

Schedule A



2711 RODGERS CREEK

PELAGOS PROPERTIES | Development Permit 21-172

2711 RODGERS CREEK PL. DISTRICT OF WEST VANCOUVER

Nov. 2022

Nov. 2022

2711
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DP21-172

TABLE OF CONTENTS

Project Summary	4	Renderings	19	Appendix	36
Overview	5	Streetscape	20	Adaptable units	37
		Landscape Design	21	BuildGreen Project Checklist	38
Design Context	6			Energy Model Report	45
Site Photos	7				
Precedent Images	8	Development Permit Guideline Response	23		
		Sustainability Summary	24		
Design Concept	10	Response to Official Community Plan			
Proposed Building	11	& Guideline	27		
Site Characteristics & Building Sitting Rationale	12	Response to Rodgers Creek Area			
Form & Massing	13	Development Plan	33		
Concept Development	16	Response to CD-3 Zoning	35		
Materials & Color Palette	18				

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172



CIVIC ADDRESS:	2711 RODGERS CREEK PL, DISTRICT OF WEST VANCOUVER, BC
LEGAL DESCRIPTION:	LOT 1, DISTRICT OF LOT 816, GROUP 1, NEW WESTMINSTER DISTRICT. PLAN EPP 25820 PID: 029-690-340
ZONING:	CD-3
FAR AREA PROPOSED:	MAX. FAR: 36638.9SF 36637.5 SF (3403.73 SM)
SITE AREA:	36071 SF (0.83 ACRES) 3351 SM (0.34HA)
SITE COVERAGE PROPOSED:	MAX. 35% 27%
BUILDING HEIGHT PROPOSED:	MAX. 18.9 M 18.9 M 5 STOREY PLUS 3 BASEMENT
CONSTRUCTION:	CONCRETE
DWELLING COUNT PROPOSED:	MAX. ALLOWED 22 UNITS 19 RESIDENTIAL UNITS
BELOW GRADE PARKING:	32 RESIDENTIAL STALLS INCL. 1 HANDICAPPED STALL 3 VISITOR STALLS
BICYCLE PARKING:	38 RESIDENT SPACES PLUS 4 SHORT-TIME SPACES

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

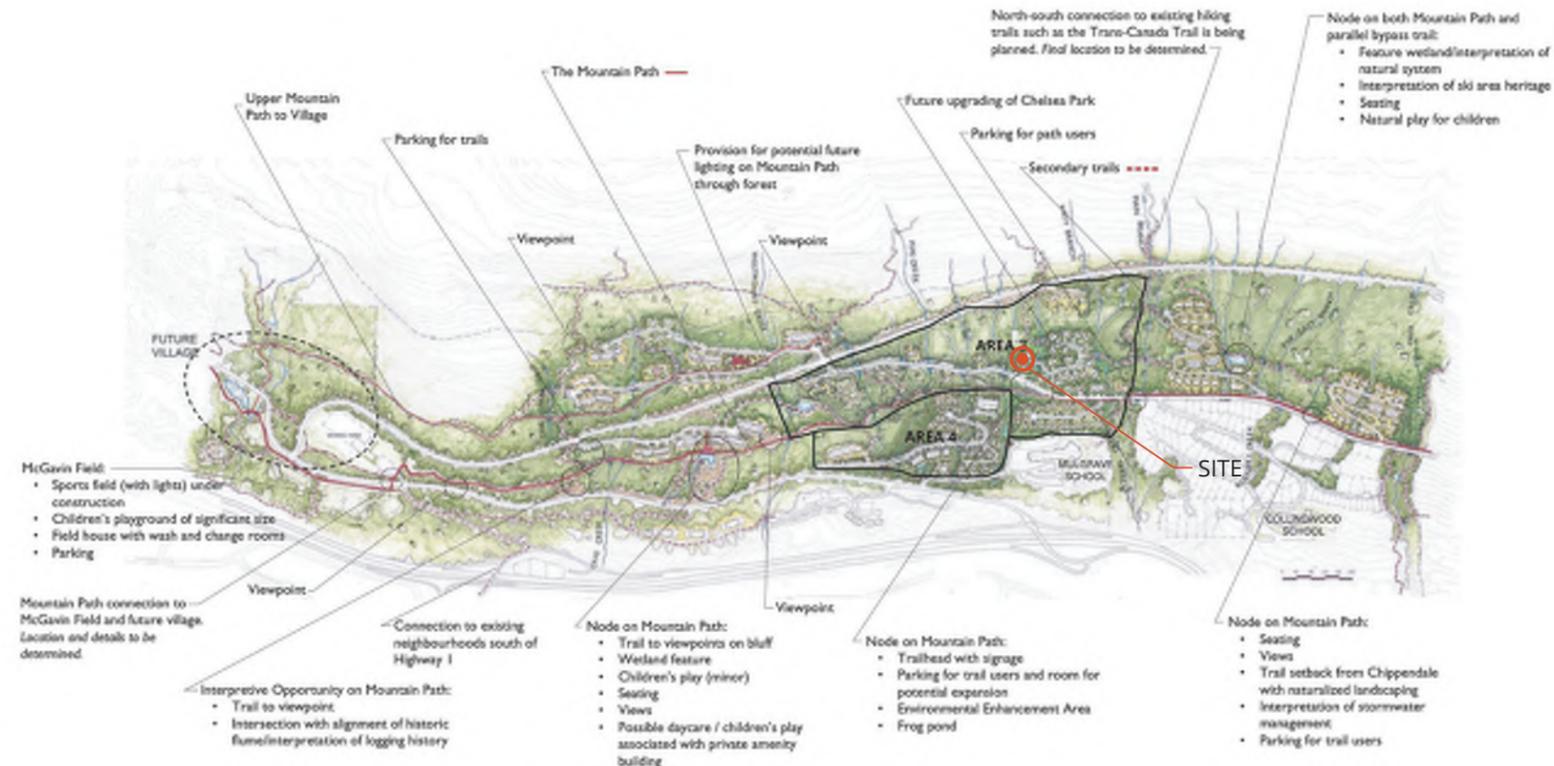
OVERVIEW

This submission is for a Development permit application by Pelagos Rodgers Creek for a residential building at the District of West Vancouver’s Mulgrave Neighborhood, also known as Rodgers Creek Area 3 East Lot 1. The site, named 2711 Rodgers Creek, locates at the edge of Area 3 and Area 3 East and the north side of Chippendale Road, the Mountain Path Trailhead Staging Area. The proposed project will bring multi-storey residential development to this great site and contribute to the growth path from the Chairlift neighbourhood to Cypress Mountain Area.

The Rodgers Creek Neighborhood is located on the slopes of Cypress Mountain on the North Shore of the Burrard Inlet, overlooking the City of Vancouver. The Cypress Bowl interchange off Highway 1 from the west, also accessed by Chippendale Road linking to Panorama and Canterbury Neighborhood from the east, is located roughly 15 minutes from Downtown Vancouver and an hour from Whistler.



This Mulgrave Neighborhood includes walking and cycling paths, public lookouts, wildlife conservation areas, playing fields and parks. Mulgrave secondary school is also located in this area, at the south side of Chippendale Road with a walkable distance through Rodger Creek Road and Cypress Bowl Ln. Rodgers Creek Area 4 Burfield Pl neighbourhood developments are to the southwest, and Chippendale road connection to Cypress Bowl Road is about 400 meter to the west.



Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

DESIGN CONTEXT

- 7 Site photos
- 8 Precedent Images

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

SITE PHOTOS



1 Existing harbor view from site



2 Existing view from site - to Chippendale west



3 Existing view from Rodgers Creek Place road to site



4 Existing view from Rodgers Creek Place Neighbourhood Lot 5.



5 Existing view from Chippendale Road to site



6 Existing view from Chippendale Road to west



7 Existing view from Chippendale Road to site



8 Existing view from Chippendale Road to site

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

PRECEDENT IMAGES

West Coast Contemporary Style, known for its expanded roof lines, modern linear simplicity, and large windows to bring the outdoors in, has been widely accepted in North and West Vancouver, with some of the most exciting architecture in Canada built since the 1940s.

Arthur Erickson, Fred Hollingsworth, Barry Downs and others developed a regional architecture that employs large, geometric designs with flat or low-pitched roofs, deep eaves and horizontal proportions who dominating the overall form. It most often incorporates lots of local materials, including warm wood tones, glass, stone, exposed architectural concrete and metal components and finishes as its predominant material palette. Local mild climate accommodated floor to ceiling glass, filling the interiors with natural light. Expanded form proportions were common at the horizontal direction with a roof overhang, deck and patio, for enwiden orientation to a natural view, landscape and daylight.

As a successful solution responding to local natural and cultural character, West Coast Contemporary Style has been kept developed in the past several decades. With construction technology and new materials development nowadays, as well as more and more important sustainability and green design demands, this simple and elegant contemporary style has integrated with new design trends that are innovative and adaptable for modest homes and larger, grander homes with great success.



Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

PRECEDENT IMAGES



Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

DESIGN CONCEPT

- 11 Proposed Building
- 12 Site Characteristics & Building Sitting Rationale
- 13 Form & Massing
- 16 Concept Development
- 18 Materials & Color Palette
- 19 Renderings
- 20 Streetscape
- 21 Landscape Design

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

PROPOSED BUILDING

The proposed building is 36637 sf and is made up of 5 above-grade Storeys plus 3 level basements, containing 19 Units facing mainly southeast solar light view. All 19 units are suitable for families with two or three bedrooms. 32 Residential parking stalls plus 3 visitor parking stalls will be provided, including 8 small cars and 1 H/C car stall.

The building proposes 19 units ranging from a 673sf one-bedroom apartment to a 2331sf 3 bedrooms. The design is inspired by West Coast Regional architecture. Strategies for sitting the building on the site and developing glazing patterns and building forms were inspired by current West Coast architects' integration of massing arrangement with site landscapes and respect to a beautiful harbour view. Flying balconies and generous overhangs respond

to the rainy climate, consistent with mid-century west coast modern design. The proposed building minimizes roof overhang slope to basic draining percentage and quadrilateral roofs' shape. By doing this, the proposed building creates an illusion-impression of normal low-pitched roof but performs better to contain snow in the winter.

QUADRILATERAL ROOF SHAPE CREATES ILLUSION OF INTERESTING SLOPING ROOF WHEN VIEWED FROM STREET LEVEL



Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

SITE CHARACTERISTICS & BUILDING SITTING RATIONALE

The 2711 Rodgers Creek Pl. development site is a steeply sloped cut land on the upper side of Chippendale Road and Rodgers Creek Place road, which cut into the topography along the southeast edge of the site, forming a steep cut slope of the earth with sporadically exposed bedrocks. The site grade ranges 40% - 60%, with quite steeper areas, particularly impacted by Rodgers Creek Place's cut slope. The site slopes steeply between elevations 270m / 886 ft and 298m / 978ft above sea level, 28 meter / 92 feet from south to north. And the proposed building is positioned to follow the contours and reduce site impact. This project is also a marker at the entrance to the upper Chippendale East Area 3 neighbourhood.

Chippendale Road is designated as a "connector road" in West Vancouver. As a result, traffic volumes and noise levels are considerable impacts on residential livability. The development site

is located at the intersection of Chippendale Road and Rodgers Creek Place.

This proposal has carefully considered how developing streetscapes along Chippendale Road and Rodgers Creek Place.

The 2008 Rodgers Creek Area Development Plan (RCADP) clearly states that cut and fill should be minimized. The diagrams in this page illustrate a comparison of the excavation amount needed to locate the building lobby level closer to the Rodgers Creek Place road, to the amount of excavation in this proposal, with raised building entry separated from traffic level and re-built sloped landscape streetscapes. Please note that the entry leveling option requires approx. 3 times the amount of excavation with considerable impact on the environment and cost of construction/affordability of proposed raised option.

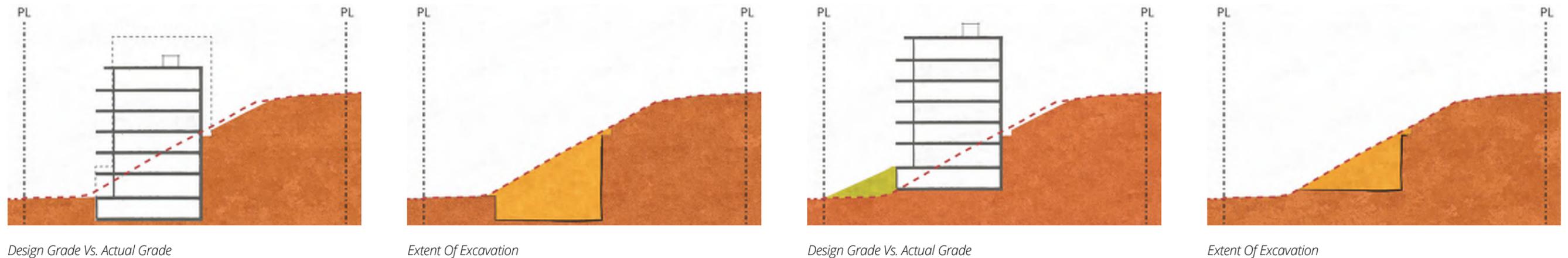


Slope Analysis of Rodgers Creek Area (RCADP, March 2008. p. 5)

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172



Design Grade Vs. Actual Grade

Extent Of Excavation

Design Grade Vs. Actual Grade

Extent Of Excavation

Option Leveling Entry Grade and Street Grade

Proposed Option Raising Entry Level Above Street Grade

FORM & MASSING

This development is sited for optimal sun exposure and orientated for outstanding views of the city, ocean, and across Stanley Park to Vancouver Downtown.

From Rodgers Creek Place, the access driveway leads directly to the parking level, with the shortest length and enough distance to the street crossing at Chippendale and Rodgers Creek Place. The raised location of the entry lobby separates people from vehicle routes and allows for unimpeded views to Burrard Inlet, Stanley Park, and the Downtown Vancouver skyline. A protected direct elevator from street level to lobby level provides easy accessibility. As an extension of the main lobby, a fitness center

offers a great view and interactive opportunity with a lobby and weather-protected arriving deck. The re-built sloped landscape at Chippendale and Rodgers Creek corner will be close to the original natural grading condition before Rodgers Creek Place road excavation and provide an appropriate green screen along Chippendale streetscape.

Design Response to DRC comments: Proposed building learns from current Rodgers Creek community multi-level residential projects. A wide and thin building mass is proposed to minimize the site disturbance, creating two wide facades (North and South) and two narrow facades (West and East). Articulating steps at

both narrower facades are employed to reduce apparent mass: penthouse level terraces on both sides, corner terrace at the east higher level, and improved mass design of balconies stepping back at the west higher level. Together with the developed wide south facade and diversified north facade, the improved building is sculpted and articulated to provide more public visual interest.



Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

FORM & MASSING

The building is served by two elevators located separately for east and west groups of residential units, accessed from the main lobby. Each elevator and lobby could contribute to being part of an 'elevator in suite' experience at a penthouse level. All residences feature glass doors opening onto extensive balconies or roof terraces, which orient the sun and ocean view. The outdoor spaces are designed as extensions of the indoors, with balconies and terraces edges angled as quadrilateral shapes, orienting more to the south and inlet shore, consistent with West Coast style architectural principles. The units will be finished with quality appliances, millwork and finishes. All master bedrooms include ensuite bathrooms.

The façade incorporates layers of the horizontal balcony, roof edges and window mullions contrasting with locally quarried stone features and warm wood-looking walls. Vertical elements are integrated into the facade to modulate the horizontal proportions and performed as balcony dividers. The shallow, wide building footprint is orientated to suit the existing topography, which helps minimize excavation and environmental disruption. In addition, the residential levels are cut back from parking floors, with top residential levels cut back further from the east and west end, which further reduces the building massing and creates generous balcony spaces and terraces.



Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172



FORM & MASSING

SITE VIEW ANALYSIS FROM NEIGHBOURHOOD: View from Rodgers Creek Area 3 East Lot 5 direction.



Proposed building photo-montage with site photo

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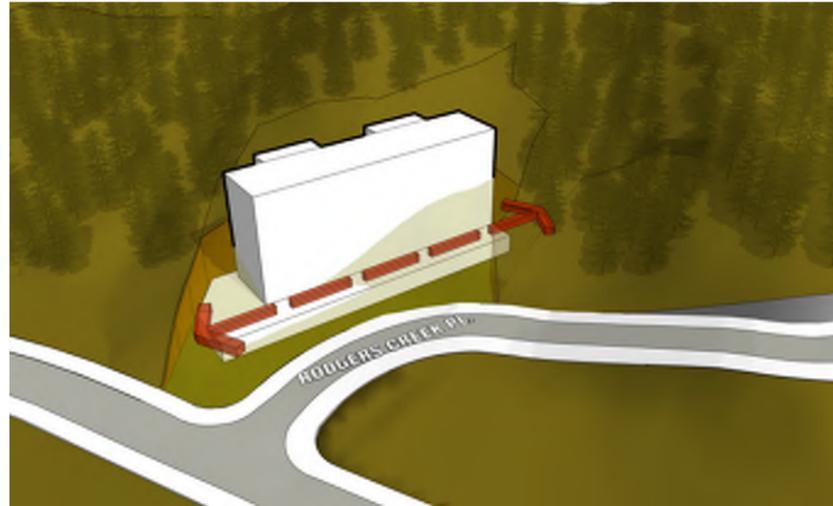
2711
Rodgers
Creek Pl.

DP21-172

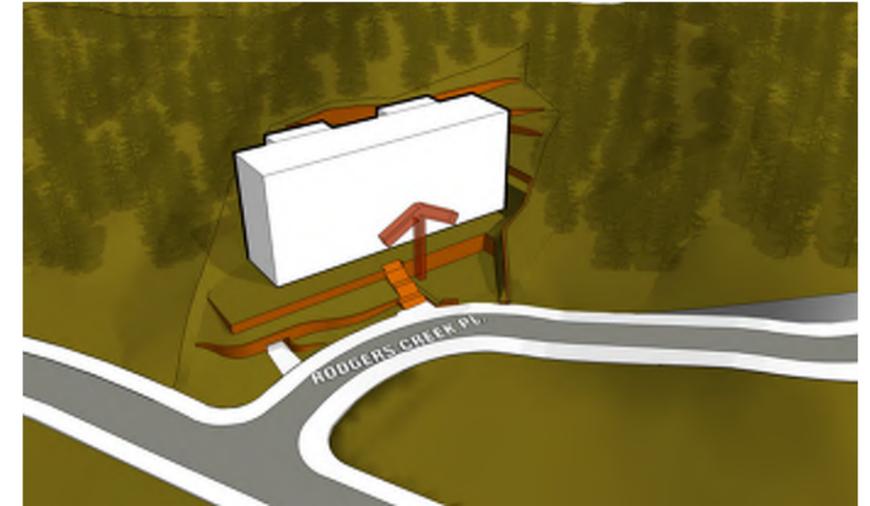
CONCEPT DEVELOPMENT



Steep topography and natural slope orientation: wide-open edge along Rodgers Creek Place direction with intrinsic Southeast view direction.



Shallow, wide building orienting along Rodgers Creek Pl. front road and contours is compatible with steep topography.

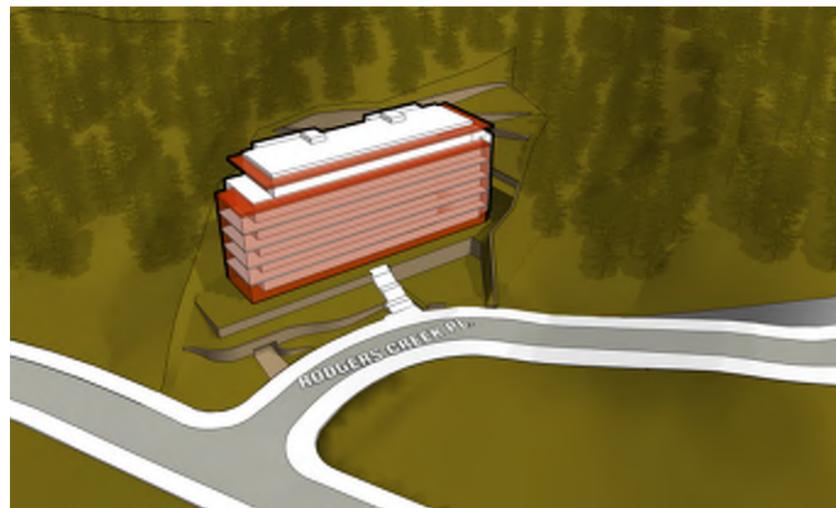


Balance building sitting geometry to reduce the amount of excavation and re-build landscape street-scape.

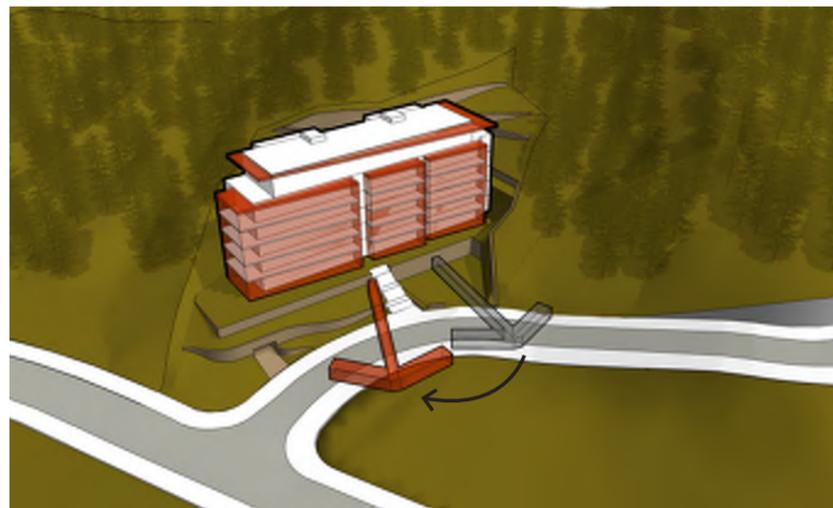
Nov. 2022

2711
Rodgers
Creek Pl.

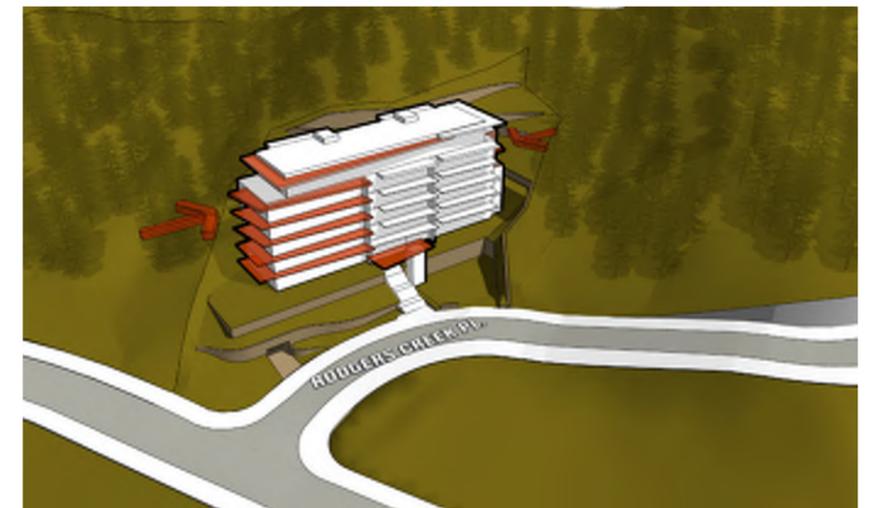
DP21-172



Articulate the building mass to step back from parking to residential floors and further at the top floor, with extensive balconies and overhangs for solar shade and weather protection.



Angle balcony and overhang edges to a 'rotated' direction of south and harbour views.



Quadrilateral roof shape creates illusion of interesting sloping roof when viewed from street level. Together with stepped back balconies at the east and west side provides more public visual interest.



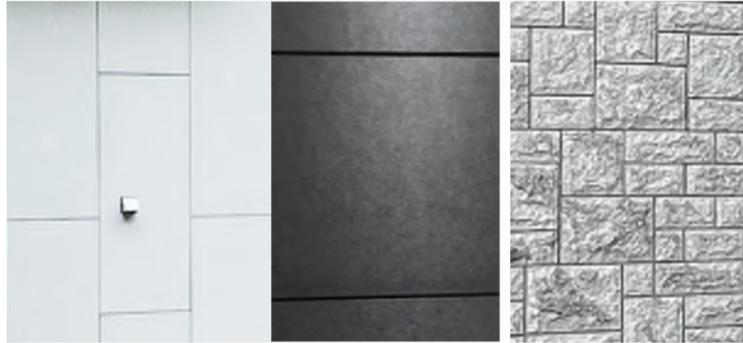
Proposed building axonometric

Nov. 2022

2711
Rodgers
Creek Pl.

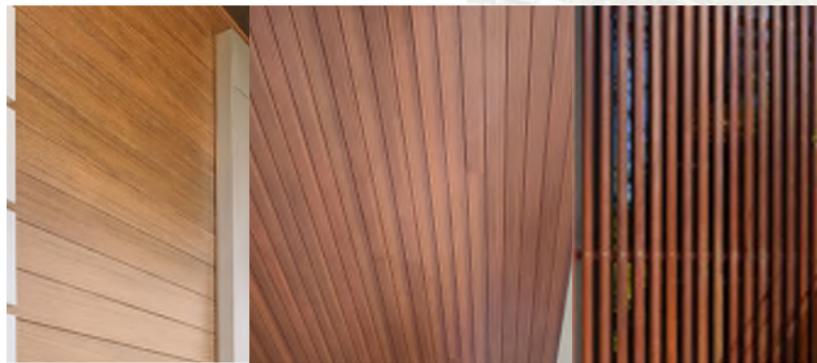
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MATERIAL & COLOR PALETTE



*Fiber-Reinforced
Cementitious Wall Panel
Non-Combustible - White, Charcoal*

*Random Ashlar
Granite Cladding*



*Architectural Exterior Metal Wall Panel, Soffit, Balcony Screen
Non-Combustible - Wood Tone*



Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172



*Glass Guardrail c/w Metal Post
& Railing*

Sloped Glass Entry Canopy

*Wood & Metal
Non-Combustible
Column &
Canopy Frames*

RENDERINGS



Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

STREETSCAPE

The proposed project aims to contribute to this developing neighbourhood with streetscapes that are active, engaging and with landscaping that maintains the “character and sense of connection that distinguish West Vancouver from other communities”. (Rodgers Creek: A History and Summary of the Area Development Plan)

This project nestles a 6-storey building within the mountain slopes above Rodgers Creek Place. This heavily sloped site also interfaces a sloping roadway, leading to the development of a terraced landscape approach. This project is first approached at the corner of Chippendale and Rodgers Creek Place where a small corner plaza provides seating against a rustic feature signage wall. Moving

up Rodgers Creek along the southeast facing frontage, the planting is used to obscure landscape walls, and soften the grade transition upwards towards the building. A grand entry stair with wood and glass overhang is the central focal point along the frontage. This stair intermingles with the landscape and is paired with an exterior elevator to meet accessibility requirements.

Just east of the entry is the front driveway and visitor parking spaces on a permeable stone-like paving. The drive aisle includes a flush walkway to prioritize the pedestrian and provide access to the parkade and east perimeter walkway stairs. To meet access requirements, a perimeter walkway wraps the usable portion of the site and connects back to Chippendale Road at the south

corner. Seating opportunities with lookouts to the ocean provide resting points along this walkway. Due to the challenges of the site slopes, especially on the south and east visible edges, the design utilizes the bylaw wall design requirements to achieve the maximum 8' tall walls while planting hedges and vines to obscure these faces.

Along the southeast frontage of the building, a common amenity room opens onto a generous patio with an ocean view. Similarly, resident units on the main podium level experience generous patios and floors above have balconies, each with an ocean view. The units also overlook the front landscape with low plantings and ornamental trees of Royal Star Magnolia, which will provide seasonal white flowers and bronze yellow fall colour.



Nov. 2022

2711
Rodgers
Creek Pl.

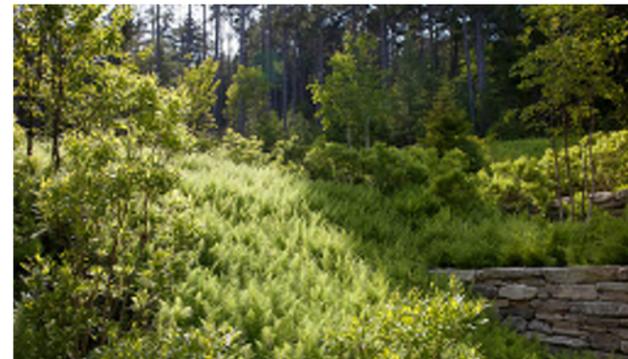
DP21-172



Frontage - Sloped massed Evergreen Planting



Evergreen & deciduous planting precedent



Rear Yard - Native planted slope and rock interface



Rear Yard - naturalized woodland margin

LANDSCAPE DESIGN

The rear yard is where the site unites with the mountain side. With a near 30 metre grade change across the site between the lowest front corner and highest rear corner, there is significant grade to be traversed. While the building acts to absorb a third of this grade, significant walls are required to make a residential project feasible. To ensure a more natural landscape feeling, we plan to implement walls that mimic the local mountain outcrops. A series of shotcrete walls extend across the rear yard. They have been laid out to maximize open space, naturalized planting, and to mimic cliff face steps. The walls consolidate into two walls in the middle, 7m and 3m tall respectively, at the pinch point between the building and tight rear property line, and then extend and diminish in fingers to create a low slope and naturalized terracing effect. While the shotcrete 'cliff' wall will be an appealing feature, windows at this tighter 7m tall wall location have been minimized by locating the stairwell here. The few units that face the largest wall, also enjoy longer views to the east side yard. The rear yard will see native ferns and other naturalized groundcovers as well as vine maples and a few more significant focal trees, such as Dogwood and Himalayan Birch.



Overall, the planting design follows the FireSmart guidelines, including plant selection, the locating of trees at least 3m from the building, and use of non-flammable hardscape materials within 1.5m of the building.



Architectural Shotcrete Wall - Large Rear Wall



Stacked Boulder - Frontage Retaining



C.I.P Concrete Wall - Planters & Project Sidewalls

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172



Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

DEVELOPMENT PERMIT GUIDELINE RESPONSE

- 24 Sustainability Summary
- 27 Response to Official Community Plan & Guidelines
- 33 Response to Rodgers Creek Area Development Plan
- 35 Response to CD-3 Zoning

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

SUSTAINABILITY SUMMARY

SUSTAINABILITY STRATEGY

TARGET: BuiltGreen Silver
(See also Appendix: BuiltGreen Checklist)

SUSTAINABLE DESIGN

Design a building that will have minimal impact on the local and global environment and meet the intent of the Green Building Strategy outlined in the Rodgers Creek Area Development Plan Overview Report, March 7, 2008.

RESPONSE: As a BC Energy Code Step 2 Plus Low Carbon project, proposed building is carefully oriented to take advantage of the site, available sun exposure and prevailing breezes. It is designed to incorporate energy-conserving features and systems, reduce energy and resource use, and reduce greenhouse gas emissions.

ORIENTATION AND DESIGN

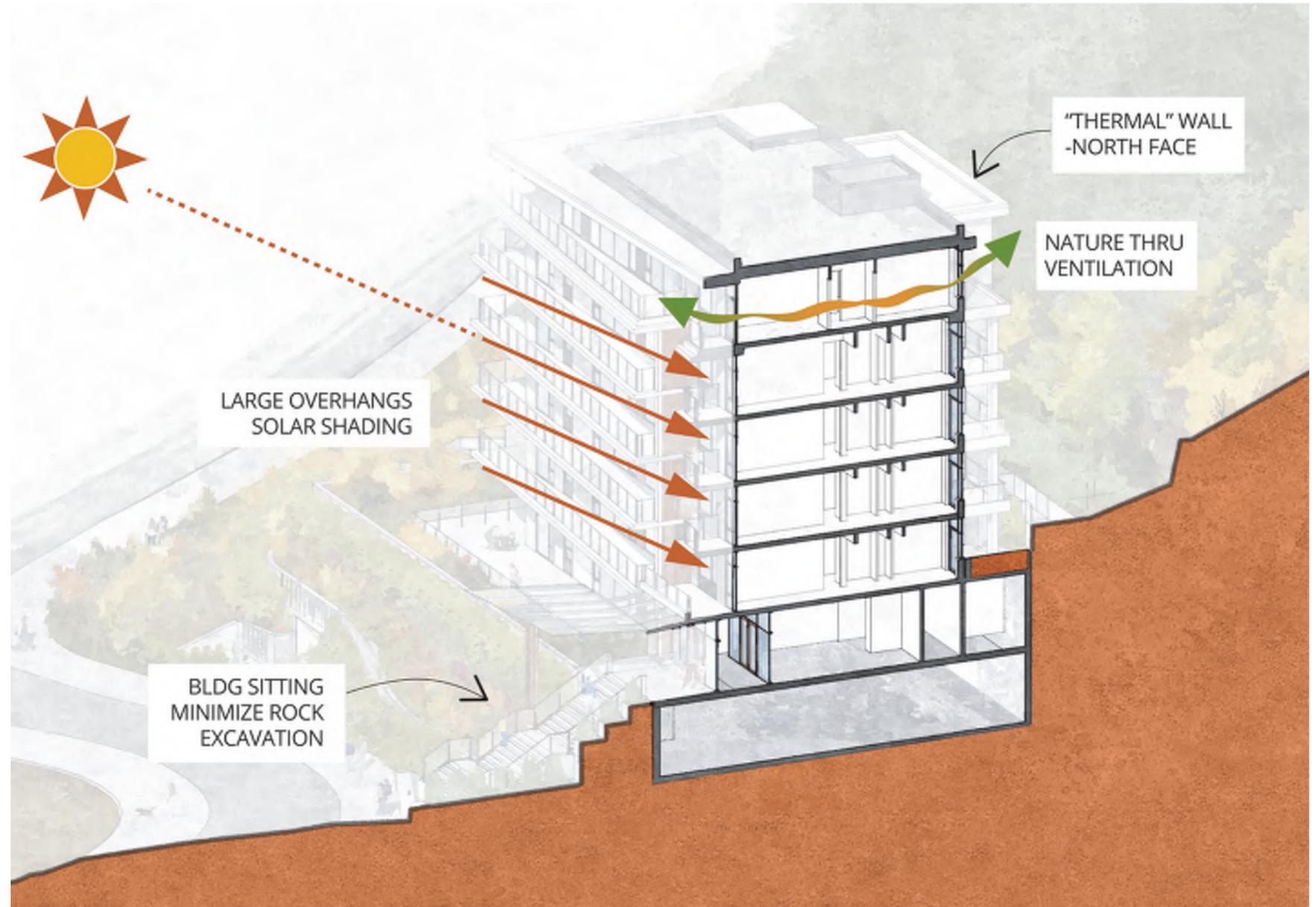
Create an efficient and comfortable building through thoughtful building orientation and architectural design.

RESPONSE: Sustainable design strategies are incorporated to exploit passive solar and sun-shading design strategies. South facades have higher glass ratios to capture views, while windows sizes are reduced on the north side, where views are less desirable, and heat loss is greatest.

The proposed building employs balconies and roof overhangs to shade south-facing windows to prevent overheated spaces in summer without restricting penetration of low-angle sunlight in winter.

NATURAL VENTILATION

Double and triple-fronting units allow natural cross-ventilation. In addition, the building is oriented to access prevailing ocean breezes in summer to optimize cooling.



SUSTAINABILITY SUMMARY

ENERGY CONSERVATION

Minimize energy usage through building design and careful selection of materials, fixtures and appliances.

RESPONSE: Energy modelling is being incorporated to guide the envelope design, including high-performance glazing and wall assemblies. Minimizing energy loss through the building envelope and utilizing passive solar design techniques are key to reducing energy consumption. The project will use a high-performance glazing system to maximize daylight and views within the floor plates while minimizing the envelope's impact on the energy consumption for the building. The following will be considered to incorporate into the design:

- Continuous, exterior-insulated walls will be considered to incorporate on the north façade
- Continuous, high-performance roof insulation will be used throughout
- Provide high-performance, thermally broken double-glazed Low-E windows min. overall U=0.38 (See Appendix: Development Permit Energy Model Report)
- Energy efficient heating and cooling will be provided using a VRF (Variable Refrigerant Flow system)
- Specify Energy Star appliances
- Install Programmable thermostats
- Provide each unit with individual Heat Recovery Ventilation
- Regenerative machine-room-less elevators
- Maximizing heat recovery from building loads, residential rooms and exhaust air
- High-efficiency boilers to reduce consumption

LIGHTING AND ELECTRICAL

Lighting design will focus on efficiency and automation of conservation. Under consideration are both lower lighting densities and occupancy and daylight sensors to minimize lighting power demand.

On-site generation of renewable energy will be considered. The

project will seek to make use of appropriate technologies given the building location and program:

- Maximize daylight through extensive glazing and clerestories;
- Energy efficient light fixtures – the developer is committed to installing LED lighting in all suites;
- Energy-efficient lighting with the motion-activated control system in common areas and underground parking is considered.
- Provide electric car recharge station to all residential parking stalls.

WATER CONSERVATION

Minimize use of potable water by occupants and landscape irrigation.

RESPONSE: Planting will feature native species and hardy west coast plants to minimize maintenance and pest management. Plant selection and efficient irrigation strategies are expected to reduce watering demand, water-efficient irrigation systems only where necessary. In addition to reducing irrigation demand, water use within the building will be achieved by specifying low flow fixtures. The project will incorporate:

- Water-efficient fixtures including dual flush toilets
- Water-efficient dishwashers and front-loading washing machines



Low Flow Plumbing Fixtures

The project team will explore strategies to treat stormwater before it is returned to city storm infrastructure.

INDOOR AIR QUALITY

Improve occupant health through careful building design and selection of materials and equipment.

RESPONSE: Double and triple-fronting units allow Natural cross-ventilation - orientation provides access to prevailing ocean breezes in summer. Heat Recovery Ventilators will provide tempered fresh air.

The project will employ air quality management strategies right through construction. This will be coordinated through an IAQ management plan and executed by the contractor. The plan will include such measures as:

- Use of low emitting finishing materials.
- Cleanliness of ventilation systems.
- Independently certified building products.
- Prohibiting smoking within the building and near operable windows and air intakes.
- Isolating work that would compromise air quality



Indoor Air Quality

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

SUSTAINABILITY SUMMARY

MATERIALS AND RESOURCES

Materials will be selected from local sources wherever possible for longevity and minimal environmental impact.

MATERIAL SELECTION

The project will make use of materials selected for durability, functionality, aesthetics and low environmental footprint. Careful design will focus on the efficient use of these materials. A durability plan will be utilized throughout design and construction to ensure a robust building in the long term. The project team will look for ways to incorporate regional and recycled materials. Construction waste will be managed to divert most material from landfill and direct it to reuse and recycling.

The development will incorporate bird-friendly glass - to minimize impacts by flying birds against glass guardrails, roof canopies and windows.

Reuse of site-generated rock for landscape features, retaining walls etc. Light-coloured roofing materials will further mitigate heat islands.

EDUCATE

Educate the occupants to understand the high-performance features of the building.



Nov. 2022

RESPONSE: Provide an Owner's manual and educational walkthrough for purchasers. Provide a "Systems Manual" for building management.

2711
Rodgers
Creek Pl.

DP21-172

RESPONSE TO OFFICIAL COMMUNITY PLAN & GUIDELINE

Policy UL 8

Require detailed analysis of development opportunities and constraints and the creation of a Comprehensive Management Plan to avoid or mitigate potential environmental impacts in the implementation of new development.

- **Establish siting and square footage variations on more difficult terrain to reduce the impact on the terrain. In general, the impact on a site created by the square footage of development and site coverage should be reduced as the proportion of site having slopes greater than 35% increases.**

RESPONSE: The proposed building locates close to the front Rodgers Creek Pl road, with shallow and wide building footprint aligned with the contours and raised entry-level to minimize site excavation and environmental disruption. Refer to Site Characteristics and Building Siting Rationale.

- **Create a tree management scheme that identifies the means and extent of tree retention or replacement required to maintain a park-like character, ensure proper drainage and minimize view impacts.**

RESPONSE: The tree management on and around the site is being addressed in the WildFire Development Permit Assessment and Arborist Report. Canopy raising and thinning methods are specified to reduce risks of wildfire of the area surrounding the site. On site, the use of conifers has been avoided as per FireSmart guidelines. Mostly small and medium sized trees are planned, with two larger focal deciduous trees in the side and rear yard. The trees along the frontage are flowering trees and in the rear are mostly Vine Maples to reflect the local forest species.

- **Provide storm water drainage detention where appropriate, and incorporate storm water management techniques that protect the environment.**

RESPONSE: The proposed project employs storm water management strategies throughout the project development process. Refer to the Civil report and drawings of storm water analysis and management.

- **Minimize the width and impact of roads and associated services, and include the provision of selective on-street parking areas to fit the terrain.**

RESPONSE: The proposed building is positioned near the front edge of the site to minimize the length of the access road. The visitor parking and driveway are configured to incorporate the change in grade, minimizing the need for retaining walls.

- **Encourage the integration of road and services layouts wherever possible.**

RESPONSE: The proposed building integrates all parking requirements within the P1 level and all services functions within the P2 level.

- **Consider materials and colour schemes on larger projects to blend buildings with the natural background.**

RESPONSE: The proposed building incorporates layers of locally quarried stone features and warm wood-looking elements, with a metal/glass balcony, roof edges and window mullions. That significantly blends the building's colour tones with Cypress Upper Land neighbour's natural schemes.

- **Avoid excessive levels of exterior lighting, including street lights.**

RESPONSE: The proposed project will use minimal exterior lighting for walkway access and no specific decorative exterior lights.

- **Consider environmentally sustainable and climate appropriate building design elements such as overhangs, strategic tree planting, and sun orientation.**

RESPONSE: The proposed project addresses climate and solar orientation appropriately on each facade. These include optimized winter solar gain by placing larger windows on south-facing walls, while north-facing walls have a higher R-value, with a lower window-to-wall ratio. With large balconies and roof overhangs to shade south-facing windows, the project prevents overheated spaces in summer without restricting penetration of low-angle sunlight in winter.

- **Allow for spacing between building clusters to provide opportunities for extensive landscaping.**

RESPONSE: The proposed project is three-sided rounded by natural forests. The re-built sloped street landscape is located in front of the building and is the only site exposed to Rodgers Creek Road.

- **Encourage a natural appearance to built form compatible with the topography.**

RESPONSE: The proposed building has a long and thin footprint aligned with the contours and raised entry-level to minimize site excavation and environmental disruption.

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

RESPONSE TO OFFICIAL COMMUNITY PLAN & GUIDELINE

- **Create neighbourhood layouts that provide a sense of identity and that incorporate focal points.**

RESPONSE: As the only apartment development of Area 3 East, the proposed project provides a marker at the upper Chippendale East Area 3 neighbourhood entrance.

- **Take measures to minimize wildfire hazards such as, restricting roofing materials used.**

RESPONSE: The proposed project will maximize non-combustible exterior materials used to reduce potential wildfire hazards. This project also employs other measures. Refer to Wildfire Assessment Report.

Upper Lands Watercourse Protection Guidelines

- b. Locate development on portions of the site that are least environmentally sensitive, recognizing crossings for roads, services and utilities may be unavoidable.**

RESPONSE: The proposed building is close to Rodgers Creek Pl Road's main front, with a shallow and wide building footprint aligned with the contours and raised entry-level to minimize site excavation and environmental disruption. The proposed building is positioned near the front edge of the site to minimize the length of the access road and the length of services and utility connections.

- d. and f. watercourse protection development permit area**

RESPONSE: Rodgers Creek neighbourhoods located outside Map NE-13 and NE-14 watercourse protection DP areas; As to creeks protection, the environmental setbacks have been accounted for and defined as the property lines when the area was subdivided

under Development Permit 09-025. With the proposed building within this setback area from the two creek channels of Pipe Creek, there are no further creek protection restrictions.

Policy UL 8.1

- d. Provide a diversity of housing in the planning area, and 30% of apartment units of 1000 square feet or less in size.**

RESPONSE: The proposed building provides a diversity of housing, from one bedroom plus den, two bedrooms to three bedrooms in size, and from ground-oriented flat units with patios, regular condos with balconies, to penthouses with roof terraces in types. The building has 32% units which are 1000 square feet or less.

- e. Ensure that housing diversity includes apartment units with adaptable design elements.**

RESPONSE: The proposed building provides 20% units as adaptable dwelling units.

- Strive for innovative, green buildings and infrastructure; that is, buildings and infrastructure with lower energy and water consumption, lower greenhouse gas emissions, and that enhance sustainability and create a healthy living environment.**

RESPONSE: The proposed building is a BC Energy Code Step 2 plus Low Carbon and BuiltGreen Silver project. The building is carefully oriented to take advantage of the site, available sun exposure and prevailing breezes. It is designed to incorporate energy-conserving features and systems, reduce energy and resource use, and reduce greenhouse gas emissions. Refer to Appendix Preliminary Energy Model Report and Built-Green Checklist.

The following guidelines shall apply to the Rodgers Creek Area of the Upper Lands, as defined on the Rodgers Creek Area Development Permit Area Designation Map UL8.1:

1. CONTEXT AND SITE DESIGN

1.01 Neighbourhoods in Rodgers Creek will be designed to fit with the topography and landscape of the Upper Lands and to demonstrate West Vancouver's commitment to sustainability and innovation. Each neighbourhood will express a distinct architectural and landscape character that is suited to the forested setting and the climate.

RESPONSE: Proposed shallow and wide building aligned with natural contours is compatible with steep topography to reduce the amount of site excavation. Proposed is a BC Energy Code Step 2 plus Low Carbon and BuiltGreen Silver project (Refer to Appendix). Proposed planting is carefully selected, combining natural landscape elements of stones, rock face walls, and stone-like paving. These landscape treatments, together with local quarried stone feature and warm wood-looking architectural characters, make the proposed development suited to the forested setting and the climate.

1.02 Built form should:

- **Complement the terrain and integrate with natural features,**
- **Minimize visual impacts, and**
- **Employ site sensitive built forms.**

RESPONSE: The proposed shallow, wide building footprint is orientated to suit the existing topography, which helps minimize excavation and environmental disruption. Due to site configuration, the proposed building steps away from the intersection of Chippendale Road and Rodgers Creek Pl. The residential levels are cut back from parking floors, with top residential levels cut back further from the east and west end, further reducing the building massing and creating generous balcony spaces and terraces.

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

RESPONSE TO OFFICIAL COMMUNITY PLAN & GUIDELINE

1.03 Development, including site and building design, should accommodate persons of varying abilities, including the physically challenged.

RESPONSE: The proposed building provides access throughout, including from the exterior to the accessible entrance and from the accessible entrance to all common areas and parking areas. The building also provides 20% units as adaptable dwelling units.

1.04 Building and site development shall incorporate wildland fire management best practices including an interface with the forest edge which creates defensive space against wildland fires and appropriate building material.

RESPONSE: The proposed building provides defensive buffers and also employs maximized non-combustible exterior materials to reduce potential wildfire hazards. This project also uses other measures. Refer to Wildfire Assessment Report. The landscape design employs FireSmart planting and spacing principles, such as no planting within 1.5m of the living level, and no trees within 3m of the building, as well as gravel mulch to help minimize flammable materials.

1.05 Building and site development should contribute to a resilient natural environment including healthy properly functioning watercourses.

RESPONSE: The site is located on a steep slope between water courses. As requested by the District, the site will be capturing surface runoff from above, and possibly ground water within the wall systems. This water will be released as per best management practices as determined by Civil during the technical development aspect of this project. In addition, infiltration will be promoted if infiltration rates permit, through the use of permeable paving in the main entry driveway.

1.06 The use of retaining walls should be minimized, particularly along streetscapes and where used along streets should include green screening on walls through the use of plantings and landscape treatment.

RESPONSE: The site is nestled into a significant slope. As a result, the site landscape and structures must step up from the street interface. However, the stepping along the frontage is well within zoning requirements for slope. Retaining walls will be shielded with hedges and/or vines to create green landscape to complement the Rodgers Creek Place and Chippendale Road edges. Along the East South property edge, the main entry driveway cuts into the slope. At that location a larger series of walls take advantage of the bylaw wall design requirements. Planting is designed to obscure those wall faces.

1.07 Development should integrate with area-wide stormwater management strategies and features including cisterns, retention or detention features, and absorbent topsoil specifications.

RESPONSE: The proposed project employs area-wide stormwater management strategies throughout the project development process and proposed detention features. Refer to the Civil report and drawings of stormwater analysis and management.

1.08 A tree management plan should be provided to maintain the mountain forest character of the area, ensure proper drainage and provide for views and access to sun and shade.

RESPONSE: Along the frontage, the landscape is sheltered by small and medium flowering trees. These are intended to both create some shade for the frontage landscape, provide visual interest from the street and from the building above. They have been intentionally selected to ensure views of the ocean and sun are maintained. In the rear and east side yards, trees have been

provided to create some canopy cover for the groundcovers while respecting wildfire requirements. The building will also act to provide shade to the rear area.

2. BUILDING DESIGN AND SERVICES

2.01 Buildings in the Rodgers Creek Area should be designed to:

- Use natural materials including wood and local rock in combination with glass, concrete and metal, and colours that harmonize with the forest setting
- Be sensitive to the privacy and livability of residential interiors and private outdoor spaces
- Provide sunlight penetration into public and semi-private open spaces and streetscapes
- Reduce energy consumption and feature green building strategies, technologies, fixtures, and appliances such as utilizing natural cross-ventilation, low reflective glass, geo-exchange heating and cooling and building materials that will achieve a healthy living environment
- Minimize the extent of impermeable surfaces
- Have building entrances with a distinct identity and be visible from the street
- Avoid blank and undifferentiated facades
- Have adequate interior storage areas, including convenient and secure bicycle storage
- Have areas for the storage of garbage and recycling that prevent access by bears and that are integrated into the overall design of the building and its landscape
- Avoid having parking within structures being visible from adjacent streetscapes

RESPONSE: The proposed building incorporates layers of locally quarried stone features and warm wood-looking elements, with metal/glass balconies, roof edges and window mullions. That significantly blends the building's colour tones with Cypress Upper Land neighbour's natural schemes.

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

RESPONSE TO OFFICIAL COMMUNITY PLAN & GUIDELINE

The raised location of the entry-level separates people from vehicle routes and allows for adequate privacy and livability. While the main building entrance is separated from the lower vehicle/ bicycle entry-level, a direct access elevator is designed to connect street level to lobby level with weather protection.

All residences feature glass doors opening onto extensive balconies or roof terraces, which orient the sun and ocean view. The outdoor spaces are designed as extensions of the indoors, with balconies and terraces shapes quadrilateral-ed, orienting more to the south and inlet shore, consistent with West Coast style architectural principles.

The proposed project addresses climate and solar orientation appropriately on each facade. These include optimized winter solar gain by placing larger windows on south-facing walls, while north-facing walls have a higher R-value, with a lower window-to-wall ratio. With large balconies and roof overhangs to shade south-facing windows, the project prevents overheated spaces in summer without restricting penetration of low-angle sunlight in winter.

The proposed building is a BC Energy Code Step 2 plus Low Carbon and BuiltGreen Silver project. Green building strategies are incorporated to reduce energy consumptions and to achieve a healthy living environment. The building is carefully oriented to take advantage of the site, available sun exposure and prevailing breezes. It is designed to incorporate energy-conserving features and systems and reduce energy and resource use and reduce greenhouse gas emissions.

Sloped glazed canopy with wood-toned frames and angled shape is provided as dynamic entry element outstanding from the streetscape.



Regional land use Concept - from Rodgers Creek Area Development Plan (RCADP, March 2008, p.2)



Proposed Building location within Context

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

RESPONSE TO OFFICIAL COMMUNITY PLAN & GUIDELINE

Secured bicycle storages, enclosed garbage, and a recycling area are provided, with all residential parking spaces are sheltered. Parking and bicycle storage areas are screened behind substantial planting and landscaping to minimize visibility from streetscapes.

2.02 Buildings in Areas 1 and 2 and large buildings in Areas 3 and 4 should have a contemporary alpine character which includes low-pitched roofs, large overhangs and materials and finishes dominated by natural wood.

DPA Architectural Character of Area 3 and 4 (page 40) states, architecturally the buildings are of a low-pitched roof, alpine derived expression. Roofs are intended to contain snow in the winter rather than shed it.

RESPONSE: The proposed building minimizes roof overhang slope to basic draining percentage and quadrilateral roofs' shape. By doing this, the proposed building creates an illusion-impression of normal low-pitched roof but performs better to contain snow in the winter. The building incorporates layers of locally quarried stone features and warm wood-looking elements, with metal/glass balconies, roof edges and window mullions. The main entry canopy is also proposed as a sloped element with glass, wood and metal toned materials.

2.03 – 2.06 N/A.

2.07 Multiple-family housing should be designed to:

- **Be sculpted and articulated both vertically and horizontally to reduce apparent mass and provide visual interest**

- **Minimize view impacts on residents of adjacent buildings and on people viewing the hillside from vantage points around the community including at Dundarave Pier and Ambleside Beach in West Vancouver, and at Jericho Beach and Siwash Rock in Vancouver**

- **Address climate and solar orientation appropriately on each facade**

- **Minimize overlook into the private and semi-private open spaces of adjacent buildings**

- **Provide weather protection at the primary common entry**

- **Minimize visual and acoustic impacts of rooftop mechanical equipment, garage entrances, hydro utility boxes, and garbage and recycling areas**

- **Provide underground parking that is readily accessible to all residents, well lit, and designed for safety and security of use**

- **Provide places to sit and socialize informally at main building entrances**

RESPONSE: The raised location of the entry lobby separates people from vehicle routes and allows for unimpeded views to Burrard Inlet, Stanley Park, and the Downtown Vancouver skyline. A protected direct elevator from street level to lobby level provides easy accessibility. As an extension of the main lobby, a fitness center also provides a great view and interactive opportunity with a lobby and weather-protected arriving deck. The re-built sloped landscape at Chippendale and Rodgers Creek corner will be close to the original natural grading condition before Rodgers Creek Place road excavation and provide an appropriate green screen along Chippendale streetscape.

All residences feature glass doors opening onto extensive balconies or roof terraces, which orient the sun and ocean view. The façade incorporates layers of the horizontal balcony, roof

edges and window mullions contrasting with locally quarried stone features and warm wood-looking walls. Vertical elements are integrated into the facade to modulate the horizontal proportions and performed as a balcony divider. The residential levels are cut back from parking floors. The top residential level is cut back further from the east and west end, reducing the building massing and creating generous balcony spaces and terraces. The project addresses climate and solar orientation appropriately on each facade. Two to three side fronting units allow Natural Cross-ventilation, orientation allows access to prevailing ocean breezes in summer.

3. LANDSCAPING

3.01 An informal landscape aesthetic that complements the forest context should be provided.

RESPONSE: The site frontage, will receive full sun and cannot make use of conifers. This will limit the use of native forest species, however, shrubs and groundcovers with similar colour tones, and textures will be planted informally to fit with the natural surroundings. In the west rear and north sideyard sideyards where greater shading is possible, more native plantings, such as ferns will be employed to draw the surrounding landscape into the site. Mostly native trees, such as vine maple, will be used on the naturalized rear terraces to complement the local aesthetic.

3.02 Landscaping should be in keeping with wildland fire and bear management best practices.

RESPONSE: The landscape plans have been designed to follow the FireSmart guidelines and avoid use of bear attractant planting.

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

RESPONSE TO OFFICIAL COMMUNITY PLAN & GUIDELINE

3.03 Glare and light spill of exterior or ground level lighting to surrounding properties should be minimized, as should spill upward to distract from enjoyment of the night sky.

RESPONSE: Any exterior landscape lighting will be minimized and designed to point downward to prevent glare and be night sky compliant.

3.04 Driveways, parking areas, patios and similar areas that are not located above underground structures should be finished with pervious material.

RESPONSE: The project has sought to balance infiltration and accessibility. The Entry Driveway and parking will be surfaced with permeable paving.

3.05 The use of locally quarried rock for constructing or facing retaining walls is encouraged.

RESPONSE: The project is using a variety of wall types based on situation and with the goal of a naturalized and well landscaped site. In the rear yard, large shotcrete walls will mimic the mountain rock faces. In the front of the site the main retaining wall will be quarried stone blocks, and along the driveway will be cast-in-place concrete walls fronted with evergreen hedging.



Landscape scene with the surrounding forest context

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

RESPONSE TO RODGERS CREEK AREA DEVELOPMENT PLAN

RODGERS CREEK AREA DEVELOPMENT PLAN - GREEN BUILDING STRATEGY

RODGERS CREEK AREA DEVELOPMENT PLAN

The Rodgers Creek Development Plan (RCADP) was written in 2008 to create a progressive set of principles and strategies for the area's development. The Plan incorporated a thorough Sieve Analysis through which strategies for development were established. One strategy identifies the progressive direction intended by the Plan:

"On-going review of new sustainability standards, technologies and strategies including exploring avenues for "future-proofing" buildings to allow for the future installation of new technologies at the Development Permit Stage."

GREEN BUILDING STRATEGIES

Some of the key green building strategies are addressed in The Rodgers Creek Area Development Plan (RCADP, 2008, Appendix C) are identified below in bold, followed by proposed responses.

> GREEN BUILDING STANDARDS

STRATEGY: Commitment to a minimum of LEED Canada Silver equivalency for concrete buildings.

RESPONSE: The project will be accredited under BuiltGreen Silver. (See Appendix: BuiltGreen Checklist)

> ENERGY CONSERVATION

STRATEGY: Passive Solar design, natural ventilation and daylighting.

RESPONSE: The proposed suites are oriented to take advantage

of solar gain in winter while incorporating large balconies and overhangs to control solar heat gain in summer. About 80% of suites have 2 or 3 sided exposure to allow operable windows to provide natural cross ventilation. Also, south-facing windows are larger to promote penetration of daylight.

STRATEGY: ENERGY SAVING

RESPONSE: The proposed development is a BC Energy Code Step 2 plus Low Carbon project. Estimated annual energy savings up to 40%.

STRATEGY: Min R40 roof, R20 walls, R20 floors over unheated parkades, Energy Efficient Windows, Light Fixtures

RESPONSE: Rather than simply adopting prescriptive performance values, an energy model has been developed to better calculate and compare insulation values against sustainability factors and construction implications. The proposed solution will be a combination of optimized insulation, high-performance glazing and mechanical systems, and thoughtful design and detailing, which will meet BC Energy Code Step 2 plus Low Carbon standard. (See Appendix: DP Energy Model Report)

STRATEGY: Energy Efficient Heating and Cooling systems

RESPONSE: A Variable Refrigerant Flow (VRF) system is proposed with Heat Recovery Ventilator (HRV) for this project. A VRF system is a technology introduced to minimize efficiency losses found in conventional HVAC systems and provide sustainable energy benefits. A VRF system has the lowest life cycle cost of any system on the market today.

Standard and most efficient in the industry are to use Heat Recovery Ventilator (HRV) to reduce energy losses due to recurring washroom exhaust. The HRV with Step 2 Code required sensible effectiveness of 60% or greater will be installed per suite for compartmentalization to reduce heat loss, leakage of smoke, smells and sound between units. The heat recovery will allow

heating and cooling loads to be distributed from one suite to another.

STRATEGY: Energy Star labelled programmable thermostats

RESPONSE: Energy Star programmable thermostats or equivalent will be specified. (See Appendix: GreenBuilt Checklist)

STRATEGY: LED lighting in apartment buildings

RESPONSE: All common areas will incorporate LED lighting. Fixed lighting within the suites will also include LED fixtures and bulbs.

STRATEGY: Reduced light pollution

RESPONSE: Occupancy sensors will dim lights when spaces are inactive, and any exterior landscape lighting will be minimized and designed to point downward to prevent glare and be night sky compliant.

STRATEGY: Consider Heat Recovery systems (HRV)

RESPONSE: HRV's are installed per suite.

> WATER CONSERVATION

STRATEGY: Water-efficient fixtures

RESPONSE: Water use within the building will be achieved by specifying low flow fixtures, including high-efficient or dual flush toilets and water-efficient dishwashers and front-loading washing machines.

STRATEGY: Water Efficient landscape

RESPONSE: Planting will feature native west coast plants and adapted species to minimize maintenance and pest management.

STRATEGY: Temporary irrigation or automatically controlled with rain or soil sensors and a pressure regulator.

RESPONSE: Plant selection and efficient irrigation strategies are used to reduce watering demand.

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

RESPONSE TO RODGERS CREEK AREA DEVELOPMENT PLAN

> INDOOR ENVIRONMENTAL QUALITY

STRATEGY: Low-emitting finishes, adhesives, sealants and coatings

RESPONSE: Low-VOC materials will be selected.

> UNIVERSAL DESIGN & ACCESSIBILITY

STRATEGY: 100% of units to have 'basic' accessibility features

RESPONSE: The BCBC imposes a minimum requirement for accessibility to all units, which is being met in this design. *(Refer to DP Code report.)*

STRATEGY: Up to 20% of units to have an optional upgrade to Level 2 accessible features, fixtures and finishes during presale processes

RESPONSE: The proposed building provides 20% units as adaptable dwelling units. *(BCBC 2018, refer to DP Code report.)*

> SUSTAINABLE DESIGN

STRATEGY: At least 1 LEED accredited professional on the team

RESPONSE: The accredited professionals retained are specialists in the BuiltGreen High Density (HD) system. *(See Appendix C: BuiltGreen)*

STRATEGY: IDP meeting at the beginning of the project

RESPONSE: The design team has been established, and the proposed design is the result of design meetings and close collaboration of the design team.

STRATEGY: Educational Package to home buyers

RESPONSE: Provide an Owner's manual and educational walkthrough for purchasers. Provide a "Systems Manual" for building management with all green features.

> GREEN INFRASTRUCTURE

>> LOW IMPACT DEVELOPMENT STANDARDS

STRATEGY: Minimize road lengths and road widths

RESPONSE: The proposed building is positioned near the front edge of the site to minimize the length of the access road and the length of services and utility connections.

>> ALTERNATIVE TRANSPORTATION CHOICES

>> ALTERNATIVE ENERGY SOURCES & ENERGY CONSERVATION **PRINCIPLE: Committed to Ground Source Heating & Cooling for all concrete buildings**

RESPONSE: Due to the heavily sloped site conditions, a highly efficient air source system has been selected. About one and a half floor of the northeast and northwest facing wall is built into the slope, which provides heating and cooling benefits through the earth sheltering.

PRINCIPLE: Passive measures for cooling

RESPONSE: Large balconies and broad roof overhangs provide shading from the summer sun. All units will have multiple frontages with operable windows, which provides opportunities for natural cross ventilation.

STRATEGY: Heat recovery from sanitary sewer

ACTION: The design team is targeting other heat recovery systems such as HRV.

>> INTEGRATED STORMWATER MANAGEMENT

STRATEGY: Stormwater runoff to be managed on a lot, a neighbourhood and a watershed level

RESPONSE: The proposed Stormwater Management Plan aims to mitigate changes in quantity and quality of discharging stormwater due to the development of the site and safely convey the minor and major storm events away from the

proposed building to natural watercourses or the municipal system. Stormwater quantity will be addressed by measures such as absorbent soils and on-site detention tanks.

These measures also encourage groundwater recharge to promote base flows in local creeks and other watercourses supporting the local environment's health.

Permeable driveway and walkway paving materials are also incorporated to reduce the quantity of stormwater retention. *(Refer to DP Civil Report.)*

> SOLID WASTE MANAGEMENT STRATEGY

STRATEGY: Construction waste management plan that diverts a minimum of 75% (by weight) of construction, demolition and land clearing waste from landfill.

RESPONSE: The proposed project targets a minimum of 50% (by weight) of waste materials collected from the construction site diverted from the waste stream. *(See Appendix: BuiltGreen Checklist)*

STRATEGY: Recycling Facilities

RESPONSE: Facilities for the separation and collection of recyclable materials will be provided within the building.

STRATEGY: Re-use of site generated rock for retaining walls... landscaping

RESPONSE: Landscape walls and features will use site-generated rock.

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

RESPONSE TO CD-3 ZONING

603.02 (2) Area 3 and 4: Permitted Uses (b) apartment

603.03(2) Apartments in each Area of the CD3 Zone shall have unit floor areas as follows:

Area 3: Dwelling units of 93 square meters or less in floor area shall be minimum of 30%.

RESPONSE: the proposed building has 32% units of 93 square meters or less, with FAR calculation following Section 603.03(3) and 120.21. Refer to FAR Overlay drawings.

603.04 (1) (b) Apartment Density Calculation.

RESPONSE: the proposed building has FAR calculation following Section 603.03(3) and 120.21. Refer to FAR Overlay drawings.

603.04 (2) Maximum Total Floor Area and Dwelling Units. Area 3 Lot 1: Maximum permitted total floor area 3403.75 square meters, maximum permitted total 22 units.

RESPONSE: the proposed building has a total FAR area of 3403.74 square meters calculated per Section 603.03(3) and 120.21. Refer to FAR Overlay drawings. The proposed building has a total of 19 units.

603.05 Site Coverage

Site Coverage for buildings and structures, excluding underground parking structures, shall be limited to the following maximums and calculated using 'lot area' as defined in Section 603.04 for Apartment Building, permitted maximum site coverage: 35%.

RESPONSE: the proposed building coverage is 27%.

603.06 Height

The maximum height of the apartment building permitted in each Area of the CD3 Zone shall be 18.9 m and 6 stories.

RESPONSE: the proposed building is limited to a maximum height of 18.9 m and 5 stories.

603.08 Yards

The permitted uses should be min. 6m front yard, min. 7.6m rear yard, and min. 6m side yard.

RESPONSE: the subject site is provided min. 6m front yard, min. 7.6m rear yard, and min. 6m side yard.

603.09 Off-Street Parking and Bicycle Storage

A minimum 1.5 parking spaces for every dwelling unit more than 70 square metres in unit floor area. Parking is designed and designated as visitor parking equal to at least 20% of the total number of dwelling units. Required off-street parking, excluding visitor parking, shall be provided within a building or an underground structure. For cluster housing and apartments, secure bicycle storage space shall be provided equivalent to a minimum of 2 storage spaces per dwelling unit.

Car Parking required - Residential Apartment:
units 18 (> 70m²) x 1.5 = 27 + unit 1 (< 70m²) x 1 = 1, total 28

Residential Visitor:

units 19 x 20% = 4

Total: = 32

Bike Parking required - Secured Parking:

19 units x 2 = 38

Short-time Parking:

19 units x 0.2 = 4

Total: = 42

RESPONSE: the subject site is provided as followings.

Car Parking proposed - Residential Apartment

The project provides 32 residential parking stalls plus 3 visitor parking stalls, including 8 small cars and one H/C parking stall. A variance of visitor parking number reduction would be applied because of limited site condition. Total 38 secured bicycle storages and 4 short-time bicycle parking are provided as well.

603.10 Garbage and Recycling Handling Facilities

Each apartment use shall provide a common facility for garbage containers and passive recycling containers that shall: (a) be of sufficient size to meet the following minimum standards: 1 garbage container for every 20 units, based on a 3.1 cubic meter container size; 1 recycling cart for every 10 units; and 1 cardboard container for every 40 units, based on a 3.1 cubic meter container size; (b) be accessible by collection vehicles, and (c) be enclosed within a building or structure.

RESPONSE: the proposed building has a total of 19 units. Per Section 603.10, the building provides one 3.1 cubic meters of garbage containers (2 bins), two recycling carts, and one 3.1 cubic meter cardboard container (2 bins). Refer to garbage and recycling room in Level P1 plan.

603.11 Landscaping and Screening

All portions of the site that are not occupied by buildings, parking areas, driveways or pedestrian ways shall be landscaped, and this landscaping shall be maintained.

RESPONSE: the subject site landscaping screening is provided as requested in section 603.11.

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

APPENDIX

- Adaptable units
- BuildGreen Project Checklist
- Energy Model Report

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

ADAPTABLE UNITS

- 1 Flush threshold exterior door to balcony.
- 2 Open plan to facilitate ease of mobility and to minimize the amount of hallway floor space.
- 3 Electrical outlets and light switches at a height that facilitates use by the user.
- 4 Backing in walls around the shower for grab bars.
- 5 Clear floor space in front of sink, shower and WC.
- 6 Continuous counter between cooktop and sink.
- 7 Rough-in wiring for possible future automatic hardware.
- 8 Clearance at latch side of door and turning areas at entry.
- 9 Low profile door threshold.
- 10 Backing in walls for WC grab bars.
- 11 Clearance within bedroom space.



Unit D

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172



2021 BUILT GREEN High Density Checklist



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October 25, 2021

District of West Vancouver
750 17th Street
West Vancouver, BC
V7V 3T3

Attn: To Whom This May Concern
RE: 2711 Rogers Creek Place to meet Sustainability Guidelines

Pelagos (Rogers Creek) LP has retained E3 Eco Group as the sustainability consultant to review the energy, resource, and environmental efficiency of 2711 Rogers Creek Place in the District of West Vancouver. The intention is to ensure that the development is Certified BuiltGreen™ Silver on the 2021 High Density Checklist.

The 2021 BuiltGreen™ Silver level requires a minimum of 105 points from the Checklist as well an energy performance meeting minimum BC Energy Step Code Level 2.

In order to provide the verification, E3 Eco Group will perform the following:

- 1) Review the computer modeling completed by others to ensure design meets BC Energy Step Code Level 2 (TEDI ≤45 kWh/m2.yr & TEUI ≤130kWh/m2.yr).
- 2) Consult with Pelagos and the Design team regarding the Checklist items to ensure that at least 105 points are achievable. Throughout construction E3 will perform site visits and review documentation to ensure all points are incorporated.
- 3) Upon project completion E3 will submit all photos and documents collected to BuiltGreen™ Canada for final Certification.

The completion of the above steps will ensure the development is Certified BuiltGreen™ Silver on the 2021 High Density Checklist.

If you have any questions please contact the undersigned,

Kind Regards,

Emma Conway
BuiltGreen Verifier
E3 Eco Group Inc
604-874-3715
emma@e3ecogroup.com

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

**BUILT GREEN® High Density Program
High Density (HD) New Construction Checklist**

Effective January 1, 2021
This checklist also applies to High Density Renovation projects.



To select checklist points, click and select point values from the drop-down list for each item.

Builder	Pelagos	
Address	2711 Rogers Creek	
Summary	1 - Energy & Envelope:	35 points
	2 - Materials & Methods:	21 points
	3 - Indoor Air Quality:	15 points
	4 - Ventilation:	11 points
	5 - Waste Management:	8 points
	6 - Water Conservation:	11 points
	7 - Business Practices:	9 points
	TOTAL POINTS:	110 points (SILVER) OK!

1. ENERGY AND ENVELOPE

This section awards points for construction methods and types of products that contribute to lower energy consumption, as well as alternative heating and electrical systems.

Minimum Energy Modelling 30 points required for Bronze, 35 points for Silver, 40 points for Gold, and 45 points for Platinum.

Find BUILT GREEN® Approved products that help earn your build points towards certification by viewing our online Product Catalogue: www.builtgreencanada.ca/envelope-and-energy-systems

Relative cost
Points per item

1.0: Energy Modelling

ASHRAE / NECB OR Step Code

Select modelling method here →

Input % energy savings here →

1.0 Energy modelling is a requirement for Section 1 (Energy and Envelope). Model the performance of your HD Project with any approved government software, such as EEE4, eQuest, or CarQuest. Points will be awarded for efficiency gains noted above the reference codes. A building achieving greater than 100% efficiency is net-positive and can earn bonus points for generating more energy than it consumes.

The energy requirement for each certification level is based on the percent improvement. In other words, the energy model rating must meet the required percent improvement over the reference building. Input the modelling method and the % improvement. The checklist will automatically calculate the points earned.

Over NECB 2015:
Bronze certification: building rating meets the code and earns 30 points.
Silver certification: building rating is 10% improvement and earns 35 points.
Gold certification: building rating is 20% improvement and earns 40 points.
Platinum certification: building rating is 30% improvement and earns 45 points.
Projects pursuing NECB 2017 compliance to meet the requirements of their local jurisdictions may add 5% to the equivalent performance, as measured against NECB 2015.

Over ASHRAE 90.1 2016:
Bronze certification: building rating is 5% improvement and earns 30 points.
Silver certification: building rating is 15% improvement and earns 35 points.
Gold certification: building rating is 25% improvement and earns 40 points.
Platinum certification: building rating is 35% improvement and earns 45 points.
Projects pursuing ASHRAE 90.1 2013 compliance to meet the requirements of their local jurisdictions may add 5% to the equivalent performance, as measured against ASHRAE 90.1 2010.

35 \$\$\$ - \$\$\$\$\$ 0 to 150

Note: future versions of this checklist will reference the updated NECB / ASHRAE standards, after the industry has adapted more fully to their use.

2021 BUILT GREEN High Density Checklist



BC Energy Step Code

The builder can choose this compliance pathway, using the step code scores for the energy compliance requirement for BUILT GREEN® Single Family certification.

- Step 1 – Bronze certification
- Step 2 – Silver certification
- Step 3 – Gold certification
- Step 4/5 – Platinum certification (must have 4.1 checked off to achieve Platinum)

The remaining action items and points hereafter in Section I may be used for additional points to be earned in your overall score; however, these points will not impact the earned energy points determined by the % improvement over reference building or Step Code scores.

1.1: Greenhouse Gas Emissions

1.1.1 Calculate and provide the greenhouse gas emission reductions based on the energy modelling results. 10% reduction from NECB 2015 for 1 point, 20% reduction for 2 points, and 30% reduction for 3 points. (See next tab: GHG Calculator.)

	\$		1, 2 or 3
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1.2: Building Envelope

1.2.1 Window-to-wall ratio does not exceed 40%.

	NC		2
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1.2.2 Install additional roof insulation above amounts already required by building code:
 (i) +R5 (for 1 point);
 (ii) +R10 (2 points); or
 (iii) +R15 (3 points).

	\$ - \$\$\$		1, 2 or 3
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1.2.3 Install additional insulation on exterior of above grade walls, above insulation amounts already required by building code:
 (i) +R5 for 2 points; or
 (ii) +R10 for 4 points.

	\$ - \$\$\$		2 or 4
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1.2.4 Install additional insulation on exterior of foundation system, above code required amounts for interior insulation:
 (i) +R7.5 (for 1 point);
 (ii) +R10 (2 points); or
 (iii) +R15 (3 points).

	\$\$\$		1, 2 or 3
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1.2.5 Install insulation under the entire basement slab above amounts already required by code:
 (i) +R5 (for 1 point);
 (ii) +R8 (2 points); or
 (iii) +R12 (3 points).

	\$\$ - \$\$\$		1, 2 or 3
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1.2.6 Attached garage or parking structure walls are insulated to minimum R12, and ceilings are insulated to minimum R5.

	\$ - \$\$\$		1
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1.2.7 Attached garage, parking, and/or loading dock overhead doors are insulated with R8 to R12 (for 1 point) or greater than R12 (for 2 points).

	\$ - \$\$\$		1 or 2
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1.2.8 Structural design eliminates the need for headers, or use insulated headers with minimum insulation value of R10.

	\$ - \$\$		1
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1.2.9 Structural design eliminates the need for rim/band joists, or use manufactured rim/band joists insulated to minimum R10.

	\$ - \$\$		2
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1.2.10 Install weather-stripped and insulated (R20 minimum for 1 point and R28 for 2 points) manufactured interior attic hatch, or have no interior attic access.

	NC - \$		1 or 2
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1.2.11 Install opaque doors that are a minimum R6, and any glazed sliding or swing doors at minimum R4 (for 1 point).

	\$\$		1
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1.2.12 All decks or balconies are thermally broken from the building envelope by:
 (i) Minimum R10 (for 1 point); OR
 (ii) Are fully separated (for 3 points); OR
 (iii) There are no decks or balconies (for 3 points).

	\$ - \$\$		1 or 3
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1.2.13 Windows are rated for high performance:
 (i) Windows are ENERGY STAR labeled at greater than 90% of all windows (3 points); OR
 (ii) All windows have U value of less than 2.2 W/m2k (1 point); less than 2.0 W/m2k (2 points); or less than 1.8 W/m2k (3 points).

	\$ - \$\$\$		1, 2 or 3
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1.2.14 Window systems are installed to be air tight:
 (i) Non-HCFC expanding foam or backer rod and caulking around all windows, door openings, and exterior wall penetrations (2 points); AND/OR
 (ii) All sill plates are sealed with foam gaskets or a continuous bead of acoustical sealant (1 point); OR
 (iii) The building has a contiguous window-wall or curtain-wall (3 points).

	\$ - \$\$\$		1, 2 or 3
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1.2.15 All electrical back-boxes in exterior walls and ceilings are air tight (e.g. molded plastic).

	NC - \$		1
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1.2.16 Design all unit separations to be air tight, effectively sealing adjacent units from one another and from common space.

	\$ - \$\$		2
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1.2.17 Building includes passive solar shading, the benefits of which are demonstrated through an energy model:
 (i) exterior or interstitial solar shading devices for glazing (2 points); OR
 (ii) exterior operational shading devices (4 points), with automated control (1 additional point).

	\$\$ - \$\$\$\$		2, 4 or 5
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1.2.18 Use roofing material with a high solar reflectance index (SRI) of ≥78 (for roof slopes ≤ 2:12), or ≥29 (for roof slopes > 2:12). Roof areas that are covered by energy generation appliances (e.g. solar panels or wind turbines) or by vegetation (e.g. green roofing materials) are exempt.

	\$\$ - \$\$\$\$		1
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1.2.19 Builder utilizes a certified building envelope engineer for the design of the building envelope (1 point).

	\$\$\$		1
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1.3: Mechanical Systems

1.3.1 All mechanical is placed above grade in the home to prevent damage from potential flooding.

	\$\$		1
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1.3.2 Calculate design heat loss and properly size HVAC equipment using CSA F280-12 or ASHRAE/ACCA Standard 183.

	\$ - \$\$		2
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1.3.3 Centrally locate HVAC systems inside the building's heated envelope and reduce duct length.

	NC		1
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1.3.4 District Energy used for primary space conditioning (heating and cooling):
 (i) The building is designed for, and ready to connect to, a district heating system within one year of opening (1 point);
 (ii) The building will be connected to a district heating system from occupancy (1 additional point);
 (iii) The district energy system will also provide cooling (1 additional point).

	NC - \$\$		1, 2 or 3
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1.3.5 Install high efficiency heating systems for all units and systems serving common areas (minimum 90% AFUE gas furnace; minimum 85% AFUE oil furnace; or minimum 85% AFUE oil/gas boiler).

	\$ - \$\$		3
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1.3.6 Implement a boiler management system to match the system operation to building loads and optimize controls for maximum energy savings.

	\$ - \$\$		2
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1.3.7 Install high efficiency cooling systems for all units and systems serving common areas (minimum 14 SEER central A/C; or minimum ENERGY STAR individual appliance for each unit).

	NC - \$\$		1
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1.3.8 Install heat pumps to supply majority of space heating and cooling loads:
 - ground/water with minimum COP of 4 and SEER 15; OR
 - air source heat pump (ASHP) meeting minimum requirements: for split-system minimum 8.5 HSPF and minimum SEER 15. Or for single package system minimum 8.2 HSPF minimum and minimum SEER 15.

	\$\$ - \$\$\$\$\$		10
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1.3.9 Install a centralized high efficiency domestic hot water heating system with minimum 85% AFUE boiler; minimum 0.67 EF gas water heater; or instantaneous tankless systems in each unit (3 points). For commercial boiler, the minimum thermal efficiency is 90 % for oil and 95 % for gas.

	\$ - \$\$		3
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1.3.10 Install heat pump-based DHW heating system (ground-, water-, or air-sourced, EF of 1.5 for 2 points; EF of 2 for 3 points) to supply a minimum of 35% of the peak DHW heating load and 70% of the total DHW energy load.

	\$\$ - \$\$\$\$\$		2 or 3
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1.3.11 Where domestic hot water heating is provided within each suite, install high-efficiency electrical domestic hot water system (standby loss in watts: 5% better than NECB 2011 for 2 points; 10% better for 3 points).

	\$		2 or 3
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1.3.12 Hot water storage tanks insulated by manufacturer to a minimum R-12.5.

	\$		2
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1.3.13 Insulate DHW piping:
 CASE 1: Where dwelling units contain independent DHW systems:
 (i) Insulate the first three feet of the water lines from the hot water tank (1 point); OR
 (ii) Insulate all hot water lines to all locations (2 points).
 CASE 2: Where DHW systems are common among multiple units:
 (i) Insulate all hot water lines (including traps) for the first six feet from the central hot water tank (1 point); OR
 (ii) Insulate all hot water lines to all locations (2 points).

	\$ - \$\$\$		1 or 2
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1.3.14 Install ENERGY STAR labelled bathroom exhaust fans for each unit.

	\$		1
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Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

2021 BUILT GREEN High Density Checklist

1.3.15	Fireplaces are all electric (2 points) or gas with sealed combustion and electronic ignition (2 points), or are EPA or CSA certified high-efficiency wood stove or pellet stove with a minimum efficiency of 72% (1 point) or 85% (2 points).	\$ - \$\$	1 or 2
1.3.16	All fireplaces, wherever installed, include a fan kit to circulate warm air into the room (2 points).	\$ - \$\$	2
1.3.17	Engage an independent Commissioning Engineer to review the owner's HVAC and lighting system requirements, and perform a review of drawings and specifications (approx. 90% working drawings for 2 points); AND Verify installation and operation of HVAC and lighting systems (3 points); AND / OR Carry out a follow-up onsite review of HVAC and lighting warranty items including comfort, controls, and energy efficiency (1 point).	\$\$ - \$\$\$	2 to 6

1.4: Metering and Controls

1.4.1	Provide electricity (1 point) and/or natural gas (1 point) direct metering for each unit.	\$ - \$\$	1 or 2
1.4.2	Provide programmable thermostats in each individual unit capable of managing at least two different daily schedules per week (e.g. weekday and weekend settings) (2 points total for all units).	\$ - \$\$	2
1.4.3	Parkade/garage heating setpoint is no higher than 4 degrees C, or garage/parkade is unheated.	\$ - \$\$	2
1.4.4	Units contain multiple heating/cooling zones with independent programmable thermostat control for each zone (2 zones = 2 points; 3 zones = 3 points; 4 zones = 4 points).	\$ - \$\$\$\$	2, 3 or 4
1.4.5	Install premium efficiency pump drive motors on all motors 1 hp or greater.	\$	1
1.4.6	Install HVAC systems with variable speed drives on all motors where there is a variable flow requirement (not multi-speed).	NC - \$\$	3

1.5: Re-Use or Recovery of Waste Energy

1.5.1	Install and balance ventilation energy recovery systems: (i) individually controlled active Heat/Energy Recovery Ventilator (HRV/ERV) for each dwelling unit (4 points); AND/OR (ii) solar/geo fresh air pre-heating for each unit (3 points); AND/OR (iii) same for all common areas (2 points).	\$ - \$\$\$\$	2 to 9
1.5.2	Install drain water heat recovery (DWHR) units on the main drain stack to recover heat from shower drain water. DWHR units must be CSA certified to B55.1 and B55.2: (i) 1 point for units less than 42% efficient; (ii) 2 points for units greater than or equal to 42% efficient; (iii) 1 additional point for units that are fully insulated. DWHR units may be installed centrally or by dwelling unit, but must collect heat from a minimum of 90% of the showers in the building complex.	\$\$ - \$\$\$	1, 2 or 3
1.5.3	Install a properly supported and wired ceiling fan in every dwelling unit.	\$	1

1.6: Appliances

1.6.1	Electric ranges are induction based, or are otherwise certified to use below 480 kWh/year on the EnerGuide Rating System.	\$ - \$\$	1
1.6.2	Refrigerators are ENERGY STAR labelled products.	\$ - \$\$	2
1.6.3	Dishwashers are ENERGY STAR labelled products.	\$ - \$\$	1
1.6.4	Clothes washer or combo washer-dryers are ENERGY STAR labelled products.	\$ - \$\$	1
1.6.5	Provide energy efficient clothes drying facilities for each unit (1 point each, maximum 2 points total): (i) Clothes dryers are ENERGY STAR labelled; (ii) Clothes dryers have an "auto sense" dry setting that utilizes a humidity sensor for efficiency; (iii) Each dwelling unit is provided outdoor clothes drying facilities (e.g. clothes lines).	\$ - \$\$	1 or 2
1.6.6	All other eligible appliances supplied by the builder are ENERGY STAR rated (i.e. TV, LCDs).	\$ - \$\$	1

1.7: On-Site Energy Generation

20 pts.			
1.7.4	Install on-site wind or solar (PV) electrical generation that supplies 50% (2 point) or 100% (4 points) of electrical needs for the common areas. This does not include electric heat.	\$ - \$\$	2 or 4
1.7.5	Any exposed exterior accessibility ramps are heated with renewable energy or waste heat.	\$\$	2
1.7.6	Buildings are built ready for plug-in electric vehicles for minimum 5% of allocated parking spaces: 1 point for 240V plugs in the vehicle parking area, 2 points for certified charging stations.	\$ - \$\$	1 or 2

1.8: Lighting and Automation

1.8.1	Exterior lighting follows IESNA illuminance requirements for recommended practice manual: Lighting for Exterior Environments.	NC - \$	2
1.8.2	All exit signage is photo-luminescent or LED based.	NC - \$	2
1.8.3	Common areas are illuminated with high efficiency (ENERGY STAR or LED) lighting.	NC - \$	1
1.8.4	Dwelling units are illuminated with high efficiency (ENERGY STAR or LED) lighting throughout: minimum 25% of all lighting (2 points); 50% (3 points); 75% (4 points); or 100% (5 points).	\$ - \$\$	2 to 5
1.8.5	Insulated ceilings have no recessed lights, or advanced air-sealing methods are employed to ensure that recessed lights are fully air-tight (e.g. air tight and insulation contact rated recessed lights).	\$	1
1.8.6	Install interior motion sensor light switches in over 25% (1 point), 50% (2 points) or 75% (3 points) of all common interior spaces, including hallways/corridors, stairwells, laundry, garage, etc.	\$ - \$\$	1, 2 or 3
1.8.7	Install interior motion sensor light switches in each dwelling unit, 1 point per switch, to a maximum of 3 points (averaged across all dwelling units).	\$ - \$\$	1, 2 or 3
1.8.8	In all garages/parkades, provide automatic lighting system (2 points) and/or ventilation system (2 points) triggered by movement or CO levels.	\$\$ - \$\$\$	2 or 4
1.8.9	Paint interior exposed surfaces of parkade (including walls, columns, and ceilings) semi-gloss white to reduce number of required lighting fixtures.	NC - \$\$	1
1.8.10	Install a master "all-off" switch in each dwelling unit that disables all non-essential electrical loads in the home.	\$\$	2
1.8.11	Install a home automation system in each dwelling unit that is capable of monitoring and adjusting: (i) heating, cooling, and humidity (2 points); (ii) lighting greater than 4 locations/rooms (1 point); (iii) if system can be controlled through a Wi-Fi, a smart phone, or app (1 additional point); (iv) all lighting and/or blinds to adjust to hourly sun schedule (1 point); (v) Domestic Hot Water (does not apply when there is a central system in the building) (1 point); (vi) a "vacation or away" mode that can turn off all non-essential electrical loads (1 point); (vii) and learning capability (1 point).	\$\$ - \$\$\$\$	1 to 4
1.8.12	Install home energy monitoring system that monitors and reports use and consumption patterns of all energy (gas, electricity, oil) in the home (1 point). An additional 1 point may be gained if the system is integrated with onsite renewable energy generation and storage technology.	\$\$\$ - \$\$\$\$	1 or 2

TOTAL SECTION POINTS **35**

2. MATERIALS AND METHODS

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

2021 BUILT GREEN High Density Checklist



This section rewards the use of environmentally preferred materials and building construction methods: recycled/reclaimed content, materials from renewable or sustainably managed sources, alternatives to dimensional lumber, more durable construction methods, and reducing the overall amount of material used.

Minimum 20 Points Required

Find BUILT GREEN® Approved products that help earn your build points towards certification by viewing our online Product Catalogue: www.builtgreencanada.ca/en/materials-and-methods

Relative cost

Points per item

2.1: Material Efficient Framing

2.1.1	Use Insulated Concrete Forms (ICF) or other systems that eliminate the need for traditional formwork: 3 points for below grade, and/or 4 points for 75% of above grade.	<input type="checkbox"/>	\$\$\$\$	3, 4, or 7
2.1.2	Use Optimum Value Engineering (OVE) for framing design: (i) Exterior and interior wall stud spacing at minimum 19.2 inches on-center. (ii) Elimination of headers at non-bearing interior and exterior walls. (iii) Use of header hangers instead of jack studs. (iv) Elimination of cripples on hung windows. (v) Elimination of double plates, using single plates with connectors by lining up roof framing with wall and floor OR Use concrete floors and roof with cambering of slabs to reduce slab thickness and column sizes with a total project concrete savings of at least 8%.	<input type="checkbox"/>	NC	1
		<input type="checkbox"/>	NC	1
		<input type="checkbox"/>	\$	1
		<input type="checkbox"/>	NC	1
		<input type="checkbox"/>	NC	1
		<input type="checkbox"/>	NC	5
2.1.3	Walls and roof designed on 24 inch modules to reduce waste.	<input type="checkbox"/>	NC	2
2.1.4	Reduce dimensional lumber use by using engineered wood stud material for minimum 10% of structural stud wall framing.	<input type="checkbox"/>	\$ - \$\$\$	1
2.1.5	Finger-jointed plate material and/or engineered plate material used for all framing plates.	<input type="checkbox"/>	\$ - \$\$\$	1
2.1.6	Structural insulated panel system (SIPS) or other panelized construction systems are used for walls (3 points) and/or roofs (2 points).	<input type="checkbox"/>	\$\$ - \$\$\$\$	2, 3, or 5
2.1.7	Use insulating sheathing on the exterior of steel studs, or with corresponding structural bracing (metal fasteners) instead of non-insulated exterior wood sheathing.	<input type="checkbox"/>	NC - \$\$	2
2.1.8	HD RENOVATION PILOT ONLY - Credit for reuse of building materials may be claimed. Reuse of building walls, floors and roof structure by area (m ²) 50% for 5 points, 60% for 6 points, 70% for 7 points, 80% or greater for 8 points. Reuse will still apply to assemblies where wall and roof insulation, cladding, roofing and interior finishes are upgraded. <i>**The builder will have the choice of achieving materials points for reuse per the appropriate checklist items a la carte, Or, taking credit once for the reuse with the new Section II checklist item, and then documenting all new materials as they would for a new build.</i>	<input type="checkbox"/>	NC - \$	5 to 8

2.2: Environmentally Preferable Materials

2.2.1	Use environmentally engineered flooring system, such as reclaimed/recycled/rapidly renewable wood waste, cross-laminated timber, concrete with minimum 30% fly ash or other SCM, or minimum 75% recycled steel (1 point) from third-party certified, sustainably harvested sources (CSA, SFI, or FSC for 2 points). The use of third-party certified subfloor sheathing for 1 extra point.	<input type="checkbox"/>	NC - \$\$\$	1, 2, 3 or 4	
2.2.2	Use environmentally engineered products for all load-bearing beams, such as reclaimed/recycled/rapidly renewable wood waste, concrete with minimum 30% fly ash or other SCM, or minimum 75% recycled steel.	<input type="checkbox"/>	\$\$ - \$\$\$\$	2	
2.2.3	Use environmentally engineered products for all exterior window and door headers, such as reclaimed/recycled/rapidly renewable wood waste, concrete with minimum 30% fly ash or other SCM, or minimum 75% recycled steel.	<input type="checkbox"/>	\$ - \$\$\$	1	
2.2.4	Deck, balcony, or veranda surfaces (1 point) and/or structure (1 point) made from a third-party certified, sustainably harvested wood source (CSA, SFI, or FSC) or third-party certified sustainable concrete.	<input type="checkbox"/>	\$\$\$	1 or 2	
2.2.5	Dimensional lumber from a third-party certified sustainably harvested source (CSA, SFI, or FSC) used for floor framing (1 point), wall framing (2 points), and/or roof framing (1 point).	<input type="checkbox"/>	\$ - \$\$	1 to 4	
2.2.6	Finger-jointed studs for minimum 90% of non-structural (1 point) and/or minimum 90% of structural (1 point) wall framing.	<input type="checkbox"/>	\$ - \$\$\$	1 or 2	
2.2.7	Steel studs made from minimum 75% recycled steel are used for interior walls (1 point) and exterior walls (1 additional point).	<input type="checkbox"/>	1	\$	1 or 2
2.2.8	Recycled and/or recovered content gypsum wallboard, minimum of 40% post-consumer recycled content.	<input type="checkbox"/>	1	\$\$	1

2.2.9	Use sustainably harvested exterior wall sheathing products (CSA, SFI, or FSC) for 1 point; recycled content of minimum 50% pre- or post-consumer for 1 point.	<input type="checkbox"/>	\$\$\$	2	
2.2.10	Insulation used in walls, roofs, and exposed floors (cantilevers) is certified by a third-party to contain a minimum recycled content: 25% (1 point) or 50% (2 points).	<input type="checkbox"/>	1	\$\$ - \$\$\$	1 or 2
2.2.11	Overhead garage door is made of 75% or greater recycled material.	<input type="checkbox"/>	\$\$ - \$\$\$	1	
2.2.12	Concrete:				
2.2.12.1	Concrete used in the building has a minimum supplementary cementitious material of 25% (1 point), 30% (2 points), or 40% (4 points) within the scope of proper engineering practices.	<input type="checkbox"/>	\$ - \$\$\$	1, 2 or 4	
2.2.12.2	Concrete used in home has undergone carbon dioxide (CO ₂) treatment to reduce portland cement content by at least 5%.	<input type="checkbox"/>	\$ - \$\$\$	1	
2.2.13	Floor Coverings: (i) Install carpet that has a minimum of 50% recycled content or 30% renewable content. (ii) Natural or 100% recycled-content carpet pad (e.g. made from textile, carpet cushion, or tire waste, rebond qualifies). (iii) Save materials by eliminating carpet: have minimum of 20% concrete floor finished (e.g. stamped, acid-etched, etc.) and left exposed. (iv) Install ecologically preferred bamboo, cork, or hardwood flooring (or reclaimed is acceptable) in each dwelling unit (1 point); more than 40% of all indoor floors (2 points) or more than 80% of all indoor floors (3 points). Products must be third-party certified from sustainably managed forests or certified sustainable sources (except reclaimed) (e.g. Rainforest Alliance, FSC, CSA, or SFI). (v) All ceramic tile installed in any dwelling unit has a minimum of 25% recycled content.	<input type="checkbox"/>	NC - \$	1	
		<input type="checkbox"/>	0	NC - \$\$	1
		<input type="checkbox"/>	NC - \$\$	3	
		<input type="checkbox"/>	\$ - \$\$\$	1 to 3	
		<input type="checkbox"/>	\$\$\$	2	
2.2.14	Paints or finishes are manufactured with minimum 20% recycled content.	<input type="checkbox"/>	\$ - \$\$	1	
2.2.15	Shelving made from 100% agricultural waste or 100% recycled wood particle board, including shelving inside cabinets.	<input type="checkbox"/>	\$ - \$\$\$	2	
2.2.16	Doors: (i) Exterior doors contain minimum 15% recycled and/or recovered content. (ii) Interior doors contain minimum 15% recycled and/or recovered content. (iii) Minimum 75% of interior doors made from third-party certified, sustainably harvested wood (CSA, SFI, or FSC). (iv) Minimum 50% of interior doors have been salvaged from another project.	<input type="checkbox"/>	\$	1	
		<input type="checkbox"/>	0	\$	1
		<input type="checkbox"/>	NC - \$\$	2	
		<input type="checkbox"/>	NC - \$\$	3	
2.2.17	Windows: (i) Exterior window frames contain minimum 10% recycled or reclaimed content. (ii) Exterior window frames made from third-party certified, sustainably harvested wood (CSA, SFI, or FSC).	<input type="checkbox"/>	\$\$\$	1	
		<input type="checkbox"/>	\$\$\$	3	
2.2.18	Parapets (2 points) or fascia and soffit (1 point each) made from minimum 50% recycled and/or recovered content (pre- or post-consumer).	<input type="checkbox"/>	\$	1 or 2	
2.2.19	Exterior cladding materials contain a minimum of 50% recycled and/or recovered content for 25% of the building's exterior (1 point); or more than 50% of exterior (2 points); or more than 75% of the exterior (3 points); or more than 90% of the exterior (4 points).	<input type="checkbox"/>	\$ - \$\$\$	1 to 4	
2.2.20	Exterior trim materials include at minimum 50% recycled and/or recovered content. This should include window, door, corner, and deck trim complete with any associated flashing.	<input type="checkbox"/>	\$ - \$\$\$	3	
2.2.21	Exterior trim materials are manufactured from OSB, which must have no added formaldehyde.	<input type="checkbox"/>	\$ - \$\$\$	1	
2.2.22	MDF and/or finger-jointed casing and baseboard used throughout (1 point), and in all jambs (1 point).	<input type="checkbox"/>	0	\$\$	1 to 2
2.2.23	Solid hardwood from third-party certified, sustainably harvested sources (CSA, SFI, or FSC) used for millwork and/or cabinets in all kitchens (2 points) and/or all bathrooms (2 points) in all dwelling units and common areas.	<input type="checkbox"/>	\$ - \$\$\$	2 or 4	
2.2.24	More than 90% of all wood used for flooring, cabinets, and millwork is from: (i) domestic (i.e. North American) sources (4 points), (ii) recovered or re-milled sources (5 points), (iii) salvaged or re-used (6 points).	<input type="checkbox"/>	\$\$\$ - \$\$\$\$	4, 5, or 6	
2.2.25	Minimum 25% recycled-content roofing system, including underlayment and finish for 2 points, 50% recycled content for 4 points.	<input type="checkbox"/>	NC - \$\$	2 or 4	
2.2.26	Provide a green roof over 50% (3 points), 75% (5 points), or 100% of total roof area (7 points), excluding any roof area used for energy generation (e.g. wind turbines or solar panels).	<input type="checkbox"/>	\$\$	3, 5, or 7	
2.2.27	Use of miscellaneous salvaged materials derived from local sources for any building assembly or component not otherwise listed above (1 point for each different product used, to a maximum of 3).	<input type="checkbox"/>	\$ - \$\$\$\$	1 to 3	
2.2.28	Cross-laminated timber (1 point) from a third-party certified, sustainably harvested source (CSA, SFI, or FSC) (2 points). Bonus points if the building is over four storeys: one point per floor (fifth floor and up) to a maximum of 5 additional points.	<input type="checkbox"/>	\$\$\$ - \$\$\$\$	1 to 7	

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

2021 BUILT GREEN High Density Checklist

2.3: Durable Construction

2.3.1 Roofing:

2.3.1.1	Minimum 30-year manufacturer warranty roofing material (2 points plus 1 point for each additional 5 years). "Lifetime" warranties have terms/conditions that ultimately have a limit in real years, and will not be considered unless clarified. Inspection by certified roofing inspector or an envelope engineer for 1 point.	<input type="checkbox"/>	NC - \$\$\$\$\$	2 to 7
2.3.1.2	Fire-resistant roofing materials such as metal, clay, tile, and asphalt shingles (Class A Fire Rating through ASTM International standards).	<input type="checkbox"/>	\$\$	1
2.3.1.3	Impact-resistant roofing materials used (Class 4 asphalt, rubber, metal, cement through ASTM International standards regarding impact resistance [wind, hail]).	<input type="checkbox"/>	\$\$\$	1
2.3.1.4	Install ice-and-water underlayment shield over entire roof for a secondary line of defense against water penetration and ice buildup (wind, hail).	<input type="checkbox"/>	\$\$\$	1
2.3.2	Low-VOC water- or damp-proofing on foundation walls. (SCAQMD Rule 1113, 2016 VOC limits: Waterproofing sealers <=100 g/L / Waterproofing Concrete or Masonry Sealers: <=100 g/L).	<input type="checkbox"/>	1 \$ - \$\$	1
2.3.3	Use a rain screen system to separate cladding from the wall sheathing with a drainage plane (2 points), made from 60% or more recycled content (additional 1 point). Integrate windows into drainage plane by angling bottom sills slightly down towards the exterior, and install window flashing to direct moisture out towards the drainage plane (additional 1 point).	<input type="checkbox"/>	2 \$ - \$\$\$	2 to 4
2.3.4	Natural cementitious stone/stucco/brick, metal cladding, or fiber cement siding, or combination thereof for 25% of exterior cladding (1 point), 50% (2 points), 75% (3 points), 90% (4 points), or 100% for 5 points.	<input type="checkbox"/>	4 \$\$\$	1 to 5
2.3.5	All exterior doors and windows manufactured from fiberglass (1 point for windows and/or 1 point for doors).	<input type="checkbox"/>	NC - \$	1 or 2
2.3.6	Window safety film is applied on interior face of window or laminate glass used on interior face of window.	<input type="checkbox"/>	\$\$	1
2.3.7	Fascia and/or soffit made from fiber cement (1 point each).	<input type="checkbox"/>	2 \$\$\$ - \$\$\$\$	1 or 2
2.3.8	Further anchor the soffits of the building, firmly secured to reduce wind damage between the wall and the trim into which the soffit panels are inserted.	<input type="checkbox"/>	\$ - \$\$	1
2.3.9	Exterior trim materials made from alternatives to solid lumber.	<input type="checkbox"/>	\$ - \$\$\$\$	1
2.3.10	All exterior trim is clad with pre-finished metal (1 point over wood backings, 2 points without wood backings).	<input type="checkbox"/>	\$\$\$	1 or 2
2.3.11	Deck, veranda, and balcony surfaces made from environmentally preferable low-maintenance materials (e.g. stone, concrete, tile, composites, etc.) that do not need maintenance of any kind, including painting, for a minimum of 5 years.	<input type="checkbox"/>	2 \$ - \$\$\$	2
2.3.12	Install durable flooring (e.g. laminate, finished concrete, tile, hardwood, etc.) in all high traffic areas (halls, kitchen, living space) (1 point); more than 30% of all indoor flooring (2 points); more than 60% of all indoor flooring (3 points); or more than 90% of all indoor flooring (4 points).	<input type="checkbox"/>	4 \$\$ - \$\$\$\$	1 to 4
2.3.13	Solid countertops are made from durable materials such as granite, concrete, glass, metal, or local natural stone, for all kitchen counters (2 points), or all other countertop areas (1 point), or both (3 points total). Countertops have 30% or higher recycled content (1 additional point).	<input type="checkbox"/>	3 \$\$ - \$\$\$	1 to 4
2.3.14	Lifetime finish on all faucets.	<input type="checkbox"/>	0 NC - \$	1
2.3.15	Lifetime finish on all door hardware.	<input type="checkbox"/>	0 NC - \$	1
2.3.16	Install only Type 1 or 2 grade door hardware with lifetime mechanical warranty.	<input type="checkbox"/>	\$ - \$\$\$	2
2.3.17	Install a garage door that is pressure-rated for the geographic area of the home (winds) (ASTM International E330 standard).	<input type="checkbox"/>	\$\$ - \$\$\$	1
2.3.18	For projects adjacent to forested areas only, complete the FireSmart Structure and Site Hazard Assessment Form (1 point). Projects will earn additional points for achieving either a Moderate hazard level (1 point) or Low hazard level (2 points).	<input type="checkbox"/>	NC - \$	3

TOTAL SECTION POINTS 21

3. INDOOR AIR QUALITY

This section focuses on the quality of the air within the finished building. Products listed here include materials that are low in VOCs, products made from all natural materials as well as various air cleaning and ventilation systems.

Minimum 15 Points Required

Find BUILT GREEN® Approved products that help earn your build points towards certification by viewing our online Product Catalogue: www.builtgreencanada.ca/ii-indoor-air-quality

Relative cost
Points per item

3.1: Air Treatment

3.1.1	Install air filtration on all air handling systems: (i) pleated media filter with minimum MERV rating of 7 (1 point) or 12 (2 points); OR (ii) an electrostatic air cleaner (2 points); OR (iii) an electronic air cleaner (3 points); OR (iv) a HEPA filtration system (5 points).	<input type="checkbox"/>	1 NC - \$\$\$	1, 2, 3 or 6
3.1.2	Install ultraviolet air purification in air handling systems.	<input type="checkbox"/>	\$\$\$	2
3.1.3	Provide thermostats in each dwelling unit or zone that indicates the need for the air filter to be changed or cleaned.	<input type="checkbox"/>	\$	1
3.1.4	The HVAC design includes humidity control within each dwelling unit, zone and/or common area.	<input type="checkbox"/>	\$	2

3.2: Contaminant Source Elimination

3.2.1	All combustion space and water heating equipment located within building are sealed with no possibility of backdraft.	<input type="checkbox"/>	0 \$ - \$\$	1
3.2.2	Provide soil gas/radon protection: (i) either verify that radon gas levels are within government-approved safe limits at the site, or provide passive sub-slab ventilation (1 point); OR (ii) actively depressurizing the sub-slab (i.e. add a fan for 2 points).	<input type="checkbox"/>	\$	1 or 2
3.2.3	Seal all permanent ductwork upon installation, removing seals once all phases of construction are complete.	<input type="checkbox"/>	1 NC - \$	1
3.2.4	Prior to occupancy, but after all interior construction is substantially complete and all finishes have been installed, perform a full flush of the air within the building by running the air handler (on maximum speed if a variable speed device) for a minimum of 48 hours (combined over not more than 4 sessions), and provide new filters in the air handler after the flush is complete.	<input type="checkbox"/>	\$	2
3.2.5	Central vacuum system exhausted outside conditioned space.	<input type="checkbox"/>	\$ - \$\$	1
3.2.6	Insulation used is third-party certified to have zero or ultra-low formaldehyde (less than 0.008 ppm) or GREENGUARD Gold product.	<input type="checkbox"/>	2 \$	2
3.2.7	Low-formaldehyde sub-floor sheathing (third-party certified to less than 0.09 ppm for particle board or 0.11 ppm for MDF) or sub-floor made from substance material that is formaldehyde-free, such as concrete.	<input type="checkbox"/>	\$ - \$\$\$	2
3.2.8	Low-formaldehyde underlayment is used throughout (third-party certified to less than 0.09 ppm for particle board or 0.11 ppm for MDF).	<input type="checkbox"/>	\$	1
3.2.9	Low-formaldehyde particle board/MDF used for cabinets: less than 0.09 ppm for particle board or 0.11 ppm for MDF for 1 point, or zero formaldehyde for 2 points.	<input type="checkbox"/>	1 \$ - \$\$	1 or 2
3.2.10	Low-formaldehyde particle board/MDF used for shelving: more than 0.09 ppm for particle board or 0.11 ppm for MDF for 1 point, or zero formaldehyde for 2 points.	<input type="checkbox"/>	1 \$ - \$\$	1 or 2
3.2.11	All interior wire shelving is factory coated with low-VOC/no offgassing coatings.	<input type="checkbox"/>	\$ - \$\$	2
3.2.12	All hardwood floors are site-finished with water-based urethane finishes, or are factory finished.	<input type="checkbox"/>	2 \$\$\$	2
3.2.13	Water-based lacquer or paints are used on all site-built and installed millwork, including doors, casing, and baseboards (less than 100 grams/litre of VOCs for 2 points or less than 50 grams/litre for 3 points).	<input type="checkbox"/>	2 \$\$	2 or 3
3.2.14	Interior paints used have low VOC content (less than 100 grams/litre of VOCs for 1 point or less than 50 grams/litre for 2 points).	<input type="checkbox"/>	1 NC - \$	1 or 2
3.2.15	Interior paints have no VOCs in base paint prior to tint (1 point) or in tint (2 additional points). Alternatively, for a full 3 points, use natural finishes such as lime plasters (NOTE: If taking points in 3.2.15, then also take point in 3.2.14).	<input type="checkbox"/>	\$\$\$	1 to 3
3.2.16	All hard surface flooring must be certified as compliant with the FloorScore or GreenGuard standard (or equivalent) by an independent third-party. Flooring products covered by FloorScore or GreenGuard (or equivalent) include vinyl, linoleum, laminate flooring, wood flooring, ceramic flooring, rubber flooring, wall base, and associated sundries. Also applicable to wall tile. (2 points)	<input type="checkbox"/>	\$\$ - \$\$\$\$	2
3.2.17	All flooring and wall products are installed with low-VOC (less than 60 grams/litre) adhesives and plasticizer-free grouts (for 1 point), or with zero-VOC adhesive (2 points), or no adhesive (2 points).	<input type="checkbox"/>	2 \$\$ - \$\$\$\$	1 or 2

2021 BUILT GREEN High Density Checklist

3.2.18	Carpet and Rug Institute (CRI) Green Label Plus on all carpet used. Gemeinschaft umweltfreundlicher Teppichboden's (GUT) production information system PRODIS is also recognized.	0	NC - \$\$	2
3.2.19	Carpet and Rug Institute (CRI) Green Label Plus on all underlay used. Gemeinschaft umweltfreundlicher Teppichboden's (GUT) production information system PRODIS is also recognized.	0	NC - \$\$	1
3.2.20	Natural material-based carpet (e.g. wool) in all living areas (for minimum 150 ft ²).		\$\$\$	2
3.2.21	Carpet-free design: all flooring surfaces are hard (including stairs).	2	\$ - \$\$\$\$	2
3.2.22	For all permanent or significant entryways leading from outdoors, install an entryway system of at least 10 feet in length to capture dirt and particulates (i.e. grates/grills/slot systems or roll-out mats that are maintained weekly by a service organization).		\$ - \$\$	2
3.2.23	Provide a building component (e.g. a finishing product or interior surface product such as drywall) with the capacity to permanently absorb VOC emissions from other sources without creating any residual, or other, off-gassing (1 point).		\$ - \$\$	1
TOTAL SECTION POINTS		15		

4. VENTILATION

This section covers the mechanical ventilation systems in the building, including air filtration and heat recovery.

Minimum 5 Points Required

Platinum Level Note: Platinum level homes must use item 4.1.

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		Relative cost	Points per item	
4.1	Ventilation system is designed and installed according to CSA Standard F326 or ASHRAE 62.1. This is a requirement to achieve BUILT GREEN® Platinum level certification.	4	\$ - \$\$\$	4
4.2	All ductwork thoroughly sealed along all seams, joints, connections, penetrations, etc., in accordance with local prevailing code and industry best practice (2 points) or test/verify duct leakage to be less than 8 cfm (at 25 Pa) per 100 ft ² of conditioned floor area (2 additional points).	2	NC - \$\$	2 or 4
4.3	Install in-line ventilation fan with programmable timer (separate switch from lighting) in each unit.		\$	1
4.4	Install motorized damper on all bathroom/exhaust fans.		\$\$	2
4.5	All bath fans have a noise level of 1 sone or less.	0	NC - \$\$	2
4.6	Provide local bathroom exhaust fan controls in each unit using either an occupancy sensor, automatic humidistat controller, automatic timer, or continuously operating exhaust fan.	1	\$ - \$\$	1
4.7	Install timer switches, occupancy sensors or central BAS controls on all local exhaust fans outside of individual units (i.e. laundry, recreation, storage areas, etc.).		\$ - \$\$	1
4.8	Install passive Heat Recovery Ventilator (HRV, for 2 points) or an active Heat Recovery Ventilator/Energy Recovery Ventilator (HRV or ERV, 4 points) either centrally or in each unit.	4	\$ - \$\$\$	2 or 4
4.9	Install permanent (de)humidification control in each unit (ERV's are considered acceptable).	0	\$ - \$\$	1
4.10	For indoor pool areas, install a designated dehumidification system designed by a consulting engineer or qualified contractor to match the water and air temperatures maintained in the area.		\$ - \$\$	1
TOTAL SECTION POINTS		11		

5. WASTE MANAGEMENT

This section deals with the handling of waste materials on the construction site and encourages recycling.

Minimum 7 Points Required

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5.1	Comprehensive recycling program during construction for building site including education, site signage, and bins.		\$	2
5.2	Implement a recycling program: collection of waste materials from site by a waste management company that is a current member of a provincial recycling council or equivalent association and verifies that a minimum of 25% of the materials collected from the construction site have been recycled.	4	\$ - \$\$	4

5.3	Suppliers and trades recycle their own waste, including leftover material and packaging (1 point per trade—maximum 4 points).	1	\$	1 to 4
5.4	Minimum 25% (1 point), 50% (2 points), 75% (3 points), or 90% (4 points) by weight or volume of waste materials collected from construction site is diverted from waste stream.	2	\$ - \$\$\$	1 to 4
OR				
5.5	Waste reduction for remote projects: for projects occurring in regions that are minimum 100km away from the nearest population center with minimum 30,000 residents, the project may earn 1 point if the total amount of waste produced on the construction site is less than 4 lbs/ft ² , 2 points are available for less than 3 lbs/ft ² , and 3 points for less than 2 lbs/ft ² , and 4 points less than 1 lbs/ft ² .		\$ - \$\$\$	1 to 4
5.6	Onsite gravel crusher to reduce vehicle miles. Crusher must be sensitive to neighbouring properties.		\$\$\$ - \$\$\$\$	1
5.7	Metal or engineered durable form systems used for concrete foundation walls (1 point) and for footings (1 point).	0	NC - \$\$	1 or 2
5.8	Install permanent recycling center in each residential unit with two or more 26L bins (1 point), or four or more 26L bins (2 points) located in or conveniently close to the kitchen. Multiple bins are intended to facilitate sorting of different recyclables. Equivalent bin configurations will be accepted where aligned with local recycling program requirements.		\$ - \$\$\$	1 or 2
5.9	Provide a central recycling center for the housing project including, as a minimum, separate bins for paper, glass, and metal (1 point), and/or install a trash compactor (1 point).	1	\$ - \$\$\$	1 or 2
5.10	Provide convenient onsite facilities to homeowner to encourage collection of compost materials or on-site composting. For example, storage bin in kitchen or separator where local composting programs exist; or wormery		\$	1
5.11	HD NEW CONSTRUCTION ONLY - Existing dwellings onsite from prior to construction are recycled (greater than 50% diverted from landfill for 3 points) or relocated (6 points) rather than demolished.			3 or 6
	HD RENOVATION PILOT ONLY - Credit for reuse of building materials may be claimed. Reuse of building walls, floors and roof structure by area (m ²) - 50% for 1 point, 75% for 2 points, 90% for 3 points. To claim credit, at least 2 points must also be achieved in checklist item 5.4 for the overall construction waste (50% diversion from landfill). Reuse will still apply to assemblies where wall and roof insulation, cladding, roofing and interior finishes are upgraded.		\$\$\$\$ - \$\$\$\$\$	1 to 3
TOTAL SECTION POINTS		8		

6. WATER CONSERVATION

This section encourages a reduction in the amount of water used in the building. The builder has the option to use The Water Efficiency Rating Score (WERS) for points.

Minimum 10 Points Required

Find BUILT GREEN® Approved products that help earn your build points towards certification by viewing our online Product Catalogue: www.builtgreencanada.ca/vi-water-conservation

6.1: Indoor Water Conservation

6.1.1	Install a calibrated water meter in every unit.		\$\$ - \$\$\$	3
6.1.2	Install ultra-efficient toilets with average flow rates less than or equal to 3L/flush (0.8 GPF) for 2 points each (up to 6 points).		\$\$ - \$\$\$	2, 4 or 6
6.1.3	Install efficient toilets, or dual-flush toilets, with average flow rates less than or equal to 4.8L/flush (1.28 GPF) for 1 point each (up to 3 points).	2	\$\$ - \$\$\$	1 to 3
6.1.4	Install waterless urinals in all public washrooms for men.		\$ - \$\$	1
6.1.5	Install hot water recirculation system with all hot water lines insulated (2 points) with local activation/call switches installed at all points of use (additional 2 points), or point-of-use instant DHW system (1 point each, maximum 4).		\$\$\$ - \$\$\$\$\$	1 to 4
6.1.6	Install low-flow faucets for all lavatories (less than 5.7 lpm) for 2 points, and all showers and tub/showers (less than 7.6 lpm) for 1 additional point.	2	\$\$	2 or 3
6.1.7	Provide ENERGY STAR labelled clothes washers: front loading (3 points), top loading or laundry centre (combo washer/dryer) (2 points), or combo ventless (4 points). Alternatively, the integrated water factor (IWF) can be calculated, and if it's below the maximum IWF, 3 points will be awarded. - Front loading >2.5 cu ft capacity, maximum IWF of 3.7; - Top loading >2.5 cu ft capacity, maximum IWF of 4.3; - Washers <2.5 cu ft capacity, maximum IWF of 4.2.	3	\$ - \$\$\$	2, 3 or 4

2021 BUILT GREEN High Density Checklist

6.1.8 Install water-saving dishwasher that uses equal to or less than 13.25 L of water per cycle (3.5 US gallons/cycle). 1 \$ - \$\$ 1

6.2: Outdoor Water Conservation

- 6.2.1 Install permeable paving materials for all driveways and walkways (minimum 70% of hardscaped area). \$\$\$ - \$\$\$\$\$ 3
- 6.2.2 Design all impermeable hardscape surfaces to direct rainwater to on-site infiltration features (i.e. vegetated swale, rain garden, cistern, etc.), a natural drain source such as an approved stream, river, lake, culvert, etc. or to an approved municipal connection (where volume of rainwater exceeds on-site filtration capacity). NC - \$\$ 1
- 6.2.3 Provide a minimum of 8 inches of topsoil or composted yard waste as finish grading throughout site. 0 \$\$\$ - \$\$\$\$\$ 2
- 6.2.4 Provide a list of drought-tolerant and native plants and a copy of the local municipality water usage guide to building manager(s)/occupants with closing package (1 point). In homeowner guide, specify the requirement to indicate which ones are native (for additional point). NC - \$\$ 1 or 2
- 6.2.5 Reduce lawn/turf to 50% of landscaped area. 1 NC - \$\$ 1
- 6.2.6 Provide permeable landscaping that is water efficient (for 1 point), xeriscaped (50% of landscaping for 2 points, 100% for 4 points), or is 100% plant-free landscaping (4 points). \$ - \$\$\$\$ 1, 2 or 4
- 6.2.7 OR
Install efficient irrigation technology including (for 1 point each, to maximum 3 points):
(i) has head-to-head coverage;
(ii) uses high efficiency spray heads with distribution uniformity of 0.7 or greater;
(iii) uses square spray patterns to increase efficiency and reduce overspray onto non-permeable surfaces;
(iv) uses drip irrigation for minimum 50% of planting bed area, including all larger shrub bed areas;
(v) includes a flow sensor, central shut-off valve, and sub meter;
(vi) has a pressure regulating device;
(vii) includes a moisture sensor/rain delay controller;
(viii) pre-set irrigation systems to account for weather. 2 \$ - \$\$\$ 1 to 3

6.3: Water Re-Use

- 6.3.1 Provide one rain barrel per unit, complete with insect screen, drain, and overflow spouts, and connect to building downspout (1 point) or centralized rainwater collection and reuse system (captures at least 50% of rainwater) (3 points). NC - \$\$ 1 or 3
- 6.3.2 OR
Provide a central rainwater collection cistern (minimum 50L per unit) to offset domestic water usage either indoors (e.g. atrium water, toilet flushing) or outdoor (e.g. irrigation for atria or gardens) (3 points for above grade, 5 points for below grade). \$\$ - \$\$\$\$\$ 3 or 5
- 6.3.3 Grey water: rough-in a system for collecting waste water from sinks, showers, and/or kitchens to capture and treat for use in toilets or irrigation (3 points), or complete the system by installing greywater treatment equipment (6 points). \$\$\$ - \$\$\$\$\$ 3 or 6
- 6.3.4 Install on-site black water treatment system or engineered wetland for reprocessing local sewage (8 points). \$\$\$\$\$ 8

6.4: The Water Efficiency Rating Score (WERS)

Projects that go through WERS certification earn Section 6 minimum points.

6.4.1 The Water Efficiency Rating Score (WERS) is based on measurable parameters, along with a scoring scale of zero to 100, zero being the most desirable. The tool considers indoor and outdoor water usage and provides a third-party certified label. 10 points. \$\$ 10

TOTAL SECTION POINTS 11

7. BUSINESS PRACTICES

This section deals more with manufacturer and builder office and business practices.

Minimum 3 Points Required

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Relative cost
Points per item

7.1: Builder's Internal Policies

- 7.1.1 Builder has a written environmental policy defining their commitment (must include an office recycling program, a staff education program, appropriate signage in the builder's offices and onsite, and energy efficient lighting). The policy must be signed by a senior executive and published on the company website. 1 NC 1
- 7.1.2 Builder's environmental policy includes and prioritizes milestones for future net zero housing developments. \$\$\$\$\$ 1
- 7.1.3 Manufacturer and/or supplier has a written environmental policy with defined environmental commitments (must include an office recycling program and energy efficient lighting). (1 point per manufacturer / supplier—maximum of 2 points). 1 \$\$\$\$\$ 1 or 2
- 7.1.4 Products used for the building are manufactured within 800 km of build site (1 point for each 2 products—maximum 5 points). 1 \$ 1 to 5
- 7.1.5 Builder (office and show homes) offsets their carbon footprint by purchasing up to 50% (1 point) or 100% (2 points) of their electrical use in renewable energy certificates. \$\$ 1 or 2
- 7.1.6 Manufacturers and/or suppliers purchase 50% or more of their power needs from solar, wind, or renewable electricity (1 point per supplier to a maximum of 3). NC 1 to 3
- 7.1.7 50% (2 points) or 100% (4 points) of electricity used during construction of the project is generated by wind power or equivalent green power certificate. Usage from a typical 6 month construction period or a recent similar project can be used to determine the monthly average. \$\$\$ 2 or 4
- 7.1.8 50% (2 points) or 100% (4 points) of electricity used by occupants during first year of occupancy is generated by wind power or an equivalent renewable energy supply (prepaid by builder). \$ - \$\$\$ 2 or 4
- 7.1.9 Builder roughs in, and shows on drawings, provisions for future emergency power supply. \$ 1
- 7.1.10 When building in winter, builder uses best-practice cold-construction techniques to minimize energy wasted during construction (e.g. no propane heaters with tarps; consider radiant heaters, manufacturing components indoors, etc.). NC 1
- 7.1.11 The builder conducts an air-tightness inspection at the mid-construction stage (1 point), with optional blower door test (additional 1 point). This will allow the Energy Advisor to identify areas of air leakage before completion. At completion, additional points for final Air Change per Hour levels: less than 3 ACH (1 point), less than 2 ACH (3 points), and less than 1 ACH (5 points). \$ 1 to 7
- 7.1.12 Builder's show home(s) or presentation centres (i.e. the building(s) incorporating model suites) incorporate permeable landscaping, which is water efficient or xeriscaped (50% of lawn for 2 points, 100% for 4 points). \$\$ - \$\$\$\$\$ 2 or 4
- 7.1.13 The builder integrates innovative sustainable building practices above and beyond what is contained within the checklist section and provides supporting documentation. The innovation must apply to the project and will be reviewed by the Technical Standards Committee at the time of submission. Built Green encourages life-cycle costing. NC - \$\$\$ 1 to 5

7.2: Community Development & Transportation

- 7.2.1 Implement a Construction Traffic/Truck Management Plan to avoid high congestion areas during construction by (as a minimum):
(i) identifying potentially sensitive neighbours;
(ii) ensuring that all vehicles can manoeuvre and park efficiently;
(iii) avoiding vehicle idling;
(iv) scheduling vehicle movements appropriately. 1 NC 1
- 7.2.2 Builder has a professional Sediment & Erosion (S&E) Control Plan prepared by an engineer, landscape architect, certified environmental monitor, or experienced individual. Builder enacts all five items (3 points); or builder enacts any of the items for 1 point each to a maximum of two points.
(i) All dirt piles are fully covered and not able to wash into the street or off the property.
(ii) All site water has to be filtered to be free of sediment prior to entering into the storm system. This can be done passively by making a containment pond that can filter as it's reabsorbed into ground water, or actively pumped from a sump to the storm system as long as the sump has filter fabric to keep out all sediment.
(iii) All downwards storm basins are covered and maintained with filter fabric or commercially available bags to filter all water prior to entering the storm system.
(iv) All disturbed downward slopes and site/work boundaries are protected with filtration measures (i.e. silt fences or straw bales) to prevent sediment flow beyond site.
(v) All vehicles that leave the site need to be cleaned prior to exiting to make sure that no sediment can enter the storm system. Provide designated delivery area where truck wheels are washed / treated during construction.
(vi) Any dirt or site debris is cleaned up immediately if it is able to wash into the storm system. This component is considered a constant monitoring program and is in place to prevent the contractors from waiting until the end of the day to clean up the surroundings. 2 NC - \$\$ 1 to 3
- 7.2.3 Builder's company vehicles are electric, hybrid, bio-diesel vehicles, or offset by third-party carbon offset program (1 point per 1/3 of vehicle fleet—maximum of 3 points). NC - \$\$ 1 to 3
- 7.2.4 Development site provides community amenity space for not-for-profit (NFP) community services. NC - \$\$\$\$\$ 2

Nov. 2022

2711
Rodgers
Creek Pl.

DP21-172

2021 BUILT GREEN High Density Checklist

Energy Model Report



7.2.5	Development site provides for Publicly Accessible Private Space.	<input type="checkbox"/> NC	1
7.2.6	Protect trees and natural features on site during construction. Point not available where there is nothing to protect.	<input type="checkbox"/> NC	1
7.2.7	Community gardens 0.5% of site area for 1 point, and 1% of site area for 2 points.	<input type="checkbox"/> \$ - \$\$	1 or 2
7.2.8	Development includes a diversity of housing types, including minimum 20% live/work units (2 points) and/or minimum 25% mixed-use facilities (2 points).	<input type="checkbox"/> NC	2 or 4
7.2.9	Masterplan to encourage shared transportation: (i) Provide minimum one parking stall for a car-sharing vehicle (1 point); AND/OR (ii) Provide a shared vehicle as an asset owned by the condominium association (3 points); AND/OR (iii) Provide permanent bicycle storage on site that is convenient, secure, and sheltered (1 point).	<input type="checkbox"/> 1 \$ - \$\$\$\$\$	1 to 5
7.2.10	Builder integrates design solutions to support visitability and / or adaptability and / or accessibility as outlined in Canada Mortgage & Housing Corporation's Accessibility, Universal Design and Adaptability: Design and Implementation (maximum 10 points): - Visitability – 100% of units for 1 point; - Adaptability – 20% of units for 2 points / 50% of units for 3 points / 80% for 4 points; and - Accessibility – 10% of units for 3 points / 20% for 5 points.	<input type="checkbox"/> \$ - \$\$\$\$	1 to 10

7.3: Staff / Trades Training & Homeowner Education

7.3.1	Builder provides BUILT GREEN® building owner manual, completed BUILT GREEN® checklist, and educational walkthrough for building manager(s)/owner(s) upon closing.	<input type="checkbox"/> \$ - \$\$	3
7.3.2	Builder provides building owner with emergency kit.	<input type="checkbox"/> \$	1
7.3.3	Builder provides building owner with resiliency plan.	<input type="checkbox"/> NC - \$	1
7.3.4	Contracted trades, suppliers, and/or supporting design professionals have successfully taken and maintained BUILT GREEN® Training: Program Fundamentals, Module 1, or Building Science Training endorsed by Built Green Canada (e.g. Construction Technology for BUILT GREEN®, NRCan's Energy Advisor or R-2000 courses, or related formal schooling). BUILT GREEN® training must be updated every two years. (1 point per trade organization—maximum 5).	<input type="checkbox"/> \$	1 to 5
7.3.5	Builder's site superintendent has successfully taken and maintained BUILT GREEN® Training: Program Fundamentals, Module 1 (1 point), and/or Building Science Training endorsed by Built Green Canada (e.g. Construction Technology for BUILT GREEN®, NRCan's Energy Advisor or R-2000 courses, or related formal schooling) (2 additional points). BUILT GREEN® training must be updated every two years.	<input type="checkbox"/> 1 \$	1 to 3

7.4: BUILT GREEN® Promotion

7.4.1	Builder's construction site and sales office signage clearly display the BUILT GREEN® logo and promote that the project is enrolled for BUILT GREEN® certification.	<input type="checkbox"/> 1 \$	1
7.4.2	Builder's primary place of business (i.e. office) is certified via a recognized third-party best practice program.	<input type="checkbox"/> \$\$	3
7.4.3	Builder agrees to BUILT GREEN® certify a minimum of 50% of all applicable projects each calendar year (3 points for 50%, 5 points for 100%).	<input type="checkbox"/> \$ - \$\$	3 or 5

TOTAL SECTION POINTS 9

TOTAL CHECKLIST POINTS 110

2711 Rodgers Creek Development Permit Energy Model Report

October 26, 2021



Prepared by:

Alphatec Energy Inc.

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Digitally signed by Mohammad Rasouli - P.Eng. - EGBC
Date: 2021.10.26 07:39:45-07'00'

Nov. 2022

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2711
Rodgers
Creek Pl.

DP21-172

Table of Contents

Executive Summary	1
Introduction	3
Methodology and Inputs	3
Energy Model Inputs Data Summary	4
Results and Conclusion	5

Table of Figures

Figure 1: Rendering of the Project in the Energy Modeling Software	3
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Executive Summary

Project Name	: 2711 Rodgers Creek
Location	: West Vancouver, BC
Energy Performance Target	: Step 2 of the BC Energy Step Code
Energy and GHG Performance Targets	: (1) TEDI \leq 45 kWh/m ² .yr (2) TEUI \leq 130 kWh/m ² .yr (3) Heating and DHW COP greater than 2.0 (4) GHGI \leq 3 kg CO ₂ /m ² .yr
Energy Modeling Guidelines	: City of Vancouver Energy Modeling Guidelines V2
Modeling Software	: EnergyPlus V8.9 (DesignBuilder V6 Interface)
Modelled Floor Area	: 4,138 m ² (excl. Parkade)
Heating Degree Days	: 2,950 (BCBC 2018 for West Vancouver)
Climate Zone	: Zone 4; HDD<3,000
Performance Achieved	: Meets TEDI, GHGI, COP and TEUI targets

This report includes a summary of energy modeling work performed for 2711 Rodgers Creek project, located in West Vancouver, BC. Building design and systems include:

Mechanical System:

- Electric heat pumps (or VRF) for space heating and cooling (HSPF=9.0 or greater)
- Electric heat pump for service hot water
- Heat/Energy Recovery Ventilators (HRV/ERV) with sensible effectiveness of 65% or greater
- Electric baseboard heat in support areas if required

Building Envelope:

- 40% window to wall ratio
- R-6 effective exterior wall R-value
- R-30 roof, and R-20 floor over unheated space
- Double glazing aluminum frame windows U-0.38 and SHGC=0.3 or greater

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The energy performance requirement for the project is Step 2 of the BC Energy Step Code. The project demonstrates compliance with Step Code as follows:

Criteria	Parameter	Requirement	Performance Achieved
Thermal Energy Demand Intensity	TEDI	45 kWh/m ² .year or less	43 kWh/m ² .year
Total Energy Use Intensity	TEUI	130 kWh/m ² .year or less	90 kWh/m ² .year
Greenhouse Gas Intensity	GHGI	3.0 kgCO ₂ /m ² .year or less	1.0 kgCO ₂ /m ² .year
Heating and Service Hot Water Efficiency	COP	2.0 or greater	2.5

Table below presents a breakdown of the building energy use and shows compliance with the performance requirements.

Energy End Use	Proposed Design (kWh/year)	EUI (kWh/m ² .year)	GHGI (kgCO ₂ /m ² .year)
Space Heating	66,004	17.2	0.19
Cooling	14,931	3.9	0.04
Lighting	91,988	24.0	0.26
Plug Loads	61,603	16.1	0.18
Service Hot Water	80,756	21.0	0.23
Fans	17,444	4.5	0.05
Elevators	11,440	3.0	0.03
Total	344,166	89.7	0.99

- TEDI = 43 kWh/m².year is below 45 kWh/m².year - compliant
- TEUI = 90 kWh/m².year is below 130 kWh/m².year - compliant
- GHGI = 1.0 kgCO₂/m².year is below 3.0 kWh/m².year - compliant

The project achieves the thermal energy demand intensity (TEDI) and Total Energy Use Intensity (TEUI) targets of Step 2 of the BC Energy Step Code. It also meets the Greenhouse Gas Intensity (GHGI) requirement of West Vancouver.

The energy model must be updated for Building Permit application, and upon completion of construction to reflect the actual air leakage rates based on the blower door test results.

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Introduction

This report presents the results of the building energy model for 2711 Rodgers Creek project located in West Vancouver, BC. The building energy model was performed to determine compliance with energy performance requirements of the BC Energy Step Code (Step 2).

The project is a six-storey residential building. The heating, cooling and service hot water of the dwelling units is provided by electric heat pumps. Ventilation is provided by Heat Recovery Ventilators.

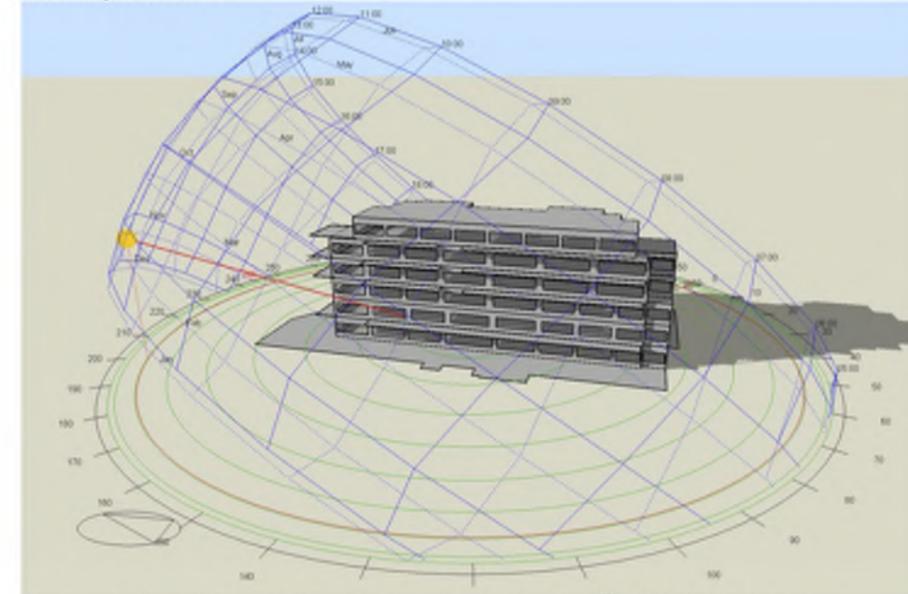


Figure 1: Rendering of the Project in the Energy Modeling Software

Methodology and Inputs

An energy model has been created using ASHRAE Standard 140 compliant software (EnergyPlus V8.9). Building systems and components such as the building envelope, lighting, heating, and service hot water have been modelled in the program. The following design information has been used in the energy analysis.

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Energy Model Inputs Data Summary

Design Parameters	Proposed Building
Project Name	2711 Rodgers Creek
Project Location	West Vancouver, BC
Building type	Residential
Energy Code	BC Energy Step Code
Energy Performance Target	BC Energy Step Code (Step 2) and BC Housing Design and Construction Guidelines: (1) TEDI ≤ 45 kWh/m ² .year (2) TEUI ≤ 130 kWh/m ² .year (3) GHGI ≤ 3.0 kgCO ₂ /m ² .year (4) Heating and Hot Water COP ≥ 2.0
Energy Modeling Guidelines	City of Vancouver Modeling Guidelines V2.0
HDD and Climate Zone	HDD = 2,950 (Victoria, BC) Climate Zone 4
Weather File	West Vancouver CWEC 2016
Energy Modeling Software	EnergyPlus V8.9 (DesignBuilder interface) Compliant with ASHRAE Standard 140
Floor Area	Modelled Floor Area: 3,838 m ²
Number of Floors	6
Number of Units	19
Fenestration and Door to Wall Ratio (%)	Approximately 40%
Exterior Walls R-value (BTU/h.ft ² .F) ⁻¹	Effective R-6 with thermal bridging
Roof R-value (BTU/h.ft ² .F) ⁻¹	R-30
Floor Over Parkade R-value (BTU/h.ft ² .F) ⁻¹	R-20
Slab on Grade Floor R-value (BTU/h.ft ² .F) ⁻¹	No Insulation
Glazing U-value (BTU/h.ft ² .F)	U-0.38 SHGC = 0.3
Air Leakage Rate	0.2 l/s.m ²
Interior Lighting Power Density	Parkade: 1 W/m ² Corridors: 5 W/m ² Other areas: 5 W/m ²

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Plug Loads	<ul style="list-style-type: none"> Dwelling Units: 5 W/m² Other areas: According to NECB 2011
Elevators	3 kW, varies per NECB 2011 Schedule G 58% mechanical efficiency. Heat gain applied to first floor core zone
Occupant Load	<ul style="list-style-type: none"> 3-bedroom: 4 people 2-bedroom: 3 people Other areas: According to NECB 2011
Operating Schedule	NECB Schedule G
Heating and Cooling System	Electric Heat Pump HSPF=9.0
Ventilation	ERV or HRV with 65% sensible effectiveness
Service Hot Water Load	<ul style="list-style-type: none"> Dwelling Units: 0.025 gpm/person Other areas: NECB 2011
Service Hot Water System	Electric heat pump water heater
Ventilation rates	<ul style="list-style-type: none"> Dwelling Units: 100 cfm/unit Gym: 20 cfm/person Other Areas: ASHRAE 62.1

Results and Conclusion

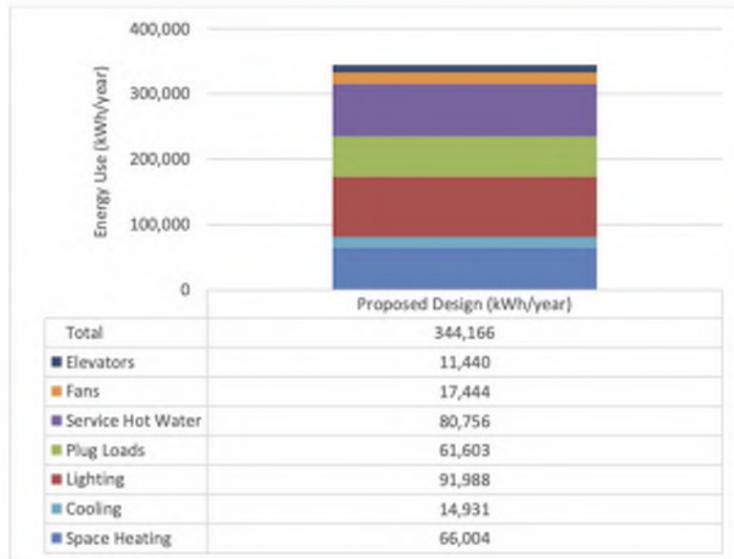
The table below provides a comparison of building energy consumption and GHG emissions by end-use for the proposed buildings.

Energy End Use	Proposed Design (kWh/year)	EUI (kWh/m ² .year)	GHGI (kgCO ₂ /m ² .year)
Space Heating	66,004	17.2	0.19
Cooling	14,931	3.9	0.04
Lighting	91,988	24.0	0.26
Plug Loads	61,603	16.1	0.18
Service Hot Water	80,756	21.0	0.23
Fans	17,444	4.5	0.05
Elevators	11,440	3.0	0.03
Total	344,166	89.7	0.99

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The energy model must be updated for Building Permit application, and upon completion of construction to reflect the actual air leakage rates based on the blower door test results. Exterior lighting to be included in the model.

Criteria	Parameter	Requirement	Performance Achieved
Thermal Energy Demand Intensity	TEDI	45 kWh/m ² .year or less	43 kWh/m ² .year
Total Energy Use Intensity	TEUI	130 kWh/m ² .year or less	90 kWh/m ² .year
Greenhouse Gas Intensity	GHGI	3.0 kgCO ₂ /m ² .year or less	1.0 kgCO ₂ /m ² .year
Heating and Service Hot Water Efficiency	COP	2.0 or greater	2.5

The project achieves the thermal energy demand intensity (TEDI) and Total Energy Use Intensity (TEUI) targets of Step 2 of the BC Energy Step Code. It also meets the Greenhouse Gas Intensity (GHGI) requirement of District of West Vancouver.

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DRAWING LIST

A000	COVER
A001	PROJECT STATS
A002	RENDERINGS
A101	CONTEXT PLAN
A102	SITE PLAN
A103	NATURAL GRADE CALCULATION
A104	FINISHED GRADE CALCULATION
A109	SURVEY
A201	BLDG PLAN - P2
A202	BLDG PLAN - P1
A203	BLDG PLAN - L1
A204	BLDG PLAN - L2
A205	BLDG PLAN - L3
A206	BLDG PLAN - L4
A207	BLDG PLAN - L5
A208	BLDG PLAN - L6
A209	BLDG PLAN - ROOF
A301	BLDG ELEVATION - SOUTH
A302	BLDG ELEVATION - EAST
A303	BLDG ELEVATION - NORTH
A304	BLDG ELEVATION - WEST
A401	BLDG SECTION A
A402	BLDG SECTION B
A403	BLDG SECTION C
A404	BLDG SECTION D
FAR 200	FAR OVERLAY - OVERALL
FAR 201	FAR OVERLAY - LEVEL P2 PLAN
FAR 202	FAR OVERLAY - LEVEL P1 PLAN
FAR 203	FAR OVERLAY - LEVEL 1 PLAN
FAR 204	FAR OVERLAY - LEVEL 2 PLAN
FAR 205	FAR OVERLAY - LEVEL 3 PLAN
FAR 206	FAR OVERLAY - LEVEL 4-5 PLAN
FAR 207	FAR OVERLAY - LEVEL 6 PLAN
LP01	LANDSCAPE PLAN

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2711 RODGERS CREEK RESIDENTIAL - DEVELOPMENT PERMIT 21-172

WEST VANCOUVER, BC

NOV. 2022

2711 RODGERS CREEK
CREEK

2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

COVER

Project 202101
Scale

A000

PROJECT STATISTICS	
CIVIC ADDRESS	2711 RODGERS CREEK PL, WEST VANCOUVER, BC.
LEGAL DESCRIPTION	LOT 1, DISTRICT LOT 816, GROUP 1, NEW WESTMINSTER DISTRICT. PLAN EPP 25820. PID 029-690-340

Site Summary					
Site Area(sf)	36071	sf	3351	m ²	Setbacks: Front:min6m Rear:min7.6m Side:min6m
Site Coverage(sf)	9747	sf	906	m ²	
Max. Permit Coverage	35%				
Project Site Coverage	27%				

FSR Summary		Density summary				Building Height				
	Max. Permitted Floor Area (SF)	Max. Permitted (m ²)	Project FSR (SF)	Project FSR (m ²)	Max. Permitted Units	Total Provided Units	Max. Permitted Height	Building Height	Number of Storeys (BYLAW 110)	
Residential	36638.87	3403.75	36637.5	3403.73	22	19			Above Average Grade	5
Total	36638.87	3403.75	36637.5	3403.73	22	19	18.9 m	18.9 m	Basement Level	3

Residential Area											
Level	Parking(sf)	Mechanical(sf)	Storage(sf)	Garbage(sf)	Lobby(sf)	Open to Below (sf)	Amenity(sf)	Unit Count(sf)	Exclusions(sf)	FSR(sf)	GFA*(sf)
P2 (BASEMENT)		1681							1681	0	1681
P1 (BASEMENT)	12884			240					13124	0	13124
L1 (BASEMENT)		333	1624		1248		646	3	3851	3771	7622
L2								4	0	6894	6894
L3								4	0	6894	6894
L4								3	0	6785	6785
L5								3	0	6785	6785
L6								2	0	5508	5508
Total	12884	2014	1624	240	1248		646	19	18656	36637.5	55293

Residential Unit Summary(sf)										
Unit Type	Unit A(sf)	Unit B(sf)	Unit C(sf)	Unit C1(sf)	Unit D(sf)	Unit E(sf)	Unit F(sf)	Unit G(sf)	Totals	
Unit Configuration	3bd	2bd	1bd	2bd	3bd	3bd	3bd	3bd	3bd	
Unit Area	2081	973	673	999	1748	2024	2331	2262		
Level 1 (BASEMENT)	1	1	1							3
Level 2	1	1		1	1					4
Level 3	1	1		1	1					4
Level 4	1				1	1				3
Level 5	1				1	1				3
Level 6							1	1		2
Total	5	3	1	2	4	2	1	1		19
% by type	26.3%	15.8%	5.3%	10.5%	21.1%	10.5%	5.3%	5.3%	Less than 1000sf unit:	31.58%

Parking Summary		Parking Required		Parking Provided				Total
Car Parking				Regular	Small	H/C		
Residential Apartment	Unit Area ≤ 70m ² :1 Unit Area > 70m ² :1.5	Units (≤ 70m ²) 1*1=1 Units (> 70m ²) 18*1.5=27 ; 1 + 27 = 28	Level P1	23	8	1	32	
Residential Visitor	Total Units*20%	Total Units 19 *20%=4	Level P1 Outdoor	3	0	0	3	
Total Stalls		32		26	8	1	35	
							Small Car Percentage 22.86%	
Bike Parking				Horizontal	Vertical	Outdoor Rack	Total	
Secured Parking	Total Units*2	Total Units 19*2=38	Level 1	38	0	0	38	
Short-time Parking	Total Units*0.2	Total Units 19*0.2=4	Level P1 Outdoor	0	0	4	4	
Total Stalls		42		38	0	4	42	

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2711 RODGERS CREEK

2711 RODGERS CREEK LOT 1 AREA 3 WEST VANCOUVER, BC

PROJECT STATS

Project 202101
Scale

A001



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2711 RODGERS
CREEK

2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

RENDERINGS

Project 202101

Scale

A002



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2711 RODGERS CREEK

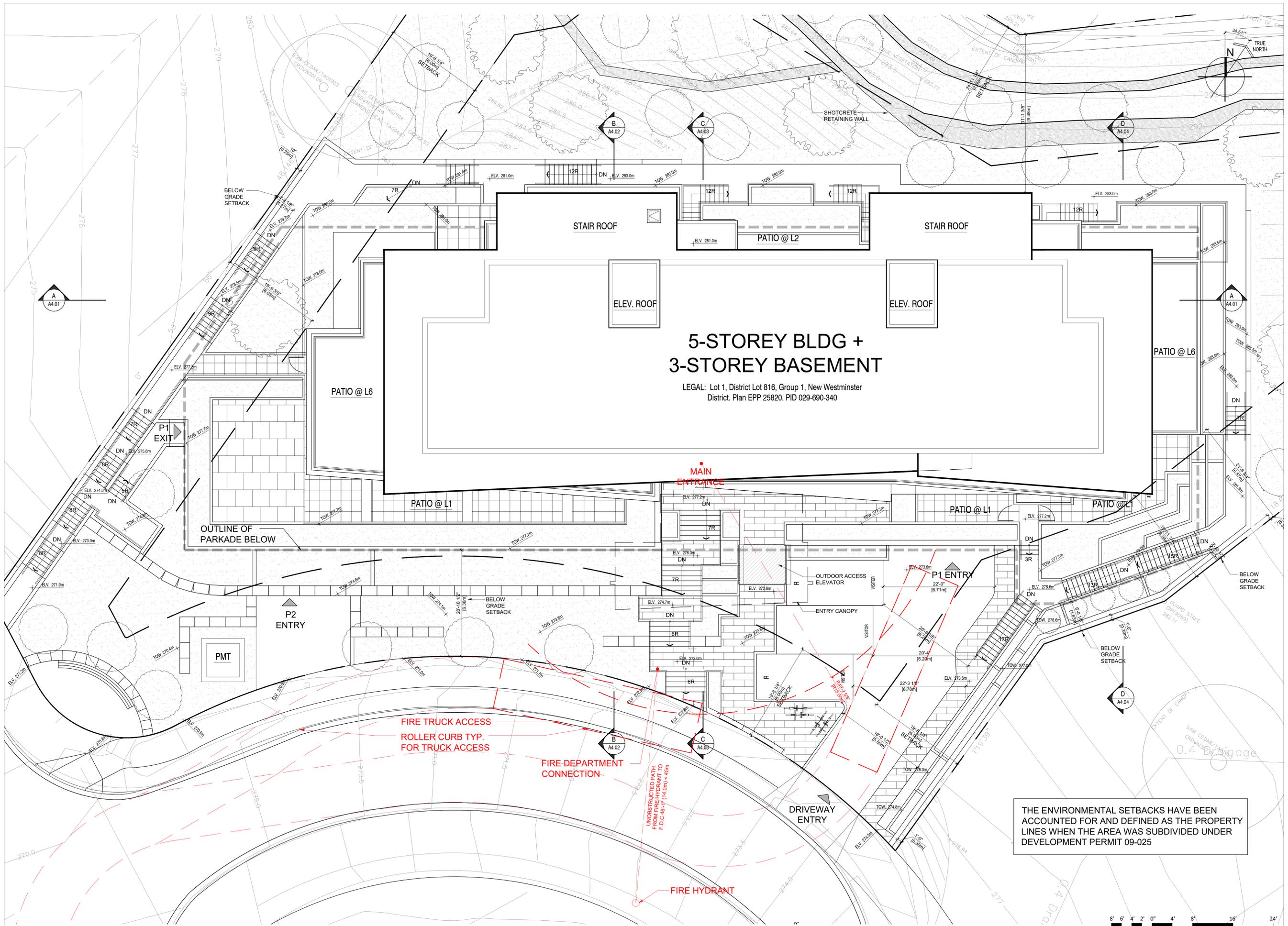
2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

CONTEXT PLAN

Project 202101
Scale 1/32" = 1'-0"



A101



THE ENVIRONMENTAL SETBACKS HAVE BEEN ACCOUNTED FOR AND DEFINED AS THE PROPERTY LINES WHEN THE AREA WAS SUBDIVIDED UNDER DEVELOPMENT PERMIT 09-025

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2711 RODGERS CREEK

2711 RODGERS CREEK LOT 1 AREA 3 WEST VANCOUVER, BC

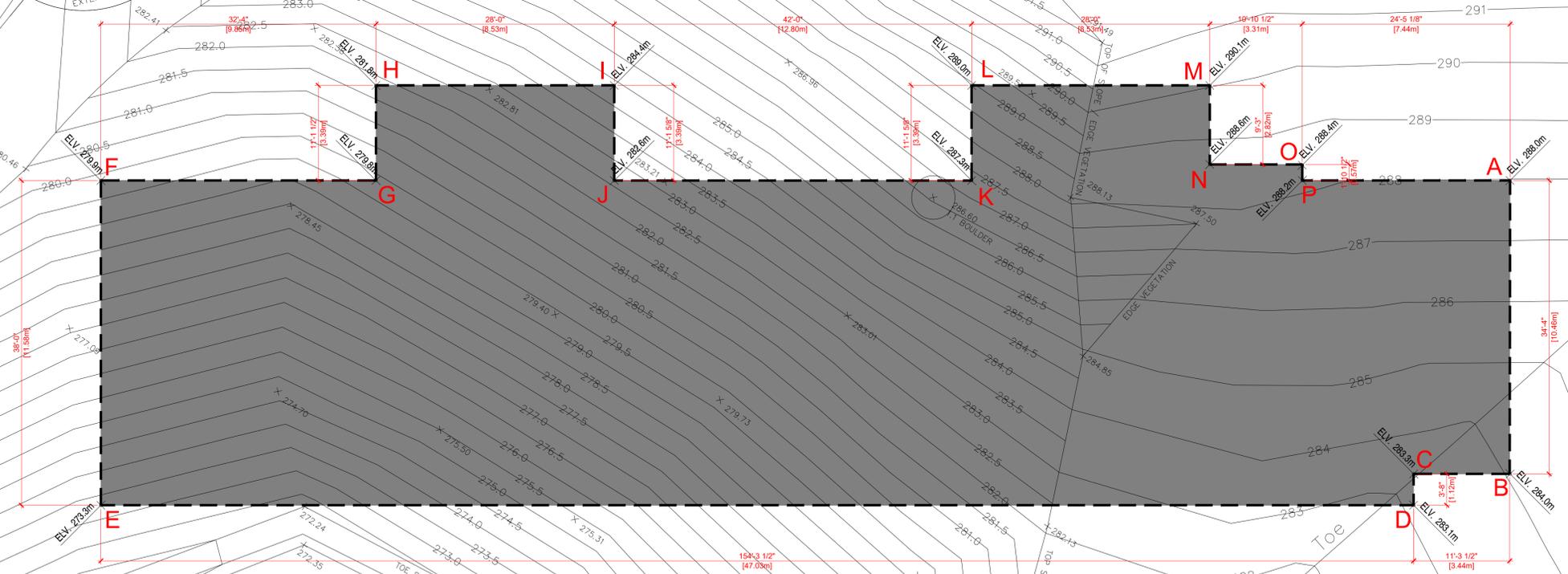
SITE PLAN

Project 202101
Scale 1/8" = 1'-0"

A102

Wall Section	Average Grade	Length	Y
A - B	$(288 + 284) \div 2$	X 10.46	= 2991.6
B - C	$(284 + 283.3) \div 2$	X 3.44	= 975.8
C - D	$(283.3 + 283.1) \div 2$	X 1.12	= 317.2
D - E	$(283.1 + 273.3) \div 2$	X 47.03	= 13083.7
E - F	$(273.3 + 279.9) \div 2$	X 11.58	= 3203.0
F - G	$(279.9 + 279.8) \div 2$	X 9.85	= 2756.5
G - H	$(279.8 + 281.8) \div 2$	X 3.39	= 951.9
H - I	$(281.8 + 284.4) \div 2$	X 8.53	= 2414.8
I - J	$(284.4 + 282.6) \div 2$	X 3.39	= 961.1
J - K	$(282.6 + 287.3) \div 2$	X 12.80	= 3647.4
K - L	$(287.3 + 289) \div 2$	X 3.39	= 976.8
L - M	$(289 + 290.1) \div 2$	X 8.53	= 2469.9
M - N	$(290.1 + 288.6) \div 2$	X 2.82	= 816.0
N - O	$(288.6 + 288.4) \div 2$	X 3.31	= 954.9
O - P	$(288.4 + 288.2) \div 2$	X 0.57	= 164.3
P - A	$(288.2 + 288) \div 2$	X 7.43	= 2140.6
Total		137.64	38825.5

TOTAL Y ÷ TOTAL PERMIETER LENGTH = AVERAGE GRADE
 $38825.5 \div 137.64 = 282.1$



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2711 RODGERS CREEK

2711 RODGERS CREEK LOT 1 AREA 3 WEST VANCOUVER, BC

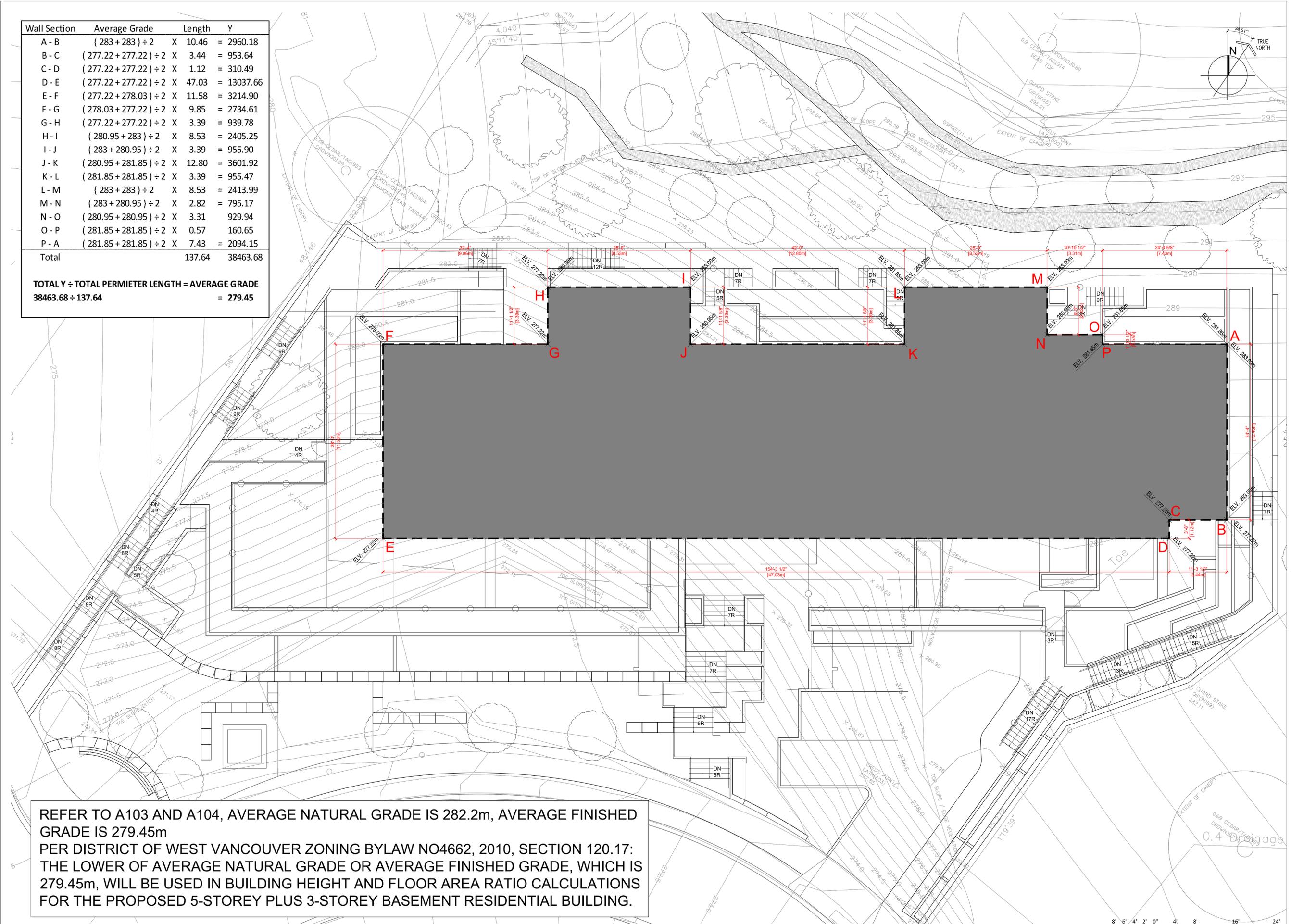
NATURAL GRADE CALCULATION

Project 202101
 Scale 1/8" = 1'-0"

A103

Wall Section	Average Grade	Length	Y
A - B	$(283 + 283) \div 2$	X 10.46	= 2960.18
B - C	$(277.22 + 277.22) \div 2$	X 3.44	= 953.64
C - D	$(277.22 + 277.22) \div 2$	X 1.12	= 310.49
D - E	$(277.22 + 277.22) \div 2$	X 47.03	= 13037.66
E - F	$(277.22 + 278.03) \div 2$	X 11.58	= 3214.90
F - G	$(278.03 + 277.22) \div 2$	X 9.85	= 2734.61
G - H	$(277.22 + 277.22) \div 2$	X 3.39	= 939.78
H - I	$(280.95 + 283) \div 2$	X 8.53	= 2405.25
I - J	$(283 + 280.95) \div 2$	X 3.39	= 955.90
J - K	$(280.95 + 281.85) \div 2$	X 12.80	= 3601.92
K - L	$(281.85 + 281.85) \div 2$	X 3.39	= 955.47
L - M	$(283 + 283) \div 2$	X 8.53	= 2413.99
M - N	$(283 + 280.95) \div 2$	X 2.82	= 795.17
N - O	$(280.95 + 280.95) \div 2$	X 3.31	= 929.94
O - P	$(281.85 + 281.85) \div 2$	X 0.57	= 160.65
P - A	$(281.85 + 281.85) \div 2$	X 7.43	= 2094.15
Total		137.64	38463.68

TOTAL Y ÷ TOTAL PERIMETER LENGTH = AVERAGE GRADE
 $38463.68 \div 137.64 = 279.45$



REFER TO A103 AND A104, AVERAGE NATURAL GRADE IS 282.2m, AVERAGE FINISHED GRADE IS 279.45m
 PER DISTRICT OF WEST VANCOUVER ZONING BYLAW NO4662, 2010, SECTION 120.17:
 THE LOWER OF AVERAGE NATURAL GRADE OR AVERAGE FINISHED GRADE, WHICH IS 279.45m, WILL BE USED IN BUILDING HEIGHT AND FLOOR AREA RATIO CALCULATIONS FOR THE PROPOSED 5-STORY PLUS 3-STORY BASEMENT RESIDENTIAL BUILDING.

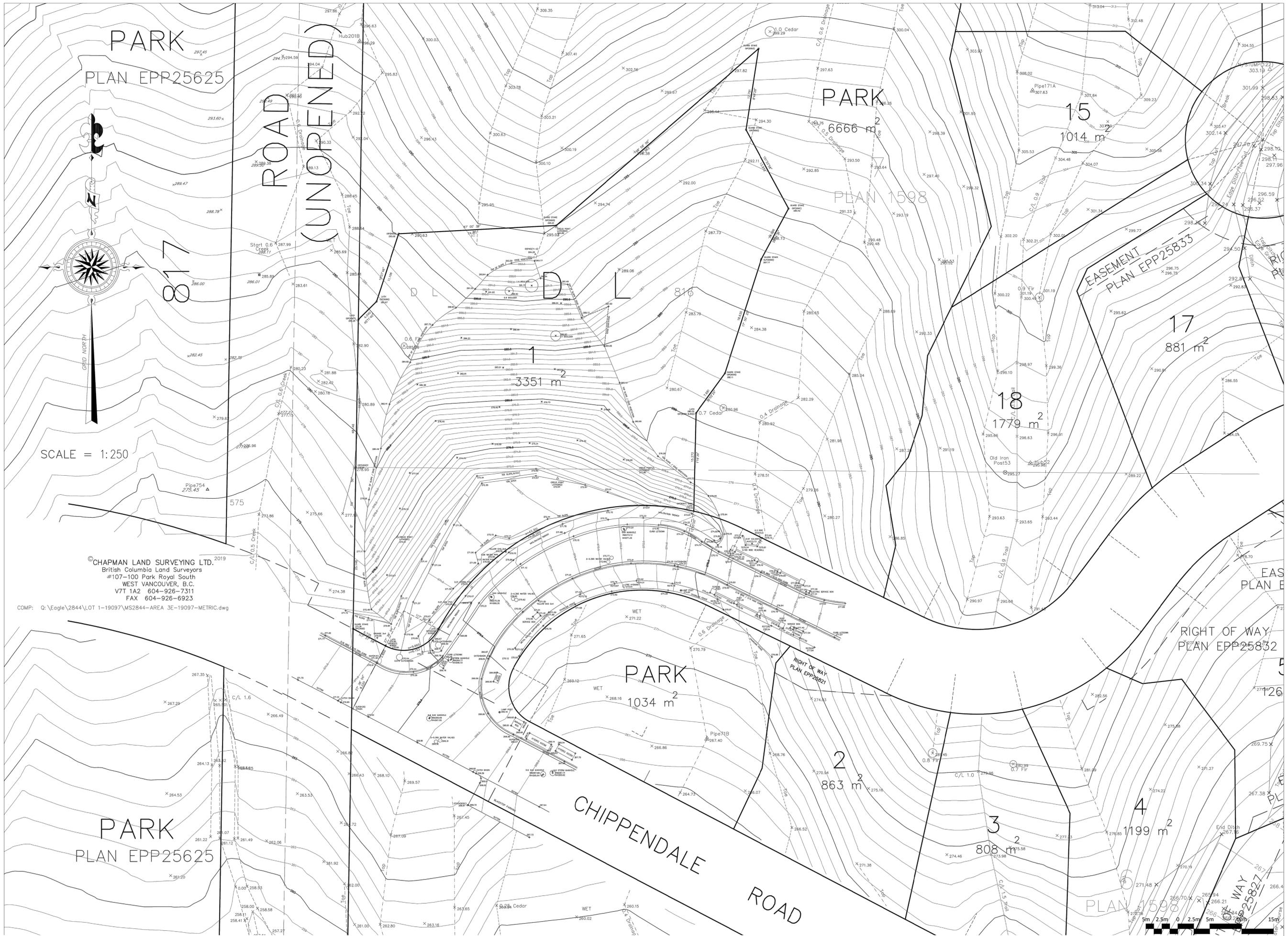
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2711 RODGERS CREEK
 LOT 1 AREA 3
 WEST VANCOUVER, BC

FINISHED GRADE CALCULATION

Project 202101
 Scale 1/8" = 1'-0"

A104



SCALE = 1:250

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British Columbia Land Surveyors
#107-100 Park Royal South
WEST VANCOUVER, B.C.
V7T 1A2 604-926-7311
FAX 604-926-6923

COMP: Q:\Eagle\2844\LOT 1-19097\MS2844-AREA 3E-19097-METRIC.dwg

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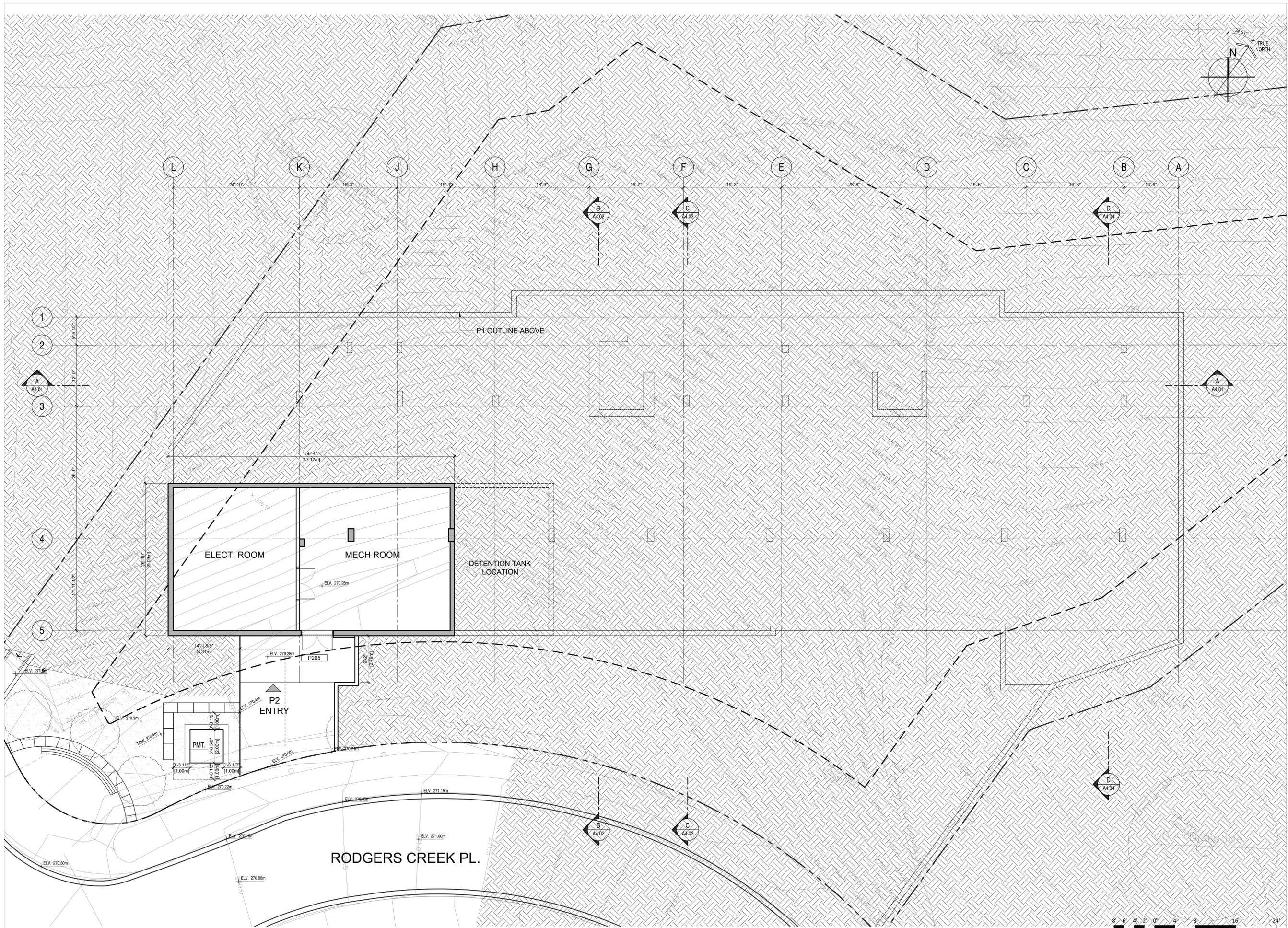
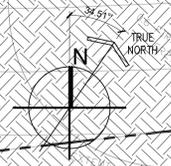
2711 RODGERS CREEK

2711 RODGERS CREEK LOT 1 AREA 3 WEST VANCOUVER, BC

SURVEY

Project 202101
Scale 1:250

A109



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2711 RODGERS CREEK

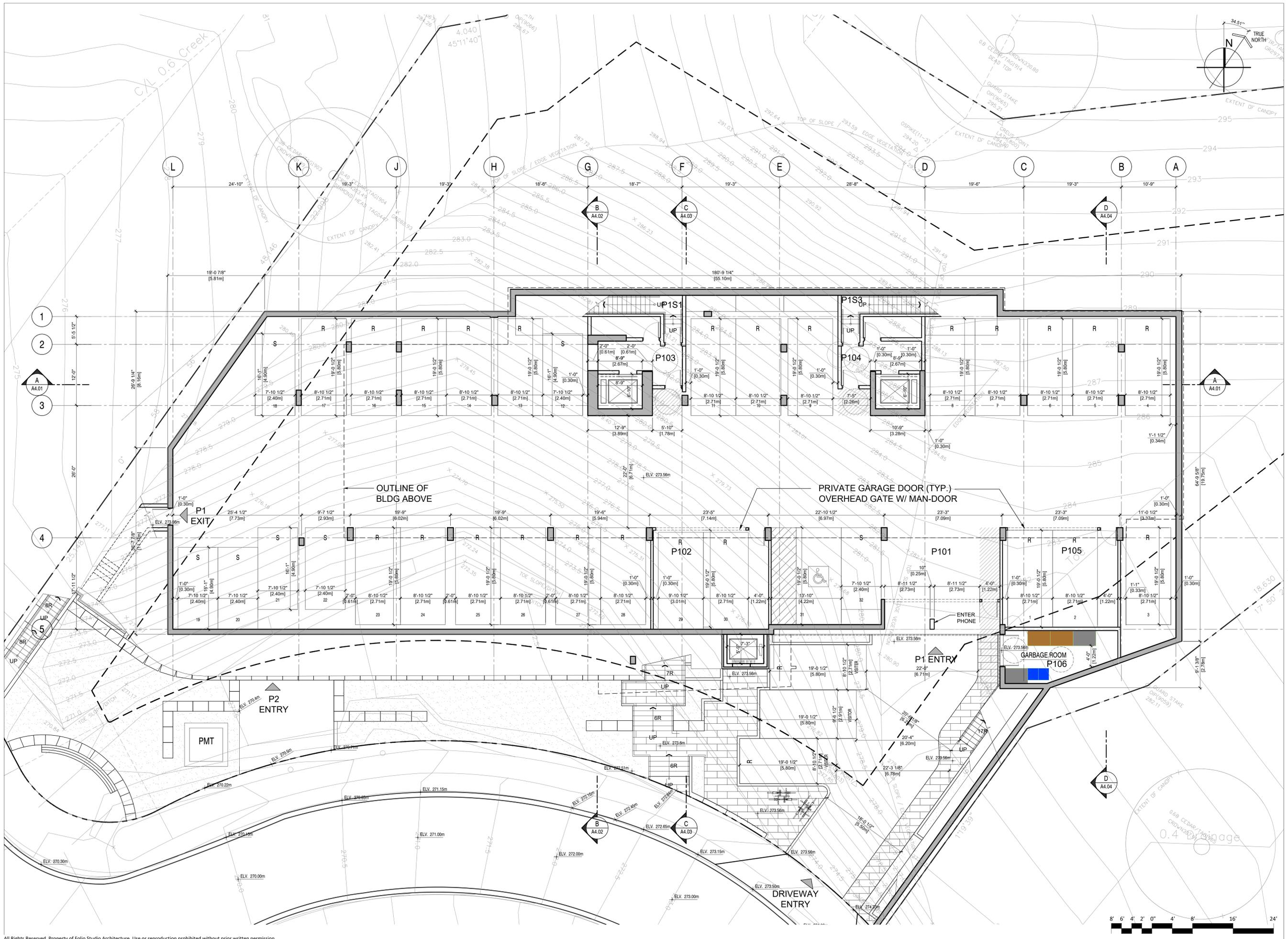
2711 RODGERS CREEK LOT 1 AREA 3 WEST VANCOUVER, BC

LEVEL P2 PLAN

Project 202101 Scale 1/8" = 1'-0"



A201



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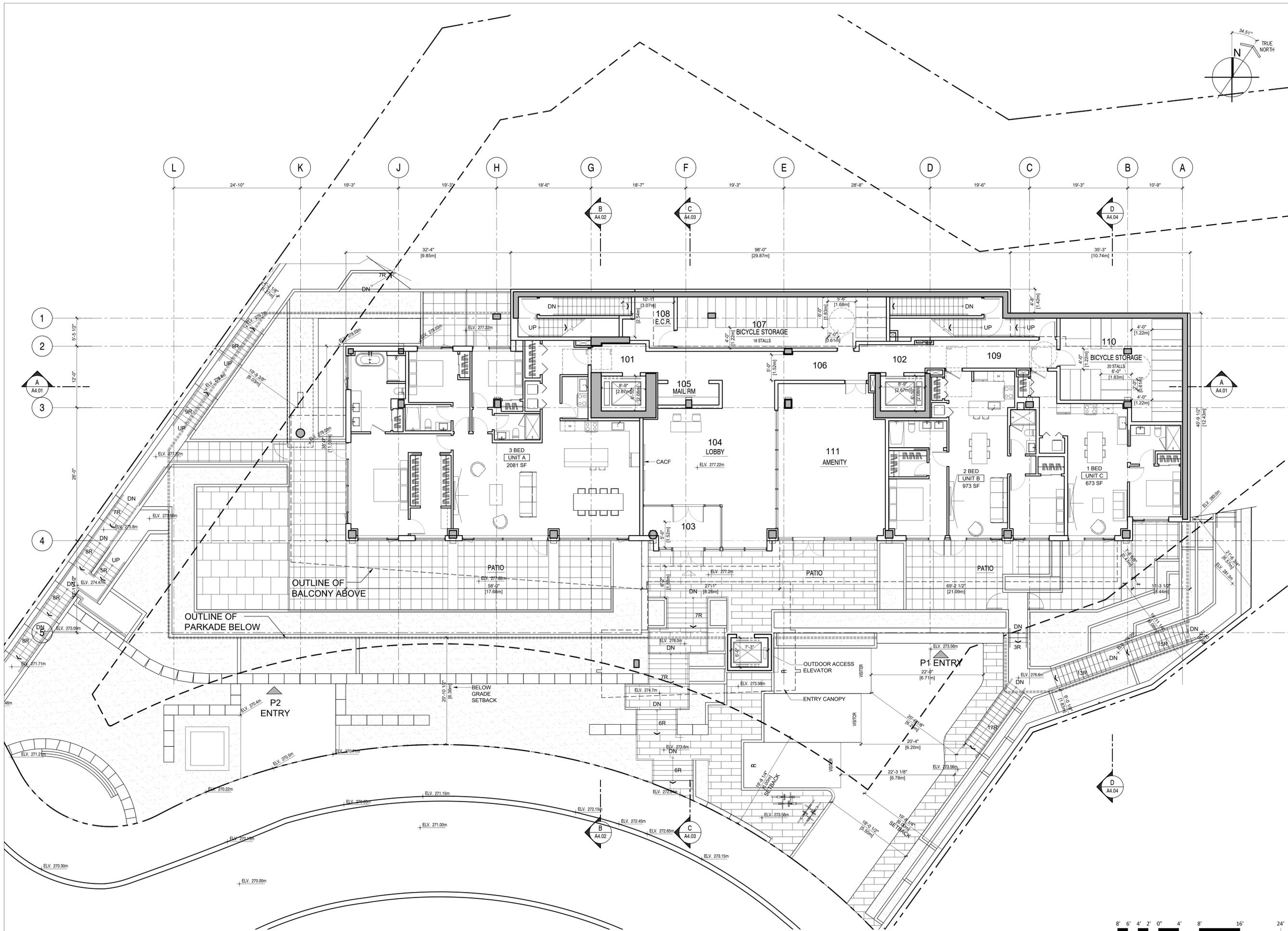
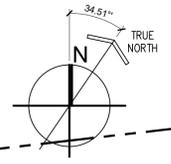
2711 RODGERS CREEK

2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

LEVEL P1 PLAN

Project 202101
Scale 1/8" = 1'-0"

A202



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2711 RODGERS CREEK

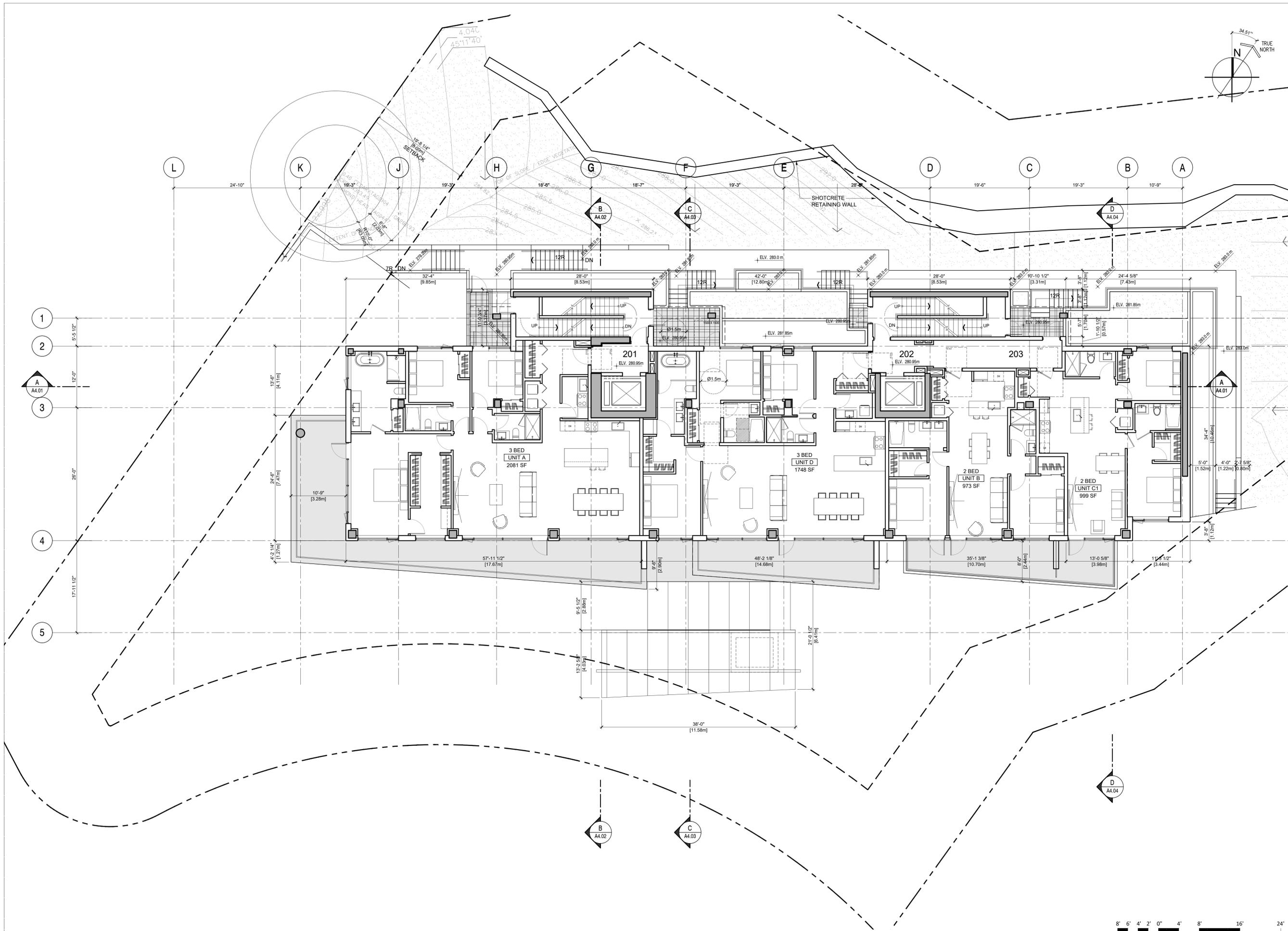
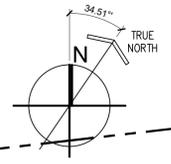
2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

LEVEL 1 PLAN

Project 202101
Scale 1/8" = 1'-0"



A203



2022-11-08 Issued for DP 21-172

2711 RODGERS
CREEK

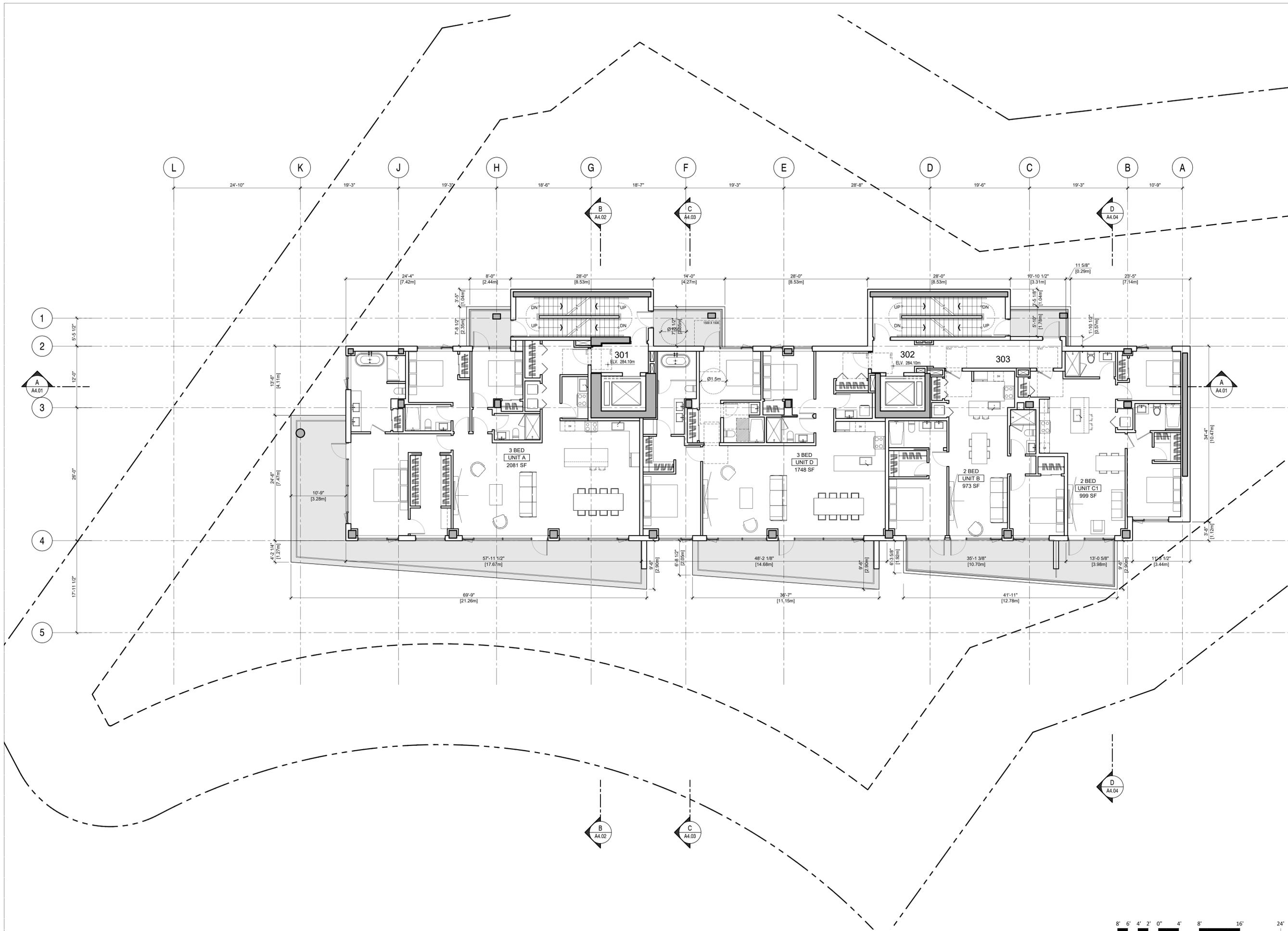
2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

LEVEL 2 PLAN

Project 202101
Scale 1/8" = 1'-0"



A204



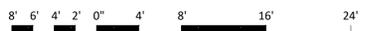
2022-11-08 Issued for DP 21-172

2711 RODGERS CREEK

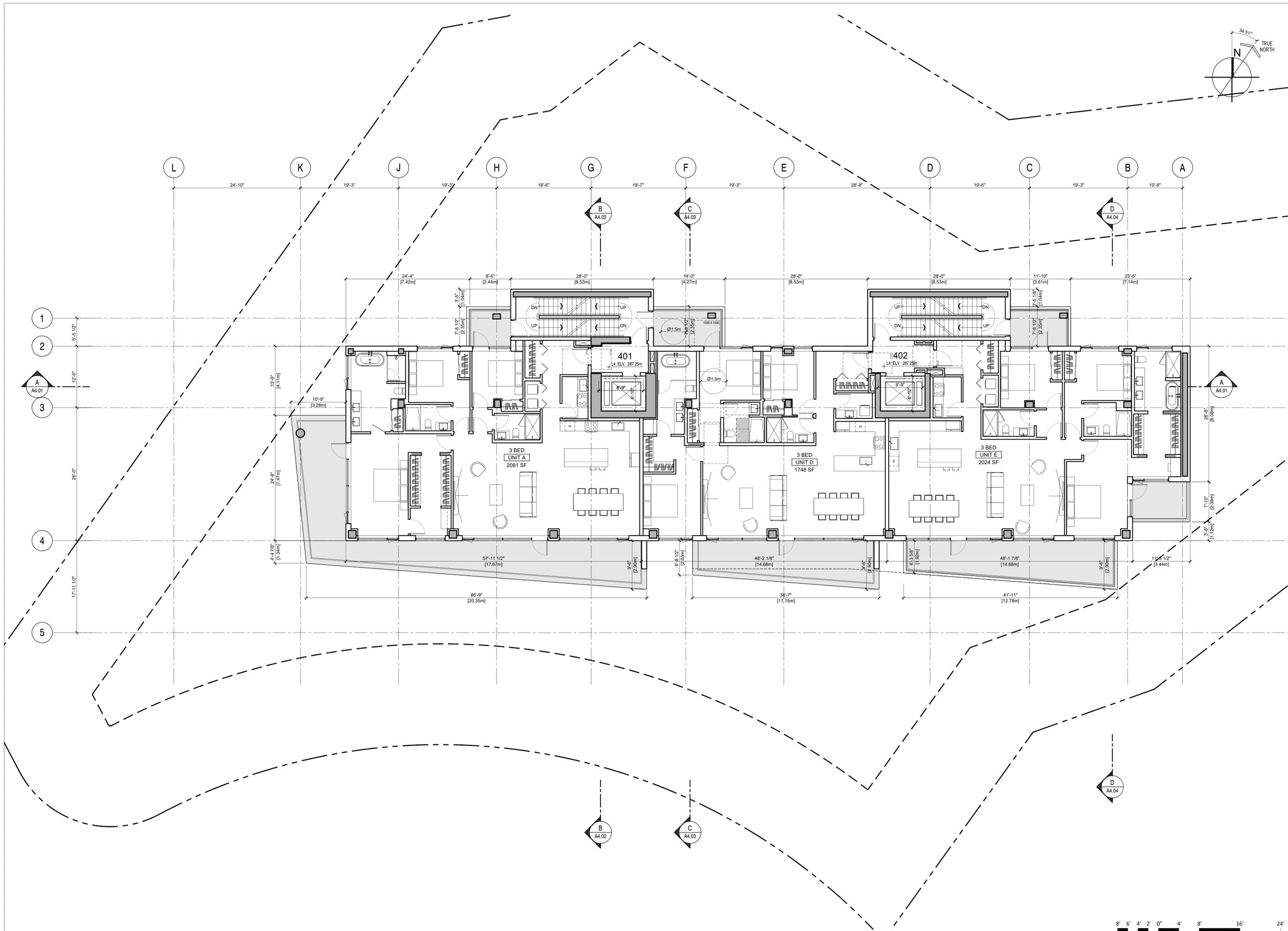
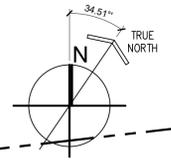
2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

LEVEL 3 PLAN

Project 202101
Scale 1/8" = 1'-0"



A205



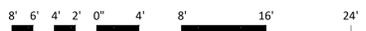
2022-11-08 Issued for DP 21-172

2711 RODGERS CREEK

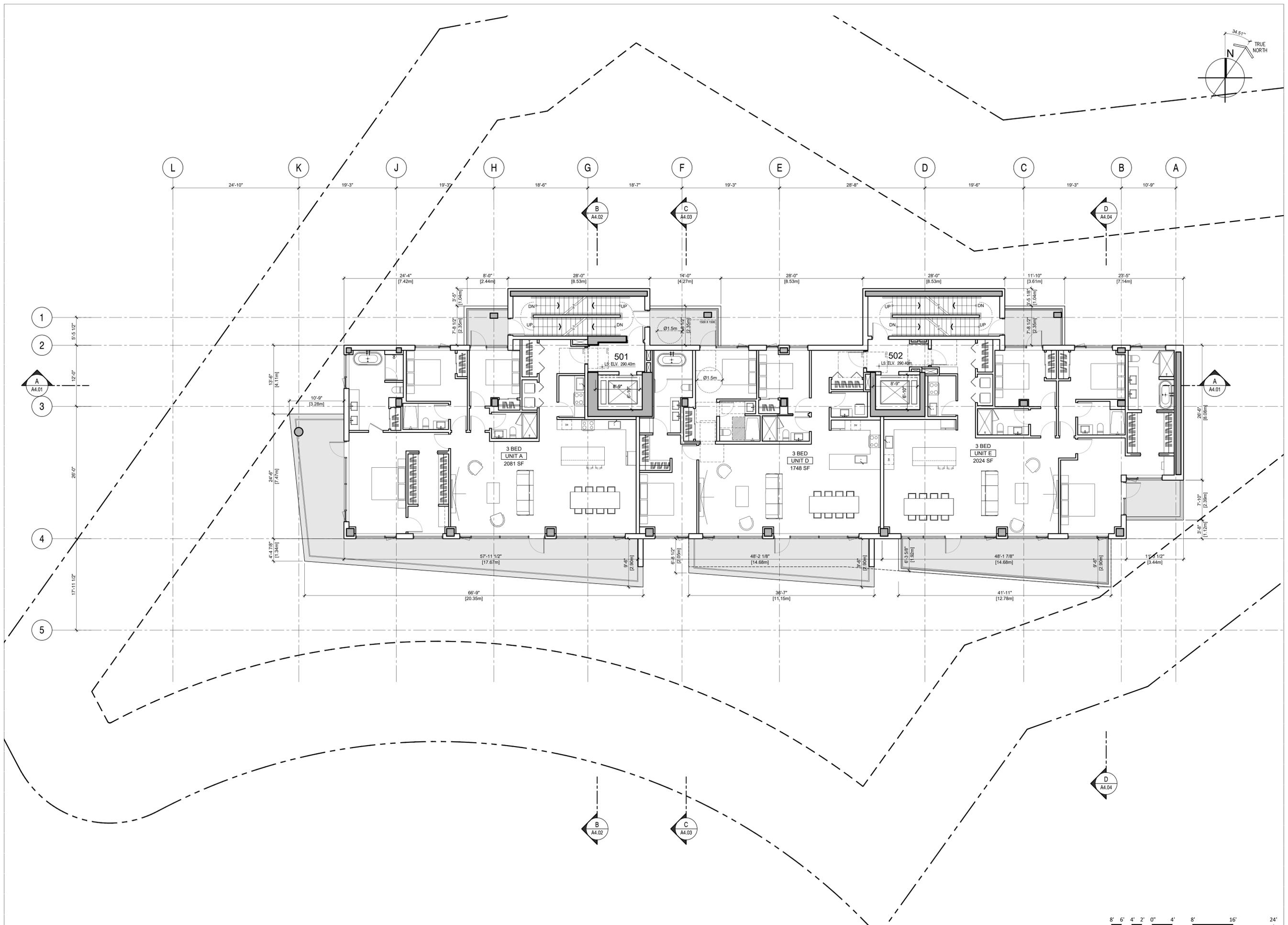
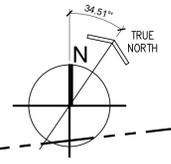
2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

LEVEL 4 PLAN

Project 202101
Scale 1/8" = 1'-0"



A206



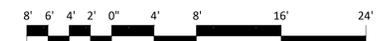
2022-11-08 Issued for DP 21-172

2711 RODGERS CREEK

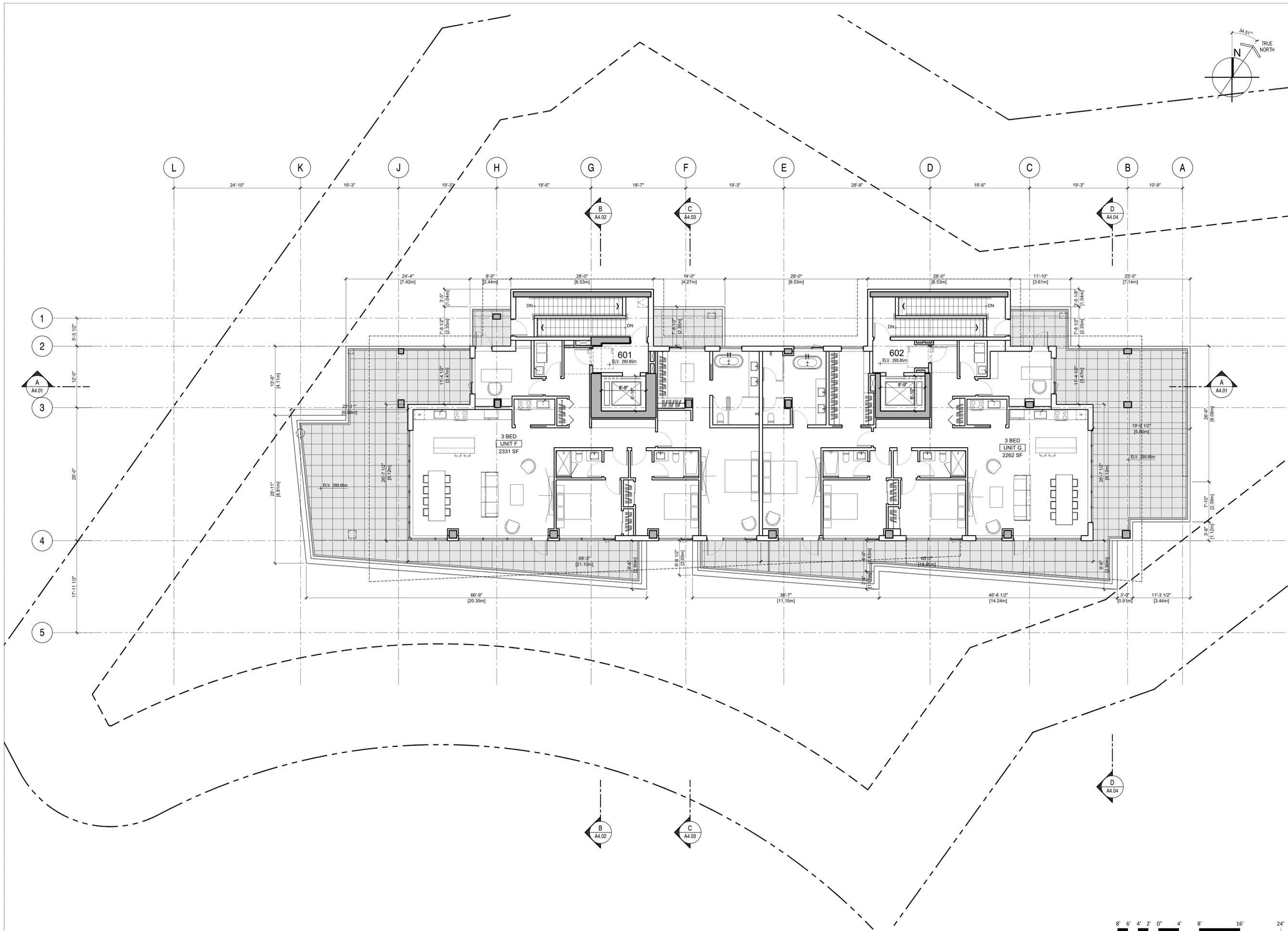
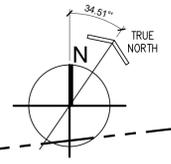
2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

LEVEL 5 PLAN

Project 202101
Scale 1/8" = 1'-0"



A207



2022-11-08 Issued for DP 21-172

2711 RODGERS CREEK

2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

LEVEL 6 PLAN

Project 202101
Scale 1/8" = 1'-0"



A208

MATERIAL LEGEND

- | | |
|--|---|
| 1.1 Architectural Concrete - Painted | 4.1 Glass Guardrail c/w Metal Post and Railing - 42" min. |
| 1.2 Architectural Concrete - Board-Formed - Painted | 4.2 Concrete Elevator w/ Fiber-cement Cladding |
| 2.1 Fiber-reinforced Cementitious Wall Panel Non-combustible - White | 4.3 Sloped Glass Entry Canopy |
| 2.2 Fiber-reinforced Cementitious Wall Panel Non-combustible - Charcoal | 5.1 Metal Flashing - Painted |
| 2.3 Fiber-reinforced Cementitious Wall Panel Non-combustible - Wood Tone | 5.2 Metal Garage Door - Painted |
| 2.4 Random Ashlar Granite Cladding | 5.3 Metal Door - Painted |
| 3.1 Aluminum Framed Window System - Double Glazed | 6.1 Privacy Screen, Wood Tone Non-combustible + Glass |
| 3.2 Aluminum Framed Window System - Insulated Spandrel | 6.2 Wood Tone Aluminum Non-combustible Soffit |
| 3.3 Aluminum Framed Window System - Swing Door | 6.3 Wood and Metal Non-combustible Column & Canopy Frames |
| 3.4 Fold-away Glazed Wall System | |



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2711 RODGERS
CREEK

2711 RODGER CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

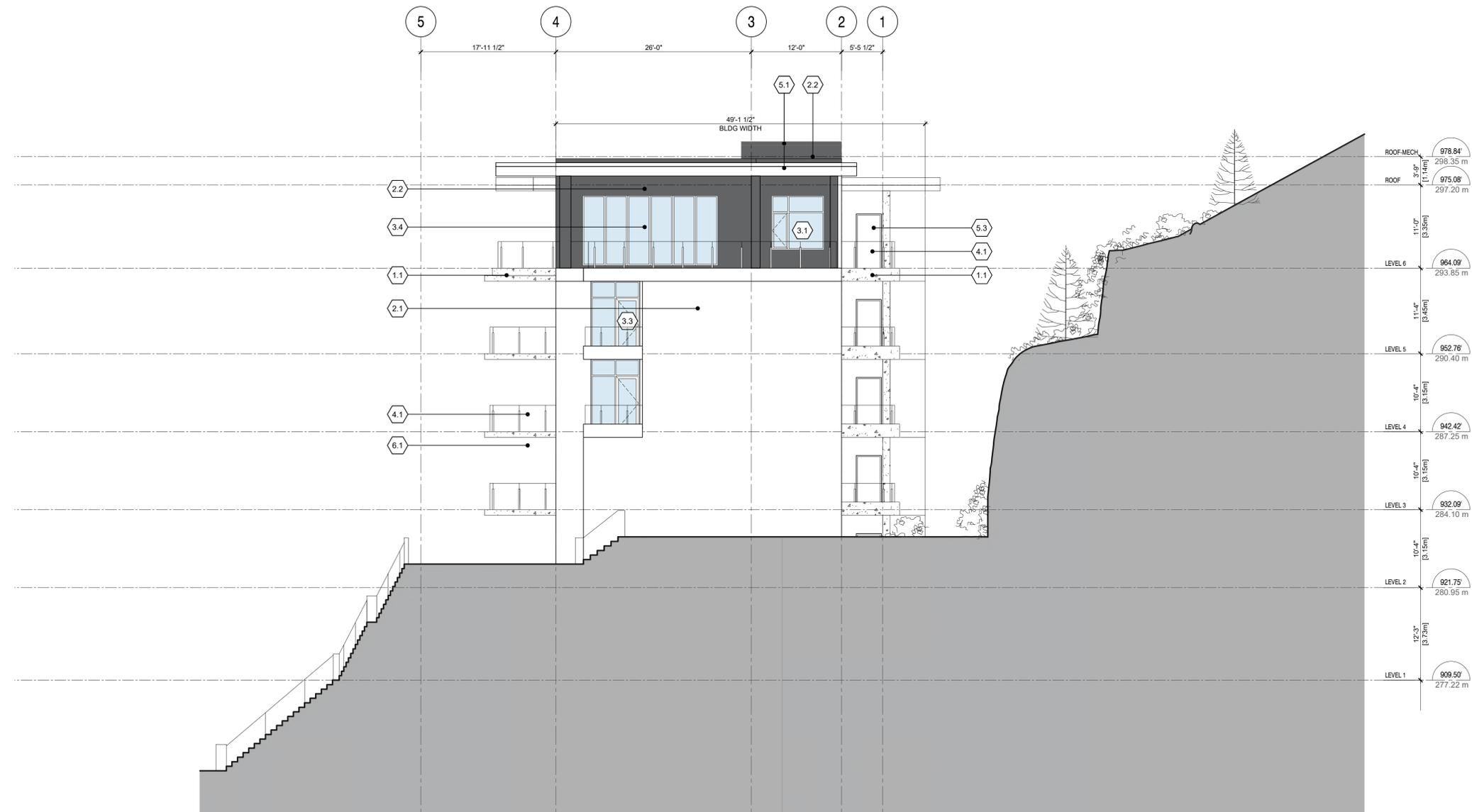
**SOUTH
ELEVATION**

Project 202101
Scale

A301

MATERIAL LEGEND

- | | |
|--|---|
| 1.1 Architectural Concrete - Painted | 4.1 Glass Guardrail c/w Metal Post and Railing - 42" min. |
| 1.2 Architectural Concrete - Board-Formed - Painted | 4.2 Concrete Elevator w/ Fiber-cement Cladding |
| 2.1 Fiber-reinforced Cementitious Wall Panel Non-combustible - White | 4.3 Sloped Glass Entry Canopy |
| 2.2 Fiber-reinforced Cementitious Wall Panel Non-combustible - Charcoal | 5.1 Metal Flashing - Painted |
| 2.3 Fiber-reinforced Cementitious Wall Panel Non-combustible - Wood Tone | 5.2 Metal Garage Door - Painted |
| 2.4 Random Ashlar Granite Cladding | 5.3 Metal Door - Painted |
| 3.1 Aluminum Framed Window System - Double Glazed | 6.1 Privacy Screen, Wood Tone Non-combustible + Glass |
| 3.2 Aluminum Framed Window System - Insulated Spandrel | 6.2 Wood Tone Aluminum Non-combustible Soffit |
| 3.3 Aluminum Framed Window System - Swing Door | 6.3 Wood and Metal Non-combustible Column & Canopy Frames |
| 3.4 Fold-away Glazed Wall System | |



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2711 RODGERS CREEK

2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

EAST ELEVATION

Project 202101
Scale 1/8" = 1'-0"

A302

MATERIAL LEGEND

- | | |
|--|---|
| 1.1 Architectural Concrete - Painted | 4.1 Glass Guardrail c/w Metal Post and Railing - 42" min. |
| 1.2 Architectural Concrete - Board-Formed - Painted | 4.2 Concrete Elevator w/ Fiber-cement Cladding |
| 2.1 Fiber-reinforced Cementitious Wall Panel Non-combustible - White | 4.3 Sloped Glass Entry Canopy |
| 2.2 Fiber-reinforced Cementitious Wall Panel Non-combustible - Charcoal | 5.1 Metal Flashing - Painted |
| 2.3 Fiber-reinforced Cementitious Wall Panel Non-combustible - Wood Tone | 5.2 Metal Garage Door - Painted |
| 2.4 Random Ashlar Granite Cladding | 5.3 Metal Door - Painted |
| 3.1 Aluminum Framed Window System - Double Glazed | 6.1 Privacy Screen, Wood Tone Non-combustible + Glass |
| 3.2 Aluminum Framed Window System - Insulated Spandrel | 6.2 Wood Tone Aluminum Non-combustible Soffit |
| 3.3 Aluminum Framed Window System - Swing Door | 6.3 Wood and Metal Non-combustible Column & Canopy Frames |
| 3.4 Fold-away Glazed Wall System | |



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2711 RODGERS CREEK

2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

NORTH ELEVATION

Project 202101
Scale

A303

MATERIAL LEGEND

- | | |
|--|---|
| 1.1 Architectural Concrete - Painted | 4.1 Glass Guardrail c/w Metal Post and Railing - 42" min. |
| 1.2 Architectural Concrete - Board-Formed - Painted | 4.2 Concrete Elevator w/ Fiber-cement Cladding |
| 2.1 Fiber-reinforced Cementitious Wall Panel Non-combustible - White | 4.3 Sloped Glass Entry Canopy |
| 2.2 Fiber-reinforced Cementitious Wall Panel Non-combustible - Charcoal | 5.1 Metal Flashing - Painted |
| 2.3 Fiber-reinforced Cementitious Wall Panel Non-combustible - Wood Tone | 5.2 Metal Garage Door - Painted |
| 2.4 Random Ashlar Granite Cladding | 5.3 Metal Door - Painted |
| 3.1 Aluminum Framed Window System - Double Glazed | 6.1 Privacy Screen, Wood Tone Non-combustible + Glass |
| 3.2 Aluminum Framed Window System - Insulated Spandrel | 6.2 Wood Tone Aluminum Non-combustible Soffit |
| 3.3 Aluminum Framed Window System - Swing Door | 6.3 Wood and Metal Non-combustible Column & Canopy Frames |
| 3.4 Fold-away Glazed Wall System | |



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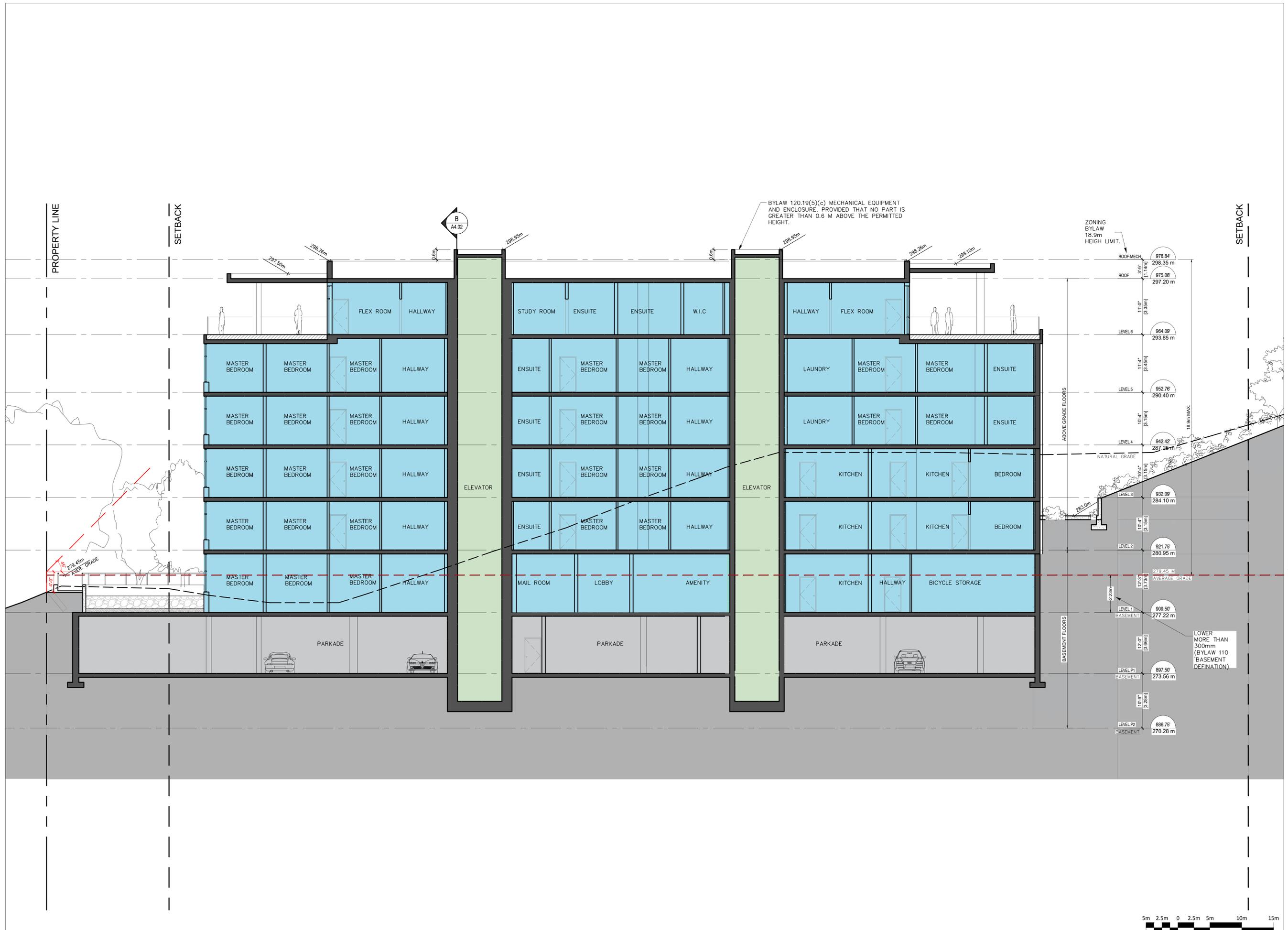
2711 RODGERS
CREEK

2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER

WEST
ELEVATION

Project 2101
Scale

A304



ZONING BYLAW 18.9m HEIGHT LIMIT.

Level	Height (m)	Height (ft)
ROOF-MECH	978.84	3211.44
ROOF	975.08	3198.20
LEVEL 6	964.09	3163.55
LEVEL 5	952.76	3127.40
LEVEL 4	842.42	2779.28
NATURAL GRADE	832.09	2746.10
LEVEL 3	921.75	2993.55
LEVEL 2	921.75	2993.55
AVERAGE GRADE	909.50	2985.00
LEVEL 1 BASEMENT	897.50	2946.00
LEVEL P1 BASEMENT	887.50	2914.00
LEVEL P2 BASEMENT	886.75	2912.00

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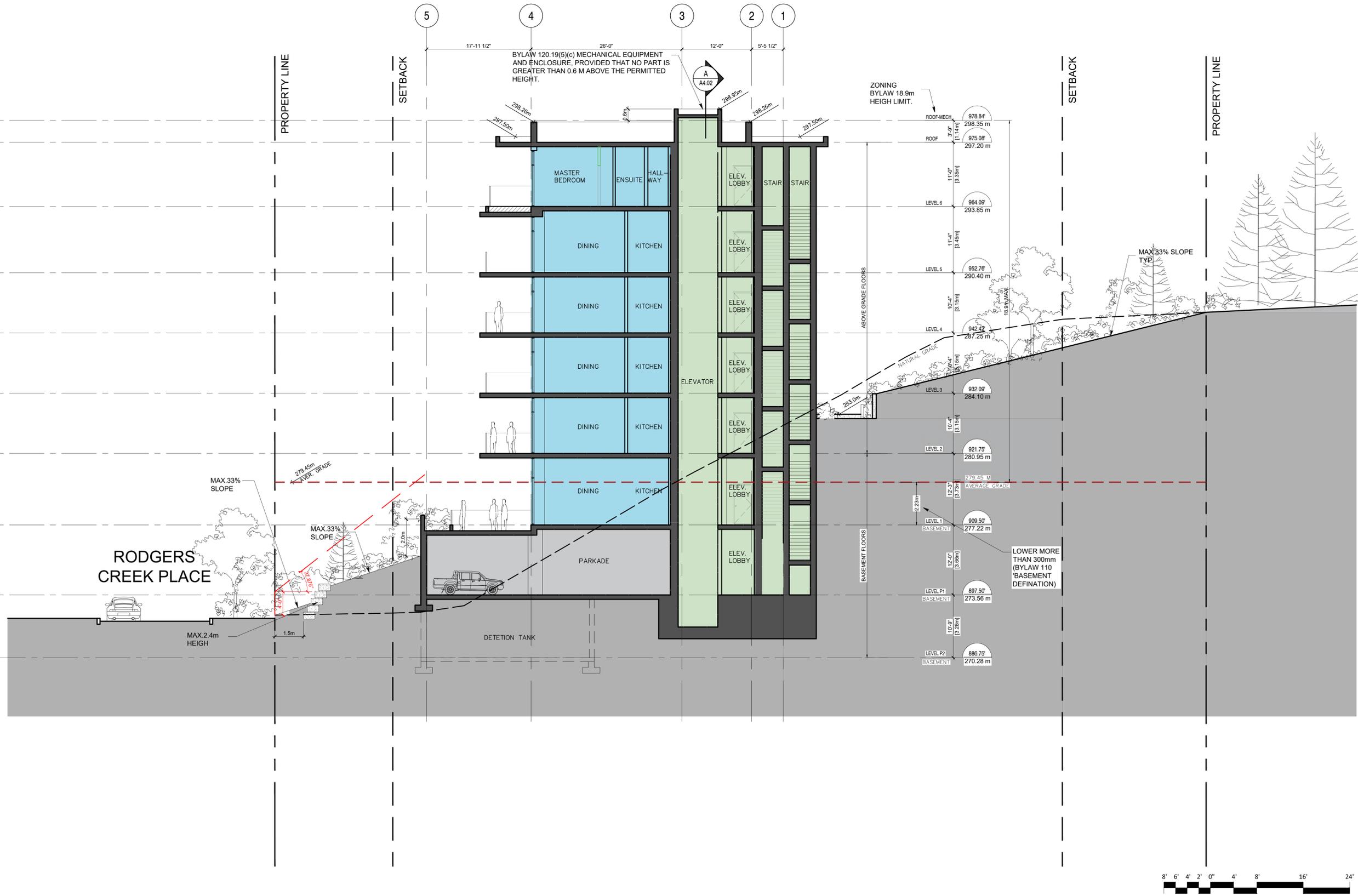
2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

SECTION A

Project 202101
Scale 1 : 250



A401



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2711 RODGERS CREEK

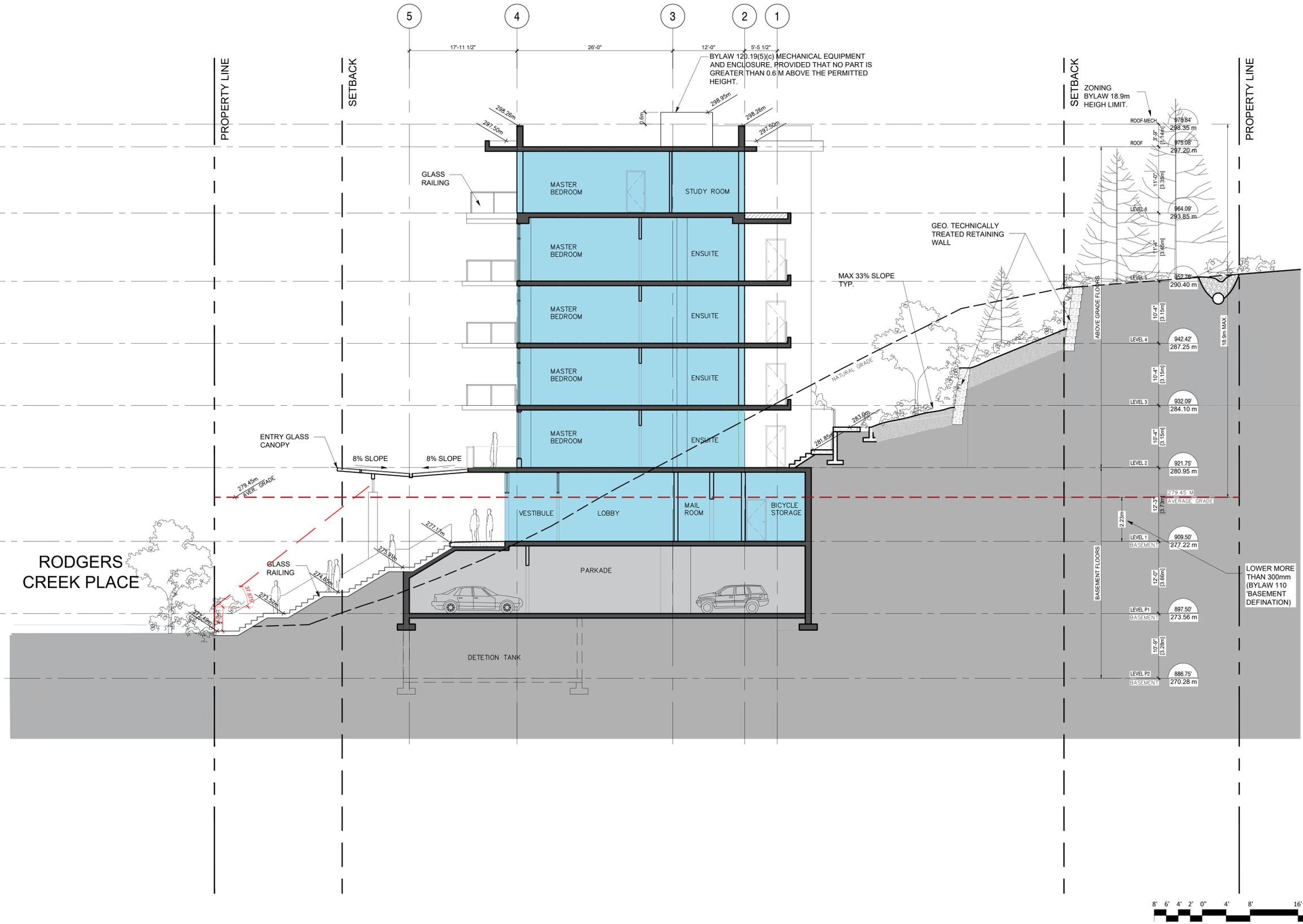
2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

SECTION B

Project 202101
Scale 1/8" = 1'-0"



A402



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2711 RODGERS CREEK

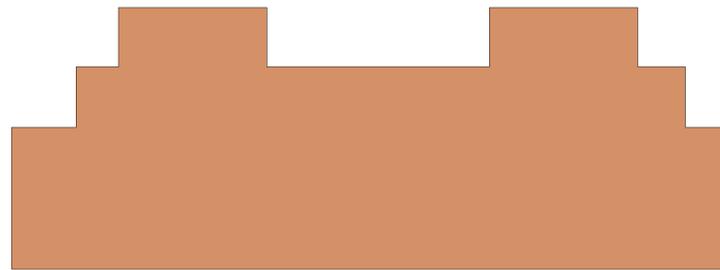
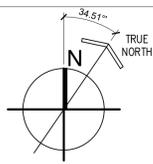
2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

SECTION C

Project 202101
Scale 1/8" = 1'-0"

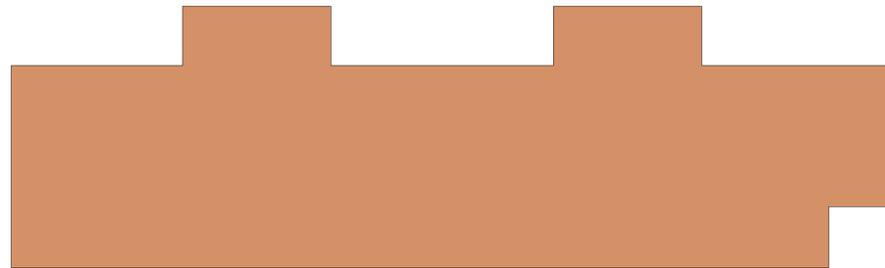
A403

LEVEL	P2 (BASEMENT)	P1 (BASEMENT)	LEVEL1 (BASEMENT)	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	TOTAL
FAR			3771 SF / 350 SM	6894 SF / 640 SM	6894 SF / 640 SM	6785 SF / 630 SM	6785 SF / 630 SM	5508 SF / 512 SM	36637 SF / 3403 SM
EXCLUDED	1681 SF / 156 SM	13124 SF / 1219 SM	3851 SF / 358 SM						18656 SF / 1733 SM



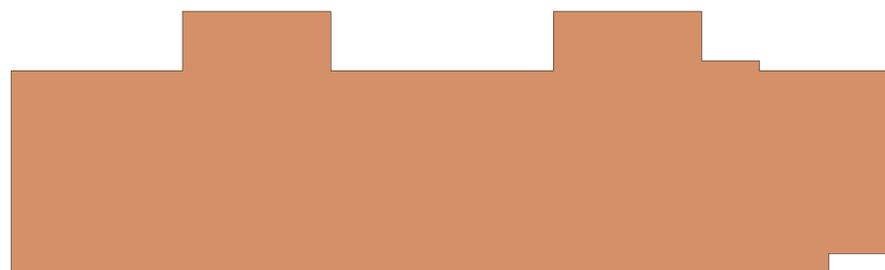
LEVEL 6 FLOOR PLAN 5508 SF / 512 SM

RESIDENTIAL : 5508 SF / 512 SM



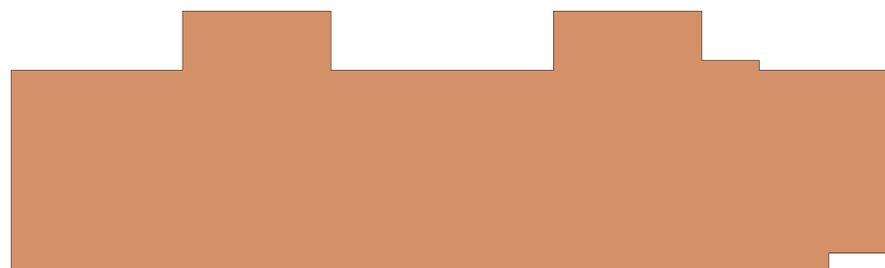
LEVEL 4-5 FLOOR PLAN L5. 6785 SF / 630 SM L4. 6785 SF / 630 SM

RESIDENTIAL : L5. 6785 SF / 630 SM L4. 6785 SF / 630 SM



LEVEL 3 FLOOR PLAN 6894 SF / 640 SM

RESIDENTIAL : 6894 SF / 640 SM



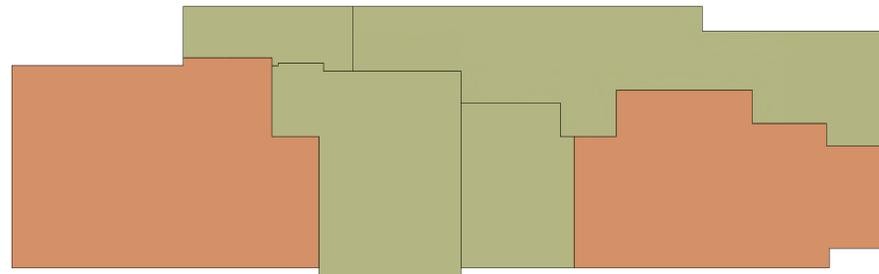
LEVEL 2 FLOOR PLAN 6894 SF / 640 SM

RESIDENTIAL : 6894 SF / 640 SM

ELEVATION DATUM

120.21.(2) Floor area shall not include (Bylaw #4974):

- (d) one entrance lobby per building provided that it is exclusively for residential use;
- (e) common recreation rooms and swimming pools;
- (f) common floor area in a basement or sub-basement for the following uses:
 - (i) hallways, elevator shafts and stairwells;
 - (ii) boiler rooms, mechanical rooms, electrical rooms, transformer vaults, garbage rooms and building maintenance rooms;
 - (iii) laundries, workshops, lockers and storage spaces;
 - (g) bicycle parking, parking and loading areas. (Bylaw #5055)



LEVEL 1 FLOOR PLAN (BASEMENT) 3771 SF / 350 SM

RESIDENTIAL : 3771 SF / 350 SM SERVICES & STORAGE : 3851 SF / 358 SM (EXCLUDED FROM FAR)



P1 FLOOR PLAN (BASEMENT)

SERVICES & PARKING : 13124 SF / 1219 SM (EXCLUDED FROM FAR)

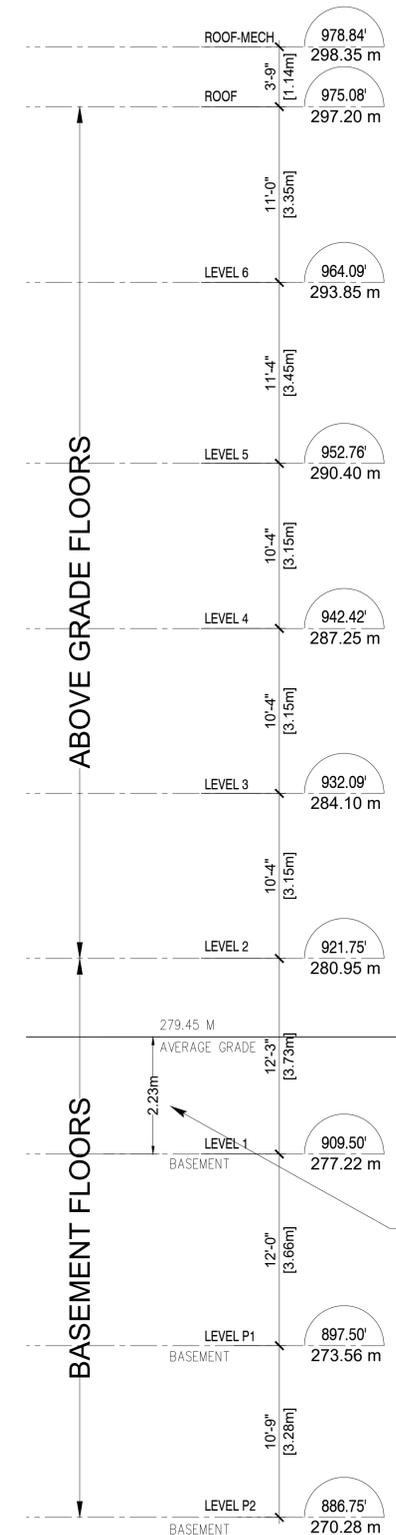


P2 FLOOR PLAN (BASEMENT)

SERVICES : 1681 SF / 156 SM (EXCLUDED FROM FAR)

BYLAW 110 Definitions BASEMENT :

a storey, the floor of which is more than 0.3 metre below the lower of average natural grade elevation or average finished grade elevation.



LOWER MORE THAN 300mm (BYLAW 110 'BASEMENT DEFINATION')

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2711 RODGERS CREEK

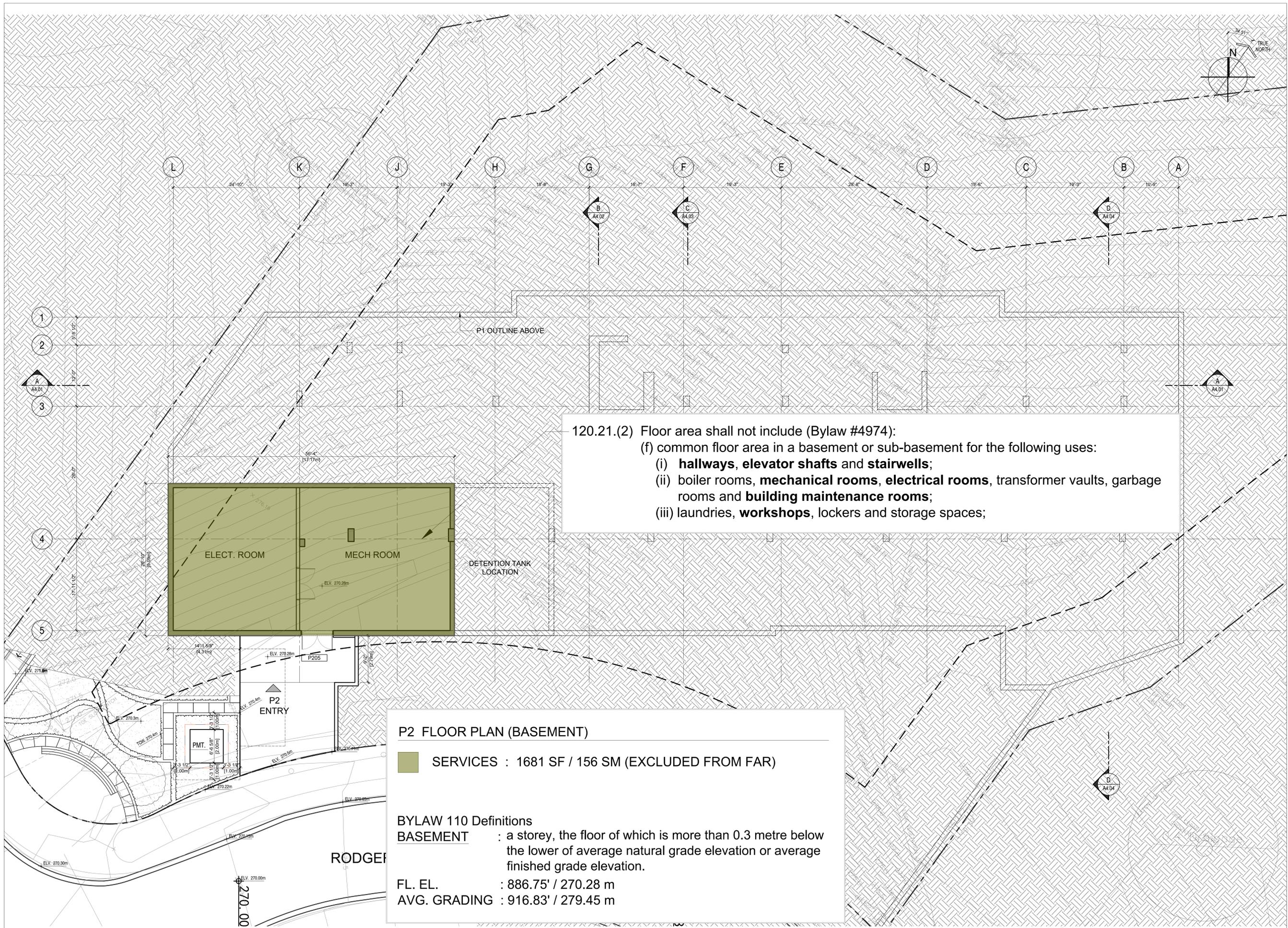
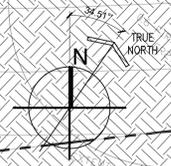
2711 RODGERS CREEK LOT 1 AREA 3 WEST VANCOUVER, BC

FAR OVERLAYS OVERALL

Project 202101

Scale

FAR 200



120.21.(2) Floor area shall not include (Bylaw #4974):
 (f) common floor area in a basement or sub-basement for the following uses:
 (i) **hallways, elevator shafts and stairwells;**
 (ii) boiler rooms, **mechanical rooms, electrical rooms,** transformer vaults, garbage rooms and **building maintenance rooms;**
 (iii) laundries, **workshops,** lockers and storage spaces;

P2 FLOOR PLAN (BASEMENT)

■ SERVICES : 1681 SF / 156 SM (EXCLUDED FROM FAR)

BYLAW 110 Definitions
BASEMENT : a storey, the floor of which is more than 0.3 metre below the lower of average natural grade elevation or average finished grade elevation.

FL. EL. : 886.75' / 270.28 m
 AVG. GRADING : 916.83' / 279.45 m

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2711 RODGERS CREEK

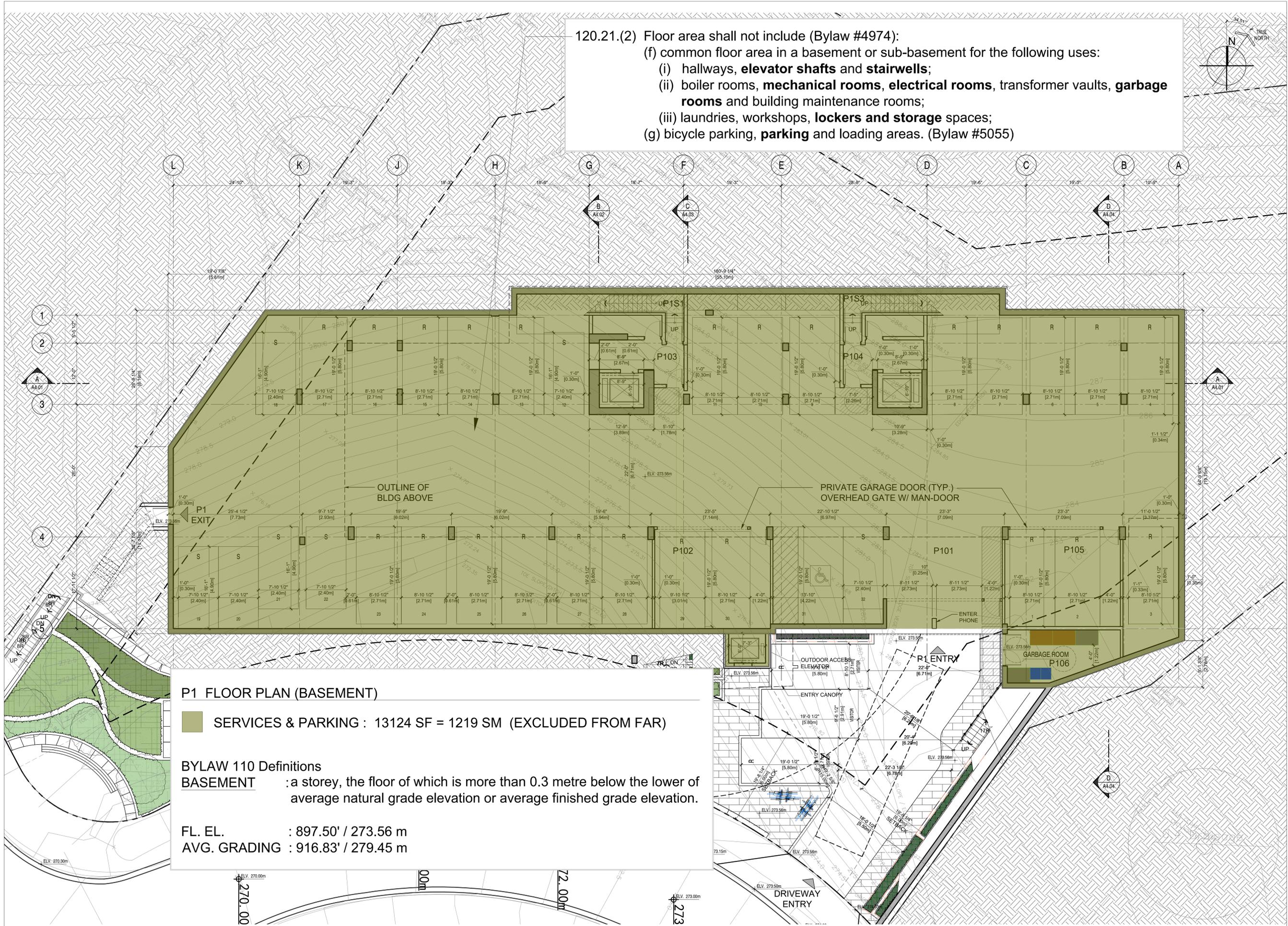
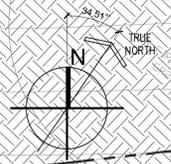
2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

FAR OVERLAY
LEVEL P2 PLAN

Project 202101
Scale 1/8" = 1'-0"

FAR 201

120.21.(2) Floor area shall not include (Bylaw #4974):
 (f) common floor area in a basement or sub-basement for the following uses:
 (i) hallways, **elevator shafts** and **stairwells**;
 (ii) boiler rooms, **mechanical rooms**, **electrical rooms**, transformer vaults, **garbage rooms** and building maintenance rooms;
 (iii) laundries, workshops, **lockers and storage spaces**;
 (g) bicycle parking, **parking** and loading areas. (Bylaw #5055)



P1 FLOOR PLAN (BASEMENT)

SERVICES & PARKING : 13124 SF = 1219 SM (EXCLUDED FROM FAR)

BYLAW 110 Definitions
BASEMENT : a storey, the floor of which is more than 0.3 metre below the lower of average natural grade elevation or average finished grade elevation.

FL. EL. : 897.50' / 273.56 m
AVG. GRADING : 916.83' / 279.45 m

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2711 RODGERS CREEK

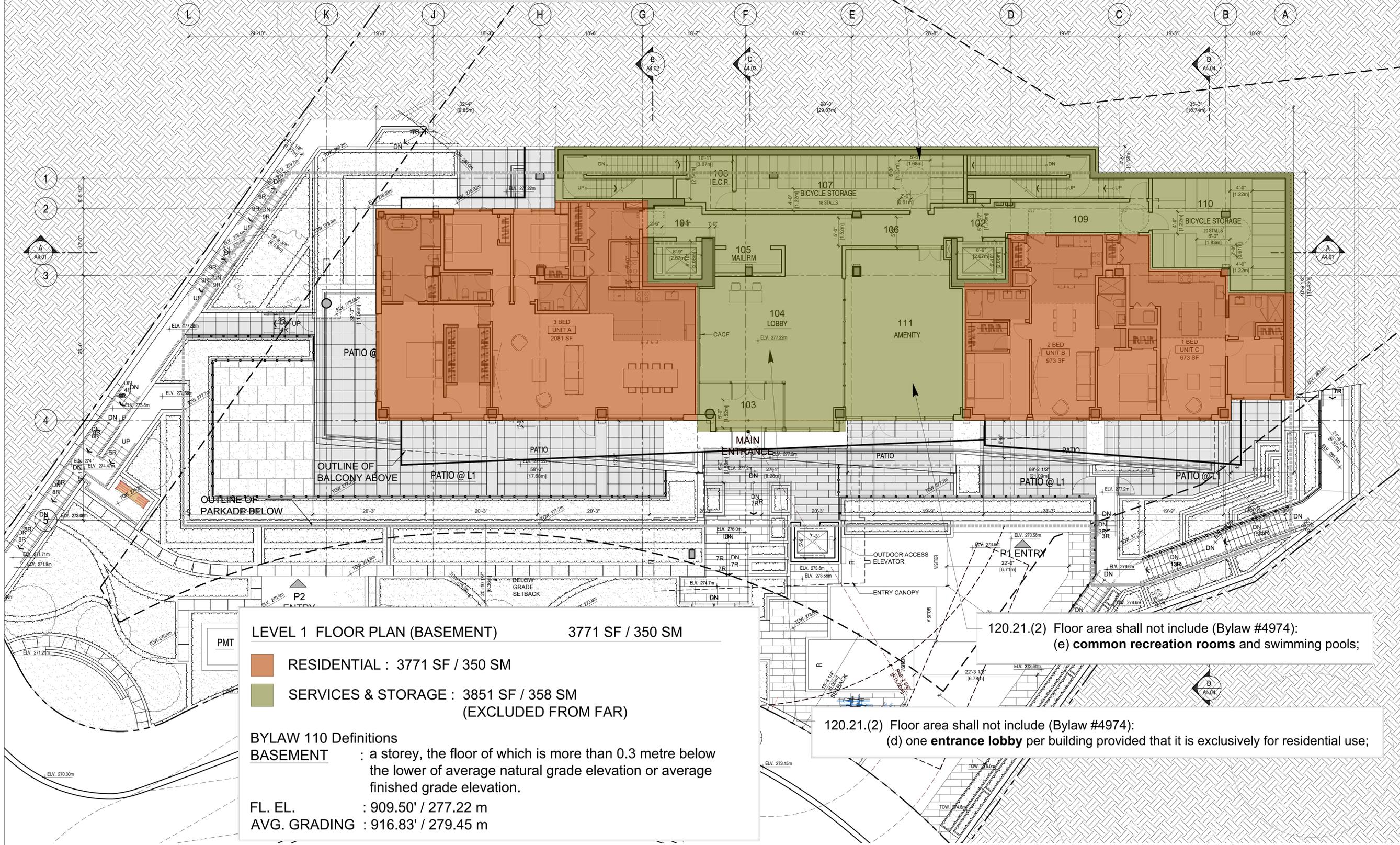
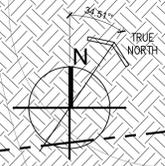
2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

**FAR OVERLAY
LEVEL P1 PLAN**

Project 202101
Scale 1/8" = 1'-0"

FAR 202

120.21.(2) Floor area shall not include (Bylaw #4974):
 (f) common floor area in a basement or sub-basement for the following uses:
 (i) **hallways, elevator shafts and stairwells;**
 (ii) boiler rooms, **mechanical rooms, electrical rooms**, transformer vaults, garbage rooms and building maintenance rooms;
 (iii) laundries, workshops, **lockers and storage spaces;**
 (g) **bicycle parking**, parking and loading areas. (Bylaw #5055)



LEVEL 1 FLOOR PLAN (BASEMENT) 3771 SF / 350 SM

- RESIDENTIAL : 3771 SF / 350 SM**
- SERVICES & STORAGE : 3851 SF / 358 SM (EXCLUDED FROM FAR)**

BYLAW 110 Definitions
BASEMENT : a storey, the floor of which is more than 0.3 metre below the lower of average natural grade elevation or average finished grade elevation.
FL. EL. : 909.50' / 277.22 m
AVG. GRADING : 916.83' / 279.45 m

120.21.(2) Floor area shall not include (Bylaw #4974):
 (e) **common recreation rooms and swimming pools;**

120.21.(2) Floor area shall not include (Bylaw #4974):
 (d) one **entrance lobby** per building provided that it is exclusively for residential use;

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2711 RODGERS CREEK

2711 RODGERS CREEK LOT 1 AREA 3 WEST VANCOUVER, BC

FAR OVERLAY LEVEL 1 PLAN

Project 202101
 Scale 1/8" = 1'-0"

FAR 203



LEVEL 2 FLOOR PLAN 6894 SF / 640 SM

RESIDENTIAL : 6894 SF / 640 SM

FL. EL. : 921.75' / 280.95 m
 AVG. GRADING : 916.83' / 279.45 m

2022-11-08 Issued for DP 21-172

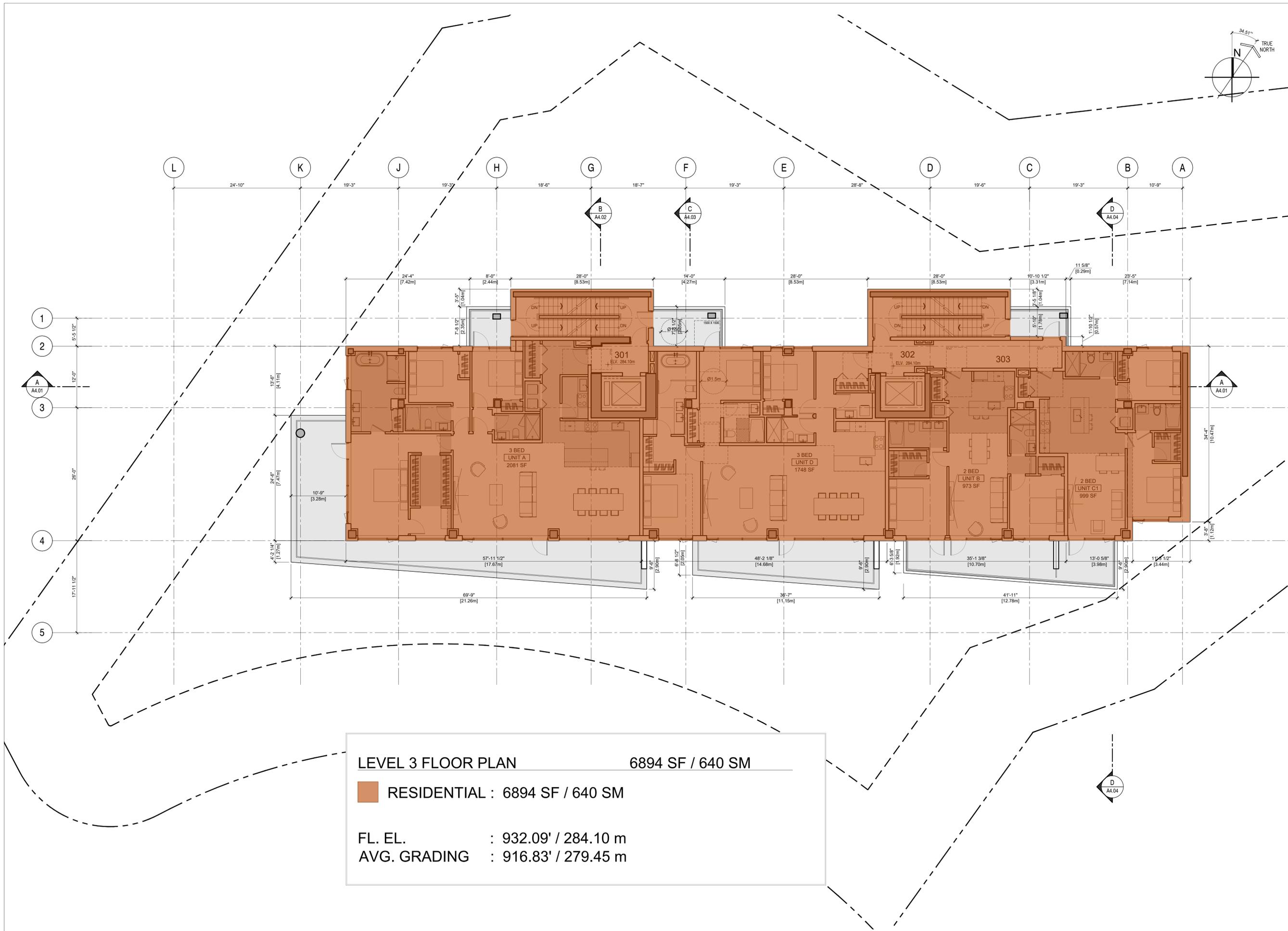
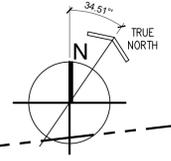
2711 RODGERS CREEK

2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

**FAR OVERLAY
LEVEL 2 PLAN**

Project 202101
Scale 1/8" = 1'-0"

FAR 204



LEVEL 3 FLOOR PLAN 6894 SF / 640 SM

RESIDENTIAL : 6894 SF / 640 SM

FL. EL. : 932.09' / 284.10 m
 AVG. GRADING : 916.83' / 279.45 m

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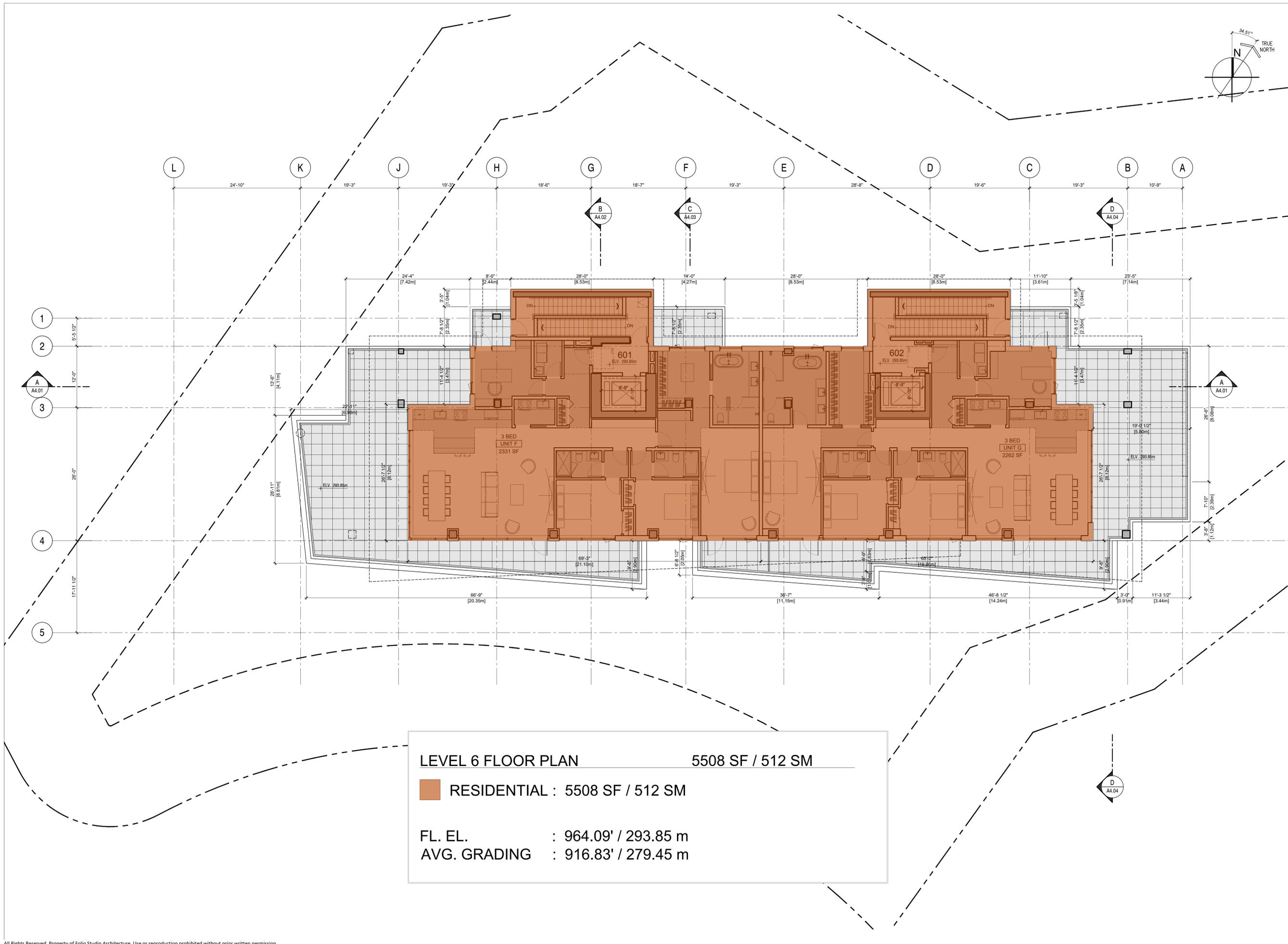
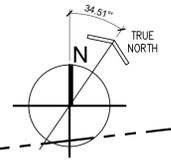
2711 RODGERS CREEK

2711 RODGERS CREEK LOT 1 AREA 3 WEST VANCOUVER, BC

FAR OVERLAY LEVEL 3 PLAN

Project 202101
 Scale 1/8" = 1'-0"

FAR 205



LEVEL 6 FLOOR PLAN 5508 SF / 512 SM

RESIDENTIAL : 5508 SF / 512 SM

FL. EL. : 964.09' / 293.85 m
 AVG. GRADING : 916.83' / 279.45 m

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2711 RODGERS CREEK

2711 RODGERS CREEK
LOT 1 AREA 3
WEST VANCOUVER, BC

**FAR OVERLAY
LEVEL 6 PLAN**

Project 202101
1/8" = 1'-0"

FAR207