PUBLIC HEARING BINDER

3730 – 3736 Edgemont Blvd

NORTH VANCOUVER
DISTRICT

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	Staff Report – June 4, 2015 This report provides an overview of the project and the land use issues related to the review of this Rezoning Bylaw and Housing Agreement Bylaw.
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	Bylaw 8127 which authorizes a Housing Agreement to prevent future rental restrictions on the subject property
Additional Information	
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8.	**Past Public Input** • Facilitator's Report on the Public Information Meeting • DNV Fact Sheet
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	All correspondence received from the public starting from June 11, 2015, the date the agenda was posted for the June 15, 2015 Regular Meeting of Council at which Bylaw 8126 was given First Reading.

PUBLIC HEARINGS

occurring consecutively in the order noted below

NORTH VANCOUVER DISTRICT

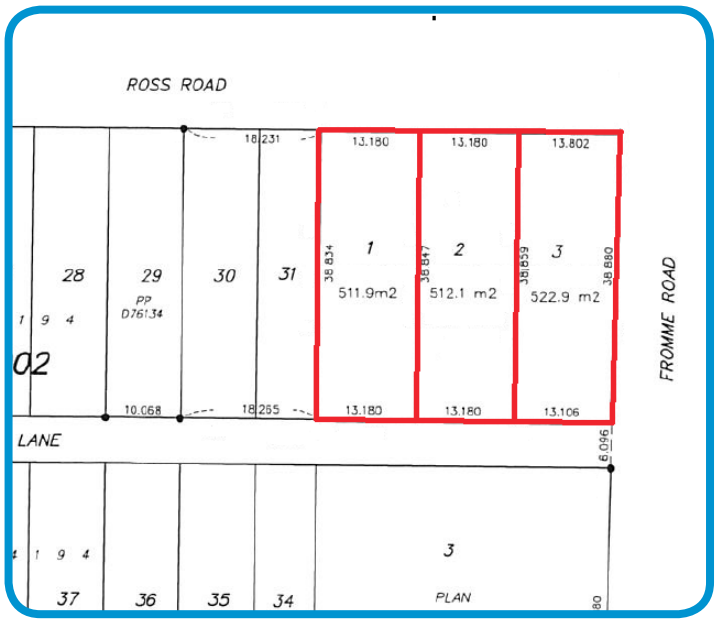
Tuesday, July 21, 2015 at 7 pm

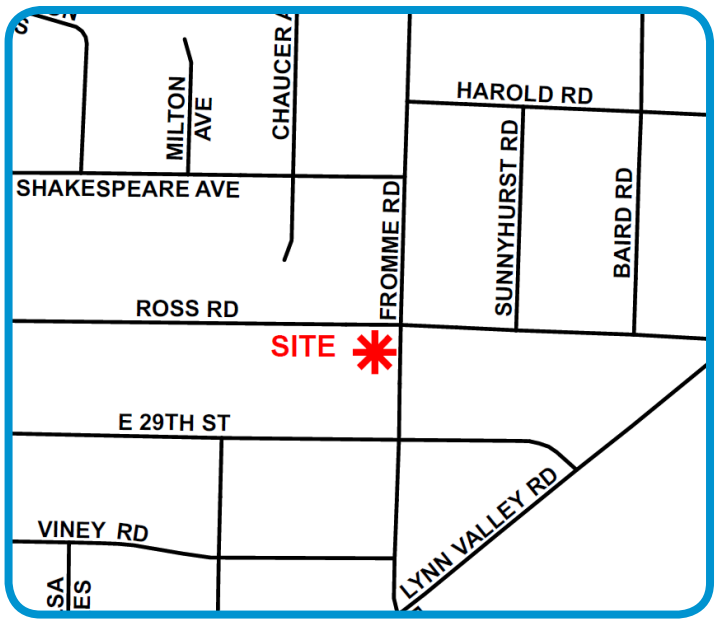
District Hall, 355 West Queens Road

2975 and 2991 Fromme Road

Three lot subdivision

What: A Public Hearing for a proposed amendment to the Zoning Bylaw to enable a three lot subdivision at 2975 and 2991 Fromme Road.





What changes: Bylaw 8135 proposes to amend the District's Zoning Bylaw by adding new special minimum lot sizes to the Subdivision Regulations to allow for the creation of three residential lots.

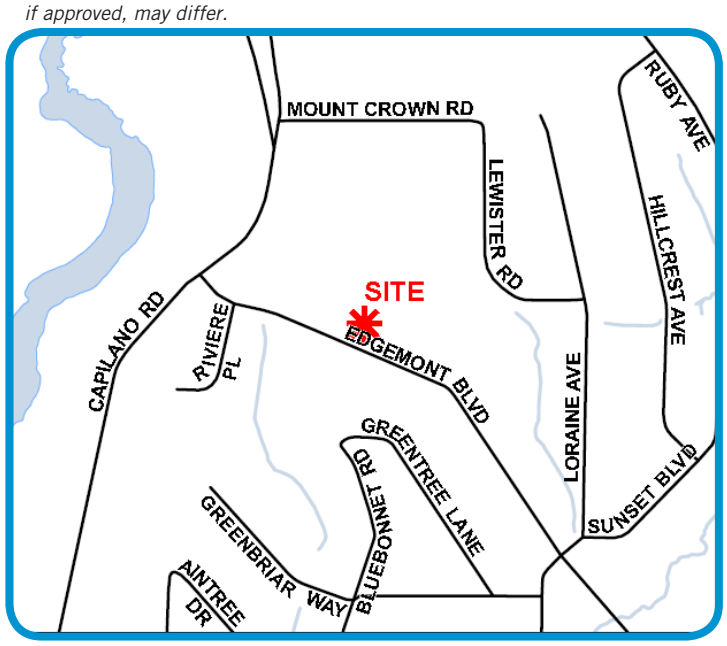
Contact: Erik Wilhelm, Community Planner, wilhelme@dnv.org or 604-990-2360.

3730 - 3736 Edgemont Boulevard

Seven unit townhouse project

What: A Public Hearing for a proposed amendment to the Zoning Bylaw to enable the development of a 7 unit townhouse project.

** Provided by applicant for illustrative purposes only. The actual development, if approved, may differ.*



What changes: Bylaw 8126 proposes to amend the District's Zoning Bylaw by creating a new Comprehensive Development Zone 85 (CD85) and rezone the subject lands from Multi-Family Residential Zone 1 (RM1) to CD85 to permit the development of a seven unit townhouse project.

Contact: Natasha Letchford, Community Planner, letchfordn@dnv.org or 604-990-2378.

When can I speak? **Tuesday, July 21, 2015 at 7 pm**. You can speak in person by signing up at the Hearings or you can provide a written submission to the Municipal Clerk at input@dnv.org, or by mail before the conclusion of the relevant Hearing.

Need more info? Relevant background material and the bylaws are available at the Municipal Clerk's Office or at dnv.org/public_hearing. Office hours are Monday to Friday 8 am to 4:30 pm.

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dnv.org/public_hearing

@NVanDistrict

April 7th, 2015
4513.04

Al Saunders
Harbourview Projects Corp
400-38 Fell Avenue
North Vancouver, BC
V7P 3S2

Dear Al:

Re: 3730 - 3736 Edgemont Boulevard Transportation Review
Final Letter Report

Bunt & Associates (Bunt) has completed a Transportation Review of the proposed townhouse complex at 3730-3736 Edgemont Boulevard, North Vancouver, BC. The review is required by the District of North Vancouver in support of a rezoning and development permit application. In addition to reviewing the existing conditions for pedestrians, cyclists, transit and vehicle access, a review of the site generated vehicle trips on the surrounding road network, a site plan review and a sightline review are also covered.

This "Final" version of the report has been revised to incorporate feedback from the District of North Vancouver's Engineering Department from a Staff Referral dated February 20, 2015.

We trust that this information will assist in supporting the application package to the District of North Vancouver. Please do not hesitate to contact us should you have any questions about this report.

Sincerely,
Bunt & Associates

Tyler Thomson, M.Urb, PTP
Transportation Planner

Thea Wilson, M.sc.
Transportation Analyst

1. INTRODUCTION

1.1 Proposed Development

Harbourview Project Corp (Harbourview) is proposing to build a 7-unit townhouse complex, with underground parking for 16 vehicles including visitor parking for 2 vehicles, at 3730- 3736 Edgemont Boulevard, in the District of North Vancouver, BC. The site is currently occupied by four residential rental units.

As illustrated in **Exhibit 1.1** the development site is bounded by Edgemont Boulevard immediately to the south and Edgemont Road to the west. The site is further bounded by similar residential land uses to the north and east. Exhibit 1.1 also shows the site context with Capilano Road to the west and Edgemont Village to the southeast.

1.2 Study Purpose

The District of North Vancouver requires that a transportation review be undertaken for the proposed development. The following outlines the key aspects to be reviewed:

- **Existing Conditions** – highlights the study area and street network, presents the transportation surveys completed and highlights the existing operational conditions at the intersection of Edgemont Road & Edgemont Boulevard. It also highlights the site in the context of the existing and proposed pedestrian / cycle routes, and transit network.
- **Development Plan Review** – the proposed parking and bicycle parking for the site as they relate to the District's Zoning Bylaw are evaluated, along with a review of site vehicle access and the internal parking layout, as well as the proposed curb bulge and raised crosswalk.
- **Future Conditions** – Future vehicle trips generated by the site, calculated using sample trip generation data collected from the adjacent townhome developments, were reviewed to understand the net increase in traffic with the development over existing conditions.
- **Sightline Review** – this section assesses the proposed site driveway for potential sightline hazards or other safety concerns.

Exhibit 1.1

Site Context

3730-3736 Edgemont Boulevard Transportation Review, North Vancouver, BC
4513.04 March 2015 Scale NTS

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2. EXISTING CONDITIONS

The following section presents the existing context of the area surrounding the site with respect to the street network and vehicle flows, as well as pedestrian, cyclist, and transit connections.

2.1 Study Area & Street Network

The proposed site is bounded by Edgemont Boulevard immediately to the south and Edgemont Road on the west, while the remainder of the site is surrounded by a mix of multi-family, and single-family residential land uses. The site is highlighted in the context of the surrounding street network and other transportation facilities in **Exhibit 2.1**.

Within the context of the site, Edgemont Boulevard is classified as a Collector Road, with two lanes of travel, a posted speed of 50km/hr and on-street parking on both sides. The District of North Vancouver's Transportation Plan (2012) summarizes its proposed road classification guidelines which specify the typical average daily traffic volume for its various road classifications and this is highlighted in **Table 2.1** for reference.

Table 2.1: DNV Road Classification Guidelines (Vehicle Volume Thresholds)

Criteria	Major Arterial	Minor Arterial	Collector	Local	Rural	*Estimated Daily Traffic Volume (Edgemont Boulevard)**
Average Daily Traffic Volume	5,000 – 50,000	5,000 – 20,000	1,000 – 8,000	<1,500	<2,000	*~2,500*

*Note – estimated average daily traffic volume on Edgemont Boulevard adjacent to the site are based on peak hour traffic volumes observed for this study, and are approximated based on industry standards.

As shown, the estimated daily traffic volume on Edgemont Boulevard is on the lower end of the average range for a Collector Road well below the traffic volume threshold for a Minor Arterial road, and therefore is appropriately classified as a Collector Road.

Edgemont Road is a local road which provides private access to The Manor at Edgemont townhome development to the north of the site.

The Intersection of Edgemont Boulevard and Edgemont Road has a minor stop control on the north approach.

Capilano Road is a Major Arterial road just to the west of the site running north-south and it provides regional access to Highway 1 and Marine Drive.

2.2 Existing Vehicle Flows

Transportation surveys were conducted on Wednesday, November 5th 2014, over the morning (7am to 9am) and afternoon (3pm to 6pm) peak periods. They were undertaken to assess both the operational conditions at Edgemont Boulevard and Edgemont Road as well as to understand the local vehicle trip rates for similar townhome developments in order to estimate future vehicle trips generated by the development. Vehicle turning movements on adjacent single family home driveways were also recorded to understand the level of activity associated with vehicles backing out onto Edgemont Boulevard.

The peak hours on the study network were identified at **8:00am to 9:00am** and **4:30pm to 5:30pm** and these have been used for the operational analysis and the presentation of pedestrian and cycling movements.

Existing vehicle flows for the AM and PM peak hours are illustrated in **Exhibit 2.2**.

Exhibit 2.1

Local Street Network & Transportation Facilities

3730-3736 Edgemont Boulevard Transportation Review, North Vancouver, BC
4513.04 March 2015 Scale NTS

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Exhibit 2.2

AM and PM Peak Hour Vehicle Volumes

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4513.04 March 2015 Scale NTS

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2.3 Operational Analysis

Existing operational conditions at the intersection of Edgemont Boulevard and Edgemont Road were assessed using Synchro Software version 8 and the HCM 2000 methodology, and the results are summarized in **Table 2.2**.

The summary table reports the calculated Measures of Effectiveness (MoE) including Volume to Capacity (V/C) ratios and a corresponding delay-based traffic Level of Service (LOS) indicator. LOS indicators range from the ideal LOS A with minimal vehicle delay through to LOS E 'near capacity' conditions and LOS F 'over-saturated' conditions.

Table 2.2 Operational Performance of Edgemont Boulevard and Edgemont Road

Movement	AM Peak Hour			PM Peak Hour		
	v/c	LOS	Delay (s)	v/c	LOS	Delay (s)
EB	0.00	A	0.2	0.00	A	0.5
WB	0.07	A	0.0	0.09	A	0.0
SB	0.03	A	9.8	0.01	A	9.6

As illustrated in Table 2.1 the intersection functions well within acceptable levels, with minimal delays to drivers.

Full Synchro Outputs are available in **Appendix A**.

2.4 Pedestrian, Cyclist & Transit Connections

2.4.1 Existing Facilities

Transit stops/routes and sidewalks near the site were shown previously at Exhibit 2.1. There are no existing cycling routes on Edgemont Boulevard or nearby.

The pedestrian and cyclist volumes observed at the intersection of Edgemont Boulevard and Edgemont Road is summarized in **Table 2.3.**

Table 2.3 Pedestrian and Cyclist Volumes at Edgemont Boulevard and Edgemont Road

Mode	AM Peak Hour		PM Peak Hour	
	North-south	East-west	North-south	East-west
Pedestrian	10	10	8	10
Cyclist	0	2	3	3

As shown, pedestrian and cyclist movements are relatively low near the site given the limited facilities provided. However, with 10 pedestrians crossing Edgemont Boulevard in the AM peak hour, and 8 pedestrians crossing in the PM peak hour, this indicates an approximate level of demand that would use the proposed future raised crosswalk on the east side leg of the intersection (discussed further in Section 3.5).

There are east and westbound bus stops on Edgemont Boulevard, approximately 100m to the west of the site that serve bus route #232 Phibbs Exchange/ Grouse Mountain with 30 minute headways in each direction. Additional bus stops and routes are available on Capilano Road less than 250m from the site for route #236 Pemberton Heights/Grouse Mountain/Lonsdale Quay (30 minute headways) and #247 Upper Capilano/Grouse/Vancouver (30 minute headways during morning peak period from Grouse, and to Grouse during afternoon peak period). These help provide accessibility to/from the site for non-automobile users.

2.4.2 Future Facilities

The *District of North Vancouver Pedestrian Master Plan (2009)* highlights areas where there are missing or inadequate sidewalks in its Sidewalk Priority Index Map (included at **Appendix B**) which have been prioritized for the purpose of implementing upgrades. Edgemont Boulevard, to the east of the development site, and Capilano Road north and south of Edgemont Boulevard (near the site) were given a ranking of the highest priority for sidewalk improvements.

There are no timelines provided indicating when sidewalk improvements would be undertaken, however some improvements appear to have been made already on the west side of Capilano Road. Other improvements would likely come with redevelopment projects and or public works projects.

As previously indicated, there are currently no bicycle routes adjacent to the development site, which indicates that this area is deficient of basic bicycle provisions; however as a low volume street with relatively modest grades it does provide a direct connection for cyclists to Edgemont Village and its amenities and services for those who wish to use it.

An on-street bike route is proposed on Capilano Road north and south of the intersection of Edgemont Boulevard, as per the *North Vancouver Bicycle Master Plan (2012)*, as well as an on-street route along Ridgewood Drive.

Future pedestrian facilities and proposed cycle routes, along with existing transit routes and future transit improvements within the context of the site are illustrated in **Exhibit 2.3.**

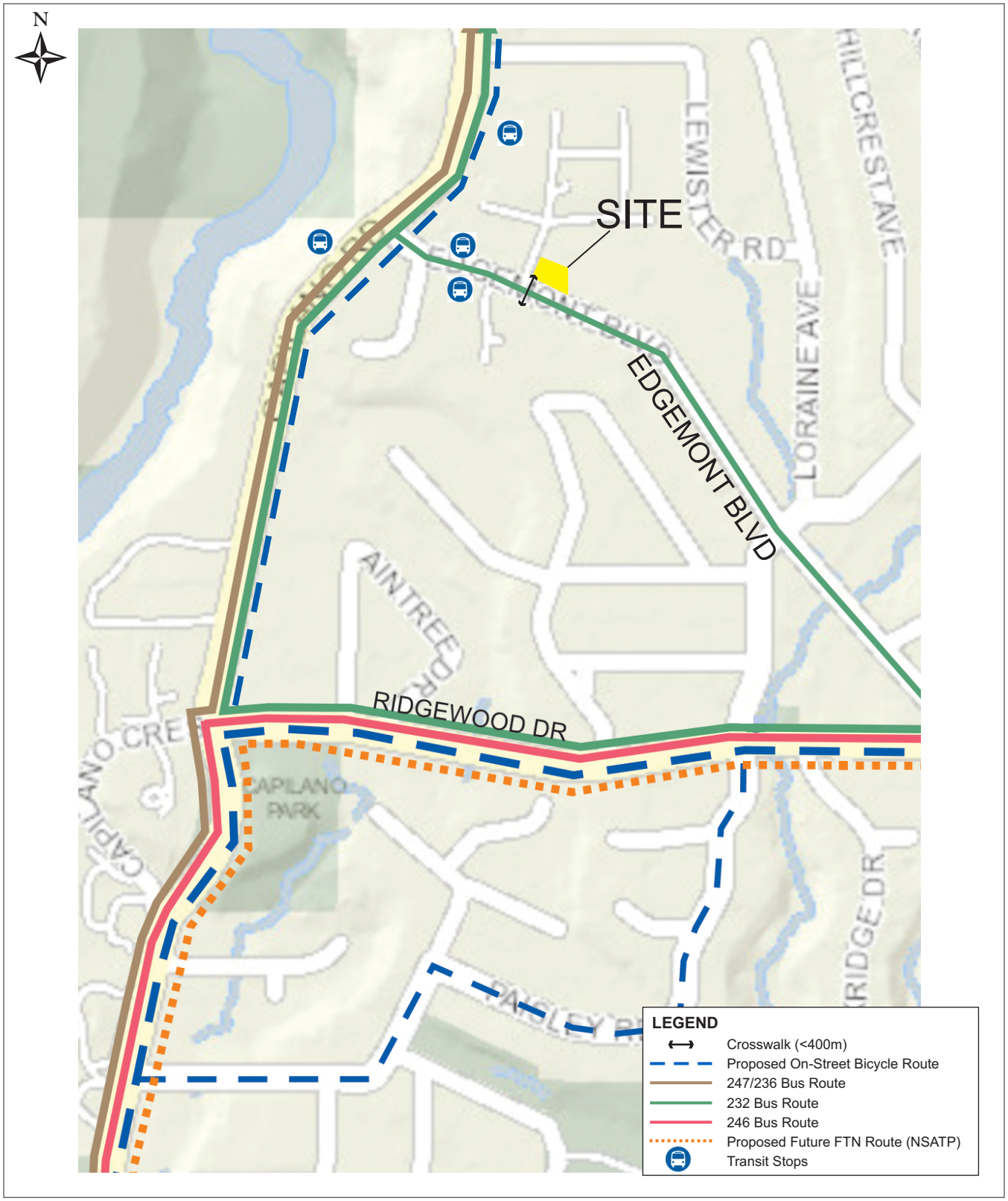

Exhibit 2.3

Future Pedestrian, Transit and Cycling Connections

3730-3736 Edgemont Boulevard Transportation Review, North Vancouver, BC
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3. DEVELOPMENT PLAN REVIEW

This section presents the proposed development content and related vehicle and bicycle parking requirements based on the District of North Vancouver Zoning Bylaw (*Bylaw 3210*).

3.1 Development Content

The proposed development will consist of 7 units of multi-family residential "townhouse" units with underground parking for residents and visitors accessed from Edgemont Boulevard.

A new sidewalk will be built along the site frontage to enhance the pedestrian realm along Edgemont Boulevard and together along with the proposed curb bulge and raised crosswalk (discussed later) will improve pedestrian connections to the site.

Exhibit 3.1 illustrates the site plan and site frontage on Edgemont Boulevard.

3.2 Parking Supply Requirements

Table 3.1 summarizes the site's parking requirements based on the District of North Vancouver's Zoning Bylaw.

Table 3.1: District of North Vancouver Off-Street Parking Requirement

Use	Bylaw Parking Rate	Bylaw Parking Requirement (Maximum)
Residential	1 space per unit plus 1 space per 100m^2 of gross residential floor area (to a maximum of 2 spaces per unit inclusive of 0.25 per dwelling unit designated for visitor parking.)	14

As shown, a total of 14 stalls are required for the development (including visitor parking) based on the District's bylaw. The development is proposing to provide a total of 16 parking spaces, including 14 residential spaces and 2 visitor spaces located underground and accessed from a driveway ramp on Edgemont Boulevard, which are 2 spaces more than the bylaw requirement.

The District also requires that 20% of the parking spaces must have Electric Vehicle (EV) charging infrastructure, and wired for level 1 charging, and that conduit be in place so that all of the parking spaces can later be wired for level 1 charging. Therefore, there will be 3 parking spaces that are EV-ready for residents with the development.

Table 3.2: District of North Vancouver Bicycle Parking Requirement

Use	Bylaw Parking Rate		Bylaw Parking Requirement (Maximum)	
	Class 1 (long-term)	Class 2 (short-term)	Class 1 (long-term)	Class 2 (short-term)
Bicycle	No Standard	0.2 Spaces per unit	N/A	2

This indicates a total of 2 Class 2 short-term bicycle parking spaces would be required for the development. This parking is provided in a well lit and covered location along the development frontage next to the garbage/recycling room, and is easily accessible from the sidewalk and the interior courtyard. There will also be electrical outlets for electric bicycle parking.

While the District of North Vancouver does not have a standard rate for Class 1 secure bicycle parking, the development plans to provide a minimum of 2 secure bicycle parking spaces per unit.

To achieve this, each residential unit has a separate self-contained garage (similar to single family homes) in the underground parkade for their vehicle parking, which will also be adequately sized to accommodate bicycle parking for several bicycles (as well as for other gear) for each residence which is more than enough to meet the needs of the development. The garages will also be equipped with electrical outlets to accommodate electric bicycles.

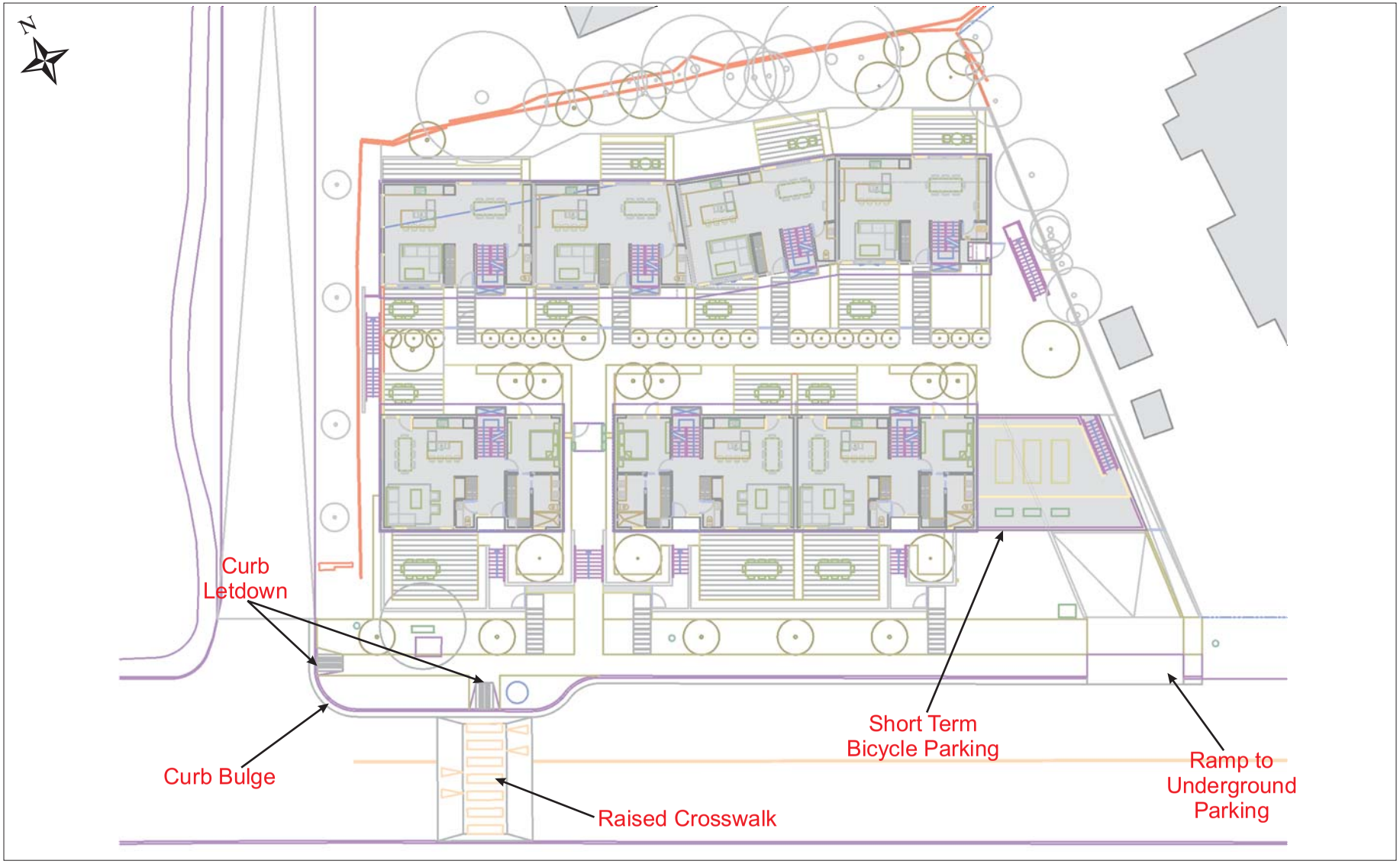

Exhibit 3.1

Proposed Site Plan

3730-3736 Edgemont Boulevard Transportation Review, North Vancouver, BC
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3.3 Vehicle Access

As illustrated in Exhibit 3.1, resident vehicle access to the underground parkade ramp is via a driveway on Edgemont Boulevard located at the southeast corner of the site which as mentioned also accommodates visitor parking. A mirror is to be installed at the bottom of the parkade ramp in an optimal location to help provide better visibility between inbound and outbound vehicles on the ramp and in the parkade.

3.4 Parking Design Review

The proposed parking plans were tested for passenger vehicle maneuverability using AutoTURN to confirm that the design was sufficient to meet the needs of the development.

Architectural plans have been modified to include two (2) visitor parking spaces in the below ground parkade as per Transportation & Engineering Design Comments (February 20, 2015).

The underground parking was also tested at critical locations (i.e. adjacent to the parking ramp and walls), as illustrated in **Exhibit 3.2** for the inbound movements and **Exhibit 3.3** for the outbound movements (formerly Exhibits 3.3, and 3.4). The resulting turning paths demonstrate that there are no major conflicts between vehicles maneuvering in the parkade, or with parked vehicles or structural elements. As recommended, a mirror has been included at the bottom of the parking ramp to cover potential limited sightlines or blind spots.

3.5 Proposed Curb Bulge and Raised Crosswalk

As requested by the District of North Vancouver, the development plan is proposing a north-south raised crosswalk across Edgemont Boulevard near the east approach to the intersection with Edgemont Road, as illustrated previously in Exhibit 3.1. Side mounted pedestrian crossing signage will also be provided in advance of the raised crosswalk to alert drivers approaching the intersection to be aware of and stop for potential pedestrian movements.

The addition of the proposed crosswalk would improve pedestrian accessibility to/from the site. It provides a connection to the existing sidewalk on the south side of Edgemont Boulevard for people wanting to catch a bus towards Edgemont Village. The proposed curb bulge, which extends out beyond the parking lane, will also improve sightlines for pedestrians and drivers at the crosswalk. Also, as the raised crosswalk will act as a 'speed hump', vehicles will be forced to slow down when traveling over it.

Traffic control and signage will be provided as per Transportation Association of Canada (TAC), Manual of Uniform Traffic Control Devices for Canada (MUTCDC), and the District of North Vancouver standards. Overall, these elements allow for a safe crossing point from the site, particularly for vulnerable users (children, seniors and people with mobility challenges).

To ensure accessibility is maintained to/from Edgemont Manor for fire and rescue vehicles with the proposed design, an AutoTURN analysis was conducted for a DNV fire truck design vehicle, and this is included at **Appendix C**. As shown, the fire truck is able to access the driveway to Edgemont Manor in the westbound direction around the proposed new curb bulge. It should be noted that given the tighter turning radius with this design, it is required to straddle the centerline in order to conduct this maneuver.

Exhibit 3.2

Inbound Parking Maneuvers at Key Locations

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Exhibit 3.3

Outbound Parking Maneuvers at Key Locations

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4. FUTURE CONDITIONS

The expected increase in vehicle movements on the adjacent road network with the development is reviewed below.

4.1 Trip Generation

In an effort to determine a more accurate estimate of future vehicle trips anticipated to be generated by the site, vehicle movements at the accesses to local townhouse developments adjacent to the site were observed in the AM and PM peak periods. **Table 4.1** summarizes the trip generation observations.

Table 4.1 Local Townhouse Development Trip Generation

Location	Units	Peak Hour	Trips			Trip Rate/ Unit		
			IN	OUT	TOTAL	IN	OUT	TOTAL
The Manor Townhomes at Edgemont Rd	60	7:45-8:45 AM	4	25	29	0.07	0.42	0.49
		3:00-4:00 PM	14	15	29	0.23	0.25	0.48
3759-3785 Townhomes of Edgemont Blvd	14	8:00-9:00AM	2	2	4	0.14	0.14	0.28
		3:15-4:15 PM	10	3	13	0.71	0.21	0.92

The trip rate used for the proposed development was calculated via a weighted average of the two sites surveyed above. **Table 4**.2 summarizes the anticipated future trips generated by the development based on the observed weighted average trip rate.

Table 4.2 Site Trip Generation

Peak Hour	Units	Trip Rate/ Unit			Trips		
		IN	OUT	TOTAL	IN	OUT	TOTAL
AM	7	0.08	0.36	0.45	1	3	4
PM		0.32	0.24	0.57	2	2	4

As shown in Table 4.2 the site is anticipated to generate a total of 4 vehicle trips in both the AM and PM peak hour periods. This equates to 1 vehicle every 15 minutes, and as previously illustrated

in Exhibit2.2, the site currently generates 2 vehicle trips in the AM peak hour and 1 in the PM peak hour which results in a net increase of only 2 vehicle trips in the AM peak hour, and 3 vehicle trips in the PM peak hour on the adjacent road network over existing conditions.

This level of increase in vehicles on the surrounding road network will not have an incremental impact on the existing conditions and therefore does not require an operational assessment of future conditions.

5. SIGHTLINE REVIEW

A site visit was conducted on October 30th, 2014 to document existing conditions near the site and to help understand potential sightline obstacles from the proposed site driveway.

Figures 1 and **2** reflect sightlines looking to the southeast (towards Edgemont Village) from the point where a driver would be positioned waiting to exit the site driveway behind the sidewalk, and from where a driver would be positioned with the vehicle at the curb edge, respectively. As illustrated existing hedges and shrubs block sightlines for drivers and they would be recommended for removal in order to have a full view of oncoming traffic without encroaching onto Edgemont Boulevard. **Figure 3** shows the vegetation will be removed with the proposed landscape plan.

Figure 1: View to southeast from behind sidewalk

Figure 2: View to southeast from curb edge

Figures 3 and **4** reflect sightlines looking to the west (towards Capilano Road) again from behind the sidewalk, and then from the curb edge, respectively. Similarly, hedges and shrubs are recommended for removal here in order to have a full view of oncoming traffic without encroaching onto Edgemont Boulevard.

Figure 3: View to southwest from behind sidewalk

Figure 2: View to southwest from curb edge

The approximate sight distances from the proposed driveway location are illustrated in **Exhibit 5.1**.

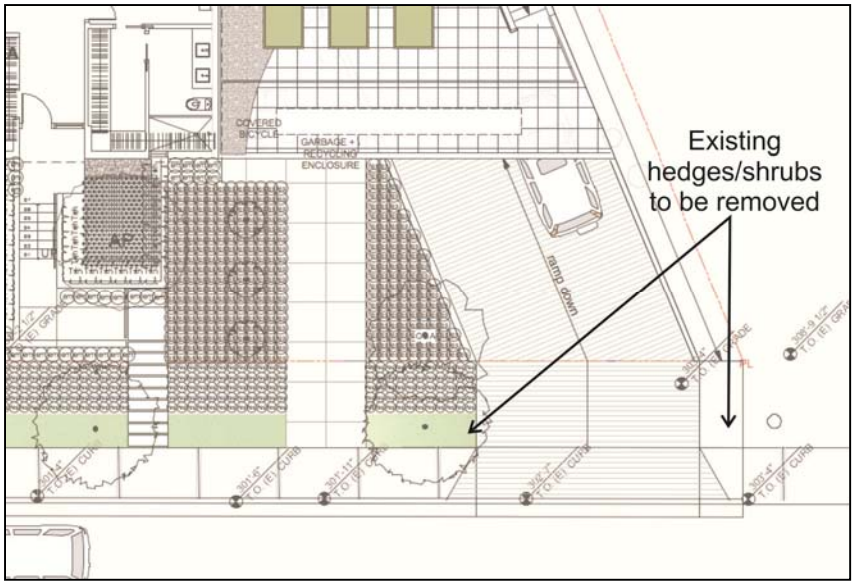


Figure 3: Existing Vegetation to be Removed with Landscape Plan

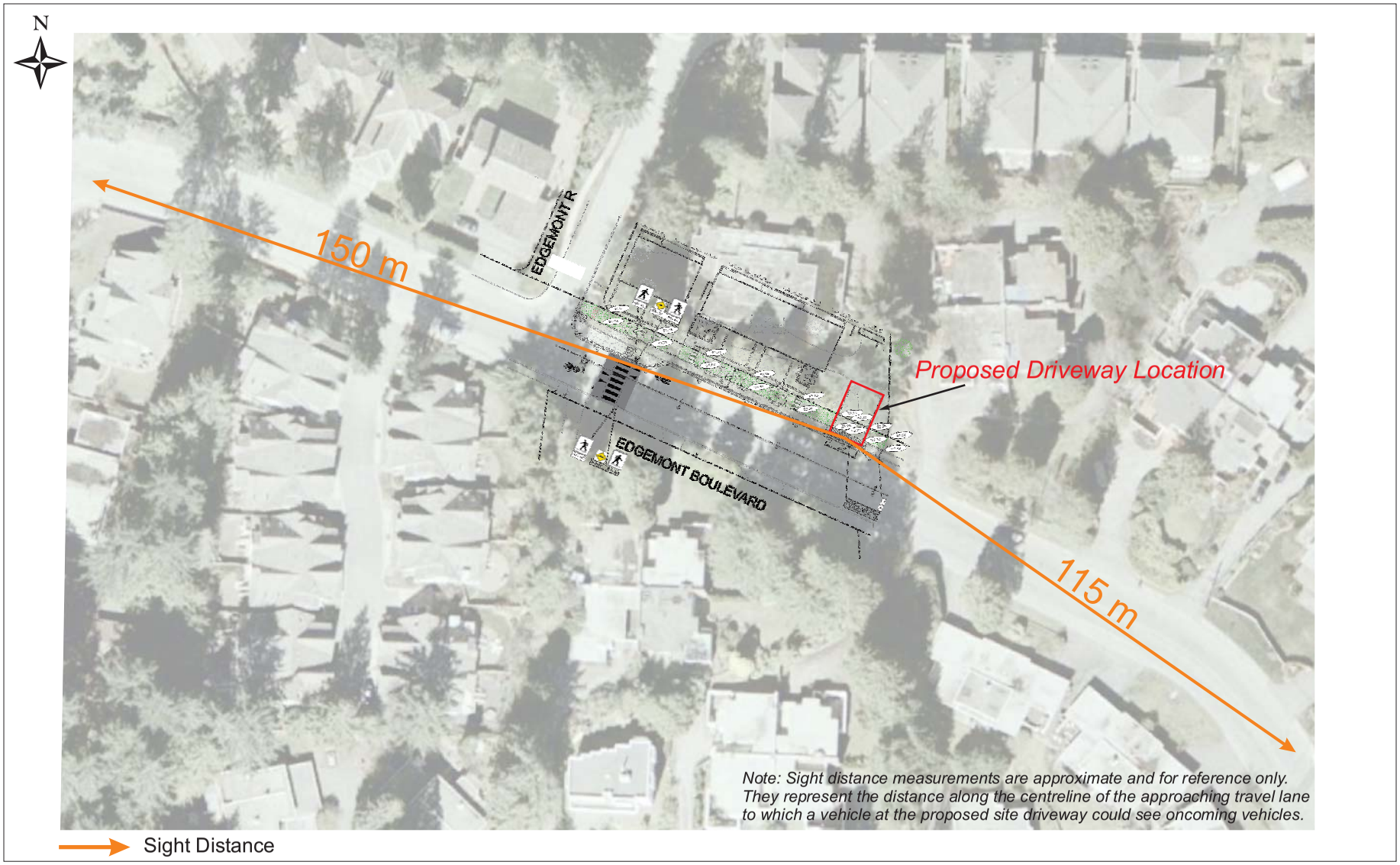


Exhibit 5.1

Approximate Sight Distances from Proposed Driveway

3730-3736 Edgemont Boulevard Transportation Review, North Vancouver, BC
4513.04 March 2015 Scale NTS

bunt & associates

6. CONCLUSIONS

The development plan proposes to redevelop the site into a 7-unit townhouse complex, with underground parking for 16 vehicles including visitor parking for 2 vehicles. Bicycle parking will be accommodated within each unit's 2-car secure parking garage with a short term covered bicycle parking rack accessibly located on the site frontage.

The existing operations of the intersection of Edgemont Road and Edgemont Boulevard were examined and found to operate well within capacity. The proposed development will generate few additional vehicle trips (i.e. only 2 net new vehicle trips in the AM peak hour, and 3 net new vehicle trips in the PM peak hour), such that they will not have a noticeable impact on the existing operations of the intersection.

There are currently no bicycle routes adjacent to the development site, which indicates that this area is deficient of basic bicycle provisions. However an on-street bike route on Capilano Road is proposed north and south of the intersection of Edgemont Boulevard, as well an east-west connection on Ridgewood Drive in the future. Sidewalks are present along the site frontage and west of the site on the south side of Edgemont Boulevard, both providing connections to bus stops.

Nearby bus stops just west of the site provide transit access to/from Grouse Mountain, Edgemont Village and beyond, while bus stops on Capilano Road provide further transit connections throughout North Vancouver. This helps improve the accessibility of the site for non-automobile users.

The site's underground parking was assessed using AutoTURN and found to function sufficiently for the development. As recommended, a mirror is to be installed on the wall at the base of the parkade ramp to ensure adequate visibility and prevent blind spots of vehicles turning around the corner.

The proposed curb bulge and raised crosswalk would improve pedestrian accessibility to/from the site by providing a connection to the existing sidewalk on the south side of Edgemont Boulevard for people wanting to catch a bus towards Edgemont Village. Additionally, the raised crosswalk acts as a 'speed hump', which along with the proposed curb bulge, allows for a safe crossing point from the site, particularly for vulnerable users.

A sightline review was carried out for the location of the proposed driveway. It was concluded the removal of some shrubs and hedges will be required on both the east and west side of the driveway in order to improve sightlines of oncoming east and westbound traffic without having to encroach onto Edgemont Boulevard.

In summary, additional site traffic expected to be generated by the proposed development is not anticipated to have a noticeable impact on the operational conditions of the surrounding road network. Moreover, the pedestrian connections in the area will improve with the new sidewalk

along the site frontage, as well as with the proposed curb bulge and raised crosswalk on Edgemont Boulevard. The site's vehicle access will require minor landscape modifications to improve sightlines for drivers leaving the site, as noted above.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	4	139	113	2	12	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	151	123	2	13	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	125				284	124
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	125				284	124
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1462				704	927

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	155	125	22
Volume Left	4	0	13
Volume Right	0	2	9
cSH	1462	1700	779
Volume to Capacity	0.00	0.07	0.03
Queue Length 95th (m)	0.1	0.0	0.7
Control Delay (s)	0.2	0.0	9.8
Lane LOS	A		A
Approach Delay (s)	0.2	0.0	9.8
Approach LOS			A

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	6	102	132	13	3	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	111	143	14	3	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	158				274	151
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	158				274	151
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1422				712	896

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	117	158	7
Volume Left	7	0	3
Volume Right	0	14	3
cSH	1422	1700	793
Volume to Capacity	0.00	0.09	0.01
Queue Length 95th (m)	0.1	0.0	0.2
Control Delay (s)	0.5	0.0	9.6
Lane LOS	A		A
Approach Delay (s)	0.5	0.0	9.6
Approach LOS			A

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	20.3%	ICU Level of Service	A
Analysis Period (min)	15		

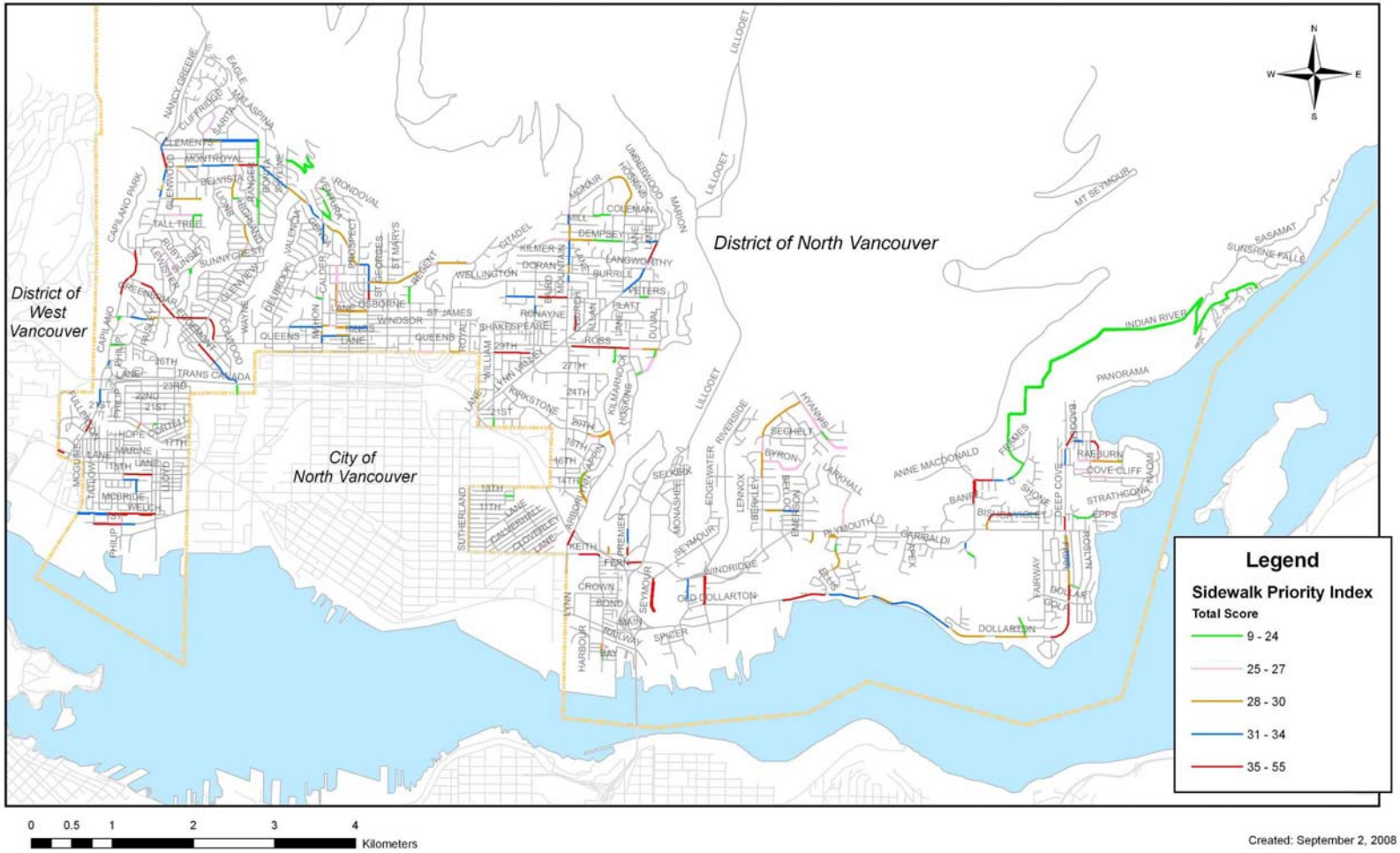
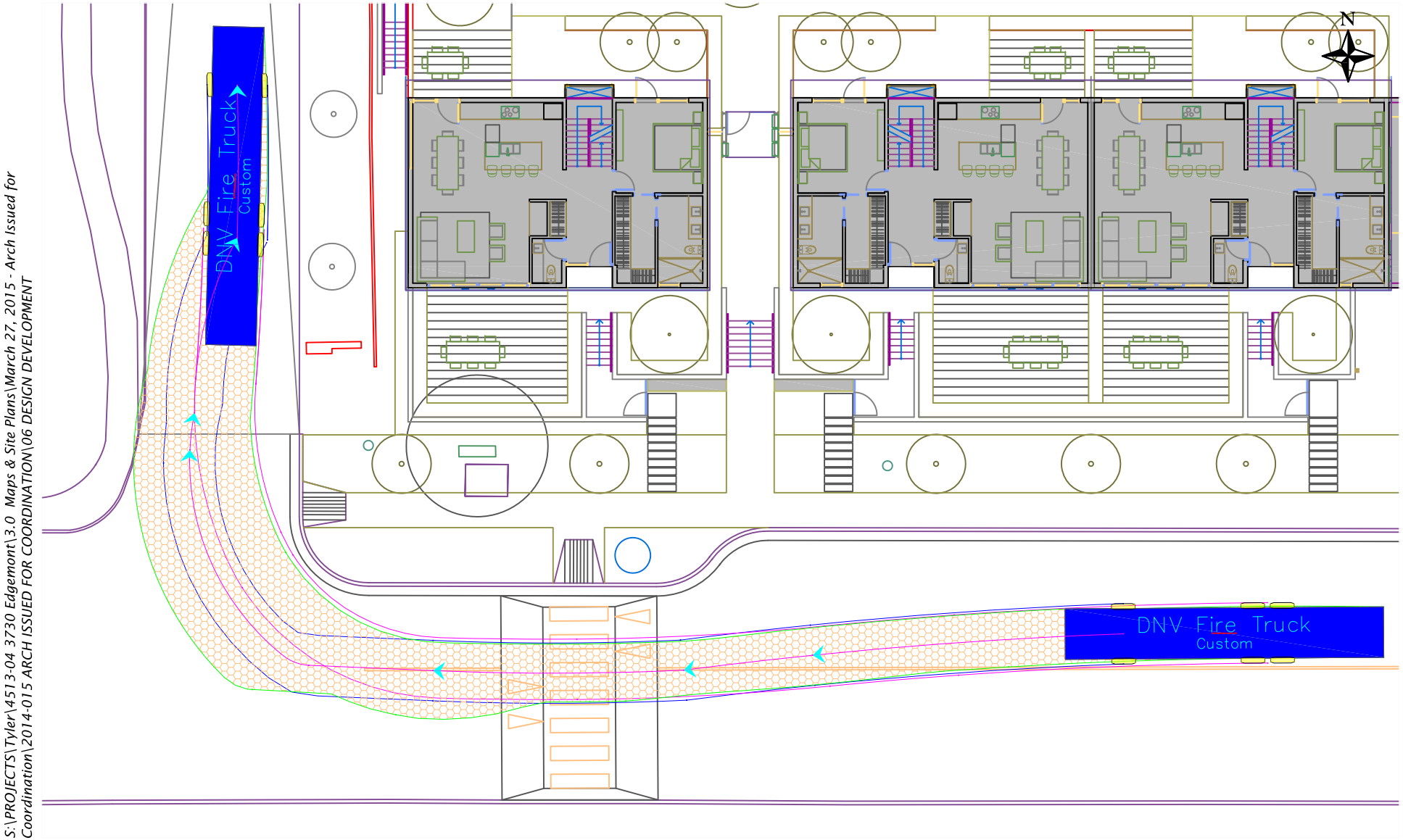


FIGURE 4.2 SIDEWALK PRIORITY INDEX MAP



Appendix C

DNV Fire Truck Accessing Edgemont Manor Driveway

3730-3736 Edgemont Boulevard Transportation Review, North Vancouver, BC
4513.04 April 2015 Scale NTS

bunt & associates

3730-3736 Edgemont Blvd
Construction Traffic Management Plan

Working Draft to be updated as required and as the construction become planned in detail.

File No. 14235
March 2015

CREUS Engineering Ltd
Civil Engineers & Project Managers
200 – 901 W 16TH ST NORTH VANCOUVER, BC V7P 1R2
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1. INTRODUCTION AND BACKGROUND

Harbourview Homes Corporation is proposing to redevelop 3730-3736 Edgemont Blvd. The site currently contains a townhome development and will be replaced with a new residential development. Creus Engineering Ltd. has prepared this traffic management report and accompanying traffic management plans as a construction traffic mitigation strategy which address the offsite & offsite civil construction as well as the building demolition & construction. This strategy has given special consideration to the mobility and safety of pedestrians, cyclists, transit and vehicular traffic as well as the typical functioning of the neighborhood including interruptions and impacts to the surrounding residents, businesses and institutions from construction activity and worker/ trades parking needs.

This report and the associated plans will outline:

- Road Safety
- Roadway Efficiency
- Communication & Public Notification
- Site Stewardship
- Construction Overview
- Construction Schedule
- Hours of Work
- Mobility Impact
- Truck Routes
- Truck Volumes
- Mitigation Measures by Phase of the Development
- Anticipated Construction Traffic Volumes
- Existing Parking and Construction Parking
- Work Zone Traffic Control Devices
- Traffic Control Plans
- Monitoring Strategy
- Coordination with Other Developments
- Key Personnel Contact Information

Throughout the approval and project planning process, as construction details become clear, the project management team and Creus Engineering may update this traffic mitigation strategy.

2. ROAD SAFETY

The proposed work has the potential to impact road users including pedestrians, cyclists, transit service, emergency vehicles, heavy vehicles and general road traffic. The safety of all road users is of paramount importance. The general public is to be protected from all construction activities at all times. The public will be visually and physically deterred from entering the construction zone by appropriate signage, fencing, hording and communication. All construction workers are to be made aware of, and adhere, to the sites traffic mitigation strategy.

There are to be no restrictions to emergency vehicles at any time. Emergency vehicles are to be given priority access at all times. Emergency services (police, fire, ambulance) to be notified in advance of any construction activities by the general contractor with the potential to cause delays or detours (ie intersection construction, road paving).

3. ROADWAY EFFICIENCY

Existing pedestrian routes (sidewalks, trails etc.) are to remain clear and open at all times unless specifically noted in the Traffic Management Plan. Bike routes are to remain clear and open at all times unless specifically noted in the Traffic Management Plan. Transit service and access to bus stops to remain available at all times unless specifically noted in the Traffic management Plan. Temporary relocation of bus stops, if required, to be coordinated with Coast Mountain Bus Company by the construction management team with notification given to the District of North Vancouver Transportation Department.

Large tractor trailer type vehicle (other than dump trucks) should be limited to the hours of 09:00 to 15:00 to be outside peak commuter periods.

Traffic management to be implemented as per this report and the traffic management plans.

Construction management team to review construction schedule with other developments in the area. Notably Metro Vancouver and the District of North Vancouver have planned waterworks and ducting upgrades in the vicinity of the project. The construction management team should consult with both these bodies when a schedule has been established.

4. COMMUNICATIONS PLAN & PUBLIC NOTIFICATION

Residents, businesses and through traffic (commuters) have the potential to be impacted by the proposed construction activities. A sample notification letter and distribution map has been attached to this report which will include the project management teams contact information. The project management team is to direct any concerns to the appropriate party. A detailed contact list is attached to this report. The contact list also provides the information for points of contact regarding unforeseen issues, complaints, coordination and emergencies.

5. SITE STEWARDSHIP

All works, equipment and materials will be stored onsite where possible. Works offsite will be completed as efficiently as possible.

An important part of heavy vehicle management is the mitigation of silt, mud, dust, debris, and litter.

- All heavy trucks are to be covered while in transit.
- The trucking contractor will ensure that adjacent streets and truck routes are kept clean and free of dust and debris on a daily basis.
- The general contractor is also responsible for installing and maintaining a site sediment & erosion control system including mud and dust control and a wheel wash during trucking.
- The contractor is to monitor the area for litter originating from the site, collect it and dispose of it regularly.
- An erosion and sedimentation control plan is to be created in the project planning phase and implemented immediately at project startup

Noise control is as per the District of North Vancouver's Bylaw 7188.

6. CONSTRUCTION OVERVIEW

Construction activities for the development includes existing building demolition, new building excavation, building construction above grade, onsite civil works, and offsite civil works. The construction process will comprise four distinct phases as outlined below:

Phase 1: Building Demolition/Excavation (_____DURATION____)

Site preparation including removal of existing building and parking lot and excavation for new two story building.

Phase 2: Building Foundation to Grade (_____DURATION____)
Construction of the below grade portions of the new building.

Phase 3: Building above Grade Construction and Onsite Civil (_____DURATION____)

Includes building structure, exterior, and interior works. Onsite civil works are to be coordinated with the construction of the building to minimize impacts to construction activities and neighboring properties.

Phase 4: Offsite Civil (_____DURATION____)

Includes construction of a sidewalk and boulevard on the north side of Marine Drive and the west side of Pemberton Avenue.

7. CONSTRUCTION SCHEDULE

A preliminary construction schedule has been developed in coordination with Contractor. The works are planned to commence ___DATE____ with building construction ongoing until ___DATE_____ Offsite roadworks are preliminary scheduled to be completed ____DATE_____. This portion of the report is to be updated when a construction schedule is established.

8. HOURS OF WORK

The District of North Vancouver Noise Bylaw 7188 prohibits any noise or sound which disturbs or tends to disturb the quiet, peace, rest, enjoyment, comfort, or convenience of the neighborhood or of the persons in the vicinity; or exceeds the Sound Levels prescribed in the bylaw. For construction activity, the maximum Sound Level is 80dB or the maximum Daytime Average Sound Level is 65dB (at the point of reception).

Hours of work are:

- Monday to Friday: 07:00 to 20:00
- Saturday: 09:00 to 17:00
- Sunday and Statutory Holidays: No work allowed

Night work is only possible with specific resolution of District of North Vancouver council. A written request to District of North Vancouver staff is required minimum 1 month in advance of any requested nightworks.

9. MOBILITY IMPACT

This section describes how the project will impact road users including pedestrians, cyclists, transit service, emergency vehicles, heavy vehicles (trucks) and general road traffic. We have worked with Harbourview Homes and the Contractor to estimate construction truck volumes for each phase of work.

Edgemont Boulevard is a collector road as such should have an expected traffic volume of 1,000 to 8,000 vehicles per day. Anticipated construction volumes are given below. Higher volumes are anticipated in the morning peak 7.30 – 8.30 and the afternoon peak 16.30-17.30 with lower volumes anticipated at all other times of the day. There is some pedestrian and cyclist activity on Edgemont Boulevard which the proposed works will accommodate.

Construction of the proposed roadworks and the line painting will be split into two stages, the north of the road and south of the road. Lane closures will be required for parts of the work. As lanes are closed traffic and pedestrians will be controlled and redirected as noted on the traffic management plans.

9.1. TRUCK ROUTES

The site is close to Capilano Road, which is a major arterial road which connects to Highway 1. Construction traffic to and from the site will be via Capliano Road.

The proposed truck routes are shown in Appendix B.

9.2. TRUCK VOLUMES

Based on the proposed construction schedule and scope of work, the heavy vehicle (truck) volumes have been estimated as follows: To be confirmed by the contractor.

Phase of Work	Typical Vehicles per Day	Maximum Vehicles per Hour
Phase 1: Building Demolition/Excavation	20 trucks/day	4-6 trucks/hour
Phase 2: Building Foundation to Grade	20 trucks/day	4-6 trucks/hour
Phase 3: Building Above Grade Construction and Onsite Civil	10-15 trucks/day	3-4 trucks/hour
Phase 4: Offsite Civil	10-15 trucks/day	3-4 trucks/hour

9.3. MITIGATION MEASURES

The proposed works has the potential to impact all road users. In general, the following measures should be implemented to mitigate the potential impacts:

- Truck marshaling is only available on site. No marshaling on District of North Vancouver (or City of North Vancouver, or District of West Vancouver) roads.
- A copy of the TMP including enter / exit procedures and truck routes is to be sent to the trucking contractor prior to starting construction.

- All heavy vehicle drivers will be given a copy of the site construction traffic procedures and truck routes.
- The flag person should have additional copies of construction traffic management procedures available on the site.
- Heavy vehicles are to be equipped with radios so that trucks can be delayed, diverted or cancelled as required by current site conditions. The general contractor will be responsible for communicating with the heavy vehicles.
- Provide enough on-site queue space to hold at least ½ an hour of truck traffic (for both inbound and outbound trucks).
- Construction traffic exiting the site (right turn) is to be operated by certified flag persons from 07:00 to 18:00

Additional specific mitigation measures, per phase, are as follows:

Phase 1: Building Demolition/Excavation

Construction traffic generation for this phase consists primarily of dump truck traffic to and from the site. Trucks will arrive empty and leave fully loaded. See the Traffic Management Plans for details. Additional specific mobility impact mitigation measures include:

- All truck traffic to be routed per the aforementioned truck routes.
- Construction traffic exiting the site (right turn) is to be operated by certified flag persons from 07:00 to 18:00
- In order to maintain minimal impacts to traffic, all other deliveries to/from the site are to be avoided during peak hours (other than the already discussed dump trucks) and are to be made after 9:00 a.m. and before 3:00 p.m. In the event any vehicle comes to or leaves the site during peak periods they will follow the same flagging procedure as the dump trucks.
- Workers arrive before 8:00 a.m. (about 10 vehicles) therefore there will be minimal impact on peak hour.
- Workers leave after 4:00 p.m. (about 10 vehicles). Truck hauling completed at 3:00 pm.

Phase 2: Building Foundation to Grade

Construction traffic generation for this phase consists primarily of concrete truck traffic to and from the site. Trucks will arrive fully loaded and leave empty. See the Traffic Management Plans for details. Additional specific mobility impact mitigation measures include:

- All truck traffic to be routed per the aforementioned truck routes.
- Construction traffic exiting the site (right turn) is to be operated by certified flag persons from 07:00 to 18:00
- In order to maintain minimal impacts to traffic, all other deliveries to/from the site are to be avoided during peak hours (other than the already discussed concrete trucks) and are to be made after 9:00 a.m. and before 3:00 p.m. In the event any vehicle comes to or leaves the site during peak periods they will follow the same flagging procedure as the concrete trucks.
- Workers arrive before 8:00 a.m. (about 20 vehicles) therefore there will be a small impact on peak hour.
- Workers leave after 4:00 p.m. (about 10 vehicles). Trucking completed at 3:00 pm.

Phase 3: Building Above Grade and Onsite Civil

Construction traffic generation for this phase consists primarily of delivery traffic for the building materials. Trucks will generally be arriving full and leaving empty. See Traffic Management Plans for details. Additional specific mobility impact mitigation measures include:

- All truck traffic to be routed per the aforementioned truck routes.
- Construction traffic exiting the site is to be operated by certified flag persons from 07:00 to 18:00
- In order to maintain minimal impacts to Drive traffic, all other deliveries to/from the site are to be avoided during peak hours (other than the already discussed concrete trucks) and are to be made after 9:00 a.m. and before 3:00 p.m. In the event any vehicle comes to or leaves the site during peak periods they will follow the same flagging procedure as the concrete trucks.
- Workers arrive before 8:00 a.m. (about 20 vehicles) therefore there will be a small impact on peak hour.
- Workers leave after 4:00p.m. (about 20 vehicles). Trucking completed at 3:00 pm.

Phase 4: Offsite Civil

This phase consists primarily of heavy truck traffic and machinery. Trucks will arrive fully loaded and leave empty. See Traffic Management Plans for details. Additional specific mobility impact mitigation measures include:

- All truck traffic to be routed per the aforementioned truck routes.
- Civil contractor staging and storage areas are to be located within the Edgemont Boulevard construction area.
- Construction traffic exiting the site is to be operated by certified flag persons from 07:00 to 18:00
- In order to maintain minimal impacts to traffic, all works on are to be between 9:00 a.m. and 3:00 p.m. In the event any vehicle comes to or leaves the site during peak periods they will follow the same flagging procedure as the concrete trucks.
- Workers arrive before 8:00 a.m. (about 5-10 vehicles) therefore there will be minimal impact on peak hour.
- Workers leave after 4:00 p.m. (about 5-10 vehicles). Trucking completed at 3:00 pm.

10. EXISTING PARKING & CONSTRUCTION PARKING

The existing on-site parking will be removed as part of the works. The site is private property and there is no public parking available. Construction parking will be onsite and along the site frontage, overflow parking will be on the street up and down from the site frontage and on the south side of the road.

11. WORK ZONE TRAFFIC CONTROL DEVICES

All traffic control devices are to be installed and used in accordance with the BC Workers Compensation Board *Section 18*, the BC MOT *Traffic Control Manual for Work on Roadways* and the TAC *Canadian Manual of Uniform Traffic Control Devices*.

12. TRAFFIC CONTROL PLANS

Separate drawings have been prepared for each phase of the work. The plans are generally described below and reduced size copies are included in Appendix C. Full size copies of the plans are also included in CREUS Engineering's civil design package.

Phase 1: Building Demolition/Excavation

A traffic management plan has been developed showing the proposed site arrangements and traffic control systems that are to be installed for demolition and excavation. During building demolition and excavation the site exit is to be operated by a certified flag person from 7:00 to 18:00. The plan has provided an arrangement for onsite storage of at least two trucks. The onsite storage is to be used to ensure there will not be any staging for trucks coming to the site and will provide a queuing area for trucks leaving the site so that they can exit the site under the control of the flag person. No on-street staging or queuing is permitted.

Phase 2: Building Foundation to Grade

A traffic management plan has been developed showing the proposed site arrangements and traffic control systems that are to be installed for the foundation and below grade phase of the development. For this phase the site exits are to be operated by a certified flag person from 7:00 to 18:00. The plan has provided for onsite storage of at least two trucks. The onsite truck storage should ensure there will not be any street staging for trucks coming to the site and will provide a queuing area for trucks leaving the site under the control of the flag person. No on-street staging or queuing is permitted.

Phase 3: Building Above Grade and Onsite Civil

A traffic management plan has been developed showing the proposed site arrangements and traffic control systems that are to be installed for the on-site civil works. For this phase the site exits will continue to be operated by a certified flag person from 7:00 to 18:00. The plan has provided an arrangement for onsite storage of a least two trucks, similarly to phase 1 & 2. No on-street staging or queuing is permitted.

Phase 4: Offsite Civil

A traffic management plan has been developed to show the site arrangements and traffic control systems that are to be installed for the off-site civil works. For this phase the site exit will continue to be operated by certified flag persons from 7:00 to 18:00. Additionally any vehicles entering or exiting the offsite works zone will be flag controlled. No on-street staging or queuing will be permitted. This phase may occur simultaneously with Phase 3.

13. MONITORING STRATEGY

Traffic conditions and will be monitored by the project team to confirm satisfactory performance and determine if any modifications to the plans are required. Once the traffic management plans have been implemented, periodic site inspections will be performed to confirm performance. If deemed necessary by the District of North Vancouver, PTZ (Pan-Tilt-Zoom) cameras may be required.

14. COORDINATION WITH NEIGHBOURING DEVELOPMENTS

Approved plans will be available from Creus Engineering for neighboring developments. Of particular note are the projects mentioned above in Section 3 – Roadway Efficiency above. District of North Vancouver will be required to provide approved plans and schedules for neighbouring developments when requested.

15. CONTACT INFORMATION

Project Contacts

Main Contact Number: Stefen Elmitt – (604) 987-9953 Ext. 2

Owner / Developer:
Harbourview Projects Corp.
Stefen Elmitt
(604) 987-9953 Ext. 2

General Contractor: TBD

Coast Mountain Bus Company:
Harjit Sidhu-Kambo, Transit Engineering Manager
(604)-953-3051

District of North Vancouver:
Toby Rogers, Engineering Administration Technician
604-990-2337

Daniel Cifarelli, Transportation Technologist
604-990-2396

North Shore Chamber of Commerce
102 – 124 West 1st St, North Vancouver, BC
604-987-4488

Police (RCMP):
147 East 14th St, North Vancouver, BC
604-985-1311

District of North Vancouver Fire Services:
1110 Lynn Valley Rd, North Vancouver, BC
604-980-7575

District Operations Centre:
1370 Crown St, North Vancouver, BC
604-990-3831

CREUS Engineering:
Fred Ciambrelli, Senior Project Engineer
604-987-9070

Emergency Contacts

RCMP: 911
Fire Department: 911
BC Ambulance: 911

16. REPORT SUBMISSION

Yours Sincerely,

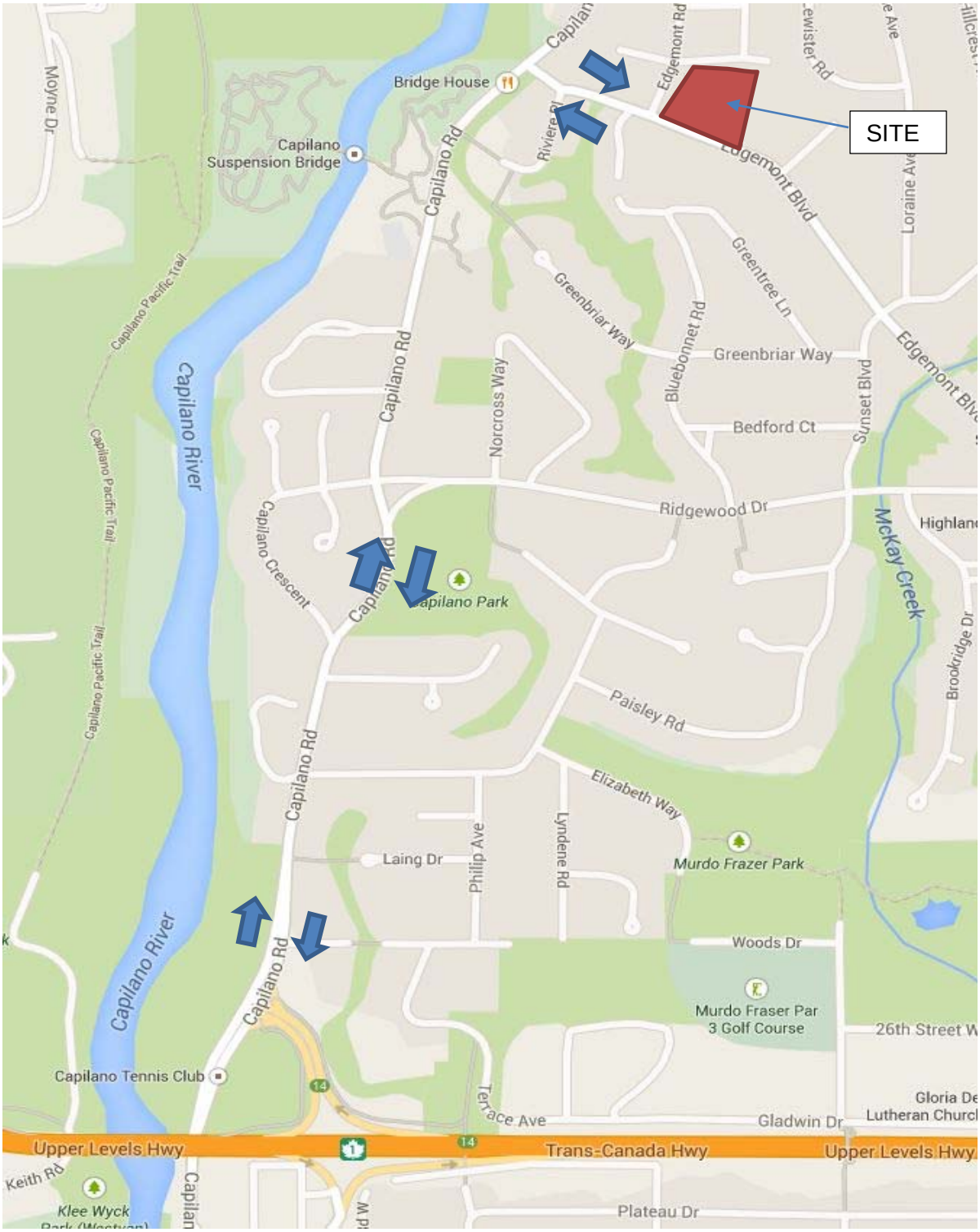
CREUS Engineering Ltd

Keith Kelly, P. Eng.

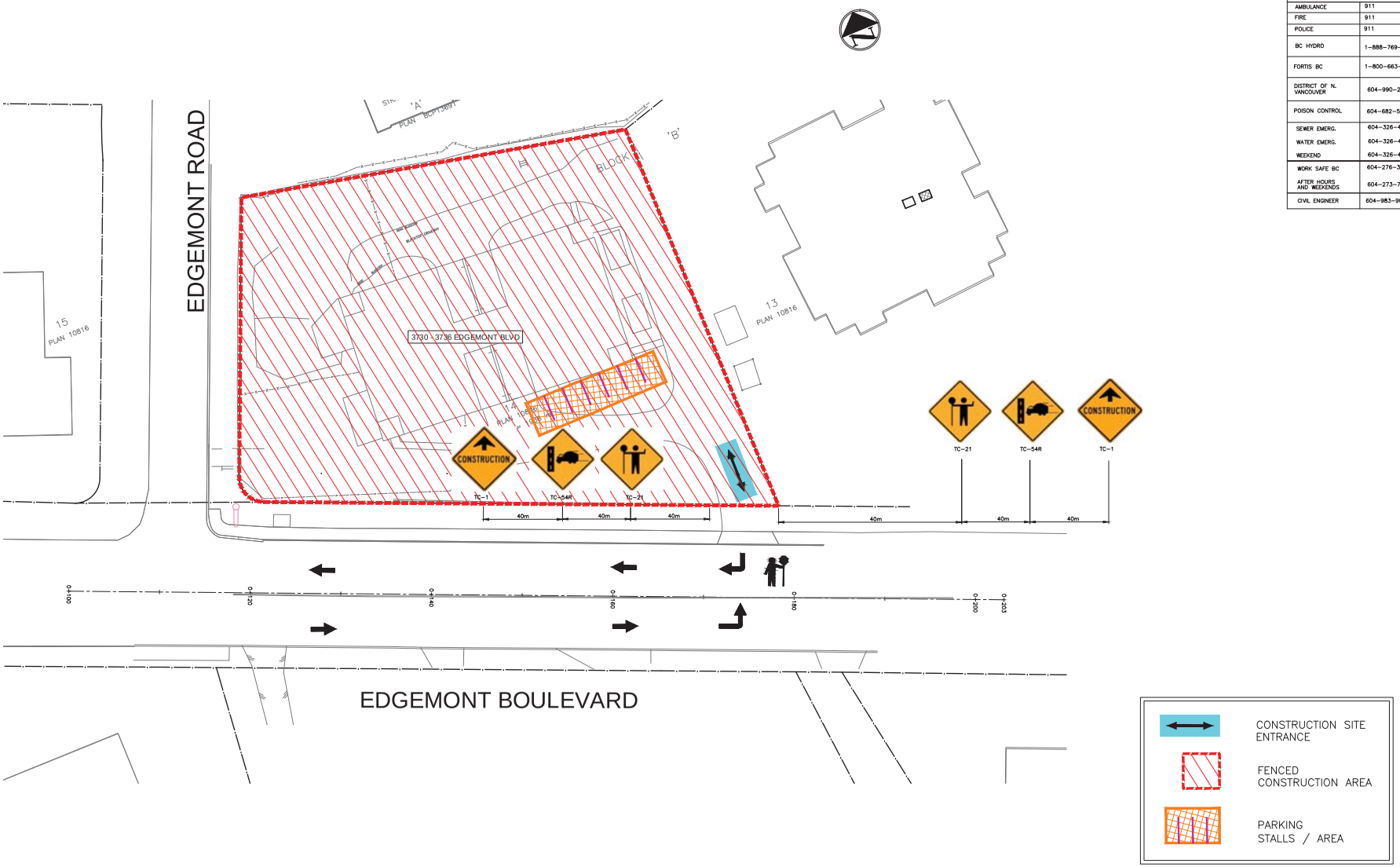
Fred Ciambrelli, P.Eng.

APPENDIX A: TRUCK ROUTES

CAPILANO ROAD TRUCK ROUTE



APPENDIX B: TRAFFIC CONTROL PLANS



CONSTRUCTION MANAGEMENT PLAN

AMBULANCE	911
FIRE	911
POLICE	911
BC HYDRO	1-888-769-3766
FORTIS BC	1-800-663-9911
DISTRICT OF N. VANCOUVER	604-990-2311
POISON CONTROL	604-682-5050
SEWER EMERG.	604-326-4680
WATER EMERG.	604-326-4800
WEEKEND	604-326-4650
WORK SAFE BC	604-276-3100
AFTER HOURS AND WEEKENDS	604-273-7711
CIVIL ENGINEER	604-983-9070

THIS IS A DRAFT TRAFFIC MANAGEMENT PLAN WHICH IS TO BE UPDATED AS THE PROJECT CONSTRUCTION IS PLANNED IN DETAIL

no.	date	revision	chk'd

www.creus.ca

CREUS Engineering Ltd
Civil Engineers

P: 604-987-9070 F: 604-987-9071
200 - 901 WEST 16TH ST NORTH VANCOUVER, BC V7P 1R2

client: HARBOURVIEW HOMES CORP.

project: 3730-3736 EDGEMONT BLVD. DISTRICT OF NORTH VANCOUVER

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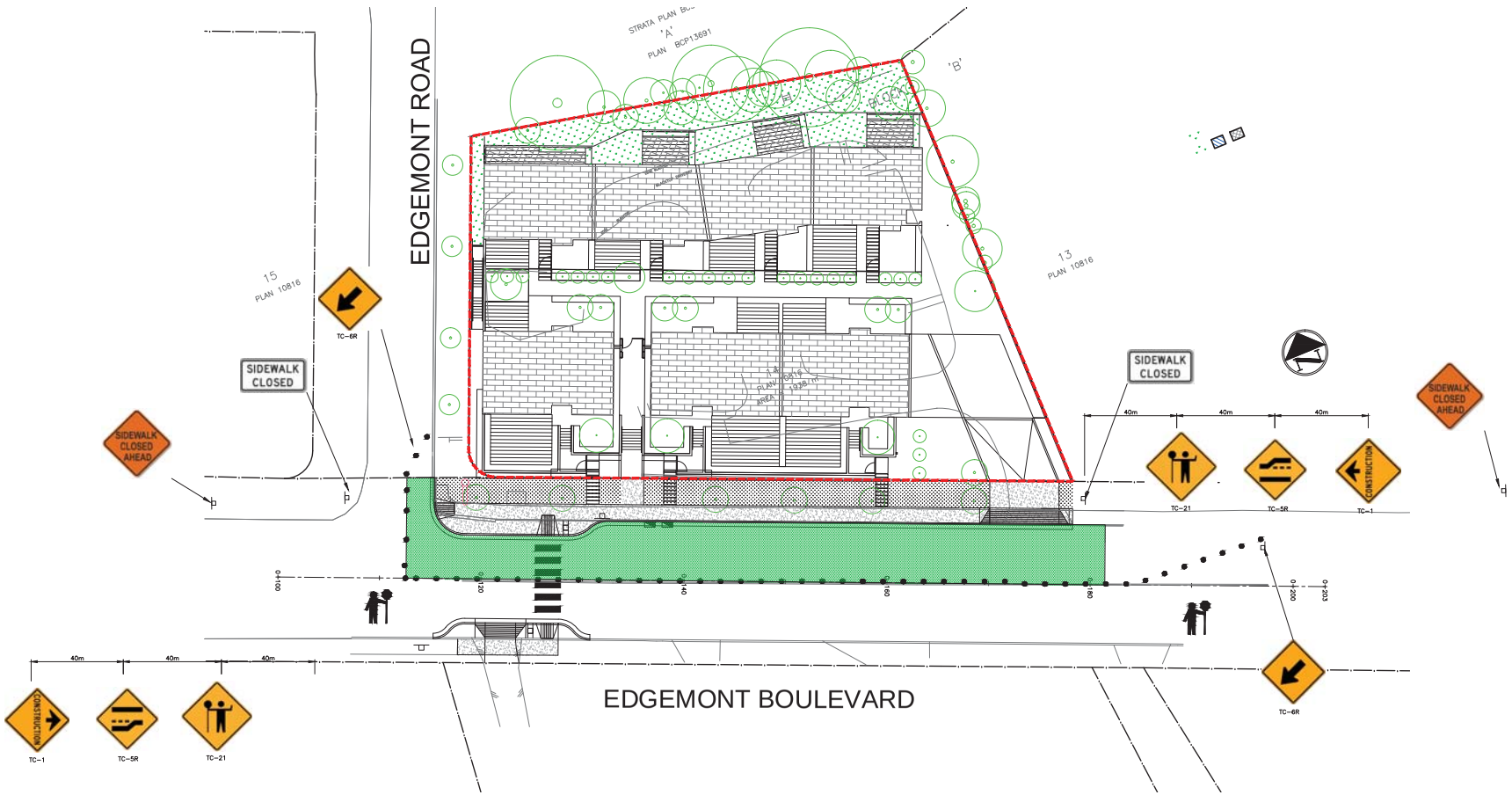
designed by: F.M.C.
drawn by: K.N.P.
checked by: K.S.K.
date: AUG.27.14

title: TRAFFIC MANAGEMENT PLAN: DEMOLITION, EXCAVATION, ONSITE CONSTRUCTION

"I, FRED CAMBRELLI, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS HEREIN SET OUT ON THE ATTACHED DRAWINGS HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH: THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL, DATED NOV 2005, THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD), VERSION 2000 AND THE DISTRICT OF NORTH VANCOUVER SUPPLEMENTARY MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (SUPPLEMENTARY SPECIFICATIONS AND SUPPLEMENTARY STANDARD DRAWINGS), ADOPTED BY THE DISTRICT OF NORTH VANCOUVER.

approved

scales: hor: 1:200 vert:
proj no.: 14235 dwg.: TMP-1
DNV file no.: DF9736 rev.: -



CONSTRUCTION CONTACT INFO		
	CONTRACTOR:	TBD
	PROJECT ENGINEER:	604-987-9070
	DISTRICT OF NORTH VANCOUVER	604-990-2311
	AMBULANCE	911
	FIRE	911
	POLICE	911
	BC HYDRO	1-888-769-3766
	FORTIS BC	1-800-663-9911

SYMBOL LEGEND

- TRAFFIC CONTROL SIGN
- TRAFFIC CONTROL SIGN (SHORT DURATION)
- DELINEATOR
- DELINEATOR (SHORT DURATION)
- TRAFFIC CONTROL PERSON
- WORKS ZONE
- WORKS ZONE (SHORT DURATION)
- WORKS ZONE (NIGHT WORK 7pm-6am DNV PERMIT REQUIRED)

TYPE OF CONTRUCTION: CURB & GUTTER AND SIDEWALK
WORK TO BE COMPLETED: TBD
WORKING DAYS: MONDAY TO FRIDAY
WORKING HOURS: MON-FRI. 9AM TO 3PM

no.	date	revision	chk'd

www.creus.ca

CREUS Engineering Ltd
Civil Engineers

P: 604-987-9070 F: 604-987-9071
200 - 901 WEST 16TH ST NORTH VANCOUVER, BC V7P 1R2

client: HARBOURVIEW HOMES CORP.

project: 3730-3736 EDGEMONT BLVD. DISTRICT OF NORTH VANCOUVER

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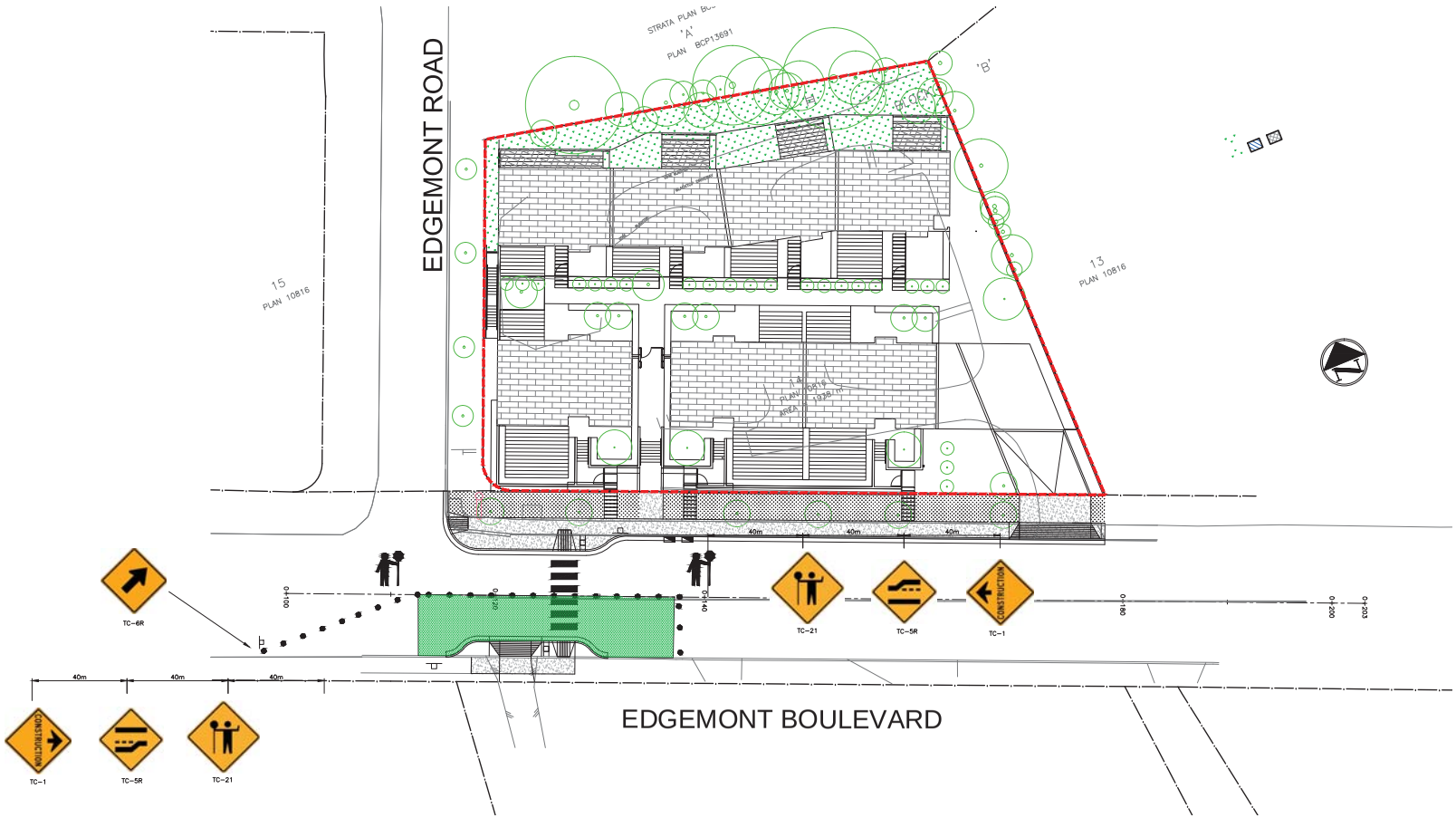
designed by	F.M.C.
drawn by	K.N.P.
checked by	K.S.K.
date	AUG.27.14

title: ROADWORKS PLAN - NORTH SIDE OF EDGEMONT

"I, FRED CAMBRELLI, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS HEREIN SET OUT ON THE ATTACHED DRAWINGS HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH: THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL, DATED NOV 2005, THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD), VERSION 2000 AND THE DISTRICT OF NORTH VANCOUVER SUPPLEMENTARY MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (SUPPLEMENTARY SPECIFICATIONS AND SUPPLEMENTARY STANDARD DRAWINGS), ADOPTED BY THE DISTRICT OF NORTH VANCOUVER.

approved

scales	hor: 1:200	vert	
proj no.	14235	dwg.	TMP-2
DNV file no.	DF9736	rev.	-



CONSTRUCTION CONTACT INFO		
	CONTRACTOR:	TBD
	PROJECT ENGINEER:	604-987-9070
	DISTRICT OF NORTH VANCOUVER	604-990-2311
	AMBULANCE	911
	FIRE	911
	POLICE	911
	BC HYDRO	1-888-769-3766
	FORTIS BC	1-800-663-9911

SYMBOL LEGEND

- TRAFFIC CONTROL SIGN
- TRAFFIC CONTROL SIGN (SHORT DURATION)
- DELINEATOR
- DELINEATOR (SHORT DURATION)
- TRAFFIC CONTROL PERSON
- WORKS ZONE
- WORKS ZONE (SHORT DURATION)
- WORKS ZONE (NIGHT WORK 7pm-6am DNV PERMIT REQUIRED)

TYPE OF CONTRUCTION: CURB & GUTTER AND SIDEWALK
WORK TO BE COMPLETED: TBD
WORKING DAYS: MONDAY TO FRIDAY
WORKING HOURS: MON-FRI. 9AM TO 3PM

no.	date	revision	chk'd

www.creus.ca

CREUS Engineering Ltd
Civil Engineers

P: 604-987-9070 F: 604-987-9071
200 - 901 WEST 16TH ST NORTH VANCOUVER, BC V7P 1R2

client: HARBOURVIEW HOMES CORP.

project: 3730-3736 EDGEMONT BLVD. DISTRICT OF NORTH VANCOUVER

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designed by	F.M.C.
drawn by	K.N.P.
checked by	K.S.K.
date	AUG.27.14

title: ROADWORKS PLAN - SOUTH SIDE OF EDGEMONT

"I, FRED CAMBRELLI, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS HEREIN SET OUT ON THE ATTACHED DRAWINGS HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH: THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL, DATED NOV 2005, THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD), VERSION 2000 AND THE DISTRICT OF NORTH VANCOUVER SUPPLEMENTARY MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (SUPPLEMENTARY SPECIFICATIONS AND SUPPLEMENTARY STANDARD DRAWINGS), ADOPTED BY THE DISTRICT OF NORTH VANCOUVER.

approved

scales	hor: 1:200 vert
proj no.	14235
dwg.	TMP-3
DNV file no.	DF9736
rev.	-

APPENDIX C: NOTIFICATIONS

WRITTEN NOTIFICATION AREA – GENERAL NOTIFICATIONS
SAMPLE NOTICE TO RESIDENTS AND BUSINESS OPERATORS

Temporary Street Closure/Building Zone
Location
Time and Dates

Date

Dear Residents and Business Operators:

We are writing to notify you that …

This is necessary to install/repair the <underground utilities, road, sidewalk, landscaping, lighting etc adjacent to the <Address>.

The closure will be required during week day business hours from <> to <>.

During construction there will be traffic diversions, parking restrictions and road closures. The actual work site will be kept as compact and tidy as reasonably possible. The workers will cooperate with the public to try and minimize the impact the work will have on day-to-day road use.

We apologize for any inconvenience the work may cause and thank you for your understanding and cooperation. Please contact the undersigned at
<> or by e-mail at <> if you would like to discuss this matter in further detail.

Please also refer to project web site at < > for on-going construction updates.

Yours truly,

<Applicant>

cc: North Shore Chamber of Commerce
RCMP
District of North Vancouver Fire Services
District Operations Centre
District Hall – Transportation Department
Coast Mountain Bus Company

CLIENT:

HARBOURVIEW HOMES CORP.

ADDRESS: 400 - 38 FELL AVE

PHONE: 604-987-9953

FAX: 604-987-9964

EMAIL: INFO@HARBOURVIEWPROJECTS.CA

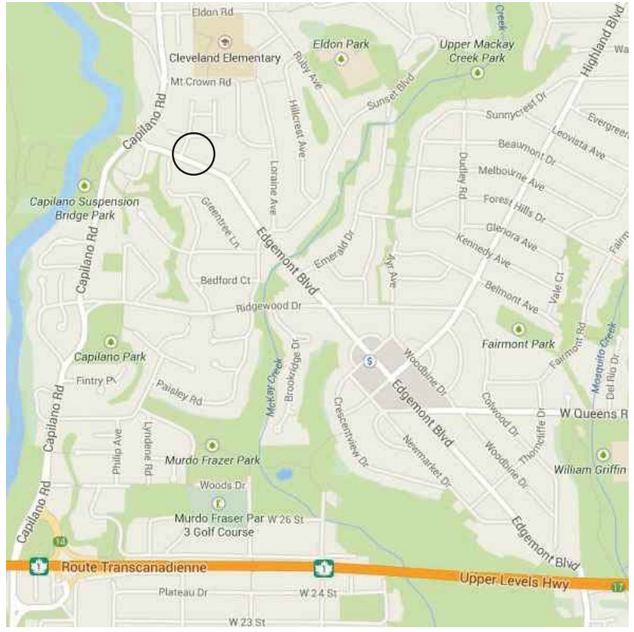
PROJECT:

3730-3736 EDGEMONT BLVD

DISTRICT OF NORTH VANCOUVER, BC

DRAWING LIST

KEY-1	KEY PLAN
SERV-1	SERVICING PLAN
SMP-1	STORMWATER MANAGEMENT PLAN
R-1	ROADWORKS PLAN
DET-1	DETAILS
DET-2	DETAILS



CREUS Engineering Ltd.

REZONING & DP APPLICATION SUBMISSION

LINETYPE LEGEND	EXISTING	PROPOSED
LEGAL LINE		
WATERMAIN		
SANITARY		
STORM		
HYDRO		
TEL		
STREETLIGHT		
GAS		

SYMBOLS LEGEND	EXISTING	PROPOSED
FIRE HYDRANT		
GATE VALVE		
AIR VALVE		
METER BOX		
REDUCER		
INSPECTION CHAMBER		
CATCHBASIN		
SIDE INLET CB		
CAP		
MANHOLE	EX. MH	S1
POWER POLE		
STREETLIGHT		

EX. TREES (TO REMAIN)

EX. TREES (TO BE REMOVED)

PR. TREES

SEE DRAWING R–1 FOR ROADWORKS NOTES
SEE DRAWING R–1 FOR SIGNAGE AND LINEPAINT NOTES
SEE DRAWING SERV–1 FOR STORM, SANITARY, AND WATER NOTES

LEGAL DESCRIPTION

LOT 14, BLOCK 'B', DISTRICT LOT 601. GROUP ONE, NEW WESTMINSTER DISTRICT PLAN 10816. P.I.D. 009–360–514

BENCHMARK INFORMATION

ELEVATIONS ARE METRIC AND TO GEODETIC DATUM AND ARE DERIVED FROM CONTROL MONUMENT 6632 LOCATED FRONTING 3700–3710 EDGEMONT BOULEVARD.

GENERAL NOTES

1. ALL CONSTRUCTION IN D.N.V. ROAD R.O.W. MUST CONFORM TO THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD) AND DISTRICT DEVELOPMENT SERVICING BYLAW #7388 SCHEDULE D.2, SUPPLEMENTARY SPECIFICATIONS AND STANDARD DETAIL DRAWINGS MUST PASS THE DISTRICT AND ENGINEER'S INSPECTIONS.
2. THE CONTRACTOR MUST NOTIFY ENGINEER THEN THE D.N.V.'S CONSTITUTION OFFICE @ 604–990–3886, 48 HOURS PRIOR TO STARTING CONSTRUCTION TO ESTABLISH AN INSPECTION SCHEDULE.
3. THE CONTRACTOR SHALL ENSURE THAT ALL APPROVALS REQUIRED FOR THE PROPOSED WORK HAVE BEEN OBTAINED PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION.
4. A PRE–CONSTRUCTION MEETING BETWEEN ENGINEER, THE CONTRACTOR, AND D.N.V. IS REQUIRED PRIOR TO COMMENCEMENT OF CONSTRUCTION. MEETING TO BE ORGANIZED BY CONTRACTOR.
5. CONTRACTOR TO PROVIDE EMERGENCY CONTACT LIST, INSURANCE AND SURETY DOCUMENTATION AND PROPOSED SCHEDULE OF WORK TO ENGINEER PRIOR TO PROCEEDING WITH WORKS.
6. A PORTION OF THE CONTRACT DOCUMENTS IS INCLUDED BY REFERENCE. COPIES OF THESE DOCUMENTS HAVE BEEN REFERENCED IN THE TENDER PACKAGE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT CURRENT RELEVANT COPIES OF ALL DRAWINGS AND CONTRACT DOCUMENTS ARE FORWARDED TO SURVEYORS, TESTING AGENCIES, SUBCONTRACTORS, SUPERINTENDENTS, ESTIMATORS, PROJECT MANAGERS, SITE STAFF AND ANY OTHER RELEVANT PARTIES. CONTRACTOR CONFIRMS THEY HAVE REVIEWED SAME PRIOR TO SUBMITTING TENDER.
7. THE CONTRACTOR WILL CONSTRUCT ALL WORKS TO THE SATISFACTION OF THE INSPECTORS FROM THE ENGINEER AND THE REGULATORY AUTHORITY. IF APPLICABLE ADDITIONALLY, THE TELUS WORKS UNDER THE DIRECTION AND TO THE SATISFACTION OF THE TELUS INSPECTOR, HYDRO WORKS TO SATISFACTION OF THE BC HYDRO INSPECTOR, TERASEN WORKS TO SATISFACTION OF THE TERASEN INSPECTOR, SHAW WORKS TO SATISFACTION OF THE SHAW INSPECTOR. THE CONTRACTOR WILL FORWARD TO THE ENGINEER CERTIFICATION OF ACCEPTANCE OR APPROVAL FROM THE ABOVE NOTED INSPECTORS ON COMPLETION OF THE WORK. ELECTRICAL WORKS, IF APPLICABLE TO ALSO BE UNDER PERMIT WITH BC ELECTRICAL SAFETY BRANCH WITH A COPY OF PERMIT AND SIGN OFF TO BE FORWARDED TO THE ENGINEER. CONTRACTOR TO GIVE TIMELY NOTICE TO RELEVANT INSPECTOR TO ALLOW FOR INSPECTION ON WORKS AND UPDATE ENGINEER ON SAME.
8. THE CONTRACTOR WILL PERFORM AT HIS OWN COST ALL TESTING REQUIRED BY THE REGULATORY AUTHORITY, MMCD AND THE ENGINEER. THIS INCLUDES CCTV INSPECTION OF ALL SEWER MAINS. TESTING SHALL BE DONE BY AN INDEPENDENT SPECIALTY TESTING FIRM. CONTRACTOR TO GIVE ENGINEER 48 HOURS NOTICE ON ALL TESTING. COPIES OF TESTS TO BE FORWARDED DIRECTLY BY THE TESTING FIRM TO ENGINEER AND GEOTECHNICAL ENGINEER BY EMAIL.
9. SUB–CONTRACTORS SHALL NOT COMMUNICATE WITH THE ENGINEERS OR OWNER DIRECTLY ON ANY CONTRACTUAL OR TECHNICAL ISSUE. THEY SHALL DIRECT THEIR ISSUES TO THE CONTRACTOR DIRECTLY WHOSE RESPONSIBILITY IT TO DEAL WITH THESE ISSUES ON THEIR BEHALF WITH THE ENGINEER. REVIEW AND APPROVAL OF ANY CONTRACTUAL MATTER INCLUDING PROGRESS PAYMENT, CHANGE ORDER, PAYMENT OF HOLDBACK, FINAL PAYMENT, INSURANCE AND WARRANTY, ETC. SHALL DIRECTED TO THE ENGINEER. CONTRACTOR MUST ONLY TAKE DIRECTION FROM THE ENGINEER IN REGARDS TO CHANGES TO DESIGN OR EXTRA WORKS.
10. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS OR NOTIFIED TO THE CONTRARY BY THE ENGINEER, THE CONTRACTOR IS THE "PRIME CONTRACTOR" FOR THE PURPOSE OF ALL APPLICABLE LAWS RELATIVE TO OCCUPATIONAL HEALTH AND SAFETY, INCLUDING THE DISCHARGE OF ALL DUTIES OF THE "PRIME CONTRACTOR" UNDER THE WORKERS COMPENSATION ACT (BRITISH COLUMBIA), NOTWITHSTANDING THAT THE ENGINEER, THE OWNER OR AN OTHER CONTRACTOR MAY PROVIDE FROM TIME TO TIME SOME OF THE SERVICES NORMALLY PROVIDED BY SUCH "PRIME CONTRACTOR". IN THIS SECTION "PRIME CONTRACTOR" MEANS THE CONTRACTOR SO DEFINED UNDER THE WORKERS COMPENSATION ACT (BRITISH COLUMBIA).
11. LOCATIONS OF EXISTING UNDERGROUND SERVICES HAVE BEEN DETERMINED FROM UTILITY AS–CONSTRUCTED DRAWINGS. CONTRACTOR TO CONTACT BC ONE CALL AND PROVIDE COPIES TO ENGINEER AND VERIFY THE LOCATION OF ALL EXISTING SERVICES AND TO NOTIFY ENGINEER OF ANY DISCREPANCIES, CONFLICTS OR OMISSIONS PRIOR TO BEGINNING OF CONSTRUCTION.
12. THE CONTRACTOR SHALL USE EXTREME CARE WHEN WORKING NEAR EXISTING SERVICES AND ANY SERVICES DISTURBED ARE TO BE REPLACED TO THE SATISFACTION OF D.N.V., THE ENGINEER AND/OR APPROPRIATE UTILITY CORPORATION.
13. THE CONTRACTOR'S SURVEYOR WILL RECORD AND CERTIFY ALL INFORMATION REQUIRED FOR THE ENGINEER TO PROVIDE A COMPLETE SET OF AS–CONSTRUCTED DRAWINGS INCLUDING CENTERLINE, FOG LINE, EDGE OF ASPHALT, SIGNS, MANHOLE RIMS, MANHOLE INVERTS, AND ALL APPURTENANCES. SEE SUPPLEMENTAL SPECIFICATION FOR DETAILS.
14. WHEN NO IMPROVEMENTS ARE PROPOSED UNDER THIS CONTRACT, THE EXISTING SECTION(S) OF ROADWAY SHALL BE KEPT CLEAN AND CLEAR FOR THE DURATION OF CONSTRUCTION AND LEFT IN SAME CONDITION AS PRIOR TO CONSTRUCTION.
15. TRAFFIC CONTROL PER THE MINISTRY OF TRANSPORTATION "TRAFFIC MANUAL FOR WORK ON ROADWAYS" AND AS PER THE TRANSPORTATION ASSOCIATION OF CANDA "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" CONTRACTOR TO SUBMIT PLAN FOR TRAFFIC MANAGEMENT FOR APPROVAL AND RECEIVE SAME PRIOR TO PROCEEDING WITH WORKS.
16. VEHICULAR ACCESS TO EXISTING DWELLINGS TO BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF THE CONTRACT.
17. PEDESTRIANS SHALL BE PROTECTED AT ALL TIMES. ANY CLOSURES OF THE SIDEWALK OR LANES TO BE COORDINATED WITH AND APPROVED BY THE ENGINEER AND A PERMIT FROM REGULATROY AUTHORITY OBTAINED AND FORWARDED TO ENGINEER. CONTRACTOR TO PROVIDE REQUIRED NOTICES.
18. RESIDENTS DIRECTLY AFFECTED BY CONSTRUCTION OF THIS PROJECT SHALL BE GIVEN 48 HOURS WRITTEN NOTICE OF THE PROPOSED START OF CONSTRUCTION. IF CONSTRUCTION ENTERS ONTO PRIVATE PROPERTY, THE CONTRACTOR OR DEVELOPER'S AGENT WILL REQUIRED WRITTEN AUTHORIZATION FROM THE PRIVATE PROPERTY OWNER.
19. RETAINING DESIGNATED TREES IS OF PRIME IMPORTANCE. WHEN WORKING IN PROXIMITY TO A DESIGNATED TREE OR WHEN ROOTS ARE ENCOUNTERED, THE CONTRACTOR SHALL CONSULT A CERTIFIED ARBORIST BEFORE PROCEEDING TO PREVENT DAMAGE TO TREES.
20. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO ENSURE THAT NO SILT IS DISCHARGED TO THE STORM DRAINAGE SYSTEM, ROADWAYS OR ADJACENT PROPERTIES DURING THE COURSE OF CONSTRUCTION IN ACCORDANCE WITH DFO/MOELP'S "LAND DEVELOPMENT GUIDELINES FOR THE PROTECTION OF AQUATIC HABITAT".
21. FOR BC HYDRO, TELUS, AND TERASEN INSTALLATION, SEE APPROPRIATE UTILITY COMPANY DRAWINGS AND SPECIFICATIONS.
22. SEE LANDSCAPE DRAWINGS FOR PLANTING DETAILS.

CONTRACTOR TO VERIFY & LOCATE EXISTING MAINS & SERVICE CONNECTIONS & NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING CONSTRUCTION

no.	date	revision	chk'd
1	MAR.31.15	REZONING & DP APPLICATION	AFG

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client: HARBOURVIEW HOMES CORP.

project: 3730-3736 EDGEMONT BLVD. DISTRICT OF NORTH VANCOUVER

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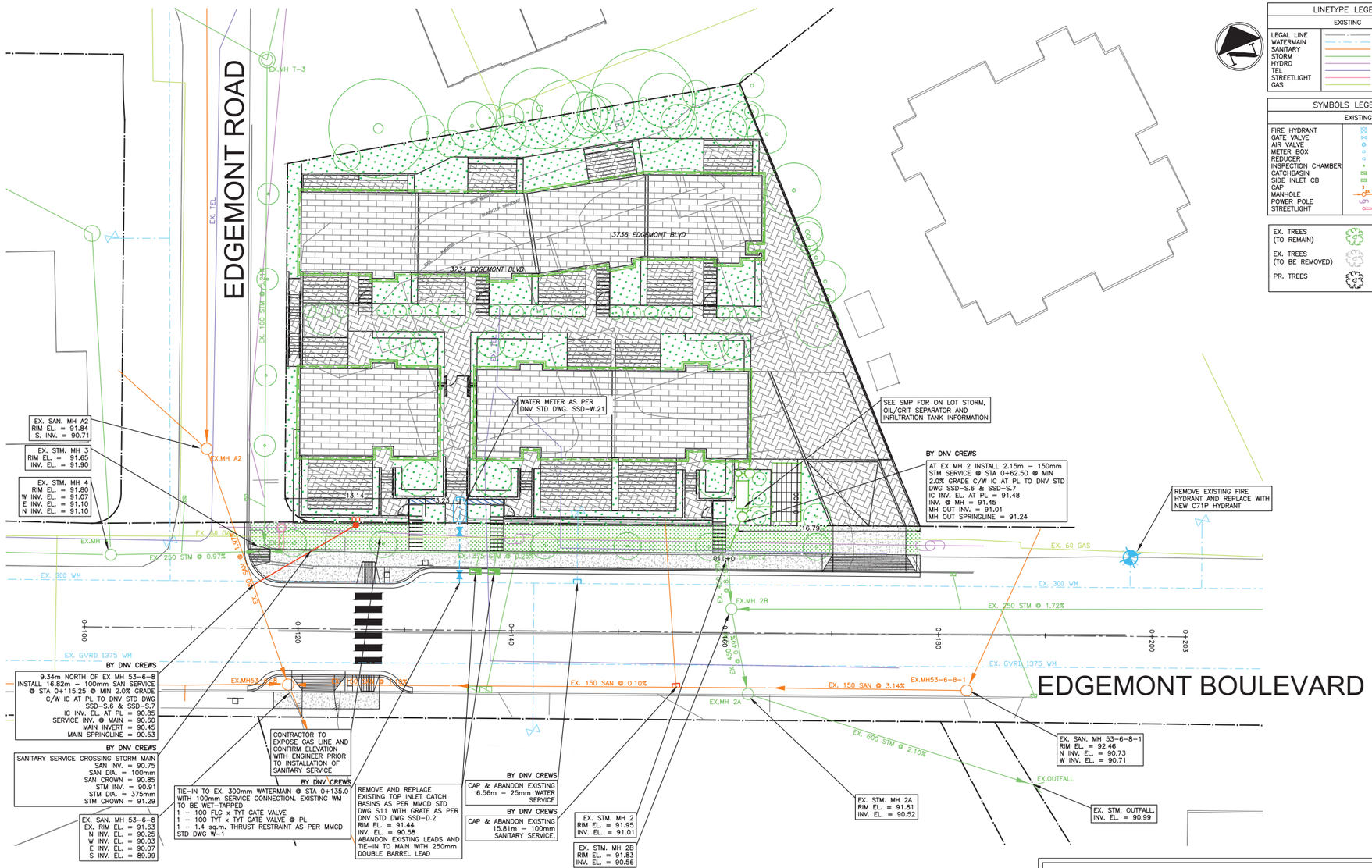
designed by: F.M.C.
drawn by: K.N.P.
checked by: F.M.C.
date: AUG.27.14

title: KEY PLAN

"I, FRED CIAMBRELLI, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS HEREIN SET OUT ON THE ATTACHED DRAWINGS HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH: THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL, DATED NOV 2005, THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD), VERSION 2000 AND THE DISTRICT OF NORTH VANCOUVER SUPPLEMENTARY MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (SUPPLEMENTARY SPECIFICATIONS AND SUPPLEMENTARY STANDARD DRAWINGS), ADOPTED BY THE DISTRICT OF NORTH VANCOUVER.

approved

scales: hor: 1:500 vert:
proj no. 14235
dwg. KEY-1
DNV file no. DF9733
rev. 1



LINETYPE LEGEND	EXISTING	PROPOSED
LEGAL LINE		
WATERMAIN		
SANITARY		
STORM		
HYDRO		
TEL		
STREETLIGHT		
GAS		

SYMBOLS LEGEND	EXISTING	PROPOSED
FIRE HYDRANT		
GATE VALVE		
AIR VALVE		
METER BOX		
REDUCER		
INSPECTION CHAMBER		
CATCHBASIN		
SIDE INLET CB		
CAP		
MANHOLE		
POWER POLE		
STREETLIGHT		

EX. TREES (TO REMAIN)	
EX. TREES (TO BE REMOVED)	
PR. TREES	

SEE DRAWING KEY-1 FOR GENERAL NOTES
SEE DRAWING R-1 FOR ROADWORKS NOTES
SEE DRAWING R-1 FOR SIGNAGE AND LINEPAINT NOTES

LEGAL DESCRIPTION

LOT 14, BLOCK 'B', DISTRICT LOT 601. GROUP ONE, NEW WESTMINSTER DISTRICT PLAN 10816. P.I.D. 009-360-514

BENCHMARK INFORMATION

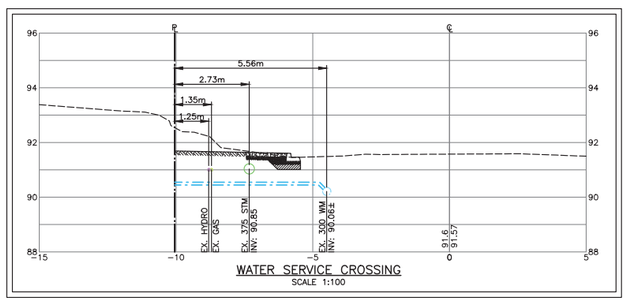
ELEVATIONS ARE METRIC AND TO GEODETIC DATUM AND ARE DERIVED FROM CONTROL MONUMENT 6632 LOCATED FRONTING 3700-3710 EDGEMONT BOULEVARD.

WATERWORKS NOTES

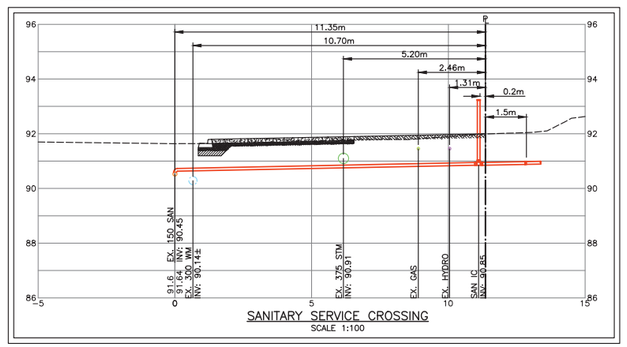
1. VALVES AND HYDRANTS OF EXISTING SYSTEM TO NOT BE OPERATED WITHOUT THE PERMISSION OF THE ENGINEER AND WATER UTILITY.
2. TYTON JOINTS TO AWWA C111 AND ASTM D313.9 & GASKET TO ASTM F477.
3. ALL WORKS TO BE PER MMCD, MUNICIPAL REQUIREMENTS, CONTRACT DOCUMENTS AND ALSO THE BCBC WITHIN PROPERTY LIMITS.
4. SERVICE CONNECTIONS TO BE TYPE K ANNEALED COPPER TO ASTM B88M UP TO 38mmø AND SIZED AS SPECIFIED. WATER SERVICE CONNECTION TO D.N.V. STD. DRAWING SSD-W.4.
5. ALL FITTINGS TO BE DUCTILE IRON TO AWWA C110 OR C153, CEMENT MORTAR LINED TO AWWA C104, TYTON JOINTS TO AWWA C111, WITH CLOSED LUGS.
6. SERVICE CONNECTIONS TO BE MARKED WITH A 40mm x 90mm POST PAINTED BLUE AT TERMINATION. SERVICES TO BE TERMINATED 1m BEYOND THE PROPERTY LINE, UNLESS OTHERWISE NOTED.
7. PIPE BEDDING TO CONFORM WITH MMCD STANDARDS. SEE MMCD STD. DWG G4 AND BE COMPACTED TO 95% MODIFIED PROCTOR PRIOR TO BACKFILLING TRENCH.
8. EXCAVATION AND PAVEMENT RESTORATION TO BE COMPLETED BY CONTRACTOR PER REGULATORY AUTHORITY REQUIREMENTS, MMCD STANDARDS AND CONTRACT DOCUMENTS. CONTRACTOR TO GIVE NOTICE PRIOR TO COMPLETING WORKS.
9. CONTRACTOR SHALL MAKE TIE-IN(S) TO EXISTING WATERMAIN(S) UNDER SUPERVISION OF ENGINEER. CONTRACTOR TO ADVISE ENGINEER 48 HOURS PRIOR TO TIE-IN.
10. SERVICE CONNECTIONS AS PER MMCD STD DWG W2A.
11. PIPE BEDDING TO CONFORM WITH MMCD STANDARDS. SEE MMCD STD. DWG G4 AND BE COMPACTED TO 95% MODIFIED PROCTOR PRIOR TO BACKFILLING TRENCH.
12. COVERS FOR INSPECTION CHAMBERS, VALVE RISERS AND METER CHAMBERS LOCATED WITHIN DRIVEWAYS SHALL BE SUITABLE FOR TRAVELLED LOADING.
13. LOCATION OF SERVICE CONNECTIONS TO BE CONFIRMED BY ENGINEER ONCE ROUGH GRADING COMPLETE.

STORM AND SANITARY NOTES

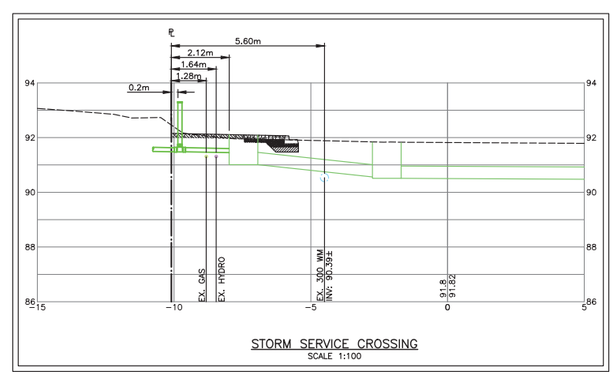
1. STORM SERVICE TO BE MINIMUM SDR28 P.V.C. 150mm MIN c/w INSPECTION CHAMBER PER DNV STD. DRAWINGS SSD-S.6 & S.7. SANITARY SERVICE TO BE MINIMUM SDR28 P.V.C. 100mm MIN c/w INSPECTION CHAMBER PER DNV STD. DRAWINGS SSD-S.6 & S.7. SANITARY AND STORM SERVICE CONNECTIONS TO BE CONNECTED TO THE MAIN WITH A MANUFACTURED WYE OR TO THE MANHOLE.
2. TESTING OF SEWERS TO BE PERFORMED IN THE PRESENCE OF ENGINEER INSPECTORS. 48 HOURS PRIOR NOTICE REQUIRED.
3. ALL SEWERS TO BE T.V. CAMERA INSPECTED. T.V. CAMERA INSPECTION TO BE ARRANGED AND PAID FOR BY THE CONTRACTOR.
4. MINIMUM GRADE ON SERVICE CONNECTIONS TO BE 2%, UNLESS NOTED OTHERWISE. SERVICE CONNECTIONS AS PER MMCD STD. DWG S7 AND S8.
5. PIPE BEDDING TO CONFORM WITH MMCD STANDARDS. SEE MMCD STD. DWG G4 AND BE COMPACTED TO 95% MODIFIED PROCTOR PRIOR TO BACKFILLING TRENCH.
6. EXCAVATION AND PAVEMENT RESTORATION TO BE COMPLETED BY CONTRACTOR PER REGULATORY AUTHORITY REQUIREMENTS, MMCD STANDARDS AND CONTRACT DOCUMENTS. CONTRACTOR TO GIVE NOTICE PRIOR TO COMPLETING WORKS.
7. SERVICE CONNECTIONS TO BE MARKED WITH A 40mm x 90mm POST PAINTED RED FOR SANTIARY AND GREEN FOR STORM AT TERMINATION. SERVICES TO BE TERMINATED 1m BEYOND THE PROPERTY LINE, UNLESS OTHERWISE NOTED.
8. MIN. COVER FOR SANITARY = 1.5m UNDER TRAVELED AREAS AND 1.0m UNDER NON-TRAVELED AREAS.
9. LOCATION/INVERTS OF SERVICE CONNECTIONS TO BE CONFIRMED BY ENGINEER ONCE ROUGH GRADING IS COMPLETE.



WATER SERVICE CROSSING
SCALE 1:100



SANITARY SERVICE CROSSING
SCALE 1:100



STORM SERVICE CROSSING
SCALE 1:100

CONTRACTOR TO VERIFY & LOCATE EXISTING MAINS & SERVICE CONNECTIONS & NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING CONSTRUCTION

no.	date	revision	chk'd
1	MAR.31.15	REZONING & DP APPLICATION	AFG

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client: HARBOURVIEW HOMES CORP.

project: 3730-3736 EDGEMONT BLVD. DISTRICT OF NORTH VANCOUVER

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designed by: F.M.C.
drawn by: K.N.P.
checked by: F.M.C.
date: AUG.27.14

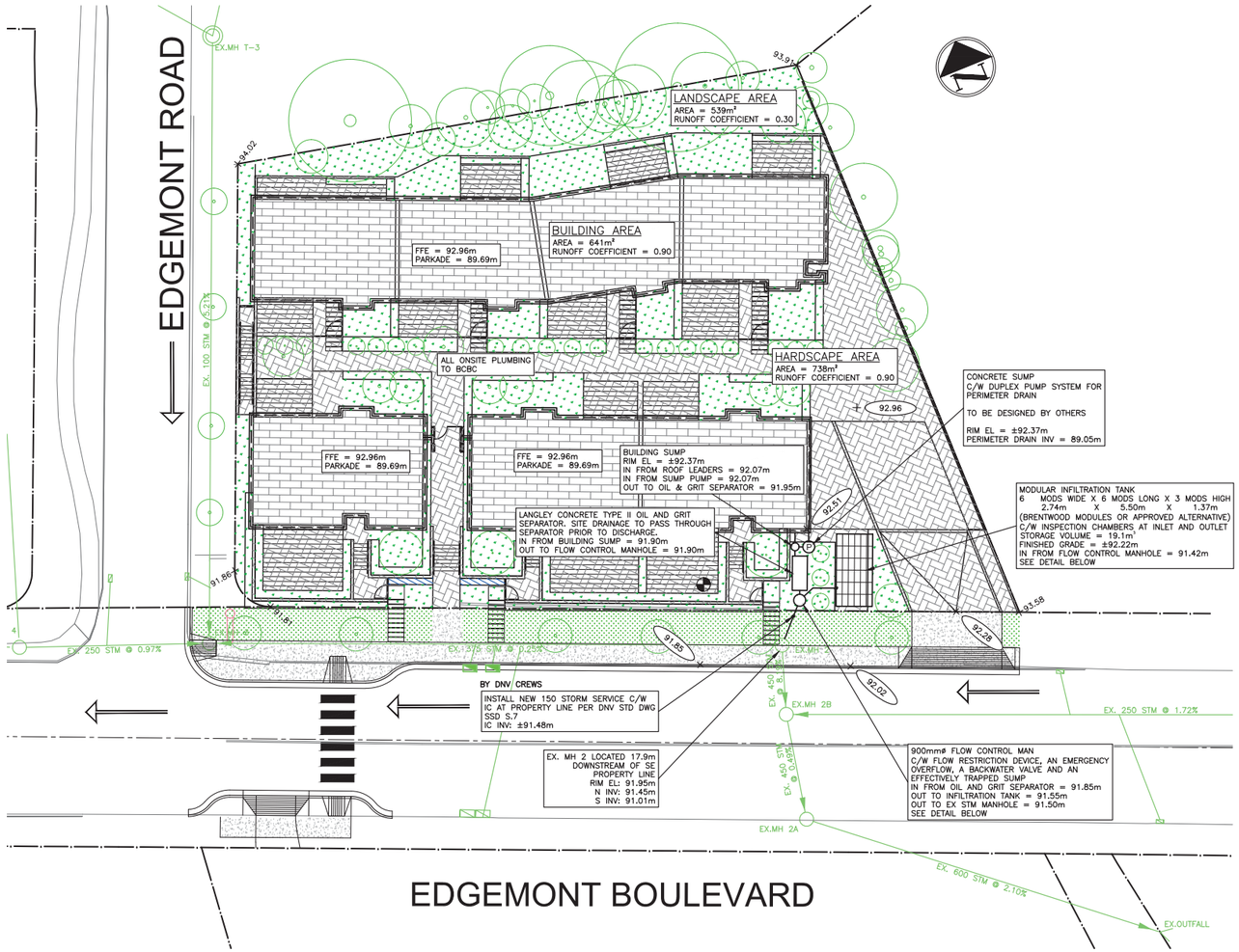
title: SERVICING PLAN

"I, FRED CIAMBRELLI, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS HEREIN SET OUT ON THE ATTACHED DRAWINGS HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH: THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL, DATED NOV 2005, THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD), VERSION 2000 AND THE DISTRICT OF NORTH VANCOUVER SUPPLEMENTARY MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (SUPPLEMENTARY SPECIFICATIONS AND SUPPLEMENTARY STANDARD DRAWINGS), ADOPTED BY THE DISTRICT OF NORTH VANCOUVER.

approved

scales: hor: 1:200 vert:
proj no.: 14235
dwg.: SERV-1
DNV file no.: DF9734
rev.: 1

CONTRACTOR TO VERIFY & LOCATE EXISTING MAINS & SERVICE CONNECTIONS & NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING CONSTRUCTION



NOTES:

1. SITE GRADES SHOWN FOR REFERENCE ONLY. DETAILED SITE GRADING BY OTHERS

2. SITE DRAINAGE SHOWN RELATES TO STORMWATER MANAGEMENT ONLY. CONTRACTOR TO ENSURE ADEQUATE DRAINAGE PROVIDED.

3. ALL WORKS TO CONFORM TO BCBC REQUIREMENTS.

4. DETENTION TANK LOCATIONS AND EXTENTS TO BE COORDINATED IN FIELD WITH ENGINEER.

⟵	MAJOR STORM ROUTING
+119.93	EXISTING ELEVATION
+ 117.80	PROPOSED ELEVATION
◐	PERC TEST SAMPLE LOCATION

	LANDSCAPE (PERMEABLE)
	HARDSCAPE (IMPERMEABLE)
	BUILDINGS (IMPERMEABLE)
	WATER FEATURE (CONNECTED TO SANITARY – AREA NOT INCLUDED IN CALCULATIONS)

Project:	3730-3736 Edgemont Boulevard	**File:**	14235
Subject:	Stormwater Management Plan	**Date:**	1-Apr-15
Section:	2-Year & 10-Year Storm Storage and Flow Calcs	**By:**	DJC

OBJEC

Objective:
No net increase in the rate and volume of stormwater runoff from existing to developed conditions up to the MAR (2-year return period)

AREAS

Pre Development Catchment Area	1935 m²
Impervious Area (Building/Hardscape)	914 m²
Pervious Area (Landscape)	1021 m²
Pre Development Percent Impervious	47%
Post Development Catchment Area	1935 m²
Impervious Area (Building/Hardscape)	1391 m²
Pervious Area (Landscape)	544 m²
Post Development Percent Impervious	72%

PRE & POST DEVEL RUNOFF COEFF

Pre Development Areas

Weighted Average From Impervious And Pervious Areas

Impervious Runoff Coefficient	0.90	for	914 m²
Pervious Runoff Coefficient	0.30	for	1021 m²
	0.58	for	1935 m²

Post Development Areas

Weighted Average From Impervious And Pervious Areas

Impervious Runoff Coefficient	0.90	for	1391 m²
Pervious Runoff Coefficient	0.30	for	544 m²
Post Development Runoff Coefficient	0.73	for	1935 m²

TANK OUTFLOW

Soil Infiltration Rate	=	1.10E-06 m/s	
Infiltration Tank Area	=	35.2 m²	
Infiltration Rate Provided (Tank Outflow)	=	0.04 l/s	
Orifice Size	=	60 mm	
Flow Through Orifice	=	8.6 l/s	**OKAY**
Total Flow Out of Tank	=	**8.6 l/s**	

2-YEAR PEAK FLOWS

2-Year Pre Development Peak Flow

Pre Develpoment TOC		8 min	(Per DNV ByLaw)
From N.Van Municipal Hall IDF Curve... 2-Year Rainfall Intensity		32 mm/hr	
Pre Development Peak Flow	=	10.2 l/s	

2-Year Post Development Peak Flow

Post Develpoment TOC		8 min	(Per DNV ByLaw)
From N.Van Municipal Hall IDF Curve... 2-Year Rainfall Intensity		32 mm/hr	
Post Development Peak Flow	=	12.8 l/s	

2-YEAR STORAGE

Detain The 2-Year Post-Development MAR Storm Event And Release At Pre-Development Levels

Duration (min)	Intensity (mm/hr)	Peak Inflow (l/s)	Tank Outflow (l/s)	Difference (l/s)	Outflow Limit (l/s)	Volume (m³)
5	40	15.7	8.6	7.1	10.2	1.8
10	29	11.6	8.6	2.9	10.2	2.0
15	25	9.7	8.6	1.1	10.2	1.6
20	22	8.5	8.6	-0.1	10.2	0.9
30	18	7.1	8.6	-1.5	10.2	-1.1
60	13	5.3	8.6	-3.4	10.2	-9.3
90	11	4.4	8.6	-4.2	10.2	-19.1
120	10	3.9	8.6	-4.7	10.2	-29.7
180	8	3.2	8.6	-5.4	10.2	-52.4
240	7	2.9	8.6	-5.8	10.2	-76.2

2-Year Storm Peak Storage	=	2.0 m³	
Storage Provided	=	**19.1 m³**	**OKAY**

10-YEAR PEAK FLOWS

10-Year Pre Development Peak Flow

Pre Develpoment TOC		8 min	(Per DNV ByLaw)
From N. Van Municipal Hall IDF Curve... 10-Year Rainfall Intensity		51 mm/hr	
Pre Development Peak Flow	=	16.1 l/s	

10-Year Post Development Peak Flow

Post Develpoment TOC		8 min	(Per DNV ByLaw)
From N.Van Municipal Hall IDF Curve... 10-Year Rainfall Intensity		51 mm/hr	
Post Development Peak Flow	=	20.2 l/s	

10-YEAR STORAGE

Detain The 10-Year Post-Development MAR Storm Event And Release At Pre-Development Levels

Duration (min)	Intensity (mm/hr)	Peak Flow (l/s)	Tank Outflow (l/s)	Difference (l/s)	Outflow Limit (l/s)	Volume (m³)
5	64	25.3	8.6	16.6	16.1	4.4
10	46	18.2	8.6	9.5	16.1	6.1
20	33	13.1	8.6	4.5	16.1	7.0
30	27	10.8	8.6	2.2	16.1	6.6
60	20	7.8	8.6	-0.9	16.1	1.8
90	16	6.4	8.6	-2.2	16.1	-5.3
120	14	5.6	8.6	-3.0	16.1	-13.8
180	12	4.6	8.6	-4.0	16.1	-32.9
240	10	4.0	8.6	-4.6	16.1	-53.9

10-Year Storm Peak Storage	=	7.0 m³	
Storage Provided	=	**19.1 m³**	**OKAY**

Project:	3730-3736 Edgemont Boulevard	**File:**	14235
Subject:	Stormwater Management Plan	**Date:**	1-Apr-15
Section:	SMP Source Control Calculations (2yr Volume)	**By:**	DJC

SUMMARY

Objective:
No net increase in the rate and volume of stormwater runoff from existing to developed conditions up to the MAR (2-year return period)

RAINFALL CAPTURE TARGET

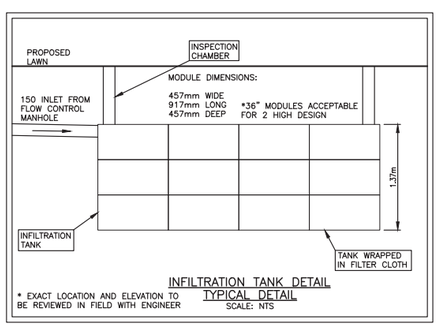
Total Catchment Area		1935 m²	(see SMP dwg)
Building Area (Impervious)		641 m²	(see SMP dwg)
Road / Hardscape (Impervious)		750 m²	(see SMP dwg)
Landscape Area (Pervious)		544 m²	(see SMP dwg)
Percent Impervious		72%	
Objective: Capture the MAR storm event			
50% MAR Rainfall Event		40 mm	(per DNV Bylaw)
Site Impervious Area	x	1391 m²	(As Above)
Rainfall on Area	=	55.6 m³	
Pre-Development Impervious Area		914 m²	(see SMP dwg)
Rainfall on Area	=	36.6 m³	(Existing Condition)
Total Rainfall Volume to be Captured	=	19.1 m³	(Net Rainfall)

INFILTRATION TANK CAPTURE VOLUME

Infiltration Tank			
Infiltration Tank Length		5.50 m	6 modules
Infiltration Tank Width		2.74 m	6 modules
Infiltration Tank Depth		1.37 m	3 modules
Tank Porosity		95%	
Storage Depth	=	19.1 m³	(Storage Volume)
Infiltration Rate		1.1E-06 m/s	
Infiltration per Area	=	0.1 m³/m²	
Potential Infiltration Provided	=	1.2 m³	(Infiltration Volume)
Infiltration Tank Capture	=	20.3 m³	(Storage+Infiltration)
Total Rainfall Captured	=	20.3 m³	

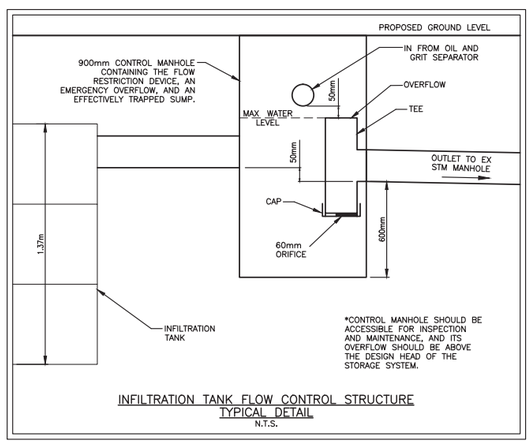
SUMMARY

Rainfall Capture Target	=	19.1 m³	(As Above)
Infiltration Tank Rainfall Capture	=	20.3 m³	(As Above)
Excess Runoff	=	**0 m³**	**OKAY**



INFILTRATION TANK DETAIL
TYPICAL DETAIL
SCALE: NTS

* EXACT LOCATION AND ELEVATION TO BE REVIEWED IN FIELD WITH ENGINEER



INFILTRATION TANK FLOW CONTROL STRUCTURE
TYPICAL DETAIL
N.T.S.

no.	date	revision	chk'd
1	MAR.31.15	REZONING & DP APPLICATION	DJC

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client: HARBOURVIEW HOMES CORP.

project: 3730-3736 EDGEMONT BLVD. DISTRICT OF NORTH VANCOUVER

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designed by: F.M.C.
drawn by: K.N.P.
checked by: F.M.C.
date: AUG.27.14

title: STORMWATER MANAGEMENT PLAN

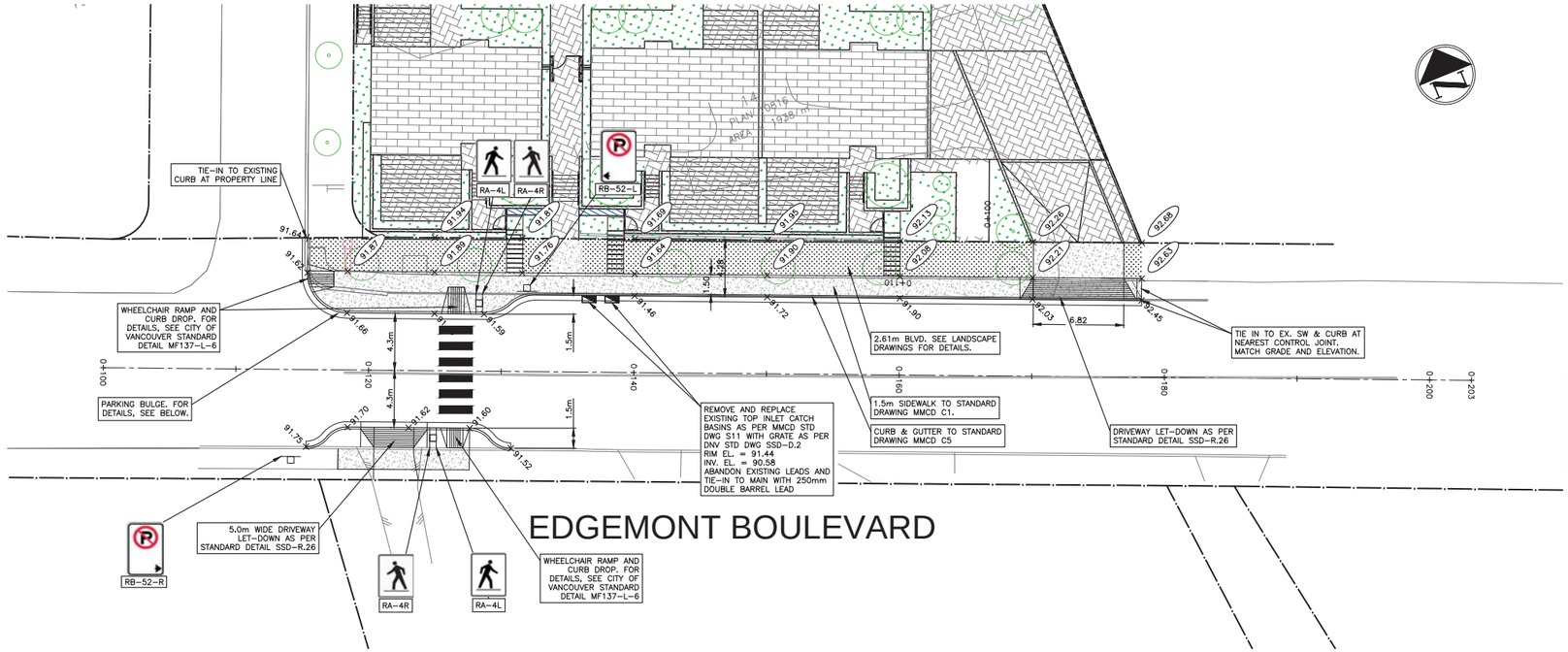
"I, FRED CIAMBRELLI, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS HEREIN SET OUT ON THE ATTACHED DRAWINGS HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH: THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL, DATED NOV 2005, THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD), VERSION 2000 AND THE DISTRICT OF NORTH VANCOUVER SUPPLEMENTARY MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (SUPPLEMENTARY SPECIFICATIONS AND SUPPLEMENTARY STANDARD DRAWINGS), ADOPTED BY THE DISTRICT OF NORTH VANCOUVER.

approved

scales hor: 1:200 vert:

proj no. 14235 dwg. SMP-1

DNV file no. DF9735 rev. 1



LINETYPE LEGEND	EXISTING	PROPOSED
LEGAL LINE		
WATERMAIN		
SANITARY		
STORM		
HYDRO		
TEL		
STREETLIGHT		
GAS		

SYMBOLS LEGEND	EXISTING	PROPOSED
FIRE HYDRANT		
GATE VALVE		
AIR VALVE		
METER BOX		
REDUCER		
INSPECTION CHAMBER		
CATCHBASIN		
SIDE INLET CB		
CAP		
MANHOLE		
POWER POLE		
STREETLIGHT		

EX. TREES (TO REMAIN)	
EX. TREES (TO BE REMOVED)	
PR. TREES	

+119.93	EXISTING ELEVATION
+ 117.80	PROPOSED ELEVATION

SEE DRAWING KEY-1 FOR GENERAL NOTES
SEE DRAWING SERV-1 FOR STORM, SANITARY, AND WATER NOTES

LEGAL DESCRIPTION

LOT 14, BLOCK 'B', DISTRICT LOT 601. GROUP ONE, NEW WESTMINSTER DISTRICT PLAN 10816. P.I.D. 009-360-514

BENCHMARK INFORMATION

ELEVATIONS ARE METRIC AND TO GEODETIC DATUM AND ARE DERIVED FROM CONTROL MONUMENT 6632 LOCATED FRONTING 3700-3710 EDGEMONT BOULEVARD.

ROADWORK NOTES

1. ALL ROADWORKS CONSTRUCTION AND METHODS MUST BE IN ACCORDANCE WITH MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD) AND AND DISTRICT OF NORTH VANCOUVER DEVELOPMENT SERVICING BYLAW.

2. ALL LOOSE AND ORGANIC MATERIAL ARE EXCAVATED FROM DRIVEWAY AND DISPOSED OF ON-SITE IN A LOCATION APPROVED BY THE ENGINEER.

3. ALL SUBGRADES ARE COMPACTED TO 95% MODIFIED PROCTOR DENSITY. SUBGRADES ARE INSPECTED BY ENGINEER PRIOR TO PLACEMENT OF GRAVEL SUBBASE. ANY WATER SOFTENED SUB GRADE SOIL IS OVER EXCAVATED AND THE GRADE RESTORED WITH GRANULAR SOILS ARE COMPACTED TO 95% MODIFIED PROCTOR DENSITY.

4. THE BASE AND SUBBASE MATERIALS ARE PROPERLY PLACED AND COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR DRY DENSITY (ASTM D1557).

5. CHANGES IN GRADE ARE TO BE FORMED WITH SMOOTH CURVES.

6. SPLIT ROCK RETAINING WALLS ARE CONSTRUCTED AS PER D.N.V. STD. DRAWING SSD-R.34.

7. ALL CONSTRUCTION COORDINATION FOR TRANSLINK / CMBC TO BE COMPLETED BY DEVELOPER / CONTRACTOR AT DEVELOPER'S EXPENSE FOR ANY / ALL TEMPORARY OR PERMANENT REROUTING OR RELOCATION OF BUS STOPS; BUS SHELTERS OR BUS ROUTES.

8. ALL PAVEMENTS, BOULEVARDS, DRIVEWAYS, FENCES, ETC. ARE TO BE RESTORED TO ORIGINAL CONDITION WHEN NO IMPROVEMENT IS PROPOSED UNDER THIS CONTRACT. CONTRACTOR TO ROUGHGRADE THE BOULEVARDS AT THE SAME TIME AS ROAD GRADING.

SIGNAGE & LINEPAINTING NOTES:

1. TRAFFIC CONTROL AS PER THE MINISTRY OF TRANSPORTATION 'TRAFFIC MANUAL FOR WORK ON ROADWAYS' AND AS PER THE TRANSPORTATION ASSOCIATION OF CANADA 'MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES'.

2. SIGN COLOURS, TEXT SIZE & FONTS TO CONFORM WITH T.A.C. AND DISTRICT OF NORTH VANCOUVER STANDARDS.

3. PAVEMENT MARKINGS TO CONFORM WITH T.A.C. AND DISTRICT OF NORTH VANCOUVER STANDARDS.

4. REFER TO DMD DWGS FOR STREETLIGHTING.

5. ALL SIGNAGE TO BE DIAMOND GRADE.

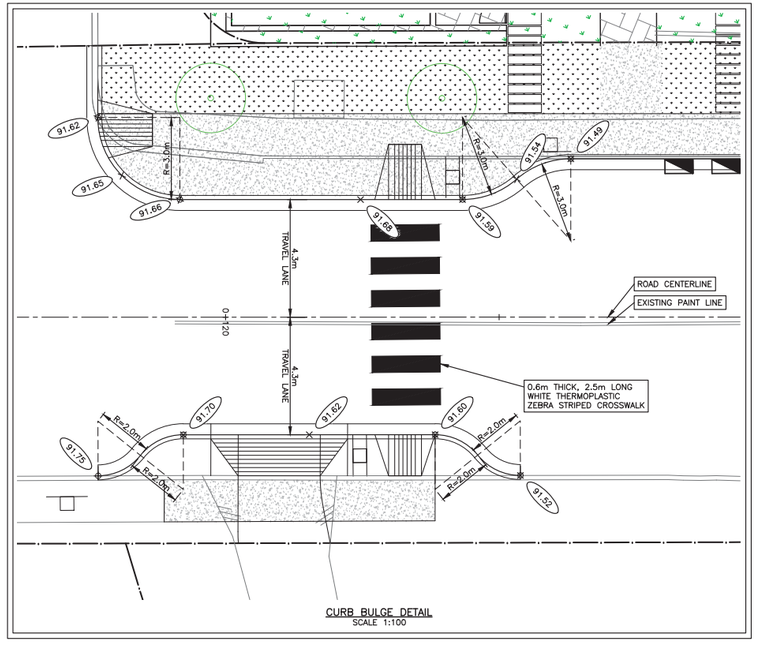
6. CONTRACTOR TO SUPPLY AND INSTALL ALL SIGNAGE AT DEVELOPER'S EXPENSE.

7. ROAD MARKING TO BE EXTRUDED THERMOPLASTIC OR BETTER. CONTRACTOR TO BE ACCEPTED BY DNV TRANSPORTATION.

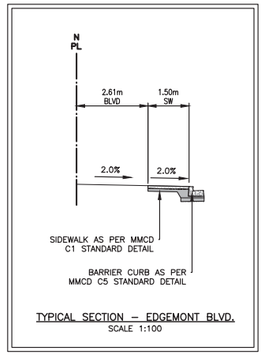
8. SIGNS TO BE PLACED SUCH THAT EDGE OF SIGN IS 0.3m FROM FACE OF CURB.

9. SIGN POSTS TO BE ROUND. BOTTOM OF SIGNS TO BE 2.0m – 3.0m ABOVE GROUND

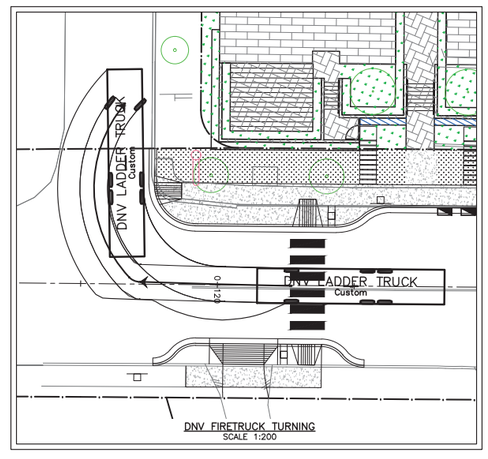
10. BASES TO BE 36kg CONCRETE TRAPEZOIDAL WITH SLEEVES BY VALLEY SIGNS OR APPROVED EQUAL IN BOULEVARD. SLEEVES TO BE USED IN SIDEWALKS/CONCRETE AREAS



CURB BULGE DETAIL
SCALE 1:100



TYPICAL SECTION – EDGEMONT BLVD.
SCALE 1:100



DNV FIRETRUCK TURNING
SCALE 1:200

CONTRACTOR TO VERIFY & LOCATE EXISTING MAINS & SERVICE CONNECTIONS & NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING CONSTRUCTION

no.	date	revision	chk'd
1	MAR.31.15	REZONING & DP APPLICATION	AFG

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200 - 901 WEST 16TH ST NORTH VANCOUVER, BC V7P 1R2

client: HARBOURVIEW HOMES CORP.

project: 3730-3736 EDGEMONT BLVD. DISTRICT OF NORTH VANCOUVER

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designed by: F.M.C.
drawn by: K.N.P.
checked by: K.S.K.
date: AUG.27.14

title: ROADWORKS PLAN

"I, FRED CIAMBRELLI, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS HEREIN SET OUT ON THE ATTACHED DRAWINGS HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH: THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL, DATED NOV 2005, THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD), VERSION 2000 AND THE DISTRICT OF NORTH VANCOUVER SUPPLEMENTARY MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (SUPPLEMENTARY SPECIFICATIONS AND SUPPLEMENTARY STANDARD DRAWINGS), ADOPTED BY THE DISTRICT OF NORTH VANCOUVER.

approved

scales hor: 1:200 vert:
proj no. 14235
dwg. R-1
DNV file no. DF9736
rev. 1

3730-3736 EDGEMONT BLVD
REZONING + DEVELOPMENT PERMIT

ISSUED FOR REZONING + DP R1
2015.04.02

ARCHITECTURAL DRAWING LIST:

A000	COVER SHEET
A009	EXISTING SITE PLAN
A010	SITE PLAN
A011	SITE COVERAGE
A012	BUILDING COVERAGE
A013	GROSS FLOOR AREA CALCULATION
A014	PROJECT STATS + FSR CALCULATION
A100	PARKING FLOOR PLAN
A101	GROUND FLOOR PLAN
A102	SECOND FLOOR PLAN
A103	ROOF PLAN
A104	NORTH PL ADJACENCY PLAN
A201	BUILDING ELEVATIONS
A202	BUILDING ELEVATIONS
A203	BUILDING ELEVATIONS
A301	CROSS SECTIONS
A302	CROSS SECTIONS
A303	CROSS SECTIONS

CIVIL DRAWING LIST:

KEY-1	KEY PLAN
SERV-1	SERVICING PLAN
SMP-1	STORMWATER MANAGEMENT PLAN
R-1	ROADWORKS PLAN
DET-1	DETAILS
DET-2	DETAILS

ELECTRICAL DRAWING LIST:

N/A	STREET LIGHTING

LANDSCAPE DRAWING LIST:

L1	CHARACTER SHEET
L2	GRADING SHEET
L3	PLANTING SHEET
L4	ROOF PLAN
L5	SECTIONS + ELEVATIONS
L6	DETAILS
L7	SPECIFICATIONS

BUILDING INFO:

CIVIC ADDRESS:
3730-3736 EDGEMONT BOULEVARD

LEGAL ADDRESS:
LOT 14, BLOCK 'B'
DISTRICT LOT 601
GROUP ONE, NEW WESTMINSTER DISTRICT
PLAN 10816
P.I.D. 009-360-5142

OWNER:
Harbourview Homes Corp.
#400-38 Fell Avenue
North Vancouver BC V7P 3S2

604 987 9953

Contact:
Stefen Elmitt
stefen@harbourviewprojects.ca
Al Saunders
al@harbourviewprojects.ca

ARCHITECTURAL:
office of mcfarlane bigger
architects + designers
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North Vancouver BC V7M 3K3

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smcfarlane@officemb.ca

CIVIL:
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North Vancouver BC V7P 1R2

604 987 9070

Contact:
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ELECTRICAL:
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Surrey BC V4N 5M3

604 589 9010

Contact:
Morris Signorelli
morris@dmdeng.com

LANDSCAPE:
FORMA Design Inc.
209-828 Harbourside Dr.
North Vancouver BC V7P 3R9

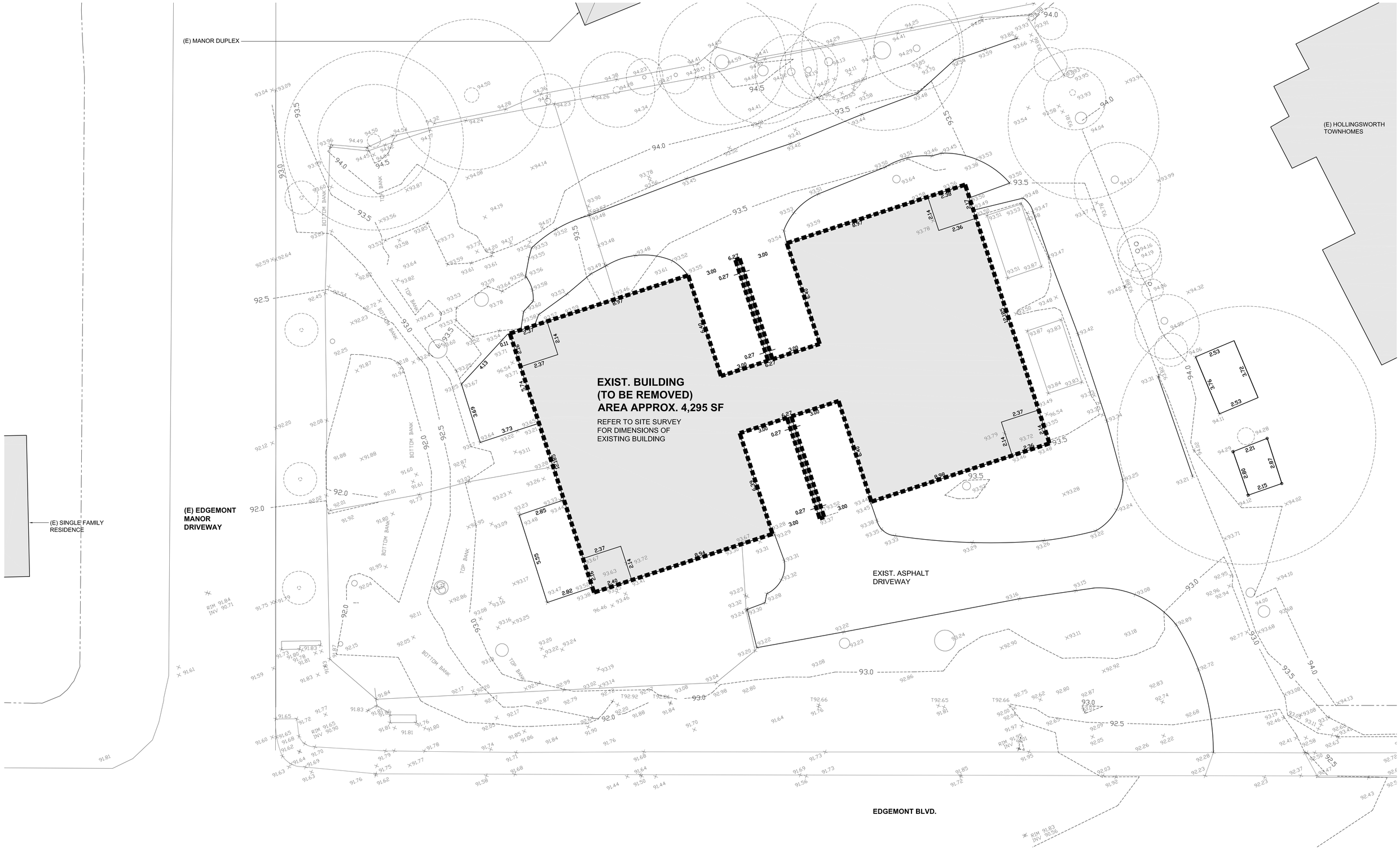
604 986 9193

Contact:
Bill Harrison
bill@formadesign.ca

CODE:
GHL Consultants.
409 Granville Street - Suite 950
Vancouver BC V6C 1T2

604 689 4449

Contact:
Frankie Victor
fv@ghl.ca



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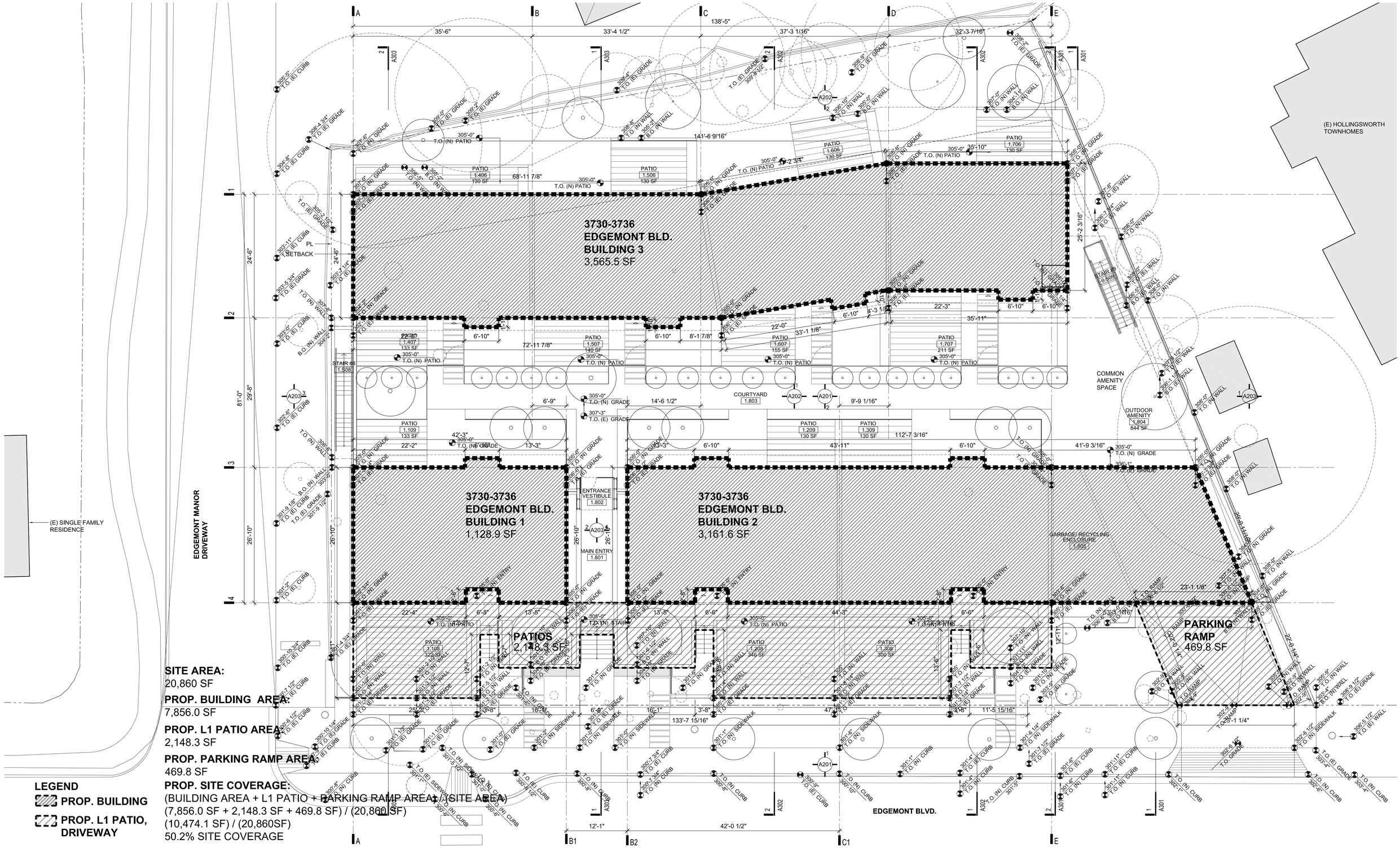
REV	DESCRIPTION	BY	DATE
1	ISSUED FOR REZONING + DP R1	omb	2015.04.02
-	ISSUED FOR COORDINATION	omb	2015.03.26

EDGEMONT BLVD.
2014-015

EXISTING SITE PLAN
-
1/8" = 1'-0"

A009



SITE AREA:
20,860 SF

PROP. BUILDING AREA:
7,856.0 SF

PROP. L1 PATIO AREA:
2,148.3 SF

PROP. PARKING RAMP AREA:
469.8 SF

PROP. SITE COVERAGE:
(BUILDING AREA + L1 PATIO + PARKING RAMP AREA) / (SITE AREA)
(7,856.0 SF + 2,148.3 SF + 469.8 SF) / (20,860 SF)
(10,474.1 SF) / (20,860SF)
50.2% SITE COVERAGE

LEGEND
- PROP. BUILDING
- PROP. L1 PATIO, DRIVEWAY

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HARBOURVIEW Building Quality for Life

REV	DESCRIPTION	BY	DATE
3	ISSUED FOR REZONING + DP R1	omb	2015.04.02
2	ISSUED FOR COORDINATION	omb	2015.03.26
1	ISSUED FOR REZONING + DP	omb	2014.12.23

EDGEMONT BLVD.
2014-015

SITE COVERAGE PLAN
-
1/8" = 1'-0"

A012

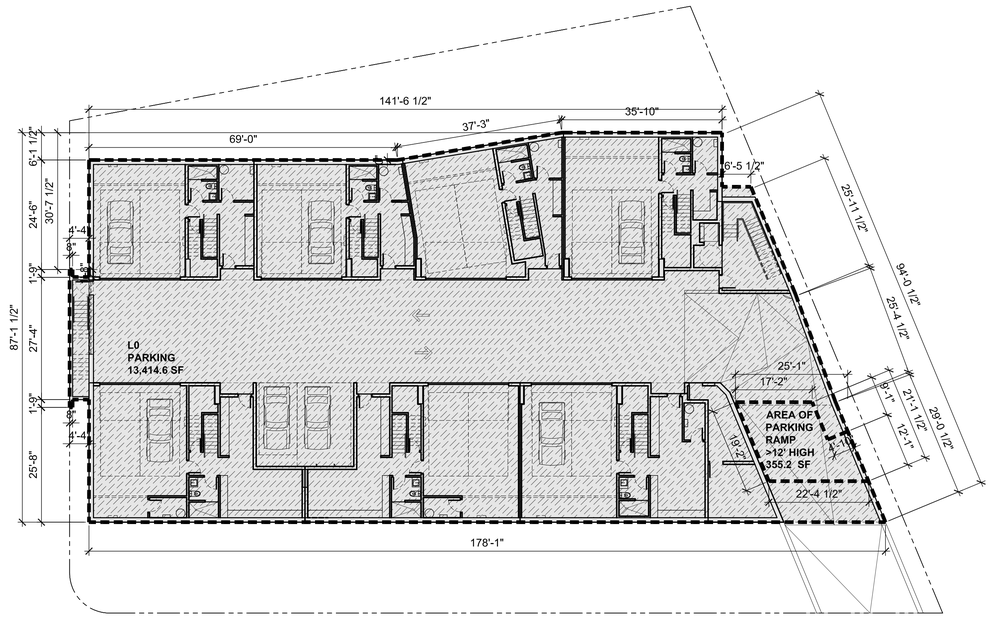
LEGEND
AREA INCLUDED IN GROSS FLOOR AREA CALCULATION

L0 PARKING
GROSS FLOOR AREA:
13,528.4 SF
(1,256.83 SM)

NOTE:
NO PORTION OF L0 IS LOCATED 4' ABOVE GRADE (NATURAL OR FINISHED)

PARKING RAMP INCLUDED IN L0 GROSS FLOOR AREA.

13,528.4 L0 AREA EXCLUDED FROM FSR CALCULATION PER DNV BYLAW 3210 SECTION 410.1(a).



1 L0 - PARKING GROSS FLOOR AREA
1/16" = 1-0"

LEGEND
AREA INCLUDED IN GROSS FLOOR AREA CALCULATION

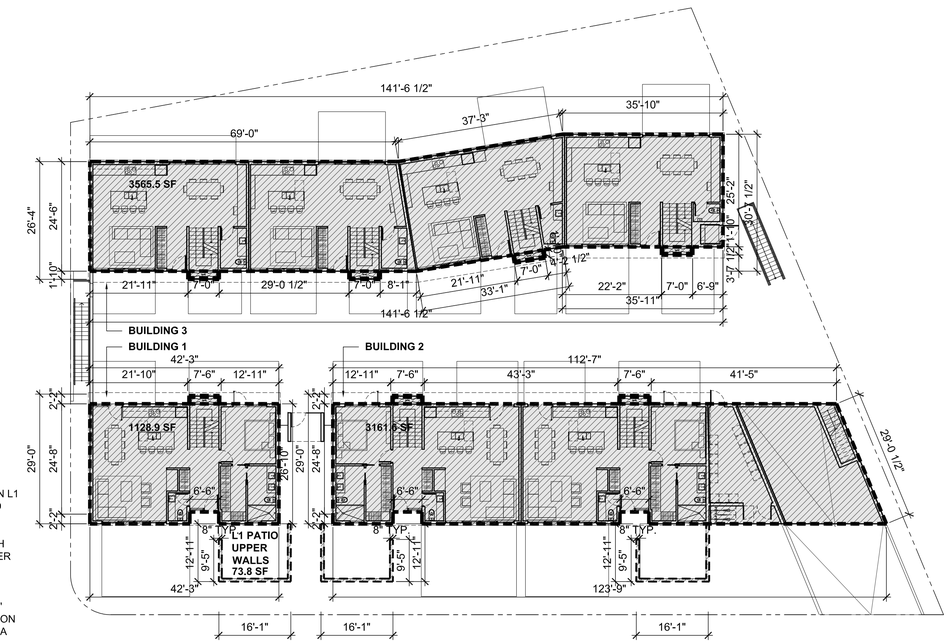
L1 GROUND FLOOR
GROSS FLOOR AREA:
8,354.2 SF
(775.84 SM)

NOTE:
AREA ABOVE PARKING RAMP INCLUDED IN L1 GROSS FLOOR AREA PER DNV STANDARD PRACTICE.

68.69 SF AREA ABOVE LANDINGS >12' HIGH INCLUDED TWICE IN FSR CALCULATION PER DNV STANDARD PRACTICE. THIS AREA IS SHOWN GRAPHICALLY ON A013/1.

355.2 SF AREA ABOVE PARKING RAMP >12' HIGH INCLUDED TWICE IN FSR CALCULATION PER DNV STANDARD PRACTICE. THIS AREA IS SHOWN GRAPHICALLY ON A013/1.

74.3 SF OF L1 PATIO UPPER LANDSCAPE WALLS ARE LOCATED 4' ABOVE GRADE (NATURAL OR FINISHED); THIS AREA HAS BEEN INCLUDED IN THE FSR CALCULATION.



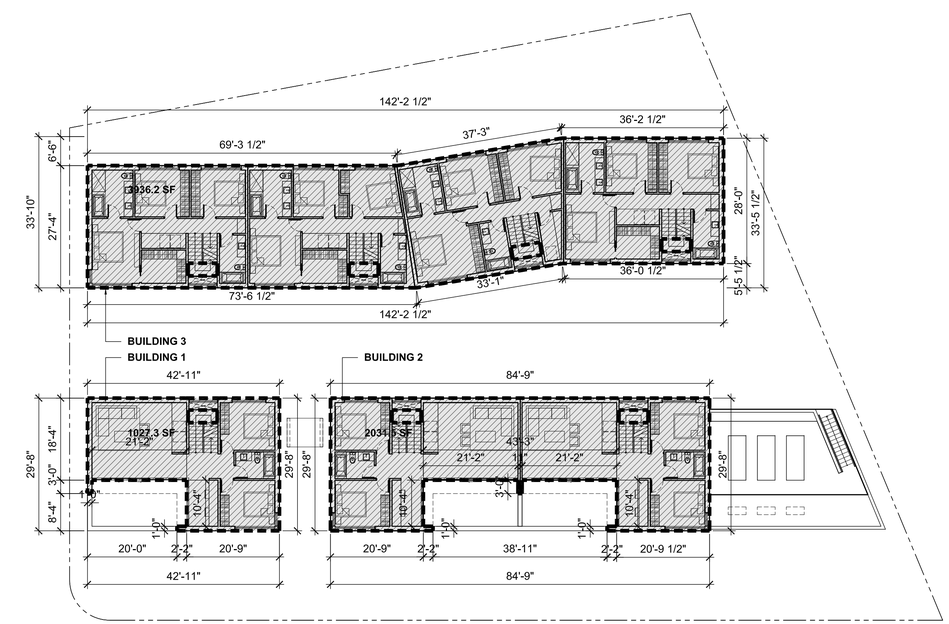
2 L1 - GROUND FLOOR GROSS FLOOR AREA
1/16" = 1-0"

LEGEND
AREA INCLUDED IN GROSS FLOOR AREA CALCULATION

L2 UPPER FLOOR
GROSS FLOOR AREA:
7123.9 SF
(661.83 SM)

128.9 SF AREA ABOVE LANDINGS >12' HIGH INCLUDED TWICE IN FSR CALCULATION PER DNV STANDARD PRACTICE. THIS AREA IS SHOWN GRAPHICALLY ON A013/1.

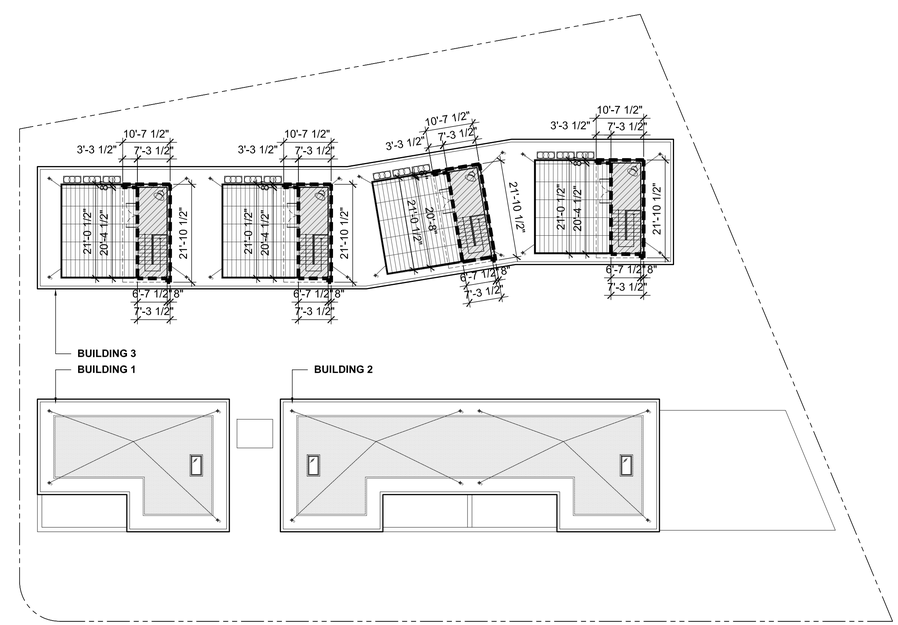
NOTE:
EXTERIOR UNENCLOSED ROOFTOP AMENITY SPACE LOCATED ABOVE PARKING RAMP EXCLUDED FROM L2 GROSS FLOOR AREA CALCULATION.



3 L2 - UPPER FLOOR GROSS FLOOR AREA
1/16" = 1-0"

L3 ROOF
GROSS FLOOR AREA:
625.6 SF
(58.12 SM)

TOTAL
GROSS FLOOR AREA (L0 - L3):
29,632.2 SF
(2,752.9 SM)



4 L3 - ROOF GROSS FLOOR AREA
1/16" = 1-0"

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HARBOURVIEW Building Quality for Life

REV	DESCRIPTION	BY	DATE
3	ISSUED FOR REZONING + DP R1	omb	2015.04.02
2	ISSUED FOR COORDINATION	omb	2015.03.26
1	ISSUED FOR REZONING + DP	omb	2014.12.24

EDGEMONT BLVD.
2014-015

GROSS FLOOR AREA CALCULATION
1/16" = 1'-0"

A013

Project Statistics
March 31, 2015

Project Name:	3730 - 3736 Edgemont Boulevard	
Civic Address:	3730 - 3736 Edgemont Boulevard	
Legal Description:	Lot 14, Block 'B' District Lot 601 Group One, New Westminster District Plan 10816 P.I.D. 009-360-514	
Authority:	District of North Vancouver Zoning Bylaw 3210	
	Schedule B Development Permit Areas: Guidelines for Ground-Oriented Housing	
Site Area:	20,860 SF (1,938 SM)	
Building Coverage:	10,004.3 SF (923.83 SM) 48.0%	
Site Coverage:	10,474.1 SF (967.47 SM) 50.2%	
	Permitted	**Proposed**
Zone:	RM-1	Comprehensive Development Zone
Use:	Residential - Multifamily	Residential - Multifamily
Suites	Four (4) suites existing	Seven (7) suites proposed
Setbacks:	South: Front Yard - 20' - 0" (6.1M) North: Rear Yard - 20' - 00" (3M)	South: Front Yard - 20' - 0" (6.1M)
		North: Rear Yard - Varies; Max 29'-1" (8.86M) to Min. 9'-6 3/4"(2.91M)
	West: Side Yard - 4' - 0" (1.22M) East: Side Yard - 4' - 0" (1.22M)	West: Side Yard - 4' - 0" (1.22M) East: Side Yard - 4' - 0" (1.22M)
FSR:	0.8 FSR	0.77 FSR (Refer to A014)
Amenity:	n/a	474 SF Rooftoop Amenity Space and 844 SF Outdoor Amenity (at Level 1 Courtyard)
Height:	39'-4" (12M) per Schedule B	**Building 1** - Max 24' Above existing average grade (304' - 1 5/16") 2 Storeys over 1 level of shared underground parking
		Building 2 - Max 24' Above proposed average grade (304' - 7") 2 Storeys over 1 level of shared underground parking
		Building 3 - Max 32' Above proposed average grade (305' - 1 3/4") 2 Storeys + stair access to roof deck over 1 level of shared underground parking
Parking:	**Off Street Parking** 2 spaces per dwelling; 14 spaces total	14 spaces + 2 visitor parking spaces; 16 spaces total (Refer to A100)
	As per Part 10 Off-Street Parking Space and Loading Space	All off street parking is provided underground at L0
	Min. Parking Space Dimensions: 18.7'L x 8.83' W + 0.66' when abutting wall	Min. Parking Space Dimensions: 18.7'L x 8.83' W + 0.66' when abutting wall
	Accessible Parking Spaces	
	1 Accessible Parking Spaces / Suite + 1 Accessible Visitor 8 total required	8 accessible spaces provided (Refer to A100)
	Electric Vehicle Charging 20% of Parking Stalls required to be Level 1 Electric Vehicle Charging enabled; 100% parking spaces are Electric Charging Ready 3 Level 1 Electric Vehicle Charging Spaces total required	3 Level 1 Electric Vehicle Charging Spaces (Refer to A100); 100% parkings spaces are Electric Vehicle Charging Ready (Refer to A100)
	Visitor Parking 2 spaces required	2 spaces provided; one accessible space and one small car space (Refer to A100)
	Small Car Parking 35% Max; 6 small car spaces max. Min. Small Car Parking Space Dimensions: 16.1'L x 8.5' W + 0.66' when abutting wall	1 small car parking space provided; see Visitor Parking above. Min. Small Car Parking Space Dimensions: 16.1'L x 8.5' W + 0.66' when abutting wall
Bike Parking:	**Off Street Bike Parking** .2 bike parking spaces per suite; 7 bike parking spaces total required As per Part 10 Off-Street Parking Space and Loading Space	7 bike parking spaces provided c/w Electric Bike Charging space
	Visitor Bike Parking	
	2 Class 2 spaces required c/w 1 Electric Bike Charging space and 100% Electric Bike Charging ready	2 Class 2 spaces provided c/w 1 Electric Bike Charging space and 100% Electric Bike Charging ready (Refer to A101)
Loading:	No off-street loading is required	n/a
Parking Ramp:	10% Max. Parking Ramp Slope withing 19.7' of PL 15% Max. Parking Ramp Slope 5% Max. Cross Slope of Parking Ramp	10% Max. Parking Ramp Slope withing 19.7' of PL 15% Max. Parking Ramp Slope 5% Max. Cross Slope of Parking Ramp

Gross Floor Area + FSR
March 31, 2015

Site Area			
	20,860.0 SF	1,937.96 SM	

Gross Floor Area				NOTES
L0	Parking	13,528.4 SF	1,256.83 SM	
	Subtotal	**13,528.4 SF**	**1,256.83 SM**	
L1	**Building 1**	1,128.9 SF	104.88 SM	
	Area of Parking Ramp >12' HIGH	355.2 SF	33.00 SM	
	Area of Landings >12' HIGH	9.7 SF	0.91 SM	
	Building 2	3,161.6 SF	293.72 SM	
	Area of Landings >12' HIGH	19.5 SF	1.81 SM	
	Building 3	3,565.5 SF	331.25 SM	
	Area of Landings >12' HIGH	39.4 SF	3.66 SM	
	L1 Patio Upper Landscape Walls	74.3 SF	6.90 SM	THERE IS NO OCCUPIABLE SPACE UNDER THE L1 PATIOS. PATIOS ARE CONSTRUCTED AS CIP SLABS ON GRADE OVER ENGINEERED FILL.
	Subtotal	**8,354.2 SF**	**776.13 SM**	
L2	**Building 1**	1,027.3 SF	95.44 SM	
	Area of Landings >12' HIGH	18.4 SF	1.71 SM	
	Building 2	2,031.5 SF	188.73 SM	
	Area of Landings >12' HIGH	36.8 SF	3.42 SM	
	Building 3	3,936.2 SF	365.68 SM	
	Area of Landings >12' HIGH	73.7 SF	6.84 SM	
	Subtotal	**7,123.9 SF**	**661.83 SM**	
L3	**Building 1**	0.0 SF	0.00 SM	
	Building 2	0.0 SF	0.00 SM	
	Building 3	625.6 SF	58.12 SM	
	Subtotal	**625.6 SF**	**58.12 SM**	
	Total	**29,632.2 SF**	**2,752.9 SM**	

FSR Summary (Gross Floor Area Less FSR Exemptions)				
L0	Parking	0.0 SF	0.00 SM	L0 AREA EXCLUDED FROM FSR CALCULATION PER DNV BYLAW 3210 SECTION 410.1(a).
	Subtotal	**0.0 SF**	**0.00 SM**	
L1	**Building 1**	1,128.9 SF	104.88 SM	
	Area of Parking Ramp >12' HIGH	355.2 SF	33.00 SM	AREA ABOVE PARKING RAMP >12' HIGH INCLUDED TWICE IN FSR CALCULATION PER DNV STANDARD PRACTICE. THIS AREA IS SHOWN GRAPHICALLY ON A013/1.
	Area of Landings >12' HIGH	9.7 SF	0.91 SM	
	Building 2	3,161.6 SF	293.72 SM	
	Area of Landings >12' HIGH	19.5 SF	1.81 SM	
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	Building 2	0.0 SF	0.00 SM	
	Building 3	625.6 SF	58.12 SM	
	Subtotal	**625.6 SF**	**58.12 SM**	
	Total	**16,103.8 SF**	**1,496.1 SM**	

Floor Space Ratio	
Max. Allowable	0.8
Proposed	0.77

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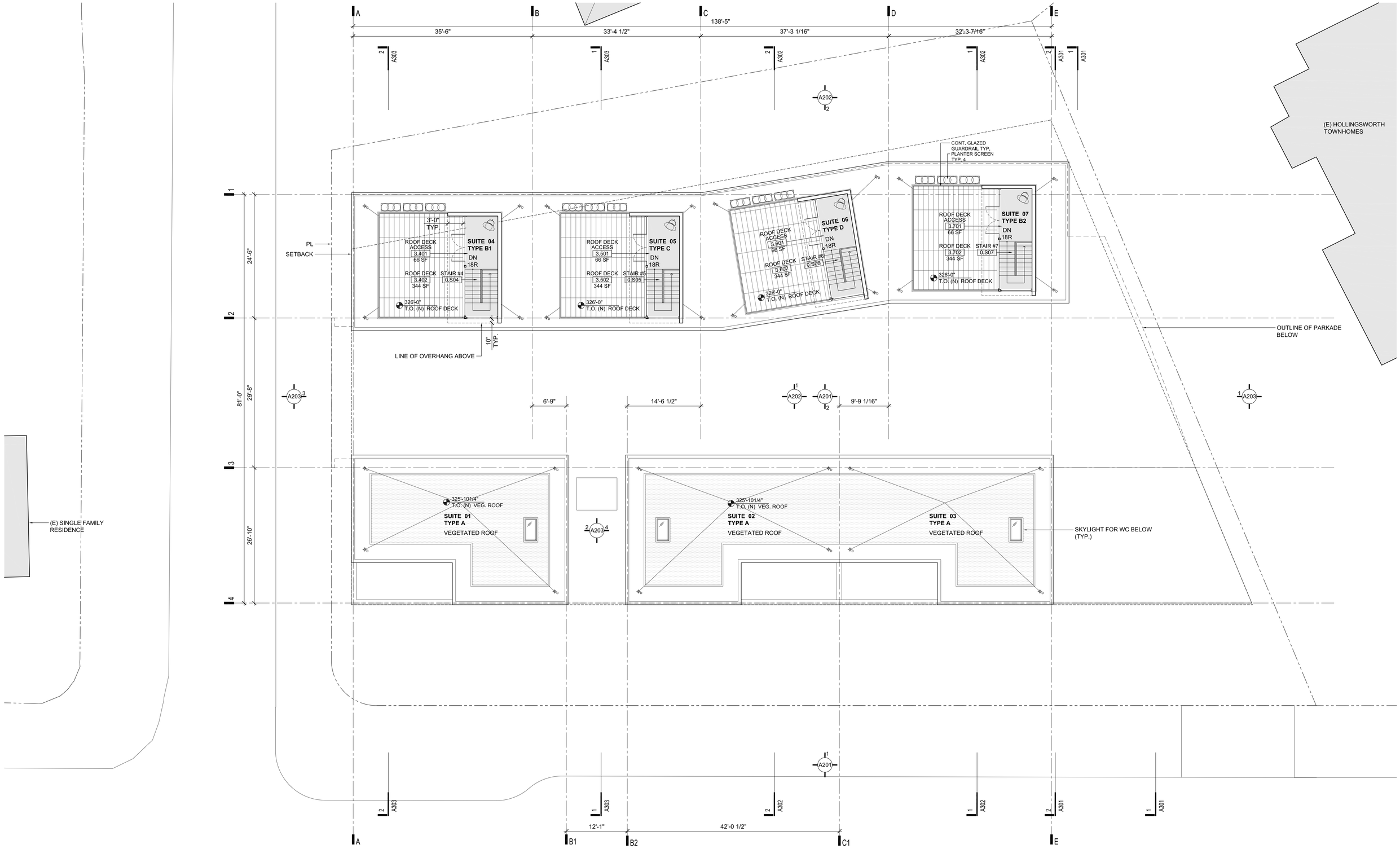
HARBOURVIEW Building Quality for Life

REV	DESCRIPTION	BY	DATE
3	ISSUED FOR REZONING + DP R1	omb	2015.04.02
2	ISSUED FOR COORDINATION	omb	2015.03.26
1	ISSUED FOR REZONING + DP	omb	2014.12.24

EDGEMONT BLVD.
2014-015

PROJECT STATS + FSR CALCULATION
NTS

A014



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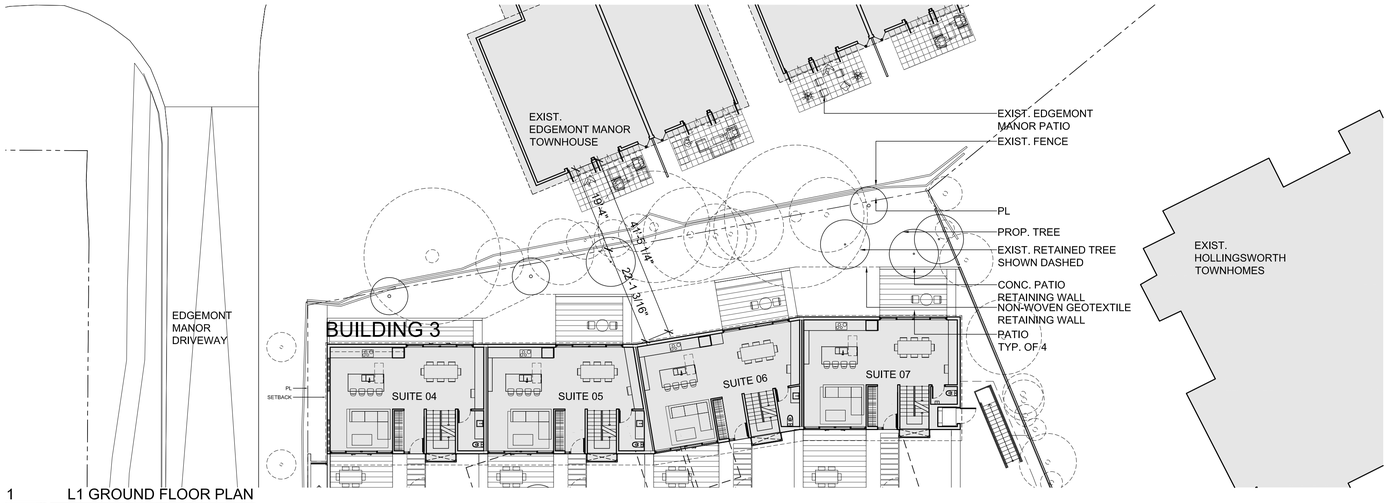
HARBOURVIEW Building Quality for Life

REV	DESCRIPTION	BY	DATE
6	ISSUED FOR REZONING + DP R1	omb	2015.04.02
5	ISSUED FOR COORDINATION	omb	2015.03.31
4	ISSUED FOR COORDINATION	omb	2015.03.26

EDGEMONT BLVD.
2014-015

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

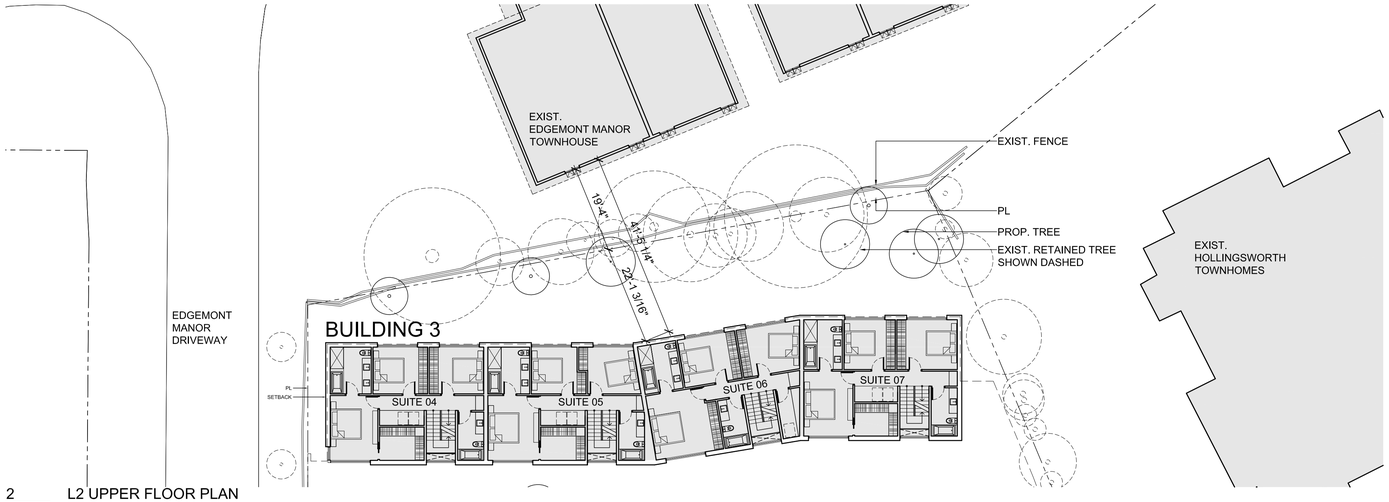
A103



1 L1 GROUND FLOOR PLAN

L1 GROUND FLOOR PLAN:
The following measures ensure adequate privacy is maintained for both residents of the existing Edgemont Manor and future residents of the proposed development:

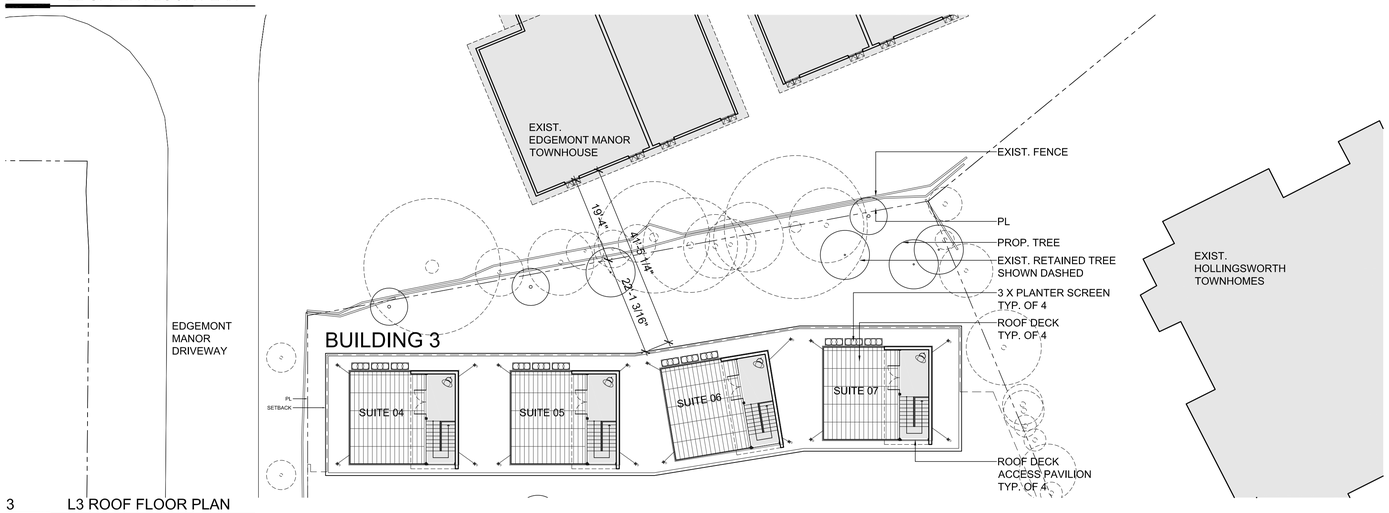
- Existing mature retained trees create a dense canopy between properties
- New trees fill in gaps in the existing canopy
- Existing wood and chain link fences further screen at grade patios
- Grade change and densely planted landscape between properties ensure visual privacy between properties



2 L2 UPPER FLOOR PLAN

L2 UPPER FLOOR PLAN:
The following measures ensure adequate privacy is maintained for both residents of the existing Edgemont Manor and future residents of the proposed development:

- Existing mature retained trees create a dense canopy between properties
- New trees fill in gaps in the existing canopy
- Propose L2 openings are below (at a lower grade) relative to Edgemont Manor L2openings



3 L3 ROOF FLOOR PLAN

L3 ROOF PLAN:
The following measures ensure adequate privacy is maintained for both residents of the existing Edgemont Manor and future residents of the proposed development:

- Existing mature retained trees create a dense canopy between the properties
- New trees fill in gaps in the existing canopy
- Planter screen installed at each roof deck ensure visual privacy between properties
- Roof deck access pavilions are oriented to the west to ensure visual privacy between suites.

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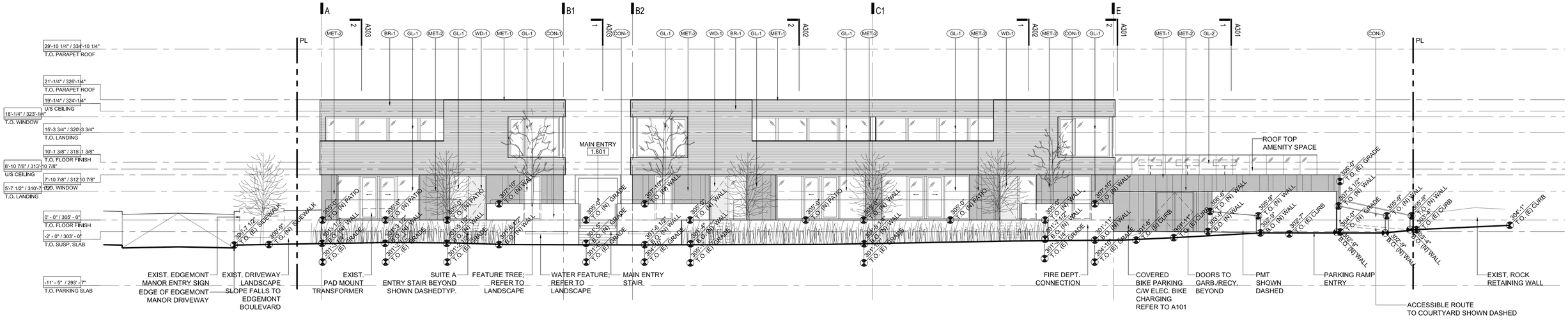
HARBOURVIEW Building Quality for Life

REV	DESCRIPTION	BY	DATE
-	ISSUED FOR REZONING + DP R1	omb	2015.04.02
-	ISSUED FOR COORDINATION	omb	2015.03.26

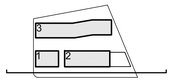
EDGEMONT BLVD.
2014-015

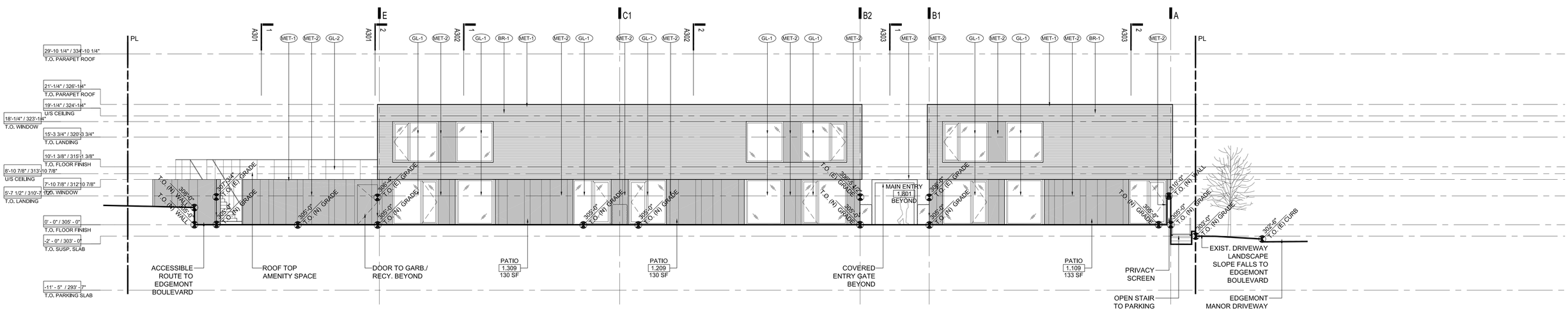
NORTH PL
ADJACENCY PLAN
1/16" = 1'-0"

A104

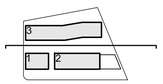


1 SOUTH ELEVATION - BUILDING 1 + 2





2 NORTH ELEVATION - BUILDING 2 + 1



MATERIAL + FINISHES LEGEND

- BR-1 PRECAST CONCRETE BRICK MASONRY
- CON-1 BOARD FORM CIP CONCRETE
- GL-1 DOUBLE GLAZED SEALED UNIT
- GL-2 TEMPERED LAMINATED GLAZING
- MET-1 CUSTOM METAL FLASHING
- MET-2 PREWEATHERED STEEL
- WD-1 RIFT CUT WHITE OAK

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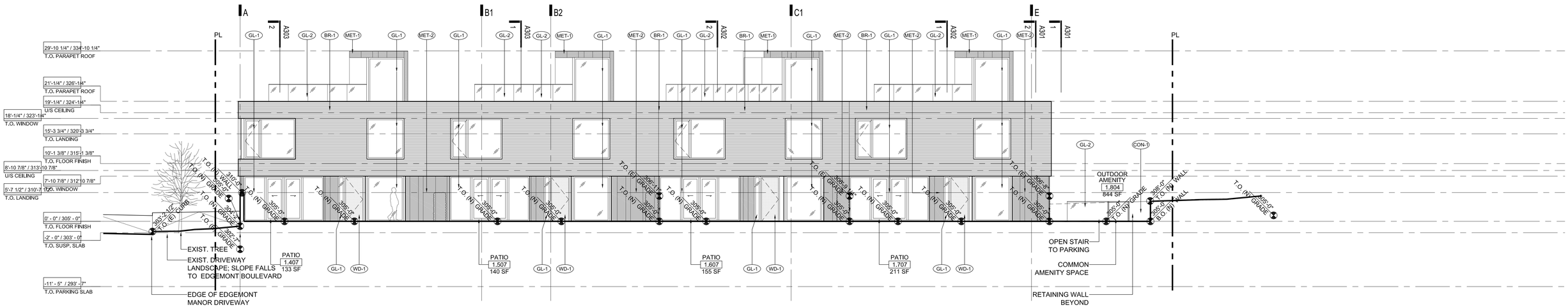
HARBOURVIEW Building Quality for Life

REV	DESCRIPTION	BY	DATE
4	ISSUED FOR REZONING + DP R1	omb	2015.04.02
3	ISSUED FOR COORDINATION	omb	2015.03.26
2	ISSUED FOR COORDINATION	omb	2015.03.18

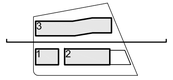
EDGEMONT BLVD.
2014-015

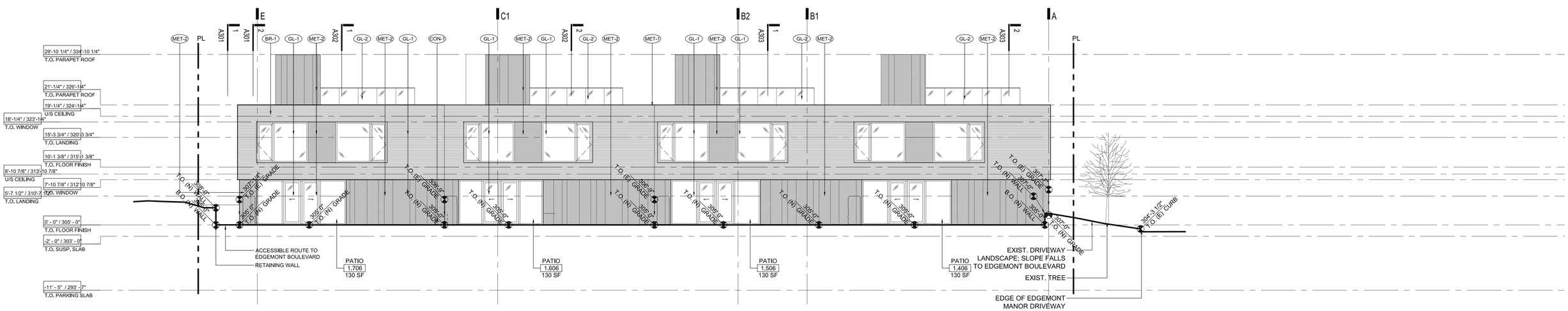
ELEVATIONS
-
1/8" = 1'-0"

A201

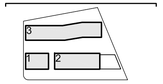


1 SOUTH ELEVATION - BUILDING 3





2 NORTH ELEVATION - BUILDING 3



MATERIAL + FINISHES LEGEND

- BR-1 PRECAST CONCRETE BRICK MASONRY
- CON-1 BOARD FORM CIP CONCRETE
- GL-1 DOUBLE GLAZED SEALED UNIT
- GL-2 TEMPERED LAMINATED GLAZING
- MET-1 CUSTOM METAL FLASHING
- MET-2 PREWEATHERED STEEL
- WD-1 RIFT CUT WHITE OAK

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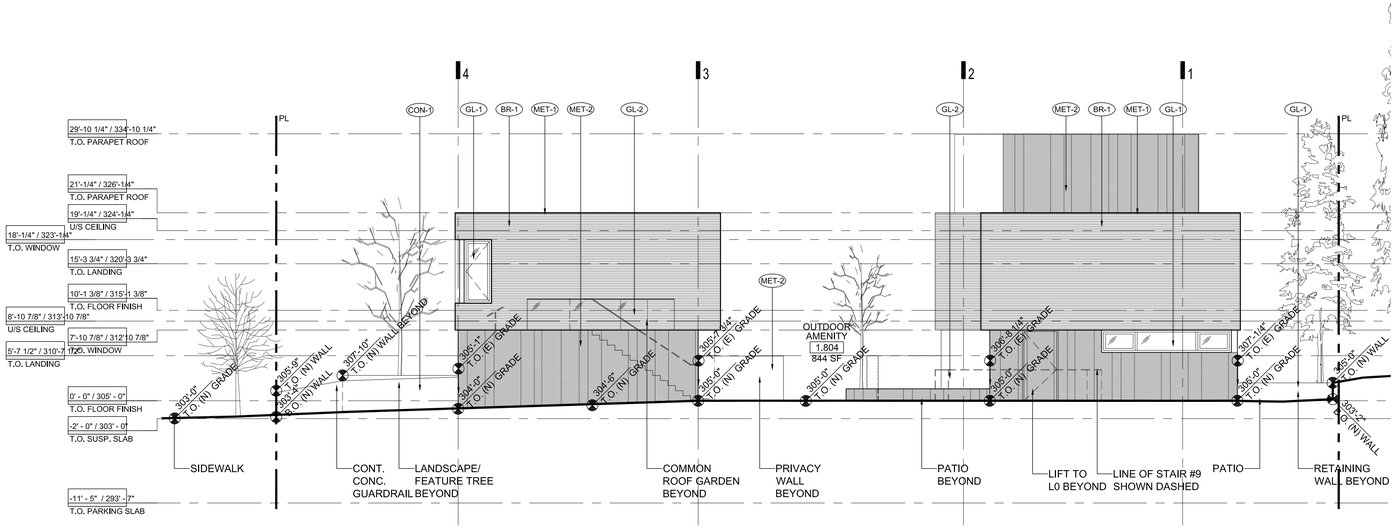
REV	DESCRIPTION	BY	DATE
5	ISSUED FOR REZONING + DP R1	omb	2015.04.02
4	ISSUED FOR COORDINATION	omb	2015.03.26
3	ISSUED FOR COORDINATION	omb	2015.02.18

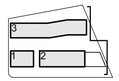
EDGEMONT BLVD.
2014-015

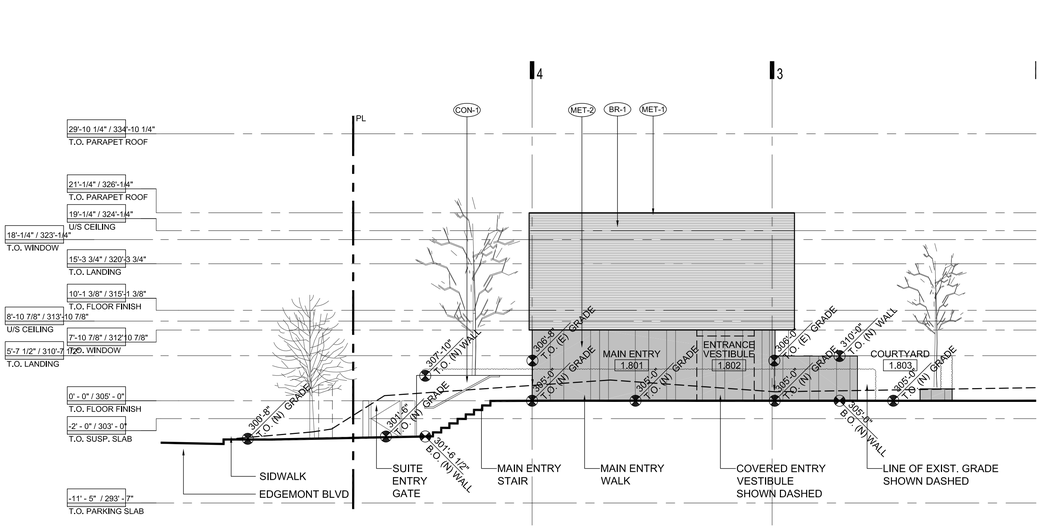
ELEVATIONS
-
1/8" = 1'-0"

A202

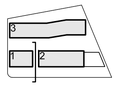


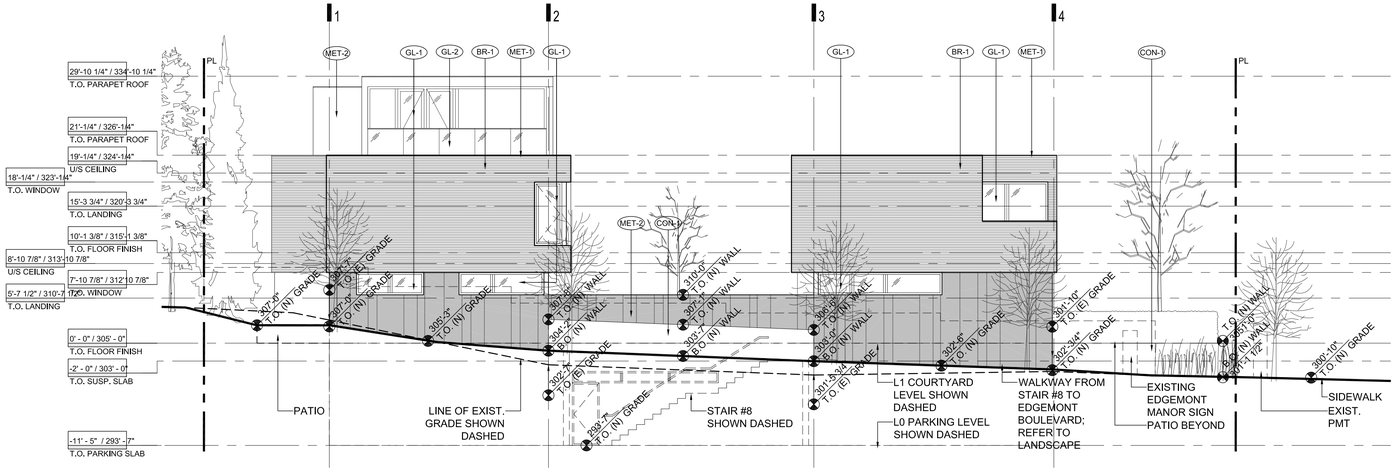
1 EAST ELEVATION - BUILDING 2 + 3



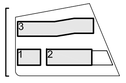


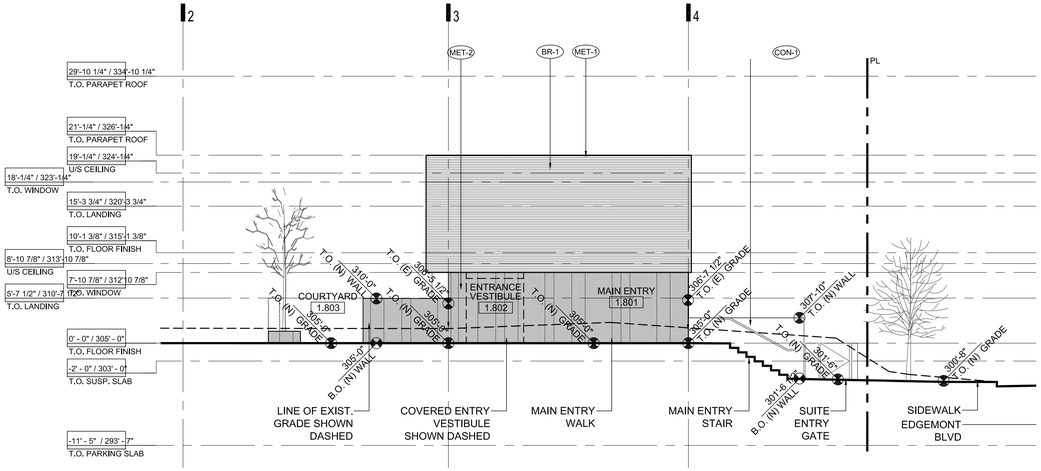
2 EAST ELEVATION - BUILDING 1



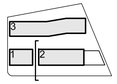


3 WEST ELEVATION - BUILDING 3 + 1





4 WEST ELEVATION - BUILDING 2



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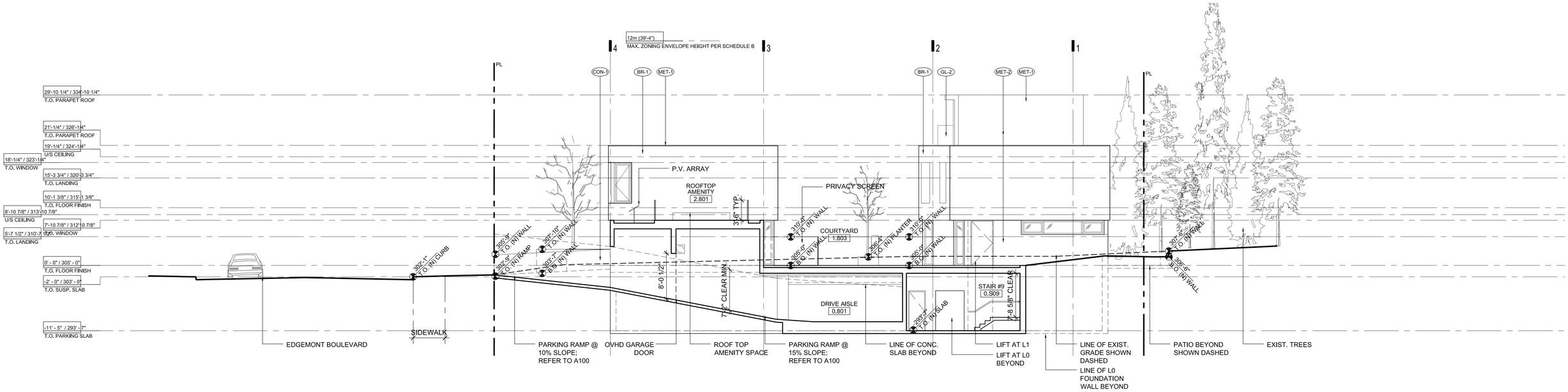
HARBOURVIEW Building Quality for Life

REV	DESCRIPTION	BY	DATE
4	ISSUED FOR REZONING + DP R1	omb	2015.04.02
3	ISSUED FOR COORDINATION	omb	2015.03.26
2	ISSUED FOR COORDINATION	omb	2015.03.18

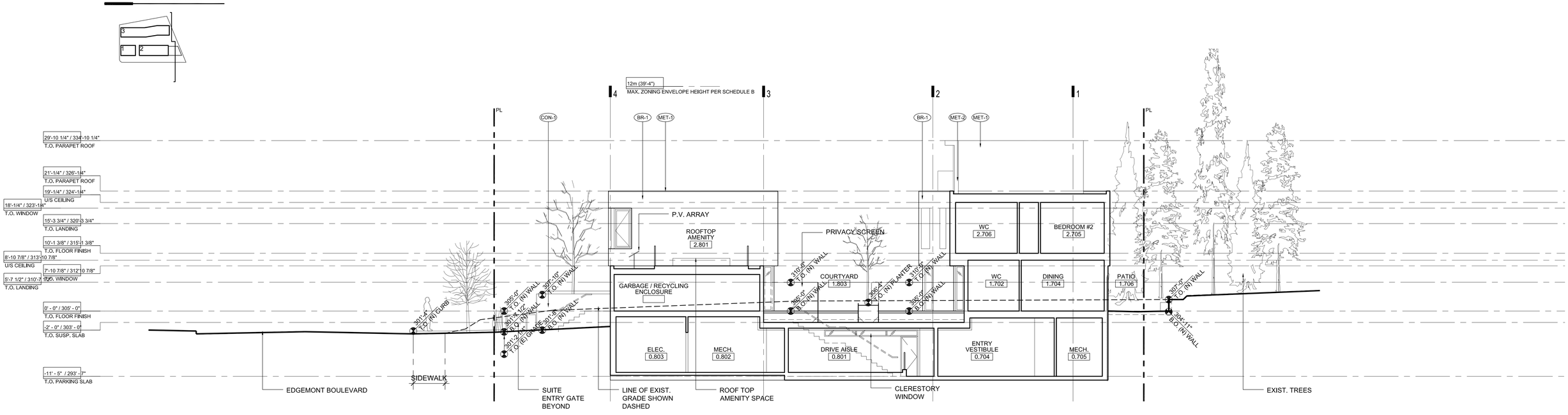
EDGEMONT BLVD.
2014-015

ELEVATIONS
-
1/8" = 1'-0"

A203



1 SECTION AA



2 SECTION BB

MATERIAL + FINISHES LEGEND

- BR-1 PRECAST CONCRETE BRICK MASONRY
- CON-1 BOARD FORM CIP CONCRETE
- GL-1 DOUBLE GLAZED SEALED UNIT
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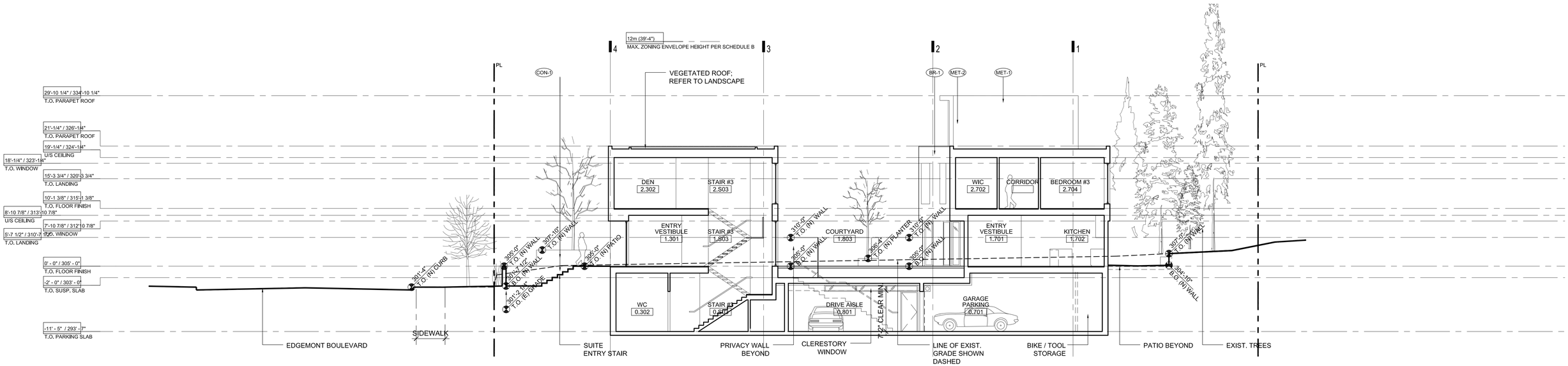
3	ISSUED FOR REZONING + DP R1	omb	2015.04.02
2	ISSUED FOR COORDINATION	omb	2015.03.26
1	ISSUED FOR REZONING + DP	omb	2014.11.05

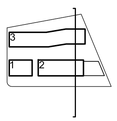
EDGEMONT BLVD.
2014-015

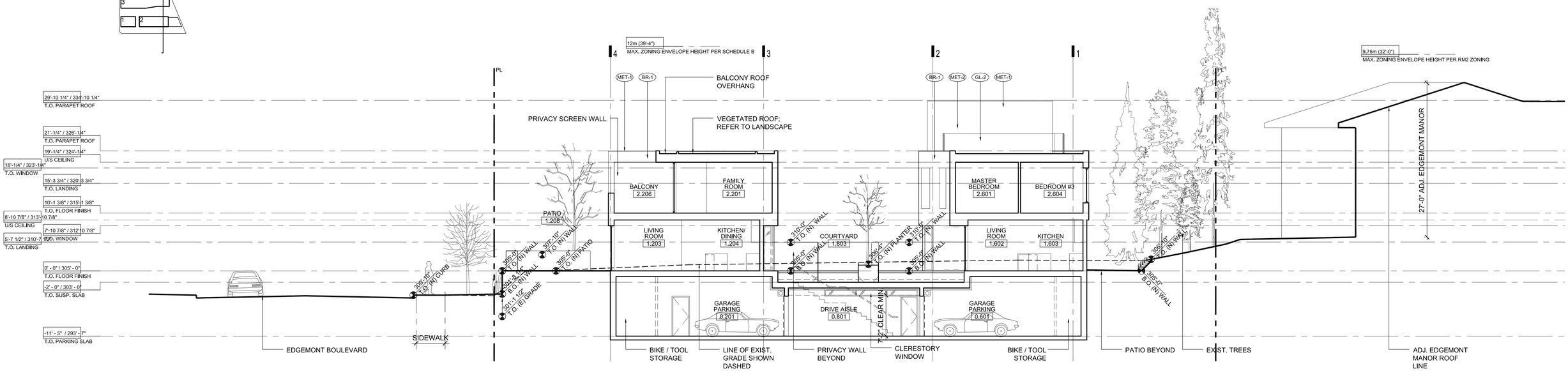
CROSS SECTIONS
1/8" = 1'-0"

A301

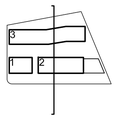


1 SECTION CC





2 SECTION DD



MATERIAL + FINISHES LEGEND

- BR-1 PRECAST CONCRETE BRICK MASONRY
- CON-1 BOARD FORM CIP CONCRETE
- GL-1 DOUBLE GLAZED SEALED UNIT
- GL-2 TEMPERED LAMINATED GLAZING
- MET-1 CUSTOM METAL FLASHING
- MET-2 PREWEATHERED STEEL
- WD-1 RIFT CUT WHITE OAK

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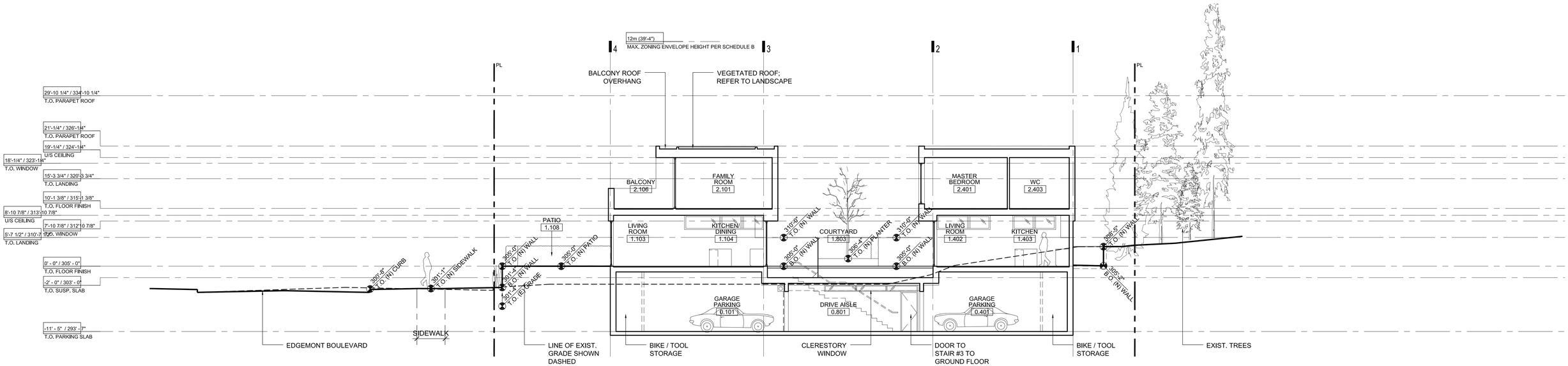
HARBOURVIEW Building Quality for Life

REV	DESCRIPTION	BY	DATE
4	ISSUED FOR REZONING + DP R1	omb	2015.04.02
3	ISSUED FOR COORDINATION	omb	2015.03.26
2	ISSUED FOR COORDINATION	omb	2015.03.18

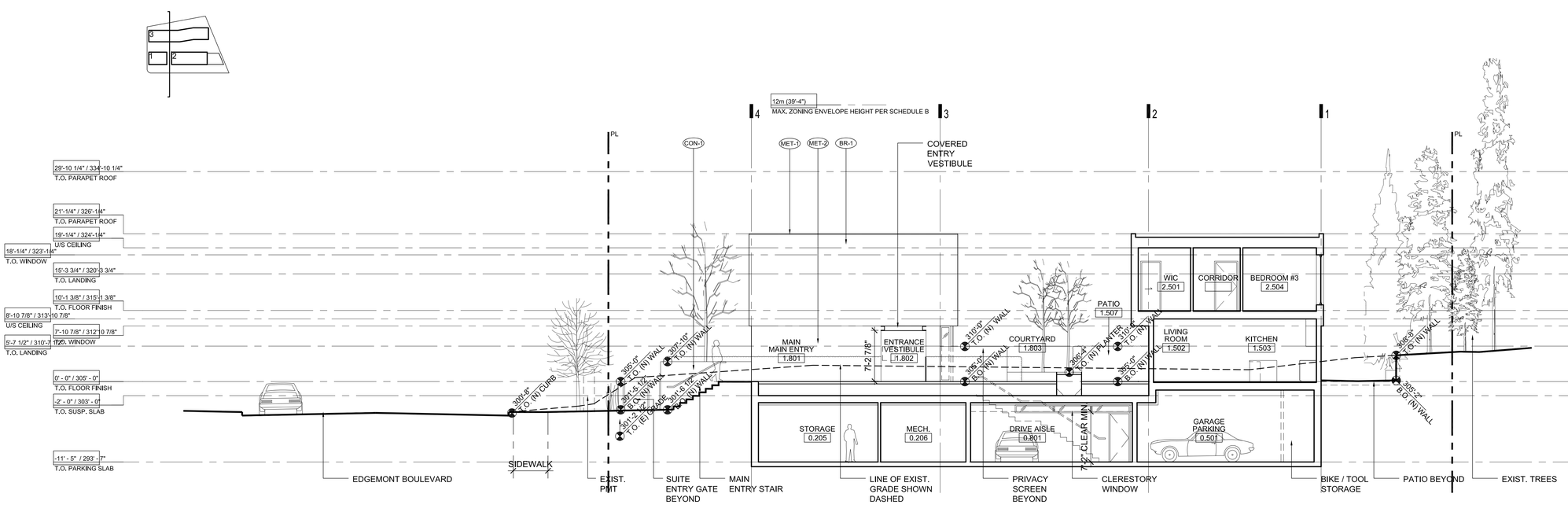
EDGEMONT BLVD.
2014-015

CROSS SECTIONS
1/8" = 1'-0"

A302



1 SECTION FF



2 SECTION EE

MATERIAL + FINISHES LEGEND

- BR-1 PRECAST CONCRETE BRICK MASONRY
- CON-1 BOARD FORM CIP CONCRETE
- GL-1 DOUBLE GLAZED SEALED UNIT
- GL-2 TEMPERED LAMINATED GLAZING
- MET-1 CUSTOM METAL FLASHING
- MET-2 PREWEATHERED STEEL
- WD-1 RIFT CUT WHITE OAK

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EDGEMONT BLVD.
2014-015

CROSS SECTIONS
1/8" = 1'-0"

A303

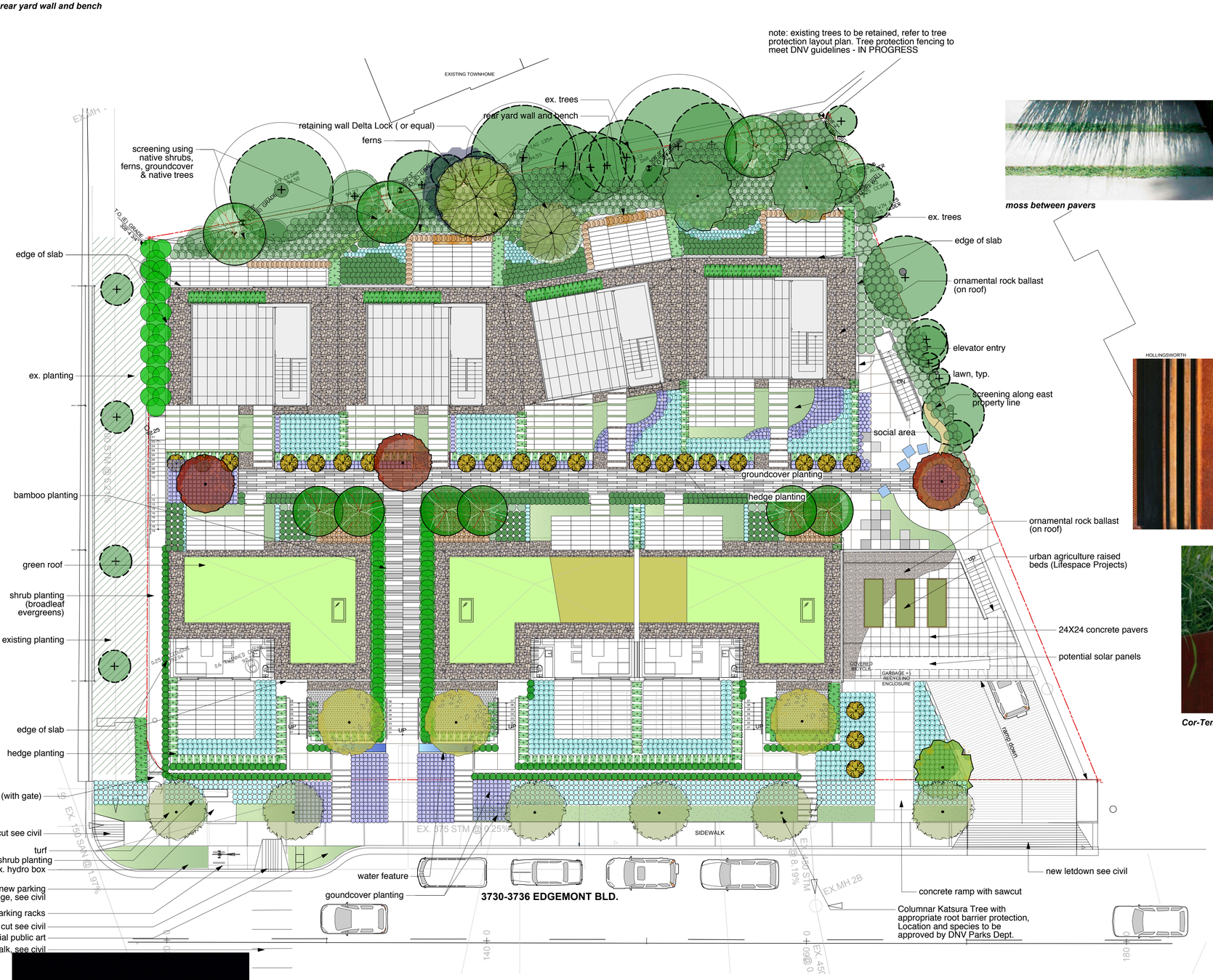
Drawing List
L-1 character Sheet
L-2 Grading Plan Layout
L-3 Planting Plan
L-4 Roof Plan
L-5 Sections/Elevations
L-6 Details
L-7 Specifications

red Japanese maple

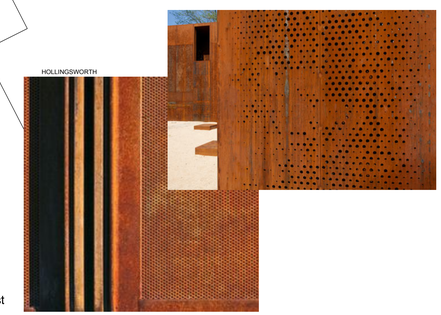
"moss" planting

deer fern

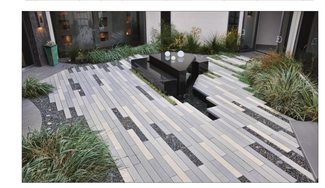
black bamboo

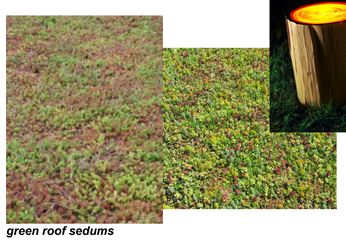


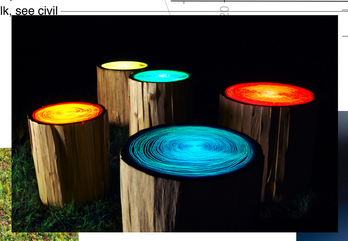
moss between pavers



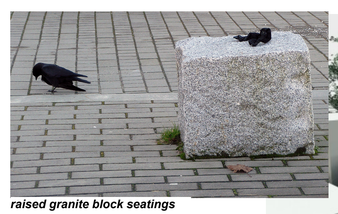
Cor-Ten steel planters


concrete paving


green roof sedums



LED bench cubes


raised granite block seatings

urban agriculture raised beds

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HARBOURVIEW
Building Quality for Life

revisions:
1. DP/Rezoning Submission -Nov.5th,2014

consultants:
omb office of mcfarlane biggar architects + designers

project:
RESIDENTIAL PROJECT

EDGEMONT BLVD
North Vancouver, BC

title:
CHARACTER SHEET

drawn: RG
checked: RH
date: AUGUST 8, 2014
scale: NTS

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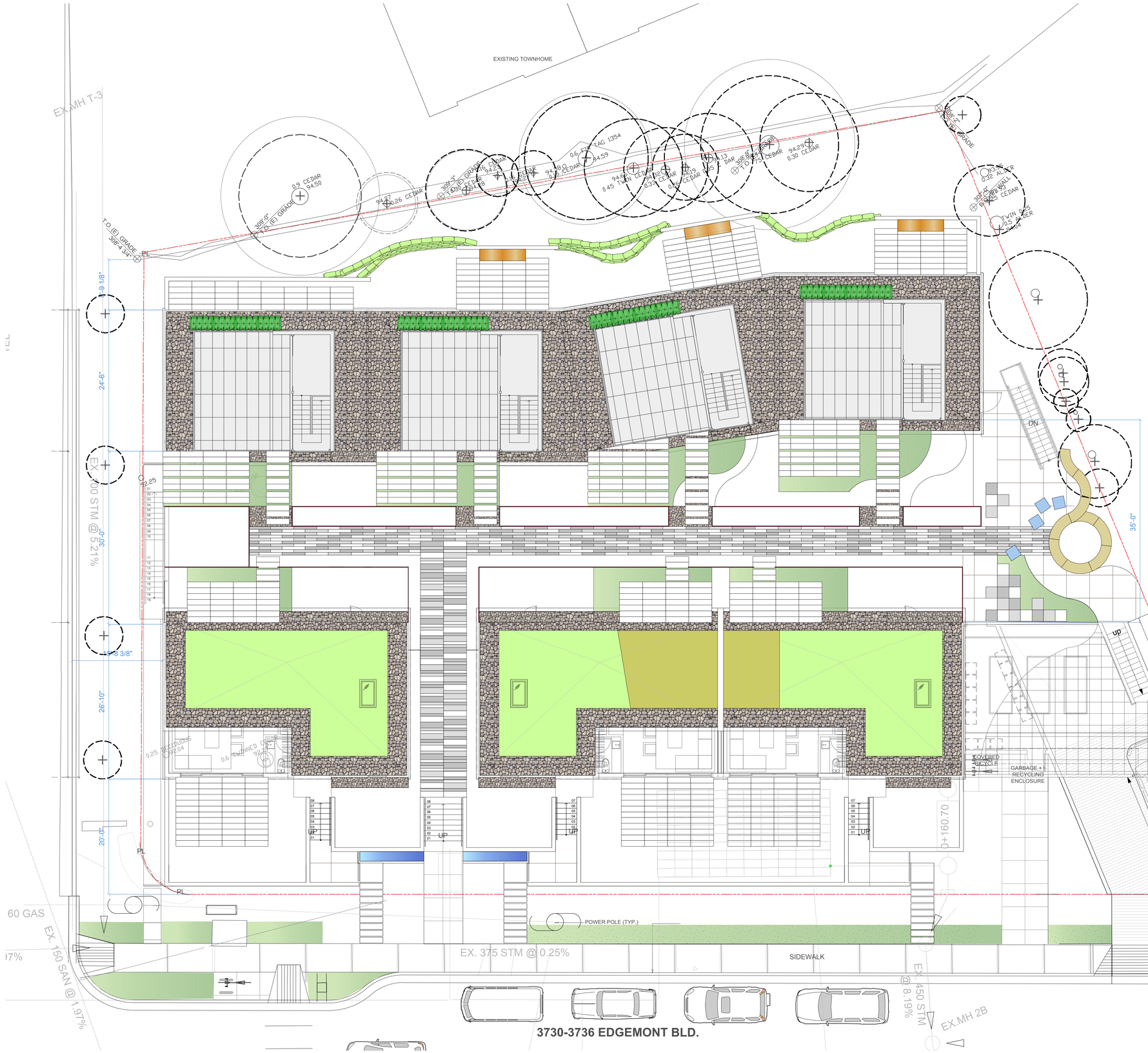
project no.: 14.012
sheet no.: L1 of 7



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(800) 353-9660 PHONE (916) 259-9600 Fax (916) 259-0770 WWW.PERMALOC.COM

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ARCHITECT NOTE: CHECK OFF APPLICABLE SIZE & FINISH DESIRED

SIZE: ALL 2.5 (64 MM) DEEPER w/ 0.125" (3.20 MM) THICK EXPOSED TOP LIP

4.5" 3.5" (114 MM) 3.75 (MM) MF BL

FINISH LEGEND:
(MF) MILL FINISH NATURAL ALUMINUM
(BL) BLACK ANODIZED ALUMINUM (AA-C22A41)
APPLIED BAKED ON PAINT, MEETS AAMA 2603

NOTES:
1. INSTALLATION PER MANUFACTURER'S INSTRUCTIONS (SEEDLINE)
2. 8'-0" (2.44 M) SECTIONS CONNECTED with 4" (102 MM) LONG SPLICE PLATE
3. CORNERS: NOTCH BOXE ONLY (NO MITERING OR WELDING)
4. WHEN CUTTING BASE, REMOVE ALL SHARP EDGES
5. PERMALOC LIVEROOF® EDGE AS MANUFACTURED BY PERMALOC CORPORATION, ROLLING M. (800) 353-9660
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PAVER

SLIP SHEET
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ROOF DECK

EDGING FOR LIVEROOF® ADJACENT TO PAVERS

SCALE 3"=1'-0"

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SIDE VIEW

- LiveRoof Lite Module
- Moisture Portals™
- LiveRoof Engineered Soil
- LiveRoof Green Roof Plants (Minimum 95% Soil Coverage At Installation)
- Minimum 40-mil Polypropylene or EPDM Slip Sheet, Edges Overlapped & Seamed
- EPDM, TPO, or PVC Waterproofing Membrane
- Bonding Adhesive
- Insulation
- Insulation Adhesive

TOP VIEW

- Drainage Holes
- Ergonomic Handles

NOT TO SCALE

ILLUSTRATIONS ARE TO CONCEPTUALLY ASSIST PROFESSIONALS IN DESIGNING LIVEROOF INSTALLATIONS. ALL DETAILS MUST BE REVIEWED BY A LOCAL ROOFING PROFESSIONAL. LIVEROOF, LLC DOES NOT PROVIDE ROOFING SPECIALIST. SHOULD BE CONSULTED TO DETERMINE APPROPRIATE WATERPROOFING, DRAINAGE, DECK MATERIALS AND SUITABLE DESIGN.

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DRAIN APPLICATION
Using Roof Edge™ and Stone Ballast

TOP VIEW

- Prevegetated LiveRoof Modules
- Drain Cover
- Stone Ballast
- RoofEdge™

SIDE VIEW

- Drain Cover
- Stone Ballast
- RoofEdge™
- Prevegetated LiveRoof Modules
- Slip Sheet
- Waterproofing
- Roof Deck

DRAIN COMPONENTS AND FLASHING SHOULD BE INSTALLED ACCORDING TO MANUFACTURER INSTRUCTIONS.

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DRAIN A

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Trenched in Modules at Moisture Portals™

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- Prevegetated LiveRoof Modules
- SCH 40 PVC Irrigation Pipe

- MP Rotator or Equivalent Pop-up Irrigation Head
- Use hoe to trench pipe to at Moisture Portals™
- SCH 80 Solvent Weld Fittings

NOT TO SCALE

REFLECTIVE WALLS OR WINDOWS WILL INCREASE EFFECTS OF SUN EXPOSURE ON PLANTS AND MAY REQUIRE SPECIAL PLANT SELECTIONS AND/OR MORE FREQUENT IRRIGATION. CONSULT LIVEROOF, LLC OR ATLANTA GARDEN FOR APPROPRIATE PLANT SELECTIONS FOR USE NEXT TO REFLECTIVE SURFACES.

IRRIGATION A

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HARBOURVIEW
Building Quality for Life

revisions:
1. DP/Rezoning Submission -Nov.5th.2014

consultants:
omb office of mcfarlane biggar architects + designers

project:
RESIDENTIAL PROJECT

EDGEMONT BLVD
North Vancouver, BC

title:
ROOF PLAN

drawn: RD
checked:
date: AUGUST. 6. 2014
scale: 1/8" =1'-0"

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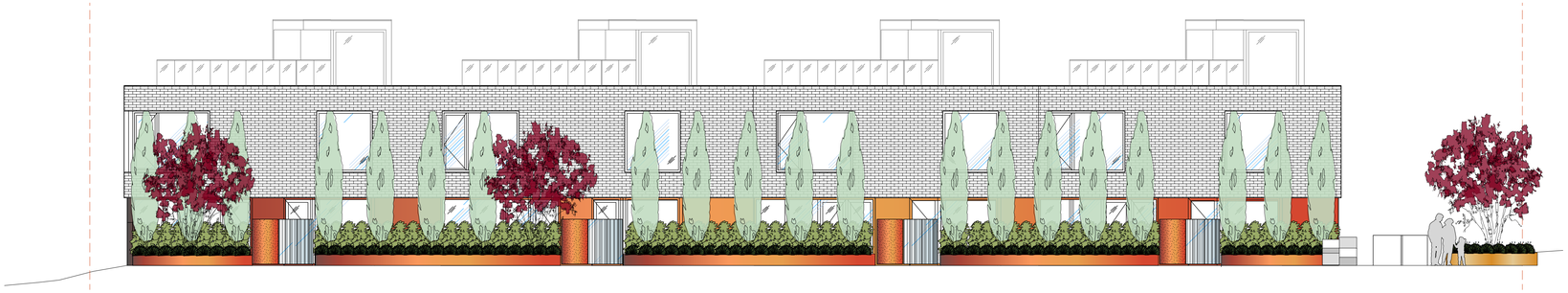
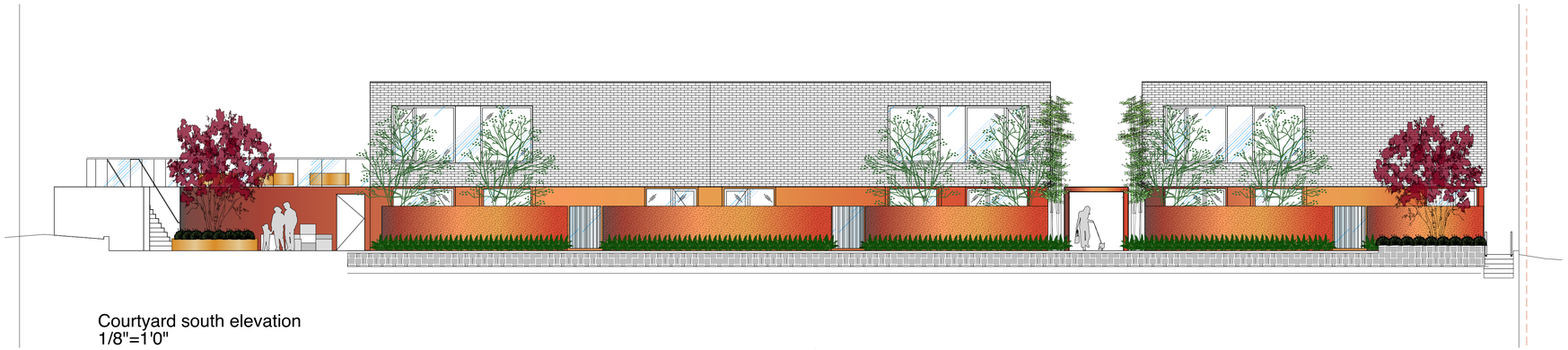
project no.: 14.012
sheet no.: L4 of 7

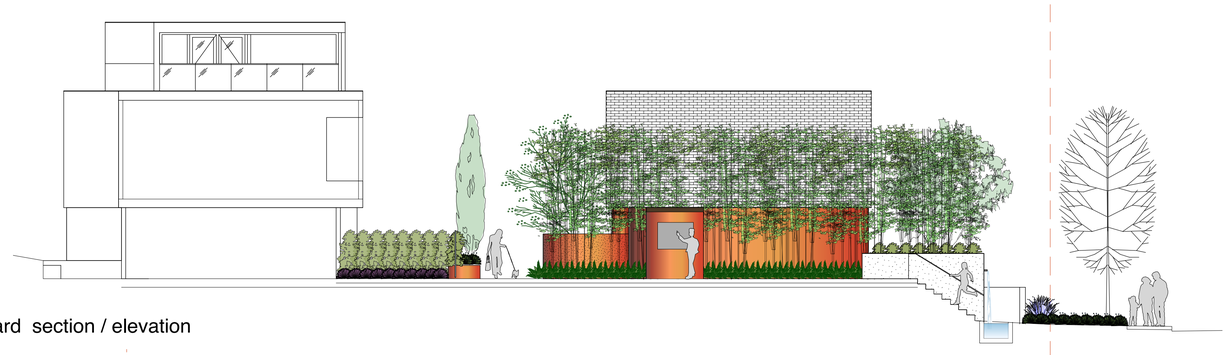


Courtyard north elevation
1/8"=1'0"

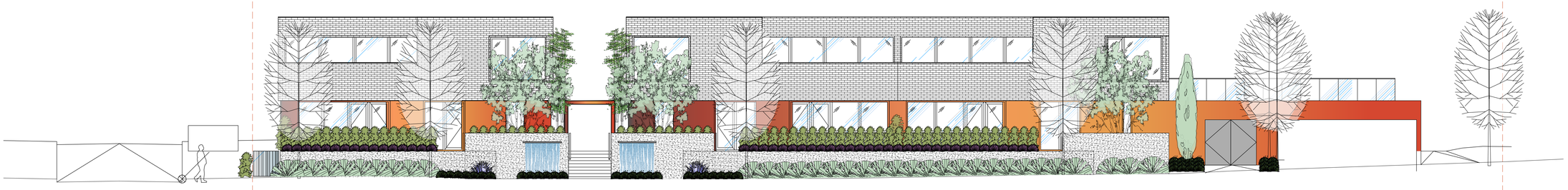
key plan
nts



Courtyard south elevation
1/8"=1'0"



Entry Courtyard section / elevation
1/8"=1'0"



Streetscape north elevation
1/8"=1'0"

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HARBOURVIEW
Building Quality for Life

REVISIONS:
1. DP/Rezoning Submission -Nov.5th,2014

CONSULTANTS:
omb office of mcfarlane biggar architects + designers

PROJECT:
RESIDENTIAL PROJECT

EDGEMONT BLVD
North Vancouver, BC

TITLE:
SECTIONS & ELEVATIONS

DRAWN: RG
CHECKED: RH
DATE: AUGUST 6, 2014

SCALE: 1/8" =1'-0"

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PROJECT NO.: 14.012

DRAWING NO.: L5 of 7

MINUTES OF THE ADVISORY DESIGN PANEL MEETING HELD ON NOVEMBER 13th, 2014 AT THE DISTRICT OF NORTH VANCOUVER

ATTENDING: Mr. James Paul (Chair)
Ms. Annerieke van Hoek
Mr. Greg Travers
Sgt. Kevin Bracewell
Mr. Kevin Hanvey
Mr. Robert Heikkila
Mr. Tieg Martin
Ms. Liane McKenna
Ms. Amy Tsang

STAFF: Mr. Erik Wilhelm
Ms. Natasha Letchford
Mr. Frank Ducote
Mr. Michael Hartford
Ms. Alex Anderson

The meeting came to order at 6:05 pm.

1. ADOPTION OF MINUTES

The Panel reviewed the minutes of the meeting of October 9, 2014.

Mr. Bob Heikkila noted that his name was misspelled. A Panel member raised a point of clarification on Page 10 of the minutes, regarding a question relating to concrete wall assembly. The Panel member suggested a clarification of the question and answer to read: "Are the solid wall elements mass concrete or are they framed insulated assemblies? Answer: Framed insulated assembly."

Staff advised that the spelling correction and adjustment for clarification would be made prior to the adopted minutes being published.

It was moved and seconded and carried to adopt the minutes as amended.

2. ANNOUNCEMENTS

a. Panel Membership Update: Mr. Michael Hartford noted that the Advisory Design Panel has received nominations for:

1. Re-appointment of Mr. Greg Travers as the representative on accessibility issues
2. Appointment of a replacement Architect: Mr. Dan Parke
3. Appointment of a replacement Professional Engineer: Mr. Samir Eidnani

Mr. Hartford expressed appreciation to Mr. Travers for agreeing to serve another term. He further noted that the nominations received have been reviewed by the District's Advisory

Oversight Committee and recommendations for appointment to the Design Panel are to be considered by Council at the meeting of December 8th 2014.

b. **Design Awards Tour:** Mr. Hartford noted that, regretfully, as there are no completed projects ready for inspection by the Panel, there will be no Design Awards Tour for 2014.

c. **Discussion Regarding Need for Models:** Mr. Frank Ducote asked that while the Panel are reviewing the three development applications at this meeting, that they pay particular attention to the potential for a model to assist in the review. Further Mr. Ducote suggested that the Panel consider what type of models would be useful in helping to explain the projects.

3. NEW BUSINESS

a. 3730 – 3736 Edgemont Boulevard – Detailed Rezoning and Development Permit to create seven townhouse units

Ms. Natasha Letchford, District Planner, gave a brief overview of the site and context for the detailed application. Ms. Letchford noted that the development is on 0.48 hectares of land and is currently zoned as RM1 - Multi-Family residential. The Official Community Plan designates the site as attached residential and allows for a maximum of 0.8 FSR. This proposal is asking for 0.75 FSR, and as such is below the maximum permitted. The development is in the Development Permit Areas for Energy, Water and Greenhouse Gases, as well as Form and Character. Ms. Letchford noted that to the north of the site is a 60 unit townhouse complex, a smaller townhouse complex to the south, Shalal Gardens to the east, and primarily single family homes to the west.

Ms. Letchford introduced the applicant team, Stefen Elmitt, Steven McFarlane, Al Saunders, Bill Harrison and Nicholas Stevenson.

The Chair thanked Ms. Letchford for her presentation, welcomed the applicant team to the meeting and outlined the procedure to be followed in reviewing the proposal.

Mr. Stefen Elmitt, project team member, introduced the project and gave an overview of the surrounding area, highlighting a few properties in particular that were influential in the development's design. Mr. Elmitt noted that the Hollingsworth-designed Shalal Gardens and the West Coast Modernist movement were particularly inspirational for their proposed project. Mr. Elmitt showed the Panel street view photographs to present an overview of the trees on site. He pointed out trees to be retained and those to be removed.

Mr. McFarlane, the project Architect, reviewed the building layout for the Panel, noting the proposal is for 7 units overall. The FSR is just below 0.75 with 40% lot coverage and two parking spaces per unit. The design allows for two additional above ground guest parking spaces. Mr. McFarlane noted that there is a mixture of housing type and size, ranging from 2300 to 3200 square feet, including the parking area. He noted that the applicant team has carefully considered shadow studies and adjusted the site layout to maximize sunlight.

Mr. McFarlane drew attention to the parkade aspect of the proposal, as the design team believes it is a feature that differentiates this development within the market place. Each suite has a private garage, one that is large enough to accommodate additional storage. The parkade has a high level finish, meant to encourage neighbour interaction.

Mr. McFarlane noted access to the upper level from the parkade through an internal stair, while level access to individual units from the outdoors is through the courtyard. Each unit is three bedrooms. The northern units have roof decks accessed by stairs, and while the southern units do not have a roof deck they do have a green roof and additional deck space. The overall height of the project is comparable to "The Manor" complex to the north. The entryway to the building is signaled by an arrival point sitting between two of the units, and indicated by a common mail area.

Mr. McFarlane spoke to the sustainability highlights of the proposal, which include passive design strategies, mitigating the heat island effect through planted roofs, and construction using durable building materials.

Mr. Bill Harrison, the project Landscape Architect expressed his excitement for the project and noted that the landscape design is intended to support the expression of the architecture. Mr. Harrison noted the paving design in the guest parking area which includes a random pattern of lights meant to bring light to the area and to highlight the design. The main entry is marked by two water features, one on either side of the walkway. Mr. Harrison noted that the planting on the street side will be maples and gingko, leading to the entryway which will feature timber and black bamboo. There is the potential for a gate at the entry but this has not been resolved.

Mr. Harrison spoke to the amenity space in the internal courtyard and noted that the applicant team is exploring the use of frosted light squares as well as granite squares; a raised area of poured concrete for seating; and, stairs to the underground ‘lane’. The underground parkade is characterized by individualized unit entrances to articulate the distinct units.

Mr. Harrison reviewed the roof deck proposal and noted that planting would be to the homeowner’s discretion. He reviewed an area set aside for three resident garden plots and noted that the remainder of the planting scheme would be low-maintenance and provide colour and texture to the project. Any lawn areas will be synthetic. There will be a public art component, and the design team is exploring options to incorporate an art piece into the project’s bicycle storage.

The Chair thanked the design team for their presentation and asked if there were any questions of clarification from the Panel members.

Questions of clarification were asked of the design team on the following topics:

Can some clarity be provided on the format and landscaping of the north-west corner of the site? Answer: The north-west unit has a more compact outdoor space. There is a park-like setting adjacent to the smaller yard, which will help to create a sense of openness.

What planting is proposed for the green roof? Answer: Sedum planting in trays which require minimal maintenance.

What is the edge condition for the roof? Answer: There will be a parapet. The roof is only visible from the upper floors of nearby units.

A question was asked regarding the height and inclination of the solar panels. Answer: These have yet to be finalized, but will not be more than a 40-45 degree inclination, and will be facing south. The array will be lower and wider than what is shown in the drawings.

What is proposed for the windows? Answer: Consistent window treatments will be a part of the project, and will likely be blinds.

A question was asked regarding the heating of the units. Answer: The heating will be in-floor hydronic heating, and will likely be on-demand, tank-less hot water.

Will the building be wood frame? Answer: Yes, over a concrete parking garage structure.

Could some clarity be provided on wheelchair access? Answer: Access will be a sloped path along the side of the driveway, but the design team needs to consider providing a more effective means for those with mobility challenges to announce their arrival.

What type of brick is proposed? Answer: Yes, unglazed white concrete brick is proposed.

How will the parapet be treated? Answer: It will be flashed with careful detailing.

If Corten steel is used in large panels, and how will these be installed? Answer: They will be mechanically fastened with countersunk fasteners in a matching colour.

Is there a potential for chemical conflict between the steel cladding and pressure treated strapping? Answer: This is something to consider, and a buffer material may be required.

A request was made for clarification of the landscape treatment at the east side of the property. Answer: This is a relatively tight space which will likely include fencing rather than hedging in the south end of this corridor.

Is the underground garage proposed to be gated? Answer: Yes.

Could clarification be provided on the approach to the east and west elevations? Answer: The west elevation has an element of privacy provided by the introduction of a screen at the end of the courtyard. The east elevation is a simple expressions of the overall massing strategy. The foreground is slender and low in volume to bring the scale down with respect to the neighbours.

How will daylighting be provided in to the garage area? Answer: There will be a modest amount of daylighting that will reach the underground areas with a few small windows at the west end of the underground area. Lighting through the courtyard is being explored.

The Chair thanked the applicant team and staff for their clarifications and asked for comments from the District Urban Design Planner, Mr. Frank Ducote.

Mr. Ducote noted that this is an exciting project, that the three C's are well represented; Crisp, Contemporary and Contextual. Mr. Ducote commented that the finishes are interesting and that the light above dark steel creates a floating quality to the building. Mr. Ducote noted two issues from the District Urban Designer, Alfonso Tejada. Firstly, the west elevation landscaping and access seems uncomfortable and needs more expression. Secondly, that the shallowness of the rear yard at the north-west corner could be further explored. Mr. Ducote commented that the daylighting to the garage could be interesting to further explore as well.

The Chair thanked Mr. Ducote for his comments and asked the Panel members for their comments on the project.

In general, Panel members noted that this is an exciting design that appears to include very high quality material choices, and a successful response to the site and the context. While the inclusion of a CPTED component in the presentation was noted as being particularly appreciated, it was noted that the presentation could have benefitted from more visual references to the context and surrounding buildings.

It was suggested that the concrete brick elements looked somewhat heavy and could present maintenance issues in the future. It was also noted that the design of the project has an exoticism that seems to prevent it from fitting in with the North Vancouver context and this could be assisted with some additional use of wood cladding to help create a stronger fit.

It was suggested that some means to further daylight the basement area could be positive.

A Panel member commented on the use of poplar and bamboo in the landscape plan, and noted that these can be difficult species to manage in terms of lifespan and maintenance. It was suggested that different options be explored, or that care be taken with the management of these species.

A Panel member suggested some difficulty with the idea of urban agricultural plots on the upper level, and the impracticality of access by stairs for plant materials and equipment. It was suggested this area might be put to a different use.

It was suggested that the north side planting plan seems to include a variety of non-native plants, and a more natural edge was encouraged for this area to compliment the surroundings. It was also noted that there are many small lawn areas that may be a maintenance issue.

It was suggested that improved accessibility and retrofitting one or two units for elevators might broaden the market and a Panel member noted that conversion of the access on the south-east to a ramp would assist with universal access.

It was noted that solar hot water solar readiness would need to be taken into consideration.

The Chair thanked the Panel and asked if the applicant team had any comments in response.

The applicant team thanked the Panel for the constructive comments.

The Chair thanked the applicant team and invited the Panel to compose a motion.

MOVED by Tieg Martin and **SECONDED** by Annerieke van Hoeke:

THAT the ADP has reviewed the revised proposal, commends the applicant for the quality of the proposal, and recommends APPROVAL of the project SUBJECT to addressing the following items to the satisfaction of staff:

- Design revision to provide comfortable and practical accessibility to the courtyard in the project
- Further exploration of options to provide additional natural light to the underground garage area

CARRIED

b. 1200 – 1226 Marine Drive – Detailed Application for two- storey commercial building with a childcare facility on the second floor.

Mr. Erik Wilhelm of the District Planning Department gave a brief overview of the application and site context. The proposal is for a two-storey commercial building with an accessible rooftop and at-grade parking, located at the corner of Pemberton and Marine Drive. Mr. Wilhelm noted that Pemberton Plaza and the proposed Amadon Plaza are under the same ownership, and that this application is a continuation of ongoing site improvements as a part of a previous development permit for the larger plaza site.

The site area is approximately 2,608 m^2 (28,072 sq. ft.), and the proposed density is in compliance with the OCP requirements of the existing C9 zone. Mr. Wilhelm noted that this proposal requires a laneway purchase at the western portion of the site, and that Council has already endorsed the sale of this lane.

Mr. Wilhelm introduced the design team, and noted that Ms. Cheryl Fu (a registered architect) will be presenting to the Panel on behalf of the project.

Ms. Fu introduced Bill Harrison, Landscape Architect, Edgar Leon and Paul Skewes, designers, and Mr. Michael Apostolides - Senior Associate of B and H Architects, the firm of record on the project.

Ms. Fu reviewed the site context and adjacent properties by showing photographs of the existing views from the street. Ms. Fu reviewed the design proposal and noted that the project includes ground floor retail and a second floor childcare use. It was noted that this will be only the second childcare of its kind in North Vancouver. Ms. Fu highlighted the massing along the street to create a strong street presence and to help create a sense of arrival on the corner.

Ms. Fu spoke to the importance of street connections on the site, and the desire to create plazas to strengthen the pedestrian connections. Ms. Fu noted that weather protection is provided for pedestrian connections through and adjacent to the site to enhance the pedestrian realm. Marine Drive and the parking lot area of the site are both being treated as frontages, and vehicular access will be from the District lane to the north, as well as through the adjacent shopping centre parking lot. The proposal carries through the strong design theme of the renovations to the adjacent plaza, and the corner in particular is anchored with this contemporary design.

Ms. Fu reviewed the material palette, which includes brick and wood, as well as wood-like products and an aluminum screen which will be used to delineate the children's play area. There will be a green screen on the south side of the building, which will be carried through to brick column elements.

The project target is to achieve a minimum of LEED silver and will include electric vehicle charging stations, drought-resistant landscaping, bike racks, and parking stalls in permeable pavers to enhance the storm water management plan. Signage guidelines for the project will follow those set out for the Marine Drive area, and will all be LED letters.

Ms. Fu noted that the building design addresses the District's Marine Drive Design Guidelines, and will serve as a strong landmark to anchor the Marine Drive and Pemberton corner.
Mr. Kevin Hanvey, through the Chair, noted that there was a need for a registered architect to be present representing the firm, and requested that this individual be identified and recorded

in the official minutes. In response, it was noted that Mr. Michael Apostolides of B + H Architects, the firm of record, was in attendance to represent the architectural design firm.

Mr. Bill Harrison, project Landscape Architect, gave a review of the landscaping and tree retention plan for the proposal. Mr. Harrison noted that the existing trees located at the plaza off Marine Drive lend great scale to the streetscape and are proposed to be retained by pulling the building back from this area. Mr. Harrison commented that benches normally shown for the sidewalk edge on Marine Drive have been moved further into the site to provide more pleasant seating opportunities and that the street edge locations will be occupied by bike racks for ease of access to the street.

Mr. Harrison noted that the hardscape on street frontages is defined by the District's streetscape guidelines but commented on the screens located on the building, and noted that while the details need to be explored in some further detail, the intent is to use these screens to help break down the façade of the building. Efficient and comfortable pedestrian connections are proposed between the adjacent commercial sites, and to the public sidewalks on two sides of the property.

It was noted that the roof plan is shown as something of a placeholder at the moment as the childcare provider has yet to be finalized. Mr. Harrison noted that the roof will provide a green, open space and plenty of opportunity for children of the childcare to engage in outdoor play. Rainwater leaders from this area will be directed to a storage facility as part of the storm water management proposal for the project.

The Chair thanked the design team for their presentation and asked if there were any questions of clarification from the Panel members.

Questions of clarification were asked of the design team on the following topics:

The childcare seems large, how will the applicant be approaching stroller storage? Answer: The intention is not to provide storage on the ground level, but the elevator is quite large and will access the childcare level of the building so strollers could be stored within the childcare space.

Brise soleil are shown at the west end of the south elevation but not on the east end – why are they different? Answer: There was a desire to highlight the skewed angle of this portion of the building.

How many children would the childcare accommodate? Answer: Approximately 100.

What are staff parking requirements for the childcare centre? Answer: Vancouver Coast Health requirements are to provide drop-off spots only, and staff would share parking with the parking lot for Pemberton Plaza.

Have traffic patterns been reviewed? Answer: Yes, Bunt & Associates have reviewed and the load for traffic from the childcare and commercial uses is expected to take place at different times of day.

What material are the proposed "façade fins"?: A combination of steel frame and cement panels.

Does Vancouver Coastal Health have any concerns regarding noise from Marine Drive for the rooftop children's area? Answer: Not that they have expressed, but the applicant is proposing an eight foot screen wall to help mitigate noise.

Will the childcare have operable windows? Answer: No, the space is air-conditioned.

Is the patio area at the west end of the site connected to a restaurant location? Answer: It could be, but at the moment there is no certainty on a restaurant tenant for the adjacent space.

Do the proposed bathroom facilities offer universal accessibility? Answer: Yes.

The Chair thanked the applicant team for their clarifications and asked for comments from the District Urban Design Planner, Mr. Frank Ducote.

Mr. Ducote commented that he felt this was a fresh design for Marine Drive and the surrounding area. He suggested that an open but roofed area as a part of the rooftop design would be a positive addition. He wondered whether the breezeway would need to be secured or if it would remain open 24 hours. Mr. Ducote commented that the skewed effect being used is interesting but that he would like to see it carried through to the roofline. It was noted that the parallel parking area may be a challenge from a functional point of view, due to the adjacent landscaping. Mr. Ducote expressed an appreciation for the difference in the east and west halves of the south elevation, but that there could be an opportunity for improved solar control on the east half as well.

The Chair thanked Mr. Ducote for his comments and asked the Panel members for their comments on the proposal.

In general, the Panel noted that the project would be an improvement to this important corner on Marine Drive, and would help extend the Marine Drive streetscape improvements that have been taking place over the last several years. There was general support for the idea of a childcare facility and it was noted that in other areas of the Lower Mainland, there have been examples of very successful childcare operations with rooftop play areas.

A Panel member commented that while the form of the building seemed very positive the proposed partial sun-shading for the south façade seemed problematic, and should instead extend across the full length of this façade.

It was suggested that the location of the exit staircase on the prominent commercial frontage seemed like an odd choice and a blank space instead on the smaller east portion of the façade would be less prominent location.

It was suggested that the project design would benefit from some editing in order to calm and simplify the planes and finishes.

Panel members commented that the proposed rooftop outdoor area looked like a wonderful asset, but it was questioned whether consideration had been given to providing shade, as well as a sheltered area for all-weather outdoor space. It was further noted that the area could benefit from some soft planting as a positive addition to the landscape design.

It was also suggested that the peripheral steel screen on the roof could contribute to the roof area feeling somewhat "prison-like" without the ability to see the sky, and that some opportunities to view the outside world from the rooftop would be beneficial. Related to this, it

was suggested that the openings in the screen could pose safety concerns for children and the details of the screen design should be reviewed carefully.

A Panel member commented that given the mix of uses proposed, parking provided should be sufficient.

It was suggested that the prominent corner of the façade seemed somewhat muted and that the colour of the roof screen element seemed to draw unnecessary attention – it was suggested that the use of wood soffits might help to offset this attention.

The Chair thanked the Panel for their comments and invited the applicant team to respond to the comments made by the Panel.

Ms. Fu thanked the Panel for their comments and responded to the concerns raised. Regarding the screens, Ms. Fu commented that the colour could be adjusted and selection will be reviewed prior to making a final decision. It was further noted that the screen design will need to be reviewed by Vancouver Coastal Health for safety and functionality as part of the childcare licencing. Regarding the addition of wood soffits, the applicant team would like to make this addition, but the fire code restricts their use. Ms. Fu responded to the issue of the horizontal screens proposed for the south façade, and noted that these were intended as decorative elements to add interest to the façade, rather than specifically as solar shading devices.

The Chair thanked the applicant team and invited the Panel to compose a motion.

MOVED by Robert Heikkila and **SECONDED** by Kevin Hanvey:

THAT the ADP has reviewed the proposal and recommends **APPROVAL** of the project **SUBJECT** to addressing the following items to the satisfaction of staff:

- A review of options for providing weather protection and soft landscape elements in the roof deck area.
- Review of relocation or re-design of stair elements on south elevation.
- A thorough review of opportunities for simplification of all elevations, with particular attention to the south elevation.
- Consideration of solar control on the south elevation, either through demonstrated performance through project modelling or through passive solar control devices applied in a consistent manner over the south façade.
- Consideration of providing operable windows in the second floor area.
- Reconsideration of material selection for rooftop screening with respect to materiality, colour, and transparency

MOTION CARRIED

c) 115 & 123 W Queens – Detailed Rezoning and Development Permit application for 18 townhouse units (08.3060.20-027.14)

Mr. Erik Wilhelm of the District Planning Department introduced the design team and gave a brief overview of the application and site context. Mr. Wilhem noted that the site is located on the south side of West Queens Road in the Queensdale Village Centre. The development site and properties to the west are designated as "Residential Level 5: Low Density Apartment" which allows for a maximum FSR of up to 1.75. Mr. Wilhelm noted that the larger property to the west is market rental housing for seniors and the property to the east is occupied by the Queens Cross Pub.

Mr. Wilhelm noted that the site area is approximately 4,430 sq. m (15,400 sq. ft.). The proposed density of the project is in compliance with the density allowed by the OCP, and the site would require rezoning. The proposal includes purchase of a portion of the lane at the rear of the site. The OCP guidelines for ground-oriented housing, as well as multi-family residential development are applicable to this application.

As background, Mr. Wilhelm noted that this application was seen by the Panel at the preliminary application stage on November 14, 2013. The previous application was for 20 units and proposed a flat roof design. Given the prevalence of 'pop-up' roof buildings in recent District of North Vancouver projects, and a desire to reflect the more traditional architecture in the area, the applicant was encouraged to provide a pitched roof design.

The Chair thanked Mr. Wilhelm for his presentation, welcomed the applicant team to the meeting and outlined the procedure to be followed in reviewing the proposal.

Mr. Taizo Yamamoto, project Architect, reviewed the site context and layout. It was noted that the site slopes down from east to west, and from north to south. Mr. Yamamoto reviewed photos of the context to indicate the surroundings and site features.

Mr. Yamamoto noted a previous Panel concern regarding the size of the internal courtyard, and in response the applicant team has increased the courtyard width by three feet to allow greater separation between the buildings. The design team has also removed the exterior stairwells from the courtyard and created grade level entries for the upper units. The unit count has been decreased from 20 units to 18 and the roof form has been changed with the effect of creating a less repetitive streetscape. Street-fronting units have level access where patio areas meet the W. Queens Road sidewalk.

Mr. Yamamoto noted that the proposed building steps with the grade, and the design of the building, including finishes, such wooden accents, elements of stone and "Hardi" panel are intended to relate to the surrounding land uses. Large windows are proposed at the upper levels to contrast the more solid base. Mr. Yamamoto concluded by reviewing the shadow studies for the project.

Ms. Marlene Messer of PMG, the project Landscape Architect, spoke to the landscape plan and outlined the trees and vegetation chosen for the design. Ms. Messer pointed out the use of small planters and small trees as an appropriate scale for the interior courtyard, and noted that the plants have been selected for year-round colour and interest. Street trees proposed are a continuation of the trees to the west, to provide continuity.

The Chair thanked the design team for their presentation and asked if there were any questions of clarification from the Panel members.

Questions of clarification were asked of the design team on the following topics:

Does the courtyard provide level access to the units? Answer: Some of the units will have stairs, but it is the design team's intention to minimize stairs as much as possible.

How is the canopy glazing affixed to the canopy structure, and has the structure been seismically designed? Answer: The canopy glass will be inserted in steel channels, and it has been seismically reviewed.

What material is used for the soffits? Answer: It will be a hardi material.

Are the ceilings of the top floor vaulted and has there been provision made for venting the peaked roof areas? Answer: Yes, ridge and soffit vents.

How does the parking layout work? Answer: Some of the parking spaces are tandem and would be assigned in pairs.

What day of the year are the shadow studies performed for? Answer: September 21st.

How has the shadow study influenced the design? Answer: The study shows minimal impact on neighbours and across the street so has not influenced the design a great deal.

Are the unit entrances all from the courtyard? Answer: All but the ground floor units that are accessed directly from W. Queens Road.

How will the accessible parking space work? Answer: Intent is that this space would be available for the resident of one of the single-level units. A stair glide would be necessary to allow access to the unit.

Is it practical to consider use of a stair glide given the location of a closet at the top of the stairs? Answer: This could be problematic, and may require some re-design.

Given that most of the units are multi-level, how could accessibility be achieved in the units? Answer: There is the potential to frame in a shaft for a future elevator installation.

Does the waste disposal area open onto the sloped ramp and how will access to this area work? Answer: Yes, currently the area opens to the slope, but options are being explored to allow this area to function more efficiently.

How will unit entries be identified for First Responders? Answer: Each will be addressed, and there will be strobe lights at unit entries in the case of emergency.

What is the unidentified area in the basement parking area? Answer: Electrical and mechanical space.

Is the gate to the courtyard from W. Queens Road intended to be secured? Answer: Yes, and will be operated with a fob.

How will the Hardi-panel siding be fastened. Answer: Surface fasteners with colour matched trims.

The large windows would seem to imply a commercial glazing system – is this correct? Answer: no, the intent is to use vinyl-framed, residential windows.

The Chair thanked the applicant team for their clarifications and asked for comments from the District Urban Design Planner, Mr. Frank Ducote.

Mr. Ducote spoke on behalf of Mr. Alfonso Tejada, District Urban Designer, and delivered Mr. Tejada's comments for the Panel. Mr. Ducote commented that the project seems to be a good fit in terms of scale and built form relative to nearby uses, and maintains a residential character that is integrated with the slope of the site. As no material board was provided, clarification is needed on the finishes proposed. It was noted that the proposed glazed entrance canopies along W. Queens Road may be difficult to maintain, and not an appropriate treatment for the character of this street – a more traditional solid design might be more appropriate. Finally, it was noted that a streetscape elevation showing the projects to east and west, would help in demonstrating the relationship of the proposed building to the existing buildings.

The Chair thanked Mr. Ducote for the comments and asked the Panel members for their observations on the proposal.

It was suggested that while the handling of the density on site as well as the stepping of the building appears to be positive, there is a lack of clarity in terms of the project details and the relationship of the project to its site and to surrounding development. It was noted that project review would benefit significantly from the use of a physical model.

There was a request for more detail as to how the elements of the building will interface with each other, as the renderings do not appear to show these elements clearly, including texture of finishes, and window material choices. It was noted that the proposed dormers work as elements to create a rhythm for the design, but the elements between the dormers seem to interrupt this rhythm.

It was suggested that the proposed complex rooflines would require very careful detailing, including appropriate gutters and rainwater leaders. It was recommended that simplification of the roof design could help eliminate some of these challenging details.

A comment was made with regard to the appearance of quality of the project – the cultured stone cladding on the W. Queens Road elevation does not continue to the courtyard elevations or the south elevation which are primarily Hardi-plank. It was suggested that these material choices could compromise the overall aesthetic quality of the building, and it was suggested that use of natural stone (rather than cultured) even if only in a small amount would assist in adding a sense of quality to the project.

A Panel member felt it was difficult to judge the project from a practical point of view in terms of how residents and visitors would access the courtyard and the individual unit entries, and a comment was made that unit identification is a serious safety issue that needs to be resolved for efficient access by First Responders.

Some concern was expressed regarding the unit entries in the courtyard, and it was suggested that these unit entries do not appear to be as successful as those fronting W. Queens Road, particularly with regard to a lack of privacy. In general, it was felt that individual unit entries appear poorly identified, and need to be resolved, particularly with regard to the use of a

consistent canopy feature and door style. It was recommended that the proposed glass roof entry features be revised.

A Panel member noted some concerns with the practicality of the parkade, and suggested that the tandem parking spaces may be awkward to use. Access to the bicycle storage room was also noted as problematic.

It was noted as unfortunate that none of the units lend themselves to being accessible, in terms of either internal layout or the access from the courtyard.

It was noted that the OCP Design Guidelines recommend that balcony areas be at least partly inset into the building mass, and that the proposed cantilevered balconies do not appear to be the most successful approach.

The Chair thanked the Panel for their comments and invited the applicant to respond.

Mr. Yamamoto thanked the Panel members for their comments and valuable input.

The Chair thanked the applicant team and invited the Panel to compose a motion.

MOVED by Kevin Hanvey and **SECONDED** by Tieg Martin:

THAT the ADP has reviewed the proposal and **SUPPORTS** the general concept but recommends revisions to the proposal and a further presentation to address the following:

- Provision of a physical model to show contextual information including relationships to adjacent properties.
- Further consideration of exterior material palette to include a review of greater variation in materials and colours, and resolution of exterior detailing.
- A review of opportunities for improved access to the courtyard units through the elimination of stairs.
- Consideration of treatment of unit entries for courtyard-accessed units to improve separation, privacy, and unit identity.
- An accurate representation of window system for W. Queens Road elevation.
- Re-visiting design of balcony elements for response to OCP Design Guideline provisions regarding inset balconies.
- Confirmation of Zoning Bylaw compliance and practical usability of parking garage layout, including bike parking and trash/recycling facilities.
- A clear demonstration of the proposed designs for fencing, planters and wall elements around all four sides of the project.
- A review of options for more clearly-identified courtyard access from the street, including visitor access to the project.

MOTION CARRIED

d) Workshop Item – Review of the need for models and 3-D Representations in development applications

Some discussion took place on the relative merits of models and 3-D representations, particularly with regard to the three applications that had been considered earlier in the meeting.

Panel members questioned what requirements are for other North Shore municipalities and staff advised that this information could be attained and reported to the Panel.

Given time constraints, it was agreed to table this item for consideration at the next meeting of the Panel.

4. OTHER BUSINESS

None

5. ADJOURNMENT

A motion was moved, seconded, and carried to adjourn the meeting.

The meeting adjourned at 9:50 p.m.

6. NEXT MEETING

December 11th, 2014

_____ _____
Chair Date

Diamond Head Consulting Ltd.
Arborist Report

For:

3730 Edgemont Boulevard
North Vancouver, BC

April 16, 2014
Updated March 25, 2015 to reflect changes from the District of North Vancouver

Submitted to:
Al Saunders
Harbourview Projects Corp.
400-38 Fell Avenue
North Vancouver, BC
V7P 3S2
Submitted by:

DIAMOND HEAD
CONSULTING LTD.

342 West 8th Avenue
Vancouver, BC
V5Y 3X2

SAFE CERTIFIED

The following Diamond Head Consulting staff performed the site visit and prepared the report. All general and professional liability insurance and individual accreditations have been provided below for reference.

Supervisor:

Registered Professional Forester (#3772)
Registered Professional Biologist (#1338)
ISA Certified Tree Risk Assessor (#0045)

Project Staff:

David Lishman BNRS, P.Ag, FIT
ISA Certified Arborist (PN7535A)
Certified Tree Risk Assessor (CTRA 1867)

This report summarizes the planned management of trees on the site. If there are any questions or concerns as to the contents of this report, please contact us at any time.

Contact Information

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Insurance Information

WCB:	# 657906 AQ (003)
General Liability:	Northbridge General Insurance Corporation - Policy #CBC1935506, $5,000,000 (Mar 2014 to Mar 2015)
Errors & Omissions:	Lloyds Underwriters – Policy #1010346D, $1,000,000 (June 2011 to June 2015)

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1.0 Introduction

Diamond Head Consulting Ltd. (DHC) was asked to complete an assessment of the trees on and adjacent to the following proposed development:

Civic address:	**3730 Edgemont Blvd, District of North Vancouver BC**
Project No.:	unknown
Client name:	Harbourview Projects Corps.
Date of site visit:	April 15, 2014
Weather during visit:	Overcast and rain

The objective of this report is to ensure the proposed development is in compliance with District of North Vancouver Bylaws that applies to tree retention. These requirements are covered in the Tree Protection Bylaw (#7671). Protected trees as defined by this bylaw include:

a. Any *tree* on land owned by or in the possession of the *District*, including, without limitation, a *tree* in a park or on a boulevard, road or lane allowance;
b. Any *tree* within a *protected area*;
c. Any *tree* on *sloping terrain*;
d. Any *replacement tree*;
e. Any *retained tree*;
f. Any *heritage tree*;
g. Any *wildlife tree*;
h. Any *tree* located on *wetland* or *waterfront*;
i. Any *tree* of the following species:
    i. Arbutus (*Arbutus menziesii*);
    ii. Garry Oak (*Quercus garryana*);
    iii. Oregon Ash (*Fraxinus* spp);
    iv. Pacific Yew (*Taxus brevifolia*);
    v. Western White Pine (*Pinus monticola*); or
    vi. Yellow-cedar (*Chamaecyparis nootkatensis*).

Replacement trees for the removal of large diameter trees (over 75cm) are required if the subject lot will have less than 20% canopy cover remaining after the removal of the large diameter tree. If the canopy cover is over 20% after the removal, no replacement tree is required.

- If the subject lot is less than 420 square meters in area, one replacement tree for every large-diameter tree must be planted.
- If the subject lot is over 420 square meters in area, three replacement trees for every large-diameter tree must be planted.

All trees (>20cm in diameter) on and immediately adjacent to the site were assessed, including: species, diameter at breast height (dbh) measured to the nearest 1 cm at 1.4 m above tree base, estimated height and general health and defects. Critical root zones were calculated for each of the trees with the potential for development impacts. Tree hazards were assessed according to

International Society of Arboriculture and WCB standards. Suitability for tree retention was evaluated based on the health of the trees and their location in relation to the proposed building envelopes and infrastructure.

1.1 Limits of Assignment

- Our investigation is based solely on our visual inspection of the trees on April 15, 2014. Our inspection was conducted from ground level. We did not conduct soil tests or root examination to assess the condition of the root system of the trees.
- This report does not provide any estimates to implement the proposed recommendations provided in this report.
- This report is valid for six months from the date of submission. Additional site visits and report revisions are required after this point to ensure accuracy of the report for the District's development permit application process.

1.2 Purpose and Use of Report

- Provide documentation pertaining to on and off site trees to supplement the proposed development permit application.

Figure 1. Location of site -3730 Edgemont Boulevard, District of North Vancouver.

2.0 Observations

2.1 Site Overview

This site currently consists of one lot with one residential complex with four separate apartments. The area is roughly 1946 m^2 in size. The site has an old asphalt road that borders the east and north sides of the property. The site is mostly composed of mature native conifer and deciduous species. Each apartment has a landscaped and maintained yard within the site. The by-law sized tree species within the lot consist primarily of Red Alder (*Alnus rubra*), Western Redcedar (*Thuja plicata*), Western Hemlock (*Tsuga heterophylla*), and Douglas-fir (*Pseudotsuga menziesii*) which are located throughout and adjacent to the site. A large number of both city and onsite trees along the Edgemont Boulevard have been repeatedly topped by BC Hydro for the powerlines. These trees are in poor condition. Tree attributes, critical root zones and recommendations for the trees are listed below in **Table 1**.

2.2 Tree Inventory

The following is an inventory of assessed trees, each of which was marked with a numbered tag as is required by the District Tree Bylaw. Tree species, characteristics, comments, recommendations and required root protection zones have been suggested (Table 1). Their locations are illustrated on the accompanying map. The following is a description of ratings used for Health and Structure and Tree Retention Suitability.

Overall Health and Structure Rating

Excellent = Tree of possible specimen quality, unique species or size with no discernible defects. Or a heritage tree.
Normal = These trees are in fair to good condition, considering its growing environment and species.
Poor = These trees have low vigour, with noted health and/or structural defects. This tree is starting to decline from its typical species growth habits.
Very poor = These trees are in serious decline from its typical growth habits, with multiple very definable health and/or structural defects.
Dead/Dying = These trees were found to be dead, and/or have severe defects and are in severe decline.
High Risk = These trees have been deemed hazardous by a Certified Tree Risk Assessor utilizing CTRA methods. They have a probability of failure of 3 or higher with a total overall risk rating of 8 (Moderate 3) or above.

Tree Retention Suitability Ratings

Unsuitable = Not suitable for retention in context of the proposed project design and land use changes. These trees have pre-existing health and structural defects. There is a significant chance that these trees will not survive or may become a hazard given the proposed future land use.
Moderate = These trees have moderate structural defects or health issues. The retention of this class of trees is not always successful or viable due to their pre-existing structural defects or health issues; however these trees may be viable for retention with the use of special measures.
Suitable = These trees have no obvious structural defects or health issues, and are worthy of consideration for retention in the proposed development.
Suitable as group = These trees have grown up in groups (groves) of other trees, and have not developed the type of trunk and root structure that will allow them to be safely retained on their own. These trees should only be retained in groups.

Tree Risk Assessment

Using the *Tree Risk Assessment in Urban Areas and the Urban/Rural Interface Release 1.4* manual, published by the International Society of Arboriculture, a Risk Rating out of 12 maximum points was given to the tree as shown in Table 2. The formula used was: **Probability of Failure + Size of Part + Target Area = Tree Risk Assessment (Rating).**

In the Tree Risk Assessment, the tree was rated as follows:

Probability of Failure = (1 low to 5 Extreme). This is the likelihood of branch or whole tree failure. One is the lowest possible score; five is the highest likelihood of tree part failure.

Size of Defective Part = (1 small to 3 large). This section identifies the largest part, which could fail. A part greater than 50 cm is given a rating of 3, a part between 10 and 50 cm is given a rating of 2 and all parts less than 10 cm are given a rating of 1.

Target Area = (1 low to 4 high). The target that the tree could strike is designated a value from 1 to 4 based on the potential to cause personal injury or damage structures and infrastructure.

A value for each of the three categories is assessed and added together in the Risk Rating calculation shown in Table 2. A score of 3-5 indicates a low risk, 6-8 is a moderate risk, 9-11 is a high risk and 12 indicates an extreme risk; this level warrants immediate tree removal. A risk category assigning ranges to the three levels of risk is also provided. Please refer to the table in Appendix 1 for detailed information on interpretation and implications of risk ratings and categories.

2.3 Photographs

Photo 1. Many of the trees along Edgemont boulevard have been previously topped for BC Hydro.

Photo 2. View of the site from the driveway.

Photo 3. View of the site facing north.

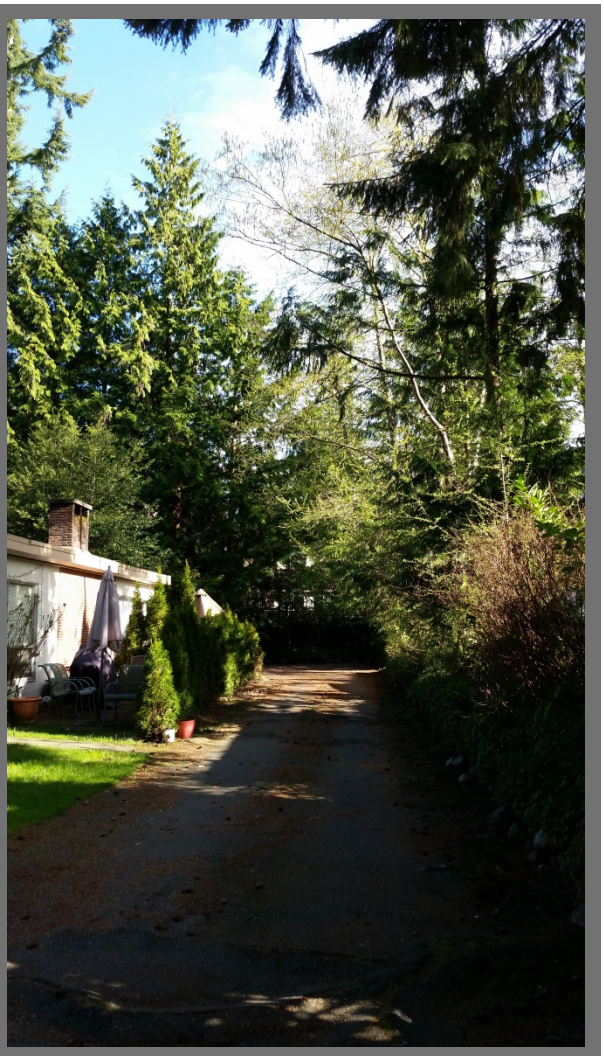

Photo 4. A row of Western Redcedars line the north east corner of the lot.

Tree Inventory Table

Table 1. Tree Inventory.

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Root Protection Zone (m)
4217	Douglas-fir	*Pseudotsuga menziesii*	59	28	Poor	Suitable as group	Growing on raised area. Next to rock wall. Roots breaking through driveway and have caused damage to roots. Retain with 4218	Remove		3.5
4218	Douglas-fir	*Pseudotsuga menziesii*	70	28	Poor	Suitable as group	Growing on raised area. Next to rock wall. Roots breaking through driveway and have caused damage to roots. Retain with 4217	Remove		4.2
4219	Western Hemlock	*Tsuga heterophylla*	36	12	Very poor	Unsuitable	Previously topped for power lines. Poor form and decay in top of stem.	Remove		2.2
4221	Cypress	*Chamaecyparis nootkatensis*	96	20	Very poor	Moderate	4 stems at 2m; 28, 68cm. Multiple tops at 7m. Growing 2m from driveway.	Remove		5.8
4222	Cypress	*Chamaecyparis nootkatensis*	67	20	Very poor	Moderate	2 stems at base; 30cm, 37cm. 1 stem topped for powerlines.	Remove		4
4223	Western Redcedar	*Thuja plicata*	37	7	Very poor	Moderate	2 stems at base; 25cm, 12cm. Topped for powerlines.	Remove		2.2
4225	Western Redcedar	*Thuja plicata*	39	12	Very poor	Moderate	Topped for powerlines,	Remove		2.3
4226	Western Hemlock	*Tsuga heterophylla*	41	13	Very poor	Moderate	Topped for powerlines. Decay in top.	Remove		2.5
4227	Cypress	*Chamaecyparis nootkatensis*	86	18	Very poor	Moderate	4 stems at 1m; 29 cm, 42 cm, 26 cm, 20 cm. 1 stem removed and large scar remaining.	Remove		5.8

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Root Protection Zone (m)
4228	Cypress	*Chamaecyparis nootkatensis*	30	5	Very poor	Unsuitable	6 stems at base; 12 cm, 15 cm, 13 cm. Main stem gone removed. Topped for powerlines	Remove		1.8
4229	Cypress	*Chamaecyparis nootkatensis*	51	15	Very poor	Unsuitable	Multiple tops at 4m with inclusion. Pruned for powerlines. Scar and decay in stem.	Remove		3.1
4230	Cypress	*Chamaecyparis nootkatensis*	69	15	Very poor	Unsuitable	2 stems at base; 43 cm, 26 cm. Topped for powerlines. Multiple tops at 3m.	Remove		4.1
4231	Holly	*Ilex aquifolium*	20	7	Very poor	Unsuitable	Multiple tops at 3m. Topped for powerlines. Shared with the District.	Remove		1.2
4232	Cypress	*Chamaecyparis nootkatensis*	31	7	Very poor	Unsuitable	2 stems at base; 21cm, 10cm. Topped for powerlines.	Remove		1.9
4233	Western Redcedar	*Thuja plicata*	25	9	Very poor	Unsuitable	2 stems at 3m. Topped for powerlines.	Remove		1.5
4234	Cypress	*Chamaecyparis nootkatensis*	50	12	Very poor	Unsuitable	2 stems at base; 25cm, 25cm. Topped for powerlines. Multiple tops that are still small.	Remove		3
4235	Western Redcedar	*Thuja plicata*	20	12	Very poor	Unsuitable	Growing 0.5 from rock wall. Topped for powerlines. Multiple tops that are still small	Remove		1.2
4238	Western Redcedar	*Thuja plicata*	43	12	Very poor	Unsuitable	3 stems at base; 18 cm, 10 cm, 15 cm. Topped for powerlines. Multiple tops that are still small. Shared tree with the District.	Remove		2.6
4239	Western Redcedar	*Thuja plicata*	27	12	Very poor	Unsuitable	Topped for powerlines. Multiple tops that are still small.	Remove		1.6
4240	Western Hemlock	*Tsuga heterophylla*	42	12	Very poor	Unsuitable	2 stems at base; 27 cm, 16 cm. Topped for powerlines, Multiple tops that are still small.	Remove		2.5
4241	Western Redcedar	*Thuja plicata*	39	12	Very poor	Unsuitable	Previously pruned and topped for powerlines. Multiple tops, still small.	Remove		2.3

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Root Protection Zone (m)
4245	Western Redcedar	*Thuja plicata*	22	12	Very poor	Unsuitable	Previously pruned and topped for powerlines. Multiple tops that are still small.	Remove		1.3
4246	Birch sp.	*Betula sp.*	32	4	Poor	Moderate	3 stems at base; 12 cm, 10 cm, 10 cm. Decay in stem. Birch cultivar.	Remove		1.9
4247	Western Redcedar	*Thuja plicata*	74	26	Poor	Moderate	2 stems at 3m with 1.5 inclusion. Large stems that are starting to push apart. Decrease height of one stem to retain.	Remove		4.4
4248	Mount-ain Ash	*Sorbus americana*	31	12	Poor	Unsuitable	2 stems at base, heavy inclusion; heavy decay in stems	Remove		1.9
4249	Douglas-fir	*Pseudotsuga menziesii*	44	15	Poor	Unsuitable	Previously topped with multiple new tops.	Remove		2.6
4250	Douglas-fir	*Pseudotsuga menziesii*	57	15	Normal	Suitable as group	Dbh estimate because debris at base. Heavy ivy on stem. Remove ivy.	Remove		3.4
4251	Western Redcedar	*Thuja plicata*	88	29	Normal	Suitable as group	Growing on top of small slope. Retain with group if possible. May not be windfirm by its self.	Remove		5.3
4252	Western Redcedar	*Thuja plicata*	65	27	Normal	Suitable as group	Growing on top of small slope. Retain with group if possible. May not be windfirm by its self. Crown raised to 6m.	Remove		3.9
4253	Western Hemlock	*Tsuga heterophylla*	120	35	Normal	Moderate	Next to pathway. 2 stems at 2m. Remove smaller stem. Minor damage to small roots from foot traffic.	Remove		7.2
4254	Douglas-fir	*Pseudotsuga menziesii*	100	35	Poor	Unsuitable	Shared tree. Dbh estimate because of fence. Dead ivy on stem and a high crown. Two large stems at 20m. At least 1.5m of included bark. **Strata permission required for removal.**	Remove		8.0
4255	Mount-ain Ash	*Sorbus americana*	22	10	Poor	Unsuitable	Heavy phototrophic lean. Multiple tops at 3m. 1 stem dead	Remove		1.3

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Root Protection Zone (m)
4256	Mountai n Ash	*Sorbus americana*	33	10	Very poor	Unsuitable	4 stems at base; 10 cm, 12 cm, 11cm. 2 stems dead. Decay in stem	Remove		2
4257	Western Redcedar	*Thuja plicata*	50	18	Poor	Moderate	2 stems at base; 25cm, 25cm. 1m inclusion. Growing in row.	Retain	Arborist supervision required for the removal of asphalt.	3
4258	Western Redcedar	*Thuja plicata*	34	18	Poor	Moderate	Growing in row	Retain	Arborist supervision required for the removal of asphalt.	2
4259	Western Redcedar	*Thuja plicata*	27	15	Poor	Moderate	3 tops at 4m. Growing in row	Retain	Arborist supervision required for the removal of asphalt.	1.6
4260	Western Redcedar	*Thuja plicata*	36	18	Poor	Moderate	Growing in row	Retain	Arborist supervision required for the removal of asphalt.	2.2
4261	Western Redcedar	*Thuja plicata*	75	23	Poor	Moderate	2 tops at 7m with 1.5m inclusion. Remove smaller stem. Growing in row.	Retain	Any excavations within the root protection zone will require the approval and supervision of an arborist. Excavation for underground garage is required to be vertical (no sloping of bank into root protection zone). Arborist supervision required for the removal of asphalt and replacement of retaining wall and construction of patio.	6.0
4262	Holly	*Ilex aquifolium*	38	5	Poor	Unsuitable	2 stems at base; 20 cm, 18 cm. Multiple tops at 3m. Growing 2m from house.	Remove		2.3
4263	Western Redcedar	*Thuja plicata*	40	16	Poor	Unsuitable	2 tops at 3m with a poor union. Growing in row. Pruning required to retain.	Retain	Arborist supervision required for the removal of asphalt.	2.4
Us hw	Western Hemlock	*Tsuga heterophylla*	18	9	Very poor	Unsuitable	Previously pruned and topped for powerlines. Multiple tops that are still small.	Remove		1
City 4220	Western Redcedar	*Thuja plicata*	62	12	Very poor	Moderate	4 stems at base; 22cm, 30cm, 10cm. Topped for powerlines.	Remove		3.7

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Root Protection Zone (m)
City 4224	Western Redcedar	*Thuja plicata*	42	12	Very poor	Moderate	2 stems at base; 28cm, 15cm. Topped for powerlines.	Remove		2.5
City 4236	Western Redcedar	*Thuja plicata*	3	12	Very poor	Unsuitable	Growing 1.5from rock wall, 2m from sidewalk; topped for powerlines,; Multiple tops, still small	Remove		0.2
City 4237	Western Hemlock	*Tsuga heterophylla*	25	12	Very poor	Unsuitable	1.5 m from sidewalk. Topped for powerlines. Multiple tops, still small	Remove		1.5
City 4242	Western Hemlock	*Tsuga heterophylla*	18	12	Very poor	Unsuitable	Previously pruned and topped for powerlines. Multiple tops that are still small.	Remove		1.1
City 4243	Western Redcedar	*Thuja plicata*	22	12	Very poor	Unsuitable	Previously pruned and topped for powerlines. Multiple tops that are still small.	Remove		1.3
City 4244	Western Hemlock	*Tsuga heterophylla*	35	12	Very poor	Unsuitable	Previously pruned and topped for powerlines. Multiple tops that are still small.	Remove		2.1
City 01	Katsura	*Cercidiphyllum japonicum*	15	8	Normal	Suitable	linden; planted in garden boulevard	Retain	Ensure tree protection fencing is at the appropriate distance from tree.	1.2
City 02	Katsura	*Cercidiphyllum japonicum*	12	8	Normal	Suitable	linden; planted in garden boulevard	Retain	Ensure tree protection fencing is at the appropriate distance from tree.	1.2
City 03	Katsura	*Cercidiphyllum japonicum*	12	8	Normal	Suitable	linden; planted in garden boulevard	Retain	Ensure tree protection fencing is at the appropriate distance from tree.	1.2
City 04	Katsura	*Cercidiphyllum japonicum*	12	8	Normal	Suitable	linden; planted in garden boulevard	Retain	Ensure tree protection fencing is at the appropriate distance from tree.	1.2

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Root Protection Zone (m)
OS01	Western Redcedar	*Thuja plicata*	70	22	Normal	Suitable	1m from fence	Retain	Any excavations within the root protection zone will require the approval and supervision of an arborist. Excavation for underground garage is required to be vertical (no sloping of bank into root protection zone). Arborist supervision required for the replacement of retaining wall and construction of patio.	4.2
OS02	Cypress	*Chamaecyparis nootkatensis*	25	13	Poor	Moderate	Located just offsite between 2 fences. 2 tops at 9m.	Retain	Ensure tree protection fencing is at the appropriate distance from tree.	1.5
OS03	Cypress	*Chamaecyparis nootkatensis*	35	15	Poor	Moderate	Located just offsite between 2 fences. 2 tops at 12m.	Retain	Ensure tree protection fencing is at the appropriate distance from tree.	2.1
OS04	Cypress	*Chamaecyparis nootkatensis*	17	6	Poor	Moderate	Located just offsite between 2 fences. 2 tops at 3m.	Retain	Ensure tree protection fencing is at the appropriate distance from tree.	1
OS05	Cypress	*Chamaecyparis nootkatensis*	18	6	Poor	Moderate	Located just offsite between 2 fences. 2 tops at 3m.	Retain	Ensure tree protection fencing is at the appropriate distance from tree.	1.1
OS06	Cypress	*Chamaecyparis nootkatensis*	18	6	Poor	Moderate	Located just offsite between 2 fences. 2 tops at 3m.	Retain	Ensure tree protection fencing is at the appropriate distance from tree.	1.1
OS07	Western Redcedar	*Thuja plicata*	15	6	Normal	Suitable	2m from fence. Not on survey.	Retain	No excavations east of the existing rock wall. Existing rock wall is to be carefully removed and new excavation will be required to be vertical (no sloping). Arborist supervision required for removal of rock wall and reconstruction of wall.	0.9
OS08	Red Alder	*Alnus rubra*	35	18	High risk	Unsuitable	Heavy decay in stem. Leaning over site. **Request permission to remove.** Spoke with owner, and he seems open to removal.	Remove	Large portion of the root protection zone located within proposed underground parking envelope.	2.1

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Root Protection Zone (m)
OS09	Western Redcedar	*Thuja plicata*	29	14	Normal	Moderate	Located 1m from driveway. **Request owner's permission to remove.**	Remove	Large portion of the root protection zone located within proposed underground parking envelope. Tree will be located in poor growing area next to asphalt and underground garage.	1.7
OS10	Red Alder	*Alnus rubra*	70	16	Poor	Unsuitable	2 stems at base; 35 cm, 35 cm. Growing on an elevated wall 1m from driveway. Will become an issue in the future. **Request owner's permission to remove.**	Remove	Large portion of the root protection zone located within proposed underground parking envelope.	4.2
OS11	Red Alder	*Alnus rubra*	40	16	Normal	Moderate	Growing on elevated wall 1m from driveway. No work to be completed past wall. Arborist supervision if wall is removed. **Request owner's permission to remove.**	Remove	Large portion of the root protection zone located within proposed underground parking envelope.	2.4
OS12	Western Redcedar	*Thuja plicata*	20	14	Normal	Moderate	Growing on elevated wall 1m from driveway. No work to be completed past wall. Arborist supervision if wall is removed. **Request owner's permission to remove.**	Remove	Large portion of the root protection zone located within proposed underground parking envelope. Tree will be located in poor growing area next to asphalt and underground garage.	1.2
OS13	Western Redcedar	*Thuja plicata*	20	14	Normal	Moderate	Growing on elevated wall 1m from driveway. No work to be completed past wall. Arborist supervision if wall is removed. **Request owner's permission to remove.**	Remove	Large portion of the root protection zone located within proposed underground parking envelope. Tree will be located in poor growing area next to asphalt and underground garage.	1.2
OS 1354	Douglas-fir	*Pseudotsuga menziesii*	59	30	Normal	Moderate	Located just offsite between 2 fences. Crown clean as there are large branches over driveway.	Retain		3.5

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Root Protection Zone (m)
OS14	Paper Birch	*Betula papyrifera*	10	10	Normal	Moderate	Growing on elevated wall 1m from driveway. No work to be completed past wall. Arborist supervision if wall is removed. **Request owner's permission to remove.**	Remove	Large portion of the root protection zone located within proposed underground parking envelope. Tree will be located in poor growing area next to asphalt and underground garage.	0.6
OS15	Western Redcedar	*Thuja plicata*	30	14	Normal	Moderate	Growing on elevated wall 1m from driveway. No work to be completed past wall. Arborist supervision if wall is removed. **Request owner's permission to remove.**	Remove	Large portion of the root protection zone located within proposed underground parking envelope. Tree will be located in poor growing area next to asphalt and underground garage.	1.8
OS16	Western Redcedar	*Thuja plicata*	10	5	Normal	Moderate	Growing on elevated wall 1m from driveway. No work to be completed past wall. Arborist supervision if wall is removed. **Request owner's permission to remove.**	Remove	Large portion of the root protection zone located within proposed underground parking envelope. Tree will be located in poor growing area next to asphalt and underground garage.	0.6
OS17	Douglas-fir	*Pseudotsuga menziesii*	120	35	Normal	Moderate	Large tree with large branches overhanging driveway. Roots are pushing through onsite driveway and growing into lawn. Owner wants tree removed. Will be heavily impacted by underground garage. **Owner's permission required for removal.**	Remove		9.0
OS18	Western Redcedar	*Thuja plicata*	6	4	Normal	Suitable	Not on survey.	Retain	No excavations east of the existing rock wall. Existing rock wall is to be carefully removed and new excavation will be required to be vertical (no sloping). Arborist supervision required for removal of rock wall and reconstruction of wall.	0.4

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/ Remove	Tree Retention Comments	Root Protection Zone (m)
OS19	Bitter Cherry	*Prunus emarginata*	5	6	Normal	Moderate	Growing on elevated wall 1m from driveway. No work to be completed past wall. Arborist supervision if wall is removed. **Owner's permission required for removal.**	Remove	Large portion of the root protection zone located within proposed underground parking envelope. Tree will be located in poor growing area next to asphalt and underground garage.	0.3
City Us cw	Western Redcedar	*Thuja plicata*	10	6	Very poor	Unsuitable	Previously pruned and topped for powerlines. Multiple tops that are still small.	Remove		1
City Us hw	Western Hemlock	*Tsuga heterophylla*	19	6	Very poor	Unsuitable	Previously pruned and topped for powerlines. Multiple tops that are still small.	Remove		1

Tree Risk Assessment Table

Only trees that had an overall risk rating of 9 (High 1) or above are included in the following table. The remainder of the trees on the subject site are a moderate risk rating or lower and are suitable for retention in their current land use and condition.

Table 2. Tree Risk Assessment.

Tag #	Common Name	Probability of Failure (1-5)	Size of Part (1-3)	Target Area (1-4)	Tree Risk Rating (3-12)	Tree Risk Category (Low 1-3/Mod 1-3/ High1-3/Extreme)	Action/ Comments
OS08	Red Alder	4	2	4	9	High 1	Remove Hazard Tree
4254	Douglas fir	3	2	4	9	High 1	Remove Hazard Tree

3.0 Summary and Discussion

The site inventory identified forty-one (41) trees on the subject site that are protected under the Tree Protection Bylaw. Thirty-five (35) trees are proposed to be removed for the development. One of these trees was found to be at a high risk of failing and will require removal. Six of these trees are over 75cm in diameter at breast height. There are nineteen (19) trees identified on adjacent properties that require protection (discussed below). The location of protected trees, their root protection zones as well as those trees to be removed have been illustrated on the accompanying map.

Currently there is approximately 40% canopy coverage and with the removal of 34 trees, the total canopy cover will be approximately 10% of the total subject lot. Six large diameter trees (>75cm dbh) are to be removed for the development, therefore eighteen (18) replacement trees will be required.

The development will require the removal of eleven (11) offsite trees and one shared tree (#4254). A small number of trees along the east property line could be retained during construction, but based upon the tree species and future growing conditions of the site, it is recommended that these trees are removed during construction. The neighbour's permission will be required for all removals of trees that are either shared or offsite. Only one of these trees is over 75cm in diameter. The replacement tree count includes the trees required for the removal of the shared tree (#4254), but it does not include trees for OS17. Three replacement trees will be required to be planted on the lot to the east. The location and species will have to be organized with the property owner.

The row of onsite and offsite trees located along the north property lines are to be retained as a visual buffer between the new development and existing structures. These trees are to be protected with tree protection fencing that should be installed outside the root protection zones of the trees. Arborist supervision is required for the removal of the existing asphalt driveway.

Tree OS01 and 4261 have proposed patios and retaining walls within their root protection zones. The extent of the patios and retaining wall has been reduced to limit the impact to the root protection zones. Arborist supervision is required for any work within the root protection zone.

The location of protected trees, their root protection zones as well as those trees to be removed have been illustrated on the accompanying map.

3.1 Tree Retention and Removal by Species

Table 3. Tree species on site summary.

Tree Species	Total Number of Trees	Total Retained	Total Removed
Birch sp.	1	0	1
Cypress	8	0	8
Douglas-fir	5	0	4

Holly	2	0	2
Mountain Ash	3	0	3
Western Hemlock	5	0	5
Western Redcedar	17	6	11
Total	**41**	**6**	**35**

Table 4. Tree species summary.

Species	On site	Off site	City	Total
Birch sp.	1			1
Paper Birch		1		1
Cypress	8	5		13
Douglas-fir	5	2		7
Holly	2			2
Mountain Ash	3			3
Western Hemlock	5		4	9
Western Redcedar	17	8	5	30
Bitter Cherry		1		1
Katsura			4	4
Red Alder		3		3
Total	**41**	**20**	**13**	**73**

4.0 Trees on Adjacent Properties

Eighteen trees and fourteen District owned trees found growing on the adjacent properties are included in the inventory and retention plan. Eleven offsite trees and nine District owned trees are recommended for removal as they have been previously topped numerous times for the powerlines. Permission from the District of North Vancouver is required for their removal. There are also multiple shared trees that will require permission if removed. One offsite tree (OS08) is a hazard tree and removal is recommended before construction starts. The owner's permission is required.

Neighboring trees to be retained will require protection where the root protection zone (RPZ) extends onto the development site. Root protection zones for the trees have provided within Table 1. Tree Inventory.

Photo 1. View of District owned trees along Edgemont Blvd.

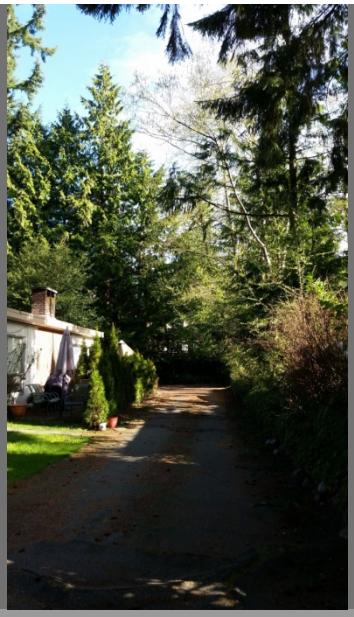

Photo 2. There is a row of trees east of the driveway that are off site and require protection.

5.0 Construction Guidelines

The following are recommendations for risk mitigation and proper tree protection during the construction phase of the project.

Tree Retention Zones

Six times the diameter was used to determine the optimal root protection zone (RPZ). The RPZ is the area around the tree in which no grading or construction activity may occur without project arborist approval, and is required for the tree to retain good health and vigor.

The following are tree preservation guidelines and standards for the RPZs:

- No soil disturbance or stripping;
- The natural grade shall be maintained within the protection zone;
- No storage, dumping of materials, parking, underground utilities or fires;
- Any plan affecting trees should be reviewed by a consultant including demolition, erosion control, improvement, utility, drainage, grading, landscape, and irrigation;
- Special foundations, footings and paving designs are required if within the tree protection zone;
- Utilities should be routed around the RPZ;
- Excavation within the tree protection zone should be supervised by a consulting arborist;
- Surface drainage should not be altered so as to direct water into or out of the RPZ; and
- Site drainage improvements should be designed to maintain the natural water table levels within the RPZ.

Respecting these guidelines will prevent changes to the soil and rooting conditions, wounding of the trees and contamination due to spills and waste. Any plans for work or activities within the RPZ that are contrary to these guidelines should be discussed with the project arborist so that mitigation measures can be implemented.

Tree Protection Fences

Prior to any construction activity on site, tree protection fences must be constructed at the specified distance from the tree trunks. The protection barrier or temporary fencing must be at least 1.2 m in height and constructed of 2 by 4 lumber with orange plastic mesh screening. This must be constructed prior to tree removal, excavation or construction and remain intact throughout the entire period of construction. Further standards for fencing construction can be found at:

http://www.dnv.org/upload/pcdocsdocuments/16kw01!.pdf

Regulation of Soil Moisture and Drainage

The excavation and construction activities adjacent to the RPZs can influence the moisture availability to the subject trees. This is due to a reduction in the total rooting mass, changes in drainage conditions and changes in exposure including reflected heat from adjacent hard surfaces. To mitigate these concerns the following guidelines should be followed:

- Soil moisture conditions within the tree protection zones should be monitored during hot and dry weather. When soil moisture conditions are dry, supplemental irrigation should be provided. Irrigation should wet the soil to the depth of the root system (approximately 30 cm deep).
- Any planned changes to the surface grades within the RPZ, including the placement of mulch, should be designed so that the water will flow away from the tree trunks.

- Excavation adjacent to trees can alter the soils hydrological processes by draining the water faster than it had naturally. It is recommended that when excavating within 6 m of any tree, the site be irrigated more frequently to account for this.

Tree Pruning

All heavy machinery (excavators, cranes, dump trucks, etc.) working within five meters of tree crowns should be made aware of their proximity to the tree. If there is to be a sustained period of machinery working within five meters of the tree crowns, a line with colored flags should be suspended at the height of the crowns along the length of the protected tree area. If there are concerns regarding the clearance required for machinery and workers within the tree protection zone, or just outside of it, the project arborist should be consulted so that a pruning prescription can be developed or a zone surrounding the crowns can be established. Any wounds incurred to the subject trees during construction should be reported to the project arborist immediately.

Fertilization

Fertilization and root zone enhancements may be recommended by the project arborist in any phase of the project if they deem it necessary to provide the best chance of tree survival.

Paving Within and Adjacent to Tree Protection Zones

If the development plans propose the construction of paved areas and/or retaining walls close to the proposed tree protection zones measures should be taken to minimize impacts. Construction of these features would raise concerns regarding proper aeration, drainage, irrigation and opportunities for adequate root growth. The following design and construction guidelines are recommended be followed to minimize the long-term impacts to trees if any paving or retaining walls are necessary:

- Any excavation activities near the TPZ (tree protection zone) should be monitored by a Certified Arborist. Excavation should remove and disturb as little of the rooting zone as possible and all roots greater than 2 cm in diameter should be hand pruned.
- The natural grade of the rooting zone should be maintained. Any retaining walls should be designed at heights that will maintain the existing grade to within 20 cm of its current level. If the grade is altered, it should be raised not reduced in height.
- The long-term health of the tree is directly dependent on the volume of available, below ground growing space. If the RPZ must be compromised, the planned distance of structures from the trunks of the subject trees should not be closer than 50% of the RPZ on more than two sides of the tree.
- Compaction of sub grade materials can cause the trees to develop shallow rooting systems. This can contribute to long-term damage to pavement surfaces as the roots grow. Minimizing the compaction of sub grade materials using structural soils and increasing the strength of the pavement reduces the reliance on sub grade for strength.

- If it is not possible to minimize the compaction of sub grade materials, subsurface barriers should be considered to help direct roots downward into the soil and prevent them from growing directly under the paved surfaces.

Plantings Within the TPZs

If there are plans to landscape the ground within the TPZ, measures should be taken to minimize impacts. It is not recommended that the existing grass layer be stripped, as this will damage the surface roots. The grass layer should be covered with mulch at the start of the project, which will gradually kill the grass while moderating soil moisture and temperatures. Topsoil should be mixed with the mulch prior to planting of shrubs; however the depth of this new topsoil layer should not exceed 20 cm. Planting should take place within the newly placed topsoil mixture and should not disturb the original rooting zone of the trees. Two meters around the base of each tree should be left unplanted and covered in mulch.

Monitoring During Construction

Ongoing monitoring should be provided for the duration of the project. Site visits should be more frequent during activities that are higher risk, including the first stages of construction when excavation occurs adjacent to the trees. Site visits will ensure contractors are respecting the recommended tree protection measures and will allow the arborist to identify any new concerns that may arise.

During each site visit the following measures will be assessed and reported on:

- The integrity of the Tree Protection Zone and fencing;
- Changes to TPZ limits including: overall maintenance, parking on roots, and storing or dumping of materials within TPZ. If failure to maintain and respect TPZ is observed, suggestions will be made to ensure tree protection measures are upheld;
- Review and confirmation of recommended tree maintenance including root pruning, irrigation, mulching and branch pruning;
- Health and condition of each tree;
- Damage to trees that may have resulted from construction activities will be noted, as will the health of branches, trunks and roots of protected trees. Recommendations for remediation will follow;
- Changes to soil moisture levels and drainage patterns; and
- Factors that may be detrimentally impact the trees.

All findings and recommendations will be documented in a summary report. All concerns will be highlighted along with recommended mitigation measures.

6.0 Limitations

1. Except as expressly set out in this report and in these Assumptions and Limiting Conditions, Diamond Head Consulting Ltd. ("**Diamond Head**") makes no guarantee, representation or warranty (express or implied) with regard to: this report; the findings, conclusions and recommendations contained herein; or the work referred to herein.

2. This report has been prepared, and the work undertaken in connection herewith has been conducted, by Diamond Head for the "**Client**" as stated in the report above. It is intended for the sole and exclusive use by the Client for the purpose(s) set out in this report. Any use of, reliance on or decisions made based on this report by any person other than the Client, or by the Client for any purpose other than the purpose(s) set out in this report, is the sole responsibility of, and at the sole risk of, such other person or the Client, as the case may be. Diamond Head accepts no liability or responsibility whatsoever for any losses, expenses, damages, fines, penalties or other harm (including without limitation financial or consequential effects on transactions or property values, and economic loss) that may be suffered or incurred by any person as a result of the use of or reliance on this report or the work referred to herein. The copying, distribution or publication of this report (except for the internal use of the Client) without the express written permission of Diamond Head (which consent may be withheld in Diamond Head's sole discretion) is prohibited. Diamond Head retains ownership of this report and all documents related thereto both generally and as instruments of professional service.

3. The findings, conclusions and recommendations made in this report reflect Diamond Head's best professional judgment in light of the information available at the time of preparation. This report has been prepared in a manner consistent with the level of care and skill normally exercised by arborists currently practicing under similar conditions in a similar geographic area and for specific application to the trees subject to this report as at the date of this report. Except as expressly stated in this report, the findings, conclusions and recommendations set out in this report are valid for the day on which the assessment leading to such findings, conclusions and recommendations was conducted. If generally accepted assessment techniques or prevailing professional standards and best practices change at a future date, modifications to the findings, conclusions, and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification if generally accepted assessment techniques and prevailing professional standards and best practices change.

4. Conditions affecting the trees subject to this report (the "**Conditions**", including without limitation structural defects, scars, decay, fungal fruiting bodies, evidence of insect attack, discoloured foliage, condition of root structures, the degree and direction of lean, the general condition of the tree(s) and the surrounding site, and the proximity of property and people) other than those expressly addressed in this

report may exist. Unless otherwise stated: information contained in this report covers only those Conditions and trees at the time of inspection; and the inspection is limited to visual examination of such Conditions and trees without dissection, excavation, probing or coring. While every effort has been made to ensure that the trees recommended for retention are both healthy and safe, no guarantees, representations or warranties are made (express or implied) that those trees will remain standing or will not fail. The Client acknowledges that it is both professionally and practically impossible to predict with absolute certainty the behaviour of any single tree, or groups of trees, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential for failure and this risk can only be eliminated if the risk is removed. If Conditions change or if additional information becomes available at a future date, modifications to the findings, conclusions, and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification of Conditions change or additional information becomes available.

5. Nothing in this report is intended to constitute or provide a legal opinion, and Diamond Head expressly disclaims any responsibility for matters legal in nature (including, without limitation, matters relating to title and ownership of real or personal property and matters relating to cultural and heritage values). Diamond Head makes no guarantee, representation or warranty (express or implied) as to the requirements of or compliance with applicable laws, rules, regulations, or policies established by federal, provincial, local government or First Nations bodies (collectively, "**Government Bodies**") or as to the availability of licenses, permits or authorizations of any Government Body. Revisions to any regulatory standards (including by-laws, policies, guidelines an any similar directions of a Government Bodies in effect from time to time) referred to in this report may be expected over time. As a result, modifications to the findings, conclusions and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification if any such regulatory standard is revised.

6. Diamond Head shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.

7. In preparing this report, Diamond Head has relied in good faith on information provided by certain persons, Government Bodies, government registries and agents and representatives of each of the foregoing, and Diamond Head assumes that such information is true, correct and accurate in all material respects. Diamond Head accepts no responsibility for any deficiency, misinterpretations or fraudulent acts of or information provided by such persons, bodies, registries, agents and representatives.

8. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.

9. Loss or alteration of any part of this report invalidates the entire report.

7.0 Appendix 1 – Overall risk rating and action thresholds

The Overall Risk Rating and Action Thresholds

Risk Rating	*Risk Category*	*Interpretation and Implications*
3	Low 1	Insignificant - no concern at all.
4	Low 2	Insignificant - very minor issues.
5	Low 3	Insignificant - minor issues not of concern for many years yet.
6	Moderate 1	Some issues but nothing that is likely to cause any problems for another 10 years or more.
7	Moderate 2	Well defined issues - retain and monitor. Not expected to be a problem for at least another 5 - 10 years.
8	Moderate 3	Well defined issues - retain and monitor. Not expected to be a problem for at least another 1 - 5 years.
9	High 1	The assessed issues have now become very clear. The tree can still reasonably be retained as it is not likely to fall apart right away, but it must now be monitored annually. At this stage it may be reasonable for the risk manager/owner to hold public education sessions to inform people of the issues and prepare them for the reality that part or the entire tree has to be removed.
10	High 2	The assessed issues have now become very clear. The probability of failure is now getting serious, or the target rating and/or site context have changed such that mitigation measures should now be on a schedule with a clearly defined timeline for action. There may still be time to inform the public of the work being planned, but there is not enough time to protracted discussion about whether or not there are alternative options available.
11	High 3	The tree, or a part of it has reached a stage where it could fail at any time. **Action to mitigate the risk is required within weeks rather than months.** By this stage there is not time to hold public meetings to discuss the issue. Risk reduction is a clearly defined issue and although the owner may wish to inform the public of the planned work, he/she should get on with it to avoid clearly foreseeable liabilities.
12	Extreme	This tree, or a part of it, is in the process of failing. **Immediate action is required.** All other, less significant tree work should be suspended, and roads or work areas should be closed off, until the risk issues have been mitigated. This might be as simple as removing the critical part, drastically reducing overall tree height, or taking the tree down and cordoning off the area until final clean up, or complete removal can be accomplished. The immediate action required is to ensure that the clearly identified risk of harm is eliminated. For areas hit by severe storms, where many extreme risk trees can occur, drastic pruning and/or partial tree removals, followed bv barriers to contain traffic, would be an acceptable first stage of risk reduction. There is no time to inform people or worry about public concerns. Clearly defined safety issues preclude further discussion.

The Table shown above outlines the interpretation and implications of the risk ratings and associated risk categories. This table is provided to inform the reader about these risk categories so that they can better understand any risk abatement recommendations made in the risk assessment report.

8.0 Appendix A - Requirement for Tree Protection Barrier as per Tree-Protection Bylaw 7671

8. A person performing *work* on lands containing one or more *retained trees* shall:

a) install a *tree protection barrier* around any *retained tree* or group of *retained tree*s at the *drip line* of the outermost *tree*, the outside boundary of the *critical root zone* of the outermost *tree*, or 5 metres from the stem of the outermost *tree*, whichever is greatest;

b) ensure that such *tree protection barrier* is constructed of chain link or plywood fastened to solid wood or equivalent framing with railings along the tops, sides and bottom, or is constructed of materials otherwise satisfactory to the *Environmental Protection Officer*;

c) display signage indicating that the area within the *tree protection barrier* is a "protection zone," and stating that no encroachment, storage of materials or *damage* to *trees* is permitted within the "protection zone;"

d) arrange for inspection by the *Environmental Protection Officer* before any *work* commences, and refrain from commencing *work* until the *Environmental Protection Officer* has approved the *tree protection barrier*; and

e) ensure that the *tree protection barrier* remains in place until written approval of its removal is received from the *Environmental Protection Officer*.

9. No *work* is permitted within the "protection zone" referred to in section 11(c)except in accordance with plans and procedures authorized by a *tree permit*.

RDH
Making Buildings Better

224 W 8th Avenue
Vancouver, BC V5Y 1N5

604 873 1181
rdh.com

TO **Mr. Stefan Elmitt**
EMAIL **stefan@harbourviewprojects.ca**
Harbourview Projects Corp.
400 - 38 Fell Avenue
North Vancouver BC V7P 3S2

9012.000
3730 Edgemont
Building Enclosure
Consulting Services

DATE March 24, 2015

REGARDING **District of North Vancouver Green Building Checklist for Rezoning, Development Permit and Building Permit Applications**

Dear Mr. Elmitt,

In order to support a rezoning and development application, the developer is required to provide a checklist, confirming that the project, as designed will meet the energy performance baseline.

We are writing to confirm that RDH Building Engineered has been retained by Harbourview Projects to assist in meeting the energy efficiency and building enclosure requirements for the development located at 3730 Edgemont in North Vancouver. We understand that the project is scheduled to incorporate sufficient measures to meet the minimum Built Green 'Gold' level, plus a minimum energy performance of EnerGuide 80.

Please do not hesitate to contact the undersigned should you have any questions.

Yours truly,

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
W.S. KNOWLES
Mar 24/15

Warren Knowles P.Eng.
Managing Principal, Senior Building Science Specialist
wknowles@rdh.com
RDH Building Engineering Ltd.

encl.

SCANNED
Doc # _____

CREUS Engineering Ltd

200 – 901 W 16TH ST NORTH VANCOUVER, BC V7P 1R2
P: 604-987-9070 F: 604-987-9071 www.creus.ca

Civil Engineers & Project Managers

2-April- 2015

File No. 14235

Engineering Department,
District of North Vancouver Municipal Hall,
355 West Queens Ave
North Vancouver, BC,
V7N 4N5

Re: 3730-3736 Edgemont Boulevard

The following is in regards to the redevelopment of the residential lots at 3730-3736 Edgemont Boulevard. This memo address the perimeter drainage and groundwater. The perimeter drainage is anticipated to collect a maximum of 0.08 l/s during the winter months and essentially nil during drier months based on the geotechnical report from Davies Geotechnical inc March 17th 2015.

The 450mm storm sewer in Edgemont Boulevard which services the site will convey a flow of 210 l/s at a flow depth of 46% of the pipe diameter during the 1:10 year design flow event. Discharging the perimeter drainage to this sewer would increase flows to the pipe by less than 0.04% which is considered to be negligible.

The site is located between Capilano River and Mackay Creek, which are both quite significant watercourses. 0.8 l/s is a negligible flow rate compared to the baseflows of these creeks. The geotechnical report also anticipates water collection from the perimeter drain to be essentially nil during the drier months, therefore the perimeter drainage collection would have essentially no impact on the baseflows of the creek during drier months.

CREUS Engineering Ltd.

Keith Kelly P.Eng.

Date: April 2, 2015

To: **Office of McFarlane Biggar**
301-1825 QUEBEC ST
VANCOUVER BC V5T 2Z3

Attn: Michael Townshend

Project: 3730 Edgemont Blvd, North Vancouver
Project No: L109

Re: Geotechnical Report and Letter

Mr. Townshend,

Please find enclosed the following documents for the project noted above:

- three (3) signed and sealed Geotechnical Reports, and
- three (3) signed and sealed letters regarding building drainage and pumping flow rate.

We trust that this meets your current requirements. If you have any question, comments, or require further documentation, please do not hesitate to contact us.

Sincerely,

Davies Geotechnical Inc.

Gwenda Davies
Office Administrator

604-395-2300
604-395-2301
admin@daviesgeotechnical.com

Enclosures (6)

DAVIES GEOTECHNICAL INC.
Suite 2 – 1520 Cliveden Ave. Delta, BC V3M 6J8 • Tel: 604-395-2300 Fax: 604-395-2301 • www.daviesgeotechnical.com

DGI

Date: March 17, 2015
Project No: L109

Harbourview Projects Corp
#400 – 38 Fell Avenue,
North Vancouver, B.C.
V7P 3S2

Re: Stefen Elmitt
Building Drainage and Pumping Flow Rates
Proposed Residential Townhouse Complex
3730 Edgemont Boulevard, North Vancouver, BC

As requested, Davies Geotechnical Inc. contacted the District of North Vancouver planning department with respect to the drainage design for the proposed development.

Based upon these discussions, it is our understanding that the District of North Vancouver has a policy of not allowing the pumping of groundwater to the storm sewer system. It is my understanding that the objectives of this policy are to minimize the impact of development upon the base water flows within the nearby creeks and to minimize the impact to the District of North Vancouver infrastructure. Based upon my discussion with the District of North Vancouver, a variance from this policy can be considered. The purpose of this letter is to define in more detail the soil and groundwater conditions encountered at the site and our interpretation of the potential impacts of pumping a minor amount of water during to the storm sewer system during the winter months.

The results of our site investigation indicated that the near surface soils consist of dense to very dense silty sand to sandy silt interlayered with sand layers. It is our interpretation that these soils represent glacially deposited soils. Observations made at the time of drilling, and within our laboratory, indicated that the majority of the profile within the upper 9.0 meters consists of silty sand to sandy silt that was found to be moist. Our experience with these soils indicates that they are virtually impermeable. Thin layers of more permeable soils were encountered sandwiched between these impermeable layers. Data gathered to date indicated that that these more permeable layers contain water with pore pressure equivalent to a water table at a depth of 1.5 meters below grade. It is our expectation that the water flow within these thin layers is seasonal, and that during the drier months of the year, water will not be encountered

within these thin layers. Given the interbedded nature of the soil profile at the site we anticipate that multiple "water tables" would develop during the wet winter months. These would include a perched water table on top of the impermeable soils at depth of 1.5 meters below grade, as well as, water bearing zones within the interlayered deposit.

It is our expectation that the water collected within the perimeter drain system for the proposed development will intercept the perched water at the top of the impermeable soil layer, as would a single family residence with a basement, and a the minor amount of flow that would be conducted through the thin water bearing layers sandwiched between the impermeable zones. The results of our steady state seepage flow analysis completed using Seep/W, indicated that the flow rate pumped during the winter months would be approximately 1.3 gallons per minute or 5 liters per minute. During the drier months of the year we expect that the pumping rate would essentially be nil. It is our opinion that the predicted pumping rates would have little impact upon the flows within the nearby creeks.

We trust that the information provided meets your current requirements. If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

PROFESSIONAL
PROVINCE OF
P. A. DAVIES
20563
BRITISH COLUMBIA
ENGINEER

DAVIES GEOTECHNICAL INC.
Paul A. Davies, P. Eng., Principal
PD

DGI

Date: Jan 23, 2015
Project No: L109

Harbourview Projects Corp
#400 – 38 Fell Avenue,
North Vancouver, B.C.
V7P 3S2

Re: Stefen Elmitt
Geotechnical Report
Proposed Residential Townhouse Complex
3730 Edgemont Boulevard, North Vancouver, BC

In response to your request, Davies Geotechnical Inc. has completed a subsurface investigation at 3730 Edgemont Boulevard, in North Vancouver, BC.

The purpose of our work was to gather site-specific information regarding soil and groundwater conditions to enable Davies Geotechnical Inc. to provide recommendations regarding the geotechnical aspects of the design and construction of the proposed townhouse complex. This geotechnical report provides a summary of the site conditions and soil stratigraphy observed during the investigation and provides recommendations regarding site preparation, foundation design, basement wall design, perimeter backfill, drainage, and seismic design parameters.

Attached to this report are the following figures:

- Bore hole Location Plan
- Bore hole Logs (BH#1 and BH#2)
- Lateral Pressures for Basement Wall Design

1.0 SITE DESCRIPTION

The site is in a residential neighbourhood in North Vancouver, and is bounded to the south by Edgemont Blvd, to the north and east by residential properties, and to the west by Edgemont Road.

Currently the site contains a single storey townhouse complex with on grade covered parking for each of the four units in the complex. There is a lawn bordered by small hedges and trees along all sides of the property.

In general, the site is flat with elevations ranging from 94 meters in the north down to 91.75 meters in the south. The average slope of the property is 3.9 degrees.

2.0 PROPOSED DEVELOPMENT

Review of the architectural drawings prepared by Office of McFarlane Biggar Architects and Designers indicates that the development will involve the construction of two storey townhomes with one level of underground parking. The top of slab elevation for the lowest level, based on the architectural datum, is shown as 89 meters.

Along the south side (Edgemont Boulevard), the east side, the north side, and the west side (Edgemont Road), there will be patios and landscaping features such as small walls, planters and water features. On the south east corner next to an existing residential property will be the parking garage entrance and exit ramp exiting onto the Edgemont Boulevard.

It is anticipated that the excavation for this site will range in depth between 3.7 meters and 5.5 meters with the deepest excavation located on the northwest side of the building.

3.0 SUBSURFACE INVESTIGATION

Davies Geotechnical Inc. conducted a geotechnical investigation on November 6, 2014, which included the completion of an underground utility locate, two air rotary bore holes and the installation of one piezometer monitoring well. The test holes were located on the north and south east sides of the existing building within the asphalt driveway. The first and second boreholes were drilled to depths of 9.75 meters and 6.7 meters below grade respectively.

A standpipe was installed at borehole BH-1 to monitor water levels. This piezometer was screened between depths of 9.8 meters and 4.6 meters, and was sealed between 4.6 meters and the ground surface.

The approximate locations of the two boreholes are shown on the borehole location plan attached to this report.

For each soil layer encountered, representative soil samples were collected for further visual classification in our soil laboratory. Moisture content testing was completed for select samples. The soil identification and sampling work was completed by qualified staff from Davies Geotechnical Inc.

4.0 SUBSURFACE CONDITIONS

A review of the Geologic Survey of Canada Map 1486A indicated that this site is primarily underlain at shallow depth by Capilano Sediments consisting of raised marine, deltaic, and fluvial deposits with raised deltaic and channel fill medium sand to cobble gravel up to 15 m thick deposited by proglacial streams and commonly underlain by silty to silty clay loam.

The results of the site investigation confirmed that subsurface conditions at the site conform to the geologic conditions provided in the Geologic Survey of Canada maps.

Based on the testhole information collected during the site investigation, the following generalized soil profile has been prepared.

Thickness (m.)	Soil Description
1.5	Brown, SAND, some silt, some cobbles, compact, dry to moist.
1.5	Tan/gray, silty SAND, some gravel, dense, moist to wet.
1.5 - 3.0	Gray/tan SILT, some sand, trace gravel, very dense, moist.
1.5 – 2.1	Gray/tan, SAND, trace silt, very dense, saturated.
1.5	Dark gray, SILT, some sand, very dense, dry.
To depth of investigation	Gray, coarse SAND, some gravel, very dense, saturated.

Ground water was observed within the open testholes at a depth of 1.6 meters below grade. The results of the site investigation indicated that the subsurface soils are highly layered with layers of low permeability and layers of moderate to high permeability.

5.0 COMMENTS AND RECOMMENDATIONS

5.1 Site Preparation

The results of the site investigation indicate that this site is underlain by very dense natural soils at depths of 3.0 meters below existing grade. Consequently the proposed structures can be founded on conventional strip and pad footings.

Temporary shoring will be required along the east, and west sides of the required excavation and a small western portion of the north side. It should be noted that minor vertical and lateral ground deformations in close proximity to any excavation can be expected. An encroachment agreement with the city of North Vancouver, as well as, the neighbouring property owners to the east and northwest will be required prior to the installation of temporary soil anchors.

Along the south side of the excavation, temporary slopes should be excavated at 1V:1H.

The results of preliminary water level monitoring indicate that the proposed basement will be below the measured water table. We anticipate that temporary dewatering will be required in order to maintain a relatively dry excavation. We anticipate that this dewatering can be achieved by the use of a pumped sump, installed in the base of the excavation.

5.2 Foundation Design

The soil conditions at the expected footing elevation generally consist of sandy silt soils which are competent and therefore, the structure can be founded on conventional strip and spread foundations.

Footings should have a minimum width of 0.4 meters and should be founded a minimum of 0.46 meters below grade or adjacent top of slab elevation.

The serviceability limit states design bearing pressure for foundations is evaluated based upon an acceptable factor of safety against bearing failure and a deflection criteria typically established by the structural consultant. Typically, the deflection criteria established for the types of structures contemplated at the subject site are in the order of 19 mm of maximum settlement at the column locations with differential settlements between columns in the order of 10 mm.

Utilizing procedures by Schmertmann and soil stiffness values derived from STP testing in sandy soils, Davies Geotechnical Inc. estimated footing deflections to be less than 19 mm at a working pressure of 287 kPa, for square footings with a width less than 1.8 meters and 200 kPa for strip footings.

Based upon this analysis it is recommended that foundations be designed with a serviceability limit states bearing pressure of 191 kPa. for strip footings and 287 kPa. for pad footings of width less than 1.8 meters.

The factored ultimate limit states bearing pressure can be estimated as 286 kPa for strip footings and 430 kPa for pad footings.

The design bearing pressures presented within this report are based upon the foundation subgrade consisting of very dense silty sand soil free from soft, loose or deleterious soils, or ponded water. The sandy soils are sensitive to softening or disturbance when exposed to moisture, therefore, if construction is to proceed during wet weather conditions, consideration should be given to blinding of bearing surfaces with a skim coat of 19 mm clear crushed gravel.

The design recommendations provided in this report may be used for design, subject to field review and confirmation by the geotechnical engineer during construction. All foundation areas should be inspected and approved by the geotechnical engineer prior to pouring.

5.3 Floor Slabs

The floor slabs for the proposed building may be constructed with slab on grade, supported by the dense native soils and/or well compacted structural fill (if required) compacted in lifts to at least 95% of the Modified Proctor Maximum dry density, in accordance with ASTM D 1557.

We recommend the placement of a 0.15 meter thick drainage layer consisting of 19 mm clear crushed gravel beneath the floor slabs in order to create a capillary break, which will protect the floor slab from exposure to moisture. This clear crush gravel layer should be hydraulically connected to the perimeter drainage system.

Structural fill, should consist of well graded sand and gravel with less than 5% passing the # 200 sieve (silt and clay content of less than 5%) and be compacted to at least 95% of the Modified Proctor Maximum dry density, in accordance with ASTM D 1557.

5.4 Basement Wall Design

Basement walls will have to be designed to resist the applicable lateral pressures associated with earth pressure, hydrostatic pressure (if any), surcharge loadings, compaction loadings, and seismic loads. Attached to this report is a lateral earth pressure diagram providing the design pressure diagrams for both static loading and static plus seismic loading. The following assumptions were made by Davies Geotechnical Inc. in the provision of the attached lateral earth pressure diagram.

- The backfill adjacent to the proposed basement is free draining and, therefore, there are no hydrostatic water pressures.
- Backfill is granular in nature and is compacted in lifts to at least 95% of the Modified Proctor Maximum dry density, in accordance with ASTM D 1557.
- Grades adjacent to the proposed building are flat and level for a distance at least equivalent to the wall height.
- The basement is provided with a perimeter drain system connected to a suitable discharge point.
- The basement is free to rotate at the top of the wall equivalent to 0.002 times the wall height, allowing mobilization of the peak shear strength of the backfill adjacent to the basement wall.
- The maximum surface horizontal acceleration a=0.426g (NBCC 2010) (k_h=0.7*PGA)

In the case where all of the above noted conditions are not satisfied, the geotechnical engineer should complete a specific assessment of lateral earth pressure loading for design.

5.5 Perimeter Backfill and Drainage

To ensure there is no build-up of hydrostatic pressure against basement walls, backfill around the perimeter of the below grade parking should consist of 12 mm to 19 mm clear crushed gravel.

The proposed foundation wall will be constructed within 100 mm of the property lines in some areas and consequently it will not be possible to install a conventional drainage system consisting of a chimney of free draining gravel, connected to a perforated pipe. In order to provide the necessary drainage, we recommend the installation of full coverage of a geocomposite drainage system, such as Mira-Drain. The geocomposite drainage layer should be installed in compliance with the manufacturer's specifications. Weep holes should be installed around the perimeter of the basement walls at a spacing of 2.4 meters horizontally. A perimeter drain should then be installed inside the perimeter walls to collect water from the geocomposite drainage system and direct it to a suitable discharge point. These drains should consist of a perforated plastic pipe surrounded by drain gravel and wrapped with filter fabric and connected to the city storm system.

A perimeter drain should be provided below the lowest slab level for all below grade portions of the building. These drains should consist of a 100 mm diameter perforated plastic pipe surrounded by drain gravel and connected to the city storm system or a suitable discharge point. A 0.3 meter thick, 19 mm clear crushed drainage chimney should be provided against the basement walls and should be hydraulically connected to the footing drains to prevent hydrostatic pressure build up.

The results of a seepage flow analysis indicated that pumping rates for the proposed below grade parking would be very minor at a rate of 5 liters per minute.

5.6 Seismic Design Parameters

The site is located in a seismically active area where the effects of a major earthquake must be considered for design. The BC Building Code (BCBC, 2012) specifies the design earthquake as a magnitude 7 earthquake with a 2% chance of exceedance in 50 years or a 2475 year return period. The peak hard ground acceleration associated with the design earthquake is anticipated to be 0.426g.

The subsurface conditions on site generally consist of very dense soils which are not susceptible to strength or stiffness loss during cyclic loading. Based on the soil conditions, this site should be considered a Class "C" site, as defined by BCBC (2012).

6.0 CLOSURE

Davies Geotechnical Inc. has prepared a geotechnical report for the proposed multi-family development to be constructed at 3730 Edgemont Boulevard in North Vancouver, BC.

We recommend that, prior to tender, the geotechnical engineer review all design documents and specifications.

In order to satisfy the requirements of the building schedules, Davies Geotechnical Inc. will be required to complete field reviews during the construction process. These field reviews will include the following:

- Inspection and testing of shoring
- Inspection of subgrade conditions beneath all structures prior to the placement of concrete
- Review of the compaction of subgrade fills and structural fills
- Inspection of the perimeter drainage

We trust that the information provided meets your current requirements. If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

DAVIES GEOTECHNICAL INC.
Ben Davies, EIT

Reviewed by:
Paul A. Davies, P. Eng., Principal
PD

Borehole location Plan (3730 Edgemont Blvd, North Vancouver, BC.)
Note: Bore hole locations are approximate.

BOREHOLE LOG - BH-1

SAMPLE DATA
WEIGHT HAMMER
HEIGHT DROP

ELEV. COLLAR :
ELEV. GROUND

COHESION - KPa: 100, 200, 300, 400
● FIELD VANE ▲ LAB VANE ■ UNCONF.

PLASTIC LIMIT X — WATER CONTENT —O— LIQUID LIMIT —X
10% 30% 50% 70% 90%

DEPTH	PEIZO.	SAMPLE TYPE	GCS	SOIL SYMBOL	DESCRIPTION OF MATERIAL	DCPT (PENETRATION RESISTANCE - BLOWS/FT. 0 20 40 60 80 100)	COHESION - KPa
(ft)/(m)							
			GM		Drilled Out - Brown, SAND, some silt, some cobbles, compact, dry to moist.		O - 8.5%
5.0 ft / 1.5m			SM		Tan, silty SAND, trace gravel, dense, dry.	20-19-20-18	O - 12.0%
10 ft / 3.0m					Tan/gray, SILT, some sand, trace to some gravel, dense, dry to moist.	20-21-23-33	O - 9.0%
15 ft / 4.6 m					Gray, sandy SILT, moist, very dense.	60 - REFUSAL	O - 12.0%
20 ft / 6.0m			SP		Gray, SAND, trace silt, very dense, saturated.	64 - REFUSAL	
					Gray, fine SAND, dense, saturated.		
25 ft / 7.6m			MH		Dark gray, SILT, some sand, very dense, dry.	REFUSAL	O - 8.8%
30 ft / 9.0 m			SP		Gray, coarse SAND, some gravel, very dense, saturated.	53 -57-REFUSAL	
					END OF INVESTIGATION 32'		
35 ft / 10.6m							
40 ft							

DGI

Davies Geotechnical Inc.

#2 - 1520 Cliveden Avenue, Delta, B.C. V3M 6J8
Tel 604-395-2300 Fax. 604-395-2301

JOB No.: L109
PROJECT: 3730 EDGEMONT BOULEVARD, NORTH VANCOUVER
LOCATION: 3730 EDGEMONT BOULEVARD, NORTH VANCOUVER
HOLE No.: BH-1
DATE: NOV14, 2014 PLATE: 1 of 2

BOREHOLE LOG - BH-2

SAMPLE DATA				SOIL SYMBOL	ELEV. COLLAR :		COHESION - KPa (100, 200, 300, 400) ● FIELD VANE ▲ LAB VANE ■ UNCONF.
WEIGHT HAMMER					ELEV. GROUND		
HEIGHT DROP						DCPT	PLASTIC LIMIT X — WATER CONTENT O — LIQUID LIMIT X
DEPTH	PEIZO.	SAMPLE TYPE	GCS		DESCRIPTION OF MATERIAL	PENETRATION RESISTANCE - BLOWS/FT. 0 20 40 60 80 100	10% 30% 50% 70% 90%
(ft)/(m)					Drilled Out - Brown, SAND, some silt, some cobbles, compact, dry to moist.		
5.0 ft					Gray, SAND, trace to some silt, compact, saturated.		O - 8.8%
1.5m					Gray, silty SAND, some gravel, dense, moist to wet.	17-22-18-REFUSAL	O - 11.5%
10 ft			SM				
3.0m					Gray, SILT, some sand, very dense, trace gravel, moist.	17-23-56-REFUSAL	O - 14.7%
							O - 11.3%
15 ft							
4.6 m					Tan/gray, fine SAND, trace to some silt, very dense, moist to wet.	26-26-REFUSAL	O - 20.3%
					Brown, gray, coarse SAND, some gravel, some silt, very dense, saturated.		
20 ft							
6.0m			SP		Gray, coarse SAND, trace silt, trace gravel, very dense, saturated.	REFUSAL	
					END OF INVESTIGATION 22'		
25 ft							
7.6m							
30 ft							
9.0 m							
35 ft							
10.6m							
40 ft							

DGI

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Tel 604-395-2300 Fax. 604-395-2301

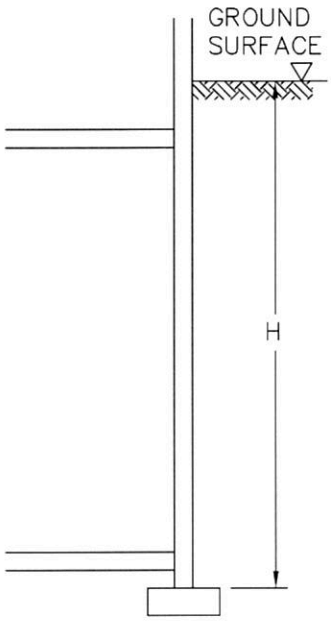
JOB No.: L109

PROJECT: 3730 EDGEMONT BOULEVARD, NORTH VANCOUVER

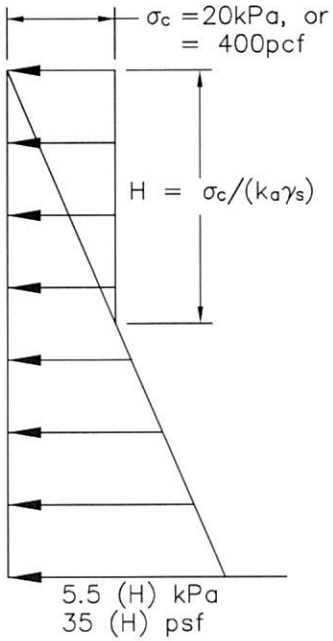
LOCATION: 3730 EDGEMONT BOULEVARD, NORTH VANCOUVER

HOLE No.: BH-2

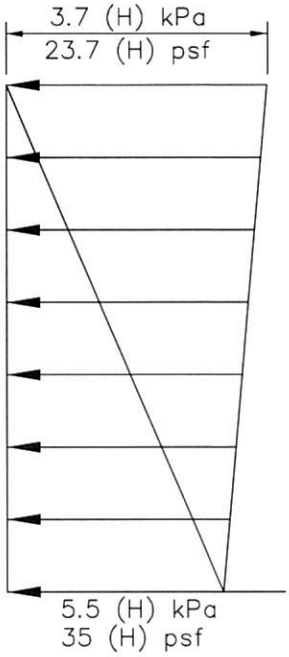
DATE: NOV14, 2014 PLATE: 2 of 2



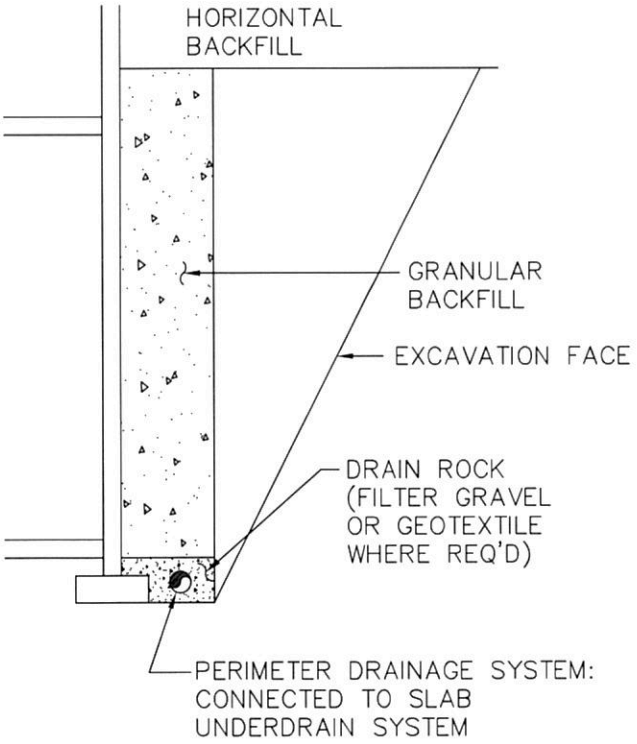
TYPICAL BASEMENT WALL



STATIC LOAD



SEISMIC+STATIC LOAD



NOTES: ASSUMPTIONS:

(1) Backfill is free draining, no hydrostatic pressure.

(2) Backfill and grade is flat and level adjacent to the building.

(3) Wall movements of 0.002 times H are possible at top of the wall.

(4) Peak surface acceleration = 0.426

(5) Backfill and/or native soil have friction angle greater than 35 degrees.

(6) No surchange loads within a horizontal distance equivalent to 50% of wall height.

- ALL METRIC UNITS IN (m) AND (kPa)
- ALL IMPERIAL UNITS IN (ft.) AND (psf)
- ABOVE SKETCHES ARE NOT TO SCALE

Davies Geotechnical Inc.

3730 EDGEMONT BLVD., NORTH VANCOUVER, BC	LATERAL PRESSURE FOR BASEMENT AND WALL DESIGN	Dwg by: BD	Date: 11/25/14
		Dwg: L109	

Harbourview Homes Corp Project – 3730 Edgemont Blvd

Public Information Meeting – December 9, 2014

Summary Notes

On December 9, 2014, Harbourview Homes Corp. hosted a Public Information Meeting at the Capilano Library in Edgemont Village, North Vancouver, regarding their proposed project at 3730 Edgemont Blvd. Approximately 31 members of the community were in attendance.

The meeting objectives were to:

- Provide an overview of the Harbourview Homes Corp. Project at 3730 Edgemont Blvd.
- Provide an opportunity for community input and comment on this project

Welcome and Project Presentation

Al Saunders, Partner at Harbourview Homes Corp., welcomed participants and introduced the project. Steve McFarlane of OMB provided an overview of the proposed site plan and building design and Bill Harrison of FORMA Design described the landscaping concept.

Question and Answer Session

Following the presentations, participants were invited to ask questions or offer comments on the project. The following questions, comments and issues were raised:

Questions of Clarification:

1. **Q1:** Surface water: On the north side of the property there is quite a lot of water near the surface; the site is quite soft, especially on the Edgemont Manor side. What is the plan to deal with that water?
   A1: There is a comprehensive geotechnical report that will set out recommendations to deal with that. As we get into the technical resolution of the project, we'll be mindful of that. There may need to be a swale to take some of that water out. There will be 2 or 3 areas of catchment to deal with that water. We have a number of options available to us.

2. **Q2:** Solar panels: Where will the solar panels go?
   A2: Beside the urban agriculture area on the volume that houses the parking ramp. The idea is to generate power for the lights in the public open space and common areas of the project.

3. **Q3:** Deck access: Can you explain the decks, for the north and south units. How do you get up there?
   A3: Each home has multiple opportunities for outdoor living. At grade, a south facing outdoor terrace and a north facing outdoor terrace. For the south units, there is a south-facing deck off of the second floor. For the north units, there is a roof-top deck, serviced by stairs from each unit (proper stair access). They are high enough that they'll look over the south unit roof tops which will have green roofs (planted roof).

4. **Q4:** Rezoning: What is requiring this to be rezoned?
   A4: This application is both for a rezone and a development permit. This project requires a rezoning to comprehensive development from residential multi-family. This allows us to work closely with the project team to address setbacks, heights and other site specific issues. For example, the setbacks at the northwest corner are a little farther back because that portion is adjacent to a green space while there is more separation between the eastern portion of the proposed building and the existing Edgemont Manor building.

5. **Q5:** Overhangs for wet weather: It doesn't appear that there are overhangs for any outdoor space. Will this affect usability in the wet season?
   A5: There are overhangs for the north and southern suites of 30-36". For the roof decks, there is an overhang at the stairwell. Residents can supplement this with umbrellas or other furniture. For the southern suites, for the lower area there is a 2 foot cantilever to provide protection for the windows. On the second floor deck of the southern suites there is a 3 foot overhang.

6. **Q6:** Roof top decks: On the roof top decks on the back units, what would be the height of a person standing on that deck in relation to the bedroom windows directly across from the Manor?
   A6: There is considerable tree cover between the buildings. The density of tree cover is fairly dense and is mostly coniferous so it will be green year round.

7. **Q7:** Shadow studies. I couldn't see the times on the slides.
   A7: 10 am, noon and 2 pm

Comments and Feedback on the Project:

8. **Comment:**

   Noise – Concern about impact of noise from outdoor areas on adjacent residents of Edgemont Manor. For example if people are entertaining on the rear patios or roof top decks.
   Trees in between proposed buildings and Edgemont Manor – I understand that they create a screen now, but how long will that screen be there in their current condition? They have been topped so I wonder how long they will live in order to provide that screen?
   Parking – I see that there is space for 2 cars under each unit, but in the Manor residents often can't park in their allocated spots because they store other things there. They would then need to park on Edgemont Blvd. There is little to no parking available on Edgemont, especially during the busy season at Capilano Suspension Bridge which creates heavy parking pressure on Edgemont. I am concerned about this as a parking and traffic issue.

9. **Q8:** Timeline: It's a nice looking development and I'd like to buy something there. When do you expect to start construction and how long would that take?
   A8: Expect all the permits to be in place next fall (2015) and then about a year in duration. So it will be at least 18-24 months for a finished product.

10. **Q9:** Floor space: I like the size of the units because it brings in families. But the building looks more like an office. It lacks the warmth I am looking for in a family home. Does the floor space that was quoted for the apartment units include the area below grade?
    A9: The FSR calculation does not include anything below grade. The 0.75 is for anything that is above grade. The unit size floor space includes the floor space of every level.

11. **Comment:** Power poles: If you look at that drawing over there, it is beautiful, but there are power poles along Edgemont. It's not a true rendering of what is there unless you are planning to put power lines underground. The Edgemont Manor wiring is all underground.
    Response: The other developments (Edgemont Seniors Living, Grosvenor Edgemont, Edgemont Manor) are all much bigger developments (60-100+ units) vs.

only 7 units here. While it would be highly desirable to underground these services, it is usually a matter of cost.

12. **Q10:** Large windows and water: I agree that the poles need to come out of there. It will be impractical to leave them there. I am also concerned about parking. I love how the buildings look with the modern architecture and I think it is in keeping with other styles in the community including the Manor. But I would like your perspective on the big windows that are unprotected. How are you proposing to protect the big windows only recessed by a couple of inches and the adjacent walls from water?
    A10: We don't want the building to leak any more than you do. Our livelihood depends on delivering a product where that doesn't happen. We are using a rain screen technology that has a very high level of sophistication and will be addressed at a detailed level. Wherever there are openings and doors, we have generous coverage. With the window conditions we are using a sophisticated level of envelope detailing. Overhangs are a viable alternative. We will be giving this much consideration going forward. We will also engage a building envelope consultant. This gives us checks and balances to our detailing as well as another set of eyes during construction.

13. **Q11:** Pre-weathered steel: Is the pre-weathered steel sealed or does it continue to weather? Does it continue to rust and would it run-off into the ground?
    A11: There are two approaches: it can be pre-weathered and sealed in the yard or it can be left to continue to weather. When it is left to weather, an alloy allows surface oxidation for awhile and then arrests or stops. If it is sealed it is smoother, and if it isn't it is rougher. An example can be seen at North Vancouver City Hall where we used this material. During the oxidation stage we need to be mindful of where the run-off will occur. The use of this material will extend into the landscape so those areas will be surrounded by pea gravel to prevent any staining.

14. **Q12:** Crosswalk: I love it. I think it looks beautiful. We live across the road on Edgemont. Where is the crosswalk going to line up and where is the street light going?
    A12: The District is working on the sidewalk at the moment. A decision has not been made yet. We are also in consultation with BC Hydro about the street lights.
    Comment: We would love to have the street light gone. We like the dark and private space at night.

15. **Comment:**

Roof top decks: I think is it great that the site is being redeveloped. But I have a couple of significant concerns. The major one is the roof top decks along the back. It will not be a benefit to the residents of the Manor behind. The shadow study shows that it will eliminate light from the kitchen/ family room areas of those Manor residences which is the only natural light to those units. By the time you put people up top on the roof decks with a wet bar and awnings, I wouldn't want that at all.
Encroachment of easement: I am also concerned about the encroachment on the easement at the driveway edge and the closeness to the driveway. It is broken up at the front, but there is a lot of visual bulk coming in to the Manor. Having a wall or building along the side – I'd have a concern about that. I think there are one too many units, but I know you need to make money. If there was one less unit, you could move things around a bit more.

16. **Comment:** Cross walk and storm drain: The location of the proposed crosswalk is at the same place as the storm drain.
Response: These are details that the engineering team is working through and will continue to work on.

17. **Comment**: Additional detailed drawings: I appreciate that it is early. It seems that the neighbours to the north and south would appreciate seeing additional drawings to give a little more detailed context. For example, if the steps up to the roof tops on the rear units don't line up with windows from the Manor units behind, then that will be helpful. It seems like things have been really thoughtfully considered, so it would be great to see how that lines up. You've talked a lot about respecting the entrance to the manner. It seems that there would be space to move the front 3 units over a bit to give a wider entrance to the driveway to Edgemont Manor. It seems like a lot of space for 3 little garden plots on the right.

18. **Q13:** Green roof maintenance: Regarding the roof gardens (green spaces), these provide a nice element relative to the roof patios at the back. Has the technology of maintaining and installing green roofs evolved such that drainage is secure and that maintenance won't become a substantial strata cost?
A13: The technology has advanced with living roofs. They are very light weight and shallow (4-6 inches), planted with sedums which are very low growing and light weight. The plants are grown in trays which can be replaced. You have to be able to get up to the roofs and they need to be inspected and maintained annually. This is a simplistic system that is employed for very good reasons. It also provides insulation so it helps with energy issues.

19. **Q14:** Sound-proofing: Six of the seven units have common walls. What additional work or consideration has been given to sound-proofing?
    A14: They will be constructed as double walls with a high degree of separation.

20. **Q15:** Unit sizes: I didn't hear the size of the units.
    A15: They are between 2400 to 2500 square feet for front units and 3000 to 3200 square feet for rear units. This includes the utility spaces downstairs but does not include the garage. It includes the heated spaces.

21. **Q16:** Heat source: What kind of heat are you using?
    A16: We are expecting gas-fired radiant hot water (in-floor) with a heat recovery ventilation system, with individual boilers. We are also expecting gas-fired on-demand hot water.

22. **Comment:** If you consider what the alternatives could be developed here without any consultation or public hearing, there could probably be 4-6 units (main houses and carriage houses). This seems like a very modest upgrade.

Next Steps and Closing Comments

Natasha Letchford, Community Planner with the DNV, outlined the next steps in this process. The next step for this project is for Council to receive First Reading, expected in February. This would be followed by a Public Hearing (probably in March) at which time residents are invited to come and speak to the project. Following the public hearing, second and third reading of the project will occur in the month or two following that (likely April or May).

Participants were reminded to submit comments via the written comment forms, email or fax to Natasha Letchford at the District of North Vancouver (nletchford@dnv.org) by mid-January 2015.

The Corporation of the District of North Vancouver

355 West Queens Road
North Van., BC V7N 4N5

COMMUNITY PLANNING

FACT SHEET

APPLICANT: Harbourview Homes

SITE: 3730 - 3736 Edgemont Boulevard

PROPOSAL: A rezoning and development permit application has been submitted by Harbourview Homes for 3730-3736 Edgemont Boulevard. The proposal is for seven two-storey townhomes. The units are all three bedroom units ranging in size from 2,418 sq.ft. to 3,210 sq.ft.

The development site is approximately 0.19 ha (0.48 acres) in size.

The existing zoning on this property is Multi-Family Residential (RM1) and the Official Community Plan (OCP) designates this site as "Residential Level 3: Attached Residential" which permits duplex, triplex, and attached row houses. The applicant is requesting that the property be rezoned to a new comprehensive development zone; there is no change requested to the OCP. The Floor Space Ratio (FSR) of 0.75 for this project is less than the maximum of 0.80 allowed under the OCP. (FSR is the ratio of floor area on the site to the area of the property.)

The proposal includes two underground vehicle parking spaces per unit plus two above ground visitor parking spaces for a total of 16 parking spaces. The underground parking will be accessed at the east side of the property off of Edgemont Boulevard. The application complies with District of North Vancouver parking requirements.

MUNICIPAL REVIEW: As part of the development review process, various municipal departments are reviewing the application to ensure compliance with municipal regulations. The project has been reviewed and conditionally endorsed by the DNV's Advisory Design Panel.

PROCESS: The application process is designed to ensure that local residents who may be affected by a development are informed early in the process so that their comments, and the comments of the local Community Association, may be considered and incorporated into the proposal. There will be an additional opportunity for public comment when Council considers the project.

If you have comments, please inform DNV Planning staff by completing the attached "Comments Sheet" at the Public Information Meeting or by forwarding it directly to the Community Planning Department by mail, by fax at 604-984-9683 or by email to nletchford@dnv.org. If you would like more information on this proposal, you are invited to call Natasha Letchford, District of North Vancouver Planner at (604) 990-2378 or email nletchford@dnv.org.