	1.05	1.05
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (m)	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Split	NA		Split	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	4		8	8			2			2	
Permitted Phases						8	2		2	2		2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	25.0	25.0		30.0	30.0	30.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	31.3%	31.3%		37.5%	37.5%	37.5%	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%
Maximum Green (s)	20.0	20.0		25.0	25.0	25.0	20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		-1.0			-1.0	-1.0		-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)		4.0			4.0	4.0		4.0	4.0		4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min	Min	None	None	None	None	None	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)	30	30		30	30	30	30	30	30	30	30	30
Act Effct Green (s)		16.1			23.6	23.6		14.3	14.3		14.3	14.3
Actuated g/C Ratio		0.24			0.36	0.36		0.22	0.22		0.22	0.22
v/c Ratio		0.58			0.81	0.02		0.42	0.28		0.39	0.42
Control Delay		26.1			33.5	0.1		27.5	7.2		27.4	7.5
Queue Delay		0.0			0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		26.1			33.5	0.1		27.5	7.2		27.4	7.5
LOS		C			C	A		C	A		C	A
Approach Delay		26.1			32.7			18.9			15.7	
Approach LOS		C			C			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 66.4
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 25.0 Intersection LOS: C
Intersection Capacity Utilization 58.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Lampson St



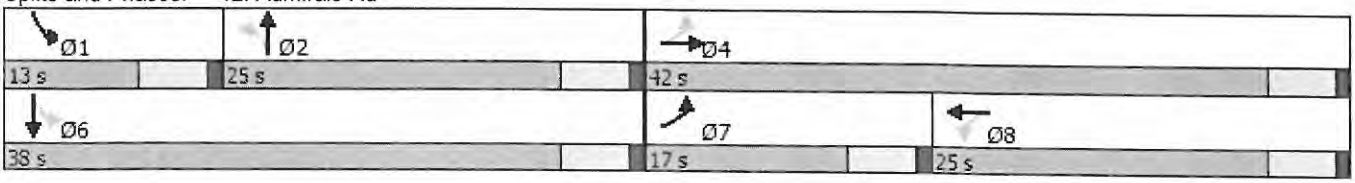
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	146	8	5	257	197	4	113	12	181	96	293
Future Volume (vph)	104	146	8	5	257	197	4	113	12	181	96	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		10.0	20.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00		0.99	0.98			0.99			0.96	
Frt		0.991			0.944			0.986			0.915	
Flt Protected	0.950			0.950				0.998			0.986	
Satd. Flow (prot)	1736	1628	0	1805	3135	0	0	3407	0	0	3071	0
Flt Permitted	0.186			0.633				0.918			0.799	
Satd. Flow (perm)	337	1628	0	1188	3135	0	0	3133	0	0	2456	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			145			13			478	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		94.1			80.9			126.6			151.2	
Travel Time (s)		6.8			5.8			9.1			10.9	
Confl. Peds. (#/hr)	22		11	11		22	17		27	27		17
Confl. Bikes (#/hr)			4			1						8
Peak Hour Factor	0.90	0.78	0.67	0.42	0.63	0.82	0.50	0.74	0.75	0.67	0.67	0.54
Heavy Vehicles (%)	4%	14%	38%	0%	8%	5%	0%	4%	0%	2%	5%	4%
Adj. Flow (vph)	116	187	12	12	408	240	8	153	16	270	143	543
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	199	0	12	648	0	0	177	0	0	956	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	15.0	15.0		15.0	15.0		2.0	15.0		2.0	15.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	15.0	15.0		15.0	15.0		2.0	15.0		2.0	15.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	13.0	25.0		25.0	25.0		25.0	25.0		13.0	25.0	
Total Split (s)	17.0	42.0		25.0	25.0		25.0	25.0		13.0	38.0	
Total Split (%)	21.3%	52.5%		31.3%	31.3%		31.3%	31.3%		16.3%	47.5%	
Maximum Green (s)	12.0	37.0		20.0	20.0		20.0	20.0		8.0	33.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	Max	
Walk Time (s)		5.0		5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	29.1	29.1		17.5	17.5			34.8			34.8	
Actuated g/C Ratio	0.40	0.40		0.24	0.24			0.48			0.48	
v/c Ratio	0.33	0.30		0.04	0.74			0.12			0.67	
Control Delay	15.0	14.3		22.4	25.8			12.1			10.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	15.0	14.3		22.4	25.8			12.1			10.7	
LOS	B	B		C	C			B			B	
Approach Delay		14.5			25.7			12.1			10.7	
Approach LOS		B			C			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 72.1
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 16.1 Intersection LOS: B
Intersection Capacity Utilization 65.9% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 12: Admirals Rd



Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	280	14	9	305	3	15
Future Vol, veh/h	280	14	9	305	3	15
Conflicting Peds, #/hr	0	0	22	0	28	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	180	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	58	45	66	38	63
Heavy Vehicles, %	9	14	0	5	0	0
Mvmt Flow	301	24	20	462	8	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	353	0	843	363
Stage 1	-	-	-	-	341	-
Stage 2	-	-	-	-	502	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1217	-	337	686
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	612	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1194	-	323	657
Mov Cap-2 Maneuver	-	-	-	-	323	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	602	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	522	-	-	1194	-
HCM Lane V/C Ratio	0.061	-	-	0.017	-
HCM Control Delay (s)	12.3	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	279	41	94	323	9	57
Future Vol, veh/h	279	41	94	323	9	57
Conflicting Peds, #/hr	0	13	13	0	24	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	180	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	79	81	71	56	79
Heavy Vehicles, %	9	2	2	4	0	2
Mvmt Flow	291	52	116	455	16	72

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	367	0	1028	354
Stage 1	-	-	-	-	341	-
Stage 2	-	-	-	-	687	-
Critical Hdwy	-	-	4.12	-	6.4	6.22
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.318
Pot Cap-1 Maneuver	-	-	1192	-	262	690
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	503	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1179	-	229	669
Mov Cap-2 Maneuver	-	-	-	-	229	-
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	449	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	229	669	-	-	1179	-
HCM Lane V/C Ratio	0.07	0.108	-	-	0.098	-
HCM Control Delay (s)	21.9	11	-	-	8.4	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.4	-	-	0.3	-

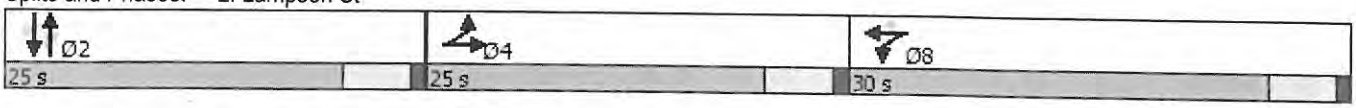
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	461	18	106	324	36	14	190	71	20	78	134
Future Volume (vph)	149	461	18	106	324	36	14	190	71	20	78	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			3%			5%			8%	
Storage Length (m)	30.0		0.0	0.0		70.0	0.0		70.0	0.0		40.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99	0.92		1.00	0.95		1.00	0.91
Frt		0.992				0.850			0.850			0.850
Flt Protected		0.987			0.988			0.998			0.987	
Satd. Flow (prot)	0	3405	0	0	1791	1544	0	1831	1529	0	1777	1505
Flt Permitted		0.987			0.988			0.984			0.705	
Satd. Flow (perm)	0	3378	0	0	1777	1420	0	1802	1446	0	1265	1368
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				95			120			189
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.6			80.0			135.2			109.8	
Travel Time (s)		9.8			5.8			9.7			7.9	
Confl. Peds. (#/hr)	31		39	39		31	28		19	19		28
Confl. Bikes (#/hr)									24			12
Peak Hour Factor	0.85	0.99	0.50	0.85	0.84	0.69	0.88	0.61	0.59	0.63	0.89	0.71
Heavy Vehicles (%)	2%	4%	0%	1%	4%	3%	0%	1%	3%	5%	0%	3%
Adj. Flow (vph)	175	466	36	125	386	52	16	311	120	32	88	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	677	0	0	511	52	0	327	120	0	120	189
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.02	1.02	1.02	1.03	1.03	1.03	1.05	1.05	1.05
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (m)	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Split	NA		Split	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	4		8	8			2			2	
Permitted Phases						8	2		2	2		2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	25.0	25.0		30.0	30.0	30.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	31.3%	31.3%		37.5%	37.5%	37.5%	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%
Maximum Green (s)	20.0	20.0		25.0	25.0	25.0	20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		-1.0			-1.0	-1.0		-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)		4.0			4.0	4.0		4.0	4.0		4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min	Min	None	None	None	None	None	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)	30	30		30	30	30	30	30	30	30	30	30
Act Effct Green (s)		19.0			24.4	24.4		18.2	18.2		18.2	18.2
Actuated g/C Ratio		0.26			0.33	0.33		0.25	0.25		0.25	0.25
v/c Ratio		0.77			0.86	0.10		0.73	0.27		0.38	0.39
Control Delay		32.5			41.5	1.7		37.4	6.8		28.4	6.7
Queue Delay		0.0			0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		32.5			41.5	1.7		37.4	6.8		28.4	6.7
LOS		C			D	A		D	A		C	A
Approach Delay		32.5			37.8			29.1			15.1	
Approach LOS		C			D			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 73.9
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 30.6 Intersection LOS: C
Intersection Capacity Utilization 72.0% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: Lampson St



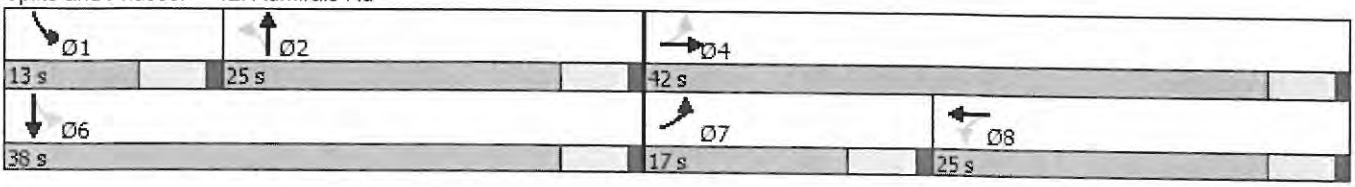
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	392	21	43	133	100	7	125	37	266	148	43
Future Volume (vph)	260	392	21	43	133	100	7	125	37	266	148	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		10.0	20.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.97	1.00		0.98	0.96			0.96			0.95	
Frt		0.991			0.925			0.962			0.986	
Flt Protected	0.950			0.950				0.997			0.975	
Satd. Flow (prot)	1805	1772	0	1805	3019	0	0	3268	0	0	3359	0
Flt Permitted	0.327			0.471				0.915			0.714	
Satd. Flow (perm)	602	1772	0	877	3019	0	0	2994	0	0	2363	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			172			52			18	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		94.1			80.9			126.6			151.2	
Travel Time (s)		6.8			5.8			9.1			10.9	
Confl. Peds. (#/hr)	42		27	27		42	55		46	46		55
Confl. Bikes (#/hr)			4			1			11			1
Peak Hour Factor	0.76	0.80	0.66	0.67	0.77	0.58	0.58	0.87	0.71	0.72	0.55	0.63
Heavy Vehicles (%)	0%	6%	5%	0%	12%	1%	0%	3%	0%	2%	3%	2%
Adj. Flow (vph)	342	490	32	64	173	172	12	144	52	369	269	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	342	522	0	64	345	0	0	208	0	0	706	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	15.0	15.0		15.0	15.0		2.0	15.0		2.0	15.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	15.0	15.0		15.0	15.0		2.0	15.0		2.0	15.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	13.0	25.0		25.0	25.0		25.0	25.0		13.0	25.0	
Total Split (s)	17.0	42.0		25.0	25.0		25.0	25.0		13.0	38.0	
Total Split (%)	21.3%	52.5%		31.3%	31.3%		31.3%	31.3%		16.3%	47.5%	
Maximum Green (s)	12.0	37.0		20.0	20.0		20.0	20.0		8.0	33.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	Max	
Walk Time (s)		5.0		5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	29.5	29.5		12.6	12.6			34.1			34.1	
Actuated g/C Ratio	0.41	0.41		0.18	0.18			0.48			0.48	
v/c Ratio	0.74	0.71		0.42	0.51			0.14			0.62	
Control Delay	26.1	23.4		34.3	15.5			9.0			17.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	26.1	23.4		34.3	15.5			9.0			17.5	
LOS	C	C		C	B			A			B	
Approach Delay		24.5			18.4			9.0			17.5	
Approach LOS		C			B			A			B	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 19.6 — Intersection LOS: B
Intersection Capacity Utilization 70.1% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 12: Admirals Rd



Intersection	
Int Delay, s/veh	4.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	4	13	11	1	9	11
Future Vol, veh/h	4	13	11	1	9	11
Conflicting Peds, #/hr	4	2	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	81	55	25	45	69
Heavy Vehicles, %	0	15	0	0	11	0
Mvmt Flow	8	16	20	4	20	16

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	82	36	0	0	28	0
Stage 1	26	-	-	-	-	-
Stage 2	56	-	-	-	-	-
Critical Hdwy	6.4	6.35	-	-	4.21	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.435	-	-	2.299	-
Pot Cap-1 Maneuver	925	1001	-	-	1529	-
Stage 1	1002	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	902	989	-	-	1516	-
Mov Cap-2 Maneuver	902	-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	951	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	4.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	958	1516	-
HCM Lane V/C Ratio	-	-	0.025	0.013	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	479	11	14	291	12	28
Future Vol, veh/h	479	11	14	291	12	28
Conflicting Peds, #/hr	0	51	51	0	57	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	180	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	55	58	80	43	47
Heavy Vehicles, %	2	9	0	4	0	7
Mvmt Flow	551	20	24	364	28	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	628	0	1030	669
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	412	-
Critical Hdwy	-	-	4.1	-	6.4	6.27
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.363
Pot Cap-1 Maneuver	-	-	964	-	261	449
Stage 1	-	-	-	-	542	-
Stage 2	-	-	-	-	673	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	922	-	231	409
Mov Cap-2 Maneuver	-	-	-	-	231	-
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	627	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	19.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	328	-	-	922	-
HCM Lane V/C Ratio	0.267	-	-	0.026	-
HCM Control Delay (s)	19.9	-	-	9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	454	35	98	290	17	100
Future Vol, veh/h	454	35	98	290	17	100
Conflicting Peds, #/hr	0	71	71	0	47	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	180	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	73	70	83	85	83
Heavy Vehicles, %	4	0	2	4	0	4
Mvmt Flow	493	48	140	349	20	120

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	588	0	1193	635
Stage 1	-	-	-	-	564	-
Stage 2	-	-	-	-	629	-
Critical Hdwy	-	-	4.12	-	6.4	6.24
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.336
Pot Cap-1 Maneuver	-	-	987	-	208	475
Stage 1	-	-	-	-	573	-
Stage 2	-	-	-	-	535	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	928	-	159	429
Mov Cap-2 Maneuver	-	-	-	-	159	-
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	427	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	18.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	159	429	-	-	928	-
HCM Lane V/C Ratio	0.126	0.281	-	-	0.151	-
HCM Control Delay (s)	30.9	16.6	-	-	9.6	-
HCM Lane LOS	D	C	-	-	A	-
HCM 95th %tile Q(veh)	0.4	1.1	-	-	0.5	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	18	13	6	99	19	16
Future Vol, veh/h	18	13	6	99	19	16
Conflicting Peds, #/hr	0	0	27	0	0	27
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	65	50	83	73	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	20	12	119	26	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	179	63	46	0	-	0
Stage 1	36	-	-	-	-	-
Stage 2	143	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	811	1002	1562	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	884	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	805	979	1526	-	-	-
Mov Cap-2 Maneuver	805	-	-	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	877	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1526	-	864	-	-
HCM Lane V/C Ratio	0.008	-	0.06	-	-
HCM Control Delay (s)	7.4	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

APPENDIX C: 2016 Post Development Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	506	18	106	375	36	14	190	71	20	78	149
Future Volume (vph)	164	506	18	106	375	36	14	190	71	20	78	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			3%			5%			8%	
Storage Length (m)	30.0		0.0	0.0		70.0	0.0		70.0	0.0		40.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99	0.92		1.00	0.95		1.00	0.91
Frt		0.993				0.850			0.850			0.850
Flt Protected		0.987			0.989			0.998			0.987	
Satd. Flow (prot)	0	3410	0	0	1791	1544	0	1831	1529	0	1777	1505
Flt Permitted		0.987			0.989			0.984			0.681	
Satd. Flow (perm)	0	3385	0	0	1780	1420	0	1802	1446	0	1222	1368
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				95			120			210
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.6			80.0			135.2			109.8	
Travel Time (s)		9.8			5.8			9.7			7.9	
Confl. Peds. (#/hr)	31		39	39		31	28		19	19		28
Confl. Bikes (#/hr)									24			12
Peak Hour Factor	0.85	0.99	0.50	0.85	0.84	0.69	0.88	0.61	0.59	0.63	0.89	0.71
Heavy Vehicles (%)	2%	4%	0%	1%	4%	3%	0%	1%	3%	5%	0%	3%
Adj. Flow (vph)	193	511	36	125	446	52	16	311	120	32	88	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	740	0	0	571	52	0	327	120	0	120	210
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.02	1.02	1.02	1.03	1.03	1.03	1.05	1.05	1.05
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (m)	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Split	NA		Split	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	4		8	8			2			2	
Permitted Phases						8	2		2	2		2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	25.0	25.0		30.0	30.0	30.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	31.3%	31.3%		37.5%	37.5%	37.5%	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%
Maximum Green (s)	20.0	20.0		25.0	25.0	25.0	20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		-1.0			-1.0	-1.0		-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)		4.0			4.0	4.0		4.0	4.0		4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min	Min	None	None	None	None	None	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)	30	30		30	30	30	30	30	30	30	30	30
Act Effct Green (s)		20.0			26.1	26.1		18.5	18.5		18.5	18.5
Actuated g/C Ratio		0.26			0.34	0.34		0.24	0.24		0.24	0.24
v/c Ratio		0.83			0.94	0.10		0.75	0.27		0.41	0.43
Control Delay		36.2			51.7	1.6		39.2	6.7		29.3	6.8
Queue Delay		0.0			0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		36.2			51.7	1.6		39.2	6.7		29.3	6.8
LOS		D			D	A		D	A		C	A
Approach Delay		36.2			47.5			30.5			15.0	
Approach LOS		D			D			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 76.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 35.0 Intersection LOS: D
Intersection Capacity Utilization 76.4% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Lampson St

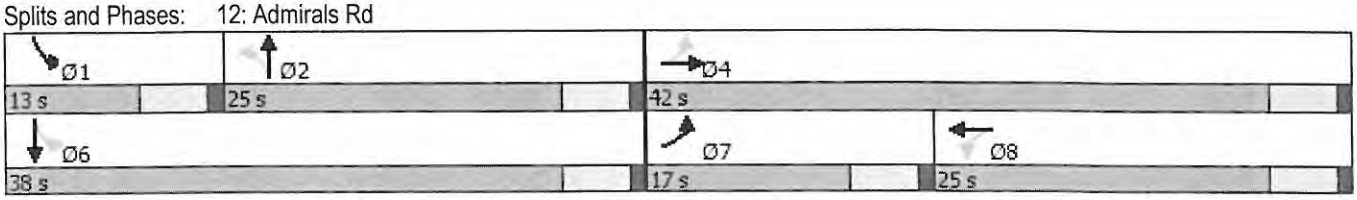
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	402	21	43	138	108	7	125	37	283	148	43
Future Volume (vph)	260	402	21	43	138	108	7	125	37	283	148	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		10.0	20.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.97	1.00		0.98	0.96			0.96			0.95	
Frt		0.991			0.924			0.962			0.986	
Flt Protected	0.950			0.950				0.997			0.974	
Satd. Flow (prot)	1805	1772	0	1805	3016	0	0	3268	0	0	3357	0
Flt Permitted	0.310			0.465				0.914			0.711	
Satd. Flow (perm)	572	1772	0	866	3016	0	0	2991	0	0	2351	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			186			52			17	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		94.1			80.9			126.6			151.2	
Travel Time (s)		6.8			5.8			9.1			10.9	
Confl. Peds. (#/hr)	42		27	27		42	55		46	46		55
Confl. Bikes (#/hr)			4			1			11			1
Peak Hour Factor	0.76	0.80	0.66	0.67	0.77	0.58	0.58	0.87	0.71	0.72	0.55	0.63
Heavy Vehicles (%)	0%	6%	5%	0%	12%	1%	0%	3%	0%	2%	3%	2%
Adj. Flow (vph)	342	503	32	64	179	186	12	144	52	393	269	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	342	535	0	64	365	0	0	208	0	0	730	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	15.0	15.0		15.0	15.0		2.0	15.0		2.0	15.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	15.0	15.0		15.0	15.0		2.0	15.0		2.0	15.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	13.0	25.0		25.0	25.0		25.0	25.0		13.0	25.0	
Total Split (s)	17.0	42.0		25.0	25.0		25.0	25.0		13.0	38.0	
Total Split (%)	21.3%	52.5%		31.3%	31.3%		31.3%	31.3%		16.3%	47.5%	
Maximum Green (s)	12.0	37.0		20.0	20.0		20.0	20.0		8.0	33.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	Max	
Walk Time (s)		5.0		5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	29.6	29.6		12.8	12.8			34.1			34.1	
Actuated g/C Ratio	0.41	0.41		0.18	0.18			0.47			0.47	
v/c Ratio	0.75	0.73		0.42	0.53			0.14			0.65	
Control Delay	26.9	24.0		34.3	15.3			9.1			18.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	26.9	24.0		34.3	15.3			9.1			18.2	
LOS	C	C		C	B			A			B	
Approach Delay		25.2			18.2			9.1			18.2	
Approach LOS		C			B			A			B	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.8
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 20.1 Intersection LOS: C
Intersection Capacity Utilization 71.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 12: Admirals Rd



Intersection	
Int Delay, s/veh	6.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	26	63	11	25	82	11
Future Vol, veh/h	26	63	11	25	82	11
Conflicting Peds, #/hr	4	2	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	81	55	25	45	69
Heavy Vehicles, %	0	15	0	0	11	0
Mvmt Flow	52	78	20	100	182	16

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	454	84	0	0	124	0
Stage 1	74	-	-	-	-	-
Stage 2	380	-	-	-	-	-
Critical Hdwy	6.4	6.35	-	-	4.21	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.435	-	-	2.299	-
Pot Cap-1 Maneuver	568	940	-	-	1409	-
Stage 1	954	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	488	929	-	-	1397	-
Mov Cap-2 Maneuver	488	-	-	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	600	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.5	0	7.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	682	1397	-
HCM Lane V/C Ratio	-	-	0.19	0.13	-
HCM Control Delay (s)	-	-	11.5	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.4	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	485	32	66	295	21	69
Future Vol, veh/h	485	32	66	295	21	69
Conflicting Peds, #/hr	0	51	51	0	57	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	180	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	55	58	80	80	80
Heavy Vehicles, %	2	9	0	4	0	7
Mvmt Flow	557	58	114	369	26	86

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	673	0	1240	695
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	596	-
Critical Hdwy	-	-	4.1	-	6.4	6.27
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.363
Pot Cap-1 Maneuver	-	-	927	-	195	434
Stage 1	-	-	-	-	527	-
Stage 2	-	-	-	-	554	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	887	-	155	395
Mov Cap-2 Maneuver	-	-	-	-	155	-
Stage 1	-	-	-	-	502	-
Stage 2	-	-	-	-	462	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	25.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	290	-	-	887	-
HCM Lane V/C Ratio	0.388	-	-	0.128	-
HCM Control Delay (s)	25.1	-	-	9.7	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	1.8	-	-	0.4	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	495	41	102	342	21	119
Future Vol, veh/h	495	41	102	342	21	119
Conflicting Peds, #/hr	0	71	71	0	47	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	180	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	73	70	83	85	83
Heavy Vehicles, %	4	0	2	4	0	4
Mvmt Flow	538	56	146	412	25	143

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	641	0	1316	684
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	703	-
Critical Hdwy	-	-	4.12	-	6.4	6.24
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.336
Pot Cap-1 Maneuver	-	-	943	-	176	445
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	495	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	886	-	133	402
Mov Cap-2 Maneuver	-	-	-	-	133	-
Stage 1	-	-	-	-	522	-
Stage 2	-	-	-	-	389	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	21.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	133	402	-	-	886	-
HCM Lane V/C Ratio	0.186	0.357	-	-	0.164	-
HCM Control Delay (s)	38.1	18.8	-	-	9.9	-
HCM Lane LOS	E	C	-	-	A	-
HCM 95th %tile Q(veh)	0.7	1.6	-	-	0.6	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	51	26	11	99	19	36
Future Vol, veh/h	51	26	11	99	19	36
Conflicting Peds, #/hr	0	0	27	0	0	27
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	65	50	83	73	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	40	22	119	26	45

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	212	76	71	0	-	0
Stage 1	49	-	-	-	-	-
Stage 2	163	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	776	985	1529	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	764	962	1494	-	-	-
Mov Cap-2 Maneuver	764	-	-	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	852	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1494	-	815	-	-
HCM Lane V/C Ratio	0.015	-	0.161	-	-
HCM Control Delay (s)	7.4	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

2: Lampson St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	6.3	1.7	0.1	0.0	0.0	0.0	0.7	0.5	3.3	0.4	0.6	3.8
Total Del/Veh (s)	76.9	58.2	29.9	41.8	42.6	15.9	21.4	26.7	6.7	26.8	25.7	10.1

2: Lampson St Performance by movement

Movement	All
Denied Del/Veh (s)	1.6
Total Del/Veh (s)	42.5

7: Park Pl & Access 2 Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.2	0.1	0.1	0.0	0.0	0.1
Total Del/Veh (s)	4.7	2.5	0.7	0.1	1.2	0.6	1.7

11: Park Pl & Esquimalt Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Total Del/Veh (s)	1.2	0.5	6.8	1.8	11.4	0.9	6.6	2.1

12: Admirals Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.7	1.9	1.7	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.1	0.2
Total Del/Veh (s)	20.5	20.6	12.4	32.8	18.7	10.2	25.6	13.6	6.8	26.0	17.0	4.9

12: Admirals Rd Performance by movement

Movement	All
Denied Del/Veh (s)	1.1
Total Del/Veh (s)	19.3

18: Fraser St & Esquimalt Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.0	2.5	8.3	1.9	19.3	0.7	7.0	3.3

22: Fraser St & Access 1 Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.2	0.0	0.0	0.1
Total Del/Veh (s)	3.4	2.5	1.3	0.8	0.6	0.8	1.3

Total Network Performance

Denied Del/Veh (s)	2.3
Total Del/Veh (s)	44.6

Intersection: 2: Lampson St

Movement	EB	EB	B1	WB	WB	B8	NB	NB	SB	SB
Directions Served	LT	TR	T	LT	R	T	LT	R	LT	R
Maximum Queue (m)	133.8	118.9	7.9	95.4	59.2	51.9	54.8	26.8	43.2	24.5
Average Queue (m)	89.7	66.1	0.3	76.5	12.8	24.0	27.8	10.2	16.8	11.8
95th Queue (m)	126.2	113.3	2.6	96.0	47.4	55.3	45.9	18.2	34.3	21.6
Link Distance (m)	115.7	115.7	252.1	59.3		36.9	122.9		94.8	
Upstream Blk Time (%)	3	1		40	0	16				
Queuing Penalty (veh)	9	2		0	0	0				
Storage Bay Dist (m)					70.0			70.0		40.0
Storage Blk Time (%)				40	0				1	
Queuing Penalty (veh)				14	1				1	

Intersection: 7: Park Pl & Access 2

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	38.4	6.7	16.2
Average Queue (m)	12.9	0.2	2.0
95th Queue (m)	24.9	2.2	9.6
Link Distance (m)	23.3	48.4	22.9
Upstream Blk Time (%)	1		
Queuing Penalty (veh)	0		
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Bend

Movement	EB	EB
Directions Served	T	
Maximum Queue (m)	76.7	66.3
Average Queue (m)	8.6	4.8
95th Queue (m)	44.2	30.3
Link Distance (m)	59.3	59.3
Upstream Blk Time (%)	1	0
Queuing Penalty (veh)	2	0
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Park Pl & Esquimalt Rd

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (m)	15.8	15.8	22.5	26.2
Average Queue (m)	3.6	7.8	4.4	12.6
95th Queue (m)	12.0	15.8	17.0	22.2
Link Distance (m)	59.1		158.6	22.9
Upstream Blk Time (%)				1
Queuing Penalty (veh)				0
Storage Bay Dist (m)		18.0		
Storage Blk Time (%)		0	0	
Queuing Penalty (veh)		1	0	

Intersection: 12: Admirals Rd

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	TR	LT	TR	LT	TR
Maximum Queue (m)	37.4	91.6	27.3	46.6	52.5	21.4	14.5	71.7	56.7
Average Queue (m)	30.8	56.9	9.7	15.6	18.0	10.0	5.1	44.0	18.2
95th Queue (m)	46.0	91.5	21.8	32.8	36.0	20.5	11.8	69.1	48.4
Link Distance (m)		81.2		58.1	58.1	115.3	115.3	135.3	135.3
Upstream Blk Time (%)		5			0				
Queuing Penalty (veh)		0			0				
Storage Bay Dist (m)	30.0		20.0						
Storage Blk Time (%)	6	20	3	5					
Queuing Penalty (veh)	25	52	2	2					

Intersection: 18: Fraser St & Esquimalt Rd

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (m)	22.4	21.9	26.9	6.5	24.4
Average Queue (m)	6.4	12.0	2.6	3.3	9.0
95th Queue (m)	19.9	22.7	12.6	8.3	18.5
Link Distance (m)	158.6		252.1		66.0
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		18.0		10.0	
Storage Blk Time (%)		2	0	0	6
Queuing Penalty (veh)		7	0	1	1

Intersection: 22: Fraser St & Access 1

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	22.3	9.0
Average Queue (m)	9.5	0.3
95th Queue (m)	16.4	3.0
Link Distance (m)	14.8	28.1
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	0	
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 120

APPENDIX D: 2026 Post Development Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	554	20	117	409	40	15	210	78	22	86	163
Future Volume (vph)	180	554	20	117	409	40	15	210	78	22	86	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			3%			5%			8%	
Storage Length (m)	30.0		0.0	0.0		70.0	0.0		70.0	0.0		40.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99	0.92		1.00	0.95		1.00	0.91
Frt		0.993				0.850			0.850			0.850
Flt Protected		0.987			0.989			0.998			0.987	
Satd. Flow (prot)	0	3409	0	0	1791	1544	0	1831	1529	0	1777	1505
Flt Permitted		0.987			0.989			0.984			0.612	
Satd. Flow (perm)	0	3386	0	0	1781	1420	0	1802	1446	0	1099	1368
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				95			132			230
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.6			80.0			135.2			109.8	
Travel Time (s)		9.8			5.8			9.7			7.9	
Confl. Peds. (#/hr)	31		39	39		31	28		19	19		28
Confl. Bikes (#/hr)									24			12
Peak Hour Factor	0.85	0.99	0.50	0.85	0.84	0.69	0.88	0.61	0.59	0.63	0.89	0.71
Heavy Vehicles (%)	2%	4%	0%	1%	4%	3%	0%	1%	3%	5%	0%	3%
Adj. Flow (vph)	212	560	40	138	487	58	17	344	132	35	97	230
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	812	0	0	625	58	0	361	132	0	132	230
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.02	1.02	1.02	1.03	1.03	1.03	1.05	1.05	1.05
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (m)	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Split	NA		Split	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	4		8	8			2			2	
Permitted Phases						8	2		2	2		2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	25.0	25.0		30.0	30.0	30.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	31.3%	31.3%		37.5%	37.5%	37.5%	31.3%	31.3%	31.3%	31.3%	31.3%	31.3%
Maximum Green (s)	20.0	20.0		25.0	25.0	25.0	20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		-1.0			-1.0	-1.0		-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)		4.0			4.0	4.0		4.0	4.0		4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min		Min	Min	Min	None	None	None	None	None	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Pedestrian Calls (#/hr)	30	30		30	30	30	30	30	30	30	30	30
Act Effct Green (s)		20.6			26.0	26.0		19.5	19.5		19.5	19.5
Actuated g/C Ratio		0.26			0.33	0.33		0.25	0.25		0.25	0.25
v/c Ratio		0.90			1.05	0.11		0.80	0.29		0.48	0.45
Control Delay		42.6			79.1	2.1		42.8	6.5		31.8	6.7
Queue Delay		0.0			0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		42.6			79.1	2.1		42.8	6.5		31.8	6.7
LOS		D			E	A		D	A		C	A
Approach Delay		42.6			72.6			33.1			15.8	
Approach LOS		D			E			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 78.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 45.2 Intersection LOS: D
Intersection Capacity Utilization 82.8% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 2: Lampson St

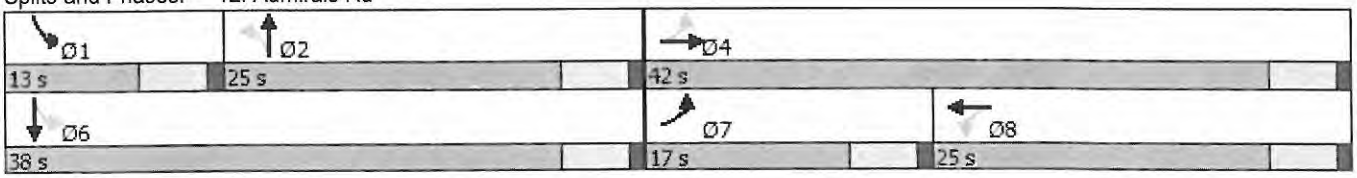
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	287	443	23	47	152	118	8	138	41	311	163	47
Future Volume (vph)	287	443	23	47	152	118	8	138	41	311	163	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		10.0	20.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.97	1.00		0.98	0.96			0.96			0.95	
Frt		0.991			0.924			0.962			0.986	
Flt Protected	0.950			0.950				0.997			0.974	
Satd. Flow (prot)	1805	1772	0	1805	3016	0	0	3268	0	0	3357	0
Flt Permitted	0.289			0.442				0.905			0.702	
Satd. Flow (perm)	534	1772	0	825	3016	0	0	2961	0	0	2326	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			203			55			17	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		94.1			80.9			126.6			151.2	
Travel Time (s)		6.8			5.8			9.1			10.9	
Confl. Peds. (#/hr)	42		27	27		42	55		46	46		55
Confl. Bikes (#/hr)			4			1			11			1
Peak Hour Factor	0.76	0.80	0.66	0.67	0.77	0.58	0.58	0.87	0.71	0.72	0.55	0.63
Heavy Vehicles (%)	0%	6%	5%	0%	12%	1%	0%	3%	0%	2%	3%	2%
Adj. Flow (vph)	378	554	35	70	197	203	14	159	58	432	296	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	378	589	0	70	400	0	0	231	0	0	803	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	15.0	15.0		15.0	15.0		2.0	15.0		2.0	15.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	15.0	15.0		15.0	15.0		2.0	15.0		2.0	15.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	13.0	25.0		25.0	25.0		25.0	25.0		13.0	25.0	
Total Split (s)	17.0	42.0		25.0	25.0		25.0	25.0		13.0	38.0	
Total Split (%)	21.3%	52.5%		31.3%	31.3%		31.3%	31.3%		16.3%	47.5%	
Maximum Green (s)	12.0	37.0		20.0	20.0		20.0	20.0		8.0	33.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	Max	
Walk Time (s)		5.0		5.0	5.0		5.0	5.0			5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	30.8	30.8		13.8	13.8			34.1			34.1	
Actuated g/C Ratio	0.42	0.42		0.19	0.19			0.47			0.47	
v/c Ratio	0.83	0.78		0.45	0.55			0.16			0.73	
Control Delay	33.9	26.4		35.4	15.3			9.7			21.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	33.9	26.4		35.4	15.3			9.7			21.5	
LOS	C	C		D	B			A			C	
Approach Delay		29.3			18.3			9.7			21.5	
Approach LOS		C			B			A			C	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 73
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 22.9 Intersection LOS: C
Intersection Capacity Utilization 75.4% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 12: Admirals Rd



Intersection	
Int Delay, s/veh	6.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	26	64	12	25	83	12
Future Vol, veh/h	26	64	12	25	83	12
Conflicting Peds, #/hr	4	2	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	81	55	25	45	69
Heavy Vehicles, %	0	15	0	0	11	0
Mvmt Flow	52	79	22	100	184	17

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	462	86	0	0	126	0
Stage 1	76	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Critical Hdwy	6.4	6.35	-	-	4.21	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.435	-	-	2.299	-
Pot Cap-1 Maneuver	562	938	-	-	1406	-
Stage 1	952	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	481	927	-	-	1394	-
Mov Cap-2 Maneuver	481	-	-	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	594	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	7.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	678	1394	-
HCM Lane V/C Ratio	-	-	0.193	0.132	-
HCM Control Delay (s)	-	-	11.6	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.5	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	535	33	67	325	22	72
Future Vol, veh/h	535	33	67	325	22	72
Conflicting Peds, #/hr	0	51	51	0	57	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	180	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	55	58	80	80	80
Heavy Vehicles, %	2	9	0	4	0	7
Mvmt Flow	615	60	116	406	28	90

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	732	0	1339	753
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	637	-
Critical Hdwy	-	-	4.1	-	6.4	6.27
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.363
Pot Cap-1 Maneuver	-	-	882	-	170	402
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	531	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	844	-	134	366
Mov Cap-2 Maneuver	-	-	-	-	134	-
Stage 1	-	-	-	-	471	-
Stage 2	-	-	-	-	438	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	29.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	260	-	-	844	-
HCM Lane V/C Ratio	0.452	-	-	0.137	-
HCM Control Delay (s)	29.8	-	-	9.9	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	2.2	-	-	0.5	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	542	45	122	372	23	129
Future Vol, veh/h	542	45	122	372	23	129
Conflicting Peds, #/hr	0	71	71	0	47	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	180	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	73	70	83	85	83
Heavy Vehicles, %	4	0	2	4	0	4
Mvmt Flow	589	62	174	448	27	155

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	698	0	1464	738
Stage 1	-	-	-	-	667	-
Stage 2	-	-	-	-	797	-
Critical Hdwy	-	-	4.12	-	6.4	6.24
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.218	-	3.5	3.336
Pot Cap-1 Maneuver	-	-	898	-	143	415
Stage 1	-	-	-	-	514	-
Stage 2	-	-	-	-	447	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	844	-	102	375
Mov Cap-2 Maneuver	-	-	-	-	102	-
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	334	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	25.9
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	102	375	-	-	844	-
HCM Lane V/C Ratio	0.265	0.414	-	-	0.206	-
HCM Control Delay (s)	52.6	21.2	-	-	10.4	-
HCM Lane LOS	F	C	-	-	B	-
HCM 95th %tile Q(veh)	1	2	-	-	0.8	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	43	27	12	109	21	38
Future Vol, veh/h	43	27	12	109	21	38
Conflicting Peds, #/hr	0	0	27	0	0	27
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	65	50	83	73	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	42	24	131	29	48

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	232	80	76	0	-	0
Stage 1	53	-	-	-	-	-
Stage 2	179	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	756	980	1523	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	852	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	743	958	1488	-	-	-
Mov Cap-2 Maneuver	743	-	-	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	838	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1488	-	807	-	-
HCM Lane V/C Ratio	0.016	-	0.147	-	-
HCM Control Delay (s)	7.5	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

2: Lampson St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	52.1	34.9	8.9	0.0	0.0	0.0	0.1	0.6	3.1	0.9	0.8	3.6
Total Del/Veh (s)	109.7	85.6	61.2	45.6	48.8	20.0	38.9	28.1	7.2	41.1	29.8	11.7

2: Lampson St Performance by movement

Movement	All
Denied Del/Veh (s)	15.7
Total Del/Veh (s)	55.9

7: Park Pl & Access 2 Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.2	0.1	0.1	0.0	0.0	0.1
Total Del/Veh (s)	5.1	2.7	0.9	0.1	0.9	0.1	1.8

11: Park Pl & Esquimalt Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Total Del/Veh (s)	1.1	0.4	7.9	1.7	8.8	0.9	5.3	2.0

12: Admirals Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	4.2	2.5	1.7	0.0	0.0	0.0	0.1	0.1	0.1	0.4	0.1	0.1
Total Del/Veh (s)	21.9	20.8	14.1	43.6	19.8	9.2	15.3	14.0	8.2	40.0	29.1	5.0

12: Admirals Rd Performance by movement

Movement	All
Denied Del/Veh (s)	1.4
Total Del/Veh (s)	23.1

18: Fraser St & Esquimalt Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.6	0.9	7.9	2.0	20.7	0.3	8.5	3.3

22: Fraser St & Access 1 Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.1	0.0	0.0	0.1
Total Del/Veh (s)	3.2	2.1	1.6	0.8	0.6	0.6	1.1

Total Network Performance

Denied Del/Veh (s)	13.9
Total Del/Veh (s)	56.6

Intersection: 2: Lampson St

Movement	EB	EB	B1	WB	WB	B8	NB	NB	SB	SB
Directions Served	LT	TR	T	LT	R	T	LT	R	LT	R
Maximum Queue (m)	144.7	137.1	93.8	89.3	59.2	47.3	73.5	23.3	57.2	47.4
Average Queue (m)	113.0	103.2	13.7	78.1	22.3	31.9	32.4	10.5	17.1	15.5
95th Queue (m)	153.8	144.3	52.0	93.0	59.9	58.6	53.2	19.8	37.7	31.3
Link Distance (m)	115.7	115.7	252.1	59.3		36.9	122.9		94.8	
Upstream Blk Time (%)	21	5		48	0	31				
Queuing Penalty (veh)	71	16		0	0	0				
Storage Bay Dist (m)					70.0			70.0		40.0
Storage Blk Time (%)				48	0		0		1	0
Queuing Penalty (veh)				19	2		0		2	0

Intersection: 7: Park Pl & Access 2

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	27.3	14.8
Average Queue (m)	12.1	2.8
95th Queue (m)	21.5	10.5
Link Distance (m)	31.3	5.7
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Bend

Movement	EB	EB
Directions Served	T	
Maximum Queue (m)	58.8	63.5
Average Queue (m)	3.7	2.1
95th Queue (m)	26.5	20.9
Link Distance (m)	59.3	59.3
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Park Pl & Esquimalt Rd

Movement	EB	WB	WB	NB	B6
Directions Served	TR	L	T	LR	T
Maximum Queue (m)	23.1	15.4	21.1	22.6	9.2
Average Queue (m)	4.0	6.1	3.1	10.3	0.5
95th Queue (m)	16.2	14.2	13.1	18.4	3.6
Link Distance (m)	59.5		158.3	0.9	5.7
Upstream Blk Time (%)				11	0
Queuing Penalty (veh)				9	0
Storage Bay Dist (m)		18.0			
Storage Blk Time (%)		0	0		
Queuing Penalty (veh)		0	0		

Intersection: 12: Admirals Rd

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	TR	LT	TR	LT	TR
Maximum Queue (m)	37.4	91.6	27.2	39.1	40.0	33.9	20.3	112.4	86.3
Average Queue (m)	32.2	67.0	9.6	16.3	19.3	16.3	7.8	57.8	22.8
95th Queue (m)	47.1	102.4	21.3	34.0	32.4	28.9	17.1	84.8	60.4
Link Distance (m)		81.2		58.1	58.1	115.3	115.3	135.3	135.3
Upstream Blk Time (%)		9							
Queuing Penalty (veh)		0							
Storage Bay Dist (m)	30.0		20.0						
Storage Blk Time (%)	8	22	3	8					
Queuing Penalty (veh)	38	62	2	4					

Intersection: 18: Fraser St & Esquimalt Rd

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (m)	14.9	23.1	32.0	10.2	29.4
Average Queue (m)	0.9	11.9	4.0	4.0	9.3
95th Queue (m)	5.9	20.9	16.9	9.4	19.7
Link Distance (m)	158.3		252.1		66.0
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		18.0		10.0	
Storage Blk Time (%)		2	0	1	8
Queuing Penalty (veh)		7	0	1	2

Intersection: 22: Fraser St & Access 1

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	16.7	9.0
Average Queue (m)	8.7	0.6
95th Queue (m)	12.2	4.2
Link Distance (m)	14.8	28.1
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 236

Boulevard
TRANSPORTATION
a division of Watt Consulting Group

ESQUIMALT TOWN CENTRE

Parking Study

Prepared for: **Aragon Properties Ltd.**

Prepared by: **Boulevard Transportation, a division of Watt Consulting Group**

Our File: **1958**

Date: **April 29, 2016**

TABLE OF CONTENTS

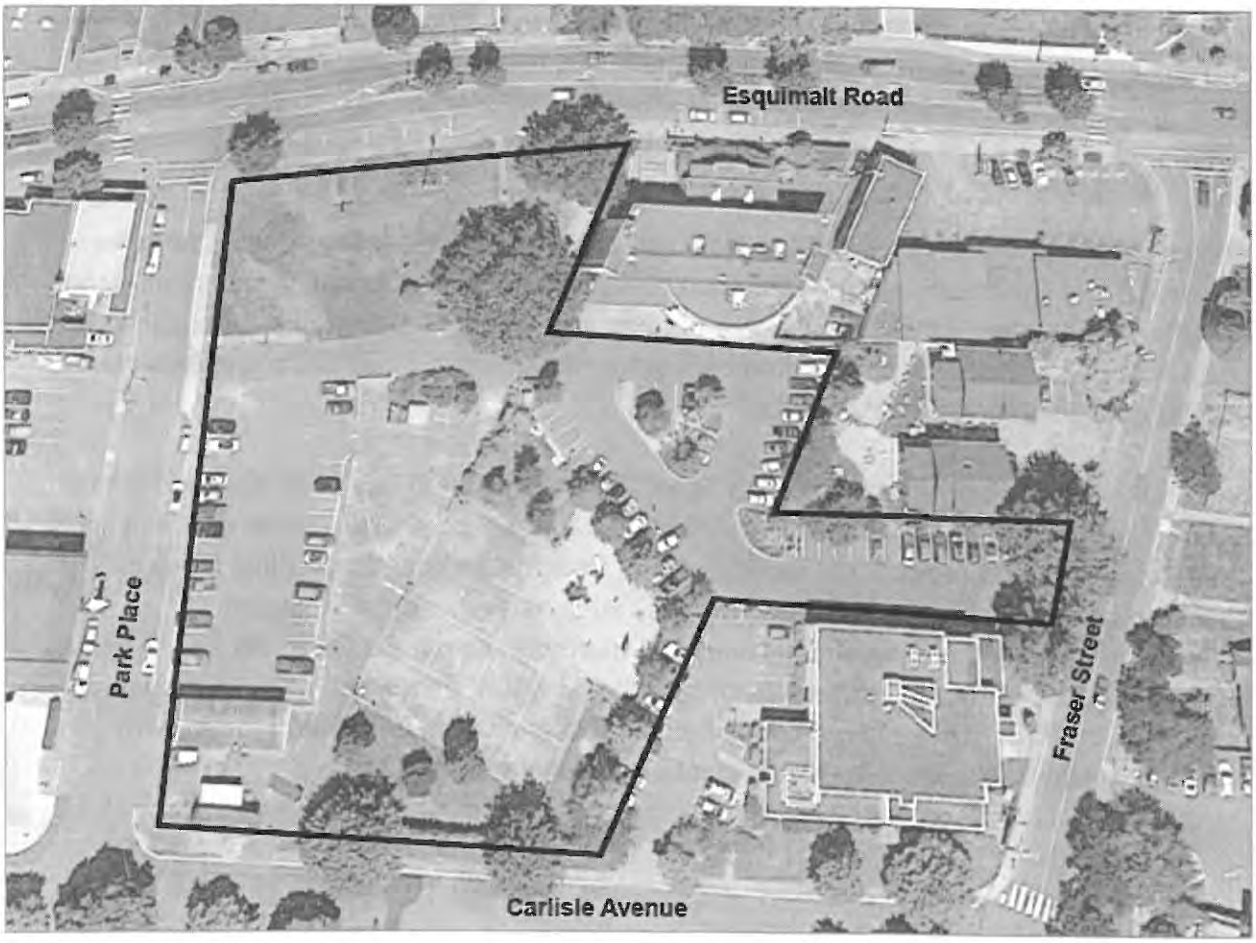
1.0 INTRODUCTION

Boulevard Transportation, a division of Watt Consulting Group was retained by Aragon Properties Ltd. to undertake a parking study for the proposed redevelopment of the Esquimalt Town Centre site in the Township of Esquimalt. The purpose of this study is to assess the adequacy of the proposed parking supply by considering parking demand at representative sites, parking management approaches (particularly the use of shared parking) and transportation demand management (TDM) options.

1.1 LOCATION

The subject site is located in the Esquimalt Town Centre (1235 Esquimalt Road) in the Township of Esquimalt (see **Figure 1**).

FIGURE 1. **SUBJECT SITE**



1.2 TRANSPORTATION OPTIONS

The subject site is located in a central area with access to a number of transportation options. A summary of the subject site's transportation options is provided below.

1.2.1 Public Transit

The subject site has immediate access to three bus routes: no.15 – UVic / Esquimalt, no.25 – Maplewood / Admirals Walk / Colwood Exchange, and the no. 26 – Dockyard / UVic, providing connections to/from View Royal, the Esquimalt dockyard, downtown Victoria, and the University of Victoria. The no.15 – Uvic / Esquimalt operates every day between approximately 6:00am and 1:00am, with 15-minute frequency in peak hours.

BC Transit's *Transit Future Plan* has identified Esquimalt Road as a "Frequent Transit Corridor" that will provide frequent service (15 minutes or better between 7am and 10pm, 7 days per week) with improved transit travel times achieved by fewer stops and transit priority measures and enhanced bus stop infrastructure.[1] With the Frequent Transit Network projected to carry a large share of the future transit system's total ridership, the subject site will benefit from frequent, reliable, and convenient service.

1.2.2 Walking

Various commercial/retail, personal services, and professional offices are accessible in the Esquimalt Town Centre area which is located on Esquimalt Road between Constance Avenue and Joffre Street. Many of these uses are approximately 300m from the subject (less than a 5-minute walk). Sidewalks are provided on both sides of Esquimalt Road and a crosswalk is provided on the west side of Park Place.

The Esquimalt Village (where the existing Town Centre is located) has been identified in the Official Community Plan (OCP) as an important area that will continue to serve as the main commercial, civic, and recreational service centre. Designs are encouraged that focus on pedestrian orientation and many include features such as sidewalk cafés, attractive landscaping, public art, and other amenities.[2] Furthermore, as per the OCP, the Township has plans to create a clearly defined, well-landscaped, and well-lit pedestrian network throughout the Esquimalt Village. These future pedestrian improvements are anticipated to result in enhanced walkability for the subject site and surrounding area.

[1] More information on the Victoria Transit Future Plan is available online at: http://bctransit.com/victoria/transit-future/victoria-transit-future-plan

[2] The Township of Esquimalt's OCP is available online at: https://www.esquimalt.ca/sites/default/files/docs/business-_development/bylaw_2646_-_ocp_consolidation_-_no_maps_2014a.pdf

1.2.3 Cycling

Bike lanes are provided along much of Esquimalt Road providing for direct connectivity to downtown Victoria. The site is approximately 1.1 km from the Esquimalt + Nanaimo (E+N) Rail Trail, which provides a direct off-road cycling route to downtown Victoria (east) and to View Royal and the Westshore (west).

2.0 PROPOSED LAND USES

2.1 CONTEXT

The proposal is for a comprehensive development that will act as a mixed use urban centre for Esquimalt. The development will include a mix of retail, residential, and commercial uses in addition to accommodating the new Public Library and teaching and administration space for the Justice Institute of British Columbia (JIBC), a public post-secondary institution. The overall objectives of this site[3] are as follows:

- Create a lively and sustainable Esquimalt Town Centre, which incorporates a mix of uses and community recreation needs;
- Revitalize Esquimalt's town core and enhance community economic development, while providing residents with a wider range of amenities and services; and,
- Capitalize on and enhance the value of public and private assets in the core.

2.2 LAND USE

The proposed development includes four buildings (some contain a single land use and others containing multiple uses). The proposal includes 101 units of multi-family residential, 10,000 square feet (sq. ft.) gross floor area (GFA) for the new public library, 18,000 sq. ft. GFA for the Justice Institute, 17,800 sq. ft. GFA for office uses, and 4,460 sq. ft. GFA for commercial/retail uses. These data are summarized in **Table 1**.

TABLE 1. **SUMMARY OF PROPOSED LAND USES**

Land Use	Quantity (Units or Floor Area)***
Multi-Family Residential (Market Rental)*	32

[3] For more information about this project, see the Township of Esquimalt website at: https://www.esquimalt.ca/municipal-hall/esquimalt-village-project

Land Use	Quantity (Units or Floor Area)***
Multi-Family Residential (Condominium)*	69
Library**	10,000 sq. ft. (929 m²) GFA
Justice Institute	18,000 sq. ft. (1,672 m²) GFA
Office	17,800 sq. ft. (1,654 m²) GFA
Commercial/Retail Use (CRU)	4,460 sq. ft. (414 m²) GFA

*An email correspondence on Thursday April 28th with the proponent confirmed that the total residential units changed to 101 units.

**At the time of completing this study, the analysis on the library use was based on a floor area of 10,000 sq. ft. However, there is the potential for additional library area.

***The quantity (unit or floor area) of the proposed land uses are current as of April 29, 2016 and are considered final for the purposes of this study.

2.3 PROPOSED PARKING SUPPLY

The proposal includes a total of 200 parking spaces, comprised of 161 underground parking spaces and 39 surface parking spaces (see **Table 2**). See **Appendix A** for parking plan.

TABLE 2. **SUMMARY OF PROPOSED PARKING SUPPLY**

Building	Land Use	Underground Parking	Surface Parking
Building A & B	Multi-Family Residential (Condominium)	55	
	Library / Justice Institute / Office		39
Building C & D	CRU / Multi-Family Residential (Market Rental)	121	
Total Underground and Surface			**215***
Total (Excluding Town Hall Parking Spaces)			**200**

* Approximately 15 parking spaces will be assigned to the Town Hall, resulting in a total of 215 parking spaces. However, for the purposes of this study, which deals with the land uses in Table 2, the proposed parking supply of 200 is used.

3.0 PARKING REQUIREMENT

The Township's Parking Bylaw[4] defines the parking requirement for each of the proposed land uses. The total required parking supply for the site is 428 spaces, which is 228 spaces more than proposed (see **Table 3**).

The Library and Justice Institute requirements are based on the "Museum" requirement as neither are defined land use classifications. This classification has a significantly higher requirement than is typical of Library or post-secondary requirements in other communities. As per Section 11 "Visitor Parking" of the Parking Bylaw, in mixed residential/commercial development, visitor parking spaces may be assigned to commercial uses up to 15% of the space required for the commercial use component. In this case, the visitor parking supply would be shared with commercial uses and the overall requirement reduced by 35 spaces (428 total spaces required).

TABLE 3. **PARKING REQUIREMENT**

Land Use	Quantity	Requirement		Applied to Subject Site
Residential	101 units	Medium and High density apartment	1.3 / unit	131
Residential Visitor		1 of every 4 required spaces		
Library	10,000 sq. ft. GFA (929m^2)	Museum*	1 space per 10 m^2 GFA	93
Justice Institute	18,000 sq. ft. GFA (1,672 m^2)	Museum*	1 space per 10 m^2 GFA	167
Office	17,800 sq. ft. GFA (1,654 m^2)	Business and Professional Offices	1 space per 30 m^2 GFA	55
Commercial/Retail	4,460 sq. ft. GFA (414 m^2)	Retail Sales of goods and services	1 space per 25 m^2 GFA	17
			Total	**463**
			Subtract 35 for visitor sharing	**428**

[4] The Township of Esquimalt's Parking Bylaw is available online: https://www.esquimalt.ca/sites/default/files/zoning_parkingbylaw2008.pdf

Section 13.5 of the Parking Bylaw allows for a parking supply reduction of two spaces in commercial and industrial land uses where two or more secure bicycle parking spaces, shower and change rooms and six visitor bicycle parking spaces are provided, and if the building is located within 200 metres of a regional bus route. The subject site is located on a regional bus route (see Section 1.2) and bike parking and shower and change rooms are proposed for this site.

4.0 EXPECTED PARKING DEMAND

Expected parking demand is considered in the following sections based on vehicle ownership from comparable sites, observations, research, and results from previous studies.

4.1 RESIDENTIAL

4.1.1 Multi-Family Residential, Strata Owned

Buildings A and B are proposed to be strata ownership multi-family condominium comprising 69 units. Known vehicle ownership rates for strata ownership sites in proximity to the subject site are presented in **Table 4**. Unit configuration (i.e., proportion one- and two-bedroom units) is assumed to be representative of the subject site. Average vehicle ownership is 0.96 vehicles per unit. Accordingly, 0.95 vehicles per unit is suggested as an appropriate parking supply, resulting in demand of 66 vehicles.

TABLE 4. **VEHICLE OWNERSHIP AT REPRESENTATIVE SITES, STRATA OWNED CONDO**

Site	No. Units	Owned Vehicles	Vehicle Demand (vehicles/unit)
885 Ellery Street	21	24	1.14
830 Esquimalt Road	22	17	0.77
848 Esquimalt Road	51	40	0.78
924 Esquimalt Road	58	53	0.91
929 Esquimalt Road	31	31	1.00
1000 Esquimalt Road	30	32	1.07
1315 Esquimalt Road	78	79	1.01
614 Fernhill Place	22	19	0.86
331 Robert Street	10	11	1.10
		Average	**0.96**

4.1.2 Multi-Family Residential, Market Rental

Building D will contain 32 market rental multi-family residential units. Multi-family strata ownership units are known to exhibit higher parking demand rates as compared to rental apartment units. Comprehensive studies from Metro Vancouver[5] and the City of Toronto[6] conclude that parking demand is 33% to 41% lower among market rental than strata ownership condominium units. When the average vehicle ownership rate among the strata ownership condominium sites (0.95 vehicles per unit) is reduced by 35% to reflect the reduced rate among rental apartments, the expected demand rate is 0.60 vehicles per unit.

Table 5 presents the vehicle ownership rates at representative rental apartment sites for rental buildings. Many of these sites are in the City of Victoria but closely resemble the subject site based on proximity to the downtown area. These sites were obtained from an ICBC vehicle ownership data request for past parking studies.

TABLE 5. **VEHICLE OWNERSHIP AT REPRESENTATIVE SITES (RENTAL UNITS)**

Site	No. Units	Owned Vehicles*	Vehicle Demand (vehicles/unit)
1635 Cook Street	72	30	0.42
628 Head Street (Dagmar Apartments)	25	11	0.44
1130 Pandora Avenue	45	24	0.53
1020 Pembroke Street	109	75	0.69
2310 Quadra Street	19	14	0.74
1110 Queens Avenue	17	9	0.53
1017 Queens Avenue	27	11	0.41
2549 Dowler Place	32	25	0.78
2523 Wark Street	16	8	0.50
		Average	**0.56**

*Vehicle ownership information obtained from Insurance Corporation of British Columbia (ICBC). Information is current as of November 30, 2013.

The results from **Table 5** illustrate that parking demand for rental units is approximately 40% lower than strata ownership condominium units, which is consistent with the research from Toronto and Vancouver. Moreover, a recent parking study of 433 Boleskine Road in the City of

[5] Metro Vancouver. (2012). Metro Vancouver Apartment Parking Study. Page 44, Table 21; available online at: http://www.metrovancouver.org/services/regional-planning/PlanningPublications/Apartment_Parking_Study_TechnicalReport.pdf

[6] City of Toronto. (2007). Parking Standards Review – Phase Two Apartment Building / Multi-Unit Blocks Developments Component, New Zoning By-Law Project. Page 16, Figure 3.1; available online at: www1.toronto.ca/city_of_toronto/city_planning/zoning__environment/files/pdf/cansult_final_apart_stds.pdf

Victoria, considered to be a somewhat representative site, found that the expected parking demand rate for the rental apartments was 0.62 vehicles per unit.[7]

A similar parking study was completed in 2010 for the rental apartment development on the southeast corner of Tillicum Road / Burnside Road (3185 Tillicum Road). Eight market rental apartment sites were surveyed and found average parking demand to be 0.68 vehicles per unit. The site was ultimately approved and constructed with a parking supply rate of 0.59 vehicles per unit (61 resident spaces, 104 units).[8] Vehicle ownership was recently obtained for the 3185 Tillicum Road site and determined vehicle ownership rates to be 0.58 vehicles per unit.[9]

Given the results in Table 5 and the supporting evidence from the research and past parking studies, a rate of 0.60 per unit is suggested for site planning purposes, which results in a parking demand of 19 vehicles.

4.1.3 Visitors

Vehicle ownership data considers resident parking demand, but does not account for visitor parking. Visitor parking demand rates have been shown to be in the range of 0.05 to 0.07 vehicles per unit for multi-family residential.[10] A demand rate of 0.1 vehicles per unit is considered an appropriate representation of visitor parking demand among multi-family residential uses.[11] Applied to the site, the visitor parking demand is approximately 10 vehicles (approximately three for each of Building A, Building B, and Building D). This is significantly less than the visitor parking requirement per the Township's Parking Bylaw (35 spaces).

4.2 LIBRARY

The new Public Library will be approximately 10,000 sq. ft. (929 m^2) GFA. To determine the parking demand for the library site, conversations were held with the Greater Victoria Public Library (GVPL) Chief Executive Officer and Core District Coordinator.[12] These staff were able to

[7] Boulevard Transportation. (2016). 433 Boleskine Road Parking Study.

[8] A similar parking study was completed in 2010 for the rental apartment development on the southeast corner of Tillicum Road / Burnside Road (3185 Tillicum Road).

[9] Vehicle ownership rate based on the number of vehicles registered to this address. Information is provided by Insurance Corporation of British Columbia (ICBC) and current as of November 30, 2015.

[10] Based on observations of visitor parking conducted in 2015 for two studies of multi-family residential sites (one adjacent downtown Victoria, the other in Langford) and findings from the 2012 Metro Vancouver Apartment Parking Study available at: http://canadianparking.ca/the-metro-vancouver-apartment-parking-study/?

[11] City of Toronto. (2007). Parking Standards Review – Phase Two Apartment Building/Multi-Unit Block Developments Component, New Zoning By-law Project. Available online at: https://www1.toronto.ca/city_of_toronto/city_planning/zoning__environment/files/pdf/cansult_final_apart_stds.pdf

[12] Phone conversation was held on March 31, 2016 with the GVPL CEO, and on April 4, 2016 with the Core District Coordinator. Additional data were provided via email.

provide valuable statistics that informed the parking demand rate for the new library site. The data are summarized as follows:

- The current library is 8,600 sq. ft. (799 m^2) GFA
- On average, 560 patrons visit the library per day
- The branch is busiest from 10am to 12pm, and 2:30 to 6pm on weekdays and weekends
- It was estimated that about 65-75% of library patrons drive to the library

In addition to the statistics above, the library staff conducted a patron count on Tuesday April 5 to better understand the demographics of the patrons during peak times and approximately how many "eligible drivers" were at the library at any one time in order to determine peak parking demand. Three age groups were counted: youth (16 years and younger) adults / eligible drivers (17 to 80 years old) and non-eligible drivers (80 years and older). Observations were conducted at four distinct periods over the course of the day: 10am, 12pm, 3pm, and 5pm. The 3pm count reported 52 eligible drivers. Factored for an assumed 75% of patrons driving[13], an estimated 39 vehicles are parked on-site during the peak period.

Email correspondence with the library staff confirmed that the new library is anticipated to be busier with an approximate 25% increase in patrons and associated parking demand[14] as new staff may be hired, new programs offered, and new programming spaces provided. Therefore, applying this factor results in a parking demand of 49 vehicles during peak times, of which 7 are reported to be staff.[15]

4.3 JUSTICE INSTITUTE

The Justice Institute of BC (JIBC), located in Building C, will contain a mix of teaching and administration spaces consisting of a total of 18,000 sq. ft. (1,672 m^2) GFA.

To better understand how the Justice Institute functions, a phone conversation was held with a staff member at the Institute's existing Victoria campus.[16] The downtown campus building, approximately 21,175 sq.ft. (1,967 m^2) GFA, functions like a post-secondary institution offering several fee for services courses, much like the University of Victoria or Camosun College. However, the JIBC downtown Victoria campus has a much smaller student and staff population than the aforementioned post-secondary institutions.

[13] As confirmed through conversation with GVLP Core District Coordinator on April 6, 2016.

[14] Email correspondence with the GVPL Core District Coordinator on April 11, 2016.

[15] Email correspondence with GVPL Core District Coordinator on April 11, 2016.

[16] Phone conversation was held on March 31, 2016 with the Facilities Administrator at the JIBC's downtown Victoria campus.

During the JIBC's busiest times – typically March and October – they have a peak of 100 students per day; however, it was reported that this only occurs for three to five weeks of the year. Up to 15 staff (including instructors) may be on-site at one time during peak times. However, for the other approximately 45 weeks of the year (i.e., non-peak times), the JIBC downtown Victoria campus typically has 50 students per day with about seven staff, which is a more reliable estimate of expected parking demand for the subject site.[17]

It was reported that approximately 10% or less of students and staff drive to the site due to a lack of dedicated parking at the current location[18] - most rely on cycling, public transit or walking. It is assumed that parking demand will slightly increase at the new location due to increased parking availability and reduced access to nearby travel options as compared to the current downtown site.

Modal split figures were used to estimate parking demand for the JIBC on the subject site, as follows:

- 48% of students are assumed to drive[19]; and
- 78% of staff are assumed to drive.[20]

Using the above-mentioned modal split figures, it is expected that the JIBC will experience average parking demand of 29 vehicles - students will contribute 24 vehicles (50 students, 48% driver) and staff will contribute about 5 vehicles (7 staff, 78% driver).

As discussed above, the JIBC has about 100 students and 15 staff per day during peak times (about 3 to 5 weeks per year). Using the modal spilt numbers above, this results in approximately 60 vehicles, or 31 vehicles greater than the average. Therefore, it is expected that for 3 to 5 weeks per year, approximately 31 vehicles attributed to the JIBC will require additional parking and may need to be accommodated by on-street parking spaces surrounding and in proximity to subject site.

[17] Phone conversation was held on April 29, 2016 administrative staff at the JIBC's downtown Victoria campus.

[18] Numbers provided by the Facilities Administrator are approximate and should be used with caution.

[19] Assumption that 48% of students drive is consistent with Camosun College's Interurban campus, which as a community college with a variety of technical and vocational programs, has more similarities to the JIBC than the University of Victoria. The 2012 Camosun College Modal Split report is available online at: http://camosun.ca/documents/about/transportation/modal-split-camosun-2012.pdf

[20] Assumption that 78% of staff will drive is consistent with the modal split numbers in the 2011 CRD Origin-Destination Household Travel Survey Daily Travel Characteristics Report. During the AM peak period, 78% of trips to the Township of Esquimalt are reported to be by auto driver. The report is available online at: https://www.crd.bc.ca/docs/default-source/regional-planning-pdf/transportation/crd-od-survey-dailytravelcharacteristicsreportfinal.pdf?sfvrsn=2

4.4 OFFICE

A total of 17,800 sq. ft. (1,654 m^2) GFA of office is proposed in Building C. Parking observations were conducted at nine office sites within, or in proximity to, downtown Victoria.[21] See **Table 6**. Each site was found to be similar to the subject site based on proximity to downtown, a regional trail or to one of BC Transit's frequent or rapid transit corridors. Observations were conducted during the weekday over two time periods representing peak periods for office land uses.[22]

Results found only moderate variation in parking demand between different times of day; for the 10am time period, average demand was approximately one vehicle per 62 m^2 of office floor space whereas in the 2pm time period, the demand was approximately one vehicle per 75 m^2 of office floor space. One vehicle per 60 m^2 of office floor space is appropriate as a generalized parking demand rate for site planning purposes, which results in 28 vehicles. Office parking demand is assumed to be 93% employees (26 vehicles) and 7% visitors (2 vehicles).[23]

TABLE 6. **SUMMARY OF PARKING DEMAND AT REPRESENTATIVE OFFICE SITES**

Site	Parking Supply	Floor Area, Estimated (m^2)	Observed Vehicles	Demand Rate (1 vehicle per m^2)
420 William Street BMS Integrated Services Inc.	17	920	16	1 / 58
2736 Quadra Street (Quadra Village) CUPE 50	13	448	5	1 / 90
Harbour Road Dockside Green Business Center	30	792	12	1 / 66
1708 Vancouver Street Hollis Wealth	6	224	5	1 / 45
1012 North Park Street Howe and Gramlich Wealth Management	4	330	4	1 / 83
125 Skinner Street Island Community Mental Health	19	1,094	16	1 / 68
2420 Douglas Street The Co-operators	10	280	5	1 / 56
1002 Wharf Street Turnham Woodland / Waddell Rapona	11	480	7	1 / 69
3035 Nanaimo Street	43	756	27	1 / 28

[21] The consultants who prepared this study are also completing a parking review for the City of Victoria

[22] Observations were conducted on Wednesday, March 9 at 10:00am and Wednesday March 9 at 2:00pm

[23] This assumes that approximately 7% of the total vehicles are for visitors. Ratio determined using the following publication: Urban Land Institute. (2005). Shared Parking, 2nd Edition, Table 3-2, pg. 33.

Site	Parking Supply	Floor Area, Estimated (m^2)	Observed Vehicles	Demand Rate (1 vehicle per m^2)
Victoria Real Estate Board				
			Average	**1 / 62**

4.5 COMMERCIAL / RETAIL

Building D contains 4,460 sq. ft. (414 m^2) GFA of commercial / retail space. An assumed 1,200 sq. ft. (111 m^2) GFA of the commercial/retail space is proposed to be a café or coffee shop, with the balance (303 m^2 GFA) as a restaurant or general retail.[24] Parking demand rates are known to vary significantly between restaurant / café and retail uses, and each have been considered in detail in the following section.

Restaurant

An on-going study being completed for the City of Victoria[25] has included observations at eight restaurant sites at the periphery of the downtown area over three separate time periods - Wednesday March 9 at 6pm, Friday March 11 at 6pm, and Saturday April 2 at 6pm. See **Table 7**. Results suggest that parking demand is one vehicle per 24 m^2, or 12 vehicles if applied to the retail/restaurant floor area.

TABLE 7. **SUMMARY OF OBSERVATIONS AT REPRESENTATIVE RESTAURANT SITES**

Site	Parking Supply	Floor Area, Estimated (m^2)*	Observed Vehicles	Demand Rate (1 vehicle per m^2)
1028 Hillside Avenue (Quadra Village) 5th Street Bar and Grill	31	542	31	1 /17
2900 Douglas Street ABC Country Restaurant	17	357	10	1/ 21
1739 Fort Street (Jubilee Village) Christie's Carriage House Pub	30	900	22	1 / 30
405 Craigflower Road Crown Palace Chinese Restaurant	8	182	3	1 / 23
607 Oswego Street Harbour House Restaurant	7	220	3	1 / 31
308 Catherine Street Spinnaker's Gastro Brewpub	39	1,008	36	1 / 26
1871 Fort Street White Spot	24	264	21	1 / 11

[24] Email correspondence with proponent on March 17, 2016 and April 4, 2016.

[25] The consultants who prepared this study are also completing a parking review for the City of Victoria.

Site	Parking Supply	Floor Area, Estimated (m^2)*	Observed Vehicles	Demand Rate (1 vehicle per m^2)
2706 Government Street (Humber Green Village) Chiba Sushi	24	741	12	1 / 31
			Average	**1 / 24**

* Restaurant floor area estimated using Google Maps

To confirm if one vehicle per 24 m^2 is an appropriate rate, a calculation was completed to convert floor area to number of patron seats. In order to do this, a total floor area per person needed to be determined. An online source recommends 1.11 m^2 per person[26] for the portion of the restaurant that represent the dining and seating area, about 60%. The other 40% typically makes up the kitchen, cooking area, storage etc. The rate of 1.11 m^2 was deemed to be too low and was therefore adjusted to 2 m^2 to better reflect a realistic seat density and configuration achievable given the requirements for hallways, aisles, entrances, etc.

Restaurant parking requirements are commonly based on the number of vehicles per seat – most commonly between one vehicle per three seats to one vehicle per five seats. For the purposes of this study, one vehicle per four seats was used. To determine the number of vehicles and number of seats for the subject site, the following equations were used:

(1) 303 m^2 (restaurant floor area) x 0.6 (occupied area) / 2 m^2 (floor area per person) = 91 persons
(2) 91 persons divided by 4 seats = 23 vehicles, or 1 vehicle per 4 seats

Based on the seat calculation above, it is expected that the restaurant will experience peak period demand of 23 vehicles, of which three vehicles are for employees.[27]

General Retail

As discussed, there is the potential for a portion of the commercial / retail space to be used as general retail. A parking study that was completed for Dockside Green collected observations at seven mixed commercial sites during a weekday (Wednesday August 6, 2014 at 1:00pm) and weekend mid-day (Saturday, August 9, 2014 at 12:00pm). The study found that peak demand occurred during the weekday mid-day observation period where average demand was approximately one per 45 m^2 of commercial floor space,[28] or 7 vehicles if applied to the

[26] Central Restaurant Products. (2016). Dining Room Space Planning. Available online at: http://www.centralrestaurant.com/learn/buying-guides/space-planning.html

[27] This assumes that approximately 15% of the total vehicles are for employees. Ratio determined using the following publication: Urban Land Institute. (2005). Shared Parking, 2nd Edition, Table 3-2, pg. 33.

[28] Dockside Green. (2015). Dockside Green Transportation Review Parking Study.

retail/restaurant floor area. A general retail use is expected to have lower parking demand than a restaurant use and therefore, if the CRU ends up being general retail, less parking will be required.

Café / Coffee Shop
It is assumed that the café / coffee shop land use will experience peak parking demand rates comparable to the restaurant uses described above (i.e., one vehicle per four seats), although the time-of-day characteristics will differ. Peak parking demand for the café / coffee shop is expected to be 8 vehicles (7 customers, 1 employee).

4.5.1 Mixed Use

The subject site contains six distinct land uses among four buildings. All building entrances are within close proximity of one another and considered "walkable". This creates a condition where individuals may park a vehicle on-site to access more than one land use. This is considered a "captive market" condition.

With this in mind, the customer portion of the Commercial / Retail parking demand has been reduced by 25% as it is assumed that one-quarter of customers will be either site employees, patrons/students or residents whose vehicles will already be attributed to these uses. Accordingly, the Commercial / Retail customer parking demand is reduced by seven vehicles, bringing the total to 21 vehicles.

4.6 SUMMARY OF EXPECTED PARKING DEMAND

The total site parking demand is expected to be 225 vehicles (see **Table 8**). This is 25 vehicles greater than the proposed parking supply and 203 spaces less than the parking requirement.

TABLE 8. **SUMMARY OF EXPECTED PARKING DEMAND**

Land Use	Quantity/Size	Expected Parking Demand Rate	Applied to Subject Site
Multi-Family Residential (Owned)	69 units	0.95 vehicles per unit	66
Multi-Family Residential (Rental)	32 units	0.60 vehicle per unit	19
Residential Visitor	101 units	0.10 vehicles per unit	10
Library	929 m^2	Patrons = 42 Employee = 7	49
Justice Institute	1,672 m^2	Students = 24 Employee = 5	29
Office	1,654 m^2	1 vehicle per 60 m^2	28
Commercial/Retail*	**Restaurant = 182 m^2	1 per 4 seats	18

Café/Coffee Shop = 111 m²	1 per 4 seats	6
Total Expected Parking Demand		**225**

*Note, the CRU expected parking demand has been reduced by seven vehicles as it assumed that one-quarter of customers will be either site employees, patrons/students or residents.

** Calculation based on 60% of the total restaurant space (303 m²)

5.0 SHARED PARKING & PARKING MANAGEMENT

"Shared parking" refers to a scenario where two or more land uses in close proximity share a supply of parking in order to reduce the overall parking supply for the site / area. The concept is successful where parking demand for different uses exhibit complementary patterns with peak demand experienced at different times of day. For example, an office building and multi-family residential are complementary land uses because office parking demand is typically highest during weekday working hours while residential demand is highest on weekday evenings and weekends. Parking must be shared (i.e., unreserved) for shared parking reductions to apply.

A time-of-day assessment was undertaken to identify the parking supply needed to accommodate the peak parking demand. The assessment is based on the un-factored expected parking demand values summarized in **Table 8** and focuses only on weekday conditions as it is assumed to represent the site's peak period (weekend demand associated with office and Justice Institute uses is limited on weekend).[29]

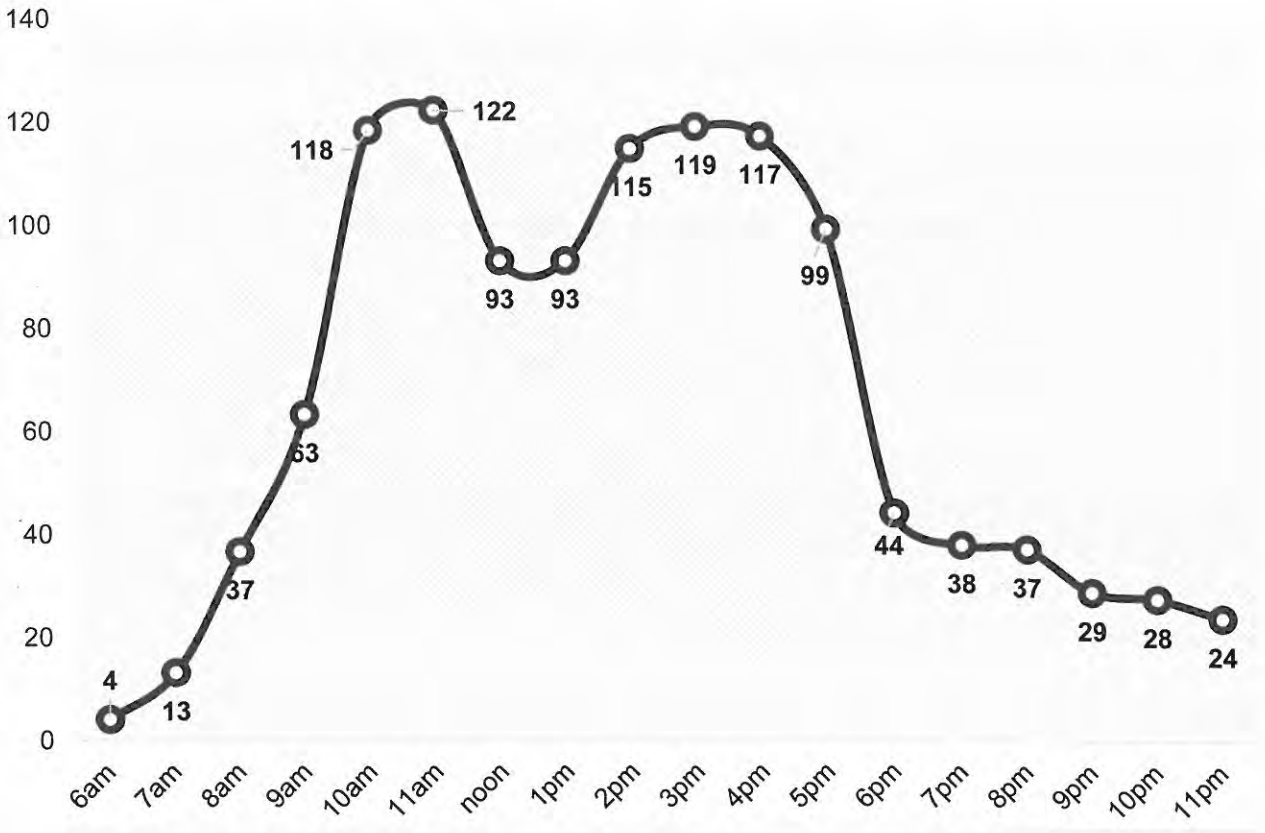
Only those parking supplies that are "shared" (i.e., unassigned) are included in the shared parking assessment. It is assumed that all resident parking will be accommodated in controlled access parking areas (i.e., behind a gate), eliminating 85 parking spaces from the pool of shared parking spaces. The remaining 115 parking spaces are assumed to be available to be shared among multi-family residential visitors, the Justice Institute, Library, Office, and Commercial/Retail uses. The reduction in parking supply achieved through sharing will decrease if portions of the on-site parking supply are made unavailable for sharing.

Results of the time-of-day assessment suggest that the site's peak demand is 122 vehicles among shared uses (i.e., excluding residents), an approximately 13% reduction from the un-factored expected parking demand of the shareable uses (141 vehicles). See **Figure 2**. Peak demand will be experienced on weekdays at 11:00am when efficiencies are gained due to residential, retail and restaurant parking demand at less than 100%. Conditions will remain within 10% of the peak period at 10:00am and between 2:00pm to 4:00pm. The detailed assessment is included in **Appendix B**.

[29] The shared parking analysis relied on the Urban Land Institute's Shared Parking publication. Peak demand factors for each land use were adjusted by the consultants when the rates were found to be a poor representation of local conditions.

The proponent may wish to consider designing the underground parking areas in a way that does not restrict the residential parking spaces behind gates. By removing or modifying the location of the gates, a significantly larger portion of spaces will be available for shared parking and could be utilized among the various land uses.

FIGURE 2. **SHARED PARKING DEMAND BY TIME-OF-DAY**



5.1 PARKING MANAGEMENT

The analysis above assumes that sharing will take place between the surface and underground parking areas and that all users may park wherever is most convenient. However, there may be a need to assign portions of the shared parking supply to ensure efficient management, as follows:

1. CRU employees, office employees, JIBC staff and students, and library staff should be encouraged to park in the underground facility. These users are familiar with the site and will park for long periods of time. Signage should be installed in the surface parking area to deter staff and student parking.

2. CRU customers, officer visitors, residential visitors, and library patrons should be encouraged to parking in the surface parking area. These users are generally less familiar with the site and will park for shorter periods of time. Signage on the surface parking area should deter staff and students, and confirm the area is intended for customers and residential visitors.

The shared parking figures were re-calculated to reflect the allocation of surface parking (approximately 32 spaces) to customers / visitors and the underground area (76 spaces) to staff and students.

The peak demand for surface parking is 61 vehicles, which considers sharing among CRU customers, officer visitors, residential visitors, and library patrons. This is a reduction of approximately 19% from the combined expected demand figures. The peak is experienced at 5:00pm and exceeds the surface parking supply by about 29 vehicles. These vehicles would presumably seek parking in the underground area.

The total peak demand for underground parking was determined by combining the peak demand of the CRU employees, office employees, JIBC staff and students, and library staff. There is no efficiency gained through shared parking because peak parking demand among staff and students is experienced simultaneously (i.e., 10:00am to 3:00pm). The expected parking demand among staff and students is 66 vehicles, about 10 vehicles under the proposed underground parking supply of 76 vehicles that will be available to JIBC staff / students, office staff, and CRU employees. This results in 10 shareable spaces.

Therefore, of the 29 vehicle spillover from the surface parking area, approximately 10 vehicles could utilize the available parking in the underground during the peak times. The development should consider the transportation demand management (TDM) measures identified in the following section (Section 6) to further reduce parking demand to a level that can be accommodated by the proposed parking supply.

6.0 TRANSPORTATION DEMAND MANAGEMENT

Transportation demand management (TDM) is the application of strategies and policies to influence individual travel choice, most commonly to reduce single-occupant vehicle travel. TDM measures should be pursued to encourage sustainable travel, enhance travel options and decrease parking demand.

The following summarizes the TDM options that may be pursued and the estimated impact of each in reducing parking demand.

6.1 CARSHARE

The current carshare program in Greater Victoria is managed by Modo (formerly the Victoria Carshare). As of July 2015, the coop had over 20 vehicles and 800 members in Greater Victoria. Monthly Modo members pay $5 per month, a $10 registration fee, $8 per hour (including gas, insurance, and maintenance) and receive the first 200 kilometers of their trip for free.[30,31] Member-owner memberships are $500 (refundable share purchase).

There is currently only one Modo vehicle in Esquimalt (located in the Skyline Residences at 924 Carlton Terrace, Esquimalt Rd / Head St) and no vehicles within walking distance of the subject site. To encourage carsharing, consideration may be given to the purchase of two carshare vehicle to be owned, operated, and maintained by the Modo carshare cooperative (cost assumed to be approximately $20,000-$25,000 each). Vehicles should be accommodated in assigned surface parking spaces, providing access to nearby off-site residents. Recent discussions as part of the Dockside Green planning, and parking regulations from Vancouver suggest that two vehicles is an appropriate allotment for a site up to 120 units.[32]

In the City of Toronto, buildings smaller than 30 units are entitled to a maximum parking reduction of one space if one carshare vehicle is provided; however, a 2009 study[33] suggested that buildings with 75 to 89 units could expect to see a reduction of five parking spaces if two carshare vehicles were provided. In light of these studies, two carshare vehicles for the subject site is suggested but should be confirmed with Modo to ensure they are supportive.

To further encourage carsharing among residents, consideration may be given to purchasing Modo carshare memberships for each of the multi-family residential units ($500 per unit). The Modo membership would be tied to the unit, and not the resident. Residents will be responsible for usage fees.

Municipal parking regulations provide insight on the anticipated decrease in parking demand associated with a carshare vehicles. The City of Vancouver, as an example, allows for a reduction of five spaces for each carshare vehicle purchased and parked on-site.[34] Similar regulations are in-place in New Westminster, Coquitlam, and Richmond allowing for a 5-15% reduction where carshare vehicles are accessible. Correspondence from Victoria Carshare

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[30] Wilson, C. (2015). Car-share firm offers new way to zip around Victoria. Available online at: http://www.timescolonist.com/business/car-share-firm-offers-new-way-to-zip-around-victoria-1.1986669

[31] More information about the Modo Car Cooperative is available online at: http://modo.coop/about/

[32] City of Toronto. (2009). Parking Standards Review: Examination of Potential Options and Impacts of Car Share Programs on Parking Standards. Exhibit 5, pg. 7, available online at: https://www1.toronto.ca/city_of_toronto/city_planning/zoning__environment/files/pdf/car_share_2009-04-02.pdf

[33] Ibid.

[34] Refer to City of Vancouver Bylaw no.6059, Section 3.2.2, available at: http://vancouver.ca/your-government/parking-bylaw.aspx

Cooperative (now Modo)[35] suggests a 5-10% reduction in parking demand where memberships are provided and a vehicle easily accessible, and a similar reduction of 5-10% is recommended in *Parking Management Best Practices.*[36]

Given the above discussion – and the unique characteristics of the subject site – a 15% reduction in resident parking demand is supported if residents have access to two carshare vehicles and are provided with free memberships. Lesser reductions are supported if only one of the vehicles or memberships are pursued.

6.2 BICYCLE PARKING

The Township of Esquimalt's Parking Bylaw does not contain bicycle parking requirements. However, the OCP includes policy supporting secure bicycle parking for both residential and office uses. Bicycle parking should be considered for many of the site's uses, as follows.

Office & Commercial/Retail

The OCP suggests one bicycle parking space per ten full-time employees with a minimum of one space for each new building. In addition, all new commercial buildings are encouraged to provide six bicycle parking spaces for temporary visitors.[37] The Township's Parking Bylaw permits a reduction of two vehicle parking spaces for every two or more secure bicycle parking spaces provided on site. A total of 44 secure bicycle parking spaces are proposed in the parkade where both the office and commercial/retail uses will be located. Given the generous supply of proposed bicycle parking spaces, a reduction in four vehicle parking spaces is supported.

JIBC & Library

Both the Parking Bylaw and OCP do not require or recommend any bicycle parking for institutional uses, such as the JIBC and library. However, both uses will have employees (and students in the case of the JIBC) that would benefit from the provision of long-term bicycle parking, similar to the Office and Commercial uses, and should be granted the same supply reduction. As such, a decrease in parking demand of four parking spaces is supported.

[35] Correspondence from Victoria Carshare Cooperative (now Modo), received August 2009

[36] Litman, T. (2007). Parking Management Best Practices, American Planning Association.

[37] The Township of Esquimalt's Official Community Plan is available online at: https://www.esquimalt.ca/sites/default/files/docs/business-development/bylaw_2646_-_ocp_consolidation_-_no_maps_2014a.pdf

Residential

The OCP suggests that all new multi-family residential development should provide secure bicycle storage for residents in the ratio of 1.5 storage spaces per dwelling unit,[38] and the development proposal includes a supply consistent with the OCP. This is higher than any other local municipality requiring bicycle parking, including the City of Victoria.

Available research is unclear on the decrease in parking demand that would result from the provision of secure bicycle parking. However, based on the generous amount of proposed bicycle parking, a 5% decrease in resident parking demand is supported for the provision of 1.5 secure bicycle parking spaces per unit.

6.3 BICYCLE END-POINT FACILITIES

Given the proximity of the site to the E&N Rail Trail, commuting by bicycle may be a practical option for employees and students at the JIBC, along with those who work in the offices, commercial/retail use, and the library. One way to encourage higher commuting by bicycle is through the provision of end of trip bicycle facilities such as lockers, showers, and changing rooms. The Township's OCP also encourages end-point bicycle facilities.

Based on the Township of Esquimalt Parking Bylaw, the subject site is entitled to a reduction for commercial uses (e.g., office, CRU) of two vehicle parking spaces if shower and change rooms are provided within the building.[39] However, proponents are only granted this reduction if they meet all of the criteria in Section 13(5) of the bylaw, which includes the provision of six visitor bicycle parking spaces, two or more secure bicycle parking spaces, and if the building is within 200 metres of a regional bus route.[40]

Notwithstanding the requirements of the parking bylaw, the provision of end-point facilities in and of themselves have the potential to reduce parking demand. Providing showers and clothing lockers at workplaces has been found to be effective at encouraging bicycle use, particularly among bicycle commuters who have a long commute or who require professional clothing attire.[41] Therefore, irrespective of the parking bylaw, assuming the office, CRU, JIBC and library uses provide their own shower / change facility, a parking supply reduction of 8 parking spaces may be achieved.

---

[38] The Township of Esquimalt's Official Community Plan is available online at: https://www.esquimalt.ca/sites/default/files/docs/business-development/bylaw_2646_-_ocp_consolidation_-_no_maps_2014a.pdf

[39] Note, this parking reduction is subject to other criteria being met including the site being located within 200 metres of a regional bus route, for example.

[40] The Township of Esquimalt's Parking Bylaw is available online: https://www.esquimalt.ca/sites/default/files/zoning_parkingbylaw2008.pdf

[41] City of Victoria. (2011). Bicycle Parking Strategy. Available online at: http://www.victoria.ca/assets/Departments/Engineering~Public~Works/Documents/parking-bicycle-strategy.pdf

6.4 TRANSIT PROGRAMS

Transit Access

The site is located on Esquimalt Road, which is identified as a BC Transit Frequent Transit Corridor[42] and is expected to attract a high rate of transit ridership among residents. In addition, as stated in the Township of Esquimalt Parking Bylaw, commercial uses on the subject site are entitled to a reduction of two parking spaces given its location within 200m of a regional bus route; however, as discussed, this is subject to meeting all of the criteria.[43]

Notwithstanding the bylaw, with two commercial uses on the subject site (Office, CRU), a reduction of four parking spaces is supported. As discussed in Section 1, with the Frequent Transit Network projected to carry a large share of the future transit system's total ridership, the subject site will benefit from frequent, reliable, and convenient service. This is expected to result in a reduction in parking demand, irrespective of whether all of the criteria in the parking bylaw are met.

Transit Passes

Consideration may be given to providing a subsidized transit pass program for site residents. BC Transit offers monthly transit passes for regular customers. Residents of each residential unit would be provided with monthly transit passes upon move-in for a defined time period (i.e., three years). The developer contribution could be a full subsidy or a fund set aside for 50-50 matching (the latter helps ensure that contributions are used to subsidize transit among only those that use it).

The reduction in parking demand will be dependent on the magnitude and length of the contribution, but could be up to a 10% reduction in parking demand among residents.[44] Some assurance that the pool of funds or the time period that the subsidy is offered is of importance if it is to be used as justification for reduced parking supply.

6.5 TDM SUMMARY

The TDM program options available to the subject site and the corresponding decrease in parking demand associated with each option is summarized in **Table 9**. The total reduction may

[42] A Frequent Transit Corridor is defined in BC Transit's long-range planning as providing frequent service (15 minutes or better between 7am and 10pm, 7 days per week) with improved transit travel times achieved by fewer stops and transit priority measures and enhanced bus stop infrastructure.

[43] The Township of Esquimalt's OCP is available online at: https://www.esquimalt.ca/sites/default/files/docs/business-_development/bylaw_2646_-_ocp_consolidation_-_no_maps_2014a.pdf

[44] City of Seattle. (2008). Best Practices in TDM. Available online at: http://www.seattle.gov/transportation/docs/ump/07%20SEATTLE%20Best%20Practices%20in%20Transportation%20Demand%20Management.pdf

be as high as approximately 21% of the total parking demand, resulting in a reduction of up to 46 parking spaces.[45]

TABLE 9. **SUMMARY OF TDM PROGRAMS + PARKING DEMAND REDUCTIONS**

TDM Option	Parking Reduction		
	Quantity / Rate	Applicable Users / Uses	Approx. Total Reduction (vehicles)
Two Carshare Vehicles + Memberships	15%	Residential (excluding visitors)	Condo = - 10 Apartment = - 3
Bicycle Parking			
Office / CRU	4 spaces	Office / CRU	- 4
JIBC / Library	4 spaces	JIBC / Library	- 4
Residential	5%	Residential	Condo = - 3 Aparment = - 1
Bicycle End-Point Facilities			
Shower, change rooms, lockers in office buildings	8 spaces	Office / CRU / JIBC / Library (employees + students)	- 8
Transit Programs			
Transit Access (Office + CRU)	4 spaces	Office / CRU (employes)	-4
Resident Transit Pass	10%	Residential (excluding visitors)	Condo = - 7 Apartment = - 2

[45] There is still some uncertainty on the extent to which the development proposal will include TDM and, as such, the total parking demand reduction due to TDM may vary.

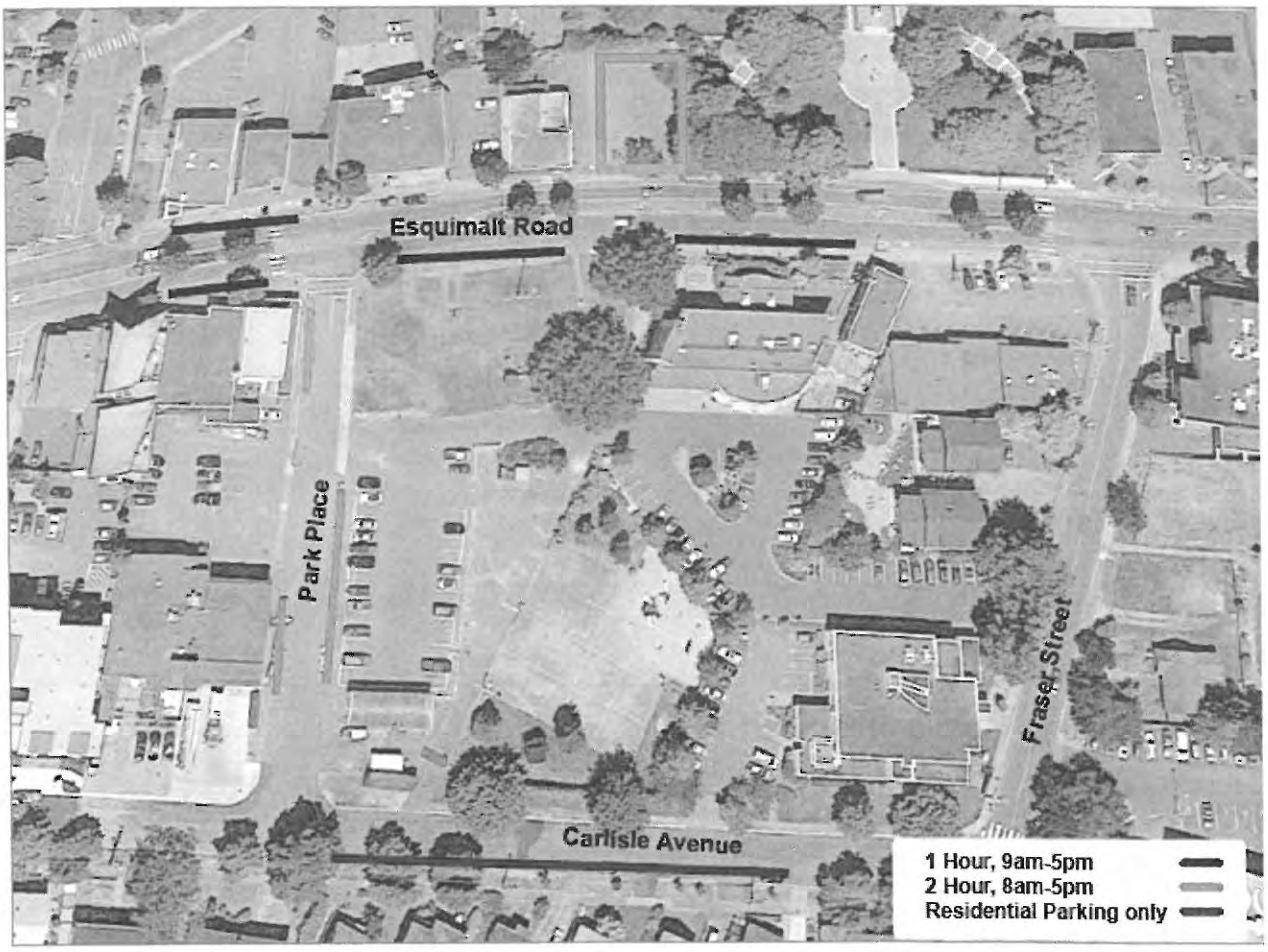
TABLE 10. **SUMMARY OF EXPECTED PARKING DEMAND FACTORED FOR TDM**

Land Use		Expected Parking Demand	
		Without TDM (per Table 8)	With TDM (per Table 9)
Multi-Family Residential	Resident, Strata Owned	66	46
	Resident, Market Rental	19	13
	Visitor	10	10
Library		49	45
Justice Institute		29	25
Office		28	22
Commercial/Retail	Restaurant	24	18
	Café		
	Total	**225**	**179**

7.0 ON-STREET PARKING

On-street parking observations were completed on Wednesday March 30 at 1:30pm and Tuesday April 5 at 3:00pm to determine parking availability nearby the subject site. A total of 59 public parking spaces were observed during the count, spread out over various streets surrounding the subject site including Park Place and Esquimalt Road. A public parking lot immediately adjacent of the Town Hall was also included in this count where about 15 parking spaces are available for public use (see **Figure 3**).

FIGURE 3. **ON-STREET PARKING & PUBLIC PARKING LOT SURROUNDING THE SITE**



The Tuesday April 5th exhibited higher parking utilization, with a total occupancy of 47% (25 vehicles). Below is a summary of key findings:

- Park Place – 9 observed vehicles, 71% peak occupancy
- Esquimalt Road – 12 observed vehicles, 67% peak occupancy
- Public Parking Lot across Esquimalt Town Centre – 11 observed vehicles, 73% peak occupancy

These results suggest that in the event that the subject site contributes spillover parking to nearby public parking, approximately 15 spaces would be available. Additional on-street parking is available beyond the blocks immediately adjacent the site.

Appendix C provides a full summary of the on-street parking and vehicle count.

8.0 PARKING DIMENSIONS & AISLE WIDTH ANALYSIS

A review of parking dimensions and aisle widths was also undertaken as part of this study. The proposed underground parking stall dimensions are 5.1m X 2.6m, with 7.0m wide aisle widths. This differs from the dimensions specified in Esquimalt's Parking Bylaw, which call for 5.5m X 2.6m stalls with 7.6m wide aisle widths, with up to 50% of stalls eligible for small-call dimensions at 4.5m X 2.6m.

Overall, for two rows of perpendicular stalls sharing the same aisle (with 50% as small-car), this results in a reduction of 0.4m from the Bylaw (17.2m vs. 17.6m). Despite the reduction, the proposed dimensions are functional and are used in similar parking lots in other urban jurisdictions. The proposed dimensions match those in the City of Victoria's Zoning Regulation Bylaw (No. 80-159), Schedule C. Therefore, there is precedent for the proposed dimensions within the Capital Regional District, in an area similarly urbanized to Esquimalt. The proposed dimensions are therefore considered suitable and appropriate. For the surface parking lot, Esquimalt's parking bylaw dimensions are being used.

9.0 SUMMARY

The proposal for the Esquimalt Town Centre redevelopment will act as a mixed use urban centre for Esquimalt. The development will include a mix of retail, residential, and commercial uses in addition to accommodating the new Public Library and teaching and administration space for the Justice Institute of British Columbia (JIBC), a public post-secondary institution. The proposed parking supply is 200 spaces, about 228 spaces less than the Township's parking requirement.

The expected peak parking demand rates were developed for each land use and calculated for a total site demand of 225 vehicles. This exceeds the proposed parking supply by 25 spaces.

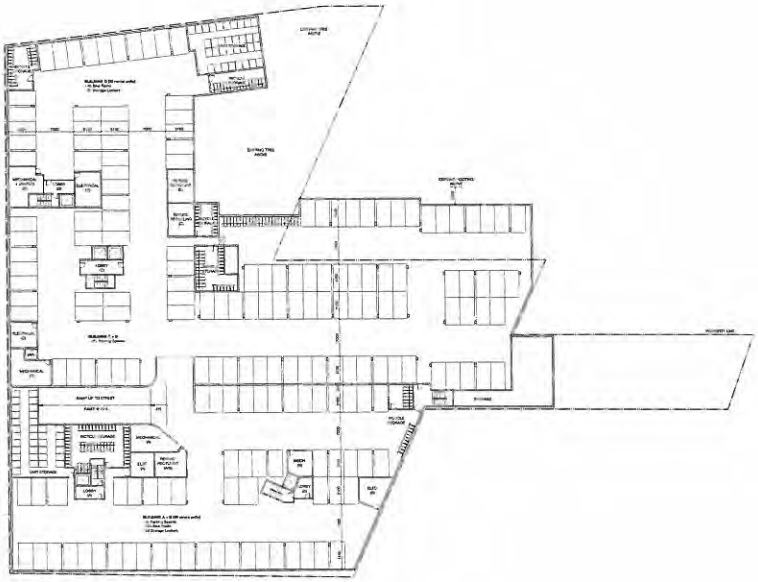
A shared parking assessment was undertaken to explore opportunities for efficiencies. The assessment assumed that all resident parking will occur in secured parking areas and cannot be shared, customer and visitors will be accommodated in the surface parking area, and staff and students will park in the underground area. The sharing assessment concluded that parking demand in the surface area will exceed supply by approximately 29 vehicles; however, it was found that the underground area would be able to accommodate approximately 10 vehicles from surface spillover.

Transportation demand management (TDM) approaches are outlined in Section 6 that include carsharing, bicycle parking, transit access, transit passes, and end-point bicycle facilities. These approaches may reduce parking demand by up to 46 vehicles (21%) if pursued in full, resulting in approximately 179 vehicles, which is well under the proposed parking supply.

9.1 RECOMMENDATIONS

1. The proposed parking supply (200 spaces) is appropriate for the site if parking is managed as suggested and the majority of identified TDM measures are adopted. Assuming all TDM measures are adopted, the expected parking demand will be 179 vehicles, which will provide the proponent with some buffer.
2. Resident parking will be access controlled and should only contain enough spaces to meet expected parking demand (final number dependent on TDM);
3. Surface parking spaces should be prioritized for customers, patrons and visitors. Employees and students should be directed to park in the underground parking area, along with spillover from the surface parking area; and
4. During the JIBC's busiest times (October and March), when approximately 100 students are in the building per day, the Institute may consider encouraging both its students and staff to use public transit, walk, or cycle to reduce pressure on on-street parking spaces.

APPENDIX A. Parking Plan



D'AMBROS
architecture +

Esquimalt Town Cer
Esquimalt BC

P1 Parking Plan
(Overall)

APPENDIX B. Shared Parking Analysis

Parking mand[1] user)	Time of Day																	
	6am	7am	8am	9am	10am	11am	noon	1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm
10	0%	10%	20%	20%	20%	20%	20%	20%	20%	20%	20%	40%	60%	100%	100%	100%	100%	100%
24	10%	10%	25%	100%	100%	100%	100%	100%	100%	100%	100%	50%	25%	25%	25%	0%	0%	0%
5	10%	10%	25%	100%	100%	100%	100%	100%	100%	100%	100%	50%	25%	25%	25%	0%	0%	0%
42	0%	0%	0%	0%	100%	100%	25%	25%	75%	100%	100%	100%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%
15	0%	0%	0%	0%	15%	40%	75%	75%	65%	40%	50%	75%	95%	100%	100%	100%	95%	75%
3	0%	20%	50%	75%	90%	90%	90%	90%	90%	75%	75%	100%	100%	100%	100%	100%	100%	85%
6	5%	10%	100%	100%	100%	100%	100%	100%	90%	60%	55%	60%	0%	0%	0%	0%	0%	0%
1	15%	20%	30%	40%	75%	100%	100%	100%	90%	70%	60%	70%	0%	0%	0%	0%	0%	0%
26	3%	30%	75%	90%	100%	100%	90%	90%	100%	100%	90%	50%	25%	10%	7%	3%	1%	0%
2	0%	1%	20%	60%	100%	45%	15%	45%	100%	45%	15%	10%	5%	2%	1%	0%	0%	0%
	4	**13**	**37**	**63**	**118**	**122**	**93**	**93**	**115**	**119**	**117**	**99**	**44**	**38**	**37**	**29**	**28**	**24**

y factors from Urban Land Institute, *Shared Parking*, 2nd Edition; Page 16/17, Table 2-5.
ransportation Group (no relevant land use provided in ULI's *Shared Parking* or ULI rates considered poor representation of local conditions)
based on recommended base parking ratios from Urban Land Institute, *Shared Parking*, 2nd Edition, Page 11, Table 2-2.

Boulevard
a division of Watt Consulting Group

APPENDIX C. On-street Parking Summary

Neighbourhood On-Street Parking Conditions

Esquimalt Town Centre Parking Study

Location	Side	Parking Supply	Notes, Restrictions	Wed Mar 30, 2016 1:30PM		Tues Apr 5, 2016 3:00PM	
				Observed Vehicles	Occupancy	Observed Vehicles	Occupancy
Carlisle Avenue, Comerford to Park	N		No Paking	n/a	n/a	n/a	n/a
	S			n/a	n/a	n/a	n/a
Carlisle Avenue, Park to Fraser	N		No Parking	n/a	n/a	n/a	n/a
	S	12	Residents Only	3	25%	4	33%
Park Place, Carlisle to Esquimalt Road	E	6	2 hour parking only (Mon-Fri, 8am-5pm)	3	50%	4	67%
	W	7	2 hour parking only (Mon-Fri, 8am-5pm)	3	43%	5	71%
Fraser Street Carlisle to Esquimalt	E			No Parking			
	W						
Esquimalt Road, Park to Fraser	N	3	1 hour parking only (Mon-Fri, 9am-5pm)	2	67%	2	67%
	S	9	1 hour parking only (Mon-Fri, 9am-5pm)	5	56%	6	67%
Esquimalt Road, Grenville to Park	N	3	1 hour parking only (Mon-Fri, 9am-5pm)	3	100%	2	67%
Esquimalt Road, Comerford to Park	S	4	1 hour parking only (Mon-Fri, 9am-5pm)	2	50%	2	50%
Parking Lot on Esquimalt Road across Esquimalt Town Centre		15	2 hour parking only (Mon-Fri, 8am-5pm)	8	53%	11	73%
On-Street Total		**59**		**21**	**36%**	**25**	**42%**

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May 4, 2016

Esquimalt Town Square Project: Summary of Green Building Strategies

The DAU team has employed an ecological urbanism approach to the Esquimalt Town Square project. This approach draws upon our formal environmental design expertise and experience with numerous sustainable urban planning and architectural projects. Ecological urbanism means community planning and urban design issues have been considered comprehensively, from the level of the watershed catchment area through to the macro and micro-climate aspects of the Esquimalt Town Square site. Buildings, open spaces and infrastructure, as well as the user patterns of the community, are considered to be integrated parts of the ecology of the place and are treated accordingly.

For the Public Library and the building intended as the future home of the Justice Institute, a green building approach is being used but LEED Certification will not be sought. The green building strategies are mandated by the Developer and so, as an incentive program, the Canadian Green Building program is not deemed necessary for this project.

The design process for Esquimalt Town Square has given significant priority to energy performance, greenhouse gas production, daylighting, adaptability to change, and the long-term sustainability of the public open spaces and infrastructure. Material palettes and technical methods that adhere to green building principles are being incorporated into the architecture and site design.

Passive solutions have been given priority over mechanically dominant and highly consumptive systems for community recycling, heating, lighting, rainwater control, etc. The viability for geothermal energy exchange will be investigated for heating and cooling. On-site storm-water management will be explored and may include strategies such as rain gardens and cisterns. Environmental principles underlay the proposed zoning regulation that will guide the development. A consultative approach by a multi-disciplinary, integrated design team reflect a sustainable development approach to the project, from the outset.

This project is considered part of the urban regeneration and densification of Esquimalt's 'urban village'. Both of these are fundamental principles of resilient, sustainable community planning. Towards this end, the development planning principles of 'Complete Communities' underlay the Esquimalt Square proposal.

The design team includes professionals with Canadian Green Building Council LEED-accreditation enabling environmental responsibility as a natural priority throughout the design of this project. Sustainable design thinking is at the core of the design process. The following are specific strategies that are deployed in the architecture of Esquimalt Town Square project.

Green Mobility

i. Promote use of alternative methods of transportation including provision of bicycle storage that will exceed the minimum requirements of the Township of Esquimalt's bylaws.

ii. Electric vehicle charging stations will be provided for 20% of the total parking to promote the use of low emitting vehicles.

iii. Promote pedestrian movement throughout the site by incorporation of an "art walk" and connected pathways to all adjacent public streets at multiple locations.

Water Management

i. Low flow plumbing fixture and water efficient appliances will be specified in all buildings.

ii. Selection of native and adaptive planting and water efficient irrigation techniques to reduce demand on the Township's water service.

iii. Collection of rainwater for use in landscape features.

iv. Limit conventional turf for landscaping.

Enhanced Building Performance

i. Energy modelling has been commissioned to ensure high energy performance in all buildings.
ii. Enhanced wall insulation to exceed minimum building code requirements.
iii. Incorporate use of heat recovery units in residential suites for superior heating and cooling.
iv. Incorporate energy star rated appliances.
v. Incorporate no or low VOC emitting paints and finishes.
vi. Incorporate motion sensors in underground garage lighting to reduce energy consumption.
vii. Buildings are designed to manage solar heat gains.

Sincerely,

Franc D'Ambrosio, architect maibc mraic
D'AMBROSIO architecture + urbanism

Esquimalt Town Square

DRAFT

Proposed Design Guidelines for the Esquimalt Town Square

May 6, 2016

'Design Guidelines' defined:
A set of design parameters for development which apply within a specified area. The guidelines are adopted public statements of intent and are used to evaluate the acceptability of a project's design.

(1) and adding the following as Section 9.9:

"?.? Development Permit Area No. ----------?"

9.9.1 Scope

All lands designated "Esquimalt Town Square" on Schedule "C" are part of DPA No.----------?

9.9.2 Category

Section 919.1(1)(a) – natural environment, its ecosystems and biological diversity;

Section 919.1(1)(b) – protection of development from hazardous conditions;

Section 919.1(1)(d) – form and character, revitalization of area in which commercial, institutional and residential uses are permitted;

Section 919.1(1)(f) - form and character: commercial, institutional and multi-unit residential

Section 919.1(1)(h) – energy conservation;

Section 919.1(1)(i) – water conservation; and

Section 919.1(1)(j) – Greenhouse Gas (GHG) emissions minimization.

9.9.3 Justification

9.9.4 Requirements of Owners of Land within the Development Permit Area

a) Owners or land within Development Permit Area No.-----? must not do any of the following without first obtaining a Development Permit in accordance with the guidelines for this Development Permit Area:

i) Alter lands;
ii) Subdivide lands; or
iii) Construct or alter a building or structure

DRAFT

1

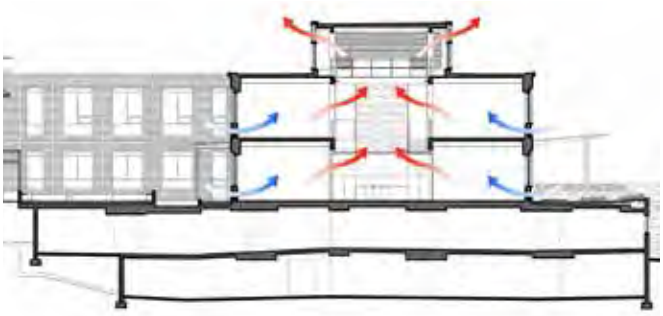
Buildings should be designed to capture passive solar energy.

2

Sun shading should be considered to control heat gain in the summer.

3

Design for on-site heat recovery, and plan for future, long-term neighbourhood heat-resource opportunities.



4

Manage rainwater on the site including reduction of burden on storm-water sewer infrastructure and cleaning for down-stream use.

5

Pollution management protocols (including sedimentation and oil- removal), as well as recycling programs should be followed during demolition, excavation and construction of the project.

DRAFT

6

Prioritize use of high quality, regionally sourced products & materials.

7

Where appropriate, make building uses visible from the outside.

8

Avoid mirrored or tinted glazing at the street level.

9

Locate clearly identified and weather-protected entrances to be accessible from public streets and squares.

10

Integrate pedestrian-oriented signage with frontages and facades.

DRAFT

11

Way-finding and commercial signage, lighting and weather protection (canopies, etc) should be part of the architectural design.

12

Orient upper-storey windows and balconies to overlook adjoining streets and public space.

13

Use architectural emphasis to define street-corners.

14

Locate on-street parking, where possible, in front of shops.

15

Maximize glazing at grade along commercial streets. Provide sight-lines from inside buildings to allow for casual surveillance of open public spaces, streets and sidewalks.

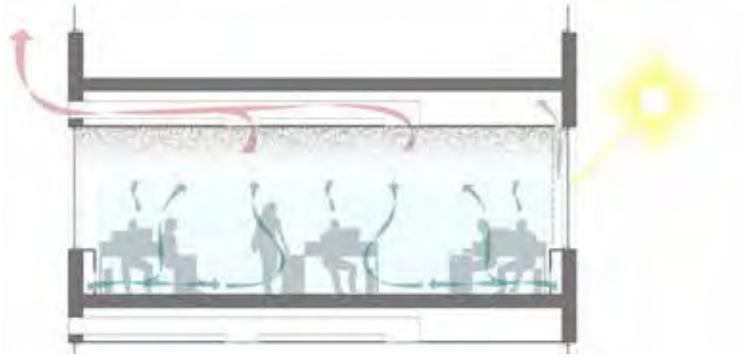
DRAFT

16

Avoid excessively long blank walls adjacent to public streets.

17

Follow green building practices in energy and water conservation, greenhouse gas production, indoor air quality and material durability in all aspects of building and site design.



18

Provide for building occupants to overlook public streets, parks, walkways and spaces, considering security and privacy of residents.

19

Provide for slightly raised entrances to ground floor residences along with private yards that are accessible from the fronting street or lane to encourage community interaction.

20

A landscaped transition zone between entryways and public sidewalk should be considered on streets with high traffic volumes.

DRAFT

21

Use of indigenous plant species is encouraged.

22

Wherever possible, outdoor storage and parking areas should be screened from view.

23

All buildings should be bird-friendly.

24

All exterior lighting should avoid excessive stray light pollution and should meet international dark skies standards.