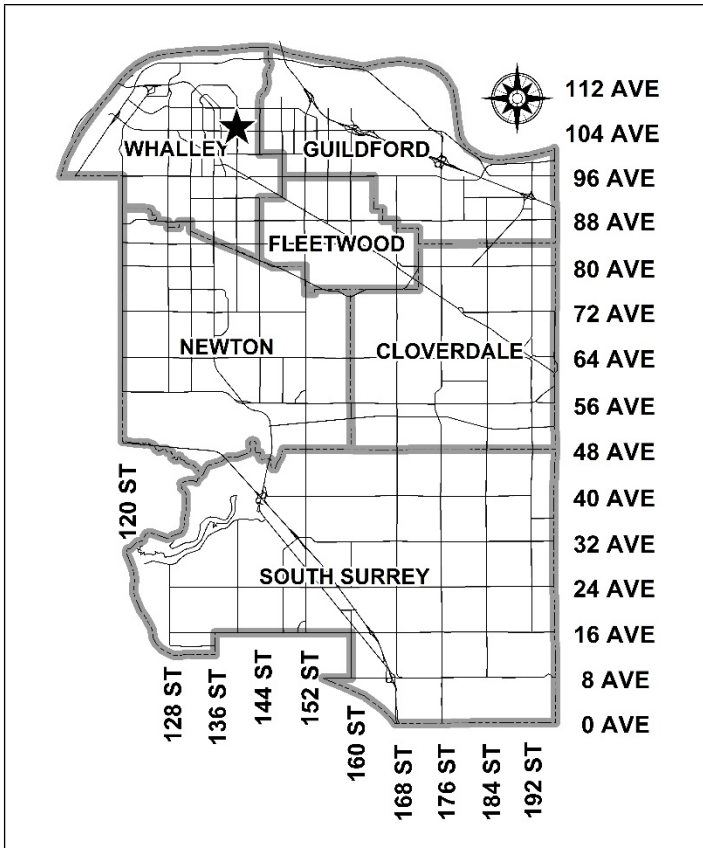


**City of Surrey**  
**ADDITIONAL PLANNING COMMENTS**

**Application No.:** 7918-0425-00

Planning Report Date: July 11, 2022



**PROPOSAL:**

- Amend CD By-law No. 20061 to adjust the required parking rate for a proposed 6-storey apartment building consisting of 108 dwelling units.

**LOCATION:**

10472 – 140 Street  
10482 – 140 Street  
10492 – 140 Street

**ZONING:**

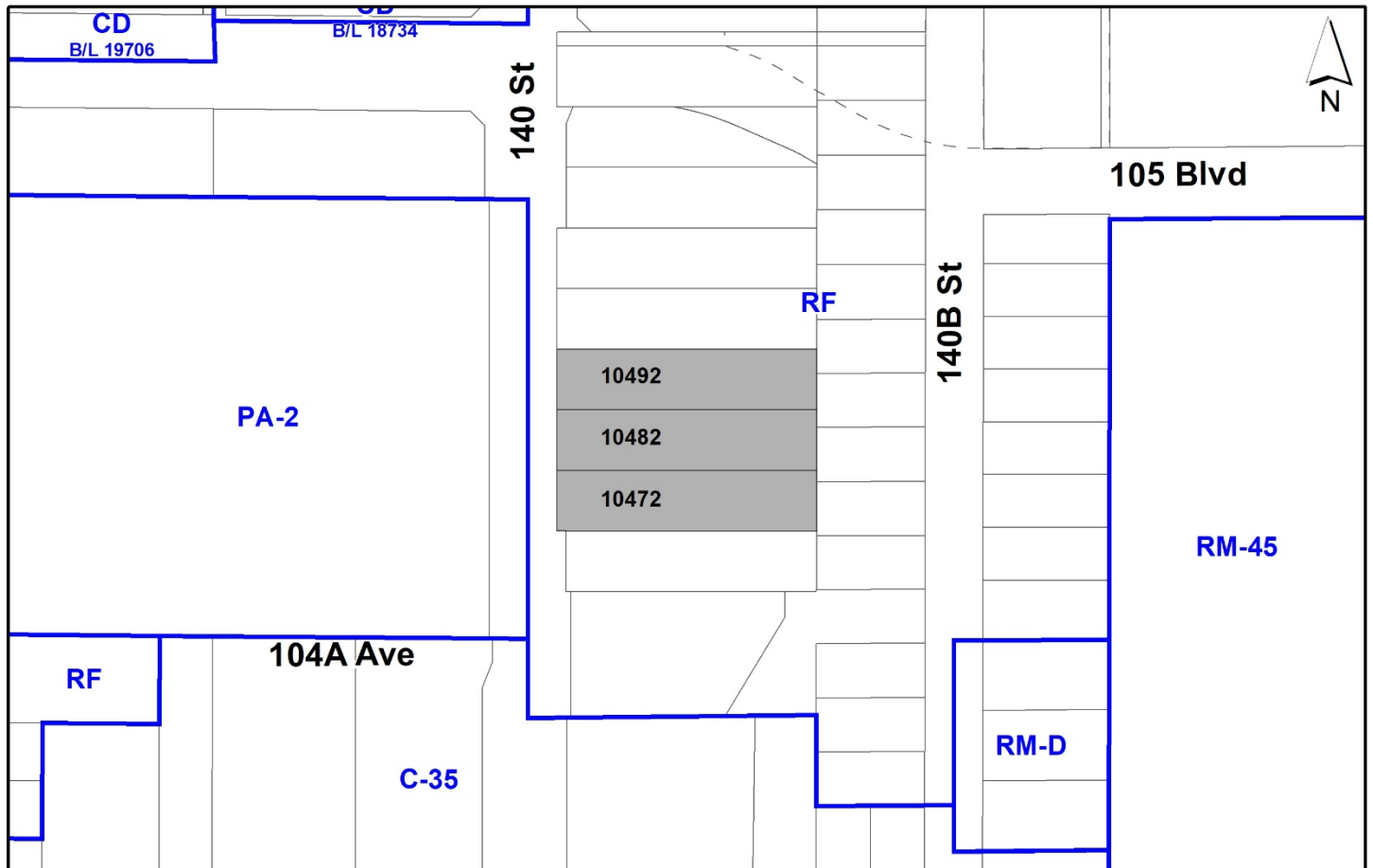
RF

**OCP DESIGNATION:**

Multiple Residential

**TCP DESIGNATION:**

Low to Mid-Rise Apartment up to 2.5 FAR and Parks and Natural Areas



## RECOMMENDATION SUMMARY

- Council rescind Third Reading of Rezoning Bylaw No. 20061 granted by Resolution R20-544 at the April 20, 2020, Regular Council – Public Hearing meeting.
- Council rescind Second Reading of Rezoning Bylaw No. 20061 granted by Resolution R20-403 at the April 6, 2020, Regular Council – Land Use meeting.
- Council amend Rezoning Bylaw No. 20061 by replacing Section H. Off-Street Parking and Loading/Unloading with the attached revised version (Appendix I).
- Council consider Second Reading of Rezoning Bylaw No. 20061, as amended, and set a date for Public Hearing.

## RATIONALE OF RECOMMENDATION

- The subject development application was considered by Council at the Regular Council – Land Use meeting on April 6, 2020, where First and Second readings were granted to the proposed Rezoning Bylaw (No. 20061). At the April 20, 2020, Regular Council – Public Hearing meeting, Council granted Third Reading to the Rezoning Bylaw (No. 20061) for the subject land development application (Res. R20-544).
- As noted in the Planning Report for Development Application No. 7918-0425-00, the City Centre ‘Multiple Unit Residential Dwelling Non-Ground Oriented’ parking rate is applicable to this site. The City Centre parking rate was supported for the site given the proximity to the City Centre Plan area (across 140 Street) and given the site is within 400 metres of the rapid bus transit corridor along 104 Avenue.
- Following the granting of Third Reading to the Rezoning Bylaw (No. 20061) staff determined there were errors in the Off-Street Parking section of the Rezoning Bylaw related to the calculation of parking stalls, and the permitted reductions in parking as per the Alternative Parking Provisions specified in Part 5 of the Zoning Bylaw.
- In addition, since Third Reading, the application has been modified. The applicant is proposing a decrease in the number of proposed car share stalls and an increase in the number of proposed units (from 106 to 108 units). No changes are proposed to the Form and Character of the proposed development previously supported by Council.
- With the provision of 1 electric car share space and the contribution of cash-in-lieu for the shortfall of parking spaces, the development will be compliant with the City Centre ‘Multiple Unit Residential Dwelling (Non – Ground Oriented)’ parking rates as noted in Part 5 of the Zoning Bylaw.

## RECOMMENDATION

The Planning & Development Department recommends that:

1. Council rescind Third Reading of Rezoning Bylaw No. 20061, granted by Resolution R20-544 at the April 20, 2020 Regular Council – Public Hearing meeting.
2. Council rescind Second Reading of Rezoning Bylaw No. 20061 granted by Resolution R20-403 at the April 6, 2020, Regular Council – Land Use meeting.
3. Council amend Rezoning Bylaw No. 20061 by replacing Section H. Off-Street Parking and Loading/Unloading with the attached revised version (Appendix I).
4. Council consider Second Reading of Bylaw No. 20061 (Appendix I), as amended, and set a date for Public Hearing.

## SITE CONTEXT & BACKGROUND

Direction	Existing Use	OCP/Secondary Plan Designation	Existing Zone
Subject Site	Vacant lots	Multiple Residential in the OCP Low to Mid Rise Apartment and Parks and Natural Areas in the Guildford Town Centre – 104 Ave Corridor Plan	RF
North:	Single Family Residential (with future redevelopment potential)	Multiple Residential in the OCP Low to Mid Rise Apartment and Parks and Natural Areas in the Guildford Town Centre – 104 Ave Corridor Plan	RF
East:	Vacant City-owned parkland (GIN, future greenway, future park expansion)	Multiple Residential in the OCP Parks and Natural Areas in the Guildford Town Centre – 104 Ave Corridor Plan	RF
South:	Single Family Residential and BC Hydro ROW	Multiple Residential in the OCP Low to Mid Rise Apartment and Parks and Natural Areas in the Guildford Town Centre – 104 Ave Corridor Plan	RF
West (Across 140 St):	Our Lady of Good Counsel School and Don Bosco Youth Centre	Multiple Residential in the OCP Mixed-Use 2.5 FAR in the City Centre Plan	PA-2

## Planning Considerations

- In order to permit the development of a 6-storey apartment building with 108 units, the applicant has requested the following:
  - Rezoning the western portion of the site from "Single Family Residential Zone (RF)" to "Comprehensive Development Zone (CD)" based on the "Multiple Residential 70 Zone (RM-70)";
  - Form and Character Development Permit; and
  - Sensitive Ecosystem (Streamside Area and Green Infrastructure Areas) Development Permit.
- The applicant proposes to subdivide the subject properties into two (2) lots. Proposed Lot A (west lot) will be 4,615 square metres (1.1 ac) in size and includes the proposed 6 storey apartment building and a portion of the undevelopable BC Hydro ROW. Proposed lot B (east lot) is the 1,066m<sup>2</sup> GIN corridor, which will not be rezoned and is voluntarily proposed to be conveyed to the City without compensation for GIN purposes.
- The proposed density (excluding road dedication) is 342 units per hectare, with a gross Floor Area Ratio (FAR) of 2.5. The proposed FAR complies with the 'Multiple Residential' OCP designation and 'Low to Mid Rise Apartment up to 2.5 FAR' in the Stage 1 Guilford Town Centre – 104 Avenue Plan, which permits density to be calculated on the gross site area excluding road dedication. With the proposed road dedication, the unit density is 415 units per hectare, with a net FAR of 3.1.
- The proposed use, density, and building massing are in accordance with the long-term vision for Guildford Town Centre and the 104 Avenue Corridor as described in the Stage 1 Plan.

	Proposed
<b>Lot Area</b>	
Gross Site Area:	5,667 m <sup>2</sup>
Road Dedication:	596 m <sup>2</sup>
Undevelopable Area:	2,512 m <sup>2</sup> (BC Hydro ROW lands)
Net Site Area:	2,559 m <sup>2</sup>
<b>Number of Lots:</b>	1
<b>Building Height:</b>	19.5 metres
<b>Unit Density:</b>	415 uph (net)
<b>Floor Area Ratio (FAR):</b>	3.1 (net)
<b>Floor Area</b>	
Residential:	7,902 m <sup>2</sup>
Amenity Space	323 m <sup>2</sup>
<b>Residential Units:</b>	
Studio:	5
1-Bedroom:	78
2-Bedroom:	18
3-Bedroom:	7
Total:	108



- The subject development application was considered by Council at the Regular Council – Land Use meeting on April 6, 2020, where First and Second readings were granted to the proposed Rezoning Bylaw (No. 20061). At the April 20, 2020, Regular Council – Public Hearing meeting, Council granted Third Reading to the Rezoning Bylaw for the subject land development application.
- As noted in the Initial Planning Report for Development Application No. 7918-0425-00, the City Centre ‘Multiple Unit Residential Dwelling Non-Ground Oriented’ parking rate is applicable to this site. The City Centre parking rate was supported for the site given the proximity to the City Centre Plan area (across 140 Street) and given the site is within 400 metres of the rapid bus transit corridor along 104 Avenue.
- Following the granting of Third Reading to the Rezoning Bylaw (No. 20061) staff determined there were errors in the Off-Street Parking section of the Bylaw, related to the calculation of parking stalls, and the permitted reductions in parking as per the Alternative Parking Provisions specified in Part 5 of the Zoning Bylaw.
- Since Third Reading, there has been a decrease in the number of proposed car share stalls, from three (3) to one (1). This reduction is per the advice of Transportation staff. The reduction in car share stalls does create a slight shortfall of on-site parking, however, the applicant has agreed to pay cash-in-lieu for the shortfall of stalls, in accordance with the Alternate Parking Provisions in Part 5 of the Zoning Bylaw.
- Since Third Reading, there has been a change to the interior floor plans and a resulting increase in the number of proposed units from 106 to 108 units. The addition of two (2) units slightly increases the required amount of off-street parking spaces as per Part 5 of the Zoning Bylaw.
- There is no change to the Form and Character of the site or proposed development previously supported by Council as result of this car share reduction or the increase in number of units.
- For 108 proposed units, 97 residential parking stalls and 11 visitor parking stalls are required, for a total of 108 stalls. The applicant has proposed 83 residential parking stalls, 11 visitor parking stalls, and 1 electric car share stall (which is equivalent to a total of 6 stalls, as per the Alternative Parking Provision specified in Part 5 of the Zoning Bylaw). In total, 95 parking stalls are provided on the site, equivalent to 100 parking stalls with inclusion of the 1 electric car share stall.
- The result is a shortfall of eight (8) parking stalls on the site. The applicant will be required to pay cash-in-lieu for the shortfall of 8 parking stalls in accordance with Part 5 Alternative Parking Provision in the Zoning Bylaw.
- With the CIL contribution for the shortfall of eight (8) parking stalls, the site will be fully compliant with the City Centre ‘Multiple Unit Residential Dwelling (Non – Ground Oriented)’ parking rates as noted in Part 5 of the Zoning Bylaw.
- CD Bylaw No. 20061 has been amended to incorporate the site-specific parking rates, permitted reductions in parking, and the Alternative Parking Provisions specified in Part 5 of the Zoning Bylaw. Council is requested to consider introducing the amended CD Bylaw No. 20061 and schedule a date for Public Hearing of this amended Bylaw.

**Referrals**

Engineering:                      The Engineering Department has no objection to the CD Bylaw Amendment.

**PUBLIC ENGAGEMENT**

- An additional Public Hearing is required prior to Council consideration for Third Reading of CD Bylaw No. 20061, as amended.

**INFORMATION ATTACHED TO THIS REPORT**

The following information is attached to this Report:

Appendix I.              Amended CD Bylaw No. 20061  
Appendix II.              Planning & Development Report No. 7918-0425-00

*approved by Ron Gill*

Jeff Arason  
Acting General Manager  
Planning and Development

SC/cm

CITY OF SURREY

BYLAW NO. 20061

A bylaw to amend "Surrey Zoning By-law, 1993, No. 12000", as amended  
.....

THE COUNCIL of the City of Surrey ENACTS AS FOLLOWS:

- 1. Surrey Zoning By-law, 1993, No. 12000, as amended, is hereby further amended, pursuant to the provisions of Section 479 of the Local Government Act, R.S.B.C. 2015 c. 1, as amended by changing the classification of the following parcels of land, presently shown upon the maps designated as the Zoning Maps and marked as Schedule "A" of Surrey Zoning By-law, 1993, No. 12000, as amended as follows:

FROM: SINGLE FAMILY RESIDENTIAL ZONE (RF)

TO: COMPREHENSIVE DEVELOPMENT ZONE (CD)

Portion of Parcel Identifiers: 009-733-426, 003-210-073, 009-733-451

Portion of Lots 13, 14, 15 Section 24 Block 5 North Range 2 West New Westminster District Plan 12636 as shown on the Survey Plan attached hereto and forming part of this Bylaw as Schedule A, certified correct by Sean Costello, B.C.L.S. on the 10th day of March, 2020, containing 4615.2 square metres, called Block A.

(Portion of 10472, 10482 & 10492 – 140 Street)

(hereinafter referred to as the "*Lands*")

- 2. The following regulations shall apply to the *Lands*:

**A. Intent**

This Comprehensive Development Zone is intended to accommodate and regulate the development of medium *density*, medium-rise, *multiple unit residential buildings*, *ground-oriented multiple unit residential buildings*, and related *amenity spaces*, which are to be developed in accordance with a *comprehensive design*.

**B. Permitted Uses**

The *Lands* and *structures* shall be used for *Multiple Unit Residential Buildings* and *Ground-Oriented Multiple Unit Residential Buildings*.

**C. Lot Area**

Not applicable to this Zone.

**D. Density**

For the purpose of *building* construction:

1. The maximum *density* shall not exceed a *floor area ratio* of 0.1 or *building area* of 300 square metres [3, 230 sq. ft], whichever is smaller. The maximum *density* may be increased to that prescribed in Sections D.2 and D.3 of this Zone if amenity contributions (specifically affordable housing, capital projects, including those within centre specific areas, police, fire, libraries, parks, and where applicable, underground utilities) are provided in accordance with Schedule G, Sections A, B, C, D and E of Surrey Zoning By-law, 1993, No. 12000, as amended.
2. (a) The *floor area ratio* shall not exceed 3.1; and  
 (b) The *unit density* shall not exceed 415 *dwelling units* per hectare [168 u.p.a.].
3. The indoor *amenity space* required in Sub-section J.1(b) is excluded from the calculation of *floor area ratio*.

**E. Lot Coverage**

The *lot coverage* shall not exceed 57%.

**F. Yards and Setbacks**

1. *Buildings and structures* shall be sited in accordance with the following minimum *setbacks*:

<b>Use</b>	<b>Setback</b>	<i>Front Yard</i>	<i>Rear Yard</i>	<i>North Side Yard</i>	<i>South Side Yard</i>
<i>Principal Buildings, Accessory Buildings, and Structures</i>		4.5 m [15 ft.]	22.0 m [72 ft.]	4.0 m [13 ft.]	3.0 m [10 ft.]

Measurements to be determined as per Part 1 Definitions of "Surrey Zoning By-law, 1993, No. 12000", as amended.

2. Notwithstanding Section F.1 of this Zone, patios and covered patio columns may encroach up to 2.0 metres (6 ft.) into the required *setbacks*.

## G. Height of Buildings

Measurements to be determined as per Part 1 Definitions of Surrey Zoning By-law, 1993, No. 12000, as amended.

1. Principal buildings: The *building height* shall not exceed 20 metres [65 ft.].
2. Accessory buildings and structures: The *building height* shall not exceed 4.5 metres [15 ft.].

## H. Off-Street Parking

1. Resident and visitor *parking spaces* shall be provided in accordance with Part 5 Off-Street Parking and Loading/Unloading of "Surrey Zoning By-law, 1993, No. 12000", as amended.

~~2. Sixty five percent (65%) of the required resident *parking spaces* shall be provided as *underground parking* or as *parking within building envelope*.~~

~~3. Notwithstanding Sub-section A.3(d) of Part 5 Off-Street Parking and Loading/Unloading of "Surrey Zoning By-law, 1993, No. 12000", as amended, the *underground parking* may be located up to 0 m [0 ft.] from the *front lot line* or *lot line along a flanking street*.~~

~~2. Notwithstanding Table D.1 of Part 5 Off-Street Parking and Loading/Unloading of "Surrey Zoning By-law, 1993, No. 12000", as amended, resident *parking spaces* shall be provided at a rate of 0.9 *parking space per dwelling unit* and residential visitor *parking spaces* shall be provided at a rate of 0.1 *parking space per dwelling unit*.~~

~~3. Notwithstanding Section C, sub-section 1 of Part 5 Off-Street Parking and Loading/Unloading of "Surrey Zoning By-law, 1993, No. 12000", as amended, alternative parking provision shall apply.~~

~~4. Sixty five percent (65%) of the required resident *parking spaces* shall be provided as *parking-underground*.~~

~~5. Notwithstanding Sub-section A.3(d) of Part 5 Off-Street Parking and Loading/Unloading of "Surrey Zoning By-law, 1993, No. 12000", as amended, the *parking-underground* may be located up to 0 m [0 ft.] from the *front lot line* or *lot line along a flanking street*.~~

~~6. *Tandem parking* is not permitted~~

~~7. *Parking within the required setbacks* is not permitted~~

~~8. *Parking* is not permitted in the front of the main entrance of a *multiple unit residential building*, except for the purpose of short-term drop-off or pick-up.~~

**I. Landscaping**

1. All developed portions of the *lot* not covered by *buildings, structures* or paved areas shall be landscaped including the retention of mature trees. This *landscaping* shall be maintained.
2. Along the developed sides of the *lot* which abut a *highway*, a continuous *landscaping* strip of not less than 1.5 metres [5 ft.] in width shall be provided within the *lot*.
3. The boulevard areas of *highways* abutting a *lot* shall be seeded or sodded with grass on the side of the *highway* abutting the *lot*, except at *driveways*.
4. Garbage containers and *passive recycling containers* shall be located within the *underground parking* or within a *building*.

**J. Special Regulations**

1. *Amenity space*, subject to Section B.1, Part 4, General Provisions, of Surrey Zoning By-law, 1993, No. 12000, as amended, shall be provided on the *lot* as follows:
  - (a) Outdoor *amenity space*, in the amount of 3.0 square metres [32 sq. ft.] per *dwelling unit*;
  - (b) Outdoor *amenity space* shall not be located within the required *front yard setback*; and
  - (b) Indoor *amenity space*, in the amount of 3.0 square metres [32 sq. ft.] per *dwelling unit*.
2. *Balconies* are required for all *dwelling units* which are not *ground-oriented* and shall be a minimum of 5% of the *dwelling unit* size or 4.6 square metres [50 sq. ft.] per *dwelling unit*, whichever is greater.

**K. Subdivision**

1. *Lots* created through subdivision in this Zone shall conform to the following minimum standards:

<b>Lot Size</b>	<b>Lot Width</b>	<b>Lot Depth</b>
2,400 sq. m. [0.6 acre]	40 metres [131 ft.]	60 metres [197 ft.]

Dimensions shall be measured in accordance with Section E.21 of Part 4 General Provisions of "Surrey Zoning By-law, 1993, No. 12000", as amended.

## L. Other Regulations

In addition to all statutes, bylaws, orders, regulations or agreements, the following are applicable, however, in the event that there is a conflict with the provisions in this Comprehensive Development Zone and other provisions in "Surrey Zoning By-law, 1993, No. 12000", as amended, the provisions in this Comprehensive Development Zone shall take precedence:

1. Definitions are as set out in Part 1 Definitions of "Surrey Zoning By-law, 1993, No. 12000", as amended.
  2. Prior to any use, the *Lands* must be serviced as set out in Part 2 Uses Limited, of "Surrey Zoning By-law, 1993, No. 12000", as amended and in accordance with the servicing requirements for the RM-70 Zone as set forth in the "Surrey Subdivision and Development By-law, 1986, No. 8830", as amended.
  3. General provisions are as set out in Part 4 General Provisions of "Surrey Zoning By-law, 1993, No. 12000", as amended.
  4. Additional off-street parking requirements are as set out in Part 5 Off-Street Parking and Loading/Unloading of "Surrey Zoning By-law, 1993, No. 12000", as amended.
  5. Sign regulations are as set out in "Surrey Sign By-law, 1999, No. 13656", as amended.
  6. Special *building setbacks* are as set out in Part 7 Special Building Setbacks, of "Surrey Zoning By-law, 1993, No. 12000", as amended.
  7. *Building* permits shall be subject to the "Surrey Building Bylaw, 2012, No. 17850", as amended.
  8. *Building* permits shall be subject to "Surrey Development Cost Charge Bylaw, 2018, No. 19478", as may be amended or replaced from time to time, and the development cost charges shall be based on the RM-70 Zone.
  9. Tree regulations are set out in "Surrey Tree Protection Bylaw, 2006, No. 16100", as amended.
  10. Development permits may be required in accordance with the "Surrey *Official Community Plan* By-law, 2013, No. 18020", as amended.
3. This Bylaw shall be cited for all purposes as "Surrey Zoning Bylaw, 1993, No. 12000, Amendment Bylaw, 2020, No. 20061".

PASSED FIRST READING on the 6th day of April, 2020.

PASSED SECOND READING on the 6th day of April, 2020.

PUBLIC HEARING HELD thereon on the 20th day of April, 2020.

PASSED THIRD READING on the 20th day of April, 2020.

RECONSIDERED AND FINALLY ADOPTED, signed by the Mayor and Clerk, and sealed with the Corporate Seal on the \_\_\_\_\_ th day of \_\_\_\_\_, 20 .

\_\_\_\_\_ MAYOR

\_\_\_\_\_ CLERK

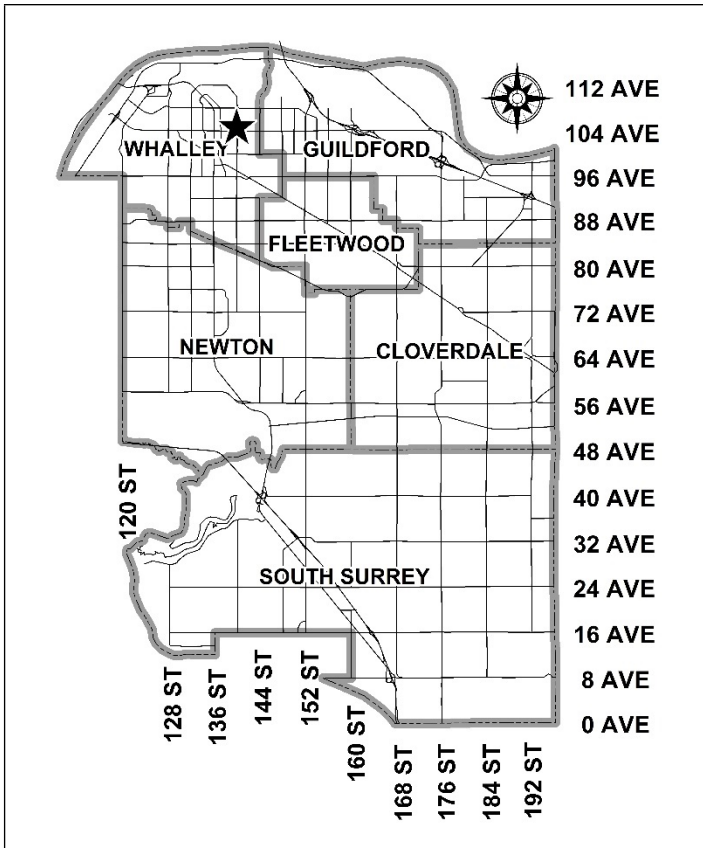




City of Surrey  
**PLANNING & DEVELOPMENT REPORT**

Application No.: 7918-0425-00

Planning Report Date: April 6, 2020



**PROPOSAL:**

- **Rezoning** a portion from RF to CD (based on RM-70)
- **Development Permit**
- **Sensitive Ecosystem Development Permit**

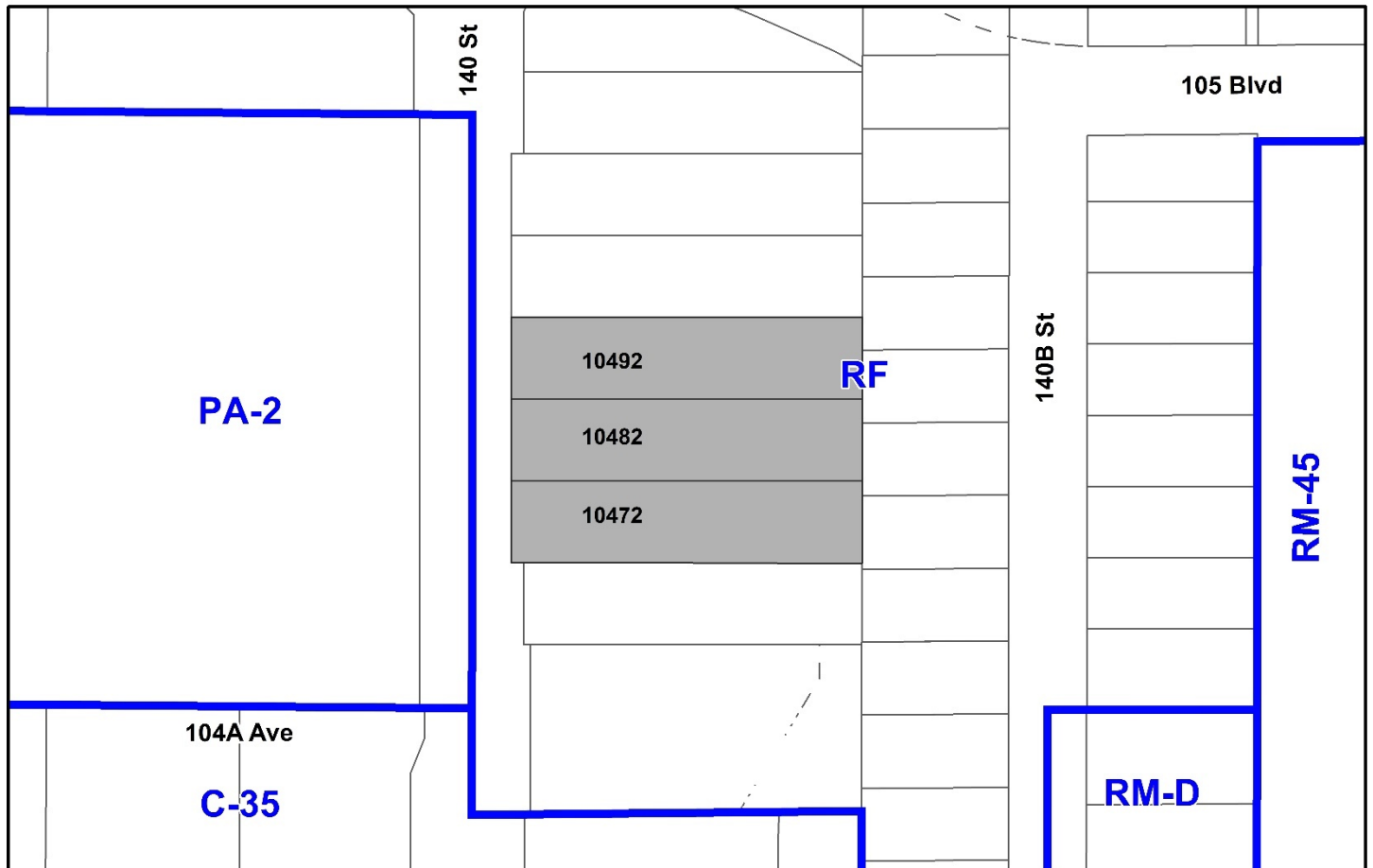
to permit the development of a 6-storey apartment building consisting of 106 dwelling units, and conveyance of an open space lot to the City.

**LOCATION:** 10472, 10482 and 10492 - 140 Street

**ZONING:** RF

**OCP DESIGNATION:** Multiple Residential

**TCP DESIGNATION:** Low to Mid-Rise Apartment up to 2.5 FAR



## RECOMMENDATION SUMMARY

- Bylaw Introduction and set date for Public Hearing for Rezoning.
- Approval to draft Development Permit for Form and Character and Sensitive Ecosystems.

## DEVIATION FROM PLANS, POLICIES OR REGULATIONS

- None.

## RATIONALE OF RECOMMENDATION

- The proposal complies with the Multiple Residential designation in the Official Community Plan (OCP).
- Stage 1 of the Guildford Town Centre – 104 Avenue Corridor Plan (TCP) was approved by Council on July 8, 2019. The subject site is designated "Low to Mid-Rise up to 2.5 FAR" in the TCP. The proposed development is consistent with this designation in terms of built form, density, and use.
- The proposed development is within a Frequent Transit Development Permit Area (FTDA) and conforms to the goal of achieving higher density development near a transit corridor (within 400 metres of the rapid transit corridor along 104 Avenue).
- The proposed building achieves an attractive architectural built form and an urban, pedestrian streetscape in accordance with a town centre location and the Form and Character Development Permit design guidelines in the OCP.
- The proposal complies with the City's Biodiversity Conservation Strategy Green Infrastructure Network (GIN) objectives. The applicant will convey the 1,066 m<sup>2</sup> GIN corridor on site to the City to achieve an ultimate 50-metre wide corridor, in accordance with the Stage 1 Guildford Town Centre - 104 Avenue Corridor Plan.
- In accordance with the Interim Implementation Strategy of the Stage 1 TCP, development applications in the plan area that comply with the Stage 1 Plan (such as the subject application) may proceed to Council for consideration and initial approvals (Third Reading), but will not proceed to final approval until the Stage 2 component of the TCP is complete and approved by Council.

## RECOMMENDATION

The Planning & Development Department recommends that:

1. A Bylaw be introduced to rezone the portion of the subject site shown as Block A on the survey plan attached in Appendix I from "Single Family Residential Zone (RF)" to "Comprehensive Development Zone (CD)" and a date be set for Public Hearing.
2. Council authorize staff to draft Development Permit No. 7918-0425-00 generally in accordance with the attached drawings (Appendix I) and the finalized Ecosystem Development Plan (Appendix VII).
3. Council instruct staff to resolve the following issues prior to final adoption:
  - (a) ensure that all engineering requirements and issues including restrictive covenants, dedications, and rights-of-way where necessary, are addressed to the satisfaction of the General Manager, Engineering;
  - (b) submission of a subdivision layout to the satisfaction of the Approving Officer;
  - (c) final approval from BC Hydro;
  - (d) resolution of all urban design issues to the satisfaction of the Planning and Development Department;
  - (e) submission of a finalized landscaping plan and landscaping cost estimate to the specifications and satisfaction of the Planning and Development Department;
  - (f) submission of a finalized tree survey and a statement regarding tree preservation to the satisfaction of the City Landscape Architect;
  - (g) submission of a finalized Ecosystem Development Plan and Impact Mitigation Plan to the satisfaction of City staff;
  - (h) conveyance of the GIN corridor (16.9 metres wide) to the City, for biodiversity conversation purposes;
  - (i) the applicant satisfy the Tier 1 Capital Project Community Amenity Contributions (CAC) requirements to the satisfaction of the Planning & Development Department;
  - (j) registration of a Section 219 Restrictive Covenant for installation and maintenance of the landscape buffer adjacent the GIN corridor;
  - (k) registration of a statutory right-of-way through the site granting the City access to the conveyed GIN protection area for maintenance purposes;
  - (l) submission of all necessary agreements/easements/financial securities for the proposed car share program to the satisfaction of the General Manager, Engineering;

- (m) registration of a Section 219 Restrictive Covenant to adequately address the City's needs with respect to public art, to the satisfaction of the General Manager Parks, Recreation and Culture;
- (n) registration of a Section 219 Restrictive Covenant to adequately address the City's needs with respect to the Affordable Housing Strategy, to the satisfaction of the General Manager, Planning and Development Department; and
- (o) Council approval of Stage 2 of the Guildford Town Centre – 104 Avenue Corridor Plan (TCP) and corresponding Official Community Plan (OCP) Amendments to support the densities envisioned in the TCP.

### SITE CONTEXT & BACKGROUND

Direction	Existing Use	OCP/NCP or CCP Designation	Existing Zone
Subject Site	Vacant	Multiple Residential/Low to Mid Rise Apartment and Parks and Natural Areas.	RF
North:	Single Family Residential (with future redevelopment potential)	Multiple Residential/Low to Mid Rise Apartment and Parks and Natural Areas.	RF
East:	Vacant City-owned parkland (GIN, future greenway, future park expansion)	Multiple Residential/Parks and Natural Areas	RF
South:	Single Family Residential and BC Hydro ROW	Multiple Residential/Low to Mid Rise Apartment and Parks and Natural Areas.	RF
West (Across 140 St):	Our Lady of Good Counsel School and Don Bosco Youth Centre	Multiple Residential/Mixed-Use 2.5 FAR	PA-2

### Context & Background

- The subject site consists of three properties, located at 10472, 10482 and 10492 – 140 Street in Whalley, just north of 104 Avenue, and has a gross site area of 5,667 square metres (1.4 ac).

- The subject site is designated 'Multiple Residential' in the Official Community Plan (OCP) and is currently zoned "Single Family Residential Zone (RF). The site is located within the Frequent Transit Development Area (FTDA) along 104 Avenue, between City Centre and Guildford Town Centre.
- Stage 1 of the Guildford Town Centre – 104 Avenue Corridor Plan was approved by Council on July 8, 2019, which outlined the expected land use and densities for the Guildford Town Centre/104 Avenue Corridor area. The subject properties are designated 'Low to Mid Rise Apartment up to 2.5 FAR' in the Stage 1 Plan.
- The subject site forms part of the western edge of the TCP, which is envisioned as a medium density residential area consisting of apartments and townhouses, connected via Green Connector networks that link plazas, parks, and natural areas together.
- The eastern portion of the development site is encumbered by a 2,512 square metre BC Hydro ROW, which is considered 'undevelopable utility area' as per the OCP, and which is not included in gross site area or gross site density calculations. Excluding the BC Hydro ROW, the remaining gross site area of the site is 3,155 square metres (0.8 ac).
- A 50 metre wide Green Infrastructure Network (GIN) corridor overlaps the east portion of the site by 10 metres (within the BC Hydro ROW) and extends to the east of the development site for another 40 metres. The GIN corridor east of the development site is City-owned Parkland, and forms part of the ultimate 50-metre-wide GIN corridor envisioned in the Stage 1 TCP.
- In accordance with the Interim Implementation Strategy of the Stage 1 TCP, development applications for properties in the plan area that comply with the Stage 1 Plan (such as the subject application) may proceed to Council for consideration and initial approvals (Third Reading) but will not proceed to final approval until the Stage 2 component of the TCP is complete and approved by Council.

## DEVELOPMENT PROPOSAL

### Planning Considerations

- The applicant is proposing a 6 storey apartment building containing 106 dwelling units. The proposal requires the following:
  - Rezoning the western portion of the site from "Single Family Residential Zone (RF)" to "Comprehensive Development Zone (CD)" based on the "Multiple Residential 70 Zone (RM-70)";
  - Form and Character Development Permit; and
  - Sensitive Ecosystem (Streamside Area and Green Infrastructure Areas) Development Permit.
- The applicant proposes to subdivide the subject properties into two (2) lots. Proposed Lot A (west lot) will be 4,615 square metres (1.1 ac) in size and includes the proposed 6 storey apartment building and a portion of the undevelopable BC Hydro ROW. Proposed lot B (east lot) is the 1,066m<sup>2</sup> GIN corridor, which will not be rezoned and is voluntarily proposed to be conveyed to the City without compensation for GIN purposes.

- The proposed density (excluding road dedication) is 342 units per hectare, with a Floor Area Ratio (FAR) of 2.5. The proposed FAR complies with the 'Multiple Residential' OCP designation and 'Low to Mid Rise Apartment up to 2.5 FAR' in the Stage 1 Guilford Town Centre – 104 Avenue Plan, which permits density to be calculated excluding road dedication. With the proposed road dedication, the unit density is 415 units per hectare, with a FAR of 3.1.
- The proposed use, density, and building massing are in accordance with the long-term vision for Guildford Town Centre and the 104 Avenue Corridor as described in the Stage 1 Plan.
- In order to accommodate the proposed density and other site-specific aspects of the project, the applicant has applied to rezone the site to a CD Zone.

<b>Proposed</b>	
<b>Lot Area</b>	
Gross Site Area:	5,667 m <sup>2</sup>
Road Dedication:	596 m <sup>2</sup>
Undevelopable Area:	2,512 m <sup>2</sup> (BC Hydro ROW lands)
Net Site Area:	2,559 m <sup>2</sup>
<b>Number of Lots:</b>	1
<b>Building Height:</b>	19.5 metres
<b>Unit Density:</b>	415 uph (net)
<b>Floor Area Ratio (FAR):</b>	3.1 (net)
<b>Floor Area</b>	
Residential:	7,902 m <sup>2</sup>
Amenity Space	323 m <sup>2</sup>
<b>Residential Units:</b>	
Studio:	5
1-Bedroom:	78
2-Bedroom:	14
3-Bedroom:	7
Townhouse (2 bedroom):	2
Total:	106

## Referrals

- Engineering:** The Engineering Department has no objection to the project subject to the completion of Engineering servicing requirements as outlined in Appendix II.
- BC Hydro:** BC Hydro has provided support in principle for the proposed development within their ROW. A formal review of the proposed development and site layout is underway; final comments from BC Hydro are forthcoming.

School District:	<p>The School District has provided the following projections for the number of students from this development:</p> <p>6 Elementary students at Mary Jane Shannon Elementary School 5 Secondary students at Guilford Park Secondary School</p> <p>(Appendix III)</p> <p>The applicant has advised that the units are expected to be occupied by June 2022, contingent on adoption of the Stage 2 TCP.</p>
Parks, Recreation & Culture:	<p>Parks will accept the voluntary conveyance, without compensation, 1,066 m<sup>2</sup> of the site, for conservation of the GIN corridor under the maximum safeguarding provision of the DP<sub>3</sub> – Sensitive Ecosystem Development Permit Area.</p> <p>The parkland is to be conveyed as a numbered lot. In order to establish legal frontage for the conveyed parkland, the park lot will need to be consolidated with a neighbouring park lot to the east on the subdivision plan.</p>
Surrey Fire Department:	<p>The submitted drawings meet Fire Department Operations requirements. No objections.</p>
Advisory Design Panel:	<p>The proposal was considered at the ADP meeting on October 24, 2019 and was conditionally supported. The applicant has resolved all the outstanding items from the ADP review as outlined in the Development Permit section of this report. Any additional revisions will be completed prior to Council's consideration of Final Adoption of the rezoning bylaw, to the satisfaction of the Planning and Development Department.</p>

### Transportation Considerations

- The subject site is proposed to be accessed via a proposed lane from 140<sup>th</sup> Street, which will be constructed to City standards (6 metres wide). The applicant will be required to dedicate 4.942 metres of property along the 140<sup>th</sup> Street frontage, for an ultimate 30 metre-wide ROW along 140<sup>th</sup> Street.
- A portion of the required parking will be provided via a surface parking lot, located within the BC Hydro ROW between the proposed apartment building and the GIN corridor. BC Hydro has provided preliminary approval of the surface parking lot within their ROW.
- One (1) level of underground parking is also proposed. Both the surface and underground parking areas will be accessed via the lane from 140<sup>th</sup> Street. 70 parking spaces will be provided underground, as well as bicycle storage, a bicycle workshop, dog wash station, and a garbage and recycling room. As per the direction of the ADP, the applicant has successfully relocated some of the at-grade parking underground to enhance pedestrian and vehicular connectivity and movement around the site.



- The underground parking could provide underground access for the neighbouring site to the south, should these lands redevelop in the future. An underground access easement is not being pursued at this time however, as the development potential of the lots to the south remains unknown given the significant encumbrances from the BC Hydro ROW, and the properties' partial 'Parks and Natural Areas' designation in the Stage 1 TCP. Should higher density development to the south be pursued in the future, Staff have determined laneway access from 140 Street, similar to what is being proposed for the subject development, may be appropriate.
- A total of 94 parking stalls are provided on the site; 80 spaces for residents and 14 for visitors, which meets the requirements of the Zoning By-law with the provision of car share. Three (3) of the visitor stalls are car share stalls, provided by Sumo Electric Car Share. All the visitor parking spaces are provided above ground.

### **Parkland and Natural Area Considerations**

- The GIN corridor adjacent to the subject lands to the east, is City-owned, and contains the Quibble Creek Greenway, a pedestrian pathway which connects Guildford's green spaces.
- The GIN corridor on site (1,066 m<sup>2</sup>), within the Hydro ROW, and the adjacent City-owned GIN corridor to the east, form part of the ultimate 50-metre-wide GIN corridor as per the Biodiversity Conservation Strategy and the Guildford Town Centre – 104 Avenue Plan.
- The applicant has offered the maximum safeguarding option for the protection of the GIN sensitive ecosystems on site. The 1,066 m<sup>2</sup> GIN corridor will be conveyed as parkland to the City. The property owner will not be responsible for any additional ecological restoration or maintenance following registration of the Subdivision Plan. More information can be found in the Sensitive Ecosystems Development Permit section below.
- A 2-metre-wide landscape buffer is proposed on the development site, between the proposed apartment building and the GIN corridor to be conveyed. Maintenance of the landscape buffer will be responsibility of the Owner and a Restrictive Covenant will be registered on title in this regard.

### **Sustainability Considerations**

- The applicant has met all of the typical sustainable development criteria, as indicated in the Sustainable Development Checklist. This project will be required to meet a minimum of Step 2 of the BC Energy step Code, and possibly Step 3 based upon the date of Building Permit issuance.
- In addition, the applicant has highlighted the following additional sustainable features:
  - Location in a FTDA and with proximity to Surrey Central Skytrain station
  - Provision of bicycle storage, car share parking stalls and electric vehicle charging stations
  - The project enhances site ecology on and off site through conveyance of the GIN corridor for restoration and conservation purposes and urban agriculture/garden beds
  - Design of the site incorporates Crime Prevention Through Environmental Design (CPTED) principles

- Low Impact Development Standards such as water efficient landscaping, permeable surfaces
- Apartment building includes sustainable development features such as energy efficient appliances in units and thermally-broken windows

### **School Capacity Considerations**

- The School District has advised that Kwantlen Park Secondary School is currently operating at 122% and is projected to grow by 500 students over the next 10 years. As per the District's Five Year 2020/2021 Capital Plan, the District is requesting a 300 capacity addition at Kwantlen Park and another 450 addition at Guildford Park to manage the secondary seat shortfall in Guildford/City Centre. Both projects are targeted to open September 2025.
- Final Adoption will not be considered for this project until the Stage 2 GTC – 104 Avenue Plan is endorsed by Council. The construction of the proposed development aligns with the capacity additions at the above-noted Secondary Schools.

## **POLICY & BYLAW CONSIDERATIONS**

### **Regional Growth Strategy**

- The subject site is located within and complies with the 'General Urban' Land Use Designation of Metro Vancouver's Regional Growth Strategy.

### **Official Community Plan**

#### Land Use Designation

- The subject site is designated 'Multiple Residential' in the OCP, which is intended to support higher-density residential development in neighbourhoods typically located adjacent to Commercial, Town Centre, Central Business District Designations or along Frequent Transit Corridors to support the vitality of these areas.

*The proposed development complies with the Multiple Residential OCP designation.*

#### Themes/Objectives

- The proposed development complies with the following themes and policies in the OCP:
  - A1.3 – Accommodate urban land development according to the following order of growth management priorities:
    - d. – Comprehensively-planned new neighbourhoods within approved Secondary Plan areas.

*The proposed development is located within a Stage 1 Secondary Plan Area that was endorsed by Council in July 2019.*

- A2.1 – Direct residential and mixed-use development into Surrey's City Centre, Town Centres, Urban Centres, LRT Corridor Planning Areas along Frequent Transit

Corridors and Secondary Plan areas, at densities to encourage commercial development and transit service expansion.

*The proposed development is within a Secondary Plan area, along a Frequent Transit Corridor, and is at an appropriate density to encourage transit expansion.*

- B4.2 – Direct higher residential densities to locations within walking distance of neighbourhood centres, along main roads, near transit routes and adjacent the major parks or civic amenities.

*The proposed development is within 150 metres of 104 Avenue, a major arterial road with several transit routes, and is adjacent to park infrastructure, including the Quibble Creek Greenway, which provides pedestrian access to Hawthorne Park and other green spaces in Guilford.*

- D1.2 - Establish plans, strategies and policies to protect, enhance and manage the Ecosystem Management Strategy Green Infrastructure Network (GIN)

*The applicant will convey 16.9 metres width of GIN to the City, which will be consolidated with the existing City-owned GIN corridor to the east of the subject lands to form the ultimate 50 metre wide GIN corridor. The proposal follows the direction of the OCP, which encourages the City to obtain land for ecosystem conservation purposes.*

- D1.5 – Facilitate wildlife movement and habitat protection by conserving, enhancing and promoting wildlife corridors through parks and by connecting hubs, open spaces and riparian areas.

*Through the conveyance of the GIN corridor (parkland) to the City, the proposal enables greater connection of hubs, open spaces and riparian areas and helps establish the Green Connector network to link parks and natural areas together.*

## Secondary Plans

### Land Use Designation

- The subject site is currently designated as ‘Low to Mid-Rise Apartment up to 2.5 FAR’ in the Stage 1 Guilford Town Centre – 104 Avenue Plan.

*The proposed development complies with the Stage 1 Guildford Town Centre designation.*

### Themes/Objectives

- The proposed development complies with the additional following themes and policies in the Guildford Town Centre – 104 Avenue Plan:
  - Environmental Areas – Lands within the BC Hydro Transmission Right-of-Way are considered a GIN Corridor. These are high-value habitat areas that require protection. The Parks and Open Space Concept proposes additions to Hawthorne Park, as well as the protection of the GIN Corridor through the acquisition of privately held lands.

*The proposal is in keeping with the Environmental Areas theme of the Stage 1 TCP, as the privately-held GIN Corridor within the BC Hydro ROW will be conveyed to the City for protection and provide a future connection to Hawthorne Park.*

- Parks and Environmental Areas – the land use concept for the Stage 1 TCP includes the Parks and Natural Areas designation which identifies areas for active and passive park use and environmental protection.

*The proposal is in keeping with the Parks and Environmental Areas theme of the Stage 1 TCP, as the GIN corridor on site will be conveyed and consolidated with neighbouring parkland, in keeping with the planned vision for these lands.*

### CD Bylaw

- The applicant proposes to rezone the subject site from "Single Family Residential Zone (RF)" to "Comprehensive Development Zone (CD)".
- The applicant is proposing a "Comprehensive Development Zone (CD)" to accommodate a proposed 6 storey apartment building on the subject site. The proposed CD Bylaw identifies the uses, densities and setbacks proposed. The CD Bylaw will have provisions based on the "Multiple Residential 70 Zone (RM-70)".
- A comparison of the density, lot coverage, setbacks, building height and permitted uses in the RM-70 Zone, and the proposed CD Bylaw is illustrated in the following table:

Zoning	RM-70 Zone (Part 24)	Proposed CD Zone
<b>Unit Density:</b>	N/A	168 UPA (net)
<b>Floor Area Ratio:</b>	1.5 FAR	3.1 FAR (net)
<b>Lot Coverage:</b>	33%	57%
<b>Yards and Setbacks</b>	7.5 metres from all lot lines	Front- 4.5 m Side (North)-4.0 m Side (South)-3.0 m Rear- 22.0 m
<b>Principal Building Height:</b>	50 metres	19.5 m
<b>Permitted Uses:</b>	Multiple Unit Residential Buildings and Ground-Oriented Multiple Unit Residential Buildings	Multiple Unit Residential Buildings and Ground-Oriented Multiple Unit Residential Buildings
Indoor Amenity:	3 m <sup>2</sup> /dwelling unit	3 m <sup>2</sup> /dwelling unit
Outdoor Amenity:	3 m <sup>2</sup> /dwelling unit	3 m <sup>2</sup> /dwelling unit
Parking (Part 5)		Proposed
<b>Number of Stalls</b>		
Residential:	95 - 117	80
Residential Visitor:	11 - 21	14
Total:	106 - 138	94
Tandem:	10%	0%
<b>Bicycle Spaces</b>		
Residential Secure Parking:	127	131
Residential Visitor:	6	6

- The main differences between the RM-70 Zone and the proposed CD By-law are as follows:
  - The FAR density is increased in the CD By-law to allow up to 3.1 FAR net, in accordance with the Stage 1 TCP;
  - The site coverage is increased in the CD By-law, to account for a smaller net developable area outside the BC Hydro ROW on site;
  - The setbacks in the CD By-law are designed to meet current urban design standards, and to accommodate a smaller net developable site area; and
  - The principle building height in the CD By-law is significantly lower than that of the RM-70 zone, to limit the proposed building's height to 6 storeys.
- Parking
  - The proposed development utilizes the 'Multiple Unit Residential Dwelling (Non-Ground Oriented' City Centre Parking rates and is fully compliant.
  - The proposed development includes 94 parking stalls, consisting of 80 resident parking stalls and 14 visitor parking stalls.
    - 3 of the visitor parking stalls will be Sumo electric car share spaces. Each car share space counts as 5 parking stalls under the Zoning By-law. The development proposes 3 car share stalls, for a total of 15 stalls.
    - All the visitor parking stalls are located in the surface parking lot.
  - In total there will be 94 parking stalls on site (counted as a total of 106 stalls). 80 for residents and 14 for visitors.

### **Affordable Housing Strategy**

- On April 9, 2018, Council approved the City's Affordable Housing Strategy (Corporate Report No. R066; 2018) requiring that all new rezoning applications for residential development contribute \$1,000 per unit to support the development of new affordable housing. The funds collected through the Affordable Housing Contribution will be used to purchase land for new affordable rental housing projects.
- The applicant will be required to register a Section 219 Restrictive Covenant to address the City's needs with respect to the City's Affordable Housing Strategy. The contribution is payable at Building Permit.

### **Public Art Policy**

- The applicant will be required to provide public art, or register a Restrictive Covenant agreeing to provide cash-in-lieu, at a rate of 0.5% of construction value, to adequately address the City's needs with respect to public art, in accordance with the City's Public Art Policy requirements. The applicant will be required to resolve this requirement prior to consideration of Final Adoption.

### **PUBLIC ENGAGEMENT**

- Pre-notification letters were sent on February 7, 2020 and the Development Proposal Signs were installed on February 12, 2020. At the time of this report, Staff had received no responses from neighbouring residents regarding the proposal.
- The subject development application was reviewed by the Whalley Community Advisory Association. No comments were received regarding the development proposal.

## DEVELOPMENT PERMITS

### Sensitive Ecosystems (Streamside Areas and Green Infrastructure Areas) Development Permit Requirement

- The subject property falls within the Sensitive Ecosystems Development Permit Area in the OCP. A Sensitive Ecosystems Development Permit is required to protect environmentally sensitive and/or unique natural areas from the impacts of development.

#### Streamside Areas

- The subject site is within the Sensitive Ecosystem Development Permit Area for Streamside Areas. The unnamed watercourse east of the subject parcels flows north into Hawthorne Creek, and changes from Class C to Class B watercourse just downstream (north) of the subject property. Class B watercourses are subject to streamside protection, and it is the 50 metre buffer for this reach of the watercourse which overlaps with the subject lands.
- Although the subject property is within the streamside 50 metre buffer, it is well beyond 30 metres of the watercourse, which is the maximum setback requirement for any stream. There are no protection measures required for the proposed development, with regard to the unnamed watercourse.

#### Green Infrastructure Areas

- The subject site is also within the Sensitive Ecosystem Development Permit Area for Green Infrastructure Network (GIN) Corridor. A 50 metre wide GIN corridor overlaps the east perimeter of the site by 10 metres (within the BC Hydro ROW) and extends to the east of the development site for another 40 metres.
- The City of Surrey Biodiversity Conservation Strategy (BCS) Green Infrastructure Network (GIN) map, identifies Regional Corridor #98 within the subject site, in the Green Timbers BCS management area, with a medium ecological value, and a recommended target corridor width of 50 metres.
- The development proposal conserves 1,066 square meters of the subject site through Parkland Conveyance which is 22% of the total gross area of the subject site (excluding the BC Hydro ROW). This method of GIN retention will assist in the long-term protection of the natural features and allows the City to better achieve biodiversity at this location, consistent with the guidelines contained in the BCS.
- An Ecosystem Development Plan, prepared by Randolph Morris, *R.P. Bio.*, of EDI Environmental Dynamics and dated December 2019 was reviewed by staff and found to be generally acceptable. The finalized report and recommendations will be incorporated into the Development Permit.

## Form and Character Development Permit Requirement

- The proposed development is subject to a Development Permit for Form and Character and is also subject to the urban design guidelines in the Guildford Town Centre & 104 Avenue Corridor Plan.
- The proposal consists of a mid-rise (6-storey) apartment building comprised of 106 dwelling units. The unit mix consists of the following:
  - 5 studio apartment units
  - 77, 1-bedroom apartment units
  - 14, 2-bedroom apartment units
  - 7, 3-bedroom apartment units
  - 2, 2-bedroom townhouse units
- Dwelling units will range in size from 36 square metres (390 sq. ft) for a studio apartment unit to 128 square metres (1,380 sq. ft.) for the largest 2-bedroom townhouse unit.
- The proposed architectural form incorporates two (2) ground oriented two-level townhomes facing 140 Street with apartments above. Above the townhouse units, a mix of studio, one, two, and three bedroom apartments comprise the remaining storeys. The 6<sup>th</sup> floor steps back from the lower storeys on the North, South and West sides to reduce the vertical scale of the building. The 4<sup>th</sup> and 5<sup>th</sup> storeys have an additional setback along the south property line, to provide a massing transition for possible townhouse development to the south of the subject building.
- Building materials for the townhouses interfacing the street include aluminum siding in wood grain, framed with charcoal coloured metal cladding for a contemporary residential expression. The upper stories are fibre cement board in white and grey. The cladding materials and façade articulation create a coherent design on all sides of the building. The ADP was generally supportive of the architectural form.
- A continuous pedestrian pathway is proposed on site, connecting the main entrance of the building, the outdoor amenity space, and the surface parking lot. This will ensure a safe and convenient circulation for pedestrians throughout the site.
- The site is encumbered by a BC Hydro Right of Way, including power lines and their anchor systems. Through consultation with BC Hydro, it has been determined that the ROW cannot be used for 'outdoor amenity' requirements, pedestrian activities or pathways including seating. A fence between the GIN corridor and the Hydro ROW is also not permitted.
- BC Hydro has approved the use of the ROW for a 24-stall parking lot and has restricted the extent of residential activities within the ROW to urban agricultural planting boxes south of the parking lot.
- BC Hydro's technical review of the proposed layout within the ROW is still underway; a layout approved by BC Hydro will be finalized prior to final adoption.

### Indoor Amenity

- The proposed indoor amenity space totals 378 square metres, which exceeds the required 318 square metres required by the Zoning By-law (3 square metres per dwelling unit).
- The proposed indoor amenity space is located on the ground and second floor of the building. The ground floor space includes a kitchenette and lounge totaling 200 square metres, and a fitness centre totaling 103 square metres. A yoga and meditation room is located directly above on the second floor, which is easily accessible by stairs and elevators, and totals 75 square metres.
- The indoor amenity spaces face internal to the site, towards the outdoor amenity, BC Hydro ROW, and GIN corridor. Glazed doors and windows will be provided for the indoor amenity for privacy and natural light, and to provide access to the ground floor outdoor amenity to encourage communal gathering and indoor and outdoor social activities.

### Outdoor Amenity & Landscaping

- The proposed outdoor amenity totals 339 square metres, which exceeds the required 318 square metres required by the Zoning By-law (3 square metres per dwelling unit).
- The proposed outdoor amenity space is located at the ground floor, between the proposed apartment building and the BC Hydro ROW and is programmed to be integrated with the indoor amenity space as a single shared space for social interaction and gatherings.
- The proposed outdoor amenity space includes an outdoor kitchen, dining and picnic areas, and a secure outdoor children's play area.
- The outdoor amenity space can be accessed from the indoor amenity area on the ground floor, or by a 2-metre wide pedestrian sidewalk that is proposed along the south perimeter of the site, to the east of the BC Hydro ROW, and which connects to the surface parking lot.
- Green space within the BC Hydro ROW is also proposed, but not calculated towards the development's required outdoor amenity space. BC Hydro has approved, in principle, the urban agriculture/garden beds within the ROW in their proposed location, south of the parking lot but not underneath the power lines.
- Landscape buffering is proposed along the perimeter of the outdoor amenity area, and along the perimeter of the outdoor garden beds. The landscaping will provide visual buffers and restrict human access beneath the power lines. A 2 metre wide landscape buffer is also provided between the surface parking lot and the GIN corridor and incorporates a pedestrian crossing from the parking lot to the GIN area.



- Any landscaping within the BC Hydro ROW requires final approval from BC Hydro.

### Outstanding Items

- The applicant is required to resolve the following outstanding urban design and Advisory Design Panel comments, as follows:
  - Adjust the layout of the surface parking lot, for functionality/ access purposes. Specifically, the alignment of stalls 14 and 15 will need adjustment.
  - Final approval of the proposed layout within the ROW from BC Hydro.

### TREES

- Austin Peterson, ISA Certified Arborist of Van Der Zalm + Associates prepared an Arborist Assessment for the subject property. The table below provides a summary of the tree retention and removal by tree species:

**Table 1: Summary of Tree Preservation by Tree Species:**

Tree Species	Existing	Remove	Retain
<b>Alder and Cottonwood Trees</b>			
Alder	18	18	0
Cottonwood	1	1	0
<b>Deciduous Trees (excluding Alder and Cottonwood Trees)</b>			
Cherry	1	1	0
Willow	1	1	0
Plum – fruit tree	2	2	0
Birch	1	1	0
<b>Coniferous Trees</b>			
Douglas Fir	1	1	0
Western Red Cedar	10	10	0
Cedar Hedle	1	1	0
Spruce	1	1	0
<b>Total (excluding Alder and Cottonwood Trees)</b>	<b>18</b>	<b>18</b>	<b>0</b>
<b>Total Replacement Trees Proposed (excluding Boulevard Street Trees)</b>		<b>26</b>	
<b>Total Retained and Replacement Trees</b>		<b>26</b>	
<b>Contribution to the Green City Program</b>		<b>\$11,600</b>	

- The Arborist Assessment states that there is a total of 18 mature trees on the site, excluding Alder and Cottonwood trees. Nineteen (19) existing trees, approximately 51% of the total trees on the site, are Alder and Cottonwood trees. No trees can be retained as part of this development proposal. The proposed tree retention was assessed taking into consideration the location of services, building footprints, road dedication and proposed lot grading.
- For those trees that cannot be retained, the applicant will be required to plant trees on a 1 to 1 replacement ratio for Alder and Cottonwood trees, and a 2 to 1 replacement ratio for all other trees. This will require a total of 55 replacement trees on the site. Since only 26 replacement trees can be accommodated on the site, the deficit of 29 replacement trees will require a cash-in-lieu payment of \$11,600, representing \$400 per tree, to the Green City Fund, in accordance with the City's Tree Protection Bylaw.
- In addition to the replacement trees, boulevard street trees will be planted on 140 Street. This will be determined by the Engineering Department during the servicing design review process.
- In summary, a total of 26 trees are proposed to be retained or replaced on the site with a contribution of \$11,600 to the Green City Fund.

#### INFORMATION ATTACHED TO THIS REPORT

The following information is attached to this Report:

Appendix I.	Survey Plan, Site Plan, Building Elevations, Landscape Plans and Perspective
Appendix II.	Engineering Summary
Appendix III.	School District Comments
Appendix IV.	Summary of Tree Survey and Tree Preservation
Appendix V.	ADP Comments and Applicant's Responses
Appendix VI.	Proposed CD By-law
Appendix VII.	Ecosystem Development Plan

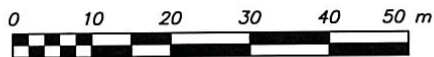
*approved by Ron Gill*

Jean Lamontagne  
General Manager  
Planning and Development

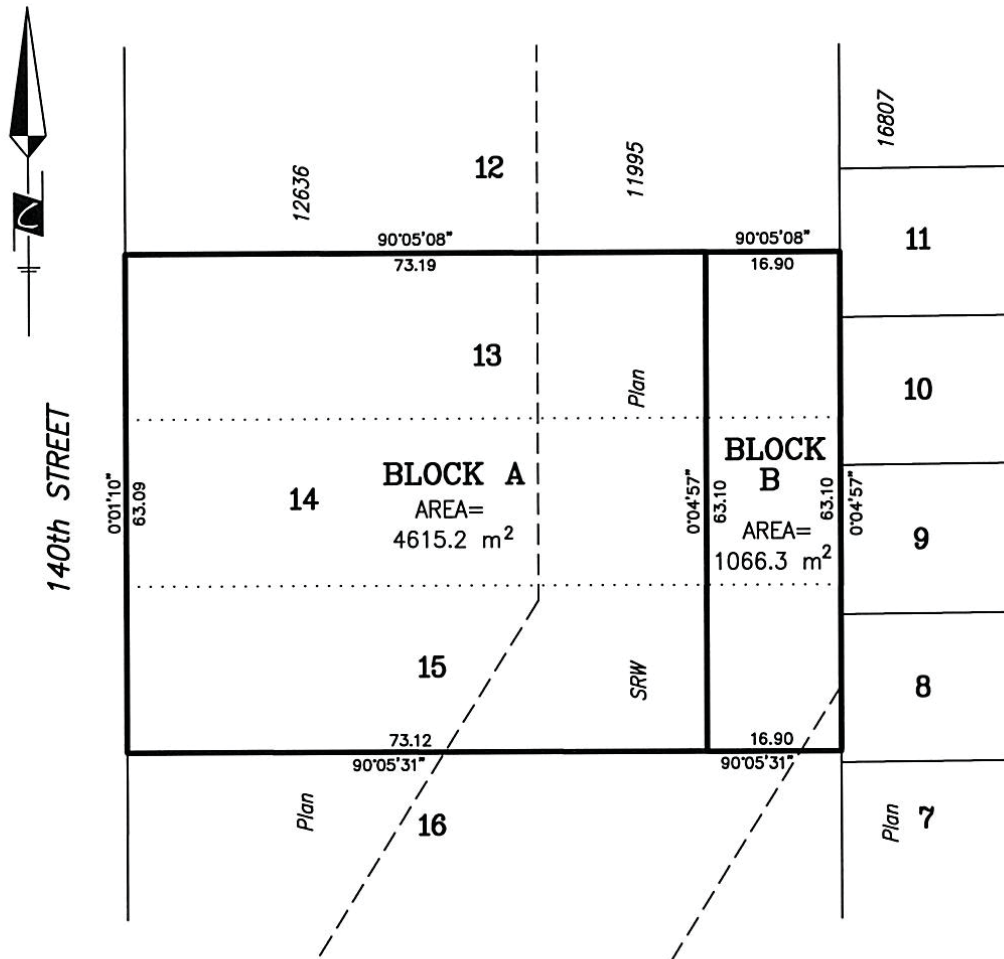
SC/cm

**SURVEY PLAN TO ACCOMPANY CITY OF SURREY  
REZONING BYLAW NO. \_\_\_\_\_ OF LOTS 13, 14  
AND 15, ALL OF SECTION 24, BLOCK 5 NORTH,  
RANGE 2 WEST, NEW WESTMINSTER DISTRICT, PLAN 12636**

City of Surrey B.C.G.S. 92G.016



SCALE - 1 : 750  
All distances are in metres



Cameron Land Surveying Ltd.  
B.C. Land Surveyors  
Unit 234 - 18525-53rd Avenue  
Surrey, B.C. V3S 7A4  
Phone: 604-597-3777  
File: 6285-ZONING






Certified correct to survey dated  
this 10th day of March, 2020.

Sean Costello, B.C.L.S.

This plan lies within the Metro Vancouver Regional District

GROSS AREA: 61,149 SF (5,681 SQ.M)

-  LOT AREA
-  UNDEVELOPABLE AREA
-  ROAD DEDICATION

10506

ROAD DEDICATION  
6,417 SF (596 SQ.M)

LOT AREA  
34,057 SF (3,164 SQ.M)

UNDEVELOPABLE AREA  
(BC HYDRO ROW)  
27,094 SF (2,517 SQ.M)

18.9 m  
59' 6 1/2"  
CONVEYED GIN

12.4 m  
40' 8"  
REQUIRED GIN

PROPOSED GIN  
CORRIDOR 11,474 SF  
(1,066 SQ.M)

10482

10472

10462

140 St

140TH STREET

#106 - 388 West 80 Ave.  
Surrey, BC V4L 2G2  
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architecture inc.

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ISSUED MAR. 10, 2020 (RESPONSE TO ADP)  
ISSUED FEB. 08, 2020 (RESPONSE TO ADP)  
ISSUED JAN. 16, 2020 (RESPONSE TO ADP)  
ISSUED NOV. 15, 2019 (CITY MEETING)  
RESPONSE TO PLANNING AND URBAN  
DEVELOPMENT COMMENT OCT. 24, 2019 (18-0425)

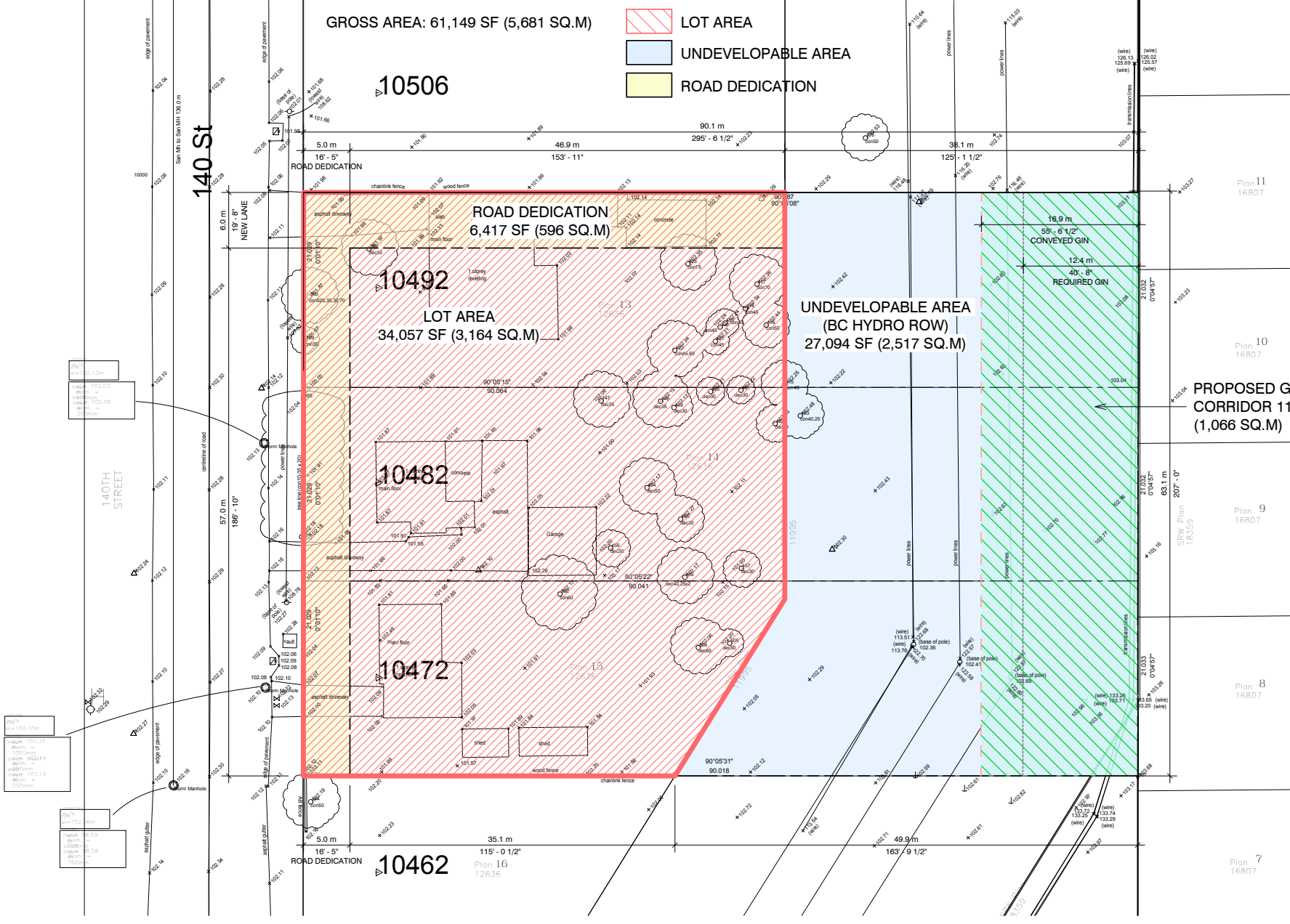
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Revisions:

project title:  
**RESIDENTIAL  
DEVELOPMENT  
10472/10482/10492  
140 Street, Surrey, BC**

drawing title:  
**SITE ANALYSIS**

project no.: 17038  
drawn by: GH  
checked by: ST  
date: MAR. 10, 2020  
scale: 1/32" = 1'-0"

A0.10



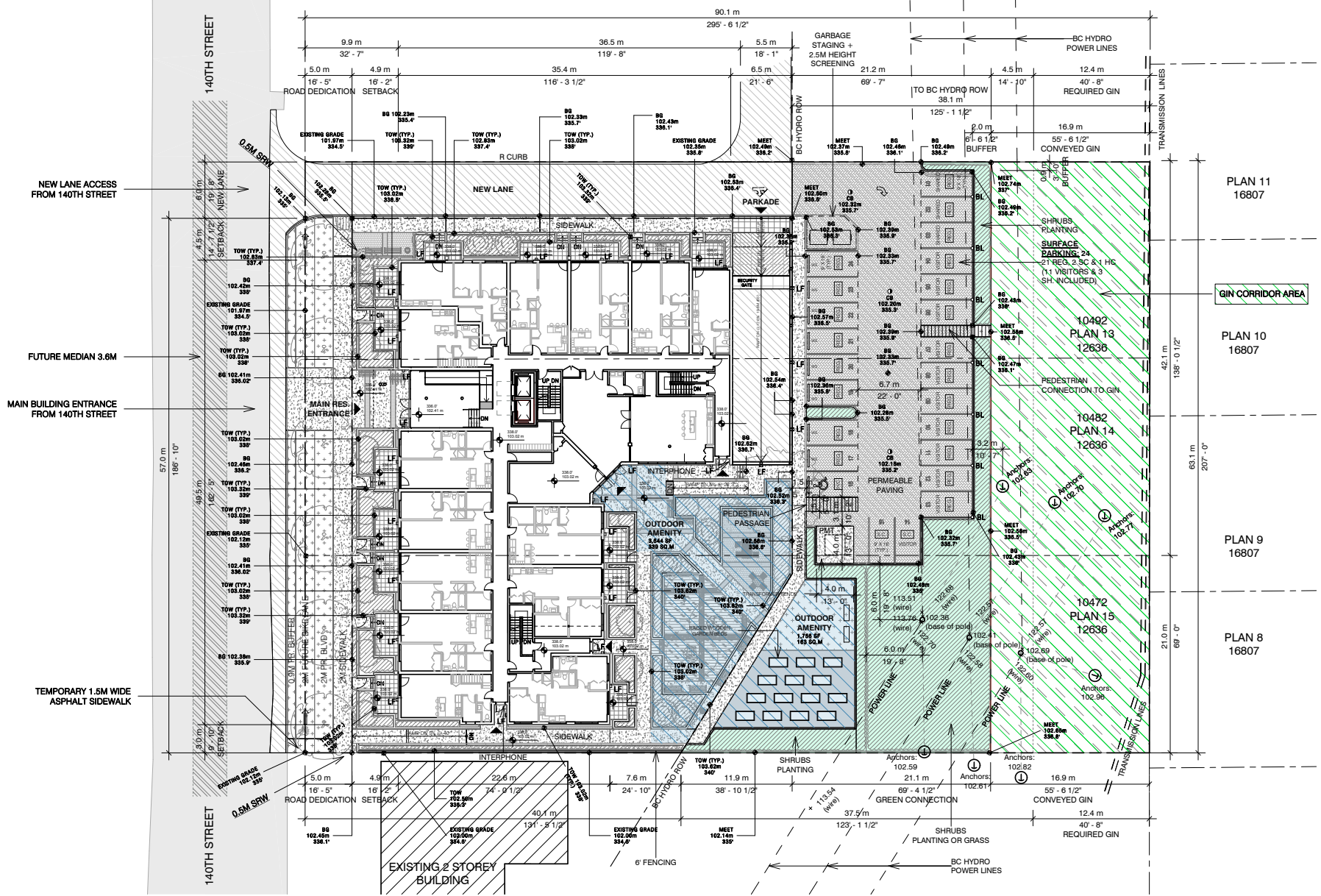
Plan 11  
16807

Plan 10  
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Plan 9  
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Plan 8  
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Plan 7  
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PLAN 11  
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PLAN 10  
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PLAN 9  
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PLAN 8  
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 DEVELOPMENT COMMENT OCT. 24, 2019 (18-0425)

no. date: description  
 Revisions:

project title:  
**RESIDENTIAL  
 DEVELOPMENT  
 10472/10482/10492  
 140 Street, Surrey, BC**

drawing title:  
**SITE PLAN**

project no.: 17038  
 drawn by: GH  
 checked by: ST  
 date: MAR. 10, 2020  
 scale: 1/32" = 1'-0"



LEGAL DESCRIPTION:  
 PLAN OF LOT 13, 14, 15  
 SECTION 24, BLOCK 5

**A1.1**





NORTH-WEST VIEW FROM 140TH STREET



EXISTING AERIAL VIEW



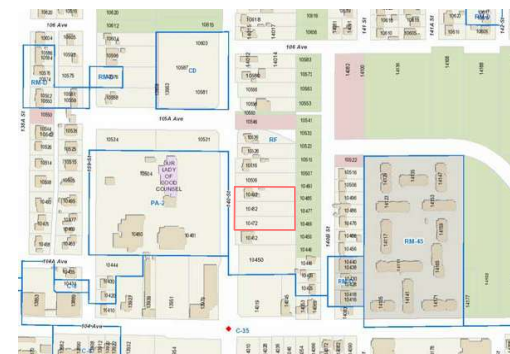
EXISTING CONTEXT



SOUTH-WEST VIEW FROM 140TH STREET



PROPOSED DEVELOPMENT SITE AERIAL VIEW



EXISTING ZONING

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ISSUED JAN. 16, 2020 (RESPONSE TO ADP)  
 ISSUED NOV. 15, 2019 (CITY MEETING)  
 RESPONSE TO PLANNING AND URBAN  
 DEVELOPMENT COMMENT OCT. 24, 2019 (19-0425)

no. date: description

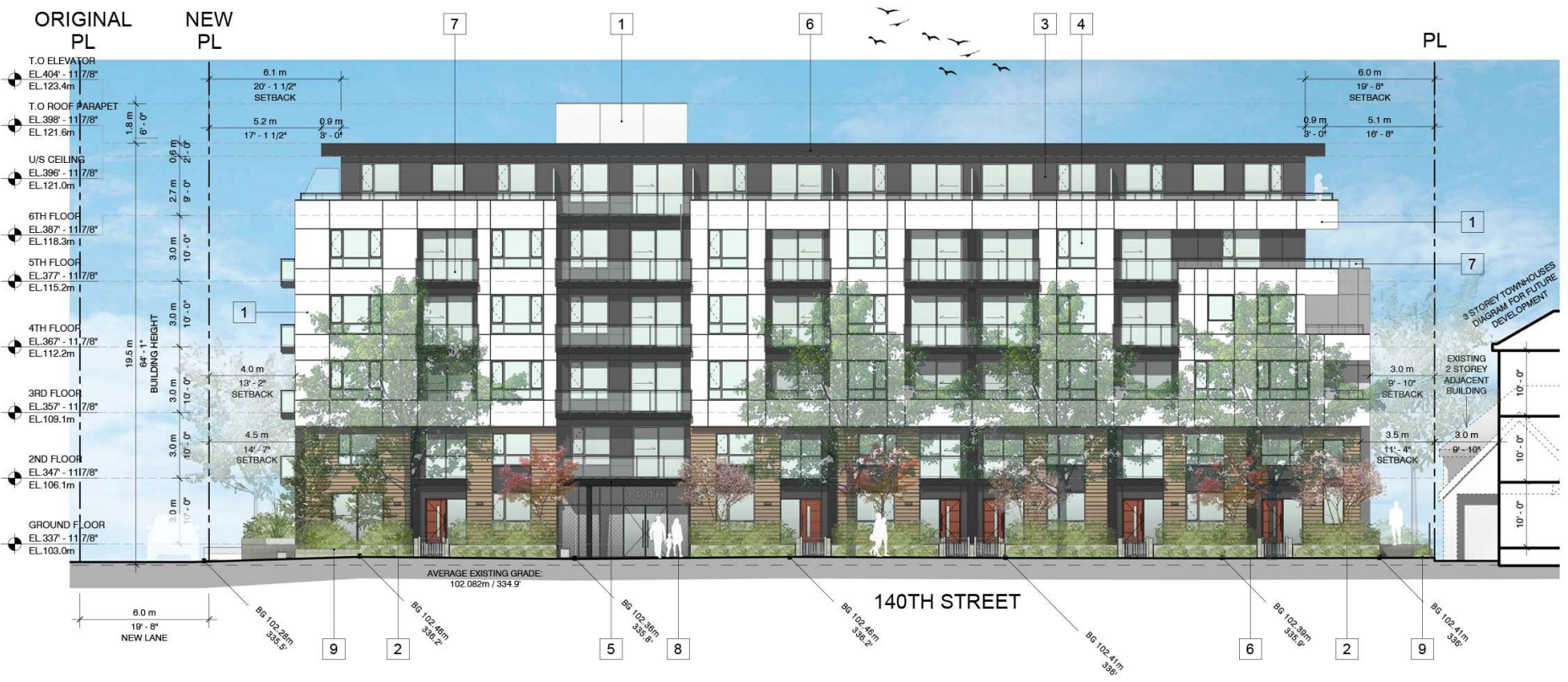
Revisions:

**project title:**  
 RESIDENTIAL  
 DEVELOPMENT  
 10472/10482/10492  
 140 Street, Surrey, BC

**drawing title:**  
 CONTEXT

**project no.:** 17038  
**drawn by:** GH  
**checked by:** ST  
**date:** JAN. 16, 2020  
**scale:**

MATERIALS	
1	EXTERIOR HIGH DENSITY FIBRE CEMENT BOARD (HARDIE OR SIMILAR) COLOUR: ARTIC WHITE (OR SIMILAR)
2	ALUMINIUM SIDING COLOUR: LONGBOARD OR SIMILAR; DARK FIR (OR SIMILAR)
3	EXTERIOR HIGH DENSITY FIBRE CEMENT BOARD (HARDIE OR SIMILAR) COLOUR: AGED PEWTER (OR SIMILAR)
4	THERMALLY BROKEN VINYL DOUBLE GLAZED WINDOWS COLOUR: STARLINE OR SIMILAR; BLACK CHARCOAL (OR SIMILAR)
5	PREFINISHED METAL CANOPY COLOUR: CHARCOAL (OR SIMILAR)
6	PREFINISHED METAL CLADDING COLOUR: CHARCOAL (OR SIMILAR)
7	ALUMINIUM GARDRAILS WITH GLASS PANEL COLOUR: CHARCOAL (OR SIMILAR)
8	THERMALLY BROKEN VINYL DOUBLE GLAZED WINDOWS WITH WHITE PATTERN PRINTED
9	ARCHITECTURAL FINISH CONCRETE
10	PREFINISHED METAL CLADDING SOFFIT COLOUR: DARK ZINC (OR SIMILAR)



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ISSUED JAN. 15, 2020 (RESPONSE TO ADOP)  
 ISSUED NOV. 15, 2019 (CITY MEETING)  
 RESPONSE TO PLANNING AND URBAN  
 DEVELOPMENT COMMENT OCT. 24, 2019 (19-0425)

no. date description  
 Revisions:

project title:  
**RESIDENTIAL  
 DEVELOPMENT**  
 10472/10482/10492  
 140 Street, Surrey, BC

drawing title:  
**WEST ELEVATION /  
 140TH STREET**

project no.: 17038  
 drawn by: GH  
 checked by: ST  
 date: JAN. 16, 2020  
 scale: 1/16" = 1'-0"



**MATERIALS**

1	EXTERIOR HIGH DENSITY FIBRE CEMENT BOARD (HARDIE OR SIMILAR) COLOUR: ARTIC WHITE (OR SIMILAR)
2	ALUMINIUM SIDING COLOUR (LONGBOARD OR SIMILAR): DARK FIR (OR SIMILAR)
3	EXTERIOR HIGH DENSITY FIBRE CEMENT BOARD (HARDIE OR SIMILAR) COLOUR: AGED PEWTER (OR SIMILAR)
4	THERMALLY BROKEN VINYL DOUBLE GLAZED WINDOWS COLOUR (STARLINE OR SIMILAR): BLACK CHARCOAL (OR SIMILAR)
5	PREFINISHED METAL CANOPY COLOUR: CHARCOAL (OR SIMILAR)
6	PREFINISHED METAL CLADDING COLOUR: CHARCOAL (OR SIMILAR)
7	ALUMINIUM GARDRAILS WITH GLASS PANEL COLOUR: CHARCOAL (OR SIMILAR)
8	THERMALLY BROKEN VINYL DOUBLE GLAZED WINDOWS WITH WHITE PATTERN PRINTED
9	ARCHITECTURAL FINISH CONCRETE
10	PREFINISHED METAL CLADDING SOFFIT COLOUR: DARK ZINC (OR SIMILAR)



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ISSUED JAN. 15, 2020 (RESPONSE TO ACP)  
 ISSUED NOV. 15, 2019 (CITY MEETING)  
 RESPONSE TO PLANNING AND URBAN  
 DEVELOPMENT COMMENT OCT. 24, 2019 (19-0425)

no:      date:      description  
 Revisions:

project title:  
**RESIDENTIAL  
 DEVELOPMENT**  
 10472/10482/10492  
 140 Street, Surrey, BC

drawing title:  
**NORTH ELEVATION**

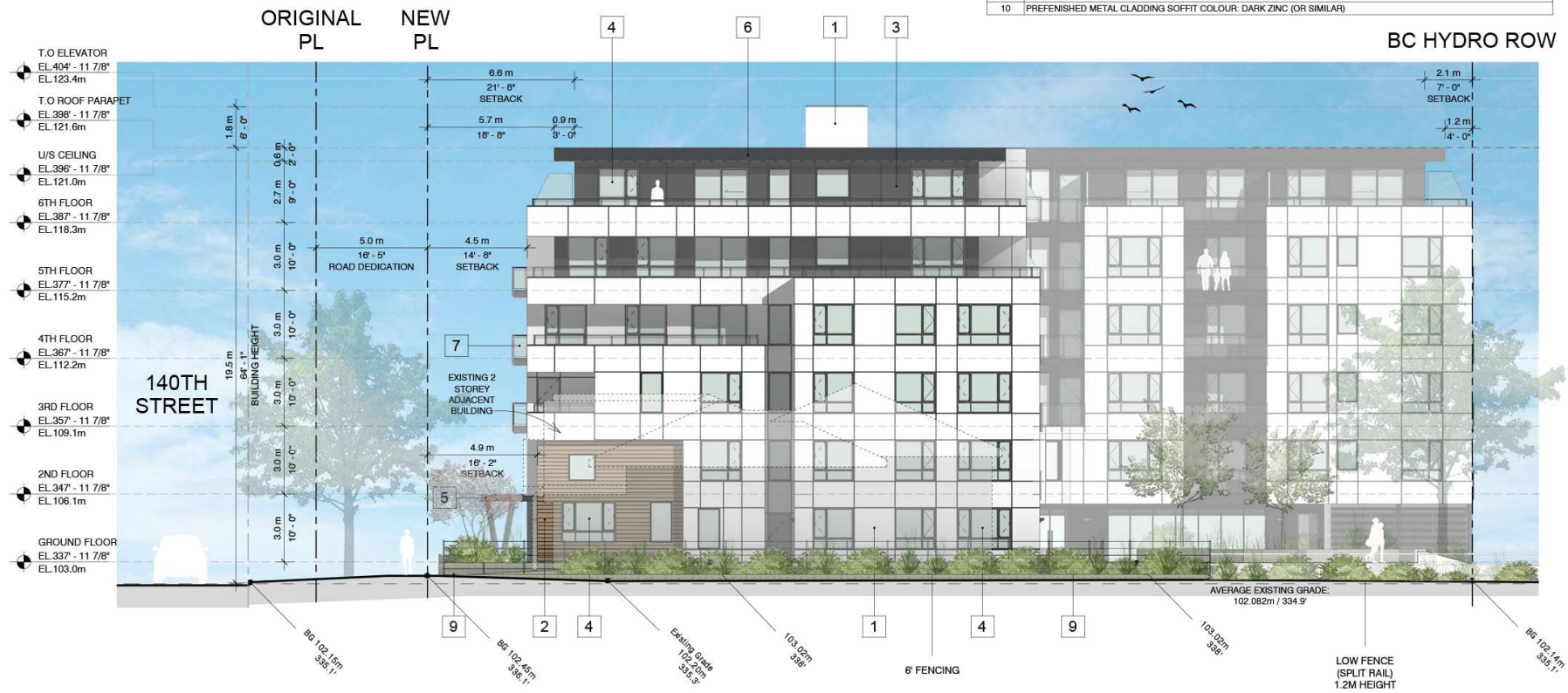
project no.: 17038  
 drawn by: GH  
 checked by: ST  
 date: JAN. 16, 2020  
 scale: 1/16" = 1'-0"

**A2.2**



**MATERIALS**

1	EXTERIOR HIGH DENSITY FIBRE CEMENT BOARD (HARDIE OR SIMILAR) COLOUR: ARTIC WHITE (OR SIMILAR)
2	ALUMINIUM SIDING COLOUR (LONGBOARD OR SIMILAR): DARK FIR (OR SIMILAR)
3	EXTERIOR HIGH DENSITY FIBRE CEMENT BOARD (HARDIE OR SIMILAR) COLOUR: AGED PEWTER (OR SIMILAR)
4	THERMALLY BROKEN VINYL DOUBLE GLAZED WINDOWS COLOUR (STARLINE OR SIMILAR): BLACK CHARCOAL (OR SIMILAR)
5	PREFINISHED METAL CANOPY COLOUR: CHARCOAL (OR SIMILAR)
6	PREFINISHED METAL CLADDING COLOUR: CHARCOAL (OR SIMILAR)
7	ALUMINIUM GARDRAILS WITH GLASS PANEL COLOUR: CHARCOAL (OR SIMILAR)
8	THERMALLY BROKEN VINYL DOUBLE GLAZED WINDOWS WITH WHITE PATTERN PRINTED
9	ARCHITECTURAL FINISH CONCRETE
10	PREFINISHED METAL CLADDING SOFFIT COLOUR: DARK ZINC (OR SIMILAR)



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ISSUED JAN. 16, 2020 (RESPONSE TO ADOP)  
 ISSUED NOV. 16, 2019 (CITY MEETING)  
 RESPONSE TO PLANNING AND URBAN  
 DEVELOPMENT COMMENT OCT. 24, 2019 (18-0425)

no:      date:      description  
 Revisions:

project title:  
**RESIDENTIAL DEVELOPMENT**  
 10472/10482/10492  
 140 Street, Surrey, BC

drawing title:  
**SOUTH ELEVATION**

project no.: 17038  
 drawn by: GH  
 checked by: ST  
 date: JAN. 16, 2020  
 scale: 1/16" = 1'-0"

**A2.3**







NORTH-WEST VIEW FROM 140TH STREET



ENTRANCE VIEW FROM 140TH STREET



SOUTH-WEST VIEW FROM 140TH STREET



SIDEWALK ON 140TH STREET

#100 - 388 West 80 Ave.  
 Vancouver, B.C. V6P 2G7  
 Tel: 604-731-3862  
 Fax: 604-731-1125  
 www.studiooneinc.com

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 architecture inc.

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ISSUED JAN. 16, 2020 (RESPONSE TO ADP)  
 ISSUED NOV. 15, 2019 (CITY MEETING)  
 RESPONSE TO PLANNING AND URBAN  
 DEVELOPMENT COMMENT OCT. 24, 2019 (19-0425)

no. date description  
 Revisions:

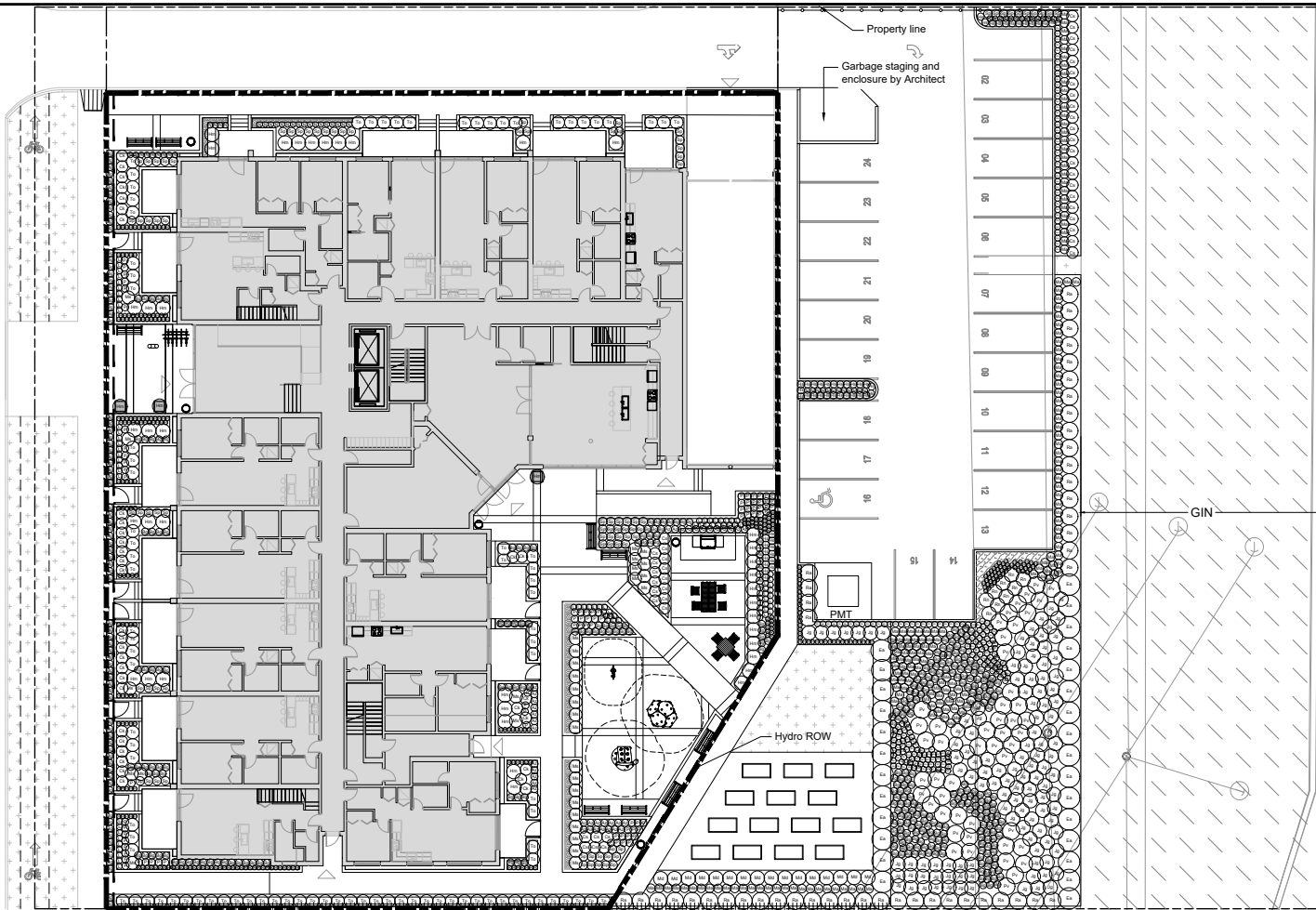
project title:  
**RESIDENTIAL  
 DEVELOPMENT**  
 10472/10482/10492  
 140 Street, Surrey, BC

drawing title:  
**3D VIEWS**

project no.:	17038
drawn by:	GH
checked by:	ST
date:	JAN. 16, 2020
scale:	

A4.1

140 STREET



**CONDO PLANT SCHEDULE**

SHRUBS	QTY	BOTANICAL / COMMON NAME	CONT	SPACING
Az	38	Azalea japonica 'Hino White Dwarf' / Dwarf White Japanese Azalea	#3	0.50m
Bg	133	Buxus x 'Green Mound' / Green Mound Boxwood	#1 Pot	0.50m
Cs	20	Cornus sericea / Red Twig Dogwood	#2 Pot	0.80m
Ck	35	Cornus sericea 'Kelsey' / Kelsey Dogwood	#3	0.80m
Hs	58	Helictotrichon sempervirens / Blue Oak Grass	#1 Pot	0.50m
H	122	Hemerocallis x 'Stella de Oro' / Stella de Oro Daylily	#1 Pot	0.30m
Hm	42	Hydrangea macrophylla 'Endless Summer' TM / Balmier Hydrangea	#3 Pot	1m
L	82	Liriope muscari 'Big Blue' / Big Blue Lilyturf	#1 Pot	0.40m
Ms	33	Miscanthus sinensis 'Huron Sunrise' / Huron Sunrise Eulalia	#2 Pot	0.50m
N	55	Nandina domestica 'Harbour Dwarf' / Dwarf Heavenly Bamboo	#2	0.40m
P	81	Pennisetum alopecuroides 'Hamen' / Hameln Fountain Grass	4" pot	0.50m
R	87	Rudbeckia fulgida 'Goldstrum' / Coneflower	#1 Pot	0.30m
Sp	85	Spiraea x bumalda 'Goldflame' / Goldflame Spirea	#3	0.60m
To	95	Thuja occidentalis 'Danica' TM / Danica Globe Cedar	#2 Pot	0.90m
SHRUB AREAS	QTY	BOTANICAL / COMMON NAME	CONT	SPACING
	238	Pachysandra terminalis / Japanese Spurge	#1	200mm

**HYDRO CORRIDOR SCHEDULE**

SHRUBS	QTY	BOTANICAL / COMMON NAME	CONT	SPACING
Bg	223	Buxus x 'Green Mound' / Green Mound Boxwood	#1 Pot	0.50m
Cs	22	Cornus sericea / Red Twig Dogwood	#2 Pot	0.80m
Ea	28	Eucrymus alata 'Compactus' / Compact Burning Bush	#3 Pot	1.50m
H	86	Hemerocallis x 'Stella de Oro' / Stella de Oro Daylily	#1 Pot	0.30m
Jg	118	Juniperus chinensis 'Gold Coast' TM / Gold Coast Juniper	#2 Pot	1m
Ma	171	Mahonia aquifolium / Oregon Grape	#3 Pot	0.60m
Mn	201	Mahonia nervosa / Oregon Grape	#2 Pot	0.40m
Md	18	Microbiota decussata / Siberian Carpet Cypress	#3 Pot	1m
N	1	Nandina domestica 'Harbour Dwarf' / Dwarf Heavenly Bamboo	#2	0.40m
Pv	49	Philadelphus x virginialis / Mock Orange	#2 Pot	1.20m
Ra	47	Ribes alpinum / Alpine Currant	#2 Pot	1.20m
Rn	9	Rosa nutkana / Nootka Rose	#3 Pot	1m
Sp	1	Spiraea x bumalda 'Goldflame' / Goldflame Spirea	#3	0.60m
SHRUB AREAS	QTY	BOTANICAL / COMMON NAME	CONT	SPACING
	58	Lavandula angustifolia 'Hidcote Blue' / Hidcote Blue Lavender	#1	400mm



No.	By:	Description	Date
4	AD	Issued for DP	March 9, 2020
3	MW	Re-issued for ADP	Jan 16, 2020
2	MW	Issued for ADP	Oct 15, 2019
1	AD	Issued for DP / Reasoning	Oct 03, 2019

REVISIONS TABLE FOR DRAWINGS

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No.	By:	Description	Date
REVISIONS TABLE FOR SHEET			

Project:  
 PROPOSED RESIDENTIAL DEVELOPMENT

Location:  
 10472, 10482, 10492 140th street  
 surrey bc

Drawn: AD  
 Stamp:

Checked: MW

Approved: MVDZ  
 Original Sheet Size: 24"x36"

Scale: 1:150

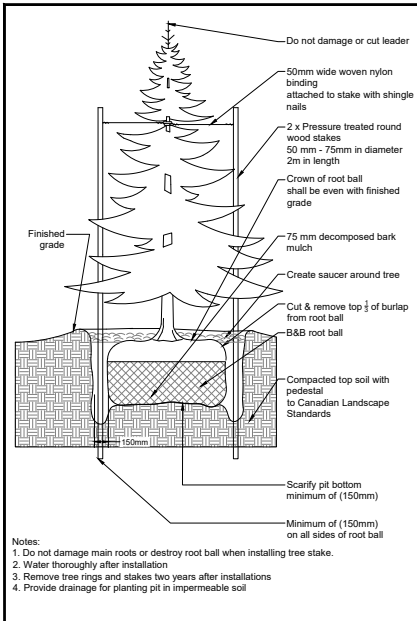
CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCIES TO THE CONSULTANT AND SPECIFICATIONS WITH THE RESPECTIVE PROPERTY OF THE OWNER AND/OR BE RETURNED AT THE COMPLETION OF THE WORK. ALL DIMENSIONS SHOWN ON ANY DIMENSION SHEETS MUST BE USED FOR CONSTRUCTION UNLESS LABELLED ISSUED FOR TRADE CONSTRUCTION.

Z:\PROJECTS\COMMON FIRM\ACTIVITY\DP2019-30\_140TH STREET DEVELOPMENT\DWG\BETEX\VDZ\PLANTING PLAN.DWG

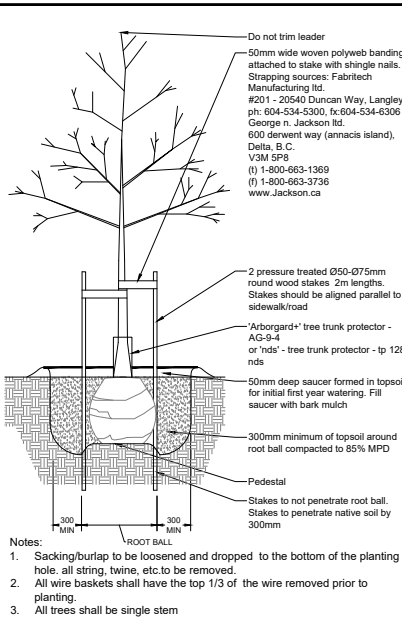




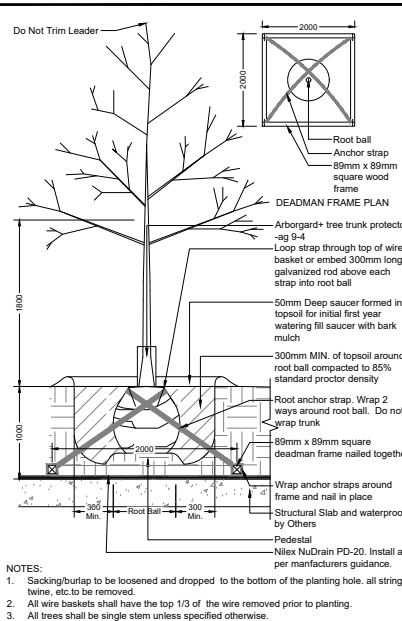




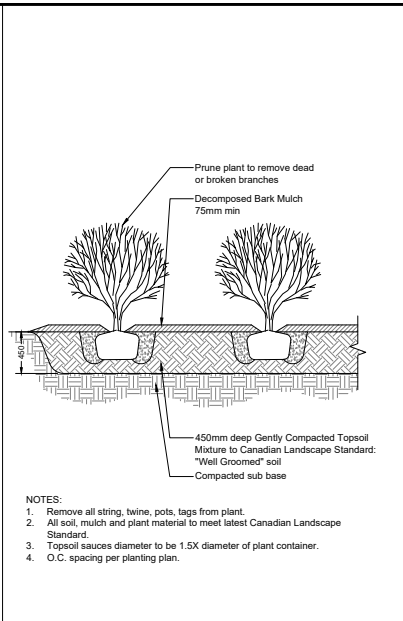
1 CONIFEROUS TREE PLANTING  
Scale 1:25



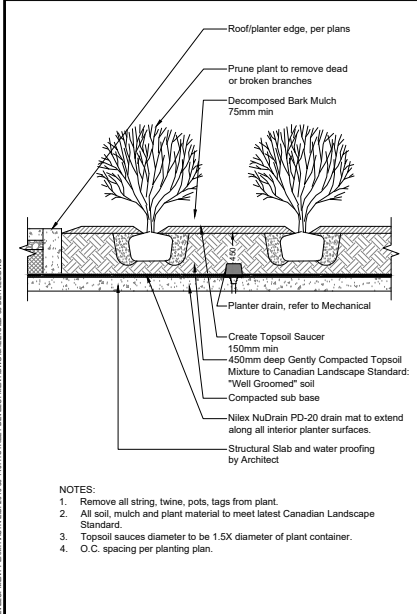
2 DECIDUOUS TREE PLANTING  
Scale 1:25



3 TREE PLANTING ON SLAB  
Scale 1:25



4 SHRUB PLANTING ON GRADE  
Scale 1:25



5 SHRUB PLANTING ON SLAB  
Scale 1:25

**KOMPAN Product Info** BLOXK 1 - BLX4101

Best User Age: 5-15 years

Footings to ground installation. Surface installation also available. Technical information available at [kmpn.com](http://kmpn.com)

Material	Quantity	Unit	Notes
Steel	1	kg	
Plastic	1	kg	
Wood	1	kg	
Concrete	1	kg	

Supplier: Rectec Industries Inc.  
Supplier contact: 604-940-0067  
Manufacturer: Kompan  
Mount: Surface mount (refer to manufacturer's site instructions and specifications). Confirm housekeeping slab size and location with Landscape Architect prior to order and installation.

6 PLAYGROUND TOYS  
NTS

**KOMPAN Product Info** COTTAGE - ELE400205

Best User Age: 2-5 years

Footings to ground posts. Surface installation also available. Technical information available at [kmpn.com](http://kmpn.com)

Material	Quantity	Unit	Notes
Steel	1	kg	
Plastic	1	kg	
Wood	1	kg	
Concrete	1	kg	

Supplier: Rectec Industries Inc.  
Supplier contact: 604-940-0067  
Manufacturer: Kompan  
Mount: Surface mount (refer to manufacturer's site instructions and specifications). Confirm housekeeping slab size and location with Landscape Architect prior to order and installation.

7 PLAYGROUND TOYS  
NTS

**KOMPAN Product Info** HORSE - M172P

Best User Age: 2-5 years

Footings to ground posts. Surface installation also available. Technical information available at [kmpn.com](http://kmpn.com)

Material	Quantity	Unit	Notes
Steel	1	kg	
Plastic	1	kg	
Wood	1	kg	
Concrete	1	kg	

Supplier: Rectec Industries Inc.  
Supplier contact: 604-940-0067  
Manufacturer: Kompan  
Mount: Surface mount (refer to manufacturer's site instructions and specifications). Confirm housekeeping slab size and location with Landscape Architect prior to order and installation.

8 PLAYGROUND TOYS  
NTS

No.	By:	Description	Date
4	AD	Issued for DP	March 9, 2020
3	MW	Re-issued for ADP	Jan. 16, 2020
2	MW	Issued for ADP	Oct. 15, 2019
1	AD	Issued for DP / Reasoning	Oct. 03, 2019

REVISIONS TABLE FOR DRAWINGS

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No.	By:	Description	Date
REVISIONS TABLE FOR SHEET			

Project: PROPOSED RESIDENTIAL DEVELOPMENT

Location: 10472, 10482, 10492 140th street survey bc

Drawn:	Stamp:
Checked:	
MW	
Approved:	Original Sheet Size:
MVDZ	24"x36"
Scale:	CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCIES TO THE CONSULTANT AND SPECIFICATIONS ARE THE SOLE RESPONSIBILITY OF THE OWNER AND SHOWN AS RETURNED AT THE COMPLETION OF THE WORK. ALL DIMENSIONS SHALL BE IN UNITS UNLESS NOTED OTHERWISE. CONSTRUCTION UNITS UNLESS LABELLED ISSUED FOR TRADE CONSTRUCTION.
AS SHOWN	



---

TO: **Manager, Area Planning & Development  
- North Surrey Division  
Planning and Development Department**

FROM: **Development Engineer, Engineering Department**

DATE: **March 03, 2020** PROJECT FILE: **7818-0425-00**

---

RE: **Engineering Requirements  
Location: 10472/82/92 - 140 Street**

### **REZONE/SUBDIVISION**

#### ***Property and Right-of-Way Requirements***

- Dedicate 4.942m along 140 Street.
- Dedicate 6.0m for east-west Lane.
- Dedicate 3.0m x 3.0 corner cut at the intersection of 140 Street and the Lane.
- Provide 0.5m wide statutory right-of-way along 140 Street.

#### ***Works and Services***

- Construct east side of 140 Street to City Centre arterial road standard.
- Construct Lane per City standards.
- Submit geotechnical report addressing the road work requirements.
- Construct storm main along the new Lane.
- Provide metered water, storm and sanitary service connections.
- Complete sanitary and drainage catchment analysis to determine existing capacity constraints. Resolve downstream constraints, as identified.
- Pay water latecomer charges proposed under project 7815-0344-00.
- Register applicable legal documents as determined through detailed design.
- Secure off-site working easements and tree cutting permits, if applicable.

A Servicing Agreement is required prior to Rezone/Subdivision.

### **DEVELOPMENT PERMIT**

There are no engineering requirements relative to issuance of the Development Permit beyond those noted above.

Jeff Pang, P.Eng.  
Development Engineer

HB4

NOTE: Detailed Land Development Engineering Review available on file





March 9, 2020

Planning

**School Enrolment Projections and Planning Update:**  
 Mary Jane Shannon Elementary is will be impacted by the future densification along 104th due to the LRT line and potential recommendations for action from the City's Affordable Housing Strategy (AHS).  
 As of September 2019, Mary Jane Shannon Elementary is operating at 91% and is continued to stay around this utilization over the next 5 years. Mary Jane Shannon has been undergoing seismic mitigation work which will effect all areas of the school. This work will be done while school is in session, which will mean, upwards of 10 portables have been placed on site and used as classrooms as work is being done to the school. This project is intended to be completed in the early New Year. As of the next 5 years there are student's spaces available in the school.  
 Kwantlen Park Secondary is currently operating at 122% and is projected to grow by 500 students over the next 10 years. This school will also be impacted by timing of future high rise development in the area. As per the District's Five Year 2020/2021 Capital Plan, the District is requesting a 300 capacity addition at Kwantlen Park and the another 450 addition at Guildford Park to manage the secondary seat shortfall in the Guildford/City Centre communities. Both projects are targeted to open September 2025. The Ministry of Education has not approved capital funding for either request.

**THE IMPACT ON SCHOOLS**

**APPLICATION #:** 18 0425 00

**SUMMARY**

The proposed 2 townhouse units and 104 lowrise units are estimated to have the following impact on the following schools:

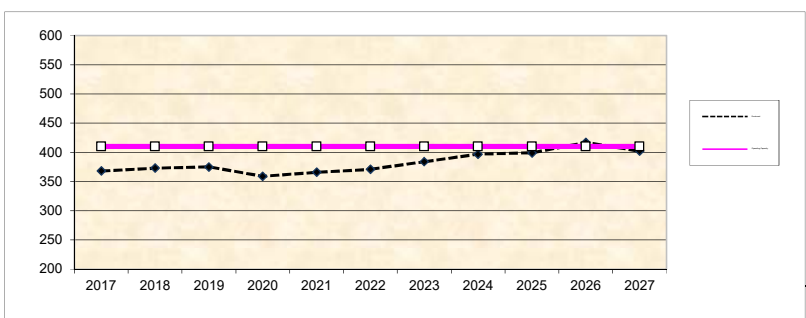
**Projected # of students for this development:**

Elementary Students:	6
Secondary Students:	5

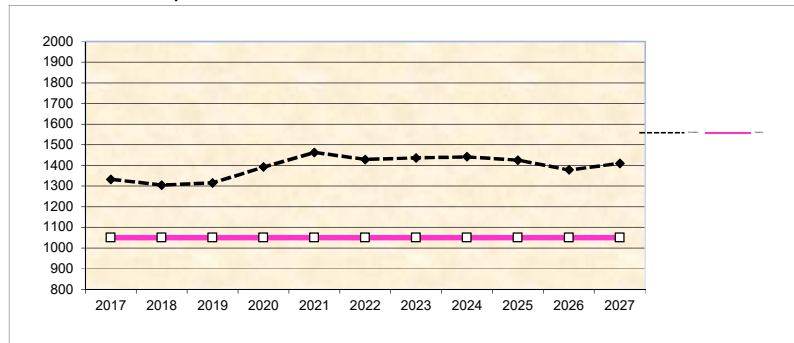
**September 2019 Enrolment/School Capacity**

<b>Mary Jane Shannon Elementary</b>	
Enrolment (K/1-7):	54 K + 321
Operating Capacity (K/1-7)	38 K + 372
<b>Guildford Park Secondary</b>	
Enrolment (8-12):	1315
Capacity (8-12):	1050

**Mary Jane Shannon Elementary**



**Guildford Park Secondary**



\* Nominal Capacity is estimated by multiplying the number of enrolling spaces by 25 students. Maximum operating capacity is estimated by multiplying the number of enrolling spaces by 27 students.

## TREE ASSESSMENT

**Table 3 – Summary of Tree Preservation by Tree Species**

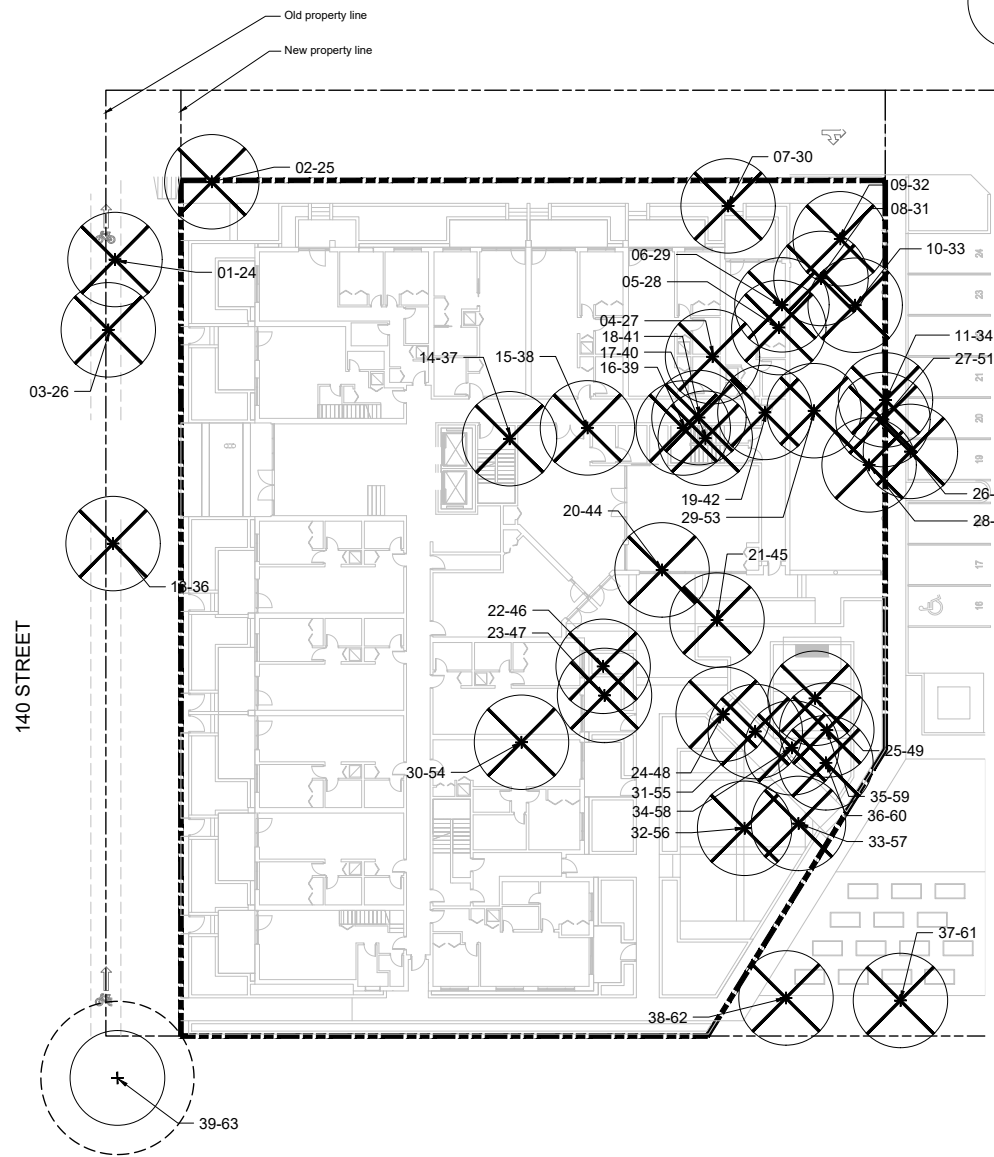
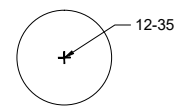
<b>Tree Species</b>	<b>Existing</b>	<b>Remove</b>	<b>Retain</b>
<b>Alder and Cottonwood Trees</b>			
Alder	18	18	0
Cottonwood	1	1	0
<b>Deciduous Trees</b> (excluding Alder and Cottonwood Trees)			
Cherry	1	1	0
Willow	1	1	0
Plum – fruit tree	2	2	0
Birch	1	1	0
<b>Coniferous Trees</b>			
Douglas fir	1	1	0
Pine	0	0	0
Western redcedar	10	10	0
Cedar hedge	1	1	0
Spruce	1	1	0
<b>Total</b> (excluding Alder and Cottonwood Trees)	<b>18</b>	<b>18</b>	<b>0</b>
<b>Additional Trees in the proposed Open Space / Riparian Area</b>			
<b>Total Replacement Trees Proposed</b> (excluding Boulevard Street Trees)		<b>26</b>	
<b>Total Retained and Replacement Trees</b>		<b>26</b>	

Summary, report and plan prepared and submitted by:

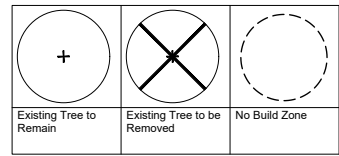
Oct 2, 2019

Project Arborist

Date

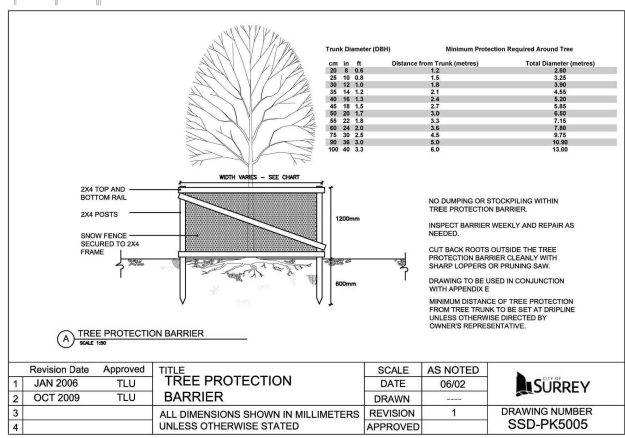


### TREE LEGEND



### NOTES:

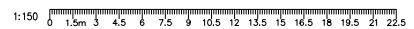
- Put snow fence and tree protection signage for tree 39-63 during construction.
- Contact VDZ+A Consulting Inc. (604-614-3517) for inspection 72 hours prior to any grading, excavation or grubbing within 1.5 meters of the Tree Protection Zone



Revision	Date	Approved	TITLE	SCALE	AS NOTED
1	JAN 2006	TLU	TREE PROTECTION BARRIER	SCALE	06/02
2	OCT 2009	TLU	TREE PROTECTION BARRIER	DRAWN	1
3			ALL DIMENSIONS SHOWN IN MILLIMETERS UNLESS OTHERWISE STATED	REVISION	DRAWING NUMBER
4				APPROVED	SSD-PK5005

### 2 TREE PROTECTION FENCE

N.T.S.



No.	By:	Description	Date
4	AD	Issued for DP	March 9, 2020
3	MW	Re-issued for ADP	Jan 16, 2020
2	MW	Issued for ADP	Oct 15, 2019
1	AD	Issued for DP / Reasoning	Oct 03, 2019

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No.	By:	Description	Date

Project:  
 PROPOSED RESIDENTIAL DEVELOPMENT

Location:  
 10472, 10482, 10492 140th street  
 surrey bc

Drawn: AD	Stamp:
Checked: MW	
Approved: MVDZ	Original Sheet Size: 24"x36"

Scale:  
 1:150

CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCIES TO THE CONSULTANT IMMEDIATELY. THE CONSULTANT AND INSPECTIONS ARE THE RESPONSIBILITY OF THE OWNER AND NOT THE CONSULTANT. ALL DIMENSIONS SHOWN ON THIS DRAWING MUST BE USED FOR CONSTRUCTION UNLESS LABELLED ISSUED FOR TRADE CONSTRUCTION.

January 16, 2020

Attn: Ms. Sarah Cranston, Planner  
Planning & Development Department  
City of Surrey  
13450 104 Ave,  
Surrey, BC V3T1V8

Dear Sarah,

**RE: 18-0425 10472/10482/10492 140<sup>th</sup> Street, Surrey**  
**Post-ADP planning, Urban Design and Engineering comments:**

Please find below our responses to the ADP comments.

The Urban Design Planner advised that the proposal complies with density, however, there are few issues that should be resolved:

- 1. The BC Hydro ROW located along east side of the side, crossing north to south. This ROW is considered undevelopable for the purposes of calculating density; but can be used for the development for other purposes such as outdoor amenity, provided support from BC Hydro. BC Hydro has provided initial feedback on the parking and other uses, but further discussion required.*

Outdoor amenity has been provided on BC Hydro ROW. This has been sent to Hydro and is pending approval (see Site Plan A1.1)
- 2. The discussion around proposed Sensitive Ecosystem Area for GIN corridor is under review, with ongoing discussions with respect to the extent of the area to be dedicated to the city. The required GIN corridor setback of 12.4m has been extended to 16.9m and the area will be conveyed to the city. (see Site Plan A1.1)*
- 3. Further minimizing the surface parking on the east side with more underground parking.*

The underground parking level has been revised. Surface parking has been minimized by providing more u/g parking stalls. Based on ADP comments and discussions with planning, the laneway access to the adjacent development will not be implemented at the time the development is constructed. (see Site Plan A1.1)
- 4. The surface parking and the 50m GIN corridor interface.*

A 2m landscaped buffer is provided between surface parking and GIN corridor. A 1.2m fence delineates the boundaries of the GIN corridor. See landscape and Site Plan A1.1

5. *Updating the Public realm condition facing 140 Street to the typical COS 30m atrial road standard.*

Core Concept has submitted a concept plan directly to the Engineering Department at the City of Surrey for the frontage works along 140 Street.

**Key Points:**

- *Review the pedestrian and vehicular connectivity and movement around the site, and potential ROW easement to the southern neighbour.*  
A continuous accessible pedestrian path runs around the site further connecting to the Gin corridor at the southeast corner. (see Site Plan A1.1)
- *Consider stormwater strategies. Further exploration is required on the permeable surface facing the GIN on the east.*  
The proposed stormwater strategies are outlined in the Preliminary Stormwater Management Memo.
- *Consider the safety related to at grade parking.*  
The surface parking has been reduced in site bringing closer to the residential suites and the windows of the occupied rooms. Careful lighting design will provide security to the parking area without causing light pollution to the sky or units (refer to landscape drawings). The parking ramp will have a louvered wall overlooking the parking to maintain visual connection to the parking area.
- *Recommend relocating at grade parking to the underground.*  
Five of the surface parking were relocated to the underground and that area used as part of the outdoor amenity. Ultimately, it can also provide a connection with the existing trail on the GIN corridor (see Site Plan A1.1).
- *Reconsider the laneway access to the adjacent site to the south.*  
South lane way access avoided to provide a green connection between outdoor amenity and GIN corridor (see Site Plan A1.1).
- *Consider the north landscape edge in relation to the units facing the lane.*  
There is not enough width along the lane to provide additional landscaping. Considering all the road dedications, Gin corridor conveyance and BC Hydro ROW, the developable area is very tight and further reduction in building size will compromise the feasibility of the project. This was discussed with planning and staff have indicated support to keep the design as is.
- *Consider at-grade units to be flush with no steps.*  
The steps to the townhouses are for compliance to the OCP Guidelines (DP1.1 106. (a)).
- *Refine accessible parking stall locations closer to the core/access to the core.*  
Underground accessible parking relocated closer to the core/access (see U/G Parking P1 Plan A1.2).
- *Review garbage and dog washroom locations at the UG parking.*  
Garbage and dog washroom relocated in the U/G parking for a better interaction (see U/G Parking P1 Plan A1.2).

- *Reconsider outdoor amenity layout as it relates to furniture, surfacing material, and programming.*  
Outdoor amenity area has been revised to allow more programs including dining, seating, playground, open lawn, dog run and urban agriculture for residents.
- *Recommend lobby entry to be Accessible with no steps and ramp inside the lobby.*  
According to the OCP Guidelines (DP1.1 106. (a)), the Ground floor is required to be raised a minimum of 600mm and maximum of 1200mm. Planning required all ramps and stairs to be inside the lobby and not on the building exterior.
- *Consider enhancing the massing articulation regarding the base, middle and top expression.*  
Current massing complies with Development Permit Guidelines and has been supported by Planning.
- *Recommend utilizing rooftop for amenity spaces.*  
The location of the amenity area on the Ground floor provides a better opportunity for connection to a larger outdoor amenity area that what can be provided on the rooftop.
- *Recommend parcel mail delivery room at grade next to the lobby.*  
Delivery parcel locker added to the mail boxes area (see Ground Floor Plan A1.3).
- *Recommend EV charging station opportunity for the units at the parking level.*  
EV charging station provided for 15 parking spaces and electrical conduit to be installed for 100% of the parking spaces (see U/G Parking P1 Plan A1.2).

**Site:**

- *Review BC Hydro SROW restrictions.*  
Landscape has reviewed BC Hydro restrictions and believe we are compliant. BC hydro to comment.  
Core Concept Consulting is currently in the process of coordinating with BC Hydro for all works located within their SROW.
- *Concerns on lane way at north edge. Provide trees and landscaping for the units facing the lane.*  
There is not enough width along the lane to provide additional landscaping. Considering all the road dedications, Gin corridor conveyance and BC Hydro ROW, the developable area is very tight and further reduction in building size will compromise the feasibility of the project. This was discussed with planning and staff have indicated support to keep the design as is.
- *Consider a connection to the play area from seating to the east next to the surface parking.*  
Connection to the play area provided at the east/south side of the property (see Site Plan A1.1).
- *Consider different location for dog washroom.*  
Dig washroom now relocated on U/G Parking Levels (see U/G Parking P1 Plan A1.2).
- *It was noted the bench locations are too close together.*  
Bench locations have been modified for revised layout.
- *Consider relocating visitor parking closer to the entry way if surface parking is proposed.*  
Priority has been given to providing parking closer to the entrance to the residents.

- *Further explore white massing, base and top expression.*  
Massing has been discussed with planning and supported.
- *Concerns were expressed on the close proximity to existing lower-scale residential.*  
Noted.
- *Concerns were expressed on the drive access on the east side to not accommodate vehicular traffic serving development to the south.*  
Drive access has been removed. A green connection is proposed on the south side of the site (see Site Plan A1.1).
- *The location of the outdoor amenity space is supported.*  
Noted.

**Form and Character:**

- *Recommend flush threshold to outdoor patio spaces for ground-oriented units.*  
Ground oriented units have flush thresholds with their outdoor patios.
- *Consider removing the ramp and steps in the lobby.*  
According to the OCP Guidelines (DP1.1 106. (a)), the Ground floor is required to be raised a minimum of 600mm and maximum of 1200mm. Planning required all ramps and stairs to be inside the lobby and not on the building exterior.
- *Consider differentiating the glazing form of the two stories townhome from above floors.*  
*"More vertical expression on the townhomes".*  
Vertical expression for the first two levels reinforced by the use of high vertical windows (see Elevation A2.1).
- *Consider greater refinement of top roof cantilever edge as it tends to emphasize the sixth-floor massing rather than a hidden sixth.*  
After consideration of this option, the current design of the cantilever edge seems to provide a better culmination to the building.
- *Consider reorientation of banquet table towards the outdoor area.*  
The table is a freestanding table that can be stored away. There is no fixed orientation.
- *Consider design development of the westerly public realm facing 140<sup>th</sup> St.*  
Landscape: 140<sup>th</sup> street frontage conforms to OCP guidelines and city standards.  
Civil: The offsite civil concept design has been completed in accordance with the City of Surrey's Specifications to upgrade the frontage to the current City specifications.
- *Consider making inside corner suite a wider opening.*  
Large windows are proposed for the living rooms of the units. The windows are 8'-2" high, close to the ceiling. Both living room and bedroom windows of each of the units have direct visual opening to the outside with no walls blocking lights.
- *Consider a stronger pedestrian connection from the lane to outdoor greenspace.*  
A continuous pedestrian walkway runs around the whole site. The sidewalk finish and pattern will be designed to continue as the path crosses the ramp to the U/G parking, thus maintaining a visual connectivity.



- *Recommend introducing colours or new materials to the elevations above 20 feet. Some of the panel members suggested that the current design pallet is very monolithic and others supported the current colour pallet.*  
The current color pattern will be maintained.
- *Recommend a walkway to link the north to the east/west pathway.*  
Same as above, the visual continuity will be maintained by the design of the finish and pattern of the sidewalk.
- *Recommend a minimum 500 mm access corridor between bed and window in Unit C2 and C6.*  
600mm minimum access corridor provided between bed and widow for both units C2 and C8 (previously C6).
- *Consider underground secured parking.*  
*All underground parking fully secured and only accessible through an overhead gate.*
- *Consider utilizing the rooftop for common amenity space.*  
The location of the amenity area on the Ground floor provides a better opportunity for connection to a larger outdoor amenity area that what can be provided on the rooftop.
- *Consider parcel delivery room in the lobby.*  
Delivery parcel locker now added to the mail boxes area (see Ground Floor Plan A1.3).
- *Improve flexibility and access to the gym. A door is missing.*  
*Flexibility and accesses provided for the fitness room.*

#### Landscape:

- *Consider other programme opportunities for BC Hydro Right of Way area.*  
BC hydro used as part of the outdoor amenity while providing a green corridor to the south side and ultimate relation with existing trail. Community garden has been added and the space has been redesigned. The open lawn area can be used for dog run as well.

#### CPTED:

- *Concerns were expressed on vehicle break-ins and safety for at-grade parking.*  
The surface parking has been reduced in site bringing most of the area closer to the residential suites and the windows of the occupied rooms, hence providing casual surveillance. Careful lighting design will provide security to the parking area without causing light pollution to the sky or units (refer to landscape drawings). The parking ramp will have a louvered wall overlooking the parking to maintain visual connection to the parking area.

#### Sustainability:

- *Consider EV charging stations.*  
EV charging station provided for 15 parking spaces in U/G level and electrical conduit installed for 100% of the parking spaces (see U/G PARKING P1 PLAN A1.2).
- *Recommend more development for functionality of permeable pavers.*



Permeable paving to be installed for the all area of the surface parking.

- *Consider edge contaminant (GIN interface) and storm water runoff.*  
The natural site grade drains from the south (GIN interface) to the north (140 Street). The parking area is designed to capture some of the drainage from the GIN area - to maintain the existing drainage pattern - and drain towards 140 Street (in this case towards the catch basins) to avoid any addition in surface runoff towards the GIN interface.

**Accessibility:**

- *Consider alternative location for accessible parking stall, such as closer to the elevator.*  
Accessible parking is close to the elevator.
- *Consider removing stairs into the lobby and elevators.*  
According to the OCP Guidelines (DP1.1 106. (a)), the Ground floor is required to be raised a minimum of 600mm and maximum of 1200mm. Planning required all ramps and stairs to be inside the lobby and not on the building exterior.

Sincerely,  
Studio One Architecture Inc  
Per:

Shoghig Tutunjian, Architect AIBC

CITY OF SURREY

BYLAW NO. 20061

A bylaw to amend "Surrey Zoning By-law, 1993, No. 12000", as amended  
.....

THE COUNCIL of the City of Surrey ENACTS AS FOLLOWS:

1. Surrey Zoning By-law, 1993, No. 12000, as amended, is hereby further amended, pursuant to the provisions of Section 479 of the Local Government Act, R.S.B.C. 2015 c. 1, as amended by changing the classification of the following parcels of land, presently shown upon the maps designated as the Zoning Maps and marked as Schedule "A" of Surrey Zoning By-law, 1993, No. 12000, as amended as follows:

FROM: SINGLE FAMILY RESIDENTIAL ZONE (RF)

TO: COMPREHENSIVE DEVELOPMENT ZONE (CD)

---

Portion of Parcel Identifiers: 009-733-426, 003-210-073, 009-733-451

Portion of Lots 13, 14, 15 Section 24 Block 5 North Range 2 West New Westminster District Plan 12636 as shown on the Survey Plan attached hereto and forming part of this Bylaw as Schedule A, certified correct by Sean Costello, B.C.L.S. on the 10th day of March, 2020, containing 4615.2 square metres, called Block A.

(Portion of 10472, 10482 & 10492 – 140 Street)

(hereinafter referred to as the "*Lands*")

2. The following regulations shall apply to the *Lands*:

**A. Intent**

This Comprehensive Development Zone is intended to accommodate and regulate the development of medium *density*, medium-rise, *multiple unit residential buildings*, *ground-oriented multiple unit residential buildings*, and related *amenity spaces*, which are to be developed in accordance with a *comprehensive design*.

**B. Permitted Uses**

The *Lands* and *structures* shall be used for *Multiple Unit Residential Buildings* and *Ground-Oriented Multiple Unit Residential Buildings*.

**C. Lot Area**

Not applicable to this Zone.

**D. Density**

For the purpose of *building* construction:

1. The maximum *density* shall not exceed a *floor area ratio* of 0.1 or *building area* of 300 square metres [3, 230 sq. ft], whichever is smaller. The maximum *density* may be increased to that prescribed in Sections D.2 and D.3 of this Zone if amenity contributions (specifically affordable housing, capital projects, including those within centre specific areas, police, fire, libraries, parks, and where applicable, underground utilities) are provided in accordance with Schedule G, Sections A, B, C, D and E of Surrey Zoning By-law, 1993, No. 12000, as amended.
2. (a) The *floor area ratio* shall not exceed 3.1; and  
 (b) The *unit density* shall not exceed 415 *dwelling units* per hectare [168 u.p.a.].
3. The indoor *amenity space* required in Sub-section J.1(b) is excluded from the calculation of *floor area ratio*.

**E. Lot Coverage**

The *lot coverage* shall not exceed 57%.

**F. Yards and Setbacks**

1. *Buildings* and *structures* shall be sited in accordance with the following minimum *setbacks*:

<b>Use</b>	<b>Setback</b>	<i>Front Yard</i>	<i>Rear Yard</i>	<i>North Side Yard</i>	<i>South Side Yard</i>
<i>Principal Buildings, Accessory Buildings, and Structures</i>		4.5 m [15 ft.]	22.0 m [72 ft.]	4.0 m [13 ft.]	3.0 m [10 ft.]

Measurements to be determined as per Part 1 Definitions of "Surrey Zoning By-law, 1993, No. 12000", as amended.

2. Notwithstanding Section F.1 of this Zone, patios and covered patio columns may encroach up to 2.0 metres (6 ft.) into the required *setbacks*.

## **G. Height of Buildings**

Measurements to be determined as per Part 1 Definitions of Surrey Zoning By-law, 1993, No. 12000, as amended.

1. Principal buildings: The *building height* shall not exceed 20 metres [65 ft.].
2. Accessory buildings and structures: The *building height* shall not exceed 4.5 metres [15 ft.].

## **H. Off-Street Parking**

1. Resident and visitor *parking spaces* shall be provided in accordance with Part 5 Off-Street Parking and Loading/Unloading of "Surrey Zoning By-law, 1993, No. 12000", as amended.
2. Sixty-five percent (65%) of the required resident *parking spaces* shall be provided as *underground parking* or as *parking within building envelope*.
3. Notwithstanding Sub-section A.3(d) of Part 5 Off-Street Parking and Loading/Unloading of "Surrey Zoning By-law, 1993, No. 12000", as amended, the *underground parking* may be located up to 0 m [0 ft.] from the *front lot line* or *lot line* along a *flanking street*.

## **I. Landscaping**

1. All developed portions of the *lot* not covered by *buildings, structures* or paved areas shall be landscaped including the retention of mature trees. This *landscaping* shall be maintained.
2. Along the developed sides of the *lot* which abut a *highway*, a continuous *landscaping* strip of not less than 1.5 metres [5 ft.] in width shall be provided within the *lot*.
3. The boulevard areas of *highways* abutting a *lot* shall be seeded or sodded with grass on the side of the *highway* abutting the *lot*, except at *driveways*.
4. Garbage containers and *passive recycling containers* shall be located within the *underground parking* or within a *building*.

**J. Special Regulations**

1. *Amenity space*, subject to Section B.1, Part 4, General Provisions, of Surrey Zoning By-law, 1993, No. 12000, as amended, shall be provided on the *lot* as follows:
  - (a) Outdoor *amenity space*, in the amount of 3.0 square metres [32 sq. ft.] per *dwelling unit*;
  - (b) Outdoor *amenity space* shall not be located within the required *front yard setback*; and
  - (b) Indoor *amenity space*, in the amount of 3.0 square metres [32 sq. ft.] per *dwelling unit*.
2. *Balconies* are required for all *dwelling units* which are not *ground-oriented* and shall be a minimum of 5% of the *dwelling unit* size or 4.6 square metres [50 sq. ft.] per *dwelling unit*, whichever is greater.

**K. Subdivision**

1. *Lots* created through subdivision in this Zone shall conform to the following minimum standards:

<i>Lot Size</i>	<i>Lot Width</i>	<i>Lot Depth</i>
2,400 sq. m. [0.6 acre]	40 metres [131 ft.]	60 metres [197 ft.]

Dimensions shall be measured in accordance with Section E.21 of Part 4 General Provisions of "Surrey Zoning By-law, 1993, No. 12000", as amended.

**L. Other Regulations**

In addition to all statutes, bylaws, orders, regulations or agreements, the following are applicable, however, in the event that there is a conflict with the provisions in this Comprehensive Development Zone and other provisions in "Surrey Zoning By-law, 1993, No. 12000", as amended, the provisions in this Comprehensive Development Zone shall take precedence:

1. Definitions are as set out in Part 1 Definitions of "Surrey Zoning By-law, 1993, No. 12000", as amended.
2. Prior to any use, the *Lands* must be serviced as set out in Part 2 Uses Limited, of "Surrey Zoning By-law, 1993, No. 12000", as amended and in accordance with the servicing requirements for the RM-70 Zone as set forth in the "Surrey Subdivision and Development By-law, 1986, No. 8830", as amended.
3. General provisions are as set out in Part 4 General Provisions of "Surrey Zoning By-law, 1993, No. 12000", as amended.

4. Additional off-street parking requirements are as set out in Part 5 Off-Street Parking and Loading/Unloading of "Surrey Zoning By-law, 1993, No. 12000", as amended.
5. Sign regulations are as set out in "Surrey Sign By-law, 1999, No. 13656", as amended.
6. Special *building setbacks* are as set out in Part 7 Special Building Setbacks, of "Surrey Zoning By-law, 1993, No. 12000", as amended.
7. *Building* permits shall be subject to the "Surrey Building Bylaw, 2012, No. 17850", as amended.
8. *Building* permits shall be subject to "Surrey Development Cost Charge Bylaw, 2018, No. 19478", as may be amended or replaced from time to time, and the development cost charges shall be based on the RM-70 Zone.
9. Tree regulations are set out in "Surrey Tree Protection Bylaw, 2006, No. 16100", as amended.
10. Development permits may be required in accordance with the "Surrey *Official Community Plan* By-law, 2013, No. 18020", as amended.

3. This Bylaw shall be cited for all purposes as "Surrey Zoning Bylaw, 1993, No. 12000, Amendment Bylaw, 2020, No. 20061".

PASSED FIRST READING on the \_\_\_\_\_ th day of \_\_\_\_\_, 20\_\_ .

PASSED SECOND READING on the \_\_\_\_\_ th day of \_\_\_\_\_, 20\_\_ .

PUBLIC HEARING HELD thereon on the \_\_\_\_\_ th day of \_\_\_\_\_, 20\_\_ .

PASSED THIRD READING on the \_\_\_\_\_ th day of \_\_\_\_\_, 20\_\_ .

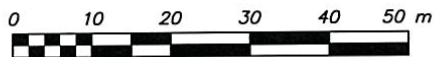
RECONSIDERED AND FINALLY ADOPTED, signed by the Mayor and Clerk, and sealed with the Corporate Seal on the \_\_\_\_\_ th day of \_\_\_\_\_, 20\_\_ .

\_\_\_\_\_  
MAYOR

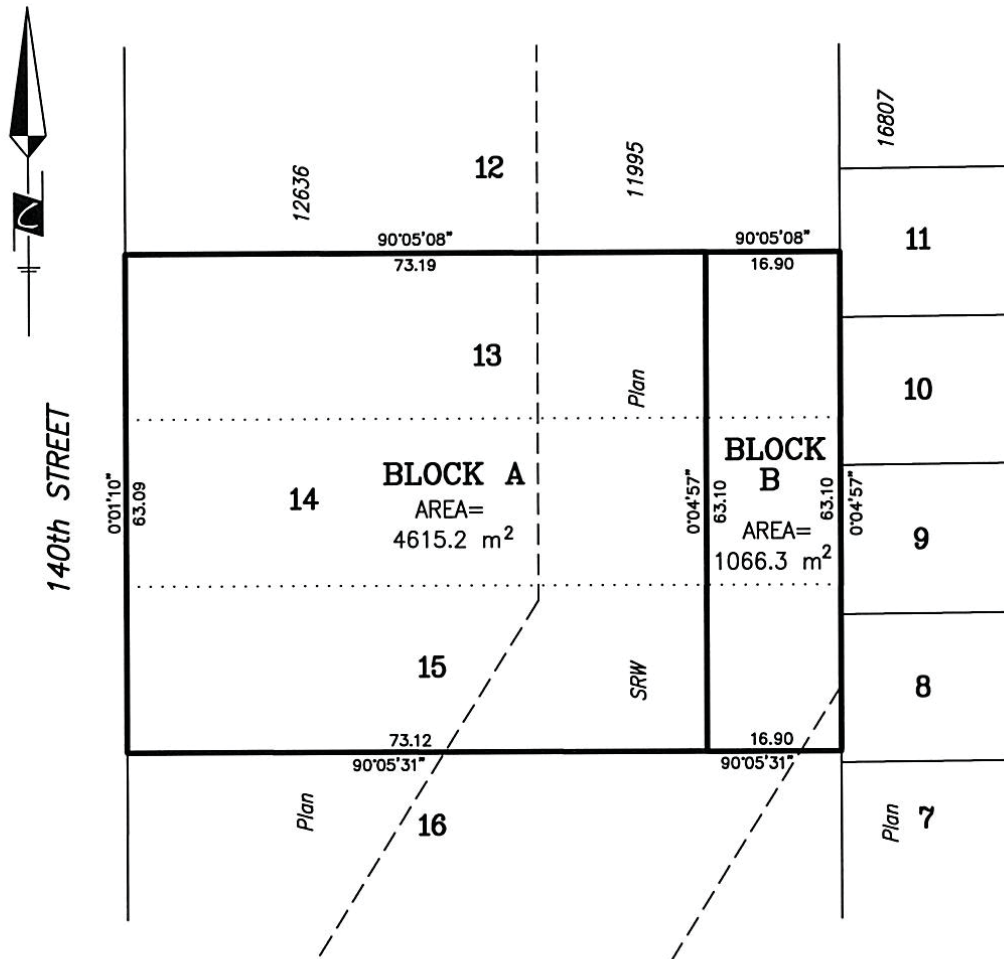
\_\_\_\_\_  
CLERK

**SURVEY PLAN TO ACCOMPANY CITY OF SURREY  
REZONING BYLAW NO. \_\_\_\_\_ OF LOTS 13, 14  
AND 15, ALL OF SECTION 24, BLOCK 5 NORTH,  
RANGE 2 WEST, NEW WESTMINSTER DISTRICT, PLAN 12636**

City of Surrey B.C.G.S. 92G.016



SCALE - 1 : 750  
All distances are in metres



Cameron Land Surveying Ltd.  
B.C. Land Surveyors  
Unit 234 - 18525-53rd Avenue  
Surrey, B.C. V3S 7A4  
Phone: 604-597-3777  
File: 6285-ZONING



Certified correct to survey dated this 10th day of March, 2020.

Sean Costello, B.C.L.S.

This plan lies within the Metro Vancouver Regional District

**10472, 10482, 10492 140 Street  
Development,  
DP3: Sensitive Ecosystems  
Ecosystem Development Plan  
Rev. 1**

**Prepared For**

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19V0332  
December 2019







## AUTHORSHIP

This report was prepared by EDI Environmental Dynamics Inc. Staff who contributed to this project include:

Yonase Gulbot, B.I.T..... Primary Author

Randolph Morris, R.P.Bio.....Senior Review



## TABLE OF CONTENTS

1	INTRODUCTION .....	1
2	D. SUBMISSION REQUIREMENTS .....	1
2.1	D.I. CONSULTANT QUALIFICATIONS.....	1
	a) <i>Arborist Report</i> .....	1
	b) <i>Geotechnical Engineering Report</i> .....	1
2.2	D.II. PROTECTION AREAS .....	2
	a) <i>Streamside Areas</i> .....	2
	b) <i>Green Infrastructure Network</i> .....	2
2.3	D.III LEVELS OF SAFEGUARDING .....	3
2.4	D.IV PRE-DEVELOPMENT SITE CONDITIONS.....	3
	a) <i>Building and Construction</i> .....	3
	b) <i>Soils</i> .....	4
	c) <i>Trees and Vegetation</i> .....	4
	d) <i>Habitat</i> .....	4
	e) <i>Drainage</i> .....	5
2.5	D.V PROPOSED DEVELOPMENT CONDITIONS AND SPECIFICATIONS.....	5
2.6	REFERENCES .....	8

## LIST OF APPENDICES

- APPENDIX A. PHOTOGRAPHS
- APPENDIX B. RESUMES
- APPENDIX C. ARBORIST AND GEOTECHNICAL ENGINEERING REPORTS
- APPENDIX D. SITE PLANS



## LIST OF TABLES

Table 1.	Verification of professional status.....	1
Table 2.	Species at risk with the potential to occur onsite at 2508 Bayview Street (CDC 2019). ....	2

## LIST OF FIGURES

Figure 1.	Location overview (Courtesy of COSMOS). ....	1
Figure 2.	Property and Sensitive Ecosystem Area buffers (Courtesy of COSMOS).....	1
Figure 3.	City of Surrey Green Infrastructure Area and 50 m setback (Courtesy of COSMOS).....	3



## 1 INTRODUCTION

This document follows the layout of the DP3 Development Permit Guidelines: Sensitive Ecosystems document by the City of Surrey (City of Surrey 2018). The sectioning and titles correspond to the guidance document to make review easier.

The owner of 10472, 10482, and 10492 140 Street, Surrey (the site), has proposed the development of a six-storey multi-family residential building on these vacant lots. This development would involve construction of an access lane from 140 Street that would continue to an underground parkade and above ground parking stalls, a multi-family residential building, and utility works to connect the property to the City sanitary-sewer system (Appendix D). The property is listed on the City of Surrey Mapping Online System (COSMOS) as being zoned Single Family Residential (City of Surrey 2019). This area will be rezoned to a Comprehensive Development Zone to accommodate the proposed development (Figure 1).

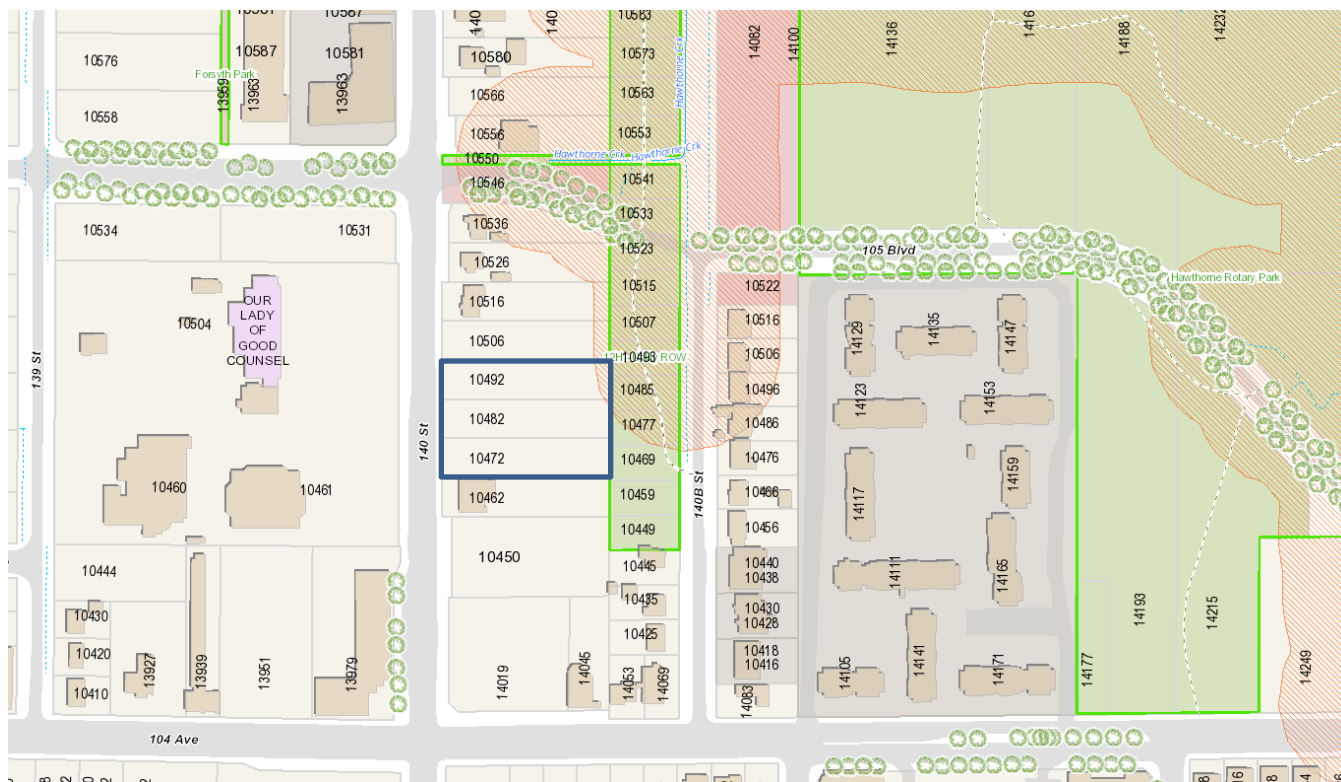


Figure 1. Location overview (Courtesy of COSMOS). Site outlined in blue.

The proposed development area is within the Sensitive Ecosystems Development Permit Area and includes both Streamside Areas and Green Infrastructure Areas (Figure 1). As such, the intent of this plan is to meet the needs of City of Surrey Sensitive Ecosystems Development Permit application guidelines.

Streamside Areas are those adjacent to and setback from a stream that link aquatic and terrestrial ecosystems. They also include riparian area vegetation and the adjacent upland vegetation that influence a stream. A small



portion of Lots 10492 and 10482 are within the streamside 50 m buffer area for an unnamed watercourse that discharges into Hawthorne Creek, approximately 100 m north of the property. This unnamed watercourse (ditch) is classified as a Class C stream, or “insignificant food/nutrient value; no fish present” adjacent to the property, although it is classified as a Class B stream, or “significant food/nutrient value; no fish present” immediately downstream (north) of the property.

Green Infrastructure Areas are those identified in the City’s *Biodiversity Conservation Strategy* as both Biodiversity Management Areas and Green Infrastructure Network. A 50 m wide Green Infrastructure Network corridor overlaps the east perimeter of the site by 10 m and extends through the BC Hydro utility right-of-way and park path for another 40 m (Figure 2).

The Sensitive Ecosystems Development Permit Application is required to ensure that planned re-development does not harm these sensitive ecosystems

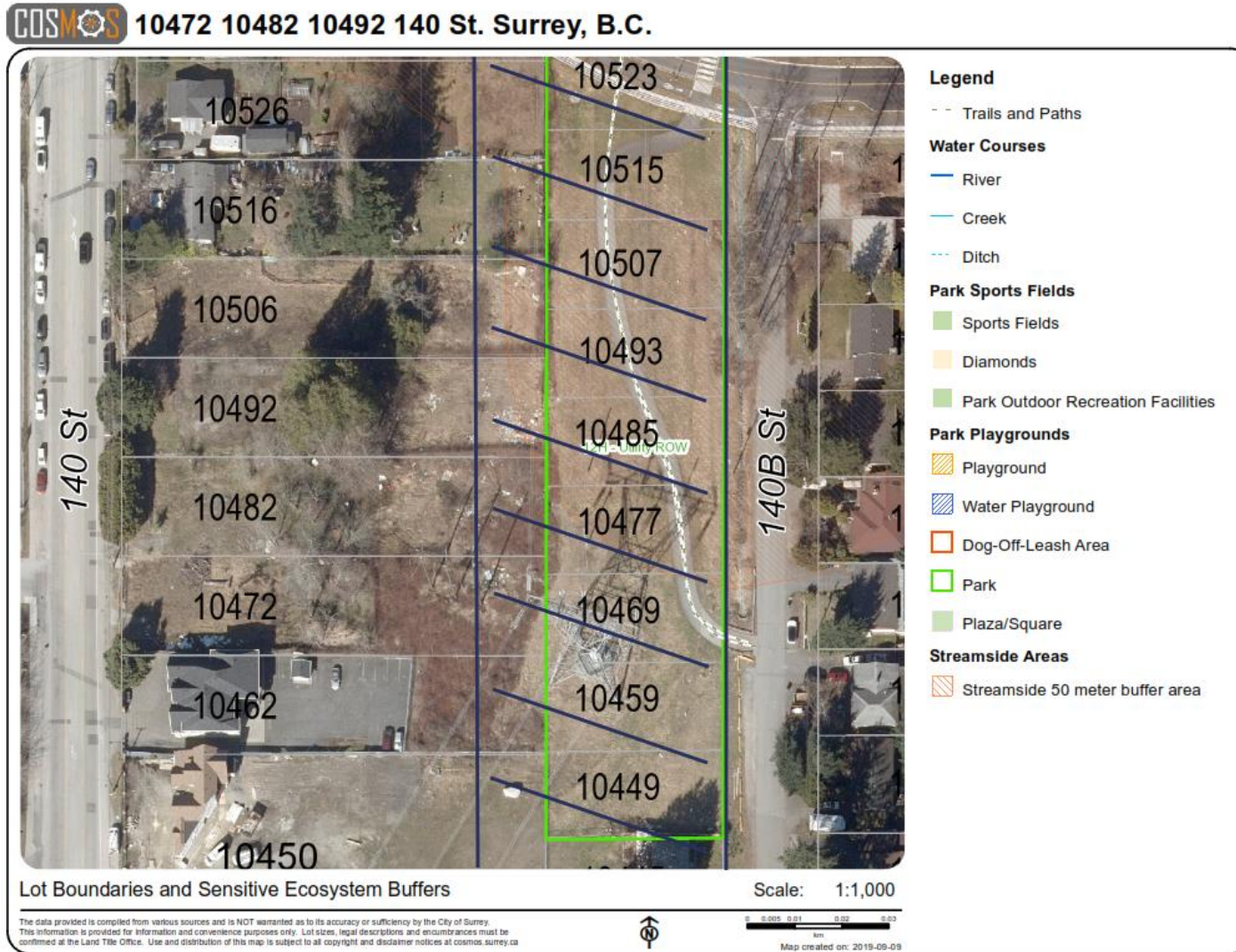


Figure 2. Property and Sensitive Ecosystem Area buffers (Courtesy of COSMOS). The blue hashed area on the east side of the site marks the approximate location of the GIN corridor.



## 2 D. SUBMISSION REQUIREMENTS

### 2.1 D.I. CONSULTANT QUALIFICATIONS

This Ecosystem Development Plan was prepared by EDI Environmental Dynamics Inc. The consultants, their designations (with member numbers in brackets) and role in its development include:

Yonase Gulbot, B.I.T.	Primary Author
Randolph Morris, M.R.M., P.Ag., P.Biol., R.P.Bio.	Senior Reviewer

Resumes for these individuals are included in Appendix B that demonstrates their education, expertise relevant to sensitive ecosystems and / or streamside management. All the consultants above are in good standing with the College of Applied Biology of BC (CAB) (<https://www.cab-bc.org/members-list/partial>). Table 1 lists their designation, professional body and a scan of their seal certifying they are currently in good standing.

**Table 1. Verification of professional status.**

Name	Designation	Professional Body (Membership Number)
Yonase Gulbot	B.I.T.	CAB (BIT#869)
Randy Morris	P.Ag., R.P.Bio.	BCIA (#2403) CAB (#2957)

In addition, input into the Ecosystem Development Plan was provided from other professional reports prepared for the property and associated proposed development and are provided in Appendix C.

#### A) ARBORIST REPORT

Van Der Zalm and Associates (2019) carried out an inventory and assessment of trees associated with the development at 10472, 10482, and 10492 140 Street in July 2019, including a tree plan identifying trees proposed for retention and removal.

#### B) GEOTECHNICAL ENGINEERING REPORT

Western Geotechnical Consultants Ltd. (2017) prepared a geotechnical assessment report for the site. The report summarized soil and groundwater conditions and gives recommendations for seismic considerations, site preparation, and other construction processes related to the foundation and earthworks.





## 2.2 D.II. PROTECTION AREAS

### A) STREAMSIDE AREAS

Part 7A Streamside Protection of the Surrey Zoning Bylaw, No. 1200, 1993 denotes that “All lands within a streamside protection area, which includes the area of land between the stream and top of bank and the streamside setback area, are subject to the regulations set out in this Part, except for those lands and uses permitted in the Agricultural Land Reserve that are exempt from the Riparian Area Regulation, B.C. Reg. 376/2004”. The unnamed watercourse directly east of the subject property is considered a man-made non-fish bearing watercourse providing insignificant amounts of food and nutrient value to downstream fish populations (Class C) and requires no streamside setback.

The unnamed watercourse is characterized by an undefined channel with extensive vegetation cover and no evidence of surface flow. The unnamed watercourse fish classification changes from Class C to Class B just downstream (north) of lot 10492. Class B watercourses are defined as a significant source of food and nutrient value to downstream fish populations with no documented fish presence and no reasonable potential for fish presence. Class B watercourses are subject to streamside protection, and it is the streamside 50 m buffer for this reach of the watercourse that overlaps with the property.

The unnamed watercourse continues to flow north and eventually flows into Hawthorne Creek (also classified as Class B) through a culvert under 105 Boulevard. Both reaches of the unnamed watercourse and Hawthorne Creek were dry during the survey. Although lots 10482 and 10492 are within the streamside 50 m buffer, the property is well beyond 30 m of the watercourse, which would be the maximum setback requirement for any stream. As such, the property does not infringe on any streamside protection area and watercourse mitigation is not required for this project.

### B) GREEN INFRASTRUCTURE NETWORK

Under the Biodiversity Conservation Strategy, the Green Infrastructure Network (GIN) is composed of hubs and corridors of green space that provide connectivity and protect movement corridors for wildlife, reducing the urban fragmentation. The GIN corridor is a linear strip of habitat, allowing species to move from hub to hub and incorporates Quibble Creek Greenway, the pathway east of the site. Hawthorne Rotary Park, the nearest hub to the proposed development, is located 115 m northeast of lot 10492. As it is important for a wide range of species, it has been classified as having moderate regional value and thus given a setback of 50 m.

The City of Surrey online mapping website (COSMOS) shows the corridor width as 50 m with a setback of 50 m on either side and overlapping with approximately half of the three lots that comprise the site (Figure 3). Through communication with the City of Surrey (A. Doiron, pers. Comm., September 2019), it was confirmed that the GIN corridor location displayed on COSMOS was intended to be applied to the BC Hydro utility right-of-way and park path (see Figure 2) with only 10 m of the GIN within the eastern edge of the site.



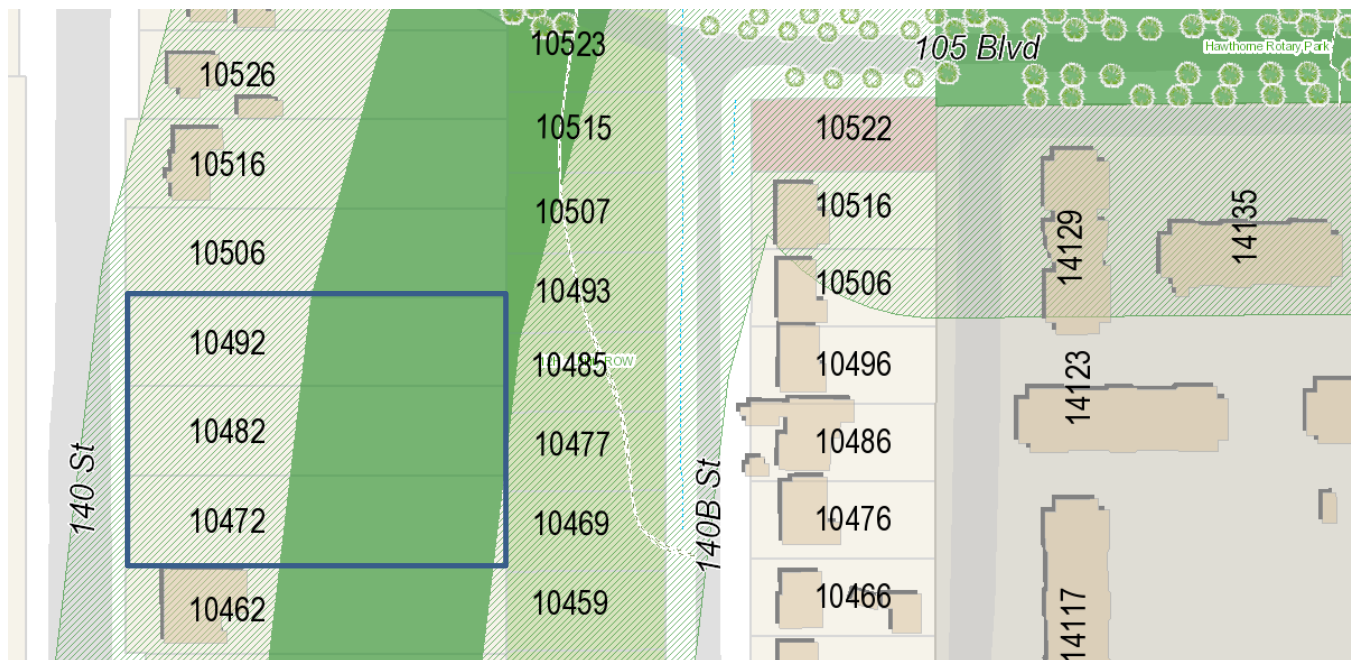


Figure 3. City of Surrey Green Infrastructure Area and 50 m setback (Courtesy of COSMOS). The City of Surrey confirmed the GIN layer (solid green) is meant to be overlaid east of the site, overlapping the BC Hydro utilities right-of-way and park path leaving 10 m in the proposed development area.

## 2.3 D.III LEVELS OF SAFEGUARDING

The maximum safeguarding option will be implemented as the method of protection for this development. The City of Surrey will be responsible for the protection of the sensitive ecosystem. This means that the GIN corridor and remaining area between the GIN and the development (Appendix D) have been conveyed to the City. The property owner is not responsible for any additional ecological restoration or ongoing maintenance related to Streamside or Green Infrastructure Areas beyond that provided under the context of this application.

## 2.4 D.IV PRE-DEVELOPMENT SITE CONDITIONS

### A) BUILDING AND CONSTRUCTION

During the August 20, 2019 field visit, there were no buildings or developed areas onsite; however, houses were on each lot in the past and two powerline rights-of-way extend along the eastern side of all three lots. The site consists of a flat vegetated area, with woody vegetation debris piled on lot 10472, and piles of household garbage dispersed throughout. A single-family residence is located on the lot south of the site, 10462, and the site sits adjacent to, and west of, undeveloped land that contains Quibble Creek Greenway, a multi-use pathway that leads to Hawthorne Rotary Park. The west border of the lot is bounded by 140 Street.



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## B) SOILS

The topography of the site is generally flat with elevations between 102 and 104 m (Western Geotechnical Consultants Ltd. 2017). The rear property line is located about 40 m from a mapped watercourse (Class C ditch). There are no indicators on the property that suggested soil stability issues, especially given the flat topography (e.g., no signs of slumping, mass movements, slope creep).

---

## C) TREES AND VEGETATION

The entire site is vegetated and dominated by shrub growth with a grassy area on the west side and a strip of tree growth in the centre of the lots. Trees species observed onsite include western red cedar (*Thuja plicata*), black cottonwood (*Populus trichocarpa*), red alder (*Alnus rubra*), paper birch (*Betula papyrifera*), and various fruit trees. Shrub species consisted of hardhack (*Spiraea douglasii*), Himalayan blackberry (*Rubus armeniacus*), and willow (*Salix* sp.). Himalayan blackberry cover was prolific throughout the eastern side of the site, growing very thick under the powerline right of way, along with some young red alder and hardhack. In general vegetation onsite did not appear to be recently maintained particularly on the east side of the lots.

The arborist report (Van Der Zalm and Associates 2019) identified 36 trees onsite (10 of which were dead) and an additional 3 trees adjacent to and along the property lines. The 36 trees onsite have been recommended for removal due to conflict with the proposed construction; two trees located offsite and a tree straddling the property line were listed to be retained. This report will be included as part of the DP3 application.

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## D) HABITAT

The property lies within the Green Timbers Management Area in the City of Surrey's Biodiversity Conservation Strategy. In this Management Area, objectives focus on the following (Diamond Head 2014):

- Improve habitat connectivity between major hubs/natural areas;
- When development is proposed adjacent to natural areas, encourage alternative development concepts that allow for greater protection of these natural areas;
- Work with landowners to naturalize yards adjacent to the GIN;
- Enhance north south corridor between Fraser River and the ALR;
- Expand and enhance riparian habitat to support fish and wildlife, and protect water quality;
- Increase the number of wetlands, and
- Remove barriers to movement along BC Hydro Right-of-Way

In general, the property offers marginal habitat value, primarily for nesting migratory birds. The large and dead trees on the property (cedars and snags) could provide nesting opportunities for some bird. Tree cavities were noted on the property excavated in snags, and one inactive nest was identified onsite at the time of the survey. Dead leaves filled the inactive nest. Shrubs (blackberry) may also provide nesting and foraging habitat for songbirds. No raptor nests or heron rookeries were noted within 100 m of the site and the site is sufficiently setback from Hawthorne Rotary Park and Hawthorne Creek to not influence their habitat value.



Maps available through the provincial BC Conservation Data Centre (iMap CDC) show no records of Species and Ecosystems at Risk, or critical habitat for Species at Risk within or adjacent to the property (Government of British Columbia 2019). Two incidental Northern Red-legged Frog sightings occurred approximately 1.5 km south of the site in wetland habitat in 2005. The site is within a masked/secured CDC data set and information was requested from the BC Conservation Data Centre. The BC CDC response concluded that the details of the masked areas are not needed for planning consideration of the proposed development.

## E) DRAINAGE

Section D.ii. details the Streamside Protection Areas adjacent to site and denotes the classification of this watercourse. The property does not encroach on the maximum 7 m setback from the recommended top-of-bank line from the Class B portion of the ditch and no setback is required for a Class D ditch that parallels the site.

The site is in the Fraser Lowland Ecoregion within the Lower Mainland Ecoregion (MOE 2016), an area of high rainfall, with precipitation increasing towards the Coast Mountains and Cascade ranges. Pacific air can stall in this region bringing intense rain or snow to the adjacent mountains. Infrequently, Arctic air moving through the area can bring winter storms with cold temperature and deep snow. The extreme minimum temperature recorded at White Rock STP weather station was -14.5 °C (November 27, 1985) (Environment Canada 2016). Hot, dry air from the south can bring warm, very dry conditions in the summer (BC MOE 2016), with an extreme maximum temperature recorded at White Rock STP of 33.5 °C (July 20, 1990). Daily average maximum temperatures are highest in August at 21.8 °C, with daily average minimums lowest in December at approximately 1.2 °C. Average precipitation recorded at the monitoring station at White Rock STP between 1981 and 2010 is 1108.2 mm per year, with 30.4 cm of this falling as snow.

As the site is currently undeveloped, no specific stormwater management approach is undertaken on the site at this time. Precipitation naturally infiltrates to ground, and water runoff from the site is likely minimal due to its flat topography. There were no overflow paths of water evident on the property, nor signs of pooling water.

## 2.5 D.V PROPOSED DEVELOPMENT CONDITIONS AND SPECIFICATIONS

The proposed development would involve construction of a new six-storey multi-family dwelling with access from 140 Street. A driveway would border the residence on the north and east sides with access to underground parking from the north and above ground parking stalls on the east side.

The schedule for the proposed development is anticipated to begin as soon as possible following issuance of the appropriate permits. The owner anticipates beginning construction in fall of 2020 pending city approvals.

No construction activities will be undertaken in the GIN corridor. The 10 m strip of the GIN corridor within the site is located under powerline rights-of-way and vegetation is overgrown in patches alternating between



open grass, pole saplings (alder species and willow), and shrubs (blackberry and hardhack). Piles of household garbage was strewn within this area.

Restoration work and landscaping of the open vegetation area on the site will be completed. The 10 m GIN strip and adjacent buffer will be conveyed to the City for their use and restoration. Native shrub species that may be used include salal (*Gaultheria shallon*), ocean spray (*Holodiscus discolor*), Oregon grape (*Mahonia* sp.), snowberry (*Symphoricarpos occidentalis*), and russet buffaloberry (*Shepherdia canadensis*). Since the portion of land that will be restored is under powerlines no tree species will be planted as a part of the restoration works. Restoration of this section of the property is consistent with the objective of encouraging naturalized landscapes in and adjacent to the GIN.

No trees are scheduled to be removed within the Streamside Protection Area or the GIN corridor. The landowner anticipates removing the live and dead trees identified in the arborist report within the site. Trees offsite and straddling the property line will be retained and protected during the development as per the arborist report (Van Der Zalm and Associates 2019). If the tree (western red cedar) straddling the property line must be removed for construction reasons, an appropriate compensatory planting will take place. Trees to be removed are discussed in the arborist report.

The development of the property and utilities upgrades will follow best management practices as needed from the guidance document Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in British Columbia (MFLNRO and MOE, 2014). Besides the neighboring GIN corridor, there were no specific Environmentally Valuable Resources identified on the property. Aside from typical requirements for Stormwater Management and tree protection, development activities must be sensitive to the general ecological values of the site. Any clearing of trees and shrubs should be conducted if possible, during the least risk timing window for nesting birds. For passerine birds, this is typically between September 1 and February 28. If clearing cannot be completed during this time, then a pre-clearing nest survey should be completed by a Qualified Environmental Professional.

During construction, Best Management Practices for sediment and erosion control will be implemented on the property. Sediment transport and erosion may pose risks to water quality if not managed appropriately on the site. Since all construction activities are anticipated to occur outside of the GIN corridor and well beyond (>50 m) of any watercourse on flat topography, standard erosion and sediment control activities should mitigate any major risks. At a minimum, the following measures shall be implemented to prevent the transport of sediment and sediment laden runoff offsite:

- Non-woven sediment fencing shall be installed along or near the property boundary to prevent the transport of sediment laden water into the ravine and watercourse. The sediment fence shall be installed such that at least 2” of fabric is inserted into the substrate. Where larger tree roots are encountered, sandbags shall be used to secure the fabric to the ground (rather than trenching through the roots).
- Earthworks shall not be conducted during heavy rainfall events.



- During construction, all exposed soils shall be protected from erosion during rainfall events by covering with polyethylene sheets or tarps.
- Upon completion of construction, all exposed soils shall be protected from erosion by soft methods (gravel, grass seed and straw/hay mulch, landscaping, erosion control blankets etc.).

The extent of soil disturbance is limited to the construction of the new multi-family residential building, driveway, outdoor and underground parking areas, outdoor amenity, vegetated area in the southeast corner, as well as the temporary excavation associated with upgrades to necessary sanitary and/or utility lines. None of the earthworks is anticipated to infringe on the Streamside Protection area or GIN corridor.

As the proposed development does not encroach into a streamside setback and with the property boundaries situated greater than 40 m from a Class C watercourse, an impact mitigation plan has not been prepared.



## 2.6 REFERENCES

- BC Ministry of Environment (MOE). 2016. Ecoregion Unit Descriptors. Available: [https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/ecosystems/broad-ecosystem/an\\_introduction\\_to\\_the\\_ecoregions\\_of\\_british\\_columbia.pdf](https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/ecosystems/broad-ecosystem/an_introduction_to_the_ecoregions_of_british_columbia.pdf)
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- Environment Canada. 2019. Canadian Climate Normals. Available at: [http://climate.weather.gc.ca/climate\\_normals/index\\_e.html](http://climate.weather.gc.ca/climate_normals/index_e.html)
- Government of British Columbia. 2019. Conservation Data Centre iMap. Available at <http://maps.gov.bc.ca/ess/hm/cdc/>
- Van Der Zalm and Associates. 2019. 140 St. Arborist Report.
- Western Geotechnical Consultants Ltd. 2017. Geotechnical Assessment – Proposed Multi-Family Residential Development 10472, 10482 and 10492 140 Street, Surrey, B.C.



## APPENDIX A. PHOTOGRAPHS





Photo 1. Photo taken from middle of lot 10472, view west.



Photo 2. West edge of GIN corridor in lot 10482, south view.





Photo 3. GIN corridor from northeast corner of lot 10492, west view.



Photo 4. GIN corridor from northeast corner of lot 10492, east view.





Photo 5. Cedar hedge, photo taken from middle of lot 10482, west view.



Photo 6. Woodpecker excavations in snag located in mid lot 10482, northeast view.





Photo 7. Inactive bird nest in lot 10482, northeast view.



Photo 8. Class D ditch across from lot 10492, upstream (north) view.





Photo 9. Class D ditch across from lot 10492, left bank (west) view. The site is pictured in the background.



## APPENDIX B. RESUMES



# RANDY MORRIS, MRM, P.AG., R.P.BIO., P.BIOL.

ENVIRONMENTAL PLANNER/BIOLOGIST

## BIOGRAPHY

Randy Morris has been involved with a wide array of projects, demonstrating the broad scope of his natural resource management experience. Randy has worked for over 15 years in the fields of terrestrial and aquatic ecology. During this time, he has worked in almost all sectors involved in resource management, including industry, government, academia and non-profit. While Randy is frequently engaged in technical field work and reporting, Randy is also highly involved in project management for EDI. He has worked extensively with construction and urban development, providing environmental services and managing projects for all project phases.

## PROJECT EXPERIENCE

- **CH2M – Gray Creek Culvert Replacement, Burnaby, BC**  
Environmental professional involved with the replacement of the Gray Creek culvert in the City of Burnaby. Environmental services included fish salvage, pre-clearing nest surveys and monitoring for the duration of the project. Environmental monitoring focused on erosion and sediment control, water quality, vegetation clearing, fuel management, and waste management. (2017)
- **Kiewit Ledcorp Transmountain Partnership – Burnaby Mountain Terminal Erosion and Sediment Control Plan, Burnaby, BC**  
Environmental professional involved with the research and development of the ESC Plan for the Burnaby Mountain Terminal of the Kinder Morgan Trans Mountain Pipeline project. Duties included a field examination, interpretation of construction plans, and development of site-specific controls to protect water quality and meet municipal, provincial and federal regulatory requirements for ESC planning. (2017)
- **BC Hydro – FortisBC LMSU Relocation Project, Coquitlam, BC**  
Environmental monitor for the relocation of a BC Hydro transmission line to accommodate expansion of FortisBC pipeline. Monitoring activities included provision of pre-clearing nest surveys, examination of soils and water management and guidance for sediment and erosion control. (2016 – 2017)
- **Opus DaytonKnight – Dollarton Lift Station #19 Replacement, North Vancouver, BC**  
Biologist and Project manager for the environmental components of the Dollarton Lift Station replacement in the District of North

## AREAS OF EXPERTISE

- Environmental monitoring
- Riparian Areas Regulation assessments
- Environmental permitting (e.g. Water Act, Fisheries Act, Development Permits)
- Environmental Management Plans
- Sediment and Erosion Control planning
- Research and salvage of amphibians
- Parks and recreation studies
- Project management

## EDUCATION

- Masters of Resource Management (M.R.M.), Simon Fraser University, 2007
- Bachelor of Natural Resource Science (B.N.R.S), University College of the Cariboo, 1998

## PROFESSIONAL HISTORY

- EDI (2007-present), Environmental Planner/Biologist
- SFU (2004-2007), Research Assistant
- Ministry of Environment, Lands and Parks (2001-2002), Backcountry Ranger

## MEMBERSHIP AND ASSOCIATIONS

Vancouver. Completed environmental assessment and permitting to meet local government Development Permit requirements. Provided input by identifying environmental constraints during the conceptual and preliminary engineered designs. (2015 – 2016)

- **Ajia Custom Prefab Homes – Best Point Property Development Permit Applications, North Vancouver, BC**

Biologist and Project manager coordinating submittal of the Natural Environment Development Permit Application to the District of North Vancouver for a proposed recreational dwelling on the shore of Indian Arm. Application includes an assessment of Species at Risk, wildlife corridors, nesting birds and mature forest. (2016)

- **BC Hydro - Campbell River Reservoir Public Use and Perceptions Monitor, BC**

Project manager and lead scientist for the development of a monitor of public use and recreation in the Campbell Reservoir. Developed public use survey, sampling design, liaised with BC Hydro and government regulators, and currently implementing data collection. (2015 – ongoing)

- **CH2M Hill – Environmental Support Services for Eagle Mountain-Woodfibre LNG Pipeline Geotechnical Investigations, Squamish, BC**

Project manager and environmental planner for the geotechnical investigation program for a FortisBC LNG in Squamish and Coquitlam. Completed riparian assessments to attain District of Squamish development permits, and preliminary setback assessments for Eagle Mountain substation in Coquitlam. Providing environmental monitoring services as the work is implemented. Managing reporting, budget review, scheduling, communications with client, and coordination of staff. (2016)

- **TERA Environmental - Environmental monitoring for FortisBC Tilbury 2 LNG Facility Construction, Delta, BC**

Project manager and lead monitor for the expansion of the FortisBC Tilbury LNG facilities. Provided suite of environmental monitoring services on site. Primary focus included surface water quality testing, direction for sediment and erosion control, fish salvage, and construction monitoring. (2014)

- **BC Hydro - Environmental assessment of the Southern Communities Grid Connection Project, BC**

Project Manager and environmental planner for components of an environmental assessment of the installation of two new distribution lines in the Lillooet River Valley. Directed some field baseline studies, including amphibian surveys, stream crossing assessments and vegetation surveys. Assisted BC Hydro in writing the final EA report for submission to CEAA. (2009)

- Professional Agrologist (P.Ag.), BC Institute of Agrologists, (BCIA); Member since 2012.
- Registered Professional Biologist (R.P.Bio.), BC College of Applied Biology (CAB); Member since 2017.
- Professional Biologist (P.Bio.), Alberta Society of Professional Biologists (ASPB); Member since 2017.

## RELEVANT TRAINING

- Riparian Areas Regulation Course. North Vancouver, BC, 2010. Malaspina College.
- Occupational First Aid and Level 3, St. Johns Ambulance, 2016
- Transportation of Dangerous Goods, 2013
- Wilderness Safety, 2013
- Canada Safety Council UTV Training Course, 2013
- Bear Awareness and Safety, 2013
- H2S Training, 2015
- WHMIS, 2012
- Backpack Electrofishing Certification, Malaspina College, 1998
- Chainsaw Operators Certification, Ministry of Forests, 2000
- ATV Operations Certification, 1995



# YONASE GULBOT, B.SC., B.I.T.

BIOLOGIST

## BIOGRAPHY

Yonase Gulbot is a biologist with EDI Environmental Dynamics Inc. His areas of expertise include bird surveys, wildlife sweeps, and watercourse assessments. He conducts various types of bird surveys including baseline inventory, breeding, pre-clearing, migratory, and raptor nest surveys. Yonase also has experience leading field crews and reporting on pre-disturbance wildlife sweeps, habitat assessments, watercourse classification, and construction environmental monitoring.

## PROJECT EXPERIENCE

- **Residential Development Permit #3 Bayview Street, Surrey BC**  
As a biologist with EDI, completed an environmental assessment including vegetation, wildlife observations, and a Riparian Areas Regulation detailed assessment in the study area, and responsible for reporting duties. (2019-ongoing)
- **Residential Development Environmental Assessment Report Coast Meridian Rd. Coquitlam, BC**  
As a biologist with EDI, completed an environmental assessment general signs of current conditions - wildlife use/vegetation, a Riparian Areas Regulation detailed assessment, responsible for reporting duties, implementation of the site Restoration Plan, and client liaison. (2019-ongoing)
- **Encana Corporation, Bird Habitat Model for the Pipestone Region, Grande Prairie, AB**  
As a biologist with EDI, determined species at risk and likelihood of presence in the study area, completed field habitat assessments, compiled and analyzed data, and was responsible for reporting duties. (2018)
- **Vancouver Park Board, Stanley Park Great Blue Heron Construction Management Plan, Vancouver, BC**  
Developed a plan that specifying recommendations and mitigations specific to the immediate construction activities associated with Stanley Park Brewing renovations in Stanley Park. Practical science-based guidance was provided to protect a species at risk and facilitate construction through the heron's breeding season. Other responsibilities included: review of existing plans, colony data, and provincial and federal guidelines related to Great Blue Herons, liaison with client, contractor, and local biologists and regulators. (2018)

## AREAS OF EXPERTISE

- Bird Surveys employing point count, transect, standwatch, and colony observational methods
- Wildlife surveys including habitat assessment
- Watercourse classification and assessments
- Erosion and sediment control design and inspection.

## EDUCATION

- Bachelor of Science, Biology, University of Victoria, 2012
- Environmental Technician Certificate, Vancouver Island University, 2014

## PROFESSIONAL HISTORY

- EDI (2015 - present), Biologist
- Self-employed (2012 - 2014), Construction Contractor
- Jerry Wakefield Construction (2010 - 2011), Contractor
- Tri-R Development Group, (2008 - 2009), Contractor

## MEMBERSHIP AND ASSOCIATIONS

- Biologist in Training (B.I.T.), College of Applied Biology of British Columbia. Member since 2014.



- **Encana Corporation, Repsol Oil and Gas Inc., WSP Global Inc., Modern Resources Inc. – Pipeline and Access Road Watercourse Crossing Assessments**

As a Qualified Aquatic Environment Specialist (Alberta) with EDI, tasked with watercourse classification, measurements, and quantifying fish habitat, prescribing crossing methods for construction activities. Responsible for data collection, client recommendations, and technical summaries. (2015 – present)

- **Encana Corporation, Repsol Oil and Gas Inc., Modern Resources Inc. – Pipeline and Access Road Pre-disturbance Biophysical Assessments, Grande Prairie, Fox Creek, and Edson Regions, AB**

Assessed planned construction right of way for wildlife significance via transect hiking. Identification of dens, mineral licks, ungulate wallows, bat hibernacula, and raptor nests, was the top priority. Classification of watercourses, aquatic habitat, and wetlands. Responsible for data collection, client recommendations, and technical summaries. (2015 – 2018)

- **BC Hydro – Site C Clean Energy Project, Fort St. John, BC**

As a representative (and delegate as of 2017) of the Independent Environmental Monitor, performed site wide environmental audits. Responsibilities include knowledge of regulatory and project guidelines, site inspections for a variety of environmental items (including erosion and sediment control, wildlife, hydrocarbon management), verbal and written communication with the Environmental Assessment Office, Canadian Environmental Assessment Agency, BC Hydro as well as other federal and provincial regulators. (2015 – present)

- **Selwyn Chihong Mining Ltd. – Avian Species Baseline Inventory, YK/NWT**

Performed bird species inventory along the future mine site and access road. Point counts and incidental surveys were spread throughout target habitat types (including wetland, forested, and alpine habitats) resulting in wide-ranging sample of avian species. Responsible for data collection and technical summary. (2015, 2019)

- **Repsol Oil and Gas Inc., Hydrologic Studies for Operational Water Supply, Fox Creek Region, AB.** Assessed fish and fish habitat for potential crossing and water withdrawal location. Performed various hydrological assessments including discharge with both swiffer and ADV. (2015-2017).

## RELEVANT TRAINING

- Bird Identification and Surveys by Sound, Columbia Mountains Institute, 2018
- Introduction to Field Ornithology, Columbia Mountains Institute, 2017
- Classification and Reclamation of Alberta Soils, University of Alberta, 2015
- Bird Monitoring and Banding Workshop, Rocky Point Bird Observatory, 2013
- Backpack Electrofishing Certificate, 2014
- Sturgeon PIT Tagging, Fraser River Sturgeon Conservation Society, 2013
- Erosion and Sediment Control Certificate, Vancouver Island University, 2013

## ADDITIONAL TRAINING

- First Aid - St. John Ambulance Level C CPR/AED, 2018
- H2S Alive, ATV, and Snowmobile tickets current

## VOLUNTEER

- Breeding Bird Survey, Environment Canada, Hythe AB, 2017-2018
- Great Blue Heron Nature Reserve, Chilliwack B.C., 2013-present
- Amphibian Survey, Fraser Valley Conservancy, 2014



**APPENDIX C. ARBORIST AND  
GEOTECHNICAL  
ENGINEERING REPORTS**

# ARBORIST REPORT

16 January  
2020

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PROJECT: **140 St.**  
VDZ PROJECT# DP2017-27

SITE ADDRESS: 10472/10482/10492  
140 St.  
Surrey, BC, V3T 4N5

PREPARED FOR: **Transnational Properties &  
Development Ltd.**  
#202 – 7288 137 St.  
Surrey, BC, V3W 1A3

SITE REVIEW DATE(s): July 8, 2019

PROJECT ARBORIST: **Austin Peterson**  
ISA Certified Arborist PN 1570A  
ISA Tree Risk Assessment  
Qualified

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ORIGINAL REPORT 5 June 2017  
REVISION 1 - ED **Oct 2 2019**  
REVISION 2 - ED **Jan 16 2019**



## TABLE OF CONTENTS

<b>INTRODUCTION .....</b>	<b>3</b>
BACKGROUND.....	3
ASSIGNMENT .....	3
LIMITATIONS OF ASSIGNMENT .....	3
TESTING & ANALYSIS.....	3
PURPOSE & USE OF REPORT .....	3
<b>SITE DESCRIPTION.....</b>	<b>4-5</b>
SITE REVIEW.....	4
PROPOSED DEVELOPMENT .....	4
ENVIRONMENTAL DESCRIPTION .....	5
TREE PRESERVATION SUMMARY	
SUMMARY OF FINDINGS.....	5
<b>TREE ASSESSMENT .....</b>	<b>6-16</b>
 <b>APPENDICES</b>	
APPENDIX A - GLOSSARY.....	16-18
APPENDIX B – PHOTOS .....	19
APPENDIX C – TREE MANAGEMENT PLAN.....	20
APPENDIX D – TREE PROTECTION .....	23
APPENDIX E – LIMITATONS & REFERENCES.....	24



## INTRODUCTION

### **BACKGROUND**

VDZ + A Consulting Inc. was contracted by Transnational Properties & Developments Ltd. to prepare an ISA Certified Arborist Tree Report for the properties at 10472/10482/10492 140<sup>th</sup> Street, Surrey, BC.

### **ASSIGNMENT**

VDZ + A Consulting Inc. have been retained by the client to prepare a report to assess the tree(s) located at 10472/10482/10492 140 Street Surrey, BC. The Project Arborist, Austin Peterson, performed a site review entailing identification and visual assessment of the tree(s) on site. A tree survey of all off-site trees was completed by the client or representative(s).

The Project Arborist will provide recommendations for the retention or removal of tree(s) on this site based on the existing site conditions and the proposed use of the site. Mitigation of development impact on the tree(s) has been considered as part of the tree assessment process.

### **LIMITS OF THE ASSIGNMENT**

In 2019 Austin Peterson's observations were limited to one site visit on July 8, 2019. No tissue or soil samples were sent to a lab for identification or analysis. VDZ + A Consulting Inc. located the trees using existing landmarks and onsite navigation.

### **TESTING AND ANALYSIS**

Austin Peterson used visual tree assessment and mallet sounding to test the trees' health, condition and risk level.

### **PURPOSE AND USE OF REPORT**

The purpose of this report is to assist the property owner in compliance with the City of Surrey Tree Protection Bylaw, 2006, No. 16100.



## SITE DESCRIPTION

### SITE REVIEW

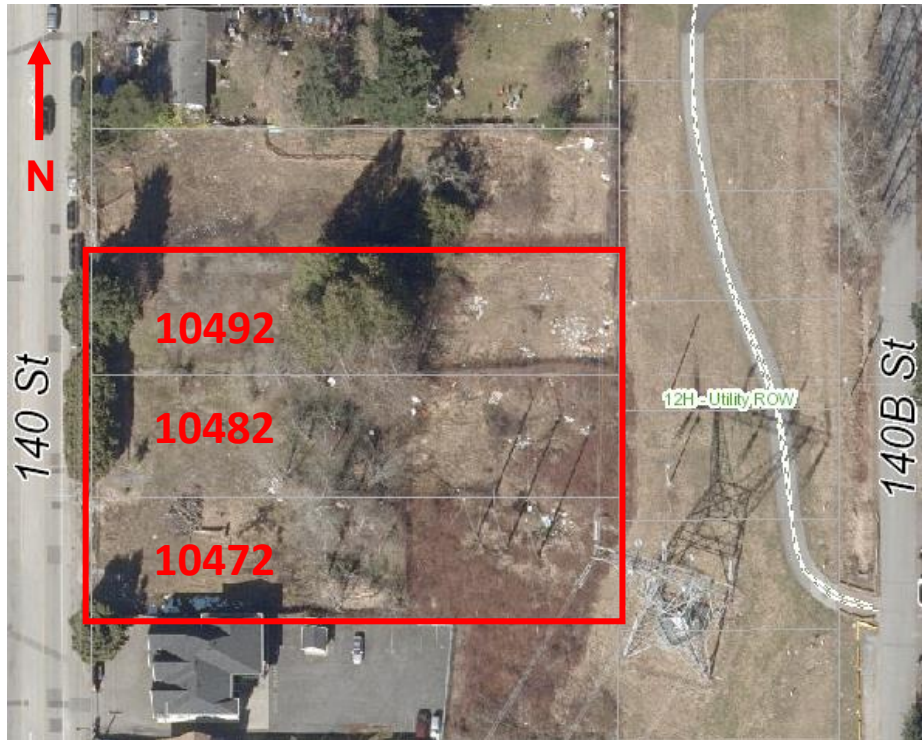


Fig. 1 – Aerial view of property (COSMOS, 2019)

### PROPOSED SITE DEVELOPMENT

The development of a new multi-family residential development.

### ENVIRONMENTAL DESCRIPTION

ISA Certified Arborist Austin Peterson of VDZ + A Consulting Inc. conducted a site review and evaluation of the trees located at the above referenced property on July 8, 2019.

The site consists of three residential lots, all of which had existing houses. All three lots have established landscapes composed of mature trees and shrubs.

There are no seasonal creeks that transect the property.



There is no evidence of raptors nests, osprey nests or heron colonies on the site. Removal of trees however between March 15 – August 15 (date subject to change depending on seasonal nesting behavior and therefore must be confirmed with City of Surrey) will require a bird nesting survey. This is as prescribed by the federal Migratory Birds Convention Act (MBCA), 1994 and Section 34 of the BC Wildlife Act. It is the responsibility of the owner/developer to ensure they are in compliance with the city's regulations governing nesting birds on sites where development is occurring.

**Off-site Trees** – There are private off-site trees associated with this project.

**Municipal Trees** – There are City of Surrey trees associated with this project.

**Trees Straddling the Property Line** – There are trees straddling the property line associated with this project

### **TREE PRESERVATION SUMMARY**

All the Trees identified on the Tree Retention/Removal Plan and within the Tree Assessment Data Table have been given their Retention/Removal recommendation on a preliminary basis. Final recommendations will be based upon design/construction and grading details.

Long-term tree preservation success is dependent on minimizing the impact caused during pre-construction clearing operations, construction and post construction activities. Best efforts must be made to ensure the Tree Protection Zone remains undisturbed.

Ongoing monitoring of retained trees through the development process and implementation of mitigating works (watering, mulching, etc.) is essential for success.

### **SUMMARY OF FINDINGS**

- 7 trees have died since the initial assessment in 2017 (See Table 1, row 1)
- Tree 39 is to be re-assessed for suitability pending the results of roots uncovered during the excavation for the underground parkade that is to occur with arborist monitoring (see tree 39 in Table 1)





**Table 1 - Tree Assessment Data:**

Located on the Survey	Tree #	Tag #	Location: On, Off, Shared, City	Common Name <i>Botanical Name</i>	DBH (m.)	LCR (%)	C-Rad (m.)	Comments	Retention Suitability	Retain / Remove	Tree Protection Zone (m)
Trees with the tag number 34, 41, 44, 48, 50, 51, 54, have died since 2017.											
Trees with the tag numbers 26, 56 and 57 were dead at the time of the initial assessment in 2017.											
<b>The following trees are located onsite</b>											
Yes	1	24	Onsite	Douglas-fir <i>Pseudotsuga menziesii</i>	0.85 0.57 0.38 0.32	90	8.5	FAIR TRUNK – Multi-stem at 1.0 meters ht. CROWN – Side pruned for clearance of BCH power lines. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Poor	REMOVE	
Yes	2	25	Onsite	Cherry <i>Prunus sp.</i>	0.31	30	5.4	POOR TRUNK – Multi-stem at 2.0 meters ht. Four stems of which two have failed at union likely under storm conditions. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Poor	REMOVE	
Yes	3	26	Onsite	Spruce <i>Picea sp.</i>	0.41	-	-	DEAD CROWN – No needles or fine twigs. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	-	REMOVE	
Yes	4	27	Onsite	Western redcedar <i>Thuja plicata</i>	0.67 0.49	80	7.0	FAIR – POOR TRUNK – Co-dominant stems at base. North stem girdled with rope at 4.0 meters ht. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Poor	REMOVE	

# TREE ASSESSMENT



Located on the Survey	Tree #	Tag #	Location: On, Off, Shared, City	Common Name <i>Botanical Name</i>	DBH (m.)	LCR (%)	C-Rad (m.)	Comments	Retention Suitability	Retain / Remove	Tree Protection Zone (m)
Yes	5	28	Onsite	Western redcedar <i>Thuja plicata</i>	0.50	80	5.0	FAIR CROWN – Shade suppressed on north side. Tree forms part of an integrated canopy of trees. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Good	REMOVE	
Yes	6	29	Onsite	Western redcedar <i>Thuja plicata</i>	0.44 0.43	80	5.0	FAIR CROWN – Shade suppressed on north side. Tree forms part of an integrated canopy of trees. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Good	REMOVE	
Yes	7	30	Onsite	Western redcedar <i>Thuja plicata</i>	0.82	80	6.2	FAIR Open grown tree. TRUNK – Girdled with rope around stem at 4.0 meters ht. minimal impact on the tree. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Good	REMOVE	
Yes	8	31	Onsite	Western redcedar <i>Thuja plicata</i>	0.49	80	5.0	FAIR CROWN – Tree forms part of an integrated closed canopy of trees. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Good	REMOVE	
Yes	9	32	Onsite	Western redcedar <i>Thuja plicata</i>	0.70	80	5.9	FAIR CROWN – Tree forms part of an integrated closed canopy of trees. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Good	REMOVE	

# TREE ASSESSMENT



Located on the Survey	Tree #	Tag #	Location: On, Off, Shared, City	Common Name <i>Botanical Name</i>	DBH (m.)	LCR (%)	C-Rad (m.)	Comments	Retention Suitability	Retain / Remove	Tree Protection Zone (m)
Yes	10	33	Onsite	Western redcedar <i>Thuja plicata</i>	0.59	80	5.4	FAIR TRUNK – Girdling wire around stem at 3.0 meters ht. minimal impact. CROWN – Tree forms part of an integrated closed canopy of trees. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Good	REMOVE	
Yes	11	34	Onsite	Western redcedar <i>Thuja plicata</i>	0.49	80	5.9	DEAD <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Good	REMOVE	
	12							See offsite trees section			
	13							See trees straddling the property line section			
No	14	37	Onsite	Plum -fruit tree <i>Prunus sp.</i>	0.25 0.32 0.19	60	3.2	FAIR CROWN – Fruit tree previously topped at 2.5 meters ht. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Poor	REMOVE	
Yes	15	38	Onsite	Red alder <i>Alnus rubra</i>	0.42	80	5.2	FAIR Open grown tree. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Good	REMOVE	
Yes	16	39	Onsite	Red alder <i>Alnus rubra</i>	0.38	80	4.8	POOR TRUNK – South side of trunk canker and decay. Stem has a dog-leg at 4.0 meters ht. CROWN – Significant dieback. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Poor	REMOVE	

# TREE ASSESSMENT



Located on the Survey	Tree #	Tag #	Location: On, Off, Shared, City	Common Name <i>Botanical Name</i>	DBH (m.)	LCR (%)	C-Rad (m.)	Comments	Retention Suitability	Retain / Remove	Tree Protection Zone (m)
Yes	17	40	Onsite	Red alder <i>Alnus rubra</i>	0.30	80	5.0	FAIR TRUNK – Natural lean to south. Rope on trunk at 2.0 meters ht. not girdling tree. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Good	REMOVE	
No	18	41	Onsite	Red alder <i>Alnus rubra</i>	0.31	-	-	DEAD <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	-	REMOVE	
Yes	19	42	Onsite	Red alder <i>Alnus rubra</i>	0.32	80	4.0	FAIR TRUNK – Co-dominant stem at 6.0 meters ht. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Good	REMOVE	
Yes	20	44	Onsite	Red alder <i>Alnus rubra</i>	0.55	-	-	DEAD <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	-	REMOVE	
Yes	21	45	Onsite	Red alder <i>Alnus rubra</i>	0.37	20	5.0	POOR TRUNK – Trunk decay, large cavities in truck, natural lean to south. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Poor	REMOVE	
Yes	22	46	Onsite	Red alder <i>Alnus rubra</i>	0.31	80	6.0	POOR Part of a group of trees. CROWN – Significant dieback. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Good	REMOVE	
No	23	47	Onsite	Red alder <i>Alnus rubra</i>	0.30	80	6.0	POOR Part of a group of trees. CROWN – Significant dieback. <b>WITHIN PROPOSED BUILDING ENVELOPE</b>	Good	REMOVE	

# TREE ASSESSMENT



Located on the Survey	Tree #	Tag #	Location: On, Off, Shared, City	Common Name <i>Botanical Name</i>	DBH (m.)	LCR (%)	C-Rad (m.)	Comments	Retention Suitability	Retain / Remove	Tree Protection Zone (m)
Yes	24	48	Onsite	Red alder <i>Alnus rubra</i>	0.32 0.27 0.46	80	6.0	DEAD WITHIN PROPOSED BUILDING ENVELOPE	Good	REMOVE	
Yes	25	49	Onsite	Red alder <i>Alnus rubra</i>	0.32 0.13	80	6.0	FAIR TRUNK – Co-dominant stems. Lean to NE. CROWN – Dead branches in crown. WITHIN PROPOSED BUILDING ENVELOPE	Good	REMOVE	
Yes	26	50	Onsite	Western redcedar <i>Thuja plicata</i>	0.40 0.30	-	-	DEAD WITHIN PROPOSED BUILDING ENVELOPE	-	REMOVE	
No	27	51	Onsite	Red alder <i>Alnus rubra</i>	0.30	-	-	DEAD WITHIN PROPOSED BUILDING ENVELOPE	-	REMOVE	
Yes	28	52	Onsite	Red alder <i>Alnus rubra</i>	0.48	80	6.0	FAIR Tree forms part of an integrated closed canopy of trees. WITHIN PROPOSED BUILDING ENVELOPE	Good	REMOVE	
Yes	29	53	Onsite	Red alder <i>Alnus rubra</i>	0.35	80	6.0	FAIR Tree forms part of an integrated closed canopy of trees. WITHIN PROPOSED BUILDING ENVELOPE	Good	REMOVE	
Yes	30	54	Onsite	Norway spruce <i>Picea abies</i>	0.72	80	8.2	DEAD Failed during a storm event, documented Jan 23, 2018. WITHIN PROPOSED BUILDING ENVELOPE	-	REMOVE	

# TREE ASSESSMENT



Located on the Survey	Tree #	Tag #	Location: On, Off, Shared, City	Common Name <i>Botanical Name</i>	DBH (m.)	LCR (%)	C-Rad (m.)	Comments	Retention Suitability	Retain / Remove	Tree Protection Zone (m)
No	31	55	Onsite	Plum -fruit tree <i>Prunus sp.</i>	0.18 0.21	60	4.0	FAIR WITHIN PROPOSED BUILDING ENVELOPE	Poor	REMOVE	
Yes	32	56	Onsite	Red alder <i>Alnus rubra</i>	0.35	-	-	DEAD	-	REMOVE	
Yes	33	57	Onsite	Red alder <i>Alnus rubra</i>	0.31	-	-	DEAD	-	REMOVE	
No	34	58	Onsite	Paper birch <i>Betula papyrifera</i>	0.19 0.17	70	6.0	FAIR WITHIN PROPOSED BUILDING ENVELOPE	Poor	REMOVE	
No	35	59	Onsite	Red alder <i>Alnus rubra</i>	0.32	70	6.0	FAIR WITHIN PROPOSED BUILDING ENVELOPE	Poor	REMOVE	
No	36	60	Onsite	Black cottonwood <i>Populus trichocarpa</i>	0.65	70	8.0	FAIR WITHIN PROPOSED BUILDING ENVELOPE	Poor	REMOVE	
No	37	61	Onsite	Coast willow <i>Salix hookeriana</i>	0.24 0.26	80	4.0	FAIR TRUNK – Co-dominant stems at base. CROWN – Previous scaffold branch failures in crown. WITHIN PROPOSED BUILDING ENVELOPE	Poor	REMOVE	
No	38	62	Onsite	Red alder <i>Alnus rubra</i>	0.54	20	3.0	POOR TRUNK – Cavities and decay in trunk. WITHIN PROPOSED BUILDING ENVELOPE	Poor	REMOVE	



The following trees are located offsite											
Yes	12	35	Offsite	Black pine <i>Pinus nigra</i>	0.31	60	4.0	FAIR CROWN – Hedge row topped under BCH 3 Phase power line.  NO TREE PROTECTION FENCING REQUIRED AS CROWN DOES NOT REACH PROPERTY LINE	Good	RETAIN	2.1
Yes	39	63	Offsite	Norway spruce <i>Picea abies</i>	0.58	80	8.0	FAIR CROWN – Previously topped under BCH 3 Phase line.  INSTALL SNOW FENCING AND TREE PROTECTION SIGNAGE AT ALONG THE EXISTING FENCE. EXISITING FENCE AND CONCRETE RETAINING WALL TO SERVE AS TREE PROTECTION BARRIER.  Excavation for underground parkade to occur within the TPZ. The excavation will occur up to the property line (2.8 meters from the center of trunk).  Arborist is to be present during excavation and if there are structural roots that are required to be removed that would compromise the tree’s structural integrity the tree is to be proposed for removal. The City of Surrey will be notified immediately and a field report with photographs will follow.	Good	RETAIN	3.6





The following trees are straddling the property line

Yes	13	36	Shared	Red cedar <i>Thuja plicata</i>	0.19 0.36	80	4.4	FAIR CROWN – Topped at 6.0 meters ht. under BCH – row. TRUNK – 20 stems WITHIN PROPOSED SIDEWALK DEDICATION	Fair	REMOVE	
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**Table 2 – Tree Replacement Summary**

**Surrey Project No:**

**Address:** 10472/10482/10492 – 140 Street Surrey, BC

**Registered Arborist:** Austin Peterson PN 1570A

On-Site Trees	Number of Trees
<b>Protected Trees Identified</b> (on-site and shared trees, including trees within boulevards and proposed streets and lanes, but excluding trees in proposed open space or riparian areas)	37 (3 dead as of 2017)
<b>Protected Trees to be Removed</b>	37
<b>Protected Trees to be Retained</b> (excluding trees within proposed open space or riparian areas)	0
<b>Total Replacement Trees Required:</b> Alder & Cottonwood Trees Requiring 1 to 1 Replacement Ratio <u>19 (1 dead as of 2017)</u> = 18 X one (1) = 18 All other Trees Requiring 2 to 1 Replacement Ratio <u>18 (2 dead as of 2017)</u> = 16 X two (2) = 32	50
<b>Replacement Trees Proposed</b>	26
<b>Replacement Trees in Deficit</b>	24
<b>Protected Trees to be Retained in Proposed [Open Space / Riparian Areas]</b>	0
Off-Site Trees	Number of Trees
<b>Protected Off-Site Trees to be Removed</b>	0
<b>Total Replacement Trees Required:</b> Alder & Cottonwood Trees Requiring 1 to 1 Replacement Ratio ___ X one (1) = 0 All other Trees Requiring 2 to 1 Replacement Ratio ___ X one (2) = 0	0
<b>Replacement Trees Proposed</b>	0
<b>Replacement Trees in Deficit</b>	0
<b>Protected Off-Site Trees to be Retained</b>	2

Summary, report and plan prepared and submitted by:

Oct 2, 2019

Project Arborist

Date



**Table 3 – Summary of Tree Preservation by Tree Species**

Tree Species	Existing	Remove	Retain
<b>Alder and Cottonwood Trees</b>			
Alder	18	18	0
Cottonwood	1	1	0
<b>Deciduous Trees</b> (excluding Alder and Cottonwood Trees)			
Cherry	1	1	0
Willow	1	1	0
Plum – fruit tree	2	2	0
Birch	1	1	0
<b>Coniferous Trees</b>			
Douglas fir	1	1	0
Pine	0	0	0
Western redcedar	10	10	0
Cedar hedge	1	1	0
Spruce	1	1	0
<b>Total</b> (excluding Alder and Cottonwood Trees)	<b>18</b>	<b>18</b>	<b>0</b>
<b>Additional Trees in the proposed Open Space / Riparian Area</b>			
<b>Total Replacement Trees Proposed</b> (excluding Boulevard Street Trees)		<b>26</b>	
<b>Total Retained and Replacement Trees</b>		<b>26</b>	

Summary, report and plan prepared and submitted by:

Oct 2, 2019

Project Arborist

Date



## **GLOSSARY OF KEY TERMS**

**Abutment:** A structure built to support the lateral pressure of an arch or span, e.g., at the ends of a bridge.

**Adapted Trunk Diameter Method:** This method uses the trees age and tolerance to construction damage to determine the factor that will be multiplied by the diameter to provide a sufficient tree protection zone given these factors.

**Age:** The relative age (young, intermediate, mature) within the particular stand of trees or forest.

**Algae:** Is a simple, nonflowering plant (includes seaweeds and many single-celled forms). They do contain chlorophyll (but lack true stems, roots, and vascular tissue)

**ALR:** The Agricultural Land Reserve in which agriculture is recognized as the priority.

**Bole:** The stem or trunk of a tree.

**Chlorotic:** Yellowing of plant tissues caused by nutrient deficiency &/or pathogen.

**Co-dominant Leaders:** Forked dominant stems nearly the same size in diameter, arising from a common junction.

**Co-dominant Within Stand:** Individual tree whose height is generally equal to trees (regardless of species) within the same stand.

**Compaction:** Compression of the soil that breaks down soil aggregates and reduces soil volume and total pore space, especially macropore space.

**Conk:** A fungal fruiting structure typically found on trunks and indicating internal decay.

**Dead Standing:** A tree that has died but is still standing erect.

**DBH:** The Diameter of the tree at 1.40 meters above the ground.

**Dominant Within Stand:** Individual tree whose height is significantly greater than adjacent trees (regardless of species) within the same stand.

**C-rad:** Crown radius, is the dripline measured from the edge of the trunk to the outermost branches of the crown.

**CRT:** Critical Root Zone

**CRZ:** Critical Root Zone - The area between the trunk and to the end of the Drip Line.

**Fair:** Healthy but has some defects such as co-dominant trunk, dead branches.

**Feeder Roots:** The smaller roots responsible for water and nutrient absorption and gas exchange.



These roots can extend far beyond the Drip Line (or outer canopy) of the tree.

**Fungus (singular) / Fungi (plural):** Unicellular, multicellular or syncytial spore-producing organisms that feed on organic matter (including molds, yeast, mushrooms and toadstools)

**Girdling Root:** Root that encircles all or part of the trunk of a tree or other roots and constricts the vascular tissue and inhibits secondary growth and the movement of water.

**Good:** Good form and structure, healthy with no defects.

**Hazardous:** Significant hazard exists with a high risk of immediate failure; which could result in serious damage to property or person(s).

**Height:** Height of tree is approximate.

**LCR:** Live Crown Ratio – The ratio of crown length to total tree length.

**Level 1 Limited Visual Assessment:** Limited visual assessment looking for obvious defects such as, but not limited to dead trees, large cavity openings, large dead or broken branches, fungal fruiting structures, large cracks, and severe leans.

**Level 2 Basic Visual Assessment:** Detailed visual inspection (aboveground roots, trunk, canopy) of tree(s) may include the use of simple tools to perform assessment (i.e. sounding mallet, trowel, measuring tape, binoculars). The assessment does not include advanced resistance drilling of trunk.

**Level 3 Advanced Assessment:** To provide detailed information about specific tree parts, defects, targets, or side conditions. May include aerial inspection, resistance drilling of tree parts, laboratory diagnosis of fungal or plant tissue.

**Mildew:** Is a minute powdery or web-like fungi (of different colours) that is found on diseased or decaying substances.

**Moss:** A small, green, seedless plant that grows on stones, trees or ground.

**No Disturbance Zone:**  $(\text{Trunk Diameter} \times 6) + \text{Trunk Radius} + (60 \text{ cm excavation zone})$ . For example, a 50-cm diameter tree would have a No Disturbance Zone = 3.85 meters measured from the edge of the trunk.

**Poor:** multiple defects, disease, poor structure and or form, root and or canopy damage.

**Phloem:** Plant vascular tissue that transports sugar and growth regulators. Situated on the inside of the bark, just outside the cambium. Is bidirectional (transports up and down). Contrast with xylem.

**Phototropic:** Growth toward light source or stimulant.

**Retain & Monitor:** Monitor health and condition of tree every 12 months for signs of

140 St. (Transnational Properties & Development Ltd.)



deterioration.

**Root Crown:** Also, called the root collar, it includes the flare at the base of the trunk and the initial roots that develop below the trunk. These roots generally taper and subdivide rapidly to form the root system of the tree.

**SPEA:** Streamside Protection and Enhancement Area

**Spiral Decline:** The health and condition of the tree is deteriorating.

**Sub-dominant Within Stand:** Individual tree whose height is significantly less than adjacent trees (regardless of species) within the same stand.

**Suppressed:** Individual tree whose growth, health and condition is negatively impacted by adjacent tree(s).

**TPZ:** Tree Protection Zone - The area between the trunk and the Tree Protection Barrier.

**Wildlife Tree:** A tree or a group of trees that are identified to be retained to provide future wildlife habitat. Wildlife habitat can exist in tree risks (cavities, dead snags, broken tops). Often times the tree risk to potential targets (people & property) is reduced by removing that part of the tree posing the risk of failure, but the tree (or portion of) is retained to provide future habitat.

**Witches Broom:** A dense mass of shoots growing from a single point, with the resulting structure resembling a broom or a bird's nest.

**Xylem:** Thin overlapping cells that helps provide support and that conducts water and nutrients upward from the roots all the way to the leaves.

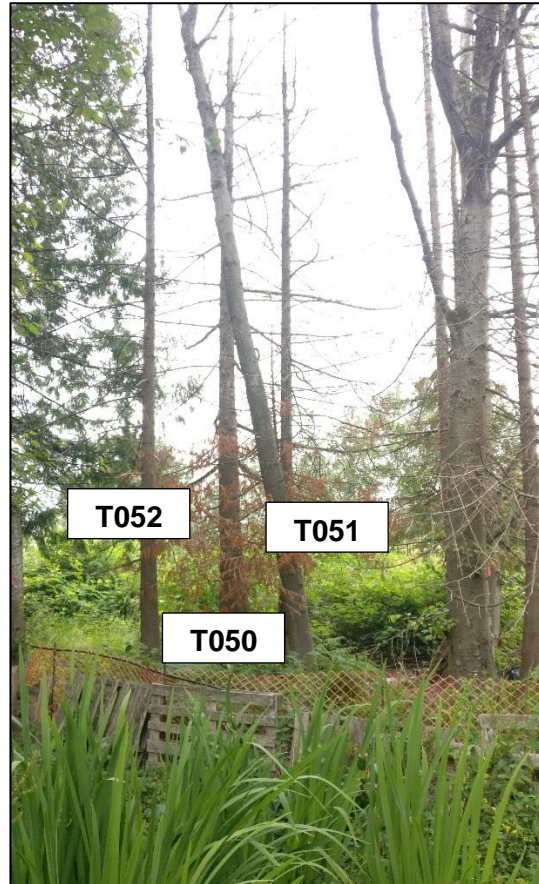




**PHOTOS**



**Fig. 2** – Tree 041 is dead.



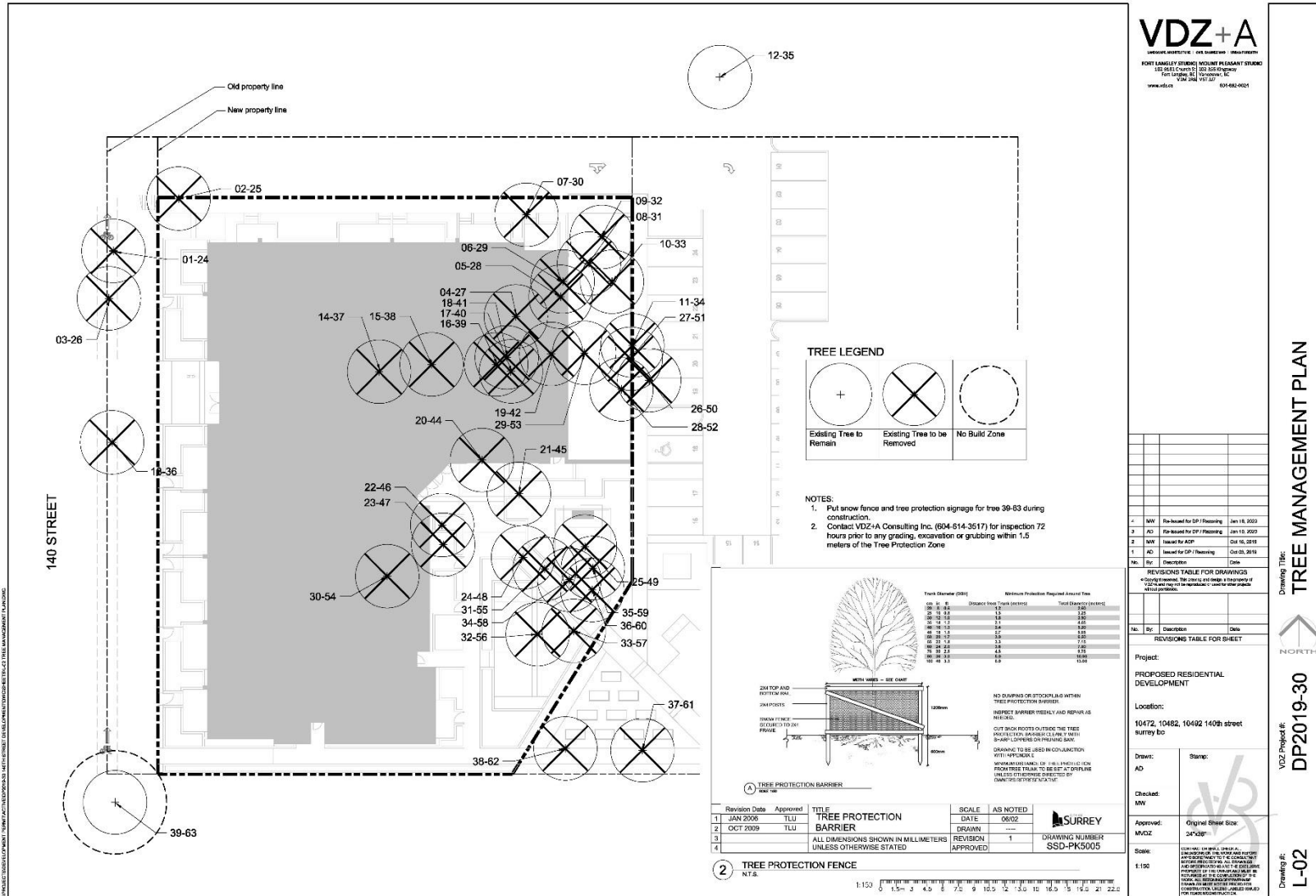
**Fig. 3** – A group of Western redcedars that have died.



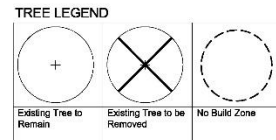
**Fig. 4** – Tree 054 that failed during a storm event in 2018.



**TREE MANGEMENT PLAN**



**VDZ+A**  
 VANDERKAM DEVELOPMENT CONSULTANTS  
 FORT LAMLEY STUDIO | MOUNT PLEASANT STUDIO  
 100 HILL STREET | 100 JACKSONWAY  
 FORT LAMLEY BC | COQUITLAM BC  
 www.vdz.ca | 604-482-0024



- NOTES:**
1. Put snow fence and tree protection signage for tree 39-03 during construction.
  2. Contact Vdz+A Consulting Inc. (604-614-3517) for inspection 72 hours prior to any grading, excavation or grubbing within 1.5 meters of the Tree Protection Zone.

Trunk Diameter (DBH)	Minimum Protection Required (meters)	Tree Diameter (meters)
10-12	1.5	1.00
13-15	2.0	1.25
16-18	2.5	1.50
19-21	3.0	1.75
22-24	3.5	2.00
25-27	4.0	2.25
28-30	4.5	2.50
31-33	5.0	2.75
34-36	5.5	3.00
37-39	6.0	3.25
40-42	6.5	3.50

**REVISIONS TABLE FOR DRAWINGS**

No.	By	Description	Date
1	AW	For based for DP / Planning	Jan 18, 2023
2	AD	For based for DP / Planning	Jan 18, 2023
3	AW	Issued for Act	Oct 16, 2019
4	AD	Issued for DP / Planning	Oct 28, 2018

**REVISIONS TABLE FOR SHEET**

No.	By	Description	Date
1	AD	Issued for DP / Planning	Oct 28, 2018

**PROJECT:** PROPOSED RESIDENTIAL DEVELOPMENT  
**LOCATION:** 10472, 10482, 10492 140th street surry bc

**Drawn:** AD **Stamp:** [Stamp]  
**Checked:** MW  
**Approved:** MWZ **Original Sheet Size:** 34"x56"

**Scale:** 1:150  
 1:150 0 1.5m 3 4.5 6 7.5 9 10.5 12 13.5 15 16.5 18 19.5 21 22.5

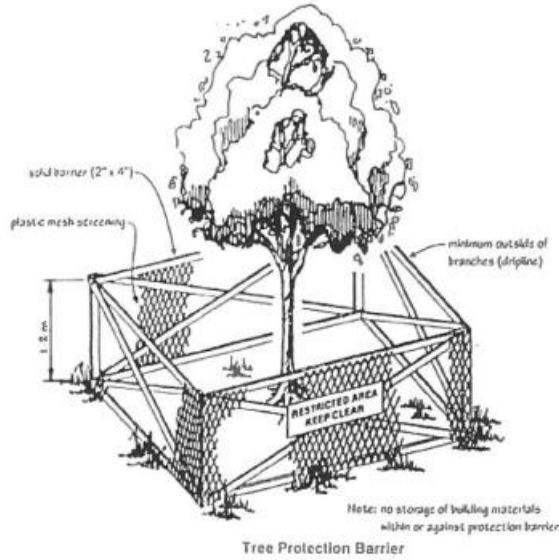
**2** TREE PROTECTION FENCE  
 N.T.A.

Drawing Title: **TREE MANAGEMENT PLAN**  
 Drawing No.: **DP2019-30**  
 Drawing of: **L-02**



**CONSTRUCTION ACTIVITY AROUND TREE PROTECTION ZONE**

**TREE PROTECTION FENCING AND BARRIER DISTANCE**



Tree Protection Distance Table

Trunk Diameter (cms)	Minimum Protection Req'd Around Tree (distance from trunk in metres)
20	1.2
25	1.5
30	1.8
35	2.1
40	2.4
45	2.7
50	3
55	3.3
60	3.6
75	4.5
90	5.4
100	6.0

Tree Protection Barrier Detail

**SCHEDULE "C"**



## GENERAL REQUIREMENTS AND LIMITATIONS FOR OPERATIONS WITHIN THE TREE PROTECTION ZONE

- The Contractor shall not engage in any construction activity within the Tree Protection Zone (TPZ) without the approval of the Project Arborist including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree Protection Zone maybe indicated on the drawings along with any required remedial activity as listed below.
- In the event that construction activity is unavoidable within the Tree Protection Zone, notify the Project Arborist and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree Protection Zone from the activity. Remedial actions shall include but shall not be limited to the following:
  - In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and/or Air Spade. If any excavation work is required within the Tree Protection Zone (TPZ), the Project Arborist must be present during excavation, and a trench should be 'hand dug' to a depth of 60 cm outside the Drip Line, to uncover any potential roots. The Project Arborist should cleanly prune roots and recommend the appropriate treatment for any structural roots encountered.
  - Knife excavation where indicated or with other low impact equipment that will not cause damage to the tree, roots soil.
  - When encountered, exposed roots, 1 inches and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the Project Arborist. Excavation shall be tunnelled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.
  - Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be RETAINED when specifically indicated by the Project Arborist. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboriculture practices (ANSI A300, part 8) and be performed under supervision of the Project Arborist.
- Do not permit foot traffic, scaffolding or the storage of materials within the Tree Protection Zone.
- Protect the Tree Protection Zone at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Project Arborist of any spills, compaction or damage and take corrective action immediately using methods approved by the Project Arborist



## **LIMITATIONS**

This report is valid for the day the trees were reviewed. This report is not to be re-printed, copied, published or distributed without prior approval by VDZ + A Consulting Inc.

Sketches, diagrams and photographs contained in this report being intended as visual aids, should not be construed as engineering reports or legal surveys.

Only the subject tree(s) was inspected and no others. This report does not imply or in any other way infer that other trees on this site or near this site are sound and healthy.

The tendency of trees or parts of trees to fall due to environmental conditions and internal problems are unpredictable. Defects are often hidden within the tree or underground. The project arborist has endeavored to use his skill, education and judgment to assess the potential for failure, with reasonable methods and detail. It is the owner's responsibility to maintain the trees and inspect the trees to reasonable standards and to carry out recommendations for mitigation suggested in this report.

## **REFERENCES**

Bond, Jerry & Buchanan, Beth (2006) *Best Management Practices: Tree Inventories*, International Society of Arboriculture, Champaign, IL.

Dunster, Dr. Julian (2003) *Preliminary Species Profiles for Tree Failure Assessment*. ISA Pacific Northwest Chapter, Silverton, OR, USA

Dunster, Dr. Julian & Edmonds, Dr. R. (2014) *Common Fungi Affecting Pacific Northwest Trees*, ISA Pacific Northwest Chapter, Silverton, OR, USA

Fite, Kelby & Smiley, E. Thomas (2016) *Best Management Practices: Managing Trees During Construction*, International Society of Arboriculture, Champaign, IL.

Sibley, David Allen (2009) *The Sibley Guide to Trees*. Alfred A. Knopf, New York, NY

Smiley, E.T., Matheny, N., Lilly, S. (2011) *Best Management Practises: Tree Risk Assessment*. International Society of Arboriculture, Champaign, IL.

August 4<sup>th</sup>, 2017

Project No: WG1-1112

**1125522 BC Ltd.**

c/o Core Project Management

Suite 102 - 375 Lynn Avenue

North Vancouver, BC V7J 2C4

c: 604-358-0481

**Attention: Mr. Scott Mackay, Project Manager**

Email: [scott@corepm.ca](mailto:scott@corepm.ca)

Phone: 604-358-0481

**Re: Geotechnical Assessment-  
Proposed Multi-Family Residential Development  
10472, 10482 and 10492 140 Street, Surrey, B.C.**

## 1. INTRODUCTION

This report presents the results of a geotechnical assessment conducted by Western Geotechnical Consultants Ltd. (WesternGeo) for the proposed townhouse development located at the above referenced project site. The purpose of the assessment was to evaluate the soil conditions in order to provide comments and geotechnical recommendations for:

- Depth to competent subgrade for the proposed development,
- Soil bearing capacity for building foundations,
- Compaction requirements for structural fill,
- Lateral earth pressures for foundation walls, and
- Observed groundwater conditions.

Attachments to this report include a Borehole Location Plan and Soil Logs. Environmental considerations are outside the scope of this report. This report may be used by the City of Surrey for development and building planning purposes.

**British Columbia Locations:**  
Abbotsford, Burnaby, Sechelt,  
Surrey (Head Office), and Squamish.

**Alberta Locations:**  
Calgary



GEOTECHNICAL

GEOLOGICAL

GEOENVIRONMENTAL



## 2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The subject site consists of three (3) lots with the civic address of 10472, 10482 and 10492 140 Street, Surrey, B.C. It is approximately rectangular in shape measuring approximately 90 m E-W and 65 m N-S. The property is bounded by 140 Street to the west, undeveloped land to the east and existing residential buildings to the north and south. At time of investigation, each lot was occupied by an existing house with auxiliary buildings, fronting 140 Street. The eastern side of the properties is undeveloped, covered in bushes and grass. The existing grade is generally flat with an elevation of approximately 102 m.

WesternGeo has reviewed the site layout prepared by *DF Architecture Inc.* prior to investigation and during preparation of this report. It is understood that the development will be a 91 unit townhouse. The townhouse consisting of six (6) storeys with one (1) level of underground parking. The entrance ramp to the underground parkade is located along the southern property line, with vehicle access from 140 Street. Green Space (non-buildable area) is located approximately 35 to 45 m from 140 Street extending to the eastern property line.

The site layout (Figure 1) is attached for reference.

## 3. FIELD WORK

A member of WesternGeo's technical staff visited the site on August 2<sup>nd</sup>, 2017 to complete a site reconnaissance and a subsurface soil investigation. The subsurface soil investigation included excavation of four (4) boreholes to refusal with a maximum depth of 7.6 m, using a locally subcontracted track-mounted solid stem auger. Refusal of the drill was encountered at all four (4) boreholes. Additionally, Dynamic Cone Penetration Tests (DCPT) were performed at three (3) of the borehole locations (AH17-01, 02, and -04). WesternGeo's staff visually logged and classified the soil excavated from each borehole. Representative soil samples were obtained for further classification and testing in the laboratory. The subject site was traversed by foot in accessible areas and any features of engineering geological significance were recorded.

A Borehole Location Plan (Figure 1) and Soil Logs of the individual boreholes are appended to the report.

## 4. SOIL AND GROUNDWATER CONDITIONS

According to the Geological Survey of Canada Map the property is situated in Capilano Sediments consisting of marine and glaciomarine stony (till-like deposits) to stoneless silt loam to clay loam with minor sand and silt. This is consistent to the observations during investigation.





The following describes the specific soil conditions in the boreholes and is representative of the general soil condition in the immediate vicinity of each respective borehole. Interpretation of soil conditions between boreholes is based on an assumed continuity of the subsurface conditions. The soil conditions described are generalized and are based on the available borehole information. Variation in soil stratigraphy can occur between borehole locations, and in the areas not investigated. The soil logs should only be referenced for soil and groundwater conditions at the specific borehole locations.

Based on the conditions observed in the boreholes and the general characterizations of the geological maps, the general stratigraphy for the development in order of increasing depth is summarized below. See attached soil logs for information at each borehole location.

- **TOPSOIL:** silt with organics, trace sand and gravel, rootlets, soft, dark brown, slightly moist;
- **SAND (FILL):** medium-grained, poorly graded, loose, grey, wet;
- **SILT:** clayey, trace fine gravel, medium stiff, medium plasticity, mottled, greyish brown, moist;
- **SAND:** till-like, silty, some to trace gravel, dense to very dense, grey, wet to slightly moist.

At the location of AH17-04 soft grey sandy silt was encountered between 1.8 to 4.8 m depth below existing ground surface.

Perched groundwater was encountered in AH17-02 and -04 above the very dense silty sand. Seasonal fluctuations in the groundwater table are expected.

## 5. DISCUSSION AND RECOMMENDATIONS

Based on our findings and within the limits as discussed in this report, the development and construction on this site is feasible from a geotechnical engineering standpoint. The land can be used safely for their intended purposes provided the following recommendations in this report are incorporated into the final design and construction.

### 5.1 Seismicity

According to the B.C. Building Code (BCBC 2012), the Site Classification for this property is 'D' – Stiff Soil. The National Building Code (NBCC 2010) Seismic Hazard Calculation for the coordinates 49.19 North and 122.83 West gives a Peak Ground Acceleration (PGA) of 0.50 g for a return period equivalent to 2 % in 50 years. The design Spectral Accelerations for this seismic event are given in Table 1.



Table 1: Seismic spectral coefficients from NBCC (2010)

$S_A(0.2)$ (s)	$S_A(0.5)$ (s)	$S_A(1.0)$ (s)	$S_A(2.0)$ (s)	PGA (g)
1.02	0.66	0.33	0.17	0.50

$F_a$  and  $F_v$  values of 1.1 and 1.2 should be used, respectively. The site has no liquefaction potential due to the observed soil consistency.

## 5.2 Site Preparation

Areas within the building envelope should be stripped and cleared of fill, topsoil, organics, loose soils and other deleterious material, in order to expose undisturbed native competent soil. Based on the borehole information, the estimated stripping depth for the placement of the footings of the apartment building with underground parking is expected to be approximately of 3.0 m (assumed and needs to be verified) on the competent, dense to very dense silty sand soil. Actual stripping depth may vary throughout the site during construction.

At AH17-04 location soft sandy silt soil was encountered. This soil is to be removed to expose the native dense to very dense silty sand soil. The extent of this soil is unknown and is to be verified onsite during excavation.

**All subgrade soils must be reviewed onsite by the Geotechnical Engineer once stripping is complete.**

In order to minimize the disturbance to the exposed subgrade, the following recommendations should be followed during construction:

- Site preparation should be undertaken during extended periods of dry weather.
- All loose or deleterious material should be stripped to expose the load bearing surfaces, to a distance beyond the building footprint equal to at least the depth of the excavation. Recommended maximum cut slopes should be 1.5 H to 1 V (Horizontal: Vertical) for slopes not exceeding a depth of 1.2 m.
- If any excavated area will remain open during extended period of time, rainfall protection measures are recommended. Polyethylene Sheeting should be used to cover all cut faces and slopes. Temporary berms and channels shall be constructed to divert water away from excavations.
- A bedding layer of 100 mm (minimum thickness) of 19 mm clear crush gravel, or approved equivalent, should be placed directly on the excavated surface.
- All water-softened or disturbed soils should be removed and replaced with compacted clean cohesionless well-graded structural fill, or as directed by the Geotechnical Engineer.



### 5.3 Foundations

The proposed building should be supported on shallow footings founded on the dense to very dense silty sand soil, or on well-compacted structural fill (within any over-excavated areas). Geotechnical recommendations for footings are provided below:

- Footings placed directly on native undisturbed dense to very dense silty sand should be designed for a serviceability bearing capacity of 100 kPa. The factored ultimate bearing resistance should be taken as 150 kPa. Minimum footing widths should be 0.45 m for strip footings and 0.9 m for spread footings, and are subject to the requirements of the British Columbia Building Code (BCBC 2012).
- Footings should have a minimum embedment of 0.45 m below final grade, for frost protection and confinement.
- Footing subgrade should be free of any water-softened or loose soil prior to placing concrete. Placement of footings within areas of accumulated water is to be avoided and all standing water should be removed.
- If the footings are to be stepped, this should be done so that a line connecting the closest edges of two footings is no steeper than 2 H to 1 V (Horizontal to Vertical). Where this cannot be achieved, the lower wall should be designed to accommodate the footing surcharge. The base of the footing should be below a 1 H to 1 V line projected up from the base of any adjacent excavation undertaken for installation of buried utilities.
- The geotechnical engineer should be present onsite at the time of site stripping, to verify the soil and groundwater conditions and to confirm the available bearing capacity.

### 5.4 Lateral Earth Pressure

Underground parking walls should be adequately designed to resist the lateral earth pressures acting on them. The foundation walls should be designed for lateral pressures in the at-rest condition. Depending on the excavation slopes and soil profile, the lateral pressures may be derived using the at-rest case with a  $K_0$  of 0.5. For seismic loading, the lateral earth pressure coefficient  $\Delta K_{ae}$  should be taken as 0.22.

The lateral earth pressures provided are only based upon the soil properties obtained from the four (4) boreholes. Revised recommendations may necessary based on actual observed soil conditions on the south-east area of the site during the construction. The pressure diagram is attached (Figure 2).



## 5.5 Excavation/Utility Trench/Shoring

Where excavation is required and exceeds a depth of 1.2 m, WorkSafe B.C. guidelines for stable excavations should be followed, to ensure a safe working area. Temporary shoring/excavation plan will be required for the underground parking excavation, especially for the south end area where soft grey sandy silt was encountered between 1.8 to 4.8 m depth below existing ground (as seen in AH17-04). **Western Geo will review the final development plans when available and provide the excavation plan with or without shoring accordingly.**

Two (2) boreholes were drilled to refusal and groundwater from seepage was encountered in AH17-02 and -04 at approximately 3 to 5 m depth below existing grade, respectively. Therefore, excavation dewatering may be necessary depending on the excavation depth and construction season.

Bedding material for utility trenches should have Type 1 gradation, in accordance with MMCD specifications and should be placed and compacted in lifts to provide a minimum of 95% Modified Proctor maximum dry density (ASTM D-1557) around the pipe, including underneath its haunches. Hand-tamping equipment should not directly contact the pipe and should not be allowed to compact above the pipe until the full 300 mm bedding zone has been placed above it.

Imported trench backfill should consist of pit-run gravel or approved equivalent fill material that follows MMCD guidelines and should be placed only within the zone of trench backfill, above the pipe bedding zone. Trench backfill should be compacted to a minimum of 95% Modified Proctor maximum dry density.

## 5.6 Slab-on-Grade

Floors formed as concrete slab-on-grade construction should be underlain with a minimum 100 mm-thick layer of 19 mm clear crushed gravel, or alternatively clean cohesionless well-graded granular fill (with less than 5 percent passing the 0.075 mm sieve), compacted to a minimum of 95% of Standard Proctor maximum dry density (ASTM D-698). A moisture barrier, such as 6 mil polyethylene sheeting should be installed underneath the slab to minimize potential for slab dampness. A thin layer of sand can be placed underneath the poly to avoid puncture due to gravels.

## 5.7 Structural Fill

Structural fill is defined as fill placed beneath any load bearing area. Imported structural fill should consist of inorganic, clean cohesionless (less than 8 percent passing the 0.075 mm sieve), well-graded granular material.

Structural fill should extend beyond the edge of the footing and paved areas by a distance equal to, or greater than the depth of structural fill below these structural elements. Structural fill should be placed



in maximum 0.3 m lifts. Table 2 summarizes the compaction recommendations for structural fill for various structural components

**Table 2: Compaction Requirements for Structural Fill**

Structural Component	Minimum Compaction
Beneath building envelope, slab-on-grade, and basement wall backfill (non-structural loading)	95% SPMDD*
Beneath pavements and footings (structural loading)	100% SPMDD*

\*Standard Proctor maximum dry density

Laboratory Proctor and field density testing should be conducted to confirm that the standards are met. Prior to importing to the site, sources of structural fill should be reviewed by the geotechnical engineer for approval.

## 6. CONSTRUCTION REVIEW

WesternGeo should be notified during the construction stage in order to facilitate and complete necessary field reviews. As a minimum, the following field reviews are necessary at the following stages:

- Field subgrade review for buildings during site stripping,
- Confirmation of subsoil bearing capacity for building, and
- Compaction testing of structural fill.

Upon request, WesternGeo can issue Schedule B for geotechnical aspects of the Building Permit Application for the individual buildings constructed for this project. To ensure commitment to field reviews, WesternGeo must be notified when the work commences, to conduct the necessary field reviews during construction. WesternGeo cannot assume responsibility or liability for the adequacy of its recommendations when they are used in the field without WesternGeo being retained to review and approve the actual soil conditions during construction.

## 7. LIMITATIONS

The recommendations in this report are provided on the assumption that the contractor will be suitably qualified and experienced. In the event of report revisions, additional funds may be required. The subsurface conditions may vary between boreholes and with time. The interpretation of subsurface conditions provided is an opinion and not a certification. Stratigraphic variations in ground conditions are expected due to its historic nature. As such, all explorations involve an inherent risk that some conditions will not be detected.



Environmental considerations are outside the scope of this geotechnical report. Our recommendations do not constitute a design of any proposed structural element. Incorporation of our recommendations into the design does not constitute us as designers. The designers of such elements must consider the appropriateness of our recommendations.

Samples obtained from site will be retained in our laboratory for 60 days. Should no instructions be received to the contrary, these samples will then be discarded. This report has been made in accordance with the generally accepted soil and foundation engineering practices.

No other warranty, expressed or implied, is made. If the project does not start within 2 years of the report date, the report may become invalid and further review may be required. This report has been prepared for the exclusive use of the client, City of Surrey and their "Approved Users" for specific application to the development mentioned in the report. WesternGeo and its employees accept no responsibility to another party for loss or liability incurred as a result of use of this report. Any use of this report for purposes other than the intended, should be approved in writing by WesternGeo. Contractors should rely upon their own explorations for costing purposes.

The above referenced report "the Report" may be relied upon by the as if the Report was directly issued to the City of Surrey, subject to the following conditions:

- The City of Surrey will only use the Report for the specific project that is the recipient and subject of the Report.
- To the extent required by law and subject to the Freedom of Information and Protection of Privacy Act, R.S.B.C., 1996, c. 165, as amended, the City of Surrey agrees not to disclose or distribute the Report furnished hereunder to any third party unless City of Surrey on the first page of the Report places a prominent statement that "THIS REPORT MAY NOT BE RELIED UPON WITHOUT THE EXPRESS WRITTEN CONSENT OF THE AUTHOR OF THE REPORT".





## 8. CLOSURE

We appreciate the opportunity to be of service to you. If you have any questions regarding the contents of this report, or if we can be of further assistance to you on this project, please call any of the undersigned.

Yours truly,  
**Western Geotechnical Consultants Ltd.**

Prepared by:

Loni Nickel, E.I.T  
Geotechnical Engineer in Training

Reviewed by:

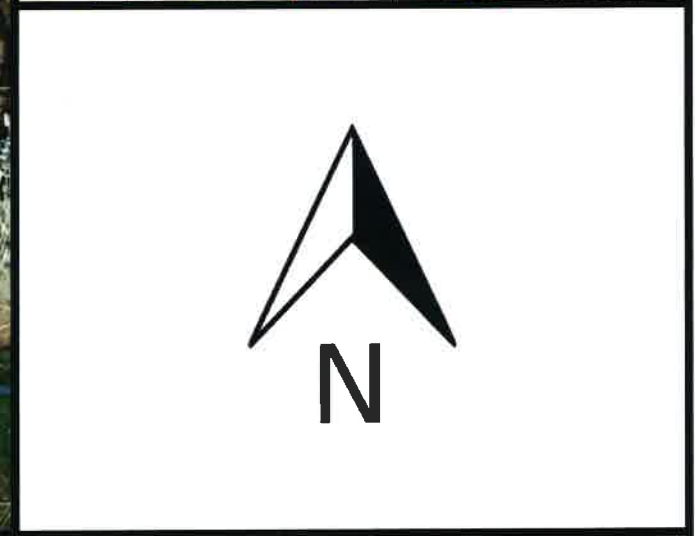


John Meng, P.Eng, Ph.D.  
Geotechnical Engineer

**Attachments:**    **Figure 1: Borehole Location Plan**  
                          **Soil Logs**  
                          **Figure 2: Preliminary Lateral Earth Pressure Diagram**



Site Location



103-19162 22nd Ave  
 Surrey B.C. V3Z 3S6  
 t. 604 385 4244  
 f. 604 385 4245  
 e. email@westerngeo.ca  
 www.westerngeo.ca



Client: 1125522 BC Ltd.


Geotechnical Assessment  
 Site Layout and Borehole Location Plan  
 10472, 10482, 10492 140 Street, Surrey, B.C.


Project Number: WG1-1112  
 Drawing Number: Figure 1  
 Drawing Date: August 2, 2017

Drawn By: L.Nickel  
 Reviewed By: J.Meng  
 Scale: NTS

Sealed By:

Legend:

 Borehole Location (approximate)

 Site Location (approximate)

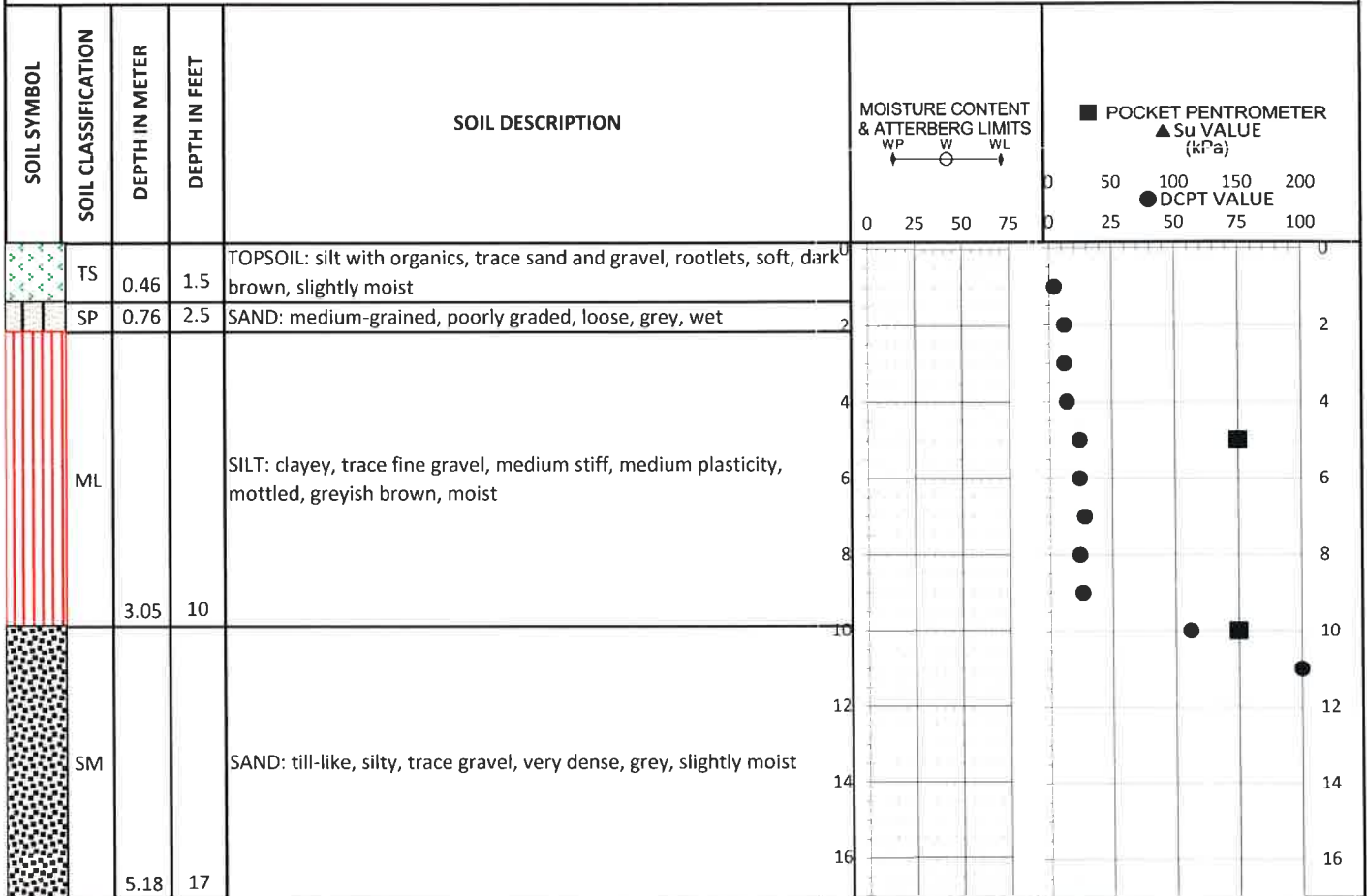
# SOIL LOG

AH17--01

**CLIENT NAME:** 1125522 BC Ltd.  
**PROJECT NAME:** Multi-Family Residential Development  
**LOCATION:** 10472, 10482, 10492 140 Street, Surrey, B.C.  
**TEST METHOD:** Track Mounted Solid Stem Auger Rig

**GWT (ft):** Not Observed  
**TEST DATE:** 02-Aug-17

**PROJECT NO.:** WG1-1112  
**ELEVATION (m):** 102  
**NORTHING:**  
**EASTING:**



Logged by :LN

Note: Backfilled with excavated soil & bentonite

# SOIL LOG

AH17-02

CLIENT NAME: 1125522 BC Ltd.  
 PROJECT NAME: Multi-Family Residential Development  
 LOCATION: 10472, 10482, 10492 140 Street, Surrey, B.C.  
 TEST METHOD: Track Mounted Solid Stem Auger Rig

PROJECT NO. **WG1-1112**  
 ELEVATION (m): 102  
 NORTHING:  
 EASTING:  
 GWT (ft): Not Observed  
 TEST DATE: 02-Aug-17

SOIL SYMBOL	SOIL CLASSIFICATION	DEPTH IN METER	DEPTH IN FEET	SOIL DESCRIPTION	MOISTURE CONTENT & ATTERBERG LIMITS <small>WP      W      WL</small> 	POCKET PENTROMETER ▲ Su VALUE (kPa) ● DCPT VALUE
TS		0.46	1.5	TOPSOIL: silt with organics, trace sand and gravel, rootlets, soft, rusty brown, slightly moist		●
SP		0.61	2	SAND: medium-grained, poorly graded, loose, grey, wet		●
ML		1.98	6.5	SILT: clayey, trace fine gravel, medium stiff, medium plasticity, mottled, greyish brown, moist		■
SM		3.35	11	SAND: till-like, silty, trace gravel, dense to very dense, grey, wet		●
SM		5.49	18	SAND: till-like, silty, trace gravel, very dense, grey, slightly moist		●

Logged by :LN

Note: Backfilled with excavated soil & bentonite






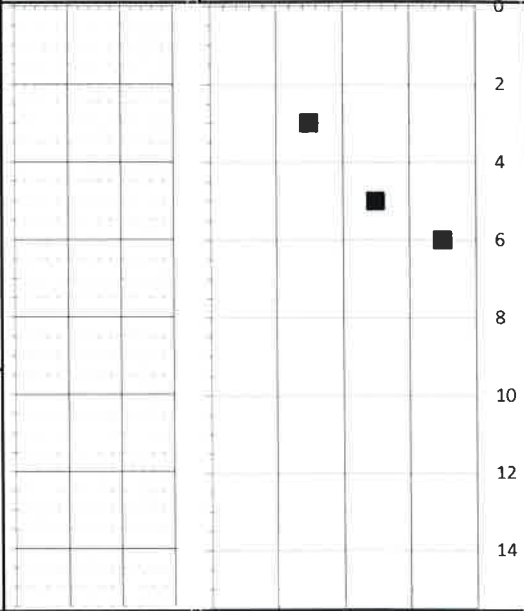

# SOIL LOG

AH17-03

**CLIENT NAME:** 1125522 BC Ltd.  
**PROJECT NAME:** Multi-Family Residential Development  
**LOCATION:** 10472, 10482, 10492 140 Street, Surrey, B.C.  
**TEST METHOD:** Track Mounted Solid Stem Auger Rig

**GWT (ft):** Not Observed  
**TEST DATE:** 02-Aug-17

**PROJECT NO.:** WG1-1112  
**ELEVATION (m):** 102  
**NORTHING:**  
**EASTING:**

SOIL SYMBOL	SOIL CLASSIFICATION	DEPTH IN METER	DEPTH IN FEET	SOIL DESCRIPTION	MOISTURE CONTENT & ATTERBERG LIMITS WP    W    WL ←    ○    →	■ POCKET PENTROMETER ▲ Su VALUE (kPa) ● DCPT VALUE
	TS	0.3	1	TOPSOIL: silt with organics, trace sand and gravel, rootlets, soft, dark brown, slightly moist		
	SP	0.76	2.5	SAND: medium-grained, poorly graded, loose, grey, wet		
	ML	2.9	9.5	SILT: clayey, trace fine gravel, medium stiff, medium plasticity, mottled, greyish brown, moist  increase of sand and gravel at 8ft		
	SM	4.73	15.5	SAND: till-like, silty, trace gravel, dense to very dense, grey, slightly moist		

Logged by :LN

Note: Backfilled with excavated soil & bentonite

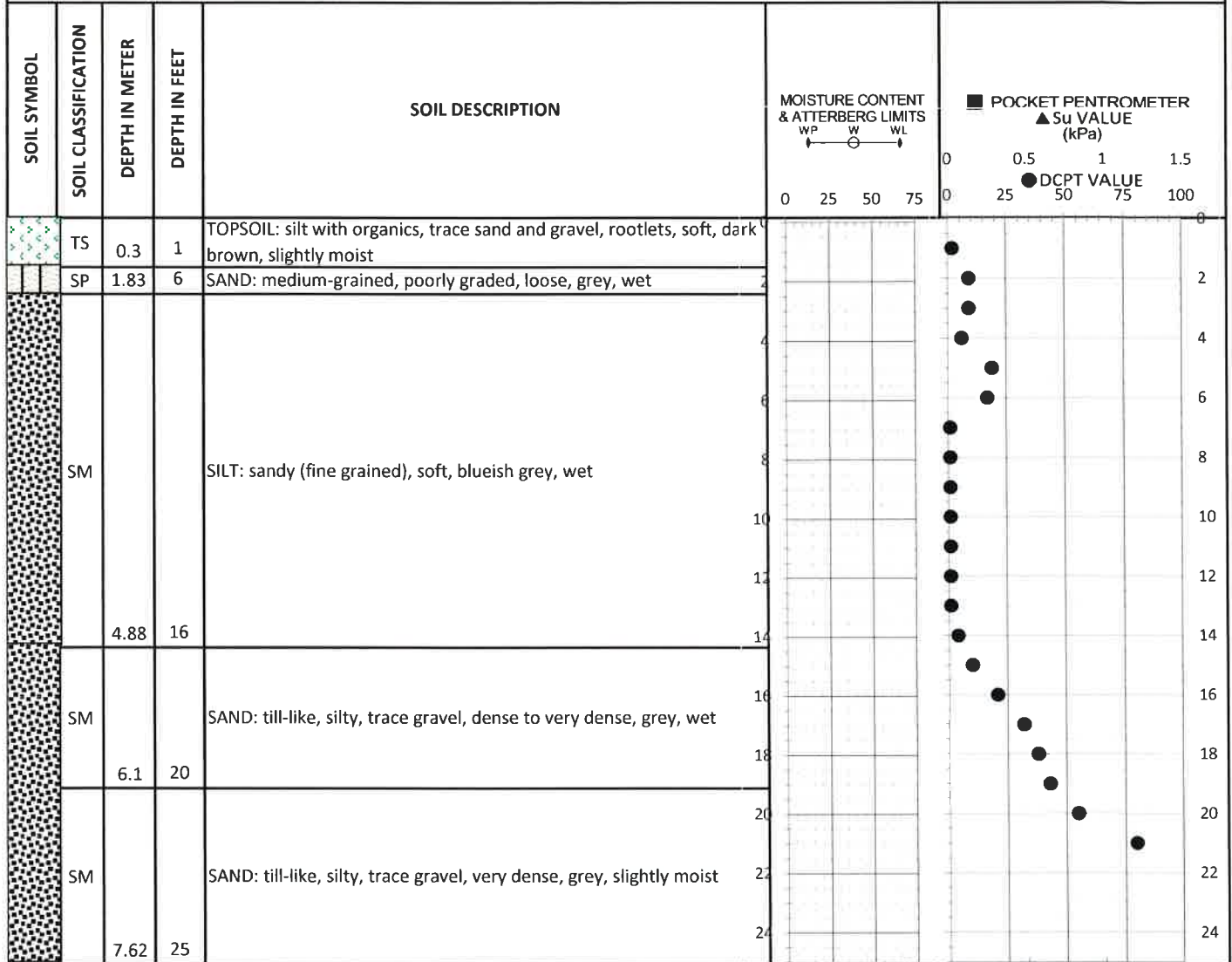
# SOIL LOG

AH17-04

**CLIENT NAME:** 1125522 BC Ltd.  
**PROJECT NAME:** Multi-Family Residential Development  
**LOCATION:** 10472, 10482, 10492 140 Street, Surrey, B.C.  
**TEST METHOD:** Track Mounted Solid Stem Auger Rig

**GWT (m):** Not Observed  
**TEST DATE:** 02-Aug-17

**PROJECT NO.:** WG1-1112  
**ELEVATION (m):** 102  
**NORTHING:**  
**EASTING:**

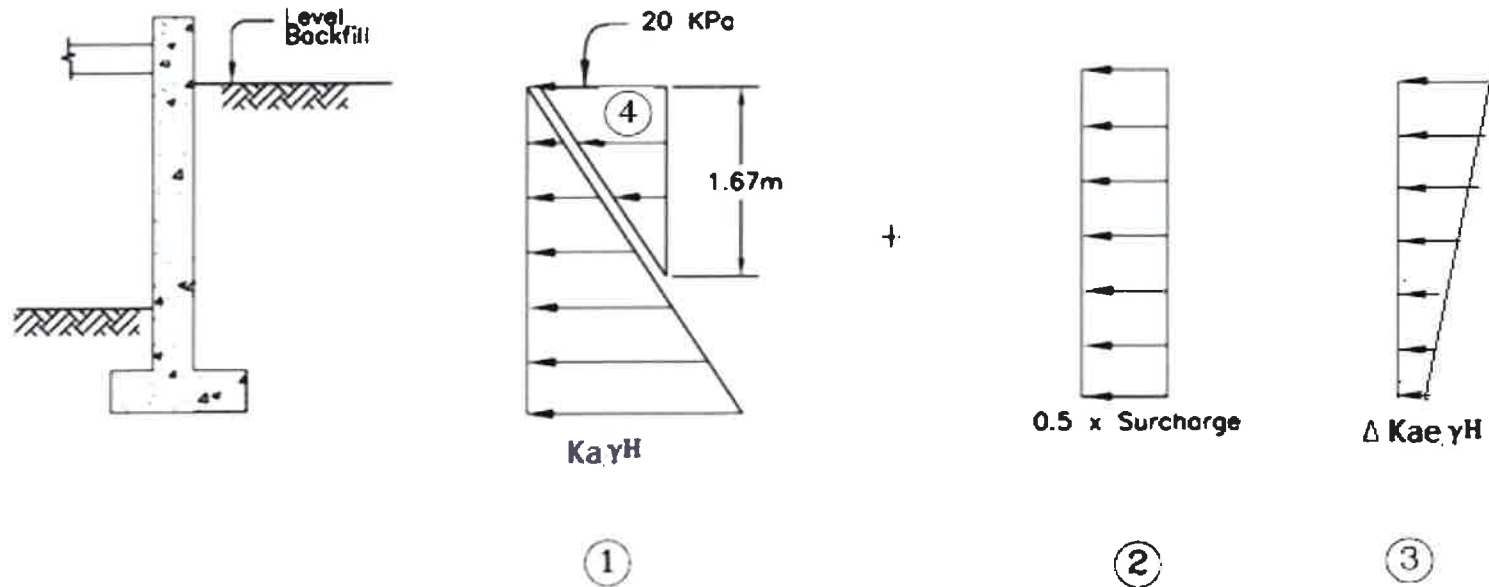


Logged by :LN

Note: Backfilled with excavated soil & bentonite



## LATERAL LOADINGS ON FOUNDATION WALLS



- ① EARTH PRESSURE COMPONENT
  - ② SURCHARGE COMPONENT
  - ③ EARTHQUAKE PRESSURE COMPONENT
  - ④ COMPACTION COMPONENT
- Y - UNIT WEIGHT IN KN/M<sup>3</sup>  
H - WALL HEIGHT IN METER

THE FOLLOWING ASSUMPTION APPLY:

- FREE DRAINING BACKFILL MATERIAL
- NO WATER PRESSURE BUILD-UP WALL

USE K PROVIDED BY WESTERNGEO  
CONTACT WESTERNGEO FOR SLOPE BACKFILL CONDITION

$K_0 = 0.50$

$K_A = 0.28$

$K_p = 5.54$

$\Delta K_{AE} = 0.22$



REV.	DATE	DESCRIPTION
RO	02-Aug-17	

Proposed Multi-Family Residential  
Development  
10472, 10482 and 10492, Surrey, B.C.

DESIGN:JM
DRAWING:LN
CHECKED: JM
DATE: 02-Aug-17
SCALE:

PROJECT No:  
WG1-1112  
DRAWING No:  
Figure 2

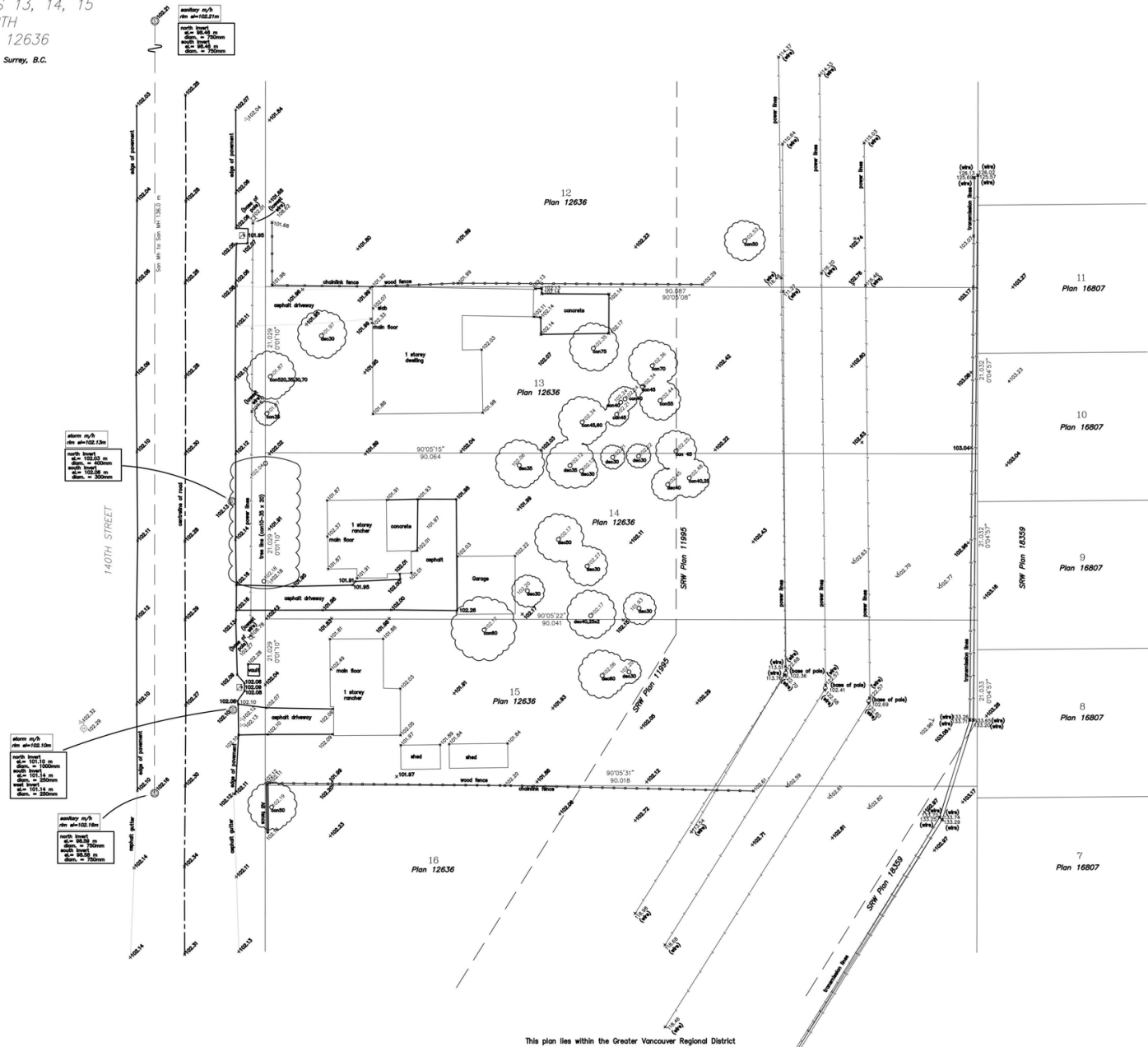
TOPOGRAPHIC PLAN OF LOTS 13, 14, 15  
SECTION 24, BLOCK 5, NORTH  
RANGE 2 WEST, NWD, PLAN 12636

CIMC ADDRESS: 10472, 10482, 10492 140th Street, Surrey, B.C.



SCALE - 1 : 250  
All distances are in metres

- SURVEY LEGEND**
- Sanitary manhole
  - Storm manhole
  - Power pole
  - Water meter
  - 4.0m Ø 30cm # Deciduous tree
  - 0.30m Ø 30cm # Coniferous tree
  - Catch basin
  - Hydrant
  - Water valve
  - Anchor



- NOTES:**
- 1) Elevations are in metres and are geoidal.
  - 2) Elevations are derived from Control Monument no. 8863 located at the intersection of 143rd Street and 103 Avenue. Elevation = 105.668 metres.
  - 3) This Plan was prepared for architectural design and site servicing purposes, and is for the exclusive use of our client. The signatory accepts no responsibility or liability for any damages that may be suffered by a third party as a result of reproduction, transmission or alteration to this document without consent of the signatory.
  - 4) Prior to any construction, underground services are to be confirmed by the City of Surrey Engineering Dept.
  - 5) If there is any conflict in information between the hard copy of this Plan and the digital data provided, the hard copy shall be taken to be correct. Any information taken from digital data shall be confirmed by information shown on the hard copy of this plan.
  - 6) Property lines according to field survey.

Cameron Land Surveying Ltd.  
B.C. Land Surveyors  
Unit 206-16055 Fraser Hwy  
Surrey, B.C. V4N 0G2  
Phone: 604-597-3777  
Fax: 604-597-3783  
File: 6285-TP

This plan lies within the Greater Vancouver Regional District

Manhole inverts and power lines added on 140th Street on the 13th day of August, 2019.

This plan has been prepared in accordance with the Professional Reference Manual with additional specifications from our client and is certified correct this 4th day of May, 2017.

Sean Costello B.C.L.S. (900)